



# Full wwPDB X-ray Structure Validation Report

Feb 28, 2014 – 04:36 PM GMT

PDB ID : 2B9N  
Title : 50S ribosomal subunit from a crystal structure of release factor RF2, tRNAs and mRNA bound to the ribosome. This file contains the 50S subunit from a crystal structure of release factor RF1, tRNAs and mRNA bound to the ribosome and is described in remark 400.  
Authors : Petry, S.; Brodersen, D.E.; Murphy IV, F.V.; Dunham, C.M.; Selmer, M.; Tarry, M.J.; Kelley, A.C.; Ramakrishnan, V.  
Deposited on : 2005-10-12  
Resolution : 6.76 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.  
We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)  
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

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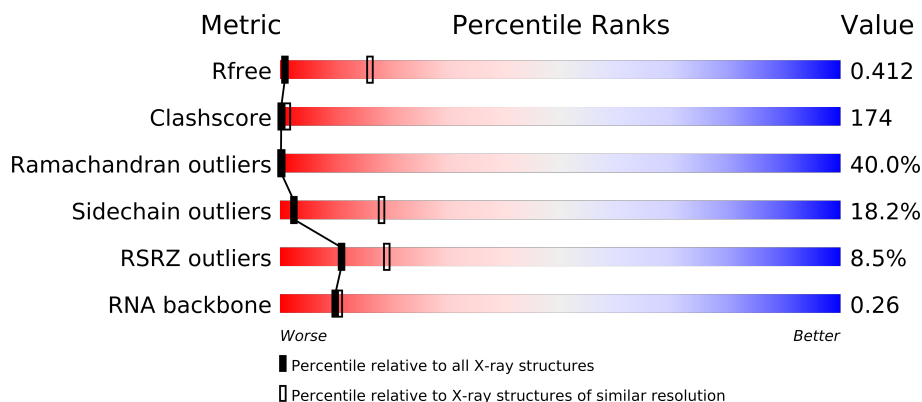
The following versions of software and data (see [references](#)) were used in the production of this report:

|                                |   |                          |
|--------------------------------|---|--------------------------|
| MolProbity                     | : | 4.02b-467                |
| Mogul                          | : | 1.15 2013                |
| Xtriage (Phenix)               | : | dev-1323                 |
| EDS                            | : | stable22639              |
| Percentile statistics          | : | 21963                    |
| Refmac                         | : | 5.8.0049                 |
| CCP4                           | : | 6.3.0 (Settle)           |
| Ideal geometry (proteins)      | : | Engh & Huber (2001)      |
| Ideal geometry (DNA, RNA)      | : | Parkinson et. al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | stable22683              |

# 1 Overall quality at a glance

The reported resolution of this entry is 6.76 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 66092                       | 1098 (10.00-3.50)                                     |
| Clashscore            | 79885                       | 1039 (10.00-3.52)                                     |
| Ramachandran outliers | 78287                       | 1291 (9.50-3.50)                                      |
| Sidechain outliers    | 78261                       | 1265 (9.50-3.50)                                      |
| RSRZ outliers         | 66119                       | 1097 (10.00-3.50)                                     |
| RNA backbone          | 1838                        | 1045 (10.00-2.80)                                     |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | B     | 123    |                  |
| 2   | A     | 2916   |                  |
| 3   | D     | 173    |                  |
| 4   | E     | 338    |                  |
| 5   | F     | 246    |                  |
| 6   | G     | 176    |                  |
| 7   | H     | 177    |                  |
| 8   | I     | 149    |                  |
| 9   | N     | 145    |                  |
| 10  | O     | 122    |                  |
| 11  | P     | 164    |                  |
| 12  | Q     | 138    |                  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 13  | S     | 186    |                  |
| 14  | T     | 66     |                  |
| 15  | W     | 113    |                  |
| 16  | X     | 84     |                  |
| 17  | Y     | 119    |                  |
| 18  | Z     | 253    |                  |
| 19  | R     | 118    |                  |
| 20  | U     | 118    |                  |
| 21  | V     | 100    |                  |
| 22  | 2     | 70     |                  |
| 23  | 3     | 60     |                  |
| 24  | 0     | 91     |                  |
| 25  | 4     | 73     |                  |
| 26  | 5     | 60     |                  |
| 27  | 6     | 82     |                  |
| 28  | 7     | 47     |                  |
| 29  | 8     | 64     |                  |
| 30  | 9     | 36     |                  |
| 31  | K     | 141    |                  |

## 2 Entry composition

There are 31 unique types of molecules in this entry. The entry contains 87268 atoms, of which 0 are hydrogen and 0 are deuterium.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms |      |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|---------|-------|
| 1   | B     | 123      | Total | C    | N   | O   | P   | 0       | 0       | 0     |
|     |       |          | 2637  | 1175 | 488 | 852 | 122 |         |         |       |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment   | Reference |
|-------|---------|----------|--------|-----------|-----------|
| B     | -1      | A        | -      | INSERTION | GB 48271  |

- Molecule 2 is a RNA chain called 23S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|---------|-------|
| 2   | A     | 2814     | Total | C     | N     | O     | P    | 0       | 0       | 0     |
|     |       |          | 60599 | 26974 | 11331 | 19482 | 2812 |         |         |       |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment   | Reference |
|-------|---------|----------|--------|-----------|-----------|
| A     | 493     | G        | -      | INSERTION | GB 48268  |

- Molecule 3 is a protein called 50S ribosomal protein L2.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 3   | D     | 173      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1308  | 820 | 246 | 236 | 6 |         |         |       |

- Molecule 4 is a protein called 50S ribosomal protein L3.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 4   | E     | 191      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1507  | 940 | 290 | 273 | 4 |         |         |       |

- Molecule 5 is a protein called 50S ribosomal protein L4.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 5   | F     | 189      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1430  | 872 | 255 | 302 | 1 |         |         |       |

- Molecule 6 is a protein called 50S ribosomal protein L5.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 6   | G     | 122      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 957   | 597 | 176 | 180 | 4 |         |         |       |

- Molecule 7 is a protein called 50S ribosomal protein L6.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 7   | H     | 164      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1251  | 787 | 225 | 237 | 2 |         |         |       |

- Molecule 8 is a protein called 50S ribosomal protein L9.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 8   | I     | 148      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1145  | 727 | 205 | 212 | 1 |         |         |       |

- Molecule 9 is a protein called 50S ribosomal protein L13.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 9   | N     | 117      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 917   | 570 | 164 | 180 | 3 |         |         |       |

- Molecule 10 is a protein called 50S ribosomal protein L14.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 10  | O     | 122      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 937   | 585 | 180 | 169 | 3 |         |         |       |

- Molecule 11 is a protein called 50S ribosomal protein L15.

| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 11  | P     | 84       | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 639   | 391 | 109 | 139 |         |         |       |

- Molecule 12 is a protein called 50S ribosomal protein L16.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 12  | Q     | 138      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1081  | 678 | 208 | 192 | 3 |         |         |       |

- Molecule 13 is a protein called 50S ribosomal protein L18.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 13  | S     | 113      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 866   | 536 | 165 | 164 | 1 |         |         |       |

- Molecule 14 is a protein called 50S ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 14  | T     | 52       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 406   | 242 | 74 | 85 | 5 |         |         |       |

- Molecule 15 is a protein called 50S ribosomal protein L22.

| Mol | Chain | Residues | Atoms |     |     |     |  | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|---------|-------|
| 15  | W     | 108      | Total | C   | N   | O   |  | 0       | 0       | 0     |
|     |       |          | 860   | 542 | 169 | 149 |  |         |         |       |

- Molecule 16 is a protein called 50S ribosomal protein L23.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 16  | X     | 76       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 602   | 366 | 102 | 131 | 3 |         |         |       |

- Molecule 17 is a protein called 50S ribosomal protein 24.

| Mol | Chain | Residues | Atoms |     |     |     |  | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|---------|-------|
| 17  | Y     | 110      | Total | C   | N   | O   |  | 0       | 0       | 0     |
|     |       |          | 879   | 531 | 166 | 182 |  |         |         |       |

- Molecule 18 is a protein called 50S ribosomal protein CTC.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 18  | Z     | 177      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1360  | 859 | 238 | 257 | 6 |         |         |       |

- Molecule 19 is a protein called 50S ribosomal protein L17.

| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 19  | R     | 105      | Total | C   | N   | O   |         |         |       |
|     |       |          | 855   | 536 | 174 | 145 | 0       | 0       | 0     |

- Molecule 20 is a protein called 50S ribosomal protein L20.

| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 20  | U     | 117      | Total | C   | N   | O   | S       |         |       |
|     |       |          | 978   | 608 | 210 | 159 | 1       | 0       | 0     |

- Molecule 21 is a protein called 50S ribosomal protein L21.

| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 21  | V     | 100      | Total | C   | N   | O   | S       |         |       |
|     |       |          | 787   | 495 | 146 | 145 | 1       | 0       | 0     |

- Molecule 22 is a protein called 50S ribosomal protein L29.

| Mol | Chain | Residues | Atoms |     |    |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|---------|-------|
| 22  | 2     | 64       | Total | C   | N  | O  | S       |         |       |
|     |       |          | 494   | 301 | 93 | 99 | 1       | 0       | 0     |

- Molecule 23 is a protein called 50S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |    |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|---------|-------|
| 23  | 3     | 60       | Total | C   | N  | O  | S       |         |       |
|     |       |          | 477   | 303 | 91 | 82 | 1       | 0       | 0     |

- Molecule 24 is a protein called 50S ribosomal protein L27.

| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 24  | 0     | 86       | Total | C   | N   | O   | S       |         |       |
|     |       |          | 641   | 402 | 124 | 114 | 1       | 0       | 0     |

- Molecule 25 is a protein called 50S ribosomal protein L31.

| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 25  | 4     | 73       | Total | C   | N   | O   | S       |         |       |
|     |       |          | 604   | 382 | 110 | 108 | 4       | 0       | 0     |

- Molecule 26 is a protein called 50S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 26  | 5     | 58       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 457   | 281 | 94 | 77 | 5 |         |         |       |

- Molecule 27 is a protein called 50S ribosomal protein L33.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 27  | 6     | 53       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 431   | 274 | 80 | 76 | 1 |         |         |       |

- Molecule 28 is a protein called 50S ribosomal protein L34.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 28  | 7     | 46       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 383   | 230 | 91 | 60 | 2 |         |         |       |

- Molecule 29 is a protein called 50S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |     |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 29  | 8     | 63       | Total | C   | N   | O  | S | 0       | 0       | 0     |
|     |       |          | 496   | 312 | 101 | 78 | 5 |         |         |       |

- Molecule 30 is a protein called 50S ribosomal protein L36.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 30  | 9     | 35       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 285   | 172 | 64 | 45 | 4 |         |         |       |

- Molecule 31 is a protein called 50S ribosomal protein L11.

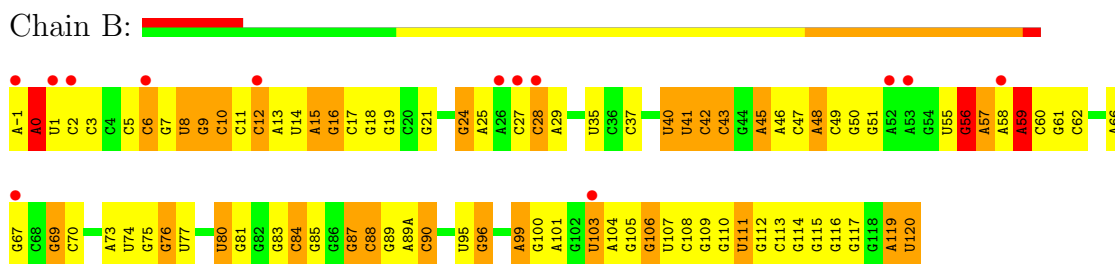
| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 31  | K     | 133      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 999   | 642 | 169 | 182 | 6 |         |         |       |



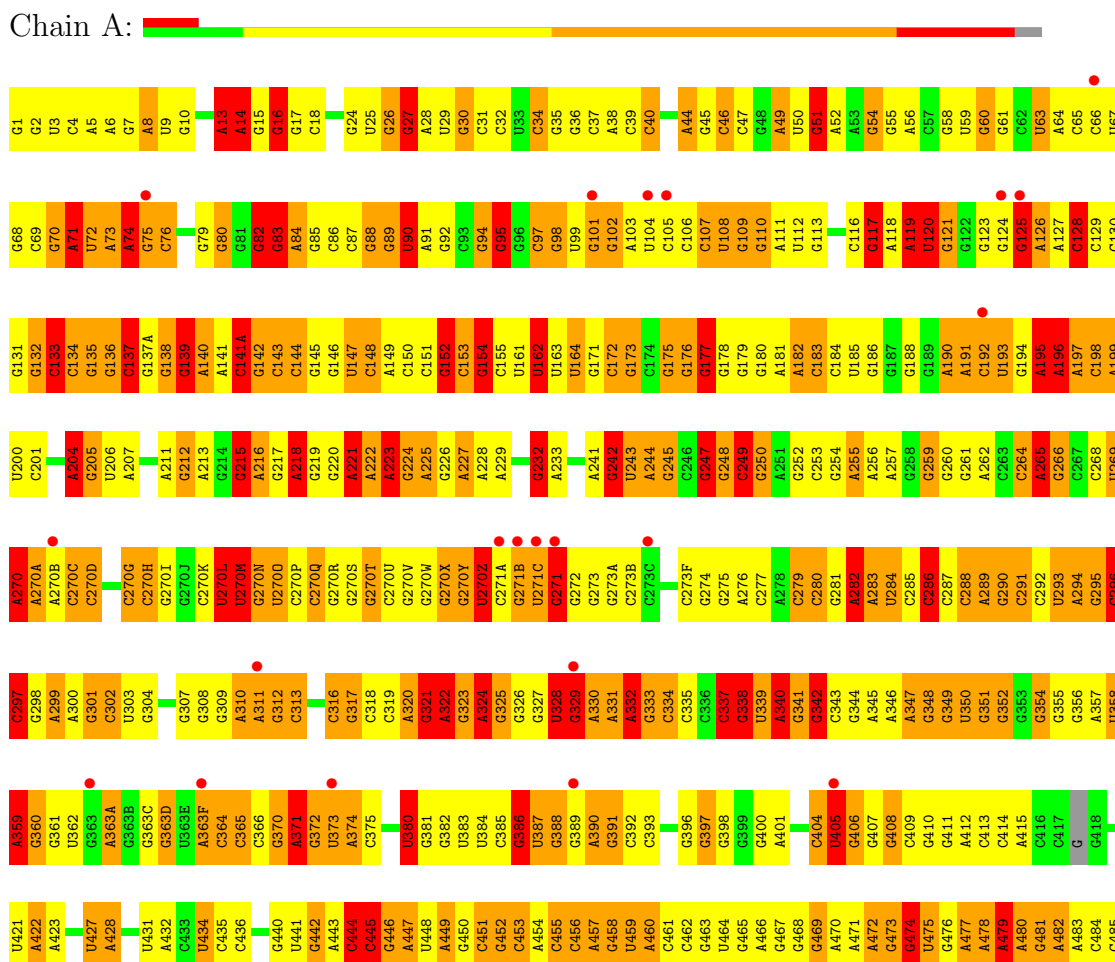
### 3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

#### • Molecule 1: 5S ribosomal RNA



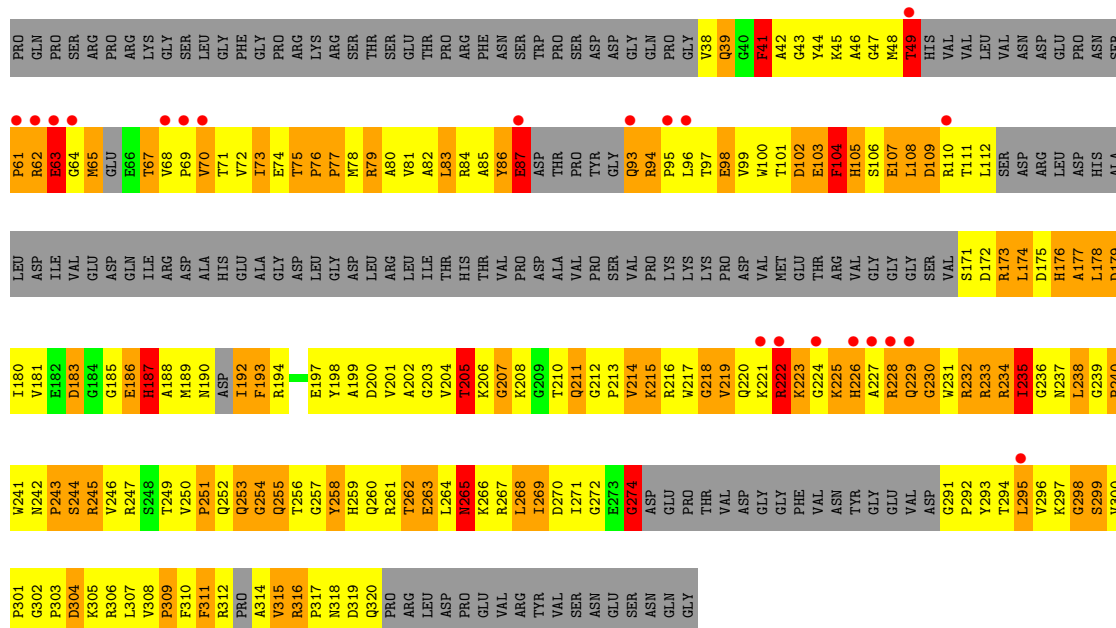
#### • Molecule 2: 23S ribosomal RNA



|       |       |       |       |       |       |      |      |      |      |      |       |      |
|-------|-------|-------|-------|-------|-------|------|------|------|------|------|-------|------|
| C1295 | G1228 | U1165 | U1101 | U1033 | C971  | U905 | C838 | A777 | G713 | C650 | U613  | C486 |
| G1296 | C1229 | C1166 | C1102 | G1034 | G972  | G906 | U839 | G778 | U714 | G651 | U614  | C487 |
| C1297 | C1230 | U1167 | A1103 | C1039 | A973  | U907 | C840 | G779 | U715 | G615 | G615  | G488 |
| C1298 |       | G1168 | C1104 | G1040 | G974  | C908 | G845 | G780 | A716 | A653 | A616  | G489 |
| C1299 | U1234 | G1169 | U1105 | C1049 | C974A | A909 | G846 | A781 | G717 | G654 | G617  | G491 |
| U1300 | G1235 | G1170 | G1106 | C1041 | G975  | A910 | C946 | A782 | A718 | A655 | G618  | A492 |
| A1301 | G1236 | G1171 | G1107 |       | G976  | A911 | U847 | A783 | C719 | G656 | C618A | G493 |
| A1302 | A1237 | G1172 | U1108 | G1044 | G977  | C912 | G848 | A784 | G720 | G657 | G619  | G494 |
| G1303 | G1238 | A1174 | C1109 | A1045 | G978  | U913 | A849 | G785 | C721 | U562 | G620  | G495 |
| A1304 | G1239 | U1175 | G1110 | A1046 | G979  | C914 | C850 | G786 | A722 | C659 | A621  | G496 |
| C1305 | U1240 | G1176 | A1111 |       | A980  | C915 | U851 | U787 | G723 | G660 | G622  | A497 |
| G1369 | A1241 | A1177 | G1112 | C1049 | A981  | C916 | G852 | A788 | U724 | G661 | G623  | G498 |
| A1307 | A1242 | C1178 | U1113 | A1050 | C982  | G917 | G853 | A789 | G725 | G662 | G624  | U499 |
| G1308 | G1243 | C1179 | G1114 | G1051 | A983  | A918 | G854 | A784 | C726 | G663 | G625  | G500 |
| U1309 | G1244 | C1180 | G1115 |       | A984  | C919 | G855 | C791 | A727 | C664 | U626  | A501 |
| G1310 | G1245 | C1181 | C1116 | A1054 | C985  | G920 | C856 | G792 | G728 | G665 | A627  | A502 |
| G1311 | A1246 | A1182 | G1117 | G1055 | C986  |      | C957 | A793 | G729 | G666 | G628  | A503 |
| U1312 | A1247 | G1183 | C1118 | G1056 | G987  | C923 | U858 | G794 | C730 | U667 | G629  | U504 |
| U1313 | G1248 | C1194 | C1119 | A1057 | A988  |      | G859 | C795 | C731 | G668 | G630  | A505 |
| C1314 | U1249 | G1185 | U1058 | G1058 | G989  | C928 | U860 | C796 | G732 | G669 | A631  | G506 |
| C1315 | G1250 | G1186 | G1059 | A990  | A990  | G929 | C861 | C797 | A794 | A670 | A632  | A507 |
| A1379 | C1251 | U1187 | U1060 | G1061 | C991  | U930 | G862 | G798 | G733 | C671 | A633  | G508 |
| C1316 | G1252 | G1188 | C1124 | U1061 | C992  | G931 | A863 | G799 | A735 | C672 | C634  | C509 |
| A1317 | G1253 | A1189 | G1125 | G1062 | C993  | G932 | G864 | A800 | C736 | C673 | C635  | C510 |
| C1318 | A1253 | U1190 | A1126 | G1063 | C994  | A933 | C865 | G801 | G737 | G674 | G636  | U511 |
| G1319 | U1254 | G1190 | C1127 | C1064 | A995  | G934 | A866 | A802 | G739 | A675 | G637  | G512 |
| C1320 | G1255 | C1191 | A1128 | U1065 | A996  | C935 | C867 | U803 | G738 | A676 | A638  | A513 |
| A1321 | G1192 | G1192 | U1066 | G1066 | C997  |      | U868 | A804 | U740 | A677 | C640  | A514 |
|       | C1257 |       | U1129 | U1067 | G998  | G938 | A870 | G805 | G741 | C679 | C641  | A515 |
|       | G1195 | C1196 | U1130 | A1067 | C998  | G939 | A871 | C806 | G742 |      | C583  | C516 |
| C1324 | G1258 | C1197 | G1131 | G1068 | U999  | G939 | U871 | U807 | G743 | G680 | G642  | C517 |
| G1325 | G1259 | G1197 | A1132 | A1069 | A1000 | G940 | A872 | G808 |      | G681 | G643  | C518 |
| U1326 | C1260 | U1198 | C1133 | A1070 |       | A941 | G873 | G809 | A746 | G682 | A644  | U519 |
| C1327 | G1261 | C1199 | G1134 | C1071 | G1003 | G942 | G874 | U810 | U747 | C683 | C645  | G520 |
| G1328 | A1262 | U1199 | C1135 | G1072 | U1004 | U943 | G875 | U811 | G748 | G684 | A646  | G521 |
| U1329 | U1263 |       | G1136 | A1073 | C1005 | G944 | C876 | C812 | C749 | A885 | U588  | G522 |
| C1330 | G1264 | C1202 | G1137 | G1074 | C1006 | G945 | C877 | U813 | A750 | G686 | G647  |      |
| A1331 | A1265 | G1203 | G1138 | C1075 | C1007 | G946 | U877 | C814 | A751 | C687 | G648  | U525 |
| U1394 | G1266 | C1204 | U1204 | A1204 | G1008 | G947 | G879 | C815 | A752 | U688 | C     | A526 |
| A1395 | C1267 | U1205 | C1139 | A1076 | A1009 | G948 | G880 | C816 | C753 | G689 | C     | C527 |
| C1333 | G1334 | A1268 | C1140 | C1077 | U1009 | C949 | G881 | C817 |      | U594 | A     | A528 |
| U1397 | A1269 | C1207 | U1141 | U1078 | G1011 | G950 | G882 | C818 | C758 | C691 | C     | A529 |
| A1336 | C1270 | U1208 | U1142 | C1079 | U1012 | G950 | G882 | C819 | G759 | C692 | A     | G530 |
| C1399 | G1271 | G1209 | A1424 | C1080 | C1013 | A953 | C885 | A819 | G760 | C693 | G     | G531 |
| G1400 | A1272 | C1210 | A1143 | U1081 |       | G954 | C886 | A820 | A761 | U596 | C     | A532 |
| G1401 | G1338 | U1212 | C1149 | U1082 | G1017 | C955 | A887 | U821 | U762 | C697 | C     | G533 |
| C1402 | U1273 | C1211 | G1150 | A1083 | C1018 | G956 | C888 | U822 | G763 | G698 | G     | U534 |
| C1403 | A1274 | A1213 | C1151 | U1084 | U1019 | A957 | C889 | G823 | A764 | A699 | C     | C535 |
| U1404 | A1275 | A1214 | G1151 | A1085 | A1020 | U958 | C890 | A824 | G765 | G700 | G     | A536 |
| U1405 | A1276 | C1215 | C1152 | A1086 | A1021 | A959 | A990 | C825 | C766 | G701 | C     |      |
| U1406 | G1277 | G1216 | C1153 | A1087 | U1022 | A960 | C994 | U826 | U767 | G702 | C     | C541 |
| C1407 | A1278 | C1217 | A1154 | U1088 | G1023 | C961 | U895 | U827 | G768 | U703 | C     |      |
| C1408 | G1279 | G1218 | A1155 | A1089 | G1024 | A962 | A896 | A829 | G769 | G704 | A     | C544 |
| A1349 |       | G1219 | C1156 | U1090 | G1025 | U963 | C897 | U828 | G770 | A705 | C     | G545 |
| C1350 | G1283 | A1220 | G1157 | G1093 | U1026 | C964 | C897 | G830 | G771 | U706 | C     | A547 |
| C1351 | A1284 | C1221 | C1158 |       | A1027 | C965 | C898 | G831 | G772 | A707 | G     | G548 |
| U1352 | G1285 | C1222 | U1159 | A1096 | A1028 | C966 | A899 | G832 | C773 | G707 | C     | A549 |
| A1353 | A1286 | C1223 | G1160 | U1097 | G1029 | G967 | A899 | U773 | A774 | G710 | G     | G550 |
| G1354 | G1224 | G1224 | C1161 | A1098 | A1029 | C968 | C902 | C834 |      | G711 | C     | G551 |
| A1355 | A1289 | C1225 | G1162 | U1098 | G1030 | G968 | C903 | U775 | G776 | G712 | C     | G552 |
| C1356 | G1226 | G1226 | C1163 | G1099 | G1031 | U969 | C904 |      |      |      |       |      |
| U1357 | U1294 | A1232 | C1164 | C1209 | A1232 | C970 | C904 | C937 |      |      |       |      |

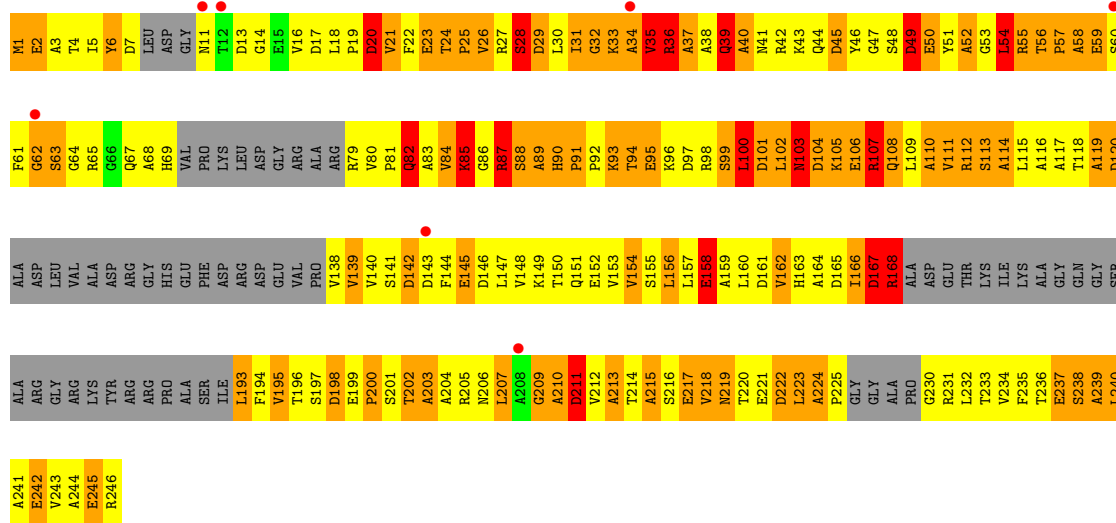






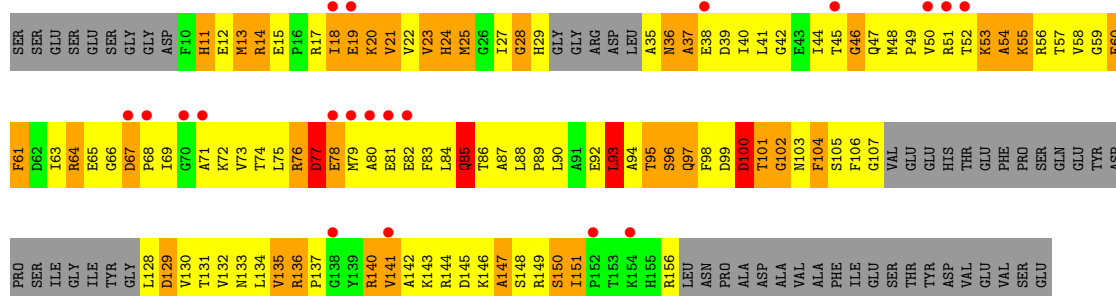
### • Molecule 5: 50S ribosomal protein L4

Chain F:



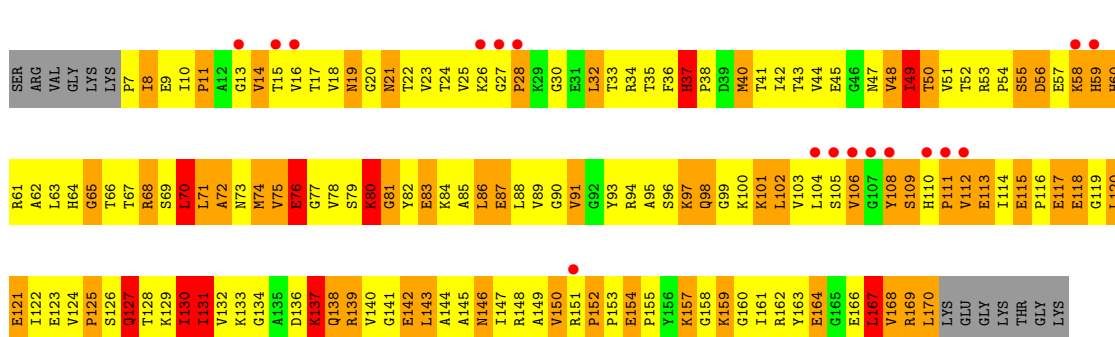
### • Molecule 6: 50S ribosomal protein L5

Chain G:



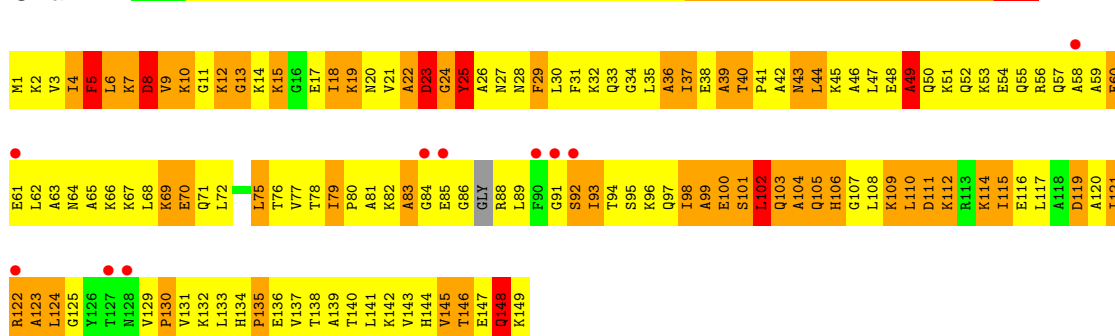
- Molecule 7: 50S ribosomal protein L6

Chain H:



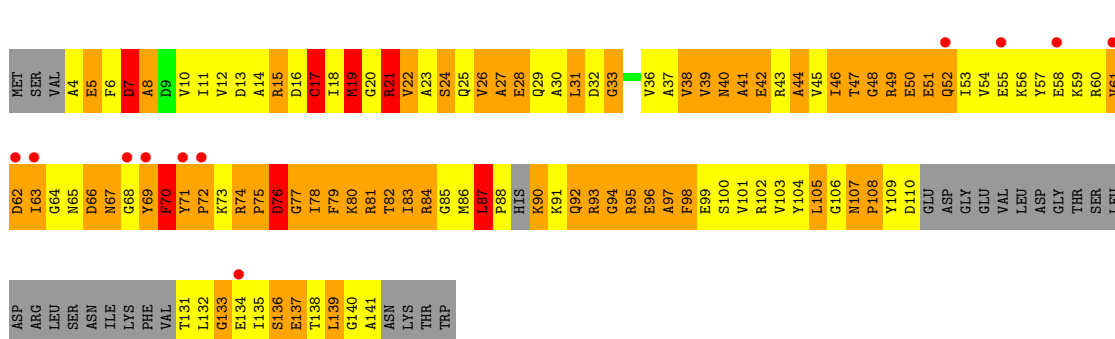
- Molecule 8: 50S ribosomal protein L9

Chain I:



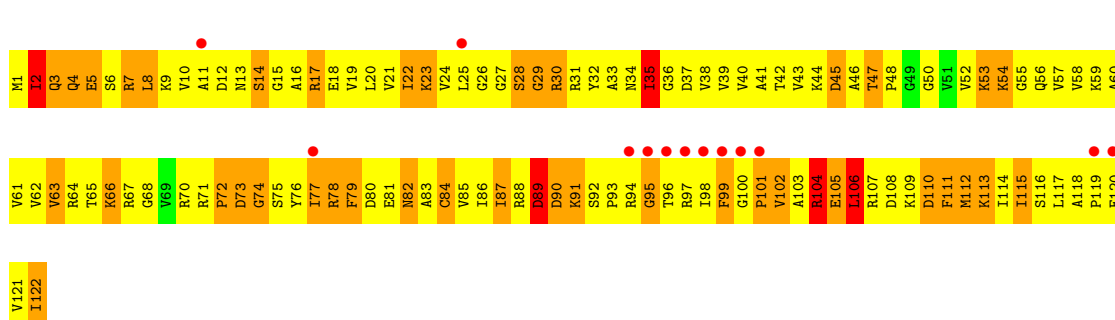
- Molecule 9: 50S ribosomal protein L13

Chain N:



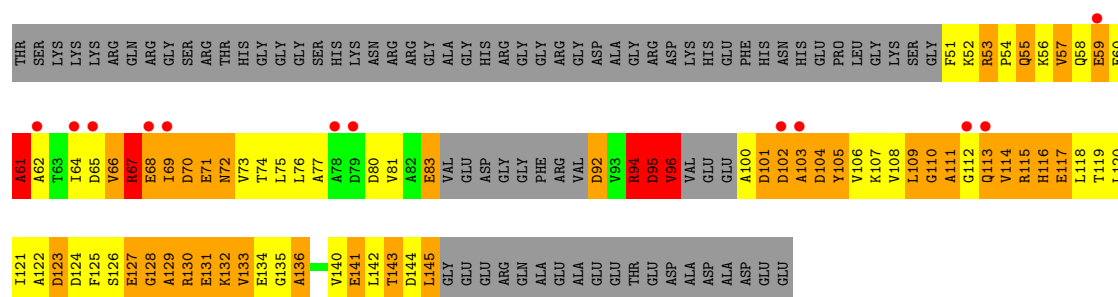
- Molecule 10: 50S ribosomal protein L14

Chain O:



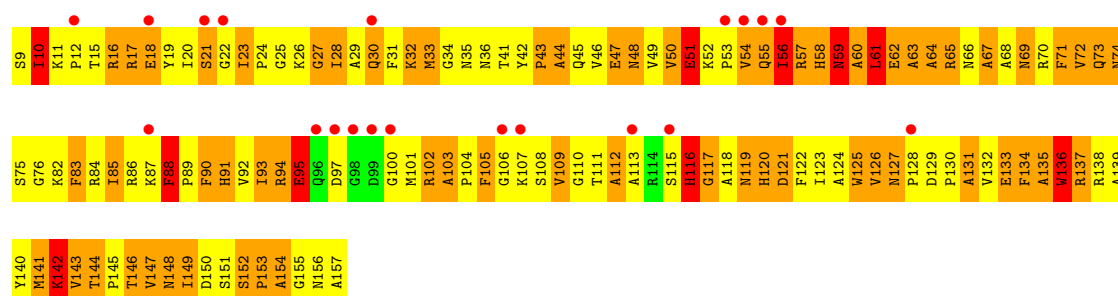
- Molecule 11: 50S ribosomal protein L15

Chain P:



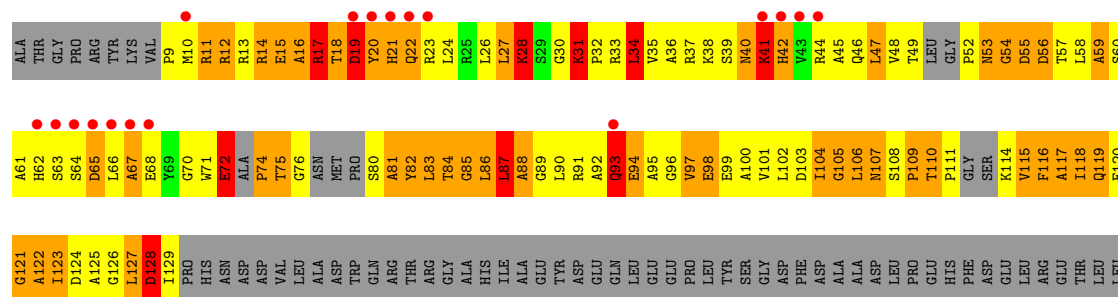
- Molecule 12: 50S ribosomal protein L16

Chain Q:



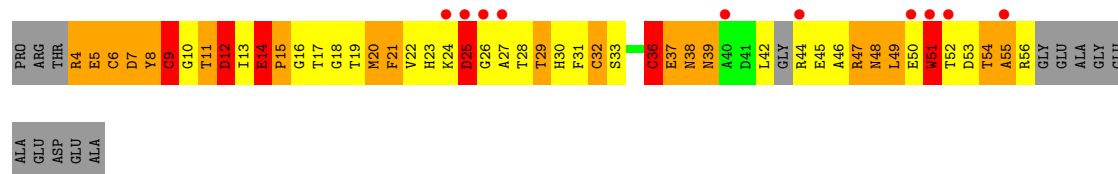
- Molecule 13: 50S ribosomal protein L18

Chain S:



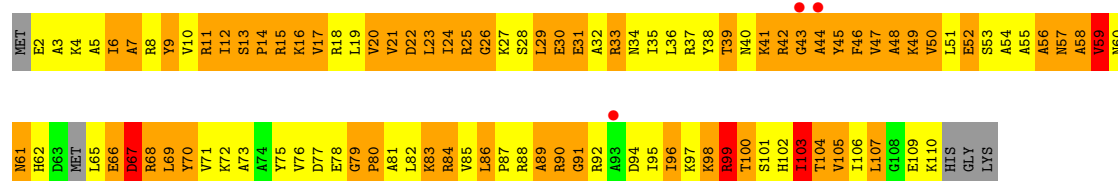
- Molecule 14: 50S ribosomal protein L19

Chain T:



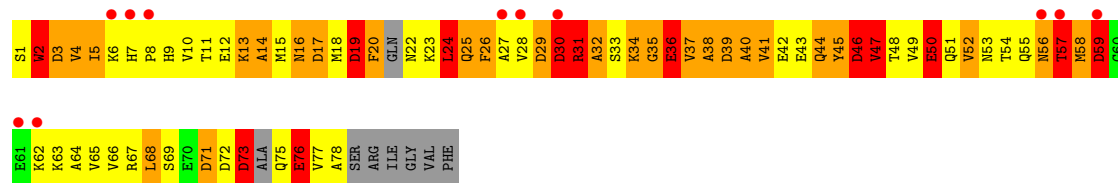
- Molecule 15: 50S ribosomal protein L22

Chain W: 



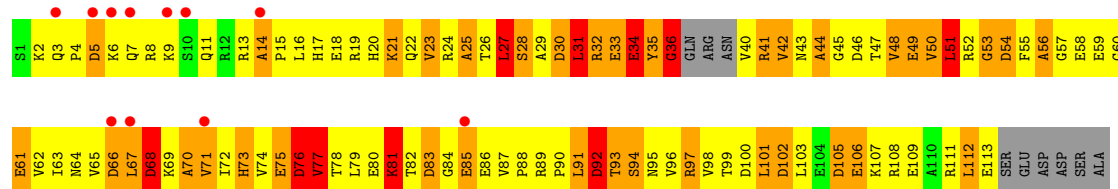
- Molecule 16: 50S ribosomal protein L23

Chain X: 



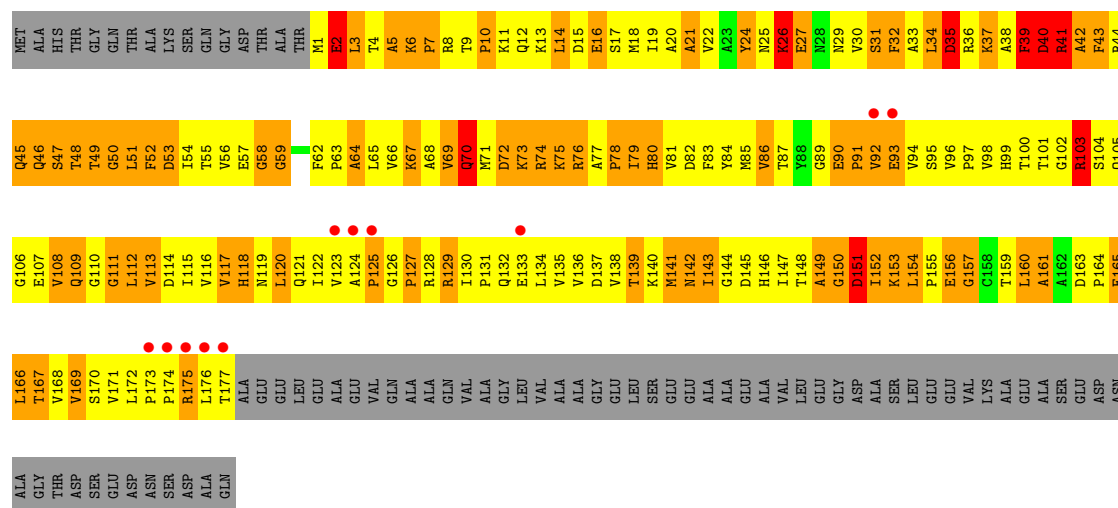
- Molecule 17: 50S ribosomal protein 24

Chain Y: 



- Molecule 18: 50S ribosomal protein CTC

Chain Z: 



- Molecule 19: 50S ribosomal protein L17

Chain R: 





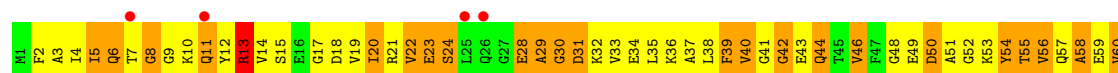
• Molecule 20: 50S ribosomal protein L20

Chain U:



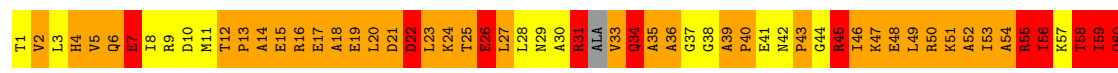
• Molecule 21: 50S ribosomal protein L21

Chain V:



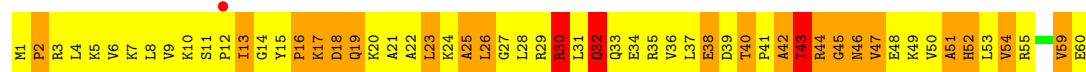
• Molecule 22: 50S ribosomal protein L29

Chain 2:



• Molecule 23: 50S ribosomal protein L30

Chain 3:

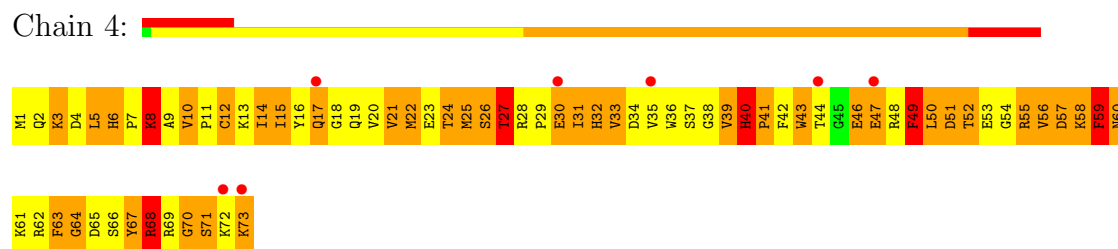


• Molecule 24: 50S ribosomal protein L27

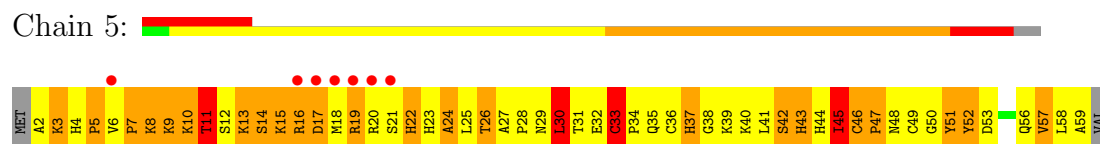
Chain 0:



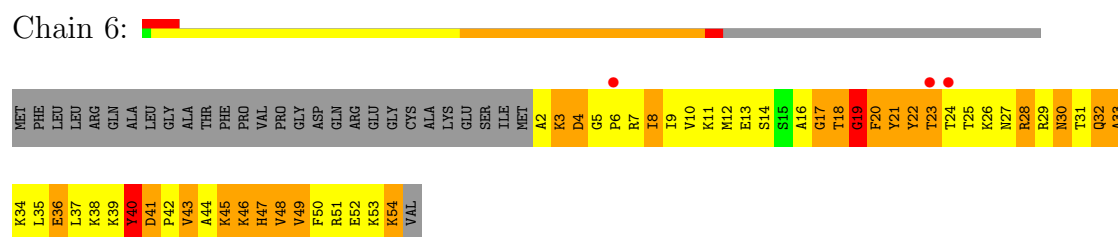
- Molecule 25: 50S ribosomal protein L31



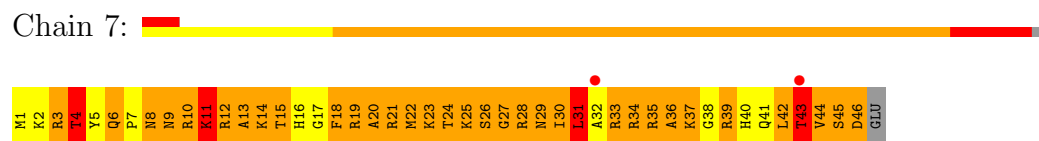
- Molecule 26: 50S ribosomal protein L32



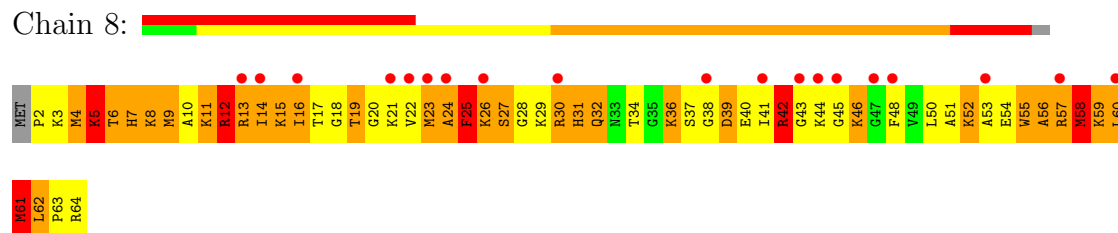
- Molecule 27: 50S ribosomal protein L33



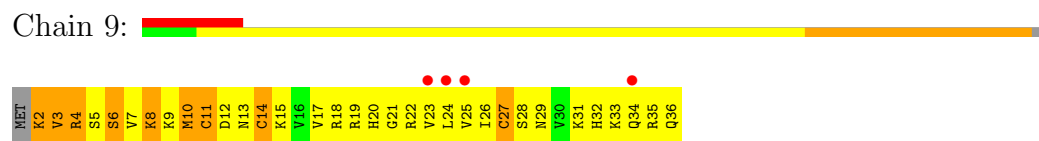
- Molecule 28: 50S ribosomal protein L34



- Molecule 29: 50S ribosomal protein L35

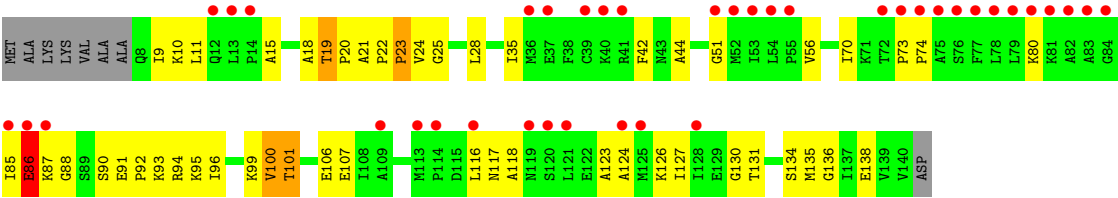


- Molecule 30: 50S ribosomal protein L36



- Molecule 31: 50S ribosomal protein L11





## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 43 21 2   | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 520.21 Å   520.21 Å   365.90 Å<br>90.00°   90.00°   90.00°  | Depositor        |
| Resolution (Å)  | 43.35 – 6.76<br>43.35 – 6.02                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 96.2 (43.35-6.76)<br>91.3 (43.35-6.02)                      | Depositor<br>EDS |
| $R_{merge}$   | (Not available)   | Depositor        |
| $R_{sym}$   | 0.19  | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 1.11 (at 6.14 Å)  | Xtriage          |
| Refinement program  | CNS   | Depositor        |
| R, $R_{free}$   | 0.341   ,   0.356<br>0.400   ,   0.412                      | Depositor<br>DCC |
| $R_{free}$ test set   | 5634 reflections (5.00%)                                    | DCC              |
| Wilson B-factor (Å <sup>2</sup> )                                       | 233.6   | Xtriage          |
| Anisotropy  | 0.105   | Xtriage          |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.07 , 25.0   | EDS              |
| Estimated twinning fraction   | No twinning to report.                                      | Xtriage          |
| L-test for twinning   | $\langle  L  \rangle = 0.37$ , $\langle L^2 \rangle = 0.20$ | Xtriage          |
| Outliers  | 0 of 112763 reflections                                     | Xtriage          |
| $F_o, F_c$ correlation  | 0.80  | EDS              |
| Total number of atoms   | 87268   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 276.0   | wwPDB-VP         |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.50% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

## 5 Model quality

### 5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths |                  | Bond angles |                   |
|-----|-------|--------------|------------------|-------------|-------------------|
|     |       | RMSZ         | # Z  >5          | RMSZ        | # Z  >5           |
| 1   | B     | 0.79         | 2/2950 (0.1%)    | 1.32        | 17/4602 (0.4%)    |
| 2   | A     | 1.31         | 147/67834 (0.2%) | 1.47        | 923/105806 (0.9%) |
| 3   | D     | 0.41         | 1/1328 (0.1%)    | 0.65        | 2/1783 (0.1%)     |
| 4   | E     | 0.67         | 4/1540 (0.3%)    | 1.08        | 8/2078 (0.4%)     |
| 5   | F     | 0.72         | 3/1444 (0.2%)    | 0.84        | 2/1954 (0.1%)     |
| 6   | G     | 0.25         | 0/971            | 0.46        | 0/1304            |
| 7   | H     | 0.45         | 1/1272 (0.1%)    | 0.60        | 3/1721 (0.2%)     |
| 8   | I     | 0.40         | 1/1156 (0.1%)    | 0.52        | 0/1544            |
| 9   | N     | 0.35         | 0/927            | 0.55        | 0/1245            |
| 10  | O     | 0.32         | 0/946            | 0.57        | 0/1269            |
| 11  | P     | 1.44         | 3/643 (0.5%)     | 1.31        | 5/870 (0.6%)      |
| 12  | Q     | 0.32         | 0/1106           | 0.52        | 0/1490            |
| 13  | S     | 1.20         | 3/877 (0.3%)     | 0.70        | 2/1179 (0.2%)     |
| 14  | T     | 0.39         | 0/412            | 0.70        | 0/554             |
| 15  | W     | 0.95         | 3/869 (0.3%)     | 0.96        | 6/1166 (0.5%)     |
| 16  | X     | 0.48         | 1/608 (0.2%)     | 1.04        | 3/820 (0.4%)      |
| 17  | Y     | 0.25         | 0/887            | 0.83        | 3/1195 (0.3%)     |
| 18  | Z     | 0.31         | 1/1385 (0.1%)    | 0.46        | 0/1883            |
| 19  | R     | 0.30         | 0/867            | 0.49        | 0/1162            |
| 20  | U     | 0.56         | 1/994 (0.1%)     | 0.69        | 3/1323 (0.2%)     |
| 21  | V     | 0.69         | 1/796 (0.1%)     | 0.92        | 3/1058 (0.3%)     |
| 22  | 2     | 0.37         | 0/497            | 1.00        | 2/668 (0.3%)      |
| 23  | 3     | 0.31         | 0/482            | 0.50        | 0/646             |
| 24  | 0     | 0.40         | 1/649 (0.2%)     | 0.82        | 3/860 (0.3%)      |
| 25  | 4     | 1.31         | 2/620 (0.3%)     | 0.61        | 0/831             |
| 26  | 5     | 0.38         | 0/469            | 1.08        | 3/629 (0.5%)      |
| 27  | 6     | 0.32         | 0/438            | 0.55        | 1/583 (0.2%)      |
| 28  | 7     | 0.38         | 0/387            | 0.64        | 0/509             |
| 29  | 8     | 0.87         | 1/503 (0.2%)     | 0.95        | 6/657 (0.9%)      |
| 30  | 9     | 0.33         | 0/286            | 0.59        | 0/375             |
| 31  | K     | 0.94         | 1/1010 (0.1%)    | 0.70        | 3/1349 (0.2%)     |
| All | All   | 1.16         | 177/95153 (0.2%) | 1.34        | 998/143113 (0.7%) |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying

if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 3   | D     | 0                   | 1                   |
| 4   | E     | 0                   | 3                   |
| 5   | F     | 0                   | 4                   |
| 7   | H     | 0                   | 1                   |
| 8   | I     | 0                   | 1                   |
| 11  | P     | 0                   | 1                   |
| 16  | X     | 0                   | 1                   |
| 17  | Y     | 0                   | 1                   |
| 22  | 2     | 0                   | 1                   |
| 24  | 0     | 0                   | 1                   |
| 26  | 5     | 0                   | 1                   |
| All | All   | 0                   | 16                  |

All (177) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|--------|-------------|----------|
| 2   | A     | 2199 | A    | O3'-P | -71.10 | 0.75        | 1.61     |
| 2   | A     | 14   | A    | O3'-P | -50.73 | 1.00        | 1.61     |
| 2   | A     | 1924 | C    | O3'-P | -48.85 | 1.02        | 1.61     |
| 2   | A     | 176  | G    | O3'-P | -48.34 | 1.03        | 1.61     |
| 2   | A     | 2454 | G    | O3'-P | -48.01 | 1.03        | 1.61     |
| 2   | A     | 1630 | G    | O3'-P | 47.85  | 2.18        | 1.61     |
| 2   | A     | 1055 | G    | O3'-P | -46.48 | 1.05        | 1.61     |
| 2   | A     | 223  | A    | O3'-P | 46.32  | 2.16        | 1.61     |
| 2   | A     | 1019 | U    | O3'-P | 46.27  | 2.16        | 1.61     |
| 2   | A     | 1086 | A    | O3'-P | 45.73  | 2.16        | 1.61     |
| 2   | A     | 1029 | A    | O3'-P | -45.28 | 1.06        | 1.61     |
| 2   | A     | 2889 | C    | O3'-P | -43.53 | 1.08        | 1.61     |
| 2   | A     | 359  | A    | O3'-P | 41.22  | 2.10        | 1.61     |
| 2   | A     | 2788 | C    | O3'-P | 40.74  | 2.10        | 1.61     |
| 2   | A     | 30   | G    | O3'-P | 40.52  | 2.09        | 1.61     |
| 2   | A     | 2344 | U    | O3'-P | -40.12 | 1.13        | 1.61     |
| 2   | A     | 1512 | G    | O3'-P | 39.19  | 2.08        | 1.61     |
| 2   | A     | 148  | C    | O3'-P | 37.45  | 2.06        | 1.61     |
| 2   | A     | 940  | G    | O3'-P | 36.46  | 2.04        | 1.61     |
| 2   | A     | 911  | A    | O3'-P | -36.09 | 1.17        | 1.61     |
| 2   | A     | 2196 | C    | O3'-P | -35.63 | 1.18        | 1.61     |
| 2   | A     | 474  | G    | O3'-P | 35.41  | 2.03        | 1.61     |
| 2   | A     | 1751 | C    | O3'-P | 34.78  | 2.02        | 1.61     |
| 2   | A     | 1404 | C    | O3'-P | 34.45  | 2.02        | 1.61     |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res    | Type | Atoms | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|--------|------|-------|--------|-------------|----------|
| 2   | A     | 1525   | G    | O3'-P | 34.32  | 2.02        | 1.61     |
| 2   | A     | 2506   | U    | O3'-P | 33.68  | 2.01        | 1.61     |
| 2   | A     | 1905   | C    | O3'-P | -33.01 | 1.21        | 1.61     |
| 2   | A     | 1546   | C    | O3'-P | -32.97 | 1.21        | 1.61     |
| 2   | A     | 1545   | A    | O3'-P | 31.77  | 1.99        | 1.61     |
| 2   | A     | 8      | A    | O3'-P | 30.83  | 1.98        | 1.61     |
| 2   | A     | 686    | G    | O3'-P | 30.66  | 1.98        | 1.61     |
| 2   | A     | 1124   | C    | O3'-P | 30.60  | 1.97        | 1.61     |
| 2   | A     | 2882   | A    | O3'-P | 30.47  | 1.97        | 1.61     |
| 2   | A     | 1834   | U    | O3'-P | 30.33  | 1.97        | 1.61     |
| 2   | A     | 445    | C    | O3'-P | -30.16 | 1.25        | 1.61     |
| 2   | A     | 734    | A    | O3'-P | 29.83  | 1.97        | 1.61     |
| 2   | A     | 1991   | U    | O3'-P | 28.62  | 1.95        | 1.61     |
| 31  | K     | 86     | GLU  | C-N   | -28.13 | 0.69        | 1.34     |
| 2   | A     | 837    | C    | O3'-P | 27.97  | 1.94        | 1.61     |
| 2   | A     | 1143   | A    | O3'-P | 27.79  | 1.94        | 1.61     |
| 11  | P     | 96     | VAL  | C-N   | -27.55 | 0.70        | 1.34     |
| 2   | A     | 2835   | A    | O3'-P | -27.08 | 1.28        | 1.61     |
| 2   | A     | 2062   | A    | O3'-P | -26.97 | 1.28        | 1.61     |
| 13  | S     | 31     | LYS  | C-N   | 25.10  | 1.81        | 1.34     |
| 2   | A     | 1302   | A    | O3'-P | 24.54  | 1.90        | 1.61     |
| 2   | A     | 2090   | G    | O3'-P | 23.95  | 1.89        | 1.61     |
| 2   | A     | 1586   | A    | O3'-P | 23.53  | 1.89        | 1.61     |
| 2   | A     | 432    | A    | O3'-P | 23.40  | 1.89        | 1.61     |
| 2   | A     | 712(A) | A    | O3'-P | 23.12  | 1.88        | 1.61     |
| 25  | 4     | 8      | LYS  | C-N   | 22.68  | 1.86        | 1.34     |
| 2   | A     | 761    | A    | O3'-P | 22.64  | 1.88        | 1.61     |
| 2   | A     | 532    | A    | O3'-P | -22.60 | 1.34        | 1.61     |
| 2   | A     | 509    | C    | O3'-P | -22.52 | 1.34        | 1.61     |
| 2   | A     | 1349   | A    | O3'-P | 22.15  | 1.87        | 1.61     |
| 2   | A     | 2769   | C    | O3'-P | -22.11 | 1.34        | 1.61     |
| 25  | 4     | 40     | HIS  | C-N   | 21.86  | 1.75        | 1.34     |
| 2   | A     | 1988   | C    | O3'-P | -21.62 | 1.35        | 1.61     |
| 2   | A     | 472    | A    | O3'-P | 21.43  | 1.86        | 1.61     |
| 2   | A     | 1189   | A    | O3'-P | -21.25 | 1.35        | 1.61     |
| 2   | A     | 2421   | G    | O3'-P | -21.11 | 1.35        | 1.61     |
| 2   | A     | 130    | C    | O3'-P | -20.63 | 1.36        | 1.61     |
| 2   | A     | 2846   | G    | O3'-P | 20.57  | 1.85        | 1.61     |
| 2   | A     | 601    | C    | O3'-P | 20.06  | 1.85        | 1.61     |
| 2   | A     | 1444   | G    | O3'-P | -19.95 | 1.37        | 1.61     |
| 2   | A     | 1706   | U    | O3'-P | 19.53  | 1.84        | 1.61     |
| 5   | F     | 168    | ARG  | C-N   | -19.27 | 0.89        | 1.34     |

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| Mol | Chain | Res    | Type | Atoms | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|--------|------|-------|--------|-------------|----------|
| 1   | B     | 106    | G    | O3'-P | -19.26 | 1.38        | 1.61     |
| 2   | A     | 183    | C    | O3'-P | -18.87 | 1.38        | 1.61     |
| 15  | W     | 99     | ARG  | C-N   | 18.52  | 1.76        | 1.34     |
| 21  | V     | 91     | THR  | C-N   | 18.10  | 1.75        | 1.34     |
| 2   | A     | 232    | G    | O3'-P | 18.02  | 1.82        | 1.61     |
| 11  | P     | 83     | GLU  | C-N   | 17.99  | 1.75        | 1.34     |
| 4   | E     | 87     | GLU  | C-N   | 17.97  | 1.75        | 1.34     |
| 2   | A     | 793    | A    | O3'-P | -17.96 | 1.39        | 1.61     |
| 2   | A     | 1646   | C    | O3'-P | -17.96 | 1.39        | 1.61     |
| 2   | A     | 405    | U    | O3'-P | -17.54 | 1.40        | 1.61     |
| 29  | 8     | 46     | LYS  | C-N   | 17.54  | 1.64        | 1.33     |
| 2   | A     | 1428   | C    | O3'-P | 17.35  | 1.81        | 1.61     |
| 2   | A     | 1255   | U    | O3'-P | -17.18 | 1.40        | 1.61     |
| 13  | S     | 128    | ASP  | C-N   | 17.01  | 1.73        | 1.34     |
| 2   | A     | 212    | G    | O3'-P | 17.00  | 1.81        | 1.61     |
| 13  | S     | 72     | GLU  | C-N   | 16.87  | 1.66        | 1.34     |
| 2   | A     | 1620   | G    | O3'-P | 16.76  | 1.81        | 1.61     |
| 2   | A     | 2894   | G    | O3'-P | 16.53  | 1.80        | 1.61     |
| 2   | A     | 1103   | A    | O3'-P | 16.46  | 1.80        | 1.61     |
| 2   | A     | 2243   | U    | O3'-P | 16.33  | 1.80        | 1.61     |
| 2   | A     | 2057   | A    | O3'-P | 16.32  | 1.80        | 1.61     |
| 15  | W     | 79     | GLY  | C-N   | -16.23 | 1.03        | 1.34     |
| 2   | A     | 2674   | G    | O3'-P | 15.24  | 1.79        | 1.61     |
| 2   | A     | 624    | C    | O3'-P | -15.03 | 1.43        | 1.61     |
| 2   | A     | 584    | C    | O3'-P | -14.90 | 1.43        | 1.61     |
| 2   | A     | 2336   | A    | O3'-P | -14.85 | 1.43        | 1.61     |
| 2   | A     | 655    | A    | O3'-P | 14.71  | 1.78        | 1.61     |
| 11  | P     | 61     | ALA  | C-N   | 14.69  | 1.67        | 1.34     |
| 2   | A     | 2394   | C    | O3'-P | 14.57  | 1.78        | 1.61     |
| 2   | A     | 70     | G    | O3'-P | 14.47  | 1.78        | 1.61     |
| 2   | A     | 2258   | C    | O3'-P | 14.40  | 1.78        | 1.61     |
| 2   | A     | 271(B) | G    | O3'-P | -14.31 | 1.44        | 1.61     |
| 2   | A     | 2447   | G    | O3'-P | 14.08  | 1.78        | 1.61     |
| 2   | A     | 340    | A    | O3'-P | -13.71 | 1.44        | 1.61     |
| 2   | A     | 2690   | C    | O3'-P | -13.48 | 1.45        | 1.61     |
| 2   | A     | 1466   | G    | O3'-P | 13.37  | 1.77        | 1.61     |
| 2   | A     | 670    | A    | O3'-P | 13.19  | 1.76        | 1.61     |
| 2   | A     | 2370   | G    | O3'-P | -13.15 | 1.45        | 1.61     |
| 20  | U     | 50     | ARG  | C-N   | -13.11 | 1.03        | 1.34     |
| 7   | H     | 80     | LYS  | C-N   | -13.09 | 1.09        | 1.33     |
| 2   | A     | 2869   | G    | O3'-P | 12.98  | 1.76        | 1.61     |
| 2   | A     | 1163   | G    | O3'-P | -12.87 | 1.45        | 1.61     |

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| Mol | Chain | Res    | Type | Atoms   | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|--------|------|---------|--------|-------------|----------|
| 5   | F     | 28     | SER  | C-N     | 12.71  | 1.63        | 1.34     |
| 2   | A     | 1150   | C    | O3'-P   | 12.55  | 1.76        | 1.61     |
| 2   | A     | 316    | C    | O3'-P   | -12.11 | 1.46        | 1.61     |
| 2   | A     | 1361   | G    | O3'-P   | -12.06 | 1.46        | 1.61     |
| 2   | A     | 468    | G    | O3'-P   | -11.62 | 1.47        | 1.61     |
| 2   | A     | 1597   | A    | O3'-P   | 11.47  | 1.75        | 1.61     |
| 2   | A     | 2518   | A    | O3'-P   | -11.39 | 1.47        | 1.61     |
| 2   | A     | 2732   | G    | O3'-P   | 11.25  | 1.74        | 1.61     |
| 2   | A     | 264    | C    | O3'-P   | -11.16 | 1.47        | 1.61     |
| 2   | A     | 1004   | C    | O3'-P   | 11.05  | 1.74        | 1.61     |
| 2   | A     | 1970   | A    | O3'-P   | 10.99  | 1.74        | 1.61     |
| 2   | A     | 2076   | U    | O3'-P   | -10.66 | 1.48        | 1.61     |
| 2   | A     | 699    | A    | O3'-P   | 10.65  | 1.74        | 1.61     |
| 2   | A     | 2009   | G    | O3'-P   | 10.17  | 1.73        | 1.61     |
| 2   | A     | 1978   | A    | O3'-P   | 10.01  | 1.73        | 1.61     |
| 2   | A     | 1339   | G    | O3'-P   | -9.89  | 1.49        | 1.61     |
| 2   | A     | 2496   | C    | O3'-P   | -9.89  | 1.49        | 1.61     |
| 1   | B     | 0      | A    | O3'-P   | 9.66   | 1.72        | 1.61     |
| 2   | A     | 1681   | G    | O3'-P   | -9.64  | 1.49        | 1.61     |
| 4   | E     | 49     | THR  | C-N     | -9.29  | 1.16        | 1.34     |
| 8   | I     | 49     | ALA  | C-N     | -9.27  | 1.12        | 1.34     |
| 16  | X     | 73     | ASP  | C-N     | 8.91   | 1.54        | 1.34     |
| 4   | E     | 205    | THR  | C-N     | 8.73   | 1.54        | 1.34     |
| 2   | A     | 2566   | A    | O3'-P   | -8.69  | 1.50        | 1.61     |
| 15  | W     | 2      | GLU  | C-N     | 8.66   | 1.53        | 1.34     |
| 2   | A     | 2225   | A    | O3'-P   | -8.62  | 1.50        | 1.61     |
| 2   | A     | 427    | U    | O3'-P   | -8.54  | 1.50        | 1.61     |
| 2   | A     | 271(C) | U    | O3'-P   | -8.41  | 1.51        | 1.61     |
| 2   | A     | 560    | C    | O3'-P   | 8.35   | 1.71        | 1.61     |
| 2   | A     | 971    | C    | O3'-P   | 8.34   | 1.71        | 1.61     |
| 2   | A     | 460    | A    | O3'-P   | -7.83  | 1.51        | 1.61     |
| 2   | A     | 2040   | C    | O3'-P   | -7.83  | 1.51        | 1.61     |
| 2   | A     | 271    | G    | O3'-P   | 7.80   | 1.70        | 1.61     |
| 2   | A     | 1208   | C    | O3'-P   | 7.77   | 1.70        | 1.61     |
| 2   | A     | 101    | G    | N9-C4   | 7.74   | 1.44        | 1.38     |
| 2   | A     | 2228   | G    | O3'-P   | 7.68   | 1.70        | 1.61     |
| 2   | A     | 2625   | G    | O3'-P   | -7.56  | 1.52        | 1.61     |
| 5   | F     | 103    | ASN  | C-N     | -7.53  | 1.16        | 1.34     |
| 2   | A     | 2609   | U    | O3'-P   | -7.48  | 1.52        | 1.61     |
| 24  | 0     | 18     | PRO  | C-N     | -6.83  | 1.18        | 1.34     |
| 2   | A     | 776    | G    | C3'-O3' | 6.77   | 1.51        | 1.42     |
| 2   | A     | 1237   | A    | O3'-P   | 6.74   | 1.69        | 1.61     |

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| Mol | Chain | Res    | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|--------|------|---------|-------|-------------|----------|
| 2   | A     | 1189   | A    | C3'-O3' | 6.70  | 1.51        | 1.42     |
| 3   | D     | 199    | ARG  | C-N     | -6.56 | 1.19        | 1.34     |
| 18  | Z     | 92     | VAL  | C-N     | -6.53 | 1.19        | 1.34     |
| 4   | E     | 274    | GLY  | C-N     | 6.50  | 1.44        | 1.33     |
| 2   | A     | 1307   | A    | O3'-P   | -6.26 | 1.53        | 1.61     |
| 2   | A     | 297    | C    | O3'-P   | -6.15 | 1.53        | 1.61     |
| 2   | A     | 2322   | A    | O3'-P   | -6.11 | 1.53        | 1.61     |
| 2   | A     | 101    | G    | C3'-O3' | 6.01  | 1.50        | 1.42     |
| 2   | A     | 801    | G    | C3'-O3' | 5.92  | 1.50        | 1.42     |
| 2   | A     | 2712   | U    | O3'-P   | -5.89 | 1.54        | 1.61     |
| 2   | A     | 1917   | U    | C3'-O3' | 5.88  | 1.50        | 1.42     |
| 2   | A     | 525    | U    | O3'-P   | -5.86 | 1.54        | 1.61     |
| 2   | A     | 2381   | C    | O3'-P   | -5.75 | 1.54        | 1.61     |
| 2   | A     | 2295   | C    | O3'-P   | -5.56 | 1.54        | 1.61     |
| 2   | A     | 2433   | A    | O3'-P   | -5.54 | 1.54        | 1.61     |
| 2   | A     | 817    | C    | C1'-N1  | 5.49  | 1.56        | 1.48     |
| 2   | A     | 2545   | G    | O3'-P   | 5.46  | 1.67        | 1.61     |
| 2   | A     | 613    | U    | C1'-N1  | 5.40  | 1.56        | 1.48     |
| 2   | A     | 270    | A    | O3'-P   | -5.38 | 1.54        | 1.61     |
| 2   | A     | 739    | G    | N9-C4   | 5.37  | 1.42        | 1.38     |
| 2   | A     | 1667   | G    | O3'-P   | -5.35 | 1.54        | 1.61     |
| 2   | A     | 944    | G    | C3'-O3' | 5.33  | 1.49        | 1.42     |
| 2   | A     | 1944   | U    | O3'-P   | 5.25  | 1.67        | 1.61     |
| 2   | A     | 1961   | C    | O3'-P   | -5.22 | 1.54        | 1.61     |
| 2   | A     | 974(A) | C    | C1'-N1  | 5.19  | 1.56        | 1.48     |
| 2   | A     | 1890   | A    | O3'-P   | -5.08 | 1.55        | 1.61     |
| 2   | A     | 1914   | C    | C1'-N1  | 5.04  | 1.56        | 1.48     |

All (998) bond angle outliers are listed below:

| Mol | Chain | Res    | Type | Atoms     | Z      | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-----------|--------|-------------|----------|
| 2   | A     | 712(A) | A    | P-O3'-C3' | -43.34 | 67.69       | 119.70   |
| 2   | A     | 2199   | A    | O3'-P-O5' | -43.06 | 22.18       | 104.00   |
| 2   | A     | 2454   | G    | P-O3'-C3' | -28.75 | 85.20       | 119.70   |
| 4   | E     | 49     | THR  | O-C-N     | -27.49 | 68.88       | 121.10   |
| 11  | P     | 83     | GLU  | O-C-N     | -27.09 | 79.36       | 122.70   |
| 2   | A     | 1444   | G    | P-O3'-C3' | 25.96  | 150.86      | 119.70   |
| 2   | A     | 2447   | G    | P-O3'-C3' | 25.92  | 150.80      | 119.70   |
| 2   | A     | 1545   | A    | P-O3'-C3' | -25.30 | 89.33       | 119.70   |
| 5   | F     | 168    | ARG  | O-C-N     | -24.62 | 83.31       | 122.70   |
| 2   | A     | 2090   | G    | P-O3'-C3' | 21.62  | 145.65      | 119.70   |
| 2   | A     | 1124   | C    | P-O3'-C3' | 21.41  | 145.38      | 119.70   |

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| Mol | Chain | Res    | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|--------|-------------|----------|
| 1   | B     | 24     | G    | P-O3'-C3'   | 20.49  | 144.29      | 119.70   |
| 2   | A     | 1525   | G    | P-O3'-C3'   | -20.39 | 95.23       | 119.70   |
| 2   | A     | 232    | G    | P-O3'-C3'   | -19.49 | 96.32       | 119.70   |
| 2   | A     | 1545   | A    | OP2-P-O3'   | 19.44  | 147.97      | 105.20   |
| 2   | A     | 1546   | C    | P-O3'-C3'   | 19.23  | 142.78      | 119.70   |
| 2   | A     | 911    | A    | P-O3'-C3'   | 19.12  | 142.65      | 119.70   |
| 21  | V     | 91     | THR  | CA-C-N      | -19.10 | 75.19       | 117.20   |
| 16  | X     | 73     | ASP  | O-C-N       | -18.87 | 92.51       | 122.70   |
| 22  | 2     | 31     | ARG  | O-C-N       | -18.57 | 92.98       | 122.70   |
| 2   | A     | 148    | C    | P-O3'-C3'   | -18.50 | 97.50       | 119.70   |
| 2   | A     | 2889   | C    | OP2-P-O3'   | -18.17 | 65.22       | 105.20   |
| 2   | A     | 1449   | A    | P-O3'-C3'   | 17.46  | 140.65      | 119.70   |
| 13  | S     | 72     | GLU  | O-C-N       | -16.94 | 88.91       | 121.10   |
| 4   | E     | 49     | THR  | CA-C-N      | 16.89  | 164.39      | 117.10   |
| 17  | Y     | 36     | GLY  | O-C-N       | -16.80 | 95.82       | 122.70   |
| 11  | P     | 96     | VAL  | O-C-N       | 16.79  | 149.57      | 122.70   |
| 2   | A     | 1924   | C    | P-O3'-C3'   | -16.77 | 99.58       | 119.70   |
| 26  | 5     | 30     | LEU  | O-C-N       | -16.43 | 96.41       | 122.70   |
| 2   | A     | 1140   | C    | C1'-O4'-C4' | -16.22 | 96.92       | 109.90   |
| 21  | V     | 91     | THR  | C-N-CA      | -16.04 | 81.61       | 121.70   |
| 2   | A     | 2381   | C    | P-O3'-C3'   | 15.83  | 138.69      | 119.70   |
| 2   | A     | 101    | G    | N3-C4-C5    | -15.61 | 120.79      | 128.60   |
| 4   | E     | 87     | GLU  | O-C-N       | -15.58 | 97.77       | 122.70   |
| 2   | A     | 712(A) | A    | O3'-P-O5'   | -15.53 | 74.50       | 104.00   |
| 15  | W     | 79     | GLY  | O-C-N       | 15.19  | 149.97      | 121.10   |
| 16  | X     | 73     | ASP  | C-N-CA      | 14.87  | 158.87      | 121.70   |
| 2   | A     | 1189   | A    | P-O3'-C3'   | 14.82  | 137.49      | 119.70   |
| 2   | A     | 2889   | C    | O3'-P-O5'   | 14.66  | 131.85      | 104.00   |
| 24  | 0     | 18     | PRO  | O-C-N       | -14.65 | 99.26       | 122.70   |
| 2   | A     | 2454   | G    | OP1-P-O3'   | -14.63 | 73.02       | 105.20   |
| 17  | Y     | 36     | GLY  | C-N-CA      | 14.62  | 158.25      | 121.70   |
| 2   | A     | 101    | G    | C2-N3-C4    | 14.53  | 119.17      | 111.90   |
| 4   | E     | 49     | THR  | C-N-CD      | -14.47 | 88.77       | 120.60   |
| 2   | A     | 1546   | C    | OP2-P-O3'   | 14.05  | 136.11      | 105.20   |
| 2   | A     | 32     | C    | P-O3'-C3'   | 13.64  | 136.06      | 119.70   |
| 2   | A     | 148    | C    | O3'-P-O5'   | -13.48 | 78.39       | 104.00   |
| 11  | P     | 96     | VAL  | CA-C-N      | -12.83 | 88.98       | 117.20   |
| 2   | A     | 316    | C    | P-O3'-C3'   | -12.82 | 104.32      | 119.70   |
| 15  | W     | 79     | GLY  | C-N-CD      | 12.63  | 154.92      | 128.40   |
| 2   | A     | 460    | A    | P-O3'-C3'   | -12.60 | 104.58      | 119.70   |
| 2   | A     | 776    | G    | P-O3'-C3'   | 12.48  | 134.68      | 119.70   |
| 2   | A     | 525    | U    | O3'-P-O5'   | -12.48 | 80.29       | 104.00   |

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| Mol | Chain | Res  | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 2   | A     | 931  | G    | C1'-O4'-C4' | -12.47 | 99.92       | 109.90   |
| 2   | A     | 1545 | A    | OP1-P-O3'   | -12.40 | 77.93       | 105.20   |
| 2   | A     | 2712 | U    | P-O3'-C3'   | 12.40  | 134.57      | 119.70   |
| 2   | A     | 2287 | A    | P-O3'-C3'   | -12.35 | 104.88      | 119.70   |
| 2   | A     | 232  | G    | OP2-P-O3'   | 12.33  | 132.34      | 105.20   |
| 7   | H     | 80   | LYS  | O-C-N       | -12.23 | 102.41      | 123.20   |
| 2   | A     | 1924 | C    | OP2-P-O3'   | 12.15  | 131.93      | 105.20   |
| 2   | A     | 627  | A    | C1'-O4'-C4' | -12.09 | 100.23      | 109.90   |
| 2   | A     | 801  | G    | P-O3'-C3'   | 12.07  | 134.18      | 119.70   |
| 2   | A     | 1266 | G    | C1'-O4'-C4' | -11.97 | 100.33      | 109.90   |
| 2   | A     | 101  | G    | N9-C1'-C2'  | 11.86  | 129.42      | 114.00   |
| 2   | A     | 1828 | G    | P-O3'-C3'   | 11.77  | 133.82      | 119.70   |
| 2   | A     | 359  | A    | OP1-P-O3'   | 11.77  | 131.09      | 105.20   |
| 2   | A     | 223  | A    | P-O3'-C3'   | -11.76 | 105.59      | 119.70   |
| 2   | A     | 148  | C    | OP2-P-O3'   | 11.63  | 130.79      | 105.20   |
| 2   | A     | 1673 | U    | C1'-O4'-C4' | -11.54 | 100.66      | 109.90   |
| 2   | A     | 1449 | A    | OP1-P-O3'   | 11.46  | 130.41      | 105.20   |
| 2   | A     | 1124 | C    | OP1-P-O3'   | 11.45  | 130.39      | 105.20   |
| 2   | A     | 2199 | A    | OP2-P-O3'   | 11.43  | 130.35      | 105.20   |
| 29  | 8     | 24   | ALA  | O-C-N       | -11.41 | 104.44      | 122.70   |
| 2   | A     | 30   | G    | P-O3'-C3'   | 11.39  | 133.37      | 119.70   |
| 2   | A     | 2447 | G    | O3'-P-O5'   | -11.37 | 82.39       | 104.00   |
| 2   | A     | 101  | G    | C8-N9-C4    | -11.29 | 101.89      | 106.40   |
| 2   | A     | 2042 | A    | C1'-O4'-C4' | -11.21 | 100.93      | 109.90   |
| 2   | A     | 2506 | U    | P-O3'-C3'   | 11.18  | 133.12      | 119.70   |
| 2   | A     | 2336 | A    | P-O3'-C3'   | 11.17  | 133.10      | 119.70   |
| 1   | B     | 24   | G    | O3'-P-O5'   | 11.13  | 125.14      | 104.00   |
| 31  | K     | 86   | GLU  | O-C-N       | 11.08  | 140.43      | 122.70   |
| 2   | A     | 1255 | U    | P-O3'-C3'   | -10.94 | 106.57      | 119.70   |
| 2   | A     | 525  | U    | P-O3'-C3'   | -10.92 | 106.60      | 119.70   |
| 2   | A     | 2832 | U    | C3'-C2'-C1' | -10.87 | 92.81       | 101.50   |
| 2   | A     | 101  | G    | N3-C4-N9    | 10.85  | 132.51      | 126.00   |
| 2   | A     | 301  | G    | C1'-O4'-C4' | -10.84 | 101.23      | 109.90   |
| 2   | A     | 14   | A    | P-O3'-C3'   | 10.83  | 132.70      | 119.70   |
| 2   | A     | 2219 | G    | P-O3'-C3'   | -10.82 | 106.71      | 119.70   |
| 2   | A     | 176  | G    | P-O3'-C3'   | 10.82  | 132.68      | 119.70   |
| 2   | A     | 1324 | G    | P-O3'-C3'   | 10.76  | 132.61      | 119.70   |
| 2   | A     | 1992 | G    | P-O3'-C3'   | 10.72  | 132.57      | 119.70   |
| 2   | A     | 1247 | A    | P-O3'-C3'   | 10.72  | 132.56      | 119.70   |
| 2   | A     | 2076 | U    | P-O3'-C3'   | 10.67  | 132.50      | 119.70   |
| 1   | B     | 59   | A    | O3'-P-O5'   | -10.58 | 83.89       | 104.00   |
| 2   | A     | 101  | G    | C4-N9-C1'   | 10.54  | 140.21      | 126.50   |

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| Mol | Chain | Res  | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 2   | A     | 944  | G    | P-O3'-C3'   | 10.48  | 132.28      | 119.70   |
| 2   | A     | 101  | G    | C5-C6-N1    | 10.46  | 116.73      | 111.50   |
| 2   | A     | 911  | A    | OP1-P-O3'   | -10.43 | 82.25       | 105.20   |
| 2   | A     | 2846 | G    | P-O3'-C3'   | 10.43  | 132.22      | 119.70   |
| 2   | A     | 1772 | G    | P-O3'-C3'   | 10.40  | 132.18      | 119.70   |
| 2   | A     | 1444 | G    | O3'-P-O5'   | 10.35  | 123.67      | 104.00   |
| 2   | A     | 2381 | C    | OP1-P-O3'   | 10.32  | 127.91      | 105.20   |
| 2   | A     | 1980 | G    | P-O3'-C3'   | 10.30  | 132.06      | 119.70   |
| 2   | A     | 1941 | C    | C3'-C2'-C1' | -10.27 | 93.29       | 101.50   |
| 2   | A     | 2421 | G    | P-O3'-C3'   | 10.21  | 131.95      | 119.70   |
| 15  | W     | 79   | GLY  | CA-C-N      | -10.19 | 88.57       | 117.10   |
| 26  | 5     | 30   | LEU  | CA-C-N      | 10.15  | 139.54      | 117.20   |
| 24  | 0     | 18   | PRO  | CA-C-N      | 10.10  | 139.43      | 117.20   |
| 2   | A     | 945  | A    | O4'-C1'-N9  | 10.10  | 116.28      | 108.20   |
| 2   | A     | 1265 | A    | P-O3'-C3'   | 9.98   | 131.67      | 119.70   |
| 2   | A     | 2336 | A    | OP1-P-O3'   | 9.98   | 127.15      | 105.20   |
| 2   | A     | 2496 | C    | P-O3'-C3'   | -9.96  | 107.75      | 119.70   |
| 2   | A     | 1248 | G    | P-O3'-C3'   | 9.96   | 131.65      | 119.70   |
| 2   | A     | 2042 | A    | O4'-C1'-N9  | 9.93   | 116.14      | 108.20   |
| 2   | A     | 578  | A    | P-O3'-C3'   | -9.91  | 107.81      | 119.70   |
| 2   | A     | 70   | G    | P-O3'-C3'   | 9.90   | 131.58      | 119.70   |
| 2   | A     | 1206 | G    | C4'-C3'-C2' | -9.88  | 92.72       | 102.60   |
| 2   | A     | 242  | G    | C1'-O4'-C4' | -9.88  | 102.00      | 109.90   |
| 2   | A     | 2090 | G    | OP2-P-O3'   | -9.85  | 83.54       | 105.20   |
| 2   | A     | 1559 | G    | C3'-C2'-C1' | -9.78  | 93.68       | 101.50   |
| 2   | A     | 386  | G    | C1'-O4'-C4' | -9.69  | 102.15      | 109.90   |
| 26  | 5     | 30   | LEU  | C-N-CA      | 9.65   | 145.83      | 121.70   |
| 2   | A     | 2394 | C    | O3'-P-O5'   | 9.62   | 122.28      | 104.00   |
| 2   | A     | 686  | G    | OP2-P-O3'   | 9.62   | 126.36      | 105.20   |
| 2   | A     | 2196 | C    | P-O3'-C3'   | -9.60  | 108.18      | 119.70   |
| 2   | A     | 1140 | C    | O4'-C1'-N1  | 9.59   | 115.87      | 108.20   |
| 4   | E     | 274  | GLY  | CA-C-N      | -9.49  | 97.22       | 116.20   |
| 2   | A     | 294  | A    | C3'-C2'-C1' | -9.37  | 94.00       | 101.50   |
| 2   | A     | 223  | A    | OP1-P-O3'   | 9.34   | 125.75      | 105.20   |
| 31  | K     | 86   | GLU  | CA-C-N      | -9.32  | 96.70       | 117.20   |
| 2   | A     | 139  | G    | P-O3'-C3'   | 9.31   | 130.87      | 119.70   |
| 2   | A     | 1819 | A    | P-O3'-C3'   | 9.29   | 130.84      | 119.70   |
| 2   | A     | 1029 | A    | OP2-P-O3'   | 9.25   | 125.55      | 105.20   |
| 2   | A     | 1751 | C    | P-O3'-C3'   | -9.14  | 108.73      | 119.70   |
| 2   | A     | 911  | A    | OP2-P-O3'   | 9.13   | 125.29      | 105.20   |
| 2   | A     | 282  | A    | C3'-C2'-C1' | -9.11  | 94.21       | 101.50   |
| 2   | A     | 1706 | U    | P-O3'-C3'   | 9.10   | 130.62      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 421  | U    | P-O3'-C3'   | 9.10  | 130.62      | 119.70   |
| 17  | Y     | 36   | GLY  | CA-C-N      | 9.09  | 137.20      | 117.20   |
| 2   | A     | 1542 | G    | C3'-C2'-C1' | -9.09 | 94.23       | 101.50   |
| 2   | A     | 973  | A    | C4'-C3'-C2' | -9.07 | 93.53       | 102.60   |
| 2   | A     | 1294 | U    | P-O3'-C3'   | -8.93 | 108.98      | 119.70   |
| 2   | A     | 1124 | C    | O3'-P-O5'   | -8.92 | 87.05       | 104.00   |
| 1   | B     | 56   | G    | P-O3'-C3'   | 8.91  | 130.40      | 119.70   |
| 2   | A     | 800  | A    | P-O3'-C3'   | 8.91  | 130.39      | 119.70   |
| 2   | A     | 1634 | A    | P-O3'-C3'   | 8.90  | 130.38      | 119.70   |
| 2   | A     | 1525 | G    | OP1-P-O3'   | -8.89 | 85.65       | 105.20   |
| 15  | W     | 2    | GLU  | O-C-N       | 8.88  | 136.90      | 122.70   |
| 2   | A     | 2394 | C    | P-O3'-C3'   | -8.84 | 109.09      | 119.70   |
| 2   | A     | 2506 | U    | OP2-P-O3'   | -8.82 | 85.79       | 105.20   |
| 2   | A     | 1070 | A    | C1'-O4'-C4' | -8.82 | 102.85      | 109.90   |
| 2   | A     | 654  | A    | C3'-C2'-C1' | -8.79 | 94.47       | 101.50   |
| 2   | A     | 117  | G    | P-O3'-C3'   | -8.78 | 109.16      | 119.70   |
| 2   | A     | 1988 | C    | P-O3'-C3'   | -8.76 | 109.18      | 119.70   |
| 2   | A     | 1183 | G    | O4'-C1'-N9  | 8.73  | 115.18      | 108.20   |
| 2   | A     | 2433 | A    | P-O3'-C3'   | -8.69 | 109.27      | 119.70   |
| 2   | A     | 775  | G    | O3'-P-O5'   | -8.69 | 87.48       | 104.00   |
| 2   | A     | 30   | G    | O3'-P-O5'   | -8.66 | 87.55       | 104.00   |
| 2   | A     | 691  | C    | C3'-C2'-C1' | -8.64 | 94.59       | 101.50   |
| 2   | A     | 1943 | U    | P-O3'-C3'   | 8.63  | 130.06      | 119.70   |
| 2   | A     | 846  | C    | P-O3'-C3'   | 8.63  | 130.06      | 119.70   |
| 2   | A     | 1742 | C    | C4'-C3'-C2' | -8.62 | 93.98       | 102.60   |
| 2   | A     | 1955 | U    | O4'-C1'-N1  | 8.61  | 115.09      | 108.20   |
| 2   | A     | 2869 | G    | O3'-P-O5'   | -8.59 | 87.68       | 104.00   |
| 2   | A     | 296  | C    | O4'-C1'-N1  | 8.58  | 115.06      | 108.20   |
| 2   | A     | 444  | C    | O4'-C1'-N1  | 8.58  | 115.06      | 108.20   |
| 11  | P     | 96   | VAL  | C-N-CA      | -8.57 | 100.28      | 121.70   |
| 16  | X     | 73   | ASP  | CA-C-N      | 8.55  | 136.00      | 117.20   |
| 2   | A     | 1925 | C    | C3'-C2'-C1' | -8.54 | 94.67       | 101.50   |
| 2   | A     | 972  | G    | C4'-C3'-C2' | -8.52 | 94.08       | 102.60   |
| 2   | A     | 135  | G    | C3'-C2'-C1' | -8.52 | 94.68       | 101.50   |
| 2   | A     | 752  | A    | P-O3'-C3'   | 8.50  | 129.90      | 119.70   |
| 2   | A     | 284  | U    | C1'-O4'-C4' | -8.49 | 103.11      | 109.90   |
| 2   | A     | 699  | A    | P-O3'-C3'   | 8.47  | 129.87      | 119.70   |
| 2   | A     | 1428 | C    | P-O3'-C3'   | 8.47  | 129.87      | 119.70   |
| 24  | 0     | 18   | PRO  | C-N-CA      | 8.46  | 142.85      | 121.70   |
| 2   | A     | 458  | G    | P-O3'-C3'   | 8.46  | 129.85      | 119.70   |
| 2   | A     | 1022 | G    | P-O3'-C3'   | 8.44  | 129.83      | 119.70   |
| 2   | A     | 265  | A    | P-O3'-C3'   | 8.41  | 129.80      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 1546 | C    | O3'-P-O5'   | -8.39 | 88.06       | 104.00   |
| 2   | A     | 2454 | G    | O3'-P-O5'   | 8.35  | 119.86      | 104.00   |
| 2   | A     | 2398 | U    | C3'-C2'-C1' | -8.33 | 94.83       | 101.50   |
| 2   | A     | 791  | C    | C1'-O4'-C4' | -8.31 | 103.25      | 109.90   |
| 2   | A     | 973  | A    | O4'-C1'-N9  | 8.27  | 114.82      | 108.20   |
| 2   | A     | 74   | A    | P-O3'-C3'   | 8.23  | 129.58      | 119.70   |
| 2   | A     | 83   | G    | P-O3'-C3'   | 8.22  | 129.56      | 119.70   |
| 2   | A     | 1419 | A    | C1'-O4'-C4' | -8.21 | 103.33      | 109.90   |
| 2   | A     | 714  | U    | C3'-C2'-C1' | -8.17 | 94.96       | 101.50   |
| 2   | A     | 2454 | G    | OP2-P-O3'   | 8.16  | 123.14      | 105.20   |
| 2   | A     | 1890 | A    | P-O3'-C3'   | 8.15  | 129.49      | 119.70   |
| 2   | A     | 960  | A    | P-O3'-C3'   | 8.14  | 129.46      | 119.70   |
| 2   | A     | 1545 | A    | C1'-O4'-C4' | -8.13 | 103.39      | 109.90   |
| 2   | A     | 1742 | C    | O4'-C1'-N1  | 8.11  | 114.68      | 108.20   |
| 2   | A     | 2219 | G    | N9-C1'-C2'  | -8.11 | 103.08      | 112.00   |
| 2   | A     | 1954 | G    | P-O3'-C3'   | 8.10  | 129.42      | 119.70   |
| 2   | A     | 1955 | U    | C1'-O4'-C4' | -8.10 | 103.42      | 109.90   |
| 2   | A     | 1183 | G    | O4'-C4'-C3' | -8.09 | 95.91       | 104.00   |
| 20  | U     | 50   | ARG  | O-C-N       | 8.09  | 135.64      | 122.70   |
| 2   | A     | 1520 | U    | C3'-C2'-C1' | -8.05 | 95.06       | 101.50   |
| 2   | A     | 2045 | C    | C1'-O4'-C4' | -8.05 | 103.46      | 109.90   |
| 2   | A     | 739  | G    | N3-C4-C5    | -8.03 | 124.59      | 128.60   |
| 2   | A     | 232  | G    | OP1-P-O3'   | -8.02 | 87.57       | 105.20   |
| 2   | A     | 2857 | G    | C3'-C2'-C1' | -8.00 | 95.10       | 101.50   |
| 7   | H     | 80   | LYS  | CA-C-N      | 7.96  | 132.13      | 116.20   |
| 2   | A     | 445  | C    | P-O3'-C3'   | 7.95  | 129.24      | 119.70   |
| 2   | A     | 1143 | A    | O4'-C1'-N9  | 7.93  | 114.54      | 108.20   |
| 2   | A     | 1552 | G    | P-O3'-C3'   | 7.92  | 129.21      | 119.70   |
| 2   | A     | 1427 | A    | P-O3'-C3'   | 7.92  | 129.20      | 119.70   |
| 2   | A     | 2825 | C    | C3'-C2'-C1' | -7.91 | 95.17       | 101.50   |
| 2   | A     | 1961 | C    | OP2-P-O3'   | 7.91  | 122.61      | 105.20   |
| 2   | A     | 119  | A    | P-O3'-C3'   | 7.91  | 129.19      | 119.70   |
| 2   | A     | 329  | G    | P-O3'-C3'   | 7.91  | 129.19      | 119.70   |
| 2   | A     | 2021 | C    | N1-C2-O2    | 7.89  | 123.63      | 118.90   |
| 2   | A     | 359  | A    | OP2-P-O3'   | -7.87 | 87.89       | 105.20   |
| 2   | A     | 525  | U    | OP1-P-O3'   | 7.86  | 122.49      | 105.20   |
| 2   | A     | 1463 | C    | O4'-C1'-N1  | 7.85  | 114.48      | 108.20   |
| 2   | A     | 32   | C    | OP2-P-O3'   | -7.84 | 87.95       | 105.20   |
| 2   | A     | 130  | C    | O3'-P-O5'   | 7.84  | 118.89      | 104.00   |
| 31  | K     | 86   | GLU  | C-N-CA      | -7.83 | 102.12      | 121.70   |
| 2   | A     | 1961 | C    | P-O3'-C3'   | -7.83 | 110.30      | 119.70   |
| 2   | A     | 832  | G    | O4'-C1'-N9  | 7.83  | 114.46      | 108.20   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 2488   | A    | C3'-C2'-C1' | -7.82 | 95.24       | 101.50   |
| 2   | A     | 793    | A    | P-O3'-C3'   | 7.82  | 129.08      | 119.70   |
| 2   | A     | 1924   | C    | OP1-P-O3'   | -7.81 | 88.01       | 105.20   |
| 2   | A     | 331    | A    | P-O3'-C3'   | 7.81  | 129.07      | 119.70   |
| 2   | A     | 2295   | C    | OP1-P-O3'   | 7.81  | 122.38      | 105.20   |
| 2   | A     | 289    | A    | C1'-O4'-C4' | -7.80 | 103.66      | 109.90   |
| 2   | A     | 1669   | A    | C1'-O4'-C4' | -7.80 | 103.66      | 109.90   |
| 2   | A     | 2433   | A    | O3'-P-O5'   | -7.79 | 89.20       | 104.00   |
| 2   | A     | 2019   | A    | C3'-C2'-C1' | -7.78 | 95.27       | 101.50   |
| 2   | A     | 613    | U    | O4'-C1'-N1  | 7.77  | 114.41      | 108.20   |
| 2   | A     | 931    | G    | O4'-C1'-N9  | 7.75  | 114.40      | 108.20   |
| 2   | A     | 2893   | G    | C3'-C2'-C1' | -7.70 | 95.34       | 101.50   |
| 2   | A     | 961    | C    | P-O3'-C3'   | 7.70  | 128.94      | 119.70   |
| 2   | A     | 974(A) | C    | C6-N1-C2    | -7.69 | 117.22      | 120.30   |
| 2   | A     | 2626   | C    | C3'-C2'-C1' | -7.69 | 95.35       | 101.50   |
| 2   | A     | 1100   | C    | P-O3'-C3'   | 7.67  | 128.91      | 119.70   |
| 2   | A     | 359    | A    | P-O3'-C3'   | -7.66 | 110.50      | 119.70   |
| 4   | E     | 274    | GLY  | O-C-N       | -7.66 | 110.19      | 123.20   |
| 2   | A     | 2584   | U    | C3'-C2'-C1' | -7.65 | 95.38       | 101.50   |
| 2   | A     | 1255   | U    | O4'-C1'-N1  | 7.65  | 114.32      | 108.20   |
| 2   | A     | 120    | U    | C1'-O4'-C4' | -7.65 | 103.78      | 109.90   |
| 2   | A     | 1820   | U    | P-O3'-C3'   | 7.64  | 128.87      | 119.70   |
| 2   | A     | 679    | C    | C3'-C2'-C1' | -7.63 | 95.39       | 101.50   |
| 15  | W     | 79     | GLY  | C-N-CA      | -7.61 | 90.03       | 122.00   |
| 11  | P     | 83     | GLU  | CA-C-N      | 7.60  | 133.92      | 117.20   |
| 2   | A     | 574    | C    | P-O3'-C3'   | 7.59  | 128.81      | 119.70   |
| 2   | A     | 530    | G    | O4'-C1'-N9  | 7.59  | 114.27      | 108.20   |
| 2   | A     | 1239   | G    | N9-C1'-C2'  | 7.59  | 123.86      | 114.00   |
| 2   | A     | 2433   | A    | OP2-P-O3'   | 7.58  | 121.87      | 105.20   |
| 2   | A     | 1964   | G    | P-O3'-C3'   | 7.56  | 128.77      | 119.70   |
| 3   | D     | 199    | ARG  | O-C-N       | 7.56  | 134.80      | 122.70   |
| 2   | A     | 2496   | C    | OP1-P-O3'   | -7.56 | 88.58       | 105.20   |
| 1   | B     | 80     | U    | O4'-C1'-N1  | 7.55  | 114.24      | 108.20   |
| 2   | A     | 738    | G    | C3'-C2'-C1' | 7.54  | 107.53      | 101.50   |
| 29  | 8     | 24     | ALA  | C-N-CA      | 7.53  | 140.53      | 121.70   |
| 2   | A     | 1664   | A    | C3'-C2'-C1' | -7.51 | 95.49       | 101.50   |
| 20  | U     | 50     | ARG  | CA-C-N      | -7.50 | 100.69      | 117.20   |
| 29  | 8     | 24     | ALA  | CA-C-N      | 7.47  | 133.64      | 117.20   |
| 2   | A     | 2049   | G    | P-O3'-C3'   | 7.46  | 128.66      | 119.70   |
| 2   | A     | 2033   | A    | P-O3'-C3'   | 7.46  | 128.65      | 119.70   |
| 2   | A     | 342    | G    | O4'-C1'-N9  | 7.46  | 114.17      | 108.20   |
| 2   | A     | 2506   | U    | OP1-P-O3'   | 7.44  | 121.57      | 105.20   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 125    | G    | C1'-O4'-C4' | -7.43 | 103.96      | 109.90   |
| 2   | A     | 2287   | A    | OP2-P-O3'   | 7.41  | 121.51      | 105.20   |
| 2   | A     | 1404   | C    | P-O3'-C3'   | 7.41  | 128.59      | 119.70   |
| 2   | A     | 2503   | A    | C3'-C2'-C1' | -7.41 | 95.58       | 101.50   |
| 2   | A     | 1239   | G    | C8-N9-C4    | -7.40 | 103.44      | 106.40   |
| 2   | A     | 573    | G    | N9-C1'-C2'  | 7.39  | 123.61      | 114.00   |
| 2   | A     | 101    | G    | N1-C6-O6    | -7.38 | 115.47      | 119.90   |
| 2   | A     | 1800   | C    | O4'-C4'-C3' | -7.37 | 96.63       | 104.00   |
| 2   | A     | 832    | G    | C1'-O4'-C4' | -7.35 | 104.02      | 109.90   |
| 2   | A     | 2589   | A    | C4'-C3'-C2' | -7.35 | 95.25       | 102.60   |
| 2   | A     | 1991   | U    | P-O3'-C3'   | -7.35 | 110.88      | 119.70   |
| 2   | A     | 1130   | U    | P-O3'-C3'   | 7.35  | 128.52      | 119.70   |
| 2   | A     | 196    | A    | P-O3'-C3'   | 7.34  | 128.51      | 119.70   |
| 2   | A     | 1208   | C    | P-O3'-C3'   | 7.32  | 128.49      | 119.70   |
| 2   | A     | 1363   | C    | C3'-C2'-C1' | -7.32 | 95.64       | 101.50   |
| 2   | A     | 1772   | G    | C4'-C3'-C2' | -7.31 | 95.29       | 102.60   |
| 2   | A     | 2035   | G    | N3-C4-N9    | 7.30  | 130.38      | 126.00   |
| 2   | A     | 1525   | G    | O3'-P-O5'   | 7.29  | 117.86      | 104.00   |
| 2   | A     | 2059   | A    | C1'-O4'-C4' | -7.29 | 104.06      | 109.90   |
| 2   | A     | 2448   | A    | C1'-O4'-C4' | -7.29 | 104.07      | 109.90   |
| 2   | A     | 1851   | U    | OP1-P-O3'   | 7.28  | 121.21      | 105.20   |
| 2   | A     | 686    | G    | OP1-P-O3'   | -7.27 | 89.21       | 105.20   |
| 2   | A     | 1706   | U    | OP2-P-O3'   | 7.27  | 121.19      | 105.20   |
| 2   | A     | 527    | C    | P-O3'-C3'   | 7.26  | 128.42      | 119.70   |
| 2   | A     | 559    | G    | P-O3'-C3'   | 7.24  | 128.39      | 119.70   |
| 2   | A     | 1249   | U    | O4'-C1'-N1  | 7.24  | 113.99      | 108.20   |
| 2   | A     | 1944   | U    | O3'-P-O5'   | 7.23  | 117.73      | 104.00   |
| 2   | A     | 670    | A    | P-O3'-C3'   | 7.22  | 128.37      | 119.70   |
| 2   | A     | 2080   | G    | C1'-O4'-C4' | -7.20 | 104.14      | 109.90   |
| 2   | A     | 2055   | C    | P-O3'-C3'   | 7.18  | 128.31      | 119.70   |
| 2   | A     | 2286   | A    | C3'-C2'-C1' | -7.17 | 95.76       | 101.50   |
| 2   | A     | 2848   | G    | C3'-C2'-C1' | -7.17 | 95.76       | 101.50   |
| 2   | A     | 363(F) | A    | C3'-C2'-C1' | -7.17 | 95.76       | 101.50   |
| 2   | A     | 2734   | A    | C3'-C2'-C1' | -7.17 | 95.77       | 101.50   |
| 2   | A     | 1938   | A    | P-O3'-C3'   | 7.16  | 128.29      | 119.70   |
| 2   | A     | 2281   | C    | P-O3'-C3'   | -7.16 | 111.11      | 119.70   |
| 2   | A     | 1183   | G    | C4'-C3'-C2' | -7.15 | 95.45       | 102.60   |
| 2   | A     | 1630   | G    | P-O3'-C3'   | 7.15  | 128.28      | 119.70   |
| 2   | A     | 1237   | A    | C1'-O4'-C4' | -7.15 | 104.18      | 109.90   |
| 2   | A     | 101    | G    | N7-C8-N9    | 7.13  | 116.67      | 113.10   |
| 2   | A     | 1190   | G    | C5'-C4'-O4' | 7.12  | 117.65      | 109.10   |
| 2   | A     | 804    | A    | C1'-O4'-C4' | -7.11 | 104.21      | 109.90   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 128  | C    | P-O3'-C3'   | 7.11  | 128.23      | 119.70   |
| 4   | E     | 49   | THR  | C-N-CA      | 7.11  | 151.86      | 122.00   |
| 2   | A     | 1826 | G    | O4'-C1'-N9  | 7.11  | 113.89      | 108.20   |
| 2   | A     | 2832 | U    | C1'-O4'-C4' | -7.10 | 104.22      | 109.90   |
| 1   | B     | 119  | A    | C3'-C2'-C1' | -7.09 | 95.83       | 101.50   |
| 2   | A     | 13   | A    | P-O3'-C3'   | 7.07  | 128.19      | 119.70   |
| 2   | A     | 945  | A    | O4'-C4'-C3' | -7.07 | 96.93       | 104.00   |
| 2   | A     | 2589 | A    | C1'-O4'-C4' | -7.06 | 104.25      | 109.90   |
| 2   | A     | 1751 | C    | OP2-P-O3'   | 7.05  | 120.71      | 105.20   |
| 2   | A     | 1085 | A    | P-O3'-C3'   | 7.04  | 128.15      | 119.70   |
| 2   | A     | 1545 | A    | O3'-P-O5'   | -7.04 | 90.62       | 104.00   |
| 2   | A     | 615  | G    | C3'-C2'-C1' | 7.02  | 107.12      | 101.50   |
| 2   | A     | 71   | A    | P-O3'-C3'   | 7.02  | 128.12      | 119.70   |
| 2   | A     | 1181 | C    | P-O3'-C3'   | 7.01  | 128.11      | 119.70   |
| 2   | A     | 101  | G    | C8-N9-C1'   | -7.00 | 117.91      | 127.00   |
| 2   | A     | 2258 | C    | O4'-C1'-N1  | 6.99  | 113.79      | 108.20   |
| 2   | A     | 204  | A    | P-O3'-C3'   | 6.98  | 128.08      | 119.70   |
| 2   | A     | 8    | A    | O3'-P-O5'   | 6.96  | 117.22      | 104.00   |
| 2   | A     | 2769 | C    | O3'-P-O5'   | -6.94 | 90.81       | 104.00   |
| 20  | U     | 50   | ARG  | C-N-CA      | -6.94 | 104.34      | 121.70   |
| 2   | A     | 1189 | A    | OP1-P-O3'   | 6.94  | 120.47      | 105.20   |
| 2   | A     | 51   | G    | C3'-C2'-C1' | 6.94  | 107.05      | 101.50   |
| 2   | A     | 830  | G    | P-O3'-C3'   | 6.94  | 128.03      | 119.70   |
| 2   | A     | 1968 | G    | C3'-C2'-C1' | -6.94 | 95.95       | 101.50   |
| 2   | A     | 324  | A    | OP2-P-O3'   | 6.92  | 120.44      | 105.20   |
| 2   | A     | 1266 | G    | P-O3'-C3'   | 6.92  | 128.01      | 119.70   |
| 2   | A     | 289  | A    | O4'-C1'-N9  | 6.92  | 113.74      | 108.20   |
| 2   | A     | 2595 | G    | C3'-C2'-C1' | -6.92 | 95.97       | 101.50   |
| 2   | A     | 2448 | A    | O4'-C1'-N9  | 6.92  | 113.73      | 108.20   |
| 2   | A     | 270  | A    | OP2-P-O3'   | 6.91  | 120.40      | 105.20   |
| 1   | B     | 66   | A    | P-O3'-C3'   | 6.91  | 127.99      | 119.70   |
| 2   | A     | 1673 | U    | O4'-C1'-N1  | 6.90  | 113.72      | 108.20   |
| 2   | A     | 1251 | C    | C1'-O4'-C4' | -6.90 | 104.38      | 109.90   |
| 2   | A     | 2712 | U    | OP2-P-O3'   | 6.89  | 120.36      | 105.20   |
| 2   | A     | 223  | A    | C1'-O4'-C4' | -6.89 | 104.39      | 109.90   |
| 2   | A     | 2042 | A    | C5'-C4'-O4' | 6.88  | 117.36      | 109.10   |
| 2   | A     | 2451 | A    | P-O3'-C3'   | 6.88  | 127.96      | 119.70   |
| 2   | A     | 1265 | A    | C1'-O4'-C4' | -6.88 | 104.40      | 109.90   |
| 2   | A     | 2834 | G    | C4'-C3'-C2' | -6.88 | 95.72       | 102.60   |
| 2   | A     | 1475 | G    | C3'-C2'-C1' | -6.87 | 96.01       | 101.50   |
| 2   | A     | 2625 | G    | O3'-P-O5'   | -6.87 | 90.95       | 104.00   |
| 2   | A     | 215  | G    | P-O3'-C3'   | 6.85  | 127.92      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 2432 | A    | C1'-O4'-C4' | -6.85 | 104.42      | 109.90   |
| 2   | A     | 793  | A    | O3'-P-O5'   | 6.85  | 117.01      | 104.00   |
| 2   | A     | 2756 | U    | C1'-O4'-C4' | -6.84 | 104.43      | 109.90   |
| 2   | A     | 1779 | U    | C3'-C2'-C1' | -6.84 | 96.03       | 101.50   |
| 2   | A     | 971  | C    | O4'-C1'-N1  | 6.83  | 113.67      | 108.20   |
| 2   | A     | 1180 | C    | P-O3'-C3'   | 6.83  | 127.90      | 119.70   |
| 2   | A     | 117  | G    | O3'-P-O5'   | -6.82 | 91.03       | 104.00   |
| 2   | A     | 1210 | A    | P-O3'-C3'   | 6.82  | 127.89      | 119.70   |
| 2   | A     | 1086 | A    | O3'-P-O5'   | 6.82  | 116.96      | 104.00   |
| 2   | A     | 1980 | G    | O4'-C1'-N9  | -6.81 | 102.75      | 108.20   |
| 2   | A     | 1179 | C    | P-O3'-C3'   | 6.81  | 127.87      | 119.70   |
| 2   | A     | 2240 | C    | C1'-O4'-C4' | -6.79 | 104.46      | 109.90   |
| 2   | A     | 587  | C    | P-O3'-C3'   | 6.77  | 127.83      | 119.70   |
| 2   | A     | 1237 | A    | P-O3'-C3'   | 6.77  | 127.82      | 119.70   |
| 2   | A     | 2228 | G    | OP2-P-O3'   | 6.77  | 120.08      | 105.20   |
| 2   | A     | 788  | A    | P-O3'-C3'   | 6.76  | 127.81      | 119.70   |
| 2   | A     | 1914 | C    | O4'-C1'-C2' | -6.76 | 99.04       | 105.80   |
| 2   | A     | 1512 | G    | P-O3'-C3'   | 6.75  | 127.80      | 119.70   |
| 2   | A     | 787  | U    | O4'-C4'-C3' | -6.75 | 97.25       | 104.00   |
| 2   | A     | 560  | C    | P-O3'-C3'   | -6.75 | 111.61      | 119.70   |
| 2   | A     | 945  | A    | C1'-O4'-C4' | -6.74 | 104.51      | 109.90   |
| 2   | A     | 2508 | G    | N9-C1'-C2'  | -6.74 | 104.59      | 112.00   |
| 2   | A     | 739  | G    | C3'-C2'-C1' | 6.74  | 106.89      | 101.50   |
| 2   | A     | 2035 | G    | N3-C4-C5    | -6.74 | 125.23      | 128.60   |
| 2   | A     | 886  | C    | P-O3'-C3'   | 6.73  | 127.78      | 119.70   |
| 2   | A     | 90   | U    | P-O3'-C3'   | 6.73  | 127.78      | 119.70   |
| 2   | A     | 1742 | C    | O4'-C4'-C3' | -6.73 | 97.27       | 104.00   |
| 2   | A     | 2047 | U    | P-O3'-C3'   | 6.71  | 127.75      | 119.70   |
| 2   | A     | 740  | U    | C3'-C2'-C1' | 6.69  | 106.85      | 101.50   |
| 2   | A     | 472  | A    | OP2-P-O3'   | 6.68  | 119.91      | 105.20   |
| 2   | A     | 2258 | C    | C1'-O4'-C4' | -6.68 | 104.55      | 109.90   |
| 15  | W     | 2    | GLU  | CA-C-N      | -6.68 | 102.50      | 117.20   |
| 2   | A     | 1743 | G    | N9-C1'-C2'  | 6.67  | 122.68      | 114.00   |
| 2   | A     | 1546 | C    | OP1-P-O3'   | -6.67 | 90.54       | 105.20   |
| 2   | A     | 2545 | G    | P-O3'-C3'   | -6.67 | 111.70      | 119.70   |
| 2   | A     | 1449 | A    | OP2-P-O3'   | -6.66 | 90.54       | 105.20   |
| 2   | A     | 1800 | C    | C3'-C2'-C1' | -6.64 | 96.19       | 101.50   |
| 2   | A     | 1984 | G    | O4'-C1'-N9  | 6.64  | 113.51      | 108.20   |
| 2   | A     | 2228 | G    | O3'-P-O5'   | -6.64 | 91.38       | 104.00   |
| 2   | A     | 1791 | A    | P-O3'-C3'   | -6.64 | 111.73      | 119.70   |
| 2   | A     | 1616 | A    | O4'-C1'-N9  | -6.64 | 102.89      | 108.20   |
| 2   | A     | 1341 | U    | P-O3'-C3'   | 6.63  | 127.66      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 2225 | A    | P-O3'-C3'   | -6.63 | 111.75      | 119.70   |
| 2   | A     | 2451 | A    | C4'-C3'-C2' | -6.61 | 95.99       | 102.60   |
| 2   | A     | 984  | A    | C4'-C3'-C2' | -6.61 | 95.99       | 102.60   |
| 2   | A     | 152  | G    | C3'-C2'-C1' | -6.61 | 96.22       | 101.50   |
| 2   | A     | 1742 | C    | C3'-C2'-C1' | -6.59 | 96.22       | 101.50   |
| 2   | A     | 584  | C    | P-O3'-C3'   | 6.58  | 127.60      | 119.70   |
| 2   | A     | 1583 | A    | C1'-O4'-C4' | -6.58 | 104.64      | 109.90   |
| 2   | A     | 2090 | G    | OP1-P-O3'   | 6.57  | 119.66      | 105.20   |
| 1   | B     | -1   | A    | O3'-P-O5'   | 6.57  | 116.49      | 104.00   |
| 2   | A     | 71   | A    | C1'-O4'-C4' | -6.57 | 104.64      | 109.90   |
| 2   | A     | 2769 | C    | OP2-P-O3'   | 6.57  | 119.65      | 105.20   |
| 2   | A     | 1423 | G    | C3'-C2'-C1' | -6.57 | 96.25       | 101.50   |
| 2   | A     | 973  | A    | C1'-O4'-C4' | -6.57 | 104.65      | 109.90   |
| 2   | A     | 2689 | U    | C1'-O4'-C4' | -6.56 | 104.65      | 109.90   |
| 2   | A     | 1996 | C    | C5-C6-N1    | 6.56  | 124.28      | 121.00   |
| 2   | A     | 791  | C    | P-O3'-C3'   | 6.56  | 127.57      | 119.70   |
| 2   | A     | 1914 | C    | C2-N1-C1'   | 6.54  | 126.00      | 118.80   |
| 2   | A     | 714  | U    | O4'-C1'-N1  | 6.54  | 113.44      | 108.20   |
| 2   | A     | 221  | A    | P-O3'-C3'   | 6.54  | 127.55      | 119.70   |
| 2   | A     | 1339 | G    | P-O3'-C3'   | 6.53  | 127.54      | 119.70   |
| 2   | A     | 2021 | C    | N3-C2-O2    | -6.53 | 117.33      | 121.90   |
| 2   | A     | 1890 | A    | OP1-P-O3'   | 6.52  | 119.55      | 105.20   |
| 2   | A     | 32   | C    | OP1-P-O3'   | 6.51  | 119.52      | 105.20   |
| 2   | A     | 2421 | G    | OP2-P-O3'   | -6.51 | 90.88       | 105.20   |
| 2   | A     | 2030 | A    | P-O3'-C3'   | 6.51  | 127.51      | 119.70   |
| 2   | A     | 2644 | G    | C3'-C2'-C1' | -6.51 | 96.29       | 101.50   |
| 2   | A     | 348  | G    | P-O3'-C3'   | 6.50  | 127.50      | 119.70   |
| 2   | A     | 761  | A    | OP1-P-O3'   | 6.50  | 119.50      | 105.20   |
| 2   | A     | 1667 | G    | C3'-C2'-C1' | 6.50  | 106.70      | 101.50   |
| 2   | A     | 817  | C    | C6-N1-C2    | -6.50 | 117.70      | 120.30   |
| 2   | A     | 56   | A    | OP1-P-O3'   | 6.49  | 119.48      | 105.20   |
| 2   | A     | 1187 | G    | P-O3'-C3'   | 6.49  | 127.48      | 119.70   |
| 2   | A     | 2057 | A    | P-O3'-C3'   | -6.49 | 111.92      | 119.70   |
| 2   | A     | 2561 | A    | C3'-C2'-C1' | -6.49 | 96.31       | 101.50   |
| 2   | A     | 1618 | A    | P-O3'-C3'   | 6.48  | 127.48      | 119.70   |
| 3   | D     | 199  | ARG  | CA-C-N      | -6.47 | 102.97      | 117.20   |
| 2   | A     | 120  | U    | P-O3'-C3'   | 6.46  | 127.46      | 119.70   |
| 2   | A     | 2398 | U    | C4'-C3'-C2' | -6.46 | 96.14       | 102.60   |
| 2   | A     | 1008 | C    | P-O3'-C3'   | 6.46  | 127.45      | 119.70   |
| 2   | A     | 1732 | A    | C1'-O4'-C4' | -6.46 | 104.73      | 109.90   |
| 2   | A     | 1103 | A    | P-O3'-C3'   | -6.46 | 111.95      | 119.70   |
| 2   | A     | 1552 | G    | C3'-C2'-C1' | -6.46 | 96.34       | 101.50   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 301    | G    | O4'-C1'-N9  | 6.45  | 113.36      | 108.20   |
| 2   | A     | 183    | C    | P-O3'-C3'   | -6.45 | 111.97      | 119.70   |
| 2   | A     | 1968   | G    | O4'-C4'-C3' | -6.43 | 97.57       | 104.00   |
| 2   | A     | 1522   | G    | C3'-C2'-C1' | -6.43 | 96.36       | 101.50   |
| 2   | A     | 2040   | C    | P-O3'-C3'   | -6.43 | 111.98      | 119.70   |
| 2   | A     | 712(A) | A    | OP2-P-O3'   | 6.43  | 119.35      | 105.20   |
| 2   | A     | 1261   | C    | O3'-P-O5'   | -6.41 | 91.81       | 104.00   |
| 2   | A     | 2421   | G    | O3'-P-O5'   | 6.41  | 116.18      | 104.00   |
| 2   | A     | 699    | A    | OP1-P-O3'   | 6.40  | 119.27      | 105.20   |
| 2   | A     | 456    | C    | O4'-C1'-N1  | 6.39  | 113.31      | 108.20   |
| 2   | A     | 2322   | A    | P-O3'-C3'   | 6.39  | 127.37      | 119.70   |
| 1   | B     | 90     | C    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 2   | A     | 1439   | A    | O4'-C1'-N9  | 6.38  | 113.31      | 108.20   |
| 2   | A     | 1702   | G    | C3'-C2'-C1' | -6.38 | 96.39       | 101.50   |
| 2   | A     | 2267   | A    | O4'-C1'-N9  | 6.38  | 113.31      | 108.20   |
| 2   | A     | 2345   | G    | C1'-O4'-C4' | -6.38 | 104.80      | 109.90   |
| 2   | A     | 627    | A    | C4'-C3'-C2' | -6.37 | 96.23       | 102.60   |
| 2   | A     | 2896   | C    | C3'-C2'-C1' | -6.37 | 96.41       | 101.50   |
| 2   | A     | 1183   | G    | C3'-C2'-C1' | -6.36 | 96.41       | 101.50   |
| 2   | A     | 1197   | G    | P-O3'-C3'   | 6.36  | 127.33      | 119.70   |
| 2   | A     | 1980   | G    | C2'-C3'-O3' | 6.36  | 123.88      | 113.70   |
| 2   | A     | 141(A) | C    | O4'-C1'-N1  | 6.36  | 113.29      | 108.20   |
| 2   | A     | 1150   | C    | P-O3'-C3'   | 6.36  | 127.33      | 119.70   |
| 2   | A     | 1926   | U    | C3'-C2'-C1' | -6.35 | 96.42       | 101.50   |
| 2   | A     | 1239   | G    | N3-C4-C5    | -6.35 | 125.43      | 128.60   |
| 2   | A     | 713    | G    | C3'-C2'-C1' | -6.34 | 96.42       | 101.50   |
| 2   | A     | 1544   | C    | O4'-C1'-N1  | 6.34  | 113.28      | 108.20   |
| 2   | A     | 2238   | G    | C1'-O4'-C4' | -6.34 | 104.82      | 109.90   |
| 2   | A     | 597    | U    | O4'-C1'-N1  | 6.34  | 113.27      | 108.20   |
| 2   | A     | 1266   | G    | C4'-C3'-C2' | -6.34 | 96.26       | 102.60   |
| 2   | A     | 2542   | A    | P-O3'-C3'   | 6.33  | 127.30      | 119.70   |
| 2   | A     | 971    | C    | OP2-P-O3'   | 6.33  | 119.12      | 105.20   |
| 2   | A     | 1747   | G    | O4'-C1'-N9  | 6.33  | 113.26      | 108.20   |
| 2   | A     | 147    | U    | O4'-C1'-N1  | 6.33  | 113.26      | 108.20   |
| 2   | A     | 1239   | G    | C4-N9-C1'   | 6.32  | 134.72      | 126.50   |
| 2   | A     | 626    | U    | O4'-C4'-C3' | -6.32 | 97.68       | 104.00   |
| 2   | A     | 2019   | A    | P-O3'-C3'   | 6.32  | 127.28      | 119.70   |
| 2   | A     | 1944   | U    | P-O3'-C3'   | 6.31  | 127.27      | 119.70   |
| 2   | A     | 2428   | G    | C4'-C3'-C2' | -6.31 | 96.29       | 102.60   |
| 2   | A     | 1088   | A    | C1'-O4'-C4' | -6.30 | 104.86      | 109.90   |
| 2   | A     | 1239   | G    | N7-C8-N9    | 6.30  | 116.25      | 113.10   |
| 2   | A     | 1941   | C    | C4'-C3'-C2' | -6.30 | 96.30       | 102.60   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 1248   | G    | N9-C1'-C2'  | 6.28  | 122.17      | 114.00   |
| 2   | A     | 1559   | G    | C4'-C3'-C2' | -6.28 | 96.32       | 102.60   |
| 2   | A     | 676    | A    | C1'-O4'-C4' | -6.28 | 104.88      | 109.90   |
| 2   | A     | 899    | A    | C3'-C2'-C1' | -6.27 | 96.49       | 101.50   |
| 2   | A     | 2062   | A    | O4'-C1'-N9  | 6.27  | 113.21      | 108.20   |
| 2   | A     | 2517   | C    | P-O3'-C3'   | 6.26  | 127.22      | 119.70   |
| 2   | A     | 102    | G    | O4'-C4'-C3' | -6.26 | 97.74       | 104.00   |
| 2   | A     | 1536   | A    | P-O3'-C3'   | 6.26  | 127.21      | 119.70   |
| 2   | A     | 1970   | A    | O4'-C1'-N9  | 6.26  | 113.20      | 108.20   |
| 2   | A     | 2788   | C    | C3'-C2'-C1' | -6.25 | 96.50       | 101.50   |
| 2   | A     | 328    | U    | C2-N1-C1'   | 6.25  | 125.20      | 117.70   |
| 2   | A     | 1621   | U    | O4'-C1'-N1  | 6.24  | 113.20      | 108.20   |
| 2   | A     | 971    | C    | O3'-P-O5'   | -6.24 | 92.14       | 104.00   |
| 2   | A     | 1210   | A    | C1'-O4'-C4' | -6.24 | 104.91      | 109.90   |
| 2   | A     | 1527   | G    | C8-N9-C4    | -6.24 | 103.90      | 106.40   |
| 2   | A     | 1571   | A    | O4'-C1'-C2' | -6.24 | 99.56       | 105.80   |
| 2   | A     | 1939   | U    | O4'-C1'-N1  | 6.23  | 113.19      | 108.20   |
| 2   | A     | 2021   | C    | C2-N1-C1'   | 6.23  | 125.65      | 118.80   |
| 2   | A     | 1542   | G    | C4'-C3'-C2' | -6.22 | 96.38       | 102.60   |
| 2   | A     | 527    | C    | C3'-C2'-C1' | 6.21  | 106.47      | 101.50   |
| 2   | A     | 574    | C    | C1'-O4'-C4' | -6.21 | 104.93      | 109.90   |
| 2   | A     | 1825   | A    | C1'-O4'-C4' | -6.21 | 104.93      | 109.90   |
| 2   | A     | 2267   | A    | P-O3'-C3'   | -6.21 | 112.25      | 119.70   |
| 2   | A     | 322    | A    | C4'-C3'-C2' | -6.20 | 96.40       | 102.60   |
| 2   | A     | 532    | A    | C1'-O4'-C4' | -6.20 | 104.94      | 109.90   |
| 2   | A     | 1444   | G    | OP1-P-O3'   | -6.20 | 91.56       | 105.20   |
| 2   | A     | 1917   | U    | P-O3'-C3'   | 6.20  | 127.14      | 119.70   |
| 2   | A     | 1758   | G    | O4'-C1'-N9  | 6.19  | 113.16      | 108.20   |
| 2   | A     | 1626   | G    | OP2-P-O3'   | 6.19  | 118.82      | 105.20   |
| 2   | A     | 264    | C    | O3'-P-O5'   | -6.18 | 92.26       | 104.00   |
| 2   | A     | 1796   | U    | C1'-O4'-C4' | -6.18 | 104.96      | 109.90   |
| 2   | A     | 1183   | G    | C5'-C4'-O4' | 6.18  | 116.51      | 109.10   |
| 2   | A     | 363(D) | G    | C1'-O4'-C4' | -6.17 | 104.96      | 109.90   |
| 2   | A     | 2062   | A    | C1'-O4'-C4' | -6.17 | 104.96      | 109.90   |
| 2   | A     | 1361   | G    | P-O3'-C3'   | -6.17 | 112.30      | 119.70   |
| 2   | A     | 321    | G    | C3'-C2'-C1' | 6.16  | 106.43      | 101.50   |
| 2   | A     | 571    | A    | C1'-O4'-C4' | -6.16 | 104.97      | 109.90   |
| 2   | A     | 2252   | G    | C3'-C2'-C1' | -6.16 | 96.57       | 101.50   |
| 2   | A     | 535    | C    | C3'-C2'-C1' | -6.16 | 96.57       | 101.50   |
| 2   | A     | 1230   | C    | O4'-C1'-N1  | 6.16  | 113.13      | 108.20   |
| 2   | A     | 2683   | C    | C4'-C3'-C2' | -6.15 | 96.45       | 102.60   |
| 2   | A     | 2062   | A    | OP2-P-O3'   | 6.15  | 118.73      | 105.20   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 1552   | G    | C4'-C3'-C2' | -6.14 | 96.46       | 102.60   |
| 2   | A     | 2091   | U    | C3'-C2'-C1' | -6.14 | 96.58       | 101.50   |
| 2   | A     | 363(D) | G    | O4'-C1'-N9  | 6.14  | 113.11      | 108.20   |
| 2   | A     | 1313   | U    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 2   | A     | 2856   | C    | C3'-C2'-C1' | -6.13 | 96.60       | 101.50   |
| 2   | A     | 2016   | U    | P-O3'-C3'   | 6.12  | 127.05      | 119.70   |
| 2   | A     | 1585   | C    | C3'-C2'-C1' | 6.12  | 106.40      | 101.50   |
| 2   | A     | 1253   | A    | N9-C1'-C2'  | 6.12  | 121.95      | 114.00   |
| 2   | A     | 687    | C    | C3'-C2'-C1' | 6.11  | 106.39      | 101.50   |
| 2   | A     | 525    | U    | O4'-C1'-N1  | 6.10  | 113.08      | 108.20   |
| 2   | A     | 1202   | C    | C2-N1-C1'   | 6.09  | 125.50      | 118.80   |
| 2   | A     | 1604   | C    | O4'-C1'-N1  | 6.08  | 113.07      | 108.20   |
| 2   | A     | 2399   | G    | C3'-C2'-C1' | -6.08 | 96.64       | 101.50   |
| 2   | A     | 2692   | C    | C4'-C3'-C2' | -6.07 | 96.53       | 102.60   |
| 1   | B     | 59     | A    | OP2-P-O3'   | 6.06  | 118.54      | 105.20   |
| 2   | A     | 2267   | A    | C4'-C3'-C2' | -6.06 | 96.54       | 102.60   |
| 2   | A     | 456    | C    | C4'-C3'-C2' | -6.06 | 96.54       | 102.60   |
| 2   | A     | 974(A) | C    | C3'-C2'-C1' | 6.05  | 106.34      | 101.50   |
| 2   | A     | 1647   | G    | P-O3'-C3'   | 6.05  | 126.96      | 119.70   |
| 2   | A     | 2886   | G    | C3'-C2'-C1' | -6.04 | 96.67       | 101.50   |
| 2   | A     | 2295   | C    | O3'-P-O5'   | -6.04 | 92.53       | 104.00   |
| 2   | A     | 710    | G    | C3'-C2'-C1' | -6.03 | 96.67       | 101.50   |
| 2   | A     | 777    | A    | O4'-C1'-N9  | 6.03  | 113.03      | 108.20   |
| 2   | A     | 2224   | G    | OP1-P-OP2   | -6.03 | 110.55      | 119.60   |
| 2   | A     | 1183   | G    | C1'-O4'-C4' | -6.03 | 105.08      | 109.90   |
| 2   | A     | 669    | G    | C3'-C2'-C1' | 6.03  | 106.32      | 101.50   |
| 2   | A     | 1646   | C    | P-O3'-C3'   | -6.03 | 112.47      | 119.70   |
| 2   | A     | 586    | A    | N9-C1'-C2'  | -6.02 | 105.38      | 112.00   |
| 2   | A     | 2644   | G    | O3'-P-O5'   | 6.02  | 115.44      | 104.00   |
| 2   | A     | 1991   | U    | C3'-C2'-C1' | -6.02 | 96.69       | 101.50   |
| 2   | A     | 1241   | A    | C8-N9-C4    | -6.02 | 103.39      | 105.80   |
| 2   | A     | 1131   | G    | P-O3'-C3'   | 6.01  | 126.91      | 119.70   |
| 2   | A     | 296    | C    | C4'-C3'-C2' | -6.00 | 96.60       | 102.60   |
| 2   | A     | 1625   | C    | P-O3'-C3'   | 6.00  | 126.90      | 119.70   |
| 2   | A     | 2846   | G    | OP2-P-O3'   | -6.00 | 92.00       | 105.20   |
| 2   | A     | 945    | A    | C4'-C3'-C2' | -5.99 | 96.61       | 102.60   |
| 2   | A     | 270(L) | U    | P-O3'-C3'   | 5.99  | 126.89      | 119.70   |
| 2   | A     | 2035   | G    | C5-C6-N1    | 5.99  | 114.50      | 111.50   |
| 2   | A     | 2832   | U    | O4'-C1'-C2' | -5.99 | 99.81       | 105.80   |
| 2   | A     | 1824   | G    | C4'-C3'-C2' | -5.99 | 96.61       | 102.60   |
| 2   | A     | 2609   | U    | O3'-P-O5'   | 5.98  | 115.37      | 104.00   |
| 2   | A     | 120    | U    | O4'-C1'-N1  | 5.98  | 112.98      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 1646 | C    | OP1-P-O3'   | 5.97  | 118.34      | 105.20   |
| 2   | A     | 1239 | G    | O4'-C1'-N9  | 5.97  | 112.98      | 108.20   |
| 2   | A     | 1751 | C    | OP1-P-O3'   | -5.96 | 92.08       | 105.20   |
| 2   | A     | 2035 | G    | C2-N3-C4    | 5.96  | 114.88      | 111.90   |
| 2   | A     | 56   | A    | O3'-P-O5'   | -5.95 | 92.70       | 104.00   |
| 2   | A     | 148  | C    | O4'-C1'-N1  | 5.94  | 112.95      | 108.20   |
| 2   | A     | 294  | A    | O4'-C4'-C3' | -5.94 | 98.06       | 104.00   |
| 2   | A     | 984  | A    | C1'-O4'-C4' | -5.94 | 105.15      | 109.90   |
| 2   | A     | 1437 | C    | P-O3'-C3'   | 5.94  | 126.83      | 119.70   |
| 2   | A     | 1991 | U    | OP2-P-O3'   | 5.94  | 118.27      | 105.20   |
| 2   | A     | 1912 | A    | C1'-O4'-C4' | -5.94 | 105.15      | 109.90   |
| 2   | A     | 44   | A    | O3'-P-O5'   | -5.93 | 92.73       | 104.00   |
| 2   | A     | 775  | G    | C3'-C2'-C1' | 5.93  | 106.24      | 101.50   |
| 2   | A     | 787  | U    | C4'-C3'-C2' | -5.93 | 96.67       | 102.60   |
| 2   | A     | 1791 | A    | O3'-P-O5'   | 5.92  | 115.25      | 104.00   |
| 2   | A     | 1011 | G    | C1'-O4'-C4' | -5.92 | 105.16      | 109.90   |
| 2   | A     | 1206 | G    | C1'-O4'-C4' | -5.92 | 105.16      | 109.90   |
| 2   | A     | 190  | A    | C1'-O4'-C4' | -5.92 | 105.17      | 109.90   |
| 2   | A     | 685  | A    | P-O3'-C3'   | 5.92  | 126.80      | 119.70   |
| 2   | A     | 1664 | A    | C8-N9-C4    | -5.92 | 103.43      | 105.80   |
| 2   | A     | 779  | U    | O4'-C1'-N1  | 5.91  | 112.93      | 108.20   |
| 2   | A     | 1247 | A    | O3'-P-O5'   | -5.91 | 92.78       | 104.00   |
| 2   | A     | 503  | A    | C3'-C2'-C1' | 5.91  | 106.22      | 101.50   |
| 2   | A     | 351  | G    | C4'-C3'-C2' | -5.90 | 96.70       | 102.60   |
| 2   | A     | 767  | U    | O4'-C1'-N1  | 5.90  | 112.92      | 108.20   |
| 2   | A     | 787  | U    | C5'-C4'-O4' | 5.90  | 116.18      | 109.10   |
| 2   | A     | 2584 | U    | N1-C1'-C2'  | -5.90 | 105.51      | 112.00   |
| 2   | A     | 1241 | A    | N7-C8-N9    | 5.89  | 116.75      | 113.80   |
| 2   | A     | 2496 | C    | O3'-P-O5'   | 5.89  | 115.19      | 104.00   |
| 2   | A     | 962  | G    | P-O3'-C3'   | 5.89  | 126.77      | 119.70   |
| 2   | A     | 1498 | C    | C2-N1-C1'   | 5.89  | 125.28      | 118.80   |
| 2   | A     | 1206 | G    | O4'-C1'-N9  | 5.88  | 112.91      | 108.20   |
| 2   | A     | 1836 | C    | C3'-C2'-C1' | -5.87 | 96.81       | 101.50   |
| 29  | 8     | 46   | LYS  | O-C-N       | 5.87  | 133.18      | 123.20   |
| 2   | A     | 102  | G    | O4'-C1'-N9  | 5.86  | 112.89      | 108.20   |
| 2   | A     | 1102 | C    | C2-N1-C1'   | 5.86  | 125.25      | 118.80   |
| 2   | A     | 2245 | U    | C1'-O4'-C4' | -5.86 | 105.21      | 109.90   |
| 2   | A     | 371  | A    | P-O3'-C3'   | 5.85  | 126.72      | 119.70   |
| 2   | A     | 316  | C    | OP1-P-O3'   | -5.85 | 92.33       | 105.20   |
| 2   | A     | 1207 | C    | C1'-O4'-C4' | -5.85 | 105.22      | 109.90   |
| 2   | A     | 1914 | C    | N1-C2-O2    | 5.85  | 122.41      | 118.90   |
| 2   | A     | 2895 | U    | C4'-C3'-C2' | -5.85 | 96.75       | 102.60   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 1507 | A    | C1'-O4'-C4' | -5.85 | 105.22      | 109.90   |
| 2   | A     | 1914 | C    | C6-N1-C2    | -5.85 | 117.96      | 120.30   |
| 2   | A     | 508  | G    | P-O3'-C3'   | 5.84  | 126.71      | 119.70   |
| 2   | A     | 1482 | U    | C3'-C2'-C1' | -5.84 | 96.83       | 101.50   |
| 2   | A     | 1489 | U    | P-O3'-C3'   | 5.83  | 126.70      | 119.70   |
| 2   | A     | 154  | G    | N3-C4-C5    | -5.83 | 125.69      | 128.60   |
| 2   | A     | 1808 | U    | C2-N1-C1'   | 5.82  | 124.69      | 117.70   |
| 2   | A     | 445  | C    | C1'-O4'-C4' | -5.82 | 105.25      | 109.90   |
| 2   | A     | 1930 | G    | P-O3'-C3'   | 5.82  | 126.68      | 119.70   |
| 2   | A     | 1342 | A    | P-O3'-C3'   | 5.81  | 126.67      | 119.70   |
| 2   | A     | 2447 | G    | OP1-P-O3'   | 5.81  | 117.98      | 105.20   |
| 2   | A     | 602  | G    | P-O3'-C3'   | 5.80  | 126.67      | 119.70   |
| 2   | A     | 371  | A    | O4'-C1'-N9  | 5.80  | 112.84      | 108.20   |
| 2   | A     | 296  | C    | O4'-C4'-C3' | -5.80 | 98.20       | 104.00   |
| 2   | A     | 133  | C    | O4'-C1'-N1  | 5.80  | 112.84      | 108.20   |
| 2   | A     | 1667 | G    | N3-C4-C5    | -5.79 | 125.70      | 128.60   |
| 2   | A     | 2609 | U    | P-O3'-C3'   | 5.78  | 126.63      | 119.70   |
| 2   | A     | 332  | A    | P-O3'-C3'   | 5.78  | 126.63      | 119.70   |
| 2   | A     | 1809 | A    | O4'-C1'-N9  | 5.76  | 112.81      | 108.20   |
| 2   | A     | 2090 | G    | O3'-P-O5'   | 5.75  | 114.93      | 104.00   |
| 2   | A     | 503  | A    | P-O3'-C3'   | 5.74  | 126.59      | 119.70   |
| 2   | A     | 1757 | U    | C3'-C2'-C1' | -5.74 | 96.91       | 101.50   |
| 2   | A     | 1266 | G    | O4'-C1'-N9  | 5.74  | 112.79      | 108.20   |
| 2   | A     | 791  | C    | C3'-C2'-C1' | 5.74  | 106.09      | 101.50   |
| 7   | H     | 80   | LYS  | C-N-CA      | 5.73  | 134.33      | 122.30   |
| 2   | A     | 792  | G    | C1'-O4'-C4' | -5.73 | 105.32      | 109.90   |
| 2   | A     | 1181 | C    | O4'-C1'-N1  | 5.73  | 112.78      | 108.20   |
| 2   | A     | 2076 | U    | C3'-C2'-C1' | -5.72 | 96.92       | 101.50   |
| 2   | A     | 2381 | C    | O3'-P-O5'   | -5.72 | 93.12       | 104.00   |
| 2   | A     | 27   | G    | C8-N9-C4    | -5.72 | 104.11      | 106.40   |
| 2   | A     | 512  | G    | C8-N9-C4    | -5.72 | 104.11      | 106.40   |
| 2   | A     | 459  | U    | O4'-C1'-N1  | 5.71  | 112.77      | 108.20   |
| 2   | A     | 2579 | C    | C3'-C2'-C1' | -5.71 | 96.93       | 101.50   |
| 2   | A     | 1489 | U    | C1'-O4'-C4' | -5.71 | 105.33      | 109.90   |
| 2   | A     | 2554 | U    | C4'-C3'-C2' | -5.71 | 96.89       | 102.60   |
| 2   | A     | 380  | U    | C3'-C2'-C1' | -5.70 | 96.94       | 101.50   |
| 2   | A     | 1378 | A    | P-O3'-C3'   | 5.70  | 126.54      | 119.70   |
| 2   | A     | 1914 | C    | N3-C2-O2    | -5.70 | 117.91      | 121.90   |
| 2   | A     | 2824 | C    | C3'-C2'-C1' | -5.69 | 96.95       | 101.50   |
| 2   | A     | 1476 | C    | C1'-O4'-C4' | -5.68 | 105.35      | 109.90   |
| 2   | A     | 101  | G    | C6-N1-C2    | -5.68 | 121.69      | 125.10   |
| 2   | A     | 352  | G    | N7-C8-N9    | 5.68  | 115.94      | 113.10   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 474  | G    | O3'-P-O5'   | -5.68 | 93.21       | 104.00   |
| 2   | A     | 2045 | C    | C5'-C4'-O4' | 5.68  | 115.91      | 109.10   |
| 2   | A     | 2040 | C    | OP2-P-O3'   | 5.67  | 117.68      | 105.20   |
| 2   | A     | 498  | G    | C8-N9-C4    | -5.67 | 104.13      | 106.40   |
| 2   | A     | 2003 | G    | C1'-O4'-C4' | -5.66 | 105.37      | 109.90   |
| 2   | A     | 2322 | A    | OP1-P-O3'   | 5.66  | 117.66      | 105.20   |
| 2   | A     | 817  | C    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 1   | B     | -1   | A    | O4'-C1'-N9  | 5.66  | 112.72      | 108.20   |
| 2   | A     | 1653 | G    | C3'-C2'-C1' | 5.66  | 106.02      | 101.50   |
| 2   | A     | 2336 | A    | OP2-P-O3'   | -5.65 | 92.77       | 105.20   |
| 2   | A     | 2539 | C    | C4'-C3'-C2' | -5.65 | 96.95       | 102.60   |
| 2   | A     | 1019 | U    | O3'-P-O5'   | -5.64 | 93.28       | 104.00   |
| 2   | A     | 1669 | A    | P-O3'-C3'   | 5.64  | 126.47      | 119.70   |
| 2   | A     | 2825 | C    | P-O3'-C3'   | -5.63 | 112.94      | 119.70   |
| 1   | B     | 0    | A    | O4'-C1'-N9  | 5.63  | 112.71      | 108.20   |
| 2   | A     | 688  | U    | C1'-O4'-C4' | -5.63 | 105.39      | 109.90   |
| 2   | A     | 655  | A    | O3'-P-O5'   | -5.63 | 93.30       | 104.00   |
| 2   | A     | 1509 | C    | N1-C2-O2    | 5.62  | 122.28      | 118.90   |
| 2   | A     | 646  | A    | C3'-C2'-C1' | 5.62  | 106.00      | 101.50   |
| 2   | A     | 1132 | A    | C1'-O4'-C4' | -5.62 | 105.41      | 109.90   |
| 2   | A     | 1668 | A    | P-O3'-C3'   | 5.62  | 126.44      | 119.70   |
| 2   | A     | 1984 | G    | C4'-C3'-C2' | -5.62 | 96.98       | 102.60   |
| 13  | S     | 128  | ASP  | O-C-N       | -5.61 | 113.72      | 122.70   |
| 2   | A     | 1988 | C    | O3'-P-O5'   | 5.60  | 114.64      | 104.00   |
| 2   | A     | 2553 | G    | C4'-C3'-C2' | -5.60 | 97.00       | 102.60   |
| 2   | A     | 1914 | C    | N1-C1'-C2'  | 5.60  | 121.28      | 114.00   |
| 2   | A     | 427  | U    | O3'-P-O5'   | -5.59 | 93.37       | 104.00   |
| 2   | A     | 627  | A    | O4'-C1'-N9  | 5.59  | 112.68      | 108.20   |
| 2   | A     | 1251 | C    | N1-C2-O2    | 5.59  | 122.26      | 118.90   |
| 21  | V     | 91   | THR  | O-C-N       | 5.59  | 131.65      | 122.70   |
| 2   | A     | 1088 | A    | O4'-C1'-N9  | 5.59  | 112.67      | 108.20   |
| 2   | A     | 1520 | U    | C5-C6-N1    | 5.58  | 125.49      | 122.70   |
| 2   | A     | 1796 | U    | O4'-C1'-N1  | 5.58  | 112.67      | 108.20   |
| 2   | A     | 162  | U    | C3'-C2'-C1' | 5.58  | 105.96      | 101.50   |
| 2   | A     | 1730 | U    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |
| 2   | A     | 2855 | C    | C3'-C2'-C1' | -5.57 | 97.05       | 101.50   |
| 4   | E     | 258  | TYR  | O-C-N       | -5.57 | 113.79      | 122.70   |
| 2   | A     | 1442 | G    | O4'-C1'-N9  | 5.57  | 112.65      | 108.20   |
| 2   | A     | 1498 | C    | N1-C1'-C2'  | 5.57  | 121.24      | 114.00   |
| 2   | A     | 2317 | C    | C4'-C3'-C2' | -5.57 | 97.03       | 102.60   |
| 2   | A     | 946  | G    | O4'-C1'-N9  | 5.56  | 112.65      | 108.20   |
| 2   | A     | 1664 | A    | N7-C8-N9    | 5.56  | 116.58      | 113.80   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 2524   | G    | C4'-C3'-C2' | -5.56 | 97.04       | 102.60   |
| 2   | A     | 584    | C    | OP1-P-O3'   | 5.55  | 117.42      | 105.20   |
| 2   | A     | 8      | A    | P-O3'-C3'   | 5.55  | 126.36      | 119.70   |
| 2   | A     | 815    | C    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |
| 2   | A     | 137    | C    | C3'-C2'-C1' | 5.55  | 105.94      | 101.50   |
| 2   | A     | 973    | A    | C5'-C4'-C3' | 5.55  | 124.87      | 116.00   |
| 2   | A     | 1437   | C    | C4'-C3'-C2' | -5.54 | 97.06       | 102.60   |
| 2   | A     | 530    | G    | C1'-O4'-C4' | -5.54 | 105.47      | 109.90   |
| 2   | A     | 286    | C    | O4'-C1'-N1  | 5.54  | 112.63      | 108.20   |
| 2   | A     | 462    | C    | O4'-C1'-N1  | 5.54  | 112.63      | 108.20   |
| 2   | A     | 218    | A    | C1'-O4'-C4' | -5.53 | 105.47      | 109.90   |
| 2   | A     | 456    | C    | C6-N1-C2    | -5.53 | 118.09      | 120.30   |
| 2   | A     | 516    | C    | C6-N1-C2    | -5.53 | 118.09      | 120.30   |
| 2   | A     | 564    | C    | C4'-C3'-C2' | -5.53 | 97.07       | 102.60   |
| 2   | A     | 1669   | A    | C4'-C3'-C2' | -5.53 | 97.07       | 102.60   |
| 2   | A     | 1970   | A    | C1'-O4'-C4' | -5.53 | 105.48      | 109.90   |
| 2   | A     | 1070   | A    | O4'-C1'-N9  | 5.52  | 112.62      | 108.20   |
| 2   | A     | 352    | G    | C8-N9-C4    | -5.52 | 104.19      | 106.40   |
| 29  | 8     | 46     | LYS  | CA-C-N      | -5.52 | 105.16      | 116.20   |
| 2   | A     | 848    | G    | C3'-C2'-C1' | -5.52 | 97.09       | 101.50   |
| 2   | A     | 342    | G    | O4'-C4'-C3' | -5.52 | 98.48       | 104.00   |
| 2   | A     | 1286   | A    | C3'-C2'-C1' | 5.51  | 105.91      | 101.50   |
| 2   | A     | 563    | G    | N3-C4-C5    | -5.51 | 125.84      | 128.60   |
| 2   | A     | 2726   | U    | C1'-O4'-C4' | -5.51 | 105.49      | 109.90   |
| 2   | A     | 1528   | A    | C5'-C4'-O4' | 5.51  | 115.71      | 109.10   |
| 2   | A     | 625    | G    | C3'-C2'-C1' | -5.50 | 97.10       | 101.50   |
| 2   | A     | 774    | A    | O4'-C1'-N9  | 5.50  | 112.60      | 108.20   |
| 2   | A     | 16     | G    | C5'-C4'-O4' | 5.50  | 115.70      | 109.10   |
| 2   | A     | 1924   | C    | C6-N1-C2    | -5.50 | 118.10      | 120.30   |
| 2   | A     | 270(M) | U    | C2-N1-C1'   | 5.50  | 124.29      | 117.70   |
| 29  | 8     | 46     | LYS  | C-N-CA      | -5.49 | 110.77      | 122.30   |
| 2   | A     | 2869   | G    | OP2-P-O3'   | 5.49  | 117.27      | 105.20   |
| 2   | A     | 479    | A    | O4'-C1'-N9  | 5.48  | 112.59      | 108.20   |
| 2   | A     | 1249   | U    | C3'-C2'-C1' | -5.48 | 97.12       | 101.50   |
| 2   | A     | 1586   | A    | O3'-P-O5'   | -5.48 | 93.59       | 104.00   |
| 2   | A     | 2865   | U    | C1'-O4'-C4' | -5.48 | 105.52      | 109.90   |
| 2   | A     | 498    | G    | C3'-C2'-C1' | -5.47 | 97.12       | 101.50   |
| 2   | A     | 1211   | U    | P-O3'-C3'   | 5.47  | 126.27      | 119.70   |
| 2   | A     | 2442   | C    | P-O3'-C3'   | -5.47 | 113.14      | 119.70   |
| 2   | A     | 1214   | A    | C1'-O4'-C4' | -5.47 | 105.53      | 109.90   |
| 2   | A     | 1976   | U    | C1'-O4'-C4' | -5.47 | 105.53      | 109.90   |
| 2   | A     | 1056   | G    | C1'-O4'-C4' | -5.46 | 105.53      | 109.90   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 434  | U    | C3'-C2'-C1' | 5.46  | 105.86      | 101.50   |
| 2   | A     | 134  | C    | O4'-C1'-N1  | 5.46  | 112.56      | 108.20   |
| 22  | 2     | 31   | ARG  | C-N-CA      | -5.45 | 108.07      | 121.70   |
| 1   | B     | 28   | C    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 2   | A     | 458  | G    | C3'-C2'-C1' | 5.45  | 105.86      | 101.50   |
| 2   | A     | 1968 | G    | C4'-C3'-C2' | -5.45 | 97.16       | 102.60   |
| 2   | A     | 1767 | C    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 2   | A     | 1102 | C    | N1-C2-O2    | 5.44  | 122.16      | 118.90   |
| 2   | A     | 1247 | A    | C3'-C2'-C1' | 5.44  | 105.85      | 101.50   |
| 2   | A     | 1924 | C    | C4'-C3'-C2' | -5.44 | 97.16       | 102.60   |
| 2   | A     | 578  | A    | OP2-P-O3'   | 5.43  | 117.16      | 105.20   |
| 2   | A     | 1206 | G    | O4'-C4'-C3' | -5.43 | 98.57       | 104.00   |
| 2   | A     | 1386 | C    | O4'-C1'-N1  | 5.43  | 112.55      | 108.20   |
| 2   | A     | 1294 | U    | O3'-P-O5'   | 5.43  | 114.32      | 104.00   |
| 2   | A     | 2395 | C    | C3'-C2'-C1' | -5.43 | 97.16       | 101.50   |
| 2   | A     | 1283 | G    | C3'-C2'-C1' | -5.42 | 97.16       | 101.50   |
| 2   | A     | 530  | G    | P-O3'-C3'   | 5.42  | 126.20      | 119.70   |
| 2   | A     | 1025 | G    | C4'-C3'-C2' | -5.42 | 97.18       | 102.60   |
| 2   | A     | 1534 | G    | C4'-C3'-C2' | -5.41 | 97.19       | 102.60   |
| 2   | A     | 1423 | G    | O4'-C4'-C3' | -5.41 | 98.59       | 104.00   |
| 2   | A     | 1763 | G    | OP2-P-O3'   | 5.41  | 117.10      | 105.20   |
| 2   | A     | 594  | U    | O4'-C1'-N1  | 5.41  | 112.53      | 108.20   |
| 2   | A     | 1885 | A    | O4'-C1'-N9  | 5.41  | 112.52      | 108.20   |
| 2   | A     | 1935 | G    | C3'-C2'-C1' | 5.40  | 105.82      | 101.50   |
| 2   | A     | 2310 | A    | C4'-C3'-C2' | -5.40 | 97.20       | 102.60   |
| 2   | A     | 27   | G    | N3-C4-C5    | -5.39 | 125.90      | 128.60   |
| 2   | A     | 1206 | G    | C3'-C2'-C1' | -5.39 | 97.19       | 101.50   |
| 2   | A     | 973  | A    | O4'-C4'-C3' | -5.39 | 98.61       | 104.00   |
| 2   | A     | 1283 | G    | P-O3'-C3'   | -5.39 | 113.23      | 119.70   |
| 2   | A     | 1835 | G    | N3-C4-C5    | -5.39 | 125.91      | 128.60   |
| 2   | A     | 2751 | G    | C1'-O4'-C4' | -5.39 | 105.59      | 109.90   |
| 2   | A     | 288  | C    | C3'-C2'-C1' | -5.38 | 97.19       | 101.50   |
| 2   | A     | 1140 | C    | C5'-C4'-O4' | 5.38  | 115.56      | 109.10   |
| 2   | A     | 943  | U    | C4'-C3'-C2' | -5.38 | 97.22       | 102.60   |
| 2   | A     | 2441 | C    | P-O3'-C3'   | -5.38 | 113.25      | 119.70   |
| 2   | A     | 1420 | U    | N1-C1'-C2'  | 5.37  | 120.98      | 114.00   |
| 2   | A     | 1313 | U    | C4'-C3'-C2' | -5.37 | 97.23       | 102.60   |
| 2   | A     | 110  | G    | P-O3'-C3'   | 5.37  | 126.14      | 119.70   |
| 2   | A     | 488  | G    | C4'-C3'-C2' | -5.37 | 97.23       | 102.60   |
| 2   | A     | 1939 | U    | C3'-C2'-C1' | 5.37  | 105.79      | 101.50   |
| 1   | B     | 69   | G    | OP2-P-O3'   | 5.36  | 117.00      | 105.20   |
| 2   | A     | 2267 | A    | O4'-C4'-C3' | -5.36 | 98.64       | 104.00   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 2334   | G    | C1'-O4'-C4' | -5.36 | 105.61      | 109.90   |
| 2   | A     | 2052   | G    | O4'-C1'-N9  | 5.36  | 112.49      | 108.20   |
| 2   | A     | 987    | G    | O4'-C1'-N9  | 5.36  | 112.48      | 108.20   |
| 2   | A     | 2810   | A    | OP1-P-O3'   | 5.35  | 116.98      | 105.20   |
| 2   | A     | 1888   | G    | O4'-C1'-N9  | 5.35  | 112.48      | 108.20   |
| 2   | A     | 47     | C    | O4'-C1'-N1  | 5.34  | 112.47      | 108.20   |
| 2   | A     | 626    | U    | O4'-C1'-N1  | 5.34  | 112.47      | 108.20   |
| 2   | A     | 242    | G    | P-O3'-C3'   | 5.34  | 126.11      | 119.70   |
| 2   | A     | 1190   | G    | O4'-C4'-C3' | -5.34 | 98.66       | 104.00   |
| 2   | A     | 2010   | G    | O4'-C1'-N9  | 5.34  | 112.47      | 108.20   |
| 2   | A     | 845    | G    | C3'-C2'-C1' | 5.34  | 105.77      | 101.50   |
| 2   | A     | 1600   | C    | O4'-C1'-N1  | 5.34  | 112.47      | 108.20   |
| 2   | A     | 1772   | G    | O4'-C1'-N9  | 5.34  | 112.47      | 108.20   |
| 2   | A     | 1181   | C    | C1'-O4'-C4' | -5.34 | 105.63      | 109.90   |
| 2   | A     | 141(A) | C    | C6-N1-C2    | -5.33 | 118.17      | 120.30   |
| 2   | A     | 1419   | A    | OP2-P-O3'   | 5.33  | 116.94      | 105.20   |
| 2   | A     | 2320   | A    | C3'-C2'-C1' | 5.33  | 105.77      | 101.50   |
| 2   | A     | 2733   | A    | C4'-C3'-C2' | -5.33 | 97.27       | 102.60   |
| 2   | A     | 2264   | C    | C4'-C3'-C2' | -5.33 | 97.27       | 102.60   |
| 2   | A     | 932    | G    | C3'-C2'-C1' | 5.33  | 105.76      | 101.50   |
| 2   | A     | 566    | U    | C3'-C2'-C1' | 5.32  | 105.76      | 101.50   |
| 2   | A     | 990    | A    | P-O3'-C3'   | 5.32  | 126.09      | 119.70   |
| 2   | A     | 761    | A    | N7-C8-N9    | 5.32  | 116.46      | 113.80   |
| 2   | A     | 1515   | C    | P-O3'-C3'   | 5.32  | 126.08      | 119.70   |
| 2   | A     | 1727   | U    | C1'-O4'-C4' | -5.32 | 105.65      | 109.90   |
| 2   | A     | 548    | A    | C3'-C2'-C1' | 5.32  | 105.75      | 101.50   |
| 2   | A     | 30     | G    | C3'-C2'-C1' | 5.31  | 105.75      | 101.50   |
| 2   | A     | 1054   | A    | C1'-O4'-C4' | -5.31 | 105.65      | 109.90   |
| 2   | A     | 2036   | C    | O4'-C1'-N1  | 5.31  | 112.45      | 108.20   |
| 2   | A     | 1567   | A    | C3'-C2'-C1' | 5.31  | 105.75      | 101.50   |
| 2   | A     | 935    | C    | C1'-O4'-C4' | -5.30 | 105.66      | 109.90   |
| 2   | A     | 1586   | A    | C3'-C2'-C1' | 5.30  | 105.74      | 101.50   |
| 2   | A     | 1153   | C    | C2-N1-C1'   | 5.30  | 124.63      | 118.80   |
| 2   | A     | 2676   | C    | C3'-C2'-C1' | -5.30 | 97.26       | 101.50   |
| 2   | A     | 612    | G    | P-O3'-C3'   | 5.30  | 126.06      | 119.70   |
| 2   | A     | 270    | A    | OP1-P-O3'   | -5.29 | 93.55       | 105.20   |
| 2   | A     | 997    | G    | C4'-C3'-C2' | -5.29 | 97.31       | 102.60   |
| 2   | A     | 750    | A    | C3'-C2'-C1' | 5.29  | 105.73      | 101.50   |
| 2   | A     | 2668   | G    | C3'-C2'-C1' | -5.29 | 97.27       | 101.50   |
| 2   | A     | 1329   | U    | P-O3'-C3'   | 5.29  | 126.05      | 119.70   |
| 2   | A     | 1772   | G    | C5'-C4'-O4' | 5.29  | 115.44      | 109.10   |
| 2   | A     | 105    | C    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 335    | C    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |
| 2   | A     | 1800   | C    | C5'-C4'-O4' | 5.28  | 115.43      | 109.10   |
| 2   | A     | 321    | G    | P-O3'-C3'   | 5.28  | 126.03      | 119.70   |
| 2   | A     | 2267   | A    | C1'-O4'-C4' | -5.28 | 105.68      | 109.90   |
| 2   | A     | 1029   | A    | P-O3'-C3'   | -5.27 | 113.37      | 119.70   |
| 2   | A     | 665    | C    | O4'-C1'-N1  | 5.27  | 112.42      | 108.20   |
| 2   | A     | 270(Z) | U    | P-O3'-C3'   | 5.26  | 126.02      | 119.70   |
| 2   | A     | 95     | G    | P-O3'-C3'   | -5.26 | 113.39      | 119.70   |
| 2   | A     | 135    | G    | C4'-C3'-C2' | -5.25 | 97.35       | 102.60   |
| 2   | A     | 1169   | G    | O4'-C1'-N9  | 5.25  | 112.40      | 108.20   |
| 2   | A     | 2234   | G    | C4'-C3'-C2' | -5.25 | 97.35       | 102.60   |
| 2   | A     | 218    | A    | O4'-C1'-N9  | 5.24  | 112.39      | 108.20   |
| 2   | A     | 218    | A    | C4'-C3'-C2' | -5.24 | 97.36       | 102.60   |
| 2   | A     | 688    | U    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |
| 2   | A     | 1626   | G    | C3'-C2'-C1' | 5.24  | 105.69      | 101.50   |
| 2   | A     | 739    | G    | N3-C4-N9    | 5.24  | 129.14      | 126.00   |
| 2   | A     | 1800   | C    | C4'-C3'-C2' | -5.24 | 97.36       | 102.60   |
| 2   | A     | 1996   | C    | C6-N1-C2    | -5.24 | 118.20      | 120.30   |
| 2   | A     | 1476   | C    | C5'-C4'-O4' | 5.24  | 115.39      | 109.10   |
| 2   | A     | 338    | G    | C3'-C2'-C1' | 5.23  | 105.68      | 101.50   |
| 2   | A     | 801    | G    | C2'-C3'-O3' | 5.23  | 122.07      | 113.70   |
| 2   | A     | 2086   | U    | O4'-C1'-N1  | 5.23  | 112.39      | 108.20   |
| 2   | A     | 14     | A    | OP1-P-O3'   | 5.23  | 116.70      | 105.20   |
| 2   | A     | 324    | A    | O3'-P-O5'   | -5.23 | 94.07       | 104.00   |
| 2   | A     | 889    | C    | O4'-C1'-N1  | 5.23  | 112.38      | 108.20   |
| 2   | A     | 1570   | A    | C3'-C2'-C1' | -5.23 | 97.32       | 101.50   |
| 27  | 6     | 19     | GLY  | N-CA-C      | -5.23 | 100.03      | 113.10   |
| 2   | A     | 1270   | C    | P-O3'-C3'   | 5.22  | 125.97      | 119.70   |
| 2   | A     | 974(A) | C    | N1-C1'-C2'  | 5.22  | 120.79      | 114.00   |
| 1   | B     | 119    | A    | C4'-C3'-C2' | -5.22 | 97.38       | 102.60   |
| 2   | A     | 775    | G    | OP1-P-O3'   | 5.22  | 116.68      | 105.20   |
| 2   | A     | 2614   | A    | C3'-C2'-C1' | 5.22  | 105.67      | 101.50   |
| 2   | A     | 1312   | U    | C3'-C2'-C1' | 5.21  | 105.67      | 101.50   |
| 2   | A     | 2471   | C    | C4'-C3'-C2' | -5.21 | 97.39       | 102.60   |
| 2   | A     | 2508   | G    | N3-C4-C5    | 5.21  | 131.21      | 128.60   |
| 2   | A     | 1697   | G    | C3'-C2'-C1' | -5.21 | 97.33       | 101.50   |
| 2   | A     | 2488   | A    | P-O3'-C3'   | -5.21 | 113.45      | 119.70   |
| 2   | A     | 1261   | C    | P-O3'-C3'   | 5.21  | 125.95      | 119.70   |
| 2   | A     | 1539   | G    | C1'-O4'-C4' | -5.20 | 105.74      | 109.90   |
| 2   | A     | 2885   | C    | C3'-C2'-C1' | -5.20 | 97.34       | 101.50   |
| 2   | A     | 2726   | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 2   | A     | 661    | C    | C4'-C3'-C2' | -5.20 | 97.40       | 102.60   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 148    | C    | C1'-O4'-C4' | -5.20 | 105.74      | 109.90   |
| 2   | A     | 196    | A    | N9-C1'-C2'  | 5.20  | 120.76      | 114.00   |
| 2   | A     | 2091   | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 2   | A     | 79     | G    | C3'-C2'-C1' | -5.20 | 97.34       | 101.50   |
| 2   | A     | 370    | G    | P-O3'-C3'   | 5.20  | 125.93      | 119.70   |
| 2   | A     | 764    | A    | N9-C1'-C2'  | 5.19  | 120.75      | 114.00   |
| 2   | A     | 242    | G    | O4'-C1'-N9  | 5.19  | 112.36      | 108.20   |
| 2   | A     | 1255   | U    | C5'-C4'-O4' | 5.19  | 115.33      | 109.10   |
| 2   | A     | 1979   | C    | C4'-C3'-C2' | -5.19 | 97.41       | 102.60   |
| 2   | A     | 1983   | C    | O4'-C1'-N1  | 5.19  | 112.36      | 108.20   |
| 2   | A     | 1402   | C    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 2   | A     | 1554   | A    | P-O3'-C3'   | 5.19  | 125.93      | 119.70   |
| 2   | A     | 2022   | U    | N1-C2-O2    | 5.19  | 126.43      | 122.80   |
| 2   | A     | 2765   | A    | C3'-C2'-C1' | 5.19  | 105.65      | 101.50   |
| 2   | A     | 151    | C    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 2   | A     | 1206   | G    | C5'-C4'-O4' | 5.19  | 115.32      | 109.10   |
| 2   | A     | 2777   | G    | C1'-O4'-C4' | -5.18 | 105.75      | 109.90   |
| 2   | A     | 164    | U    | C3'-C2'-C1' | 5.18  | 105.64      | 101.50   |
| 2   | A     | 80     | G    | C3'-C2'-C1' | -5.18 | 97.36       | 101.50   |
| 2   | A     | 616    | A    | C3'-C2'-C1' | 5.18  | 105.64      | 101.50   |
| 2   | A     | 1409   | C    | O4'-C1'-N1  | 5.18  | 112.34      | 108.20   |
| 2   | A     | 449(A) | G    | C3'-C2'-C1' | 5.18  | 105.64      | 101.50   |
| 2   | A     | 479    | A    | C1'-O4'-C4' | -5.17 | 105.76      | 109.90   |
| 2   | A     | 2209   | C    | C4'-C3'-C2' | -5.17 | 97.43       | 102.60   |
| 5   | F     | 103    | ASN  | C-N-CA      | -5.17 | 108.77      | 121.70   |
| 1   | B     | 24     | G    | OP1-P-O3'   | -5.17 | 93.83       | 105.20   |
| 2   | A     | 95     | G    | O4'-C4'-C3' | -5.17 | 98.83       | 104.00   |
| 2   | A     | 2084   | C    | P-O3'-C3'   | -5.16 | 113.50      | 119.70   |
| 2   | A     | 1351   | C    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 2   | A     | 70     | G    | O3'-P-O5'   | 5.16  | 113.80      | 104.00   |
| 2   | A     | 153    | C    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 2   | A     | 1297   | C    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 2   | A     | 1212   | G    | P-O3'-C3'   | 5.16  | 125.89      | 119.70   |
| 2   | A     | 271(B) | G    | P-O3'-C3'   | 5.16  | 125.89      | 119.70   |
| 2   | A     | 1566   | A    | C1'-O4'-C4' | -5.16 | 105.78      | 109.90   |
| 2   | A     | 585    | G    | O5'-C5'-C4' | -5.16 | 101.91      | 111.70   |
| 2   | A     | 2595   | G    | C4'-C3'-C2' | -5.15 | 97.45       | 102.60   |
| 2   | A     | 177    | G    | P-O3'-C3'   | 5.15  | 125.88      | 119.70   |
| 2   | A     | 195    | A    | O4'-C1'-N9  | 5.15  | 112.32      | 108.20   |
| 2   | A     | 244    | A    | C3'-C2'-C1' | -5.15 | 97.38       | 101.50   |
| 2   | A     | 1449   | A    | O3'-P-O5'   | -5.14 | 94.23       | 104.00   |
| 2   | A     | 2403   | C    | C4'-C3'-C2' | -5.14 | 97.46       | 102.60   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 2007   | C    | C3'-C2'-C1' | -5.14 | 97.39       | 101.50   |
| 2   | A     | 337    | C    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 2   | A     | 2848   | G    | C1'-O4'-C4' | -5.14 | 105.79      | 109.90   |
| 2   | A     | 469    | G    | N3-C4-C5    | -5.13 | 126.03      | 128.60   |
| 2   | A     | 1621   | U    | C3'-C2'-C1' | -5.13 | 97.39       | 101.50   |
| 2   | A     | 101    | G    | P-O3'-C3'   | 5.13  | 125.86      | 119.70   |
| 2   | A     | 529    | A    | P-O3'-C3'   | 5.13  | 125.85      | 119.70   |
| 2   | A     | 814    | C    | C1'-O4'-C4' | -5.13 | 105.80      | 109.90   |
| 2   | A     | 2370   | G    | OP1-P-O3'   | 5.13  | 116.48      | 105.20   |
| 2   | A     | 563    | G    | C5'-C4'-O4' | 5.13  | 115.25      | 109.10   |
| 2   | A     | 1827   | C    | O4'-C1'-N1  | 5.13  | 112.30      | 108.20   |
| 2   | A     | 2846   | G    | OP1-P-O3'   | 5.13  | 116.48      | 105.20   |
| 2   | A     | 1653   | G    | N9-C1'-C2'  | 5.12  | 120.66      | 114.00   |
| 2   | A     | 1247   | A    | OP1-P-O3'   | 5.12  | 116.47      | 105.20   |
| 2   | A     | 1491   | G    | P-O3'-C3'   | 5.12  | 125.85      | 119.70   |
| 2   | A     | 1640   | C    | P-O3'-C3'   | 5.12  | 125.85      | 119.70   |
| 2   | A     | 1835   | G    | C8-N9-C4    | -5.12 | 104.35      | 106.40   |
| 2   | A     | 188    | G    | O4'-C1'-N9  | 5.12  | 112.30      | 108.20   |
| 2   | A     | 912    | C    | O4'-C1'-N1  | 5.12  | 112.29      | 108.20   |
| 2   | A     | 1265   | A    | N9-C1'-C2'  | 5.12  | 120.65      | 114.00   |
| 2   | A     | 935    | C    | O4'-C1'-N1  | 5.11  | 112.29      | 108.20   |
| 2   | A     | 1527   | G    | O4'-C1'-N9  | 5.11  | 112.29      | 108.20   |
| 2   | A     | 1527   | G    | N7-C8-N9    | 5.11  | 115.66      | 113.10   |
| 2   | A     | 1559   | G    | O4'-C1'-C2' | -5.11 | 100.69      | 105.80   |
| 2   | A     | 791    | C    | O4'-C1'-N1  | 5.11  | 112.29      | 108.20   |
| 2   | A     | 1474   | C    | O4'-C1'-N1  | 5.11  | 112.29      | 108.20   |
| 2   | A     | 270(H) | C    | O4'-C1'-N1  | 5.11  | 112.28      | 108.20   |
| 2   | A     | 670    | A    | O4'-C1'-N9  | 5.10  | 112.28      | 108.20   |
| 2   | A     | 1939   | U    | C2-N1-C1'   | 5.10  | 123.82      | 117.70   |
| 2   | A     | 1829   | A    | O4'-C1'-N9  | -5.10 | 104.12      | 108.20   |
| 2   | A     | 71     | A    | O4'-C1'-N9  | 5.10  | 112.28      | 108.20   |
| 2   | A     | 249    | C    | N1-C1'-C2'  | -5.10 | 106.39      | 112.00   |
| 2   | A     | 601    | C    | C3'-C2'-C1' | -5.10 | 97.42       | 101.50   |
| 2   | A     | 1653   | G    | P-O3'-C3'   | 5.09  | 125.81      | 119.70   |
| 2   | A     | 1779   | U    | P-O3'-C3'   | -5.09 | 113.59      | 119.70   |
| 2   | A     | 2495   | G    | P-O3'-C3'   | 5.09  | 125.81      | 119.70   |
| 2   | A     | 1998   | G    | C3'-C2'-C1' | -5.09 | 97.43       | 101.50   |
| 2   | A     | 2023   | G    | C8-N9-C4    | -5.09 | 104.36      | 106.40   |
| 2   | A     | 560    | C    | O3'-P-O5'   | 5.08  | 113.66      | 104.00   |
| 2   | A     | 1568   | G    | C3'-C2'-C1' | 5.08  | 105.56      | 101.50   |
| 2   | A     | 766    | C    | O4'-C1'-N1  | 5.08  | 112.26      | 108.20   |
| 2   | A     | 1306   | C    | O4'-C1'-N1  | 5.08  | 112.26      | 108.20   |

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| Mol | Chain | Res    | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 2   | A     | 1480   | G    | N7-C8-N9    | 5.08  | 115.64      | 113.10   |
| 2   | A     | 801    | G    | O4'-C1'-N9  | -5.07 | 104.14      | 108.20   |
| 2   | A     | 1917   | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 2   | A     | 984    | A    | C5'-C4'-C3' | 5.07  | 124.11      | 116.00   |
| 2   | A     | 712    | G    | C3'-C2'-C1' | -5.07 | 97.45       | 101.50   |
| 2   | A     | 1420   | U    | P-O3'-C3'   | 5.07  | 125.78      | 119.70   |
| 2   | A     | 270(Q) | C    | O4'-C1'-N1  | 5.06  | 112.25      | 108.20   |
| 2   | A     | 2784   | C    | C1'-O4'-C4' | -5.06 | 105.85      | 109.90   |
| 2   | A     | 2862   | G    | C3'-C2'-C1' | 5.06  | 105.55      | 101.50   |
| 2   | A     | 2009   | G    | OP1-P-O3'   | 5.06  | 116.33      | 105.20   |
| 2   | A     | 977    | G    | C4'-C3'-C2' | -5.06 | 97.54       | 102.60   |
| 2   | A     | 1261   | C    | OP1-P-O3'   | 5.06  | 116.33      | 105.20   |
| 2   | A     | 2318   | G    | C3'-C2'-C1' | 5.06  | 105.55      | 101.50   |
| 2   | A     | 740    | U    | O4'-C1'-N1  | 5.06  | 112.25      | 108.20   |
| 2   | A     | 1941   | C    | N1-C2-O2    | 5.06  | 121.93      | 118.90   |
| 2   | A     | 299    | A    | C8-N9-C4    | -5.05 | 103.78      | 105.80   |
| 2   | A     | 1930   | G    | O4'-C1'-N9  | 5.05  | 112.24      | 108.20   |
| 2   | A     | 2855   | C    | C4'-C3'-C2' | -5.05 | 97.55       | 102.60   |
| 2   | A     | 1968   | G    | C5'-C4'-O4' | 5.05  | 115.16      | 109.10   |
| 2   | A     | 2581   | G    | C3'-C2'-C1' | 5.04  | 105.54      | 101.50   |
| 2   | A     | 1915   | U    | P-O3'-C3'   | 5.04  | 125.75      | 119.70   |
| 2   | A     | 865    | C    | N1-C2-O2    | 5.04  | 121.92      | 118.90   |
| 2   | A     | 1539   | G    | C4'-C3'-C2' | -5.04 | 97.56       | 102.60   |
| 2   | A     | 1132   | A    | O4'-C1'-N9  | 5.04  | 112.23      | 108.20   |
| 2   | A     | 1520   | U    | O4'-C1'-N1  | 5.04  | 112.23      | 108.20   |
| 2   | A     | 247    | G    | C3'-C2'-C1' | 5.04  | 105.53      | 101.50   |
| 2   | A     | 2511   | U    | C4'-C3'-C2' | -5.04 | 97.56       | 102.60   |
| 2   | A     | 1278   | A    | C4'-C3'-C2' | -5.03 | 97.57       | 102.60   |
| 2   | A     | 1710   | C    | O4'-C1'-N1  | 5.03  | 112.23      | 108.20   |
| 2   | A     | 2009   | G    | P-O3'-C3'   | 5.03  | 125.74      | 119.70   |
| 2   | A     | 2100   | G    | C3'-C2'-C1' | -5.03 | 97.47       | 101.50   |
| 2   | A     | 2418   | A    | C3'-C2'-C1' | 5.03  | 105.53      | 101.50   |
| 2   | A     | 1143   | A    | O3'-P-O5'   | -5.03 | 94.44       | 104.00   |
| 2   | A     | 2460   | U    | N1-C1'-C2'  | -5.03 | 106.47      | 112.00   |
| 2   | A     | 1288   | U    | C3'-C2'-C1' | 5.02  | 105.52      | 101.50   |
| 2   | A     | 2507   | C    | C4'-C3'-C2' | -5.02 | 97.58       | 102.60   |
| 2   | A     | 1966   | A    | C3'-C2'-C1' | 5.02  | 105.52      | 101.50   |
| 2   | A     | 130    | C    | P-O3'-C3'   | 5.02  | 125.72      | 119.70   |
| 2   | A     | 1025   | G    | O4'-C4'-C3' | -5.02 | 98.98       | 104.00   |
| 2   | A     | 1227   | A    | C3'-C2'-C1' | -5.02 | 97.48       | 101.50   |
| 2   | A     | 825    | C    | P-O3'-C3'   | 5.02  | 125.72      | 119.70   |
| 2   | A     | 1335   | U    | O4'-C1'-N1  | 5.02  | 112.22      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | A     | 1671 | U    | O4'-C1'-N1  | 5.02  | 112.21      | 108.20   |
| 2   | A     | 2035 | G    | P-O3'-C3'   | 5.02  | 125.72      | 119.70   |
| 2   | A     | 2045 | C    | O4'-C1'-N1  | 5.02  | 112.21      | 108.20   |
| 2   | A     | 324  | A    | C3'-C2'-C1' | 5.01  | 105.51      | 101.50   |
| 2   | A     | 739  | G    | C8-N9-C4    | -5.01 | 104.39      | 106.40   |
| 2   | A     | 1019 | U    | P-O3'-C3'   | 5.01  | 125.72      | 119.70   |
| 2   | A     | 1248 | G    | C1'-O4'-C4' | -5.01 | 105.89      | 109.90   |
| 1   | B     | 85   | G    | C3'-C2'-C1' | -5.01 | 97.49       | 101.50   |
| 2   | A     | 82   | G    | C3'-C2'-C1' | 5.01  | 105.51      | 101.50   |
| 2   | A     | 1727 | U    | O4'-C1'-N1  | 5.01  | 112.21      | 108.20   |
| 2   | A     | 1615 | C    | C1'-O4'-C4' | -5.01 | 105.89      | 109.90   |
| 2   | A     | 2227 | A    | P-O3'-C3'   | -5.01 | 113.69      | 119.70   |
| 2   | A     | 2578 | G    | C4'-C3'-C2' | -5.01 | 97.59       | 102.60   |
| 2   | A     | 1926 | U    | O4'-C1'-N1  | 5.01  | 112.20      | 108.20   |
| 2   | A     | 1266 | G    | C5'-C4'-C3' | 5.00  | 124.01      | 116.00   |
| 2   | A     | 201  | C    | O4'-C1'-N1  | 5.00  | 112.20      | 108.20   |
| 2   | A     | 570  | G    | C8-N9-C4    | -5.00 | 104.40      | 106.40   |
| 2   | A     | 1555 | G    | C8-N9-C4    | -5.00 | 104.40      | 106.40   |
| 2   | A     | 500  | G    | C3'-C2'-C1' | -5.00 | 97.50       | 101.50   |
| 2   | A     | 957  | A    | P-O3'-C3'   | 5.00  | 125.70      | 119.70   |
| 2   | A     | 1988 | C    | O4'-C1'-N1  | 5.00  | 112.20      | 108.20   |

There are no chirality outliers.

All (16) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group             |
|-----|-------|-----|------|-------------------|
| 24  | 0     | 18  | PRO  | Mainchain         |
| 22  | 2     | 31  | ARG  | Mainchain         |
| 26  | 5     | 30  | LEU  | Mainchain         |
| 3   | D     | 213 | LYS  | Peptide           |
| 4   | E     | 274 | GLY  | Mainchain,Peptide |
| 4   | E     | 49  | THR  | Mainchain         |
| 5   | F     | 103 | ASN  | Mainchain         |
| 5   | F     | 168 | ARG  | Mainchain,Peptide |
| 5   | F     | 28  | SER  | Mainchain         |
| 7   | H     | 80  | LYS  | Mainchain         |
| 8   | I     | 49  | ALA  | Mainchain         |
| 11  | P     | 96  | VAL  | Peptide           |
| 16  | X     | 73  | ASP  | Mainchain         |
| 17  | Y     | 36  | GLY  | Mainchain         |

## 5.2 Close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | B     | 2637  | 0        | 1338     | 187     | 1            |
| 2   | A     | 60599 | 0        | 30533    | 10726   | 127          |
| 3   | D     | 1308  | 0        | 1346     | 1071    | 0            |
| 4   | E     | 1507  | 0        | 1475     | 1137    | 4            |
| 5   | F     | 1430  | 0        | 1357     | 1068    | 0            |
| 6   | G     | 957   | 0        | 950      | 650     | 0            |
| 7   | H     | 1251  | 0        | 1291     | 750     | 0            |
| 8   | I     | 1145  | 0        | 1224     | 627     | 0            |
| 9   | N     | 917   | 0        | 896      | 761     | 0            |
| 10  | O     | 937   | 0        | 993      | 620     | 0            |
| 11  | P     | 639   | 0        | 606      | 487     | 0            |
| 12  | Q     | 1081  | 0        | 1047     | 928     | 0            |
| 13  | S     | 866   | 0        | 868      | 691     | 0            |
| 14  | T     | 406   | 0        | 359      | 160     | 0            |
| 15  | W     | 860   | 0        | 909      | 568     | 0            |
| 16  | X     | 602   | 0        | 559      | 447     | 0            |
| 17  | Y     | 879   | 0        | 859      | 751     | 0            |
| 18  | Z     | 1360  | 0        | 1377     | 897     | 0            |
| 19  | R     | 855   | 0        | 904      | 561     | 0            |
| 20  | U     | 978   | 0        | 1001     | 880     | 0            |
| 21  | V     | 787   | 0        | 784      | 643     | 0            |
| 22  | 2     | 494   | 0        | 504      | 396     | 0            |
| 23  | 3     | 477   | 0        | 528      | 441     | 0            |
| 24  | 0     | 641   | 0        | 658      | 517     | 0            |
| 25  | 4     | 604   | 0        | 586      | 470     | 0            |
| 26  | 5     | 457   | 0        | 455      | 288     | 0            |
| 27  | 6     | 431   | 0        | 454      | 288     | 0            |
| 28  | 7     | 383   | 0        | 411      | 393     | 0            |
| 29  | 8     | 496   | 0        | 539      | 357     | 0            |
| 30  | 9     | 285   | 0        | 312      | 150     | 0            |
| 31  | K     | 999   | 0        | 1065     | 116     | 0            |
| All | All   | 87268 | 0        | 56188    | 24875   | 132          |

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 174.

All (24875) close contacts within the same asymmetric unit are listed below.

| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 26:5:33:CYS:SG    | 26:5:36:CYS:HB2  | 1.24        | 1.69     |
| 2:A:2470:G:C2     | 2:A:2471:C:C5    | 1.81        | 1.69     |
| 2:A:2712:U:C6     | 2:A:712(A):A:C8  | 1.76        | 1.68     |
| 28:7:30:ILE:HA    | 28:7:33:ARG:CD   | 1.21        | 1.67     |
| 2:A:2580:U:C6     | 2:A:2581:G:C8    | 1.82        | 1.66     |
| 10:O:99:PHE:CD2   | 14:T:24:LYS:HE2  | 1.30        | 1.66     |
| 3:D:73:ILE:HG21   | 3:D:95:TYR:CD2   | 1.30        | 1.65     |
| 7:H:43:THR:HG23   | 7:H:52:THR:CG2   | 1.23        | 1.64     |
| 4:E:71:THR:HG21   | 4:E:299:SER:CB   | 1.26        | 1.64     |
| 19:R:58:GLY:HA2   | 19:R:80:PHE:CE2  | 1.26        | 1.63     |
| 27:6:32:GLN:CB    | 27:6:35:LEU:HD12 | 1.25        | 1.63     |
| 24:0:37:LEU:HB3   | 24:0:69:PHE:CD2  | 1.25        | 1.63     |
| 17:Y:103:LEU:HD21 | 17:Y:112:LEU:CD2 | 1.25        | 1.63     |
| 2:A:1151:G:C4'    | 20:U:81:ASN:HD21 | 1.08        | 1.62     |
| 17:Y:73:HIS:CA    | 17:Y:91:LEU:HD11 | 1.26        | 1.62     |
| 3:D:92:LEU:HD11   | 3:D:102:TYR:CE1  | 1.29        | 1.62     |
| 7:H:10:ILE:CG2    | 7:H:14:VAL:HG11  | 1.26        | 1.62     |
| 21:V:11:GLN:HE22  | 21:V:22:VAL:CG2  | 1.06        | 1.62     |
| 8:I:95:SER:HA     | 8:I:98:ILE:CG1   | 1.25        | 1.62     |
| 2:A:2226:C:C2     | 2:A:2227:A:H1'   | 1.19        | 1.61     |
| 12:Q:85:ILE:HG22  | 12:Q:122:PHE:CG  | 1.17        | 1.61     |
| 2:A:2287:A:C2     | 2:A:2289:G:C1'   | 1.81        | 1.61     |
| 2:A:25:U:H5''     | 15:W:80:PRO:CD   | 1.29        | 1.61     |
| 18:Z:39:PHE:HA    | 18:Z:43:PHE:CE2  | 1.24        | 1.61     |
| 2:A:2225:A:C4'    | 2:A:2226:C:C5'   | 1.79        | 1.60     |
| 17:Y:45:GLY:HA2   | 17:Y:62:VAL:CG1  | 1.29        | 1.60     |
| 2:A:2225:A:C5'    | 2:A:2226:C:C5'   | 1.77        | 1.60     |
| 2:A:2470:G:N2     | 2:A:2471:C:C2    | 1.68        | 1.60     |
| 17:Y:71:VAL:CG2   | 17:Y:93:THR:HG23 | 1.23        | 1.60     |
| 4:E:71:THR:CG2    | 4:E:299:SER:HB2  | 1.12        | 1.60     |
| 11:P:77:ALA:HA    | 11:P:81:VAL:CB   | 1.23        | 1.60     |
| 17:Y:101:LEU:HD22 | 17:Y:103:LEU:CG  | 1.31        | 1.60     |
| 3:D:128:ALA:CB    | 3:D:190:THR:HG22 | 1.15        | 1.59     |
| 29:8:50:LEU:CD2   | 29:8:51:ALA:H    | 1.03        | 1.59     |
| 30:9:25:VAL:CB    | 30:9:34:GLN:HB3  | 1.26        | 1.59     |
| 2:A:2360:A:N7     | 2:A:2361:A:C8    | 1.69        | 1.59     |
| 11:P:65:ASP:CB    | 11:P:109:LEU:HB3 | 1.25        | 1.59     |
| 5:F:96:LYS:HB2    | 5:F:98:ARG:CZ    | 1.12        | 1.59     |
| 9:N:13:ASP:HA     | 9:N:38:VAL:CG1   | 1.23        | 1.59     |
| 19:R:38:VAL:CG1   | 19:R:39:PRO:HD3  | 1.30        | 1.59     |
| 19:R:38:VAL:HG12  | 19:R:39:PRO:CD   | 1.23        | 1.59     |
| 30:9:7:VAL:CG1    | 30:9:34:GLN:HG2  | 1.21        | 1.59     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:129:LYS:C    | 7:H:130:ILE:HD12  | 1.21        | 1.58     |
| 2:A:2810:A:C2'   | 2:A:2811:G:H5'    | 1.18        | 1.58     |
| 2:A:2740:A:H2'   | 2:A:2741:A:C8     | 1.12        | 1.58     |
| 5:F:147:LEU:CD1  | 5:F:156:LEU:HD11  | 1.17        | 1.58     |
| 2:A:2354:G:C2    | 24:0:32:LYS:HE3   | 1.36        | 1.58     |
| 2:A:1799:G:C2    | 3:D:153:LEU:HD21  | 1.32        | 1.58     |
| 23:3:20:LYS:HA   | 23:3:23:LEU:CD1   | 1.30        | 1.58     |
| 17:Y:103:LEU:CD2 | 17:Y:112:LEU:HD21 | 1.19        | 1.58     |
| 2:A:2768:C:N3    | 2:A:2769:C:C5     | 1.71        | 1.58     |
| 20:U:59:ARG:HA   | 20:U:62:ILE:CG1   | 1.15        | 1.58     |
| 2:A:2712:U:C2'   | 2:A:712(A):A:H5'' | 1.23        | 1.58     |
| 3:D:128:ALA:HB2  | 3:D:190:THR:CB    | 1.10        | 1.58     |
| 9:N:15:ARG:CB    | 9:N:43:ARG:HG2    | 1.20        | 1.58     |
| 8:I:68:LEU:CD2   | 8:I:108:LEU:HD13  | 1.16        | 1.58     |
| 9:N:10:VAL:CG1   | 9:N:36:VAL:HG22   | 1.15        | 1.58     |
| 2:A:2832:U:H5'   | 2:A:2832:U:C6     | 1.34        | 1.58     |
| 20:U:59:ARG:CA   | 20:U:62:ILE:HG12  | 1.22        | 1.58     |
| 2:A:1364:G:H3'   | 25:4:3:LYS:CD     | 1.19        | 1.58     |
| 3:D:213:LYS:CG   | 3:D:215:LYS:HB2   | 1.27        | 1.58     |
| 2:A:2432:A:H2    | 2:A:2433:A:C6     | 1.18        | 1.57     |
| 9:N:13:ASP:CA    | 9:N:38:VAL:CG1    | 1.78        | 1.57     |
| 23:3:23:LEU:CA   | 23:3:28:LEU:HD12  | 1.31        | 1.57     |
| 2:A:594:U:H5''   | 29:8:61:MET:CE    | 1.30        | 1.57     |
| 3:D:175:LEU:CD2  | 3:D:180:VAL:HA    | 1.32        | 1.57     |
| 2:A:2543:G:H2'   | 2:A:2544:G:C8     | 1.40        | 1.57     |
| 9:N:65:ASN:HB2   | 9:N:69:TYR:CD1    | 1.31        | 1.57     |
| 20:U:92:ARG:CA   | 20:U:95:LEU:HD11  | 1.26        | 1.57     |
| 18:Z:69:VAL:CG2  | 18:Z:81:VAL:HG13  | 1.26        | 1.57     |
| 26:5:45:ILE:HG23 | 26:5:52:TYR:CD1   | 1.36        | 1.57     |
| 9:N:58:GLU:HA    | 9:N:61:VAL:CG2    | 1.34        | 1.57     |
| 2:A:2227:A:N1    | 2:A:2228:G:C6     | 1.70        | 1.57     |
| 2:A:2826:A:C6    | 2:A:2827:C:C6     | 1.90        | 1.57     |
| 27:6:19:GLY:HA3  | 27:6:42:PRO:CG    | 1.32        | 1.56     |
| 17:Y:78:THR:CG2  | 17:Y:88:PRO:HA    | 1.26        | 1.56     |
| 2:A:2355:C:C4'   | 24:0:21:LEU:CD1   | 1.79        | 1.56     |
| 23:3:8:LEU:CD2   | 23:3:31:LEU:HA    | 1.20        | 1.56     |
| 2:A:535:C:C4'    | 20:U:53:LYS:HE2   | 1.24        | 1.56     |
| 2:A:2810:A:H2'   | 2:A:2811:G:C5'    | 1.14        | 1.56     |
| 19:R:20:LEU:CD1  | 19:R:21:TYR:N     | 1.68        | 1.56     |
| 25:4:7:PRO:CD    | 25:4:56:VAL:HG21  | 1.33        | 1.56     |
| 8:I:7:LYS:HG3    | 8:I:12:LYS:CG     | 1.24        | 1.56     |
| 10:O:99:PHE:CE2  | 14:T:24:LYS:CE    | 1.78        | 1.56     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:104:U:H3      | 17:Y:17:HIS:CE1   | 1.19        | 1.56     |
| 3:D:128:ALA:CB    | 3:D:190:THR:CG2   | 1.80        | 1.56     |
| 28:7:17:GLY:HA2   | 28:7:44:VAL:CG2   | 1.10        | 1.56     |
| 2:A:2574:G:C4     | 2:A:2575:C:C5     | 1.90        | 1.55     |
| 2:A:2209:C:C2'    | 2:A:2210:G:H3'    | 1.36        | 1.55     |
| 2:A:2316:C:H5'    | 6:G:142:ALA:CB    | 1.28        | 1.55     |
| 2:A:1665:A:C4'    | 10:O:66:LYS:HZ3   | 0.92        | 1.55     |
| 2:A:997:G:C3'     | 20:U:92:ARG:HH12  | 0.92        | 1.55     |
| 2:A:2579:C:C6     | 2:A:2579:C:H5''   | 1.41        | 1.55     |
| 2:A:2225:A:H4'    | 2:A:2226:C:C5'    | 1.25        | 1.55     |
| 2:A:2352:A:C2     | 24:0:30:VAL:CG1   | 1.85        | 1.55     |
| 11:P:77:ALA:CA    | 11:P:81:VAL:HB    | 1.37        | 1.55     |
| 2:A:594:U:C5'     | 29:8:61:MET:CE    | 1.79        | 1.55     |
| 10:O:35:ILE:CG2   | 10:O:63:VAL:HA    | 1.34        | 1.55     |
| 19:R:77:ARG:CB    | 19:R:77:ARG:HH11  | 1.04        | 1.55     |
| 6:G:19:GLU:HB3    | 6:G:135:VAL:CG2   | 1.16        | 1.55     |
| 5:F:47:GLY:HA2    | 5:F:92:PRO:CG     | 1.35        | 1.55     |
| 20:U:14:HIS:CE1   | 20:U:36:PHE:HZ    | 1.25        | 1.55     |
| 11:P:94:ARG:HB2   | 11:P:120:LEU:CD2  | 1.17        | 1.55     |
| 12:Q:140:TYR:CD1  | 12:Q:147:VAL:HG11 | 1.33        | 1.55     |
| 18:Z:71:MET:CG    | 18:Z:78:PRO:HD3   | 1.09        | 1.54     |
| 17:Y:101:LEU:CG   | 17:Y:112:LEU:HD11 | 1.33        | 1.54     |
| 2:A:2556:C:H2'    | 2:A:2557:G:C5'    | 1.34        | 1.54     |
| 3:D:103:ILE:CG1   | 3:D:104:ILE:CD1   | 1.80        | 1.54     |
| 17:Y:101:LEU:HD22 | 17:Y:103:LEU:CD1  | 1.33        | 1.54     |
| 2:A:2785:C:C1'    | 4:E:100:TRP:CD1   | 1.79        | 1.54     |
| 20:U:92:ARG:HA    | 20:U:95:LEU:CD1   | 1.07        | 1.54     |
| 28:7:30:ILE:CD1   | 28:7:33:ARG:HH11  | 0.92        | 1.54     |
| 30:9:25:VAL:CB    | 30:9:34:GLN:CB    | 1.82        | 1.54     |
| 5:F:81:PRO:HA     | 5:F:87:ARG:CG     | 1.36        | 1.54     |
| 21:V:19:VAL:CG1   | 21:V:21:ARG:NH1   | 1.69        | 1.54     |
| 17:Y:45:GLY:CA    | 17:Y:62:VAL:HG11  | 1.36        | 1.54     |
| 2:A:849:A:C2      | 23:3:21:ALA:HB1   | 1.39        | 1.53     |
| 8:I:95:SER:CB     | 8:I:98:ILE:HD12   | 1.09        | 1.53     |
| 19:R:44:LEU:CD1   | 19:R:48:VAL:HG21  | 1.37        | 1.53     |
| 17:Y:73:HIS:C     | 17:Y:91:LEU:HD11  | 1.23        | 1.53     |
| 30:9:7:VAL:CG1    | 30:9:34:GLN:CG    | 1.83        | 1.53     |
| 17:Y:55:PHE:CZ    | 17:Y:89:ARG:NH1   | 1.72        | 1.53     |
| 2:A:2813:A:H2'    | 2:A:2814:C:C6     | 1.42        | 1.53     |
| 9:N:27:ALA:CA     | 9:N:30:ALA:CB     | 1.82        | 1.53     |
| 17:Y:55:PHE:CZ    | 17:Y:89:ARG:CZ    | 1.89        | 1.53     |
| 2:A:1081:U:P      | 31:K:126:LYS:HD3  | 1.49        | 1.53     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2344:U:O3'   | 2:A:2345:G:P      | 1.13        | 1.52     |
| 10:O:35:ILE:HG23 | 10:O:63:VAL:CA    | 1.37        | 1.52     |
| 2:A:2316:C:C4'   | 6:G:151:ILE:HD12  | 1.36        | 1.52     |
| 21:V:50:ASP:CB   | 21:V:53:LYS:HG3   | 1.37        | 1.52     |
| 5:F:47:GLY:CA    | 5:F:92:PRO:HB2    | 1.29        | 1.52     |
| 2:A:594:U:C5'    | 29:8:61:MET:HE3   | 1.07        | 1.52     |
| 6:G:19:GLU:CB    | 6:G:135:VAL:CG2   | 1.81        | 1.52     |
| 23:3:23:LEU:HA   | 23:3:28:LEU:CD1   | 1.37        | 1.52     |
| 2:A:2254:C:C2'   | 2:A:2255:G:H5'    | 1.38        | 1.52     |
| 2:A:2580:U:C5    | 2:A:2581:G:C8     | 1.98        | 1.52     |
| 2:A:2625:G:H3'   | 2:A:2626:C:C5     | 1.43        | 1.52     |
| 20:U:99:ALA:HB2  | 20:U:106:PHE:CE2  | 1.43        | 1.52     |
| 9:N:10:VAL:HG11  | 9:N:36:VAL:CG2    | 1.05        | 1.52     |
| 3:D:131:LEU:HD13 | 3:D:171:VAL:CG2   | 1.40        | 1.51     |
| 9:N:52:GLN:HA    | 9:N:55:GLU:CD     | 1.23        | 1.51     |
| 2:A:2066:C:C2    | 2:A:2445:G:N2     | 1.77        | 1.51     |
| 17:Y:63:ILE:CD1  | 17:Y:75:GLU:N     | 1.69        | 1.51     |
| 7:H:86:LEU:CA    | 7:H:148:ARG:NH2   | 1.68        | 1.51     |
| 6:G:145:ASP:HB3  | 13:S:15:GLU:C     | 1.30        | 1.51     |
| 4:E:205:THR:HG21 | 4:E:259:HIS:CA    | 1.40        | 1.51     |
| 10:O:25:LEU:CD2  | 10:O:40:VAL:HG23  | 1.09        | 1.51     |
| 8:I:95:SER:CB    | 8:I:98:ILE:CD1    | 1.85        | 1.51     |
| 16:X:24:LEU:O    | 16:X:26:PHE:CE1   | 1.63        | 1.51     |
| 2:A:2331:G:H4'   | 24:0:70:ILE:CG1   | 1.37        | 1.51     |
| 6:G:102:GLY:CA   | 6:G:134:LEU:HD12  | 1.39        | 1.51     |
| 3:D:213:LYS:HG3  | 3:D:215:LYS:CB    | 1.41        | 1.51     |
| 2:A:2403:C:N4    | 2:A:2415:G:C6     | 1.79        | 1.51     |
| 2:A:2865:U:C4    | 2:A:2866:U:H5     | 1.29        | 1.50     |
| 10:O:63:VAL:CG1  | 10:O:102:VAL:HG13 | 1.33        | 1.50     |
| 29:8:26:LYS:CG   | 29:8:45:GLY:H     | 1.24        | 1.50     |
| 2:A:2584:U:C6    | 2:A:2585:U:C5     | 1.97        | 1.50     |
| 5:F:81:PRO:CB    | 5:F:87:ARG:HB3    | 1.37        | 1.50     |
| 10:O:35:ILE:HD11 | 10:O:65:THR:CG2   | 1.41        | 1.50     |
| 21:V:91:THR:C    | 21:V:92:ALA:CB    | 1.79        | 1.50     |
| 2:A:2785:C:C1'   | 4:E:100:TRP:HD1   | 1.09        | 1.50     |
| 2:A:2584:U:C6    | 2:A:2585:U:C6     | 1.95        | 1.50     |
| 2:A:911:A:C4     | 12:Q:16:ARG:HG2   | 1.44        | 1.50     |
| 23:3:40:THR:CG2  | 23:3:43:ILE:CD1   | 1.85        | 1.50     |
| 2:A:2331:G:C4'   | 24:0:70:ILE:HG13  | 1.42        | 1.50     |
| 3:D:135:PRO:CG   | 3:D:138:THR:HG21  | 1.39        | 1.50     |
| 15:W:20:VAL:CG1  | 15:W:47:VAL:HG21  | 1.40        | 1.50     |
| 2:A:1568:G:C5'   | 3:D:60:GLN:HE21   | 1.22        | 1.50     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2225:A:C5'   | 2:A:2226:C:H5'   | 1.31        | 1.49     |
| 2:A:2352:A:C2    | 24:0:30:VAL:HG12 | 1.40        | 1.49     |
| 3:D:146:LYS:CD   | 3:D:147:PRO:HD2  | 1.39        | 1.49     |
| 5:F:22:PHE:CZ    | 5:F:115:LEU:HB3  | 1.45        | 1.49     |
| 5:F:91:PRO:HB2   | 5:F:92:PRO:CD    | 1.31        | 1.49     |
| 20:U:13:ARG:HH11 | 20:U:13:ARG:CB   | 0.86        | 1.49     |
| 21:V:94:LYS:C    | 21:V:95:ILE:CD1  | 1.76        | 1.49     |
| 2:A:2437:U:H5'   | 2:A:2598:A:C2    | 1.43        | 1.49     |
| 4:E:39:GLN:NE2   | 4:E:174:LEU:HD11 | 1.22        | 1.49     |
| 2:A:16:G:H4'     | 26:5:18:MET:SD   | 1.53        | 1.49     |
| 6:G:28:GLY:CA    | 6:G:69:ILE:HD13  | 1.38        | 1.49     |
| 4:E:74:GLU:HA    | 4:E:293:TYR:CD2  | 1.46        | 1.49     |
| 9:N:25:GLN:HA    | 9:N:28:GLU:CG    | 1.41        | 1.49     |
| 20:U:99:ALA:HB2  | 20:U:106:PHE:CZ  | 1.46        | 1.49     |
| 2:A:2657:A:N7    | 2:A:2658:C:C5    | 1.78        | 1.49     |
| 5:F:36:ARG:CA    | 5:F:39:GLN:HE22  | 1.23        | 1.49     |
| 2:A:2353:G:H1    | 2:A:2364:C:N4    | 1.03        | 1.49     |
| 15:W:32:ALA:CB   | 15:W:35:ILE:HD12 | 1.39        | 1.49     |
| 9:N:15:ARG:HB3   | 9:N:43:ARG:CG    | 1.03        | 1.49     |
| 12:Q:85:ILE:HG22 | 12:Q:122:PHE:CB  | 1.39        | 1.49     |
| 2:A:2316:C:H4'   | 6:G:151:ILE:CD1  | 1.03        | 1.48     |
| 2:A:2826:A:C6    | 2:A:2827:C:C5    | 2.02        | 1.48     |
| 3:D:73:ILE:CG2   | 3:D:95:TYR:CD2   | 1.89        | 1.48     |
| 9:N:27:ALA:CA    | 9:N:30:ALA:HB3   | 1.39        | 1.48     |
| 12:Q:49:VAL:CG2  | 12:Q:121:ASP:H   | 1.26        | 1.48     |
| 4:E:44:TYR:HA    | 4:E:309:PRO:CD   | 1.39        | 1.48     |
| 5:F:225:PRO:C    | 5:F:231:ARG:HG3  | 1.12        | 1.48     |
| 5:F:47:GLY:CA    | 5:F:92:PRO:CG    | 1.88        | 1.48     |
| 2:A:104:U:N3     | 17:Y:17:HIS:HE1  | 1.07        | 1.48     |
| 2:A:2225:A:C4'   | 2:A:2226:C:H5'   | 1.31        | 1.48     |
| 2:A:2653:U:C2    | 2:A:2654:A:N6    | 1.82        | 1.48     |
| 23:3:31:LEU:CD2  | 23:3:32:GLN:H    | 1.26        | 1.48     |
| 9:N:12:VAL:C     | 9:N:38:VAL:HG13  | 1.30        | 1.48     |
| 11:P:61:ALA:C    | 11:P:62:ALA:N    | 1.67        | 1.48     |
| 17:Y:73:HIS:CA   | 17:Y:91:LEU:CD1  | 1.91        | 1.48     |
| 20:U:74:MET:CE   | 20:U:78:THR:HG21 | 1.00        | 1.48     |
| 17:Y:78:THR:HG22 | 17:Y:88:PRO:CA   | 1.44        | 1.48     |
| 2:A:2597:G:H2'   | 2:A:2598:A:C8    | 1.47        | 1.47     |
| 2:A:2355:C:H4'   | 24:0:21:LEU:CD1  | 1.04        | 1.47     |
| 15:W:20:VAL:HG11 | 15:W:47:VAL:CG2  | 1.41        | 1.47     |
| 26:5:12:SER:HB3  | 26:5:15:LYS:NZ   | 1.22        | 1.47     |
| 4:E:39:GLN:CD    | 4:E:174:LEU:HD11 | 1.33        | 1.47     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1062:G:H22   | 31:K:92:PRO:CG    | 1.23        | 1.47     |
| 23:3:20:LYS:C    | 23:3:23:LEU:HG    | 1.31        | 1.47     |
| 2:A:2410:G:H2'   | 2:A:2411:A:C8     | 1.47        | 1.47     |
| 4:E:210:THR:HA   | 4:E:216:ARG:NH2   | 1.30        | 1.47     |
| 29:8:16:ILE:HG13 | 29:8:22:VAL:CG2   | 1.43        | 1.47     |
| 4:E:79:ARG:O     | 4:E:187:HIS:CE1   | 1.67        | 1.47     |
| 20:U:14:HIS:CE1  | 20:U:36:PHE:CZ    | 2.00        | 1.47     |
| 2:A:2432:A:C2    | 2:A:2433:A:C6     | 2.03        | 1.47     |
| 7:H:73:ASN:CB    | 7:H:137:LYS:HZ1   | 1.25        | 1.47     |
| 29:8:26:LYS:CD   | 29:8:44:LYS:CA    | 1.89        | 1.47     |
| 2:A:2286:A:H5'   | 2:A:2287:A:C4'    | 1.38        | 1.47     |
| 3:D:175:LEU:CG   | 3:D:179:GLU:C     | 1.81        | 1.47     |
| 4:E:79:ARG:HH12  | 4:E:104:PHE:C     | 1.02        | 1.47     |
| 8:I:103:GLN:HE21 | 8:I:110:LEU:N     | 1.11        | 1.47     |
| 11:P:144:ASP:C   | 11:P:145:LEU:HD12 | 1.27        | 1.46     |
| 12:Q:89:PRO:O    | 12:Q:90:PHE:CD1   | 1.66        | 1.46     |
| 30:9:25:VAL:HB   | 30:9:34:GLN:CB    | 1.03        | 1.46     |
| 2:A:1669:A:C8    | 10:O:4:GLN:OE1    | 1.66        | 1.46     |
| 17:Y:71:VAL:HG22 | 17:Y:93:THR:CG2   | 1.41        | 1.46     |
| 2:A:2579:C:H6    | 2:A:2579:C:C5'    | 1.21        | 1.46     |
| 2:A:2581:G:N1    | 2:A:2610:C:H6     | 1.01        | 1.46     |
| 28:7:30:ILE:CA   | 28:7:33:ARG:HD2   | 1.45        | 1.46     |
| 21:V:50:ASP:HB2  | 21:V:53:LYS:CG    | 1.43        | 1.46     |
| 2:A:2740:A:C2'   | 2:A:2741:A:H8     | 1.24        | 1.46     |
| 2:A:535:C:H4'    | 20:U:53:LYS:CE    | 1.00        | 1.46     |
| 9:N:45:VAL:O     | 9:N:46:ILE:CG1    | 1.63        | 1.46     |
| 2:A:2322:A:C5    | 2:A:2323:G:C8     | 2.01        | 1.46     |
| 18:Z:68:ALA:O    | 18:Z:69:VAL:CG2   | 1.64        | 1.46     |
| 3:D:74:PRO:CG    | 3:D:96:ALA:HB2    | 1.42        | 1.46     |
| 2:A:2638:G:N2    | 2:A:2778:A:H62    | 1.08        | 1.46     |
| 2:A:2850:A:H2    | 19:R:61:HIS:CE1   | 1.34        | 1.46     |
| 4:E:205:THR:CG2  | 4:E:259:HIS:CA    | 1.94        | 1.46     |
| 2:A:1151:G:H4'   | 20:U:81:ASN:ND2   | 1.19        | 1.46     |
| 22:2:55:ARG:CA   | 22:2:58:THR:OG1   | 1.63        | 1.46     |
| 2:A:2470:G:C2    | 2:A:2471:C:C4     | 2.01        | 1.46     |
| 19:R:38:VAL:CG1  | 19:R:39:PRO:CD    | 1.84        | 1.46     |
| 2:A:94:G:N2      | 22:2:42:ASN:HD22  | 1.03        | 1.46     |
| 25:4:46:GLU:O    | 25:4:47:GLU:CG    | 1.64        | 1.45     |
| 2:A:1029:A:O3'   | 2:A:1030:G:P      | 1.06        | 1.45     |
| 4:E:72:VAL:C     | 4:E:73:ILE:HD13   | 1.19        | 1.45     |
| 2:A:911:A:C5     | 12:Q:16:ARG:HG2   | 1.50        | 1.45     |
| 25:4:7:PRO:HD2   | 25:4:56:VAL:CG2   | 1.44        | 1.45     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 20:U:49:ASP:CA    | 20:U:52:ASN:ND2  | 1.78        | 1.45     |
| 2:A:1055:G:O3'    | 2:A:1056:G:P     | 1.05        | 1.45     |
| 2:A:911:A:C5      | 12:Q:16:ARG:CG   | 1.95        | 1.45     |
| 3:D:80:ILE:O      | 3:D:80:ILE:CD1   | 1.65        | 1.45     |
| 10:O:1:MET:C      | 10:O:2:ILE:HD12  | 1.15        | 1.45     |
| 11:P:65:ASP:HB3   | 11:P:109:LEU:CB  | 1.46        | 1.45     |
| 15:W:82:LEU:CD2   | 15:W:98:LYS:O    | 1.64        | 1.45     |
| 2:A:2712:U:C5     | 2:A:712(A):A:C8  | 2.05        | 1.45     |
| 3:D:158:GLY:HA2   | 3:D:194:VAL:CG1  | 1.46        | 1.45     |
| 9:N:19:MET:CE     | 9:N:19:MET:HA    | 1.44        | 1.45     |
| 29:8:26:LYS:HG3   | 29:8:45:GLY:N    | 1.28        | 1.45     |
| 2:A:2531:A:H2'    | 2:A:2532:G:C5'   | 1.46        | 1.45     |
| 6:G:49:PRO:HB3    | 6:G:72:LYS:C     | 1.35        | 1.44     |
| 2:A:1364:G:H2'    | 25:4:3:LYS:NZ    | 1.27        | 1.44     |
| 2:A:2698:U:O2     | 2:A:2699:C:C6    | 1.69        | 1.44     |
| 2:A:29:U:H4'      | 20:U:11:ARG:NH1  | 1.28        | 1.44     |
| 2:A:2652:C:C6     | 2:A:2653:U:C5    | 2.05        | 1.44     |
| 2:A:2698:U:O2     | 2:A:2699:C:C5    | 1.70        | 1.44     |
| 2:A:2785:C:C4'    | 4:E:99:VAL:HA    | 1.43        | 1.44     |
| 6:G:19:GLU:CB     | 6:G:135:VAL:HG21 | 1.39        | 1.44     |
| 2:A:2570:G:H2'    | 2:A:2571:C:C6    | 1.53        | 1.44     |
| 11:P:94:ARG:HD3   | 11:P:120:LEU:CD2 | 1.40        | 1.44     |
| 2:A:2626:C:H2'    | 2:A:2627:G:C5'   | 1.45        | 1.44     |
| 8:I:7:LYS:CD      | 8:I:12:LYS:NZ    | 1.78        | 1.44     |
| 2:A:2495:G:O3'    | 12:Q:101:MET:CE  | 1.65        | 1.44     |
| 18:Z:2:GLU:C      | 18:Z:54:ILE:HG21 | 1.32        | 1.44     |
| 28:7:21:ARG:CZ    | 28:7:43:THR:HG23 | 1.47        | 1.44     |
| 9:N:15:ARG:CD     | 9:N:43:ARG:HD2   | 1.42        | 1.44     |
| 17:Y:41:ARG:O     | 17:Y:112:LEU:CB  | 1.65        | 1.44     |
| 2:A:2364:C:C2     | 24:0:32:LYS:NZ   | 1.84        | 1.44     |
| 3:D:73:ILE:CG2    | 3:D:95:TYR:HD2   | 1.19        | 1.44     |
| 7:H:166:GLU:C     | 7:H:167:LEU:HD23 | 1.07        | 1.44     |
| 7:H:73:ASN:CB     | 7:H:137:LYS:NZ   | 1.79        | 1.44     |
| 18:Z:172:LEU:HD23 | 18:Z:173:PRO:N   | 1.33        | 1.44     |
| 8:I:68:LEU:HD21   | 8:I:108:LEU:CD1  | 0.98        | 1.44     |
| 2:A:1826:G:P      | 3:D:227:VAL:HG21 | 1.56        | 1.44     |
| 13:S:27:LEU:HB2   | 13:S:33:ARG:NH2  | 1.29        | 1.44     |
| 2:A:2450:A:C5'    | 2:A:2497:A:N6    | 1.81        | 1.44     |
| 5:F:52:ALA:HA     | 5:F:55:ARG:NE    | 1.27        | 1.44     |
| 9:N:95:ARG:N      | 9:N:98:PHE:HE1   | 1.15        | 1.44     |
| 4:E:71:THR:CG2    | 4:E:299:SER:CB   | 1.84        | 1.43     |
| 18:Z:172:LEU:HD23 | 18:Z:173:PRO:CD  | 1.46        | 1.43     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 27:6:28:ARG:HB3  | 27:6:28:ARG:NH1   | 1.31        | 1.43     |
| 28:7:17:GLY:CA   | 28:7:44:VAL:CG2   | 1.96        | 1.43     |
| 5:F:3:ALA:HB3    | 5:F:16:VAL:C      | 1.37        | 1.43     |
| 2:A:1665:A:O3'   | 10:O:66:LYS:CE    | 1.67        | 1.43     |
| 19:R:44:LEU:HD13 | 19:R:48:VAL:CG2   | 1.47        | 1.43     |
| 24:0:65:GLY:C    | 24:0:66:LYS:CD    | 1.86        | 1.43     |
| 2:A:2638:G:H21   | 2:A:2778:A:N6     | 0.95        | 1.43     |
| 2:A:2579:C:C2'   | 2:A:2580:U:H5'    | 1.48        | 1.43     |
| 12:Q:16:ARG:CB   | 12:Q:16:ARG:HH11  | 1.27        | 1.43     |
| 23:3:40:THR:CG2  | 23:3:43:ILE:HD13  | 0.95        | 1.43     |
| 11:P:92:ASP:CB   | 11:P:118:LEU:HD13 | 1.49        | 1.43     |
| 11:P:94:ARG:CB   | 11:P:120:LEU:CD2  | 1.94        | 1.43     |
| 2:A:1364:G:C2'   | 25:4:3:LYS:HZ2    | 1.30        | 1.43     |
| 2:A:2090:G:C6    | 2:A:2230:G:O6     | 1.70        | 1.43     |
| 2:A:2556:C:C2'   | 2:A:2557:G:H5'    | 0.98        | 1.43     |
| 2:A:2869:G:N3    | 2:A:2870:C:C6     | 1.84        | 1.43     |
| 2:A:630(A):C:H3' | 2:A:1631:A:P      | 1.55        | 1.43     |
| 2:A:2306:C:N4    | 2:A:2311:A:H2     | 1.12        | 1.43     |
| 21:V:61:VAL:CG1  | 21:V:95:ILE:HG22  | 1.49        | 1.43     |
| 6:G:28:GLY:HA2   | 6:G:69:ILE:CD1    | 1.46        | 1.43     |
| 20:U:76:TYR:O    | 20:U:80:ILE:CD1   | 1.65        | 1.43     |
| 3:D:208:GLY:HA2  | 3:D:210:LYS:NZ    | 1.27        | 1.43     |
| 11:P:94:ARG:CD   | 11:P:120:LEU:HD23 | 1.46        | 1.42     |
| 2:A:2225:A:H5''  | 2:A:2226:C:C5'    | 1.39        | 1.42     |
| 2:A:1665:A:C4'   | 10:O:66:LYS:NZ    | 1.73        | 1.42     |
| 11:P:76:LEU:C    | 11:P:81:VAL:HG21  | 1.32        | 1.42     |
| 21:V:60:VAL:O    | 21:V:98:ILE:CB    | 1.67        | 1.42     |
| 27:6:12:MET:SD   | 27:6:54:LYS:HB3   | 1.60        | 1.42     |
| 20:U:8:ILE:CA    | 20:U:11:ARG:HD3   | 1.44        | 1.42     |
| 21:V:11:GLN:NE2  | 21:V:22:VAL:CG2   | 1.74        | 1.42     |
| 16:X:5:ILE:CG2   | 16:X:6:LYS:H      | 1.17        | 1.42     |
| 2:A:2018:G:N2    | 20:U:34:ASN:ND2   | 1.67        | 1.42     |
| 5:F:196:THR:HA   | 5:F:236:THR:CG2   | 1.50        | 1.42     |
| 12:Q:87:LYS:O    | 12:Q:88:PHE:CD2   | 1.72        | 1.42     |
| 8:I:7:LYS:CG     | 8:I:12:LYS:HG2    | 1.48        | 1.42     |
| 2:A:2698:U:C2    | 2:A:2699:C:C5     | 2.06        | 1.42     |
| 13:S:128:ASP:C   | 13:S:129:ILE:N    | 1.73        | 1.42     |
| 16:X:4:VAL:CG2   | 22:2:24:LYS:NZ    | 1.80        | 1.42     |
| 24:0:45:PHE:CD1  | 24:0:78:PHE:HA    | 1.52        | 1.42     |
| 2:A:2579:C:H2'   | 2:A:2580:U:C5'    | 1.48        | 1.42     |
| 2:A:2813:A:C2'   | 2:A:2814:C:H6     | 1.30        | 1.42     |
| 4:E:205:THR:CG2  | 4:E:259:HIS:N     | 1.83        | 1.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 27:6:46:LYS:HA   | 27:6:46:LYS:NZ   | 1.19        | 1.42     |
| 21:V:39:PHE:O    | 21:V:40:VAL:CG2  | 1.64        | 1.42     |
| 2:A:176:G:O3'    | 2:A:177:G:P      | 1.03        | 1.42     |
| 2:A:1:G:H1       | 2:A:2902:C:N4    | 0.92        | 1.42     |
| 27:6:45:LYS:O    | 27:6:46:LYS:CE   | 1.66        | 1.41     |
| 3:D:149:ARG:CB   | 3:D:152:GLN:HE22 | 1.32        | 1.41     |
| 21:V:74:TYR:CD1  | 21:V:86:HIS:O    | 1.70        | 1.41     |
| 4:E:211:GLN:C    | 4:E:216:ARG:HD2  | 1.37        | 1.41     |
| 6:G:21:VAL:HG13  | 6:G:132:VAL:CG2  | 1.49        | 1.41     |
| 7:H:104:LEU:HB2  | 7:H:151:ARG:NH1  | 1.26        | 1.41     |
| 10:O:63:VAL:HG13 | 10:O:102:VAL:CG1 | 0.96        | 1.41     |
| 3:D:77:VAL:CB    | 3:D:113:MET:HA   | 1.31        | 1.41     |
| 18:Z:6:LYS:O     | 18:Z:31:SER:CB   | 1.66        | 1.41     |
| 4:E:74:GLU:HA    | 4:E:293:TYR:CE2  | 1.53        | 1.41     |
| 21:V:50:ASP:H    | 21:V:53:LYS:CE   | 1.30        | 1.41     |
| 16:X:4:VAL:HG22  | 22:2:24:LYS:NZ   | 1.08        | 1.41     |
| 5:F:223:LEU:HD12 | 5:F:224:ALA:N    | 1.08        | 1.41     |
| 2:A:2484:G:N2    | 2:A:2485:G:C1'   | 1.83        | 1.41     |
| 3:D:77:VAL:HB    | 3:D:113:MET:CA   | 1.47        | 1.41     |
| 13:S:31:LYS:CD   | 13:S:99:GLU:O    | 1.67        | 1.41     |
| 2:A:2515:C:N4    | 2:A:2569:G:H1    | 1.10        | 1.41     |
| 6:G:98:PHE:HA    | 6:G:104:PHE:CD2  | 1.53        | 1.41     |
| 20:U:74:MET:CE   | 20:U:78:THR:CG2  | 1.97        | 1.41     |
| 24:O:43:THR:HG21 | 24:O:75:GLY:CA   | 1.48        | 1.41     |
| 7:H:104:LEU:CB   | 7:H:151:ARG:NH1  | 1.84        | 1.41     |
| 20:U:49:ASP:HA   | 20:U:52:ASN:ND2  | 1.16        | 1.41     |
| 18:Z:67:LYS:HA   | 18:Z:67:LYS:NZ   | 1.29        | 1.41     |
| 2:A:2330:G:N2    | 2:A:2331:G:H1'   | 1.34        | 1.41     |
| 2:A:2352:A:H2    | 24:O:30:VAL:CG1  | 1.24        | 1.41     |
| 9:N:94:GLY:C     | 9:N:98:PHE:HE1   | 1.19        | 1.41     |
| 15:W:19:LEU:CD2  | 26:5:25:LEU:HG   | 1.49        | 1.41     |
| 2:A:1140:C:C5    | 9:N:49:ARG:HG3   | 1.56        | 1.41     |
| 12:Q:46:VAL:CB   | 12:Q:124:ALA:O   | 1.65        | 1.41     |
| 10:O:99:PHE:CE2  | 14:T:24:LYS:HE2  | 0.90        | 1.41     |
| 29:8:26:LYS:HD2  | 29:8:44:LYS:CA   | 0.93        | 1.40     |
| 2:A:535:C:C4'    | 20:U:53:LYS:CE   | 1.86        | 1.40     |
| 2:A:2850:A:C2    | 19:R:61:HIS:CE1  | 2.09        | 1.40     |
| 2:A:2652:C:C5    | 2:A:2653:U:C4    | 2.09        | 1.40     |
| 6:G:28:GLY:C     | 6:G:69:ILE:CD1   | 1.89        | 1.40     |
| 17:Y:55:PHE:CE2  | 17:Y:89:ARG:NH1  | 1.89        | 1.40     |
| 2:A:2573:C:H6    | 2:A:2573:C:C5'   | 1.32        | 1.40     |
| 3:D:131:LEU:HD11 | 3:D:183:ILE:CG2  | 1.49        | 1.40     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:P:83:GLU:C     | 11:P:92:ASP:N     | 1.75        | 1.40     |
| 12:Q:140:TYR:HD1  | 12:Q:147:VAL:CG1  | 1.28        | 1.40     |
| 18:Z:116:VAL:HG23 | 18:Z:169:VAL:CG2  | 1.50        | 1.40     |
| 24:0:67:VAL:CG1   | 24:0:74:LYS:HG2   | 1.51        | 1.40     |
| 2:A:2259:G:N2     | 2:A:2282:G:C5     | 1.90        | 1.40     |
| 2:A:2652:C:C5     | 2:A:2653:U:C5     | 2.09        | 1.40     |
| 2:A:2354:G:N3     | 24:0:32:LYS:HE3   | 1.36        | 1.40     |
| 12:Q:142:LYS:CG   | 12:Q:143:VAL:H    | 1.28        | 1.40     |
| 2:A:997:G:H5''    | 20:U:92:ARG:NH1   | 1.27        | 1.40     |
| 28:7:21:ARG:NH1   | 28:7:43:THR:HG23  | 1.08        | 1.40     |
| 2:A:2832:U:C5'    | 2:A:2832:U:C6     | 2.04        | 1.40     |
| 24:0:45:PHE:CE1   | 24:0:78:PHE:CD2   | 2.08        | 1.40     |
| 28:7:30:ILE:HA    | 28:7:33:ARG:CG    | 1.48        | 1.40     |
| 2:A:1568:G:P      | 3:D:60:GLN:HG2    | 1.59        | 1.40     |
| 11:P:94:ARG:CG    | 11:P:120:LEU:HD23 | 1.50        | 1.40     |
| 2:A:25:U:H4'      | 15:W:79:GLY:CA    | 1.49        | 1.40     |
| 25:4:6:HIS:ND1    | 25:4:56:VAL:HG23  | 1.34        | 1.39     |
| 2:A:2287:A:C2     | 2:A:2289:G:H1'    | 1.42        | 1.39     |
| 2:A:495:G:C1'     | 15:W:57:ASN:OD1   | 1.68        | 1.39     |
| 3:D:175:LEU:HG    | 3:D:179:GLU:C     | 1.03        | 1.39     |
| 4:E:45:LYS:HE3    | 4:E:303:PRO:CG    | 1.52        | 1.39     |
| 18:Z:172:LEU:CG   | 18:Z:173:PRO:HD2  | 1.49        | 1.39     |
| 2:A:2848:G:N2     | 2:A:2849:U:H3     | 1.14        | 1.39     |
| 9:N:135:ILE:O     | 9:N:139:LEU:CD1   | 1.69        | 1.39     |
| 23:3:31:LEU:CD2   | 23:3:32:GLN:N     | 1.81        | 1.39     |
| 2:A:2684:U:H1'    | 10:O:70:ARG:NH2   | 1.15        | 1.39     |
| 3:D:92:LEU:HD11   | 3:D:102:TYR:CD1   | 1.56        | 1.39     |
| 12:Q:45:GLN:NE2   | 12:Q:153:PRO:HB2  | 1.38        | 1.39     |
| 4:E:87:GLU:C      | 4:E:93:GLN:N      | 1.75        | 1.39     |
| 2:A:1062:G:N2     | 31:K:92:PRO:CG    | 1.82        | 1.39     |
| 29:8:55:TRP:CZ3   | 29:8:59:LYS:HE3   | 1.54        | 1.39     |
| 2:A:2485:G:C2'    | 2:A:2486:G:H5'    | 1.50        | 1.39     |
| 17:Y:33:GLU:OE1   | 17:Y:34:GLU:CG    | 1.70        | 1.39     |
| 18:Z:163:ASP:CG   | 18:Z:164:PRO:HD2  | 1.40        | 1.39     |
| 3:D:103:ILE:HG12  | 3:D:104:ILE:CD1   | 0.93        | 1.39     |
| 7:H:10:ILE:CG2    | 7:H:14:VAL:CG1    | 1.98        | 1.39     |
| 20:U:59:ARG:C     | 20:U:62:ILE:HG12  | 1.42        | 1.39     |
| 2:A:2748:A:N7     | 2:A:2749:A:C2     | 1.89        | 1.39     |
| 9:N:94:GLY:C      | 9:N:98:PHE:CE1    | 1.96        | 1.39     |
| 20:U:92:ARG:C     | 20:U:95:LEU:HG    | 1.42        | 1.39     |
| 2:A:2799:A:H3'    | 2:A:2801:A:P      | 1.63        | 1.39     |
| 5:F:47:GLY:HA2    | 5:F:92:PRO:CB     | 0.91        | 1.39     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 12:Q:54:VAL:O     | 12:Q:56:ILE:CD1  | 1.71        | 1.39     |
| 2:A:1029:A:C3'    | 2:A:1030:G:P     | 2.09        | 1.38     |
| 2:A:2845:G:O2'    | 2:A:2846:G:C5'   | 1.69        | 1.38     |
| 2:A:445:C:H3'     | 20:U:3:ARG:NH2   | 1.39        | 1.38     |
| 15:W:30:GLU:CA    | 15:W:33:ARG:HD3  | 1.51        | 1.38     |
| 2:A:1263:U:H4'    | 26:5:16:ARG:CZ   | 1.48        | 1.38     |
| 2:A:14:A:O3'      | 2:A:15:G:P       | 1.00        | 1.38     |
| 4:E:79:ARG:NH1    | 4:E:104:PHE:C    | 1.75        | 1.38     |
| 7:H:86:LEU:H      | 7:H:131:ILE:CG2  | 1.35        | 1.38     |
| 13:S:12:ARG:HD2   | 13:S:20:TYR:CZ   | 1.58        | 1.38     |
| 15:W:99:ARG:C     | 15:W:100:THR:N   | 1.76        | 1.38     |
| 2:A:2893:G:O2'    | 2:A:2894:G:C1'   | 1.69        | 1.38     |
| 5:F:81:PRO:CA     | 5:F:87:ARG:HG2   | 1.49        | 1.38     |
| 2:A:2776:A:H1'    | 2:A:2778:A:C8    | 1.58        | 1.38     |
| 5:F:47:GLY:C      | 5:F:92:PRO:CG    | 1.92        | 1.38     |
| 6:G:28:GLY:CA     | 6:G:69:ILE:CD1   | 1.96        | 1.38     |
| 13:S:12:ARG:NH1   | 13:S:20:TYR:CE2  | 1.73        | 1.38     |
| 18:Z:71:MET:HG2   | 18:Z:78:PRO:CD   | 0.92        | 1.38     |
| 28:7:21:ARG:O     | 28:7:24:THR:CG2  | 1.72        | 1.38     |
| 29:8:16:ILE:CG1   | 29:8:22:VAL:HG22 | 1.51        | 1.38     |
| 4:E:76:PRO:HB2    | 4:E:77:PRO:CD    | 1.49        | 1.38     |
| 10:O:63:VAL:CG1   | 10:O:102:VAL:CG1 | 1.91        | 1.38     |
| 11:P:112:GLY:C    | 11:P:113:GLN:NE2 | 1.76        | 1.38     |
| 15:W:90:ARG:NH1   | 15:W:90:ARG:HB2  | 1.14        | 1.38     |
| 5:F:52:ALA:CB     | 5:F:55:ARG:NH2   | 1.85        | 1.38     |
| 28:7:30:ILE:O     | 28:7:33:ARG:CB   | 1.71        | 1.38     |
| 2:A:1248:G:OP1    | 20:U:2:PRO:CB    | 1.71        | 1.38     |
| 17:Y:18:GLU:C     | 17:Y:21:LYS:HZ2  | 1.26        | 1.38     |
| 27:6:48:VAL:O     | 27:6:50:PHE:CE1  | 1.76        | 1.38     |
| 11:P:62:ALA:N     | 11:P:107:LYS:CE  | 1.84        | 1.38     |
| 8:I:102:LEU:HD12  | 8:I:103:GLN:N    | 1.07        | 1.38     |
| 8:I:103:GLN:NE2   | 8:I:110:LEU:H    | 1.21        | 1.38     |
| 3:D:208:GLY:CA    | 3:D:210:LYS:NZ   | 1.83        | 1.38     |
| 29:8:26:LYS:HD2   | 29:8:44:LYS:N    | 1.37        | 1.37     |
| 4:E:205:THR:HG21  | 4:E:259:HIS:N    | 1.09        | 1.37     |
| 30:9:14:CYS:HA    | 30:9:27:CYS:CB   | 1.52        | 1.37     |
| 2:A:2583:G:C2'    | 2:A:2584:U:O2    | 1.69        | 1.37     |
| 11:P:62:ALA:O     | 11:P:107:LYS:CD  | 1.69        | 1.37     |
| 17:Y:101:LEU:HD11 | 17:Y:112:LEU:CG  | 1.53        | 1.37     |
| 23:3:8:LEU:CD2    | 23:3:31:LEU:CA   | 2.01        | 1.37     |
| 2:A:2482:G:H2'    | 2:A:2483:C:C5'   | 1.51        | 1.37     |
| 2:A:1665:A:C3'    | 10:O:66:LYS:HZ3  | 1.37        | 1.37     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1665:A:C3'   | 10:O:66:LYS:NZ   | 1.87        | 1.37     |
| 27:6:46:LYS:CA   | 27:6:46:LYS:HZ3  | 1.35        | 1.37     |
| 29:8:60:LEU:HD11 | 29:8:64:ARG:CB   | 1.51        | 1.37     |
| 3:D:103:ILE:CG1  | 3:D:104:ILE:HD12 | 1.47        | 1.37     |
| 3:D:128:ALA:HB2  | 3:D:190:THR:CA   | 1.54        | 1.37     |
| 2:A:2580:U:C5    | 2:A:2581:G:N7    | 1.92        | 1.37     |
| 2:A:2768:C:C2'   | 2:A:2769:C:H5'   | 1.54        | 1.37     |
| 2:A:2316:C:C4'   | 6:G:151:ILE:CD1  | 1.91        | 1.37     |
| 7:H:143:LEU:HD23 | 7:H:144:ALA:N    | 1.33        | 1.37     |
| 2:A:29:U:C4'     | 20:U:11:ARG:HH12 | 1.35        | 1.37     |
| 18:Z:172:LEU:CD2 | 18:Z:173:PRO:HD2 | 1.53        | 1.37     |
| 2:A:997:G:OP1    | 20:U:93:LYS:HE2  | 1.20        | 1.37     |
| 21:V:42:GLY:N    | 21:V:54:TYR:CZ   | 1.93        | 1.37     |
| 18:Z:163:ASP:CG  | 18:Z:164:PRO:CD  | 1.92        | 1.37     |
| 24:0:46:LYS:HG3  | 24:0:58:THR:CG2  | 1.51        | 1.37     |
| 2:A:245:G:OP1    | 11:P:53:ARG:CD   | 1.73        | 1.37     |
| 2:A:1055:G:C3'   | 2:A:1056:G:P     | 2.11        | 1.37     |
| 2:A:2567:G:N3    | 2:A:2568:C:C5    | 1.92        | 1.36     |
| 2:A:2616:C:C2'   | 2:A:2617:C:H5'   | 1.56        | 1.36     |
| 2:A:2785:C:H1'   | 4:E:100:TRP:CD1  | 0.83        | 1.36     |
| 2:A:2869:G:C2    | 2:A:2870:C:C6    | 2.11        | 1.36     |
| 25:4:40:HIS:C    | 25:4:41:PRO:N    | 1.75        | 1.36     |
| 2:A:2307:G:H1'   | 2:A:2311:A:N6    | 1.40        | 1.36     |
| 2:A:993:G:C4'    | 21:V:90:PHE:CE2  | 2.08        | 1.36     |
| 21:V:62:GLU:O    | 21:V:95:ILE:CG2  | 1.71        | 1.36     |
| 20:U:61:TRP:O    | 20:U:65:ILE:CG1  | 1.74        | 1.36     |
| 2:A:1995:U:OP1   | 4:E:220:GLN:NE2  | 1.58        | 1.36     |
| 25:4:16:TYR:O    | 25:4:17:GLN:CG   | 1.73        | 1.36     |
| 2:A:2267:A:H5''  | 2:A:2268:A:OP1   | 1.20        | 1.36     |
| 2:A:2464:C:N4    | 2:A:2487:G:C6    | 1.94        | 1.36     |
| 17:Y:28:SER:HB3  | 17:Y:99:THR:CB   | 1.52        | 1.36     |
| 24:0:36:ILE:C    | 24:0:68:VAL:HG13 | 1.45        | 1.36     |
| 2:A:2228:G:C8    | 2:A:2229:C:C6    | 2.12        | 1.36     |
| 2:A:2470:G:N2    | 2:A:2471:C:N3    | 1.65        | 1.36     |
| 4:E:211:GLN:O    | 4:E:216:ARG:CD   | 1.72        | 1.36     |
| 4:E:45:LYS:HZ1   | 4:E:303:PRO:N    | 0.90        | 1.36     |
| 7:H:120:LEU:C    | 7:H:121:GLU:OE1  | 1.63        | 1.36     |
| 13:S:46:GLN:O    | 13:S:47:LEU:CD2  | 1.73        | 1.36     |
| 27:6:21:TYR:CZ   | 27:6:43:VAL:HG23 | 1.60        | 1.36     |
| 5:F:217:GLU:O    | 5:F:218:VAL:CG2  | 1.73        | 1.36     |
| 7:H:101:LYS:CE   | 7:H:115:GLU:HB2  | 1.55        | 1.36     |
| 11:P:66:VAL:HB   | 11:P:67:ARG:CZ   | 1.16        | 1.36     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:994:C:C2     | 20:U:53:LYS:HD3  | 1.60        | 1.36     |
| 9:N:106:GLY:O    | 9:N:107:ASN:ND2  | 1.58        | 1.36     |
| 24:O:65:GLY:O    | 24:O:66:LYS:HD2  | 1.20        | 1.35     |
| 3:D:143:ILE:O    | 3:D:152:GLN:N    | 1.57        | 1.35     |
| 4:E:233:ARG:O    | 4:E:234:ARG:CG   | 1.71        | 1.35     |
| 6:G:49:PRO:CB    | 6:G:72:LYS:O     | 1.72        | 1.35     |
| 9:N:27:ALA:HA    | 9:N:30:ALA:CB    | 0.89        | 1.35     |
| 2:A:2785:C:H2'   | 2:A:2786:U:C6    | 1.59        | 1.35     |
| 5:F:243:VAL:HA   | 5:F:246:ARG:CD   | 1.55        | 1.35     |
| 7:H:97:LYS:O     | 7:H:98:GLN:HG3   | 1.21        | 1.35     |
| 10:O:25:LEU:CD2  | 10:O:40:VAL:CG2  | 2.04        | 1.35     |
| 2:A:1566:A:C2    | 3:D:212:HIS:HA   | 1.61        | 1.35     |
| 24:O:37:LEU:N    | 24:O:68:VAL:HG13 | 1.39        | 1.35     |
| 2:A:2820:A:H5''  | 2:A:2820:A:N3    | 1.38        | 1.35     |
| 4:E:70:VAL:HG11  | 4:E:296:VAL:N    | 1.41        | 1.35     |
| 11:P:117:GLU:OE2 | 11:P:136:ALA:C   | 1.64        | 1.35     |
| 21:V:42:GLY:HA3  | 21:V:54:TYR:CE2  | 1.60        | 1.35     |
| 2:A:1783:A:C2    | 2:A:2587:A:H2    | 1.44        | 1.35     |
| 5:F:59:GLU:O     | 5:F:61:PHE:CD2   | 1.79        | 1.35     |
| 28:7:34:ARG:NH1  | 28:7:42:LEU:HA   | 1.35        | 1.35     |
| 2:A:2195:C:C5    | 2:A:2195:C:OP2   | 1.77        | 1.35     |
| 2:A:2574:G:C5    | 2:A:2575:C:C5    | 1.92        | 1.35     |
| 9:N:13:ASP:N     | 9:N:38:VAL:CG1   | 1.87        | 1.35     |
| 19:R:20:LEU:CD1  | 19:R:21:TYR:CD2  | 2.10        | 1.35     |
| 21:V:61:VAL:HG12 | 21:V:95:ILE:CG2  | 1.52        | 1.35     |
| 21:V:91:THR:O    | 21:V:92:ALA:CB   | 1.70        | 1.35     |
| 2:A:2737:G:H1    | 2:A:2767:C:N4    | 1.22        | 1.35     |
| 5:F:215:ALA:HB1  | 5:F:238:SER:O    | 1.27        | 1.35     |
| 24:O:46:LYS:CG   | 24:O:58:THR:HG23 | 1.55        | 1.35     |
| 2:A:2564:A:H2'   | 2:A:2565:A:C8    | 1.60        | 1.35     |
| 9:N:65:ASN:CB    | 9:N:69:TYR:HD1   | 1.40        | 1.35     |
| 2:A:2306:C:N4    | 2:A:2311:A:C2    | 1.88        | 1.35     |
| 3:D:156:ALA:O    | 3:D:196:ASN:ND2  | 1.58        | 1.35     |
| 5:F:245:GLU:N    | 5:F:245:GLU:OE2  | 1.60        | 1.35     |
| 7:H:148:ARG:NH1  | 7:H:163:TYR:HA   | 1.42        | 1.35     |
| 14:T:28:THR:O    | 14:T:29:THR:HG23 | 1.17        | 1.35     |
| 2:A:1151:G:H4'   | 20:U:81:ASN:CG   | 1.44        | 1.35     |
| 20:U:98:ILE:O    | 20:U:100:ALA:N   | 1.56        | 1.35     |
| 21:V:40:VAL:HG12 | 21:V:51:ALA:O    | 1.24        | 1.35     |
| 22:2:52:ALA:O    | 22:2:56:ILE:CG1  | 1.71        | 1.35     |
| 7:H:15:THR:CG2   | 7:H:26:LYS:HB2   | 1.55        | 1.35     |
| 2:A:1791:A:OP1   | 3:D:210:LYS:CD   | 1.74        | 1.35     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 29:8:8:LYS:O     | 29:8:10:ALA:N    | 1.59        | 1.34     |
| 29:8:16:ILE:CG2  | 29:8:21:LYS:O    | 1.75        | 1.34     |
| 2:A:2869:G:C4    | 2:A:2870:C:C6    | 2.12        | 1.34     |
| 5:F:238:SER:O    | 5:F:241:ALA:CB   | 1.72        | 1.34     |
| 15:W:76:VAL:HG23 | 15:W:102:HIS:O   | 1.20        | 1.34     |
| 5:F:62:GLY:HA3   | 5:F:65:ARG:NH2   | 1.38        | 1.34     |
| 23:3:20:LYS:O    | 23:3:23:LEU:CG   | 1.75        | 1.34     |
| 27:6:32:GLN:HB3  | 27:6:35:LEU:CD1  | 1.55        | 1.34     |
| 30:9:7:VAL:HG12  | 30:9:34:GLN:CD   | 1.47        | 1.34     |
| 2:A:2286:A:H5'   | 2:A:2287:A:C5'   | 1.58        | 1.34     |
| 2:A:2583:G:H2'   | 2:A:2584:U:C2    | 1.61        | 1.34     |
| 2:A:2717:G:N3    | 2:A:2718:G:C8    | 1.95        | 1.34     |
| 3:D:183:ILE:CG2  | 3:D:184:LEU:H    | 1.34        | 1.34     |
| 12:Q:67:ALA:CB   | 12:Q:70:ARG:NH1  | 1.88        | 1.34     |
| 4:E:44:TYR:CE1   | 4:E:308:VAL:HA   | 1.62        | 1.34     |
| 17:Y:43:ASN:ND2  | 17:Y:101:LEU:CD2 | 1.90        | 1.34     |
| 2:A:963:U:H1'    | 2:A:2250:G:N2    | 1.40        | 1.34     |
| 3:D:118:GLY:O    | 3:D:129:LEU:HD11 | 1.20        | 1.34     |
| 3:D:175:LEU:HD21 | 3:D:180:VAL:CA   | 1.55        | 1.34     |
| 7:H:104:LEU:HB2  | 7:H:151:ARG:CZ   | 1.56        | 1.34     |
| 17:Y:73:HIS:HA   | 17:Y:91:LEU:CD1  | 1.52        | 1.34     |
| 2:A:2556:C:C2'   | 2:A:2557:G:C5'   | 1.94        | 1.34     |
| 2:A:2679:A:N3    | 4:E:300:VAL:CG1  | 1.90        | 1.34     |
| 2:A:850:C:H4'    | 23:3:18:ASP:OD1  | 1.16        | 1.34     |
| 9:N:134:GLU:O    | 9:N:138:THR:CG2  | 1.74        | 1.34     |
| 12:Q:67:ALA:O    | 12:Q:71:PHE:CD1  | 1.78        | 1.34     |
| 2:A:1260:G:H5''  | 15:W:83:LYS:NZ   | 1.42        | 1.34     |
| 29:8:58:MET:SD   | 29:8:61:MET:HG3  | 1.67        | 1.34     |
| 3:D:128:ALA:CB   | 3:D:190:THR:CB   | 2.02        | 1.34     |
| 6:G:21:VAL:CG1   | 6:G:132:VAL:HG23 | 1.58        | 1.34     |
| 11:P:52:LYS:HD3  | 11:P:53:ARG:NH1  | 1.42        | 1.34     |
| 18:Z:51:LEU:HD23 | 18:Z:52:PHE:N    | 1.38        | 1.34     |
| 2:A:1:G:N1       | 2:A:2902:C:N4    | 1.71        | 1.34     |
| 2:A:2826:A:N6    | 2:A:2827:C:C5    | 1.91        | 1.34     |
| 5:F:36:ARG:HA    | 5:F:39:GLN:NE2   | 1.40        | 1.34     |
| 7:H:166:GLU:C    | 7:H:167:LEU:CD2  | 1.95        | 1.34     |
| 2:A:1614:A:N6    | 15:W:88:ARG:CB   | 1.91        | 1.34     |
| 2:A:2688:U:O2    | 2:A:2719:G:C2    | 1.80        | 1.33     |
| 7:H:166:GLU:O    | 7:H:167:LEU:CD2  | 1.76        | 1.33     |
| 13:S:31:LYS:HB3  | 13:S:32:PRO:CD   | 1.54        | 1.33     |
| 2:A:535:C:O2'    | 20:U:53:LYS:CG   | 1.75        | 1.33     |
| 17:Y:30:ASP:OD2  | 17:Y:31:LEU:HD21 | 1.19        | 1.33     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2506:U:OP2    | 2:A:2576:G:N2    | 1.57        | 1.33     |
| 2:A:2768:C:C4     | 2:A:2769:C:H5    | 1.45        | 1.33     |
| 5:F:5:ILE:HB      | 5:F:14:GLY:O     | 1.23        | 1.33     |
| 10:O:35:ILE:HG23  | 10:O:63:VAL:N    | 1.37        | 1.33     |
| 16:X:3:ASP:OD2    | 22:2:24:LYS:CD   | 1.74        | 1.33     |
| 17:Y:73:HIS:HA    | 17:Y:91:LEU:CG   | 1.57        | 1.33     |
| 28:7:30:ILE:HD13  | 28:7:33:ARG:CD   | 1.58        | 1.33     |
| 2:A:2592:G:N7     | 2:A:2593:U:C5    | 1.95        | 1.33     |
| 2:A:1568:G:H5''   | 3:D:60:GLN:NE2   | 1.39        | 1.33     |
| 9:N:83:ILE:CG1    | 9:N:84:ARG:H     | 1.18        | 1.33     |
| 13:S:35:VAL:HA    | 13:S:103:ASP:CB  | 1.42        | 1.33     |
| 20:U:92:ARG:O     | 20:U:95:LEU:CG   | 1.76        | 1.33     |
| 17:Y:45:GLY:CA    | 17:Y:62:VAL:CG1  | 1.98        | 1.33     |
| 22:2:7:GLU:CD     | 22:2:8:ILE:HG13  | 1.47        | 1.33     |
| 2:A:2316:C:C5'    | 6:G:151:ILE:HD11 | 1.57        | 1.33     |
| 2:A:1665:A:H4'    | 10:O:66:LYS:NZ   | 1.26        | 1.33     |
| 28:7:34:ARG:CD    | 28:7:42:LEU:CD2  | 2.06        | 1.33     |
| 2:A:2353:G:N2     | 2:A:2364:C:N3    | 1.71        | 1.33     |
| 10:O:77:ILE:HD11  | 10:O:79:PHE:CE2  | 1.62        | 1.33     |
| 2:A:2785:C:H2'    | 2:A:2786:U:C5    | 1.64        | 1.33     |
| 11:P:114:VAL:O    | 11:P:115:ARG:CG  | 1.75        | 1.33     |
| 2:A:2689:U:H5'    | 2:A:2690:C:C5'   | 1.57        | 1.33     |
| 2:A:298:G:O6      | 17:Y:24:ARG:NH1  | 1.60        | 1.33     |
| 5:F:81:PRO:HB3    | 5:F:87:ARG:CB    | 1.56        | 1.33     |
| 2:A:2544:G:H5''   | 2:A:2645:G:N7    | 1.41        | 1.33     |
| 5:F:48:SER:N      | 5:F:92:PRO:CG    | 1.92        | 1.33     |
| 3:D:135:PRO:HG2   | 3:D:138:THR:CG2  | 1.55        | 1.33     |
| 2:A:2447:G:C5     | 2:A:2500:U:C5    | 2.16        | 1.32     |
| 4:E:180:ILE:CA    | 4:E:183:ASP:OD2  | 1.74        | 1.32     |
| 11:P:114:VAL:HG23 | 11:P:132:LYS:CB  | 1.57        | 1.32     |
| 18:Z:126:GLY:O    | 18:Z:129:ARG:HB2 | 1.18        | 1.32     |
| 25:4:21:VAL:CG1   | 25:4:22:MET:H    | 1.38        | 1.32     |
| 5:F:52:ALA:HB2    | 5:F:55:ARG:NH2   | 1.00        | 1.32     |
| 5:F:59:GLU:HB2    | 5:F:61:PHE:CE2   | 1.65        | 1.32     |
| 9:N:95:ARG:N      | 9:N:98:PHE:CE1   | 1.96        | 1.32     |
| 17:Y:43:ASN:HD21  | 17:Y:101:LEU:CD2 | 1.40        | 1.32     |
| 17:Y:101:LEU:O    | 17:Y:103:LEU:HG  | 1.24        | 1.32     |
| 2:A:6:A:H5'       | 9:N:4:ALA:N      | 1.37        | 1.32     |
| 24:0:61:ALA:O     | 24:0:62:LEU:CD1  | 1.76        | 1.32     |
| 2:A:2698:U:C2     | 2:A:2699:C:H5    | 1.42        | 1.32     |
| 20:U:27:SER:O     | 20:U:29:SER:N    | 1.57        | 1.32     |
| 2:A:1151:G:C4'    | 20:U:81:ASN:ND2  | 1.76        | 1.32     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 21:V:5:ILE:O     | 21:V:6:GLN:HG2    | 1.19        | 1.32     |
| 9:N:106:GLY:C    | 9:N:107:ASN:ND2   | 1.82        | 1.32     |
| 28:7:21:ARG:HB3  | 28:7:31:LEU:CD1   | 1.59        | 1.32     |
| 10:O:7:ARG:CD    | 10:O:44:LYS:HE3   | 1.58        | 1.32     |
| 11:P:67:ARG:NH1  | 11:P:111:ALA:O    | 1.62        | 1.32     |
| 12:Q:91:HIS:O    | 12:Q:111:THR:HG23 | 1.17        | 1.32     |
| 17:Y:101:LEU:CD2 | 17:Y:103:LEU:CG   | 2.07        | 1.32     |
| 18:Z:37:LYS:O    | 18:Z:41:ARG:NH1   | 1.59        | 1.32     |
| 2:A:1568:G:OP2   | 3:D:60:GLN:CB     | 1.65        | 1.32     |
| 2:A:2552:U:H5'   | 2:A:2553:G:OP2    | 1.29        | 1.32     |
| 12:Q:140:TYR:CD1 | 12:Q:147:VAL:CG1  | 2.02        | 1.32     |
| 2:A:2378:A:O2'   | 13:S:30:GLY:HA3   | 1.21        | 1.32     |
| 21:V:91:THR:C    | 21:V:92:ALA:N     | 1.75        | 1.32     |
| 4:E:107:GLU:HB3  | 4:E:110:ARG:NE    | 1.35        | 1.32     |
| 23:3:16:PRO:HB2  | 23:3:19:GLN:CD    | 1.45        | 1.32     |
| 2:A:2617:C:H2'   | 2:A:2618:G:C5'    | 1.58        | 1.32     |
| 30:9:7:VAL:O     | 30:9:8:LYS:CE     | 1.76        | 1.32     |
| 2:A:826:U:H5'    | 2:A:2429:G:P      | 1.69        | 1.32     |
| 2:A:598:G:H21    | 5:F:33:LYS:NZ     | 1.26        | 1.32     |
| 2:A:2784:C:C2    | 4:E:98:GLU:OE2    | 1.82        | 1.32     |
| 6:G:28:GLY:C     | 6:G:69:ILE:HD13   | 1.42        | 1.32     |
| 20:U:7:GLY:C     | 20:U:8:ILE:HD12   | 1.50        | 1.32     |
| 8:I:77:VAL:CG2   | 8:I:141:LEU:HD11  | 1.60        | 1.32     |
| 2:A:1029:A:HO3'  | 2:A:1030:G:P      | 0.88        | 1.32     |
| 2:A:2865:U:C4    | 2:A:2866:U:C5     | 2.18        | 1.32     |
| 2:A:2354:G:N3    | 24:0:32:LYS:CE    | 1.93        | 1.32     |
| 2:A:2584:U:C6    | 2:A:2584:U:H3'    | 1.65        | 1.32     |
| 2:A:2647:U:O2'   | 2:A:2648:C:H5'    | 1.20        | 1.32     |
| 3:D:65:ASP:OD1   | 3:D:66:PHE:N      | 1.59        | 1.32     |
| 12:Q:16:ARG:NH1  | 12:Q:16:ARG:HB3   | 0.99        | 1.32     |
| 12:Q:85:ILE:CG2  | 12:Q:122:PHE:CG   | 2.10        | 1.32     |
| 20:U:107:LYS:O   | 20:U:110:VAL:HB   | 1.29        | 1.32     |
| 2:A:997:G:C5'    | 20:U:92:ARG:NH1   | 1.91        | 1.32     |
| 15:W:85:VAL:O    | 15:W:86:LEU:HD23  | 1.20        | 1.32     |
| 23:3:19:GLN:O    | 23:3:23:LEU:HD21  | 1.27        | 1.31     |
| 2:A:2678:C:C2    | 2:A:2679:A:C8     | 2.17        | 1.31     |
| 5:F:223:LEU:CD1  | 5:F:224:ALA:N     | 1.93        | 1.31     |
| 7:H:137:LYS:HD2  | 7:H:138:GLN:N     | 1.42        | 1.31     |
| 10:O:66:LYS:NZ   | 10:O:67:ARG:HD3   | 1.42        | 1.31     |
| 19:R:78:LYS:O    | 19:R:82:GLU:HB2   | 1.18        | 1.31     |
| 21:V:62:GLU:C    | 21:V:95:ILE:HG23  | 1.48        | 1.31     |
| 4:E:180:ILE:HG22 | 4:E:186:GLU:O     | 1.14        | 1.31     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:P:76:LEU:C    | 11:P:81:VAL:CG2   | 1.96        | 1.31     |
| 8:I:95:SER:CA    | 8:I:98:ILE:HG13   | 1.59        | 1.31     |
| 2:A:2709:G:C2'   | 2:A:2710:C:H5'    | 1.57        | 1.31     |
| 2:A:2785:C:H4'   | 4:E:99:VAL:CA     | 1.57        | 1.31     |
| 2:A:2842:G:C2'   | 2:A:2843:G:H5'    | 1.58        | 1.31     |
| 5:F:168:ARG:NH1  | 5:F:209:GLY:O     | 1.62        | 1.31     |
| 2:A:2485:G:C5'   | 12:Q:144:THR:HG22 | 1.60        | 1.31     |
| 26:5:44:HIS:CA   | 26:5:52:TYR:OH    | 1.78        | 1.31     |
| 2:A:2470:G:N2    | 2:A:2471:C:C4     | 1.90        | 1.31     |
| 5:F:84:VAL:C     | 5:F:85:LYS:HD2    | 1.51        | 1.31     |
| 12:Q:69:ASN:HD22 | 12:Q:70:ARG:N     | 1.24        | 1.31     |
| 13:S:31:LYS:C    | 13:S:32:PRO:N     | 1.81        | 1.31     |
| 3:D:118:GLY:O    | 3:D:129:LEU:CD1   | 1.78        | 1.31     |
| 2:A:2574:G:H5''  | 2:A:2575:C:OP2    | 1.20        | 1.31     |
| 5:F:168:ARG:O    | 5:F:168:ARG:HD2   | 1.20        | 1.31     |
| 5:F:48:SER:N     | 5:F:92:PRO:HG2    | 1.46        | 1.31     |
| 21:V:30:GLY:O    | 21:V:33:VAL:HG23  | 1.22        | 1.31     |
| 2:A:1082:U:OP1   | 31:K:123:ALA:HB2  | 1.24        | 1.31     |
| 2:A:2421:G:C5'   | 27:6:4:ASP:OD1    | 1.79        | 1.31     |
| 2:A:2717:G:C2    | 2:A:2718:G:N7     | 1.98        | 1.31     |
| 2:A:2768:C:H2'   | 2:A:2769:C:C5'    | 1.60        | 1.31     |
| 5:F:163:HIS:O    | 5:F:166:ILE:CB    | 1.77        | 1.31     |
| 5:F:47:GLY:CA    | 5:F:92:PRO:HG2    | 1.54        | 1.31     |
| 1:B:75:G:O2'     | 18:Z:32:PHE:CD2   | 1.77        | 1.31     |
| 28:7:30:ILE:HD11 | 28:7:33:ARG:NH1   | 0.99        | 1.31     |
| 29:8:5:LYS:O     | 29:8:7:HIS:N      | 1.61        | 1.31     |
| 2:A:126:A:C6     | 28:7:18:PHE:CE2   | 2.19        | 1.31     |
| 2:A:2020:A:N7    | 26:5:9:LYS:HE2    | 1.44        | 1.31     |
| 2:A:2397:G:C6    | 2:A:2420:C:O2     | 1.81        | 1.31     |
| 2:A:2316:C:C5'   | 6:G:142:ALA:HB1   | 1.59        | 1.31     |
| 15:W:36:LEU:HD11 | 15:W:47:VAL:CG1   | 1.59        | 1.31     |
| 18:Z:34:LEU:HD13 | 18:Z:39:PHE:CZ    | 1.65        | 1.31     |
| 18:Z:95:SER:OG   | 18:Z:122:ILE:HG12 | 1.13        | 1.31     |
| 29:8:6:THR:O     | 29:8:8:LYS:N      | 1.63        | 1.31     |
| 2:A:2584:U:C5    | 2:A:2585:U:C6     | 2.17        | 1.31     |
| 21:V:4:ILE:HD11  | 21:V:13:ARG:CD    | 1.61        | 1.31     |
| 2:A:2262:U:O2'   | 2:A:2263:C:H5''   | 1.24        | 1.31     |
| 21:V:65:ARG:O    | 21:V:93:ILE:HG23  | 1.20        | 1.31     |
| 6:G:81:GLU:O     | 6:G:85:GLN:HG2    | 1.20        | 1.31     |
| 2:A:459:U:OP2    | 28:7:40:HIS:CD2   | 1.85        | 1.30     |
| 10:O:110:ASP:O   | 10:O:111:PHE:CG   | 1.83        | 1.30     |
| 2:A:2485:G:O2'   | 2:A:2486:G:C5'    | 1.77        | 1.30     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2488:A:H2'    | 2:A:2489:G:C5'   | 1.59        | 1.30     |
| 2:A:2555:U:C2'    | 2:A:2556:C:H5'   | 1.60        | 1.30     |
| 2:A:2657:A:C8     | 2:A:2658:C:C5    | 2.17        | 1.30     |
| 4:E:45:LYS:NZ     | 4:E:303:PRO:O    | 1.62        | 1.30     |
| 13:S:34:LEU:CD2   | 13:S:102:LEU:HA  | 1.59        | 1.30     |
| 2:A:2212:A:C2'    | 2:A:2213:U:C5    | 2.13        | 1.30     |
| 11:P:70:ASP:O     | 11:P:74:THR:HG23 | 1.24        | 1.30     |
| 20:U:65:ILE:HG22  | 20:U:76:TYR:CE2  | 1.65        | 1.30     |
| 21:V:42:GLY:CA    | 21:V:54:TYR:CZ   | 2.12        | 1.30     |
| 2:A:2051:A:C8     | 2:A:2614:A:N6    | 1.95        | 1.30     |
| 7:H:42:ILE:O      | 7:H:52:THR:HG21  | 1.21        | 1.30     |
| 11:P:66:VAL:CB    | 11:P:67:ARG:CZ   | 2.01        | 1.30     |
| 14:T:4:ARG:O      | 14:T:5:GLU:CG    | 1.78        | 1.30     |
| 20:U:94:VAL:C     | 20:U:98:ILE:CD1  | 1.99        | 1.30     |
| 8:I:89:LEU:CD1    | 8:I:93:ILE:HG22  | 1.59        | 1.30     |
| 6:G:59:GLY:O      | 6:G:60:GLU:HG3   | 1.30        | 1.30     |
| 2:A:2439:A:H1'    | 2:A:2587:A:OP1   | 1.30        | 1.30     |
| 2:A:2808:U:O2     | 2:A:2892:A:C6    | 1.84        | 1.30     |
| 3:D:71:ASP:OD1    | 3:D:118:GLY:HA2  | 1.19        | 1.30     |
| 2:A:2331:G:O2'    | 24:O:70:ILE:CG2  | 1.78        | 1.30     |
| 2:A:2468:G:O6     | 2:A:2481:G:C6    | 1.84        | 1.30     |
| 12:Q:49:VAL:HG22  | 12:Q:121:ASP:N   | 1.43        | 1.30     |
| 2:A:1368:G:OP1    | 28:7:25:LYS:CE   | 1.79        | 1.30     |
| 2:A:2195:C:H5     | 2:A:2195:C:OP2   | 1.07        | 1.30     |
| 2:A:2249:U:H3     | 2:A:2253:G:P     | 1.53        | 1.30     |
| 2:A:2023:G:H4'    | 2:A:2618:G:OP1   | 1.23        | 1.30     |
| 9:N:38:VAL:O      | 9:N:39:VAL:HG13  | 1.21        | 1.30     |
| 10:O:1:MET:N      | 10:O:32:TYR:HD2  | 1.26        | 1.30     |
| 10:O:77:ILE:CD1   | 10:O:78:ARG:N    | 1.93        | 1.30     |
| 19:R:113:LEU:HD13 | 19:R:114:VAL:N   | 1.45        | 1.30     |
| 2:A:389:G:OP2     | 25:4:24:THR:HG22 | 1.15        | 1.30     |
| 2:A:2517:C:O2'    | 2:A:2518:A:H5''  | 1.28        | 1.30     |
| 2:A:2826:A:C5     | 2:A:2827:C:C5    | 2.20        | 1.30     |
| 3:D:149:ARG:HB2   | 3:D:152:GLN:NE2  | 0.99        | 1.30     |
| 4:E:171:SER:O     | 4:E:175:ASP:HB2  | 1.13        | 1.30     |
| 5:F:164:ALA:CA    | 5:F:232:LEU:HD12 | 1.62        | 1.30     |
| 10:O:66:LYS:HZ2   | 10:O:67:ARG:CD   | 1.44        | 1.30     |
| 16:X:24:LEU:C     | 16:X:25:GLN:OE1  | 1.70        | 1.30     |
| 26:5:33:CYS:SG    | 26:5:36:CYS:CB   | 2.19        | 1.30     |
| 2:A:2226:C:C2     | 2:A:2227:A:C1'   | 2.13        | 1.30     |
| 10:O:77:ILE:HD13  | 10:O:78:ARG:N    | 0.98        | 1.30     |
| 2:A:2741:A:O2'    | 2:A:2742:C:C5'   | 1.78        | 1.30     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:491:G:O6     | 15:W:49:LYS:NZ   | 1.63        | 1.30     |
| 7:H:121:GLU:OE2  | 7:H:134:GLY:HA2  | 1.29        | 1.30     |
| 21:V:34:GLU:O    | 21:V:35:LEU:HD23 | 1.23        | 1.30     |
| 2:A:1790:C:P     | 3:D:224:VAL:HG13 | 1.72        | 1.30     |
| 2:A:1161:C:O2'   | 21:V:22:VAL:HG11 | 1.21        | 1.29     |
| 2:A:458:G:C5'    | 28:7:39:ARG:HD2  | 1.60        | 1.29     |
| 2:A:1637:A:H4'   | 2:A:2711:A:O2'   | 1.25        | 1.29     |
| 2:A:2333:A:N9    | 2:A:2335:A:C2    | 2.01        | 1.29     |
| 2:A:2397:G:N1    | 2:A:2420:C:O2    | 1.62        | 1.29     |
| 5:F:225:PRO:C    | 5:F:231:ARG:CG   | 1.98        | 1.29     |
| 17:Y:28:SER:CB   | 17:Y:99:THR:OG1  | 1.80        | 1.29     |
| 3:D:143:ILE:O    | 3:D:152:GLN:HB2  | 1.29        | 1.29     |
| 4:E:39:GLN:OE1   | 4:E:174:LEU:HD21 | 1.19        | 1.29     |
| 2:A:2319:G:H4'   | 13:S:9:PRO:N     | 1.43        | 1.29     |
| 1:B:104:A:H1'    | 18:Z:24:TYR:OH   | 1.12        | 1.29     |
| 2:A:2021:C:OP2   | 26:5:15:LYS:CE   | 1.79        | 1.29     |
| 2:A:126:A:N7     | 28:7:18:PHE:CZ   | 2.00        | 1.29     |
| 19:R:20:LEU:HD13 | 19:R:21:TYR:CA   | 1.60        | 1.29     |
| 18:Z:172:LEU:CD2 | 18:Z:173:PRO:CD  | 2.05        | 1.29     |
| 2:A:2:G:N2       | 2:A:2902:C:O2    | 1.61        | 1.29     |
| 2:A:2385:C:N3    | 2:A:2386:C:C5    | 2.01        | 1.29     |
| 2:A:2792:G:N2    | 2:A:2804:C:C2    | 1.99        | 1.29     |
| 3:D:175:LEU:CD1  | 3:D:180:VAL:N    | 1.93        | 1.29     |
| 4:E:45:LYS:NZ    | 4:E:303:PRO:N    | 1.79        | 1.29     |
| 5:F:205:ARG:HG2  | 5:F:212:VAL:CG2  | 1.62        | 1.29     |
| 3:D:75:GLY:CA    | 3:D:115:ILE:O    | 1.80        | 1.29     |
| 4:E:180:ILE:HG21 | 4:E:187:HIS:CA   | 1.62        | 1.29     |
| 18:Z:69:VAL:CG1  | 18:Z:81:VAL:HG22 | 1.63        | 1.29     |
| 3:D:139:LEU:HD12 | 3:D:139:LEU:O    | 1.27        | 1.29     |
| 2:A:2799:A:O2'   | 2:A:2802:G:C2    | 1.86        | 1.29     |
| 2:A:2712:U:C6    | 2:A:712(A):A:N7  | 2.01        | 1.29     |
| 4:E:222:ARG:HD3  | 4:E:232:ARG:C    | 1.53        | 1.29     |
| 5:F:102:LEU:CD2  | 5:F:106:GLU:OE1  | 1.80        | 1.29     |
| 6:G:27:ILE:O     | 6:G:69:ILE:CG2   | 1.81        | 1.29     |
| 12:Q:58:HIS:HB3  | 12:Q:111:THR:O   | 1.27        | 1.29     |
| 18:Z:147:ILE:O   | 18:Z:168:VAL:HB  | 1.30        | 1.29     |
| 2:A:825:C:H4'    | 2:A:2428:G:N7    | 1.46        | 1.29     |
| 4:E:82:ALA:O     | 4:E:83:LEU:HG    | 1.14        | 1.29     |
| 5:F:91:PRO:CB    | 5:F:92:PRO:HD3   | 1.62        | 1.29     |
| 2:A:1062:G:N3    | 31:K:134:SER:O   | 1.66        | 1.29     |
| 28:7:34:ARG:CD   | 28:7:42:LEU:HD23 | 1.61        | 1.29     |
| 29:8:4:MET:HA    | 29:8:5:LYS:NZ    | 1.17        | 1.29     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2206:C:O2'    | 2:A:2207:C:H5'   | 1.11        | 1.29     |
| 2:A:2470:G:N3     | 2:A:2471:C:C6    | 2.01        | 1.29     |
| 15:W:85:VAL:CA    | 15:W:95:ILE:HG12 | 1.62        | 1.29     |
| 27:6:48:VAL:O     | 27:6:50:PHE:CD1  | 1.85        | 1.29     |
| 2:A:2103:C:O2     | 2:A:2187:G:N1    | 1.63        | 1.29     |
| 2:A:2322:A:C4     | 2:A:2323:G:H8    | 1.51        | 1.29     |
| 2:A:974:G:N7      | 21:V:80:TYR:CE1  | 2.01        | 1.29     |
| 9:N:12:VAL:O      | 9:N:38:VAL:HG13  | 1.16        | 1.29     |
| 12:Q:133:GLU:C    | 12:Q:133:GLU:OE1 | 1.69        | 1.29     |
| 17:Y:101:LEU:HD21 | 17:Y:112:LEU:CD2 | 1.62        | 1.29     |
| 2:A:2691:C:O2'    | 2:A:2692:C:H5'   | 1.22        | 1.28     |
| 3:D:146:LYS:NZ    | 3:D:184:LEU:HD11 | 1.46        | 1.28     |
| 5:F:147:LEU:CD1   | 5:F:156:LEU:CD1  | 2.11        | 1.28     |
| 12:Q:17:ARG:O     | 12:Q:18:GLU:CG   | 1.79        | 1.28     |
| 19:R:44:LEU:O     | 19:R:48:VAL:HG23 | 1.31        | 1.28     |
| 15:W:19:LEU:HD22  | 26:5:25:LEU:CG   | 1.61        | 1.28     |
| 2:A:2644:G:H8     | 2:A:2644:G:O5'   | 1.07        | 1.28     |
| 9:N:95:ARG:O      | 9:N:98:PHE:CD1   | 1.86        | 1.28     |
| 12:Q:58:HIS:O     | 12:Q:61:LEU:HG   | 1.30        | 1.28     |
| 19:R:72:ASP:O     | 19:R:76:VAL:CG2  | 1.81        | 1.28     |
| 24:0:46:LYS:HE3   | 24:0:58:THR:OG1  | 1.21        | 1.28     |
| 23:3:1:MET:CE     | 23:3:3:ARG:HD2   | 1.61        | 1.28     |
| 2:A:2653:U:O2     | 2:A:2654:A:N6    | 1.61        | 1.28     |
| 2:A:684:G:OP1     | 28:7:16:HIS:NE2  | 1.66        | 1.28     |
| 5:F:147:LEU:HD12  | 5:F:156:LEU:CD1  | 1.62        | 1.28     |
| 13:S:53:ASN:O     | 13:S:55:ASP:N    | 1.66        | 1.28     |
| 24:0:24:LYS:HG2   | 24:0:56:ASP:OD2  | 1.21        | 1.28     |
| 19:R:101:ALA:O    | 26:5:41:LEU:CD1  | 1.81        | 1.28     |
| 29:8:16:ILE:HG23  | 29:8:21:LYS:O    | 1.14        | 1.28     |
| 2:A:2322:A:C4     | 2:A:2323:G:C8    | 2.20        | 1.28     |
| 2:A:2498:C:O2'    | 2:A:2499:C:H5''  | 1.34        | 1.28     |
| 5:F:52:ALA:CB     | 5:F:55:ARG:CZ    | 2.08        | 1.28     |
| 10:O:99:PHE:O     | 10:O:119:PRO:HG3 | 1.32        | 1.28     |
| 5:F:201:SER:O     | 5:F:204:ALA:HB3  | 1.29        | 1.28     |
| 6:G:105:SER:OG    | 6:G:131:THR:HG22 | 1.33        | 1.28     |
| 7:H:73:ASN:HB3    | 7:H:137:LYS:NZ   | 0.98        | 1.28     |
| 2:A:989:G:OP1     | 23:3:31:LEU:HD12 | 1.21        | 1.28     |
| 23:3:51:ALA:O     | 23:3:53:LEU:N    | 1.66        | 1.28     |
| 25:4:68:ARG:CD    | 25:4:72:LYS:HG2  | 1.63        | 1.28     |
| 2:A:2457:U:C2'    | 2:A:2458:G:H5'   | 1.62        | 1.28     |
| 2:A:2494:G:C2     | 2:A:2495:G:C8    | 2.22        | 1.28     |
| 1:B:50:G:OP2      | 13:S:74:PRO:HG2  | 1.13        | 1.28     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:D:175:LEU:CG   | 3:D:179:GLU:O     | 1.76        | 1.28     |
| 9:N:45:VAL:O     | 9:N:46:ILE:HG12   | 1.16        | 1.28     |
| 25:4:8:LYS:C     | 25:4:9:ALA:N      | 1.86        | 1.28     |
| 2:A:2674:G:H2'   | 2:A:2675:A:C8     | 1.69        | 1.28     |
| 7:H:40:MET:HG2   | 7:H:64:HIS:CE1    | 1.69        | 1.28     |
| 2:A:2287:A:N1    | 2:A:2289:G:H1'    | 1.46        | 1.28     |
| 3:D:175:LEU:HD11 | 3:D:180:VAL:N     | 1.49        | 1.28     |
| 8:I:29:PHE:O     | 8:I:33:GLN:NE2    | 1.67        | 1.28     |
| 12:Q:85:ILE:CG2  | 12:Q:122:PHE:HB3  | 1.63        | 1.28     |
| 21:V:42:GLY:HA3  | 21:V:54:TYR:CZ    | 1.66        | 1.28     |
| 25:4:30:GLU:C    | 25:4:31:ILE:HD13  | 1.52        | 1.28     |
| 5:F:112:ARG:O    | 5:F:114:ALA:N     | 1.66        | 1.28     |
| 12:Q:34:GLY:HA2  | 12:Q:74:ASN:O     | 1.28        | 1.28     |
| 2:A:993:G:H4'    | 21:V:90:PHE:CZ    | 1.67        | 1.28     |
| 21:V:94:LYS:O    | 21:V:95:ILE:HD12  | 1.21        | 1.28     |
| 18:Z:130:ILE:O   | 18:Z:130:ILE:HD12 | 1.29        | 1.28     |
| 23:3:31:LEU:HD23 | 23:3:32:GLN:N     | 0.96        | 1.28     |
| 2:A:2051:A:N7    | 2:A:2614:A:N6     | 1.77        | 1.28     |
| 2:A:2218:G:O2'   | 3:D:146:LYS:HE3   | 1.25        | 1.28     |
| 2:A:2491:U:O2'   | 2:A:2492:U:C5'    | 1.81        | 1.28     |
| 2:A:1818:U:C5'   | 3:D:155:ARG:HG3   | 1.62        | 1.28     |
| 5:F:111:VAL:O    | 5:F:114:ALA:HB3   | 1.21        | 1.28     |
| 5:F:34:ALA:HB2   | 5:F:110:ALA:CB    | 1.63        | 1.28     |
| 5:F:4:THR:O      | 5:F:139:VAL:HG21  | 1.31        | 1.28     |
| 5:F:84:VAL:O     | 5:F:86:GLY:N      | 1.63        | 1.28     |
| 13:S:99:GLU:OE1  | 13:S:128:ASP:CB   | 1.80        | 1.28     |
| 2:A:1614:A:N6    | 15:W:88:ARG:HB2   | 0.97        | 1.28     |
| 2:A:2212:A:O2'   | 2:A:2213:U:H5     | 1.07        | 1.27     |
| 2:A:2012:G:OP1   | 15:W:98:LYS:HD3   | 1.26        | 1.27     |
| 17:Y:49:GLU:CD   | 17:Y:97:ARG:NH1   | 1.86        | 1.27     |
| 2:A:1364:G:C3'   | 25:4:3:LYS:CD     | 2.12        | 1.27     |
| 2:A:2297:C:H2'   | 2:A:2298:A:C8     | 1.69        | 1.27     |
| 2:A:2355:C:C5'   | 24:0:21:LEU:HD13  | 1.63        | 1.27     |
| 2:A:2580:U:C6    | 2:A:2581:G:H8     | 1.27        | 1.27     |
| 4:E:44:TYR:CD1   | 4:E:308:VAL:HA    | 1.69        | 1.27     |
| 16:X:24:LEU:C    | 16:X:26:PHE:CE1   | 2.05        | 1.27     |
| 2:A:1620:G:C1'   | 28:7:1:MET:N      | 1.97        | 1.27     |
| 7:H:111:PRO:O    | 7:H:112:VAL:CG2   | 1.82        | 1.27     |
| 29:8:26:LYS:CD   | 29:8:45:GLY:H     | 1.47        | 1.27     |
| 2:A:2587:A:O2'   | 2:A:2588:G:H5'    | 1.30        | 1.27     |
| 2:A:1367:A:O3'   | 28:7:25:LYS:NZ    | 1.64        | 1.27     |
| 2:A:2093:G:H1'   | 2:A:2198:A:N1     | 1.49        | 1.27     |

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| Atom-1          | Atom-2            | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 2:A:2287:A:N6   | 2:A:2344:U:C5     | 2.00        | 1.27     |
| 2:A:2470:G:C2   | 2:A:2471:C:C6     | 2.22        | 1.27     |
| 2:A:2740:A:C2'  | 2:A:2741:A:C8     | 2.05        | 1.27     |
| 2:A:2862:G:O2'  | 2:A:2863:C:H6     | 1.08        | 1.27     |
| 6:G:22:VAL:O    | 6:G:23:VAL:HG13   | 1.25        | 1.27     |
| 22:2:2:VAL:O    | 22:2:4:HIS:ND1    | 1.63        | 1.27     |
| 2:A:1612:C:C2'  | 28:7:3:ARG:NE     | 1.85        | 1.27     |
| 2:A:2018:G:H21  | 20:U:34:ASN:ND2   | 0.81        | 1.27     |
| 2:A:2615:U:O2'  | 2:A:2616:C:H5'    | 1.34        | 1.27     |
| 2:A:2454:G:C2   | 2:A:2455:G:H1'    | 1.68        | 1.27     |
| 2:A:2571:C:O2'  | 4:E:243:PRO:HD3   | 1.20        | 1.27     |
| 2:A:2821:A:C2   | 2:A:2822:G:C5     | 2.22        | 1.27     |
| 11:P:94:ARG:CD  | 11:P:120:LEU:CD2  | 2.04        | 1.27     |
| 12:Q:125:TRP:O  | 12:Q:126:VAL:HG23 | 1.22        | 1.27     |
| 19:R:72:ASP:O   | 19:R:76:VAL:HG23  | 1.09        | 1.27     |
| 20:U:111:ASP:O  | 20:U:113:SER:N    | 1.65        | 1.27     |
| 2:A:1077:A:O3'  | 31:K:93:LYS:HG3   | 1.34        | 1.27     |
| 24:0:65:GLY:C   | 24:0:66:LYS:HD2   | 0.89        | 1.27     |
| 27:6:38:LYS:O   | 27:6:50:PHE:HB2   | 1.10        | 1.27     |
| 2:A:2333:A:C8   | 2:A:2335:A:C2     | 2.22        | 1.27     |
| 2:A:2642:G:O2'  | 2:A:2643:G:H5'    | 1.18        | 1.27     |
| 2:A:2739:U:H2'  | 2:A:2740:A:C5'    | 1.63        | 1.27     |
| 5:F:32:GLY:O    | 5:F:35:VAL:HG23   | 1.19        | 1.27     |
| 12:Q:36:ASN:OD1 | 18:Z:116:VAL:HG12 | 1.13        | 1.27     |
| 23:3:32:GLN:NE2 | 23:3:32:GLN:O     | 1.62        | 1.27     |
| 2:A:2051:A:O2'  | 4:E:238:LEU:HG    | 1.29        | 1.27     |
| 2:A:2317:C:H5'  | 6:G:150:SER:CB    | 1.63        | 1.27     |
| 2:A:2453:A:O2'  | 2:A:2454:G:H5'    | 1.29        | 1.27     |
| 3:D:110:LYS:NZ  | 3:D:110:LYS:HA    | 1.48        | 1.27     |
| 5:F:91:PRO:CB   | 5:F:92:PRO:CD     | 2.02        | 1.27     |
| 5:F:91:PRO:CG   | 5:F:92:PRO:HD2    | 1.65        | 1.27     |
| 10:O:1:MET:C    | 10:O:2:ILE:CD1    | 2.02        | 1.27     |
| 2:A:2674:G:H4'  | 10:O:30:ARG:CG    | 1.63        | 1.27     |
| 2:A:2286:A:C5'  | 2:A:2287:A:H5'    | 1.64        | 1.27     |
| 2:A:2808:U:C2   | 2:A:2892:A:N6     | 2.03        | 1.27     |
| 3:D:71:ASP:OD1  | 3:D:118:GLY:CA    | 1.83        | 1.27     |
| 2:A:125:G:H5''  | 28:7:19:ARG:NH1   | 1.50        | 1.27     |
| 2:A:14:A:C3'    | 2:A:15:G:P        | 2.23        | 1.27     |
| 2:A:2558:C:O2   | 2:A:2559:C:C6     | 1.86        | 1.27     |
| 4:E:229:GLN:O   | 4:E:231:TRP:N     | 1.68        | 1.27     |
| 12:Q:59:ASN:ND2 | 12:Q:60:ALA:H     | 1.30        | 1.27     |
| 1:B:75:G:O2'    | 18:Z:32:PHE:HD2   | 1.04        | 1.27     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:1826:G:P      | 3:D:227:VAL:CG2   | 2.21        | 1.27     |
| 2:A:2631:G:H4'    | 2:A:2892:A:OP1    | 1.17        | 1.26     |
| 12:Q:143:VAL:O    | 12:Q:144:THR:HG23 | 1.29        | 1.26     |
| 20:U:4:ALA:O      | 20:U:6:THR:N      | 1.65        | 1.26     |
| 2:A:1223:C:C5     | 21:V:87:ARG:NH2   | 2.03        | 1.26     |
| 6:G:71:ALA:O      | 6:G:72:LYS:HD3    | 1.33        | 1.26     |
| 11:P:144:ASP:O    | 11:P:145:LEU:HD12 | 1.17        | 1.26     |
| 17:Y:30:ASP:OD2   | 17:Y:31:LEU:CD2   | 1.83        | 1.26     |
| 2:A:94:G:N2       | 22:2:42:ASN:ND2   | 1.83        | 1.26     |
| 2:A:95:G:H5'      | 22:2:41:GLU:OE1   | 1.35        | 1.26     |
| 2:A:2657:A:C8     | 2:A:2658:C:H5     | 1.50        | 1.26     |
| 4:E:211:GLN:H     | 4:E:216:ARG:CZ    | 1.46        | 1.26     |
| 4:E:44:TYR:CA     | 4:E:309:PRO:HG3   | 1.65        | 1.26     |
| 6:G:93:LEU:CD1    | 6:G:94:ALA:H      | 1.45        | 1.26     |
| 10:O:88:ARG:O     | 10:O:90:ASP:N     | 1.68        | 1.26     |
| 14:T:4:ARG:O      | 14:T:5:GLU:HG3    | 1.17        | 1.26     |
| 5:F:231:ARG:O     | 5:F:232:LEU:HD23  | 1.08        | 1.26     |
| 6:G:145:ASP:HB3   | 13:S:15:GLU:O     | 1.14        | 1.26     |
| 11:P:114:VAL:HG21 | 11:P:133:VAL:N    | 1.45        | 1.26     |
| 15:W:32:ALA:HA    | 15:W:35:ILE:CD1   | 1.63        | 1.26     |
| 11:P:75:LEU:O     | 11:P:75:LEU:HD23  | 1.30        | 1.26     |
| 2:A:2254:C:H2'    | 2:A:2255:G:C5'    | 1.63        | 1.26     |
| 2:A:2210:G:O6     | 3:D:148:GLY:HA2   | 1.29        | 1.26     |
| 17:Y:78:THR:CA    | 17:Y:89:ARG:HG3   | 1.65        | 1.26     |
| 18:Z:2:GLU:O      | 18:Z:54:ILE:HG21  | 1.09        | 1.26     |
| 28:7:43:THR:C     | 28:7:46:ASP:OD2   | 1.72        | 1.26     |
| 2:A:2422:A:N3     | 2:A:2424:C:C5     | 2.02        | 1.26     |
| 2:A:856:C:H5'     | 24:0:25:LYS:NZ    | 1.51        | 1.26     |
| 2:A:1818:U:O5'    | 3:D:155:ARG:HG3   | 1.19        | 1.26     |
| 4:E:74:GLU:CA     | 4:E:293:TYR:CE2   | 2.18        | 1.26     |
| 2:A:1080:C:O3'    | 31:K:126:LYS:HD3  | 1.12        | 1.26     |
| 22:2:30:ALA:C     | 22:2:34:GLN:HG2   | 1.54        | 1.26     |
| 2:A:2309:A:H5''   | 2:A:2310:A:C8     | 1.69        | 1.26     |
| 4:E:62:ARG:O      | 4:E:63:GLU:CD     | 1.72        | 1.26     |
| 27:6:37:LEU:HD21  | 27:6:51:ARG:CG    | 1.65        | 1.26     |
| 27:6:37:LEU:O     | 27:6:38:LYS:HG3   | 1.35        | 1.26     |
| 2:A:2446:G:C2     | 2:A:2501:C:H5     | 1.52        | 1.26     |
| 2:A:2815:C:C2'    | 2:A:2816:C:H5'    | 1.62        | 1.26     |
| 6:G:11:HIS:CD2    | 6:G:15:GLU:OE2    | 1.88        | 1.26     |
| 21:V:61:VAL:HA    | 21:V:98:ILE:CG1   | 1.66        | 1.26     |
| 2:A:1078:U:OP1    | 31:K:93:LYS:HE3   | 1.19        | 1.26     |
| 5:F:151:GLN:OE1   | 5:F:154:VAL:HG21  | 1.23        | 1.26     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:53:ARG:HB3   | 7:H:56:ASP:OD1    | 1.25        | 1.26     |
| 2:A:2416:C:OP1   | 11:P:51:PHE:CE2   | 1.89        | 1.26     |
| 2:A:2825:C:H6    | 2:A:2825:C:O5'    | 1.14        | 1.26     |
| 2:A:2865:U:C5    | 2:A:2866:U:H5     | 1.53        | 1.26     |
| 5:F:32:GLY:HA2   | 5:F:35:VAL:CG2    | 1.66        | 1.26     |
| 7:H:123:GLU:O    | 7:H:130:ILE:HG23  | 1.18        | 1.26     |
| 27:6:37:LEU:CD2  | 27:6:51:ARG:HG2   | 1.64        | 1.26     |
| 5:F:163:HIS:O    | 5:F:166:ILE:HB    | 1.15        | 1.26     |
| 8:I:7:LYS:HD2    | 8:I:12:LYS:NZ     | 0.93        | 1.26     |
| 11:P:77:ALA:N    | 11:P:81:VAL:HG21  | 1.51        | 1.26     |
| 25:4:49:PHE:CZ   | 25:4:70:GLY:O     | 1.87        | 1.26     |
| 28:7:18:PHE:N    | 28:7:44:VAL:HG21  | 1.48        | 1.25     |
| 2:A:2578:G:N7    | 4:E:237:ASN:ND2   | 1.82        | 1.25     |
| 2:A:2720:U:O4    | 2:A:2873:A:N6     | 1.68        | 1.25     |
| 6:G:21:VAL:CG1   | 6:G:132:VAL:CG2   | 2.12        | 1.25     |
| 7:H:93:TYR:CB    | 7:H:106:VAL:HG22  | 1.66        | 1.25     |
| 19:R:63:ARG:NH2  | 19:R:77:ARG:HG2   | 1.47        | 1.25     |
| 15:W:32:ALA:HA   | 15:W:35:ILE:CG1   | 1.65        | 1.25     |
| 17:Y:86:GLU:O    | 17:Y:87:VAL:HG23  | 1.36        | 1.25     |
| 3:D:146:LYS:HD3  | 3:D:147:PRO:CD    | 1.66        | 1.25     |
| 3:D:158:GLY:CA   | 3:D:194:VAL:HG11  | 1.63        | 1.25     |
| 3:D:74:PRO:HG3   | 3:D:96:ALA:CB     | 1.64        | 1.25     |
| 4:E:94:ARG:HB3   | 4:E:95:PRO:CD     | 1.54        | 1.25     |
| 16:X:38:ALA:O    | 16:X:39:ASP:O     | 1.53        | 1.25     |
| 2:A:2766:G:H5''  | 2:A:2767:C:OP2    | 1.18        | 1.25     |
| 4:E:72:VAL:O     | 4:E:73:ILE:HD13   | 1.24        | 1.25     |
| 11:P:66:VAL:HG23 | 11:P:109:LEU:O    | 1.24        | 1.25     |
| 12:Q:67:ALA:HB2  | 12:Q:70:ARG:NH1   | 0.94        | 1.25     |
| 13:S:105:GLY:O   | 13:S:106:LEU:HD23 | 1.37        | 1.25     |
| 2:A:993:G:C4'    | 21:V:90:PHE:HE2   | 1.43        | 1.25     |
| 24:0:46:LYS:NZ   | 24:0:60:PHE:O     | 1.69        | 1.25     |
| 27:6:22:TYR:O    | 27:6:23:THR:HG23  | 1.22        | 1.25     |
| 29:8:26:LYS:CD   | 29:8:44:LYS:HA    | 1.56        | 1.25     |
| 8:I:43:ASN:O     | 8:I:46:ALA:N      | 1.68        | 1.25     |
| 10:O:99:PHE:CD2  | 14:T:24:LYS:CE    | 2.05        | 1.25     |
| 16:X:51:GLN:O    | 16:X:52:VAL:HG23  | 1.13        | 1.25     |
| 7:H:111:PRO:O    | 7:H:112:VAL:HG23  | 1.26        | 1.25     |
| 26:5:19:ARG:O    | 26:5:21:SER:N     | 1.68        | 1.25     |
| 27:6:21:TYR:OH   | 27:6:43:VAL:HG23  | 1.35        | 1.25     |
| 2:A:2344:U:C3'   | 2:A:2345:G:P      | 2.23        | 1.25     |
| 2:A:2543:G:C5    | 2:A:2544:G:C6     | 2.24        | 1.25     |
| 2:A:969:U:H4'    | 23:3:14:GLY:O     | 1.19        | 1.25     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:452:G:P      | 5:F:55:ARG:HH22  | 1.56        | 1.25     |
| 5:F:96:LYS:H     | 5:F:98:ARG:NH2   | 1.35        | 1.25     |
| 6:G:105:SER:CB   | 6:G:131:THR:HG22 | 1.65        | 1.25     |
| 6:G:49:PRO:CB    | 6:G:72:LYS:C     | 2.04        | 1.25     |
| 9:N:95:ARG:O     | 9:N:98:PHE:HD1   | 0.93        | 1.25     |
| 15:W:82:LEU:O    | 15:W:84:ARG:HD2  | 1.34        | 1.25     |
| 2:A:125:G:C5'    | 28:7:19:ARG:HH11 | 1.50        | 1.25     |
| 2:A:2219:G:H2'   | 2:A:2224:G:C5'   | 1.66        | 1.25     |
| 2:A:2776:A:H1'   | 2:A:2778:A:N7    | 1.51        | 1.25     |
| 4:E:45:LYS:CE    | 4:E:303:PRO:HG2  | 1.67        | 1.25     |
| 9:N:65:ASN:CB    | 9:N:69:TYR:CD1   | 2.16        | 1.25     |
| 18:Z:13:LYS:O    | 18:Z:36:ARG:NH2  | 1.69        | 1.25     |
| 18:Z:67:LYS:HD3  | 18:Z:93:GLU:OE2  | 1.25        | 1.25     |
| 2:A:2364:C:N1    | 24:0:32:LYS:NZ   | 1.83        | 1.25     |
| 2:A:459:U:OP1    | 28:7:40:HIS:HA   | 1.36        | 1.25     |
| 2:A:2313:C:C5'   | 6:G:72:LYS:HG3   | 1.64        | 1.25     |
| 2:A:2484:G:N2    | 2:A:2485:G:O4'   | 1.69        | 1.25     |
| 3:D:63:ILE:CG2   | 3:D:64:ILE:H     | 1.33        | 1.25     |
| 24:0:67:VAL:HG11 | 24:0:74:LYS:CG   | 1.66        | 1.25     |
| 4:E:44:TYR:HA    | 4:E:309:PRO:CG   | 1.65        | 1.25     |
| 12:Q:17:ARG:O    | 12:Q:18:GLU:HG3  | 1.32        | 1.25     |
| 2:A:2319:G:H4'   | 13:S:9:PRO:CD    | 1.64        | 1.25     |
| 29:8:26:LYS:CD   | 29:8:45:GLY:N    | 1.99        | 1.25     |
| 2:A:2258:C:C5    | 2:A:2426:A:O4'   | 1.87        | 1.25     |
| 5:F:47:GLY:CA    | 5:F:92:PRO:CB    | 1.82        | 1.25     |
| 10:O:110:ASP:O   | 10:O:111:PHE:CD1 | 1.88        | 1.25     |
| 13:S:40:ASN:HA   | 13:S:114:LYS:NZ  | 1.51        | 1.25     |
| 13:S:109:PRO:O   | 13:S:116:PHE:CE1 | 1.89        | 1.25     |
| 8:I:77:VAL:CG2   | 8:I:141:LEU:CD1  | 2.14        | 1.25     |
| 12:Q:94:ARG:CD   | 12:Q:106:GLY:HA2 | 1.65        | 1.25     |
| 7:H:170:LEU:O    | 7:H:170:LEU:CD1  | 1.85        | 1.25     |
| 2:A:396:G:O2'    | 25:4:39:VAL:CG1  | 1.82        | 1.25     |
| 29:8:41:ILE:O    | 29:8:43:GLY:N    | 1.69        | 1.25     |
| 2:A:2791:C:H5    | 2:A:2893:G:O6    | 1.18        | 1.25     |
| 3:D:107:LYS:N    | 3:D:194:VAL:O    | 1.70        | 1.25     |
| 7:H:146:ASN:O    | 7:H:150:VAL:HG23 | 1.36        | 1.25     |
| 2:A:2261:C:OP2   | 24:0:14:ARG:CG   | 1.85        | 1.25     |
| 2:A:2717:G:C8    | 2:A:2717:G:H5'   | 1.70        | 1.25     |
| 3:D:165:GLY:O    | 3:D:172:ILE:CB   | 1.85        | 1.25     |
| 5:F:205:ARG:CG   | 5:F:212:VAL:HG21 | 1.64        | 1.25     |
| 5:F:93:LYS:O     | 5:F:96:LYS:CG    | 1.83        | 1.25     |
| 12:Q:72:VAL:O    | 12:Q:73:GLN:HG3  | 1.10        | 1.25     |

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| Atom-1          | Atom-2            | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 2:A:1082:U:O4'  | 31:K:118:ALA:HB2  | 1.36        | 1.25     |
| 6:G:88:LEU:O    | 6:G:88:LEU:HD23   | 1.30        | 1.25     |
| 16:X:75:GLN:HB2 | 16:X:78:ALA:O     | 1.30        | 1.25     |
| 24:0:37:LEU:CB  | 24:0:69:PHE:CD2   | 2.18        | 1.24     |
| 23:3:7:LYS:O    | 23:3:54:VAL:HG21  | 1.26        | 1.24     |
| 30:9:7:VAL:O    | 30:9:8:LYS:HE3    | 1.09        | 1.24     |
| 2:A:2826:A:C5   | 2:A:2827:C:C6     | 2.23        | 1.24     |
| 2:A:826:U:C5'   | 2:A:2429:G:OP2    | 1.85        | 1.24     |
| 4:E:70:VAL:CG1  | 4:E:71:THR:H      | 1.41        | 1.24     |
| 5:F:25:PRO:O    | 5:F:26:VAL:HG23   | 1.32        | 1.24     |
| 19:R:87:TYR:CE1 | 19:R:94:TYR:HB3   | 1.72        | 1.24     |
| 18:Z:62:PHE:CD2 | 18:Z:87:THR:HG22  | 1.71        | 1.24     |
| 28:7:21:ARG:CZ  | 28:7:43:THR:CG2   | 2.14        | 1.24     |
| 2:A:993:G:H4'   | 21:V:90:PHE:CE2   | 1.69        | 1.24     |
| 4:E:301:PRO:O   | 4:E:303:PRO:HD2   | 1.32        | 1.24     |
| 7:H:86:LEU:HD13 | 7:H:87:GLU:N      | 1.50        | 1.24     |
| 20:U:99:ALA:HB2 | 20:U:106:PHE:CD2  | 1.72        | 1.24     |
| 2:A:2252:G:C2'  | 2:A:2253:G:H5'    | 1.67        | 1.24     |
| 2:A:2712:U:C5   | 2:A:712(A):A:N7   | 2.04        | 1.24     |
| 2:A:2749:A:O4'  | 7:H:62:ALA:CB     | 1.84        | 1.24     |
| 2:A:2825:C:O5'  | 2:A:2825:C:C6     | 1.91        | 1.24     |
| 2:A:994:C:H5    | 21:V:72:ARG:NH1   | 1.33        | 1.24     |
| 9:N:61:VAL:HG12 | 9:N:62:ASP:OD1    | 1.32        | 1.24     |
| 19:R:79:LEU:CD2 | 19:R:79:LEU:C     | 2.01        | 1.24     |
| 17:Y:48:VAL:CG1 | 17:Y:49:GLU:H     | 1.46        | 1.24     |
| 24:0:61:ALA:HB2 | 24:0:81:ILE:CD1   | 1.67        | 1.24     |
| 2:A:1665:A:C2'  | 10:O:66:LYS:NZ    | 1.98        | 1.24     |
| 2:A:2581:G:N1   | 2:A:2610:C:C6     | 1.86        | 1.24     |
| 11:P:62:ALA:HB3 | 11:P:105:TYR:O    | 1.30        | 1.24     |
| 19:R:38:VAL:CB  | 19:R:39:PRO:HD2   | 1.66        | 1.24     |
| 20:U:43:ALA:O   | 20:U:45:TYR:N     | 1.68        | 1.24     |
| 8:I:95:SER:CA   | 8:I:98:ILE:CD1    | 2.13        | 1.24     |
| 16:X:9:HIS:CE1  | 16:X:27:ALA:HA    | 1.70        | 1.24     |
| 12:Q:108:SER:O  | 12:Q:109:VAL:HG13 | 1.36        | 1.24     |
| 7:H:168:VAL:O   | 7:H:169:ARG:CG    | 1.85        | 1.24     |
| 2:A:2218:G:O2'  | 3:D:146:LYS:CE    | 1.84        | 1.24     |
| 2:A:2219:G:O2'  | 2:A:2224:G:C5'    | 1.86        | 1.24     |
| 2:A:2893:G:O2'  | 2:A:2894:G:H1'    | 1.21        | 1.24     |
| 5:F:96:LYS:CA   | 5:F:98:ARG:NH1    | 2.00        | 1.24     |
| 9:N:15:ARG:HB3  | 9:N:43:ARG:CD     | 1.65        | 1.24     |
| 12:Q:54:VAL:O   | 12:Q:56:ILE:HD13  | 1.11        | 1.24     |
| 19:R:89:ASP:OD1 | 19:R:90:ARG:N     | 1.69        | 1.24     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 24:0:39:ARG:HG2  | 24:0:69:PHE:CE1  | 1.71        | 1.24     |
| 20:U:14:HIS:ND1  | 20:U:36:PHE:HZ   | 1.34        | 1.24     |
| 21:V:19:VAL:HG12 | 21:V:21:ARG:CZ   | 1.68        | 1.24     |
| 15:W:79:GLY:O    | 15:W:80:PRO:C    | 1.64        | 1.24     |
| 18:Z:39:PHE:HA   | 18:Z:43:PHE:CD2  | 1.70        | 1.24     |
| 2:A:825:C:H4'    | 2:A:2428:G:C5    | 1.73        | 1.24     |
| 2:A:2822:G:OP1   | 4:E:207:GLY:HA2  | 1.30        | 1.24     |
| 2:A:446:G:OP2    | 20:U:3:ARG:CZ    | 1.86        | 1.24     |
| 3:D:198:GLY:O    | 3:D:200:THR:HG23 | 1.34        | 1.24     |
| 5:F:24:THR:HB    | 5:F:25:PRO:CD    | 1.61        | 1.24     |
| 20:U:13:ARG:O    | 20:U:16:LYS:HB2  | 1.09        | 1.24     |
| 17:Y:101:LEU:CG  | 17:Y:112:LEU:CD1 | 2.16        | 1.24     |
| 2:A:2307:G:C1'   | 2:A:2311:A:H61   | 1.49        | 1.24     |
| 2:A:2517:C:O2'   | 2:A:2518:A:C5'   | 1.83        | 1.24     |
| 8:I:7:LYS:CG     | 8:I:12:LYS:CG    | 2.11        | 1.24     |
| 17:Y:28:SER:HB3  | 17:Y:99:THR:OG1  | 1.07        | 1.24     |
| 8:I:95:SER:CA    | 8:I:98:ILE:CG1   | 2.09        | 1.24     |
| 22:2:52:ALA:O    | 22:2:56:ILE:HG13 | 1.27        | 1.24     |
| 22:2:5:VAL:CG1   | 22:2:6:GLN:H     | 1.41        | 1.24     |
| 9:N:106:GLY:O    | 9:N:107:ASN:CG   | 1.76        | 1.24     |
| 2:A:1130:U:H5''  | 2:A:2515:C:O2'   | 1.38        | 1.24     |
| 2:A:2246:G:O2'   | 2:A:2247:A:H5'   | 1.32        | 1.24     |
| 2:A:2470:G:N3    | 2:A:2471:C:C5    | 2.04        | 1.24     |
| 2:A:2710:C:O2'   | 2:A:2711:A:H5'   | 1.37        | 1.24     |
| 4:E:193:PHE:CE2  | 4:E:199:ALA:HB2  | 1.72        | 1.24     |
| 5:F:96:LYS:CA    | 5:F:98:ARG:CZ    | 2.15        | 1.24     |
| 6:G:27:ILE:O     | 6:G:69:ILE:HG23  | 1.28        | 1.24     |
| 10:O:1:MET:O     | 10:O:2:ILE:CD1   | 1.86        | 1.24     |
| 20:U:91:ASN:OD1  | 21:V:10:LYS:NZ   | 1.63        | 1.24     |
| 21:V:33:VAL:HB   | 21:V:63:HIS:CG   | 1.72        | 1.24     |
| 23:3:19:GLN:O    | 23:3:23:LEU:CD2  | 1.84        | 1.24     |
| 2:A:2215:G:H2'   | 2:A:2216:G:C8    | 1.71        | 1.24     |
| 2:A:2313:C:H5'   | 6:G:72:LYS:CG    | 1.68        | 1.24     |
| 2:A:2622:C:O2    | 2:A:2623:G:C8    | 1.91        | 1.24     |
| 2:A:2847:U:OP2   | 2:A:2847:U:C6    | 1.90        | 1.24     |
| 6:G:21:VAL:HG13  | 6:G:132:VAL:CB   | 1.65        | 1.24     |
| 7:H:43:THR:CG2   | 7:H:52:THR:CG2   | 2.14        | 1.24     |
| 8:I:7:LYS:HG3    | 8:I:12:LYS:CD    | 1.67        | 1.24     |
| 20:U:20:ARG:HH12 | 21:V:75:LYS:CE   | 1.50        | 1.24     |
| 2:A:2333:A:H1'   | 2:A:2335:A:C4    | 1.71        | 1.23     |
| 2:A:2509:G:O2'   | 2:A:2510:C:H5'   | 1.28        | 1.23     |
| 2:A:2717:G:C2    | 2:A:2718:G:C5    | 2.27        | 1.23     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 5:F:52:ALA:HB2    | 5:F:55:ARG:CZ    | 1.68        | 1.23     |
| 18:Z:5:ALA:O      | 18:Z:33:ALA:HB2  | 1.38        | 1.23     |
| 2:A:2384:G:C5'    | 2:A:2386:C:OP1   | 1.85        | 1.23     |
| 5:F:103:ASN:O     | 5:F:104:ASP:O    | 1.52        | 1.23     |
| 5:F:238:SER:O     | 5:F:241:ALA:HB3  | 1.09        | 1.23     |
| 21:V:59:GLU:O     | 21:V:60:VAL:CG2  | 1.86        | 1.23     |
| 21:V:35:LEU:O     | 21:V:60:VAL:HG13 | 1.29        | 1.23     |
| 21:V:61:VAL:CG2   | 21:V:97:GLY:HA2  | 1.69        | 1.23     |
| 2:A:1826:G:OP2    | 3:D:227:VAL:HG21 | 1.17        | 1.23     |
| 24:O:23:VAL:CG1   | 24:O:24:LYS:H    | 1.49        | 1.23     |
| 2:A:2044:C:N3     | 2:A:2624:G:N2    | 1.86        | 1.23     |
| 2:A:2384:G:H5''   | 2:A:2386:C:OP1   | 1.09        | 1.23     |
| 3:D:78:ALA:O      | 3:D:79:THR:HG23  | 1.32        | 1.23     |
| 2:A:600:G:H5''    | 5:F:27:ARG:NH1   | 1.51        | 1.23     |
| 6:G:24:HIS:O      | 6:G:25:MET:HG2   | 1.11        | 1.23     |
| 2:A:2312:U:H5'    | 6:G:53:LYS:CA    | 1.67        | 1.23     |
| 20:U:103:PRO:O    | 20:U:107:LYS:HG2 | 1.30        | 1.23     |
| 2:A:1205:U:O2     | 5:F:232:LEU:HD11 | 1.38        | 1.23     |
| 2:A:2508:G:O2'    | 2:A:2509:G:H5'   | 1.36        | 1.23     |
| 2:A:2573:C:C6     | 2:A:2573:C:H5'   | 1.71        | 1.23     |
| 2:A:2822:G:OP1    | 4:E:207:GLY:CA   | 1.84        | 1.23     |
| 12:Q:88:PHE:HB2   | 12:Q:90:PHE:CE1  | 1.71        | 1.23     |
| 15:W:11:ARG:NH2   | 15:W:98:LYS:HB3  | 1.51        | 1.23     |
| 22:2:51:LYS:O     | 22:2:54:ALA:N    | 1.71        | 1.23     |
| 16:X:3:ASP:O      | 16:X:4:VAL:HG13  | 1.32        | 1.23     |
| 2:A:734:A:O3'     | 2:A:735:A:P      | 1.96        | 1.23     |
| 29:8:23:MET:HA    | 29:8:23:MET:CE   | 1.63        | 1.23     |
| 2:A:2226:C:O2     | 2:A:2227:A:H1'   | 1.33        | 1.23     |
| 2:A:2309:A:C4'    | 2:A:2309:A:OP2   | 1.81        | 1.23     |
| 2:A:2555:U:H2'    | 2:A:2556:C:C5'   | 1.68        | 1.23     |
| 2:A:2681:C:O2'    | 2:A:2682:U:O5'   | 1.56        | 1.23     |
| 5:F:115:LEU:HG    | 5:F:246:ARG:NH2  | 1.51        | 1.23     |
| 6:G:142:ALA:CB    | 6:G:151:ILE:HD11 | 1.67        | 1.23     |
| 7:H:129:LYS:O     | 7:H:130:ILE:HD12 | 1.12        | 1.23     |
| 8:I:4:ILE:HB      | 8:I:37:ILE:O     | 1.33        | 1.23     |
| 13:S:41:LYS:C     | 13:S:41:LYS:HD3  | 1.57        | 1.23     |
| 15:W:85:VAL:HA    | 15:W:95:ILE:CG1  | 1.68        | 1.23     |
| 17:Y:101:LEU:HD13 | 17:Y:113:GLU:CB  | 1.68        | 1.23     |
| 28:7:41:GLN:O     | 28:7:42:LEU:HG   | 1.34        | 1.23     |
| 2:A:2589:A:C2'    | 2:A:2590:A:H5''  | 1.69        | 1.23     |
| 3:D:208:GLY:CA    | 3:D:210:LYS:HZ3  | 1.41        | 1.23     |
| 2:A:2509:G:C2'    | 2:A:2510:C:H5'   | 1.67        | 1.23     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:973:A:N1     | 21:V:81:ARG:CD   | 1.93        | 1.23     |
| 2:A:2574:G:O2'   | 4:E:240:PRO:HB3  | 1.12        | 1.23     |
| 2:A:2712:U:C2'   | 2:A:712(A):A:C5' | 2.16        | 1.23     |
| 2:A:2756:U:O2'   | 2:A:2757:A:C5'   | 1.86        | 1.23     |
| 2:A:325:G:H21    | 17:Y:7:GLN:NE2   | 1.35        | 1.23     |
| 7:H:143:LEU:CD2  | 7:H:144:ALA:H    | 1.51        | 1.23     |
| 20:U:38:THR:CA   | 20:U:41:ASN:OD1  | 1.84        | 1.23     |
| 21:V:91:THR:O    | 21:V:92:ALA:HB2  | 1.24        | 1.23     |
| 2:A:1081:U:P     | 31:K:126:LYS:CD  | 2.25        | 1.23     |
| 2:A:592:G:N3     | 29:8:3:LYS:HE3   | 1.52        | 1.23     |
| 4:E:269:ILE:HG23 | 4:E:297:LYS:NZ   | 1.53        | 1.23     |
| 5:F:243:VAL:CA   | 5:F:246:ARG:HD2  | 1.67        | 1.23     |
| 19:R:58:GLY:CA   | 19:R:80:PHE:CE2  | 2.22        | 1.23     |
| 13:S:34:LEU:CG   | 13:S:102:LEU:HA  | 1.69        | 1.23     |
| 21:V:14:VAL:HG21 | 21:V:19:VAL:CG2  | 1.68        | 1.23     |
| 24:0:30:VAL:HG22 | 24:0:63:SER:OG   | 1.36        | 1.23     |
| 27:6:2:ALA:HB2   | 27:6:11:LYS:NZ   | 1.53        | 1.23     |
| 28:7:17:GLY:CA   | 28:7:44:VAL:HG21 | 1.63        | 1.23     |
| 2:A:1129:A:O2'   | 2:A:2515:C:O2    | 1.55        | 1.23     |
| 9:N:60:ARG:O     | 9:N:71:TYR:HB3   | 1.33        | 1.23     |
| 21:V:71:ILE:O    | 21:V:72:ARG:HG3  | 1.38        | 1.23     |
| 2:A:85:G:P       | 17:Y:65:VAL:HG11 | 1.77        | 1.23     |
| 18:Z:168:VAL:O   | 18:Z:169:VAL:CG2 | 1.87        | 1.23     |
| 3:D:226:GLY:O    | 3:D:227:VAL:HG12 | 1.10        | 1.23     |
| 6:G:44:ILE:O     | 6:G:83:PHE:CZ    | 1.92        | 1.23     |
| 18:Z:96:VAL:CG1  | 18:Z:97:PRO:HD2  | 1.69        | 1.23     |
| 29:8:26:LYS:CG   | 29:8:45:GLY:N    | 1.88        | 1.22     |
| 2:A:2786:U:H5'   | 4:E:100:TRP:O    | 1.32        | 1.22     |
| 4:E:44:TYR:CA    | 4:E:309:PRO:CG   | 2.15        | 1.22     |
| 2:A:2406:U:C4    | 11:P:55:GLN:HB3  | 1.74        | 1.22     |
| 18:Z:69:VAL:CG2  | 18:Z:81:VAL:CG1  | 2.18        | 1.22     |
| 29:8:26:LYS:CD   | 29:8:44:LYS:N    | 2.00        | 1.22     |
| 2:A:965:C:O2'    | 2:A:2272:U:C6    | 1.90        | 1.22     |
| 2:A:674:G:C5'    | 5:F:69:HIS:HA    | 1.68        | 1.22     |
| 2:A:2210:G:O6    | 3:D:148:GLY:CA   | 1.86        | 1.22     |
| 11:P:92:ASP:HB3  | 11:P:118:LEU:CD1 | 1.68        | 1.22     |
| 13:S:81:ALA:O    | 13:S:83:LEU:N    | 1.72        | 1.22     |
| 2:A:593:G:C5'    | 29:8:62:LEU:HD21 | 1.68        | 1.22     |
| 2:A:1124:C:O3'   | 2:A:1125:G:P     | 1.97        | 1.22     |
| 5:F:93:LYS:O     | 5:F:96:LYS:HG3   | 1.08        | 1.22     |
| 12:Q:25:GLY:O    | 12:Q:26:LYS:HG2  | 1.34        | 1.22     |
| 28:7:21:ARG:NH1  | 28:7:43:THR:CG2  | 2.03        | 1.22     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 28:7:34:ARG:HD2  | 28:7:42:LEU:CD2  | 1.65        | 1.22     |
| 2:A:2544:G:C5'   | 2:A:2645:G:N7    | 2.02        | 1.22     |
| 2:A:2882:A:O3'   | 2:A:2883:A:P     | 1.97        | 1.22     |
| 4:E:205:THR:HG23 | 4:E:259:HIS:C    | 1.60        | 1.22     |
| 7:H:15:THR:HG21  | 7:H:26:LYS:CB    | 1.68        | 1.22     |
| 12:Q:65:ARG:CZ   | 12:Q:122:PHE:CE2 | 2.22        | 1.22     |
| 13:S:94:GLU:C    | 13:S:94:GLU:OE1  | 1.76        | 1.22     |
| 21:V:30:GLY:C    | 21:V:33:VAL:CG2  | 2.07        | 1.22     |
| 18:Z:2:GLU:O     | 18:Z:54:ILE:CG2  | 1.86        | 1.22     |
| 16:X:28:VAL:O    | 16:X:62:LYS:HB3  | 1.37        | 1.22     |
| 2:A:2209:C:H2'   | 2:A:2210:G:C3'   | 1.68        | 1.22     |
| 2:A:2447:G:C4    | 2:A:2500:U:H5    | 1.55        | 1.22     |
| 5:F:52:ALA:CA    | 5:F:55:ARG:NE    | 2.02        | 1.22     |
| 2:A:2561:A:O2'   | 10:O:40:VAL:HG11 | 1.05        | 1.22     |
| 2:A:994:C:O2     | 20:U:53:LYS:HD3  | 1.37        | 1.22     |
| 15:W:8:ARG:HG3   | 15:W:102:HIS:CE1 | 1.74        | 1.22     |
| 24:0:43:THR:CG2  | 24:0:75:GLY:HA3  | 1.68        | 1.22     |
| 25:4:59:PHE:O    | 25:4:61:LYS:N    | 1.72        | 1.22     |
| 2:A:1368:G:OP1   | 28:7:25:LYS:CD   | 1.86        | 1.22     |
| 2:A:337:C:OP1    | 17:Y:24:ARG:CB   | 1.85        | 1.22     |
| 3:D:183:ILE:O    | 3:D:184:LEU:HD23 | 1.06        | 1.22     |
| 8:I:133:LEU:CD1  | 8:I:139:ALA:HB2  | 1.69        | 1.22     |
| 2:A:176:G:C3'    | 2:A:177:G:P      | 2.27        | 1.22     |
| 23:3:23:LEU:O    | 23:3:28:LEU:HG   | 1.36        | 1.22     |
| 25:4:68:ARG:CG   | 25:4:72:LYS:HG2  | 1.69        | 1.22     |
| 9:N:18:ILE:O     | 9:N:22:VAL:HG23  | 1.36        | 1.22     |
| 2:A:2277:G:O3'   | 12:Q:15:THR:CG2  | 1.83        | 1.22     |
| 18:Z:64:ALA:CB   | 18:Z:85:MET:HA   | 1.69        | 1.22     |
| 2:A:10:G:N2      | 2:A:2629:A:C2    | 2.07        | 1.22     |
| 4:E:205:THR:HG23 | 4:E:259:HIS:O    | 1.07        | 1.22     |
| 13:S:94:GLU:O    | 13:S:94:GLU:OE1  | 1.55        | 1.22     |
| 20:U:36:PHE:O    | 20:U:39:LEU:HB2  | 1.38        | 1.22     |
| 21:V:71:ILE:O    | 21:V:72:ARG:CG   | 1.87        | 1.22     |
| 21:V:94:LYS:O    | 21:V:95:ILE:CD1  | 1.82        | 1.22     |
| 17:Y:41:ARG:O    | 17:Y:112:LEU:HB2 | 1.13        | 1.22     |
| 17:Y:49:GLU:OE2  | 17:Y:97:ARG:CZ   | 1.87        | 1.22     |
| 2:A:2355:C:C4'   | 24:0:21:LEU:HD13 | 1.48        | 1.22     |
| 23:3:40:THR:HG21 | 23:3:43:ILE:CD1  | 1.58        | 1.22     |
| 2:A:2734:A:N6    | 2:A:2735:G:N3    | 1.88        | 1.22     |
| 2:A:2793:G:C6    | 2:A:2794:C:N4    | 2.07        | 1.22     |
| 20:U:97:ASP:O    | 20:U:101:ARG:HG2 | 1.07        | 1.22     |
| 2:A:2507:C:C2    | 2:A:2583:G:N2    | 2.08        | 1.22     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2626:C:C2'   | 2:A:2627:G:C5'    | 2.17        | 1.22     |
| 2:A:2869:G:C5    | 2:A:2870:C:C5     | 2.28        | 1.22     |
| 5:F:103:ASN:HB2  | 5:F:106:GLU:OE2   | 1.34        | 1.22     |
| 5:F:3:ALA:CB     | 5:F:16:VAL:O      | 1.87        | 1.22     |
| 10:O:103:ALA:HA  | 10:O:122:ILE:O    | 1.39        | 1.22     |
| 19:R:44:LEU:O    | 19:R:48:VAL:CG2   | 1.87        | 1.22     |
| 13:S:76:GLY:O    | 13:S:82:TYR:HB2   | 1.34        | 1.22     |
| 5:F:153:VAL:CG1  | 5:F:157:LEU:HD21  | 1.69        | 1.21     |
| 20:U:113:SER:O   | 20:U:115:ASN:N    | 1.71        | 1.21     |
| 21:V:11:GLN:NE2  | 21:V:22:VAL:HG23  | 1.34        | 1.21     |
| 21:V:33:VAL:O    | 21:V:62:GLU:HA    | 1.32        | 1.21     |
| 15:W:11:ARG:O    | 15:W:12:ILE:HG13  | 1.39        | 1.21     |
| 17:Y:29:ALA:O    | 17:Y:33:GLU:OE2   | 1.55        | 1.21     |
| 27:6:35:LEU:O    | 27:6:36:GLU:CG    | 1.86        | 1.21     |
| 2:A:2410:G:C4    | 2:A:2411:A:N7     | 2.08        | 1.21     |
| 4:E:205:THR:CG2  | 4:E:259:HIS:O     | 1.88        | 1.21     |
| 17:Y:103:LEU:CD2 | 17:Y:112:LEU:CD2  | 1.96        | 1.21     |
| 1:B:103:U:O2'    | 18:Z:67:LYS:HG2   | 1.31        | 1.21     |
| 16:X:11:THR:O    | 16:X:15:MET:HG3   | 1.08        | 1.21     |
| 23:3:48:GLU:OE1  | 23:3:48:GLU:N     | 1.70        | 1.21     |
| 29:8:23:MET:HE3  | 29:8:48:PHE:CD2   | 1.75        | 1.21     |
| 2:A:2519:U:OP1   | 2:A:2519:U:H3'    | 1.35        | 1.21     |
| 2:A:2768:C:C2    | 2:A:2769:C:C6     | 2.28        | 1.21     |
| 2:A:1152:C:H5''  | 20:U:80:ILE:CG2   | 1.67        | 1.21     |
| 20:U:6:THR:O     | 20:U:9:VAL:HG23   | 1.40        | 1.21     |
| 2:A:2226:C:H2'   | 2:A:2227:A:O4'    | 1.06        | 1.21     |
| 2:A:2574:G:O2'   | 4:E:240:PRO:CB    | 1.88        | 1.21     |
| 2:A:592:G:N3     | 29:8:3:LYS:CE     | 2.04        | 1.21     |
| 9:N:77:GLY:O     | 9:N:79:PHE:N      | 1.74        | 1.21     |
| 12:Q:57:ARG:O    | 12:Q:58:HIS:O     | 1.56        | 1.21     |
| 21:V:50:ASP:OD1  | 21:V:53:LYS:HE3   | 1.39        | 1.21     |
| 17:Y:43:ASN:ND2  | 17:Y:101:LEU:HD21 | 1.51        | 1.21     |
| 8:I:102:LEU:CD1  | 8:I:103:GLN:N     | 2.02        | 1.21     |
| 16:X:18:MET:HE3  | 16:X:25:GLN:O     | 1.40        | 1.21     |
| 2:A:1834:U:O3'   | 2:A:1835:G:P      | 1.97        | 1.21     |
| 2:A:8:A:O3'      | 2:A:9:U:P         | 1.98        | 1.21     |
| 24:0:28:GLY:N    | 24:0:60:PHE:CD2   | 1.98        | 1.21     |
| 2:A:1568:G:O5'   | 3:D:60:GLN:CG     | 1.89        | 1.21     |
| 2:A:1799:G:O6    | 3:D:177:SER:HB2   | 1.31        | 1.21     |
| 2:A:2353:G:N1    | 2:A:2364:C:N4     | 1.69        | 1.21     |
| 2:A:2815:C:H5'   | 26:5:29:ASN:ND2   | 1.52        | 1.21     |
| 5:F:230:GLY:O    | 5:F:231:ARG:CG    | 1.88        | 1.21     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 20:U:92:ARG:CA    | 20:U:95:LEU:CD1   | 1.91        | 1.21     |
| 17:Y:101:LEU:CD2  | 17:Y:103:LEU:HD21 | 1.68        | 1.21     |
| 18:Z:151:ASP:HB3  | 18:Z:153:LYS:NZ   | 1.55        | 1.21     |
| 29:8:50:LEU:CD2   | 29:8:51:ALA:N     | 1.73        | 1.21     |
| 2:A:2373:G:O2'    | 2:A:2374:C:H5'    | 1.36        | 1.21     |
| 2:A:2507:C:N3     | 2:A:2583:G:C2     | 2.07        | 1.21     |
| 2:A:2620:C:O2'    | 2:A:2621:A:C5'    | 1.87        | 1.21     |
| 2:A:2786:U:C5'    | 4:E:100:TRP:O     | 1.87        | 1.21     |
| 21:V:57:GLN:NE2   | 21:V:100:GLY:O    | 1.73        | 1.21     |
| 18:Z:100:THR:HG22 | 18:Z:137:ASP:OD1  | 1.39        | 1.21     |
| 18:Z:149:ALA:O    | 18:Z:152:ILE:HG13 | 1.36        | 1.21     |
| 8:I:75:LEU:CD1    | 8:I:76:THR:H      | 1.54        | 1.21     |
| 16:X:6:LYS:NZ     | 16:X:29:ASP:HA    | 1.53        | 1.21     |
| 2:A:1620:G:H1'    | 28:7:1:MET:N      | 1.53        | 1.21     |
| 7:H:53:ARG:NH1    | 7:H:56:ASP:HA     | 1.55        | 1.21     |
| 25:4:55:ARG:O     | 25:4:56:VAL:O     | 1.57        | 1.21     |
| 28:7:21:ARG:NH2   | 28:7:43:THR:OG1   | 1.72        | 1.21     |
| 29:8:52:LYS:O     | 29:8:54:GLU:N     | 1.72        | 1.21     |
| 2:A:14:A:HO3'     | 2:A:15:G:P        | 0.94        | 1.21     |
| 5:F:163:HIS:HB3   | 5:F:166:ILE:HD12  | 1.21        | 1.21     |
| 6:G:97:GLN:HB2    | 6:G:106:PHE:CE2   | 1.76        | 1.21     |
| 10:O:46:ALA:O     | 10:O:47:THR:O     | 1.52        | 1.21     |
| 11:P:128:GLY:CA   | 11:P:132:LYS:NZ   | 2.03        | 1.21     |
| 23:3:1:MET:SD     | 23:3:3:ARG:HG2    | 1.79        | 1.21     |
| 2:A:126:A:C5      | 28:7:18:PHE:CE2   | 2.27        | 1.21     |
| 2:A:2645:G:H4'    | 2:A:2732:G:O2'    | 1.38        | 1.21     |
| 12:Q:69:ASN:ND2   | 12:Q:70:ARG:N     | 1.88        | 1.21     |
| 18:Z:39:PHE:CA    | 18:Z:43:PHE:CE2   | 2.21        | 1.21     |
| 26:5:18:MET:O     | 26:5:21:SER:CB    | 1.89        | 1.21     |
| 2:A:1140:C:N4     | 9:N:49:ARG:HD2    | 1.56        | 1.21     |
| 1:B:50:G:OP2      | 13:S:74:PRO:CG    | 1.88        | 1.21     |
| 2:A:451:C:O3'     | 5:F:55:ARG:NH2    | 1.71        | 1.21     |
| 2:A:535:C:C3'     | 20:U:53:LYS:HE2   | 1.69        | 1.21     |
| 18:Z:100:THR:HA   | 18:Z:137:ASP:OD2  | 1.03        | 1.21     |
| 3:D:143:ILE:O     | 3:D:152:GLN:CB    | 1.88        | 1.21     |
| 6:G:65:GLU:OE1    | 6:G:65:GLU:O      | 1.59        | 1.21     |
| 9:N:60:ARG:O      | 9:N:71:TYR:CB     | 1.88        | 1.21     |
| 20:U:117:ARG:HD3  | 20:U:118:GLN:HG2  | 1.23        | 1.21     |
| 2:A:1338:G:O2'    | 16:X:13:LYS:NZ    | 1.74        | 1.21     |
| 29:8:36:LYS:HD3   | 29:8:40:GLU:OE1   | 1.40        | 1.20     |
| 2:A:2287:A:C2     | 2:A:2289:G:N9     | 2.08        | 1.20     |
| 2:A:2319:G:O5'    | 2:A:2320:A:OP1    | 1.56        | 1.20     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2663:G:H2'   | 2:A:2664:G:C8    | 1.75        | 1.20     |
| 3:D:103:ILE:CD1  | 3:D:104:ILE:HD11 | 1.71        | 1.20     |
| 20:U:65:ILE:CG2  | 20:U:76:TYR:HE2  | 1.54        | 1.20     |
| 18:Z:91:PRO:CG   | 18:Z:127:PRO:HB3 | 1.71        | 1.20     |
| 18:Z:71:MET:HG2  | 18:Z:78:PRO:CG   | 1.71        | 1.20     |
| 29:8:60:LEU:CD1  | 29:8:64:ARG:HB2  | 1.71        | 1.20     |
| 2:A:2268:A:O4'   | 2:A:2268:A:OP1   | 1.57        | 1.20     |
| 3:D:167:GLU:N    | 3:D:182:MET:HE1  | 1.56        | 1.20     |
| 5:F:230:GLY:O    | 5:F:231:ARG:HG2  | 1.07        | 1.20     |
| 6:G:19:GLU:CB    | 6:G:135:VAL:HG22 | 1.57        | 1.20     |
| 10:O:25:LEU:HG   | 10:O:38:VAL:O    | 1.36        | 1.20     |
| 8:I:89:LEU:CD1   | 8:I:93:ILE:CG2   | 2.17        | 1.20     |
| 3:D:210:LYS:CA   | 3:D:213:LYS:HD3  | 1.69        | 1.20     |
| 2:A:1011:G:OP1   | 20:U:77:SER:OG   | 1.57        | 1.20     |
| 2:A:2219:G:C2'   | 2:A:2224:G:O5'   | 1.88        | 1.20     |
| 2:A:993:G:O4'    | 21:V:90:PHE:HE2  | 1.25        | 1.20     |
| 17:Y:31:LEU:HD13 | 17:Y:113:GLU:OE1 | 1.36        | 1.20     |
| 24:0:37:LEU:CD1  | 24:0:69:PHE:HB2  | 1.70        | 1.20     |
| 23:3:20:LYS:HA   | 23:3:23:LEU:CG   | 1.69        | 1.20     |
| 2:A:2021:C:H5    | 20:U:25:TRP:CZ2  | 1.59        | 1.20     |
| 2:A:2446:G:C2    | 2:A:2501:C:C5    | 2.29        | 1.20     |
| 2:A:2653:U:H3'   | 2:A:2654:A:C8    | 1.76        | 1.20     |
| 10:O:68:GLY:HA3  | 10:O:78:ARG:NE   | 1.55        | 1.20     |
| 17:Y:55:PHE:CE1  | 17:Y:89:ARG:NH1  | 2.07        | 1.20     |
| 22:2:55:ARG:C    | 22:2:58:THR:OG1  | 1.79        | 1.20     |
| 2:A:2188:C:C4    | 2:A:2189:U:O4    | 1.94        | 1.20     |
| 2:A:2262:U:O2'   | 2:A:2263:C:C5'   | 1.88        | 1.20     |
| 2:A:1163:G:H5'   | 21:V:23:GLU:OE1  | 1.42        | 1.20     |
| 3:D:63:ILE:O     | 3:D:64:ILE:HG13  | 1.38        | 1.20     |
| 3:D:92:LEU:CD1   | 3:D:102:TYR:CD1  | 2.24        | 1.20     |
| 7:H:18:VAL:HG22  | 7:H:23:VAL:CG2   | 1.69        | 1.20     |
| 21:V:30:GLY:CA   | 21:V:33:VAL:HG21 | 1.69        | 1.20     |
| 2:A:1062:G:N2    | 31:K:92:PRO:HG3  | 0.87        | 1.20     |
| 25:4:51:ASP:O    | 25:4:52:THR:CG2  | 1.88        | 1.20     |
| 2:A:856:C:O2'    | 24:0:24:LYS:HB2  | 1.38        | 1.20     |
| 2:A:2819:G:H5''  | 2:A:2821:A:N6    | 1.55        | 1.20     |
| 5:F:168:ARG:NH2  | 5:F:209:GLY:HA2  | 1.55        | 1.20     |
| 19:R:79:LEU:HD23 | 19:R:79:LEU:O    | 1.37        | 1.20     |
| 20:U:91:ASN:OD1  | 20:U:95:LEU:HD21 | 1.37        | 1.20     |
| 27:6:19:GLY:CA   | 27:6:42:PRO:HG3  | 1.70        | 1.20     |
| 29:8:55:TRP:CZ3  | 29:8:59:LYS:CE   | 2.24        | 1.20     |
| 2:A:2313:C:O2'   | 2:A:2314:C:H5'   | 1.35        | 1.20     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2769:C:C2'   | 2:A:2770:G:O5'   | 1.77        | 1.20     |
| 1:B:57:A:C2      | 6:G:17:ARG:NH1   | 2.10        | 1.20     |
| 11:P:62:ALA:N    | 11:P:107:LYS:HE3 | 0.89        | 1.20     |
| 19:R:34:ILE:CG2  | 19:R:35:THR:H    | 1.51        | 1.20     |
| 14:T:28:THR:O    | 14:T:29:THR:CG2  | 1.89        | 1.20     |
| 2:A:1799:G:C2    | 3:D:153:LEU:CD2  | 2.24        | 1.20     |
| 2:A:2848:G:N2    | 2:A:2849:U:N3    | 1.79        | 1.20     |
| 4:E:77:PRO:CB    | 4:E:187:HIS:H    | 1.55        | 1.20     |
| 7:H:83:GLU:OE2   | 7:H:84:LYS:N     | 1.72        | 1.20     |
| 12:Q:145:PRO:O   | 12:Q:146:THR:OG1 | 1.59        | 1.20     |
| 2:A:997:G:C4'    | 20:U:92:ARG:NH1  | 2.05        | 1.20     |
| 17:Y:74:VAL:CG1  | 17:Y:77:VAL:HG23 | 1.70        | 1.20     |
| 18:Z:100:THR:HA  | 18:Z:137:ASP:CG  | 1.62        | 1.20     |
| 27:6:8:ILE:N     | 27:6:29:ARG:NH2  | 1.87        | 1.20     |
| 29:8:23:MET:CE   | 29:8:48:PHE:HA   | 1.70        | 1.20     |
| 7:H:101:LYS:NZ   | 7:H:115:GLU:HB2  | 1.53        | 1.20     |
| 8:I:7:LYS:CD     | 8:I:12:LYS:HZ2   | 1.43        | 1.20     |
| 15:W:85:VAL:C    | 15:W:86:LEU:HD23 | 1.63        | 1.20     |
| 2:A:1080:C:O3'   | 31:K:126:LYS:CD  | 1.90        | 1.20     |
| 25:4:51:ASP:O    | 25:4:52:THR:HG23 | 1.38        | 1.20     |
| 2:A:1140:C:C4    | 9:N:49:ARG:NE    | 2.10        | 1.19     |
| 3:D:167:GLU:HB3  | 3:D:170:TYR:HE1  | 1.07        | 1.19     |
| 4:E:221:LYS:NZ   | 4:E:233:ARG:HG2  | 1.55        | 1.19     |
| 26:5:57:VAL:CG1  | 26:5:58:LEU:H    | 1.55        | 1.19     |
| 2:A:2400:G:O2'   | 27:6:20:PHE:HE1  | 1.22        | 1.19     |
| 3:D:158:GLY:N    | 3:D:194:VAL:HG11 | 1.54        | 1.19     |
| 2:A:617:G:H4'    | 5:F:219:ASN:OD1  | 1.41        | 1.19     |
| 9:N:56:LYS:O     | 9:N:59:LYS:HB2   | 1.37        | 1.19     |
| 9:N:77:GLY:HA2   | 9:N:80:LYS:CG    | 1.71        | 1.19     |
| 11:P:113:GLN:O   | 11:P:114:VAL:O   | 1.60        | 1.19     |
| 12:Q:41:THR:HG22 | 12:Q:125:TRP:CZ3 | 1.76        | 1.19     |
| 21:V:59:GLU:O    | 21:V:60:VAL:HG23 | 1.37        | 1.19     |
| 21:V:61:VAL:CA   | 21:V:98:ILE:HD12 | 1.73        | 1.19     |
| 22:2:55:ARG:HA   | 22:2:58:THR:OG1  | 1.22        | 1.19     |
| 16:X:4:VAL:CG2   | 22:2:24:LYS:HZ2  | 1.39        | 1.19     |
| 16:X:47:VAL:HG12 | 16:X:69:SER:OG   | 1.36        | 1.19     |
| 27:6:21:TYR:OH   | 27:6:43:VAL:CG2  | 1.90        | 1.19     |
| 2:A:2357:U:O2'   | 2:A:2358:G:O5'   | 1.56        | 1.19     |
| 2:A:2784:C:O2    | 4:E:98:GLU:CD    | 1.77        | 1.19     |
| 2:A:2051:A:O2'   | 4:E:238:LEU:CG   | 1.90        | 1.19     |
| 5:F:163:HIS:HA   | 5:F:166:ILE:HG13 | 1.24        | 1.19     |
| 19:R:20:LEU:HD11 | 19:R:21:TYR:CD2  | 1.74        | 1.19     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 20:U:33:ARG:NH1  | 20:U:33:ARG:HB2  | 1.57        | 1.19     |
| 27:6:14:SER:HB2  | 27:6:51:ARG:O    | 1.43        | 1.19     |
| 2:A:2252:G:H2'   | 2:A:2253:G:C5'   | 1.73        | 1.19     |
| 2:A:686:G:O3'    | 2:A:687:C:P      | 1.97        | 1.19     |
| 3:D:63:ILE:HG22  | 3:D:64:ILE:N     | 1.38        | 1.19     |
| 5:F:225:PRO:HG2  | 5:F:231:ARG:NH2  | 1.54        | 1.19     |
| 7:H:82:TYR:CE2   | 7:H:137:LYS:HB3  | 1.75        | 1.19     |
| 9:N:19:MET:CB    | 9:N:46:ILE:HG12  | 1.69        | 1.19     |
| 12:Q:134:PHE:O   | 12:Q:137:ARG:HB3 | 1.39        | 1.19     |
| 21:V:91:THR:C    | 21:V:92:ALA:HB3  | 1.49        | 1.19     |
| 8:I:103:GLN:NE2  | 8:I:110:LEU:N    | 1.81        | 1.19     |
| 23:3:32:GLN:CD   | 23:3:32:GLN:O    | 1.81        | 1.19     |
| 27:6:19:GLY:CA   | 27:6:42:PRO:CG   | 2.20        | 1.19     |
| 2:A:1665:A:H4'   | 10:O:66:LYS:CE   | 1.72        | 1.19     |
| 2:A:2617:C:C2'   | 2:A:2618:G:H5'   | 1.71        | 1.19     |
| 2:A:2023:G:C4'   | 2:A:2618:G:OP1   | 1.90        | 1.19     |
| 2:A:1820:U:O2    | 3:D:200:THR:CG2  | 1.89        | 1.19     |
| 29:8:55:TRP:CE3  | 29:8:59:LYS:HE3  | 1.76        | 1.19     |
| 2:A:2526:G:H2'   | 2:A:2527:C:C5'   | 1.71        | 1.19     |
| 2:A:2636:U:C4'   | 4:E:84:ARG:HH22  | 1.56        | 1.19     |
| 7:H:10:ILE:HG22  | 7:H:14:VAL:CB    | 1.70        | 1.19     |
| 11:P:62:ALA:H    | 11:P:107:LYS:CE  | 1.45        | 1.19     |
| 21:V:42:GLY:N    | 21:V:54:TYR:CE1  | 2.03        | 1.19     |
| 22:2:30:ALA:O    | 22:2:34:GLN:HB2  | 1.39        | 1.19     |
| 2:A:545(A):A:OP2 | 2:A:1546:C:N4    | 1.75        | 1.19     |
| 24:0:43:THR:HG21 | 24:0:75:GLY:N    | 1.55        | 1.19     |
| 27:6:8:ILE:CA    | 27:6:29:ARG:HH21 | 1.54        | 1.19     |
| 2:A:2700:C:H2'   | 2:A:2701:C:C4'   | 1.71        | 1.19     |
| 2:A:2717:G:C2    | 2:A:2718:G:C8    | 2.30        | 1.19     |
| 3:D:111:VAL:O    | 3:D:113:MET:N    | 1.74        | 1.19     |
| 3:D:70:LYS:HG3   | 3:D:73:ILE:CD1   | 1.72        | 1.19     |
| 4:E:211:GLN:N    | 4:E:216:ARG:CZ   | 2.05        | 1.19     |
| 2:A:2679:A:C2    | 4:E:300:VAL:CG2  | 2.26        | 1.19     |
| 9:N:12:VAL:C     | 9:N:38:VAL:CG1   | 2.06        | 1.19     |
| 21:V:19:VAL:CB   | 21:V:21:ARG:NH1  | 2.03        | 1.19     |
| 18:Z:20:ALA:C    | 18:Z:34:LEU:HD21 | 1.52        | 1.19     |
| 2:A:988:A:OP1    | 23:3:11:SER:N    | 1.74        | 1.19     |
| 2:A:994:C:C2     | 20:U:53:LYS:CD   | 2.24        | 1.19     |
| 3:D:118:GLY:O    | 3:D:129:LEU:CG   | 1.91        | 1.19     |
| 3:D:167:GLU:HB2  | 3:D:170:TYR:CD1  | 1.75        | 1.19     |
| 6:G:38:GLU:HG2   | 6:G:41:LEU:CD1   | 1.71        | 1.19     |
| 12:Q:49:VAL:CG2  | 12:Q:121:ASP:N   | 2.01        | 1.19     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:V:14:VAL:CG2  | 21:V:19:VAL:HG21 | 1.70        | 1.19     |
| 8:I:77:VAL:HG21  | 8:I:141:LEU:CD1  | 1.72        | 1.19     |
| 16:X:6:LYS:HB3   | 16:X:27:ALA:O    | 1.42        | 1.19     |
| 2:A:2045:C:N4    | 2:A:2623:G:H1    | 1.40        | 1.19     |
| 5:F:167:ASP:OD2  | 5:F:232:LEU:HG   | 1.03        | 1.19     |
| 13:S:46:GLN:O    | 13:S:47:LEU:HD23 | 1.02        | 1.19     |
| 20:U:97:ASP:O    | 20:U:101:ARG:CG  | 1.90        | 1.19     |
| 2:A:2259:G:C2    | 2:A:2282:G:C6    | 2.31        | 1.19     |
| 2:A:2659:G:H2'   | 2:A:2661:G:OP2   | 1.43        | 1.19     |
| 2:A:2870:C:O2    | 2:A:2871:C:O4'   | 1.61        | 1.19     |
| 5:F:217:GLU:O    | 5:F:218:VAL:HG23 | 1.05        | 1.19     |
| 13:S:108:SER:O   | 13:S:110:THR:N   | 1.74        | 1.19     |
| 20:U:76:TYR:O    | 20:U:80:ILE:HD12 | 1.04        | 1.19     |
| 17:Y:33:GLU:OE1  | 17:Y:34:GLU:HG3  | 1.05        | 1.19     |
| 16:X:12:GLU:O    | 16:X:16:ASN:OD1  | 1.61        | 1.19     |
| 16:X:9:HIS:HD1   | 16:X:26:PHE:C    | 1.47        | 1.19     |
| 2:A:1545:A:O3'   | 2:A:545(A):A:P   | 1.99        | 1.19     |
| 4:E:268:LEU:HD23 | 4:E:269:ILE:N    | 1.56        | 1.18     |
| 9:N:83:ILE:HG13  | 9:N:84:ARG:N     | 1.15        | 1.18     |
| 6:G:146:LYS:HG3  | 13:S:15:GLU:CG   | 1.72        | 1.18     |
| 21:V:61:VAL:HA   | 21:V:98:ILE:CD1  | 1.72        | 1.18     |
| 2:A:1364:G:C3'   | 25:4:3:LYS:HD3   | 1.70        | 1.18     |
| 2:A:1568:G:C5'   | 3:D:60:GLN:NE2   | 1.97        | 1.18     |
| 2:A:2309:A:H5'   | 2:A:2310:A:OP2   | 1.40        | 1.18     |
| 2:A:775:G:O2'    | 2:A:791:C:N4     | 1.75        | 1.18     |
| 2:A:1665:A:C2'   | 10:O:66:LYS:HZ1  | 1.52        | 1.18     |
| 19:R:61:HIS:HA   | 19:R:64:ARG:CD   | 1.73        | 1.18     |
| 2:A:1081:U:H5'   | 31:K:126:LYS:HD2 | 1.25        | 1.18     |
| 22:2:5:VAL:HG12  | 22:2:6:GLN:N     | 1.38        | 1.18     |
| 29:8:50:LEU:HD23 | 29:8:51:ALA:N    | 0.86        | 1.18     |
| 2:A:2012:G:OP1   | 15:W:98:LYS:CD   | 1.89        | 1.18     |
| 2:A:2488:A:C2'   | 2:A:2489:G:H5'   | 1.73        | 1.18     |
| 2:A:2507:C:C2    | 2:A:2583:G:C2    | 2.31        | 1.18     |
| 2:A:2785:C:O2'   | 2:A:2786:U:O5'   | 1.60        | 1.18     |
| 2:A:2880:C:H42   | 2:A:2881:C:N4    | 1.41        | 1.18     |
| 3:D:103:ILE:CG1  | 3:D:104:ILE:HD11 | 1.52        | 1.18     |
| 9:N:19:MET:HB2   | 9:N:46:ILE:CG1   | 1.74        | 1.18     |
| 20:U:65:ILE:CD1  | 20:U:96:ALA:HB2  | 1.71        | 1.18     |
| 2:A:747:U:OP1    | 26:5:2:ALA:HB3   | 1.43        | 1.18     |
| 28:7:21:ARG:O    | 28:7:24:THR:HG23 | 1.43        | 1.18     |
| 5:F:219:ASN:O    | 5:F:222:ASP:CB   | 1.90        | 1.18     |
| 14:T:12:ASP:O    | 14:T:13:ILE:HG13 | 1.42        | 1.18     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:Y:23:VAL:HG23 | 17:Y:67:LEU:HD21  | 1.25        | 1.18     |
| 23:3:7:LYS:O     | 23:3:54:VAL:CG2   | 1.88        | 1.18     |
| 2:A:2206:C:O2'   | 2:A:2207:C:C5'    | 1.91        | 1.18     |
| 2:A:2322:A:C6    | 2:A:2323:G:C8     | 2.27        | 1.18     |
| 2:A:2589:A:H2'   | 2:A:2590:A:C5'    | 1.73        | 1.18     |
| 3:D:198:GLY:O    | 3:D:200:THR:N     | 1.75        | 1.18     |
| 11:P:69:ILE:CG1  | 11:P:70:ASP:H     | 1.57        | 1.18     |
| 18:Z:159:THR:O   | 18:Z:160:LEU:HD13 | 1.41        | 1.18     |
| 18:Z:69:VAL:HG21 | 18:Z:81:VAL:CG1   | 1.73        | 1.18     |
| 23:3:9:VAL:CG2   | 23:3:54:VAL:HA    | 1.73        | 1.18     |
| 27:6:12:MET:C    | 27:6:13:GLU:OE1   | 1.82        | 1.18     |
| 30:9:7:VAL:CG1   | 30:9:34:GLN:CD    | 2.01        | 1.18     |
| 2:A:2616:C:O2'   | 2:A:2617:C:C5'    | 1.91        | 1.18     |
| 2:A:2711:A:OP2   | 2:A:2714:G:OP1    | 1.57        | 1.18     |
| 2:A:2776:A:H4'   | 2:A:2778:A:OP1    | 1.44        | 1.18     |
| 5:F:215:ALA:CB   | 5:F:238:SER:O     | 1.91        | 1.18     |
| 21:V:94:LYS:C    | 21:V:95:ILE:HD12  | 0.80        | 1.18     |
| 15:W:29:LEU:O    | 15:W:31:GLU:N     | 1.76        | 1.18     |
| 2:A:25:U:C5'     | 15:W:80:PRO:CD    | 2.21        | 1.18     |
| 23:3:53:LEU:CD2  | 23:3:54:VAL:HG13  | 1.72        | 1.18     |
| 27:6:5:GLY:O     | 27:6:7:ARG:N      | 1.74        | 1.18     |
| 28:7:7:PRO:C     | 28:7:8:ASN:HD22   | 1.43        | 1.18     |
| 2:A:594:U:OP1    | 29:8:61:MET:SD    | 2.01        | 1.18     |
| 8:I:13:GLY:HA2   | 8:I:15:LYS:CE     | 1.72        | 1.18     |
| 8:I:37:ILE:CG2   | 8:I:38:GLU:H      | 1.55        | 1.18     |
| 10:O:4:GLN:O     | 10:O:21:VAL:O     | 1.58        | 1.18     |
| 12:Q:127:ASN:HB3 | 12:Q:128:PRO:CD   | 1.73        | 1.18     |
| 15:W:30:GLU:HA   | 15:W:33:ARG:CD    | 1.72        | 1.18     |
| 17:Y:101:LEU:CD2 | 17:Y:103:LEU:CD2  | 2.20        | 1.18     |
| 17:Y:64:ASN:O    | 17:Y:72:ILE:HG23  | 1.41        | 1.18     |
| 2:A:2403:C:N4    | 2:A:2415:G:O6     | 1.63        | 1.18     |
| 2:A:2528:U:C5    | 2:A:2530:A:C4     | 2.30        | 1.18     |
| 2:A:2746:U:O2    | 2:A:2759:G:N2     | 1.74        | 1.18     |
| 4:E:200:ASP:HA   | 4:E:266:LYS:HD2   | 1.22        | 1.18     |
| 7:H:86:LEU:HD13  | 7:H:86:LEU:C      | 1.63        | 1.18     |
| 19:R:33:ARG:HA   | 19:R:114:VAL:O    | 1.42        | 1.18     |
| 2:A:1789:A:H4'   | 3:D:224:VAL:HG11  | 1.21        | 1.18     |
| 27:6:19:GLY:HA2  | 27:6:44:ALA:CB    | 1.73        | 1.18     |
| 29:8:36:LYS:CD   | 29:8:40:GLU:OE1   | 1.90        | 1.18     |
| 2:A:2573:C:C5'   | 2:A:2573:C:C6     | 2.24        | 1.18     |
| 2:A:2718:G:H2'   | 2:A:2719:G:C8     | 1.77        | 1.18     |
| 3:D:92:LEU:CD1   | 3:D:102:TYR:CE1   | 2.26        | 1.18     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:V:4:ILE:CD1   | 21:V:13:ARG:HG2  | 1.74        | 1.18     |
| 21:V:91:THR:C    | 21:V:92:ALA:CA   | 2.11        | 1.18     |
| 23:3:8:LEU:HD21  | 23:3:31:LEU:HA   | 1.26        | 1.18     |
| 29:8:7:HIS:O     | 29:8:10:ALA:HB3  | 1.40        | 1.18     |
| 4:E:214:VAL:HG21 | 4:E:221:LYS:NZ   | 1.56        | 1.18     |
| 11:P:117:GLU:OE2 | 11:P:136:ALA:O   | 1.61        | 1.18     |
| 12:Q:144:THR:OG1 | 12:Q:145:PRO:HD3 | 1.42        | 1.18     |
| 15:W:104:THR:O   | 15:W:105:VAL:CG1 | 1.92        | 1.18     |
| 8:I:95:SER:HA    | 8:I:98:ILE:CD1   | 1.72        | 1.18     |
| 2:A:1404:C:O3'   | 2:A:1405:U:P     | 2.02        | 1.18     |
| 16:X:18:MET:SD   | 16:X:25:GLN:N    | 2.15        | 1.18     |
| 2:A:1612:C:C2    | 28:7:3:ARG:NH1   | 2.11        | 1.17     |
| 2:A:2583:G:H2'   | 2:A:2584:U:O2    | 1.04        | 1.17     |
| 2:A:2739:U:H2'   | 2:A:2740:A:H5'   | 1.26        | 1.17     |
| 2:A:637:A:H8     | 11:P:111:ALA:CB  | 1.57        | 1.17     |
| 7:H:87:GLU:HG3   | 7:H:162:ARG:O    | 1.43        | 1.17     |
| 12:Q:69:ASN:HD22 | 12:Q:69:ASN:C    | 1.45        | 1.17     |
| 13:S:99:GLU:OE1  | 13:S:128:ASP:HB2 | 1.02        | 1.17     |
| 2:A:2302:G:C6    | 2:A:2315:G:O6    | 1.95        | 1.17     |
| 2:A:2330:G:N1    | 2:A:2385:C:N4    | 1.91        | 1.17     |
| 3:D:128:ALA:HB3  | 3:D:190:THR:CG2  | 1.54        | 1.17     |
| 10:O:34:ASN:O    | 10:O:35:ILE:O    | 1.62        | 1.17     |
| 18:Z:46:GLN:O    | 18:Z:47:SER:O    | 1.62        | 1.17     |
| 16:X:5:ILE:HG22  | 16:X:6:LYS:N     | 1.25        | 1.17     |
| 16:X:11:THR:O    | 16:X:15:MET:CG   | 1.91        | 1.17     |
| 23:3:20:LYS:O    | 23:3:23:LEU:HG   | 1.01        | 1.17     |
| 2:A:2400:G:O3'   | 27:6:20:PHE:CZ   | 1.97        | 1.17     |
| 27:6:41:ASP:HB2  | 27:6:46:LYS:NZ   | 1.55        | 1.17     |
| 2:A:1368:G:P     | 28:7:25:LYS:HZ2  | 1.66        | 1.17     |
| 2:A:2296:U:O4    | 13:S:15:GLU:O    | 1.59        | 1.17     |
| 2:A:2653:U:N3    | 2:A:2654:A:N6    | 1.92        | 1.17     |
| 2:A:2684:U:C1'   | 10:O:70:ARG:NH2  | 2.06        | 1.17     |
| 4:E:72:VAL:O     | 4:E:73:ILE:CD1   | 1.93        | 1.17     |
| 7:H:86:LEU:N     | 7:H:131:ILE:CG2  | 2.05        | 1.17     |
| 2:A:1022:G:O5'   | 9:N:52:GLN:OE1   | 1.60        | 1.17     |
| 11:P:57:VAL:HG12 | 11:P:58:GLN:N    | 1.50        | 1.17     |
| 11:P:76:LEU:O    | 11:P:81:VAL:HG23 | 1.41        | 1.17     |
| 21:V:61:VAL:CA   | 21:V:98:ILE:CD1  | 2.23        | 1.17     |
| 2:A:931:G:OP1    | 23:3:27:GLY:HA2  | 1.44        | 1.17     |
| 2:A:2287:A:H2    | 2:A:2289:G:C1'   | 1.33        | 1.17     |
| 2:A:2546:U:H5'   | 2:A:2565:A:C2    | 1.79        | 1.17     |
| 2:A:2644:G:C8    | 2:A:2644:G:O5'   | 1.98        | 1.17     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2865:U:C5     | 2:A:2866:U:C5     | 2.33        | 1.17     |
| 4:E:44:TYR:C      | 4:E:309:PRO:HG3   | 1.63        | 1.17     |
| 5:F:62:GLY:CA     | 5:F:65:ARG:NH2    | 2.06        | 1.17     |
| 7:H:129:LYS:O     | 7:H:130:ILE:CD1   | 1.93        | 1.17     |
| 7:H:86:LEU:HA     | 7:H:148:ARG:NH2   | 0.86        | 1.17     |
| 13:S:27:LEU:CB    | 13:S:33:ARG:NH2   | 2.05        | 1.17     |
| 13:S:33:ARG:O     | 13:S:35:VAL:HG23  | 1.42        | 1.17     |
| 17:Y:101:LEU:HD11 | 17:Y:112:LEU:CD1  | 1.74        | 1.17     |
| 8:I:92:SER:HB3    | 8:I:122:ARG:NH1   | 1.58        | 1.17     |
| 2:A:1525:G:O3'    | 2:A:1526:G:P      | 2.02        | 1.17     |
| 24:O:49:GLN:NE2   | 24:O:73:GLY:HA3   | 1.39        | 1.17     |
| 23:3:59:VAL:O     | 23:3:60:GLU:CG    | 1.92        | 1.17     |
| 26:5:12:SER:CB    | 26:5:15:LYS:HZ1   | 1.57        | 1.17     |
| 2:A:2219:G:C2'    | 2:A:2224:G:C5'    | 2.21        | 1.17     |
| 2:A:2255:G:C2     | 2:A:2256:G:H1'    | 1.77        | 1.17     |
| 2:A:2618:G:O2'    | 2:A:2619:C:O5'    | 1.61        | 1.17     |
| 2:A:2735:G:C6     | 2:A:2770:G:N2     | 2.12        | 1.17     |
| 1:B:42:C:O2'      | 6:G:47:GLN:HA     | 1.44        | 1.17     |
| 9:N:13:ASP:N      | 9:N:38:VAL:HG11   | 1.51        | 1.17     |
| 2:A:2275:C:O2     | 12:Q:103:ALA:CB   | 1.93        | 1.17     |
| 17:Y:103:LEU:CD1  | 17:Y:113:GLU:HB3  | 1.74        | 1.17     |
| 18:Z:19:ILE:HB    | 18:Z:39:PHE:CE1   | 1.79        | 1.17     |
| 24:O:65:GLY:O     | 24:O:66:LYS:CD    | 1.86        | 1.17     |
| 28:7:30:ILE:CD1   | 28:7:33:ARG:HD3   | 1.75        | 1.17     |
| 2:A:2679:A:H2     | 4:E:300:VAL:CG2   | 1.55        | 1.17     |
| 2:A:2756:U:O2'    | 2:A:2757:A:H5'    | 1.02        | 1.17     |
| 2:A:2776:A:C1'    | 2:A:2778:A:N7     | 2.08        | 1.17     |
| 4:E:205:THR:CG2   | 4:E:259:HIS:C     | 2.11        | 1.17     |
| 5:F:36:ARG:CA     | 5:F:39:GLN:NE2    | 2.01        | 1.17     |
| 15:W:8:ARG:O      | 15:W:10:VAL:HG23  | 1.43        | 1.17     |
| 17:Y:101:LEU:CD2  | 17:Y:112:LEU:HD11 | 1.74        | 1.17     |
| 8:I:95:SER:OG     | 8:I:98:ILE:CD1    | 1.79        | 1.17     |
| 8:I:95:SER:CA     | 8:I:98:ILE:HD12   | 1.75        | 1.17     |
| 24:O:45:PHE:CZ    | 24:O:78:PHE:HD2   | 1.62        | 1.17     |
| 2:A:2043:C:C5     | 2:A:2777:G:H1'    | 1.79        | 1.17     |
| 2:A:2359:C:O2'    | 2:A:2360:A:O4'    | 1.61        | 1.17     |
| 2:A:2423:U:C5     | 2:A:2425:A:N6     | 2.12        | 1.17     |
| 2:A:2506:U:O3'    | 2:A:2507:C:P      | 2.01        | 1.17     |
| 2:A:2543:G:C2'    | 2:A:2544:G:C8     | 2.26        | 1.17     |
| 2:A:2545:G:O2'    | 2:A:2546:U:O5'    | 1.61        | 1.17     |
| 2:A:2754:U:H2'    | 2:A:2756:U:OP1    | 0.99        | 1.17     |
| 7:H:18:VAL:CG2    | 7:H:23:VAL:HG22   | 1.73        | 1.17     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 23:3:40:THR:CB   | 23:3:43:ILE:HD13  | 1.74        | 1.17     |
| 2:A:2263:C:C2'   | 2:A:2264:C:H5'    | 1.74        | 1.17     |
| 2:A:2334:G:N3    | 13:S:20:TYR:OH    | 1.77        | 1.17     |
| 2:A:2603:G:N3    | 2:A:2604:U:C6     | 2.13        | 1.17     |
| 2:A:2838:G:H2'   | 2:A:2839:G:H5'    | 1.26        | 1.17     |
| 2:A:1140:C:C5    | 9:N:49:ARG:CG     | 2.27        | 1.17     |
| 13:S:41:LYS:O    | 13:S:41:LYS:CD    | 1.93        | 1.17     |
| 2:A:25:U:C5'     | 15:W:80:PRO:HD3   | 1.74        | 1.17     |
| 18:Z:2:GLU:N     | 18:Z:54:ILE:CG2   | 2.06        | 1.17     |
| 2:A:1214:A:H2'   | 2:A:1215:G:C8     | 1.80        | 1.17     |
| 2:A:2226:C:C2'   | 2:A:2227:A:O4'    | 1.93        | 1.17     |
| 2:A:2333:A:H1'   | 2:A:2335:A:C5     | 1.80        | 1.17     |
| 2:A:2482:G:C2'   | 2:A:2483:C:H5'    | 1.74        | 1.17     |
| 2:A:2447:G:C5    | 2:A:2500:U:H5     | 1.59        | 1.17     |
| 2:A:2657:A:N6    | 2:A:2664:G:H21    | 1.39        | 1.17     |
| 2:A:2688:U:O2    | 2:A:2719:G:N2     | 1.76        | 1.17     |
| 4:E:303:PRO:CB   | 4:E:307:LEU:HD13  | 1.46        | 1.17     |
| 17:Y:41:ARG:HB2  | 17:Y:112:LEU:HA   | 1.24        | 1.17     |
| 18:Z:2:GLU:CA    | 18:Z:54:ILE:CG2   | 2.23        | 1.17     |
| 2:A:2228:G:N7    | 2:A:2229:C:C6     | 2.12        | 1.17     |
| 2:A:2754:U:C2'   | 2:A:2756:U:OP1    | 1.93        | 1.17     |
| 8:I:3:VAL:HG21   | 8:I:21:VAL:CG2    | 1.74        | 1.17     |
| 9:N:58:GLU:CA    | 9:N:61:VAL:HG23   | 1.74        | 1.17     |
| 25:4:14:ILE:HG23 | 25:4:16:TYR:CE1   | 1.80        | 1.16     |
| 30:9:7:VAL:HG11  | 30:9:34:GLN:CG    | 1.61        | 1.16     |
| 2:A:2209:C:O2'   | 2:A:2210:G:H3'    | 1.43        | 1.16     |
| 2:A:2292:C:C2    | 2:A:2293:C:C6     | 2.32        | 1.16     |
| 2:A:2700:C:H2'   | 2:A:2701:C:H4'    | 1.24        | 1.16     |
| 2:A:396:G:O2'    | 25:4:39:VAL:HG13  | 1.01        | 1.16     |
| 3:D:73:ILE:HG21  | 3:D:95:TYR:CE2    | 1.78        | 1.16     |
| 20:U:115:ASN:O   | 20:U:117:ARG:N    | 1.78        | 1.16     |
| 17:Y:35:TYR:OH   | 17:Y:113:GLU:HG3  | 1.43        | 1.16     |
| 24:0:69:PHE:O    | 24:0:70:ILE:HG23  | 1.42        | 1.16     |
| 2:A:2021:C:P     | 26:5:15:LYS:HE3   | 1.85        | 1.16     |
| 2:A:2328:A:N6    | 2:A:2329:G:O6     | 1.78        | 1.16     |
| 12:Q:20:ILE:HG13 | 12:Q:21:SER:N     | 1.59        | 1.16     |
| 15:W:86:LEU:HB3  | 15:W:87:PRO:CD    | 1.74        | 1.16     |
| 17:Y:101:LEU:CD2 | 17:Y:103:LEU:HD11 | 1.74        | 1.16     |
| 8:I:95:SER:O     | 8:I:98:ILE:HB     | 0.98        | 1.16     |
| 2:A:1751:C:O3'   | 2:A:1752:C:P      | 2.02        | 1.16     |
| 2:A:2094:G:C6    | 2:A:2196:C:N3     | 2.14        | 1.16     |
| 2:A:199:A:N1     | 2:A:2433:A:C8     | 2.12        | 1.16     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2603:G:C2     | 2:A:2604:U:C6    | 2.33        | 1.16     |
| 2:A:2603:G:C2     | 2:A:2604:U:C5    | 2.33        | 1.16     |
| 2:A:2617:C:N3     | 2:A:2618:G:H8    | 1.40        | 1.16     |
| 2:A:2731:G:N2     | 2:A:2732:G:N2    | 1.93        | 1.16     |
| 2:A:2864:G:O2'    | 2:A:2865:U:O4'   | 1.62        | 1.16     |
| 2:A:474:G:O3'     | 2:A:475:U:P      | 2.03        | 1.16     |
| 3:D:158:GLY:CA    | 3:D:194:VAL:CG1  | 2.17        | 1.16     |
| 2:A:2679:A:N3     | 4:E:300:VAL:HG11 | 1.61        | 1.16     |
| 6:G:97:GLN:CB     | 6:G:106:PHE:CE2  | 2.27        | 1.16     |
| 10:O:99:PHE:HE2   | 14:T:24:LYS:CE   | 1.25        | 1.16     |
| 2:A:2018:G:N2     | 20:U:34:ASN:HD21 | 1.33        | 1.16     |
| 17:Y:48:VAL:HG12  | 17:Y:49:GLU:N    | 1.46        | 1.16     |
| 23:3:20:LYS:CA    | 23:3:23:LEU:HG   | 1.75        | 1.16     |
| 28:7:30:ILE:CA    | 28:7:33:ARG:CD   | 2.11        | 1.16     |
| 2:A:2358:G:N2     | 2:A:2359:C:O4'   | 1.78        | 1.16     |
| 2:A:2561:A:O2'    | 10:O:40:VAL:CG1  | 1.93        | 1.16     |
| 2:A:564:C:OP1     | 21:V:79:GLN:CG   | 1.91        | 1.16     |
| 5:F:211:ASP:O     | 5:F:211:ASP:OD2  | 1.61        | 1.16     |
| 10:O:56:GLN:O     | 10:O:58:VAL:HG23 | 1.45        | 1.16     |
| 15:W:32:ALA:CB    | 15:W:35:ILE:CD1  | 2.23        | 1.16     |
| 18:Z:113:VAL:HG12 | 18:Z:114:ASP:H   | 1.04        | 1.16     |
| 18:Z:39:PHE:O     | 18:Z:43:PHE:CD2  | 1.99        | 1.16     |
| 26:5:25:LEU:O     | 26:5:26:THR:HG23 | 1.44        | 1.16     |
| 26:5:44:HIS:HA    | 26:5:52:TYR:CZ   | 1.81        | 1.16     |
| 26:5:45:ILE:HG13  | 26:5:52:TYR:CE1  | 1.79        | 1.16     |
| 2:A:1818:U:C5'    | 3:D:155:ARG:CG   | 2.22        | 1.16     |
| 2:A:2450:A:H5''   | 2:A:2497:A:N6    | 0.85        | 1.16     |
| 2:A:2586:C:O2     | 2:A:2587:A:N7    | 1.77        | 1.16     |
| 2:A:2653:U:N3     | 2:A:2654:A:C6    | 2.14        | 1.16     |
| 4:E:199:ALA:CB    | 4:E:312:ARG:O    | 1.92        | 1.16     |
| 5:F:219:ASN:N     | 5:F:219:ASN:HD22 | 1.38        | 1.16     |
| 6:G:93:LEU:HD22   | 6:G:97:GLN:OE1   | 1.44        | 1.16     |
| 7:H:10:ILE:HG23   | 7:H:14:VAL:HG11  | 1.17        | 1.16     |
| 12:Q:49:VAL:CG2   | 12:Q:119:ASN:O   | 1.92        | 1.16     |
| 23:3:59:VAL:HG12  | 23:3:60:GLU:H    | 1.04        | 1.16     |
| 26:5:57:VAL:HG12  | 26:5:58:LEU:N    | 1.55        | 1.16     |
| 2:A:2049:G:C2     | 2:A:2620:C:N3    | 2.14        | 1.16     |
| 2:A:2636:U:H4'    | 4:E:84:ARG:NH2   | 1.57        | 1.16     |
| 2:A:2312:U:C5'    | 6:G:53:LYS:HA    | 1.73        | 1.16     |
| 11:P:128:GLY:CA   | 11:P:132:LYS:HZ2 | 1.58        | 1.16     |
| 20:U:13:ARG:O     | 20:U:16:LYS:CB   | 1.93        | 1.16     |
| 17:Y:32:ARG:O     | 17:Y:34:GLU:N    | 1.77        | 1.16     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 22:2:13:PRO:HD3  | 22:2:16:ARG:NH1   | 1.60        | 1.16     |
| 2:A:1078:U:P     | 31:K:93:LYS:HG3   | 1.84        | 1.16     |
| 2:A:1162:G:H4'   | 21:V:23:GLU:HB2   | 1.17        | 1.16     |
| 2:A:2491:U:O2'   | 2:A:2492:U:H5'    | 1.02        | 1.16     |
| 3:D:66:PHE:O     | 3:D:67:LYS:HD2    | 1.41        | 1.16     |
| 5:F:219:ASN:O    | 5:F:222:ASP:HB2   | 1.02        | 1.16     |
| 7:H:75:VAL:O     | 7:H:77:GLY:N      | 1.75        | 1.16     |
| 9:N:135:ILE:O    | 9:N:139:LEU:HD13  | 1.34        | 1.16     |
| 2:A:29:U:C5'     | 20:U:11:ARG:HH12  | 1.57        | 1.16     |
| 20:U:21:ALA:HA   | 20:U:24:PHE:CZ    | 1.78        | 1.16     |
| 21:V:30:GLY:O    | 21:V:33:VAL:CG2   | 1.91        | 1.16     |
| 2:A:2212:A:H2'   | 2:A:2213:U:C5     | 1.77        | 1.16     |
| 2:A:2287:A:O2'   | 2:A:2288:A:OP2    | 1.61        | 1.16     |
| 2:A:2317:C:H5'   | 6:G:150:SER:CA    | 1.75        | 1.16     |
| 2:A:2432:A:C2    | 2:A:2433:A:N1     | 2.13        | 1.16     |
| 2:A:2768:C:C2    | 2:A:2769:C:C5     | 2.33        | 1.16     |
| 2:A:649:G:O3'    | 29:8:17:THR:HG21  | 1.45        | 1.16     |
| 3:D:168:GLY:O    | 3:D:170:TYR:N     | 1.79        | 1.16     |
| 3:D:80:ILE:HB    | 3:D:82:TYR:CE1    | 1.81        | 1.16     |
| 6:G:29:HIS:N     | 6:G:69:ILE:HD13   | 1.59        | 1.16     |
| 7:H:93:TYR:O     | 7:H:94:ARG:CG     | 1.92        | 1.16     |
| 12:Q:45:GLN:HE22 | 12:Q:153:PRO:CB   | 1.57        | 1.16     |
| 12:Q:59:ASN:ND2  | 12:Q:60:ALA:N     | 1.93        | 1.16     |
| 12:Q:89:PRO:C    | 12:Q:90:PHE:CD1   | 2.17        | 1.16     |
| 17:Y:101:LEU:CD2 | 17:Y:103:LEU:CD1  | 2.24        | 1.16     |
| 9:N:10:VAL:CB    | 9:N:36:VAL:HA     | 1.76        | 1.16     |
| 3:D:223:ASN:O    | 3:D:224:VAL:O     | 1.63        | 1.16     |
| 16:X:13:LYS:O    | 16:X:16:ASN:OD1   | 1.64        | 1.16     |
| 3:D:139:LEU:CD1  | 3:D:139:LEU:O     | 1.93        | 1.16     |
| 16:X:47:VAL:HG11 | 16:X:69:SER:HB3   | 1.20        | 1.16     |
| 2:A:2459:A:C8    | 2:A:2460:U:C5     | 2.33        | 1.16     |
| 2:A:2592:G:C8    | 2:A:2593:U:C5     | 2.34        | 1.16     |
| 3:D:104:ILE:N    | 3:D:104:ILE:HD12  | 1.57        | 1.16     |
| 12:Q:91:HIS:C    | 12:Q:111:THR:HG23 | 1.66        | 1.16     |
| 20:U:13:ARG:NH1  | 20:U:13:ARG:HB2   | 0.83        | 1.16     |
| 21:V:11:GLN:NE2  | 21:V:22:VAL:HG21  | 1.54        | 1.16     |
| 17:Y:63:ILE:HD11 | 17:Y:75:GLU:CA    | 1.74        | 1.16     |
| 23:3:53:LEU:HD23 | 23:3:54:VAL:HG13  | 1.28        | 1.16     |
| 2:A:2741:A:O2'   | 2:A:2742:C:H5'    | 1.00        | 1.16     |
| 2:A:2785:C:C5'   | 4:E:99:VAL:HA     | 1.75        | 1.16     |
| 8:I:7:LYS:CD     | 8:I:12:LYS:HG2    | 1.75        | 1.16     |
| 20:U:92:ARG:HA   | 20:U:95:LEU:HD12  | 1.21        | 1.16     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 21:V:5:ILE:HG23  | 21:V:39:PHE:CA    | 1.67        | 1.16     |
| 2:A:974:G:O3'    | 21:V:82:ARG:NH2   | 1.78        | 1.16     |
| 29:8:58:MET:O    | 29:8:60:LEU:N     | 1.77        | 1.15     |
| 2:A:1128:A:C6    | 2:A:2518:A:N6     | 2.14        | 1.15     |
| 4:E:218:GLY:O    | 4:E:219:VAL:CG2   | 1.94        | 1.15     |
| 5:F:51:TYR:O     | 5:F:55:ARG:CA     | 1.94        | 1.15     |
| 20:U:28:ARG:HA   | 20:U:31:GLN:HB2   | 1.18        | 1.15     |
| 17:Y:101:LEU:CD2 | 17:Y:112:LEU:HD21 | 1.76        | 1.15     |
| 29:8:17:THR:OG1  | 29:8:19:THR:OG1   | 1.63        | 1.15     |
| 2:A:2633:G:N3    | 2:A:2634:G:C8     | 2.15        | 1.15     |
| 2:A:911:A:C4     | 12:Q:16:ARG:CG    | 2.18        | 1.15     |
| 5:F:96:LYS:CB    | 5:F:98:ARG:CZ     | 1.80        | 1.15     |
| 10:O:66:LYS:HG3  | 10:O:82:ASN:HD21  | 1.01        | 1.15     |
| 10:O:98:ILE:CD1  | 10:O:117:LEU:CB   | 2.23        | 1.15     |
| 2:A:1826:G:OP1   | 3:D:227:VAL:CG2   | 1.91        | 1.15     |
| 3:D:204:PHE:HD1  | 3:D:204:PHE:N     | 1.43        | 1.15     |
| 24:O:77:ARG:O    | 24:O:78:PHE:O     | 1.62        | 1.15     |
| 5:F:144:PHE:CE2  | 5:F:156:LEU:HD13  | 1.80        | 1.15     |
| 9:N:42:GLU:O     | 9:N:132:LEU:O     | 1.61        | 1.15     |
| 10:O:98:ILE:HD11 | 10:O:117:LEU:CB   | 1.71        | 1.15     |
| 2:A:2674:G:H4'   | 10:O:30:ARG:HG2   | 1.16        | 1.15     |
| 12:Q:67:ALA:O    | 12:Q:71:PHE:CE1   | 1.98        | 1.15     |
| 17:Y:101:LEU:CD1 | 17:Y:112:LEU:CD1  | 2.25        | 1.15     |
| 26:5:45:ILE:CG2  | 26:5:52:TYR:CD1   | 2.28        | 1.15     |
| 2:A:1665:A:H5''  | 10:O:66:LYS:HD3   | 1.24        | 1.15     |
| 2:A:2333:A:OP2   | 13:S:13:ARG:NH1   | 1.80        | 1.15     |
| 2:A:593:G:H5''   | 29:8:62:LEU:HD21  | 1.22        | 1.15     |
| 20:U:99:ALA:CB   | 20:U:106:PHE:CZ   | 2.28        | 1.15     |
| 1:B:75:G:H1'     | 18:Z:22:VAL:CG2   | 1.77        | 1.15     |
| 2:A:2776:A:N3    | 2:A:2778:A:C5     | 2.15        | 1.15     |
| 2:A:1568:G:C4'   | 3:D:60:GLN:HE21   | 1.59        | 1.15     |
| 6:G:19:GLU:OE1   | 6:G:135:VAL:HG22  | 1.43        | 1.15     |
| 9:N:138:THR:OG1  | 9:N:139:LEU:HD13  | 1.43        | 1.15     |
| 19:R:52:ILE:HG22 | 19:R:53:HIS:N     | 1.54        | 1.15     |
| 2:A:2215:G:O2'   | 2:A:2216:G:H5'    | 1.41        | 1.15     |
| 2:A:1953:A:N3    | 2:A:2560:C:H1'    | 1.59        | 1.15     |
| 2:A:2761:G:H2'   | 2:A:2762:G:H5'    | 1.19        | 1.15     |
| 3:D:85:ASN:OD1   | 3:D:86:ARG:NH2    | 1.78        | 1.15     |
| 4:E:268:LEU:HD23 | 4:E:269:ILE:H     | 0.99        | 1.15     |
| 4:E:74:GLU:CA    | 4:E:293:TYR:HE2   | 1.57        | 1.15     |
| 5:F:34:ALA:CB    | 5:F:110:ALA:HB1   | 1.74        | 1.15     |
| 10:O:62:VAL:CA   | 10:O:84:CYS:SG    | 2.34        | 1.15     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 13:S:31:LYS:HD2   | 13:S:99:GLU:O    | 1.22        | 1.15     |
| 20:U:61:TRP:O     | 20:U:65:ILE:HG12 | 1.00        | 1.15     |
| 17:Y:46:ASP:HA    | 17:Y:102:ASP:OD2 | 0.99        | 1.15     |
| 22:2:29:ASN:O     | 22:2:34:GLN:CD   | 1.85        | 1.15     |
| 16:X:6:LYS:HE3    | 16:X:29:ASP:N    | 1.60        | 1.15     |
| 5:F:151:GLN:OE1   | 5:F:154:VAL:CG2  | 1.95        | 1.15     |
| 2:A:125:G:H3'     | 28:7:19:ARG:NH1  | 1.62        | 1.15     |
| 2:A:2197:U:O2'    | 2:A:2198:A:H5''  | 1.42        | 1.15     |
| 2:A:2507:C:N3     | 2:A:2583:G:N3    | 1.95        | 1.15     |
| 2:A:2768:C:N3     | 2:A:2769:C:H5    | 1.15        | 1.15     |
| 3:D:183:ILE:HG22  | 3:D:184:LEU:N    | 1.31        | 1.15     |
| 4:E:205:THR:CG2   | 4:E:259:HIS:CB   | 2.24        | 1.15     |
| 5:F:3:ALA:HB3     | 5:F:16:VAL:O     | 0.98        | 1.15     |
| 12:Q:56:ILE:HD13  | 12:Q:56:ILE:N    | 1.48        | 1.15     |
| 20:U:44:THR:O     | 20:U:47:TYR:HB2  | 1.45        | 1.15     |
| 21:V:31:ASP:O     | 21:V:63:HIS:HB2  | 1.46        | 1.15     |
| 2:A:2373:G:C6     | 2:A:2374:C:N4    | 2.15        | 1.15     |
| 4:E:174:LEU:O     | 4:E:177:ALA:HB3  | 1.40        | 1.15     |
| 5:F:153:VAL:HG13  | 5:F:157:LEU:CD2  | 1.74        | 1.15     |
| 11:P:114:VAL:HG23 | 11:P:132:LYS:HB3 | 1.23        | 1.15     |
| 12:Q:51:GLU:HA    | 12:Q:118:ALA:HB2 | 1.26        | 1.15     |
| 2:A:1223:C:C4     | 21:V:87:ARG:NH2  | 2.14        | 1.15     |
| 2:A:1078:U:OP1    | 31:K:93:LYS:CE   | 1.93        | 1.15     |
| 23:3:30:ARG:HG3   | 23:3:30:ARG:HH11 | 1.04        | 1.15     |
| 2:A:2580:U:H5     | 2:A:2581:G:N7    | 1.33        | 1.15     |
| 2:A:2592:G:C5     | 2:A:2593:U:C5    | 2.35        | 1.15     |
| 2:A:2832:U:H5'    | 2:A:2832:U:C5    | 1.82        | 1.15     |
| 3:D:141:HIS:CE1   | 3:D:191:VAL:O    | 1.99        | 1.15     |
| 6:G:93:LEU:HD22   | 6:G:106:PHE:CD2  | 1.80        | 1.15     |
| 12:Q:57:ARG:O     | 12:Q:61:LEU:HG   | 1.47        | 1.15     |
| 19:R:104:ARG:HA   | 19:R:105:ARG:NH2 | 1.61        | 1.15     |
| 17:Y:101:LEU:HG   | 17:Y:112:LEU:CD1 | 1.76        | 1.15     |
| 18:Z:64:ALA:HB3   | 18:Z:85:MET:CA   | 1.75        | 1.15     |
| 25:4:5:LEU:CB     | 25:4:56:VAL:HG13 | 1.76        | 1.15     |
| 4:E:205:THR:HA    | 4:E:261:ARG:HD2  | 1.22        | 1.15     |
| 4:E:205:THR:HG22  | 4:E:259:HIS:HB2  | 1.26        | 1.15     |
| 5:F:47:GLY:C      | 5:F:92:PRO:HG3   | 1.63        | 1.15     |
| 7:H:159:LYS:H     | 7:H:162:ARG:NH2  | 1.43        | 1.15     |
| 13:S:47:LEU:HD12  | 13:S:58:LEU:CD2  | 1.76        | 1.15     |
| 18:Z:112:LEU:HD23 | 18:Z:113:VAL:N   | 1.61        | 1.15     |
| 24:0:23:VAL:HG12  | 24:0:24:LYS:H    | 1.07        | 1.14     |
| 24:0:61:ALA:HB2   | 24:0:81:ILE:HD13 | 1.28        | 1.14     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 23:3:20:LYS:CA   | 23:3:23:LEU:CD1   | 2.24        | 1.14     |
| 2:A:2815:C:O2'   | 2:A:2816:C:C5'    | 1.94        | 1.14     |
| 4:E:211:GLN:NE2  | 4:E:216:ARG:H     | 1.40        | 1.14     |
| 7:H:63:LEU:O     | 7:H:66:THR:HG22   | 1.45        | 1.14     |
| 9:N:134:GLU:O    | 9:N:138:THR:HG23  | 0.97        | 1.14     |
| 9:N:15:ARG:NE    | 9:N:40:ASN:ND2    | 1.95        | 1.14     |
| 11:P:71:GLU:O    | 11:P:74:THR:N     | 1.80        | 1.14     |
| 20:U:73:GLY:O    | 20:U:74:MET:HG2   | 1.47        | 1.14     |
| 2:A:2410:G:N3    | 2:A:2411:A:C8     | 2.15        | 1.14     |
| 2:A:2432:A:H2    | 2:A:2433:A:C5     | 1.64        | 1.14     |
| 7:H:44:VAL:HA    | 7:H:49:ILE:CG2    | 1.78        | 1.14     |
| 7:H:85:ALA:HA    | 7:H:131:ILE:CG2   | 1.75        | 1.14     |
| 9:N:20:GLY:O     | 9:N:22:VAL:N      | 1.79        | 1.14     |
| 10:O:64:ARG:NH2  | 10:O:100:GLY:HA3  | 1.62        | 1.14     |
| 18:Z:103:ARG:HG2 | 18:Z:139:THR:HG22 | 1.17        | 1.14     |
| 29:8:26:LYS:HD2  | 29:8:44:LYS:C     | 1.67        | 1.14     |
| 2:A:1034:G:OP2   | 30:9:18:ARG:NH2   | 1.81        | 1.14     |
| 2:A:2205:C:O2'   | 2:A:2228:G:N2     | 1.81        | 1.14     |
| 2:A:2265:U:C2    | 2:A:2266:A:N7     | 2.15        | 1.14     |
| 2:A:2626:C:C2'   | 2:A:2627:G:H5''   | 1.78        | 1.14     |
| 2:A:2769:C:H2'   | 2:A:2770:G:O5'    | 1.36        | 1.14     |
| 3:D:175:LEU:HD12 | 3:D:179:GLU:CB    | 1.77        | 1.14     |
| 4:E:44:TYR:C     | 4:E:74:GLU:OE1    | 1.84        | 1.14     |
| 4:E:48:MET:O     | 4:E:49:THR:HG22   | 1.48        | 1.14     |
| 5:F:215:ALA:HB1  | 5:F:241:ALA:HB3   | 1.20        | 1.14     |
| 7:H:129:LYS:C    | 7:H:130:ILE:CD1   | 2.15        | 1.14     |
| 20:U:8:ILE:N     | 20:U:8:ILE:HD12   | 1.61        | 1.14     |
| 24:0:37:LEU:CD1  | 24:0:70:ILE:CD1   | 2.24        | 1.14     |
| 26:5:18:MET:O    | 26:5:21:SER:OG    | 1.62        | 1.14     |
| 2:A:1021:A:C8    | 9:N:49:ARG:NH1    | 2.15        | 1.14     |
| 2:A:2259:G:N2    | 2:A:2282:G:C4     | 2.14        | 1.14     |
| 2:A:2528:U:C5    | 2:A:2530:A:N3     | 2.14        | 1.14     |
| 2:A:1818:U:C3'   | 3:D:155:ARG:HG2   | 1.76        | 1.14     |
| 5:F:32:GLY:C     | 5:F:35:VAL:HG23   | 1.66        | 1.14     |
| 5:F:51:TYR:O     | 5:F:55:ARG:HB3    | 1.44        | 1.14     |
| 9:N:45:VAL:N     | 9:N:132:LEU:HB2   | 1.24        | 1.14     |
| 8:I:95:SER:O     | 8:I:98:ILE:CB     | 1.94        | 1.14     |
| 3:D:61:TYR:OH    | 3:D:214:MET:CE    | 1.96        | 1.14     |
| 2:A:148:C:O3'    | 2:A:149:A:P       | 2.06        | 1.14     |
| 22:2:55:ARG:O    | 22:2:58:THR:OG1   | 1.65        | 1.14     |
| 16:X:47:VAL:CG1  | 16:X:69:SER:CB    | 2.24        | 1.14     |
| 23:3:18:ASP:OD2  | 23:3:49:LYS:NZ    | 1.80        | 1.14     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 30:9:32:HIS:O    | 30:9:34:GLN:N    | 1.79        | 1.14     |
| 2:A:2258:C:N4    | 2:A:2426:A:C1'   | 2.11        | 1.14     |
| 2:A:2717:G:C5'   | 2:A:2717:G:H8    | 1.59        | 1.14     |
| 2:A:85:G:O5'     | 17:Y:65:VAL:HG11 | 1.44        | 1.14     |
| 2:A:1818:U:O5'   | 3:D:155:ARG:CG   | 1.95        | 1.14     |
| 2:A:1799:G:C6    | 3:D:177:SER:HB2  | 1.82        | 1.14     |
| 5:F:147:LEU:HD11 | 5:F:156:LEU:HD11 | 1.15        | 1.14     |
| 5:F:52:ALA:CA    | 5:F:55:ARG:HB3   | 1.78        | 1.14     |
| 6:G:151:ILE:HD13 | 6:G:156:ARG:NH2  | 1.63        | 1.14     |
| 6:G:56:ARG:CG    | 6:G:65:GLU:HB2   | 1.77        | 1.14     |
| 10:O:77:ILE:C    | 10:O:77:ILE:HD13 | 1.58        | 1.14     |
| 12:Q:56:ILE:CD1  | 12:Q:56:ILE:H    | 1.47        | 1.14     |
| 19:R:61:HIS:CA   | 19:R:64:ARG:HD3  | 1.76        | 1.14     |
| 19:R:77:ARG:CB   | 19:R:77:ARG:NH1  | 1.72        | 1.14     |
| 13:S:35:VAL:CA   | 13:S:103:ASP:CB  | 2.25        | 1.14     |
| 18:Z:120:LEU:O   | 18:Z:121:GLN:HG3 | 1.46        | 1.14     |
| 30:9:3:VAL:O     | 30:9:5:SER:N     | 1.81        | 1.14     |
| 2:A:1675:C:N3    | 4:E:225:LYS:HG2  | 1.61        | 1.14     |
| 2:A:2292:C:N3    | 2:A:2293:C:C5    | 2.15        | 1.14     |
| 2:A:2425:A:O2'   | 2:A:2426:A:OP2   | 1.62        | 1.14     |
| 2:A:2842:G:H2'   | 2:A:2843:G:H5'   | 1.29        | 1.14     |
| 2:A:849:A:C2     | 23:3:21:ALA:CB   | 2.31        | 1.14     |
| 15:W:85:VAL:HG12 | 15:W:95:ILE:HD11 | 1.20        | 1.14     |
| 8:I:95:SER:OG    | 8:I:98:ILE:HD12  | 0.97        | 1.14     |
| 2:A:1917:U:H3'   | 2:A:1918:A:H8    | 1.02        | 1.14     |
| 2:A:940:G:O3'    | 2:A:941:A:P      | 2.04        | 1.14     |
| 24:O:39:ARG:HG2  | 24:O:69:PHE:CZ   | 1.81        | 1.14     |
| 2:A:2317:C:C5'   | 6:G:150:SER:HA   | 1.78        | 1.14     |
| 2:A:2626:C:C2'   | 2:A:2627:G:H5'   | 1.78        | 1.14     |
| 2:A:2821:A:H2    | 2:A:2822:G:C4    | 1.66        | 1.14     |
| 4:E:71:THR:HG21  | 4:E:299:SER:OG   | 1.47        | 1.14     |
| 5:F:47:GLY:N     | 5:F:92:PRO:HB2   | 1.60        | 1.14     |
| 5:F:94:THR:O     | 5:F:96:LYS:N     | 1.81        | 1.14     |
| 6:G:105:SER:OG   | 6:G:131:THR:CG2  | 1.95        | 1.14     |
| 12:Q:67:ALA:HB2  | 12:Q:70:ARG:CZ   | 1.76        | 1.14     |
| 2:A:458:G:H2'    | 28:7:40:HIS:CE1  | 1.82        | 1.14     |
| 2:A:2254:C:O2'   | 2:A:2255:G:H5'   | 1.46        | 1.14     |
| 2:A:965:C:H4'    | 2:A:2273:A:N3    | 1.63        | 1.14     |
| 3:D:80:ILE:HD13  | 3:D:82:TYR:CE1   | 1.81        | 1.14     |
| 6:G:76:ARG:O     | 6:G:77:ASP:O     | 1.64        | 1.14     |
| 7:H:137:LYS:CD   | 7:H:138:GLN:H    | 1.60        | 1.14     |
| 9:N:15:ARG:CB    | 9:N:43:ARG:CG    | 1.94        | 1.14     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:N:66:ASP:O     | 9:N:68:GLY:N      | 1.79        | 1.14     |
| 18:Z:105:GLN:C   | 18:Z:142:ASN:HD21 | 1.51        | 1.14     |
| 8:I:51:LYS:O     | 8:I:55:GLN:HG3    | 1.47        | 1.14     |
| 2:A:2801:A:C2    | 2:A:2895:U:O2'    | 2.00        | 1.14     |
| 2:A:2791:C:C5    | 2:A:2893:G:O6     | 1.99        | 1.14     |
| 4:E:77:PRO:HB2   | 4:E:187:HIS:N     | 1.62        | 1.14     |
| 2:A:637:A:C8     | 11:P:111:ALA:CB   | 2.31        | 1.14     |
| 11:P:113:GLN:N   | 11:P:113:GLN:NE2  | 1.95        | 1.14     |
| 20:U:88:ILE:CG2  | 21:V:55:THR:OG1   | 1.96        | 1.14     |
| 15:W:65:LEU:O    | 15:W:69:LEU:HD21  | 1.45        | 1.14     |
| 28:7:30:ILE:C    | 28:7:33:ARG:HB2   | 1.66        | 1.14     |
| 29:8:4:MET:HB2   | 29:8:7:HIS:CE1    | 1.83        | 1.14     |
| 2:A:2472:G:H2'   | 2:A:2475:C:N4     | 1.60        | 1.14     |
| 2:A:2678:C:N3    | 2:A:2679:A:C8     | 2.16        | 1.14     |
| 2:A:637:A:H8     | 11:P:111:ALA:HB2  | 0.99        | 1.14     |
| 3:D:167:GLU:CB   | 3:D:170:TYR:CE1   | 2.31        | 1.14     |
| 4:E:44:TYR:CA    | 4:E:309:PRO:CD    | 2.22        | 1.14     |
| 19:R:77:ARG:NH1  | 19:R:77:ARG:HB2   | 0.82        | 1.14     |
| 21:V:43:GLU:C    | 21:V:44:GLN:NE2   | 2.00        | 1.14     |
| 17:Y:73:HIS:C    | 17:Y:91:LEU:CD1   | 2.07        | 1.14     |
| 15:W:90:ARG:NH1  | 15:W:90:ARG:CB    | 2.10        | 1.14     |
| 9:N:105:LEU:HG   | 9:N:106:GLY:H     | 1.12        | 1.14     |
| 7:H:53:ARG:HH11  | 7:H:56:ASP:CA     | 1.60        | 1.14     |
| 24:0:37:LEU:CD1  | 24:0:70:ILE:HD13  | 1.78        | 1.13     |
| 23:3:8:LEU:HD23  | 23:3:31:LEU:HA    | 1.18        | 1.13     |
| 2:A:2421:G:H5''  | 27:6:4:ASP:OD1    | 0.98        | 1.13     |
| 29:8:26:LYS:HE3  | 29:8:45:GLY:N     | 1.61        | 1.13     |
| 2:A:2545:G:C2'   | 2:A:2546:U:O5'    | 1.95        | 1.13     |
| 2:A:1818:U:H5''  | 3:D:155:ARG:HB2   | 1.29        | 1.13     |
| 4:E:72:VAL:C     | 4:E:73:ILE:CD1    | 2.16        | 1.13     |
| 6:G:142:ALA:HB2  | 6:G:151:ILE:CG1   | 1.77        | 1.13     |
| 9:N:19:MET:HE2   | 9:N:22:VAL:HG21   | 1.30        | 1.13     |
| 9:N:60:ARG:HA    | 9:N:71:TYR:CD2    | 1.82        | 1.13     |
| 10:O:13:ASN:O    | 10:O:15:GLY:N     | 1.78        | 1.13     |
| 10:O:62:VAL:HA   | 10:O:84:CYS:SG    | 1.86        | 1.13     |
| 12:Q:58:HIS:HA   | 12:Q:61:LEU:HD12  | 1.18        | 1.13     |
| 28:7:34:ARG:HD3  | 28:7:42:LEU:CD2   | 1.73        | 1.13     |
| 11:P:64:ILE:HD12 | 11:P:106:VAL:CA   | 1.77        | 1.13     |
| 12:Q:72:VAL:O    | 12:Q:73:GLN:CG    | 1.94        | 1.13     |
| 13:S:61:ALA:CB   | 13:S:88:ALA:HB2   | 1.77        | 1.13     |
| 18:Z:3:LEU:HD21  | 18:Z:38:ALA:HB3   | 1.14        | 1.13     |
| 22:2:30:ALA:O    | 22:2:34:GLN:CB    | 1.95        | 1.13     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 23:3:20:LYS:HD3   | 23:3:23:LEU:CD1  | 1.76        | 1.13     |
| 2:A:1129:A:C2     | 2:A:2570:G:C1'   | 2.30        | 1.13     |
| 2:A:2453:A:O2'    | 2:A:2454:G:C5'   | 1.95        | 1.13     |
| 2:A:2684:U:H1'    | 10:O:70:ARG:CZ   | 1.78        | 1.13     |
| 2:A:2768:C:O2'    | 2:A:2769:C:H5'   | 1.48        | 1.13     |
| 3:D:149:ARG:CB    | 3:D:152:GLN:NE2  | 1.95        | 1.13     |
| 3:D:66:PHE:CD2    | 3:D:66:PHE:O     | 2.00        | 1.13     |
| 3:D:81:GLU:O      | 3:D:83:ASP:OD2   | 1.64        | 1.13     |
| 6:G:146:LYS:HE3   | 13:S:15:GLU:OE1  | 1.47        | 1.13     |
| 7:H:96:SER:O      | 7:H:97:LYS:O     | 1.64        | 1.13     |
| 8:I:7:LYS:CB      | 8:I:12:LYS:HD3   | 1.77        | 1.13     |
| 9:N:25:GLN:CA     | 9:N:28:GLU:HG2   | 1.77        | 1.13     |
| 10:O:92:SER:HB2   | 10:O:113:LYS:HZ3 | 1.07        | 1.13     |
| 11:P:64:ILE:CD1   | 11:P:106:VAL:HA  | 1.77        | 1.13     |
| 2:A:1151:G:O2'    | 20:U:81:ASN:ND2  | 1.79        | 1.13     |
| 17:Y:103:LEU:HD22 | 17:Y:108:ARG:O   | 1.44        | 1.13     |
| 24:O:37:LEU:HD13  | 24:O:69:PHE:HB2  | 1.20        | 1.13     |
| 25:4:5:LEU:HB2    | 25:4:56:VAL:HG13 | 1.16        | 1.13     |
| 30:9:4:ARG:O      | 30:9:36:GLN:CG   | 1.97        | 1.13     |
| 2:A:1665:A:O3'    | 10:O:66:LYS:HE2  | 0.95        | 1.13     |
| 2:A:2303:G:C5'    | 6:G:99:ASP:HB3   | 1.79        | 1.13     |
| 2:A:2470:G:N2     | 2:A:2471:C:N1    | 1.96        | 1.13     |
| 2:A:2574:G:C8     | 2:A:2575:C:H5    | 1.66        | 1.13     |
| 2:A:1783:A:C2     | 2:A:2587:A:C2    | 2.35        | 1.13     |
| 2:A:2832:U:H1'    | 2:A:2834:G:H21   | 1.06        | 1.13     |
| 5:F:168:ARG:O     | 5:F:168:ARG:CD   | 1.96        | 1.13     |
| 19:R:36:THR:HG21  | 19:R:40:LYS:HB3  | 1.18        | 1.13     |
| 13:S:35:VAL:HA    | 13:S:103:ASP:HB3 | 1.14        | 1.13     |
| 17:Y:46:ASP:CA    | 17:Y:102:ASP:OD2 | 1.95        | 1.13     |
| 17:Y:51:LEU:HA    | 17:Y:97:ARG:NH2  | 1.63        | 1.13     |
| 18:Z:100:THR:CA   | 18:Z:137:ASP:OD2 | 1.97        | 1.13     |
| 3:D:210:LYS:HA    | 3:D:213:LYS:CD   | 1.77        | 1.13     |
| 2:A:1598:C:H5''   | 16:X:34:LYS:HG2  | 1.30        | 1.13     |
| 2:A:1082:U:C4'    | 31:K:118:ALA:HB2 | 1.78        | 1.13     |
| 2:A:749:C:H2'     | 2:A:750:A:H8     | 1.11        | 1.13     |
| 26:5:45:ILE:HG23  | 26:5:52:TYR:CE1  | 1.82        | 1.13     |
| 2:A:2570:G:C2'    | 2:A:2571:C:H6    | 1.61        | 1.13     |
| 2:A:572:A:H2'     | 2:A:573:G:H1'    | 1.20        | 1.13     |
| 4:E:201:VAL:H     | 4:E:266:LYS:CD   | 1.60        | 1.13     |
| 2:A:2785:C:H5''   | 4:E:99:VAL:HG22  | 1.28        | 1.13     |
| 7:H:101:LYS:NZ    | 7:H:115:GLU:CB   | 2.10        | 1.13     |
| 10:O:1:MET:N      | 10:O:32:TYR:CD2  | 2.16        | 1.13     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1287:A:O4'   | 19:R:104:ARG:HD2  | 1.46        | 1.13     |
| 14:T:12:ASP:O    | 14:T:13:ILE:CG1   | 1.95        | 1.13     |
| 18:Z:69:VAL:HG12 | 18:Z:70:GLN:H     | 1.06        | 1.13     |
| 2:A:2495:G:O3'   | 12:Q:101:MET:HE3  | 1.46        | 1.13     |
| 2:A:2869:G:C4    | 2:A:2870:C:H6     | 1.58        | 1.13     |
| 5:F:51:TYR:O     | 5:F:55:ARG:CB     | 1.97        | 1.13     |
| 10:O:35:ILE:HD12 | 10:O:35:ILE:N     | 1.63        | 1.13     |
| 12:Q:23:ILE:H    | 12:Q:24:PRO:HD3   | 1.08        | 1.13     |
| 24:O:38:VAL:O    | 24:O:40:GLN:HG3   | 1.41        | 1.13     |
| 2:A:850:C:H4'    | 23:3:18:ASP:CG    | 1.68        | 1.13     |
| 2:A:2090:G:C5    | 2:A:2230:G:O6     | 2.00        | 1.13     |
| 2:A:2339:G:H2'   | 2:A:2340:G:H8     | 1.12        | 1.13     |
| 2:A:2485:G:H5''  | 12:Q:144:THR:CG2  | 1.79        | 1.13     |
| 2:A:2838:G:C2'   | 2:A:2839:G:H5'    | 1.77        | 1.13     |
| 5:F:34:ALA:HB2   | 5:F:110:ALA:HB1   | 1.18        | 1.13     |
| 5:F:6:TYR:CD2    | 5:F:140:VAL:HA    | 1.83        | 1.13     |
| 7:H:55:SER:CB    | 7:H:60:HIS:HB2    | 1.78        | 1.13     |
| 11:P:114:VAL:CG2 | 11:P:132:LYS:CB   | 2.27        | 1.13     |
| 12:Q:48:ASN:OD1  | 12:Q:121:ASP:HB3  | 1.48        | 1.13     |
| 20:U:56:ASP:O    | 20:U:60:LEU:CD2   | 1.96        | 1.13     |
| 2:A:337:C:OP1    | 17:Y:24:ARG:HB2   | 0.97        | 1.13     |
| 17:Y:33:GLU:CD   | 17:Y:34:GLU:HG3   | 1.68        | 1.13     |
| 17:Y:43:ASN:ND2  | 17:Y:101:LEU:HD23 | 1.61        | 1.13     |
| 24:O:36:ILE:C    | 24:O:68:VAL:CG1   | 2.15        | 1.13     |
| 25:4:42:PHE:O    | 25:4:61:LYS:HE3   | 1.42        | 1.13     |
| 29:8:55:TRP:HZ3  | 29:8:59:LYS:CE    | 1.60        | 1.13     |
| 2:A:2492:U:O2'   | 2:A:2493:U:O5'    | 1.64        | 1.13     |
| 2:A:2554:U:H3'   | 2:A:2554:U:C6     | 1.82        | 1.13     |
| 2:A:2759:G:O2'   | 2:A:2760:C:H5'    | 1.48        | 1.13     |
| 3:D:143:ILE:O    | 3:D:152:GLN:CA    | 1.97        | 1.13     |
| 3:D:75:GLY:HA3   | 3:D:115:ILE:O     | 1.37        | 1.13     |
| 7:H:40:MET:HB2   | 7:H:64:HIS:NE2    | 1.61        | 1.13     |
| 9:N:13:ASP:CA    | 9:N:38:VAL:HG11   | 1.51        | 1.13     |
| 9:N:13:ASP:N     | 9:N:38:VAL:HG13   | 1.55        | 1.13     |
| 11:P:65:ASP:CB   | 11:P:109:LEU:CB   | 2.14        | 1.13     |
| 2:A:2406:U:O4    | 11:P:55:GLN:CB    | 1.96        | 1.13     |
| 19:R:96:ARG:HD2  | 19:R:115:GLU:OE1  | 1.47        | 1.13     |
| 2:A:564:C:OP1    | 21:V:79:GLN:HG2   | 0.95        | 1.13     |
| 16:X:44:GLN:OE1  | 16:X:45:TYR:N     | 1.80        | 1.13     |
| 2:A:2526:G:C5    | 2:A:2527:C:C5     | 2.36        | 1.13     |
| 2:A:2565:A:H5''  | 2:A:2566:A:OP2    | 1.48        | 1.13     |
| 4:E:205:THR:HG21 | 4:E:259:HIS:CB    | 1.77        | 1.13     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:1:MET:O      | 5:F:3:ALA:N      | 1.79        | 1.13     |
| 2:A:2316:C:C5'   | 6:G:142:ALA:CB   | 2.22        | 1.13     |
| 11:P:124:ASP:O   | 11:P:125:PHE:CD2 | 2.01        | 1.13     |
| 12:Q:91:HIS:O    | 12:Q:111:THR:CG2 | 1.97        | 1.13     |
| 13:S:104:ILE:O   | 13:S:106:LEU:N   | 1.78        | 1.13     |
| 2:A:997:G:H3'    | 20:U:92:ARG:HH12 | 1.05        | 1.13     |
| 17:Y:66:ASP:HB2  | 17:Y:71:VAL:O    | 1.47        | 1.13     |
| 2:A:818:G:N2     | 2:A:1189:A:H62   | 1.46        | 1.12     |
| 2:A:1364:G:P     | 25:4:3:LYS:CG    | 2.36        | 1.12     |
| 2:A:2305:A:C3'   | 2:A:2306:C:H5''  | 1.77        | 1.12     |
| 2:A:2352:A:C2    | 24:0:30:VAL:HG11 | 1.64        | 1.12     |
| 2:A:2570:G:N3    | 2:A:2571:C:C5    | 2.16        | 1.12     |
| 2:A:2615:U:H3    | 26:5:8:LYS:HG2   | 1.03        | 1.12     |
| 4:E:44:TYR:CA    | 4:E:309:PRO:HD3  | 1.79        | 1.12     |
| 5:F:215:ALA:O    | 5:F:242:GLU:HG3  | 1.49        | 1.12     |
| 9:N:52:GLN:CA    | 9:N:55:GLU:CD    | 2.17        | 1.12     |
| 15:W:36:LEU:HD11 | 15:W:47:VAL:HG11 | 1.27        | 1.12     |
| 2:A:1566:A:C6    | 3:D:212:HIS:ND1  | 2.16        | 1.13     |
| 16:X:56:ASN:HD22 | 16:X:56:ASN:N    | 1.35        | 1.13     |
| 7:H:168:VAL:O    | 7:H:169:ARG:HG2  | 0.96        | 1.13     |
| 2:A:856:C:C5'    | 24:0:25:LYS:HZ1  | 1.60        | 1.12     |
| 2:A:2332:U:C1'   | 2:A:2336:A:N6    | 2.11        | 1.12     |
| 2:A:2344:U:HO3'  | 2:A:2345:G:P     | 1.18        | 1.12     |
| 2:A:2432:A:H2'   | 2:A:2432:A:N3    | 1.54        | 1.12     |
| 2:A:2571:C:O2'   | 4:E:243:PRO:CD   | 1.97        | 1.12     |
| 2:A:775:G:C5'    | 2:A:777:A:H1'    | 1.78        | 1.12     |
| 3:D:85:ASN:ND2   | 3:D:86:ARG:NE    | 1.96        | 1.12     |
| 2:A:2679:A:C2    | 4:E:300:VAL:HG22 | 1.82        | 1.12     |
| 5:F:167:ASP:CG   | 5:F:232:LEU:HG   | 1.69        | 1.12     |
| 5:F:62:GLY:CA    | 5:F:65:ARG:HH21  | 1.58        | 1.12     |
| 7:H:44:VAL:CA    | 7:H:49:ILE:HG22  | 1.78        | 1.12     |
| 2:A:1021:A:H8    | 9:N:49:ARG:NH1   | 1.44        | 1.12     |
| 9:N:63:ILE:HD12  | 9:N:71:TYR:CE2   | 1.83        | 1.12     |
| 13:S:31:LYS:HB3  | 13:S:32:PRO:HD2  | 1.25        | 1.12     |
| 8:I:116:GLU:HG2  | 8:I:132:LYS:HE3  | 1.28        | 1.12     |
| 8:I:95:SER:HB2   | 8:I:98:ILE:CD1   | 1.79        | 1.12     |
| 16:X:24:LEU:HD11 | 16:X:68:LEU:HD22 | 1.24        | 1.12     |
| 24:0:61:ALA:CB   | 24:0:81:ILE:HD13 | 1.79        | 1.12     |
| 2:A:389:G:OP2    | 25:4:24:THR:CG2  | 1.96        | 1.12     |
| 27:6:35:LEU:O    | 27:6:36:GLU:HG3  | 0.96        | 1.12     |
| 2:A:2327:A:N7    | 2:A:2388:A:N6    | 1.96        | 1.12     |
| 2:A:2406:U:N3    | 11:P:55:GLN:HB3  | 1.63        | 1.12     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2526:G:C2'    | 2:A:2527:C:H5'   | 1.78        | 1.12     |
| 2:A:2741:A:C2'    | 2:A:2742:C:H5'   | 1.79        | 1.12     |
| 2:A:2808:U:C2     | 2:A:2892:A:C6    | 2.36        | 1.12     |
| 2:A:2893:G:HO2'   | 2:A:2894:G:C1'   | 1.49        | 1.12     |
| 2:A:932:G:C5'     | 23:3:24:LYS:HZ3  | 1.61        | 1.12     |
| 5:F:164:ALA:HA    | 5:F:232:LEU:HD12 | 1.14        | 1.12     |
| 12:Q:123:ILE:CG2  | 12:Q:125:TRP:HB2 | 1.79        | 1.12     |
| 13:S:35:VAL:CA    | 13:S:103:ASP:HB3 | 1.79        | 1.12     |
| 18:Z:30:VAL:O     | 18:Z:31:SER:O    | 1.68        | 1.12     |
| 2:A:2354:G:C2     | 24:0:32:LYS:CE   | 2.28        | 1.12     |
| 24:0:42:GLY:CA    | 24:0:66:LYS:HA   | 1.78        | 1.12     |
| 24:0:45:PHE:CZ    | 24:0:78:PHE:CD2  | 2.36        | 1.12     |
| 23:3:16:PRO:CB    | 23:3:19:GLN:CD   | 2.17        | 1.12     |
| 2:A:2617:C:N3     | 2:A:2618:G:C8    | 2.16        | 1.12     |
| 2:A:2633:G:C2     | 2:A:2634:G:N7    | 2.17        | 1.12     |
| 2:A:2709:G:O2'    | 2:A:2710:C:H5'   | 1.46        | 1.12     |
| 2:A:2869:G:N3     | 2:A:2870:C:H6    | 1.26        | 1.12     |
| 4:E:71:THR:HG22   | 4:E:299:SER:HB2  | 1.18        | 1.12     |
| 7:H:42:ILE:O      | 7:H:52:THR:CG2   | 1.96        | 1.12     |
| 7:H:43:THR:CG2    | 7:H:52:THR:HG23  | 1.78        | 1.12     |
| 12:Q:62:GLU:O     | 12:Q:63:ALA:O    | 1.66        | 1.12     |
| 21:V:50:ASP:H     | 21:V:53:LYS:CD   | 1.62        | 1.12     |
| 2:A:1791:A:OP1    | 3:D:210:LYS:HD3  | 1.35        | 1.12     |
| 2:A:1479:G:H2'    | 2:A:1480:G:H8    | 1.05        | 1.12     |
| 23:3:22:ALA:HA    | 23:3:46:ASN:HD21 | 1.06        | 1.12     |
| 28:7:17:GLY:CA    | 28:7:44:VAL:HG22 | 1.66        | 1.12     |
| 2:A:142(A):A:H4'  | 9:N:21:ARG:NH2   | 1.63        | 1.12     |
| 2:A:2689:U:H5'    | 2:A:2690:C:H5'   | 1.29        | 1.12     |
| 2:A:976:C:OP1     | 20:U:48:ARG:NH1  | 1.81        | 1.12     |
| 2:A:1819:A:OP1    | 3:D:155:ARG:N    | 1.82        | 1.12     |
| 4:E:180:ILE:CG2   | 4:E:186:GLU:O    | 1.95        | 1.12     |
| 10:O:21:VAL:HA    | 10:O:41:ALA:HB2  | 1.29        | 1.12     |
| 19:R:100:LEU:HD23 | 19:R:112:ALA:CA  | 1.80        | 1.12     |
| 24:0:37:LEU:O     | 24:0:40:GLN:HG3  | 1.49        | 1.12     |
| 29:8:23:MET:HE3   | 29:8:48:PHE:HD2  | 0.96        | 1.12     |
| 2:A:2450:A:C5'    | 2:A:2497:A:H62   | 1.49        | 1.12     |
| 2:A:2530:A:C2'    | 2:A:2531:A:H5''  | 1.79        | 1.12     |
| 2:A:495:G:C2'     | 15:W:57:ASN:OD1  | 1.95        | 1.12     |
| 5:F:33:LYS:HA     | 5:F:36:ARG:HG3   | 1.20        | 1.12     |
| 8:I:4:ILE:HG22    | 8:I:4:ILE:O      | 1.48        | 1.12     |
| 9:N:12:VAL:HG13   | 9:N:13:ASP:H     | 1.14        | 1.12     |
| 16:X:14:ALA:CA    | 16:X:17:ASP:CG   | 2.17        | 1.12     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 16:X:17:ASP:HA    | 16:X:20:PHE:CE1   | 1.84        | 1.12     |
| 17:Y:9:LYS:HE3    | 17:Y:13:ARG:NH1   | 1.64        | 1.12     |
| 23:3:1:MET:HE1    | 23:3:3:ARG:HD2    | 1.29        | 1.12     |
| 2:A:2013:A:H4'    | 15:W:96:ILE:HG22  | 1.26        | 1.12     |
| 2:A:2332:U:H1'    | 2:A:2336:A:N6     | 1.64        | 1.12     |
| 2:A:600:G:H5'     | 5:F:30:LEU:CD1    | 1.78        | 1.12     |
| 2:A:775:G:H5'     | 2:A:777:A:C1'     | 1.78        | 1.12     |
| 2:A:2679:A:N3     | 4:E:300:VAL:HG13  | 1.60        | 1.12     |
| 2:A:2316:C:H5'    | 6:G:151:ILE:HD11  | 1.16        | 1.12     |
| 11:P:144:ASP:C    | 11:P:145:LEU:CD1  | 2.18        | 1.12     |
| 2:A:495:G:N2      | 15:W:61:ASN:HD21  | 1.44        | 1.12     |
| 17:Y:101:LEU:CD1  | 17:Y:113:GLU:HB2  | 1.79        | 1.12     |
| 18:Z:112:LEU:HD23 | 18:Z:113:VAL:H    | 1.02        | 1.12     |
| 24:0:39:ARG:O     | 24:0:40:GLN:O     | 1.66        | 1.12     |
| 24:0:36:ILE:HB    | 24:0:68:VAL:HG11  | 1.27        | 1.12     |
| 25:4:5:LEU:HD23   | 25:4:5:LEU:H      | 1.07        | 1.12     |
| 29:8:60:LEU:CD2   | 29:8:60:LEU:C     | 2.18        | 1.12     |
| 2:A:2082:A:N6     | 2:A:2239:G:O6     | 1.83        | 1.12     |
| 2:A:2267:A:C5'    | 2:A:2268:A:OP1    | 1.97        | 1.12     |
| 2:A:2810:A:C8     | 2:A:2811:G:O4'    | 2.01        | 1.12     |
| 4:E:205:THR:CG2   | 4:E:259:HIS:HB2   | 1.80        | 1.12     |
| 5:F:168:ARG:CZ    | 5:F:209:GLY:HA2   | 1.79        | 1.12     |
| 6:G:57:THR:HG22   | 6:G:58:VAL:H      | 1.08        | 1.12     |
| 7:H:10:ILE:HG22   | 7:H:14:VAL:HB     | 1.31        | 1.12     |
| 9:N:75:PRO:HD3    | 9:N:136:SER:OG    | 1.46        | 1.12     |
| 2:A:2376:A:H2     | 13:S:102:LEU:HD22 | 1.13        | 1.12     |
| 13:S:23:ARG:NH2   | 13:S:37:ARG:NH2   | 1.97        | 1.12     |
| 17:Y:29:ALA:O     | 17:Y:33:GLU:CD    | 1.87        | 1.12     |
| 8:I:116:GLU:HG2   | 8:I:132:LYS:CE    | 1.80        | 1.12     |
| 8:I:141:LEU:CD1   | 8:I:142:LYS:O     | 1.97        | 1.12     |
| 2:A:144:C:H5'     | 16:X:36:GLU:OE1   | 1.48        | 1.12     |
| 16:X:3:ASP:OD2    | 22:2:24:LYS:HD2   | 0.94        | 1.12     |
| 6:G:81:GLU:O      | 6:G:85:GLN:CG     | 1.97        | 1.12     |
| 25:4:50:LEU:O     | 25:4:51:ASP:O     | 1.67        | 1.12     |
| 25:4:6:HIS:CG     | 25:4:56:VAL:HG23  | 1.85        | 1.12     |
| 27:6:32:GLN:CB    | 27:6:35:LEU:CD1   | 2.19        | 1.12     |
| 30:9:19:ARG:O     | 30:9:22:ARG:HB2   | 1.47        | 1.12     |
| 2:A:2275:C:O2     | 12:Q:103:ALA:HB2  | 1.50        | 1.12     |
| 2:A:2740:A:O2'    | 2:A:2741:A:H5'    | 1.50        | 1.12     |
| 4:E:74:GLU:CB     | 4:E:293:TYR:HE2   | 1.60        | 1.12     |
| 5:F:167:ASP:OD2   | 5:F:232:LEU:CG    | 1.96        | 1.12     |
| 5:F:167:ASP:O     | 5:F:168:ARG:HG3   | 1.49        | 1.12     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:32:GLY:O     | 5:F:35:VAL:CG2   | 1.96        | 1.12     |
| 5:F:52:ALA:CA    | 5:F:55:ARG:HE    | 1.60        | 1.12     |
| 7:H:10:ILE:HD11  | 7:H:49:ILE:CG1   | 1.78        | 1.12     |
| 8:I:29:PHE:O     | 8:I:33:GLN:CD    | 1.86        | 1.12     |
| 12:Q:56:ILE:HG12 | 12:Q:113:ALA:O   | 1.48        | 1.12     |
| 15:W:23:LEU:O    | 15:W:25:ARG:N    | 1.83        | 1.12     |
| 18:Z:129:ARG:HE  | 18:Z:129:ARG:HA  | 1.09        | 1.12     |
| 18:Z:105:GLN:HB2 | 18:Z:141:MET:SD  | 1.88        | 1.12     |
| 18:Z:6:LYS:O     | 18:Z:31:SER:HB3  | 1.26        | 1.12     |
| 23:3:1:MET:SD    | 23:3:3:ARG:CG    | 2.37        | 1.12     |
| 27:6:40:TYR:O    | 27:6:47:HIS:HA   | 1.47        | 1.12     |
| 2:A:2232:U:H2'   | 2:A:2233:U:H5'   | 1.14        | 1.12     |
| 2:A:2391:G:O2'   | 2:A:2392:A:H5'   | 1.47        | 1.12     |
| 2:A:2397:G:C6    | 2:A:2420:C:C2    | 2.37        | 1.12     |
| 4:E:193:PHE:CE2  | 4:E:199:ALA:CB   | 2.31        | 1.12     |
| 4:E:214:VAL:CG2  | 4:E:221:LYS:HZ1  | 1.63        | 1.12     |
| 4:E:70:VAL:HG12  | 4:E:71:THR:N     | 1.38        | 1.12     |
| 11:P:128:GLY:HA2 | 11:P:132:LYS:HZ2 | 0.98        | 1.12     |
| 18:Z:172:LEU:HG  | 18:Z:173:PRO:HD2 | 1.13        | 1.12     |
| 8:I:68:LEU:HB3   | 8:I:72:LEU:HD11  | 1.15        | 1.12     |
| 9:N:10:VAL:HG11  | 9:N:36:VAL:HG23  | 1.24        | 1.12     |
| 16:X:22:ASN:HA   | 16:X:68:LEU:HD11 | 1.21        | 1.12     |
| 4:E:107:GLU:HB3  | 4:E:110:ARG:CZ   | 1.78        | 1.12     |
| 2:A:2355:C:C4'   | 24:0:21:LEU:HD11 | 1.72        | 1.11     |
| 2:A:199:A:C2     | 2:A:2433:A:C5    | 2.38        | 1.11     |
| 2:A:2474:C:H2'   | 2:A:2475:C:H5'   | 1.31        | 1.11     |
| 2:A:2785:C:H1'   | 4:E:100:TRP:NE1  | 1.64        | 1.11     |
| 2:A:1568:G:O5'   | 3:D:60:GLN:HG2   | 0.96        | 1.11     |
| 4:E:268:LEU:CD2  | 4:E:269:ILE:N    | 2.13        | 1.11     |
| 5:F:45:ASP:O     | 5:F:46:TYR:CD1   | 2.03        | 1.11     |
| 5:F:51:TYR:C     | 5:F:55:ARG:HB3   | 1.70        | 1.11     |
| 5:F:46:TYR:O     | 5:F:92:PRO:O     | 1.65        | 1.11     |
| 11:P:112:GLY:C   | 11:P:113:GLN:CD  | 2.09        | 1.11     |
| 2:A:1152:C:H5''  | 20:U:80:ILE:HG21 | 1.28        | 1.11     |
| 2:A:2414:G:N3    | 2:A:2415:G:C8    | 2.17        | 1.11     |
| 2:A:2592:G:C8    | 2:A:2593:U:H5    | 1.68        | 1.11     |
| 2:A:2678:C:O2    | 2:A:2679:A:C1'   | 1.98        | 1.11     |
| 3:D:118:GLY:O    | 3:D:129:LEU:CD2  | 1.98        | 1.11     |
| 3:D:167:GLU:O    | 3:D:170:TYR:CD1  | 2.01        | 1.11     |
| 7:H:166:GLU:O    | 7:H:167:LEU:HD22 | 1.45        | 1.11     |
| 2:A:1598:C:H5''  | 16:X:34:LYS:CG   | 1.79        | 1.11     |
| 2:A:2329:G:N2    | 2:A:2386:C:N3    | 1.98        | 1.11     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2431:U:C2    | 2:A:2433:A:OP2   | 2.02        | 1.11     |
| 2:A:2570:G:N3    | 2:A:2571:C:C6    | 2.17        | 1.11     |
| 2:A:2633:G:C2    | 2:A:2634:G:C5    | 2.37        | 1.11     |
| 2:A:2748:A:C8    | 2:A:2749:A:C4    | 2.38        | 1.11     |
| 3:D:118:GLY:O    | 3:D:129:LEU:HD21 | 1.49        | 1.11     |
| 3:D:181:ARG:HB3  | 3:D:181:ARG:NH1  | 1.63        | 1.11     |
| 14:T:50:GLU:O    | 14:T:52:THR:N    | 1.84        | 1.11     |
| 21:V:5:ILE:HD12  | 21:V:12:TYR:CZ   | 1.85        | 1.11     |
| 28:7:17:GLY:C    | 28:7:44:VAL:HG21 | 1.70        | 1.11     |
| 2:A:2196:C:H5''  | 2:A:2197:U:OP2   | 1.49        | 1.11     |
| 2:A:2227:A:C2    | 2:A:2228:G:C2    | 2.37        | 1.11     |
| 2:A:2482:G:C5    | 2:A:2483:C:C5    | 2.39        | 1.11     |
| 2:A:2821:A:C2    | 2:A:2822:G:C4    | 2.38        | 1.11     |
| 2:A:2771:C:H5'   | 4:E:316:ARG:HD2  | 1.14        | 1.11     |
| 4:E:39:GLN:NE2   | 4:E:174:LEU:CD1  | 2.12        | 1.11     |
| 5:F:102:LEU:HD23 | 5:F:106:GLU:OE1  | 1.42        | 1.11     |
| 9:N:12:VAL:CG1   | 9:N:13:ASP:H     | 1.61        | 1.11     |
| 9:N:78:ILE:O     | 9:N:82:THR:HG23  | 1.48        | 1.11     |
| 10:O:98:ILE:HD11 | 10:O:117:LEU:HB2 | 1.33        | 1.11     |
| 11:P:77:ALA:HB2  | 11:P:81:VAL:CG1  | 1.80        | 1.11     |
| 12:Q:48:ASN:O    | 12:Q:121:ASP:HB2 | 1.47        | 1.11     |
| 12:Q:16:ARG:CB   | 12:Q:16:ARG:NH1  | 1.96        | 1.11     |
| 12:Q:65:ARG:O    | 12:Q:68:ALA:HB3  | 1.46        | 1.11     |
| 2:A:1340:U:O4    | 16:X:57:THR:HG22 | 1.49        | 1.11     |
| 2:A:2258:C:C5    | 2:A:2426:A:C4'   | 2.33        | 1.11     |
| 2:A:245:G:H5'    | 11:P:55:GLN:O    | 1.47        | 1.11     |
| 2:A:25:U:H5''    | 15:W:80:PRO:HD2  | 1.28        | 1.11     |
| 2:A:2752:C:N4    | 2:A:2753:A:C2    | 2.19        | 1.11     |
| 2:A:445:C:OP1    | 20:U:2:PRO:N     | 1.81        | 1.11     |
| 4:E:180:ILE:HA   | 4:E:183:ASP:CG   | 1.70        | 1.11     |
| 15:W:32:ALA:CA   | 15:W:35:ILE:CD1  | 2.27        | 1.11     |
| 2:A:2364:C:H5''  | 24:O:38:VAL:HG12 | 1.12        | 1.11     |
| 25:4:23:GLU:OE2  | 25:4:29:PRO:CB   | 1.99        | 1.11     |
| 26:5:44:HIS:HA   | 26:5:52:TYR:OH   | 0.93        | 1.11     |
| 26:5:40:LYS:HE2  | 26:5:46:CYS:HB2  | 1.31        | 1.11     |
| 2:A:2287:A:O2'   | 2:A:2288:A:P     | 2.08        | 1.11     |
| 2:A:2530:A:H2'   | 2:A:2531:A:H5''  | 1.22        | 1.11     |
| 2:A:2813:A:C2'   | 2:A:2814:C:C6    | 2.14        | 1.11     |
| 3:D:66:PHE:C     | 3:D:67:LYS:CD    | 2.18        | 1.11     |
| 4:E:269:ILE:HG23 | 4:E:297:LYS:HZ3  | 0.96        | 1.11     |
| 6:G:102:GLY:CA   | 6:G:134:LEU:CD1  | 2.27        | 1.11     |
| 12:Q:49:VAL:CG1  | 12:Q:119:ASN:O   | 1.99        | 1.11     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 19:R:104:ARG:HA   | 19:R:105:ARG:HH21 | 1.04        | 1.11     |
| 13:S:106:LEU:O    | 13:S:107:ASN:O    | 1.66        | 1.11     |
| 13:S:41:LYS:O     | 13:S:41:LYS:HD3   | 0.96        | 1.11     |
| 20:U:108:ALA:O    | 20:U:110:VAL:N    | 1.82        | 1.11     |
| 21:V:30:GLY:HA3   | 21:V:33:VAL:HG21  | 1.11        | 1.11     |
| 2:A:1512:G:O3'    | 2:A:1513:C:P      | 2.08        | 1.11     |
| 2:A:2295:C:N4     | 2:A:2337:G:H1     | 1.48        | 1.11     |
| 2:A:2330:G:C2'    | 2:A:2331:G:H5'    | 1.81        | 1.11     |
| 2:A:2463:C:C2     | 2:A:2464:C:C5     | 2.39        | 1.11     |
| 3:D:128:ALA:HB2   | 3:D:190:THR:HB    | 1.22        | 1.11     |
| 4:E:303:PRO:HB2   | 4:E:307:LEU:CD1   | 1.80        | 1.11     |
| 7:H:101:LYS:CG    | 7:H:115:GLU:HA    | 1.78        | 1.11     |
| 9:N:38:VAL:O      | 9:N:39:VAL:CG1    | 1.98        | 1.11     |
| 9:N:15:ARG:CA     | 9:N:43:ARG:HG2    | 1.81        | 1.11     |
| 12:Q:142:LYS:O    | 12:Q:143:VAL:HG22 | 1.46        | 1.11     |
| 20:U:86:ALA:HB3   | 20:U:90:LEU:HD21  | 1.33        | 1.11     |
| 15:W:29:LEU:HG    | 15:W:33:ARG:HD2   | 1.32        | 1.11     |
| 18:Z:116:VAL:CA   | 18:Z:169:VAL:HG22 | 1.79        | 1.11     |
| 18:Z:159:THR:HG23 | 18:Z:160:LEU:H    | 0.96        | 1.11     |
| 2:A:1612:C:H2'    | 28:7:3:ARG:NE     | 1.00        | 1.11     |
| 2:A:2302:G:C6     | 2:A:2315:G:C6     | 2.38        | 1.11     |
| 2:A:2526:G:H2'    | 2:A:2527:C:H5'    | 1.11        | 1.11     |
| 2:A:1966:A:N3     | 2:A:2593:U:H5'    | 1.64        | 1.11     |
| 2:A:2712:U:H2'    | 2:A:712(A):A:C5'  | 1.77        | 1.11     |
| 5:F:168:ARG:CZ    | 5:F:209:GLY:CA    | 2.28        | 1.11     |
| 7:H:23:VAL:HG12   | 7:H:74:MET:HE3    | 1.15        | 1.11     |
| 11:P:66:VAL:HG12  | 11:P:67:ARG:H     | 1.01        | 1.11     |
| 12:Q:49:VAL:HG23  | 12:Q:121:ASP:H    | 1.14        | 1.11     |
| 20:U:43:ALA:CB    | 21:V:75:LYS:HB3   | 1.78        | 1.11     |
| 15:W:30:GLU:CA    | 15:W:33:ARG:CD    | 2.26        | 1.11     |
| 17:Y:71:VAL:CG2   | 17:Y:93:THR:H     | 1.62        | 1.11     |
| 18:Z:3:LEU:HB3    | 18:Z:34:LEU:HA    | 1.11        | 1.11     |
| 8:I:115:ILE:CG1   | 8:I:131:VAL:HG13  | 1.78        | 1.11     |
| 16:X:9:HIS:CE1    | 16:X:27:ALA:CA    | 2.34        | 1.11     |
| 2:A:2235:G:H2'    | 2:A:2236:C:H6     | 1.00        | 1.11     |
| 2:A:2327:A:N1     | 2:A:2328:A:C2     | 2.19        | 1.11     |
| 2:A:2360:A:C8     | 2:A:2361:A:C8     | 2.39        | 1.11     |
| 2:A:965:C:H5'     | 2:A:2273:A:C1'    | 1.79        | 1.11     |
| 4:E:44:TYR:CE1    | 4:E:308:VAL:CA    | 2.34        | 1.11     |
| 5:F:47:GLY:C      | 5:F:92:PRO:HG2    | 1.60        | 1.11     |
| 6:G:27:ILE:C      | 6:G:69:ILE:HG21   | 1.71        | 1.11     |
| 6:G:29:HIS:CE1    | 6:G:64:ARG:NH1    | 2.17        | 1.11     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:H:36:PHE:CD2   | 7:H:70:LEU:CD1   | 2.31        | 1.11     |
| 11:P:101:ASP:O   | 11:P:102:ASP:OD1 | 1.67        | 1.11     |
| 12:Q:42:TYR:O    | 12:Q:125:TRP:HH2 | 1.34        | 1.11     |
| 2:A:2320:A:C6    | 13:S:13:ARG:HG2  | 1.86        | 1.11     |
| 21:V:54:TYR:O    | 21:V:56:VAL:N    | 1.81        | 1.11     |
| 2:A:973:A:N1     | 21:V:81:ARG:HD2  | 1.03        | 1.11     |
| 15:W:19:LEU:HD13 | 26:5:25:LEU:CD2  | 1.80        | 1.11     |
| 17:Y:14:ALA:HB1  | 17:Y:15:PRO:CD   | 1.79        | 1.11     |
| 1:B:104:A:C1'    | 18:Z:24:TYR:OH   | 1.99        | 1.11     |
| 2:A:2355:C:C5'   | 24:0:21:LEU:CD1  | 2.23        | 1.11     |
| 2:A:2066:C:O2    | 2:A:2445:G:N2    | 1.83        | 1.11     |
| 2:A:2304:G:C4'   | 6:G:105:SER:HB2  | 1.80        | 1.11     |
| 2:A:2476:A:N7    | 2:A:2477:C:C5    | 2.19        | 1.11     |
| 2:A:2623:G:N2    | 2:A:2624:G:C4    | 2.19        | 1.11     |
| 2:A:2716:U:H2'   | 2:A:2717:G:C5'   | 1.80        | 1.11     |
| 2:A:2869:G:C4    | 2:A:2870:C:C5    | 2.38        | 1.11     |
| 2:A:818:G:H21    | 2:A:1189:A:N6    | 1.46        | 1.11     |
| 4:E:71:THR:HG23  | 4:E:299:SER:HB2  | 1.31        | 1.11     |
| 6:G:19:GLU:HB2   | 6:G:135:VAL:HG21 | 1.31        | 1.11     |
| 6:G:20:LYS:HA    | 6:G:76:ARG:HB3   | 1.20        | 1.11     |
| 10:O:77:ILE:C    | 10:O:77:ILE:CD1  | 2.12        | 1.11     |
| 21:V:61:VAL:N    | 21:V:98:ILE:HD12 | 1.66        | 1.11     |
| 17:Y:45:GLY:C    | 17:Y:62:VAL:CG1  | 2.18        | 1.11     |
| 17:Y:72:ILE:HG22 | 17:Y:73:HIS:H    | 1.12        | 1.11     |
| 17:Y:47:THR:O    | 17:Y:98:VAL:HG13 | 1.49        | 1.11     |
| 8:I:75:LEU:HD13  | 8:I:76:THR:H     | 1.00        | 1.11     |
| 2:A:1827:C:H5'   | 2:A:1971:A:H4'   | 1.21        | 1.11     |
| 16:X:22:ASN:HA   | 16:X:68:LEU:CD1  | 1.80        | 1.11     |
| 16:X:47:VAL:CG1  | 16:X:69:SER:HB3  | 1.79        | 1.11     |
| 8:I:48:GLU:O     | 8:I:52:GLN:HG3   | 1.48        | 1.11     |
| 24:0:49:GLN:NE2  | 24:0:73:GLY:CA   | 2.09        | 1.10     |
| 25:4:18:GLY:H    | 25:4:33:VAL:HG21 | 1.10        | 1.10     |
| 27:6:42:PRO:HG2  | 27:6:44:ALA:HB3  | 1.14        | 1.10     |
| 30:9:14:CYS:HA   | 30:9:27:CYS:HB2  | 1.28        | 1.10     |
| 2:A:2509:G:C2    | 2:A:2580:U:O2    | 2.03        | 1.10     |
| 2:A:563:G:H21    | 20:U:37:GLN:NE2  | 1.48        | 1.10     |
| 2:A:1799:G:N2    | 3:D:153:LEU:CD2  | 2.14        | 1.10     |
| 4:E:214:VAL:CG2  | 4:E:221:LYS:NZ   | 2.12        | 1.10     |
| 4:E:269:ILE:HD12 | 4:E:269:ILE:H    | 0.95        | 1.10     |
| 5:F:200:PRO:HB3  | 5:F:212:VAL:CG1  | 1.81        | 1.10     |
| 2:A:911:A:C5     | 12:Q:16:ARG:HG3  | 1.68        | 1.10     |
| 12:Q:65:ARG:NH2  | 12:Q:85:ILE:HB   | 1.63        | 1.10     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:R:85:PRO:O    | 19:R:87:TYR:N     | 1.83        | 1.10     |
| 6:G:145:ASP:CB   | 13:S:15:GLU:O     | 1.98        | 1.10     |
| 13:S:32:PRO:HG2  | 13:S:100:ALA:CB   | 1.81        | 1.10     |
| 2:A:965:C:C4'    | 2:A:2273:A:N3     | 2.12        | 1.10     |
| 2:A:911:A:N1     | 12:Q:16:ARG:HA    | 1.64        | 1.10     |
| 5:F:102:LEU:N    | 5:F:107:ARG:HH21  | 1.47        | 1.10     |
| 5:F:1:MET:C      | 5:F:18:LEU:HG     | 1.44        | 1.10     |
| 6:G:102:GLY:HA3  | 6:G:134:LEU:CD1   | 1.81        | 1.10     |
| 8:I:7:LYS:NZ     | 8:I:8:ASP:OD1     | 1.82        | 1.10     |
| 11:P:116:HIS:CD2 | 11:P:118:LEU:HD11 | 1.85        | 1.10     |
| 11:P:128:GLY:HA3 | 11:P:132:LYS:HZ3  | 1.17        | 1.10     |
| 11:P:69:ILE:HA   | 11:P:73:VAL:HG23  | 1.32        | 1.10     |
| 11:P:77:ALA:HB2  | 11:P:81:VAL:HG11  | 1.19        | 1.10     |
| 2:A:563:G:N2     | 20:U:37:GLN:HE22  | 1.48        | 1.10     |
| 21:V:30:GLY:O    | 21:V:63:HIS:HB2   | 1.50        | 1.10     |
| 18:Z:168:VAL:O   | 18:Z:169:VAL:HG23 | 0.94        | 1.10     |
| 2:A:1665:A:O2'   | 10:O:66:LYS:NZ    | 1.82        | 1.10     |
| 2:A:2364:C:C5'   | 24:O:38:VAL:CG1   | 2.30        | 1.10     |
| 19:R:19:ALA:O    | 19:R:22:ARG:HB3   | 1.50        | 1.10     |
| 20:U:46:GLU:O    | 20:U:49:ASP:HB2   | 1.50        | 1.10     |
| 2:A:974:G:N7     | 21:V:80:TYR:CD1   | 2.19        | 1.10     |
| 17:Y:51:LEU:CA   | 17:Y:97:ARG:HH21  | 1.64        | 1.10     |
| 18:Z:24:TYR:O    | 18:Z:84:TYR:HA    | 1.48        | 1.10     |
| 18:Z:26:LYS:O    | 18:Z:27:GLU:CG    | 1.98        | 1.10     |
| 25:4:21:VAL:HG12 | 25:4:22:MET:N     | 1.43        | 1.10     |
| 2:A:2556:C:O2'   | 2:A:2557:G:H5'    | 1.49        | 1.10     |
| 2:A:2628:C:H1'   | 2:A:2781:A:H2'    | 1.32        | 1.10     |
| 2:A:2631:G:C4'   | 2:A:2892:A:OP1    | 1.99        | 1.10     |
| 4:E:267:ARG:HD3  | 4:E:297:LYS:HD3   | 1.29        | 1.10     |
| 4:E:62:ARG:O     | 4:E:63:GLU:OE2    | 1.66        | 1.10     |
| 21:V:19:VAL:HG12 | 21:V:21:ARG:NH1   | 1.40        | 1.10     |
| 8:I:92:SER:HA    | 8:I:122:ARG:HG3   | 1.14        | 1.10     |
| 22:2:7:GLU:OE2   | 22:2:8:ILE:HG13   | 1.51        | 1.10     |
| 29:8:60:LEU:C    | 29:8:60:LEU:HD23  | 1.69        | 1.10     |
| 2:A:594:U:H5''   | 29:8:61:MET:HE1   | 1.13        | 1.10     |
| 2:A:2718:G:H2'   | 2:A:2719:G:H8     | 0.99        | 1.10     |
| 2:A:2839:G:O2'   | 19:R:92:GLY:HA3   | 1.51        | 1.10     |
| 2:A:2848:G:N2    | 2:A:2867:G:H1'    | 1.66        | 1.10     |
| 4:E:211:GLN:O    | 4:E:216:ARG:HD2   | 0.93        | 1.10     |
| 2:A:321:G:H4'    | 5:F:206:ASN:HB3   | 1.31        | 1.10     |
| 5:F:37:ALA:HB1   | 5:F:102:LEU:HB2   | 1.25        | 1.10     |
| 7:H:10:ILE:HG21  | 7:H:14:VAL:HG11   | 1.26        | 1.10     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 9:N:58:GLU:CA     | 9:N:61:VAL:CG2    | 2.28        | 1.10     |
| 12:Q:56:ILE:O     | 12:Q:112:ALA:CB   | 1.99        | 1.10     |
| 13:S:109:PRO:HA   | 13:S:115:VAL:HG11 | 1.23        | 1.10     |
| 20:U:59:ARG:O     | 20:U:62:ILE:N     | 1.84        | 1.10     |
| 17:Y:50:VAL:HG12  | 17:Y:51:LEU:N     | 1.64        | 1.10     |
| 28:7:21:ARG:O     | 28:7:24:THR:HG22  | 1.40        | 1.10     |
| 29:8:26:LYS:CE    | 29:8:45:GLY:N     | 2.13        | 1.10     |
| 29:8:4:MET:CA     | 29:8:5:LYS:NZ     | 2.13        | 1.10     |
| 2:A:2423:U:C6     | 2:A:2423:U:H5'    | 1.87        | 1.10     |
| 2:A:2552:U:O2     | 2:A:2554:U:H5''   | 1.49        | 1.10     |
| 2:A:2893:G:O3'    | 2:A:2894:G:H4'    | 1.49        | 1.10     |
| 3:D:166:LYS:O     | 3:D:167:GLU:CD    | 1.89        | 1.10     |
| 2:A:2745:C:H1'    | 7:H:142:GLU:HG3   | 1.31        | 1.10     |
| 9:N:45:VAL:O      | 9:N:46:ILE:HG13   | 1.48        | 1.10     |
| 19:R:75:LEU:O     | 19:R:77:ARG:N     | 1.84        | 1.10     |
| 16:X:24:LEU:CB    | 16:X:26:PHE:HZ    | 1.65        | 1.10     |
| 2:A:1917:U:H3'    | 2:A:1918:A:C8     | 1.86        | 1.10     |
| 23:3:8:LEU:HD23   | 23:3:31:LEU:CA    | 1.68        | 1.10     |
| 28:7:11:LYS:O     | 28:7:13:ALA:N     | 1.85        | 1.10     |
| 2:A:1364:G:H3'    | 25:4:3:LYS:HD3    | 1.10        | 1.10     |
| 2:A:2227:A:N1     | 2:A:2228:G:N1     | 1.99        | 1.10     |
| 2:A:2303:G:H4'    | 6:G:99:ASP:CB     | 1.76        | 1.10     |
| 2:A:2437:U:C5'    | 2:A:2598:A:H2     | 1.65        | 1.10     |
| 2:A:2469:A:H8     | 2:A:2469:A:H5'    | 1.15        | 1.10     |
| 2:A:2623:G:H21    | 2:A:2624:G:C1'    | 1.64        | 1.10     |
| 2:A:2785:C:O2'    | 4:E:100:TRP:HB2   | 1.50        | 1.10     |
| 4:E:39:GLN:CD     | 4:E:174:LEU:CD1   | 2.20        | 1.10     |
| 4:E:263:GLU:CG    | 4:E:266:LYS:HE2   | 1.82        | 1.10     |
| 6:G:28:GLY:C      | 6:G:69:ILE:HD11   | 1.68        | 1.10     |
| 8:I:7:LYS:HB2     | 8:I:14:LYS:HE2    | 1.22        | 1.10     |
| 2:A:2498:C:O2'    | 2:A:2499:C:C5'    | 2.00        | 1.10     |
| 2:A:2722:G:N1     | 2:A:2723:C:C4     | 2.19        | 1.10     |
| 2:A:2811:G:N2     | 2:A:2891:G:N3     | 1.84        | 1.10     |
| 2:A:30:G:O3'      | 2:A:31:C:P        | 2.09        | 1.10     |
| 4:E:79:ARG:O      | 4:E:187:HIS:NE2   | 1.83        | 1.10     |
| 5:F:157:LEU:HB2   | 5:F:158:GLU:OE2   | 1.43        | 1.10     |
| 8:I:43:ASN:O      | 8:I:45:LYS:N      | 1.82        | 1.10     |
| 12:Q:58:HIS:HA    | 12:Q:61:LEU:CD1   | 1.82        | 1.10     |
| 19:R:100:LEU:HD23 | 19:R:112:ALA:C    | 1.71        | 1.10     |
| 2:A:534:U:O2'     | 20:U:49:ASP:OD1   | 1.69        | 1.10     |
| 21:V:50:ASP:H     | 21:V:53:LYS:HE3   | 0.98        | 1.10     |
| 17:Y:101:LEU:HD22 | 17:Y:103:LEU:HG   | 1.28        | 1.10     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 16:X:25:GLN:OE1   | 16:X:25:GLN:N    | 1.83        | 1.10     |
| 2:A:1051:G:H4'    | 2:A:2752:C:O2'   | 1.52        | 1.10     |
| 2:A:2094:G:O6     | 2:A:2196:C:N4    | 1.83        | 1.10     |
| 2:A:2393:A:O2'    | 2:A:2394:C:O5'   | 1.69        | 1.10     |
| 2:A:2495:G:O3'    | 12:Q:101:MET:HE2 | 1.39        | 1.10     |
| 2:A:2677:G:O2'    | 2:A:2678:C:H5'   | 1.51        | 1.10     |
| 4:E:256:THR:HA    | 4:E:259:HIS:HE1  | 1.12        | 1.10     |
| 7:H:90:GLY:HA2    | 7:H:159:LYS:CG   | 1.81        | 1.10     |
| 21:V:34:GLU:O     | 21:V:35:LEU:CD2  | 2.00        | 1.10     |
| 21:V:33:VAL:HB    | 21:V:63:HIS:CD2  | 1.87        | 1.10     |
| 20:U:44:THR:OG1   | 21:V:77:GLY:O    | 1.67        | 1.10     |
| 25:4:15:ILE:N     | 25:4:15:ILE:HD12 | 1.67        | 1.10     |
| 2:A:2052:G:H21    | 4:E:245:ARG:HG2  | 1.11        | 1.10     |
| 2:A:2216:G:C2'    | 2:A:2217:G:H5'   | 1.81        | 1.10     |
| 2:A:2565:A:C5'    | 2:A:2566:A:OP2   | 2.00        | 1.10     |
| 2:A:2827:C:O2     | 2:A:2828:C:C6    | 2.04        | 1.10     |
| 11:P:64:ILE:HD12  | 11:P:106:VAL:HA  | 1.16        | 1.10     |
| 19:R:36:THR:CG2   | 19:R:40:LYS:CB   | 2.30        | 1.10     |
| 21:V:31:ASP:O     | 21:V:63:HIS:O    | 1.69        | 1.10     |
| 22:2:26:GLU:HG2   | 22:2:27:LEU:H    | 0.94        | 1.10     |
| 24:0:49:GLN:HE22  | 24:0:73:GLY:CA   | 1.56        | 1.09     |
| 25:4:46:GLU:C     | 25:4:47:GLU:HG3  | 1.72        | 1.09     |
| 27:6:32:GLN:CA    | 27:6:35:LEU:HD12 | 1.82        | 1.09     |
| 30:9:25:VAL:CG2   | 30:9:34:GLN:HB3  | 1.82        | 1.09     |
| 2:A:2227:A:C6     | 2:A:2228:G:C6    | 2.38        | 1.09     |
| 2:A:2781:A:H5''   | 2:A:2782:G:C5'   | 1.82        | 1.09     |
| 2:A:2815:C:H2'    | 2:A:2816:C:H5'   | 1.18        | 1.09     |
| 2:A:2819:G:H3'    | 2:A:2821:A:N6    | 1.67        | 1.09     |
| 5:F:153:VAL:HG13  | 5:F:157:LEU:HD21 | 1.17        | 1.09     |
| 9:N:61:VAL:CG1    | 9:N:62:ASP:OD1   | 1.98        | 1.09     |
| 17:Y:101:LEU:HD13 | 17:Y:113:GLU:HB2 | 1.16        | 1.09     |
| 18:Z:4:THR:O      | 18:Z:33:ALA:HB1  | 1.51        | 1.09     |
| 2:A:1368:G:OP1    | 28:7:25:LYS:HE3  | 1.51        | 1.09     |
| 30:9:25:VAL:CG2   | 30:9:34:GLN:CB   | 2.28        | 1.09     |
| 2:A:2044:C:N4     | 2:A:2624:G:H1    | 1.50        | 1.09     |
| 2:A:2355:C:H4'    | 24:0:21:LEU:HD12 | 1.10        | 1.09     |
| 2:A:2654:A:H61    | 2:A:2667:C:N4    | 1.48        | 1.09     |
| 2:A:2748:A:N7     | 2:A:2749:A:N3    | 1.99        | 1.09     |
| 1:B:45:A:H1'      | 6:G:76:ARG:NH1   | 1.65        | 1.09     |
| 3:D:131:LEU:HD13  | 3:D:171:VAL:HG21 | 1.24        | 1.09     |
| 3:D:183:ILE:O     | 3:D:184:LEU:CD2  | 1.98        | 1.09     |
| 3:D:140:VAL:HG22  | 3:D:191:VAL:HG12 | 1.31        | 1.09     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:66:PHE:CD2   | 3:D:67:LYS:HD2   | 1.87        | 1.09     |
| 4:E:79:ARG:C     | 4:E:187:HIS:NE2  | 2.04        | 1.09     |
| 6:G:93:LEU:HD13  | 6:G:94:ALA:H     | 1.12        | 1.09     |
| 19:R:20:LEU:HD13 | 19:R:21:TYR:N    | 0.78        | 1.09     |
| 19:R:78:LYS:O    | 19:R:82:GLU:CB   | 1.99        | 1.09     |
| 14:T:37:GLU:CG   | 14:T:38:ASN:H    | 1.64        | 1.09     |
| 17:Y:43:ASN:HD21 | 17:Y:103:LEU:CD2 | 1.65        | 1.09     |
| 2:A:76:C:H4'     | 22:2:55:ARG:HG3  | 1.23        | 1.09     |
| 18:Z:143:ILE:CG2 | 18:Z:144:GLY:H   | 1.65        | 1.09     |
| 29:8:23:MET:HE1  | 29:8:48:PHE:HA   | 1.15        | 1.09     |
| 2:A:2306:C:N4    | 6:G:53:LYS:NZ    | 2.00        | 1.09     |
| 2:A:2683:C:H2'   | 2:A:2684:U:H5'   | 1.33        | 1.09     |
| 2:A:2769:C:O2'   | 2:A:2770:G:H5'   | 1.51        | 1.09     |
| 2:A:2749:A:O4'   | 7:H:62:ALA:HB2   | 0.92        | 1.09     |
| 9:N:15:ARG:HD3   | 9:N:43:ARG:CD    | 1.81        | 1.09     |
| 10:O:35:ILE:HD11 | 10:O:65:THR:HG21 | 1.11        | 1.09     |
| 12:Q:125:TRP:O   | 12:Q:126:VAL:CG2 | 2.00        | 1.09     |
| 17:Y:101:LEU:CD1 | 17:Y:112:LEU:HG  | 1.82        | 1.09     |
| 23:3:48:GLU:O    | 23:3:51:ALA:N    | 1.84        | 1.09     |
| 2:A:458:G:H5''   | 28:7:39:ARG:HD2  | 1.10        | 1.09     |
| 2:A:2447:G:C4    | 2:A:2500:U:C5    | 2.39        | 1.09     |
| 2:A:2788:C:O3'   | 2:A:2789:C:P     | 2.10        | 1.09     |
| 7:H:25:VAL:CG1   | 7:H:78:VAL:HG21  | 1.82        | 1.09     |
| 10:O:19:VAL:HG13 | 10:O:42:THR:O    | 1.51        | 1.09     |
| 12:Q:41:THR:O    | 12:Q:125:TRP:HZ3 | 1.34        | 1.09     |
| 12:Q:49:VAL:CG1  | 12:Q:50:VAL:H    | 1.65        | 1.09     |
| 21:V:39:PHE:C    | 21:V:40:VAL:HG22 | 1.72        | 1.09     |
| 15:W:32:ALA:HA   | 15:W:35:ILE:HG13 | 1.23        | 1.09     |
| 17:Y:55:PHE:CE2  | 17:Y:89:ARG:CZ   | 2.30        | 1.09     |
| 18:Z:3:LEU:HD21  | 18:Z:38:ALA:CB   | 1.80        | 1.09     |
| 18:Z:95:SER:OG   | 18:Z:122:ILE:CG1 | 1.99        | 1.09     |
| 7:H:17:THR:HB    | 7:H:24:THR:OG1   | 1.51        | 1.09     |
| 2:A:2364:C:C5'   | 24:0:38:VAL:HG12 | 1.83        | 1.09     |
| 27:6:13:GLU:OE1  | 27:6:13:GLU:N    | 1.84        | 1.09     |
| 30:9:24:LEU:HD13 | 30:9:35:ARG:HG3  | 1.27        | 1.09     |
| 2:A:1799:G:N2    | 3:D:153:LEU:CG   | 2.15        | 1.09     |
| 2:A:2195:C:H2'   | 2:A:2196:C:O4'   | 1.51        | 1.09     |
| 2:A:2225:A:C5'   | 2:A:2226:C:H5''  | 1.58        | 1.09     |
| 2:A:2507:C:C2    | 2:A:2583:G:N3    | 2.19        | 1.09     |
| 2:A:2771:C:O2    | 2:A:2771:C:H2'   | 1.51        | 1.09     |
| 2:A:2815:C:O2    | 2:A:2816:C:C6    | 2.06        | 1.09     |
| 2:A:2880:C:H2'   | 2:A:2881:C:C5'   | 1.81        | 1.09     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:O:63:VAL:HG13 | 10:O:102:VAL:HG11 | 1.14        | 1.09     |
| 10:O:7:ARG:HD3   | 10:O:44:LYS:HE3   | 1.18        | 1.09     |
| 11:P:55:GLN:HG3  | 11:P:56:LYS:HG2   | 1.35        | 1.09     |
| 12:Q:45:GLN:HB3  | 12:Q:152:SER:HB3  | 1.12        | 1.09     |
| 21:V:50:ASP:N    | 21:V:53:LYS:CE    | 2.16        | 1.09     |
| 17:Y:74:VAL:N    | 17:Y:91:LEU:HD11  | 1.65        | 1.09     |
| 2:A:2251:G:N2    | 2:A:2252:G:N3     | 2.01        | 1.09     |
| 2:A:2309:A:O4'   | 2:A:2309:A:OP2    | 1.66        | 1.09     |
| 2:A:2332:U:C1'   | 2:A:2336:A:H62    | 1.63        | 1.09     |
| 2:A:2546:U:C4'   | 2:A:2565:A:C2     | 2.35        | 1.09     |
| 2:A:2722:G:C2    | 2:A:2723:C:C4     | 2.36        | 1.09     |
| 2:A:527:C:O2'    | 9:N:95:ARG:NH1    | 1.84        | 1.09     |
| 3:D:89:ASN:O     | 3:D:105:ALA:CB    | 2.01        | 1.09     |
| 3:D:128:ALA:HB2  | 3:D:190:THR:CG2   | 1.55        | 1.09     |
| 3:D:143:ILE:H    | 3:D:143:ILE:HD12  | 1.11        | 1.09     |
| 3:D:146:LYS:HD2  | 3:D:147:PRO:HD2   | 1.32        | 1.09     |
| 4:E:74:GLU:CB    | 4:E:293:TYR:CE2   | 2.34        | 1.09     |
| 6:G:93:LEU:CD2   | 6:G:106:PHE:CD2   | 2.35        | 1.09     |
| 10:O:8:LEU:HB2   | 10:O:83:ALA:HA    | 1.18        | 1.09     |
| 20:U:59:ARG:CA   | 20:U:62:ILE:CG1   | 1.94        | 1.09     |
| 15:W:82:LEU:HD23 | 15:W:98:LYS:O     | 0.92        | 1.09     |
| 22:2:6:GLN:O     | 22:2:9:ARG:N      | 1.83        | 1.09     |
| 16:X:14:ALA:HA   | 16:X:17:ASP:CG    | 1.71        | 1.09     |
| 12:Q:94:ARG:CZ   | 12:Q:105:PHE:O    | 2.00        | 1.09     |
| 2:A:359:A:O3'    | 2:A:360:G:P       | 2.10        | 1.09     |
| 22:2:39:ALA:HB3  | 22:2:40:PRO:HD3   | 1.34        | 1.09     |
| 2:A:932:G:C5'    | 23:3:29:ARG:NH2   | 2.14        | 1.09     |
| 25:4:42:PHE:O    | 25:4:57:ASP:HA    | 1.34        | 1.09     |
| 29:8:60:LEU:HD23 | 29:8:60:LEU:O     | 1.51        | 1.09     |
| 2:A:2286:A:H5'   | 2:A:2287:A:H4'    | 1.33        | 1.09     |
| 2:A:2393:A:OP2   | 29:8:32:GLN:NE2   | 1.85        | 1.09     |
| 2:A:2485:G:H5''  | 12:Q:144:THR:HG22 | 1.15        | 1.09     |
| 2:A:2679:A:H2    | 4:E:300:VAL:HG22  | 1.01        | 1.09     |
| 4:E:76:PRO:CB    | 4:E:77:PRO:HD3    | 1.83        | 1.09     |
| 7:H:101:LYS:HB3  | 7:H:114:ILE:O     | 1.50        | 1.09     |
| 2:A:2376:A:C2    | 13:S:102:LEU:HD22 | 1.88        | 1.09     |
| 13:S:60:SER:O    | 13:S:88:ALA:HA    | 1.51        | 1.09     |
| 20:U:94:VAL:C    | 20:U:98:ILE:HD13  | 1.63        | 1.09     |
| 17:Y:66:ASP:O    | 17:Y:68:ASP:N     | 1.85        | 1.09     |
| 27:6:41:ASP:HB3  | 27:6:47:HIS:H     | 1.06        | 1.09     |
| 2:A:1129:A:C2    | 2:A:2570:G:H1'    | 1.86        | 1.09     |
| 2:A:1799:G:N2    | 3:D:153:LEU:HD21  | 1.67        | 1.09     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:G:98:PHE:CA     | 6:G:104:PHE:HD2   | 1.65        | 1.09     |
| 6:G:38:GLU:HG2    | 6:G:41:LEU:HD12   | 1.19        | 1.09     |
| 7:H:113:GLU:OE1   | 7:H:114:ILE:N     | 1.86        | 1.09     |
| 8:I:5:PHE:O       | 8:I:36:ALA:CB     | 2.01        | 1.09     |
| 10:O:35:ILE:HD11  | 10:O:65:THR:HG22  | 1.24        | 1.09     |
| 10:O:47:THR:HB    | 10:O:48:PRO:HD2   | 1.18        | 1.09     |
| 13:S:32:PRO:CG    | 13:S:100:ALA:HB1  | 1.81        | 1.09     |
| 20:U:43:ALA:HB1   | 21:V:75:LYS:HB3   | 1.33        | 1.09     |
| 17:Y:50:VAL:CG1   | 17:Y:51:LEU:H     | 1.63        | 1.09     |
| 3:D:213:LYS:HB3   | 3:D:215:LYS:N     | 1.64        | 1.09     |
| 3:D:226:GLY:O     | 3:D:227:VAL:CG1   | 2.01        | 1.09     |
| 2:A:148:C:H2'     | 2:A:149:A:C8      | 1.86        | 1.09     |
| 18:Z:156:GLU:HG2  | 18:Z:157:GLY:H    | 1.00        | 1.09     |
| 25:4:6:HIS:ND1    | 25:4:56:VAL:CG2   | 2.14        | 1.09     |
| 2:A:126:A:N6      | 28:7:18:PHE:CE2   | 2.18        | 1.09     |
| 28:7:30:ILE:O     | 28:7:33:ARG:HB2   | 0.92        | 1.09     |
| 28:7:34:ARG:CD    | 28:7:42:LEU:HD21  | 1.78        | 1.09     |
| 2:A:1818:U:H3'    | 3:D:155:ARG:CG    | 1.83        | 1.09     |
| 2:A:2013:A:H4'    | 15:W:96:ILE:CG2   | 1.81        | 1.09     |
| 2:A:2187:G:C2'    | 2:A:2188:C:H5'    | 1.82        | 1.09     |
| 2:A:2328:A:H2'    | 2:A:2329:G:H8     | 1.17        | 1.09     |
| 2:A:2333:A:C1'    | 2:A:2335:A:C4     | 2.35        | 1.09     |
| 2:A:2623:G:N2     | 2:A:2624:G:N9     | 2.01        | 1.09     |
| 4:E:180:ILE:HG21  | 4:E:187:HIS:CB    | 1.82        | 1.09     |
| 6:G:22:VAL:O      | 6:G:23:VAL:CG1    | 2.00        | 1.09     |
| 7:H:43:THR:HG23   | 7:H:52:THR:HG22   | 1.22        | 1.09     |
| 9:N:80:LYS:O      | 9:N:83:ILE:HG12   | 1.53        | 1.09     |
| 11:P:57:VAL:CG1   | 11:P:58:GLN:H     | 1.63        | 1.09     |
| 17:Y:101:LEU:HD22 | 17:Y:103:LEU:HD11 | 1.17        | 1.09     |
| 17:Y:57:GLY:CA    | 17:Y:97:ARG:HH22  | 1.65        | 1.09     |
| 18:Z:116:VAL:CG2  | 18:Z:169:VAL:HG21 | 1.82        | 1.09     |
| 2:A:2354:G:O2'    | 24:0:31:VAL:HG12  | 1.30        | 1.09     |
| 2:A:2020:A:N7     | 26:5:9:LYS:CE     | 2.15        | 1.09     |
| 2:A:2543:G:C2'    | 2:A:2544:G:H5'    | 1.81        | 1.09     |
| 2:A:2048:G:H1     | 2:A:2620:C:N4     | 1.49        | 1.09     |
| 2:A:2731:G:OP1    | 4:E:265:ASN:CB    | 2.01        | 1.09     |
| 5:F:22:PHE:CE2    | 5:F:115:LEU:HB3   | 1.86        | 1.09     |
| 10:O:22:ILE:HB    | 10:O:40:VAL:O     | 1.52        | 1.09     |
| 10:O:9:LYS:O      | 10:O:83:ALA:HB1   | 1.50        | 1.09     |
| 11:P:94:ARG:HD3   | 11:P:120:LEU:CB   | 1.83        | 1.09     |
| 12:Q:28:ILE:HG23  | 12:Q:62:GLU:HG2   | 1.15        | 1.09     |
| 20:U:99:ALA:CB    | 20:U:106:PHE:CE2  | 2.34        | 1.09     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 20:U:74:MET:HE1  | 20:U:78:THR:HG21  | 1.28        | 1.09     |
| 15:W:58:ALA:HA   | 15:W:62:HIS:HB2   | 1.21        | 1.09     |
| 17:Y:43:ASN:HD21 | 17:Y:103:LEU:HD21 | 1.01        | 1.09     |
| 1:B:75:G:H1'     | 18:Z:22:VAL:HG22  | 1.14        | 1.09     |
| 24:O:52:GLY:O    | 24:O:53:MET:CG    | 2.00        | 1.09     |
| 30:9:4:ARG:O     | 30:9:36:GLN:HG2   | 1.50        | 1.08     |
| 2:A:2219:G:H2'   | 2:A:2224:G:O5'    | 1.40        | 1.08     |
| 2:A:2234:G:H2'   | 2:A:2235:G:H5'    | 1.29        | 1.08     |
| 2:A:2239:G:H2'   | 2:A:2240:C:H6     | 1.15        | 1.08     |
| 2:A:2254:C:C2'   | 2:A:2255:G:C5'    | 2.23        | 1.08     |
| 2:A:2567:G:C2    | 2:A:2568:C:C5     | 2.41        | 1.08     |
| 2:A:2572:A:H5''  | 2:A:2574:G:H5'    | 1.31        | 1.08     |
| 2:A:593:G:H5''   | 29:8:62:LEU:CD2   | 1.82        | 1.08     |
| 7:H:15:THR:HG23  | 7:H:26:LYS:H      | 1.18        | 1.08     |
| 2:A:1665:A:C5'   | 10:O:66:LYS:HD3   | 1.81        | 1.08     |
| 10:O:98:ILE:CD1  | 10:O:117:LEU:HB3  | 1.81        | 1.08     |
| 13:S:63:SER:O    | 13:S:67:ALA:O     | 1.71        | 1.08     |
| 17:Y:51:LEU:HD12 | 17:Y:97:ARG:HG2   | 1.25        | 1.08     |
| 17:Y:71:VAL:HG23 | 17:Y:93:THR:HG23  | 1.35        | 1.08     |
| 18:Z:67:LYS:CD   | 18:Z:93:GLU:OE2   | 2.00        | 1.08     |
| 24:O:42:GLY:HA2  | 24:O:66:LYS:HA    | 1.12        | 1.08     |
| 29:8:16:ILE:HG23 | 29:8:21:LYS:C     | 1.72        | 1.08     |
| 30:9:25:VAL:HB   | 30:9:34:GLN:HB2   | 1.15        | 1.08     |
| 2:A:1500:G:N2    | 3:D:97:ASP:OD2    | 1.86        | 1.08     |
| 2:A:2415:G:N2    | 2:A:2416:C:C1'    | 2.07        | 1.08     |
| 2:A:526:A:H2     | 2:A:2626:C:C1'    | 1.65        | 1.08     |
| 4:E:77:PRO:HB3   | 4:E:187:HIS:C     | 1.73        | 1.08     |
| 4:E:268:LEU:HD23 | 4:E:269:ILE:HD12  | 1.27        | 1.08     |
| 2:A:600:G:C5'    | 5:F:30:LEU:HD11   | 1.81        | 1.08     |
| 15:W:30:GLU:N    | 15:W:33:ARG:CD    | 2.15        | 1.08     |
| 17:Y:79:LEU:HD12 | 17:Y:80:GLU:H     | 0.99        | 1.08     |
| 22:2:22:ASP:O    | 22:2:26:GLU:OE2   | 1.71        | 1.08     |
| 2:A:1599:C:OP1   | 16:X:33:SER:OG    | 1.71        | 1.08     |
| 2:A:138:G:H5''   | 16:X:43:GLU:HG3   | 1.33        | 1.08     |
| 2:A:1248:G:OP1   | 20:U:2:PRO:HB3    | 1.45        | 1.08     |
| 2:A:2262:U:C2'   | 2:A:2263:C:H5'    | 1.82        | 1.08     |
| 2:A:2360:A:C8    | 2:A:2361:A:H8     | 1.70        | 1.08     |
| 2:A:2498:C:C2'   | 2:A:2499:C:H5''   | 1.83        | 1.08     |
| 2:A:2618:G:C6    | 2:A:2619:C:C5     | 2.31        | 1.08     |
| 3:D:128:ALA:CB   | 3:D:190:THR:CA    | 2.25        | 1.08     |
| 5:F:115:LEU:CG   | 5:F:246:ARG:HH22  | 1.64        | 1.08     |
| 6:G:98:PHE:CA    | 6:G:104:PHE:CD2   | 2.35        | 1.08     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:I:7:LYS:HA     | 8:I:12:LYS:O     | 1.47        | 1.08     |
| 9:N:95:ARG:CA    | 9:N:98:PHE:CE1   | 2.35        | 1.08     |
| 21:V:5:ILE:CG2   | 21:V:39:PHE:HA   | 1.83        | 1.08     |
| 15:W:30:GLU:N    | 15:W:33:ARG:HD2  | 1.66        | 1.08     |
| 17:Y:50:VAL:HG12 | 17:Y:51:LEU:H    | 0.96        | 1.08     |
| 24:O:46:LYS:HG2  | 24:O:58:THR:H    | 1.10        | 1.08     |
| 26:5:11:THR:HG21 | 26:5:19:ARG:HH22 | 1.11        | 1.08     |
| 29:8:62:LEU:HB2  | 29:8:63:PRO:HD3  | 1.35        | 1.08     |
| 2:A:2391:G:O2'   | 2:A:2392:A:OP2   | 1.70        | 1.08     |
| 2:A:2457:U:C4    | 2:A:2458:G:N3    | 2.15        | 1.08     |
| 2:A:2815:C:O2'   | 2:A:2816:C:H5''  | 1.48        | 1.08     |
| 2:A:2819:G:H3'   | 2:A:2821:A:H62   | 1.14        | 1.08     |
| 6:G:49:PRO:HB2   | 6:G:72:LYS:H     | 1.10        | 1.08     |
| 7:H:43:THR:CG2   | 7:H:52:THR:HG22  | 1.77        | 1.08     |
| 13:S:47:LEU:HD12 | 13:S:58:LEU:HD21 | 1.30        | 1.08     |
| 15:W:32:ALA:HB1  | 15:W:35:ILE:HD12 | 1.19        | 1.08     |
| 18:Z:69:VAL:HG22 | 18:Z:81:VAL:HG13 | 1.15        | 1.08     |
| 7:H:80:LYS:O     | 7:H:81:GLY:O     | 1.71        | 1.08     |
| 23:3:8:LEU:HA    | 23:3:54:VAL:HG11 | 1.24        | 1.08     |
| 30:9:14:CYS:CA   | 30:9:27:CYS:CB   | 2.31        | 1.08     |
| 2:A:1162:G:H4'   | 21:V:23:GLU:CB   | 1.82        | 1.08     |
| 2:A:2306:C:N4    | 6:G:53:LYS:HZ3   | 1.51        | 1.08     |
| 2:A:2484:G:N2    | 2:A:2485:G:H1'   | 1.66        | 1.08     |
| 2:A:746:A:O2'    | 2:A:2611:U:O2'   | 1.70        | 1.08     |
| 2:A:2730:C:H4'   | 4:E:265:ASN:ND2  | 1.53        | 1.08     |
| 4:E:180:ILE:HG21 | 4:E:187:HIS:HA   | 1.14        | 1.08     |
| 5:F:236:THR:O    | 5:F:239:ALA:N    | 1.85        | 1.08     |
| 9:N:48:GLY:O     | 9:N:53:ILE:HD13  | 1.54        | 1.08     |
| 11:P:132:LYS:H   | 11:P:132:LYS:HD2 | 0.97        | 1.08     |
| 11:P:65:ASP:HA   | 11:P:109:LEU:H   | 0.99        | 1.08     |
| 20:U:94:VAL:O    | 20:U:98:ILE:HD12 | 1.31        | 1.08     |
| 21:V:35:LEU:C    | 21:V:60:VAL:HG13 | 1.72        | 1.08     |
| 24:O:35:ASN:O    | 24:O:36:ILE:HG12 | 1.53        | 1.08     |
| 25:4:63:PHE:O    | 25:4:65:ASP:OD2  | 1.69        | 1.08     |
| 29:8:4:MET:HB2   | 29:8:7:HIS:HE1   | 0.93        | 1.08     |
| 2:A:2094:G:C6    | 2:A:2196:C:C4    | 2.40        | 1.08     |
| 2:A:2320:A:C5    | 13:S:9:PRO:HB3   | 1.89        | 1.08     |
| 2:A:2437:U:C5'   | 2:A:2598:A:C2    | 2.35        | 1.08     |
| 2:A:2634:G:H2'   | 2:A:2635:C:O5'   | 1.54        | 1.08     |
| 2:A:2739:U:C2'   | 2:A:2740:A:H5''  | 1.82        | 1.08     |
| 2:A:2740:A:C2'   | 2:A:2741:A:H5'   | 1.81        | 1.08     |
| 6:G:28:GLY:HA2   | 6:G:69:ILE:HD12  | 1.14        | 1.08     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:O:14:SER:CB   | 10:O:86:ILE:HD12  | 1.84        | 1.08     |
| 2:A:338:G:OP1    | 17:Y:21:LYS:HD2   | 1.53        | 1.08     |
| 18:Z:142:ASN:H   | 18:Z:171:VAL:HG21 | 0.98        | 1.08     |
| 2:A:849:A:N3     | 23:3:21:ALA:HB1   | 1.68        | 1.08     |
| 25:4:58:LYS:HG2  | 25:4:62:ARG:HE    | 1.12        | 1.08     |
| 2:A:17:G:OP1     | 26:5:13:LYS:NZ    | 1.84        | 1.08     |
| 2:A:2271:G:O2'   | 2:A:2272:U:O5'    | 1.72        | 1.08     |
| 2:A:2616:C:H2'   | 2:A:2617:C:H5'    | 1.15        | 1.08     |
| 2:A:2653:U:C2    | 2:A:2654:A:C6     | 2.41        | 1.08     |
| 2:A:2805:G:H2'   | 2:A:2807:G:O4'    | 1.54        | 1.08     |
| 2:A:911:A:H2'    | 12:Q:16:ARG:HE    | 1.10        | 1.08     |
| 10:O:10:VAL:HG21 | 10:O:16:ALA:HB3   | 1.22        | 1.08     |
| 19:R:84:ALA:HB3  | 19:R:85:PRO:CD    | 1.83        | 1.08     |
| 20:U:7:GLY:C     | 20:U:8:ILE:CD1    | 2.22        | 1.08     |
| 20:U:92:ARG:N    | 20:U:95:LEU:HD11  | 1.69        | 1.08     |
| 21:V:51:ALA:HA   | 21:V:54:TYR:HD1   | 1.16        | 1.08     |
| 15:W:66:GLU:CG   | 15:W:67:ASP:H     | 1.66        | 1.08     |
| 2:A:2316:C:H5'   | 6:G:142:ALA:HB3   | 1.23        | 1.08     |
| 2:A:2397:G:C2    | 2:A:2420:C:O2     | 2.04        | 1.08     |
| 2:A:2700:C:C3'   | 2:A:2701:C:H5''   | 1.83        | 1.08     |
| 4:E:70:VAL:CG1   | 4:E:296:VAL:CA    | 2.32        | 1.08     |
| 6:G:146:LYS:HG3  | 13:S:15:GLU:HG3   | 1.25        | 1.08     |
| 13:S:116:PHE:O   | 13:S:120:GLU:OE1  | 1.69        | 1.08     |
| 13:S:49:THR:C    | 13:S:52:PRO:N     | 2.07        | 1.08     |
| 20:U:21:ALA:CA   | 20:U:24:PHE:HZ    | 1.65        | 1.08     |
| 28:7:30:ILE:CG1  | 28:7:33:ARG:HD2   | 1.82        | 1.08     |
| 30:9:14:CYS:HA   | 30:9:27:CYS:HB3   | 1.17        | 1.08     |
| 2:A:2494:G:C2    | 2:A:2495:G:N7     | 2.22        | 1.08     |
| 2:A:2731:G:H22   | 2:A:2732:G:N2     | 1.47        | 1.08     |
| 2:A:2768:C:H2'   | 2:A:2769:C:H5'    | 1.08        | 1.08     |
| 4:E:180:ILE:CG2  | 4:E:187:HIS:HB3   | 1.82        | 1.08     |
| 4:E:210:THR:CA   | 4:E:216:ARG:NH2   | 2.16        | 1.08     |
| 10:O:98:ILE:HG22 | 10:O:99:PHE:H     | 1.00        | 1.08     |
| 12:Q:28:ILE:HG22 | 12:Q:29:ALA:H     | 1.16        | 1.08     |
| 13:S:34:LEU:HG   | 13:S:102:LEU:HA   | 1.33        | 1.08     |
| 20:U:92:ARG:H    | 21:V:10:LYS:NZ    | 1.49        | 1.08     |
| 21:V:50:ASP:N    | 21:V:53:LYS:HE3   | 1.69        | 1.08     |
| 21:V:61:VAL:HA   | 21:V:98:ILE:HG13  | 1.22        | 1.08     |
| 15:W:24:ILE:O    | 15:W:25:ARG:O     | 1.72        | 1.08     |
| 18:Z:78:PRO:O    | 18:Z:79:ILE:HG13  | 1.54        | 1.08     |
| 24:0:23:VAL:HG12 | 24:0:24:LYS:N     | 1.63        | 1.08     |
| 2:A:1263:U:C4'   | 26:5:16:ARG:CZ    | 2.32        | 1.08     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1364:G:C2'   | 25:4:3:LYS:NZ     | 1.99        | 1.08     |
| 2:A:2485:G:C2'   | 2:A:2486:G:C5'    | 2.30        | 1.08     |
| 2:A:2545:G:O2'   | 2:A:2546:U:C5'    | 2.02        | 1.08     |
| 2:A:2579:C:C6    | 2:A:2579:C:C5'    | 2.11        | 1.08     |
| 4:E:210:THR:HG22 | 4:E:255:GLN:HG2   | 1.13        | 1.08     |
| 2:A:2052:G:H21   | 4:E:245:ARG:CG    | 1.65        | 1.08     |
| 10:O:25:LEU:HD21 | 10:O:40:VAL:CG2   | 1.73        | 1.08     |
| 6:G:145:ASP:CB   | 13:S:15:GLU:C     | 2.22        | 1.08     |
| 20:U:28:ARG:HA   | 20:U:31:GLN:CB    | 1.83        | 1.08     |
| 8:I:115:ILE:HG12 | 8:I:131:VAL:CG1   | 1.83        | 1.08     |
| 8:I:133:LEU:HD11 | 8:I:139:ALA:CB    | 1.83        | 1.08     |
| 8:I:77:VAL:HB    | 8:I:142:LYS:O     | 1.52        | 1.08     |
| 4:E:109:ASP:HA   | 4:E:112:LEU:HB2   | 1.36        | 1.08     |
| 2:A:270(M):U:H4' | 2:A:270(N):G:H4'  | 1.35        | 1.08     |
| 15:W:19:LEU:HD13 | 26:5:25:LEU:HD21  | 1.08        | 1.07     |
| 27:6:28:ARG:NH1  | 27:6:28:ARG:CB    | 2.17        | 1.07     |
| 28:7:42:LEU:O    | 28:7:46:ASP:OD1   | 1.72        | 1.07     |
| 30:9:4:ARG:O     | 30:9:36:GLN:CB    | 2.01        | 1.07     |
| 2:A:2544:G:O2'   | 2:A:2545:G:H5'    | 1.50        | 1.07     |
| 2:A:2570:G:C4    | 2:A:2571:C:C5     | 2.42        | 1.07     |
| 2:A:2701:C:H3'   | 2:A:2702:U:C5'    | 1.84        | 1.07     |
| 3:D:73:ILE:HG22  | 3:D:95:TYR:HD2    | 0.91        | 1.07     |
| 5:F:102:LEU:HB3  | 5:F:107:ARG:NE    | 1.69        | 1.07     |
| 5:F:22:PHE:CZ    | 5:F:115:LEU:CB    | 2.37        | 1.07     |
| 2:A:2060:A:OP1   | 5:F:64:GLY:HA2    | 1.54        | 1.07     |
| 8:I:7:LYS:CD     | 8:I:12:LYS:HZ3    | 1.50        | 1.07     |
| 12:Q:17:ARG:C    | 12:Q:18:GLU:HG3   | 1.62        | 1.07     |
| 12:Q:25:GLY:O    | 12:Q:26:LYS:CG    | 2.02        | 1.07     |
| 20:U:20:ARG:HH12 | 21:V:75:LYS:HE3   | 1.18        | 1.07     |
| 2:A:997:G:C4'    | 20:U:92:ARG:HH12  | 1.60        | 1.07     |
| 21:V:50:ASP:N    | 21:V:53:LYS:CD    | 2.16        | 1.07     |
| 2:A:126:A:N7     | 28:7:18:PHE:CE1   | 2.21        | 1.07     |
| 2:A:1140:C:N4    | 9:N:49:ARG:CD     | 2.16        | 1.07     |
| 2:A:2531:A:C2'   | 2:A:2532:G:C5'    | 2.31        | 1.07     |
| 2:A:1751:C:O4'   | 2:A:2860:A:C2     | 2.07        | 1.07     |
| 4:E:200:ASP:CA   | 4:E:266:LYS:HD2   | 1.84        | 1.07     |
| 10:O:7:ARG:NE    | 10:O:44:LYS:HE3   | 1.68        | 1.07     |
| 12:Q:76:GLY:HA3  | 12:Q:132:VAL:HG11 | 1.12        | 1.07     |
| 21:V:94:LYS:CA   | 21:V:95:ILE:HD12  | 1.84        | 1.07     |
| 16:X:31:ARG:O    | 16:X:32:ALA:O     | 1.69        | 1.07     |
| 2:A:2:G:N2       | 2:A:2902:C:C2     | 2.22        | 1.07     |
| 7:H:170:LEU:HD13 | 7:H:170:LEU:O     | 0.92        | 1.07     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1364:G:O5'   | 25:4:3:LYS:CG     | 2.01        | 1.07     |
| 25:4:5:LEU:HB2   | 25:4:56:VAL:CG1   | 1.83        | 1.07     |
| 26:5:45:ILE:HG13 | 26:5:52:TYR:HE1   | 0.92        | 1.07     |
| 28:7:36:ALA:O    | 28:7:38:GLY:N     | 1.87        | 1.07     |
| 2:A:2263:C:O2'   | 2:A:2264:C:H5'    | 1.52        | 1.07     |
| 2:A:2470:G:N2    | 2:A:2471:C:C6     | 2.21        | 1.07     |
| 2:A:2468:G:H22   | 2:A:2481:G:H2'    | 1.10        | 1.07     |
| 2:A:558:G:OP1    | 9:N:91:LYS:C      | 1.93        | 1.07     |
| 3:D:165:GLY:O    | 3:D:172:ILE:HB    | 0.90        | 1.07     |
| 5:F:194:PHE:HB2  | 5:F:211:ASP:O     | 1.52        | 1.07     |
| 10:O:68:GLY:HA3  | 10:O:78:ARG:HE    | 1.00        | 1.07     |
| 20:U:21:ALA:HA   | 20:U:24:PHE:HZ    | 0.94        | 1.07     |
| 2:A:494:G:H4'    | 15:W:6:ILE:CG2    | 1.82        | 1.07     |
| 24:0:37:LEU:HG   | 24:0:68:VAL:HG12  | 1.29        | 1.07     |
| 2:A:2216:G:H2'   | 2:A:2217:G:H5'    | 1.08        | 1.07     |
| 2:A:2392:A:C2'   | 2:A:2393:A:H5'    | 1.85        | 1.07     |
| 2:A:2246:G:C4    | 2:A:2426:A:C2     | 2.43        | 1.07     |
| 2:A:2472:G:C2'   | 2:A:2475:C:H42    | 1.66        | 1.07     |
| 2:A:2482:G:C2'   | 2:A:2483:C:C5'    | 2.29        | 1.07     |
| 2:A:2657:A:H62   | 2:A:2664:G:N2     | 1.50        | 1.07     |
| 2:A:2689:U:C5    | 2:A:2713:A:N6     | 2.22        | 1.07     |
| 3:D:63:ILE:C     | 3:D:64:ILE:HG13   | 1.71        | 1.07     |
| 5:F:168:ARG:NH1  | 5:F:209:GLY:C     | 2.08        | 1.07     |
| 6:G:146:LYS:HG3  | 13:S:15:GLU:CD    | 1.73        | 1.07     |
| 6:G:36:ASN:O     | 6:G:39:ASP:N      | 1.86        | 1.07     |
| 2:A:2303:G:H5'   | 6:G:99:ASP:HB3    | 1.30        | 1.07     |
| 7:H:15:THR:CG2   | 7:H:26:LYS:CB     | 2.27        | 1.07     |
| 9:N:19:MET:HG2   | 9:N:46:ILE:HD11   | 1.35        | 1.07     |
| 9:N:65:ASN:ND2   | 9:N:69:TYR:CE1    | 2.23        | 1.07     |
| 9:N:80:LYS:O     | 9:N:84:ARG:HG3    | 1.53        | 1.07     |
| 11:P:114:VAL:CG2 | 11:P:132:LYS:HB2  | 1.82        | 1.07     |
| 12:Q:57:ARG:N    | 12:Q:61:LEU:HD21  | 1.69        | 1.07     |
| 12:Q:67:ALA:H    | 12:Q:70:ARG:CZ    | 1.52        | 1.07     |
| 20:U:72:HIS:CE1  | 20:U:110:VAL:HG11 | 1.89        | 1.07     |
| 18:Z:114:ASP:HB2 | 18:Z:170:SER:O    | 1.54        | 1.07     |
| 8:I:103:GLN:HE21 | 8:I:109:LYS:C     | 1.56        | 1.07     |
| 8:I:77:VAL:HG21  | 8:I:141:LEU:HD12  | 1.13        | 1.07     |
| 9:N:10:VAL:HG12  | 9:N:36:VAL:HG22   | 1.34        | 1.07     |
| 2:A:144:C:H5'    | 16:X:36:GLU:CD    | 1.74        | 1.07     |
| 18:Z:96:VAL:HG13 | 18:Z:97:PRO:HD2   | 1.27        | 1.07     |
| 26:5:4:HIS:HB2   | 26:5:5:PRO:HD3    | 1.37        | 1.07     |
| 2:A:1364:G:OP1   | 25:4:3:LYS:CG     | 2.01        | 1.07     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:1819:A:H2'    | 3:D:177:SER:HA    | 1.36        | 1.07     |
| 2:A:2358:G:C2     | 2:A:2359:C:O4'    | 2.08        | 1.07     |
| 2:A:2385:C:N3     | 2:A:2386:C:C6     | 2.23        | 1.07     |
| 2:A:957:A:H61     | 2:A:2458:G:H4'    | 1.19        | 1.07     |
| 2:A:2819:G:C2     | 2:A:2821:A:C8     | 2.41        | 1.07     |
| 2:A:2885:C:C4     | 2:A:2886:G:C8     | 2.42        | 1.07     |
| 4:E:240:PRO:HB2   | 4:E:243:PRO:HG2   | 1.35        | 1.07     |
| 5:F:37:ALA:HB3    | 5:F:102:LEU:HD12  | 1.35        | 1.07     |
| 5:F:231:ARG:O     | 5:F:232:LEU:CD2   | 2.02        | 1.07     |
| 5:F:237:GLU:O     | 5:F:239:ALA:N     | 1.87        | 1.07     |
| 9:N:19:MET:CE     | 9:N:19:MET:CA     | 2.28        | 1.07     |
| 9:N:19:MET:HA     | 9:N:19:MET:HE2    | 1.13        | 1.07     |
| 19:R:34:ILE:HG22  | 19:R:35:THR:N     | 1.63        | 1.07     |
| 6:G:146:LYS:HE3   | 13:S:15:GLU:CD    | 1.74        | 1.07     |
| 20:U:94:VAL:O     | 20:U:98:ILE:CD1   | 0.78        | 1.07     |
| 12:Q:42:TYR:O     | 18:Z:119:ASN:ND2  | 1.87        | 1.07     |
| 18:Z:154:LEU:HD13 | 18:Z:160:LEU:HD11 | 1.35        | 1.07     |
| 18:Z:2:GLU:C      | 18:Z:54:ILE:CG2   | 2.22        | 1.07     |
| 18:Z:91:PRO:HB2   | 18:Z:127:PRO:HA   | 1.35        | 1.07     |
| 27:6:45:LYS:O     | 27:6:46:LYS:HE2   | 0.90        | 1.07     |
| 27:6:14:SER:HB3   | 27:6:52:GLU:HA    | 1.27        | 1.07     |
| 2:A:2051:A:O2'    | 4:E:238:LEU:CD2   | 2.03        | 1.07     |
| 2:A:2286:A:H5''   | 2:A:2287:A:H5'    | 1.33        | 1.07     |
| 2:A:2584:U:N1     | 2:A:2585:U:C5     | 2.23        | 1.07     |
| 2:A:2774:C:OP1    | 2:A:2774:C:H4'    | 1.47        | 1.07     |
| 1:B:7:G:O2'       | 13:S:37:ARG:HG3   | 1.54        | 1.07     |
| 3:D:131:LEU:HD13  | 3:D:171:VAL:HG22  | 1.16        | 1.07     |
| 8:I:7:LYS:CG      | 8:I:12:LYS:CD     | 2.31        | 1.07     |
| 9:N:135:ILE:O     | 9:N:139:LEU:HD11  | 1.53        | 1.07     |
| 10:O:31:ARG:HB2   | 10:O:32:TYR:CE1   | 1.89        | 1.07     |
| 2:A:637:A:C8      | 11:P:111:ALA:HB2  | 1.90        | 1.07     |
| 11:P:110:GLY:O    | 11:P:111:ALA:O    | 1.70        | 1.07     |
| 11:P:92:ASP:OD1   | 11:P:94:ARG:HG3   | 1.53        | 1.07     |
| 19:R:37:THR:HA    | 19:R:111:LEU:HA   | 1.37        | 1.07     |
| 2:A:495:G:O2'     | 15:W:57:ASN:OD1   | 1.70        | 1.07     |
| 17:Y:18:GLU:C     | 17:Y:21:LYS:NZ    | 2.07        | 1.07     |
| 18:Z:5:ALA:HB3    | 18:Z:33:ALA:HA    | 1.34        | 1.07     |
| 18:Z:37:LYS:C     | 18:Z:40:ASP:OD1   | 1.91        | 1.07     |
| 8:I:77:VAL:HG11   | 8:I:143:VAL:HG22  | 1.08        | 1.07     |
| 16:X:51:GLN:O     | 16:X:52:VAL:CG2   | 2.02        | 1.07     |
| 6:G:44:ILE:HG22   | 6:G:83:PHE:HE2    | 1.19        | 1.07     |
| 27:6:41:ASP:HB2   | 27:6:46:LYS:HZ2   | 0.91        | 1.07     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2227:A:H2    | 2:A:2228:G:C2     | 1.69        | 1.07     |
| 2:A:2249:U:N3    | 2:A:2253:G:OP2    | 1.88        | 1.07     |
| 2:A:2554:U:H3'   | 2:A:2554:U:H6     | 1.09        | 1.07     |
| 2:A:2573:C:H6    | 2:A:2573:C:H5'    | 1.05        | 1.07     |
| 2:A:2574:G:N7    | 2:A:2575:C:H5     | 1.53        | 1.07     |
| 2:A:2681:C:H5    | 2:A:2727:G:N2     | 1.51        | 1.07     |
| 5:F:32:GLY:CA    | 5:F:35:VAL:CG2    | 2.32        | 1.07     |
| 5:F:59:GLU:CB    | 5:F:61:PHE:HE2    | 1.68        | 1.07     |
| 19:R:104:ARG:CA  | 19:R:105:ARG:HH21 | 1.68        | 1.07     |
| 13:S:41:LYS:NZ   | 13:S:68:GLU:OE2   | 1.86        | 1.07     |
| 21:V:93:ILE:HG22 | 21:V:95:ILE:HD11  | 1.37        | 1.07     |
| 21:V:61:VAL:HG21 | 21:V:97:GLY:HA2   | 1.27        | 1.07     |
| 18:Z:116:VAL:HA  | 18:Z:169:VAL:HG22 | 1.11        | 1.07     |
| 2:A:856:C:O2'    | 24:O:24:LYS:CB    | 2.02        | 1.07     |
| 23:3:20:LYS:CA   | 23:3:23:LEU:CG    | 2.31        | 1.07     |
| 25:4:7:PRO:HG2   | 25:4:56:VAL:HG11  | 1.35        | 1.07     |
| 27:6:12:MET:HB2  | 27:6:27:ASN:ND2   | 1.70        | 1.07     |
| 27:6:8:ILE:N     | 27:6:29:ARG:HH21  | 1.50        | 1.07     |
| 28:7:21:ARG:HB3  | 28:7:31:LEU:HD11  | 1.07        | 1.07     |
| 2:A:2215:G:C2'   | 2:A:2216:G:H8     | 1.65        | 1.07     |
| 2:A:2328:A:C5    | 2:A:2329:G:N7     | 2.23        | 1.07     |
| 2:A:242:G:H3'    | 29:8:5:LYS:HZ3    | 1.13        | 1.07     |
| 2:A:2450:A:H5''  | 2:A:2497:A:C6     | 1.90        | 1.07     |
| 2:A:2484:G:H1'   | 12:Q:142:LYS:HZ2  | 1.19        | 1.07     |
| 4:E:214:VAL:HG21 | 4:E:221:LYS:HZ1   | 0.94        | 1.07     |
| 5:F:235:PHE:HB3  | 5:F:239:ALA:HB1   | 1.37        | 1.07     |
| 2:A:801:G:OP2    | 5:F:79:ARG:HD3    | 1.28        | 1.07     |
| 5:F:85:LYS:HD2   | 5:F:85:LYS:N      | 1.67        | 1.07     |
| 9:N:21:ARG:O     | 9:N:24:SER:OG     | 1.70        | 1.07     |
| 14:T:37:GLU:HG2  | 14:T:38:ASN:H     | 0.90        | 1.07     |
| 20:U:8:ILE:N     | 20:U:11:ARG:HD3   | 1.69        | 1.07     |
| 15:W:85:VAL:O    | 15:W:86:LEU:CD2   | 2.03        | 1.07     |
| 15:W:96:ILE:HD12 | 15:W:96:ILE:H     | 0.96        | 1.07     |
| 18:Z:163:ASP:OD2 | 18:Z:164:PRO:CD   | 0.77        | 1.07     |
| 18:Z:40:ASP:HB2  | 18:Z:41:ARG:NE    | 1.70        | 1.07     |
| 8:I:103:GLN:NE2  | 8:I:109:LYS:HA    | 1.70        | 1.07     |
| 22:2:62:GLU:O    | 22:2:64:GLY:N     | 1.87        | 1.07     |
| 6:G:44:ILE:O     | 6:G:83:PHE:CE2    | 2.07        | 1.07     |
| 23:3:9:VAL:N     | 23:3:54:VAL:HG12  | 1.69        | 1.07     |
| 30:9:4:ARG:HA    | 30:9:36:GLN:HA    | 1.29        | 1.07     |
| 2:A:2543:G:C8    | 2:A:2544:G:N7     | 2.21        | 1.07     |
| 2:A:2731:G:C2    | 2:A:2732:G:C2     | 2.42        | 1.07     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2839:G:C4     | 2:A:2840:C:C5    | 2.43        | 1.07     |
| 2:A:994:C:OP2     | 20:U:54:LYS:HE3  | 1.54        | 1.07     |
| 3:D:174:ARG:HG2   | 3:D:174:ARG:HH11 | 0.95        | 1.07     |
| 7:H:36:PHE:CD2    | 7:H:70:LEU:HD13  | 1.86        | 1.07     |
| 7:H:7:PRO:CD      | 7:H:68:ARG:HD3   | 1.84        | 1.07     |
| 9:N:19:MET:CB     | 9:N:46:ILE:CD1   | 2.31        | 1.07     |
| 11:P:114:VAL:HG21 | 11:P:132:LYS:C   | 1.75        | 1.07     |
| 12:Q:127:ASN:HB3  | 12:Q:128:PRO:HD3 | 1.08        | 1.07     |
| 20:U:57:PHE:O     | 20:U:59:ARG:N    | 1.88        | 1.07     |
| 18:Z:69:VAL:HG11  | 18:Z:81:VAL:HG22 | 1.37        | 1.07     |
| 2:A:2354:G:N2     | 24:0:32:LYS:HE3  | 1.69        | 1.07     |
| 24:0:44:LYS:HA    | 24:0:64:ASP:OD1  | 1.52        | 1.07     |
| 2:A:1820:U:O2     | 3:D:200:THR:HG23 | 1.55        | 1.07     |
| 2:A:2283:C:N3     | 2:A:2284:C:H1'   | 1.68        | 1.07     |
| 2:A:2344:U:O2'    | 2:A:2345:G:O5'   | 1.70        | 1.07     |
| 2:A:2574:G:C3'    | 2:A:2575:C:H6    | 1.67        | 1.07     |
| 2:A:2819:G:C3'    | 2:A:2821:A:H62   | 1.68        | 1.07     |
| 4:E:222:ARG:HG3   | 4:E:222:ARG:HH11 | 0.97        | 1.07     |
| 5:F:223:LEU:O     | 5:F:225:PRO:N    | 1.88        | 1.07     |
| 7:H:85:ALA:O      | 7:H:148:ARG:NH2  | 1.68        | 1.07     |
| 12:Q:85:ILE:CG2   | 12:Q:122:PHE:CB  | 2.16        | 1.07     |
| 17:Y:31:LEU:O     | 17:Y:34:GLU:CG   | 1.98        | 1.07     |
| 2:A:2521:C:C2     | 2:A:2522:U:C6    | 2.42        | 1.06     |
| 7:H:86:LEU:H      | 7:H:131:ILE:HG23 | 0.93        | 1.06     |
| 9:N:87:LEU:HD12   | 9:N:87:LEU:N     | 1.70        | 1.06     |
| 10:O:7:ARG:NE     | 10:O:44:LYS:CD   | 2.17        | 1.06     |
| 12:Q:136:TRP:O    | 12:Q:139:ALA:N   | 1.87        | 1.06     |
| 17:Y:91:LEU:HD23  | 17:Y:91:LEU:N    | 1.68        | 1.06     |
| 2:A:2615:U:N3     | 26:5:8:LYS:HG2   | 1.69        | 1.06     |
| 2:A:2625:G:H3'    | 2:A:2626:C:C6    | 1.89        | 1.06     |
| 3:D:131:LEU:CD1   | 3:D:183:ILE:CG2  | 2.32        | 1.06     |
| 4:E:216:ARG:NH1   | 4:E:253:GLN:HB3  | 1.69        | 1.06     |
| 2:A:801:G:OP2     | 5:F:79:ARG:CD    | 1.96        | 1.06     |
| 2:A:1666:G:O2'    | 10:O:6:SER:HB3   | 1.54        | 1.06     |
| 19:R:100:LEU:CD2  | 19:R:113:LEU:N   | 2.18        | 1.06     |
| 20:U:41:ASN:ND2   | 20:U:42:ALA:H    | 1.53        | 1.06     |
| 2:A:1620:G:O4'    | 28:7:1:MET:N     | 1.86        | 1.06     |
| 7:H:168:VAL:HG12  | 7:H:169:ARG:H    | 1.20        | 1.06     |
| 24:0:37:LEU:O     | 24:0:40:GLN:CG   | 2.03        | 1.06     |
| 2:A:856:C:O3'     | 24:0:56:ASP:OD2  | 1.73        | 1.06     |
| 28:7:18:PHE:O     | 28:7:19:ARG:O    | 1.72        | 1.06     |
| 28:7:30:ILE:CD1   | 28:7:33:ARG:CD   | 2.30        | 1.06     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1022:G:C5'   | 9:N:52:GLN:OE1    | 2.02        | 1.06     |
| 2:A:2219:G:C2'   | 2:A:2224:G:H5'    | 1.84        | 1.06     |
| 2:A:2273:A:C8    | 2:A:2274:A:C8     | 2.43        | 1.06     |
| 2:A:2454:G:C2    | 2:A:2455:G:C1'    | 2.38        | 1.06     |
| 3:D:175:LEU:CG   | 3:D:180:VAL:N     | 2.11        | 1.06     |
| 11:P:128:GLY:HA2 | 11:P:132:LYS:NZ   | 1.65        | 1.06     |
| 12:Q:142:LYS:HG3 | 12:Q:143:VAL:N    | 1.39        | 1.06     |
| 2:A:564:C:P      | 21:V:79:GLN:HG2   | 1.95        | 1.06     |
| 15:W:81:ALA:C    | 15:W:82:LEU:HD22  | 1.75        | 1.06     |
| 17:Y:63:ILE:HD11 | 17:Y:75:GLU:N     | 0.74        | 1.06     |
| 2:A:2086:U:N3    | 2:A:2233:U:O4     | 1.88        | 1.06     |
| 2:A:2359:C:C4    | 2:A:2360:A:C2     | 2.42        | 1.06     |
| 2:A:2465:C:O2    | 2:A:2485:G:N1     | 1.87        | 1.06     |
| 2:A:2657:A:N7    | 2:A:2664:G:N2     | 2.03        | 1.06     |
| 2:A:337:C:H3'    | 2:A:338:G:H5''    | 1.09        | 1.06     |
| 4:E:39:GLN:OE1   | 4:E:174:LEU:CD2   | 2.04        | 1.06     |
| 7:H:113:GLU:OE1  | 7:H:113:GLU:C     | 1.92        | 1.06     |
| 7:H:101:LYS:HG3  | 7:H:115:GLU:HA    | 1.12        | 1.06     |
| 9:N:31:LEU:O     | 9:N:33:GLY:N      | 1.88        | 1.06     |
| 13:S:109:PRO:O   | 13:S:116:PHE:CD1  | 2.08        | 1.06     |
| 21:V:95:ILE:N    | 21:V:95:ILE:HD12  | 1.68        | 1.06     |
| 17:Y:52:ARG:HD2  | 17:Y:95:ASN:CG    | 1.74        | 1.06     |
| 18:Z:2:GLU:N     | 18:Z:54:ILE:HG23  | 1.67        | 1.06     |
| 2:A:1789:A:O3'   | 3:D:224:VAL:HG13  | 1.55        | 1.06     |
| 22:2:27:LEU:HD11 | 22:2:53:ILE:HD13  | 1.30        | 1.06     |
| 16:X:24:LEU:O    | 16:X:26:PHE:HE1   | 0.73        | 1.06     |
| 16:X:47:VAL:CG1  | 16:X:69:SER:OG    | 2.02        | 1.06     |
| 2:A:1368:G:OP1   | 28:7:25:LYS:HD2   | 1.51        | 1.06     |
| 2:A:2423:U:C6    | 2:A:2425:A:C5     | 2.44        | 1.06     |
| 2:A:2645:G:OP2   | 2:A:2645:G:O4'    | 1.74        | 1.06     |
| 5:F:196:THR:HA   | 5:F:236:THR:HG23  | 1.12        | 1.06     |
| 10:O:25:LEU:HD22 | 10:O:40:VAL:CG2   | 1.73        | 1.06     |
| 10:O:25:LEU:HD12 | 10:O:38:VAL:HG12  | 1.33        | 1.06     |
| 10:O:25:LEU:HD22 | 10:O:40:VAL:HG23  | 1.08        | 1.06     |
| 19:R:20:LEU:HD12 | 19:R:21:TYR:CD2   | 1.88        | 1.06     |
| 2:A:535:C:O2'    | 20:U:53:LYS:HG2   | 0.89        | 1.06     |
| 17:Y:43:ASN:HD21 | 17:Y:101:LEU:HD21 | 0.90        | 1.06     |
| 18:Z:67:LYS:CA   | 18:Z:67:LYS:NZ    | 2.18        | 1.06     |
| 2:A:2051:A:N6    | 2:A:2614:A:N7     | 2.04        | 1.06     |
| 2:A:2463:C:O2    | 2:A:2464:C:C5     | 2.09        | 1.06     |
| 2:A:2556:C:O2'   | 2:A:2557:G:C5'    | 2.00        | 1.06     |
| 2:A:806:C:O2'    | 2:A:2445:G:O4'    | 1.72        | 1.06     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:H:93:TYR:CE1    | 7:H:106:VAL:O     | 2.09        | 1.06     |
| 8:I:8:ASP:HA      | 8:I:11:GLY:C      | 1.69        | 1.06     |
| 21:V:65:ARG:O     | 21:V:93:ILE:CG2   | 2.04        | 1.06     |
| 2:A:2261:C:OP2    | 24:O:14:ARG:HG2   | 0.89        | 1.06     |
| 2:A:2262:U:H2'    | 2:A:2263:C:H5'    | 1.33        | 1.06     |
| 2:A:2392:A:H2'    | 2:A:2393:A:H5'    | 1.07        | 1.06     |
| 2:A:2458:G:O6     | 2:A:2490:G:H2'    | 1.56        | 1.06     |
| 2:A:2043:C:N4     | 2:A:2777:G:C4     | 2.23        | 1.06     |
| 2:A:29:U:H4'      | 20:U:11:ARG:CZ    | 1.85        | 1.06     |
| 2:A:747:U:OP2     | 26:5:2:ALA:N      | 1.87        | 1.06     |
| 3:D:175:LEU:CD1   | 3:D:179:GLU:C     | 2.22        | 1.06     |
| 5:F:98:ARG:O      | 5:F:99:SER:O      | 1.72        | 1.06     |
| 9:N:45:VAL:N      | 9:N:132:LEU:CB    | 2.15        | 1.06     |
| 2:A:1140:C:H41    | 9:N:49:ARG:HD2    | 0.96        | 1.06     |
| 10:O:25:LEU:CG    | 10:O:38:VAL:O     | 2.04        | 1.06     |
| 15:W:36:LEU:CD1   | 15:W:47:VAL:CG1   | 2.33        | 1.06     |
| 12:Q:32:LYS:HZ1   | 18:Z:172:LEU:HD11 | 1.16        | 1.06     |
| 18:Z:26:LYS:HB2   | 18:Z:84:TYR:OH    | 1.51        | 1.06     |
| 5:F:102:LEU:H     | 5:F:107:ARG:NH2   | 1.53        | 1.06     |
| 5:F:239:ALA:O     | 5:F:241:ALA:N     | 1.89        | 1.06     |
| 6:G:20:LYS:HA     | 6:G:76:ARG:CB     | 1.86        | 1.06     |
| 7:H:140:VAL:O     | 7:H:143:LEU:CD2   | 2.03        | 1.06     |
| 12:Q:87:LYS:O     | 12:Q:88:PHE:CG    | 2.09        | 1.06     |
| 17:Y:103:LEU:HD23 | 17:Y:108:ARG:HB3  | 1.35        | 1.06     |
| 17:Y:29:ALA:O     | 17:Y:30:ASP:O     | 1.74        | 1.06     |
| 8:I:133:LEU:HD11  | 8:I:139:ALA:HB2   | 1.37        | 1.06     |
| 24:O:58:THR:O     | 24:O:60:PHE:N     | 1.88        | 1.06     |
| 23:3:40:THR:HG21  | 23:3:43:ILE:HD13  | 1.17        | 1.06     |
| 2:A:2625:G:C3'    | 2:A:2626:C:C5     | 2.38        | 1.06     |
| 9:N:52:GLN:HA     | 9:N:55:GLU:OE1    | 1.54        | 1.06     |
| 11:P:64:ILE:HB    | 11:P:107:LYS:O    | 1.56        | 1.06     |
| 12:Q:31:PHE:CE2   | 12:Q:85:ILE:O     | 2.08        | 1.06     |
| 12:Q:65:ARG:CZ    | 12:Q:85:ILE:HB    | 1.86        | 1.06     |
| 15:W:67:ASP:CG    | 15:W:68:ARG:H     | 1.59        | 1.06     |
| 18:Z:6:LYS:C      | 18:Z:31:SER:CB    | 2.24        | 1.06     |
| 18:Z:71:MET:CB    | 18:Z:78:PRO:HD3   | 1.85        | 1.06     |
| 27:6:28:ARG:CZ    | 27:6:28:ARG:HB3   | 1.84        | 1.06     |
| 2:A:2199:A:H3'    | 2:A:2205:C:C6     | 1.90        | 1.06     |
| 2:A:2384:G:H2'    | 2:A:2386:C:OP2    | 1.52        | 1.06     |
| 2:A:2635:C:O2     | 2:A:2783:G:N2     | 1.89        | 1.06     |
| 2:A:598:G:N2      | 5:F:33:LYS:NZ     | 2.02        | 1.06     |
| 2:A:614:U:H3'     | 2:A:615:G:H4'     | 1.32        | 1.06     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 6:G:71:ALA:O      | 6:G:72:LYS:CD    | 2.03        | 1.06     |
| 7:H:82:TYR:CE1    | 7:H:137:LYS:HG3  | 1.90        | 1.06     |
| 9:N:53:ILE:HG23   | 9:N:135:ILE:CD1  | 1.86        | 1.06     |
| 9:N:27:ALA:CA     | 9:N:30:ALA:HB2   | 1.62        | 1.06     |
| 11:P:67:ARG:O     | 11:P:71:GLU:HG2  | 1.55        | 1.06     |
| 13:S:32:PRO:CG    | 13:S:100:ALA:CB  | 2.34        | 1.06     |
| 20:U:110:VAL:O    | 20:U:114:ARG:HG3 | 1.56        | 1.06     |
| 17:Y:28:SER:HB3   | 17:Y:99:THR:CG2  | 1.85        | 1.06     |
| 8:I:68:LEU:HD21   | 8:I:108:LEU:HD12 | 1.29        | 1.06     |
| 8:I:80:PRO:HB3    | 8:I:146:THR:HG23 | 1.11        | 1.06     |
| 22:2:39:ALA:HB3   | 22:2:40:PRO:CD   | 1.84        | 1.06     |
| 2:A:1697:G:H3'    | 2:A:1698:A:C5'   | 1.85        | 1.06     |
| 24:0:61:ALA:O     | 24:0:62:LEU:HD12 | 0.88        | 1.05     |
| 25:4:46:GLU:OE1   | 25:4:54:GLY:HA3  | 1.54        | 1.05     |
| 2:A:2847:U:OP2    | 2:A:2847:U:C5    | 2.08        | 1.05     |
| 4:E:193:PHE:CE2   | 4:E:311:PHE:HD1  | 1.72        | 1.05     |
| 7:H:86:LEU:HA     | 7:H:148:ARG:CZ   | 1.84        | 1.05     |
| 11:P:65:ASP:HB2   | 11:P:109:LEU:HB3 | 1.14        | 1.05     |
| 11:P:69:ILE:HG13  | 11:P:70:ASP:N    | 1.53        | 1.05     |
| 21:V:72:ARG:CA    | 21:V:88:GLN:HG2  | 1.81        | 1.05     |
| 18:Z:39:PHE:CA    | 18:Z:43:PHE:CD2  | 2.38        | 1.05     |
| 2:A:2302:G:O6     | 2:A:2315:G:O6    | 1.72        | 1.05     |
| 2:A:2488:A:H2'    | 2:A:2489:G:H5'   | 1.15        | 1.05     |
| 2:A:2059:A:C6     | 2:A:2503:A:N7    | 2.05        | 1.05     |
| 2:A:2615:U:O2'    | 2:A:2616:C:C5'   | 2.03        | 1.05     |
| 2:A:2700:C:H3'    | 2:A:2701:C:H5''  | 1.09        | 1.05     |
| 2:A:2766:G:C5'    | 2:A:2767:C:OP2   | 2.03        | 1.05     |
| 2:A:2862:G:C2'    | 2:A:2863:C:H6    | 1.66        | 1.05     |
| 2:A:675:A:N3      | 2:A:2443:C:O2'   | 1.88        | 1.05     |
| 4:E:70:VAL:CG1    | 4:E:296:VAL:H    | 1.68        | 1.05     |
| 12:Q:50:VAL:HG12  | 12:Q:51:GLU:H    | 0.91        | 1.05     |
| 19:R:77:ARG:HH11  | 19:R:77:ARG:CG   | 1.66        | 1.05     |
| 21:V:19:VAL:HB    | 21:V:21:ARG:NH1  | 1.67        | 1.05     |
| 17:Y:47:THR:O     | 17:Y:48:VAL:HG23 | 1.56        | 1.05     |
| 8:I:80:PRO:CB     | 8:I:146:THR:HG23 | 1.85        | 1.05     |
| 3:D:208:GLY:CA    | 3:D:211:HIS:NE2  | 2.19        | 1.05     |
| 3:D:222:PRO:O     | 3:D:224:VAL:HG23 | 1.56        | 1.05     |
| 2:A:1055:G:HO3'   | 2:A:1056:G:P     | 1.13        | 1.05     |
| 18:Z:143:ILE:HG22 | 18:Z:144:GLY:N   | 1.63        | 1.05     |
| 8:I:59:ALA:HA     | 8:I:62:LEU:HD12  | 1.37        | 1.05     |
| 2:A:1805:U:H5'    | 3:D:235:PRO:CB   | 1.86        | 1.05     |
| 17:Y:84:GLY:O     | 17:Y:85:GLU:O    | 1.73        | 1.05     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 30:9:7:VAL:HG13   | 30:9:34:GLN:CG   | 1.63        | 1.05     |
| 2:A:2045:C:N3     | 2:A:2624:G:C2    | 2.23        | 1.05     |
| 2:A:2350:C:H2'    | 2:A:2351:G:H8    | 1.15        | 1.05     |
| 2:A:2503:A:H4'    | 2:A:2504:U:OP1   | 1.56        | 1.05     |
| 2:A:594:U:H5'     | 29:8:58:MET:HE1  | 1.37        | 1.05     |
| 3:D:131:LEU:CD1   | 3:D:171:VAL:CG2  | 2.34        | 1.05     |
| 4:E:254:GLY:O     | 4:E:255:GLN:O    | 1.74        | 1.05     |
| 5:F:91:PRO:HG2    | 5:F:92:PRO:HD2   | 1.08        | 1.05     |
| 11:P:114:VAL:HG23 | 11:P:132:LYS:HB2 | 1.30        | 1.05     |
| 12:Q:127:ASN:CB   | 12:Q:128:PRO:CD  | 2.34        | 1.05     |
| 20:U:27:SER:O     | 20:U:29:SER:OG   | 1.72        | 1.05     |
| 20:U:74:MET:HE3   | 20:U:78:THR:HG21 | 1.08        | 1.05     |
| 18:Z:2:GLU:CA     | 18:Z:54:ILE:HG23 | 1.85        | 1.05     |
| 18:Z:69:VAL:HG13  | 18:Z:81:VAL:HG22 | 1.33        | 1.05     |
| 23:3:1:MET:SD     | 23:3:1:MET:O     | 2.14        | 1.05     |
| 23:3:20:LYS:CA    | 23:3:23:LEU:HD11 | 1.86        | 1.05     |
| 25:4:35:VAL:HG12  | 25:4:36:TRP:H    | 1.22        | 1.05     |
| 29:8:23:MET:HA    | 29:8:23:MET:HE2  | 1.08        | 1.05     |
| 2:A:2212:A:O2'    | 2:A:2213:U:C5    | 1.89        | 1.05     |
| 2:A:2380:C:H2'    | 2:A:2381:C:C5'   | 1.86        | 1.05     |
| 2:A:2838:G:C6     | 2:A:2839:G:N7    | 2.24        | 1.05     |
| 5:F:164:ALA:CB    | 5:F:232:LEU:CD1  | 2.34        | 1.05     |
| 5:F:164:ALA:HB1   | 5:F:232:LEU:HD13 | 1.39        | 1.05     |
| 5:F:24:THR:HB     | 5:F:25:PRO:HD2   | 1.34        | 1.05     |
| 7:H:52:THR:O      | 7:H:54:PRO:HD3   | 1.56        | 1.05     |
| 9:N:77:GLY:O      | 9:N:80:LYS:N     | 1.89        | 1.05     |
| 11:P:62:ALA:O     | 11:P:107:LYS:HD2 | 0.89        | 1.05     |
| 12:Q:17:ARG:N     | 12:Q:17:ARG:HD3  | 1.71        | 1.05     |
| 19:R:33:ARG:HB3   | 19:R:115:GLU:HB3 | 1.39        | 1.05     |
| 20:U:7:GLY:O      | 20:U:9:VAL:N     | 1.88        | 1.05     |
| 17:Y:23:VAL:HG23  | 17:Y:67:LEU:CD2  | 1.84        | 1.05     |
| 16:X:24:LEU:CB    | 16:X:26:PHE:CZ   | 2.39        | 1.05     |
| 16:X:6:LYS:NZ     | 16:X:29:ASP:CA   | 2.18        | 1.05     |
| 25:4:49:PHE:HZ    | 25:4:70:GLY:O    | 1.28        | 1.05     |
| 23:3:4:LEU:O      | 23:3:36:VAL:HA   | 1.57        | 1.05     |
| 27:6:37:LEU:CD2   | 27:6:51:ARG:HA   | 1.86        | 1.05     |
| 2:A:2286:A:C5'    | 2:A:2287:A:C4'   | 2.33        | 1.05     |
| 5:F:102:LEU:HD22  | 5:F:103:ASN:H    | 1.16        | 1.05     |
| 9:N:19:MET:HB2    | 9:N:45:VAL:O     | 1.54        | 1.05     |
| 11:P:62:ALA:HB2   | 11:P:105:TYR:HB2 | 1.35        | 1.05     |
| 12:Q:46:VAL:HG12  | 12:Q:124:ALA:HB3 | 1.32        | 1.05     |
| 19:R:79:LEU:HD22  | 19:R:80:PHE:N    | 1.69        | 1.05     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2378:A:O2'   | 13:S:30:GLY:CA    | 2.02        | 1.05     |
| 13:S:98:GLU:HG3  | 13:S:99:GLU:H     | 1.12        | 1.05     |
| 20:U:92:ARG:C    | 20:U:95:LEU:CG    | 2.20        | 1.05     |
| 20:U:88:ILE:HG21 | 21:V:55:THR:OG1   | 1.57        | 1.05     |
| 21:V:5:ILE:O     | 21:V:6:GLN:CG     | 2.02        | 1.05     |
| 15:W:75:TYR:CE1  | 15:W:104:THR:OG1  | 2.07        | 1.05     |
| 17:Y:45:GLY:C    | 17:Y:62:VAL:HG11  | 1.75        | 1.05     |
| 18:Z:159:THR:O   | 18:Z:160:LEU:CD1  | 2.04        | 1.05     |
| 18:Z:37:LYS:HG3  | 18:Z:41:ARG:NH1   | 1.71        | 1.05     |
| 28:7:13:ALA:O    | 28:7:14:LYS:O     | 1.74        | 1.05     |
| 2:A:126:A:N6     | 28:7:18:PHE:HE2   | 1.52        | 1.05     |
| 2:A:1665:A:H4'   | 10:O:66:LYS:CD    | 1.87        | 1.05     |
| 2:A:2094:G:N1    | 2:A:2196:C:N3     | 2.03        | 1.05     |
| 2:A:2210:G:O2'   | 2:A:2211:G:OP2    | 1.74        | 1.05     |
| 2:A:2354:G:H1'   | 24:0:32:LYS:HG2   | 1.39        | 1.05     |
| 2:A:2470:G:N1    | 2:A:2471:C:C4     | 2.24        | 1.05     |
| 2:A:2819:G:H2'   | 2:A:2821:A:N7     | 1.71        | 1.05     |
| 3:D:131:LEU:CD1  | 3:D:183:ILE:HG21  | 1.86        | 1.05     |
| 4:E:200:ASP:O    | 4:E:311:PHE:HA    | 1.55        | 1.05     |
| 4:E:221:LYS:HE3  | 4:E:233:ARG:CA    | 1.86        | 1.05     |
| 5:F:201:SER:O    | 5:F:204:ALA:CB    | 2.03        | 1.05     |
| 7:H:85:ALA:CA    | 7:H:131:ILE:HG21  | 1.84        | 1.05     |
| 8:I:3:VAL:HG21   | 8:I:21:VAL:HG23   | 1.11        | 1.05     |
| 9:N:19:MET:CB    | 9:N:46:ILE:CG1    | 2.33        | 1.05     |
| 2:A:2684:U:H5'   | 10:O:76:TYR:OH    | 1.57        | 1.05     |
| 13:S:56:ASP:O    | 13:S:57:THR:HG23  | 1.56        | 1.05     |
| 20:U:99:ALA:CB   | 20:U:106:PHE:CD2  | 2.40        | 1.05     |
| 15:W:104:THR:O   | 15:W:105:VAL:HG13 | 1.57        | 1.05     |
| 18:Z:20:ALA:O    | 18:Z:34:LEU:HD21  | 1.55        | 1.05     |
| 16:X:44:GLN:OE1  | 16:X:45:TYR:CA    | 2.03        | 1.05     |
| 8:I:47:LEU:HD12  | 8:I:48:GLU:N      | 1.70        | 1.05     |
| 25:4:14:ILE:HG21 | 25:4:37:SER:OG    | 1.56        | 1.05     |
| 2:A:1033:U:C6    | 2:A:2750:A:H2     | 1.75        | 1.05     |
| 2:A:2286:A:C5'   | 2:A:2287:A:C5'    | 2.30        | 1.05     |
| 2:A:2309:A:OP2   | 2:A:2309:A:H4'    | 1.49        | 1.05     |
| 2:A:2785:C:C5    | 2:A:2786:U:O4     | 2.10        | 1.05     |
| 1:B:89(A):A:C2   | 12:Q:52:LYS:NZ    | 2.24        | 1.05     |
| 5:F:163:HIS:CA   | 5:F:166:ILE:HG13  | 1.87        | 1.05     |
| 6:G:22:VAL:HB    | 6:G:24:HIS:NE2    | 1.69        | 1.05     |
| 9:N:18:ILE:O     | 9:N:22:VAL:CG2    | 2.02        | 1.05     |
| 11:P:144:ASP:O   | 11:P:145:LEU:CD1  | 2.04        | 1.05     |
| 20:U:74:MET:HE2  | 20:U:78:THR:HG21  | 1.06        | 1.05     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 29:8:29:LYS:O    | 29:8:30:ARG:O    | 1.74        | 1.05     |
| 2:A:529:A:H2     | 2:A:2022:U:OP1   | 1.37        | 1.05     |
| 2:A:2389:G:OP1   | 2:A:2390:U:H5'   | 1.55        | 1.05     |
| 2:A:2405:G:N2    | 2:A:2413:G:C6    | 2.25        | 1.05     |
| 2:A:2647:U:C2'   | 2:A:2648:C:H5'   | 1.87        | 1.05     |
| 2:A:965:C:H5'    | 2:A:2273:A:H1'   | 1.09        | 1.05     |
| 3:D:143:ILE:HB   | 3:D:152:GLN:C    | 1.75        | 1.05     |
| 5:F:103:ASN:HB2  | 5:F:106:GLU:CD   | 1.77        | 1.05     |
| 5:F:196:THR:HA   | 5:F:236:THR:HG21 | 1.36        | 1.05     |
| 5:F:219:ASN:C    | 5:F:222:ASP:HB2  | 1.75        | 1.05     |
| 8:I:7:LYS:CA     | 8:I:12:LYS:HD3   | 1.87        | 1.05     |
| 12:Q:65:ARG:NH2  | 12:Q:122:PHE:CE2 | 2.24        | 1.05     |
| 13:S:74:PRO:O    | 13:S:75:THR:O    | 1.73        | 1.05     |
| 20:U:34:ASN:O    | 20:U:38:THR:OG1  | 1.73        | 1.05     |
| 20:U:89:ASP:O    | 20:U:90:LEU:HD23 | 1.57        | 1.05     |
| 24:0:43:THR:HG21 | 24:0:75:GLY:HA3  | 1.07        | 1.05     |
| 25:4:6:HIS:HB2   | 25:4:7:PRO:CD    | 1.86        | 1.05     |
| 2:A:990:A:C6     | 2:A:1186:G:H1'   | 1.90        | 1.05     |
| 2:A:2717:G:N2    | 2:A:2718:G:C5    | 2.25        | 1.05     |
| 3:D:131:LEU:N    | 3:D:187:CYS:O    | 1.89        | 1.05     |
| 4:E:79:ARG:HA    | 4:E:186:GLU:HA   | 1.38        | 1.05     |
| 5:F:4:THR:O      | 5:F:139:VAL:CG2  | 2.03        | 1.05     |
| 5:F:163:HIS:O    | 5:F:166:ILE:CG1  | 2.05        | 1.05     |
| 6:G:24:HIS:O     | 6:G:25:MET:CG    | 2.05        | 1.05     |
| 7:H:102:LEU:HD23 | 7:H:114:ILE:O    | 1.55        | 1.05     |
| 9:N:53:ILE:HG23  | 9:N:135:ILE:HD11 | 1.38        | 1.05     |
| 2:A:2495:G:C3'   | 12:Q:101:MET:HE2 | 1.86        | 1.05     |
| 19:R:34:ILE:HG23 | 19:R:35:THR:H    | 1.22        | 1.05     |
| 17:Y:78:THR:HA   | 17:Y:89:ARG:HG3  | 1.07        | 1.05     |
| 28:7:30:ILE:CA   | 28:7:33:ARG:CG   | 2.31        | 1.05     |
| 2:A:2234:G:N1    | 2:A:2235:G:C5    | 2.25        | 1.05     |
| 2:A:2258:C:N4    | 2:A:2426:A:H1'   | 1.68        | 1.05     |
| 2:A:2276:G:OP2   | 12:Q:104:PRO:HD2 | 1.57        | 1.05     |
| 2:A:2331:G:C5    | 2:A:2332:U:N3    | 2.25        | 1.05     |
| 2:A:2572:A:H5''  | 2:A:2574:G:C5'   | 1.87        | 1.05     |
| 2:A:2438:U:OP1   | 2:A:2599:G:O2'   | 1.72        | 1.05     |
| 3:D:175:LEU:HG   | 3:D:180:VAL:N    | 1.71        | 1.05     |
| 5:F:157:LEU:O    | 5:F:159:ALA:N    | 1.89        | 1.05     |
| 5:F:1:MET:C      | 5:F:18:LEU:CG    | 2.23        | 1.05     |
| 6:G:29:HIS:N     | 6:G:69:ILE:CD1   | 2.16        | 1.05     |
| 11:P:112:GLY:O   | 11:P:113:GLN:CD  | 1.95        | 1.05     |
| 12:Q:41:THR:CG2  | 12:Q:126:VAL:HA  | 1.85        | 1.05     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 13:S:72:GLU:HB3  | 13:S:74:PRO:HD2  | 1.35        | 1.05     |
| 20:U:8:ILE:HA    | 20:U:11:ARG:HD3  | 1.06        | 1.05     |
| 20:U:94:VAL:HG11 | 21:V:4:ILE:HG21  | 1.37        | 1.05     |
| 16:X:33:SER:CA   | 16:X:37:VAL:HG23 | 1.87        | 1.05     |
| 2:A:1943:U:H1'   | 2:A:1945:G:H5'   | 1.33        | 1.05     |
| 2:A:2815:C:C5'   | 26:5:29:ASN:HD22 | 1.70        | 1.04     |
| 2:A:782:A:C2     | 3:D:233:ASP:OD2  | 2.08        | 1.04     |
| 4:E:201:VAL:HG22 | 4:E:311:PHE:HB3  | 1.39        | 1.04     |
| 4:E:42:ALA:H     | 4:E:189:MET:HE1  | 1.16        | 1.04     |
| 10:O:77:ILE:HD13 | 10:O:78:ARG:CA   | 1.86        | 1.04     |
| 11:P:117:GLU:HA  | 11:P:136:ALA:O   | 1.57        | 1.04     |
| 11:P:95:ASP:O    | 11:P:96:VAL:O    | 1.74        | 1.04     |
| 2:A:910:A:N6     | 12:Q:11:LYS:O    | 1.90        | 1.04     |
| 19:R:79:LEU:HD23 | 19:R:79:LEU:C    | 1.61        | 1.04     |
| 21:V:11:GLN:HE22 | 21:V:22:VAL:HG21 | 1.13        | 1.04     |
| 21:V:60:VAL:O    | 21:V:98:ILE:HB   | 0.88        | 1.04     |
| 18:Z:114:ASP:CB  | 18:Z:170:SER:O   | 2.05        | 1.04     |
| 27:6:37:LEU:HD23 | 27:6:51:ARG:HA   | 1.08        | 1.04     |
| 2:A:1251:C:H5''  | 20:U:10:ARG:HE   | 1.19        | 1.04     |
| 2:A:2584:U:C2'   | 2:A:2585:U:H5    | 1.69        | 1.04     |
| 2:A:2781:A:C5'   | 2:A:2782:G:O5'   | 2.04        | 1.04     |
| 3:D:118:GLY:C    | 3:D:129:LEU:HD21 | 1.78        | 1.04     |
| 3:D:85:ASN:CG    | 3:D:86:ARG:CZ    | 2.26        | 1.04     |
| 5:F:200:PRO:CB   | 5:F:212:VAL:HG11 | 1.86        | 1.04     |
| 6:G:19:GLU:OE1   | 6:G:135:VAL:HA   | 1.57        | 1.04     |
| 12:Q:142:LYS:HE2 | 12:Q:143:VAL:N   | 1.70        | 1.04     |
| 20:U:92:ARG:O    | 20:U:95:LEU:HG   | 0.89        | 1.04     |
| 8:I:133:LEU:CD1  | 8:I:139:ALA:CB   | 2.35        | 1.04     |
| 15:W:90:ARG:CZ   | 15:W:90:ARG:HB2  | 1.82        | 1.04     |
| 25:4:23:GLU:OE2  | 25:4:29:PRO:HB3  | 1.56        | 1.04     |
| 2:A:1364:G:P     | 25:4:3:LYS:HG3   | 1.94        | 1.04     |
| 2:A:2268:A:C4'   | 2:A:2268:A:OP1   | 2.03        | 1.04     |
| 2:A:2364:C:H5''  | 24:0:38:VAL:CG1  | 1.88        | 1.04     |
| 2:A:2385:C:C2    | 2:A:2386:C:C6    | 2.45        | 1.04     |
| 2:A:2385:C:O2    | 2:A:2386:C:C6    | 2.09        | 1.04     |
| 2:A:2485:G:C2    | 2:A:2486:G:H1'   | 1.91        | 1.04     |
| 2:A:2852:G:C2    | 2:A:2853:C:N3    | 2.26        | 1.04     |
| 3:D:175:LEU:HG   | 3:D:179:GLU:O    | 0.88        | 1.04     |
| 3:D:130:PRO:HB3  | 3:D:186:LYS:O    | 1.55        | 1.04     |
| 5:F:92:PRO:O     | 5:F:96:LYS:HD2   | 1.50        | 1.04     |
| 11:P:66:VAL:O    | 11:P:68:GLU:N    | 1.91        | 1.04     |
| 19:R:38:VAL:CB   | 19:R:39:PRO:CD   | 2.22        | 1.04     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 20:U:65:ILE:HD13  | 20:U:96:ALA:HB2  | 1.04        | 1.04     |
| 20:U:6:THR:O      | 20:U:7:GLY:O     | 1.73        | 1.04     |
| 2:A:1799:G:N2     | 3:D:153:LEU:HG   | 1.71        | 1.04     |
| 2:A:2227:A:C2     | 2:A:2228:G:C4    | 2.45        | 1.04     |
| 2:A:2543:G:O2'    | 2:A:2544:G:H5'   | 1.57        | 1.04     |
| 2:A:826:U:H5'     | 2:A:2429:G:OP2   | 1.44        | 1.04     |
| 4:E:218:GLY:O     | 4:E:219:VAL:HG22 | 1.55        | 1.04     |
| 4:E:221:LYS:HE3   | 4:E:233:ARG:HA   | 1.09        | 1.04     |
| 4:E:271:ILE:HD13  | 4:E:294:THR:HG22 | 1.34        | 1.04     |
| 4:E:45:LYS:HZ1    | 4:E:303:PRO:CD   | 1.70        | 1.04     |
| 2:A:1140:C:C5     | 9:N:49:ARG:CD    | 2.40        | 1.04     |
| 9:N:95:ARG:CA     | 9:N:98:PHE:CD1   | 2.40        | 1.04     |
| 11:P:94:ARG:HD3   | 11:P:120:LEU:CG  | 1.85        | 1.04     |
| 14:T:36:CYS:O     | 14:T:37:GLU:O    | 1.74        | 1.04     |
| 17:Y:63:ILE:HG12  | 17:Y:75:GLU:CD   | 1.78        | 1.04     |
| 8:I:98:ILE:HG22   | 8:I:99:ALA:N     | 1.69        | 1.04     |
| 2:A:1791:A:OP1    | 3:D:210:LYS:HD2  | 1.50        | 1.04     |
| 22:2:29:ASN:O     | 22:2:34:GLN:CG   | 2.05        | 1.04     |
| 2:A:1545:A:C3'    | 2:A:545(A):A:P   | 2.44        | 1.04     |
| 25:4:68:ARG:HD3   | 25:4:72:LYS:HG2  | 1.38        | 1.04     |
| 2:A:16:G:C4'      | 26:5:18:MET:SD   | 2.44        | 1.04     |
| 28:7:27:GLY:O     | 28:7:31:LEU:HG   | 1.57        | 1.04     |
| 2:A:458:G:H5'     | 28:7:39:ARG:CD   | 1.86        | 1.04     |
| 2:A:1034:G:P      | 30:9:18:ARG:HH21 | 1.79        | 1.04     |
| 2:A:2363:C:O2'    | 24:0:38:VAL:HG11 | 1.57        | 1.04     |
| 2:A:2689:U:O2     | 2:A:2713:A:OP2   | 1.74        | 1.04     |
| 9:N:51:GLU:O      | 9:N:53:ILE:N     | 1.90        | 1.04     |
| 12:Q:56:ILE:O     | 12:Q:112:ALA:HB1 | 1.54        | 1.04     |
| 14:T:37:GLU:HG2   | 14:T:38:ASN:N    | 1.60        | 1.04     |
| 2:A:495:G:H1'     | 15:W:57:ASN:OD1  | 1.33        | 1.04     |
| 24:0:43:THR:CG2   | 24:0:75:GLY:CA   | 2.30        | 1.04     |
| 25:4:6:HIS:HB2    | 25:4:7:PRO:HD3   | 1.32        | 1.04     |
| 28:7:13:ALA:O     | 28:7:16:HIS:O    | 1.73        | 1.04     |
| 2:A:592:G:H2'     | 29:8:3:LYS:HE3   | 1.40        | 1.04     |
| 3:D:146:LYS:CD    | 3:D:147:PRO:CD   | 2.25        | 1.04     |
| 4:E:180:ILE:HA    | 4:E:183:ASP:OD2  | 0.87        | 1.04     |
| 7:H:41:THR:CG2    | 7:H:52:THR:HB    | 1.86        | 1.04     |
| 8:I:37:ILE:HG23   | 8:I:38:GLU:H     | 1.21        | 1.04     |
| 11:P:77:ALA:CA    | 11:P:81:VAL:CB   | 2.07        | 1.04     |
| 2:A:1248:G:OP1    | 20:U:2:PRO:HB2   | 1.52        | 1.04     |
| 17:Y:101:LEU:HD21 | 17:Y:103:LEU:CD2 | 1.81        | 1.04     |
| 18:Z:120:LEU:CD2  | 18:Z:120:LEU:H   | 1.70        | 1.04     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:208:GLY:HA3  | 3:D:210:LYS:NZ   | 1.69        | 1.04     |
| 16:X:44:GLN:OE1  | 16:X:45:TYR:CB   | 2.06        | 1.04     |
| 2:A:1086:A:O3'   | 2:A:1087:G:P     | 2.16        | 1.04     |
| 27:6:38:LYS:O    | 27:6:50:PHE:CB   | 2.04        | 1.04     |
| 30:9:7:VAL:HG13  | 30:9:34:GLN:HG2  | 1.21        | 1.04     |
| 2:A:2459:A:C8    | 2:A:2460:U:C6    | 2.44        | 1.04     |
| 2:A:2881:C:O2'   | 2:A:2882:A:O5'   | 1.76        | 1.04     |
| 3:D:198:GLY:O    | 3:D:200:THR:CG2  | 2.06        | 1.04     |
| 2:A:1817:G:OP1   | 3:D:63:ILE:HD11  | 1.58        | 1.04     |
| 7:H:23:VAL:HG12  | 7:H:74:MET:CE    | 1.87        | 1.04     |
| 12:Q:36:ASN:OD1  | 18:Z:116:VAL:CG1 | 2.06        | 1.04     |
| 19:R:107:ASP:OD1 | 19:R:109:ALA:N   | 1.90        | 1.04     |
| 10:O:79:PHE:HA   | 14:T:22:VAL:HG22 | 1.37        | 1.04     |
| 15:W:36:LEU:CD1  | 15:W:47:VAL:HG12 | 1.88        | 1.04     |
| 23:3:3:ARG:HD3   | 23:3:60:GLU:HB3  | 1.35        | 1.04     |
| 2:A:1137:G:OP1   | 9:N:60:ARG:NH2   | 1.88        | 1.04     |
| 2:A:2264:C:H2'   | 2:A:2265:U:O5'   | 1.56        | 1.04     |
| 2:A:2327:A:C2    | 2:A:2328:A:C2    | 2.46        | 1.04     |
| 2:A:2739:U:C2'   | 2:A:2740:A:C5'   | 2.35        | 1.04     |
| 2:A:2762:G:C5    | 2:A:2763:G:C5    | 2.45        | 1.04     |
| 2:A:2808:U:O3'   | 2:A:2810:A:OP1   | 1.73        | 1.04     |
| 7:H:90:GLY:HA2   | 7:H:159:LYS:HG3  | 1.05        | 1.04     |
| 2:A:911:A:C6     | 12:Q:16:ARG:HG2  | 1.92        | 1.04     |
| 19:R:36:THR:HG22 | 19:R:40:LYS:HB2  | 1.36        | 1.04     |
| 14:T:50:GLU:CA   | 14:T:55:ALA:HB3  | 1.88        | 1.04     |
| 21:V:4:ILE:HG12  | 21:V:13:ARG:HA   | 1.10        | 1.04     |
| 15:W:55:ALA:HA   | 15:W:107:LEU:CD1 | 1.87        | 1.04     |
| 17:Y:87:VAL:CG1  | 17:Y:88:PRO:HD2  | 1.86        | 1.04     |
| 8:I:145:VAL:HG12 | 8:I:146:THR:H    | 0.90        | 1.04     |
| 25:4:18:GLY:H    | 25:4:33:VAL:CG2  | 1.70        | 1.04     |
| 2:A:1669:A:O3'   | 2:A:2550:G:OP1   | 1.75        | 1.04     |
| 2:A:2277:G:O3'   | 12:Q:15:THR:CB   | 2.06        | 1.04     |
| 2:A:2355:C:H5'   | 24:0:21:LEU:HD13 | 1.35        | 1.04     |
| 2:A:2406:U:O4    | 11:P:55:GLN:HB2  | 1.50        | 1.04     |
| 2:A:2520:C:O2    | 2:A:2521:C:C6    | 2.11        | 1.04     |
| 2:A:2570:G:C2'   | 2:A:2571:C:C6    | 2.38        | 1.04     |
| 2:A:2573:C:O5'   | 2:A:2574:G:OP1   | 1.75        | 1.04     |
| 2:A:2741:A:H2'   | 2:A:2742:C:H6    | 1.16        | 1.04     |
| 2:A:997:G:C3'    | 20:U:92:ARG:NH1  | 1.77        | 1.04     |
| 3:D:167:GLU:HG2  | 3:D:182:MET:HE3  | 1.36        | 1.04     |
| 4:E:222:ARG:CD   | 4:E:232:ARG:C    | 2.25        | 1.04     |
| 5:F:93:LYS:CA    | 5:F:96:LYS:HE3   | 1.60        | 1.04     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 12:Q:45:GLN:OE1   | 12:Q:153:PRO:CD  | 2.06        | 1.04     |
| 15:W:32:ALA:CA    | 15:W:35:ILE:HD12 | 1.85        | 1.04     |
| 15:W:66:GLU:HG2   | 15:W:67:ASP:H    | 1.18        | 1.04     |
| 18:Z:6:LYS:C      | 18:Z:31:SER:HB3  | 1.76        | 1.04     |
| 24:0:38:VAL:HA    | 24:0:40:GLN:CD   | 1.78        | 1.04     |
| 25:4:10:VAL:H     | 25:4:11:PRO:HD3  | 1.13        | 1.04     |
| 2:A:2485:G:O2'    | 2:A:2486:G:H5'   | 0.86        | 1.04     |
| 2:A:2678:C:O2     | 2:A:2679:A:C8    | 2.09        | 1.04     |
| 2:A:826:U:OP1     | 2:A:2429:G:OP1   | 1.74        | 1.04     |
| 4:E:299:SER:OG    | 4:E:301:PRO:HD3  | 1.58        | 1.04     |
| 10:O:101:PRO:HB2  | 10:O:122:ILE:CD1 | 1.86        | 1.04     |
| 1:B:28:C:OP2      | 13:S:41:LYS:HG3  | 1.56        | 1.04     |
| 15:W:76:VAL:CG2   | 15:W:102:HIS:O   | 2.06        | 1.04     |
| 18:Z:90:GLU:N     | 18:Z:91:PRO:HD2  | 1.67        | 1.04     |
| 16:X:6:LYS:CB     | 16:X:27:ALA:O    | 2.06        | 1.04     |
| 16:X:28:VAL:HG22  | 16:X:62:LYS:O    | 1.58        | 1.04     |
| 28:7:34:ARG:HD2   | 28:7:42:LEU:HD21 | 1.25        | 1.03     |
| 2:A:2268:A:H4'    | 2:A:2269:A:OP2   | 1.55        | 1.03     |
| 2:A:2804:C:C5     | 2:A:2805:G:C6    | 2.46        | 1.03     |
| 7:H:87:GLU:OE2    | 7:H:162:ARG:HB2  | 1.58        | 1.03     |
| 19:R:100:LEU:HD23 | 19:R:113:LEU:N   | 1.73        | 1.03     |
| 19:R:58:GLY:CA    | 19:R:80:PHE:HE2  | 1.63        | 1.03     |
| 21:V:4:ILE:HD11   | 21:V:13:ARG:CG   | 1.87        | 1.03     |
| 21:V:59:GLU:CD    | 21:V:99:GLN:HA   | 1.77        | 1.03     |
| 17:Y:31:LEU:H     | 17:Y:31:LEU:CD2  | 1.68        | 1.03     |
| 24:0:70:ILE:O     | 24:0:71:ASN:O    | 1.75        | 1.03     |
| 2:A:2253:G:O2'    | 2:A:2254:C:O5'   | 1.77        | 1.03     |
| 2:A:2314:C:O2'    | 2:A:2315:G:O5'   | 1.75        | 1.03     |
| 3:D:68:ARG:HH21   | 3:D:128:ALA:HB3  | 1.22        | 1.03     |
| 6:G:29:HIS:HB3    | 6:G:69:ILE:HG12  | 1.39        | 1.03     |
| 17:Y:31:LEU:HD23  | 17:Y:31:LEU:N    | 1.66        | 1.03     |
| 18:Z:112:LEU:HD13 | 18:Z:142:ASN:HA  | 1.06        | 1.03     |
| 8:I:121:ILE:HG22  | 8:I:122:ARG:N    | 1.67        | 1.03     |
| 8:I:141:LEU:HD13  | 8:I:142:LYS:N    | 1.71        | 1.03     |
| 3:D:211:HIS:ND1   | 3:D:212:HIS:HD2  | 1.56        | 1.03     |
| 12:Q:94:ARG:HD3   | 12:Q:106:GLY:CA  | 1.88        | 1.03     |
| 2:A:223:A:O3'     | 2:A:224:G:P      | 2.16        | 1.03     |
| 27:6:29:ARG:O     | 27:6:31:THR:N    | 1.91        | 1.03     |
| 2:A:2292:C:C2     | 2:A:2293:C:C5    | 2.45        | 1.03     |
| 2:A:2616:C:O2'    | 2:A:2617:C:H5''  | 1.58        | 1.03     |
| 2:A:2620:C:O2'    | 2:A:2621:A:O5'   | 1.70        | 1.03     |
| 2:A:2839:G:C5     | 2:A:2840:C:C5    | 2.46        | 1.03     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 6:G:21:VAL:CG1    | 6:G:132:VAL:CB   | 2.33        | 1.03     |
| 10:O:22:ILE:HG13  | 10:O:41:ALA:HA   | 1.38        | 1.03     |
| 21:V:70:TYR:O     | 21:V:71:ILE:O    | 1.75        | 1.03     |
| 24:O:66:LYS:HD2   | 24:O:66:LYS:N    | 1.67        | 1.03     |
| 28:7:30:ILE:HD13  | 28:7:33:ARG:HH11 | 1.17        | 1.03     |
| 29:8:25:PHE:O     | 29:8:26:LYS:O    | 1.76        | 1.03     |
| 2:A:2314:C:C5'    | 6:G:22:VAL:HG11  | 1.89        | 1.03     |
| 2:A:2313:C:C4     | 2:A:2314:C:N4    | 2.26        | 1.03     |
| 2:A:2546:U:C5'    | 2:A:2565:A:C2    | 2.41        | 1.03     |
| 2:A:2808:U:O2     | 2:A:2892:A:N6    | 1.86        | 1.03     |
| 5:F:27:ARG:O      | 5:F:31:ILE:HG13  | 1.27        | 1.03     |
| 10:O:45:ASP:HA    | 10:O:54:LYS:HG3  | 1.40        | 1.03     |
| 12:Q:48:ASN:OD1   | 12:Q:121:ASP:CB  | 2.06        | 1.03     |
| 12:Q:27:GLY:O     | 12:Q:62:GLU:OE2  | 1.74        | 1.03     |
| 19:R:36:THR:HG23  | 19:R:40:LYS:CD   | 1.88        | 1.03     |
| 20:U:38:THR:HA    | 20:U:41:ASN:OD1  | 1.23        | 1.03     |
| 21:V:57:GLN:HG2   | 21:V:58:ALA:H    | 1.22        | 1.03     |
| 17:Y:57:GLY:N     | 17:Y:97:ARG:HH22 | 1.57        | 1.03     |
| 8:I:115:ILE:HG12  | 8:I:131:VAL:HG13 | 1.31        | 1.03     |
| 2:A:1599:C:P      | 16:X:33:SER:OG   | 2.16        | 1.03     |
| 16:X:3:ASP:HA     | 22:2:24:LYS:HD3  | 1.35        | 1.03     |
| 7:H:168:VAL:HG12  | 7:H:169:ARG:N    | 1.70        | 1.03     |
| 6:G:12:GLU:O      | 6:G:12:GLU:OE1   | 1.76        | 1.03     |
| 24:O:65:GLY:HA2   | 24:O:66:LYS:HZ2  | 1.21        | 1.03     |
| 25:4:32:HIS:O     | 25:4:33:VAL:O    | 1.75        | 1.03     |
| 2:A:2783:G:C6     | 2:A:2784:C:N4    | 2.25        | 1.03     |
| 2:A:2880:C:C2'    | 2:A:2881:C:H5'   | 1.87        | 1.03     |
| 6:G:53:LYS:CG     | 6:G:54:ALA:H     | 1.71        | 1.03     |
| 11:P:66:VAL:HG12  | 11:P:67:ARG:N    | 1.69        | 1.03     |
| 2:A:911:A:H2'     | 12:Q:16:ARG:NE   | 1.73        | 1.03     |
| 19:R:100:LEU:HD23 | 19:R:112:ALA:HA  | 1.35        | 1.03     |
| 19:R:55:ALA:HA    | 19:R:80:PHE:CD1  | 1.92        | 1.03     |
| 21:V:19:VAL:HG12  | 21:V:21:ARG:NH2  | 1.71        | 1.03     |
| 17:Y:87:VAL:HG13  | 17:Y:88:PRO:HD2  | 1.06        | 1.03     |
| 2:A:2256:G:C2     | 2:A:2257:U:C2    | 2.46        | 1.03     |
| 2:A:2317:C:H5'    | 6:G:150:SER:HA   | 1.36        | 1.03     |
| 2:A:2717:G:C4     | 2:A:2718:G:C8    | 2.46        | 1.03     |
| 2:A:2737:G:C4     | 2:A:2738:A:N7    | 2.26        | 1.03     |
| 2:A:2809:A:O4'    | 2:A:2811:G:N7    | 1.91        | 1.03     |
| 2:A:2839:G:C6     | 2:A:2840:C:C4    | 2.47        | 1.03     |
| 3:D:158:GLY:HA2   | 3:D:194:VAL:HG13 | 1.40        | 1.03     |
| 3:D:66:PHE:O      | 3:D:66:PHE:CG    | 2.08        | 1.03     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:H:93:TYR:HB3    | 7:H:106:VAL:HG22  | 1.08        | 1.03     |
| 9:N:12:VAL:CG1    | 9:N:13:ASP:N      | 2.17        | 1.03     |
| 19:R:36:THR:CG2   | 19:R:40:LYS:CD    | 2.37        | 1.03     |
| 8:I:97:GLN:HA     | 8:I:100:GLU:OE2   | 1.57        | 1.03     |
| 26:5:34:PRO:CG    | 26:5:36:CYS:SG    | 2.47        | 1.03     |
| 26:5:29:ASN:O     | 26:5:30:LEU:O     | 1.76        | 1.03     |
| 2:A:2320:A:C2     | 2:A:2333:A:C2     | 2.45        | 1.03     |
| 2:A:2457:U:H2'    | 2:A:2458:G:O4'    | 1.58        | 1.03     |
| 2:A:25:U:C5'      | 15:W:79:GLY:HA3   | 1.89        | 1.03     |
| 2:A:458:G:C5'     | 28:7:39:ARG:CD    | 2.35        | 1.03     |
| 5:F:32:GLY:CA     | 5:F:35:VAL:HG21   | 1.89        | 1.03     |
| 2:A:2315:G:H5'    | 6:G:133:ASN:HD22  | 1.21        | 1.03     |
| 8:I:21:VAL:HG11   | 8:I:30:LEU:CD1    | 1.88        | 1.03     |
| 8:I:6:LEU:HB2     | 8:I:36:ALA:HB2    | 1.34        | 1.03     |
| 9:N:12:VAL:O      | 9:N:38:VAL:CG1    | 2.05        | 1.03     |
| 10:O:35:ILE:CD1   | 10:O:65:THR:CG2   | 2.37        | 1.03     |
| 13:S:105:GLY:C    | 13:S:106:LEU:HD23 | 1.77        | 1.03     |
| 17:Y:14:ALA:HB1   | 17:Y:15:PRO:HD2   | 1.40        | 1.03     |
| 17:Y:71:VAL:HG12  | 17:Y:72:ILE:H     | 1.23        | 1.03     |
| 18:Z:34:LEU:HD13  | 18:Z:39:PHE:HZ    | 0.91        | 1.03     |
| 2:A:2395:C:H5''   | 25:4:28:ARG:NH1   | 1.73        | 1.03     |
| 2:A:1019:U:O3'    | 2:A:1020:A:P      | 2.16        | 1.03     |
| 2:A:2228:G:C8     | 2:A:2229:C:C5     | 2.44        | 1.03     |
| 2:A:2235:G:H2'    | 2:A:2236:C:C6     | 1.93        | 1.03     |
| 2:A:2436:G:C2'    | 2:A:2437:U:O5'    | 2.05        | 1.03     |
| 2:A:2546:U:H5'    | 2:A:2565:A:N1     | 1.73        | 1.03     |
| 3:D:175:LEU:CG    | 3:D:180:VAL:HA    | 1.89        | 1.03     |
| 3:D:158:GLY:HA2   | 3:D:194:VAL:CG2   | 1.88        | 1.03     |
| 3:D:66:PHE:O      | 3:D:67:LYS:CD     | 2.07        | 1.03     |
| 3:D:74:PRO:CG     | 3:D:96:ALA:CB     | 2.26        | 1.03     |
| 4:E:308:VAL:HG12  | 4:E:310:PHE:CE1   | 1.94        | 1.03     |
| 4:E:82:ALA:O      | 4:E:83:LEU:CG     | 2.05        | 1.03     |
| 7:H:40:MET:HG2    | 7:H:64:HIS:HE1    | 0.98        | 1.03     |
| 9:N:95:ARG:C      | 9:N:98:PHE:HD1    | 1.61        | 1.03     |
| 11:P:73:VAL:HG13  | 11:P:76:LEU:HD23  | 1.36        | 1.03     |
| 2:A:2021:C:C5     | 20:U:25:TRP:CZ2   | 2.45        | 1.03     |
| 15:W:103:ILE:HG22 | 15:W:103:ILE:O    | 1.56        | 1.03     |
| 17:Y:42:VAL:HG12  | 17:Y:43:ASN:N     | 1.70        | 1.03     |
| 8:I:133:LEU:HD12  | 8:I:139:ALA:HB2   | 1.39        | 1.03     |
| 8:I:141:LEU:HD13  | 8:I:142:LYS:O     | 1.58        | 1.03     |
| 8:I:115:ILE:HG23  | 8:I:131:VAL:HG22  | 1.40        | 1.03     |
| 22:2:20:LEU:C     | 22:2:20:LEU:HD13  | 1.74        | 1.03     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:D:232:VAL:O    | 3:D:232:VAL:HG23  | 1.56        | 1.03     |
| 23:3:37:LEU:CD1  | 23:3:43:ILE:HG21  | 1.88        | 1.03     |
| 26:5:45:ILE:CG1  | 26:5:52:TYR:HE1   | 1.70        | 1.03     |
| 2:A:2439:A:C1'   | 2:A:2587:A:OP1    | 2.07        | 1.03     |
| 2:A:2468:G:O2'   | 2:A:2469:A:H5'    | 1.56        | 1.03     |
| 2:A:2520:C:H2'   | 2:A:2521:C:H5'    | 1.37        | 1.03     |
| 2:A:2649:U:H2'   | 2:A:2650:U:H6     | 1.23        | 1.03     |
| 2:A:2733:A:H1'   | 4:E:318:ASN:ND2   | 1.73        | 1.03     |
| 2:A:2805:G:H3'   | 2:A:2807:G:P      | 1.98        | 1.03     |
| 2:A:963:U:C1'    | 2:A:2250:G:N2     | 2.22        | 1.03     |
| 3:D:80:ILE:HD12  | 3:D:80:ILE:O      | 0.86        | 1.03     |
| 10:O:1:MET:O     | 10:O:2:ILE:HD13   | 1.58        | 1.03     |
| 2:A:2236:C:H2'   | 2:A:2237:G:H5'    | 1.34        | 1.03     |
| 2:A:2482:G:C6    | 2:A:2483:C:C5     | 2.47        | 1.03     |
| 2:A:825:C:O3'    | 2:A:2428:G:N7     | 1.91        | 1.03     |
| 3:D:75:GLY:O     | 3:D:115:ILE:N     | 1.92        | 1.03     |
| 2:A:2785:C:C2'   | 4:E:100:TRP:HD1   | 1.71        | 1.03     |
| 7:H:130:ILE:O    | 7:H:131:ILE:HG23  | 1.56        | 1.03     |
| 7:H:85:ALA:C     | 7:H:148:ARG:NH2   | 2.11        | 1.03     |
| 9:N:87:LEU:H     | 9:N:87:LEU:HD12   | 1.23        | 1.03     |
| 19:R:58:GLY:HA2  | 19:R:80:PHE:CZ    | 1.93        | 1.03     |
| 15:W:83:LYS:HG2  | 15:W:97:LYS:HD3   | 1.36        | 1.03     |
| 18:Z:142:ASN:N   | 18:Z:171:VAL:HG21 | 1.74        | 1.03     |
| 18:Z:71:MET:HA   | 18:Z:78:PRO:CA    | 1.89        | 1.03     |
| 8:I:121:ILE:CG2  | 8:I:122:ARG:H     | 1.72        | 1.03     |
| 8:I:98:ILE:HD13  | 8:I:115:ILE:CD1   | 1.89        | 1.03     |
| 22:2:30:ALA:O    | 22:2:34:GLN:CG    | 2.07        | 1.03     |
| 24:0:37:LEU:HD11 | 24:0:70:ILE:CD1   | 1.86        | 1.02     |
| 2:A:932:G:H5'    | 23:3:24:LYS:NZ    | 1.73        | 1.02     |
| 2:A:2400:G:O2'   | 27:6:20:PHE:CE1   | 1.99        | 1.02     |
| 2:A:2225:A:H4'   | 2:A:2226:C:O5'    | 1.29        | 1.02     |
| 2:A:2228:G:N7    | 2:A:2229:C:C5     | 2.27        | 1.02     |
| 2:A:2520:C:C2'   | 2:A:2521:C:H5'    | 1.88        | 1.02     |
| 2:A:2689:U:C5'   | 2:A:2690:C:H5'    | 1.88        | 1.02     |
| 2:A:2790:A:H5''  | 2:A:2791:C:OP1    | 1.58        | 1.02     |
| 2:A:827:U:OP2    | 2:A:2429:G:OP2    | 1.77        | 1.02     |
| 5:F:102:LEU:HD21 | 5:F:106:GLU:OE1   | 1.53        | 1.02     |
| 6:G:38:GLU:CG    | 6:G:41:LEU:HD12   | 1.89        | 1.02     |
| 6:G:93:LEU:CD1   | 6:G:94:ALA:N      | 2.22        | 1.02     |
| 7:H:102:LEU:H    | 7:H:102:LEU:HD23  | 1.23        | 1.02     |
| 9:N:25:GLN:CA    | 9:N:28:GLU:CG     | 2.36        | 1.02     |
| 11:P:112:GLY:HA2 | 11:P:113:GLN:HE22 | 1.21        | 1.02     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 17:Y:78:THR:HA    | 17:Y:89:ARG:CG    | 1.88        | 1.02     |
| 24:0:45:PHE:CE1   | 24:0:78:PHE:CG    | 2.46        | 1.02     |
| 2:A:2226:C:O2     | 2:A:2227:A:C1'    | 2.01        | 1.02     |
| 2:A:2236:C:C2'    | 2:A:2237:G:H5'    | 1.88        | 1.02     |
| 2:A:2415:G:C6     | 2:A:2416:C:C5     | 2.38        | 1.02     |
| 2:A:2542:A:OP2    | 2:A:2542:A:O4'    | 1.75        | 1.02     |
| 2:A:2584:U:C6     | 2:A:2584:U:C3'    | 2.31        | 1.02     |
| 2:A:2689:U:H5'    | 2:A:2690:C:H5''   | 1.33        | 1.02     |
| 3:D:167:GLU:C     | 3:D:170:TYR:CD1   | 2.33        | 1.02     |
| 2:A:675:A:P       | 5:F:69:HIS:O      | 2.17        | 1.02     |
| 5:F:96:LYS:CG     | 5:F:98:ARG:NH1    | 2.22        | 1.02     |
| 19:R:77:ARG:CZ    | 19:R:77:ARG:HB2   | 1.87        | 1.02     |
| 17:Y:74:VAL:HG12  | 17:Y:77:VAL:HG23  | 1.33        | 1.02     |
| 8:I:68:LEU:CD2    | 8:I:108:LEU:CD1   | 1.90        | 1.02     |
| 2:A:1826:G:OP2    | 3:D:227:VAL:CG2   | 2.04        | 1.02     |
| 28:7:1:MET:O      | 28:7:1:MET:SD     | 2.17        | 1.02     |
| 2:A:1479:G:H2'    | 2:A:1480:G:C8     | 1.93        | 1.02     |
| 26:5:19:ARG:C     | 26:5:21:SER:H     | 1.62        | 1.02     |
| 30:9:7:VAL:C      | 30:9:8:LYS:HE3    | 1.77        | 1.02     |
| 2:A:630(A):C:C3'  | 2:A:1631:A:P      | 2.45        | 1.02     |
| 2:A:2328:A:C4     | 2:A:2329:G:N7     | 2.27        | 1.02     |
| 2:A:2543:G:C6     | 2:A:2544:G:C6     | 2.47        | 1.02     |
| 2:A:2768:C:C2'    | 2:A:2769:C:C5'    | 2.27        | 1.02     |
| 2:A:998:C:H5''    | 20:U:84:LYS:NZ    | 1.72        | 1.02     |
| 3:D:167:GLU:O     | 3:D:168:GLY:O     | 1.75        | 1.02     |
| 3:D:63:ILE:O      | 3:D:64:ILE:CG1    | 2.07        | 1.02     |
| 5:F:163:HIS:HB3   | 5:F:166:ILE:CD1   | 1.90        | 1.02     |
| 5:F:239:ALA:C     | 5:F:241:ALA:H     | 1.57        | 1.02     |
| 7:H:93:TYR:HE1    | 7:H:106:VAL:O     | 1.36        | 1.02     |
| 9:N:19:MET:CG     | 9:N:46:ILE:HD11   | 1.88        | 1.02     |
| 12:Q:28:ILE:HG23  | 12:Q:62:GLU:CG    | 1.87        | 1.02     |
| 15:W:84:ARG:HB3   | 15:W:96:ILE:HD11  | 1.37        | 1.02     |
| 18:Z:120:LEU:N    | 18:Z:120:LEU:HD23 | 1.70        | 1.02     |
| 18:Z:159:THR:HG23 | 18:Z:160:LEU:N    | 1.71        | 1.02     |
| 24:0:49:GLN:NE2   | 24:0:49:GLN:O     | 1.93        | 1.02     |
| 24:0:37:LEU:HD11  | 24:0:70:ILE:HD11  | 1.35        | 1.02     |
| 29:8:30:ARG:HD2   | 29:8:44:LYS:HD2   | 1.41        | 1.02     |
| 2:A:1783:A:N1     | 2:A:2587:A:H2     | 1.56        | 1.02     |
| 2:A:2043:C:H5     | 2:A:2777:G:H1'    | 1.20        | 1.02     |
| 4:E:180:ILE:CB    | 4:E:187:HIS:HB3   | 1.88        | 1.02     |
| 5:F:214:THR:O     | 5:F:216:SER:N     | 1.93        | 1.02     |
| 7:H:97:LYS:O      | 7:H:98:GLN:CG     | 2.07        | 1.02     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:O:25:LEU:CD1  | 10:O:38:VAL:HG12 | 1.88        | 1.02     |
| 19:R:60:LEU:HG   | 19:R:61:HIS:H    | 1.24        | 1.02     |
| 13:S:20:TYR:CE2  | 13:S:21:HIS:CD2  | 2.46        | 1.02     |
| 2:A:1156:A:OP1   | 20:U:55:ARG:CZ   | 2.07        | 1.02     |
| 16:X:24:LEU:HB2  | 16:X:26:PHE:HZ   | 1.19        | 1.02     |
| 18:Z:156:GLU:HG2 | 18:Z:157:GLY:N   | 1.71        | 1.02     |
| 26:5:56:GLN:O    | 26:5:57:VAL:HG23 | 1.57        | 1.02     |
| 2:A:2227:A:N1    | 2:A:2228:G:C5    | 2.27        | 1.02     |
| 2:A:2693:A:C2    | 2:A:2694:G:C5    | 2.48        | 1.02     |
| 2:A:872:A:O2'    | 12:Q:31:PHE:HB2  | 1.55        | 1.02     |
| 4:E:62:ARG:O     | 4:E:63:GLU:CG    | 2.07        | 1.02     |
| 10:O:1:MET:O     | 10:O:2:ILE:HD12  | 1.51        | 1.02     |
| 12:Q:45:GLN:CB   | 12:Q:152:SER:HB3 | 1.88        | 1.02     |
| 13:S:33:ARG:O    | 13:S:35:VAL:CG2  | 2.06        | 1.02     |
| 20:U:59:ARG:O    | 20:U:62:ILE:CB   | 2.08        | 1.02     |
| 2:A:446:G:H3'    | 20:U:5:LYS:HZ1   | 1.23        | 1.02     |
| 17:Y:42:VAL:CG1  | 17:Y:43:ASN:H    | 1.72        | 1.02     |
| 23:3:23:LEU:O    | 23:3:28:LEU:CG   | 2.08        | 1.02     |
| 23:3:9:VAL:H     | 23:3:54:VAL:HG12 | 1.22        | 1.02     |
| 25:4:58:LYS:O    | 25:4:61:LYS:HG3  | 1.58        | 1.02     |
| 29:8:61:MET:O    | 29:8:63:PRO:HD2  | 1.57        | 1.02     |
| 2:A:2216:G:H2'   | 2:A:2217:G:C5'   | 1.89        | 1.02     |
| 2:A:2574:G:C5'   | 2:A:2575:C:OP2   | 2.07        | 1.02     |
| 2:A:2616:C:O2'   | 2:A:2617:C:H5'   | 1.52        | 1.02     |
| 3:D:167:GLU:HB3  | 3:D:170:TYR:CE1  | 1.91        | 1.02     |
| 5:F:96:LYS:HB2   | 5:F:98:ARG:NH2   | 1.73        | 1.02     |
| 10:O:35:ILE:C    | 10:O:62:VAL:HB   | 1.55        | 1.02     |
| 19:R:38:VAL:HB   | 19:R:39:PRO:HD2  | 1.06        | 1.02     |
| 8:I:95:SER:C     | 8:I:98:ILE:HB    | 1.80        | 1.02     |
| 2:A:2195:C:C5'   | 2:A:2195:C:H6    | 1.72        | 1.02     |
| 2:A:2572:A:C5'   | 2:A:2574:G:H5'   | 1.89        | 1.02     |
| 2:A:592:G:H21    | 29:8:3:LYS:HE2   | 1.23        | 1.02     |
| 4:E:174:LEU:H    | 4:E:174:LEU:HD12 | 1.23        | 1.02     |
| 4:E:45:LYS:HZ1   | 4:E:302:GLY:C    | 1.63        | 1.02     |
| 5:F:4:THR:O      | 5:F:139:VAL:HG11 | 1.59        | 1.02     |
| 5:F:164:ALA:HB1  | 5:F:232:LEU:CD1  | 1.88        | 1.02     |
| 5:F:215:ALA:O    | 5:F:242:GLU:CG   | 2.08        | 1.02     |
| 7:H:102:LEU:HD21 | 7:H:114:ILE:HB   | 1.42        | 1.02     |
| 10:O:7:ARG:NE    | 10:O:44:LYS:CE   | 2.22        | 1.02     |
| 10:O:11:ALA:O    | 10:O:99:PHE:HB2  | 1.59        | 1.02     |
| 12:Q:65:ARG:NE   | 12:Q:122:PHE:CE2 | 2.27        | 1.02     |
| 12:Q:41:THR:OG1  | 12:Q:126:VAL:HA  | 1.58        | 1.02     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 20:U:20:ARG:NH1  | 21:V:75:LYS:CE   | 2.21        | 1.02     |
| 20:U:34:ASN:HA   | 20:U:37:GLN:HB3  | 1.40        | 1.02     |
| 17:Y:70:ALA:O    | 17:Y:93:THR:CG2  | 2.05        | 1.02     |
| 24:0:26:PHE:N    | 24:0:60:PHE:CD1  | 2.20        | 1.02     |
| 1:B:84:C:OP1     | 23:3:10:LYS:NZ   | 1.92        | 1.02     |
| 23:3:37:LEU:HD12 | 23:3:43:ILE:HG21 | 1.41        | 1.02     |
| 2:A:2305:A:H3'   | 2:A:2306:C:H5''  | 1.02        | 1.02     |
| 2:A:2470:G:N2    | 2:A:2471:C:C5    | 2.20        | 1.02     |
| 2:A:792:G:N7     | 2:A:2440:C:H1'   | 1.75        | 1.02     |
| 2:A:994:C:O2     | 20:U:53:LYS:CD   | 2.05        | 1.02     |
| 1:B:50:G:P       | 13:S:74:PRO:HG2  | 2.00        | 1.02     |
| 3:D:104:ILE:HB   | 3:D:106:PRO:CD   | 1.89        | 1.02     |
| 15:W:82:LEU:HD23 | 15:W:98:LYS:C    | 1.79        | 1.02     |
| 17:Y:30:ASP:CG   | 17:Y:31:LEU:CD2  | 2.28        | 1.02     |
| 18:Z:4:THR:C     | 18:Z:33:ALA:HB1  | 1.78        | 1.02     |
| 2:A:729:G:C6     | 3:D:207:ALA:HA   | 1.94        | 1.02     |
| 3:D:204:PHE:CD1  | 3:D:204:PHE:N    | 2.18        | 1.02     |
| 2:A:2331:G:O2'   | 24:0:70:ILE:HG21 | 0.84        | 1.02     |
| 28:7:18:PHE:H    | 28:7:44:VAL:CG2  | 1.72        | 1.02     |
| 29:8:62:LEU:HB2  | 29:8:63:PRO:CD   | 1.88        | 1.02     |
| 2:A:1270:C:H4'   | 2:A:1271:G:H5''  | 1.39        | 1.02     |
| 2:A:2446:G:H8    | 2:A:2446:G:H5'   | 1.24        | 1.02     |
| 2:A:2584:U:H2'   | 2:A:2585:U:H5    | 1.19        | 1.02     |
| 2:A:2653:U:H2'   | 2:A:2654:A:N7    | 1.74        | 1.02     |
| 2:A:1456:G:N2    | 2:A:2704:C:N3    | 2.07        | 1.02     |
| 2:A:2709:G:H2'   | 2:A:2710:C:H5'   | 1.39        | 1.02     |
| 2:A:2781:A:O4'   | 2:A:2781:A:OP1   | 1.77        | 1.02     |
| 3:D:141:HIS:CE1  | 3:D:192:GLY:O    | 2.12        | 1.02     |
| 3:D:70:LYS:HG3   | 3:D:73:ILE:HD11  | 1.42        | 1.02     |
| 3:D:89:ASN:HD21  | 3:D:199:ARG:NE   | 1.57        | 1.02     |
| 5:F:243:VAL:O    | 5:F:246:ARG:N    | 1.91        | 1.02     |
| 8:I:4:ILE:CG2    | 8:I:4:ILE:O      | 2.07        | 1.02     |
| 2:A:873:G:H4'    | 12:Q:32:LYS:HB3  | 1.41        | 1.02     |
| 12:Q:44:ALA:CB   | 12:Q:126:VAL:O   | 2.08        | 1.02     |
| 19:R:107:ASP:CG  | 19:R:108:GLY:H   | 1.62        | 1.02     |
| 2:A:564:C:O4'    | 20:U:37:GLN:OE1  | 1.76        | 1.02     |
| 20:U:41:ASN:HD22 | 20:U:42:ALA:N    | 1.58        | 1.02     |
| 21:V:61:VAL:CG2  | 21:V:98:ILE:H    | 1.73        | 1.02     |
| 2:A:25:U:C4'     | 15:W:79:GLY:HA2  | 1.90        | 1.02     |
| 17:Y:103:LEU:HA  | 17:Y:108:ARG:CB  | 1.89        | 1.02     |
| 23:3:30:ARG:CG   | 23:3:30:ARG:HH11 | 1.68        | 1.02     |
| 27:6:28:ARG:HH11 | 27:6:28:ARG:HB3  | 1.20        | 1.02     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2258:C:C4    | 2:A:2426:A:O4'   | 2.12        | 1.02     |
| 2:A:2423:U:C6    | 2:A:2423:U:C5'   | 2.43        | 1.02     |
| 2:A:2616:C:C2    | 2:A:2617:C:C5    | 2.48        | 1.02     |
| 4:E:190:ASN:O    | 4:E:192:ILE:N    | 1.93        | 1.02     |
| 5:F:148:VAL:O    | 5:F:148:VAL:HG12 | 1.58        | 1.02     |
| 5:F:241:ALA:O    | 5:F:245:GLU:CD   | 1.98        | 1.02     |
| 6:G:103:ASN:OD1  | 6:G:134:LEU:N    | 1.92        | 1.02     |
| 7:H:10:ILE:HG21  | 7:H:14:VAL:CG1   | 1.79        | 1.02     |
| 9:N:25:GLN:HA    | 9:N:28:GLU:HG2   | 1.03        | 1.02     |
| 2:A:1137:G:O2'   | 9:N:82:THR:HA    | 1.58        | 1.02     |
| 19:R:107:ASP:CG  | 19:R:108:GLY:N   | 2.12        | 1.02     |
| 8:I:103:GLN:NE2  | 8:I:109:LYS:CA   | 2.22        | 1.02     |
| 24:0:45:PHE:CD1  | 24:0:78:PHE:CA   | 2.42        | 1.01     |
| 2:A:850:C:C4'    | 23:3:18:ASP:OD1  | 2.07        | 1.01     |
| 2:A:125:G:N2     | 28:7:10:ARG:N    | 2.06        | 1.01     |
| 2:A:2461:C:N3    | 2:A:2462:U:C5    | 2.28        | 1.01     |
| 2:A:2782:G:OP2   | 2:A:2782:G:C8    | 2.12        | 1.01     |
| 2:A:994:C:O2'    | 20:U:54:LYS:HG2  | 1.57        | 1.01     |
| 3:D:183:ILE:CG2  | 3:D:184:LEU:N    | 1.99        | 1.01     |
| 10:O:92:SER:HB2  | 10:O:113:LYS:NZ  | 1.75        | 1.01     |
| 12:Q:133:GLU:O   | 12:Q:133:GLU:OE1 | 1.78        | 1.01     |
| 12:Q:58:HIS:CE1  | 12:Q:59:ASN:HB3  | 1.95        | 1.01     |
| 19:R:25:ALA:O    | 19:R:29:LEU:HD23 | 1.60        | 1.01     |
| 2:A:2334:G:OP2   | 13:S:13:ARG:HA   | 1.60        | 1.01     |
| 14:T:50:GLU:HA   | 14:T:55:ALA:CB   | 1.89        | 1.01     |
| 18:Z:116:VAL:CG2 | 18:Z:169:VAL:CG2 | 2.35        | 1.01     |
| 23:3:33:GLN:NE2  | 23:3:34:GLU:O    | 1.94        | 1.01     |
| 23:3:3:ARG:HB2   | 23:3:60:GLU:HA   | 1.37        | 1.01     |
| 23:3:59:VAL:O    | 23:3:60:GLU:HG3  | 1.55        | 1.01     |
| 28:7:32:ALA:HA   | 28:7:35:ARG:CG   | 1.90        | 1.01     |
| 2:A:197:A:C6     | 2:A:2430:A:C8    | 2.46        | 1.01     |
| 2:A:2286:A:H3'   | 2:A:2286:A:C8    | 1.95        | 1.01     |
| 2:A:2302:G:N1    | 2:A:2315:G:C6    | 2.28        | 1.01     |
| 1:B:103:U:O2'    | 18:Z:67:LYS:CG   | 2.07        | 1.01     |
| 8:I:37:ILE:CG2   | 8:I:38:GLU:N     | 2.17        | 1.01     |
| 8:I:6:LEU:HD22   | 8:I:14:LYS:HD3   | 1.38        | 1.01     |
| 10:O:7:ARG:CD    | 10:O:44:LYS:CE   | 2.38        | 1.01     |
| 17:Y:42:VAL:HG12 | 17:Y:43:ASN:H    | 0.88        | 1.01     |
| 22:2:29:ASN:O    | 22:2:34:GLN:HG2  | 1.60        | 1.01     |
| 16:X:11:THR:C    | 16:X:15:MET:HG3  | 1.79        | 1.01     |
| 22:2:30:ALA:CA   | 22:2:34:GLN:HG2  | 1.89        | 1.01     |
| 16:X:30:ASP:O    | 16:X:62:LYS:HE2  | 1.55        | 1.01     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2896:C:C6    | 2:A:2896:C:O5'    | 2.12        | 1.01     |
| 2:A:1545:A:H5'   | 2:A:545(A):A:P    | 1.99        | 1.01     |
| 2:A:1416:G:N2    | 2:A:1582:C:H42    | 1.58        | 1.01     |
| 2:A:2276:G:OP2   | 12:Q:103:ALA:HA   | 1.60        | 1.01     |
| 2:A:2531:A:H2'   | 2:A:2532:G:H5''   | 1.38        | 1.01     |
| 2:A:2570:G:H2'   | 2:A:2570:G:N3     | 1.72        | 1.01     |
| 2:A:2626:C:C5'   | 2:A:2626:C:H6     | 1.71        | 1.01     |
| 2:A:2689:U:C5'   | 2:A:2690:C:C5'    | 2.36        | 1.01     |
| 4:E:61:PRO:HA    | 4:E:69:PRO:HA     | 1.38        | 1.01     |
| 2:A:2317:C:C5'   | 6:G:150:SER:CB    | 2.38        | 1.01     |
| 9:N:50:GLU:HA    | 9:N:53:ILE:HG21   | 1.35        | 1.01     |
| 10:O:35:ILE:CG2  | 10:O:63:VAL:CA    | 2.09        | 1.01     |
| 10:O:61:VAL:HG12 | 10:O:62:VAL:H     | 1.18        | 1.01     |
| 10:O:78:ARG:C    | 10:O:79:PHE:HD2   | 1.61        | 1.01     |
| 11:P:66:VAL:HG23 | 11:P:67:ARG:NH2   | 1.73        | 1.01     |
| 13:S:33:ARG:HB3  | 13:S:35:VAL:CG2   | 1.90        | 1.01     |
| 14:T:4:ARG:HE    | 14:T:4:ARG:N      | 1.57        | 1.01     |
| 20:U:63:GLN:O    | 20:U:65:ILE:N     | 1.92        | 1.01     |
| 15:W:17:VAL:O    | 15:W:20:VAL:HG23  | 1.60        | 1.01     |
| 18:Z:138:VAL:O   | 18:Z:139:THR:OG1  | 1.79        | 1.01     |
| 18:Z:53:ASP:CG   | 18:Z:62:PHE:O     | 1.98        | 1.01     |
| 27:6:28:ARG:HH11 | 27:6:28:ARG:CB    | 1.72        | 1.01     |
| 28:7:26:SER:O    | 28:7:29:ASN:HB2   | 1.59        | 1.01     |
| 2:A:2330:G:N2    | 2:A:2331:G:C1'    | 2.23        | 1.01     |
| 2:A:2577:A:C2    | 2:A:2614:A:C2     | 2.49        | 1.01     |
| 2:A:1759:A:C8    | 2:A:2696:U:O2     | 2.13        | 1.01     |
| 2:A:2758:A:H3'   | 2:A:2758:A:P      | 2.00        | 1.01     |
| 2:A:2845:G:H2'   | 2:A:2846:G:H8     | 1.25        | 1.01     |
| 5:F:240:LEU:HD22 | 5:F:243:VAL:HG21  | 1.38        | 1.01     |
| 8:I:22:ALA:O     | 8:I:23:ASP:O      | 1.77        | 1.01     |
| 11:P:141:GLU:HB2 | 11:P:145:LEU:HD22 | 1.02        | 1.01     |
| 11:P:65:ASP:CA   | 11:P:109:LEU:H    | 1.71        | 1.01     |
| 2:A:535:C:C5'    | 20:U:53:LYS:CE    | 2.38        | 1.01     |
| 2:A:494:G:H4'    | 15:W:6:ILE:HG22   | 1.36        | 1.01     |
| 8:I:112:LYS:HD3  | 8:I:112:LYS:N     | 1.75        | 1.01     |
| 8:I:109:LYS:H    | 8:I:109:LYS:CE    | 1.74        | 1.01     |
| 2:A:1826:G:OP1   | 3:D:227:VAL:HG22  | 1.57        | 1.01     |
| 2:A:58:G:H1      | 2:A:69:C:H42      | 1.09        | 1.01     |
| 25:4:20:VAL:O    | 25:4:30:GLU:OE1   | 1.77        | 1.01     |
| 28:7:32:ALA:HA   | 28:7:35:ARG:HG3   | 1.42        | 1.01     |
| 2:A:2287:A:H2    | 2:A:2289:G:O4'    | 1.42        | 1.01     |
| 2:A:2339:G:H2'   | 2:A:2340:G:C8     | 1.95        | 1.01     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2812:G:O2'   | 2:A:2813:A:H5'    | 1.58        | 1.01     |
| 2:A:321:G:H1'    | 5:F:206:ASN:ND2   | 1.75        | 1.01     |
| 2:A:398:G:OP1    | 25:4:58:LYS:NZ    | 1.93        | 1.01     |
| 2:A:831:G:H3'    | 2:A:944:G:H22     | 1.19        | 1.01     |
| 1:B:9:G:OP1      | 13:S:37:ARG:NH2   | 1.94        | 1.01     |
| 4:E:221:LYS:CE   | 4:E:233:ARG:HA    | 1.90        | 1.01     |
| 4:E:70:VAL:CG1   | 4:E:296:VAL:N     | 2.22        | 1.01     |
| 5:F:34:ALA:CB    | 5:F:110:ALA:CB    | 2.35        | 1.01     |
| 7:H:145:ALA:O    | 7:H:147:ILE:N     | 1.92        | 1.01     |
| 11:P:94:ARG:HB2  | 11:P:120:LEU:HD22 | 1.36        | 1.01     |
| 12:Q:45:GLN:HB3  | 12:Q:152:SER:CB   | 1.90        | 1.01     |
| 19:R:20:LEU:O    | 19:R:22:ARG:N     | 1.94        | 1.01     |
| 13:S:12:ARG:NH1  | 13:S:20:TYR:CD2   | 2.22        | 1.01     |
| 20:U:28:ARG:O    | 20:U:31:GLN:N     | 1.92        | 1.01     |
| 20:U:42:ALA:O    | 20:U:45:TYR:HB2   | 1.60        | 1.01     |
| 21:V:50:ASP:OD1  | 21:V:53:LYS:CE    | 2.07        | 1.01     |
| 30:9:25:VAL:CB   | 30:9:34:GLN:HB2   | 1.69        | 1.01     |
| 2:A:1151:G:C2'   | 20:U:81:ASN:ND2   | 2.22        | 1.01     |
| 2:A:2403:C:O2    | 2:A:2403:C:H2'    | 1.56        | 1.01     |
| 2:A:2580:U:C6    | 2:A:2581:G:N7     | 2.18        | 1.01     |
| 2:A:2581:G:C2    | 2:A:2610:C:C6     | 2.48        | 1.01     |
| 4:E:45:LYS:HZ1   | 4:E:303:PRO:CA    | 1.73        | 1.01     |
| 7:H:166:GLU:CA   | 7:H:167:LEU:HD23  | 1.88        | 1.01     |
| 8:I:6:LEU:CB     | 8:I:36:ALA:HB2    | 1.91        | 1.01     |
| 12:Q:85:ILE:HG22 | 12:Q:122:PHE:CD2  | 1.95        | 1.01     |
| 14:T:11:THR:HG22 | 14:T:12:ASP:H     | 1.20        | 1.01     |
| 20:U:27:SER:HB3  | 20:U:31:GLN:NE2   | 1.76        | 1.01     |
| 21:V:40:VAL:HB   | 21:V:51:ALA:HB1   | 1.37        | 1.01     |
| 18:Z:163:ASP:OD2 | 18:Z:164:PRO:CG   | 2.08        | 1.01     |
| 8:I:145:VAL:HG12 | 8:I:146:THR:N     | 1.72        | 1.01     |
| 2:A:95:G:O2'     | 22:2:42:ASN:O     | 1.76        | 1.01     |
| 28:7:34:ARG:NH1  | 28:7:42:LEU:HD23  | 1.75        | 1.01     |
| 2:A:2410:G:C2'   | 2:A:2411:A:C8     | 2.43        | 1.01     |
| 2:A:2597:G:C2'   | 2:A:2598:A:C8     | 2.43        | 1.01     |
| 2:A:2722:G:N3    | 2:A:2723:C:C6     | 2.28        | 1.01     |
| 2:A:2761:G:C2'   | 2:A:2762:G:H5'    | 1.90        | 1.01     |
| 4:E:229:GLN:C    | 4:E:231:TRP:H     | 1.60        | 1.01     |
| 2:A:2730:C:H4'   | 4:E:265:ASN:HD21  | 0.87        | 1.01     |
| 5:F:102:LEU:CD2  | 5:F:103:ASN:H     | 1.74        | 1.01     |
| 5:F:56:THR:HB    | 5:F:57:PRO:HD2    | 1.41        | 1.01     |
| 8:I:37:ILE:HG22  | 8:I:38:GLU:N      | 1.73        | 1.01     |
| 9:N:139:LEU:HD13 | 9:N:139:LEU:H     | 1.20        | 1.01     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 12:Q:28:ILE:CG2   | 12:Q:62:GLU:HG2  | 1.89        | 1.01     |
| 20:U:8:ILE:CA     | 20:U:11:ARG:CD   | 2.38        | 1.01     |
| 15:W:8:ARG:O      | 15:W:10:VAL:N    | 1.93        | 1.01     |
| 15:W:85:VAL:HG12  | 15:W:95:ILE:CD1  | 1.89        | 1.01     |
| 18:Z:145:ASP:O    | 18:Z:146:HIS:CD2 | 2.14        | 1.01     |
| 29:8:26:LYS:CD    | 29:8:44:LYS:C    | 2.24        | 1.01     |
| 2:A:2307:G:C1'    | 2:A:2311:A:N6    | 2.15        | 1.01     |
| 2:A:2575:C:O2     | 2:A:2575:C:H2'   | 1.61        | 1.01     |
| 2:A:2832:U:O2'    | 2:A:2834:G:N3    | 1.90        | 1.01     |
| 5:F:193:LEU:HD13  | 5:F:223:LEU:HB2  | 1.43        | 1.01     |
| 7:H:146:ASN:O     | 7:H:150:VAL:CG2  | 2.08        | 1.01     |
| 20:U:55:ARG:O     | 20:U:57:PHE:N    | 1.93        | 1.01     |
| 2:A:2013:A:C4'    | 15:W:96:ILE:HG22 | 1.83        | 1.01     |
| 15:W:96:ILE:HD12  | 15:W:96:ILE:N    | 1.66        | 1.01     |
| 8:I:77:VAL:HG23   | 8:I:141:LEU:CD1  | 1.83        | 1.01     |
| 22:2:13:PRO:HA    | 22:2:16:ARG:HD2  | 1.40        | 1.01     |
| 16:X:44:GLN:OE1   | 16:X:45:TYR:HB2  | 1.61        | 1.01     |
| 27:6:24:THR:O     | 27:6:25:THR:HG23 | 1.60        | 1.01     |
| 2:A:2217:G:O2'    | 2:A:2218:G:H5'   | 1.57        | 1.01     |
| 2:A:2225:A:H5'    | 2:A:2226:C:H5'   | 1.43        | 1.01     |
| 2:A:2726:U:H3'    | 2:A:2727:G:H8    | 1.24        | 1.01     |
| 7:H:93:TYR:O      | 7:H:94:ARG:HG2   | 1.57        | 1.01     |
| 9:N:27:ALA:CB     | 9:N:30:ALA:HB3   | 1.91        | 1.01     |
| 20:U:103:PRO:C    | 20:U:107:LYS:HG2 | 1.82        | 1.01     |
| 18:Z:24:TYR:CD2   | 18:Z:84:TYR:HD1  | 1.79        | 1.01     |
| 2:A:931:G:OP1     | 23:3:27:GLY:CA   | 2.08        | 1.01     |
| 2:A:2286:A:H4'    | 2:A:2287:A:O4'   | 1.60        | 1.01     |
| 2:A:2528:U:C4     | 2:A:2530:A:N3    | 2.29        | 1.01     |
| 2:A:2746:U:O2     | 2:A:2759:G:C2    | 2.13        | 1.01     |
| 10:O:2:ILE:HD13   | 10:O:33:ALA:O    | 1.61        | 1.01     |
| 10:O:35:ILE:HG21  | 10:O:63:VAL:HA   | 1.38        | 1.01     |
| 10:O:64:ARG:HD3   | 10:O:81:GLU:HB3  | 1.42        | 1.01     |
| 19:R:22:ARG:HG3   | 19:R:26:LYS:HE3  | 1.42        | 1.01     |
| 21:V:51:ALA:HA    | 21:V:54:TYR:CD1  | 1.95        | 1.01     |
| 15:W:42:ARG:O     | 15:W:44:ALA:N    | 1.93        | 1.01     |
| 17:Y:45:GLY:HA2   | 17:Y:62:VAL:HG12 | 1.42        | 1.01     |
| 18:Z:120:LEU:HD23 | 18:Z:120:LEU:H   | 0.87        | 1.01     |
| 18:Z:126:GLY:O    | 18:Z:129:ARG:CB  | 2.08        | 1.01     |
| 2:A:1260:G:C5'    | 15:W:83:LYS:NZ   | 2.24        | 1.00     |
| 2:A:2046:G:OP1    | 26:5:19:ARG:HA   | 1.61        | 1.00     |
| 2:A:2297:C:C2'    | 2:A:2298:A:H8    | 1.73        | 1.00     |
| 2:A:2422:A:C4     | 2:A:2424:C:C5    | 2.49        | 1.00     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2447:G:C2    | 2:A:2500:U:O4    | 2.14        | 1.00     |
| 2:A:2552:U:O2    | 2:A:2554:U:C5'   | 2.09        | 1.00     |
| 2:A:2570:G:H2'   | 2:A:2571:C:C5    | 1.95        | 1.00     |
| 2:A:2839:G:N3    | 2:A:2840:C:C6    | 2.29        | 1.00     |
| 1:B:76:G:OP1     | 18:Z:10:PRO:HB3  | 1.58        | 1.00     |
| 3:D:167:GLU:CB   | 3:D:170:TYR:CD1  | 2.43        | 1.00     |
| 4:E:267:ARG:HB2  | 4:E:297:LYS:HD2  | 1.42        | 1.00     |
| 5:F:102:LEU:HD22 | 5:F:106:GLU:HB2  | 1.39        | 1.00     |
| 5:F:59:GLU:O     | 5:F:61:PHE:CE2   | 2.13        | 1.00     |
| 6:G:35:ALA:O     | 6:G:36:ASN:CG    | 1.99        | 1.00     |
| 10:O:37:ASP:O    | 10:O:62:VAL:HG23 | 1.58        | 1.00     |
| 11:P:114:VAL:O   | 11:P:115:ARG:HG3 | 0.83        | 1.00     |
| 17:Y:52:ARG:HD2  | 17:Y:95:ASN:OD1  | 1.59        | 1.00     |
| 18:Z:39:PHE:HA   | 18:Z:43:PHE:CZ   | 1.96        | 1.00     |
| 23:3:8:LEU:HD22  | 23:3:31:LEU:HA   | 1.36        | 1.00     |
| 30:9:10:MET:CB   | 30:9:32:HIS:HD2  | 1.75        | 1.00     |
| 2:A:1012:U:O2    | 9:N:21:ARG:CZ    | 2.08        | 1.00     |
| 2:A:1630:G:O3'   | 2:A:630(A):C:P   | 2.18        | 1.00     |
| 2:A:2187:G:O2'   | 2:A:2188:C:H5'   | 1.59        | 1.00     |
| 2:A:2215:G:O2'   | 2:A:2216:G:C5'   | 2.09        | 1.00     |
| 2:A:2253:G:C2'   | 2:A:2254:C:O5'   | 2.07        | 1.00     |
| 2:A:2394:C:C5    | 2:A:2395:C:N4    | 2.30        | 1.00     |
| 2:A:2520:C:N3    | 2:A:2521:C:C5    | 2.30        | 1.00     |
| 2:A:2633:G:H1    | 2:A:2785:C:H42   | 1.09        | 1.00     |
| 2:A:806:C:O2'    | 2:A:2445:G:C4'   | 2.08        | 1.00     |
| 2:A:911:A:C6     | 12:Q:16:ARG:CG   | 2.42        | 1.00     |
| 3:D:175:LEU:N    | 3:D:175:LEU:HD23 | 1.72        | 1.00     |
| 7:H:15:THR:HG22  | 7:H:26:LYS:O     | 1.59        | 1.00     |
| 7:H:41:THR:HB    | 7:H:52:THR:HB    | 1.42        | 1.00     |
| 11:P:83:GLU:O    | 11:P:92:ASP:N    | 1.94        | 1.00     |
| 12:Q:65:ARG:NE   | 12:Q:85:ILE:HB   | 1.77        | 1.00     |
| 21:V:14:VAL:HG12 | 21:V:15:SER:N    | 1.75        | 1.00     |
| 15:W:8:ARG:HG2   | 15:W:9:TYR:N     | 1.75        | 1.00     |
| 18:Z:47:SER:O    | 18:Z:49:THR:N    | 1.94        | 1.00     |
| 8:I:121:ILE:HG22 | 8:I:122:ARG:H    | 0.85        | 1.00     |
| 22:2:30:ALA:O    | 22:2:34:GLN:HG2  | 1.58        | 1.00     |
| 2:A:6:A:O2'      | 9:N:6:PHE:HD2    | 1.44        | 1.00     |
| 2:A:2896:C:H6    | 2:A:2896:C:O5'   | 1.41        | 1.00     |
| 2:A:2188:C:N4    | 2:A:2189:U:O4    | 1.95        | 1.00     |
| 2:A:2246:G:O2'   | 2:A:2247:A:C5'   | 2.07        | 1.00     |
| 2:A:2343:C:O2'   | 2:A:2344:U:H5'   | 1.58        | 1.00     |
| 2:A:2589:A:H2'   | 2:A:2590:A:H5''  | 1.27        | 1.00     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2717:G:N2    | 2:A:2718:G:C4     | 2.28        | 1.00     |
| 2:A:529:A:C2     | 2:A:2022:U:OP1    | 2.14        | 1.00     |
| 4:E:171:SER:O    | 4:E:175:ASP:CB    | 2.08        | 1.00     |
| 5:F:225:PRO:CG   | 5:F:231:ARG:NH2   | 2.20        | 1.00     |
| 2:A:2304:G:O4'   | 6:G:105:SER:HB2   | 1.59        | 1.00     |
| 2:A:2748:A:H2'   | 7:H:62:ALA:HB1    | 1.42        | 1.00     |
| 8:I:7:LYS:HA     | 8:I:12:LYS:HD3    | 1.43        | 1.00     |
| 10:O:98:ILE:HG13 | 10:O:117:LEU:HB3  | 1.43        | 1.00     |
| 12:Q:32:LYS:NZ   | 18:Z:172:LEU:CD1  | 2.23        | 1.00     |
| 20:U:92:ARG:N    | 21:V:10:LYS:HZ1   | 1.58        | 1.00     |
| 23:3:40:THR:HG23 | 23:3:43:ILE:CD1   | 1.66        | 1.00     |
| 23:3:59:VAL:O    | 23:3:60:GLU:HG2   | 1.61        | 1.00     |
| 25:4:42:PHE:O    | 25:4:57:ASP:CA    | 1.99        | 1.00     |
| 2:A:2286:A:H8    | 2:A:2286:A:H3'    | 1.26        | 1.00     |
| 4:E:206:LYS:O    | 4:E:257:GLY:HA2   | 1.61        | 1.00     |
| 5:F:144:PHE:CD2  | 5:F:156:LEU:HD13  | 1.94        | 1.00     |
| 5:F:96:LYS:CB    | 5:F:98:ARG:NH1    | 0.86        | 1.00     |
| 7:H:58:LYS:O     | 7:H:61:ARG:HB3    | 1.62        | 1.00     |
| 11:P:53:ARG:H    | 11:P:53:ARG:HD2   | 1.21        | 1.00     |
| 12:Q:16:ARG:HB3  | 12:Q:16:ARG:CZ    | 1.90        | 1.00     |
| 13:S:110:THR:OG1 | 13:S:111:PRO:HD2  | 1.61        | 1.00     |
| 13:S:31:LYS:HD2  | 13:S:99:GLU:C     | 1.81        | 1.00     |
| 2:A:176:G:HO3'   | 2:A:177:G:P       | 1.17        | 1.00     |
| 12:Q:94:ARG:NH1  | 12:Q:105:PHE:O    | 1.93        | 1.00     |
| 24:0:61:ALA:C    | 24:0:62:LEU:HD12  | 1.80        | 1.00     |
| 19:R:101:ALA:O   | 26:5:41:LEU:HD12  | 1.56        | 1.00     |
| 2:A:1710:C:O2'   | 2:A:2858:C:N4     | 1.94        | 1.00     |
| 2:A:2103:C:N3    | 2:A:2187:G:O6     | 1.94        | 1.00     |
| 2:A:2209:C:N4    | 2:A:2215:G:H1     | 1.57        | 1.00     |
| 2:A:2423:U:C6    | 2:A:2425:A:C6     | 2.50        | 1.00     |
| 2:A:2457:U:O2'   | 2:A:2458:G:H5'    | 1.60        | 1.00     |
| 2:A:2495:G:O2'   | 12:Q:101:MET:HE2  | 1.61        | 1.00     |
| 2:A:2769:C:O2'   | 2:A:2770:G:C5'    | 2.08        | 1.00     |
| 2:A:2792:G:N2    | 2:A:2804:C:N3     | 2.08        | 1.00     |
| 2:A:446:G:OP2    | 20:U:3:ARG:NE     | 1.93        | 1.00     |
| 4:E:303:PRO:HB2  | 4:E:307:LEU:HD13  | 1.02        | 1.00     |
| 2:A:2313:C:C5'   | 6:G:51:ARG:HH11   | 1.75        | 1.00     |
| 11:P:76:LEU:O    | 11:P:81:VAL:CG2   | 2.01        | 1.00     |
| 2:A:2320:A:H62   | 13:S:9:PRO:HG3    | 1.22        | 1.00     |
| 18:Z:149:ALA:HA  | 18:Z:152:ILE:HD11 | 1.43        | 1.00     |
| 25:4:11:PRO:HA   | 25:4:40:HIS:CD2   | 1.96        | 1.00     |
| 29:8:19:THR:HB   | 29:8:21:LYS:NZ    | 1.77        | 1.00     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2195:C:O5'   | 2:A:2195:C:H6     | 1.44        | 1.00     |
| 2:A:2234:G:C6    | 2:A:2235:G:N7     | 2.29        | 1.00     |
| 2:A:2423:U:O2'   | 2:A:2425:A:H3'    | 1.62        | 1.00     |
| 2:A:2543:G:C5    | 2:A:2544:G:C5     | 2.49        | 1.00     |
| 2:A:2558:C:C2    | 2:A:2559:C:C5     | 2.50        | 1.00     |
| 2:A:2567:G:O2'   | 2:A:2568:C:H5'    | 1.62        | 1.00     |
| 2:A:2709:G:O2'   | 2:A:2710:C:C5'    | 2.09        | 1.00     |
| 4:E:74:GLU:CA    | 4:E:293:TYR:CD2   | 2.42        | 1.00     |
| 4:E:94:ARG:HB3   | 4:E:95:PRO:HD2    | 1.04        | 1.00     |
| 2:A:557:U:H5'    | 9:N:92:GLN:HE21   | 1.25        | 1.00     |
| 11:P:112:GLY:CA  | 11:P:113:GLN:HE22 | 1.74        | 1.00     |
| 20:U:36:PHE:O    | 20:U:39:LEU:CB    | 2.09        | 1.00     |
| 21:V:42:GLY:CA   | 21:V:54:TYR:OH    | 2.09        | 1.00     |
| 18:Z:6:LYS:H     | 18:Z:7:PRO:CD     | 1.74        | 1.00     |
| 16:X:33:SER:C    | 16:X:37:VAL:HG23  | 1.82        | 1.00     |
| 18:Z:95:SER:CB   | 18:Z:122:ILE:HG12 | 1.92        | 1.00     |
| 27:6:37:LEU:O    | 27:6:38:LYS:CG    | 2.08        | 1.00     |
| 28:7:8:ASN:HB2   | 28:7:11:LYS:HB3   | 1.42        | 1.00     |
| 2:A:2045:C:C4    | 2:A:2624:G:C2     | 2.50        | 1.00     |
| 2:A:2327:A:C2    | 2:A:2328:A:N3     | 2.29        | 1.00     |
| 2:A:2857:G:O5'   | 2:A:2857:G:H8     | 1.44        | 1.00     |
| 2:A:2679:A:C2    | 4:E:300:VAL:HG21  | 1.97        | 1.00     |
| 4:E:44:TYR:CG    | 4:E:307:LEU:O     | 2.14        | 1.00     |
| 2:A:674:G:H5''   | 5:F:69:HIS:HA     | 1.40        | 1.00     |
| 12:Q:49:VAL:HG13 | 12:Q:50:VAL:H     | 1.22        | 1.00     |
| 12:Q:34:GLY:CA   | 12:Q:74:ASN:O     | 2.09        | 1.00     |
| 13:S:34:LEU:HD21 | 13:S:102:LEU:HA   | 1.42        | 1.00     |
| 17:Y:77:VAL:O    | 17:Y:78:THR:HG23  | 1.61        | 1.00     |
| 18:Z:51:LEU:HD11 | 18:Z:63:PRO:HB2   | 1.42        | 1.00     |
| 2:A:244:A:O2'    | 11:P:56:LYS:HA    | 1.61        | 1.00     |
| 2:A:2646:C:H2'   | 2:A:2647:U:H5'    | 1.42        | 1.00     |
| 2:A:2862:G:C2'   | 2:A:2863:C:C6     | 2.43        | 1.00     |
| 5:F:144:PHE:O    | 5:F:146:ASP:N     | 1.93        | 1.00     |
| 7:H:41:THR:CB    | 7:H:52:THR:HB     | 1.91        | 1.00     |
| 19:R:21:TYR:HB3  | 19:R:47:PHE:CD2   | 1.96        | 1.00     |
| 20:U:33:ARG:HH11 | 20:U:33:ARG:CB    | 1.75        | 1.00     |
| 2:A:25:U:C4'     | 15:W:79:GLY:CA    | 2.38        | 1.00     |
| 17:Y:43:ASN:HD21 | 17:Y:112:LEU:HD21 | 1.23        | 1.00     |
| 28:7:44:VAL:C    | 28:7:46:ASP:H     | 1.53        | 1.00     |
| 2:A:1568:G:OP2   | 3:D:60:GLN:CG     | 2.09        | 1.00     |
| 2:A:1966:A:N3    | 2:A:2593:U:C5'    | 2.25        | 1.00     |
| 2:A:2310:A:H2'   | 6:G:55:LYS:HE2    | 1.02        | 1.00     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2839:G:C4    | 2:A:2840:C:C6    | 2.49        | 1.00     |
| 2:A:2870:C:O2    | 2:A:2870:C:H2'   | 1.62        | 1.00     |
| 4:E:271:ILE:CD1  | 4:E:294:THR:HG22 | 1.89        | 1.00     |
| 5:F:164:ALA:CB   | 5:F:232:LEU:HD12 | 1.92        | 1.00     |
| 6:G:24:HIS:HB3   | 6:G:72:LYS:HA    | 1.42        | 1.00     |
| 7:H:147:ILE:HD12 | 7:H:150:VAL:HB   | 1.41        | 1.00     |
| 2:A:1140:C:C4    | 9:N:49:ARG:CD    | 2.44        | 1.00     |
| 10:O:66:LYS:HG3  | 10:O:82:ASN:ND2  | 1.76        | 1.00     |
| 10:O:68:GLY:CA   | 10:O:78:ARG:HE   | 1.74        | 1.00     |
| 12:Q:12:PRO:HB2  | 12:Q:20:ILE:HD11 | 1.41        | 1.00     |
| 12:Q:31:PHE:HA   | 12:Q:85:ILE:HD11 | 1.43        | 1.00     |
| 13:S:61:ALA:HB2  | 13:S:88:ALA:HB2  | 1.03        | 1.00     |
| 2:A:445:C:H3'    | 20:U:3:ARG:CZ    | 1.92        | 1.00     |
| 17:Y:101:LEU:CD2 | 17:Y:103:LEU:HG  | 1.79        | 1.00     |
| 17:Y:46:ASP:OD2  | 17:Y:101:LEU:HA  | 1.59        | 1.00     |
| 17:Y:31:LEU:O    | 17:Y:34:GLU:CB   | 2.09        | 1.00     |
| 18:Z:159:THR:C   | 18:Z:160:LEU:CD1 | 2.31        | 1.00     |
| 18:Z:62:PHE:CG   | 18:Z:87:THR:HG22 | 1.95        | 1.00     |
| 3:D:213:LYS:HB3  | 3:D:215:LYS:H    | 1.17        | 1.00     |
| 22:2:57:LYS:O    | 22:2:60:GLN:HB3  | 1.61        | 1.00     |
| 27:6:21:TYR:CE1  | 27:6:43:VAL:HG23 | 1.97        | 1.00     |
| 30:9:10:MET:CB   | 30:9:32:HIS:CD2  | 2.45        | 1.00     |
| 2:A:2742:C:H5''  | 30:9:35:ARG:HH12 | 1.26        | 1.00     |
| 2:A:1364:G:C5'   | 25:4:3:LYS:HD3   | 1.91        | 1.00     |
| 2:A:1364:G:O5'   | 25:4:3:LYS:HD3   | 1.60        | 1.00     |
| 2:A:2599:G:H2'   | 2:A:2600:A:O4'   | 1.60        | 1.00     |
| 2:A:2759:G:H2'   | 2:A:2760:C:O5'   | 1.58        | 1.00     |
| 2:A:2813:A:H2'   | 2:A:2814:C:C5    | 1.96        | 1.00     |
| 2:A:931:G:H2'    | 2:A:932:G:C8     | 1.96        | 1.00     |
| 2:A:2052:G:N2    | 4:E:245:ARG:HG2  | 1.76        | 1.00     |
| 5:F:102:LEU:HD23 | 5:F:106:GLU:CD   | 1.80        | 1.00     |
| 6:G:21:VAL:CG1   | 6:G:132:VAL:HB   | 1.92        | 1.00     |
| 14:T:4:ARG:C     | 14:T:5:GLU:HG3   | 1.77        | 1.00     |
| 21:V:62:GLU:HB2  | 21:V:96:LEU:HD21 | 1.43        | 1.00     |
| 12:Q:94:ARG:CD   | 12:Q:106:GLY:CA  | 2.40        | 1.00     |
| 2:A:1350:C:N3    | 2:A:1381:G:N2    | 2.09        | 1.00     |
| 29:8:16:ILE:CG1  | 29:8:22:VAL:CG2  | 2.22        | 0.99     |
| 29:8:52:LYS:C    | 29:8:54:GLU:H    | 1.60        | 0.99     |
| 2:A:2305:A:H3'   | 2:A:2306:C:C5'   | 1.92        | 0.99     |
| 2:A:2353:G:O2'   | 24:0:30:VAL:O    | 1.79        | 0.99     |
| 2:A:2403:C:C4    | 2:A:2415:G:C6    | 2.50        | 0.99     |
| 2:A:2555:U:H6    | 2:A:2555:U:OP2   | 1.45        | 0.99     |

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| Atom-1          | Atom-2            | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 2:A:2587:A:O2'  | 2:A:2588:G:C5'    | 2.08        | 0.99     |
| 2:A:2654:A:N6   | 2:A:2667:C:H42    | 1.59        | 0.99     |
| 2:A:2640:G:H1   | 2:A:2774:C:H42    | 1.02        | 0.99     |
| 4:E:74:GLU:N    | 4:E:74:GLU:OE2    | 1.94        | 0.99     |
| 5:F:36:ARG:HA   | 5:F:39:GLN:HE22   | 0.89        | 0.99     |
| 1:B:43:C:H1'    | 6:G:47:GLN:NE2    | 1.77        | 0.99     |
| 11:P:141:GLU:CB | 11:P:145:LEU:HD22 | 1.92        | 0.99     |
| 12:Q:46:VAL:HB  | 12:Q:124:ALA:O    | 0.83        | 0.99     |
| 20:U:49:ASP:N   | 20:U:52:ASN:ND2   | 1.95        | 0.99     |
| 21:V:4:ILE:HD13 | 21:V:13:ARG:HG2   | 1.39        | 0.99     |
| 30:9:10:MET:HB3 | 30:9:32:HIS:CD2   | 1.96        | 0.99     |
| 2:A:1669:A:C8   | 10:O:4:GLN:CD     | 2.36        | 0.99     |
| 2:A:2273:A:N7   | 2:A:2274:A:C8     | 2.30        | 0.99     |
| 2:A:2484:G:C2   | 2:A:2485:G:O4'    | 2.15        | 0.99     |
| 2:A:2741:A:H2'  | 2:A:2742:C:O4'    | 1.62        | 0.99     |
| 2:A:2838:G:C5   | 2:A:2839:G:N7     | 2.30        | 0.99     |
| 5:F:220:THR:HA  | 5:F:224:ALA:HB2   | 1.42        | 0.99     |
| 9:N:42:GLU:O    | 9:N:132:LEU:C     | 1.99        | 0.99     |
| 12:Q:42:TYR:CD2 | 18:Z:119:ASN:HA   | 1.96        | 0.99     |
| 19:R:93:GLY:O   | 19:R:95:THR:N     | 1.94        | 0.99     |
| 17:Y:74:VAL:CG1 | 17:Y:77:VAL:CG2   | 2.40        | 0.99     |
| 8:I:89:LEU:HD12 | 8:I:93:ILE:CG2    | 1.92        | 0.99     |
| 2:A:864:G:O3'   | 2:A:865:C:P       | 2.20        | 0.99     |
| 24:0:30:VAL:CG2 | 24:0:63:SER:OG    | 2.09        | 0.99     |
| 24:0:36:ILE:CB  | 24:0:68:VAL:HG11  | 1.92        | 0.99     |
| 2:A:126:A:C5    | 28:7:18:PHE:CD2   | 2.49        | 0.99     |
| 2:A:2090:G:N1   | 2:A:2230:G:O6     | 1.94        | 0.99     |
| 2:A:2251:G:H5'' | 12:Q:102:ARG:NH2  | 1.75        | 0.99     |
| 2:A:2815:C:C2'  | 2:A:2816:C:C5'    | 2.38        | 0.99     |
| 2:A:2869:G:C6   | 2:A:2870:C:C5     | 2.49        | 0.99     |
| 3:D:161:ALA:C   | 3:D:162:GLN:NE2   | 2.16        | 0.99     |
| 4:E:222:ARG:HD3 | 4:E:232:ARG:CA    | 1.92        | 0.99     |
| 5:F:37:ALA:CB   | 5:F:102:LEU:HB2   | 1.91        | 0.99     |
| 5:F:3:ALA:CB    | 5:F:16:VAL:C      | 2.28        | 0.99     |
| 6:G:97:GLN:OE1  | 6:G:106:PHE:CE2   | 2.14        | 0.99     |
| 9:N:58:GLU:O    | 9:N:61:VAL:HB     | 1.62        | 0.99     |
| 11:P:66:VAL:C   | 11:P:67:ARG:HE    | 1.65        | 0.99     |
| 12:Q:54:VAL:O   | 12:Q:56:ILE:N     | 1.96        | 0.99     |
| 19:R:36:THR:CG2 | 19:R:40:LYS:HB3   | 1.89        | 0.99     |
| 19:R:43:GLU:O   | 19:R:45:ARG:N     | 1.94        | 0.99     |
| 2:A:76:C:C4'    | 22:2:55:ARG:HG3   | 1.92        | 0.99     |
| 2:A:138:G:C5'   | 16:X:43:GLU:HG3   | 1.91        | 0.99     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1351:C:H2'   | 2:A:1352:U:H6    | 1.26        | 0.99     |
| 2:A:1364:G:O5'   | 25:4:3:LYS:HG2   | 1.62        | 0.99     |
| 25:4:5:LEU:HD12  | 25:4:60:ASN:ND2  | 1.77        | 0.99     |
| 2:A:2250:G:H5'   | 12:Q:102:ARG:HD3 | 1.42        | 0.99     |
| 2:A:2361:A:C2'   | 2:A:2362:G:H5'   | 1.92        | 0.99     |
| 2:A:2464:C:N4    | 2:A:2487:G:C5    | 2.31        | 0.99     |
| 2:A:2821:A:H2    | 2:A:2822:G:C5    | 1.68        | 0.99     |
| 2:A:594:U:H5'    | 29:8:61:MET:CE   | 1.65        | 0.99     |
| 2:A:825:C:H4'    | 2:A:2428:G:C6    | 1.97        | 0.99     |
| 3:D:146:LYS:HD3  | 3:D:147:PRO:HD2  | 1.03        | 0.99     |
| 5:F:196:THR:HG23 | 5:F:236:THR:HG21 | 1.44        | 0.99     |
| 6:G:21:VAL:HG13  | 6:G:132:VAL:HG23 | 1.03        | 0.99     |
| 7:H:93:TYR:CG    | 7:H:106:VAL:HG22 | 1.88        | 0.99     |
| 13:S:32:PRO:HG2  | 13:S:100:ALA:HB1 | 1.00        | 0.99     |
| 20:U:65:ILE:CG2  | 20:U:76:TYR:CE2  | 2.37        | 0.99     |
| 21:V:62:GLU:N    | 21:V:98:ILE:HD11 | 1.75        | 0.99     |
| 15:W:10:VAL:HG13 | 15:W:46:PHE:HE2  | 1.23        | 0.99     |
| 22:2:55:ARG:O    | 22:2:58:THR:N    | 1.96        | 0.99     |
| 16:X:24:LEU:CD1  | 16:X:68:LEU:HD22 | 1.90        | 0.99     |
| 2:A:1062:G:C2    | 31:K:134:SER:O   | 2.15        | 0.99     |
| 2:A:1315:C:O2'   | 2:A:1392:A:H1'   | 1.62        | 0.99     |
| 2:A:2576:G:OP1   | 2:A:2576:G:H3'   | 1.61        | 0.99     |
| 2:A:2603:G:N1    | 2:A:2604:U:C5    | 2.29        | 0.99     |
| 2:A:2869:G:H21   | 2:A:2870:C:H1'   | 1.26        | 0.99     |
| 1:B:104:A:H1'    | 18:Z:24:TYR:CZ   | 1.96        | 0.99     |
| 3:D:89:ASN:O     | 3:D:105:ALA:HB1  | 1.58        | 0.99     |
| 3:D:66:PHE:C     | 3:D:67:LYS:HD3   | 1.80        | 0.99     |
| 3:D:85:ASN:CG    | 3:D:86:ARG:NE    | 2.16        | 0.99     |
| 4:E:44:TYR:CD1   | 4:E:309:PRO:HD3  | 1.97        | 0.99     |
| 5:F:102:LEU:CD2  | 5:F:106:GLU:CD   | 2.30        | 0.99     |
| 12:Q:41:THR:HG22 | 12:Q:125:TRP:CE3 | 1.95        | 0.99     |
| 2:A:2320:A:N1    | 13:S:13:ARG:HG2  | 1.77        | 0.99     |
| 21:V:20:ILE:HG23 | 21:V:67:LYS:HD2  | 1.40        | 0.99     |
| 15:W:81:ALA:O    | 15:W:82:LEU:HD13 | 1.61        | 0.99     |
| 2:A:85:G:O5'     | 17:Y:65:VAL:CG1  | 2.09        | 0.99     |
| 27:6:39:LYS:HA   | 27:6:50:PHE:HD1  | 1.22        | 0.99     |
| 28:7:38:GLY:O    | 28:7:39:ARG:HB2  | 1.62        | 0.99     |
| 29:8:41:ILE:C    | 29:8:43:GLY:H    | 1.65        | 0.99     |
| 2:A:2010:G:P     | 15:W:41:LYS:HG3  | 2.01        | 0.99     |
| 2:A:2082:A:C6    | 2:A:2239:G:C6    | 2.50        | 0.99     |
| 2:A:526:A:C2     | 2:A:2626:C:O4'   | 2.14        | 0.99     |
| 2:A:2869:G:N2    | 2:A:2870:C:H1'   | 1.76        | 0.99     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:100:LYS:O    | 3:D:101:ARG:HG3  | 1.62        | 0.99     |
| 5:F:163:HIS:HA   | 5:F:166:ILE:CG1  | 1.91        | 0.99     |
| 5:F:5:ILE:HA     | 5:F:139:VAL:HG11 | 1.42        | 0.99     |
| 5:F:63:SER:H     | 5:F:65:ARG:HE    | 1.04        | 0.99     |
| 6:G:56:ARG:HG2   | 6:G:65:GLU:HB2   | 1.01        | 0.99     |
| 9:N:15:ARG:CD    | 9:N:43:ARG:CD    | 2.38        | 0.99     |
| 10:O:63:VAL:N    | 10:O:84:CYS:SG   | 2.34        | 0.99     |
| 10:O:98:ILE:CG1  | 10:O:117:LEU:HB3 | 1.92        | 0.99     |
| 13:S:32:PRO:CD   | 13:S:100:ALA:HA  | 1.92        | 0.99     |
| 8:I:94:THR:CG2   | 8:I:96:LYS:HB3   | 1.91        | 0.99     |
| 2:A:1076:C:O2'   | 31:K:91:GLU:HB3  | 1.63        | 0.99     |
| 2:A:2755:C:C6    | 2:A:2755:C:O5'   | 2.15        | 0.99     |
| 24:O:24:LYS:HG2  | 24:O:56:ASP:CG   | 1.82        | 0.99     |
| 23:3:20:LYS:HA   | 23:3:23:LEU:HD11 | 0.99        | 0.99     |
| 25:4:16:TYR:O    | 25:4:17:GLN:HG3  | 0.82        | 0.99     |
| 27:6:22:TYR:O    | 27:6:23:THR:CG2  | 2.11        | 0.99     |
| 2:A:1139:G:OP1   | 9:N:46:ILE:CG2   | 2.10        | 0.99     |
| 2:A:2520:C:C5    | 2:A:2567:G:C4    | 2.51        | 0.99     |
| 2:A:2666:C:C3'   | 2:A:2667:C:H5'   | 1.93        | 0.99     |
| 2:A:2710:C:O2'   | 2:A:2711:A:C5'   | 2.10        | 0.99     |
| 2:A:2745:C:H1'   | 7:H:142:GLU:CG   | 1.91        | 0.99     |
| 3:D:110:LYS:HA   | 3:D:110:LYS:HZ3  | 0.82        | 0.99     |
| 4:E:263:GLU:HG3  | 4:E:266:LYS:HE2  | 1.00        | 0.99     |
| 7:H:93:TYR:O     | 7:H:94:ARG:HG3   | 1.60        | 0.99     |
| 2:A:2378:A:N3    | 13:S:26:LEU:HD23 | 1.77        | 0.99     |
| 13:S:32:PRO:HD2  | 13:S:101:VAL:H   | 1.27        | 0.99     |
| 13:S:87:LEU:HD22 | 13:S:87:LEU:H    | 1.26        | 0.99     |
| 20:U:31:GLN:O    | 20:U:33:ARG:N    | 1.95        | 0.99     |
| 17:Y:73:HIS:HA   | 17:Y:91:LEU:HD11 | 1.12        | 0.99     |
| 2:A:1566:A:C2    | 3:D:212:HIS:CA   | 2.45        | 0.99     |
| 2:A:2355:C:O3'   | 24:O:21:LEU:HD11 | 1.61        | 0.99     |
| 25:4:73:LYS:OXT  | 25:4:73:LYS:HG3  | 1.61        | 0.99     |
| 2:A:458:G:H2'    | 28:7:40:HIS:NE2  | 1.77        | 0.99     |
| 29:8:60:LEU:O    | 29:8:61:MET:O    | 1.79        | 0.99     |
| 2:A:2531:A:H2'   | 2:A:2532:G:H5'   | 1.02        | 0.99     |
| 2:A:599:G:O2'    | 5:F:30:LEU:HD21  | 1.63        | 0.99     |
| 2:A:1818:U:H5''  | 3:D:155:ARG:CB   | 1.93        | 0.99     |
| 5:F:225:PRO:O    | 5:F:231:ARG:CG   | 2.09        | 0.99     |
| 5:F:243:VAL:O    | 5:F:246:ARG:CB   | 2.11        | 0.99     |
| 1:B:57:A:N3      | 6:G:13:MET:CE    | 2.23        | 0.99     |
| 2:A:2303:G:H4'   | 6:G:99:ASP:HB3   | 1.45        | 0.99     |
| 2:A:245:G:OP1    | 11:P:53:ARG:HD3  | 0.82        | 0.99     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:58:HIS:CA   | 12:Q:61:LEU:CD1  | 2.41        | 0.99     |
| 15:W:84:ARG:HB2  | 15:W:96:ILE:HD13 | 1.44        | 0.99     |
| 8:I:65:ALA:HB1   | 8:I:134:HIS:HB2  | 1.44        | 0.99     |
| 23:3:16:PRO:HB2  | 23:3:19:GLN:CG   | 1.92        | 0.99     |
| 29:8:4:MET:HA    | 29:8:5:LYS:HZ2   | 1.24        | 0.99     |
| 2:A:2469:A:C8    | 2:A:2469:A:H5'   | 1.95        | 0.99     |
| 2:A:526:A:C2     | 2:A:2626:C:C1'   | 2.44        | 0.99     |
| 2:A:1819:A:OP1   | 3:D:154:VAL:HA   | 1.63        | 0.99     |
| 5:F:214:THR:OG1  | 5:F:216:SER:O    | 1.81        | 0.99     |
| 8:I:3:VAL:CG2    | 8:I:21:VAL:HG23  | 1.92        | 0.99     |
| 11:P:117:GLU:OE2 | 11:P:136:ALA:CA  | 2.11        | 0.99     |
| 9:N:10:VAL:HB    | 9:N:36:VAL:CA    | 1.92        | 0.99     |
| 16:X:9:HIS:ND1   | 16:X:26:PHE:C    | 2.15        | 0.99     |
| 24:0:43:THR:OG1  | 24:0:75:GLY:C    | 2.01        | 0.99     |
| 28:7:21:ARG:CB   | 28:7:31:LEU:HD11 | 1.92        | 0.99     |
| 28:7:34:ARG:HH11 | 28:7:42:LEU:HD23 | 1.09        | 0.99     |
| 2:A:1568:G:H3'   | 3:D:60:GLN:NE2   | 1.78        | 0.99     |
| 2:A:2429:G:C5'   | 2:A:2430:A:OP2   | 2.10        | 0.99     |
| 2:A:2552:U:C2    | 2:A:2554:U:H5'   | 1.96        | 0.99     |
| 2:A:2572:A:OP2   | 4:E:242:ASN:N    | 1.95        | 0.99     |
| 2:A:2616:C:C2    | 2:A:2617:C:H5    | 1.81        | 0.99     |
| 2:A:2712:U:H3'   | 2:A:2714:G:OP2   | 1.60        | 0.99     |
| 3:D:143:ILE:HG12 | 3:D:153:LEU:CB   | 1.92        | 0.99     |
| 4:E:212:GLY:O    | 4:E:216:ARG:HG3  | 1.54        | 0.99     |
| 5:F:159:ALA:O    | 5:F:160:LEU:HD23 | 1.62        | 0.99     |
| 6:G:19:GLU:HB2   | 6:G:135:VAL:CG2  | 1.79        | 0.99     |
| 7:H:120:LEU:HD13 | 7:H:143:LEU:HD12 | 1.43        | 0.99     |
| 7:H:93:TYR:CE1   | 7:H:106:VAL:C    | 2.35        | 0.99     |
| 9:N:45:VAL:H     | 9:N:132:LEU:HD22 | 1.28        | 0.99     |
| 9:N:79:PHE:O     | 9:N:83:ILE:HG23  | 1.63        | 0.99     |
| 10:O:2:ILE:HG22  | 10:O:21:VAL:HG21 | 1.42        | 0.99     |
| 11:P:132:LYS:H   | 11:P:132:LYS:CD  | 1.74        | 0.99     |
| 11:P:77:ALA:CB   | 11:P:81:VAL:CG1  | 2.41        | 0.99     |
| 12:Q:142:LYS:CE  | 12:Q:143:VAL:N   | 2.26        | 0.99     |
| 18:Z:39:PHE:O    | 18:Z:43:PHE:CG   | 2.16        | 0.99     |
| 18:Z:69:VAL:HG21 | 18:Z:81:VAL:HG13 | 1.03        | 0.99     |
| 29:8:26:LYS:CE   | 29:8:45:GLY:H    | 1.72        | 0.98     |
| 2:A:2219:G:H2'   | 2:A:2224:G:H5'   | 1.41        | 0.98     |
| 2:A:2239:G:H2'   | 2:A:2240:C:C6    | 1.98        | 0.98     |
| 2:A:54:G:O2'     | 28:7:35:ARG:NH2  | 1.96        | 0.98     |
| 2:A:974(A):C:H1' | 2:A:989:G:H22    | 1.24        | 0.98     |
| 5:F:224:ALA:HB3  | 5:F:225:PRO:HD3  | 1.43        | 0.98     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:O:101:PRO:CB   | 10:O:122:ILE:HD11 | 1.93        | 0.98     |
| 19:R:52:ILE:HG22  | 19:R:53:HIS:H     | 1.19        | 0.98     |
| 13:S:31:LYS:HD3   | 13:S:99:GLU:O     | 1.60        | 0.98     |
| 20:U:59:ARG:O     | 20:U:62:ILE:HG12  | 1.62        | 0.98     |
| 15:W:36:LEU:HD11  | 15:W:47:VAL:HG12  | 1.40        | 0.98     |
| 26:5:11:THR:CG2   | 26:5:19:ARG:HH22  | 1.76        | 0.98     |
| 2:A:2392:A:C8     | 2:A:2393:A:C8     | 2.51        | 0.98     |
| 2:A:2531:A:C2'    | 2:A:2532:G:H5'    | 1.93        | 0.98     |
| 2:A:2654:A:N6     | 2:A:2667:C:N4     | 2.11        | 0.98     |
| 4:E:201:VAL:HA    | 4:E:310:PHE:O     | 1.61        | 0.98     |
| 5:F:245:GLU:CD    | 5:F:245:GLU:H     | 1.63        | 0.98     |
| 5:F:96:LYS:N      | 5:F:98:ARG:NH2    | 2.09        | 0.98     |
| 9:N:60:ARG:O      | 9:N:71:TYR:CG     | 2.16        | 0.98     |
| 12:Q:137:ARG:HH11 | 12:Q:138:ARG:HG2  | 1.28        | 0.98     |
| 12:Q:47:GLU:OE2   | 12:Q:151:SER:C    | 2.02        | 0.98     |
| 19:R:87:TYR:OH    | 19:R:116:LEU:HB2  | 1.63        | 0.98     |
| 17:Y:71:VAL:CG1   | 17:Y:72:ILE:H     | 1.76        | 0.98     |
| 18:Z:37:LYS:HA    | 18:Z:40:ASP:OD2   | 1.61        | 0.98     |
| 22:2:3:LEU:O      | 22:2:4:HIS:HB2    | 1.59        | 0.98     |
| 17:Y:81:LYS:HD2   | 17:Y:83:ASP:H     | 1.28        | 0.98     |
| 2:A:1210:A:H5'    | 2:A:1211:U:H3'    | 1.43        | 0.98     |
| 27:6:28:ARG:HG3   | 27:6:30:ASN:HB3   | 1.44        | 0.98     |
| 2:A:2567:G:HO2'   | 2:A:2568:C:H6     | 1.07        | 0.98     |
| 2:A:1129:A:N1     | 2:A:2570:G:O4'    | 1.95        | 0.98     |
| 2:A:2647:U:O2'    | 2:A:2648:C:C5'    | 2.10        | 0.98     |
| 2:A:1664:A:N3     | 2:A:2726:U:O4     | 1.97        | 0.98     |
| 2:A:2826:A:C5     | 2:A:2827:C:H5     | 1.72        | 0.98     |
| 2:A:612:G:H4'     | 2:A:616:A:N6      | 1.78        | 0.98     |
| 4:E:263:GLU:HG3   | 4:E:266:LYS:CE    | 1.90        | 0.98     |
| 7:H:120:LEU:HD13  | 7:H:143:LEU:CD1   | 1.93        | 0.98     |
| 8:I:31:PHE:CE1    | 8:I:36:ALA:HB3    | 1.98        | 0.98     |
| 19:R:34:ILE:CG2   | 19:R:35:THR:N     | 2.12        | 0.98     |
| 2:A:2378:A:N3     | 13:S:26:LEU:CD2   | 2.26        | 0.98     |
| 13:S:61:ALA:HB2   | 13:S:88:ALA:CB    | 1.91        | 0.98     |
| 18:Z:2:GLU:CA     | 18:Z:54:ILE:HG21  | 1.87        | 0.98     |
| 22:2:11:MET:O     | 22:2:12:THR:O     | 1.81        | 0.98     |
| 2:A:440:G:OP1     | 17:Y:6:LYS:CD     | 2.08        | 0.98     |
| 2:A:1417:C:N3     | 2:A:1581:G:N2     | 2.10        | 0.98     |
| 2:A:2262:U:OP2    | 24:0:14:ARG:NE    | 1.96        | 0.98     |
| 23:3:7:LYS:O      | 23:3:54:VAL:CB    | 2.10        | 0.98     |
| 30:9:29:ASN:HB2   | 30:9:32:HIS:ND1   | 1.78        | 0.98     |
| 2:A:1156:A:C8     | 20:U:55:ARG:NH2   | 2.32        | 0.98     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1312:U:HO2'  | 2:A:1314:C:H5    | 1.12        | 0.98     |
| 2:A:2246:G:C2'   | 2:A:2247:A:H5'   | 1.92        | 0.98     |
| 2:A:2356:C:H2'   | 2:A:2357:U:O5'   | 1.64        | 0.98     |
| 2:A:2506:U:HO3'  | 2:A:2507:C:P     | 1.84        | 0.98     |
| 2:A:856:C:C5'    | 24:0:25:LYS:NZ   | 2.20        | 0.98     |
| 4:E:76:PRO:CB    | 4:E:77:PRO:CD    | 2.35        | 0.98     |
| 10:O:37:ASP:HB2  | 10:O:62:VAL:HG21 | 1.45        | 0.98     |
| 11:P:62:ALA:CA   | 11:P:107:LYS:HE3 | 1.94        | 0.98     |
| 11:P:61:ALA:HB1  | 11:P:107:LYS:NZ  | 1.77        | 0.98     |
| 19:R:36:THR:HG21 | 19:R:40:LYS:CB   | 1.89        | 0.98     |
| 2:A:2334:G:H21   | 13:S:12:ARG:CG   | 1.77        | 0.98     |
| 15:W:86:LEU:HB3  | 15:W:87:PRO:HD2  | 1.43        | 0.98     |
| 2:A:1827:C:N4    | 3:D:225:ARG:HH12 | 1.61        | 0.98     |
| 22:2:2:VAL:H     | 22:2:4:HIS:CE1   | 1.80        | 0.98     |
| 2:A:138:G:N3     | 2:A:138:G:H3'    | 1.78        | 0.98     |
| 2:A:76:C:H4'     | 22:2:55:ARG:CG   | 1.93        | 0.98     |
| 16:X:6:LYS:HZ1   | 16:X:29:ASP:HA   | 1.05        | 0.98     |
| 24:0:49:GLN:OE1  | 24:0:74:LYS:O    | 1.80        | 0.98     |
| 28:7:34:ARG:HD3  | 28:7:42:LEU:HD23 | 1.29        | 0.98     |
| 2:A:2060:A:O2'   | 2:A:2502:G:O5'   | 1.79        | 0.98     |
| 2:A:2077:A:C4    | 2:A:2435:A:C8    | 2.52        | 0.98     |
| 2:A:2320:A:N1    | 13:S:13:ARG:CG   | 2.25        | 0.98     |
| 2:A:2520:C:N3    | 2:A:2521:C:H5    | 1.59        | 0.98     |
| 2:A:2574:G:C2'   | 2:A:2575:C:H6    | 1.75        | 0.98     |
| 2:A:2601:C:O2    | 2:A:2603:G:N7    | 1.96        | 0.98     |
| 2:A:2687:U:H2'   | 2:A:2687:U:O2    | 1.61        | 0.98     |
| 2:A:600:G:H5''   | 5:F:27:ARG:HH11  | 1.16        | 0.98     |
| 3:D:73:ILE:CG2   | 3:D:95:TYR:CE2   | 2.43        | 0.98     |
| 3:D:74:PRO:CD    | 3:D:96:ALA:HB2   | 1.93        | 0.98     |
| 2:A:2310:A:C2'   | 6:G:55:LYS:HE2   | 1.92        | 0.98     |
| 2:A:2313:C:H5'   | 6:G:72:LYS:HG3   | 0.99        | 0.98     |
| 9:N:60:ARG:CA    | 9:N:71:TYR:CD2   | 2.46        | 0.98     |
| 19:R:110:PRO:O   | 19:R:111:LEU:O   | 1.80        | 0.98     |
| 13:S:34:LEU:HG   | 13:S:102:LEU:CA  | 1.93        | 0.98     |
| 20:U:65:ILE:HG22 | 20:U:76:TYR:HE2  | 1.00        | 0.98     |
| 21:V:50:ASP:N    | 21:V:53:LYS:HD2  | 1.76        | 0.98     |
| 2:A:1598:C:C5'   | 16:X:34:LYS:CG   | 2.40        | 0.98     |
| 23:3:31:LEU:HD23 | 23:3:32:GLN:CA   | 1.93        | 0.98     |
| 25:4:42:PHE:O    | 25:4:61:LYS:CE   | 2.10        | 0.98     |
| 25:4:5:LEU:CD2   | 25:4:5:LEU:H     | 1.75        | 0.98     |
| 26:5:12:SER:CB   | 26:5:15:LYS:NZ   | 2.19        | 0.98     |
| 2:A:1129:A:O2'   | 2:A:2515:C:H2'   | 1.63        | 0.98     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2472:G:H2'   | 2:A:2475:C:H42    | 0.83        | 0.98     |
| 2:A:2584:U:H6    | 2:A:2584:U:H3'    | 1.21        | 0.98     |
| 2:A:564:C:OP2    | 21:V:79:GLN:CD    | 2.02        | 0.98     |
| 3:D:175:LEU:CD2  | 3:D:180:VAL:CA    | 2.27        | 0.98     |
| 7:H:101:LYS:CG   | 7:H:115:GLU:CA    | 2.40        | 0.98     |
| 7:H:130:ILE:HG22 | 7:H:131:ILE:H     | 1.27        | 0.98     |
| 8:I:4:ILE:O      | 8:I:5:PHE:O       | 1.81        | 0.98     |
| 10:O:11:ALA:HB1  | 10:O:99:PHE:HB3   | 1.45        | 0.98     |
| 11:P:104:ASP:O   | 11:P:105:TYR:CD1  | 2.16        | 0.98     |
| 11:P:65:ASP:HA   | 11:P:109:LEU:N    | 1.79        | 0.98     |
| 15:W:84:ARG:CB   | 15:W:96:ILE:CD1   | 2.42        | 0.98     |
| 22:2:63:GLU:OE2  | 22:2:63:GLU:O     | 1.82        | 0.98     |
| 2:A:1545:A:H5'   | 2:A:545(A):A:OP2  | 1.63        | 0.98     |
| 2:A:1416:G:H21   | 2:A:1582:C:H42    | 1.08        | 0.98     |
| 23:3:20:LYS:O    | 23:3:23:LEU:CB    | 2.11        | 0.98     |
| 27:6:24:THR:O    | 27:6:25:THR:CG2   | 2.11        | 0.98     |
| 2:A:125:G:N2     | 28:7:10:ARG:HA    | 1.79        | 0.98     |
| 2:A:1364:G:P     | 25:4:3:LYS:HG2    | 2.02        | 0.98     |
| 2:A:2463:C:C2    | 2:A:2464:C:H5     | 1.78        | 0.98     |
| 2:A:1782:C:O2    | 2:A:2609:U:O4'    | 1.76        | 0.98     |
| 2:A:2785:C:C2'   | 2:A:2786:U:C6     | 2.46        | 0.98     |
| 2:A:2712:U:O2'   | 2:A:712(A):A:H5'' | 1.60        | 0.98     |
| 5:F:115:LEU:HG   | 5:F:246:ARG:CZ    | 1.92        | 0.98     |
| 5:F:57:PRO:O     | 5:F:79:ARG:HB2    | 1.62        | 0.98     |
| 7:H:10:ILE:HG22  | 7:H:14:VAL:CG1    | 1.79        | 0.98     |
| 10:O:35:ILE:HG23 | 10:O:62:VAL:C     | 1.83        | 0.98     |
| 12:Q:45:GLN:OE1  | 12:Q:153:PRO:HD2  | 1.62        | 0.98     |
| 19:R:25:ALA:O    | 19:R:29:LEU:CD2   | 2.12        | 0.98     |
| 20:U:61:TRP:HZ3  | 20:U:94:VAL:N     | 1.61        | 0.98     |
| 21:V:61:VAL:CG2  | 21:V:97:GLY:CA    | 2.40        | 0.98     |
| 15:W:103:ILE:O   | 15:W:103:ILE:CG2  | 2.08        | 0.98     |
| 18:Z:13:LYS:O    | 18:Z:15:ASP:N     | 1.96        | 0.98     |
| 18:Z:18:MET:C    | 18:Z:36:ARG:HG3   | 1.82        | 0.98     |
| 2:A:2:G:C2       | 2:A:2902:C:N3     | 2.31        | 0.98     |
| 2:A:1351:C:H2'   | 2:A:1352:U:C6     | 1.98        | 0.98     |
| 24:0:45:PHE:HE1  | 24:0:78:PHE:CD2   | 1.62        | 0.98     |
| 2:A:126:A:C8     | 28:7:18:PHE:CE1   | 2.51        | 0.98     |
| 2:A:2021:C:OP2   | 26:5:15:LYS:HE3   | 1.60        | 0.98     |
| 2:A:2219:G:O2'   | 2:A:2224:G:P      | 2.22        | 0.98     |
| 2:A:2460:U:O2    | 2:A:2493:U:C5     | 2.17        | 0.98     |
| 2:A:2584:U:H2'   | 2:A:2585:U:C5     | 1.98        | 0.98     |
| 2:A:2622:C:C2    | 2:A:2623:G:C8     | 2.52        | 0.98     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:780:G:N1     | 3:D:233:ASP:OD2  | 1.96        | 0.98     |
| 7:H:86:LEU:HD22  | 7:H:87:GLU:H     | 1.27        | 0.98     |
| 2:A:2093:G:H4'   | 8:I:29:PHE:CZ    | 1.97        | 0.98     |
| 2:A:557:U:C5'    | 9:N:92:GLN:HE21  | 1.77        | 0.98     |
| 12:Q:67:ALA:CB   | 12:Q:70:ARG:HH11 | 1.65        | 0.98     |
| 21:V:61:VAL:HG22 | 21:V:98:ILE:H    | 1.23        | 0.98     |
| 2:A:1341:U:O2'   | 16:X:53:ASN:HB3  | 1.63        | 0.98     |
| 2:A:68:G:H2'     | 2:A:69:C:C6      | 1.99        | 0.98     |
| 2:A:1364:G:O5'   | 25:4:3:LYS:CD    | 2.12        | 0.98     |
| 28:7:30:ILE:CB   | 28:7:33:ARG:HD2  | 1.92        | 0.98     |
| 28:7:43:THR:C    | 28:7:46:ASP:CG   | 2.21        | 0.98     |
| 29:8:50:LEU:HD23 | 29:8:51:ALA:CA   | 1.94        | 0.98     |
| 2:A:2459:A:N7    | 2:A:2460:U:C5    | 2.31        | 0.98     |
| 2:A:2492:U:C2'   | 2:A:2493:U:O5'   | 2.11        | 0.98     |
| 2:A:2626:C:O2'   | 2:A:2627:G:H5''  | 1.62        | 0.98     |
| 2:A:2848:G:H22   | 2:A:2867:G:H1'   | 0.82        | 0.98     |
| 2:A:1710:C:O2'   | 2:A:2858:C:N3    | 1.96        | 0.98     |
| 4:E:208:LYS:H    | 4:E:257:GLY:HA3  | 1.27        | 0.98     |
| 6:G:18:ILE:HG22  | 6:G:19:GLU:H     | 1.25        | 0.98     |
| 6:G:24:HIS:C     | 6:G:129:ASP:OD2  | 2.01        | 0.98     |
| 7:H:123:GLU:O    | 7:H:130:ILE:CG2  | 2.11        | 0.98     |
| 8:I:7:LYS:CA     | 8:I:14:LYS:HG2   | 1.94        | 0.98     |
| 10:O:37:ASP:O    | 10:O:61:VAL:HG13 | 1.64        | 0.98     |
| 20:U:30:LYS:O    | 20:U:32:TYR:HD2  | 1.45        | 0.98     |
| 15:W:69:LEU:N    | 15:W:69:LEU:HD23 | 1.76        | 0.98     |
| 15:W:97:LYS:HE3  | 15:W:99:ARG:NH1  | 1.79        | 0.98     |
| 8:I:62:LEU:O     | 8:I:66:LYS:HE2   | 1.64        | 0.98     |
| 2:A:856:C:O2'    | 24:0:24:LYS:CG   | 2.11        | 0.98     |
| 24:0:28:GLY:N    | 24:0:60:PHE:HD2  | 1.34        | 0.98     |
| 2:A:1665:A:C4'   | 10:O:66:LYS:CE   | 2.36        | 0.98     |
| 2:A:2094:G:C2    | 2:A:2196:C:C2    | 2.50        | 0.98     |
| 2:A:2392:A:H2'   | 2:A:2393:A:C5'   | 1.94        | 0.98     |
| 2:A:2465:C:O2'   | 2:A:2466:C:O5'   | 1.82        | 0.98     |
| 4:E:76:PRO:HB3   | 4:E:292:PRO:HG2  | 1.44        | 0.98     |
| 2:A:2785:C:C5'   | 4:E:99:VAL:HG22  | 1.93        | 0.98     |
| 5:F:36:ARG:O     | 5:F:39:GLN:OE1   | 1.81        | 0.98     |
| 7:H:101:LYS:HZ1  | 7:H:115:GLU:CB   | 1.70        | 0.98     |
| 11:P:52:LYS:CD   | 11:P:53:ARG:NH1  | 2.26        | 0.98     |
| 12:Q:49:VAL:HG22 | 12:Q:119:ASN:O   | 1.63        | 0.98     |
| 19:R:46:GLY:O    | 19:R:49:ASP:HB3  | 1.62        | 0.98     |
| 20:U:28:ARG:N    | 20:U:31:GLN:HG3  | 1.77        | 0.98     |
| 2:A:1223:C:N4    | 21:V:87:ARG:HH21 | 1.60        | 0.98     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:Y:86:GLU:O    | 17:Y:87:VAL:CG2   | 2.11        | 0.98     |
| 8:I:95:SER:HG    | 8:I:98:ILE:HD12   | 1.27        | 0.98     |
| 24:0:46:LYS:CE   | 24:0:58:THR:OG1   | 2.11        | 0.97     |
| 28:7:44:VAL:O    | 28:7:46:ASP:N     | 1.96        | 0.97     |
| 29:8:57:ARG:O    | 29:8:58:MET:O     | 1.81        | 0.97     |
| 2:A:2314:C:H5''  | 6:G:22:VAL:HG11   | 1.45        | 0.97     |
| 2:A:526:A:H2     | 2:A:2626:C:H1'    | 1.27        | 0.97     |
| 3:D:140:VAL:HG12 | 3:D:141:HIS:N     | 1.77        | 0.97     |
| 3:D:167:GLU:HB2  | 3:D:170:TYR:HD1   | 1.20        | 0.97     |
| 4:E:201:VAL:H    | 4:E:266:LYS:HD2   | 1.29        | 0.97     |
| 5:F:243:VAL:O    | 5:F:246:ARG:HB2   | 1.64        | 0.97     |
| 5:F:25:PRO:O     | 5:F:26:VAL:CG2    | 2.12        | 0.97     |
| 7:H:58:LYS:HG3   | 7:H:59:HIS:H      | 1.29        | 0.97     |
| 9:N:19:MET:HB2   | 9:N:46:ILE:HG12   | 0.99        | 0.97     |
| 13:S:116:PHE:O   | 13:S:120:GLU:CD   | 2.01        | 0.97     |
| 20:U:117:ARG:CD  | 20:U:118:GLN:HG2  | 1.93        | 0.97     |
| 20:U:7:GLY:O     | 20:U:9:VAL:HG23   | 1.64        | 0.97     |
| 21:V:33:VAL:HB   | 21:V:63:HIS:ND1   | 1.78        | 0.97     |
| 21:V:49:GLU:HB3  | 21:V:53:LYS:HD2   | 1.44        | 0.97     |
| 17:Y:101:LEU:HG  | 17:Y:112:LEU:HD11 | 0.99        | 0.97     |
| 18:Z:68:ALA:C    | 18:Z:69:VAL:HG23  | 1.82        | 0.97     |
| 22:2:27:LEU:HD11 | 22:2:53:ILE:CD1   | 1.93        | 0.97     |
| 25:4:14:ILE:HB   | 25:4:37:SER:O     | 1.63        | 0.97     |
| 2:A:2428:G:H5''  | 2:A:2429:G:OP1    | 1.65        | 0.97     |
| 2:A:2564:A:H2'   | 2:A:2565:A:H8     | 0.97        | 0.97     |
| 2:A:636:G:OP1    | 11:P:127:GLU:HG2  | 1.62        | 0.97     |
| 2:A:2731:G:OP1   | 4:E:265:ASN:HB3   | 1.63        | 0.97     |
| 4:E:46:ALA:HB3   | 4:E:72:VAL:O      | 1.63        | 0.97     |
| 9:N:52:GLN:HA    | 9:N:55:GLU:CG     | 1.93        | 0.97     |
| 12:Q:142:LYS:O   | 12:Q:143:VAL:CG2  | 2.11        | 0.97     |
| 12:Q:33:MET:HB3  | 12:Q:83:PHE:HB3   | 1.43        | 0.97     |
| 20:U:53:LYS:HA   | 20:U:56:ASP:OD2   | 1.64        | 0.97     |
| 15:W:80:PRO:HB2  | 15:W:100:THR:HG21 | 1.42        | 0.97     |
| 18:Z:123:VAL:HB  | 18:Z:159:THR:HG21 | 1.41        | 0.97     |
| 3:D:211:HIS:CE1  | 3:D:212:HIS:HD2   | 1.82        | 0.97     |
| 25:4:23:GLU:CD   | 25:4:29:PRO:HG3   | 1.84        | 0.97     |
| 28:7:31:LEU:N    | 28:7:31:LEU:HD23  | 1.77        | 0.97     |
| 2:A:142(A):A:P   | 2:A:1143:A:H8     | 1.87        | 0.97     |
| 2:A:2232:U:H2'   | 2:A:2233:U:C5'    | 1.93        | 0.97     |
| 2:A:2464:C:C4    | 2:A:2487:G:C6     | 2.52        | 0.97     |
| 2:A:1669:A:O3'   | 2:A:2550:G:P      | 2.22        | 0.97     |
| 2:A:2690:C:H3'   | 2:A:2690:C:H6     | 1.27        | 0.97     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2717:G:H5'   | 2:A:2717:G:H8    | 0.82        | 0.97     |
| 3:D:85:ASN:ND2   | 3:D:86:ARG:CD    | 2.27        | 0.97     |
| 5:F:52:ALA:HB1   | 5:F:55:ARG:CZ    | 1.94        | 0.97     |
| 7:H:86:LEU:N     | 7:H:148:ARG:NH2  | 2.12        | 0.97     |
| 9:N:12:VAL:HG12  | 9:N:13:ASP:N     | 1.80        | 0.97     |
| 10:O:81:GLU:HG2  | 10:O:82:ASN:H    | 1.27        | 0.97     |
| 1:B:49:C:OP1     | 13:S:111:PRO:HD2 | 1.64        | 0.97     |
| 20:U:95:LEU:O    | 20:U:106:PHE:HE1 | 1.46        | 0.97     |
| 15:W:82:LEU:HD21 | 15:W:100:THR:N   | 1.78        | 0.97     |
| 17:Y:31:LEU:H    | 17:Y:31:LEU:HD23 | 0.82        | 0.97     |
| 17:Y:49:GLU:HG2  | 17:Y:59:GLU:HA   | 1.45        | 0.97     |
| 16:X:35:GLY:O    | 16:X:37:VAL:N    | 1.97        | 0.97     |
| 2:A:2316:C:H4'   | 6:G:151:ILE:HD11 | 1.35        | 0.97     |
| 2:A:2404:C:N4    | 2:A:2405:G:C6    | 2.32        | 0.97     |
| 2:A:2532:G:C5'   | 2:A:2532:G:H8    | 1.75        | 0.97     |
| 2:A:2555:U:OP2   | 2:A:2555:U:C6    | 2.17        | 0.97     |
| 2:A:1638:C:O3'   | 2:A:2709:G:N2    | 1.97        | 0.97     |
| 2:A:2734:A:H5''  | 2:A:2734:A:H8    | 1.27        | 0.97     |
| 3:D:129:LEU:CD2  | 3:D:130:PRO:HD3  | 1.93        | 0.97     |
| 7:H:34:ARG:HH12  | 7:H:73:ASN:HB2   | 1.26        | 0.97     |
| 10:O:62:VAL:C    | 10:O:84:CYS:SG   | 2.42        | 0.97     |
| 11:P:57:VAL:HG12 | 11:P:58:GLN:H    | 0.80        | 0.97     |
| 12:Q:65:ARG:NH2  | 12:Q:122:PHE:CD2 | 2.32        | 0.97     |
| 21:V:30:GLY:CA   | 21:V:33:VAL:CG2  | 2.40        | 0.97     |
| 16:X:17:ASP:HA   | 16:X:20:PHE:HE1  | 1.18        | 0.97     |
| 16:X:28:VAL:HG11 | 16:X:64:ALA:CB   | 1.94        | 0.97     |
| 16:X:6:LYS:CE    | 16:X:29:ASP:HA   | 1.93        | 0.97     |
| 2:A:2226:C:H2'   | 2:A:2227:A:C4'   | 1.94        | 0.97     |
| 2:A:2436:G:H2'   | 2:A:2437:U:O5'   | 1.61        | 0.97     |
| 2:A:2595:G:H1'   | 2:A:2599:G:H22   | 1.27        | 0.97     |
| 2:A:2652:C:C4    | 2:A:2653:U:C4    | 2.51        | 0.97     |
| 2:A:2678:C:O2    | 2:A:2679:A:N9    | 1.97        | 0.97     |
| 4:E:101:THR:O    | 4:E:103:GLU:HG3  | 1.64        | 0.97     |
| 7:H:159:LYS:H    | 7:H:162:ARG:HH22 | 0.98        | 0.97     |
| 9:N:50:GLU:HA    | 9:N:53:ILE:CG2   | 1.91        | 0.97     |
| 10:O:95:GLY:O    | 10:O:97:ARG:N    | 1.96        | 0.97     |
| 19:R:73:VAL:HG12 | 19:R:77:ARG:CZ   | 1.93        | 0.97     |
| 20:U:95:LEU:O    | 20:U:106:PHE:CE1 | 2.18        | 0.97     |
| 20:U:13:ARG:HH11 | 20:U:13:ARG:CG   | 1.77        | 0.97     |
| 2:A:1152:C:H5''  | 20:U:80:ILE:HG22 | 1.45        | 0.97     |
| 21:V:62:GLU:O    | 21:V:95:ILE:HG23 | 0.80        | 0.97     |
| 15:W:11:ARG:HH11 | 15:W:11:ARG:HG3  | 1.26        | 0.97     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:Y:79:LEU:HD12 | 17:Y:80:GLU:N    | 1.78        | 0.97     |
| 18:Z:14:LEU:HD21 | 18:Z:79:ILE:HG21 | 1.46        | 0.97     |
| 18:Z:90:GLU:N    | 18:Z:91:PRO:CD   | 2.27        | 0.97     |
| 22:2:26:GLU:HG2  | 22:2:27:LEU:N    | 1.77        | 0.97     |
| 17:Y:9:LYS:NZ    | 17:Y:13:ARG:NH2  | 2.13        | 0.97     |
| 2:A:1944:U:C1'   | 2:A:1955:U:H1'   | 1.93        | 0.97     |
| 24:0:46:LYS:HG2  | 24:0:58:THR:N    | 1.79        | 0.97     |
| 25:4:14:ILE:HG23 | 25:4:16:TYR:CD1  | 1.99        | 0.97     |
| 15:W:19:LEU:CD1  | 26:5:25:LEU:HD21 | 1.94        | 0.97     |
| 29:8:62:LEU:CB   | 29:8:63:PRO:HD3  | 1.94        | 0.97     |
| 2:A:2093:G:C4    | 2:A:2225:A:N6    | 2.33        | 0.97     |
| 2:A:2258:C:C4    | 2:A:2426:A:C1'   | 2.47        | 0.97     |
| 2:A:199:A:C6     | 2:A:2433:A:N7    | 2.33        | 0.97     |
| 2:A:2445:G:C2'   | 2:A:2446:G:H5'   | 1.94        | 0.97     |
| 2:A:2464:C:H42   | 2:A:2486:G:H1    | 1.01        | 0.97     |
| 2:A:2638:G:N2    | 2:A:2778:A:N6    | 1.79        | 0.97     |
| 3:D:140:VAL:HG12 | 3:D:141:HIS:H    | 1.23        | 0.97     |
| 5:F:36:ARG:C     | 5:F:39:GLN:HE22  | 1.66        | 0.97     |
| 10:O:73:ASP:O    | 10:O:75:SER:N    | 1.97        | 0.97     |
| 10:O:8:LEU:HD23  | 10:O:8:LEU:N     | 1.80        | 0.97     |
| 11:P:77:ALA:CB   | 11:P:81:VAL:HG11 | 1.94        | 0.97     |
| 12:Q:50:VAL:HG12 | 12:Q:51:GLU:N    | 1.74        | 0.97     |
| 20:U:27:SER:O    | 20:U:28:ARG:C    | 2.01        | 0.97     |
| 21:V:61:VAL:HG22 | 21:V:98:ILE:N    | 1.78        | 0.97     |
| 15:W:36:LEU:HD22 | 15:W:44:ALA:HA   | 1.44        | 0.97     |
| 22:2:13:PRO:CA   | 22:2:16:ARG:HD2  | 1.93        | 0.97     |
| 16:X:30:ASP:O    | 16:X:62:LYS:CE   | 2.08        | 0.97     |
| 2:A:1299:G:H4'   | 2:A:1301:A:N3    | 1.79        | 0.97     |
| 26:5:33:CYS:HB3  | 26:5:37:HIS:H    | 1.29        | 0.97     |
| 2:A:969:U:C4'    | 23:3:14:GLY:O    | 2.13        | 0.97     |
| 23:3:40:THR:OG1  | 23:3:43:ILE:CD1  | 2.13        | 0.97     |
| 25:4:5:LEU:C     | 25:4:7:PRO:HD2   | 1.84        | 0.97     |
| 28:7:18:PHE:N    | 28:7:44:VAL:CG2  | 2.27        | 0.97     |
| 2:A:1364:G:H3'   | 25:4:3:LYS:HD2   | 1.01        | 0.97     |
| 2:A:2248:C:H2'   | 2:A:2249:U:H5'   | 1.43        | 0.97     |
| 2:A:2330:G:H1    | 2:A:2385:C:H41   | 1.04        | 0.97     |
| 2:A:2331:G:H21   | 2:A:2385:C:H5    | 0.98        | 0.97     |
| 2:A:2497:A:O2'   | 2:A:2498:C:O5'   | 1.81        | 0.97     |
| 2:A:2613:U:H6    | 2:A:2613:U:H5'   | 1.27        | 0.97     |
| 2:A:2832:U:H1'   | 2:A:2834:G:N2    | 1.79        | 0.97     |
| 12:Q:85:ILE:CB   | 12:Q:122:PHE:CD2 | 2.48        | 0.97     |
| 19:R:33:ARG:CB   | 19:R:115:GLU:HB3 | 1.95        | 0.97     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:R:52:ILE:O    | 19:R:54:LEU:N     | 1.98        | 0.97     |
| 13:S:89:GLY:HA3  | 13:S:125:ALA:HB1  | 1.43        | 0.97     |
| 20:U:59:ARG:HA   | 20:U:62:ILE:HG13  | 0.98        | 0.97     |
| 2:A:104:U:C4     | 17:Y:17:HIS:CE1   | 2.52        | 0.97     |
| 18:Z:91:PRO:CD   | 18:Z:127:PRO:HB3  | 1.94        | 0.97     |
| 18:Z:71:MET:CG   | 18:Z:78:PRO:CG    | 2.36        | 0.97     |
| 16:X:24:LEU:C    | 16:X:26:PHE:HE1   | 1.52        | 0.97     |
| 16:X:33:SER:N    | 16:X:37:VAL:HG23  | 1.80        | 0.97     |
| 28:7:34:ARG:NH1  | 28:7:42:LEU:CA    | 2.28        | 0.97     |
| 28:7:3:ARG:O     | 28:7:4:THR:HG23   | 1.64        | 0.97     |
| 2:A:2259:G:C8    | 2:A:2260:C:C5     | 2.52        | 0.97     |
| 2:A:2277:G:O3'   | 12:Q:15:THR:OG1   | 1.82        | 0.97     |
| 2:A:2520:C:O2    | 2:A:2521:C:H6     | 1.44        | 0.97     |
| 4:E:79:ARG:HH12  | 4:E:105:HIS:N     | 1.61        | 0.97     |
| 5:F:115:LEU:O    | 5:F:118:THR:N     | 1.97        | 0.97     |
| 12:Q:49:VAL:CG1  | 12:Q:50:VAL:N     | 2.22        | 0.97     |
| 14:T:50:GLU:HA   | 14:T:55:ALA:HB3   | 0.99        | 0.97     |
| 20:U:95:LEU:O    | 20:U:98:ILE:HB    | 1.62        | 0.97     |
| 21:V:33:VAL:HB   | 21:V:63:HIS:CE1   | 1.98        | 0.97     |
| 2:A:337:C:P      | 17:Y:24:ARG:HB2   | 2.05        | 0.97     |
| 18:Z:159:THR:CG2 | 18:Z:160:LEU:H    | 1.76        | 0.97     |
| 2:A:125:G:N2     | 28:7:10:ARG:CA    | 2.26        | 0.97     |
| 28:7:29:ASN:O    | 28:7:31:LEU:N     | 1.96        | 0.97     |
| 2:A:1140:C:N4    | 9:N:49:ARG:NE     | 2.13        | 0.97     |
| 2:A:1161:C:O2'   | 21:V:22:VAL:CG1   | 2.12        | 0.97     |
| 2:A:2355:C:H5'   | 24:O:21:LEU:CD1   | 1.91        | 0.97     |
| 2:A:2554:U:C3'   | 2:A:2554:U:H6     | 1.77        | 0.97     |
| 2:A:2567:G:N3    | 2:A:2568:C:H5     | 1.49        | 0.97     |
| 2:A:2695:C:HO2'  | 2:A:2696:U:H6     | 1.08        | 0.97     |
| 2:A:2758:A:OP2   | 2:A:2758:A:C3'    | 2.12        | 0.97     |
| 2:A:602:G:H21    | 2:A:655:A:H2'     | 1.29        | 0.97     |
| 3:D:146:LYS:HZ2  | 3:D:184:LEU:HD11  | 1.25        | 0.97     |
| 4:E:221:LYS:HZ1  | 4:E:233:ARG:HG2   | 1.22        | 0.97     |
| 4:E:315:VAL:O    | 4:E:317:PRO:N     | 1.98        | 0.97     |
| 5:F:102:LEU:CD2  | 5:F:106:GLU:CB    | 2.43        | 0.97     |
| 11:P:130:ARG:HA  | 11:P:133:VAL:HG21 | 1.46        | 0.97     |
| 2:A:2379:G:OP1   | 13:S:30:GLY:HA2   | 1.63        | 0.97     |
| 13:S:34:LEU:HD11 | 13:S:103:ASP:H    | 1.27        | 0.97     |
| 20:U:26:GLY:O    | 20:U:27:SER:HB2   | 1.63        | 0.97     |
| 20:U:28:ARG:N    | 20:U:31:GLN:CD    | 2.17        | 0.97     |
| 20:U:94:VAL:C    | 20:U:98:ILE:HD11  | 1.70        | 0.97     |
| 20:U:44:THR:CG2  | 21:V:77:GLY:O     | 2.13        | 0.97     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:104:U:N3      | 17:Y:17:HIS:CE1   | 1.96        | 0.97     |
| 23:3:26:LEU:HD21  | 23:3:46:ASN:HB3   | 1.46        | 0.97     |
| 2:A:1807:G:H21    | 2:A:1809:A:H5'    | 1.30        | 0.97     |
| 2:A:825:C:C4'     | 2:A:2428:G:N7     | 2.26        | 0.97     |
| 2:A:2869:G:C5     | 2:A:2870:C:H5     | 1.75        | 0.97     |
| 6:G:19:GLU:OE1    | 6:G:135:VAL:CG2   | 2.13        | 0.97     |
| 7:H:42:ILE:C      | 7:H:52:THR:HG21   | 1.86        | 0.97     |
| 10:O:1:MET:CA     | 10:O:2:ILE:HD12   | 1.94        | 0.97     |
| 19:R:60:LEU:CG    | 19:R:61:HIS:H     | 1.75        | 0.97     |
| 19:R:67:LEU:HD13  | 19:R:68:ARG:N     | 1.80        | 0.97     |
| 19:R:84:ALA:HB3   | 19:R:85:PRO:HD3   | 1.44        | 0.97     |
| 21:V:20:ILE:CG2   | 21:V:67:LYS:HD2   | 1.94        | 0.97     |
| 21:V:69:ILE:H     | 21:V:91:THR:HG22  | 1.27        | 0.97     |
| 17:Y:33:GLU:OE2   | 17:Y:33:GLU:N     | 1.98        | 0.97     |
| 18:Z:46:GLN:O     | 18:Z:49:THR:OG1   | 1.83        | 0.97     |
| 18:Z:69:VAL:HG22  | 18:Z:82:ASP:H     | 1.30        | 0.97     |
| 8:I:101:SER:O     | 8:I:103:GLN:N     | 1.98        | 0.97     |
| 24:O:24:LYS:CG    | 24:O:56:ASP:OD2   | 2.13        | 0.96     |
| 23:3:8:LEU:HD22   | 23:3:31:LEU:CA    | 1.86        | 0.96     |
| 28:7:32:ALA:HA    | 28:7:35:ARG:CD    | 1.95        | 0.96     |
| 2:A:1646:C:H5''   | 2:A:1647:G:H5'    | 1.47        | 0.96     |
| 2:A:2251:G:N2     | 2:A:2252:G:C4     | 2.33        | 0.96     |
| 2:A:2494:G:N2     | 2:A:2495:G:N9     | 2.13        | 0.96     |
| 2:A:2574:G:C4     | 2:A:2575:C:C6     | 2.52        | 0.96     |
| 2:A:2701:C:H3'    | 2:A:2702:U:H5''   | 1.46        | 0.96     |
| 2:A:2776:A:C4     | 2:A:2778:A:N7     | 2.33        | 0.96     |
| 4:E:269:ILE:N     | 4:E:269:ILE:HD12  | 1.79        | 0.96     |
| 4:E:48:MET:O      | 4:E:49:THR:CG2    | 2.14        | 0.96     |
| 5:F:81:PRO:CB     | 5:F:87:ARG:CB     | 2.29        | 0.96     |
| 12:Q:65:ARG:HH21  | 12:Q:85:ILE:HB    | 1.23        | 0.96     |
| 13:S:111:PRO:C    | 13:S:114:LYS:N    | 2.18        | 0.96     |
| 13:S:87:LEU:O     | 13:S:90:LEU:N     | 1.97        | 0.96     |
| 14:T:53:ASP:O     | 14:T:56:ARG:NE    | 1.98        | 0.96     |
| 20:U:105:ALA:O    | 20:U:108:ALA:HB3  | 1.64        | 0.96     |
| 21:V:19:VAL:HG11  | 21:V:21:ARG:NH1   | 1.77        | 0.96     |
| 17:Y:101:LEU:HD21 | 17:Y:103:LEU:HD21 | 0.97        | 0.96     |
| 17:Y:72:ILE:CG2   | 17:Y:73:HIS:H     | 1.78        | 0.96     |
| 8:I:120:ALA:O     | 8:I:121:ILE:O     | 1.83        | 0.96     |
| 22:2:7:GLU:CD     | 22:2:8:ILE:CG1    | 2.33        | 0.96     |
| 2:A:1:G:H1        | 2:A:2902:C:H41    | 0.97        | 0.96     |
| 2:A:498:G:O2'     | 17:Y:82:THR:HG23  | 1.65        | 0.96     |
| 29:8:4:MET:HA     | 29:8:5:LYS:HZ1    | 1.14        | 0.96     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:1131:G:N1     | 9:N:69:TYR:CE1    | 2.32        | 0.96     |
| 2:A:2262:U:C2'    | 2:A:2263:C:C5'    | 2.42        | 0.96     |
| 2:A:2314:C:H5''   | 6:G:22:VAL:CG1    | 1.96        | 0.96     |
| 2:A:2538:C:O2'    | 2:A:2539:C:O5'    | 1.81        | 0.96     |
| 2:A:2545:G:H2'    | 2:A:2546:U:O5'    | 1.61        | 0.96     |
| 2:A:2688:U:C2     | 2:A:2719:G:C2     | 2.53        | 0.96     |
| 2:A:2720:U:OP1    | 2:A:2720:U:H4'    | 1.62        | 0.96     |
| 2:A:775:G:H4'     | 2:A:777:A:C4      | 2.00        | 0.96     |
| 3:D:134:ILE:HG23  | 3:D:135:PRO:HD2   | 1.45        | 0.96     |
| 3:D:178:GLY:O     | 3:D:179:GLU:HG2   | 1.65        | 0.96     |
| 4:E:193:PHE:HE2   | 4:E:199:ALA:CB    | 1.75        | 0.96     |
| 4:E:269:ILE:HG13  | 4:E:297:LYS:HG3   | 1.47        | 0.96     |
| 5:F:167:ASP:O     | 5:F:168:ARG:CG    | 2.13        | 0.96     |
| 2:A:321:G:H1'     | 5:F:206:ASN:HD22  | 1.24        | 0.96     |
| 5:F:197:SER:HB3   | 5:F:239:ALA:N     | 1.74        | 0.96     |
| 6:G:94:ALA:O      | 6:G:95:THR:OG1    | 1.80        | 0.96     |
| 13:S:102:LEU:HD12 | 13:S:129:ILE:HD12 | 1.44        | 0.96     |
| 13:S:122:ALA:O    | 13:S:125:ALA:HB3  | 1.66        | 0.96     |
| 20:U:56:ASP:O     | 20:U:60:LEU:HG    | 1.65        | 0.96     |
| 20:U:8:ILE:HA     | 20:U:11:ARG:CD    | 1.94        | 0.96     |
| 15:W:12:ILE:O     | 15:W:14:PRO:HD3   | 1.65        | 0.96     |
| 17:Y:32:ARG:C     | 17:Y:33:GLU:OE2   | 2.03        | 0.96     |
| 18:Z:105:GLN:O    | 18:Z:142:ASN:ND2  | 1.97        | 0.96     |
| 8:I:89:LEU:HD11   | 8:I:93:ILE:CG2    | 1.92        | 0.96     |
| 2:A:1789:A:OP1    | 3:D:226:GLY:HA2   | 1.66        | 0.96     |
| 24:O:46:LYS:HZ3   | 24:O:81:ILE:HD11  | 1.31        | 0.96     |
| 2:A:1952:A:H2     | 10:O:22:ILE:HG23  | 1.27        | 0.96     |
| 2:A:2227:A:C2     | 2:A:2228:G:C5     | 2.52        | 0.96     |
| 2:A:2259:G:N2     | 2:A:2282:G:C6     | 2.28        | 0.96     |
| 2:A:2287:A:N6     | 2:A:2344:U:C6     | 2.33        | 0.96     |
| 2:A:2472:G:C2'    | 2:A:2473:U:OP1    | 2.13        | 0.96     |
| 2:A:2880:C:N4     | 2:A:2881:C:N4     | 2.13        | 0.96     |
| 3:D:175:LEU:HD12  | 3:D:179:GLU:HB2   | 1.42        | 0.96     |
| 4:E:99:VAL:HG12   | 4:E:100:TRP:H     | 1.26        | 0.96     |
| 4:E:217:TRP:O     | 4:E:219:VAL:HG23  | 1.64        | 0.96     |
| 5:F:223:LEU:O     | 5:F:231:ARG:HD2   | 1.64        | 0.96     |
| 8:I:5:PHE:O       | 8:I:36:ALA:HB2    | 1.63        | 0.96     |
| 9:N:23:ALA:HA     | 9:N:26:VAL:HG21   | 1.46        | 0.96     |
| 13:S:76:GLY:O     | 13:S:82:TYR:CB    | 2.13        | 0.96     |
| 2:A:997:G:P       | 20:U:93:LYS:HE2   | 2.05        | 0.96     |
| 17:Y:78:THR:C     | 17:Y:89:ARG:HG3   | 1.84        | 0.96     |
| 18:Z:176:LEU:HD23 | 18:Z:177:THR:N    | 1.80        | 0.96     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 25:4:33:VAL:O    | 25:4:34:ASP:OD1  | 1.82        | 0.96     |
| 2:A:1819:A:H5''  | 3:D:157:ALA:HB2  | 1.44        | 0.96     |
| 2:A:2094:G:O6    | 2:A:2196:C:C4    | 2.18        | 0.96     |
| 2:A:2227:A:C2    | 2:A:2228:G:C6    | 2.52        | 0.96     |
| 2:A:2324:C:H42   | 2:A:2331:G:H1    | 1.01        | 0.96     |
| 2:A:2051:A:N6    | 2:A:2614:A:C8    | 2.33        | 0.96     |
| 2:A:2870:C:O2    | 2:A:2871:C:C1'   | 2.13        | 0.96     |
| 4:E:206:LYS:O    | 4:E:257:GLY:CA   | 2.12        | 0.96     |
| 4:E:201:VAL:N    | 4:E:266:LYS:HD2  | 1.77        | 0.96     |
| 5:F:196:THR:CA   | 5:F:236:THR:CG2  | 2.42        | 0.96     |
| 7:H:82:TYR:CD2   | 7:H:137:LYS:HB3  | 2.01        | 0.96     |
| 15:W:96:ILE:H    | 15:W:96:ILE:CD1  | 1.74        | 0.96     |
| 17:Y:45:GLY:CA   | 17:Y:62:VAL:HG12 | 1.90        | 0.96     |
| 17:Y:71:VAL:HG12 | 17:Y:72:ILE:N    | 1.76        | 0.96     |
| 8:I:75:LEU:HD13  | 8:I:76:THR:N     | 1.80        | 0.96     |
| 3:D:216:ALA:HB1  | 3:D:223:ASN:HB2  | 1.46        | 0.96     |
| 22:2:31:ARG:O    | 22:2:33:VAL:C    | 1.89        | 0.96     |
| 4:E:107:GLU:HG2  | 4:E:110:ARG:NH2  | 1.79        | 0.96     |
| 26:5:46:CYS:HB3  | 26:5:47:PRO:HD2  | 1.47        | 0.96     |
| 27:6:8:ILE:CA    | 27:6:29:ARG:NH2  | 2.27        | 0.96     |
| 2:A:2100:G:C4    | 2:A:2190:G:C2    | 2.54        | 0.96     |
| 2:A:2234:G:C2'   | 2:A:2235:G:H5'   | 1.94        | 0.96     |
| 2:A:2333:A:C1'   | 2:A:2335:A:N3    | 2.29        | 0.96     |
| 2:A:2423:U:O2'   | 2:A:2424:C:OP2   | 1.82        | 0.96     |
| 2:A:2258:C:H5    | 2:A:2426:A:C4'   | 1.77        | 0.96     |
| 2:A:2429:G:H5'   | 2:A:2430:A:OP2   | 1.64        | 0.96     |
| 2:A:2457:U:H2'   | 2:A:2458:G:H5'   | 1.45        | 0.96     |
| 2:A:2567:G:H2'   | 2:A:2568:C:C5    | 1.99        | 0.96     |
| 2:A:2607:G:H2'   | 2:A:2608:G:H5'   | 1.46        | 0.96     |
| 2:A:2741:A:H2'   | 2:A:2742:C:C6    | 1.99        | 0.96     |
| 2:A:2523:G:O4'   | 2:A:2765:A:N7    | 1.99        | 0.96     |
| 2:A:2848:G:N2    | 2:A:2849:U:C2    | 2.23        | 0.96     |
| 2:A:2712:U:O2'   | 2:A:712(A):A:C5' | 2.12        | 0.96     |
| 3:D:85:ASN:OD1   | 3:D:86:ARG:CZ    | 2.13        | 0.96     |
| 6:G:53:LYS:HG2   | 6:G:54:ALA:N     | 1.76        | 0.96     |
| 6:G:58:VAL:HG12  | 6:G:58:VAL:O     | 1.61        | 0.96     |
| 6:G:20:LYS:CA    | 6:G:76:ARG:HB3   | 1.96        | 0.96     |
| 11:P:81:VAL:HG12 | 11:P:81:VAL:O    | 1.64        | 0.96     |
| 12:Q:50:VAL:CG1  | 12:Q:51:GLU:H    | 1.74        | 0.96     |
| 12:Q:88:PHE:HB2  | 12:Q:90:PHE:CZ   | 1.99        | 0.96     |
| 13:S:94:GLU:CD   | 13:S:94:GLU:C    | 2.22        | 0.96     |
| 21:V:4:ILE:HG12  | 21:V:13:ARG:CA   | 1.96        | 0.96     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:814:C:P       | 21:V:84:THR:HG22  | 2.05        | 0.96     |
| 17:Y:51:LEU:HA    | 17:Y:97:ARG:HH21  | 0.82        | 0.96     |
| 18:Z:103:ARG:CG   | 18:Z:139:THR:HG22 | 1.95        | 0.96     |
| 18:Z:6:LYS:O      | 18:Z:31:SER:HB2   | 1.66        | 0.96     |
| 16:X:52:VAL:HG22  | 16:X:65:VAL:O     | 1.65        | 0.96     |
| 2:A:440:G:OP1     | 17:Y:6:LYS:HD2    | 1.64        | 0.96     |
| 25:4:10:VAL:H     | 25:4:11:PRO:CD    | 1.77        | 0.96     |
| 25:4:6:HIS:HB2    | 25:4:56:VAL:HG21  | 1.45        | 0.96     |
| 30:9:25:VAL:CG1   | 30:9:34:GLN:HB2   | 1.95        | 0.96     |
| 2:A:125:G:H5''    | 28:7:19:ARG:HH11  | 0.81        | 0.96     |
| 2:A:2352:A:C8     | 2:A:2366:A:N1     | 2.33        | 0.96     |
| 2:A:2495:G:H4'    | 12:Q:101:MET:HG3  | 1.47        | 0.96     |
| 2:A:2509:G:H2'    | 2:A:2510:C:H5'    | 1.45        | 0.96     |
| 2:A:2574:G:H3'    | 2:A:2575:C:H6     | 1.30        | 0.96     |
| 2:A:2689:U:C6     | 2:A:2713:A:N1     | 2.34        | 0.96     |
| 2:A:2819:G:H5''   | 2:A:2821:A:H61    | 1.16        | 0.96     |
| 2:A:2845:G:O2'    | 2:A:2846:G:H5'    | 0.78        | 0.96     |
| 2:A:2862:G:O2'    | 2:A:2863:C:O4'    | 1.82        | 0.96     |
| 4:E:176:HIS:O     | 4:E:179:ASP:HB2   | 1.64        | 0.96     |
| 4:E:44:TYR:HA     | 4:E:309:PRO:HD3   | 0.96        | 0.96     |
| 8:I:13:GLY:HA2    | 8:I:15:LYS:HE3    | 1.44        | 0.96     |
| 9:N:138:THR:OG1   | 9:N:139:LEU:CD1   | 2.06        | 0.96     |
| 12:Q:17:ARG:O     | 12:Q:18:GLU:HG2   | 1.61        | 0.96     |
| 20:U:111:ASP:HA   | 20:U:114:ARG:HD2  | 1.45        | 0.96     |
| 20:U:39:LEU:O     | 20:U:41:ASN:ND2   | 1.99        | 0.96     |
| 15:W:104:THR:O    | 15:W:105:VAL:HG12 | 1.62        | 0.96     |
| 18:Z:116:VAL:HG23 | 18:Z:169:VAL:HG21 | 0.96        | 0.96     |
| 3:D:208:GLY:CA    | 3:D:210:LYS:HZ1   | 1.63        | 0.96     |
| 12:Q:108:SER:O    | 12:Q:109:VAL:CG1  | 2.12        | 0.96     |
| 2:A:2364:C:C1'    | 24:0:32:LYS:NZ    | 2.28        | 0.96     |
| 2:A:932:G:C5'     | 23:3:24:LYS:NZ    | 2.27        | 0.96     |
| 2:A:2198:A:N1     | 2:A:2225:A:N6     | 2.12        | 0.96     |
| 2:A:965:C:O2'     | 2:A:2272:U:H6     | 1.31        | 0.96     |
| 2:A:2354:G:O2'    | 24:0:31:VAL:CG1   | 2.14        | 0.96     |
| 2:A:2412:A:C2'    | 2:A:2413:G:H5'    | 1.94        | 0.96     |
| 2:A:2758:A:OP2    | 2:A:2758:A:O4'    | 1.83        | 0.96     |
| 2:A:2864:G:H2'    | 2:A:2865:U:C6     | 2.01        | 0.96     |
| 2:A:2887:U:H2'    | 2:A:2888:C:H6     | 1.30        | 0.96     |
| 2:A:533:G:H1      | 2:A:560:C:H42     | 1.13        | 0.96     |
| 2:A:803:U:H2'     | 2:A:804:A:H5'     | 1.48        | 0.96     |
| 4:E:46:ALA:HB3    | 4:E:72:VAL:C      | 1.78        | 0.96     |
| 5:F:52:ALA:HA     | 5:F:55:ARG:CD     | 1.95        | 0.96     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 5:F:52:ALA:N      | 5:F:55:ARG:HB3   | 1.81        | 0.96     |
| 6:G:64:ARG:HB2    | 6:G:67:ASP:OD2   | 1.66        | 0.96     |
| 10:O:58:VAL:HG12  | 10:O:59:LYS:N    | 1.81        | 0.96     |
| 10:O:77:ILE:CD1   | 10:O:79:PHE:HE2  | 1.77        | 0.96     |
| 11:P:112:GLY:CA   | 11:P:113:GLN:NE2 | 2.27        | 0.96     |
| 11:P:66:VAL:HB    | 11:P:67:ARG:NE   | 1.80        | 0.96     |
| 21:V:62:GLU:C     | 21:V:95:ILE:CG2  | 2.26        | 0.96     |
| 2:A:2013:A:C4'    | 15:W:96:ILE:CG2  | 2.38        | 0.96     |
| 16:X:3:ASP:O      | 16:X:4:VAL:CG1   | 2.13        | 0.96     |
| 2:A:1364:G:OP1    | 25:4:2:GLN:O     | 1.84        | 0.96     |
| 27:6:12:MET:SD    | 27:6:54:LYS:CB   | 2.53        | 0.96     |
| 2:A:2048:G:C6     | 2:A:2621:A:C2    | 2.54        | 0.96     |
| 2:A:2298:A:C4     | 2:A:2321:G:N2    | 2.34        | 0.96     |
| 2:A:2430:A:H2'    | 2:A:2431:U:H5''  | 1.48        | 0.96     |
| 2:A:2682:U:C5     | 4:E:48:MET:CE    | 2.48        | 0.96     |
| 7:H:90:GLY:C      | 7:H:159:LYS:HE3  | 1.86        | 0.96     |
| 8:I:13:GLY:CA     | 8:I:15:LYS:NZ    | 2.28        | 0.96     |
| 11:P:128:GLY:O    | 11:P:131:GLU:HB2 | 1.65        | 0.96     |
| 19:R:33:ARG:HB3   | 19:R:115:GLU:CB  | 1.96        | 0.96     |
| 21:V:5:ILE:HG23   | 21:V:39:PHE:HA   | 0.96        | 0.96     |
| 17:Y:101:LEU:HD11 | 17:Y:112:LEU:HG  | 0.98        | 0.96     |
| 9:N:10:VAL:HB     | 9:N:36:VAL:HA    | 0.97        | 0.96     |
| 2:A:1827:C:H41    | 3:D:225:ARG:NH1  | 1.62        | 0.96     |
| 6:G:82:GLU:C      | 6:G:85:GLN:HG3   | 1.85        | 0.96     |
| 2:A:1526:G:N2     | 2:A:545(A):A:N7  | 2.13        | 0.96     |
| 2:A:1924:C:C4     | 2:A:1925:C:C5    | 2.53        | 0.96     |
| 2:A:2046:G:OP1    | 26:5:19:ARG:CA   | 2.14        | 0.96     |
| 30:9:14:CYS:CA    | 30:9:27:CYS:HB2  | 1.95        | 0.96     |
| 2:A:2215:G:H2'    | 2:A:2216:G:H8    | 0.79        | 0.96     |
| 2:A:2230:G:O2'    | 2:A:2231:C:O4'   | 1.83        | 0.96     |
| 2:A:2278:A:P      | 12:Q:20:ILE:HG22 | 2.05        | 0.96     |
| 2:A:2454:G:O2'    | 2:A:2455:G:H5'   | 1.65        | 0.96     |
| 2:A:2528:U:H5     | 2:A:2530:A:C4    | 1.77        | 0.96     |
| 2:A:2753:A:C8     | 2:A:2754:U:C5    | 2.53        | 0.96     |
| 2:A:2850:A:H2'    | 2:A:2851:A:H8    | 1.29        | 0.96     |
| 2:A:2051:A:H4'    | 4:E:238:LEU:HD21 | 1.45        | 0.96     |
| 5:F:217:GLU:C     | 5:F:218:VAL:HG23 | 1.82        | 0.96     |
| 5:F:22:PHE:HZ     | 5:F:115:LEU:HD12 | 1.31        | 0.96     |
| 2:A:451:C:OP1     | 5:F:49:ASP:N     | 1.99        | 0.96     |
| 6:G:142:ALA:HB2   | 6:G:151:ILE:CD1  | 1.96        | 0.96     |
| 7:H:84:LYS:HG3    | 7:H:140:VAL:HG12 | 1.43        | 0.96     |
| 9:N:66:ASP:C      | 9:N:68:GLY:N     | 2.18        | 0.96     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 20:U:44:THR:HA   | 20:U:47:TYR:CD1   | 2.00        | 0.96     |
| 17:Y:101:LEU:O   | 17:Y:103:LEU:CG   | 2.13        | 0.96     |
| 18:Z:159:THR:C   | 18:Z:160:LEU:HD12 | 1.86        | 0.96     |
| 18:Z:69:VAL:HG22 | 18:Z:81:VAL:CG1   | 1.89        | 0.96     |
| 8:I:77:VAL:HG23  | 8:I:141:LEU:HD11  | 0.99        | 0.96     |
| 16:X:4:VAL:HG21  | 22:2:24:LYS:HZ1   | 1.28        | 0.96     |
| 16:X:22:ASN:CA   | 16:X:68:LEU:HD11  | 1.95        | 0.96     |
| 8:I:58:ALA:O     | 8:I:62:LEU:HG     | 1.65        | 0.96     |
| 24:0:69:PHE:O    | 24:0:70:ILE:CG2   | 2.14        | 0.96     |
| 28:7:43:THR:O    | 28:7:45:SER:N     | 1.97        | 0.96     |
| 2:A:1809:A:H62   | 25:4:3:LYS:HG2    | 1.31        | 0.96     |
| 2:A:2249:U:C2    | 2:A:2253:G:OP2    | 2.18        | 0.96     |
| 2:A:2819:G:N3    | 2:A:2821:A:N7     | 2.14        | 0.96     |
| 3:D:106:PRO:CA   | 3:D:194:VAL:O     | 2.14        | 0.96     |
| 4:E:99:VAL:HG12  | 4:E:100:TRP:N     | 1.79        | 0.96     |
| 4:E:193:PHE:CE2  | 4:E:311:PHE:CD1   | 2.53        | 0.96     |
| 5:F:6:TYR:CE2    | 5:F:140:VAL:HA    | 2.01        | 0.96     |
| 5:F:240:LEU:CD2  | 5:F:243:VAL:HG21  | 1.95        | 0.96     |
| 6:G:27:ILE:C     | 6:G:69:ILE:CG2    | 2.29        | 0.96     |
| 7:H:41:THR:HB    | 7:H:52:THR:CB     | 1.96        | 0.96     |
| 9:N:103:VAL:O    | 9:N:104:TYR:CD2   | 2.18        | 0.96     |
| 10:O:7:ARG:HE    | 10:O:44:LYS:CD    | 1.77        | 0.96     |
| 12:Q:85:ILE:HG23 | 12:Q:122:PHE:HB3  | 1.46        | 0.96     |
| 12:Q:67:ALA:N    | 12:Q:70:ARG:CZ    | 2.03        | 0.96     |
| 2:A:1287:A:C8    | 19:R:104:ARG:NH1  | 2.34        | 0.96     |
| 20:U:49:ASP:N    | 20:U:52:ASN:HD21  | 1.54        | 0.96     |
| 17:Y:49:GLU:CG   | 17:Y:59:GLU:HA    | 1.95        | 0.96     |
| 2:A:1518:C:H3'   | 2:A:1519:G:H4'    | 1.46        | 0.96     |
| 2:A:388:G:P      | 25:4:29:PRO:HG3   | 2.05        | 0.95     |
| 28:7:43:THR:OG1  | 28:7:44:VAL:N     | 1.95        | 0.95     |
| 2:A:1152:C:C5'   | 20:U:80:ILE:CG2   | 2.44        | 0.95     |
| 2:A:2320:A:N3    | 2:A:2333:A:C6     | 2.34        | 0.95     |
| 2:A:2661:G:O2'   | 2:A:2662:A:H5'    | 1.66        | 0.95     |
| 2:A:2810:A:N7    | 2:A:2811:G:C4     | 2.34        | 0.95     |
| 2:A:443:A:N7     | 5:F:43:LYS:CD     | 2.28        | 0.95     |
| 2:A:2712:U:C6    | 2:A:712(A):A:H8   | 1.44        | 0.95     |
| 9:N:139:LEU:HD13 | 9:N:139:LEU:N     | 1.79        | 0.95     |
| 10:O:35:ILE:HA   | 10:O:62:VAL:C     | 1.84        | 0.95     |
| 10:O:7:ARG:CZ    | 10:O:44:LYS:HD2   | 1.96        | 0.95     |
| 19:R:87:TYR:CD1  | 19:R:94:TYR:CD2   | 2.53        | 0.95     |
| 19:R:87:TYR:HD1  | 19:R:94:TYR:CD2   | 1.84        | 0.95     |
| 17:Y:28:SER:CB   | 17:Y:99:THR:HG23  | 1.95        | 0.95     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:2:7:GLU:OE1   | 22:2:8:ILE:CG1   | 2.14        | 0.95     |
| 2:A:2355:C:C3'   | 24:0:21:LEU:HD11 | 1.95        | 0.95     |
| 27:6:40:TYR:N    | 27:6:50:PHE:CE1  | 2.33        | 0.95     |
| 2:A:1011:G:OP1   | 20:U:77:SER:CB   | 2.13        | 0.95     |
| 2:A:2094:G:N1    | 2:A:2196:C:C2    | 2.34        | 0.95     |
| 2:A:2324:C:N4    | 2:A:2331:G:H1    | 1.63        | 0.95     |
| 2:A:2385:C:O2    | 2:A:2386:C:O4'   | 1.84        | 0.95     |
| 2:A:2838:G:C4    | 2:A:2839:G:C8    | 2.54        | 0.95     |
| 2:A:989:G:OP1    | 23:3:31:LEU:CD1  | 2.13        | 0.95     |
| 3:D:151:GLY:O    | 3:D:152:GLN:OE1  | 1.81        | 0.95     |
| 4:E:256:THR:HA   | 4:E:259:HIS:CE1  | 2.00        | 0.95     |
| 2:A:598:G:N2     | 5:F:33:LYS:HZ2   | 1.60        | 0.95     |
| 8:I:7:LYS:HA     | 8:I:14:LYS:CG    | 1.96        | 0.95     |
| 12:Q:143:VAL:O   | 12:Q:144:THR:CG2 | 2.14        | 0.95     |
| 21:V:67:LYS:HE3  | 21:V:94:LYS:HD2  | 1.47        | 0.95     |
| 15:W:8:ARG:HD2   | 15:W:9:TYR:CD1   | 2.01        | 0.95     |
| 2:A:325:G:N2     | 17:Y:7:GLN:NE2   | 2.14        | 0.95     |
| 24:0:38:VAL:O    | 24:0:40:GLN:CG   | 1.97        | 0.95     |
| 26:5:45:ILE:CG2  | 26:5:52:TYR:HD1  | 1.74        | 0.95     |
| 28:7:10:ARG:O    | 28:7:14:LYS:HG3  | 1.64        | 0.95     |
| 29:8:26:LYS:HD2  | 29:8:44:LYS:HA   | 0.98        | 0.95     |
| 2:A:2433:A:H2    | 25:4:32:HIS:CE1  | 1.84        | 0.95     |
| 2:A:2061:G:N7    | 2:A:2501:C:H1'   | 1.79        | 0.95     |
| 2:A:2612:C:O2'   | 2:A:2613:U:H5''  | 1.65        | 0.95     |
| 2:A:2698:U:H2'   | 2:A:2699:C:C6    | 2.01        | 0.95     |
| 3:D:131:LEU:CD1  | 3:D:171:VAL:HG22 | 1.93        | 0.95     |
| 4:E:176:HIS:O    | 4:E:179:ASP:CB   | 2.14        | 0.95     |
| 4:E:229:GLN:C    | 4:E:231:TRP:N    | 2.12        | 0.95     |
| 2:A:600:G:O2'    | 5:F:109:LEU:HD11 | 1.65        | 0.95     |
| 6:G:49:PRO:HB2   | 6:G:72:LYS:N     | 1.79        | 0.95     |
| 6:G:93:LEU:HD12  | 6:G:94:ALA:N     | 1.80        | 0.95     |
| 7:H:104:LEU:HB3  | 7:H:151:ARG:NH1  | 1.80        | 0.95     |
| 10:O:25:LEU:HD12 | 10:O:38:VAL:CG1  | 1.96        | 0.95     |
| 11:P:141:GLU:HB2 | 11:P:145:LEU:CD2 | 1.96        | 0.95     |
| 11:P:70:ASP:O    | 11:P:74:THR:CG2  | 2.14        | 0.95     |
| 19:R:105:ARG:O   | 19:R:107:ASP:N   | 1.97        | 0.95     |
| 13:S:19:ASP:O    | 13:S:21:HIS:N    | 1.98        | 0.95     |
| 21:V:43:GLU:O    | 21:V:44:GLN:NE2  | 1.99        | 0.95     |
| 17:Y:51:LEU:HD12 | 17:Y:97:ARG:CG   | 1.96        | 0.95     |
| 2:A:1710:C:O2'   | 2:A:2858:C:C4    | 2.19        | 0.95     |
| 2:A:2232:U:C2'   | 2:A:2233:U:H5'   | 1.97        | 0.95     |
| 2:A:2309:A:H5''  | 2:A:2310:A:H8    | 1.21        | 0.95     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2334:G:H21   | 13:S:12:ARG:CD    | 1.79        | 0.95     |
| 2:A:2579:C:C6    | 2:A:2579:C:C4'    | 2.50        | 0.95     |
| 2:A:1968:G:OP1   | 2:A:2592:G:OP1    | 1.84        | 0.95     |
| 2:A:2649:U:H2'   | 2:A:2650:U:C6     | 2.01        | 0.95     |
| 2:A:2845:G:C2'   | 2:A:2846:G:H5'    | 1.95        | 0.95     |
| 3:D:146:LYS:NZ   | 3:D:184:LEU:CD1   | 2.29        | 0.95     |
| 5:F:39:GLN:O     | 5:F:40:ALA:O      | 1.83        | 0.95     |
| 7:H:101:LYS:HG3  | 7:H:115:GLU:CA    | 1.96        | 0.95     |
| 2:A:2683:C:H2'   | 10:O:76:TYR:OH    | 1.65        | 0.95     |
| 11:P:94:ARG:CB   | 11:P:120:LEU:HD23 | 1.78        | 0.95     |
| 12:Q:33:MET:CE   | 12:Q:34:GLY:O     | 2.14        | 0.95     |
| 17:Y:63:ILE:HD11 | 17:Y:74:VAL:C     | 1.85        | 0.95     |
| 18:Z:172:LEU:CG  | 18:Z:173:PRO:CD   | 2.39        | 0.95     |
| 8:I:95:SER:HB2   | 8:I:98:ILE:HD11   | 1.44        | 0.95     |
| 23:3:23:LEU:C    | 23:3:28:LEU:HD12  | 1.85        | 0.95     |
| 2:A:2021:C:P     | 26:5:15:LYS:CE    | 2.50        | 0.95     |
| 2:A:1364:G:OP1   | 25:4:3:LYS:HG3    | 1.64        | 0.95     |
| 2:A:2225:A:H5''  | 2:A:2226:C:H5''   | 0.97        | 0.95     |
| 2:A:2250:G:C5'   | 12:Q:102:ARG:HD3  | 1.96        | 0.95     |
| 2:A:2268:A:C4'   | 2:A:2269:A:OP2    | 2.14        | 0.95     |
| 2:A:2300:G:O2'   | 2:A:2301:C:H5'    | 1.65        | 0.95     |
| 2:A:2617:C:O2    | 2:A:2618:G:O4'    | 1.84        | 0.95     |
| 2:A:2670:A:H8    | 2:A:2670:A:H5''   | 1.30        | 0.95     |
| 2:A:712(A):A:H5' | 2:A:2714:G:OP2    | 1.66        | 0.95     |
| 5:F:32:GLY:HA2   | 5:F:35:VAL:HG21   | 0.97        | 0.95     |
| 5:F:34:ALA:O     | 5:F:35:VAL:O      | 1.84        | 0.95     |
| 12:Q:58:HIS:N    | 12:Q:61:LEU:HD11  | 1.81        | 0.95     |
| 17:Y:78:THR:HB   | 17:Y:87:VAL:O     | 1.66        | 0.95     |
| 18:Z:71:MET:HA   | 18:Z:78:PRO:HA    | 1.47        | 0.95     |
| 2:A:1598:C:O3'   | 16:X:33:SER:OG    | 1.83        | 0.95     |
| 25:4:14:ILE:HG22 | 25:4:14:ILE:O     | 1.67        | 0.95     |
| 25:4:58:LYS:HG2  | 25:4:62:ARG:NE    | 1.80        | 0.95     |
| 2:A:2236:C:C3'   | 2:A:2237:G:H5'    | 1.97        | 0.95     |
| 2:A:676:A:C8     | 2:A:2443:C:H1'    | 2.00        | 0.95     |
| 2:A:2488:A:H2'   | 2:A:2489:G:O5'    | 1.66        | 0.95     |
| 2:A:2625:G:H3'   | 2:A:2626:C:H5     | 1.16        | 0.95     |
| 2:A:2712:U:H5''  | 2:A:2714:G:O5'    | 1.64        | 0.95     |
| 2:A:2782:G:OP2   | 2:A:2782:G:N7     | 2.00        | 0.95     |
| 3:D:167:GLU:O    | 3:D:170:TYR:O     | 1.84        | 0.95     |
| 5:F:94:THR:C     | 5:F:96:LYS:H      | 1.70        | 0.95     |
| 6:G:19:GLU:CG    | 6:G:135:VAL:HG22  | 1.96        | 0.95     |
| 6:G:49:PRO:HB3   | 6:G:72:LYS:O      | 0.78        | 0.95     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:93:TYR:C     | 7:H:94:ARG:HG3    | 1.83        | 0.95     |
| 11:P:132:LYS:N   | 11:P:132:LYS:HD2  | 1.76        | 0.95     |
| 20:U:15:LYS:O    | 20:U:16:LYS:O     | 1.83        | 0.95     |
| 18:Z:26:LYS:C    | 18:Z:27:GLU:HG3   | 1.86        | 0.95     |
| 3:D:213:LYS:C    | 3:D:215:LYS:H     | 1.60        | 0.95     |
| 22:2:34:GLN:N    | 22:2:34:GLN:OE1   | 2.00        | 0.95     |
| 2:A:139:G:H3'    | 2:A:141(A):C:O2   | 1.66        | 0.95     |
| 2:A:68:G:H2'     | 2:A:69:C:H6       | 1.30        | 0.95     |
| 16:X:25:GLN:CD   | 16:X:65:VAL:HG22  | 1.87        | 0.95     |
| 2:A:1350:C:H42   | 2:A:1381:G:H1     | 1.06        | 0.95     |
| 27:6:8:ILE:HA    | 27:6:29:ARG:HE    | 1.27        | 0.95     |
| 2:A:199:A:C2     | 2:A:2433:A:C4     | 2.55        | 0.95     |
| 2:A:2543:G:N7    | 2:A:2544:G:O6     | 1.99        | 0.95     |
| 2:A:2565:A:O3'   | 2:A:2566:A:O4'    | 1.85        | 0.95     |
| 2:A:2691:C:O2'   | 2:A:2692:C:C5'    | 2.15        | 0.95     |
| 2:A:2822:G:P     | 4:E:258:TYR:HE2   | 1.88        | 0.95     |
| 2:A:974:G:C8     | 21:V:80:TYR:CD1   | 2.54        | 0.95     |
| 4:E:70:VAL:HG11  | 4:E:296:VAL:H     | 0.95        | 0.95     |
| 5:F:219:ASN:N    | 5:F:219:ASN:ND2   | 2.14        | 0.95     |
| 5:F:48:SER:H     | 5:F:92:PRO:HG2    | 1.21        | 0.95     |
| 6:G:100:ASP:O    | 6:G:102:GLY:N     | 1.99        | 0.95     |
| 2:A:2315:G:H5'   | 6:G:133:ASN:ND2   | 1.80        | 0.95     |
| 7:H:166:GLU:O    | 7:H:167:LEU:HD23  | 1.46        | 0.95     |
| 2:A:994:C:O3'    | 20:U:54:LYS:HE2   | 1.67        | 0.95     |
| 17:Y:53:GLY:O    | 17:Y:56:ALA:N     | 2.00        | 0.95     |
| 17:Y:63:ILE:HG12 | 17:Y:75:GLU:OE2   | 1.64        | 0.95     |
| 18:Z:112:LEU:HA  | 18:Z:174:PRO:HD2  | 1.48        | 0.95     |
| 18:Z:13:LYS:C    | 18:Z:15:ASP:H     | 1.65        | 0.95     |
| 25:4:48:ARG:HG2  | 25:4:49:PHE:H     | 1.30        | 0.95     |
| 25:4:48:ARG:HG2  | 25:4:49:PHE:N     | 1.79        | 0.95     |
| 2:A:1943:U:C1'   | 2:A:1945:G:H5'    | 1.96        | 0.95     |
| 23:3:59:VAL:HG12 | 23:3:60:GLU:N     | 1.76        | 0.95     |
| 25:4:23:GLU:OE2  | 25:4:29:PRO:HG3   | 1.66        | 0.95     |
| 28:7:43:THR:O    | 28:7:46:ASP:CG    | 2.05        | 0.95     |
| 29:8:58:MET:SD   | 29:8:61:MET:CG    | 2.55        | 0.95     |
| 2:A:1456:G:N2    | 2:A:2704:C:C2     | 2.35        | 0.95     |
| 2:A:2326:C:H2'   | 2:A:2326:C:O2     | 1.61        | 0.95     |
| 2:A:2810:A:O2'   | 2:A:2811:G:H5'    | 1.65        | 0.95     |
| 3:D:174:ARG:HH11 | 3:D:174:ARG:CG    | 1.80        | 0.95     |
| 2:A:2745:C:C1'   | 7:H:142:GLU:OE2   | 2.13        | 0.95     |
| 8:I:7:LYS:N      | 8:I:14:LYS:HG2    | 1.38        | 0.95     |
| 11:P:92:ASP:HB2  | 11:P:118:LEU:HD13 | 1.46        | 0.95     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:P:128:GLY:HA3 | 11:P:132:LYS:NZ   | 1.72        | 0.95     |
| 11:P:77:ALA:N    | 11:P:81:VAL:CG2   | 2.24        | 0.95     |
| 15:W:79:GLY:O    | 15:W:80:PRO:O     | 1.84        | 0.95     |
| 8:I:89:LEU:HD13  | 8:I:93:ILE:HG22   | 1.47        | 0.95     |
| 22:2:20:LEU:CD1  | 22:2:20:LEU:C     | 2.35        | 0.95     |
| 2:A:1544:C:H2'   | 2:A:1545:A:H4'    | 1.48        | 0.95     |
| 2:A:2795:G:N3    | 2:A:2795:G:H2'    | 1.81        | 0.95     |
| 2:A:2352:A:N1    | 24:0:30:VAL:HG12  | 1.82        | 0.95     |
| 27:6:2:ALA:HB2   | 27:6:11:LYS:HZ2   | 1.14        | 0.95     |
| 2:A:1818:U:O2    | 3:D:153:LEU:HA    | 1.65        | 0.95     |
| 2:A:2219:G:O2'   | 2:A:2224:G:OP1    | 1.83        | 0.95     |
| 2:A:2422:A:C4    | 2:A:2424:C:H5     | 1.84        | 0.95     |
| 2:A:2450:A:H5''  | 2:A:2497:A:H61    | 1.29        | 0.95     |
| 2:A:2544:G:C2'   | 2:A:2545:G:H5'    | 1.95        | 0.95     |
| 2:A:2850:A:C2    | 19:R:61:HIS:HE1   | 1.65        | 0.95     |
| 2:A:1819:A:H2'   | 3:D:177:SER:CA    | 1.97        | 0.95     |
| 5:F:24:THR:HB    | 5:F:25:PRO:HD3    | 1.46        | 0.95     |
| 6:G:142:ALA:CB   | 6:G:151:ILE:CD1   | 2.44        | 0.95     |
| 7:H:60:HIS:HA    | 7:H:63:LEU:HB2    | 1.46        | 0.95     |
| 8:I:43:ASN:HD22  | 8:I:43:ASN:N      | 1.49        | 0.95     |
| 11:P:64:ILE:CD1  | 11:P:106:VAL:HG12 | 1.97        | 0.95     |
| 12:Q:145:PRO:C   | 12:Q:146:THR:HG1  | 1.67        | 0.95     |
| 12:Q:87:LYS:O    | 12:Q:88:PHE:HD2   | 1.46        | 0.95     |
| 17:Y:43:ASN:ND2  | 17:Y:103:LEU:HD21 | 1.81        | 0.95     |
| 16:X:47:VAL:HB   | 16:X:69:SER:CB    | 1.97        | 0.95     |
| 2:A:359:A:O2'    | 2:A:360:G:C5      | 2.17        | 0.95     |
| 2:A:2199:A:H3'   | 2:A:2205:C:H6     | 1.27        | 0.95     |
| 2:A:2405:G:N2    | 2:A:2413:G:O6     | 2.00        | 0.95     |
| 2:A:2412:A:H2'   | 2:A:2413:G:H5'    | 1.49        | 0.95     |
| 2:A:2488:A:C2'   | 2:A:2489:G:C5'    | 2.39        | 0.95     |
| 2:A:2574:G:HO2'  | 4:E:240:PRO:CB    | 1.73        | 0.95     |
| 2:A:2574:G:N9    | 2:A:2575:C:C5     | 2.33        | 0.95     |
| 2:A:2574:G:C5    | 2:A:2575:C:H5     | 1.46        | 0.95     |
| 2:A:2631:G:C5    | 2:A:2632:A:C8     | 2.54        | 0.95     |
| 2:A:2804:C:C5    | 2:A:2805:G:N1     | 2.34        | 0.95     |
| 3:D:103:ILE:HD11 | 3:D:104:ILE:HD11  | 1.48        | 0.95     |
| 5:F:102:LEU:HD21 | 5:F:106:GLU:HB3   | 1.47        | 0.95     |
| 5:F:113:SER:O    | 5:F:116:ALA:HB3   | 1.66        | 0.95     |
| 6:G:103:ASN:C    | 6:G:104:PHE:CD1   | 2.40        | 0.95     |
| 7:H:55:SER:HB3   | 7:H:60:HIS:HB2    | 1.45        | 0.95     |
| 9:N:54:VAL:HG13  | 9:N:135:ILE:HA    | 1.47        | 0.95     |
| 12:Q:88:PHE:HB2  | 12:Q:90:PHE:HE1   | 1.18        | 0.95     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 21:V:14:VAL:HG12  | 21:V:15:SER:H     | 1.32        | 0.95     |
| 17:Y:33:GLU:CD    | 17:Y:34:GLU:H     | 1.69        | 0.95     |
| 18:Z:113:VAL:HG12 | 18:Z:114:ASP:N    | 1.82        | 0.95     |
| 12:Q:36:ASN:CG    | 18:Z:116:VAL:HG12 | 1.86        | 0.95     |
| 16:X:68:LEU:N     | 16:X:68:LEU:HD23  | 1.79        | 0.95     |
| 2:A:1082:U:C4'    | 31:K:118:ALA:CB   | 2.44        | 0.95     |
| 2:A:2262:U:H6     | 24:O:14:ARG:HH22  | 1.09        | 0.94     |
| 27:6:29:ARG:HG2   | 27:6:30:ASN:N     | 1.80        | 0.94     |
| 2:A:2225:A:O2'    | 2:A:2226:C:OP2    | 1.82        | 0.94     |
| 2:A:2236:C:H2'    | 2:A:2237:G:C5'    | 1.96        | 0.94     |
| 2:A:2310:A:H2'    | 6:G:55:LYS:CE     | 1.96        | 0.94     |
| 2:A:2066:C:N3     | 2:A:2445:G:N2     | 2.14        | 0.94     |
| 2:A:2521:C:N3     | 2:A:2522:U:C6     | 2.35        | 0.94     |
| 2:A:2888:C:O2     | 2:A:2889:C:C6     | 2.20        | 0.94     |
| 2:A:856:C:O2'     | 24:O:24:LYS:HD3   | 1.67        | 0.94     |
| 4:E:189:MET:O     | 4:E:190:ASN:CG    | 2.06        | 0.94     |
| 5:F:243:VAL:O     | 5:F:246:ARG:CA    | 2.15        | 0.94     |
| 7:H:10:ILE:HD11   | 7:H:49:ILE:HG13   | 1.48        | 0.94     |
| 9:N:134:GLU:C     | 9:N:138:THR:HG23  | 1.87        | 0.94     |
| 2:A:245:G:OP2     | 11:P:53:ARG:NH1   | 2.00        | 0.94     |
| 20:U:28:ARG:N     | 20:U:31:GLN:CG    | 2.30        | 0.94     |
| 2:A:535:C:HO2'    | 20:U:53:LYS:HG2   | 1.18        | 0.94     |
| 15:W:41:LYS:O     | 15:W:42:ARG:O     | 1.84        | 0.94     |
| 17:Y:30:ASP:CG    | 17:Y:31:LEU:HD23  | 1.87        | 0.94     |
| 12:Q:94:ARG:HD3   | 12:Q:106:GLY:HA2  | 0.96        | 0.94     |
| 14:T:49:LEU:HD23  | 14:T:49:LEU:C     | 1.87        | 0.94     |
| 2:A:650:C:OP1     | 29:8:19:THR:OG1   | 1.79        | 0.94     |
| 2:A:2313:C:N4     | 2:A:2314:C:N4     | 2.14        | 0.94     |
| 2:A:2316:C:H5'    | 6:G:142:ALA:HB1   | 0.96        | 0.94     |
| 2:A:827:U:OP1     | 2:A:2430:A:OP2    | 1.84        | 0.94     |
| 2:A:2648:C:C2'    | 2:A:2649:U:H5'    | 1.96        | 0.94     |
| 2:A:2678:C:O2     | 2:A:2679:A:O4'    | 1.82        | 0.94     |
| 2:A:2740:A:H5'    | 2:A:2740:A:H8     | 1.31        | 0.94     |
| 2:A:2826:A:N7     | 2:A:2827:C:H5     | 1.65        | 0.94     |
| 2:A:2836:U:O2     | 2:A:2883:A:C5     | 2.20        | 0.94     |
| 6:G:151:ILE:HD13  | 6:G:156:ARG:HH22  | 1.31        | 0.94     |
| 9:N:136:SER:O     | 9:N:138:THR:N     | 2.00        | 0.94     |
| 13:S:17:ARG:HH11  | 13:S:18:THR:HA    | 1.31        | 0.94     |
| 20:U:56:ASP:O     | 20:U:60:LEU:CG    | 2.15        | 0.94     |
| 20:U:99:ALA:CB    | 20:U:106:PHE:CE1  | 2.28        | 0.94     |
| 4:E:107:GLU:CB    | 4:E:110:ARG:NE    | 2.29        | 0.94     |
| 2:A:749:C:H2'     | 2:A:750:A:C8      | 2.00        | 0.94     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:31:C:H5''    | 2:A:1239:G:OP1   | 1.67        | 0.94     |
| 2:A:2415:G:N2    | 2:A:2416:C:H1'   | 1.81        | 0.94     |
| 2:A:2487:G:O2'   | 2:A:2488:A:H5'   | 1.67        | 0.94     |
| 2:A:2652:C:O2'   | 2:A:2653:U:H5'   | 1.66        | 0.94     |
| 2:A:2832:U:H6    | 2:A:2832:U:C5'   | 1.58        | 0.94     |
| 2:A:825:C:O3'    | 2:A:2428:G:C8    | 2.20        | 0.94     |
| 7:H:101:LYS:CE   | 7:H:115:GLU:CB   | 2.45        | 0.94     |
| 9:N:50:GLU:CA    | 9:N:53:ILE:CG2   | 2.36        | 0.94     |
| 9:N:77:GLY:HA2   | 9:N:80:LYS:HG3   | 1.44        | 0.94     |
| 10:O:47:THR:HB   | 10:O:48:PRO:CD   | 1.97        | 0.94     |
| 10:O:66:LYS:HD2  | 10:O:66:LYS:C    | 1.84        | 0.94     |
| 13:S:23:ARG:CZ   | 13:S:37:ARG:HH22 | 1.81        | 0.94     |
| 20:U:8:ILE:H     | 20:U:11:ARG:HH11 | 1.05        | 0.94     |
| 17:Y:72:ILE:HG22 | 17:Y:73:HIS:N    | 1.72        | 0.94     |
| 17:Y:73:HIS:HD2  | 17:Y:88:PRO:HB2  | 1.31        | 0.94     |
| 18:Z:123:VAL:HB  | 18:Z:159:THR:CG2 | 1.96        | 0.94     |
| 18:Z:35:ASP:N    | 18:Z:39:PHE:CE2  | 2.34        | 0.94     |
| 8:I:68:LEU:HD11  | 8:I:108:LEU:CD2  | 1.97        | 0.94     |
| 8:I:80:PRO:HB3   | 8:I:146:THR:CG2  | 1.96        | 0.94     |
| 22:2:51:LYS:O    | 22:2:52:ALA:C    | 2.04        | 0.94     |
| 2:A:2896:C:C6    | 2:A:2896:C:H3'   | 2.03        | 0.94     |
| 14:T:49:LEU:O    | 14:T:49:LEU:HD23 | 1.65        | 0.94     |
| 23:3:8:LEU:CD2   | 23:3:31:LEU:C    | 2.33        | 0.94     |
| 26:5:18:MET:O    | 26:5:21:SER:HB3  | 1.65        | 0.94     |
| 2:A:684:G:OP1    | 28:7:16:HIS:CE1  | 2.20        | 0.94     |
| 2:A:1034:G:P     | 30:9:18:ARG:NH2  | 2.40        | 0.94     |
| 2:A:1162:G:C4'   | 21:V:23:GLU:HB2  | 1.96        | 0.94     |
| 2:A:2020:A:C5    | 26:5:9:LYS:HE2   | 2.00        | 0.94     |
| 2:A:2249:U:N3    | 2:A:2253:G:P     | 2.39        | 0.94     |
| 2:A:2254:C:O2'   | 2:A:2255:G:C5'   | 2.14        | 0.94     |
| 2:A:2578:G:C2'   | 2:A:2579:C:O5'   | 2.15        | 0.94     |
| 2:A:2804:C:H5    | 2:A:2805:G:C6    | 1.84        | 0.94     |
| 2:A:2825:C:H6    | 2:A:2825:C:C5'   | 1.80        | 0.94     |
| 1:B:8:U:OP1      | 13:S:37:ARG:HD2  | 1.68        | 0.94     |
| 3:D:80:ILE:HD13  | 3:D:82:TYR:HE1   | 1.23        | 0.94     |
| 7:H:55:SER:O     | 7:H:57:GLU:HG2   | 1.68        | 0.94     |
| 19:R:38:VAL:HG11 | 19:R:39:PRO:HD3  | 1.44        | 0.94     |
| 21:V:4:ILE:CD1   | 21:V:13:ARG:CG   | 2.44        | 0.94     |
| 17:Y:55:PHE:CE2  | 17:Y:89:ARG:NH2  | 2.35        | 0.94     |
| 17:Y:73:HIS:CA   | 17:Y:91:LEU:CG   | 2.33        | 0.94     |
| 17:Y:28:SER:CB   | 17:Y:99:THR:CG2  | 2.44        | 0.94     |
| 18:Z:112:LEU:CD1 | 18:Z:142:ASN:HA  | 1.97        | 0.94     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 18:Z:92:VAL:O    | 18:Z:94:VAL:N     | 2.00        | 0.94     |
| 16:X:47:VAL:HG11 | 16:X:69:SER:CB    | 1.90        | 0.94     |
| 25:4:23:GLU:OE2  | 25:4:29:PRO:CG    | 2.14        | 0.94     |
| 27:6:32:GLN:CG   | 27:6:35:LEU:HD12  | 1.96        | 0.94     |
| 2:A:2209:C:C2'   | 2:A:2210:G:C3'    | 2.32        | 0.94     |
| 2:A:2537:U:H2'   | 2:A:2538:C:H6     | 1.32        | 0.94     |
| 2:A:2617:C:H2'   | 2:A:2618:G:H5'    | 0.95        | 0.94     |
| 2:A:2693:A:N1    | 2:A:2694:G:C6     | 2.36        | 0.94     |
| 3:D:194:VAL:HG23 | 3:D:195:GLY:H     | 1.29        | 0.94     |
| 2:A:2785:C:H4'   | 4:E:99:VAL:HA     | 0.96        | 0.94     |
| 5:F:102:LEU:HB3  | 5:F:107:ARG:HE    | 1.28        | 0.94     |
| 6:G:102:GLY:HA2  | 6:G:134:LEU:HD12  | 1.49        | 0.94     |
| 7:H:143:LEU:CD2  | 7:H:144:ALA:N     | 2.19        | 0.94     |
| 8:I:7:LYS:CA     | 8:I:12:LYS:O      | 2.11        | 0.94     |
| 12:Q:58:HIS:O    | 12:Q:61:LEU:N     | 2.00        | 0.94     |
| 19:R:77:ARG:HH12 | 19:R:77:ARG:HB2   | 1.33        | 0.94     |
| 13:S:83:LEU:N    | 13:S:83:LEU:HD12  | 1.77        | 0.94     |
| 2:A:25:U:H4'     | 15:W:79:GLY:HA2   | 0.97        | 0.94     |
| 2:A:328:U:O2'    | 17:Y:94:SER:OG    | 1.85        | 0.94     |
| 18:Z:118:HIS:O   | 18:Z:120:LEU:HD23 | 1.66        | 0.94     |
| 8:I:98:ILE:HD13  | 8:I:115:ILE:HD12  | 1.48        | 0.94     |
| 8:I:63:ALA:O     | 8:I:67:LYS:HG2    | 1.67        | 0.94     |
| 2:A:193:U:H2'    | 2:A:194:G:H8      | 1.32        | 0.94     |
| 23:3:26:LEU:HD12 | 23:3:28:LEU:HD11  | 1.48        | 0.94     |
| 27:6:8:ILE:H     | 27:6:8:ILE:HD13   | 1.32        | 0.94     |
| 2:A:2432:A:C2    | 2:A:2433:A:C5     | 2.48        | 0.94     |
| 2:A:2450:A:C2    | 2:A:2451:A:C4     | 2.55        | 0.94     |
| 2:A:2509:G:O2'   | 2:A:2510:C:C5'    | 2.15        | 0.94     |
| 2:A:2543:G:N7    | 2:A:2544:G:C6     | 2.36        | 0.94     |
| 2:A:783:A:H4'    | 2:A:2588:G:O3'    | 1.67        | 0.94     |
| 2:A:25:U:H4'     | 15:W:79:GLY:HA3   | 1.47        | 0.94     |
| 3:D:66:PHE:C     | 3:D:67:LYS:HD2    | 1.86        | 0.94     |
| 4:E:203:GLY:HA3  | 4:E:303:PRO:CD    | 1.97        | 0.94     |
| 7:H:101:LYS:CG   | 7:H:115:GLU:HB2   | 1.97        | 0.94     |
| 7:H:120:LEU:CD1  | 7:H:143:LEU:HD12  | 1.97        | 0.94     |
| 2:A:2745:C:H1'   | 7:H:142:GLU:OE2   | 1.67        | 0.94     |
| 10:O:98:ILE:HG22 | 10:O:99:PHE:N     | 1.80        | 0.94     |
| 19:R:20:LEU:HD11 | 19:R:21:TYR:HD2   | 1.17        | 0.94     |
| 20:U:115:ASN:O   | 20:U:116:ALA:C    | 2.04        | 0.94     |
| 21:V:30:GLY:C    | 21:V:33:VAL:HG23  | 1.76        | 0.94     |
| 21:V:30:GLY:O    | 21:V:31:ASP:O     | 1.85        | 0.94     |
| 15:W:67:ASP:OD1  | 15:W:68:ARG:N     | 1.99        | 0.94     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:Y:28:SER:OG   | 17:Y:30:ASP:OD1   | 1.84        | 0.94     |
| 17:Y:78:THR:CA   | 17:Y:89:ARG:CG    | 2.44        | 0.94     |
| 16:X:14:ALA:HA   | 16:X:17:ASP:OD2   | 1.68        | 0.94     |
| 14:T:42:LEU:C    | 14:T:44:ARG:N     | 2.21        | 0.94     |
| 27:6:37:LEU:HD23 | 27:6:51:ARG:CA    | 1.95        | 0.94     |
| 2:A:2287:A:H62   | 2:A:2344:U:H5     | 1.12        | 0.94     |
| 2:A:2331:G:N7    | 2:A:2332:U:C4     | 2.36        | 0.94     |
| 2:A:2320:A:H2    | 2:A:2333:A:N3     | 1.64        | 0.94     |
| 2:A:2364:C:O2'   | 2:A:2365:G:H5'    | 1.68        | 0.94     |
| 2:A:2416:C:C2'   | 2:A:2417:C:H5''   | 1.98        | 0.94     |
| 2:A:2439:A:N3    | 2:A:2439:A:H2'    | 1.81        | 0.94     |
| 2:A:2577:A:N1    | 2:A:2614:A:H2     | 1.66        | 0.94     |
| 2:A:2689:U:C4'   | 2:A:2690:C:H5'    | 1.98        | 0.94     |
| 2:A:2789:C:O2    | 2:A:2893:G:N2     | 2.01        | 0.94     |
| 5:F:220:THR:CA   | 5:F:224:ALA:HB2   | 1.97        | 0.94     |
| 11:P:61:ALA:HB1  | 11:P:107:LYS:CE   | 1.96        | 0.94     |
| 11:P:92:ASP:HB3  | 11:P:118:LEU:HD13 | 0.95        | 0.94     |
| 12:Q:89:PRO:O    | 12:Q:90:PHE:CG    | 2.21        | 0.94     |
| 20:U:110:VAL:O   | 20:U:113:SER:OG   | 1.84        | 0.94     |
| 2:A:445:C:C3'    | 20:U:3:ARG:NH2    | 2.29        | 0.94     |
| 15:W:8:ARG:HG2   | 15:W:9:TYR:H      | 1.30        | 0.94     |
| 17:Y:53:GLY:O    | 17:Y:55:PHE:N     | 2.00        | 0.94     |
| 18:Z:39:PHE:HD2  | 18:Z:39:PHE:N     | 1.66        | 0.94     |
| 7:H:168:VAL:C    | 7:H:169:ARG:HG2   | 1.88        | 0.94     |
| 2:A:414:C:H42    | 2:A:2409:G:H1     | 1.01        | 0.94     |
| 24:0:41:ARG:H    | 24:0:67:VAL:CG2   | 1.80        | 0.94     |
| 24:0:41:ARG:H    | 24:0:67:VAL:HG22  | 1.33        | 0.94     |
| 2:A:932:G:C4'    | 23:3:24:LYS:HZ3   | 1.80        | 0.94     |
| 2:A:396:G:C2'    | 25:4:39:VAL:HG13  | 1.98        | 0.94     |
| 2:A:1364:G:C3'   | 25:4:3:LYS:HD2    | 1.88        | 0.94     |
| 27:6:21:TYR:CZ   | 27:6:43:VAL:CG2   | 2.47        | 0.94     |
| 2:A:1264:G:OP1   | 26:5:16:ARG:HG2   | 1.66        | 0.94     |
| 2:A:2574:G:H2'   | 2:A:2575:C:C6     | 2.02        | 0.94     |
| 2:A:2617:C:C2    | 2:A:2618:G:H8     | 1.84        | 0.94     |
| 2:A:2820:A:C5'   | 2:A:2820:A:N3     | 2.29        | 0.94     |
| 3:D:143:ILE:N    | 3:D:143:ILE:HD12  | 1.82        | 0.94     |
| 3:D:130:PRO:N    | 3:D:188:ARG:HG2   | 1.83        | 0.94     |
| 4:E:233:ARG:O    | 4:E:234:ARG:HG3   | 0.77        | 0.94     |
| 2:A:2303:G:C4'   | 6:G:99:ASP:HB3    | 1.98        | 0.94     |
| 12:Q:65:ARG:O    | 12:Q:68:ALA:CB    | 2.15        | 0.94     |
| 19:R:22:ARG:CG   | 19:R:26:LYS:HE3   | 1.97        | 0.94     |
| 19:R:36:THR:HG23 | 19:R:40:LYS:HD2   | 1.47        | 0.94     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 19:R:52:ILE:CG2   | 19:R:53:HIS:N     | 2.26        | 0.94     |
| 25:4:7:PRO:O      | 25:4:8:LYS:HB2    | 1.68        | 0.94     |
| 29:8:9:MET:O      | 29:8:12:ARG:O     | 1.86        | 0.94     |
| 2:A:2567:G:C2     | 2:A:2568:C:C4     | 2.56        | 0.94     |
| 2:A:2049:G:N2     | 2:A:2620:C:C2     | 2.36        | 0.94     |
| 2:A:2048:G:N1     | 2:A:2621:A:C2     | 2.36        | 0.94     |
| 2:A:2642:G:C2'    | 2:A:2643:G:H5'    | 1.95        | 0.94     |
| 2:A:527:C:C2'     | 9:N:95:ARG:NH1    | 2.31        | 0.94     |
| 3:D:146:LYS:HZ1   | 3:D:184:LEU:HD11  | 1.14        | 0.94     |
| 4:E:269:ILE:HG13  | 4:E:297:LYS:CG    | 1.98        | 0.94     |
| 5:F:111:VAL:O     | 5:F:114:ALA:CB    | 2.15        | 0.94     |
| 8:I:7:LYS:HG3     | 8:I:12:LYS:CB     | 1.97        | 0.94     |
| 9:N:58:GLU:HG2    | 9:N:61:VAL:HG21   | 1.50        | 0.94     |
| 9:N:90:LYS:O      | 9:N:90:LYS:HD2    | 1.68        | 0.94     |
| 10:O:35:ILE:CD1   | 10:O:65:THR:HG21  | 1.95        | 0.94     |
| 10:O:77:ILE:HD13  | 10:O:78:ARG:H     | 1.28        | 0.94     |
| 12:Q:41:THR:CG2   | 12:Q:125:TRP:CE3  | 2.51        | 0.94     |
| 12:Q:32:LYS:NZ    | 18:Z:172:LEU:HD11 | 1.83        | 0.94     |
| 12:Q:31:PHE:CA    | 12:Q:85:ILE:HD11  | 1.97        | 0.94     |
| 20:U:61:TRP:HZ3   | 20:U:94:VAL:H     | 0.99        | 0.94     |
| 20:U:59:ARG:O     | 20:U:62:ILE:CG1   | 2.15        | 0.94     |
| 17:Y:101:LEU:HD21 | 17:Y:112:LEU:HD21 | 0.96        | 0.94     |
| 17:Y:73:HIS:HA    | 17:Y:91:LEU:CD2   | 1.98        | 0.94     |
| 3:D:213:LYS:HG2   | 3:D:215:LYS:O     | 1.68        | 0.94     |
| 22:2:47:LYS:O     | 22:2:48:GLU:O     | 1.84        | 0.94     |
| 2:A:2755:C:C5'    | 2:A:2755:C:H6     | 1.80        | 0.94     |
| 2:A:2262:U:OP2    | 24:0:14:ARG:CZ    | 2.15        | 0.94     |
| 25:4:2:GLN:O      | 25:4:3:LYS:HG3    | 1.66        | 0.94     |
| 27:6:12:MET:O     | 27:6:25:THR:OG1   | 1.86        | 0.94     |
| 2:A:2776:A:N3     | 2:A:2778:A:N7     | 2.16        | 0.94     |
| 2:A:2781:A:H5''   | 2:A:2782:G:H5'    | 1.47        | 0.94     |
| 2:A:687:C:O2      | 2:A:787:U:H5''    | 1.68        | 0.94     |
| 4:E:211:GLN:H     | 4:E:216:ARG:NE    | 1.66        | 0.94     |
| 5:F:59:GLU:HB2    | 5:F:61:PHE:HE2    | 0.81        | 0.94     |
| 6:G:27:ILE:O      | 6:G:29:HIS:N      | 2.00        | 0.94     |
| 2:A:1140:C:H5     | 9:N:49:ARG:CG     | 1.71        | 0.94     |
| 17:Y:101:LEU:CD1  | 17:Y:112:LEU:CG   | 2.41        | 0.94     |
| 2:A:1081:U:O2'    | 31:K:117:ASN:HB3  | 1.66        | 0.94     |
| 2:A:2386:C:H4'    | 24:0:39:ARG:NH2   | 1.83        | 0.94     |
| 2:A:126:A:C6      | 28:7:18:PHE:CD2   | 2.56        | 0.94     |
| 28:7:31:LEU:HD23  | 28:7:31:LEU:H     | 1.33        | 0.94     |
| 2:A:18:C:H4'      | 20:U:23:GLY:O     | 1.67        | 0.94     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2332:U:H1'    | 2:A:2336:A:H62    | 1.21        | 0.94     |
| 2:A:2416:C:OP1    | 11:P:51:PHE:HE2   | 1.36        | 0.94     |
| 2:A:2526:G:C5     | 2:A:2527:C:H5     | 1.85        | 0.94     |
| 2:A:2577:A:N1     | 2:A:2614:A:C2     | 2.36        | 0.94     |
| 2:A:2682:U:C6     | 4:E:48:MET:HE2    | 2.02        | 0.94     |
| 2:A:2717:G:N1     | 2:A:2718:G:N7     | 2.15        | 0.94     |
| 2:A:1818:U:H3'    | 3:D:155:ARG:HG2   | 0.95        | 0.94     |
| 4:E:211:GLN:C     | 4:E:216:ARG:CD    | 2.28        | 0.94     |
| 6:G:74:THR:O      | 6:G:75:LEU:HG     | 1.68        | 0.94     |
| 7:H:40:MET:CG     | 7:H:64:HIS:CE1    | 2.51        | 0.94     |
| 9:N:15:ARG:CB     | 9:N:43:ARG:CD     | 2.36        | 0.94     |
| 12:Q:32:LYS:HZ2   | 18:Z:172:LEU:HD13 | 1.31        | 0.94     |
| 19:R:38:VAL:HG12  | 19:R:39:PRO:N     | 1.72        | 0.94     |
| 18:Z:130:ILE:O    | 18:Z:130:ILE:CD1  | 2.15        | 0.94     |
| 18:Z:37:LYS:O     | 18:Z:41:ARG:CZ    | 2.14        | 0.94     |
| 3:D:208:GLY:N     | 3:D:211:HIS:NE2   | 2.16        | 0.94     |
| 16:X:25:GLN:HE22  | 16:X:65:VAL:HG13  | 1.32        | 0.94     |
| 6:G:82:GLU:O      | 6:G:85:GLN:CD     | 2.07        | 0.94     |
| 18:Z:143:ILE:HG22 | 18:Z:144:GLY:H    | 0.79        | 0.94     |
| 2:A:2386:C:C4'    | 24:0:39:ARG:HH21  | 1.81        | 0.93     |
| 23:3:11:SER:OG    | 23:3:13:ILE:HG12  | 1.68        | 0.93     |
| 27:6:14:SER:CB    | 27:6:51:ARG:O     | 2.16        | 0.93     |
| 2:A:1612:C:C2'    | 28:7:3:ARG:HE     | 1.69        | 0.93     |
| 2:A:2415:G:H21    | 2:A:2416:C:C1'    | 1.80        | 0.93     |
| 2:A:2468:G:C8     | 2:A:2476:A:N1     | 2.35        | 0.93     |
| 2:A:2592:G:C5     | 2:A:2593:U:C6     | 2.56        | 0.93     |
| 2:A:2605:U:O2     | 2:A:2606:C:H5     | 1.51        | 0.93     |
| 2:A:2880:C:H2'    | 2:A:2881:C:H5'    | 0.97        | 0.93     |
| 2:A:495:G:H21     | 15:W:61:ASN:ND2   | 1.66        | 0.93     |
| 4:E:80:ALA:HB2    | 4:E:187:HIS:CD2   | 2.03        | 0.93     |
| 5:F:103:ASN:CB    | 5:F:106:GLU:HG3   | 1.98        | 0.93     |
| 7:H:101:LYS:HG2   | 7:H:115:GLU:CB    | 1.98        | 0.93     |
| 7:H:120:LEU:CA    | 7:H:121:GLU:OE1   | 2.16        | 0.93     |
| 7:H:30:GLY:HA3    | 7:H:78:VAL:O      | 1.68        | 0.93     |
| 8:I:5:PHE:O       | 8:I:36:ALA:HB1    | 1.67        | 0.93     |
| 9:N:50:GLU:CA     | 9:N:53:ILE:HG21   | 1.95        | 0.93     |
| 11:P:73:VAL:HG13  | 11:P:76:LEU:CD2   | 1.97        | 0.93     |
| 12:Q:58:HIS:C     | 12:Q:61:LEU:HG    | 1.87        | 0.93     |
| 15:W:13:SER:O     | 15:W:17:VAL:HG23  | 1.66        | 0.93     |
| 22:2:8:ILE:HA     | 22:2:11:MET:CG    | 1.98        | 0.93     |
| 16:X:6:LYS:CE     | 16:X:29:ASP:N     | 2.31        | 0.93     |
| 24:0:7:VAL:HG12   | 24:0:7:VAL:O      | 1.67        | 0.93     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1301:A:HO2'  | 2:A:1302:A:H8    | 0.95        | 0.93     |
| 2:A:125:G:C3'    | 28:7:19:ARG:NH1  | 2.31        | 0.93     |
| 2:A:1819:A:OP1   | 3:D:154:VAL:CA   | 2.16        | 0.93     |
| 2:A:2093:G:C1'   | 2:A:2198:A:N1    | 2.31        | 0.93     |
| 2:A:2195:C:C6    | 2:A:2195:C:O5'   | 2.21        | 0.93     |
| 2:A:2392:A:N7    | 2:A:2393:A:C5    | 2.36        | 0.93     |
| 2:A:2554:U:C3'   | 2:A:2554:U:C6    | 2.44        | 0.93     |
| 2:A:2741:A:HO2'  | 2:A:2742:C:H5'   | 1.29        | 0.93     |
| 2:A:2762:G:C8    | 2:A:2763:G:N7    | 2.36        | 0.93     |
| 2:A:2842:G:C2    | 2:A:2876:G:C2    | 2.55        | 0.93     |
| 2:A:85:G:P       | 17:Y:65:VAL:CG1  | 2.56        | 0.93     |
| 4:E:197:GLU:O    | 4:E:268:LEU:N    | 2.01        | 0.93     |
| 4:E:216:ARG:HH21 | 4:E:255:GLN:HA   | 1.33        | 0.93     |
| 5:F:115:LEU:HG   | 5:F:246:ARG:HH22 | 1.14        | 0.93     |
| 2:A:558:G:OP2    | 9:N:91:LYS:HB3   | 1.67        | 0.93     |
| 9:N:95:ARG:HA    | 9:N:98:PHE:CD1   | 2.03        | 0.93     |
| 11:P:69:ILE:O    | 11:P:71:GLU:N    | 2.01        | 0.93     |
| 17:Y:23:VAL:CG2  | 17:Y:67:LEU:HD21 | 1.98        | 0.93     |
| 8:I:98:ILE:HG22  | 8:I:99:ALA:H     | 1.24        | 0.93     |
| 22:2:59:ILE:HG23 | 22:2:60:GLN:H    | 1.32        | 0.93     |
| 16:X:28:VAL:O    | 16:X:30:ASP:N    | 2.01        | 0.93     |
| 11:P:75:LEU:O    | 11:P:75:LEU:CD2  | 2.16        | 0.93     |
| 2:A:593:G:H5'    | 29:8:62:LEU:HD21 | 1.48        | 0.93     |
| 2:A:2333:A:C1'   | 2:A:2335:A:C2    | 2.50        | 0.93     |
| 2:A:2330:G:H1    | 2:A:2385:C:N4    | 1.57        | 0.93     |
| 2:A:2512:C:OP1   | 4:E:219:VAL:HG13 | 1.68        | 0.93     |
| 2:A:2523:G:N2    | 2:A:2541:A:N3    | 2.16        | 0.93     |
| 2:A:2048:G:N1    | 2:A:2620:C:N4    | 2.16        | 0.93     |
| 2:A:919:G:H21    | 2:A:2268:A:H5'   | 1.33        | 0.93     |
| 3:D:138:THR:O    | 3:D:162:GLN:HA   | 1.69        | 0.93     |
| 3:D:174:ARG:HG2  | 3:D:174:ARG:NH1  | 1.77        | 0.93     |
| 11:P:68:GLU:O    | 11:P:71:GLU:HG3  | 1.67        | 0.93     |
| 12:Q:127:ASN:CB  | 12:Q:128:PRO:HD3 | 1.97        | 0.93     |
| 12:Q:87:LYS:C    | 12:Q:88:PHE:CG   | 2.37        | 0.93     |
| 20:U:107:LYS:O   | 20:U:108:ALA:O   | 1.86        | 0.93     |
| 21:V:42:GLY:CA   | 21:V:54:TYR:CE2  | 2.42        | 0.93     |
| 17:Y:17:HIS:O    | 17:Y:20:HIS:HB3  | 1.68        | 0.93     |
| 23:3:20:LYS:HD3  | 23:3:23:LEU:HD12 | 1.51        | 0.93     |
| 28:7:20:ALA:O    | 28:7:21:ARG:C    | 2.06        | 0.93     |
| 30:9:10:MET:HB2  | 30:9:32:HIS:HD2  | 1.32        | 0.93     |
| 2:A:1152:C:C5'   | 20:U:80:ILE:HG21 | 1.96        | 0.93     |
| 2:A:2098:U:H3    | 2:A:2191:G:H1    | 1.06        | 0.93     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2312:U:H5'   | 6:G:53:LYS:HA    | 0.95        | 0.93     |
| 2:A:2328:A:C6    | 2:A:2329:G:O6    | 2.21        | 0.93     |
| 2:A:2520:C:C2    | 2:A:2521:C:C5    | 2.56        | 0.93     |
| 2:A:2674:G:H2'   | 2:A:2675:A:H8    | 1.12        | 0.93     |
| 3:D:196:ASN:HA   | 3:D:199:ARG:HD3  | 1.47        | 0.93     |
| 4:E:271:ILE:HG12 | 4:E:294:THR:HA   | 1.46        | 0.93     |
| 4:E:71:THR:HG21  | 4:E:299:SER:CA   | 1.97        | 0.93     |
| 6:G:142:ALA:HB2  | 6:G:151:ILE:HG12 | 1.51        | 0.93     |
| 6:G:14:ARG:HA    | 6:G:137:PRO:HD3  | 1.49        | 0.93     |
| 6:G:56:ARG:HG2   | 6:G:65:GLU:CB    | 1.97        | 0.93     |
| 9:N:87:LEU:HB3   | 9:N:88:PRO:CD    | 1.97        | 0.93     |
| 12:Q:49:VAL:HG21 | 12:Q:120:HIS:HA  | 1.50        | 0.93     |
| 20:U:44:THR:HG21 | 21:V:78:VAL:HG12 | 1.50        | 0.93     |
| 21:V:14:VAL:CG1  | 21:V:15:SER:H    | 1.81        | 0.93     |
| 8:I:68:LEU:HD22  | 8:I:108:LEU:HD13 | 1.47        | 0.93     |
| 2:A:1603:A:H2'   | 2:A:1604:C:C6    | 2.02        | 0.93     |
| 24:0:43:THR:HG21 | 24:0:75:GLY:H    | 1.30        | 0.93     |
| 29:8:36:LYS:CE   | 29:8:40:GLU:OE1  | 2.16        | 0.93     |
| 2:A:1140:C:H41   | 9:N:49:ARG:CD    | 1.79        | 0.93     |
| 2:A:1181:C:HO2'  | 2:A:1182:A:H8    | 1.08        | 0.93     |
| 2:A:2292:C:C4    | 2:A:2293:C:C5    | 2.56        | 0.93     |
| 2:A:2604:U:O2    | 2:A:2605:U:C6    | 2.21        | 0.93     |
| 2:A:2748:A:H8    | 2:A:2749:A:C4    | 1.84        | 0.93     |
| 4:E:210:THR:HG22 | 4:E:255:GLN:CG   | 1.97        | 0.93     |
| 9:N:21:ARG:HA    | 9:N:24:SER:HB3   | 1.48        | 0.93     |
| 9:N:61:VAL:HG22  | 9:N:139:LEU:HB2  | 1.46        | 0.93     |
| 12:Q:49:VAL:HG12 | 12:Q:50:VAL:N    | 1.84        | 0.93     |
| 12:Q:56:ILE:CG1  | 12:Q:113:ALA:O   | 2.17        | 0.93     |
| 13:S:41:LYS:CD   | 13:S:41:LYS:C    | 2.32        | 0.93     |
| 21:V:4:ILE:HD11  | 21:V:13:ARG:HD3  | 1.51        | 0.93     |
| 17:Y:74:VAL:HG12 | 17:Y:74:VAL:O    | 1.65        | 0.93     |
| 24:0:37:LEU:HD12 | 24:0:70:ILE:HD13 | 1.48        | 0.93     |
| 2:A:242:G:H3'    | 29:8:5:LYS:NZ    | 1.81        | 0.93     |
| 2:A:1128:A:N6    | 2:A:2518:A:H61   | 1.65        | 0.93     |
| 2:A:2546:U:O4'   | 2:A:2565:A:C2    | 2.22        | 0.93     |
| 4:E:271:ILE:HG23 | 4:E:293:TYR:O    | 1.67        | 0.93     |
| 5:F:196:THR:C    | 5:F:236:THR:OG1  | 2.07        | 0.93     |
| 9:N:25:GLN:HA    | 9:N:28:GLU:HG3   | 1.49        | 0.93     |
| 10:O:99:PHE:O    | 10:O:119:PRO:CG  | 2.16        | 0.93     |
| 10:O:68:GLY:HA2  | 10:O:78:ARG:HG2  | 1.49        | 0.93     |
| 13:S:16:ALA:O    | 13:S:17:ARG:HB3  | 1.68        | 0.93     |
| 21:V:20:ILE:O    | 21:V:21:ARG:NH2  | 2.00        | 0.93     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:Y:31:LEU:CD1  | 17:Y:101:LEU:HB2 | 1.99        | 0.93     |
| 18:Z:35:ASP:N    | 18:Z:39:PHE:CZ   | 2.35        | 0.93     |
| 8:I:103:GLN:HE21 | 8:I:109:LYS:CA   | 1.81        | 0.93     |
| 16:X:33:SER:C    | 16:X:37:VAL:CG2  | 2.37        | 0.93     |
| 2:A:1620:G:H1'   | 28:7:1:MET:H2    | 1.15        | 0.93     |
| 16:X:76:GLU:OE1  | 16:X:77:VAL:N    | 2.01        | 0.93     |
| 24:0:45:PHE:CG   | 24:0:78:PHE:HA   | 2.02        | 0.93     |
| 28:7:34:ARG:HH11 | 28:7:42:LEU:CD2  | 1.80        | 0.93     |
| 29:8:55:TRP:CE3  | 29:8:59:LYS:CE   | 2.48        | 0.93     |
| 2:A:2262:U:HO2'  | 2:A:2263:C:H5''  | 1.19        | 0.93     |
| 2:A:2345:G:N7    | 2:A:2371:G:N2    | 2.16        | 0.93     |
| 2:A:2395:C:H5''  | 25:4:28:ARG:HH11 | 1.33        | 0.93     |
| 2:A:2258:C:C5    | 2:A:2426:A:H4'   | 2.04        | 0.93     |
| 2:A:2574:G:C2'   | 2:A:2575:C:C6    | 2.52        | 0.93     |
| 2:A:2640:G:H1    | 2:A:2774:C:N4    | 1.65        | 0.93     |
| 2:A:2845:G:HO2'  | 2:A:2846:G:H5'   | 1.31        | 0.93     |
| 4:E:177:ALA:O    | 4:E:179:ASP:N    | 2.00        | 0.93     |
| 4:E:180:ILE:HG21 | 4:E:187:HIS:HB3  | 1.46        | 0.93     |
| 11:P:65:ASP:HB3  | 11:P:109:LEU:HB2 | 1.49        | 0.93     |
| 14:T:21:PHE:O    | 14:T:22:VAL:CG1  | 2.17        | 0.93     |
| 20:U:117:ARG:HD3 | 20:U:118:GLN:CG  | 1.97        | 0.93     |
| 17:Y:70:ALA:O    | 17:Y:93:THR:HG21 | 1.68        | 0.93     |
| 18:Z:142:ASN:H   | 18:Z:171:VAL:CG2 | 1.81        | 0.93     |
| 8:I:68:LEU:HB3   | 8:I:72:LEU:CD1   | 1.98        | 0.93     |
| 16:X:3:ASP:CG    | 22:2:24:LYS:HD2  | 1.88        | 0.93     |
| 16:X:55:GLN:C    | 16:X:56:ASN:HD22 | 1.70        | 0.93     |
| 2:A:1944:U:H1'   | 2:A:1955:U:H1'   | 1.49        | 0.93     |
| 23:3:1:MET:CE    | 23:3:3:ARG:CD    | 2.46        | 0.93     |
| 23:3:1:MET:HE3   | 23:3:3:ARG:HD2   | 1.48        | 0.93     |
| 2:A:1669:A:H8    | 10:O:4:GLN:OE1   | 1.37        | 0.93     |
| 2:A:2320:A:N6    | 13:S:14:ARG:CA   | 2.31        | 0.93     |
| 2:A:2330:G:H2'   | 2:A:2331:G:H5'   | 1.48        | 0.93     |
| 2:A:2542:A:O2'   | 2:A:2543:G:C8    | 2.20        | 0.93     |
| 2:A:2770:G:H1'   | 4:E:316:ARG:HH22 | 1.32        | 0.93     |
| 2:A:592:G:N2     | 29:8:3:LYS:HE2   | 1.83        | 0.93     |
| 3:D:110:LYS:CA   | 3:D:110:LYS:HZ3  | 1.79        | 0.93     |
| 4:E:221:LYS:NZ   | 4:E:233:ARG:CG   | 2.32        | 0.93     |
| 4:E:269:ILE:HD11 | 4:E:296:VAL:CA   | 1.99        | 0.93     |
| 4:E:269:ILE:CD1  | 4:E:269:ILE:H    | 1.77        | 0.93     |
| 5:F:111:VAL:O    | 5:F:112:ARG:O    | 1.86        | 0.93     |
| 5:F:164:ALA:HA   | 5:F:232:LEU:CD1  | 1.96        | 0.93     |
| 8:I:28:ASN:O     | 8:I:32:LYS:HB2   | 1.65        | 0.93     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:Q:137:ARG:HD3 | 12:Q:138:ARG:N    | 1.83        | 0.93     |
| 12:Q:41:THR:O    | 12:Q:125:TRP:CZ3  | 2.21        | 0.93     |
| 13:S:27:LEU:HB2  | 13:S:33:ARG:HH21  | 1.27        | 0.93     |
| 14:T:38:ASN:OD1  | 14:T:39:ASN:N     | 2.02        | 0.93     |
| 15:W:10:VAL:HB   | 15:W:101:SER:O    | 1.68        | 0.93     |
| 15:W:32:ALA:HB2  | 15:W:35:ILE:HD12  | 1.49        | 0.93     |
| 15:W:84:ARG:HB3  | 15:W:96:ILE:CD1   | 1.99        | 0.93     |
| 17:Y:71:VAL:CG2  | 17:Y:93:THR:CG2   | 2.18        | 0.93     |
| 18:Z:103:ARG:HD3 | 18:Z:103:ARG:H    | 1.34        | 0.93     |
| 18:Z:141:MET:CA  | 18:Z:171:VAL:HG11 | 1.97        | 0.93     |
| 8:I:68:LEU:CB    | 8:I:72:LEU:HD11   | 1.96        | 0.93     |
| 22:2:2:VAL:H     | 22:2:4:HIS:HE1    | 0.96        | 0.93     |
| 25:4:7:PRO:CG    | 25:4:56:VAL:HG11  | 1.99        | 0.93     |
| 26:5:12:SER:HB3  | 26:5:15:LYS:HZ2   | 1.29        | 0.93     |
| 27:6:2:ALA:CB    | 27:6:11:LYS:NZ    | 2.31        | 0.93     |
| 2:A:2209:C:H2'   | 2:A:2210:G:H3'    | 0.93        | 0.93     |
| 2:A:2357:U:O2'   | 2:A:2358:G:C5'    | 2.16        | 0.93     |
| 2:A:2661:G:N3    | 2:A:2662:A:N7     | 2.17        | 0.93     |
| 5:F:225:PRO:O    | 5:F:231:ARG:HG3   | 1.68        | 0.93     |
| 9:N:88:PRO:HB2   | 9:N:90:LYS:N      | 1.84        | 0.93     |
| 18:Z:34:LEU:CD1  | 18:Z:39:PHE:HZ    | 1.81        | 0.93     |
| 22:2:8:ILE:O     | 22:2:11:MET:HG2   | 1.69        | 0.93     |
| 9:N:106:GLY:C    | 9:N:107:ASN:HD22  | 1.67        | 0.93     |
| 2:A:1907:G:H1    | 2:A:1923:U:H3     | 0.98        | 0.93     |
| 23:3:50:VAL:HB   | 23:3:53:LEU:HD12  | 1.49        | 0.93     |
| 27:6:12:MET:HE3  | 27:6:54:LYS:H     | 1.33        | 0.93     |
| 2:A:1665:A:C3'   | 10:O:66:LYS:CE    | 2.38        | 0.93     |
| 2:A:2431:U:H2'   | 2:A:2432:A:H3'    | 1.50        | 0.93     |
| 2:A:2455:G:H2'   | 2:A:2456:C:H5'    | 1.50        | 0.93     |
| 2:A:2623:G:N2    | 2:A:2624:G:C1'    | 2.31        | 0.93     |
| 2:A:2652:C:H2'   | 2:A:2653:U:H6     | 1.33        | 0.93     |
| 2:A:2689:U:H4'   | 2:A:2690:C:H5'    | 1.49        | 0.93     |
| 2:A:2804:C:C6    | 2:A:2805:G:N1     | 2.37        | 0.93     |
| 2:A:2881:C:H2'   | 2:A:2882:A:H8     | 1.33        | 0.93     |
| 2:A:2893:G:O3'   | 2:A:2894:G:C4'    | 2.16        | 0.93     |
| 2:A:872:A:O2'    | 12:Q:31:PHE:CB    | 2.17        | 0.93     |
| 4:E:218:GLY:O    | 4:E:219:VAL:HG23  | 1.68        | 0.93     |
| 8:I:5:PHE:HB3    | 8:I:17:GLU:O      | 1.69        | 0.93     |
| 9:N:78:ILE:O     | 9:N:82:THR:CG2    | 2.17        | 0.93     |
| 12:Q:41:THR:HG21 | 12:Q:126:VAL:CA   | 1.98        | 0.93     |
| 15:W:11:ARG:O    | 15:W:12:ILE:CG1   | 2.16        | 0.93     |
| 15:W:23:LEU:HD22 | 15:W:24:ILE:N     | 1.84        | 0.93     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:X:56:ASN:ND2  | 16:X:56:ASN:N    | 2.11        | 0.93     |
| 2:A:2555:U:H2'   | 2:A:2556:C:H5'   | 0.94        | 0.92     |
| 2:A:2628:C:O2    | 2:A:2781:A:O2'   | 1.86        | 0.92     |
| 2:A:2653:U:H3'   | 2:A:2654:A:H8    | 1.16        | 0.92     |
| 2:A:2734:A:N6    | 2:A:2735:G:C2    | 2.33        | 0.92     |
| 2:A:2842:G:O2'   | 2:A:2843:G:H5'   | 1.66        | 0.92     |
| 2:A:2852:G:N2    | 2:A:2853:C:O2    | 2.03        | 0.92     |
| 2:A:831:G:H3'    | 2:A:944:G:N2     | 1.84        | 0.92     |
| 3:D:143:ILE:HG12 | 3:D:153:LEU:HB3  | 1.51        | 0.92     |
| 4:E:222:ARG:H    | 4:E:222:ARG:HD2  | 1.33        | 0.92     |
| 4:E:233:ARG:C    | 4:E:234:ARG:HG3  | 1.87        | 0.92     |
| 4:E:45:LYS:NZ    | 4:E:302:GLY:C    | 2.20        | 0.92     |
| 4:E:67:THR:O     | 4:E:68:VAL:HG23  | 1.69        | 0.92     |
| 7:H:73:ASN:CG    | 7:H:137:LYS:HZ1  | 1.73        | 0.92     |
| 7:H:85:ALA:HA    | 7:H:131:ILE:HG21 | 0.95        | 0.92     |
| 7:H:91:VAL:HG12  | 7:H:91:VAL:O     | 1.67        | 0.92     |
| 10:O:79:PHE:HA   | 14:T:22:VAL:CG2  | 1.99        | 0.92     |
| 11:P:130:ARG:O   | 11:P:133:VAL:HB  | 1.69        | 0.92     |
| 19:R:38:VAL:HB   | 19:R:39:PRO:CD   | 1.93        | 0.92     |
| 21:V:40:VAL:CG1  | 21:V:51:ALA:O    | 2.16        | 0.92     |
| 17:Y:31:LEU:O    | 17:Y:32:ARG:O    | 1.86        | 0.92     |
| 17:Y:57:GLY:HA2  | 17:Y:97:ARG:HH22 | 1.30        | 0.92     |
| 18:Z:62:PHE:CD2  | 18:Z:87:THR:CG2  | 2.51        | 0.92     |
| 2:A:144:C:C5'    | 16:X:36:GLU:OE1  | 2.17        | 0.92     |
| 16:X:2:TRP:O     | 16:X:3:ASP:O     | 1.87        | 0.92     |
| 2:A:1525:G:C3'   | 2:A:1526:G:P     | 2.58        | 0.92     |
| 23:3:43:ILE:HD12 | 23:3:43:ILE:N    | 1.84        | 0.92     |
| 2:A:2400:G:O3'   | 27:6:20:PHE:CE1  | 2.21        | 0.92     |
| 27:6:16:ALA:O    | 27:6:48:VAL:HG11 | 1.68        | 0.92     |
| 2:A:2322:A:OP1   | 2:A:2322:A:O4'   | 1.87        | 0.92     |
| 2:A:2454:G:N2    | 2:A:2455:G:H1'   | 1.83        | 0.92     |
| 2:A:2597:G:C6    | 2:A:2598:A:N6    | 2.36        | 0.92     |
| 2:A:2638:G:O2'   | 2:A:2639:A:C8    | 2.21        | 0.92     |
| 2:A:85:G:OP2     | 17:Y:65:VAL:HB   | 1.68        | 0.92     |
| 8:I:13:GLY:HA2   | 8:I:15:LYS:NZ    | 1.84        | 0.92     |
| 13:S:81:ALA:HB3  | 13:S:117:ALA:HB1 | 1.49        | 0.92     |
| 2:A:1218:C:OP2   | 20:U:15:LYS:NZ   | 2.01        | 0.92     |
| 2:A:996:A:O3'    | 20:U:93:LYS:HG2  | 1.69        | 0.92     |
| 12:Q:94:ARG:NE   | 12:Q:106:GLY:HA3 | 1.84        | 0.92     |
| 28:7:34:ARG:O    | 28:7:35:ARG:O    | 1.85        | 0.92     |
| 28:7:18:PHE:H    | 28:7:44:VAL:HG21 | 1.17        | 0.92     |
| 28:7:8:ASN:HB2   | 28:7:11:LYS:CB   | 1.98        | 0.92     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2414:G:C2     | 2:A:2415:G:N7    | 2.37        | 0.92     |
| 2:A:2469:A:H61    | 2:A:2481:G:H1'   | 1.34        | 0.92     |
| 2:A:2737:G:H2'    | 2:A:2738:A:H8    | 1.33        | 0.92     |
| 2:A:2819:G:N3     | 2:A:2821:A:C8    | 2.36        | 0.92     |
| 3:D:74:PRO:HA     | 3:D:116:MET:CE   | 1.99        | 0.92     |
| 3:D:158:GLY:HA2   | 3:D:194:VAL:CB   | 1.97        | 0.92     |
| 3:D:106:PRO:HA    | 3:D:194:VAL:O    | 1.67        | 0.92     |
| 4:E:76:PRO:HB2    | 4:E:77:PRO:HD3   | 0.92        | 0.92     |
| 4:E:79:ARG:NH1    | 4:E:104:PHE:CA   | 2.32        | 0.92     |
| 7:H:14:VAL:HG12   | 7:H:14:VAL:O     | 1.67        | 0.92     |
| 10:O:10:VAL:HG13  | 10:O:12:ASP:OD1  | 1.70        | 0.92     |
| 11:P:114:VAL:C    | 11:P:115:ARG:HG3 | 1.90        | 0.92     |
| 20:U:69:ALA:HA    | 20:U:79:PHE:CZ   | 2.04        | 0.92     |
| 18:Z:69:VAL:HG12  | 18:Z:70:GLN:N    | 1.84        | 0.92     |
| 16:X:8:PRO:O      | 16:X:10:VAL:HG23 | 1.69        | 0.92     |
| 16:X:25:GLN:C     | 16:X:26:PHE:CD1  | 2.43        | 0.92     |
| 7:H:53:ARG:HH11   | 7:H:56:ASP:HA    | 0.78        | 0.92     |
| 24:O:37:LEU:HG    | 24:O:68:VAL:CG1  | 1.98        | 0.92     |
| 24:O:65:GLY:CA    | 24:O:66:LYS:HD2  | 2.00        | 0.92     |
| 23:3:40:THR:HG21  | 23:3:43:ILE:CG1  | 1.98        | 0.92     |
| 2:A:929:G:H21     | 23:3:43:ILE:N    | 1.66        | 0.92     |
| 26:5:45:ILE:N     | 26:5:52:TYR:CE1  | 2.37        | 0.92     |
| 30:9:4:ARG:CA     | 30:9:36:GLN:HA   | 2.00        | 0.92     |
| 2:A:2228:G:H5''   | 2:A:2228:G:H8    | 1.29        | 0.92     |
| 2:A:2373:G:C2     | 2:A:2374:C:C4    | 2.58        | 0.92     |
| 2:A:2410:G:H2'    | 2:A:2411:A:N7    | 1.83        | 0.92     |
| 2:A:2852:G:H1     | 2:A:2865:U:H3    | 0.96        | 0.92     |
| 4:E:206:LYS:O     | 4:E:208:LYS:N    | 2.02        | 0.92     |
| 2:A:2317:C:C5'    | 6:G:150:SER:CA   | 2.41        | 0.92     |
| 6:G:18:ILE:HG22   | 6:G:19:GLU:N     | 1.81        | 0.92     |
| 9:N:87:LEU:HB3    | 9:N:88:PRO:HD2   | 1.51        | 0.92     |
| 11:P:109:LEU:HD13 | 11:P:110:GLY:N   | 1.85        | 0.92     |
| 19:R:63:ARG:HH21  | 19:R:77:ARG:HG2  | 1.20        | 0.92     |
| 20:U:39:LEU:O     | 20:U:41:ASN:N    | 2.03        | 0.92     |
| 17:Y:30:ASP:O     | 17:Y:34:GLU:HG3  | 1.58        | 0.92     |
| 18:Z:67:LYS:CA    | 18:Z:67:LYS:HZ1  | 1.79        | 0.92     |
| 18:Z:71:MET:CG    | 18:Z:78:PRO:CD   | 1.89        | 0.92     |
| 18:Z:79:ILE:O     | 18:Z:80:HIS:ND1  | 2.02        | 0.92     |
| 8:I:132:LYS:HA    | 8:I:138:THR:CG2  | 1.99        | 0.92     |
| 2:A:414:C:N4      | 2:A:2409:G:H1    | 1.66        | 0.92     |
| 2:A:849:A:H2      | 23:3:21:ALA:CB   | 1.72        | 0.92     |
| 25:4:46:GLU:OE1   | 25:4:54:GLY:CA   | 2.15        | 0.92     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 28:7:30:ILE:CG1 | 28:7:33:ARG:CD   | 2.47        | 0.92     |
| 2:A:2207:C:N3   | 2:A:2218:G:N1    | 2.16        | 0.92     |
| 2:A:2393:A:H4'  | 29:8:13:ARG:NH2  | 1.84        | 0.92     |
| 2:A:2400:G:O3'  | 27:6:20:PHE:HZ   | 1.40        | 0.92     |
| 2:A:2552:U:C2   | 2:A:2554:U:C5'   | 2.53        | 0.92     |
| 2:A:2603:G:C6   | 2:A:2604:U:C5    | 2.58        | 0.92     |
| 5:F:163:HIS:CB  | 5:F:166:ILE:HD12 | 1.98        | 0.92     |
| 2:A:2314:C:O2'  | 6:G:133:ASN:ND2  | 2.02        | 0.92     |
| 6:G:14:ARG:HA   | 6:G:137:PRO:CD   | 1.99        | 0.92     |
| 7:H:96:SER:HA   | 7:H:124:VAL:HG21 | 1.50        | 0.92     |
| 2:A:2748:A:C2'  | 7:H:62:ALA:HB1   | 1.99        | 0.92     |
| 12:Q:67:ALA:CB  | 12:Q:70:ARG:CZ   | 2.36        | 0.92     |
| 20:U:28:ARG:H   | 20:U:31:GLN:CD   | 1.69        | 0.92     |
| 20:U:44:THR:HA  | 20:U:47:TYR:HD1  | 1.34        | 0.92     |
| 17:Y:35:TYR:HH  | 17:Y:113:GLU:HG3 | 1.15        | 0.92     |
| 17:Y:78:THR:C   | 17:Y:89:ARG:CG   | 2.34        | 0.92     |
| 2:A:1614:A:N7   | 15:W:88:ARG:HD2  | 1.85        | 0.92     |
| 28:7:22:MET:O   | 28:7:24:THR:N    | 2.03        | 0.92     |
| 29:8:16:ILE:CB  | 29:8:22:VAL:HG22 | 1.99        | 0.92     |
| 2:A:2445:G:H2'  | 2:A:2446:G:H5'   | 1.51        | 0.92     |
| 2:A:2468:G:O2'  | 2:A:2469:A:H8    | 1.51        | 0.92     |
| 2:A:2060:A:O2'  | 2:A:2502:G:C5'   | 2.18        | 0.92     |
| 2:A:2606:C:H6   | 2:A:2606:C:H5''  | 1.34        | 0.92     |
| 2:A:2631:G:C6   | 2:A:2632:A:C8    | 2.57        | 0.92     |
| 2:A:2674:G:H4'  | 10:O:30:ARG:HG3  | 1.51        | 0.92     |
| 2:A:2717:G:C8   | 2:A:2717:G:C5'   | 2.43        | 0.92     |
| 2:A:2759:G:C2'  | 2:A:2760:C:O5'   | 2.17        | 0.92     |
| 2:A:2790:A:C5'  | 2:A:2791:C:OP1   | 2.17        | 0.92     |
| 2:A:2825:C:H2'  | 2:A:2826:A:O4'   | 1.70        | 0.92     |
| 2:A:2862:G:H2'  | 2:A:2863:C:C6    | 2.03        | 0.92     |
| 2:A:1820:U:O2   | 3:D:200:THR:HG22 | 1.70        | 0.92     |
| 6:G:49:PRO:HD3  | 6:G:73:VAL:HG22  | 1.51        | 0.92     |
| 2:A:1140:C:OP1  | 9:N:18:ILE:HD11  | 1.67        | 0.92     |
| 11:P:68:GLU:O   | 11:P:71:GLU:CG   | 2.17        | 0.92     |
| 20:U:76:TYR:O   | 20:U:80:ILE:CG1  | 2.18        | 0.92     |
| 2:A:1151:G:H4'  | 20:U:81:ASN:OD1  | 1.67        | 0.92     |
| 21:V:74:TYR:CE1 | 21:V:87:ARG:C    | 2.42        | 0.92     |
| 21:V:60:VAL:C   | 21:V:98:ILE:HB   | 1.90        | 0.92     |
| 16:X:18:MET:HE1 | 16:X:25:GLN:HB2  | 1.49        | 0.92     |
| 16:X:47:VAL:HB  | 16:X:69:SER:HB2  | 1.50        | 0.92     |
| 26:5:51:TYR:O   | 26:5:52:TYR:HB2  | 1.67        | 0.92     |
| 2:A:1151:G:O3'  | 20:U:81:ASN:OD1  | 1.86        | 0.92     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2216:G:C2'   | 2:A:2217:G:C5'    | 2.45        | 0.92     |
| 2:A:2333:A:C8    | 2:A:2335:A:H2     | 1.81        | 0.92     |
| 2:A:2488:A:O2'   | 2:A:2489:G:H5'    | 1.70        | 0.92     |
| 2:A:2546:U:C4'   | 2:A:2565:A:H2     | 1.79        | 0.92     |
| 2:A:2619:C:O2'   | 2:A:2620:C:H5'    | 1.70        | 0.92     |
| 3:D:175:LEU:CG   | 3:D:180:VAL:CA    | 2.46        | 0.92     |
| 4:E:200:ASP:HA   | 4:E:266:LYS:CD    | 2.00        | 0.92     |
| 5:F:147:LEU:HD12 | 5:F:156:LEU:HD11  | 0.93        | 0.92     |
| 5:F:32:GLY:CA    | 5:F:35:VAL:HG23   | 1.98        | 0.92     |
| 7:H:74:MET:O     | 7:H:78:VAL:HG23   | 1.68        | 0.92     |
| 8:I:13:GLY:C     | 8:I:15:LYS:HD2    | 1.90        | 0.92     |
| 9:N:13:ASP:HA    | 9:N:38:VAL:HG12   | 0.92        | 0.92     |
| 9:N:45:VAL:C     | 9:N:46:ILE:CG1    | 2.36        | 0.92     |
| 2:A:557:U:H5'    | 9:N:92:GLN:NE2    | 1.83        | 0.92     |
| 11:P:67:ARG:CZ   | 11:P:111:ALA:O    | 2.16        | 0.92     |
| 12:Q:76:GLY:CA   | 12:Q:132:VAL:HG11 | 2.00        | 0.92     |
| 18:Z:149:ALA:HB3 | 18:Z:165:GLU:N    | 1.82        | 0.92     |
| 22:2:59:ILE:HG12 | 22:2:60:GLN:N     | 1.84        | 0.92     |
| 18:Z:96:VAL:HG12 | 18:Z:97:PRO:HD2   | 1.52        | 0.92     |
| 2:A:227:A:N1     | 2:A:2407:G:H1'    | 1.85        | 0.92     |
| 7:H:108:TYR:O    | 7:H:109:SER:HB3   | 1.68        | 0.92     |
| 28:7:30:ILE:CD1  | 28:7:33:ARG:NH1   | 1.72        | 0.92     |
| 2:A:574:C:H41    | 2:A:2054:A:C5'    | 1.83        | 0.92     |
| 2:A:2334:G:N2    | 13:S:12:ARG:HG3   | 1.83        | 0.92     |
| 2:A:2393:A:H4'   | 29:8:13:ARG:HH21  | 1.34        | 0.92     |
| 2:A:2474:C:H41   | 2:A:2529:G:N2     | 1.68        | 0.92     |
| 2:A:14:A:C2      | 2:A:2625:G:O2'    | 2.21        | 0.92     |
| 2:A:2711:A:OP2   | 2:A:2714:G:P      | 2.28        | 0.92     |
| 3:D:129:LEU:HD23 | 3:D:130:PRO:HD3   | 1.48        | 0.92     |
| 3:D:70:LYS:HG3   | 3:D:73:ILE:HD13   | 1.48        | 0.92     |
| 4:E:190:ASN:O    | 4:E:192:ILE:CA    | 2.18        | 0.92     |
| 6:G:19:GLU:CD    | 6:G:135:VAL:HG22  | 1.89        | 0.92     |
| 7:H:102:LEU:CD2  | 7:H:114:ILE:O     | 2.17        | 0.92     |
| 8:I:7:LYS:HG3    | 8:I:12:LYS:HG2    | 1.00        | 0.92     |
| 13:S:81:ALA:HB1  | 13:S:118:ILE:N    | 1.85        | 0.92     |
| 20:U:72:HIS:CE1  | 20:U:110:VAL:HG21 | 2.04        | 0.92     |
| 15:W:71:VAL:HG12 | 15:W:106:ILE:O    | 1.68        | 0.92     |
| 18:Z:26:LYS:O    | 18:Z:27:GLU:HG3   | 1.67        | 0.92     |
| 8:I:145:VAL:O    | 8:I:146:THR:HG22  | 1.69        | 0.92     |
| 8:I:68:LEU:HD21  | 8:I:108:LEU:HD11  | 1.49        | 0.92     |
| 4:E:107:GLU:O    | 4:E:110:ARG:HG3   | 1.70        | 0.92     |
| 2:A:1140:C:H1'   | 2:A:142(A):A:N1   | 1.83        | 0.92     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1142:U:O3'   | 2:A:142(A):A:P   | 2.28        | 0.92     |
| 2:A:126:A:OP1    | 28:7:44:VAL:CG1  | 2.18        | 0.92     |
| 2:A:2212:A:C2'   | 2:A:2213:U:H5    | 1.62        | 0.92     |
| 2:A:2384:G:H5''  | 2:A:2386:C:P     | 2.09        | 0.92     |
| 2:A:2552:U:N3    | 2:A:2554:U:H5'   | 1.84        | 0.92     |
| 2:A:2617:C:C2'   | 2:A:2618:G:C5'   | 2.37        | 0.92     |
| 2:A:2826:A:C6    | 2:A:2827:C:H6    | 1.68        | 0.92     |
| 2:A:337:C:H3'    | 2:A:338:G:C5'    | 1.98        | 0.92     |
| 2:A:675:A:OP1    | 5:F:69:HIS:O     | 1.86        | 0.92     |
| 4:E:45:LYS:NZ    | 4:E:303:PRO:C    | 2.23        | 0.92     |
| 4:E:99:VAL:O     | 4:E:100:TRP:CD2  | 2.22        | 0.92     |
| 5:F:24:THR:CB    | 5:F:25:PRO:CD    | 2.46        | 0.92     |
| 6:G:29:HIS:CE1   | 6:G:64:ARG:HH12  | 1.85        | 0.92     |
| 1:B:45:A:H1'     | 6:G:76:ARG:HH12  | 1.30        | 0.92     |
| 9:N:19:MET:CG    | 9:N:46:ILE:CD1   | 2.47        | 0.92     |
| 2:A:1140:C:N4    | 9:N:49:ARG:CZ    | 2.33        | 0.92     |
| 2:A:2275:C:O2    | 12:Q:103:ALA:HB3 | 1.69        | 0.92     |
| 12:Q:91:HIS:N    | 12:Q:111:THR:CG2 | 2.33        | 0.92     |
| 20:U:13:ARG:HH12 | 20:U:13:ARG:HB2  | 1.27        | 0.92     |
| 15:W:8:ARG:O     | 15:W:10:VAL:CG2  | 2.18        | 0.92     |
| 2:A:338:G:H5'    | 17:Y:24:ARG:NH1  | 1.84        | 0.92     |
| 2:A:1339:G:H5'   | 16:X:13:LYS:CE   | 2.00        | 0.92     |
| 16:X:24:LEU:HB3  | 16:X:26:PHE:CZ   | 2.01        | 0.92     |
| 2:A:2833:G:OP1   | 2:A:2833:G:H8    | 1.51        | 0.92     |
| 28:7:43:THR:CA   | 28:7:46:ASP:OD1  | 2.17        | 0.92     |
| 30:9:11:CYS:SG   | 30:9:14:CYS:N    | 2.39        | 0.92     |
| 2:A:14:A:N7      | 2:A:15:G:C4      | 2.37        | 0.92     |
| 2:A:2354:G:C1'   | 24:0:32:LYS:HG2  | 1.98        | 0.92     |
| 2:A:2356:C:P     | 24:0:21:LEU:HD11 | 2.09        | 0.92     |
| 2:A:2436:G:C6    | 2:A:2437:U:C4    | 2.56        | 0.92     |
| 2:A:2515:C:N4    | 2:A:2569:G:N1    | 1.82        | 0.92     |
| 3:D:145:LEU:N    | 3:D:152:GLN:CB   | 2.23        | 0.92     |
| 4:E:70:VAL:HG11  | 4:E:296:VAL:CA   | 1.90        | 0.92     |
| 2:A:2636:U:H4'   | 4:E:84:ARG:HH22  | 0.78        | 0.92     |
| 2:A:2306:C:H42   | 6:G:53:LYS:NZ    | 1.65        | 0.92     |
| 7:H:86:LEU:N     | 7:H:131:ILE:HG22 | 1.82        | 0.92     |
| 9:N:136:SER:O    | 9:N:137:GLU:C    | 2.08        | 0.92     |
| 10:O:112:MET:O   | 10:O:115:ILE:N   | 2.03        | 0.92     |
| 10:O:35:ILE:CD1  | 10:O:65:THR:HG22 | 1.99        | 0.92     |
| 17:Y:79:LEU:CD1  | 17:Y:80:GLU:H    | 1.82        | 0.92     |
| 17:Y:55:PHE:HZ   | 17:Y:89:ARG:CZ   | 1.81        | 0.92     |
| 2:A:1566:A:C6    | 3:D:212:HIS:CE1  | 2.57        | 0.92     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2317:C:C5    | 2:A:2318:G:O6     | 2.23        | 0.91     |
| 2:A:2350:C:H2'   | 2:A:2351:G:C8     | 2.04        | 0.91     |
| 2:A:2424:C:O2    | 2:A:2424:C:H2'    | 1.68        | 0.91     |
| 2:A:2584:U:H6    | 2:A:2585:U:C6     | 1.84        | 0.91     |
| 2:A:2051:A:N1    | 2:A:2618:G:O6     | 2.02        | 0.91     |
| 2:A:2754:U:H2'   | 2:A:2756:U:P      | 2.09        | 0.91     |
| 2:A:910:A:H3'    | 12:Q:17:ARG:HH21  | 1.34        | 0.91     |
| 4:E:79:ARG:O     | 4:E:187:HIS:HE1   | 1.37        | 0.91     |
| 4:E:45:LYS:CE    | 4:E:303:PRO:O     | 2.17        | 0.91     |
| 5:F:115:LEU:CG   | 5:F:246:ARG:NH2   | 2.28        | 0.91     |
| 6:G:14:ARG:HA    | 6:G:137:PRO:HG3   | 1.49        | 0.91     |
| 7:H:95:ALA:O     | 7:H:127:GLN:HA    | 1.70        | 0.91     |
| 9:N:80:LYS:O     | 9:N:81:ARG:O      | 1.88        | 0.91     |
| 10:O:98:ILE:CG2  | 10:O:99:PHE:H     | 1.83        | 0.91     |
| 11:P:116:HIS:HD2 | 11:P:118:LEU:HD11 | 1.29        | 0.91     |
| 13:S:36:ALA:HA   | 13:S:45:ALA:HB2   | 1.52        | 0.91     |
| 2:A:535:C:C5'    | 20:U:53:LYS:HE2   | 2.00        | 0.91     |
| 15:W:90:ARG:CB   | 15:W:90:ARG:CZ    | 2.45        | 0.91     |
| 2:A:1364:G:C4'   | 25:4:3:LYS:HD3    | 2.00        | 0.91     |
| 25:4:41:PRO:HB2  | 25:4:57:ASP:HB3   | 1.48        | 0.91     |
| 2:A:2319:G:C4'   | 13:S:9:PRO:N      | 2.32        | 0.91     |
| 2:A:248:G:H21    | 2:A:2431:U:C4'    | 1.83        | 0.91     |
| 2:A:2431:U:O2    | 2:A:2433:A:OP2    | 1.87        | 0.91     |
| 2:A:2463:C:N3    | 2:A:2464:C:H5     | 1.68        | 0.91     |
| 2:A:2494:G:N1    | 2:A:2495:G:C5     | 2.39        | 0.91     |
| 2:A:2546:U:O4'   | 2:A:2565:A:H2     | 1.52        | 0.91     |
| 2:A:2698:U:H2'   | 2:A:2699:C:H6     | 1.30        | 0.91     |
| 2:A:2740:A:N1    | 2:A:2764:A:N3     | 2.18        | 0.91     |
| 2:A:2854:G:C2    | 2:A:2864:G:C5     | 2.58        | 0.91     |
| 3:D:135:PRO:CG   | 3:D:138:THR:CG2   | 2.29        | 0.91     |
| 4:E:45:LYS:CE    | 4:E:303:PRO:CG    | 2.34        | 0.91     |
| 5:F:111:VAL:HA   | 5:F:220:THR:HG22  | 1.51        | 0.91     |
| 10:O:78:ARG:C    | 10:O:79:PHE:CD2   | 2.43        | 0.91     |
| 11:P:132:LYS:O   | 11:P:135:GLY:N    | 2.03        | 0.91     |
| 11:P:52:LYS:HD3  | 11:P:53:ARG:HH11  | 1.16        | 0.91     |
| 12:Q:50:VAL:HG12 | 12:Q:52:LYS:H     | 1.34        | 0.91     |
| 12:Q:57:ARG:O    | 12:Q:61:LEU:CG    | 2.17        | 0.91     |
| 21:V:11:GLN:CD   | 21:V:22:VAL:HG23  | 1.89        | 0.91     |
| 8:I:145:VAL:CG1  | 8:I:146:THR:H     | 1.76        | 0.91     |
| 6:G:88:LEU:O     | 6:G:88:LEU:CD2    | 2.16        | 0.91     |
| 23:3:39:ASP:HA   | 23:3:44:ARG:HH21  | 1.34        | 0.91     |
| 23:3:9:VAL:HG22  | 23:3:54:VAL:HA    | 1.50        | 0.91     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2255:G:N2     | 2:A:2256:G:H1'    | 1.85        | 0.91     |
| 2:A:2320:A:C2     | 13:S:13:ARG:HG3   | 2.03        | 0.91     |
| 2:A:2712:U:C5     | 2:A:712(A):A:H8   | 1.66        | 0.91     |
| 6:G:53:LYS:HG2    | 6:G:54:ALA:H      | 1.28        | 0.91     |
| 7:H:127:GLN:O     | 7:H:130:ILE:HD11  | 1.70        | 0.91     |
| 9:N:94:GLY:O      | 9:N:97:ALA:HB3    | 1.70        | 0.91     |
| 12:Q:143:VAL:HG23 | 12:Q:144:THR:H    | 1.35        | 0.91     |
| 12:Q:33:MET:HB3   | 12:Q:83:PHE:CB    | 1.99        | 0.91     |
| 12:Q:42:TYR:O     | 12:Q:125:TRP:CH2  | 2.23        | 0.91     |
| 12:Q:85:ILE:HB    | 12:Q:122:PHE:CD2  | 2.05        | 0.91     |
| 13:S:23:ARG:O     | 13:S:33:ARG:NH1   | 2.02        | 0.91     |
| 20:U:40:LEU:CD2   | 20:U:40:LEU:H     | 1.83        | 0.91     |
| 20:U:7:GLY:CA     | 20:U:8:ILE:HD12   | 2.00        | 0.91     |
| 18:Z:78:PRO:O     | 18:Z:79:ILE:CG1   | 2.19        | 0.91     |
| 22:2:4:HIS:O      | 22:2:8:ILE:HD12   | 1.69        | 0.91     |
| 2:A:1603:A:H2'    | 2:A:1604:C:H6     | 1.30        | 0.91     |
| 8:I:59:ALA:O      | 8:I:62:LEU:HB2    | 1.69        | 0.91     |
| 27:6:29:ARG:HG2   | 27:6:30:ASN:H     | 1.33        | 0.91     |
| 28:7:43:THR:CA    | 28:7:46:ASP:OD2   | 2.17        | 0.91     |
| 2:A:2258:C:N4     | 2:A:2426:A:O4'    | 2.03        | 0.91     |
| 2:A:2309:A:C3'    | 2:A:2310:A:H5'    | 2.01        | 0.91     |
| 2:A:2414:G:C2     | 2:A:2415:G:C8     | 2.58        | 0.91     |
| 2:A:2620:C:O2'    | 2:A:2621:A:H5''   | 1.71        | 0.91     |
| 2:A:2737:G:N3     | 2:A:2738:A:C8     | 2.38        | 0.91     |
| 5:F:33:LYS:CA     | 5:F:36:ARG:HG3    | 2.00        | 0.91     |
| 12:Q:129:ASP:OD1  | 12:Q:132:VAL:HG23 | 1.70        | 0.91     |
| 12:Q:89:PRO:C     | 12:Q:90:PHE:HD1   | 1.68        | 0.91     |
| 20:U:25:TRP:O     | 20:U:28:ARG:NH1   | 2.03        | 0.91     |
| 20:U:57:PHE:HA    | 20:U:60:LEU:HG    | 1.50        | 0.91     |
| 2:A:1162:G:O2'    | 21:V:23:GLU:CD    | 2.08        | 0.91     |
| 18:Z:103:ARG:HG2  | 18:Z:139:THR:CG2  | 1.99        | 0.91     |
| 18:Z:46:GLN:HB2   | 18:Z:49:THR:OG1   | 1.68        | 0.91     |
| 2:A:95:G:C5'      | 22:2:41:GLU:OE1   | 2.18        | 0.91     |
| 2:A:1698:A:O2'    | 2:A:1699:G:H3'    | 1.70        | 0.91     |
| 2:A:1924:C:C2     | 2:A:1925:C:C6     | 2.58        | 0.91     |
| 14:T:44:ARG:HG3   | 14:T:45:GLU:H     | 1.34        | 0.91     |
| 15:W:21:VAL:HG23  | 15:W:22:ASP:H     | 1.36        | 0.91     |
| 2:A:1952:A:H1'    | 2:A:2560:C:O2'    | 1.71        | 0.91     |
| 2:A:2185:C:C2     | 2:A:2186:G:C8     | 2.59        | 0.91     |
| 2:A:2226:C:N3     | 2:A:2227:A:H1'    | 1.84        | 0.91     |
| 2:A:2290:G:C6     | 2:A:2291:U:N3     | 2.38        | 0.91     |
| 2:A:2311:A:OP2    | 2:A:2311:A:O4'    | 1.88        | 0.91     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2341:G:C5     | 2:A:2342:C:C4    | 2.59        | 0.91     |
| 2:A:2468:G:N2     | 2:A:2481:G:H2'   | 1.83        | 0.91     |
| 2:A:2473:U:H2'    | 2:A:2473:U:O2    | 1.67        | 0.91     |
| 2:A:2579:C:C4'    | 2:A:2579:C:H6    | 1.84        | 0.91     |
| 2:A:2641:G:C6     | 2:A:2774:C:C4    | 2.58        | 0.91     |
| 2:A:2657:A:C6     | 2:A:2665:A:N7    | 2.38        | 0.91     |
| 2:A:2887:U:C2     | 2:A:2888:C:C5    | 2.58        | 0.91     |
| 2:A:998:C:H5''    | 20:U:84:LYS:HZ1  | 1.28        | 0.91     |
| 3:D:89:ASN:HD21   | 3:D:199:ARG:HE   | 1.04        | 0.91     |
| 2:A:1568:G:OP2    | 3:D:60:GLN:HB2   | 1.06        | 0.91     |
| 4:E:180:ILE:HB    | 4:E:187:HIS:HB3  | 1.50        | 0.91     |
| 4:E:199:ALA:HB1   | 4:E:312:ARG:O    | 1.68        | 0.91     |
| 7:H:121:GLU:OE1   | 7:H:121:GLU:N    | 2.03        | 0.91     |
| 7:H:7:PRO:HD3     | 7:H:68:ARG:HD3   | 1.51        | 0.91     |
| 2:A:2406:U:C4     | 11:P:55:GLN:CB   | 2.47        | 0.91     |
| 12:Q:49:VAL:HA    | 12:Q:121:ASP:HB2 | 1.52        | 0.91     |
| 12:Q:12:PRO:HB2   | 12:Q:20:ILE:CD1  | 2.00        | 0.91     |
| 21:V:57:GLN:CG    | 21:V:58:ALA:H    | 1.82        | 0.91     |
| 17:Y:87:VAL:HG13  | 17:Y:88:PRO:CD   | 1.97        | 0.91     |
| 16:X:14:ALA:N     | 16:X:17:ASP:OD2  | 2.02        | 0.91     |
| 16:X:24:LEU:HB2   | 16:X:26:PHE:CZ   | 2.03        | 0.91     |
| 2:A:1614:A:H61    | 15:W:88:ARG:HB2  | 1.13        | 0.91     |
| 2:A:6:A:C5'       | 9:N:4:ALA:N      | 2.31        | 0.91     |
| 26:5:33:CYS:CB    | 26:5:37:HIS:N    | 2.33        | 0.91     |
| 24:0:38:VAL:C     | 24:0:40:GLN:HG3  | 1.91        | 0.91     |
| 23:3:8:LEU:HD22   | 23:3:31:LEU:C    | 1.91        | 0.91     |
| 2:A:826:U:H5''    | 2:A:2429:G:OP2   | 1.69        | 0.91     |
| 2:A:2528:U:O4     | 2:A:2530:A:N3    | 2.03        | 0.91     |
| 2:A:2589:A:C5     | 2:A:2590:A:N7    | 2.39        | 0.91     |
| 3:D:135:PRO:HG3   | 3:D:138:THR:HG21 | 1.48        | 0.91     |
| 4:E:45:LYS:NZ     | 4:E:303:PRO:CD   | 2.30        | 0.91     |
| 9:N:27:ALA:O      | 9:N:29:GLN:N     | 1.95        | 0.91     |
| 12:Q:42:TYR:C     | 12:Q:125:TRP:HH2 | 1.74        | 0.91     |
| 19:R:107:ASP:CG   | 19:R:109:ALA:H   | 1.73        | 0.91     |
| 2:A:2850:A:C2     | 19:R:61:HIS:NE2  | 2.39        | 0.91     |
| 21:V:66:GLY:C     | 21:V:67:LYS:N    | 2.24        | 0.91     |
| 15:W:75:TYR:CD1   | 15:W:104:THR:OG1 | 2.22        | 0.91     |
| 17:Y:103:LEU:HD22 | 17:Y:112:LEU:CD2 | 2.00        | 0.91     |
| 8:I:132:LYS:HA    | 8:I:138:THR:HG21 | 1.50        | 0.91     |
| 2:A:1566:A:H2     | 3:D:212:HIS:HA   | 1.17        | 0.91     |
| 2:A:1598:C:C5'    | 16:X:34:LYS:HG3  | 1.98        | 0.91     |
| 25:4:13:LYS:O     | 25:4:14:ILE:HB   | 1.67        | 0.91     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2021:C:OP2   | 26:5:15:LYS:HE2  | 1.71        | 0.91     |
| 2:A:2468:G:O2'   | 2:A:2469:A:C5'   | 2.18        | 0.91     |
| 2:A:2570:G:C2    | 2:A:2571:C:C5    | 2.59        | 0.91     |
| 2:A:2678:C:N3    | 2:A:2679:A:N7    | 2.19        | 0.91     |
| 2:A:2729:G:C2    | 2:A:2730:C:C2    | 2.58        | 0.91     |
| 2:A:2810:A:N7    | 2:A:2811:G:N9    | 2.18        | 0.91     |
| 3:D:133:ASN:O    | 3:D:134:ILE:HG13 | 1.68        | 0.91     |
| 5:F:163:HIS:CB   | 5:F:166:ILE:CD1  | 2.48        | 0.91     |
| 5:F:52:ALA:HA    | 5:F:55:ARG:CB    | 1.99        | 0.91     |
| 7:H:82:TYR:CZ    | 7:H:137:LYS:CG   | 2.54        | 0.91     |
| 7:H:140:VAL:O    | 7:H:143:LEU:HD23 | 1.70        | 0.91     |
| 7:H:36:PHE:CD2   | 7:H:70:LEU:HD11  | 2.04        | 0.91     |
| 8:I:7:LYS:CG     | 8:I:12:LYS:HD3   | 1.95        | 0.91     |
| 11:P:65:ASP:HB3  | 11:P:109:LEU:HB3 | 0.94        | 0.91     |
| 2:A:2277:G:O3'   | 12:Q:15:THR:HG21 | 1.29        | 0.91     |
| 19:R:19:ALA:O    | 19:R:22:ARG:CB   | 2.17        | 0.91     |
| 2:A:2320:A:N6    | 13:S:14:ARG:HA   | 1.86        | 0.91     |
| 13:S:27:LEU:CA   | 13:S:33:ARG:NH2  | 2.33        | 0.91     |
| 18:Z:100:THR:CG2 | 18:Z:137:ASP:OD1 | 2.17        | 0.91     |
| 16:X:4:VAL:CG2   | 22:2:24:LYS:HZ1  | 1.56        | 0.91     |
| 2:A:2:G:N1       | 2:A:2902:C:N3    | 2.19        | 0.91     |
| 29:8:23:MET:CA   | 29:8:23:MET:CE   | 2.49        | 0.91     |
| 29:8:26:LYS:HZ2  | 29:8:44:LYS:H    | 1.11        | 0.91     |
| 30:9:15:LYS:N    | 30:9:26:ILE:O    | 2.01        | 0.91     |
| 2:A:2391:G:C2'   | 2:A:2392:A:OP2   | 2.17        | 0.91     |
| 2:A:2432:A:N1    | 2:A:2433:A:N1    | 2.19        | 0.91     |
| 2:A:2434:A:O2'   | 2:A:2435:A:O5'   | 1.87        | 0.91     |
| 2:A:248:G:N2     | 2:A:2431:U:C4'   | 2.34        | 0.91     |
| 2:A:2680:C:H5'   | 4:E:302:GLY:H    | 1.34        | 0.91     |
| 2:A:2880:C:H1'   | 19:R:91:GLN:O    | 1.70        | 0.91     |
| 2:A:673:C:C1'    | 5:F:82:GLN:OE1   | 2.18        | 0.91     |
| 2:A:2218:G:HO2'  | 3:D:146:LYS:HE3  | 1.14        | 0.91     |
| 3:D:131:LEU:HD12 | 3:D:184:LEU:O    | 1.71        | 0.91     |
| 4:E:222:ARG:HG3  | 4:E:222:ARG:NH1  | 1.77        | 0.91     |
| 6:G:105:SER:HB3  | 6:G:131:THR:HG22 | 1.53        | 0.91     |
| 19:R:79:LEU:HD22 | 19:R:79:LEU:C    | 1.82        | 0.91     |
| 20:U:65:ILE:HD13 | 20:U:96:ALA:CB   | 1.98        | 0.91     |
| 2:A:974:G:C3'    | 21:V:82:ARG:NH2  | 2.33        | 0.91     |
| 2:A:176:G:O3'    | 2:A:177:G:OP2    | 1.88        | 0.91     |
| 25:4:15:ILE:N    | 25:4:15:ILE:CD1  | 2.32        | 0.91     |
| 27:6:5:GLY:C     | 27:6:7:ARG:H     | 1.74        | 0.91     |
| 2:A:2346:A:O2'   | 2:A:2347:C:OP1   | 1.87        | 0.91     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2380:C:H2'   | 2:A:2381:C:H5'    | 1.53        | 0.91     |
| 2:A:2380:C:H2'   | 2:A:2381:C:H5''   | 1.49        | 0.91     |
| 2:A:2454:G:C5    | 2:A:2455:G:C8     | 2.58        | 0.91     |
| 2:A:2460:U:N3    | 2:A:2492:U:O4     | 2.03        | 0.91     |
| 2:A:2493:U:O2    | 2:A:2493:U:H2'    | 1.71        | 0.91     |
| 2:A:2558:C:O2    | 2:A:2559:C:C5     | 2.24        | 0.91     |
| 2:A:2603:G:C4    | 2:A:2604:U:C6     | 2.59        | 0.91     |
| 2:A:2821:A:C2'   | 2:A:2822:G:O4'    | 2.19        | 0.91     |
| 2:A:387:U:H3'    | 25:4:23:GLU:OE2   | 1.68        | 0.91     |
| 4:E:267:ARG:HD3  | 4:E:297:LYS:CD    | 2.01        | 0.91     |
| 4:E:267:ARG:HG3  | 4:E:297:LYS:HB2   | 1.51        | 0.91     |
| 5:F:60:SER:HB3   | 5:F:69:HIS:HB3    | 1.51        | 0.91     |
| 19:R:36:THR:HG22 | 19:R:40:LYS:CB    | 1.96        | 0.91     |
| 19:R:85:PRO:C    | 19:R:87:TYR:H     | 1.74        | 0.91     |
| 21:V:39:PHE:O    | 21:V:40:VAL:HG22  | 0.73        | 0.91     |
| 15:W:8:ARG:CG    | 15:W:102:HIS:CE1  | 2.54        | 0.91     |
| 2:A:71:A:O2'     | 16:X:2:TRP:CZ2    | 2.24        | 0.91     |
| 28:7:41:GLN:O    | 28:7:42:LEU:CG    | 2.18        | 0.91     |
| 28:7:34:ARG:HH11 | 28:7:42:LEU:HA    | 1.18        | 0.91     |
| 2:A:1278:A:OP1   | 19:R:36:THR:OG1   | 1.87        | 0.91     |
| 2:A:1457:A:C2    | 2:A:2703:C:N4     | 2.39        | 0.91     |
| 2:A:2246:G:HO2'  | 2:A:2247:A:H5'    | 1.22        | 0.91     |
| 2:A:2567:G:C4    | 2:A:2568:C:H5     | 1.88        | 0.91     |
| 2:A:2825:C:H5    | 2:A:2825:C:OP2    | 1.53        | 0.91     |
| 2:A:2826:A:N1    | 2:A:2827:C:C6     | 2.39        | 0.91     |
| 2:A:342:G:H2'    | 2:A:343:C:C6      | 2.05        | 0.91     |
| 3:D:130:PRO:HA   | 3:D:188:ARG:HA    | 1.51        | 0.91     |
| 4:E:87:GLU:O     | 4:E:94:ARG:N      | 2.01        | 0.91     |
| 5:F:215:ALA:C    | 5:F:242:GLU:HG3   | 1.92        | 0.91     |
| 7:H:101:LYS:HE2  | 7:H:115:GLU:HB2   | 1.53        | 0.91     |
| 9:N:15:ARG:HD3   | 9:N:43:ARG:HD2    | 0.93        | 0.91     |
| 9:N:47:THR:OG1   | 9:N:53:ILE:HD11   | 1.70        | 0.91     |
| 9:N:65:ASN:H     | 9:N:69:TYR:HB2    | 1.35        | 0.91     |
| 9:N:74:ARG:HB3   | 9:N:76:ASP:OD2    | 1.71        | 0.91     |
| 12:Q:140:TYR:CD1 | 12:Q:147:VAL:HG13 | 2.02        | 0.91     |
| 19:R:44:LEU:HD13 | 19:R:44:LEU:O     | 1.70        | 0.91     |
| 21:V:4:ILE:CG1   | 21:V:13:ARG:HA    | 2.00        | 0.91     |
| 2:A:135:G:H1     | 2:A:144:C:H42     | 1.17        | 0.91     |
| 2:A:75:G:H4'     | 22:2:51:LYS:HZ1   | 1.36        | 0.91     |
| 12:Q:94:ARG:NE   | 12:Q:106:GLY:CA   | 2.34        | 0.91     |
| 24:0:33:ALA:HB3  | 24:0:66:LYS:H     | 1.35        | 0.90     |
| 25:4:20:VAL:HG12 | 25:4:30:GLU:OE1   | 1.69        | 0.90     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1029:A:O3'   | 2:A:1030:G:OP1    | 1.89        | 0.90     |
| 2:A:2290:G:N2    | 2:A:2343:C:H1'    | 1.86        | 0.90     |
| 2:A:2428:G:C5'   | 2:A:2429:G:OP1    | 2.18        | 0.90     |
| 2:A:2494:G:N3    | 2:A:2495:G:C8     | 2.38        | 0.90     |
| 2:A:2051:A:C2    | 2:A:2618:G:C6     | 2.59        | 0.90     |
| 2:A:911:A:N9     | 12:Q:16:ARG:HD2   | 1.86        | 0.90     |
| 1:B:76:G:H4'     | 18:Z:80:HIS:HB3   | 1.50        | 0.90     |
| 11:P:94:ARG:CG   | 11:P:120:LEU:CD2  | 2.27        | 0.90     |
| 12:Q:87:LYS:C    | 12:Q:88:PHE:CD2   | 2.44        | 0.90     |
| 19:R:37:THR:O    | 19:R:38:VAL:O     | 1.89        | 0.90     |
| 20:U:27:SER:O    | 20:U:29:SER:CA    | 2.19        | 0.90     |
| 20:U:91:ASN:C    | 20:U:95:LEU:HD11  | 1.92        | 0.90     |
| 17:Y:90:PRO:C    | 17:Y:91:LEU:HD23  | 1.91        | 0.90     |
| 18:Z:6:LYS:H     | 18:Z:7:PRO:HD3    | 1.33        | 0.90     |
| 8:I:109:LYS:H    | 8:I:109:LYS:HE3   | 1.34        | 0.90     |
| 8:I:134:HIS:ND1  | 8:I:135:PRO:HD2   | 1.86        | 0.90     |
| 25:4:58:LYS:HG2  | 25:4:59:PHE:H     | 1.32        | 0.90     |
| 29:8:9:MET:O     | 29:8:14:ILE:HD13  | 1.70        | 0.90     |
| 29:8:55:TRP:CZ3  | 29:8:59:LYS:NZ    | 2.40        | 0.90     |
| 2:A:1139:G:O2'   | 2:A:142(A):A:N3   | 2.03        | 0.90     |
| 2:A:1667:G:H5''  | 10:O:5:GLU:OE1    | 1.71        | 0.90     |
| 2:A:2207:C:N3    | 2:A:2218:G:C6     | 2.40        | 0.90     |
| 2:A:2605:U:O2'   | 2:A:2606:C:O5'    | 1.86        | 0.90     |
| 2:A:2653:U:C2'   | 2:A:2654:A:N7     | 2.33        | 0.90     |
| 2:A:2657:A:H62   | 2:A:2664:G:H21    | 1.05        | 0.90     |
| 2:A:2740:A:O2'   | 2:A:2741:A:C5'    | 2.19        | 0.90     |
| 2:A:2804:C:H5    | 2:A:2805:G:O6     | 1.54        | 0.90     |
| 3:D:80:ILE:CD1   | 3:D:82:TYR:HE1    | 1.84        | 0.90     |
| 4:E:214:VAL:HG22 | 4:E:221:LYS:HD2   | 1.52        | 0.90     |
| 5:F:148:VAL:CG1  | 5:F:148:VAL:O     | 2.20        | 0.90     |
| 7:H:102:LEU:HD22 | 7:H:122:ILE:HD12  | 1.53        | 0.90     |
| 10:O:111:PHE:O   | 10:O:112:MET:C    | 2.08        | 0.90     |
| 10:O:61:VAL:HG12 | 10:O:62:VAL:N     | 1.84        | 0.90     |
| 19:R:41:ALA:HB1  | 19:R:114:VAL:HG21 | 1.51        | 0.90     |
| 19:R:87:TYR:HE1  | 19:R:94:TYR:HB3   | 1.14        | 0.90     |
| 20:U:30:LYS:O    | 20:U:32:TYR:CD2   | 2.24        | 0.90     |
| 21:V:61:VAL:C    | 21:V:98:ILE:HD11  | 1.92        | 0.90     |
| 18:Z:91:PRO:HG2  | 18:Z:127:PRO:HB3  | 1.50        | 0.90     |
| 18:Z:19:ILE:N    | 18:Z:36:ARG:CG    | 2.34        | 0.90     |
| 15:W:89:ALA:N    | 15:W:92:ARG:O     | 2.04        | 0.90     |
| 2:A:280:C:N3     | 2:A:283:A:N6      | 2.19        | 0.90     |
| 23:3:22:ALA:HA   | 23:3:46:ASN:ND2   | 1.86        | 0.90     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 25:4:30:GLU:O    | 25:4:31:ILE:HD13 | 1.70        | 0.90     |
| 2:A:2607:G:C2'   | 2:A:2608:G:H5'   | 2.01        | 0.90     |
| 2:A:2746:U:C2    | 2:A:2759:G:N2    | 2.37        | 0.90     |
| 2:A:2836:U:O2    | 2:A:2883:A:C6    | 2.25        | 0.90     |
| 3:D:78:ALA:O     | 3:D:79:THR:CG2   | 2.19        | 0.90     |
| 4:E:205:THR:O    | 4:E:206:LYS:HG3  | 1.71        | 0.90     |
| 5:F:164:ALA:CA   | 5:F:232:LEU:CD1  | 2.50        | 0.90     |
| 6:G:14:ARG:HA    | 6:G:137:PRO:CG   | 2.00        | 0.90     |
| 7:H:10:ILE:HD11  | 7:H:49:ILE:HG12  | 1.50        | 0.90     |
| 8:I:42:ALA:O     | 8:I:45:LYS:HB2   | 1.70        | 0.90     |
| 11:P:55:GLN:HA   | 11:P:55:GLN:OE1  | 1.69        | 0.90     |
| 12:Q:42:TYR:HD2  | 18:Z:119:ASN:HA  | 1.32        | 0.90     |
| 20:U:13:ARG:NH1  | 20:U:13:ARG:CB   | 1.68        | 0.90     |
| 21:V:28:GLU:OE2  | 21:V:93:ILE:HB   | 1.72        | 0.90     |
| 15:W:68:ARG:O    | 15:W:110:LYS:N   | 2.04        | 0.90     |
| 17:Y:103:LEU:HA  | 17:Y:108:ARG:HB2 | 1.51        | 0.90     |
| 18:Z:53:ASP:OD2  | 18:Z:62:PHE:O    | 1.88        | 0.90     |
| 24:0:29:GLU:O    | 24:0:31:VAL:N    | 2.04        | 0.90     |
| 25:4:14:ILE:HG22 | 25:4:37:SER:H    | 1.37        | 0.90     |
| 2:A:592:G:C2     | 29:8:3:LYS:CE    | 2.52        | 0.90     |
| 2:A:2077:A:C4    | 2:A:2435:A:N7    | 2.39        | 0.90     |
| 2:A:2287:A:HO2'  | 2:A:2288:A:P     | 1.88        | 0.90     |
| 2:A:2319:G:P     | 13:S:9:PRO:HD3   | 2.11        | 0.90     |
| 2:A:2739:U:H3'   | 2:A:2739:U:H6    | 1.35        | 0.90     |
| 3:D:145:LEU:H    | 3:D:152:GLN:HB2  | 1.33        | 0.90     |
| 8:I:7:LYS:HA     | 8:I:14:LYS:HG3   | 1.53        | 0.90     |
| 2:A:2640:G:H4'   | 9:N:70:PHE:CD2   | 2.05        | 0.90     |
| 21:V:49:GLU:O    | 21:V:54:TYR:CZ   | 2.25        | 0.90     |
| 18:Z:172:LEU:CD2 | 18:Z:173:PRO:N   | 2.27        | 0.90     |
| 3:D:208:GLY:O    | 3:D:210:LYS:HG2  | 1.72        | 0.90     |
| 22:2:17:GLU:O    | 22:2:19:GLU:N    | 2.04        | 0.90     |
| 1:B:40:U:H3'     | 1:B:41:U:H5'     | 1.52        | 0.90     |
| 26:5:33:CYS:HB3  | 26:5:37:HIS:N    | 1.86        | 0.90     |
| 2:A:459:U:OP2    | 28:7:40:HIS:CG   | 2.24        | 0.90     |
| 28:7:44:VAL:C    | 28:7:46:ASP:N    | 2.24        | 0.90     |
| 2:A:1568:G:C3'   | 3:D:60:GLN:NE2   | 2.34        | 0.90     |
| 2:A:2484:G:N1    | 2:A:2485:G:C8    | 2.40        | 0.90     |
| 4:E:210:THR:CA   | 4:E:216:ARG:HH22 | 1.82        | 0.90     |
| 5:F:236:THR:O    | 5:F:239:ALA:CB   | 2.19        | 0.90     |
| 7:H:15:THR:HG23  | 7:H:26:LYS:N     | 1.87        | 0.90     |
| 7:H:10:ILE:CD1   | 7:H:49:ILE:HG13  | 2.02        | 0.90     |
| 9:N:95:ARG:C     | 9:N:98:PHE:CD1   | 2.40        | 0.90     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2320:A:C6    | 13:S:9:PRO:HB3   | 2.06        | 0.90     |
| 2:A:563:G:H21    | 20:U:37:GLN:HE22 | 0.92        | 0.90     |
| 22:2:48:GLU:O    | 22:2:49:LEU:C    | 2.08        | 0.90     |
| 22:2:4:HIS:N     | 22:2:8:ILE:HD11  | 1.86        | 0.90     |
| 2:A:76:C:O2'     | 22:2:55:ARG:HA   | 1.72        | 0.90     |
| 6:G:59:GLY:C     | 6:G:60:GLU:HG3   | 1.92        | 0.90     |
| 22:2:39:ALA:CB   | 22:2:40:PRO:HD3  | 2.01        | 0.90     |
| 24:0:42:GLY:HA2  | 24:0:66:LYS:CA   | 2.02        | 0.90     |
| 29:8:23:MET:CE   | 29:8:48:PHE:HD2  | 1.81        | 0.90     |
| 2:A:2397:G:C5    | 2:A:2420:C:O2    | 2.24        | 0.90     |
| 2:A:2068:U:O2    | 2:A:2430:A:C2    | 2.25        | 0.90     |
| 2:A:2484:G:H2'   | 2:A:2485:G:C5'   | 2.01        | 0.90     |
| 2:A:2583:G:C1'   | 2:A:2584:U:O2    | 2.19        | 0.90     |
| 2:A:2721:A:H2'   | 2:A:2722:G:H8    | 1.36        | 0.90     |
| 3:D:148:GLY:O    | 3:D:150:GLY:N    | 2.05        | 0.90     |
| 2:A:2730:C:C4'   | 4:E:265:ASN:HD21 | 1.82        | 0.90     |
| 5:F:62:GLY:N     | 5:F:65:ARG:NH2   | 2.18        | 0.90     |
| 5:F:81:PRO:CA    | 5:F:87:ARG:HB3   | 2.01        | 0.90     |
| 10:O:77:ILE:HD11 | 10:O:79:PHE:HE2  | 0.98        | 0.90     |
| 19:R:87:TYR:CD1  | 19:R:94:TYR:HB3  | 2.07        | 0.90     |
| 21:V:59:GLU:O    | 21:V:60:VAL:HG22 | 1.69        | 0.90     |
| 22:2:27:LEU:CD1  | 22:2:53:ILE:HD13 | 2.00        | 0.90     |
| 2:A:2262:U:P     | 24:0:14:ARG:HH21 | 1.94        | 0.90     |
| 2:A:2352:A:N1    | 24:0:30:VAL:CG1  | 2.34        | 0.90     |
| 2:A:2227:A:C2    | 2:A:2228:G:N1    | 2.37        | 0.90     |
| 2:A:963:U:C1'    | 2:A:2250:G:H21   | 1.83        | 0.90     |
| 2:A:2366:A:C8    | 2:A:2367:G:N7    | 2.40        | 0.90     |
| 2:A:1130:U:H5''  | 2:A:2515:C:HO2'  | 1.21        | 0.90     |
| 2:A:2526:G:C6    | 2:A:2527:C:C5    | 2.58        | 0.90     |
| 2:A:2675:A:H2'   | 2:A:2676:C:H5'   | 1.54        | 0.90     |
| 2:A:2682:U:C6    | 4:E:48:MET:CE    | 2.54        | 0.90     |
| 2:A:2722:G:C2    | 2:A:2723:C:C5    | 2.59        | 0.90     |
| 2:A:459:U:OP1    | 28:7:40:HIS:CA   | 2.17        | 0.90     |
| 3:D:106:PRO:O    | 3:D:107:LYS:O    | 1.88        | 0.90     |
| 3:D:128:ALA:HB1  | 3:D:190:THR:HG22 | 1.48        | 0.90     |
| 4:E:205:THR:O    | 4:E:206:LYS:CG   | 2.20        | 0.90     |
| 4:E:216:ARG:HH11 | 4:E:253:GLN:HB3  | 1.37        | 0.90     |
| 4:E:94:ARG:CB    | 4:E:95:PRO:CD    | 2.43        | 0.90     |
| 5:F:223:LEU:C    | 5:F:223:LEU:HD12 | 1.87        | 0.90     |
| 7:H:64:HIS:O     | 7:H:66:THR:N     | 2.05        | 0.90     |
| 12:Q:49:VAL:HG13 | 12:Q:119:ASN:O   | 1.71        | 0.90     |
| 19:R:18:LEU:CD1  | 19:R:19:ALA:N    | 2.35        | 0.90     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:R:97:VAL:HG13 | 19:R:114:VAL:HG22 | 1.53        | 0.90     |
| 6:G:82:GLU:C     | 6:G:85:GLN:CG     | 2.37        | 0.90     |
| 2:A:280:C:O3'    | 2:A:281:G:P       | 2.30        | 0.90     |
| 26:5:45:ILE:HG23 | 26:5:52:TYR:HD1   | 1.09        | 0.90     |
| 2:A:2018:G:H21   | 20:U:34:ASN:HD22  | 0.94        | 0.90     |
| 2:A:2248:C:O2    | 2:A:2248:C:H2'    | 1.70        | 0.90     |
| 2:A:2265:U:O2    | 2:A:2266:A:N7     | 2.05        | 0.90     |
| 2:A:2331:G:N2    | 2:A:2385:C:H5     | 1.69        | 0.90     |
| 2:A:2436:G:N1    | 2:A:2437:U:C2     | 2.40        | 0.90     |
| 2:A:2504:U:H3'   | 2:A:2504:U:C6     | 2.07        | 0.90     |
| 2:A:2768:C:C4    | 2:A:2769:C:C5     | 2.35        | 0.90     |
| 2:A:974:G:N7     | 21:V:80:TYR:CZ    | 2.40        | 0.90     |
| 3:D:103:ILE:HG12 | 3:D:104:ILE:HD13  | 1.50        | 0.90     |
| 5:F:112:ARG:O    | 5:F:113:SER:C     | 2.10        | 0.90     |
| 5:F:195:VAL:HG13 | 5:F:213:ALA:HB3   | 1.52        | 0.90     |
| 6:G:145:ASP:O    | 13:S:15:GLU:HA    | 1.72        | 0.90     |
| 6:G:35:ALA:O     | 6:G:36:ASN:ND2    | 2.04        | 0.90     |
| 7:H:130:ILE:HG22 | 7:H:131:ILE:N     | 1.87        | 0.90     |
| 9:N:23:ALA:HA    | 9:N:26:VAL:CG2    | 2.00        | 0.90     |
| 12:Q:41:THR:C    | 12:Q:125:TRP:HZ3  | 1.73        | 0.90     |
| 13:S:116:PHE:HA  | 13:S:119:GLN:OE1  | 1.70        | 0.90     |
| 6:G:146:LYS:CG   | 13:S:15:GLU:CD    | 2.40        | 0.90     |
| 20:U:41:ASN:ND2  | 20:U:42:ALA:N     | 2.16        | 0.90     |
| 2:A:564:C:OP2    | 21:V:79:GLN:OE1   | 1.90        | 0.90     |
| 18:Z:91:PRO:HB2  | 18:Z:127:PRO:CA   | 2.01        | 0.90     |
| 8:I:95:SER:CB    | 8:I:98:ILE:HD11   | 1.98        | 0.90     |
| 3:D:213:LYS:CB   | 3:D:215:LYS:H     | 1.83        | 0.90     |
| 22:2:52:ALA:O    | 22:2:56:ILE:CD1   | 2.14        | 0.90     |
| 16:X:47:VAL:CB   | 16:X:69:SER:CB    | 2.49        | 0.90     |
| 2:A:1482:U:H6    | 2:A:1482:U:H3'    | 1.37        | 0.90     |
| 25:4:35:VAL:HG12 | 25:4:36:TRP:N     | 1.87        | 0.90     |
| 2:A:2094:G:C2    | 2:A:2196:C:O2     | 2.25        | 0.90     |
| 2:A:2209:C:O2'   | 2:A:2210:G:C3'    | 2.19        | 0.90     |
| 2:A:2241:A:H8    | 2:A:2241:A:H5'    | 1.34        | 0.90     |
| 2:A:2331:G:C5    | 2:A:2332:U:C4     | 2.58        | 0.90     |
| 2:A:2700:C:H3'   | 2:A:2701:C:C5'    | 2.00        | 0.90     |
| 2:A:2718:G:N2    | 2:A:2719:G:H1'    | 1.87        | 0.90     |
| 2:A:517:C:C2'    | 15:W:18:ARG:HH22  | 1.85        | 0.90     |
| 4:E:211:GLN:NE2  | 4:E:216:ARG:N     | 2.17        | 0.90     |
| 2:A:2682:U:C5    | 4:E:48:MET:HE1    | 2.07        | 0.90     |
| 6:G:18:ILE:CG2   | 6:G:19:GLU:H      | 1.84        | 0.90     |
| 10:O:36:GLY:N    | 10:O:62:VAL:HB    | 1.87        | 0.90     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 20:U:28:ARG:CA   | 20:U:31:GLN:CG    | 2.50        | 0.90     |
| 17:Y:73:HIS:N    | 17:Y:91:LEU:CD1   | 2.29        | 0.90     |
| 8:I:77:VAL:CG1   | 8:I:143:VAL:HG22  | 2.01        | 0.90     |
| 8:I:94:THR:HG23  | 8:I:96:LYS:HB3    | 1.53        | 0.90     |
| 6:G:84:LEU:O     | 6:G:88:LEU:HB2    | 1.71        | 0.90     |
| 2:A:1620:G:C1'   | 28:7:1:MET:H3     | 1.81        | 0.90     |
| 28:7:9:ASN:O     | 28:7:10:ARG:C     | 2.07        | 0.90     |
| 2:A:2695:C:O2'   | 2:A:2696:U:C6     | 2.24        | 0.90     |
| 2:A:1033:U:C6    | 2:A:2750:A:C2     | 2.59        | 0.90     |
| 2:A:2880:C:O2'   | 19:R:90:ARG:HD3   | 1.71        | 0.90     |
| 3:D:152:GLN:O    | 3:D:153:LEU:HB2   | 1.72        | 0.90     |
| 4:E:199:ALA:O    | 4:E:266:LYS:HB2   | 1.72        | 0.90     |
| 4:E:315:VAL:O    | 4:E:317:PRO:CD    | 2.20        | 0.90     |
| 4:E:44:TYR:O     | 4:E:74:GLU:OE1    | 1.90        | 0.90     |
| 4:E:43:GLY:HA3   | 4:E:75:THR:OG1    | 1.72        | 0.90     |
| 5:F:84:VAL:C     | 5:F:85:LYS:CD     | 2.39        | 0.90     |
| 2:A:2303:G:C4'   | 6:G:99:ASP:CB     | 2.49        | 0.90     |
| 12:Q:57:ARG:C    | 12:Q:61:LEU:HG    | 1.93        | 0.90     |
| 13:S:59:ALA:O    | 13:S:91:ARG:NH1   | 2.04        | 0.90     |
| 17:Y:101:LEU:CD1 | 17:Y:103:LEU:HD11 | 2.02        | 0.90     |
| 18:Z:90:GLU:H    | 18:Z:91:PRO:CD    | 1.85        | 0.90     |
| 1:B:99:A:H2'     | 1:B:100:G:C8      | 2.07        | 0.90     |
| 23:3:43:ILE:H    | 23:3:43:ILE:HD12  | 1.36        | 0.89     |
| 23:3:54:VAL:HG23 | 23:3:55:ARG:H     | 1.33        | 0.89     |
| 2:A:2635:C:C2    | 2:A:2783:G:N2     | 2.37        | 0.89     |
| 2:A:2848:G:H22   | 2:A:2867:G:C1'    | 1.78        | 0.89     |
| 3:D:128:ALA:CB   | 3:D:190:THR:HA    | 2.00        | 0.89     |
| 2:A:782:A:C2     | 3:D:229:MET:SD    | 2.64        | 0.89     |
| 4:E:77:PRO:HB2   | 4:E:187:HIS:H     | 0.76        | 0.89     |
| 4:E:45:LYS:CD    | 4:E:303:PRO:O     | 2.19        | 0.89     |
| 5:F:219:ASN:H    | 5:F:219:ASN:ND2   | 1.70        | 0.89     |
| 5:F:196:THR:CA   | 5:F:236:THR:HG23  | 2.01        | 0.89     |
| 7:H:147:ILE:HA   | 7:H:150:VAL:CG2   | 2.01        | 0.89     |
| 7:H:93:TYR:CG    | 7:H:106:VAL:CG2   | 2.48        | 0.89     |
| 9:N:82:THR:OG1   | 9:N:83:ILE:N      | 2.03        | 0.89     |
| 11:P:52:LYS:HD3  | 11:P:53:ARG:HH12  | 1.36        | 0.89     |
| 11:P:94:ARG:CD   | 11:P:120:LEU:HD22 | 2.00        | 0.89     |
| 6:G:146:LYS:HG3  | 13:S:15:GLU:OE2   | 1.72        | 0.89     |
| 14:T:11:THR:HG22 | 14:T:12:ASP:N     | 1.87        | 0.89     |
| 14:T:21:PHE:C    | 14:T:22:VAL:HG13  | 1.93        | 0.89     |
| 10:O:99:PHE:HD2  | 14:T:24:LYS:CE    | 1.80        | 0.89     |
| 17:Y:31:LEU:O    | 17:Y:34:GLU:HB2   | 1.72        | 0.89     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 25:4:5:LEU:HD23   | 25:4:5:LEU:N     | 1.87        | 0.89     |
| 2:A:1019:U:O4     | 2:A:142(A):A:N6  | 2.05        | 0.89     |
| 2:A:2482:G:H2'    | 2:A:2483:C:H5'   | 0.90        | 0.89     |
| 2:A:2734:A:C5'    | 2:A:2734:A:H8    | 1.83        | 0.89     |
| 2:A:2771:C:N3     | 2:A:2772:C:C5    | 2.40        | 0.89     |
| 2:A:310:A:P       | 17:Y:53:GLY:H    | 1.95        | 0.89     |
| 5:F:193:LEU:HD13  | 5:F:223:LEU:CB   | 2.01        | 0.89     |
| 5:F:48:SER:N      | 5:F:92:PRO:HG3   | 1.70        | 0.89     |
| 9:N:61:VAL:HG22   | 9:N:139:LEU:CB   | 2.02        | 0.89     |
| 19:R:102:GLU:HG3  | 19:R:103:ARG:H   | 1.34        | 0.89     |
| 6:G:146:LYS:CD    | 13:S:15:GLU:OE2  | 2.20        | 0.89     |
| 21:V:35:LEU:O     | 21:V:60:VAL:CG1  | 2.20        | 0.89     |
| 2:A:1260:G:H5''   | 15:W:83:LYS:HZ1  | 1.07        | 0.89     |
| 17:Y:78:THR:HG21  | 17:Y:88:PRO:HA   | 1.53        | 0.89     |
| 8:I:102:LEU:C     | 8:I:102:LEU:HD12 | 1.91        | 0.89     |
| 16:X:25:GLN:OE1   | 16:X:25:GLN:CA   | 2.20        | 0.89     |
| 2:A:1697:G:H3'    | 2:A:1698:A:H5'   | 1.52        | 0.89     |
| 8:I:60:GLU:O      | 8:I:63:ALA:N     | 2.06        | 0.89     |
| 24:0:23:VAL:CG1   | 24:0:24:LYS:N    | 2.19        | 0.89     |
| 24:0:28:GLY:HA3   | 24:0:60:PHE:HB3  | 1.51        | 0.89     |
| 2:A:2364:C:H5'    | 24:0:38:VAL:CG1  | 2.02        | 0.89     |
| 25:4:7:PRO:HD3    | 25:4:56:VAL:HG21 | 1.51        | 0.89     |
| 29:8:26:LYS:CG    | 29:8:44:LYS:HA   | 2.03        | 0.89     |
| 2:A:1139:G:O2'    | 2:A:142(A):A:O2' | 1.89        | 0.89     |
| 2:A:1819:A:OP2    | 3:D:153:LEU:HG   | 1.72        | 0.89     |
| 2:A:1939:U:H1'    | 2:A:2592:G:H4'   | 1.53        | 0.89     |
| 2:A:2009:G:H1'    | 19:R:107:ASP:O   | 1.71        | 0.89     |
| 2:A:2077:A:N3     | 2:A:2435:A:C8    | 2.41        | 0.89     |
| 2:A:2330:G:H21    | 2:A:2331:G:H1'   | 1.09        | 0.89     |
| 2:A:2553:G:C8     | 2:A:2554:U:O4'   | 2.25        | 0.89     |
| 2:A:2578:G:O2'    | 2:A:2579:C:O5'   | 1.91        | 0.89     |
| 2:A:2634:G:C2'    | 2:A:2635:C:O5'   | 2.20        | 0.89     |
| 3:D:145:LEU:H     | 3:D:152:GLN:CB   | 1.54        | 0.89     |
| 2:A:2052:G:H4'    | 4:E:239:GLY:O    | 1.71        | 0.89     |
| 4:E:74:GLU:HA     | 4:E:293:TYR:HD2  | 1.19        | 0.89     |
| 5:F:34:ALA:HB2    | 5:F:110:ALA:HB2  | 1.50        | 0.89     |
| 9:N:12:VAL:HG12   | 9:N:38:VAL:HG21  | 1.54        | 0.89     |
| 9:N:77:GLY:HA2    | 9:N:80:LYS:HG2   | 1.49        | 0.89     |
| 12:Q:49:VAL:HG22  | 12:Q:121:ASP:H   | 1.00        | 0.89     |
| 6:G:146:LYS:CG    | 13:S:15:GLU:HG3  | 2.01        | 0.89     |
| 2:A:1223:C:N4     | 21:V:87:ARG:HE   | 1.71        | 0.89     |
| 17:Y:103:LEU:HD13 | 17:Y:113:GLU:HB3 | 1.51        | 0.89     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:Y:41:ARG:O    | 17:Y:112:LEU:HB3 | 1.71        | 0.89     |
| 8:I:93:ILE:HG13  | 8:I:93:ILE:O     | 1.69        | 0.89     |
| 22:2:26:GLU:CG   | 22:2:27:LEU:H    | 1.82        | 0.89     |
| 16:X:33:SER:O    | 16:X:37:VAL:HG23 | 1.72        | 0.89     |
| 2:A:2330:G:C2    | 2:A:2331:G:H1'   | 2.06        | 0.89     |
| 2:A:2356:C:H2'   | 2:A:2357:U:C5'   | 2.02        | 0.89     |
| 2:A:2472:G:O2'   | 2:A:2473:U:OP1   | 1.90        | 0.89     |
| 2:A:2550:G:C4    | 2:A:2551:C:H5    | 1.91        | 0.89     |
| 2:A:2635:C:O2'   | 2:A:2636:U:O5'   | 1.91        | 0.89     |
| 2:A:2821:A:H2'   | 2:A:2822:G:C1'   | 2.01        | 0.89     |
| 2:A:572:A:H2'    | 2:A:573:G:C1'    | 2.03        | 0.89     |
| 3:D:71:ASP:OD1   | 3:D:118:GLY:N    | 2.06        | 0.89     |
| 4:E:81:VAL:HB    | 4:E:100:TRP:CZ3  | 2.07        | 0.89     |
| 4:E:70:VAL:HG22  | 4:E:297:LYS:HA   | 1.55        | 0.89     |
| 6:G:76:ARG:HB2   | 6:G:77:ASP:OD1   | 1.71        | 0.89     |
| 7:H:101:LYS:HZ1  | 7:H:115:GLU:CG   | 1.84        | 0.89     |
| 7:H:64:HIS:C     | 7:H:66:THR:H     | 1.75        | 0.89     |
| 7:H:71:LEU:O     | 7:H:73:ASN:N     | 2.05        | 0.89     |
| 13:S:31:LYS:CB   | 13:S:32:PRO:CD   | 2.48        | 0.89     |
| 13:S:82:TYR:O    | 13:S:86:LEU:HG   | 1.72        | 0.89     |
| 10:O:99:PHE:CE2  | 14:T:24:LYS:NZ   | 2.39        | 0.89     |
| 20:U:39:LEU:O    | 20:U:40:LEU:C    | 2.11        | 0.89     |
| 18:Z:26:LYS:N    | 18:Z:84:TYR:CE1  | 2.40        | 0.89     |
| 3:D:211:HIS:HD1  | 3:D:212:HIS:CD2  | 1.91        | 0.89     |
| 22:2:20:LEU:O    | 22:2:23:LEU:N    | 2.05        | 0.89     |
| 7:H:111:PRO:C    | 7:H:112:VAL:HG23 | 1.91        | 0.89     |
| 3:D:235:PRO:O    | 3:D:236:PHE:C    | 2.07        | 0.89     |
| 2:A:1609:A:C6    | 2:A:1616:A:H2    | 1.90        | 0.89     |
| 28:7:12:ARG:O    | 28:7:15:THR:OG1  | 1.90        | 0.89     |
| 2:A:2468:G:N1    | 2:A:2481:G:C4    | 2.41        | 0.89     |
| 2:A:2684:U:H1'   | 10:O:70:ARG:HH22 | 1.35        | 0.89     |
| 2:A:2799:A:C5'   | 2:A:2801:A:OP2   | 2.20        | 0.89     |
| 5:F:243:VAL:HA   | 5:F:246:ARG:CG   | 2.03        | 0.89     |
| 6:G:97:GLN:HB2   | 6:G:106:PHE:HE2  | 1.31        | 0.89     |
| 7:H:167:LEU:HD23 | 7:H:167:LEU:N    | 1.86        | 0.89     |
| 9:N:15:ARG:NE    | 9:N:40:ASN:HD21  | 1.65        | 0.89     |
| 9:N:65:ASN:HB2   | 9:N:69:TYR:CE1   | 2.07        | 0.89     |
| 12:Q:65:ARG:NH2  | 12:Q:85:ILE:C    | 2.25        | 0.89     |
| 19:R:107:ASP:OD1 | 19:R:108:GLY:N   | 2.06        | 0.89     |
| 21:V:74:TYR:HD1  | 21:V:86:HIS:O    | 1.55        | 0.89     |
| 2:A:71:A:H4'     | 2:A:72:U:H3'     | 1.54        | 0.89     |
| 9:N:105:LEU:HG   | 9:N:106:GLY:N    | 1.86        | 0.89     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:W:21:VAL:HG23 | 15:W:22:ASP:N    | 1.87        | 0.89     |
| 24:0:48:GLY:HA3  | 24:0:55:ARG:HB2  | 1.54        | 0.89     |
| 28:7:24:THR:O    | 28:7:28:ARG:HG3  | 1.72        | 0.89     |
| 2:A:2287:A:C2    | 2:A:2289:G:C8    | 2.60        | 0.89     |
| 2:A:2484:G:H22   | 2:A:2485:G:C1'   | 1.80        | 0.89     |
| 2:A:2492:U:O2'   | 2:A:2493:U:C5'   | 2.19        | 0.89     |
| 2:A:2625:G:C3'   | 2:A:2626:C:C6    | 2.55        | 0.89     |
| 2:A:2633:G:O2'   | 2:A:2634:G:H5'   | 1.72        | 0.89     |
| 2:A:2657:A:N7    | 2:A:2658:C:C6    | 2.40        | 0.89     |
| 3:D:85:ASN:ND2   | 3:D:86:ARG:CZ    | 2.36        | 0.89     |
| 5:F:162:VAL:HG12 | 5:F:163:HIS:H    | 1.35        | 0.89     |
| 5:F:115:LEU:CD2  | 5:F:246:ARG:HH22 | 1.86        | 0.89     |
| 5:F:37:ALA:CB    | 5:F:102:LEU:HD12 | 2.02        | 0.89     |
| 5:F:52:ALA:O     | 5:F:54:LEU:N     | 2.06        | 0.89     |
| 2:A:2311:A:OP2   | 6:G:55:LYS:HE3   | 1.73        | 0.89     |
| 10:O:86:ILE:HG22 | 10:O:87:ILE:H    | 1.38        | 0.89     |
| 12:Q:59:ASN:HD22 | 12:Q:60:ALA:N    | 1.61        | 0.89     |
| 12:Q:88:PHE:CB   | 12:Q:90:PHE:HE1  | 1.86        | 0.89     |
| 20:U:86:ALA:HB3  | 20:U:90:LEU:CD2  | 2.02        | 0.89     |
| 21:V:11:GLN:HE22 | 21:V:22:VAL:CB   | 1.86        | 0.89     |
| 21:V:57:GLN:HG2  | 21:V:58:ALA:N    | 1.85        | 0.89     |
| 18:Z:16:GLU:OE1  | 18:Z:16:GLU:HA   | 1.72        | 0.89     |
| 3:D:213:LYS:CB   | 3:D:215:LYS:HB2  | 2.02        | 0.89     |
| 3:D:216:ALA:HA   | 3:D:222:PRO:N    | 1.86        | 0.89     |
| 22:2:47:LYS:O    | 22:2:48:GLU:C    | 2.11        | 0.89     |
| 2:A:75:G:H4'     | 22:2:51:LYS:NZ   | 1.86        | 0.89     |
| 22:2:51:LYS:O    | 22:2:56:ILE:HD11 | 1.71        | 0.89     |
| 27:6:14:SER:CB   | 27:6:52:GLU:HA   | 2.02        | 0.89     |
| 29:8:16:ILE:HG13 | 29:8:22:VAL:HG21 | 1.50        | 0.89     |
| 29:8:38:GLY:O    | 29:8:41:ILE:N    | 2.05        | 0.89     |
| 2:A:1139:G:OP1   | 9:N:46:ILE:HG23  | 1.70        | 0.89     |
| 2:A:2309:A:H3'   | 2:A:2310:A:H5'   | 1.54        | 0.89     |
| 2:A:2555:U:C2'   | 2:A:2556:C:C5'   | 2.38        | 0.89     |
| 2:A:2799:A:H5''  | 2:A:2801:A:OP2   | 1.70        | 0.89     |
| 2:A:298:G:O6     | 17:Y:24:ARG:CZ   | 2.21        | 0.89     |
| 3:D:127:ASN:O    | 3:D:190:THR:HB   | 1.70        | 0.89     |
| 4:E:304:ASP:O    | 4:E:307:LEU:HB2  | 1.72        | 0.89     |
| 7:H:102:LEU:HD12 | 7:H:104:LEU:HD11 | 1.54        | 0.89     |
| 9:N:60:ARG:HA    | 9:N:71:TYR:CE2   | 2.07        | 0.89     |
| 9:N:87:LEU:H     | 9:N:87:LEU:CD1   | 1.86        | 0.89     |
| 10:O:12:ASP:HB2  | 10:O:95:GLY:HA3  | 1.55        | 0.89     |
| 2:A:637:A:OP2    | 11:P:126:SER:OG  | 1.90        | 0.89     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:R:97:VAL:HA   | 19:R:114:VAL:HG13 | 1.53        | 0.89     |
| 18:Z:163:ASP:OD2 | 18:Z:164:PRO:N    | 2.05        | 0.89     |
| 18:Z:2:GLU:H     | 18:Z:54:ILE:HG23  | 1.23        | 0.89     |
| 16:X:39:ASP:O    | 16:X:41:VAL:N     | 2.05        | 0.89     |
| 2:A:2898:U:N3    | 2:A:2899:G:N7     | 2.21        | 0.89     |
| 23:3:8:LEU:HB3   | 23:3:32:GLN:N     | 1.88        | 0.89     |
| 26:5:30:LEU:CD2  | 26:5:41:LEU:HD23  | 2.03        | 0.89     |
| 27:6:21:TYR:CE1  | 27:6:43:VAL:CG2   | 2.55        | 0.89     |
| 2:A:2013:A:H2'   | 2:A:2014:A:O4'    | 1.73        | 0.89     |
| 2:A:2331:G:C6    | 2:A:2332:U:N3     | 2.39        | 0.89     |
| 2:A:2457:U:C2'   | 2:A:2458:G:C5'    | 2.50        | 0.89     |
| 2:A:2494:G:N2    | 2:A:2495:G:C8     | 2.39        | 0.89     |
| 2:A:2528:U:H5    | 2:A:2530:A:C2     | 1.90        | 0.89     |
| 2:A:2623:G:H21   | 2:A:2624:G:H1'    | 1.34        | 0.89     |
| 2:A:2758:A:OP2   | 2:A:2758:A:C1'    | 2.21        | 0.89     |
| 2:A:2861:G:H5''  | 2:A:2861:G:H8     | 1.37        | 0.89     |
| 2:A:2893:G:OP2   | 2:A:2893:G:H8     | 1.56        | 0.89     |
| 2:A:997:G:OP1    | 20:U:93:LYS:CE    | 2.15        | 0.89     |
| 2:A:1818:U:C5'   | 3:D:155:ARG:CB    | 2.50        | 0.89     |
| 3:D:74:PRO:HG2   | 3:D:96:ALA:N      | 1.87        | 0.89     |
| 7:H:148:ARG:HH11 | 7:H:163:TYR:HA    | 1.08        | 0.89     |
| 7:H:86:LEU:CD1   | 7:H:87:GLU:N      | 2.33        | 0.89     |
| 9:N:94:GLY:O     | 9:N:98:PHE:CE1    | 2.24        | 0.89     |
| 11:P:53:ARG:CD   | 11:P:53:ARG:H     | 1.86        | 0.89     |
| 19:R:67:LEU:CD2  | 19:R:71:GLN:HA    | 2.03        | 0.89     |
| 21:V:49:GLU:HA   | 21:V:53:LYS:NZ    | 1.88        | 0.89     |
| 21:V:74:TYR:CE1  | 21:V:86:HIS:O     | 2.26        | 0.89     |
| 17:Y:11:GLN:HG3  | 17:Y:21:LYS:HE2   | 1.53        | 0.89     |
| 17:Y:18:GLU:HB3  | 17:Y:21:LYS:NZ    | 1.88        | 0.89     |
| 18:Z:39:PHE:C    | 18:Z:43:PHE:CD2   | 2.46        | 0.89     |
| 18:Z:6:LYS:C     | 18:Z:31:SER:OG    | 2.11        | 0.89     |
| 8:I:79:ILE:O     | 8:I:145:VAL:HG13  | 1.73        | 0.89     |
| 3:D:213:LYS:HB3  | 3:D:215:LYS:CA    | 2.02        | 0.89     |
| 2:A:1081:U:C5'   | 31:K:126:LYS:HD2  | 2.03        | 0.89     |
| 14:T:45:GLU:O    | 14:T:48:ASN:ND2   | 2.05        | 0.89     |
| 23:3:22:ALA:O    | 23:3:26:LEU:HG    | 1.73        | 0.89     |
| 23:3:8:LEU:HB3   | 23:3:32:GLN:HA    | 1.55        | 0.89     |
| 25:4:57:ASP:O    | 25:4:58:LYS:O     | 1.91        | 0.89     |
| 25:4:41:PRO:CG   | 25:4:57:ASP:OD2   | 2.21        | 0.89     |
| 2:A:2021:C:OP2   | 26:5:15:LYS:NZ    | 2.06        | 0.89     |
| 27:6:32:GLN:HB3  | 27:6:35:LEU:HD12  | 0.89        | 0.89     |
| 27:6:19:GLY:HA2  | 27:6:44:ALA:HB3   | 1.53        | 0.89     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 27:6:8:ILE:HA    | 27:6:29:ARG:NE    | 1.88        | 0.89     |
| 28:7:8:ASN:O     | 28:7:9:ASN:O      | 1.91        | 0.89     |
| 2:A:2216:G:O2'   | 2:A:2217:G:H5''   | 1.71        | 0.89     |
| 2:A:2522:U:O2    | 2:A:2543:G:N1     | 2.04        | 0.89     |
| 2:A:2712:U:H3'   | 2:A:2714:G:P      | 2.12        | 0.89     |
| 2:A:2869:G:C2'   | 2:A:2870:C:H5'    | 2.02        | 0.89     |
| 2:A:527:C:C5     | 2:A:2779:U:H3'    | 2.07        | 0.89     |
| 5:F:150:THR:HB   | 5:F:207:LEU:CD2   | 2.02        | 0.89     |
| 12:Q:48:ASN:O    | 12:Q:48:ASN:OD1   | 1.91        | 0.89     |
| 12:Q:88:PHE:C    | 12:Q:90:PHE:HE1   | 1.76        | 0.89     |
| 19:R:55:ALA:HA   | 19:R:80:PHE:CE1   | 2.06        | 0.89     |
| 15:W:3:ALA:O     | 15:W:4:LYS:HG3    | 1.73        | 0.89     |
| 15:W:5:ALA:HB2   | 15:W:54:ALA:HB2   | 1.54        | 0.89     |
| 18:Z:34:LEU:CD1  | 18:Z:35:ASP:H     | 1.85        | 0.89     |
| 18:Z:95:SER:HG   | 18:Z:122:ILE:HG12 | 1.37        | 0.89     |
| 29:8:26:LYS:O    | 29:8:27:SER:HB2   | 1.70        | 0.89     |
| 2:A:1050:A:O3'   | 2:A:1051:G:P      | 2.31        | 0.89     |
| 2:A:199:A:N1     | 2:A:2433:A:N7     | 2.20        | 0.89     |
| 2:A:2240:C:H2'   | 2:A:2240:C:O2     | 1.70        | 0.89     |
| 2:A:2317:C:H5'   | 6:G:150:SER:HB2   | 1.54        | 0.89     |
| 2:A:2348:U:H5''  | 29:8:42:ARG:HH22  | 1.35        | 0.89     |
| 2:A:2482:G:H2'   | 2:A:2483:C:H5''   | 1.54        | 0.89     |
| 2:A:2535:G:N2    | 2:A:2536:G:H1'    | 1.88        | 0.89     |
| 2:A:2574:G:H3'   | 2:A:2575:C:C6     | 2.06        | 0.89     |
| 5:F:55:ARG:HG3   | 5:F:56:THR:N      | 1.87        | 0.89     |
| 5:F:91:PRO:HG2   | 5:F:92:PRO:CD     | 2.02        | 0.89     |
| 9:N:19:MET:HE2   | 9:N:19:MET:CA     | 1.98        | 0.89     |
| 11:P:129:ALA:O   | 11:P:133:VAL:HG23 | 1.73        | 0.89     |
| 19:R:97:VAL:HG13 | 19:R:114:VAL:CG2  | 2.03        | 0.89     |
| 21:V:40:VAL:O    | 21:V:51:ALA:CB    | 2.21        | 0.89     |
| 17:Y:11:GLN:HA   | 17:Y:21:LYS:HE3   | 1.53        | 0.89     |
| 1:B:76:G:O3'     | 18:Z:80:HIS:CG    | 2.26        | 0.89     |
| 18:Z:91:PRO:HG2  | 18:Z:127:PRO:CB   | 2.02        | 0.89     |
| 16:X:11:THR:C    | 16:X:15:MET:SD    | 2.52        | 0.89     |
| 7:H:53:ARG:NH1   | 7:H:56:ASP:CA     | 2.29        | 0.89     |
| 26:5:34:PRO:HD2  | 26:5:36:CYS:SG    | 2.12        | 0.88     |
| 2:A:2246:G:C2    | 2:A:2247:A:C5     | 2.60        | 0.88     |
| 2:A:965:C:C5'    | 2:A:2273:A:H1'    | 2.00        | 0.88     |
| 2:A:2316:C:N4    | 2:A:2317:C:N4     | 2.20        | 0.88     |
| 2:A:2384:G:C2'   | 2:A:2386:C:OP2    | 2.21        | 0.88     |
| 2:A:2246:G:N9    | 2:A:2426:A:C2     | 2.40        | 0.88     |
| 2:A:2606:C:C6    | 2:A:2606:C:C5'    | 2.56        | 0.88     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:907:U:O2'    | 12:Q:88:PHE:CZ   | 2.24        | 0.88     |
| 2:A:994:C:H4'    | 20:U:54:LYS:CE   | 2.03        | 0.88     |
| 3:D:68:ARG:O     | 3:D:69:ASP:OD2   | 1.91        | 0.88     |
| 4:E:231:TRP:CE3  | 4:E:234:ARG:NH2  | 2.41        | 0.88     |
| 5:F:200:PRO:HB3  | 5:F:212:VAL:HG11 | 0.92        | 0.88     |
| 7:H:104:LEU:CB   | 7:H:151:ARG:HH12 | 1.85        | 0.88     |
| 7:H:15:THR:HG21  | 7:H:26:LYS:HB2   | 0.91        | 0.88     |
| 11:P:128:GLY:C   | 11:P:132:LYS:HD3 | 1.92        | 0.88     |
| 19:R:60:LEU:HG   | 19:R:61:HIS:N    | 1.87        | 0.88     |
| 20:U:74:MET:HE2  | 20:U:78:THR:CG2  | 1.81        | 0.88     |
| 21:V:61:VAL:HG22 | 21:V:97:GLY:CA   | 2.03        | 0.88     |
| 18:Z:79:ILE:HG22 | 18:Z:80:HIS:CE1  | 2.09        | 0.88     |
| 16:X:76:GLU:OE1  | 16:X:77:VAL:CG2  | 2.22        | 0.88     |
| 24:O:37:LEU:HB3  | 24:O:69:PHE:CG   | 2.08        | 0.88     |
| 2:A:2051:A:N7    | 2:A:2614:A:C6    | 2.40        | 0.88     |
| 2:A:2210:G:O6    | 3:D:148:GLY:HA3  | 1.72        | 0.88     |
| 2:A:2265:U:C2'   | 2:A:2266:A:OP1   | 2.21        | 0.88     |
| 2:A:2310:A:C4    | 6:G:55:LYS:NZ    | 2.41        | 0.88     |
| 2:A:2410:G:C2'   | 2:A:2411:A:H8    | 1.82        | 0.88     |
| 2:A:2476:A:C8    | 2:A:2477:C:C6    | 2.60        | 0.88     |
| 2:A:2543:G:C2'   | 2:A:2544:G:H8    | 1.71        | 0.88     |
| 2:A:2550:G:H2'   | 2:A:2551:C:C6    | 2.08        | 0.88     |
| 2:A:2573:C:P     | 2:A:2574:G:OP1   | 2.32        | 0.88     |
| 2:A:2703:C:O2'   | 2:A:2704:C:O5'   | 1.91        | 0.88     |
| 2:A:2884:U:H2'   | 2:A:2885:C:O4'   | 1.73        | 0.88     |
| 3:D:131:LEU:CD1  | 3:D:171:VAL:HG21 | 2.00        | 0.88     |
| 4:E:314:ALA:O    | 4:E:317:PRO:HD3  | 1.72        | 0.88     |
| 2:A:2771:C:C5'   | 4:E:316:ARG:HD2  | 2.03        | 0.88     |
| 5:F:221:GLU:O    | 5:F:222:ASP:O    | 1.91        | 0.88     |
| 8:I:43:ASN:C     | 8:I:45:LYS:N     | 2.23        | 0.88     |
| 2:A:557:U:H4'    | 9:N:92:GLN:NE2   | 1.89        | 0.88     |
| 10:O:112:MET:O   | 10:O:114:ILE:N   | 2.06        | 0.88     |
| 10:O:81:GLU:HG2  | 10:O:82:ASN:N    | 1.83        | 0.88     |
| 12:Q:144:THR:HG1 | 12:Q:145:PRO:HD3 | 1.32        | 0.88     |
| 19:R:75:LEU:HA   | 19:R:78:LYS:HB3  | 1.52        | 0.88     |
| 13:S:41:LYS:NZ   | 13:S:68:GLU:CD   | 2.26        | 0.88     |
| 1:B:103:U:HO2'   | 18:Z:67:LYS:HG2  | 1.38        | 0.88     |
| 2:A:748:G:H8     | 2:A:750:A:OP2    | 1.55        | 0.88     |
| 2:A:869:G:H1     | 2:A:908:C:H42    | 1.19        | 0.88     |
| 25:4:6:HIS:HB2   | 25:4:56:VAL:CG2  | 2.02        | 0.88     |
| 27:6:19:GLY:CA   | 27:6:44:ALA:CB   | 2.51        | 0.88     |
| 2:A:2053:G:OP1   | 4:E:241:TRP:HA   | 1.73        | 0.88     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2254:C:H2'    | 2:A:2255:G:H5'    | 0.91        | 0.88     |
| 2:A:2468:G:C6     | 2:A:2481:G:C6     | 2.61        | 0.88     |
| 2:A:2640:G:H4'    | 9:N:70:PHE:HD2    | 1.37        | 0.88     |
| 2:A:2832:U:C4'    | 2:A:2832:U:C6     | 2.56        | 0.88     |
| 3:D:86:ARG:HD2    | 3:D:86:ARG:N      | 1.87        | 0.88     |
| 4:E:217:TRP:CZ2   | 4:E:251:PRO:HB3   | 2.09        | 0.88     |
| 2:A:2512:C:H4'    | 4:E:235:ILE:HD12  | 1.55        | 0.88     |
| 7:H:101:LYS:HG2   | 7:H:115:GLU:CA    | 2.01        | 0.88     |
| 10:O:63:VAL:HG12  | 10:O:102:VAL:HG13 | 1.54        | 0.88     |
| 11:P:69:ILE:HA    | 11:P:73:VAL:CG2   | 2.01        | 0.88     |
| 12:Q:51:GLU:HA    | 12:Q:118:ALA:CB   | 2.03        | 0.88     |
| 20:U:115:ASN:HD22 | 20:U:115:ASN:H    | 1.21        | 0.88     |
| 2:A:535:C:C4'     | 20:U:53:LYS:HE3   | 1.77        | 0.88     |
| 21:V:40:VAL:HG12  | 21:V:55:THR:HG23  | 1.53        | 0.88     |
| 8:I:77:VAL:HG11   | 8:I:143:VAL:CG2   | 2.02        | 0.88     |
| 27:6:19:GLY:O     | 27:6:42:PRO:HB2   | 1.73        | 0.88     |
| 2:A:2320:A:C2     | 13:S:13:ARG:CG    | 2.56        | 0.88     |
| 2:A:2320:A:C2     | 2:A:2333:A:C4     | 2.62        | 0.88     |
| 2:A:2652:C:C6     | 2:A:2653:U:C6     | 2.61        | 0.88     |
| 2:A:2881:C:C2'    | 2:A:2882:A:O5'    | 2.21        | 0.88     |
| 5:F:102:LEU:HD21  | 5:F:106:GLU:CB    | 2.02        | 0.88     |
| 2:A:2745:C:O2     | 7:H:142:GLU:OE2   | 1.92        | 0.88     |
| 7:H:91:VAL:N      | 7:H:159:LYS:HE3   | 1.88        | 0.88     |
| 13:S:27:LEU:CB    | 13:S:33:ARG:HH22  | 1.78        | 0.88     |
| 14:T:4:ARG:O      | 14:T:5:GLU:HG2    | 1.72        | 0.88     |
| 17:Y:101:LEU:HB3  | 17:Y:113:GLU:OE1  | 1.73        | 0.88     |
| 17:Y:73:HIS:CE1   | 17:Y:90:PRO:HA    | 2.08        | 0.88     |
| 18:Z:40:ASP:CG    | 18:Z:41:ARG:CZ    | 2.42        | 0.88     |
| 8:I:116:GLU:CG    | 8:I:132:LYS:HE3   | 2.03        | 0.88     |
| 2:A:1599:C:P      | 16:X:33:SER:HG    | 1.93        | 0.88     |
| 2:A:1062:G:H21    | 31:K:92:PRO:HG3   | 1.24        | 0.88     |
| 24:0:48:GLY:HA3   | 24:0:55:ARG:CB    | 2.03        | 0.88     |
| 28:7:34:ARG:HH12  | 28:7:42:LEU:HA    | 1.38        | 0.88     |
| 2:A:1655:A:H4'    | 4:E:211:GLN:HA    | 1.55        | 0.88     |
| 2:A:2416:C:H2'    | 2:A:2417:C:C5'    | 2.03        | 0.88     |
| 2:A:2545:G:O2'    | 2:A:2546:U:P      | 2.30        | 0.88     |
| 2:A:2546:U:C5'    | 2:A:2565:A:H2     | 1.84        | 0.88     |
| 2:A:2571:C:HO2'   | 4:E:243:PRO:HD3   | 1.27        | 0.88     |
| 2:A:2839:G:C2     | 2:A:2840:C:C2     | 2.62        | 0.88     |
| 2:A:526:A:C2      | 2:A:2626:C:H1'    | 2.08        | 0.88     |
| 2:A:932:G:H5'     | 23:3:24:LYS:CE    | 2.03        | 0.88     |
| 2:A:993:G:O4'     | 21:V:90:PHE:CE2   | 2.17        | 0.88     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:B:9:G:OP1       | 13:S:23:ARG:CZ    | 2.22        | 0.88     |
| 3:D:105:ALA:N     | 3:D:106:PRO:CD    | 2.35        | 0.88     |
| 3:D:143:ILE:C     | 3:D:152:GLN:HB2   | 1.93        | 0.88     |
| 2:A:2785:C:C4'    | 4:E:99:VAL:CA     | 2.33        | 0.88     |
| 7:H:7:PRO:HD3     | 7:H:68:ARG:CD     | 2.03        | 0.88     |
| 8:I:2:LYS:CD      | 8:I:39:ALA:HB2    | 2.03        | 0.88     |
| 9:N:27:ALA:HA     | 9:N:30:ALA:HB3    | 0.92        | 0.88     |
| 9:N:95:ARG:O      | 9:N:98:PHE:N      | 2.04        | 0.88     |
| 17:Y:51:LEU:N     | 17:Y:51:LEU:HD13  | 1.88        | 0.88     |
| 18:Z:105:GLN:C    | 18:Z:142:ASN:ND2  | 2.25        | 0.88     |
| 18:Z:51:LEU:CD1   | 18:Z:63:PRO:HB2   | 2.04        | 0.88     |
| 22:2:20:LEU:HD13  | 22:2:23:LEU:HB2   | 1.52        | 0.88     |
| 22:2:54:ALA:O     | 22:2:55:ARG:C     | 2.09        | 0.88     |
| 2:A:359:A:O2'     | 2:A:360:G:C4      | 2.25        | 0.88     |
| 23:3:30:ARG:NH1   | 23:3:30:ARG:HG3   | 1.86        | 0.88     |
| 25:4:16:TYR:C     | 25:4:17:GLN:HG3   | 1.92        | 0.88     |
| 2:A:2255:G:C5     | 2:A:2256:G:C8     | 2.62        | 0.88     |
| 2:A:248:G:N2      | 2:A:2431:U:H4'    | 1.88        | 0.88     |
| 2:A:2432:A:C2     | 2:A:2433:A:C2     | 2.60        | 0.88     |
| 2:A:2597:G:C2'    | 2:A:2598:A:H8     | 1.83        | 0.88     |
| 2:A:2785:C:HO2'   | 2:A:2786:U:P      | 1.97        | 0.88     |
| 2:A:963:U:H1'     | 2:A:2250:G:H21    | 1.25        | 0.88     |
| 3:D:184:LEU:HB2   | 3:D:187:CYS:SG    | 2.14        | 0.88     |
| 2:A:1675:C:C2     | 4:E:225:LYS:HG2   | 2.07        | 0.88     |
| 4:E:304:ASP:O     | 4:E:307:LEU:CB    | 2.22        | 0.88     |
| 5:F:52:ALA:CB     | 5:F:55:ARG:NE     | 2.31        | 0.88     |
| 5:F:59:GLU:O      | 5:F:61:PHE:HD2    | 1.55        | 0.88     |
| 7:H:83:GLU:CD     | 7:H:84:LYS:N      | 2.26        | 0.88     |
| 9:N:54:VAL:HG22   | 9:N:135:ILE:HD13  | 1.55        | 0.88     |
| 12:Q:131:ALA:HA   | 12:Q:134:PHE:CE2  | 2.08        | 0.88     |
| 12:Q:58:HIS:CG    | 12:Q:59:ASN:H     | 1.90        | 0.88     |
| 19:R:113:LEU:HD13 | 19:R:113:LEU:C    | 1.94        | 0.88     |
| 21:V:4:ILE:HD11   | 21:V:13:ARG:NE    | 1.87        | 0.88     |
| 17:Y:101:LEU:CD2  | 17:Y:101:LEU:O    | 2.21        | 0.88     |
| 17:Y:28:SER:CB    | 17:Y:99:THR:CB    | 2.48        | 0.88     |
| 12:Q:149:ILE:H    | 12:Q:149:ILE:HD12 | 1.39        | 0.88     |
| 24:0:64:ASP:O     | 24:0:66:LYS:NZ    | 2.06        | 0.88     |
| 25:4:41:PRO:HG2   | 25:4:57:ASP:CB    | 2.03        | 0.88     |
| 28:7:21:ARG:HH12  | 28:7:43:THR:HG23  | 1.31        | 0.88     |
| 2:A:2206:C:C2'    | 2:A:2207:C:H5'    | 2.04        | 0.88     |
| 2:A:2361:A:H2'    | 2:A:2362:G:H5'    | 1.55        | 0.88     |
| 2:A:2623:G:O2'    | 2:A:2825:C:O2'    | 1.84        | 0.88     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2626:C:C6     | 2:A:2626:C:O5'    | 2.27        | 0.88     |
| 2:A:2633:G:H5'    | 2:A:2812:G:H5'    | 1.54        | 0.88     |
| 2:A:2642:G:O2'    | 2:A:2643:G:C5'    | 2.15        | 0.88     |
| 2:A:2688:U:O2     | 2:A:2719:G:N3     | 2.06        | 0.88     |
| 2:A:2712:U:C3'    | 2:A:2714:G:OP2    | 2.20        | 0.88     |
| 2:A:2740:A:C8     | 2:A:2741:A:N7     | 2.42        | 0.88     |
| 3:D:161:ALA:CA    | 3:D:162:GLN:NE2   | 2.37        | 0.88     |
| 3:D:167:GLU:C     | 3:D:170:TYR:CE1   | 2.46        | 0.88     |
| 5:F:111:VAL:C     | 5:F:114:ALA:HB3   | 1.92        | 0.88     |
| 2:A:617:G:OP1     | 5:F:221:GLU:CD    | 2.11        | 0.88     |
| 7:H:90:GLY:CA     | 7:H:159:LYS:HG3   | 2.00        | 0.88     |
| 8:I:21:VAL:HG11   | 8:I:30:LEU:HD12   | 1.56        | 0.88     |
| 10:O:90:ASP:O     | 10:O:92:SER:N     | 2.07        | 0.88     |
| 19:R:18:LEU:HD13  | 19:R:18:LEU:C     | 1.94        | 0.88     |
| 1:B:12:C:N3       | 13:S:10:MET:CE    | 2.37        | 0.88     |
| 14:T:28:THR:C     | 14:T:29:THR:HG23  | 1.93        | 0.88     |
| 2:A:1151:G:C3'    | 20:U:81:ASN:ND2   | 2.36        | 0.88     |
| 2:A:904:C:O4'     | 18:Z:166:LEU:HD21 | 1.74        | 0.88     |
| 18:Z:176:LEU:HD23 | 18:Z:176:LEU:C    | 1.93        | 0.88     |
| 16:X:17:ASP:CA    | 16:X:20:PHE:CE1   | 2.56        | 0.88     |
| 25:4:14:ILE:HG23  | 25:4:16:TYR:HE1   | 1.32        | 0.88     |
| 26:5:15:LYS:O     | 26:5:18:MET:N     | 2.06        | 0.88     |
| 27:6:19:GLY:HA2   | 27:6:44:ALA:HB2   | 1.56        | 0.88     |
| 27:6:39:LYS:HA    | 27:6:50:PHE:CD1   | 2.08        | 0.88     |
| 28:7:30:ILE:O     | 28:7:33:ARG:CA    | 2.21        | 0.88     |
| 2:A:1029:A:H3'    | 2:A:1030:G:P      | 2.12        | 0.88     |
| 2:A:1809:A:N6     | 25:4:3:LYS:HG2    | 1.88        | 0.88     |
| 2:A:1818:U:C4'    | 3:D:155:ARG:HG3   | 2.04        | 0.88     |
| 2:A:2295:C:N4     | 2:A:2337:G:N1     | 2.21        | 0.88     |
| 2:A:2320:A:H2     | 2:A:2333:A:C4     | 1.91        | 0.88     |
| 2:A:2484:G:H1'    | 12:Q:142:LYS:NZ   | 1.88        | 0.88     |
| 2:A:2517:C:C2     | 2:A:2542:A:N6     | 2.41        | 0.88     |
| 2:A:2653:U:H3     | 2:A:2654:A:N6     | 1.71        | 0.88     |
| 2:A:2777:G:C8     | 2:A:2777:G:O5'    | 2.27        | 0.88     |
| 3:D:155:ARG:C     | 3:D:157:ALA:H     | 1.75        | 0.88     |
| 4:E:222:ARG:HD3   | 4:E:232:ARG:HA    | 1.56        | 0.88     |
| 2:A:2051:A:C4'    | 4:E:238:LEU:HD21  | 2.04        | 0.88     |
| 7:H:93:TYR:HB3    | 7:H:106:VAL:CG2   | 1.99        | 0.88     |
| 9:N:58:GLU:HA     | 9:N:61:VAL:CB     | 2.03        | 0.88     |
| 10:O:31:ARG:C     | 10:O:32:TYR:CD1   | 2.47        | 0.88     |
| 11:P:94:ARG:HB2   | 11:P:120:LEU:HD21 | 0.89        | 0.88     |
| 12:Q:41:THR:CB    | 12:Q:126:VAL:HA   | 2.03        | 0.88     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:58:HIS:ND1  | 12:Q:59:ASN:N    | 2.20        | 0.88     |
| 2:A:1151:G:C3'   | 20:U:81:ASN:HD21 | 1.85        | 0.88     |
| 17:Y:26:THR:O    | 17:Y:27:LEU:HG   | 1.72        | 0.88     |
| 17:Y:41:ARG:CB   | 17:Y:112:LEU:HA  | 1.98        | 0.88     |
| 17:Y:51:LEU:O    | 17:Y:52:ARG:HG3  | 1.73        | 0.88     |
| 17:Y:57:GLY:H    | 17:Y:97:ARG:NH2  | 1.70        | 0.88     |
| 17:Y:9:LYS:HE3   | 17:Y:13:ARG:CZ   | 2.04        | 0.88     |
| 25:4:41:PRO:HB3  | 25:4:59:PHE:HE1  | 1.38        | 0.88     |
| 26:5:15:LYS:HZ3  | 26:5:15:LYS:HB2  | 1.39        | 0.88     |
| 2:A:142(A):A:OP2 | 2:A:1143:A:C8    | 2.27        | 0.88     |
| 2:A:2236:C:C2'   | 2:A:2237:G:C5'   | 2.50        | 0.88     |
| 2:A:2471:C:O2    | 2:A:2479:G:N2    | 2.06        | 0.88     |
| 2:A:2575:C:H5'   | 4:E:241:TRP:HE1  | 1.36        | 0.88     |
| 2:A:2657:A:N6    | 2:A:2664:G:N2    | 2.12        | 0.88     |
| 2:A:2756:U:N3    | 2:A:2759:G:O6    | 2.07        | 0.88     |
| 2:A:2813:A:O2'   | 2:A:2814:C:H6    | 1.57        | 0.88     |
| 2:A:564:C:P      | 21:V:79:GLN:CG   | 2.60        | 0.88     |
| 5:F:230:GLY:C    | 5:F:231:ARG:CG   | 2.40        | 0.88     |
| 5:F:47:GLY:HA2   | 5:F:92:PRO:CA    | 2.03        | 0.88     |
| 5:F:6:TYR:HE2    | 5:F:140:VAL:HG22 | 1.36        | 0.88     |
| 12:Q:57:ARG:C    | 12:Q:61:LEU:HD21 | 1.93        | 0.88     |
| 13:S:31:LYS:HB3  | 13:S:32:PRO:HD3  | 1.51        | 0.88     |
| 2:A:566:U:OP2    | 21:V:81:ARG:NE   | 2.07        | 0.88     |
| 2:A:414:C:N3     | 2:A:2409:G:N2    | 2.20        | 0.88     |
| 24:0:43:THR:OG1  | 24:0:75:GLY:O    | 1.90        | 0.88     |
| 2:A:1783:A:N1    | 2:A:2587:A:C2    | 2.37        | 0.88     |
| 2:A:1818:U:C5'   | 3:D:155:ARG:HB2  | 2.04        | 0.88     |
| 2:A:2320:A:O5'   | 2:A:2320:A:H8    | 1.56        | 0.88     |
| 2:A:2366:A:C8    | 2:A:2367:G:C8    | 2.62        | 0.88     |
| 2:A:2463:C:O2    | 2:A:2464:C:C6    | 2.26        | 0.88     |
| 2:A:2700:C:C2'   | 2:A:2701:C:H4'   | 2.03        | 0.88     |
| 2:A:2731:G:N2    | 2:A:2732:G:C2    | 2.42        | 0.88     |
| 2:A:2739:U:O2'   | 2:A:2740:A:H5''  | 1.74        | 0.88     |
| 2:A:856:C:HO2'   | 24:0:24:LYS:HD3  | 1.35        | 0.88     |
| 4:E:201:VAL:N    | 4:E:266:LYS:CD   | 2.37        | 0.88     |
| 4:E:315:VAL:O    | 4:E:317:PRO:HD3  | 1.74        | 0.88     |
| 4:E:99:VAL:CG1   | 4:E:100:TRP:H    | 1.87        | 0.88     |
| 5:F:157:LEU:HB2  | 5:F:158:GLU:CD   | 1.93        | 0.88     |
| 5:F:39:GLN:OE1   | 5:F:39:GLN:N     | 2.07        | 0.88     |
| 1:B:42:C:H5'     | 6:G:48:MET:HB2   | 1.56        | 0.88     |
| 7:H:43:THR:HG23  | 7:H:52:THR:HG23  | 0.88        | 0.88     |
| 12:Q:46:VAL:O    | 12:Q:124:ALA:C   | 2.11        | 0.88     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:V:59:GLU:C    | 21:V:60:VAL:HG23 | 1.93        | 0.88     |
| 21:V:83:ARG:O    | 21:V:84:THR:OG1  | 1.89        | 0.88     |
| 15:W:8:ARG:CG    | 15:W:9:TYR:H     | 1.85        | 0.88     |
| 17:Y:55:PHE:HB3  | 17:Y:58:GLU:OE2  | 1.73        | 0.88     |
| 22:2:23:LEU:CA   | 22:2:26:GLU:OE1  | 2.18        | 0.88     |
| 16:X:33:SER:CA   | 16:X:37:VAL:CG2  | 2.51        | 0.88     |
| 16:X:48:THR:O    | 16:X:50:GLU:OE2  | 1.91        | 0.88     |
| 2:A:1801:G:H8    | 2:A:1801:G:OP1   | 1.57        | 0.88     |
| 2:A:388:G:H5'    | 25:4:24:THR:CG2  | 2.04        | 0.87     |
| 25:4:32:HIS:O    | 25:4:34:ASP:OD1  | 1.92        | 0.87     |
| 2:A:2333:A:C4    | 2:A:2335:A:C2    | 2.61        | 0.87     |
| 2:A:2425:A:O2'   | 2:A:2426:A:P     | 2.32        | 0.87     |
| 2:A:2458:G:O6    | 2:A:2490:G:C2'   | 2.21        | 0.87     |
| 2:A:2574:G:HO2'  | 4:E:240:PRO:HB3  | 0.81        | 0.87     |
| 2:A:2663:G:H2'   | 2:A:2664:G:H8    | 1.35        | 0.87     |
| 2:A:2734:A:H5''  | 2:A:2734:A:C8    | 2.09        | 0.87     |
| 2:A:2734:A:N7    | 2:A:2735:G:C8    | 2.42        | 0.87     |
| 2:A:1819:A:H2'   | 3:D:177:SER:CB   | 2.04        | 0.87     |
| 4:E:221:LYS:HZ3  | 4:E:233:ARG:HG2  | 1.37        | 0.87     |
| 6:G:11:HIS:NE2   | 6:G:15:GLU:OE2   | 2.05        | 0.87     |
| 9:N:83:ILE:O     | 9:N:86:MET:N     | 2.05        | 0.87     |
| 11:P:101:ASP:O   | 11:P:102:ASP:CG  | 2.13        | 0.87     |
| 12:Q:57:ARG:C    | 12:Q:61:LEU:CG   | 2.42        | 0.87     |
| 19:R:21:TYR:HB3  | 19:R:47:PHE:CE2  | 2.09        | 0.87     |
| 18:Z:14:LEU:CD2  | 18:Z:79:ILE:HG21 | 2.04        | 0.87     |
| 18:Z:51:LEU:CD2  | 18:Z:52:PHE:N    | 2.33        | 0.87     |
| 16:X:20:PHE:HD1  | 16:X:22:ASN:N    | 1.71        | 0.87     |
| 26:5:34:PRO:CD   | 26:5:36:CYS:SG   | 2.63        | 0.87     |
| 2:A:856:C:O2'    | 24:0:24:LYS:CD   | 2.22        | 0.87     |
| 23:3:54:VAL:HG23 | 23:3:55:ARG:N    | 1.89        | 0.87     |
| 29:8:5:LYS:C     | 29:8:7:HIS:N     | 2.26        | 0.87     |
| 2:A:2067:G:H1    | 2:A:2443:C:N4    | 1.72        | 0.87     |
| 2:A:2266:A:N6    | 2:A:2273:A:OP2   | 2.07        | 0.87     |
| 2:A:2482:G:C5    | 2:A:2483:C:C6    | 2.63        | 0.87     |
| 2:A:2509:G:N3    | 2:A:2580:U:O2    | 2.06        | 0.87     |
| 2:A:2045:C:H42   | 2:A:2623:G:H1    | 0.88        | 0.87     |
| 2:A:2689:U:C5'   | 2:A:2690:C:H5''  | 2.03        | 0.87     |
| 2:A:2783:G:H8    | 2:A:2783:G:O5'   | 1.57        | 0.87     |
| 2:A:535:C:H4'    | 20:U:53:LYS:HE3  | 0.89        | 0.87     |
| 5:F:144:PHE:C    | 5:F:146:ASP:H    | 1.77        | 0.87     |
| 5:F:197:SER:HB3  | 5:F:239:ALA:H    | 1.37        | 0.87     |
| 9:N:19:MET:CE    | 9:N:22:VAL:HG21  | 2.05        | 0.87     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 9:N:45:VAL:C      | 9:N:46:ILE:HG13   | 1.86        | 0.87     |
| 11:P:77:ALA:CA    | 11:P:81:VAL:CG1   | 2.51        | 0.87     |
| 2:A:911:A:N3      | 12:Q:16:ARG:HG2   | 1.90        | 0.87     |
| 12:Q:67:ALA:H     | 12:Q:70:ARG:NH2   | 1.72        | 0.87     |
| 2:A:2320:A:H62    | 13:S:9:PRO:CG     | 1.87        | 0.87     |
| 14:T:14:GLU:OE1   | 14:T:14:GLU:HA    | 1.73        | 0.87     |
| 21:V:40:VAL:CB    | 21:V:51:ALA:HB1   | 2.03        | 0.87     |
| 2:A:1789:A:H4'    | 3:D:224:VAL:CG1   | 2.03        | 0.87     |
| 25:4:51:ASP:O     | 25:4:52:THR:HG22  | 1.75        | 0.87     |
| 26:5:15:LYS:O     | 26:5:16:ARG:C     | 2.09        | 0.87     |
| 2:A:2720:U:C4     | 2:A:2873:A:N6     | 2.25        | 0.87     |
| 2:A:2821:A:N3     | 2:A:2822:G:C8     | 2.42        | 0.87     |
| 2:A:2838:G:C5     | 2:A:2839:G:C8     | 2.62        | 0.87     |
| 3:D:75:GLY:C      | 3:D:115:ILE:O     | 2.11        | 0.87     |
| 3:D:149:ARG:HB2   | 3:D:152:GLN:HE21  | 1.38        | 0.87     |
| 4:E:79:ARG:NH1    | 4:E:104:PHE:O     | 2.02        | 0.87     |
| 7:H:93:TYR:HE1    | 7:H:106:VAL:C     | 1.75        | 0.87     |
| 9:N:19:MET:HB3    | 9:N:46:ILE:CD1    | 2.05        | 0.87     |
| 9:N:95:ARG:HA     | 9:N:98:PHE:CE1    | 2.08        | 0.87     |
| 11:P:106:VAL:CG2  | 11:P:122:ALA:HB1  | 2.03        | 0.87     |
| 12:Q:41:THR:HG21  | 12:Q:126:VAL:HA   | 1.52        | 0.87     |
| 2:A:911:A:N7      | 12:Q:16:ARG:HG3   | 1.88        | 0.87     |
| 13:S:40:ASN:HA    | 13:S:114:LYS:HZ2  | 1.35        | 0.87     |
| 2:A:25:U:C5'      | 15:W:80:PRO:HD2   | 1.98        | 0.87     |
| 15:W:85:VAL:CG1   | 15:W:95:ILE:HD11  | 2.03        | 0.87     |
| 17:Y:101:LEU:HD13 | 17:Y:103:LEU:HD11 | 1.57        | 0.87     |
| 18:Z:10:PRO:O     | 18:Z:14:LEU:N     | 2.08        | 0.87     |
| 2:A:1789:A:OP1    | 3:D:226:GLY:CA    | 2.21        | 0.87     |
| 22:2:8:ILE:C      | 22:2:11:MET:HG2   | 1.94        | 0.87     |
| 2:A:1906:G:C4     | 2:A:1929:G:C5     | 2.62        | 0.87     |
| 26:5:42:SER:O     | 26:5:43:HIS:HB2   | 1.73        | 0.87     |
| 29:8:12:ARG:HD2   | 29:8:13:ARG:HD2   | 1.57        | 0.87     |
| 2:A:1612:C:H2'    | 28:7:3:ARG:CD     | 2.05        | 0.87     |
| 2:A:2354:G:N3     | 24:0:32:LYS:HE2   | 1.89        | 0.87     |
| 2:A:2626:C:H2'    | 2:A:2627:G:H5'    | 0.89        | 0.87     |
| 2:A:2679:A:H61    | 2:A:2728:U:H3     | 1.23        | 0.87     |
| 2:A:2759:G:O2'    | 2:A:2760:C:C5'    | 2.23        | 0.87     |
| 2:A:2862:G:H2'    | 2:A:2863:C:C5     | 2.09        | 0.87     |
| 2:A:2881:C:N4     | 2:A:2882:A:H62    | 1.72        | 0.87     |
| 4:E:180:ILE:CG2   | 4:E:187:HIS:CB    | 2.48        | 0.87     |
| 5:F:106:GLU:O     | 5:F:109:LEU:HB2   | 1.74        | 0.87     |
| 5:F:164:ALA:CB    | 5:F:232:LEU:HD13  | 2.02        | 0.87     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:F:56:THR:HB    | 5:F:57:PRO:CD     | 2.04        | 0.87     |
| 5:F:6:TYR:CE1    | 5:F:139:VAL:HB    | 2.08        | 0.87     |
| 7:H:25:VAL:HG12  | 7:H:78:VAL:HG21   | 1.56        | 0.87     |
| 11:P:64:ILE:O    | 11:P:108:VAL:HA   | 1.74        | 0.87     |
| 11:P:71:GLU:O    | 11:P:73:VAL:N     | 2.07        | 0.87     |
| 12:Q:65:ARG:HE   | 12:Q:85:ILE:HB    | 1.38        | 0.87     |
| 19:R:90:ARG:HH22 | 19:R:117:VAL:HG22 | 1.39        | 0.87     |
| 20:U:98:ILE:O    | 20:U:101:ARG:N    | 2.08        | 0.87     |
| 18:Z:141:MET:N   | 18:Z:141:MET:SD   | 2.46        | 0.87     |
| 18:Z:68:ALA:O    | 18:Z:69:VAL:HG23  | 0.70        | 0.87     |
| 16:X:6:LYS:CE    | 16:X:29:ASP:CA    | 2.52        | 0.87     |
| 23:3:38:GLU:O    | 23:3:40:THR:HG22  | 1.74        | 0.87     |
| 27:6:8:ILE:HA    | 27:6:29:ARG:HH21  | 1.38        | 0.87     |
| 30:9:20:HIS:C    | 30:9:22:ARG:H     | 1.78        | 0.87     |
| 2:A:2320:A:C2    | 2:A:2333:A:N3     | 2.42        | 0.87     |
| 2:A:2400:G:H4'   | 27:6:20:PHE:CE1   | 2.09        | 0.87     |
| 2:A:2445:G:O2'   | 2:A:2446:G:H5'    | 1.75        | 0.87     |
| 2:A:2589:A:H2'   | 2:A:2590:A:H5'    | 1.54        | 0.87     |
| 2:A:2633:G:N2    | 2:A:2634:G:C5     | 2.42        | 0.87     |
| 2:A:2706:G:O5'   | 2:A:2706:G:H8     | 1.57        | 0.87     |
| 2:A:2825:C:H3'   | 2:A:2825:C:C6     | 2.10        | 0.87     |
| 2:A:674:G:H5''   | 5:F:69:HIS:CA     | 2.03        | 0.87     |
| 5:F:39:GLN:OE1   | 5:F:40:ALA:N      | 2.06        | 0.87     |
| 5:F:4:THR:O      | 5:F:139:VAL:CG1   | 2.23        | 0.87     |
| 6:G:135:VAL:O    | 6:G:135:VAL:HG12  | 1.73        | 0.87     |
| 6:G:57:THR:HG22  | 6:G:58:VAL:N      | 1.90        | 0.87     |
| 7:H:159:LYS:N    | 7:H:162:ARG:HH22  | 1.72        | 0.87     |
| 8:I:25:TYR:N     | 8:I:25:TYR:HD2    | 1.70        | 0.87     |
| 9:N:60:ARG:CA    | 9:N:71:TYR:HD2    | 1.88        | 0.87     |
| 11:P:64:ILE:HD12 | 11:P:106:VAL:CB   | 2.05        | 0.87     |
| 12:Q:44:ALA:HB1  | 12:Q:126:VAL:O    | 1.73        | 0.87     |
| 12:Q:140:TYR:O   | 12:Q:143:VAL:HG22 | 1.74        | 0.87     |
| 13:S:27:LEU:C    | 13:S:27:LEU:HD13  | 1.93        | 0.87     |
| 13:S:56:ASP:O    | 13:S:57:THR:CG2   | 2.22        | 0.87     |
| 10:O:99:PHE:CD2  | 14:T:24:LYS:HE3   | 2.07        | 0.87     |
| 20:U:5:LYS:O     | 20:U:7:GLY:N      | 2.08        | 0.87     |
| 3:D:61:TYR:HH    | 3:D:214:MET:CE    | 1.79        | 0.87     |
| 23:3:20:LYS:CD   | 23:3:23:LEU:HD12  | 2.03        | 0.87     |
| 26:5:25:LEU:O    | 26:5:26:THR:CG2   | 2.23        | 0.87     |
| 30:9:24:LEU:CD1  | 30:9:35:ARG:HG3   | 2.05        | 0.87     |
| 2:A:2084:C:O2    | 2:A:2235:G:N2     | 2.06        | 0.87     |
| 2:A:2304:G:H4'   | 6:G:105:SER:HB2   | 1.55        | 0.87     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1966:A:C2    | 2:A:2593:U:H5'    | 2.10        | 0.87     |
| 2:A:2044:C:C2    | 2:A:2624:G:N2     | 2.38        | 0.87     |
| 2:A:2661:G:C4    | 2:A:2662:A:N7     | 2.42        | 0.87     |
| 2:A:2666:C:H3'   | 2:A:2667:C:H5'    | 1.56        | 0.87     |
| 2:A:919:G:N2     | 2:A:2268:A:C5'    | 2.37        | 0.87     |
| 3:D:131:LEU:HD11 | 3:D:183:ILE:HG21  | 0.89        | 0.87     |
| 5:F:212:VAL:O    | 5:F:212:VAL:HG12  | 1.72        | 0.87     |
| 12:Q:140:TYR:CG  | 12:Q:147:VAL:HG11 | 2.09        | 0.87     |
| 13:S:74:PRO:O    | 13:S:80:SER:N     | 2.07        | 0.87     |
| 21:V:74:TYR:CZ   | 21:V:87:ARG:C     | 2.44        | 0.87     |
| 15:W:23:LEU:C    | 15:W:25:ARG:H     | 1.76        | 0.87     |
| 15:W:83:LYS:HA   | 15:W:97:LYS:HG2   | 1.54        | 0.87     |
| 18:Z:26:LYS:HB3  | 18:Z:26:LYS:NZ    | 1.89        | 0.87     |
| 2:A:1080:C:C1'   | 31:K:126:LYS:O    | 2.23        | 0.87     |
| 9:N:105:LEU:CG   | 9:N:106:GLY:H     | 1.86        | 0.87     |
| 7:H:170:LEU:HD13 | 7:H:170:LEU:C     | 1.94        | 0.87     |
| 24:O:52:GLY:O    | 24:O:53:MET:HG2   | 1.73        | 0.87     |
| 23:3:3:ARG:HD3   | 23:3:60:GLU:CB    | 2.03        | 0.87     |
| 28:7:30:ILE:HA   | 28:7:33:ARG:HD2   | 0.95        | 0.87     |
| 29:8:16:ILE:HG22 | 29:8:21:LYS:O     | 1.74        | 0.87     |
| 29:8:30:ARG:NH2  | 29:8:41:ILE:HG23  | 1.88        | 0.87     |
| 2:A:1151:G:C4'   | 20:U:81:ASN:CG    | 2.27        | 0.87     |
| 2:A:1952:A:C2    | 10:O:22:ILE:HG23  | 2.09        | 0.87     |
| 2:A:2317:C:C6    | 2:A:2318:G:N7     | 2.43        | 0.87     |
| 2:A:2373:G:N1    | 2:A:2374:C:N4     | 2.22        | 0.87     |
| 2:A:1127:A:N1    | 2:A:2518:A:N3     | 2.22        | 0.87     |
| 2:A:2581:G:N2    | 2:A:2610:C:C6     | 2.42        | 0.87     |
| 2:A:2652:C:C6    | 2:A:2653:U:H5     | 1.83        | 0.87     |
| 2:A:2695:C:H2'   | 2:A:2696:U:C6     | 2.10        | 0.87     |
| 2:A:602:G:O3'    | 2:A:603:A:H4'     | 1.70        | 0.87     |
| 3:D:89:ASN:C     | 3:D:105:ALA:HB2   | 1.95        | 0.87     |
| 4:E:211:GLN:O    | 4:E:216:ARG:NH1   | 2.07        | 0.87     |
| 6:G:149:ARG:O    | 6:G:151:ILE:N     | 2.06        | 0.87     |
| 2:A:2317:C:C5'   | 6:G:150:SER:HB3   | 2.04        | 0.87     |
| 6:G:53:LYS:CG    | 6:G:54:ALA:N      | 2.33        | 0.87     |
| 2:A:2310:A:C5    | 6:G:55:LYS:NZ     | 2.43        | 0.87     |
| 8:I:7:LYS:CG     | 8:I:12:LYS:HA     | 2.03        | 0.87     |
| 8:I:7:LYS:HG3    | 8:I:12:LYS:HD3    | 1.55        | 0.87     |
| 10:O:40:VAL:HG12 | 10:O:40:VAL:O     | 1.74        | 0.87     |
| 2:A:1163:G:C5'   | 21:V:23:GLU:OE1   | 2.21        | 0.87     |
| 21:V:42:GLY:O    | 21:V:54:TYR:OH    | 1.93        | 0.87     |
| 15:W:86:LEU:HB3  | 15:W:87:PRO:HD3   | 1.56        | 0.87     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:Z:24:TYR:CD2  | 18:Z:84:TYR:CD1  | 2.61        | 0.87     |
| 2:A:623:G:H2'    | 2:A:624:C:H6     | 1.40        | 0.87     |
| 2:A:1108:U:O3'   | 2:A:1109:C:P     | 2.33        | 0.87     |
| 25:4:68:ARG:CG   | 25:4:72:LYS:CG   | 2.52        | 0.87     |
| 28:7:21:ARG:HD2  | 28:7:31:LEU:HD13 | 1.57        | 0.87     |
| 28:7:38:GLY:O    | 28:7:39:ARG:CB   | 2.22        | 0.87     |
| 2:A:126:A:P      | 28:7:44:VAL:HG11 | 2.14        | 0.87     |
| 2:A:2044:C:H42   | 2:A:2624:G:H1    | 0.88        | 0.87     |
| 2:A:2188:C:C4    | 2:A:2189:U:C4    | 2.63        | 0.87     |
| 2:A:2227:A:N6    | 2:A:2228:G:O6    | 2.06        | 0.87     |
| 2:A:2259:G:N7    | 2:A:2260:C:C4    | 2.43        | 0.87     |
| 2:A:919:G:N2     | 2:A:2268:A:H5'   | 1.90        | 0.87     |
| 2:A:2699:C:O2    | 2:A:2699:C:H2'   | 1.73        | 0.87     |
| 2:A:872:A:O2'    | 12:Q:31:PHE:CG   | 2.28        | 0.87     |
| 4:E:210:THR:CG2  | 4:E:255:GLN:HG2  | 2.03        | 0.87     |
| 7:H:51:VAL:HG21  | 7:H:68:ARG:HE    | 1.39        | 0.87     |
| 10:O:29:GLY:O    | 10:O:30:ARG:O    | 1.90        | 0.87     |
| 11:P:67:ARG:HH11 | 11:P:111:ALA:C   | 1.77        | 0.87     |
| 13:S:12:ARG:NH1  | 13:S:20:TYR:HE2  | 1.37        | 0.87     |
| 27:6:41:ASP:HB3  | 27:6:47:HIS:N    | 1.90        | 0.87     |
| 27:6:45:LYS:C    | 27:6:46:LYS:HE2  | 1.95        | 0.87     |
| 28:7:30:ILE:HD11 | 28:7:33:ARG:HH12 | 1.39        | 0.87     |
| 2:A:1151:G:C4'   | 20:U:81:ASN:OD1  | 2.23        | 0.87     |
| 2:A:2046:G:OP1   | 26:5:19:ARG:N    | 2.08        | 0.87     |
| 2:A:2247:A:H2'   | 2:A:2248:C:H6    | 1.39        | 0.87     |
| 2:A:2439:A:N3    | 2:A:2439:A:C2'   | 2.37        | 0.87     |
| 2:A:2616:C:C2'   | 2:A:2617:C:C5'   | 2.44        | 0.87     |
| 2:A:328:U:O2'    | 17:Y:94:SER:CB   | 2.21        | 0.87     |
| 2:A:372:G:O2'    | 25:4:63:PHE:CZ   | 2.28        | 0.87     |
| 3:D:126:GLY:O    | 3:D:127:ASN:O    | 1.91        | 0.87     |
| 3:D:74:PRO:CA    | 3:D:116:MET:HE2  | 1.98        | 0.87     |
| 3:D:86:ARG:O     | 3:D:87:SER:OG    | 1.92        | 0.87     |
| 4:E:222:ARG:CG   | 4:E:232:ARG:HA   | 2.05        | 0.87     |
| 5:F:140:VAL:HG23 | 5:F:234:VAL:HB   | 1.57        | 0.87     |
| 9:N:63:ILE:HG21  | 9:N:71:TYR:OH    | 1.73        | 0.87     |
| 11:P:67:ARG:NE   | 11:P:67:ARG:N    | 2.23        | 0.87     |
| 12:Q:32:LYS:HZ1  | 18:Z:172:LEU:CD1 | 1.83        | 0.87     |
| 12:Q:36:ASN:HB3  | 12:Q:41:THR:N    | 1.90        | 0.87     |
| 12:Q:89:PRO:HA   | 12:Q:113:ALA:HB2 | 1.57        | 0.87     |
| 13:S:27:LEU:HB2  | 13:S:33:ARG:HH22 | 1.06        | 0.87     |
| 13:S:98:GLU:CG   | 13:S:99:GLU:H    | 1.88        | 0.87     |
| 20:U:8:ILE:N     | 20:U:11:ARG:CD   | 2.38        | 0.87     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 15:W:66:GLU:HG2  | 15:W:67:ASP:N     | 1.89        | 0.87     |
| 18:Z:141:MET:CB  | 18:Z:171:VAL:HG11 | 2.05        | 0.87     |
| 18:Z:85:MET:O    | 18:Z:86:VAL:HG23  | 1.75        | 0.87     |
| 8:I:75:LEU:CD1   | 8:I:76:THR:N      | 2.36        | 0.87     |
| 8:I:91:GLY:O     | 8:I:92:SER:O      | 1.92        | 0.87     |
| 9:N:10:VAL:CG1   | 9:N:36:VAL:CG2    | 1.97        | 0.87     |
| 2:A:1827:C:N4    | 3:D:225:ARG:NH1   | 2.22        | 0.87     |
| 2:A:176:G:C3'    | 2:A:177:G:H8      | 1.87        | 0.87     |
| 26:5:34:PRO:HG2  | 26:5:36:CYS:SG    | 2.14        | 0.86     |
| 2:A:1240:U:H3'   | 2:A:1241:A:H8     | 1.38        | 0.86     |
| 2:A:1364:G:OP1   | 25:4:3:LYS:HG2    | 1.73        | 0.86     |
| 2:A:2049:G:C2    | 2:A:2620:C:C2     | 2.61        | 0.86     |
| 2:A:2087:G:O6    | 2:A:2233:U:C5     | 2.28        | 0.86     |
| 2:A:2355:C:H4'   | 24:0:21:LEU:HD13  | 0.95        | 0.86     |
| 2:A:2258:C:C4    | 2:A:2426:A:H1'    | 2.09        | 0.86     |
| 2:A:2078:C:H4'   | 2:A:2434:A:H5'    | 1.55        | 0.86     |
| 2:A:2657:A:C5    | 2:A:2664:G:N2     | 2.42        | 0.86     |
| 2:A:2721:A:N3    | 2:A:2722:G:C8     | 2.43        | 0.86     |
| 2:A:2768:C:C2    | 2:A:2769:C:H6     | 1.86        | 0.86     |
| 2:A:2781:A:H5''  | 2:A:2782:G:O5'    | 1.68        | 0.86     |
| 2:A:631:A:H2     | 2:A:2415:G:N3     | 1.72        | 0.86     |
| 2:A:911:A:C2     | 12:Q:16:ARG:HG2   | 2.10        | 0.86     |
| 3:D:104:ILE:N    | 3:D:104:ILE:CD1   | 2.32        | 0.86     |
| 3:D:196:ASN:HA   | 3:D:199:ARG:CD    | 2.04        | 0.86     |
| 3:D:73:ILE:HG22  | 3:D:95:TYR:CD2    | 1.80        | 0.86     |
| 6:G:142:ALA:HB2  | 6:G:151:ILE:HD11  | 1.55        | 0.86     |
| 6:G:49:PRO:CB    | 6:G:72:LYS:H      | 1.87        | 0.86     |
| 7:H:73:ASN:CG    | 7:H:137:LYS:NZ    | 2.28        | 0.86     |
| 9:N:27:ALA:O     | 9:N:28:GLU:C      | 2.12        | 0.86     |
| 2:A:1665:A:C2'   | 10:O:66:LYS:HZ3   | 1.75        | 0.86     |
| 2:A:2376:A:C2    | 13:S:102:LEU:CD2  | 2.57        | 0.86     |
| 18:Z:141:MET:HA  | 18:Z:171:VAL:HG11 | 1.55        | 0.86     |
| 3:D:208:GLY:HA2  | 3:D:210:LYS:HZ3   | 0.72        | 0.86     |
| 2:A:138:G:H2'    | 2:A:139:G:H4'     | 1.57        | 0.86     |
| 18:Z:156:GLU:CG  | 18:Z:157:GLY:H    | 1.81        | 0.86     |
| 24:0:36:ILE:O    | 24:0:37:LEU:CD2   | 2.23        | 0.86     |
| 24:0:38:VAL:HA   | 24:0:40:GLN:NE2   | 1.89        | 0.86     |
| 26:5:44:HIS:HA   | 26:5:52:TYR:HH    | 1.06        | 0.86     |
| 29:8:8:LYS:O     | 29:8:11:LYS:N     | 2.07        | 0.86     |
| 29:8:16:ILE:HD12 | 29:8:16:ILE:N     | 1.91        | 0.86     |
| 2:A:1367:A:O2'   | 28:7:25:LYS:NZ    | 2.08        | 0.86     |
| 2:A:2234:G:C6    | 2:A:2235:G:C5     | 2.62        | 0.86     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2330:G:C2     | 2:A:2331:G:C1'    | 2.58        | 0.86     |
| 2:A:2344:U:C2'    | 2:A:2345:G:P      | 2.63        | 0.86     |
| 2:A:2395:C:H3'    | 2:A:2395:C:C6     | 2.09        | 0.86     |
| 2:A:2414:G:C4     | 2:A:2415:G:C8     | 2.63        | 0.86     |
| 2:A:2468:G:HO2'   | 2:A:2469:A:H8     | 0.90        | 0.86     |
| 2:A:1672:C:O2     | 2:A:2582:G:O4'    | 1.93        | 0.86     |
| 2:A:296:C:H6      | 2:A:338:G:N2      | 1.72        | 0.86     |
| 2:A:565:C:O2'     | 2:A:1253:A:C2     | 2.26        | 0.86     |
| 4:E:225:LYS:O     | 4:E:226:HIS:ND1   | 2.08        | 0.86     |
| 4:E:61:PRO:HB3    | 4:E:69:PRO:HB3    | 1.56        | 0.86     |
| 6:G:99:ASP:N      | 6:G:104:PHE:CD2   | 2.42        | 0.86     |
| 7:H:148:ARG:HH12  | 7:H:164:GLU:H     | 1.22        | 0.86     |
| 7:H:7:PRO:HD2     | 7:H:68:ARG:HD3    | 1.54        | 0.86     |
| 10:O:92:SER:CB    | 10:O:113:LYS:NZ   | 2.38        | 0.86     |
| 12:Q:67:ALA:O     | 12:Q:71:PHE:HD1   | 1.28        | 0.86     |
| 2:A:1161:C:HO2'   | 21:V:22:VAL:HG11  | 1.39        | 0.86     |
| 3:D:213:LYS:C     | 3:D:215:LYS:N     | 2.28        | 0.86     |
| 2:A:176:G:H3'     | 2:A:177:G:H8      | 1.39        | 0.86     |
| 2:A:2313:C:O2'    | 2:A:2314:C:C5'    | 2.23        | 0.86     |
| 2:A:2484:G:H2'    | 2:A:2485:G:O5'    | 1.75        | 0.86     |
| 2:A:2536:G:C6     | 2:A:2537:U:N3     | 2.43        | 0.86     |
| 2:A:2561:A:C5     | 2:A:2562:U:C6     | 2.64        | 0.86     |
| 2:A:2653:U:OP2    | 2:A:2654:A:H3'    | 1.74        | 0.86     |
| 2:A:2869:G:C2     | 2:A:2870:C:N1     | 2.43        | 0.86     |
| 4:E:45:LYS:HE2    | 4:E:301:PRO:HB2   | 1.54        | 0.86     |
| 6:G:97:GLN:OE1    | 6:G:106:PHE:HE2   | 1.56        | 0.86     |
| 8:I:13:GLY:CA     | 8:I:15:LYS:CE     | 2.53        | 0.86     |
| 9:N:16:ASP:N      | 9:N:45:VAL:HG23   | 1.83        | 0.86     |
| 11:P:61:ALA:HB1   | 11:P:107:LYS:HE2  | 1.57        | 0.86     |
| 11:P:114:VAL:HG11 | 11:P:133:VAL:HA   | 1.57        | 0.86     |
| 12:Q:58:HIS:N     | 12:Q:61:LEU:CD1   | 2.38        | 0.86     |
| 13:S:110:THR:HG22 | 13:S:115:VAL:HG23 | 1.56        | 0.86     |
| 20:U:27:SER:O     | 20:U:29:SER:CB    | 2.24        | 0.86     |
| 20:U:92:ARG:CA    | 20:U:95:LEU:CG    | 2.52        | 0.86     |
| 17:Y:49:GLU:OE2   | 17:Y:97:ARG:NH1   | 0.72        | 0.86     |
| 18:Z:67:LYS:HA    | 18:Z:67:LYS:CE    | 2.05        | 0.86     |
| 3:D:61:TYR:OH     | 3:D:214:MET:SD    | 2.29        | 0.86     |
| 22:2:7:GLU:OE1    | 22:2:8:ILE:HG13   | 1.74        | 0.86     |
| 2:A:1055:G:H3'    | 2:A:1056:G:P      | 2.13        | 0.86     |
| 25:4:49:PHE:CZ    | 25:4:71:SER:OG    | 2.20        | 0.86     |
| 29:8:6:THR:O      | 29:8:7:HIS:C      | 2.14        | 0.86     |
| 2:A:2364:C:C1'    | 24:0:32:LYS:HZ2   | 1.87        | 0.86     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2343:C:H5'   | 2:A:2374:C:OP1    | 1.73        | 0.86     |
| 2:A:2457:U:C5    | 2:A:2458:G:N3     | 2.42        | 0.86     |
| 2:A:1669:A:H5''  | 2:A:2550:G:OP1    | 1.76        | 0.86     |
| 2:A:2558:C:N3    | 2:A:2559:C:C4     | 2.43        | 0.86     |
| 2:A:2739:U:H2'   | 2:A:2740:A:H5''   | 1.46        | 0.86     |
| 2:A:2870:C:O2    | 2:A:2871:C:C6     | 2.28        | 0.86     |
| 1:B:56:G:H4'     | 1:B:57:A:H5''     | 1.58        | 0.86     |
| 7:H:36:PHE:HD2   | 7:H:70:LEU:HD13   | 1.39        | 0.86     |
| 12:Q:31:PHE:CD2  | 12:Q:85:ILE:O     | 2.29        | 0.86     |
| 19:R:93:GLY:C    | 19:R:95:THR:H     | 1.79        | 0.86     |
| 20:U:6:THR:O     | 20:U:9:VAL:CG2    | 2.23        | 0.86     |
| 21:V:61:VAL:C    | 21:V:98:ILE:CD1   | 2.43        | 0.86     |
| 17:Y:108:ARG:O   | 17:Y:112:LEU:HD23 | 1.73        | 0.86     |
| 22:2:24:LYS:HA   | 22:2:27:LEU:HD12  | 1.56        | 0.86     |
| 6:G:88:LEU:N     | 6:G:89:PRO:CD     | 2.38        | 0.86     |
| 24:0:36:ILE:O    | 24:0:37:LEU:HD23  | 1.75        | 0.86     |
| 24:0:49:GLN:O    | 24:0:73:GLY:HA3   | 1.76        | 0.86     |
| 2:A:2045:C:O2    | 26:5:22:HIS:CE1   | 2.27        | 0.86     |
| 2:A:2400:G:C2'   | 27:6:20:PHE:HE1   | 1.88        | 0.86     |
| 29:8:38:GLY:O    | 29:8:40:GLU:N     | 2.09        | 0.86     |
| 2:A:1364:G:H8    | 2:A:1364:G:H5'    | 1.40        | 0.86     |
| 2:A:2350:C:N4    | 2:A:2382:G:N1     | 2.24        | 0.86     |
| 2:A:2573:C:H6    | 2:A:2573:C:C4'    | 1.88        | 0.86     |
| 2:A:2589:A:C6    | 2:A:2590:A:N7     | 2.42        | 0.86     |
| 2:A:2615:U:H3    | 26:5:8:LYS:CG     | 1.87        | 0.86     |
| 2:A:2712:U:C3'   | 2:A:712(A):A:H5'' | 2.06        | 0.86     |
| 4:E:304:ASP:O    | 4:E:307:LEU:CG    | 2.23        | 0.86     |
| 5:F:81:PRO:CA    | 5:F:87:ARG:CB     | 2.53        | 0.86     |
| 9:N:15:ARG:CG    | 9:N:43:ARG:HD2    | 2.05        | 0.86     |
| 10:O:25:LEU:HD21 | 10:O:40:VAL:HG23  | 0.88        | 0.86     |
| 13:S:17:ARG:C    | 13:S:17:ARG:CD    | 2.43        | 0.86     |
| 21:V:3:ALA:C     | 21:V:12:TYR:OH    | 2.08        | 0.86     |
| 21:V:35:LEU:H    | 21:V:60:VAL:CG1   | 1.89        | 0.86     |
| 17:Y:18:GLU:CA   | 17:Y:21:LYS:HZ2   | 1.88        | 0.86     |
| 17:Y:46:ASP:HA   | 17:Y:102:ASP:CG   | 1.95        | 0.86     |
| 18:Z:129:ARG:NE  | 18:Z:129:ARG:HA   | 1.90        | 0.86     |
| 8:I:102:LEU:HD12 | 8:I:103:GLN:CA    | 2.05        | 0.86     |
| 3:D:208:GLY:C    | 3:D:210:LYS:HG2   | 1.96        | 0.86     |
| 3:D:216:ALA:HB1  | 3:D:223:ASN:CB    | 2.04        | 0.86     |
| 2:A:1789:A:C4'   | 3:D:224:VAL:HG11  | 2.05        | 0.86     |
| 16:X:9:HIS:ND1   | 16:X:27:ALA:N     | 2.24        | 0.86     |
| 2:A:1525:G:H3'   | 2:A:1526:G:P      | 2.16        | 0.86     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 25:4:46:GLU:O    | 25:4:47:GLU:HG3   | 0.69        | 0.86     |
| 25:4:41:PRO:HG2  | 25:4:57:ASP:HB2   | 1.58        | 0.86     |
| 29:8:26:LYS:HG3  | 29:8:45:GLY:CA    | 2.03        | 0.86     |
| 2:A:2187:G:H2'   | 2:A:2188:C:O4'    | 1.75        | 0.86     |
| 2:A:2251:G:OP2   | 2:A:2496:C:OP2    | 1.94        | 0.86     |
| 2:A:2425:A:HO2'  | 2:A:2426:A:P      | 1.98        | 0.86     |
| 2:A:2432:A:N3    | 2:A:2432:A:C2'    | 2.37        | 0.86     |
| 2:A:2457:U:H2'   | 2:A:2458:G:C5'    | 2.05        | 0.86     |
| 2:A:2517:C:O2'   | 2:A:2518:A:O5'    | 1.87        | 0.86     |
| 2:A:1759:A:H5'   | 2:A:2715:C:H1'    | 1.55        | 0.86     |
| 2:A:530:G:O6     | 2:A:2021:C:H3'    | 1.76        | 0.86     |
| 2:A:687:C:O2     | 2:A:787:U:C5'     | 2.23        | 0.86     |
| 4:E:235:ILE:HG23 | 4:E:236:GLY:N     | 1.89        | 0.86     |
| 4:E:43:GLY:O     | 4:E:309:PRO:O     | 1.94        | 0.86     |
| 5:F:219:ASN:H    | 5:F:219:ASN:HD22  | 0.95        | 0.86     |
| 5:F:38:ALA:O     | 5:F:39:GLN:C      | 2.14        | 0.86     |
| 9:N:47:THR:OG1   | 9:N:53:ILE:CD1    | 2.24        | 0.86     |
| 12:Q:36:ASN:C    | 12:Q:41:THR:HB    | 1.95        | 0.86     |
| 18:Z:91:PRO:CB   | 18:Z:127:PRO:HB3  | 2.04        | 0.86     |
| 16:X:34:LYS:O    | 16:X:35:GLY:O     | 1.91        | 0.86     |
| 2:A:1:G:H1       | 2:A:2902:C:H42    | 1.10        | 0.86     |
| 6:G:59:GLY:O     | 6:G:60:GLU:CG     | 2.19        | 0.86     |
| 24:0:37:LEU:CG   | 24:0:68:VAL:HG12  | 2.06        | 0.86     |
| 23:3:16:PRO:HB2  | 23:3:19:GLN:OE1   | 1.75        | 0.86     |
| 25:4:23:GLU:O    | 25:4:25:MET:N     | 2.08        | 0.86     |
| 2:A:1568:G:P     | 3:D:60:GLN:CG     | 2.24        | 0.86     |
| 2:A:1780:A:H3'   | 2:A:1781:C:C5'    | 2.05        | 0.86     |
| 2:A:2235:G:C4    | 2:A:2236:C:C5     | 2.63        | 0.86     |
| 2:A:2287:A:O2'   | 2:A:2288:A:H5'    | 1.76        | 0.86     |
| 2:A:2306:C:H42   | 6:G:53:LYS:HZ2    | 1.22        | 0.86     |
| 2:A:2334:G:N2    | 13:S:12:ARG:CG    | 2.37        | 0.86     |
| 2:A:2474:C:H41   | 2:A:2529:G:H21    | 1.19        | 0.86     |
| 2:A:2584:U:C2'   | 2:A:2585:U:C5     | 2.55        | 0.86     |
| 2:A:2648:C:H2'   | 2:A:2649:U:H5'    | 1.56        | 0.86     |
| 2:A:932:G:H5'    | 23:3:29:ARG:NH2   | 1.87        | 0.86     |
| 6:G:19:GLU:OE1   | 6:G:135:VAL:CA    | 2.22        | 0.86     |
| 10:O:75:SER:C    | 10:O:76:TYR:HD1   | 1.78        | 0.86     |
| 12:Q:65:ARG:HH21 | 12:Q:85:ILE:CB    | 1.89        | 0.86     |
| 20:U:14:HIS:ND1  | 20:U:36:PHE:CZ    | 2.23        | 0.86     |
| 20:U:50:ARG:NH2  | 21:V:73:LYS:O     | 1.72        | 0.86     |
| 15:W:104:THR:C   | 15:W:105:VAL:HG13 | 1.91        | 0.86     |
| 8:I:94:THR:HG22  | 8:I:97:GLN:HG3    | 1.58        | 0.86     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:2:55:ARG:O    | 22:2:58:THR:CB   | 2.23        | 0.86     |
| 16:X:38:ALA:O    | 16:X:39:ASP:C    | 2.14        | 0.86     |
| 28:7:21:ARG:NH2  | 28:7:43:THR:CB   | 2.38        | 0.86     |
| 2:A:2276:G:C2    | 2:A:2277:G:C8    | 2.64        | 0.86     |
| 2:A:2471:C:H2'   | 2:A:2472:G:O5'   | 1.75        | 0.86     |
| 2:A:2495:G:H4'   | 12:Q:101:MET:CG  | 2.06        | 0.86     |
| 2:A:2564:A:C2'   | 2:A:2565:A:H8    | 1.84        | 0.86     |
| 2:A:2722:G:C4    | 2:A:2723:C:C5    | 2.63        | 0.86     |
| 2:A:2752:C:H2'   | 2:A:2752:C:O2    | 1.73        | 0.86     |
| 2:A:2808:U:N3    | 2:A:2892:A:C5    | 2.44        | 0.86     |
| 2:A:690:G:O2'    | 2:A:780:G:OP1    | 1.92        | 0.86     |
| 2:A:957:A:C2     | 2:A:2459:A:H5'   | 2.11        | 0.86     |
| 3:D:104:ILE:HD12 | 3:D:104:ILE:H    | 1.34        | 0.86     |
| 4:E:205:THR:C    | 4:E:206:LYS:HG3  | 1.94        | 0.86     |
| 4:E:268:LEU:CD2  | 4:E:295:LEU:O    | 2.23        | 0.86     |
| 2:A:558:G:P      | 9:N:91:LYS:HB3   | 2.15        | 0.86     |
| 9:N:94:GLY:O     | 9:N:98:PHE:CD1   | 2.29        | 0.86     |
| 12:Q:65:ARG:CZ   | 12:Q:122:PHE:HE2 | 1.89        | 0.86     |
| 19:R:43:GLU:OE2  | 19:R:43:GLU:N    | 2.08        | 0.86     |
| 14:T:6:CYS:HB3   | 14:T:9:CYS:O     | 1.76        | 0.86     |
| 20:U:20:ARG:HH12 | 21:V:75:LYS:NZ   | 1.73        | 0.86     |
| 15:W:10:VAL:HG13 | 15:W:46:PHE:CE2  | 2.10        | 0.86     |
| 18:Z:39:PHE:HD2  | 18:Z:39:PHE:H    | 0.87        | 0.86     |
| 8:I:114:LYS:HD2  | 8:I:132:LYS:O    | 1.76        | 0.86     |
| 2:A:2386:C:C4'   | 24:0:39:ARG:NH2  | 2.37        | 0.86     |
| 26:5:11:THR:HB   | 26:5:16:ARG:HE   | 1.39        | 0.86     |
| 2:A:1309:G:OP2   | 28:7:9:ASN:ND2   | 2.09        | 0.86     |
| 2:A:2228:G:N7    | 2:A:2229:C:N1    | 2.21        | 0.86     |
| 2:A:2328:A:H2'   | 2:A:2329:G:C8    | 2.08        | 0.86     |
| 2:A:2416:C:O2    | 2:A:2417:C:C6    | 2.29        | 0.86     |
| 2:A:2469:A:N6    | 2:A:2481:G:H1'   | 1.90        | 0.86     |
| 2:A:2509:G:C2'   | 2:A:2510:C:C5'   | 2.52        | 0.86     |
| 2:A:2642:G:HO2'  | 2:A:2643:G:H5'   | 1.35        | 0.86     |
| 2:A:2677:G:O2'   | 2:A:2678:C:C5'   | 2.22        | 0.86     |
| 2:A:2698:U:N3    | 2:A:2699:C:C5    | 2.43        | 0.86     |
| 2:A:2768:C:H2'   | 2:A:2769:C:O5'   | 1.75        | 0.86     |
| 2:A:2768:C:O2'   | 2:A:2769:C:C5'   | 2.23        | 0.86     |
| 2:A:2768:C:O2    | 2:A:2769:C:C6    | 2.27        | 0.86     |
| 2:A:2785:C:H2'   | 2:A:2786:U:H6    | 1.40        | 0.86     |
| 2:A:2832:U:C1'   | 2:A:2834:G:H21   | 1.86        | 0.86     |
| 2:A:296:C:H6     | 2:A:338:G:H21    | 0.92        | 0.86     |
| 2:A:558:G:P      | 9:N:91:LYS:CB    | 2.64        | 0.86     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 3:D:131:LEU:CD1   | 3:D:183:ILE:HG22 | 2.06        | 0.86     |
| 4:E:105:HIS:HB2   | 4:E:108:LEU:HG   | 1.56        | 0.86     |
| 5:F:52:ALA:HA     | 5:F:55:ARG:CG    | 2.05        | 0.86     |
| 5:F:84:VAL:C      | 5:F:86:GLY:H     | 1.78        | 0.86     |
| 11:P:124:ASP:O    | 11:P:125:PHE:CG  | 2.28        | 0.86     |
| 12:Q:58:HIS:CG    | 12:Q:59:ASN:N    | 2.42        | 0.86     |
| 12:Q:58:HIS:O     | 12:Q:61:LEU:CG   | 2.20        | 0.86     |
| 12:Q:59:ASN:CG    | 12:Q:60:ALA:H    | 1.76        | 0.86     |
| 12:Q:11:LYS:HD2   | 12:Q:91:HIS:CD2  | 2.09        | 0.86     |
| 13:S:89:GLY:O     | 13:S:93:GLN:HG3  | 1.76        | 0.86     |
| 21:V:33:VAL:CB    | 21:V:63:HIS:CG   | 2.58        | 0.86     |
| 20:U:43:ALA:HB2   | 21:V:75:LYS:HB3  | 1.58        | 0.86     |
| 15:W:32:ALA:HB2   | 15:W:35:ILE:CD1  | 2.05        | 0.86     |
| 17:Y:101:LEU:HD21 | 17:Y:112:LEU:CG  | 2.06        | 0.86     |
| 18:Z:172:LEU:HG   | 18:Z:173:PRO:CD  | 2.02        | 0.86     |
| 18:Z:57:GLU:C     | 18:Z:59:GLY:H    | 1.75        | 0.86     |
| 2:A:1613:G:H3'    | 2:A:1614:A:H5'   | 1.56        | 0.86     |
| 23:3:8:LEU:HB3    | 23:3:32:GLN:CA   | 2.06        | 0.86     |
| 26:5:50:GLY:HA2   | 26:5:57:VAL:HB   | 1.57        | 0.86     |
| 2:A:1952:A:H2     | 10:O:22:ILE:CG2  | 1.89        | 0.86     |
| 2:A:2311:A:O2'    | 2:A:2312:U:O5'   | 1.94        | 0.86     |
| 2:A:2494:G:N2     | 2:A:2495:G:C4    | 2.43        | 0.86     |
| 2:A:2530:A:H2'    | 2:A:2531:A:C5'   | 2.05        | 0.86     |
| 5:F:214:THR:H     | 5:F:218:VAL:CG2  | 1.89        | 0.86     |
| 6:G:22:VAL:HB     | 6:G:24:HIS:CE1   | 2.10        | 0.86     |
| 9:N:46:ILE:HG13   | 9:N:132:LEU:HD13 | 1.57        | 0.86     |
| 11:P:120:LEU:HD11 | 11:P:122:ALA:HB2 | 1.57        | 0.86     |
| 19:R:46:GLY:O     | 19:R:49:ASP:CB   | 2.24        | 0.86     |
| 19:R:77:ARG:O     | 19:R:81:ASP:OD1  | 1.93        | 0.86     |
| 6:G:146:LYS:CE    | 13:S:15:GLU:CD   | 2.44        | 0.86     |
| 20:U:33:ARG:HH11  | 20:U:33:ARG:HB2  | 1.28        | 0.86     |
| 17:Y:103:LEU:HD11 | 17:Y:113:GLU:HB3 | 1.58        | 0.86     |
| 17:Y:32:ARG:O     | 17:Y:33:GLU:C    | 2.14        | 0.86     |
| 18:Z:41:ARG:O     | 18:Z:44:ARG:HB2  | 1.75        | 0.86     |
| 22:2:61:GLY:O     | 22:2:64:GLY:N    | 2.08        | 0.86     |
| 28:7:24:THR:HG21  | 28:7:27:GLY:HA3  | 1.56        | 0.85     |
| 2:A:2093:G:N7     | 2:A:2225:A:C5    | 2.44        | 0.85     |
| 2:A:2096:U:H3     | 2:A:2193:G:H1    | 1.24        | 0.85     |
| 2:A:2227:A:O5'    | 2:A:2227:A:H8    | 1.59        | 0.85     |
| 2:A:2287:A:C2     | 2:A:2289:G:O4'   | 2.21        | 0.85     |
| 2:A:2324:C:O2'    | 2:A:2325:G:OP1   | 1.94        | 0.85     |
| 2:A:2416:C:H2'    | 2:A:2417:C:H5'   | 1.58        | 0.85     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:2416:C:O2'  | 2:A:2417:C:H5''  | 1.76        | 0.85     |
| 2:A:2520:C:C5   | 2:A:2567:G:N9    | 2.43        | 0.85     |
| 2:A:2049:G:C6   | 2:A:2620:C:N4    | 2.43        | 0.85     |
| 2:A:2774:C:C2   | 2:A:2775:A:C8    | 2.63        | 0.85     |
| 2:A:2853:C:H3'  | 2:A:2853:C:H6    | 1.40        | 0.85     |
| 2:A:532:A:C8    | 2:A:561:G:N2     | 2.44        | 0.85     |
| 2:A:993:G:H4'   | 21:V:90:PHE:HZ   | 1.39        | 0.85     |
| 3:D:140:VAL:CG1 | 3:D:141:HIS:H    | 1.88        | 0.85     |
| 4:E:225:LYS:O   | 4:E:229:GLN:NE2  | 2.08        | 0.85     |
| 8:I:24:GLY:HA2  | 8:I:27:ASN:HB3   | 1.57        | 0.85     |
| 8:I:43:ASN:ND2  | 8:I:43:ASN:N     | 2.22        | 0.85     |
| 9:N:25:GLN:O    | 9:N:26:VAL:C     | 2.11        | 0.85     |
| 9:N:42:GLU:C    | 9:N:132:LEU:O    | 2.14        | 0.85     |
| 9:N:49:ARG:O    | 9:N:53:ILE:HB    | 1.76        | 0.85     |
| 11:P:67:ARG:HE  | 11:P:67:ARG:N    | 1.73        | 0.85     |
| 12:Q:118:ALA:O  | 12:Q:119:ASN:HB3 | 1.75        | 0.85     |
| 12:Q:15:THR:O   | 12:Q:16:ARG:HG3  | 1.75        | 0.85     |
| 12:Q:57:ARG:C   | 12:Q:61:LEU:CD2  | 2.44        | 0.85     |
| 20:U:28:ARG:CA  | 20:U:31:GLN:HG3  | 2.05        | 0.85     |
| 17:Y:66:ASP:O   | 17:Y:67:LEU:C    | 2.14        | 0.85     |
| 18:Z:37:LYS:C   | 18:Z:41:ARG:NH1  | 2.28        | 0.85     |
| 18:Z:48:THR:O   | 18:Z:48:THR:HG22 | 1.75        | 0.85     |
| 7:H:110:HIS:O   | 7:H:111:PRO:O    | 1.93        | 0.85     |
| 24:O:44:LYS:O   | 24:O:45:PHE:CD1  | 2.28        | 0.85     |
| 25:4:58:LYS:CD  | 25:4:62:ARG:HH21 | 1.89        | 0.85     |
| 25:4:6:HIS:CB   | 25:4:56:VAL:CG2  | 2.51        | 0.85     |
| 2:A:2051:A:H2   | 2:A:2618:G:C6    | 1.93        | 0.85     |
| 2:A:2330:G:C2   | 2:A:2331:G:C4    | 2.65        | 0.85     |
| 2:A:2785:C:C2'  | 2:A:2786:U:C5    | 2.55        | 0.85     |
| 2:A:2854:G:C6   | 2:A:2864:G:O6    | 2.29        | 0.85     |
| 2:A:873:G:H4'   | 12:Q:32:LYS:CB   | 2.05        | 0.85     |
| 3:D:160:SER:O   | 3:D:176:ALA:HB2  | 1.74        | 0.85     |
| 5:F:6:TYR:CE2   | 5:F:140:VAL:CG2  | 2.60        | 0.85     |
| 5:F:168:ARG:NH1 | 5:F:209:GLY:CA   | 2.37        | 0.85     |
| 2:A:2316:C:C4'  | 6:G:151:ILE:HD11 | 1.80        | 0.85     |
| 8:I:23:ASP:HB2  | 8:I:25:TYR:CE2   | 2.11        | 0.85     |
| 12:Q:85:ILE:CG2 | 12:Q:122:PHE:CD2 | 2.54        | 0.85     |
| 13:S:62:HIS:HB2 | 13:S:65:ASP:CG   | 1.97        | 0.85     |
| 1:B:77:U:H5'    | 18:Z:80:HIS:ND1  | 1.92        | 0.85     |
| 2:A:148:C:C3'   | 2:A:149:A:P      | 2.64        | 0.85     |
| 16:X:9:HIS:CE1  | 16:X:27:ALA:CB   | 2.59        | 0.85     |
| 16:X:57:THR:HB  | 16:X:59:ASP:OD2  | 1.76        | 0.85     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 24:0:61:ALA:CB   | 24:0:80:SER:O     | 2.23        | 0.85     |
| 24:0:37:LEU:CB   | 24:0:69:PHE:HD2   | 1.70        | 0.85     |
| 2:A:2198:A:H5'   | 2:A:2199:A:OP2    | 1.75        | 0.85     |
| 2:A:2298:A:N9    | 2:A:2321:G:N2     | 2.23        | 0.85     |
| 2:A:2334:G:P     | 13:S:12:ARG:O     | 2.34        | 0.85     |
| 2:A:2532:G:C5'   | 2:A:2532:G:C8     | 2.59        | 0.85     |
| 2:A:687:C:N3     | 2:A:787:U:O3'     | 2.08        | 0.85     |
| 4:E:205:THR:HG22 | 4:E:259:HIS:CB    | 1.95        | 0.85     |
| 4:E:265:ASN:C    | 4:E:265:ASN:HD22  | 1.78        | 0.85     |
| 4:E:70:VAL:HG13  | 4:E:296:VAL:CA    | 1.97        | 0.85     |
| 4:E:44:TYR:CD1   | 4:E:309:PRO:CD    | 2.58        | 0.85     |
| 5:F:149:LYS:HB2  | 5:F:152:GLU:HG3   | 1.58        | 0.85     |
| 6:G:38:GLU:HA    | 6:G:41:LEU:HG     | 1.54        | 0.85     |
| 6:G:77:ASP:N     | 6:G:77:ASP:OD1    | 2.06        | 0.85     |
| 9:N:103:VAL:HG12 | 9:N:104:TYR:H     | 1.41        | 0.85     |
| 9:N:19:MET:HB3   | 9:N:46:ILE:HD13   | 1.57        | 0.85     |
| 10:O:65:THR:OG1  | 10:O:67:ARG:HG2   | 1.76        | 0.85     |
| 20:U:88:ILE:HG22 | 21:V:55:THR:OG1   | 1.75        | 0.85     |
| 15:W:66:GLU:CG   | 15:W:67:ASP:N     | 2.39        | 0.85     |
| 18:Z:25:ASN:OD1  | 18:Z:26:LYS:N     | 2.08        | 0.85     |
| 18:Z:39:PHE:O    | 18:Z:43:PHE:HB2   | 1.75        | 0.85     |
| 18:Z:91:PRO:CG   | 18:Z:127:PRO:CB   | 2.53        | 0.85     |
| 22:2:20:LEU:O    | 22:2:21:ASP:O     | 1.95        | 0.85     |
| 2:A:2624:G:H1'   | 26:5:22:HIS:HE2   | 1.37        | 0.85     |
| 27:6:37:LEU:HD21 | 27:6:51:ARG:HG2   | 0.86        | 0.85     |
| 29:8:26:LYS:HZ2  | 29:8:44:LYS:N     | 1.73        | 0.85     |
| 30:9:24:LEU:HD22 | 30:9:35:ARG:CG    | 2.05        | 0.85     |
| 2:A:1127:A:C2    | 2:A:2518:A:N3     | 2.44        | 0.85     |
| 2:A:2043:C:OP2   | 2:A:2779:U:O4     | 1.94        | 0.85     |
| 2:A:2209:C:H42   | 2:A:2215:G:H1     | 0.87        | 0.85     |
| 2:A:2218:G:O2'   | 3:D:146:LYS:HE2   | 1.74        | 0.85     |
| 2:A:2246:G:C4    | 2:A:2426:A:N3     | 2.44        | 0.85     |
| 2:A:2573:C:C4'   | 2:A:2573:C:C6     | 2.59        | 0.85     |
| 2:A:2826:A:C5    | 2:A:2827:C:H6     | 1.77        | 0.85     |
| 2:A:573:G:H3'    | 2:A:574:C:H5''    | 1.59        | 0.85     |
| 3:D:131:LEU:HD11 | 3:D:183:ILE:HG22  | 1.57        | 0.85     |
| 5:F:102:LEU:CD2  | 5:F:103:ASN:N     | 2.40        | 0.85     |
| 6:G:97:GLN:HB3   | 6:G:106:PHE:CE2   | 2.10        | 0.85     |
| 9:N:46:ILE:O     | 9:N:47:THR:O      | 1.94        | 0.85     |
| 10:O:101:PRO:O   | 10:O:102:VAL:HG22 | 1.75        | 0.85     |
| 10:O:24:VAL:HG11 | 10:O:32:TYR:O     | 1.76        | 0.85     |
| 15:W:32:ALA:O    | 15:W:35:ILE:N     | 2.09        | 0.85     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:1827:C:H41  | 3:D:225:ARG:HH12 | 1.15        | 0.85     |
| 22:2:20:LEU:O   | 22:2:20:LEU:HD13 | 1.76        | 0.85     |
| 2:A:1077:A:O3'  | 31:K:93:LYS:CG   | 2.22        | 0.85     |
| 24:0:80:SER:OG  | 24:0:84:ALA:CB   | 2.25        | 0.85     |
| 27:6:19:GLY:CA  | 27:6:44:ALA:HB3  | 2.06        | 0.85     |
| 28:7:30:ILE:HA  | 28:7:33:ARG:HG3  | 1.57        | 0.85     |
| 2:A:2246:G:N2   | 2:A:2247:A:C4    | 2.44        | 0.85     |
| 2:A:2252:G:O6   | 2:A:2253:G:O6    | 1.93        | 0.85     |
| 2:A:2446:G:N2   | 2:A:2501:C:N4    | 2.25        | 0.85     |
| 2:A:2523:G:N1   | 2:A:2541:A:C2    | 2.45        | 0.85     |
| 2:A:2547:U:C6   | 2:A:2566:A:C2    | 2.64        | 0.85     |
| 2:A:2574:G:C8   | 2:A:2575:C:C5    | 2.55        | 0.85     |
| 2:A:2662:A:H2'  | 2:A:2663:G:H5'   | 1.56        | 0.85     |
| 2:A:2810:A:C2'  | 2:A:2811:G:C5'   | 2.03        | 0.85     |
| 2:A:2827:C:O2   | 2:A:2828:C:H6    | 1.50        | 0.85     |
| 2:A:2839:G:H2'  | 2:A:2840:C:H6    | 1.41        | 0.85     |
| 2:A:650:C:C5'   | 29:8:19:THR:HG23 | 2.06        | 0.85     |
| 1:B:48:A:OP2    | 13:S:107:ASN:ND2 | 2.09        | 0.85     |
| 3:D:145:LEU:N   | 3:D:152:GLN:HB2  | 1.88        | 0.85     |
| 3:D:162:GLN:CD  | 3:D:162:GLN:N    | 2.29        | 0.85     |
| 4:E:210:THR:HA  | 4:E:216:ARG:HH22 | 1.03        | 0.85     |
| 5:F:196:THR:CG2 | 5:F:236:THR:HG21 | 2.06        | 0.85     |
| 6:G:21:VAL:HG11 | 6:G:132:VAL:CG2  | 2.04        | 0.85     |
| 9:N:51:GLU:C    | 9:N:53:ILE:H     | 1.77        | 0.85     |
| 10:O:8:LEU:HB2  | 10:O:83:ALA:CA   | 2.06        | 0.85     |
| 12:Q:76:GLY:HA3 | 12:Q:132:VAL:CG1 | 2.02        | 0.85     |
| 12:Q:89:PRO:O   | 12:Q:90:PHE:CE1  | 2.30        | 0.85     |
| 19:R:39:PRO:O   | 19:R:42:LYS:N    | 2.09        | 0.85     |
| 13:S:47:LEU:CD1 | 13:S:58:LEU:HD21 | 2.06        | 0.85     |
| 20:U:93:LYS:H   | 21:V:10:LYS:HZ2  | 1.23        | 0.85     |
| 2:A:25:U:C4'    | 15:W:79:GLY:HA3  | 2.06        | 0.85     |
| 15:W:8:ARG:HD2  | 15:W:9:TYR:HD1   | 1.38        | 0.85     |
| 18:Z:85:MET:O   | 18:Z:86:VAL:CG2  | 2.23        | 0.85     |
| 8:I:121:ILE:H   | 8:I:121:ILE:HD12 | 1.40        | 0.85     |
| 2:A:138:G:H5''  | 16:X:43:GLU:CG   | 2.06        | 0.85     |
| 25:4:41:PRO:CB  | 25:4:57:ASP:OD2  | 2.21        | 0.85     |
| 28:7:7:PRO:C    | 28:7:8:ASN:ND2   | 2.29        | 0.85     |
| 29:8:7:HIS:O    | 29:8:8:LYS:O     | 1.94        | 0.85     |
| 2:A:2077:A:N7   | 2:A:2238:G:O6    | 2.10        | 0.85     |
| 2:A:2255:G:C2   | 2:A:2256:G:C1'   | 2.59        | 0.85     |
| 2:A:2286:A:C4'  | 2:A:2287:A:O4'   | 2.24        | 0.85     |
| 2:A:2311:A:H2'  | 2:A:2312:U:C6    | 2.10        | 0.85     |

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| Atom-1           | Atom-2          | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 2:A:2304:G:H1    | 2:A:2312:U:H3   | 1.19        | 0.85     |
| 2:A:2746:U:H4'   | 7:H:138:GLN:HA  | 1.58        | 0.85     |
| 3:D:175:LEU:HD11 | 3:D:180:VAL:H   | 1.40        | 0.85     |
| 2:A:2578:G:C5    | 4:E:237:ASN:ND2 | 2.45        | 0.85     |
| 4:E:45:LYS:CE    | 4:E:303:PRO:CD  | 2.55        | 0.85     |
| 5:F:235:PHE:HB3  | 5:F:239:ALA:CB  | 2.06        | 0.85     |
| 6:G:49:PRO:HG3   | 6:G:73:VAL:HG23 | 1.57        | 0.85     |
| 12:Q:41:THR:CG2  | 12:Q:126:VAL:CA | 2.54        | 0.85     |
| 19:R:100:LEU:CD2 | 19:R:112:ALA:HA | 2.05        | 0.85     |
| 19:R:39:PRO:O    | 19:R:41:ALA:N   | 2.08        | 0.85     |
| 18:Z:24:TYR:N    | 18:Z:83:PHE:O   | 2.09        | 0.85     |
| 8:I:115:ILE:HA   | 8:I:131:VAL:HA  | 1.58        | 0.85     |
| 2:A:1566:A:N1    | 3:D:212:HIS:ND1 | 2.24        | 0.85     |
| 22:2:4:HIS:H     | 22:2:8:ILE:HD11 | 1.40        | 0.85     |
| 16:X:55:GLN:O    | 16:X:63:LYS:N   | 2.09        | 0.85     |
| 2:A:106:C:H2'    | 2:A:107:C:H5''  | 1.58        | 0.85     |
| 2:A:2320:A:N3    | 2:A:2333:A:C5   | 2.44        | 0.85     |
| 2:A:2360:A:N7    | 2:A:2361:A:N7   | 2.24        | 0.85     |
| 2:A:2484:G:H21   | 2:A:2485:G:C1'  | 1.84        | 0.85     |
| 2:A:2592:G:C2    | 2:A:2603:G:C6   | 2.64        | 0.85     |
| 2:A:2633:G:N3    | 2:A:2634:G:N7   | 2.23        | 0.85     |
| 2:A:782:A:H2     | 3:D:233:ASP:OD2 | 1.58        | 0.85     |
| 4:E:240:PRO:CB   | 4:E:243:PRO:HG2 | 2.05        | 0.85     |
| 5:F:6:TYR:CE1    | 5:F:139:VAL:CB  | 2.57        | 0.85     |
| 5:F:93:LYS:CB    | 5:F:96:LYS:HE3  | 2.07        | 0.85     |
| 6:G:25:MET:SD    | 6:G:129:ASP:HB3 | 2.16        | 0.85     |
| 2:A:2313:C:H5''  | 6:G:51:ARG:HH11 | 1.38        | 0.85     |
| 2:A:2749:A:C1'   | 7:H:62:ALA:HB2  | 2.07        | 0.85     |
| 9:N:15:ARG:HG2   | 9:N:43:ARG:HB3  | 1.56        | 0.85     |
| 2:A:2334:G:N2    | 13:S:12:ARG:NE  | 2.23        | 0.85     |
| 18:Z:34:LEU:HD13 | 18:Z:35:ASP:H   | 1.42        | 0.85     |
| 18:Z:24:TYR:HD2  | 18:Z:84:TYR:HD1 | 1.24        | 0.85     |
| 22:2:24:LYS:C    | 22:2:26:GLU:OE2 | 2.15        | 0.85     |
| 22:2:52:ALA:C    | 22:2:56:ILE:CG1 | 2.35        | 0.85     |
| 16:X:14:ALA:CA   | 16:X:17:ASP:OD2 | 2.19        | 0.85     |
| 29:8:23:MET:CE   | 29:8:48:PHE:CD2 | 2.58        | 0.85     |
| 2:A:1024:G:N7    | 2:A:1025:G:C8   | 2.44        | 0.85     |
| 2:A:199:A:C6     | 2:A:2433:A:C8   | 2.63        | 0.85     |
| 2:A:2080:G:N1    | 2:A:2241:A:C6   | 2.45        | 0.85     |
| 2:A:2309:A:H3'   | 2:A:2310:A:C5'  | 2.07        | 0.85     |
| 2:A:2364:C:H1'   | 24:0:32:LYS:NZ  | 1.89        | 0.85     |
| 2:A:2397:G:N1    | 2:A:2420:C:C2   | 2.42        | 0.85     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2445:G:O2'   | 2:A:2446:G:C5'   | 2.24        | 0.85     |
| 2:A:576:U:OP1    | 2:A:2503:A:OP1   | 1.95        | 0.85     |
| 2:A:2526:G:C2'   | 2:A:2527:C:C5'   | 2.42        | 0.85     |
| 2:A:2531:A:C2'   | 2:A:2532:G:H5''  | 2.03        | 0.85     |
| 2:A:2648:C:C4    | 2:A:2649:U:C4    | 2.65        | 0.85     |
| 2:A:2731:G:H22   | 2:A:2732:G:H21   | 1.22        | 0.85     |
| 2:A:2783:G:C4    | 2:A:2784:C:C5    | 2.65        | 0.85     |
| 3:D:155:ARG:O    | 3:D:157:ALA:N    | 2.09        | 0.85     |
| 3:D:154:VAL:HG21 | 3:D:160:SER:HA   | 1.56        | 0.85     |
| 6:G:64:ARG:CB    | 6:G:67:ASP:OD2   | 2.24        | 0.85     |
| 10:O:64:ARG:NH2  | 10:O:100:GLY:CA  | 2.40        | 0.85     |
| 11:P:69:ILE:HG13 | 11:P:70:ASP:H    | 0.70        | 0.85     |
| 15:W:67:ASP:CG   | 15:W:68:ARG:N    | 2.24        | 0.85     |
| 18:Z:37:LYS:CG   | 18:Z:41:ARG:HH12 | 1.89        | 0.85     |
| 22:2:62:GLU:N    | 22:2:62:GLU:OE1  | 2.09        | 0.85     |
| 2:A:2411:A:O2'   | 2:A:2412:A:H8    | 1.59        | 0.85     |
| 2:A:2528:U:HO2'  | 2:A:2529:G:H8    | 1.23        | 0.85     |
| 2:A:2045:C:N3    | 2:A:2624:G:N3    | 2.24        | 0.85     |
| 2:A:2689:U:C6    | 2:A:2713:A:C6    | 2.65        | 0.85     |
| 2:A:1637:A:C4'   | 2:A:2711:A:O2'   | 2.20        | 0.85     |
| 1:B:47:C:O3'     | 13:S:107:ASN:ND2 | 2.09        | 0.85     |
| 3:D:80:ILE:CD1   | 3:D:82:TYR:CE1   | 2.59        | 0.85     |
| 4:E:269:ILE:CD1  | 4:E:295:LEU:O    | 2.25        | 0.85     |
| 2:A:606:U:OP1    | 5:F:104:ASP:HB2  | 1.77        | 0.85     |
| 7:H:82:TYR:CZ    | 7:H:137:LYS:HB3  | 2.11        | 0.85     |
| 8:I:6:LEU:HB2    | 8:I:36:ALA:CB    | 2.07        | 0.85     |
| 9:N:12:VAL:CG1   | 9:N:38:VAL:HG21  | 2.07        | 0.85     |
| 2:A:558:G:OP1    | 9:N:91:LYS:O     | 1.94        | 0.85     |
| 10:O:7:ARG:NH2   | 10:O:44:LYS:HD2  | 1.92        | 0.85     |
| 12:Q:35:ASN:CB   | 12:Q:75:SER:HB2  | 2.07        | 0.85     |
| 19:R:74:LYS:CA   | 19:R:77:ARG:HH22 | 1.89        | 0.85     |
| 13:S:109:PRO:HA  | 13:S:115:VAL:CG1 | 2.05        | 0.85     |
| 17:Y:71:VAL:HG22 | 17:Y:93:THR:CB   | 2.07        | 0.85     |
| 17:Y:71:VAL:CG2  | 17:Y:93:THR:N    | 2.39        | 0.85     |
| 7:H:111:PRO:O    | 7:H:112:VAL:HG22 | 1.77        | 0.85     |
| 2:A:932:G:C5'    | 23:3:29:ARG:HH21 | 1.90        | 0.85     |
| 28:7:32:ALA:CA   | 28:7:35:ARG:HG3  | 2.06        | 0.85     |
| 2:A:2044:C:C6    | 2:A:2625:G:N2    | 2.45        | 0.85     |
| 2:A:2259:G:N7    | 2:A:2260:C:C5    | 2.44        | 0.85     |
| 2:A:2268:A:C5'   | 2:A:2269:A:OP2   | 2.25        | 0.85     |
| 2:A:2454:G:C2'   | 2:A:2455:G:C5'   | 2.41        | 0.85     |
| 2:A:2494:G:C2    | 2:A:2495:G:C5    | 2.65        | 0.85     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2769:C:C2'   | 2:A:2770:G:C5'    | 2.55        | 0.85     |
| 2:A:2782:G:H2'   | 2:A:2783:G:H5'    | 1.59        | 0.85     |
| 1:B:77:U:H5'     | 18:Z:80:HIS:CE1   | 2.12        | 0.85     |
| 3:D:66:PHE:HD2   | 3:D:67:LYS:HD2    | 1.42        | 0.85     |
| 4:E:308:VAL:HG12 | 4:E:310:PHE:HE1   | 1.40        | 0.85     |
| 4:E:74:GLU:H     | 4:E:74:GLU:CD     | 1.80        | 0.85     |
| 5:F:109:LEU:O    | 5:F:112:ARG:HB2   | 1.76        | 0.85     |
| 5:F:91:PRO:CB    | 5:F:92:PRO:HD2    | 1.88        | 0.85     |
| 7:H:44:VAL:HA    | 7:H:49:ILE:HG22   | 0.89        | 0.85     |
| 8:I:4:ILE:CB     | 8:I:37:ILE:O      | 2.23        | 0.85     |
| 11:P:62:ALA:CB   | 11:P:105:TYR:HB2  | 2.06        | 0.85     |
| 11:P:117:GLU:OE2 | 11:P:136:ALA:CB   | 2.25        | 0.85     |
| 12:Q:72:VAL:HG21 | 12:Q:83:PHE:HZ    | 1.42        | 0.85     |
| 20:U:42:ALA:O    | 20:U:43:ALA:O     | 1.95        | 0.85     |
| 18:Z:107:GLU:OE2 | 18:Z:141:MET:HG3  | 1.77        | 0.85     |
| 18:Z:124:ALA:H   | 18:Z:159:THR:HG21 | 1.42        | 0.85     |
| 3:D:208:GLY:C    | 3:D:211:HIS:NE2   | 2.30        | 0.85     |
| 2:A:1479:G:C2'   | 2:A:1480:G:H8     | 1.89        | 0.85     |
| 24:0:46:LYS:CG   | 24:0:58:THR:H     | 1.90        | 0.84     |
| 2:A:2331:G:O3'   | 24:0:70:ILE:HB    | 1.77        | 0.84     |
| 24:0:43:THR:CG2  | 24:0:75:GLY:N     | 2.40        | 0.84     |
| 27:6:35:LEU:C    | 27:6:36:GLU:HG3   | 1.98        | 0.84     |
| 2:A:1655:A:C5'   | 4:E:211:GLN:HA    | 2.07        | 0.84     |
| 2:A:2525:G:N1    | 2:A:2539:C:N4     | 2.24        | 0.84     |
| 2:A:2693:A:N1    | 2:A:2694:G:C5     | 2.45        | 0.84     |
| 2:A:774:A:H1'    | 2:A:775:G:C8      | 2.12        | 0.84     |
| 2:A:1819:A:C2'   | 3:D:177:SER:HA    | 2.06        | 0.84     |
| 3:D:181:ARG:HB3  | 3:D:181:ARG:CZ    | 2.02        | 0.84     |
| 4:E:80:ALA:HB2   | 4:E:187:HIS:NE2   | 1.92        | 0.84     |
| 4:E:205:THR:OG1  | 4:E:257:GLY:C     | 2.15        | 0.84     |
| 2:A:2774:C:OP2   | 4:E:260:GLN:NE2   | 2.10        | 0.84     |
| 5:F:5:ILE:HB     | 5:F:14:GLY:C      | 1.95        | 0.84     |
| 7:H:86:LEU:CD1   | 7:H:86:LEU:C      | 2.40        | 0.84     |
| 7:H:8:ILE:HG22   | 7:H:9:GLU:H       | 1.41        | 0.84     |
| 10:O:31:ARG:CB   | 10:O:32:TYR:CE1   | 2.59        | 0.84     |
| 11:P:94:ARG:CB   | 11:P:120:LEU:HD21 | 1.80        | 0.84     |
| 2:A:2251:G:OP1   | 12:Q:102:ARG:NE   | 2.09        | 0.84     |
| 12:Q:57:ARG:CA   | 12:Q:61:LEU:HD21  | 2.06        | 0.84     |
| 19:R:36:THR:CG2  | 19:R:40:LYS:HD3   | 2.04        | 0.84     |
| 13:S:17:ARG:HD2  | 13:S:18:THR:N     | 1.92        | 0.84     |
| 20:U:99:ALA:HB2  | 20:U:106:PHE:CE1  | 1.78        | 0.84     |
| 17:Y:47:THR:CG2  | 17:Y:100:ASP:HB2  | 2.07        | 0.84     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 18:Z:35:ASP:H    | 18:Z:39:PHE:HZ    | 1.22        | 0.84     |
| 2:A:1339:G:H5'   | 16:X:13:LYS:NZ    | 1.92        | 0.84     |
| 16:X:9:HIS:HE1   | 16:X:27:ALA:HA    | 1.34        | 0.84     |
| 16:X:7:HIS:ND1   | 16:X:8:PRO:HD2    | 1.92        | 0.84     |
| 18:Z:96:VAL:CG1  | 18:Z:97:PRO:CD    | 2.55        | 0.84     |
| 2:A:404:C:H4'    | 2:A:405:U:H5'     | 1.56        | 0.84     |
| 24:0:22:GLY:O    | 24:0:23:VAL:O     | 1.94        | 0.84     |
| 24:0:43:THR:O    | 24:0:64:ASP:CG    | 2.15        | 0.84     |
| 23:3:31:LEU:CD2  | 23:3:32:GLN:HB3   | 2.07        | 0.84     |
| 23:3:40:THR:HG23 | 23:3:43:ILE:HD13  | 0.85        | 0.84     |
| 27:6:19:GLY:HA3  | 27:6:42:PRO:HG2   | 1.53        | 0.84     |
| 2:A:2369:A:H2'   | 2:A:2370:G:H8     | 1.42        | 0.84     |
| 2:A:2603:G:C6    | 2:A:2604:U:H5     | 1.94        | 0.84     |
| 2:A:527:C:H2'    | 9:N:95:ARG:NH1    | 1.92        | 0.84     |
| 2:A:790:C:OP1    | 2:A:1781:C:N4     | 2.10        | 0.84     |
| 1:B:48:A:P       | 13:S:107:ASN:ND2  | 2.50        | 0.84     |
| 3:D:175:LEU:HD11 | 3:D:180:VAL:CA    | 2.07        | 0.84     |
| 4:E:61:PRO:CA    | 4:E:69:PRO:HA     | 2.06        | 0.84     |
| 5:F:52:ALA:CA    | 5:F:55:ARG:CB     | 2.54        | 0.84     |
| 6:G:107:GLY:O    | 6:G:129:ASP:N     | 2.10        | 0.84     |
| 2:A:1140:C:OP1   | 9:N:18:ILE:CD1    | 2.25        | 0.84     |
| 10:O:77:ILE:HD11 | 10:O:79:PHE:CD2   | 2.11        | 0.84     |
| 12:Q:69:ASN:ND2  | 12:Q:69:ASN:C     | 2.21        | 0.84     |
| 19:R:52:ILE:HG21 | 19:R:94:TYR:CD1   | 2.12        | 0.84     |
| 6:G:146:LYS:CG   | 13:S:15:GLU:CG    | 2.54        | 0.84     |
| 2:A:2319:G:C4'   | 13:S:9:PRO:CD     | 2.51        | 0.84     |
| 15:W:36:LEU:HA   | 15:W:39:THR:HG22  | 1.58        | 0.84     |
| 15:W:70:TYR:CD2  | 15:W:71:VAL:N     | 2.45        | 0.84     |
| 12:Q:32:LYS:NZ   | 18:Z:172:LEU:HD13 | 1.90        | 0.84     |
| 18:Z:39:PHE:O    | 18:Z:43:PHE:CB    | 2.25        | 0.84     |
| 2:A:72:U:C5'     | 22:2:57:LYS:NZ    | 2.39        | 0.84     |
| 7:H:155:PRO:HB2  | 7:H:169:ARG:HG3   | 1.60        | 0.84     |
| 14:T:48:ASN:OD1  | 14:T:49:LEU:N     | 2.10        | 0.84     |
| 24:0:43:THR:O    | 24:0:64:ASP:OD1   | 1.94        | 0.84     |
| 28:7:43:THR:HA   | 28:7:46:ASP:OD1   | 1.77        | 0.84     |
| 28:7:7:PRO:O     | 28:7:8:ASN:ND2    | 2.10        | 0.84     |
| 2:A:2252:G:H2'   | 2:A:2253:G:H5'    | 0.85        | 0.84     |
| 2:A:2333:A:H1'   | 2:A:2335:A:C6     | 2.12        | 0.84     |
| 2:A:2729:G:C2    | 2:A:2730:C:O2     | 2.29        | 0.84     |
| 2:A:2783:G:C5    | 2:A:2784:C:C5     | 2.65        | 0.84     |
| 2:A:292:C:H2'    | 2:A:293:U:H3      | 1.41        | 0.84     |
| 2:A:452:G:H3'    | 2:A:453:C:H5''    | 1.59        | 0.84     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:534:U:O2'    | 20:U:49:ASP:CG    | 2.14        | 0.84     |
| 5:F:153:VAL:CG1  | 5:F:157:LEU:CD2   | 2.45        | 0.84     |
| 7:H:101:LYS:CG   | 7:H:115:GLU:CB    | 2.54        | 0.84     |
| 10:O:52:VAL:O    | 10:O:53:LYS:HB2   | 1.76        | 0.84     |
| 10:O:71:ARG:O    | 10:O:73:ASP:N     | 2.10        | 0.84     |
| 11:P:77:ALA:HA   | 11:P:81:VAL:CG1   | 2.07        | 0.84     |
| 12:Q:140:TYR:O   | 12:Q:141:MET:C    | 2.16        | 0.84     |
| 12:Q:23:ILE:N    | 12:Q:24:PRO:HD3   | 1.91        | 0.84     |
| 19:R:44:LEU:HD11 | 19:R:48:VAL:HG21  | 1.56        | 0.84     |
| 13:S:34:LEU:CD1  | 13:S:103:ASP:H    | 1.90        | 0.84     |
| 13:S:91:ARG:O    | 13:S:94:GLU:HG3   | 1.77        | 0.84     |
| 20:U:74:MET:HE3  | 20:U:78:THR:CG2   | 1.86        | 0.84     |
| 21:V:35:LEU:N    | 21:V:60:VAL:CG1   | 2.40        | 0.84     |
| 16:X:24:LEU:O    | 16:X:25:GLN:OE1   | 1.94        | 0.84     |
| 16:X:30:ASP:O    | 16:X:31:ARG:O     | 1.94        | 0.84     |
| 23:3:26:LEU:HD21 | 23:3:46:ASN:HD22  | 1.39        | 0.84     |
| 23:3:36:VAL:O    | 23:3:37:LEU:HD23  | 1.77        | 0.84     |
| 26:5:13:LYS:HD3  | 26:5:14:SER:N     | 1.92        | 0.84     |
| 27:6:37:LEU:CD2  | 27:6:51:ARG:CA    | 2.53        | 0.84     |
| 28:7:8:ASN:O     | 28:7:9:ASN:C      | 2.16        | 0.84     |
| 2:A:2236:C:C3'   | 2:A:2237:G:C5'    | 2.54        | 0.84     |
| 2:A:2332:U:O4'   | 2:A:2336:A:N6     | 2.09        | 0.84     |
| 2:A:2394:C:C4    | 2:A:2395:C:C4     | 2.65        | 0.84     |
| 2:A:2416:C:N3    | 2:A:2417:C:C5     | 2.45        | 0.84     |
| 2:A:2813:A:O2'   | 2:A:2814:C:C6     | 2.31        | 0.84     |
| 2:A:527:C:C6     | 2:A:2779:U:C6     | 2.66        | 0.84     |
| 2:A:2712:U:H2'   | 2:A:712(A):A:H5'' | 0.86        | 0.84     |
| 4:E:222:ARG:HH11 | 4:E:222:ARG:CG    | 1.88        | 0.84     |
| 4:E:304:ASP:O    | 4:E:307:LEU:HG    | 1.77        | 0.84     |
| 4:E:70:VAL:HG11  | 4:E:295:LEU:CD2   | 2.07        | 0.84     |
| 5:F:223:LEU:O    | 5:F:224:ALA:C     | 2.12        | 0.84     |
| 7:H:83:GLU:CD    | 7:H:83:GLU:C      | 2.36        | 0.84     |
| 10:O:113:LYS:O   | 10:O:117:LEU:HD23 | 1.76        | 0.84     |
| 10:O:17:ARG:NH2  | 10:O:47:THR:C     | 2.30        | 0.84     |
| 11:P:66:VAL:CG2  | 11:P:109:LEU:O    | 2.15        | 0.84     |
| 12:Q:48:ASN:O    | 12:Q:121:ASP:CB   | 2.24        | 0.84     |
| 12:Q:72:VAL:CG2  | 12:Q:135:ALA:HB1  | 2.07        | 0.84     |
| 2:A:447:A:OP2    | 20:U:5:LYS:NZ     | 2.10        | 0.84     |
| 15:W:32:ALA:CA   | 15:W:35:ILE:HG13  | 2.07        | 0.84     |
| 2:A:1080:C:H1'   | 31:K:126:LYS:O    | 1.77        | 0.84     |
| 16:X:45:TYR:OH   | 16:X:75:GLN:OE1   | 1.95        | 0.84     |
| 2:A:2896:C:C6    | 2:A:2896:C:C3'    | 2.60        | 0.84     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 8:I:47:LEU:HD12  | 8:I:48:GLU:H      | 1.38        | 0.84     |
| 27:6:45:LYS:O    | 27:6:46:LYS:NZ    | 2.10        | 0.84     |
| 2:A:1937:A:H3'   | 2:A:1938:A:H5''   | 1.59        | 0.84     |
| 2:A:2051:A:C5    | 2:A:2614:A:N6     | 2.43        | 0.84     |
| 2:A:2225:A:H5''  | 2:A:2226:C:C4'    | 2.08        | 0.84     |
| 2:A:2309:A:C5'   | 2:A:2310:A:C8     | 2.60        | 0.84     |
| 2:A:2358:G:N3    | 2:A:2358:G:H2'    | 1.91        | 0.84     |
| 2:A:2446:G:N2    | 2:A:2501:C:H41    | 1.76        | 0.84     |
| 2:A:1799:G:N1    | 3:D:153:LEU:HD21  | 1.92        | 0.84     |
| 5:F:241:ALA:O    | 5:F:245:GLU:OE1   | 1.59        | 0.84     |
| 7:H:83:GLU:OE1   | 7:H:84:LYS:C      | 2.16        | 0.84     |
| 10:O:9:LYS:HD3   | 10:O:81:GLU:OE2   | 1.77        | 0.84     |
| 11:P:113:GLN:N   | 11:P:113:GLN:HE21 | 1.71        | 0.84     |
| 11:P:117:GLU:OE2 | 11:P:136:ALA:HB1  | 1.77        | 0.84     |
| 2:A:2276:G:OP2   | 12:Q:104:PRO:CD   | 2.25        | 0.84     |
| 12:Q:20:ILE:HG13 | 12:Q:21:SER:H     | 1.38        | 0.84     |
| 12:Q:56:ILE:HG22 | 12:Q:61:LEU:HD22  | 1.56        | 0.84     |
| 19:R:100:LEU:CD2 | 19:R:113:LEU:H    | 1.87        | 0.84     |
| 19:R:63:ARG:NH2  | 19:R:77:ARG:CG    | 2.37        | 0.84     |
| 13:S:9:PRO:HG2   | 13:S:14:ARG:HB3   | 1.58        | 0.84     |
| 20:U:28:ARG:HA   | 20:U:31:GLN:CG    | 2.06        | 0.84     |
| 15:W:85:VAL:CG1  | 15:W:95:ILE:CD1   | 2.56        | 0.84     |
| 2:A:2:G:C2       | 2:A:2902:C:C2     | 2.64        | 0.84     |
| 6:G:82:GLU:O     | 6:G:85:GLN:HG3    | 1.77        | 0.84     |
| 6:G:12:GLU:O     | 6:G:12:GLU:CD     | 2.14        | 0.84     |
| 27:6:16:ALA:C    | 27:6:18:THR:H     | 1.78        | 0.84     |
| 28:7:17:GLY:HA2  | 28:7:44:VAL:HG21  | 1.15        | 0.84     |
| 2:A:1031:G:H4'   | 30:9:8:LYS:NZ     | 1.93        | 0.84     |
| 2:A:2075:U:C4    | 2:A:2238:G:C6     | 2.65        | 0.84     |
| 2:A:2264:C:C2'   | 2:A:2265:U:O5'    | 2.23        | 0.84     |
| 2:A:2283:C:C2    | 2:A:2284:C:H1'    | 2.11        | 0.84     |
| 2:A:2323:G:HO2'  | 2:A:2337:G:HO2'   | 1.17        | 0.84     |
| 2:A:2395:C:H4'   | 25:4:28:ARG:HD2   | 1.58        | 0.84     |
| 2:A:2428:G:O2'   | 2:A:2429:G:C8     | 2.30        | 0.84     |
| 2:A:2455:G:C2'   | 2:A:2456:C:H5'    | 2.08        | 0.84     |
| 2:A:2484:G:C2    | 2:A:2485:G:C8     | 2.66        | 0.84     |
| 2:A:2537:U:H2'   | 2:A:2538:C:C6     | 2.12        | 0.84     |
| 2:A:2722:G:C2    | 2:A:2723:C:C6     | 2.65        | 0.84     |
| 2:A:338:G:H5'    | 17:Y:24:ARG:HH11  | 1.43        | 0.84     |
| 2:A:13:A:N7      | 2:A:525:U:C4      | 2.44        | 0.84     |
| 3:D:141:HIS:HE1  | 3:D:192:GLY:O     | 1.58        | 0.84     |
| 4:E:44:TYR:N     | 4:E:309:PRO:CG    | 2.24        | 0.84     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:E:74:GLU:HB2    | 4:E:293:TYR:HE2   | 1.40        | 0.84     |
| 5:F:240:LEU:HA    | 5:F:243:VAL:HG23  | 1.60        | 0.84     |
| 6:G:140:ARG:O     | 6:G:142:ALA:N     | 2.10        | 0.84     |
| 6:G:73:VAL:O      | 6:G:73:VAL:HG12   | 1.76        | 0.84     |
| 7:H:34:ARG:HD2    | 7:H:36:PHE:CZ     | 2.12        | 0.84     |
| 8:I:6:LEU:HD13    | 8:I:6:LEU:O       | 1.76        | 0.84     |
| 10:O:7:ARG:NE     | 10:O:44:LYS:HD2   | 1.91        | 0.84     |
| 10:O:17:ARG:HH21  | 10:O:47:THR:HA    | 1.42        | 0.84     |
| 11:P:62:ALA:HB2   | 11:P:104:ASP:O    | 1.78        | 0.84     |
| 12:Q:41:THR:HG21  | 12:Q:126:VAL:N    | 1.93        | 0.84     |
| 2:A:2485:G:C5'    | 12:Q:144:THR:CG2  | 2.44        | 0.84     |
| 19:R:20:LEU:O     | 19:R:21:TYR:C     | 2.16        | 0.84     |
| 2:A:2319:G:P      | 13:S:9:PRO:CD     | 2.66        | 0.84     |
| 20:U:14:HIS:O     | 20:U:15:LYS:C     | 2.11        | 0.84     |
| 20:U:95:LEU:C     | 20:U:98:ILE:HD13  | 1.97        | 0.84     |
| 21:V:49:GLU:HB3   | 21:V:53:LYS:CD    | 2.07        | 0.84     |
| 2:A:993:G:C1'     | 21:V:90:PHE:HE2   | 1.86        | 0.84     |
| 17:Y:74:VAL:CB    | 17:Y:77:VAL:HG23  | 2.07        | 0.84     |
| 18:Z:19:ILE:N     | 18:Z:36:ARG:HG3   | 1.91        | 0.84     |
| 2:A:225:A:O2'     | 2:A:257:A:H4'     | 1.78        | 0.84     |
| 24:0:24:LYS:CG    | 24:0:56:ASP:CG    | 2.45        | 0.84     |
| 26:5:15:LYS:NZ    | 26:5:15:LYS:HB2   | 1.93        | 0.84     |
| 2:A:2411:A:N3     | 2:A:2412:A:N7     | 2.26        | 0.84     |
| 2:A:2423:U:H1'    | 2:A:2425:A:C4     | 2.12        | 0.84     |
| 2:A:2528:U:C5     | 2:A:2530:A:C2     | 2.65        | 0.84     |
| 2:A:2532:G:O5'    | 2:A:2532:G:H8     | 1.60        | 0.84     |
| 2:A:2847:U:H6     | 2:A:2847:U:OP2    | 1.61        | 0.84     |
| 2:A:2886:G:N2     | 2:A:2887:U:N1     | 2.25        | 0.84     |
| 2:A:973:A:H2'     | 2:A:974:G:H5"     | 1.56        | 0.84     |
| 3:D:75:GLY:O      | 3:D:115:ILE:O     | 1.94        | 0.84     |
| 21:V:4:ILE:CD1    | 21:V:13:ARG:CD    | 2.52        | 0.84     |
| 17:Y:101:LEU:CG   | 17:Y:103:LEU:HD11 | 2.07        | 0.84     |
| 17:Y:45:GLY:HA2   | 17:Y:62:VAL:HG11  | 0.90        | 0.84     |
| 18:Z:113:VAL:HG23 | 18:Z:174:PRO:HG3  | 1.59        | 0.84     |
| 3:D:213:LYS:CG    | 3:D:215:LYS:CB    | 2.22        | 0.84     |
| 2:A:1840:G:H1     | 2:A:1902:C:H42    | 1.24        | 0.84     |
| 26:5:57:VAL:HG12  | 26:5:58:LEU:H     | 0.73        | 0.84     |
| 2:A:2228:G:H8     | 2:A:2229:C:C6     | 1.92        | 0.84     |
| 2:A:2276:G:O2'    | 2:A:2277:G:O5'    | 1.94        | 0.84     |
| 2:A:2352:A:H2     | 24:0:30:VAL:HG12  | 0.79        | 0.84     |
| 2:A:2411:A:C2     | 2:A:2412:A:C5     | 2.66        | 0.84     |
| 2:A:2447:G:C6     | 2:A:2500:U:C5     | 2.66        | 0.84     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2468:G:H22    | 2:A:2481:G:C2'   | 1.90        | 0.84     |
| 2:A:2475:C:O2     | 2:A:2529:G:N2    | 2.10        | 0.84     |
| 2:A:2615:U:HO2'   | 2:A:2616:C:H5'   | 1.38        | 0.84     |
| 2:A:590:A:O3'     | 5:F:97:ASP:OD2   | 1.96        | 0.84     |
| 2:A:988:A:OP2     | 23:3:11:SER:HB3  | 1.77        | 0.84     |
| 3:D:146:LYS:HB2   | 3:D:149:ARG:HG3  | 1.59        | 0.84     |
| 3:D:140:VAL:HG13  | 3:D:190:THR:C    | 1.98        | 0.84     |
| 5:F:106:GLU:O     | 5:F:107:ARG:O    | 1.95        | 0.84     |
| 5:F:33:LYS:HA     | 5:F:36:ARG:CG    | 2.07        | 0.84     |
| 9:N:46:ILE:HD11   | 9:N:132:LEU:CD1  | 2.08        | 0.84     |
| 9:N:46:ILE:HD11   | 9:N:132:LEU:HD11 | 1.60        | 0.84     |
| 10:O:2:ILE:HD12   | 10:O:2:ILE:N     | 1.91        | 0.84     |
| 10:O:68:GLY:CA    | 10:O:78:ARG:NE   | 2.36        | 0.84     |
| 19:R:113:LEU:CD1  | 19:R:114:VAL:N   | 2.38        | 0.84     |
| 13:S:118:ILE:HG23 | 13:S:119:GLN:H   | 1.43        | 0.84     |
| 20:U:49:ASP:CA    | 20:U:52:ASN:HD22 | 1.62        | 0.84     |
| 2:A:1151:G:C1'    | 20:U:81:ASN:HD21 | 1.91        | 0.84     |
| 15:W:6:ILE:HA     | 15:W:103:ILE:O   | 1.77        | 0.84     |
| 18:Z:147:ILE:O    | 18:Z:168:VAL:CB  | 2.23        | 0.84     |
| 18:Z:34:LEU:CD1   | 18:Z:35:ASP:N    | 2.41        | 0.84     |
| 22:2:46:ILE:O     | 22:2:47:LYS:O    | 1.96        | 0.84     |
| 2:A:1078:U:C2     | 2:A:1088:A:H1'   | 2.12        | 0.84     |
| 24:0:38:VAL:CA    | 24:0:40:GLN:HG3  | 2.08        | 0.84     |
| 27:6:46:LYS:CA    | 27:6:46:LYS:NZ   | 2.12        | 0.84     |
| 29:8:8:LYS:O      | 29:8:9:MET:C     | 2.14        | 0.84     |
| 2:A:2252:G:C8     | 2:A:2252:G:H3'   | 2.13        | 0.84     |
| 2:A:2309:A:C5'    | 2:A:2310:A:OP2   | 2.24        | 0.84     |
| 2:A:2406:U:H3     | 11:P:55:GLN:HB3  | 1.37        | 0.84     |
| 2:A:2411:A:HO2'   | 2:A:2412:A:H8    | 0.86        | 0.84     |
| 2:A:2504:U:C3'    | 2:A:2504:U:C6    | 2.61        | 0.84     |
| 2:A:2507:C:O2     | 2:A:2583:G:N3    | 2.11        | 0.84     |
| 2:A:2561:A:C6     | 2:A:2562:U:C5    | 2.65        | 0.84     |
| 2:A:2607:G:H2'    | 2:A:2608:G:C5'   | 2.06        | 0.84     |
| 2:A:2729:G:O2'    | 2:A:2730:C:H5'   | 1.76        | 0.84     |
| 2:A:2839:G:C2     | 2:A:2840:C:N1    | 2.45        | 0.84     |
| 4:E:203:GLY:HA3   | 4:E:303:PRO:HD3  | 1.58        | 0.84     |
| 4:E:226:HIS:HA    | 4:E:229:GLN:HG3  | 1.57        | 0.84     |
| 12:Q:56:ILE:HD11  | 12:Q:115:SER:N   | 1.93        | 0.84     |
| 12:Q:85:ILE:HG22  | 12:Q:122:PHE:CD1 | 2.10        | 0.84     |
| 13:S:114:LYS:O    | 13:S:117:ALA:N   | 2.11        | 0.84     |
| 13:S:81:ALA:CB    | 13:S:117:ALA:HB1 | 2.07        | 0.84     |
| 13:S:116:PHE:O    | 13:S:119:GLN:HB2 | 1.78        | 0.84     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:2334:G:OP2  | 13:S:13:ARG:CA   | 2.24        | 0.84     |
| 14:T:53:ASP:C   | 14:T:56:ARG:HE   | 1.81        | 0.84     |
| 20:U:13:ARG:H   | 20:U:13:ARG:CZ   | 1.90        | 0.84     |
| 21:V:40:VAL:CG1 | 21:V:55:THR:CG2  | 2.56        | 0.84     |
| 15:W:12:ILE:O   | 15:W:14:PRO:CD   | 2.26        | 0.84     |
| 17:Y:103:LEU:HA | 17:Y:108:ARG:HB3 | 1.56        | 0.84     |
| 17:Y:49:GLU:CD  | 17:Y:97:ARG:HH12 | 1.60        | 0.84     |
| 18:Z:18:MET:CA  | 18:Z:36:ARG:HG3  | 2.08        | 0.84     |
| 18:Z:40:ASP:OD2 | 18:Z:41:ARG:CZ   | 2.26        | 0.84     |
| 3:D:211:HIS:ND1 | 3:D:212:HIS:CD2  | 2.46        | 0.84     |
| 3:D:61:TYR:OH   | 3:D:214:MET:HE1  | 1.77        | 0.84     |
| 16:X:31:ARG:N   | 16:X:31:ARG:HE   | 1.74        | 0.84     |
| 22:2:39:ALA:CB  | 22:2:40:PRO:CD   | 2.53        | 0.84     |
| 24:0:43:THR:CG2 | 24:0:75:GLY:H    | 1.90        | 0.84     |
| 23:3:3:ARG:CB   | 23:3:60:GLU:HA   | 2.07        | 0.84     |
| 2:A:2358:G:H22  | 29:8:52:LYS:HZ3  | 1.25        | 0.84     |
| 2:A:1251:C:H5'' | 20:U:10:ARG:NE   | 1.92        | 0.84     |
| 2:A:1364:G:H3'  | 25:4:3:LYS:CE    | 2.07        | 0.84     |
| 2:A:2253:G:H2'  | 2:A:2254:C:O5'   | 1.78        | 0.84     |
| 2:A:2314:C:O2'  | 2:A:2315:G:C5'   | 2.26        | 0.84     |
| 2:A:2657:A:C8   | 2:A:2658:C:C6    | 2.65        | 0.84     |
| 2:A:1709:U:O2'  | 2:A:2859:G:N3    | 2.10        | 0.84     |
| 4:E:225:LYS:C   | 4:E:226:HIS:ND1  | 2.31        | 0.84     |
| 5:F:96:LYS:N    | 5:F:98:ARG:CZ    | 2.41        | 0.84     |
| 6:G:25:MET:N    | 6:G:129:ASP:OD2  | 2.11        | 0.84     |
| 8:I:21:VAL:HG11 | 8:I:30:LEU:HD11  | 1.57        | 0.84     |
| 9:N:25:GLN:HA   | 9:N:28:GLU:CB    | 2.07        | 0.84     |
| 10:O:35:ILE:CG2 | 10:O:62:VAL:C    | 2.46        | 0.84     |
| 13:S:30:GLY:O   | 13:S:31:LYS:CE   | 2.25        | 0.84     |
| 20:U:94:VAL:CG1 | 21:V:4:ILE:HD13  | 2.08        | 0.84     |
| 18:Z:15:ASP:OD1 | 18:Z:16:GLU:N    | 2.11        | 0.84     |
| 8:I:121:ILE:O   | 8:I:122:ARG:HB2  | 1.75        | 0.84     |
| 24:0:24:LYS:HG3 | 24:0:56:ASP:OD1  | 1.77        | 0.83     |
| 24:0:61:ALA:CB  | 24:0:80:SER:HA   | 2.07        | 0.83     |
| 2:A:2097:C:N3   | 2:A:2192:G:N2    | 2.25        | 0.83     |
| 2:A:2185:C:H2'  | 2:A:2186:G:H8    | 1.41        | 0.83     |
| 2:A:2278:A:H4'  | 12:Q:19:TYR:HB3  | 1.60        | 0.83     |
| 2:A:2406:U:H3   | 11:P:55:GLN:CB   | 1.91        | 0.83     |
| 2:A:25:U:H5''   | 15:W:80:PRO:HD3  | 0.86        | 0.83     |
| 2:A:2676:C:H3'  | 2:A:2676:C:C6    | 2.13        | 0.83     |
| 2:A:2679:A:C5   | 2:A:2680:C:C5    | 2.65        | 0.83     |
| 2:A:988:A:P     | 23:3:11:SER:CB   | 2.66        | 0.83     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 4:E:199:ALA:CA    | 4:E:312:ARG:O    | 2.24        | 0.83     |
| 4:E:71:THR:CG2    | 4:E:299:SER:CA   | 2.55        | 0.83     |
| 4:E:94:ARG:CB     | 4:E:95:PRO:HD2   | 2.00        | 0.83     |
| 5:F:223:LEU:C     | 5:F:223:LEU:CD1  | 2.37        | 0.83     |
| 6:G:93:LEU:HD22   | 6:G:106:PHE:HD2  | 1.39        | 0.83     |
| 7:H:101:LYS:HZ1   | 7:H:115:GLU:HG3  | 1.42        | 0.83     |
| 7:H:148:ARG:NH1   | 7:H:163:TYR:CA   | 2.34        | 0.83     |
| 8:I:9:VAL:HG12    | 8:I:9:VAL:O      | 1.78        | 0.83     |
| 9:N:21:ARG:HA     | 9:N:24:SER:CB    | 2.08        | 0.83     |
| 2:A:1140:C:H5     | 9:N:49:ARG:HG3   | 1.02        | 0.83     |
| 10:O:26:GLY:HA3   | 10:O:30:ARG:NH1  | 1.93        | 0.83     |
| 10:O:35:ILE:CG2   | 10:O:63:VAL:N    | 2.32        | 0.83     |
| 12:Q:20:ILE:CG1   | 12:Q:21:SER:N    | 2.38        | 0.83     |
| 12:Q:61:LEU:O     | 12:Q:62:GLU:C    | 2.13        | 0.83     |
| 12:Q:66:ASN:HB2   | 12:Q:70:ARG:HH21 | 1.43        | 0.83     |
| 13:S:87:LEU:CD2   | 13:S:87:LEU:H    | 1.90        | 0.83     |
| 17:Y:18:GLU:CB    | 17:Y:21:LYS:NZ   | 2.40        | 0.83     |
| 22:2:50:ARG:HA    | 22:2:53:ILE:HD12 | 1.60        | 0.83     |
| 23:3:20:LYS:CD    | 23:3:23:LEU:CD1  | 2.55        | 0.83     |
| 25:4:6:HIS:HE1    | 25:4:55:ARG:HB2  | 1.42        | 0.83     |
| 2:A:2815:C:C5'    | 26:5:29:ASN:ND2  | 2.37        | 0.83     |
| 30:9:7:VAL:HG11   | 30:9:34:GLN:HG2  | 0.85        | 0.83     |
| 2:A:2293:C:N3     | 2:A:2339:G:O6    | 2.11        | 0.83     |
| 2:A:2539:C:H2'    | 2:A:2540:C:O5'   | 1.78        | 0.83     |
| 2:A:2550:G:C4     | 2:A:2551:C:C5    | 2.66        | 0.83     |
| 4:E:267:ARG:CB    | 4:E:297:LYS:HD2  | 2.08        | 0.83     |
| 5:F:210:ALA:O     | 5:F:211:ASP:HB3  | 1.76        | 0.83     |
| 5:F:215:ALA:HB2   | 5:F:238:SER:C    | 1.98        | 0.83     |
| 7:H:164:GLU:CA    | 7:H:164:GLU:OE1  | 2.27        | 0.83     |
| 15:W:82:LEU:HD21  | 15:W:98:LYS:O    | 1.76        | 0.83     |
| 17:Y:49:GLU:HG2   | 17:Y:59:GLU:CA   | 2.02        | 0.83     |
| 18:Z:112:LEU:HD13 | 18:Z:142:ASN:CA  | 2.00        | 0.83     |
| 2:A:396:G:C1'     | 25:4:39:VAL:HG11 | 2.07        | 0.83     |
| 25:4:63:PHE:O     | 25:4:65:ASP:N    | 2.11        | 0.83     |
| 2:A:1263:U:H4'    | 26:5:16:ARG:NE   | 1.94        | 0.83     |
| 28:7:30:ILE:CA    | 28:7:33:ARG:HG3  | 2.07        | 0.83     |
| 2:A:2268:A:H5'    | 2:A:2269:A:OP2   | 1.78        | 0.83     |
| 2:A:2484:G:H2'    | 2:A:2485:G:H5'   | 1.60        | 0.83     |
| 2:A:2552:U:C5'    | 2:A:2553:G:OP2   | 2.23        | 0.83     |
| 2:A:2716:U:H2'    | 2:A:2717:G:H5'   | 1.59        | 0.83     |
| 2:A:2688:U:N3     | 2:A:2719:G:C4    | 2.46        | 0.83     |
| 2:A:2744:G:H2'    | 2:A:2745:C:H5'   | 1.58        | 0.83     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:6:TYR:CE2    | 5:F:140:VAL:HG22 | 2.13        | 0.83     |
| 6:G:97:GLN:CD    | 6:G:106:PHE:CD2  | 2.51        | 0.83     |
| 2:A:2314:C:H5'   | 6:G:22:VAL:HG11  | 1.60        | 0.83     |
| 7:H:86:LEU:HD13  | 7:H:87:GLU:CA    | 2.08        | 0.83     |
| 9:N:136:SER:HA   | 9:N:139:LEU:CD2  | 2.08        | 0.83     |
| 2:A:1012:U:O2    | 9:N:21:ARG:NH1   | 2.12        | 0.83     |
| 9:N:70:PHE:O     | 9:N:71:TYR:HB2   | 1.76        | 0.83     |
| 10:O:60:ALA:HA   | 10:O:87:ILE:HD13 | 1.59        | 0.83     |
| 20:U:13:ARG:NH1  | 20:U:13:ARG:CA   | 2.41        | 0.83     |
| 17:Y:57:GLY:N    | 17:Y:97:ARG:NH2  | 2.26        | 0.83     |
| 18:Z:69:VAL:CG1  | 18:Z:70:GLN:H    | 1.90        | 0.83     |
| 8:I:68:LEU:HD11  | 8:I:108:LEU:HD21 | 1.58        | 0.83     |
| 16:X:26:PHE:CD1  | 16:X:26:PHE:N    | 2.44        | 0.83     |
| 6:G:90:LEU:O     | 6:G:92:GLU:OE2   | 1.95        | 0.83     |
| 23:3:20:LYS:O    | 23:3:23:LEU:N    | 2.11        | 0.83     |
| 25:4:14:ILE:HG13 | 25:4:38:GLY:O    | 1.78        | 0.83     |
| 2:A:398:G:OP2    | 25:4:59:PHE:CE2  | 2.30        | 0.83     |
| 28:7:14:LYS:O    | 28:7:15:THR:C    | 2.16        | 0.83     |
| 2:A:2287:A:C2'   | 2:A:2288:A:OP2   | 2.26        | 0.83     |
| 2:A:2476:A:C8    | 2:A:2477:C:C5    | 2.66        | 0.83     |
| 2:A:2485:G:H2'   | 2:A:2486:G:C5'   | 2.05        | 0.83     |
| 2:A:2458:G:C8    | 2:A:2490:G:N1    | 2.46        | 0.83     |
| 2:A:2446:G:N1    | 2:A:2501:C:C5    | 2.45        | 0.83     |
| 2:A:1786:A:H2    | 2:A:2590:A:H1'   | 1.43        | 0.83     |
| 2:A:2628:C:C1'   | 2:A:2781:A:H2'   | 2.07        | 0.83     |
| 2:A:2854:G:N1    | 2:A:2864:G:C6    | 2.46        | 0.83     |
| 2:A:610:C:H2'    | 2:A:611:C:H6     | 1.42        | 0.83     |
| 3:D:141:HIS:HB3  | 3:D:154:VAL:HG11 | 1.59        | 0.83     |
| 4:E:174:LEU:O    | 4:E:177:ALA:CB   | 2.25        | 0.83     |
| 5:F:103:ASN:HB3  | 5:F:106:GLU:HG3  | 1.58        | 0.83     |
| 6:G:102:GLY:HA3  | 6:G:134:LEU:HD12 | 0.85        | 0.83     |
| 2:A:2749:A:C4'   | 7:H:62:ALA:HB2   | 2.07        | 0.83     |
| 10:O:101:PRO:O   | 10:O:102:VAL:CG2 | 2.27        | 0.83     |
| 10:O:66:LYS:NZ   | 10:O:67:ARG:CD   | 2.19        | 0.83     |
| 2:A:2495:G:C2'   | 12:Q:101:MET:HE2 | 2.08        | 0.83     |
| 2:A:910:A:H2'    | 12:Q:17:ARG:NH2  | 1.94        | 0.83     |
| 12:Q:54:VAL:O    | 12:Q:56:ILE:HD12 | 1.78        | 0.83     |
| 13:S:127:LEU:O   | 13:S:127:LEU:CD2 | 2.26        | 0.83     |
| 13:S:34:LEU:CD2  | 13:S:102:LEU:CA  | 2.52        | 0.83     |
| 21:V:3:ALA:CB    | 21:V:12:TYR:OH   | 2.26        | 0.83     |
| 21:V:31:ASP:C    | 21:V:63:HIS:O    | 2.17        | 0.83     |
| 21:V:67:LYS:HD3  | 21:V:70:TYR:CE1  | 2.13        | 0.83     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 21:V:78:VAL:HB    | 21:V:80:TYR:CD1  | 2.14        | 0.83     |
| 26:5:4:HIS:CB     | 26:5:5:PRO:HD3   | 2.07        | 0.83     |
| 27:6:37:LEU:C     | 27:6:38:LYS:HG3  | 1.97        | 0.83     |
| 29:8:23:MET:SD    | 29:8:24:ALA:N    | 2.52        | 0.83     |
| 30:9:27:CYS:O     | 30:9:29:ASN:N    | 2.11        | 0.83     |
| 2:A:2287:A:O2'    | 2:A:2288:A:C5'   | 2.26        | 0.83     |
| 2:A:2648:C:H42    | 2:A:2672:G:H1    | 1.25        | 0.83     |
| 2:A:26:G:N1       | 2:A:27:G:N2      | 2.25        | 0.83     |
| 2:A:649:G:O3'     | 29:8:17:THR:CG2  | 2.27        | 0.83     |
| 2:A:965:C:C1'     | 2:A:2273:A:C2    | 2.61        | 0.83     |
| 4:E:295:LEU:HD23  | 4:E:296:VAL:H    | 1.41        | 0.83     |
| 5:F:102:LEU:CD2   | 5:F:106:GLU:HB2  | 2.06        | 0.83     |
| 5:F:163:HIS:CA    | 5:F:166:ILE:CD1  | 2.56        | 0.83     |
| 5:F:3:ALA:O       | 5:F:16:VAL:N     | 2.09        | 0.83     |
| 9:N:61:VAL:CG2    | 9:N:139:LEU:HB3  | 2.08        | 0.83     |
| 9:N:19:MET:HE2    | 9:N:22:VAL:CG2   | 2.08        | 0.83     |
| 2:A:1666:G:P      | 10:O:66:LYS:HE2  | 2.17        | 0.83     |
| 12:Q:135:ALA:O    | 12:Q:138:ARG:N   | 2.11        | 0.83     |
| 12:Q:142:LYS:CD   | 12:Q:143:VAL:H   | 1.92        | 0.83     |
| 12:Q:31:PHE:HZ    | 12:Q:88:PHE:CD2  | 1.96        | 0.83     |
| 19:R:61:HIS:HA    | 19:R:64:ARG:HD3  | 0.89        | 0.83     |
| 17:Y:101:LEU:HD13 | 17:Y:113:GLU:HB3 | 1.58        | 0.83     |
| 17:Y:55:PHE:CZ    | 17:Y:89:ARG:NH2  | 2.46        | 0.83     |
| 22:2:2:VAL:C      | 22:2:4:HIS:HD1   | 1.80        | 0.83     |
| 2:A:1076:C:O2'    | 31:K:91:GLU:CB   | 2.26        | 0.83     |
| 24:0:61:ALA:HB2   | 24:0:80:SER:O    | 1.78        | 0.83     |
| 2:A:2331:G:HO2'   | 24:0:70:ILE:HG21 | 1.38        | 0.83     |
| 27:6:36:GLU:C     | 27:6:52:GLU:CD   | 2.35        | 0.83     |
| 2:A:2219:G:O2'    | 2:A:2224:G:H5''  | 1.78        | 0.83     |
| 2:A:2285:C:H1'    | 2:A:2288:A:N7    | 1.93        | 0.83     |
| 2:A:2394:C:C4     | 2:A:2395:C:N3    | 2.46        | 0.83     |
| 2:A:2561:A:H2'    | 2:A:2562:U:O5'   | 1.79        | 0.83     |
| 2:A:2618:G:C5     | 2:A:2619:C:H5    | 1.96        | 0.83     |
| 2:A:2722:G:C6     | 2:A:2723:C:N4    | 2.47        | 0.83     |
| 2:A:2740:A:N9     | 2:A:2741:A:N7    | 2.25        | 0.83     |
| 2:A:2785:C:O2     | 4:E:100:TRP:CD1  | 2.32        | 0.83     |
| 2:A:2852:G:C2     | 2:A:2853:C:C2    | 2.67        | 0.83     |
| 4:E:226:HIS:HA    | 4:E:229:GLN:CG   | 2.01        | 0.83     |
| 4:E:199:ALA:HA    | 4:E:312:ARG:O    | 1.77        | 0.83     |
| 2:A:2313:C:H5''   | 6:G:51:ARG:NH1   | 1.93        | 0.83     |
| 8:I:43:ASN:C      | 8:I:45:LYS:H     | 1.80        | 0.83     |
| 19:R:24:GLN:HB2   | 19:R:44:LEU:HD23 | 1.60        | 0.83     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 19:R:63:ARG:HH22  | 19:R:77:ARG:HG2  | 1.39        | 0.83     |
| 2:A:1152:C:O3'    | 20:U:80:ILE:HD13 | 1.79        | 0.83     |
| 15:W:24:ILE:HG22  | 15:W:35:ILE:HB   | 1.58        | 0.83     |
| 18:Z:105:GLN:CB   | 18:Z:141:MET:SD  | 2.66        | 0.83     |
| 16:X:13:LYS:O     | 16:X:16:ASN:N    | 2.12        | 0.83     |
| 2:A:441:U:OP2     | 17:Y:3:GLN:HG2   | 1.78        | 0.83     |
| 23:3:22:ALA:O     | 23:3:26:LEU:CD1  | 2.26        | 0.83     |
| 27:6:2:ALA:HB3    | 27:6:11:LYS:HE3  | 1.60        | 0.83     |
| 27:6:48:VAL:O     | 27:6:50:PHE:HE1  | 1.56        | 0.83     |
| 29:8:16:ILE:HG13  | 29:8:22:VAL:HG22 | 0.85        | 0.83     |
| 2:A:126:A:H5''    | 28:7:18:PHE:HD1  | 1.44        | 0.83     |
| 2:A:1818:U:C3'    | 3:D:155:ARG:CG   | 2.51        | 0.83     |
| 2:A:2090:G:C2     | 2:A:2230:G:C6    | 2.66        | 0.83     |
| 2:A:2348:U:C5'    | 29:8:42:ARG:HH22 | 1.90        | 0.83     |
| 2:A:2523:G:C2'    | 2:A:2524:G:H5'   | 2.08        | 0.83     |
| 2:A:2542:A:O2'    | 2:A:2543:G:H8    | 1.59        | 0.83     |
| 2:A:2556:C:O2'    | 2:A:2557:G:H5''  | 1.77        | 0.83     |
| 2:A:2618:G:HO2'   | 2:A:2619:C:C5'   | 1.92        | 0.83     |
| 2:A:2659:G:C2'    | 2:A:2661:G:OP2   | 2.27        | 0.83     |
| 2:A:2784:C:OP1    | 4:E:95:PRO:HG2   | 1.79        | 0.83     |
| 2:A:997:G:H5''    | 20:U:92:ARG:CZ   | 2.08        | 0.83     |
| 5:F:7:ASP:C       | 5:F:11:ASN:N     | 2.31        | 0.83     |
| 5:F:239:ALA:C     | 5:F:241:ALA:N    | 2.26        | 0.83     |
| 2:A:443:A:N7      | 5:F:43:LYS:HD2   | 1.93        | 0.83     |
| 7:H:95:ALA:H      | 7:H:127:GLN:NE2  | 1.75        | 0.83     |
| 10:O:24:VAL:CG1   | 10:O:32:TYR:O    | 2.27        | 0.83     |
| 10:O:43:VAL:HB    | 10:O:55:GLY:N    | 1.94        | 0.83     |
| 12:Q:46:VAL:HG22  | 12:Q:156:ASN:ND2 | 1.94        | 0.83     |
| 20:U:27:SER:HB3   | 20:U:31:GLN:CD   | 1.99        | 0.83     |
| 20:U:61:TRP:C     | 20:U:65:ILE:HG12 | 1.98        | 0.83     |
| 21:V:71:ILE:O     | 21:V:72:ARG:HG2  | 1.77        | 0.83     |
| 17:Y:43:ASN:HD22  | 17:Y:101:LEU:CD2 | 1.90        | 0.83     |
| 18:Z:112:LEU:HD23 | 18:Z:172:LEU:O   | 1.78        | 0.83     |
| 2:A:1340:U:C5     | 16:X:55:GLN:NE2  | 2.47        | 0.83     |
| 24:0:70:ILE:HG12  | 24:0:71:ASN:H    | 1.44        | 0.83     |
| 25:4:41:PRO:HB2   | 25:4:57:ASP:CB   | 2.09        | 0.83     |
| 27:6:42:PRO:CG    | 27:6:44:ALA:HB3  | 2.04        | 0.83     |
| 30:9:7:VAL:O      | 30:9:8:LYS:HE2   | 1.75        | 0.83     |
| 2:A:2253:G:O2'    | 2:A:2254:C:C5'   | 2.26        | 0.83     |
| 2:A:2430:A:H2'    | 2:A:2431:U:C5'   | 2.08        | 0.83     |
| 2:A:2457:U:H2'    | 2:A:2458:G:C4'   | 2.08        | 0.83     |
| 2:A:2580:U:H6     | 2:A:2581:G:C8    | 1.51        | 0.83     |

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| Atom-1           | Atom-2          | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 2:A:2589:A:C2'   | 2:A:2590:A:C5'  | 2.43        | 0.83     |
| 2:A:2633:G:C2    | 2:A:2634:G:C8   | 2.61        | 0.83     |
| 2:A:2648:C:O2'   | 2:A:2649:U:H5'  | 1.77        | 0.83     |
| 2:A:2689:U:C1'   | 2:A:2713:A:C2   | 2.62        | 0.83     |
| 2:A:2731:G:N2    | 2:A:2732:G:H21  | 1.75        | 0.83     |
| 2:A:527:C:H5     | 2:A:2779:U:H3'  | 1.44        | 0.83     |
| 2:A:825:C:C4'    | 2:A:2428:G:O6   | 2.27        | 0.83     |
| 3:D:148:GLY:C    | 3:D:150:GLY:H   | 1.82        | 0.83     |
| 3:D:80:ILE:HD12  | 3:D:80:ILE:C    | 1.98        | 0.83     |
| 4:E:222:ARG:HG2  | 4:E:232:ARG:CA  | 2.08        | 0.83     |
| 4:E:46:ALA:CB    | 4:E:72:VAL:C    | 2.42        | 0.83     |
| 5:F:52:ALA:O     | 5:F:55:ARG:HG2  | 1.79        | 0.83     |
| 7:H:100:LYS:C    | 7:H:101:LYS:HD2 | 1.99        | 0.83     |
| 7:H:101:LYS:CD   | 7:H:115:GLU:HB2 | 2.08        | 0.83     |
| 9:N:13:ASP:C     | 9:N:38:VAL:HG11 | 1.99        | 0.83     |
| 11:P:128:GLY:O   | 11:P:131:GLU:N  | 2.11        | 0.83     |
| 2:A:1453:A:C6    | 19:R:77:ARG:HD3 | 2.13        | 0.83     |
| 15:W:58:ALA:O    | 15:W:60:ASN:N   | 2.12        | 0.83     |
| 18:Z:51:LEU:HD23 | 18:Z:51:LEU:C   | 1.98        | 0.83     |
| 3:D:208:GLY:HA3  | 3:D:210:LYS:CE  | 2.09        | 0.83     |
| 22:2:7:GLU:OE1   | 22:2:8:ILE:HG12 | 1.77        | 0.83     |
| 16:X:28:VAL:CG1  | 16:X:64:ALA:HB3 | 2.08        | 0.83     |
| 16:X:23:LYS:HA   | 16:X:66:VAL:O   | 1.79        | 0.83     |
| 2:A:2898:U:N3    | 2:A:2899:G:C5   | 2.46        | 0.83     |
| 24:0:44:LYS:O    | 24:0:45:PHE:HD1 | 1.61        | 0.83     |
| 23:3:50:VAL:O    | 23:3:53:LEU:HB2 | 1.79        | 0.83     |
| 29:8:12:ARG:O    | 29:8:13:ARG:O   | 1.96        | 0.83     |
| 29:8:30:ARG:HG2  | 29:8:31:HIS:N   | 1.93        | 0.83     |
| 2:A:1029:A:H2'   | 2:A:1030:G:O4'  | 1.78        | 0.83     |
| 2:A:2380:C:C2'   | 2:A:2381:C:H5'' | 2.08        | 0.83     |
| 2:A:10:G:N2      | 2:A:2629:A:N3   | 2.27        | 0.83     |
| 2:A:1456:G:C2    | 2:A:2704:C:N3   | 2.46        | 0.83     |
| 2:A:2722:G:H2'   | 2:A:2723:C:H6   | 1.44        | 0.83     |
| 2:A:2681:C:C5    | 2:A:2727:G:N2   | 2.43        | 0.83     |
| 2:A:994:C:C2     | 20:U:53:LYS:HD2 | 2.10        | 0.83     |
| 4:E:180:ILE:CG2  | 4:E:187:HIS:HA  | 2.04        | 0.83     |
| 5:F:52:ALA:HA    | 5:F:55:ARG:HB3  | 1.57        | 0.83     |
| 2:A:590:A:H4'    | 5:F:97:ASP:OD2  | 1.79        | 0.83     |
| 12:Q:133:GLU:OE1 | 12:Q:134:PHE:N  | 2.11        | 0.83     |
| 19:R:36:THR:HG23 | 19:R:40:LYS:HD3 | 1.60        | 0.83     |
| 20:U:91:ASN:OD1  | 20:U:95:LEU:CD2 | 2.25        | 0.83     |
| 20:U:98:ILE:C    | 20:U:100:ALA:N  | 2.28        | 0.83     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 18:Z:10:PRO:O     | 18:Z:14:LEU:HB2  | 1.78        | 0.83     |
| 18:Z:112:LEU:CD2  | 18:Z:113:VAL:N   | 2.41        | 0.83     |
| 18:Z:15:ASP:O     | 18:Z:16:GLU:HB2  | 1.76        | 0.83     |
| 8:I:94:THR:HG23   | 8:I:97:GLN:H     | 1.42        | 0.83     |
| 3:D:211:HIS:CE1   | 3:D:212:HIS:CD2  | 2.67        | 0.83     |
| 2:A:2385:C:O2'    | 24:0:39:ARG:NH2  | 2.11        | 0.83     |
| 24:0:67:VAL:O     | 24:0:68:VAL:HG23 | 1.79        | 0.83     |
| 19:R:101:ALA:O    | 26:5:41:LEU:HD13 | 1.79        | 0.83     |
| 28:7:8:ASN:O      | 28:7:11:LYS:N    | 2.12        | 0.83     |
| 2:A:2263:C:O2'    | 2:A:2264:C:C5'   | 2.24        | 0.83     |
| 2:A:954:G:O2'     | 2:A:2274:A:N1    | 2.12        | 0.83     |
| 2:A:2364:C:H5'    | 24:0:38:VAL:HG11 | 1.61        | 0.83     |
| 2:A:806:C:O2'     | 2:A:2445:G:H4'   | 1.77        | 0.83     |
| 2:A:2504:U:O5'    | 2:A:2504:U:H6    | 1.60        | 0.83     |
| 2:A:2578:G:H2'    | 2:A:2579:C:O5'   | 1.79        | 0.83     |
| 2:A:2589:A:C4     | 2:A:2590:A:C8    | 2.67        | 0.83     |
| 2:A:990:A:N6      | 2:A:1186:G:N3    | 2.26        | 0.83     |
| 3:D:143:ILE:HB    | 3:D:153:LEU:N    | 1.94        | 0.83     |
| 3:D:151:GLY:C     | 3:D:152:GLN:OE1  | 2.17        | 0.83     |
| 4:E:250:VAL:O     | 4:E:251:PRO:O    | 1.95        | 0.83     |
| 8:I:7:LYS:HD2     | 8:I:12:LYS:CE    | 2.09        | 0.83     |
| 9:N:50:GLU:O      | 9:N:51:GLU:O     | 1.97        | 0.83     |
| 11:P:109:LEU:HD13 | 11:P:109:LEU:C   | 1.99        | 0.83     |
| 12:Q:32:LYS:C     | 12:Q:32:LYS:HD2  | 1.99        | 0.83     |
| 12:Q:88:PHE:C     | 12:Q:90:PHE:CE1  | 2.52        | 0.83     |
| 13:S:12:ARG:HD2   | 13:S:20:TYR:CE2  | 2.13        | 0.83     |
| 13:S:41:LYS:HZ1   | 13:S:68:GLU:CD   | 1.81        | 0.83     |
| 13:S:86:LEU:HD23  | 13:S:124:ASP:HB2 | 1.60        | 0.83     |
| 20:U:20:ARG:NH1   | 21:V:75:LYS:HE3  | 1.89        | 0.83     |
| 2:A:1011:G:OP2    | 20:U:75:ASN:HB3  | 1.77        | 0.83     |
| 15:W:69:LEU:HD22  | 15:W:109:GLU:CB  | 2.08        | 0.83     |
| 15:W:24:ILE:HG22  | 15:W:35:ILE:CD1  | 2.09        | 0.83     |
| 2:A:83:G:H5''     | 17:Y:20:HIS:ND1  | 1.93        | 0.83     |
| 2:A:1924:C:N3     | 2:A:1925:C:C5    | 2.47        | 0.83     |
| 2:A:2262:U:OP2    | 24:0:14:ARG:NH2  | 2.11        | 0.82     |
| 2:A:923:C:C2      | 24:0:26:PHE:CE2  | 2.65        | 0.82     |
| 25:4:14:ILE:CG2   | 25:4:16:TYR:CE1  | 2.62        | 0.82     |
| 2:A:1364:G:P      | 25:4:2:GLN:O     | 2.37        | 0.82     |
| 26:5:12:SER:HG    | 26:5:14:SER:HG   | 1.22        | 0.82     |
| 2:A:2297:C:H2'    | 2:A:2298:A:H8    | 0.77        | 0.82     |
| 2:A:2543:G:C4     | 2:A:2544:G:C5    | 2.67        | 0.82     |
| 2:A:2799:A:H3'    | 2:A:2801:A:OP2   | 1.77        | 0.82     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:775:G:HO2'    | 2:A:791:C:N4      | 1.73        | 0.82     |
| 5:F:1:MET:O       | 5:F:18:LEU:CD2    | 2.28        | 0.82     |
| 8:I:7:LYS:HD3     | 8:I:12:LYS:HZ2    | 1.44        | 0.82     |
| 8:I:31:PHE:HE1    | 8:I:35:LEU:O      | 1.61        | 0.82     |
| 8:I:2:LYS:HG2     | 8:I:39:ALA:H      | 1.44        | 0.82     |
| 2:A:142(A):A:H4'  | 9:N:21:ARG:HH22   | 1.41        | 0.82     |
| 10:O:112:MET:O    | 10:O:115:ILE:HG13 | 1.78        | 0.82     |
| 11:P:104:ASP:O    | 11:P:105:TYR:CG   | 2.31        | 0.82     |
| 12:Q:44:ALA:HB3   | 12:Q:126:VAL:O    | 1.79        | 0.82     |
| 12:Q:17:ARG:H     | 12:Q:17:ARG:HD3   | 1.40        | 0.82     |
| 12:Q:82:LYS:C     | 12:Q:84:ARG:H     | 1.79        | 0.82     |
| 2:A:29:U:C4'      | 20:U:11:ARG:NH1   | 2.09        | 0.82     |
| 21:V:67:LYS:O     | 21:V:91:THR:HB    | 1.78        | 0.82     |
| 17:Y:103:LEU:CD2  | 17:Y:108:ARG:O    | 2.27        | 0.82     |
| 18:Z:112:LEU:HA   | 18:Z:174:PRO:CD   | 2.09        | 0.82     |
| 2:A:280:C:C2      | 2:A:283:A:N6      | 2.46        | 0.82     |
| 8:I:65:ALA:CB     | 8:I:134:HIS:HB2   | 2.09        | 0.82     |
| 2:A:980:A:N3      | 2:A:2037:G:O2'    | 2.11        | 0.82     |
| 25:4:59:PHE:N     | 25:4:62:ARG:HE    | 1.76        | 0.82     |
| 2:A:2093:G:N7     | 2:A:2225:A:N7     | 2.26        | 0.82     |
| 2:A:2195:C:C6     | 2:A:2195:C:OP2    | 2.31        | 0.82     |
| 2:A:2066:C:C2     | 2:A:2445:G:C2     | 2.67        | 0.82     |
| 2:A:2463:C:N3     | 2:A:2464:C:C5     | 2.45        | 0.82     |
| 2:A:2521:C:H2'    | 2:A:2522:U:O5'    | 1.79        | 0.82     |
| 2:A:2707:G:C2'    | 2:A:2708:G:O5'    | 2.26        | 0.82     |
| 2:A:2832:U:H6     | 2:A:2832:U:H5''   | 1.44        | 0.82     |
| 2:A:2885:C:N4     | 2:A:2886:G:C8     | 2.47        | 0.82     |
| 2:A:337:C:C3'     | 2:A:338:G:H5''    | 2.02        | 0.82     |
| 3:D:110:LYS:CA    | 3:D:110:LYS:NZ    | 2.38        | 0.82     |
| 3:D:161:ALA:CA    | 3:D:162:GLN:HE22  | 1.91        | 0.82     |
| 4:E:79:ARG:NH2    | 4:E:104:PHE:O     | 2.10        | 0.82     |
| 5:F:194:PHE:CE2   | 5:F:204:ALA:O     | 2.33        | 0.82     |
| 5:F:242:GLU:O     | 5:F:245:GLU:HB2   | 1.78        | 0.82     |
| 2:A:600:G:C5'     | 5:F:27:ARG:HH11   | 1.93        | 0.82     |
| 9:N:20:GLY:C      | 9:N:22:VAL:N      | 2.32        | 0.82     |
| 2:A:1665:A:C1'    | 10:O:66:LYS:NZ    | 2.41        | 0.82     |
| 19:R:74:LYS:O     | 19:R:75:LEU:O     | 1.97        | 0.82     |
| 20:U:31:GLN:C     | 20:U:33:ARG:H     | 1.79        | 0.82     |
| 21:V:5:ILE:H      | 21:V:5:ILE:HD12   | 1.44        | 0.82     |
| 21:V:62:GLU:HB2   | 21:V:96:LEU:CD2   | 2.08        | 0.82     |
| 17:Y:101:LEU:HD21 | 17:Y:112:LEU:CD1  | 2.09        | 0.82     |
| 17:Y:28:SER:CA    | 17:Y:99:THR:OG1   | 2.27        | 0.82     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 16:X:14:ALA:N     | 16:X:17:ASP:CG   | 2.23        | 0.82     |
| 2:A:95:G:P        | 22:2:41:GLU:OE1  | 2.36        | 0.82     |
| 6:G:44:ILE:O      | 6:G:83:PHE:HZ    | 1.58        | 0.82     |
| 2:A:974(A):C:O4'  | 2:A:1186:G:N2    | 2.12        | 0.82     |
| 2:A:2093:G:C5     | 2:A:2225:A:N7    | 2.47        | 0.82     |
| 2:A:2067:G:N2     | 2:A:2444:G:C4    | 2.47        | 0.82     |
| 2:A:2526:G:C4     | 2:A:2527:C:C6    | 2.68        | 0.82     |
| 2:A:2652:C:C5     | 2:A:2653:U:O4    | 2.31        | 0.82     |
| 2:A:2793:G:N1     | 2:A:2794:C:N4    | 2.28        | 0.82     |
| 2:A:2864:G:H2'    | 2:A:2865:U:H6    | 1.40        | 0.82     |
| 2:A:397:G:H5''    | 25:4:59:PHE:HZ   | 1.41        | 0.82     |
| 2:A:530:G:H5''    | 2:A:561:G:O6     | 1.79        | 0.82     |
| 3:D:198:GLY:O     | 3:D:200:THR:CB   | 2.28        | 0.82     |
| 3:D:74:PRO:CA     | 3:D:116:MET:CE   | 2.54        | 0.82     |
| 5:F:11:ASN:OD1    | 5:F:160:LEU:HD11 | 1.78        | 0.82     |
| 5:F:193:LEU:CD1   | 5:F:223:LEU:HB2  | 2.10        | 0.82     |
| 9:N:54:VAL:HG22   | 9:N:135:ILE:CD1  | 2.09        | 0.82     |
| 12:Q:17:ARG:N     | 12:Q:17:ARG:CD   | 2.36        | 0.82     |
| 13:S:20:TYR:HE2   | 13:S:21:HIS:CD2  | 1.94        | 0.82     |
| 21:V:77:GLY:O     | 21:V:78:VAL:HG13 | 1.79        | 0.82     |
| 15:W:17:VAL:O     | 15:W:20:VAL:CG2  | 2.27        | 0.82     |
| 17:Y:14:ALA:CB    | 17:Y:15:PRO:CD   | 2.54        | 0.82     |
| 2:A:338:G:P       | 17:Y:21:LYS:HD2  | 2.19        | 0.82     |
| 22:2:4:HIS:O      | 22:2:7:GLU:OE2   | 1.95        | 0.82     |
| 17:Y:4:PRO:O      | 17:Y:5:ASP:HB2   | 1.76        | 0.82     |
| 24:0:46:LYS:HE3   | 24:0:58:THR:HG1  | 1.43        | 0.82     |
| 26:5:12:SER:O     | 26:5:13:LYS:C    | 2.17        | 0.82     |
| 19:R:100:LEU:C    | 26:5:44:HIS:CD2  | 2.51        | 0.82     |
| 27:6:24:THR:C     | 27:6:25:THR:HG23 | 1.99        | 0.82     |
| 2:A:2228:G:N7     | 2:A:2229:C:C2    | 2.48        | 0.82     |
| 2:A:2256:G:N2     | 2:A:2257:U:O2    | 2.13        | 0.82     |
| 2:A:2364:C:O2'    | 2:A:2365:G:C5'   | 2.28        | 0.82     |
| 3:D:167:GLU:H     | 3:D:182:MET:HE1  | 1.39        | 0.82     |
| 2:A:2574:G:O2'    | 4:E:240:PRO:CA   | 2.27        | 0.82     |
| 5:F:42:ARG:NH1    | 5:F:221:GLU:OE1  | 2.12        | 0.82     |
| 2:A:2316:C:C5'    | 6:G:151:ILE:CD1  | 2.33        | 0.82     |
| 12:Q:123:ILE:HG21 | 12:Q:125:TRP:HB2 | 1.60        | 0.82     |
| 21:V:15:SER:O     | 21:V:97:GLY:O    | 1.96        | 0.82     |
| 1:B:76:G:OP1      | 18:Z:32:PHE:CZ   | 2.23        | 0.82     |
| 8:I:103:GLN:O     | 8:I:104:ALA:C    | 2.16        | 0.82     |
| 2:A:71:A:O2'      | 16:X:2:TRP:HZ2   | 1.62        | 0.82     |
| 23:3:50:VAL:HB    | 23:3:53:LEU:CD1  | 2.10        | 0.82     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1140:C:H4'   | 2:A:142(A):A:C5  | 2.13        | 0.82     |
| 2:A:2267:A:OP1   | 2:A:2267:A:O4'   | 1.97        | 0.82     |
| 2:A:2399:G:N2    | 2:A:2400:G:H1'   | 1.94        | 0.82     |
| 2:A:2703:C:C2'   | 2:A:2704:C:O5'   | 2.27        | 0.82     |
| 2:A:527:C:H2'    | 9:N:95:ARG:HH11  | 1.44        | 0.82     |
| 2:A:616:A:H5''   | 5:F:42:ARG:HH12  | 1.41        | 0.82     |
| 6:G:136:ARG:HB3  | 6:G:137:PRO:HD2  | 1.62        | 0.82     |
| 7:H:35:THR:O     | 7:H:36:PHE:CD1   | 2.32        | 0.82     |
| 9:N:60:ARG:O     | 9:N:71:TYR:CD2   | 2.33        | 0.82     |
| 10:O:66:LYS:HZ2  | 10:O:67:ARG:HD3  | 0.66        | 0.82     |
| 12:Q:65:ARG:HH22 | 12:Q:87:LYS:H    | 1.24        | 0.82     |
| 13:S:17:ARG:C    | 13:S:17:ARG:HD3  | 1.99        | 0.82     |
| 13:S:46:GLN:HB3  | 13:S:57:THR:HG21 | 1.60        | 0.82     |
| 21:V:21:ARG:HA   | 21:V:21:ARG:HE   | 1.44        | 0.82     |
| 21:V:21:ARG:HA   | 21:V:21:ARG:NE   | 1.95        | 0.82     |
| 17:Y:71:VAL:HG22 | 17:Y:93:THR:N    | 1.95        | 0.82     |
| 8:I:133:LEU:N    | 8:I:138:THR:HG22 | 1.93        | 0.82     |
| 22:2:30:ALA:CA   | 22:2:34:GLN:CG   | 2.57        | 0.82     |
| 2:A:1614:A:C5    | 15:W:88:ARG:HD2  | 2.15        | 0.82     |
| 27:6:40:TYR:O    | 27:6:47:HIS:CA   | 2.27        | 0.82     |
| 2:A:650:C:H5''   | 29:8:19:THR:HG23 | 1.59        | 0.82     |
| 29:8:26:LYS:HD3  | 29:8:43:GLY:C    | 1.99        | 0.82     |
| 29:8:55:TRP:O    | 29:8:56:ALA:O    | 1.96        | 0.82     |
| 30:9:7:VAL:HG11  | 30:9:25:VAL:HG23 | 1.62        | 0.82     |
| 2:A:2098:U:O2    | 2:A:2191:G:N2    | 2.12        | 0.82     |
| 2:A:2306:C:H42   | 2:A:2311:A:H2    | 1.26        | 0.82     |
| 2:A:2557:G:H2'   | 2:A:2558:C:H6    | 1.44        | 0.82     |
| 2:A:2574:G:C3'   | 2:A:2575:C:C6    | 2.59        | 0.82     |
| 2:A:2586:C:C2    | 2:A:2587:A:N7    | 2.47        | 0.82     |
| 2:A:2681:C:O2'   | 2:A:2682:U:C5'   | 2.27        | 0.82     |
| 2:A:2695:C:C2'   | 2:A:2696:U:C6    | 2.63        | 0.82     |
| 2:A:2785:C:O2'   | 4:E:100:TRP:CB   | 2.27        | 0.82     |
| 2:A:29:U:C5'     | 20:U:11:ARG:NH1  | 2.35        | 0.82     |
| 3:D:166:LYS:O    | 3:D:167:GLU:OE2  | 1.96        | 0.82     |
| 2:A:2785:C:H4'   | 4:E:99:VAL:C     | 1.98        | 0.82     |
| 5:F:110:ALA:O    | 5:F:111:VAL:C    | 2.17        | 0.82     |
| 7:H:51:VAL:CG2   | 7:H:68:ARG:HG2   | 2.10        | 0.82     |
| 12:Q:65:ARG:HH21 | 12:Q:85:ILE:C    | 1.81        | 0.82     |
| 21:V:19:VAL:HB   | 21:V:21:ARG:HH11 | 1.44        | 0.82     |
| 21:V:72:ARG:O    | 21:V:88:GLN:HG2  | 1.80        | 0.82     |
| 18:Z:19:ILE:N    | 18:Z:36:ARG:HG2  | 1.95        | 0.82     |
| 8:I:68:LEU:CG    | 8:I:108:LEU:HD13 | 2.10        | 0.82     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 16:X:17:ASP:N     | 16:X:17:ASP:OD1  | 2.13        | 0.82     |
| 23:3:37:LEU:HD12  | 23:3:43:ILE:CG2  | 2.09        | 0.82     |
| 28:7:14:LYS:O     | 28:7:16:HIS:N    | 2.12        | 0.82     |
| 2:A:2207:C:O2     | 2:A:2218:G:C2    | 2.33        | 0.82     |
| 2:A:2267:A:H5''   | 2:A:2268:A:O4'   | 1.80        | 0.82     |
| 2:A:2292:C:O2     | 2:A:2293:C:C6    | 2.32        | 0.82     |
| 2:A:2418:A:H2'    | 2:A:2419:U:C6    | 2.15        | 0.82     |
| 2:A:2758:A:OP2    | 2:A:2758:A:C4'   | 2.27        | 0.82     |
| 2:A:322:A:OP2     | 2:A:322:A:H8     | 1.63        | 0.82     |
| 3:D:66:PHE:O      | 3:D:67:LYS:HB3   | 1.77        | 0.82     |
| 5:F:52:ALA:HA     | 5:F:55:ARG:HE    | 0.99        | 0.82     |
| 12:Q:136:TRP:O    | 12:Q:139:ALA:HB3 | 1.78        | 0.82     |
| 2:A:2021:C:C5     | 20:U:25:TRP:CH2  | 2.67        | 0.82     |
| 20:U:27:SER:C     | 20:U:29:SER:N    | 2.32        | 0.82     |
| 8:I:108:LEU:HD23  | 8:I:109:LYS:O    | 1.80        | 0.82     |
| 2:A:1341:U:OP2    | 2:A:1397:U:N3    | 2.11        | 0.82     |
| 24:0:77:ARG:O     | 24:0:79:ILE:HG13 | 1.80        | 0.82     |
| 2:A:1799:G:C6     | 3:D:177:SER:CB   | 2.63        | 0.82     |
| 2:A:2064:C:H1'    | 2:A:2450:A:C6    | 2.15        | 0.82     |
| 2:A:2423:U:O4'    | 2:A:2425:A:C8    | 2.32        | 0.82     |
| 2:A:2508:G:N1     | 2:A:2582:G:O6    | 2.13        | 0.82     |
| 2:A:2543:G:O2'    | 2:A:2645:G:N7    | 2.12        | 0.82     |
| 2:A:2647:U:HO2'   | 2:A:2648:C:H5'   | 1.40        | 0.82     |
| 2:A:2773:C:O2'    | 2:A:2774:C:O4'   | 1.97        | 0.82     |
| 2:A:328:U:HO2'    | 17:Y:94:SER:CB   | 1.92        | 0.82     |
| 2:A:388:G:H2'     | 2:A:390:A:N7     | 1.94        | 0.82     |
| 2:A:443:A:C8      | 5:F:43:LYS:HD2   | 2.14        | 0.82     |
| 2:A:974:G:H3'     | 21:V:82:ARG:NH2  | 1.95        | 0.82     |
| 4:E:70:VAL:HG13   | 4:E:296:VAL:CB   | 2.09        | 0.82     |
| 2:A:1255:U:O4     | 5:F:67:GLN:O     | 1.97        | 0.82     |
| 7:H:36:PHE:O      | 7:H:37:HIS:O     | 1.98        | 0.82     |
| 9:N:134:GLU:O     | 9:N:138:THR:CB   | 2.27        | 0.82     |
| 9:N:61:VAL:CG2    | 9:N:139:LEU:CB   | 2.58        | 0.82     |
| 10:O:98:ILE:HG21  | 10:O:118:ALA:HA  | 1.61        | 0.82     |
| 10:O:56:GLN:OE1   | 10:O:56:GLN:HA   | 1.78        | 0.82     |
| 11:P:128:GLY:O    | 11:P:131:GLU:CB  | 2.27        | 0.82     |
| 2:A:911:A:C8      | 12:Q:16:ARG:HD2  | 2.13        | 0.82     |
| 15:W:84:ARG:HB2   | 15:W:96:ILE:CD1  | 2.05        | 0.82     |
| 18:Z:141:MET:O    | 18:Z:142:ASN:CG  | 2.18        | 0.82     |
| 18:Z:172:LEU:HD23 | 18:Z:173:PRO:CG  | 2.09        | 0.82     |
| 18:Z:172:LEU:CD2  | 18:Z:173:PRO:CG  | 2.58        | 0.82     |
| 16:X:6:LYS:HE3    | 16:X:29:ASP:H    | 1.43        | 0.82     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:X:37:VAL:O    | 16:X:38:ALA:C    | 2.15        | 0.82     |
| 15:W:90:ARG:CB   | 15:W:90:ARG:HH11 | 1.81        | 0.82     |
| 6:G:82:GLU:O     | 6:G:85:GLN:CG    | 2.27        | 0.82     |
| 2:A:193:U:H2'    | 2:A:194:G:C8     | 2.13        | 0.82     |
| 24:O:46:LYS:N    | 24:O:46:LYS:HD2  | 1.93        | 0.82     |
| 23:3:40:THR:CG2  | 23:3:43:ILE:CG1  | 2.58        | 0.82     |
| 25:4:17:GLN:O    | 25:4:19:GLN:NE2  | 2.13        | 0.82     |
| 25:4:58:LYS:CD   | 25:4:62:ARG:NH2  | 2.43        | 0.82     |
| 25:4:62:ARG:C    | 25:4:65:ASP:OD2  | 2.17        | 0.82     |
| 28:7:21:ARG:CB   | 28:7:31:LEU:CD1  | 2.53        | 0.82     |
| 2:A:1780:A:H3'   | 2:A:1781:C:H5''  | 1.60        | 0.82     |
| 2:A:2416:C:C2'   | 2:A:2417:C:C5'   | 2.57        | 0.82     |
| 2:A:2508:G:N2    | 2:A:2509:G:H1'   | 1.94        | 0.82     |
| 2:A:2565:A:O3'   | 2:A:2566:A:C4'   | 2.26        | 0.82     |
| 2:A:2595:G:H8    | 2:A:2595:G:O5'   | 1.61        | 0.82     |
| 2:A:2612:C:O2'   | 2:A:2613:U:C5'   | 2.28        | 0.82     |
| 2:A:2716:U:C2    | 2:A:2717:G:N7    | 2.48        | 0.82     |
| 2:A:2810:A:H2'   | 2:A:2811:G:O5'   | 1.77        | 0.82     |
| 3:D:161:ALA:N    | 3:D:162:GLN:HE22 | 1.78        | 0.82     |
| 4:E:174:LEU:H    | 4:E:174:LEU:CD1  | 1.92        | 0.82     |
| 4:E:214:VAL:HG22 | 4:E:221:LYS:NZ   | 1.94        | 0.82     |
| 9:N:22:VAL:O     | 9:N:26:VAL:HG23  | 1.80        | 0.82     |
| 10:O:61:VAL:CG1  | 10:O:62:VAL:H    | 1.92        | 0.82     |
| 2:A:1665:A:N3    | 10:O:67:ARG:NH1  | 2.28        | 0.82     |
| 12:Q:57:ARG:O    | 12:Q:61:LEU:CD2  | 2.27        | 0.82     |
| 19:R:29:LEU:H    | 19:R:29:LEU:HD22 | 1.44        | 0.82     |
| 1:B:115:G:H5'    | 13:S:59:ALA:HB2  | 1.60        | 0.82     |
| 8:I:86:GLY:C     | 8:I:88:ARG:HA    | 2.00        | 0.82     |
| 22:2:13:PRO:HA   | 22:2:16:ARG:CD   | 2.10        | 0.82     |
| 22:2:52:ALA:O    | 22:2:53:ILE:C    | 2.17        | 0.82     |
| 26:5:16:ARG:O    | 26:5:19:ARG:HB3  | 1.78        | 0.82     |
| 28:7:30:ILE:HG12 | 28:7:33:ARG:HD2  | 1.60        | 0.82     |
| 2:A:2314:C:OP1   | 6:G:74:THR:HG22  | 1.79        | 0.82     |
| 2:A:2347:C:C2    | 2:A:2348:U:C5    | 2.68        | 0.82     |
| 2:A:2592:G:C4    | 2:A:2593:U:C6    | 2.67        | 0.82     |
| 2:A:2627:G:H8    | 2:A:2627:G:H5'   | 1.43        | 0.82     |
| 2:A:2678:C:H2'   | 2:A:2679:A:O5'   | 1.80        | 0.82     |
| 2:A:2810:A:H2'   | 2:A:2811:G:C4'   | 2.10        | 0.82     |
| 2:A:2819:G:C5'   | 2:A:2821:A:N6    | 2.41        | 0.82     |
| 4:E:205:THR:HG21 | 4:E:259:HIS:H    | 1.00        | 0.82     |
| 5:F:37:ALA:O     | 5:F:107:ARG:NH1  | 2.12        | 0.82     |
| 6:G:38:GLU:HA    | 6:G:41:LEU:CG    | 2.08        | 0.82     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:I:43:ASN:HD22  | 8:I:43:ASN:H     | 1.27        | 0.82     |
| 2:A:1022:G:H5''  | 9:N:52:GLN:OE1   | 1.79        | 0.82     |
| 9:N:58:GLU:HA    | 9:N:61:VAL:HG23  | 0.84        | 0.82     |
| 11:P:103:ALA:O   | 11:P:104:ASP:CG  | 2.19        | 0.82     |
| 12:Q:45:GLN:O    | 12:Q:155:GLY:O   | 1.96        | 0.82     |
| 21:V:5:ILE:CD1   | 21:V:12:TYR:CZ   | 2.63        | 0.82     |
| 21:V:3:ALA:HB2   | 21:V:44:GLN:OE1  | 1.80        | 0.82     |
| 18:Z:6:LYS:CA    | 18:Z:31:SER:HB3  | 2.10        | 0.82     |
| 8:I:88:ARG:HD3   | 8:I:122:ARG:HB3  | 1.59        | 0.82     |
| 3:D:211:HIS:HD1  | 3:D:212:HIS:HD2  | 1.19        | 0.82     |
| 22:2:2:VAL:HG12  | 22:2:3:LEU:H     | 1.44        | 0.82     |
| 24:0:23:VAL:HG13 | 24:0:24:LYS:H    | 1.42        | 0.81     |
| 29:8:30:ARG:HH21 | 29:8:41:ILE:HG23 | 1.45        | 0.81     |
| 29:8:26:LYS:CD   | 29:8:43:GLY:C    | 2.48        | 0.81     |
| 2:A:1368:G:P     | 28:7:25:LYS:NZ   | 2.42        | 0.81     |
| 2:A:2508:G:O2'   | 2:A:2509:G:C5'   | 2.25        | 0.81     |
| 2:A:2520:C:O2'   | 2:A:2521:C:H5'   | 1.80        | 0.81     |
| 2:A:2525:G:C2    | 2:A:2539:C:C4    | 2.68        | 0.81     |
| 5:F:81:PRO:HA    | 5:F:87:ARG:CB    | 2.09        | 0.81     |
| 7:H:58:LYS:O     | 7:H:59:HIS:O     | 1.96        | 0.81     |
| 7:H:25:VAL:HG11  | 7:H:78:VAL:HG21  | 1.62        | 0.81     |
| 8:I:21:VAL:CG1   | 8:I:30:LEU:HD11  | 2.10        | 0.81     |
| 10:O:17:ARG:NE   | 10:O:47:THR:N    | 2.28        | 0.81     |
| 10:O:53:LYS:O    | 10:O:56:GLN:HG2  | 1.80        | 0.81     |
| 15:W:70:TYR:HE2  | 15:W:72:LYS:HA   | 1.45        | 0.81     |
| 17:Y:78:THR:CG2  | 17:Y:88:PRO:CA   | 2.22        | 0.81     |
| 18:Z:2:GLU:HA    | 18:Z:54:ILE:HG23 | 1.61        | 0.81     |
| 23:3:19:GLN:C    | 23:3:23:LEU:HD21 | 2.00        | 0.81     |
| 28:7:30:ILE:CD1  | 28:7:33:ARG:CZ   | 2.56        | 0.81     |
| 2:A:1819:A:H5''  | 3:D:157:ALA:CB   | 2.10        | 0.81     |
| 2:A:2570:G:H2'   | 2:A:2571:C:H6    | 1.00        | 0.81     |
| 2:A:2633:G:N2    | 2:A:2634:G:C4    | 2.48        | 0.81     |
| 2:A:2658:C:H2'   | 2:A:2659:G:O5'   | 1.79        | 0.81     |
| 2:A:2729:G:N2    | 2:A:2730:C:O2    | 2.14        | 0.81     |
| 2:A:2741:A:C2'   | 2:A:2742:C:O4'   | 2.26        | 0.81     |
| 3:D:141:HIS:O    | 3:D:143:ILE:N    | 2.14        | 0.81     |
| 2:A:2574:G:C2'   | 4:E:240:PRO:HB3  | 2.11        | 0.81     |
| 4:E:304:ASP:OD1  | 4:E:307:LEU:HD11 | 1.80        | 0.81     |
| 5:F:230:GLY:C    | 5:F:231:ARG:HG2  | 1.99        | 0.81     |
| 6:G:102:GLY:HA2  | 6:G:134:LEU:CD1  | 2.07        | 0.81     |
| 7:H:10:ILE:CD1   | 7:H:49:ILE:CG1   | 2.56        | 0.81     |
| 2:A:2745:C:H1'   | 7:H:142:GLU:CD   | 1.99        | 0.81     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:O:99:PHE:HD2  | 14:T:24:LYS:HE3   | 1.44        | 0.81     |
| 12:Q:88:PHE:O    | 12:Q:90:PHE:CE1   | 2.33        | 0.81     |
| 20:U:17:VAL:O    | 20:U:18:LEU:C     | 2.17        | 0.81     |
| 21:V:11:GLN:HE22 | 21:V:22:VAL:HG23  | 0.97        | 0.81     |
| 18:Z:37:LYS:O    | 18:Z:40:ASP:CG    | 2.19        | 0.81     |
| 8:I:77:VAL:CB    | 8:I:142:LYS:O     | 2.27        | 0.81     |
| 3:D:210:LYS:HA   | 3:D:213:LYS:HD3   | 0.84        | 0.81     |
| 2:A:94:G:H21     | 22:2:42:ASN:HD22  | 0.85        | 0.81     |
| 2:A:932:G:P      | 23:3:29:ARG:HH21  | 2.02        | 0.81     |
| 25:4:35:VAL:C    | 25:4:36:TRP:CD1   | 2.54        | 0.81     |
| 27:6:41:ASP:CB   | 27:6:47:HIS:H     | 1.91        | 0.81     |
| 28:7:43:THR:CA   | 28:7:46:ASP:CG    | 2.48        | 0.81     |
| 2:A:594:U:H5'    | 29:8:58:MET:CE    | 2.10        | 0.81     |
| 2:A:2234:G:C2    | 2:A:2235:G:C8     | 2.68        | 0.81     |
| 2:A:2242:G:C5    | 2:A:2243:U:H5     | 1.98        | 0.81     |
| 2:A:2316:C:H4'   | 6:G:151:ILE:CG1   | 2.08        | 0.81     |
| 2:A:2443:C:C5    | 2:A:2444:G:N7     | 2.48        | 0.81     |
| 2:A:2457:U:C5    | 2:A:2458:G:C4     | 2.68        | 0.81     |
| 2:A:2549:G:O2'   | 2:A:2550:G:H5'    | 1.81        | 0.81     |
| 2:A:2698:U:O2    | 2:A:2699:C:H6     | 1.57        | 0.81     |
| 2:A:2854:G:C2    | 2:A:2864:G:C6     | 2.68        | 0.81     |
| 2:A:34:C:H2'     | 2:A:455:C:H41     | 1.45        | 0.81     |
| 2:A:859:G:O2'    | 2:A:2268:A:N3     | 2.13        | 0.81     |
| 2:A:2770:G:C1'   | 4:E:316:ARG:HH12  | 1.90        | 0.81     |
| 5:F:220:THR:O    | 5:F:221:GLU:C     | 2.19        | 0.81     |
| 5:F:223:LEU:O    | 5:F:231:ARG:CD    | 2.27        | 0.81     |
| 6:G:146:LYS:O    | 6:G:148:SER:N     | 2.14        | 0.81     |
| 6:G:22:VAL:C     | 6:G:23:VAL:HG13   | 2.01        | 0.81     |
| 12:Q:31:PHE:HE2  | 12:Q:86:ARG:HA    | 1.45        | 0.81     |
| 19:R:20:LEU:CG   | 19:R:21:TYR:N     | 2.41        | 0.81     |
| 13:S:10:MET:O    | 13:S:12:ARG:N     | 2.13        | 0.81     |
| 13:S:23:ARG:NH2  | 13:S:35:VAL:HG21  | 1.96        | 0.81     |
| 13:S:53:ASN:O    | 13:S:54:GLY:C     | 2.17        | 0.81     |
| 13:S:94:GLU:CD   | 13:S:95:ALA:N     | 2.33        | 0.81     |
| 21:V:49:GLU:HA   | 21:V:53:LYS:HZ1   | 1.42        | 0.81     |
| 20:U:20:ARG:HH11 | 21:V:75:LYS:HD2   | 1.46        | 0.81     |
| 17:Y:43:ASN:OD1  | 17:Y:112:LEU:HD22 | 1.80        | 0.81     |
| 18:Z:69:VAL:HG11 | 18:Z:81:VAL:CG2   | 2.10        | 0.81     |
| 24:0:79:ILE:O    | 24:0:81:ILE:HD12  | 1.80        | 0.81     |
| 23:3:12:PRO:HG2  | 23:3:20:LYS:NZ    | 1.95        | 0.81     |
| 25:4:68:ARG:HG2  | 25:4:72:LYS:HG2   | 1.58        | 0.81     |
| 2:A:2041:U:H2'   | 2:A:2042:A:H5'    | 1.63        | 0.81     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2090:G:C4    | 2:A:2230:G:C6     | 2.68        | 0.81     |
| 2:A:2482:G:N7    | 2:A:2483:C:H5     | 1.78        | 0.81     |
| 2:A:2762:G:C6    | 2:A:2763:G:C6     | 2.68        | 0.81     |
| 2:A:673:C:O4'    | 5:F:82:GLN:OE1    | 1.98        | 0.81     |
| 4:E:73:ILE:N     | 4:E:73:ILE:HD13   | 1.86        | 0.81     |
| 5:F:197:SER:N    | 5:F:236:THR:OG1   | 2.13        | 0.81     |
| 5:F:45:ASP:O     | 5:F:46:TYR:CG     | 2.33        | 0.81     |
| 1:B:57:A:H2      | 6:G:17:ARG:HH12   | 0.83        | 0.81     |
| 7:H:85:ALA:C     | 7:H:148:ARG:HH22  | 1.76        | 0.81     |
| 2:A:2093:G:H4'   | 8:I:25:TYR:HA     | 1.61        | 0.81     |
| 9:N:54:VAL:HA    | 9:N:135:ILE:HD12  | 1.60        | 0.81     |
| 11:P:62:ALA:CB   | 11:P:105:TYR:O    | 2.22        | 0.81     |
| 12:Q:46:VAL:HG12 | 12:Q:124:ALA:CB   | 2.10        | 0.81     |
| 19:R:97:VAL:HG22 | 19:R:114:VAL:HG11 | 1.61        | 0.81     |
| 19:R:115:GLU:OE1 | 26:5:56:GLN:NE2   | 2.14        | 0.81     |
| 2:A:72:U:O5'     | 22:2:57:LYS:NZ    | 2.12        | 0.81     |
| 16:X:18:MET:CE   | 16:X:25:GLN:HB2   | 2.10        | 0.81     |
| 16:X:14:ALA:CA   | 16:X:17:ASP:OD1   | 2.28        | 0.81     |
| 12:Q:105:PHE:HE1 | 24:0:8:GLY:HA2    | 1.45        | 0.81     |
| 2:A:265:A:N6     | 2:A:281:G:H5'     | 1.94        | 0.81     |
| 2:A:1416:G:H1'   | 2:A:1583:A:N1     | 1.96        | 0.81     |
| 2:A:1906:G:C5    | 2:A:1929:G:C6     | 2.69        | 0.81     |
| 2:A:1924:C:C2    | 2:A:1925:C:C5     | 2.68        | 0.81     |
| 2:A:1972:A:H2'   | 2:A:1973:G:H8     | 1.46        | 0.81     |
| 24:0:39:ARG:HG2  | 24:0:69:PHE:HE1   | 1.41        | 0.81     |
| 27:6:54:LYS:HZ2  | 27:6:54:LYS:HA    | 1.42        | 0.81     |
| 2:A:126:A:C5     | 28:7:18:PHE:CZ    | 2.60        | 0.81     |
| 28:7:30:ILE:O    | 28:7:33:ARG:N     | 2.13        | 0.81     |
| 29:8:36:LYS:HE2  | 29:8:40:GLU:OE1   | 1.78        | 0.81     |
| 2:A:2259:G:C2    | 2:A:2282:G:C5     | 2.64        | 0.81     |
| 2:A:2367:G:C2    | 2:A:2368:C:C5     | 2.68        | 0.81     |
| 2:A:2584:U:C5    | 2:A:2585:U:N1     | 2.46        | 0.81     |
| 2:A:2649:U:O2'   | 2:A:2650:U:O5'    | 1.98        | 0.81     |
| 2:A:2722:G:N3    | 2:A:2723:C:C5     | 2.48        | 0.81     |
| 2:A:2744:G:C2'   | 2:A:2745:C:H5'    | 2.11        | 0.81     |
| 2:A:592:G:H21    | 29:8:3:LYS:CE     | 1.93        | 0.81     |
| 2:A:2575:C:OP1   | 4:E:241:TRP:CD1   | 2.34        | 0.81     |
| 4:E:267:ARG:CD   | 4:E:297:LYS:HD3   | 2.08        | 0.81     |
| 4:E:45:LYS:HZ3   | 4:E:301:PRO:C     | 1.82        | 0.81     |
| 6:G:97:GLN:OE1   | 6:G:106:PHE:CD2   | 2.34        | 0.81     |
| 1:B:59:A:H4'     | 6:G:144:ARG:HG2   | 1.61        | 0.81     |
| 6:G:17:ARG:O     | 6:G:18:ILE:O      | 1.98        | 0.81     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:B:42:C:O2       | 6:G:74:THR:OG1    | 1.97        | 0.81     |
| 8:I:7:LYS:CB      | 8:I:12:LYS:CD     | 2.55        | 0.81     |
| 9:N:14:ALA:HB3    | 9:N:40:ASN:HB2    | 1.60        | 0.81     |
| 12:Q:143:VAL:HG23 | 12:Q:144:THR:N    | 1.94        | 0.81     |
| 19:R:78:LYS:HG3   | 19:R:82:GLU:HG3   | 1.60        | 0.81     |
| 20:U:28:ARG:O     | 20:U:30:LYS:N     | 2.12        | 0.81     |
| 17:Y:101:LEU:HD21 | 17:Y:112:LEU:HD11 | 1.62        | 0.81     |
| 17:Y:18:GLU:CB    | 17:Y:21:LYS:HZ2   | 1.94        | 0.81     |
| 17:Y:43:ASN:HD21  | 17:Y:112:LEU:CD2  | 1.94        | 0.81     |
| 18:Z:26:LYS:O     | 18:Z:27:GLU:CB    | 2.28        | 0.81     |
| 22:2:20:LEU:O     | 22:2:21:ASP:C     | 2.17        | 0.81     |
| 2:A:706:A:O5'     | 2:A:706:A:H8      | 1.63        | 0.81     |
| 2:A:1264:G:P      | 26:5:19:ARG:HH12  | 2.03        | 0.81     |
| 26:5:56:GLN:O     | 26:5:57:VAL:CG2   | 2.29        | 0.81     |
| 27:6:47:HIS:O     | 27:6:48:VAL:HB    | 1.79        | 0.81     |
| 2:A:2361:A:C2     | 2:A:2362:G:H1'    | 2.15        | 0.81     |
| 2:A:2592:G:N7     | 2:A:2593:U:C4     | 2.49        | 0.81     |
| 2:A:2707:G:H2'    | 2:A:2708:G:O5'    | 1.80        | 0.81     |
| 2:A:2821:A:O2'    | 2:A:2822:G:O4'    | 1.97        | 0.81     |
| 2:A:325:G:H21     | 17:Y:7:GLN:HE21   | 1.24        | 0.81     |
| 1:B:74:U:O2       | 18:Z:29:ASN:ND2   | 2.13        | 0.81     |
| 4:E:101:THR:OG1   | 4:E:103:GLU:OE2   | 1.97        | 0.81     |
| 4:E:79:ARG:HA     | 4:E:186:GLU:CA    | 2.11        | 0.81     |
| 5:F:22:PHE:HE2    | 5:F:118:THR:OG1   | 1.64        | 0.81     |
| 6:G:140:ARG:HA    | 6:G:143:LYS:NZ    | 1.96        | 0.81     |
| 7:H:119:GLY:O     | 7:H:121:GLU:OE1   | 1.96        | 0.81     |
| 8:I:7:LYS:CA      | 8:I:14:LYS:CG     | 2.57        | 0.81     |
| 2:A:1665:A:C1'    | 10:O:66:LYS:HZ3   | 1.93        | 0.81     |
| 2:A:2320:A:N1     | 13:S:13:ARG:HG3   | 1.93        | 0.81     |
| 21:V:40:VAL:HA    | 21:V:51:ALA:HA    | 1.60        | 0.81     |
| 18:Z:40:ASP:CB    | 18:Z:41:ARG:CZ    | 2.59        | 0.81     |
| 22:2:15:GLU:O     | 22:2:17:GLU:N     | 2.13        | 0.81     |
| 27:6:2:ALA:HB2    | 27:6:11:LYS:HZ1   | 1.44        | 0.81     |
| 27:6:19:GLY:O     | 27:6:20:PHE:HB2   | 1.81        | 0.81     |
| 2:A:592:G:N2      | 29:8:3:LYS:CE     | 2.43        | 0.81     |
| 2:A:2065:C:N4     | 2:A:2445:G:H1     | 1.78        | 0.81     |
| 2:A:2329:G:H2'    | 2:A:2330:G:H8     | 1.45        | 0.81     |
| 2:A:2557:G:H2'    | 2:A:2558:C:C6     | 2.15        | 0.81     |
| 2:A:2606:C:C6     | 2:A:2606:C:H5''   | 2.15        | 0.81     |
| 2:A:2634:G:C2     | 2:A:2635:C:C6     | 2.68        | 0.81     |
| 2:A:2769:C:H2'    | 2:A:2770:G:C5'    | 2.11        | 0.81     |
| 2:A:976:C:OP1     | 20:U:48:ARG:CZ    | 2.28        | 0.81     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:B:12:C:O2       | 13:S:10:MET:SD    | 2.37        | 0.81     |
| 4:E:185:GLY:O     | 4:E:187:HIS:CD2   | 2.33        | 0.81     |
| 5:F:223:LEU:HD12  | 5:F:224:ALA:CA    | 2.11        | 0.81     |
| 7:H:41:THR:CB     | 7:H:52:THR:CB     | 2.57        | 0.81     |
| 8:I:13:GLY:HA3    | 8:I:15:LYS:NZ     | 1.95        | 0.81     |
| 2:A:1140:C:C4     | 9:N:49:ARG:HD2    | 2.12        | 0.81     |
| 12:Q:56:ILE:CD1   | 12:Q:113:ALA:O    | 2.29        | 0.81     |
| 20:U:43:ALA:O     | 20:U:44:THR:C     | 2.16        | 0.81     |
| 21:V:12:TYR:O     | 21:V:13:ARG:HB2   | 1.81        | 0.81     |
| 2:A:495:G:N2      | 15:W:61:ASN:ND2   | 2.25        | 0.81     |
| 18:Z:64:ALA:CB    | 18:Z:85:MET:CA    | 2.44        | 0.81     |
| 18:Z:99:HIS:O     | 18:Z:135:VAL:HG13 | 1.80        | 0.81     |
| 2:A:1791:A:P      | 3:D:210:LYS:HD2   | 2.20        | 0.81     |
| 22:2:54:ALA:O     | 22:2:56:ILE:N     | 2.13        | 0.81     |
| 16:X:11:THR:C     | 16:X:15:MET:CG    | 2.44        | 0.81     |
| 5:F:151:GLN:HA    | 5:F:154:VAL:HG23  | 1.61        | 0.81     |
| 25:4:51:ASP:C     | 25:4:52:THR:HG23  | 1.98        | 0.81     |
| 26:5:11:THR:HB    | 26:5:16:ARG:NE    | 1.96        | 0.81     |
| 2:A:242:G:C3'     | 29:8:5:LYS:HZ3    | 1.93        | 0.81     |
| 2:A:142(A):A:P    | 2:A:1143:A:C8     | 2.73        | 0.81     |
| 2:A:2256:G:N1     | 2:A:2257:U:C2     | 2.49        | 0.81     |
| 2:A:2329:G:H2'    | 2:A:2330:G:C8     | 2.16        | 0.81     |
| 2:A:2358:G:N2     | 2:A:2359:C:C4'    | 2.43        | 0.81     |
| 2:A:2668:G:N2     | 2:A:2669:G:C4     | 2.49        | 0.81     |
| 2:A:2740:A:C8     | 2:A:2740:A:H5'    | 2.14        | 0.81     |
| 2:A:612:G:H4'     | 2:A:616:A:H61     | 1.43        | 0.81     |
| 3:D:80:ILE:CB     | 3:D:82:TYR:CE1    | 2.63        | 0.81     |
| 4:E:222:ARG:CD    | 4:E:232:ARG:HA    | 2.11        | 0.81     |
| 5:F:238:SER:O     | 5:F:241:ALA:HB2   | 1.81        | 0.81     |
| 5:F:27:ARG:O      | 5:F:31:ILE:CG1    | 2.20        | 0.81     |
| 7:H:58:LYS:HG3    | 7:H:59:HIS:N      | 1.95        | 0.81     |
| 9:N:52:GLN:O      | 9:N:56:LYS:HE2    | 1.79        | 0.81     |
| 10:O:24:VAL:HG21  | 10:O:32:TYR:N     | 1.96        | 0.81     |
| 10:O:7:ARG:HE     | 10:O:44:LYS:HD3   | 1.43        | 0.81     |
| 10:O:78:ARG:O     | 14:T:22:VAL:HG22  | 1.81        | 0.81     |
| 11:P:106:VAL:HG23 | 11:P:122:ALA:HB1  | 1.61        | 0.81     |
| 20:U:59:ARG:C     | 20:U:62:ILE:CG1   | 2.33        | 0.81     |
| 20:U:69:ALA:O     | 20:U:79:PHE:CE1   | 2.33        | 0.81     |
| 20:U:20:ARG:NH1   | 21:V:75:LYS:CD    | 2.43        | 0.81     |
| 2:A:517:C:O2'     | 15:W:18:ARG:NH2   | 2.14        | 0.81     |
| 24:0:36:ILE:O     | 24:0:37:LEU:HG    | 1.81        | 0.81     |
| 2:A:932:G:H5''    | 23:3:29:ARG:HH22  | 1.46        | 0.81     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 27:6:8:ILE:HA    | 27:6:29:ARG:NH2  | 1.93        | 0.81     |
| 28:7:30:ILE:HD13 | 28:7:33:ARG:HD3  | 0.85        | 0.81     |
| 30:9:29:ASN:CB   | 30:9:32:HIS:ND1  | 2.44        | 0.81     |
| 2:A:125:G:H22    | 28:7:10:ARG:N    | 1.79        | 0.81     |
| 2:A:1709:U:H1'   | 2:A:2860:A:H1'   | 1.60        | 0.81     |
| 2:A:2286:A:H5'   | 2:A:2287:A:O4'   | 1.79        | 0.81     |
| 2:A:2423:U:C5    | 2:A:2425:A:C6    | 2.67        | 0.81     |
| 2:A:2051:A:N7    | 2:A:2614:A:N7    | 2.29        | 0.81     |
| 2:A:2731:G:C2    | 2:A:2732:G:N2    | 2.46        | 0.81     |
| 2:A:2815:C:O2'   | 2:A:2816:C:H5'   | 1.69        | 0.81     |
| 2:A:911:A:C4     | 12:Q:16:ARG:CD   | 2.64        | 0.81     |
| 2:A:997:G:H5''   | 20:U:92:ARG:HH11 | 0.89        | 0.81     |
| 3:D:106:PRO:HB3  | 3:D:141:HIS:NE2  | 1.95        | 0.81     |
| 3:D:158:GLY:CA   | 3:D:194:VAL:CG2  | 2.57        | 0.81     |
| 3:D:74:PRO:HG3   | 3:D:96:ALA:HB2   | 0.81        | 0.81     |
| 4:E:198:TYR:HE2  | 4:E:265:ASN:O    | 1.63        | 0.81     |
| 4:E:45:LYS:CE    | 4:E:301:PRO:HB2  | 2.10        | 0.81     |
| 4:E:46:ALA:CB    | 4:E:72:VAL:O     | 2.28        | 0.81     |
| 7:H:86:LEU:N     | 7:H:131:ILE:HG23 | 1.79        | 0.81     |
| 7:H:36:PHE:HD2   | 7:H:70:LEU:CD1   | 1.90        | 0.81     |
| 9:N:136:SER:OG   | 9:N:137:GLU:N    | 2.14        | 0.81     |
| 12:Q:72:VAL:HG21 | 12:Q:135:ALA:HB1 | 1.63        | 0.81     |
| 13:S:86:LEU:CD2  | 13:S:124:ASP:HB2 | 2.11        | 0.81     |
| 15:W:27:LYS:O    | 15:W:70:TYR:HB2  | 1.81        | 0.81     |
| 18:Z:81:VAL:HG12 | 18:Z:82:ASP:N    | 1.95        | 0.81     |
| 24:O:52:GLY:O    | 24:O:53:MET:HG3  | 1.81        | 0.81     |
| 3:D:235:PRO:O    | 3:D:236:PHE:O    | 1.99        | 0.81     |
| 2:A:2449:U:OP1   | 2:A:2449:U:O4'   | 1.99        | 0.81     |
| 23:3:31:LEU:CD2  | 23:3:32:GLN:CB   | 2.59        | 0.81     |
| 25:4:10:VAL:N    | 25:4:11:PRO:CD   | 2.44        | 0.81     |
| 2:A:1671:U:O2'   | 4:E:225:LYS:NZ   | 2.12        | 0.81     |
| 2:A:2188:C:C5    | 2:A:2189:U:C5    | 2.68        | 0.81     |
| 2:A:2188:C:C6    | 2:A:2189:U:C5    | 2.68        | 0.81     |
| 2:A:2199:A:H2'   | 2:A:2205:C:O4'   | 1.80        | 0.81     |
| 2:A:2227:A:C2    | 2:A:2228:G:N3    | 2.48        | 0.81     |
| 2:A:2249:U:O2    | 2:A:2253:G:OP2   | 1.97        | 0.81     |
| 2:A:2315:G:O2'   | 2:A:2316:C:O5'   | 1.98        | 0.81     |
| 2:A:2533:A:C8    | 2:A:2534:A:N7    | 2.49        | 0.81     |
| 2:A:2556:C:H2'   | 2:A:2557:G:C4'   | 2.11        | 0.81     |
| 2:A:746:A:C2'    | 2:A:2611:U:O2'   | 2.28        | 0.81     |
| 3:D:130:PRO:CA   | 3:D:188:ARG:HG2  | 2.09        | 0.81     |
| 3:D:146:LYS:HD3  | 3:D:147:PRO:HD3  | 1.63        | 0.81     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:E:62:ARG:O     | 4:E:63:GLU:HG3    | 1.79        | 0.81     |
| 5:F:217:GLU:O    | 5:F:218:VAL:HG22  | 1.80        | 0.81     |
| 7:H:151:ARG:O    | 7:H:161:ILE:HG12  | 1.80        | 0.81     |
| 7:H:32:LEU:HD23  | 7:H:32:LEU:C      | 2.02        | 0.81     |
| 10:O:1:MET:H1    | 10:O:32:TYR:HD2   | 0.83        | 0.81     |
| 12:Q:144:THR:OG1 | 12:Q:145:PRO:CD   | 2.27        | 0.81     |
| 19:R:47:PHE:O    | 19:R:48:VAL:C     | 2.16        | 0.81     |
| 15:W:86:LEU:HB2  | 15:W:94:ASP:O     | 1.81        | 0.81     |
| 2:A:2012:G:P     | 15:W:98:LYS:HD3   | 2.21        | 0.81     |
| 8:I:81:ALA:O     | 8:I:147:GLU:HA    | 1.80        | 0.81     |
| 8:I:68:LEU:CG    | 8:I:108:LEU:CD1   | 2.59        | 0.81     |
| 3:D:224:VAL:HG12 | 3:D:225:ARG:N     | 1.96        | 0.81     |
| 2:A:1059:G:N3    | 31:K:127:ILE:HG23 | 1.96        | 0.81     |
| 22:2:13:PRO:HD3  | 22:2:16:ARG:HH11  | 1.43        | 0.81     |
| 23:3:30:ARG:HE   | 23:3:33:GLN:HG3   | 1.44        | 0.81     |
| 2:A:396:G:H5''   | 25:4:10:VAL:HG13  | 1.61        | 0.81     |
| 25:4:5:LEU:HA    | 25:4:56:VAL:HA    | 1.59        | 0.81     |
| 28:7:21:ARG:HH12 | 28:7:43:THR:H     | 1.28        | 0.81     |
| 2:A:1129:A:C2    | 2:A:2570:G:O4'    | 2.32        | 0.81     |
| 2:A:584:C:H42    | 2:A:1256:G:H1     | 1.29        | 0.81     |
| 2:A:2022:U:C4    | 26:5:9:LYS:NZ     | 2.49        | 0.81     |
| 2:A:2309:A:H5''  | 2:A:2310:A:N7     | 1.95        | 0.81     |
| 2:A:2726:U:H3'   | 2:A:2727:G:C8     | 2.15        | 0.81     |
| 2:A:2758:A:OP2   | 2:A:2758:A:H3'    | 1.80        | 0.81     |
| 2:A:2627:G:C6    | 2:A:2777:G:O6     | 2.34        | 0.81     |
| 3:D:100:LYS:O    | 3:D:101:ARG:CG    | 2.28        | 0.81     |
| 3:D:68:ARG:NH2   | 3:D:128:ALA:HB3   | 1.96        | 0.81     |
| 4:E:105:HIS:ND1  | 4:E:108:LEU:HD11  | 1.95        | 0.81     |
| 4:E:216:ARG:NH2  | 4:E:255:GLN:HA    | 1.96        | 0.81     |
| 7:H:164:GLU:HA   | 7:H:164:GLU:OE1   | 1.80        | 0.81     |
| 9:N:58:GLU:HA    | 9:N:61:VAL:HG21   | 1.59        | 0.81     |
| 19:R:25:ALA:N    | 19:R:44:LEU:HD21  | 1.96        | 0.81     |
| 19:R:73:VAL:O    | 19:R:74:LYS:C     | 2.19        | 0.81     |
| 20:U:91:ASN:O    | 20:U:95:LEU:HD11  | 1.79        | 0.81     |
| 18:Z:151:ASP:CB  | 18:Z:153:LYS:NZ   | 2.41        | 0.81     |
| 18:Z:71:MET:CG   | 18:Z:78:PRO:HG3   | 2.11        | 0.81     |
| 3:D:208:GLY:O    | 3:D:211:HIS:CD2   | 2.33        | 0.81     |
| 2:A:1943:U:H1'   | 2:A:1945:G:C5'    | 2.11        | 0.81     |
| 26:5:12:SER:OG   | 26:5:14:SER:OG    | 1.98        | 0.80     |
| 2:A:1646:C:H3'   | 2:A:1647:G:C5'    | 2.11        | 0.80     |
| 2:A:2663:G:O2'   | 2:A:2664:G:O4'    | 1.98        | 0.80     |
| 2:A:2776:A:C1'   | 2:A:2778:A:C8     | 2.51        | 0.80     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:581:C:P      | 20:U:33:ARG:HH12 | 2.03        | 0.80     |
| 3:D:66:PHE:O     | 3:D:67:LYS:CB    | 2.29        | 0.80     |
| 4:E:204:VAL:O    | 4:E:205:THR:O    | 1.99        | 0.80     |
| 4:E:229:GLN:O    | 4:E:230:GLY:C    | 2.18        | 0.80     |
| 5:F:223:LEU:C    | 5:F:225:PRO:HD2  | 2.01        | 0.80     |
| 7:H:127:GLN:HG3  | 7:H:128:THR:H    | 1.46        | 0.80     |
| 7:H:104:LEU:C    | 7:H:151:ARG:HH12 | 1.83        | 0.80     |
| 8:I:7:LYS:CE     | 8:I:12:LYS:HG2   | 2.10        | 0.80     |
| 11:P:67:ARG:NH1  | 11:P:111:ALA:C   | 2.32        | 0.80     |
| 2:A:2251:G:C5'   | 12:Q:102:ARG:NH2 | 2.43        | 0.80     |
| 1:B:28:C:P       | 13:S:41:LYS:HG3  | 2.20        | 0.80     |
| 20:U:73:GLY:O    | 20:U:74:MET:CG   | 2.28        | 0.80     |
| 20:U:78:THR:O    | 20:U:79:PHE:C    | 2.17        | 0.80     |
| 21:V:40:VAL:CG1  | 21:V:55:THR:HG23 | 2.11        | 0.80     |
| 2:A:104:U:C4     | 17:Y:17:HIS:HE1  | 1.92        | 0.80     |
| 17:Y:66:ASP:OD2  | 17:Y:72:ILE:HA   | 1.81        | 0.80     |
| 16:X:4:VAL:HG23  | 16:X:5:ILE:H     | 1.46        | 0.80     |
| 2:A:1545:A:H3'   | 2:A:545(A):A:P   | 2.20        | 0.80     |
| 25:4:5:LEU:CD2   | 25:4:5:LEU:N     | 2.42        | 0.80     |
| 29:8:30:ARG:HB3  | 29:8:44:LYS:HE3  | 1.62        | 0.80     |
| 2:A:1612:C:N1    | 28:7:3:ARG:CZ    | 2.45        | 0.80     |
| 2:A:2051:A:H4'   | 4:E:238:LEU:CD2  | 2.11        | 0.80     |
| 2:A:2231:C:H5''  | 25:4:39:VAL:HG22 | 1.61        | 0.80     |
| 2:A:2314:C:C2'   | 2:A:2315:G:O5'   | 2.29        | 0.80     |
| 2:A:2498:C:P     | 2:A:2498:C:H3'   | 2.21        | 0.80     |
| 2:A:2508:G:C2'   | 2:A:2509:G:H5'   | 2.10        | 0.80     |
| 2:A:2683:C:C2'   | 2:A:2684:U:H5'   | 2.10        | 0.80     |
| 2:A:2885:C:N3    | 2:A:2886:G:C8    | 2.49        | 0.80     |
| 2:A:592:G:N3     | 29:8:3:LYS:HE2   | 1.95        | 0.80     |
| 5:F:103:ASN:HB2  | 5:F:106:GLU:CG   | 2.11        | 0.80     |
| 9:N:51:GLU:C     | 9:N:53:ILE:N     | 2.29        | 0.80     |
| 10:O:86:ILE:HG22 | 10:O:87:ILE:N    | 1.95        | 0.80     |
| 12:Q:31:PHE:CE2  | 12:Q:86:ARG:HA   | 2.16        | 0.80     |
| 20:U:103:PRO:O   | 20:U:107:LYS:CG  | 2.23        | 0.80     |
| 8:I:98:ILE:HD13  | 8:I:115:ILE:HD13 | 1.62        | 0.80     |
| 16:X:18:MET:HE3  | 16:X:25:GLN:C    | 2.01        | 0.80     |
| 16:X:58:MET:C    | 16:X:59:ASP:OD2  | 2.18        | 0.80     |
| 25:4:14:ILE:CG2  | 25:4:37:SER:OG   | 2.28        | 0.80     |
| 26:5:52:TYR:O    | 26:5:53:ASP:OD1  | 1.99        | 0.80     |
| 27:6:16:ALA:HB2  | 27:6:50:PHE:CE2  | 2.16        | 0.80     |
| 2:A:686:G:O2'    | 28:7:6:GLN:OE1   | 1.99        | 0.80     |
| 2:A:1675:C:C4    | 4:E:225:LYS:HG2  | 2.16        | 0.80     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2212:A:H2'   | 2:A:2213:U:C6    | 2.16        | 0.80     |
| 2:A:2352:A:C8    | 2:A:2366:A:C6    | 2.70        | 0.80     |
| 2:A:244:A:O2'    | 11:P:56:LYS:CA   | 2.28        | 0.80     |
| 2:A:2498:C:H2'   | 2:A:2499:C:H5''  | 1.62        | 0.80     |
| 2:A:2593:U:H3    | 2:A:2600:A:H61   | 1.30        | 0.80     |
| 2:A:2622:C:C2    | 2:A:2623:G:N7    | 2.49        | 0.80     |
| 2:A:2734:A:N6    | 2:A:2735:G:C4    | 2.47        | 0.80     |
| 2:A:2850:A:C5    | 2:A:2851:A:N7    | 2.49        | 0.80     |
| 2:A:599:G:O2'    | 5:F:30:LEU:CD2   | 2.29        | 0.80     |
| 4:E:99:VAL:O     | 4:E:100:TRP:CG   | 2.34        | 0.80     |
| 7:H:90:GLY:CA    | 7:H:159:LYS:HE3  | 2.11        | 0.80     |
| 9:N:82:THR:O     | 9:N:85:GLY:N     | 2.13        | 0.80     |
| 10:O:58:VAL:CG1  | 10:O:59:LYS:N    | 2.45        | 0.80     |
| 20:U:56:ASP:O    | 20:U:60:LEU:HD21 | 1.79        | 0.80     |
| 18:Z:26:LYS:HB3  | 18:Z:26:LYS:HZ3  | 1.45        | 0.80     |
| 2:A:1805:U:H5'   | 3:D:235:PRO:CG   | 2.10        | 0.80     |
| 2:A:1924:C:N4    | 2:A:1925:C:N4    | 2.30        | 0.80     |
| 2:A:2386:C:H4'   | 24:O:39:ARG:CZ   | 2.11        | 0.80     |
| 23:3:8:LEU:HA    | 23:3:54:VAL:CG1  | 2.11        | 0.80     |
| 2:A:2421:G:OP1   | 27:6:2:ALA:O     | 1.99        | 0.80     |
| 2:A:1807:G:N2    | 2:A:1809:A:H5'   | 1.96        | 0.80     |
| 2:A:1953:A:H62   | 2:A:2550:G:H4'   | 1.46        | 0.80     |
| 2:A:965:C:O2'    | 2:A:2272:U:C5    | 2.35        | 0.80     |
| 2:A:2273:A:N7    | 2:A:2274:A:N7    | 2.29        | 0.80     |
| 2:A:2479:G:OP1   | 2:A:2537:U:O4'   | 1.98        | 0.80     |
| 2:A:2558:C:N3    | 2:A:2559:C:C5    | 2.50        | 0.80     |
| 2:A:2584:U:H6    | 2:A:2584:U:C3'   | 1.78        | 0.80     |
| 2:A:2659:G:O2'   | 2:A:2663:G:N2    | 2.14        | 0.80     |
| 2:A:2690:C:H6    | 2:A:2690:C:C3'   | 1.95        | 0.80     |
| 2:A:2857:G:O5'   | 2:A:2857:G:C8    | 2.32        | 0.80     |
| 3:D:168:GLY:C    | 3:D:170:TYR:H    | 1.84        | 0.80     |
| 3:D:167:GLU:CB   | 3:D:170:TYR:HE1  | 1.74        | 0.80     |
| 4:E:269:ILE:HD11 | 4:E:296:VAL:C    | 2.01        | 0.80     |
| 5:F:168:ARG:N    | 5:F:232:LEU:O    | 2.14        | 0.80     |
| 6:G:38:GLU:HA    | 6:G:41:LEU:CD1   | 2.12        | 0.80     |
| 7:H:23:VAL:CG1   | 7:H:74:MET:HE3   | 2.07        | 0.80     |
| 10:O:27:GLY:O    | 10:O:28:SER:O    | 2.00        | 0.80     |
| 11:P:69:ILE:CA   | 11:P:73:VAL:HG23 | 2.11        | 0.80     |
| 2:A:911:A:C2'    | 12:Q:16:ARG:HE   | 1.94        | 0.80     |
| 13:S:122:ALA:O   | 13:S:125:ALA:N   | 2.14        | 0.80     |
| 17:Y:91:LEU:CD2  | 17:Y:91:LEU:N    | 2.43        | 0.80     |
| 18:Z:147:ILE:C   | 18:Z:168:VAL:HB  | 2.01        | 0.80     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 18:Z:69:VAL:CG1   | 18:Z:81:VAL:CG2  | 2.54        | 0.80     |
| 22:2:8:ILE:HA     | 22:2:11:MET:HG2  | 1.63        | 0.80     |
| 2:A:148:C:N3      | 2:A:149:A:C6     | 2.50        | 0.80     |
| 2:A:1076:C:H5'    | 31:K:94:ARG:NH2  | 1.97        | 0.80     |
| 16:X:44:GLN:CD    | 16:X:44:GLN:C    | 2.40        | 0.80     |
| 28:7:22:MET:O     | 28:7:28:ARG:HG3  | 1.81        | 0.80     |
| 2:A:126:A:OP1     | 28:7:44:VAL:HG13 | 1.80        | 0.80     |
| 2:A:2310:A:C8     | 6:G:55:LYS:NZ    | 2.49        | 0.80     |
| 2:A:243:U:OP2     | 29:8:7:HIS:NE2   | 2.14        | 0.80     |
| 2:A:2056:G:OP2    | 2:A:2504:U:OP2   | 1.99        | 0.80     |
| 2:A:2516:G:C4     | 2:A:2569:G:N2    | 2.50        | 0.80     |
| 2:A:2658:C:H2'    | 2:A:2659:G:C5'   | 2.10        | 0.80     |
| 2:A:2695:C:H2'    | 2:A:2696:U:C5    | 2.17        | 0.80     |
| 2:A:2703:C:O2'    | 2:A:2704:C:C5'   | 2.29        | 0.80     |
| 4:E:42:ALA:CB     | 4:E:310:PHE:HA   | 2.11        | 0.80     |
| 7:H:102:LEU:HD21  | 7:H:114:ILE:CB   | 2.11        | 0.80     |
| 19:R:20:LEU:CD1   | 19:R:21:TYR:CG   | 2.64        | 0.80     |
| 13:S:49:THR:N     | 13:S:55:ASP:CG   | 2.35        | 0.80     |
| 20:U:33:ARG:CB    | 20:U:33:ARG:NH1  | 2.35        | 0.80     |
| 20:U:61:TRP:CZ3   | 20:U:94:VAL:N    | 2.43        | 0.80     |
| 17:Y:101:LEU:HD23 | 17:Y:101:LEU:C   | 2.02        | 0.80     |
| 17:Y:101:LEU:HD23 | 17:Y:101:LEU:O   | 1.82        | 0.80     |
| 17:Y:15:PRO:O     | 17:Y:18:GLU:HB2  | 1.82        | 0.80     |
| 22:2:45:ARG:HG3   | 22:2:49:LEU:HG   | 1.64        | 0.80     |
| 2:A:1082:U:H4'    | 31:K:118:ALA:CB  | 2.09        | 0.80     |
| 2:A:687:C:C5'     | 28:7:4:THR:HG22  | 2.11        | 0.80     |
| 2:A:1996:C:H2'    | 2:A:1997:G:H4'   | 1.64        | 0.80     |
| 2:A:2543:G:C6     | 2:A:2544:G:N1    | 2.49        | 0.80     |
| 2:A:2561:A:C6     | 2:A:2562:U:C6    | 2.70        | 0.80     |
| 2:A:746:A:OP1     | 2:A:2612:C:C2    | 2.34        | 0.80     |
| 2:A:2753:A:N7     | 2:A:2754:U:C5    | 2.49        | 0.80     |
| 2:A:2781:A:C5'    | 2:A:2782:G:C5'   | 2.57        | 0.80     |
| 2:A:2887:U:C2     | 2:A:2888:C:C6    | 2.70        | 0.80     |
| 2:A:326:G:H2'     | 2:A:327:G:H8     | 1.47        | 0.80     |
| 4:E:221:LYS:HB3   | 4:E:222:ARG:HD2  | 1.63        | 0.80     |
| 2:A:2785:C:H5''   | 4:E:99:VAL:CG2   | 2.11        | 0.80     |
| 6:G:35:ALA:O      | 6:G:36:ASN:CB    | 2.30        | 0.80     |
| 7:H:40:MET:CB     | 7:H:64:HIS:NE2   | 2.44        | 0.80     |
| 12:Q:136:TRP:HA   | 12:Q:136:TRP:CE3 | 2.15        | 0.80     |
| 19:R:65:LEU:O     | 19:R:68:ARG:N    | 2.14        | 0.80     |
| 13:S:98:GLU:HG3   | 13:S:99:GLU:N    | 1.95        | 0.80     |
| 20:U:14:HIS:CE1   | 20:U:36:PHE:CE2  | 2.69        | 0.80     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 20:U:36:PHE:O    | 20:U:37:GLN:O    | 2.00        | 0.80     |
| 21:V:30:GLY:C    | 21:V:33:VAL:HG21 | 1.89        | 0.80     |
| 18:Z:112:LEU:CD2 | 18:Z:172:LEU:O   | 2.29        | 0.80     |
| 18:Z:52:PHE:O    | 18:Z:53:ASP:HB2  | 1.81        | 0.80     |
| 2:A:1790:C:P     | 3:D:224:VAL:CG1  | 2.65        | 0.80     |
| 22:2:21:ASP:O    | 22:2:22:ASP:C    | 2.18        | 0.80     |
| 24:0:46:LYS:HG3  | 24:0:58:THR:CB   | 2.11        | 0.80     |
| 30:9:24:LEU:HD13 | 30:9:35:ARG:CG   | 2.12        | 0.80     |
| 30:9:25:VAL:HB   | 30:9:34:GLN:CA   | 2.08        | 0.80     |
| 2:A:2252:G:C6    | 2:A:2253:G:C6    | 2.70        | 0.80     |
| 2:A:2333:A:C8    | 2:A:2335:A:N3    | 2.49        | 0.80     |
| 2:A:2540:C:O2'   | 2:A:2541:A:O5'   | 1.99        | 0.80     |
| 2:A:2653:U:C3'   | 2:A:2654:A:C8    | 2.61        | 0.80     |
| 2:A:2675:A:C2'   | 2:A:2676:C:H5'   | 2.10        | 0.80     |
| 2:A:2810:A:C8    | 2:A:2811:G:C8    | 2.70        | 0.80     |
| 2:A:566:U:OP2    | 21:V:81:ARG:CZ   | 2.29        | 0.80     |
| 1:B:42:C:H1'     | 6:G:47:GLN:C     | 2.02        | 0.80     |
| 4:E:180:ILE:CG2  | 4:E:187:HIS:CA   | 2.54        | 0.80     |
| 4:E:222:ARG:NE   | 4:E:232:ARG:O    | 2.15        | 0.80     |
| 2:A:2512:C:H4'   | 4:E:235:ILE:CD1  | 2.11        | 0.80     |
| 4:E:268:LEU:HD22 | 4:E:269:ILE:N    | 1.96        | 0.80     |
| 2:A:1278:A:O3'   | 19:R:34:ILE:HD12 | 1.82        | 0.80     |
| 19:R:39:PRO:O    | 19:R:40:LYS:C    | 2.20        | 0.80     |
| 14:T:12:ASP:O    | 14:T:13:ILE:HG12 | 1.79        | 0.80     |
| 20:U:21:ALA:CA   | 20:U:24:PHE:CZ   | 2.50        | 0.80     |
| 20:U:46:GLU:O    | 20:U:49:ASP:CB   | 2.30        | 0.80     |
| 21:V:72:ARG:C    | 21:V:88:GLN:HG2  | 2.02        | 0.80     |
| 17:Y:69:LYS:O    | 17:Y:70:ALA:HB3  | 1.81        | 0.80     |
| 16:X:28:VAL:HG11 | 16:X:64:ALA:HB3  | 1.64        | 0.80     |
| 16:X:9:HIS:HB2   | 16:X:26:PHE:HA   | 1.64        | 0.80     |
| 17:Y:81:LYS:HG2  | 17:Y:82:THR:H    | 1.46        | 0.80     |
| 29:8:26:LYS:CB   | 29:8:44:LYS:HA   | 2.11        | 0.80     |
| 2:A:197:A:C5     | 2:A:2430:A:C8    | 2.68        | 0.80     |
| 2:A:2093:G:H1'   | 2:A:2198:A:C6    | 2.17        | 0.80     |
| 2:A:2240:C:C2'   | 2:A:2240:C:O2    | 2.29        | 0.80     |
| 2:A:2286:A:C3'   | 2:A:2286:A:C8    | 2.64        | 0.80     |
| 2:A:2334:G:N2    | 13:S:12:ARG:CD   | 2.44        | 0.80     |
| 2:A:2690:C:H3'   | 2:A:2690:C:C6    | 2.16        | 0.80     |
| 2:A:2768:C:N4    | 2:A:2769:C:H41   | 1.79        | 0.80     |
| 2:A:2814:C:H2'   | 2:A:2815:C:C6    | 2.16        | 0.80     |
| 1:B:89(A):A:N1   | 12:Q:52:LYS:NZ   | 2.29        | 0.80     |
| 4:E:42:ALA:HB1   | 4:E:310:PHE:HA   | 1.64        | 0.80     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:102:LEU:HD22 | 5:F:106:GLU:CB   | 2.07        | 0.80     |
| 9:N:21:ARG:C     | 9:N:24:SER:HG    | 1.83        | 0.80     |
| 9:N:63:ILE:HB    | 9:N:71:TYR:CE1   | 2.17        | 0.80     |
| 2:A:1665:A:C4'   | 10:O:66:LYS:HD3  | 2.12        | 0.80     |
| 11:P:117:GLU:CD  | 11:P:136:ALA:C   | 2.40        | 0.80     |
| 11:P:66:VAL:CG1  | 11:P:67:ARG:H    | 1.79        | 0.80     |
| 20:U:108:ALA:O   | 20:U:109:LEU:C   | 2.19        | 0.80     |
| 20:U:43:ALA:CB   | 21:V:75:LYS:CB   | 2.58        | 0.80     |
| 15:W:11:ARG:CG   | 15:W:11:ARG:HH11 | 1.94        | 0.80     |
| 2:A:1791:A:P     | 3:D:210:LYS:CD   | 2.69        | 0.80     |
| 2:A:1055:G:O3'   | 2:A:1056:G:OP1   | 1.97        | 0.80     |
| 15:W:89:ALA:O    | 15:W:90:ARG:NH1  | 2.14        | 0.80     |
| 7:H:155:PRO:O    | 7:H:169:ARG:HG3  | 1.81        | 0.80     |
| 4:E:65:MET:O     | 4:E:65:MET:SD    | 2.39        | 0.80     |
| 2:A:849:A:N3     | 23:3:21:ALA:CB   | 2.38        | 0.80     |
| 27:6:12:MET:HB2  | 27:6:27:ASN:HD21 | 1.43        | 0.80     |
| 30:9:14:CYS:CA   | 30:9:27:CYS:HB3  | 1.93        | 0.80     |
| 2:A:1263:U:H4'   | 26:5:16:ARG:NH1  | 1.96        | 0.80     |
| 2:A:2248:C:C2'   | 2:A:2249:U:H5'   | 2.11        | 0.80     |
| 2:A:2298:A:H1'   | 2:A:2321:G:N2    | 1.97        | 0.80     |
| 2:A:2353:G:N2    | 2:A:2364:C:C4    | 2.32        | 0.80     |
| 2:A:2361:A:OP1   | 29:8:27:SER:O    | 1.99        | 0.80     |
| 2:A:2380:C:C2'   | 2:A:2381:C:C5'   | 2.60        | 0.80     |
| 2:A:2470:G:N1    | 2:A:2471:C:N4    | 2.29        | 0.80     |
| 2:A:2544:G:H2'   | 2:A:2545:G:H8    | 1.47        | 0.80     |
| 2:A:2741:A:O2'   | 2:A:2742:C:C4'   | 2.28        | 0.80     |
| 2:A:2825:C:C6    | 2:A:2825:C:C3'   | 2.63        | 0.80     |
| 2:A:2840:C:N3    | 2:A:2841:C:C4    | 2.50        | 0.80     |
| 2:A:290:G:H2'    | 2:A:291:C:O4'    | 1.82        | 0.80     |
| 3:D:140:VAL:CG2  | 3:D:191:VAL:HG12 | 2.10        | 0.80     |
| 4:E:174:LEU:HD12 | 4:E:174:LEU:N    | 1.95        | 0.80     |
| 5:F:107:ARG:O    | 5:F:108:GLN:C    | 2.19        | 0.80     |
| 7:H:120:LEU:H    | 7:H:120:LEU:HD23 | 1.46        | 0.80     |
| 2:A:2745:C:C2'   | 7:H:142:GLU:OE2  | 2.30        | 0.80     |
| 7:H:85:ALA:CA    | 7:H:131:ILE:CG2  | 2.48        | 0.80     |
| 11:P:61:ALA:CB   | 11:P:107:LYS:NZ  | 2.44        | 0.80     |
| 12:Q:133:GLU:CD  | 12:Q:134:PHE:N   | 2.35        | 0.80     |
| 12:Q:58:HIS:CA   | 12:Q:61:LEU:HG   | 2.12        | 0.80     |
| 12:Q:82:LYS:HB2  | 12:Q:125:TRP:CB  | 2.11        | 0.80     |
| 19:R:75:LEU:O    | 19:R:78:LYS:N    | 2.15        | 0.80     |
| 15:W:70:TYR:HD2  | 15:W:71:VAL:N    | 1.80        | 0.80     |
| 17:Y:19:ARG:N    | 17:Y:21:LYS:HZ2  | 1.79        | 0.80     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:Z:138:VAL:C   | 18:Z:139:THR:HG1 | 1.85        | 0.80     |
| 22:2:13:PRO:N    | 22:2:16:ARG:HD2  | 1.96        | 0.80     |
| 16:X:6:LYS:HZ1   | 16:X:29:ASP:CA   | 1.86        | 0.80     |
| 2:A:1482:U:H3'   | 2:A:1482:U:C6    | 2.17        | 0.80     |
| 8:I:62:LEU:C     | 8:I:66:LYS:HE2   | 2.01        | 0.80     |
| 29:8:16:ILE:HD12 | 29:8:16:ILE:H    | 1.45        | 0.80     |
| 29:8:62:LEU:CB   | 29:8:63:PRO:CD   | 2.49        | 0.80     |
| 2:A:1263:U:O2'   | 26:5:16:ARG:NH2  | 2.15        | 0.80     |
| 2:A:2067:G:C2    | 2:A:2444:G:C2    | 2.70        | 0.80     |
| 2:A:2270:G:O6    | 2:A:2271:G:C2    | 2.35        | 0.80     |
| 2:A:2295:C:N3    | 2:A:2337:G:N2    | 2.26        | 0.80     |
| 2:A:2445:G:H2'   | 2:A:2446:G:C8    | 2.16        | 0.80     |
| 2:A:2464:C:N4    | 2:A:2486:G:H1    | 1.80        | 0.80     |
| 2:A:2509:G:H2'   | 2:A:2510:C:C5'   | 2.11        | 0.80     |
| 2:A:2512:C:H5''  | 4:E:219:VAL:CG1  | 2.12        | 0.80     |
| 2:A:2547:U:C5    | 2:A:2566:A:C4    | 2.70        | 0.80     |
| 2:A:2575:C:H5''  | 2:A:2576:G:OP2   | 1.81        | 0.80     |
| 2:A:2666:C:C5    | 2:A:2667:C:C5    | 2.70        | 0.80     |
| 2:A:2748:A:N7    | 2:A:2749:A:C4    | 2.48        | 0.80     |
| 2:A:2776:A:N9    | 2:A:2778:A:N7    | 2.29        | 0.80     |
| 2:A:2813:A:C8    | 2:A:2814:C:C5    | 2.70        | 0.80     |
| 2:A:2839:G:C2    | 2:A:2840:C:C6    | 2.70        | 0.80     |
| 2:A:2865:U:N3    | 2:A:2866:U:C5    | 2.50        | 0.80     |
| 2:A:854:G:H1     | 2:A:923:C:H42    | 1.30        | 0.80     |
| 4:E:214:VAL:HG22 | 4:E:221:LYS:CD   | 2.12        | 0.80     |
| 6:G:54:ALA:O     | 6:G:55:LYS:HB2   | 1.80        | 0.80     |
| 8:I:7:LYS:N      | 8:I:14:LYS:CG    | 2.34        | 0.80     |
| 9:N:41:ALA:HB1   | 9:N:75:PRO:CB    | 2.12        | 0.80     |
| 9:N:75:PRO:CD    | 9:N:136:SER:OG   | 2.27        | 0.80     |
| 10:O:63:VAL:HG13 | 10:O:102:VAL:CB  | 2.09        | 0.80     |
| 12:Q:151:SER:HB3 | 12:Q:155:GLY:O   | 1.82        | 0.80     |
| 19:R:61:HIS:C    | 19:R:64:ARG:HH11 | 1.85        | 0.80     |
| 13:S:109:PRO:O   | 13:S:116:PHE:CZ  | 2.35        | 0.80     |
| 13:S:83:LEU:CD1  | 13:S:83:LEU:N    | 2.43        | 0.80     |
| 20:U:80:ILE:HA   | 20:U:83:LEU:HD12 | 1.64        | 0.80     |
| 21:V:3:ALA:HB3   | 21:V:12:TYR:OH   | 1.82        | 0.80     |
| 15:W:30:GLU:H    | 15:W:33:ARG:HD2  | 1.43        | 0.80     |
| 17:Y:41:ARG:O    | 17:Y:112:LEU:CA  | 2.30        | 0.80     |
| 8:I:92:SER:HB3   | 8:I:122:ARG:HH11 | 1.43        | 0.80     |
| 8:I:52:GLN:HA    | 8:I:55:GLN:CD    | 2.03        | 0.80     |
| 24:0:48:GLY:O    | 24:0:54:GLY:O    | 1.99        | 0.79     |
| 24:0:65:GLY:CA   | 24:0:66:LYS:HZ2  | 1.95        | 0.79     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 23:3:40:THR:OG1  | 23:3:43:ILE:HD11  | 1.81        | 0.79     |
| 23:3:42:ALA:HB3  | 23:3:43:ILE:HD12  | 1.63        | 0.79     |
| 26:5:45:ILE:CG2  | 26:5:52:TYR:CE1   | 2.61        | 0.79     |
| 2:A:2022:U:H4'   | 2:A:2023:G:OP1    | 1.79        | 0.79     |
| 2:A:2082:A:N6    | 2:A:2239:G:C6     | 2.50        | 0.79     |
| 2:A:2464:C:N4    | 2:A:2487:G:O6     | 2.14        | 0.79     |
| 2:A:2799:A:C3'   | 2:A:2801:A:P      | 2.59        | 0.79     |
| 2:A:2862:G:O2'   | 2:A:2863:C:C6     | 1.96        | 0.79     |
| 3:D:143:ILE:HG12 | 3:D:153:LEU:CA    | 2.06        | 0.79     |
| 3:D:183:ILE:C    | 3:D:184:LEU:HD23  | 1.99        | 0.79     |
| 5:F:101:ASP:O    | 5:F:102:LEU:O     | 2.00        | 0.79     |
| 5:F:214:THR:H    | 5:F:218:VAL:HG23  | 1.47        | 0.79     |
| 7:H:73:ASN:HB3   | 7:H:137:LYS:HZ3   | 0.98        | 0.79     |
| 12:Q:65:ARG:HE   | 12:Q:85:ILE:CB    | 1.95        | 0.79     |
| 12:Q:67:ALA:HB2  | 12:Q:70:ARG:HH12  | 1.44        | 0.79     |
| 1:B:28:C:OP2     | 13:S:41:LYS:CG    | 2.30        | 0.79     |
| 20:U:40:LEU:HD23 | 20:U:40:LEU:H     | 1.46        | 0.79     |
| 2:A:1151:G:C2'   | 20:U:81:ASN:HD21  | 1.88        | 0.79     |
| 8:I:48:GLU:HG3   | 8:I:52:GLN:HE21   | 1.46        | 0.79     |
| 2:A:1482:U:H1'   | 2:A:1512:G:H22    | 1.47        | 0.79     |
| 24:0:70:ILE:HG12 | 24:0:71:ASN:N     | 1.97        | 0.79     |
| 27:6:54:LYS:HZ3  | 27:6:54:LYS:HB2   | 1.47        | 0.79     |
| 2:A:196:A:C2     | 2:A:805:G:N1      | 2.50        | 0.79     |
| 2:A:2242:G:C2    | 2:A:2243:U:C5     | 2.70        | 0.79     |
| 2:A:2340:G:O2'   | 2:A:2341:G:O5'    | 2.01        | 0.79     |
| 2:A:2458:G:C5    | 2:A:2490:G:C2     | 2.69        | 0.79     |
| 2:A:526:A:N1     | 2:A:2626:C:O4'    | 2.14        | 0.79     |
| 3:D:131:LEU:HG   | 3:D:187:CYS:HB2   | 1.63        | 0.79     |
| 3:D:76:ARG:HD3   | 3:D:113:MET:CE    | 2.12        | 0.79     |
| 4:E:189:MET:O    | 4:E:190:ASN:CB    | 2.29        | 0.79     |
| 5:F:225:PRO:CG   | 5:F:231:ARG:HH21  | 1.95        | 0.79     |
| 9:N:61:VAL:HG21  | 9:N:139:LEU:HB3   | 1.63        | 0.79     |
| 11:P:94:ARG:HD3  | 11:P:120:LEU:HD23 | 1.10        | 0.79     |
| 12:Q:142:LYS:HG3 | 12:Q:143:VAL:H    | 0.63        | 0.79     |
| 13:S:28:LYS:NZ   | 13:S:28:LYS:HB3   | 1.96        | 0.79     |
| 14:T:54:THR:HG23 | 14:T:55:ALA:H     | 1.47        | 0.79     |
| 21:V:30:GLY:HA3  | 21:V:33:VAL:CG2   | 2.01        | 0.79     |
| 21:V:72:ARG:N    | 21:V:88:GLN:HG2   | 1.97        | 0.79     |
| 15:W:13:SER:O    | 15:W:14:PRO:C     | 2.21        | 0.79     |
| 15:W:23:LEU:C    | 15:W:25:ARG:N     | 2.34        | 0.79     |
| 15:W:26:GLY:O    | 15:W:27:LYS:HG3   | 1.82        | 0.79     |
| 17:Y:23:VAL:CG2  | 17:Y:67:LEU:CD2   | 2.59        | 0.79     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:Y:89:ARG:HB3  | 17:Y:90:PRO:HD2  | 1.65        | 0.79     |
| 18:Z:40:ASP:HB2  | 18:Z:41:ARG:CZ   | 2.10        | 0.79     |
| 22:2:52:ALA:O    | 22:2:56:ILE:HG12 | 1.82        | 0.79     |
| 25:4:48:ARG:O    | 25:4:49:PHE:C    | 2.21        | 0.79     |
| 2:A:1924:C:C4    | 2:A:1925:C:C4    | 2.71        | 0.79     |
| 14:T:42:LEU:O    | 14:T:44:ARG:HA   | 1.81        | 0.79     |
| 2:A:856:C:H5'    | 24:0:25:LYS:HZ1  | 0.70        | 0.79     |
| 23:3:23:LEU:CA   | 23:3:28:LEU:CD1  | 2.19        | 0.79     |
| 28:7:42:LEU:O    | 28:7:43:THR:O    | 2.01        | 0.79     |
| 29:8:19:THR:CB   | 29:8:21:LYS:NZ   | 2.45        | 0.79     |
| 30:9:4:ARG:O     | 30:9:36:GLN:HB3  | 1.79        | 0.79     |
| 2:A:1162:G:O2'   | 21:V:23:GLU:OE1  | 1.98        | 0.79     |
| 2:A:2264:C:C4    | 2:A:2265:U:C5    | 2.70        | 0.79     |
| 2:A:2507:C:N3    | 2:A:2582:G:N2    | 2.30        | 0.79     |
| 2:A:2555:U:O2'   | 2:A:2556:C:H5'   | 1.80        | 0.79     |
| 2:A:2580:U:C5    | 2:A:2581:G:H8    | 1.67        | 0.79     |
| 2:A:2688:U:O2    | 2:A:2688:U:H2'   | 1.82        | 0.79     |
| 2:A:2869:G:O2'   | 2:A:2870:C:H5'   | 1.83        | 0.79     |
| 2:A:2893:G:O2'   | 2:A:2894:G:O4'   | 2.00        | 0.79     |
| 2:A:396:G:H4'    | 25:4:39:VAL:HG12 | 1.64        | 0.79     |
| 2:A:650:C:P      | 29:8:19:THR:HG21 | 2.22        | 0.79     |
| 2:A:911:A:C2     | 12:Q:16:ARG:HA   | 2.17        | 0.79     |
| 1:B:12:C:N3      | 13:S:10:MET:HE3  | 1.96        | 0.79     |
| 3:D:105:ALA:N    | 3:D:106:PRO:HD3  | 1.97        | 0.79     |
| 3:D:131:LEU:HA   | 3:D:134:ILE:HD12 | 1.64        | 0.79     |
| 5:F:157:LEU:C    | 5:F:159:ALA:H    | 1.85        | 0.79     |
| 6:G:29:HIS:CE1   | 6:G:64:ARG:CZ    | 2.65        | 0.79     |
| 11:P:116:HIS:HD2 | 11:P:118:LEU:CD1 | 1.95        | 0.79     |
| 12:Q:102:ARG:O   | 12:Q:104:PRO:HD3 | 1.82        | 0.79     |
| 2:A:874:G:OP1    | 12:Q:32:LYS:NZ   | 2.15        | 0.79     |
| 21:V:19:VAL:HG12 | 21:V:21:ARG:HH22 | 1.44        | 0.79     |
| 20:U:44:THR:CB   | 21:V:77:GLY:O    | 2.31        | 0.79     |
| 15:W:11:ARG:NH2  | 15:W:98:LYS:CB   | 2.42        | 0.79     |
| 18:Z:20:ALA:O    | 18:Z:34:LEU:CD2  | 2.30        | 0.79     |
| 8:I:145:VAL:O    | 8:I:146:THR:CG2  | 2.29        | 0.79     |
| 2:A:932:G:H5'    | 23:3:24:LYS:HE2  | 1.64        | 0.79     |
| 27:6:16:ALA:C    | 27:6:48:VAL:HG11 | 2.02        | 0.79     |
| 27:6:32:GLN:HB3  | 27:6:35:LEU:CG   | 2.11        | 0.79     |
| 2:A:125:G:C4'    | 28:7:19:ARG:HH11 | 1.95        | 0.79     |
| 2:A:2317:C:C5    | 2:A:2318:G:C6    | 2.70        | 0.79     |
| 2:A:2361:A:C2    | 2:A:2362:G:C1'   | 2.65        | 0.79     |
| 2:A:2403:C:N4    | 2:A:2415:G:C5    | 2.48        | 0.79     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2445:G:H2'   | 2:A:2446:G:H8     | 1.47        | 0.79     |
| 2:A:2464:C:H2'   | 2:A:2465:C:H6     | 1.46        | 0.79     |
| 2:A:2479:G:C2'   | 2:A:2480:C:O5'    | 2.30        | 0.79     |
| 2:A:2569:G:C2    | 2:A:2570:G:N7     | 2.50        | 0.79     |
| 2:A:2768:C:H42   | 2:A:2769:C:H41    | 1.31        | 0.79     |
| 2:A:2712:U:H6    | 2:A:712(A):A:C8   | 1.57        | 0.79     |
| 2:A:910:A:H3'    | 12:Q:17:ARG:NH2   | 1.97        | 0.79     |
| 7:H:41:THR:HG22  | 7:H:52:THR:HB     | 1.65        | 0.79     |
| 9:N:94:GLY:O     | 9:N:97:ALA:N      | 2.16        | 0.79     |
| 10:O:22:ILE:CB   | 10:O:40:VAL:O     | 2.30        | 0.79     |
| 10:O:58:VAL:HG12 | 10:O:59:LYS:H     | 1.47        | 0.79     |
| 12:Q:49:VAL:HG21 | 12:Q:120:HIS:CA   | 2.12        | 0.79     |
| 12:Q:138:ARG:HA  | 12:Q:141:MET:HG3  | 1.64        | 0.79     |
| 13:S:127:LEU:O   | 13:S:127:LEU:HD22 | 1.81        | 0.79     |
| 13:S:32:PRO:O    | 13:S:101:VAL:CG1  | 2.29        | 0.79     |
| 20:U:107:LYS:O   | 20:U:110:VAL:CB   | 2.23        | 0.79     |
| 20:U:113:SER:O   | 20:U:114:ARG:C    | 2.19        | 0.79     |
| 21:V:50:ASP:CA   | 21:V:53:LYS:HG3   | 2.12        | 0.79     |
| 2:A:495:G:H21    | 15:W:61:ASN:HD21  | 0.81        | 0.79     |
| 17:Y:73:HIS:CE1  | 17:Y:89:ARG:O     | 2.35        | 0.79     |
| 22:2:8:ILE:CA    | 22:2:11:MET:HG2   | 2.12        | 0.79     |
| 22:2:27:LEU:CD1  | 22:2:53:ILE:CD1   | 2.59        | 0.79     |
| 2:A:1082:U:O4'   | 31:K:118:ALA:CB   | 2.27        | 0.79     |
| 23:3:22:ALA:CA   | 23:3:46:ASN:HD21  | 1.90        | 0.79     |
| 2:A:444(A):A:N6  | 2:A:1462:C:OP1    | 2.14        | 0.79     |
| 2:A:2251:G:N2    | 2:A:2252:G:C2     | 2.51        | 0.79     |
| 2:A:2344:U:C2'   | 2:A:2345:G:OP2    | 2.30        | 0.79     |
| 2:A:2366:A:N7    | 2:A:2367:G:C5     | 2.50        | 0.79     |
| 2:A:2606:C:C2'   | 2:A:2607:G:O5'    | 2.30        | 0.79     |
| 2:A:2683:C:C5    | 2:A:2684:U:C5     | 2.71        | 0.79     |
| 2:A:2842:G:H2'   | 2:A:2843:G:C5'    | 2.10        | 0.79     |
| 2:A:2845:G:H2'   | 2:A:2846:G:C8     | 2.16        | 0.79     |
| 2:A:1568:G:C3'   | 3:D:60:GLN:HE21   | 1.93        | 0.79     |
| 4:E:262:THR:HG1  | 4:E:266:LYS:NZ    | 1.81        | 0.79     |
| 5:F:103:ASN:O    | 5:F:104:ASP:C     | 2.16        | 0.79     |
| 5:F:58:ALA:HB2   | 5:F:79:ARG:N      | 1.95        | 0.79     |
| 6:G:146:LYS:CG   | 13:S:15:GLU:OE2   | 2.30        | 0.79     |
| 9:N:15:ARG:HH12  | 9:N:40:ASN:HA     | 1.47        | 0.79     |
| 9:N:83:ILE:HD11  | 9:N:84:ARG:HG2    | 1.64        | 0.79     |
| 2:A:873:G:OP1    | 12:Q:30:GLN:OE1   | 2.00        | 0.79     |
| 13:S:127:LEU:C   | 13:S:127:LEU:HD23 | 2.02        | 0.79     |
| 20:U:106:PHE:O   | 20:U:107:LYS:C    | 2.19        | 0.79     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 15:W:20:VAL:HG11  | 15:W:47:VAL:HG22  | 1.61        | 0.79     |
| 22:2:56:ILE:O     | 22:2:59:ILE:HG23  | 1.82        | 0.79     |
| 4:E:107:GLU:HB3   | 4:E:110:ARG:CD    | 2.13        | 0.79     |
| 23:3:23:LEU:HD23  | 23:3:23:LEU:N     | 1.97        | 0.79     |
| 23:3:9:VAL:HG22   | 23:3:54:VAL:CA    | 2.12        | 0.79     |
| 27:6:21:TYR:OH    | 27:6:43:VAL:HG22  | 1.83        | 0.79     |
| 2:A:1664:A:N3     | 2:A:2726:U:C4     | 2.50        | 0.79     |
| 2:A:1665:A:H4'    | 10:O:66:LYS:HD3   | 1.63        | 0.79     |
| 2:A:2089:U:O2     | 2:A:2231:C:N3     | 2.16        | 0.79     |
| 2:A:2484:G:N2     | 2:A:2485:G:N9     | 2.31        | 0.79     |
| 2:A:2603:G:C5     | 2:A:2604:U:H5     | 2.00        | 0.79     |
| 2:A:2681:C:O2'    | 2:A:2682:U:P      | 2.40        | 0.79     |
| 2:A:2690:C:C3'    | 2:A:2690:C:C6     | 2.66        | 0.79     |
| 2:A:2799:A:O2'    | 2:A:2802:G:N3     | 2.14        | 0.79     |
| 2:A:994:C:H4'     | 20:U:54:LYS:HE2   | 1.61        | 0.79     |
| 2:A:2578:G:N7     | 4:E:237:ASN:CG    | 2.35        | 0.79     |
| 5:F:112:ARG:O     | 5:F:114:ALA:CA    | 2.30        | 0.79     |
| 5:F:150:THR:HB    | 5:F:207:LEU:HD21  | 1.62        | 0.79     |
| 5:F:51:TYR:O      | 5:F:55:ARG:N      | 2.15        | 0.79     |
| 7:H:145:ALA:O     | 7:H:148:ARG:N     | 2.15        | 0.79     |
| 9:N:15:ARG:HD2    | 9:N:43:ARG:HD2    | 1.62        | 0.79     |
| 9:N:54:VAL:O      | 9:N:58:GLU:HG3    | 1.82        | 0.79     |
| 9:N:65:ASN:N      | 9:N:68:GLY:O      | 2.14        | 0.79     |
| 10:O:1:MET:CB     | 10:O:2:ILE:HD12   | 2.12        | 0.79     |
| 2:A:2485:G:H5'    | 12:Q:144:THR:HG22 | 1.63        | 0.79     |
| 12:Q:28:ILE:HG22  | 12:Q:29:ALA:N     | 1.96        | 0.79     |
| 19:R:113:LEU:HD13 | 19:R:114:VAL:CA   | 2.12        | 0.79     |
| 13:S:15:GLU:O     | 13:S:16:ALA:CB    | 2.31        | 0.79     |
| 14:T:21:PHE:O     | 14:T:22:VAL:HG12  | 1.82        | 0.79     |
| 17:Y:74:VAL:N     | 17:Y:91:LEU:CD1   | 2.40        | 0.79     |
| 18:Z:108:VAL:HG12 | 18:Z:108:VAL:O    | 1.82        | 0.79     |
| 18:Z:14:LEU:HD23  | 18:Z:14:LEU:O     | 1.81        | 0.79     |
| 22:2:58:THR:O     | 22:2:59:ILE:C     | 2.21        | 0.79     |
| 2:A:176:G:H2'     | 2:A:177:G:C8      | 2.17        | 0.79     |
| 2:A:484:C:H2'     | 2:A:485:C:C6      | 2.18        | 0.79     |
| 2:A:1328:G:H2'    | 2:A:1330:C:C5     | 2.17        | 0.79     |
| 24:0:36:ILE:CA    | 24:0:68:VAL:CG1   | 2.61        | 0.79     |
| 24:0:28:GLY:CA    | 24:0:60:PHE:HB3   | 2.12        | 0.79     |
| 2:A:988:A:P       | 23:3:11:SER:H     | 2.04        | 0.79     |
| 2:A:1157:G:O2'    | 23:3:31:LEU:HD13  | 1.82        | 0.79     |
| 2:A:2287:A:N3     | 2:A:2289:G:C8     | 2.50        | 0.79     |
| 2:A:2309:A:P      | 2:A:2309:A:O4'    | 2.40        | 0.79     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2564:A:C2'   | 2:A:2565:A:C8     | 2.55        | 0.79     |
| 2:A:2023:G:H5''  | 2:A:2617:C:O2'    | 1.83        | 0.79     |
| 2:A:2652:C:H2'   | 2:A:2653:U:C6     | 2.17        | 0.79     |
| 2:A:2721:A:H2'   | 2:A:2722:G:C8     | 2.17        | 0.79     |
| 2:A:2819:G:N2    | 2:A:2821:A:C8     | 2.50        | 0.79     |
| 2:A:2856:C:H3'   | 2:A:2856:C:C6     | 2.18        | 0.79     |
| 2:A:449:A:OP2    | 5:F:85:LYS:HB3    | 1.83        | 0.79     |
| 2:A:54:G:C1'     | 28:7:35:ARG:HH22  | 1.96        | 0.79     |
| 2:A:960:A:C2     | 2:A:2495:G:N2     | 2.51        | 0.79     |
| 4:E:222:ARG:N    | 4:E:222:ARG:HD2   | 1.96        | 0.79     |
| 5:F:115:LEU:O    | 5:F:118:THR:OG1   | 2.01        | 0.79     |
| 9:N:27:ALA:HA    | 9:N:30:ALA:HB2    | 0.80        | 0.79     |
| 9:N:54:VAL:HA    | 9:N:135:ILE:HG23  | 1.64        | 0.79     |
| 2:A:1137:G:H21   | 9:N:86:MET:HE3    | 1.47        | 0.79     |
| 2:A:2406:U:N3    | 11:P:55:GLN:CB    | 2.42        | 0.79     |
| 19:R:74:LYS:HA   | 19:R:77:ARG:HH22  | 1.48        | 0.79     |
| 20:U:117:ARG:CG  | 20:U:118:GLN:H    | 1.92        | 0.79     |
| 21:V:40:VAL:C    | 21:V:51:ALA:CB    | 2.51        | 0.79     |
| 15:W:10:VAL:CG1  | 15:W:46:PHE:HE2   | 1.96        | 0.79     |
| 17:Y:43:ASN:HD22 | 17:Y:101:LEU:HD23 | 1.41        | 0.79     |
| 18:Z:116:VAL:HA  | 18:Z:169:VAL:CG2  | 2.04        | 0.79     |
| 18:Z:51:LEU:HD11 | 18:Z:64:ALA:N     | 1.98        | 0.79     |
| 18:Z:62:PHE:HB2  | 18:Z:85:MET:SD    | 2.22        | 0.79     |
| 8:I:102:LEU:CD1  | 8:I:103:GLN:H     | 1.80        | 0.79     |
| 8:I:145:VAL:C    | 8:I:146:THR:HG22  | 2.03        | 0.79     |
| 3:D:211:HIS:HD1  | 3:D:212:HIS:H     | 1.29        | 0.79     |
| 22:2:2:VAL:O     | 22:2:4:HIS:CE1    | 2.35        | 0.79     |
| 22:2:4:HIS:C     | 22:2:8:ILE:HD12   | 2.02        | 0.79     |
| 4:E:109:ASP:HA   | 4:E:112:LEU:CB    | 2.11        | 0.79     |
| 27:6:41:ASP:CB   | 27:6:46:LYS:HZ2   | 1.85        | 0.79     |
| 29:8:19:THR:HB   | 29:8:21:LYS:HZ1   | 1.45        | 0.79     |
| 29:8:26:LYS:O    | 29:8:27:SER:CB    | 2.30        | 0.79     |
| 2:A:972:G:N7     | 2:A:1188:U:O4     | 2.16        | 0.79     |
| 2:A:1364:G:O6    | 25:4:2:GLN:OE1    | 1.99        | 0.79     |
| 2:A:2051:A:O2'   | 4:E:238:LEU:HD23  | 1.82        | 0.79     |
| 2:A:2422:A:H2'   | 2:A:2424:C:C5     | 2.17        | 0.79     |
| 2:A:2574:G:H5''  | 2:A:2575:C:P      | 2.23        | 0.79     |
| 2:A:2717:G:N1    | 2:A:2718:G:C5     | 2.51        | 0.79     |
| 2:A:2722:G:C6    | 2:A:2723:C:C4     | 2.71        | 0.79     |
| 2:A:2818:G:N2    | 2:A:2829:C:N3     | 2.30        | 0.79     |
| 2:A:449:A:OP1    | 5:F:85:LYS:N      | 2.16        | 0.79     |
| 2:A:674:G:O3'    | 5:F:69:HIS:O      | 2.00        | 0.79     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:33:LYS:N     | 5:F:36:ARG:HE    | 1.80        | 0.79     |
| 12:Q:91:HIS:O    | 12:Q:92:VAL:HG13 | 1.83        | 0.79     |
| 21:V:49:GLU:CB   | 21:V:53:LYS:HD2  | 2.12        | 0.79     |
| 15:W:44:ALA:O    | 15:W:45:TYR:C    | 2.21        | 0.79     |
| 17:Y:20:HIS:HA   | 17:Y:67:LEU:HD21 | 1.64        | 0.79     |
| 3:D:213:LYS:CG   | 3:D:215:LYS:O    | 2.31        | 0.79     |
| 2:A:176:G:C3'    | 2:A:177:G:OP2    | 2.31        | 0.79     |
| 2:A:885:C:H41    | 2:A:889:C:H1'    | 1.46        | 0.79     |
| 24:O:37:LEU:O    | 24:O:40:GLN:HG2  | 1.83        | 0.79     |
| 25:4:68:ARG:HG2  | 25:4:72:LYS:CB   | 2.13        | 0.79     |
| 27:6:37:LEU:N    | 27:6:52:GLU:OE2  | 2.15        | 0.79     |
| 29:8:60:LEU:HD11 | 29:8:64:ARG:HB2  | 0.80        | 0.79     |
| 2:A:14:A:H2      | 2:A:2625:G:O2'   | 1.64        | 0.79     |
| 2:A:2227:A:C6    | 2:A:2228:G:C5    | 2.70        | 0.79     |
| 2:A:2356:C:OP1   | 24:O:19:LYS:HD2  | 1.82        | 0.79     |
| 2:A:2886:G:N2    | 2:A:2887:U:C2    | 2.51        | 0.79     |
| 2:A:929:G:H1'    | 23:3:43:ILE:HG13 | 1.65        | 0.79     |
| 3:D:104:ILE:HB   | 3:D:106:PRO:HD2  | 1.62        | 0.79     |
| 3:D:143:ILE:HD13 | 3:D:153:LEU:N    | 1.95        | 0.79     |
| 4:E:102:ASP:CG   | 4:E:104:PHE:CE1  | 2.56        | 0.79     |
| 5:F:104:ASP:O    | 5:F:105:LYS:C    | 2.21        | 0.79     |
| 5:F:32:GLY:O     | 5:F:35:VAL:N     | 2.14        | 0.79     |
| 7:H:105:SER:O    | 7:H:106:VAL:HG23 | 1.82        | 0.79     |
| 7:H:130:ILE:CG2  | 7:H:131:ILE:H    | 1.96        | 0.79     |
| 10:O:34:ASN:O    | 10:O:35:ILE:C    | 2.21        | 0.79     |
| 11:P:57:VAL:CG1  | 11:P:58:GLN:N    | 2.27        | 0.79     |
| 11:P:94:ARG:HD3  | 11:P:120:LEU:HB2 | 1.62        | 0.79     |
| 12:Q:49:VAL:HG21 | 12:Q:119:ASN:O   | 1.83        | 0.79     |
| 21:V:30:GLY:O    | 21:V:63:HIS:CB   | 2.28        | 0.79     |
| 21:V:40:VAL:O    | 21:V:51:ALA:HB2  | 1.83        | 0.79     |
| 18:Z:4:THR:O     | 18:Z:33:ALA:CB   | 2.31        | 0.79     |
| 22:2:6:GLN:O     | 22:2:9:ARG:HB3   | 1.82        | 0.79     |
| 2:A:1076:C:H1'   | 31:K:91:GLU:HB3  | 1.65        | 0.79     |
| 2:A:1614:A:H62   | 15:W:88:ARG:HB2  | 0.97        | 0.79     |
| 2:A:1558:A:C2    | 2:A:1560:G:H1'   | 2.17        | 0.79     |
| 23:3:40:THR:CB   | 23:3:43:ILE:CD1  | 2.44        | 0.79     |
| 23:3:9:VAL:HG23  | 23:3:54:VAL:HA   | 1.62        | 0.79     |
| 25:4:68:ARG:CZ   | 25:4:72:LYS:HD3  | 2.13        | 0.79     |
| 27:6:28:ARG:HG3  | 27:6:30:ASN:CB   | 2.12        | 0.79     |
| 2:A:1368:G:P     | 28:7:25:LYS:CE   | 2.71        | 0.79     |
| 2:A:859:G:O2'    | 2:A:2268:A:C4    | 2.36        | 0.79     |
| 2:A:2428:G:H3'   | 2:A:2428:G:C8    | 2.18        | 0.79     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2536:G:H2'   | 2:A:2537:U:H5'   | 1.64        | 0.79     |
| 2:A:2776:A:C4    | 2:A:2778:A:C5    | 2.69        | 0.79     |
| 2:A:2785:C:C5    | 2:A:2786:U:C4    | 2.69        | 0.79     |
| 2:A:2820:A:H5''  | 2:A:2820:A:C2    | 2.18        | 0.79     |
| 2:A:2875:C:N4    | 2:A:2876:G:C6    | 2.51        | 0.79     |
| 8:I:24:GLY:O     | 8:I:25:TYR:O     | 2.00        | 0.79     |
| 9:N:79:PHE:HD1   | 9:N:79:PHE:N     | 1.80        | 0.79     |
| 11:P:53:ARG:N    | 11:P:53:ARG:HD2  | 1.96        | 0.79     |
| 11:P:69:ILE:HB   | 11:P:73:VAL:HG21 | 1.63        | 0.79     |
| 12:Q:18:GLU:HG2  | 12:Q:23:ILE:HD11 | 1.65        | 0.79     |
| 20:U:111:ASP:C   | 20:U:113:SER:N   | 2.31        | 0.79     |
| 21:V:69:ILE:CG2  | 21:V:88:GLN:HB3  | 2.13        | 0.79     |
| 17:Y:55:PHE:CD1  | 17:Y:89:ARG:NH1  | 2.51        | 0.79     |
| 18:Z:67:LYS:HA   | 18:Z:67:LYS:HZ2  | 1.44        | 0.79     |
| 22:2:27:LEU:O    | 22:2:30:ALA:N    | 2.16        | 0.79     |
| 2:A:1071:G:N3    | 2:A:1089:G:H2'   | 1.97        | 0.79     |
| 2:A:1857:G:H2'   | 2:A:1858:G:C8    | 2.17        | 0.79     |
| 24:0:36:ILE:O    | 24:0:36:ILE:HG22 | 1.82        | 0.78     |
| 23:3:51:ALA:C    | 23:3:53:LEU:H    | 1.85        | 0.78     |
| 23:3:8:LEU:O     | 23:3:9:VAL:HG13  | 1.83        | 0.78     |
| 27:6:36:GLU:HB3  | 27:6:52:GLU:HB2  | 1.63        | 0.78     |
| 2:A:249:C:O2     | 29:8:11:LYS:NZ   | 2.15        | 0.78     |
| 2:A:2592:G:N2    | 2:A:2603:G:C6    | 2.51        | 0.78     |
| 2:A:2758:A:C2'   | 2:A:2759:G:O5'   | 2.31        | 0.78     |
| 2:A:2840:C:H2'   | 2:A:2841:C:C6    | 2.18        | 0.78     |
| 2:A:247:G:H4'    | 2:A:386:G:N3     | 1.98        | 0.78     |
| 2:A:598:G:H21    | 5:F:33:LYS:HZ2   | 0.81        | 0.78     |
| 2:A:965:C:O4'    | 2:A:2273:A:N3    | 2.15        | 0.78     |
| 2:A:99:U:H3      | 17:Y:107:LYS:CD  | 1.96        | 0.78     |
| 3:D:167:GLU:O    | 3:D:170:TYR:CG   | 2.36        | 0.78     |
| 4:E:222:ARG:HG2  | 4:E:232:ARG:N    | 1.98        | 0.78     |
| 2:A:2730:C:C4'   | 4:E:265:ASN:ND2  | 2.40        | 0.78     |
| 5:F:163:HIS:C    | 5:F:166:ILE:HG13 | 2.03        | 0.78     |
| 9:N:65:ASN:O     | 9:N:66:ASP:C     | 2.21        | 0.78     |
| 10:O:58:VAL:CG1  | 10:O:59:LYS:H    | 1.95        | 0.78     |
| 11:P:94:ARG:O    | 11:P:95:ASP:HB3  | 1.84        | 0.78     |
| 12:Q:42:TYR:C    | 12:Q:125:TRP:CH2 | 2.56        | 0.78     |
| 13:S:23:ARG:HH21 | 13:S:37:ARG:NH2  | 1.81        | 0.78     |
| 13:S:49:THR:H    | 13:S:55:ASP:CG   | 1.86        | 0.78     |
| 20:U:13:ARG:NH1  | 20:U:13:ARG:N    | 2.30        | 0.78     |
| 20:U:43:ALA:HB1  | 21:V:75:LYS:CB   | 2.13        | 0.78     |
| 15:W:19:LEU:CD1  | 26:5:25:LEU:CD2  | 2.57        | 0.78     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:W:55:ALA:CA   | 15:W:107:LEU:CD1 | 2.60        | 0.78     |
| 15:W:11:ARG:HH21 | 15:W:98:LYS:HB3  | 1.45        | 0.78     |
| 18:Z:151:ASP:HB3 | 18:Z:153:LYS:HZ3 | 1.46        | 0.78     |
| 4:E:107:GLU:O    | 4:E:110:ARG:N    | 2.15        | 0.78     |
| 2:A:979:G:H3'    | 2:A:980:A:C5'    | 2.11        | 0.78     |
| 23:3:20:LYS:C    | 23:3:23:LEU:CG   | 2.27        | 0.78     |
| 26:5:11:THR:HG21 | 26:5:19:ARG:NH2  | 1.94        | 0.78     |
| 29:8:60:LEU:HD11 | 29:8:64:ARG:HB3  | 1.62        | 0.78     |
| 30:9:24:LEU:CD2  | 30:9:36:GLN:H    | 1.96        | 0.78     |
| 2:A:1162:G:HO2'  | 21:V:23:GLU:CD   | 1.85        | 0.78     |
| 2:A:2228:G:N7    | 2:A:2229:C:C4    | 2.50        | 0.78     |
| 2:A:2331:G:H4'   | 24:0:70:ILE:CB   | 2.13        | 0.78     |
| 2:A:2349:G:OP2   | 29:8:42:ARG:NH2  | 2.16        | 0.78     |
| 2:A:2418:A:O2'   | 2:A:2419:U:O4'   | 2.00        | 0.78     |
| 2:A:2458:G:C8    | 2:A:2490:G:C6    | 2.70        | 0.78     |
| 2:A:2487:G:H2'   | 2:A:2488:A:O5'   | 1.84        | 0.78     |
| 2:A:2570:G:C2    | 2:A:2571:C:C6    | 2.70        | 0.78     |
| 2:A:2793:G:C6    | 2:A:2794:C:C4    | 2.70        | 0.78     |
| 2:A:2843:G:C4    | 2:A:2844:G:C8    | 2.71        | 0.78     |
| 2:A:599:G:H1     | 2:A:658:C:H42    | 1.30        | 0.78     |
| 3:D:90:ILE:HG21  | 3:D:103:ILE:N    | 1.98        | 0.78     |
| 4:E:79:ARG:NH1   | 4:E:104:PHE:HA   | 1.98        | 0.78     |
| 5:F:163:HIS:CA   | 5:F:166:ILE:CG1  | 2.55        | 0.78     |
| 6:G:38:GLU:O     | 6:G:41:LEU:HB2   | 1.84        | 0.78     |
| 2:A:2303:G:C5'   | 6:G:99:ASP:CB    | 2.61        | 0.78     |
| 11:P:114:VAL:CG2 | 11:P:132:LYS:HB3 | 2.03        | 0.78     |
| 12:Q:45:GLN:NE2  | 12:Q:153:PRO:CB  | 2.20        | 0.78     |
| 20:U:25:TRP:HB3  | 20:U:28:ARG:NH1  | 1.98        | 0.78     |
| 15:W:32:ALA:CA   | 15:W:35:ILE:CG1  | 2.56        | 0.78     |
| 18:Z:48:THR:OG1  | 18:Z:66:VAL:O    | 1.99        | 0.78     |
| 18:Z:25:ASN:HA   | 18:Z:84:TYR:CD1  | 2.18        | 0.78     |
| 16:X:28:VAL:O    | 16:X:62:LYS:CB   | 2.28        | 0.78     |
| 16:X:5:ILE:CG2   | 16:X:6:LYS:N     | 1.93        | 0.78     |
| 2:A:95:G:C1'     | 22:2:42:ASN:HB3  | 2.12        | 0.78     |
| 2:A:49:A:N6      | 2:A:176:G:N1     | 2.30        | 0.78     |
| 2:A:352:G:O5'    | 2:A:352:G:H8     | 1.66        | 0.78     |
| 25:4:11:PRO:HA   | 25:4:40:HIS:HD2  | 1.44        | 0.78     |
| 2:A:126:A:C8     | 28:7:18:PHE:CD1  | 2.71        | 0.78     |
| 29:8:6:THR:C     | 29:8:8:LYS:N     | 2.35        | 0.78     |
| 2:A:2195:C:C6    | 2:A:2195:C:C5'   | 2.62        | 0.78     |
| 2:A:2459:A:H8    | 2:A:2460:U:C5    | 2.00        | 0.78     |
| 2:A:2593:U:O2    | 2:A:2600:A:N1    | 2.15        | 0.78     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2737:G:C4    | 2:A:2738:A:C8     | 2.71        | 0.78     |
| 2:A:2737:G:H2'   | 2:A:2738:A:C8     | 2.18        | 0.78     |
| 2:A:2776:A:H1'   | 2:A:2778:A:H8     | 1.43        | 0.78     |
| 2:A:2831:G:H5'   | 2:A:2834:G:O2'    | 1.84        | 0.78     |
| 2:A:2866:U:O2    | 2:A:2868:A:O2'    | 2.01        | 0.78     |
| 2:A:2881:C:N4    | 2:A:2882:A:N6     | 2.31        | 0.78     |
| 2:A:457:A:H1'    | 2:A:459:U:C2      | 2.18        | 0.78     |
| 2:A:562:U:O2'    | 2:A:563:G:H5''    | 1.83        | 0.78     |
| 5:F:4:THR:O      | 5:F:139:VAL:CB    | 2.30        | 0.78     |
| 5:F:51:TYR:O     | 5:F:55:ARG:HA     | 1.81        | 0.78     |
| 13:S:32:PRO:HD2  | 13:S:101:VAL:N    | 1.98        | 0.78     |
| 20:U:13:ARG:C    | 20:U:16:LYS:HB2   | 2.01        | 0.78     |
| 21:V:94:LYS:O    | 21:V:95:ILE:CG1   | 2.30        | 0.78     |
| 15:W:97:LYS:CE   | 15:W:99:ARG:NH1   | 2.46        | 0.78     |
| 17:Y:47:THR:HG21 | 17:Y:100:ASP:HB2  | 1.64        | 0.78     |
| 16:X:13:LYS:HD3  | 16:X:13:LYS:H     | 1.48        | 0.78     |
| 16:X:13:LYS:C    | 16:X:16:ASN:OD1   | 2.22        | 0.78     |
| 16:X:75:GLN:CB   | 16:X:78:ALA:O     | 2.24        | 0.78     |
| 23:3:51:ALA:C    | 23:3:53:LEU:N     | 2.37        | 0.78     |
| 26:5:6:VAL:HG13  | 26:5:7:PRO:HD2    | 1.65        | 0.78     |
| 27:6:19:GLY:C    | 27:6:42:PRO:HB2   | 2.02        | 0.78     |
| 28:7:17:GLY:O    | 28:7:18:PHE:C     | 2.20        | 0.78     |
| 2:A:2250:G:H5''  | 12:Q:102:ARG:CG   | 2.14        | 0.78     |
| 2:A:2605:U:O2'   | 2:A:2606:C:C5'    | 2.32        | 0.78     |
| 3:D:142:ASN:HB2  | 3:D:190:THR:H     | 1.48        | 0.78     |
| 2:A:1818:U:O5'   | 3:D:155:ARG:CB    | 2.31        | 0.78     |
| 3:D:131:LEU:HG   | 3:D:187:CYS:O     | 1.82        | 0.78     |
| 4:E:222:ARG:NH2  | 4:E:234:ARG:HB2   | 1.97        | 0.78     |
| 4:E:299:SER:OG   | 4:E:301:PRO:CD    | 2.29        | 0.78     |
| 2:A:673:C:C4'    | 5:F:82:GLN:OE1    | 2.31        | 0.78     |
| 10:O:106:LEU:H   | 10:O:106:LEU:HD23 | 1.46        | 0.78     |
| 10:O:14:SER:HB3  | 10:O:86:ILE:HD12  | 1.64        | 0.78     |
| 10:O:35:ILE:CG1  | 10:O:62:VAL:HG12  | 2.10        | 0.78     |
| 12:Q:142:LYS:HE2 | 12:Q:143:VAL:O    | 1.83        | 0.78     |
| 21:V:33:VAL:HG12 | 21:V:34:GLU:H     | 1.45        | 0.78     |
| 15:W:55:ALA:HA   | 15:W:107:LEU:HD11 | 1.65        | 0.78     |
| 18:Z:37:LYS:O    | 18:Z:41:ARG:CD    | 2.32        | 0.78     |
| 18:Z:71:MET:HG2  | 18:Z:78:PRO:HD2   | 1.53        | 0.78     |
| 18:Z:90:GLU:O    | 18:Z:92:VAL:HG23  | 1.83        | 0.78     |
| 3:D:202:LYS:O    | 3:D:204:PHE:HE1   | 1.67        | 0.78     |
| 16:X:9:HIS:CE1   | 16:X:27:ALA:HB2   | 2.18        | 0.78     |
| 2:A:1530:G:H21   | 2:A:1531:C:H5     | 1.32        | 0.78     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 23:3:23:LEU:HA  | 23:3:28:LEU:HD11 | 1.59        | 0.78     |
| 28:7:5:TYR:O    | 28:7:6:GLN:C     | 2.22        | 0.78     |
| 2:A:2089:U:H3   | 2:A:2231:C:H42   | 1.31        | 0.78     |
| 2:A:2230:G:O2'  | 2:A:2231:C:C5'   | 2.32        | 0.78     |
| 2:A:2250:G:H3'  | 2:A:2250:G:C8    | 2.18        | 0.78     |
| 2:A:2282:G:N2   | 2:A:2427:C:O2    | 2.14        | 0.78     |
| 2:A:960:A:H2    | 2:A:2495:G:H21   | 1.29        | 0.78     |
| 2:A:2604:U:O2'  | 2:A:2605:U:H5'   | 1.84        | 0.78     |
| 2:A:2646:C:C2'  | 2:A:2647:U:H5'   | 2.13        | 0.78     |
| 2:A:2684:U:C1'  | 10:O:70:ARG:CZ   | 2.52        | 0.78     |
| 2:A:825:C:C4'   | 2:A:2428:G:C6    | 2.67        | 0.78     |
| 4:E:42:ALA:HA   | 4:E:311:PHE:CE2  | 2.17        | 0.78     |
| 5:F:168:ARG:C   | 5:F:233:THR:HG22 | 2.00        | 0.78     |
| 6:G:58:VAL:CG1  | 6:G:58:VAL:O     | 2.32        | 0.78     |
| 9:N:135:ILE:C   | 9:N:139:LEU:HD11 | 2.03        | 0.78     |
| 10:O:31:ARG:O   | 10:O:32:TYR:CG   | 2.37        | 0.78     |
| 10:O:64:ARG:O   | 10:O:82:ASN:HA   | 1.83        | 0.78     |
| 10:O:8:LEU:CD2  | 10:O:8:LEU:N     | 2.45        | 0.78     |
| 19:R:61:HIS:O   | 19:R:64:ARG:N    | 2.16        | 0.78     |
| 20:U:46:GLU:O   | 20:U:47:TYR:O    | 2.02        | 0.78     |
| 20:U:92:ARG:H   | 21:V:10:LYS:HZ1  | 0.81        | 0.78     |
| 21:V:39:PHE:CE2 | 21:V:41:GLY:C    | 2.57        | 0.78     |
| 21:V:40:VAL:O   | 21:V:51:ALA:HB1  | 1.83        | 0.78     |
| 18:Z:26:LYS:O   | 18:Z:27:GLU:CD   | 2.21        | 0.78     |
| 18:Z:62:PHE:CE2 | 18:Z:87:THR:HB   | 2.18        | 0.78     |
| 2:A:142:G:OP1   | 2:A:1595:G:O2'   | 2.02        | 0.78     |
| 29:8:6:THR:O    | 29:8:8:LYS:CA    | 2.31        | 0.78     |
| 2:A:2410:G:N3   | 2:A:2411:A:N7    | 2.25        | 0.78     |
| 2:A:2523:G:H2'  | 2:A:2524:G:H5'   | 1.63        | 0.78     |
| 2:A:2571:C:H2'  | 2:A:2571:C:O2    | 1.83        | 0.78     |
| 2:A:2821:A:C2   | 2:A:2822:G:N7    | 2.51        | 0.78     |
| 2:A:2575:C:OP1  | 4:E:241:TRP:NE1  | 2.17        | 0.78     |
| 4:E:45:LYS:NZ   | 4:E:303:PRO:CA   | 2.37        | 0.78     |
| 5:F:5:ILE:CB    | 5:F:14:GLY:O     | 2.19        | 0.78     |
| 5:F:195:VAL:CG1 | 5:F:213:ALA:HB3  | 2.13        | 0.78     |
| 5:F:214:THR:N   | 5:F:218:VAL:CG2  | 2.44        | 0.78     |
| 5:F:215:ALA:CA  | 5:F:242:GLU:HG3  | 2.14        | 0.78     |
| 2:A:797:C:H5''  | 5:F:57:PRO:HB3   | 1.65        | 0.78     |
| 6:G:18:ILE:O    | 6:G:135:VAL:HG11 | 1.83        | 0.78     |
| 8:I:25:TYR:H    | 8:I:25:TYR:HD2   | 0.86        | 0.78     |
| 9:N:42:GLU:HA   | 9:N:133:GLY:HA3  | 1.66        | 0.78     |
| 9:N:79:PHE:O    | 9:N:83:ILE:CG2   | 2.31        | 0.78     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:O:103:ALA:CA  | 10:O:122:ILE:O    | 2.28        | 0.78     |
| 2:A:637:A:OP2    | 11:P:126:SER:CB   | 2.32        | 0.78     |
| 12:Q:49:VAL:HA   | 12:Q:121:ASP:CB   | 2.14        | 0.78     |
| 19:R:60:LEU:CD2  | 19:R:61:HIS:H     | 1.96        | 0.78     |
| 19:R:67:LEU:HB2  | 19:R:76:VAL:HG11  | 1.63        | 0.78     |
| 13:S:114:LYS:O   | 13:S:115:VAL:C    | 2.22        | 0.78     |
| 13:S:127:LEU:O   | 13:S:128:ASP:O    | 2.02        | 0.78     |
| 2:A:993:G:C1'    | 21:V:90:PHE:CE2   | 2.51        | 0.78     |
| 18:Z:149:ALA:HB3 | 18:Z:164:PRO:C    | 2.03        | 0.78     |
| 18:Z:51:LEU:HD23 | 18:Z:52:PHE:CA    | 2.12        | 0.78     |
| 16:X:50:GLU:CB   | 16:X:67:ARG:O     | 2.32        | 0.78     |
| 12:Q:108:SER:O   | 12:Q:109:VAL:HG22 | 1.81        | 0.78     |
| 2:A:1416:G:N2    | 2:A:1582:C:N4     | 2.32        | 0.78     |
| 23:3:19:GLN:O    | 23:3:23:LEU:HD23  | 1.81        | 0.78     |
| 2:A:387:U:C3'    | 25:4:23:GLU:OE2   | 2.32        | 0.78     |
| 25:4:40:HIS:HB3  | 25:4:41:PRO:HD3   | 1.66        | 0.78     |
| 2:A:963:U:C2'    | 2:A:2250:G:H21    | 1.97        | 0.78     |
| 2:A:2252:G:C2'   | 2:A:2253:G:C5'    | 2.46        | 0.78     |
| 2:A:2349:G:C2    | 2:A:2369:A:C2     | 2.72        | 0.78     |
| 2:A:2461:C:N3    | 2:A:2462:U:H5     | 1.79        | 0.78     |
| 2:A:2466:C:O2'   | 2:A:2467:C:H5'    | 1.83        | 0.78     |
| 2:A:2520:C:C2    | 2:A:2521:C:H5     | 1.95        | 0.78     |
| 2:A:2474:C:N4    | 2:A:2529:G:N2     | 2.32        | 0.78     |
| 2:A:2597:G:H2'   | 2:A:2598:A:H8     | 1.01        | 0.78     |
| 2:A:2603:G:C4    | 2:A:2604:U:C5     | 2.72        | 0.78     |
| 2:A:2607:G:C6    | 2:A:2608:G:C2     | 2.72        | 0.78     |
| 2:A:2626:C:C6    | 2:A:2626:C:C5'    | 2.62        | 0.78     |
| 2:A:2769:C:O2    | 2:A:2770:G:O4'    | 2.01        | 0.78     |
| 3:D:143:ILE:CD1  | 3:D:143:ILE:H     | 1.81        | 0.78     |
| 4:E:81:VAL:CG1   | 4:E:100:TRP:HZ3   | 1.96        | 0.78     |
| 7:H:95:ALA:O     | 7:H:127:GLN:HB2   | 1.83        | 0.78     |
| 10:O:103:ALA:HB3 | 10:O:105:GLU:HG2  | 1.66        | 0.78     |
| 11:P:66:VAL:HB   | 11:P:67:ARG:NH1   | 1.97        | 0.78     |
| 12:Q:56:ILE:HD11 | 12:Q:115:SER:H    | 1.47        | 0.78     |
| 12:Q:56:ILE:O    | 12:Q:61:LEU:HD11  | 1.82        | 0.78     |
| 19:R:18:LEU:O    | 19:R:19:ALA:C     | 2.22        | 0.78     |
| 19:R:63:ARG:HH21 | 19:R:77:ARG:CG    | 1.95        | 0.78     |
| 20:U:59:ARG:O    | 20:U:62:ILE:CA    | 2.31        | 0.78     |
| 20:U:102:GLU:HB2 | 21:V:43:GLU:OE2   | 1.84        | 0.78     |
| 15:W:81:ALA:HB1  | 15:W:97:LYS:HD2   | 1.63        | 0.78     |
| 22:2:6:GLN:HA    | 22:2:9:ARG:HB3    | 1.66        | 0.78     |
| 2:A:545(A):A:N7  | 2:A:1546:C:C2     | 2.52        | 0.78     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1805:U:C5'   | 3:D:235:PRO:CB   | 2.62        | 0.78     |
| 24:0:14:ARG:C    | 24:0:14:ARG:HD2  | 2.01        | 0.78     |
| 2:A:2261:C:P     | 24:0:14:ARG:HG2  | 2.23        | 0.78     |
| 23:3:15:TYR:HB3  | 23:3:16:PRO:HD2  | 1.64        | 0.78     |
| 2:A:1365:A:OP2   | 25:4:3:LYS:HD2   | 1.84        | 0.78     |
| 2:A:458:G:H5'    | 28:7:39:ARG:HD3  | 1.64        | 0.78     |
| 2:A:2263:C:H2'   | 2:A:2264:C:H5'   | 1.66        | 0.78     |
| 2:A:2395:C:C3'   | 2:A:2395:C:C6    | 2.67        | 0.78     |
| 2:A:2603:G:N3    | 2:A:2604:U:H6    | 1.80        | 0.78     |
| 2:A:2604:U:C2    | 2:A:2605:U:C5    | 2.71        | 0.78     |
| 2:A:2652:C:H5    | 2:A:2653:U:C4    | 2.01        | 0.78     |
| 2:A:2657:A:H2'   | 2:A:2658:C:H5'   | 1.65        | 0.78     |
| 2:A:2716:U:C2'   | 2:A:2717:G:C5'   | 2.60        | 0.78     |
| 2:A:2810:A:C8    | 2:A:2811:G:N9    | 2.52        | 0.78     |
| 2:A:2789:C:O2'   | 2:A:2893:G:N2    | 2.16        | 0.78     |
| 2:A:338:G:C8     | 17:Y:21:LYS:HB3  | 2.19        | 0.78     |
| 2:A:995:C:H1'    | 20:U:57:PHE:CE2  | 2.17        | 0.78     |
| 3:D:143:ILE:HD13 | 3:D:153:LEU:H    | 1.49        | 0.78     |
| 3:D:196:ASN:CA   | 3:D:199:ARG:HD3  | 2.14        | 0.78     |
| 4:E:189:MET:O    | 4:E:190:ASN:OD1  | 2.00        | 0.78     |
| 4:E:45:LYS:HZ2   | 4:E:303:PRO:C    | 1.81        | 0.78     |
| 12:Q:156:ASN:OD1 | 12:Q:156:ASN:O   | 2.01        | 0.78     |
| 19:R:80:PHE:O    | 19:R:84:ALA:CB   | 2.32        | 0.78     |
| 20:U:83:LEU:O    | 20:U:86:ALA:HB2  | 1.84        | 0.78     |
| 20:U:102:GLU:CB  | 21:V:43:GLU:OE2  | 2.32        | 0.78     |
| 15:W:16:LYS:O    | 15:W:17:VAL:C    | 2.22        | 0.78     |
| 15:W:20:VAL:HG13 | 15:W:47:VAL:HG21 | 1.61        | 0.78     |
| 15:W:68:ARG:C    | 15:W:69:LEU:HD23 | 2.04        | 0.78     |
| 18:Z:42:ALA:O    | 18:Z:45:GLN:N    | 2.17        | 0.78     |
| 18:Z:71:MET:HG3  | 18:Z:78:PRO:HG3  | 1.65        | 0.78     |
| 8:I:89:LEU:HD11  | 8:I:93:ILE:HG21  | 1.66        | 0.78     |
| 2:A:280:C:O2     | 2:A:283:A:C6     | 2.37        | 0.78     |
| 2:A:2355:C:C3'   | 24:0:21:LEU:CD1  | 2.54        | 0.78     |
| 24:0:24:LYS:CG   | 24:0:56:ASP:OD1  | 2.32        | 0.78     |
| 23:3:8:LEU:CA    | 23:3:54:VAL:HG11 | 2.11        | 0.78     |
| 23:3:8:LEU:HD23  | 23:3:31:LEU:C    | 1.98        | 0.78     |
| 25:4:14:ILE:C    | 25:4:15:ILE:HD12 | 2.05        | 0.78     |
| 2:A:2433:A:C2    | 25:4:32:HIS:CE1  | 2.71        | 0.78     |
| 28:7:43:THR:HA   | 28:7:46:ASP:CG   | 2.04        | 0.78     |
| 2:A:1027:A:H61   | 2:A:1126:A:H1'   | 1.48        | 0.78     |
| 2:A:1240:U:H3'   | 2:A:1241:A:C8    | 2.18        | 0.78     |
| 2:A:2318:G:O5'   | 2:A:2318:G:C8    | 2.37        | 0.78     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:631:A:C2     | 2:A:2415:G:N2    | 2.51        | 0.78     |
| 2:A:2545:G:O2'   | 2:A:2546:U:H5'   | 1.83        | 0.78     |
| 2:A:2618:G:HO2'  | 2:A:2619:C:P     | 2.06        | 0.78     |
| 2:A:2652:C:H42   | 2:A:2668:G:H1    | 1.29        | 0.78     |
| 2:A:2722:G:H2'   | 2:A:2723:C:C6    | 2.17        | 0.78     |
| 2:A:2827:C:H2'   | 2:A:2827:C:O2    | 1.84        | 0.78     |
| 2:A:746:A:O5'    | 2:A:2612:C:C5    | 2.37        | 0.78     |
| 2:A:974(A):C:H1' | 2:A:989:G:N2     | 1.98        | 0.78     |
| 4:E:218:GLY:C    | 4:E:219:VAL:HG23 | 2.03        | 0.78     |
| 4:E:205:THR:CA   | 4:E:261:ARG:HD2  | 2.08        | 0.78     |
| 4:E:62:ARG:C     | 4:E:63:GLU:HG3   | 2.04        | 0.78     |
| 5:F:30:LEU:O     | 5:F:31:ILE:O     | 2.01        | 0.78     |
| 6:G:56:ARG:CG    | 6:G:65:GLU:CB    | 2.60        | 0.78     |
| 6:G:29:HIS:HE1   | 6:G:64:ARG:CZ    | 1.97        | 0.78     |
| 6:G:93:LEU:HD21  | 6:G:106:PHE:CD2  | 2.16        | 0.78     |
| 7:H:121:GLU:CD   | 7:H:121:GLU:N    | 2.37        | 0.78     |
| 2:A:1665:A:C4'   | 10:O:66:LYS:CD   | 2.62        | 0.78     |
| 10:O:66:LYS:C    | 10:O:66:LYS:CD   | 2.52        | 0.78     |
| 19:R:60:LEU:CG   | 19:R:61:HIS:N    | 2.45        | 0.78     |
| 13:S:35:VAL:HG11 | 13:S:37:ARG:CZ   | 2.13        | 0.78     |
| 13:S:72:GLU:CB   | 13:S:74:PRO:HD2  | 2.12        | 0.78     |
| 2:A:997:G:C5'    | 20:U:92:ARG:HH11 | 1.70        | 0.78     |
| 17:Y:14:ALA:CB   | 17:Y:15:PRO:HD2  | 2.12        | 0.78     |
| 3:D:232:VAL:O    | 3:D:232:VAL:CG2  | 2.27        | 0.78     |
| 2:A:1518:C:H3'   | 2:A:1519:G:C4'   | 2.14        | 0.78     |
| 24:O:36:ILE:H    | 24:O:68:VAL:HG22 | 1.49        | 0.78     |
| 26:5:11:THR:CG2  | 26:5:19:ARG:NH2  | 2.47        | 0.78     |
| 29:8:8:LYS:C     | 29:8:10:ALA:N    | 2.37        | 0.78     |
| 29:8:56:ALA:O    | 29:8:57:ARG:C    | 2.22        | 0.78     |
| 29:8:7:HIS:O     | 29:8:10:ALA:CB   | 2.29        | 0.78     |
| 2:A:1666:G:C4'   | 10:O:67:ARG:NH2  | 2.47        | 0.78     |
| 2:A:1994:C:OP1   | 4:E:227:ALA:HB1  | 1.84        | 0.78     |
| 2:A:2227:A:C6    | 2:A:2228:G:O6    | 2.37        | 0.78     |
| 2:A:2375:G:N1    | 2:A:2379:G:C6    | 2.52        | 0.78     |
| 2:A:2446:G:H5'   | 2:A:2446:G:C8    | 2.15        | 0.78     |
| 2:A:2584:U:C1'   | 2:A:2585:U:H5    | 1.97        | 0.78     |
| 2:A:2729:G:H2'   | 2:A:2730:C:O4'   | 1.83        | 0.78     |
| 2:A:2744:G:C4    | 2:A:2761:G:N2    | 2.52        | 0.78     |
| 2:A:328:U:O2'    | 17:Y:94:SER:HB2  | 1.83        | 0.78     |
| 2:A:341:G:H2'    | 2:A:342:G:O4'    | 1.83        | 0.78     |
| 3:D:162:GLN:OE1  | 3:D:174:ARG:HB3  | 1.84        | 0.78     |
| 4:E:79:ARG:C     | 4:E:187:HIS:CE1  | 2.50        | 0.78     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:F:231:ARG:C    | 5:F:232:LEU:HD23  | 2.02        | 0.78     |
| 5:F:167:ASP:HB3  | 5:F:232:LEU:H     | 1.48        | 0.78     |
| 5:F:32:GLY:O     | 5:F:35:VAL:CB     | 2.32        | 0.78     |
| 9:N:20:GLY:O     | 9:N:21:ARG:C      | 2.22        | 0.78     |
| 10:O:101:PRO:CB  | 10:O:122:ILE:CD1  | 2.54        | 0.78     |
| 10:O:17:ARG:NH2  | 10:O:47:THR:HA    | 1.99        | 0.78     |
| 13:S:100:ALA:H   | 13:S:127:LEU:HD21 | 1.49        | 0.78     |
| 20:U:99:ALA:HA   | 20:U:106:PHE:CB   | 1.88        | 0.78     |
| 20:U:68:GLY:O    | 20:U:70:ARG:N     | 2.17        | 0.78     |
| 2:A:104:U:O4     | 17:Y:17:HIS:CE1   | 2.36        | 0.78     |
| 17:Y:31:LEU:HD13 | 17:Y:101:LEU:CB   | 2.13        | 0.78     |
| 2:A:875:G:OP1    | 18:Z:146:HIS:CD2  | 2.37        | 0.78     |
| 18:Z:151:ASP:HB3 | 18:Z:153:LYS:HZ2  | 1.46        | 0.78     |
| 18:Z:40:ASP:OD2  | 18:Z:41:ARG:NH2   | 2.16        | 0.78     |
| 2:A:1566:A:N3    | 3:D:212:HIS:HA    | 1.99        | 0.78     |
| 2:A:94:G:O3'     | 22:2:41:GLU:OE2   | 2.02        | 0.78     |
| 23:3:8:LEU:HD23  | 23:3:32:GLN:N     | 1.96        | 0.77     |
| 29:8:19:THR:HB   | 29:8:21:LYS:HZ2   | 1.45        | 0.77     |
| 29:8:5:LYS:O     | 29:8:7:HIS:ND1    | 2.17        | 0.77     |
| 2:A:1029:A:C3'   | 2:A:1030:G:O5'    | 2.31        | 0.77     |
| 2:A:1993:U:H4'   | 4:E:228:ARG:HH21  | 1.49        | 0.77     |
| 2:A:2264:C:C4    | 2:A:2277:G:C6     | 2.72        | 0.77     |
| 2:A:2286:A:H1'   | 2:A:2346:A:H61    | 1.48        | 0.77     |
| 2:A:2479:G:H2'   | 2:A:2480:C:O5'    | 1.84        | 0.77     |
| 2:A:2674:G:C2'   | 2:A:2675:A:H8     | 1.94        | 0.77     |
| 2:A:2700:C:C3'   | 2:A:2701:C:C5'    | 2.58        | 0.77     |
| 2:A:2762:G:N7    | 2:A:2763:G:C5     | 2.51        | 0.77     |
| 2:A:2827:C:O2'   | 2:A:2828:C:H5'    | 1.83        | 0.77     |
| 2:A:2850:A:C4    | 2:A:2851:A:N7     | 2.52        | 0.77     |
| 3:D:129:LEU:HB3  | 3:D:130:PRO:HD2   | 1.66        | 0.77     |
| 3:D:146:LYS:HD2  | 3:D:147:PRO:CD    | 2.07        | 0.77     |
| 3:D:158:GLY:CA   | 3:D:194:VAL:HG21  | 2.13        | 0.77     |
| 3:D:106:PRO:C    | 3:D:194:VAL:O     | 2.21        | 0.77     |
| 4:E:105:HIS:H    | 4:E:108:LEU:HD12  | 1.49        | 0.77     |
| 4:E:240:PRO:HB2  | 4:E:243:PRO:CG    | 2.13        | 0.77     |
| 2:A:2315:G:C5'   | 6:G:133:ASN:HD22  | 1.96        | 0.77     |
| 9:N:87:LEU:CB    | 9:N:88:PRO:CD     | 2.60        | 0.77     |
| 10:O:10:VAL:CG2  | 10:O:16:ALA:HB3   | 2.11        | 0.77     |
| 19:R:18:LEU:HD13 | 19:R:19:ALA:N     | 1.99        | 0.77     |
| 19:R:91:GLN:O    | 19:R:92:GLY:O     | 2.02        | 0.77     |
| 13:S:20:TYR:CE2  | 13:S:21:HIS:HD2   | 1.95        | 0.77     |
| 20:U:59:ARG:O    | 20:U:62:ILE:HB    | 1.82        | 0.77     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 21:V:19:VAL:O    | 21:V:21:ARG:HG2   | 1.83        | 0.77     |
| 21:V:91:THR:O    | 21:V:92:ALA:HB3   | 1.56        | 0.77     |
| 15:W:25:ARG:HG2  | 15:W:26:GLY:H     | 1.49        | 0.77     |
| 17:Y:92:ASP:O    | 17:Y:94:SER:N     | 2.17        | 0.77     |
| 18:Z:107:GLU:CD  | 18:Z:107:GLU:H    | 1.87        | 0.77     |
| 16:X:14:ALA:HB1  | 16:X:18:MET:CE    | 2.13        | 0.77     |
| 16:X:18:MET:SD   | 16:X:24:LEU:HA    | 2.24        | 0.77     |
| 2:A:176:G:H3'    | 2:A:177:G:C8      | 2.18        | 0.77     |
| 2:A:7:G:H5'      | 9:N:6:PHE:CD2     | 2.18        | 0.77     |
| 2:A:1082:U:OP1   | 31:K:123:ALA:CB   | 2.20        | 0.77     |
| 2:A:1277:G:N3    | 19:R:23:ASN:ND2   | 2.32        | 0.77     |
| 2:A:2094:G:C6    | 2:A:2196:C:N4     | 2.46        | 0.77     |
| 2:A:2189:U:HO2'  | 2:A:2190:G:H8     | 1.28        | 0.77     |
| 2:A:2398:U:H3'   | 2:A:2398:U:C6     | 2.19        | 0.77     |
| 2:A:2556:C:C3'   | 2:A:2557:G:H5'    | 2.09        | 0.77     |
| 2:A:2762:G:C5    | 2:A:2763:G:C6     | 2.72        | 0.77     |
| 2:A:2769:C:O2'   | 2:A:2770:G:O5'    | 2.02        | 0.77     |
| 1:B:43:C:H1'     | 6:G:47:GLN:CD     | 2.03        | 0.77     |
| 5:F:225:PRO:O    | 5:F:231:ARG:HG2   | 1.73        | 0.77     |
| 8:I:13:GLY:CA    | 8:I:15:LYS:HZ1    | 1.93        | 0.77     |
| 10:O:63:VAL:CG1  | 10:O:102:VAL:HG11 | 1.88        | 0.77     |
| 19:R:28:LEU:CD1  | 19:R:32:GLY:HA2   | 2.14        | 0.77     |
| 21:V:21:ARG:O    | 21:V:92:ALA:HB1   | 1.83        | 0.77     |
| 15:W:14:PRO:HD3  | 15:W:99:ARG:O     | 1.83        | 0.77     |
| 15:W:15:ARG:O    | 15:W:18:ARG:HB2   | 1.84        | 0.77     |
| 17:Y:101:LEU:CD1 | 17:Y:112:LEU:HD12 | 2.15        | 0.77     |
| 17:Y:31:LEU:CD1  | 17:Y:113:GLU:OE1  | 2.26        | 0.77     |
| 17:Y:14:ALA:HB1  | 17:Y:15:PRO:HD3   | 1.66        | 0.77     |
| 2:A:337:C:P      | 17:Y:24:ARG:CB    | 2.70        | 0.77     |
| 17:Y:73:HIS:CD2  | 17:Y:88:PRO:HB2   | 2.17        | 0.77     |
| 18:Z:149:ALA:O   | 18:Z:152:ILE:CG1  | 2.27        | 0.77     |
| 18:Z:37:LYS:CG   | 18:Z:41:ARG:NH1   | 2.44        | 0.77     |
| 2:A:1339:G:H5'   | 16:X:13:LYS:HZ1   | 1.49        | 0.77     |
| 8:I:134:HIS:CG   | 8:I:135:PRO:HD2   | 2.19        | 0.77     |
| 2:A:476:G:N2     | 2:A:478:A:H2'     | 1.99        | 0.77     |
| 25:4:35:VAL:CG1  | 25:4:36:TRP:H     | 1.95        | 0.77     |
| 2:A:2392:A:C2'   | 2:A:2393:A:C5'    | 2.59        | 0.77     |
| 2:A:2246:G:H1'   | 2:A:2426:A:H2     | 1.49        | 0.77     |
| 2:A:2436:G:O6    | 2:A:2437:U:C4     | 2.38        | 0.77     |
| 2:A:2464:C:C4    | 2:A:2487:G:N1     | 2.52        | 0.77     |
| 2:A:2654:A:H61   | 2:A:2667:C:H42    | 1.16        | 0.77     |
| 2:A:603:A:H2'    | 2:A:604:G:C8      | 2.19        | 0.77     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:674:G:H5'     | 5:F:69:HIS:HA     | 1.63        | 0.77     |
| 2:A:932:G:C5'     | 23:3:29:ARG:HH22  | 1.95        | 0.77     |
| 3:D:129:LEU:CD2   | 3:D:130:PRO:CD    | 2.61        | 0.77     |
| 3:D:80:ILE:HD13   | 3:D:82:TYR:CD1    | 2.18        | 0.77     |
| 4:E:214:VAL:HG22  | 4:E:221:LYS:CE    | 2.14        | 0.77     |
| 4:E:235:ILE:CG2   | 4:E:236:GLY:N     | 2.47        | 0.77     |
| 4:E:44:TYR:HE1    | 4:E:308:VAL:HG13  | 1.48        | 0.77     |
| 5:F:196:THR:CA    | 5:F:236:THR:HG21  | 2.11        | 0.77     |
| 6:G:38:GLU:CB     | 6:G:41:LEU:HD12   | 2.14        | 0.77     |
| 6:G:97:GLN:O      | 6:G:104:PHE:HB3   | 1.85        | 0.77     |
| 6:G:98:PHE:HA     | 6:G:104:PHE:HD2   | 0.90        | 0.77     |
| 7:H:84:LYS:CG     | 7:H:140:VAL:HG12  | 2.14        | 0.77     |
| 7:H:84:LYS:O      | 7:H:131:ILE:CG2   | 2.32        | 0.77     |
| 7:H:84:LYS:O      | 7:H:131:ILE:HG22  | 1.84        | 0.77     |
| 7:H:93:TYR:C      | 7:H:94:ARG:CG     | 2.46        | 0.77     |
| 8:I:43:ASN:ND2    | 8:I:43:ASN:H      | 1.81        | 0.77     |
| 10:O:77:ILE:CD1   | 10:O:78:ARG:CA    | 2.53        | 0.77     |
| 12:Q:82:LYS:HG2   | 12:Q:84:ARG:HG3   | 1.65        | 0.77     |
| 19:R:83:ILE:O     | 19:R:84:ALA:C     | 2.22        | 0.77     |
| 13:S:128:ASP:O    | 13:S:129:ILE:HG12 | 1.84        | 0.77     |
| 13:S:32:PRO:HD2   | 13:S:100:ALA:HA   | 1.64        | 0.77     |
| 20:U:33:ARG:HG2   | 20:U:34:ASN:H     | 1.48        | 0.77     |
| 17:Y:73:HIS:HE1   | 17:Y:90:PRO:HA    | 1.49        | 0.77     |
| 18:Z:172:LEU:HD23 | 18:Z:173:PRO:CA   | 2.13        | 0.77     |
| 2:A:1906:G:C4     | 2:A:1929:G:C6     | 2.72        | 0.77     |
| 24:O:36:ILE:O     | 24:O:37:LEU:CG    | 2.32        | 0.77     |
| 2:A:989:G:N7      | 23:3:13:ILE:HD12  | 1.99        | 0.77     |
| 2:A:2195:C:C6     | 2:A:2195:C:P      | 2.77        | 0.77     |
| 2:A:2570:G:C2'    | 2:A:2570:G:N3     | 2.47        | 0.77     |
| 2:A:2747:G:H2'    | 2:A:2748:A:H5''   | 1.65        | 0.77     |
| 2:A:2887:U:O2     | 2:A:2888:C:C6     | 2.37        | 0.77     |
| 2:A:602:G:H2'     | 2:A:655:A:C2      | 2.19        | 0.77     |
| 4:E:189:MET:C     | 4:E:190:ASN:OD1   | 2.22        | 0.77     |
| 4:E:222:ARG:HD3   | 4:E:233:ARG:N     | 1.98        | 0.77     |
| 5:F:239:ALA:O     | 5:F:242:GLU:N     | 2.13        | 0.77     |
| 5:F:30:LEU:O      | 5:F:33:LYS:HB2    | 1.85        | 0.77     |
| 2:A:590:A:H5''    | 5:F:97:ASP:HB2    | 1.66        | 0.77     |
| 9:N:58:GLU:CG     | 9:N:61:VAL:HG21   | 2.14        | 0.77     |
| 10:O:21:VAL:HA    | 10:O:41:ALA:CB    | 2.12        | 0.77     |
| 11:P:120:LEU:CD1  | 11:P:122:ALA:HB2  | 2.15        | 0.77     |
| 19:R:41:ALA:HB1   | 19:R:114:VAL:CG2  | 2.14        | 0.77     |
| 2:A:2378:A:C2     | 13:S:26:LEU:HD23  | 2.18        | 0.77     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 13:S:87:LEU:O     | 13:S:88:ALA:C    | 2.23        | 0.77     |
| 14:T:24:LYS:O     | 14:T:25:ASP:HB2  | 1.82        | 0.77     |
| 20:U:15:LYS:O     | 20:U:16:LYS:C    | 2.22        | 0.77     |
| 2:A:1791:A:O2'    | 3:D:204:PHE:HB2  | 1.83        | 0.77     |
| 16:X:13:LYS:CA    | 16:X:16:ASN:OD1  | 2.32        | 0.77     |
| 16:X:33:SER:O     | 16:X:37:VAL:CG2  | 2.33        | 0.77     |
| 2:A:358:U:H3'     | 2:A:359:A:H5'    | 1.65        | 0.77     |
| 2:A:300:A:O2'     | 2:A:318:C:H1'    | 1.84        | 0.77     |
| 24:0:37:LEU:HD13  | 24:0:69:PHE:CB   | 2.09        | 0.77     |
| 23:3:4:LEU:O      | 23:3:36:VAL:CA   | 2.33        | 0.77     |
| 27:6:40:TYR:N     | 27:6:50:PHE:CD1  | 2.53        | 0.77     |
| 29:8:58:MET:O     | 29:8:61:MET:N    | 2.18        | 0.77     |
| 2:A:2040:C:H4'    | 9:N:69:TYR:HE2   | 1.49        | 0.77     |
| 2:A:2264:C:C4     | 2:A:2277:G:O6    | 2.38        | 0.77     |
| 2:A:2403:C:O2     | 2:A:2403:C:C2'   | 2.32        | 0.77     |
| 2:A:2470:G:O6     | 2:A:2481:G:C2    | 2.38        | 0.77     |
| 2:A:2532:G:H8     | 2:A:2532:G:H5'   | 1.46        | 0.77     |
| 2:A:2543:G:H2'    | 2:A:2544:G:H5'   | 1.66        | 0.77     |
| 2:A:2051:A:N7     | 2:A:2614:A:C5    | 2.52        | 0.77     |
| 2:A:2739:U:C6     | 2:A:2739:U:H3'   | 2.18        | 0.77     |
| 1:B:116:G:H4'     | 13:S:64:SER:OG   | 1.85        | 0.77     |
| 3:D:129:LEU:HD22  | 3:D:130:PRO:CD   | 2.14        | 0.77     |
| 5:F:150:THR:HG23  | 5:F:203:ALA:HB1  | 1.66        | 0.77     |
| 8:I:2:LYS:HD2     | 8:I:39:ALA:HB2   | 1.67        | 0.77     |
| 9:N:39:VAL:HA     | 9:N:103:VAL:CG1  | 2.14        | 0.77     |
| 12:Q:133:GLU:C    | 12:Q:133:GLU:CD  | 2.42        | 0.77     |
| 12:Q:136:TRP:O    | 12:Q:139:ALA:CB  | 2.33        | 0.77     |
| 2:A:2278:A:OP1    | 12:Q:20:ILE:HG22 | 1.83        | 0.77     |
| 13:S:34:LEU:HD21  | 13:S:102:LEU:CA  | 2.15        | 0.77     |
| 13:S:76:GLY:C     | 13:S:82:TYR:HB2  | 2.04        | 0.77     |
| 20:U:28:ARG:N     | 20:U:31:GLN:OE1  | 2.18        | 0.77     |
| 20:U:54:LYS:O     | 20:U:58:ARG:HG3  | 1.85        | 0.77     |
| 15:W:14:PRO:CD    | 15:W:99:ARG:O    | 2.33        | 0.77     |
| 18:Z:154:LEU:HD13 | 18:Z:160:LEU:CD1 | 2.12        | 0.77     |
| 8:I:114:LYS:O     | 8:I:115:ILE:O    | 2.03        | 0.77     |
| 8:I:94:THR:HG21   | 8:I:96:LYS:HB3   | 1.63        | 0.77     |
| 17:Y:5:ASP:O      | 17:Y:9:LYS:HD3   | 1.83        | 0.77     |
| 24:0:44:LYS:C     | 24:0:45:PHE:CD1  | 2.58        | 0.77     |
| 2:A:989:G:C8      | 23:3:13:ILE:CD1  | 2.66        | 0.77     |
| 2:A:1652:A:N6     | 2:A:1653:G:H21   | 1.83        | 0.77     |
| 2:A:1665:A:H4'    | 10:O:66:LYS:HZ2  | 1.49        | 0.77     |
| 2:A:2065:C:H42    | 2:A:2445:G:H1    | 1.31        | 0.77     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2584:U:C1'   | 2:A:2585:U:C5    | 2.67        | 0.77     |
| 2:A:2637:U:O2    | 2:A:2782:G:N2    | 2.18        | 0.77     |
| 2:A:2805:G:C3'   | 2:A:2807:G:P     | 2.73        | 0.77     |
| 2:A:2812:G:O2'   | 2:A:2813:A:C5'   | 2.32        | 0.77     |
| 2:A:458:G:H5''   | 28:7:39:ARG:CD   | 2.03        | 0.77     |
| 2:A:828:U:H2'    | 2:A:829:A:C8     | 2.20        | 0.77     |
| 3:D:106:PRO:HG3  | 3:D:141:HIS:CD2  | 2.20        | 0.77     |
| 3:D:71:ASP:C     | 3:D:73:ILE:H     | 1.86        | 0.77     |
| 5:F:141:SER:OG   | 5:F:144:PHE:CD1  | 2.38        | 0.77     |
| 7:H:162:ARG:HB3  | 7:H:166:GLU:HG3  | 1.64        | 0.77     |
| 9:N:103:VAL:O    | 9:N:104:TYR:CG   | 2.37        | 0.77     |
| 10:O:75:SER:O    | 10:O:76:TYR:CD1  | 2.38        | 0.77     |
| 11:P:66:VAL:CG2  | 11:P:67:ARG:NH2  | 2.07        | 0.77     |
| 12:Q:48:ASN:C    | 12:Q:48:ASN:OD1  | 2.23        | 0.77     |
| 19:R:33:ARG:CA   | 19:R:114:VAL:O   | 2.29        | 0.77     |
| 20:U:99:ALA:CB   | 20:U:106:PHE:CG  | 2.41        | 0.77     |
| 17:Y:43:ASN:ND2  | 17:Y:112:LEU:CD2 | 2.46        | 0.77     |
| 2:A:876:C:H5'    | 18:Z:165:GLU:OE2 | 1.85        | 0.77     |
| 22:2:45:ARG:O    | 22:2:46:ILE:C    | 2.22        | 0.77     |
| 2:A:131:G:N2     | 2:A:149:A:N1     | 2.32        | 0.77     |
| 2:A:148:C:H3'    | 2:A:149:A:P      | 2.25        | 0.77     |
| 16:X:23:LYS:HE2  | 16:X:67:ARG:NH1  | 1.99        | 0.77     |
| 2:A:2364:C:H1'   | 24:0:32:LYS:HZ2  | 1.46        | 0.77     |
| 24:0:41:ARG:O    | 24:0:74:LYS:HE2  | 1.84        | 0.77     |
| 2:A:2331:G:C2'   | 24:0:70:ILE:HG21 | 2.12        | 0.77     |
| 23:3:9:VAL:H     | 23:3:54:VAL:CG1  | 1.97        | 0.77     |
| 25:4:14:ILE:CG2  | 25:4:16:TYR:HE1  | 1.97        | 0.77     |
| 28:7:35:ARG:O    | 28:7:36:ALA:O    | 2.03        | 0.77     |
| 2:A:2023:G:C5'   | 2:A:2617:C:O2'   | 2.33        | 0.77     |
| 2:A:2350:C:O2'   | 2:A:2351:G:O5'   | 2.01        | 0.77     |
| 2:A:2352:A:N7    | 2:A:2366:A:C6    | 2.52        | 0.77     |
| 2:A:2421:G:P     | 27:6:2:ALA:O     | 2.43        | 0.77     |
| 2:A:2068:U:O2    | 2:A:2430:A:N1    | 2.18        | 0.77     |
| 2:A:2454:G:H2'   | 2:A:2455:G:C5'   | 1.80        | 0.77     |
| 2:A:2618:G:C6    | 2:A:2619:C:H5    | 1.96        | 0.77     |
| 2:A:2646:C:H2'   | 2:A:2647:U:C5'   | 2.14        | 0.77     |
| 2:A:2717:G:O2'   | 2:A:2718:G:O5'   | 2.02        | 0.77     |
| 4:E:201:VAL:O    | 4:E:262:THR:OG1  | 2.03        | 0.77     |
| 4:E:87:GLU:C     | 4:E:94:ARG:H     | 1.86        | 0.77     |
| 7:H:89:VAL:HG12  | 7:H:159:LYS:HA   | 1.67        | 0.77     |
| 9:N:38:VAL:O     | 9:N:39:VAL:HG22  | 1.85        | 0.77     |
| 10:O:64:ARG:HH22 | 10:O:100:GLY:HA3 | 1.42        | 0.77     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:P:102:ASP:O   | 11:P:103:ALA:CB   | 2.33        | 0.77     |
| 12:Q:46:VAL:O    | 12:Q:124:ALA:N    | 2.18        | 0.77     |
| 12:Q:28:ILE:HG12 | 12:Q:62:GLU:OE2   | 1.84        | 0.77     |
| 12:Q:65:ARG:NH2  | 12:Q:85:ILE:CB    | 2.47        | 0.77     |
| 13:S:38:LYS:HG2  | 13:S:106:LEU:HD12 | 1.65        | 0.77     |
| 20:U:25:TRP:C    | 20:U:28:ARG:NH1   | 2.38        | 0.77     |
| 21:V:63:HIS:HA   | 21:V:95:ILE:HG13  | 1.66        | 0.77     |
| 17:Y:31:LEU:HD13 | 17:Y:113:GLU:CD   | 2.04        | 0.77     |
| 8:I:82:LYS:HE3   | 8:I:149:LYS:O     | 1.85        | 0.77     |
| 12:Q:94:ARG:NH2  | 12:Q:105:PHE:O    | 2.18        | 0.77     |
| 2:A:283:A:C2     | 2:A:360:G:C2      | 2.73        | 0.77     |
| 15:W:21:VAL:CG2  | 15:W:22:ASP:H     | 1.98        | 0.77     |
| 2:A:477:A:H2'    | 2:A:478:A:C8      | 2.20        | 0.77     |
| 2:A:2262:U:P     | 24:O:14:ARG:NH2   | 2.58        | 0.77     |
| 2:A:197:A:N6     | 2:A:248:G:H22     | 1.83        | 0.77     |
| 2:A:2322:A:C5    | 2:A:2323:G:N7     | 2.52        | 0.77     |
| 2:A:2385:C:H2'   | 2:A:2386:C:H5''   | 1.65        | 0.77     |
| 2:A:2446:G:C5'   | 2:A:2446:G:H8     | 1.95        | 0.77     |
| 2:A:2481:G:O2'   | 2:A:2482:G:H5'    | 1.85        | 0.77     |
| 2:A:2494:G:N1    | 2:A:2495:G:N7     | 2.32        | 0.77     |
| 2:A:2517:C:C4    | 2:A:2542:A:C6     | 2.73        | 0.77     |
| 2:A:2645:G:H3'   | 2:A:2646:C:H5'    | 1.67        | 0.77     |
| 2:A:2679:A:C6    | 2:A:2680:C:C5     | 2.72        | 0.77     |
| 2:A:2808:U:N3    | 2:A:2892:A:N7     | 2.33        | 0.77     |
| 2:A:772:C:H2'    | 2:A:773:U:C6      | 2.19        | 0.77     |
| 4:E:199:ALA:HB2  | 4:E:312:ARG:O     | 1.85        | 0.77     |
| 5:F:51:TYR:C     | 5:F:55:ARG:CB     | 2.45        | 0.77     |
| 2:A:674:G:O3'    | 5:F:69:HIS:C      | 2.23        | 0.77     |
| 5:F:6:TYR:HE2    | 5:F:140:VAL:CG2   | 1.97        | 0.77     |
| 8:I:6:LEU:HD12   | 8:I:35:LEU:HA     | 1.67        | 0.77     |
| 9:N:15:ARG:NH1   | 9:N:40:ASN:HA     | 2.00        | 0.77     |
| 10:O:63:VAL:HG11 | 10:O:102:VAL:CG2  | 2.15        | 0.77     |
| 12:Q:46:VAL:CA   | 12:Q:124:ALA:O    | 2.33        | 0.77     |
| 19:R:87:TYR:CD1  | 19:R:94:TYR:HD2   | 2.00        | 0.77     |
| 20:U:49:ASP:HA   | 20:U:52:ASN:HD22  | 0.75        | 0.77     |
| 21:V:49:GLU:O    | 21:V:54:TYR:CE1   | 2.37        | 0.77     |
| 21:V:50:ASP:CG   | 21:V:53:LYS:HE3   | 2.04        | 0.77     |
| 21:V:60:VAL:C    | 21:V:98:ILE:HD12  | 2.05        | 0.77     |
| 17:Y:55:PHE:CD2  | 17:Y:89:ARG:NH1   | 2.36        | 0.77     |
| 18:Z:168:VAL:C   | 18:Z:169:VAL:HG23 | 2.01        | 0.77     |
| 18:Z:53:ASP:CB   | 18:Z:62:PHE:O     | 2.33        | 0.77     |
| 24:O:41:ARG:N    | 24:O:67:VAL:HG22  | 1.99        | 0.77     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 23:3:6:VAL:HG23  | 23:3:55:ARG:O     | 1.85        | 0.77     |
| 25:4:68:ARG:HG2  | 25:4:72:LYS:HA    | 1.67        | 0.77     |
| 27:6:16:ALA:HB2  | 27:6:50:PHE:HE2   | 1.50        | 0.77     |
| 2:A:1993:U:H4'   | 4:E:228:ARG:NH2   | 1.99        | 0.77     |
| 2:A:2264:C:N4    | 2:A:2277:G:O6     | 2.17        | 0.77     |
| 2:A:2403:C:N3    | 2:A:2414:G:N2     | 2.32        | 0.77     |
| 2:A:2436:G:O2'   | 2:A:2437:U:O5'    | 2.03        | 0.77     |
| 2:A:2561:A:HO2'  | 10:O:40:VAL:CG1   | 1.87        | 0.77     |
| 2:A:2579:C:H5''  | 2:A:2579:C:H6     | 0.61        | 0.77     |
| 2:A:2584:U:C6    | 2:A:2585:U:H6     | 1.99        | 0.77     |
| 2:A:2544:G:H5'   | 2:A:2645:G:N7     | 1.98        | 0.77     |
| 2:A:2771:C:O2    | 2:A:2771:C:C2'    | 2.30        | 0.77     |
| 2:A:2825:C:C5    | 2:A:2825:C:OP2    | 2.38        | 0.77     |
| 2:A:326:G:H22    | 2:A:337:C:H1'     | 1.50        | 0.77     |
| 2:A:746:A:O2'    | 26:5:2:ALA:HB2    | 1.83        | 0.77     |
| 3:D:129:LEU:HB3  | 3:D:130:PRO:CD    | 2.15        | 0.77     |
| 4:E:308:VAL:CG1  | 4:E:310:PHE:CE1   | 2.68        | 0.77     |
| 4:E:312:ARG:C    | 4:E:314:ALA:N     | 2.38        | 0.77     |
| 4:E:48:MET:C     | 4:E:49:THR:CG2    | 2.53        | 0.77     |
| 5:F:237:GLU:C    | 5:F:239:ALA:N     | 2.37        | 0.77     |
| 5:F:84:VAL:CA    | 5:F:85:LYS:HD2    | 2.00        | 0.77     |
| 6:G:142:ALA:HB1  | 6:G:151:ILE:HD11  | 1.62        | 0.77     |
| 7:H:98:GLN:HB2   | 7:H:103:VAL:CG2   | 2.15        | 0.77     |
| 7:H:147:ILE:O    | 7:H:161:ILE:CD1   | 2.32        | 0.77     |
| 7:H:95:ALA:O     | 7:H:127:GLN:CA    | 2.32        | 0.77     |
| 9:N:27:ALA:C     | 9:N:30:ALA:HB3    | 2.05        | 0.77     |
| 10:O:88:ARG:O    | 10:O:90:ASP:OD1   | 2.03        | 0.77     |
| 12:Q:65:ARG:HH21 | 12:Q:122:PHE:HD2  | 1.26        | 0.77     |
| 6:G:146:LYS:CE   | 13:S:15:GLU:OE1   | 2.32        | 0.77     |
| 14:T:53:ASP:HA   | 14:T:56:ARG:HG2   | 1.64        | 0.77     |
| 20:U:91:ASN:O    | 20:U:95:LEU:CD1   | 2.33        | 0.77     |
| 2:A:1161:C:O4'   | 21:V:8:GLY:O      | 2.02        | 0.77     |
| 15:W:70:TYR:O    | 15:W:107:LEU:HD23 | 1.85        | 0.77     |
| 15:W:86:LEU:CB   | 15:W:87:PRO:CD    | 2.56        | 0.77     |
| 18:Z:69:VAL:O    | 18:Z:70:GLN:NE2   | 2.18        | 0.77     |
| 17:Y:9:LYS:HZ2   | 17:Y:13:ARG:NH2   | 1.82        | 0.77     |
| 25:4:14:ILE:HD12 | 25:4:16:TYR:CE1   | 2.20        | 0.77     |
| 25:4:17:GLN:HA   | 25:4:33:VAL:CB    | 2.14        | 0.77     |
| 2:A:2386:C:H4'   | 24:0:39:ARG:HH21  | 1.42        | 0.77     |
| 2:A:2415:G:C6    | 2:A:2416:C:H5     | 2.03        | 0.77     |
| 2:A:248:G:N2     | 2:A:2431:U:O4'    | 2.18        | 0.77     |
| 2:A:2822:G:P     | 4:E:258:TYR:CE2   | 2.77        | 0.77     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2846:G:H22   | 2:A:2869:G:H1     | 1.30        | 0.77     |
| 2:A:486:C:O2'    | 15:W:60:ASN:ND2   | 2.18        | 0.77     |
| 2:A:514:A:H2'    | 2:A:515:A:C8      | 2.20        | 0.77     |
| 2:A:520:G:P      | 15:W:25:ARG:HH21  | 2.08        | 0.77     |
| 4:E:74:GLU:O     | 4:E:75:THR:OG1    | 2.01        | 0.77     |
| 5:F:196:THR:C    | 5:F:236:THR:HG1   | 1.89        | 0.77     |
| 2:A:617:G:P      | 5:F:221:GLU:OE1   | 2.43        | 0.77     |
| 5:F:240:LEU:HD23 | 5:F:243:VAL:CG2   | 2.14        | 0.77     |
| 5:F:62:GLY:HA3   | 5:F:65:ARG:HH21   | 0.69        | 0.77     |
| 5:F:88:SER:O     | 5:F:89:ALA:CB     | 2.32        | 0.77     |
| 6:G:94:ALA:C     | 6:G:95:THR:HG1    | 1.88        | 0.77     |
| 9:N:39:VAL:HG12  | 9:N:104:TYR:N     | 1.99        | 0.77     |
| 11:P:94:ARG:CD   | 11:P:120:LEU:CB   | 2.63        | 0.77     |
| 11:P:94:ARG:CB   | 11:P:120:LEU:HD22 | 1.99        | 0.77     |
| 11:P:83:GLU:O    | 11:P:92:ASP:CA    | 2.33        | 0.77     |
| 12:Q:58:HIS:CB   | 12:Q:111:THR:O    | 2.21        | 0.77     |
| 19:R:81:ASP:O    | 19:R:85:PRO:HD2   | 1.85        | 0.77     |
| 20:U:80:ILE:N    | 20:U:83:LEU:HD12  | 2.00        | 0.77     |
| 2:A:974:G:H3'    | 21:V:82:ARG:CZ    | 2.15        | 0.77     |
| 2:A:138:G:H8     | 16:X:42:GLU:OE1   | 1.68        | 0.77     |
| 24:O:61:ALA:HB2  | 24:O:80:SER:HA    | 1.66        | 0.76     |
| 23:3:42:ALA:O    | 23:3:44:ARG:N     | 2.18        | 0.76     |
| 2:A:2400:G:C3'   | 27:6:20:PHE:CE1   | 2.68        | 0.76     |
| 2:A:2419:U:H5''  | 27:6:24:THR:HG22  | 1.66        | 0.76     |
| 2:A:2192:G:OP2   | 2:A:2192:G:H8     | 1.68        | 0.76     |
| 2:A:2356:C:C2'   | 2:A:2357:U:O5'    | 2.28        | 0.76     |
| 2:A:2454:G:O2'   | 2:A:2455:G:C5'    | 2.32        | 0.76     |
| 2:A:2678:C:O2'   | 2:A:2679:A:H5'    | 1.83        | 0.76     |
| 2:A:2772:C:C4    | 2:A:2773:C:N4     | 2.53        | 0.76     |
| 2:A:873:G:H4'    | 12:Q:32:LYS:CG    | 2.14        | 0.76     |
| 2:A:1993:U:O2'   | 4:E:224:GLY:HA3   | 1.84        | 0.76     |
| 5:F:210:ALA:O    | 5:F:211:ASP:CB    | 2.33        | 0.76     |
| 8:I:7:LYS:HG2    | 8:I:8:ASP:OD1     | 1.84        | 0.76     |
| 9:N:39:VAL:O     | 9:N:40:ASN:CB     | 2.33        | 0.76     |
| 10:O:111:PHE:O   | 10:O:113:LYS:N    | 2.17        | 0.76     |
| 2:A:1665:A:H1'   | 10:O:67:ARG:CD    | 2.14        | 0.76     |
| 10:O:75:SER:O    | 10:O:76:TYR:HD1   | 1.67        | 0.76     |
| 10:O:88:ARG:HG2  | 10:O:92:SER:O     | 1.84        | 0.76     |
| 12:Q:142:LYS:C   | 12:Q:143:VAL:HG22 | 2.06        | 0.76     |
| 19:R:111:LEU:O   | 19:R:112:ALA:HB2  | 1.85        | 0.76     |
| 19:R:33:ARG:HG3  | 19:R:33:ARG:O     | 1.85        | 0.76     |
| 20:U:47:TYR:CE1  | 21:V:75:LYS:O     | 2.34        | 0.76     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 20:U:47:TYR:O     | 20:U:49:ASP:N     | 2.17        | 0.76     |
| 21:V:2:PHE:HA     | 21:V:15:SER:HB3   | 1.67        | 0.76     |
| 15:W:104:THR:C    | 15:W:105:VAL:CG1  | 2.51        | 0.76     |
| 15:W:12:ILE:O     | 15:W:101:SER:OG   | 2.01        | 0.76     |
| 17:Y:11:GLN:HG3   | 17:Y:21:LYS:CE    | 2.14        | 0.76     |
| 18:Z:130:ILE:C    | 18:Z:130:ILE:HD12 | 2.03        | 0.76     |
| 18:Z:62:PHE:CG    | 18:Z:87:THR:CG2   | 2.68        | 0.76     |
| 2:A:1620:G:C1'    | 28:7:1:MET:H2     | 1.78        | 0.76     |
| 2:A:1078:U:OP1    | 31:K:93:LYS:CD    | 2.32        | 0.76     |
| 16:X:47:VAL:CB    | 16:X:69:SER:HB3   | 2.14        | 0.76     |
| 2:A:1906:G:C8     | 2:A:1929:G:C4     | 2.72        | 0.76     |
| 23:3:25:ALA:O     | 23:3:27:GLY:N     | 2.19        | 0.76     |
| 25:4:17:GLN:HA    | 25:4:33:VAL:HB    | 1.67        | 0.76     |
| 2:A:1367:A:C3'    | 28:7:25:LYS:HZ2   | 1.98        | 0.76     |
| 28:7:30:ILE:HA    | 28:7:33:ARG:CB    | 2.15        | 0.76     |
| 2:A:1270:C:O2'    | 2:A:1648:C:OP2    | 2.03        | 0.76     |
| 2:A:2049:G:N1     | 2:A:2620:C:C4     | 2.54        | 0.76     |
| 2:A:2209:C:O2'    | 2:A:2210:G:H8     | 1.69        | 0.76     |
| 2:A:2385:C:C2'    | 2:A:2386:C:H5''   | 2.15        | 0.76     |
| 2:A:2397:G:C6     | 2:A:2420:C:N3     | 2.52        | 0.76     |
| 2:A:2423:U:C6     | 2:A:2425:A:N7     | 2.54        | 0.76     |
| 2:A:2463:C:N3     | 2:A:2487:G:O6     | 2.18        | 0.76     |
| 2:A:2501:C:O2'    | 2:A:2502:G:OP2    | 2.02        | 0.76     |
| 2:A:2591:C:N4     | 2:A:2604:U:O4     | 2.18        | 0.76     |
| 2:A:2611:U:H3'    | 2:A:2611:U:H6     | 1.50        | 0.76     |
| 2:A:2648:C:N4     | 2:A:2672:G:H1     | 1.83        | 0.76     |
| 2:A:2688:U:H2'    | 2:A:2719:G:N2     | 2.00        | 0.76     |
| 3:D:92:LEU:HD12   | 3:D:102:TYR:CD1   | 2.19        | 0.76     |
| 2:A:2822:G:OP1    | 4:E:258:TYR:HE2   | 1.66        | 0.76     |
| 4:E:70:VAL:CG1    | 4:E:295:LEU:CD2   | 2.63        | 0.76     |
| 5:F:102:LEU:HB2   | 5:F:107:ARG:NH2   | 2.00        | 0.76     |
| 5:F:243:VAL:HA    | 5:F:246:ARG:HD2   | 0.81        | 0.76     |
| 7:H:166:GLU:OE2   | 7:H:166:GLU:HA    | 1.85        | 0.76     |
| 7:H:84:LYS:HG3    | 7:H:140:VAL:CG1   | 2.15        | 0.76     |
| 9:N:12:VAL:HG12   | 9:N:38:VAL:HG11   | 1.66        | 0.76     |
| 12:Q:50:VAL:CG1   | 12:Q:51:GLU:OE1   | 2.34        | 0.76     |
| 12:Q:57:ARG:O     | 12:Q:58:HIS:C     | 2.23        | 0.76     |
| 12:Q:87:LYS:O     | 12:Q:88:PHE:CB    | 2.33        | 0.76     |
| 17:Y:103:LEU:HD22 | 17:Y:108:ARG:C    | 2.04        | 0.76     |
| 18:Z:18:MET:C     | 18:Z:36:ARG:CG    | 2.52        | 0.76     |
| 2:A:1620:G:H1'    | 28:7:1:MET:H3     | 1.40        | 0.76     |
| 2:A:933:A:OP1     | 23:3:24:LYS:NZ    | 2.19        | 0.76     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 29:8:4:MET:HG2   | 29:8:5:LYS:H     | 1.51        | 0.76     |
| 2:A:1024:G:H5''  | 2:A:1025:G:H5''  | 1.64        | 0.76     |
| 2:A:1966:A:C2    | 2:A:2593:U:C4'   | 2.68        | 0.76     |
| 2:A:2363:C:O2'   | 2:A:2364:C:H5'   | 1.84        | 0.76     |
| 2:A:2472:G:H2'   | 2:A:2473:U:OP1   | 1.83        | 0.76     |
| 2:A:2604:U:O2    | 2:A:2604:U:H2'   | 1.85        | 0.76     |
| 2:A:2615:U:C2    | 26:5:7:PRO:HA    | 2.20        | 0.76     |
| 2:A:2635:C:HO2'  | 2:A:2636:U:P     | 2.07        | 0.76     |
| 2:A:2718:G:N3    | 2:A:2719:G:C8    | 2.53        | 0.76     |
| 2:A:2645:G:C4'   | 2:A:2732:G:O2'   | 2.29        | 0.76     |
| 2:A:2762:G:N7    | 2:A:2763:G:N7    | 2.33        | 0.76     |
| 2:A:307:G:H21    | 2:A:330:A:N6     | 1.83        | 0.76     |
| 2:A:296:C:N3     | 2:A:344:G:N2     | 2.34        | 0.76     |
| 2:A:38:A:H2'     | 2:A:39:C:C6      | 2.20        | 0.76     |
| 2:A:529:A:O2'    | 2:A:530:G:C8     | 2.36        | 0.76     |
| 2:A:531:C:H5'    | 2:A:532:A:N3     | 2.00        | 0.76     |
| 2:A:627:A:N6     | 2:A:636:G:O2'    | 2.19        | 0.76     |
| 2:A:674:G:H4'    | 5:F:69:HIS:HA    | 1.68        | 0.76     |
| 3:D:161:ALA:C    | 3:D:162:GLN:CD   | 2.43        | 0.76     |
| 3:D:70:LYS:CG    | 3:D:73:ILE:HD11  | 2.16        | 0.76     |
| 4:E:201:VAL:H    | 4:E:266:LYS:CE   | 1.98        | 0.76     |
| 4:E:70:VAL:CG1   | 4:E:71:THR:N     | 2.14        | 0.76     |
| 5:F:93:LYS:C     | 5:F:96:LYS:HE3   | 2.06        | 0.76     |
| 6:G:21:VAL:CG2   | 6:G:132:VAL:HG23 | 2.15        | 0.76     |
| 7:H:124:VAL:O    | 7:H:124:VAL:HG13 | 1.84        | 0.76     |
| 9:N:54:VAL:CA    | 9:N:135:ILE:HD12 | 2.15        | 0.76     |
| 10:O:17:ARG:HE   | 10:O:47:THR:HA   | 1.49        | 0.76     |
| 12:Q:41:THR:CG2  | 12:Q:125:TRP:CZ3 | 2.65        | 0.76     |
| 12:Q:76:GLY:C    | 12:Q:82:LYS:N    | 2.39        | 0.76     |
| 19:R:23:ASN:HA   | 19:R:26:LYS:HD2  | 1.67        | 0.76     |
| 19:R:79:LEU:CD2  | 19:R:79:LEU:O    | 2.17        | 0.76     |
| 13:S:75:THR:O    | 13:S:80:SER:N    | 2.18        | 0.76     |
| 20:U:111:ASP:O   | 20:U:112:ALA:C   | 2.23        | 0.76     |
| 8:I:108:LEU:HD23 | 8:I:108:LEU:C    | 2.05        | 0.76     |
| 2:A:1566:A:N6    | 3:D:212:HIS:CE1  | 2.54        | 0.76     |
| 22:2:50:ARG:CA   | 22:2:53:ILE:HD12 | 2.15        | 0.76     |
| 2:A:2354:G:HO2'  | 24:0:31:VAL:HG12 | 1.50        | 0.76     |
| 2:A:396:G:C2'    | 25:4:39:VAL:CG1  | 2.61        | 0.76     |
| 25:4:58:LYS:HG2  | 25:4:59:PHE:N    | 1.99        | 0.76     |
| 2:A:1751:C:O4'   | 2:A:2860:A:H2    | 1.64        | 0.76     |
| 2:A:2045:C:N4    | 2:A:2623:G:N1    | 2.22        | 0.76     |
| 2:A:2236:C:H3'   | 2:A:2237:G:H5'   | 1.68        | 0.76     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2359:C:HO2'  | 2:A:2360:A:C1'   | 1.97        | 0.76     |
| 2:A:2403:C:C5    | 2:A:2415:G:N1    | 2.52        | 0.76     |
| 2:A:676:A:H1'    | 2:A:2443:C:O4'   | 1.86        | 0.76     |
| 2:A:2521:C:C4    | 2:A:2522:U:C5    | 2.73        | 0.76     |
| 2:A:2049:G:C2    | 2:A:2620:C:C4    | 2.73        | 0.76     |
| 2:A:2626:C:OP2   | 2:A:2626:C:H5    | 1.67        | 0.76     |
| 2:A:2645:G:H4'   | 2:A:2732:G:HO2'  | 1.48        | 0.76     |
| 2:A:919:G:H21    | 2:A:2268:A:C5'   | 1.97        | 0.76     |
| 2:A:919:G:N2     | 2:A:2268:A:H5''  | 2.00        | 0.76     |
| 1:B:75:G:C1'     | 18:Z:22:VAL:CG2  | 2.61        | 0.76     |
| 3:D:167:GLU:HG2  | 3:D:182:MET:CE   | 2.13        | 0.76     |
| 3:D:81:GLU:O     | 3:D:82:TYR:C     | 2.21        | 0.76     |
| 4:E:269:ILE:HA   | 4:E:297:LYS:HE2  | 1.66        | 0.76     |
| 7:H:51:VAL:CG2   | 7:H:68:ARG:CG    | 2.63        | 0.76     |
| 10:O:103:ALA:CB  | 10:O:105:GLU:HG2 | 2.15        | 0.76     |
| 2:A:873:G:H5'    | 12:Q:32:LYS:H    | 1.50        | 0.76     |
| 13:S:85:GLY:HA3  | 13:S:121:GLY:HA3 | 1.66        | 0.76     |
| 20:U:20:ARG:NH1  | 21:V:75:LYS:HD2  | 1.98        | 0.76     |
| 17:Y:71:VAL:HG21 | 17:Y:93:THR:H    | 1.50        | 0.76     |
| 22:2:55:ARG:O    | 22:2:56:ILE:C    | 2.23        | 0.76     |
| 15:W:90:ARG:HH11 | 15:W:90:ARG:HB2  | 0.94        | 0.76     |
| 4:E:109:ASP:CA   | 4:E:112:LEU:HB2  | 1.99        | 0.76     |
| 2:A:2755:C:C6    | 2:A:2755:C:C5'   | 2.67        | 0.76     |
| 2:A:2182:G:H2'   | 2:A:2183:C:C6    | 2.20        | 0.76     |
| 2:A:2371:G:O2'   | 27:6:47:HIS:NE2  | 2.17        | 0.76     |
| 2:A:1655:A:C4'   | 4:E:211:GLN:HA   | 2.16        | 0.76     |
| 2:A:2100:G:C5    | 2:A:2190:G:N1    | 2.53        | 0.76     |
| 2:A:2259:G:C5    | 2:A:2260:C:C4    | 2.74        | 0.76     |
| 2:A:2332:U:C4'   | 2:A:2336:A:N6    | 2.48        | 0.76     |
| 2:A:2454:G:N3    | 2:A:2455:G:O4'   | 2.18        | 0.76     |
| 2:A:2573:C:OP1   | 2:A:2574:G:OP1   | 2.02        | 0.76     |
| 2:A:2045:C:C2    | 2:A:2624:G:N2    | 2.53        | 0.76     |
| 2:A:2653:U:C2    | 2:A:2654:A:C5    | 2.73        | 0.76     |
| 2:A:2822:G:OP1   | 4:E:258:TYR:CE2  | 2.39        | 0.76     |
| 3:D:141:HIS:O    | 3:D:142:ASN:C    | 2.24        | 0.76     |
| 3:D:167:GLU:N    | 3:D:170:TYR:O    | 2.18        | 0.76     |
| 3:D:228:ALA:O    | 3:D:229:MET:O    | 2.04        | 0.76     |
| 4:E:217:TRP:CD2  | 4:E:251:PRO:HG3  | 2.21        | 0.76     |
| 2:A:2575:C:H5'   | 4:E:241:TRP:NE1  | 2.00        | 0.76     |
| 4:E:246:VAL:CG1  | 4:E:247:ARG:N    | 2.48        | 0.76     |
| 5:F:102:LEU:H    | 5:F:107:ARG:HH21 | 0.80        | 0.76     |
| 5:F:240:LEU:CD2  | 5:F:243:VAL:CG2  | 2.62        | 0.76     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:H:159:LYS:H     | 7:H:162:ARG:CZ    | 1.98        | 0.76     |
| 7:H:94:ARG:HB3    | 7:H:127:GLN:HE22  | 1.51        | 0.76     |
| 9:N:63:ILE:O      | 9:N:69:TYR:HB3    | 1.85        | 0.76     |
| 10:O:7:ARG:HD3    | 10:O:44:LYS:CE    | 2.05        | 0.76     |
| 2:A:2495:G:C4'    | 12:Q:101:MET:HG3  | 2.14        | 0.76     |
| 12:Q:129:ASP:CG   | 12:Q:132:VAL:HG23 | 2.06        | 0.76     |
| 12:Q:31:PHE:CZ    | 12:Q:88:PHE:CD2   | 2.74        | 0.76     |
| 2:A:1287:A:H8     | 19:R:104:ARG:CG   | 1.98        | 0.76     |
| 20:U:28:ARG:HG2   | 20:U:29:SER:H     | 1.48        | 0.76     |
| 21:V:49:GLU:C     | 21:V:53:LYS:HD2   | 2.06        | 0.76     |
| 17:Y:34:GLU:O     | 17:Y:35:TYR:CD2   | 2.38        | 0.76     |
| 17:Y:74:VAL:HB    | 17:Y:77:VAL:CG2   | 2.14        | 0.76     |
| 18:Z:172:LEU:HD21 | 18:Z:173:PRO:HG2  | 1.67        | 0.76     |
| 18:Z:34:LEU:HD12  | 18:Z:35:ASP:N     | 2.00        | 0.76     |
| 8:I:98:ILE:CG2    | 8:I:99:ALA:N      | 2.43        | 0.76     |
| 2:A:1310:G:H1     | 2:A:1604:C:H42    | 1.31        | 0.76     |
| 3:D:234:HIS:O     | 3:D:237:GLY:HA3   | 1.85        | 0.76     |
| 24:O:46:LYS:CG    | 24:O:58:THR:N     | 2.47        | 0.76     |
| 24:O:37:LEU:HD12  | 24:O:69:PHE:HB2   | 1.66        | 0.76     |
| 23:3:20:LYS:HD3   | 23:3:23:LEU:HD11  | 1.66        | 0.76     |
| 25:4:58:LYS:HD2   | 25:4:62:ARG:HH21  | 1.48        | 0.76     |
| 25:4:68:ARG:HG2   | 25:4:72:LYS:CG    | 2.15        | 0.76     |
| 2:A:1655:A:H4'    | 4:E:211:GLN:CA    | 2.16        | 0.76     |
| 2:A:2265:U:O2'    | 2:A:2266:A:OP1    | 2.03        | 0.76     |
| 2:A:2465:C:N3     | 2:A:2485:G:O6     | 2.19        | 0.76     |
| 2:A:2468:G:C6     | 2:A:2481:G:N1     | 2.54        | 0.76     |
| 2:A:2519:U:C3'    | 2:A:2519:U:OP1    | 2.28        | 0.76     |
| 2:A:2581:G:H2'    | 2:A:2581:G:N3     | 1.99        | 0.76     |
| 2:A:2713:A:H5''   | 2:A:2714:G:OP2    | 1.84        | 0.76     |
| 2:A:2744:G:N3     | 2:A:2761:G:N2     | 2.34        | 0.76     |
| 2:A:2791:C:H5     | 2:A:2893:G:C6     | 2.04        | 0.76     |
| 4:E:177:ALA:O     | 4:E:180:ILE:N     | 2.19        | 0.76     |
| 5:F:224:ALA:HB3   | 5:F:225:PRO:CD    | 2.16        | 0.76     |
| 7:H:35:THR:O      | 7:H:36:PHE:CG     | 2.39        | 0.76     |
| 8:I:3:VAL:HG11    | 8:I:21:VAL:CG2    | 2.15        | 0.76     |
| 8:I:3:VAL:HG21    | 8:I:21:VAL:CB     | 2.16        | 0.76     |
| 9:N:46:ILE:CG1    | 9:N:132:LEU:HD13  | 2.14        | 0.76     |
| 10:O:35:ILE:N     | 10:O:35:ILE:CD1   | 2.37        | 0.76     |
| 21:V:40:VAL:HA    | 21:V:51:ALA:CA    | 2.16        | 0.76     |
| 17:Y:32:ARG:O     | 17:Y:35:TYR:N     | 2.17        | 0.76     |
| 17:Y:64:ASN:O     | 17:Y:66:ASP:OD1   | 2.04        | 0.76     |
| 2:A:1773:A:OP1    | 2:A:1828:G:H3'    | 1.86        | 0.76     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 22:2:8:ILE:HA   | 22:2:11:MET:HG3  | 1.67        | 0.76     |
| 16:X:4:VAL:HG22 | 22:2:24:LYS:CE   | 2.14        | 0.76     |
| 2:A:2:G:C2      | 2:A:2902:C:O2    | 2.38        | 0.76     |
| 2:A:227:A:H61   | 2:A:2407:G:H8    | 1.31        | 0.76     |
| 25:4:21:VAL:CG1 | 25:4:22:MET:N    | 2.12        | 0.76     |
| 25:4:6:HIS:CE1  | 25:4:56:VAL:H    | 2.03        | 0.76     |
| 2:A:2207:C:N4   | 2:A:2218:G:O6    | 2.19        | 0.76     |
| 2:A:2321:G:H2'  | 2:A:2321:G:N3    | 2.00        | 0.76     |
| 2:A:2324:C:N3   | 2:A:2331:G:N2    | 2.30        | 0.76     |
| 2:A:2370:G:H2'  | 2:A:2371:G:H8    | 1.49        | 0.76     |
| 2:A:2393:A:C2'  | 2:A:2394:C:O5'   | 2.33        | 0.76     |
| 2:A:2519:U:N3   | 2:A:2542:A:C5    | 2.53        | 0.76     |
| 2:A:2539:C:C2'  | 2:A:2540:C:O5'   | 2.32        | 0.76     |
| 2:A:2507:C:N1   | 2:A:2583:G:N2    | 2.34        | 0.76     |
| 2:A:2638:G:O2'  | 2:A:2639:A:H8    | 1.68        | 0.76     |
| 2:A:2810:A:C8   | 2:A:2811:G:C1'   | 2.68        | 0.76     |
| 2:A:2848:G:N2   | 2:A:2849:U:O2    | 2.14        | 0.76     |
| 2:A:396:G:HO2'  | 25:4:39:VAL:HG13 | 0.90        | 0.76     |
| 2:A:687:C:C4'   | 28:7:4:THR:HG22  | 2.15        | 0.76     |
| 3:D:89:ASN:C    | 3:D:105:ALA:CB   | 2.54        | 0.76     |
| 4:E:225:LYS:C   | 4:E:229:GLN:HE21 | 1.74        | 0.76     |
| 5:F:209:GLY:O   | 5:F:210:ALA:O    | 2.02        | 0.76     |
| 5:F:237:GLU:O   | 5:F:238:SER:C    | 2.24        | 0.76     |
| 5:F:46:TYR:C    | 5:F:92:PRO:HB2   | 2.05        | 0.76     |
| 7:H:121:GLU:HG2 | 7:H:133:LYS:O    | 1.86        | 0.76     |
| 20:U:106:PHE:O  | 20:U:108:ALA:N   | 2.17        | 0.76     |
| 17:Y:15:PRO:HB2 | 17:Y:18:GLU:HG3  | 1.66        | 0.76     |
| 18:Z:57:GLU:O   | 18:Z:59:GLY:N    | 2.18        | 0.76     |
| 8:I:92:SER:CB   | 8:I:122:ARG:NH1  | 2.45        | 0.76     |
| 22:2:23:LEU:HA  | 22:2:26:GLU:OE1  | 1.84        | 0.76     |
| 22:2:3:LEU:HB3  | 22:2:8:ILE:HD11  | 1.66        | 0.76     |
| 22:2:4:HIS:O    | 22:2:8:ILE:CD1   | 2.33        | 0.76     |
| 2:A:1214:A:H2'  | 2:A:1215:G:H8    | 1.46        | 0.76     |
| 8:I:59:ALA:HA   | 8:I:62:LEU:CD1   | 2.13        | 0.76     |
| 2:A:1416:G:H21  | 2:A:1582:C:N4    | 1.83        | 0.76     |
| 2:A:1350:C:N4   | 2:A:1381:G:H1    | 1.83        | 0.76     |
| 18:Z:131:PRO:O  | 18:Z:133:GLU:N   | 2.19        | 0.76     |
| 2:A:2199:A:C3'  | 2:A:2205:C:H6    | 1.99        | 0.76     |
| 2:A:2454:G:N3   | 2:A:2455:G:C1'   | 2.49        | 0.76     |
| 2:A:2454:G:C6   | 2:A:2455:G:C4    | 2.74        | 0.76     |
| 2:A:2516:G:C5   | 2:A:2569:G:N2    | 2.53        | 0.76     |
| 2:A:2720:U:OP1  | 2:A:2720:U:C4'   | 2.34        | 0.76     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2731:G:N1     | 2:A:2732:G:C2    | 2.53        | 0.76     |
| 2:A:2043:C:N4     | 2:A:2777:G:N3    | 2.34        | 0.76     |
| 2:A:2818:G:OP1    | 2:A:2837:G:O2'   | 2.02        | 0.76     |
| 2:A:929:G:H1'     | 23:3:43:ILE:CG1  | 2.15        | 0.76     |
| 5:F:157:LEU:C     | 5:F:159:ALA:N    | 2.37        | 0.76     |
| 2:A:674:G:C4'     | 5:F:69:HIS:HA    | 2.14        | 0.76     |
| 6:G:156:ARG:HG2   | 6:G:156:ARG:O    | 1.83        | 0.76     |
| 9:N:19:MET:HB3    | 9:N:46:ILE:CG1   | 2.16        | 0.76     |
| 11:P:110:GLY:HA2  | 11:P:129:ALA:HB2 | 1.65        | 0.76     |
| 18:Z:100:THR:HG22 | 18:Z:137:ASP:CG  | 2.06        | 0.76     |
| 18:Z:62:PHE:CE2   | 18:Z:87:THR:CG2  | 2.68        | 0.76     |
| 18:Z:79:ILE:O     | 18:Z:80:HIS:CG   | 2.39        | 0.76     |
| 2:A:1789:A:OP1    | 3:D:226:GLY:N    | 2.19        | 0.76     |
| 22:2:49:LEU:O     | 22:2:50:ARG:C    | 2.23        | 0.76     |
| 2:A:1614:A:C6     | 15:W:88:ARG:HB2  | 2.12        | 0.76     |
| 2:A:1913:A:N1     | 2:A:1916:A:H2'   | 2.00        | 0.76     |
| 24:0:67:VAL:HG11  | 24:0:74:LYS:HG2  | 0.79        | 0.76     |
| 25:4:18:GLY:N     | 25:4:33:VAL:CG2  | 2.49        | 0.76     |
| 29:8:60:LEU:HD22  | 29:8:61:MET:N    | 2.01        | 0.76     |
| 2:A:2312:U:H5'    | 6:G:53:LYS:CB    | 2.15        | 0.76     |
| 2:A:2353:G:C2     | 2:A:2364:C:N4    | 2.44        | 0.76     |
| 2:A:2438:U:H4'    | 2:A:2440:C:OP1   | 1.85        | 0.76     |
| 2:A:2579:C:H5''   | 2:A:2579:C:C5    | 2.15        | 0.76     |
| 2:A:2626:C:C6     | 2:A:2626:C:H3'   | 2.21        | 0.76     |
| 2:A:2850:A:N3     | 19:R:61:HIS:HE1  | 1.84        | 0.76     |
| 2:A:532:A:H3'     | 2:A:533:G:O4'    | 1.85        | 0.76     |
| 3:D:143:ILE:HG21  | 3:D:153:LEU:HB2  | 1.67        | 0.76     |
| 3:D:194:VAL:HG23  | 3:D:195:GLY:N    | 2.01        | 0.76     |
| 5:F:236:THR:O     | 5:F:237:GLU:C    | 2.24        | 0.76     |
| 5:F:87:ARG:O      | 5:F:88:SER:OG    | 2.02        | 0.76     |
| 5:F:89:ALA:HB1    | 5:F:90:HIS:NE2   | 2.00        | 0.76     |
| 5:F:47:GLY:HA3    | 5:F:92:PRO:HG2   | 1.67        | 0.76     |
| 6:G:19:GLU:HB3    | 6:G:135:VAL:HG21 | 1.03        | 0.76     |
| 7:H:121:GLU:OE2   | 7:H:134:GLY:CA   | 2.25        | 0.76     |
| 10:O:31:ARG:HB2   | 10:O:32:TYR:HE1  | 1.50        | 0.76     |
| 12:Q:136:TRP:HA   | 12:Q:136:TRP:HE3 | 1.51        | 0.76     |
| 19:R:84:ALA:CB    | 19:R:85:PRO:CD   | 2.58        | 0.76     |
| 13:S:122:ALA:O    | 13:S:125:ALA:CB  | 2.32        | 0.76     |
| 13:S:36:ALA:HA    | 13:S:45:ALA:CB   | 2.15        | 0.76     |
| 17:Y:74:VAL:HG11  | 17:Y:77:VAL:CG2  | 2.14        | 0.76     |
| 18:Z:107:GLU:O    | 18:Z:109:GLN:N   | 2.16        | 0.76     |
| 3:D:208:GLY:C     | 3:D:211:HIS:CE1  | 2.59        | 0.76     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1058:G:N2    | 31:K:117:ASN:OD1 | 2.16        | 0.76     |
| 22:2:52:ALA:C    | 22:2:56:ILE:HG12 | 2.06        | 0.76     |
| 4:E:107:GLU:CB   | 4:E:110:ARG:CZ   | 2.60        | 0.76     |
| 23:3:39:ASP:HA   | 23:3:44:ARG:NH2  | 2.01        | 0.76     |
| 25:4:13:LYS:O    | 25:4:14:ILE:CB   | 2.32        | 0.76     |
| 2:A:2395:C:C5'   | 25:4:28:ARG:HH11 | 1.99        | 0.76     |
| 2:A:2815:C:H5'   | 26:5:29:ASN:HD22 | 0.75        | 0.76     |
| 28:7:17:GLY:HA2  | 28:7:44:VAL:HG22 | 0.77        | 0.76     |
| 2:A:1567:A:H4'   | 2:A:1568:G:C2    | 2.21        | 0.76     |
| 2:A:1666:G:C4'   | 10:O:67:ARG:HH22 | 1.99        | 0.76     |
| 2:A:1818:U:C4'   | 3:D:155:ARG:CG   | 2.63        | 0.76     |
| 2:A:2334:G:C2    | 13:S:20:TYR:OH   | 2.38        | 0.76     |
| 2:A:2334:G:OP2   | 13:S:13:ARG:CB   | 2.34        | 0.76     |
| 2:A:2285:C:O2    | 2:A:2384:G:N2    | 2.19        | 0.76     |
| 2:A:2617:C:H2'   | 2:A:2618:G:O5'   | 1.85        | 0.76     |
| 2:A:2631:G:H2'   | 2:A:2632:A:O5'   | 1.85        | 0.76     |
| 2:A:2691:C:C2'   | 2:A:2692:C:H5'   | 2.16        | 0.76     |
| 2:A:2744:G:C6    | 2:A:2745:C:C4    | 2.74        | 0.76     |
| 2:A:388:G:H5'    | 25:4:24:THR:HG23 | 1.68        | 0.76     |
| 4:E:217:TRP:CE3  | 4:E:251:PRO:HG3  | 2.21        | 0.76     |
| 6:G:103:ASN:O    | 6:G:104:PHE:CG   | 2.38        | 0.76     |
| 8:I:4:ILE:C      | 8:I:5:PHE:CD2    | 2.60        | 0.76     |
| 10:O:3:GLN:HG2   | 10:O:4:GLN:N     | 2.01        | 0.76     |
| 10:O:87:ILE:HG23 | 10:O:92:SER:N    | 2.00        | 0.76     |
| 12:Q:31:PHE:CZ   | 12:Q:88:PHE:HD2  | 2.04        | 0.76     |
| 14:T:21:PHE:O    | 14:T:22:VAL:HG13 | 1.83        | 0.76     |
| 20:U:12:ARG:O    | 20:U:13:ARG:C    | 2.23        | 0.76     |
| 20:U:17:VAL:HA   | 20:U:20:ARG:HG3  | 1.67        | 0.76     |
| 20:U:41:ASN:O    | 20:U:42:ALA:C    | 2.24        | 0.76     |
| 20:U:49:ASP:HA   | 20:U:52:ASN:CG   | 2.03        | 0.76     |
| 17:Y:73:HIS:NE2  | 17:Y:89:ARG:O    | 2.19        | 0.76     |
| 18:Z:64:ALA:HB3  | 18:Z:85:MET:HA   | 0.84        | 0.76     |
| 2:A:1805:U:C5'   | 3:D:235:PRO:HB3  | 2.15        | 0.76     |
| 2:A:2432:A:N6    | 25:4:31:ILE:H    | 1.84        | 0.75     |
| 2:A:2208:U:H3    | 2:A:2216:G:H1    | 0.80        | 0.75     |
| 2:A:2261:C:O4'   | 2:A:2388:A:H1'   | 1.86        | 0.75     |
| 2:A:2366:A:N7    | 2:A:2367:G:N7    | 2.33        | 0.75     |
| 2:A:2509:G:OP1   | 2:A:2555:U:H5'   | 1.85        | 0.75     |
| 2:A:2771:C:H5'   | 4:E:316:ARG:CD   | 2.06        | 0.75     |
| 2:A:2788:C:H2'   | 2:A:2892:A:C2    | 2.21        | 0.75     |
| 1:B:74:U:H2'     | 1:B:75:G:H8      | 1.51        | 0.75     |
| 3:D:67:LYS:HD3   | 3:D:67:LYS:N     | 2.00        | 0.75     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:F:81:PRO:CA    | 5:F:87:ARG:CG     | 2.26        | 0.75     |
| 8:I:28:ASN:HA    | 8:I:32:LYS:HG2    | 1.68        | 0.75     |
| 9:N:65:ASN:CG    | 9:N:69:TYR:CD1    | 2.60        | 0.75     |
| 12:Q:91:HIS:N    | 12:Q:111:THR:HG23 | 2.00        | 0.75     |
| 2:A:2009:G:O2'   | 19:R:106:GLY:O    | 2.04        | 0.75     |
| 20:U:113:SER:C   | 20:U:115:ASN:N    | 2.39        | 0.75     |
| 22:2:50:ARG:O    | 22:2:53:ILE:HB    | 1.86        | 0.75     |
| 16:X:24:LEU:CD1  | 16:X:68:LEU:CD2   | 2.64        | 0.75     |
| 2:A:865:C:O2'    | 2:A:866:A:N7      | 2.17        | 0.75     |
| 2:A:1274:A:C6    | 2:A:1302:A:H2     | 2.04        | 0.75     |
| 2:A:849:A:H2     | 23:3:21:ALA:HB1   | 0.99        | 0.75     |
| 25:4:58:LYS:O    | 25:4:61:LYS:CG    | 2.33        | 0.75     |
| 25:4:68:ARG:CD   | 25:4:72:LYS:CG    | 2.56        | 0.75     |
| 2:A:1312:U:O2'   | 2:A:1314:C:H5     | 1.68        | 0.75     |
| 2:A:1669:A:C5'   | 2:A:2550:G:OP1    | 2.34        | 0.75     |
| 2:A:2185:C:H2'   | 2:A:2186:G:C8     | 2.21        | 0.75     |
| 2:A:2307:G:C2'   | 2:A:2311:A:N6     | 2.49        | 0.75     |
| 2:A:2406:U:H3    | 11:P:55:GLN:CG    | 1.99        | 0.75     |
| 2:A:2061:G:C8    | 2:A:2501:C:H1'    | 2.21        | 0.75     |
| 2:A:2606:C:H2'   | 2:A:2607:G:O5'    | 1.86        | 0.75     |
| 2:A:2722:G:N1    | 2:A:2723:C:N3     | 2.31        | 0.75     |
| 2:A:2836:U:C2    | 2:A:2883:A:C6     | 2.73        | 0.75     |
| 2:A:2858:C:H2'   | 2:A:2858:C:O2     | 1.85        | 0.75     |
| 2:A:54:G:H1'     | 28:7:35:ARG:HH22  | 1.52        | 0.75     |
| 2:A:712(A):A:C8  | 2:A:2713:A:OP1    | 2.40        | 0.75     |
| 4:E:211:GLN:OE1  | 4:E:212:GLY:N     | 2.17        | 0.75     |
| 4:E:44:TYR:CE1   | 4:E:308:VAL:CB    | 2.60        | 0.75     |
| 5:F:220:THR:HB   | 5:F:224:ALA:CB    | 2.16        | 0.75     |
| 5:F:167:ASP:HB3  | 5:F:232:LEU:N     | 2.01        | 0.75     |
| 6:G:21:VAL:HG13  | 6:G:132:VAL:CA    | 2.15        | 0.75     |
| 2:A:2310:A:C2    | 6:G:55:LYS:HD3    | 2.20        | 0.75     |
| 7:H:159:LYS:N    | 7:H:162:ARG:NH2   | 2.29        | 0.75     |
| 7:H:75:VAL:O     | 7:H:78:VAL:N      | 2.18        | 0.75     |
| 9:N:77:GLY:O     | 9:N:78:ILE:C      | 2.22        | 0.75     |
| 10:O:21:VAL:CA   | 10:O:41:ALA:HB2   | 2.15        | 0.75     |
| 11:P:66:VAL:HB   | 11:P:110:GLY:O    | 1.85        | 0.75     |
| 11:P:96:VAL:HG23 | 11:P:101:ASP:H    | 1.49        | 0.75     |
| 19:R:46:GLY:O    | 19:R:50:HIS:N     | 2.19        | 0.75     |
| 13:S:27:LEU:HD13 | 13:S:28:LYS:N     | 2.01        | 0.75     |
| 15:W:50:VAL:HG21 | 15:W:103:ILE:HG21 | 1.68        | 0.75     |
| 15:W:50:VAL:O    | 15:W:50:VAL:HG12  | 1.86        | 0.75     |
| 18:Z:25:ASN:HA   | 18:Z:84:TYR:CE1   | 2.21        | 0.75     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 8:I:108:LEU:CD2  | 8:I:109:LYS:O     | 2.34        | 0.75     |
| 22:2:48:GLU:O    | 22:2:50:ARG:N     | 2.19        | 0.75     |
| 16:X:33:SER:O    | 16:X:34:LYS:C     | 2.23        | 0.75     |
| 2:A:1906:G:O4'   | 2:A:1929:G:C8     | 2.39        | 0.75     |
| 2:A:1534:G:N2    | 2:A:1538:G:N3     | 2.34        | 0.75     |
| 29:8:25:PHE:O    | 29:8:26:LYS:C     | 2.23        | 0.75     |
| 2:A:2325:G:C6    | 2:A:2326:C:H5     | 2.04        | 0.75     |
| 2:A:2327:A:O2'   | 2:A:2328:A:O4'    | 2.01        | 0.75     |
| 2:A:2355:C:O3'   | 24:0:21:LEU:CD1   | 2.34        | 0.75     |
| 2:A:825:C:C3'    | 2:A:2428:G:N7     | 2.49        | 0.75     |
| 2:A:2482:G:C6    | 2:A:2483:C:C6     | 2.74        | 0.75     |
| 2:A:2507:C:C4    | 2:A:2583:G:C2     | 2.75        | 0.75     |
| 2:A:2526:G:O2'   | 2:A:2527:C:H5'    | 1.85        | 0.75     |
| 2:A:2548:G:C8    | 2:A:2548:G:H3'    | 2.20        | 0.75     |
| 2:A:2658:C:C2'   | 2:A:2659:G:O5'    | 2.34        | 0.75     |
| 2:A:1638:C:C3'   | 2:A:2709:G:H22    | 1.99        | 0.75     |
| 2:A:2822:G:OP1   | 4:E:207:GLY:C     | 2.23        | 0.75     |
| 2:A:752:A:C5     | 2:A:1781:C:H1'    | 2.21        | 0.75     |
| 2:A:792:G:C5     | 2:A:2440:C:N1     | 2.55        | 0.75     |
| 2:A:987:G:OP2    | 23:3:15:TYR:OH    | 2.03        | 0.75     |
| 1:B:45:A:C1'     | 6:G:76:ARG:HH12   | 1.99        | 0.75     |
| 1:B:76:G:O3'     | 18:Z:80:HIS:CD2   | 2.39        | 0.75     |
| 5:F:220:THR:CB   | 5:F:224:ALA:HB2   | 2.16        | 0.75     |
| 5:F:220:THR:HB   | 5:F:224:ALA:HB2   | 1.67        | 0.75     |
| 5:F:20:ASP:O     | 5:F:23:GLU:HB2    | 1.86        | 0.75     |
| 7:H:15:THR:CG2   | 7:H:26:LYS:CA     | 2.63        | 0.75     |
| 10:O:122:ILE:H   | 10:O:122:ILE:HD12 | 1.51        | 0.75     |
| 11:P:142:LEU:O   | 11:P:145:LEU:HD13 | 1.87        | 0.75     |
| 12:Q:31:PHE:C    | 12:Q:85:ILE:HD11  | 2.05        | 0.75     |
| 19:R:32:GLY:O    | 19:R:33:ARG:HB3   | 1.83        | 0.75     |
| 19:R:79:LEU:HD22 | 19:R:80:PHE:CA    | 2.17        | 0.75     |
| 21:V:39:PHE:CD2  | 21:V:40:VAL:N     | 2.54        | 0.75     |
| 17:Y:57:GLY:HA2  | 17:Y:97:ARG:NH2   | 2.00        | 0.75     |
| 18:Z:10:PRO:O    | 18:Z:14:LEU:CB    | 2.34        | 0.75     |
| 2:A:1790:C:H2'   | 2:A:1790:C:O2     | 1.86        | 0.75     |
| 2:A:1917:U:C3'   | 2:A:1918:A:H8     | 1.93        | 0.75     |
| 2:A:2755:C:O5'   | 2:A:2755:C:H6     | 1.58        | 0.75     |
| 2:A:2188:C:C5    | 2:A:2189:U:O4     | 2.39        | 0.75     |
| 2:A:2354:G:O5'   | 24:0:31:VAL:HG21  | 1.85        | 0.75     |
| 2:A:2393:A:C4'   | 29:8:13:ARG:NH2   | 2.49        | 0.75     |
| 2:A:792:G:H2'    | 2:A:2440:C:N3     | 2.01        | 0.75     |
| 2:A:2821:A:C2    | 2:A:2822:G:C8     | 2.74        | 0.75     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:803:U:C2'    | 2:A:804:A:H5'     | 2.16        | 0.75     |
| 2:A:85:G:OP2     | 17:Y:65:VAL:CB    | 2.34        | 0.75     |
| 2:A:911:A:N1     | 12:Q:16:ARG:CA    | 2.48        | 0.75     |
| 3:D:107:LYS:HB2  | 3:D:195:GLY:HA2   | 1.69        | 0.75     |
| 3:D:80:ILE:CG1   | 3:D:82:TYR:HE1    | 1.99        | 0.75     |
| 4:E:63:GLU:O     | 4:E:67:THR:HA     | 1.85        | 0.75     |
| 6:G:151:ILE:CD1  | 6:G:156:ARG:HH22  | 1.99        | 0.75     |
| 1:B:42:C:H1'     | 6:G:47:GLN:CA     | 2.15        | 0.75     |
| 7:H:116:PRO:HB2  | 7:H:120:LEU:O     | 1.86        | 0.75     |
| 7:H:120:LEU:N    | 7:H:120:LEU:HD23  | 2.01        | 0.75     |
| 7:H:23:VAL:CG1   | 7:H:74:MET:CE     | 2.64        | 0.75     |
| 10:O:1:MET:CB    | 10:O:2:ILE:CD1    | 2.64        | 0.75     |
| 12:Q:136:TRP:O   | 12:Q:139:ALA:CA   | 2.34        | 0.75     |
| 12:Q:33:MET:HE1  | 12:Q:34:GLY:O     | 1.84        | 0.75     |
| 2:A:994:C:N3     | 20:U:53:LYS:HD3   | 2.01        | 0.75     |
| 21:V:46:VAL:O    | 21:V:46:VAL:HG12  | 1.86        | 0.75     |
| 15:W:36:LEU:HA   | 15:W:39:THR:CG2   | 2.16        | 0.75     |
| 17:Y:27:LEU:HD23 | 17:Y:98:VAL:HG12  | 1.69        | 0.75     |
| 18:Z:115:ILE:O   | 18:Z:169:VAL:HG13 | 1.87        | 0.75     |
| 22:2:17:GLU:O    | 22:2:18:ALA:C     | 2.24        | 0.75     |
| 2:A:72:U:C4'     | 22:2:57:LYS:NZ    | 2.49        | 0.75     |
| 16:X:3:ASP:CA    | 22:2:24:LYS:HD3   | 2.14        | 0.75     |
| 24:0:50:GLY:C    | 24:0:52:GLY:H     | 1.88        | 0.75     |
| 24:0:20:TYR:O    | 24:0:21:LEU:O     | 2.04        | 0.75     |
| 23:3:48:GLU:HG2  | 23:3:49:LYS:H     | 1.50        | 0.75     |
| 25:4:17:GLN:CA   | 25:4:33:VAL:HB    | 2.17        | 0.75     |
| 2:A:2046:G:H1'   | 26:5:22:HIS:ND1   | 2.02        | 0.75     |
| 26:5:46:CYS:C    | 26:5:48:ASN:H     | 1.88        | 0.75     |
| 29:8:60:LEU:CD1  | 29:8:64:ARG:CB    | 2.48        | 0.75     |
| 2:A:1140:C:C4    | 9:N:49:ARG:CZ     | 2.69        | 0.75     |
| 2:A:2298:A:C4    | 2:A:2321:G:C2     | 2.75        | 0.75     |
| 2:A:2488:A:H3'   | 2:A:2488:A:C8     | 2.20        | 0.75     |
| 2:A:2520:C:C6    | 2:A:2567:G:H1'    | 2.21        | 0.75     |
| 2:A:2532:G:C8    | 2:A:2532:G:O5'    | 2.39        | 0.75     |
| 2:A:2516:G:C2    | 2:A:2569:G:N3     | 2.55        | 0.75     |
| 2:A:2586:C:H2'   | 2:A:2587:A:H5'    | 1.68        | 0.75     |
| 2:A:2665:A:O2'   | 2:A:2666:C:O4'    | 2.03        | 0.75     |
| 2:A:2734:A:C8    | 2:A:2734:A:C5'    | 2.69        | 0.75     |
| 2:A:2793:G:O6    | 2:A:2794:C:N4     | 2.20        | 0.75     |
| 2:A:2825:C:O5'   | 2:A:2825:C:C5     | 2.40        | 0.75     |
| 3:D:135:PRO:HG2  | 3:D:138:THR:HG21  | 0.78        | 0.75     |
| 5:F:87:ARG:O     | 5:F:88:SER:CB     | 2.35        | 0.75     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:G:24:HIS:C     | 6:G:25:MET:HG2    | 2.04        | 0.75     |
| 7:H:102:LEU:H    | 7:H:102:LEU:CD2   | 1.98        | 0.75     |
| 9:N:19:MET:CA    | 9:N:19:MET:HE3    | 2.17        | 0.75     |
| 11:P:69:ILE:CA   | 11:P:73:VAL:CG2   | 2.65        | 0.75     |
| 11:P:73:VAL:CG1  | 11:P:76:LEU:HD23  | 2.15        | 0.75     |
| 20:U:94:VAL:O    | 20:U:98:ILE:HD11  | 0.94        | 0.75     |
| 17:Y:102:ASP:O   | 17:Y:103:LEU:HD23 | 1.86        | 0.75     |
| 22:2:62:GLU:O    | 22:2:63:GLU:C     | 2.24        | 0.75     |
| 2:A:1339:G:H5'   | 16:X:13:LYS:HE3   | 1.68        | 0.75     |
| 17:Y:81:LYS:CG   | 17:Y:82:THR:H     | 1.95        | 0.75     |
| 3:D:230:ASN:O    | 3:D:231:ALA:HB2   | 1.85        | 0.75     |
| 25:4:41:PRO:CB   | 25:4:57:ASP:HB3   | 2.17        | 0.75     |
| 2:A:686:G:O6     | 28:7:12:ARG:NE    | 2.19        | 0.75     |
| 2:A:592:G:C2     | 29:8:3:LYS:HE2    | 2.17        | 0.75     |
| 2:A:1266:G:O6    | 15:W:13:SER:OG    | 2.05        | 0.75     |
| 2:A:2219:G:O2'   | 2:A:2224:G:H5'    | 1.71        | 0.75     |
| 2:A:2520:C:C6    | 2:A:2567:G:C1'    | 2.69        | 0.75     |
| 2:A:2530:A:C3'   | 2:A:2531:A:H5''   | 2.17        | 0.75     |
| 2:A:2603:G:C5    | 2:A:2604:U:C5     | 2.75        | 0.75     |
| 2:A:2666:C:C5    | 2:A:2667:C:C6     | 2.74        | 0.75     |
| 2:A:2826:A:N7    | 2:A:2827:C:C5     | 2.46        | 0.75     |
| 2:A:2865:U:C6    | 2:A:2866:U:C5     | 2.75        | 0.75     |
| 2:A:332:A:H2'    | 2:A:334:C:OP2     | 1.86        | 0.75     |
| 2:A:449:A:OP1    | 5:F:85:LYS:CA     | 2.34        | 0.75     |
| 4:E:222:ARG:HG2  | 4:E:232:ARG:HA    | 1.69        | 0.75     |
| 6:G:56:ARG:HA    | 6:G:63:ILE:O      | 1.86        | 0.75     |
| 6:G:76:ARG:CB    | 6:G:77:ASP:OD1    | 2.35        | 0.75     |
| 7:H:128:THR:HG23 | 7:H:129:LYS:H     | 1.52        | 0.75     |
| 8:I:12:LYS:O     | 8:I:14:LYS:HG3    | 1.86        | 0.75     |
| 9:N:137:GLU:N    | 9:N:141:ALA:H     | 1.84        | 0.75     |
| 10:O:17:ARG:NH2  | 10:O:47:THR:CA    | 2.49        | 0.75     |
| 10:O:99:PHE:HE2  | 14:T:24:LYS:CD    | 1.99        | 0.75     |
| 12:Q:33:MET:CB   | 12:Q:83:PHE:HB2   | 2.17        | 0.75     |
| 19:R:37:THR:HA   | 19:R:111:LEU:CA   | 2.15        | 0.75     |
| 13:S:23:ARG:NH2  | 13:S:37:ARG:HH22  | 1.73        | 0.75     |
| 13:S:30:GLY:O    | 13:S:31:LYS:HE2   | 1.86        | 0.75     |
| 1:B:77:U:C5'     | 18:Z:80:HIS:CE1   | 2.69        | 0.75     |
| 22:2:13:PRO:CD   | 22:2:16:ARG:NH1   | 2.45        | 0.75     |
| 6:G:44:ILE:HG22  | 6:G:83:PHE:CE2    | 2.12        | 0.75     |
| 25:4:6:HIS:CE1   | 25:4:55:ARG:HB2   | 2.21        | 0.75     |
| 2:A:2206:C:O2'   | 2:A:2207:C:C4'    | 2.34        | 0.75     |
| 2:A:2232:U:C2'   | 2:A:2233:U:C5'    | 2.61        | 0.75     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:965:C:H1'    | 2:A:2273:A:C2     | 2.22        | 0.75     |
| 2:A:2302:G:O2'   | 2:A:2303:G:O5'    | 2.02        | 0.75     |
| 2:A:2526:G:H2'   | 2:A:2527:C:O5'    | 1.87        | 0.75     |
| 2:A:2604:U:O2    | 2:A:2605:U:C5     | 2.40        | 0.75     |
| 2:A:2626:C:C6    | 2:A:2626:C:C3'    | 2.70        | 0.75     |
| 2:A:2631:G:C5'   | 2:A:2892:A:OP1    | 2.34        | 0.75     |
| 2:A:2661:G:C6    | 2:A:2662:A:N6     | 2.53        | 0.75     |
| 2:A:2716:U:N3    | 2:A:2717:G:N7     | 2.33        | 0.75     |
| 2:A:2852:G:N3    | 2:A:2853:C:C2     | 2.55        | 0.75     |
| 4:E:235:ILE:HG23 | 4:E:236:GLY:H     | 1.51        | 0.75     |
| 10:O:10:VAL:HG21 | 10:O:16:ALA:CB    | 2.12        | 0.75     |
| 2:A:1666:G:O4'   | 10:O:67:ARG:NH2   | 2.20        | 0.75     |
| 11:P:64:ILE:CB   | 11:P:107:LYS:O    | 2.23        | 0.75     |
| 13:S:32:PRO:HG3  | 13:S:100:ALA:CB   | 2.16        | 0.75     |
| 15:W:68:ARG:O    | 15:W:110:LYS:HB2  | 1.86        | 0.75     |
| 17:Y:43:ASN:ND2  | 17:Y:112:LEU:HD21 | 1.98        | 0.75     |
| 17:Y:78:THR:H    | 17:Y:89:ARG:CZ    | 2.00        | 0.75     |
| 18:Z:19:ILE:CB   | 18:Z:39:PHE:CE1   | 2.66        | 0.75     |
| 22:2:59:ILE:O    | 22:2:60:GLN:C     | 2.25        | 0.75     |
| 2:A:1495:A:H2'   | 2:A:1496:A:N7     | 2.02        | 0.75     |
| 14:T:45:GLU:O    | 14:T:48:ASN:CG    | 2.25        | 0.75     |
| 2:A:2354:G:N3    | 24:0:32:LYS:CG    | 2.50        | 0.75     |
| 23:3:30:ARG:NH1  | 23:3:30:ARG:CG    | 2.38        | 0.75     |
| 30:9:29:ASN:HD22 | 30:9:32:HIS:HE1   | 1.32        | 0.75     |
| 2:A:1651:G:H1    | 2:A:2006:C:H42    | 1.33        | 0.75     |
| 2:A:1799:G:N1    | 3:D:177:SER:OG    | 2.19        | 0.75     |
| 2:A:2211:G:N3    | 2:A:2211:G:H2'    | 2.00        | 0.75     |
| 2:A:2330:G:O2'   | 2:A:2331:G:H5'    | 1.85        | 0.75     |
| 2:A:2473:U:C2'   | 2:A:2473:U:O2     | 2.34        | 0.75     |
| 2:A:2482:G:C2'   | 2:A:2483:C:H5''   | 2.14        | 0.75     |
| 2:A:2615:U:C2'   | 2:A:2616:C:O5'    | 2.33        | 0.75     |
| 2:A:2741:A:C2'   | 2:A:2742:C:H6     | 1.95        | 0.75     |
| 2:A:2754:U:C2'   | 2:A:2756:U:P      | 2.72        | 0.75     |
| 2:A:2633:G:N2    | 2:A:2785:C:N3     | 2.32        | 0.75     |
| 2:A:2813:A:C8    | 2:A:2814:C:H5     | 2.04        | 0.75     |
| 2:A:2828:C:N3    | 2:A:2829:C:C4     | 2.55        | 0.75     |
| 2:A:2881:C:H2'   | 2:A:2882:A:C8     | 2.21        | 0.75     |
| 3:D:175:LEU:H    | 3:D:175:LEU:HD23  | 1.47        | 0.75     |
| 3:D:77:VAL:HG12  | 3:D:77:VAL:O      | 1.85        | 0.75     |
| 4:E:200:ASP:C    | 4:E:266:LYS:HD2   | 2.07        | 0.75     |
| 4:E:76:PRO:HB2   | 4:E:77:PRO:HD2    | 1.63        | 0.75     |
| 5:F:102:LEU:HD22 | 5:F:103:ASN:N     | 1.96        | 0.75     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:G:103:ASN:C    | 6:G:104:PHE:CG   | 2.59        | 0.75     |
| 6:G:19:GLU:OE1   | 6:G:135:VAL:CB   | 2.34        | 0.75     |
| 7:H:82:TYR:CZ    | 7:H:137:LYS:HG3  | 2.20        | 0.75     |
| 10:O:25:LEU:HD12 | 10:O:38:VAL:CB   | 2.16        | 0.75     |
| 12:Q:132:VAL:O   | 12:Q:135:ALA:HB3 | 1.86        | 0.75     |
| 19:R:62:ALA:CB   | 19:R:80:PHE:HZ   | 1.99        | 0.75     |
| 2:A:2378:A:HO2'  | 13:S:30:GLY:HA3  | 1.49        | 0.75     |
| 20:U:74:MET:HE1  | 20:U:78:THR:CG2  | 1.98        | 0.75     |
| 20:U:47:TYR:CE2  | 21:V:74:TYR:O    | 2.40        | 0.75     |
| 15:W:82:LEU:CD2  | 15:W:100:THR:N   | 2.50        | 0.75     |
| 15:W:15:ARG:O    | 15:W:18:ARG:N    | 2.20        | 0.75     |
| 18:Z:3:LEU:CB    | 18:Z:34:LEU:HA   | 2.05        | 0.75     |
| 8:I:76:THR:HB    | 8:I:144:HIS:CE1  | 2.21        | 0.75     |
| 3:D:222:PRO:O    | 3:D:224:VAL:CG2  | 2.25        | 0.75     |
| 2:A:95:G:H1'     | 22:2:42:ASN:HB3  | 1.69        | 0.75     |
| 2:A:1417:C:H42   | 2:A:1581:G:H1    | 1.34        | 0.75     |
| 23:3:37:LEU:HD13 | 23:3:43:ILE:HG21 | 1.66        | 0.75     |
| 27:6:8:ILE:HA    | 27:6:29:ARG:CZ   | 2.17        | 0.75     |
| 29:8:23:MET:CE   | 29:8:48:PHE:CA   | 2.59        | 0.75     |
| 2:A:2100:G:C6    | 2:A:2190:G:C6    | 2.74        | 0.75     |
| 2:A:2543:G:N9    | 2:A:2544:G:N7    | 2.35        | 0.75     |
| 2:A:2567:G:C4    | 2:A:2568:C:C5    | 2.67        | 0.75     |
| 2:A:2671:A:H2'   | 2:A:2672:G:H8    | 1.52        | 0.75     |
| 2:A:2869:G:N2    | 2:A:2870:C:C1'   | 2.48        | 0.75     |
| 2:A:387:U:H4'    | 2:A:388:G:O4'    | 1.87        | 0.75     |
| 2:A:535:C:O3'    | 20:U:53:LYS:HE2  | 1.85        | 0.75     |
| 3:D:155:ARG:C    | 3:D:157:ALA:N    | 2.38        | 0.75     |
| 4:E:200:ASP:O    | 4:E:311:PHE:CA   | 2.34        | 0.75     |
| 5:F:22:PHE:HZ    | 5:F:115:LEU:CD1  | 1.99        | 0.75     |
| 5:F:140:VAL:CG2  | 5:F:234:VAL:HB   | 2.17        | 0.75     |
| 6:G:57:THR:H     | 6:G:63:ILE:HA    | 1.50        | 0.75     |
| 7:H:41:THR:HG22  | 7:H:52:THR:CB    | 2.17        | 0.75     |
| 7:H:86:LEU:HD22  | 7:H:87:GLU:N     | 2.01        | 0.75     |
| 8:I:31:PHE:CZ    | 8:I:36:ALA:HB3   | 2.21        | 0.75     |
| 9:N:87:LEU:CB    | 9:N:88:PRO:HD2   | 2.16        | 0.75     |
| 10:O:105:GLU:O   | 10:O:106:LEU:C   | 2.26        | 0.75     |
| 10:O:64:ARG:CD   | 10:O:81:GLU:HB3  | 2.17        | 0.75     |
| 12:Q:27:GLY:O    | 12:Q:28:ILE:HG12 | 1.87        | 0.75     |
| 12:Q:33:MET:HG3  | 12:Q:83:PHE:CG   | 2.21        | 0.75     |
| 13:S:23:ARG:NH2  | 13:S:37:ARG:HH21 | 1.83        | 0.75     |
| 20:U:91:ASN:OD1  | 20:U:92:ARG:N    | 2.19        | 0.75     |
| 17:Y:48:VAL:CG1  | 17:Y:49:GLU:N    | 2.19        | 0.75     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:D:208:GLY:O    | 3:D:211:HIS:CE1   | 2.40        | 0.75     |
| 2:A:2386:C:C1'   | 24:0:39:ARG:HH21  | 1.99        | 0.74     |
| 23:3:23:LEU:O    | 23:3:28:LEU:CD1   | 2.35        | 0.74     |
| 23:3:44:ARG:O    | 23:3:48:GLU:OE1   | 2.05        | 0.74     |
| 2:A:2394:C:N4    | 2:A:2395:C:N3     | 2.35        | 0.74     |
| 2:A:1670:C:P     | 2:A:2550:G:OP2    | 2.45        | 0.74     |
| 2:A:2633:G:C4    | 2:A:2634:G:C8     | 2.75        | 0.74     |
| 2:A:2633:G:H1    | 2:A:2785:C:N4     | 1.82        | 0.74     |
| 2:A:2635:C:N3    | 2:A:2783:G:N1     | 2.34        | 0.74     |
| 2:A:2785:C:H5'   | 4:E:99:VAL:HA     | 1.68        | 0.74     |
| 2:A:2818:G:C2    | 2:A:2829:C:N3     | 2.54        | 0.74     |
| 1:B:42:C:O2'     | 6:G:47:GLN:CA     | 2.31        | 0.74     |
| 3:D:123:ILE:O    | 3:D:125:ILE:N     | 2.20        | 0.74     |
| 4:E:99:VAL:CG1   | 4:E:100:TRP:N     | 2.46        | 0.74     |
| 4:E:205:THR:HG23 | 4:E:259:HIS:N     | 1.97        | 0.74     |
| 4:E:45:LYS:HE3   | 4:E:303:PRO:HG2   | 0.80        | 0.74     |
| 5:F:167:ASP:C    | 5:F:168:ARG:HG3   | 2.07        | 0.74     |
| 5:F:215:ALA:HA   | 5:F:239:ALA:HA    | 1.69        | 0.74     |
| 6:G:13:MET:O     | 6:G:15:GLU:N      | 2.20        | 0.74     |
| 7:H:15:THR:HG23  | 7:H:26:LYS:HB2    | 1.63        | 0.74     |
| 8:I:53:LYS:O     | 8:I:57:GLN:OE1    | 2.04        | 0.74     |
| 9:N:103:VAL:HG12 | 9:N:104:TYR:N     | 2.01        | 0.74     |
| 9:N:65:ASN:CB    | 9:N:69:TYR:CE1    | 2.69        | 0.74     |
| 9:N:83:ILE:O     | 9:N:85:GLY:N      | 2.20        | 0.74     |
| 10:O:66:LYS:HD2  | 10:O:67:ARG:N     | 2.00        | 0.74     |
| 12:Q:72:VAL:CG2  | 12:Q:135:ALA:CB   | 2.65        | 0.74     |
| 12:Q:49:VAL:CG2  | 12:Q:120:HIS:HA   | 2.17        | 0.74     |
| 2:A:1453:A:N6    | 19:R:77:ARG:HD3   | 2.01        | 0.74     |
| 13:S:110:THR:OG1 | 13:S:111:PRO:CD   | 2.34        | 0.74     |
| 13:S:60:SER:HA   | 13:S:91:ARG:HD3   | 1.68        | 0.74     |
| 20:U:52:ASN:O    | 20:U:53:LYS:C     | 2.24        | 0.74     |
| 2:A:495:G:O3'    | 15:W:62:HIS:NE2   | 2.19        | 0.74     |
| 17:Y:70:ALA:O    | 17:Y:71:VAL:HG23  | 1.87        | 0.74     |
| 18:Z:154:LEU:C   | 18:Z:154:LEU:HD23 | 2.07        | 0.74     |
| 18:Z:174:PRO:O   | 18:Z:175:ARG:HG2  | 1.86        | 0.74     |
| 8:I:76:THR:HB    | 8:I:144:HIS:HE1   | 1.51        | 0.74     |
| 2:A:1398:C:H2'   | 2:A:1399:C:H6     | 1.52        | 0.74     |
| 2:A:94:G:O3'     | 22:2:41:GLU:OE1   | 2.05        | 0.74     |
| 2:A:715:G:H2'    | 2:A:716:A:C8      | 2.22        | 0.74     |
| 2:A:983:A:C8     | 2:A:984:A:H1'     | 2.22        | 0.74     |
| 2:A:989:G:OP2    | 23:3:11:SER:HB2   | 1.86        | 0.74     |
| 28:7:10:ARG:O    | 28:7:11:LYS:O     | 2.06        | 0.74     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:650:C:OP1    | 29:8:19:THR:CG2  | 2.36        | 0.74     |
| 2:A:2414:G:N3    | 2:A:2415:G:H8    | 1.84        | 0.74     |
| 2:A:2430:A:C2'   | 2:A:2431:U:H5''  | 2.16        | 0.74     |
| 2:A:2485:G:N2    | 2:A:2486:G:H1'   | 2.01        | 0.74     |
| 2:A:2555:U:C5    | 2:A:2556:C:C6    | 2.75        | 0.74     |
| 2:A:2576:G:H3'   | 2:A:2576:G:P     | 2.27        | 0.74     |
| 2:A:2804:C:C6    | 2:A:2805:G:C6    | 2.75        | 0.74     |
| 2:A:2886:G:C2    | 2:A:2887:U:C6    | 2.75        | 0.74     |
| 2:A:510:C:P      | 2:A:512:G:H1     | 2.09        | 0.74     |
| 2:A:631:A:C2     | 2:A:2416:C:O4'   | 2.40        | 0.74     |
| 3:D:146:LYS:HZ2  | 3:D:184:LEU:CD1  | 1.92        | 0.74     |
| 2:A:673:C:H1'    | 5:F:82:GLN:OE1   | 1.86        | 0.74     |
| 7:H:147:ILE:HD12 | 7:H:150:VAL:CB   | 2.18        | 0.74     |
| 10:O:99:PHE:HE2  | 14:T:24:LYS:NZ   | 1.83        | 0.74     |
| 11:P:66:VAL:O    | 11:P:67:ARG:C    | 2.24        | 0.74     |
| 12:Q:32:LYS:HZ2  | 18:Z:172:LEU:CD1 | 1.90        | 0.74     |
| 12:Q:67:ALA:HB2  | 12:Q:70:ARG:HH11 | 0.94        | 0.74     |
| 2:A:446:G:H3'    | 20:U:5:LYS:NZ    | 2.00        | 0.74     |
| 21:V:69:ILE:CG2  | 21:V:88:GLN:CB   | 2.65        | 0.74     |
| 21:V:61:VAL:CG2  | 21:V:98:ILE:N    | 2.42        | 0.74     |
| 15:W:32:ALA:O    | 15:W:34:ASN:N    | 2.20        | 0.74     |
| 15:W:24:ILE:HG22 | 15:W:35:ILE:CB   | 2.16        | 0.74     |
| 17:Y:50:VAL:HG12 | 17:Y:52:ARG:H    | 1.50        | 0.74     |
| 3:D:224:VAL:HG12 | 3:D:225:ARG:H    | 1.51        | 0.74     |
| 22:2:15:GLU:O    | 22:2:16:ARG:C    | 2.22        | 0.74     |
| 22:2:62:GLU:C    | 22:2:64:GLY:N    | 2.36        | 0.74     |
| 2:A:94:G:H22     | 22:2:42:ASN:ND2  | 1.84        | 0.74     |
| 9:N:108:PRO:HG2  | 9:N:109:TYR:CD1  | 2.21        | 0.74     |
| 2:A:440:G:OP2    | 17:Y:3:GLN:OE1   | 2.05        | 0.74     |
| 24:0:50:GLY:O    | 24:0:52:GLY:N    | 2.20        | 0.74     |
| 2:A:1518:C:C3'   | 2:A:1519:G:H4'   | 2.15        | 0.74     |
| 2:A:882:G:H1     | 2:A:894:C:H42    | 1.34        | 0.74     |
| 2:A:2385:C:O2'   | 24:0:39:ARG:CZ   | 2.35        | 0.74     |
| 24:0:79:ILE:O    | 24:0:81:ILE:CD1  | 2.34        | 0.74     |
| 2:A:2304:G:H4'   | 6:G:105:SER:O    | 1.86        | 0.74     |
| 2:A:2313:C:H5'   | 6:G:72:LYS:CB    | 2.17        | 0.74     |
| 2:A:807:U:H5'    | 2:A:2445:G:H4'   | 1.70        | 0.74     |
| 2:A:2461:C:C2    | 2:A:2462:U:C6    | 2.75        | 0.74     |
| 2:A:2468:G:C6    | 2:A:2481:G:C2    | 2.74        | 0.74     |
| 2:A:2511:U:O2'   | 2:A:2512:C:H5'   | 1.87        | 0.74     |
| 2:A:2576:G:H2'   | 2:A:2576:G:N3    | 2.02        | 0.74     |
| 2:A:2737:G:N1    | 2:A:2767:C:N4    | 1.97        | 0.74     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2641:G:O6    | 2:A:2773:C:N3     | 2.20        | 0.74     |
| 2:A:2638:G:C4    | 2:A:2775:A:C2     | 2.75        | 0.74     |
| 2:A:2783:G:H2'   | 2:A:2784:C:H6     | 1.50        | 0.74     |
| 2:A:2850:A:H2'   | 2:A:2851:A:C8     | 2.19        | 0.74     |
| 2:A:989:G:OP2    | 23:3:11:SER:OG    | 2.05        | 0.74     |
| 4:E:222:ARG:H    | 4:E:222:ARG:CD    | 1.96        | 0.74     |
| 5:F:215:ALA:CB   | 5:F:241:ALA:HB3   | 2.09        | 0.74     |
| 5:F:52:ALA:CB    | 5:F:55:ARG:HH21   | 1.75        | 0.74     |
| 7:H:41:THR:CG2   | 7:H:52:THR:CB     | 2.66        | 0.74     |
| 8:I:43:ASN:O     | 8:I:45:LYS:C      | 2.24        | 0.74     |
| 10:O:65:THR:OG1  | 10:O:67:ARG:CG    | 2.34        | 0.74     |
| 10:O:87:ILE:HG21 | 10:O:91:LYS:HA    | 1.68        | 0.74     |
| 11:P:77:ALA:CA   | 11:P:81:VAL:CG2   | 2.65        | 0.74     |
| 11:P:94:ARG:O    | 11:P:95:ASP:CB    | 2.34        | 0.74     |
| 12:Q:31:PHE:HA   | 12:Q:85:ILE:CD1   | 2.18        | 0.74     |
| 12:Q:35:ASN:HB2  | 12:Q:75:SER:HB2   | 1.68        | 0.74     |
| 21:V:57:GLN:O    | 21:V:58:ALA:HB2   | 1.87        | 0.74     |
| 17:Y:103:LEU:CD2 | 17:Y:112:LEU:HD23 | 2.14        | 0.74     |
| 17:Y:50:VAL:C    | 17:Y:51:LEU:HD13  | 2.07        | 0.74     |
| 17:Y:92:ASP:C    | 17:Y:92:ASP:OD1   | 2.25        | 0.74     |
| 18:Z:116:VAL:CB  | 18:Z:169:VAL:HG22 | 2.16        | 0.74     |
| 1:B:75:G:C2'     | 18:Z:32:PHE:CD2   | 2.68        | 0.74     |
| 8:I:102:LEU:HD12 | 8:I:103:GLN:H     | 0.93        | 0.74     |
| 8:I:80:PRO:HA    | 8:I:146:THR:O     | 1.86        | 0.74     |
| 8:I:93:ILE:CG1   | 8:I:93:ILE:O      | 2.35        | 0.74     |
| 16:X:9:HIS:ND1   | 16:X:26:PHE:O     | 2.16        | 0.74     |
| 23:3:6:VAL:CG2   | 23:3:54:VAL:CG2   | 2.66        | 0.74     |
| 2:A:1363:C:P     | 25:4:55:ARG:HH22  | 2.10        | 0.74     |
| 2:A:1263:U:C4'   | 26:5:16:ARG:NH2   | 2.50        | 0.74     |
| 2:A:1819:A:H2'   | 3:D:177:SER:OG    | 1.86        | 0.74     |
| 2:A:570:G:H2'    | 2:A:2030:A:N6     | 2.02        | 0.74     |
| 2:A:2213:U:H2'   | 2:A:2213:U:O2     | 1.86        | 0.74     |
| 2:A:2256:G:N2    | 2:A:2257:U:C2     | 2.55        | 0.74     |
| 2:A:2294:C:C4    | 2:A:2339:G:O6     | 2.40        | 0.74     |
| 2:A:2489:G:N7    | 2:A:2490:G:N7     | 2.35        | 0.74     |
| 2:A:2571:C:O2'   | 4:E:243:PRO:CG    | 2.35        | 0.74     |
| 2:A:2626:C:O5'   | 2:A:2626:C:H6     | 1.63        | 0.74     |
| 2:A:2733:A:N3    | 4:E:318:ASN:HB2   | 2.02        | 0.74     |
| 2:A:688:U:H5'    | 2:A:1780:A:N1     | 2.02        | 0.74     |
| 2:A:989:G:OP2    | 23:3:11:SER:CB    | 2.34        | 0.74     |
| 3:D:140:VAL:HG13 | 3:D:190:THR:O     | 1.88        | 0.74     |
| 2:A:2784:C:C2    | 4:E:98:GLU:CD     | 2.46        | 0.74     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:598:G:N2     | 5:F:33:LYS:HZ3   | 1.80        | 0.74     |
| 5:F:96:LYS:CB    | 5:F:98:ARG:NH2   | 2.41        | 0.74     |
| 7:H:123:GLU:OE2  | 7:H:123:GLU:N    | 2.20        | 0.74     |
| 7:H:55:SER:O     | 7:H:57:GLU:N     | 2.20        | 0.74     |
| 9:N:136:SER:O    | 9:N:139:LEU:N    | 2.20        | 0.74     |
| 9:N:39:VAL:O     | 9:N:40:ASN:HB2   | 1.85        | 0.74     |
| 9:N:68:GLY:O     | 9:N:69:TYR:HB2   | 1.88        | 0.74     |
| 2:A:1131:G:N1    | 9:N:69:TYR:CZ    | 2.54        | 0.74     |
| 12:Q:142:LYS:CE  | 12:Q:142:LYS:C   | 2.55        | 0.74     |
| 13:S:46:GLN:HB3  | 13:S:57:THR:CG2  | 2.16        | 0.74     |
| 20:U:68:GLY:O    | 20:U:71:LEU:N    | 2.21        | 0.74     |
| 21:V:69:ILE:HG22 | 21:V:88:GLN:CB   | 2.18        | 0.74     |
| 17:Y:50:VAL:CG1  | 17:Y:51:LEU:N    | 2.33        | 0.74     |
| 18:Z:19:ILE:HB   | 18:Z:39:PHE:HE1  | 1.43        | 0.74     |
| 8:I:92:SER:HA    | 8:I:122:ARG:CG   | 2.08        | 0.74     |
| 6:G:44:ILE:C     | 6:G:83:PHE:HZ    | 1.91        | 0.74     |
| 24:O:35:ASN:O    | 24:O:36:ILE:CG1  | 2.33        | 0.74     |
| 2:A:932:G:H4'    | 23:3:24:LYS:HZ3  | 1.52        | 0.74     |
| 23:3:53:LEU:HD23 | 23:3:53:LEU:C    | 2.07        | 0.74     |
| 23:3:53:LEU:HD22 | 23:3:54:VAL:HG13 | 1.67        | 0.74     |
| 2:A:1156:A:OP1   | 20:U:55:ARG:NH1  | 2.19        | 0.74     |
| 2:A:2287:A:N1    | 2:A:2289:G:N9    | 2.35        | 0.74     |
| 2:A:2317:C:H5    | 2:A:2318:G:O6    | 1.66        | 0.74     |
| 2:A:2333:A:H1'   | 2:A:2335:A:C2    | 2.19        | 0.74     |
| 2:A:2391:G:O2'   | 2:A:2392:A:P     | 2.46        | 0.74     |
| 2:A:2422:A:O2'   | 2:A:2424:C:C6    | 2.39        | 0.74     |
| 2:A:826:U:OP1    | 2:A:2428:G:O5'   | 2.06        | 0.74     |
| 2:A:2626:C:C6    | 2:A:2626:C:C4'   | 2.70        | 0.74     |
| 2:A:2678:C:C2    | 2:A:2679:A:H8    | 2.04        | 0.74     |
| 2:A:2870:C:O2    | 2:A:2870:C:C2'   | 2.35        | 0.74     |
| 2:A:396:G:C4'    | 25:4:39:VAL:CG1  | 2.65        | 0.74     |
| 2:A:994:C:H4'    | 20:U:54:LYS:HE3  | 1.69        | 0.74     |
| 3:D:63:ILE:HG22  | 3:D:64:ILE:H     | 0.58        | 0.74     |
| 4:E:269:ILE:CA   | 4:E:297:LYS:HE2  | 2.17        | 0.74     |
| 5:F:223:LEU:HD12 | 5:F:224:ALA:H    | 0.93        | 0.74     |
| 2:A:452:G:P      | 5:F:55:ARG:NH2   | 2.23        | 0.74     |
| 5:F:57:PRO:HG2   | 5:F:58:ALA:H     | 1.52        | 0.74     |
| 6:G:65:GLU:OE1   | 6:G:65:GLU:C     | 2.25        | 0.74     |
| 7:H:83:GLU:C     | 7:H:83:GLU:OE2   | 2.25        | 0.74     |
| 8:I:5:PHE:C      | 8:I:36:ALA:HB2   | 2.06        | 0.74     |
| 9:N:53:ILE:CG2   | 9:N:135:ILE:HD11 | 2.15        | 0.74     |
| 2:A:1131:G:C2    | 9:N:69:TYR:CE1   | 2.76        | 0.74     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 9:N:74:ARG:O     | 9:N:75:PRO:C     | 2.23        | 0.74     |
| 19:R:90:ARG:HH12 | 19:R:117:VAL:CG2 | 2.00        | 0.74     |
| 17:Y:31:LEU:HD12 | 17:Y:101:LEU:HB2 | 1.67        | 0.74     |
| 18:Z:51:LEU:HD23 | 18:Z:52:PHE:H    | 1.50        | 0.74     |
| 22:2:7:GLU:OE2   | 22:2:8:ILE:CG1   | 2.32        | 0.74     |
| 16:X:50:GLU:HB2  | 16:X:67:ARG:O    | 1.87        | 0.74     |
| 2:A:1472:A:C2'   | 2:A:1473:G:H8    | 1.99        | 0.74     |
| 27:6:46:LYS:HA   | 27:6:46:LYS:HZ1  | 1.51        | 0.74     |
| 2:A:2314:C:C5'   | 6:G:22:VAL:CG1   | 2.62        | 0.74     |
| 2:A:792:G:C5     | 2:A:2440:C:H1'   | 2.21        | 0.74     |
| 2:A:2462:U:C2    | 2:A:2463:C:C6    | 2.75        | 0.74     |
| 2:A:2652:C:C2'   | 2:A:2653:U:H5'   | 2.16        | 0.74     |
| 2:A:2748:A:C8    | 2:A:2749:A:C5    | 2.75        | 0.74     |
| 2:A:627:A:OP2    | 2:A:627:A:H4'    | 1.87        | 0.74     |
| 2:A:911:A:H5''   | 2:A:912:C:H5''   | 1.68        | 0.74     |
| 3:D:63:ILE:CG2   | 3:D:64:ILE:N     | 2.08        | 0.74     |
| 5:F:144:PHE:CD2  | 5:F:156:LEU:CD1  | 2.71        | 0.74     |
| 7:H:104:LEU:HB2  | 7:H:151:ARG:HH12 | 1.42        | 0.74     |
| 7:H:55:SER:C     | 7:H:57:GLU:H     | 1.90        | 0.74     |
| 8:I:13:GLY:CA    | 8:I:15:LYS:HD2   | 2.16        | 0.74     |
| 8:I:31:PHE:CE1   | 8:I:35:LEU:O     | 2.40        | 0.74     |
| 10:O:17:ARG:HB2  | 10:O:45:ASP:O    | 1.87        | 0.74     |
| 12:Q:49:VAL:CB   | 12:Q:119:ASN:O   | 2.36        | 0.74     |
| 13:S:33:ARG:HB3  | 13:S:35:VAL:HG22 | 1.69        | 0.74     |
| 20:U:117:ARG:NH1 | 20:U:118:GLN:OE1 | 2.20        | 0.74     |
| 21:V:94:LYS:CA   | 21:V:95:ILE:CD1  | 2.56        | 0.74     |
| 17:Y:78:THR:HA   | 17:Y:89:ARG:H    | 1.51        | 0.74     |
| 18:Z:141:MET:O   | 18:Z:142:ASN:ND2 | 2.20        | 0.74     |
| 2:A:1197:G:C2    | 2:A:1250:G:C2    | 2.76        | 0.74     |
| 24:0:36:ILE:CA   | 24:0:68:VAL:HG11 | 2.17        | 0.74     |
| 23:3:16:PRO:CB   | 23:3:19:GLN:OE1  | 2.34        | 0.74     |
| 23:3:4:LEU:N     | 23:3:37:LEU:O    | 2.18        | 0.74     |
| 26:5:14:SER:O    | 26:5:15:LYS:C    | 2.25        | 0.74     |
| 27:6:42:PRO:O    | 27:6:44:ALA:O    | 2.05        | 0.74     |
| 28:7:13:ALA:O    | 28:7:14:LYS:C    | 2.25        | 0.74     |
| 29:8:31:HIS:O    | 29:8:32:GLN:HG2  | 1.86        | 0.74     |
| 2:A:1030:G:O3'   | 2:A:1031:G:P     | 2.46        | 0.74     |
| 2:A:2191:G:H2'   | 2:A:2192:G:O4'   | 1.87        | 0.74     |
| 2:A:2210:G:C6    | 3:D:148:GLY:HA3  | 2.23        | 0.74     |
| 2:A:2458:G:C4    | 2:A:2490:G:C2    | 2.75        | 0.74     |
| 2:A:2613:U:H5'   | 2:A:2613:U:C6    | 2.17        | 0.74     |
| 2:A:2615:U:H2'   | 2:A:2616:C:C6    | 2.23        | 0.74     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2859:G:O2'   | 2:A:2860:A:H5'    | 1.87        | 0.74     |
| 2:A:2808:U:O2    | 2:A:2892:A:N1     | 2.20        | 0.74     |
| 2:A:593:G:O2'    | 29:8:58:MET:HE1   | 1.86        | 0.74     |
| 3:D:65:ASP:OD1   | 3:D:65:ASP:C      | 2.23        | 0.74     |
| 4:E:198:TYR:HA   | 4:E:266:LYS:O     | 1.88        | 0.74     |
| 2:A:2784:C:O2'   | 4:E:98:GLU:O      | 2.04        | 0.74     |
| 5:F:138:VAL:O    | 5:F:139:VAL:HG23  | 1.87        | 0.74     |
| 5:F:216:SER:O    | 5:F:217:GLU:HB2   | 1.87        | 0.74     |
| 7:H:105:SER:O    | 7:H:106:VAL:CG2   | 2.35        | 0.74     |
| 7:H:7:PRO:N      | 7:H:50:THR:HG1    | 1.85        | 0.74     |
| 9:N:65:ASN:ND2   | 9:N:69:TYR:CD1    | 2.54        | 0.74     |
| 10:O:104:ARG:H   | 10:O:104:ARG:HD2  | 1.53        | 0.74     |
| 11:P:62:ALA:O    | 11:P:107:LYS:CE   | 2.36        | 0.74     |
| 19:R:58:GLY:O    | 19:R:59:ASP:HB3   | 1.88        | 0.74     |
| 20:U:98:ILE:O    | 20:U:99:ALA:C     | 2.26        | 0.74     |
| 21:V:31:ASP:O    | 21:V:33:VAL:HG23  | 1.87        | 0.74     |
| 21:V:40:VAL:CA   | 21:V:51:ALA:HB1   | 2.17        | 0.74     |
| 21:V:35:LEU:HG   | 21:V:63:HIS:HE2   | 1.52        | 0.74     |
| 21:V:69:ILE:HG22 | 21:V:88:GLN:HB3   | 1.70        | 0.74     |
| 15:W:55:ALA:N    | 15:W:107:LEU:HD12 | 2.02        | 0.74     |
| 18:Z:12:GLN:O    | 18:Z:15:ASP:HB3   | 1.87        | 0.74     |
| 18:Z:100:THR:CA  | 18:Z:137:ASP:CG   | 2.50        | 0.74     |
| 18:Z:40:ASP:O    | 18:Z:41:ARG:C     | 2.25        | 0.74     |
| 8:I:115:ILE:HG13 | 8:I:131:VAL:HG13  | 1.68        | 0.74     |
| 2:A:1566:A:C2    | 3:D:212:HIS:CG    | 2.75        | 0.74     |
| 16:X:28:VAL:CG1  | 16:X:64:ALA:CB    | 2.65        | 0.74     |
| 23:3:16:PRO:HB3  | 23:3:19:GLN:NE2   | 2.02        | 0.74     |
| 23:3:23:LEU:HA   | 23:3:28:LEU:HD12  | 0.74        | 0.74     |
| 25:4:17:GLN:HA   | 25:4:33:VAL:CG1   | 2.18        | 0.74     |
| 26:5:42:SER:O    | 26:5:43:HIS:CB    | 2.35        | 0.74     |
| 29:8:60:LEU:HD22 | 29:8:60:LEU:C     | 2.06        | 0.74     |
| 2:A:2742:C:H5''  | 30:9:35:ARG:NH1   | 2.01        | 0.74     |
| 2:A:2239:G:N3    | 2:A:2240:C:C6     | 2.56        | 0.74     |
| 2:A:2298:A:C5    | 2:A:2321:G:N1     | 2.55        | 0.74     |
| 2:A:2437:U:H5'   | 2:A:2598:A:H2     | 0.97        | 0.74     |
| 2:A:2488:A:C6    | 2:A:2489:G:C5     | 2.76        | 0.74     |
| 2:A:2567:G:H2'   | 2:A:2568:C:H5     | 1.51        | 0.74     |
| 2:A:2737:G:N3    | 2:A:2738:A:N7     | 2.36        | 0.74     |
| 3:D:140:VAL:HG22 | 3:D:191:VAL:CG1   | 2.13        | 0.74     |
| 3:D:142:ASN:N    | 3:D:142:ASN:HD22  | 1.85        | 0.74     |
| 3:D:74:PRO:CG    | 3:D:96:ALA:CA     | 2.65        | 0.74     |
| 4:E:214:VAL:CG2  | 4:E:221:LYS:HZ2   | 2.00        | 0.74     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2620:C:H4'   | 4:E:252:GLN:HB2   | 1.70        | 0.74     |
| 11:P:130:ARG:HA  | 11:P:133:VAL:CG2  | 2.18        | 0.74     |
| 13:S:23:ARG:HH21 | 13:S:35:VAL:HG21  | 1.53        | 0.74     |
| 21:V:33:VAL:CB   | 21:V:63:HIS:CD2   | 2.70        | 0.74     |
| 21:V:43:GLU:C    | 21:V:44:GLN:HE21  | 1.90        | 0.74     |
| 17:Y:43:ASN:ND2  | 17:Y:103:LEU:CD2  | 2.45        | 0.74     |
| 18:Z:154:LEU:CD1 | 18:Z:160:LEU:HD11 | 2.17        | 0.74     |
| 18:Z:67:LYS:HG3  | 18:Z:67:LYS:O     | 1.88        | 0.74     |
| 8:I:116:GLU:HG2  | 8:I:132:LYS:HE2   | 1.69        | 0.74     |
| 16:X:14:ALA:O    | 16:X:17:ASP:N     | 2.20        | 0.74     |
| 2:A:1:G:C2       | 2:A:2902:C:N4     | 2.56        | 0.74     |
| 6:G:87:ALA:C     | 6:G:89:PRO:HD2    | 2.07        | 0.74     |
| 2:A:1697:G:H5''  | 2:A:1698:A:H5'    | 1.68        | 0.74     |
| 2:A:2407:G:H5''  | 2:A:2408:U:OP2    | 1.87        | 0.74     |
| 2:A:987:G:OP1    | 23:3:10:LYS:HE2   | 1.88        | 0.74     |
| 23:3:9:VAL:N     | 23:3:54:VAL:CG1   | 2.50        | 0.74     |
| 2:A:1612:C:O2'   | 28:7:5:TYR:HB2    | 1.87        | 0.74     |
| 2:A:1935:G:H2'   | 2:A:1962:C:N3     | 2.02        | 0.74     |
| 2:A:1999:C:HO2'  | 2:A:2687:U:HO2'   | 1.16        | 0.74     |
| 2:A:2265:U:H2'   | 2:A:2266:A:OP1    | 1.86        | 0.74     |
| 2:A:2313:C:C5'   | 6:G:51:ARG:NH1    | 2.47        | 0.74     |
| 2:A:2373:G:O2'   | 2:A:2374:C:C5'    | 2.29        | 0.74     |
| 2:A:2773:C:H2'   | 2:A:2774:C:H6     | 1.52        | 0.74     |
| 2:A:2831:G:H1'   | 2:A:2883:A:C2     | 2.22        | 0.74     |
| 2:A:2840:C:H5''  | 19:R:53:HIS:CD2   | 2.23        | 0.74     |
| 2:A:2848:G:N1    | 2:A:2867:G:N3     | 2.35        | 0.74     |
| 2:A:712(A):A:H5' | 2:A:2713:A:H5''   | 1.70        | 0.74     |
| 2:A:994:C:C5     | 21:V:72:ARG:NH1   | 2.23        | 0.74     |
| 3:D:104:ILE:HB   | 3:D:106:PRO:HD3   | 1.68        | 0.74     |
| 4:E:247:ARG:HB2  | 4:E:249:THR:OG1   | 1.88        | 0.74     |
| 6:G:93:LEU:HD22  | 6:G:106:PHE:CE2   | 2.22        | 0.74     |
| 7:H:104:LEU:CB   | 7:H:151:ARG:CZ    | 2.48        | 0.74     |
| 12:Q:10:ILE:HG13 | 12:Q:10:ILE:O     | 1.88        | 0.74     |
| 12:Q:45:GLN:CD   | 12:Q:153:PRO:HB2  | 2.08        | 0.74     |
| 12:Q:68:ALA:CB   | 12:Q:136:TRP:HZ3  | 2.01        | 0.74     |
| 2:A:1287:A:H8    | 19:R:104:ARG:HG2  | 1.53        | 0.74     |
| 19:R:43:GLU:C    | 19:R:45:ARG:N     | 2.36        | 0.74     |
| 13:S:40:ASN:HA   | 13:S:114:LYS:HZ1  | 1.52        | 0.74     |
| 21:V:78:VAL:HB   | 21:V:80:TYR:CE1   | 2.22        | 0.74     |
| 21:V:95:ILE:N    | 21:V:95:ILE:CD1   | 2.33        | 0.74     |
| 15:W:8:ARG:NE    | 15:W:102:HIS:HE1  | 1.85        | 0.74     |
| 15:W:45:TYR:HD2  | 15:W:46:PHE:N     | 1.85        | 0.74     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:310:A:OP1    | 17:Y:52:ARG:HB3   | 1.88        | 0.74     |
| 18:Z:26:LYS:HD2  | 18:Z:27:GLU:OE2   | 1.87        | 0.74     |
| 18:Z:67:LYS:HA   | 18:Z:67:LYS:HZ1   | 0.84        | 0.74     |
| 2:A:76:C:O2'     | 22:2:55:ARG:CA    | 2.34        | 0.74     |
| 16:X:9:HIS:ND1   | 16:X:27:ALA:CA    | 2.50        | 0.74     |
| 2:A:358:U:H3'    | 2:A:359:A:C5'     | 2.17        | 0.74     |
| 25:4:21:VAL:HG12 | 25:4:22:MET:H     | 0.58        | 0.74     |
| 27:6:33:ALA:O    | 27:6:35:LEU:N     | 2.21        | 0.74     |
| 2:A:1140:C:H1'   | 2:A:142(A):A:C6   | 2.22        | 0.74     |
| 2:A:2188:C:C5    | 2:A:2189:U:C4     | 2.76        | 0.74     |
| 2:A:2206:C:HO2'  | 2:A:2207:C:C4'    | 2.00        | 0.74     |
| 2:A:2276:G:C2'   | 2:A:2277:G:O5'    | 2.35        | 0.74     |
| 2:A:248:G:C2     | 2:A:2431:U:H4'    | 2.23        | 0.74     |
| 2:A:2546:U:O2    | 2:A:2567:G:H8     | 1.71        | 0.74     |
| 2:A:2838:G:N2    | 2:A:2881:C:C2     | 2.56        | 0.74     |
| 2:A:2712:U:O2'   | 2:A:712(A):A:O5'  | 2.05        | 0.74     |
| 2:A:907:U:O2'    | 12:Q:88:PHE:CE1   | 2.41        | 0.74     |
| 3:D:143:ILE:CG1  | 3:D:153:LEU:CA    | 2.66        | 0.74     |
| 2:A:1799:G:H21   | 3:D:153:LEU:CG    | 2.00        | 0.74     |
| 3:D:167:GLU:HB2  | 3:D:170:TYR:CE1   | 2.06        | 0.74     |
| 3:D:175:LEU:CD1  | 3:D:180:VAL:CA    | 2.65        | 0.74     |
| 5:F:215:ALA:CB   | 5:F:238:SER:C     | 2.54        | 0.74     |
| 6:G:46:GLY:O     | 6:G:47:GLN:HG3    | 1.88        | 0.74     |
| 7:H:127:GLN:HG3  | 7:H:128:THR:N     | 2.03        | 0.74     |
| 7:H:89:VAL:O     | 7:H:160:GLY:N     | 2.21        | 0.74     |
| 2:A:557:U:C4'    | 9:N:92:GLN:HE21   | 2.01        | 0.74     |
| 11:P:112:GLY:O   | 11:P:113:GLN:OE1  | 2.06        | 0.74     |
| 11:P:66:VAL:C    | 11:P:67:ARG:NE    | 2.40        | 0.74     |
| 2:A:910:A:N7     | 12:Q:12:PRO:O     | 2.21        | 0.74     |
| 12:Q:82:LYS:HB3  | 12:Q:123:ILE:HG22 | 1.70        | 0.74     |
| 13:S:17:ARG:HH11 | 13:S:18:THR:CA    | 2.01        | 0.74     |
| 13:S:97:VAL:O    | 13:S:98:GLU:HB3   | 1.86        | 0.74     |
| 20:U:63:GLN:C    | 20:U:65:ILE:N     | 2.41        | 0.74     |
| 17:Y:28:SER:OG   | 17:Y:99:THR:HG23  | 1.87        | 0.74     |
| 12:Q:94:ARG:CG   | 12:Q:107:LYS:N    | 2.51        | 0.74     |
| 2:A:1101:U:H2'   | 2:A:1102:C:H6     | 1.50        | 0.74     |
| 2:A:1489:U:H4'   | 2:A:1490:A:OP2    | 1.87        | 0.74     |
| 25:4:7:PRO:HD2   | 25:4:56:VAL:CB    | 2.18        | 0.73     |
| 2:A:1156:A:N7    | 20:U:55:ARG:NH2   | 2.35        | 0.73     |
| 2:A:1140:C:H4'   | 2:A:142(A):A:C4   | 2.23        | 0.73     |
| 2:A:2264:C:H2'   | 2:A:2265:U:C5'    | 2.16        | 0.73     |
| 2:A:2395:C:H6    | 2:A:2395:C:H3'    | 1.51        | 0.73     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2454:G:C4    | 2:A:2455:G:C8    | 2.76        | 0.73     |
| 2:A:2521:C:O4'   | 2:A:2565:A:H1'   | 1.88        | 0.73     |
| 2:A:2523:G:O4'   | 2:A:2765:A:C8    | 2.40        | 0.73     |
| 2:A:2853:C:H2'   | 2:A:2854:G:O5'   | 1.88        | 0.73     |
| 2:A:398:G:OP2    | 25:4:59:PHE:CZ   | 2.41        | 0.73     |
| 2:A:530:G:C6     | 2:A:2021:C:C2    | 2.76        | 0.73     |
| 2:A:617:G:OP2    | 5:F:221:GLU:OE1  | 2.05        | 0.73     |
| 2:A:929:G:O2'    | 23:3:43:ILE:HG12 | 1.88        | 0.73     |
| 2:A:988:A:P      | 23:3:11:SER:HB3  | 2.28        | 0.73     |
| 3:D:76:ARG:HD3   | 3:D:113:MET:HE2  | 1.70        | 0.73     |
| 4:E:192:ILE:O    | 4:E:193:PHE:C    | 2.25        | 0.73     |
| 2:A:2578:G:C8    | 4:E:237:ASN:OD1  | 2.40        | 0.73     |
| 5:F:167:ASP:O    | 5:F:168:ARG:CD   | 2.35        | 0.73     |
| 7:H:48:VAL:HG23  | 7:H:49:ILE:H     | 1.53        | 0.73     |
| 9:N:79:PHE:CD1   | 9:N:79:PHE:N     | 2.52        | 0.73     |
| 12:Q:16:ARG:NH1  | 12:Q:19:TYR:HD1  | 1.86        | 0.73     |
| 19:R:18:LEU:HD12 | 19:R:19:ALA:N    | 2.02        | 0.73     |
| 20:U:88:ILE:O    | 21:V:52:GLY:HA2  | 1.87        | 0.73     |
| 20:U:7:GLY:C     | 20:U:9:VAL:H     | 1.88        | 0.73     |
| 8:I:133:LEU:HD11 | 8:I:139:ALA:HB3  | 1.70        | 0.73     |
| 22:2:51:LYS:O    | 22:2:54:ALA:CB   | 2.36        | 0.73     |
| 2:A:1427:A:H8    | 2:A:1427:A:OP1   | 1.70        | 0.73     |
| 2:A:2386:C:H4'   | 24:0:39:ARG:NE   | 2.03        | 0.73     |
| 25:4:7:PRO:CD    | 25:4:56:VAL:CG2  | 2.27        | 0.73     |
| 26:5:30:LEU:HD21 | 26:5:41:LEU:HD23 | 1.68        | 0.73     |
| 26:5:45:ILE:H    | 26:5:52:TYR:HE1  | 1.35        | 0.73     |
| 2:A:1612:C:H2'   | 28:7:3:ARG:HE    | 1.21        | 0.73     |
| 2:A:2309:A:C5'   | 2:A:2310:A:H8    | 1.97        | 0.73     |
| 2:A:2404:C:N4    | 2:A:2405:G:N1    | 2.36        | 0.73     |
| 2:A:2508:G:N2    | 2:A:2509:G:C1'   | 2.50        | 0.73     |
| 2:A:2816:C:H2'   | 2:A:2817:G:O5'   | 1.88        | 0.73     |
| 2:A:2006:C:O2'   | 2:A:2823:A:N3    | 2.21        | 0.73     |
| 2:A:2838:G:C2    | 2:A:2839:G:C8    | 2.76        | 0.73     |
| 2:A:573:G:H2'    | 2:A:574:C:H3'    | 1.70        | 0.73     |
| 2:A:687:C:O2'    | 2:A:1780:A:N6    | 2.21        | 0.73     |
| 2:A:987:G:OP1    | 23:3:10:LYS:CE   | 2.36        | 0.73     |
| 3:D:175:LEU:O    | 3:D:176:ALA:C    | 2.26        | 0.73     |
| 4:E:265:ASN:O    | 4:E:265:ASN:ND2  | 2.21        | 0.73     |
| 4:E:268:LEU:HD21 | 4:E:295:LEU:O    | 1.88        | 0.73     |
| 9:N:39:VAL:HA    | 9:N:103:VAL:HG13 | 1.69        | 0.73     |
| 2:A:1140:C:OP1   | 9:N:18:ILE:CG1   | 2.36        | 0.73     |
| 10:O:31:ARG:O    | 10:O:32:TYR:CD1  | 2.42        | 0.73     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:Q:51:GLU:N    | 12:Q:51:GLU:OE1   | 2.20        | 0.73     |
| 12:Q:75:SER:O    | 12:Q:132:VAL:HG21 | 1.88        | 0.73     |
| 13:S:34:LEU:HG   | 13:S:102:LEU:C    | 2.08        | 0.73     |
| 20:U:83:LEU:O    | 20:U:86:ALA:CB    | 2.36        | 0.73     |
| 21:V:33:VAL:HB   | 21:V:63:HIS:NE2   | 2.02        | 0.73     |
| 17:Y:31:LEU:CD1  | 17:Y:101:LEU:CB   | 2.66        | 0.73     |
| 17:Y:102:ASP:C   | 17:Y:108:ARG:HD3  | 2.07        | 0.73     |
| 17:Y:48:VAL:HG12 | 17:Y:49:GLU:H     | 0.62        | 0.73     |
| 17:Y:63:ILE:CG1  | 17:Y:75:GLU:OE2   | 2.37        | 0.73     |
| 17:Y:70:ALA:O    | 17:Y:93:THR:HG23  | 1.89        | 0.73     |
| 17:Y:73:HIS:HA   | 17:Y:91:LEU:HD21  | 1.69        | 0.73     |
| 8:I:89:LEU:HD12  | 8:I:93:ILE:HG23   | 1.68        | 0.73     |
| 16:X:31:ARG:NE   | 16:X:31:ARG:CA    | 2.51        | 0.73     |
| 17:Y:9:LYS:HZ1   | 17:Y:13:ARG:HH22  | 1.35        | 0.73     |
| 17:Y:81:LYS:NZ   | 17:Y:81:LYS:HB3   | 2.03        | 0.73     |
| 24:O:65:GLY:O    | 24:O:66:LYS:CE    | 2.35        | 0.73     |
| 27:6:12:MET:HE3  | 27:6:54:LYS:N     | 2.02        | 0.73     |
| 29:8:9:MET:O     | 29:8:14:ILE:CD1   | 2.35        | 0.73     |
| 2:A:2048:G:C6    | 2:A:2621:A:N1     | 2.57        | 0.73     |
| 2:A:2187:G:H2'   | 2:A:2188:C:H5'    | 1.70        | 0.73     |
| 2:A:2255:G:C6    | 2:A:2256:G:C8     | 2.77        | 0.73     |
| 2:A:2320:A:N6    | 13:S:9:PRO:CB     | 2.51        | 0.73     |
| 2:A:2349:G:O6    | 2:A:2350:C:C5     | 2.42        | 0.73     |
| 2:A:2868:A:O5'   | 2:A:2868:A:H8     | 1.71        | 0.73     |
| 4:E:222:ARG:CD   | 4:E:232:ARG:CA    | 2.64        | 0.73     |
| 5:F:92:PRO:O     | 5:F:93:LYS:C      | 2.24        | 0.73     |
| 8:I:7:LYS:CB     | 8:I:14:LYS:HE2    | 2.10        | 0.73     |
| 8:I:43:ASN:HA    | 8:I:46:ALA:CB     | 2.18        | 0.73     |
| 8:I:50:GLN:HA    | 8:I:53:LYS:HG2    | 1.68        | 0.73     |
| 10:O:3:GLN:HA    | 10:O:21:VAL:CG1   | 2.19        | 0.73     |
| 19:R:31:HIS:HD2  | 19:R:34:ILE:HD11  | 1.53        | 0.73     |
| 19:R:90:ARG:HH12 | 19:R:117:VAL:HG21 | 1.53        | 0.73     |
| 13:S:28:LYS:HB3  | 13:S:28:LYS:HZ3   | 1.54        | 0.73     |
| 14:T:21:PHE:C    | 14:T:22:VAL:CG1   | 2.54        | 0.73     |
| 20:U:80:ILE:CA   | 20:U:83:LEU:HD12  | 2.17        | 0.73     |
| 20:U:82:GLY:O    | 20:U:85:ARG:HB2   | 1.87        | 0.73     |
| 2:A:1266:G:O6    | 15:W:13:SER:CB    | 2.36        | 0.73     |
| 18:Z:46:GLN:C    | 18:Z:47:SER:O     | 2.26        | 0.73     |
| 16:X:14:ALA:C    | 16:X:17:ASP:OD1   | 2.26        | 0.73     |
| 16:X:32:ALA:HA   | 16:X:36:GLU:HG3   | 1.69        | 0.73     |
| 6:G:60:GLU:O     | 6:G:61:PHE:HB2    | 1.86        | 0.73     |
| 16:X:46:ASP:N    | 16:X:46:ASP:OD1   | 2.20        | 0.73     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 14:T:46:ALA:O    | 14:T:49:LEU:HB3  | 1.88        | 0.73     |
| 2:A:190:A:H2'    | 2:A:191:A:C8     | 2.23        | 0.73     |
| 24:0:71:ASN:O    | 24:0:72:LYS:C    | 2.26        | 0.73     |
| 27:6:17:GLY:O    | 27:6:18:THR:HB   | 1.88        | 0.73     |
| 2:A:1012:U:O2    | 9:N:21:ARG:HG2   | 1.88        | 0.73     |
| 2:A:2018:G:H21   | 20:U:34:ASN:HD21 | 0.79        | 0.73     |
| 2:A:2266:A:H5''  | 2:A:2267:A:C5    | 2.22        | 0.73     |
| 2:A:2410:G:H2'   | 2:A:2411:A:H8    | 1.00        | 0.73     |
| 2:A:2468:G:N2    | 2:A:2481:G:C2'   | 2.48        | 0.73     |
| 2:A:2592:G:N2    | 2:A:2603:G:C5    | 2.57        | 0.73     |
| 2:A:2676:C:O2    | 2:A:2732:G:N2    | 2.21        | 0.73     |
| 2:A:2838:G:C6    | 2:A:2839:G:C5    | 2.75        | 0.73     |
| 4:E:42:ALA:HA    | 4:E:311:PHE:HE2  | 1.53        | 0.73     |
| 6:G:105:SER:CB   | 6:G:131:THR:CG2  | 2.57        | 0.73     |
| 7:H:140:VAL:O    | 7:H:143:LEU:HD22 | 1.86        | 0.73     |
| 7:H:63:LEU:O     | 7:H:66:THR:CG2   | 2.31        | 0.73     |
| 9:N:18:ILE:O     | 9:N:20:GLY:N     | 2.21        | 0.73     |
| 9:N:54:VAL:HG11  | 9:N:138:THR:HB   | 1.70        | 0.73     |
| 11:P:124:ASP:HB3 | 11:P:130:ARG:NH2 | 2.02        | 0.73     |
| 11:P:76:LEU:CA   | 11:P:81:VAL:HG21 | 2.17        | 0.73     |
| 14:T:13:ILE:HG22 | 14:T:14:GLU:OE2  | 1.89        | 0.73     |
| 20:U:55:ARG:C    | 20:U:57:PHE:N    | 2.41        | 0.73     |
| 20:U:98:ILE:N    | 20:U:98:ILE:HD12 | 2.04        | 0.73     |
| 18:Z:18:MET:HG3  | 18:Z:35:ASP:HA   | 1.70        | 0.73     |
| 18:Z:4:THR:O     | 18:Z:5:ALA:HB3   | 1.86        | 0.73     |
| 8:I:105:GLN:O    | 8:I:107:GLY:N    | 2.22        | 0.73     |
| 8:I:145:VAL:O    | 8:I:146:THR:CB   | 2.34        | 0.73     |
| 3:D:215:LYS:O    | 3:D:216:ALA:O    | 2.06        | 0.73     |
| 2:A:148:C:HO3'   | 2:A:149:A:C5'    | 2.01        | 0.73     |
| 12:Q:94:ARG:HG2  | 12:Q:107:LYS:H   | 1.54        | 0.73     |
| 2:A:2183:C:H2'   | 2:A:2184:G:H8    | 1.53        | 0.73     |
| 27:6:19:GLY:HA3  | 27:6:42:PRO:HG3  | 0.74        | 0.73     |
| 2:A:1262:A:H2    | 26:5:10:LYS:HE2  | 1.53        | 0.73     |
| 2:A:2241:A:H5'   | 2:A:2241:A:C8    | 2.22        | 0.73     |
| 2:A:2446:G:H21   | 2:A:2501:C:H41   | 1.34        | 0.73     |
| 2:A:2528:U:H5    | 2:A:2530:A:N3    | 1.66        | 0.73     |
| 2:A:2712:U:O2'   | 2:A:712(A):A:P   | 2.46        | 0.73     |
| 2:A:2892:A:H2'   | 2:A:2893:G:C1'   | 2.18        | 0.73     |
| 2:A:337:C:OP1    | 17:Y:21:LYS:O    | 2.06        | 0.73     |
| 2:A:592:G:N2     | 29:8:3:LYS:NZ    | 2.36        | 0.73     |
| 3:D:128:ALA:HB2  | 3:D:190:THR:HA   | 1.57        | 0.73     |
| 4:E:79:ARG:CZ    | 4:E:104:PHE:O    | 2.36        | 0.73     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:E:77:PRO:HB3   | 4:E:188:ALA:N     | 2.02        | 0.73     |
| 4:E:267:ARG:HB2  | 4:E:297:LYS:CD    | 2.17        | 0.73     |
| 4:E:193:PHE:CZ   | 4:E:312:ARG:O     | 2.42        | 0.73     |
| 4:E:44:TYR:HD1   | 4:E:309:PRO:CD    | 1.99        | 0.73     |
| 4:E:85:ALA:O     | 4:E:96:LEU:O      | 2.07        | 0.73     |
| 5:F:33:LYS:CA    | 5:F:36:ARG:CG     | 2.66        | 0.73     |
| 5:F:56:THR:CB    | 5:F:57:PRO:CD     | 2.66        | 0.73     |
| 8:I:3:VAL:HG11   | 8:I:21:VAL:HG21   | 1.70        | 0.73     |
| 8:I:7:LYS:HG3    | 8:I:12:LYS:CA     | 2.18        | 0.73     |
| 10:O:17:ARG:HH21 | 10:O:47:THR:CA    | 2.01        | 0.73     |
| 10:O:73:ASP:C    | 10:O:75:SER:H     | 1.91        | 0.73     |
| 11:P:64:ILE:O    | 11:P:108:VAL:CA   | 2.35        | 0.73     |
| 12:Q:142:LYS:HE2 | 12:Q:143:VAL:C    | 2.09        | 0.73     |
| 12:Q:146:THR:O   | 12:Q:147:VAL:HB   | 1.87        | 0.73     |
| 12:Q:28:ILE:HG23 | 12:Q:62:GLU:CB    | 2.18        | 0.73     |
| 20:U:40:LEU:CD2  | 20:U:40:LEU:N     | 2.46        | 0.73     |
| 17:Y:92:ASP:O    | 17:Y:93:THR:C     | 2.24        | 0.73     |
| 18:Z:141:MET:O   | 18:Z:142:ASN:CB   | 2.36        | 0.73     |
| 8:I:115:ILE:CG1  | 8:I:131:VAL:CG1   | 2.55        | 0.73     |
| 2:A:148:C:C4     | 2:A:149:A:N6      | 2.56        | 0.73     |
| 2:A:145:G:H4'    | 16:X:1:SER:HB2    | 1.71        | 0.73     |
| 8:I:51:LYS:O     | 8:I:55:GLN:CG     | 2.30        | 0.73     |
| 24:O:18:PRO:HB2  | 24:O:36:ILE:CD1   | 2.18        | 0.73     |
| 23:3:3:ARG:HB2   | 23:3:60:GLU:CA    | 2.18        | 0.73     |
| 25:4:31:ILE:N    | 25:4:31:ILE:HD13  | 2.02        | 0.73     |
| 2:A:2025:C:H2'   | 2:A:2026:C:C6     | 2.23        | 0.73     |
| 2:A:2290:G:H21   | 2:A:2343:C:H1'    | 1.52        | 0.73     |
| 2:A:2532:G:C8    | 2:A:2532:G:H5'    | 2.22        | 0.73     |
| 2:A:2546:U:N3    | 2:A:2567:G:N7     | 2.30        | 0.73     |
| 2:A:2589:A:O2'   | 2:A:2590:A:H5''   | 1.88        | 0.73     |
| 2:A:2523:G:C1'   | 2:A:2765:A:N7     | 2.51        | 0.73     |
| 2:A:446:G:OP2    | 20:U:3:ARG:NH1    | 2.20        | 0.73     |
| 2:A:566:U:OP2    | 21:V:81:ARG:NH2   | 2.21        | 0.73     |
| 2:A:850:C:H42    | 2:A:928:G:H1      | 1.35        | 0.73     |
| 5:F:47:GLY:HA2   | 5:F:92:PRO:HB2    | 0.80        | 0.73     |
| 6:G:14:ARG:CA    | 6:G:137:PRO:HG3   | 2.18        | 0.73     |
| 2:A:2306:C:C4    | 6:G:53:LYS:NZ     | 2.57        | 0.73     |
| 9:N:68:GLY:O     | 9:N:69:TYR:CD1    | 2.42        | 0.73     |
| 11:P:65:ASP:O    | 11:P:69:ILE:HG23  | 1.89        | 0.73     |
| 12:Q:91:HIS:CA   | 12:Q:111:THR:HG23 | 2.17        | 0.73     |
| 12:Q:125:TRP:C   | 12:Q:126:VAL:HG23 | 2.05        | 0.73     |
| 12:Q:51:GLU:OE2  | 12:Q:148:ASN:HB2  | 1.88        | 0.73     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 19:R:116:LEU:O    | 19:R:116:LEU:HD12 | 1.88        | 0.73     |
| 13:S:18:THR:C     | 13:S:19:ASP:OD1   | 2.27        | 0.73     |
| 20:U:110:VAL:C    | 20:U:113:SER:OG   | 2.26        | 0.73     |
| 17:Y:101:LEU:HD23 | 17:Y:103:LEU:HG   | 1.67        | 0.73     |
| 17:Y:47:THR:O     | 17:Y:48:VAL:CG2   | 2.35        | 0.73     |
| 12:Q:36:ASN:HB2   | 18:Z:114:ASP:O    | 1.87        | 0.73     |
| 18:Z:116:VAL:HG23 | 18:Z:169:VAL:HG22 | 1.64        | 0.73     |
| 2:A:1790:C:OP2    | 3:D:224:VAL:HG13  | 1.89        | 0.73     |
| 2:A:58:G:H1       | 2:A:69:C:N4       | 1.83        | 0.73     |
| 8:I:48:GLU:O      | 8:I:52:GLN:CG     | 2.31        | 0.73     |
| 27:6:19:GLY:HA3   | 27:6:42:PRO:CB    | 2.17        | 0.73     |
| 2:A:2330:G:N1     | 2:A:2331:G:C4     | 2.56        | 0.73     |
| 2:A:2341:G:C6     | 2:A:2342:C:N4     | 2.57        | 0.73     |
| 2:A:2344:U:O2'    | 2:A:2345:G:P      | 2.46        | 0.73     |
| 2:A:2457:U:C5     | 2:A:2458:G:C2     | 2.67        | 0.73     |
| 2:A:2528:U:O2'    | 2:A:2529:G:H8     | 1.72        | 0.73     |
| 2:A:2561:A:HO2'   | 10:O:40:VAL:HG11  | 0.92        | 0.73     |
| 2:A:2781:A:H5'    | 2:A:2782:G:O5'    | 1.86        | 0.73     |
| 1:B:7:G:O2'       | 13:S:37:ARG:CG    | 2.35        | 0.73     |
| 3:D:117:SER:HB3   | 3:D:128:ALA:O     | 1.88        | 0.73     |
| 2:A:1568:G:C5'    | 3:D:60:GLN:HG2    | 2.18        | 0.73     |
| 4:E:39:GLN:HB2    | 4:E:174:LEU:HG    | 1.70        | 0.73     |
| 5:F:112:ARG:C     | 5:F:114:ALA:N     | 2.41        | 0.73     |
| 5:F:196:THR:OG1   | 5:F:201:SER:N     | 2.22        | 0.73     |
| 6:G:18:ILE:O      | 6:G:19:GLU:HB2    | 1.89        | 0.73     |
| 2:A:2674:G:C4'    | 10:O:30:ARG:HG2   | 2.09        | 0.73     |
| 12:Q:23:ILE:H     | 12:Q:24:PRO:CD    | 1.92        | 0.73     |
| 12:Q:47:GLU:OE1   | 12:Q:47:GLU:N     | 2.22        | 0.73     |
| 12:Q:67:ALA:O     | 12:Q:71:PHE:HE1   | 1.70        | 0.73     |
| 19:R:24:GLN:CB    | 19:R:44:LEU:HD23  | 2.19        | 0.73     |
| 2:A:1248:G:H2'    | 20:U:2:PRO:O      | 1.88        | 0.73     |
| 21:V:63:HIS:N     | 21:V:63:HIS:ND1   | 2.35        | 0.73     |
| 21:V:64:GLY:H     | 21:V:95:ILE:HG13  | 1.53        | 0.73     |
| 21:V:77:GLY:O     | 21:V:78:VAL:CG1   | 2.37        | 0.73     |
| 2:A:973:A:N1      | 21:V:81:ARG:HB2   | 2.01        | 0.73     |
| 15:W:23:LEU:HD13  | 15:W:35:ILE:CG2   | 2.19        | 0.73     |
| 15:W:70:TYR:O     | 15:W:107:LEU:HA   | 1.88        | 0.73     |
| 17:Y:45:GLY:C     | 17:Y:62:VAL:CB    | 2.56        | 0.73     |
| 18:Z:43:PHE:HD2   | 18:Z:43:PHE:H     | 1.36        | 0.73     |
| 8:I:141:LEU:HD22  | 8:I:142:LYS:H     | 1.53        | 0.73     |
| 22:2:55:ARG:HA    | 22:2:58:THR:CB    | 2.18        | 0.73     |
| 29:8:26:LYS:NZ    | 29:8:44:LYS:N     | 2.37        | 0.73     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 30:9:10:MET:HB2   | 30:9:32:HIS:CD2   | 2.15        | 0.73     |
| 30:9:23:VAL:O     | 30:9:24:LEU:HD23  | 1.89        | 0.73     |
| 2:A:2009:G:OP1    | 15:W:41:LYS:NZ    | 2.03        | 0.73     |
| 2:A:2445:G:C2'    | 2:A:2446:G:C5'    | 2.67        | 0.73     |
| 2:A:957:A:N6      | 2:A:2458:G:H4'    | 2.02        | 0.73     |
| 2:A:2459:A:N7     | 2:A:2460:U:C6     | 2.56        | 0.73     |
| 2:A:2579:C:C6     | 2:A:2579:C:C3'    | 2.72        | 0.73     |
| 2:A:2641:G:C6     | 2:A:2774:C:N4     | 2.57        | 0.73     |
| 2:A:2816:C:C2'    | 2:A:2817:G:O5'    | 2.35        | 0.73     |
| 2:A:342:G:H1      | 2:A:344:G:N2      | 1.87        | 0.73     |
| 3:D:141:HIS:HE1   | 3:D:191:VAL:O     | 1.68        | 0.73     |
| 6:G:128:LEU:O     | 6:G:129:ASP:CB    | 2.37        | 0.73     |
| 7:H:14:VAL:HG12   | 7:H:16:VAL:HG23   | 1.70        | 0.73     |
| 12:Q:123:ILE:HG22 | 12:Q:125:TRP:HB2  | 1.69        | 0.73     |
| 13:S:46:GLN:C     | 13:S:47:LEU:HD23  | 2.05        | 0.73     |
| 21:V:67:LYS:CG    | 21:V:70:TYR:HE1   | 2.01        | 0.73     |
| 20:U:44:THR:OG1   | 21:V:77:GLY:C     | 2.25        | 0.73     |
| 15:W:82:LEU:HD22  | 15:W:82:LEU:N     | 2.03        | 0.73     |
| 17:Y:33:GLU:CG    | 17:Y:34:GLU:H     | 2.02        | 0.73     |
| 18:Z:3:LEU:HB3    | 18:Z:34:LEU:CA    | 2.06        | 0.73     |
| 16:X:13:LYS:O     | 16:X:14:ALA:C     | 2.26        | 0.73     |
| 2:A:94:G:H21      | 22:2:42:ASN:ND2   | 1.60        | 0.73     |
| 2:A:94:G:O3'      | 22:2:41:GLU:CD    | 2.26        | 0.73     |
| 16:X:76:GLU:OE1   | 16:X:77:VAL:HG22  | 1.89        | 0.73     |
| 2:A:482:A:H2'     | 2:A:482:A:N3      | 2.02        | 0.73     |
| 12:Q:149:ILE:N    | 12:Q:149:ILE:HD12 | 2.03        | 0.73     |
| 24:0:30:VAL:HG12  | 24:0:30:VAL:O     | 1.86        | 0.73     |
| 24:0:49:GLN:HE22  | 24:0:73:GLY:HA3   | 1.04        | 0.73     |
| 23:3:9:VAL:HG22   | 23:3:54:VAL:CB    | 2.19        | 0.73     |
| 28:7:8:ASN:N      | 28:7:8:ASN:HD22   | 1.85        | 0.73     |
| 30:9:7:VAL:CG1    | 30:9:25:VAL:CG2   | 2.66        | 0.73     |
| 2:A:1184:G:OP1    | 23:3:29:ARG:HB3   | 1.89        | 0.73     |
| 2:A:2198:A:C6     | 2:A:2225:A:N6     | 2.55        | 0.73     |
| 2:A:2330:G:N2     | 2:A:2331:G:N3     | 2.37        | 0.73     |
| 2:A:2422:A:C2'    | 2:A:2424:C:C5     | 2.71        | 0.73     |
| 2:A:2520:C:C5     | 2:A:2567:G:C8     | 2.76        | 0.73     |
| 2:A:2574:G:C4     | 2:A:2575:C:C4     | 2.68        | 0.73     |
| 2:A:2601:C:N3     | 2:A:2603:G:O6     | 2.21        | 0.73     |
| 2:A:2605:U:O2     | 2:A:2606:C:C5     | 2.39        | 0.73     |
| 2:A:2785:C:C5'    | 4:E:99:VAL:CA     | 2.61        | 0.73     |
| 2:A:2821:A:N3     | 2:A:2822:G:N9     | 2.36        | 0.73     |
| 2:A:2880:C:N3     | 2:A:2881:C:C5     | 2.56        | 0.73     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:85:G:OP1     | 17:Y:65:VAL:HG11 | 1.89        | 0.73     |
| 4:E:212:GLY:C    | 4:E:214:VAL:H    | 1.92        | 0.73     |
| 4:E:86:TYR:O     | 4:E:87:GLU:O     | 2.07        | 0.73     |
| 5:F:196:THR:HG22 | 5:F:197:SER:H    | 1.52        | 0.73     |
| 5:F:63:SER:H     | 5:F:65:ARG:NE    | 1.82        | 0.73     |
| 9:N:94:GLY:O     | 9:N:97:ALA:CB    | 2.35        | 0.73     |
| 19:R:14:SER:N    | 19:R:17:ARG:HG2  | 2.03        | 0.73     |
| 19:R:38:VAL:HG22 | 19:R:99:LYS:HE3  | 1.70        | 0.73     |
| 20:U:51:ARG:O    | 20:U:52:ASN:O    | 2.07        | 0.73     |
| 20:U:5:LYS:O     | 20:U:6:THR:C     | 2.28        | 0.73     |
| 21:V:5:ILE:HD12  | 21:V:5:ILE:N     | 2.04        | 0.73     |
| 21:V:60:VAL:O    | 21:V:98:ILE:CA   | 2.37        | 0.73     |
| 17:Y:63:ILE:CG1  | 17:Y:75:GLU:N    | 2.51        | 0.73     |
| 17:Y:87:VAL:CG1  | 17:Y:88:PRO:CD   | 2.60        | 0.73     |
| 18:Z:123:VAL:HA  | 18:Z:161:ALA:HB3 | 1.69        | 0.73     |
| 18:Z:40:ASP:OD1  | 18:Z:40:ASP:N    | 2.18        | 0.73     |
| 18:Z:45:GLN:HE21 | 18:Z:45:GLN:N    | 1.87        | 0.73     |
| 18:Z:75:LYS:O    | 18:Z:76:ARG:HB2  | 1.89        | 0.73     |
| 16:X:47:VAL:HG12 | 16:X:69:SER:HG   | 1.52        | 0.73     |
| 17:Y:9:LYS:CE    | 17:Y:13:ARG:CZ   | 2.67        | 0.73     |
| 2:A:1609:A:C6    | 2:A:1616:A:C2    | 2.76        | 0.73     |
| 2:A:1528:A:H61   | 2:A:1543:A:H62   | 1.35        | 0.73     |
| 24:O:49:GLN:C    | 24:O:49:GLN:HE21 | 1.93        | 0.73     |
| 2:A:1029:A:O3'   | 2:A:1030:G:O5'   | 2.04        | 0.73     |
| 2:A:1238:G:C2    | 2:A:1239:G:H1'   | 2.24        | 0.73     |
| 2:A:1655:A:H4'   | 4:E:211:GLN:C    | 2.09        | 0.73     |
| 2:A:2330:G:H2'   | 2:A:2331:G:C5'   | 2.18        | 0.73     |
| 2:A:2332:U:C4'   | 2:A:2336:A:H61   | 2.02        | 0.73     |
| 2:A:2444:G:C6    | 2:A:2445:G:C6    | 2.77        | 0.73     |
| 2:A:2666:C:C2'   | 2:A:2667:C:H5'   | 2.18        | 0.73     |
| 2:A:527:C:H5''   | 2:A:2779:U:O2    | 1.89        | 0.73     |
| 4:E:224:GLY:O    | 4:E:225:LYS:HB2  | 1.89        | 0.73     |
| 7:H:30:GLY:O     | 7:H:78:VAL:HG13  | 1.89        | 0.73     |
| 7:H:64:HIS:C     | 7:H:66:THR:N     | 2.33        | 0.73     |
| 9:N:56:LYS:O     | 9:N:59:LYS:CB    | 2.27        | 0.73     |
| 9:N:83:ILE:CD1   | 9:N:84:ARG:HG2   | 2.19        | 0.73     |
| 13:S:117:ALA:HA  | 13:S:120:GLU:CD  | 2.09        | 0.73     |
| 13:S:34:LEU:CD1  | 13:S:103:ASP:N   | 2.51        | 0.73     |
| 13:S:48:VAL:HA   | 13:S:55:ASP:OD1  | 1.89        | 0.73     |
| 18:Z:26:LYS:CB   | 18:Z:84:TYR:OH   | 2.32        | 0.73     |
| 8:I:98:ILE:CG2   | 8:I:99:ALA:H     | 1.98        | 0.73     |
| 22:2:22:ASP:O    | 22:2:23:LEU:C    | 2.25        | 0.73     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:2:3:LEU:O     | 22:2:4:HIS:CB    | 2.36        | 0.73     |
| 2:A:76:C:H4'     | 22:2:55:ARG:CD   | 2.18        | 0.73     |
| 22:2:63:GLU:C    | 22:2:63:GLU:OE2  | 2.28        | 0.73     |
| 3:D:139:LEU:HD12 | 3:D:139:LEU:C    | 2.10        | 0.73     |
| 23:3:7:LYS:O     | 23:3:54:VAL:HB   | 1.89        | 0.72     |
| 25:4:10:VAL:N    | 25:4:11:PRO:HD3  | 1.96        | 0.72     |
| 2:A:1364:G:C3'   | 25:4:3:LYS:HZ2   | 1.99        | 0.72     |
| 29:8:19:THR:CB   | 29:8:21:LYS:HZ2  | 1.99        | 0.72     |
| 2:A:2060:A:HO2'  | 2:A:2502:G:C5'   | 1.99        | 0.72     |
| 2:A:2066:C:O2    | 2:A:2445:G:C2    | 2.43        | 0.72     |
| 2:A:2570:G:C4    | 2:A:2571:C:H5    | 2.02        | 0.72     |
| 2:A:2619:C:O2'   | 2:A:2620:C:C5'   | 2.37        | 0.72     |
| 2:A:2767:C:H2'   | 2:A:2768:C:O5'   | 1.89        | 0.72     |
| 2:A:84:A:OP2     | 17:Y:111:ARG:NH1 | 2.22        | 0.72     |
| 3:D:170:TYR:HB2  | 3:D:182:MET:SD   | 2.29        | 0.72     |
| 3:D:200:THR:OG1  | 3:D:201:ASP:OD2  | 2.07        | 0.72     |
| 4:E:173:ARG:HB2  | 4:E:174:LEU:HD12 | 1.71        | 0.72     |
| 4:E:198:TYR:CE2  | 4:E:265:ASN:O    | 2.40        | 0.72     |
| 4:E:200:ASP:H    | 4:E:312:ARG:H    | 1.37        | 0.72     |
| 2:A:2680:C:H5'   | 4:E:302:GLY:N    | 2.03        | 0.72     |
| 10:O:63:VAL:CG1  | 10:O:102:VAL:CG2 | 2.67        | 0.72     |
| 12:Q:47:GLU:HA   | 12:Q:124:ALA:H   | 1.53        | 0.72     |
| 19:R:72:ASP:C    | 19:R:72:ASP:OD2  | 2.28        | 0.72     |
| 13:S:64:SER:O    | 13:S:67:ALA:N    | 2.21        | 0.72     |
| 13:S:92:ALA:O    | 13:S:95:ALA:N    | 2.22        | 0.72     |
| 15:W:6:ILE:O     | 15:W:7:ALA:HB2   | 1.88        | 0.72     |
| 18:Z:113:VAL:CG1 | 18:Z:114:ASP:H   | 1.88        | 0.72     |
| 18:Z:125:PRO:O   | 18:Z:127:PRO:HD3 | 1.88        | 0.72     |
| 8:I:141:LEU:HD13 | 8:I:142:LYS:C    | 2.09        | 0.72     |
| 16:X:9:HIS:H     | 16:X:26:PHE:HA   | 1.53        | 0.72     |
| 16:X:28:VAL:CG2  | 16:X:62:LYS:O    | 2.37        | 0.72     |
| 16:X:44:GLN:CD   | 16:X:45:TYR:N    | 2.41        | 0.72     |
| 2:A:1301:A:H62   | 2:A:1303:G:H1'   | 1.54        | 0.72     |
| 7:H:20:GLY:O     | 7:H:21:ASN:HB3   | 1.88        | 0.72     |
| 2:A:324:A:H62    | 2:A:339:U:H1'    | 1.54        | 0.72     |
| 2:A:2365:G:OP1   | 24:0:39:ARG:O    | 2.06        | 0.72     |
| 24:0:49:GLN:NE2  | 24:0:73:GLY:O    | 2.04        | 0.72     |
| 2:A:1364:G:C4    | 25:4:3:LYS:NZ    | 2.55        | 0.72     |
| 25:4:41:PRO:HG2  | 25:4:57:ASP:OD2  | 1.87        | 0.72     |
| 25:4:68:ARG:HD3  | 25:4:72:LYS:CG   | 2.17        | 0.72     |
| 2:A:1809:A:H62   | 25:4:3:LYS:CG    | 2.01        | 0.72     |
| 2:A:2207:C:C2    | 2:A:2218:G:C2    | 2.77        | 0.72     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2297:C:C5    | 2:A:2333:A:N1     | 2.57        | 0.72     |
| 2:A:2359:C:C4    | 2:A:2360:A:N1     | 2.57        | 0.72     |
| 2:A:2484:G:H22   | 2:A:2485:G:H1'    | 1.36        | 0.72     |
| 2:A:2059:A:C5    | 2:A:2503:A:N7     | 2.55        | 0.72     |
| 2:A:2520:C:C2    | 2:A:2521:C:C6     | 2.76        | 0.72     |
| 2:A:2546:U:C5'   | 2:A:2565:A:N1     | 2.49        | 0.72     |
| 2:A:2623:G:N2    | 2:A:2624:G:H1'    | 2.00        | 0.72     |
| 2:A:2633:G:C4    | 2:A:2634:G:N7     | 2.57        | 0.72     |
| 2:A:2700:C:C2'   | 2:A:2701:C:C4'    | 2.60        | 0.72     |
| 2:A:2716:U:C2'   | 2:A:2717:G:H5''   | 2.19        | 0.72     |
| 2:A:2684:U:C2    | 2:A:2725:A:N1     | 2.57        | 0.72     |
| 2:A:2743:C:C2    | 2:A:2762:G:C2     | 2.77        | 0.72     |
| 5:F:6:TYR:HE1    | 5:F:139:VAL:HB    | 1.50        | 0.72     |
| 5:F:193:LEU:HD11 | 5:F:231:ARG:HB3   | 1.71        | 0.72     |
| 6:G:93:LEU:HD13  | 6:G:94:ALA:N      | 1.96        | 0.72     |
| 2:A:557:U:C4'    | 9:N:92:GLN:NE2    | 2.51        | 0.72     |
| 10:O:42:THR:HG22 | 10:O:57:VAL:HA    | 1.71        | 0.72     |
| 12:Q:47:GLU:OE2  | 12:Q:151:SER:CA   | 2.37        | 0.72     |
| 1:B:8:U:H5'      | 13:S:37:ARG:NE    | 2.03        | 0.72     |
| 13:S:82:TYR:O    | 13:S:86:LEU:CD1   | 2.37        | 0.72     |
| 2:A:1248:G:OP1   | 20:U:2:PRO:CG     | 2.36        | 0.72     |
| 20:U:104:GLU:OE2 | 21:V:46:VAL:CG1   | 2.37        | 0.72     |
| 15:W:29:LEU:HG   | 15:W:30:GLU:H     | 1.55        | 0.72     |
| 18:Z:125:PRO:HG3 | 18:Z:130:ILE:HG22 | 1.71        | 0.72     |
| 18:Z:150:GLY:H   | 18:Z:165:GLU:H    | 1.36        | 0.72     |
| 18:Z:69:VAL:C    | 18:Z:70:GLN:NE2   | 2.42        | 0.72     |
| 18:Z:92:VAL:HG13 | 18:Z:124:ALA:CB   | 2.20        | 0.72     |
| 16:X:6:LYS:HD2   | 16:X:27:ALA:HB1   | 1.70        | 0.72     |
| 23:3:26:LEU:CD2  | 23:3:46:ASN:HD22  | 2.02        | 0.72     |
| 25:4:41:PRO:CG   | 25:4:57:ASP:CB    | 2.67        | 0.72     |
| 29:8:14:ILE:CG2  | 29:8:15:LYS:N     | 2.52        | 0.72     |
| 29:8:5:LYS:HB3   | 29:8:60:LEU:HA    | 1.70        | 0.72     |
| 30:9:19:ARG:O    | 30:9:22:ARG:CB    | 2.32        | 0.72     |
| 2:A:1027:A:N6    | 2:A:1126:A:H1'    | 2.04        | 0.72     |
| 2:A:2327:A:C5    | 2:A:2388:A:C6     | 2.77        | 0.72     |
| 2:A:2516:G:O2'   | 2:A:2517:C:O5'    | 2.06        | 0.72     |
| 2:A:2533:A:H2'   | 2:A:2534:A:C8     | 2.24        | 0.72     |
| 2:A:2615:U:H2'   | 2:A:2616:C:O5'    | 1.87        | 0.72     |
| 2:A:2668:G:H21   | 2:A:2669:G:H1'    | 1.54        | 0.72     |
| 2:A:2701:C:H3'   | 2:A:2702:U:H5'    | 1.71        | 0.72     |
| 2:A:2785:C:C6    | 2:A:2786:U:C4     | 2.77        | 0.72     |
| 2:A:2815:C:O2    | 2:A:2816:C:C5     | 2.42        | 0.72     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2819:G:C4    | 2:A:2821:A:N7    | 2.57        | 0.72     |
| 2:A:2870:C:C2    | 2:A:2871:C:C6    | 2.77        | 0.72     |
| 4:E:77:PRO:CB    | 4:E:187:HIS:N    | 2.36        | 0.72     |
| 4:E:204:VAL:H    | 4:E:303:PRO:HG3  | 1.54        | 0.72     |
| 4:E:228:ARG:O    | 4:E:231:TRP:N    | 2.22        | 0.72     |
| 4:E:201:VAL:H    | 4:E:266:LYS:NZ   | 1.86        | 0.72     |
| 5:F:153:VAL:HG13 | 5:F:157:LEU:HD22 | 1.71        | 0.72     |
| 5:F:163:HIS:HA   | 5:F:166:ILE:CD1  | 2.15        | 0.72     |
| 5:F:168:ARG:CZ   | 5:F:209:GLY:HA3  | 2.15        | 0.72     |
| 6:G:140:ARG:HA   | 6:G:143:LYS:HZ3  | 1.52        | 0.72     |
| 8:I:6:LEU:HB3    | 8:I:35:LEU:O     | 1.90        | 0.72     |
| 9:N:82:THR:OG1   | 9:N:83:ILE:HG23  | 1.89        | 0.72     |
| 12:Q:140:TYR:O   | 12:Q:142:LYS:N   | 2.22        | 0.72     |
| 12:Q:91:HIS:O    | 12:Q:92:VAL:CG1  | 2.37        | 0.72     |
| 13:S:46:GLN:O    | 13:S:47:LEU:CG   | 2.36        | 0.72     |
| 13:S:85:GLY:O    | 13:S:86:LEU:C    | 2.26        | 0.72     |
| 21:V:36:LYS:HA   | 21:V:60:VAL:HG22 | 1.71        | 0.72     |
| 15:W:24:ILE:HB   | 15:W:32:ALA:HB1  | 1.72        | 0.72     |
| 18:Z:92:VAL:O    | 18:Z:94:VAL:HG23 | 1.90        | 0.72     |
| 2:A:1827:C:OP1   | 2:A:1971:A:O2'   | 2.05        | 0.72     |
| 22:2:26:GLU:O    | 22:2:27:LEU:C    | 2.27        | 0.72     |
| 2:A:269:U:H5''   | 2:A:270(Y):G:H2' | 1.71        | 0.72     |
| 24:0:48:GLY:CA   | 24:0:55:ARG:HA   | 2.18        | 0.72     |
| 25:4:5:LEU:CA    | 25:4:56:VAL:HG13 | 2.20        | 0.72     |
| 2:A:2066:C:N3    | 2:A:2445:G:C2    | 2.58        | 0.72     |
| 2:A:2250:G:H3'   | 2:A:2250:G:H8    | 1.53        | 0.72     |
| 2:A:2298:A:C1'   | 2:A:2321:G:N2    | 2.52        | 0.72     |
| 2:A:2359:C:C5    | 2:A:2360:A:C2    | 2.77        | 0.72     |
| 2:A:2422:A:N3    | 2:A:2424:C:C6    | 2.55        | 0.72     |
| 2:A:2434:A:HO2'  | 2:A:2435:A:P     | 2.12        | 0.72     |
| 2:A:2497:A:H2'   | 2:A:2498:C:OP2   | 1.88        | 0.72     |
| 2:A:2497:A:O2'   | 2:A:2498:C:P     | 2.47        | 0.72     |
| 2:A:249:C:O2'    | 29:8:8:LYS:CG    | 2.38        | 0.72     |
| 2:A:2551:C:H2'   | 2:A:2552:U:H6    | 1.53        | 0.72     |
| 2:A:2575:C:O2    | 2:A:2575:C:C2'   | 2.37        | 0.72     |
| 2:A:2653:U:P     | 2:A:2654:A:H3'   | 2.29        | 0.72     |
| 2:A:2656:U:C4    | 2:A:2665:A:N6    | 2.57        | 0.72     |
| 2:A:2762:G:N7    | 2:A:2763:G:C6    | 2.58        | 0.72     |
| 2:A:2880:C:O2'   | 19:R:90:ARG:CD   | 2.36        | 0.72     |
| 3:D:116:MET:HG2  | 3:D:117:SER:N    | 2.03        | 0.72     |
| 4:E:42:ALA:H     | 4:E:189:MET:CE   | 2.00        | 0.72     |
| 4:E:70:VAL:HG11  | 4:E:295:LEU:HD22 | 1.71        | 0.72     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:82:TYR:CZ    | 7:H:137:LYS:CB    | 2.72        | 0.72     |
| 11:P:67:ARG:NH1  | 11:P:109:LEU:HD12 | 2.05        | 0.72     |
| 12:Q:135:ALA:O   | 12:Q:136:TRP:C    | 2.28        | 0.72     |
| 12:Q:142:LYS:HE3 | 12:Q:142:LYS:CA   | 2.19        | 0.72     |
| 19:R:28:LEU:O    | 19:R:30:THR:N     | 2.21        | 0.72     |
| 13:S:121:GLY:O   | 13:S:125:ALA:N    | 2.20        | 0.72     |
| 21:V:62:GLU:CB   | 21:V:96:LEU:HD21  | 2.19        | 0.72     |
| 15:W:12:ILE:CG2  | 15:W:13:SER:N     | 2.52        | 0.72     |
| 15:W:82:LEU:O    | 15:W:84:ARG:CD    | 2.27        | 0.72     |
| 2:A:1340:U:O4    | 16:X:57:THR:CG2   | 2.32        | 0.72     |
| 2:A:1062:G:N2    | 31:K:134:SER:O    | 2.22        | 0.72     |
| 7:H:53:ARG:HD2   | 7:H:56:ASP:HA     | 1.70        | 0.72     |
| 24:O:46:LYS:HG3  | 24:O:58:THR:HG23  | 0.76        | 0.72     |
| 24:O:45:PHE:HZ   | 24:O:78:PHE:HD2   | 1.33        | 0.72     |
| 23:3:22:ALA:O    | 23:3:26:LEU:CG    | 2.36        | 0.72     |
| 26:5:45:ILE:N    | 26:5:52:TYR:CZ    | 2.57        | 0.72     |
| 28:7:24:THR:CG2  | 28:7:27:GLY:HA3   | 2.18        | 0.72     |
| 28:7:36:ALA:O    | 28:7:37:LYS:C     | 2.28        | 0.72     |
| 2:A:2487:G:C2'   | 2:A:2488:A:O5'    | 2.36        | 0.72     |
| 2:A:2508:G:C2    | 2:A:2582:G:O6     | 2.41        | 0.72     |
| 2:A:2585:U:O2'   | 2:A:2586:C:OP2    | 2.06        | 0.72     |
| 2:A:2659:G:H1'   | 2:A:2663:G:H1     | 1.53        | 0.72     |
| 2:A:2866:U:H5''  | 2:A:2867:G:OP1    | 1.90        | 0.72     |
| 2:A:496:G:P      | 15:W:62:HIS:HE2   | 2.12        | 0.72     |
| 2:A:780:G:C6     | 3:D:233:ASP:OD2   | 2.41        | 0.72     |
| 3:D:181:ARG:CZ   | 3:D:181:ARG:CB    | 2.66        | 0.72     |
| 2:A:1817:G:OP1   | 3:D:63:ILE:CD1    | 2.34        | 0.72     |
| 4:E:206:LYS:O    | 4:E:257:GLY:HA3   | 1.90        | 0.72     |
| 4:E:45:LYS:HD2   | 4:E:303:PRO:O     | 1.90        | 0.72     |
| 5:F:223:LEU:HA   | 5:F:231:ARG:HD2   | 1.71        | 0.72     |
| 5:F:215:ALA:HB2  | 5:F:238:SER:O     | 1.87        | 0.72     |
| 5:F:243:VAL:C    | 5:F:246:ARG:H     | 1.92        | 0.72     |
| 2:A:443:A:N7     | 5:F:43:LYS:HD3    | 2.04        | 0.72     |
| 2:A:2306:C:O2    | 6:G:27:ILE:HG12   | 1.89        | 0.72     |
| 7:H:102:LEU:CD2  | 7:H:114:ILE:HB    | 2.18        | 0.72     |
| 10:O:11:ALA:HB1  | 10:O:99:PHE:CB    | 2.18        | 0.72     |
| 11:P:94:ARG:CZ   | 11:P:120:LEU:HB2  | 1.93        | 0.72     |
| 12:Q:46:VAL:O    | 12:Q:124:ALA:O    | 2.08        | 0.72     |
| 2:A:1152:C:C4'   | 20:U:80:ILE:HG21  | 2.19        | 0.72     |
| 15:W:27:LYS:HB3  | 15:W:31:GLU:OE2   | 1.89        | 0.72     |
| 8:I:103:GLN:CD   | 8:I:109:LYS:HA    | 2.08        | 0.72     |
| 2:A:1566:A:N3    | 3:D:212:HIS:CA    | 2.51        | 0.72     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:146:G:C2     | 2:A:147:U:H1'    | 2.24        | 0.72     |
| 2:A:1063:G:H4'   | 31:K:88:GLY:HA3  | 1.70        | 0.72     |
| 24:0:61:ALA:HB3  | 24:0:81:ILE:HD13 | 1.71        | 0.72     |
| 29:8:37:SER:OG   | 29:8:38:GLY:N    | 2.21        | 0.72     |
| 29:8:30:ARG:CD   | 29:8:44:LYS:HD2  | 2.19        | 0.72     |
| 2:A:1668:A:O5'   | 10:O:5:GLU:OE2   | 2.07        | 0.72     |
| 2:A:1966:A:C2    | 2:A:2593:U:C5'   | 2.70        | 0.72     |
| 2:A:2020:A:C5    | 26:5:9:LYS:CE    | 2.50        | 0.72     |
| 2:A:2256:G:C2'   | 2:A:2257:U:H5'   | 2.19        | 0.72     |
| 2:A:2354:G:C2'   | 24:0:32:LYS:HG2  | 2.19        | 0.72     |
| 2:A:2356:C:H2'   | 2:A:2357:U:H5'   | 1.72        | 0.72     |
| 2:A:2520:C:C4    | 2:A:2567:G:C8    | 2.77        | 0.72     |
| 2:A:2866:U:H4'   | 2:A:2867:G:O5'   | 1.89        | 0.72     |
| 2:A:2801:A:H2    | 2:A:2895:U:HO2'  | 0.73        | 0.72     |
| 2:A:84:A:C6      | 2:A:99:U:H1'     | 2.24        | 0.72     |
| 3:D:127:ASN:C    | 3:D:190:THR:HB   | 2.09        | 0.72     |
| 4:E:269:ILE:CD1  | 4:E:295:LEU:C    | 2.57        | 0.72     |
| 5:F:36:ARG:O     | 5:F:39:GLN:CD    | 2.26        | 0.72     |
| 5:F:5:ILE:CA     | 5:F:139:VAL:HG11 | 2.20        | 0.72     |
| 7:H:83:GLU:OE1   | 7:H:85:ALA:N     | 2.23        | 0.72     |
| 10:O:31:ARG:HB2  | 10:O:32:TYR:CD1  | 2.24        | 0.72     |
| 2:A:1669:A:N9    | 10:O:4:GLN:OE1   | 2.21        | 0.72     |
| 12:Q:65:ARG:NH2  | 12:Q:122:PHE:HE2 | 1.84        | 0.72     |
| 19:R:27:SER:O    | 19:R:30:THR:HB   | 1.90        | 0.72     |
| 20:U:85:ARG:CZ   | 20:U:116:ALA:O   | 2.36        | 0.72     |
| 21:V:42:GLY:C    | 21:V:54:TYR:OH   | 2.26        | 0.72     |
| 21:V:74:TYR:HE1  | 21:V:87:ARG:O    | 1.73        | 0.72     |
| 15:W:14:PRO:O    | 15:W:17:VAL:HB   | 1.89        | 0.72     |
| 15:W:30:GLU:HA   | 15:W:33:ARG:HD3  | 0.77        | 0.72     |
| 15:W:24:ILE:HG22 | 15:W:35:ILE:HD12 | 1.71        | 0.72     |
| 25:4:6:HIS:CB    | 25:4:56:VAL:HG23 | 2.19        | 0.72     |
| 27:6:29:ARG:O    | 27:6:30:ASN:C    | 2.28        | 0.72     |
| 2:A:126:A:OP1    | 28:7:44:VAL:HG11 | 1.89        | 0.72     |
| 2:A:1287:A:N9    | 19:R:104:ARG:NH1 | 2.36        | 0.72     |
| 2:A:1441:G:H4'   | 2:A:1628:G:OP1   | 1.89        | 0.72     |
| 2:A:1996:C:H6    | 2:A:1996:C:H5''  | 1.53        | 0.72     |
| 2:A:2028:U:H2'   | 2:A:2029:G:C8    | 2.25        | 0.72     |
| 2:A:2286:A:C5'   | 2:A:2287:A:O4'   | 2.37        | 0.72     |
| 2:A:2378:A:C2    | 13:S:26:LEU:CD2  | 2.72        | 0.72     |
| 2:A:2428:G:H5''  | 2:A:2429:G:P     | 2.29        | 0.72     |
| 2:A:2536:G:C6    | 2:A:2537:U:C4    | 2.78        | 0.72     |
| 2:A:2548:G:H8    | 2:A:2548:G:H3'   | 1.55        | 0.72     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:557:U:C5'     | 9:N:92:GLN:NE2    | 2.48        | 0.72     |
| 4:E:101:THR:O     | 4:E:103:GLU:CG    | 2.37        | 0.72     |
| 2:A:449:A:OP1     | 5:F:85:LYS:HA     | 1.89        | 0.72     |
| 7:H:106:VAL:O     | 7:H:106:VAL:HG12  | 1.87        | 0.72     |
| 7:H:41:THR:HG22   | 7:H:52:THR:CG2    | 2.18        | 0.72     |
| 7:H:75:VAL:HG12   | 7:H:76:GLU:N      | 2.05        | 0.72     |
| 9:N:46:ILE:CD1    | 9:N:132:LEU:CD1   | 2.68        | 0.72     |
| 9:N:83:ILE:CG1    | 9:N:84:ARG:N      | 1.94        | 0.72     |
| 11:P:106:VAL:HG21 | 11:P:122:ALA:CB   | 2.20        | 0.72     |
| 11:P:128:GLY:CA   | 11:P:132:LYS:HZ3  | 1.81        | 0.72     |
| 11:P:81:VAL:O     | 11:P:81:VAL:CG1   | 2.36        | 0.72     |
| 19:R:105:ARG:N    | 19:R:105:ARG:NE   | 2.38        | 0.72     |
| 14:T:5:GLU:OE1    | 14:T:56:ARG:NH2   | 2.23        | 0.72     |
| 20:U:40:LEU:HD23  | 20:U:40:LEU:N     | 2.04        | 0.72     |
| 20:U:95:LEU:N     | 20:U:95:LEU:HD23  | 2.05        | 0.72     |
| 2:A:973:A:C2      | 21:V:81:ARG:HD2   | 2.12        | 0.72     |
| 15:W:5:ALA:CB     | 15:W:54:ALA:HB2   | 2.19        | 0.72     |
| 18:Z:105:GLN:HB2  | 18:Z:141:MET:CG   | 2.18        | 0.72     |
| 22:2:43:PRO:HB2   | 22:2:46:ILE:H     | 1.53        | 0.72     |
| 2:A:1071:G:C5     | 2:A:1089:G:C2     | 2.78        | 0.72     |
| 23:3:44:ARG:O     | 23:3:45:GLY:O     | 2.07        | 0.72     |
| 2:A:2581:G:N1     | 2:A:2610:C:H2'    | 2.04        | 0.72     |
| 2:A:2589:A:N1     | 2:A:2606:C:N4     | 2.38        | 0.72     |
| 2:A:2606:C:O2     | 2:A:2607:G:C8     | 2.42        | 0.72     |
| 2:A:2618:G:C5     | 2:A:2619:C:C5     | 2.61        | 0.72     |
| 2:A:2649:U:C2'    | 2:A:2650:U:O5'    | 2.38        | 0.72     |
| 2:A:2655:G:N3     | 2:A:2655:G:H3'    | 2.05        | 0.72     |
| 2:A:2734:A:N7     | 2:A:2735:G:C5     | 2.58        | 0.72     |
| 2:A:2741:A:C2     | 2:A:2742:C:H1'    | 2.25        | 0.72     |
| 4:E:70:VAL:HG13   | 4:E:296:VAL:HB    | 1.71        | 0.72     |
| 4:E:44:TYR:HD1    | 4:E:309:PRO:HD2   | 1.55        | 0.72     |
| 5:F:155:SER:N     | 5:F:157:LEU:HG    | 2.05        | 0.72     |
| 7:H:145:ALA:C     | 7:H:147:ILE:H     | 1.93        | 0.72     |
| 7:H:58:LYS:HA     | 7:H:61:ARG:HD2    | 1.70        | 0.72     |
| 9:N:48:GLY:O      | 9:N:53:ILE:CD1    | 2.37        | 0.72     |
| 11:P:55:GLN:OE1   | 11:P:55:GLN:CA    | 2.37        | 0.72     |
| 19:R:36:THR:CG2   | 19:R:40:LYS:HD2   | 2.10        | 0.72     |
| 19:R:58:GLY:HA2   | 19:R:80:PHE:HE2   | 0.93        | 0.72     |
| 17:Y:35:TYR:OH    | 17:Y:113:GLU:CG   | 2.31        | 0.72     |
| 18:Z:149:ALA:CA   | 18:Z:152:ILE:HD11 | 2.20        | 0.72     |
| 18:Z:18:MET:HA    | 18:Z:36:ARG:H     | 1.55        | 0.72     |
| 22:2:30:ALA:HA    | 22:2:34:GLN:CG    | 2.18        | 0.72     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:2:51:LYS:HA   | 22:2:54:ALA:HB2  | 1.72        | 0.72     |
| 2:A:76:C:O2'     | 22:2:55:ARG:HG3  | 1.90        | 0.72     |
| 16:X:16:ASN:HB2  | 16:X:20:PHE:CE2  | 2.25        | 0.72     |
| 2:A:176:G:H21    | 2:A:177:G:H1'    | 1.54        | 0.72     |
| 2:A:6:A:O2'      | 9:N:6:PHE:CD2    | 2.27        | 0.72     |
| 17:Y:9:LYS:HZ1   | 17:Y:13:ARG:NH2  | 1.86        | 0.72     |
| 25:4:5:LEU:HD12  | 25:4:60:ASN:HD22 | 1.55        | 0.72     |
| 29:8:3:LYS:C     | 29:8:4:MET:HE3   | 2.10        | 0.72     |
| 2:A:2742:C:C5'   | 30:9:35:ARG:HH12 | 2.02        | 0.72     |
| 2:A:1608:A:H2'   | 2:A:1611:C:N4    | 2.05        | 0.72     |
| 2:A:2235:G:C4    | 2:A:2236:C:C6    | 2.78        | 0.72     |
| 2:A:2468:G:O6    | 2:A:2481:G:C5    | 2.42        | 0.72     |
| 2:A:2468:G:C6    | 2:A:2481:G:C5    | 2.78        | 0.72     |
| 2:A:2678:C:C2'   | 2:A:2679:A:O5'   | 2.35        | 0.72     |
| 2:A:2740:A:N1    | 2:A:2764:A:C4    | 2.42        | 0.72     |
| 2:A:1033:U:H6    | 2:A:2750:A:H2    | 1.34        | 0.72     |
| 2:A:2854:G:N2    | 2:A:2864:G:C5    | 2.58        | 0.72     |
| 2:A:650:C:P      | 29:8:19:THR:CG2  | 2.78        | 0.72     |
| 2:A:807:U:O4'    | 2:A:2445:G:H5'   | 1.90        | 0.72     |
| 2:A:1799:G:H21   | 3:D:153:LEU:HG   | 1.55        | 0.72     |
| 5:F:92:PRO:O     | 5:F:96:LYS:CD    | 2.07        | 0.72     |
| 5:F:96:LYS:H     | 5:F:98:ARG:CZ    | 2.01        | 0.72     |
| 6:G:97:GLN:CD    | 6:G:106:PHE:HD2  | 1.92        | 0.72     |
| 7:H:66:THR:CG2   | 7:H:67:THR:N     | 2.53        | 0.72     |
| 11:P:52:LYS:CD   | 11:P:53:ARG:HH12 | 1.96        | 0.72     |
| 12:Q:56:ILE:HD13 | 12:Q:56:ILE:H    | 0.63        | 0.72     |
| 12:Q:58:HIS:CA   | 12:Q:61:LEU:CG   | 2.68        | 0.72     |
| 13:S:58:LEU:HG   | 13:S:58:LEU:O    | 1.90        | 0.72     |
| 20:U:115:ASN:C   | 20:U:117:ARG:N   | 2.43        | 0.72     |
| 20:U:35:ALA:O    | 20:U:38:THR:OG1  | 2.07        | 0.72     |
| 17:Y:49:GLU:HG3  | 17:Y:59:GLU:HA   | 1.72        | 0.72     |
| 18:Z:5:ALA:HB3   | 18:Z:33:ALA:CA   | 2.15        | 0.72     |
| 2:A:1826:G:P     | 3:D:227:VAL:HG22 | 2.23        | 0.72     |
| 2:A:748:G:C8     | 2:A:750:A:OP2    | 2.42        | 0.72     |
| 2:A:441:U:OP2    | 17:Y:3:GLN:NE2   | 2.21        | 0.72     |
| 2:A:481:G:OP2    | 17:Y:81:LYS:CG   | 2.38        | 0.72     |
| 25:4:20:VAL:O    | 25:4:21:VAL:O    | 2.07        | 0.72     |
| 25:4:68:ARG:CB   | 25:4:72:LYS:HG2  | 2.20        | 0.72     |
| 27:6:32:GLN:HB3  | 27:6:35:LEU:CB   | 2.20        | 0.72     |
| 2:A:2378:A:H2'   | 2:A:2379:G:O5'   | 1.89        | 0.72     |
| 2:A:2283:C:C6    | 2:A:2389:G:N3    | 2.57        | 0.72     |
| 2:A:2397:G:O6    | 2:A:2420:C:N3    | 2.23        | 0.72     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2478:A:N7    | 2:A:2479:G:C8     | 2.58        | 0.72     |
| 2:A:1999:C:O2'   | 2:A:2687:U:O2'    | 2.00        | 0.72     |
| 2:A:2716:U:H2'   | 2:A:2717:G:H5''   | 1.68        | 0.72     |
| 2:A:2717:G:O2'   | 2:A:2718:G:C5'    | 2.38        | 0.72     |
| 2:A:489:G:H3'    | 2:A:491:G:P       | 2.29        | 0.72     |
| 7:H:40:MET:HB2   | 7:H:54:PRO:HG3    | 1.71        | 0.72     |
| 8:I:21:VAL:O     | 8:I:22:ALA:HB3    | 1.89        | 0.72     |
| 10:O:95:GLY:C    | 10:O:97:ARG:H     | 1.92        | 0.72     |
| 11:P:68:GLU:O    | 11:P:71:GLU:HG2   | 1.89        | 0.72     |
| 12:Q:153:PRO:O   | 12:Q:154:ALA:CB   | 2.37        | 0.72     |
| 13:S:32:PRO:O    | 13:S:101:VAL:HG12 | 1.89        | 0.72     |
| 20:U:14:HIS:NE2  | 20:U:36:PHE:CE2   | 2.58        | 0.72     |
| 20:U:27:SER:C    | 20:U:31:GLN:HG3   | 2.10        | 0.72     |
| 2:A:995:C:P      | 20:U:54:LYS:HE2   | 2.29        | 0.72     |
| 20:U:57:PHE:C    | 20:U:59:ARG:N     | 2.42        | 0.72     |
| 21:V:39:PHE:O    | 21:V:40:VAL:CB    | 2.37        | 0.72     |
| 17:Y:73:HIS:N    | 17:Y:91:LEU:HD12  | 2.04        | 0.72     |
| 18:Z:118:HIS:O   | 18:Z:120:LEU:CD2  | 2.38        | 0.72     |
| 18:Z:51:LEU:HD21 | 18:Z:63:PRO:CB    | 2.20        | 0.72     |
| 2:A:1301:A:H62   | 2:A:1303:G:C1'    | 2.03        | 0.72     |
| 2:A:350:U:O2     | 2:A:350:U:H2'     | 1.90        | 0.72     |
| 24:O:38:VAL:HA   | 24:O:40:GLN:CG    | 2.19        | 0.71     |
| 27:6:2:ALA:CB    | 27:6:11:LYS:HZ2   | 1.98        | 0.71     |
| 27:6:16:ALA:CB   | 27:6:50:PHE:CE2   | 2.72        | 0.71     |
| 2:A:2075:U:O4    | 2:A:2238:G:O6     | 2.06        | 0.71     |
| 2:A:2320:A:H1'   | 2:A:2333:A:N6     | 2.03        | 0.71     |
| 2:A:2482:G:C5    | 2:A:2483:C:H5     | 1.97        | 0.71     |
| 2:A:249:C:O2'    | 29:8:8:LYS:HG3    | 1.90        | 0.71     |
| 2:A:2652:C:H5    | 2:A:2653:U:O4     | 1.73        | 0.71     |
| 2:A:2766:G:N3    | 2:A:2766:G:H2'    | 2.05        | 0.71     |
| 2:A:2785:C:O2'   | 4:E:100:TRP:CD1   | 2.43        | 0.71     |
| 3:D:115:ILE:HB   | 3:D:127:ASN:OD1   | 1.90        | 0.71     |
| 3:D:175:LEU:HD12 | 3:D:179:GLU:HB3   | 1.70        | 0.71     |
| 3:D:89:ASN:ND2   | 3:D:199:ARG:NE    | 2.34        | 0.71     |
| 4:E:177:ALA:O    | 4:E:178:LEU:C     | 2.28        | 0.71     |
| 4:E:79:ARG:CA    | 4:E:186:GLU:HA    | 2.17        | 0.71     |
| 7:H:104:LEU:HB3  | 7:H:151:ARG:HH11  | 1.55        | 0.71     |
| 2:A:558:G:P      | 9:N:91:LYS:HB2    | 2.29        | 0.71     |
| 2:A:527:C:C2'    | 9:N:95:ARG:HH12   | 1.95        | 0.71     |
| 19:R:45:ARG:HD3  | 19:R:97:VAL:HG23  | 1.72        | 0.71     |
| 13:S:100:ALA:HB3 | 13:S:127:LEU:HD21 | 1.71        | 0.71     |
| 20:U:111:ASP:C   | 20:U:113:SER:H    | 1.93        | 0.71     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 21:V:83:ARG:O    | 21:V:84:THR:HG23  | 1.90        | 0.71     |
| 17:Y:18:GLU:HB3  | 17:Y:21:LYS:CE    | 2.19        | 0.71     |
| 17:Y:40:VAL:HG12 | 17:Y:41:ARG:HG2   | 1.71        | 0.71     |
| 17:Y:45:GLY:C    | 17:Y:62:VAL:HB    | 2.10        | 0.71     |
| 18:Z:13:LYS:C    | 18:Z:36:ARG:HH21  | 1.89        | 0.71     |
| 18:Z:63:PRO:O    | 18:Z:64:ALA:CB    | 2.37        | 0.71     |
| 22:2:30:ALA:HA   | 22:2:34:GLN:HG3   | 1.72        | 0.71     |
| 2:A:1341:U:H4'   | 16:X:54:THR:O     | 1.89        | 0.71     |
| 16:X:17:ASP:O    | 16:X:22:ASN:O     | 2.07        | 0.71     |
| 16:X:39:ASP:O    | 16:X:40:ALA:C     | 2.28        | 0.71     |
| 6:G:44:ILE:C     | 6:G:83:PHE:CZ     | 2.63        | 0.71     |
| 2:A:404:C:H4'    | 2:A:405:U:C5'     | 2.20        | 0.71     |
| 24:0:61:ALA:C    | 24:0:62:LEU:CD1   | 2.48        | 0.71     |
| 24:0:68:VAL:HG12 | 24:0:68:VAL:O     | 1.90        | 0.71     |
| 25:4:18:GLY:N    | 25:4:33:VAL:HG21  | 1.96        | 0.71     |
| 27:6:19:GLY:CA   | 27:6:42:PRO:HG2   | 2.13        | 0.71     |
| 2:A:14:A:O3'     | 2:A:15:G:O5'      | 2.06        | 0.71     |
| 2:A:2043:C:C4    | 2:A:2777:G:N3     | 2.58        | 0.71     |
| 2:A:2258:C:H5    | 2:A:2426:A:O4'    | 1.50        | 0.71     |
| 2:A:2411:A:H2    | 2:A:2412:A:C5     | 2.07        | 0.71     |
| 2:A:2468:G:O6    | 2:A:2481:G:N1     | 2.22        | 0.71     |
| 2:A:2511:U:C5    | 2:A:2512:C:C5     | 2.77        | 0.71     |
| 2:A:2605:U:H6    | 2:A:2605:U:C5'    | 2.02        | 0.71     |
| 2:A:2756:U:C2'   | 2:A:2757:A:H5'    | 2.20        | 0.71     |
| 2:A:2886:G:H21   | 2:A:2887:U:H1'    | 1.54        | 0.71     |
| 4:E:201:VAL:N    | 4:E:266:LYS:NZ    | 2.38        | 0.71     |
| 4:E:295:LEU:CD2  | 4:E:296:VAL:H     | 2.03        | 0.71     |
| 5:F:215:ALA:C    | 5:F:242:GLU:CG    | 2.54        | 0.71     |
| 6:G:21:VAL:CB    | 6:G:132:VAL:HG23  | 2.19        | 0.71     |
| 6:G:19:GLU:HB3   | 6:G:135:VAL:HG22  | 1.09        | 0.71     |
| 7:H:14:VAL:O     | 7:H:16:VAL:HG23   | 1.90        | 0.71     |
| 7:H:55:SER:CB    | 7:H:60:HIS:CB     | 2.63        | 0.71     |
| 12:Q:151:SER:HB3 | 12:Q:155:GLY:C    | 2.11        | 0.71     |
| 20:U:89:ASP:HB3  | 21:V:51:ALA:HB3   | 1.72        | 0.71     |
| 2:A:993:G:C3'    | 21:V:90:PHE:CE2   | 2.57        | 0.71     |
| 18:Z:114:ASP:CA  | 18:Z:170:SER:O    | 2.37        | 0.71     |
| 12:Q:42:TYR:CE2  | 18:Z:116:VAL:HG21 | 2.25        | 0.71     |
| 22:2:5:VAL:CG1   | 22:2:6:GLN:N      | 2.13        | 0.71     |
| 2:A:1398:C:H2'   | 2:A:1399:C:C6     | 2.25        | 0.71     |
| 12:Q:93:ILE:O    | 12:Q:94:ARG:HB2   | 1.89        | 0.71     |
| 2:A:1472:A:H2'   | 2:A:1473:G:H8     | 1.54        | 0.71     |
| 23:3:6:VAL:HA    | 23:3:55:ARG:O     | 1.90        | 0.71     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 28:7:19:ARG:O     | 28:7:20:ALA:C    | 2.26        | 0.71     |
| 28:7:26:SER:O     | 28:7:27:GLY:C    | 2.28        | 0.71     |
| 30:9:24:LEU:HD22  | 30:9:35:ARG:HG2  | 1.70        | 0.71     |
| 2:A:1260:G:C5'    | 15:W:83:LYS:HZ2  | 2.02        | 0.71     |
| 2:A:2241:A:H2'    | 2:A:2242:G:C8    | 2.25        | 0.71     |
| 2:A:2404:C:N4     | 2:A:2405:G:C5    | 2.57        | 0.71     |
| 2:A:2540:C:C2'    | 2:A:2541:A:O5'   | 2.37        | 0.71     |
| 2:A:2550:G:H2'    | 2:A:2551:C:H6    | 1.51        | 0.71     |
| 2:A:2676:C:C3'    | 2:A:2676:C:C6    | 2.74        | 0.71     |
| 2:A:2732:G:OP2    | 2:A:2732:G:C8    | 2.43        | 0.71     |
| 2:A:2783:G:H8     | 2:A:2783:G:C5'   | 2.03        | 0.71     |
| 2:A:2783:G:N1     | 2:A:2784:C:N4    | 2.39        | 0.71     |
| 2:A:2801:A:H2     | 2:A:2895:U:O2'   | 1.50        | 0.71     |
| 2:A:558:G:OP1     | 9:N:91:LYS:CB    | 2.38        | 0.71     |
| 2:A:613:U:O5'     | 2:A:615:G:H8     | 1.73        | 0.71     |
| 2:A:614:U:C3'     | 2:A:615:G:H4'    | 2.17        | 0.71     |
| 2:A:988:A:OP1     | 23:3:11:SER:HB2  | 1.90        | 0.71     |
| 4:E:204:VAL:H     | 4:E:303:PRO:CG   | 2.03        | 0.71     |
| 5:F:215:ALA:HA    | 5:F:242:GLU:HG3  | 1.72        | 0.71     |
| 6:G:140:ARG:HD2   | 6:G:144:ARG:HH22 | 1.53        | 0.71     |
| 2:A:2316:C:O3'    | 6:G:151:ILE:HG13 | 1.90        | 0.71     |
| 6:G:95:THR:O      | 6:G:97:GLN:N     | 2.23        | 0.71     |
| 7:H:69:SER:O      | 7:H:70:LEU:C     | 2.28        | 0.71     |
| 8:I:3:VAL:O       | 8:I:18:ILE:HA    | 1.90        | 0.71     |
| 10:O:25:LEU:HD12  | 10:O:38:VAL:C    | 2.09        | 0.71     |
| 10:O:35:ILE:HG22  | 10:O:62:VAL:O    | 1.89        | 0.71     |
| 11:P:120:LEU:HD13 | 11:P:120:LEU:C   | 2.10        | 0.71     |
| 12:Q:23:ILE:O     | 12:Q:23:ILE:HG22 | 1.90        | 0.71     |
| 19:R:84:ALA:HB3   | 19:R:85:PRO:HD2  | 1.68        | 0.71     |
| 13:S:17:ARG:CD    | 13:S:18:THR:N    | 2.52        | 0.71     |
| 13:S:21:HIS:CD2   | 13:S:24:LEU:HD12 | 2.24        | 0.71     |
| 20:U:111:ASP:O    | 20:U:113:SER:CA  | 2.38        | 0.71     |
| 21:V:5:ILE:CD1    | 21:V:12:TYR:CE1  | 2.73        | 0.71     |
| 21:V:60:VAL:O     | 21:V:98:ILE:CG1  | 2.38        | 0.71     |
| 16:X:31:ARG:N     | 16:X:31:ARG:NE   | 2.39        | 0.71     |
| 18:Z:95:SER:HA    | 18:Z:122:ILE:HA  | 1.72        | 0.71     |
| 25:4:48:ARG:HG2   | 25:4:49:PHE:CD1  | 2.24        | 0.71     |
| 23:3:18:ASP:O     | 23:3:20:LYS:N    | 2.24        | 0.71     |
| 27:6:41:ASP:HA    | 27:6:47:HIS:O    | 1.90        | 0.71     |
| 28:7:27:GLY:O     | 28:7:28:ARG:C    | 2.26        | 0.71     |
| 2:A:1134:G:H3'    | 2:A:1136:G:OP2   | 1.90        | 0.71     |
| 2:A:2100:G:H1'    | 2:A:2190:G:N2    | 2.05        | 0.71     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:2197:U:H2'  | 2:A:2224:G:H1    | 1.55        | 0.71     |
| 2:A:2313:C:H5'  | 6:G:51:ARG:HH11  | 1.52        | 0.71     |
| 2:A:2431:U:O2   | 2:A:2431:U:H2'   | 1.90        | 0.71     |
| 2:A:2461:C:O2   | 2:A:2462:U:C6    | 2.42        | 0.71     |
| 2:A:2521:C:C2'  | 2:A:2522:U:O5'   | 2.38        | 0.71     |
| 2:A:2523:G:C2   | 2:A:2541:A:N3    | 2.57        | 0.71     |
| 2:A:2585:U:C2'  | 2:A:2586:C:OP2   | 2.38        | 0.71     |
| 2:A:2619:C:C2'  | 2:A:2620:C:H5'   | 2.21        | 0.71     |
| 2:A:2826:A:C4   | 2:A:2827:C:H6    | 2.08        | 0.71     |
| 2:A:2852:G:N3   | 2:A:2853:C:N3    | 2.38        | 0.71     |
| 3:D:85:ASN:N    | 3:D:85:ASN:HD22  | 1.88        | 0.71     |
| 2:A:1655:A:H4'  | 4:E:212:GLY:N    | 2.05        | 0.71     |
| 4:E:211:GLN:CD  | 4:E:212:GLY:N    | 2.44        | 0.71     |
| 4:E:47:GLY:CA   | 4:E:305:LYS:HE2  | 2.21        | 0.71     |
| 5:F:1:MET:C     | 5:F:18:LEU:CD2   | 2.59        | 0.71     |
| 5:F:20:ASP:O    | 5:F:21:VAL:O     | 2.08        | 0.71     |
| 5:F:58:ALA:CB   | 5:F:79:ARG:N     | 2.53        | 0.71     |
| 9:N:137:GLU:N   | 9:N:141:ALA:N    | 2.29        | 0.71     |
| 19:R:80:PHE:O   | 19:R:84:ALA:HB3  | 1.90        | 0.71     |
| 20:U:32:TYR:H   | 20:U:32:TYR:HD2  | 1.38        | 0.71     |
| 18:Z:26:LYS:NZ  | 18:Z:26:LYS:CB   | 2.52        | 0.71     |
| 18:Z:78:PRO:C   | 18:Z:79:ILE:HG13 | 2.11        | 0.71     |
| 3:D:61:TYR:OH   | 3:D:214:MET:HE3  | 1.90        | 0.71     |
| 22:2:8:ILE:O    | 22:2:11:MET:CG   | 2.37        | 0.71     |
| 2:A:1904:G:H21  | 2:A:1928:A:H2    | 1.34        | 0.71     |
| 2:A:1367:A:C2'  | 28:7:25:LYS:HZ3  | 2.02        | 0.71     |
| 28:7:34:ARG:O   | 28:7:35:ARG:C    | 2.28        | 0.71     |
| 29:8:13:ARG:HB3 | 29:8:24:ALA:HB1  | 1.70        | 0.71     |
| 2:A:1259:G:H2'  | 2:A:1260:G:C8    | 2.26        | 0.71     |
| 2:A:125:G:H21   | 28:7:10:ARG:N    | 1.87        | 0.71     |
| 2:A:1287:A:O4'  | 19:R:104:ARG:CD  | 2.34        | 0.71     |
| 2:A:1759:A:H5'  | 2:A:2715:C:C1'   | 2.21        | 0.71     |
| 2:A:2281:C:HO2' | 2:A:2282:G:P     | 2.13        | 0.71     |
| 2:A:2464:C:H2'  | 2:A:2465:C:C6    | 2.24        | 0.71     |
| 2:A:2049:G:N3   | 2:A:2620:C:N3    | 2.39        | 0.71     |
| 2:A:2689:U:O4'  | 2:A:2713:A:C2    | 2.43        | 0.71     |
| 2:A:2748:A:C8   | 2:A:2749:A:N3    | 2.53        | 0.71     |
| 2:A:2762:G:C6   | 2:A:2763:G:C5    | 2.79        | 0.71     |
| 2:A:2802:G:H2'  | 2:A:2803:C:H6    | 1.54        | 0.71     |
| 2:A:298:G:O6    | 17:Y:24:ARG:NH2  | 2.23        | 0.71     |
| 3:D:128:ALA:HB3 | 3:D:190:THR:HG22 | 0.72        | 0.71     |
| 5:F:214:THR:C   | 5:F:216:SER:N    | 2.40        | 0.71     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 5:F:22:PHE:O    | 5:F:23:GLU:O     | 2.08        | 0.71     |
| 6:G:49:PRO:HD3  | 6:G:73:VAL:CG2   | 2.19        | 0.71     |
| 7:H:101:LYS:CB  | 7:H:114:ILE:O    | 2.33        | 0.71     |
| 2:A:1665:A:C3'  | 10:O:66:LYS:HE2  | 2.08        | 0.71     |
| 2:A:636:G:OP1   | 11:P:127:GLU:CG  | 2.38        | 0.71     |
| 11:P:73:VAL:O   | 11:P:76:LEU:HB3  | 1.91        | 0.71     |
| 12:Q:33:MET:CB  | 12:Q:83:PHE:CB   | 2.66        | 0.71     |
| 20:U:42:ALA:O   | 20:U:45:TYR:CB   | 2.37        | 0.71     |
| 21:V:75:LYS:HE2 | 21:V:75:LYS:HA   | 1.70        | 0.71     |
| 15:W:24:ILE:CG2 | 15:W:35:ILE:HB   | 2.20        | 0.71     |
| 2:A:76:C:C3'    | 22:2:55:ARG:HG3  | 2.19        | 0.71     |
| 22:2:5:VAL:O    | 22:2:6:GLN:C     | 2.27        | 0.71     |
| 23:3:1:MET:SD   | 23:3:3:ARG:HG3   | 2.30        | 0.71     |
| 23:3:42:ALA:O   | 23:3:43:ILE:C    | 2.28        | 0.71     |
| 28:7:11:LYS:CE  | 28:7:11:LYS:HA   | 2.21        | 0.71     |
| 30:9:10:MET:HB3 | 30:9:32:HIS:NE2  | 2.04        | 0.71     |
| 2:A:2466:C:OP1  | 30:9:5:SER:O     | 2.09        | 0.71     |
| 30:9:7:VAL:HG12 | 30:9:34:GLN:NE2  | 2.05        | 0.71     |
| 2:A:2332:U:C2'  | 2:A:2336:A:H62   | 2.03        | 0.71     |
| 2:A:248:G:O2'   | 2:A:2432:A:OP1   | 2.04        | 0.71     |
| 2:A:2491:U:HO2' | 2:A:2492:U:H5'   | 0.86        | 0.71     |
| 2:A:2504:U:O5'  | 2:A:2504:U:C6    | 2.42        | 0.71     |
| 2:A:2619:C:O2   | 2:A:2619:C:H2'   | 1.90        | 0.71     |
| 2:A:2666:C:H5   | 2:A:2667:C:C5    | 2.07        | 0.71     |
| 2:A:2838:G:O2'  | 2:A:2839:G:H5'   | 1.91        | 0.71     |
| 2:A:583:G:P     | 20:U:10:ARG:NH1  | 2.63        | 0.71     |
| 3:D:131:LEU:HB3 | 3:D:171:VAL:HG21 | 1.72        | 0.71     |
| 3:D:130:PRO:CB  | 3:D:186:LYS:O    | 2.35        | 0.71     |
| 4:E:268:LEU:CD2 | 4:E:269:ILE:H    | 1.82        | 0.71     |
| 5:F:163:HIS:O   | 5:F:166:ILE:HG13 | 1.86        | 0.71     |
| 5:F:30:LEU:O    | 5:F:31:ILE:C     | 2.28        | 0.71     |
| 7:H:66:THR:HG23 | 7:H:67:THR:N     | 2.05        | 0.71     |
| 7:H:66:THR:O    | 7:H:69:SER:OG    | 2.08        | 0.71     |
| 10:O:1:MET:HB2  | 10:O:2:ILE:CD1   | 2.21        | 0.71     |
| 10:O:56:GLN:O   | 10:O:58:VAL:CG2  | 2.34        | 0.71     |
| 13:S:76:GLY:O   | 13:S:83:LEU:CD1  | 2.39        | 0.71     |
| 20:U:13:ARG:O   | 20:U:16:LYS:N    | 2.24        | 0.71     |
| 15:W:30:GLU:O   | 15:W:33:ARG:HB2  | 1.91        | 0.71     |
| 17:Y:26:THR:C   | 17:Y:27:LEU:HG   | 2.10        | 0.71     |
| 18:Z:108:VAL:O  | 18:Z:109:GLN:HG3 | 1.91        | 0.71     |
| 18:Z:37:LYS:C   | 18:Z:40:ASP:CG   | 2.49        | 0.71     |
| 8:I:75:LEU:HD12 | 8:I:76:THR:H     | 1.53        | 0.71     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:208:GLY:O    | 3:D:211:HIS:NE2  | 2.24        | 0.71     |
| 24:0:9:SER:O     | 24:0:10:SER:O    | 2.09        | 0.71     |
| 2:A:108:U:H2'    | 2:A:109:G:H8     | 1.56        | 0.71     |
| 2:A:2607:G:O2'   | 2:A:2608:G:H5'   | 1.91        | 0.71     |
| 2:A:2718:G:H21   | 2:A:2719:G:H1'   | 1.55        | 0.71     |
| 2:A:2825:C:C6    | 2:A:2825:C:C4'   | 2.73        | 0.71     |
| 2:A:2838:G:C4    | 2:A:2839:G:H8    | 2.08        | 0.71     |
| 2:A:2892:A:H2'   | 2:A:2893:G:H1'   | 1.71        | 0.71     |
| 2:A:974(A):C:C1' | 2:A:989:G:H22    | 2.01        | 0.71     |
| 6:G:55:LYS:O     | 6:G:63:ILE:O     | 2.09        | 0.71     |
| 7:H:130:ILE:N    | 7:H:130:ILE:HD12 | 1.96        | 0.71     |
| 9:N:75:PRO:O     | 9:N:77:GLY:N     | 2.23        | 0.71     |
| 10:O:35:ILE:CG2  | 10:O:62:VAL:O    | 2.37        | 0.71     |
| 10:O:3:GLN:O     | 10:O:4:GLN:C     | 2.28        | 0.71     |
| 10:O:37:ASP:C    | 10:O:62:VAL:HG23 | 2.11        | 0.71     |
| 12:Q:142:LYS:HE2 | 12:Q:143:VAL:CA  | 2.19        | 0.71     |
| 15:W:8:ARG:HG3   | 15:W:102:HIS:ND1 | 2.05        | 0.71     |
| 17:Y:19:ARG:HG2  | 17:Y:22:GLN:NE2  | 2.05        | 0.71     |
| 18:Z:113:VAL:O   | 18:Z:171:VAL:HA  | 1.90        | 0.71     |
| 23:3:31:LEU:CD2  | 23:3:32:GLN:CA   | 2.61        | 0.71     |
| 26:5:6:VAL:H     | 26:5:8:LYS:NZ    | 1.88        | 0.71     |
| 2:A:126:A:OP2    | 28:7:17:GLY:CA   | 2.39        | 0.71     |
| 2:A:687:C:O4'    | 28:7:4:THR:HG22  | 1.90        | 0.71     |
| 2:A:1364:G:H22   | 2:A:1366:A:H3'   | 1.55        | 0.71     |
| 2:A:2421:G:H5''  | 27:6:4:ASP:CG    | 2.06        | 0.71     |
| 2:A:2485:G:C2    | 2:A:2486:G:C1'   | 2.73        | 0.71     |
| 2:A:1130:U:C5'   | 2:A:2515:C:O2'   | 2.31        | 0.71     |
| 2:A:2762:G:O6    | 2:A:2763:G:C6    | 2.44        | 0.71     |
| 2:A:2793:G:N1    | 2:A:2794:C:C4    | 2.59        | 0.71     |
| 2:A:592:G:O2'    | 29:8:3:LYS:HG3   | 1.89        | 0.71     |
| 2:A:826:U:C2     | 2:A:828:U:H1'    | 2.26        | 0.71     |
| 2:A:974:G:O6     | 21:V:80:TYR:OH   | 2.06        | 0.71     |
| 2:A:994:C:OP2    | 20:U:54:LYS:CE   | 2.38        | 0.71     |
| 3:D:166:LYS:HB2  | 3:D:171:VAL:HA   | 1.73        | 0.71     |
| 3:D:186:LYS:O    | 3:D:187:CYS:O    | 2.08        | 0.71     |
| 3:D:196:ASN:OD1  | 3:D:196:ASN:O    | 2.09        | 0.71     |
| 2:A:1204:A:HO2'  | 5:F:230:GLY:N    | 1.87        | 0.71     |
| 5:F:51:TYR:O     | 5:F:54:LEU:C     | 2.28        | 0.71     |
| 6:G:38:GLU:OE2   | 6:G:71:ALA:CB    | 2.39        | 0.71     |
| 8:I:1:MET:HG3    | 8:I:3:VAL:CG2    | 2.21        | 0.71     |
| 9:N:139:LEU:CD1  | 9:N:139:LEU:N    | 2.53        | 0.71     |
| 9:N:18:ILE:O     | 9:N:18:ILE:CG2   | 2.38        | 0.71     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1137:G:O2'   | 9:N:82:THR:CA     | 2.38        | 0.71     |
| 2:A:2406:U:H1'   | 11:P:57:VAL:HG22  | 1.72        | 0.71     |
| 19:R:105:ARG:CA  | 19:R:105:ARG:NE   | 2.52        | 0.71     |
| 14:T:8:TYR:CE1   | 14:T:54:THR:HB    | 2.26        | 0.71     |
| 21:V:51:ALA:O    | 21:V:55:THR:HG23  | 1.91        | 0.71     |
| 17:Y:80:GLU:HG2  | 17:Y:86:GLU:HG2   | 1.72        | 0.71     |
| 2:A:764:A:OP1    | 3:D:212:HIS:CD2   | 2.44        | 0.71     |
| 2:A:2795:G:C2'   | 2:A:2795:G:N3     | 2.53        | 0.71     |
| 2:A:190:A:OP2    | 2:A:205:G:N2      | 2.20        | 0.71     |
| 2:A:216:A:H2'    | 2:A:217:G:C8      | 2.25        | 0.71     |
| 24:O:35:ASN:HA   | 24:O:68:VAL:HG22  | 1.70        | 0.71     |
| 23:3:59:VAL:C    | 23:3:60:GLU:HG3   | 2.10        | 0.71     |
| 28:7:27:GLY:C    | 28:7:31:LEU:HG    | 2.10        | 0.71     |
| 28:7:29:ASN:O    | 28:7:30:ILE:C     | 2.29        | 0.71     |
| 2:A:1367:A:C3'   | 28:7:25:LYS:NZ    | 2.51        | 0.71     |
| 2:A:2081:C:H2'   | 2:A:2082:A:H8     | 1.53        | 0.71     |
| 2:A:2213:U:O3'   | 2:A:2215:G:C8     | 2.38        | 0.71     |
| 2:A:2278:A:P     | 12:Q:15:THR:OG1   | 2.48        | 0.71     |
| 2:A:2455:G:C2    | 2:A:2498:C:N4     | 2.58        | 0.71     |
| 2:A:2546:U:H4'   | 2:A:2565:A:C2     | 2.25        | 0.71     |
| 2:A:2607:G:O6    | 2:A:2608:G:C2     | 2.44        | 0.71     |
| 2:A:2631:G:C2'   | 2:A:2632:A:O5'    | 2.39        | 0.71     |
| 2:A:1033:U:C5    | 2:A:2750:A:C2     | 2.79        | 0.71     |
| 2:A:594:U:OP1    | 29:8:61:MET:CE    | 2.38        | 0.71     |
| 2:A:606:U:OP1    | 5:F:105:LYS:HD2   | 1.91        | 0.71     |
| 2:A:673:C:C4'    | 5:F:82:GLN:CD     | 2.59        | 0.71     |
| 2:A:904:C:O2'    | 18:Z:166:LEU:HD11 | 1.90        | 0.71     |
| 2:A:974:G:H4'    | 2:A:974(A):C:OP1  | 1.91        | 0.71     |
| 1:B:48:A:P       | 13:S:107:ASN:HD21 | 2.12        | 0.71     |
| 5:F:166:ILE:O    | 5:F:168:ARG:HG3   | 1.91        | 0.71     |
| 5:F:202:THR:HG22 | 5:F:203:ALA:H     | 1.55        | 0.71     |
| 5:F:115:LEU:HG   | 5:F:246:ARG:NH1   | 2.05        | 0.71     |
| 6:G:129:ASP:O    | 6:G:130:VAL:CG1   | 2.38        | 0.71     |
| 7:H:137:LYS:CD   | 7:H:138:GLN:N     | 2.34        | 0.71     |
| 7:H:158:GLY:O    | 7:H:159:LYS:HB2   | 1.91        | 0.71     |
| 7:H:147:ILE:O    | 7:H:161:ILE:HD13  | 1.91        | 0.71     |
| 9:N:38:VAL:O     | 9:N:39:VAL:CB     | 2.38        | 0.71     |
| 10:O:73:ASP:C    | 10:O:75:SER:N     | 2.44        | 0.71     |
| 11:P:60:GLU:O    | 11:P:61:ALA:CB    | 2.39        | 0.71     |
| 13:S:20:TYR:O    | 13:S:23:ARG:HB3   | 1.91        | 0.71     |
| 2:A:2320:A:C6    | 13:S:9:PRO:CB     | 2.73        | 0.71     |
| 14:T:4:ARG:NE    | 14:T:4:ARG:N      | 2.36        | 0.71     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:V:74:TYR:CE1  | 21:V:87:ARG:O    | 2.42        | 0.71     |
| 18:Z:66:VAL:CG2  | 18:Z:68:ALA:O    | 2.38        | 0.71     |
| 16:X:25:GLN:HE22 | 16:X:65:VAL:CG1  | 2.02        | 0.71     |
| 27:6:16:ALA:O    | 27:6:19:GLY:N    | 2.24        | 0.71     |
| 27:6:8:ILE:HG23  | 27:6:30:ASN:H    | 1.55        | 0.71     |
| 30:9:7:VAL:CG1   | 30:9:25:VAL:HG23 | 2.21        | 0.71     |
| 2:A:1364:G:C8    | 2:A:1364:G:H5'   | 2.26        | 0.71     |
| 2:A:2189:U:O2'   | 2:A:2190:G:H5'   | 1.90        | 0.71     |
| 2:A:2281:C:O2'   | 2:A:2282:G:O5'   | 2.07        | 0.71     |
| 2:A:2305:A:N1    | 2:A:2312:U:O2    | 2.24        | 0.71     |
| 2:A:2354:G:C4    | 24:0:32:LYS:HE2  | 2.26        | 0.71     |
| 2:A:2367:G:O2'   | 2:A:2368:C:H5'   | 1.90        | 0.71     |
| 2:A:2693:A:C2    | 2:A:2694:G:N7    | 2.58        | 0.71     |
| 2:A:2802:G:H2'   | 2:A:2803:C:C6    | 2.26        | 0.71     |
| 2:A:2815:C:C2    | 2:A:2816:C:C5    | 2.79        | 0.71     |
| 2:A:598:G:H21    | 5:F:33:LYS:HZ3   | 1.28        | 0.71     |
| 2:A:99:U:N3      | 17:Y:107:LYS:CD  | 2.53        | 0.71     |
| 3:D:141:HIS:CE1  | 3:D:191:VAL:C    | 2.63        | 0.71     |
| 2:A:1818:U:H5''  | 3:D:155:ARG:CG   | 2.06        | 0.71     |
| 3:D:166:LYS:HA   | 3:D:172:ILE:H    | 1.54        | 0.71     |
| 5:F:138:VAL:O    | 5:F:139:VAL:CB   | 2.39        | 0.71     |
| 6:G:23:VAL:HG23  | 6:G:23:VAL:O     | 1.91        | 0.71     |
| 19:R:28:LEU:O    | 19:R:31:HIS:N    | 2.23        | 0.71     |
| 13:S:61:ALA:CB   | 13:S:84:THR:O    | 2.39        | 0.71     |
| 20:U:89:ASP:OD2  | 21:V:50:ASP:HB3  | 1.90        | 0.71     |
| 21:V:6:GLN:HE22  | 21:V:10:LYS:HB3  | 1.56        | 0.71     |
| 22:2:30:ALA:HB1  | 22:2:46:ILE:CD1  | 2.20        | 0.71     |
| 16:X:33:SER:O    | 16:X:37:VAL:CB   | 2.38        | 0.71     |
| 2:A:623:G:H2'    | 2:A:624:C:C6     | 2.26        | 0.71     |
| 23:3:16:PRO:CB   | 23:3:19:GLN:NE2  | 2.54        | 0.70     |
| 27:6:12:MET:HB2  | 27:6:27:ASN:HD22 | 1.51        | 0.70     |
| 2:A:1129:A:N3    | 2:A:2570:G:H1'   | 2.04        | 0.70     |
| 2:A:1779:U:H3'   | 2:A:1779:U:H6    | 1.55        | 0.70     |
| 2:A:2320:A:O5'   | 2:A:2320:A:C8    | 2.43        | 0.70     |
| 2:A:2402:C:H5''  | 2:A:2403:C:OP1   | 1.90        | 0.70     |
| 2:A:2415:G:C5    | 2:A:2416:C:C5    | 2.79        | 0.70     |
| 2:A:2479:G:OP1   | 2:A:2537:U:C4'   | 2.39        | 0.70     |
| 2:A:2758:A:H2'   | 2:A:2759:G:O5'   | 1.90        | 0.70     |
| 2:A:2838:G:C6    | 2:A:2839:G:C8    | 2.79        | 0.70     |
| 5:F:107:ARG:O    | 5:F:109:LEU:N    | 2.24        | 0.70     |
| 6:G:129:ASP:O    | 6:G:130:VAL:HG13 | 1.90        | 0.70     |
| 6:G:14:ARG:H     | 6:G:14:ARG:HD2   | 1.55        | 0.70     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:G:19:GLU:HB3   | 6:G:135:VAL:HG23 | 1.61        | 0.70     |
| 9:N:12:VAL:CA    | 9:N:38:VAL:HG22  | 2.21        | 0.70     |
| 9:N:45:VAL:H     | 9:N:132:LEU:CD2  | 2.02        | 0.70     |
| 9:N:62:ASP:O     | 9:N:64:GLY:N     | 2.24        | 0.70     |
| 10:O:105:GLU:O   | 10:O:107:ARG:N   | 2.24        | 0.70     |
| 11:P:61:ALA:HB1  | 11:P:107:LYS:HZ3 | 1.54        | 0.70     |
| 11:P:66:VAL:CG2  | 11:P:110:GLY:O   | 2.39        | 0.70     |
| 11:P:131:GLU:O   | 11:P:132:LYS:C   | 2.29        | 0.70     |
| 12:Q:142:LYS:CD  | 12:Q:143:VAL:N   | 2.52        | 0.70     |
| 13:S:76:GLY:O    | 13:S:82:TYR:N    | 2.23        | 0.70     |
| 15:W:43:GLY:O    | 15:W:44:ALA:C    | 2.29        | 0.70     |
| 2:A:491:G:C6     | 15:W:49:LYS:NZ   | 2.57        | 0.70     |
| 17:Y:19:ARG:N    | 17:Y:21:LYS:NZ   | 2.36        | 0.70     |
| 18:Z:57:GLU:C    | 18:Z:59:GLY:N    | 2.43        | 0.70     |
| 8:I:80:PRO:O     | 8:I:148:GLN:CG   | 2.39        | 0.70     |
| 24:O:51:VAL:HG12 | 24:O:51:VAL:O    | 1.91        | 0.70     |
| 23:3:12:PRO:HG2  | 23:3:20:LYS:HZ1  | 1.53        | 0.70     |
| 27:6:32:GLN:HA   | 27:6:35:LEU:HD12 | 1.71        | 0.70     |
| 28:7:15:THR:OG1  | 28:7:16:HIS:N    | 2.17        | 0.70     |
| 28:7:43:THR:O    | 28:7:46:ASP:OD1  | 2.08        | 0.70     |
| 2:A:1646:C:C3'   | 2:A:1647:G:H5'   | 2.21        | 0.70     |
| 2:A:2086:U:C4    | 2:A:2233:U:O4    | 2.44        | 0.70     |
| 2:A:2242:G:C4    | 2:A:2243:U:C5    | 2.78        | 0.70     |
| 2:A:2252:G:C3'   | 2:A:2252:G:C8    | 2.74        | 0.70     |
| 2:A:2258:C:H41   | 2:A:2426:A:C1'   | 2.01        | 0.70     |
| 2:A:2415:G:C5    | 2:A:2416:C:H5    | 2.09        | 0.70     |
| 2:A:2450:A:H2'   | 2:A:2451:A:H8    | 1.56        | 0.70     |
| 2:A:2783:G:H2'   | 2:A:2784:C:C6    | 2.25        | 0.70     |
| 2:A:2845:G:HO2'  | 2:A:2846:G:C4'   | 2.03        | 0.70     |
| 2:A:592:G:C2     | 29:8:3:LYS:NZ    | 2.59        | 0.70     |
| 2:A:196:A:C2     | 2:A:805:G:C2     | 2.79        | 0.70     |
| 3:D:68:ARG:O     | 3:D:69:ASP:CG    | 2.29        | 0.70     |
| 4:E:61:PRO:HB3   | 4:E:69:PRO:CB    | 2.20        | 0.70     |
| 5:F:197:SER:O    | 5:F:198:ASP:CB   | 2.39        | 0.70     |
| 5:F:19:PRO:O     | 5:F:20:ASP:C     | 2.29        | 0.70     |
| 6:G:29:HIS:CB    | 6:G:69:ILE:HG12  | 2.18        | 0.70     |
| 8:I:1:MET:HG3    | 8:I:3:VAL:HG23   | 1.73        | 0.70     |
| 9:N:14:ALA:H     | 9:N:40:ASN:ND2   | 1.88        | 0.70     |
| 9:N:52:GLN:CA    | 9:N:55:GLU:OE1   | 2.29        | 0.70     |
| 10:O:64:ARG:HH22 | 10:O:100:GLY:CA  | 2.04        | 0.70     |
| 12:Q:130:PRO:C   | 12:Q:132:VAL:H   | 1.94        | 0.70     |
| 2:A:910:A:C2'    | 12:Q:17:ARG:NH2  | 2.53        | 0.70     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 13:S:55:ASP:OD1  | 13:S:56:ASP:N     | 2.23        | 0.70     |
| 20:U:93:LYS:O    | 20:U:94:VAL:HG23  | 1.90        | 0.70     |
| 2:A:1223:C:N4    | 21:V:87:ARG:NH2   | 2.30        | 0.70     |
| 15:W:81:ALA:CB   | 15:W:97:LYS:HD2   | 2.20        | 0.70     |
| 17:Y:33:GLU:CG   | 17:Y:34:GLU:N     | 2.54        | 0.70     |
| 18:Z:2:GLU:O     | 18:Z:3:LEU:O      | 2.09        | 0.70     |
| 8:I:109:LYS:H    | 8:I:109:LYS:HE2   | 1.56        | 0.70     |
| 2:A:1081:U:H5'   | 31:K:126:LYS:CD   | 2.15        | 0.70     |
| 22:2:59:ILE:HG23 | 22:2:60:GLN:N     | 2.06        | 0.70     |
| 16:X:25:GLN:NE2  | 16:X:65:VAL:HG13  | 2.03        | 0.70     |
| 25:4:70:GLY:O    | 25:4:71:SER:OG    | 2.09        | 0.70     |
| 24:0:7:VAL:O     | 24:0:7:VAL:CG1    | 2.38        | 0.70     |
| 2:A:1906:G:C5    | 2:A:1929:G:C5     | 2.79        | 0.70     |
| 2:A:1470:G:N2    | 2:A:1522:G:C2     | 2.59        | 0.70     |
| 2:A:1324:G:H1'   | 2:A:1616:A:N6     | 2.06        | 0.70     |
| 24:0:36:ILE:N    | 24:0:68:VAL:CG2   | 2.54        | 0.70     |
| 28:7:44:VAL:N    | 28:7:46:ASP:OD2   | 2.24        | 0.70     |
| 29:8:26:LYS:HG3  | 29:8:45:GLY:C     | 2.10        | 0.70     |
| 2:A:1259:G:H2'   | 2:A:1260:G:H8     | 1.56        | 0.70     |
| 2:A:1287:A:C1'   | 19:R:104:ARG:HH11 | 2.04        | 0.70     |
| 2:A:2051:A:N6    | 2:A:2614:A:C5     | 2.58        | 0.70     |
| 2:A:2303:G:H4'   | 6:G:99:ASP:HB2    | 1.71        | 0.70     |
| 2:A:2297:C:C2    | 2:A:2333:A:N6     | 2.60        | 0.70     |
| 2:A:2378:A:C2'   | 2:A:2379:G:O5'    | 2.39        | 0.70     |
| 2:A:2468:G:C8    | 2:A:2476:A:C2     | 2.78        | 0.70     |
| 2:A:2476:A:C2    | 2:A:2481:G:N2     | 2.59        | 0.70     |
| 2:A:2583:G:N9    | 2:A:2584:U:O2     | 2.24        | 0.70     |
| 2:A:2681:C:N4    | 2:A:2725:A:N7     | 2.39        | 0.70     |
| 2:A:2821:A:H2'   | 2:A:2822:G:O4'    | 1.89        | 0.70     |
| 2:A:2853:C:C6    | 2:A:2853:C:H3'    | 2.25        | 0.70     |
| 2:A:99:U:N3      | 17:Y:107:LYS:HD2  | 2.04        | 0.70     |
| 4:E:228:ARG:O    | 4:E:230:GLY:N     | 2.24        | 0.70     |
| 4:E:246:VAL:HG12 | 4:E:247:ARG:N     | 2.05        | 0.70     |
| 4:E:252:GLN:O    | 4:E:254:GLY:N     | 2.21        | 0.70     |
| 7:H:120:LEU:HD13 | 7:H:143:LEU:HD13  | 1.73        | 0.70     |
| 9:N:24:SER:O     | 9:N:28:GLU:HG2    | 1.92        | 0.70     |
| 10:O:17:ARG:NE   | 10:O:47:THR:HA    | 2.06        | 0.70     |
| 2:A:911:A:H2'    | 12:Q:16:ARG:CD    | 2.20        | 0.70     |
| 12:Q:58:HIS:O    | 12:Q:59:ASN:C     | 2.29        | 0.70     |
| 2:A:1287:A:C4'   | 19:R:104:ARG:HD2  | 2.21        | 0.70     |
| 13:S:93:GLN:C    | 13:S:93:GLN:OE1   | 2.29        | 0.70     |
| 20:U:25:TRP:C    | 20:U:28:ARG:HH11  | 1.93        | 0.70     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:W:29:LEU:CG   | 15:W:33:ARG:HD2  | 2.16        | 0.70     |
| 17:Y:11:GLN:O    | 17:Y:21:LYS:NZ   | 2.24        | 0.70     |
| 18:Z:69:VAL:HG13 | 18:Z:81:VAL:CG2  | 2.16        | 0.70     |
| 16:X:7:HIS:HB2   | 16:X:8:PRO:CD    | 2.20        | 0.70     |
| 2:A:740:U:O4     | 2:A:758:C:H1'    | 1.91        | 0.70     |
| 2:A:396:G:H4'    | 25:4:39:VAL:CG1  | 2.20        | 0.70     |
| 30:9:3:VAL:O     | 30:9:3:VAL:HG12  | 1.89        | 0.70     |
| 2:A:1937:A:N1    | 2:A:1940:U:H5    | 1.89        | 0.70     |
| 2:A:1993:U:C4'   | 4:E:228:ARG:HH21 | 2.04        | 0.70     |
| 2:A:2385:C:O2    | 2:A:2386:C:H6    | 1.72        | 0.70     |
| 2:A:2616:C:N3    | 2:A:2617:C:C5    | 2.58        | 0.70     |
| 2:A:2670:A:C8    | 2:A:2670:A:H5''  | 2.22        | 0.70     |
| 3:D:65:ASP:CG    | 3:D:66:PHE:N     | 2.44        | 0.70     |
| 6:G:146:LYS:HE3  | 13:S:15:GLU:OE2  | 1.90        | 0.70     |
| 9:N:19:MET:CE    | 9:N:22:VAL:HG11  | 2.21        | 0.70     |
| 9:N:53:ILE:CG2   | 9:N:54:VAL:N     | 2.54        | 0.70     |
| 10:O:20:LEU:HG   | 10:O:44:LYS:HG2  | 1.73        | 0.70     |
| 19:R:97:VAL:HG22 | 19:R:114:VAL:CG1 | 2.22        | 0.70     |
| 13:S:127:LEU:CD2 | 13:S:127:LEU:C   | 2.60        | 0.70     |
| 13:S:87:LEU:HD22 | 13:S:87:LEU:N    | 2.03        | 0.70     |
| 20:U:10:ARG:O    | 20:U:13:ARG:NH1  | 2.22        | 0.70     |
| 21:V:39:PHE:HD2  | 21:V:40:VAL:N    | 1.89        | 0.70     |
| 15:W:96:ILE:CD1  | 15:W:96:ILE:N    | 2.40        | 0.70     |
| 18:Z:67:LYS:CA   | 18:Z:67:LYS:CE   | 2.68        | 0.70     |
| 18:Z:24:TYR:HD2  | 18:Z:84:TYR:CD1  | 2.06        | 0.70     |
| 22:2:35:ALA:O    | 22:2:36:ALA:C    | 2.28        | 0.70     |
| 22:2:60:GLN:O    | 22:2:63:GLU:CB   | 2.39        | 0.70     |
| 22:2:4:HIS:N     | 22:2:8:ILE:CD1   | 2.53        | 0.70     |
| 2:A:1944:U:H1'   | 2:A:1955:U:C1'   | 2.20        | 0.70     |
| 2:A:481:G:OP2    | 17:Y:81:LYS:HG2  | 1.91        | 0.70     |
| 2:A:1173:G:H22   | 2:A:1175:U:H3'   | 1.56        | 0.70     |
| 24:0:38:VAL:HG12 | 24:0:39:ARG:N    | 2.07        | 0.70     |
| 2:A:988:A:C5     | 23:3:13:ILE:HG21 | 2.26        | 0.70     |
| 28:7:24:THR:O    | 28:7:28:ARG:NE   | 2.23        | 0.70     |
| 2:A:1364:G:N9    | 25:4:3:LYS:NZ    | 2.37        | 0.70     |
| 2:A:2298:A:C2    | 2:A:2299:G:H1'   | 2.27        | 0.70     |
| 2:A:2305:A:H5'   | 2:A:2306:C:OP2   | 1.91        | 0.70     |
| 2:A:2376:A:H2    | 13:S:102:LEU:CD2 | 1.97        | 0.70     |
| 2:A:2821:A:C2'   | 2:A:2822:G:C1'   | 2.69        | 0.70     |
| 4:E:202:ALA:HA   | 4:E:262:THR:HB   | 1.74        | 0.70     |
| 7:H:153:PRO:HB3  | 7:H:161:ILE:O    | 1.92        | 0.70     |
| 8:I:13:GLY:HA3   | 8:I:15:LYS:HZ2   | 1.55        | 0.70     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:N:19:MET:HE1   | 9:N:22:VAL:HG11   | 1.74        | 0.70     |
| 9:N:74:ARG:HD2   | 9:N:141:ALA:O     | 1.91        | 0.70     |
| 10:O:90:ASP:N    | 10:O:90:ASP:OD1   | 2.24        | 0.70     |
| 12:Q:140:TYR:HD1 | 12:Q:147:VAL:HG11 | 0.67        | 0.70     |
| 13:S:35:VAL:N    | 13:S:103:ASP:HB3  | 2.05        | 0.70     |
| 20:U:94:VAL:HG11 | 21:V:4:ILE:CG2    | 2.20        | 0.70     |
| 17:Y:43:ASN:O    | 17:Y:44:ALA:HB3   | 1.90        | 0.70     |
| 18:Z:35:ASP:OD1  | 18:Z:37:LYS:N     | 2.24        | 0.70     |
| 18:Z:45:GLN:NE2  | 18:Z:45:GLN:N     | 2.40        | 0.70     |
| 2:A:764:A:OP1    | 3:D:212:HIS:NE2   | 2.25        | 0.70     |
| 2:A:72:U:C1'     | 22:2:57:LYS:HD2   | 2.21        | 0.70     |
| 22:2:6:GLN:O     | 22:2:9:ARG:CA     | 2.39        | 0.70     |
| 25:4:49:PHE:CE1  | 25:4:71:SER:OG    | 2.44        | 0.70     |
| 24:0:25:LYS:C    | 24:0:60:PHE:HE1   | 1.91        | 0.70     |
| 2:A:2433:A:H2    | 25:4:32:HIS:NE2   | 1.89        | 0.70     |
| 25:4:56:VAL:HG12 | 25:4:57:ASP:N     | 2.06        | 0.70     |
| 26:5:8:LYS:O     | 26:5:9:LYS:HB2    | 1.90        | 0.70     |
| 2:A:2022:U:N3    | 26:5:9:LYS:NZ     | 2.39        | 0.70     |
| 29:8:30:ARG:HD2  | 29:8:44:LYS:CD    | 2.20        | 0.70     |
| 2:A:1260:G:H5''  | 15:W:83:LYS:HZ2   | 1.55        | 0.70     |
| 2:A:1667:G:H8    | 2:A:1667:G:OP2    | 1.75        | 0.70     |
| 2:A:2078:C:H4'   | 2:A:2434:A:C5'    | 2.21        | 0.70     |
| 2:A:2090:G:C5    | 2:A:2230:G:C6     | 2.79        | 0.70     |
| 2:A:2450:A:H2'   | 2:A:2451:A:C8     | 2.27        | 0.70     |
| 2:A:2520:C:C2'   | 2:A:2521:C:C5'    | 2.67        | 0.70     |
| 2:A:2638:G:O6    | 2:A:2776:A:OP2    | 2.09        | 0.70     |
| 2:A:2788:C:H4'   | 2:A:2810:A:H5'    | 1.72        | 0.70     |
| 2:A:2880:C:C2'   | 2:A:2881:C:C5'    | 2.59        | 0.70     |
| 1:B:51:G:OP2     | 13:S:72:GLU:HG2   | 1.92        | 0.70     |
| 3:D:105:ALA:O    | 3:D:194:VAL:O     | 2.08        | 0.70     |
| 3:D:74:PRO:HG2   | 3:D:96:ALA:CA     | 2.20        | 0.70     |
| 5:F:93:LYS:HB2   | 5:F:96:LYS:CE     | 2.22        | 0.70     |
| 9:N:51:GLU:O     | 9:N:54:VAL:N      | 2.25        | 0.70     |
| 10:O:12:ASP:HA   | 10:O:97:ARG:O     | 1.90        | 0.70     |
| 11:P:114:VAL:CG2 | 11:P:132:LYS:C    | 2.58        | 0.70     |
| 2:A:910:A:H62    | 12:Q:11:LYS:C     | 1.94        | 0.70     |
| 12:Q:45:GLN:CB   | 12:Q:152:SER:CB   | 2.62        | 0.70     |
| 12:Q:67:ALA:C    | 12:Q:71:PHE:CE1   | 2.64        | 0.70     |
| 19:R:45:ARG:O    | 19:R:46:GLY:C     | 2.30        | 0.70     |
| 19:R:67:LEU:HD22 | 19:R:71:GLN:HA    | 1.73        | 0.70     |
| 19:R:75:LEU:O    | 19:R:76:VAL:C     | 2.29        | 0.70     |
| 13:S:115:VAL:O   | 13:S:118:ILE:HG22 | 1.91        | 0.70     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2334:G:OP2   | 13:S:13:ARG:HB2  | 1.90        | 0.70     |
| 13:S:19:ASP:O    | 13:S:22:GLN:N    | 2.21        | 0.70     |
| 15:W:78:GLU:CD   | 15:W:99:ARG:HB3  | 2.12        | 0.70     |
| 17:Y:92:ASP:OD1  | 17:Y:94:SER:N    | 2.25        | 0.70     |
| 18:Z:35:ASP:N    | 18:Z:39:PHE:HE2  | 1.85        | 0.70     |
| 8:I:77:VAL:HB    | 8:I:143:VAL:HA   | 1.73        | 0.70     |
| 2:A:729:G:C5     | 3:D:207:ALA:HA   | 2.26        | 0.70     |
| 22:2:12:THR:HB   | 22:2:13:PRO:HD2  | 1.71        | 0.70     |
| 16:X:28:VAL:HG11 | 16:X:64:ALA:HB2  | 1.74        | 0.70     |
| 2:A:6:A:H4'      | 9:N:4:ALA:O      | 1.92        | 0.70     |
| 23:3:37:LEU:HB3  | 23:3:38:GLU:OE1  | 1.91        | 0.70     |
| 23:3:41:PRO:O    | 23:3:42:ALA:O    | 2.10        | 0.70     |
| 2:A:1364:G:H2'   | 25:4:3:LYS:HZ2   | 0.56        | 0.70     |
| 2:A:2330:G:C2    | 2:A:2331:G:N9    | 2.60        | 0.70     |
| 2:A:2470:G:C4    | 2:A:2471:C:C5    | 2.79        | 0.70     |
| 2:A:2493:U:O2    | 2:A:2494:G:O4'   | 2.08        | 0.70     |
| 2:A:746:A:O5'    | 2:A:2612:C:C6    | 2.45        | 0.70     |
| 2:A:1638:C:C5'   | 2:A:2710:C:H1'   | 2.22        | 0.70     |
| 2:A:2888:C:C2    | 2:A:2889:C:C6    | 2.79        | 0.70     |
| 4:E:268:LEU:CD2  | 4:E:269:ILE:HD12 | 2.16        | 0.70     |
| 5:F:103:ASN:CB   | 5:F:106:GLU:OE2  | 2.26        | 0.70     |
| 5:F:93:LYS:O     | 5:F:96:LYS:CD    | 2.39        | 0.70     |
| 2:A:2304:G:H4'   | 6:G:105:SER:CB   | 2.21        | 0.70     |
| 9:N:12:VAL:HB    | 9:N:38:VAL:CG2   | 2.21        | 0.70     |
| 2:A:1140:C:C6    | 9:N:49:ARG:HG3   | 2.20        | 0.70     |
| 12:Q:82:LYS:HB2  | 12:Q:125:TRP:HB3 | 1.74        | 0.70     |
| 12:Q:20:ILE:CG1  | 12:Q:21:SER:H    | 2.01        | 0.70     |
| 14:T:6:CYS:SG    | 14:T:31:PHE:HA   | 2.32        | 0.70     |
| 21:V:83:ARG:O    | 21:V:84:THR:CB   | 2.39        | 0.70     |
| 2:A:95:G:H1'     | 22:2:42:ASN:CB   | 2.22        | 0.70     |
| 28:7:1:MET:C     | 28:7:1:MET:SD    | 2.67        | 0.70     |
| 14:T:47:ARG:O    | 14:T:48:ASN:CB   | 2.40        | 0.70     |
| 2:A:518:G:H1'    | 15:W:77:ASP:OD1  | 1.90        | 0.70     |
| 2:A:855:G:O2'    | 24:0:25:LYS:HD3  | 1.92        | 0.70     |
| 2:A:2197:U:C5    | 2:A:2224:G:C4    | 2.62        | 0.70     |
| 2:A:2250:G:C5'   | 12:Q:102:ARG:CD  | 2.70        | 0.70     |
| 2:A:2405:G:C2    | 2:A:2413:G:O6    | 2.45        | 0.70     |
| 2:A:826:U:OP1    | 2:A:2428:G:H3'   | 1.92        | 0.70     |
| 2:A:2436:G:C2    | 2:A:2437:U:C2    | 2.79        | 0.70     |
| 2:A:2441:C:O2'   | 2:A:2442:C:O5'   | 2.05        | 0.70     |
| 2:A:2520:C:N4    | 2:A:2567:G:C5    | 2.60        | 0.70     |
| 2:A:2703:C:O2'   | 2:A:2704:C:H5'   | 1.90        | 0.70     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2779:U:H5''  | 2:A:2780:G:O5'   | 1.91        | 0.70     |
| 2:A:2783:G:C6    | 2:A:2784:C:C4    | 2.79        | 0.70     |
| 2:A:2821:A:H2'   | 2:A:2822:G:C8    | 2.26        | 0.70     |
| 4:E:268:LEU:C    | 4:E:268:LEU:CD2  | 2.55        | 0.70     |
| 6:G:140:ARG:HD2  | 6:G:144:ARG:NH2  | 2.07        | 0.70     |
| 7:H:82:TYR:CE1   | 7:H:137:LYS:CG   | 2.67        | 0.70     |
| 9:N:136:SER:HA   | 9:N:139:LEU:HD21 | 1.73        | 0.70     |
| 10:O:101:PRO:HB3 | 10:O:120:GLU:O   | 1.91        | 0.70     |
| 10:O:17:ARG:O    | 10:O:18:GLU:HG3  | 1.92        | 0.70     |
| 12:Q:69:ASN:HD22 | 12:Q:70:ARG:CA   | 2.03        | 0.70     |
| 19:R:38:VAL:HG12 | 19:R:39:PRO:HD3  | 0.74        | 0.70     |
| 19:R:51:LEU:O    | 19:R:54:LEU:HB2  | 1.92        | 0.70     |
| 13:S:35:VAL:O    | 13:S:45:ALA:HB1  | 1.91        | 0.70     |
| 20:U:63:GLN:O    | 20:U:64:ARG:C    | 2.29        | 0.70     |
| 20:U:7:GLY:HA3   | 20:U:8:ILE:HD12  | 1.74        | 0.70     |
| 21:V:40:VAL:C    | 21:V:51:ALA:HB1  | 2.12        | 0.70     |
| 15:W:26:GLY:O    | 15:W:27:LYS:CG   | 2.39        | 0.70     |
| 17:Y:78:THR:CA   | 17:Y:89:ARG:CD   | 2.67        | 0.70     |
| 3:D:211:HIS:C    | 3:D:213:LYS:N    | 2.42        | 0.70     |
| 16:X:14:ALA:HB1  | 16:X:18:MET:HE2  | 1.73        | 0.70     |
| 16:X:20:PHE:CD1  | 16:X:22:ASN:N    | 2.58        | 0.70     |
| 2:A:1055:G:N7    | 2:A:1056:G:H1'   | 2.07        | 0.70     |
| 24:0:36:ILE:CA   | 24:0:68:VAL:HG13 | 2.22        | 0.70     |
| 2:A:396:G:OP1    | 25:4:10:VAL:HG13 | 1.91        | 0.70     |
| 26:5:32:GLU:HG2  | 26:5:39:LYS:HG2  | 1.74        | 0.70     |
| 2:A:13:A:N6      | 2:A:525:U:C6     | 2.60        | 0.70     |
| 2:A:444(A):A:N1  | 2:A:1462:C:OP2   | 2.25        | 0.70     |
| 2:A:2224:G:O2'   | 2:A:2225:A:H5'   | 1.91        | 0.70     |
| 2:A:2265:U:N3    | 2:A:2266:A:N7    | 2.39        | 0.70     |
| 2:A:2316:C:N4    | 2:A:2317:C:C4    | 2.60        | 0.70     |
| 2:A:2328:A:C2'   | 2:A:2329:G:H8    | 2.01        | 0.70     |
| 2:A:2333:A:N9    | 2:A:2335:A:N3    | 2.40        | 0.70     |
| 2:A:2370:G:C2'   | 2:A:2371:G:O5'   | 2.40        | 0.70     |
| 2:A:2372:G:N1    | 2:A:2373:G:C6    | 2.59        | 0.70     |
| 2:A:2515:C:C4    | 2:A:2570:G:C6    | 2.79        | 0.70     |
| 2:A:2615:U:C4    | 26:5:8:LYS:HG2   | 2.27        | 0.70     |
| 2:A:2045:C:N3    | 2:A:2624:G:N2    | 2.40        | 0.70     |
| 2:A:2691:C:N4    | 2:A:2719:G:N2    | 2.39        | 0.70     |
| 2:A:2821:A:O3'   | 4:E:258:TYR:HE2  | 1.73        | 0.70     |
| 2:A:2825:C:H6    | 2:A:2825:C:C4'   | 2.05        | 0.70     |
| 2:A:2840:C:C2    | 2:A:2841:C:C5    | 2.80        | 0.70     |
| 2:A:2839:G:O2'   | 2:A:2840:C:H5'   | 1.92        | 0.70     |

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| Atom-1          | Atom-2            | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 2:A:2870:C:H2'  | 2:A:2871:C:O4'    | 1.92        | 0.70     |
| 2:A:574:C:H41   | 2:A:2054:A:H5''   | 1.57        | 0.70     |
| 5:F:152:GLU:O   | 5:F:155:SER:HB3   | 1.92        | 0.70     |
| 5:F:5:ILE:HA    | 5:F:139:VAL:CG1   | 2.22        | 0.70     |
| 12:Q:72:VAL:CG2 | 12:Q:83:PHE:HZ    | 2.03        | 0.70     |
| 13:S:32:PRO:O   | 13:S:101:VAL:HG13 | 1.92        | 0.70     |
| 20:U:85:ARG:NH1 | 20:U:116:ALA:O    | 2.24        | 0.70     |
| 2:A:1223:C:N4   | 21:V:87:ARG:NE    | 2.39        | 0.70     |
| 15:W:39:THR:HA  | 26:5:28:PRO:HG3   | 1.73        | 0.70     |
| 15:W:58:ALA:O   | 15:W:59:VAL:C     | 2.29        | 0.70     |
| 18:Z:125:PRO:CG | 18:Z:130:ILE:HG22 | 2.22        | 0.70     |
| 18:Z:41:ARG:H   | 18:Z:41:ARG:NE    | 1.90        | 0.70     |
| 8:I:95:SER:HA   | 8:I:98:ILE:HG13   | 0.70        | 0.70     |
| 2:A:1626:G:N7   | 2:A:1634:A:H2     | 1.89        | 0.70     |
| 2:A:885:C:N4    | 2:A:889:C:H1'     | 2.06        | 0.70     |
| 2:A:382:G:H1    | 2:A:392:C:H42     | 1.38        | 0.70     |
| 2:A:120:U:C2    | 2:A:150:C:C4      | 2.80        | 0.70     |
| 23:3:26:LEU:HB2 | 23:3:28:LEU:HD21  | 1.74        | 0.70     |
| 23:3:50:VAL:O   | 23:3:51:ALA:C     | 2.30        | 0.70     |
| 26:5:58:LEU:O   | 26:5:59:ALA:HB2   | 1.90        | 0.70     |
| 27:6:16:ALA:C   | 27:6:18:THR:N     | 2.45        | 0.70     |
| 2:A:1255:U:C4   | 5:F:67:GLN:O      | 2.44        | 0.70     |
| 2:A:1287:A:C5'  | 19:R:104:ARG:HD2  | 2.22        | 0.70     |
| 2:A:1764:G:C6   | 2:A:1989:G:C2     | 2.80        | 0.70     |
| 2:A:2103:C:O2   | 2:A:2187:G:C2     | 2.43        | 0.70     |
| 2:A:2225:A:C4'  | 2:A:2226:C:H5''   | 1.87        | 0.70     |
| 2:A:2267:A:H5'' | 2:A:2268:A:P      | 2.31        | 0.70     |
| 2:A:2268:A:H4'  | 2:A:2268:A:OP1    | 1.91        | 0.70     |
| 2:A:965:C:O4'   | 2:A:2273:A:C2     | 2.45        | 0.70     |
| 2:A:2358:G:N3   | 2:A:2359:C:H5'    | 2.07        | 0.70     |
| 2:A:2423:U:O2   | 2:A:2423:U:H2'    | 1.92        | 0.70     |
| 2:A:2474:C:C2'  | 2:A:2475:C:H5'    | 2.14        | 0.70     |
| 2:A:2520:C:H5   | 2:A:2567:G:C4     | 2.10        | 0.70     |
| 2:A:2620:C:O2'  | 2:A:2621:A:C4'    | 2.40        | 0.70     |
| 2:A:2733:A:H1'  | 4:E:318:ASN:HD21  | 1.57        | 0.70     |
| 2:A:2737:G:C5   | 2:A:2738:A:N7     | 2.59        | 0.70     |
| 2:A:2783:G:O5'  | 2:A:2783:G:C8     | 2.43        | 0.70     |
| 2:A:911:A:C6    | 12:Q:16:ARG:CA    | 2.74        | 0.70     |
| 3:D:87:SER:O    | 3:D:156:ALA:HB2   | 1.92        | 0.70     |
| 4:E:44:TYR:CB   | 4:E:307:LEU:O     | 2.40        | 0.70     |
| 5:F:6:TYR:CE2   | 5:F:140:VAL:CA    | 2.74        | 0.70     |
| 7:H:146:ASN:O   | 7:H:146:ASN:OD1   | 2.09        | 0.70     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:H:70:LEU:O     | 7:H:73:ASN:HB2   | 1.91        | 0.70     |
| 8:I:43:ASN:C     | 8:I:46:ALA:H     | 1.95        | 0.70     |
| 9:N:12:VAL:HG12  | 9:N:38:VAL:CG2   | 2.22        | 0.70     |
| 9:N:58:GLU:HG2   | 9:N:139:LEU:HB3  | 1.74        | 0.70     |
| 9:N:95:ARG:O     | 9:N:96:GLU:C     | 2.28        | 0.70     |
| 10:O:19:VAL:CG1  | 10:O:42:THR:O    | 2.36        | 0.70     |
| 10:O:47:THR:CB   | 10:O:48:PRO:HD2  | 2.09        | 0.70     |
| 12:Q:49:VAL:HG11 | 12:Q:119:ASN:O   | 1.90        | 0.70     |
| 15:W:40:ASN:O    | 15:W:41:LYS:O    | 2.10        | 0.70     |
| 15:W:43:GLY:O    | 15:W:44:ALA:O    | 2.10        | 0.70     |
| 15:W:56:ALA:O    | 15:W:58:ALA:N    | 2.25        | 0.70     |
| 18:Z:159:THR:O   | 18:Z:160:LEU:HB2 | 1.90        | 0.70     |
| 8:I:101:SER:O    | 8:I:102:LEU:C    | 2.30        | 0.70     |
| 22:2:4:HIS:H     | 22:2:8:ILE:CD1   | 2.05        | 0.70     |
| 2:A:2833:G:C8    | 2:A:2833:G:OP1   | 2.39        | 0.70     |
| 2:A:1327:C:H3'   | 2:A:1328:G:H8    | 1.57        | 0.70     |
| 25:4:14:ILE:O    | 25:4:14:ILE:CG2  | 2.40        | 0.69     |
| 27:6:2:ALA:HB3   | 27:6:11:LYS:CE   | 2.21        | 0.69     |
| 28:7:34:ARG:CZ   | 28:7:42:LEU:HD23 | 2.22        | 0.69     |
| 2:A:1668:A:H1'   | 2:A:1669:A:C2    | 2.26        | 0.69     |
| 2:A:2226:C:O2    | 2:A:2227:A:O2'   | 2.08        | 0.69     |
| 2:A:2350:C:N4    | 2:A:2382:G:C6    | 2.60        | 0.69     |
| 2:A:2478:A:H2'   | 2:A:2479:G:H5'   | 1.73        | 0.69     |
| 2:A:2657:A:C2'   | 2:A:2658:C:H5'   | 2.22        | 0.69     |
| 2:A:2787:C:HO2'  | 2:A:2810:A:HO2'  | 1.40        | 0.69     |
| 3:D:141:HIS:HE1  | 3:D:192:GLY:C    | 1.95        | 0.69     |
| 3:D:85:ASN:CG    | 3:D:86:ARG:NH2   | 2.43        | 0.69     |
| 4:E:211:GLN:HG2  | 4:E:212:GLY:H    | 1.57        | 0.69     |
| 2:A:605:C:O3'    | 5:F:103:ASN:ND2  | 2.25        | 0.69     |
| 7:H:98:GLN:HB2   | 7:H:103:VAL:HG21 | 1.74        | 0.69     |
| 8:I:7:LYS:HB2    | 8:I:14:LYS:CE    | 2.12        | 0.69     |
| 9:N:15:ARG:O     | 9:N:16:ASP:HB2   | 1.91        | 0.69     |
| 12:Q:116:HIS:CD2 | 12:Q:116:HIS:O   | 2.45        | 0.69     |
| 12:Q:152:SER:OG  | 12:Q:153:PRO:HD2 | 1.92        | 0.69     |
| 13:S:82:TYR:O    | 13:S:86:LEU:CG   | 2.38        | 0.69     |
| 15:W:8:ARG:O     | 15:W:9:TYR:C     | 2.30        | 0.69     |
| 2:A:1789:A:C4'   | 3:D:224:VAL:CG1  | 2.68        | 0.69     |
| 22:2:23:LEU:O    | 22:2:27:LEU:HG   | 1.92        | 0.69     |
| 22:2:27:LEU:CD2  | 22:2:49:LEU:HB3  | 2.22        | 0.69     |
| 2:A:218:A:H2'    | 2:A:219:G:O4'    | 1.92        | 0.69     |
| 31:K:19:THR:H    | 31:K:20:PRO:CD   | 2.04        | 0.69     |
| 27:6:33:ALA:C    | 27:6:35:LEU:H    | 1.95        | 0.69     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 30:9:10:MET:HE3  | 30:9:10:MET:CA   | 2.22        | 0.69     |
| 2:A:2051:A:H2    | 2:A:2618:G:N1    | 1.90        | 0.69     |
| 2:A:2093:G:C6    | 2:A:2225:A:N7    | 2.61        | 0.69     |
| 2:A:2325:G:C5    | 2:A:2326:C:H5    | 2.09        | 0.69     |
| 2:A:2373:G:H1    | 2:A:2380:C:H42   | 1.40        | 0.69     |
| 2:A:2536:G:C2'   | 2:A:2537:U:H5'   | 2.21        | 0.69     |
| 2:A:2543:G:C8    | 2:A:2544:G:C5    | 2.80        | 0.69     |
| 2:A:2657:A:C3'   | 2:A:2658:C:H5'   | 2.22        | 0.69     |
| 2:A:2740:A:C5'   | 2:A:2740:A:H8    | 2.04        | 0.69     |
| 2:A:2838:G:C2    | 2:A:2881:C:N3    | 2.59        | 0.69     |
| 2:A:2842:G:C3'   | 2:A:2843:G:H5'   | 2.22        | 0.69     |
| 2:A:673:C:H4'    | 5:F:82:GLN:CD    | 2.12        | 0.69     |
| 3:D:110:LYS:O    | 3:D:111:VAL:C    | 2.30        | 0.69     |
| 3:D:166:LYS:C    | 3:D:182:MET:HE1  | 2.12        | 0.69     |
| 3:D:198:GLY:C    | 3:D:200:THR:N    | 2.43        | 0.69     |
| 5:F:168:ARG:HH12 | 5:F:209:GLY:C    | 1.91        | 0.69     |
| 9:N:15:ARG:CG    | 9:N:43:ARG:CG    | 2.68        | 0.69     |
| 9:N:83:ILE:CG1   | 9:N:84:ARG:HG2   | 2.23        | 0.69     |
| 10:O:43:VAL:HG23 | 10:O:56:GLN:H    | 1.55        | 0.69     |
| 2:A:910:A:H62    | 12:Q:12:PRO:CA   | 2.04        | 0.69     |
| 19:R:111:LEU:O   | 19:R:112:ALA:CB  | 2.40        | 0.69     |
| 19:R:56:LYS:NZ   | 19:R:94:TYR:OH   | 2.21        | 0.69     |
| 13:S:115:VAL:O   | 13:S:117:ALA:N   | 2.25        | 0.69     |
| 20:U:104:GLU:CD  | 21:V:46:VAL:CG1  | 2.60        | 0.69     |
| 20:U:43:ALA:O    | 20:U:45:TYR:CA   | 2.40        | 0.69     |
| 17:Y:102:ASP:HB3 | 17:Y:108:ARG:NH1 | 2.06        | 0.69     |
| 17:Y:71:VAL:HG22 | 17:Y:93:THR:HG23 | 0.72        | 0.69     |
| 18:Z:3:LEU:HD22  | 18:Z:34:LEU:C    | 2.12        | 0.69     |
| 18:Z:71:MET:HA   | 18:Z:78:PRO:CB   | 2.22        | 0.69     |
| 2:A:1827:C:H2'   | 2:A:1828:G:O4'   | 1.92        | 0.69     |
| 2:A:58:G:N2      | 2:A:70:G:C5      | 2.59        | 0.69     |
| 2:A:1076:C:C2'   | 31:K:91:GLU:HB3  | 2.22        | 0.69     |
| 9:N:5:GLU:HA     | 9:N:109:TYR:CE2  | 2.27        | 0.69     |
| 9:N:5:GLU:OE2    | 9:N:6:PHE:O      | 2.10        | 0.69     |
| 4:E:109:ASP:OD2  | 4:E:112:LEU:HD23 | 1.91        | 0.69     |
| 3:D:139:LEU:CD1  | 3:D:139:LEU:C    | 2.58        | 0.69     |
| 12:Q:94:ARG:NE   | 12:Q:106:GLY:HA2 | 2.01        | 0.69     |
| 2:A:545(A):A:OP2 | 2:A:1546:C:C4    | 2.44        | 0.69     |
| 24:O:49:GLN:CA   | 24:O:49:GLN:HE21 | 2.04        | 0.69     |
| 23:3:40:THR:HG21 | 23:3:43:ILE:HG12 | 1.74        | 0.69     |
| 23:3:45:GLY:O    | 23:3:46:ASN:C    | 2.31        | 0.69     |
| 25:4:33:VAL:C    | 25:4:34:ASP:OD1  | 2.30        | 0.69     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 29:8:60:LEU:CD2   | 29:8:61:MET:O     | 2.40        | 0.69     |
| 2:A:2236:C:O2     | 2:A:2236:C:H2'    | 1.91        | 0.69     |
| 2:A:2359:C:C5     | 2:A:2360:A:N1     | 2.60        | 0.69     |
| 2:A:2394:C:C5     | 2:A:2395:C:C4     | 2.81        | 0.69     |
| 2:A:2688:U:C2     | 2:A:2719:G:N3     | 2.58        | 0.69     |
| 2:A:2880:C:N4     | 2:A:2881:C:H41    | 1.90        | 0.69     |
| 2:A:775:G:H5'     | 2:A:777:A:H1'     | 0.85        | 0.69     |
| 5:F:22:PHE:O      | 5:F:23:GLU:C      | 2.30        | 0.69     |
| 8:I:8:ASP:O       | 8:I:9:VAL:HB      | 1.92        | 0.69     |
| 10:O:64:ARG:HH21  | 10:O:100:GLY:HA3  | 1.57        | 0.69     |
| 11:P:114:VAL:HG21 | 11:P:132:LYS:CB   | 2.22        | 0.69     |
| 12:Q:49:VAL:CG2   | 12:Q:120:HIS:CA   | 2.70        | 0.69     |
| 19:R:37:THR:O     | 19:R:38:VAL:C     | 2.29        | 0.69     |
| 19:R:61:HIS:C     | 19:R:64:ARG:NH1   | 2.44        | 0.69     |
| 19:R:62:ALA:HB1   | 19:R:80:PHE:HZ    | 1.55        | 0.69     |
| 13:S:100:ALA:CB   | 13:S:127:LEU:HD21 | 2.23        | 0.69     |
| 13:S:97:VAL:O     | 13:S:98:GLU:CB    | 2.40        | 0.69     |
| 20:U:56:ASP:O     | 20:U:60:LEU:HD23  | 1.89        | 0.69     |
| 15:W:14:PRO:HD3   | 15:W:101:SER:OG   | 1.92        | 0.69     |
| 15:W:70:TYR:HD2   | 15:W:71:VAL:H     | 1.40        | 0.69     |
| 17:Y:53:GLY:O     | 17:Y:54:ASP:C     | 2.30        | 0.69     |
| 12:Q:36:ASN:CG    | 18:Z:116:VAL:CG1  | 2.58        | 0.69     |
| 2:A:1405:U:H2'    | 2:A:1406:U:C6     | 2.26        | 0.69     |
| 2:A:280:C:O2      | 2:A:283:A:N1      | 2.25        | 0.69     |
| 24:O:47:ALA:HB1   | 24:O:73:GLY:O     | 1.93        | 0.69     |
| 2:A:1364:G:C1'    | 25:4:3:LYS:HZ3    | 2.06        | 0.69     |
| 2:A:2194:G:C6     | 2:A:2195:C:N4     | 2.60        | 0.69     |
| 2:A:2233:U:O2     | 2:A:2234:G:N9     | 2.25        | 0.69     |
| 2:A:2470:G:N1     | 2:A:2471:C:C5     | 2.51        | 0.69     |
| 2:A:2657:A:C5     | 2:A:2658:C:C6     | 2.80        | 0.69     |
| 2:A:2768:C:HO2'   | 2:A:2769:C:H5'    | 1.57        | 0.69     |
| 2:A:775:G:H2'     | 2:A:794:G:N7      | 2.07        | 0.69     |
| 2:A:566:U:O2'     | 2:A:809:G:OP2     | 2.05        | 0.69     |
| 5:F:153:VAL:C     | 5:F:155:SER:N     | 2.45        | 0.69     |
| 5:F:25:PRO:C      | 5:F:26:VAL:HG23   | 2.13        | 0.69     |
| 6:G:146:LYS:O     | 6:G:147:ALA:C     | 2.29        | 0.69     |
| 6:G:142:ALA:HB3   | 6:G:151:ILE:HD11  | 1.70        | 0.69     |
| 2:A:2745:C:C1'    | 7:H:142:GLU:HG3   | 2.17        | 0.69     |
| 7:H:49:ILE:N      | 7:H:49:ILE:HD12   | 2.01        | 0.69     |
| 7:H:52:THR:O      | 7:H:54:PRO:CD     | 2.37        | 0.69     |
| 8:I:35:LEU:O      | 8:I:36:ALA:CB     | 2.40        | 0.69     |
| 19:R:89:ASP:OD1   | 19:R:90:ARG:CG    | 2.40        | 0.69     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 13:S:76:GLY:C     | 13:S:80:SER:N     | 2.46        | 0.69     |
| 20:U:39:LEU:HB3   | 20:U:40:LEU:HD23  | 1.74        | 0.69     |
| 20:U:75:ASN:O     | 20:U:78:THR:OG1   | 2.10        | 0.69     |
| 21:V:44:GLN:N     | 21:V:44:GLN:HE21  | 1.91        | 0.69     |
| 17:Y:101:LEU:O    | 17:Y:101:LEU:HD22 | 1.92        | 0.69     |
| 17:Y:92:ASP:O     | 17:Y:92:ASP:OD1   | 2.09        | 0.69     |
| 9:N:10:VAL:HG11   | 9:N:36:VAL:CB     | 2.16        | 0.69     |
| 2:A:2898:U:H2'    | 2:A:2898:U:O2     | 1.92        | 0.69     |
| 2:A:1078:U:P      | 31:K:93:LYS:CG    | 2.74        | 0.69     |
| 24:0:9:SER:O      | 24:0:10:SER:C     | 2.30        | 0.69     |
| 25:4:23:GLU:CD    | 25:4:29:PRO:CG    | 2.57        | 0.69     |
| 28:7:12:ARG:O     | 28:7:13:ALA:O     | 2.10        | 0.69     |
| 28:7:19:ARG:O     | 28:7:22:MET:N     | 2.25        | 0.69     |
| 28:7:26:SER:HA    | 28:7:29:ASN:HD22  | 1.57        | 0.69     |
| 2:A:142(A):A:H5'' | 2:A:1143:A:P      | 2.33        | 0.69     |
| 2:A:2093:G:C8     | 2:A:2225:A:C6     | 2.81        | 0.69     |
| 2:A:2197:U:HO2'   | 2:A:2198:A:H5''   | 1.58        | 0.69     |
| 2:A:2210:G:O2'    | 2:A:2211:G:P      | 2.50        | 0.69     |
| 2:A:2262:U:O5'    | 24:0:14:ARG:NH2   | 2.25        | 0.69     |
| 2:A:2319:G:OP1    | 13:S:9:PRO:HD2    | 1.93        | 0.69     |
| 2:A:2373:G:C4     | 2:A:2374:C:C5     | 2.80        | 0.69     |
| 2:A:2484:G:C2     | 2:A:2485:G:C1'    | 2.74        | 0.69     |
| 2:A:2520:C:H2'    | 2:A:2521:C:C5'    | 2.20        | 0.69     |
| 2:A:2561:A:C5     | 2:A:2562:U:C5     | 2.80        | 0.69     |
| 2:A:519:U:H5''    | 15:W:25:ARG:HH22  | 1.57        | 0.69     |
| 2:A:671:C:N4      | 2:A:809:G:H1      | 1.90        | 0.69     |
| 3:D:154:VAL:CG2   | 3:D:160:SER:HA    | 2.23        | 0.69     |
| 3:D:73:ILE:HG22   | 3:D:74:PRO:HD2    | 1.75        | 0.69     |
| 4:E:70:VAL:HG22   | 4:E:297:LYS:CA    | 2.22        | 0.69     |
| 4:E:307:LEU:O     | 4:E:309:PRO:HD3   | 1.92        | 0.69     |
| 2:A:2682:U:C6     | 4:E:48:MET:SD     | 2.86        | 0.69     |
| 5:F:79:ARG:HG2    | 5:F:79:ARG:O      | 1.92        | 0.69     |
| 6:G:38:GLU:HG2    | 6:G:41:LEU:HD11   | 1.70        | 0.69     |
| 7:H:82:TYR:CE2    | 7:H:137:LYS:CB    | 2.67        | 0.69     |
| 10:O:10:VAL:CG1   | 10:O:12:ASP:O     | 2.41        | 0.69     |
| 10:O:78:ARG:O     | 10:O:79:PHE:CD2   | 2.45        | 0.69     |
| 19:R:47:PHE:O     | 19:R:50:HIS:N     | 2.25        | 0.69     |
| 19:R:52:ILE:CD1   | 19:R:94:TYR:HB2   | 2.23        | 0.69     |
| 14:T:6:CYS:O      | 14:T:8:TYR:N      | 2.23        | 0.69     |
| 20:U:62:ILE:O     | 20:U:65:ILE:HB    | 1.92        | 0.69     |
| 20:U:68:GLY:HA2   | 20:U:71:LEU:HB2   | 1.74        | 0.69     |
| 18:Z:51:LEU:HD11  | 18:Z:64:ALA:H     | 1.56        | 0.69     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:139:G:H2'    | 2:A:141(A):C:O2'  | 1.93        | 0.69     |
| 2:A:1:G:N2       | 2:A:2902:C:C4     | 2.59        | 0.69     |
| 2:A:1082:U:H4'   | 31:K:118:ALA:HB2  | 1.70        | 0.69     |
| 2:A:1943:U:N1    | 2:A:1945:G:H5'    | 2.08        | 0.69     |
| 24:0:33:ALA:CB   | 24:0:66:LYS:H     | 2.03        | 0.69     |
| 23:3:31:LEU:HD22 | 23:3:32:GLN:CB    | 2.21        | 0.69     |
| 23:3:44:ARG:O    | 23:3:45:GLY:C     | 2.30        | 0.69     |
| 25:4:10:VAL:HG12 | 25:4:10:VAL:O     | 1.92        | 0.69     |
| 27:6:42:PRO:C    | 27:6:44:ALA:N     | 2.43        | 0.69     |
| 2:A:54:G:C2'     | 28:7:35:ARG:HH22  | 2.05        | 0.69     |
| 29:8:50:LEU:HD22 | 29:8:51:ALA:N     | 2.01        | 0.69     |
| 2:A:2358:G:H22   | 29:8:52:LYS:NZ    | 1.90        | 0.69     |
| 2:A:126:A:OP2    | 28:7:17:GLY:C     | 2.30        | 0.69     |
| 2:A:1612:C:N1    | 28:7:3:ARG:NH1    | 2.40        | 0.69     |
| 2:A:574:C:N4     | 2:A:2054:A:C5'    | 2.54        | 0.69     |
| 2:A:2087:G:C6    | 2:A:2233:U:C6     | 2.80        | 0.69     |
| 2:A:2228:G:C5'   | 2:A:2228:G:H8     | 2.05        | 0.69     |
| 2:A:953:A:O2'    | 2:A:2266:A:OP2    | 2.11        | 0.69     |
| 2:A:2287:A:N1    | 2:A:2289:G:C1'    | 2.21        | 0.69     |
| 2:A:2333:A:O4'   | 2:A:2335:A:C4     | 2.45        | 0.69     |
| 2:A:2341:G:C6    | 2:A:2342:C:C4     | 2.80        | 0.69     |
| 2:A:2740:A:C4    | 2:A:2741:A:N7     | 2.60        | 0.69     |
| 2:A:2840:C:O2'   | 2:A:2841:C:H5'    | 1.90        | 0.69     |
| 2:A:792:G:C5     | 2:A:2440:C:C1'    | 2.76        | 0.69     |
| 4:E:269:ILE:HD12 | 4:E:295:LEU:O     | 1.92        | 0.69     |
| 4:E:84:ARG:HB2   | 4:E:174:LEU:HD23  | 1.74        | 0.69     |
| 2:A:2785:C:C5'   | 4:E:99:VAL:CG2    | 2.71        | 0.69     |
| 5:F:147:LEU:HD12 | 5:F:156:LEU:HD12  | 1.72        | 0.69     |
| 5:F:214:THR:N    | 5:F:218:VAL:HG21  | 1.96        | 0.69     |
| 5:F:237:GLU:O    | 5:F:240:LEU:N     | 2.26        | 0.69     |
| 5:F:24:THR:CB    | 5:F:25:PRO:HD3    | 2.15        | 0.69     |
| 7:H:164:GLU:N    | 7:H:164:GLU:OE1   | 2.25        | 0.69     |
| 11:P:52:LYS:CE   | 11:P:53:ARG:HH12  | 2.05        | 0.69     |
| 11:P:69:ILE:O    | 11:P:70:ASP:C     | 2.31        | 0.69     |
| 12:Q:67:ALA:HB1  | 12:Q:71:PHE:CE1   | 2.27        | 0.69     |
| 13:S:35:VAL:HG11 | 13:S:37:ARG:NH2   | 2.08        | 0.69     |
| 20:U:103:PRO:CA  | 20:U:107:LYS:HE2  | 2.22        | 0.69     |
| 20:U:66:ASN:O    | 20:U:68:GLY:N     | 2.26        | 0.69     |
| 15:W:98:LYS:O    | 15:W:100:THR:N    | 2.25        | 0.69     |
| 18:Z:50:GLY:O    | 18:Z:51:LEU:CB    | 2.40        | 0.69     |
| 18:Z:81:VAL:CG1  | 18:Z:82:ASP:N     | 2.56        | 0.69     |
| 12:Q:108:SER:C   | 12:Q:109:VAL:HG22 | 2.13        | 0.69     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1918:A:H2'   | 2:A:1919:A:N7    | 2.07        | 0.69     |
| 24:0:41:ARG:O    | 24:0:42:GLY:O    | 2.10        | 0.69     |
| 26:5:13:LYS:CD   | 26:5:14:SER:N    | 2.56        | 0.69     |
| 2:A:1134:G:O6    | 2:A:1137:G:N7    | 2.25        | 0.69     |
| 2:A:2209:C:O2'   | 2:A:2210:G:C8    | 2.45        | 0.69     |
| 2:A:2267:A:N1    | 2:A:2272:U:O4    | 2.26        | 0.69     |
| 2:A:2471:C:C2'   | 2:A:2472:G:O5'   | 2.41        | 0.69     |
| 2:A:2470:G:O6    | 2:A:2481:G:N2    | 2.25        | 0.69     |
| 2:A:2510:C:N4    | 2:A:2511:U:C4    | 2.60        | 0.69     |
| 2:A:2511:U:C2'   | 2:A:2512:C:H5'   | 2.22        | 0.69     |
| 2:A:2511:U:C6    | 2:A:2512:C:C5    | 2.81        | 0.69     |
| 2:A:2734:A:H5'   | 2:A:2735:G:OP2   | 1.92        | 0.69     |
| 2:A:310:A:H2'    | 2:A:312:G:N7     | 2.08        | 0.69     |
| 2:A:772:C:H2'    | 2:A:773:U:H6     | 1.57        | 0.69     |
| 2:A:1568:G:C4'   | 3:D:60:GLN:NE2   | 2.37        | 0.69     |
| 2:A:598:G:C2     | 5:F:33:LYS:NZ    | 2.60        | 0.69     |
| 8:I:7:LYS:HG2    | 8:I:12:LYS:HA    | 1.74        | 0.69     |
| 9:N:65:ASN:O     | 9:N:68:GLY:O     | 2.11        | 0.69     |
| 10:O:37:ASP:O    | 10:O:61:VAL:CG1  | 2.39        | 0.69     |
| 12:Q:127:ASN:CB  | 12:Q:128:PRO:HD2 | 2.23        | 0.69     |
| 12:Q:26:LYS:HE3  | 12:Q:28:ILE:HD12 | 1.74        | 0.69     |
| 12:Q:65:ARG:HH21 | 12:Q:85:ILE:CA   | 2.05        | 0.69     |
| 12:Q:65:ARG:NE   | 12:Q:85:ILE:CB   | 2.53        | 0.69     |
| 19:R:24:GLN:CB   | 19:R:44:LEU:CD2  | 2.70        | 0.69     |
| 13:S:76:GLY:O    | 13:S:80:SER:O    | 2.11        | 0.69     |
| 21:V:41:GLY:N    | 21:V:54:TYR:CD1  | 2.61        | 0.69     |
| 22:2:35:ALA:O    | 22:2:37:GLY:N    | 2.26        | 0.69     |
| 22:2:51:LYS:O    | 22:2:54:ALA:CA   | 2.40        | 0.69     |
| 2:A:59:U:O4'     | 2:A:73:A:N6      | 2.26        | 0.69     |
| 16:X:23:LYS:HA   | 16:X:67:ARG:HA   | 1.75        | 0.69     |
| 2:A:1212:G:O2'   | 2:A:1213:A:H8    | 1.74        | 0.69     |
| 9:N:8:ALA:HB1    | 9:N:11:ILE:HD11  | 1.75        | 0.69     |
| 30:9:13:ASN:O    | 30:9:14:CYS:C    | 2.31        | 0.69     |
| 2:A:198:C:H4'    | 2:A:2243:U:O2'   | 1.93        | 0.69     |
| 2:A:2308:G:H5'   | 2:A:2309:A:OP1   | 1.91        | 0.69     |
| 2:A:2414:G:C4    | 2:A:2415:G:N7    | 2.61        | 0.69     |
| 2:A:245:G:H1     | 2:A:253:C:H42    | 1.39        | 0.69     |
| 2:A:2573:C:C6    | 2:A:2573:C:C3'   | 2.75        | 0.69     |
| 2:A:2048:G:C2    | 2:A:2621:A:C2    | 2.79        | 0.69     |
| 2:A:2818:G:N2    | 2:A:2829:C:C2    | 2.61        | 0.69     |
| 2:A:2888:C:H2'   | 2:A:2889:C:O4'   | 1.92        | 0.69     |
| 2:A:929:G:N3     | 23:3:43:ILE:HG13 | 2.06        | 0.69     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 3:D:163:VAL:O     | 3:D:165:GLY:N     | 2.26        | 0.69     |
| 5:F:163:HIS:C     | 5:F:166:ILE:CG1   | 2.60        | 0.69     |
| 5:F:215:ALA:O     | 5:F:242:GLU:CB    | 2.40        | 0.69     |
| 2:A:2317:C:OP1    | 6:G:150:SER:HA    | 1.93        | 0.69     |
| 19:R:90:ARG:NH1   | 19:R:117:VAL:HG11 | 2.08        | 0.69     |
| 13:S:110:THR:HG22 | 13:S:115:VAL:CG2  | 2.21        | 0.69     |
| 20:U:63:GLN:O     | 20:U:66:ASN:N     | 2.25        | 0.69     |
| 21:V:20:ILE:O     | 21:V:21:ARG:CZ    | 2.40        | 0.69     |
| 20:U:44:THR:HG23  | 21:V:77:GLY:O     | 1.92        | 0.69     |
| 23:3:50:VAL:O     | 23:3:51:ALA:O     | 2.10        | 0.69     |
| 28:7:21:ARG:CZ    | 28:7:43:THR:OG1   | 2.41        | 0.69     |
| 30:9:7:VAL:HG12   | 30:9:34:GLN:OE1   | 1.91        | 0.69     |
| 2:A:2021:C:C6     | 20:U:25:TRP:CH2   | 2.81        | 0.69     |
| 2:A:2247:A:H2'    | 2:A:2248:C:C6     | 2.24        | 0.69     |
| 2:A:2276:G:C4     | 2:A:2277:G:H8     | 2.11        | 0.69     |
| 2:A:2423:U:C2'    | 2:A:2424:C:OP2    | 2.40        | 0.69     |
| 2:A:2251:G:C8     | 2:A:2450:A:H4'    | 2.27        | 0.69     |
| 2:A:2579:C:C2'    | 2:A:2580:U:C5'    | 2.33        | 0.69     |
| 2:A:2625:G:H2'    | 2:A:2626:C:C6     | 2.28        | 0.69     |
| 2:A:2631:G:C6     | 2:A:2632:A:N7     | 2.59        | 0.69     |
| 2:A:2733:A:H61    | 4:E:316:ARG:HD3   | 1.57        | 0.69     |
| 2:A:2804:C:C6     | 2:A:2805:G:C2     | 2.81        | 0.69     |
| 2:A:396:G:OP1     | 25:4:10:VAL:HG22  | 1.92        | 0.69     |
| 2:A:631:A:H2      | 2:A:2415:G:C2     | 2.11        | 0.69     |
| 2:A:687:C:H5''    | 28:7:4:THR:HG22   | 1.75        | 0.69     |
| 2:A:962:G:H2'     | 2:A:963:U:C6      | 2.28        | 0.69     |
| 5:F:223:LEU:O     | 5:F:225:PRO:CD    | 2.41        | 0.69     |
| 2:A:2093:G:H4'    | 8:I:29:PHE:CE1    | 2.27        | 0.69     |
| 11:P:127:GLU:OE1  | 11:P:127:GLU:HA   | 1.91        | 0.69     |
| 20:U:45:TYR:O     | 20:U:46:GLU:C     | 2.30        | 0.69     |
| 21:V:33:VAL:HG12  | 21:V:34:GLU:N     | 2.08        | 0.69     |
| 15:W:32:ALA:C     | 15:W:34:ASN:H     | 1.96        | 0.69     |
| 17:Y:47:THR:O     | 17:Y:98:VAL:CG1   | 2.35        | 0.69     |
| 17:Y:63:ILE:CD1   | 17:Y:75:GLU:CA    | 2.50        | 0.69     |
| 17:Y:31:LEU:HD11  | 17:Y:99:THR:O     | 1.93        | 0.69     |
| 18:Z:24:TYR:CB    | 18:Z:83:PHE:O     | 2.41        | 0.69     |
| 8:I:102:LEU:C     | 8:I:102:LEU:CD1   | 2.56        | 0.69     |
| 2:A:729:G:H1'     | 2:A:763:G:H4'     | 1.74        | 0.69     |
| 16:X:13:LYS:HA    | 16:X:16:ASN:ND2   | 2.07        | 0.69     |
| 2:A:72:U:H5'      | 16:X:2:TRP:CH2    | 2.28        | 0.69     |
| 2:A:1076:C:C1'    | 31:K:91:GLU:HB3   | 2.21        | 0.69     |
| 2:A:5:A:HO2'      | 9:N:4:ALA:N       | 1.91        | 0.69     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 16:X:76:GLU:OE1  | 16:X:77:VAL:HG23  | 1.92        | 0.69     |
| 2:A:1418:G:N2    | 2:A:1580:A:C2     | 2.60        | 0.69     |
| 2:A:1624:G:H2'   | 2:A:1625:C:C5     | 2.27        | 0.69     |
| 2:A:761:A:H8     | 2:A:761:A:O5'     | 1.75        | 0.69     |
| 2:A:373:U:C2     | 2:A:400:G:N2      | 2.61        | 0.69     |
| 24:0:37:LEU:CD1  | 24:0:70:ILE:HD11  | 2.04        | 0.69     |
| 23:3:48:GLU:CG   | 23:3:49:LYS:H     | 2.05        | 0.69     |
| 2:A:2400:G:C4'   | 27:6:20:PHE:CE1   | 2.75        | 0.69     |
| 29:8:8:LYS:O     | 29:8:10:ALA:CA    | 2.41        | 0.69     |
| 2:A:2013:A:H4'   | 15:W:96:ILE:HG23  | 1.71        | 0.69     |
| 2:A:2411:A:O2'   | 2:A:2412:A:C5'    | 2.41        | 0.69     |
| 2:A:2462:U:N3    | 2:A:2463:C:C5     | 2.61        | 0.69     |
| 2:A:2483:C:H2'   | 2:A:2484:G:O5'    | 1.93        | 0.69     |
| 2:A:2056:G:OP2   | 2:A:2504:U:H5''   | 1.93        | 0.69     |
| 2:A:2548:G:H2'   | 2:A:2549:G:O5'    | 1.93        | 0.69     |
| 2:A:2561:A:C5    | 2:A:2562:U:H6     | 2.11        | 0.69     |
| 2:A:2597:G:H8    | 2:A:2597:G:OP2    | 1.75        | 0.69     |
| 2:A:2822:G:H8    | 2:A:2822:G:OP2    | 1.74        | 0.69     |
| 1:B:28:C:OP1     | 13:S:44:ARG:NH2   | 2.26        | 0.69     |
| 3:D:123:ILE:HD12 | 3:D:123:ILE:H     | 1.58        | 0.69     |
| 3:D:141:HIS:CE1  | 3:D:192:GLY:C     | 2.66        | 0.69     |
| 3:D:73:ILE:HB    | 3:D:95:TYR:HE2    | 1.57        | 0.69     |
| 4:E:44:TYR:CG    | 4:E:309:PRO:HD3   | 2.28        | 0.69     |
| 4:E:44:TYR:O     | 4:E:74:GLU:CD     | 2.30        | 0.69     |
| 4:E:94:ARG:HB3   | 4:E:95:PRO:HD3    | 1.69        | 0.69     |
| 5:F:144:PHE:HE2  | 5:F:156:LEU:HD13  | 1.52        | 0.69     |
| 5:F:36:ARG:O     | 5:F:39:GLN:NE2    | 2.26        | 0.69     |
| 10:O:71:ARG:C    | 10:O:73:ASP:N     | 2.46        | 0.69     |
| 11:P:67:ARG:HH11 | 11:P:111:ALA:CA   | 2.06        | 0.69     |
| 11:P:77:ALA:N    | 11:P:81:VAL:CB    | 2.55        | 0.69     |
| 2:A:2840:C:O3'   | 19:R:53:HIS:CE1   | 2.46        | 0.69     |
| 13:S:100:ALA:N   | 13:S:127:LEU:HD21 | 2.08        | 0.69     |
| 13:S:12:ARG:CD   | 13:S:20:TYR:CZ    | 2.55        | 0.69     |
| 10:O:79:PHE:CG   | 14:T:22:VAL:HG21  | 2.27        | 0.69     |
| 17:Y:33:GLU:OE1  | 17:Y:34:GLU:HG2   | 1.85        | 0.69     |
| 18:Z:64:ALA:CB   | 18:Z:85:MET:C     | 2.61        | 0.69     |
| 22:2:26:GLU:O    | 22:2:29:ASN:N     | 2.25        | 0.69     |
| 2:A:138:G:C4'    | 16:X:43:GLU:HG3   | 2.23        | 0.69     |
| 2:A:1904:G:O2'   | 2:A:1927:A:N6     | 2.26        | 0.69     |
| 3:D:121:ALA:O    | 3:D:122:ASP:HB3   | 1.92        | 0.69     |
| 24:0:46:LYS:CB   | 24:0:58:THR:HG23  | 2.21        | 0.69     |
| 24:0:61:ALA:HB3  | 24:0:80:SER:O     | 1.92        | 0.69     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:3:33:GLN:CD   | 23:3:34:GLU:N    | 2.47        | 0.69     |
| 23:3:59:VAL:CG1  | 23:3:60:GLU:H    | 1.82        | 0.69     |
| 27:6:2:ALA:CB    | 27:6:11:LYS:CE   | 2.70        | 0.69     |
| 29:8:30:ARG:HB3  | 29:8:44:LYS:CE   | 2.22        | 0.69     |
| 2:A:1266:G:O6    | 15:W:13:SER:HB2  | 1.91        | 0.69     |
| 2:A:1462:C:H4'   | 2:A:2703:C:H5'   | 1.75        | 0.69     |
| 2:A:2246:G:H1'   | 2:A:2426:A:C2    | 2.27        | 0.69     |
| 2:A:2250:G:C8    | 2:A:2250:G:C3'   | 2.75        | 0.69     |
| 2:A:2439:A:H1'   | 2:A:2587:A:P     | 2.33        | 0.69     |
| 2:A:2445:G:O2'   | 2:A:2446:G:H5''  | 1.93        | 0.69     |
| 2:A:2485:G:H2'   | 2:A:2486:G:O4'   | 1.93        | 0.69     |
| 2:A:2487:G:O2'   | 2:A:2488:A:C5'   | 2.41        | 0.69     |
| 2:A:2572:A:N7    | 4:E:241:TRP:CD1  | 2.61        | 0.69     |
| 2:A:2668:G:N2    | 2:A:2669:G:N9    | 2.41        | 0.69     |
| 2:A:2776:A:C2    | 2:A:2778:A:C5    | 2.81        | 0.69     |
| 2:A:2854:G:C6    | 2:A:2864:G:C6    | 2.80        | 0.69     |
| 2:A:307:G:H21    | 2:A:330:A:H62    | 1.39        | 0.69     |
| 2:A:775:G:N2     | 2:A:787:U:H2'    | 2.08        | 0.69     |
| 2:A:993:G:N2     | 20:U:54:LYS:NZ   | 2.41        | 0.69     |
| 3:D:93:ILE:HG22  | 3:D:101:ARG:O    | 1.93        | 0.69     |
| 6:G:146:LYS:HD2  | 13:S:15:GLU:OE2  | 1.93        | 0.69     |
| 9:N:46:ILE:CD1   | 9:N:132:LEU:HD13 | 2.23        | 0.69     |
| 9:N:48:GLY:O     | 9:N:50:GLU:N     | 2.26        | 0.69     |
| 9:N:94:GLY:C     | 9:N:98:PHE:CD1   | 2.66        | 0.69     |
| 1:B:49:C:OP1     | 13:S:111:PRO:CD  | 2.41        | 0.69     |
| 13:S:86:LEU:H    | 13:S:121:GLY:HA2 | 1.58        | 0.69     |
| 20:U:13:ARG:CB   | 20:U:13:ARG:CZ   | 2.62        | 0.69     |
| 15:W:25:ARG:CG   | 15:W:26:GLY:H    | 2.06        | 0.69     |
| 15:W:28:SER:O    | 15:W:29:LEU:O    | 2.10        | 0.69     |
| 15:W:45:TYR:CD2  | 15:W:46:PHE:N    | 2.61        | 0.69     |
| 15:W:70:TYR:HE2  | 15:W:72:LYS:CA   | 2.04        | 0.69     |
| 17:Y:16:LEU:O    | 17:Y:19:ARG:HB2  | 1.93        | 0.69     |
| 17:Y:11:GLN:CA   | 17:Y:21:LYS:HE3  | 2.23        | 0.69     |
| 17:Y:28:SER:CB   | 17:Y:99:THR:HG1  | 2.02        | 0.69     |
| 22:2:20:LEU:HD12 | 22:2:21:ASP:N    | 2.07        | 0.69     |
| 2:A:148:C:H2'    | 2:A:149:A:N9     | 2.08        | 0.69     |
| 16:X:28:VAL:HG23 | 16:X:62:LYS:HB3  | 1.75        | 0.69     |
| 2:A:138:G:N7     | 16:X:39:ASP:OD1  | 2.26        | 0.69     |
| 2:A:440:G:P      | 17:Y:3:GLN:OE1   | 2.50        | 0.69     |
| 2:A:227:A:N1     | 2:A:2407:G:C1'   | 2.52        | 0.69     |
| 25:4:20:VAL:CG1  | 25:4:30:GLU:OE1  | 2.41        | 0.68     |
| 25:4:68:ARG:HG2  | 25:4:72:LYS:CA   | 2.23        | 0.68     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 27:6:29:ARG:O    | 27:6:31:THR:O    | 2.12        | 0.68     |
| 28:7:18:PHE:O    | 28:7:19:ARG:C    | 2.30        | 0.68     |
| 28:7:42:LEU:C    | 28:7:46:ASP:OD1  | 2.31        | 0.68     |
| 28:7:9:ASN:O     | 28:7:11:LYS:O    | 2.10        | 0.68     |
| 2:A:107:C:H6     | 2:A:107:C:H5'    | 1.58        | 0.68     |
| 2:A:1608:A:H2'   | 2:A:1611:C:H41   | 1.57        | 0.68     |
| 2:A:2199:A:H3'   | 2:A:2205:C:C5    | 2.28        | 0.68     |
| 2:A:2233:U:O2    | 2:A:2234:G:C8    | 2.45        | 0.68     |
| 2:A:2356:C:C2'   | 2:A:2357:U:C5'   | 2.71        | 0.68     |
| 2:A:2405:G:C2    | 2:A:2413:G:C6    | 2.81        | 0.68     |
| 2:A:2535:G:H2'   | 2:A:2535:G:N3    | 2.06        | 0.68     |
| 2:A:2762:G:C5    | 2:A:2763:G:N7    | 2.60        | 0.68     |
| 2:A:2638:G:H2'   | 2:A:2775:A:N1    | 2.08        | 0.68     |
| 2:A:2784:C:O2    | 4:E:98:GLU:OE2   | 0.69        | 0.68     |
| 3:D:131:LEU:HB3  | 3:D:171:VAL:HG11 | 1.75        | 0.68     |
| 3:D:134:ILE:CG2  | 3:D:135:PRO:HD2  | 2.20        | 0.68     |
| 3:D:179:GLU:O    | 3:D:180:VAL:CG2  | 2.41        | 0.68     |
| 4:E:211:GLN:CG   | 4:E:212:GLY:N    | 2.56        | 0.68     |
| 4:E:243:PRO:O    | 4:E:244:SER:HB2  | 1.93        | 0.68     |
| 2:A:142(A):A:C4' | 9:N:21:ARG:NH2   | 2.50        | 0.68     |
| 9:N:63:ILE:HB    | 9:N:71:TYR:CZ    | 2.26        | 0.68     |
| 11:P:124:ASP:C   | 11:P:125:PHE:CG  | 2.63        | 0.68     |
| 12:Q:44:ALA:HB3  | 12:Q:126:VAL:C   | 2.12        | 0.68     |
| 12:Q:82:LYS:C    | 12:Q:84:ARG:N    | 2.44        | 0.68     |
| 19:R:116:LEU:O   | 19:R:116:LEU:CD1 | 2.41        | 0.68     |
| 13:S:49:THR:O    | 13:S:52:PRO:O    | 2.11        | 0.68     |
| 21:V:74:TYR:CD1  | 21:V:86:HIS:C    | 2.65        | 0.68     |
| 18:Z:1:MET:CE    | 18:Z:52:PHE:CD2  | 2.76        | 0.68     |
| 8:I:116:GLU:HG3  | 8:I:132:LYS:HG3  | 1.75        | 0.68     |
| 16:X:13:LYS:HA   | 16:X:16:ASN:HD21 | 1.59        | 0.68     |
| 24:0:52:GLY:O    | 24:0:53:MET:CB   | 2.40        | 0.68     |
| 2:A:2795:G:OP2   | 2:A:2795:G:C4    | 2.47        | 0.68     |
| 2:A:1358:G:H3'   | 2:A:1371:G:H1    | 1.58        | 0.68     |
| 2:A:1879:C:H2'   | 2:A:1880:C:H6    | 1.58        | 0.68     |
| 26:5:33:CYS:SG   | 26:5:36:CYS:C    | 2.71        | 0.68     |
| 24:0:44:LYS:HB3  | 24:0:45:PHE:CE1  | 2.28        | 0.68     |
| 28:7:22:MET:O    | 28:7:23:LYS:C    | 2.29        | 0.68     |
| 2:A:1022:G:P     | 9:N:52:GLN:NE2   | 2.67        | 0.68     |
| 2:A:1140:C:OP1   | 9:N:18:ILE:HG13  | 1.93        | 0.68     |
| 2:A:2209:C:N4    | 2:A:2215:G:N1    | 2.29        | 0.68     |
| 2:A:2305:A:N1    | 2:A:2312:U:H1'   | 2.09        | 0.68     |
| 2:A:2331:G:H2'   | 2:A:2332:U:O4'   | 1.94        | 0.68     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2333:A:C4    | 2:A:2335:A:N1    | 2.60        | 0.68     |
| 2:A:2468:G:HO2'  | 2:A:2469:A:H5'   | 1.56        | 0.68     |
| 2:A:2459:A:N1    | 2:A:2494:G:C4    | 2.61        | 0.68     |
| 2:A:2048:G:C2    | 2:A:2621:A:N3    | 2.61        | 0.68     |
| 2:A:2692:C:N4    | 2:A:2717:G:H1    | 1.91        | 0.68     |
| 2:A:2864:G:C2'   | 2:A:2865:U:C6    | 2.75        | 0.68     |
| 2:A:613:U:O5'    | 2:A:615:G:C8     | 2.46        | 0.68     |
| 2:A:674:G:C5'    | 5:F:69:HIS:CA    | 2.57        | 0.68     |
| 2:A:988:A:OP1    | 23:3:11:SER:CB   | 2.41        | 0.68     |
| 3:D:119:PRO:N    | 3:D:129:LEU:HD21 | 2.07        | 0.68     |
| 4:E:102:ASP:OD2  | 4:E:104:PHE:HE1  | 1.74        | 0.68     |
| 5:F:140:VAL:HG11 | 5:F:236:THR:HG22 | 1.74        | 0.68     |
| 6:G:38:GLU:HA    | 6:G:41:LEU:HD12  | 1.74        | 0.68     |
| 6:G:98:PHE:CA    | 6:G:104:PHE:CE2  | 2.76        | 0.68     |
| 7:H:137:LYS:HD2  | 7:H:138:GLN:H    | 0.67        | 0.68     |
| 9:N:135:ILE:O    | 9:N:139:LEU:CD2  | 2.41        | 0.68     |
| 9:N:76:ASP:N     | 9:N:76:ASP:OD2   | 2.25        | 0.68     |
| 10:O:104:ARG:O   | 10:O:105:GLU:C   | 2.29        | 0.68     |
| 10:O:25:LEU:CD1  | 10:O:38:VAL:C    | 2.61        | 0.68     |
| 10:O:77:ILE:C    | 10:O:77:ILE:HD12 | 2.12        | 0.68     |
| 12:Q:137:ARG:NH1 | 12:Q:138:ARG:HG2 | 2.07        | 0.68     |
| 12:Q:153:PRO:O   | 12:Q:154:ALA:HB3 | 1.93        | 0.68     |
| 12:Q:41:THR:C    | 12:Q:125:TRP:CZ3 | 2.63        | 0.68     |
| 12:Q:56:ILE:C    | 12:Q:61:LEU:HD21 | 2.14        | 0.68     |
| 12:Q:59:ASN:O    | 12:Q:60:ALA:C    | 2.31        | 0.68     |
| 20:U:55:ARG:C    | 20:U:57:PHE:H    | 1.97        | 0.68     |
| 15:W:23:LEU:CD2  | 15:W:24:ILE:N    | 2.56        | 0.68     |
| 17:Y:11:GLN:HA   | 17:Y:21:LYS:CE   | 2.23        | 0.68     |
| 17:Y:27:LEU:HD12 | 17:Y:27:LEU:N    | 2.08        | 0.68     |
| 18:Z:159:THR:O   | 18:Z:160:LEU:CB  | 2.40        | 0.68     |
| 22:2:24:LYS:O    | 22:2:25:THR:C    | 2.31        | 0.68     |
| 16:X:39:ASP:O    | 16:X:42:GLU:N    | 2.27        | 0.68     |
| 2:A:1689:A:H2'   | 2:A:1690:A:H8    | 1.58        | 0.68     |
| 26:5:46:CYS:CB   | 26:5:47:PRO:HD2  | 2.21        | 0.68     |
| 26:5:58:LEU:O    | 26:5:59:ALA:CB   | 2.41        | 0.68     |
| 29:8:22:VAL:N    | 29:8:48:PHE:CE2  | 2.56        | 0.68     |
| 30:9:7:VAL:HG11  | 30:9:25:VAL:CG2  | 2.23        | 0.68     |
| 2:A:2423:U:C6    | 2:A:2425:A:N6    | 2.53        | 0.68     |
| 2:A:2510:C:C4    | 2:A:2511:U:C4    | 2.81        | 0.68     |
| 2:A:2678:C:H2'   | 2:A:2679:A:O4'   | 1.93        | 0.68     |
| 2:A:2709:G:C2'   | 2:A:2710:C:C5'   | 2.53        | 0.68     |
| 2:A:2748:A:H2'   | 7:H:62:ALA:CB    | 2.20        | 0.68     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:2842:G:O2'  | 2:A:2843:G:C5'   | 2.41        | 0.68     |
| 3:D:175:LEU:CB  | 3:D:179:GLU:O    | 2.40        | 0.68     |
| 3:D:188:ARG:O   | 3:D:189:ALA:HB2  | 1.93        | 0.68     |
| 5:F:22:PHE:CE2  | 5:F:115:LEU:C    | 2.66        | 0.68     |
| 5:F:37:ALA:HB1  | 5:F:102:LEU:CB   | 2.16        | 0.68     |
| 6:G:53:LYS:HG3  | 6:G:54:ALA:H     | 1.55        | 0.68     |
| 7:H:91:VAL:CG1  | 7:H:91:VAL:O     | 2.41        | 0.68     |
| 9:N:13:ASP:CA   | 9:N:38:VAL:HG13  | 1.82        | 0.68     |
| 12:Q:56:ILE:O   | 12:Q:112:ALA:HB2 | 1.88        | 0.68     |
| 19:R:49:ASP:O   | 19:R:52:ILE:HB   | 1.93        | 0.68     |
| 14:T:29:THR:HB  | 14:T:31:PHE:CE1  | 2.28        | 0.68     |
| 20:U:17:VAL:O   | 20:U:20:ARG:N    | 2.26        | 0.68     |
| 20:U:72:HIS:CE1 | 20:U:110:VAL:CG1 | 2.74        | 0.68     |
| 2:A:2010:G:O2'  | 15:W:42:ARG:NH2  | 2.26        | 0.68     |
| 18:Z:102:GLY:O  | 18:Z:103:ARG:C   | 2.32        | 0.68     |
| 18:Z:148:THR:O  | 18:Z:149:ALA:O   | 2.11        | 0.68     |
| 18:Z:37:LYS:O   | 18:Z:40:ASP:OD1  | 2.10        | 0.68     |
| 2:A:729:G:N3    | 2:A:729:G:H3'    | 2.08        | 0.68     |
| 16:X:18:MET:CE  | 16:X:25:GLN:H    | 2.05        | 0.68     |
| 6:G:88:LEU:N    | 6:G:89:PRO:HD3   | 2.09        | 0.68     |
| 24:0:9:SER:OG   | 24:0:10:SER:N    | 2.20        | 0.68     |
| 2:A:659:C:H2'   | 2:A:660:G:H8     | 1.58        | 0.68     |
| 24:0:45:PHE:CE1 | 24:0:78:PHE:CB   | 2.76        | 0.68     |
| 24:0:67:VAL:O   | 24:0:68:VAL:CG2  | 2.42        | 0.68     |
| 25:4:62:ARG:O   | 25:4:65:ASP:OD2  | 2.11        | 0.68     |
| 28:7:21:ARG:C   | 28:7:24:THR:HG22 | 2.14        | 0.68     |
| 29:8:22:VAL:H   | 29:8:48:PHE:HE2  | 1.36        | 0.68     |
| 2:A:1166:C:N3   | 2:A:1183:G:N2    | 2.40        | 0.68     |
| 2:A:2242:G:C4   | 2:A:2243:U:H5    | 2.11        | 0.68     |
| 2:A:2359:C:N3   | 2:A:2360:A:C2    | 2.62        | 0.68     |
| 2:A:2386:C:H2'  | 2:A:2387:U:C5    | 2.28        | 0.68     |
| 2:A:2423:U:H6   | 2:A:2425:A:N7    | 1.91        | 0.68     |
| 2:A:244:A:O2'   | 11:P:56:LYS:CB   | 2.42        | 0.68     |
| 2:A:14:A:H2     | 2:A:2625:G:HO2'  | 1.34        | 0.68     |
| 2:A:2642:G:C2'  | 2:A:2643:G:C5'   | 2.70        | 0.68     |
| 2:A:2654:A:H61  | 2:A:2667:C:H41   | 1.42        | 0.68     |
| 2:A:2888:C:N3   | 2:A:2889:C:C5    | 2.61        | 0.68     |
| 2:A:2893:G:C8   | 2:A:2893:G:OP2   | 2.44        | 0.68     |
| 4:E:190:ASN:O   | 4:E:192:ILE:HA   | 1.94        | 0.68     |
| 4:E:76:PRO:CB   | 4:E:292:PRO:HG2  | 2.21        | 0.68     |
| 2:A:321:G:C4'   | 5:F:206:ASN:HB3  | 2.18        | 0.68     |
| 5:F:39:GLN:CD   | 5:F:39:GLN:N     | 2.45        | 0.68     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:G:49:PRO:CB    | 6:G:72:LYS:CA    | 2.70        | 0.68     |
| 10:O:9:LYS:N     | 10:O:83:ALA:HB2  | 2.09        | 0.68     |
| 11:P:59:GLU:O    | 11:P:60:GLU:CG   | 2.35        | 0.68     |
| 12:Q:126:VAL:O   | 12:Q:127:ASN:O   | 2.11        | 0.68     |
| 19:R:18:LEU:C    | 19:R:18:LEU:CD1  | 2.61        | 0.68     |
| 19:R:73:VAL:HG12 | 19:R:77:ARG:NH2  | 2.08        | 0.68     |
| 13:S:34:LEU:C    | 13:S:103:ASP:HB3 | 2.13        | 0.68     |
| 13:S:40:ASN:HA   | 13:S:114:LYS:HZ3 | 1.56        | 0.68     |
| 13:S:83:LEU:O    | 13:S:85:GLY:N    | 2.26        | 0.68     |
| 20:U:95:LEU:H    | 20:U:95:LEU:HD23 | 1.59        | 0.68     |
| 17:Y:74:VAL:HB   | 17:Y:77:VAL:HG23 | 1.72        | 0.68     |
| 18:Z:163:ASP:CG  | 18:Z:164:PRO:HD3 | 1.79        | 0.68     |
| 2:A:1790:C:OP1   | 3:D:224:VAL:HA   | 1.94        | 0.68     |
| 16:X:58:MET:N    | 16:X:59:ASP:OD2  | 2.26        | 0.68     |
| 2:A:176:G:H3'    | 2:A:177:G:OP2    | 1.94        | 0.68     |
| 2:A:176:G:C2'    | 2:A:177:G:H8     | 2.06        | 0.68     |
| 23:3:50:VAL:CB   | 23:3:53:LEU:HD12 | 2.23        | 0.68     |
| 27:6:16:ALA:HB1  | 27:6:42:PRO:HD3  | 1.75        | 0.68     |
| 2:A:1664:A:H3'   | 2:A:1664:A:C8    | 2.29        | 0.68     |
| 2:A:1664:A:N3    | 2:A:2726:U:N3    | 2.41        | 0.68     |
| 2:A:2096:U:O2    | 2:A:2193:G:N2    | 2.25        | 0.68     |
| 2:A:2209:C:H2'   | 2:A:2210:G:O3'   | 1.94        | 0.68     |
| 2:A:2247:A:O2'   | 2:A:2248:C:H5'   | 1.94        | 0.68     |
| 2:A:2274:A:O3'   | 2:A:2275:C:H3'   | 1.92        | 0.68     |
| 2:A:2318:G:O5'   | 2:A:2318:G:H8    | 1.74        | 0.68     |
| 2:A:2363:C:C2'   | 2:A:2364:C:H5'   | 2.24        | 0.68     |
| 2:A:2486:G:N1    | 2:A:2487:G:C8    | 2.62        | 0.68     |
| 2:A:2543:G:O3'   | 2:A:2645:G:O6    | 2.11        | 0.68     |
| 2:A:2737:G:C2    | 2:A:2738:A:N7    | 2.61        | 0.68     |
| 2:A:2854:G:C6    | 2:A:2855:C:N4    | 2.61        | 0.68     |
| 2:A:321:G:H4'    | 5:F:206:ASN:CB   | 2.18        | 0.68     |
| 2:A:801:G:OP2    | 5:F:79:ARG:CZ    | 2.33        | 0.68     |
| 2:A:85:G:OP1     | 17:Y:65:VAL:HG21 | 1.93        | 0.68     |
| 5:F:110:ALA:O    | 5:F:112:ARG:N    | 2.26        | 0.68     |
| 5:F:162:VAL:HG12 | 5:F:163:HIS:N    | 2.08        | 0.68     |
| 5:F:242:GLU:O    | 5:F:245:GLU:CB   | 2.42        | 0.68     |
| 2:A:449:A:P      | 5:F:85:LYS:HA    | 2.34        | 0.68     |
| 9:N:81:ARG:O     | 9:N:82:THR:C     | 2.30        | 0.68     |
| 11:P:120:LEU:CD1 | 11:P:122:ALA:CB  | 2.71        | 0.68     |
| 19:R:21:TYR:HB3  | 19:R:47:PHE:HD2  | 1.58        | 0.68     |
| 19:R:43:GLU:C    | 19:R:45:ARG:H    | 1.94        | 0.68     |
| 21:V:54:TYR:O    | 21:V:55:THR:C    | 2.32        | 0.68     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 21:V:68:LYS:O   | 21:V:69:ILE:O    | 2.09        | 0.68     |
| 17:Y:49:GLU:CD  | 17:Y:97:ARG:HH11 | 1.75        | 0.68     |
| 18:Z:14:LEU:CD2 | 18:Z:79:ILE:CG2  | 2.71        | 0.68     |
| 18:Z:64:ALA:CB  | 18:Z:84:TYR:O    | 2.42        | 0.68     |
| 8:I:68:LEU:CA   | 8:I:72:LEU:HD21  | 2.23        | 0.68     |
| 22:2:30:ALA:C   | 22:2:34:GLN:CG   | 2.42        | 0.68     |
| 16:X:22:ASN:CA  | 16:X:68:LEU:CD1  | 2.65        | 0.68     |
| 2:A:1300:U:H1'  | 2:A:1626:G:N2    | 2.07        | 0.68     |
| 15:W:21:VAL:CG2 | 15:W:22:ASP:N    | 2.54        | 0.68     |
| 23:3:6:VAL:HG22 | 23:3:54:VAL:HG21 | 1.76        | 0.68     |
| 25:4:17:GLN:HA  | 25:4:33:VAL:HG11 | 1.74        | 0.68     |
| 2:A:594:U:H5'   | 29:8:61:MET:HE3  | 0.68        | 0.68     |
| 2:A:1612:C:C2   | 28:7:3:ARG:CZ    | 2.76        | 0.68     |
| 2:A:2189:U:O2'  | 2:A:2190:G:H8    | 1.76        | 0.68     |
| 2:A:2228:G:H5'' | 2:A:2228:G:C8    | 2.21        | 0.68     |
| 2:A:2239:G:C4   | 2:A:2240:C:C6    | 2.82        | 0.68     |
| 2:A:859:G:O2'   | 2:A:2268:A:C2    | 2.44        | 0.68     |
| 2:A:2355:C:N4   | 2:A:2356:C:N4    | 2.41        | 0.68     |
| 2:A:2369:A:C2'  | 2:A:2370:G:O5'   | 2.41        | 0.68     |
| 2:A:2330:G:C6   | 2:A:2385:C:N4    | 2.61        | 0.68     |
| 2:A:199:A:N7    | 2:A:2434:A:N6    | 2.39        | 0.68     |
| 2:A:792:G:C8    | 2:A:2440:C:O2    | 2.47        | 0.68     |
| 2:A:2525:G:N2   | 2:A:2539:C:C4    | 2.62        | 0.68     |
| 2:A:2570:G:C2   | 2:A:2571:C:C4    | 2.82        | 0.68     |
| 2:A:2808:U:OP1  | 2:A:2809:A:OP2   | 2.12        | 0.68     |
| 2:A:2839:G:C5   | 2:A:2840:C:C4    | 2.80        | 0.68     |
| 2:A:514:A:H2'   | 2:A:515:A:H8     | 1.56        | 0.68     |
| 2:A:612:G:O2'   | 2:A:615:G:H2'    | 1.94        | 0.68     |
| 5:F:38:ALA:C    | 5:F:39:GLN:OE1   | 2.31        | 0.68     |
| 7:H:104:LEU:CA  | 7:H:151:ARG:HH12 | 2.06        | 0.68     |
| 7:H:10:ILE:HG21 | 7:H:14:VAL:HG12  | 1.70        | 0.68     |
| 9:N:38:VAL:O    | 9:N:39:VAL:CG2   | 2.42        | 0.68     |
| 2:A:1022:G:OP2  | 9:N:52:GLN:NE2   | 2.26        | 0.68     |
| 10:O:101:PRO:CB | 10:O:120:GLU:O   | 2.42        | 0.68     |
| 19:R:74:LYS:N   | 19:R:77:ARG:HH22 | 1.91        | 0.68     |
| 13:S:115:VAL:O  | 13:S:116:PHE:C   | 2.32        | 0.68     |
| 13:S:117:ALA:O  | 13:S:118:ILE:C   | 2.31        | 0.68     |
| 13:S:24:LEU:O   | 13:S:27:LEU:HB3  | 1.94        | 0.68     |
| 13:S:53:ASN:O   | 13:S:55:ASP:CA   | 2.42        | 0.68     |
| 20:U:14:HIS:NE2 | 20:U:36:PHE:CZ   | 2.59        | 0.68     |
| 2:A:1156:A:H8   | 20:U:55:ARG:HH22 | 1.42        | 0.68     |
| 20:U:70:ARG:O   | 20:U:71:LEU:C    | 2.30        | 0.68     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 21:V:50:ASP:O     | 21:V:54:TYR:CD1  | 2.46        | 0.68     |
| 18:Z:47:SER:O     | 18:Z:49:THR:OG1  | 2.12        | 0.68     |
| 3:D:208:GLY:HA3   | 3:D:211:HIS:NE2  | 2.09        | 0.68     |
| 22:2:26:GLU:HA    | 22:2:29:ASN:HD22 | 1.57        | 0.68     |
| 2:A:72:U:C5'      | 22:2:57:LYS:HZ2  | 2.02        | 0.68     |
| 2:A:988:A:C6      | 23:3:13:ILE:HG21 | 2.29        | 0.68     |
| 26:5:46:CYS:N     | 26:5:49:CYS:HB2  | 2.09        | 0.68     |
| 2:A:2400:G:C3'    | 27:6:20:PHE:HE1  | 2.06        | 0.68     |
| 28:7:21:ARG:CZ    | 28:7:43:THR:CB   | 2.70        | 0.68     |
| 28:7:35:ARG:NH1   | 28:7:35:ARG:HB3  | 2.09        | 0.68     |
| 2:A:2348:U:H5''   | 29:8:42:ARG:NH2  | 2.09        | 0.68     |
| 2:A:1006:C:H4'    | 9:N:28:GLU:OE2   | 1.94        | 0.68     |
| 2:A:1287:A:C1'    | 19:R:104:ARG:NH1 | 2.57        | 0.68     |
| 2:A:2317:C:H2'    | 2:A:2318:G:C8    | 2.29        | 0.68     |
| 2:A:2320:A:N6     | 13:S:9:PRO:CG    | 2.57        | 0.68     |
| 2:A:2552:U:H3     | 2:A:2554:U:H5'   | 1.58        | 0.68     |
| 2:A:1129:A:N1     | 2:A:2570:G:C1'   | 2.52        | 0.68     |
| 2:A:2734:A:C8     | 2:A:2735:G:C8    | 2.81        | 0.68     |
| 2:A:2828:C:N3     | 2:A:2829:C:C5    | 2.62        | 0.68     |
| 2:A:304:G:H1      | 2:A:313:C:H42    | 1.41        | 0.68     |
| 2:A:557:U:H4'     | 9:N:92:GLN:HE21  | 1.52        | 0.68     |
| 2:A:602:G:N2      | 2:A:655:A:H2'    | 2.06        | 0.68     |
| 3:D:186:LYS:O     | 3:D:187:CYS:C    | 2.32        | 0.68     |
| 3:D:81:GLU:O      | 3:D:83:ASP:CG    | 2.32        | 0.68     |
| 5:F:163:HIS:CB    | 5:F:166:ILE:HD11 | 2.24        | 0.68     |
| 7:H:150:VAL:HG12  | 7:H:151:ARG:HG2  | 1.76        | 0.68     |
| 7:H:32:LEU:HD11   | 7:H:34:ARG:HH21  | 1.58        | 0.68     |
| 9:N:12:VAL:CB     | 9:N:38:VAL:CG2   | 2.71        | 0.68     |
| 9:N:63:ILE:HG21   | 9:N:71:TYR:CZ    | 2.28        | 0.68     |
| 11:P:106:VAL:CG2  | 11:P:122:ALA:CB  | 2.71        | 0.68     |
| 19:R:100:LEU:HD21 | 19:R:113:LEU:N   | 2.06        | 0.68     |
| 1:B:50:G:OP1      | 13:S:74:PRO:HB2  | 1.93        | 0.68     |
| 15:W:26:GLY:HA2   | 15:W:71:VAL:O    | 1.94        | 0.68     |
| 15:W:4:LYS:HG2    | 15:W:106:ILE:HA  | 1.75        | 0.68     |
| 15:W:8:ARG:HD2    | 15:W:9:TYR:CE1   | 2.28        | 0.68     |
| 18:Z:6:LYS:N      | 18:Z:7:PRO:CD    | 2.51        | 0.68     |
| 18:Z:74:ARG:O     | 18:Z:76:ARG:N    | 2.27        | 0.68     |
| 22:2:27:LEU:HD21  | 22:2:53:ILE:HD11 | 1.73        | 0.68     |
| 22:2:62:GLU:C     | 22:2:64:GLY:H    | 1.97        | 0.68     |
| 16:X:68:LEU:N     | 16:X:68:LEU:CD2  | 2.53        | 0.68     |
| 24:0:8:GLY:O      | 24:0:9:SER:C     | 2.32        | 0.68     |
| 24:0:37:LEU:C     | 24:0:69:PHE:CE2  | 2.67        | 0.68     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 26:5:40:LYS:CD   | 26:5:49:CYS:SG   | 2.61        | 0.68     |
| 28:7:20:ALA:O    | 28:7:22:MET:N    | 2.26        | 0.68     |
| 28:7:30:ILE:CA   | 28:7:33:ARG:HB2  | 2.23        | 0.68     |
| 29:8:26:LYS:CE   | 29:8:44:LYS:N    | 2.57        | 0.68     |
| 2:A:1646:C:H3'   | 2:A:1647:G:H5'   | 1.74        | 0.68     |
| 2:A:2195:C:C5    | 2:A:2195:C:P     | 2.86        | 0.68     |
| 2:A:2075:U:C4    | 2:A:2238:G:O6    | 2.47        | 0.68     |
| 2:A:2246:G:H2'   | 2:A:2247:A:H8    | 1.57        | 0.68     |
| 2:A:2269:A:H2'   | 2:A:2270:G:O5'   | 1.94        | 0.68     |
| 2:A:2319:G:H4'   | 13:S:9:PRO:HD2   | 1.68        | 0.68     |
| 2:A:2466:C:N4    | 2:A:2467:C:N4    | 2.42        | 0.68     |
| 2:A:2562:U:O2    | 2:A:2563:U:O4'   | 2.12        | 0.68     |
| 2:A:2730:C:H2'   | 2:A:2731:G:C8    | 2.28        | 0.68     |
| 2:A:2731:G:OP1   | 4:E:265:ASN:HB2  | 1.90        | 0.68     |
| 2:A:2771:C:C2    | 2:A:2772:C:C5    | 2.81        | 0.68     |
| 2:A:592:G:H2'    | 29:8:3:LYS:CE    | 2.20        | 0.68     |
| 4:E:243:PRO:O    | 4:E:244:SER:CB   | 2.40        | 0.68     |
| 4:E:70:VAL:O     | 4:E:71:THR:CG2   | 2.42        | 0.68     |
| 5:F:35:VAL:O     | 5:F:36:ARG:C     | 2.33        | 0.68     |
| 7:H:94:ARG:HB3   | 7:H:127:GLN:NE2  | 2.09        | 0.68     |
| 9:N:18:ILE:O     | 9:N:18:ILE:HG23  | 1.92        | 0.68     |
| 12:Q:31:PHE:HZ   | 12:Q:88:PHE:CE2  | 2.12        | 0.68     |
| 19:R:101:ALA:O   | 26:5:41:LEU:HD11 | 1.90        | 0.68     |
| 19:R:44:LEU:CD1  | 19:R:48:VAL:CG2  | 2.30        | 0.68     |
| 13:S:12:ARG:HD2  | 13:S:20:TYR:CE1  | 2.23        | 0.68     |
| 10:O:101:PRO:HD3 | 14:T:26:GLY:HA2  | 1.76        | 0.68     |
| 20:U:10:ARG:O    | 20:U:11:ARG:C    | 2.32        | 0.68     |
| 20:U:36:PHE:H    | 20:U:36:PHE:HD1  | 1.41        | 0.68     |
| 20:U:57:PHE:O    | 20:U:58:ARG:C    | 2.30        | 0.68     |
| 15:W:97:LYS:NZ   | 15:W:99:ARG:HH12 | 1.89        | 0.68     |
| 8:I:68:LEU:HD11  | 8:I:108:LEU:CD1  | 2.24        | 0.68     |
| 8:I:141:LEU:HD11 | 8:I:142:LYS:O    | 1.89        | 0.68     |
| 22:2:42:ASN:C    | 22:2:42:ASN:OD1  | 2.32        | 0.68     |
| 2:A:280:C:O2     | 2:A:283:A:N6     | 2.27        | 0.68     |
| 2:A:1520:U:H2'   | 2:A:1521:G:H5''  | 1.75        | 0.68     |
| 2:A:220:G:H22    | 2:A:427:U:H2'    | 1.59        | 0.68     |
| 24:0:37:LEU:HD11 | 24:0:71:ASN:ND2  | 2.09        | 0.68     |
| 23:3:18:ASP:O    | 23:3:21:ALA:N    | 2.27        | 0.68     |
| 23:3:32:GLN:CD   | 23:3:32:GLN:C    | 2.52        | 0.68     |
| 25:4:59:PHE:O    | 25:4:60:ASN:C    | 2.32        | 0.68     |
| 25:4:58:LYS:O    | 25:4:61:LYS:N    | 2.09        | 0.68     |
| 26:5:6:VAL:HG13  | 26:5:7:PRO:CD    | 2.23        | 0.68     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:1764:G:N2     | 2:A:1989:G:H1'    | 2.09        | 0.68     |
| 2:A:2077:A:C2     | 2:A:2244:U:N3     | 2.62        | 0.68     |
| 2:A:2227:A:N1     | 2:A:2228:G:O6     | 2.21        | 0.68     |
| 2:A:2243:U:O2     | 2:A:2244:U:C6     | 2.47        | 0.68     |
| 2:A:2355:C:C5'    | 24:0:21:LEU:HD11  | 2.09        | 0.68     |
| 2:A:1127:A:C6     | 2:A:2518:A:C2     | 2.81        | 0.68     |
| 2:A:2526:G:C2     | 2:A:2527:C:C6     | 2.82        | 0.68     |
| 2:A:2555:U:O2'    | 2:A:2556:C:C5'    | 2.41        | 0.68     |
| 2:A:2747:G:C2'    | 2:A:2748:A:H5''   | 2.24        | 0.68     |
| 2:A:2888:C:C2     | 2:A:2889:C:C5     | 2.82        | 0.68     |
| 1:B:114:G:H1'     | 13:S:46:GLN:NE2   | 2.09        | 0.68     |
| 3:D:70:LYS:O      | 3:D:70:LYS:HG3    | 1.92        | 0.68     |
| 4:E:104:PHE:HB3   | 4:E:108:LEU:HD12  | 1.75        | 0.68     |
| 4:E:205:THR:OG1   | 4:E:206:LYS:N     | 2.25        | 0.68     |
| 5:F:157:LEU:CB    | 5:F:158:GLU:OE2   | 2.18        | 0.68     |
| 5:F:168:ARG:HH22  | 5:F:209:GLY:HA2   | 1.55        | 0.68     |
| 5:F:241:ALA:O     | 5:F:245:GLU:OE2   | 2.11        | 0.68     |
| 5:F:57:PRO:O      | 5:F:58:ALA:CB     | 2.42        | 0.68     |
| 2:A:801:G:OP2     | 5:F:79:ARG:NH1    | 2.27        | 0.68     |
| 10:O:103:ALA:O    | 10:O:104:ARG:C    | 2.31        | 0.68     |
| 10:O:20:LEU:HG    | 10:O:44:LYS:CG    | 2.23        | 0.68     |
| 11:P:129:ALA:C    | 11:P:133:VAL:HG23 | 2.13        | 0.68     |
| 12:Q:140:TYR:CE1  | 12:Q:147:VAL:HG13 | 2.29        | 0.68     |
| 19:R:20:LEU:HD22  | 19:R:24:GLN:HG3   | 1.76        | 0.68     |
| 19:R:87:TYR:CE1   | 19:R:94:TYR:CB    | 2.66        | 0.68     |
| 13:S:35:VAL:N     | 13:S:103:ASP:CB   | 2.56        | 0.68     |
| 13:S:81:ALA:O     | 13:S:82:TYR:C     | 2.33        | 0.68     |
| 20:U:34:ASN:O     | 20:U:35:ALA:O     | 2.10        | 0.68     |
| 15:W:32:ALA:HA    | 15:W:35:ILE:HD11  | 1.70        | 0.68     |
| 17:Y:101:LEU:HD11 | 17:Y:112:LEU:HD12 | 1.74        | 0.68     |
| 18:Z:5:ALA:C      | 18:Z:33:ALA:HB2   | 2.12        | 0.68     |
| 2:A:148:C:HO3'    | 2:A:149:A:P       | 2.14        | 0.68     |
| 24:0:46:LYS:NZ    | 24:0:81:ILE:HD11  | 2.07        | 0.68     |
| 30:9:25:VAL:CA    | 30:9:34:GLN:HB3   | 2.21        | 0.68     |
| 2:A:2195:C:H2'    | 2:A:2196:C:C4'    | 2.23        | 0.68     |
| 2:A:2235:G:N3     | 2:A:2236:C:C6     | 2.62        | 0.68     |
| 2:A:2261:C:H3'    | 24:0:14:ARG:HH21  | 1.59        | 0.68     |
| 2:A:2282:G:C5'    | 2:A:2283:C:O5'    | 2.42        | 0.68     |
| 2:A:2283:C:C4     | 2:A:2284:C:H1'    | 2.29        | 0.68     |
| 2:A:2298:A:C1'    | 2:A:2321:G:H22    | 2.07        | 0.68     |
| 2:A:244:A:O2'     | 11:P:56:LYS:HB3   | 1.93        | 0.68     |
| 2:A:2496:C:P      | 12:Q:101:MET:CE   | 2.81        | 0.68     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2856:C:C6    | 2:A:2856:C:C3'   | 2.76        | 0.68     |
| 2:A:2869:G:H2'   | 2:A:2870:C:H5'   | 1.76        | 0.68     |
| 2:A:30:G:HO3'    | 2:A:31:C:P       | 2.17        | 0.68     |
| 2:A:510:C:O5'    | 2:A:512:G:N1     | 2.27        | 0.68     |
| 4:E:70:VAL:HB    | 4:E:295:LEU:HD21 | 1.75        | 0.68     |
| 4:E:87:GLU:O     | 4:E:93:GLN:N     | 2.27        | 0.68     |
| 5:F:223:LEU:CD1  | 5:F:224:ALA:CA   | 2.70        | 0.68     |
| 5:F:34:ALA:O     | 5:F:35:VAL:C     | 2.32        | 0.68     |
| 7:H:101:LYS:HE2  | 7:H:115:GLU:CB   | 2.18        | 0.68     |
| 7:H:120:LEU:HB3  | 7:H:143:LEU:CD1  | 2.23        | 0.68     |
| 7:H:73:ASN:O     | 7:H:74:MET:C     | 2.30        | 0.68     |
| 9:N:103:VAL:C    | 9:N:104:TYR:CG   | 2.68        | 0.68     |
| 10:O:8:LEU:HD23  | 10:O:8:LEU:H     | 1.57        | 0.68     |
| 11:P:94:ARG:CD   | 11:P:120:LEU:HB2 | 2.23        | 0.68     |
| 19:R:45:ARG:HG2  | 19:R:46:GLY:N    | 2.08        | 0.68     |
| 14:T:15:PRO:C    | 14:T:17:THR:H    | 1.97        | 0.68     |
| 10:O:79:PHE:CG   | 14:T:22:VAL:CG2  | 2.76        | 0.68     |
| 20:U:105:ALA:O   | 20:U:108:ALA:CB  | 2.39        | 0.68     |
| 15:W:100:THR:O   | 15:W:101:SER:OG  | 2.11        | 0.68     |
| 15:W:6:ILE:O     | 15:W:7:ALA:CB    | 2.41        | 0.68     |
| 18:Z:106:GLY:H   | 18:Z:141:MET:HG2 | 1.59        | 0.68     |
| 18:Z:149:ALA:HB1 | 18:Z:164:PRO:HA  | 1.75        | 0.68     |
| 18:Z:154:LEU:CD1 | 18:Z:160:LEU:CD1 | 2.72        | 0.68     |
| 18:Z:19:ILE:CB   | 18:Z:39:PHE:HE1  | 2.05        | 0.68     |
| 18:Z:79:ILE:O    | 18:Z:80:HIS:CB   | 2.42        | 0.68     |
| 2:A:1791:A:P     | 3:D:210:LYS:HD3  | 2.34        | 0.68     |
| 2:A:1300:U:H3'   | 2:A:1635:G:OP1   | 1.94        | 0.68     |
| 29:8:13:ARG:HB3  | 29:8:24:ALA:CB   | 2.24        | 0.67     |
| 2:A:2099:U:H3    | 2:A:2190:G:H1    | 1.42        | 0.67     |
| 2:A:2526:G:C4    | 2:A:2527:C:H6    | 2.12        | 0.67     |
| 2:A:2633:G:O2'   | 2:A:2634:G:C5'   | 2.42        | 0.67     |
| 2:A:2771:C:O2    | 2:A:2772:C:C6    | 2.47        | 0.67     |
| 1:B:56:G:H4'     | 1:B:57:A:C5'     | 2.23        | 0.67     |
| 2:A:1819:A:OP2   | 3:D:154:VAL:N    | 2.26        | 0.67     |
| 4:E:201:VAL:HG22 | 4:E:311:PHE:CB   | 2.20        | 0.67     |
| 4:E:222:ARG:CG   | 4:E:232:ARG:CA   | 2.69        | 0.67     |
| 2:A:2572:A:C8    | 4:E:241:TRP:CD1  | 2.82        | 0.67     |
| 4:E:198:TYR:CE2  | 4:E:265:ASN:C    | 2.68        | 0.67     |
| 5:F:114:ALA:O    | 5:F:117:ALA:N    | 2.27        | 0.67     |
| 5:F:57:PRO:O     | 5:F:58:ALA:HB3   | 1.94        | 0.67     |
| 8:I:6:LEU:HB3    | 8:I:35:LEU:C     | 2.14        | 0.67     |
| 9:N:77:GLY:CA    | 9:N:80:LYS:HG2   | 2.23        | 0.67     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:O:110:ASP:O    | 10:O:111:PHE:CD2  | 2.44        | 0.67     |
| 10:O:101:PRO:HB3  | 10:O:122:ILE:HD11 | 1.75        | 0.67     |
| 11:P:113:GLN:C    | 11:P:114:VAL:O    | 2.32        | 0.67     |
| 11:P:131:GLU:O    | 11:P:134:GLU:N    | 2.27        | 0.67     |
| 12:Q:72:VAL:HG21  | 12:Q:135:ALA:CB   | 2.24        | 0.67     |
| 12:Q:34:GLY:N     | 12:Q:83:PHE:HB2   | 2.09        | 0.67     |
| 19:R:20:LEU:HD12  | 19:R:21:TYR:CG    | 2.27        | 0.67     |
| 13:S:32:PRO:HG3   | 13:S:100:ALA:HB2  | 1.76        | 0.67     |
| 2:A:29:U:C4'      | 20:U:11:ARG:HH22  | 2.06        | 0.67     |
| 2:A:1151:G:C3'    | 20:U:81:ASN:OD1   | 2.42        | 0.67     |
| 21:V:31:ASP:O     | 21:V:63:HIS:CB    | 2.34        | 0.67     |
| 17:Y:103:LEU:HD22 | 17:Y:112:LEU:HD23 | 1.71        | 0.67     |
| 18:Z:130:ILE:C    | 18:Z:130:ILE:CD1  | 2.62        | 0.67     |
| 22:2:7:GLU:CD     | 22:2:8:ILE:H      | 1.97        | 0.67     |
| 17:Y:3:GLN:HB2    | 17:Y:6:LYS:HD2    | 1.77        | 0.67     |
| 2:A:979:G:H3'     | 2:A:980:A:H5'     | 1.75        | 0.67     |
| 2:A:269:U:H5      | 2:A:270(Z):U:P    | 2.17        | 0.67     |
| 2:A:1829:A:H3'    | 2:A:1830:C:H6     | 1.59        | 0.67     |
| 2:A:1400:G:H2'    | 2:A:1401:G:C8     | 2.29        | 0.67     |
| 15:W:19:LEU:HD22  | 26:5:25:LEU:HG    | 0.71        | 0.67     |
| 27:6:39:LYS:O     | 27:6:40:TYR:HD1   | 1.77        | 0.67     |
| 2:A:2191:G:N2     | 2:A:2192:G:H1'    | 2.09        | 0.67     |
| 2:A:2219:G:O2'    | 2:A:2224:G:O5'    | 2.02        | 0.67     |
| 2:A:197:A:C6      | 2:A:2430:A:N7     | 2.61        | 0.67     |
| 2:A:2508:G:C2'    | 2:A:2509:G:C5'    | 2.71        | 0.67     |
| 2:A:2517:C:N3     | 2:A:2542:A:N6     | 2.41        | 0.67     |
| 2:A:2842:G:N2     | 2:A:2876:G:N3     | 2.40        | 0.67     |
| 2:A:2865:U:C5     | 2:A:2866:U:C6     | 2.82        | 0.67     |
| 2:A:2886:G:H21    | 2:A:2887:U:C1'    | 2.06        | 0.67     |
| 3:D:146:LYS:CB    | 3:D:149:ARG:HG3   | 2.24        | 0.67     |
| 3:D:181:ARG:HH11  | 3:D:181:ARG:HB3   | 1.55        | 0.67     |
| 2:A:2821:A:O3'    | 4:E:258:TYR:CE2   | 2.47        | 0.67     |
| 6:G:71:ALA:O      | 6:G:72:LYS:CE     | 2.42        | 0.67     |
| 11:P:120:LEU:HD13 | 11:P:121:ILE:N    | 2.09        | 0.67     |
| 12:Q:91:HIS:O     | 12:Q:111:THR:HA   | 1.95        | 0.67     |
| 12:Q:48:ASN:OD1   | 12:Q:121:ASP:HB2  | 1.91        | 0.67     |
| 12:Q:86:ARG:HH21  | 12:Q:123:ILE:HD12 | 1.59        | 0.67     |
| 2:A:911:A:C6      | 12:Q:16:ARG:HA    | 2.28        | 0.67     |
| 13:S:110:THR:HG1  | 13:S:111:PRO:HD2  | 1.59        | 0.67     |
| 13:S:56:ASP:C     | 13:S:57:THR:HG23  | 2.14        | 0.67     |
| 20:U:92:ARG:HA    | 20:U:95:LEU:HD11  | 0.69        | 0.67     |
| 15:W:55:ALA:HA    | 15:W:107:LEU:HD13 | 1.75        | 0.67     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:W:66:GLU:CD   | 15:W:67:ASP:H    | 1.97        | 0.67     |
| 17:Y:31:LEU:HD13 | 17:Y:101:LEU:HB2 | 1.72        | 0.67     |
| 8:I:131:VAL:O    | 8:I:138:THR:HB   | 1.94        | 0.67     |
| 16:X:17:ASP:HA   | 16:X:20:PHE:CZ   | 2.29        | 0.67     |
| 16:X:5:ILE:HG13  | 16:X:40:ALA:HB1  | 1.76        | 0.67     |
| 2:A:1545:A:C5'   | 2:A:545(A):A:P   | 2.80        | 0.67     |
| 7:H:17:THR:HB    | 7:H:24:THR:HG1   | 1.59        | 0.67     |
| 2:A:693:C:O2'    | 2:A:1353:A:C2    | 2.46        | 0.67     |
| 23:3:3:ARG:HA    | 23:3:37:LEU:O    | 1.94        | 0.67     |
| 28:7:30:ILE:CA   | 28:7:33:ARG:CB   | 2.72        | 0.67     |
| 2:A:1005:C:H2'   | 2:A:1006:C:H6    | 1.60        | 0.67     |
| 2:A:1011:G:OP1   | 20:U:77:SER:HB3  | 1.93        | 0.67     |
| 2:A:1638:C:H4'   | 2:A:2709:G:N2    | 2.10        | 0.67     |
| 2:A:2206:C:O2'   | 2:A:2207:C:O4'   | 2.11        | 0.67     |
| 2:A:2423:U:H1'   | 2:A:2425:A:N9    | 2.10        | 0.67     |
| 2:A:2572:A:N7    | 4:E:241:TRP:CG   | 2.62        | 0.67     |
| 2:A:2648:C:H2'   | 2:A:2649:U:C5'   | 2.24        | 0.67     |
| 2:A:2757:A:H2'   | 2:A:2758:A:H8    | 1.60        | 0.67     |
| 2:A:617:G:P      | 5:F:221:GLU:CD   | 2.73        | 0.67     |
| 4:E:190:ASN:C    | 4:E:192:ILE:C    | 2.52        | 0.67     |
| 5:F:138:VAL:O    | 5:F:139:VAL:HB   | 1.94        | 0.67     |
| 2:A:2311:A:H2    | 6:G:53:LYS:HZ3   | 1.42        | 0.67     |
| 2:A:2745:C:C2    | 7:H:142:GLU:OE2  | 2.47        | 0.67     |
| 9:N:45:VAL:N     | 9:N:132:LEU:HD22 | 2.05        | 0.67     |
| 9:N:79:PHE:HD1   | 9:N:79:PHE:H     | 1.40        | 0.67     |
| 10:O:11:ALA:CB   | 10:O:99:PHE:HB3  | 2.23        | 0.67     |
| 12:Q:130:PRO:C   | 12:Q:132:VAL:N   | 2.47        | 0.67     |
| 12:Q:33:MET:HG3  | 12:Q:83:PHE:CB   | 2.25        | 0.67     |
| 19:R:55:ALA:HB1  | 19:R:80:PHE:HA   | 1.75        | 0.67     |
| 13:S:33:ARG:HB3  | 13:S:35:VAL:HG23 | 1.74        | 0.67     |
| 12:Q:36:ASN:ND2  | 18:Z:116:VAL:CG1 | 2.56        | 0.67     |
| 3:D:213:LYS:CA   | 3:D:215:LYS:H    | 2.06        | 0.67     |
| 22:2:13:PRO:HD3  | 22:2:16:ARG:HH12 | 1.59        | 0.67     |
| 22:2:54:ALA:HB3  | 22:2:55:ARG:HD2  | 1.75        | 0.67     |
| 11:P:75:LEU:C    | 11:P:75:LEU:HD23 | 2.13        | 0.67     |
| 2:A:668:G:H2'    | 2:A:670:A:H62    | 1.58        | 0.67     |
| 2:A:2354:G:N3    | 24:0:32:LYS:HG3  | 2.10        | 0.67     |
| 24:0:67:VAL:HG12 | 24:0:74:LYS:HG2  | 1.69        | 0.67     |
| 23:3:39:ASP:CG   | 23:3:40:THR:H    | 1.96        | 0.67     |
| 30:9:10:MET:CE   | 30:9:10:MET:CA   | 2.73        | 0.67     |
| 2:A:1140:C:C5    | 9:N:49:ARG:NE    | 2.57        | 0.67     |
| 2:A:1273:U:H4'   | 2:A:1275:A:OP2   | 1.93        | 0.67     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2235:G:C5    | 2:A:2236:C:C5    | 2.82        | 0.67     |
| 2:A:2422:A:H5''  | 2:A:2423:U:OP1   | 1.94        | 0.67     |
| 2:A:2491:U:HO2'  | 2:A:2492:U:C5'   | 1.81        | 0.67     |
| 2:A:2528:U:O2    | 2:A:2536:G:C2    | 2.48        | 0.67     |
| 2:A:2647:U:H3    | 2:A:2673:G:H1    | 1.41        | 0.67     |
| 2:A:2711:A:OP2   | 2:A:2712:U:O3'   | 2.03        | 0.67     |
| 2:A:563:G:H21    | 20:U:37:GLN:CD   | 1.97        | 0.67     |
| 2:A:858:U:H5'    | 24:O:20:TYR:OH   | 1.93        | 0.67     |
| 2:A:910:A:N6     | 12:Q:12:PRO:HA   | 2.10        | 0.67     |
| 3:D:130:PRO:HA   | 3:D:188:ARG:HG2  | 1.76        | 0.67     |
| 3:D:74:PRO:CD    | 3:D:96:ALA:CB    | 2.64        | 0.67     |
| 5:F:39:GLN:O     | 5:F:40:ALA:C     | 2.33        | 0.67     |
| 6:G:101:THR:O    | 6:G:102:GLY:C    | 2.33        | 0.67     |
| 6:G:93:LEU:HD22  | 6:G:97:GLN:CD    | 2.14        | 0.67     |
| 7:H:102:LEU:HD12 | 7:H:104:LEU:CD1  | 2.24        | 0.67     |
| 7:H:130:ILE:CG2  | 7:H:131:ILE:N    | 2.57        | 0.67     |
| 2:A:2093:G:O2'   | 8:I:29:PHE:CD2   | 2.47        | 0.67     |
| 10:O:77:ILE:CD1  | 10:O:79:PHE:CE2  | 2.56        | 0.67     |
| 10:O:99:PHE:CE2  | 14:T:24:LYS:CD   | 2.75        | 0.67     |
| 11:P:92:ASP:HB3  | 11:P:118:LEU:HB3 | 1.76        | 0.67     |
| 19:R:87:TYR:HD1  | 19:R:94:TYR:CG   | 2.13        | 0.67     |
| 21:V:35:LEU:HG   | 21:V:63:HIS:NE2  | 2.10        | 0.67     |
| 21:V:67:LYS:CD   | 21:V:70:TYR:CE1  | 2.77        | 0.67     |
| 21:V:72:ARG:N    | 21:V:88:GLN:CG   | 2.56        | 0.67     |
| 18:Z:129:ARG:HE  | 18:Z:129:ARG:CA  | 1.93        | 0.67     |
| 18:Z:5:ALA:CB    | 18:Z:33:ALA:HA   | 2.19        | 0.67     |
| 8:I:115:ILE:CG2  | 8:I:131:VAL:HG22 | 2.21        | 0.67     |
| 22:2:13:PRO:CD   | 22:2:16:ARG:HH11 | 2.07        | 0.67     |
| 2:A:1340:U:C6    | 16:X:55:GLN:NE2  | 2.61        | 0.67     |
| 2:A:72:U:C4'     | 22:2:57:LYS:HZ2  | 2.06        | 0.67     |
| 2:A:1924:C:C5    | 2:A:1925:C:C5    | 2.81        | 0.67     |
| 2:A:747:U:P      | 26:5:2:ALA:HB3   | 2.34        | 0.67     |
| 26:5:28:PRO:HB2  | 26:5:30:LEU:HG   | 1.75        | 0.67     |
| 26:5:51:TYR:O    | 26:5:52:TYR:CB   | 2.41        | 0.67     |
| 2:A:1800:C:C6    | 2:A:1800:C:H3'   | 2.30        | 0.67     |
| 2:A:2044:C:N3    | 2:A:2624:G:C2    | 2.62        | 0.67     |
| 2:A:2339:G:N3    | 2:A:2340:G:C8    | 2.62        | 0.67     |
| 2:A:2283:C:H1'   | 2:A:2389:G:H21   | 1.59        | 0.67     |
| 2:A:2742:C:H2'   | 2:A:2742:C:O2    | 1.94        | 0.67     |
| 2:A:2779:U:H4'   | 2:A:2781:A:N7    | 2.08        | 0.67     |
| 2:A:2785:C:C6    | 2:A:2786:U:C5    | 2.83        | 0.67     |
| 2:A:2788:C:O2    | 2:A:2892:A:H2    | 1.78        | 0.67     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2837:G:N1     | 2:A:2882:A:C6    | 2.62        | 0.67     |
| 2:A:82:G:H5'      | 2:A:296:C:OP1    | 1.95        | 0.67     |
| 3:D:103:ILE:CD1   | 3:D:104:ILE:CD1  | 2.47        | 0.67     |
| 3:D:188:ARG:O     | 3:D:189:ALA:CB   | 2.42        | 0.67     |
| 3:D:70:LYS:NZ     | 3:D:70:LYS:HB3   | 2.09        | 0.67     |
| 5:F:32:GLY:O      | 5:F:33:LYS:C     | 2.30        | 0.67     |
| 5:F:58:ALA:HB2    | 5:F:79:ARG:HB2   | 1.77        | 0.67     |
| 7:H:10:ILE:CD1    | 7:H:48:VAL:O     | 2.41        | 0.67     |
| 7:H:60:HIS:HA     | 7:H:63:LEU:CB    | 2.23        | 0.67     |
| 10:O:10:VAL:HG12  | 10:O:12:ASP:O    | 1.94        | 0.67     |
| 12:Q:69:ASN:ND2   | 12:Q:70:ARG:CA   | 2.58        | 0.67     |
| 19:R:52:ILE:HD13  | 19:R:94:TYR:CB   | 2.25        | 0.67     |
| 19:R:72:ASP:O     | 19:R:76:VAL:HG21 | 1.91        | 0.67     |
| 13:S:104:ILE:HG22 | 13:S:104:ILE:O   | 1.94        | 0.67     |
| 13:S:28:LYS:NZ    | 13:S:28:LYS:CB   | 2.56        | 0.67     |
| 13:S:9:PRO:CG     | 13:S:14:ARG:HB3  | 2.23        | 0.67     |
| 14:T:8:TYR:O      | 14:T:10:GLY:N    | 2.28        | 0.67     |
| 20:U:33:ARG:HB2   | 20:U:33:ARG:CZ   | 2.24        | 0.67     |
| 20:U:43:ALA:HA    | 20:U:46:GLU:OE2  | 1.95        | 0.67     |
| 2:A:996:A:H5'     | 20:U:93:LYS:HG3  | 1.76        | 0.67     |
| 21:V:39:PHE:CZ    | 21:V:42:GLY:HA2  | 2.29        | 0.67     |
| 21:V:5:ILE:HD12   | 21:V:12:TYR:CE1  | 2.29        | 0.67     |
| 15:W:20:VAL:HG11  | 15:W:47:VAL:HG21 | 0.69        | 0.67     |
| 15:W:69:LEU:N     | 15:W:69:LEU:CD2  | 2.50        | 0.67     |
| 2:A:1260:G:C5'    | 15:W:83:LYS:HZ1  | 1.97        | 0.67     |
| 17:Y:28:SER:HB3   | 17:Y:99:THR:HG1  | 1.51        | 0.67     |
| 1:B:75:G:C4       | 18:Z:22:VAL:HG21 | 2.29        | 0.67     |
| 8:I:84:GLY:N      | 8:I:147:GLU:OE2  | 2.28        | 0.67     |
| 8:I:68:LEU:CD2    | 8:I:108:LEU:HD11 | 2.15        | 0.67     |
| 3:D:211:HIS:O     | 3:D:213:LYS:N    | 2.27        | 0.67     |
| 2:A:1339:G:C5'    | 16:X:13:LYS:HE3  | 2.24        | 0.67     |
| 7:H:168:VAL:CG1   | 7:H:169:ARG:H    | 1.91        | 0.67     |
| 14:T:44:ARG:CG    | 14:T:45:GLU:H    | 2.08        | 0.67     |
| 2:A:256:A:H2'     | 2:A:257:A:C8     | 2.29        | 0.67     |
| 3:D:121:ALA:O     | 3:D:122:ASP:CB   | 2.43        | 0.67     |
| 24:O:19:LYS:O     | 24:O:35:ASN:O    | 2.13        | 0.67     |
| 24:O:39:ARG:CG    | 24:O:69:PHE:CE1  | 2.65        | 0.67     |
| 2:A:1264:G:OP1    | 26:5:19:ARG:NH1  | 2.26        | 0.67     |
| 2:A:1655:A:H5''   | 4:E:211:GLN:HG2  | 1.76        | 0.67     |
| 2:A:2048:G:C6     | 2:A:2620:C:N4    | 2.63        | 0.67     |
| 2:A:2317:C:H2'    | 2:A:2318:G:H8    | 1.59        | 0.67     |
| 2:A:2330:G:N1     | 2:A:2331:G:N3    | 2.41        | 0.67     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2357:U:O2'    | 2:A:2358:G:H5''  | 1.95        | 0.67     |
| 2:A:2426:A:H8     | 2:A:2426:A:OP1   | 1.77        | 0.67     |
| 2:A:2487:G:HO2'   | 2:A:2488:A:H5'   | 1.57        | 0.67     |
| 2:A:2523:G:C2     | 2:A:2541:A:C2    | 2.82        | 0.67     |
| 2:A:2603:G:C4     | 2:A:2604:U:H6    | 2.07        | 0.67     |
| 2:A:2608:G:H8     | 2:A:2608:G:H3'   | 1.59        | 0.67     |
| 2:A:2631:G:C5     | 2:A:2632:A:H8    | 2.07        | 0.67     |
| 2:A:2712:U:H5''   | 2:A:2714:G:C5'   | 2.24        | 0.67     |
| 2:A:2739:U:C6     | 2:A:2739:U:C3'   | 2.73        | 0.67     |
| 2:A:600:G:H5'     | 5:F:30:LEU:HD11  | 0.84        | 0.67     |
| 2:A:752:A:C6      | 2:A:1781:C:H1'   | 2.30        | 0.67     |
| 2:A:932:G:H5''    | 23:3:29:ARG:NH2  | 2.00        | 0.67     |
| 2:A:963:U:O2      | 2:A:2250:G:N2    | 2.28        | 0.67     |
| 2:A:988:A:N6      | 23:3:13:ILE:HG21 | 2.10        | 0.67     |
| 1:B:24:G:O6       | 1:B:56:G:H2'     | 1.93        | 0.67     |
| 3:D:109:LEU:HD13  | 3:D:115:ILE:HG12 | 1.75        | 0.67     |
| 4:E:102:ASP:C     | 4:E:103:GLU:HG3  | 2.15        | 0.67     |
| 5:F:102:LEU:CB    | 5:F:107:ARG:CZ   | 2.72        | 0.67     |
| 7:H:101:LYS:HB2   | 7:H:113:GLU:CD   | 2.14        | 0.67     |
| 7:H:67:THR:HA     | 7:H:70:LEU:HB2   | 1.75        | 0.67     |
| 7:H:75:VAL:O      | 7:H:76:GLU:C     | 2.31        | 0.67     |
| 20:U:44:THR:HG21  | 21:V:78:VAL:CG1  | 2.24        | 0.67     |
| 21:V:12:TYR:CG    | 21:V:13:ARG:N    | 2.58        | 0.67     |
| 17:Y:58:GLU:H     | 17:Y:97:ARG:HH12 | 1.42        | 0.67     |
| 18:Z:148:THR:HG22 | 18:Z:168:VAL:H   | 1.58        | 0.67     |
| 16:X:16:ASN:HB2   | 16:X:20:PHE:HE2  | 1.59        | 0.67     |
| 2:A:1955:U:O2     | 2:A:1955:U:H2'   | 1.94        | 0.67     |
| 2:A:1417:C:N4     | 2:A:1581:G:H22   | 1.91        | 0.67     |
| 2:A:1212:G:O2'    | 2:A:1213:A:C8    | 2.46        | 0.67     |
| 2:A:2660:A:O5'    | 2:A:2660:A:H8    | 1.78        | 0.67     |
| 24:0:37:LEU:N     | 24:0:68:VAL:CG1  | 2.36        | 0.67     |
| 27:6:32:GLN:HA    | 27:6:35:LEU:CD1  | 2.23        | 0.67     |
| 2:A:1252:G:C8     | 2:A:1253:A:H1'   | 2.30        | 0.67     |
| 2:A:2234:G:C2     | 2:A:2235:G:N9    | 2.63        | 0.67     |
| 2:A:2528:U:H3'    | 2:A:2528:U:H6    | 1.60        | 0.67     |
| 2:A:2520:C:C4     | 2:A:2567:G:N7    | 2.63        | 0.67     |
| 2:A:2765:A:N3     | 2:A:2765:A:H2'   | 2.08        | 0.67     |
| 2:A:38:A:C2       | 5:F:46:TYR:OH    | 2.48        | 0.67     |
| 2:A:650:C:H2'     | 2:A:650:C:O2     | 1.94        | 0.67     |
| 4:E:197:GLU:O     | 4:E:267:ARG:HA   | 1.94        | 0.67     |
| 4:E:269:ILE:HG23  | 4:E:297:LYS:HZ1  | 1.56        | 0.67     |
| 6:G:19:GLU:HB2    | 6:G:135:VAL:CG1  | 2.24        | 0.67     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:H:148:ARG:HH12 | 7:H:164:GLU:N    | 1.92        | 0.67     |
| 2:A:1020:A:H1'   | 9:N:49:ARG:NH2   | 2.09        | 0.67     |
| 11:P:102:ASP:O   | 11:P:103:ALA:HB2 | 1.95        | 0.67     |
| 11:P:128:GLY:O   | 11:P:129:ALA:C   | 2.33        | 0.67     |
| 2:A:2495:G:O2'   | 12:Q:101:MET:CE  | 2.41        | 0.67     |
| 12:Q:91:HIS:C    | 12:Q:92:VAL:HG13 | 2.15        | 0.67     |
| 21:V:4:ILE:CD1   | 21:V:13:ARG:HD3  | 2.23        | 0.67     |
| 18:Z:120:LEU:C   | 18:Z:121:GLN:HG3 | 2.13        | 0.67     |
| 18:Z:37:LYS:CA   | 18:Z:40:ASP:OD1  | 2.42        | 0.67     |
| 18:Z:37:LYS:CA   | 18:Z:41:ARG:NH1  | 2.58        | 0.67     |
| 8:I:119:ASP:CG   | 8:I:120:ALA:N    | 2.47        | 0.67     |
| 2:A:1789:A:H5''  | 3:D:224:VAL:CG1  | 2.25        | 0.67     |
| 16:X:7:HIS:CB    | 16:X:8:PRO:CD    | 2.72        | 0.67     |
| 2:A:1085:A:H1'   | 2:A:1086:A:H4'   | 1.77        | 0.67     |
| 2:A:1853:A:H2'   | 2:A:1854:A:C8    | 2.30        | 0.67     |
| 2:A:2208:U:O2'   | 2:A:2209:C:H5'   | 1.93        | 0.67     |
| 2:A:2248:C:O2    | 2:A:2248:C:C2'   | 2.43        | 0.67     |
| 2:A:2349:G:C6    | 2:A:2369:A:N1    | 2.62        | 0.67     |
| 2:A:2511:U:H2'   | 2:A:2512:C:H5'   | 1.77        | 0.67     |
| 2:A:2517:C:C5    | 2:A:2542:A:C5    | 2.82        | 0.67     |
| 2:A:1966:A:C2    | 2:A:2593:U:H4'   | 2.29        | 0.67     |
| 2:A:1662:C:O2'   | 2:A:2687:U:OP1   | 2.13        | 0.67     |
| 1:B:9:G:OP1      | 13:S:23:ARG:NH2  | 2.27        | 0.67     |
| 2:A:1819:A:C5'   | 3:D:157:ALA:HB2  | 2.23        | 0.67     |
| 4:E:80:ALA:N     | 4:E:187:HIS:NE2  | 2.42        | 0.67     |
| 5:F:201:SER:HB2  | 5:F:204:ALA:HB3  | 1.76        | 0.67     |
| 5:F:32:GLY:C     | 5:F:35:VAL:CG2   | 2.43        | 0.67     |
| 5:F:59:GLU:O     | 5:F:60:SER:C     | 2.32        | 0.67     |
| 6:G:146:LYS:CE   | 13:S:15:GLU:OE2  | 2.43        | 0.67     |
| 7:H:23:VAL:CG1   | 7:H:74:MET:SD    | 2.83        | 0.67     |
| 10:O:66:LYS:NZ   | 10:O:67:ARG:NE   | 2.43        | 0.67     |
| 2:A:2727:G:H4'   | 10:O:70:ARG:CZ   | 2.25        | 0.67     |
| 19:R:22:ARG:CG   | 19:R:26:LYS:CE   | 2.72        | 0.67     |
| 20:U:111:ASP:N   | 20:U:111:ASP:OD1 | 2.26        | 0.67     |
| 20:U:27:SER:CB   | 20:U:31:GLN:NE2  | 2.56        | 0.67     |
| 15:W:79:GLY:O    | 15:W:81:ALA:N    | 2.28        | 0.67     |
| 8:I:94:THR:CG2   | 8:I:97:GLN:HG3   | 2.25        | 0.67     |
| 2:A:1566:A:C2    | 3:D:212:HIS:CB   | 2.78        | 0.67     |
| 2:A:1772:G:H2'   | 2:A:1773:A:H4'   | 1.77        | 0.67     |
| 3:D:224:VAL:CG1  | 3:D:225:ARG:H    | 2.07        | 0.67     |
| 22:2:56:ILE:O    | 22:2:59:ILE:CG2  | 2.41        | 0.67     |
| 2:A:1082:U:P     | 31:K:123:ALA:HB2 | 2.33        | 0.67     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 23:3:16:PRO:HB3  | 23:3:19:GLN:CD    | 2.13        | 0.67     |
| 27:6:24:THR:O    | 27:6:25:THR:HG22  | 1.94        | 0.67     |
| 2:A:1255:U:H5''  | 2:A:1256:G:H5''   | 1.77        | 0.67     |
| 2:A:2234:G:C2    | 2:A:2235:G:C4     | 2.83        | 0.67     |
| 2:A:2266:A:C2    | 2:A:2272:U:C2     | 2.83        | 0.67     |
| 2:A:2488:A:C2'   | 2:A:2489:G:O5'    | 2.35        | 0.67     |
| 2:A:2519:U:P     | 2:A:2519:U:H3'    | 2.34        | 0.67     |
| 2:A:2648:C:N4    | 2:A:2649:U:O4     | 2.27        | 0.67     |
| 2:A:2814:C:H2'   | 2:A:2815:C:C5     | 2.30        | 0.67     |
| 2:A:467:G:OP1    | 28:7:30:ILE:HG23  | 1.94        | 0.67     |
| 2:A:97:C:H2'     | 2:A:98:G:O4'      | 1.94        | 0.67     |
| 3:D:131:LEU:CG   | 3:D:187:CYS:HB2   | 2.24        | 0.67     |
| 4:E:44:TYR:CD1   | 4:E:308:VAL:CA    | 2.64        | 0.67     |
| 4:E:70:VAL:CG1   | 4:E:296:VAL:HB    | 2.25        | 0.67     |
| 6:G:57:THR:O     | 6:G:63:ILE:HB     | 1.94        | 0.67     |
| 6:G:95:THR:HG22  | 6:G:96:SER:N      | 2.09        | 0.67     |
| 7:H:67:THR:O     | 7:H:70:LEU:HB3    | 1.95        | 0.67     |
| 9:N:78:ILE:HG22  | 9:N:79:PHE:CD1    | 2.30        | 0.67     |
| 10:O:25:LEU:CD1  | 10:O:38:VAL:O     | 2.43        | 0.67     |
| 12:Q:133:GLU:CG  | 12:Q:134:PHE:N    | 2.57        | 0.67     |
| 12:Q:72:VAL:O    | 12:Q:73:GLN:CB    | 2.43        | 0.67     |
| 20:U:104:GLU:O   | 20:U:105:ALA:C    | 2.34        | 0.67     |
| 20:U:25:TRP:H    | 20:U:28:ARG:HD2   | 1.60        | 0.67     |
| 20:U:65:ILE:CB   | 20:U:76:TYR:HE2   | 2.08        | 0.67     |
| 2:A:1151:G:C3'   | 20:U:81:ASN:CG    | 2.63        | 0.67     |
| 18:Z:116:VAL:CG2 | 18:Z:169:VAL:HG22 | 2.16        | 0.67     |
| 18:Z:29:ASN:O    | 18:Z:30:VAL:CG2   | 2.43        | 0.67     |
| 18:Z:38:ALA:O    | 18:Z:39:PHE:C     | 2.33        | 0.67     |
| 18:Z:25:ASN:C    | 18:Z:84:TYR:CE1   | 2.68        | 0.67     |
| 8:I:77:VAL:HG12  | 8:I:77:VAL:O      | 1.94        | 0.67     |
| 3:D:208:GLY:O    | 3:D:209:ASN:C     | 2.33        | 0.67     |
| 3:D:208:GLY:O    | 3:D:210:LYS:CG    | 2.42        | 0.67     |
| 2:A:135:G:H1     | 2:A:144:C:N4      | 1.91        | 0.67     |
| 2:A:1906:G:C2    | 2:A:1929:G:O6     | 2.48        | 0.67     |
| 26:5:23:HIS:O    | 26:5:24:ALA:HB2   | 1.93        | 0.67     |
| 21:V:38:LEU:HD23 | 21:V:38:LEU:N     | 2.09        | 0.67     |
| 24:0:38:VAL:CA   | 24:0:40:GLN:CG    | 2.73        | 0.67     |
| 24:0:48:GLY:HA2  | 24:0:56:ASP:H     | 1.59        | 0.67     |
| 24:0:29:GLU:HA   | 24:0:62:LEU:HD22  | 1.77        | 0.67     |
| 25:4:43:TRP:HA   | 25:4:61:LYS:HE3   | 1.77        | 0.67     |
| 30:9:25:VAL:HB   | 30:9:34:GLN:HB3   | 0.68        | 0.67     |
| 2:A:1263:U:C2'   | 26:5:16:ARG:NH2   | 2.58        | 0.67     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1819:A:OP1   | 3:D:154:VAL:C    | 2.32        | 0.67     |
| 2:A:2215:G:C4    | 2:A:2216:G:N7    | 2.62        | 0.67     |
| 2:A:2230:G:O2'   | 2:A:2231:C:H5'   | 1.94        | 0.67     |
| 2:A:2090:G:C4    | 2:A:2230:G:O6    | 2.47        | 0.67     |
| 2:A:2399:G:H2'   | 2:A:2400:G:O5'   | 1.95        | 0.67     |
| 2:A:2430:A:C2'   | 2:A:2431:U:C5'   | 2.72        | 0.67     |
| 2:A:2460:U:O2    | 2:A:2493:U:H5    | 1.74        | 0.67     |
| 2:A:2482:G:C3'   | 2:A:2483:C:C5'   | 2.72        | 0.67     |
| 2:A:575:A:C4'    | 2:A:2500:U:H5'   | 2.25        | 0.67     |
| 2:A:2595:G:H1'   | 2:A:2599:G:N2    | 2.05        | 0.67     |
| 2:A:2605:U:H2'   | 2:A:2606:C:C5'   | 2.25        | 0.67     |
| 2:A:2652:C:H2'   | 2:A:2653:U:O4'   | 1.95        | 0.67     |
| 2:A:2679:A:N3    | 4:E:300:VAL:CG2  | 2.57        | 0.67     |
| 2:A:34:C:H2'     | 2:A:455:C:N4     | 2.09        | 0.67     |
| 2:A:574:C:N4     | 2:A:2054:A:H5''  | 2.09        | 0.67     |
| 3:D:119:PRO:CA   | 3:D:129:LEU:HD21 | 2.24        | 0.67     |
| 3:D:75:GLY:N     | 3:D:115:ILE:O    | 2.27        | 0.67     |
| 5:F:102:LEU:CB   | 5:F:107:ARG:NH2  | 2.58        | 0.67     |
| 5:F:85:LYS:CD    | 5:F:85:LYS:N     | 2.42        | 0.67     |
| 6:G:49:PRO:HG3   | 6:G:73:VAL:N     | 2.10        | 0.67     |
| 7:H:14:VAL:HG12  | 7:H:16:VAL:CG2   | 2.25        | 0.67     |
| 8:I:13:GLY:CA    | 8:I:15:LYS:CD    | 2.72        | 0.67     |
| 8:I:29:PHE:CD1   | 8:I:29:PHE:N     | 2.62        | 0.67     |
| 10:O:20:LEU:HG   | 10:O:44:LYS:HD3  | 1.77        | 0.67     |
| 12:Q:11:LYS:HD2  | 12:Q:91:HIS:HD2  | 1.57        | 0.67     |
| 2:A:911:A:N9     | 12:Q:16:ARG:CD   | 2.58        | 0.67     |
| 1:B:49:C:OP1     | 13:S:110:THR:OG1 | 2.11        | 0.67     |
| 13:S:47:LEU:H    | 13:S:57:THR:HG22 | 1.60        | 0.67     |
| 13:S:64:SER:O    | 13:S:65:ASP:C    | 2.33        | 0.67     |
| 2:A:1161:C:C2'   | 21:V:22:VAL:HG11 | 2.25        | 0.67     |
| 17:Y:51:LEU:CD2  | 17:Y:95:ASN:CG   | 2.64        | 0.67     |
| 8:I:112:LYS:N    | 8:I:112:LYS:CD   | 2.55        | 0.67     |
| 8:I:95:SER:HB2   | 8:I:117:LEU:CD1  | 2.25        | 0.67     |
| 3:D:210:LYS:O    | 3:D:211:HIS:C    | 2.31        | 0.67     |
| 2:A:1059:G:H22   | 31:K:130:GLY:HA3 | 1.59        | 0.67     |
| 2:A:1906:G:C1'   | 2:A:1929:G:C8    | 2.77        | 0.67     |
| 2:A:1429:G:H2'   | 2:A:1430:C:C6    | 2.30        | 0.67     |
| 25:4:23:GLU:CD   | 25:4:29:PRO:HB3  | 2.15        | 0.66     |
| 2:A:2419:U:OP1   | 27:6:24:THR:HG21 | 1.95        | 0.66     |
| 2:A:142(A):A:H3' | 2:A:1143:A:H5'   | 1.77        | 0.66     |
| 2:A:574:C:H41    | 2:A:2054:A:H5'   | 1.59        | 0.66     |
| 2:A:2217:G:O2'   | 2:A:2218:G:C5'   | 2.38        | 0.66     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2246:G:H2'   | 2:A:2247:A:H5'    | 1.75        | 0.66     |
| 2:A:2289:G:N1    | 2:A:2290:G:C5     | 2.63        | 0.66     |
| 2:A:2410:G:C4    | 2:A:2411:A:C5     | 2.82        | 0.66     |
| 2:A:2511:U:C6    | 2:A:2512:C:H5     | 2.12        | 0.66     |
| 2:A:2561:A:N6    | 2:A:2562:U:C5     | 2.63        | 0.66     |
| 2:A:2616:C:N3    | 2:A:2617:C:H5     | 1.89        | 0.66     |
| 2:A:54:G:H1'     | 28:7:35:ARG:NH2   | 2.09        | 0.66     |
| 2:A:593:G:H5''   | 29:8:62:LEU:HD23  | 1.77        | 0.66     |
| 2:A:963:U:O2'    | 2:A:2250:G:N2     | 2.27        | 0.66     |
| 2:A:991:C:OP2    | 2:A:1186:G:OP2    | 2.12        | 0.66     |
| 1:B:75:G:H1'     | 18:Z:22:VAL:HG21  | 1.76        | 0.66     |
| 3:D:105:ALA:O    | 3:D:107:LYS:N     | 2.28        | 0.66     |
| 2:A:2210:G:C6    | 3:D:148:GLY:CA    | 2.76        | 0.66     |
| 3:D:175:LEU:HD21 | 3:D:180:VAL:HA    | 0.67        | 0.66     |
| 4:E:48:MET:C     | 4:E:49:THR:HG23   | 2.15        | 0.66     |
| 5:F:197:SER:CB   | 5:F:236:THR:OG1   | 2.44        | 0.66     |
| 7:H:8:ILE:HG22   | 7:H:9:GLU:N       | 2.10        | 0.66     |
| 9:N:56:LYS:N     | 9:N:56:LYS:HD3    | 2.10        | 0.66     |
| 12:Q:28:ILE:CG2  | 12:Q:29:ALA:H     | 1.99        | 0.66     |
| 12:Q:33:MET:HG3  | 12:Q:83:PHE:HB2   | 1.77        | 0.66     |
| 12:Q:36:ASN:HD21 | 18:Z:116:VAL:HB   | 1.60        | 0.66     |
| 12:Q:82:LYS:O    | 12:Q:84:ARG:N     | 2.28        | 0.66     |
| 19:R:113:LEU:CD1 | 19:R:113:LEU:C    | 2.63        | 0.66     |
| 2:A:2334:G:H1'   | 13:S:21:HIS:ND1   | 2.10        | 0.66     |
| 20:U:31:GLN:O    | 20:U:33:ARG:O     | 1.96        | 0.66     |
| 17:Y:41:ARG:HB2  | 17:Y:112:LEU:CA   | 2.13        | 0.66     |
| 17:Y:74:VAL:O    | 17:Y:75:GLU:C     | 2.32        | 0.66     |
| 18:Z:106:GLY:N   | 18:Z:142:ASN:HD21 | 1.87        | 0.66     |
| 18:Z:14:LEU:HD21 | 18:Z:79:ILE:CG2   | 2.23        | 0.66     |
| 3:D:213:LYS:CB   | 3:D:215:LYS:O     | 2.43        | 0.66     |
| 16:X:52:VAL:CG1  | 16:X:53:ASN:N     | 2.57        | 0.66     |
| 16:X:28:VAL:HG23 | 16:X:62:LYS:CG    | 2.25        | 0.66     |
| 16:X:7:HIS:ND1   | 16:X:8:PRO:CD     | 2.58        | 0.66     |
| 7:H:108:TYR:CD2  | 7:H:108:TYR:N     | 2.60        | 0.66     |
| 25:4:59:PHE:HA   | 25:4:62:ARG:NE    | 2.09        | 0.66     |
| 25:4:7:PRO:O     | 25:4:8:LYS:CB     | 2.43        | 0.66     |
| 30:9:25:VAL:HG11 | 30:9:34:GLN:HB2   | 1.75        | 0.66     |
| 2:A:1027:A:C6    | 2:A:1126:A:N3     | 2.63        | 0.66     |
| 2:A:2457:U:C3'   | 2:A:2458:G:H5'    | 2.17        | 0.66     |
| 2:A:2549:G:C2'   | 2:A:2550:G:H5'    | 2.24        | 0.66     |
| 2:A:2562:U:N3    | 2:A:2563:U:C4     | 2.63        | 0.66     |
| 2:A:2674:G:C2'   | 2:A:2675:A:C8     | 2.64        | 0.66     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2730:C:H2'    | 2:A:2731:G:H8     | 1.60        | 0.66     |
| 2:A:2785:C:H2'    | 2:A:2786:U:H5     | 1.51        | 0.66     |
| 2:A:564:C:P       | 21:V:79:GLN:CD    | 2.74        | 0.66     |
| 2:A:85:G:P        | 17:Y:65:VAL:CB    | 2.83        | 0.66     |
| 3:D:198:GLY:O     | 3:D:200:THR:CA    | 2.42        | 0.66     |
| 4:E:205:THR:O     | 4:E:206:LYS:HG2   | 1.94        | 0.66     |
| 4:E:67:THR:O      | 4:E:68:VAL:CG2    | 2.43        | 0.66     |
| 5:F:37:ALA:CB     | 5:F:102:LEU:CB    | 2.70        | 0.66     |
| 5:F:195:VAL:HG13  | 5:F:213:ALA:CB    | 2.25        | 0.66     |
| 2:A:2316:C:C4'    | 6:G:142:ALA:HB1   | 2.25        | 0.66     |
| 7:H:84:LYS:O      | 7:H:131:ILE:HB    | 1.94        | 0.66     |
| 2:A:270(O):U:C5   | 8:I:53:LYS:NZ     | 2.62        | 0.66     |
| 9:N:73:LYS:HB3    | 9:N:140:GLY:HA3   | 1.77        | 0.66     |
| 10:O:122:ILE:HD12 | 10:O:122:ILE:N    | 2.10        | 0.66     |
| 11:P:128:GLY:O    | 11:P:131:GLU:CA   | 2.44        | 0.66     |
| 12:Q:65:ARG:HE    | 12:Q:85:ILE:CG2   | 2.09        | 0.66     |
| 12:Q:65:ARG:HH22  | 12:Q:87:LYS:N     | 1.91        | 0.66     |
| 14:T:12:ASP:C     | 14:T:13:ILE:HG13  | 2.15        | 0.66     |
| 14:T:15:PRO:O     | 14:T:17:THR:N     | 2.25        | 0.66     |
| 20:U:93:LYS:N     | 21:V:10:LYS:HZ2   | 1.90        | 0.66     |
| 18:Z:35:ASP:CA    | 18:Z:39:PHE:CZ    | 2.63        | 0.66     |
| 22:2:20:LEU:CD1   | 22:2:21:ASP:N     | 2.58        | 0.66     |
| 12:Q:105:PHE:CE1  | 24:0:8:GLY:HA2    | 2.29        | 0.66     |
| 2:A:484:C:H2'     | 2:A:485:C:H6      | 1.60        | 0.66     |
| 2:A:1538:G:H2'    | 2:A:1539:G:H1'    | 1.77        | 0.66     |
| 23:3:30:ARG:NE    | 23:3:33:GLN:HB2   | 2.10        | 0.66     |
| 25:4:41:PRO:HB2   | 25:4:57:ASP:CG    | 2.15        | 0.66     |
| 27:6:19:GLY:C     | 27:6:42:PRO:CB    | 2.63        | 0.66     |
| 30:9:24:LEU:HD22  | 30:9:35:ARG:HA    | 1.75        | 0.66     |
| 2:A:1139:G:C2'    | 2:A:142(A):A:HO2' | 2.08        | 0.66     |
| 2:A:1673:U:H5     | 4:E:225:LYS:HD3   | 1.59        | 0.66     |
| 2:A:1996:C:C5'    | 2:A:1996:C:H6     | 2.08        | 0.66     |
| 2:A:2581:G:N1     | 2:A:2610:C:C5     | 2.60        | 0.66     |
| 2:A:2611:U:C3'    | 2:A:2611:U:C6     | 2.78        | 0.66     |
| 2:A:2740:A:C5     | 2:A:2764:A:C5     | 2.82        | 0.66     |
| 3:D:142:ASN:H     | 3:D:142:ASN:HD22  | 1.43        | 0.66     |
| 3:D:172:ILE:HA    | 3:D:182:MET:HG2   | 1.78        | 0.66     |
| 3:D:71:ASP:CA     | 3:D:73:ILE:HG13   | 2.26        | 0.66     |
| 4:E:201:VAL:CA    | 4:E:310:PHE:O     | 2.42        | 0.66     |
| 2:A:600:G:H4'     | 5:F:109:LEU:HD13  | 1.76        | 0.66     |
| 5:F:153:VAL:HG11  | 5:F:207:LEU:HD13  | 1.77        | 0.66     |
| 7:H:147:ILE:HA    | 7:H:150:VAL:HB    | 1.76        | 0.66     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:75:VAL:HG12  | 7:H:76:GLU:H      | 1.60        | 0.66     |
| 8:I:23:ASP:HB2   | 8:I:25:TYR:CD2    | 2.31        | 0.66     |
| 9:N:90:LYS:NZ    | 9:N:95:ARG:NH2    | 2.43        | 0.66     |
| 10:O:68:GLY:HA2  | 10:O:78:ARG:CG    | 2.24        | 0.66     |
| 12:Q:35:ASN:CB   | 12:Q:75:SER:CB    | 2.73        | 0.66     |
| 2:A:2013:A:C4'   | 15:W:96:ILE:HG23  | 2.26        | 0.66     |
| 17:Y:74:VAL:O    | 17:Y:74:VAL:CG1   | 2.39        | 0.66     |
| 18:Z:110:GLY:C   | 18:Z:112:LEU:H    | 1.98        | 0.66     |
| 18:Z:119:ASN:HB3 | 18:Z:120:LEU:HD23 | 1.77        | 0.66     |
| 18:Z:24:TYR:HB3  | 18:Z:83:PHE:O     | 1.96        | 0.66     |
| 18:Z:41:ARG:O    | 18:Z:44:ARG:CB    | 2.43        | 0.66     |
| 8:I:95:SER:HB2   | 8:I:117:LEU:HD12  | 1.77        | 0.66     |
| 2:A:1062:G:O2'   | 31:K:135:MET:HB2  | 1.95        | 0.66     |
| 2:A:1559:G:C4    | 2:A:1559:G:H3'    | 2.30        | 0.66     |
| 2:A:1357:U:H2'   | 2:A:1358:G:O4'    | 1.95        | 0.66     |
| 31:K:86:GLU:CB   | 31:K:87:LYS:N     | 2.31        | 0.66     |
| 24:O:29:GLU:HA   | 24:O:29:GLU:OE1   | 1.95        | 0.66     |
| 2:A:989:G:N7     | 23:3:13:ILE:CD1   | 2.58        | 0.66     |
| 23:3:7:LYS:HG2   | 23:3:8:LEU:H      | 1.60        | 0.66     |
| 2:A:1263:U:C1'   | 26:5:16:ARG:NH2   | 2.58        | 0.66     |
| 15:W:19:LEU:CG   | 26:5:25:LEU:HG    | 2.24        | 0.66     |
| 2:A:2016:U:H2'   | 2:A:2017:U:O4'    | 1.95        | 0.66     |
| 2:A:2061:G:N7    | 2:A:2501:C:C1'    | 2.56        | 0.66     |
| 2:A:2093:G:C5    | 2:A:2225:A:N6     | 2.63        | 0.66     |
| 2:A:2197:U:H2'   | 2:A:2224:G:N2     | 2.10        | 0.66     |
| 2:A:2278:A:C2'   | 2:A:2279:G:O5'    | 2.43        | 0.66     |
| 2:A:2373:G:C5    | 2:A:2374:C:N4     | 2.63        | 0.66     |
| 2:A:2376:A:H2'   | 2:A:2377:A:C8     | 2.30        | 0.66     |
| 2:A:2526:G:C5    | 2:A:2527:C:C6     | 2.82        | 0.66     |
| 2:A:1786:A:C2    | 2:A:2590:A:H1'    | 2.29        | 0.66     |
| 2:A:2748:A:O2'   | 7:H:62:ALA:HA     | 1.95        | 0.66     |
| 2:A:2862:G:N3    | 2:A:2863:C:C6     | 2.63        | 0.66     |
| 2:A:2842:G:N1    | 2:A:2876:G:C2     | 2.63        | 0.66     |
| 1:B:8:U:P        | 13:S:37:ARG:HD2   | 2.35        | 0.66     |
| 3:D:108:ASN:CG   | 3:D:109:LEU:H     | 1.98        | 0.66     |
| 4:E:221:LYS:CE   | 4:E:233:ARG:CA    | 2.64        | 0.66     |
| 2:A:1657:C:H5'   | 4:E:234:ARG:NH1   | 2.11        | 0.66     |
| 5:F:144:PHE:CE2  | 5:F:156:LEU:CD1   | 2.70        | 0.66     |
| 2:A:2313:C:C4'   | 6:G:72:LYS:HG3    | 2.25        | 0.66     |
| 7:H:100:LYS:O    | 7:H:101:LYS:HD2   | 1.95        | 0.66     |
| 7:H:130:ILE:C    | 7:H:131:ILE:HG12  | 2.16        | 0.66     |
| 7:H:85:ALA:C     | 7:H:131:ILE:CG2   | 2.63        | 0.66     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:N:68:GLY:O     | 9:N:69:TYR:CB     | 2.42        | 0.66     |
| 10:O:93:PRO:HD2  | 10:O:113:LYS:CD   | 2.26        | 0.66     |
| 2:A:2406:U:O4    | 11:P:55:GLN:HB3   | 1.70        | 0.66     |
| 12:Q:156:ASN:O   | 12:Q:157:ALA:HB3  | 1.95        | 0.66     |
| 12:Q:84:ARG:O    | 12:Q:122:PHE:HB3  | 1.96        | 0.66     |
| 19:R:83:ILE:O    | 19:R:85:PRO:N     | 2.28        | 0.66     |
| 13:S:12:ARG:CZ   | 13:S:20:TYR:CE2   | 2.74        | 0.66     |
| 13:S:34:LEU:CG   | 13:S:102:LEU:CA   | 2.56        | 0.66     |
| 13:S:66:LEU:N    | 13:S:66:LEU:HD12  | 2.09        | 0.66     |
| 20:U:110:VAL:O   | 20:U:114:ARG:CG   | 2.37        | 0.66     |
| 20:U:93:LYS:O    | 20:U:94:VAL:CB    | 2.44        | 0.66     |
| 21:V:42:GLY:HA3  | 21:V:54:TYR:OH    | 1.83        | 0.66     |
| 20:U:104:GLU:OE2 | 21:V:46:VAL:HG11  | 1.96        | 0.66     |
| 17:Y:43:ASN:CG   | 17:Y:112:LEU:HD22 | 2.16        | 0.66     |
| 17:Y:69:LYS:O    | 17:Y:70:ALA:CB    | 2.40        | 0.66     |
| 2:A:1340:U:H4'   | 2:A:1394:U:H1'    | 1.77        | 0.66     |
| 16:X:3:ASP:C     | 16:X:4:VAL:HG13   | 2.14        | 0.66     |
| 24:O:11:LYS:O    | 24:O:12:ASN:O     | 2.13        | 0.66     |
| 2:A:270(M):U:H4' | 2:A:270(N):G:C4'  | 2.21        | 0.66     |
| 23:3:37:LEU:CD1  | 23:3:43:ILE:CG2   | 2.71        | 0.66     |
| 23:3:26:LEU:CD2  | 23:3:46:ASN:HB3   | 2.22        | 0.66     |
| 2:A:125:G:C3'    | 28:7:19:ARG:HH11  | 2.01        | 0.66     |
| 2:A:1665:A:H1'   | 10:O:67:ARG:HD2   | 1.76        | 0.66     |
| 2:A:1820:U:H3    | 3:D:198:GLY:HA2   | 1.59        | 0.66     |
| 2:A:1994:C:OP1   | 4:E:227:ALA:CB    | 2.44        | 0.66     |
| 2:A:2212:A:H2'   | 2:A:2212:A:N3     | 2.10        | 0.66     |
| 2:A:2307:G:H5''  | 2:A:2307:G:H8     | 1.61        | 0.66     |
| 2:A:2395:C:O3'   | 25:4:28:ARG:HD2   | 1.96        | 0.66     |
| 2:A:2397:G:C4    | 2:A:2420:C:O2     | 2.49        | 0.66     |
| 2:A:2424:C:O2    | 2:A:2424:C:C2'    | 2.43        | 0.66     |
| 2:A:2489:G:C8    | 2:A:2490:G:N7     | 2.63        | 0.66     |
| 2:A:2526:G:C4    | 2:A:2527:C:C5     | 2.82        | 0.66     |
| 2:A:2543:G:H2'   | 2:A:2544:G:H8     | 0.82        | 0.66     |
| 2:A:2625:G:C2'   | 2:A:2626:C:C6     | 2.78        | 0.66     |
| 2:A:2648:C:C4    | 2:A:2649:U:O4     | 2.48        | 0.66     |
| 2:A:2677:G:C2'   | 2:A:2678:C:O5'    | 2.43        | 0.66     |
| 2:A:270(P):C:OP2 | 8:I:45:LYS:HD3    | 1.95        | 0.66     |
| 2:A:2744:G:N3    | 2:A:2761:G:C2     | 2.63        | 0.66     |
| 2:A:2813:A:H2'   | 2:A:2814:C:H6     | 0.75        | 0.66     |
| 2:A:2815:C:H2'   | 2:A:2816:C:H6     | 1.61        | 0.66     |
| 2:A:974:G:O6     | 21:V:80:TYR:CZ    | 2.48        | 0.66     |
| 3:D:129:LEU:CB   | 3:D:130:PRO:CD    | 2.74        | 0.66     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:104:ASP:O    | 5:F:106:GLU:N    | 2.28        | 0.66     |
| 5:F:22:PHE:HE2   | 5:F:118:THR:HG1  | 1.42        | 0.66     |
| 5:F:215:ALA:HA   | 5:F:242:GLU:CG   | 2.26        | 0.66     |
| 6:G:29:HIS:H     | 6:G:69:ILE:HD13  | 1.60        | 0.66     |
| 8:I:8:ASP:HA     | 8:I:12:LYS:N     | 2.09        | 0.66     |
| 8:I:28:ASN:HA    | 8:I:32:LYS:CG    | 2.26        | 0.66     |
| 9:N:42:GLU:HA    | 9:N:133:GLY:CA   | 2.26        | 0.66     |
| 10:O:3:GLN:HA    | 10:O:21:VAL:HG11 | 1.77        | 0.66     |
| 10:O:52:VAL:O    | 10:O:53:LYS:CB   | 2.44        | 0.66     |
| 19:R:46:GLY:O    | 19:R:47:PHE:O    | 2.14        | 0.66     |
| 13:S:72:GLU:HB3  | 13:S:74:PRO:CD   | 2.20        | 0.66     |
| 21:V:3:ALA:O     | 21:V:12:TYR:CZ   | 2.31        | 0.66     |
| 17:Y:78:THR:HG22 | 17:Y:88:PRO:C    | 2.15        | 0.66     |
| 18:Z:71:MET:HG3  | 18:Z:78:PRO:CG   | 2.20        | 0.66     |
| 16:X:75:GLN:O    | 16:X:76:GLU:C    | 2.34        | 0.66     |
| 2:A:265:A:H62    | 2:A:281:G:H5'    | 1.60        | 0.66     |
| 2:A:1529:A:N7    | 2:A:1543:A:C8    | 2.64        | 0.66     |
| 2:A:1766:U:H2'   | 2:A:1767:C:C6    | 2.30        | 0.66     |
| 25:4:23:GLU:CG   | 25:4:29:PRO:HB3  | 2.26        | 0.66     |
| 26:5:3:LYS:N     | 26:5:3:LYS:HD3   | 2.11        | 0.66     |
| 2:A:1140:C:C5    | 9:N:49:ARG:HD2   | 2.24        | 0.66     |
| 2:A:1953:A:N6    | 2:A:2550:G:C4'   | 2.59        | 0.66     |
| 2:A:2080:G:C6    | 2:A:2241:A:C6    | 2.84        | 0.66     |
| 2:A:2266:A:H5''  | 2:A:2267:A:C4    | 2.31        | 0.66     |
| 2:A:2269:A:C2'   | 2:A:2270:G:O5'   | 2.44        | 0.66     |
| 2:A:2431:U:OP2   | 2:A:2432:A:OP2   | 2.12        | 0.66     |
| 2:A:2461:C:C2    | 2:A:2462:U:C5    | 2.83        | 0.66     |
| 2:A:2525:G:N2    | 2:A:2539:C:C5    | 2.64        | 0.66     |
| 2:A:2572:A:H5'   | 2:A:2574:G:H5'   | 1.75        | 0.66     |
| 2:A:2678:C:O2'   | 2:A:2679:A:C5'   | 2.44        | 0.66     |
| 2:A:2704:C:H2'   | 2:A:2705:A:O4'   | 1.95        | 0.66     |
| 2:A:2754:U:O2'   | 2:A:2756:U:P     | 2.53        | 0.66     |
| 2:A:2758:A:C3'   | 2:A:2758:A:P     | 2.70        | 0.66     |
| 2:A:2769:C:HO2'  | 2:A:2770:G:H5'   | 1.59        | 0.66     |
| 2:A:2853:C:C2'   | 2:A:2854:G:O5'   | 2.44        | 0.66     |
| 2:A:2859:G:H2'   | 2:A:2860:A:O4'   | 1.96        | 0.66     |
| 2:A:445:C:H3'    | 20:U:3:ARG:HH21  | 1.53        | 0.66     |
| 2:A:511:U:C5     | 2:A:512:G:N3     | 2.64        | 0.66     |
| 2:A:792:G:C6     | 2:A:2440:C:C6    | 2.83        | 0.66     |
| 1:B:29:A:OP1     | 13:S:39:SER:O    | 2.14        | 0.66     |
| 3:D:196:ASN:CB   | 3:D:199:ARG:HD3  | 2.26        | 0.66     |
| 4:E:217:TRP:CE2  | 4:E:251:PRO:CB   | 2.79        | 0.66     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:102:LEU:CB   | 5:F:107:ARG:NE   | 2.52        | 0.66     |
| 5:F:48:SER:H     | 5:F:92:PRO:CG    | 1.82        | 0.66     |
| 5:F:96:LYS:HB3   | 5:F:98:ARG:NH1   | 1.00        | 0.66     |
| 7:H:47:ASN:O     | 7:H:48:VAL:HG13  | 1.96        | 0.66     |
| 7:H:67:THR:HG23  | 7:H:70:LEU:HD13  | 1.77        | 0.66     |
| 8:I:7:LYS:HE2    | 8:I:12:LYS:HG2   | 1.78        | 0.66     |
| 8:I:3:VAL:CG2    | 8:I:21:VAL:CG2   | 2.62        | 0.66     |
| 10:O:68:GLY:HA3  | 10:O:78:ARG:CZ   | 2.25        | 0.66     |
| 19:R:24:GLN:HB2  | 19:R:44:LEU:CD2  | 2.24        | 0.66     |
| 19:R:96:ARG:O    | 19:R:96:ARG:HG3  | 1.96        | 0.66     |
| 20:U:34:ASN:OD1  | 20:U:37:GLN:NE2  | 2.28        | 0.66     |
| 2:A:25:U:H5'     | 15:W:79:GLY:HA3  | 1.75        | 0.66     |
| 17:Y:71:VAL:HG22 | 17:Y:93:THR:H    | 1.36        | 0.66     |
| 18:Z:39:PHE:O    | 18:Z:40:ASP:O    | 2.14        | 0.66     |
| 2:A:1082:U:H4'   | 31:K:118:ALA:HB1 | 1.77        | 0.66     |
| 2:A:1527:G:O5'   | 2:A:1527:G:H8    | 1.79        | 0.66     |
| 24:O:46:LYS:NZ   | 24:O:60:PHE:C    | 2.49        | 0.66     |
| 23:3:12:PRO:HB2  | 23:3:20:LYS:HE2  | 1.78        | 0.66     |
| 23:3:23:LEU:CB   | 23:3:28:LEU:HD12 | 2.21        | 0.66     |
| 2:A:1567:A:N7    | 3:D:84:PRO:HB3   | 2.10        | 0.66     |
| 2:A:1751:C:C3'   | 2:A:1752:C:P     | 2.83        | 0.66     |
| 2:A:2094:G:N2    | 2:A:2196:C:O2    | 2.28        | 0.66     |
| 2:A:2246:G:N3    | 2:A:2426:A:N3    | 2.43        | 0.66     |
| 2:A:2253:G:O2'   | 2:A:2254:C:H5'   | 1.95        | 0.66     |
| 2:A:2328:A:C6    | 2:A:2329:G:C6    | 2.83        | 0.66     |
| 2:A:2360:A:N7    | 2:A:2361:A:H8    | 1.51        | 0.66     |
| 2:A:2369:A:H2'   | 2:A:2370:G:C8    | 2.29        | 0.66     |
| 2:A:2422:A:C2    | 2:A:2424:C:C5    | 2.82        | 0.66     |
| 2:A:2493:U:C2'   | 2:A:2494:G:O5'   | 2.44        | 0.66     |
| 2:A:1128:A:C5    | 2:A:2518:A:N6    | 2.63        | 0.66     |
| 2:A:2574:G:O3'   | 2:A:2575:C:O4'   | 2.12        | 0.66     |
| 2:A:2712:U:H3'   | 2:A:2714:G:O5'   | 1.96        | 0.66     |
| 2:A:2744:G:O6    | 2:A:2745:C:N4    | 2.29        | 0.66     |
| 2:A:2762:G:O6    | 2:A:2763:G:N1    | 2.28        | 0.66     |
| 2:A:2826:A:N6    | 2:A:2827:C:C4    | 2.61        | 0.66     |
| 2:A:973:A:C2'    | 2:A:974:G:H5''   | 2.26        | 0.66     |
| 1:B:89(A):A:H2   | 12:Q:52:LYS:NZ   | 1.86        | 0.66     |
| 4:E:177:ALA:C    | 4:E:179:ASP:N    | 2.45        | 0.66     |
| 4:E:238:LEU:N    | 4:E:238:LEU:HD22 | 2.11        | 0.66     |
| 5:F:168:ARG:C    | 5:F:168:ARG:HD2  | 2.08        | 0.66     |
| 5:F:214:THR:C    | 5:F:216:SER:H    | 1.98        | 0.66     |
| 2:A:617:G:C4'    | 5:F:219:ASN:OD1  | 2.33        | 0.66     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:G:97:GLN:CD    | 6:G:106:PHE:CE2  | 2.69        | 0.66     |
| 7:H:147:ILE:HD13 | 7:H:150:VAL:HG11 | 1.77        | 0.66     |
| 7:H:51:VAL:HG21  | 7:H:68:ARG:NE    | 2.10        | 0.66     |
| 7:H:87:GLU:HB3   | 7:H:164:GLU:OE1  | 1.96        | 0.66     |
| 10:O:64:ARG:NH1  | 10:O:81:GLU:OE1  | 2.27        | 0.66     |
| 12:Q:48:ASN:C    | 12:Q:121:ASP:HB2 | 2.16        | 0.66     |
| 12:Q:25:GLY:C    | 12:Q:26:LYS:HG2  | 2.13        | 0.66     |
| 12:Q:45:GLN:OE1  | 12:Q:153:PRO:N   | 2.28        | 0.66     |
| 12:Q:85:ILE:HA   | 12:Q:122:PHE:HA  | 1.76        | 0.66     |
| 2:A:907:U:O2'    | 12:Q:88:PHE:HZ   | 1.78        | 0.66     |
| 19:R:44:LEU:O    | 19:R:48:VAL:HG21 | 1.93        | 0.66     |
| 19:R:84:ALA:CB   | 19:R:85:PRO:HD3  | 2.21        | 0.66     |
| 13:S:32:PRO:CD   | 13:S:100:ALA:CA  | 2.72        | 0.66     |
| 20:U:103:PRO:HA  | 20:U:107:LYS:HE2 | 1.78        | 0.66     |
| 20:U:8:ILE:O     | 20:U:11:ARG:CG   | 2.43        | 0.66     |
| 20:U:20:ARG:NH1  | 21:V:75:LYS:NZ   | 2.39        | 0.66     |
| 17:Y:92:ASP:OD1  | 17:Y:94:SER:CB   | 2.44        | 0.66     |
| 18:Z:1:MET:O     | 18:Z:2:GLU:HB3   | 1.95        | 0.66     |
| 18:Z:39:PHE:O    | 18:Z:43:PHE:HD2  | 1.77        | 0.66     |
| 18:Z:4:THR:O     | 18:Z:5:ALA:CB    | 2.43        | 0.66     |
| 8:I:99:ALA:O     | 8:I:100:GLU:C    | 2.34        | 0.66     |
| 8:I:121:ILE:CD1  | 8:I:121:ILE:H    | 2.07        | 0.66     |
| 12:Q:108:SER:O   | 12:Q:109:VAL:CG2 | 2.43        | 0.66     |
| 2:A:414:C:H2'    | 2:A:415:A:H8     | 1.60        | 0.66     |
| 24:O:39:ARG:CG   | 24:O:69:PHE:CZ   | 2.71        | 0.66     |
| 27:6:32:GLN:HB3  | 27:6:35:LEU:HB2  | 1.77        | 0.66     |
| 2:A:1769:G:H4'   | 2:A:1958:C:H5''  | 1.78        | 0.66     |
| 2:A:2208:U:O2    | 2:A:2216:G:N2    | 2.23        | 0.66     |
| 2:A:2246:G:N2    | 2:A:2247:A:C5    | 2.64        | 0.66     |
| 2:A:2313:C:N4    | 2:A:2314:C:H41   | 1.90        | 0.66     |
| 2:A:2330:G:C2    | 2:A:2331:G:N3    | 2.64        | 0.66     |
| 2:A:2472:G:O2'   | 2:A:2473:U:P     | 2.53        | 0.66     |
| 2:A:2539:C:N3    | 2:A:2540:C:C5    | 2.64        | 0.66     |
| 2:A:2684:U:O2    | 2:A:2725:A:N1    | 2.29        | 0.66     |
| 2:A:2690:C:H2'   | 2:A:2691:C:OP2   | 1.95        | 0.66     |
| 2:A:2817:G:N1    | 2:A:2818:G:C4    | 2.64        | 0.66     |
| 2:A:443:A:H62    | 5:F:39:GLN:HB2   | 1.59        | 0.66     |
| 2:A:969:U:H2'    | 2:A:970:C:O4'    | 1.95        | 0.66     |
| 2:A:98:G:OP1     | 22:2:1:THR:OG1   | 2.14        | 0.66     |
| 3:D:106:PRO:HG3  | 3:D:141:HIS:HD2  | 1.61        | 0.66     |
| 3:D:175:LEU:CD1  | 3:D:179:GLU:CB   | 2.67        | 0.66     |
| 4:E:224:GLY:O    | 4:E:225:LYS:CB   | 2.44        | 0.66     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:E:295:LEU:CD2  | 4:E:296:VAL:N     | 2.59        | 0.66     |
| 5:F:202:THR:HG22 | 5:F:203:ALA:N     | 2.10        | 0.66     |
| 5:F:244:ALA:HB3  | 5:F:245:GLU:OE2   | 1.96        | 0.66     |
| 5:F:56:THR:HG22  | 5:F:57:PRO:HD3    | 1.76        | 0.66     |
| 7:H:95:ALA:O     | 7:H:127:GLN:CB    | 2.44        | 0.66     |
| 11:P:130:ARG:CA  | 11:P:133:VAL:CG2  | 2.74        | 0.66     |
| 12:Q:35:ASN:HB3  | 12:Q:75:SER:CB    | 2.26        | 0.66     |
| 13:S:12:ARG:HD2  | 13:S:20:TYR:OH    | 1.93        | 0.66     |
| 13:S:58:LEU:O    | 13:S:60:SER:N     | 2.29        | 0.66     |
| 2:A:2320:A:N6    | 13:S:9:PRO:HG3    | 2.03        | 0.66     |
| 2:A:814:C:OP1    | 21:V:84:THR:HG22  | 1.94        | 0.66     |
| 15:W:19:LEU:HD13 | 26:5:25:LEU:CG    | 2.25        | 0.66     |
| 18:Z:172:LEU:C   | 18:Z:172:LEU:HD23 | 2.13        | 0.66     |
| 18:Z:13:LYS:O    | 18:Z:36:ARG:CZ    | 2.43        | 0.66     |
| 18:Z:85:MET:C    | 18:Z:86:VAL:HG23  | 2.15        | 0.66     |
| 9:N:10:VAL:CB    | 9:N:36:VAL:CA     | 2.64        | 0.66     |
| 2:A:1080:C:O3'   | 31:K:126:LYS:CB   | 2.43        | 0.66     |
| 2:A:1081:U:P     | 31:K:126:LYS:HD2  | 2.33        | 0.66     |
| 22:2:13:PRO:O    | 22:2:14:ALA:C     | 2.33        | 0.66     |
| 2:A:1404:C:HO3'  | 2:A:1405:U:P      | 2.18        | 0.66     |
| 18:Z:96:VAL:HG12 | 18:Z:97:PRO:CD    | 2.20        | 0.66     |
| 24:0:61:ALA:HB2  | 24:0:81:ILE:HD11  | 1.69        | 0.66     |
| 24:0:37:LEU:HD13 | 24:0:70:ILE:CD1   | 2.22        | 0.66     |
| 30:9:7:VAL:HG23  | 30:9:36:GLN:CG    | 2.26        | 0.66     |
| 2:A:1139:G:OP1   | 9:N:46:ILE:HG21   | 1.92        | 0.66     |
| 2:A:2344:U:C3'   | 2:A:2345:G:OP2    | 2.43        | 0.66     |
| 2:A:2349:G:C6    | 2:A:2350:C:C6     | 2.83        | 0.66     |
| 2:A:2356:C:C2'   | 2:A:2357:U:H5'    | 2.26        | 0.66     |
| 2:A:2411:A:C2    | 2:A:2412:A:C6     | 2.83        | 0.66     |
| 2:A:2246:G:C1'   | 2:A:2426:A:C2     | 2.79        | 0.66     |
| 2:A:2574:G:N7    | 2:A:2575:C:C5     | 2.40        | 0.66     |
| 2:A:2597:G:C4    | 2:A:2598:A:N7     | 2.64        | 0.66     |
| 2:A:2605:U:H6    | 2:A:2605:U:O5'    | 1.79        | 0.66     |
| 2:A:2620:C:O2'   | 2:A:2621:A:O4'    | 2.14        | 0.66     |
| 2:A:2624:G:H8    | 2:A:2624:G:O5'    | 1.78        | 0.66     |
| 2:A:2657:A:C5    | 2:A:2658:C:C5     | 2.79        | 0.66     |
| 2:A:2725:A:C4    | 2:A:2727:G:C8     | 2.84        | 0.66     |
| 2:A:2639:A:C4    | 2:A:2778:A:C2     | 2.84        | 0.66     |
| 2:A:2801:A:H2    | 2:A:2895:U:H1'    | 1.61        | 0.66     |
| 2:A:28:A:HO2'    | 2:A:582:G:HO2'    | 1.39        | 0.66     |
| 2:A:458:G:H3'    | 28:7:39:ARG:HB2   | 1.77        | 0.66     |
| 3:D:146:LYS:CB   | 3:D:149:ARG:CG    | 2.74        | 0.66     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:D:71:ASP:C     | 3:D:73:ILE:HG13   | 2.17        | 0.66     |
| 4:E:199:ALA:O    | 4:E:200:ASP:OD1   | 2.14        | 0.66     |
| 4:E:315:VAL:CG1  | 4:E:316:ARG:N     | 2.59        | 0.66     |
| 2:A:2304:G:O4'   | 6:G:105:SER:CB    | 2.38        | 0.66     |
| 6:G:29:HIS:CG    | 6:G:29:HIS:O      | 2.47        | 0.66     |
| 10:O:43:VAL:HG12 | 10:O:45:ASP:N     | 2.10        | 0.66     |
| 11:P:101:ASP:O   | 11:P:102:ASP:CB   | 2.43        | 0.66     |
| 12:Q:142:LYS:CG  | 12:Q:143:VAL:N    | 2.05        | 0.66     |
| 2:A:2485:G:C4'   | 12:Q:144:THR:HG22 | 2.25        | 0.66     |
| 13:S:30:GLY:O    | 13:S:31:LYS:HE3   | 1.94        | 0.66     |
| 13:S:87:LEU:HA   | 13:S:90:LEU:HD12  | 1.78        | 0.66     |
| 21:V:67:LYS:CE   | 21:V:94:LYS:HD2   | 2.24        | 0.66     |
| 18:Z:116:VAL:CB  | 18:Z:169:VAL:CG2  | 2.73        | 0.66     |
| 8:I:89:LEU:HD11  | 8:I:93:ILE:HG22   | 1.59        | 0.66     |
| 2:A:1081:U:O2'   | 31:K:117:ASN:CB   | 2.43        | 0.66     |
| 22:2:51:LYS:O    | 22:2:54:ALA:HB3   | 1.96        | 0.66     |
| 2:A:1833:U:H2'   | 2:A:1834:U:H6     | 1.60        | 0.66     |
| 22:2:39:ALA:O    | 22:2:40:PRO:O     | 2.13        | 0.66     |
| 8:I:63:ALA:O     | 8:I:67:LYS:HE2    | 1.96        | 0.66     |
| 7:H:28:PRO:HG2   | 7:H:79:SER:HA     | 1.78        | 0.66     |
| 23:3:18:ASP:O    | 23:3:19:GLN:C     | 2.35        | 0.66     |
| 25:4:39:VAL:HG12 | 25:4:39:VAL:O     | 1.95        | 0.66     |
| 25:4:41:PRO:CB   | 25:4:57:ASP:CB    | 2.73        | 0.66     |
| 27:6:46:LYS:HA   | 27:6:46:LYS:CE    | 2.22        | 0.66     |
| 30:9:10:MET:HE3  | 30:9:10:MET:HA    | 1.77        | 0.66     |
| 2:A:1156:A:H8    | 20:U:55:ARG:NH2   | 1.88        | 0.66     |
| 2:A:2322:A:N3    | 2:A:2323:G:H8     | 1.89        | 0.66     |
| 2:A:2370:G:H2'   | 2:A:2371:G:C8     | 2.31        | 0.66     |
| 2:A:2343:C:H4'   | 2:A:2373:G:O3'    | 1.96        | 0.66     |
| 2:A:2498:C:OP1   | 2:A:2498:C:H3'    | 1.96        | 0.66     |
| 2:A:2604:U:H2'   | 2:A:2605:U:C6     | 2.31        | 0.66     |
| 2:A:2741:A:OP2   | 2:A:2742:C:H5     | 1.79        | 0.66     |
| 2:A:575:A:H2'    | 2:A:576:U:C6      | 2.31        | 0.66     |
| 2:A:856:C:C4'    | 24:0:25:LYS:NZ    | 2.59        | 0.66     |
| 3:D:144:GLU:OE1  | 3:D:144:GLU:O     | 2.13        | 0.66     |
| 3:D:172:ILE:HG13 | 3:D:182:MET:CE    | 2.26        | 0.66     |
| 3:D:131:LEU:CD1  | 3:D:187:CYS:HB2   | 2.26        | 0.66     |
| 4:E:198:TYR:CD2  | 4:E:265:ASN:C     | 2.69        | 0.66     |
| 4:E:269:ILE:CG2  | 4:E:297:LYS:NZ    | 2.47        | 0.66     |
| 4:E:62:ARG:C     | 4:E:63:GLU:CG     | 2.59        | 0.66     |
| 4:E:70:VAL:CG1   | 4:E:296:VAL:CB    | 2.72        | 0.66     |
| 5:F:165:ASP:O    | 5:F:166:ILE:C     | 2.34        | 0.66     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:F:167:ASP:CB   | 5:F:232:LEU:N     | 2.59        | 0.66     |
| 5:F:242:GLU:O    | 5:F:246:ARG:HG3   | 1.96        | 0.66     |
| 6:G:49:PRO:CG    | 6:G:72:LYS:C      | 2.63        | 0.66     |
| 8:I:13:GLY:HA2   | 8:I:15:LYS:HZ1    | 1.57        | 0.66     |
| 9:N:65:ASN:CA    | 9:N:68:GLY:O      | 2.44        | 0.66     |
| 10:O:19:VAL:HG13 | 10:O:42:THR:C     | 2.16        | 0.66     |
| 12:Q:89:PRO:HA   | 12:Q:113:ALA:CB   | 2.26        | 0.66     |
| 12:Q:27:GLY:O    | 12:Q:28:ILE:CG1   | 2.44        | 0.66     |
| 19:R:97:VAL:CA   | 19:R:114:VAL:HG13 | 2.26        | 0.66     |
| 13:S:119:GLN:O   | 13:S:120:GLU:C    | 2.33        | 0.66     |
| 13:S:53:ASN:C    | 13:S:55:ASP:N     | 2.48        | 0.66     |
| 13:S:80:SER:O    | 13:S:81:ALA:C     | 2.34        | 0.66     |
| 20:U:40:LEU:HD22 | 20:U:40:LEU:H     | 1.60        | 0.66     |
| 15:W:47:VAL:O    | 15:W:51:LEU:HD13  | 1.96        | 0.66     |
| 17:Y:55:PHE:CG   | 17:Y:89:ARG:NH1   | 2.64        | 0.66     |
| 18:Z:176:LEU:CD2 | 18:Z:176:LEU:C    | 2.64        | 0.66     |
| 18:Z:40:ASP:OD2  | 18:Z:41:ARG:NH1   | 2.28        | 0.66     |
| 2:A:1791:A:O2'   | 3:D:204:PHE:O     | 2.13        | 0.66     |
| 2:A:1063:G:H5'   | 31:K:88:GLY:HA3   | 1.78        | 0.66     |
| 2:A:1470:G:H2'   | 2:A:1519:G:O6     | 1.95        | 0.66     |
| 25:4:59:PHE:H    | 25:4:62:ARG:HE    | 1.41        | 0.65     |
| 2:A:593:G:O2'    | 29:8:58:MET:CE    | 2.43        | 0.65     |
| 2:A:2273:A:N7    | 2:A:2274:A:C5     | 2.64        | 0.65     |
| 2:A:2278:A:H2'   | 2:A:2279:G:O5'    | 1.96        | 0.65     |
| 2:A:2322:A:C2    | 2:A:2323:G:C8     | 2.73        | 0.65     |
| 2:A:2355:C:C4    | 2:A:2356:C:N4     | 2.64        | 0.65     |
| 2:A:2372:G:H5''  | 2:A:2372:G:H8     | 1.61        | 0.65     |
| 2:A:2391:G:HO2'  | 2:A:2392:A:P      | 2.16        | 0.65     |
| 2:A:2416:C:C2    | 2:A:2417:C:C6     | 2.84        | 0.65     |
| 2:A:2452:C:N4    | 2:A:2453:A:C6     | 2.64        | 0.65     |
| 2:A:2447:G:N7    | 2:A:2500:U:C5     | 2.64        | 0.65     |
| 2:A:2721:A:C4    | 2:A:2722:G:N7     | 2.63        | 0.65     |
| 2:A:2862:G:N2    | 2:A:2863:C:C2     | 2.65        | 0.65     |
| 2:A:2869:G:C2    | 2:A:2870:C:C5     | 2.81        | 0.65     |
| 2:A:397:G:OP1    | 25:4:40:HIS:C     | 2.35        | 0.65     |
| 2:A:959:A:H2'    | 2:A:960:A:C8      | 2.31        | 0.65     |
| 2:A:997:G:OP1    | 20:U:92:ARG:HD2   | 1.97        | 0.65     |
| 3:D:179:GLU:O    | 3:D:180:VAL:HG22  | 1.96        | 0.65     |
| 3:D:90:ILE:HG21  | 3:D:102:TYR:C     | 2.17        | 0.65     |
| 4:E:176:HIS:O    | 4:E:179:ASP:N     | 2.29        | 0.65     |
| 5:F:103:ASN:CB   | 5:F:106:GLU:CG    | 2.68        | 0.65     |
| 5:F:197:SER:O    | 5:F:198:ASP:HB2   | 1.96        | 0.65     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:223:LEU:CA   | 5:F:231:ARG:HD2  | 2.25        | 0.65     |
| 7:H:101:LYS:HG2  | 7:H:115:GLU:HB2  | 1.62        | 0.65     |
| 7:H:116:PRO:HB2  | 7:H:120:LEU:C    | 2.16        | 0.65     |
| 8:I:22:ALA:O     | 8:I:25:TYR:HB2   | 1.96        | 0.65     |
| 8:I:7:LYS:CD     | 8:I:12:LYS:CG    | 2.58        | 0.65     |
| 10:O:14:SER:CB   | 10:O:86:ILE:CD1  | 2.70        | 0.65     |
| 10:O:25:LEU:HD21 | 10:O:40:VAL:N    | 2.11        | 0.65     |
| 11:P:94:ARG:HD2  | 11:P:120:LEU:HA  | 1.77        | 0.65     |
| 12:Q:102:ARG:O   | 12:Q:104:PRO:CD  | 2.43        | 0.65     |
| 12:Q:88:PHE:O    | 12:Q:90:PHE:HE1  | 1.76        | 0.65     |
| 13:S:34:LEU:HD21 | 13:S:102:LEU:HG  | 1.77        | 0.65     |
| 13:S:75:THR:O    | 13:S:76:GLY:C    | 2.35        | 0.65     |
| 20:U:34:ASN:HA   | 20:U:37:GLN:CB   | 2.21        | 0.65     |
| 21:V:11:GLN:HE21 | 21:V:22:VAL:HG21 | 1.59        | 0.65     |
| 15:W:106:ILE:CG2 | 15:W:107:LEU:N   | 2.59        | 0.65     |
| 17:Y:19:ARG:C    | 17:Y:67:LEU:HD22 | 2.16        | 0.65     |
| 18:Z:53:ASP:HB2  | 18:Z:62:PHE:O    | 1.95        | 0.65     |
| 8:I:68:LEU:CB    | 8:I:72:LEU:HD21  | 2.26        | 0.65     |
| 16:X:25:GLN:N    | 16:X:25:GLN:CD   | 2.47        | 0.65     |
| 2:A:2896:C:H6    | 2:A:2896:C:C5'   | 2.08        | 0.65     |
| 2:A:1425:G:O2'   | 2:A:1573:G:N2    | 2.29        | 0.65     |
| 26:5:10:LYS:HG3  | 26:5:11:THR:O    | 1.95        | 0.65     |
| 27:6:14:SER:HB3  | 27:6:52:GLU:CA   | 2.14        | 0.65     |
| 27:6:16:ALA:O    | 27:6:18:THR:N    | 2.29        | 0.65     |
| 27:6:44:ALA:O    | 27:6:45:LYS:C    | 2.35        | 0.65     |
| 28:7:27:GLY:O    | 28:7:31:LEU:CG   | 2.41        | 0.65     |
| 2:A:199:A:N6     | 2:A:2434:A:C6    | 2.65        | 0.65     |
| 2:A:2246:G:N3    | 2:A:2247:A:C8    | 2.64        | 0.65     |
| 2:A:2373:G:C2    | 2:A:2374:C:N3    | 2.64        | 0.65     |
| 2:A:2458:G:N7    | 2:A:2490:G:C6    | 2.64        | 0.65     |
| 2:A:2615:U:C2'   | 2:A:2616:C:H5'   | 2.27        | 0.65     |
| 2:A:2666:C:OP2   | 2:A:2667:C:H5    | 1.78        | 0.65     |
| 2:A:2698:U:H2'   | 2:A:2698:U:O2    | 1.94        | 0.65     |
| 2:A:2712:U:C4    | 2:A:712(A):A:N7  | 2.64        | 0.65     |
| 2:A:2748:A:N7    | 2:A:2749:A:N1    | 2.44        | 0.65     |
| 2:A:2839:G:N2    | 2:A:2840:C:C2    | 2.65        | 0.65     |
| 2:A:910:A:N6     | 12:Q:12:PRO:CA   | 2.59        | 0.65     |
| 2:A:987:G:P      | 23:3:15:TYR:OH   | 2.54        | 0.65     |
| 3:D:123:ILE:O    | 3:D:124:LYS:C    | 2.34        | 0.65     |
| 3:D:93:ILE:O     | 3:D:93:ILE:HG23  | 1.95        | 0.65     |
| 4:E:193:PHE:CZ   | 4:E:199:ALA:HB2  | 2.30        | 0.65     |
| 4:E:70:VAL:HG11  | 4:E:295:LEU:HD23 | 1.78        | 0.65     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:33:LYS:O     | 5:F:34:ALA:C     | 2.31        | 0.65     |
| 8:I:19:LYS:O     | 8:I:21:VAL:N     | 2.28        | 0.65     |
| 9:N:23:ALA:CA    | 9:N:26:VAL:CG2   | 2.75        | 0.65     |
| 11:P:65:ASP:HB2  | 11:P:109:LEU:CB  | 2.06        | 0.65     |
| 19:R:32:GLY:O    | 19:R:33:ARG:CB   | 2.44        | 0.65     |
| 19:R:85:PRO:O    | 19:R:88:ARG:N    | 2.29        | 0.65     |
| 20:U:95:LEU:O    | 20:U:98:ILE:HD13 | 1.95        | 0.65     |
| 21:V:44:GLN:N    | 21:V:44:GLN:NE2  | 2.42        | 0.65     |
| 18:Z:22:VAL:O    | 18:Z:83:PHE:HB2  | 1.96        | 0.65     |
| 8:I:133:LEU:H    | 8:I:138:THR:CB   | 2.09        | 0.65     |
| 2:A:1789:A:O3'   | 3:D:224:VAL:CG1  | 2.38        | 0.65     |
| 22:2:6:GLN:O     | 22:2:7:GLU:C     | 2.33        | 0.65     |
| 16:X:13:LYS:HD3  | 16:X:13:LYS:N    | 2.10        | 0.65     |
| 2:A:265:A:N1     | 2:A:281:G:OP1    | 2.29        | 0.65     |
| 2:A:299:A:O2'    | 2:A:319:C:H4'    | 1.96        | 0.65     |
| 24:0:48:GLY:O    | 24:0:55:ARG:HA   | 1.96        | 0.65     |
| 25:4:41:PRO:HB3  | 25:4:59:PHE:CE1  | 2.27        | 0.65     |
| 28:7:34:ARG:HH11 | 28:7:42:LEU:CA   | 1.97        | 0.65     |
| 29:8:41:ILE:C    | 29:8:43:GLY:N    | 2.31        | 0.65     |
| 2:A:1151:G:C1'   | 20:U:81:ASN:ND2  | 2.53        | 0.65     |
| 2:A:1140:C:H4'   | 2:A:142(A):A:C6  | 2.31        | 0.65     |
| 2:A:2242:G:C6    | 2:A:2243:U:C5    | 2.84        | 0.65     |
| 2:A:2320:A:N7    | 13:S:9:PRO:HB3   | 2.11        | 0.65     |
| 2:A:2411:A:C2    | 2:A:2412:A:N7    | 2.64        | 0.65     |
| 2:A:2411:A:H2    | 2:A:2412:A:C6    | 2.15        | 0.65     |
| 2:A:2484:G:C2'   | 2:A:2485:G:O5'   | 2.41        | 0.65     |
| 2:A:2497:A:C2'   | 2:A:2498:C:OP2   | 2.44        | 0.65     |
| 2:A:2573:C:H6    | 2:A:2573:C:O5'   | 1.79        | 0.65     |
| 2:A:2677:G:H2'   | 2:A:2678:C:O5'   | 1.96        | 0.65     |
| 2:A:2731:G:N1    | 2:A:2732:G:N1    | 2.45        | 0.65     |
| 2:A:2779:U:C4'   | 2:A:2781:A:N7    | 2.59        | 0.65     |
| 3:D:77:VAL:HG21  | 3:D:109:LEU:HB3  | 1.78        | 0.65     |
| 4:E:206:LYS:C    | 4:E:257:GLY:O    | 2.34        | 0.65     |
| 4:E:73:ILE:O     | 4:E:293:TYR:HD2  | 1.80        | 0.65     |
| 4:E:315:VAL:O    | 4:E:316:ARG:C    | 2.34        | 0.65     |
| 5:F:223:LEU:C    | 5:F:225:PRO:CD   | 2.65        | 0.65     |
| 2:A:2748:A:O2'   | 7:H:62:ALA:CA    | 2.44        | 0.65     |
| 9:N:138:THR:CB   | 9:N:139:LEU:HD13 | 2.25        | 0.65     |
| 2:A:1137:G:H21   | 9:N:86:MET:CE    | 2.09        | 0.65     |
| 10:O:71:ARG:C    | 10:O:73:ASP:H    | 2.00        | 0.65     |
| 11:P:62:ALA:HB3  | 11:P:105:TYR:C   | 2.14        | 0.65     |
| 12:Q:45:GLN:OE1  | 12:Q:153:PRO:CG  | 2.45        | 0.65     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:R:45:ARG:HD3  | 19:R:97:VAL:CG2   | 2.25        | 0.65     |
| 13:S:31:LYS:CG   | 13:S:99:GLU:O     | 2.41        | 0.65     |
| 2:A:446:G:C3'    | 20:U:5:LYS:HZ1    | 2.03        | 0.65     |
| 20:U:98:ILE:HG22 | 20:U:106:PHE:HD1  | 1.62        | 0.65     |
| 15:W:24:ILE:CG2  | 15:W:32:ALA:HB1   | 2.26        | 0.65     |
| 15:W:68:ARG:HH21 | 15:W:110:LYS:HG3  | 1.61        | 0.65     |
| 17:Y:27:LEU:HD23 | 17:Y:98:VAL:CG1   | 2.26        | 0.65     |
| 17:Y:30:ASP:CB   | 17:Y:31:LEU:HD23  | 2.25        | 0.65     |
| 8:I:68:LEU:HD22  | 8:I:72:LEU:HD21   | 1.79        | 0.65     |
| 16:X:9:HIS:HB2   | 16:X:26:PHE:CA    | 2.25        | 0.65     |
| 2:A:1183:G:H5''  | 23:3:29:ARG:HG3   | 1.79        | 0.65     |
| 2:A:2015:A:H8    | 2:A:2016:U:C6     | 2.15        | 0.65     |
| 2:A:2208:U:H2'   | 2:A:2209:C:C6     | 2.31        | 0.65     |
| 2:A:24:G:O3'     | 15:W:102:HIS:NE2  | 2.29        | 0.65     |
| 2:A:2548:G:H2'   | 2:A:2549:G:C5'    | 2.26        | 0.65     |
| 2:A:2633:G:H2'   | 2:A:2634:G:H8     | 1.60        | 0.65     |
| 2:A:2817:G:C6    | 2:A:2818:G:C5     | 2.85        | 0.65     |
| 2:A:496:G:H1'    | 15:W:61:ASN:HD22  | 1.62        | 0.65     |
| 2:A:904:C:C1'    | 18:Z:166:LEU:HD21 | 2.26        | 0.65     |
| 2:A:997:G:OP1    | 20:U:92:ARG:HB2   | 1.97        | 0.65     |
| 3:D:129:LEU:HD22 | 3:D:130:PRO:HD2   | 1.78        | 0.65     |
| 3:D:133:ASN:C    | 3:D:134:ILE:HG13  | 2.16        | 0.65     |
| 3:D:152:GLN:O    | 3:D:153:LEU:CB    | 2.44        | 0.65     |
| 3:D:175:LEU:HB2  | 3:D:179:GLU:H     | 1.60        | 0.65     |
| 2:A:2785:C:C2'   | 4:E:100:TRP:CD1   | 2.59        | 0.65     |
| 4:E:45:LYS:HE3   | 4:E:303:PRO:CB    | 2.22        | 0.65     |
| 4:E:86:TYR:O     | 4:E:94:ARG:O      | 2.15        | 0.65     |
| 6:G:38:GLU:OE2   | 6:G:71:ALA:HA     | 1.97        | 0.65     |
| 7:H:119:GLY:O    | 7:H:121:GLU:CD    | 2.34        | 0.65     |
| 7:H:84:LYS:O     | 7:H:131:ILE:CB    | 2.45        | 0.65     |
| 9:N:38:VAL:HG12  | 9:N:39:VAL:N      | 2.10        | 0.65     |
| 9:N:94:GLY:O     | 9:N:95:ARG:C      | 2.34        | 0.65     |
| 10:O:112:MET:O   | 10:O:113:LYS:C    | 2.33        | 0.65     |
| 11:P:67:ARG:NH1  | 11:P:111:ALA:CA   | 2.59        | 0.65     |
| 11:P:76:LEU:HG   | 11:P:81:VAL:HG23  | 1.79        | 0.65     |
| 12:Q:36:ASN:HD21 | 18:Z:116:VAL:CG1  | 2.09        | 0.65     |
| 19:R:20:LEU:CD2  | 19:R:24:GLN:HG3   | 2.27        | 0.65     |
| 20:U:95:LEU:CA   | 20:U:98:ILE:HD13  | 2.25        | 0.65     |
| 20:U:98:ILE:O    | 20:U:100:ALA:CA   | 2.43        | 0.65     |
| 15:W:29:LEU:O    | 15:W:30:GLU:C     | 2.30        | 0.65     |
| 2:A:99:U:H3      | 17:Y:107:LYS:HD3  | 1.60        | 0.65     |
| 2:A:85:G:C5'     | 17:Y:65:VAL:HG12  | 2.25        | 0.65     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 8:I:124:LEU:HG   | 8:I:125:GLY:N     | 2.10        | 0.65     |
| 22:2:4:HIS:O     | 22:2:5:VAL:O      | 2.15        | 0.65     |
| 22:2:6:GLN:CA    | 22:2:9:ARG:HB3    | 2.25        | 0.65     |
| 8:I:63:ALA:HA    | 8:I:66:LYS:CE     | 2.26        | 0.65     |
| 2:A:1559:G:C6    | 2:A:1560:G:H4'    | 2.32        | 0.65     |
| 2:A:1358:G:N1    | 2:A:1371:G:H2'    | 2.11        | 0.65     |
| 1:B:15:A:H5'     | 1:B:16:G:N7       | 2.12        | 0.65     |
| 25:4:59:PHE:N    | 25:4:62:ARG:NE    | 2.45        | 0.65     |
| 28:7:35:ARG:HH11 | 28:7:35:ARG:HB3   | 1.61        | 0.65     |
| 2:A:1612:C:N1    | 28:7:3:ARG:NH2    | 2.44        | 0.65     |
| 29:8:31:HIS:O    | 29:8:32:GLN:CG    | 2.44        | 0.65     |
| 29:8:58:MET:HA   | 29:8:61:MET:HG2   | 1.79        | 0.65     |
| 2:A:747:U:O2     | 2:A:2015:A:H2     | 1.79        | 0.65     |
| 2:A:2247:A:O2'   | 2:A:2248:C:C5'    | 2.45        | 0.65     |
| 2:A:2317:C:C5    | 2:A:2318:G:N7     | 2.64        | 0.65     |
| 2:A:2356:C:O2'   | 2:A:2357:U:H5'    | 1.96        | 0.65     |
| 2:A:2386:C:O4'   | 24:0:39:ARG:NH2   | 2.30        | 0.65     |
| 2:A:2410:G:C2    | 2:A:2411:A:C8     | 2.83        | 0.65     |
| 2:A:2421:G:C5'   | 27:6:4:ASP:CG     | 2.64        | 0.65     |
| 2:A:2515:C:H2'   | 2:A:2515:C:O2     | 1.95        | 0.65     |
| 2:A:1953:A:N6    | 2:A:2550:G:H4'    | 2.10        | 0.65     |
| 2:A:2667:C:C2    | 2:A:2668:G:C8     | 2.84        | 0.65     |
| 2:A:2671:A:C2'   | 2:A:2672:G:O5'    | 2.44        | 0.65     |
| 2:A:2712:U:C5'   | 2:A:2714:G:O5'    | 2.42        | 0.65     |
| 2:A:2733:A:C2    | 4:E:318:ASN:HB2   | 2.31        | 0.65     |
| 2:A:2817:G:C2    | 2:A:2818:G:H1'    | 2.32        | 0.65     |
| 2:A:2859:G:C2'   | 2:A:2860:A:H5'    | 2.27        | 0.65     |
| 2:A:527:C:H6     | 2:A:2779:U:C6     | 2.14        | 0.65     |
| 3:D:125:ILE:HG22 | 3:D:126:GLY:N     | 2.11        | 0.65     |
| 4:E:198:TYR:CE1  | 4:E:267:ARG:HB3   | 2.31        | 0.65     |
| 4:E:269:ILE:HD11 | 4:E:296:VAL:N     | 2.11        | 0.65     |
| 5:F:107:ARG:O    | 5:F:110:ALA:N     | 2.29        | 0.65     |
| 5:F:138:VAL:O    | 5:F:139:VAL:CG2   | 2.44        | 0.65     |
| 2:A:451:C:P      | 5:F:49:ASP:H      | 2.18        | 0.65     |
| 9:N:53:ILE:HG23  | 9:N:135:ILE:HD12  | 1.75        | 0.65     |
| 9:N:63:ILE:HD12  | 9:N:71:TYR:HE2    | 1.54        | 0.65     |
| 2:A:1138:G:OP1   | 9:N:82:THR:HG22   | 1.97        | 0.65     |
| 10:O:101:PRO:HB2 | 10:O:122:ILE:HD12 | 1.77        | 0.65     |
| 10:O:17:ARG:NE   | 10:O:47:THR:CA    | 2.60        | 0.65     |
| 11:P:94:ARG:CD   | 11:P:120:LEU:HA   | 2.27        | 0.65     |
| 12:Q:46:VAL:CG1  | 12:Q:124:ALA:O    | 2.42        | 0.65     |
| 12:Q:134:PHE:C   | 12:Q:137:ARG:HB3  | 2.16        | 0.65     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:85:ILE:CA   | 12:Q:122:PHE:CD2 | 2.79        | 0.65     |
| 19:R:61:HIS:O    | 19:R:62:ALA:C    | 2.34        | 0.65     |
| 13:S:122:ALA:O   | 13:S:125:ALA:CA  | 2.45        | 0.65     |
| 20:U:33:ARG:N    | 20:U:35:ALA:HB3  | 2.11        | 0.65     |
| 20:U:8:ILE:H     | 20:U:11:ARG:NH1  | 1.88        | 0.65     |
| 3:D:209:ASN:O    | 3:D:212:HIS:HB2  | 1.96        | 0.65     |
| 2:A:111:A:C4'    | 22:2:62:GLU:OE2  | 2.44        | 0.65     |
| 16:X:18:MET:CE   | 16:X:25:GLN:CB   | 2.74        | 0.65     |
| 24:0:23:VAL:HG12 | 24:0:26:PHE:HE1  | 1.60        | 0.65     |
| 23:3:31:LEU:HD22 | 23:3:32:GLN:HG3  | 1.77        | 0.65     |
| 23:3:48:GLU:HG2  | 23:3:49:LYS:N    | 2.10        | 0.65     |
| 25:4:23:GLU:O    | 25:4:24:THR:C    | 2.34        | 0.65     |
| 28:7:24:THR:O    | 28:7:28:ARG:CG   | 2.44        | 0.65     |
| 30:9:7:VAL:HG12  | 30:9:25:VAL:CG2  | 2.25        | 0.65     |
| 2:A:1152:C:C5'   | 20:U:80:ILE:HG22 | 2.20        | 0.65     |
| 2:A:2225:A:HO2'  | 2:A:2226:C:P     | 2.17        | 0.65     |
| 2:A:2297:C:O2'   | 2:A:2298:A:H5'   | 1.95        | 0.65     |
| 2:A:2511:U:H2'   | 2:A:2512:C:H6    | 1.62        | 0.65     |
| 2:A:2597:G:C5    | 2:A:2598:A:N6    | 2.65        | 0.65     |
| 2:A:2689:U:C5    | 2:A:2713:A:C6    | 2.83        | 0.65     |
| 2:A:2748:A:H2    | 2:A:2758:A:N7    | 1.95        | 0.65     |
| 2:A:2784:C:C2    | 4:E:98:GLU:OE1   | 2.49        | 0.65     |
| 2:A:2870:C:O2    | 2:A:2871:C:H6    | 1.79        | 0.65     |
| 3:D:198:GLY:C    | 3:D:200:THR:HG23 | 2.15        | 0.65     |
| 2:A:780:G:O6     | 3:D:233:ASP:OD1  | 2.15        | 0.65     |
| 2:A:2512:C:H5''  | 4:E:219:VAL:HG13 | 1.76        | 0.65     |
| 5:F:140:VAL:O    | 5:F:140:VAL:HG12 | 1.95        | 0.65     |
| 6:G:74:THR:O     | 6:G:75:LEU:CG    | 2.41        | 0.65     |
| 7:H:130:ILE:O    | 7:H:131:ILE:CG2  | 2.40        | 0.65     |
| 9:N:63:ILE:CG2   | 9:N:71:TYR:CZ    | 2.79        | 0.65     |
| 11:P:92:ASP:CB   | 11:P:118:LEU:CD1 | 2.42        | 0.65     |
| 2:A:2496:C:P     | 12:Q:101:MET:HE3 | 2.37        | 0.65     |
| 12:Q:76:GLY:O    | 12:Q:124:ALA:HA  | 1.97        | 0.65     |
| 12:Q:131:ALA:HA  | 12:Q:134:PHE:HE2 | 1.62        | 0.65     |
| 19:R:55:ALA:HB1  | 19:R:79:LEU:CD2  | 2.26        | 0.65     |
| 12:Q:42:TYR:CE2  | 18:Z:119:ASN:HA  | 2.31        | 0.65     |
| 18:Z:51:LEU:CD2  | 18:Z:51:LEU:C    | 2.62        | 0.65     |
| 2:A:59:U:O4'     | 2:A:73:A:C6      | 2.49        | 0.65     |
| 2:A:1525:G:HO3'  | 2:A:1526:G:P     | 2.20        | 0.65     |
| 2:A:1805:U:C5'   | 3:D:235:PRO:CG   | 2.74        | 0.65     |
| 24:0:28:GLY:H    | 24:0:60:PHE:HD2  | 0.71        | 0.65     |
| 2:A:142(A):A:OP2 | 2:A:1143:A:N7    | 2.30        | 0.65     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2446:G:N2    | 2:A:2501:C:C5    | 2.64        | 0.65     |
| 2:A:2595:G:C8    | 2:A:2595:G:H3'   | 2.32        | 0.65     |
| 2:A:2758:A:OP2   | 2:A:2758:A:C2'   | 2.45        | 0.65     |
| 2:A:2774:C:H2'   | 2:A:2775:A:H8    | 1.62        | 0.65     |
| 2:A:2783:G:N1    | 2:A:2784:C:C4    | 2.65        | 0.65     |
| 2:A:27:G:C2      | 2:A:512:G:H2'    | 2.31        | 0.65     |
| 2:A:29:U:H4'     | 20:U:11:ARG:NH2  | 2.10        | 0.65     |
| 2:A:326:G:N2     | 2:A:337:C:H1'    | 2.10        | 0.65     |
| 2:A:602:G:H2'    | 2:A:655:A:N1     | 2.11        | 0.65     |
| 2:A:658:C:O2'    | 5:F:103:ASN:ND2  | 2.30        | 0.65     |
| 3:D:73:ILE:CB    | 3:D:95:TYR:CE2   | 2.79        | 0.65     |
| 4:E:206:LYS:N    | 4:E:257:GLY:O    | 2.30        | 0.65     |
| 6:G:24:HIS:CB    | 6:G:72:LYS:HD3   | 2.27        | 0.65     |
| 9:N:83:ILE:HG13  | 9:N:84:ARG:CA    | 2.20        | 0.65     |
| 10:O:75:SER:C    | 10:O:76:TYR:CD1  | 2.67        | 0.65     |
| 19:R:105:ARG:N   | 19:R:105:ARG:CZ  | 2.59        | 0.65     |
| 20:U:68:GLY:O    | 20:U:69:ALA:C    | 2.33        | 0.65     |
| 21:V:33:VAL:HG23 | 21:V:63:HIS:HB2  | 1.79        | 0.65     |
| 15:W:23:LEU:HD13 | 15:W:35:ILE:HG21 | 1.77        | 0.65     |
| 17:Y:50:VAL:HG13 | 17:Y:95:ASN:HB3  | 1.79        | 0.65     |
| 17:Y:86:GLU:C    | 17:Y:87:VAL:HG23 | 2.16        | 0.65     |
| 18:Z:172:LEU:CD2 | 18:Z:173:PRO:HG2 | 2.26        | 0.65     |
| 18:Z:25:ASN:CA   | 18:Z:84:TYR:CE1  | 2.80        | 0.65     |
| 3:D:210:LYS:C    | 3:D:213:LYS:HB2  | 1.83        | 0.65     |
| 2:A:176:G:N3     | 2:A:177:G:H1'    | 2.12        | 0.65     |
| 2:A:1843:C:H2'   | 2:A:1844:C:C6    | 2.32        | 0.65     |
| 26:5:44:HIS:CB   | 26:5:52:TYR:OH   | 2.43        | 0.65     |
| 27:6:19:GLY:O    | 27:6:20:PHE:CB   | 2.44        | 0.65     |
| 27:6:47:HIS:O    | 27:6:48:VAL:CB   | 2.45        | 0.65     |
| 30:9:14:CYS:N    | 30:9:27:CYS:HB2  | 2.12        | 0.65     |
| 30:9:4:ARG:HA    | 30:9:36:GLN:CA   | 2.16        | 0.65     |
| 2:A:1287:A:C8    | 19:R:104:ARG:HG2 | 2.31        | 0.65     |
| 2:A:1366:A:H8    | 2:A:1366:A:OP2   | 1.79        | 0.65     |
| 2:A:2191:G:C2    | 2:A:2192:G:H1'   | 2.31        | 0.65     |
| 2:A:2206:C:H2'   | 2:A:2207:C:O4'   | 1.97        | 0.65     |
| 2:A:2090:G:C2    | 2:A:2230:G:O6    | 2.48        | 0.65     |
| 2:A:2242:G:C5    | 2:A:2243:U:C5    | 2.83        | 0.65     |
| 2:A:965:C:O2'    | 2:A:2273:A:H2    | 1.79        | 0.65     |
| 2:A:2635:C:N3    | 2:A:2783:G:N2    | 2.43        | 0.65     |
| 2:A:2637:U:C5    | 2:A:2638:G:C5    | 2.84        | 0.65     |
| 2:A:2684:U:N3    | 2:A:2725:A:N6    | 2.44        | 0.65     |
| 2:A:2816:C:H6    | 2:A:2816:C:H5'   | 1.60        | 0.65     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:129:LEU:C    | 3:D:188:ARG:HG2  | 2.17        | 0.65     |
| 3:D:141:HIS:HE1  | 3:D:191:VAL:C    | 1.99        | 0.65     |
| 2:A:2770:G:C1'   | 4:E:316:ARG:HH22 | 2.07        | 0.65     |
| 4:E:45:LYS:CE    | 4:E:303:PRO:C    | 2.65        | 0.65     |
| 5:F:56:THR:CB    | 5:F:57:PRO:HD2   | 2.24        | 0.65     |
| 1:B:42:C:C2'     | 6:G:47:GLN:HA    | 2.26        | 0.65     |
| 8:I:12:LYS:O     | 8:I:14:LYS:N     | 2.29        | 0.65     |
| 8:I:28:ASN:O     | 8:I:32:LYS:CB    | 2.44        | 0.65     |
| 9:N:21:ARG:CA    | 9:N:24:SER:HB3   | 2.25        | 0.65     |
| 9:N:38:VAL:C     | 9:N:39:VAL:HG13  | 2.11        | 0.65     |
| 12:Q:75:SER:O    | 12:Q:129:ASP:OD2 | 2.15        | 0.65     |
| 12:Q:85:ILE:HA   | 12:Q:122:PHE:CB  | 2.26        | 0.65     |
| 13:S:83:LEU:O    | 13:S:84:THR:C    | 2.35        | 0.65     |
| 2:A:1161:C:H4'   | 21:V:8:GLY:HA3   | 1.79        | 0.65     |
| 15:W:13:SER:HB3  | 15:W:16:LYS:HD2  | 1.78        | 0.65     |
| 17:Y:31:LEU:HD13 | 17:Y:101:LEU:HB3 | 1.77        | 0.65     |
| 22:2:20:LEU:HD22 | 22:2:53:ILE:HG23 | 1.79        | 0.65     |
| 22:2:6:GLN:O     | 22:2:9:ARG:CB    | 2.44        | 0.65     |
| 16:X:28:VAL:HG23 | 16:X:62:LYS:CB   | 2.27        | 0.65     |
| 2:A:1805:U:H5'   | 3:D:235:PRO:HB3  | 1.71        | 0.65     |
| 8:I:65:ALA:HB1   | 8:I:134:HIS:CB   | 2.25        | 0.65     |
| 24:0:33:ALA:HB2  | 24:0:65:GLY:HA3  | 1.79        | 0.65     |
| 19:R:101:ALA:C   | 26:5:41:LEU:HD12 | 2.16        | 0.65     |
| 28:7:11:LYS:O    | 28:7:12:ARG:C    | 2.36        | 0.65     |
| 2:A:1658:C:H5''  | 4:E:230:GLY:HA3  | 1.79        | 0.65     |
| 2:A:2041:U:C2'   | 2:A:2042:A:H5'   | 2.27        | 0.65     |
| 2:A:2100:G:C5    | 2:A:2190:G:C6    | 2.83        | 0.65     |
| 2:A:2396:G:P     | 25:4:28:ARG:NH1  | 2.70        | 0.65     |
| 2:A:2428:G:O2'   | 2:A:2429:G:N7    | 2.27        | 0.65     |
| 2:A:1782:C:N3    | 2:A:2609:U:C5    | 2.42        | 0.65     |
| 2:A:2622:C:H2'   | 2:A:2623:G:H8    | 1.61        | 0.65     |
| 2:A:2666:C:H2'   | 2:A:2667:C:H5'   | 1.76        | 0.65     |
| 2:A:2799:A:O2'   | 2:A:2802:G:N1    | 2.26        | 0.65     |
| 2:A:2887:U:H2'   | 2:A:2888:C:C6    | 2.22        | 0.65     |
| 2:A:396:G:C1'    | 25:4:39:VAL:CG1  | 2.74        | 0.65     |
| 3:D:76:ARG:HA    | 3:D:114:GLU:H    | 1.61        | 0.65     |
| 3:D:158:GLY:CA   | 3:D:194:VAL:HG13 | 2.10        | 0.65     |
| 4:E:45:LYS:HZ3   | 4:E:302:GLY:N    | 1.94        | 0.65     |
| 5:F:111:VAL:HA   | 5:F:220:THR:CG2  | 2.24        | 0.65     |
| 7:H:147:ILE:HA   | 7:H:150:VAL:CB   | 2.27        | 0.65     |
| 7:H:104:LEU:CA   | 7:H:151:ARG:NH1  | 2.60        | 0.65     |
| 8:I:7:LYS:HG3    | 8:I:12:LYS:HA    | 1.73        | 0.65     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:N:135:ILE:O    | 9:N:136:SER:O     | 2.14        | 0.65     |
| 9:N:136:SER:O    | 9:N:139:LEU:HD22  | 1.97        | 0.65     |
| 10:O:13:ASN:C    | 10:O:15:GLY:N     | 2.51        | 0.65     |
| 10:O:66:LYS:CG   | 10:O:82:ASN:HD21  | 1.95        | 0.65     |
| 10:O:90:ASP:O    | 10:O:91:LYS:C     | 2.34        | 0.65     |
| 12:Q:142:LYS:HE3 | 12:Q:142:LYS:C    | 2.17        | 0.65     |
| 12:Q:47:GLU:OE1  | 12:Q:150:ASP:O    | 2.13        | 0.65     |
| 13:S:58:LEU:O    | 13:S:59:ALA:C     | 2.35        | 0.65     |
| 2:A:1161:C:C1'   | 21:V:8:GLY:O      | 2.45        | 0.65     |
| 15:W:17:VAL:O    | 15:W:20:VAL:CB    | 2.45        | 0.65     |
| 15:W:36:LEU:HD13 | 15:W:47:VAL:HB    | 1.79        | 0.65     |
| 18:Z:159:THR:C   | 18:Z:160:LEU:HD13 | 2.07        | 0.65     |
| 18:Z:172:LEU:O   | 18:Z:174:PRO:HD3  | 1.97        | 0.65     |
| 2:A:1944:U:O4'   | 2:A:1955:U:H1'    | 1.97        | 0.65     |
| 3:D:169:LYS:H    | 3:D:169:LYS:HZ3   | 1.44        | 0.65     |
| 2:A:396:G:OP1    | 25:4:10:VAL:HA    | 1.97        | 0.65     |
| 27:6:12:MET:CA   | 27:6:13:GLU:OE1   | 2.44        | 0.65     |
| 27:6:32:GLN:CA   | 27:6:35:LEU:CD1   | 2.62        | 0.65     |
| 2:A:1135:C:H2'   | 2:A:1136:G:H8     | 1.62        | 0.65     |
| 2:A:125:G:C4'    | 28:7:19:ARG:NH1   | 2.56        | 0.65     |
| 2:A:1753:G:OP1   | 14:T:51:TRP:HZ3   | 1.79        | 0.65     |
| 2:A:1800:C:C3'   | 2:A:1800:C:C6     | 2.79        | 0.65     |
| 2:A:2305:A:C3'   | 2:A:2306:C:C5'    | 2.64        | 0.65     |
| 2:A:2311:A:C2    | 6:G:53:LYS:NZ     | 2.65        | 0.65     |
| 2:A:2327:A:C6    | 2:A:2328:A:C2     | 2.85        | 0.65     |
| 2:A:2358:G:C2'   | 2:A:2358:G:N3     | 2.60        | 0.65     |
| 2:A:2416:C:OP1   | 11:P:51:PHE:CD2   | 2.46        | 0.65     |
| 2:A:2431:U:O2    | 2:A:2433:A:C8     | 2.50        | 0.65     |
| 2:A:2536:G:C5    | 2:A:2537:U:C4     | 2.85        | 0.65     |
| 2:A:2597:G:H2'   | 2:A:2598:A:N7     | 2.05        | 0.65     |
| 2:A:2581:G:C2    | 2:A:2610:C:C5     | 2.85        | 0.65     |
| 2:A:2657:A:N6    | 2:A:2665:A:N7     | 2.45        | 0.65     |
| 2:A:712(A):A:H8  | 2:A:2713:A:OP1    | 1.78        | 0.65     |
| 2:A:2840:C:C4    | 2:A:2841:C:C4     | 2.85        | 0.65     |
| 2:A:2840:C:C4    | 2:A:2841:C:N4     | 2.65        | 0.65     |
| 2:A:338:G:N7     | 17:Y:21:LYS:HB3   | 2.12        | 0.65     |
| 2:A:535:C:H4'    | 20:U:53:LYS:CD    | 2.14        | 0.65     |
| 2:A:780:G:H2'    | 2:A:782:A:C8      | 2.32        | 0.65     |
| 3:D:141:HIS:CD2  | 3:D:142:ASN:ND2   | 2.65        | 0.65     |
| 4:E:221:LYS:HZ3  | 4:E:233:ARG:CG    | 2.02        | 0.65     |
| 4:E:71:THR:HG23  | 4:E:299:SER:CB    | 2.05        | 0.65     |
| 2:A:606:U:P      | 5:F:105:LYS:CD    | 2.69        | 0.65     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:F:236:THR:O    | 5:F:239:ALA:HB3   | 1.97        | 0.65     |
| 7:H:113:GLU:OE1  | 7:H:114:ILE:CA    | 2.45        | 0.65     |
| 7:H:32:LEU:HD23  | 7:H:33:THR:N      | 2.12        | 0.65     |
| 7:H:89:VAL:HG12  | 7:H:89:VAL:O      | 1.97        | 0.65     |
| 12:Q:49:VAL:HA   | 12:Q:121:ASP:CG   | 2.17        | 0.65     |
| 12:Q:45:GLN:HE22 | 12:Q:153:PRO:HB2  | 0.65        | 0.65     |
| 19:R:96:ARG:CG   | 19:R:115:GLU:HG3  | 2.27        | 0.65     |
| 20:U:72:HIS:ND1  | 20:U:110:VAL:HG21 | 2.12        | 0.65     |
| 21:V:35:LEU:CA   | 21:V:60:VAL:HG13  | 2.27        | 0.65     |
| 15:W:69:LEU:HA   | 15:W:109:GLU:HA   | 1.78        | 0.65     |
| 17:Y:58:GLU:N    | 17:Y:97:ARG:HH12  | 1.94        | 0.65     |
| 18:Z:107:GLU:CD  | 18:Z:107:GLU:N    | 2.50        | 0.65     |
| 18:Z:19:ILE:CA   | 18:Z:36:ARG:HG2   | 2.18        | 0.65     |
| 18:Z:37:LYS:CD   | 18:Z:41:ARG:HH12  | 2.10        | 0.65     |
| 18:Z:81:VAL:CG1  | 18:Z:82:ASP:H     | 2.10        | 0.65     |
| 8:I:92:SER:CA    | 8:I:122:ARG:HG3   | 2.09        | 0.65     |
| 8:I:77:VAL:CG2   | 8:I:142:LYS:O     | 2.45        | 0.65     |
| 2:A:1969:A:H4'   | 2:A:1970:A:H5'    | 1.78        | 0.65     |
| 3:D:224:VAL:CG1  | 3:D:225:ARG:N     | 2.60        | 0.65     |
| 16:X:28:VAL:O    | 16:X:29:ASP:C     | 2.35        | 0.65     |
| 2:A:441:U:OP2    | 17:Y:3:GLN:CG     | 2.45        | 0.65     |
| 2:A:1482:U:H2'   | 2:A:1483:G:H4'    | 1.79        | 0.65     |
| 2:A:1472:A:H2'   | 2:A:1473:G:C8     | 2.31        | 0.65     |
| 25:4:16:TYR:O    | 25:4:17:GLN:CB    | 2.43        | 0.64     |
| 19:R:99:LYS:HB3  | 26:5:44:HIS:NE2   | 2.12        | 0.64     |
| 29:8:58:MET:O    | 29:8:59:LYS:C     | 2.34        | 0.64     |
| 30:9:14:CYS:SG   | 30:9:32:HIS:CD2   | 2.90        | 0.64     |
| 2:A:1673:U:H5    | 4:E:225:LYS:CD    | 2.10        | 0.64     |
| 2:A:1996:C:H2'   | 2:A:1997:G:C4'    | 2.27        | 0.64     |
| 2:A:2195:C:C4    | 2:A:2196:C:C5     | 2.85        | 0.64     |
| 2:A:2246:G:C2'   | 2:A:2247:A:C5'    | 2.69        | 0.64     |
| 2:A:2341:G:C5    | 2:A:2342:C:N4     | 2.65        | 0.64     |
| 2:A:2404:C:C4    | 2:A:2405:G:C5     | 2.85        | 0.64     |
| 2:A:248:G:H21    | 2:A:2431:U:H4'    | 1.49        | 0.64     |
| 2:A:2563:U:H2'   | 2:A:2565:A:OP2    | 1.97        | 0.64     |
| 2:A:2574:G:N9    | 2:A:2575:C:C6     | 2.62        | 0.64     |
| 2:A:2686:G:C5    | 2:A:2687:U:C6     | 2.85        | 0.64     |
| 2:A:2691:C:C4    | 2:A:2719:G:N2     | 2.66        | 0.64     |
| 2:A:2709:G:O2'   | 2:A:2710:C:H5''   | 1.97        | 0.64     |
| 2:A:2631:G:H5''  | 2:A:2892:A:OP1    | 1.96        | 0.64     |
| 2:A:746:A:C8     | 2:A:2611:U:O3'    | 2.50        | 0.64     |
| 2:A:963:U:H2'    | 2:A:964:C:C6      | 2.32        | 0.64     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:989:G:C8      | 23:3:13:ILE:HD11  | 2.32        | 0.64     |
| 3:D:130:PRO:HA    | 3:D:188:ARG:CA    | 2.25        | 0.64     |
| 4:E:269:ILE:HG13  | 4:E:297:LYS:HG2   | 1.76        | 0.64     |
| 4:E:70:VAL:HG12   | 4:E:71:THR:H      | 0.54        | 0.64     |
| 8:I:7:LYS:CG      | 8:I:12:LYS:NZ     | 2.59        | 0.64     |
| 9:N:75:PRO:O      | 9:N:76:ASP:C      | 2.35        | 0.64     |
| 12:Q:122:PHE:HB2  | 12:Q:136:TRP:CZ2  | 2.33        | 0.64     |
| 12:Q:86:ARG:NH2   | 12:Q:123:ILE:HD12 | 2.11        | 0.64     |
| 12:Q:65:ARG:NE    | 12:Q:122:PHE:CZ   | 2.64        | 0.64     |
| 12:Q:67:ALA:C     | 12:Q:71:PHE:HE1   | 1.98        | 0.64     |
| 12:Q:67:ALA:HB1   | 12:Q:71:PHE:HE1   | 1.61        | 0.64     |
| 19:R:100:LEU:HD21 | 19:R:113:LEU:CB   | 2.27        | 0.64     |
| 19:R:65:LEU:O     | 19:R:66:VAL:C     | 2.35        | 0.64     |
| 19:R:67:LEU:O     | 19:R:69:ASP:N     | 2.30        | 0.64     |
| 13:S:13:ARG:HG2   | 13:S:13:ARG:O     | 1.90        | 0.64     |
| 13:S:16:ALA:O     | 13:S:17:ARG:CB    | 2.45        | 0.64     |
| 2:A:2378:A:C4     | 13:S:26:LEU:CD2   | 2.80        | 0.64     |
| 13:S:74:PRO:O     | 13:S:75:THR:C     | 2.35        | 0.64     |
| 17:Y:23:VAL:HG23  | 17:Y:67:LEU:HD23  | 1.76        | 0.64     |
| 18:Z:34:LEU:CD1   | 18:Z:39:PHE:CZ    | 2.60        | 0.64     |
| 16:X:18:MET:HE1   | 16:X:25:GLN:CB    | 2.26        | 0.64     |
| 16:X:24:LEU:HD13  | 16:X:66:VAL:O     | 1.96        | 0.64     |
| 16:X:3:ASP:CG     | 16:X:4:VAL:H      | 1.99        | 0.64     |
| 2:A:1619:G:H21    | 28:7:1:MET:HB3    | 1.61        | 0.64     |
| 14:T:47:ARG:O     | 14:T:48:ASN:HB3   | 1.97        | 0.64     |
| 2:A:1949:G:H2'    | 2:A:1950:G:C8     | 2.32        | 0.64     |
| 2:A:856:C:C2'     | 24:0:24:LYS:HB2   | 2.25        | 0.64     |
| 27:6:19:GLY:CA    | 27:6:42:PRO:CB    | 2.75        | 0.64     |
| 2:A:1050:A:N1     | 2:A:2751:G:C8     | 2.65        | 0.64     |
| 2:A:1996:C:H2'    | 2:A:1997:G:C5'    | 2.28        | 0.64     |
| 2:A:2297:C:N3     | 2:A:2333:A:N6     | 2.45        | 0.64     |
| 2:A:2317:C:C5     | 2:A:2318:G:C5     | 2.85        | 0.64     |
| 2:A:2369:A:H2'    | 2:A:2370:G:O5'    | 1.97        | 0.64     |
| 2:A:2391:G:N2     | 2:A:2429:G:H21    | 1.95        | 0.64     |
| 2:A:2492:U:O2'    | 2:A:2493:U:H5'    | 1.96        | 0.64     |
| 2:A:2446:G:N1     | 2:A:2501:C:H5     | 1.86        | 0.64     |
| 2:A:2520:C:C6     | 2:A:2567:G:N9     | 2.66        | 0.64     |
| 2:A:1939:U:C1'    | 2:A:2592:G:H4'    | 2.26        | 0.64     |
| 2:A:2619:C:C2'    | 2:A:2620:C:C5'    | 2.75        | 0.64     |
| 2:A:270(H):C:N3   | 2:A:270(R):G:N2   | 2.45        | 0.64     |
| 2:A:2725:A:C2     | 2:A:2727:G:C8     | 2.86        | 0.64     |
| 2:A:2732:G:H8     | 2:A:2732:G:OP2    | 1.81        | 0.64     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2734:A:N7    | 2:A:2735:G:C4    | 2.65        | 0.64     |
| 2:A:2752:C:C2'   | 2:A:2752:C:O2    | 2.44        | 0.64     |
| 2:A:2836:U:C2    | 2:A:2883:A:N6    | 2.66        | 0.64     |
| 2:A:2842:G:N1    | 2:A:2876:G:N1    | 2.44        | 0.64     |
| 2:A:310:A:OP1    | 17:Y:53:GLY:N    | 2.29        | 0.64     |
| 2:A:530:G:H3'    | 2:A:530:G:OP2    | 1.97        | 0.64     |
| 2:A:685:A:N3     | 2:A:688:U:C4     | 2.65        | 0.64     |
| 4:E:175:ASP:O    | 4:E:177:ALA:N    | 2.29        | 0.64     |
| 6:G:49:PRO:CB    | 6:G:72:LYS:N     | 2.51        | 0.64     |
| 9:N:56:LYS:H     | 9:N:56:LYS:HD3   | 1.61        | 0.64     |
| 10:O:79:PHE:HD2  | 10:O:79:PHE:N    | 1.95        | 0.64     |
| 11:P:109:LEU:C   | 11:P:109:LEU:CD1 | 2.65        | 0.64     |
| 19:R:90:ARG:NH1  | 19:R:117:VAL:CG1 | 2.60        | 0.64     |
| 13:S:56:ASP:CG   | 13:S:57:THR:H    | 2.01        | 0.64     |
| 15:W:56:ALA:O    | 15:W:57:ASN:C    | 2.36        | 0.64     |
| 18:Z:112:LEU:CD2 | 18:Z:113:VAL:O   | 2.45        | 0.64     |
| 18:Z:140:LYS:N   | 18:Z:141:MET:CE  | 2.60        | 0.64     |
| 18:Z:1:MET:HE2   | 18:Z:52:PHE:CD2  | 2.32        | 0.64     |
| 1:B:75:G:C2'     | 18:Z:32:PHE:HD2  | 2.03        | 0.64     |
| 2:A:729:G:O2'    | 2:A:763:G:H4'    | 1.97        | 0.64     |
| 12:Q:94:ARG:HG2  | 12:Q:107:LYS:N   | 2.11        | 0.64     |
| 12:Q:108:SER:O   | 12:Q:109:VAL:CB  | 2.45        | 0.64     |
| 17:Y:9:LYS:HE3   | 17:Y:13:ARG:HH12 | 1.58        | 0.64     |
| 24:O:65:GLY:CA   | 24:O:66:LYS:CD   | 2.70        | 0.64     |
| 24:O:70:ILE:HD13 | 24:O:70:ILE:N    | 2.12        | 0.64     |
| 27:6:28:ARG:CG   | 27:6:28:ARG:O    | 2.45        | 0.64     |
| 2:A:1184:G:C2'   | 2:A:1185:C:H5'   | 2.26        | 0.64     |
| 2:A:14:A:H3'     | 2:A:15:G:P       | 2.36        | 0.64     |
| 2:A:2082:A:C5    | 2:A:2239:G:N1    | 2.64        | 0.64     |
| 2:A:2251:G:P     | 2:A:2496:C:OP2   | 2.55        | 0.64     |
| 2:A:2256:G:C2    | 2:A:2257:U:O2    | 2.50        | 0.64     |
| 2:A:2256:G:H2'   | 2:A:2257:U:H5'   | 1.80        | 0.64     |
| 2:A:2335:A:O2'   | 2:A:2336:A:C8    | 2.51        | 0.64     |
| 2:A:2432:A:N1    | 2:A:2433:A:C6    | 2.59        | 0.64     |
| 2:A:2492:U:H2'   | 2:A:2493:U:O5'   | 1.95        | 0.64     |
| 2:A:2504:U:C5'   | 2:A:2504:U:H6    | 2.10        | 0.64     |
| 2:A:2521:C:O2    | 2:A:2522:U:O4'   | 2.15        | 0.64     |
| 2:A:2550:G:C6    | 2:A:2559:C:N3    | 2.66        | 0.64     |
| 2:A:2520:C:C4    | 2:A:2567:G:C5    | 2.85        | 0.64     |
| 2:A:2633:G:O5'   | 2:A:2633:G:H8    | 1.81        | 0.64     |
| 2:A:2699:C:O2    | 2:A:2699:C:C2'   | 2.42        | 0.64     |
| 2:A:2689:U:H1'   | 2:A:2713:A:C2    | 2.32        | 0.64     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2715:C:N3    | 2:A:2716:U:C5    | 2.65        | 0.64     |
| 2:A:2827:C:O2    | 2:A:2828:C:C5    | 2.50        | 0.64     |
| 2:A:2839:G:C6    | 2:A:2840:C:N4    | 2.64        | 0.64     |
| 2:A:342:G:N1     | 2:A:344:G:N2     | 2.45        | 0.64     |
| 2:A:605:C:O5'    | 5:F:105:LYS:HE2  | 1.97        | 0.64     |
| 2:A:965:C:C4'    | 2:A:2273:A:C2    | 2.81        | 0.64     |
| 2:A:988:A:P      | 23:3:11:SER:HB2  | 2.35        | 0.64     |
| 1:B:76:G:H4'     | 18:Z:80:HIS:CB   | 2.26        | 0.64     |
| 2:A:1492:G:H4'   | 3:D:99:GLU:OE2   | 1.98        | 0.64     |
| 5:F:81:PRO:O     | 5:F:82:GLN:CB    | 2.45        | 0.64     |
| 5:F:91:PRO:HB2   | 5:F:92:PRO:HD3   | 0.66        | 0.64     |
| 11:P:69:ILE:CB   | 11:P:73:VAL:HG21 | 2.27        | 0.64     |
| 2:A:2840:C:H4'   | 19:R:53:HIS:NE2  | 2.12        | 0.64     |
| 13:S:109:PRO:HB2 | 13:S:116:PHE:CZ  | 2.33        | 0.64     |
| 13:S:61:ALA:HB1  | 13:S:84:THR:O    | 1.97        | 0.64     |
| 20:U:78:THR:O    | 20:U:79:PHE:O    | 2.14        | 0.64     |
| 17:Y:108:ARG:O   | 17:Y:112:LEU:CD2 | 2.42        | 0.64     |
| 17:Y:24:ARG:O    | 17:Y:25:ALA:HB2  | 1.96        | 0.64     |
| 17:Y:43:ASN:ND2  | 17:Y:112:LEU:CD1 | 2.61        | 0.64     |
| 18:Z:3:LEU:CD2   | 18:Z:38:ALA:CB   | 2.70        | 0.64     |
| 18:Z:46:GLN:O    | 18:Z:47:SER:C    | 2.34        | 0.64     |
| 18:Z:54:ILE:CG2  | 18:Z:55:THR:N    | 2.59        | 0.64     |
| 8:I:133:LEU:HD12 | 8:I:139:ALA:CB   | 2.12        | 0.64     |
| 22:2:17:GLU:O    | 22:2:20:LEU:N    | 2.28        | 0.64     |
| 22:2:7:GLU:CG    | 22:2:8:ILE:N     | 2.56        | 0.64     |
| 16:X:28:VAL:HG13 | 16:X:64:ALA:HB3  | 1.78        | 0.64     |
| 2:A:1914:C:P     | 2:A:1916:A:H62   | 2.21        | 0.64     |
| 23:3:6:VAL:CG2   | 23:3:54:VAL:HG23 | 2.26        | 0.64     |
| 27:6:12:MET:CE   | 27:6:54:LYS:O    | 2.46        | 0.64     |
| 27:6:13:GLU:O    | 27:6:52:GLU:O    | 2.16        | 0.64     |
| 2:A:594:U:P      | 29:8:61:MET:SD   | 2.95        | 0.64     |
| 30:9:11:CYS:H    | 30:9:32:HIS:HE2  | 1.46        | 0.64     |
| 2:A:1252:G:OP2   | 2:A:1252:G:H4'   | 1.97        | 0.64     |
| 2:A:2058:A:H2'   | 2:A:2059:A:H8    | 1.63        | 0.64     |
| 2:A:2424:C:H5'   | 2:A:2425:A:H5'   | 1.79        | 0.64     |
| 2:A:2548:G:C3'   | 2:A:2548:G:C8    | 2.79        | 0.64     |
| 2:A:2045:C:C4    | 2:A:2624:G:N2    | 2.65        | 0.64     |
| 2:A:396:G:H5''   | 25:4:10:VAL:CG1  | 2.28        | 0.64     |
| 2:A:989:G:C8     | 23:3:13:ILE:HD12 | 2.33        | 0.64     |
| 4:E:81:VAL:HB    | 4:E:100:TRP:HZ3  | 1.62        | 0.64     |
| 5:F:22:PHE:CZ    | 5:F:115:LEU:HD12 | 2.23        | 0.64     |
| 2:A:674:G:H4'    | 5:F:69:HIS:CA    | 2.26        | 0.64     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:G:28:GLY:N     | 6:G:69:ILE:HD13  | 2.09        | 0.64     |
| 6:G:20:LYS:HG2   | 6:G:76:ARG:HG2   | 1.80        | 0.64     |
| 9:N:101:VAL:O    | 9:N:102:ARG:CG   | 2.45        | 0.64     |
| 2:A:1131:G:N2    | 9:N:69:TYR:CZ    | 2.66        | 0.64     |
| 9:N:82:THR:O     | 9:N:83:ILE:C     | 2.36        | 0.64     |
| 10:O:23:LYS:HG3  | 10:O:24:VAL:N    | 2.10        | 0.64     |
| 12:Q:127:ASN:HB2 | 12:Q:128:PRO:HD2 | 1.80        | 0.64     |
| 12:Q:35:ASN:HB3  | 12:Q:75:SER:HB2  | 1.78        | 0.64     |
| 19:R:28:LEU:O    | 19:R:29:LEU:C    | 2.36        | 0.64     |
| 13:S:56:ASP:OD1  | 13:S:57:THR:N    | 2.30        | 0.64     |
| 20:U:28:ARG:C    | 20:U:31:GLN:H    | 1.97        | 0.64     |
| 2:A:446:G:OP2    | 20:U:3:ARG:CD    | 2.45        | 0.64     |
| 15:W:78:GLU:OE1  | 15:W:99:ARG:NE   | 2.30        | 0.64     |
| 8:I:121:ILE:N    | 8:I:121:ILE:HD12 | 2.12        | 0.64     |
| 2:A:1614:A:H62   | 15:W:88:ARG:CB   | 1.81        | 0.64     |
| 2:A:1520:U:C6    | 2:A:1520:U:H3'   | 2.32        | 0.64     |
| 2:A:1972:A:H2'   | 2:A:1973:G:C8    | 2.31        | 0.64     |
| 24:O:37:LEU:C    | 24:O:40:GLN:HG3  | 2.18        | 0.64     |
| 24:O:48:GLY:HA2  | 24:O:55:ARG:HA   | 1.78        | 0.64     |
| 24:O:58:THR:O    | 24:O:59:LEU:C    | 2.35        | 0.64     |
| 25:4:46:GLU:OE2  | 25:4:55:ARG:N    | 2.30        | 0.64     |
| 27:6:8:ILE:O     | 27:6:28:ARG:HA   | 1.97        | 0.64     |
| 30:9:24:LEU:HD22 | 30:9:36:GLN:H    | 1.61        | 0.64     |
| 2:A:1492:G:H21   | 2:A:1493:C:H42   | 1.46        | 0.64     |
| 2:A:2218:G:HO2'  | 3:D:146:LYS:CE   | 1.90        | 0.64     |
| 2:A:2227:A:O5'   | 2:A:2227:A:C8    | 2.47        | 0.64     |
| 2:A:2234:G:N1    | 2:A:2235:G:N7    | 2.42        | 0.64     |
| 2:A:2239:G:C4    | 2:A:2240:C:C5    | 2.86        | 0.64     |
| 2:A:2344:U:H2'   | 2:A:2345:G:OP2   | 1.96        | 0.64     |
| 2:A:2411:A:O2'   | 2:A:2412:A:H5'   | 1.98        | 0.64     |
| 2:A:2061:G:N3    | 2:A:2503:A:H2    | 1.95        | 0.64     |
| 2:A:2662:A:C2    | 2:A:2663:G:O4'   | 2.50        | 0.64     |
| 2:A:2725:A:N3    | 2:A:2727:G:C8    | 2.65        | 0.64     |
| 2:A:2785:C:C4    | 2:A:2786:U:C4    | 2.86        | 0.64     |
| 2:A:2834:G:H3'   | 2:A:2834:G:H8    | 1.63        | 0.64     |
| 5:F:36:ARG:N     | 5:F:39:GLN:NE2   | 2.46        | 0.64     |
| 6:G:25:MET:O     | 6:G:71:ALA:HB3   | 1.97        | 0.64     |
| 6:G:75:LEU:O     | 6:G:80:ALA:HB2   | 1.97        | 0.64     |
| 9:N:49:ARG:C     | 9:N:53:ILE:HB    | 2.17        | 0.64     |
| 9:N:60:ARG:HA    | 9:N:63:ILE:HD12  | 1.79        | 0.64     |
| 11:P:61:ALA:C    | 11:P:107:LYS:HE3 | 2.16        | 0.64     |
| 2:A:910:A:C3'    | 12:Q:17:ARG:NH2  | 2.60        | 0.64     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:88:PHE:O    | 12:Q:90:PHE:CD1  | 2.51        | 0.64     |
| 19:R:89:ASP:OD1  | 19:R:90:ARG:HG3  | 1.95        | 0.64     |
| 19:R:90:ARG:HH12 | 19:R:117:VAL:CG1 | 2.10        | 0.64     |
| 8:I:121:ILE:CG2  | 8:I:122:ARG:N    | 2.42        | 0.64     |
| 8:I:80:PRO:O     | 8:I:148:GLN:HG3  | 1.96        | 0.64     |
| 2:A:1080:C:O3'   | 31:K:126:LYS:CG  | 2.44        | 0.64     |
| 17:Y:4:PRO:O     | 17:Y:5:ASP:CB    | 2.45        | 0.64     |
| 18:Z:156:GLU:CG  | 18:Z:157:GLY:N   | 2.46        | 0.64     |
| 31:K:56:VAL:HG22 | 31:K:70:ILE:HG23 | 1.79        | 0.64     |
| 24:0:61:ALA:HB2  | 24:0:80:SER:CA   | 2.28        | 0.64     |
| 24:0:66:LYS:CD   | 24:0:66:LYS:N    | 2.38        | 0.64     |
| 25:4:14:ILE:CG2  | 25:4:16:TYR:CD1  | 2.80        | 0.64     |
| 25:4:40:HIS:HB3  | 25:4:41:PRO:CD   | 2.28        | 0.64     |
| 26:5:46:CYS:HB3  | 26:5:47:PRO:CD   | 2.26        | 0.64     |
| 29:8:26:LYS:HB2  | 29:8:44:LYS:HA   | 1.79        | 0.64     |
| 2:A:1567:A:C5    | 3:D:84:PRO:HB3   | 2.31        | 0.64     |
| 2:A:2067:G:H1    | 2:A:2443:C:H42   | 1.43        | 0.64     |
| 2:A:2075:U:O2'   | 2:A:2596:U:O2    | 2.15        | 0.64     |
| 2:A:2097:C:H42   | 2:A:2192:G:H1    | 1.46        | 0.64     |
| 2:A:2246:G:N1    | 2:A:2426:A:H1'   | 2.13        | 0.64     |
| 2:A:2320:A:OP1   | 13:S:9:PRO:HD3   | 1.98        | 0.64     |
| 2:A:825:C:C4'    | 2:A:2428:G:C5    | 2.65        | 0.64     |
| 2:A:2452:C:N4    | 2:A:2453:A:N6    | 2.46        | 0.64     |
| 2:A:2511:U:H2'   | 2:A:2512:C:C5'   | 2.27        | 0.64     |
| 2:A:452:G:N2     | 2:A:457:A:C2     | 2.65        | 0.64     |
| 2:A:610:C:H2'    | 2:A:611:C:C6     | 2.31        | 0.64     |
| 2:A:673:C:OP1    | 5:F:80:VAL:HG11  | 1.98        | 0.64     |
| 2:A:930:U:H2'    | 2:A:931:G:H1'    | 1.79        | 0.64     |
| 3:D:166:LYS:O    | 3:D:167:GLU:OE1  | 2.15        | 0.64     |
| 3:D:60:GLN:N     | 3:D:62:ARG:HH11  | 1.95        | 0.64     |
| 4:E:102:ASP:CG   | 4:E:104:PHE:HE1  | 1.96        | 0.64     |
| 4:E:199:ALA:HA   | 4:E:312:ARG:C    | 2.18        | 0.64     |
| 4:E:204:VAL:O    | 4:E:205:THR:C    | 2.34        | 0.64     |
| 4:E:268:LEU:HD23 | 4:E:295:LEU:O    | 1.97        | 0.64     |
| 5:F:147:LEU:HD11 | 5:F:156:LEU:CD1  | 2.02        | 0.64     |
| 5:F:155:SER:O    | 5:F:158:GLU:OE2  | 2.16        | 0.64     |
| 5:F:236:THR:O    | 5:F:239:ALA:CA   | 2.46        | 0.64     |
| 2:A:673:C:H4'    | 5:F:82:GLN:OE1   | 1.97        | 0.64     |
| 7:H:95:ALA:H     | 7:H:127:GLN:HE21 | 1.44        | 0.64     |
| 9:N:27:ALA:HB1   | 9:N:30:ALA:HB3   | 1.79        | 0.64     |
| 9:N:38:VAL:C     | 9:N:39:VAL:HG22  | 2.17        | 0.64     |
| 9:N:58:GLU:C     | 9:N:61:VAL:HB    | 2.18        | 0.64     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:P:129:ALA:O   | 11:P:131:GLU:N    | 2.30        | 0.64     |
| 12:Q:134:PHE:O   | 12:Q:137:ARG:CB   | 2.31        | 0.64     |
| 12:Q:35:ASN:N    | 12:Q:75:SER:HA    | 2.13        | 0.64     |
| 12:Q:85:ILE:CA   | 12:Q:122:PHE:HD2  | 2.10        | 0.64     |
| 13:S:103:ASP:OD2 | 13:S:105:GLY:N    | 2.27        | 0.64     |
| 1:B:9:G:OP1      | 13:S:23:ARG:NH1   | 2.31        | 0.64     |
| 2:A:583:G:P      | 20:U:10:ARG:HH11  | 2.21        | 0.64     |
| 21:V:83:ARG:O    | 21:V:84:THR:CG2   | 2.46        | 0.64     |
| 21:V:93:ILE:O    | 21:V:95:ILE:CD1   | 2.45        | 0.64     |
| 17:Y:103:LEU:CD2 | 17:Y:108:ARG:HB3  | 2.21        | 0.64     |
| 18:Z:91:PRO:CB   | 18:Z:127:PRO:CB   | 2.76        | 0.64     |
| 8:I:88:ARG:CD    | 8:I:122:ARG:HB3   | 2.27        | 0.64     |
| 2:A:1394:U:H4'   | 2:A:1603:A:H4'    | 1.79        | 0.64     |
| 16:X:25:GLN:CA   | 16:X:26:PHE:CD1   | 2.81        | 0.64     |
| 2:A:1742:C:H2'   | 2:A:1743:G:O4'    | 1.98        | 0.64     |
| 2:A:551:G:C4'    | 2:A:1220:A:H2     | 2.11        | 0.64     |
| 25:4:46:GLU:N    | 25:4:53:GLU:O     | 2.31        | 0.64     |
| 25:4:41:PRO:HG2  | 25:4:57:ASP:CG    | 2.17        | 0.64     |
| 2:A:372:G:O2'    | 25:4:63:PHE:CE2   | 2.48        | 0.64     |
| 27:6:21:TYR:CE1  | 27:6:43:VAL:HG21  | 2.32        | 0.64     |
| 2:A:250:G:OP2    | 29:8:12:ARG:NH2   | 2.27        | 0.64     |
| 2:A:2212:A:C1'   | 2:A:2213:U:C5     | 2.81        | 0.64     |
| 2:A:2226:C:O2    | 2:A:2227:A:C2'    | 2.46        | 0.64     |
| 2:A:2378:A:O4'   | 13:S:101:VAL:HG23 | 1.98        | 0.64     |
| 2:A:2392:A:C8    | 2:A:2393:A:N7     | 2.65        | 0.64     |
| 2:A:197:A:C5     | 2:A:2430:A:N7     | 2.65        | 0.64     |
| 2:A:2603:G:H2'   | 2:A:2604:U:O5'    | 1.97        | 0.64     |
| 2:A:2637:U:O2    | 2:A:2782:G:C2     | 2.50        | 0.64     |
| 2:A:2684:U:H1'   | 10:O:70:ARG:HH21  | 1.50        | 0.64     |
| 2:A:2690:C:C2'   | 2:A:2691:C:OP2    | 2.44        | 0.64     |
| 2:A:2843:G:C5    | 2:A:2844:G:N7     | 2.66        | 0.64     |
| 2:A:2853:C:C6    | 2:A:2853:C:C3'    | 2.81        | 0.64     |
| 2:A:792:G:C4     | 2:A:2440:C:C2     | 2.86        | 0.64     |
| 2:A:854:G:H1     | 2:A:923:C:N4      | 1.94        | 0.64     |
| 3:D:90:ILE:HG23  | 3:D:91:ALA:N      | 2.12        | 0.64     |
| 4:E:212:GLY:O    | 4:E:214:VAL:N     | 2.30        | 0.64     |
| 4:E:74:GLU:HB3   | 4:E:293:TYR:CE2   | 2.27        | 0.64     |
| 4:E:314:ALA:O    | 4:E:315:VAL:O     | 2.15        | 0.64     |
| 4:E:70:VAL:C     | 4:E:71:THR:HG23   | 2.18        | 0.64     |
| 4:E:72:VAL:O     | 4:E:73:ILE:HD12   | 1.96        | 0.64     |
| 5:F:102:LEU:HD13 | 5:F:107:ARG:HG2   | 1.78        | 0.64     |
| 5:F:223:LEU:C    | 5:F:231:ARG:HD2   | 2.17        | 0.64     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:G:105:SER:OG   | 6:G:131:THR:HG21  | 1.96        | 0.64     |
| 6:G:11:HIS:O     | 6:G:15:GLU:HG3    | 1.98        | 0.64     |
| 9:N:12:VAL:HG13  | 9:N:13:ASP:N      | 1.95        | 0.64     |
| 9:N:40:ASN:O     | 9:N:41:ALA:C      | 2.35        | 0.64     |
| 9:N:93:ARG:O     | 9:N:94:GLY:C      | 2.35        | 0.64     |
| 10:O:101:PRO:HA  | 10:O:120:GLU:O    | 1.97        | 0.64     |
| 10:O:105:GLU:O   | 10:O:108:ASP:N    | 2.31        | 0.64     |
| 10:O:63:VAL:HG13 | 10:O:102:VAL:HG13 | 0.64        | 0.64     |
| 11:P:113:GLN:HB2 | 11:P:115:ARG:CZ   | 2.27        | 0.64     |
| 19:R:43:GLU:O    | 19:R:44:LEU:C     | 2.35        | 0.64     |
| 19:R:45:ARG:O    | 19:R:49:ASP:HB2   | 1.98        | 0.64     |
| 20:U:40:LEU:O    | 20:U:43:ALA:HB3   | 1.98        | 0.64     |
| 20:U:61:TRP:O    | 20:U:65:ILE:HG13  | 1.90        | 0.64     |
| 2:A:1080:C:O3'   | 31:K:126:LYS:HB3  | 1.82        | 0.64     |
| 22:2:27:LEU:O    | 22:2:30:ALA:HB3   | 1.97        | 0.64     |
| 2:A:1338:G:H4'   | 16:X:12:GLU:OE1   | 1.97        | 0.64     |
| 16:X:33:SER:O    | 16:X:37:VAL:N     | 2.26        | 0.64     |
| 2:A:440:G:O5'    | 17:Y:3:GLN:NE2    | 2.31        | 0.64     |
| 2:A:282:A:N6     | 2:A:360:G:H21     | 1.95        | 0.64     |
| 2:A:1924:C:C5    | 2:A:1925:C:H5     | 2.15        | 0.64     |
| 23:3:48:GLU:O    | 23:3:51:ALA:CA    | 2.46        | 0.64     |
| 26:5:16:ARG:O    | 26:5:19:ARG:CB    | 2.45        | 0.64     |
| 28:7:11:LYS:HE3  | 28:7:11:LYS:CA    | 2.28        | 0.64     |
| 29:8:30:ARG:CG   | 29:8:31:HIS:N     | 2.61        | 0.64     |
| 2:A:2236:C:C2'   | 2:A:2237:G:H5''   | 2.28        | 0.64     |
| 2:A:2263:C:C3'   | 2:A:2264:C:H5'    | 2.26        | 0.64     |
| 2:A:2410:G:N9    | 2:A:2411:A:N7     | 2.46        | 0.64     |
| 2:A:2428:G:C3'   | 2:A:2428:G:C8     | 2.80        | 0.64     |
| 2:A:35:G:H1'     | 2:A:454:A:N3      | 2.13        | 0.64     |
| 2:A:685:A:N3     | 2:A:688:U:O4      | 2.30        | 0.64     |
| 2:A:99:U:H3      | 17:Y:107:LYS:HD2  | 1.59        | 0.64     |
| 3:D:175:LEU:HD12 | 3:D:179:GLU:CA    | 2.27        | 0.64     |
| 4:E:222:ARG:O    | 4:E:227:ALA:HA    | 1.97        | 0.64     |
| 4:E:228:ARG:O    | 4:E:229:GLN:C     | 2.35        | 0.64     |
| 4:E:268:LEU:C    | 4:E:297:LYS:HE2   | 2.18        | 0.64     |
| 5:F:105:LYS:O    | 5:F:106:GLU:C     | 2.36        | 0.64     |
| 9:N:54:VAL:HG11  | 9:N:138:THR:CB    | 2.28        | 0.64     |
| 10:O:66:LYS:HZ1  | 10:O:67:ARG:CZ    | 2.02        | 0.64     |
| 12:Q:51:GLU:N    | 12:Q:51:GLU:CD    | 2.51        | 0.64     |
| 12:Q:88:PHE:CB   | 12:Q:90:PHE:CE1   | 2.60        | 0.64     |
| 19:R:20:LEU:CD2  | 19:R:24:GLN:CD    | 2.65        | 0.64     |
| 19:R:44:LEU:HD13 | 19:R:48:VAL:HG21  | 0.68        | 0.64     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 13:S:27:LEU:HA  | 13:S:33:ARG:NH2  | 2.12        | 0.64     |
| 13:S:33:ARG:CB  | 13:S:35:VAL:CG2  | 2.73        | 0.64     |
| 14:T:6:CYS:SG   | 14:T:31:PHE:CD2  | 2.91        | 0.64     |
| 20:U:53:LYS:CA  | 20:U:56:ASP:OD2  | 2.43        | 0.64     |
| 21:V:59:GLU:OE2 | 21:V:99:GLN:HG2  | 1.98        | 0.64     |
| 15:W:17:VAL:C   | 15:W:20:VAL:HG23 | 2.19        | 0.64     |
| 15:W:23:LEU:CD1 | 15:W:35:ILE:CG2  | 2.76        | 0.64     |
| 17:Y:101:LEU:O  | 17:Y:102:ASP:C   | 2.36        | 0.64     |
| 17:Y:29:ALA:O   | 17:Y:30:ASP:C    | 2.34        | 0.64     |
| 18:Z:91:PRO:HB2 | 18:Z:127:PRO:CB  | 2.28        | 0.64     |
| 8:I:145:VAL:O   | 8:I:146:THR:HB   | 1.97        | 0.64     |
| 22:2:49:LEU:O   | 22:2:53:ILE:HG13 | 1.98        | 0.64     |
| 16:X:75:GLN:O   | 16:X:77:VAL:N    | 2.31        | 0.64     |
| 2:A:359:A:O2'   | 2:A:360:G:C8     | 2.51        | 0.64     |
| 2:A:1559:G:N1   | 2:A:1560:G:H4'   | 2.13        | 0.64     |
| 2:A:1202:C:C2   | 2:A:1243:G:N2    | 2.64        | 0.64     |
| 2:A:856:C:C4'   | 24:0:25:LYS:HZ2  | 2.11        | 0.64     |
| 23:3:1:MET:HE3  | 23:3:3:ARG:CD    | 2.21        | 0.64     |
| 26:5:46:CYS:H   | 26:5:49:CYS:HB2  | 1.63        | 0.64     |
| 28:7:30:ILE:N   | 28:7:33:ARG:HD2  | 2.11        | 0.64     |
| 2:A:2261:C:H1'  | 2:A:2388:A:N3    | 2.12        | 0.64     |
| 2:A:2372:G:C2   | 2:A:2373:G:C5    | 2.86        | 0.64     |
| 2:A:2543:G:C5   | 2:A:2544:G:O6    | 2.43        | 0.64     |
| 2:A:2561:A:C8   | 2:A:2561:A:H3'   | 2.32        | 0.64     |
| 2:A:2571:C:O2'  | 4:E:243:PRO:HG3  | 1.97        | 0.64     |
| 2:A:2605:U:C2'  | 2:A:2606:C:C5'   | 2.76        | 0.64     |
| 2:A:2611:U:C3'  | 2:A:2611:U:H6    | 2.10        | 0.64     |
| 2:A:2717:G:C6   | 2:A:2718:G:N7    | 2.66        | 0.64     |
| 2:A:2717:G:C4   | 2:A:2718:G:N7    | 2.60        | 0.64     |
| 2:A:2737:G:C2   | 2:A:2738:A:C5    | 2.85        | 0.64     |
| 2:A:2840:C:H2'  | 2:A:2841:C:H6    | 1.59        | 0.64     |
| 2:A:321:G:C8    | 2:A:341:G:O2'    | 2.49        | 0.64     |
| 2:A:326:G:H2'   | 2:A:327:G:C8     | 2.32        | 0.64     |
| 2:A:469:G:H1    | 28:7:40:HIS:HE2  | 1.46        | 0.64     |
| 2:A:526:A:H2    | 2:A:2626:C:O4'   | 1.66        | 0.64     |
| 1:B:104:A:HO2'  | 18:Z:24:TYR:HE2  | 1.46        | 0.64     |
| 3:D:174:ARG:CG  | 3:D:174:ARG:NH1  | 2.49        | 0.64     |
| 4:E:222:ARG:CD  | 4:E:232:ARG:O    | 2.45        | 0.64     |
| 4:E:44:TYR:CD2  | 4:E:307:LEU:C    | 2.70        | 0.64     |
| 6:G:21:VAL:HG22 | 6:G:132:VAL:HG23 | 1.80        | 0.64     |
| 6:G:95:THR:HG22 | 6:G:96:SER:H     | 1.62        | 0.64     |
| 7:H:41:THR:HB   | 7:H:52:THR:OG1   | 1.97        | 0.64     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:10:ILE:CD1   | 7:H:49:ILE:HG12   | 2.25        | 0.64     |
| 7:H:67:THR:O     | 7:H:70:LEU:CB     | 2.46        | 0.64     |
| 7:H:87:GLU:OE2   | 7:H:162:ARG:CB    | 2.41        | 0.64     |
| 9:N:94:GLY:O     | 9:N:95:ARG:O      | 2.16        | 0.64     |
| 10:O:85:VAL:O    | 10:O:87:ILE:CD1   | 2.45        | 0.64     |
| 11:P:94:ARG:HG2  | 11:P:120:LEU:HD23 | 1.71        | 0.64     |
| 12:Q:91:HIS:H    | 12:Q:111:THR:CG2  | 2.09        | 0.64     |
| 15:W:72:LYS:HB3  | 15:W:106:ILE:HG21 | 1.80        | 0.64     |
| 17:Y:46:ASP:N    | 17:Y:62:VAL:CB    | 2.61        | 0.64     |
| 16:X:6:LYS:HZ2   | 16:X:29:ASP:CA    | 2.07        | 0.64     |
| 24:O:36:ILE:H    | 24:O:68:VAL:CG2   | 2.10        | 0.64     |
| 25:4:11:PRO:O    | 25:4:12:CYS:HB2   | 1.97        | 0.64     |
| 25:4:9:ALA:O     | 25:4:10:VAL:HG23  | 1.98        | 0.64     |
| 27:6:41:ASP:CB   | 27:6:46:LYS:NZ    | 2.47        | 0.64     |
| 2:A:2252:G:O5'   | 2:A:2252:G:H8     | 1.80        | 0.64     |
| 2:A:2313:C:C4    | 2:A:2314:C:C4     | 2.85        | 0.64     |
| 2:A:2348:U:H3'   | 29:8:42:ARG:NH2   | 2.13        | 0.64     |
| 2:A:2374:C:H2'   | 2:A:2375:G:C8     | 2.33        | 0.64     |
| 2:A:2386:C:H2'   | 2:A:2387:U:C6     | 2.33        | 0.64     |
| 2:A:960:A:O4'    | 2:A:2457:U:H4'    | 1.98        | 0.64     |
| 2:A:2576:G:OP1   | 2:A:2576:G:C3'    | 2.43        | 0.64     |
| 2:A:2616:C:H2'   | 2:A:2617:C:C6     | 2.32        | 0.64     |
| 2:A:2717:G:C2    | 2:A:2718:G:C4     | 2.76        | 0.64     |
| 2:A:2737:G:C6    | 2:A:2767:C:N4     | 2.57        | 0.64     |
| 2:A:2881:C:C5    | 2:A:2882:A:N7     | 2.66        | 0.64     |
| 2:A:343:C:N3     | 2:A:344:G:C2      | 2.66        | 0.64     |
| 1:B:75:G:O2'     | 18:Z:32:PHE:CE2   | 2.46        | 0.64     |
| 3:D:103:ILE:HG12 | 3:D:104:ILE:HD12  | 0.64        | 0.64     |
| 3:D:65:ASP:OD1   | 3:D:66:PHE:CA     | 2.44        | 0.64     |
| 3:D:81:GLU:O     | 3:D:82:TYR:O      | 2.16        | 0.64     |
| 4:E:205:THR:OG1  | 4:E:257:GLY:O     | 2.16        | 0.64     |
| 4:E:205:THR:OG1  | 4:E:258:TYR:N     | 2.30        | 0.64     |
| 4:E:93:GLN:O     | 4:E:94:ARG:HG3    | 1.98        | 0.64     |
| 5:F:34:ALA:HB1   | 5:F:110:ALA:HB1   | 1.72        | 0.64     |
| 5:F:6:TYR:HE1    | 5:F:139:VAL:CB    | 2.08        | 0.64     |
| 5:F:145:GLU:HG3  | 5:F:196:THR:HG21  | 1.79        | 0.64     |
| 5:F:1:MET:O      | 5:F:18:LEU:HG     | 1.97        | 0.64     |
| 5:F:150:THR:CB   | 5:F:207:LEU:HD21  | 2.28        | 0.64     |
| 2:A:1140:C:N4    | 9:N:49:ARG:NH1    | 2.46        | 0.64     |
| 11:P:64:ILE:CD1  | 11:P:106:VAL:CG1  | 2.73        | 0.64     |
| 2:A:2250:G:H5''  | 12:Q:102:ARG:CD   | 2.28        | 0.64     |
| 12:Q:143:VAL:CG2 | 12:Q:144:THR:H    | 2.06        | 0.64     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:R:33:ARG:HB2  | 19:R:115:GLU:HB3 | 1.77        | 0.64     |
| 20:U:65:ILE:HD11 | 20:U:96:ALA:HB2  | 1.75        | 0.64     |
| 15:W:24:ILE:CB   | 15:W:32:ALA:HB1  | 2.28        | 0.64     |
| 17:Y:58:GLU:H    | 17:Y:97:ARG:NH1  | 1.96        | 0.64     |
| 12:Q:94:ARG:CG   | 12:Q:107:LYS:H   | 2.10        | 0.64     |
| 2:A:1697:G:C3'   | 2:A:1698:A:H5'   | 2.27        | 0.64     |
| 2:A:1804:C:H42   | 2:A:1813:G:H1    | 1.46        | 0.64     |
| 26:5:46:CYS:O    | 26:5:49:CYS:N    | 2.28        | 0.63     |
| 27:6:2:ALA:O     | 27:6:4:ASP:OD1   | 2.16        | 0.63     |
| 2:A:1952:A:C2    | 10:O:22:ILE:HD13 | 2.33        | 0.63     |
| 2:A:2098:U:N3    | 2:A:2191:G:N1    | 2.41        | 0.63     |
| 2:A:2478:A:N7    | 2:A:2479:G:N7    | 2.46        | 0.63     |
| 2:A:2546:U:O2    | 2:A:2567:G:C8    | 2.51        | 0.63     |
| 2:A:2604:U:H2'   | 2:A:2605:U:C5    | 2.33        | 0.63     |
| 2:A:2626:C:OP2   | 2:A:2626:C:C5    | 2.51        | 0.63     |
| 2:A:2741:A:C2'   | 2:A:2742:C:C5'   | 2.57        | 0.63     |
| 2:A:2735:G:N1    | 2:A:2770:G:N2    | 2.46        | 0.63     |
| 2:A:2864:G:C2'   | 2:A:2865:U:H6    | 2.09        | 0.63     |
| 2:A:495:G:C1'    | 15:W:57:ASN:CG   | 2.63        | 0.63     |
| 4:E:206:LYS:C    | 4:E:257:GLY:CA   | 2.67        | 0.63     |
| 4:E:201:VAL:HG13 | 4:E:310:PHE:C    | 2.18        | 0.63     |
| 5:F:211:ASP:CG   | 5:F:211:ASP:O    | 2.36        | 0.63     |
| 6:G:93:LEU:CD2   | 6:G:97:GLN:OE1   | 2.36        | 0.63     |
| 7:H:102:LEU:HD13 | 7:H:122:ILE:HD13 | 1.79        | 0.63     |
| 7:H:122:ILE:HG12 | 7:H:132:VAL:HG22 | 1.78        | 0.63     |
| 9:N:41:ALA:HB1   | 9:N:75:PRO:HB3   | 1.81        | 0.63     |
| 12:Q:12:PRO:CB   | 12:Q:20:ILE:CD1  | 2.73        | 0.63     |
| 12:Q:31:PHE:O    | 12:Q:85:ILE:HD11 | 1.99        | 0.63     |
| 19:R:19:ALA:O    | 19:R:20:LEU:O    | 2.14        | 0.63     |
| 15:W:6:ILE:HG12  | 15:W:7:ALA:H     | 1.63        | 0.63     |
| 17:Y:30:ASP:O    | 17:Y:31:LEU:C    | 2.37        | 0.63     |
| 17:Y:74:VAL:CB   | 17:Y:77:VAL:CG2  | 2.70        | 0.63     |
| 18:Z:3:LEU:O     | 18:Z:56:VAL:CG2  | 2.46        | 0.63     |
| 2:A:1076:C:O2    | 31:K:92:PRO:HG2  | 1.98        | 0.63     |
| 7:H:53:ARG:CB    | 7:H:56:ASP:OD1   | 2.21        | 0.63     |
| 23:3:26:LEU:HD21 | 23:3:46:ASN:ND2  | 2.11        | 0.63     |
| 2:A:1364:G:C3'   | 25:4:3:LYS:NZ    | 2.60        | 0.63     |
| 25:4:6:HIS:CG    | 25:4:56:VAL:CG2  | 2.62        | 0.63     |
| 26:5:56:GLN:C    | 26:5:57:VAL:HG23 | 2.18        | 0.63     |
| 27:6:19:GLY:CA   | 27:6:44:ALA:HB2  | 2.24        | 0.63     |
| 2:A:2103:C:N3    | 2:A:2187:G:C6    | 2.65        | 0.63     |
| 2:A:2299:G:H2'   | 2:A:2300:G:H8    | 1.63        | 0.63     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2310:A:N9    | 6:G:55:LYS:NZ    | 2.45        | 0.63     |
| 2:A:2344:U:O2'   | 2:A:2345:G:C5'   | 2.45        | 0.63     |
| 2:A:2391:G:O2'   | 2:A:2392:A:C5'   | 2.35        | 0.63     |
| 2:A:2457:U:O2'   | 2:A:2458:G:C5'   | 2.40        | 0.63     |
| 2:A:2507:C:C5    | 2:A:2508:G:N7    | 2.66        | 0.63     |
| 2:A:2520:C:C5    | 2:A:2567:G:C5    | 2.86        | 0.63     |
| 2:A:2619:C:H2'   | 2:A:2620:C:O5'   | 1.98        | 0.63     |
| 2:A:2653:U:N1    | 2:A:2654:A:N7    | 2.46        | 0.63     |
| 2:A:2655:G:C2'   | 2:A:2655:G:N3    | 2.61        | 0.63     |
| 2:A:2676:C:H3'   | 2:A:2676:C:H6    | 1.61        | 0.63     |
| 2:A:2700:C:H2'   | 2:A:2701:C:O4'   | 1.97        | 0.63     |
| 2:A:2689:U:C4    | 2:A:2713:A:N6    | 2.66        | 0.63     |
| 2:A:2845:G:O2'   | 2:A:2846:G:C4'   | 2.41        | 0.63     |
| 2:A:848:G:H2'    | 2:A:849:A:H8     | 1.61        | 0.63     |
| 2:A:931:G:P      | 23:3:27:GLY:HA3  | 2.38        | 0.63     |
| 3:D:75:GLY:HA3   | 3:D:115:ILE:C    | 2.17        | 0.63     |
| 4:E:175:ASP:O    | 4:E:176:HIS:C    | 2.34        | 0.63     |
| 6:G:49:PRO:CG    | 6:G:73:VAL:HG23  | 2.28        | 0.63     |
| 7:H:123:GLU:O    | 7:H:125:PRO:HD2  | 1.99        | 0.63     |
| 7:H:57:GLU:O     | 7:H:58:LYS:C     | 2.37        | 0.63     |
| 10:O:43:VAL:HG11 | 10:O:54:LYS:HA   | 1.80        | 0.63     |
| 12:Q:152:SER:O   | 12:Q:155:GLY:N   | 2.31        | 0.63     |
| 19:R:55:ALA:CB   | 19:R:79:LEU:HD21 | 2.28        | 0.63     |
| 13:S:27:LEU:O    | 13:S:28:LYS:C    | 2.36        | 0.63     |
| 20:U:113:SER:O   | 20:U:115:ASN:CA  | 2.46        | 0.63     |
| 21:V:39:PHE:CD2  | 21:V:41:GLY:N    | 2.66        | 0.63     |
| 15:W:24:ILE:HA   | 15:W:35:ILE:HD13 | 1.79        | 0.63     |
| 15:W:39:THR:OG1  | 15:W:40:ASN:N    | 2.32        | 0.63     |
| 17:Y:46:ASP:N    | 17:Y:62:VAL:HG11 | 2.12        | 0.63     |
| 17:Y:71:VAL:HG22 | 17:Y:93:THR:CA   | 2.28        | 0.63     |
| 8:I:68:LEU:CG    | 8:I:108:LEU:HD11 | 2.26        | 0.63     |
| 8:I:133:LEU:H    | 8:I:138:THR:HG22 | 1.61        | 0.63     |
| 8:I:79:ILE:HD12  | 8:I:79:ILE:N     | 2.14        | 0.63     |
| 16:X:13:LYS:HA   | 16:X:16:ASN:OD1  | 1.96        | 0.63     |
| 16:X:14:ALA:HB1  | 16:X:18:MET:HE1  | 1.80        | 0.63     |
| 16:X:25:GLN:N    | 16:X:26:PHE:CE1  | 2.66        | 0.63     |
| 16:X:26:PHE:HD1  | 16:X:26:PHE:N    | 1.94        | 0.63     |
| 2:A:1598:C:H5'   | 16:X:34:LYS:HB2  | 1.80        | 0.63     |
| 3:D:139:LEU:HD13 | 3:D:139:LEU:O    | 1.92        | 0.63     |
| 25:4:21:VAL:O    | 25:4:22:MET:HB2  | 1.97        | 0.63     |
| 2:A:464:U:O4'    | 28:7:12:ARG:NH2  | 2.31        | 0.63     |
| 28:7:43:THR:O    | 28:7:44:VAL:C    | 2.36        | 0.63     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 30:9:10:MET:C     | 30:9:10:MET:HE3  | 2.19        | 0.63     |
| 2:A:1779:U:H3'    | 2:A:1779:U:C6    | 2.33        | 0.63     |
| 2:A:2065:C:N4     | 2:A:2445:G:N1    | 2.40        | 0.63     |
| 2:A:2199:A:C3'    | 2:A:2205:C:C6    | 2.76        | 0.63     |
| 2:A:2304:G:C4'    | 6:G:105:SER:CB   | 2.66        | 0.63     |
| 2:A:2319:G:P      | 2:A:2320:A:OP1   | 2.56        | 0.63     |
| 2:A:2353:G:H1     | 2:A:2364:C:H41   | 1.31        | 0.63     |
| 2:A:412:A:H61     | 2:A:2411:A:H1'   | 1.62        | 0.63     |
| 2:A:2436:G:C2     | 2:A:2437:U:N1    | 2.66        | 0.63     |
| 2:A:2436:G:N1     | 2:A:2437:U:N3    | 2.45        | 0.63     |
| 2:A:575:A:H4'     | 2:A:2500:U:H5'   | 1.80        | 0.63     |
| 2:A:2651:C:C2     | 2:A:2670:A:C2    | 2.85        | 0.63     |
| 2:A:2839:G:N1     | 2:A:2840:C:C4    | 2.65        | 0.63     |
| 2:A:614:U:H3'     | 2:A:615:G:C4'    | 2.19        | 0.63     |
| 4:E:217:TRP:CE2   | 4:E:251:PRO:HB3  | 2.33        | 0.63     |
| 4:E:45:LYS:N      | 4:E:74:GLU:OE1   | 2.31        | 0.63     |
| 5:F:31:ILE:O      | 5:F:32:GLY:C     | 2.36        | 0.63     |
| 7:H:126:SER:O     | 7:H:128:THR:N    | 2.31        | 0.63     |
| 8:I:9:VAL:O       | 8:I:10:LYS:HB3   | 1.97        | 0.63     |
| 9:N:15:ARG:CG     | 9:N:43:ARG:CD    | 2.71        | 0.63     |
| 9:N:60:ARG:CB     | 9:N:71:TYR:HD2   | 2.10        | 0.63     |
| 10:O:17:ARG:C     | 10:O:18:GLU:HG3  | 2.18        | 0.63     |
| 10:O:17:ARG:HH21  | 10:O:47:THR:C    | 2.02        | 0.63     |
| 10:O:14:SER:OG    | 10:O:86:ILE:HD12 | 1.98        | 0.63     |
| 11:P:106:VAL:HG23 | 11:P:123:ASP:H   | 1.62        | 0.63     |
| 2:A:873:G:C4'     | 12:Q:32:LYS:HB3  | 2.24        | 0.63     |
| 19:R:20:LEU:C     | 19:R:22:ARG:N    | 2.52        | 0.63     |
| 19:R:42:LYS:C     | 19:R:43:GLU:OE2  | 2.36        | 0.63     |
| 13:S:81:ALA:C     | 13:S:83:LEU:N    | 2.51        | 0.63     |
| 20:U:94:VAL:O     | 20:U:98:ILE:HD13 | 0.82        | 0.63     |
| 21:V:61:VAL:HG22  | 21:V:97:GLY:C    | 2.19        | 0.63     |
| 18:Z:67:LYS:CA    | 18:Z:67:LYS:HZ2  | 2.05        | 0.63     |
| 8:I:95:SER:C      | 8:I:98:ILE:CB    | 2.53        | 0.63     |
| 2:A:1076:C:O4'    | 31:K:91:GLU:OE2  | 2.16        | 0.63     |
| 2:A:2898:U:C2     | 2:A:2899:G:C8    | 2.86        | 0.63     |
| 2:A:2354:G:O2'    | 24:0:32:LYS:HB2  | 1.99        | 0.63     |
| 24:0:36:ILE:N     | 24:0:68:VAL:HG22 | 2.12        | 0.63     |
| 25:4:30:GLU:C     | 25:4:31:ILE:CD1  | 2.47        | 0.63     |
| 2:A:2286:A:N6     | 27:6:31:THR:O    | 2.31        | 0.63     |
| 29:8:4:MET:SD     | 29:8:4:MET:N     | 2.72        | 0.63     |
| 29:8:52:LYS:C     | 29:8:54:GLU:N    | 2.31        | 0.63     |
| 2:A:584:C:N4      | 2:A:1256:G:H1    | 1.94        | 0.63     |

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| Atom-1           | Atom-2          | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 2:A:1638:C:H5''  | 2:A:2710:C:H1'  | 1.80        | 0.63     |
| 2:A:1998:G:O3'   | 2:A:2724:C:H4'  | 1.98        | 0.63     |
| 2:A:2234:G:N1    | 2:A:2235:G:C4   | 2.66        | 0.63     |
| 2:A:2317:C:C4    | 2:A:2318:G:C6   | 2.87        | 0.63     |
| 2:A:2485:G:N3    | 2:A:2486:G:C1'  | 2.61        | 0.63     |
| 2:A:2495:G:H4'   | 12:Q:101:MET:CB | 2.29        | 0.63     |
| 2:A:2543:G:N7    | 2:A:2544:G:C5   | 2.63        | 0.63     |
| 2:A:2579:C:O2'   | 2:A:2580:U:H5'  | 1.96        | 0.63     |
| 2:A:2774:C:H5''  | 2:A:2774:C:C6   | 2.34        | 0.63     |
| 2:A:2786:U:H2'   | 2:A:2787:C:H6   | 1.64        | 0.63     |
| 2:A:29:U:C4'     | 20:U:11:ARG:NH2 | 2.61        | 0.63     |
| 2:A:566:U:O5'    | 21:V:81:ARG:NH2 | 2.31        | 0.63     |
| 2:A:85:G:C5'     | 17:Y:65:VAL:CG1 | 2.77        | 0.63     |
| 3:D:105:ALA:H    | 3:D:106:PRO:HD3 | 1.61        | 0.63     |
| 4:E:198:TYR:CZ   | 4:E:267:ARG:HB3 | 2.34        | 0.63     |
| 4:E:47:GLY:HA2   | 4:E:305:LYS:HG2 | 1.79        | 0.63     |
| 5:F:20:ASP:O     | 5:F:21:VAL:C    | 2.36        | 0.63     |
| 6:G:20:LYS:HA    | 6:G:76:ARG:CG   | 2.28        | 0.63     |
| 7:H:91:VAL:N     | 7:H:159:LYS:CE  | 2.61        | 0.63     |
| 9:N:47:THR:O     | 9:N:53:ILE:HD11 | 1.98        | 0.63     |
| 2:A:2040:C:H4'   | 9:N:69:TYR:CE2  | 2.32        | 0.63     |
| 12:Q:118:ALA:O   | 12:Q:119:ASN:CB | 2.46        | 0.63     |
| 12:Q:130:PRO:HB2 | 12:Q:134:PHE:CZ | 2.34        | 0.63     |
| 12:Q:33:MET:C    | 12:Q:83:PHE:HB2 | 2.18        | 0.63     |
| 13:S:31:LYS:HB3  | 13:S:32:PRO:N   | 2.14        | 0.63     |
| 21:V:49:GLU:CA   | 21:V:53:LYS:HD2 | 2.28        | 0.63     |
| 17:Y:31:LEU:O    | 17:Y:34:GLU:HG3 | 1.92        | 0.63     |
| 18:Z:47:SER:O    | 18:Z:48:THR:C   | 2.35        | 0.63     |
| 18:Z:55:THR:HG23 | 18:Z:58:GLY:HA2 | 1.80        | 0.63     |
| 8:I:108:LEU:HD23 | 8:I:109:LYS:N   | 2.13        | 0.63     |
| 8:I:112:LYS:H    | 8:I:112:LYS:HD3 | 1.60        | 0.63     |
| 2:A:1790:C:OP2   | 3:D:224:VAL:CG1 | 2.45        | 0.63     |
| 22:2:43:PRO:O    | 22:2:44:GLY:C   | 2.34        | 0.63     |
| 22:2:48:GLU:O    | 22:2:51:LYS:N   | 2.32        | 0.63     |
| 28:7:8:ASN:HB2   | 28:7:11:LYS:HB2 | 1.80        | 0.63     |
| 2:A:1612:C:C6    | 28:7:3:ARG:NH2  | 2.67        | 0.63     |
| 2:A:2189:U:C2'   | 2:A:2190:G:H8   | 2.12        | 0.63     |
| 2:A:2216:G:O2'   | 2:A:2217:G:C5'  | 2.40        | 0.63     |
| 2:A:2286:A:C5'   | 2:A:2287:A:H4'  | 2.17        | 0.63     |
| 2:A:2429:G:H5''  | 2:A:2430:A:OP2  | 1.95        | 0.63     |
| 2:A:2462:U:H1'   | 2:A:2491:U:O4   | 1.99        | 0.63     |
| 2:A:2616:C:C2    | 2:A:2617:C:C6   | 2.86        | 0.63     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2619:C:H2'   | 2:A:2620:C:C5'   | 2.28        | 0.63     |
| 2:A:2657:A:C6    | 2:A:2665:A:C5    | 2.86        | 0.63     |
| 2:A:1456:G:H22   | 2:A:2703:C:H5    | 1.45        | 0.63     |
| 2:A:2803:C:H2'   | 2:A:2803:C:O2    | 1.99        | 0.63     |
| 2:A:291:C:C2'    | 2:A:292:C:H5'    | 2.28        | 0.63     |
| 3:D:103:ILE:C    | 3:D:104:ILE:HD12 | 2.18        | 0.63     |
| 4:E:192:ILE:O    | 4:E:194:ARG:HG2  | 1.98        | 0.63     |
| 2:A:2621:A:O2'   | 4:E:255:GLN:NE2  | 2.31        | 0.63     |
| 2:A:2679:A:O2'   | 4:E:300:VAL:HG12 | 1.98        | 0.63     |
| 6:G:53:LYS:O     | 6:G:54:ALA:HB2   | 1.97        | 0.63     |
| 7:H:87:GLU:CG    | 7:H:162:ARG:O    | 2.34        | 0.63     |
| 9:N:19:MET:HG2   | 9:N:132:LEU:HD11 | 1.80        | 0.63     |
| 11:P:114:VAL:CG2 | 11:P:133:VAL:N   | 2.41        | 0.63     |
| 12:Q:51:GLU:CA   | 12:Q:118:ALA:HB2 | 2.18        | 0.63     |
| 2:A:910:A:C3'    | 12:Q:17:ARG:HH21 | 2.08        | 0.63     |
| 12:Q:47:GLU:OE2  | 12:Q:151:SER:HA  | 1.99        | 0.63     |
| 2:A:1287:A:H8    | 19:R:104:ARG:CD  | 2.11        | 0.63     |
| 19:R:22:ARG:HG3  | 19:R:26:LYS:CE   | 2.23        | 0.63     |
| 20:U:17:VAL:O    | 20:U:20:ARG:HB2  | 1.99        | 0.63     |
| 17:Y:46:ASP:CG   | 17:Y:98:VAL:CG1  | 2.67        | 0.63     |
| 17:Y:51:LEU:HD23 | 17:Y:52:ARG:HG3  | 1.80        | 0.63     |
| 17:Y:55:PHE:HE2  | 17:Y:89:ARG:HH22 | 1.46        | 0.63     |
| 2:A:1598:C:H5'   | 16:X:34:LYS:CG   | 2.27        | 0.63     |
| 9:N:5:GLU:N      | 9:N:109:TYR:HE2  | 1.97        | 0.63     |
| 16:X:76:GLU:CD   | 16:X:77:VAL:HG23 | 2.19        | 0.63     |
| 2:A:1482:U:C3'   | 2:A:1482:U:C6    | 2.80        | 0.63     |
| 2:A:1555:G:C8    | 2:A:1555:G:O5'   | 2.51        | 0.63     |
| 2:A:259:G:H2'    | 2:A:260:G:H8     | 1.63        | 0.63     |
| 24:0:46:LYS:N    | 24:0:46:LYS:CD   | 2.60        | 0.63     |
| 24:0:69:PHE:C    | 24:0:70:ILE:HG23 | 2.17        | 0.63     |
| 2:A:931:G:OP1    | 23:3:27:GLY:HA3  | 1.96        | 0.63     |
| 23:3:53:LEU:O    | 23:3:53:LEU:HD23 | 1.99        | 0.63     |
| 2:A:388:G:H5'    | 25:4:24:THR:HG22 | 1.80        | 0.63     |
| 25:4:17:GLN:CB   | 25:4:33:VAL:HB   | 2.28        | 0.63     |
| 26:5:31:THR:OG1  | 26:5:32:GLU:N    | 2.32        | 0.63     |
| 27:6:2:ALA:CB    | 27:6:11:LYS:HE3  | 2.28        | 0.63     |
| 2:A:1131:G:N1    | 9:N:69:TYR:HE1   | 1.90        | 0.63     |
| 2:A:1664:A:H8    | 2:A:1664:A:H3'   | 1.63        | 0.63     |
| 2:A:2056:G:H21   | 26:5:8:LYS:NZ    | 1.96        | 0.63     |
| 2:A:2252:G:H3'   | 2:A:2252:G:H8    | 1.63        | 0.63     |
| 2:A:1129:A:H2    | 2:A:2570:G:C8    | 2.16        | 0.63     |
| 2:A:2509:G:C2    | 2:A:2580:U:C2    | 2.87        | 0.63     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2637:U:N3     | 2:A:2782:G:N1    | 2.47        | 0.63     |
| 2:A:2644:G:P      | 2:A:2644:G:H8    | 2.22        | 0.63     |
| 2:A:2692:C:O2     | 2:A:2847:U:O2'   | 2.13        | 0.63     |
| 2:A:2819:G:C3'    | 2:A:2821:A:N6    | 2.42        | 0.63     |
| 2:A:2881:C:HO2'   | 2:A:2882:A:P     | 2.21        | 0.63     |
| 3:D:131:LEU:O     | 3:D:132:GLU:C    | 2.36        | 0.63     |
| 4:E:201:VAL:HG13  | 4:E:310:PHE:O    | 1.99        | 0.63     |
| 4:E:211:GLN:H     | 4:E:216:ARG:NH2  | 1.93        | 0.63     |
| 4:E:80:ALA:CB     | 4:E:187:HIS:NE2  | 2.61        | 0.63     |
| 5:F:39:GLN:O      | 5:F:42:ARG:N     | 2.30        | 0.63     |
| 5:F:6:TYR:CD1     | 5:F:139:VAL:HG12 | 2.33        | 0.63     |
| 6:G:141:VAL:HA    | 6:G:144:ARG:NH1  | 2.13        | 0.63     |
| 7:H:127:GLN:CG    | 7:H:128:THR:N    | 2.61        | 0.63     |
| 2:A:2746:U:C4'    | 7:H:138:GLN:HA   | 2.29        | 0.63     |
| 7:H:40:MET:CB     | 7:H:64:HIS:CE1   | 2.81        | 0.63     |
| 7:H:41:THR:HG22   | 7:H:52:THR:HG21  | 1.80        | 0.63     |
| 8:I:39:ALA:O      | 8:I:44:LEU:HG    | 1.99        | 0.63     |
| 11:P:94:ARG:HD2   | 11:P:94:ARG:H    | 1.64        | 0.63     |
| 12:Q:66:ASN:O     | 12:Q:68:ALA:N    | 2.31        | 0.63     |
| 19:R:72:ASP:C     | 19:R:76:VAL:CG2  | 2.65        | 0.63     |
| 13:S:87:LEU:O     | 13:S:90:LEU:HB2  | 1.97        | 0.63     |
| 20:U:28:ARG:O     | 20:U:29:SER:C    | 2.36        | 0.63     |
| 21:V:61:VAL:HG12  | 21:V:95:ILE:HG22 | 0.70        | 0.63     |
| 17:Y:20:HIS:HA    | 17:Y:67:LEU:CD2  | 2.28        | 0.63     |
| 18:Z:160:LEU:HD12 | 18:Z:160:LEU:N   | 2.13        | 0.63     |
| 18:Z:64:ALA:HB1   | 18:Z:84:TYR:O    | 1.99        | 0.63     |
| 8:I:141:LEU:HD13  | 8:I:142:LYS:CA   | 2.29        | 0.63     |
| 22:2:31:ARG:C     | 22:2:34:GLN:N    | 2.51        | 0.63     |
| 2:A:72:U:C5'      | 22:2:57:LYS:HZ1  | 2.10        | 0.63     |
| 2:A:138:G:C8      | 16:X:42:GLU:OE1  | 2.51        | 0.63     |
| 16:X:6:LYS:HD2    | 16:X:27:ALA:CB   | 2.28        | 0.63     |
| 14:T:45:GLU:O     | 14:T:48:ASN:OD1  | 2.17        | 0.63     |
| 2:A:162:U:H4'     | 2:A:171:G:H21    | 1.64        | 0.63     |
| 25:4:63:PHE:HD2   | 25:4:69:ARG:NH2  | 1.96        | 0.63     |
| 27:6:11:LYS:HE2   | 27:6:26:LYS:HE2  | 1.80        | 0.63     |
| 27:6:21:TYR:HE1   | 27:6:43:VAL:HG21 | 1.64        | 0.63     |
| 2:A:1287:A:C5'    | 19:R:104:ARG:CD  | 2.76        | 0.63     |
| 2:A:2100:G:C1'    | 2:A:2190:G:N2    | 2.61        | 0.63     |
| 2:A:2314:C:O2'    | 2:A:2315:G:H5'   | 1.96        | 0.63     |
| 2:A:2369:A:O2'    | 2:A:2370:G:H5'   | 1.98        | 0.63     |
| 2:A:2396:G:H2'    | 2:A:2396:G:N3    | 2.11        | 0.63     |
| 2:A:2398:U:H6     | 2:A:2398:U:O5'   | 1.82        | 0.63     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2446:G:C5'    | 2:A:2446:G:C8     | 2.77        | 0.63     |
| 2:A:2636:U:O2'    | 4:E:84:ARG:NH1    | 2.31        | 0.63     |
| 2:A:2737:G:C6     | 2:A:2738:A:N6     | 2.66        | 0.63     |
| 2:A:2861:G:H5''   | 2:A:2861:G:C8     | 2.26        | 0.63     |
| 2:A:2887:U:N3     | 2:A:2888:C:C5     | 2.66        | 0.63     |
| 2:A:687:C:O4'     | 28:7:4:THR:CG2    | 2.46        | 0.63     |
| 2:A:85:G:P        | 17:Y:65:VAL:HG21  | 2.39        | 0.63     |
| 3:D:179:GLU:C     | 3:D:180:VAL:HG23  | 2.19        | 0.63     |
| 4:E:176:HIS:O     | 4:E:179:ASP:CG    | 2.36        | 0.63     |
| 2:A:2770:G:H1'    | 4:E:316:ARG:NH2   | 2.01        | 0.63     |
| 5:F:168:ARG:C     | 5:F:193:LEU:HG    | 2.18        | 0.63     |
| 6:G:141:VAL:HA    | 6:G:144:ARG:HH11  | 1.62        | 0.63     |
| 6:G:47:GLN:HE21   | 6:G:79:MET:HG3    | 1.63        | 0.63     |
| 7:H:34:ARG:HH12   | 7:H:73:ASN:CB     | 2.07        | 0.63     |
| 7:H:71:LEU:O      | 7:H:72:ALA:C      | 2.37        | 0.63     |
| 9:N:12:VAL:CB     | 9:N:38:VAL:HG21   | 2.29        | 0.63     |
| 9:N:58:GLU:CA     | 9:N:61:VAL:HB     | 2.29        | 0.63     |
| 9:N:83:ILE:HG12   | 9:N:84:ARG:H      | 1.49        | 0.63     |
| 12:Q:127:ASN:HB2  | 12:Q:128:PRO:CD   | 2.29        | 0.63     |
| 12:Q:85:ILE:HD12  | 12:Q:85:ILE:N     | 2.14        | 0.63     |
| 19:R:44:LEU:HD13  | 19:R:48:VAL:HG23  | 1.73        | 0.63     |
| 2:A:2376:A:C6     | 13:S:119:GLN:NE2  | 2.65        | 0.63     |
| 20:U:59:ARG:O     | 20:U:60:LEU:C     | 2.36        | 0.63     |
| 20:U:88:ILE:HG22  | 21:V:52:GLY:HA2   | 1.80        | 0.63     |
| 21:V:57:GLN:O     | 21:V:58:ALA:CB    | 2.47        | 0.63     |
| 21:V:93:ILE:C     | 21:V:95:ILE:HD11  | 2.19        | 0.63     |
| 15:W:58:ALA:HA    | 15:W:62:HIS:CB    | 2.15        | 0.63     |
| 18:Z:112:LEU:HD21 | 18:Z:172:LEU:N    | 2.14        | 0.63     |
| 2:A:60:G:N3       | 2:A:74:A:N6       | 2.47        | 0.63     |
| 7:H:169:ARG:HE    | 7:H:169:ARG:HA    | 1.64        | 0.63     |
| 18:Z:96:VAL:HG13  | 18:Z:97:PRO:CD    | 2.16        | 0.63     |
| 2:A:840:C:H4'     | 2:A:1192:G:O2'    | 1.98        | 0.63     |
| 2:A:1906:G:C6     | 2:A:1929:G:N1     | 2.66        | 0.63     |
| 29:8:16:ILE:HG22  | 29:8:17:THR:N     | 2.14        | 0.63     |
| 30:9:7:VAL:CG2    | 30:9:36:GLN:HG3   | 2.29        | 0.63     |
| 2:A:2197:U:C2'    | 2:A:2224:G:N2     | 2.62        | 0.63     |
| 2:A:2234:G:C5     | 2:A:2235:G:N7     | 2.67        | 0.63     |
| 2:A:2241:A:H2'    | 2:A:2242:G:H8     | 1.64        | 0.63     |
| 2:A:2251:G:H3'    | 12:Q:102:ARG:HH22 | 1.62        | 0.63     |
| 2:A:2436:G:C6     | 2:A:2437:U:C5     | 2.87        | 0.63     |
| 2:A:2023:G:H5''   | 2:A:2617:C:HO2'   | 1.64        | 0.63     |
| 2:A:2691:C:N4     | 2:A:2719:G:C2     | 2.66        | 0.63     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2716:U:O2'    | 2:A:2717:G:H5''   | 1.98        | 0.63     |
| 2:A:2718:G:C4     | 2:A:2719:G:C8     | 2.86        | 0.63     |
| 2:A:2735:G:O6     | 2:A:2770:G:N2     | 2.30        | 0.63     |
| 2:A:2745:C:C2'    | 2:A:2746:U:O5'    | 2.46        | 0.63     |
| 2:A:2843:G:C5     | 2:A:2844:G:C8     | 2.87        | 0.63     |
| 2:A:511:U:H5      | 2:A:512:G:N3      | 1.97        | 0.63     |
| 2:A:997:G:H3'     | 20:U:92:ARG:NH1   | 1.76        | 0.63     |
| 2:A:598:G:N3      | 5:F:33:LYS:NZ     | 2.47        | 0.63     |
| 6:G:93:LEU:CD2    | 6:G:106:PHE:HD2   | 1.94        | 0.63     |
| 6:G:135:VAL:O     | 6:G:135:VAL:CG1   | 2.47        | 0.63     |
| 11:P:145:LEU:N    | 11:P:145:LEU:HD12 | 2.04        | 0.63     |
| 2:A:29:U:O3'      | 20:U:8:ILE:HG13   | 1.99        | 0.63     |
| 17:Y:41:ARG:C     | 17:Y:112:LEU:CB   | 2.62        | 0.63     |
| 2:A:67:U:H2'      | 2:A:68:G:C8       | 2.34        | 0.63     |
| 2:A:1614:A:N6     | 15:W:88:ARG:CG    | 2.61        | 0.63     |
| 17:Y:84:GLY:O     | 17:Y:85:GLU:C     | 2.37        | 0.63     |
| 2:A:1496:A:O5'    | 2:A:1496:A:C8     | 2.51        | 0.63     |
| 2:A:1899:G:N2     | 2:A:1902:C:H41    | 1.96        | 0.63     |
| 2:A:1556:C:H2'    | 2:A:1557:C:H6     | 1.64        | 0.63     |
| 17:Y:109:GLU:O    | 17:Y:109:GLU:HG2  | 1.97        | 0.63     |
| 2:A:1364:G:C1'    | 25:4:3:LYS:NZ     | 2.61        | 0.63     |
| 25:4:73:LYS:OXT   | 25:4:73:LYS:CG    | 2.43        | 0.63     |
| 26:5:18:MET:O     | 26:5:19:ARG:O     | 2.17        | 0.63     |
| 29:8:50:LEU:CD2   | 29:8:51:ALA:CA    | 2.67        | 0.63     |
| 2:A:1129:A:C2     | 2:A:2570:G:C8     | 2.86        | 0.63     |
| 2:A:125:G:C2      | 28:7:10:ARG:HA    | 2.34        | 0.63     |
| 2:A:2395:C:H6     | 2:A:2395:C:O5'    | 1.81        | 0.63     |
| 2:A:2586:C:O2     | 2:A:2587:A:C8     | 2.52        | 0.63     |
| 2:A:2608:G:C8     | 2:A:2608:G:H3'    | 2.33        | 0.63     |
| 2:A:527:C:H6      | 2:A:2779:U:H2'    | 1.64        | 0.63     |
| 2:A:2869:G:N1     | 2:A:2870:C:C6     | 2.66        | 0.63     |
| 3:D:110:LYS:CE    | 3:D:110:LYS:HA    | 2.29        | 0.63     |
| 4:E:211:GLN:N     | 4:E:216:ARG:NH1   | 2.45        | 0.63     |
| 4:E:251:PRO:O     | 4:E:252:GLN:NE2   | 2.32        | 0.63     |
| 6:G:23:VAL:HG12   | 6:G:130:VAL:HB    | 1.81        | 0.63     |
| 8:I:5:PHE:C       | 8:I:36:ALA:CB     | 2.66        | 0.63     |
| 10:O:11:ALA:C     | 10:O:99:PHE:HB2   | 2.18        | 0.63     |
| 11:P:104:ASP:O    | 11:P:105:TYR:CB   | 2.46        | 0.63     |
| 11:P:114:VAL:HG21 | 11:P:133:VAL:H    | 1.55        | 0.63     |
| 11:P:71:GLU:C     | 11:P:73:VAL:N     | 2.52        | 0.63     |
| 12:Q:130:PRO:O    | 12:Q:133:GLU:N    | 2.31        | 0.63     |
| 12:Q:142:LYS:HE3  | 12:Q:142:LYS:HA   | 1.79        | 0.63     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:15:THR:O    | 12:Q:16:ARG:CG   | 2.39        | 0.63     |
| 19:R:22:ARG:HG2  | 19:R:26:LYS:NZ   | 2.14        | 0.63     |
| 19:R:36:THR:HG21 | 19:R:40:LYS:HD3  | 1.79        | 0.63     |
| 13:S:115:VAL:O   | 13:S:118:ILE:CG2 | 2.47        | 0.63     |
| 13:S:76:GLY:O    | 13:S:82:TYR:CA   | 2.46        | 0.63     |
| 20:U:28:ARG:CA   | 20:U:31:GLN:HB2  | 2.12        | 0.63     |
| 20:U:43:ALA:C    | 20:U:45:TYR:N    | 2.51        | 0.63     |
| 17:Y:41:ARG:HD2  | 17:Y:111:ARG:HA  | 1.81        | 0.63     |
| 18:Z:119:ASN:HB3 | 18:Z:120:LEU:CD2 | 2.29        | 0.63     |
| 18:Z:26:LYS:HG2  | 18:Z:27:GLU:HG3  | 1.81        | 0.63     |
| 22:2:24:LYS:O    | 22:2:26:GLU:OE2  | 2.17        | 0.63     |
| 16:X:23:LYS:O    | 16:X:68:LEU:CD2  | 2.46        | 0.63     |
| 7:H:170:LEU:CD1  | 7:H:170:LEU:C    | 2.62        | 0.63     |
| 2:A:1801:G:C8    | 2:A:1801:G:OP1   | 2.47        | 0.63     |
| 2:A:354:G:N3     | 2:A:355:G:N7     | 2.47        | 0.63     |
| 2:A:1306:C:H2'   | 2:A:1307:A:O4'   | 1.99        | 0.63     |
| 24:0:43:THR:HG23 | 24:0:75:GLY:HA3  | 1.72        | 0.62     |
| 23:3:50:VAL:O    | 23:3:53:LEU:N    | 2.27        | 0.62     |
| 25:4:58:LYS:HD2  | 25:4:62:ARG:NH2  | 2.11        | 0.62     |
| 27:6:42:PRO:O    | 27:6:44:ALA:N    | 2.32        | 0.62     |
| 2:A:771:G:OP2    | 28:7:11:LYS:NZ   | 2.32        | 0.62     |
| 28:7:33:ARG:O    | 28:7:34:ARG:C    | 2.36        | 0.62     |
| 29:8:16:ILE:CG2  | 29:8:22:VAL:HG22 | 2.29        | 0.62     |
| 30:9:7:VAL:CG1   | 30:9:34:GLN:NE2  | 2.60        | 0.62     |
| 2:A:1152:C:H4'   | 20:U:80:ILE:CD1  | 2.28        | 0.62     |
| 2:A:2051:A:C2    | 2:A:2618:G:O6    | 2.51        | 0.62     |
| 2:A:2218:G:C4'   | 3:D:147:PRO:HG3  | 2.29        | 0.62     |
| 2:A:2322:A:N3    | 2:A:2322:A:H2'   | 2.14        | 0.62     |
| 2:A:2395:C:H6    | 2:A:2395:C:C3'   | 2.09        | 0.62     |
| 2:A:2418:A:C2'   | 2:A:2419:U:O4'   | 2.47        | 0.62     |
| 2:A:2615:U:H2'   | 2:A:2616:C:H6    | 1.63        | 0.62     |
| 2:A:2625:G:C8    | 2:A:2626:C:C4    | 2.87        | 0.62     |
| 2:A:2628:C:H1'   | 2:A:2781:A:C2'   | 2.20        | 0.62     |
| 2:A:2671:A:H2'   | 2:A:2672:G:C8    | 2.33        | 0.62     |
| 2:A:2638:G:C2    | 2:A:2778:A:N6    | 2.62        | 0.62     |
| 2:A:2894:G:H2'   | 2:A:2894:G:N3    | 2.14        | 0.62     |
| 2:A:627:A:H2'    | 2:A:628:G:O4'    | 1.99        | 0.62     |
| 2:A:647:G:OP1    | 2:A:2352:A:H4'   | 1.99        | 0.62     |
| 2:A:1655:A:O3'   | 4:E:212:GLY:HA3  | 1.98        | 0.62     |
| 6:G:57:THR:N     | 6:G:63:ILE:HA    | 2.13        | 0.62     |
| 7:H:23:VAL:HG11  | 7:H:74:MET:SD    | 2.39        | 0.62     |
| 9:N:95:ARG:O     | 9:N:97:ALA:N     | 2.32        | 0.62     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:O:31:ARG:C    | 10:O:32:TYR:CG    | 2.72        | 0.62     |
| 10:O:3:GLN:HG2   | 10:O:4:GLN:H      | 1.63        | 0.62     |
| 12:Q:50:VAL:HG13 | 12:Q:51:GLU:OE1   | 1.98        | 0.62     |
| 13:S:33:ARG:CB   | 13:S:35:VAL:HG23  | 2.29        | 0.62     |
| 20:U:93:LYS:O    | 20:U:94:VAL:HB    | 1.99        | 0.62     |
| 21:V:71:ILE:C    | 21:V:88:GLN:HG3   | 2.20        | 0.62     |
| 15:W:17:VAL:HA   | 15:W:20:VAL:HG21  | 1.80        | 0.62     |
| 17:Y:55:PHE:O    | 17:Y:58:GLU:HB2   | 1.97        | 0.62     |
| 18:Z:15:ASP:O    | 18:Z:16:GLU:CB    | 2.46        | 0.62     |
| 18:Z:40:ASP:HB2  | 18:Z:41:ARG:HE    | 1.60        | 0.62     |
| 22:2:14:ALA:O    | 22:2:17:GLU:HB2   | 1.98        | 0.62     |
| 2:A:60:G:N3      | 2:A:74:A:C6       | 2.67        | 0.62     |
| 16:X:33:SER:H    | 16:X:36:GLU:HG3   | 1.63        | 0.62     |
| 2:A:1216:G:N2    | 2:A:1234:U:H1'    | 2.14        | 0.62     |
| 24:0:49:GLN:N    | 24:0:49:GLN:HE21  | 1.97        | 0.62     |
| 24:0:68:VAL:O    | 24:0:69:PHE:HB2   | 1.93        | 0.62     |
| 2:A:849:A:H2     | 23:3:21:ALA:CA    | 2.13        | 0.62     |
| 2:A:1270:C:C4'   | 2:A:1271:G:H5''   | 2.23        | 0.62     |
| 2:A:2205:C:HO2'  | 2:A:2228:G:N2     | 1.97        | 0.62     |
| 2:A:2391:G:H2'   | 2:A:2392:A:OP2    | 1.98        | 0.62     |
| 2:A:2475:C:O2'   | 2:A:2477:C:P      | 2.57        | 0.62     |
| 2:A:2533:A:H2'   | 2:A:2534:A:H8     | 1.63        | 0.62     |
| 2:A:2615:U:C2'   | 2:A:2616:C:C5'    | 2.76        | 0.62     |
| 2:A:531:C:H3'    | 2:A:532:A:H4'     | 1.80        | 0.62     |
| 2:A:581:C:OP1    | 20:U:33:ARG:NH1   | 2.31        | 0.62     |
| 2:A:590:A:C4'    | 5:F:97:ASP:OD2    | 2.47        | 0.62     |
| 3:D:160:SER:O    | 3:D:176:ALA:CB    | 2.47        | 0.62     |
| 3:D:85:ASN:ND2   | 3:D:86:ARG:HD2    | 2.14        | 0.62     |
| 2:A:2679:A:C4    | 4:E:300:VAL:HG11  | 2.33        | 0.62     |
| 2:A:2770:G:H1'   | 4:E:316:ARG:HH12  | 1.63        | 0.62     |
| 5:F:216:SER:O    | 5:F:217:GLU:CB    | 2.47        | 0.62     |
| 6:G:28:GLY:N     | 6:G:69:ILE:HG21   | 2.15        | 0.62     |
| 7:H:128:THR:HG23 | 7:H:129:LYS:N     | 2.15        | 0.62     |
| 9:N:101:VAL:O    | 9:N:102:ARG:HG3   | 1.99        | 0.62     |
| 9:N:20:GLY:C     | 9:N:22:VAL:H      | 2.00        | 0.62     |
| 10:O:101:PRO:CA  | 10:O:120:GLU:O    | 2.47        | 0.62     |
| 10:O:79:PHE:N    | 10:O:79:PHE:CD2   | 2.66        | 0.62     |
| 11:P:125:PHE:H   | 11:P:130:ARG:HH21 | 1.47        | 0.62     |
| 12:Q:82:LYS:CB   | 12:Q:123:ILE:HG22 | 2.29        | 0.62     |
| 13:S:86:LEU:CD2  | 13:S:124:ASP:CB   | 2.76        | 0.62     |
| 13:S:76:GLY:O    | 13:S:83:LEU:HD13  | 1.98        | 0.62     |
| 21:V:42:GLY:HA3  | 21:V:54:TYR:HE2   | 1.56        | 0.62     |

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| Atom-1          | Atom-2            | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 17:Y:105:ASP:O  | 17:Y:108:ARG:N    | 2.21        | 0.62     |
| 18:Z:123:VAL:HB | 18:Z:159:THR:HG23 | 1.81        | 0.62     |
| 18:Z:42:ALA:O   | 18:Z:43:PHE:C     | 2.36        | 0.62     |
| 22:2:61:GLY:O   | 22:2:62:GLU:C     | 2.38        | 0.62     |
| 2:A:76:C:C5'    | 22:2:55:ARG:HE    | 2.12        | 0.62     |
| 16:X:31:ARG:NE  | 16:X:31:ARG:HA    | 2.14        | 0.62     |
| 16:X:52:VAL:C   | 16:X:53:ASN:HD22  | 2.02        | 0.62     |
| 2:A:2896:C:H6   | 2:A:2896:C:C3'    | 2.12        | 0.62     |
| 2:A:8:A:C2      | 2:A:2896:C:O2     | 2.52        | 0.62     |
| 2:A:1916:A:H8   | 2:A:1916:A:OP2    | 1.81        | 0.62     |
| 8:I:66:LYS:O    | 8:I:69:LYS:HE2    | 1.99        | 0.62     |
| 2:A:988:A:P     | 23:3:11:SER:N     | 2.66        | 0.62     |
| 23:3:46:ASN:C   | 23:3:48:GLU:OE1   | 2.37        | 0.62     |
| 23:3:51:ALA:O   | 23:3:52:HIS:C     | 2.33        | 0.62     |
| 26:5:15:LYS:O   | 26:5:16:ARG:O     | 2.17        | 0.62     |
| 28:7:34:ARG:HG2 | 28:7:35:ARG:N     | 2.13        | 0.62     |
| 2:A:1309:G:H21  | 2:A:1611:C:H5'    | 1.62        | 0.62     |
| 2:A:2193:G:H2'  | 2:A:2194:G:O4'    | 1.99        | 0.62     |
| 2:A:2080:G:C6   | 2:A:2241:A:N1     | 2.67        | 0.62     |
| 2:A:2258:C:OP2  | 2:A:2258:C:O4'    | 2.18        | 0.62     |
| 2:A:2398:U:C6   | 2:A:2398:U:C3'    | 2.82        | 0.62     |
| 2:A:2507:C:N4   | 2:A:2582:G:N1     | 2.47        | 0.62     |
| 2:A:2605:U:HO2' | 2:A:2606:C:P      | 2.20        | 0.62     |
| 2:A:2663:G:C8   | 2:A:2664:G:N7     | 2.67        | 0.62     |
| 2:A:2692:C:H2'  | 2:A:2693:A:O5'    | 2.00        | 0.62     |
| 2:A:2709:G:C3'  | 2:A:2710:C:H5'    | 2.28        | 0.62     |
| 2:A:2779:U:H5'  | 2:A:2781:A:C8     | 2.34        | 0.62     |
| 2:A:2842:G:H1   | 2:A:2875:C:H42    | 1.48        | 0.62     |
| 2:A:2838:G:C2   | 2:A:2881:C:C2     | 2.88        | 0.62     |
| 2:A:387:U:H3'   | 25:4:29:PRO:HG3   | 1.81        | 0.62     |
| 2:A:530:G:C6    | 2:A:2021:C:O2     | 2.52        | 0.62     |
| 3:D:116:MET:HG2 | 3:D:117:SER:H     | 1.63        | 0.62     |
| 3:D:161:ALA:N   | 3:D:162:GLN:NE2   | 2.45        | 0.62     |
| 3:D:197:GLY:O   | 3:D:199:ARG:N     | 2.32        | 0.62     |
| 4:E:79:ARG:NH1  | 4:E:105:HIS:N     | 2.32        | 0.62     |
| 5:F:104:ASP:HB2 | 5:F:105:LYS:HD2   | 1.81        | 0.62     |
| 6:G:49:PRO:HB2  | 6:G:72:LYS:CA     | 2.28        | 0.62     |
| 7:H:30:GLY:CA   | 7:H:78:VAL:O      | 2.46        | 0.62     |
| 8:I:43:ASN:O    | 8:I:44:LEU:C      | 2.35        | 0.62     |
| 10:O:71:ARG:NH2 | 10:O:77:ILE:HG21  | 2.14        | 0.62     |
| 11:P:77:ALA:HA  | 11:P:81:VAL:CG2   | 2.16        | 0.62     |
| 13:S:100:ALA:H  | 13:S:127:LEU:CD2  | 2.11        | 0.62     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 13:S:20:TYR:CD2  | 13:S:21:HIS:HD2  | 2.17        | 0.62     |
| 20:U:117:ARG:CD  | 20:U:118:GLN:H   | 2.11        | 0.62     |
| 20:U:13:ARG:NH1  | 20:U:13:ARG:H    | 1.95        | 0.62     |
| 21:V:59:GLU:HG2  | 21:V:100:GLY:H   | 1.63        | 0.62     |
| 21:V:33:VAL:O    | 21:V:62:GLU:CA   | 2.28        | 0.62     |
| 17:Y:26:THR:O    | 17:Y:27:LEU:CG   | 2.45        | 0.62     |
| 17:Y:32:ARG:O    | 17:Y:34:GLU:CA   | 2.47        | 0.62     |
| 17:Y:66:ASP:C    | 17:Y:68:ASP:N    | 2.53        | 0.62     |
| 18:Z:139:THR:O   | 18:Z:140:LYS:HB2 | 2.00        | 0.62     |
| 18:Z:163:ASP:OD2 | 18:Z:164:PRO:HD3 | 0.81        | 0.62     |
| 8:I:133:LEU:HB2  | 8:I:138:THR:HA   | 1.80        | 0.62     |
| 8:I:141:LEU:CD1  | 8:I:142:LYS:N    | 2.57        | 0.62     |
| 16:X:25:GLN:HA   | 16:X:25:GLN:OE1  | 1.99        | 0.62     |
| 2:A:1575:C:H2'   | 2:A:1576:U:O2    | 1.99        | 0.62     |
| 26:5:11:THR:CB   | 26:5:16:ARG:HE   | 2.09        | 0.62     |
| 2:A:1031:G:H4'   | 30:9:8:LYS:HZ2   | 1.64        | 0.62     |
| 2:A:108:U:H2'    | 2:A:109:G:C8     | 2.34        | 0.62     |
| 2:A:1152:C:H1'   | 20:U:77:SER:HB3  | 1.81        | 0.62     |
| 2:A:2268:A:H3'   | 2:A:2268:A:C8    | 2.35        | 0.62     |
| 2:A:2389:G:OP1   | 2:A:2390:U:C5'   | 2.42        | 0.62     |
| 2:A:2427:C:H6    | 2:A:2427:C:H5'   | 1.64        | 0.62     |
| 2:A:247:G:O6     | 29:8:11:LYS:NZ   | 2.21        | 0.62     |
| 2:A:2579:C:C6    | 2:A:2579:C:H3'   | 2.34        | 0.62     |
| 2:A:2603:G:H8    | 2:A:2603:G:H5''  | 1.64        | 0.62     |
| 2:A:2684:U:C4    | 2:A:2725:A:N6    | 2.67        | 0.62     |
| 2:A:2837:G:C6    | 2:A:2882:A:C6    | 2.87        | 0.62     |
| 2:A:998:C:H5''   | 20:U:84:LYS:HZ3  | 1.62        | 0.62     |
| 4:E:265:ASN:C    | 4:E:265:ASN:ND2  | 2.52        | 0.62     |
| 5:F:196:THR:OG1  | 5:F:201:SER:OG   | 1.84        | 0.62     |
| 6:G:47:GLN:NE2   | 6:G:79:MET:HG3   | 2.13        | 0.62     |
| 9:N:61:VAL:HG12  | 9:N:62:ASP:N     | 2.13        | 0.62     |
| 12:Q:152:SER:CB  | 12:Q:153:PRO:HD2 | 2.29        | 0.62     |
| 12:Q:92:VAL:CG1  | 12:Q:111:THR:N   | 2.49        | 0.62     |
| 19:R:96:ARG:HG2  | 19:R:115:GLU:HG3 | 1.81        | 0.62     |
| 19:R:52:ILE:O    | 19:R:55:ALA:N    | 2.32        | 0.62     |
| 13:S:122:ALA:HA  | 13:S:125:ALA:HB3 | 1.80        | 0.62     |
| 13:S:97:VAL:HG12 | 13:S:98:GLU:N    | 2.13        | 0.62     |
| 20:U:69:ALA:HB3  | 20:U:76:TYR:CZ   | 2.34        | 0.62     |
| 20:U:69:ALA:O    | 20:U:79:PHE:CZ   | 2.52        | 0.62     |
| 21:V:39:PHE:CE2  | 21:V:41:GLY:CA   | 2.82        | 0.62     |
| 17:Y:102:ASP:O   | 17:Y:103:LEU:CD2 | 2.48        | 0.62     |
| 18:Z:5:ALA:O     | 18:Z:33:ALA:CB   | 2.31        | 0.62     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:Z:62:PHE:CE2  | 18:Z:87:THR:CB   | 2.82        | 0.62     |
| 22:2:29:ASN:C    | 22:2:34:GLN:HG2  | 2.19        | 0.62     |
| 22:2:55:ARG:O    | 22:2:58:THR:CA   | 2.48        | 0.62     |
| 2:A:58:G:H2'     | 2:A:73:A:N6      | 2.14        | 0.62     |
| 16:X:52:VAL:CG2  | 16:X:66:VAL:HG22 | 2.29        | 0.62     |
| 2:A:1906:G:N9    | 2:A:1929:G:N7    | 2.48        | 0.62     |
| 13:S:70:GLY:O    | 13:S:71:TRP:CE3  | 2.52        | 0.62     |
| 24:0:31:VAL:O    | 24:0:32:LYS:C    | 2.37        | 0.62     |
| 23:3:6:VAL:HG22  | 23:3:7:LYS:N     | 2.14        | 0.62     |
| 2:A:388:G:O5'    | 25:4:23:GLU:HB3  | 1.98        | 0.62     |
| 25:4:63:PHE:O    | 25:4:66:SER:N    | 2.33        | 0.62     |
| 27:6:40:TYR:H    | 27:6:50:PHE:HE1  | 1.36        | 0.62     |
| 29:8:9:MET:O     | 29:8:14:ILE:CG1  | 2.48        | 0.62     |
| 2:A:1809:A:O2'   | 2:A:1810:A:H5'   | 1.99        | 0.62     |
| 2:A:2058:A:H2'   | 2:A:2059:A:C8    | 2.35        | 0.62     |
| 2:A:2078:C:C4'   | 2:A:2434:A:H5'   | 2.29        | 0.62     |
| 2:A:2253:G:O2'   | 2:A:2254:C:P     | 2.58        | 0.62     |
| 2:A:2333:A:O4'   | 2:A:2335:A:N3    | 2.32        | 0.62     |
| 2:A:2748:A:C2    | 2:A:2758:A:N7    | 2.66        | 0.62     |
| 2:A:2756:U:O2    | 2:A:2756:U:C2'   | 2.47        | 0.62     |
| 2:A:2822:G:OP2   | 2:A:2822:G:C8    | 2.52        | 0.62     |
| 2:A:2863:C:N3    | 2:A:2864:G:N7    | 2.47        | 0.62     |
| 2:A:535:C:C5'    | 20:U:53:LYS:NZ   | 2.62        | 0.62     |
| 2:A:657:U:H2'    | 2:A:658:C:C6     | 2.34        | 0.62     |
| 2:A:825:C:O4'    | 2:A:2428:G:O6    | 2.18        | 0.62     |
| 3:D:119:PRO:O    | 3:D:133:ASN:ND2  | 2.31        | 0.62     |
| 3:D:70:LYS:HB3   | 3:D:70:LYS:HZ3   | 1.64        | 0.62     |
| 3:D:90:ILE:CG2   | 3:D:91:ALA:N     | 2.61        | 0.62     |
| 3:D:95:TYR:HB2   | 3:D:99:GLU:O     | 1.99        | 0.62     |
| 2:A:2680:C:H4'   | 4:E:300:VAL:HA   | 1.81        | 0.62     |
| 9:N:12:VAL:C     | 9:N:38:VAL:HG22  | 2.20        | 0.62     |
| 9:N:90:LYS:HZ3   | 9:N:95:ARG:NH2   | 1.97        | 0.62     |
| 11:P:67:ARG:O    | 11:P:68:GLU:C    | 2.36        | 0.62     |
| 12:Q:116:HIS:O   | 12:Q:117:GLY:C   | 2.38        | 0.62     |
| 12:Q:130:PRO:O   | 12:Q:132:VAL:N   | 2.32        | 0.62     |
| 12:Q:58:HIS:N    | 12:Q:61:LEU:CG   | 2.62        | 0.62     |
| 14:T:10:GLY:H    | 14:T:52:THR:HB   | 1.64        | 0.62     |
| 20:U:109:LEU:O   | 20:U:111:ASP:N   | 2.32        | 0.62     |
| 20:U:93:LYS:HD3  | 20:U:93:LYS:N    | 2.13        | 0.62     |
| 18:Z:151:ASP:HB3 | 18:Z:153:LYS:HZ1 | 1.60        | 0.62     |
| 18:Z:52:PHE:H    | 18:Z:65:LEU:HD11 | 1.64        | 0.62     |
| 18:Z:68:ALA:O    | 18:Z:69:VAL:CB   | 2.46        | 0.62     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:I:83:ALA:HB2   | 8:I:89:LEU:HA    | 1.80        | 0.62     |
| 22:2:20:LEU:CD2  | 22:2:53:ILE:HG23 | 2.29        | 0.62     |
| 22:2:5:VAL:HG12  | 22:2:6:GLN:H     | 0.54        | 0.62     |
| 16:X:6:LYS:NZ    | 16:X:29:ASP:N    | 2.46        | 0.62     |
| 2:A:1274:A:C5    | 2:A:1302:A:H2    | 2.17        | 0.62     |
| 27:6:48:VAL:HG12 | 27:6:49:VAL:O    | 1.99        | 0.62     |
| 28:7:43:THR:C    | 28:7:46:ASP:OD1  | 2.35        | 0.62     |
| 2:A:2014:A:H2'   | 2:A:2015:A:C2    | 2.34        | 0.62     |
| 2:A:2276:G:N3    | 2:A:2277:G:C8    | 2.67        | 0.62     |
| 2:A:2345:G:N2    | 2:A:2381:C:H3'   | 2.15        | 0.62     |
| 2:A:826:U:C5'    | 2:A:2429:G:P     | 2.60        | 0.62     |
| 2:A:2468:G:C2'   | 2:A:2469:A:H5'   | 2.29        | 0.62     |
| 2:A:2504:U:C6    | 2:A:2504:U:C4'   | 2.82        | 0.62     |
| 2:A:2517:C:HO2'  | 2:A:2518:A:C5'   | 1.92        | 0.62     |
| 2:A:2653:U:C3'   | 2:A:2654:A:N7    | 2.62        | 0.62     |
| 2:A:2739:U:H5    | 2:A:2763:G:C2    | 2.17        | 0.62     |
| 2:A:2850:A:C4    | 2:A:2851:A:C8    | 2.87        | 0.62     |
| 2:A:2857:G:H3'   | 2:A:2857:G:C8    | 2.34        | 0.62     |
| 4:E:104:PHE:CB   | 4:E:108:LEU:HD12 | 2.29        | 0.62     |
| 5:F:103:ASN:O    | 5:F:107:ARG:HG3  | 2.00        | 0.62     |
| 5:F:52:ALA:HB2   | 5:F:55:ARG:HH21  | 0.80        | 0.62     |
| 5:F:59:GLU:CB    | 5:F:61:PHE:CE2   | 2.57        | 0.62     |
| 6:G:38:GLU:CA    | 6:G:41:LEU:HD12  | 2.29        | 0.62     |
| 7:H:75:VAL:C     | 7:H:77:GLY:N     | 2.47        | 0.62     |
| 7:H:88:LEU:O     | 7:H:88:LEU:HD23  | 1.98        | 0.62     |
| 9:N:21:ARG:HD2   | 9:N:21:ARG:H     | 1.64        | 0.62     |
| 2:A:1131:G:C4    | 9:N:65:ASN:CG    | 2.65        | 0.62     |
| 11:P:128:GLY:O   | 11:P:132:LYS:HD3 | 1.99        | 0.62     |
| 11:P:66:VAL:CG1  | 11:P:67:ARG:N    | 2.43        | 0.62     |
| 12:Q:65:ARG:NE   | 12:Q:122:PHE:CD2 | 2.67        | 0.62     |
| 13:S:111:PRO:O   | 13:S:114:LYS:O   | 2.18        | 0.62     |
| 13:S:34:LEU:O    | 13:S:103:ASP:HB3 | 2.00        | 0.62     |
| 15:W:19:LEU:O    | 15:W:20:VAL:C    | 2.37        | 0.62     |
| 18:Z:140:LYS:CA  | 18:Z:141:MET:SD  | 2.81        | 0.62     |
| 18:Z:51:LEU:HA   | 18:Z:65:LEU:HD12 | 1.82        | 0.62     |
| 18:Z:67:LYS:CB   | 18:Z:67:LYS:HZ2  | 2.13        | 0.62     |
| 8:I:144:HIS:CD2  | 8:I:144:HIS:O    | 2.52        | 0.62     |
| 8:I:68:LEU:HA    | 8:I:72:LEU:HD21  | 1.81        | 0.62     |
| 24:0:6:GLY:O     | 24:0:8:GLY:N     | 2.32        | 0.62     |
| 2:A:1222:C:H42   | 2:A:1227:A:H61   | 1.45        | 0.62     |
| 2:A:1889:A:H2'   | 2:A:1890:A:C8    | 2.35        | 0.62     |
| 24:0:68:VAL:HG21 | 24:0:72:LYS:HE3  | 1.82        | 0.62     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 25:4:7:PRO:HD2    | 25:4:56:VAL:HG21  | 0.66        | 0.62     |
| 2:A:1275:A:H2'    | 2:A:1276:A:O4'    | 2.00        | 0.62     |
| 2:A:2211:G:N3     | 2:A:2211:G:C2'    | 2.62        | 0.62     |
| 2:A:2261:C:H2'    | 2:A:2261:C:O2     | 1.99        | 0.62     |
| 2:A:2292:C:H42    | 2:A:2340:G:H1     | 1.44        | 0.62     |
| 2:A:2347:C:H2'    | 2:A:2348:U:H6     | 1.65        | 0.62     |
| 2:A:2327:A:C5     | 2:A:2388:A:N6     | 2.66        | 0.62     |
| 2:A:2396:G:N2     | 2:A:2397:G:C8     | 2.67        | 0.62     |
| 2:A:2472:G:C2'    | 2:A:2475:C:N4     | 2.42        | 0.62     |
| 2:A:2569:G:N1     | 2:A:2570:G:N7     | 2.47        | 0.62     |
| 2:A:2595:G:C2     | 2:A:2597:G:O5'    | 2.53        | 0.62     |
| 2:A:2772:C:N4     | 2:A:2773:C:N4     | 2.47        | 0.62     |
| 2:A:2836:U:H6     | 2:A:2836:U:H3'    | 1.64        | 0.62     |
| 2:A:2870:C:N3     | 2:A:2871:C:C6     | 2.67        | 0.62     |
| 2:A:530:G:H1'     | 2:A:532:A:OP2     | 1.99        | 0.62     |
| 2:A:917:A:H3'     | 2:A:918:A:H5''    | 1.82        | 0.62     |
| 4:E:242:ASN:N     | 4:E:243:PRO:HD2   | 2.14        | 0.62     |
| 2:A:2317:C:P      | 6:G:150:SER:HA    | 2.40        | 0.62     |
| 6:G:24:HIS:CB     | 6:G:72:LYS:HA     | 2.26        | 0.62     |
| 7:H:48:VAL:HG23   | 7:H:49:ILE:N      | 2.14        | 0.62     |
| 9:N:12:VAL:CB     | 9:N:38:VAL:HG22   | 2.30        | 0.62     |
| 10:O:65:THR:HG1   | 10:O:67:ARG:HG2   | 1.63        | 0.62     |
| 11:P:120:LEU:HD12 | 11:P:122:ALA:HB3  | 1.81        | 0.62     |
| 11:P:62:ALA:HB2   | 11:P:105:TYR:CB   | 2.22        | 0.62     |
| 20:U:88:ILE:HB    | 21:V:52:GLY:CA    | 2.30        | 0.62     |
| 21:V:14:VAL:HG21  | 21:V:19:VAL:HG21  | 0.77        | 0.62     |
| 2:A:487:C:O2      | 15:W:53:SER:OG    | 2.18        | 0.62     |
| 17:Y:43:ASN:ND2   | 17:Y:102:ASP:O    | 2.33        | 0.62     |
| 18:Z:18:MET:HA    | 18:Z:35:ASP:HA    | 1.82        | 0.62     |
| 18:Z:70:GLN:O     | 18:Z:72:ASP:OD2   | 2.17        | 0.62     |
| 2:A:1059:G:N2     | 31:K:131:THR:HG23 | 2.14        | 0.62     |
| 16:X:38:ALA:HB1   | 16:X:49:VAL:HG13  | 1.81        | 0.62     |
| 12:Q:94:ARG:CZ    | 12:Q:106:GLY:HA3  | 2.30        | 0.62     |
| 2:A:1284:A:H2'    | 2:A:1285:G:C8     | 2.33        | 0.62     |
| 24:O:24:LYS:O     | 24:O:25:LYS:HB2   | 1.98        | 0.62     |
| 23:3:26:LEU:HD21  | 23:3:46:ASN:CB    | 2.26        | 0.62     |
| 23:3:25:ALA:C     | 23:3:27:GLY:N     | 2.51        | 0.62     |
| 23:3:8:LEU:CD2    | 23:3:32:GLN:N     | 2.59        | 0.62     |
| 26:5:40:LYS:HD2   | 26:5:49:CYS:SG    | 2.38        | 0.62     |
| 2:A:1022:G:O6     | 9:N:47:THR:HB     | 2.00        | 0.62     |
| 2:A:2100:G:N9     | 2:A:2190:G:N2     | 2.48        | 0.62     |
| 2:A:2208:U:H2'    | 2:A:2209:C:H6     | 1.63        | 0.62     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2246:G:H2'   | 2:A:2247:A:C8    | 2.34        | 0.62     |
| 2:A:2284:C:OP2   | 27:6:9:ILE:HG13  | 2.00        | 0.62     |
| 2:A:2297:C:C4    | 2:A:2333:A:N6    | 2.66        | 0.62     |
| 2:A:197:A:N6     | 2:A:2430:A:C8    | 2.67        | 0.62     |
| 2:A:2431:U:O4    | 2:A:2434:A:OP2   | 2.17        | 0.62     |
| 2:A:2496:C:N4    | 2:A:2497:A:C2    | 2.68        | 0.62     |
| 2:A:2572:A:C5'   | 2:A:2574:G:C5'   | 2.64        | 0.62     |
| 2:A:2652:C:HO2'  | 2:A:2653:U:H5'   | 1.63        | 0.62     |
| 2:A:2792:G:H1'   | 2:A:2805:G:N2    | 2.14        | 0.62     |
| 2:A:2827:C:C2    | 2:A:2828:C:C5    | 2.88        | 0.62     |
| 2:A:2885:C:N3    | 2:A:2886:G:C1'   | 2.63        | 0.62     |
| 3:D:71:ASP:HA    | 3:D:73:ILE:HG13  | 1.82        | 0.62     |
| 4:E:80:ALA:CA    | 4:E:187:HIS:NE2  | 2.63        | 0.62     |
| 4:E:205:THR:C    | 4:E:206:LYS:CG   | 2.66        | 0.62     |
| 5:F:1:MET:O      | 5:F:18:LEU:HD23  | 1.99        | 0.62     |
| 5:F:58:ALA:HB2   | 5:F:79:ARG:CB    | 2.30        | 0.62     |
| 5:F:93:LYS:CB    | 5:F:96:LYS:CE    | 2.78        | 0.62     |
| 5:F:93:LYS:HB2   | 5:F:96:LYS:HE3   | 1.80        | 0.62     |
| 6:G:142:ALA:CB   | 6:G:151:ILE:CG1  | 2.65        | 0.62     |
| 7:H:42:ILE:C     | 7:H:52:THR:CG2   | 2.56        | 0.62     |
| 7:H:73:ASN:CB    | 7:H:137:LYS:HZ2  | 2.07        | 0.62     |
| 9:N:136:SER:CA   | 9:N:139:LEU:CD2  | 2.78        | 0.62     |
| 10:O:14:SER:HB3  | 10:O:86:ILE:CD1  | 2.30        | 0.62     |
| 11:P:65:ASP:CB   | 11:P:109:LEU:H   | 2.13        | 0.62     |
| 12:Q:48:ASN:HD21 | 12:Q:122:PHE:HD1 | 1.47        | 0.62     |
| 12:Q:58:HIS:CE1  | 12:Q:59:ASN:CB   | 2.77        | 0.62     |
| 13:S:27:LEU:CD1  | 13:S:28:LYS:N    | 2.62        | 0.62     |
| 13:S:30:GLY:O    | 13:S:31:LYS:CB   | 2.47        | 0.62     |
| 14:T:8:TYR:O     | 14:T:53:ASP:HB2  | 1.99        | 0.62     |
| 15:W:32:ALA:C    | 15:W:34:ASN:N    | 2.53        | 0.62     |
| 17:Y:102:ASP:HB3 | 17:Y:108:ARG:CZ  | 2.30        | 0.62     |
| 17:Y:64:ASN:O    | 17:Y:72:ILE:CG2  | 2.33        | 0.62     |
| 18:Z:17:SER:O    | 18:Z:36:ARG:N    | 2.33        | 0.62     |
| 18:Z:26:LYS:N    | 18:Z:84:TYR:HE1  | 1.95        | 0.62     |
| 8:I:86:GLY:CA    | 8:I:88:ARG:N     | 2.63        | 0.62     |
| 3:D:213:LYS:O    | 3:D:215:LYS:HG2  | 1.99        | 0.62     |
| 3:D:226:GLY:C    | 3:D:227:VAL:HG12 | 2.12        | 0.62     |
| 22:2:20:LEU:CD2  | 22:2:53:ILE:CG2  | 2.77        | 0.62     |
| 22:2:60:GLN:O    | 22:2:63:GLU:HB3  | 1.99        | 0.62     |
| 25:4:49:PHE:O    | 25:4:50:LEU:O    | 2.17        | 0.62     |
| 8:I:62:LEU:O     | 8:I:66:LYS:HG3   | 2.00        | 0.62     |
| 2:A:1358:G:C8    | 2:A:1371:G:C6    | 2.87        | 0.62     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 23:3:59:VAL:C     | 23:3:60:GLU:CG   | 2.62        | 0.62     |
| 25:4:47:GLU:OE2   | 25:4:73:LYS:NZ   | 2.27        | 0.62     |
| 2:A:1239:G:HO2'   | 2:A:1240:U:H6    | 1.48        | 0.62     |
| 2:A:577:G:O2'     | 2:A:1254:A:OP1   | 2.17        | 0.62     |
| 2:A:2207:C:C2     | 2:A:2218:G:N1    | 2.68        | 0.62     |
| 2:A:2397:G:C2     | 2:A:2398:U:C2    | 2.88        | 0.62     |
| 2:A:2468:G:N1     | 2:A:2481:G:C5    | 2.67        | 0.62     |
| 2:A:2503:A:C4'    | 2:A:2504:U:OP1   | 2.38        | 0.62     |
| 2:A:2516:G:N7     | 2:A:2517:C:N4    | 2.47        | 0.62     |
| 2:A:2564:A:OP1    | 2:A:2648:C:H4'   | 1.99        | 0.62     |
| 2:A:2516:G:N2     | 2:A:2569:G:H1'   | 2.14        | 0.62     |
| 2:A:2652:C:C2'    | 2:A:2653:U:H6    | 2.11        | 0.62     |
| 2:A:2681:C:H1'    | 2:A:2682:U:C5    | 2.35        | 0.62     |
| 2:A:2721:A:C2     | 2:A:2722:G:C8    | 2.87        | 0.62     |
| 2:A:1033:U:C5     | 2:A:2750:A:N3    | 2.68        | 0.62     |
| 2:A:293:U:O2'     | 2:A:294:A:O4'    | 2.17        | 0.62     |
| 2:A:302:C:H2'     | 2:A:303:U:C6     | 2.35        | 0.62     |
| 1:B:57:A:H2       | 6:G:17:ARG:NH1   | 1.66        | 0.62     |
| 3:D:160:SER:C     | 3:D:162:GLN:HE22 | 2.03        | 0.62     |
| 3:D:172:ILE:N     | 3:D:182:MET:HE2  | 2.15        | 0.62     |
| 2:A:2785:C:O2     | 4:E:100:TRP:NE1  | 2.33        | 0.62     |
| 2:A:2617:C:H1'    | 4:E:245:ARG:NH2  | 2.15        | 0.62     |
| 4:E:70:VAL:CG1    | 4:E:295:LEU:HD23 | 2.30        | 0.62     |
| 5:F:37:ALA:CB     | 5:F:102:LEU:CD1  | 2.77        | 0.62     |
| 6:G:29:HIS:ND1    | 6:G:69:ILE:HD11  | 2.15        | 0.62     |
| 7:H:14:VAL:O      | 7:H:14:VAL:CG1   | 2.41        | 0.62     |
| 7:H:43:THR:HG22   | 7:H:52:THR:HG22  | 1.75        | 0.62     |
| 7:H:86:LEU:CD2    | 7:H:87:GLU:H     | 2.09        | 0.62     |
| 8:I:2:LYS:HG2     | 8:I:39:ALA:N     | 2.15        | 0.62     |
| 9:N:83:ILE:HG13   | 9:N:84:ARG:HG2   | 1.81        | 0.62     |
| 11:P:114:VAL:HG12 | 11:P:115:ARG:N   | 2.15        | 0.62     |
| 11:P:129:ALA:O    | 11:P:130:ARG:C   | 2.38        | 0.62     |
| 19:R:52:ILE:C     | 19:R:54:LEU:H    | 2.02        | 0.62     |
| 19:R:89:ASP:OD1   | 19:R:90:ARG:CA   | 2.48        | 0.62     |
| 19:R:99:LYS:HA    | 19:R:112:ALA:HB1 | 1.81        | 0.62     |
| 20:U:28:ARG:CA    | 20:U:31:GLN:OE1  | 2.48        | 0.62     |
| 21:V:61:VAL:HG21  | 21:V:97:GLY:CA   | 2.12        | 0.62     |
| 21:V:72:ARG:O     | 21:V:74:TYR:CE2  | 2.52        | 0.62     |
| 15:W:70:TYR:CE2   | 15:W:72:LYS:N    | 2.68        | 0.62     |
| 8:I:68:LEU:CD1    | 8:I:108:LEU:CD1  | 2.78        | 0.62     |
| 2:A:95:G:O2'      | 22:2:42:ASN:CB   | 2.47        | 0.62     |
| 2:A:1912:A:N7     | 2:A:1918:A:H2    | 1.97        | 0.62     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:359:A:H2'    | 2:A:360:G:C8     | 2.35        | 0.62     |
| 2:A:1980:G:C6    | 2:A:1982:C:N4    | 2.68        | 0.62     |
| 2:A:153:C:H42    | 2:A:173:G:H1     | 1.47        | 0.62     |
| 25:4:64:GLY:O    | 25:4:67:TYR:C    | 2.38        | 0.62     |
| 30:9:7:VAL:HG23  | 30:9:36:GLN:OE1  | 2.00        | 0.62     |
| 2:A:1652:A:H62   | 2:A:1653:G:H21   | 1.48        | 0.62     |
| 2:A:2266:A:H4'   | 2:A:2267:A:C2    | 2.35        | 0.62     |
| 2:A:2395:C:C4'   | 25:4:28:ARG:HH11 | 2.13        | 0.62     |
| 2:A:2064:C:H1'   | 2:A:2450:A:N6    | 2.15        | 0.62     |
| 2:A:2465:C:HO2'  | 2:A:2466:C:P     | 2.23        | 0.62     |
| 2:A:2544:G:C4    | 2:A:2545:G:C8    | 2.88        | 0.62     |
| 2:A:2665:A:H5''  | 2:A:2665:A:C8    | 2.34        | 0.62     |
| 2:A:1638:C:H4'   | 2:A:2709:G:H22   | 1.65        | 0.62     |
| 2:A:2759:G:C2'   | 2:A:2760:C:C5'   | 2.78        | 0.62     |
| 2:A:2740:A:C6    | 2:A:2764:A:C5    | 2.68        | 0.62     |
| 2:A:2628:C:O2    | 2:A:2781:A:C2'   | 2.47        | 0.62     |
| 2:A:527:C:C6     | 2:A:2779:U:H2'   | 2.35        | 0.62     |
| 2:A:684:G:N2     | 2:A:794:G:C2     | 2.68        | 0.62     |
| 5:F:141:SER:OG   | 5:F:144:PHE:CE1  | 2.51        | 0.62     |
| 2:A:673:C:O4'    | 5:F:82:GLN:NE2   | 2.32        | 0.62     |
| 7:H:15:THR:HG23  | 7:H:26:LYS:CA    | 2.29        | 0.62     |
| 10:O:17:ARG:CZ   | 10:O:47:THR:HA   | 2.30        | 0.62     |
| 11:P:61:ALA:CB   | 11:P:107:LYS:HZ1 | 2.13        | 0.62     |
| 14:T:37:GLU:O    | 14:T:39:ASN:N    | 2.33        | 0.62     |
| 14:T:6:CYS:SG    | 14:T:31:PHE:HD2  | 2.23        | 0.62     |
| 20:U:57:PHE:C    | 20:U:59:ARG:H    | 2.03        | 0.62     |
| 2:A:1152:C:H4'   | 20:U:80:ILE:HD12 | 1.81        | 0.62     |
| 20:U:99:ALA:HA   | 20:U:106:PHE:HB2 | 1.76        | 0.62     |
| 15:W:32:ALA:CA   | 15:W:35:ILE:HD11 | 2.27        | 0.62     |
| 2:A:338:G:C8     | 17:Y:21:LYS:CB   | 2.82        | 0.62     |
| 18:Z:120:LEU:CD2 | 18:Z:120:LEU:N   | 2.43        | 0.62     |
| 22:2:26:GLU:O    | 22:2:29:ASN:HB2  | 2.00        | 0.62     |
| 16:X:9:HIS:NE2   | 16:X:27:ALA:HB2  | 2.14        | 0.62     |
| 24:0:25:LYS:HE2  | 24:0:57:HIS:ND1  | 2.15        | 0.61     |
| 24:0:40:GLN:N    | 24:0:69:PHE:CZ   | 2.68        | 0.61     |
| 23:3:17:LYS:O    | 23:3:18:ASP:C    | 2.37        | 0.61     |
| 2:A:1268:A:H2'   | 2:A:1269:A:C8    | 2.35        | 0.61     |
| 2:A:198:C:H2'    | 2:A:199:A:H5''   | 1.81        | 0.61     |
| 2:A:1273:U:C2    | 2:A:2003:G:H5'   | 2.35        | 0.61     |
| 2:A:2353:G:C2    | 2:A:2364:C:N3    | 2.62        | 0.61     |
| 2:A:2384:G:O5'   | 2:A:2386:C:OP1   | 2.18        | 0.61     |
| 2:A:2488:A:C3'   | 2:A:2488:A:C8    | 2.83        | 0.61     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2611:U:C5    | 26:5:4:HIS:NE2    | 2.68        | 0.61     |
| 2:A:2782:G:C8    | 2:A:2782:G:P      | 2.93        | 0.61     |
| 2:A:2852:G:C2    | 2:A:2853:C:O2     | 2.52        | 0.61     |
| 2:A:322:A:OP2    | 2:A:322:A:C8      | 2.50        | 0.61     |
| 3:D:130:PRO:CA   | 3:D:188:ARG:HA    | 2.29        | 0.61     |
| 5:F:11:ASN:CG    | 5:F:160:LEU:HD11  | 2.20        | 0.61     |
| 5:F:16:VAL:HG12  | 5:F:17:ASP:N      | 2.13        | 0.61     |
| 2:A:2317:C:H5'   | 6:G:150:SER:HA    | 1.76        | 0.61     |
| 7:H:153:PRO:O    | 7:H:154:GLU:C     | 2.38        | 0.61     |
| 10:O:63:VAL:CG1  | 10:O:102:VAL:HG22 | 2.30        | 0.61     |
| 10:O:86:ILE:CG2  | 10:O:87:ILE:H     | 2.11        | 0.61     |
| 11:P:141:GLU:OE1 | 11:P:141:GLU:O    | 2.18        | 0.61     |
| 11:P:61:ALA:C    | 11:P:62:ALA:CA    | 2.66        | 0.61     |
| 19:R:47:PHE:O    | 19:R:49:ASP:N     | 2.32        | 0.61     |
| 21:V:61:VAL:HG23 | 21:V:98:ILE:H     | 1.62        | 0.61     |
| 15:W:82:LEU:O    | 15:W:83:LYS:C     | 2.38        | 0.61     |
| 18:Z:103:ARG:NH1 | 18:Z:137:ASP:O    | 2.32        | 0.61     |
| 18:Z:46:GLN:C    | 18:Z:49:THR:OG1   | 2.37        | 0.61     |
| 16:X:52:VAL:CG2  | 16:X:65:VAL:O     | 2.47        | 0.61     |
| 7:H:169:ARG:NE   | 7:H:169:ARG:HA    | 2.15        | 0.61     |
| 2:A:46:C:OP2     | 2:A:215:G:H3'     | 2.00        | 0.61     |
| 25:4:14:ILE:HG22 | 25:4:37:SER:N     | 2.10        | 0.61     |
| 2:A:388:G:OP2    | 25:4:29:PRO:HG3   | 2.00        | 0.61     |
| 28:7:11:LYS:HA   | 28:7:11:LYS:HE3   | 1.80        | 0.61     |
| 30:9:11:CYS:HB3  | 30:9:32:HIS:CE1   | 2.36        | 0.61     |
| 2:A:1819:A:H4'   | 2:A:1820:U:C5'    | 2.30        | 0.61     |
| 2:A:2021:C:C5    | 20:U:25:TRP:HZ2   | 2.15        | 0.61     |
| 2:A:2206:C:C2'   | 2:A:2207:C:O4'    | 2.47        | 0.61     |
| 2:A:2337:G:C6    | 2:A:2338:G:O6     | 2.52        | 0.61     |
| 2:A:2361:A:C3'   | 2:A:2362:G:H5'    | 2.31        | 0.61     |
| 2:A:2403:C:H42   | 2:A:2414:G:H1     | 1.47        | 0.61     |
| 2:A:2488:A:N1    | 2:A:2489:G:C5     | 2.68        | 0.61     |
| 2:A:2543:G:HO2'  | 2:A:2544:G:H5'    | 1.61        | 0.61     |
| 2:A:2516:G:C6    | 2:A:2569:G:C2     | 2.88        | 0.61     |
| 2:A:2618:G:C2'   | 2:A:2619:C:O5'    | 2.47        | 0.61     |
| 2:A:2653:U:H3'   | 2:A:2654:A:N7     | 2.15        | 0.61     |
| 2:A:2682:U:O4'   | 4:E:48:MET:HG3    | 2.01        | 0.61     |
| 2:A:2814:C:C2    | 2:A:2815:C:C5     | 2.87        | 0.61     |
| 2:A:2831:G:H1'   | 2:A:2883:A:N3     | 2.15        | 0.61     |
| 2:A:2886:G:N2    | 2:A:2887:U:C1'    | 2.63        | 0.61     |
| 2:A:465:G:N3     | 2:A:683:C:O2'     | 2.22        | 0.61     |
| 2:A:594:U:P      | 29:8:61:MET:CE    | 2.87        | 0.61     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:163:VAL:HG12 | 3:D:163:VAL:O    | 2.00        | 0.61     |
| 3:D:71:ASP:C     | 3:D:73:ILE:N     | 2.50        | 0.61     |
| 4:E:81:VAL:CB    | 4:E:100:TRP:CZ3  | 2.83        | 0.61     |
| 7:H:149:ALA:C    | 7:H:161:ILE:HD11 | 2.15        | 0.61     |
| 8:I:24:GLY:O     | 8:I:25:TYR:C     | 2.39        | 0.61     |
| 9:N:15:ARG:HG2   | 9:N:43:ARG:CB    | 2.30        | 0.61     |
| 9:N:42:GLU:CA    | 9:N:132:LEU:O    | 2.47        | 0.61     |
| 9:N:63:ILE:CD1   | 9:N:71:TYR:CE2   | 2.73        | 0.61     |
| 11:P:113:GLN:O   | 11:P:115:ARG:CD  | 2.48        | 0.61     |
| 19:R:62:ALA:HB1  | 19:R:80:PHE:CZ   | 2.35        | 0.61     |
| 13:S:103:ASP:C   | 13:S:105:GLY:H   | 2.04        | 0.61     |
| 20:U:117:ARG:NE  | 20:U:118:GLN:HG2 | 2.14        | 0.61     |
| 20:U:10:ARG:C    | 20:U:13:ARG:HH12 | 2.03        | 0.61     |
| 17:Y:41:ARG:CB   | 17:Y:112:LEU:CA  | 2.72        | 0.61     |
| 17:Y:45:GLY:C    | 17:Y:62:VAL:HG12 | 2.16        | 0.61     |
| 18:Z:125:PRO:CG  | 18:Z:130:ILE:CG2 | 2.78        | 0.61     |
| 18:Z:45:GLN:HE21 | 18:Z:45:GLN:H    | 1.45        | 0.61     |
| 9:N:36:VAL:HG12  | 9:N:36:VAL:O     | 2.00        | 0.61     |
| 16:X:33:SER:O    | 16:X:37:VAL:HB   | 1.99        | 0.61     |
| 2:A:2896:C:C6    | 2:A:2896:C:C4'   | 2.83        | 0.61     |
| 2:A:2409:G:O5'   | 2:A:2409:G:H8    | 1.82        | 0.61     |
| 2:A:1426:G:H5''  | 2:A:1427:A:H5''  | 1.81        | 0.61     |
| 2:A:660:G:H2'    | 2:A:661:C:C6     | 2.34        | 0.61     |
| 24:O:48:GLY:CA   | 24:O:55:ARG:CA   | 2.79        | 0.61     |
| 2:A:126:A:H5''   | 28:7:18:PHE:CD1  | 2.31        | 0.61     |
| 28:7:33:ARG:HB3  | 28:7:37:LYS:HD2  | 1.82        | 0.61     |
| 2:A:2069:G:C2    | 2:A:2443:C:C2    | 2.88        | 0.61     |
| 2:A:2215:G:C2'   | 2:A:2216:G:C8    | 2.55        | 0.61     |
| 2:A:2319:G:C4'   | 13:S:9:PRO:HD2   | 2.26        | 0.61     |
| 2:A:2416:C:C2    | 2:A:2417:C:C5    | 2.88        | 0.61     |
| 2:A:2423:U:N1    | 2:A:2425:A:C5    | 2.68        | 0.61     |
| 2:A:2476:A:N7    | 2:A:2477:C:C6    | 2.66        | 0.61     |
| 2:A:2504:U:C4'   | 2:A:2504:U:H6    | 2.13        | 0.61     |
| 2:A:2521:C:N3    | 2:A:2522:U:C5    | 2.68        | 0.61     |
| 2:A:2523:G:C4    | 2:A:2765:A:N6    | 2.68        | 0.61     |
| 2:A:2573:C:OP1   | 2:A:2575:C:OP2   | 2.18        | 0.61     |
| 2:A:2641:G:C6    | 2:A:2774:C:C5    | 2.88        | 0.61     |
| 2:A:2744:G:C2    | 2:A:2761:G:C2    | 2.88        | 0.61     |
| 2:A:2787:C:O2    | 2:A:2787:C:H2'   | 1.98        | 0.61     |
| 2:A:2805:G:H2'   | 2:A:2807:G:C4'   | 2.30        | 0.61     |
| 2:A:2817:G:C2    | 2:A:2818:G:C4    | 2.88        | 0.61     |
| 2:A:34:C:C2'     | 2:A:455:C:H41    | 2.13        | 0.61     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 3:D:167:GLU:CA  | 3:D:170:TYR:CD1  | 2.82        | 0.61     |
| 4:E:61:PRO:HB3  | 4:E:69:PRO:CA    | 2.30        | 0.61     |
| 5:F:102:LEU:HB3 | 5:F:107:ARG:CZ   | 2.30        | 0.61     |
| 5:F:63:SER:N    | 5:F:65:ARG:HE    | 1.87        | 0.61     |
| 6:G:51:ARG:NH1  | 6:G:72:LYS:HB2   | 2.15        | 0.61     |
| 7:H:60:HIS:O    | 7:H:63:LEU:HB3   | 2.00        | 0.61     |
| 7:H:67:THR:O    | 7:H:68:ARG:C     | 2.37        | 0.61     |
| 8:I:21:VAL:CG1  | 8:I:30:LEU:CD1   | 2.66        | 0.61     |
| 9:N:60:ARG:C    | 9:N:71:TYR:CD2   | 2.73        | 0.61     |
| 10:O:63:VAL:CG1 | 10:O:102:VAL:CB  | 2.76        | 0.61     |
| 2:A:2250:G:H5'' | 12:Q:102:ARG:HD3 | 1.81        | 0.61     |
| 12:Q:43:PRO:O   | 12:Q:125:TRP:CZ2 | 2.53        | 0.61     |
| 12:Q:131:ALA:HA | 12:Q:134:PHE:CD2 | 2.34        | 0.61     |
| 12:Q:41:THR:OG1 | 12:Q:126:VAL:CA  | 2.43        | 0.61     |
| 12:Q:47:GLU:OE2 | 12:Q:152:SER:N   | 2.33        | 0.61     |
| 20:U:109:LEU:O  | 20:U:110:VAL:C   | 2.37        | 0.61     |
| 20:U:15:LYS:HG2 | 20:U:19:LYS:HE2  | 1.82        | 0.61     |
| 21:V:35:LEU:N   | 21:V:60:VAL:HG13 | 2.14        | 0.61     |
| 21:V:50:ASP:CB  | 21:V:53:LYS:CG   | 2.28        | 0.61     |
| 21:V:33:VAL:CB  | 21:V:63:HIS:CE1  | 2.79        | 0.61     |
| 21:V:67:LYS:HE3 | 21:V:94:LYS:CD   | 2.28        | 0.61     |
| 21:V:65:ARG:O   | 21:V:93:ILE:CB   | 2.48        | 0.61     |
| 15:W:26:GLY:HA2 | 15:W:71:VAL:HG23 | 1.82        | 0.61     |
| 17:Y:32:ARG:C   | 17:Y:34:GLU:N    | 2.52        | 0.61     |
| 18:Z:9:THR:O    | 18:Z:13:LYS:HB2  | 2.00        | 0.61     |
| 2:A:148:C:N3    | 2:A:149:A:N6     | 2.49        | 0.61     |
| 2:A:440:G:P     | 17:Y:3:GLN:CD    | 2.78        | 0.61     |
| 8:I:63:ALA:HA   | 8:I:66:LYS:HE2   | 1.81        | 0.61     |
| 2:A:1417:C:H3'  | 2:A:1418:G:H8    | 1.65        | 0.61     |
| 2:A:865:C:N4    | 2:A:908:C:N4     | 2.48        | 0.61     |
| 2:A:51:G:H1'    | 2:A:118:A:N6     | 2.15        | 0.61     |
| 25:4:47:GLU:HA  | 25:4:53:GLU:H    | 1.66        | 0.61     |
| 28:7:26:SER:O   | 28:7:29:ASN:CB   | 2.42        | 0.61     |
| 28:7:43:THR:O   | 28:7:46:ASP:N    | 2.34        | 0.61     |
| 2:A:1610:A:OP2  | 2:A:1610:A:H8    | 1.83        | 0.61     |
| 2:A:2233:U:O2   | 2:A:2234:G:C1'   | 2.48        | 0.61     |
| 2:A:2276:G:C4   | 2:A:2277:G:C8    | 2.89        | 0.61     |
| 2:A:2400:G:C2   | 2:A:2401:U:O2    | 2.54        | 0.61     |
| 2:A:2447:G:O6   | 2:A:2501:C:O2    | 2.18        | 0.61     |
| 2:A:2520:C:O2'  | 2:A:2521:C:C5'   | 2.47        | 0.61     |
| 2:A:2526:G:N7   | 2:A:2527:C:H5    | 1.98        | 0.61     |
| 2:A:2562:U:H2'  | 2:A:2562:U:O2    | 1.99        | 0.61     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2693:A:C2    | 2:A:2694:G:C4     | 2.88        | 0.61     |
| 2:A:1457:A:C2    | 2:A:2703:C:C4     | 2.87        | 0.61     |
| 2:A:2712:U:C3'   | 2:A:2714:G:P      | 2.85        | 0.61     |
| 2:A:2801:A:H2    | 2:A:2895:U:C2'    | 2.13        | 0.61     |
| 2:A:2868:A:C2'   | 2:A:2869:G:H5'    | 2.29        | 0.61     |
| 2:A:647:G:H2'    | 2:A:648:G:H8      | 1.65        | 0.61     |
| 2:A:2785:C:C2    | 4:E:100:TRP:CD1   | 2.88        | 0.61     |
| 4:E:39:GLN:CD    | 4:E:174:LEU:CG    | 2.68        | 0.61     |
| 2:A:2620:C:H4'   | 4:E:252:GLN:CG    | 2.30        | 0.61     |
| 4:E:77:PRO:HG2   | 4:E:186:GLU:HB2   | 1.82        | 0.61     |
| 5:F:84:VAL:H     | 5:F:87:ARG:HE     | 1.49        | 0.61     |
| 6:G:98:PHE:C     | 6:G:104:PHE:CD2   | 2.73        | 0.61     |
| 11:P:77:ALA:CA   | 11:P:81:VAL:HG11  | 2.25        | 0.61     |
| 12:Q:117:GLY:O   | 12:Q:118:ALA:HB3  | 2.01        | 0.61     |
| 12:Q:131:ALA:CA  | 12:Q:134:PHE:CE2  | 2.83        | 0.61     |
| 19:R:97:VAL:HG13 | 19:R:114:VAL:HG21 | 1.82        | 0.61     |
| 13:S:76:GLY:C    | 13:S:80:SER:C     | 2.58        | 0.61     |
| 20:U:50:ARG:CZ   | 21:V:74:TYR:CD2   | 2.79        | 0.61     |
| 21:V:94:LYS:C    | 21:V:95:ILE:CG1   | 2.66        | 0.61     |
| 15:W:69:LEU:HD22 | 15:W:109:GLU:HB2  | 1.83        | 0.61     |
| 17:Y:43:ASN:ND2  | 17:Y:112:LEU:HD11 | 2.16        | 0.61     |
| 18:Z:26:LYS:HB2  | 18:Z:84:TYR:HH    | 1.65        | 0.61     |
| 8:I:129:VAL:O    | 8:I:131:VAL:HG23  | 2.00        | 0.61     |
| 8:I:80:PRO:O     | 8:I:148:GLN:HG2   | 1.99        | 0.61     |
| 3:D:202:LYS:O    | 3:D:204:PHE:CE1   | 2.50        | 0.61     |
| 16:X:4:VAL:HG13  | 22:2:24:LYS:HZ3   | 1.65        | 0.61     |
| 22:2:23:LEU:N    | 22:2:26:GLU:OE1   | 2.33        | 0.61     |
| 2:A:1327:C:H3'   | 2:A:1328:G:C8     | 2.35        | 0.61     |
| 23:3:22:ALA:CA   | 23:3:46:ASN:ND2   | 2.58        | 0.61     |
| 25:4:68:ARG:CB   | 25:4:72:LYS:CG    | 2.79        | 0.61     |
| 26:5:30:LEU:HD23 | 26:5:41:LEU:HA    | 1.81        | 0.61     |
| 26:5:8:LYS:O     | 26:5:9:LYS:CB     | 2.48        | 0.61     |
| 29:8:4:MET:CA    | 29:8:5:LYS:HZ2    | 1.98        | 0.61     |
| 30:9:20:HIS:O    | 30:9:22:ARG:N     | 2.32        | 0.61     |
| 2:A:1270:C:H4'   | 2:A:1271:G:C5'    | 2.21        | 0.61     |
| 2:A:2219:G:C2    | 2:A:2224:G:O4'    | 2.53        | 0.61     |
| 2:A:2252:G:C6    | 2:A:2253:G:O6     | 2.54        | 0.61     |
| 2:A:2330:G:C2    | 2:A:2385:C:N4     | 2.68        | 0.61     |
| 2:A:2498:C:HO2'  | 2:A:2499:C:C5'    | 2.12        | 0.61     |
| 2:A:1127:A:H2    | 2:A:2518:A:H1'    | 1.65        | 0.61     |
| 2:A:2567:G:H2'   | 2:A:2568:C:C6     | 2.36        | 0.61     |
| 2:A:2611:U:H3'   | 2:A:2611:U:C6     | 2.31        | 0.61     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2688:U:N3    | 2:A:2719:G:N3    | 2.49        | 0.61     |
| 2:A:2706:G:O5'   | 2:A:2706:G:C8    | 2.48        | 0.61     |
| 2:A:1051:G:C4'   | 2:A:2752:C:O2'   | 2.38        | 0.61     |
| 2:A:2840:C:C2    | 2:A:2841:C:C6    | 2.88        | 0.61     |
| 2:A:1799:G:N3    | 3:D:153:LEU:HD21 | 2.04        | 0.61     |
| 5:F:220:THR:OG1  | 5:F:221:GLU:N    | 2.33        | 0.61     |
| 6:G:27:ILE:O     | 6:G:69:ILE:HD13  | 1.99        | 0.61     |
| 2:A:2674:G:C4'   | 10:O:30:ARG:HG3  | 2.27        | 0.61     |
| 11:P:94:ARG:CD   | 11:P:120:LEU:CA  | 2.79        | 0.61     |
| 12:Q:85:ILE:HA   | 12:Q:122:PHE:HB3 | 1.82        | 0.61     |
| 2:A:2484:G:C1'   | 12:Q:142:LYS:HZ2 | 2.05        | 0.61     |
| 12:Q:67:ALA:CA   | 12:Q:71:PHE:HE1  | 2.14        | 0.61     |
| 13:S:105:GLY:C   | 13:S:106:LEU:CD2 | 2.61        | 0.61     |
| 13:S:31:LYS:CB   | 13:S:32:PRO:HD2  | 2.17        | 0.61     |
| 21:V:59:GLU:CG   | 21:V:99:GLN:HA   | 2.31        | 0.61     |
| 21:V:5:ILE:HD13  | 21:V:12:TYR:CE1  | 2.36        | 0.61     |
| 8:I:98:ILE:O     | 8:I:99:ALA:C     | 2.39        | 0.61     |
| 22:2:20:LEU:HD13 | 22:2:23:LEU:CB   | 2.29        | 0.61     |
| 12:Q:94:ARG:CZ   | 12:Q:106:GLY:CA  | 2.78        | 0.61     |
| 2:A:865:C:H2'    | 2:A:865:C:O2     | 2.01        | 0.61     |
| 2:A:2755:C:C6    | 2:A:2755:C:C4'   | 2.84        | 0.61     |
| 2:A:1227:A:H3'   | 2:A:1227:A:H8    | 1.65        | 0.61     |
| 2:A:1221:C:H2'   | 2:A:1221:C:O2    | 2.01        | 0.61     |
| 2:A:738:G:N2     | 2:A:739:G:O2'    | 2.33        | 0.61     |
| 25:4:14:ILE:CB   | 25:4:37:SER:O    | 2.42        | 0.61     |
| 25:4:58:LYS:HG2  | 25:4:62:ARG:CZ   | 2.31        | 0.61     |
| 25:4:5:LEU:C     | 25:4:6:HIS:ND1   | 2.53        | 0.61     |
| 15:W:19:LEU:HB3  | 26:5:25:LEU:HD11 | 1.82        | 0.61     |
| 2:A:2321:G:N2    | 2:A:2322:A:H1'   | 2.15        | 0.61     |
| 2:A:2344:U:O2    | 2:A:2344:U:H2'   | 1.98        | 0.61     |
| 2:A:2431:U:N3    | 2:A:2434:A:OP2   | 2.34        | 0.61     |
| 2:A:2525:G:N1    | 2:A:2539:C:C4    | 2.68        | 0.61     |
| 2:A:2046:G:N2    | 2:A:2623:G:C4    | 2.68        | 0.61     |
| 2:A:2655:G:N3    | 2:A:2655:G:C3'   | 2.63        | 0.61     |
| 2:A:2695:C:O2    | 2:A:2696:U:C5    | 2.54        | 0.61     |
| 2:A:2695:C:O2'   | 2:A:2696:U:O4'   | 2.19        | 0.61     |
| 2:A:2734:A:N7    | 2:A:2735:G:N7    | 2.48        | 0.61     |
| 2:A:2808:U:N3    | 2:A:2892:A:C6    | 2.68        | 0.61     |
| 2:A:461:C:N4     | 2:A:469:G:H21    | 1.99        | 0.61     |
| 2:A:474:G:HO3'   | 2:A:475:U:P      | 2.20        | 0.61     |
| 2:A:792:G:H21    | 2:A:2072:G:H1'   | 1.65        | 0.61     |
| 4:E:81:VAL:CB    | 4:E:100:TRP:HZ3  | 2.13        | 0.61     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1655:A:O3'   | 4:E:212:GLY:CA   | 2.47        | 0.61     |
| 4:E:202:ALA:HA   | 4:E:262:THR:CB   | 2.30        | 0.61     |
| 4:E:301:PRO:O    | 4:E:303:PRO:CD   | 2.27        | 0.61     |
| 5:F:102:LEU:HB2  | 5:F:107:ARG:CZ   | 2.29        | 0.61     |
| 2:A:911:A:N7     | 12:Q:16:ARG:CG   | 2.54        | 0.61     |
| 13:S:17:ARG:NH1  | 13:S:18:THR:HA   | 2.11        | 0.61     |
| 13:S:30:GLY:O    | 13:S:31:LYS:HB2  | 2.00        | 0.61     |
| 20:U:72:HIS:HE1  | 20:U:107:LYS:HA  | 1.66        | 0.61     |
| 20:U:94:VAL:HG13 | 21:V:4:ILE:HD13  | 1.82        | 0.61     |
| 21:V:40:VAL:HG12 | 21:V:55:THR:CG2  | 2.24        | 0.61     |
| 21:V:39:PHE:CE2  | 21:V:41:GLY:N    | 2.68        | 0.61     |
| 21:V:50:ASP:CA   | 21:V:53:LYS:HE3  | 2.31        | 0.61     |
| 18:Z:26:LYS:N    | 18:Z:84:TYR:CZ   | 2.68        | 0.61     |
| 2:A:1792:G:OP1   | 3:D:204:PHE:CZ   | 2.53        | 0.61     |
| 2:A:1527:G:O5'   | 2:A:1527:G:C8    | 2.53        | 0.61     |
| 22:2:39:ALA:HB3  | 22:2:40:PRO:HD2  | 1.79        | 0.61     |
| 9:N:7:ASP:O      | 9:N:8:ALA:HB2    | 1.98        | 0.61     |
| 24:0:35:ASN:HA   | 24:0:68:VAL:CG2  | 2.29        | 0.61     |
| 23:3:39:ASP:OD1  | 23:3:40:THR:N    | 2.30        | 0.61     |
| 25:4:17:GLN:HG2  | 25:4:33:VAL:HG12 | 1.82        | 0.61     |
| 2:A:974(A):C:C6  | 2:A:1186:G:N1    | 2.68        | 0.61     |
| 2:A:2198:A:N3    | 2:A:2198:A:H2'   | 2.16        | 0.61     |
| 2:A:2246:G:C2    | 2:A:2247:A:N7    | 2.69        | 0.61     |
| 2:A:2250:G:H5''  | 12:Q:102:ARG:HG2 | 1.83        | 0.61     |
| 2:A:2396:G:C8    | 2:A:2396:G:O5'   | 2.53        | 0.61     |
| 2:A:2542:A:P     | 2:A:2542:A:O4'   | 2.57        | 0.61     |
| 2:A:2549:G:C2    | 2:A:2550:G:C8    | 2.88        | 0.61     |
| 2:A:2557:G:C4    | 2:A:2558:C:C5    | 2.89        | 0.61     |
| 2:A:957:A:OP1    | 12:Q:95:GLU:CB   | 2.49        | 0.61     |
| 3:D:146:LYS:CG   | 3:D:147:PRO:HD2  | 2.25        | 0.61     |
| 3:D:154:VAL:HG12 | 3:D:154:VAL:O    | 1.98        | 0.61     |
| 4:E:39:GLN:CB    | 4:E:174:LEU:HG   | 2.30        | 0.61     |
| 4:E:271:ILE:CD1  | 4:E:294:THR:CG2  | 2.73        | 0.61     |
| 5:F:16:VAL:CG1   | 5:F:17:ASP:N     | 2.63        | 0.61     |
| 5:F:96:LYS:HB2   | 5:F:98:ARG:NH1   | 0.68        | 0.61     |
| 6:G:141:VAL:N    | 6:G:144:ARG:NH1  | 2.48        | 0.61     |
| 6:G:156:ARG:CG   | 6:G:156:ARG:O    | 2.49        | 0.61     |
| 7:H:101:LYS:HZ3  | 7:H:115:GLU:CB   | 2.10        | 0.61     |
| 10:O:16:ALA:O    | 10:O:17:ARG:HG3  | 2.00        | 0.61     |
| 10:O:14:SER:HB2  | 10:O:86:ILE:HD12 | 1.81        | 0.61     |
| 11:P:77:ALA:HB2  | 11:P:81:VAL:HG12 | 1.79        | 0.61     |
| 12:Q:137:ARG:CD  | 12:Q:138:ARG:N   | 2.62        | 0.61     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:136:TRP:CE3 | 12:Q:139:ALA:CB  | 2.84        | 0.61     |
| 12:Q:64:ALA:O    | 12:Q:65:ARG:C    | 2.37        | 0.61     |
| 2:A:2840:C:C5'   | 19:R:53:HIS:CD2  | 2.84        | 0.61     |
| 13:S:24:LEU:HA   | 13:S:33:ARG:HH22 | 1.65        | 0.61     |
| 2:A:1754:C:H5'   | 14:T:39:ASN:ND2  | 2.15        | 0.61     |
| 2:A:996:A:O3'    | 20:U:93:LYS:CG   | 2.47        | 0.61     |
| 21:V:40:VAL:CA   | 21:V:51:ALA:HA   | 2.31        | 0.61     |
| 21:V:40:VAL:CG1  | 21:V:55:THR:HG22 | 2.30        | 0.61     |
| 21:V:67:LYS:HG2  | 21:V:70:TYR:HE1  | 1.64        | 0.61     |
| 17:Y:71:VAL:HG12 | 17:Y:91:LEU:HB2  | 1.83        | 0.61     |
| 17:Y:74:VAL:O    | 17:Y:76:ASP:N    | 2.33        | 0.61     |
| 8:I:132:LYS:CA   | 8:I:138:THR:CG2  | 2.77        | 0.61     |
| 9:N:10:VAL:CG1   | 9:N:36:VAL:HA    | 2.29        | 0.61     |
| 3:D:208:GLY:O    | 3:D:211:HIS:CG   | 2.53        | 0.61     |
| 15:W:88:ARG:O    | 15:W:91:GLY:N    | 2.29        | 0.61     |
| 2:A:1418:G:H21   | 2:A:1579:A:H62   | 1.48        | 0.61     |
| 25:4:15:ILE:H    | 25:4:15:ILE:CD1  | 2.12        | 0.61     |
| 2:A:1022:G:O5'   | 9:N:52:GLN:CD    | 2.36        | 0.61     |
| 2:A:1800:C:H6    | 2:A:1800:C:H3'   | 1.65        | 0.61     |
| 2:A:966:G:H1'    | 2:A:2267:A:N6    | 2.14        | 0.61     |
| 2:A:2429:G:H5'   | 2:A:2430:A:P     | 2.41        | 0.61     |
| 2:A:199:A:C5     | 2:A:2434:A:N1    | 2.68        | 0.61     |
| 2:A:2483:C:C2'   | 2:A:2484:G:O5'   | 2.46        | 0.61     |
| 2:A:2504:U:C3'   | 2:A:2504:U:H6    | 2.12        | 0.61     |
| 2:A:2508:G:H2'   | 2:A:2509:G:C5'   | 2.30        | 0.61     |
| 2:A:2519:U:C2    | 2:A:2542:A:C6    | 2.88        | 0.61     |
| 2:A:2619:C:H2'   | 2:A:2620:C:H5'   | 1.83        | 0.61     |
| 2:A:2718:G:C2'   | 2:A:2719:G:H8    | 1.93        | 0.61     |
| 2:A:2728:U:H2'   | 2:A:2729:G:C8    | 2.36        | 0.61     |
| 2:A:2740:A:C1'   | 2:A:2741:A:C8    | 2.83        | 0.61     |
| 2:A:2854:G:N2    | 2:A:2864:G:C4    | 2.69        | 0.61     |
| 2:A:514:A:H4'    | 20:U:32:TYR:OH   | 2.01        | 0.61     |
| 2:A:848:G:H21    | 2:A:933:A:H1'    | 1.66        | 0.61     |
| 2:A:974(A):C:O2  | 2:A:974(A):C:H2' | 1.99        | 0.61     |
| 3:D:175:LEU:HD21 | 3:D:180:VAL:C    | 2.18        | 0.61     |
| 4:E:247:ARG:HD2  | 4:E:249:THR:OG1  | 2.01        | 0.61     |
| 4:E:303:PRO:HB2  | 4:E:307:LEU:HB3  | 1.83        | 0.61     |
| 5:F:193:LEU:HD11 | 5:F:231:ARG:CB   | 2.31        | 0.61     |
| 5:F:37:ALA:HB1   | 5:F:107:ARG:CZ   | 2.30        | 0.61     |
| 5:F:52:ALA:C     | 5:F:55:ARG:HB3   | 2.20        | 0.61     |
| 6:G:145:ASP:HB3  | 13:S:16:ALA:N    | 2.10        | 0.61     |
| 6:G:75:LEU:HD22  | 6:G:79:MET:HB3   | 1.82        | 0.61     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:O:35:ILE:HD12  | 10:O:62:VAL:CG1   | 2.30        | 0.61     |
| 11:P:120:LEU:HD12 | 11:P:122:ALA:CB   | 2.30        | 0.61     |
| 12:Q:84:ARG:NH2   | 12:Q:123:ILE:HD12 | 2.15        | 0.61     |
| 19:R:25:ALA:O     | 19:R:29:LEU:HD22  | 2.00        | 0.61     |
| 19:R:86:ARG:C     | 19:R:87:TYR:HD2   | 2.03        | 0.61     |
| 13:S:118:ILE:HG23 | 13:S:119:GLN:N    | 2.13        | 0.61     |
| 13:S:117:ALA:CA   | 13:S:120:GLU:CD   | 2.65        | 0.61     |
| 13:S:27:LEU:CD1   | 13:S:27:LEU:C     | 2.66        | 0.61     |
| 2:A:2319:G:O5'    | 13:S:9:PRO:HD3    | 2.01        | 0.61     |
| 20:U:92:ARG:O     | 20:U:95:LEU:CB    | 2.48        | 0.61     |
| 21:V:3:ALA:N      | 21:V:14:VAL:O     | 2.30        | 0.61     |
| 15:W:5:ALA:HB3    | 15:W:50:VAL:O     | 2.00        | 0.61     |
| 17:Y:51:LEU:HD22  | 17:Y:95:ASN:HB3   | 1.82        | 0.61     |
| 18:Z:163:ASP:OD2  | 18:Z:164:PRO:HD2  | 0.79        | 0.61     |
| 8:I:133:LEU:HD12  | 8:I:138:THR:O     | 1.99        | 0.61     |
| 8:I:80:PRO:CA     | 8:I:146:THR:HG23  | 2.30        | 0.61     |
| 22:2:35:ALA:O     | 22:2:38:GLY:N     | 2.29        | 0.61     |
| 2:A:223:A:C3'     | 2:A:224:G:P       | 2.89        | 0.61     |
| 2:A:1906:G:C6     | 2:A:1929:G:C6     | 2.88        | 0.61     |
| 24:0:61:ALA:CB    | 24:0:80:SER:CA    | 2.78        | 0.61     |
| 23:3:16:PRO:HB2   | 23:3:19:GLN:HG2   | 1.83        | 0.61     |
| 23:3:31:LEU:HD22  | 23:3:32:GLN:N     | 2.08        | 0.61     |
| 26:5:41:LEU:O     | 26:5:42:SER:C     | 2.38        | 0.61     |
| 30:9:4:ARG:O      | 30:9:36:GLN:CA    | 2.48        | 0.61     |
| 30:9:3:VAL:HG12   | 30:9:5:SER:O      | 1.99        | 0.61     |
| 2:A:1646:C:C5'    | 2:A:1647:G:H5'    | 2.28        | 0.61     |
| 2:A:2010:G:OP2    | 15:W:41:LYS:HG3   | 2.00        | 0.61     |
| 2:A:2296:U:H3'    | 2:A:2296:U:H6     | 1.65        | 0.61     |
| 2:A:2423:U:C1'    | 2:A:2425:A:C8     | 2.83        | 0.61     |
| 2:A:2459:A:N7     | 2:A:2460:U:C4     | 2.69        | 0.61     |
| 2:A:2503:A:C8     | 2:A:2503:A:H3'    | 2.34        | 0.61     |
| 2:A:2514:U:H2'    | 2:A:2515:C:O4'    | 2.00        | 0.61     |
| 2:A:2605:U:O2'    | 2:A:2606:C:H5''   | 2.01        | 0.61     |
| 2:A:2606:C:C6     | 2:A:2606:C:H5'    | 2.34        | 0.61     |
| 2:A:2615:U:O2     | 26:5:8:LYS:N      | 2.32        | 0.61     |
| 2:A:2689:U:C6     | 2:A:2713:A:N6     | 2.66        | 0.61     |
| 2:A:2767:C:H2'    | 2:A:2768:C:C5'    | 2.31        | 0.61     |
| 2:A:2811:G:N2     | 2:A:2891:G:H1'    | 2.16        | 0.61     |
| 2:A:974(A):C:C6   | 2:A:989:G:N1      | 2.69        | 0.61     |
| 3:D:196:ASN:CA    | 3:D:199:ARG:CD    | 2.77        | 0.61     |
| 4:E:229:GLN:O     | 4:E:231:TRP:HD1   | 1.82        | 0.61     |
| 5:F:6:TYR:CD1     | 5:F:139:VAL:HB    | 2.35        | 0.61     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:O:35:ILE:HG13 | 10:O:62:VAL:HG12 | 1.83        | 0.61     |
| 11:P:57:VAL:O    | 11:P:58:GLN:HB3  | 2.01        | 0.61     |
| 12:Q:49:VAL:HG22 | 12:Q:120:HIS:C   | 2.20        | 0.61     |
| 19:R:102:GLU:HG3 | 19:R:103:ARG:N   | 2.11        | 0.61     |
| 14:T:53:ASP:CA   | 14:T:56:ARG:HE   | 2.14        | 0.61     |
| 20:U:26:GLY:O    | 20:U:27:SER:CB   | 2.44        | 0.61     |
| 18:Z:125:PRO:HG2 | 18:Z:130:ILE:CG2 | 2.30        | 0.61     |
| 18:Z:13:LYS:O    | 18:Z:18:MET:O    | 2.18        | 0.61     |
| 1:B:75:G:N9      | 18:Z:22:VAL:HG21 | 2.15        | 0.61     |
| 8:I:115:ILE:HG12 | 8:I:131:VAL:CG2  | 2.31        | 0.61     |
| 2:A:144:C:H2'    | 2:A:145:G:H8     | 1.65        | 0.61     |
| 2:A:1544:C:C2'   | 2:A:1545:A:H4'   | 2.27        | 0.61     |
| 24:O:65:GLY:HA2  | 24:O:66:LYS:NZ   | 2.07        | 0.61     |
| 23:3:16:PRO:C    | 23:3:19:GLN:OE1  | 2.40        | 0.61     |
| 25:4:36:TRP:N    | 25:4:36:TRP:CD1  | 2.69        | 0.61     |
| 26:5:45:ILE:CB   | 26:5:52:TYR:CE1  | 2.84        | 0.61     |
| 29:8:16:ILE:HG23 | 29:8:22:VAL:CG2  | 2.31        | 0.61     |
| 2:A:1287:A:H5'   | 2:A:1287:A:C8    | 2.36        | 0.61     |
| 2:A:444(A):A:N1  | 2:A:1462:C:P     | 2.74        | 0.61     |
| 2:A:2012:G:OP1   | 15:W:98:LYS:HD2  | 1.94        | 0.61     |
| 2:A:2049:G:O2'   | 4:E:253:GLN:OE1  | 2.18        | 0.61     |
| 2:A:2252:G:C6    | 2:A:2253:G:C5    | 2.89        | 0.61     |
| 2:A:2307:G:H1'   | 2:A:2311:A:H61   | 0.59        | 0.61     |
| 2:A:2425:A:C2'   | 2:A:2426:A:OP2   | 2.48        | 0.61     |
| 2:A:2537:U:C6    | 2:A:2538:C:H5    | 2.19        | 0.61     |
| 2:A:2701:C:C3'   | 2:A:2702:U:C5'   | 2.73        | 0.61     |
| 2:A:2752:C:N4    | 2:A:2753:A:N1    | 2.49        | 0.61     |
| 2:A:2869:G:N1    | 2:A:2870:C:C5    | 2.69        | 0.61     |
| 2:A:396:G:O4'    | 25:4:39:VAL:HG11 | 2.01        | 0.61     |
| 2:A:689:A:H2'    | 2:A:690:G:O4'    | 2.00        | 0.61     |
| 2:A:2712:U:C3'   | 2:A:712(A):A:C5' | 2.65        | 0.61     |
| 2:A:783:A:N1     | 2:A:785:G:H1'    | 2.16        | 0.61     |
| 3:D:175:LEU:HG   | 3:D:180:VAL:CA   | 2.25        | 0.61     |
| 4:E:221:LYS:HE3  | 4:E:233:ARG:CB   | 2.31        | 0.61     |
| 4:E:254:GLY:O    | 4:E:255:GLN:C    | 2.39        | 0.61     |
| 7:H:59:HIS:O     | 7:H:61:ARG:N     | 2.33        | 0.61     |
| 8:I:35:LEU:O     | 8:I:36:ALA:HB3   | 2.01        | 0.61     |
| 8:I:43:ASN:HA    | 8:I:46:ALA:HB2   | 1.81        | 0.61     |
| 9:N:20:GLY:O     | 9:N:22:VAL:CA    | 2.49        | 0.61     |
| 9:N:53:ILE:HG22  | 9:N:54:VAL:HG23  | 1.82        | 0.61     |
| 11:P:128:GLY:O   | 11:P:129:ALA:O   | 2.19        | 0.61     |
| 12:Q:46:VAL:C    | 12:Q:124:ALA:O   | 2.38        | 0.61     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 13:S:122:ALA:CA  | 13:S:125:ALA:HB3  | 2.31        | 0.61     |
| 20:U:117:ARG:CG  | 20:U:118:GLN:N    | 2.64        | 0.61     |
| 15:W:66:GLU:O    | 15:W:69:LEU:CD2   | 2.48        | 0.61     |
| 17:Y:40:VAL:O    | 17:Y:41:ARG:HB2   | 2.00        | 0.61     |
| 18:Z:165:GLU:O   | 18:Z:166:LEU:HB2  | 2.01        | 0.61     |
| 18:Z:81:VAL:HG12 | 18:Z:82:ASP:H     | 1.64        | 0.61     |
| 8:I:86:GLY:C     | 8:I:88:ARG:CA     | 2.69        | 0.61     |
| 22:2:15:GLU:O    | 22:2:17:GLU:C     | 2.39        | 0.61     |
| 2:A:283:A:C2     | 2:A:360:G:N2      | 2.69        | 0.61     |
| 24:0:65:GLY:O    | 24:0:66:LYS:CG    | 2.48        | 0.60     |
| 24:0:75:GLY:O    | 24:0:76:ALA:HB2   | 2.01        | 0.60     |
| 23:3:31:LEU:HD22 | 23:3:32:GLN:HB3   | 1.81        | 0.60     |
| 25:4:40:HIS:C    | 25:4:41:PRO:CD    | 2.68        | 0.60     |
| 25:4:59:PHE:CA   | 25:4:62:ARG:NE    | 2.63        | 0.60     |
| 26:5:57:VAL:CG1  | 26:5:58:LEU:N     | 2.29        | 0.60     |
| 27:6:32:GLN:CG   | 27:6:35:LEU:CD1   | 2.67        | 0.60     |
| 27:6:54:LYS:HB2  | 27:6:54:LYS:NZ    | 2.12        | 0.60     |
| 2:A:1278:A:O2'   | 19:R:27:SER:HB3   | 2.01        | 0.60     |
| 2:A:2443:C:H2'   | 2:A:2444:G:O4'    | 2.01        | 0.60     |
| 2:A:2051:A:C5    | 2:A:2614:A:N7     | 2.69        | 0.60     |
| 2:A:2620:C:O2'   | 2:A:2621:A:P      | 2.59        | 0.60     |
| 2:A:2810:A:N7    | 2:A:2811:G:C8     | 2.69        | 0.60     |
| 2:A:2821:A:N3    | 2:A:2821:A:H2'    | 2.16        | 0.60     |
| 2:A:689:A:N3     | 2:A:779:U:O2'     | 2.32        | 0.60     |
| 4:E:240:PRO:CG   | 4:E:243:PRO:HG2   | 2.30        | 0.60     |
| 4:E:247:ARG:HB3  | 4:E:249:THR:HG23  | 1.82        | 0.60     |
| 10:O:13:ASN:O    | 10:O:14:SER:C     | 2.37        | 0.60     |
| 10:O:17:ARG:CZ   | 10:O:47:THR:CA    | 2.79        | 0.60     |
| 11:P:67:ARG:HH11 | 11:P:111:ALA:HB3  | 1.66        | 0.60     |
| 11:P:64:ILE:HD13 | 11:P:106:VAL:HG12 | 1.81        | 0.60     |
| 12:Q:9:SER:O     | 12:Q:11:LYS:HE2   | 2.00        | 0.60     |
| 19:R:20:LEU:CD2  | 19:R:24:GLN:CG    | 2.79        | 0.60     |
| 14:T:10:GLY:O    | 14:T:11:THR:O     | 2.19        | 0.60     |
| 20:U:92:ARG:C    | 20:U:95:LEU:CD1   | 2.53        | 0.60     |
| 2:A:519:U:O3'    | 15:W:25:ARG:NH2   | 2.34        | 0.60     |
| 15:W:8:ARG:CG    | 15:W:102:HIS:HE1  | 2.09        | 0.60     |
| 18:Z:13:LYS:C    | 18:Z:15:ASP:N     | 2.36        | 0.60     |
| 18:Z:149:ALA:O   | 18:Z:150:GLY:C    | 2.38        | 0.60     |
| 18:Z:34:LEU:O    | 18:Z:35:ASP:CB    | 2.47        | 0.60     |
| 18:Z:69:VAL:CB   | 18:Z:81:VAL:HG13  | 2.24        | 0.60     |
| 18:Z:89:GLY:C    | 18:Z:91:PRO:HD2   | 2.21        | 0.60     |
| 2:A:222:A:N6     | 2:A:232:G:N3      | 2.49        | 0.60     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 24:0:61:ALA:HB1  | 24:0:80:SER:HA   | 1.82        | 0.60     |
| 2:A:989:G:P      | 23:3:31:LEU:HD12 | 2.38        | 0.60     |
| 2:A:1158:C:H4'   | 23:3:32:GLN:OE1  | 2.01        | 0.60     |
| 23:3:5:LYS:CB    | 23:3:36:VAL:HG12 | 2.31        | 0.60     |
| 25:4:21:VAL:O    | 25:4:22:MET:CB   | 2.49        | 0.60     |
| 25:4:60:ASN:O    | 25:4:63:PHE:HB2  | 2.01        | 0.60     |
| 2:A:2401:U:P     | 27:6:20:PHE:HZ   | 2.25        | 0.60     |
| 2:A:14:A:C8      | 2:A:15:G:N9      | 2.70        | 0.60     |
| 2:A:2268:A:P     | 2:A:2268:A:O4'   | 2.59        | 0.60     |
| 2:A:2331:G:H4'   | 24:0:70:ILE:HG13 | 0.65        | 0.60     |
| 2:A:2484:G:C1'   | 12:Q:142:LYS:NZ  | 2.63        | 0.60     |
| 2:A:2446:G:N2    | 2:A:2501:C:C4    | 2.68        | 0.60     |
| 2:A:2541:A:H2    | 2:A:2765:A:H61   | 1.49        | 0.60     |
| 2:A:2553:G:C6    | 2:A:2554:U:O2    | 2.54        | 0.60     |
| 2:A:2603:G:H2'   | 2:A:2604:U:O4'   | 2.01        | 0.60     |
| 2:A:2684:U:N3    | 2:A:2725:A:C6    | 2.69        | 0.60     |
| 2:A:2733:A:H3'   | 2:A:2733:A:H8    | 1.66        | 0.60     |
| 2:A:2754:U:O2'   | 2:A:2756:U:OP2   | 2.19        | 0.60     |
| 2:A:2786:U:H2'   | 2:A:2787:C:C6    | 2.35        | 0.60     |
| 2:A:294:A:H3'    | 2:A:294:A:C8     | 2.36        | 0.60     |
| 2:A:784:A:O2'    | 2:A:785:G:H5"    | 2.00        | 0.60     |
| 2:A:874:G:H1     | 2:A:903:C:H42    | 1.47        | 0.60     |
| 3:D:128:ALA:CB   | 3:D:190:THR:HB   | 2.01        | 0.60     |
| 5:F:167:ASP:CG   | 5:F:232:LEU:CG   | 2.59        | 0.60     |
| 5:F:81:PRO:O     | 5:F:82:GLN:HB3   | 2.01        | 0.60     |
| 1:B:43:C:O4'     | 6:G:47:GLN:HG2   | 2.01        | 0.60     |
| 6:G:49:PRO:HG3   | 6:G:73:VAL:CG2   | 2.28        | 0.60     |
| 9:N:22:VAL:HG12  | 9:N:23:ALA:N     | 2.15        | 0.60     |
| 10:O:17:ARG:HE   | 10:O:47:THR:CA   | 2.13        | 0.60     |
| 19:R:74:LYS:O    | 19:R:77:ARG:NH1  | 2.33        | 0.60     |
| 19:R:58:GLY:C    | 19:R:80:PHE:HE2  | 2.03        | 0.60     |
| 13:S:118:ILE:O   | 13:S:119:GLN:C   | 2.38        | 0.60     |
| 20:U:93:LYS:O    | 20:U:94:VAL:CG2  | 2.48        | 0.60     |
| 15:W:23:LEU:CD2  | 15:W:23:LEU:C    | 2.69        | 0.60     |
| 18:Z:62:PHE:CE1  | 18:Z:87:THR:HG21 | 2.36        | 0.60     |
| 3:D:203:PRO:C    | 3:D:204:PHE:HD1  | 2.02        | 0.60     |
| 22:2:27:LEU:CD2  | 22:2:53:ILE:HD11 | 2.31        | 0.60     |
| 31:K:56:VAL:HG13 | 31:K:70:ILE:HA   | 1.82        | 0.60     |
| 2:A:1556:C:H2'   | 2:A:1557:C:C6    | 2.36        | 0.60     |
| 25:4:14:ILE:HD12 | 25:4:16:TYR:HE1  | 1.63        | 0.60     |
| 27:6:36:GLU:C    | 27:6:52:GLU:OE2  | 2.39        | 0.60     |
| 27:6:8:ILE:N     | 27:6:8:ILE:HD13  | 2.05        | 0.60     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 28:7:3:ARG:O     | 28:7:4:THR:CG2   | 2.45        | 0.60     |
| 29:8:12:ARG:O    | 29:8:14:ILE:HD13 | 1.99        | 0.60     |
| 2:A:1012:U:O2    | 9:N:21:ARG:NE    | 2.34        | 0.60     |
| 2:A:1365:A:H5''  | 25:4:3:LYS:CE    | 2.31        | 0.60     |
| 2:A:1800:C:H6    | 2:A:1800:C:C3'   | 2.14        | 0.60     |
| 2:A:2322:A:N3    | 2:A:2323:G:C8    | 2.65        | 0.60     |
| 2:A:2419:U:C5'   | 27:6:24:THR:HG22 | 2.31        | 0.60     |
| 2:A:2432:A:C2    | 2:A:2433:A:C4    | 2.89        | 0.60     |
| 2:A:2517:C:C4    | 2:A:2542:A:N6    | 2.69        | 0.60     |
| 2:A:2555:U:C5    | 2:A:2556:C:C5    | 2.89        | 0.60     |
| 2:A:2597:G:C6    | 2:A:2598:A:C6    | 2.88        | 0.60     |
| 2:A:2740:A:H2'   | 2:A:2741:A:H5'   | 1.77        | 0.60     |
| 2:A:2758:A:OP2   | 2:A:2758:A:C8    | 2.54        | 0.60     |
| 2:A:2776:A:C2    | 2:A:2778:A:C6    | 2.88        | 0.60     |
| 2:A:511:U:OP2    | 2:A:512:G:C5     | 2.53        | 0.60     |
| 2:A:1799:G:N1    | 3:D:177:SER:CB   | 2.64        | 0.60     |
| 4:E:74:GLU:HB2   | 4:E:293:TYR:CE2  | 2.20        | 0.60     |
| 2:A:606:U:OP1    | 5:F:104:ASP:CB   | 2.49        | 0.60     |
| 5:F:195:VAL:O    | 5:F:236:THR:HG23 | 2.01        | 0.60     |
| 1:B:42:C:O2'     | 6:G:47:GLN:HG2   | 2.01        | 0.60     |
| 9:N:27:ALA:N     | 9:N:30:ALA:HB2   | 2.14        | 0.60     |
| 9:N:12:VAL:HG12  | 9:N:38:VAL:CG1   | 2.31        | 0.60     |
| 12:Q:65:ARG:CZ   | 12:Q:122:PHE:CD2 | 2.78        | 0.60     |
| 13:S:61:ALA:HB1  | 13:S:84:THR:HG22 | 1.83        | 0.60     |
| 21:V:50:ASP:CG   | 21:V:53:LYS:CE   | 2.65        | 0.60     |
| 21:V:69:ILE:HG21 | 21:V:88:GLN:C    | 2.21        | 0.60     |
| 17:Y:101:LEU:CD2 | 17:Y:101:LEU:C   | 2.66        | 0.60     |
| 18:Z:41:ARG:H    | 18:Z:41:ARG:HE   | 1.49        | 0.60     |
| 22:2:60:GLN:O    | 22:2:61:GLY:C    | 2.40        | 0.60     |
| 2:A:138:G:O4'    | 16:X:43:GLU:HG3  | 2.01        | 0.60     |
| 24:0:8:GLY:O     | 24:0:10:SER:N    | 2.33        | 0.60     |
| 1:B:105:G:H2'    | 1:B:106:G:H8     | 1.66        | 0.60     |
| 24:0:48:GLY:CA   | 24:0:55:ARG:CB   | 2.78        | 0.60     |
| 23:3:11:SER:CB   | 23:3:13:ILE:HG12 | 2.31        | 0.60     |
| 25:4:58:LYS:C    | 25:4:61:LYS:HG3  | 2.13        | 0.60     |
| 26:5:50:GLY:HA2  | 26:5:57:VAL:CB   | 2.31        | 0.60     |
| 27:6:28:ARG:O    | 27:6:28:ARG:HG2  | 2.01        | 0.60     |
| 29:8:26:LYS:HE3  | 29:8:45:GLY:CA   | 2.31        | 0.60     |
| 30:9:7:VAL:HG21  | 30:9:36:GLN:HG3  | 1.83        | 0.60     |
| 2:A:2279:G:H2'   | 2:A:2280:G:H8    | 1.66        | 0.60     |
| 2:A:2292:C:H2'   | 2:A:2293:C:H6    | 1.66        | 0.60     |
| 2:A:2393:A:O2'   | 2:A:2394:C:O4'   | 2.19        | 0.60     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2415:G:H22    | 2:A:2416:C:H1'   | 1.64        | 0.60     |
| 2:A:2458:G:O2'    | 2:A:2459:A:C8    | 2.50        | 0.60     |
| 2:A:2531:A:C4     | 2:A:2532:G:C8    | 2.89        | 0.60     |
| 2:A:2695:C:O2     | 2:A:2696:U:C4    | 2.54        | 0.60     |
| 2:A:2741:A:O2'    | 2:A:2742:C:O4'   | 2.18        | 0.60     |
| 2:A:605:C:C5'     | 5:F:105:LYS:HE2  | 2.32        | 0.60     |
| 2:A:2786:U:O5'    | 4:E:100:TRP:HB2  | 2.00        | 0.60     |
| 2:A:2512:C:C4'    | 4:E:235:ILE:HD12 | 2.29        | 0.60     |
| 2:A:637:A:P       | 11:P:126:SER:OG  | 2.59        | 0.60     |
| 12:Q:16:ARG:H     | 12:Q:20:ILE:HG12 | 1.64        | 0.60     |
| 19:R:75:LEU:HD23  | 19:R:78:LYS:HD3  | 1.82        | 0.60     |
| 6:G:146:LYS:CD    | 13:S:15:GLU:CD   | 2.68        | 0.60     |
| 13:S:41:LYS:HZ3   | 13:S:68:GLU:CD   | 2.04        | 0.60     |
| 2:A:1754:C:H5'    | 14:T:39:ASN:HD21 | 1.67        | 0.60     |
| 20:U:115:ASN:H    | 20:U:115:ASN:ND2 | 1.94        | 0.60     |
| 20:U:61:TRP:C     | 20:U:65:ILE:CG1  | 2.62        | 0.60     |
| 21:V:5:ILE:O      | 21:V:6:GLN:CB    | 2.50        | 0.60     |
| 15:W:84:ARG:CB    | 15:W:96:ILE:HD11 | 2.12        | 0.60     |
| 17:Y:101:LEU:HD22 | 17:Y:103:LEU:CD2 | 1.99        | 0.60     |
| 22:2:46:ILE:O     | 22:2:47:LYS:C    | 2.40        | 0.60     |
| 8:I:52:GLN:HA     | 8:I:55:GLN:CG    | 2.32        | 0.60     |
| 3:D:169:LYS:H     | 3:D:169:LYS:NZ   | 1.99        | 0.60     |
| 31:K:22:PRO:HG2   | 31:K:23:PRO:HD3  | 1.82        | 0.60     |
| 23:3:20:LYS:O     | 23:3:23:LEU:CA   | 2.50        | 0.60     |
| 2:A:932:G:OP1     | 23:3:29:ARG:NE   | 2.33        | 0.60     |
| 25:4:6:HIS:CB     | 25:4:7:PRO:CD    | 2.65        | 0.60     |
| 27:6:12:MET:HE1   | 27:6:54:LYS:O    | 2.02        | 0.60     |
| 2:A:1818:U:H2'    | 2:A:1818:U:O2    | 2.01        | 0.60     |
| 2:A:2358:G:H5''   | 2:A:2359:C:OP2   | 2.01        | 0.60     |
| 2:A:2423:U:C1'    | 2:A:2425:A:C4    | 2.83        | 0.60     |
| 2:A:2454:G:C6     | 2:A:2455:G:C5    | 2.88        | 0.60     |
| 2:A:747:U:C5      | 2:A:2613:U:C5    | 2.89        | 0.60     |
| 2:A:2620:C:C4'    | 4:E:252:GLN:CG   | 2.79        | 0.60     |
| 2:A:2620:C:H4'    | 4:E:252:GLN:CB   | 2.32        | 0.60     |
| 2:A:2634:G:C6     | 2:A:2635:C:C5    | 2.89        | 0.60     |
| 2:A:2825:C:C5     | 2:A:2825:C:P     | 2.94        | 0.60     |
| 2:A:487:C:H1'     | 15:W:53:SER:OG   | 2.01        | 0.60     |
| 2:A:533:G:H1      | 2:A:560:C:N4     | 1.93        | 0.60     |
| 1:B:50:G:OP2      | 13:S:74:PRO:CB   | 2.49        | 0.60     |
| 3:D:167:GLU:O     | 3:D:168:GLY:C    | 2.38        | 0.60     |
| 4:E:229:GLN:O     | 4:E:231:TRP:CD1  | 2.54        | 0.60     |
| 5:F:26:VAL:HG12   | 5:F:27:ARG:N     | 2.16        | 0.60     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:F:88:SER:O     | 5:F:89:ALA:HB2    | 2.01        | 0.60     |
| 6:G:151:ILE:CD1  | 6:G:156:ARG:NH2   | 2.51        | 0.60     |
| 7:H:88:LEU:HD11  | 7:H:94:ARG:HA     | 1.84        | 0.60     |
| 7:H:88:LEU:C     | 7:H:88:LEU:HD23   | 2.21        | 0.60     |
| 9:N:62:ASP:OD1   | 9:N:62:ASP:N      | 2.34        | 0.60     |
| 10:O:103:ALA:HB3 | 10:O:105:GLU:CG   | 2.31        | 0.60     |
| 10:O:20:LEU:HG   | 10:O:44:LYS:CD    | 2.31        | 0.60     |
| 12:Q:36:ASN:C    | 12:Q:41:THR:CB    | 2.69        | 0.60     |
| 20:U:66:ASN:N    | 20:U:66:ASN:OD1   | 2.29        | 0.60     |
| 15:W:11:ARG:CG   | 15:W:11:ARG:NH1   | 2.61        | 0.60     |
| 17:Y:33:GLU:HG2  | 17:Y:34:GLU:N     | 2.16        | 0.60     |
| 8:I:116:GLU:CG   | 8:I:132:LYS:HG3   | 2.32        | 0.60     |
| 2:A:1598:C:OP1   | 16:X:34:LYS:HG3   | 2.01        | 0.60     |
| 16:X:4:VAL:HG23  | 16:X:5:ILE:N      | 2.16        | 0.60     |
| 2:A:176:G:C2'    | 2:A:177:G:C8      | 2.82        | 0.60     |
| 6:G:60:GLU:O     | 6:G:61:PHE:CB     | 2.50        | 0.60     |
| 7:H:28:PRO:CG    | 7:H:79:SER:HA     | 2.31        | 0.60     |
| 25:4:56:VAL:HG12 | 25:4:57:ASP:H     | 1.66        | 0.60     |
| 25:4:6:HIS:NE2   | 25:4:55:ARG:HG3   | 2.16        | 0.60     |
| 2:A:2393:A:C4'   | 29:8:13:ARG:HH21  | 2.09        | 0.60     |
| 2:A:594:U:H4'    | 29:8:58:MET:HE2   | 1.83        | 0.60     |
| 2:A:2264:C:C5    | 2:A:2265:U:H5     | 2.20        | 0.60     |
| 2:A:2339:G:C4    | 2:A:2340:G:C8     | 2.90        | 0.60     |
| 2:A:2351:G:C2    | 2:A:2365:G:C6     | 2.90        | 0.60     |
| 2:A:2504:U:H3'   | 2:A:2504:U:H6     | 1.66        | 0.60     |
| 2:A:2662:A:H2'   | 2:A:2663:G:C5'    | 2.31        | 0.60     |
| 2:A:2697:G:C6    | 2:A:2698:U:C5     | 2.90        | 0.60     |
| 2:A:2850:A:N6    | 2:A:2851:A:N6     | 2.49        | 0.60     |
| 2:A:530:G:H3'    | 2:A:530:G:P       | 2.41        | 0.60     |
| 2:A:783:A:C2     | 2:A:785:G:H1'     | 2.37        | 0.60     |
| 3:D:168:GLY:C    | 3:D:170:TYR:N     | 2.46        | 0.60     |
| 4:E:77:PRO:CB    | 4:E:187:HIS:C     | 2.60        | 0.60     |
| 5:F:220:THR:CA   | 5:F:224:ALA:CB    | 2.76        | 0.60     |
| 6:G:22:VAL:CB    | 6:G:24:HIS:NE2    | 2.57        | 0.60     |
| 9:N:18:ILE:O     | 9:N:22:VAL:HG21   | 2.00        | 0.60     |
| 9:N:83:ILE:O     | 9:N:84:ARG:C      | 2.40        | 0.60     |
| 10:O:100:GLY:O   | 10:O:101:PRO:O    | 2.19        | 0.60     |
| 12:Q:42:TYR:HB2  | 12:Q:43:PRO:HD3   | 1.83        | 0.60     |
| 12:Q:9:SER:O     | 12:Q:10:ILE:O     | 2.20        | 0.60     |
| 19:R:90:ARG:HH12 | 19:R:117:VAL:HG11 | 1.66        | 0.60     |
| 19:R:26:LYS:O    | 19:R:27:SER:C     | 2.40        | 0.60     |
| 13:S:122:ALA:C   | 13:S:125:ALA:HB3  | 2.22        | 0.60     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:O:79:PHE:CA   | 14:T:22:VAL:CG2  | 2.78        | 0.60     |
| 21:V:59:GLU:HG2  | 21:V:100:GLY:N   | 2.17        | 0.60     |
| 15:W:59:VAL:HG12 | 15:W:60:ASN:N    | 2.16        | 0.60     |
| 17:Y:77:VAL:O    | 17:Y:78:THR:CG2  | 2.44        | 0.60     |
| 18:Z:116:VAL:C   | 18:Z:118:HIS:H   | 2.05        | 0.60     |
| 4:E:109:ASP:HA   | 4:E:112:LEU:H    | 1.64        | 0.60     |
| 2:A:282:A:H62    | 2:A:360:G:N2     | 1.99        | 0.60     |
| 2:A:1829:A:H5''  | 2:A:1830:C:H5    | 1.65        | 0.60     |
| 2:A:396:G:H1'    | 25:4:39:VAL:HG11 | 1.82        | 0.60     |
| 28:7:21:ARG:HD2  | 28:7:31:LEU:CD1  | 2.32        | 0.60     |
| 2:A:1182:A:H2'   | 2:A:1183:G:O4'   | 2.01        | 0.60     |
| 2:A:2226:C:N3    | 2:A:2227:A:N3    | 2.49        | 0.60     |
| 2:A:2328:A:C4    | 2:A:2329:G:C8    | 2.88        | 0.60     |
| 2:A:2332:U:H4'   | 2:A:2336:A:N6    | 2.17        | 0.60     |
| 2:A:2428:G:H3'   | 2:A:2428:G:H8    | 1.64        | 0.60     |
| 2:A:2461:C:O2    | 2:A:2462:U:H6    | 1.84        | 0.60     |
| 2:A:2468:G:O2'   | 2:A:2469:A:C8    | 2.35        | 0.60     |
| 2:A:576:U:H5''   | 2:A:2502:G:H2'   | 1.83        | 0.60     |
| 2:A:2619:C:C2'   | 2:A:2620:C:O5'   | 2.50        | 0.60     |
| 2:A:2626:C:C5    | 2:A:2626:C:P     | 2.95        | 0.60     |
| 2:A:2635:C:N4    | 2:A:2784:C:H42   | 2.00        | 0.60     |
| 2:A:2881:C:H2'   | 2:A:2882:A:O5'   | 1.99        | 0.60     |
| 2:A:535:C:C5'    | 20:U:53:LYS:HZ1  | 2.13        | 0.60     |
| 1:B:76:G:OP1     | 18:Z:10:PRO:CB   | 2.44        | 0.60     |
| 2:A:1654:A:O2'   | 4:E:210:THR:O    | 2.13        | 0.60     |
| 4:E:61:PRO:HD2   | 4:E:62:ARG:HG3   | 1.84        | 0.60     |
| 7:H:120:LEU:O    | 7:H:121:GLU:OE1  | 2.16        | 0.60     |
| 7:H:89:VAL:O     | 7:H:159:LYS:HA   | 2.00        | 0.60     |
| 9:N:15:ARG:CB    | 9:N:43:ARG:CB    | 2.77        | 0.60     |
| 9:N:48:GLY:O     | 9:N:49:ARG:C     | 2.40        | 0.60     |
| 10:O:43:VAL:HG12 | 10:O:45:ASP:H    | 1.67        | 0.60     |
| 12:Q:68:ALA:HB1  | 12:Q:136:TRP:CZ3 | 2.37        | 0.60     |
| 19:R:22:ARG:HG2  | 19:R:26:LYS:HZ1  | 1.66        | 0.60     |
| 19:R:38:VAL:O    | 19:R:39:PRO:C    | 2.39        | 0.60     |
| 19:R:87:TYR:HE1  | 19:R:94:TYR:CB   | 2.03        | 0.60     |
| 13:S:18:THR:O    | 13:S:19:ASP:OD1  | 2.18        | 0.60     |
| 1:B:115:G:H5'    | 13:S:59:ALA:CB   | 2.32        | 0.60     |
| 20:U:16:LYS:O    | 20:U:17:VAL:C    | 2.39        | 0.60     |
| 15:W:17:VAL:HA   | 15:W:20:VAL:CG2  | 2.32        | 0.60     |
| 15:W:79:GLY:C    | 15:W:80:PRO:O    | 2.25        | 0.60     |
| 17:Y:11:GLN:C    | 17:Y:21:LYS:HZ1  | 2.05        | 0.60     |
| 17:Y:71:VAL:CG1  | 17:Y:93:THR:H    | 2.13        | 0.60     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 18:Z:171:VAL:O   | 18:Z:171:VAL:HG23 | 2.02        | 0.60     |
| 18:Z:35:ASP:N    | 18:Z:39:PHE:HZ    | 1.88        | 0.60     |
| 18:Z:54:ILE:HG23 | 18:Z:55:THR:N     | 2.17        | 0.60     |
| 8:I:133:LEU:H    | 8:I:138:THR:CG2   | 2.15        | 0.60     |
| 3:D:204:PHE:CD2  | 3:D:209:ASN:HB2   | 2.37        | 0.60     |
| 3:D:208:GLY:H    | 3:D:211:HIS:CE1   | 2.20        | 0.60     |
| 2:A:1339:G:N2    | 2:A:1603:A:H8     | 2.00        | 0.60     |
| 2:A:1397:U:O2    | 2:A:1397:U:H2'    | 2.01        | 0.60     |
| 2:A:1191:G:H2'   | 2:A:1192:G:H8     | 1.66        | 0.60     |
| 23:3:25:ALA:C    | 23:3:27:GLY:H     | 2.05        | 0.60     |
| 25:4:56:VAL:CG1  | 25:4:57:ASP:H     | 2.14        | 0.60     |
| 26:5:15:LYS:HA   | 26:5:18:MET:CG    | 2.32        | 0.60     |
| 27:6:32:GLN:HG2  | 27:6:35:LEU:CD1   | 2.31        | 0.60     |
| 2:A:2087:G:C6    | 2:A:2233:U:C5     | 2.89        | 0.60     |
| 2:A:2242:G:N1    | 2:A:2243:U:C5     | 2.70        | 0.60     |
| 2:A:2331:G:C4    | 2:A:2332:U:C2     | 2.90        | 0.60     |
| 2:A:2357:U:O2'   | 2:A:2358:G:P      | 2.59        | 0.60     |
| 2:A:2377:A:O2'   | 2:A:2378:A:O5'    | 2.20        | 0.60     |
| 2:A:2416:C:O2    | 2:A:2417:C:H6     | 1.79        | 0.60     |
| 2:A:2493:U:N3    | 2:A:2494:G:N7     | 2.45        | 0.60     |
| 2:A:2522:U:O2'   | 2:A:2647:U:OP1    | 2.19        | 0.60     |
| 2:A:2741:A:N3    | 2:A:2742:C:H1'    | 2.17        | 0.60     |
| 2:A:2740:A:C2    | 2:A:2764:A:C2     | 2.90        | 0.60     |
| 2:A:2774:C:H2'   | 2:A:2774:C:O2     | 1.99        | 0.60     |
| 3:D:85:ASN:HD22  | 3:D:86:ARG:HD2    | 1.66        | 0.60     |
| 4:E:63:GLU:OE1   | 4:E:64:GLY:N      | 2.35        | 0.60     |
| 4:E:87:GLU:O     | 4:E:94:ARG:O      | 2.19        | 0.60     |
| 5:F:84:VAL:C     | 5:F:86:GLY:N      | 2.44        | 0.60     |
| 5:F:84:VAL:H     | 5:F:87:ARG:NE     | 1.98        | 0.60     |
| 5:F:94:THR:C     | 5:F:96:LYS:N      | 2.34        | 0.60     |
| 6:G:46:GLY:O     | 6:G:47:GLN:CG     | 2.49        | 0.60     |
| 8:I:21:VAL:O     | 8:I:22:ALA:CB     | 2.50        | 0.60     |
| 2:A:1022:G:O6    | 9:N:47:THR:CB     | 2.50        | 0.60     |
| 9:N:83:ILE:HG13  | 9:N:84:ARG:H      | 0.44        | 0.60     |
| 10:O:63:VAL:HG11 | 10:O:102:VAL:HG22 | 1.81        | 0.60     |
| 10:O:93:PRO:HD2  | 10:O:113:LYS:HD2  | 1.84        | 0.60     |
| 12:Q:72:VAL:HG22 | 12:Q:135:ALA:CB   | 2.32        | 0.60     |
| 19:R:37:THR:CA   | 19:R:111:LEU:HA   | 2.22        | 0.60     |
| 19:R:21:TYR:O    | 19:R:22:ARG:O     | 2.19        | 0.60     |
| 2:A:2334:G:H22   | 13:S:12:ARG:HG3   | 1.67        | 0.60     |
| 14:T:13:ILE:CG2  | 14:T:14:GLU:OE2   | 2.49        | 0.60     |
| 14:T:6:CYS:O     | 14:T:7:ASP:CG     | 2.40        | 0.60     |

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| Atom-1           | Atom-2          | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 15:W:15:ARG:O    | 15:W:16:LYS:C   | 2.40        | 0.60     |
| 18:Z:39:PHE:CD2  | 18:Z:39:PHE:N   | 2.39        | 0.60     |
| 8:I:92:SER:H     | 8:I:122:ARG:CZ  | 2.13        | 0.60     |
| 22:2:2:VAL:HG12  | 22:2:3:LEU:N    | 2.14        | 0.60     |
| 16:X:5:ILE:HG22  | 16:X:6:LYS:CA   | 2.27        | 0.60     |
| 2:A:265:A:C6     | 2:A:281:G:P     | 2.95        | 0.60     |
| 17:Y:81:LYS:HG2  | 17:Y:82:THR:N   | 2.12        | 0.60     |
| 31:K:21:ALA:N    | 31:K:22:PRO:HD2 | 2.17        | 0.60     |
| 2:A:711:G:H1     | 2:A:720:C:H42   | 1.50        | 0.60     |
| 2:A:701:G:H1     | 2:A:731:C:H42   | 1.49        | 0.60     |
| 23:3:41:PRO:O    | 23:3:44:ARG:HB3 | 2.02        | 0.60     |
| 27:6:29:ARG:CG   | 27:6:30:ASN:N   | 2.58        | 0.60     |
| 2:A:1799:G:H21   | 3:D:153:LEU:CD1 | 2.14        | 0.60     |
| 2:A:2295:C:H2'   | 2:A:2295:C:O2   | 2.02        | 0.60     |
| 2:A:2300:G:H2'   | 2:A:2301:C:H6   | 1.67        | 0.60     |
| 2:A:2302:G:N1    | 2:A:2315:G:C5   | 2.70        | 0.60     |
| 2:A:2331:G:N2    | 2:A:2385:C:C5   | 2.60        | 0.60     |
| 2:A:2417:C:C2    | 2:A:2418:A:C8   | 2.90        | 0.60     |
| 2:A:2419:U:OP1   | 27:6:24:THR:CG2 | 2.49        | 0.60     |
| 2:A:2067:G:N1    | 2:A:2444:G:C6   | 2.70        | 0.60     |
| 2:A:2528:U:H3'   | 2:A:2528:U:C6   | 2.37        | 0.60     |
| 2:A:2548:G:C2'   | 2:A:2549:G:O5'  | 2.48        | 0.60     |
| 2:A:2553:G:N7    | 2:A:2554:U:C2   | 2.70        | 0.60     |
| 2:A:2578:G:H2'   | 2:A:2579:C:C5'  | 2.30        | 0.60     |
| 2:A:2679:A:C4    | 2:A:2680:C:C6   | 2.89        | 0.60     |
| 2:A:2686:G:C6    | 2:A:2687:U:C5   | 2.90        | 0.60     |
| 2:A:2686:G:C5    | 2:A:2687:U:C5   | 2.89        | 0.60     |
| 2:A:2756:U:HO2'  | 2:A:2757:A:H5'  | 1.54        | 0.60     |
| 2:A:2809:A:C4'   | 2:A:2811:G:N7   | 2.64        | 0.60     |
| 2:A:303:U:H2'    | 2:A:304:G:H8    | 1.67        | 0.60     |
| 3:D:86:ARG:HG2   | 3:D:88:ALA:HB3  | 1.84        | 0.60     |
| 4:E:199:ALA:HA   | 4:E:314:ALA:HA  | 1.83        | 0.60     |
| 4:E:303:PRO:HB2  | 4:E:307:LEU:CG  | 2.30        | 0.60     |
| 5:F:7:ASP:OD2    | 5:F:13:ASP:OD2  | 2.19        | 0.60     |
| 5:F:93:LYS:HB2   | 5:F:96:LYS:HE2  | 1.84        | 0.60     |
| 6:G:35:ALA:C     | 6:G:36:ASN:CG   | 2.58        | 0.60     |
| 9:N:98:PHE:N     | 9:N:98:PHE:CD1  | 2.70        | 0.60     |
| 2:A:2406:U:H1'   | 11:P:57:VAL:CG2 | 2.32        | 0.60     |
| 11:P:67:ARG:HH11 | 11:P:111:ALA:CB | 2.15        | 0.60     |
| 12:Q:36:ASN:HD21 | 18:Z:116:VAL:CB | 2.15        | 0.60     |
| 19:R:98:LEU:O    | 19:R:113:LEU:O  | 2.19        | 0.60     |
| 13:S:86:LEU:H    | 13:S:121:GLY:CA | 2.15        | 0.60     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 13:S:48:VAL:CG1  | 13:S:55:ASP:OD2  | 2.50        | 0.60     |
| 20:U:111:ASP:O   | 20:U:113:SER:C   | 2.39        | 0.60     |
| 20:U:86:ALA:CB   | 20:U:90:LEU:CD2  | 2.79        | 0.60     |
| 17:Y:66:ASP:H    | 17:Y:72:ILE:HG12 | 1.65        | 0.60     |
| 18:Z:108:VAL:O   | 18:Z:109:GLN:CG  | 2.50        | 0.60     |
| 8:I:145:VAL:CG1  | 8:I:146:THR:N    | 2.47        | 0.60     |
| 8:I:95:SER:C     | 8:I:98:ILE:CG1   | 2.68        | 0.60     |
| 8:I:98:ILE:HG21  | 8:I:115:ILE:CD1  | 2.32        | 0.60     |
| 22:2:4:HIS:O     | 22:2:8:ILE:CG1   | 2.49        | 0.60     |
| 4:E:112:LEU:HD13 | 4:E:112:LEU:C    | 2.23        | 0.60     |
| 7:H:53:ARG:NH1   | 7:H:56:ASP:O     | 2.35        | 0.60     |
| 2:A:270(K):C:H3' | 2:A:270(L):U:O4' | 2.01        | 0.60     |
| 2:A:589:C:H42    | 2:A:668:G:H1     | 1.47        | 0.60     |
| 2:A:2261:C:C3'   | 24:0:14:ARG:HH21 | 2.14        | 0.60     |
| 24:0:33:ALA:HB2  | 24:0:65:GLY:CA   | 2.32        | 0.60     |
| 27:6:54:LYS:NZ   | 27:6:54:LYS:CB   | 2.64        | 0.60     |
| 2:A:199:A:C2     | 2:A:2433:A:N7    | 2.69        | 0.60     |
| 2:A:2215:G:C4    | 2:A:2216:G:C8    | 2.90        | 0.60     |
| 2:A:2277:G:N3    | 2:A:2277:G:H2'   | 2.16        | 0.60     |
| 2:A:2297:C:O2    | 2:A:2322:A:C8    | 2.55        | 0.60     |
| 2:A:2330:G:H2'   | 2:A:2331:G:O4'   | 2.02        | 0.60     |
| 2:A:2345:G:H21   | 2:A:2381:C:H3'   | 1.66        | 0.60     |
| 2:A:2351:G:N2    | 2:A:2365:G:C5    | 2.70        | 0.60     |
| 2:A:2353:G:N2    | 2:A:2364:C:C2    | 2.63        | 0.60     |
| 2:A:2390:U:H3'   | 2:A:2390:U:H6    | 1.67        | 0.60     |
| 2:A:2521:C:O2    | 2:A:2522:U:C1'   | 2.50        | 0.60     |
| 2:A:2550:G:H2'   | 2:A:2551:C:C5    | 2.37        | 0.60     |
| 2:A:2573:C:O5'   | 2:A:2573:C:C6    | 2.53        | 0.60     |
| 2:A:2634:G:H2'   | 2:A:2635:C:C5'   | 2.32        | 0.60     |
| 2:A:2662:A:C2    | 2:A:2663:G:C4'   | 2.85        | 0.60     |
| 2:A:2792:G:C6    | 2:A:2793:G:O6    | 2.55        | 0.60     |
| 2:A:2857:G:H2'   | 2:A:2858:C:C5'   | 2.31        | 0.60     |
| 3:D:175:LEU:CD2  | 3:D:175:LEU:N    | 2.46        | 0.60     |
| 2:A:2679:A:H5''  | 4:E:261:ARG:NE   | 2.17        | 0.60     |
| 5:F:102:LEU:CD2  | 5:F:106:GLU:CG   | 2.80        | 0.60     |
| 5:F:81:PRO:HB3   | 5:F:87:ARG:HB3   | 0.63        | 0.60     |
| 7:H:64:HIS:O     | 7:H:67:THR:N     | 2.35        | 0.60     |
| 9:N:135:ILE:O    | 9:N:139:LEU:CG   | 2.49        | 0.60     |
| 9:N:23:ALA:O     | 9:N:24:SER:C     | 2.40        | 0.60     |
| 9:N:52:GLN:CB    | 9:N:55:GLU:OE1   | 2.50        | 0.60     |
| 10:O:110:ASP:O   | 10:O:111:PHE:CE1 | 2.53        | 0.60     |
| 11:P:73:VAL:O    | 11:P:76:LEU:N    | 2.35        | 0.60     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 12:Q:45:GLN:CD    | 12:Q:153:PRO:CB   | 2.69        | 0.60     |
| 13:S:118:ILE:O    | 13:S:121:GLY:N    | 2.35        | 0.60     |
| 2:A:517:C:H2'     | 15:W:18:ARG:HH22  | 1.64        | 0.60     |
| 8:I:109:LYS:N     | 8:I:109:LYS:CE    | 2.57        | 0.60     |
| 16:X:30:ASP:C     | 16:X:31:ARG:O     | 2.39        | 0.60     |
| 2:A:176:G:N2      | 2:A:177:G:H1'     | 2.17        | 0.60     |
| 2:A:1936:A:H2     | 2:A:1943:U:H3     | 1.49        | 0.60     |
| 2:A:1766:U:H2'    | 2:A:1767:C:H6     | 1.67        | 0.60     |
| 23:3:50:VAL:O     | 23:3:53:LEU:CB    | 2.49        | 0.59     |
| 23:3:8:LEU:O      | 23:3:9:VAL:CG1    | 2.50        | 0.59     |
| 26:5:46:CYS:O     | 26:5:48:ASN:N     | 2.35        | 0.59     |
| 28:7:34:ARG:NE    | 28:7:42:LEU:HD23  | 2.13        | 0.59     |
| 30:9:29:ASN:HD22  | 30:9:32:HIS:CE1   | 2.16        | 0.59     |
| 2:A:1189:A:OP2    | 2:A:1190:G:N7     | 2.35        | 0.59     |
| 2:A:2300:G:O2'    | 2:A:2301:C:C5'    | 2.45        | 0.59     |
| 2:A:2411:A:O2'    | 2:A:2412:A:O5'    | 2.19        | 0.59     |
| 2:A:2485:G:H5''   | 12:Q:144:THR:HG21 | 1.78        | 0.59     |
| 2:A:2553:G:O6     | 2:A:2554:U:O2     | 2.19        | 0.59     |
| 2:A:2633:G:N1     | 2:A:2634:G:C5     | 2.70        | 0.59     |
| 2:A:2733:A:H3'    | 2:A:2733:A:C8     | 2.37        | 0.59     |
| 2:A:2801:A:H2     | 2:A:2895:U:C1'    | 2.14        | 0.59     |
| 2:A:515:A:H2'     | 2:A:516:C:C6      | 2.37        | 0.59     |
| 2:A:617:G:OP1     | 5:F:221:GLU:OE1   | 2.19        | 0.59     |
| 2:A:632:A:N3      | 2:A:2403:C:O2'    | 2.30        | 0.59     |
| 2:A:802:A:H2'     | 2:A:803:U:C6      | 2.37        | 0.59     |
| 1:B:18:G:OP1      | 6:G:149:ARG:HA    | 2.01        | 0.59     |
| 3:D:68:ARG:HH21   | 3:D:190:THR:HG22  | 1.65        | 0.59     |
| 3:D:77:VAL:CB     | 3:D:113:MET:CA    | 2.23        | 0.59     |
| 4:E:211:GLN:N     | 4:E:216:ARG:NH2   | 2.48        | 0.59     |
| 4:E:295:LEU:HD23  | 4:E:296:VAL:N     | 2.11        | 0.59     |
| 2:A:2679:A:C2'    | 4:E:300:VAL:CG1   | 2.80        | 0.59     |
| 5:F:102:LEU:HD23  | 5:F:103:ASN:N     | 2.16        | 0.59     |
| 6:G:57:THR:CG2    | 6:G:58:VAL:H      | 1.92        | 0.59     |
| 7:H:55:SER:C      | 7:H:57:GLU:N      | 2.55        | 0.59     |
| 7:H:74:MET:O      | 7:H:75:VAL:O      | 2.20        | 0.59     |
| 9:N:54:VAL:HG12   | 9:N:139:LEU:HD12  | 1.84        | 0.59     |
| 10:O:92:SER:HB3   | 10:O:113:LYS:HZ2  | 1.67        | 0.59     |
| 19:R:20:LEU:HD21  | 19:R:24:GLN:OE1   | 2.02        | 0.59     |
| 13:S:104:ILE:HG22 | 13:S:106:LEU:O    | 2.02        | 0.59     |
| 20:U:8:ILE:O      | 20:U:11:ARG:HG2   | 2.02        | 0.59     |
| 21:V:42:GLY:N     | 21:V:54:TYR:OH    | 2.29        | 0.59     |
| 17:Y:51:LEU:C     | 17:Y:52:ARG:HG3   | 2.22        | 0.59     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1805:U:H5'   | 3:D:235:PRO:HB2  | 1.81        | 0.59     |
| 2:A:1274:A:N3    | 2:A:1297:C:H1'   | 2.17        | 0.59     |
| 2:A:1928:A:H8    | 2:A:1928:A:H5''  | 1.67        | 0.59     |
| 2:A:1906:G:C1'   | 2:A:1929:G:N7    | 2.65        | 0.59     |
| 2:A:1227:A:H3'   | 2:A:1227:A:C8    | 2.36        | 0.59     |
| 2:A:364:C:H2'    | 2:A:365:C:C6     | 2.37        | 0.59     |
| 23:3:19:GLN:CD   | 23:3:19:GLN:H    | 2.06        | 0.59     |
| 19:R:100:LEU:CA  | 26:5:44:HIS:HD2  | 2.15        | 0.59     |
| 29:8:12:ARG:O    | 29:8:13:ARG:C    | 2.39        | 0.59     |
| 2:A:1657:C:OP1   | 4:E:232:ARG:C    | 2.41        | 0.59     |
| 2:A:2017:U:C2    | 26:5:10:LYS:NZ   | 2.70        | 0.59     |
| 2:A:2257:U:C2'   | 2:A:2258:C:OP2   | 2.50        | 0.59     |
| 2:A:245:G:H5'    | 11:P:55:GLN:C    | 2.22        | 0.59     |
| 2:A:2558:C:H2'   | 2:A:2558:C:O2    | 2.01        | 0.59     |
| 2:A:2788:C:H5''  | 2:A:2789:C:P     | 2.42        | 0.59     |
| 2:A:291:C:H2'    | 2:A:292:C:H5'    | 1.84        | 0.59     |
| 2:A:532:A:H2'    | 2:A:533:G:O4'    | 2.01        | 0.59     |
| 2:A:604:G:H21    | 2:A:657:U:H4'    | 1.66        | 0.59     |
| 5:F:165:ASP:O    | 5:F:168:ARG:HB3  | 2.02        | 0.59     |
| 7:H:122:ILE:HG22 | 7:H:123:GLU:N    | 2.17        | 0.59     |
| 7:H:71:LEU:C     | 7:H:73:ASN:N     | 2.55        | 0.59     |
| 10:O:92:SER:CB   | 10:O:113:LYS:HZ2 | 2.10        | 0.59     |
| 10:O:88:ARG:NE   | 10:O:94:ARG:HG2  | 2.17        | 0.59     |
| 11:P:62:ALA:O    | 11:P:107:LYS:CG  | 2.48        | 0.59     |
| 12:Q:18:GLU:CG   | 12:Q:23:ILE:HD11 | 2.31        | 0.59     |
| 12:Q:63:ALA:O    | 12:Q:64:ALA:C    | 2.40        | 0.59     |
| 12:Q:35:ASN:HB2  | 12:Q:75:SER:HA   | 1.84        | 0.59     |
| 13:S:85:GLY:O    | 13:S:88:ALA:HB3  | 2.02        | 0.59     |
| 13:S:83:LEU:HA   | 13:S:86:LEU:HD12 | 1.83        | 0.59     |
| 20:U:13:ARG:O    | 20:U:16:LYS:CA   | 2.50        | 0.59     |
| 20:U:93:LYS:N    | 21:V:10:LYS:NZ   | 2.49        | 0.59     |
| 18:Z:29:ASN:C    | 18:Z:30:VAL:HG23 | 2.23        | 0.59     |
| 2:A:59:U:C1'     | 2:A:73:A:C6      | 2.85        | 0.59     |
| 2:A:1524:G:H2'   | 2:A:1525:G:O4'   | 2.02        | 0.59     |
| 2:A:223:A:OP2    | 2:A:223:A:H4'    | 2.01        | 0.59     |
| 2:A:666:G:H2'    | 2:A:667:U:C6     | 2.36        | 0.59     |
| 2:A:2386:C:H4'   | 24:0:39:ARG:HE   | 1.65        | 0.59     |
| 27:6:54:LYS:NZ   | 27:6:54:LYS:HA   | 2.17        | 0.59     |
| 28:7:26:SER:O    | 28:7:29:ASN:N    | 2.34        | 0.59     |
| 2:A:1326:U:HO2'  | 2:A:2010:G:HO2'  | 1.48        | 0.59     |
| 2:A:2230:G:O2'   | 2:A:2231:C:C4'   | 2.50        | 0.59     |
| 2:A:2422:A:O2'   | 2:A:2424:C:H6    | 1.84        | 0.59     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2512:C:OP1    | 4:E:219:VAL:CG1  | 2.47        | 0.59     |
| 2:A:2569:G:C2     | 2:A:2570:G:C8    | 2.90        | 0.59     |
| 2:A:2574:G:O2'    | 4:E:240:PRO:HA   | 2.01        | 0.59     |
| 2:A:2593:U:C2     | 2:A:2600:A:N1    | 2.70        | 0.59     |
| 2:A:2648:C:C2     | 2:A:2673:G:N2    | 2.71        | 0.59     |
| 2:A:2728:U:O5'    | 2:A:2728:U:H6    | 1.85        | 0.59     |
| 2:A:2776:A:N3     | 2:A:2778:A:C8    | 2.70        | 0.59     |
| 2:A:2862:G:C4     | 2:A:2863:C:C5    | 2.90        | 0.59     |
| 2:A:2885:C:N4     | 2:A:2886:G:N7    | 2.49        | 0.59     |
| 2:A:637:A:C8      | 11:P:111:ALA:HB1 | 2.33        | 0.59     |
| 2:A:1658:C:O5'    | 4:E:230:GLY:CA   | 2.50        | 0.59     |
| 4:E:315:VAL:C     | 4:E:317:PRO:HD3  | 2.21        | 0.59     |
| 9:N:83:ILE:HD11   | 9:N:84:ARG:CG    | 2.31        | 0.59     |
| 11:P:114:VAL:HG11 | 11:P:133:VAL:CA  | 2.31        | 0.59     |
| 12:Q:49:VAL:CA    | 12:Q:121:ASP:HB2 | 2.29        | 0.59     |
| 12:Q:68:ALA:HB1   | 12:Q:136:TRP:HZ3 | 1.66        | 0.59     |
| 19:R:41:ALA:O     | 19:R:43:GLU:N    | 2.35        | 0.59     |
| 19:R:52:ILE:HD12  | 19:R:94:TYR:HB2  | 1.83        | 0.59     |
| 19:R:60:LEU:HD23  | 19:R:61:HIS:H    | 1.66        | 0.59     |
| 13:S:111:PRO:O    | 13:S:116:PHE:HB2 | 2.03        | 0.59     |
| 13:S:114:LYS:O    | 13:S:117:ALA:HB3 | 2.02        | 0.59     |
| 2:A:535:C:H5''    | 20:U:53:LYS:NZ   | 2.17        | 0.59     |
| 20:U:4:ALA:C      | 20:U:6:THR:N     | 2.52        | 0.59     |
| 8:I:98:ILE:HG21   | 8:I:115:ILE:HD12 | 1.83        | 0.59     |
| 2:A:1059:G:H22    | 31:K:130:GLY:CA  | 2.15        | 0.59     |
| 16:X:4:VAL:CG1    | 22:2:24:LYS:NZ   | 2.64        | 0.59     |
| 2:A:1913:A:N1     | 2:A:1917:U:C5    | 2.71        | 0.59     |
| 2:A:273(A):G:H2'  | 2:A:273(B):C:C6  | 2.37        | 0.59     |
| 2:A:2386:C:H1'    | 24:0:39:ARG:HH21 | 1.68        | 0.59     |
| 24:0:73:GLY:O     | 24:0:74:LYS:O    | 2.20        | 0.59     |
| 23:3:16:PRO:O     | 23:3:17:LYS:O    | 2.20        | 0.59     |
| 23:3:36:VAL:O     | 23:3:37:LEU:CD2  | 2.50        | 0.59     |
| 25:4:44:THR:O     | 25:4:46:GLU:OE2  | 2.19        | 0.59     |
| 25:4:58:LYS:CG    | 25:4:62:ARG:HH21 | 2.14        | 0.59     |
| 26:5:44:HIS:CA    | 26:5:52:TYR:CZ   | 2.68        | 0.59     |
| 28:7:24:THR:HG23  | 28:7:28:ARG:H    | 1.67        | 0.59     |
| 30:9:20:HIS:C     | 30:9:22:ARG:N    | 2.48        | 0.59     |
| 30:9:24:LEU:HD22  | 30:9:35:ARG:CA   | 2.31        | 0.59     |
| 2:A:2310:A:N3     | 6:G:55:LYS:HD3   | 2.16        | 0.59     |
| 2:A:2334:G:N2     | 13:S:20:TYR:OH   | 2.35        | 0.59     |
| 2:A:2584:U:H5     | 2:A:2585:U:C2'   | 2.15        | 0.59     |
| 2:A:2668:G:N2     | 2:A:2669:G:H1'   | 2.17        | 0.59     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2725:A:C4     | 2:A:2727:G:N7    | 2.70        | 0.59     |
| 2:A:2834:G:C8     | 2:A:2834:G:H3'   | 2.37        | 0.59     |
| 2:A:2880:C:N4     | 2:A:2881:C:C4    | 2.67        | 0.59     |
| 2:A:450:G:N2      | 2:A:454:A:H2     | 1.99        | 0.59     |
| 2:A:792:G:C8      | 2:A:2440:C:C2    | 2.91        | 0.59     |
| 3:D:146:LYS:HZ1   | 3:D:184:LEU:CD1  | 2.01        | 0.59     |
| 4:E:237:ASN:C     | 4:E:238:LEU:HD22 | 2.23        | 0.59     |
| 2:A:2052:G:H1'    | 4:E:245:ARG:O    | 2.02        | 0.59     |
| 5:F:115:LEU:O     | 5:F:116:ALA:C    | 2.40        | 0.59     |
| 7:H:103:VAL:O     | 7:H:103:VAL:HG12 | 2.02        | 0.59     |
| 7:H:104:LEU:C     | 7:H:151:ARG:NH1  | 2.56        | 0.59     |
| 7:H:13:GLY:O      | 7:H:15:THR:N     | 2.35        | 0.59     |
| 9:N:57:TYR:O      | 9:N:60:ARG:HB2   | 2.03        | 0.59     |
| 12:Q:136:TRP:O    | 12:Q:137:ARG:C   | 2.39        | 0.59     |
| 2:A:873:G:H4'     | 12:Q:32:LYS:HG2  | 1.82        | 0.59     |
| 20:U:111:ASP:HA   | 20:U:114:ARG:CD  | 2.28        | 0.59     |
| 21:V:39:PHE:HE2   | 21:V:41:GLY:CA   | 2.16        | 0.59     |
| 2:A:495:G:O4'     | 15:W:57:ASN:OD1  | 2.12        | 0.59     |
| 8:I:82:LYS:O      | 8:I:83:ALA:HB2   | 2.02        | 0.59     |
| 31:K:116:LEU:HD13 | 31:K:117:ASN:N   | 2.18        | 0.59     |
| 22:2:51:LYS:O     | 22:2:52:ALA:O    | 2.20        | 0.59     |
| 2:A:1274:A:C5     | 2:A:1302:A:C2    | 2.91        | 0.59     |
| 2:A:1726:G:H2'    | 2:A:1727:U:H5'   | 1.85        | 0.59     |
| 2:A:1365:A:P      | 25:4:3:LYS:HD2   | 2.41        | 0.59     |
| 29:8:9:MET:O      | 29:8:13:ARG:O    | 2.19        | 0.59     |
| 2:A:1665:A:O3'    | 10:O:66:LYS:NZ   | 2.04        | 0.59     |
| 2:A:2279:G:C4     | 2:A:2280:G:C8    | 2.90        | 0.59     |
| 2:A:2372:G:C6     | 2:A:2373:G:O6    | 2.56        | 0.59     |
| 2:A:2373:G:N1     | 2:A:2374:C:C4    | 2.70        | 0.59     |
| 2:A:2418:A:H2'    | 2:A:2419:U:O4'   | 2.03        | 0.59     |
| 2:A:2469:A:C8     | 2:A:2469:A:C5'   | 2.80        | 0.59     |
| 2:A:2474:C:H5     | 2:A:2475:C:C4    | 2.21        | 0.59     |
| 2:A:2567:G:HO2'   | 2:A:2568:C:H5'   | 1.63        | 0.59     |
| 2:A:2051:A:C6     | 2:A:2614:A:N7    | 2.68        | 0.59     |
| 2:A:2751:G:H2'    | 2:A:2751:G:N3    | 2.16        | 0.59     |
| 2:A:2793:G:C2     | 2:A:2794:C:C4    | 2.91        | 0.59     |
| 2:A:2817:G:H2'    | 2:A:2818:G:O4'   | 2.02        | 0.59     |
| 2:A:2875:C:N4     | 2:A:2876:G:O6    | 2.34        | 0.59     |
| 3:D:103:ILE:CB    | 3:D:104:ILE:HD12 | 2.29        | 0.59     |
| 4:E:70:VAL:O      | 4:E:71:THR:HG23  | 2.02        | 0.59     |
| 6:G:38:GLU:CG     | 6:G:41:LEU:CD1   | 2.61        | 0.59     |
| 7:H:123:GLU:OE2   | 7:H:131:ILE:O    | 2.20        | 0.59     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 7:H:87:GLU:CD     | 7:H:162:ARG:HB2  | 2.23        | 0.59     |
| 7:H:50:THR:OG1    | 7:H:51:VAL:N     | 2.36        | 0.59     |
| 7:H:58:LYS:C      | 7:H:61:ARG:HB3   | 2.23        | 0.59     |
| 8:I:13:GLY:HA2    | 8:I:15:LYS:CD    | 2.29        | 0.59     |
| 9:N:65:ASN:N      | 9:N:69:TYR:HB2   | 2.11        | 0.59     |
| 12:Q:72:VAL:HG22  | 12:Q:135:ALA:HB2 | 1.82        | 0.59     |
| 19:R:51:LEU:HD11  | 19:R:70:LEU:HD21 | 1.85        | 0.59     |
| 13:S:92:ALA:O     | 13:S:94:GLU:N    | 2.34        | 0.59     |
| 20:U:49:ASP:CA    | 20:U:52:ASN:CG   | 2.63        | 0.59     |
| 21:V:6:GLN:NE2    | 21:V:10:LYS:HB3  | 2.17        | 0.59     |
| 15:W:97:LYS:HZ1   | 15:W:99:ARG:HH12 | 1.48        | 0.59     |
| 18:Z:147:ILE:HG13 | 18:Z:168:VAL:CG1 | 2.33        | 0.59     |
| 22:2:2:VAL:N      | 22:2:4:HIS:CE1   | 2.62        | 0.59     |
| 22:2:60:GLN:NE2   | 22:2:65:ASP:HA   | 2.17        | 0.59     |
| 2:A:111:A:H4'     | 22:2:62:GLU:OE2  | 2.01        | 0.59     |
| 16:X:35:GLY:O     | 16:X:36:GLU:C    | 2.40        | 0.59     |
| 2:A:269:U:H3      | 2:A:270:A:H62    | 1.48        | 0.59     |
| 2:A:215:G:H4'     | 2:A:216:A:H4'    | 1.85        | 0.59     |
| 2:A:1430:C:H2'    | 2:A:1431:U:C6    | 2.36        | 0.59     |
| 2:A:472:A:H2'     | 2:A:473:G:H5'    | 1.84        | 0.59     |
| 24:0:61:ALA:HB2   | 24:0:80:SER:C    | 2.23        | 0.59     |
| 26:5:13:LYS:CD    | 26:5:14:SER:H    | 2.15        | 0.59     |
| 27:6:42:PRO:HD3   | 27:6:50:PHE:HZ   | 1.68        | 0.59     |
| 29:8:30:ARG:NH2   | 29:8:41:ILE:CG2  | 2.65        | 0.59     |
| 30:9:10:MET:CE    | 30:9:10:MET:HA   | 2.31        | 0.59     |
| 2:A:1638:C:OP1    | 2:A:2710:C:O2'   | 2.20        | 0.59     |
| 2:A:2289:G:O3'    | 2:A:2383:G:O2'   | 2.19        | 0.59     |
| 2:A:2290:G:C5     | 2:A:2291:U:N3    | 2.70        | 0.59     |
| 2:A:2354:G:N3     | 24:0:32:LYS:CD   | 2.65        | 0.59     |
| 2:A:2392:A:N7     | 2:A:2393:A:C4    | 2.70        | 0.59     |
| 2:A:2648:C:C2'    | 2:A:2649:U:C5'   | 2.79        | 0.59     |
| 2:A:2653:U:OP2    | 2:A:2654:A:C3'   | 2.48        | 0.59     |
| 2:A:2681:C:O2     | 2:A:2681:C:H2'   | 2.01        | 0.59     |
| 2:A:2785:C:C4     | 2:A:2786:U:O4    | 2.56        | 0.59     |
| 2:A:325:G:H2'     | 2:A:326:G:C8     | 2.37        | 0.59     |
| 4:E:267:ARG:CD    | 4:E:297:LYS:CD   | 2.77        | 0.59     |
| 5:F:197:SER:CB    | 5:F:239:ALA:N    | 2.60        | 0.59     |
| 5:F:58:ALA:CB     | 5:F:79:ARG:HB2   | 2.33        | 0.59     |
| 1:B:42:C:C1'      | 6:G:47:GLN:C     | 2.71        | 0.59     |
| 7:H:101:LYS:HZ3   | 7:H:115:GLU:HB2  | 1.58        | 0.59     |
| 9:N:24:SER:C      | 9:N:28:GLU:HG2   | 2.23        | 0.59     |
| 10:O:14:SER:N     | 10:O:95:GLY:HA2  | 2.18        | 0.59     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:O:28:SER:O    | 10:O:29:GLY:C     | 2.40        | 0.59     |
| 11:P:76:LEU:HG   | 11:P:81:VAL:CG2   | 2.31        | 0.59     |
| 19:R:100:LEU:C   | 26:5:44:HIS:HD2   | 2.03        | 0.59     |
| 19:R:36:THR:HG22 | 19:R:37:THR:N     | 2.16        | 0.59     |
| 21:V:41:GLY:N    | 21:V:54:TYR:CE1   | 2.71        | 0.59     |
| 21:V:67:LYS:CD   | 21:V:70:TYR:HE1   | 2.15        | 0.59     |
| 2:A:974:G:N7     | 21:V:80:TYR:CG    | 2.70        | 0.59     |
| 15:W:81:ALA:O    | 15:W:82:LEU:CD1   | 2.46        | 0.59     |
| 2:A:104:U:O4     | 17:Y:17:HIS:NE2   | 2.35        | 0.59     |
| 18:Z:103:ARG:CB  | 18:Z:139:THR:HG22 | 2.33        | 0.59     |
| 18:Z:146:HIS:HD2 | 18:Z:170:SER:HB2  | 1.66        | 0.59     |
| 8:I:110:LEU:HD11 | 8:I:133:LEU:CD2   | 2.33        | 0.59     |
| 16:X:33:SER:HA   | 16:X:37:VAL:HG21  | 1.85        | 0.59     |
| 16:X:24:LEU:CD1  | 16:X:66:VAL:O     | 2.51        | 0.59     |
| 2:A:2896:C:H6    | 2:A:2896:C:C4'    | 2.16        | 0.59     |
| 2:A:1351:C:O2'   | 2:A:1571:A:H1'    | 2.02        | 0.59     |
| 2:A:481:G:O2'    | 2:A:482:A:H8      | 1.85        | 0.59     |
| 17:Y:81:LYS:HB3  | 17:Y:81:LYS:HZ3   | 1.65        | 0.59     |
| 2:A:1924:C:C4    | 2:A:1925:C:N4     | 2.69        | 0.59     |
| 2:A:1906:G:N9    | 2:A:1929:G:C5     | 2.70        | 0.59     |
| 2:A:728:G:H8     | 2:A:728:G:OP2     | 1.86        | 0.59     |
| 2:A:1454:U:O2    | 2:A:1454:U:H2'    | 2.02        | 0.59     |
| 24:0:30:VAL:HG22 | 24:0:63:SER:CB    | 2.32        | 0.59     |
| 24:0:41:ARG:HB2  | 24:0:74:LYS:NZ    | 2.17        | 0.59     |
| 2:A:380:U:O2'    | 25:4:15:ILE:HB    | 2.02        | 0.59     |
| 25:4:56:VAL:CG1  | 25:4:57:ASP:N     | 2.66        | 0.59     |
| 2:A:2056:G:H21   | 26:5:8:LYS:HZ1    | 1.48        | 0.59     |
| 27:6:7:ARG:C     | 27:6:29:ARG:NH2   | 2.54        | 0.59     |
| 2:A:125:G:C5'    | 28:7:19:ARG:NH1   | 2.28        | 0.59     |
| 2:A:1366:A:C8    | 2:A:1366:A:OP2    | 2.55        | 0.59     |
| 2:A:1661:G:H1    | 2:A:1999:C:H42    | 1.50        | 0.59     |
| 2:A:1363:C:H1'   | 2:A:1810:A:H1'    | 1.83        | 0.59     |
| 2:A:2217:G:H2'   | 2:A:2218:G:O5'    | 2.03        | 0.59     |
| 2:A:2462:U:C2    | 2:A:2463:C:C5     | 2.91        | 0.59     |
| 2:A:2471:C:N3    | 2:A:2479:G:N1     | 2.50        | 0.59     |
| 2:A:2507:C:C6    | 2:A:2508:G:N7     | 2.70        | 0.59     |
| 2:A:2507:C:N3    | 2:A:2583:G:C4     | 2.71        | 0.59     |
| 2:A:2544:G:N3    | 2:A:2545:G:C8     | 2.71        | 0.59     |
| 2:A:2617:C:C2    | 2:A:2618:G:C8     | 2.77        | 0.59     |
| 2:A:2797:U:H1'   | 2:A:2799:A:C8     | 2.38        | 0.59     |
| 2:A:2841:C:O2    | 2:A:2877:G:C2     | 2.55        | 0.59     |
| 2:A:529:A:O2'    | 2:A:530:G:H8      | 1.84        | 0.59     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:751:A:C2    | 2:A:789:A:C5     | 2.91        | 0.59     |
| 3:D:68:ARG:HH21 | 3:D:190:THR:CG2  | 2.15        | 0.59     |
| 4:E:175:ASP:O   | 4:E:178:LEU:N    | 2.36        | 0.59     |
| 5:F:6:TYR:CD1   | 5:F:139:VAL:CB   | 2.85        | 0.59     |
| 1:B:17:C:OP1    | 6:G:147:ALA:HA   | 2.01        | 0.59     |
| 7:H:25:VAL:HG12 | 7:H:78:VAL:HG11  | 1.84        | 0.59     |
| 9:N:60:ARG:HD2  | 9:N:71:TYR:CE2   | 2.38        | 0.59     |
| 9:N:80:LYS:O    | 9:N:83:ILE:CG1   | 2.42        | 0.59     |
| 11:P:113:GLN:O  | 11:P:115:ARG:HG3 | 2.01        | 0.59     |
| 13:S:81:ALA:CB  | 13:S:117:ALA:CB  | 2.80        | 0.59     |
| 20:U:33:ARG:HB3 | 20:U:33:ARG:HH11 | 1.62        | 0.59     |
| 21:V:40:VAL:CA  | 21:V:51:ALA:CB   | 2.80        | 0.59     |
| 21:V:35:LEU:H   | 21:V:60:VAL:HG12 | 1.66        | 0.59     |
| 18:Z:107:GLU:C  | 18:Z:109:GLN:H   | 2.05        | 0.59     |
| 18:Z:173:PRO:C  | 18:Z:175:ARG:H   | 2.04        | 0.59     |
| 18:Z:85:MET:O   | 18:Z:86:VAL:HG22 | 2.03        | 0.59     |
| 8:I:103:GLN:NE2 | 8:I:109:LYS:C    | 2.32        | 0.59     |
| 16:X:3:ASP:CG   | 22:2:24:LYS:CD   | 2.60        | 0.59     |
| 2:A:359:A:C2'   | 2:A:360:G:C8     | 2.85        | 0.59     |
| 25:4:59:PHE:HA  | 25:4:62:ARG:CD   | 2.32        | 0.59     |
| 27:6:31:THR:O   | 27:6:32:GLN:C    | 2.40        | 0.59     |
| 2:A:2188:C:C6   | 2:A:2189:U:H5    | 2.19        | 0.59     |
| 2:A:2194:G:C5   | 2:A:2195:C:N4    | 2.70        | 0.59     |
| 2:A:2082:A:C6   | 2:A:2239:G:O6    | 2.45        | 0.59     |
| 2:A:2292:C:N3   | 2:A:2293:C:C4    | 2.69        | 0.59     |
| 2:A:2377:A:H2'  | 2:A:2378:A:C8    | 2.38        | 0.59     |
| 2:A:2435:A:C2   | 2:A:2436:G:N9    | 2.71        | 0.59     |
| 2:A:2493:U:H2'  | 2:A:2494:G:O5'   | 2.03        | 0.59     |
| 2:A:245:G:N2    | 2:A:254:G:H1'    | 2.18        | 0.59     |
| 2:A:2577:A:O2'  | 26:5:4:HIS:CD2   | 2.56        | 0.59     |
| 2:A:2595:G:H2'  | 2:A:2597:G:C8    | 2.37        | 0.59     |
| 2:A:2675:A:C3'  | 2:A:2676:C:H5'   | 2.31        | 0.59     |
| 2:A:2692:C:N3   | 2:A:2718:G:C6    | 2.70        | 0.59     |
| 2:A:2782:G:C2'  | 2:A:2783:G:H5'   | 2.30        | 0.59     |
| 2:A:2821:A:O2'  | 2:A:2822:G:C1'   | 2.51        | 0.59     |
| 3:D:149:ARG:CA  | 3:D:152:GLN:HE22 | 2.11        | 0.59     |
| 4:E:193:PHE:HE2 | 4:E:311:PHE:HD1  | 1.47        | 0.59     |
| 6:G:128:LEU:O   | 6:G:129:ASP:HB3  | 2.00        | 0.59     |
| 8:I:23:ASP:N    | 8:I:23:ASP:OD1   | 2.35        | 0.59     |
| 8:I:29:PHE:O    | 8:I:33:GLN:CG    | 2.50        | 0.59     |
| 8:I:5:PHE:CD2   | 8:I:5:PHE:N      | 2.71        | 0.59     |
| 9:N:58:GLU:CA   | 9:N:61:VAL:CB    | 2.73        | 0.59     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:36:ASN:O    | 12:Q:41:THR:HB   | 2.02        | 0.59     |
| 12:Q:33:MET:CG   | 12:Q:83:PHE:HB2  | 2.33        | 0.59     |
| 19:R:71:GLN:O    | 19:R:72:ASP:CB   | 2.49        | 0.59     |
| 2:A:581:C:H5''   | 20:U:32:TYR:HB2  | 1.83        | 0.59     |
| 20:U:70:ARG:O    | 20:U:73:GLY:N    | 2.36        | 0.59     |
| 17:Y:31:LEU:CA   | 17:Y:113:GLU:OE2 | 2.39        | 0.59     |
| 18:Z:150:GLY:N   | 18:Z:165:GLU:H   | 2.01        | 0.59     |
| 3:D:213:LYS:HB3  | 3:D:215:LYS:C    | 2.23        | 0.59     |
| 2:A:1482:U:H6    | 2:A:1482:U:C3'   | 2.13        | 0.59     |
| 2:A:270:A:H2'    | 2:A:270(A):A:H4' | 1.85        | 0.59     |
| 2:A:270(Z):U:H2' | 2:A:270(Z):U:O2  | 2.02        | 0.59     |
| 2:A:123:G:H1     | 2:A:128:C:H42    | 1.51        | 0.59     |
| 2:A:255:A:OP1    | 2:A:255:A:H4'    | 2.02        | 0.59     |
| 24:O:37:LEU:CD1  | 24:O:71:ASN:ND2  | 2.66        | 0.59     |
| 23:3:53:LEU:CD2  | 23:3:54:VAL:CG1  | 2.64        | 0.59     |
| 29:8:58:MET:HE1  | 29:8:61:MET:HE3  | 1.83        | 0.59     |
| 30:9:19:ARG:CG   | 30:9:19:ARG:O    | 2.51        | 0.59     |
| 30:9:5:SER:O     | 30:9:6:SER:OG    | 2.21        | 0.59     |
| 2:A:1255:U:OP1   | 2:A:1256:G:H5''  | 2.03        | 0.59     |
| 2:A:1996:C:C6    | 2:A:1996:C:H5''  | 2.35        | 0.59     |
| 2:A:2093:G:C5    | 2:A:2225:A:C5    | 2.90        | 0.59     |
| 2:A:2314:C:H5''  | 6:G:22:VAL:HG13  | 1.80        | 0.59     |
| 2:A:2298:A:H1'   | 2:A:2322:A:H1'   | 1.83        | 0.59     |
| 2:A:2031:A:H2'   | 2:A:2455:G:O2'   | 2.03        | 0.59     |
| 2:A:2581:G:N2    | 2:A:2610:C:C5    | 2.70        | 0.59     |
| 2:A:2622:C:N3    | 2:A:2623:G:N7    | 2.50        | 0.59     |
| 2:A:2639:A:OP2   | 2:A:2640:G:N7    | 2.35        | 0.59     |
| 2:A:2640:G:N1    | 2:A:2774:C:N4    | 2.33        | 0.59     |
| 2:A:2717:G:C4    | 2:A:2718:G:H8    | 2.14        | 0.59     |
| 2:A:2892:A:H3'   | 2:A:2893:G:C8    | 2.38        | 0.59     |
| 2:A:974:G:C3'    | 21:V:82:ARG:CZ   | 2.79        | 0.59     |
| 3:D:128:ALA:HB1  | 3:D:190:THR:N    | 2.18        | 0.59     |
| 3:D:86:ARG:CD    | 3:D:86:ARG:N     | 2.61        | 0.59     |
| 4:E:102:ASP:HA   | 4:E:104:PHE:CZ   | 2.37        | 0.59     |
| 4:E:269:ILE:HD13 | 4:E:295:LEU:C    | 2.22        | 0.59     |
| 5:F:22:PHE:CE2   | 5:F:115:LEU:CB   | 2.75        | 0.59     |
| 5:F:22:PHE:CE2   | 5:F:118:THR:OG1  | 2.50        | 0.59     |
| 6:G:151:ILE:HG21 | 6:G:156:ARG:CZ   | 2.33        | 0.59     |
| 6:G:28:GLY:O     | 6:G:29:HIS:C     | 2.39        | 0.59     |
| 7:H:105:SER:C    | 7:H:106:VAL:HG23 | 2.22        | 0.59     |
| 9:N:68:GLY:O     | 9:N:69:TYR:HD1   | 1.86        | 0.59     |
| 11:P:66:VAL:HB   | 11:P:111:ALA:O   | 2.03        | 0.59     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:50:VAL:HG12 | 12:Q:51:GLU:OE1  | 2.01        | 0.59     |
| 13:S:32:PRO:CG   | 13:S:100:ALA:CA  | 2.80        | 0.59     |
| 13:S:32:PRO:HD2  | 13:S:100:ALA:CA  | 2.32        | 0.59     |
| 13:S:12:ARG:HB3  | 13:S:20:TYR:CE1  | 2.38        | 0.59     |
| 20:U:117:ARG:HG3 | 20:U:118:GLN:H   | 1.65        | 0.59     |
| 2:A:99:U:N3      | 17:Y:107:LYS:HD3 | 2.17        | 0.59     |
| 17:Y:73:HIS:CD2  | 17:Y:89:ARG:O    | 2.56        | 0.59     |
| 3:D:209:ASN:O    | 3:D:213:LYS:N    | 2.36        | 0.59     |
| 2:A:1055:G:H2'   | 2:A:1056:G:H4'   | 1.83        | 0.59     |
| 18:Z:95:SER:OG   | 18:Z:122:ILE:CB  | 2.51        | 0.59     |
| 2:A:1222:C:H42   | 2:A:1227:A:N6    | 2.01        | 0.59     |
| 26:5:33:CYS:SG   | 26:5:36:CYS:CA   | 2.90        | 0.59     |
| 25:4:17:GLN:HB3  | 25:4:33:VAL:HB   | 1.85        | 0.59     |
| 28:7:21:ARG:HH22 | 28:7:43:THR:N    | 2.00        | 0.59     |
| 2:A:1133:U:O2'   | 2:A:1134:G:H5''  | 2.03        | 0.59     |
| 2:A:1260:G:H5''  | 15:W:83:LYS:HZ3  | 1.59        | 0.59     |
| 2:A:1638:C:H4'   | 2:A:2710:C:O2    | 2.03        | 0.59     |
| 2:A:1769:G:H2'   | 2:A:1770:G:H8    | 1.67        | 0.59     |
| 2:A:2061:G:C1'   | 2:A:2503:A:C2    | 2.86        | 0.59     |
| 2:A:2197:U:O2'   | 2:A:2198:A:C5'   | 2.35        | 0.59     |
| 2:A:2230:G:H2'   | 2:A:2231:C:C6    | 2.38        | 0.59     |
| 2:A:2345:G:C8    | 2:A:2371:G:N2    | 2.71        | 0.59     |
| 2:A:2423:U:C6    | 2:A:2423:U:H5''  | 2.35        | 0.59     |
| 2:A:2462:U:C2'   | 2:A:2463:C:O5'   | 2.51        | 0.59     |
| 2:A:2031:A:N6    | 2:A:2498:C:C5    | 2.71        | 0.59     |
| 2:A:2758:A:N9    | 2:A:2758:A:OP2   | 2.36        | 0.59     |
| 2:A:2813:A:N9    | 2:A:2814:C:C5    | 2.71        | 0.59     |
| 2:A:2874:C:O5'   | 2:A:2874:C:H6    | 1.86        | 0.59     |
| 2:A:342:G:H2'    | 2:A:343:C:C5     | 2.38        | 0.59     |
| 3:D:200:THR:OG1  | 3:D:201:ASP:CG   | 2.42        | 0.59     |
| 4:E:269:ILE:N    | 4:E:297:LYS:HE2  | 2.18        | 0.59     |
| 5:F:1:MET:SD     | 5:F:18:LEU:HB2   | 2.43        | 0.59     |
| 5:F:193:LEU:N    | 5:F:233:THR:HG22 | 1.91        | 0.59     |
| 7:H:138:GLN:O    | 7:H:140:VAL:N    | 2.36        | 0.59     |
| 9:N:12:VAL:C     | 9:N:38:VAL:CG2   | 2.71        | 0.59     |
| 10:O:26:GLY:HA3  | 10:O:30:ARG:CZ   | 2.33        | 0.59     |
| 10:O:37:ASP:HB2  | 10:O:62:VAL:CG2  | 2.28        | 0.59     |
| 12:Q:26:LYS:CE   | 12:Q:28:ILE:HD12 | 2.32        | 0.59     |
| 2:A:447:A:P      | 20:U:5:LYS:NZ    | 2.76        | 0.59     |
| 15:W:42:ARG:HG2  | 15:W:43:GLY:H    | 1.68        | 0.59     |
| 15:W:83:LYS:CA   | 15:W:97:LYS:HG2  | 2.29        | 0.59     |
| 18:Z:110:GLY:O   | 18:Z:112:LEU:N   | 2.34        | 0.59     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:2:51:LYS:C    | 22:2:54:ALA:HB3  | 2.23        | 0.59     |
| 2:A:1339:G:N2    | 2:A:1603:A:C8    | 2.71        | 0.59     |
| 16:X:17:ASP:CA   | 16:X:20:PHE:HE1  | 2.00        | 0.59     |
| 8:I:65:ALA:CB    | 8:I:134:HIS:CB   | 2.81        | 0.59     |
| 23:3:48:GLU:CG   | 23:3:49:LYS:N    | 2.66        | 0.58     |
| 23:3:48:GLU:O    | 23:3:49:LYS:C    | 2.41        | 0.58     |
| 25:4:4:ASP:OD1   | 25:4:11:PRO:HG3  | 2.03        | 0.58     |
| 2:A:1027:A:C6    | 2:A:1126:A:C4    | 2.91        | 0.58     |
| 2:A:2070:G:H2'   | 2:A:2071:A:C8    | 2.38        | 0.58     |
| 2:A:2100:G:C6    | 2:A:2190:G:C5    | 2.91        | 0.58     |
| 2:A:2208:U:O2'   | 2:A:2209:C:O4'   | 2.20        | 0.58     |
| 2:A:2433:A:C2    | 25:4:32:HIS:NE2  | 2.70        | 0.58     |
| 2:A:2515:C:N4    | 2:A:2570:G:O6    | 2.37        | 0.58     |
| 2:A:2526:G:O2'   | 2:A:2527:C:C5'   | 2.49        | 0.58     |
| 2:A:2574:G:C2    | 2:A:2575:C:C4    | 2.91        | 0.58     |
| 2:A:26:G:H1      | 2:A:27:G:H21     | 1.47        | 0.58     |
| 2:A:2781:A:O4'   | 2:A:2781:A:P     | 2.61        | 0.58     |
| 2:A:2821:A:C2    | 2:A:2822:G:N9    | 2.71        | 0.58     |
| 2:A:792:G:C5     | 2:A:2440:C:C2    | 2.91        | 0.58     |
| 2:A:830:G:O6     | 2:A:2446:G:C1'   | 2.51        | 0.58     |
| 5:F:91:PRO:CG    | 5:F:92:PRO:CD    | 2.41        | 0.58     |
| 2:A:2311:A:H2    | 6:G:53:LYS:NZ    | 1.99        | 0.58     |
| 7:H:120:LEU:HB3  | 7:H:143:LEU:HD11 | 1.83        | 0.58     |
| 8:I:25:TYR:CD2   | 8:I:25:TYR:N     | 2.44        | 0.58     |
| 8:I:43:ASN:O     | 8:I:45:LYS:CA    | 2.50        | 0.58     |
| 10:O:14:SER:OG   | 10:O:94:ARG:HB2  | 2.03        | 0.58     |
| 11:P:145:LEU:CD1 | 11:P:145:LEU:N   | 2.64        | 0.58     |
| 11:P:94:ARG:HD3  | 11:P:120:LEU:CA  | 2.32        | 0.58     |
| 12:Q:116:HIS:O   | 12:Q:118:ALA:O   | 2.21        | 0.58     |
| 12:Q:36:ASN:OD1  | 18:Z:116:VAL:N   | 2.36        | 0.58     |
| 13:S:47:LEU:CD1  | 13:S:58:LEU:CD2  | 2.67        | 0.58     |
| 20:U:21:ALA:C    | 20:U:24:PHE:CZ   | 2.76        | 0.58     |
| 20:U:94:VAL:CG1  | 21:V:4:ILE:HG21  | 2.24        | 0.58     |
| 21:V:96:LEU:HD23 | 21:V:96:LEU:H    | 1.67        | 0.58     |
| 15:W:17:VAL:O    | 15:W:20:VAL:N    | 2.36        | 0.58     |
| 17:Y:32:ARG:CA   | 17:Y:33:GLU:OE2  | 2.51        | 0.58     |
| 18:Z:149:ALA:HA  | 18:Z:152:ILE:CD1 | 2.26        | 0.58     |
| 18:Z:150:GLY:H   | 18:Z:165:GLU:N   | 2.00        | 0.58     |
| 18:Z:151:ASP:CB  | 18:Z:153:LYS:HZ3 | 2.12        | 0.58     |
| 18:Z:115:ILE:O   | 18:Z:169:VAL:HA  | 2.03        | 0.58     |
| 18:Z:46:GLN:C    | 18:Z:49:THR:HG1  | 1.99        | 0.58     |
| 18:Z:46:GLN:CB   | 18:Z:49:THR:OG1  | 2.46        | 0.58     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:Z:69:VAL:HG22 | 18:Z:82:ASP:N    | 2.11        | 0.58     |
| 16:X:23:LYS:CA   | 16:X:66:VAL:O    | 2.50        | 0.58     |
| 16:X:28:VAL:HG23 | 16:X:62:LYS:HG2  | 1.84        | 0.58     |
| 16:X:5:ILE:HG22  | 16:X:6:LYS:H     | 0.43        | 0.58     |
| 2:A:176:G:H3'    | 2:A:177:G:P      | 2.36        | 0.58     |
| 7:H:168:VAL:CG1  | 7:H:169:ARG:N    | 2.44        | 0.58     |
| 23:3:39:ASP:CG   | 23:3:40:THR:N    | 2.57        | 0.58     |
| 23:3:9:VAL:CG2   | 23:3:54:VAL:CA   | 2.62        | 0.58     |
| 25:4:10:VAL:CG1  | 25:4:10:VAL:O    | 2.51        | 0.58     |
| 25:4:63:PHE:CD2  | 25:4:69:ARG:NH2  | 2.71        | 0.58     |
| 26:5:44:HIS:CA   | 26:5:52:TYR:HH   | 1.88        | 0.58     |
| 29:8:14:ILE:O    | 29:8:15:LYS:HB2  | 2.03        | 0.58     |
| 2:A:1675:C:N3    | 4:E:225:LYS:CG   | 2.52        | 0.58     |
| 2:A:1937:A:N1    | 2:A:1940:U:C5    | 2.71        | 0.58     |
| 2:A:2262:U:C2'   | 2:A:2263:C:H5''  | 2.20        | 0.58     |
| 2:A:2287:A:N1    | 2:A:2289:G:C4    | 2.71        | 0.58     |
| 2:A:2414:G:H2'   | 2:A:2415:G:H8    | 1.68        | 0.58     |
| 2:A:2485:G:N3    | 2:A:2486:G:H1'   | 2.17        | 0.58     |
| 2:A:2704:C:H2'   | 2:A:2705:A:C8    | 2.38        | 0.58     |
| 2:A:1759:A:H4'   | 2:A:2715:C:O4'   | 2.02        | 0.58     |
| 2:A:2844:G:N2    | 2:A:2845:G:O4'   | 2.36        | 0.58     |
| 2:A:2892:A:H4'   | 2:A:2892:A:OP1   | 2.03        | 0.58     |
| 3:D:167:GLU:C    | 3:D:168:GLY:O    | 2.41        | 0.58     |
| 3:D:83:ASP:OD2   | 3:D:83:ASP:N     | 2.35        | 0.58     |
| 3:D:87:SER:O     | 3:D:156:ALA:CB   | 2.52        | 0.58     |
| 4:E:99:VAL:C     | 4:E:100:TRP:CG   | 2.75        | 0.58     |
| 9:N:23:ALA:O     | 9:N:26:VAL:HB    | 2.03        | 0.58     |
| 9:N:50:GLU:O     | 9:N:51:GLU:C     | 2.36        | 0.58     |
| 10:O:13:ASN:C    | 10:O:15:GLY:H    | 2.04        | 0.58     |
| 10:O:43:VAL:HB   | 10:O:55:GLY:H    | 1.68        | 0.58     |
| 12:Q:85:ILE:HG23 | 12:Q:136:TRP:HZ2 | 1.69        | 0.58     |
| 13:S:53:ASN:OD1  | 13:S:53:ASN:O    | 2.20        | 0.58     |
| 13:S:72:GLU:O    | 13:S:74:PRO:C    | 2.37        | 0.58     |
| 14:T:5:GLU:HB3   | 14:T:53:ASP:OD2  | 2.02        | 0.58     |
| 14:T:5:GLU:O     | 14:T:8:TYR:N     | 2.36        | 0.58     |
| 20:U:57:PHE:CA   | 20:U:60:LEU:HG   | 2.29        | 0.58     |
| 8:I:95:SER:CB    | 8:I:117:LEU:HD12 | 2.33        | 0.58     |
| 22:2:49:LEU:O    | 22:2:50:ARG:O    | 2.21        | 0.58     |
| 2:A:63:U:H6      | 2:A:63:U:H3'     | 1.68        | 0.58     |
| 16:X:55:GLN:C    | 16:X:56:ASN:ND2  | 2.51        | 0.58     |
| 2:A:282:A:H62    | 2:A:360:G:H21    | 1.50        | 0.58     |
| 2:A:479:A:O2'    | 2:A:480:A:H3'    | 2.02        | 0.58     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 17:Y:81:LYS:NZ    | 17:Y:81:LYS:CB   | 2.66        | 0.58     |
| 25:4:5:LEU:HD12   | 25:4:60:ASN:HD21 | 1.64        | 0.58     |
| 2:A:125:G:H5''    | 28:7:19:ARG:CD   | 2.33        | 0.58     |
| 28:7:25:LYS:O     | 28:7:28:ARG:HB2  | 2.04        | 0.58     |
| 2:A:1279:G:P      | 19:R:34:ILE:HD12 | 2.43        | 0.58     |
| 2:A:1637:A:H4'    | 2:A:2711:A:HO2'  | 1.63        | 0.58     |
| 2:A:2189:U:H2'    | 2:A:2190:G:H8    | 1.67        | 0.58     |
| 2:A:2090:G:N3     | 2:A:2230:G:C6    | 2.70        | 0.58     |
| 2:A:2234:G:C4     | 2:A:2235:G:C8    | 2.91        | 0.58     |
| 2:A:2266:A:H4'    | 2:A:2267:A:N3    | 2.17        | 0.58     |
| 2:A:2276:G:N1     | 2:A:2277:G:N7    | 2.51        | 0.58     |
| 2:A:2346:A:H1'    | 2:A:2383:G:C8    | 2.38        | 0.58     |
| 2:A:2417:C:O2'    | 2:A:2418:A:H5'   | 2.03        | 0.58     |
| 2:A:2443:C:C5     | 2:A:2444:G:C8    | 2.91        | 0.58     |
| 2:A:2455:G:N2     | 2:A:2498:C:H41   | 2.01        | 0.58     |
| 2:A:2586:C:H2'    | 2:A:2587:A:C5'   | 2.32        | 0.58     |
| 2:A:2596:U:C5     | 2:A:2597:G:C5    | 2.90        | 0.58     |
| 2:A:270(O):U:H5   | 8:I:53:LYS:NZ    | 2.01        | 0.58     |
| 2:A:295:G:H2'     | 2:A:295:G:N3     | 2.18        | 0.58     |
| 2:A:465:G:H21     | 2:A:683:C:H2'    | 1.68        | 0.58     |
| 4:E:172:ASP:O     | 4:E:175:ASP:N    | 2.36        | 0.58     |
| 2:A:1658:C:C5'    | 4:E:230:GLY:HA3  | 2.33        | 0.58     |
| 5:F:115:LEU:HD21  | 5:F:246:ARG:HH22 | 1.67        | 0.58     |
| 5:F:6:TYR:HE1     | 5:F:138:VAL:C    | 2.07        | 0.58     |
| 6:G:42:GLY:HA2    | 6:G:48:MET:SD    | 2.43        | 0.58     |
| 7:H:101:LYS:HE2   | 7:H:115:GLU:CG   | 2.33        | 0.58     |
| 7:H:15:THR:HG23   | 7:H:26:LYS:CB    | 2.28        | 0.58     |
| 9:N:13:ASP:O      | 9:N:38:VAL:HG11  | 2.03        | 0.58     |
| 9:N:51:GLU:O      | 9:N:52:GLN:C     | 2.41        | 0.58     |
| 9:N:53:ILE:HG23   | 9:N:54:VAL:N     | 2.17        | 0.58     |
| 9:N:58:GLU:HG2    | 9:N:61:VAL:CG2   | 2.29        | 0.58     |
| 10:O:85:VAL:O     | 10:O:87:ILE:HD11 | 2.03        | 0.58     |
| 11:P:67:ARG:NH1   | 11:P:109:LEU:CD1 | 2.66        | 0.58     |
| 12:Q:35:ASN:HB2   | 12:Q:75:SER:CB   | 2.32        | 0.58     |
| 19:R:100:LEU:CA   | 26:5:44:HIS:CD2  | 2.86        | 0.58     |
| 14:T:6:CYS:C      | 14:T:7:ASP:CG    | 2.62        | 0.58     |
| 20:U:115:ASN:HD22 | 20:U:115:ASN:N   | 1.96        | 0.58     |
| 21:V:67:LYS:HG3   | 21:V:94:LYS:HG3  | 1.85        | 0.58     |
| 22:2:13:PRO:O     | 22:2:16:ARG:HB2  | 2.03        | 0.58     |
| 22:2:51:LYS:HA    | 22:2:54:ALA:CB   | 2.33        | 0.58     |
| 2:A:1613:G:H2'    | 2:A:1617:C:H42   | 1.68        | 0.58     |
| 2:A:1545:A:O3'    | 2:A:545(A):A:OP1 | 2.22        | 0.58     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 26:5:40:LYS:HE3  | 26:5:48:ASN:HB2  | 1.85        | 0.58     |
| 27:6:48:VAL:O    | 27:6:50:PHE:HD1  | 1.73        | 0.58     |
| 29:8:26:LYS:N    | 29:8:46:LYS:HA   | 2.18        | 0.58     |
| 2:A:2358:G:N2    | 29:8:52:LYS:NZ   | 2.52        | 0.58     |
| 2:A:1364:G:N2    | 2:A:1366:A:H3'   | 2.18        | 0.58     |
| 2:A:1492:G:H21   | 2:A:1493:C:N4    | 2.01        | 0.58     |
| 2:A:1670:C:OP2   | 2:A:2550:G:OP2   | 2.21        | 0.58     |
| 2:A:2298:A:H1'   | 2:A:2321:G:H21   | 1.64        | 0.58     |
| 2:A:2435:A:C2    | 2:A:2436:G:C1'   | 2.86        | 0.58     |
| 2:A:2071:A:C2    | 2:A:2441:C:N3    | 2.71        | 0.58     |
| 2:A:2482:G:C4    | 2:A:2483:C:C6    | 2.91        | 0.58     |
| 2:A:2666:C:C3'   | 2:A:2667:C:C5'   | 2.76        | 0.58     |
| 2:A:2671:A:O2'   | 2:A:2672:G:O5'   | 2.21        | 0.58     |
| 2:A:2696:U:C4    | 2:A:2714:G:N2    | 2.71        | 0.58     |
| 2:A:2836:U:H2'   | 2:A:2837:G:H8    | 1.68        | 0.58     |
| 2:A:2875:C:C4    | 2:A:2876:G:C5    | 2.91        | 0.58     |
| 2:A:2888:C:O2    | 2:A:2889:C:N1    | 2.36        | 0.58     |
| 2:A:599:G:H5'    | 5:F:29:ASP:OD2   | 2.04        | 0.58     |
| 3:D:130:PRO:HA   | 3:D:188:ARG:CG   | 2.33        | 0.58     |
| 4:E:212:GLY:C    | 4:E:214:VAL:N    | 2.54        | 0.58     |
| 4:E:315:VAL:HG12 | 4:E:316:ARG:N    | 2.17        | 0.58     |
| 4:E:39:GLN:OE1   | 4:E:174:LEU:CG   | 2.51        | 0.58     |
| 6:G:54:ALA:O     | 6:G:55:LYS:CB    | 2.50        | 0.58     |
| 7:H:102:LEU:N    | 7:H:102:LEU:HD23 | 2.05        | 0.58     |
| 8:I:24:GLY:CA    | 8:I:27:ASN:HB3   | 2.31        | 0.58     |
| 12:Q:50:VAL:HG12 | 12:Q:52:LYS:N    | 2.12        | 0.58     |
| 12:Q:59:ASN:HD22 | 12:Q:59:ASN:C    | 2.05        | 0.58     |
| 13:S:116:PHE:C   | 13:S:120:GLU:OE2 | 2.42        | 0.58     |
| 20:U:88:ILE:HB   | 21:V:52:GLY:HA3  | 1.85        | 0.58     |
| 21:V:39:PHE:HB3  | 21:V:54:TYR:HB3  | 1.86        | 0.58     |
| 21:V:40:VAL:HA   | 21:V:54:TYR:HD1  | 1.67        | 0.58     |
| 15:W:19:LEU:CD2  | 26:5:25:LEU:CG   | 2.46        | 0.58     |
| 15:W:24:ILE:HG22 | 15:W:32:ALA:HB1  | 1.85        | 0.58     |
| 2:A:1261:C:OP1   | 15:W:83:LYS:HE2  | 2.03        | 0.58     |
| 2:A:84:A:OP1     | 17:Y:20:HIS:NE2  | 2.36        | 0.58     |
| 2:A:338:G:C5'    | 17:Y:24:ARG:NH1  | 2.61        | 0.58     |
| 17:Y:51:LEU:HD21 | 17:Y:95:ASN:CG   | 2.24        | 0.58     |
| 18:Z:30:VAL:O    | 18:Z:31:SER:C    | 2.40        | 0.58     |
| 3:D:208:GLY:HA3  | 3:D:210:LYS:HE2  | 1.85        | 0.58     |
| 3:D:213:LYS:CB   | 3:D:215:LYS:CB   | 2.72        | 0.58     |
| 22:2:19:GLU:HG2  | 22:2:23:LEU:HD21 | 1.84        | 0.58     |
| 2:A:131:G:N2     | 2:A:149:A:C2     | 2.72        | 0.58     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:X:7:HIS:O     | 16:X:26:PHE:HB3  | 2.03        | 0.58     |
| 16:X:2:TRP:O     | 16:X:3:ASP:C     | 2.42        | 0.58     |
| 16:X:33:SER:HA   | 16:X:37:VAL:CG2  | 2.30        | 0.58     |
| 17:Y:81:LYS:CG   | 17:Y:82:THR:N    | 2.66        | 0.58     |
| 2:A:339:U:H2'    | 2:A:340:A:C8     | 2.38        | 0.58     |
| 25:4:55:ARG:C    | 25:4:56:VAL:O    | 2.41        | 0.58     |
| 26:5:15:LYS:HA   | 26:5:18:MET:HG3  | 1.85        | 0.58     |
| 29:8:57:ARG:O    | 29:8:58:MET:C    | 2.40        | 0.58     |
| 30:9:13:ASN:O    | 30:9:14:CYS:O    | 2.22        | 0.58     |
| 2:A:1183:G:C5'   | 23:3:29:ARG:HG3  | 2.33        | 0.58     |
| 2:A:1265:A:OP2   | 2:A:2615:U:O5'   | 2.22        | 0.58     |
| 2:A:1678:G:N2    | 2:A:1989:G:H22   | 2.00        | 0.58     |
| 2:A:2067:G:N3    | 2:A:2444:G:C2    | 2.72        | 0.58     |
| 2:A:2186:G:C2    | 2:A:2187:G:N7    | 2.72        | 0.58     |
| 2:A:2188:C:C5    | 2:A:2189:U:H5    | 2.21        | 0.58     |
| 2:A:2189:U:H2'   | 2:A:2190:G:C8    | 2.39        | 0.58     |
| 2:A:2217:G:C2'   | 2:A:2218:G:O5'   | 2.52        | 0.58     |
| 2:A:2292:C:N4    | 2:A:2293:C:N4    | 2.51        | 0.58     |
| 2:A:2458:G:C4    | 2:A:2490:G:N2    | 2.71        | 0.58     |
| 2:A:2538:C:HO2'  | 2:A:2539:C:P     | 2.24        | 0.58     |
| 2:A:2565:A:O5'   | 2:A:2566:A:OP2   | 2.21        | 0.58     |
| 2:A:2570:G:C5'   | 2:A:2571:C:OP2   | 2.50        | 0.58     |
| 2:A:2610:C:H4'   | 2:A:2611:U:O5'   | 2.03        | 0.58     |
| 2:A:2627:G:H1'   | 2:A:2781:A:C2    | 2.38        | 0.58     |
| 2:A:2631:G:C4    | 2:A:2632:A:C8    | 2.91        | 0.58     |
| 2:A:2668:G:C2    | 2:A:2669:G:C8    | 2.92        | 0.58     |
| 2:A:2691:C:C2'   | 2:A:2692:C:C5'   | 2.79        | 0.58     |
| 2:A:270(P):C:H2' | 2:A:270(Q):C:C6  | 2.39        | 0.58     |
| 2:A:526:A:H4'    | 2:A:527:C:OP1    | 2.03        | 0.58     |
| 2:A:688:U:H5'    | 2:A:1780:A:C2    | 2.38        | 0.58     |
| 3:D:179:GLU:C    | 3:D:180:VAL:CG2  | 2.72        | 0.58     |
| 3:D:173:VAL:O    | 3:D:180:VAL:HG13 | 2.03        | 0.58     |
| 2:A:780:G:O6     | 3:D:233:ASP:CG   | 2.42        | 0.58     |
| 5:F:236:THR:O    | 5:F:239:ALA:HB2  | 2.02        | 0.58     |
| 7:H:52:THR:C     | 7:H:54:PRO:HD3   | 2.23        | 0.58     |
| 8:I:9:VAL:O      | 8:I:10:LYS:CB    | 2.51        | 0.58     |
| 9:N:84:ARG:HA    | 9:N:87:LEU:HD13  | 1.86        | 0.58     |
| 11:P:104:ASP:C   | 11:P:105:TYR:CG  | 2.73        | 0.58     |
| 13:S:82:TYR:C    | 13:S:83:LEU:HD12 | 2.24        | 0.58     |
| 2:A:1251:C:C5'   | 20:U:10:ARG:CD   | 2.81        | 0.58     |
| 20:U:28:ARG:HG2  | 20:U:29:SER:N    | 2.16        | 0.58     |
| 2:A:447:A:P      | 20:U:5:LYS:HZ3   | 2.27        | 0.58     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:729:G:H1'    | 2:A:763:G:O3'    | 2.03        | 0.58     |
| 22:2:11:MET:O    | 22:2:16:ARG:HG3  | 2.02        | 0.58     |
| 16:X:57:THR:C    | 16:X:59:ASP:OD2  | 2.41        | 0.58     |
| 25:4:48:ARG:CG   | 25:4:49:PHE:CD1  | 2.85        | 0.58     |
| 2:A:319:C:N4     | 2:A:320:A:N6     | 2.52        | 0.58     |
| 2:A:1743:G:H3'   | 2:A:1746:G:H5'   | 1.85        | 0.58     |
| 7:H:117:GLU:O    | 7:H:118:GLU:C    | 2.42        | 0.58     |
| 25:4:33:VAL:HG12 | 25:4:34:ASP:N    | 2.18        | 0.58     |
| 27:6:39:LYS:CA   | 27:6:50:PHE:CD1  | 2.86        | 0.58     |
| 2:A:650:C:P      | 29:8:17:THR:HG21 | 2.44        | 0.58     |
| 29:8:38:GLY:O    | 29:8:39:ASP:C    | 2.41        | 0.58     |
| 29:8:36:LYS:CG   | 29:8:40:GLU:OE1  | 2.50        | 0.58     |
| 30:9:19:ARG:O    | 30:9:20:HIS:HB2  | 2.04        | 0.58     |
| 2:A:1139:G:OP1   | 9:N:19:MET:O     | 2.22        | 0.58     |
| 2:A:1287:A:C8    | 19:R:104:ARG:HD2 | 2.38        | 0.58     |
| 2:A:1786:A:H2    | 2:A:2590:A:C1'   | 2.15        | 0.58     |
| 2:A:2006:C:H4'   | 2:A:2048:G:H4'   | 1.85        | 0.58     |
| 2:A:2259:G:N1    | 2:A:2282:G:C6    | 2.71        | 0.58     |
| 2:A:2279:G:C5    | 2:A:2280:G:N7    | 2.72        | 0.58     |
| 2:A:2398:U:H4'   | 2:A:2399:G:OP1   | 2.04        | 0.58     |
| 2:A:2428:G:O5'   | 2:A:2429:G:OP1   | 2.20        | 0.58     |
| 2:A:2077:A:C5    | 2:A:2435:A:N7    | 2.71        | 0.58     |
| 2:A:945:A:N1     | 2:A:2448:A:N3    | 2.46        | 0.58     |
| 2:A:2481:G:C2'   | 2:A:2482:G:OP2   | 2.51        | 0.58     |
| 2:A:2555:U:C6    | 2:A:2556:C:C6    | 2.91        | 0.58     |
| 2:A:2561:A:C2'   | 2:A:2562:U:O5'   | 2.44        | 0.58     |
| 2:A:1129:A:C4    | 2:A:2570:G:H1'   | 2.38        | 0.58     |
| 2:A:2056:G:O6    | 2:A:2577:A:H1'   | 2.03        | 0.58     |
| 2:A:26:G:C6      | 2:A:27:G:N2      | 2.71        | 0.58     |
| 2:A:2815:C:H2'   | 2:A:2816:C:C6    | 2.38        | 0.58     |
| 2:A:602:G:C2'    | 2:A:655:A:C2     | 2.86        | 0.58     |
| 2:A:673:C:O4'    | 5:F:82:GLN:CD    | 2.42        | 0.58     |
| 1:B:48:A:OP1     | 13:S:110:THR:HB  | 2.03        | 0.58     |
| 5:F:37:ALA:HB1   | 5:F:107:ARG:NH2  | 2.18        | 0.58     |
| 9:N:63:ILE:CB    | 9:N:71:TYR:CZ    | 2.87        | 0.58     |
| 10:O:101:PRO:C   | 10:O:102:VAL:CG2 | 2.71        | 0.58     |
| 2:A:2685:G:OP1   | 10:O:78:ARG:NH1  | 2.35        | 0.58     |
| 11:P:83:GLU:O    | 11:P:92:ASP:HA   | 2.04        | 0.58     |
| 12:Q:72:VAL:HG21 | 12:Q:83:PHE:CZ   | 2.32        | 0.58     |
| 12:Q:85:ILE:CD1  | 12:Q:85:ILE:O    | 2.51        | 0.58     |
| 19:R:24:GLN:HB3  | 19:R:44:LEU:CD2  | 2.33        | 0.58     |
| 13:S:19:ASP:O    | 13:S:20:TYR:C    | 2.41        | 0.58     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 20:U:117:ARG:HD3 | 20:U:118:GLN:H    | 1.67        | 0.58     |
| 20:U:46:GLU:O    | 20:U:47:TYR:C     | 2.40        | 0.58     |
| 21:V:77:GLY:C    | 21:V:78:VAL:HG13  | 2.24        | 0.58     |
| 15:W:12:ILE:HD11 | 15:W:42:ARG:CD    | 2.33        | 0.58     |
| 18:Z:9:THR:O     | 18:Z:13:LYS:CB    | 2.52        | 0.58     |
| 18:Z:141:MET:CB  | 18:Z:171:VAL:CG1  | 2.79        | 0.58     |
| 2:A:763:G:O2'    | 2:A:764:A:H5'     | 2.04        | 0.58     |
| 2:A:76:C:O2'     | 22:2:55:ARG:CB    | 2.52        | 0.58     |
| 2:A:1062:G:H21   | 31:K:92:PRO:CG    | 1.95        | 0.58     |
| 2:A:1274:A:C6    | 2:A:1302:A:C2     | 2.91        | 0.58     |
| 2:A:1906:G:N7    | 2:A:1929:G:C4     | 2.71        | 0.58     |
| 2:A:1840:G:H1    | 2:A:1902:C:N4     | 1.99        | 0.58     |
| 7:H:19:ASN:HD22  | 7:H:19:ASN:C      | 2.07        | 0.58     |
| 27:6:16:ALA:C    | 27:6:48:VAL:CG1   | 2.71        | 0.58     |
| 2:A:686:G:C8     | 28:7:7:PRO:HA     | 2.38        | 0.58     |
| 29:8:50:LEU:CD2  | 29:8:50:LEU:C     | 2.62        | 0.58     |
| 2:A:532:A:OP2    | 2:A:2021:C:N4     | 2.36        | 0.58     |
| 2:A:2290:G:N2    | 2:A:2343:C:C1'    | 2.63        | 0.58     |
| 2:A:2485:G:N3    | 2:A:2486:G:O4'    | 2.36        | 0.58     |
| 2:A:2446:G:N3    | 2:A:2501:C:H5     | 1.98        | 0.58     |
| 2:A:2652:C:N1    | 2:A:2653:U:C6     | 2.72        | 0.58     |
| 2:A:2666:C:C6    | 2:A:2667:C:C6     | 2.92        | 0.58     |
| 2:A:2715:C:C2    | 2:A:2716:U:C5     | 2.92        | 0.58     |
| 2:A:2819:G:O5'   | 2:A:2819:G:H8     | 1.87        | 0.58     |
| 2:A:2838:G:N3    | 2:A:2839:G:C8     | 2.71        | 0.58     |
| 2:A:995:C:H2'    | 2:A:995:C:O2      | 2.03        | 0.58     |
| 2:A:2786:U:H5''  | 4:E:100:TRP:O     | 1.98        | 0.58     |
| 4:E:264:LEU:O    | 4:E:265:ASN:ND2   | 2.36        | 0.58     |
| 4:E:308:VAL:CG1  | 4:E:310:PHE:HE1   | 2.12        | 0.58     |
| 4:E:199:ALA:HA   | 4:E:314:ALA:CA    | 2.33        | 0.58     |
| 9:N:25:GLN:N     | 9:N:28:GLU:HG2    | 2.18        | 0.58     |
| 9:N:19:MET:CB    | 9:N:46:ILE:HD13   | 2.15        | 0.58     |
| 9:N:71:TYR:O     | 9:N:72:PRO:O      | 2.21        | 0.58     |
| 10:O:106:LEU:N   | 10:O:106:LEU:HD23 | 2.15        | 0.58     |
| 11:P:113:GLN:O   | 11:P:115:ARG:HD2  | 2.04        | 0.58     |
| 2:A:636:G:H3'    | 11:P:126:SER:HB3  | 1.86        | 0.58     |
| 11:P:52:LYS:NZ   | 11:P:53:ARG:HH12  | 2.01        | 0.58     |
| 11:P:56:LYS:HG3  | 11:P:57:VAL:H     | 1.68        | 0.58     |
| 12:Q:116:HIS:CG  | 12:Q:116:HIS:O    | 2.56        | 0.58     |
| 12:Q:85:ILE:H    | 12:Q:85:ILE:HD12  | 1.68        | 0.58     |
| 19:R:22:ARG:HG2  | 19:R:26:LYS:HE3   | 1.81        | 0.58     |
| 13:S:102:LEU:CD1 | 13:S:129:ILE:HD12 | 2.28        | 0.58     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 14:T:50:GLU:HG3  | 14:T:55:ALA:CB    | 2.34        | 0.58     |
| 20:U:72:HIS:HE1  | 20:U:110:VAL:HG21 | 1.67        | 0.58     |
| 20:U:9:VAL:HG12  | 20:U:13:ARG:HH21  | 1.68        | 0.58     |
| 20:U:28:ARG:CG   | 20:U:29:SER:N     | 2.66        | 0.58     |
| 2:A:1225:C:OP1   | 21:V:87:ARG:HG3   | 2.04        | 0.58     |
| 15:W:25:ARG:HG2  | 15:W:26:GLY:N     | 2.18        | 0.58     |
| 8:I:133:LEU:HD12 | 8:I:138:THR:C     | 2.23        | 0.58     |
| 24:O:50:GLY:C    | 24:O:52:GLY:N     | 2.57        | 0.58     |
| 2:A:2409:G:C8    | 2:A:2409:G:O5'    | 2.55        | 0.58     |
| 2:A:352:G:O5'    | 2:A:352:G:C8      | 2.54        | 0.58     |
| 2:A:1528:A:N3    | 2:A:1529:A:H1'    | 2.19        | 0.58     |
| 2:A:273(A):G:H2' | 2:A:273(B):C:H6   | 1.69        | 0.58     |
| 23:3:53:LEU:CD2  | 23:3:53:LEU:C     | 2.71        | 0.58     |
| 25:4:23:GLU:O    | 25:4:26:SER:N     | 2.37        | 0.58     |
| 25:4:6:HIS:CE1   | 25:4:55:ARG:HG3   | 2.37        | 0.58     |
| 26:5:12:SER:O    | 26:5:14:SER:OG    | 2.22        | 0.58     |
| 2:A:458:G:C2'    | 28:7:40:HIS:NE2   | 2.62        | 0.58     |
| 2:A:1005:C:H2'   | 2:A:1006:C:C6     | 2.38        | 0.58     |
| 2:A:1241:A:C8    | 2:A:1241:A:OP2    | 2.57        | 0.58     |
| 2:A:125:G:H21    | 28:7:10:ARG:CA    | 2.13        | 0.58     |
| 2:A:1952:A:N3    | 10:O:22:ILE:HD13  | 2.19        | 0.58     |
| 2:A:2090:G:C2    | 2:A:2230:G:C5     | 2.92        | 0.58     |
| 2:A:2276:G:C6    | 2:A:2277:G:N7     | 2.72        | 0.58     |
| 2:A:2555:U:H5    | 2:A:2556:C:C5     | 2.21        | 0.58     |
| 2:A:1638:C:C4'   | 2:A:2709:G:H22    | 2.16        | 0.58     |
| 2:A:2744:G:C6    | 2:A:2745:C:N4     | 2.72        | 0.58     |
| 2:A:325:G:H2'    | 2:A:326:G:H8      | 1.68        | 0.58     |
| 2:A:443:A:N6     | 5:F:39:GLN:HB2    | 2.18        | 0.58     |
| 4:E:206:LYS:H    | 4:E:257:GLY:C     | 2.06        | 0.58     |
| 5:F:153:VAL:C    | 5:F:155:SER:H     | 2.06        | 0.58     |
| 7:H:9:GLU:CD     | 7:H:11:PRO:HD3    | 2.23        | 0.58     |
| 19:R:22:ARG:HG2  | 19:R:26:LYS:CE    | 2.34        | 0.58     |
| 13:S:32:PRO:HD3  | 13:S:100:ALA:HA   | 1.81        | 0.58     |
| 13:S:31:LYS:CD   | 13:S:99:GLU:C     | 2.55        | 0.58     |
| 20:U:95:LEU:O    | 20:U:98:ILE:CB    | 2.44        | 0.58     |
| 21:V:50:ASP:OD1  | 21:V:53:LYS:HE2   | 2.01        | 0.58     |
| 15:W:8:ARG:CD    | 15:W:9:TYR:CD1    | 2.82        | 0.58     |
| 18:Z:72:ASP:OD2  | 18:Z:72:ASP:N     | 2.37        | 0.58     |
| 2:A:1566:A:C2    | 3:D:212:HIS:ND1   | 2.72        | 0.58     |
| 16:X:23:LYS:CA   | 16:X:67:ARG:HA    | 2.34        | 0.58     |
| 25:4:48:ARG:CG   | 25:4:49:PHE:N     | 2.59        | 0.58     |
| 16:X:46:ASP:O    | 16:X:47:VAL:O     | 2.21        | 0.58     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:I:47:LEU:CD1   | 8:I:48:GLU:N     | 2.59        | 0.58     |
| 2:A:1538:G:H2'   | 2:A:1539:G:C1'   | 2.33        | 0.58     |
| 23:3:23:LEU:C    | 23:3:28:LEU:CD1  | 2.57        | 0.58     |
| 2:A:2309:A:C3'   | 2:A:2310:A:C5'   | 2.72        | 0.58     |
| 2:A:2250:G:C8    | 2:A:2496:C:OP1   | 2.57        | 0.58     |
| 2:A:2546:U:O2'   | 2:A:2547:U:OP2   | 2.16        | 0.58     |
| 2:A:1669:A:O2'   | 2:A:2549:G:H4'   | 2.03        | 0.58     |
| 2:A:2569:G:N3    | 2:A:2570:G:C8    | 2.72        | 0.58     |
| 2:A:2573:C:H3'   | 2:A:2573:C:C6    | 2.39        | 0.58     |
| 2:A:2647:U:O2    | 2:A:2673:G:N2    | 2.36        | 0.58     |
| 2:A:2679:A:H2'   | 2:A:2680:C:O5'   | 2.04        | 0.58     |
| 2:A:2682:U:H6    | 4:E:48:MET:SD    | 2.26        | 0.58     |
| 2:A:712(A):A:C5' | 2:A:2714:G:OP2   | 2.47        | 0.58     |
| 2:A:2679:A:C6    | 2:A:2729:G:C6    | 2.92        | 0.58     |
| 2:A:2731:G:N1    | 2:A:2732:G:N2    | 2.52        | 0.58     |
| 2:A:2881:C:C4    | 2:A:2882:A:N7    | 2.71        | 0.58     |
| 2:A:2801:A:C2    | 2:A:2895:U:H1'   | 2.38        | 0.58     |
| 2:A:447:A:N6     | 2:A:454:A:N7     | 2.51        | 0.58     |
| 2:A:475:U:H4'    | 2:A:510:C:H5'    | 1.86        | 0.58     |
| 2:A:566:U:P      | 21:V:81:ARG:NH2  | 2.76        | 0.58     |
| 1:B:28:C:OP2     | 13:S:41:LYS:HE3  | 2.04        | 0.58     |
| 3:D:197:GLY:H    | 3:D:199:ARG:NH1  | 2.01        | 0.58     |
| 3:D:77:VAL:HB    | 3:D:113:MET:N    | 2.16        | 0.58     |
| 4:E:221:LYS:CE   | 4:E:233:ARG:CG   | 2.81        | 0.58     |
| 5:F:6:TYR:CE1    | 5:F:139:VAL:N    | 2.63        | 0.58     |
| 5:F:244:ALA:C    | 5:F:246:ARG:N    | 2.54        | 0.58     |
| 7:H:147:ILE:CD1  | 7:H:150:VAL:CG1  | 2.82        | 0.58     |
| 7:H:15:THR:HG22  | 7:H:26:LYS:C     | 2.24        | 0.58     |
| 7:H:66:THR:CG2   | 7:H:67:THR:H     | 2.16        | 0.58     |
| 9:N:66:ASP:O     | 9:N:67:ASN:C     | 2.39        | 0.58     |
| 10:O:3:GLN:HA    | 10:O:21:VAL:HG12 | 1.85        | 0.58     |
| 2:A:1287:A:H5''  | 19:R:104:ARG:CD  | 2.32        | 0.58     |
| 2:A:2319:G:P     | 13:S:9:PRO:HD2   | 2.43        | 0.58     |
| 2:A:1251:C:C5'   | 20:U:10:ARG:HG3  | 2.33        | 0.58     |
| 20:U:47:TYR:O    | 20:U:48:ARG:C    | 2.41        | 0.58     |
| 20:U:76:TYR:O    | 20:U:80:ILE:HG13 | 2.01        | 0.58     |
| 21:V:30:GLY:O    | 21:V:33:VAL:HG21 | 1.93        | 0.58     |
| 21:V:4:ILE:O     | 21:V:4:ILE:HG22  | 2.03        | 0.58     |
| 18:Z:15:ASP:OD1  | 18:Z:15:ASP:C    | 2.42        | 0.58     |
| 18:Z:53:ASP:O    | 18:Z:54:ILE:HD12 | 2.03        | 0.58     |
| 18:Z:6:LYS:N     | 18:Z:7:PRO:HD3   | 2.13        | 0.58     |
| 8:I:111:ASP:HB3  | 8:I:114:LYS:HG2  | 1.85        | 0.58     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 8:I:80:PRO:CA     | 8:I:146:THR:O    | 2.51        | 0.58     |
| 2:A:60:G:H1'      | 2:A:74:A:N1      | 2.19        | 0.58     |
| 2:A:1398:C:H4'    | 16:X:23:LYS:NZ   | 2.19        | 0.58     |
| 2:A:1482:U:H1'    | 2:A:1512:G:N2    | 2.18        | 0.58     |
| 2:A:299:A:H1'     | 2:A:319:C:O2'    | 2.04        | 0.58     |
| 2:A:1742:C:H2'    | 2:A:1743:G:C1'   | 2.33        | 0.58     |
| 2:A:136:G:C3'     | 2:A:137:C:H4'    | 2.33        | 0.58     |
| 24:0:67:VAL:CG1   | 24:0:74:LYS:CG   | 2.47        | 0.58     |
| 27:6:8:ILE:H      | 27:6:29:ARG:NH2  | 1.93        | 0.58     |
| 28:7:30:ILE:HD13  | 28:7:33:ARG:NE   | 2.18        | 0.58     |
| 2:A:1022:G:OP2    | 9:N:52:GLN:CD    | 2.42        | 0.58     |
| 2:A:1782:C:N3     | 2:A:2609:U:H5    | 2.01        | 0.58     |
| 2:A:2268:A:C8     | 2:A:2268:A:C3'   | 2.87        | 0.58     |
| 2:A:2268:A:H8     | 2:A:2268:A:H3'   | 1.69        | 0.58     |
| 2:A:2510:C:N3     | 2:A:2578:G:O6    | 2.37        | 0.58     |
| 2:A:270(O):U:H5'' | 2:A:270(P):C:C5  | 2.39        | 0.58     |
| 2:A:2689:U:N1     | 2:A:2713:A:N1    | 2.52        | 0.58     |
| 2:A:2869:G:C2     | 2:A:2870:C:C1'   | 2.87        | 0.58     |
| 2:A:919:G:H2'     | 2:A:920:G:C8     | 2.39        | 0.58     |
| 2:A:959:A:H2'     | 2:A:960:A:H8     | 1.67        | 0.58     |
| 3:D:183:ILE:HG22  | 3:D:184:LEU:H    | 0.48        | 0.58     |
| 4:E:206:LYS:C     | 4:E:257:GLY:HA2  | 2.24        | 0.58     |
| 2:A:2680:C:C4'    | 4:E:300:VAL:HA   | 2.34        | 0.58     |
| 4:E:44:TYR:CA     | 4:E:307:LEU:O    | 2.52        | 0.58     |
| 5:F:223:LEU:HD23  | 5:F:233:THR:OG1  | 2.04        | 0.58     |
| 5:F:58:ALA:O      | 5:F:59:GLU:OE2   | 2.22        | 0.58     |
| 7:H:41:THR:CB     | 7:H:52:THR:OG1   | 2.52        | 0.58     |
| 2:A:1022:G:O6     | 9:N:47:THR:HG21  | 2.03        | 0.58     |
| 10:O:114:ILE:O    | 10:O:116:SER:N   | 2.37        | 0.58     |
| 11:P:132:LYS:O    | 11:P:133:VAL:C   | 2.42        | 0.58     |
| 12:Q:136:TRP:C    | 12:Q:139:ALA:H   | 2.05        | 0.58     |
| 12:Q:42:TYR:HB3   | 18:Z:119:ASN:OD1 | 2.04        | 0.58     |
| 19:R:52:ILE:CD1   | 19:R:94:TYR:CB   | 2.81        | 0.58     |
| 13:S:114:LYS:O    | 13:S:117:ALA:CB  | 2.52        | 0.58     |
| 13:S:109:PRO:HB2  | 13:S:116:PHE:CE2 | 2.39        | 0.58     |
| 14:T:23:HIS:ND1   | 14:T:24:LYS:O    | 2.36        | 0.58     |
| 21:V:34:GLU:C     | 21:V:35:LEU:HD23 | 2.17        | 0.58     |
| 2:A:565:C:OP1     | 21:V:79:GLN:O    | 2.22        | 0.58     |
| 15:W:66:GLU:O     | 15:W:69:LEU:HD21 | 2.03        | 0.58     |
| 18:Z:103:ARG:CD   | 18:Z:103:ARG:H   | 2.14        | 0.58     |
| 2:A:111:A:O4'     | 22:2:62:GLU:OE2  | 2.21        | 0.58     |
| 25:4:14:ILE:HG21  | 25:4:37:SER:C    | 2.25        | 0.57     |

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| Atom-1           | Atom-2          | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 25:4:14:ILE:CG2  | 25:4:37:SER:H   | 2.13        | 0.57     |
| 25:4:4:ASP:HB3   | 25:4:5:LEU:CD2  | 2.34        | 0.57     |
| 26:5:40:LYS:HE2  | 26:5:46:CYS:CB  | 2.20        | 0.57     |
| 27:6:12:MET:HE3  | 27:6:54:LYS:C   | 2.23        | 0.57     |
| 30:9:29:ASN:HB2  | 30:9:32:HIS:CE1 | 2.39        | 0.57     |
| 2:A:2052:G:N1    | 2:A:2618:G:C8   | 2.72        | 0.57     |
| 2:A:2263:C:H5'   | 2:A:2263:C:H6   | 1.68        | 0.57     |
| 2:A:2333:A:H5'   | 2:A:2335:A:O4'  | 2.03        | 0.57     |
| 2:A:2344:U:O2    | 2:A:2344:U:C2'  | 2.51        | 0.57     |
| 2:A:2423:U:O2'   | 2:A:2424:C:P    | 2.62        | 0.57     |
| 2:A:2458:G:O6    | 2:A:2490:G:O2'  | 2.21        | 0.57     |
| 2:A:2542:A:H5'   | 2:A:2543:G:OP1  | 2.04        | 0.57     |
| 2:A:245:G:H22    | 2:A:254:G:H1'   | 1.69        | 0.57     |
| 2:A:2593:U:H3    | 2:A:2600:A:N6   | 2.01        | 0.57     |
| 2:A:2605:U:C6    | 2:A:2605:U:O5'  | 2.56        | 0.57     |
| 2:A:2694:G:C6    | 2:A:2695:C:C5   | 2.92        | 0.57     |
| 2:A:2792:G:N3    | 2:A:2805:G:N2   | 2.38        | 0.57     |
| 2:A:2826:A:C2    | 2:A:2827:C:H6   | 2.21        | 0.57     |
| 2:A:575:A:H4'    | 2:A:2500:U:C5'  | 2.34        | 0.57     |
| 2:A:632:A:H2     | 2:A:2403:C:H4'  | 1.69        | 0.57     |
| 2:A:780:G:C6     | 3:D:233:ASP:CG  | 2.78        | 0.57     |
| 4:E:47:GLY:HA2   | 4:E:305:LYS:HE2 | 1.86        | 0.57     |
| 4:E:75:THR:HG21  | 4:E:189:MET:SD  | 2.43        | 0.57     |
| 5:F:21:VAL:O     | 5:F:22:PHE:C    | 2.40        | 0.57     |
| 5:F:35:VAL:O     | 5:F:38:ALA:N    | 2.37        | 0.57     |
| 5:F:55:ARG:HG3   | 5:F:56:THR:H    | 1.66        | 0.57     |
| 9:N:16:ASP:H     | 9:N:45:VAL:HG23 | 1.65        | 0.57     |
| 9:N:83:ILE:CG1   | 9:N:84:ARG:CG   | 2.82        | 0.57     |
| 10:O:63:VAL:HG12 | 10:O:63:VAL:O   | 2.04        | 0.57     |
| 2:A:911:A:C8     | 12:Q:16:ARG:CD  | 2.86        | 0.57     |
| 12:Q:9:SER:O     | 12:Q:10:ILE:C   | 2.43        | 0.57     |
| 19:R:48:VAL:O    | 19:R:51:LEU:HB2 | 2.03        | 0.57     |
| 13:S:120:GLU:O   | 13:S:121:GLY:C  | 2.42        | 0.57     |
| 13:S:61:ALA:HB1  | 13:S:84:THR:CG2 | 2.34        | 0.57     |
| 20:U:105:ALA:O   | 20:U:106:PHE:C  | 2.42        | 0.57     |
| 20:U:115:ASN:O   | 20:U:117:ARG:CA | 2.51        | 0.57     |
| 20:U:36:PHE:CD1  | 20:U:36:PHE:N   | 2.72        | 0.57     |
| 21:V:43:GLU:O    | 21:V:44:GLN:CD  | 2.42        | 0.57     |
| 2:A:1906:G:C8    | 2:A:1929:G:C5   | 2.92        | 0.57     |
| 2:A:120:U:N3     | 2:A:150:C:C4    | 2.72        | 0.57     |
| 2:A:1813:G:H2'   | 2:A:1814:G:O4'  | 2.04        | 0.57     |
| 27:6:9:ILE:O     | 27:6:9:ILE:HG22 | 2.02        | 0.57     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1367:A:C2'   | 28:7:25:LYS:NZ   | 2.64        | 0.57     |
| 29:8:55:TRP:HZ3  | 29:8:59:LYS:NZ   | 1.86        | 0.57     |
| 2:A:2078:C:H2'   | 2:A:2079:U:O4'   | 2.04        | 0.57     |
| 2:A:2435:A:H2'   | 2:A:2436:G:H5''  | 1.84        | 0.57     |
| 2:A:2464:C:C2    | 2:A:2465:C:C6    | 2.91        | 0.57     |
| 2:A:2470:G:H1    | 2:A:2471:C:N4    | 2.02        | 0.57     |
| 2:A:2447:G:C8    | 2:A:2500:U:H5    | 2.23        | 0.57     |
| 2:A:2617:C:O2'   | 2:A:2618:G:H5'   | 2.02        | 0.57     |
| 2:A:2679:A:C2    | 2:A:2680:C:C6    | 2.92        | 0.57     |
| 2:A:2684:U:O4'   | 10:O:76:TYR:OH   | 2.16        | 0.57     |
| 2:A:1462:C:H5'   | 2:A:2703:C:H5'   | 1.87        | 0.57     |
| 2:A:2716:U:O2    | 2:A:2717:G:C8    | 2.57        | 0.57     |
| 2:A:1665:A:N7    | 2:A:2726:U:O2    | 2.37        | 0.57     |
| 2:A:2783:G:C2    | 2:A:2784:C:C4    | 2.93        | 0.57     |
| 2:A:2826:A:N6    | 2:A:2827:C:C6    | 2.38        | 0.57     |
| 2:A:2862:G:N3    | 2:A:2863:C:C5    | 2.71        | 0.57     |
| 2:A:2846:G:N2    | 2:A:2869:G:H1    | 2.01        | 0.57     |
| 2:A:635:C:H2'    | 2:A:636:G:O4'    | 2.05        | 0.57     |
| 2:A:987:G:OP1    | 23:3:10:LYS:HE3  | 2.03        | 0.57     |
| 3:D:76:ARG:O     | 3:D:113:MET:HG2  | 2.02        | 0.57     |
| 3:D:73:ILE:CB    | 3:D:95:TYR:HE2   | 2.15        | 0.57     |
| 3:D:73:ILE:CG2   | 3:D:74:PRO:HD2   | 2.33        | 0.57     |
| 3:D:90:ILE:CG2   | 3:D:103:ILE:N    | 2.68        | 0.57     |
| 4:E:311:PHE:CD2  | 4:E:311:PHE:N    | 2.72        | 0.57     |
| 5:F:166:ILE:O    | 5:F:167:ASP:O    | 2.22        | 0.57     |
| 5:F:243:VAL:CB   | 5:F:246:ARG:HD2  | 2.33        | 0.57     |
| 2:A:672:C:O2'    | 5:F:82:GLN:NE2   | 2.37        | 0.57     |
| 7:H:148:ARG:NH1  | 7:H:164:GLU:H    | 1.98        | 0.57     |
| 8:I:38:GLU:O     | 8:I:39:ALA:C     | 2.42        | 0.57     |
| 9:N:58:GLU:C     | 9:N:61:VAL:H     | 2.07        | 0.57     |
| 2:A:2640:G:C4'   | 9:N:70:PHE:HD2   | 2.13        | 0.57     |
| 9:N:87:LEU:HB3   | 9:N:88:PRO:HD3   | 1.85        | 0.57     |
| 10:O:93:PRO:HD2  | 10:O:113:LYS:HD3 | 1.87        | 0.57     |
| 12:Q:88:PHE:CA   | 12:Q:90:PHE:HE1  | 2.17        | 0.57     |
| 19:R:62:ALA:CB   | 19:R:80:PHE:CZ   | 2.86        | 0.57     |
| 20:U:47:TYR:HD2  | 20:U:50:ARG:HD2  | 1.69        | 0.57     |
| 20:U:88:ILE:HG22 | 20:U:88:ILE:O    | 2.04        | 0.57     |
| 21:V:5:ILE:HD12  | 21:V:12:TYR:OH   | 2.03        | 0.57     |
| 21:V:66:GLY:HA2  | 21:V:93:ILE:HA   | 1.86        | 0.57     |
| 18:Z:40:ASP:O    | 18:Z:44:ARG:HG2  | 2.04        | 0.57     |
| 18:Z:91:PRO:N    | 18:Z:127:PRO:HB3 | 2.18        | 0.57     |
| 2:A:1055:G:C3'   | 2:A:1056:G:OP2   | 2.51        | 0.57     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 17:Y:3:GLN:HB3    | 17:Y:4:PRO:HD2    | 1.86        | 0.57     |
| 3:D:234:HIS:O     | 3:D:235:PRO:O     | 2.22        | 0.57     |
| 2:A:498:G:H8      | 2:A:498:G:O5'     | 1.87        | 0.57     |
| 2:A:270(W):G:H3'  | 2:A:270(X):G:H8   | 1.68        | 0.57     |
| 2:A:374:A:H2'     | 2:A:375:C:O4'     | 2.04        | 0.57     |
| 2:A:668:G:H2'     | 2:A:670:A:N7      | 2.19        | 0.57     |
| 23:3:40:THR:O     | 23:3:40:THR:HG23  | 2.04        | 0.57     |
| 28:7:21:ARG:NH2   | 28:7:43:THR:HG23  | 2.14        | 0.57     |
| 2:A:2187:G:O2'    | 2:A:2188:C:C5'    | 2.45        | 0.57     |
| 2:A:2311:A:OP2    | 6:G:55:LYS:CE     | 2.49        | 0.57     |
| 2:A:2347:C:H2'    | 2:A:2348:U:C6     | 2.38        | 0.57     |
| 2:A:2360:A:C5     | 2:A:2361:A:C8     | 2.80        | 0.57     |
| 2:A:2364:C:C5'    | 24:0:38:VAL:HG11  | 2.20        | 0.57     |
| 2:A:2404:C:N4     | 2:A:2405:G:C2     | 2.72        | 0.57     |
| 2:A:2468:G:C6     | 2:A:2481:G:C4     | 2.90        | 0.57     |
| 2:A:2766:G:C2     | 2:A:2767:C:C6     | 2.91        | 0.57     |
| 2:A:2827:C:O2'    | 2:A:2828:C:C5'    | 2.52        | 0.57     |
| 2:A:648:G:H2'     | 2:A:649:G:C8      | 2.39        | 0.57     |
| 4:E:211:GLN:O     | 4:E:216:ARG:CZ    | 2.52        | 0.57     |
| 2:A:2572:A:OP2    | 4:E:241:TRP:HB2   | 2.03        | 0.57     |
| 5:F:138:VAL:HG12  | 5:F:138:VAL:O     | 2.04        | 0.57     |
| 7:H:96:SER:HA     | 7:H:124:VAL:CG2   | 2.30        | 0.57     |
| 10:O:98:ILE:CG2   | 10:O:118:ALA:HA   | 2.34        | 0.57     |
| 10:O:46:ALA:C     | 10:O:47:THR:O     | 2.39        | 0.57     |
| 11:P:70:ASP:OD1   | 11:P:115:ARG:HB2  | 2.04        | 0.57     |
| 2:A:2278:A:OP1    | 12:Q:15:THR:OG1   | 2.21        | 0.57     |
| 12:Q:71:PHE:HB3   | 12:Q:138:ARG:HH11 | 1.69        | 0.57     |
| 19:R:36:THR:CG2   | 19:R:40:LYS:CG    | 2.82        | 0.57     |
| 19:R:55:ALA:CB    | 19:R:79:LEU:CD2   | 2.82        | 0.57     |
| 13:S:47:LEU:HD12  | 13:S:58:LEU:HD23  | 1.78        | 0.57     |
| 20:U:8:ILE:C      | 20:U:11:ARG:HD3   | 2.20        | 0.57     |
| 20:U:43:ALA:HB2   | 21:V:75:LYS:CB    | 2.26        | 0.57     |
| 21:V:69:ILE:HG22  | 21:V:88:GLN:HB2   | 1.87        | 0.57     |
| 17:Y:74:VAL:HB    | 17:Y:77:VAL:HG21  | 1.86        | 0.57     |
| 18:Z:112:LEU:HD22 | 18:Z:113:VAL:O    | 2.04        | 0.57     |
| 18:Z:37:LYS:HD2   | 18:Z:41:ARG:HH12  | 1.67        | 0.57     |
| 18:Z:58:GLY:O     | 18:Z:59:GLY:C     | 2.42        | 0.57     |
| 18:Z:5:ALA:O      | 18:Z:6:LYS:HB3    | 2.03        | 0.57     |
| 8:I:115:ILE:CG2   | 8:I:129:VAL:CG1   | 2.82        | 0.57     |
| 2:A:729:G:N2      | 2:A:1775:U:C6     | 2.73        | 0.57     |
| 16:X:57:THR:CB    | 16:X:59:ASP:OD2   | 2.52        | 0.57     |
| 7:H:53:ARG:NH1    | 7:H:56:ASP:C      | 2.57        | 0.57     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:X:45:TYR:O    | 16:X:46:ASP:C    | 2.41        | 0.57     |
| 2:A:545(A):A:C8  | 2:A:1546:C:C2    | 2.92        | 0.57     |
| 2:A:1350:C:C2    | 2:A:1381:G:N2    | 2.66        | 0.57     |
| 2:A:1352:U:O2    | 2:A:1352:U:H2'   | 2.03        | 0.57     |
| 2:A:481:G:H1     | 2:A:509:C:H42    | 1.52        | 0.57     |
| 2:A:1072:C:H42   | 2:A:1100:C:H41   | 1.52        | 0.57     |
| 2:A:1372:U:H2'   | 2:A:1373:A:C8    | 2.39        | 0.57     |
| 2:A:1372:U:H2'   | 2:A:1373:A:H8    | 1.69        | 0.57     |
| 23:3:3:ARG:HD3   | 23:3:60:GLU:CA   | 2.34        | 0.57     |
| 25:4:4:ASP:HB3   | 25:4:5:LEU:HD23  | 1.86        | 0.57     |
| 2:A:1184:G:O2'   | 2:A:1185:C:H5'   | 2.03        | 0.57     |
| 2:A:530:G:N1     | 2:A:2021:C:C2    | 2.72        | 0.57     |
| 2:A:2047:U:H2'   | 2:A:2048:G:C8    | 2.40        | 0.57     |
| 2:A:2069:G:N3    | 2:A:2443:C:O2    | 2.36        | 0.57     |
| 2:A:2196:C:C5'   | 2:A:2197:U:OP2   | 2.38        | 0.57     |
| 2:A:2481:G:O2'   | 2:A:2482:G:H8    | 1.87        | 0.57     |
| 2:A:2547:U:C6    | 2:A:2566:A:N1    | 2.73        | 0.57     |
| 2:A:2684:U:H3    | 2:A:2725:A:N6    | 2.02        | 0.57     |
| 2:A:2828:C:C2    | 2:A:2829:C:C5    | 2.92        | 0.57     |
| 2:A:2844:G:H2'   | 2:A:2844:G:N3    | 2.19        | 0.57     |
| 2:A:2856:C:H2'   | 2:A:2857:G:H5'   | 1.86        | 0.57     |
| 2:A:311:A:H2'    | 2:A:311:A:N3     | 2.17        | 0.57     |
| 2:A:321:G:H2'    | 2:A:341:G:H4'    | 1.86        | 0.57     |
| 2:A:775:G:C2     | 2:A:787:U:H2'    | 2.40        | 0.57     |
| 3:D:107:LYS:O    | 3:D:108:ASN:HB3  | 2.05        | 0.57     |
| 3:D:175:LEU:HD21 | 3:D:181:ARG:N    | 2.20        | 0.57     |
| 5:F:3:ALA:CA     | 5:F:16:VAL:O     | 2.50        | 0.57     |
| 5:F:211:ASP:C    | 5:F:211:ASP:OD2  | 2.37        | 0.57     |
| 6:G:129:ASP:C    | 6:G:130:VAL:HG13 | 2.25        | 0.57     |
| 7:H:147:ILE:CD1  | 7:H:150:VAL:HG11 | 2.34        | 0.57     |
| 8:I:7:LYS:CG     | 8:I:12:LYS:HZ2   | 2.11        | 0.57     |
| 9:N:45:VAL:N     | 9:N:132:LEU:CD2  | 2.66        | 0.57     |
| 10:O:43:VAL:CG2  | 10:O:56:GLN:H    | 2.16        | 0.57     |
| 11:P:73:VAL:HA   | 11:P:76:LEU:HB2  | 1.86        | 0.57     |
| 14:T:13:ILE:HD12 | 14:T:33:SER:OG   | 2.03        | 0.57     |
| 20:U:59:ARG:CA   | 20:U:62:ILE:HG13 | 1.94        | 0.57     |
| 20:U:8:ILE:H     | 20:U:11:ARG:CD   | 2.15        | 0.57     |
| 20:U:95:LEU:N    | 20:U:98:ILE:HD13 | 2.18        | 0.57     |
| 15:W:8:ARG:HH11  | 15:W:8:ARG:HB3   | 1.68        | 0.57     |
| 15:W:8:ARG:CD    | 15:W:9:TYR:HD1   | 2.13        | 0.57     |
| 22:2:9:ARG:HA    | 22:2:59:ILE:HD11 | 1.86        | 0.57     |
| 2:A:60:G:N7      | 2:A:63:U:H5      | 2.02        | 0.57     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:72:U:C4'      | 22:2:57:LYS:HZ1   | 2.17        | 0.57     |
| 16:X:50:GLU:N     | 16:X:50:GLU:CD    | 2.57        | 0.57     |
| 4:E:107:GLU:O     | 4:E:109:ASP:N     | 2.38        | 0.57     |
| 2:A:839:U:H4'     | 2:A:1191:G:N3     | 2.20        | 0.57     |
| 2:A:204:A:OP1     | 2:A:206:U:H1'     | 2.04        | 0.57     |
| 2:A:1802:A:H3'    | 2:A:1803:A:C8     | 2.40        | 0.57     |
| 2:A:1991:U:C6     | 2:A:1991:U:H3'    | 2.39        | 0.57     |
| 24:0:41:ARG:O     | 24:0:67:VAL:HG13  | 2.03        | 0.57     |
| 23:3:31:LEU:HD22  | 23:3:32:GLN:CG    | 2.33        | 0.57     |
| 2:A:1758:G:N1     | 2:A:2696:U:H5'    | 2.19        | 0.57     |
| 2:A:2431:U:C4     | 2:A:2434:A:OP2    | 2.58        | 0.57     |
| 2:A:2468:G:O2'    | 2:A:2469:A:H5''   | 2.01        | 0.57     |
| 2:A:2461:C:H1'    | 2:A:2492:U:N3     | 2.18        | 0.57     |
| 2:A:2572:A:C5'    | 2:A:2574:G:H4'    | 2.34        | 0.57     |
| 2:A:2620:C:H4'    | 4:E:252:GLN:HG2   | 1.87        | 0.57     |
| 2:A:2627:G:C8     | 2:A:2627:G:H5'    | 2.33        | 0.57     |
| 2:A:2710:C:HO2'   | 2:A:2711:A:H5'    | 1.66        | 0.57     |
| 2:A:2678:C:H42    | 2:A:2729:G:H1     | 1.51        | 0.57     |
| 2:A:445:C:OP1     | 20:U:2:PRO:CD     | 2.52        | 0.57     |
| 2:A:579:G:H1'     | 26:5:10:LYS:NZ    | 2.19        | 0.57     |
| 3:D:128:ALA:CB    | 3:D:190:THR:N     | 2.68        | 0.57     |
| 4:E:222:ARG:CG    | 4:E:222:ARG:NH1   | 2.58        | 0.57     |
| 5:F:150:THR:HG22  | 5:F:203:ALA:O     | 2.05        | 0.57     |
| 5:F:193:LEU:O     | 5:F:233:THR:HB    | 2.04        | 0.57     |
| 5:F:237:GLU:O     | 5:F:239:ALA:CA    | 2.52        | 0.57     |
| 1:B:42:C:O2       | 6:G:47:GLN:HB3    | 2.04        | 0.57     |
| 7:H:15:THR:CG2    | 7:H:26:LYS:O      | 2.45        | 0.57     |
| 7:H:96:SER:O      | 7:H:98:GLN:HG3    | 2.04        | 0.57     |
| 10:O:101:PRO:C    | 10:O:102:VAL:HG23 | 2.24        | 0.57     |
| 10:O:25:LEU:HD21  | 10:O:40:VAL:CB    | 2.32        | 0.57     |
| 12:Q:58:HIS:N     | 12:Q:61:LEU:HG    | 2.19        | 0.57     |
| 13:S:102:LEU:N    | 13:S:102:LEU:HD12 | 2.19        | 0.57     |
| 14:T:8:TYR:HE1    | 14:T:54:THR:HB    | 1.66        | 0.57     |
| 2:A:535:C:H5''    | 20:U:53:LYS:HZ1   | 1.67        | 0.57     |
| 20:U:69:ALA:CA    | 20:U:79:PHE:CZ    | 2.84        | 0.57     |
| 21:V:57:GLN:HE22  | 21:V:100:GLY:C    | 2.07        | 0.57     |
| 21:V:65:ARG:O     | 21:V:93:ILE:HG13  | 2.04        | 0.57     |
| 21:V:83:ARG:C     | 21:V:84:THR:OG1   | 2.42        | 0.57     |
| 15:W:42:ARG:HG2   | 15:W:43:GLY:N     | 2.19        | 0.57     |
| 17:Y:20:HIS:N     | 17:Y:67:LEU:HD22  | 2.19        | 0.57     |
| 18:Z:113:VAL:HG23 | 18:Z:174:PRO:CG   | 2.32        | 0.57     |
| 18:Z:29:ASN:O     | 18:Z:30:VAL:HG23  | 2.05        | 0.57     |

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| Atom-1            | Atom-2          | Distance(Å) | Clash(Å) |
|-------------------|-----------------|-------------|----------|
| 8:I:91:GLY:O      | 8:I:92:SER:C    | 2.42        | 0.57     |
| 2:A:138:G:O6      | 2:A:142:G:O2'   | 2.23        | 0.57     |
| 2:A:1341:U:OP2    | 2:A:1397:U:C2   | 2.57        | 0.57     |
| 2:A:141(A):C:H5'' | 2:A:1595:G:H4'  | 1.85        | 0.57     |
| 2:A:1913:A:H61    | 2:A:1917:U:P    | 2.27        | 0.57     |
| 2:A:1317:A:H2'    | 2:A:1318:C:C6   | 2.39        | 0.57     |
| 2:A:659:C:H2'     | 2:A:660:G:C8    | 2.37        | 0.57     |
| 2:A:270(S):G:H2'  | 2:A:270(T):G:C8 | 2.40        | 0.57     |
| 24:0:59:LEU:O     | 24:0:60:PHE:CD1 | 2.58        | 0.57     |
| 2:A:1364:G:O6     | 25:4:2:GLN:CD   | 2.42        | 0.57     |
| 2:A:2017:U:H3     | 26:5:10:LYS:HZ3 | 1.51        | 0.57     |
| 27:6:26:LYS:C     | 27:6:27:ASN:OD1 | 2.42        | 0.57     |
| 28:7:32:ALA:HA    | 28:7:35:ARG:HD2 | 1.85        | 0.57     |
| 2:A:1670:C:P      | 2:A:2550:G:P    | 3.02        | 0.57     |
| 2:A:2077:A:H2     | 2:A:2244:U:C2   | 2.23        | 0.57     |
| 2:A:2199:A:C5     | 2:A:2225:A:C2   | 2.93        | 0.57     |
| 2:A:2264:C:C5     | 2:A:2265:U:C5   | 2.93        | 0.57     |
| 2:A:2299:G:H2'    | 2:A:2300:G:C8   | 2.39        | 0.57     |
| 2:A:2311:A:C2'    | 2:A:2312:U:O5'  | 2.53        | 0.57     |
| 2:A:199:A:N1      | 2:A:2433:A:C5   | 2.61        | 0.57     |
| 2:A:2476:A:N3     | 2:A:2481:G:N2   | 2.51        | 0.57     |
| 2:A:2589:A:C6     | 2:A:2590:A:C5   | 2.92        | 0.57     |
| 2:A:2661:G:C2     | 2:A:2662:A:N7   | 2.73        | 0.57     |
| 2:A:2717:G:HO2'   | 2:A:2718:G:C4'  | 2.18        | 0.57     |
| 2:A:2821:A:N3     | 2:A:2822:G:C4   | 2.71        | 0.57     |
| 2:A:2866:U:O2     | 2:A:2868:A:H4'  | 2.05        | 0.57     |
| 3:D:167:GLU:O     | 3:D:170:TYR:N   | 2.38        | 0.57     |
| 3:D:128:ALA:HB1   | 3:D:190:THR:CA  | 2.28        | 0.57     |
| 4:E:222:ARG:NE    | 4:E:232:ARG:C   | 2.56        | 0.57     |
| 4:E:222:ARG:O     | 4:E:227:ALA:CB  | 2.53        | 0.57     |
| 5:F:214:THR:O     | 5:F:216:SER:C   | 2.42        | 0.57     |
| 5:F:91:PRO:O      | 5:F:96:LYS:NZ   | 2.36        | 0.57     |
| 6:G:20:LYS:N      | 6:G:76:ARG:HB3  | 2.19        | 0.57     |
| 9:N:27:ALA:C      | 9:N:29:GLN:N    | 2.58        | 0.57     |
| 19:R:44:LEU:O     | 19:R:48:VAL:CB  | 2.51        | 0.57     |
| 19:R:87:TYR:CD1   | 19:R:94:TYR:CB  | 2.84        | 0.57     |
| 13:S:117:ALA:O    | 13:S:120:GLU:N  | 2.38        | 0.57     |
| 13:S:56:ASP:CG    | 13:S:57:THR:N   | 2.58        | 0.57     |
| 15:W:10:VAL:CG1   | 15:W:46:PHE:CE2 | 2.80        | 0.57     |
| 18:Z:37:LYS:CA    | 18:Z:40:ASP:OD2 | 2.44        | 0.57     |
| 22:2:20:LEU:HD22  | 22:2:23:LEU:CB  | 2.34        | 0.57     |
| 2:A:60:G:C2       | 2:A:74:A:N6     | 2.73        | 0.57     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 16:X:22:ASN:HA    | 16:X:68:LEU:CG    | 2.34        | 0.57     |
| 2:A:1906:G:C8     | 2:A:1929:G:N9     | 2.73        | 0.57     |
| 2:A:1521:G:H5'    | 2:A:1522:G:C8     | 2.40        | 0.57     |
| 2:A:733:G:OP2     | 2:A:761:A:N6      | 2.36        | 0.57     |
| 2:A:1743:G:H3'    | 2:A:1746:G:P      | 2.45        | 0.57     |
| 24:O:67:VAL:HG12  | 24:O:74:LYS:HA    | 1.86        | 0.57     |
| 23:3:20:LYS:HA    | 23:3:23:LEU:HD12  | 1.66        | 0.57     |
| 23:3:6:VAL:HG22   | 23:3:54:VAL:CG2   | 2.31        | 0.57     |
| 2:A:1128:A:N6     | 2:A:2518:A:N1     | 2.53        | 0.57     |
| 2:A:1240:U:C3'    | 2:A:1241:A:H8     | 2.14        | 0.57     |
| 2:A:1664:A:H2'    | 2:A:1665:A:H8     | 1.68        | 0.57     |
| 2:A:2213:U:O3'    | 2:A:2215:G:P      | 2.62        | 0.57     |
| 2:A:2385:C:O2     | 2:A:2385:C:C2'    | 2.52        | 0.57     |
| 2:A:2441:C:C2'    | 2:A:2442:C:O5'    | 2.51        | 0.57     |
| 2:A:2461:C:O2'    | 2:A:2462:U:H5'    | 2.04        | 0.57     |
| 2:A:2509:G:HO2'   | 2:A:2510:C:H5'    | 1.61        | 0.57     |
| 2:A:2551:C:C2     | 2:A:2552:U:C6     | 2.93        | 0.57     |
| 2:A:2574:G:N3     | 2:A:2575:C:C5     | 2.65        | 0.57     |
| 2:A:2684:U:O2     | 10:O:70:ARG:NH2   | 2.37        | 0.57     |
| 2:A:2717:G:O2'    | 2:A:2718:G:O4'    | 2.17        | 0.57     |
| 2:A:2814:C:H2'    | 2:A:2815:C:H6     | 1.64        | 0.57     |
| 2:A:2852:G:O2'    | 2:A:2853:C:H5'    | 2.05        | 0.57     |
| 1:B:59:A:H4'      | 6:G:144:ARG:CG    | 2.34        | 0.57     |
| 3:D:143:ILE:HB    | 3:D:152:GLN:CA    | 2.34        | 0.57     |
| 3:D:76:ARG:HG2    | 3:D:76:ARG:HH11   | 1.69        | 0.57     |
| 3:D:85:ASN:N      | 3:D:85:ASN:ND2    | 2.49        | 0.57     |
| 4:E:70:VAL:HB     | 4:E:295:LEU:CD2   | 2.35        | 0.57     |
| 4:E:203:GLY:CA    | 4:E:303:PRO:HD3   | 2.33        | 0.57     |
| 1:B:45:A:C1'      | 6:G:76:ARG:NH1    | 2.54        | 0.57     |
| 9:N:90:LYS:O      | 9:N:90:LYS:CD     | 2.47        | 0.57     |
| 11:P:65:ASP:N     | 11:P:65:ASP:OD1   | 2.38        | 0.57     |
| 11:P:77:ALA:CB    | 11:P:81:VAL:HG12  | 2.34        | 0.57     |
| 19:R:94:TYR:C     | 19:R:117:VAL:HG12 | 2.25        | 0.57     |
| 13:S:76:GLY:C     | 13:S:83:LEU:HD13  | 2.25        | 0.57     |
| 20:U:72:HIS:ND1   | 20:U:110:VAL:HG11 | 2.18        | 0.57     |
| 20:U:55:ARG:O     | 20:U:56:ASP:C     | 2.43        | 0.57     |
| 20:U:92:ARG:N     | 21:V:10:LYS:NZ    | 2.29        | 0.57     |
| 20:U:47:TYR:CZ    | 21:V:75:LYS:O     | 2.53        | 0.57     |
| 15:W:12:ILE:HG23  | 15:W:13:SER:H     | 1.68        | 0.57     |
| 15:W:24:ILE:HB    | 15:W:32:ALA:CB    | 2.34        | 0.57     |
| 17:Y:20:HIS:O     | 17:Y:22:GLN:N     | 2.37        | 0.57     |
| 18:Z:147:ILE:HG13 | 18:Z:168:VAL:HG11 | 1.86        | 0.57     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:Z:66:VAL:HG22 | 18:Z:68:ALA:H    | 1.69        | 0.57     |
| 18:Z:24:TYR:CA   | 18:Z:83:PHE:O    | 2.51        | 0.57     |
| 2:A:1566:A:N1    | 3:D:212:HIS:CE1  | 2.71        | 0.57     |
| 2:A:1936:A:C6    | 2:A:1945:G:C4    | 2.93        | 0.57     |
| 2:A:1417:C:H42   | 2:A:1581:G:H22   | 1.51        | 0.57     |
| 14:T:42:LEU:C    | 14:T:44:ARG:CA   | 2.73        | 0.57     |
| 2:A:1841:U:H2'   | 2:A:1842:G:H8    | 1.70        | 0.57     |
| 2:A:607:U:H3'    | 2:A:608:A:H8     | 1.69        | 0.57     |
| 24:O:37:LEU:HB3  | 24:O:69:PHE:HD2  | 0.78        | 0.57     |
| 2:A:931:G:P      | 23:3:27:GLY:CA   | 2.93        | 0.57     |
| 23:3:59:VAL:CG1  | 23:3:60:GLU:N    | 2.49        | 0.57     |
| 2:A:1675:C:C4    | 4:E:225:LYS:CG   | 2.87        | 0.57     |
| 2:A:1680:U:O2    | 2:A:1764:G:O5'   | 2.23        | 0.57     |
| 2:A:2195:C:C2    | 2:A:2196:C:C6    | 2.93        | 0.57     |
| 2:A:2292:C:C4    | 2:A:2293:C:C4    | 2.92        | 0.57     |
| 2:A:2295:C:H42   | 2:A:2337:G:H1    | 1.37        | 0.57     |
| 2:A:2385:C:C4    | 2:A:2386:C:C5    | 2.90        | 0.57     |
| 2:A:2472:G:C2    | 2:A:2475:C:C2    | 2.93        | 0.57     |
| 2:A:247:G:O3'    | 2:A:386:G:N2     | 2.37        | 0.57     |
| 2:A:2447:G:N9    | 2:A:2500:U:H5    | 2.00        | 0.57     |
| 2:A:2515:C:N3    | 2:A:2569:G:N2    | 2.53        | 0.57     |
| 2:A:2637:U:C2    | 2:A:2782:G:C2    | 2.93        | 0.57     |
| 2:A:2744:G:N1    | 2:A:2745:C:C4    | 2.72        | 0.57     |
| 2:A:452:G:N2     | 2:A:458:G:N3     | 2.53        | 0.57     |
| 2:A:747:U:O2     | 2:A:2015:A:C2    | 2.56        | 0.57     |
| 2:A:783:A:H2'    | 2:A:784:A:H4'    | 1.86        | 0.57     |
| 2:A:995:C:H1'    | 20:U:57:PHE:CZ   | 2.39        | 0.57     |
| 3:D:144:GLU:CD   | 3:D:188:ARG:H    | 2.08        | 0.57     |
| 3:D:68:ARG:HD3   | 3:D:68:ARG:N     | 2.20        | 0.57     |
| 4:E:269:ILE:HD11 | 4:E:296:VAL:HA   | 1.85        | 0.57     |
| 5:F:194:PHE:HZ   | 5:F:207:LEU:HD12 | 1.68        | 0.57     |
| 9:N:54:VAL:CG1   | 9:N:138:THR:CB   | 2.83        | 0.57     |
| 10:O:24:VAL:HG13 | 10:O:32:TYR:O    | 2.02        | 0.57     |
| 11:P:62:ALA:H    | 11:P:107:LYS:HE3 | 0.75        | 0.57     |
| 11:P:110:GLY:H   | 11:P:126:SER:HG  | 1.53        | 0.57     |
| 11:P:66:VAL:CB   | 11:P:67:ARG:NE   | 2.52        | 0.57     |
| 12:Q:55:GLN:O    | 12:Q:56:ILE:C    | 2.42        | 0.57     |
| 19:R:88:ARG:O    | 19:R:89:ASP:HB3  | 2.03        | 0.57     |
| 14:T:9:CYS:O     | 14:T:9:CYS:SG    | 2.63        | 0.57     |
| 20:U:79:PHE:O    | 20:U:80:ILE:C    | 2.43        | 0.57     |
| 15:W:13:SER:OG   | 15:W:16:LYS:HG3  | 2.04        | 0.57     |
| 15:W:36:LEU:CA   | 15:W:39:THR:HG22 | 2.33        | 0.57     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:W:35:ILE:O    | 15:W:39:THR:N    | 2.37        | 0.57     |
| 17:Y:30:ASP:OD1  | 17:Y:31:LEU:HG   | 2.05        | 0.57     |
| 18:Z:105:GLN:HB2 | 18:Z:141:MET:HG2 | 1.85        | 0.57     |
| 8:I:132:LYS:HA   | 8:I:138:THR:CB   | 2.35        | 0.57     |
| 2:A:148:C:C2     | 2:A:149:A:C6     | 2.92        | 0.57     |
| 16:X:19:ASP:O    | 16:X:20:PHE:C    | 2.43        | 0.57     |
| 16:X:18:MET:HE3  | 16:X:25:GLN:CA   | 2.35        | 0.57     |
| 2:A:1077:A:H4'   | 31:K:93:LYS:HB2  | 1.87        | 0.57     |
| 12:Q:93:ILE:O    | 12:Q:94:ARG:CB   | 2.52        | 0.57     |
| 2:A:414:C:H2'    | 2:A:415:A:C8     | 2.39        | 0.57     |
| 2:A:1168:G:H2'   | 2:A:1169:G:O4'   | 2.04        | 0.57     |
| 23:3:27:GLY:O    | 23:3:28:LEU:HD23 | 2.05        | 0.57     |
| 23:3:54:VAL:CG2  | 23:3:55:ARG:N    | 2.59        | 0.57     |
| 29:8:14:ILE:HG23 | 29:8:15:LYS:N    | 2.19        | 0.57     |
| 2:A:247:G:N1     | 29:8:8:LYS:HE3   | 2.16        | 0.57     |
| 2:A:1027:A:C5    | 2:A:1126:A:C2    | 2.93        | 0.57     |
| 2:A:14:A:N3      | 2:A:2625:G:O2'   | 2.37        | 0.57     |
| 2:A:2064:C:C2    | 2:A:2450:A:N6    | 2.73        | 0.57     |
| 2:A:2218:G:C2    | 2:A:2219:G:C8    | 2.93        | 0.57     |
| 2:A:2255:G:N1    | 2:A:2256:G:H1'   | 2.19        | 0.57     |
| 2:A:2284:C:O2    | 2:A:2284:C:H2'   | 2.04        | 0.57     |
| 2:A:2341:G:H2'   | 2:A:2342:C:C6    | 2.40        | 0.57     |
| 2:A:2350:C:C2'   | 2:A:2351:G:O5'   | 2.52        | 0.57     |
| 2:A:2423:U:C1'   | 2:A:2425:A:C5    | 2.88        | 0.57     |
| 2:A:2431:U:O2    | 2:A:2432:A:H3'   | 2.05        | 0.57     |
| 2:A:2523:G:O2'   | 2:A:2524:G:H5'   | 2.05        | 0.57     |
| 2:A:2533:A:C8    | 2:A:2534:A:C8    | 2.93        | 0.57     |
| 2:A:2546:U:H5'   | 2:A:2565:A:H2    | 1.39        | 0.57     |
| 2:A:2583:G:C4    | 2:A:2584:U:O2    | 2.58        | 0.57     |
| 2:A:2075:U:O2'   | 2:A:2596:U:C2    | 2.57        | 0.57     |
| 2:A:2051:A:C5    | 2:A:2614:A:C6    | 2.90        | 0.57     |
| 2:A:2657:A:C6    | 2:A:2664:G:N2    | 2.53        | 0.57     |
| 2:A:2681:C:H4'   | 2:A:2682:U:H5'   | 1.87        | 0.57     |
| 2:A:2693:A:N6    | 2:A:2694:G:O6    | 2.37        | 0.57     |
| 2:A:2697:G:C5    | 2:A:2698:U:C5    | 2.93        | 0.57     |
| 2:A:2701:C:H5    | 2:A:2703:C:OP2   | 1.87        | 0.57     |
| 2:A:2729:G:N1    | 2:A:2730:C:N3    | 2.53        | 0.57     |
| 2:A:1751:C:O2'   | 2:A:2861:G:O2'   | 2.15        | 0.57     |
| 2:A:2868:A:H2'   | 2:A:2869:G:H5'   | 1.87        | 0.57     |
| 2:A:492:A:N1     | 15:W:49:LYS:HE2  | 2.20        | 0.57     |
| 3:D:116:MET:O    | 3:D:117:SER:OG   | 2.17        | 0.57     |
| 3:D:142:ASN:N    | 3:D:142:ASN:ND2  | 2.52        | 0.57     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:D:172:ILE:HG13 | 3:D:182:MET:HE2   | 1.85        | 0.57     |
| 3:D:158:GLY:O    | 3:D:194:VAL:HG13  | 2.04        | 0.57     |
| 4:E:44:TYR:CG    | 4:E:307:LEU:C     | 2.78        | 0.57     |
| 5:F:100:LEU:O    | 5:F:101:ASP:C     | 2.43        | 0.57     |
| 5:F:225:PRO:C    | 5:F:230:GLY:N     | 2.43        | 0.57     |
| 5:F:49:ASP:HB3   | 5:F:52:ALA:HB3    | 1.87        | 0.57     |
| 6:G:21:VAL:HG13  | 6:G:132:VAL:HA    | 1.85        | 0.57     |
| 6:G:149:ARG:C    | 6:G:151:ILE:H     | 2.05        | 0.57     |
| 2:A:2310:A:N7    | 6:G:55:LYS:NZ     | 2.53        | 0.57     |
| 7:H:27:GLY:HA3   | 7:H:78:VAL:HG12   | 1.85        | 0.57     |
| 9:N:13:ASP:CA    | 9:N:38:VAL:HG12   | 1.84        | 0.57     |
| 10:O:91:LYS:HB3  | 10:O:111:PHE:CE2  | 2.40        | 0.57     |
| 11:P:124:ASP:HB3 | 11:P:130:ARG:HH21 | 1.67        | 0.57     |
| 11:P:142:LEU:O   | 11:P:143:THR:C    | 2.42        | 0.57     |
| 11:P:67:ARG:HG2  | 11:P:68:GLU:H     | 1.69        | 0.57     |
| 12:Q:58:HIS:H    | 12:Q:112:ALA:HB2  | 1.69        | 0.57     |
| 15:W:50:VAL:HG21 | 15:W:103:ILE:CG2  | 2.34        | 0.57     |
| 17:Y:34:GLU:C    | 17:Y:35:TYR:CG    | 2.77        | 0.57     |
| 18:Z:107:GLU:OE2 | 18:Z:141:MET:CG   | 2.51        | 0.57     |
| 9:N:4:ALA:O      | 9:N:5:GLU:C       | 2.43        | 0.57     |
| 2:A:2896:C:H6    | 2:A:2896:C:H3'    | 1.62        | 0.57     |
| 2:A:1857:G:H1    | 2:A:1884:A:N6     | 2.02        | 0.57     |
| 2:A:396:G:C5'    | 25:4:10:VAL:HG13  | 2.34        | 0.57     |
| 2:A:2299:G:O6    | 2:A:2300:G:O6     | 2.22        | 0.57     |
| 2:A:2354:G:N2    | 24:0:32:LYS:CE    | 2.58        | 0.57     |
| 2:A:2447:G:C2    | 2:A:2500:U:C4     | 2.92        | 0.57     |
| 2:A:2592:G:C5    | 2:A:2593:U:C4     | 2.91        | 0.57     |
| 2:A:2729:G:O2'   | 2:A:2730:C:C5'    | 2.52        | 0.57     |
| 2:A:2808:U:C2    | 2:A:2892:A:C5     | 2.86        | 0.57     |
| 2:A:2811:G:H22   | 2:A:2891:G:H1'    | 1.68        | 0.57     |
| 2:A:329:G:P      | 17:Y:92:ASP:OD2   | 2.63        | 0.57     |
| 2:A:514:A:O3'    | 20:U:32:TYR:OH    | 2.17        | 0.57     |
| 2:A:535:C:O2'    | 20:U:53:LYS:CD    | 2.49        | 0.57     |
| 3:D:80:ILE:O     | 3:D:80:ILE:CG1    | 2.40        | 0.57     |
| 4:E:73:ILE:HB    | 4:E:294:THR:OG1   | 2.04        | 0.57     |
| 8:I:3:VAL:CB     | 8:I:21:VAL:HG23   | 2.34        | 0.57     |
| 8:I:9:VAL:O      | 8:I:9:VAL:CG1     | 2.50        | 0.57     |
| 9:N:136:SER:OG   | 9:N:141:ALA:HA    | 2.05        | 0.57     |
| 10:O:8:LEU:CB    | 10:O:83:ALA:HA    | 2.13        | 0.57     |
| 21:V:63:HIS:HA   | 21:V:95:ILE:CG1   | 2.33        | 0.57     |
| 21:V:69:ILE:N    | 21:V:69:ILE:HD12  | 2.20        | 0.57     |
| 15:W:83:LYS:HG2  | 15:W:97:LYS:CD    | 2.24        | 0.57     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:Y:23:VAL:HG12 | 17:Y:23:VAL:O     | 2.04        | 0.57     |
| 17:Y:44:ALA:HB1  | 17:Y:65:VAL:HG22  | 1.87        | 0.57     |
| 17:Y:19:ARG:NH1  | 17:Y:67:LEU:C     | 2.59        | 0.57     |
| 18:Z:116:VAL:O   | 18:Z:116:VAL:HG13 | 2.04        | 0.57     |
| 1:B:75:G:C1'     | 18:Z:22:VAL:HG21  | 2.33        | 0.57     |
| 8:I:125:GLY:O    | 8:I:144:HIS:HA    | 2.05        | 0.57     |
| 2:A:1080:C:C4'   | 31:K:126:LYS:HB3  | 2.24        | 0.57     |
| 16:X:8:PRO:HD3   | 22:2:33:VAL:HG22  | 1.85        | 0.57     |
| 2:A:359:A:C3'    | 2:A:360:G:P       | 2.92        | 0.57     |
| 2:A:1324:G:H4'   | 2:A:1616:A:N7     | 2.20        | 0.57     |
| 2:A:405:U:H5''   | 2:A:406:G:O5'     | 2.03        | 0.57     |
| 24:0:36:ILE:O    | 24:0:36:ILE:CG2   | 2.52        | 0.56     |
| 2:A:1262:A:C2    | 26:5:10:LYS:HE2   | 2.37        | 0.56     |
| 29:8:5:LYS:HB3   | 29:8:59:LYS:O     | 2.05        | 0.56     |
| 29:8:60:LEU:HD23 | 29:8:61:MET:O     | 2.04        | 0.56     |
| 30:9:24:LEU:HD22 | 30:9:35:ARG:HG3   | 1.87        | 0.56     |
| 2:A:1266:G:O4'   | 15:W:15:ARG:NH2   | 2.38        | 0.56     |
| 2:A:2019:A:H2'   | 2:A:2020:A:O4'    | 2.05        | 0.56     |
| 2:A:2192:G:OP2   | 2:A:2192:G:C8     | 2.54        | 0.56     |
| 2:A:2252:G:C3'   | 2:A:2253:G:H5'    | 2.35        | 0.56     |
| 2:A:2410:G:C2'   | 2:A:2411:A:N7     | 2.63        | 0.56     |
| 2:A:2556:C:H2'   | 2:A:2557:G:H5'    | 0.57        | 0.56     |
| 2:A:2617:C:O2'   | 2:A:2618:G:C5'    | 2.52        | 0.56     |
| 2:A:2644:G:P     | 2:A:2644:G:C8     | 2.97        | 0.56     |
| 2:A:270(I):G:N2  | 2:A:270(R):G:H1'  | 2.20        | 0.56     |
| 2:A:2718:G:N2    | 2:A:2719:G:C1'    | 2.66        | 0.56     |
| 2:A:2734:A:C8    | 2:A:2734:A:C4'    | 2.88        | 0.56     |
| 2:A:2780:G:H22   | 9:N:80:LYS:NZ     | 2.03        | 0.56     |
| 2:A:2880:C:N3    | 2:A:2881:C:C4     | 2.73        | 0.56     |
| 2:A:2788:C:H2'   | 2:A:2892:A:H2     | 1.66        | 0.56     |
| 2:A:605:C:H2'    | 2:A:606:U:C6      | 2.40        | 0.56     |
| 2:A:664:C:H2'    | 2:A:665:C:C6      | 2.39        | 0.56     |
| 3:D:74:PRO:CG    | 3:D:96:ALA:N      | 2.63        | 0.56     |
| 4:E:271:ILE:HD11 | 4:E:294:THR:HG22  | 1.85        | 0.56     |
| 5:F:196:THR:HG22 | 5:F:197:SER:N     | 2.19        | 0.56     |
| 9:N:77:GLY:O     | 9:N:79:PHE:CA     | 2.50        | 0.56     |
| 10:O:9:LYS:H     | 10:O:83:ALA:HB2   | 1.70        | 0.56     |
| 11:P:116:HIS:CG  | 11:P:118:LEU:HD11 | 2.39        | 0.56     |
| 12:Q:49:VAL:CG2  | 12:Q:120:HIS:C    | 2.71        | 0.56     |
| 12:Q:51:GLU:HA   | 12:Q:118:ALA:CA   | 2.34        | 0.56     |
| 12:Q:59:ASN:O    | 12:Q:61:LEU:N     | 2.38        | 0.56     |
| 13:S:31:LYS:CB   | 13:S:32:PRO:HD3   | 2.28        | 0.56     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 13:S:27:LEU:HA   | 13:S:33:ARG:CZ    | 2.34        | 0.56     |
| 14:T:13:ILE:HG13 | 14:T:33:SER:HB2   | 1.87        | 0.56     |
| 20:U:108:ALA:O   | 20:U:110:VAL:CA   | 2.52        | 0.56     |
| 20:U:9:VAL:O     | 20:U:12:ARG:HB2   | 2.04        | 0.56     |
| 21:V:61:VAL:HG11 | 21:V:95:ILE:C     | 2.24        | 0.56     |
| 17:Y:101:LEU:CD2 | 17:Y:112:LEU:CD1  | 2.53        | 0.56     |
| 16:X:4:VAL:CB    | 22:2:24:LYS:NZ    | 2.62        | 0.56     |
| 16:X:16:ASN:N    | 16:X:16:ASN:OD1   | 2.33        | 0.56     |
| 14:T:45:GLU:HG3  | 14:T:47:ARG:O     | 2.05        | 0.56     |
| 2:A:1324:G:C1'   | 2:A:1616:A:H62    | 2.18        | 0.56     |
| 23:3:5:LYS:HA    | 23:3:36:VAL:HG12  | 1.87        | 0.56     |
| 2:A:2299:G:C2'   | 2:A:2300:G:H5'    | 2.34        | 0.56     |
| 2:A:2343:C:C2'   | 2:A:2344:U:H5'    | 2.35        | 0.56     |
| 2:A:1669:A:C4'   | 2:A:2550:G:OP1    | 2.53        | 0.56     |
| 2:A:2605:U:C2'   | 2:A:2606:C:O5'    | 2.53        | 0.56     |
| 2:A:2606:C:O2'   | 2:A:2607:G:O5'    | 2.23        | 0.56     |
| 2:A:746:A:H8     | 2:A:2611:U:O3'    | 1.88        | 0.56     |
| 2:A:2655:G:N3    | 2:A:2655:G:H2'    | 2.19        | 0.56     |
| 2:A:2695:C:O2'   | 2:A:2696:U:H6     | 1.76        | 0.56     |
| 2:A:2884:U:C6    | 2:A:2885:C:C6     | 2.94        | 0.56     |
| 2:A:664:C:H2'    | 2:A:665:C:H6      | 1.68        | 0.56     |
| 6:G:103:ASN:CG   | 6:G:133:ASN:HA    | 2.25        | 0.56     |
| 7:H:121:GLU:OE2  | 7:H:133:LYS:O     | 2.23        | 0.56     |
| 8:I:24:GLY:O     | 8:I:29:PHE:CE1    | 2.58        | 0.56     |
| 9:N:65:ASN:HB2   | 9:N:68:GLY:O      | 2.05        | 0.56     |
| 10:O:35:ILE:CG1  | 10:O:65:THR:HG22  | 2.35        | 0.56     |
| 19:R:65:LEU:O    | 19:R:67:LEU:N     | 2.38        | 0.56     |
| 13:S:17:ARG:HD3  | 13:S:17:ARG:O     | 2.04        | 0.56     |
| 13:S:32:PRO:HA   | 13:S:49:THR:OG1   | 2.04        | 0.56     |
| 13:S:46:GLN:CD   | 13:S:57:THR:HG21  | 2.25        | 0.56     |
| 2:A:1251:C:H5'   | 20:U:10:ARG:CD    | 2.36        | 0.56     |
| 20:U:111:ASP:CA  | 20:U:114:ARG:HD2  | 2.29        | 0.56     |
| 20:U:63:GLN:C    | 20:U:65:ILE:H     | 2.08        | 0.56     |
| 17:Y:43:ASN:O    | 17:Y:44:ALA:CB    | 2.52        | 0.56     |
| 17:Y:67:LEU:O    | 17:Y:70:ALA:N     | 2.36        | 0.56     |
| 18:Z:141:MET:HB2 | 18:Z:171:VAL:HG11 | 1.84        | 0.56     |
| 18:Z:66:VAL:CG2  | 18:Z:69:VAL:HG23  | 2.34        | 0.56     |
| 8:I:122:ARG:O    | 8:I:124:LEU:N     | 2.38        | 0.56     |
| 16:X:13:LYS:HA   | 16:X:16:ASN:CG    | 2.25        | 0.56     |
| 16:X:25:GLN:NE2  | 16:X:65:VAL:HG22  | 2.20        | 0.56     |
| 16:X:23:LYS:HA   | 16:X:67:ARG:CA    | 2.34        | 0.56     |
| 2:A:1906:G:C8    | 2:A:1929:G:C8     | 2.93        | 0.56     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:404:C:O5'    | 2:A:404:C:H6     | 1.87        | 0.56     |
| 2:A:136:G:O3'    | 2:A:137:C:H4'    | 2.04        | 0.56     |
| 26:5:33:CYS:HB2  | 26:5:37:HIS:CA   | 2.36        | 0.56     |
| 23:3:30:ARG:HE   | 23:3:33:GLN:CG   | 2.16        | 0.56     |
| 2:A:2021:C:P     | 26:5:15:LYS:HE2  | 2.34        | 0.56     |
| 2:A:2225:A:C5'   | 2:A:2226:C:C4'   | 2.74        | 0.56     |
| 2:A:2603:G:C2'   | 2:A:2604:U:O5'   | 2.53        | 0.56     |
| 2:A:2045:C:N4    | 2:A:2624:G:N1    | 2.53        | 0.56     |
| 2:A:2722:G:N1    | 2:A:2723:C:N4    | 2.49        | 0.56     |
| 2:A:2740:A:C2'   | 2:A:2741:A:N7    | 2.64        | 0.56     |
| 2:A:2862:G:H2'   | 2:A:2863:C:H5    | 1.70        | 0.56     |
| 2:A:337:C:OP1    | 17:Y:24:ARG:CG   | 2.53        | 0.56     |
| 2:A:606:U:P      | 5:F:105:LYS:HD2  | 2.45        | 0.56     |
| 2:A:655:A:O3'    | 2:A:656:G:O4'    | 2.23        | 0.56     |
| 2:A:945:A:N3     | 2:A:945:A:H2'    | 2.20        | 0.56     |
| 2:A:988:A:N6     | 23:3:13:ILE:CG2  | 2.67        | 0.56     |
| 3:D:163:VAL:HA   | 3:D:172:ILE:O    | 2.06        | 0.56     |
| 3:D:73:ILE:HB    | 3:D:95:TYR:CE2   | 2.37        | 0.56     |
| 4:E:186:GLU:O    | 4:E:187:HIS:CD2  | 2.58        | 0.56     |
| 4:E:45:LYS:CE    | 4:E:303:PRO:HD2  | 2.32        | 0.56     |
| 5:F:193:LEU:HD13 | 5:F:223:LEU:HB3  | 1.85        | 0.56     |
| 6:G:18:ILE:C     | 6:G:135:VAL:HG21 | 2.25        | 0.56     |
| 7:H:104:LEU:HB2  | 7:H:151:ARG:NH2  | 2.15        | 0.56     |
| 10:O:10:VAL:HG12 | 10:O:11:ALA:N    | 2.20        | 0.56     |
| 2:A:2674:G:O3'   | 10:O:30:ARG:HA   | 2.06        | 0.56     |
| 11:P:101:ASP:C   | 11:P:102:ASP:OD1 | 2.42        | 0.56     |
| 11:P:64:ILE:HD12 | 11:P:106:VAL:CG1 | 2.34        | 0.56     |
| 11:P:65:ASP:HB3  | 11:P:109:LEU:CA  | 2.31        | 0.56     |
| 12:Q:142:LYS:C   | 12:Q:142:LYS:HE2 | 2.20        | 0.56     |
| 12:Q:35:ASN:H    | 12:Q:76:GLY:H    | 1.53        | 0.56     |
| 12:Q:70:ARG:HD2  | 12:Q:71:PHE:HE1  | 1.69        | 0.56     |
| 19:R:59:ASP:O    | 19:R:60:LEU:C    | 2.44        | 0.56     |
| 19:R:78:LYS:O    | 19:R:82:GLU:CG   | 2.53        | 0.56     |
| 13:S:34:LEU:HD21 | 13:S:102:LEU:CB  | 2.35        | 0.56     |
| 13:S:80:SER:O    | 13:S:83:LEU:HD13 | 2.05        | 0.56     |
| 21:V:3:ALA:HB3   | 21:V:12:TYR:HH   | 1.68        | 0.56     |
| 20:U:104:GLU:CD  | 21:V:46:VAL:HG13 | 2.26        | 0.56     |
| 15:W:23:LEU:O    | 15:W:24:ILE:C    | 2.44        | 0.56     |
| 15:W:46:PHE:O    | 15:W:47:VAL:C    | 2.43        | 0.56     |
| 15:W:84:ARG:O    | 15:W:96:ILE:HD12 | 2.05        | 0.56     |
| 18:Z:51:LEU:CD1  | 18:Z:64:ALA:H    | 2.17        | 0.56     |
| 24:0:42:GLY:HA3  | 24:0:66:LYS:HA   | 1.78        | 0.56     |

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| Atom-1          | Atom-2            | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 23:3:1:MET:HE1  | 23:3:3:ARG:CD     | 2.20        | 0.56     |
| 23:3:6:VAL:HG23 | 23:3:54:VAL:HG23  | 1.88        | 0.56     |
| 27:6:8:ILE:HG22 | 27:6:28:ARG:HB2   | 1.85        | 0.56     |
| 29:8:4:MET:HG2  | 29:8:5:LYS:N      | 2.19        | 0.56     |
| 30:9:17:VAL:CG1 | 30:9:18:ARG:N     | 2.68        | 0.56     |
| 2:A:10:G:N2     | 2:A:2629:A:N1     | 2.52        | 0.56     |
| 2:A:1249:U:H3'  | 2:A:1249:U:C6     | 2.41        | 0.56     |
| 2:A:1611:C:H2'  | 2:A:1612:C:C6     | 2.40        | 0.56     |
| 2:A:2080:G:C2   | 2:A:2241:A:C2     | 2.93        | 0.56     |
| 2:A:2093:G:OP2  | 8:I:25:TYR:CE2    | 2.59        | 0.56     |
| 2:A:2261:C:N3   | 2:A:2262:U:C5     | 2.73        | 0.56     |
| 2:A:2334:G:H1'  | 13:S:21:HIS:CG    | 2.40        | 0.56     |
| 2:A:2437:U:H5'  | 2:A:2598:A:N1     | 2.10        | 0.56     |
| 2:A:2450:A:C5'  | 2:A:2497:A:C6     | 2.68        | 0.56     |
| 2:A:2472:G:N2   | 2:A:2477:C:OP1    | 2.24        | 0.56     |
| 2:A:2509:G:N2   | 2:A:2510:C:H1'    | 2.20        | 0.56     |
| 2:A:2607:G:O6   | 2:A:2608:G:N2     | 2.38        | 0.56     |
| 2:A:2712:U:O3'  | 2:A:2714:G:OP2    | 2.22        | 0.56     |
| 2:A:2742:C:OP1  | 30:9:35:ARG:NH1   | 2.38        | 0.56     |
| 2:A:2810:A:H8   | 2:A:2811:G:C8     | 2.19        | 0.56     |
| 2:A:311:A:H1'   | 2:A:332:A:C5      | 2.39        | 0.56     |
| 2:A:515:A:H2'   | 2:A:516:C:H6      | 1.70        | 0.56     |
| 2:A:606:U:OP1   | 5:F:105:LYS:CD    | 2.53        | 0.56     |
| 2:A:963:U:H2'   | 2:A:964:C:H6      | 1.70        | 0.56     |
| 2:A:994:C:H4'   | 2:A:994:C:OP2     | 2.05        | 0.56     |
| 3:D:146:LYS:CB  | 3:D:147:PRO:HD2   | 2.33        | 0.56     |
| 4:E:186:GLU:C   | 4:E:187:HIS:CG    | 2.79        | 0.56     |
| 4:E:192:ILE:O   | 4:E:194:ARG:CG    | 2.54        | 0.56     |
| 4:E:270:ASP:O   | 4:E:271:ILE:HG13  | 2.05        | 0.56     |
| 4:E:45:LYS:NZ   | 4:E:303:PRO:HD2   | 2.17        | 0.56     |
| 7:H:55:SER:OG   | 7:H:60:HIS:HB2    | 2.05        | 0.56     |
| 9:N:60:ARG:HB3  | 9:N:71:TYR:HD2    | 1.69        | 0.56     |
| 2:A:2495:G:C3'  | 12:Q:101:MET:CE   | 2.62        | 0.56     |
| 12:Q:47:GLU:HB3 | 12:Q:123:ILE:HG12 | 1.87        | 0.56     |
| 1:B:11:C:N4     | 13:S:11:ARG:HH12  | 2.03        | 0.56     |
| 13:S:12:ARG:HB2 | 13:S:20:TYR:OH    | 2.05        | 0.56     |
| 14:T:10:GLY:HA2 | 14:T:53:ASP:OD2   | 2.06        | 0.56     |
| 14:T:53:ASP:O   | 14:T:56:ARG:CZ    | 2.53        | 0.56     |
| 20:U:105:ALA:O  | 20:U:106:PHE:O    | 2.24        | 0.56     |
| 20:U:108:ALA:O  | 20:U:111:ASP:N    | 2.36        | 0.56     |
| 21:V:50:ASP:HB2 | 21:V:53:LYS:H     | 1.70        | 0.56     |
| 18:Z:6:LYS:CA   | 18:Z:31:SER:CB    | 2.78        | 0.56     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:I:96:LYS:C     | 8:I:98:ILE:N     | 2.58        | 0.56     |
| 2:A:1598:C:H5'   | 16:X:34:LYS:CB   | 2.34        | 0.56     |
| 2:A:1398:C:OP1   | 16:X:53:ASN:OD1  | 2.23        | 0.56     |
| 2:A:59:U:O5'     | 2:A:73:A:N6      | 2.38        | 0.56     |
| 16:X:33:SER:CA   | 16:X:37:VAL:HG21 | 2.36        | 0.56     |
| 16:X:3:ASP:CG    | 16:X:4:VAL:N     | 2.58        | 0.56     |
| 9:N:4:ALA:O      | 9:N:5:GLU:O      | 2.23        | 0.56     |
| 2:A:1619:G:N3    | 28:7:1:MET:HB3   | 2.21        | 0.56     |
| 16:X:76:GLU:OE1  | 16:X:77:VAL:CA   | 2.53        | 0.56     |
| 2:A:414:C:C2     | 2:A:2409:G:N2    | 2.68        | 0.56     |
| 2:A:706:A:C8     | 2:A:706:A:O5'    | 2.53        | 0.56     |
| 2:A:1071:G:C6    | 2:A:1089:G:N2    | 2.73        | 0.56     |
| 2:A:373:U:H4'    | 2:A:374:A:C8     | 2.40        | 0.56     |
| 8:I:54:GLU:OE1   | 8:I:54:GLU:HA    | 2.05        | 0.56     |
| 24:0:38:VAL:C    | 24:0:40:GLN:CG   | 2.64        | 0.56     |
| 23:3:5:LYS:HG3   | 23:3:36:VAL:CG1  | 2.36        | 0.56     |
| 23:3:7:LYS:HG2   | 23:3:8:LEU:N     | 2.21        | 0.56     |
| 2:A:1365:A:H5''  | 25:4:3:LYS:HE3   | 1.87        | 0.56     |
| 2:A:2093:G:N9    | 2:A:2225:A:N6    | 2.54        | 0.56     |
| 2:A:2356:C:OP2   | 24:0:21:LEU:HD11 | 2.05        | 0.56     |
| 2:A:197:A:H61    | 2:A:248:G:H22    | 1.53        | 0.56     |
| 2:A:2493:U:O2    | 2:A:2493:U:C2'   | 2.46        | 0.56     |
| 2:A:2535:G:H21   | 2:A:2536:G:H1'   | 1.66        | 0.56     |
| 2:A:2562:U:N3    | 2:A:2563:U:N3    | 2.44        | 0.56     |
| 2:A:2577:A:H2    | 2:A:2614:A:C2    | 2.20        | 0.56     |
| 2:A:2753:A:C8    | 2:A:2754:U:H5    | 2.18        | 0.56     |
| 2:A:671:C:N4     | 2:A:809:G:N1     | 2.53        | 0.56     |
| 2:A:974:G:C8     | 21:V:80:TYR:CG   | 2.94        | 0.56     |
| 3:D:125:ILE:CG2  | 3:D:126:GLY:N    | 2.68        | 0.56     |
| 3:D:131:LEU:CA   | 3:D:134:ILE:HD12 | 2.35        | 0.56     |
| 4:E:200:ASP:HA   | 4:E:266:LYS:CG   | 2.36        | 0.56     |
| 4:E:71:THR:CG2   | 4:E:299:SER:HA   | 2.36        | 0.56     |
| 2:A:321:G:C1'    | 5:F:206:ASN:HD22 | 2.09        | 0.56     |
| 5:F:98:ARG:HD3   | 5:F:98:ARG:N     | 2.21        | 0.56     |
| 6:G:19:GLU:CA    | 6:G:135:VAL:HG21 | 2.27        | 0.56     |
| 6:G:18:ILE:CG2   | 6:G:19:GLU:N     | 2.47        | 0.56     |
| 6:G:24:HIS:HB2   | 6:G:72:LYS:HD3   | 1.88        | 0.56     |
| 7:H:83:GLU:CA    | 7:H:83:GLU:OE2   | 2.52        | 0.56     |
| 19:R:20:LEU:HD21 | 19:R:24:GLN:CD   | 2.26        | 0.56     |
| 19:R:51:LEU:CD1  | 19:R:70:LEU:HD21 | 2.35        | 0.56     |
| 19:R:79:LEU:HD22 | 19:R:80:PHE:HA   | 1.87        | 0.56     |
| 20:U:13:ARG:NH1  | 20:U:13:ARG:CG   | 2.46        | 0.56     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:Y:102:ASP:C   | 17:Y:103:LEU:HG  | 2.26        | 0.56     |
| 17:Y:26:THR:C    | 17:Y:27:LEU:CG   | 2.68        | 0.56     |
| 18:Z:67:LYS:CB   | 18:Z:67:LYS:NZ   | 2.68        | 0.56     |
| 8:I:115:ILE:CG2  | 8:I:129:VAL:HG11 | 2.35        | 0.56     |
| 22:2:12:THR:C    | 22:2:16:ARG:HD2  | 2.25        | 0.56     |
| 22:2:7:GLU:CG    | 22:2:8:ILE:H     | 2.18        | 0.56     |
| 2:A:95:G:O2'     | 22:2:42:ASN:HB3  | 2.05        | 0.56     |
| 2:A:1904:G:N2    | 2:A:1928:A:H2    | 2.04        | 0.56     |
| 24:0:33:ALA:HB3  | 24:0:66:LYS:N    | 2.14        | 0.56     |
| 24:0:64:ASP:C    | 24:0:66:LYS:HZ1  | 2.08        | 0.56     |
| 24:0:80:SER:OG   | 24:0:84:ALA:HB2  | 2.05        | 0.56     |
| 2:A:2255:G:C4    | 2:A:2256:G:C8    | 2.93        | 0.56     |
| 2:A:2261:C:H3'   | 24:0:14:ARG:NH2  | 2.20        | 0.56     |
| 2:A:2431:U:C2'   | 2:A:2432:A:H3'   | 2.31        | 0.56     |
| 2:A:2443:C:C6    | 2:A:2444:G:C8    | 2.93        | 0.56     |
| 2:A:2474:C:N4    | 2:A:2529:G:H21   | 1.91        | 0.56     |
| 2:A:2530:A:C3'   | 2:A:2531:A:C5'   | 2.83        | 0.56     |
| 2:A:2584:U:H6    | 2:A:2585:U:C5    | 2.04        | 0.56     |
| 2:A:2707:G:O2'   | 2:A:2708:G:O5'   | 2.22        | 0.56     |
| 2:A:2809:A:H5'   | 2:A:2809:A:N3    | 2.21        | 0.56     |
| 3:D:138:THR:O    | 3:D:162:GLN:CA   | 2.50        | 0.56     |
| 3:D:66:PHE:O     | 3:D:67:LYS:CG    | 2.54        | 0.56     |
| 4:E:186:GLU:C    | 4:E:187:HIS:CD2  | 2.78        | 0.56     |
| 4:E:211:GLN:O    | 4:E:216:ARG:NE   | 2.36        | 0.56     |
| 5:F:138:VAL:C    | 5:F:139:VAL:HG23 | 2.25        | 0.56     |
| 5:F:6:TYR:CE2    | 5:F:140:VAL:HG23 | 2.37        | 0.56     |
| 8:I:8:ASP:O      | 8:I:9:VAL:CB     | 2.53        | 0.56     |
| 10:O:88:ARG:C    | 10:O:90:ASP:N    | 2.48        | 0.56     |
| 11:P:73:VAL:C    | 11:P:76:LEU:H    | 2.08        | 0.56     |
| 12:Q:47:GLU:CA   | 12:Q:47:GLU:OE1  | 2.54        | 0.56     |
| 12:Q:71:PHE:CD1  | 12:Q:71:PHE:N    | 2.74        | 0.56     |
| 19:R:107:ASP:OD1 | 19:R:108:GLY:C   | 2.44        | 0.56     |
| 19:R:67:LEU:CD1  | 19:R:68:ARG:N    | 2.65        | 0.56     |
| 19:R:71:GLN:O    | 19:R:72:ASP:HB2  | 2.04        | 0.56     |
| 2:A:2320:A:C2    | 13:S:13:ARG:HG2  | 2.34        | 0.56     |
| 13:S:27:LEU:CA   | 13:S:33:ARG:CZ   | 2.84        | 0.56     |
| 14:T:21:PHE:HB2  | 14:T:31:PHE:HD1  | 1.69        | 0.56     |
| 20:U:4:ALA:C     | 20:U:6:THR:H     | 1.95        | 0.56     |
| 20:U:7:GLY:C     | 20:U:8:ILE:HD13  | 2.23        | 0.56     |
| 20:U:85:ARG:O    | 20:U:86:ALA:O    | 2.23        | 0.56     |
| 17:Y:41:ARG:C    | 17:Y:112:LEU:HB3 | 2.26        | 0.56     |
| 17:Y:93:THR:O    | 17:Y:94:SER:O    | 2.23        | 0.56     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:Z:79:ILE:HG22 | 18:Z:80:HIS:ND1  | 2.21        | 0.56     |
| 22:2:27:LEU:HD23 | 22:2:49:LEU:HD13 | 1.88        | 0.56     |
| 2:A:111:A:C1'    | 22:2:62:GLU:OE2  | 2.54        | 0.56     |
| 31:K:25:GLY:HA2  | 31:K:35:ILE:HD13 | 1.88        | 0.56     |
| 2:A:678:C:H42    | 2:A:799:G:H1     | 1.54        | 0.56     |
| 26:5:46:CYS:C    | 26:5:48:ASN:N    | 2.57        | 0.56     |
| 28:7:26:SER:CA   | 28:7:29:ASN:HD22 | 2.18        | 0.56     |
| 29:8:26:LYS:CG   | 29:8:44:LYS:C    | 2.62        | 0.56     |
| 29:8:55:TRP:O    | 29:8:56:ALA:C    | 2.44        | 0.56     |
| 2:A:1186:G:H2'   | 2:A:1187:G:H8    | 1.70        | 0.56     |
| 2:A:1646:C:C3'   | 2:A:1647:G:C5'   | 2.80        | 0.56     |
| 2:A:2052:G:H21   | 4:E:245:ARG:CD   | 2.18        | 0.56     |
| 2:A:2311:A:HO2'  | 2:A:2312:U:C5'   | 2.17        | 0.56     |
| 2:A:2351:G:N2    | 2:A:2365:G:C4    | 2.73        | 0.56     |
| 2:A:2262:U:H5'   | 2:A:2387:U:O2    | 2.06        | 0.56     |
| 2:A:2543:G:O2'   | 2:A:2544:G:C5'   | 2.46        | 0.56     |
| 2:A:1953:A:C2    | 2:A:2560:C:H1'   | 2.38        | 0.56     |
| 2:A:2835:A:N6    | 2:A:2879:C:OP2   | 2.38        | 0.56     |
| 2:A:2839:G:N1    | 2:A:2840:C:N3    | 2.52        | 0.56     |
| 2:A:650:C:OP1    | 29:8:19:THR:CB   | 2.54        | 0.56     |
| 4:E:205:THR:HG22 | 4:E:259:HIS:C    | 2.18        | 0.56     |
| 5:F:163:HIS:CA   | 5:F:166:ILE:HD12 | 2.33        | 0.56     |
| 10:O:112:MET:O   | 10:O:115:ILE:CG1 | 2.49        | 0.56     |
| 11:P:61:ALA:CB   | 11:P:107:LYS:CE  | 2.77        | 0.56     |
| 11:P:73:VAL:HG13 | 11:P:76:LEU:HB3  | 1.87        | 0.56     |
| 12:Q:36:ASN:CB   | 12:Q:41:THR:N    | 2.66        | 0.56     |
| 12:Q:46:VAL:O    | 12:Q:124:ALA:CA  | 2.53        | 0.56     |
| 20:U:13:ARG:N    | 20:U:13:ARG:CZ   | 2.62        | 0.56     |
| 20:U:13:ARG:O    | 20:U:14:HIS:C    | 2.44        | 0.56     |
| 18:Z:37:LYS:CA   | 18:Z:40:ASP:CG   | 2.73        | 0.56     |
| 2:A:72:U:H4'     | 22:2:57:LYS:HZ1  | 1.70        | 0.56     |
| 2:A:176:G:H21    | 2:A:177:G:C1'    | 2.17        | 0.56     |
| 9:N:105:LEU:HD23 | 9:N:105:LEU:H    | 1.71        | 0.56     |
| 9:N:106:GLY:CA   | 9:N:107:ASN:ND2  | 2.68        | 0.56     |
| 2:A:1684:C:H2'   | 2:A:1685:C:C6    | 2.41        | 0.56     |
| 2:A:2354:G:C2'   | 24:0:32:LYS:CG   | 2.84        | 0.56     |
| 24:0:46:LYS:HB2  | 24:0:79:ILE:HD12 | 1.87        | 0.56     |
| 25:4:20:VAL:HG12 | 25:4:20:VAL:O    | 2.05        | 0.56     |
| 29:8:25:PHE:HA   | 29:8:46:LYS:HG2  | 1.87        | 0.56     |
| 2:A:1263:U:C1'   | 26:5:16:ARG:HH22 | 2.19        | 0.56     |
| 2:A:1657:C:H3'   | 2:A:1657:C:C6    | 2.41        | 0.56     |
| 2:A:2197:U:C2'   | 2:A:2198:A:H5''  | 2.34        | 0.56     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2471:C:H2'   | 2:A:2472:G:C5'    | 2.36        | 0.56     |
| 2:A:2464:C:N3    | 2:A:2486:G:N2     | 2.53        | 0.56     |
| 2:A:2501:C:HO2'  | 2:A:2502:G:P      | 2.28        | 0.56     |
| 2:A:1127:A:C2    | 2:A:2518:A:H1'    | 2.40        | 0.56     |
| 2:A:2626:C:H5    | 2:A:2626:C:P      | 2.28        | 0.56     |
| 2:A:2637:U:C5    | 2:A:2638:G:C6     | 2.94        | 0.56     |
| 2:A:2653:U:C4    | 2:A:2654:A:C6     | 2.91        | 0.56     |
| 2:A:2657:A:N7    | 2:A:2658:C:C4     | 2.64        | 0.56     |
| 2:A:2677:G:C5    | 2:A:2678:C:H5     | 2.23        | 0.56     |
| 2:A:2695:C:C2'   | 2:A:2696:U:H6     | 2.12        | 0.56     |
| 2:A:2704:C:C2'   | 2:A:2705:A:O4'    | 2.53        | 0.56     |
| 2:A:2721:A:C4    | 2:A:2722:G:C8     | 2.93        | 0.56     |
| 2:A:247:G:H4'    | 2:A:386:G:C2      | 2.40        | 0.56     |
| 2:A:918:A:H5'    | 2:A:918:A:N3      | 2.21        | 0.56     |
| 3:D:134:ILE:HG21 | 3:D:163:VAL:HG21  | 1.88        | 0.56     |
| 4:E:271:ILE:CG2  | 4:E:272:GLY:N     | 2.69        | 0.56     |
| 5:F:165:ASP:O    | 5:F:168:ARG:CG    | 2.54        | 0.56     |
| 11:P:71:GLU:O    | 11:P:72:ASN:C     | 2.44        | 0.56     |
| 12:Q:45:GLN:OE1  | 12:Q:152:SER:HB3  | 2.05        | 0.56     |
| 12:Q:67:ALA:CB   | 12:Q:71:PHE:HE1   | 2.18        | 0.56     |
| 13:S:23:ARG:HH21 | 13:S:35:VAL:HG11  | 1.71        | 0.56     |
| 13:S:81:ALA:HB1  | 13:S:118:ILE:H    | 1.69        | 0.56     |
| 21:V:96:LEU:H    | 21:V:96:LEU:CD2   | 2.19        | 0.56     |
| 15:W:80:PRO:CB   | 15:W:100:THR:HG21 | 2.26        | 0.56     |
| 17:Y:101:LEU:CD2 | 17:Y:112:LEU:CG   | 2.78        | 0.56     |
| 18:Z:113:VAL:CG1 | 18:Z:114:ASP:N    | 2.56        | 0.56     |
| 18:Z:163:ASP:CB  | 18:Z:164:PRO:CD   | 2.79        | 0.56     |
| 2:A:1394:U:C5'   | 2:A:1603:A:H4'    | 2.36        | 0.56     |
| 2:A:148:C:C2     | 2:A:149:A:C5      | 2.94        | 0.56     |
| 2:A:1358:G:H2'   | 2:A:1371:G:N2     | 2.20        | 0.56     |
| 2:A:286:C:H2'    | 2:A:287:C:H5'     | 1.88        | 0.56     |
| 24:0:68:VAL:HG12 | 24:0:71:ASN:HD22  | 1.70        | 0.56     |
| 23:3:1:MET:CE    | 23:3:3:ARG:CG     | 2.83        | 0.56     |
| 25:4:2:GLN:C     | 25:4:3:LYS:HG3    | 2.25        | 0.56     |
| 25:4:32:HIS:O    | 25:4:33:VAL:C     | 2.40        | 0.56     |
| 25:4:14:ILE:HD11 | 25:4:39:VAL:HG21  | 1.88        | 0.56     |
| 26:5:12:SER:HB3  | 26:5:15:LYS:HZ1   | 0.75        | 0.56     |
| 27:6:17:GLY:O    | 27:6:18:THR:CB    | 2.54        | 0.56     |
| 27:6:26:LYS:O    | 27:6:27:ASN:OD1   | 2.23        | 0.56     |
| 28:7:30:ILE:O    | 28:7:31:LEU:C     | 2.44        | 0.56     |
| 2:A:459:U:P      | 28:7:40:HIS:HA    | 2.45        | 0.56     |
| 29:8:21:LYS:HB3  | 29:8:48:PHE:CZ    | 2.40        | 0.56     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1988:C:H2'   | 2:A:1989:G:H5'   | 1.88        | 0.56     |
| 2:A:2215:G:O2'   | 2:A:2216:G:O4'   | 2.21        | 0.56     |
| 2:A:2258:C:C6    | 2:A:2426:A:H4'   | 2.40        | 0.56     |
| 2:A:2313:C:C5    | 2:A:2314:C:C5    | 2.94        | 0.56     |
| 2:A:2380:C:C2'   | 2:A:2381:C:H5'   | 2.27        | 0.56     |
| 2:A:2398:U:H2'   | 2:A:2399:G:H8    | 1.71        | 0.56     |
| 2:A:2454:G:H2'   | 2:A:2455:G:C4'   | 2.36        | 0.56     |
| 2:A:2595:G:C3'   | 2:A:2595:G:C8    | 2.88        | 0.56     |
| 2:A:2633:G:C8    | 2:A:2633:G:OP2   | 2.59        | 0.56     |
| 2:A:2668:G:N2    | 2:A:2669:G:C1'   | 2.69        | 0.56     |
| 2:A:2687:U:C2'   | 2:A:2687:U:O2    | 2.40        | 0.56     |
| 2:A:2792:G:H1    | 2:A:2803:C:H42   | 1.53        | 0.56     |
| 2:A:2837:G:C6    | 2:A:2882:A:N6    | 2.74        | 0.56     |
| 2:A:598:G:H2'    | 2:A:599:G:O4'    | 2.04        | 0.56     |
| 3:D:116:MET:CG   | 3:D:117:SER:H    | 2.16        | 0.56     |
| 3:D:166:LYS:C    | 3:D:167:GLU:CD   | 2.65        | 0.56     |
| 4:E:199:ALA:HB1  | 4:E:312:ARG:H    | 1.70        | 0.56     |
| 5:F:215:ALA:CA   | 5:F:242:GLU:CG   | 2.82        | 0.56     |
| 7:H:101:LYS:NZ   | 7:H:115:GLU:HB3  | 2.13        | 0.56     |
| 7:H:51:VAL:HG22  | 7:H:68:ARG:CG    | 2.35        | 0.56     |
| 7:H:51:VAL:HG22  | 7:H:68:ARG:HG2   | 1.86        | 0.56     |
| 12:Q:136:TRP:CE3 | 12:Q:139:ALA:HB2 | 2.41        | 0.56     |
| 12:Q:31:PHE:CA   | 12:Q:85:ILE:CD1  | 2.79        | 0.56     |
| 2:A:1287:A:H8    | 19:R:104:ARG:HD2 | 1.70        | 0.56     |
| 20:U:69:ALA:O    | 20:U:79:PHE:HE1  | 1.86        | 0.56     |
| 21:V:15:SER:O    | 21:V:99:GLN:HG3  | 2.06        | 0.56     |
| 17:Y:79:LEU:CD1  | 17:Y:80:GLU:N    | 2.52        | 0.56     |
| 18:Z:40:ASP:C    | 18:Z:44:ARG:HG2  | 2.26        | 0.56     |
| 2:A:1315:C:HO2'  | 2:A:1392:A:H1'   | 1.69        | 0.56     |
| 2:A:1829:A:H5''  | 2:A:1830:C:C5    | 2.41        | 0.56     |
| 23:3:33:GLN:NE2  | 23:3:34:GLU:C    | 2.59        | 0.56     |
| 28:7:25:LYS:O    | 28:7:26:SER:C    | 2.45        | 0.56     |
| 29:8:23:MET:SD   | 29:8:48:PHE:HA   | 2.46        | 0.56     |
| 29:8:62:LEU:HB3  | 29:8:63:PRO:HD3  | 1.83        | 0.56     |
| 30:9:24:LEU:CD2  | 30:9:35:ARG:CG   | 2.82        | 0.56     |
| 2:A:2228:G:H5''  | 2:A:2229:C:C6    | 2.41        | 0.56     |
| 2:A:2395:C:O5'   | 2:A:2395:C:C6    | 2.59        | 0.56     |
| 2:A:2421:G:OP1   | 27:6:4:ASP:CG    | 2.44        | 0.56     |
| 2:A:2486:G:N1    | 2:A:2487:G:N7    | 2.53        | 0.56     |
| 2:A:2531:A:C6    | 2:A:2532:G:C5    | 2.94        | 0.56     |
| 2:A:2520:C:H6    | 2:A:2567:G:H1'   | 1.69        | 0.56     |
| 2:A:2783:G:C5    | 2:A:2784:C:H5    | 2.22        | 0.56     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2819:G:C4'   | 2:A:2821:A:H62    | 2.17        | 0.56     |
| 2:A:311:A:N6     | 2:A:329:G:H5'     | 2.21        | 0.56     |
| 2:A:775:G:H22    | 2:A:787:U:C3'     | 2.18        | 0.56     |
| 2:A:776:G:N7     | 2:A:793:A:H2'     | 2.20        | 0.56     |
| 3:D:115:ILE:C    | 3:D:115:ILE:HD12  | 2.26        | 0.56     |
| 3:D:143:ILE:CB   | 3:D:153:LEU:N     | 2.68        | 0.56     |
| 3:D:167:GLU:CA   | 3:D:170:TYR:CE1   | 2.88        | 0.56     |
| 5:F:168:ARG:C    | 5:F:193:LEU:CG    | 2.67        | 0.56     |
| 5:F:33:LYS:O     | 5:F:36:ARG:HG2    | 2.06        | 0.56     |
| 5:F:61:PHE:O     | 5:F:62:GLY:C      | 2.43        | 0.56     |
| 7:H:10:ILE:CG1   | 7:H:49:ILE:CG1    | 2.84        | 0.56     |
| 7:H:94:ARG:CB    | 7:H:127:GLN:HE22  | 2.18        | 0.56     |
| 8:I:7:LYS:HB2    | 8:I:12:LYS:CE     | 2.35        | 0.56     |
| 9:N:52:GLN:CA    | 9:N:55:GLU:CG     | 2.75        | 0.56     |
| 9:N:74:ARG:C     | 9:N:76:ASP:OD2    | 2.44        | 0.56     |
| 10:O:31:ARG:CB   | 10:O:32:TYR:CD1   | 2.87        | 0.56     |
| 2:A:245:G:P      | 11:P:53:ARG:NH1   | 2.78        | 0.56     |
| 11:P:58:GLN:HG3  | 11:P:59:GLU:N     | 2.21        | 0.56     |
| 19:R:51:LEU:O    | 19:R:52:ILE:C     | 2.44        | 0.56     |
| 13:S:110:THR:CG2 | 13:S:115:VAL:HG23 | 2.32        | 0.56     |
| 13:S:76:GLY:CA   | 13:S:82:TYR:HB2   | 2.36        | 0.56     |
| 20:U:14:HIS:CD2  | 20:U:36:PHE:CE2   | 2.93        | 0.56     |
| 15:W:103:ILE:O   | 15:W:103:ILE:HG23 | 2.05        | 0.56     |
| 15:W:38:TYR:CD1  | 26:5:41:LEU:HD21  | 2.41        | 0.56     |
| 17:Y:34:GLU:O    | 17:Y:35:TYR:CB    | 2.54        | 0.56     |
| 2:A:1827:C:H5'   | 2:A:1971:A:C4'    | 2.14        | 0.56     |
| 3:D:216:ALA:HB1  | 3:D:223:ASN:H     | 1.70        | 0.56     |
| 22:2:34:GLN:CA   | 22:2:34:GLN:OE1   | 2.54        | 0.56     |
| 2:A:138:G:O4'    | 16:X:43:GLU:OE2   | 2.23        | 0.56     |
| 16:X:6:LYS:HB2   | 16:X:27:ALA:O     | 2.03        | 0.56     |
| 16:X:7:HIS:CG    | 16:X:8:PRO:HD2    | 2.41        | 0.56     |
| 2:A:1614:A:C6    | 15:W:88:ARG:CG    | 2.88        | 0.56     |
| 2:A:2899:G:HO2'  | 2:A:2900:A:H8     | 1.53        | 0.56     |
| 4:E:107:GLU:HB3  | 4:E:110:ARG:HE    | 1.58        | 0.56     |
| 2:A:840:C:H42    | 2:A:938:G:H1      | 1.54        | 0.56     |
| 8:I:60:GLU:O     | 8:I:62:LEU:N      | 2.39        | 0.56     |
| 23:3:54:VAL:CG2  | 23:3:55:ARG:H     | 2.01        | 0.56     |
| 28:7:15:THR:HG1  | 28:7:16:HIS:H     | 1.49        | 0.56     |
| 28:7:43:THR:HA   | 28:7:46:ASP:OD2   | 1.95        | 0.56     |
| 30:9:7:VAL:CG2   | 30:9:36:GLN:CG    | 2.85        | 0.56     |
| 2:A:1665:A:H1'   | 10:O:67:ARG:HD3   | 1.88        | 0.56     |
| 2:A:2319:G:OP2   | 13:S:9:PRO:HD3    | 2.06        | 0.56     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2422:A:N9     | 2:A:2424:C:H5    | 2.03        | 0.56     |
| 2:A:2432:A:C2     | 2:A:2433:A:N6    | 2.68        | 0.56     |
| 2:A:2468:G:H8     | 2:A:2476:A:N1    | 1.97        | 0.56     |
| 2:A:2525:G:C6     | 2:A:2539:C:N4    | 2.74        | 0.56     |
| 2:A:2515:C:C4     | 2:A:2570:G:O6    | 2.60        | 0.56     |
| 2:A:2729:G:C6     | 2:A:2730:C:N3    | 2.73        | 0.56     |
| 2:A:2734:A:N7     | 2:A:2735:G:N9    | 2.54        | 0.56     |
| 2:A:2744:G:C4     | 2:A:2761:G:C2    | 2.94        | 0.56     |
| 2:A:2788:C:H5''   | 2:A:2789:C:OP2   | 2.06        | 0.56     |
| 2:A:2852:G:N2     | 2:A:2853:C:C2    | 2.72        | 0.56     |
| 2:A:2831:G:C1'    | 2:A:2883:A:C2    | 2.88        | 0.56     |
| 2:A:2885:C:O2     | 2:A:2885:C:H2'   | 2.04        | 0.56     |
| 2:A:988:A:OP1     | 23:3:11:SER:CA   | 2.50        | 0.56     |
| 3:D:196:ASN:HB2   | 3:D:199:ARG:HB2  | 1.88        | 0.56     |
| 3:D:197:GLY:C     | 3:D:199:ARG:N    | 2.59        | 0.56     |
| 2:A:1816:G:C8     | 3:D:63:ILE:HG13  | 2.40        | 0.56     |
| 4:E:189:MET:O     | 4:E:190:ASN:HB3  | 2.05        | 0.56     |
| 4:E:199:ALA:HB1   | 4:E:312:ARG:N    | 2.20        | 0.56     |
| 4:E:205:THR:HG22  | 4:E:261:ARG:HG3  | 1.88        | 0.56     |
| 5:F:168:ARG:NH2   | 5:F:209:GLY:CA   | 2.44        | 0.56     |
| 6:G:145:ASP:HB3   | 13:S:15:GLU:CA   | 2.31        | 0.56     |
| 6:G:13:MET:O      | 6:G:14:ARG:C     | 2.44        | 0.56     |
| 7:H:148:ARG:HH11  | 7:H:163:TYR:CA   | 2.00        | 0.56     |
| 9:N:83:ILE:C      | 9:N:85:GLY:N     | 2.59        | 0.56     |
| 11:P:96:VAL:CG2   | 11:P:101:ASP:H   | 2.18        | 0.56     |
| 11:P:114:VAL:HG12 | 11:P:115:ARG:H   | 1.71        | 0.56     |
| 12:Q:130:PRO:HA   | 12:Q:133:GLU:HB3 | 1.88        | 0.56     |
| 12:Q:33:MET:CG    | 12:Q:83:PHE:CB   | 2.84        | 0.56     |
| 13:S:90:LEU:HA    | 13:S:93:GLN:HE21 | 1.71        | 0.56     |
| 2:A:446:G:H5'     | 20:U:5:LYS:HE3   | 1.87        | 0.56     |
| 20:U:79:PHE:O     | 20:U:82:GLY:N    | 2.39        | 0.56     |
| 15:W:97:LYS:CE    | 15:W:99:ARG:HH12 | 2.15        | 0.56     |
| 18:Z:123:VAL:HA   | 18:Z:161:ALA:CB  | 2.36        | 0.56     |
| 18:Z:176:LEU:HD23 | 18:Z:177:THR:CA  | 2.36        | 0.56     |
| 18:Z:18:MET:C     | 18:Z:36:ARG:HE   | 2.07        | 0.56     |
| 18:Z:64:ALA:HB2   | 18:Z:85:MET:C    | 2.25        | 0.56     |
| 8:I:114:LYS:HB3   | 8:I:132:LYS:O    | 2.06        | 0.56     |
| 8:I:133:LEU:CD1   | 8:I:139:ALA:HB3  | 2.25        | 0.56     |
| 8:I:81:ALA:O      | 8:I:147:GLU:CA   | 2.53        | 0.56     |
| 3:D:208:GLY:HA3   | 3:D:210:LYS:HZ1  | 1.47        | 0.56     |
| 22:2:20:LEU:O     | 22:2:23:LEU:CA   | 2.22        | 0.56     |
| 31:K:96:ILE:HG21  | 31:K:138:GLU:HB2 | 1.88        | 0.56     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 18:Z:156:GLU:O   | 18:Z:157:GLY:C    | 2.43        | 0.56     |
| 2:A:1936:A:N6    | 2:A:1945:G:C2     | 2.74        | 0.56     |
| 2:A:1177:A:H2'   | 2:A:1178:C:C6     | 2.41        | 0.56     |
| 2:A:1841:U:H2'   | 2:A:1842:G:C8     | 2.40        | 0.56     |
| 13:S:70:GLY:O    | 13:S:71:TRP:HE3   | 1.87        | 0.56     |
| 23:3:8:LEU:HD23  | 23:3:32:GLN:H     | 1.69        | 0.55     |
| 25:4:17:GLN:CD   | 25:4:34:ASP:HA    | 2.27        | 0.55     |
| 2:A:107:C:H2'    | 2:A:108:U:C6      | 2.41        | 0.55     |
| 2:A:1456:G:H1    | 2:A:2704:C:N4     | 2.05        | 0.55     |
| 2:A:2093:G:C8    | 2:A:2225:A:C5     | 2.94        | 0.55     |
| 2:A:2303:G:C2    | 2:A:2314:C:N3     | 2.75        | 0.55     |
| 2:A:2350:C:N4    | 2:A:2382:G:H1     | 2.03        | 0.55     |
| 2:A:2725:A:C5    | 2:A:2727:G:C5     | 2.94        | 0.55     |
| 2:A:27:G:H3'     | 2:A:27:G:C8       | 2.42        | 0.55     |
| 2:A:2865:U:C6    | 2:A:2866:U:C6     | 2.94        | 0.55     |
| 2:A:2887:U:C6    | 2:A:2887:U:O5'    | 2.59        | 0.55     |
| 2:A:746:A:H2'    | 2:A:2611:U:O2'    | 2.03        | 0.55     |
| 2:A:792:G:N7     | 2:A:2440:C:C1'    | 2.61        | 0.55     |
| 1:B:12:C:N3      | 13:S:10:MET:HE1   | 2.20        | 0.55     |
| 4:E:271:ILE:HG22 | 4:E:272:GLY:N     | 2.20        | 0.55     |
| 5:F:163:HIS:CG   | 5:F:166:ILE:HD11  | 2.41        | 0.55     |
| 6:G:104:PHE:N    | 6:G:104:PHE:CD1   | 2.74        | 0.55     |
| 6:G:141:VAL:CA   | 6:G:144:ARG:HH11  | 2.19        | 0.55     |
| 2:A:2316:C:C5'   | 6:G:142:ALA:HB3   | 2.14        | 0.55     |
| 7:H:136:ASP:O    | 7:H:137:LYS:C     | 2.43        | 0.55     |
| 7:H:32:LEU:CD2   | 7:H:32:LEU:C      | 2.74        | 0.55     |
| 7:H:86:LEU:CD2   | 7:H:87:GLU:N      | 2.68        | 0.55     |
| 10:O:63:VAL:O    | 10:O:102:VAL:HG13 | 2.06        | 0.55     |
| 10:O:79:PHE:CD2  | 14:T:22:VAL:HG21  | 2.40        | 0.55     |
| 10:O:87:ILE:HG22 | 10:O:88:ARG:N     | 2.21        | 0.55     |
| 10:O:78:ARG:O    | 14:T:22:VAL:CG2   | 2.52        | 0.55     |
| 20:U:35:ALA:O    | 20:U:36:PHE:C     | 2.43        | 0.55     |
| 21:V:20:ILE:HG21 | 21:V:67:LYS:HD2   | 1.86        | 0.55     |
| 20:U:20:ARG:HH11 | 21:V:75:LYS:CD    | 2.07        | 0.55     |
| 15:W:44:ALA:O    | 15:W:47:VAL:N     | 2.39        | 0.55     |
| 17:Y:22:GLN:C    | 17:Y:24:ARG:H     | 2.07        | 0.55     |
| 8:I:102:LEU:O    | 8:I:103:GLN:O     | 2.24        | 0.55     |
| 22:2:27:LEU:HD11 | 22:2:53:ILE:HD11  | 1.87        | 0.55     |
| 22:2:52:ALA:HA   | 22:2:55:ARG:NH1   | 2.21        | 0.55     |
| 16:X:35:GLY:C    | 16:X:37:VAL:N     | 2.58        | 0.55     |
| 16:X:52:VAL:HG12 | 16:X:53:ASN:N     | 2.21        | 0.55     |
| 16:X:25:GLN:NE2  | 16:X:65:VAL:CG1   | 2.65        | 0.55     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 11:P:75:LEU:C    | 11:P:75:LEU:CD2  | 2.74        | 0.55     |
| 2:A:1416:G:H2'   | 2:A:1417:C:C6    | 2.41        | 0.55     |
| 2:A:270(X):G:H2' | 2:A:270(Y):G:C5' | 2.36        | 0.55     |
| 2:A:154:G:H5''   | 2:A:155:C:H5     | 1.70        | 0.55     |
| 24:0:28:GLY:N    | 24:0:60:PHE:CG   | 2.69        | 0.55     |
| 24:0:67:VAL:C    | 24:0:68:VAL:HG23 | 2.26        | 0.55     |
| 23:3:41:PRO:O    | 23:3:45:GLY:N    | 2.33        | 0.55     |
| 28:7:21:ARG:C    | 28:7:24:THR:CG2  | 2.69        | 0.55     |
| 2:A:594:U:C5'    | 29:8:61:MET:HE1  | 1.89        | 0.55     |
| 2:A:1251:C:H5'   | 20:U:10:ARG:HD3  | 1.89        | 0.55     |
| 2:A:1758:G:O6    | 2:A:2695:C:H4'   | 2.05        | 0.55     |
| 2:A:1937:A:H3'   | 2:A:1938:A:C5'   | 2.34        | 0.55     |
| 2:A:2185:C:C2    | 2:A:2186:G:N7    | 2.73        | 0.55     |
| 2:A:2213:U:C6    | 2:A:2213:U:H5''  | 2.41        | 0.55     |
| 2:A:2224:G:O2'   | 2:A:2225:A:C5'   | 2.54        | 0.55     |
| 2:A:2259:G:C2    | 2:A:2282:G:N1    | 2.74        | 0.55     |
| 2:A:965:C:O2'    | 2:A:2273:A:C2    | 2.60        | 0.55     |
| 2:A:2281:C:O2'   | 2:A:2282:G:P     | 2.61        | 0.55     |
| 2:A:2311:A:N3    | 6:G:53:LYS:HE2   | 2.21        | 0.55     |
| 2:A:2376:A:OP1   | 2:A:2376:A:C8    | 2.60        | 0.55     |
| 2:A:2416:C:O2    | 2:A:2416:C:H2'   | 2.06        | 0.55     |
| 2:A:2508:G:C2    | 2:A:2509:G:C8    | 2.94        | 0.55     |
| 2:A:2513:G:C5    | 2:A:2514:U:C4    | 2.95        | 0.55     |
| 2:A:2540:C:H2'   | 2:A:2541:A:C8    | 2.41        | 0.55     |
| 2:A:2570:G:C3'   | 2:A:2571:C:C6    | 2.89        | 0.55     |
| 2:A:2578:G:N7    | 4:E:237:ASN:OD1  | 2.39        | 0.55     |
| 2:A:2596:U:C5    | 2:A:2597:G:N7    | 2.74        | 0.55     |
| 2:A:2653:U:C2    | 2:A:2654:A:N7    | 2.74        | 0.55     |
| 2:A:2756:U:N3    | 2:A:2759:G:C6    | 2.73        | 0.55     |
| 2:A:2759:G:C8    | 2:A:2759:G:H3'   | 2.41        | 0.55     |
| 2:A:2844:G:N2    | 2:A:2845:G:C1'   | 2.69        | 0.55     |
| 2:A:328:U:O3'    | 17:Y:92:ASP:OD2  | 2.23        | 0.55     |
| 2:A:628:G:H1     | 2:A:635:C:H42    | 1.54        | 0.55     |
| 3:D:77:VAL:HB    | 3:D:113:MET:HA   | 0.58        | 0.55     |
| 3:D:63:ILE:O     | 3:D:64:ILE:CB    | 2.54        | 0.55     |
| 5:F:108:GLN:O    | 5:F:109:LEU:C    | 2.44        | 0.55     |
| 5:F:149:LYS:HB2  | 5:F:152:GLU:CG   | 2.35        | 0.55     |
| 5:F:215:ALA:O    | 5:F:242:GLU:CA   | 2.54        | 0.55     |
| 2:A:673:C:C4'    | 5:F:82:GLN:NE2   | 2.69        | 0.55     |
| 7:H:88:LEU:HD13  | 7:H:127:GLN:O    | 2.04        | 0.55     |
| 9:N:15:ARG:HB3   | 9:N:43:ARG:HG2   | 0.56        | 0.55     |
| 9:N:26:VAL:O     | 9:N:30:ALA:N     | 2.39        | 0.55     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:116:HIS:CD2 | 12:Q:119:ASN:HB3 | 2.41        | 0.55     |
| 12:Q:47:GLU:CD   | 12:Q:47:GLU:N    | 2.60        | 0.55     |
| 12:Q:66:ASN:O    | 12:Q:67:ALA:C    | 2.42        | 0.55     |
| 12:Q:33:MET:HE2  | 12:Q:74:ASN:O    | 2.04        | 0.55     |
| 2:A:2009:G:C1'   | 19:R:107:ASP:O   | 2.51        | 0.55     |
| 19:R:93:GLY:C    | 19:R:95:THR:N    | 2.48        | 0.55     |
| 2:A:2376:A:N6    | 13:S:109:PRO:HG3 | 2.20        | 0.55     |
| 13:S:15:GLU:O    | 13:S:16:ALA:HB2  | 1.86        | 0.55     |
| 14:T:28:THR:O    | 14:T:29:THR:HG22 | 1.99        | 0.55     |
| 17:Y:105:ASP:O   | 17:Y:107:LYS:N   | 2.39        | 0.55     |
| 18:Z:34:LEU:O    | 18:Z:35:ASP:HB3  | 2.05        | 0.55     |
| 8:I:121:ILE:O    | 8:I:122:ARG:CB   | 2.49        | 0.55     |
| 8:I:86:GLY:C     | 8:I:88:ARG:N     | 2.59        | 0.55     |
| 2:A:1789:A:H5''  | 3:D:224:VAL:HG12 | 1.87        | 0.55     |
| 2:A:1826:G:OP1   | 3:D:227:VAL:HG23 | 1.98        | 0.55     |
| 2:A:729:G:N1     | 3:D:206:LYS:O    | 2.39        | 0.55     |
| 16:X:5:ILE:HG23  | 16:X:6:LYS:N     | 2.12        | 0.55     |
| 24:0:38:VAL:CA   | 24:0:40:GLN:CD   | 2.64        | 0.55     |
| 24:0:43:THR:OG1  | 24:0:44:LYS:N    | 2.32        | 0.55     |
| 2:A:17:G:P       | 26:5:13:LYS:NZ   | 2.80        | 0.55     |
| 2:A:1612:C:C1'   | 28:7:3:ARG:CZ    | 2.57        | 0.55     |
| 2:A:2299:G:C6    | 2:A:2300:G:C6    | 2.94        | 0.55     |
| 2:A:2353:G:C2    | 2:A:2364:C:C4    | 2.88        | 0.55     |
| 2:A:2351:G:C2    | 2:A:2365:G:C5    | 2.95        | 0.55     |
| 2:A:2381:C:H6    | 2:A:2381:C:H5'   | 1.70        | 0.55     |
| 2:A:2422:A:C2'   | 2:A:2424:C:H5    | 2.16        | 0.55     |
| 2:A:249:C:O2'    | 29:8:8:LYS:CE    | 2.55        | 0.55     |
| 2:A:2508:G:C2'   | 2:A:2509:G:O5'   | 2.54        | 0.55     |
| 2:A:2508:G:H2'   | 2:A:2509:G:O5'   | 2.05        | 0.55     |
| 2:A:2514:U:C6    | 2:A:2514:U:H3'   | 2.41        | 0.55     |
| 2:A:2693:A:C6    | 2:A:2694:G:C6    | 2.95        | 0.55     |
| 2:A:2715:C:C4    | 2:A:2716:U:C5    | 2.94        | 0.55     |
| 2:A:2783:G:C8    | 2:A:2783:G:C5'   | 2.86        | 0.55     |
| 2:A:2825:C:C6    | 2:A:2825:C:C5'   | 2.73        | 0.55     |
| 2:A:458:G:O2'    | 2:A:469:G:N1     | 2.36        | 0.55     |
| 2:A:495:G:O2'    | 15:W:62:HIS:CD2  | 2.60        | 0.55     |
| 2:A:532:A:C3'    | 2:A:533:G:O4'    | 2.55        | 0.55     |
| 2:A:559:G:H2'    | 2:A:560:C:C6     | 2.42        | 0.55     |
| 2:A:564:C:O2'    | 2:A:1252:G:O6    | 2.25        | 0.55     |
| 2:A:2712:U:O2'   | 2:A:712(A):A:OP1 | 2.21        | 0.55     |
| 2:A:689:A:O2'    | 2:A:780:G:H5'    | 2.06        | 0.55     |
| 2:A:783:A:H4'    | 2:A:2589:A:P     | 2.47        | 0.55     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:80:G:H1      | 2:A:106:C:H42     | 1.55        | 0.55     |
| 2:A:856:C:C5'    | 24:0:25:LYS:HZ2   | 2.10        | 0.55     |
| 3:D:158:GLY:HA2  | 3:D:194:VAL:HG22  | 1.84        | 0.55     |
| 5:F:101:ASP:C    | 5:F:102:LEU:O     | 2.45        | 0.55     |
| 2:A:1255:U:C5    | 5:F:67:GLN:O      | 2.60        | 0.55     |
| 9:N:27:ALA:CB    | 9:N:30:ALA:CB     | 2.65        | 0.55     |
| 10:O:103:ALA:O   | 10:O:106:LEU:HG   | 2.06        | 0.55     |
| 11:P:131:GLU:O   | 11:P:133:VAL:N    | 2.39        | 0.55     |
| 12:Q:46:VAL:HG22 | 12:Q:156:ASN:HD22 | 1.72        | 0.55     |
| 12:Q:84:ARG:HH21 | 12:Q:123:ILE:HD12 | 1.71        | 0.55     |
| 19:R:87:TYR:CD1  | 19:R:94:TYR:CG    | 2.93        | 0.55     |
| 13:S:122:ALA:O   | 13:S:123:ILE:C    | 2.45        | 0.55     |
| 13:S:64:SER:O    | 13:S:66:LEU:N     | 2.39        | 0.55     |
| 13:S:72:GLU:CB   | 13:S:74:PRO:CD    | 2.84        | 0.55     |
| 21:V:35:LEU:HG   | 21:V:63:HIS:CE1   | 2.42        | 0.55     |
| 2:A:495:G:C2     | 15:W:61:ASN:ND2   | 2.74        | 0.55     |
| 2:A:496:G:P      | 15:W:62:HIS:NE2   | 2.78        | 0.55     |
| 17:Y:51:LEU:O    | 17:Y:52:ARG:CG    | 2.50        | 0.55     |
| 18:Z:18:MET:N    | 18:Z:36:ARG:HG3   | 2.21        | 0.55     |
| 2:A:76:C:O2'     | 22:2:55:ARG:CG    | 2.54        | 0.55     |
| 16:X:24:LEU:C    | 16:X:26:PHE:CZ    | 2.73        | 0.55     |
| 16:X:7:HIS:HB2   | 16:X:8:PRO:HD2    | 1.89        | 0.55     |
| 2:A:176:G:C3'    | 2:A:177:G:C8      | 2.79        | 0.55     |
| 15:W:89:ALA:HB3  | 15:W:92:ARG:H     | 1.71        | 0.55     |
| 16:X:75:GLN:O    | 16:X:77:VAL:C     | 2.45        | 0.55     |
| 2:A:1907:G:C6    | 2:A:1908:C:N4     | 2.74        | 0.55     |
| 2:A:2408:U:H2'   | 2:A:2409:G:O5'    | 2.06        | 0.55     |
| 23:3:9:VAL:HG22  | 23:3:54:VAL:HG12  | 1.87        | 0.55     |
| 25:4:68:ARG:HB2  | 25:4:72:LYS:CG    | 2.36        | 0.55     |
| 26:5:19:ARG:C    | 26:5:21:SER:N     | 2.33        | 0.55     |
| 2:A:127:A:N6     | 28:7:18:PHE:HZ    | 2.04        | 0.55     |
| 29:8:26:LYS:CE   | 29:8:44:LYS:C     | 2.65        | 0.55     |
| 29:8:61:MET:O    | 29:8:62:LEU:HB2   | 2.07        | 0.55     |
| 2:A:1151:G:O2'   | 20:U:81:ASN:CG    | 2.42        | 0.55     |
| 2:A:180:G:OP1    | 28:7:32:ALA:HB1   | 2.06        | 0.55     |
| 2:A:2047:U:H2'   | 2:A:2048:G:H8     | 1.72        | 0.55     |
| 2:A:2314:C:OP1   | 6:G:74:THR:CG2    | 2.52        | 0.55     |
| 2:A:2372:G:H5''  | 2:A:2372:G:C8     | 2.40        | 0.55     |
| 2:A:2460:U:H2'   | 2:A:2461:C:H6     | 1.71        | 0.55     |
| 2:A:2476:A:H2'   | 2:A:2477:C:O4'    | 2.06        | 0.55     |
| 2:A:2533:A:C2'   | 2:A:2534:A:H8     | 2.19        | 0.55     |
| 2:A:2638:G:C8    | 2:A:2775:A:N1     | 2.75        | 0.55     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:164:LEU:O    | 3:D:172:ILE:HG21 | 2.07        | 0.55     |
| 3:D:63:ILE:C     | 3:D:64:ILE:CG1   | 2.55        | 0.55     |
| 4:E:44:TYR:CD2   | 4:E:307:LEU:O    | 2.59        | 0.55     |
| 4:E:44:TYR:CZ    | 4:E:308:VAL:CA   | 2.89        | 0.55     |
| 4:E:319:ASP:O    | 4:E:320:GLN:C    | 2.44        | 0.55     |
| 5:F:34:ALA:HB1   | 5:F:110:ALA:CB   | 2.33        | 0.55     |
| 2:A:675:A:H5'    | 5:F:69:HIS:C     | 2.27        | 0.55     |
| 9:N:103:VAL:CG1  | 9:N:104:TYR:H    | 2.15        | 0.55     |
| 9:N:136:SER:HA   | 9:N:139:LEU:HD22 | 1.88        | 0.55     |
| 9:N:12:VAL:HB    | 9:N:38:VAL:HG22  | 1.87        | 0.55     |
| 9:N:41:ALA:O     | 9:N:42:GLU:C     | 2.44        | 0.55     |
| 2:A:2684:U:C1'   | 10:O:70:ARG:HH22 | 1.95        | 0.55     |
| 10:O:8:LEU:HD23  | 10:O:19:VAL:O    | 2.06        | 0.55     |
| 2:A:911:A:H2'    | 12:Q:16:ARG:HD2  | 1.88        | 0.55     |
| 12:Q:50:VAL:C    | 12:Q:51:GLU:CD   | 2.65        | 0.55     |
| 13:S:83:LEU:CD1  | 13:S:83:LEU:H    | 2.17        | 0.55     |
| 20:U:33:ARG:HA   | 20:U:36:PHE:CD1  | 2.41        | 0.55     |
| 20:U:55:ARG:O    | 20:U:58:ARG:N    | 2.40        | 0.55     |
| 21:V:68:LYS:O    | 21:V:69:ILE:C    | 2.44        | 0.55     |
| 21:V:74:TYR:HE2  | 21:V:88:GLN:NE2  | 2.05        | 0.55     |
| 2:A:993:G:C4'    | 21:V:90:PHE:CZ   | 2.54        | 0.55     |
| 17:Y:55:PHE:CB   | 17:Y:58:GLU:OE2  | 2.50        | 0.55     |
| 18:Z:73:LYS:HG3  | 18:Z:75:LYS:HE3  | 1.87        | 0.55     |
| 2:A:1826:G:H8    | 2:A:1826:G:OP2   | 1.89        | 0.55     |
| 12:Q:105:PHE:HE1 | 24:O:8:GLY:CA    | 2.19        | 0.55     |
| 2:A:1918:A:C8    | 2:A:1918:A:OP2   | 2.60        | 0.55     |
| 2:A:1634:A:O2'   | 2:A:1635:G:OP1   | 2.24        | 0.55     |
| 2:A:120:U:N3     | 2:A:150:C:N4     | 2.55        | 0.55     |
| 2:A:1690:A:H2'   | 2:A:1690:A:N3    | 2.21        | 0.55     |
| 31:K:85:ILE:HG12 | 31:K:87:LYS:O    | 2.06        | 0.55     |
| 1:B:110:G:H2'    | 1:B:111:U:O4'    | 2.07        | 0.55     |
| 25:4:58:LYS:HD3  | 25:4:62:ARG:NH2  | 2.20        | 0.55     |
| 29:8:56:ALA:O    | 29:8:58:MET:N    | 2.40        | 0.55     |
| 29:8:62:LEU:HB2  | 29:8:63:PRO:HD2  | 1.83        | 0.55     |
| 2:A:1799:G:N2    | 3:D:153:LEU:CD1  | 2.68        | 0.55     |
| 2:A:2067:G:O5'   | 2:A:2067:G:H8    | 1.90        | 0.55     |
| 2:A:2086:U:N3    | 2:A:2233:U:C4    | 2.57        | 0.55     |
| 2:A:2291:U:H2'   | 2:A:2292:C:H6    | 1.72        | 0.55     |
| 2:A:2296:U:H3    | 13:S:16:ALA:HA   | 1.72        | 0.55     |
| 2:A:2380:C:H3'   | 2:A:2380:C:C6    | 2.41        | 0.55     |
| 2:A:2412:A:C3'   | 2:A:2413:G:H5'   | 2.36        | 0.55     |
| 2:A:2469:A:H2'   | 2:A:2470:G:H5'   | 1.89        | 0.55     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2481:G:O2'   | 2:A:2482:G:OP2   | 2.22        | 0.55     |
| 2:A:2556:C:HO2'  | 2:A:2557:G:C5'   | 2.16        | 0.55     |
| 2:A:2567:G:C2    | 2:A:2568:C:N4    | 2.74        | 0.55     |
| 2:A:2698:U:C2'   | 2:A:2698:U:O2    | 2.54        | 0.55     |
| 2:A:2727:G:H2'   | 2:A:2728:U:C5    | 2.40        | 0.55     |
| 2:A:2839:G:N2    | 2:A:2840:C:H1'   | 2.21        | 0.55     |
| 2:A:2881:C:C6    | 2:A:2882:A:N7    | 2.75        | 0.55     |
| 2:A:397:G:H5''   | 25:4:59:PHE:CZ   | 2.33        | 0.55     |
| 2:A:447:A:C6     | 2:A:454:A:N7     | 2.75        | 0.55     |
| 2:A:636:G:H3'    | 11:P:126:SER:CB  | 2.37        | 0.55     |
| 3:D:131:LEU:CG   | 3:D:171:VAL:HG21 | 2.35        | 0.55     |
| 3:D:172:ILE:HG12 | 3:D:182:MET:HG3  | 1.88        | 0.55     |
| 4:E:175:ASP:C    | 4:E:177:ALA:N    | 2.56        | 0.55     |
| 9:N:39:VAL:HG12  | 9:N:104:TYR:H    | 1.71        | 0.55     |
| 11:P:113:GLN:O   | 11:P:114:VAL:C   | 2.35        | 0.55     |
| 12:Q:147:VAL:CG1 | 12:Q:148:ASN:N   | 2.69        | 0.55     |
| 19:R:52:ILE:C    | 19:R:54:LEU:N    | 2.51        | 0.55     |
| 13:S:24:LEU:HA   | 13:S:27:LEU:HB2  | 1.89        | 0.55     |
| 2:A:2378:A:C4    | 13:S:26:LEU:HD21 | 2.41        | 0.55     |
| 13:S:31:LYS:HD3  | 13:S:99:GLU:HB2  | 1.88        | 0.55     |
| 20:U:98:ILE:HB   | 20:U:106:PHE:CE1 | 2.42        | 0.55     |
| 21:V:6:GLN:CD    | 21:V:10:LYS:HG2  | 2.27        | 0.55     |
| 21:V:5:ILE:CD1   | 21:V:5:ILE:H     | 2.17        | 0.55     |
| 17:Y:102:ASP:O   | 17:Y:108:ARG:HD3 | 2.05        | 0.55     |
| 17:Y:15:PRO:HD2  | 17:Y:18:GLU:OE2  | 2.07        | 0.55     |
| 18:Z:173:PRO:C   | 18:Z:175:ARG:N   | 2.58        | 0.55     |
| 8:I:104:ALA:O    | 8:I:105:GLN:O    | 2.24        | 0.55     |
| 8:I:95:SER:CA    | 8:I:98:ILE:CB    | 2.83        | 0.55     |
| 3:D:208:GLY:HA3  | 3:D:211:HIS:CD2  | 2.42        | 0.55     |
| 22:2:22:ASP:O    | 22:2:25:THR:N    | 2.40        | 0.55     |
| 22:2:28:LEU:HG   | 22:2:31:ARG:HH21 | 1.72        | 0.55     |
| 22:2:34:GLN:O    | 22:2:35:ALA:C    | 2.44        | 0.55     |
| 2:A:1395:A:P     | 2:A:1603:A:H5''  | 2.47        | 0.55     |
| 16:X:17:ASP:CA   | 16:X:20:PHE:CZ   | 2.89        | 0.55     |
| 2:A:1805:U:H5''  | 3:D:235:PRO:HB3  | 1.86        | 0.55     |
| 2:A:1418:G:N2    | 2:A:1579:A:H62   | 2.04        | 0.55     |
| 14:T:42:LEU:O    | 14:T:44:ARG:CA   | 2.54        | 0.55     |
| 7:H:20:GLY:O     | 7:H:21:ASN:CB    | 2.51        | 0.55     |
| 2:A:1358:G:N7    | 2:A:1371:G:C6    | 2.74        | 0.55     |
| 23:3:7:LYS:O     | 23:3:54:VAL:CG1  | 2.54        | 0.55     |
| 28:7:17:GLY:O    | 28:7:19:ARG:N    | 2.39        | 0.55     |
| 29:8:36:LYS:HG2  | 29:8:40:GLU:OE2  | 2.06        | 0.55     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:990:A:N6     | 2:A:1186:G:H1'    | 2.18        | 0.55     |
| 2:A:2017:U:H3    | 26:5:10:LYS:NZ    | 2.02        | 0.55     |
| 2:A:2100:G:C2    | 2:A:2190:G:C4     | 2.95        | 0.55     |
| 2:A:2349:G:O6    | 2:A:2350:C:C4     | 2.60        | 0.55     |
| 2:A:2354:G:N3    | 2:A:2355:C:C6     | 2.75        | 0.55     |
| 2:A:2410:G:C4    | 2:A:2411:A:C8     | 2.70        | 0.55     |
| 2:A:2466:C:C4    | 2:A:2467:C:C4     | 2.94        | 0.55     |
| 2:A:2564:A:C6    | 2:A:2565:A:N6     | 2.75        | 0.55     |
| 2:A:2678:C:N3    | 2:A:2679:A:C5     | 2.75        | 0.55     |
| 2:A:2703:C:H2'   | 2:A:2704:C:O5'    | 2.03        | 0.55     |
| 2:A:2856:C:H6    | 2:A:2856:C:O5'    | 1.89        | 0.55     |
| 4:E:193:PHE:HD1  | 4:E:193:PHE:H     | 1.54        | 0.55     |
| 5:F:114:ALA:O    | 5:F:115:LEU:C     | 2.43        | 0.55     |
| 5:F:27:ARG:O     | 5:F:28:SER:C      | 2.43        | 0.55     |
| 5:F:60:SER:HB3   | 5:F:69:HIS:CB     | 2.30        | 0.55     |
| 6:G:140:ARG:O    | 6:G:141:VAL:C     | 2.45        | 0.55     |
| 6:G:28:GLY:O     | 6:G:69:ILE:HD11   | 2.05        | 0.55     |
| 7:H:130:ILE:N    | 7:H:130:ILE:CD1   | 2.59        | 0.55     |
| 7:H:85:ALA:CA    | 7:H:131:ILE:HG22  | 2.34        | 0.55     |
| 2:A:2093:G:H5'   | 8:I:25:TYR:CG     | 2.41        | 0.55     |
| 9:N:102:ARG:HB3  | 9:N:104:TYR:OH    | 2.07        | 0.55     |
| 9:N:23:ALA:O     | 9:N:26:VAL:N      | 2.39        | 0.55     |
| 11:P:62:ALA:CB   | 11:P:104:ASP:O    | 2.53        | 0.55     |
| 11:P:110:GLY:CA  | 11:P:129:ALA:HB2  | 2.35        | 0.55     |
| 13:S:38:LYS:CG   | 13:S:106:LEU:HD12 | 2.37        | 0.55     |
| 20:U:25:TRP:CB   | 20:U:28:ARG:NH1   | 2.67        | 0.55     |
| 20:U:61:TRP:O    | 20:U:65:ILE:CB    | 2.53        | 0.55     |
| 15:W:11:ARG:O    | 15:W:12:ILE:CB    | 2.55        | 0.55     |
| 15:W:14:PRO:HG2  | 15:W:99:ARG:HB2   | 1.89        | 0.55     |
| 17:Y:78:THR:HG22 | 17:Y:89:ARG:N     | 2.21        | 0.55     |
| 18:Z:172:LEU:O   | 18:Z:174:PRO:CD   | 2.55        | 0.55     |
| 18:Z:45:GLN:CA   | 18:Z:45:GLN:NE2   | 2.69        | 0.55     |
| 18:Z:4:THR:O     | 18:Z:34:LEU:N     | 2.39        | 0.55     |
| 2:A:7:G:OP1      | 9:N:6:PHE:CZ      | 2.53        | 0.55     |
| 4:E:107:GLU:CG   | 4:E:110:ARG:CZ    | 2.85        | 0.55     |
| 8:I:60:GLU:C     | 8:I:62:LEU:N      | 2.59        | 0.55     |
| 2:A:551:G:H4'    | 2:A:1220:A:H2     | 1.69        | 0.55     |
| 2:A:666:G:H2'    | 2:A:667:U:H6      | 1.72        | 0.55     |
| 24:0:39:ARG:HG2  | 24:0:69:PHE:HZ    | 1.61        | 0.55     |
| 23:3:50:VAL:HB   | 23:3:53:LEU:HB2   | 1.89        | 0.55     |
| 2:A:458:G:C2'    | 28:7:40:HIS:CE1   | 2.74        | 0.55     |
| 2:A:1255:U:H5''  | 2:A:1256:G:C5'    | 2.36        | 0.55     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2189:U:O2'    | 2:A:2190:G:O4'   | 2.25        | 0.55     |
| 2:A:2250:G:H5'    | 12:Q:102:ARG:CD  | 2.25        | 0.55     |
| 2:A:2256:G:N1     | 2:A:2257:U:N3    | 2.55        | 0.55     |
| 2:A:2306:C:H3'    | 2:A:2306:C:C6    | 2.41        | 0.55     |
| 2:A:2317:C:H4'    | 6:G:150:SER:HB3  | 1.87        | 0.55     |
| 2:A:2327:A:N7     | 2:A:2388:A:C6    | 2.73        | 0.55     |
| 2:A:2385:C:O2     | 2:A:2385:C:H2'   | 2.05        | 0.55     |
| 2:A:247:G:H4'     | 2:A:386:G:C4     | 2.41        | 0.55     |
| 2:A:248:G:N3      | 2:A:2431:U:H4'   | 2.21        | 0.55     |
| 2:A:1669:A:C3'    | 2:A:2550:G:OP1   | 2.54        | 0.55     |
| 2:A:2693:A:C6     | 2:A:2694:G:O6    | 2.60        | 0.55     |
| 2:A:2693:A:N3     | 2:A:2694:G:C8    | 2.75        | 0.55     |
| 2:A:533:G:HO2'    | 20:U:45:TYR:HD2  | 1.53        | 0.55     |
| 3:D:143:ILE:CD1   | 3:D:153:LEU:N    | 2.67        | 0.55     |
| 3:D:144:GLU:HG3   | 3:D:188:ARG:HB2  | 1.88        | 0.55     |
| 5:F:111:VAL:O     | 5:F:115:LEU:N    | 2.33        | 0.55     |
| 5:F:223:LEU:C     | 5:F:225:PRO:N    | 2.59        | 0.55     |
| 5:F:79:ARG:CG     | 5:F:79:ARG:O     | 2.54        | 0.55     |
| 7:H:41:THR:H      | 7:H:54:PRO:HG3   | 1.72        | 0.55     |
| 7:H:67:THR:HA     | 7:H:70:LEU:CB    | 2.36        | 0.55     |
| 8:I:5:PHE:CB      | 8:I:17:GLU:O     | 2.49        | 0.55     |
| 9:N:57:TYR:HB2    | 9:N:135:ILE:HG21 | 1.89        | 0.55     |
| 10:O:102:VAL:HG12 | 10:O:103:ALA:H   | 1.71        | 0.55     |
| 12:Q:84:ARG:O     | 12:Q:85:ILE:HG23 | 2.07        | 0.55     |
| 21:V:43:GLU:C     | 21:V:44:GLN:HE22 | 2.04        | 0.55     |
| 17:Y:46:ASP:N     | 17:Y:62:VAL:HB   | 2.13        | 0.55     |
| 17:Y:71:VAL:HA    | 17:Y:93:THR:HG22 | 1.88        | 0.55     |
| 18:Z:172:LEU:HD21 | 18:Z:173:PRO:CG  | 2.29        | 0.55     |
| 18:Z:37:LYS:HA    | 18:Z:40:ASP:CG   | 2.26        | 0.55     |
| 18:Z:75:LYS:O     | 18:Z:76:ARG:CB   | 2.55        | 0.55     |
| 8:I:77:VAL:CG1    | 8:I:143:VAL:HA   | 2.36        | 0.55     |
| 22:2:2:VAL:N      | 22:2:4:HIS:HE1   | 1.82        | 0.55     |
| 2:A:147:U:H2'     | 2:A:148:C:O4'    | 2.07        | 0.55     |
| 16:X:7:HIS:HB2    | 16:X:8:PRO:HD3   | 1.87        | 0.55     |
| 4:E:107:GLU:HG2   | 4:E:110:ARG:CZ   | 2.37        | 0.55     |
| 2:A:359:A:C2      | 2:A:361:G:N2     | 2.74        | 0.55     |
| 1:B:15:A:H5'      | 1:B:16:G:C8      | 2.41        | 0.55     |
| 2:A:284:U:H2'     | 2:A:285:C:C6     | 2.40        | 0.55     |
| 1:B:95:U:H2'      | 1:B:96:G:C8      | 2.42        | 0.55     |
| 24:0:22:GLY:O     | 24:0:23:VAL:C    | 2.45        | 0.55     |
| 23:3:19:GLN:N     | 23:3:19:GLN:OE1  | 2.39        | 0.55     |
| 25:4:63:PHE:O     | 25:4:64:GLY:C    | 2.44        | 0.55     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1005:C:H1'   | 9:N:21:ARG:HG3   | 1.89        | 0.55     |
| 2:A:1653:G:H8    | 2:A:1653:G:H5''  | 1.72        | 0.55     |
| 2:A:1665:A:C1'   | 10:O:67:ARG:HD3  | 2.36        | 0.55     |
| 2:A:16:G:O6      | 2:A:525:U:C4     | 2.59        | 0.55     |
| 2:A:752:A:N7     | 2:A:1781:C:O2    | 2.40        | 0.55     |
| 2:A:2196:C:H2'   | 2:A:2196:C:O2    | 2.05        | 0.55     |
| 2:A:2319:G:C5'   | 13:S:9:PRO:HD2   | 2.36        | 0.55     |
| 2:A:826:U:OP1    | 2:A:2428:G:H8    | 1.89        | 0.55     |
| 2:A:199:A:C6     | 2:A:2434:A:N1    | 2.75        | 0.55     |
| 2:A:2462:U:C4    | 2:A:2463:C:C4    | 2.95        | 0.55     |
| 2:A:2521:C:C2    | 2:A:2522:U:H6    | 2.14        | 0.55     |
| 2:A:2603:G:N1    | 2:A:2604:U:C4    | 2.74        | 0.55     |
| 2:A:10:G:N2      | 2:A:2629:A:C4    | 2.75        | 0.55     |
| 2:A:2657:A:N1    | 2:A:2665:A:C8    | 2.74        | 0.55     |
| 2:A:2725:A:H2'   | 2:A:2726:U:H5''  | 1.87        | 0.55     |
| 2:A:2678:C:N4    | 2:A:2729:G:H1    | 2.05        | 0.55     |
| 2:A:2791:C:O2'   | 2:A:2792:G:O4'   | 2.20        | 0.55     |
| 2:A:600:G:C5'    | 5:F:27:ARG:NH1   | 2.45        | 0.55     |
| 6:G:29:HIS:CD2   | 6:G:29:HIS:O     | 2.60        | 0.55     |
| 7:H:40:MET:CB    | 7:H:54:PRO:HG3   | 2.37        | 0.55     |
| 9:N:25:GLN:O     | 9:N:27:ALA:C     | 2.45        | 0.55     |
| 9:N:38:VAL:HG12  | 9:N:39:VAL:H     | 1.70        | 0.55     |
| 9:N:58:GLU:CB    | 9:N:61:VAL:HG21  | 2.37        | 0.55     |
| 10:O:110:ASP:C   | 10:O:111:PHE:CG  | 2.71        | 0.55     |
| 11:P:120:LEU:C   | 11:P:120:LEU:CD1 | 2.75        | 0.55     |
| 11:P:92:ASP:HB3  | 11:P:118:LEU:CB  | 2.37        | 0.55     |
| 13:S:40:ASN:CA   | 13:S:114:LYS:NZ  | 2.46        | 0.55     |
| 20:U:24:PHE:CD1  | 20:U:28:ARG:HG3  | 2.42        | 0.55     |
| 18:Z:106:GLY:N   | 18:Z:142:ASN:ND2 | 2.42        | 0.55     |
| 18:Z:111:GLY:O   | 18:Z:174:PRO:HG3 | 2.06        | 0.55     |
| 16:X:30:ASP:HB3  | 16:X:62:LYS:HB2  | 1.89        | 0.55     |
| 8:I:62:LEU:O     | 8:I:66:LYS:CE    | 2.48        | 0.55     |
| 2:A:184:C:H2'    | 2:A:185:U:C6     | 2.42        | 0.55     |
| 21:V:38:LEU:HD23 | 21:V:38:LEU:H    | 1.70        | 0.55     |
| 2:A:153:C:H1'    | 2:A:175:G:N2     | 2.22        | 0.55     |
| 24:O:31:VAL:HG12 | 24:O:32:LYS:N    | 2.21        | 0.55     |
| 24:O:68:VAL:O    | 24:O:69:PHE:CB   | 2.54        | 0.55     |
| 2:A:1364:G:C6    | 25:4:2:GLN:OE1   | 2.60        | 0.55     |
| 2:A:2094:G:N1    | 2:A:2196:C:C4    | 2.66        | 0.55     |
| 2:A:2080:G:C6    | 2:A:2241:A:N6    | 2.75        | 0.55     |
| 2:A:2331:G:H2'   | 2:A:2332:U:C1'   | 2.37        | 0.55     |
| 2:A:2370:G:H2'   | 2:A:2371:G:O5'   | 2.05        | 0.55     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2392:A:N7    | 2:A:2393:A:N7    | 2.54        | 0.55     |
| 2:A:2395:C:H4'   | 25:4:28:ARG:CD   | 2.32        | 0.55     |
| 2:A:2450:A:H5''  | 2:A:2497:A:H62   | 0.72        | 0.55     |
| 2:A:2051:A:C5    | 2:A:2614:A:C5    | 2.94        | 0.55     |
| 2:A:2767:C:C4    | 2:A:2768:C:C4    | 2.94        | 0.55     |
| 2:A:2804:C:C5    | 2:A:2805:G:O6    | 2.43        | 0.55     |
| 2:A:2807:G:C8    | 2:A:2808:U:H5    | 2.25        | 0.55     |
| 2:A:30:G:H2'     | 2:A:31:C:C6      | 2.41        | 0.55     |
| 2:A:971:C:N4     | 2:A:972:G:H21    | 2.05        | 0.55     |
| 4:E:190:ASN:C    | 4:E:192:ILE:N    | 2.60        | 0.55     |
| 5:F:11:ASN:ND2   | 5:F:160:LEU:HD11 | 2.21        | 0.55     |
| 6:G:142:ALA:HB2  | 6:G:151:ILE:HG13 | 1.83        | 0.55     |
| 9:N:24:SER:OG    | 9:N:25:GLN:N     | 2.40        | 0.55     |
| 10:O:66:LYS:H    | 10:O:82:ASN:ND2  | 2.04        | 0.55     |
| 12:Q:49:VAL:HG21 | 12:Q:119:ASN:C   | 2.27        | 0.55     |
| 12:Q:85:ILE:HA   | 12:Q:122:PHE:CA  | 2.37        | 0.55     |
| 19:R:18:LEU:O    | 19:R:20:LEU:N    | 2.39        | 0.55     |
| 19:R:58:GLY:CA   | 19:R:80:PHE:CZ   | 2.76        | 0.55     |
| 19:R:85:PRO:C    | 19:R:87:TYR:N    | 2.40        | 0.55     |
| 13:S:116:PHE:O   | 13:S:120:GLU:OE2 | 2.25        | 0.55     |
| 14:T:37:GLU:O    | 14:T:38:ASN:C    | 2.44        | 0.55     |
| 2:A:974:G:C5     | 21:V:80:TYR:CZ   | 2.95        | 0.55     |
| 2:A:1223:C:N4    | 21:V:87:ARG:CZ   | 2.70        | 0.55     |
| 15:W:66:GLU:O    | 15:W:68:ARG:N    | 2.39        | 0.55     |
| 17:Y:67:LEU:O    | 17:Y:68:ASP:C    | 2.45        | 0.55     |
| 18:Z:3:LEU:O     | 18:Z:56:VAL:HG22 | 2.07        | 0.55     |
| 18:Z:37:LYS:O    | 18:Z:41:ARG:HD2  | 2.06        | 0.55     |
| 2:A:729:G:H8     | 2:A:764:A:P      | 2.30        | 0.55     |
| 2:A:5:A:C6       | 2:A:2899:G:N1    | 2.75        | 0.55     |
| 2:A:1609:A:C5    | 2:A:1616:A:C2    | 2.95        | 0.55     |
| 2:A:1899:G:H22   | 2:A:1902:C:H41   | 1.54        | 0.55     |
| 23:3:1:MET:O     | 23:3:3:ARG:HG3   | 2.07        | 0.55     |
| 2:A:1809:A:N6    | 25:4:3:LYS:CG    | 2.63        | 0.55     |
| 27:6:46:LYS:CA   | 27:6:46:LYS:CE   | 2.84        | 0.55     |
| 28:7:38:GLY:O    | 28:7:39:ARG:CG   | 2.55        | 0.55     |
| 29:8:9:MET:HA    | 29:8:12:ARG:HG2  | 1.88        | 0.55     |
| 2:A:1129:A:C2    | 2:A:2570:G:N9    | 2.75        | 0.55     |
| 2:A:2209:C:N4    | 2:A:2215:G:C6    | 2.73        | 0.55     |
| 2:A:2319:G:OP1   | 13:S:9:PRO:CD    | 2.55        | 0.55     |
| 2:A:2355:C:O2    | 2:A:2355:C:H2'   | 2.06        | 0.55     |
| 2:A:2355:C:C4    | 2:A:2356:C:C4    | 2.95        | 0.55     |
| 2:A:2392:A:N6    | 2:A:2393:A:N6    | 2.54        | 0.55     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2478:A:H1'   | 2:A:2529:G:N7    | 2.22        | 0.55     |
| 2:A:2494:G:C2    | 2:A:2495:G:C4    | 2.93        | 0.55     |
| 2:A:2491:U:H5'   | 2:A:2570:G:H5'   | 1.89        | 0.55     |
| 2:A:2570:G:C3'   | 2:A:2571:C:H6    | 2.17        | 0.55     |
| 2:A:2589:A:C5    | 2:A:2590:A:C8    | 2.93        | 0.55     |
| 2:A:2862:G:HO2'  | 2:A:2863:C:C1'   | 2.20        | 0.55     |
| 2:A:2880:C:H1'   | 19:R:92:GLY:O    | 2.06        | 0.55     |
| 2:A:687:C:C4'    | 28:7:4:THR:CG2   | 2.85        | 0.55     |
| 2:A:857:C:H42    | 2:A:920:G:H1     | 1.55        | 0.55     |
| 2:A:929:G:H21    | 23:3:42:ALA:C    | 2.10        | 0.55     |
| 2:A:931:G:H2'    | 2:A:932:G:N9     | 2.20        | 0.55     |
| 2:A:974(A):C:H6  | 2:A:1186:G:N1    | 2.04        | 0.55     |
| 3:D:63:ILE:O     | 3:D:64:ILE:HG23  | 2.05        | 0.55     |
| 4:E:210:THR:HA   | 4:E:216:ARG:HH21 | 1.57        | 0.55     |
| 4:E:269:ILE:HA   | 4:E:297:LYS:CE   | 2.37        | 0.55     |
| 6:G:19:GLU:HB2   | 6:G:135:VAL:HG11 | 1.88        | 0.55     |
| 8:I:7:LYS:HB2    | 8:I:12:LYS:HZ2   | 1.72        | 0.55     |
| 13:S:116:PHE:C   | 13:S:120:GLU:OE1 | 2.41        | 0.55     |
| 13:S:39:SER:O    | 13:S:41:LYS:N    | 2.40        | 0.55     |
| 20:U:69:ALA:HA   | 20:U:79:PHE:CE2  | 2.41        | 0.55     |
| 2:A:1151:G:O3'   | 20:U:81:ASN:CG   | 2.44        | 0.55     |
| 21:V:78:VAL:CB   | 21:V:80:TYR:CD1  | 2.88        | 0.55     |
| 15:W:68:ARG:NE   | 15:W:110:LYS:HB3 | 2.22        | 0.55     |
| 17:Y:51:LEU:N    | 17:Y:51:LEU:CD1  | 2.61        | 0.55     |
| 17:Y:51:LEU:CD1  | 17:Y:97:ARG:CG   | 2.80        | 0.55     |
| 18:Z:38:ALA:O    | 18:Z:40:ASP:N    | 2.39        | 0.55     |
| 8:I:122:ARG:C    | 8:I:124:LEU:H    | 2.11        | 0.55     |
| 8:I:76:THR:CB    | 8:I:144:HIS:HE1  | 2.19        | 0.55     |
| 3:D:213:LYS:CB   | 3:D:215:LYS:CA   | 2.80        | 0.55     |
| 16:X:50:GLU:OE1  | 16:X:50:GLU:CA   | 2.55        | 0.55     |
| 2:A:1055:G:H3'   | 2:A:1056:G:OP2   | 2.06        | 0.55     |
| 15:W:88:ARG:C    | 15:W:91:GLY:H    | 2.10        | 0.55     |
| 2:A:1482:U:C1'   | 2:A:1512:G:H22   | 2.20        | 0.55     |
| 2:A:1416:G:H1'   | 2:A:1583:A:C2    | 2.42        | 0.55     |
| 2:A:1303:G:H5'   | 2:A:1642:G:H21   | 1.72        | 0.55     |
| 2:A:1906:G:N9    | 2:A:1929:G:C8    | 2.75        | 0.55     |
| 2:A:1802:A:H61   | 2:A:1822:G:H1'   | 1.72        | 0.55     |
| 2:A:363(A):A:H2' | 2:A:363(A):A:N3  | 2.20        | 0.55     |
| 27:6:13:GLU:O    | 27:6:52:GLU:HA   | 2.06        | 0.54     |
| 27:6:42:PRO:HD3  | 27:6:50:PHE:CZ   | 2.42        | 0.54     |
| 2:A:2246:G:N3    | 2:A:2247:A:N7    | 2.56        | 0.54     |
| 2:A:2289:G:N2    | 2:A:2290:G:C4    | 2.76        | 0.54     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2304:G:H4'    | 6:G:105:SER:C    | 2.27        | 0.54     |
| 2:A:2355:C:H5'    | 24:O:21:LEU:CD2  | 2.36        | 0.54     |
| 2:A:2384:G:C3'    | 2:A:2386:C:OP2   | 2.55        | 0.54     |
| 2:A:2396:G:O2'    | 25:4:27:THR:N    | 2.33        | 0.54     |
| 2:A:2400:G:N2     | 2:A:2401:U:O2    | 2.40        | 0.54     |
| 2:A:2414:G:H2'    | 2:A:2415:G:C8    | 2.42        | 0.54     |
| 2:A:830:G:O6      | 2:A:2446:G:O4'   | 2.24        | 0.54     |
| 2:A:2472:G:H2'    | 2:A:2475:C:C4    | 2.39        | 0.54     |
| 2:A:2676:C:H2'    | 2:A:2677:G:O5'   | 2.07        | 0.54     |
| 2:A:2698:U:N3     | 2:A:2699:C:H5    | 1.87        | 0.54     |
| 2:A:2821:A:C2     | 2:A:2822:G:C6    | 2.89        | 0.54     |
| 2:A:2853:C:O2'    | 2:A:2854:G:H5'   | 2.08        | 0.54     |
| 3:D:143:ILE:CG1   | 3:D:153:LEU:CB   | 2.78        | 0.54     |
| 3:D:156:ALA:HB1   | 3:D:196:ASN:HB3  | 1.88        | 0.54     |
| 4:E:205:THR:N     | 4:E:259:HIS:O    | 2.39        | 0.54     |
| 5:F:81:PRO:O      | 5:F:82:GLN:CG    | 2.55        | 0.54     |
| 7:H:100:LYS:O     | 7:H:100:LYS:HG3  | 2.07        | 0.54     |
| 7:H:126:SER:O     | 7:H:127:GLN:C    | 2.45        | 0.54     |
| 7:H:82:TYR:CZ     | 7:H:137:LYS:HG2  | 2.41        | 0.54     |
| 7:H:32:LEU:HD21   | 7:H:34:ARG:HB2   | 1.89        | 0.54     |
| 10:O:104:ARG:HH12 | 10:O:122:ILE:HA  | 1.71        | 0.54     |
| 10:O:60:ALA:HB1   | 10:O:85:VAL:O    | 2.07        | 0.54     |
| 19:R:104:ARG:CA   | 19:R:105:ARG:NH2 | 2.43        | 0.54     |
| 19:R:72:ASP:C     | 19:R:76:VAL:HG21 | 2.27        | 0.54     |
| 19:R:81:ASP:O     | 19:R:85:PRO:CD   | 2.54        | 0.54     |
| 19:R:84:ALA:O     | 19:R:87:TYR:HB2  | 2.07        | 0.54     |
| 13:S:114:LYS:O    | 13:S:115:VAL:O   | 2.24        | 0.54     |
| 20:U:43:ALA:HA    | 20:U:46:GLU:CD   | 2.28        | 0.54     |
| 17:Y:74:VAL:HG12  | 17:Y:77:VAL:CG2  | 2.19        | 0.54     |
| 18:Z:124:ALA:H    | 18:Z:159:THR:CG2 | 2.18        | 0.54     |
| 18:Z:66:VAL:HG23  | 18:Z:68:ALA:O    | 2.07        | 0.54     |
| 2:A:1566:A:N3     | 3:D:212:HIS:CB   | 2.70        | 0.54     |
| 22:2:31:ARG:O     | 22:2:34:GLN:N    | 2.38        | 0.54     |
| 2:A:59:U:C2       | 2:A:73:A:C2      | 2.95        | 0.54     |
| 16:X:40:ALA:N     | 16:X:43:GLU:OE1  | 2.40        | 0.54     |
| 2:A:1526:G:N2     | 2:A:545(A):A:C8  | 2.71        | 0.54     |
| 2:A:1071:G:C2     | 2:A:1089:G:H2'   | 2.41        | 0.54     |
| 2:A:1179:C:H2'    | 2:A:1180:C:C6    | 2.42        | 0.54     |
| 24:O:86:THR:O     | 24:O:87:GLU:C    | 2.45        | 0.54     |
| 26:5:42:SER:O     | 26:5:43:HIS:ND1  | 2.40        | 0.54     |
| 29:8:54:GLU:O     | 29:8:55:TRP:C    | 2.43        | 0.54     |
| 2:A:563:G:C6      | 2:A:2018:G:C5    | 2.95        | 0.54     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:2075:U:O4   | 2:A:2238:G:C6    | 2.57        | 0.54     |
| 2:A:2321:G:C2'  | 2:A:2321:G:N3    | 2.70        | 0.54     |
| 2:A:2454:G:N1   | 2:A:2455:G:C4    | 2.74        | 0.54     |
| 2:A:2455:G:N2   | 2:A:2498:C:N4    | 2.55        | 0.54     |
| 2:A:2510:C:N4   | 2:A:2511:U:O4    | 2.41        | 0.54     |
| 2:A:2558:C:C2'  | 2:A:2559:C:H5'   | 2.37        | 0.54     |
| 2:A:2575:C:C5'  | 2:A:2576:G:OP2   | 2.52        | 0.54     |
| 2:A:2610:C:O4'  | 2:A:2610:C:OP2   | 2.25        | 0.54     |
| 2:A:2691:C:O4'  | 2:A:2872:G:N7    | 2.40        | 0.54     |
| 2:A:2737:G:C2   | 2:A:2738:A:C8    | 2.95        | 0.54     |
| 2:A:2740:A:C2   | 2:A:2764:A:N3    | 2.75        | 0.54     |
| 2:A:2799:A:O5'  | 2:A:2801:A:OP2   | 2.25        | 0.54     |
| 2:A:2630:G:H2'  | 2:A:2892:A:O2'   | 2.07        | 0.54     |
| 2:A:683:C:N4    | 2:A:684:G:O6     | 2.39        | 0.54     |
| 2:A:830:G:C6    | 2:A:2446:G:O4'   | 2.61        | 0.54     |
| 3:D:174:ARG:HD3 | 3:D:180:VAL:HG22 | 1.88        | 0.54     |
| 4:E:42:ALA:N    | 4:E:189:MET:HE1  | 2.02        | 0.54     |
| 6:G:25:MET:SD   | 6:G:129:ASP:CB   | 2.91        | 0.54     |
| 7:H:115:GLU:OE1 | 7:H:115:GLU:O    | 2.25        | 0.54     |
| 7:H:34:ARG:HD2  | 7:H:36:PHE:HZ    | 1.69        | 0.54     |
| 11:P:115:ARG:O  | 11:P:117:GLU:N   | 2.40        | 0.54     |
| 12:Q:66:ASN:O   | 12:Q:69:ASN:N    | 2.40        | 0.54     |
| 19:R:64:ARG:HG2 | 19:R:65:LEU:N    | 2.22        | 0.54     |
| 10:O:79:PHE:CA  | 14:T:22:VAL:HG22 | 2.24        | 0.54     |
| 20:U:28:ARG:CA  | 20:U:31:GLN:CB   | 2.69        | 0.54     |
| 21:V:19:VAL:CG1 | 21:V:21:ARG:HH22 | 2.14        | 0.54     |
| 15:W:99:ARG:CA  | 15:W:100:THR:N   | 2.68        | 0.54     |
| 15:W:25:ARG:CG  | 15:W:26:GLY:N    | 2.71        | 0.54     |
| 17:Y:47:THR:O   | 17:Y:98:VAL:HA   | 2.06        | 0.54     |
| 3:D:209:ASN:O   | 3:D:210:LYS:C    | 2.45        | 0.54     |
| 2:A:1614:A:C6   | 15:W:88:ARG:HG3  | 2.43        | 0.54     |
| 2:A:1912:A:C8   | 2:A:1913:A:H1'   | 2.41        | 0.54     |
| 17:Y:83:ASP:N   | 17:Y:83:ASP:OD1  | 2.40        | 0.54     |
| 2:A:715:G:H5'   | 2:A:715:G:H8     | 1.72        | 0.54     |
| 2:A:215:G:H4'   | 2:A:216:A:O5'    | 2.07        | 0.54     |
| 25:4:41:PRO:CB  | 25:4:57:ASP:CG   | 2.73        | 0.54     |
| 25:4:5:LEU:HD21 | 25:4:9:ALA:HA    | 1.90        | 0.54     |
| 28:7:30:ILE:N   | 28:7:33:ARG:HG3  | 2.22        | 0.54     |
| 29:8:54:GLU:O   | 29:8:55:TRP:O    | 2.25        | 0.54     |
| 2:A:582:G:H1    | 2:A:1258:C:H42   | 1.55        | 0.54     |
| 2:A:1264:G:O6   | 2:A:1265:A:N6    | 2.40        | 0.54     |
| 2:A:1666:G:O2'  | 10:O:6:SER:CB    | 2.42        | 0.54     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2228:G:H5''   | 2:A:2229:C:C5    | 2.42        | 0.54     |
| 2:A:2281:C:H6     | 2:A:2281:C:OP2   | 1.90        | 0.54     |
| 2:A:2292:C:N4     | 2:A:2340:G:H1    | 2.04        | 0.54     |
| 2:A:2354:G:P      | 24:0:31:VAL:HG21 | 2.47        | 0.54     |
| 2:A:2471:C:C2     | 2:A:2479:G:N2    | 2.65        | 0.54     |
| 2:A:2693:A:C2     | 2:A:2694:G:C8    | 2.95        | 0.54     |
| 2:A:2716:U:C2     | 2:A:2717:G:C8    | 2.96        | 0.54     |
| 2:A:781:A:H5'     | 2:A:782:A:H8     | 1.73        | 0.54     |
| 4:E:296:VAL:HG12  | 4:E:297:LYS:N    | 2.22        | 0.54     |
| 2:A:2679:A:H2'    | 4:E:300:VAL:HG13 | 1.89        | 0.54     |
| 4:E:44:TYR:HA     | 4:E:307:LEU:O    | 2.08        | 0.54     |
| 5:F:140:VAL:HB    | 5:F:235:PHE:C    | 2.27        | 0.54     |
| 5:F:144:PHE:C     | 5:F:146:ASP:N    | 2.45        | 0.54     |
| 5:F:163:HIS:CD2   | 5:F:166:ILE:HD11 | 2.41        | 0.54     |
| 5:F:238:SER:HA    | 5:F:241:ALA:HB2  | 1.89        | 0.54     |
| 5:F:57:PRO:O      | 5:F:79:ARG:CB    | 2.48        | 0.54     |
| 6:G:29:HIS:HE1    | 6:G:64:ARG:NH1   | 1.81        | 0.54     |
| 7:H:122:ILE:C     | 7:H:123:GLU:OE2  | 2.46        | 0.54     |
| 7:H:143:LEU:CG    | 7:H:144:ALA:N    | 2.70        | 0.54     |
| 7:H:15:THR:O      | 7:H:25:VAL:HA    | 2.08        | 0.54     |
| 9:N:136:SER:CA    | 9:N:139:LEU:HD22 | 2.38        | 0.54     |
| 9:N:15:ARG:CG     | 9:N:43:ARG:CB    | 2.85        | 0.54     |
| 10:O:66:LYS:H     | 10:O:82:ASN:HD22 | 1.54        | 0.54     |
| 10:O:66:LYS:HZ1   | 10:O:67:ARG:NE   | 2.03        | 0.54     |
| 11:P:92:ASP:HB3   | 11:P:118:LEU:CG  | 2.34        | 0.54     |
| 13:S:63:SER:O     | 13:S:68:GLU:HA   | 2.08        | 0.54     |
| 13:S:76:GLY:C     | 13:S:80:SER:O    | 2.45        | 0.54     |
| 14:T:5:GLU:O      | 14:T:8:TYR:C     | 2.45        | 0.54     |
| 21:V:50:ASP:CB    | 21:V:53:LYS:H    | 2.20        | 0.54     |
| 15:W:50:VAL:CG1   | 15:W:50:VAL:O    | 2.54        | 0.54     |
| 17:Y:103:LEU:HD11 | 17:Y:113:GLU:CB  | 2.36        | 0.54     |
| 17:Y:55:PHE:CZ    | 17:Y:89:ARG:NE   | 2.63        | 0.54     |
| 17:Y:51:LEU:CD2   | 17:Y:95:ASN:CB   | 2.86        | 0.54     |
| 8:I:68:LEU:CD2    | 8:I:72:LEU:HD21  | 2.37        | 0.54     |
| 16:X:22:ASN:C     | 16:X:68:LEU:HD11 | 2.27        | 0.54     |
| 31:K:19:THR:N     | 31:K:20:PRO:CD   | 2.68        | 0.54     |
| 26:5:34:PRO:HG3   | 26:5:36:CYS:SG   | 2.41        | 0.54     |
| 24:0:30:VAL:HG23  | 24:0:62:LEU:HB3  | 1.90        | 0.54     |
| 2:A:2386:C:C1'    | 24:0:39:ARG:NH2  | 2.69        | 0.54     |
| 27:6:28:ARG:HH11  | 27:6:28:ARG:HB2  | 1.66        | 0.54     |
| 29:8:16:ILE:N     | 29:8:16:ILE:CD1  | 2.64        | 0.54     |
| 30:9:18:ARG:HA    | 30:9:22:ARG:O    | 2.07        | 0.54     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1264:G:OP1   | 26:5:16:ARG:CG   | 2.47        | 0.54     |
| 2:A:2348:U:H3'   | 29:8:42:ARG:CZ   | 2.38        | 0.54     |
| 2:A:2468:G:O6    | 2:A:2481:G:O6    | 2.19        | 0.54     |
| 2:A:2479:G:C6    | 2:A:2480:C:N3    | 2.75        | 0.54     |
| 2:A:2607:G:C2'   | 2:A:2608:G:C5'   | 2.73        | 0.54     |
| 2:A:2694:G:C6    | 2:A:2695:C:C4    | 2.96        | 0.54     |
| 2:A:2725:A:N1    | 2:A:2727:G:H1'   | 2.22        | 0.54     |
| 2:A:2759:G:H2'   | 2:A:2760:C:C5'   | 2.38        | 0.54     |
| 2:A:2839:G:H21   | 2:A:2840:C:H1'   | 1.73        | 0.54     |
| 2:A:2864:G:O2'   | 2:A:2865:U:C1'   | 2.54        | 0.54     |
| 2:A:531:C:OP1    | 2:A:561:G:N1     | 2.40        | 0.54     |
| 2:A:1819:A:P     | 3:D:154:VAL:N    | 2.80        | 0.54     |
| 4:E:242:ASN:HD22 | 4:E:242:ASN:N    | 2.03        | 0.54     |
| 4:E:311:PHE:C    | 4:E:312:ARG:HG3  | 2.27        | 0.54     |
| 5:F:150:THR:CG2  | 5:F:207:LEU:HD21 | 2.38        | 0.54     |
| 5:F:200:PRO:CB   | 5:F:205:ARG:HD3  | 2.37        | 0.54     |
| 2:A:451:C:P      | 5:F:49:ASP:HB2   | 2.47        | 0.54     |
| 7:H:101:LYS:NZ   | 7:H:115:GLU:HG3  | 2.20        | 0.54     |
| 7:H:90:GLY:CA    | 7:H:159:LYS:CE   | 2.85        | 0.54     |
| 8:I:40:THR:O     | 8:I:41:PRO:C     | 2.45        | 0.54     |
| 9:N:15:ARG:CG    | 9:N:43:ARG:HB3   | 2.30        | 0.54     |
| 11:P:65:ASP:OD1  | 11:P:68:GLU:OE1  | 2.26        | 0.54     |
| 11:P:96:VAL:HG23 | 11:P:101:ASP:N   | 2.21        | 0.54     |
| 2:A:911:A:N1     | 12:Q:16:ARG:HG2  | 2.19        | 0.54     |
| 2:A:2379:G:P     | 13:S:30:GLY:HA2  | 2.47        | 0.54     |
| 13:S:92:ALA:C    | 13:S:94:GLU:H    | 2.10        | 0.54     |
| 14:T:6:CYS:O     | 14:T:7:ASP:OD2   | 2.25        | 0.54     |
| 20:U:41:ASN:CG   | 20:U:42:ALA:H    | 2.07        | 0.54     |
| 20:U:70:ARG:HA   | 20:U:74:MET:O    | 2.08        | 0.54     |
| 20:U:74:MET:HE2  | 20:U:78:THR:CB   | 2.35        | 0.54     |
| 20:U:7:GLY:CA    | 20:U:8:ILE:CD1   | 2.80        | 0.54     |
| 21:V:74:TYR:CE1  | 21:V:86:HIS:C    | 2.80        | 0.54     |
| 15:W:75:TYR:HE1  | 15:W:104:THR:HG1 | 1.33        | 0.54     |
| 17:Y:47:THR:HG22 | 17:Y:100:ASP:O   | 2.07        | 0.54     |
| 17:Y:31:LEU:HB3  | 17:Y:113:GLU:CD  | 2.27        | 0.54     |
| 18:Z:140:LYS:N   | 18:Z:141:MET:SD  | 2.80        | 0.54     |
| 16:X:23:LYS:O    | 16:X:68:LEU:HD22 | 2.05        | 0.54     |
| 7:H:108:TYR:O    | 7:H:109:SER:CB   | 2.47        | 0.54     |
| 2:A:1472:A:C2'   | 2:A:1473:G:C8    | 2.86        | 0.54     |
| 2:A:286:C:H2'    | 2:A:287:C:C5'    | 2.37        | 0.54     |
| 2:A:1632:A:O5'   | 2:A:1632:A:H8    | 1.90        | 0.54     |
| 25:4:23:GLU:O    | 25:4:26:SER:O    | 2.25        | 0.54     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 29:8:7:HIS:C    | 29:8:10:ALA:HB3  | 2.21        | 0.54     |
| 29:8:36:LYS:HE2 | 29:8:40:GLU:CD   | 2.27        | 0.54     |
| 2:A:818:G:C5    | 2:A:1187:G:C2    | 2.95        | 0.54     |
| 2:A:2299:G:C6   | 2:A:2300:G:O6    | 2.61        | 0.54     |
| 2:A:2299:G:C4   | 2:A:2300:G:N7    | 2.76        | 0.54     |
| 2:A:2414:G:C4   | 2:A:2415:G:H8    | 2.18        | 0.54     |
| 2:A:2458:G:C5   | 2:A:2490:G:N3    | 2.74        | 0.54     |
| 2:A:2544:G:H2'  | 2:A:2545:G:H5'   | 1.85        | 0.54     |
| 2:A:2718:G:C2   | 2:A:2719:G:N9    | 2.75        | 0.54     |
| 2:A:2734:A:C5'  | 2:A:2735:G:OP2   | 2.55        | 0.54     |
| 2:A:2736:G:N1   | 2:A:2769:C:C4    | 2.75        | 0.54     |
| 2:A:2854:G:N1   | 2:A:2864:G:C5    | 2.72        | 0.54     |
| 2:A:2869:G:H2'  | 2:A:2870:C:C5'   | 2.36        | 0.54     |
| 2:A:637:A:OP2   | 11:P:110:GLY:N   | 2.24        | 0.54     |
| 4:E:211:GLN:N   | 4:E:216:ARG:NE   | 2.40        | 0.54     |
| 2:A:2620:C:C4'  | 4:E:252:GLN:HB2  | 2.38        | 0.54     |
| 4:E:44:TYR:HE1  | 4:E:308:VAL:CG1  | 2.18        | 0.54     |
| 5:F:243:VAL:CA  | 5:F:246:ARG:CG   | 2.83        | 0.54     |
| 2:A:801:G:O4'   | 5:F:80:VAL:CG2   | 2.56        | 0.54     |
| 6:G:13:MET:CE   | 6:G:13:MET:HA    | 2.38        | 0.54     |
| 6:G:56:ARG:C    | 6:G:63:ILE:HG13  | 2.28        | 0.54     |
| 7:H:40:MET:HA   | 7:H:54:PRO:CB    | 2.37        | 0.54     |
| 8:I:7:LYS:HB2   | 8:I:12:LYS:HD3   | 1.77        | 0.54     |
| 8:I:2:LYS:CD    | 8:I:39:ALA:CB    | 2.82        | 0.54     |
| 9:N:21:ARG:CA   | 9:N:24:SER:CB    | 2.84        | 0.54     |
| 2:A:2727:G:H4'  | 10:O:70:ARG:NE   | 2.22        | 0.54     |
| 12:Q:129:ASP:CG | 12:Q:132:VAL:CG2 | 2.76        | 0.54     |
| 19:R:59:ASP:N   | 19:R:80:PHE:HE2  | 2.04        | 0.54     |
| 19:R:77:ARG:C   | 19:R:81:ASP:OD1  | 2.45        | 0.54     |
| 13:S:106:LEU:O  | 13:S:107:ASN:C   | 2.45        | 0.54     |
| 13:S:110:THR:O  | 13:S:116:PHE:CD1 | 2.61        | 0.54     |
| 20:U:78:THR:OG1 | 20:U:79:PHE:N    | 2.39        | 0.54     |
| 20:U:92:ARG:O   | 20:U:95:LEU:CD1  | 2.52        | 0.54     |
| 21:V:40:VAL:CA  | 21:V:51:ALA:CA   | 2.84        | 0.54     |
| 17:Y:70:ALA:O   | 17:Y:71:VAL:CG2  | 2.54        | 0.54     |
| 18:Z:52:PHE:O   | 18:Z:53:ASP:CB   | 2.53        | 0.54     |
| 18:Z:92:VAL:O   | 18:Z:93:GLU:C    | 2.44        | 0.54     |
| 22:2:27:LEU:O   | 22:2:28:LEU:C    | 2.45        | 0.54     |
| 22:2:3:LEU:HD22 | 22:2:8:ILE:CD1   | 2.38        | 0.54     |
| 2:A:1340:U:H6   | 16:X:55:GLN:HE22 | 1.51        | 0.54     |
| 6:G:81:GLU:C    | 6:G:85:GLN:HG2   | 2.15        | 0.54     |
| 2:A:1511:A:H2'  | 2:A:1512:G:O4'   | 2.07        | 0.54     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 14:T:20:MET:CB   | 14:T:30:HIS:HA   | 2.37        | 0.54     |
| 24:O:30:VAL:O    | 24:O:31:VAL:CG2  | 2.55        | 0.54     |
| 23:3:38:GLU:O    | 23:3:39:ASP:C    | 2.45        | 0.54     |
| 25:4:23:GLU:HA   | 25:4:27:THR:O    | 2.07        | 0.54     |
| 2:A:200:U:O2'    | 25:4:31:ILE:HG13 | 2.06        | 0.54     |
| 25:4:39:VAL:O    | 25:4:39:VAL:CG1  | 2.56        | 0.54     |
| 30:9:7:VAL:HG13  | 30:9:34:GLN:HG3  | 1.75        | 0.54     |
| 2:A:1127:A:C6    | 2:A:2518:A:N3    | 2.76        | 0.54     |
| 2:A:1610:A:OP1   | 2:A:1611:C:H5    | 1.90        | 0.54     |
| 2:A:2067:G:C2    | 2:A:2444:G:C4    | 2.96        | 0.54     |
| 2:A:2100:G:C5    | 2:A:2190:G:C2    | 2.95        | 0.54     |
| 2:A:2208:U:C2    | 2:A:2217:G:C2    | 2.95        | 0.54     |
| 2:A:2386:C:O2'   | 2:A:2387:U:O5'   | 2.26        | 0.54     |
| 2:A:199:A:C2     | 2:A:2433:A:C8    | 2.92        | 0.54     |
| 2:A:199:A:C6     | 2:A:2434:A:C6    | 2.96        | 0.54     |
| 2:A:2484:G:N3    | 2:A:2485:G:O4'   | 2.41        | 0.54     |
| 2:A:2623:G:C2    | 2:A:2624:G:C4    | 2.94        | 0.54     |
| 2:A:2641:G:N1    | 2:A:2774:C:C4    | 2.76        | 0.54     |
| 2:A:2821:A:H2'   | 2:A:2822:G:N9    | 2.22        | 0.54     |
| 2:A:296:C:O5'    | 2:A:338:G:N2     | 2.41        | 0.54     |
| 2:A:774:A:C5'    | 2:A:778:G:H4'    | 2.37        | 0.54     |
| 3:D:154:VAL:HA   | 3:D:157:ALA:HB3  | 1.89        | 0.54     |
| 4:E:39:GLN:OE1   | 4:E:174:LEU:HD11 | 1.96        | 0.54     |
| 4:E:181:VAL:CG1  | 4:E:181:VAL:O    | 2.55        | 0.54     |
| 4:E:71:THR:CG2   | 4:E:299:SER:OG   | 2.31        | 0.54     |
| 5:F:37:ALA:CB    | 5:F:102:LEU:CG   | 2.86        | 0.54     |
| 5:F:201:SER:CB   | 5:F:204:ALA:HB3  | 2.37        | 0.54     |
| 2:A:2317:C:H5''  | 6:G:150:SER:CA   | 2.32        | 0.54     |
| 1:B:42:C:H1'     | 6:G:47:GLN:HB3   | 1.88        | 0.54     |
| 6:G:97:GLN:CB    | 6:G:106:PHE:CZ   | 2.88        | 0.54     |
| 7:H:121:GLU:CG   | 7:H:133:LYS:O    | 2.54        | 0.54     |
| 7:H:147:ILE:HA   | 7:H:150:VAL:HG21 | 1.86        | 0.54     |
| 9:N:25:GLN:O     | 9:N:27:ALA:N     | 2.40        | 0.54     |
| 2:A:1131:G:C2    | 9:N:69:TYR:CZ    | 2.95        | 0.54     |
| 10:O:90:ASP:O    | 10:O:92:SER:HB3  | 2.08        | 0.54     |
| 20:U:14:HIS:CG   | 20:U:36:PHE:CZ   | 2.94        | 0.54     |
| 20:U:41:ASN:O    | 20:U:43:ALA:N    | 2.40        | 0.54     |
| 20:U:44:THR:HG21 | 21:V:77:GLY:O    | 2.04        | 0.54     |
| 2:A:338:G:OP2    | 17:Y:21:LYS:HG3  | 2.07        | 0.54     |
| 17:Y:46:ASP:OD1  | 17:Y:98:VAL:HG13 | 2.07        | 0.54     |
| 22:2:52:ALA:O    | 22:2:56:ILE:HD11 | 1.84        | 0.54     |
| 16:X:3:ASP:OD2   | 22:2:24:LYS:CE   | 2.52        | 0.54     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 14:T:49:LEU:CD2 | 14:T:49:LEU:C    | 2.62        | 0.54     |
| 2:A:126:A:OP2   | 28:7:17:GLY:HA3  | 2.07        | 0.54     |
| 2:A:1024:G:N7   | 2:A:1025:G:N7    | 2.55        | 0.54     |
| 2:A:2308:G:C5'  | 2:A:2309:A:OP1   | 2.55        | 0.54     |
| 2:A:2330:G:C3'  | 2:A:2331:G:H5'   | 2.38        | 0.54     |
| 2:A:2436:G:C6   | 2:A:2437:U:N3    | 2.76        | 0.54     |
| 2:A:2496:C:N4   | 2:A:2497:A:N1    | 2.56        | 0.54     |
| 2:A:2529:G:H5'' | 2:A:2530:A:H5''  | 1.88        | 0.54     |
| 2:A:2654:A:H8   | 2:A:2654:A:O5'   | 1.90        | 0.54     |
| 2:A:2793:G:C2   | 2:A:2794:C:N3    | 2.75        | 0.54     |
| 2:A:2871:C:O2   | 2:A:2871:C:H2'   | 2.08        | 0.54     |
| 3:D:140:VAL:HA  | 3:D:191:VAL:HA   | 1.89        | 0.54     |
| 4:E:44:TYR:CE1  | 4:E:308:VAL:HG13 | 2.36        | 0.54     |
| 8:I:6:LEU:HB2   | 8:I:36:ALA:CA    | 2.36        | 0.54     |
| 9:N:52:GLN:HA   | 9:N:55:GLU:OE2   | 1.97        | 0.54     |
| 9:N:65:ASN:HB2  | 9:N:69:TYR:HD1   | 0.53        | 0.54     |
| 9:N:93:ARG:O    | 9:N:94:GLY:O     | 2.25        | 0.54     |
| 11:P:132:LYS:O  | 11:P:135:GLY:CA  | 2.55        | 0.54     |
| 12:Q:58:HIS:C   | 12:Q:59:ASN:HD22 | 2.10        | 0.54     |
| 19:R:55:ALA:HB1 | 19:R:79:LEU:HD21 | 1.86        | 0.54     |
| 13:S:121:GLY:O  | 13:S:122:ALA:C   | 2.43        | 0.54     |
| 20:U:23:GLY:O   | 20:U:24:PHE:O    | 2.25        | 0.54     |
| 21:V:5:ILE:CD1  | 21:V:12:TYR:OH   | 2.56        | 0.54     |
| 21:V:72:ARG:O   | 21:V:88:GLN:N    | 2.40        | 0.54     |
| 15:W:29:LEU:C   | 15:W:31:GLU:N    | 2.57        | 0.54     |
| 15:W:8:ARG:HG3  | 15:W:102:HIS:HE1 | 1.56        | 0.54     |
| 18:Z:40:ASP:CB  | 18:Z:41:ARG:NH2  | 2.70        | 0.54     |
| 8:I:132:LYS:CA  | 8:I:138:THR:HG21 | 2.29        | 0.54     |
| 16:X:19:ASP:OD1 | 16:X:20:PHE:CG   | 2.57        | 0.54     |
| 2:A:2899:G:O2'  | 2:A:2900:A:H8    | 1.90        | 0.54     |
| 9:N:131:THR:OG1 | 9:N:131:THR:O    | 2.22        | 0.54     |
| 23:3:21:ALA:C   | 23:3:23:LEU:N    | 2.61        | 0.54     |
| 23:3:8:LEU:HD23 | 23:3:31:LEU:CG   | 2.38        | 0.54     |
| 25:4:6:HIS:CE1  | 25:4:55:ARG:CB   | 2.91        | 0.54     |
| 2:A:2017:U:N3   | 26:5:10:LYS:NZ   | 2.56        | 0.54     |
| 2:A:1368:G:P    | 28:7:25:LYS:HE3  | 2.42        | 0.54     |
| 2:A:1677:A:H2'  | 2:A:1678:G:C8    | 2.43        | 0.54     |
| 2:A:2252:G:C5   | 2:A:2253:G:N7    | 2.76        | 0.54     |
| 2:A:2373:G:C4   | 2:A:2374:C:C4    | 2.96        | 0.54     |
| 2:A:2421:G:H5'' | 2:A:2422:A:OP2   | 2.07        | 0.54     |
| 2:A:2466:C:C4   | 2:A:2467:C:N4    | 2.75        | 0.54     |
| 2:A:2543:G:C1'  | 2:A:2544:G:C8    | 2.91        | 0.54     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2453:A:O3'   | 2:A:2572:A:O2'   | 2.25        | 0.54     |
| 2:A:2697:G:C4    | 2:A:2698:U:C6    | 2.96        | 0.54     |
| 2:A:2705:A:N6    | 2:A:2706:G:N1    | 2.55        | 0.54     |
| 2:A:2842:G:H2'   | 2:A:2843:G:O4'   | 2.07        | 0.54     |
| 2:A:2889:C:H2'   | 2:A:2891:G:O4'   | 2.07        | 0.54     |
| 2:A:617:G:H2'    | 2:A:618:G:C8     | 2.43        | 0.54     |
| 5:F:157:LEU:HB2  | 5:F:158:GLU:OE1  | 2.07        | 0.54     |
| 5:F:58:ALA:CB    | 5:F:79:ARG:CB    | 2.86        | 0.54     |
| 7:H:86:LEU:HD23  | 7:H:148:ARG:NE   | 2.22        | 0.54     |
| 7:H:85:ALA:C     | 7:H:131:ILE:HG22 | 2.26        | 0.54     |
| 9:N:25:GLN:HG2   | 9:N:28:GLU:HG3   | 1.90        | 0.54     |
| 9:N:94:GLY:O     | 9:N:97:ALA:CA    | 2.54        | 0.54     |
| 19:R:116:LEU:O   | 19:R:117:VAL:C   | 2.44        | 0.54     |
| 19:R:74:LYS:N    | 19:R:77:ARG:NH2  | 2.55        | 0.54     |
| 13:S:18:THR:OG1  | 13:S:19:ASP:N    | 2.40        | 0.54     |
| 13:S:34:LEU:HD12 | 13:S:103:ASP:HB3 | 1.88        | 0.54     |
| 20:U:14:HIS:CD2  | 20:U:36:PHE:HE2  | 2.25        | 0.54     |
| 15:W:25:ARG:O    | 15:W:26:GLY:C    | 2.46        | 0.54     |
| 2:A:72:U:O4'     | 22:2:57:LYS:HD2  | 2.07        | 0.54     |
| 2:A:67:U:H2'     | 2:A:68:G:H8      | 1.73        | 0.54     |
| 16:X:6:LYS:HZ2   | 16:X:28:VAL:C    | 2.11        | 0.54     |
| 16:X:28:VAL:C    | 16:X:30:ASP:N    | 2.60        | 0.54     |
| 7:H:168:VAL:O    | 7:H:169:ARG:CD   | 2.54        | 0.54     |
| 2:A:1943:U:C1'   | 2:A:1945:G:C5'   | 2.74        | 0.54     |
| 1:B:40:U:C3'     | 1:B:41:U:H5'     | 2.34        | 0.54     |
| 2:A:285:C:H42    | 2:A:354:G:N2     | 2.05        | 0.54     |
| 24:0:20:TYR:O    | 24:0:21:LEU:C    | 2.46        | 0.54     |
| 23:3:8:LEU:HD23  | 23:3:31:LEU:CB   | 2.34        | 0.54     |
| 25:4:59:PHE:HA   | 25:4:62:ARG:HD2  | 1.90        | 0.54     |
| 25:4:68:ARG:NH1  | 25:4:72:LYS:HD3  | 2.22        | 0.54     |
| 29:8:50:LEU:CG   | 29:8:51:ALA:H    | 2.06        | 0.54     |
| 2:A:1024:G:C5'   | 2:A:1025:G:H5''  | 2.36        | 0.54     |
| 2:A:1152:C:H4'   | 20:U:80:ILE:HG21 | 1.89        | 0.54     |
| 2:A:2018:G:N2    | 20:U:34:ASN:HD22 | 1.64        | 0.54     |
| 2:A:2054:A:C2    | 2:A:2616:C:N3    | 2.76        | 0.54     |
| 2:A:2075:U:H3'   | 2:A:2238:G:N2    | 2.23        | 0.54     |
| 2:A:2185:C:N3    | 2:A:2186:G:N7    | 2.56        | 0.54     |
| 2:A:2349:G:N3    | 2:A:2369:A:C2    | 2.75        | 0.54     |
| 2:A:2415:G:C4    | 2:A:2416:C:C5    | 2.92        | 0.54     |
| 2:A:197:A:C4     | 2:A:2430:A:C5    | 2.96        | 0.54     |
| 2:A:2515:C:H41   | 2:A:2569:G:H1    | 1.38        | 0.54     |
| 2:A:2608:G:C8    | 2:A:2608:G:C3'   | 2.91        | 0.54     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2687:U:H5''  | 2:A:2688:U:OP2   | 2.07        | 0.54     |
| 2:A:1637:A:O2'   | 2:A:2711:A:H1'   | 2.08        | 0.54     |
| 2:A:2881:C:H3'   | 2:A:2881:C:H6    | 1.72        | 0.54     |
| 1:B:24:G:O2'     | 1:B:27:C:N4      | 2.40        | 0.54     |
| 3:D:141:HIS:N    | 3:D:141:HIS:ND1  | 2.56        | 0.54     |
| 3:D:68:ARG:NH2   | 3:D:190:THR:CG2  | 2.71        | 0.54     |
| 3:D:82:TYR:C     | 3:D:83:ASP:OD2   | 2.46        | 0.54     |
| 4:E:47:GLY:HA3   | 4:E:305:LYS:HE2  | 1.89        | 0.54     |
| 4:E:79:ARG:HA    | 4:E:186:GLU:N    | 2.23        | 0.54     |
| 5:F:103:ASN:HB2  | 5:F:106:GLU:HG3  | 1.73        | 0.54     |
| 2:A:2745:C:O2    | 7:H:142:GLU:CD   | 2.45        | 0.54     |
| 9:N:12:VAL:HB    | 9:N:38:VAL:HG21  | 1.88        | 0.54     |
| 9:N:45:VAL:CA    | 9:N:132:LEU:HB2  | 2.28        | 0.54     |
| 11:P:126:SER:O   | 11:P:130:ARG:HG3 | 2.08        | 0.54     |
| 11:P:61:ALA:CA   | 11:P:62:ALA:N    | 2.66        | 0.54     |
| 12:Q:92:VAL:HG12 | 12:Q:110:GLY:C   | 2.26        | 0.54     |
| 20:U:115:ASN:N   | 20:U:115:ASN:ND2 | 2.52        | 0.54     |
| 21:V:75:LYS:CE   | 21:V:75:LYS:HA   | 2.38        | 0.54     |
| 15:W:49:LYS:O    | 15:W:51:LEU:N    | 2.40        | 0.54     |
| 17:Y:11:GLN:CB   | 17:Y:21:LYS:HE3  | 2.38        | 0.54     |
| 18:Z:48:THR:O    | 18:Z:48:THR:CG2  | 2.49        | 0.54     |
| 18:Z:92:VAL:HG13 | 18:Z:124:ALA:HB2 | 1.90        | 0.54     |
| 2:A:265:A:N6     | 2:A:428:A:C5     | 2.76        | 0.54     |
| 2:A:120:U:C6     | 2:A:150:C:C2     | 2.96        | 0.54     |
| 24:O:39:ARG:O    | 24:O:40:GLN:C    | 2.45        | 0.54     |
| 24:O:64:ASP:C    | 24:O:66:LYS:NZ   | 2.61        | 0.54     |
| 25:4:28:ARG:HB3  | 25:4:29:PRO:HD2  | 1.90        | 0.54     |
| 28:7:41:GLN:O    | 28:7:42:LEU:CB   | 2.56        | 0.54     |
| 28:7:21:ARG:NH1  | 28:7:43:THR:H    | 1.98        | 0.54     |
| 2:A:1648:C:H2'   | 2:A:1649:G:H8    | 1.72        | 0.54     |
| 2:A:2074:U:O2'   | 2:A:2597:G:O2'   | 1.83        | 0.54     |
| 2:A:2270:G:O6    | 2:A:2271:G:N2    | 2.39        | 0.54     |
| 2:A:2376:A:C2    | 2:A:2377:A:C4    | 2.96        | 0.54     |
| 2:A:2452:C:C4    | 2:A:2453:A:C6    | 2.96        | 0.54     |
| 2:A:2447:G:C6    | 2:A:2500:U:C4    | 2.96        | 0.54     |
| 2:A:2561:A:C4    | 2:A:2562:U:H6    | 2.25        | 0.54     |
| 2:A:2681:C:H5    | 2:A:2727:G:C2    | 2.20        | 0.54     |
| 2:A:2741:A:N3    | 2:A:2742:C:C1'   | 2.71        | 0.54     |
| 2:A:2758:A:O2'   | 2:A:2759:G:O5'   | 2.26        | 0.54     |
| 2:A:2744:G:H1'   | 2:A:2761:G:N2    | 2.23        | 0.54     |
| 2:A:2785:C:N1    | 2:A:2786:U:C5    | 2.76        | 0.54     |
| 2:A:2785:C:O2'   | 4:E:100:TRP:CG   | 2.61        | 0.54     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1750:G:O2'   | 2:A:2860:A:N1     | 2.38        | 0.54     |
| 2:A:27:G:N2      | 2:A:512:G:H2'     | 2.23        | 0.54     |
| 2:A:647:G:H1'    | 2:A:2351:G:OP1    | 2.08        | 0.54     |
| 2:A:780:G:H2'    | 2:A:782:A:N7      | 2.22        | 0.54     |
| 3:D:77:VAL:CG2   | 3:D:113:MET:HA    | 2.26        | 0.54     |
| 3:D:60:GLN:N     | 3:D:62:ARG:NH1    | 2.56        | 0.54     |
| 4:E:300:VAL:N    | 4:E:301:PRO:CD    | 2.70        | 0.54     |
| 5:F:106:GLU:O    | 5:F:107:ARG:C     | 2.44        | 0.54     |
| 9:N:80:LYS:C     | 9:N:84:ARG:HG3    | 2.25        | 0.54     |
| 10:O:34:ASN:C    | 10:O:35:ILE:O     | 2.41        | 0.54     |
| 10:O:68:GLY:CA   | 10:O:78:ARG:HG2   | 2.31        | 0.54     |
| 12:Q:136:TRP:HE3 | 12:Q:139:ALA:HB2  | 1.73        | 0.54     |
| 12:Q:64:ALA:HB2  | 12:Q:142:LYS:HD3  | 1.90        | 0.54     |
| 14:T:10:GLY:HA3  | 14:T:53:ASP:CG    | 2.28        | 0.54     |
| 14:T:50:GLU:HG3  | 14:T:55:ALA:HB1   | 1.89        | 0.54     |
| 20:U:47:TYR:CZ   | 21:V:74:TYR:O     | 2.61        | 0.54     |
| 20:U:47:TYR:HE2  | 21:V:74:TYR:O     | 1.87        | 0.54     |
| 20:U:66:ASN:O    | 20:U:67:ALA:C     | 2.47        | 0.54     |
| 15:W:68:ARG:O    | 15:W:110:LYS:CB   | 2.54        | 0.54     |
| 15:W:12:ILE:HG22 | 15:W:13:SER:N     | 2.22        | 0.54     |
| 17:Y:101:LEU:CB  | 17:Y:113:GLU:OE1  | 2.51        | 0.54     |
| 18:Z:112:LEU:CD1 | 18:Z:177:THR:HG21 | 2.38        | 0.54     |
| 1:B:104:A:N9     | 18:Z:24:TYR:OH    | 2.41        | 0.54     |
| 18:Z:37:LYS:O    | 18:Z:41:ARG:NE    | 2.40        | 0.54     |
| 2:A:1826:G:O2'   | 2:A:1971:A:O5'    | 2.26        | 0.54     |
| 2:A:2898:U:N3    | 2:A:2899:G:C8     | 2.76        | 0.54     |
| 2:A:1077:A:OP1   | 31:K:93:LYS:O     | 2.25        | 0.54     |
| 2:A:2183:C:H2'   | 2:A:2184:G:C8     | 2.40        | 0.54     |
| 2:A:391:G:H2'    | 2:A:392:C:C6      | 2.43        | 0.54     |
| 24:O:24:LYS:O    | 24:O:25:LYS:CB    | 2.56        | 0.53     |
| 24:O:70:ILE:CG1  | 24:O:71:ASN:H     | 2.17        | 0.53     |
| 2:A:932:G:OP1    | 23:3:29:ARG:NH2   | 2.40        | 0.53     |
| 23:3:29:ARG:O    | 23:3:30:ARG:O     | 2.25        | 0.53     |
| 26:5:13:LYS:O    | 26:5:16:ARG:HB2   | 2.08        | 0.53     |
| 27:6:45:LYS:C    | 27:6:46:LYS:CE    | 2.65        | 0.53     |
| 29:8:36:LYS:HG2  | 29:8:40:GLU:CD    | 2.27        | 0.53     |
| 2:A:1031:G:H4'   | 30:9:8:LYS:HD3    | 1.90        | 0.53     |
| 2:A:1364:G:N7    | 25:4:2:GLN:OE1    | 2.40        | 0.53     |
| 2:A:2228:G:H8    | 2:A:2229:C:C5     | 2.09        | 0.53     |
| 2:A:2228:G:H3'   | 2:A:2229:C:O4'    | 2.08        | 0.53     |
| 2:A:2252:G:O5'   | 2:A:2252:G:C8     | 2.60        | 0.53     |
| 2:A:965:C:O4'    | 2:A:2273:A:C4     | 2.60        | 0.53     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2346:A:HO2'  | 2:A:2347:C:P     | 2.22        | 0.53     |
| 2:A:2350:C:C2    | 2:A:2351:G:C8    | 2.96        | 0.53     |
| 2:A:2412:A:H2'   | 2:A:2413:G:C5'   | 2.31        | 0.53     |
| 2:A:199:A:N3     | 2:A:2433:A:C6    | 2.76        | 0.53     |
| 2:A:2557:G:C4    | 2:A:2558:C:H5    | 2.26        | 0.53     |
| 2:A:2558:C:H2'   | 2:A:2559:C:H5'   | 1.88        | 0.53     |
| 2:A:2666:C:H2'   | 2:A:2667:C:C5'   | 2.38        | 0.53     |
| 2:A:2868:A:C4    | 2:A:2869:G:C8    | 2.96        | 0.53     |
| 2:A:627:A:H61    | 2:A:638:G:H1'    | 1.73        | 0.53     |
| 2:A:830:G:N1     | 2:A:2446:G:O4'   | 2.40        | 0.53     |
| 2:A:874:G:OP1    | 18:Z:172:LEU:CD1 | 2.56        | 0.53     |
| 2:A:947:G:H2'    | 2:A:948:G:H8     | 1.73        | 0.53     |
| 3:D:89:ASN:H     | 3:D:105:ALA:CB   | 2.20        | 0.53     |
| 2:A:2052:G:N2    | 4:E:245:ARG:CG   | 2.46        | 0.53     |
| 4:E:71:THR:HG23  | 4:E:299:SER:CA   | 2.33        | 0.53     |
| 9:N:69:TYR:O     | 9:N:71:TYR:HD1   | 1.90        | 0.53     |
| 12:Q:66:ASN:C    | 12:Q:68:ALA:N    | 2.57        | 0.53     |
| 13:S:63:SER:O    | 13:S:67:ALA:C    | 2.46        | 0.53     |
| 2:A:535:C:C5'    | 20:U:53:LYS:HE3  | 2.27        | 0.53     |
| 21:V:72:ARG:HG3  | 21:V:88:GLN:HG3  | 1.90        | 0.53     |
| 21:V:93:ILE:C    | 21:V:95:ILE:CD1  | 2.77        | 0.53     |
| 15:W:12:ILE:HG23 | 15:W:13:SER:N    | 2.23        | 0.53     |
| 15:W:36:LEU:CD1  | 15:W:47:VAL:CB   | 2.85        | 0.53     |
| 17:Y:73:HIS:CA   | 17:Y:91:LEU:HG   | 2.07        | 0.53     |
| 18:Z:40:ASP:CG   | 18:Z:41:ARG:NH1  | 2.61        | 0.53     |
| 8:I:102:LEU:HD11 | 8:I:103:GLN:HG3  | 1.88        | 0.53     |
| 2:A:840:C:H5'    | 2:A:1192:G:H1'   | 1.90        | 0.53     |
| 2:A:940:G:HO3'   | 2:A:941:A:P      | 2.26        | 0.53     |
| 2:A:1173:G:N2    | 2:A:1175:U:H3'   | 2.22        | 0.53     |
| 24:O:30:VAL:O    | 24:O:31:VAL:HG23 | 2.08        | 0.53     |
| 23:3:8:LEU:CB    | 23:3:32:GLN:HA   | 2.35        | 0.53     |
| 2:A:1809:A:N6    | 25:4:3:LYS:HB3   | 2.23        | 0.53     |
| 2:A:2195:C:P     | 2:A:2195:C:H6    | 2.25        | 0.53     |
| 2:A:2243:U:O2    | 2:A:2244:U:N1    | 2.41        | 0.53     |
| 2:A:2248:C:C3'   | 2:A:2249:U:H5'   | 2.38        | 0.53     |
| 2:A:2411:A:H2'   | 2:A:2412:A:C8    | 2.44        | 0.53     |
| 2:A:2414:G:N1    | 2:A:2415:G:N7    | 2.56        | 0.53     |
| 2:A:2454:G:H2'   | 2:A:2455:G:O4'   | 2.08        | 0.53     |
| 2:A:2589:A:N6    | 2:A:2590:A:N6    | 2.56        | 0.53     |
| 2:A:2623:G:C2    | 2:A:2624:G:N9    | 2.76        | 0.53     |
| 2:A:2736:G:O2'   | 2:A:2737:G:H5'   | 2.08        | 0.53     |
| 2:A:2836:U:H2'   | 2:A:2837:G:C8    | 2.42        | 0.53     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:450:G:OP2    | 5:F:85:LYS:O     | 2.25        | 0.53     |
| 2:A:684:G:N2     | 2:A:794:G:N3     | 2.56        | 0.53     |
| 2:A:85:G:H1      | 2:A:97:C:H42     | 1.54        | 0.53     |
| 2:A:963:U:H1'    | 2:A:2250:G:H22   | 1.59        | 0.53     |
| 3:D:131:LEU:CB   | 3:D:171:VAL:HG21 | 2.37        | 0.53     |
| 4:E:180:ILE:CB   | 4:E:183:ASP:OD2  | 2.54        | 0.53     |
| 5:F:237:GLU:C    | 5:F:239:ALA:H    | 2.10        | 0.53     |
| 5:F:33:LYS:O     | 5:F:36:ARG:CG    | 2.57        | 0.53     |
| 8:I:7:LYS:CB     | 8:I:12:LYS:HZ2   | 2.21        | 0.53     |
| 9:N:47:THR:O     | 9:N:53:ILE:CD1   | 2.56        | 0.53     |
| 10:O:104:ARG:O   | 10:O:105:GLU:O   | 2.26        | 0.53     |
| 2:A:2674:G:C4'   | 10:O:30:ARG:CG   | 2.59        | 0.53     |
| 12:Q:86:ARG:NH2  | 12:Q:123:ILE:CD1 | 2.71        | 0.53     |
| 19:R:67:LEU:HD22 | 19:R:67:LEU:C    | 2.29        | 0.53     |
| 19:R:67:LEU:O    | 19:R:68:ARG:C    | 2.46        | 0.53     |
| 13:S:80:SER:O    | 13:S:81:ALA:O    | 2.26        | 0.53     |
| 20:U:39:LEU:C    | 20:U:41:ASN:ND2  | 2.61        | 0.53     |
| 20:U:71:LEU:C    | 20:U:71:LEU:CD2  | 2.77        | 0.53     |
| 20:U:72:HIS:CE1  | 20:U:110:VAL:CG2 | 2.84        | 0.53     |
| 21:V:88:GLN:OE1  | 21:V:90:PHE:HE1  | 1.91        | 0.53     |
| 15:W:35:ILE:O    | 15:W:39:THR:HG22 | 2.09        | 0.53     |
| 15:W:20:VAL:CG1  | 15:W:47:VAL:CG2  | 2.29        | 0.53     |
| 2:A:496:G:H1'    | 15:W:61:ASN:ND2  | 2.23        | 0.53     |
| 17:Y:66:ASP:CG   | 17:Y:72:ILE:HA   | 2.28        | 0.53     |
| 17:Y:80:GLU:HG2  | 17:Y:86:GLU:HA   | 1.89        | 0.53     |
| 8:I:68:LEU:HD11  | 8:I:108:LEU:HD11 | 1.89        | 0.53     |
| 22:2:27:LEU:O    | 22:2:30:ALA:CB   | 2.57        | 0.53     |
| 2:A:1071:G:O2'   | 2:A:1090:U:OP1   | 2.17        | 0.53     |
| 2:A:1473:G:H2'   | 2:A:1474:C:O4'   | 2.08        | 0.53     |
| 2:A:551:G:H4'    | 2:A:1220:A:C2    | 2.44        | 0.53     |
| 2:A:868:U:H3     | 2:A:909:A:H61    | 1.55        | 0.53     |
| 2:A:1882:C:H2'   | 2:A:1883:G:H5'   | 1.89        | 0.53     |
| 24:0:70:ILE:CG1  | 24:0:71:ASN:N    | 2.71        | 0.53     |
| 24:0:45:PHE:HD1  | 24:0:78:PHE:HA   | 1.53        | 0.53     |
| 23:3:11:SER:C    | 23:3:13:ILE:H    | 2.09        | 0.53     |
| 25:4:1:MET:C     | 25:4:2:GLN:HG3   | 2.29        | 0.53     |
| 2:A:2615:U:C2    | 26:5:8:LYS:N     | 2.76        | 0.53     |
| 2:A:125:G:H22    | 28:7:10:ARG:H    | 1.53        | 0.53     |
| 28:7:43:THR:OG1  | 28:7:44:VAL:HG23 | 2.08        | 0.53     |
| 2:A:126:A:OP2    | 28:7:44:VAL:HG21 | 2.08        | 0.53     |
| 29:8:4:MET:HE3   | 29:8:4:MET:N     | 2.23        | 0.53     |
| 2:A:2359:C:H4'   | 29:8:52:LYS:HZ1  | 1.74        | 0.53     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1152:C:O4'   | 20:U:77:SER:HA   | 2.09        | 0.53     |
| 2:A:1638:C:OP1   | 2:A:2711:A:H5'   | 2.08        | 0.53     |
| 2:A:1799:G:H21   | 3:D:153:LEU:HD11 | 1.73        | 0.53     |
| 2:A:530:G:C2     | 2:A:2021:C:C6    | 2.95        | 0.53     |
| 2:A:2084:C:N3    | 2:A:2235:G:N1    | 2.51        | 0.53     |
| 2:A:2472:G:O5'   | 2:A:2472:G:H8    | 1.91        | 0.53     |
| 2:A:2496:C:C4    | 2:A:2497:A:C2    | 2.96        | 0.53     |
| 2:A:2495:G:H2'   | 2:A:2496:C:O4'   | 2.08        | 0.53     |
| 2:A:2527:C:O2'   | 2:A:2528:U:H5'   | 2.08        | 0.53     |
| 2:A:2781:A:H5'   | 2:A:2782:G:O4'   | 2.08        | 0.53     |
| 2:A:389:G:O4'    | 2:A:2413:G:H4'   | 2.08        | 0.53     |
| 2:A:443:A:OP1    | 5:F:44:GLN:HB2   | 2.08        | 0.53     |
| 2:A:786:C:H2'    | 2:A:787:U:O4'    | 2.08        | 0.53     |
| 2:A:85:G:H5'     | 17:Y:65:VAL:HG12 | 1.89        | 0.53     |
| 1:B:77:U:H5'     | 18:Z:80:HIS:HD1  | 1.69        | 0.53     |
| 3:D:77:VAL:HG12  | 3:D:111:VAL:O    | 2.08        | 0.53     |
| 4:E:203:GLY:HA3  | 4:E:303:PRO:HD2  | 1.86        | 0.53     |
| 6:G:105:SER:HB3  | 6:G:131:THR:CG2  | 2.30        | 0.53     |
| 6:G:141:VAL:HA   | 6:G:144:ARG:HD3  | 1.90        | 0.53     |
| 6:G:24:HIS:CD2   | 6:G:72:LYS:HB3   | 2.44        | 0.53     |
| 7:H:119:GLY:C    | 7:H:121:GLU:OE1  | 2.46        | 0.53     |
| 9:N:37:ALA:HA    | 9:N:102:ARG:O    | 2.08        | 0.53     |
| 9:N:82:THR:O     | 9:N:85:GLY:CA    | 2.56        | 0.53     |
| 2:A:957:A:OP1    | 12:Q:95:GLU:HB2  | 2.07        | 0.53     |
| 13:S:20:TYR:O    | 13:S:23:ARG:CB   | 2.55        | 0.53     |
| 20:U:12:ARG:O    | 20:U:15:LYS:N    | 2.42        | 0.53     |
| 21:V:10:LYS:O    | 21:V:12:TYR:N    | 2.41        | 0.53     |
| 17:Y:71:VAL:HG21 | 17:Y:93:THR:N    | 2.15        | 0.53     |
| 17:Y:78:THR:N    | 17:Y:89:ARG:CD   | 2.71        | 0.53     |
| 18:Z:126:GLY:O   | 18:Z:127:PRO:O   | 2.26        | 0.53     |
| 2:A:876:C:C5'    | 18:Z:165:GLU:OE2 | 2.55        | 0.53     |
| 18:Z:63:PRO:O    | 18:Z:64:ALA:HB2  | 2.08        | 0.53     |
| 2:A:95:G:H1'     | 22:2:42:ASN:CG   | 2.28        | 0.53     |
| 2:A:1534:G:H2'   | 2:A:1534:G:N3    | 2.23        | 0.53     |
| 2:A:1743:G:C3'   | 2:A:1746:G:H5'   | 2.38        | 0.53     |
| 2:A:856:C:C1'    | 24:0:24:LYS:HB2  | 2.38        | 0.53     |
| 23:3:9:VAL:O     | 23:3:53:LEU:O    | 2.27        | 0.53     |
| 2:A:2395:C:C4'   | 25:4:28:ARG:HD2  | 2.32        | 0.53     |
| 26:5:50:GLY:CA   | 26:5:57:VAL:HB   | 2.35        | 0.53     |
| 28:7:8:ASN:O     | 28:7:11:LYS:CA   | 2.56        | 0.53     |
| 30:9:20:HIS:HB2  | 30:9:22:ARG:HG3  | 1.90        | 0.53     |
| 30:9:24:LEU:CD2  | 30:9:35:ARG:HG2  | 2.38        | 0.53     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:197:A:N6     | 2:A:248:G:N2     | 2.53        | 0.53     |
| 2:A:2060:A:OP1   | 5:F:64:GLY:CA    | 2.43        | 0.53     |
| 2:A:2205:C:H6    | 2:A:2205:C:O5'   | 1.90        | 0.53     |
| 2:A:2415:G:N3    | 2:A:2415:G:H2'   | 2.22        | 0.53     |
| 2:A:2435:A:C2    | 2:A:2436:G:H1'   | 2.43        | 0.53     |
| 2:A:2539:C:N3    | 2:A:2540:C:H5    | 2.06        | 0.53     |
| 2:A:2553:G:N7    | 2:A:2554:U:C1'   | 2.71        | 0.53     |
| 2:A:2661:G:H2'   | 2:A:2662:A:C8    | 2.43        | 0.53     |
| 2:A:2718:G:C2    | 2:A:2719:G:C4    | 2.96        | 0.53     |
| 2:A:2785:C:H4'   | 4:E:100:TRP:N    | 2.22        | 0.53     |
| 2:A:2842:G:C6    | 2:A:2876:G:N1    | 2.76        | 0.53     |
| 2:A:495:G:O2'    | 15:W:57:ASN:CG   | 2.45        | 0.53     |
| 2:A:612:G:H1'    | 2:A:617:G:H22    | 1.74        | 0.53     |
| 3:D:148:GLY:C    | 3:D:150:GLY:N    | 2.49        | 0.53     |
| 3:D:79:THR:H     | 3:D:91:ALA:HB1   | 1.73        | 0.53     |
| 4:E:222:ARG:C    | 4:E:227:ALA:HA   | 2.28        | 0.53     |
| 5:F:197:SER:HA   | 5:F:215:ALA:HB2  | 1.90        | 0.53     |
| 5:F:92:PRO:O     | 5:F:94:THR:N     | 2.40        | 0.53     |
| 6:G:21:VAL:HG12  | 6:G:132:VAL:HB   | 1.87        | 0.53     |
| 6:G:93:LEU:O     | 6:G:94:ALA:HB3   | 2.09        | 0.53     |
| 7:H:55:SER:HB2   | 7:H:60:HIS:HB2   | 1.82        | 0.53     |
| 8:I:28:ASN:C     | 8:I:28:ASN:OD1   | 2.46        | 0.53     |
| 2:A:1022:G:P     | 9:N:52:GLN:CD    | 2.87        | 0.53     |
| 10:O:10:VAL:CG1  | 10:O:11:ALA:N    | 2.71        | 0.53     |
| 12:Q:136:TRP:HA  | 12:Q:139:ALA:CB  | 2.39        | 0.53     |
| 12:Q:156:ASN:CG  | 12:Q:156:ASN:O   | 2.46        | 0.53     |
| 12:Q:35:ASN:O    | 12:Q:36:ASN:C    | 2.45        | 0.53     |
| 12:Q:35:ASN:HB2  | 12:Q:75:SER:CA   | 2.38        | 0.53     |
| 12:Q:31:PHE:CE1  | 12:Q:88:PHE:HD2  | 2.26        | 0.53     |
| 19:R:100:LEU:HB2 | 19:R:112:ALA:HA  | 1.91        | 0.53     |
| 19:R:38:VAL:CG1  | 19:R:39:PRO:HD2  | 1.89        | 0.53     |
| 13:S:116:PHE:CD2 | 13:S:119:GLN:OE1 | 2.60        | 0.53     |
| 13:S:61:ALA:HB2  | 13:S:84:THR:O    | 2.09        | 0.53     |
| 20:U:34:ASN:O    | 20:U:38:THR:CB   | 2.55        | 0.53     |
| 21:V:12:TYR:CD2  | 21:V:13:ARG:N    | 2.70        | 0.53     |
| 15:W:8:ARG:C     | 15:W:10:VAL:N    | 2.57        | 0.53     |
| 15:W:48:ALA:O    | 15:W:49:LYS:C    | 2.46        | 0.53     |
| 15:W:69:LEU:HD22 | 15:W:109:GLU:CA  | 2.38        | 0.53     |
| 18:Z:90:GLU:HG3  | 18:Z:90:GLU:O    | 2.09        | 0.53     |
| 8:I:108:LEU:C    | 8:I:108:LEU:CD2  | 2.77        | 0.53     |
| 2:A:72:U:H1'     | 22:2:57:LYS:HD2  | 1.88        | 0.53     |
| 16:X:4:VAL:HG13  | 22:2:24:LYS:NZ   | 2.24        | 0.53     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:49:A:N6      | 2:A:176:G:H1     | 2.05        | 0.53     |
| 2:A:1530:G:H22   | 2:A:1532:C:N4    | 2.06        | 0.53     |
| 24:0:23:VAL:HG12 | 24:0:26:PHE:CE1  | 2.43        | 0.53     |
| 2:A:988:A:N7     | 23:3:13:ILE:HG21 | 2.23        | 0.53     |
| 23:3:2:PRO:HB2   | 23:3:39:ASP:HB3  | 1.91        | 0.53     |
| 2:A:650:C:H5'    | 29:8:17:THR:HB   | 1.89        | 0.53     |
| 29:8:8:LYS:C     | 29:8:10:ALA:H    | 2.06        | 0.53     |
| 30:9:3:VAL:CG1   | 30:9:3:VAL:O     | 2.55        | 0.53     |
| 2:A:1440:G:H2'   | 2:A:1441:G:O4'   | 2.08        | 0.53     |
| 2:A:1637:A:O3'   | 2:A:2711:A:H4'   | 2.09        | 0.53     |
| 2:A:2022:U:H2'   | 2:A:2617:C:H4'   | 1.90        | 0.53     |
| 2:A:2044:C:C5    | 2:A:2625:G:N2    | 2.76        | 0.53     |
| 2:A:2370:G:C4    | 2:A:2371:G:C8    | 2.96        | 0.53     |
| 2:A:2469:A:C5'   | 2:A:2469:A:H8    | 2.04        | 0.53     |
| 2:A:2516:G:N1    | 2:A:2569:G:C2    | 2.76        | 0.53     |
| 2:A:2526:G:N3    | 2:A:2527:C:C6    | 2.76        | 0.53     |
| 2:A:2589:A:C3'   | 2:A:2590:A:H5''  | 2.35        | 0.53     |
| 2:A:2615:U:N3    | 26:5:8:LYS:CG    | 2.56        | 0.53     |
| 2:A:2710:C:O2'   | 2:A:2711:A:C4'   | 2.56        | 0.53     |
| 2:A:2720:U:O4    | 2:A:2873:A:C6    | 2.54        | 0.53     |
| 2:A:2735:G:N1    | 2:A:2770:G:C2    | 2.77        | 0.53     |
| 2:A:2767:C:C4    | 2:A:2768:C:C5    | 2.96        | 0.53     |
| 2:A:2641:G:N1    | 2:A:2774:C:C5    | 2.76        | 0.53     |
| 2:A:2785:C:H5'   | 4:E:98:GLU:O     | 2.08        | 0.53     |
| 2:A:2838:G:H2'   | 2:A:2839:G:C5'   | 2.19        | 0.53     |
| 2:A:2857:G:C3'   | 2:A:2857:G:C8    | 2.91        | 0.53     |
| 2:A:474:G:C3'    | 2:A:475:U:P      | 2.97        | 0.53     |
| 2:A:579:G:H1'    | 26:5:10:LYS:HZ3  | 1.74        | 0.53     |
| 2:A:629:G:H5''   | 2:A:649:G:O2'    | 2.09        | 0.53     |
| 2:A:638:G:H2'    | 2:A:639:U:O4'    | 2.09        | 0.53     |
| 2:A:774:A:C1'    | 2:A:775:G:C8     | 2.87        | 0.53     |
| 2:A:993:G:N2     | 20:U:54:LYS:HZ1  | 2.06        | 0.53     |
| 4:E:208:LYS:H    | 4:E:257:GLY:CA   | 2.12        | 0.53     |
| 2:A:2785:C:O4'   | 4:E:98:GLU:O     | 2.26        | 0.53     |
| 5:F:150:THR:HB   | 5:F:207:LEU:HD22 | 1.89        | 0.53     |
| 6:G:27:ILE:C     | 6:G:29:HIS:H     | 2.04        | 0.53     |
| 2:A:2748:A:O2'   | 7:H:62:ALA:O     | 2.23        | 0.53     |
| 7:H:67:THR:HG23  | 7:H:70:LEU:CD1   | 2.39        | 0.53     |
| 7:H:73:ASN:CG    | 7:H:137:LYS:HZ2  | 2.11        | 0.53     |
| 8:I:2:LYS:CG     | 8:I:39:ALA:HB2   | 2.38        | 0.53     |
| 8:I:41:PRO:O     | 8:I:42:ALA:C     | 2.47        | 0.53     |
| 9:N:23:ALA:O     | 9:N:26:VAL:CB    | 2.57        | 0.53     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 12:Q:49:VAL:CG1   | 12:Q:119:ASN:H   | 2.21        | 0.53     |
| 19:R:20:LEU:O     | 19:R:22:ARG:CA   | 2.57        | 0.53     |
| 19:R:36:THR:CG2   | 19:R:37:THR:N    | 2.71        | 0.53     |
| 20:U:41:ASN:HD22  | 20:U:41:ASN:C    | 2.09        | 0.53     |
| 20:U:47:TYR:OH    | 21:V:74:TYR:O    | 2.25        | 0.53     |
| 20:U:83:LEU:O     | 20:U:86:ALA:N    | 2.36        | 0.53     |
| 21:V:42:GLY:CA    | 21:V:54:TYR:HH   | 2.18        | 0.53     |
| 15:W:43:GLY:O     | 15:W:46:PHE:HB2  | 2.07        | 0.53     |
| 15:W:85:VAL:HA    | 15:W:95:ILE:HG12 | 0.72        | 0.53     |
| 17:Y:19:ARG:O     | 17:Y:22:GLN:HB2  | 2.09        | 0.53     |
| 18:Z:113:VAL:O    | 18:Z:171:VAL:CA  | 2.57        | 0.53     |
| 18:Z:117:VAL:HG12 | 18:Z:117:VAL:O   | 2.08        | 0.53     |
| 18:Z:105:GLN:CB   | 18:Z:141:MET:HG2 | 2.39        | 0.53     |
| 18:Z:149:ALA:CB   | 18:Z:164:PRO:C   | 2.76        | 0.53     |
| 18:Z:79:ILE:O     | 18:Z:80:HIS:HB2  | 2.07        | 0.53     |
| 2:A:1789:A:C5'    | 3:D:224:VAL:CG1  | 2.87        | 0.53     |
| 22:2:20:LEU:HD22  | 22:2:23:LEU:HB3  | 1.90        | 0.53     |
| 22:2:34:GLN:H     | 22:2:34:GLN:CD   | 2.11        | 0.53     |
| 16:X:34:LYS:O     | 16:X:38:ALA:N    | 2.40        | 0.53     |
| 2:A:1078:U:OP1    | 31:K:93:LYS:HG3  | 2.06        | 0.53     |
| 2:A:283:A:C2      | 2:A:360:G:N1     | 2.77        | 0.53     |
| 2:A:1328:G:H2'    | 2:A:1330:C:H5    | 1.71        | 0.53     |
| 2:A:1575:C:H6     | 2:A:1575:C:H3'   | 1.74        | 0.53     |
| 23:3:22:ALA:O     | 23:3:26:LEU:HD12 | 2.08        | 0.53     |
| 23:3:30:ARG:CZ    | 23:3:33:GLN:HB2  | 2.38        | 0.53     |
| 25:4:58:LYS:CG    | 25:4:59:PHE:H    | 2.04        | 0.53     |
| 2:A:2191:G:N3     | 2:A:2192:G:H1'   | 2.24        | 0.53     |
| 2:A:2320:A:C5     | 13:S:9:PRO:CB    | 2.78        | 0.53     |
| 2:A:2325:G:C2     | 2:A:2326:C:C5    | 2.97        | 0.53     |
| 2:A:2331:G:C6     | 2:A:2332:U:C4    | 2.94        | 0.53     |
| 2:A:2484:G:C2     | 2:A:2485:G:N9    | 2.74        | 0.53     |
| 2:A:2497:A:O2'    | 2:A:2498:C:C6    | 2.62        | 0.53     |
| 2:A:2537:U:C6     | 2:A:2538:C:C5    | 2.96        | 0.53     |
| 2:A:2547:U:C5     | 2:A:2566:A:C5    | 2.96        | 0.53     |
| 2:A:2592:G:H2'    | 2:A:2593:U:C5'   | 2.38        | 0.53     |
| 2:A:2634:G:O2'    | 2:A:2635:C:H5'   | 2.08        | 0.53     |
| 2:A:2715:C:H2'    | 2:A:2716:U:H6    | 1.73        | 0.53     |
| 2:A:2868:A:C5     | 2:A:2869:G:N7    | 2.77        | 0.53     |
| 2:A:338:G:H8      | 17:Y:21:LYS:CB   | 2.21        | 0.53     |
| 1:B:80:U:HO2'     | 2:A:918:A:H8     | 1.56        | 0.53     |
| 2:A:971:C:OP2     | 2:A:974(A):C:O2  | 2.27        | 0.53     |
| 2:A:1799:G:N1     | 3:D:177:SER:HB2  | 2.21        | 0.53     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:107:LYS:HG2  | 3:D:193:GLU:OE1  | 2.08        | 0.53     |
| 2:A:2514:U:O4'   | 4:E:247:ARG:NH1  | 2.41        | 0.53     |
| 4:E:267:ARG:CG   | 4:E:297:LYS:HB2  | 2.34        | 0.53     |
| 5:F:223:LEU:C    | 5:F:223:LEU:HD13 | 2.26        | 0.53     |
| 6:G:36:ASN:O     | 6:G:38:GLU:N     | 2.42        | 0.53     |
| 9:N:136:SER:C    | 9:N:141:ALA:H    | 2.11        | 0.53     |
| 10:O:64:ARG:HD2  | 10:O:81:GLU:OE1  | 2.09        | 0.53     |
| 10:O:86:ILE:CG2  | 10:O:87:ILE:N    | 2.66        | 0.53     |
| 19:R:107:ASP:CG  | 19:R:109:ALA:N   | 2.41        | 0.53     |
| 13:S:108:SER:C   | 13:S:110:THR:N   | 2.59        | 0.53     |
| 13:S:76:GLY:N    | 13:S:82:TYR:HD1  | 2.06        | 0.53     |
| 13:S:87:LEU:HD13 | 13:S:90:LEU:HD12 | 1.89        | 0.53     |
| 20:U:94:VAL:HG12 | 20:U:98:ILE:HD11 | 1.91        | 0.53     |
| 15:W:11:ARG:HA   | 15:W:11:ARG:NE   | 2.19        | 0.53     |
| 15:W:29:LEU:HG   | 15:W:33:ARG:CD   | 2.23        | 0.53     |
| 8:I:99:ALA:O     | 8:I:101:SER:N    | 2.42        | 0.53     |
| 8:I:109:LYS:N    | 8:I:109:LYS:HE2  | 2.20        | 0.53     |
| 2:A:60:G:N7      | 2:A:63:U:C5      | 2.77        | 0.53     |
| 16:X:32:ALA:C    | 16:X:37:VAL:HG23 | 2.29        | 0.53     |
| 7:H:19:ASN:C     | 7:H:21:ASN:H     | 2.11        | 0.53     |
| 31:K:99:LYS:HD2  | 31:K:99:LYS:H    | 1.74        | 0.53     |
| 25:4:58:LYS:HG2  | 25:4:62:ARG:NH2  | 2.24        | 0.53     |
| 2:A:2045:C:C2    | 26:5:22:HIS:CE1  | 2.96        | 0.53     |
| 27:6:41:ASP:HB2  | 27:6:46:LYS:HZ3  | 1.64        | 0.53     |
| 27:6:49:VAL:HG12 | 27:6:50:PHE:N    | 2.24        | 0.53     |
| 29:8:14:ILE:O    | 29:8:15:LYS:CB   | 2.57        | 0.53     |
| 2:A:1022:G:O6    | 9:N:47:THR:CG2   | 2.57        | 0.53     |
| 2:A:125:G:H5''   | 28:7:19:ARG:CZ   | 2.33        | 0.53     |
| 2:A:1568:G:H5''  | 3:D:60:GLN:CD    | 2.24        | 0.53     |
| 2:A:530:G:N2     | 2:A:2020:A:O2'   | 2.42        | 0.53     |
| 2:A:2051:A:N1    | 2:A:2618:G:C6    | 2.68        | 0.53     |
| 2:A:2052:G:H2'   | 2:A:2053:G:H8    | 1.74        | 0.53     |
| 2:A:2094:G:N2    | 2:A:2196:C:C2    | 2.76        | 0.53     |
| 2:A:2187:G:H2'   | 2:A:2188:C:C5'   | 2.35        | 0.53     |
| 2:A:2094:G:C2    | 2:A:2196:C:N3    | 2.68        | 0.53     |
| 2:A:2217:G:N3    | 2:A:2218:G:C8    | 2.77        | 0.53     |
| 2:A:2259:G:H2'   | 2:A:2260:C:C6    | 2.44        | 0.53     |
| 2:A:2415:G:N2    | 2:A:2416:C:O4'   | 2.37        | 0.53     |
| 2:A:2453:A:O2'   | 2:A:2454:G:O5'   | 2.26        | 0.53     |
| 2:A:2486:G:C2    | 2:A:2487:G:C8    | 2.97        | 0.53     |
| 2:A:2479:G:OP1   | 2:A:2537:U:H4'   | 2.09        | 0.53     |
| 2:A:2543:G:N9    | 2:A:2544:G:C8    | 2.76        | 0.53     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2567:G:C2'   | 2:A:2568:C:C5     | 2.85        | 0.53     |
| 2:A:295:G:O5'    | 2:A:296:C:OP2     | 2.27        | 0.53     |
| 2:A:591:C:C4     | 2:A:592:G:N7      | 2.77        | 0.53     |
| 2:A:775:G:C4'    | 2:A:777:A:C4      | 2.85        | 0.53     |
| 2:A:1819:A:N9    | 3:D:177:SER:OG    | 2.42        | 0.53     |
| 3:D:68:ARG:NH2   | 3:D:190:THR:HG21  | 2.23        | 0.53     |
| 2:A:2785:C:N1    | 4:E:100:TRP:CD1   | 2.71        | 0.53     |
| 5:F:6:TYR:HE1    | 5:F:138:VAL:O     | 1.92        | 0.53     |
| 1:B:42:C:C5'     | 6:G:48:MET:HB2    | 2.36        | 0.53     |
| 7:H:100:LYS:O    | 7:H:100:LYS:CG    | 2.57        | 0.53     |
| 9:N:19:MET:CG    | 9:N:46:ILE:HD13   | 2.35        | 0.53     |
| 10:O:40:VAL:CG1  | 10:O:40:VAL:O     | 2.47        | 0.53     |
| 19:R:55:ALA:HB1  | 19:R:79:LEU:HD22  | 1.89        | 0.53     |
| 13:S:41:LYS:CE   | 13:S:68:GLU:OE2   | 2.57        | 0.53     |
| 13:S:87:LEU:CD2  | 13:S:87:LEU:N     | 2.66        | 0.53     |
| 20:U:5:LYS:C     | 20:U:7:GLY:N      | 2.62        | 0.53     |
| 20:U:76:TYR:N    | 20:U:76:TYR:CD1   | 2.75        | 0.53     |
| 2:A:998:C:P      | 20:U:92:ARG:NH1   | 2.64        | 0.53     |
| 15:W:84:ARG:HA   | 15:W:84:ARG:HE    | 1.74        | 0.53     |
| 17:Y:30:ASP:CG   | 17:Y:31:LEU:N     | 2.62        | 0.53     |
| 17:Y:66:ASP:O    | 17:Y:68:ASP:CA    | 2.55        | 0.53     |
| 17:Y:78:THR:H    | 17:Y:89:ARG:NE    | 2.06        | 0.53     |
| 18:Z:142:ASN:CA  | 18:Z:171:VAL:HG21 | 2.36        | 0.53     |
| 18:Z:35:ASP:C    | 18:Z:35:ASP:OD1   | 2.47        | 0.53     |
| 2:A:1081:U:HO2'  | 31:K:117:ASN:HB3  | 1.69        | 0.53     |
| 2:A:414:C:N4     | 2:A:2409:G:N1     | 2.42        | 0.53     |
| 2:A:355:G:H2'    | 2:A:356:G:C8      | 2.44        | 0.53     |
| 2:A:1433:U:O5'   | 2:A:1433:U:H6     | 1.92        | 0.53     |
| 24:O:68:VAL:HG21 | 24:O:72:LYS:CE    | 2.38        | 0.53     |
| 23:3:25:ALA:O    | 23:3:26:LEU:C     | 2.48        | 0.53     |
| 23:3:39:ASP:CB   | 23:3:44:ARG:NH2   | 2.72        | 0.53     |
| 27:6:42:PRO:O    | 27:6:43:VAL:C     | 2.45        | 0.53     |
| 30:9:4:ARG:O     | 30:9:36:GLN:HA    | 2.09        | 0.53     |
| 2:A:1161:C:H1'   | 21:V:8:GLY:O      | 2.09        | 0.53     |
| 2:A:2207:C:O2    | 2:A:2218:G:N2     | 2.42        | 0.53     |
| 2:A:2277:G:N3    | 2:A:2277:G:C2'    | 2.72        | 0.53     |
| 2:A:2282:G:H5''  | 2:A:2283:C:O5'    | 2.09        | 0.53     |
| 2:A:2312:U:H5'   | 6:G:53:LYS:HB2    | 1.91        | 0.53     |
| 2:A:2320:A:C2    | 2:A:2333:A:C5     | 2.95        | 0.53     |
| 2:A:2369:A:O2'   | 2:A:2370:G:C5'    | 2.57        | 0.53     |
| 2:A:2488:A:C6    | 2:A:2489:G:N7     | 2.76        | 0.53     |
| 2:A:2489:G:C5    | 2:A:2490:G:C5     | 2.97        | 0.53     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1129:A:N1    | 2:A:2570:G:H1'   | 2.21        | 0.53     |
| 2:A:2616:C:O5'   | 2:A:2616:C:H6    | 1.92        | 0.53     |
| 2:A:2626:C:C3'   | 2:A:2627:G:C5'   | 2.87        | 0.53     |
| 2:A:2633:G:N1    | 2:A:2634:G:N7    | 2.56        | 0.53     |
| 2:A:2642:G:H2'   | 2:A:2643:G:C5'   | 2.39        | 0.53     |
| 2:A:2748:A:C2'   | 7:H:62:ALA:CB    | 2.83        | 0.53     |
| 2:A:2737:G:N2    | 2:A:2767:C:N3    | 2.43        | 0.53     |
| 2:A:2791:C:C5    | 2:A:2807:G:N1    | 2.77        | 0.53     |
| 2:A:2799:A:C3'   | 2:A:2801:A:OP2   | 2.54        | 0.53     |
| 2:A:2893:G:O2'   | 2:A:2894:G:N9    | 2.29        | 0.53     |
| 2:A:326:G:H1'    | 17:Y:7:GLN:HE22  | 1.73        | 0.53     |
| 2:A:637:A:OP2    | 11:P:126:SER:HB3 | 2.07        | 0.53     |
| 3:D:141:HIS:CD2  | 3:D:142:ASN:HD21 | 2.27        | 0.53     |
| 4:E:201:VAL:CG1  | 4:E:310:PHE:O    | 2.57        | 0.53     |
| 5:F:238:SER:C    | 5:F:241:ALA:CB   | 2.68        | 0.53     |
| 6:G:38:GLU:OE2   | 6:G:71:ALA:CA    | 2.56        | 0.53     |
| 2:A:2311:A:C2    | 6:G:53:LYS:CE    | 2.91        | 0.53     |
| 8:I:21:VAL:HG21  | 8:I:30:LEU:CD1   | 2.39        | 0.53     |
| 9:N:15:ARG:HE    | 9:N:40:ASN:HD21  | 1.55        | 0.53     |
| 10:O:44:LYS:O    | 10:O:45:ASP:HB3  | 2.09        | 0.53     |
| 10:O:88:ARG:HG3  | 10:O:92:SER:OG   | 2.09        | 0.53     |
| 11:P:124:ASP:O   | 11:P:125:PHE:CE2 | 2.56        | 0.53     |
| 11:P:132:LYS:N   | 11:P:132:LYS:CD  | 2.48        | 0.53     |
| 11:P:66:VAL:CB   | 11:P:110:GLY:O   | 2.48        | 0.53     |
| 19:R:59:ASP:CG   | 19:R:60:LEU:HD23 | 2.29        | 0.53     |
| 13:S:116:PHE:HD2 | 13:S:119:GLN:OE1 | 1.92        | 0.53     |
| 2:A:1248:G:P     | 20:U:2:PRO:HB3   | 2.46        | 0.53     |
| 17:Y:50:VAL:HA   | 17:Y:97:ARG:HG3  | 1.91        | 0.53     |
| 17:Y:80:GLU:HA   | 17:Y:86:GLU:HA   | 1.90        | 0.53     |
| 18:Z:139:THR:C   | 18:Z:141:MET:HE1 | 2.30        | 0.53     |
| 18:Z:118:HIS:CE1 | 18:Z:167:THR:OG1 | 2.62        | 0.53     |
| 18:Z:146:HIS:CD2 | 18:Z:170:SER:HB2 | 2.44        | 0.53     |
| 18:Z:69:VAL:O    | 18:Z:70:GLN:HB3  | 2.07        | 0.53     |
| 8:I:133:LEU:N    | 8:I:138:THR:CG2  | 2.68        | 0.53     |
| 22:2:29:ASN:C    | 22:2:34:GLN:CG   | 2.74        | 0.53     |
| 16:X:18:MET:CE   | 16:X:25:GLN:CA   | 2.87        | 0.53     |
| 16:X:40:ALA:O    | 16:X:41:VAL:C    | 2.47        | 0.53     |
| 16:X:23:LYS:HG2  | 16:X:67:ARG:HA   | 1.90        | 0.53     |
| 2:A:1324:G:C1'   | 2:A:1616:A:N6    | 2.71        | 0.53     |
| 2:A:2037:G:H2'   | 2:A:2038:G:C8    | 2.44        | 0.53     |
| 2:A:2182:G:H2'   | 2:A:2183:C:C5    | 2.43        | 0.53     |
| 24:0:77:ARG:O    | 24:0:79:ILE:CG1  | 2.54        | 0.53     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 25:4:24:THR:C    | 25:4:26:SER:H     | 2.12        | 0.53     |
| 29:8:55:TRP:HE3  | 29:8:59:LYS:CE    | 2.12        | 0.53     |
| 2:A:1630:G:O4'   | 2:A:2698:U:OP1    | 2.27        | 0.53     |
| 2:A:1778:U:C6    | 2:A:1784:A:H2     | 2.27        | 0.53     |
| 2:A:2011:U:H2'   | 2:A:2012:G:O4'    | 2.08        | 0.53     |
| 2:A:570:G:H2'    | 2:A:2030:A:C6     | 2.44        | 0.53     |
| 2:A:2295:C:N4    | 2:A:2337:G:C6     | 2.77        | 0.53     |
| 2:A:2345:G:H21   | 2:A:2381:C:C3'    | 2.22        | 0.53     |
| 2:A:2067:G:C2    | 2:A:2444:G:N3     | 2.77        | 0.53     |
| 2:A:2488:A:N6    | 2:A:2489:G:C6     | 2.77        | 0.53     |
| 2:A:2549:G:N3    | 2:A:2550:G:C8     | 2.76        | 0.53     |
| 2:A:304:G:H1     | 2:A:313:C:N4      | 2.03        | 0.53     |
| 2:A:38:A:H2'     | 2:A:39:C:H6       | 1.72        | 0.53     |
| 2:A:684:G:C2     | 2:A:794:G:C2      | 2.97        | 0.53     |
| 2:A:972:G:OP1    | 2:A:975:G:OP1     | 2.26        | 0.53     |
| 3:D:183:ILE:HG23 | 3:D:184:LEU:N     | 2.16        | 0.53     |
| 4:E:44:TYR:CE1   | 4:E:308:VAL:CG1   | 2.91        | 0.53     |
| 4:E:41:PHE:O     | 4:E:42:ALA:HB2    | 2.09        | 0.53     |
| 5:F:105:LYS:N    | 5:F:105:LYS:HD2   | 2.24        | 0.53     |
| 5:F:142:ASP:O    | 5:F:144:PHE:N     | 2.42        | 0.53     |
| 2:A:321:G:C1'    | 5:F:206:ASN:ND2   | 2.62        | 0.53     |
| 8:I:3:VAL:HB     | 8:I:19:LYS:O      | 2.09        | 0.53     |
| 8:I:38:GLU:O     | 8:I:40:THR:N      | 2.41        | 0.53     |
| 9:N:54:VAL:CG1   | 9:N:138:THR:HB    | 2.38        | 0.53     |
| 11:P:67:ARG:NH1  | 11:P:111:ALA:HB3  | 2.23        | 0.53     |
| 12:Q:69:ASN:ND2  | 12:Q:70:ARG:H     | 2.01        | 0.53     |
| 19:R:77:ARG:NH1  | 19:R:77:ARG:CG    | 2.38        | 0.53     |
| 13:S:59:ALA:O    | 13:S:91:ARG:CZ    | 2.56        | 0.53     |
| 21:V:33:VAL:C    | 21:V:63:HIS:CE1   | 2.82        | 0.53     |
| 21:V:39:PHE:CE2  | 21:V:42:GLY:N     | 2.77        | 0.53     |
| 21:V:64:GLY:N    | 21:V:95:ILE:HG13  | 2.21        | 0.53     |
| 15:W:12:ILE:HD11 | 15:W:42:ARG:HD3   | 1.90        | 0.53     |
| 15:W:36:LEU:HD13 | 15:W:47:VAL:CB    | 2.39        | 0.53     |
| 15:W:84:ARG:CB   | 15:W:96:ILE:HD13  | 2.15        | 0.53     |
| 17:Y:14:ALA:HB3  | 17:Y:18:GLU:OE1   | 2.09        | 0.53     |
| 18:Z:149:ALA:C   | 18:Z:152:ILE:HG13 | 2.22        | 0.53     |
| 18:Z:25:ASN:C    | 18:Z:84:TYR:HE1   | 2.12        | 0.53     |
| 8:I:123:ALA:O    | 8:I:124:LEU:O     | 2.25        | 0.53     |
| 2:A:1826:G:C6    | 2:A:1827:C:C5     | 2.96        | 0.53     |
| 2:A:138:G:N3     | 2:A:138:G:C3'     | 2.63        | 0.53     |
| 5:F:151:GLN:HA   | 5:F:151:GLN:OE1   | 2.09        | 0.53     |
| 2:A:1697:G:O6    | 2:A:1698:A:C6     | 2.62        | 0.53     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1529:A:N7    | 2:A:1543:A:H8     | 2.06        | 0.53     |
| 25:4:30:GLU:O    | 25:4:31:ILE:CD1   | 2.53        | 0.53     |
| 26:5:4:HIS:CB    | 26:5:5:PRO:CD     | 2.80        | 0.53     |
| 28:7:30:ILE:HD13 | 28:7:33:ARG:CZ    | 2.31        | 0.53     |
| 2:A:2349:G:OP2   | 29:8:42:ARG:CZ    | 2.57        | 0.53     |
| 2:A:1648:C:H2'   | 2:A:1649:G:C8     | 2.43        | 0.53     |
| 2:A:2001:A:H4'   | 2:A:2689:U:H2'    | 1.90        | 0.53     |
| 2:A:2041:U:H2'   | 2:A:2042:A:C5'    | 2.34        | 0.53     |
| 2:A:2272:U:H6    | 2:A:2273:A:H2     | 1.57        | 0.53     |
| 2:A:2306:C:N4    | 6:G:53:LYS:HZ2    | 1.81        | 0.53     |
| 2:A:2455:G:C6    | 2:A:2456:C:C4     | 2.97        | 0.53     |
| 2:A:2489:G:C5    | 2:A:2490:G:N7     | 2.77        | 0.53     |
| 2:A:249:C:O2'    | 29:8:8:LYS:HE2    | 2.07        | 0.53     |
| 2:A:2570:G:N2    | 2:A:2571:C:C2     | 2.77        | 0.53     |
| 2:A:2624:G:H1'   | 26:5:22:HIS:NE2   | 2.15        | 0.53     |
| 2:A:2826:A:N1    | 2:A:2827:C:H6     | 1.94        | 0.53     |
| 2:A:632:A:C2     | 2:A:2403:C:H4'    | 2.43        | 0.53     |
| 1:B:12:C:C2      | 13:S:10:MET:SD    | 3.02        | 0.53     |
| 1:B:8:U:H5'      | 13:S:37:ARG:CD    | 2.39        | 0.53     |
| 3:D:119:PRO:HA   | 3:D:129:LEU:HD21  | 1.91        | 0.53     |
| 3:D:141:HIS:C    | 3:D:143:ILE:N     | 2.61        | 0.53     |
| 4:E:304:ASP:OD1  | 4:E:304:ASP:N     | 2.40        | 0.53     |
| 5:F:167:ASP:CB   | 5:F:232:LEU:H     | 2.20        | 0.53     |
| 5:F:39:GLN:O     | 5:F:42:ARG:CB     | 2.57        | 0.53     |
| 5:F:57:PRO:HG2   | 5:F:58:ALA:N      | 2.21        | 0.53     |
| 6:G:21:VAL:HG11  | 6:G:132:VAL:HG21  | 1.87        | 0.53     |
| 9:N:134:GLU:C    | 9:N:138:THR:CG2   | 2.62        | 0.53     |
| 9:N:25:GLN:O     | 9:N:28:GLU:N      | 2.42        | 0.53     |
| 9:N:60:ARG:HD2   | 9:N:71:TYR:HE2    | 1.73        | 0.53     |
| 10:O:88:ARG:CG   | 10:O:92:SER:OG    | 2.57        | 0.53     |
| 12:Q:134:PHE:O   | 12:Q:135:ALA:O    | 2.27        | 0.53     |
| 2:A:2485:G:H4'   | 12:Q:144:THR:HG22 | 1.90        | 0.53     |
| 12:Q:65:ARG:NH1  | 12:Q:87:LYS:HB2   | 2.24        | 0.53     |
| 19:R:49:ASP:O    | 19:R:50:HIS:C     | 2.47        | 0.53     |
| 20:U:14:HIS:O    | 20:U:15:LYS:O     | 2.27        | 0.53     |
| 20:U:43:ALA:HB1  | 21:V:75:LYS:O     | 2.09        | 0.53     |
| 20:U:62:ILE:HD13 | 20:U:62:ILE:N     | 2.24        | 0.53     |
| 17:Y:26:THR:O    | 17:Y:27:LEU:CB    | 2.56        | 0.53     |
| 17:Y:78:THR:N    | 17:Y:89:ARG:NE    | 2.55        | 0.53     |
| 18:Z:5:ALA:O     | 18:Z:6:LYS:CB     | 2.57        | 0.53     |
| 18:Z:74:ARG:HD3  | 18:Z:75:LYS:H     | 1.73        | 0.53     |
| 8:I:117:LEU:HD22 | 8:I:121:ILE:CD1   | 2.39        | 0.53     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:1055:G:C8     | 2:A:1056:G:H1'   | 2.44        | 0.53     |
| 2:A:1417:C:H3'    | 2:A:1418:G:C8    | 2.43        | 0.53     |
| 2:A:1582:C:H3'    | 2:A:1583:A:H4'   | 1.91        | 0.53     |
| 2:A:2795:G:OP2    | 2:A:2795:G:N9    | 2.42        | 0.53     |
| 24:0:44:LYS:C     | 24:0:45:PHE:CG   | 2.82        | 0.52     |
| 23:3:11:SER:OG    | 23:3:13:ILE:CG1  | 2.50        | 0.52     |
| 23:3:39:ASP:CA    | 23:3:44:ARG:NH2  | 2.72        | 0.52     |
| 25:4:28:ARG:HB3   | 25:4:29:PRO:CD   | 2.39        | 0.52     |
| 2:A:2021:C:OP1    | 26:5:15:LYS:HE3  | 2.07        | 0.52     |
| 2:A:1758:G:N7     | 2:A:2695:C:H4'   | 2.24        | 0.52     |
| 2:A:2051:A:C4'    | 4:E:238:LEU:CD2  | 2.80        | 0.52     |
| 2:A:2103:C:C2     | 2:A:2187:G:N1    | 2.46        | 0.52     |
| 2:A:2212:A:H1'    | 2:A:2213:U:O4    | 2.07        | 0.52     |
| 2:A:2224:G:O2'    | 2:A:2225:A:O4'   | 2.26        | 0.52     |
| 2:A:2324:C:C2'    | 2:A:2325:G:OP1   | 2.57        | 0.52     |
| 2:A:2333:A:N9     | 2:A:2335:A:N1    | 2.55        | 0.52     |
| 2:A:2418:A:O2'    | 2:A:2419:U:H5'   | 2.09        | 0.52     |
| 2:A:2589:A:N3     | 2:A:2590:A:C8    | 2.77        | 0.52     |
| 2:A:2605:U:C4'    | 2:A:2605:U:C6    | 2.93        | 0.52     |
| 2:A:2023:G:C5'    | 2:A:2618:G:OP1   | 2.57        | 0.52     |
| 2:A:2658:C:H2'    | 2:A:2659:G:H5'   | 1.88        | 0.52     |
| 2:A:2787:C:H5''   | 2:A:2788:C:OP2   | 2.08        | 0.52     |
| 2:A:2007:C:H4'    | 2:A:2824:C:O2'   | 2.08        | 0.52     |
| 2:A:2880:C:C4     | 2:A:2881:C:C5    | 2.97        | 0.52     |
| 2:A:2788:C:H2'    | 2:A:2892:A:N1    | 2.24        | 0.52     |
| 2:A:450:G:N2      | 2:A:454:A:C2     | 2.77        | 0.52     |
| 2:A:600:G:H5''    | 5:F:27:ARG:HH12  | 1.63        | 0.52     |
| 2:A:848:G:H3'     | 2:A:848:G:C8     | 2.43        | 0.52     |
| 1:B:47:C:O3'      | 13:S:107:ASN:CG  | 2.46        | 0.52     |
| 3:D:94:ASN:OD1    | 3:D:100:LYS:HE2  | 2.09        | 0.52     |
| 5:F:168:ARG:CA    | 5:F:232:LEU:O    | 2.57        | 0.52     |
| 5:F:58:ALA:HB2    | 5:F:79:ARG:CA    | 2.39        | 0.52     |
| 9:N:49:ARG:O      | 9:N:50:GLU:C     | 2.47        | 0.52     |
| 10:O:22:ILE:CG1   | 10:O:40:VAL:O    | 2.57        | 0.52     |
| 11:P:61:ALA:C     | 11:P:107:LYS:CE  | 2.78        | 0.52     |
| 11:P:125:PHE:O    | 11:P:130:ARG:NE  | 2.42        | 0.52     |
| 11:P:114:VAL:HG21 | 11:P:132:LYS:HB2 | 1.81        | 0.52     |
| 12:Q:10:ILE:CG1   | 12:Q:10:ILE:O    | 2.55        | 0.52     |
| 19:R:96:ARG:O     | 19:R:98:LEU:HG   | 2.10        | 0.52     |
| 15:W:95:ILE:HG22  | 15:W:96:ILE:O    | 2.09        | 0.52     |
| 17:Y:47:THR:OG1   | 17:Y:60:GLY:O    | 2.27        | 0.52     |
| 17:Y:19:ARG:NH1   | 17:Y:67:LEU:HB3  | 2.24        | 0.52     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 17:Y:78:THR:HA    | 17:Y:89:ARG:N    | 2.22        | 0.52     |
| 18:Z:71:MET:SD    | 18:Z:78:PRO:HD3  | 2.39        | 0.52     |
| 18:Z:62:PHE:CD1   | 18:Z:87:THR:HG21 | 2.44        | 0.52     |
| 8:I:81:ALA:O      | 8:I:148:GLN:HG3  | 2.08        | 0.52     |
| 2:A:1827:C:H1'    | 2:A:1970:A:H2    | 1.74        | 0.52     |
| 2:A:135:G:C2      | 2:A:145:G:C6     | 2.96        | 0.52     |
| 16:X:6:LYS:HD2    | 16:X:27:ALA:C    | 2.29        | 0.52     |
| 6:G:86:THR:HG22   | 6:G:86:THR:O     | 2.09        | 0.52     |
| 23:3:7:LYS:CG     | 23:3:8:LEU:H     | 2.22        | 0.52     |
| 25:4:39:VAL:H     | 25:4:40:HIS:CE1  | 2.26        | 0.52     |
| 30:9:5:SER:O      | 30:9:6:SER:CB    | 2.56        | 0.52     |
| 2:A:2185:C:C2'    | 2:A:2186:G:H8    | 2.17        | 0.52     |
| 2:A:2100:G:C4     | 2:A:2190:G:N2    | 2.77        | 0.52     |
| 2:A:2378:A:N3     | 13:S:26:LEU:HD21 | 2.19        | 0.52     |
| 2:A:2517:C:C5     | 2:A:2542:A:N7    | 2.77        | 0.52     |
| 2:A:2553:G:H8     | 2:A:2554:U:O4'   | 1.87        | 0.52     |
| 2:A:2600:A:H2'    | 2:A:2601:C:C5    | 2.44        | 0.52     |
| 2:A:2733:A:H2'    | 2:A:2734:A:O4'   | 2.09        | 0.52     |
| 2:A:2745:C:O2'    | 2:A:2746:U:O5'   | 2.23        | 0.52     |
| 2:A:2858:C:O2     | 2:A:2858:C:C2'   | 2.57        | 0.52     |
| 2:A:2887:U:O2'    | 2:A:2888:C:H5'   | 2.08        | 0.52     |
| 2:A:631:A:C2      | 2:A:2415:G:C2    | 2.93        | 0.52     |
| 2:A:687:C:H2'     | 2:A:688:U:C6     | 2.44        | 0.52     |
| 2:A:848:G:H2'     | 2:A:849:A:C8     | 2.42        | 0.52     |
| 2:A:998:C:OP1     | 20:U:92:ARG:CZ   | 2.37        | 0.52     |
| 3:D:127:ASN:O     | 3:D:190:THR:CB   | 2.51        | 0.52     |
| 3:D:157:ALA:O     | 3:D:158:GLY:C    | 2.46        | 0.52     |
| 4:E:268:LEU:HD11  | 4:E:271:ILE:HD11 | 1.90        | 0.52     |
| 5:F:52:ALA:O      | 5:F:55:ARG:CG    | 2.54        | 0.52     |
| 5:F:97:ASP:C      | 5:F:98:ARG:HD3   | 2.29        | 0.52     |
| 6:G:103:ASN:CA    | 6:G:104:PHE:CD1  | 2.92        | 0.52     |
| 7:H:10:ILE:CG2    | 7:H:14:VAL:CB    | 2.50        | 0.52     |
| 9:N:88:PRO:C      | 9:N:90:LYS:N     | 2.62        | 0.52     |
| 10:O:63:VAL:CG1   | 10:O:63:VAL:O    | 2.57        | 0.52     |
| 11:P:66:VAL:C     | 11:P:68:GLU:N    | 2.62        | 0.52     |
| 12:Q:126:VAL:HG12 | 12:Q:127:ASN:N   | 2.24        | 0.52     |
| 19:R:104:ARG:O    | 19:R:107:ASP:OD2 | 2.27        | 0.52     |
| 19:R:38:VAL:CG1   | 19:R:39:PRO:N    | 2.46        | 0.52     |
| 19:R:67:LEU:HD13  | 19:R:68:ARG:CA   | 2.39        | 0.52     |
| 19:R:80:PHE:O     | 19:R:84:ALA:HB2  | 2.07        | 0.52     |
| 20:U:98:ILE:HB    | 20:U:106:PHE:CD1 | 2.43        | 0.52     |
| 20:U:46:GLU:O     | 20:U:49:ASP:N    | 2.42        | 0.52     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 21:V:69:ILE:CG2 | 21:V:88:GLN:HB2  | 2.38        | 0.52     |
| 17:Y:87:VAL:CG1 | 17:Y:88:PRO:N    | 2.72        | 0.52     |
| 18:Z:113:VAL:H  | 18:Z:174:PRO:HD3 | 1.74        | 0.52     |
| 18:Z:50:GLY:O   | 18:Z:51:LEU:HB2  | 2.08        | 0.52     |
| 8:I:94:THR:CG2  | 8:I:97:GLN:H     | 2.16        | 0.52     |
| 2:A:1524:G:C4   | 2:A:1525:G:C8    | 2.97        | 0.52     |
| 2:A:1697:G:O6   | 2:A:1698:A:N6    | 2.41        | 0.52     |
| 2:A:1943:U:H4'  | 2:A:1944:U:H5'   | 1.91        | 0.52     |
| 2:A:1609:A:C5   | 2:A:1616:A:N3    | 2.77        | 0.52     |
| 2:A:118:A:C8    | 2:A:119:A:C8     | 2.97        | 0.52     |
| 2:A:743:G:O2'   | 2:A:1659:U:OP1   | 2.25        | 0.52     |
| 21:V:7:THR:O    | 21:V:9:GLY:O     | 2.27        | 0.52     |
| 24:0:48:GLY:HA2 | 24:0:56:ASP:N    | 2.24        | 0.52     |
| 24:0:58:THR:OG1 | 24:0:58:THR:O    | 2.24        | 0.52     |
| 24:0:37:LEU:O   | 24:0:68:VAL:HA   | 2.09        | 0.52     |
| 27:6:12:MET:CE  | 27:6:54:LYS:C    | 2.78        | 0.52     |
| 30:9:4:ARG:C    | 30:9:36:GLN:HG2  | 2.26        | 0.52     |
| 30:9:2:LYS:O    | 30:9:4:ARG:N     | 2.42        | 0.52     |
| 2:A:1007:C:N3   | 2:A:1008:C:N4    | 2.57        | 0.52     |
| 2:A:1028:A:H2'  | 2:A:1029:A:H8    | 1.74        | 0.52     |
| 2:A:1029:A:H3'  | 2:A:1030:G:O5'   | 2.06        | 0.52     |
| 2:A:1251:C:H5'  | 20:U:10:ARG:HG3  | 1.91        | 0.52     |
| 2:A:199:A:N1    | 2:A:2433:A:N9    | 2.56        | 0.52     |
| 2:A:2296:U:OP2  | 2:A:2296:U:O4'   | 2.27        | 0.52     |
| 2:A:2299:G:C5   | 2:A:2300:G:N7    | 2.77        | 0.52     |
| 2:A:2423:U:HO2' | 2:A:2424:C:P     | 2.23        | 0.52     |
| 2:A:806:C:O2'   | 2:A:2445:G:C1'   | 2.55        | 0.52     |
| 2:A:2474:C:H5   | 2:A:2475:C:N3    | 2.07        | 0.52     |
| 2:A:2490:G:H4'  | 2:A:2491:U:OP1   | 2.09        | 0.52     |
| 2:A:2544:G:H2'  | 2:A:2545:G:C8    | 2.36        | 0.52     |
| 2:A:2586:C:O5'  | 2:A:2586:C:H6    | 1.91        | 0.52     |
| 2:A:2657:A:C6   | 2:A:2665:A:C8    | 2.97        | 0.52     |
| 2:A:2742:C:N3   | 2:A:2743:C:C5    | 2.77        | 0.52     |
| 2:A:2828:C:H42  | 2:A:2829:C:N4    | 2.07        | 0.52     |
| 2:A:449:A:P     | 5:F:85:LYS:CA    | 2.97        | 0.52     |
| 2:A:919:G:H2'   | 2:A:920:G:H8     | 1.75        | 0.52     |
| 3:D:144:GLU:HB3 | 3:D:188:ARG:O    | 2.09        | 0.52     |
| 3:D:143:ILE:CG1 | 3:D:153:LEU:N    | 2.73        | 0.52     |
| 2:A:2786:U:C5'  | 4:E:100:TRP:HB2  | 2.40        | 0.52     |
| 4:E:296:VAL:CG1 | 4:E:297:LYS:N    | 2.72        | 0.52     |
| 4:E:61:PRO:CB   | 4:E:69:PRO:HA    | 2.38        | 0.52     |
| 4:E:70:VAL:C    | 4:E:71:THR:CG2   | 2.78        | 0.52     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:H:140:VAL:O    | 7:H:141:GLY:C    | 2.47        | 0.52     |
| 7:H:120:LEU:CD1  | 7:H:143:LEU:CD1  | 2.69        | 0.52     |
| 2:A:2749:A:H5'   | 7:H:62:ALA:HA    | 1.90        | 0.52     |
| 9:N:136:SER:CA   | 9:N:139:LEU:HD21 | 2.37        | 0.52     |
| 9:N:74:ARG:CB    | 9:N:76:ASP:OD2   | 2.53        | 0.52     |
| 10:O:102:VAL:O   | 10:O:122:ILE:O   | 2.26        | 0.52     |
| 13:S:22:GLN:OE1  | 13:S:23:ARG:N    | 2.42        | 0.52     |
| 2:A:2378:A:C2    | 13:S:26:LEU:HD21 | 2.43        | 0.52     |
| 13:S:46:GLN:C    | 13:S:47:LEU:CG   | 2.78        | 0.52     |
| 14:T:22:VAL:N    | 14:T:29:THR:OG1  | 2.43        | 0.52     |
| 14:T:13:ILE:HD12 | 14:T:33:SER:CB   | 2.38        | 0.52     |
| 20:U:46:GLU:O    | 20:U:49:ASP:CA   | 2.58        | 0.52     |
| 21:V:50:ASP:CB   | 21:V:53:LYS:HE3  | 2.39        | 0.52     |
| 15:W:4:LYS:CG    | 15:W:106:ILE:HA  | 2.39        | 0.52     |
| 15:W:5:ALA:CB    | 15:W:50:VAL:O    | 2.57        | 0.52     |
| 18:Z:34:LEU:HD13 | 18:Z:39:PHE:CE1  | 2.38        | 0.52     |
| 16:X:7:HIS:ND1   | 16:X:8:PRO:N     | 2.56        | 0.52     |
| 4:E:107:GLU:CG   | 4:E:110:ARG:NH2  | 2.63        | 0.52     |
| 2:A:1554:A:O5'   | 2:A:1555:G:OP2   | 2.27        | 0.52     |
| 14:T:46:ALA:O    | 14:T:48:ASN:OD1  | 2.27        | 0.52     |
| 14:T:47:ARG:O    | 14:T:48:ASN:CG   | 2.47        | 0.52     |
| 2:A:1174:A:N1    | 2:A:1176:G:H8    | 2.08        | 0.52     |
| 13:S:70:GLY:C    | 13:S:71:TRP:CE3  | 2.82        | 0.52     |
| 2:A:1355:G:H1    | 2:A:1376:C:H42   | 1.57        | 0.52     |
| 2:A:549:G:H2'    | 2:A:550:G:O4'    | 2.09        | 0.52     |
| 2:A:381:G:H1     | 2:A:393:C:H42    | 1.56        | 0.52     |
| 24:O:45:PHE:HE1  | 24:O:78:PHE:CE2  | 2.22        | 0.52     |
| 25:4:11:PRO:CA   | 25:4:40:HIS:CD2  | 2.82        | 0.52     |
| 28:7:22:MET:HA   | 28:7:28:ARG:HG2  | 1.91        | 0.52     |
| 29:8:10:ALA:HA   | 29:8:14:ILE:HG21 | 1.92        | 0.52     |
| 29:8:31:HIS:C    | 29:8:32:GLN:CG   | 2.78        | 0.52     |
| 2:A:1568:G:C5'   | 3:D:60:GLN:CD    | 2.76        | 0.52     |
| 2:A:2053:G:H1'   | 4:E:245:ARG:HG3  | 1.91        | 0.52     |
| 2:A:2297:C:N4    | 2:A:2320:A:C8    | 2.77        | 0.52     |
| 2:A:2311:A:H2'   | 2:A:2312:U:H6    | 1.73        | 0.52     |
| 2:A:2355:C:H5''  | 2:A:2356:C:OP2   | 2.08        | 0.52     |
| 2:A:2429:G:C5'   | 2:A:2430:A:P     | 2.97        | 0.52     |
| 2:A:2476:A:N7    | 2:A:2477:C:H5    | 1.99        | 0.52     |
| 2:A:2488:A:C2    | 2:A:2489:G:C4    | 2.97        | 0.52     |
| 2:A:2526:G:N3    | 2:A:2527:C:H6    | 2.06        | 0.52     |
| 2:A:2533:A:C2'   | 2:A:2534:A:C8    | 2.90        | 0.52     |
| 2:A:2524:G:N1    | 2:A:2540:C:C4    | 2.77        | 0.52     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2597:G:O6    | 2:A:2598:A:N6     | 2.41        | 0.52     |
| 2:A:2633:G:P     | 2:A:2633:G:H8     | 2.31        | 0.52     |
| 2:A:2682:U:H2'   | 2:A:2683:C:O5'    | 2.09        | 0.52     |
| 2:A:2748:A:H2    | 2:A:2758:A:H62    | 1.58        | 0.52     |
| 3:D:158:GLY:HA3  | 3:D:194:VAL:HG21  | 1.89        | 0.52     |
| 4:E:229:GLN:HB2  | 4:E:231:TRP:HB2   | 1.90        | 0.52     |
| 4:E:271:ILE:HD11 | 4:E:294:THR:CG2   | 2.40        | 0.52     |
| 4:E:303:PRO:HB2  | 4:E:307:LEU:CB    | 2.38        | 0.52     |
| 5:F:153:VAL:CB   | 5:F:157:LEU:HD21  | 2.18        | 0.52     |
| 5:F:153:VAL:HG11 | 5:F:207:LEU:CD1   | 2.39        | 0.52     |
| 7:H:124:VAL:HG22 | 7:H:124:VAL:O     | 2.09        | 0.52     |
| 7:H:96:SER:O     | 7:H:97:LYS:C      | 2.40        | 0.52     |
| 8:I:39:ALA:O     | 8:I:40:THR:C      | 2.47        | 0.52     |
| 9:N:39:VAL:CA    | 9:N:103:VAL:HG13  | 2.37        | 0.52     |
| 10:O:25:LEU:HD12 | 10:O:38:VAL:HB    | 1.91        | 0.52     |
| 10:O:35:ILE:HA   | 10:O:62:VAL:CA    | 1.87        | 0.52     |
| 11:P:115:ARG:C   | 11:P:117:GLU:N    | 2.61        | 0.52     |
| 11:P:66:VAL:CA   | 11:P:67:ARG:NE    | 2.70        | 0.52     |
| 12:Q:18:GLU:CB   | 12:Q:23:ILE:HD11  | 2.40        | 0.52     |
| 12:Q:50:VAL:CG1  | 12:Q:52:LYS:H     | 2.16        | 0.52     |
| 19:R:100:LEU:O   | 26:5:44:HIS:CD2   | 2.63        | 0.52     |
| 19:R:50:HIS:O    | 19:R:51:LEU:C     | 2.48        | 0.52     |
| 19:R:92:GLY:HA2  | 19:R:94:TYR:CE1   | 2.44        | 0.52     |
| 2:A:2378:A:C1'   | 13:S:101:VAL:HG23 | 2.39        | 0.52     |
| 13:S:90:LEU:HA   | 13:S:93:GLN:NE2   | 2.24        | 0.52     |
| 15:W:69:LEU:HD22 | 15:W:109:GLU:HA   | 1.92        | 0.52     |
| 17:Y:11:GLN:CG   | 17:Y:21:LYS:CE    | 2.87        | 0.52     |
| 22:2:26:GLU:HG2  | 22:2:27:LEU:HG    | 1.91        | 0.52     |
| 22:2:2:VAL:C     | 22:2:4:HIS:ND1    | 2.50        | 0.52     |
| 2:A:1598:C:H5'   | 16:X:34:LYS:HG3   | 1.83        | 0.52     |
| 2:A:484:C:O5'    | 2:A:484:C:H6      | 1.92        | 0.52     |
| 2:A:152:G:H2'    | 2:A:153:C:H5'     | 1.91        | 0.52     |
| 26:5:45:ILE:CB   | 26:5:52:TYR:HE1   | 2.19        | 0.52     |
| 2:A:125:G:OP2    | 28:7:19:ARG:HD3   | 2.09        | 0.52     |
| 2:A:2283:C:H1'   | 2:A:2389:G:N2     | 2.25        | 0.52     |
| 2:A:2306:C:C5    | 2:A:2311:A:N1     | 2.77        | 0.52     |
| 2:A:2380:C:C3'   | 2:A:2381:C:C5'    | 2.87        | 0.52     |
| 2:A:792:G:C6     | 2:A:2440:C:C1'    | 2.93        | 0.52     |
| 2:A:2479:G:C2    | 2:A:2480:C:O2     | 2.62        | 0.52     |
| 2:A:2605:U:H2'   | 2:A:2606:C:H5'    | 1.92        | 0.52     |
| 2:A:2581:G:C6    | 2:A:2610:C:H6     | 2.07        | 0.52     |
| 2:A:2728:U:C6    | 2:A:2728:U:O5'    | 2.62        | 0.52     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2771:C:N3    | 2:A:2772:C:C4    | 2.78        | 0.52     |
| 2:A:2642:G:C2    | 2:A:2773:C:C2    | 2.97        | 0.52     |
| 2:A:2842:G:H1    | 2:A:2875:C:N4    | 2.07        | 0.52     |
| 2:A:327:G:C2     | 2:A:328:U:H6     | 2.27        | 0.52     |
| 2:A:637:A:C8     | 11:P:111:ALA:HB3 | 2.36        | 0.52     |
| 3:D:107:LYS:HB3  | 3:D:193:GLU:HB2  | 1.92        | 0.52     |
| 3:D:67:LYS:O     | 3:D:67:LYS:HG2   | 2.10        | 0.52     |
| 3:D:75:GLY:N     | 3:D:116:MET:HB2  | 2.25        | 0.52     |
| 4:E:189:MET:C    | 4:E:190:ASN:CG   | 2.68        | 0.52     |
| 5:F:153:VAL:O    | 5:F:155:SER:N    | 2.42        | 0.52     |
| 5:F:239:ALA:O    | 5:F:242:GLU:CG   | 2.54        | 0.52     |
| 6:G:56:ARG:HA    | 6:G:63:ILE:HA    | 1.90        | 0.52     |
| 6:G:63:ILE:HG23  | 6:G:64:ARG:N     | 2.24        | 0.52     |
| 9:N:21:ARG:H     | 9:N:21:ARG:CD    | 2.22        | 0.52     |
| 9:N:39:VAL:O     | 9:N:40:ASN:CG    | 2.48        | 0.52     |
| 9:N:76:ASP:O     | 9:N:80:LYS:HG2   | 2.09        | 0.52     |
| 10:O:104:ARG:NH1 | 10:O:122:ILE:HA  | 2.24        | 0.52     |
| 20:U:102:GLU:HB3 | 20:U:105:ALA:HB3 | 1.91        | 0.52     |
| 20:U:115:ASN:HA  | 20:U:118:GLN:O   | 2.09        | 0.52     |
| 20:U:39:LEU:O    | 20:U:41:ASN:C    | 2.48        | 0.52     |
| 20:U:98:ILE:N    | 20:U:98:ILE:CD1  | 2.72        | 0.52     |
| 15:W:48:ALA:O    | 15:W:51:LEU:HB2  | 2.09        | 0.52     |
| 17:Y:41:ARG:O    | 17:Y:112:LEU:HA  | 2.10        | 0.52     |
| 8:I:117:LEU:HD22 | 8:I:121:ILE:HD11 | 1.91        | 0.52     |
| 8:I:94:THR:HG23  | 8:I:96:LYS:CB    | 2.34        | 0.52     |
| 16:X:8:PRO:HG3   | 22:2:33:VAL:HG22 | 1.91        | 0.52     |
| 25:4:48:ARG:O    | 25:4:49:PHE:O    | 2.27        | 0.52     |
| 1:B:100:G:N2     | 2:A:863:A:H4'    | 2.24        | 0.52     |
| 2:A:270(X):G:H2' | 2:A:270(Y):G:H5' | 1.90        | 0.52     |
| 2:A:383:U:HO2'   | 2:A:384:U:H5     | 1.57        | 0.52     |
| 26:5:6:VAL:N     | 26:5:8:LYS:CE    | 2.73        | 0.52     |
| 2:A:650:C:OP1    | 29:8:19:THR:HG23 | 2.09        | 0.52     |
| 29:8:4:MET:CA    | 29:8:5:LYS:HZ1   | 2.00        | 0.52     |
| 29:8:60:LEU:CD2  | 29:8:60:LEU:O    | 2.35        | 0.52     |
| 2:A:2048:G:N1    | 2:A:2621:A:N3    | 2.58        | 0.52     |
| 2:A:2279:G:C6    | 2:A:2280:G:C5    | 2.97        | 0.52     |
| 2:A:2319:G:C5'   | 13:S:9:PRO:CD    | 2.88        | 0.52     |
| 2:A:2376:A:H2'   | 2:A:2377:A:H8    | 1.74        | 0.52     |
| 2:A:2404:C:C4    | 2:A:2405:G:C4    | 2.98        | 0.52     |
| 2:A:570:G:O6     | 2:A:2499:C:OP1   | 2.28        | 0.52     |
| 2:A:2565:A:C3'   | 2:A:2566:A:O4'   | 2.57        | 0.52     |
| 2:A:2662:A:C2    | 2:A:2663:G:H4'   | 2.45        | 0.52     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2762:G:H2'   | 2:A:2763:G:H8    | 1.74        | 0.52     |
| 2:A:2827:C:O2    | 2:A:2827:C:C2'   | 2.52        | 0.52     |
| 2:A:2865:U:C2    | 2:A:2866:U:C5    | 2.97        | 0.52     |
| 2:A:574:C:N4     | 2:A:2054:A:H5'   | 2.21        | 0.52     |
| 2:A:945:A:H2'    | 2:A:946:G:O5'    | 2.10        | 0.52     |
| 2:A:993:G:C2     | 20:U:54:LYS:NZ   | 2.78        | 0.52     |
| 3:D:145:LEU:HD13 | 3:D:146:LYS:N    | 2.24        | 0.52     |
| 3:D:167:GLU:O    | 3:D:170:TYR:C    | 2.47        | 0.52     |
| 4:E:102:ASP:OD1  | 4:E:104:PHE:CZ   | 2.62        | 0.52     |
| 4:E:200:ASP:H    | 4:E:312:ARG:N    | 2.07        | 0.52     |
| 5:F:22:PHE:CZ    | 5:F:115:LEU:CG   | 2.93        | 0.52     |
| 5:F:88:SER:O     | 5:F:89:ALA:HB3   | 2.09        | 0.52     |
| 6:G:25:MET:O     | 6:G:71:ALA:O     | 2.28        | 0.52     |
| 6:G:55:LYS:O     | 6:G:65:GLU:CB    | 2.58        | 0.52     |
| 7:H:166:GLU:OE2  | 7:H:166:GLU:CA   | 2.57        | 0.52     |
| 7:H:23:VAL:HG12  | 7:H:74:MET:SD    | 2.49        | 0.52     |
| 9:N:21:ARG:O     | 9:N:24:SER:CB    | 2.57        | 0.52     |
| 11:P:73:VAL:CG1  | 11:P:76:LEU:HB3  | 2.40        | 0.52     |
| 12:Q:140:TYR:O   | 12:Q:142:LYS:C   | 2.48        | 0.52     |
| 20:U:113:SER:O   | 20:U:115:ASN:C   | 2.48        | 0.52     |
| 15:W:84:ARG:HA   | 15:W:84:ARG:NE   | 2.25        | 0.52     |
| 17:Y:44:ALA:HB1  | 17:Y:65:VAL:CG2  | 2.40        | 0.52     |
| 18:Z:114:ASP:HA  | 18:Z:170:SER:O   | 2.07        | 0.52     |
| 8:I:130:PRO:HA   | 8:I:140:THR:HA   | 1.91        | 0.52     |
| 16:X:33:SER:N    | 16:X:37:VAL:CG2  | 2.64        | 0.52     |
| 16:X:45:TYR:CE2  | 16:X:73:ASP:HA   | 2.44        | 0.52     |
| 2:A:1512:G:HO3'  | 2:A:1513:C:P     | 2.27        | 0.52     |
| 2:A:869:G:H2'    | 2:A:870:A:O4'    | 2.10        | 0.52     |
| 2:A:479:A:O2'    | 2:A:481:G:H5''   | 2.10        | 0.52     |
| 2:A:2795:G:P     | 2:A:2795:G:H3'   | 2.50        | 0.52     |
| 2:A:758:C:H2'    | 2:A:759:G:C8     | 2.45        | 0.52     |
| 23:3:7:LYS:HA    | 23:3:33:GLN:O    | 2.10        | 0.52     |
| 25:4:7:PRO:HD2   | 25:4:56:VAL:CG1  | 2.39        | 0.52     |
| 28:7:21:ARG:CZ   | 28:7:43:THR:HG21 | 2.30        | 0.52     |
| 29:8:14:ILE:HG22 | 29:8:15:LYS:N    | 2.23        | 0.52     |
| 2:A:530:G:C6     | 2:A:2021:C:H3'   | 2.45        | 0.52     |
| 2:A:2228:G:C5'   | 2:A:2228:G:C8    | 2.89        | 0.52     |
| 2:A:2259:G:N7    | 2:A:2260:C:N4    | 2.56        | 0.52     |
| 2:A:2307:G:C5'   | 2:A:2307:G:H8    | 2.21        | 0.52     |
| 2:A:2373:G:N3    | 2:A:2374:C:C4    | 2.78        | 0.52     |
| 2:A:2394:C:C4    | 2:A:2395:C:N4    | 2.77        | 0.52     |
| 2:A:2474:C:C5    | 2:A:2475:C:C2    | 2.98        | 0.52     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2623:G:C2     | 2:A:2624:G:C8    | 2.97        | 0.52     |
| 2:A:2654:A:O3'    | 2:A:2655:G:H4'   | 2.10        | 0.52     |
| 2:A:2673:G:C2     | 2:A:2674:G:C5    | 2.98        | 0.52     |
| 2:A:2710:C:O2'    | 2:A:2711:A:O4'   | 2.28        | 0.52     |
| 2:A:2839:G:C6     | 2:A:2840:C:C5    | 2.85        | 0.52     |
| 2:A:301:G:H2'     | 2:A:302:C:C6     | 2.44        | 0.52     |
| 2:A:675:A:N3      | 2:A:2443:C:C2'   | 2.73        | 0.52     |
| 4:E:77:PRO:HB2    | 4:E:186:GLU:HB2  | 1.90        | 0.52     |
| 4:E:70:VAL:CB     | 4:E:295:LEU:CD2  | 2.87        | 0.52     |
| 5:F:26:VAL:CG1    | 5:F:27:ARG:N     | 2.72        | 0.52     |
| 6:G:18:ILE:O      | 6:G:135:VAL:HG21 | 2.10        | 0.52     |
| 6:G:55:LYS:O      | 6:G:56:ARG:HG2   | 2.09        | 0.52     |
| 7:H:58:LYS:HG3    | 7:H:59:HIS:ND1   | 2.24        | 0.52     |
| 7:H:7:PRO:CD      | 7:H:68:ARG:CD    | 2.64        | 0.52     |
| 9:N:139:LEU:H     | 9:N:139:LEU:CD1  | 1.95        | 0.52     |
| 11:P:67:ARG:HG2   | 11:P:68:GLU:N    | 2.25        | 0.52     |
| 2:A:910:A:N6      | 12:Q:12:PRO:C    | 2.63        | 0.52     |
| 2:A:911:A:C8      | 12:Q:16:ARG:CG   | 2.92        | 0.52     |
| 12:Q:27:GLY:C     | 12:Q:28:ILE:CG1  | 2.78        | 0.52     |
| 19:R:75:LEU:O     | 19:R:77:ARG:CA   | 2.58        | 0.52     |
| 19:R:82:GLU:OE1   | 19:R:82:GLU:HA   | 2.09        | 0.52     |
| 13:S:11:ARG:HA    | 13:S:14:ARG:CZ   | 2.40        | 0.52     |
| 13:S:127:LEU:O    | 13:S:128:ASP:C   | 2.47        | 0.52     |
| 13:S:34:LEU:HD21  | 13:S:102:LEU:CG  | 2.39        | 0.52     |
| 13:S:52:PRO:O     | 13:S:53:ASN:C    | 2.48        | 0.52     |
| 20:U:17:VAL:HG11  | 20:U:36:PHE:HA   | 1.90        | 0.52     |
| 21:V:33:VAL:CB    | 21:V:63:HIS:ND1  | 2.63        | 0.52     |
| 21:V:74:TYR:CE1   | 21:V:87:ARG:CA   | 2.93        | 0.52     |
| 17:Y:34:GLU:C     | 17:Y:35:TYR:CD2  | 2.83        | 0.52     |
| 17:Y:46:ASP:N     | 17:Y:62:VAL:CG1  | 2.70        | 0.52     |
| 18:Z:134:LEU:HD23 | 18:Z:135:VAL:N   | 2.25        | 0.52     |
| 2:A:1059:G:N2     | 31:K:127:ILE:O   | 2.36        | 0.52     |
| 2:A:148:C:N4      | 2:A:149:A:N6     | 2.57        | 0.52     |
| 2:A:980:A:C2      | 2:A:2037:G:O2'   | 2.54        | 0.52     |
| 2:A:1530:G:H1'    | 2:A:1542:G:C6    | 2.45        | 0.52     |
| 2:A:1794:U:O4'    | 2:A:1900:A:C6    | 2.63        | 0.52     |
| 24:0:36:ILE:C     | 24:0:37:LEU:HG   | 2.30        | 0.52     |
| 24:0:37:LEU:CG    | 24:0:68:VAL:CG1  | 2.78        | 0.52     |
| 26:5:45:ILE:CG1   | 26:5:52:TYR:CE1  | 2.61        | 0.52     |
| 2:A:1128:A:N6     | 2:A:2518:A:N6    | 2.39        | 0.52     |
| 2:A:993:G:H1'     | 2:A:1162:G:N2    | 2.24        | 0.52     |
| 2:A:1678:G:H22    | 2:A:1989:G:H22   | 1.55        | 0.52     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2041:U:H5'    | 9:N:70:PHE:CE1    | 2.44        | 0.52     |
| 2:A:2283:C:C2     | 2:A:2284:C:C1'    | 2.90        | 0.52     |
| 2:A:2300:G:H2'    | 2:A:2301:C:C6     | 2.44        | 0.52     |
| 2:A:2330:G:N3     | 2:A:2331:G:C1'    | 2.71        | 0.52     |
| 2:A:2471:C:N3     | 2:A:2479:G:N2     | 2.58        | 0.52     |
| 2:A:2616:C:H2'    | 2:A:2617:C:H6     | 1.74        | 0.52     |
| 2:A:2734:A:C6     | 2:A:2735:G:C4     | 2.98        | 0.52     |
| 2:A:2628:C:C2'    | 2:A:2781:A:H2'    | 2.39        | 0.52     |
| 2:A:2792:G:C6     | 2:A:2793:G:C6     | 2.98        | 0.52     |
| 2:A:2832:U:C2     | 2:A:2832:U:H3'    | 2.41        | 0.52     |
| 2:A:452:G:H21     | 2:A:457:A:H2      | 1.56        | 0.52     |
| 2:A:530:G:HO2'    | 2:A:531:C:C5'     | 2.23        | 0.52     |
| 2:A:616:A:H5''    | 5:F:42:ARG:NH1    | 2.20        | 0.52     |
| 2:A:686:G:N3      | 2:A:686:G:H5''    | 2.25        | 0.52     |
| 4:E:81:VAL:HG11   | 4:E:100:TRP:HZ3   | 1.75        | 0.52     |
| 5:F:105:LYS:O     | 5:F:106:GLU:O     | 2.28        | 0.52     |
| 5:F:165:ASP:O     | 5:F:168:ARG:CB    | 2.58        | 0.52     |
| 5:F:237:GLU:O     | 5:F:239:ALA:C     | 2.48        | 0.52     |
| 6:G:140:ARG:O     | 6:G:143:LYS:N     | 2.43        | 0.52     |
| 7:H:121:GLU:O     | 7:H:123:GLU:OE1   | 2.28        | 0.52     |
| 7:H:57:GLU:O      | 7:H:59:HIS:N      | 2.42        | 0.52     |
| 8:I:1:MET:CB      | 8:I:22:ALA:H      | 2.22        | 0.52     |
| 8:I:43:ASN:HA     | 8:I:46:ALA:HB3    | 1.91        | 0.52     |
| 9:N:14:ALA:HB3    | 9:N:40:ASN:CB     | 2.36        | 0.52     |
| 10:O:101:PRO:O    | 10:O:102:VAL:HG23 | 2.09        | 0.52     |
| 12:Q:54:VAL:C     | 12:Q:56:ILE:N     | 2.62        | 0.52     |
| 19:R:81:ASP:CG    | 19:R:82:GLU:H     | 2.13        | 0.52     |
| 14:T:8:TYR:CD1    | 14:T:54:THR:HB    | 2.44        | 0.52     |
| 14:T:53:ASP:C     | 14:T:56:ARG:NE    | 2.52        | 0.52     |
| 20:U:8:ILE:C      | 20:U:11:ARG:CG    | 2.79        | 0.52     |
| 21:V:42:GLY:HA3   | 21:V:54:TYR:HH    | 1.72        | 0.52     |
| 15:W:29:LEU:HG    | 15:W:30:GLU:N     | 2.22        | 0.52     |
| 17:Y:103:LEU:CD2  | 17:Y:108:ARG:C    | 2.76        | 0.52     |
| 18:Z:125:PRO:HG3  | 18:Z:130:ILE:CG2  | 2.38        | 0.52     |
| 18:Z:152:ILE:HG22 | 18:Z:153:LYS:N    | 2.23        | 0.52     |
| 8:I:77:VAL:CB     | 8:I:143:VAL:HA    | 2.38        | 0.52     |
| 9:N:107:ASN:ND2   | 9:N:107:ASN:N     | 2.51        | 0.52     |
| 4:E:65:MET:C      | 4:E:65:MET:SD     | 2.85        | 0.52     |
| 2:A:1422:G:H2'    | 2:A:1423:G:C8     | 2.43        | 0.52     |
| 24:O:80:SER:OG    | 24:O:84:ALA:HB3   | 2.06        | 0.52     |
| 23:3:12:PRO:O     | 23:3:20:LYS:HE2   | 2.10        | 0.52     |
| 25:4:14:ILE:HG13  | 25:4:38:GLY:C     | 2.29        | 0.52     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 26:5:10:LYS:O     | 26:5:11:THR:C     | 2.48        | 0.52     |
| 2:A:126:A:P       | 28:7:44:VAL:CG1   | 2.87        | 0.52     |
| 2:A:1208:C:H2'    | 2:A:1209:G:H8     | 1.75        | 0.52     |
| 2:A:1751:C:H3'    | 2:A:1752:C:P      | 2.50        | 0.52     |
| 2:A:2217:G:HO2'   | 2:A:2218:G:H5'    | 1.71        | 0.52     |
| 2:A:2077:A:C2     | 2:A:2244:U:C2     | 2.97        | 0.52     |
| 2:A:2385:C:HO2'   | 24:0:39:ARG:CZ    | 2.22        | 0.52     |
| 2:A:2077:A:N3     | 2:A:2435:A:H8     | 2.00        | 0.52     |
| 2:A:2475:C:O2'    | 2:A:2477:C:OP2    | 2.28        | 0.52     |
| 2:A:2531:A:N3     | 2:A:2532:G:H5'    | 2.25        | 0.52     |
| 2:A:2549:G:H8     | 2:A:2549:G:H5''   | 1.74        | 0.52     |
| 2:A:2584:U:C5     | 2:A:2585:U:C2'    | 2.93        | 0.52     |
| 2:A:2584:U:C5     | 2:A:2585:U:H2'    | 2.45        | 0.52     |
| 2:A:2049:G:N1     | 2:A:2620:C:N4     | 2.58        | 0.52     |
| 2:A:2632:A:H2'    | 2:A:2632:A:N3     | 2.24        | 0.52     |
| 2:A:2668:G:C2     | 2:A:2669:G:N9     | 2.77        | 0.52     |
| 2:A:1759:A:N7     | 2:A:2696:U:O2     | 2.42        | 0.52     |
| 2:A:2704:C:O2'    | 2:A:2705:A:O4'    | 2.27        | 0.52     |
| 2:A:2753:A:N7     | 2:A:2754:U:C4     | 2.78        | 0.52     |
| 2:A:2807:G:C8     | 2:A:2808:U:C5     | 2.98        | 0.52     |
| 2:A:459:U:OP1     | 28:7:40:HIS:N     | 2.43        | 0.52     |
| 2:A:530:G:N2      | 2:A:2021:C:C6     | 2.77        | 0.52     |
| 1:B:42:C:H1'      | 6:G:47:GLN:CB     | 2.40        | 0.52     |
| 2:A:1819:A:P      | 3:D:154:VAL:HA    | 2.50        | 0.52     |
| 3:D:64:ILE:HD13   | 3:D:102:TYR:O     | 2.08        | 0.52     |
| 4:E:104:PHE:HB3   | 4:E:108:LEU:CD1   | 2.40        | 0.52     |
| 4:E:199:ALA:HB1   | 4:E:312:ARG:C     | 2.29        | 0.52     |
| 5:F:61:PHE:HB2    | 5:F:67:GLN:OE1    | 2.10        | 0.52     |
| 6:G:97:GLN:CG     | 6:G:106:PHE:CE2   | 2.93        | 0.52     |
| 6:G:21:VAL:O      | 6:G:75:LEU:O      | 2.28        | 0.52     |
| 7:H:60:HIS:O      | 7:H:63:LEU:CB     | 2.58        | 0.52     |
| 7:H:7:PRO:HD3     | 7:H:68:ARG:NE     | 2.24        | 0.52     |
| 2:A:2495:G:C4'    | 12:Q:101:MET:HE2  | 2.40        | 0.52     |
| 12:Q:41:THR:HG21  | 12:Q:125:TRP:CE3  | 2.44        | 0.52     |
| 12:Q:147:VAL:HG13 | 12:Q:148:ASN:N    | 2.25        | 0.52     |
| 19:R:22:ARG:NH2   | 19:R:69:ASP:HB3   | 2.25        | 0.52     |
| 19:R:67:LEU:HB2   | 19:R:76:VAL:CG1   | 2.35        | 0.52     |
| 21:V:4:ILE:CG1    | 21:V:13:ARG:HD3   | 2.39        | 0.52     |
| 21:V:50:ASP:N     | 21:V:53:LYS:CG    | 2.72        | 0.52     |
| 21:V:93:ILE:O     | 21:V:95:ILE:HD11  | 2.09        | 0.52     |
| 15:W:17:VAL:CA    | 15:W:20:VAL:HG23  | 2.40        | 0.52     |
| 15:W:4:LYS:HD2    | 15:W:106:ILE:HG12 | 1.91        | 0.52     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:Y:18:GLU:CB   | 17:Y:21:LYS:HZ1  | 2.23        | 0.52     |
| 17:Y:31:LEU:O    | 17:Y:32:ARG:C    | 2.49        | 0.52     |
| 17:Y:46:ASP:CG   | 17:Y:98:VAL:HG13 | 2.30        | 0.52     |
| 18:Z:145:ASP:O   | 18:Z:146:HIS:CG  | 2.59        | 0.52     |
| 1:B:76:G:C4'     | 18:Z:80:HIS:HB3  | 2.32        | 0.52     |
| 3:D:216:ALA:CB   | 3:D:223:ASN:HB2  | 2.30        | 0.52     |
| 22:2:47:LYS:O    | 22:2:50:ARG:N    | 2.43        | 0.52     |
| 2:A:1076:C:O2    | 31:K:92:PRO:CG   | 2.58        | 0.52     |
| 2:A:360:G:H2'    | 2:A:361:G:O4'    | 2.10        | 0.52     |
| 2:A:1689:A:H2'   | 2:A:1690:A:C8    | 2.42        | 0.52     |
| 2:A:2365:G:OP1   | 24:O:40:GLN:O    | 2.27        | 0.52     |
| 25:4:7:PRO:CD    | 25:4:56:VAL:HG11 | 2.39        | 0.52     |
| 27:6:16:ALA:CB   | 27:6:42:PRO:HG3  | 2.40        | 0.52     |
| 2:A:1263:U:H3'   | 2:A:1264:G:C8    | 2.45        | 0.52     |
| 2:A:1672:C:C2    | 2:A:2582:G:O4'   | 2.62        | 0.52     |
| 2:A:747:U:C2     | 2:A:2015:A:H2    | 2.28        | 0.52     |
| 2:A:2284:C:C2'   | 2:A:2284:C:O2    | 2.58        | 0.52     |
| 2:A:2305:A:H8    | 2:A:2306:C:H5''  | 1.75        | 0.52     |
| 2:A:2330:G:N3    | 2:A:2331:G:O4'   | 2.42        | 0.52     |
| 2:A:2329:G:C2    | 2:A:2386:C:N3    | 2.65        | 0.52     |
| 2:A:2410:G:C5    | 2:A:2411:A:C5    | 2.98        | 0.52     |
| 2:A:2072:G:N1    | 2:A:2438:U:N3    | 2.58        | 0.52     |
| 2:A:2485:G:O2'   | 2:A:2486:G:C4'   | 2.54        | 0.52     |
| 2:A:2817:G:N3    | 2:A:2818:G:H1'   | 2.25        | 0.52     |
| 2:A:2848:G:C6    | 2:A:2867:G:N2    | 2.77        | 0.52     |
| 2:A:673:C:H5'    | 5:F:80:VAL:CG1   | 2.40        | 0.52     |
| 2:A:789:A:HO2'   | 2:A:1781:C:H42   | 1.57        | 0.52     |
| 1:B:80:U:H2'     | 1:B:81:G:C8      | 2.44        | 0.52     |
| 3:D:154:VAL:HG21 | 3:D:160:SER:CA   | 2.35        | 0.52     |
| 4:E:101:THR:O    | 4:E:102:ASP:C    | 2.47        | 0.52     |
| 4:E:172:ASP:O    | 4:E:173:ARG:C    | 2.46        | 0.52     |
| 4:E:180:ILE:C    | 4:E:183:ASP:OD2  | 2.46        | 0.52     |
| 4:E:238:LEU:CD2  | 4:E:238:LEU:N    | 2.74        | 0.52     |
| 4:E:205:THR:OG1  | 4:E:258:TYR:CA   | 2.57        | 0.52     |
| 4:E:263:GLU:C    | 4:E:266:LYS:HE3  | 2.30        | 0.52     |
| 5:F:103:ASN:O    | 5:F:107:ARG:CG   | 2.59        | 0.52     |
| 5:F:197:SER:HB3  | 5:F:236:THR:O    | 2.10        | 0.52     |
| 2:A:38:A:H1'     | 5:F:46:TYR:CD2   | 2.45        | 0.52     |
| 7:H:30:GLY:HA3   | 7:H:78:VAL:C     | 2.28        | 0.52     |
| 2:A:1006:C:O2'   | 9:N:86:MET:HB3   | 2.10        | 0.52     |
| 10:O:8:LEU:CB    | 10:O:82:ASN:O    | 2.58        | 0.52     |
| 11:P:127:GLU:O   | 11:P:128:GLY:C   | 2.47        | 0.52     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 11:P:52:LYS:CE   | 11:P:53:ARG:NH1  | 2.70        | 0.52     |
| 12:Q:133:GLU:HG3 | 12:Q:134:PHE:H   | 1.74        | 0.52     |
| 12:Q:46:VAL:CG2  | 12:Q:156:ASN:ND2 | 2.70        | 0.52     |
| 19:R:52:ILE:O    | 19:R:53:HIS:C    | 2.48        | 0.52     |
| 1:B:47:C:O3'     | 13:S:107:ASN:OD1 | 2.29        | 0.52     |
| 13:S:33:ARG:HB2  | 13:S:48:VAL:HB   | 1.92        | 0.52     |
| 2:A:994:C:C4'    | 20:U:54:LYS:HE2  | 2.36        | 0.52     |
| 2:A:86:C:OP1     | 17:Y:68:ASP:CG   | 2.49        | 0.52     |
| 18:Z:151:ASP:CB  | 18:Z:153:LYS:HZ2 | 2.16        | 0.52     |
| 2:A:1790:C:OP2   | 3:D:225:ARG:N    | 2.32        | 0.52     |
| 22:2:50:ARG:O    | 22:2:53:ILE:CB   | 2.57        | 0.52     |
| 2:A:983:A:H3'    | 2:A:984:A:O4'    | 2.10        | 0.52     |
| 2:A:299:A:N3     | 2:A:319:C:O2'    | 2.43        | 0.52     |
| 2:A:1141:U:O2    | 2:A:1141:U:H2'   | 2.10        | 0.52     |
| 24:0:65:GLY:CA   | 24:0:66:LYS:NZ   | 2.68        | 0.51     |
| 23:3:2:PRO:O     | 23:3:39:ASP:N    | 2.43        | 0.51     |
| 28:7:43:THR:O    | 28:7:45:SER:OG   | 2.26        | 0.51     |
| 2:A:2054:A:OP1   | 2:A:2055:C:H1'   | 2.10        | 0.51     |
| 2:A:196:A:C2     | 2:A:2068:U:H5    | 2.29        | 0.51     |
| 2:A:2082:A:C5    | 2:A:2239:G:C6    | 2.97        | 0.51     |
| 2:A:2251:G:OP2   | 2:A:2496:C:P     | 2.67        | 0.51     |
| 2:A:2361:A:C4    | 2:A:2362:G:C8    | 2.98        | 0.51     |
| 2:A:2461:C:C4    | 2:A:2462:U:H5    | 2.28        | 0.51     |
| 2:A:2511:U:C2'   | 2:A:2512:C:C5'   | 2.86        | 0.51     |
| 2:A:2589:A:C2    | 2:A:2590:A:C8    | 2.98        | 0.51     |
| 2:A:2592:G:H2'   | 2:A:2593:U:H5'   | 1.92        | 0.51     |
| 2:A:2640:G:C6    | 2:A:2774:C:N4    | 2.68        | 0.51     |
| 2:A:2715:C:C2    | 2:A:2716:U:C6    | 2.98        | 0.51     |
| 2:A:2761:G:C2'   | 2:A:2762:G:C5'   | 2.79        | 0.51     |
| 2:A:2762:G:H2'   | 2:A:2763:G:C8    | 2.45        | 0.51     |
| 2:A:2814:C:C2    | 2:A:2815:C:H5    | 2.28        | 0.51     |
| 2:A:2827:C:C2'   | 2:A:2828:C:O5'   | 2.58        | 0.51     |
| 2:A:1751:C:C1'   | 2:A:2860:A:C2    | 2.93        | 0.51     |
| 2:A:38:A:H1'     | 5:F:46:TYR:CE2   | 2.45        | 0.51     |
| 2:A:632:A:H2'    | 2:A:633:A:C8     | 2.45        | 0.51     |
| 2:A:918:A:H5'    | 2:A:919:G:C8     | 2.44        | 0.51     |
| 3:D:142:ASN:H    | 3:D:142:ASN:ND2  | 2.09        | 0.51     |
| 2:A:1799:G:H22   | 3:D:153:LEU:HG   | 1.66        | 0.51     |
| 4:E:271:ILE:HG12 | 4:E:294:THR:CA   | 2.31        | 0.51     |
| 5:F:196:THR:CB   | 5:F:236:THR:HG21 | 2.39        | 0.51     |
| 7:H:32:LEU:HD12  | 7:H:136:ASP:OD2  | 2.10        | 0.51     |
| 7:H:37:HIS:CG    | 7:H:40:MET:HG3   | 2.45        | 0.51     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:O:97:ARG:HG2   | 10:O:98:ILE:N     | 2.25        | 0.51     |
| 12:Q:82:LYS:CG    | 12:Q:84:ARG:HG3   | 2.37        | 0.51     |
| 19:R:67:LEU:HD23  | 19:R:72:ASP:H     | 1.75        | 0.51     |
| 20:U:104:GLU:O    | 20:U:105:ALA:O    | 2.28        | 0.51     |
| 15:W:105:VAL:O    | 15:W:105:VAL:HG23 | 2.10        | 0.51     |
| 17:Y:11:GLN:CB    | 17:Y:21:LYS:CE    | 2.88        | 0.51     |
| 2:A:294:A:O2'     | 17:Y:15:PRO:HG3   | 2.10        | 0.51     |
| 17:Y:87:VAL:HG12  | 17:Y:88:PRO:N     | 2.26        | 0.51     |
| 18:Z:112:LEU:HD22 | 18:Z:171:VAL:HB   | 1.92        | 0.51     |
| 22:2:33:VAL:O     | 22:2:34:GLN:C     | 2.48        | 0.51     |
| 16:X:51:GLN:O     | 16:X:52:VAL:CB    | 2.57        | 0.51     |
| 2:A:1063:G:C5'    | 31:K:88:GLY:HA3   | 2.40        | 0.51     |
| 2:A:95:G:O2'      | 22:2:42:ASN:CG    | 2.49        | 0.51     |
| 6:G:81:GLU:O      | 6:G:85:GLN:HG3    | 2.03        | 0.51     |
| 6:G:60:GLU:O      | 6:G:61:PHE:HD1    | 1.93        | 0.51     |
| 2:A:1328:G:H4'    | 2:A:1329:U:H5     | 1.74        | 0.51     |
| 2:A:759:G:H2'     | 2:A:760:G:H8      | 1.75        | 0.51     |
| 2:A:619:G:N7      | 2:A:620:G:C2      | 2.78        | 0.51     |
| 24:0:73:GLY:O     | 24:0:74:LYS:C     | 2.48        | 0.51     |
| 25:4:56:VAL:HG12  | 25:4:61:LYS:NZ    | 2.23        | 0.51     |
| 25:4:68:ARG:CG    | 25:4:72:LYS:HA    | 2.36        | 0.51     |
| 29:8:55:TRP:CE3   | 29:8:59:LYS:NZ    | 2.75        | 0.51     |
| 2:A:1022:G:P      | 9:N:52:GLN:HE22   | 2.33        | 0.51     |
| 2:A:1252:G:H22    | 20:U:37:GLN:HB2   | 1.76        | 0.51     |
| 2:A:2252:G:N1     | 2:A:2253:G:C6     | 2.78        | 0.51     |
| 2:A:2334:G:H21    | 13:S:12:ARG:CB    | 2.24        | 0.51     |
| 2:A:2356:C:H4'    | 24:0:17:ASN:ND2   | 2.25        | 0.51     |
| 2:A:2399:G:N2     | 2:A:2400:G:C1'    | 2.71        | 0.51     |
| 2:A:2447:G:C6     | 2:A:2501:C:O2     | 2.63        | 0.51     |
| 2:A:2520:C:H2'    | 2:A:2520:C:O2     | 2.10        | 0.51     |
| 2:A:2544:G:C4     | 2:A:2545:G:N7     | 2.78        | 0.51     |
| 2:A:2551:C:O2     | 2:A:2552:U:C6     | 2.63        | 0.51     |
| 2:A:2663:G:C2'    | 2:A:2664:G:C8     | 2.70        | 0.51     |
| 2:A:2657:A:C5     | 2:A:2665:A:C6     | 2.98        | 0.51     |
| 2:A:2810:A:N7     | 2:A:2811:G:C1'    | 2.71        | 0.51     |
| 2:A:2838:G:N1     | 2:A:2839:G:C8     | 2.78        | 0.51     |
| 2:A:465:G:C6      | 2:A:466:A:C6      | 2.98        | 0.51     |
| 2:A:573:G:C3'     | 2:A:574:C:H5''    | 2.36        | 0.51     |
| 2:A:965:C:H2'     | 2:A:966:G:O4'     | 2.10        | 0.51     |
| 3:D:76:ARG:HG2    | 3:D:113:MET:HB2   | 1.92        | 0.51     |
| 3:D:118:GLY:O     | 3:D:129:LEU:HG    | 2.00        | 0.51     |
| 4:E:39:GLN:HE22   | 4:E:174:LEU:HD11  | 1.54        | 0.51     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:94:THR:HG23  | 5:F:95:GLU:H     | 1.75        | 0.51     |
| 7:H:163:TYR:O    | 7:H:166:GLU:HG2  | 2.10        | 0.51     |
| 7:H:34:ARG:HG2   | 7:H:35:THR:H     | 1.75        | 0.51     |
| 9:N:25:GLN:HA    | 9:N:28:GLU:HB2   | 1.90        | 0.51     |
| 9:N:54:VAL:N     | 9:N:135:ILE:HD12 | 2.24        | 0.51     |
| 2:A:1666:G:H4'   | 10:O:67:ARG:NH2  | 2.24        | 0.51     |
| 10:O:14:SER:H    | 10:O:95:GLY:HA2  | 1.75        | 0.51     |
| 2:A:245:G:C5'    | 11:P:55:GLN:O    | 2.39        | 0.51     |
| 12:Q:85:ILE:CA   | 12:Q:122:PHE:HB3 | 2.39        | 0.51     |
| 19:R:105:ARG:C   | 19:R:107:ASP:N   | 2.62        | 0.51     |
| 19:R:60:LEU:HD23 | 19:R:61:HIS:N    | 2.24        | 0.51     |
| 21:V:59:GLU:OE1  | 21:V:99:GLN:HA   | 2.07        | 0.51     |
| 15:W:9:TYR:H     | 15:W:9:TYR:HD1   | 1.58        | 0.51     |
| 17:Y:33:GLU:O    | 17:Y:35:TYR:N    | 2.43        | 0.51     |
| 18:Z:12:GLN:O    | 18:Z:36:ARG:NH2  | 2.43        | 0.51     |
| 8:I:103:GLN:HG2  | 8:I:109:LYS:HA   | 1.92        | 0.51     |
| 2:A:1791:A:OP1   | 3:D:210:LYS:HB3  | 2.09        | 0.51     |
| 22:2:6:GLN:C     | 22:2:9:ARG:HB3   | 2.29        | 0.51     |
| 2:A:1078:U:OP1   | 31:K:93:LYS:CG   | 2.58        | 0.51     |
| 2:A:1530:G:H2'   | 2:A:1530:G:N3    | 2.25        | 0.51     |
| 2:A:2181:G:C3'   | 2:A:2182:G:H5''  | 2.41        | 0.51     |
| 2:A:220:G:N2     | 2:A:427:U:H2'    | 2.26        | 0.51     |
| 31:K:73:PRO:HD2  | 31:K:74:PRO:CA   | 2.41        | 0.51     |
| 2:A:388:G:C5'    | 25:4:24:THR:HG23 | 2.37        | 0.51     |
| 25:4:63:PHE:C    | 25:4:65:ASP:OD2  | 2.47        | 0.51     |
| 2:A:1362:C:H2'   | 2:A:1363:C:H6    | 1.75        | 0.51     |
| 2:A:1567:A:H4'   | 2:A:1568:G:N1    | 2.25        | 0.51     |
| 2:A:1998:G:O2'   | 2:A:2724:C:H1'   | 2.10        | 0.51     |
| 2:A:2213:U:HO3'  | 2:A:2215:G:H8    | 1.40        | 0.51     |
| 2:A:2236:C:C2'   | 2:A:2236:C:O2    | 2.55        | 0.51     |
| 2:A:2269:A:H8    | 2:A:2269:A:O5'   | 1.93        | 0.51     |
| 2:A:2339:G:C4    | 2:A:2340:G:N7    | 2.78        | 0.51     |
| 2:A:834:C:O2'    | 2:A:2358:G:C2'   | 2.59        | 0.51     |
| 2:A:2411:A:C2'   | 2:A:2412:A:H8    | 2.23        | 0.51     |
| 2:A:2422:A:H2'   | 2:A:2424:C:H5    | 1.73        | 0.51     |
| 2:A:2495:G:N3    | 2:A:2496:C:H1'   | 2.26        | 0.51     |
| 2:A:2503:A:C8    | 2:A:2503:A:C3'   | 2.94        | 0.51     |
| 2:A:2515:C:N4    | 2:A:2569:G:C6    | 2.74        | 0.51     |
| 2:A:2562:U:C4    | 2:A:2563:U:C4    | 2.98        | 0.51     |
| 2:A:2625:G:C2'   | 2:A:2626:C:H5'   | 2.41        | 0.51     |
| 2:A:2716:U:H2'   | 2:A:2717:G:O5'   | 2.10        | 0.51     |
| 2:A:2785:C:C1'   | 4:E:100:TRP:NE1  | 2.45        | 0.51     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2792:G:N2    | 2:A:2804:C:O2     | 2.34        | 0.51     |
| 2:A:2797:U:H1'   | 2:A:2799:A:H8     | 1.74        | 0.51     |
| 2:A:932:G:H4'    | 23:3:24:LYS:NZ    | 2.24        | 0.51     |
| 2:A:946:G:H2'    | 2:A:947:G:C8      | 2.45        | 0.51     |
| 3:D:60:GLN:O     | 3:D:60:GLN:OE1    | 2.27        | 0.51     |
| 4:E:208:LYS:N    | 4:E:257:GLY:HA3   | 2.11        | 0.51     |
| 5:F:223:LEU:O    | 5:F:225:PRO:CA    | 2.57        | 0.51     |
| 7:H:51:VAL:HG21  | 7:H:68:ARG:CG     | 2.39        | 0.51     |
| 7:H:75:VAL:C     | 7:H:77:GLY:H      | 2.09        | 0.51     |
| 9:N:15:ARG:NH1   | 9:N:40:ASN:CA     | 2.70        | 0.51     |
| 9:N:82:THR:O     | 9:N:83:ILE:O      | 2.29        | 0.51     |
| 2:A:2275:C:C2    | 12:Q:103:ALA:HB2  | 2.39        | 0.51     |
| 12:Q:29:ALA:HB3  | 12:Q:66:ASN:HD21  | 1.75        | 0.51     |
| 19:R:67:LEU:HD13 | 19:R:67:LEU:C     | 2.30        | 0.51     |
| 13:S:127:LEU:O   | 13:S:127:LEU:HD23 | 2.03        | 0.51     |
| 2:A:2334:G:OP1   | 13:S:12:ARG:O     | 2.28        | 0.51     |
| 14:T:54:THR:HG23 | 14:T:55:ALA:N     | 2.21        | 0.51     |
| 15:W:70:TYR:CE2  | 15:W:72:LYS:CA    | 2.89        | 0.51     |
| 17:Y:49:GLU:O    | 17:Y:49:GLU:OE2   | 2.28        | 0.51     |
| 17:Y:51:LEU:HD22 | 17:Y:51:LEU:C     | 2.31        | 0.51     |
| 17:Y:51:LEU:CD2  | 17:Y:95:ASN:HB3   | 2.41        | 0.51     |
| 18:Z:51:LEU:HD21 | 18:Z:63:PRO:CA    | 2.40        | 0.51     |
| 18:Z:25:ASN:CA   | 18:Z:84:TYR:CD1   | 2.90        | 0.51     |
| 2:A:729:G:N1     | 2:A:1775:U:C4     | 2.79        | 0.51     |
| 16:X:52:VAL:O    | 16:X:53:ASN:ND2   | 2.43        | 0.51     |
| 16:X:41:VAL:HG11 | 16:X:66:VAL:HG21  | 1.92        | 0.51     |
| 2:A:1524:G:C5    | 2:A:1525:G:C8     | 2.98        | 0.51     |
| 2:A:1917:U:H5''  | 2:A:1918:A:N7     | 2.24        | 0.51     |
| 2:A:264:C:C3'    | 2:A:265:A:H5''    | 2.39        | 0.51     |
| 23:3:8:LEU:HD22  | 23:3:30:ARG:O     | 2.09        | 0.51     |
| 2:A:2021:C:OP2   | 26:5:12:SER:HB3   | 2.10        | 0.51     |
| 27:6:53:LYS:O    | 27:6:54:LYS:NZ    | 2.44        | 0.51     |
| 28:7:22:MET:C    | 28:7:24:THR:N     | 2.61        | 0.51     |
| 2:A:1612:C:N3    | 28:7:3:ARG:NH1    | 2.56        | 0.51     |
| 28:7:5:TYR:O     | 28:7:7:PRO:N      | 2.43        | 0.51     |
| 30:9:11:CYS:C    | 30:9:13:ASN:H     | 2.13        | 0.51     |
| 2:A:1051:G:H4'   | 2:A:2752:C:HO2'   | 1.70        | 0.51     |
| 2:A:2023:G:OP2   | 2:A:2023:G:H8     | 1.92        | 0.51     |
| 2:A:2218:G:H2'   | 2:A:2219:G:O5'    | 2.10        | 0.51     |
| 2:A:2090:G:C4    | 2:A:2230:G:N1     | 2.78        | 0.51     |
| 2:A:2268:A:C8    | 2:A:2268:A:H5''   | 2.45        | 0.51     |
| 2:A:2392:A:C3'   | 2:A:2393:A:H5'    | 2.40        | 0.51     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2411:A:N3    | 2:A:2412:A:C8     | 2.78        | 0.51     |
| 2:A:2416:C:H2'   | 2:A:2417:C:H5''   | 1.74        | 0.51     |
| 2:A:2399:G:O6    | 2:A:2418:A:C6     | 2.63        | 0.51     |
| 2:A:2484:G:C2'   | 2:A:2485:G:H5'    | 2.36        | 0.51     |
| 2:A:2519:U:C3'   | 2:A:2519:U:P      | 2.98        | 0.51     |
| 2:A:2700:C:C2'   | 2:A:2701:C:H5''   | 2.40        | 0.51     |
| 2:A:2857:G:N2    | 2:A:2859:G:C8     | 2.78        | 0.51     |
| 2:A:106:C:O2'    | 2:A:293:U:O2'     | 2.28        | 0.51     |
| 2:A:573:G:H3'    | 2:A:574:C:C5'     | 2.37        | 0.51     |
| 2:A:775:G:N2     | 2:A:787:U:C2'     | 2.73        | 0.51     |
| 3:D:65:ASP:O     | 3:D:66:PHE:CB     | 2.59        | 0.51     |
| 4:E:204:VAL:N    | 4:E:303:PRO:HG3   | 2.24        | 0.51     |
| 4:E:47:GLY:N     | 4:E:72:VAL:HG22   | 2.25        | 0.51     |
| 5:F:201:SER:HB2  | 5:F:204:ALA:CB    | 2.40        | 0.51     |
| 6:G:98:PHE:HB3   | 6:G:104:PHE:CE2   | 2.45        | 0.51     |
| 7:H:64:HIS:HA    | 7:H:67:THR:OG1    | 2.10        | 0.51     |
| 7:H:67:THR:O     | 7:H:70:LEU:N      | 2.43        | 0.51     |
| 8:I:21:VAL:C     | 8:I:26:ALA:HB2    | 2.24        | 0.51     |
| 9:N:45:VAL:HG12  | 9:N:46:ILE:N      | 2.26        | 0.51     |
| 11:P:64:ILE:CD1  | 11:P:106:VAL:CA   | 2.58        | 0.51     |
| 11:P:67:ARG:HD3  | 11:P:111:ALA:O    | 2.10        | 0.51     |
| 11:P:94:ARG:NE   | 11:P:120:LEU:HB2  | 2.22        | 0.51     |
| 11:P:57:VAL:O    | 11:P:58:GLN:CB    | 2.59        | 0.51     |
| 2:A:955:C:OP2    | 12:Q:10:ILE:HB    | 2.10        | 0.51     |
| 12:Q:139:ALA:O   | 12:Q:143:VAL:HG13 | 2.11        | 0.51     |
| 19:R:28:LEU:HD13 | 19:R:32:GLY:CA    | 2.40        | 0.51     |
| 13:S:24:LEU:HA   | 13:S:27:LEU:CB    | 2.39        | 0.51     |
| 20:U:34:ASN:CA   | 20:U:37:GLN:HB3   | 2.27        | 0.51     |
| 21:V:21:ARG:NE   | 21:V:21:ARG:CA    | 2.72        | 0.51     |
| 2:A:1162:G:O2'   | 21:V:23:GLU:CG    | 2.59        | 0.51     |
| 15:W:66:GLU:O    | 15:W:67:ASP:C     | 2.49        | 0.51     |
| 17:Y:22:GLN:C    | 17:Y:24:ARG:N     | 2.64        | 0.51     |
| 17:Y:30:ASP:CG   | 17:Y:31:LEU:H     | 2.12        | 0.51     |
| 17:Y:50:VAL:C    | 17:Y:51:LEU:CD1   | 2.77        | 0.51     |
| 18:Z:116:VAL:C   | 18:Z:118:HIS:N    | 2.63        | 0.51     |
| 12:Q:42:TYR:C    | 18:Z:119:ASN:HD21 | 2.02        | 0.51     |
| 18:Z:42:ALA:O    | 18:Z:45:GLN:HB2   | 2.10        | 0.51     |
| 18:Z:90:GLU:H    | 18:Z:91:PRO:HD3   | 1.70        | 0.51     |
| 8:I:103:GLN:CG   | 8:I:109:LYS:HA    | 2.40        | 0.51     |
| 2:A:1773:A:H2'   | 2:A:1774:C:O4'    | 2.10        | 0.51     |
| 2:A:1059:G:C2    | 31:K:131:THR:HG23 | 2.45        | 0.51     |
| 16:X:4:VAL:HG22  | 22:2:24:LYS:HZ2   | 0.48        | 0.51     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:76:C:C2'      | 22:2:55:ARG:HG3  | 2.41        | 0.51     |
| 16:X:14:ALA:C     | 16:X:17:ASP:CG   | 2.68        | 0.51     |
| 16:X:30:ASP:O     | 16:X:62:LYS:NZ   | 2.43        | 0.51     |
| 2:A:265:A:N7      | 2:A:428:A:C6     | 2.79        | 0.51     |
| 8:I:136:GLU:OE1   | 8:I:136:GLU:N    | 2.41        | 0.51     |
| 2:A:1575:C:H3'    | 2:A:1575:C:C6    | 2.46        | 0.51     |
| 2:A:272:G:H1      | 2:A:365:C:N4     | 2.08        | 0.51     |
| 2:A:949:C:H2'     | 2:A:950:G:C8     | 2.45        | 0.51     |
| 24:0:43:THR:CB    | 24:0:75:GLY:CA   | 2.88        | 0.51     |
| 25:4:68:ARG:HB2   | 25:4:72:LYS:HG2  | 1.93        | 0.51     |
| 26:5:10:LYS:C     | 26:5:11:THR:O    | 2.49        | 0.51     |
| 27:6:35:LEU:C     | 27:6:36:GLU:CG   | 2.70        | 0.51     |
| 2:A:2068:U:O2     | 2:A:2430:A:H2    | 1.88        | 0.51     |
| 2:A:2327:A:C6     | 2:A:2388:A:C6    | 2.97        | 0.51     |
| 2:A:2078:C:H5'    | 2:A:2434:A:H4'   | 1.91        | 0.51     |
| 2:A:2517:C:C5     | 2:A:2542:A:C6    | 2.98        | 0.51     |
| 2:A:2555:U:C2'    | 2:A:2556:C:O5'   | 2.57        | 0.51     |
| 2:A:2550:G:N1     | 2:A:2559:C:C2    | 2.79        | 0.51     |
| 2:A:2656:U:H3'    | 2:A:2656:U:C6    | 2.45        | 0.51     |
| 2:A:2681:C:O2     | 2:A:2681:C:C2'   | 2.57        | 0.51     |
| 2:A:2684:U:O2     | 2:A:2725:A:C2    | 2.63        | 0.51     |
| 2:A:2686:G:C4     | 2:A:2687:U:C6    | 2.98        | 0.51     |
| 2:A:2741:A:C3'    | 2:A:2742:C:H5'   | 2.30        | 0.51     |
| 2:A:2753:A:C8     | 2:A:2754:U:C6    | 2.98        | 0.51     |
| 2:A:2770:G:C1'    | 4:E:316:ARG:NH2  | 2.66        | 0.51     |
| 2:A:2840:C:N4     | 2:A:2841:C:N4    | 2.59        | 0.51     |
| 2:A:974:G:C6      | 21:V:80:TYR:CZ   | 2.99        | 0.51     |
| 1:B:74:U:C2       | 18:Z:29:ASN:ND2  | 2.79        | 0.51     |
| 3:D:133:ASN:O     | 3:D:134:ILE:CG1  | 2.51        | 0.51     |
| 3:D:166:LYS:HA    | 3:D:182:MET:HE2  | 1.92        | 0.51     |
| 4:E:43:GLY:N      | 4:E:309:PRO:O    | 2.42        | 0.51     |
| 6:G:141:VAL:C     | 6:G:143:LYS:H    | 2.13        | 0.51     |
| 11:P:114:VAL:CG1  | 11:P:133:VAL:HA  | 2.35        | 0.51     |
| 11:P:69:ILE:C     | 11:P:71:GLU:N    | 2.63        | 0.51     |
| 12:Q:152:SER:CB   | 12:Q:153:PRO:CD  | 2.88        | 0.51     |
| 19:R:28:LEU:HD11  | 19:R:32:GLY:HA2  | 1.90        | 0.51     |
| 13:S:104:ILE:HG21 | 13:S:109:PRO:HD3 | 1.93        | 0.51     |
| 1:B:50:G:OP1      | 13:S:75:THR:HG23 | 2.09        | 0.51     |
| 20:U:22:LYS:N     | 20:U:24:PHE:CZ   | 2.79        | 0.51     |
| 20:U:28:ARG:CA    | 20:U:31:GLN:CD   | 2.77        | 0.51     |
| 20:U:30:LYS:O     | 20:U:32:TYR:N    | 2.43        | 0.51     |
| 21:V:23:GLU:O     | 21:V:24:SER:CB   | 2.58        | 0.51     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:I:68:LEU:CD1   | 8:I:108:LEU:HD13 | 2.40        | 0.51     |
| 8:I:115:ILE:HG23 | 8:I:129:VAL:HG12 | 1.93        | 0.51     |
| 22:2:29:ASN:O    | 22:2:34:GLN:OE1  | 2.26        | 0.51     |
| 22:2:30:ALA:HB1  | 22:2:46:ILE:HD12 | 1.93        | 0.51     |
| 22:2:45:ARG:O    | 22:2:46:ILE:O    | 2.28        | 0.51     |
| 6:G:78:GLU:O     | 6:G:82:GLU:OE2   | 2.27        | 0.51     |
| 2:A:2407:G:H2'   | 2:A:2407:G:N3    | 2.26        | 0.51     |
| 23:3:12:PRO:HB2  | 23:3:20:LYS:CE   | 2.41        | 0.51     |
| 28:7:11:LYS:CE   | 28:7:11:LYS:CA   | 2.86        | 0.51     |
| 28:7:33:ARG:O    | 28:7:37:LYS:HB2  | 2.11        | 0.51     |
| 29:8:16:ILE:CG2  | 29:8:22:VAL:CG2  | 2.88        | 0.51     |
| 29:8:6:THR:C     | 29:8:8:LYS:H     | 2.13        | 0.51     |
| 2:A:1363:C:H2'   | 2:A:1364:G:H5''  | 1.91        | 0.51     |
| 2:A:14:A:C3'     | 2:A:15:G:O5'     | 2.58        | 0.51     |
| 2:A:2029:G:H2'   | 2:A:2030:A:H3'   | 1.92        | 0.51     |
| 2:A:2219:G:H2'   | 2:A:2224:G:H8    | 1.76        | 0.51     |
| 2:A:826:U:C4'    | 2:A:2429:G:OP2   | 2.57        | 0.51     |
| 2:A:245:G:OP1    | 11:P:53:ARG:NE   | 2.39        | 0.51     |
| 2:A:2458:G:N7    | 2:A:2490:G:C5    | 2.78        | 0.51     |
| 2:A:2061:G:H1'   | 2:A:2503:A:C2    | 2.46        | 0.51     |
| 2:A:2552:U:H2'   | 2:A:2552:U:O2    | 2.10        | 0.51     |
| 2:A:2576:G:OP1   | 2:A:2577:A:OP1   | 2.29        | 0.51     |
| 2:A:2615:U:N1    | 26:5:7:PRO:HA    | 2.26        | 0.51     |
| 2:A:2688:U:O2'   | 2:A:2689:U:P     | 2.67        | 0.51     |
| 2:A:2734:A:C8    | 2:A:2734:A:C3'   | 2.93        | 0.51     |
| 2:A:2762:G:N7    | 2:A:2763:G:O6    | 2.43        | 0.51     |
| 2:A:2767:C:H2'   | 2:A:2768:C:H5'   | 1.92        | 0.51     |
| 2:A:2768:C:H42   | 2:A:2769:C:N4    | 2.02        | 0.51     |
| 2:A:2805:G:H3'   | 2:A:2807:G:H5''  | 1.93        | 0.51     |
| 2:A:2825:C:H5    | 2:A:2825:C:P     | 2.31        | 0.51     |
| 2:A:1750:G:O2'   | 2:A:2860:A:C2    | 2.62        | 0.51     |
| 2:A:321:G:C2'    | 2:A:341:G:H4'    | 2.40        | 0.51     |
| 2:A:644:A:O2'    | 2:A:646:A:N7     | 2.42        | 0.51     |
| 2:A:830:G:O6     | 2:A:2446:G:H1'   | 2.11        | 0.51     |
| 4:E:267:ARG:HD3  | 4:E:297:LYS:CB   | 2.40        | 0.51     |
| 4:E:75:THR:CG2   | 4:E:189:MET:SD   | 2.99        | 0.51     |
| 6:G:14:ARG:CA    | 6:G:137:PRO:HD3  | 2.31        | 0.51     |
| 7:H:120:LEU:CB   | 7:H:143:LEU:CD1  | 2.89        | 0.51     |
| 7:H:122:ILE:C    | 7:H:123:GLU:CD   | 2.69        | 0.51     |
| 7:H:86:LEU:HB3   | 7:H:130:ILE:O    | 2.10        | 0.51     |
| 7:H:73:ASN:CB    | 7:H:137:LYS:HZ3  | 1.85        | 0.51     |
| 12:Q:16:ARG:NH1  | 12:Q:19:TYR:CD1  | 2.74        | 0.51     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:Q:35:ASN:CB   | 12:Q:75:SER:HA    | 2.41        | 0.51     |
| 13:S:92:ALA:C    | 13:S:94:GLU:N     | 2.63        | 0.51     |
| 20:U:86:ALA:CB   | 20:U:90:LEU:HD21  | 2.22        | 0.51     |
| 15:W:4:LYS:CG    | 15:W:106:ILE:HG12 | 2.40        | 0.51     |
| 2:A:519:U:H5''   | 15:W:25:ARG:NH2   | 2.24        | 0.51     |
| 15:W:34:ASN:HA   | 15:W:37:ARG:HB3   | 1.91        | 0.51     |
| 18:Z:145:ASP:C   | 18:Z:146:HIS:CG   | 2.84        | 0.51     |
| 18:Z:62:PHE:CZ   | 18:Z:87:THR:HG21  | 2.46        | 0.51     |
| 9:N:109:TYR:O    | 9:N:110:ASP:C     | 2.49        | 0.51     |
| 2:A:1418:G:OP1   | 2:A:1588:C:H4'    | 2.11        | 0.51     |
| 2:A:1495:A:H2'   | 2:A:1496:A:C8     | 2.45        | 0.51     |
| 2:A:1210:A:N3    | 2:A:1212:G:N2     | 2.57        | 0.51     |
| 2:A:1528:A:N6    | 2:A:1543:A:H62    | 2.06        | 0.51     |
| 2:A:123:G:H1     | 2:A:128:C:N4      | 2.09        | 0.51     |
| 2:A:609(A):G:H22 | 2:A:618(A):C:H2'  | 1.76        | 0.51     |
| 26:5:17:ASP:O    | 26:5:18:MET:C     | 2.48        | 0.51     |
| 27:6:46:LYS:HZ3  | 27:6:46:LYS:CB    | 2.17        | 0.51     |
| 28:7:11:LYS:CG   | 28:7:12:ARG:H     | 2.23        | 0.51     |
| 29:8:3:LYS:C     | 29:8:4:MET:CE     | 2.77        | 0.51     |
| 30:9:19:ARG:HD2  | 30:9:24:LEU:HD12  | 1.92        | 0.51     |
| 2:A:126:A:C5     | 28:7:18:PHE:CG    | 2.99        | 0.51     |
| 2:A:1665:A:C5'   | 10:O:66:LYS:CD    | 2.71        | 0.51     |
| 2:A:1758:G:C6    | 2:A:2695:C:H4'    | 2.46        | 0.51     |
| 2:A:2189:U:O2'   | 2:A:2190:G:C5'    | 2.57        | 0.51     |
| 2:A:2077:A:H2    | 2:A:2244:U:O2     | 1.94        | 0.51     |
| 2:A:2264:C:C5    | 2:A:2277:G:O6     | 2.63        | 0.51     |
| 2:A:2274:A:H2'   | 2:A:2276:G:H5''   | 1.93        | 0.51     |
| 2:A:2313:C:C6    | 2:A:2314:C:C5     | 2.99        | 0.51     |
| 2:A:2323:G:H2'   | 2:A:2324:C:C6     | 2.46        | 0.51     |
| 2:A:2330:G:H21   | 2:A:2331:G:C1'    | 2.01        | 0.51     |
| 2:A:2403:C:C4    | 2:A:2415:G:N1     | 2.73        | 0.51     |
| 2:A:2461:C:H1'   | 2:A:2492:U:C2     | 2.46        | 0.51     |
| 2:A:2521:C:O2'   | 2:A:2564:A:H1'    | 2.11        | 0.51     |
| 2:A:2531:A:C2    | 2:A:2532:G:O4'    | 2.64        | 0.51     |
| 2:A:2592:G:C2    | 2:A:2603:G:O6     | 2.64        | 0.51     |
| 2:A:2647:U:H2'   | 2:A:2648:C:C6     | 2.46        | 0.51     |
| 2:A:2662:A:N3    | 2:A:2662:A:H2'    | 2.25        | 0.51     |
| 2:A:2657:A:C8    | 2:A:2665:A:N6     | 2.79        | 0.51     |
| 2:A:2749:A:H62   | 2:A:2753:A:N6     | 2.08        | 0.51     |
| 2:A:2758:A:OP1   | 2:A:2758:A:H3'    | 2.10        | 0.51     |
| 2:A:2887:U:O5'   | 2:A:2887:U:H6     | 1.93        | 0.51     |
| 2:A:2785:C:H5'   | 4:E:99:VAL:HG22   | 1.86        | 0.51     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:243:VAL:CA   | 5:F:246:ARG:CD   | 2.50        | 0.51     |
| 6:G:140:ARG:HB3  | 6:G:144:ARG:HH12 | 1.76        | 0.51     |
| 1:B:43:C:C1'     | 6:G:47:GLN:HG2   | 2.41        | 0.51     |
| 6:G:55:LYS:O     | 6:G:65:GLU:HB2   | 2.10        | 0.51     |
| 9:N:135:ILE:HG22 | 9:N:139:LEU:HD11 | 1.92        | 0.51     |
| 9:N:53:ILE:HG22  | 9:N:54:VAL:H     | 1.76        | 0.51     |
| 10:O:73:ASP:O    | 10:O:75:SER:OG   | 2.21        | 0.51     |
| 2:A:2840:C:O3'   | 19:R:53:HIS:NE2  | 2.44        | 0.51     |
| 21:V:57:GLN:CG   | 21:V:58:ALA:N    | 2.52        | 0.51     |
| 17:Y:63:ILE:CD1  | 17:Y:75:GLU:HA   | 2.37        | 0.51     |
| 18:Z:112:LEU:HA  | 18:Z:174:PRO:CG  | 2.40        | 0.51     |
| 18:Z:51:LEU:CD2  | 18:Z:63:PRO:CB   | 2.88        | 0.51     |
| 8:I:68:LEU:HD21  | 8:I:108:LEU:HD13 | 0.57        | 0.51     |
| 2:A:1406:U:H2'   | 2:A:1407:C:C6    | 2.46        | 0.51     |
| 16:X:5:ILE:HG13  | 16:X:40:ALA:CB   | 2.39        | 0.51     |
| 25:4:49:PHE:CE1  | 25:4:70:GLY:O    | 2.54        | 0.51     |
| 2:A:498:G:H3'    | 2:A:498:G:C8     | 2.44        | 0.51     |
| 2:A:408:G:H2'    | 2:A:409:C:O4'    | 2.11        | 0.51     |
| 2:A:2182:G:N3    | 2:A:2183:C:N3    | 2.58        | 0.51     |
| 2:A:760:G:C2     | 2:A:761:A:H1'    | 2.46        | 0.51     |
| 2:A:1389:G:H2'   | 2:A:1390:U:C6    | 2.46        | 0.51     |
| 23:3:3:ARG:CD    | 23:3:60:GLU:HA   | 2.40        | 0.51     |
| 2:A:396:G:H5''   | 25:4:10:VAL:O    | 2.10        | 0.51     |
| 2:A:2046:G:H1'   | 26:5:22:HIS:CE1  | 2.46        | 0.51     |
| 2:A:1657:C:H6    | 2:A:1657:C:O5'   | 1.93        | 0.51     |
| 2:A:2212:A:N3    | 2:A:2213:U:H5''  | 2.26        | 0.51     |
| 2:A:2233:U:C2    | 2:A:2234:G:C8    | 2.98        | 0.51     |
| 2:A:2411:A:C2'   | 2:A:2412:A:C8    | 2.94        | 0.51     |
| 2:A:2462:U:H2'   | 2:A:2463:C:O5'   | 2.10        | 0.51     |
| 2:A:2466:C:C2'   | 2:A:2467:C:H5'   | 2.40        | 0.51     |
| 2:A:2519:U:O2    | 2:A:2542:A:C2    | 2.63        | 0.51     |
| 2:A:2567:G:N3    | 2:A:2568:C:C6    | 2.69        | 0.51     |
| 2:A:2022:U:C2'   | 2:A:2617:C:H4'   | 2.41        | 0.51     |
| 2:A:2678:C:C2'   | 2:A:2679:A:C5'   | 2.88        | 0.51     |
| 2:A:2725:A:C6    | 2:A:2727:G:C4    | 2.98        | 0.51     |
| 2:A:2740:A:C3'   | 2:A:2741:A:H5'   | 2.32        | 0.51     |
| 2:A:2815:C:C2    | 2:A:2816:C:C6    | 2.95        | 0.51     |
| 2:A:293:U:H2'    | 2:A:294:A:C8     | 2.46        | 0.51     |
| 2:A:311:A:H62    | 2:A:329:G:H5'    | 1.76        | 0.51     |
| 2:A:802:A:H2'    | 2:A:803:U:H6     | 1.75        | 0.51     |
| 3:D:115:ILE:O    | 3:D:116:MET:HB2  | 2.11        | 0.51     |
| 4:E:45:LYS:CD    | 4:E:301:PRO:HB2  | 2.41        | 0.51     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 6:G:38:GLU:OE2    | 6:G:71:ALA:HB1   | 2.10        | 0.51     |
| 11:P:114:VAL:HG21 | 11:P:132:LYS:CA  | 2.39        | 0.51     |
| 11:P:59:GLU:O     | 11:P:60:GLU:HG3  | 2.09        | 0.51     |
| 19:R:56:LYS:HD3   | 19:R:94:TYR:CZ   | 2.46        | 0.51     |
| 13:S:34:LEU:HG    | 13:S:101:VAL:O   | 2.11        | 0.51     |
| 13:S:48:VAL:HG12  | 13:S:55:ASP:OD2  | 2.09        | 0.51     |
| 17:Y:11:GLN:CG    | 17:Y:21:LYS:HE2  | 2.35        | 0.51     |
| 18:Z:4:THR:C      | 18:Z:33:ALA:CB   | 2.68        | 0.51     |
| 22:2:24:LYS:HE3   | 22:2:28:LEU:HD12 | 1.93        | 0.51     |
| 22:2:60:GLN:O     | 22:2:63:GLU:HB2  | 2.11        | 0.51     |
| 2:A:177:G:H2'     | 2:A:177:G:N3     | 2.26        | 0.51     |
| 15:W:88:ARG:HD3   | 15:W:91:GLY:O    | 2.11        | 0.51     |
| 16:X:75:GLN:O     | 16:X:78:ALA:N    | 2.44        | 0.51     |
| 2:A:1518:C:C2     | 2:A:1519:G:H1'   | 2.46        | 0.51     |
| 2:A:1520:U:H6     | 2:A:1520:U:O5'   | 1.93        | 0.51     |
| 26:5:33:CYS:SG    | 26:5:37:HIS:N    | 2.83        | 0.51     |
| 2:A:2331:G:O4'    | 24:0:70:ILE:HG13 | 2.05        | 0.51     |
| 24:0:60:PHE:N     | 24:0:81:ILE:HG12 | 2.26        | 0.51     |
| 25:4:5:LEU:CB     | 25:4:56:VAL:CG1  | 2.61        | 0.51     |
| 25:4:41:PRO:CG    | 25:4:57:ASP:HB2  | 2.34        | 0.51     |
| 29:8:38:GLY:C     | 29:8:40:GLU:N    | 2.64        | 0.51     |
| 29:8:50:LEU:O     | 29:8:51:ALA:HB3  | 2.10        | 0.51     |
| 2:A:2265:U:O2'    | 2:A:2266:A:P     | 2.69        | 0.51     |
| 2:A:2271:G:O2'    | 2:A:2272:U:C5'   | 2.57        | 0.51     |
| 2:A:2276:G:N3     | 2:A:2277:G:H8    | 2.06        | 0.51     |
| 2:A:2357:U:C2'    | 2:A:2358:G:C5'   | 2.89        | 0.51     |
| 2:A:2246:G:N3     | 2:A:2426:A:C2    | 2.79        | 0.51     |
| 2:A:2735:G:C6     | 2:A:2770:G:C2    | 2.95        | 0.51     |
| 2:A:322:A:H1'     | 2:A:341:G:C8     | 2.45        | 0.51     |
| 2:A:396:G:O4'     | 25:4:39:VAL:CG1  | 2.58        | 0.51     |
| 2:A:29:U:O2       | 2:A:511:U:O2     | 2.29        | 0.51     |
| 2:A:787:U:C4      | 2:A:791:C:C5     | 2.99        | 0.51     |
| 1:B:83:G:H4'      | 23:3:52:HIS:HD2  | 1.76        | 0.51     |
| 3:D:89:ASN:N      | 3:D:105:ALA:CB   | 2.74        | 0.51     |
| 4:E:228:ARG:HD2   | 4:E:228:ARG:N    | 2.26        | 0.51     |
| 4:E:295:LEU:HD22  | 4:E:296:VAL:N    | 2.26        | 0.51     |
| 5:F:240:LEU:HD23  | 5:F:243:VAL:HG23 | 1.91        | 0.51     |
| 5:F:98:ARG:C      | 5:F:99:SER:O     | 2.44        | 0.51     |
| 10:O:1:MET:CB     | 10:O:2:ILE:HD11  | 2.41        | 0.51     |
| 10:O:35:ILE:CA    | 10:O:62:VAL:C    | 2.70        | 0.51     |
| 21:V:94:LYS:O     | 21:V:95:ILE:HG13 | 2.07        | 0.51     |
| 17:Y:15:PRO:O     | 17:Y:18:GLU:CB   | 2.56        | 0.51     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 17:Y:79:LEU:CG  | 17:Y:80:GLU:N    | 2.73        | 0.51     |
| 2:A:1791:A:C8   | 2:A:1792:G:C8    | 2.99        | 0.51     |
| 2:A:121:G:N2    | 2:A:131:G:C4     | 2.79        | 0.51     |
| 16:X:28:VAL:O   | 16:X:28:VAL:HG23 | 2.11        | 0.51     |
| 2:A:1614:A:H61  | 15:W:88:ARG:N    | 2.09        | 0.51     |
| 2:A:1555:G:O5'  | 2:A:1555:G:H8    | 1.92        | 0.51     |
| 2:A:1924:C:C6   | 2:A:1925:C:C5    | 2.98        | 0.51     |
| 2:A:2182:G:H2'  | 2:A:2183:C:N1    | 2.25        | 0.51     |
| 2:A:1359:A:N7   | 2:A:1372:U:O4    | 2.43        | 0.51     |
| 26:5:23:HIS:O   | 26:5:24:ALA:CB   | 2.56        | 0.51     |
| 2:A:1763:G:C8   | 2:A:1763:G:H5'   | 2.46        | 0.51     |
| 24:0:18:PRO:HB2 | 24:0:36:ILE:HD13 | 1.93        | 0.51     |
| 24:0:68:VAL:CG1 | 24:0:68:VAL:O    | 2.56        | 0.51     |
| 24:0:76:ALA:O   | 24:0:78:PHE:CD1  | 2.64        | 0.51     |
| 23:3:31:LEU:O   | 23:3:33:GLN:N    | 2.43        | 0.51     |
| 2:A:929:G:C1'   | 23:3:43:ILE:HG13 | 2.39        | 0.51     |
| 2:A:2021:C:OP2  | 26:5:12:SER:CB   | 2.59        | 0.51     |
| 26:5:6:VAL:H    | 26:5:8:LYS:CE    | 2.21        | 0.51     |
| 2:A:2246:G:H1   | 2:A:2258:C:H42   | 1.58        | 0.51     |
| 2:A:2254:C:H2'  | 2:A:2255:G:O5'   | 2.09        | 0.51     |
| 2:A:2335:A:N6   | 2:A:2337:G:N2    | 2.58        | 0.51     |
| 2:A:2357:U:C2'  | 2:A:2358:G:O5'   | 2.54        | 0.51     |
| 2:A:2363:C:H2'  | 2:A:2364:C:H5'   | 1.92        | 0.51     |
| 2:A:24:G:O2'    | 15:W:102:HIS:CD2 | 2.64        | 0.51     |
| 2:A:2526:G:C6   | 2:A:2527:C:C6    | 2.98        | 0.51     |
| 2:A:2528:U:C6   | 2:A:2528:U:C3'   | 2.94        | 0.51     |
| 2:A:2550:G:O2'  | 2:A:2551:C:H5'   | 2.11        | 0.51     |
| 2:A:2584:U:H5   | 2:A:2585:U:C3'   | 2.24        | 0.51     |
| 2:A:2604:U:O2'  | 2:A:2605:U:C5'   | 2.56        | 0.51     |
| 2:A:2618:G:N1   | 2:A:2619:C:C4    | 2.51        | 0.51     |
| 2:A:527:C:OP1   | 2:A:527:C:H4'    | 2.11        | 0.51     |
| 2:A:826:U:N3    | 2:A:828:U:H1'    | 2.26        | 0.51     |
| 2:A:834:C:O2'   | 2:A:2358:G:H2'   | 2.10        | 0.51     |
| 3:D:135:PRO:HG2 | 3:D:138:THR:CB   | 2.34        | 0.51     |
| 3:D:197:GLY:C   | 3:D:199:ARG:H    | 2.14        | 0.51     |
| 2:A:782:A:N1    | 3:D:233:ASP:OD2  | 2.43        | 0.51     |
| 3:D:70:LYS:CB   | 3:D:73:ILE:HD11  | 2.38        | 0.51     |
| 3:D:70:LYS:CG   | 3:D:73:ILE:CD1   | 2.65        | 0.51     |
| 3:D:73:ILE:HD13 | 3:D:95:TYR:CE2   | 2.46        | 0.51     |
| 4:E:210:THR:C   | 4:E:216:ARG:CZ   | 2.77        | 0.51     |
| 2:A:2770:G:H1'  | 4:E:316:ARG:NH1  | 2.23        | 0.51     |
| 4:E:70:VAL:O    | 4:E:71:THR:HG22  | 2.11        | 0.51     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:200:PRO:CB   | 5:F:212:VAL:CG1  | 2.67        | 0.51     |
| 2:A:2315:G:C5'   | 6:G:133:ASN:ND2  | 2.62        | 0.51     |
| 6:G:99:ASP:N     | 6:G:104:PHE:CE2  | 2.79        | 0.51     |
| 7:H:49:ILE:O     | 7:H:50:THR:HB    | 2.11        | 0.51     |
| 9:N:137:GLU:O    | 9:N:138:THR:C    | 2.50        | 0.51     |
| 11:P:66:VAL:O    | 11:P:68:GLU:CA   | 2.59        | 0.51     |
| 11:P:65:ASP:OD1  | 11:P:68:GLU:CD   | 2.49        | 0.51     |
| 12:Q:156:ASN:O   | 12:Q:157:ALA:CB  | 2.59        | 0.51     |
| 12:Q:91:HIS:O    | 12:Q:111:THR:CA  | 2.58        | 0.51     |
| 19:R:28:LEU:CD1  | 19:R:32:GLY:CA   | 2.87        | 0.51     |
| 20:U:66:ASN:HA   | 20:U:76:TYR:CE1  | 1.97        | 0.51     |
| 15:W:10:VAL:CB   | 15:W:101:SER:O   | 2.50        | 0.51     |
| 15:W:34:ASN:HD22 | 26:5:39:LYS:HB2  | 1.74        | 0.51     |
| 15:W:97:LYS:HE3  | 15:W:99:ARG:HH11 | 1.68        | 0.51     |
| 17:Y:11:GLN:CA   | 17:Y:21:LYS:CE   | 2.88        | 0.51     |
| 17:Y:78:THR:HG22 | 17:Y:88:PRO:HA   | 0.54        | 0.51     |
| 17:Y:46:ASP:OD2  | 17:Y:98:VAL:CG1  | 2.59        | 0.51     |
| 17:Y:46:ASP:CG   | 17:Y:98:VAL:HG11 | 2.31        | 0.51     |
| 8:I:124:LEU:CG   | 8:I:125:GLY:N    | 2.74        | 0.51     |
| 3:D:208:GLY:CA   | 3:D:210:LYS:CE   | 2.73        | 0.51     |
| 3:D:215:LYS:C    | 3:D:216:ALA:O    | 2.48        | 0.51     |
| 12:Q:94:ARG:HG2  | 12:Q:107:LYS:O   | 2.11        | 0.51     |
| 2:A:1805:U:H5'   | 3:D:235:PRO:HG2  | 1.91        | 0.51     |
| 2:A:1944:U:H4'   | 2:A:1955:U:O2'   | 2.11        | 0.51     |
| 1:B:41:U:C5      | 6:G:50:VAL:HB    | 2.46        | 0.51     |
| 24:0:37:LEU:CB   | 24:0:69:PHE:CG   | 2.83        | 0.50     |
| 25:4:40:HIS:CB   | 25:4:41:PRO:CD   | 2.89        | 0.50     |
| 28:7:22:MET:O    | 28:7:24:THR:O    | 2.29        | 0.50     |
| 2:A:126:A:C4     | 28:7:18:PHE:CD2  | 2.99        | 0.50     |
| 2:A:2015:A:C8    | 2:A:2016:U:C5    | 2.99        | 0.50     |
| 2:A:2212:A:H2    | 2:A:2213:U:H3'   | 1.75        | 0.50     |
| 2:A:2302:G:C2    | 2:A:2315:G:C6    | 2.99        | 0.50     |
| 2:A:2349:G:H3'   | 2:A:2350:C:H5''  | 1.92        | 0.50     |
| 2:A:2361:A:O2'   | 2:A:2362:G:H5'   | 2.11        | 0.50     |
| 2:A:2352:A:N7    | 2:A:2366:A:N1    | 2.53        | 0.50     |
| 2:A:2462:U:C4    | 2:A:2463:C:C5    | 2.99        | 0.50     |
| 2:A:576:U:H4'    | 2:A:2502:G:C8    | 2.46        | 0.50     |
| 2:A:2612:C:C2'   | 2:A:2613:U:C5'   | 2.89        | 0.50     |
| 2:A:2635:C:N3    | 2:A:2783:G:C2    | 2.79        | 0.50     |
| 2:A:2740:A:C5'   | 2:A:2740:A:C8    | 2.89        | 0.50     |
| 2:A:2768:C:O2    | 2:A:2769:C:H6    | 1.81        | 0.50     |
| 2:A:2783:G:O6    | 2:A:2784:C:N4    | 2.40        | 0.50     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2864:G:HO2'  | 2:A:2865:U:C1'   | 2.14        | 0.50     |
| 2:A:2836:U:C2    | 2:A:2883:A:C5    | 2.97        | 0.50     |
| 2:A:449:A:OP2    | 5:F:85:LYS:CB    | 2.57        | 0.50     |
| 2:A:599:G:H1     | 2:A:658:C:N4     | 2.05        | 0.50     |
| 2:A:566:U:O2'    | 2:A:808:G:H5''   | 2.10        | 0.50     |
| 2:A:993:G:H2'    | 2:A:993:G:N3     | 2.26        | 0.50     |
| 1:B:42:C:C1'     | 6:G:47:GLN:CA    | 2.87        | 0.50     |
| 3:D:104:ILE:C    | 3:D:106:PRO:HD2  | 2.31        | 0.50     |
| 3:D:113:MET:SD   | 3:D:113:MET:N    | 2.84        | 0.50     |
| 3:D:140:VAL:CG1  | 3:D:141:HIS:N    | 2.47        | 0.50     |
| 3:D:170:TYR:O    | 3:D:182:MET:HE1  | 2.10        | 0.50     |
| 4:E:193:PHE:CZ   | 4:E:199:ALA:CB   | 2.92        | 0.50     |
| 4:E:214:VAL:CG2  | 4:E:221:LYS:CE   | 2.79        | 0.50     |
| 5:F:220:THR:C    | 5:F:222:ASP:N    | 2.60        | 0.50     |
| 7:H:51:VAL:HG13  | 7:H:64:HIS:HB3   | 1.93        | 0.50     |
| 9:N:70:PHE:O     | 9:N:71:TYR:CB    | 2.53        | 0.50     |
| 10:O:38:VAL:HG22 | 10:O:61:VAL:HG22 | 1.92        | 0.50     |
| 12:Q:133:GLU:HG3 | 12:Q:134:PHE:CD1 | 2.46        | 0.50     |
| 19:R:105:ARG:NH2 | 19:R:105:ARG:N   | 2.59        | 0.50     |
| 19:R:45:ARG:C    | 19:R:49:ASP:HB2  | 2.31        | 0.50     |
| 19:R:96:ARG:HE   | 19:R:117:VAL:HA  | 1.75        | 0.50     |
| 13:S:116:PHE:C   | 13:S:120:GLU:CD  | 2.68        | 0.50     |
| 13:S:31:LYS:CA   | 13:S:32:PRO:N    | 2.72        | 0.50     |
| 21:V:42:GLY:O    | 21:V:48:GLY:HA2  | 2.10        | 0.50     |
| 2:A:496:G:OP1    | 15:W:62:HIS:CE1  | 2.64        | 0.50     |
| 12:Q:36:ASN:ND2  | 18:Z:116:VAL:HB  | 2.25        | 0.50     |
| 8:I:105:GLN:O    | 8:I:106:HIS:C    | 2.49        | 0.50     |
| 22:2:45:ARG:HE   | 22:2:49:LEU:HD21 | 1.76        | 0.50     |
| 16:X:13:LYS:H    | 16:X:13:LYS:CD   | 2.22        | 0.50     |
| 2:A:223:A:C6     | 2:A:422:A:C6     | 2.98        | 0.50     |
| 2:A:1924:C:N3    | 2:A:1925:C:C4    | 2.77        | 0.50     |
| 2:A:192:C:H3'    | 2:A:193:U:C6     | 2.46        | 0.50     |
| 23:3:37:LEU:CB   | 23:3:38:GLU:OE1  | 2.55        | 0.50     |
| 23:3:9:VAL:HG22  | 23:3:54:VAL:CG1  | 2.41        | 0.50     |
| 26:5:45:ILE:N    | 26:5:45:ILE:HD12 | 2.26        | 0.50     |
| 27:6:16:ALA:HB1  | 27:6:42:PRO:CD   | 2.40        | 0.50     |
| 28:7:11:LYS:HE2  | 28:7:11:LYS:HA   | 1.94        | 0.50     |
| 29:8:16:ILE:H    | 29:8:16:ILE:CD1  | 2.20        | 0.50     |
| 2:A:2349:G:OP2   | 29:8:42:ARG:NE   | 2.44        | 0.50     |
| 29:8:60:LEU:C    | 29:8:61:MET:O    | 2.47        | 0.50     |
| 2:A:2280:G:C2    | 2:A:2281:C:C5    | 2.99        | 0.50     |
| 2:A:2306:C:C3'   | 2:A:2306:C:C6    | 2.95        | 0.50     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2322:A:C6     | 2:A:2323:G:C4    | 2.81        | 0.50     |
| 2:A:2325:G:C4     | 2:A:2326:C:C5    | 3.00        | 0.50     |
| 2:A:2400:G:N1     | 2:A:2417:C:C4    | 2.79        | 0.50     |
| 2:A:2431:U:O2     | 2:A:2431:U:C2'   | 2.56        | 0.50     |
| 2:A:2549:G:C4     | 2:A:2550:G:C8    | 2.99        | 0.50     |
| 2:A:2556:C:H2'    | 2:A:2557:G:O4'   | 2.11        | 0.50     |
| 2:A:2588:G:O6     | 2:A:2589:A:C6    | 2.64        | 0.50     |
| 2:A:2589:A:C3'    | 2:A:2590:A:C5'   | 2.89        | 0.50     |
| 2:A:2595:G:C8     | 2:A:2595:G:O5'   | 2.52        | 0.50     |
| 2:A:2045:C:N4     | 2:A:2624:G:C2    | 2.79        | 0.50     |
| 2:A:2734:A:C5     | 2:A:2735:G:C4    | 2.98        | 0.50     |
| 2:A:2745:C:H2'    | 2:A:2746:U:O5'   | 2.11        | 0.50     |
| 2:A:2772:C:C2'    | 2:A:2773:C:O5'   | 2.59        | 0.50     |
| 2:A:2781:A:C4'    | 2:A:2782:G:O5'   | 2.55        | 0.50     |
| 2:A:2827:C:N3     | 2:A:2828:C:C5    | 2.79        | 0.50     |
| 2:A:2791:C:C6     | 2:A:2893:G:O6    | 2.60        | 0.50     |
| 2:A:443:A:N6      | 5:F:39:GLN:CB    | 2.74        | 0.50     |
| 2:A:492:A:N1      | 15:W:49:LYS:NZ   | 2.60        | 0.50     |
| 2:A:972:G:C8      | 2:A:974:G:OP1    | 2.64        | 0.50     |
| 3:D:74:PRO:HD3    | 3:D:96:ALA:HB2   | 1.87        | 0.50     |
| 4:E:267:ARG:C     | 4:E:297:LYS:HD2  | 2.32        | 0.50     |
| 4:E:47:GLY:CA     | 4:E:305:LYS:HG2  | 2.41        | 0.50     |
| 5:F:2:GLU:C       | 5:F:18:LEU:HD21  | 2.32        | 0.50     |
| 5:F:52:ALA:CA     | 5:F:55:ARG:CG    | 2.86        | 0.50     |
| 7:H:147:ILE:O     | 7:H:147:ILE:HD12 | 2.11        | 0.50     |
| 7:H:18:VAL:HG22   | 7:H:23:VAL:HG22  | 0.76        | 0.50     |
| 7:H:25:VAL:HG21   | 7:H:74:MET:HB3   | 1.92        | 0.50     |
| 7:H:62:ALA:O      | 7:H:65:GLY:N     | 2.44        | 0.50     |
| 7:H:86:LEU:CD1    | 7:H:87:GLU:C     | 2.80        | 0.50     |
| 8:I:19:LYS:O      | 8:I:21:VAL:HG23  | 2.11        | 0.50     |
| 9:N:15:ARG:NH1    | 9:N:40:ASN:CG    | 2.42        | 0.50     |
| 11:P:122:ALA:O    | 11:P:141:GLU:HA  | 2.10        | 0.50     |
| 11:P:65:ASP:CB    | 11:P:109:LEU:CA  | 2.86        | 0.50     |
| 12:Q:142:LYS:CE   | 12:Q:142:LYS:CA  | 2.88        | 0.50     |
| 12:Q:142:LYS:CE   | 12:Q:143:VAL:O   | 2.59        | 0.50     |
| 20:U:115:ASN:O    | 20:U:117:ARG:HG3 | 2.12        | 0.50     |
| 20:U:47:TYR:C     | 20:U:49:ASP:N    | 2.62        | 0.50     |
| 21:V:3:ALA:CA     | 21:V:12:TYR:OH   | 2.59        | 0.50     |
| 21:V:96:LEU:HD23  | 21:V:96:LEU:N    | 2.26        | 0.50     |
| 18:Z:116:VAL:HG22 | 18:Z:116:VAL:O   | 2.09        | 0.50     |
| 18:Z:149:ALA:CB   | 18:Z:164:PRO:HA  | 2.41        | 0.50     |
| 16:X:18:MET:CE    | 16:X:25:GLN:N    | 2.70        | 0.50     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:X:22:ASN:CA   | 16:X:68:LEU:CG   | 2.88        | 0.50     |
| 17:Y:81:LYS:HD2  | 17:Y:83:ASP:N    | 2.11        | 0.50     |
| 2:A:1899:G:N2    | 2:A:1902:C:N4    | 2.58        | 0.50     |
| 31:K:23:PRO:HG2  | 31:K:24:VAL:H    | 1.76        | 0.50     |
| 2:A:1797:C:C2    | 2:A:1823:G:N2    | 2.79        | 0.50     |
| 24:O:14:ARG:HH11 | 24:O:14:ARG:H    | 1.58        | 0.50     |
| 24:O:40:GLN:N    | 24:O:69:PHE:CE1  | 2.79        | 0.50     |
| 23:3:5:LYS:CA    | 23:3:36:VAL:HG12 | 2.41        | 0.50     |
| 28:7:9:ASN:O     | 28:7:11:LYS:N    | 2.44        | 0.50     |
| 2:A:126:A:OP2    | 28:7:44:VAL:HG11 | 2.11        | 0.50     |
| 2:A:1935:G:O2'   | 2:A:1937:A:H2    | 1.94        | 0.50     |
| 2:A:2093:G:N9    | 2:A:2198:A:N1    | 2.60        | 0.50     |
| 2:A:2195:C:H5''  | 2:A:2195:C:H6    | 1.65        | 0.50     |
| 2:A:2195:C:N3    | 2:A:2196:C:C6    | 2.80        | 0.50     |
| 2:A:2210:G:H4'   | 2:A:2211:G:O5'   | 2.11        | 0.50     |
| 2:A:2304:G:C1'   | 6:G:105:SER:CB   | 2.89        | 0.50     |
| 2:A:2305:A:H1'   | 6:G:129:ASP:HB2  | 1.93        | 0.50     |
| 2:A:2320:A:N6    | 13:S:14:ARG:CB   | 2.73        | 0.50     |
| 2:A:2381:C:H6    | 2:A:2381:C:C5'   | 2.24        | 0.50     |
| 2:A:2397:G:H2'   | 2:A:2398:U:C6    | 2.47        | 0.50     |
| 2:A:2398:U:O2'   | 2:A:2399:G:OP1   | 2.29        | 0.50     |
| 2:A:2450:A:C2    | 2:A:2451:A:N9    | 2.80        | 0.50     |
| 2:A:2512:C:H5''  | 4:E:219:VAL:HG11 | 1.91        | 0.50     |
| 2:A:2549:G:C6    | 2:A:2550:G:N7    | 2.79        | 0.50     |
| 2:A:2544:G:C4'   | 2:A:2645:G:C8    | 2.94        | 0.50     |
| 2:A:2652:C:C4    | 2:A:2653:U:N3    | 2.78        | 0.50     |
| 2:A:2734:A:H3'   | 2:A:2734:A:C8    | 2.47        | 0.50     |
| 2:A:2808:U:C4    | 2:A:2892:A:N7    | 2.79        | 0.50     |
| 2:A:35:G:N3      | 2:A:454:A:C2     | 2.79        | 0.50     |
| 2:A:561:G:H21    | 20:U:45:TYR:HE2  | 1.59        | 0.50     |
| 2:A:2785:C:O2'   | 4:E:100:TRP:HD1  | 1.86        | 0.50     |
| 4:E:199:ALA:HA   | 4:E:314:ALA:N    | 2.27        | 0.50     |
| 2:A:2620:C:C4'   | 4:E:252:GLN:HG2  | 2.42        | 0.50     |
| 6:G:98:PHE:C     | 6:G:104:PHE:HD2  | 2.09        | 0.50     |
| 2:A:1131:G:C6    | 9:N:69:TYR:HE1   | 2.29        | 0.50     |
| 11:P:73:VAL:HA   | 11:P:76:LEU:CB   | 2.40        | 0.50     |
| 19:R:28:LEU:HD13 | 19:R:32:GLY:HA2  | 1.92        | 0.50     |
| 19:R:22:ARG:NH2  | 19:R:69:ASP:CB   | 2.75        | 0.50     |
| 19:R:91:GLN:C    | 19:R:92:GLY:O    | 2.50        | 0.50     |
| 20:U:8:ILE:H     | 20:U:11:ARG:HD3  | 1.65        | 0.50     |
| 2:A:444:C:OP2    | 20:U:2:PRO:CG    | 2.59        | 0.50     |
| 21:V:14:VAL:CG2  | 21:V:19:VAL:CG2  | 2.54        | 0.50     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:V:39:PHE:C    | 21:V:40:VAL:CG2  | 2.47        | 0.50     |
| 15:W:24:ILE:C    | 15:W:25:ARG:O    | 2.46        | 0.50     |
| 2:A:487:C:C2     | 15:W:53:SER:OG   | 2.65        | 0.50     |
| 18:Z:85:MET:C    | 18:Z:86:VAL:CG2  | 2.77        | 0.50     |
| 8:I:89:LEU:HD13  | 8:I:92:SER:O     | 2.12        | 0.50     |
| 8:I:93:ILE:HG12  | 8:I:121:ILE:HB   | 1.94        | 0.50     |
| 2:A:1080:C:H4'   | 31:K:126:LYS:HB3 | 1.92        | 0.50     |
| 6:G:84:LEU:O     | 6:G:88:LEU:CB    | 2.54        | 0.50     |
| 2:A:863:A:H2'    | 2:A:864:G:C8     | 2.45        | 0.50     |
| 2:A:551:G:C4'    | 2:A:1220:A:C2    | 2.94        | 0.50     |
| 24:O:67:VAL:HG23 | 24:O:68:VAL:N    | 2.26        | 0.50     |
| 23:3:43:ILE:CD1  | 23:3:43:ILE:N    | 2.57        | 0.50     |
| 23:3:6:VAL:CG2   | 23:3:7:LYS:N     | 2.74        | 0.50     |
| 28:7:30:ILE:CD1  | 28:7:33:ARG:NE   | 2.75        | 0.50     |
| 28:7:38:GLY:O    | 28:7:39:ARG:HG3  | 2.12        | 0.50     |
| 29:8:16:ILE:HG22 | 29:8:17:THR:H    | 1.76        | 0.50     |
| 29:8:23:MET:HE3  | 29:8:48:PHE:CG   | 2.41        | 0.50     |
| 2:A:1028:A:C2    | 2:A:2486:G:O2'   | 2.62        | 0.50     |
| 2:A:1203:G:H1'   | 2:A:1241:A:N1    | 2.25        | 0.50     |
| 2:A:1668:A:H61   | 2:A:1676:A:H61   | 1.57        | 0.50     |
| 2:A:1819:A:H4'   | 2:A:1820:U:H5'   | 1.93        | 0.50     |
| 2:A:1966:A:N3    | 2:A:2593:U:H5''  | 2.23        | 0.50     |
| 2:A:2258:C:C5    | 2:A:2426:A:C1'   | 2.83        | 0.50     |
| 2:A:2325:G:C2    | 2:A:2326:C:C6    | 3.00        | 0.50     |
| 2:A:2325:G:C5    | 2:A:2326:C:C5    | 2.96        | 0.50     |
| 2:A:2352:A:C8    | 2:A:2366:A:N6    | 2.80        | 0.50     |
| 2:A:2352:A:O2'   | 2:A:2353:G:H5'   | 2.11        | 0.50     |
| 2:A:2482:G:C4    | 2:A:2483:C:H6    | 2.28        | 0.50     |
| 2:A:2514:U:C6    | 2:A:2514:U:C3'   | 2.94        | 0.50     |
| 2:A:2523:G:N3    | 2:A:2765:A:N6    | 2.59        | 0.50     |
| 2:A:2544:G:C2    | 2:A:2545:G:C5    | 3.00        | 0.50     |
| 2:A:2636:U:C2'   | 2:A:2637:U:O5'   | 2.60        | 0.50     |
| 2:A:2705:A:N6    | 2:A:2706:G:C2    | 2.79        | 0.50     |
| 2:A:2717:G:O2'   | 2:A:2718:G:C4'   | 2.59        | 0.50     |
| 2:A:2839:G:H2'   | 2:A:2840:C:C6    | 2.32        | 0.50     |
| 2:A:2892:A:C4'   | 2:A:2892:A:OP1   | 2.59        | 0.50     |
| 2:A:298:G:H8     | 2:A:298:G:O5'    | 1.94        | 0.50     |
| 3:D:142:ASN:CB   | 3:D:190:THR:HG23 | 2.41        | 0.50     |
| 3:D:74:PRO:HG3   | 3:D:96:ALA:CA    | 2.32        | 0.50     |
| 4:E:190:ASN:C    | 4:E:192:ILE:CA   | 2.79        | 0.50     |
| 5:F:39:GLN:CA    | 5:F:39:GLN:OE1   | 2.60        | 0.50     |
| 5:F:52:ALA:N     | 5:F:55:ARG:CB    | 2.67        | 0.50     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:G:103:ASN:O    | 6:G:104:PHE:CD2  | 2.65        | 0.50     |
| 6:G:22:VAL:CB    | 6:G:24:HIS:CE1   | 2.89        | 0.50     |
| 8:I:6:LEU:HB3    | 8:I:36:ALA:HB2   | 1.85        | 0.50     |
| 8:I:3:VAL:HG21   | 8:I:21:VAL:H     | 1.76        | 0.50     |
| 10:O:24:VAL:HG21 | 10:O:32:TYR:CA   | 2.41        | 0.50     |
| 10:O:1:MET:SD    | 10:O:67:ARG:HD2  | 2.52        | 0.50     |
| 2:A:1665:A:H4'   | 10:O:67:ARG:HD3  | 1.89        | 0.50     |
| 10:O:88:ARG:CZ   | 10:O:94:ARG:HG2  | 2.42        | 0.50     |
| 12:Q:65:ARG:NH2  | 12:Q:85:ILE:O    | 2.44        | 0.50     |
| 12:Q:82:LYS:HB2  | 12:Q:125:TRP:HB2 | 1.90        | 0.50     |
| 12:Q:85:ILE:CG2  | 12:Q:136:TRP:HZ2 | 2.24        | 0.50     |
| 2:A:814:C:OP2    | 21:V:84:THR:HG22 | 2.12        | 0.50     |
| 15:W:17:VAL:O    | 15:W:20:VAL:HB   | 2.10        | 0.50     |
| 15:W:58:ALA:O    | 15:W:61:ASN:N    | 2.44        | 0.50     |
| 8:I:68:LEU:HD11  | 8:I:108:LEU:HD22 | 1.88        | 0.50     |
| 8:I:94:THR:HG23  | 8:I:97:GLN:N     | 2.19        | 0.50     |
| 2:A:134:C:H2'    | 2:A:135:G:O4'    | 2.11        | 0.50     |
| 2:A:1470:G:N1    | 2:A:1520:U:N3    | 2.54        | 0.50     |
| 2:A:1518:C:H2'   | 2:A:1519:G:O2'   | 2.11        | 0.50     |
| 2:A:192:C:H3'    | 2:A:193:U:H6     | 1.77        | 0.50     |
| 2:A:1071:G:H2'   | 2:A:1072:C:H5'   | 1.93        | 0.50     |
| 2:A:1197:G:N3    | 2:A:1250:G:C2    | 2.79        | 0.50     |
| 2:A:1000:A:C8    | 2:A:1154:G:N2    | 2.80        | 0.50     |
| 2:A:1263:U:HO2'  | 26:5:16:ARG:HH21 | 1.57        | 0.50     |
| 2:A:2742:C:C5'   | 30:9:35:ARG:NH1  | 2.70        | 0.50     |
| 2:A:1160:G:H2'   | 2:A:1161:C:C6    | 2.46        | 0.50     |
| 2:A:2013:A:O4'   | 15:W:96:ILE:CG2  | 2.59        | 0.50     |
| 2:A:2186:G:N1    | 2:A:2187:G:O6    | 2.37        | 0.50     |
| 2:A:2212:A:C2'   | 2:A:2213:U:C6    | 2.80        | 0.50     |
| 2:A:2234:G:N3    | 2:A:2235:G:C8    | 2.78        | 0.50     |
| 2:A:2277:G:O3'   | 12:Q:20:ILE:HG22 | 2.11        | 0.50     |
| 2:A:2320:A:C2    | 2:A:2333:A:N1    | 2.79        | 0.50     |
| 2:A:2298:A:C1'   | 2:A:2322:A:O2'   | 2.60        | 0.50     |
| 2:A:2354:G:C2    | 2:A:2355:C:C6    | 3.00        | 0.50     |
| 2:A:2384:G:H3'   | 2:A:2386:C:P     | 2.52        | 0.50     |
| 2:A:2410:G:C2    | 2:A:2411:A:C4    | 2.99        | 0.50     |
| 2:A:2421:G:OP1   | 27:6:4:ASP:OD1   | 2.30        | 0.50     |
| 2:A:2454:G:C2    | 2:A:2455:G:N9    | 2.80        | 0.50     |
| 2:A:2569:G:C4    | 2:A:2570:G:C8    | 2.99        | 0.50     |
| 2:A:2569:G:C6    | 2:A:2570:G:N7    | 2.80        | 0.50     |
| 2:A:2690:C:O5'   | 2:A:2690:C:C6    | 2.65        | 0.50     |
| 2:A:2698:U:C2'   | 2:A:2699:C:H6    | 2.15        | 0.50     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2718:G:C4    | 2:A:2719:G:N7     | 2.80        | 0.50     |
| 2:A:2767:C:C2'   | 2:A:2768:C:O5'    | 2.52        | 0.50     |
| 2:A:1709:U:C1'   | 2:A:2860:A:H1'    | 2.35        | 0.50     |
| 2:A:2852:G:O6    | 2:A:2866:U:O4     | 2.29        | 0.50     |
| 2:A:396:G:P      | 25:4:10:VAL:HG13  | 2.50        | 0.50     |
| 2:A:466:A:C2     | 2:A:682:G:N2      | 2.80        | 0.50     |
| 2:A:492:A:N1     | 15:W:49:LYS:CE    | 2.74        | 0.50     |
| 2:A:747:U:OP1    | 26:5:2:ALA:CB     | 2.37        | 0.50     |
| 2:A:905:U:O2'    | 18:Z:117:VAL:HG13 | 2.11        | 0.50     |
| 3:D:166:LYS:HA   | 3:D:182:MET:CE    | 2.42        | 0.50     |
| 4:E:198:TYR:HE2  | 4:E:265:ASN:C     | 2.12        | 0.50     |
| 5:F:165:ASP:O    | 5:F:168:ARG:HG3   | 2.10        | 0.50     |
| 5:F:19:PRO:O     | 5:F:21:VAL:N      | 2.44        | 0.50     |
| 2:A:442:G:O4'    | 5:F:44:GLN:OE1    | 2.30        | 0.50     |
| 7:H:145:ALA:C    | 7:H:147:ILE:N     | 2.51        | 0.50     |
| 10:O:101:PRO:HD3 | 14:T:26:GLY:CA    | 2.40        | 0.50     |
| 10:O:3:GLN:CG    | 10:O:4:GLN:H      | 2.23        | 0.50     |
| 10:O:87:ILE:HG23 | 10:O:92:SER:H     | 1.74        | 0.50     |
| 19:R:20:LEU:O    | 19:R:22:ARG:C     | 2.50        | 0.50     |
| 19:R:33:ARG:HB2  | 19:R:113:LEU:HD11 | 1.94        | 0.50     |
| 19:R:45:ARG:HG2  | 19:R:46:GLY:H     | 1.77        | 0.50     |
| 2:A:2334:G:C4    | 13:S:21:HIS:CE1   | 2.99        | 0.50     |
| 2:A:29:U:H5'     | 20:U:11:ARG:NH1   | 2.22        | 0.50     |
| 20:U:39:LEU:C    | 20:U:41:ASN:N     | 2.61        | 0.50     |
| 18:Z:116:VAL:O   | 18:Z:118:HIS:N    | 2.43        | 0.50     |
| 8:I:115:ILE:HG12 | 8:I:131:VAL:HG11  | 1.86        | 0.50     |
| 22:2:15:GLU:C    | 22:2:17:GLU:N     | 2.64        | 0.50     |
| 2:A:1340:U:C4    | 16:X:57:THR:HG22  | 2.40        | 0.50     |
| 2:A:204:A:OP1    | 2:A:204:A:H8      | 1.94        | 0.50     |
| 2:A:206:U:H2'    | 2:A:207:A:H8      | 1.76        | 0.50     |
| 24:0:62:LEU:O    | 24:0:63:SER:C     | 2.49        | 0.50     |
| 24:0:37:LEU:CA   | 24:0:69:PHE:CD2   | 2.92        | 0.50     |
| 26:5:18:MET:C    | 26:5:21:SER:HB3   | 2.32        | 0.50     |
| 27:6:16:ALA:HB1  | 27:6:42:PRO:HG3   | 1.94        | 0.50     |
| 28:7:28:ARG:O    | 28:7:31:LEU:HB2   | 2.12        | 0.50     |
| 2:A:996:A:H61    | 2:A:1159:U:H3     | 1.60        | 0.50     |
| 2:A:1655:A:O3'   | 4:E:212:GLY:N     | 2.44        | 0.50     |
| 2:A:2095:C:N3    | 2:A:2194:G:O6     | 2.45        | 0.50     |
| 2:A:2322:A:N6    | 2:A:2323:G:C4     | 2.80        | 0.50     |
| 2:A:2431:U:O2    | 2:A:2433:A:P      | 2.69        | 0.50     |
| 2:A:2508:G:H2'   | 2:A:2509:G:H5'    | 1.92        | 0.50     |
| 2:A:2531:A:C2    | 2:A:2658:C:H1'    | 2.46        | 0.50     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2531:A:C3'   | 2:A:2532:G:C5'   | 2.88        | 0.50     |
| 2:A:2562:U:N3    | 2:A:2563:U:C2    | 2.69        | 0.50     |
| 2:A:2516:G:N1    | 2:A:2569:G:N3    | 2.59        | 0.50     |
| 2:A:2652:C:C2'   | 2:A:2653:U:C5'   | 2.88        | 0.50     |
| 2:A:2657:A:C3'   | 2:A:2658:C:C5'   | 2.87        | 0.50     |
| 2:A:2771:C:C2    | 2:A:2772:C:C6    | 2.99        | 0.50     |
| 2:A:2850:A:C2    | 2:A:2869:G:H4'   | 2.47        | 0.50     |
| 2:A:2868:A:C5    | 2:A:2869:G:C8    | 2.99        | 0.50     |
| 2:A:519:U:C4'    | 15:W:75:TYR:HB3  | 2.42        | 0.50     |
| 3:D:167:GLU:OE1  | 3:D:167:GLU:HA   | 2.10        | 0.50     |
| 2:A:1655:A:H5'   | 4:E:211:GLN:HA   | 1.90        | 0.50     |
| 5:F:214:THR:O    | 5:F:215:ALA:C    | 2.45        | 0.50     |
| 6:G:27:ILE:C     | 6:G:69:ILE:HD13  | 2.30        | 0.50     |
| 9:N:53:ILE:CG2   | 9:N:54:VAL:HG23  | 2.41        | 0.50     |
| 9:N:83:ILE:HG13  | 9:N:84:ARG:CG    | 2.41        | 0.50     |
| 2:A:558:G:OP1    | 9:N:91:LYS:HB2   | 2.10        | 0.50     |
| 10:O:15:GLY:O    | 10:O:46:ALA:HB1  | 2.12        | 0.50     |
| 10:O:17:ARG:HE   | 10:O:47:THR:N    | 2.08        | 0.50     |
| 10:O:9:LYS:C     | 10:O:83:ALA:HB1  | 2.26        | 0.50     |
| 10:O:87:ILE:CG2  | 10:O:88:ARG:N    | 2.75        | 0.50     |
| 11:P:60:GLU:O    | 11:P:61:ALA:HB2  | 2.10        | 0.50     |
| 11:P:92:ASP:C    | 11:P:92:ASP:OD1  | 2.50        | 0.50     |
| 12:Q:135:ALA:O   | 12:Q:137:ARG:N   | 2.45        | 0.50     |
| 12:Q:85:ILE:HD13 | 12:Q:85:ILE:O    | 2.11        | 0.50     |
| 2:A:1251:C:C5'   | 20:U:10:ARG:NE   | 2.69        | 0.50     |
| 20:U:98:ILE:O    | 20:U:100:ALA:C   | 2.49        | 0.50     |
| 15:W:23:LEU:CD1  | 15:W:35:ILE:HG21 | 2.39        | 0.50     |
| 15:W:45:TYR:O    | 15:W:46:PHE:C    | 2.49        | 0.50     |
| 17:Y:11:GLN:CA   | 17:Y:21:LYS:HZ1  | 2.25        | 0.50     |
| 17:Y:89:ARG:O    | 17:Y:91:LEU:HD21 | 2.12        | 0.50     |
| 18:Z:67:LYS:CG   | 18:Z:67:LYS:O    | 2.58        | 0.50     |
| 18:Z:6:LYS:O     | 18:Z:31:SER:OG   | 2.18        | 0.50     |
| 2:A:764:A:H5''   | 2:A:764:A:C8     | 2.46        | 0.50     |
| 22:2:59:ILE:CG1  | 22:2:60:GLN:N    | 2.56        | 0.50     |
| 2:A:121:G:C2     | 2:A:131:G:C5     | 2.99        | 0.50     |
| 6:G:90:LEU:C     | 6:G:92:GLU:OE2   | 2.49        | 0.50     |
| 2:A:738:G:N3     | 2:A:739:G:H1'    | 2.27        | 0.50     |
| 2:A:2076:U:C6    | 2:A:2076:U:H3'   | 2.46        | 0.50     |
| 24:0:36:ILE:N    | 24:0:68:VAL:CG1  | 2.75        | 0.50     |
| 28:7:12:ARG:O    | 28:7:13:ALA:C    | 2.50        | 0.50     |
| 28:7:30:ILE:HG12 | 28:7:33:ARG:CD   | 2.29        | 0.50     |
| 2:A:1155:A:H2'   | 2:A:1157:G:N7    | 2.25        | 0.50     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1156:A:OP1   | 20:U:55:ARG:NH2  | 2.44        | 0.50     |
| 2:A:2228:G:H5'   | 2:A:2229:C:OP2   | 2.12        | 0.50     |
| 2:A:2313:C:HO2'  | 2:A:2314:C:H5'   | 1.68        | 0.50     |
| 2:A:2385:C:O2    | 2:A:2386:C:C1'   | 2.59        | 0.50     |
| 2:A:2436:G:N2    | 2:A:2437:U:C1'   | 2.75        | 0.50     |
| 2:A:2562:U:O2    | 2:A:2562:U:C2'   | 2.59        | 0.50     |
| 2:A:2571:C:C2'   | 2:A:2571:C:O2    | 2.54        | 0.50     |
| 2:A:2671:A:H2'   | 2:A:2672:G:O5'   | 2.11        | 0.50     |
| 2:A:1999:C:H4'   | 2:A:2723:C:O2    | 2.12        | 0.50     |
| 2:A:602:G:O2'    | 2:A:655:A:H2     | 1.94        | 0.50     |
| 2:A:793:A:OP1    | 2:A:2071:A:O2'   | 2.26        | 0.50     |
| 1:B:74:U:H2'     | 1:B:75:G:C8      | 2.41        | 0.50     |
| 4:E:217:TRP:O    | 4:E:218:GLY:C    | 2.47        | 0.50     |
| 2:A:1656:C:P     | 4:E:233:ARG:HD3  | 2.52        | 0.50     |
| 4:E:216:ARG:HD3  | 4:E:253:GLN:HA   | 1.92        | 0.50     |
| 4:E:74:GLU:O     | 4:E:75:THR:CB    | 2.60        | 0.50     |
| 4:E:78:MET:O     | 4:E:79:ARG:O     | 2.29        | 0.50     |
| 2:A:452:G:OP1    | 5:F:52:ALA:HB1   | 2.11        | 0.50     |
| 5:F:89:ALA:HB1   | 5:F:90:HIS:CD2   | 2.47        | 0.50     |
| 6:G:140:ARG:HA   | 6:G:143:LYS:HZ2  | 1.72        | 0.50     |
| 2:A:2093:G:OP2   | 8:I:25:TYR:CZ    | 2.64        | 0.50     |
| 9:N:136:SER:C    | 9:N:138:THR:N    | 2.63        | 0.50     |
| 2:A:1137:G:H5''  | 9:N:60:ARG:NH2   | 2.26        | 0.50     |
| 9:N:92:GLN:O     | 9:N:95:ARG:HB2   | 2.11        | 0.50     |
| 12:Q:33:MET:HG3  | 12:Q:83:PHE:CD1  | 2.47        | 0.50     |
| 19:R:105:ARG:HA  | 19:R:105:ARG:NE  | 2.25        | 0.50     |
| 13:S:41:LYS:C    | 13:S:42:HIS:CG   | 2.84        | 0.50     |
| 21:V:35:LEU:C    | 21:V:60:VAL:CG1  | 2.64        | 0.50     |
| 17:Y:33:GLU:CD   | 17:Y:34:GLU:N    | 2.51        | 0.50     |
| 18:Z:106:GLY:N   | 18:Z:141:MET:HG2 | 2.25        | 0.50     |
| 18:Z:159:THR:CG2 | 18:Z:160:LEU:N   | 2.45        | 0.50     |
| 18:Z:51:LEU:HD21 | 18:Z:52:PHE:O    | 2.10        | 0.50     |
| 8:I:111:ASP:C    | 8:I:112:LYS:HD3  | 2.31        | 0.50     |
| 2:A:144:C:H4'    | 16:X:36:GLU:OE1  | 2.12        | 0.50     |
| 6:G:60:GLU:C     | 6:G:61:PHE:HD1   | 2.15        | 0.50     |
| 2:A:1449:A:H5'   | 2:A:1528:A:C2    | 2.47        | 0.50     |
| 2:A:721:C:H2'    | 2:A:722:A:C8     | 2.47        | 0.50     |
| 2:A:851:U:H2'    | 2:A:852:G:H8     | 1.77        | 0.50     |
| 2:A:1118:C:H2'   | 2:A:1119:C:O4'   | 2.12        | 0.50     |
| 24:O:14:ARG:C    | 24:O:14:ARG:CD   | 2.75        | 0.50     |
| 23:3:13:ILE:O    | 23:3:15:TYR:CD1  | 2.65        | 0.50     |
| 25:4:26:SER:O    | 25:4:27:THR:O    | 2.30        | 0.50     |

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| Atom-1            | Atom-2          | Distance(Å) | Clash(Å) |
|-------------------|-----------------|-------------|----------|
| 2:A:1657:C:OP1    | 4:E:233:ARG:N   | 2.45        | 0.50     |
| 2:A:1988:C:H2'    | 2:A:1989:G:C5'  | 2.42        | 0.50     |
| 2:A:1993:U:H2'    | 2:A:1994:C:O4'  | 2.12        | 0.50     |
| 2:A:2325:G:C6     | 2:A:2326:C:C5   | 2.94        | 0.50     |
| 2:A:2327:A:C6     | 2:A:2328:A:N1   | 2.80        | 0.50     |
| 2:A:2349:G:C4     | 2:A:2369:A:C2   | 3.00        | 0.50     |
| 2:A:2246:G:C2     | 2:A:2426:A:N3   | 2.80        | 0.50     |
| 2:A:957:A:N1      | 2:A:2458:G:O3'  | 2.44        | 0.50     |
| 2:A:2485:G:H2'    | 2:A:2486:G:C4'  | 2.42        | 0.50     |
| 2:A:2511:U:C5     | 2:A:2512:C:H5   | 2.26        | 0.50     |
| 2:A:2592:G:C8     | 2:A:2593:U:C6   | 2.97        | 0.50     |
| 2:A:2633:G:C2'    | 2:A:2634:G:O5'  | 2.60        | 0.50     |
| 2:A:2712:U:H5''   | 2:A:2714:G:H4'  | 1.94        | 0.50     |
| 2:A:2696:U:O4     | 2:A:2714:G:N2   | 2.44        | 0.50     |
| 2:A:2725:A:H2'    | 2:A:2727:G:N7   | 2.27        | 0.50     |
| 2:A:2839:G:N1     | 2:A:2840:C:C2   | 2.79        | 0.50     |
| 2:A:2862:G:C2     | 2:A:2863:C:C4   | 2.99        | 0.50     |
| 2:A:2863:C:C2     | 2:A:2864:G:C8   | 2.99        | 0.50     |
| 2:A:2882:A:C3'    | 2:A:2883:A:P    | 2.98        | 0.50     |
| 2:A:2886:G:N2     | 2:A:2887:U:H1'  | 2.23        | 0.50     |
| 2:A:689:A:O2'     | 2:A:780:G:C4'   | 2.60        | 0.50     |
| 2:A:673:C:N4      | 2:A:808:G:C6    | 2.79        | 0.50     |
| 3:D:68:ARG:HD3    | 3:D:68:ARG:H    | 1.76        | 0.50     |
| 3:D:73:ILE:CD1    | 3:D:95:TYR:CE2  | 2.95        | 0.50     |
| 4:E:229:GLN:O     | 4:E:231:TRP:CA  | 2.57        | 0.50     |
| 5:F:36:ARG:C      | 5:F:39:GLN:NE2  | 2.45        | 0.50     |
| 5:F:57:PRO:CG     | 5:F:58:ALA:N    | 2.74        | 0.50     |
| 6:G:64:ARG:HB3    | 6:G:67:ASP:OD2  | 2.08        | 0.50     |
| 7:H:124:VAL:O     | 7:H:125:PRO:C   | 2.49        | 0.50     |
| 7:H:47:ASN:O      | 7:H:48:VAL:CG1  | 2.60        | 0.50     |
| 7:H:87:GLU:HG3    | 7:H:162:ARG:C   | 2.27        | 0.50     |
| 2:A:1012:U:C2     | 9:N:21:ARG:HG2  | 2.47        | 0.50     |
| 11:P:128:GLY:C    | 11:P:132:LYS:CD | 2.73        | 0.50     |
| 12:Q:141:MET:O    | 12:Q:142:LYS:O  | 2.30        | 0.50     |
| 19:R:59:ASP:N     | 19:R:80:PHE:CE2 | 2.79        | 0.50     |
| 19:R:77:ARG:O     | 19:R:78:LYS:C   | 2.50        | 0.50     |
| 2:A:2320:A:H62    | 13:S:14:ARG:CB  | 2.25        | 0.50     |
| 1:B:7:G:HO2'      | 13:S:37:ARG:HG3 | 1.71        | 0.50     |
| 15:W:106:ILE:HG23 | 15:W:107:LEU:N  | 2.26        | 0.50     |
| 15:W:7:ALA:O      | 15:W:10:VAL:CG2 | 2.59        | 0.50     |
| 15:W:12:ILE:CD1   | 15:W:42:ARG:HD2 | 2.41        | 0.50     |
| 15:W:49:LYS:C     | 15:W:51:LEU:H   | 2.16        | 0.50     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 18:Z:113:VAL:N   | 18:Z:174:PRO:HD3  | 2.27        | 0.50     |
| 18:Z:67:LYS:HZ2  | 18:Z:67:LYS:HB2   | 1.77        | 0.50     |
| 16:X:17:ASP:O    | 16:X:20:PHE:CE1   | 2.65        | 0.50     |
| 16:X:45:TYR:HE2  | 16:X:73:ASP:HA    | 1.77        | 0.50     |
| 16:X:76:GLU:OE1  | 16:X:76:GLU:C     | 2.49        | 0.50     |
| 2:A:978:G:C6     | 2:A:979:G:C6      | 3.00        | 0.50     |
| 24:0:55:ARG:HB3  | 24:0:55:ARG:CZ    | 2.42        | 0.50     |
| 2:A:747:U:P      | 26:5:2:ALA:CB     | 3.00        | 0.50     |
| 27:6:2:ALA:CB    | 27:6:11:LYS:HZ1   | 2.15        | 0.50     |
| 28:7:11:LYS:HG3  | 28:7:12:ARG:H     | 1.77        | 0.50     |
| 29:8:58:MET:O    | 29:8:60:LEU:CA    | 2.57        | 0.50     |
| 2:A:1031:G:H4'   | 30:9:8:LYS:CE     | 2.42        | 0.50     |
| 2:A:1009:A:O4'   | 20:U:59:ARG:HD3   | 2.12        | 0.50     |
| 2:A:1450:C:H2'   | 2:A:1451:C:H4'    | 1.94        | 0.50     |
| 2:A:1657:C:C6    | 2:A:1657:C:O5'    | 2.65        | 0.50     |
| 2:A:1935:G:H2'   | 2:A:1962:C:H42    | 1.77        | 0.50     |
| 2:A:2077:A:N3    | 2:A:2435:A:N7     | 2.55        | 0.50     |
| 2:A:2459:A:H2'   | 2:A:2460:U:H5'    | 1.93        | 0.50     |
| 2:A:2459:A:H8    | 2:A:2460:U:H5     | 1.58        | 0.50     |
| 2:A:2615:U:O2'   | 2:A:2616:C:O5'    | 2.30        | 0.50     |
| 2:A:2629:A:N6    | 2:A:2895:U:O2     | 2.45        | 0.50     |
| 2:A:2682:U:H1'   | 4:E:49:THR:HA     | 1.94        | 0.50     |
| 2:A:270(G):C:H2' | 2:A:270(H):C:H6   | 1.76        | 0.50     |
| 2:A:2776:A:N3    | 2:A:2778:A:C6     | 2.74        | 0.50     |
| 2:A:2776:A:C4    | 2:A:2778:A:C6     | 2.99        | 0.50     |
| 2:A:2692:C:O2    | 2:A:2847:U:H4'    | 2.12        | 0.50     |
| 2:A:2830:G:N3    | 2:A:2883:A:H2     | 2.10        | 0.50     |
| 2:A:388:G:OP1    | 25:4:29:PRO:HG3   | 2.11        | 0.50     |
| 2:A:494:G:H4'    | 15:W:6:ILE:HG23   | 1.83        | 0.50     |
| 2:A:669:G:N3     | 2:A:669:G:H2'     | 2.25        | 0.50     |
| 3:D:104:ILE:CD1  | 3:D:104:ILE:H     | 2.02        | 0.50     |
| 3:D:140:VAL:C    | 3:D:141:HIS:HD1   | 2.14        | 0.50     |
| 4:E:185:GLY:O    | 4:E:187:HIS:HD2   | 1.91        | 0.50     |
| 4:E:193:PHE:CE2  | 4:E:199:ALA:HB1   | 2.39        | 0.50     |
| 4:E:233:ARG:O    | 4:E:234:ARG:CB    | 2.48        | 0.50     |
| 4:E:83:LEU:HD12  | 4:E:178:LEU:HD23  | 1.94        | 0.50     |
| 5:F:238:SER:O    | 5:F:241:ALA:CA    | 2.54        | 0.50     |
| 6:G:141:VAL:CA   | 6:G:144:ARG:NH1   | 2.75        | 0.50     |
| 6:G:97:GLN:CB    | 6:G:106:PHE:CD2   | 2.90        | 0.50     |
| 10:O:10:VAL:CG1  | 10:O:12:ASP:OD1   | 2.52        | 0.50     |
| 10:O:13:ASN:ND2  | 10:O:97:ARG:HB3   | 2.27        | 0.50     |
| 11:P:130:ARG:CA  | 11:P:133:VAL:HG23 | 2.42        | 0.50     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:P:59:GLU:OE1  | 11:P:60:GLU:CB    | 2.58        | 0.50     |
| 11:P:66:VAL:HG21 | 11:P:110:GLY:O    | 2.11        | 0.50     |
| 19:R:23:ASN:OD1  | 19:R:24:GLN:N     | 2.45        | 0.50     |
| 2:A:2880:C:O2    | 19:R:93:GLY:HA3   | 2.12        | 0.50     |
| 13:S:10:MET:H    | 13:S:13:ARG:HE    | 1.60        | 0.50     |
| 21:V:72:ARG:CG   | 21:V:88:GLN:HG3   | 2.27        | 0.50     |
| 15:W:36:LEU:CD1  | 15:W:47:VAL:HB    | 2.42        | 0.50     |
| 15:W:86:LEU:CB   | 15:W:87:PRO:HD2   | 2.28        | 0.50     |
| 17:Y:20:HIS:C    | 17:Y:22:GLN:N     | 2.62        | 0.50     |
| 17:Y:30:ASP:CG   | 17:Y:31:LEU:CG    | 2.80        | 0.50     |
| 12:Q:42:TYR:CZ   | 18:Z:116:VAL:HG21 | 2.46        | 0.50     |
| 18:Z:141:MET:HA  | 18:Z:171:VAL:CG1  | 2.36        | 0.50     |
| 18:Z:1:MET:HE1   | 18:Z:52:PHE:CD2   | 2.45        | 0.50     |
| 8:I:119:ASP:OD1  | 8:I:119:ASP:C     | 2.50        | 0.50     |
| 2:A:1791:A:O3'   | 3:D:204:PHE:CD2   | 2.65        | 0.50     |
| 2:A:144:C:OP1    | 16:X:36:GLU:OE2   | 2.29        | 0.50     |
| 2:A:2182:G:C5    | 2:A:2183:C:N4     | 2.80        | 0.50     |
| 2:A:1359:A:OP2   | 2:A:1371:G:N2     | 2.45        | 0.50     |
| 24:O:39:ARG:C    | 24:O:40:GLN:O     | 2.47        | 0.49     |
| 2:A:988:A:H62    | 23:3:13:ILE:HG21  | 1.77        | 0.49     |
| 23:3:8:LEU:HB2   | 23:3:33:GLN:H     | 1.77        | 0.49     |
| 23:3:7:LYS:O     | 23:3:54:VAL:HG11  | 2.12        | 0.49     |
| 25:4:58:LYS:HG2  | 25:4:62:ARG:HH21  | 1.75        | 0.49     |
| 25:4:6:HIS:HE2   | 25:4:55:ARG:HG3   | 1.77        | 0.49     |
| 26:5:30:LEU:CD2  | 26:5:41:LEU:HA    | 2.41        | 0.49     |
| 2:A:1249:U:H5''  | 20:U:4:ALA:HB2    | 1.94        | 0.49     |
| 2:A:1782:C:C4    | 2:A:2609:U:H5     | 2.30        | 0.49     |
| 2:A:1818:U:OP1   | 3:D:86:ARG:O      | 2.30        | 0.49     |
| 2:A:2061:G:C5    | 2:A:2063:C:N4     | 2.80        | 0.49     |
| 2:A:2230:G:H2'   | 2:A:2231:C:H6     | 1.76        | 0.49     |
| 2:A:2087:G:N1    | 2:A:2233:U:C6     | 2.80        | 0.49     |
| 2:A:2325:G:C5'   | 2:A:2325:G:H8     | 2.25        | 0.49     |
| 2:A:2359:C:C4    | 2:A:2360:A:H2     | 2.17        | 0.49     |
| 2:A:807:U:C5'    | 2:A:2445:G:H4'    | 2.40        | 0.49     |
| 2:A:2487:G:C2'   | 2:A:2488:A:C5'    | 2.90        | 0.49     |
| 2:A:960:A:H2     | 2:A:2496:C:H1'    | 1.77        | 0.49     |
| 2:A:2586:C:C2'   | 2:A:2587:A:H5'    | 2.41        | 0.49     |
| 2:A:2641:G:O6    | 2:A:2774:C:C5     | 2.65        | 0.49     |
| 2:A:2642:G:H2'   | 2:A:2643:G:H5'    | 1.90        | 0.49     |
| 2:A:2678:C:H2'   | 2:A:2679:A:C5'    | 2.41        | 0.49     |
| 2:A:2686:G:C4    | 2:A:2687:U:H6     | 2.30        | 0.49     |
| 2:A:2869:G:N2    | 2:A:2870:C:N1     | 2.59        | 0.49     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:292:C:H2'    | 2:A:293:U:N3      | 2.20        | 0.49     |
| 2:A:566:U:C5'    | 21:V:81:ARG:NH2   | 2.75        | 0.49     |
| 2:A:602:G:HO2'   | 2:A:655:A:H2      | 1.58        | 0.49     |
| 2:A:2822:G:P     | 4:E:207:GLY:CA    | 2.98        | 0.49     |
| 4:E:268:LEU:HD22 | 4:E:268:LEU:C     | 2.27        | 0.49     |
| 4:E:301:PRO:C    | 4:E:303:PRO:HD2   | 2.22        | 0.49     |
| 5:F:112:ARG:O    | 5:F:115:LEU:N     | 2.45        | 0.49     |
| 5:F:167:ASP:O    | 5:F:168:ARG:HD2   | 2.11        | 0.49     |
| 5:F:29:ASP:O     | 5:F:30:LEU:C      | 2.50        | 0.49     |
| 7:H:73:ASN:HB3   | 7:H:137:LYS:HZ1   | 0.76        | 0.49     |
| 9:N:58:GLU:O     | 9:N:61:VAL:CB     | 2.48        | 0.49     |
| 12:Q:16:ARG:NH1  | 12:Q:17:ARG:N     | 2.60        | 0.49     |
| 12:Q:45:GLN:OE1  | 12:Q:153:PRO:CB   | 2.60        | 0.49     |
| 2:A:1151:G:O2'   | 20:U:77:SER:O     | 2.29        | 0.49     |
| 20:U:84:LYS:C    | 20:U:86:ALA:N     | 2.60        | 0.49     |
| 21:V:40:VAL:HG13 | 21:V:55:THR:HG22  | 1.93        | 0.49     |
| 21:V:78:VAL:CG2  | 21:V:80:TYR:CD1   | 2.95        | 0.49     |
| 17:Y:24:ARG:O    | 17:Y:25:ALA:CB    | 2.60        | 0.49     |
| 18:Z:141:MET:O   | 18:Z:142:ASN:HB2  | 2.09        | 0.49     |
| 8:I:119:ASP:OD1  | 8:I:120:ALA:N     | 2.45        | 0.49     |
| 8:I:115:ILE:HG12 | 8:I:131:VAL:HG22  | 1.94        | 0.49     |
| 8:I:86:GLY:O     | 8:I:88:ARG:HA     | 2.11        | 0.49     |
| 2:A:1827:C:C5'   | 2:A:1971:A:H4'    | 2.15        | 0.49     |
| 22:2:7:GLU:HG2   | 22:2:8:ILE:N      | 2.26        | 0.49     |
| 18:Z:95:SER:OG   | 18:Z:122:ILE:HG23 | 2.12        | 0.49     |
| 2:A:1303:G:C5'   | 2:A:1642:G:H21    | 2.25        | 0.49     |
| 2:A:1324:G:C4'   | 2:A:1616:A:H62    | 2.24        | 0.49     |
| 31:K:9:ILE:HG22  | 31:K:10:LYS:N     | 2.27        | 0.49     |
| 23:3:42:ALA:C    | 23:3:44:ARG:N     | 2.65        | 0.49     |
| 2:A:1127:A:C6    | 2:A:2518:A:H2     | 2.27        | 0.49     |
| 2:A:2277:G:H3'   | 2:A:2278:A:H5''   | 1.94        | 0.49     |
| 2:A:2261:C:O4'   | 2:A:2388:A:C1'    | 2.57        | 0.49     |
| 2:A:2458:G:C6    | 2:A:2490:G:N3     | 2.80        | 0.49     |
| 2:A:197:A:H61    | 2:A:248:G:N2      | 2.08        | 0.49     |
| 2:A:2533:A:C3'   | 2:A:2534:A:H8     | 2.25        | 0.49     |
| 2:A:2604:U:O2    | 2:A:2604:U:C2'    | 2.52        | 0.49     |
| 2:A:2616:C:C4    | 2:A:2617:C:H5     | 2.30        | 0.49     |
| 2:A:2631:G:C4    | 2:A:2632:A:H8     | 2.27        | 0.49     |
| 2:A:2677:G:C4    | 2:A:2678:C:H5     | 2.29        | 0.49     |
| 2:A:2680:C:C5'   | 4:E:206:LYS:NZ    | 2.73        | 0.49     |
| 2:A:2718:G:C2'   | 2:A:2719:G:C8     | 2.71        | 0.49     |
| 2:A:2731:G:H4'   | 4:E:264:LEU:HD12  | 1.93        | 0.49     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:39:C:H2'     | 2:A:40:C:C6       | 2.47        | 0.49     |
| 2:A:778:G:C6     | 2:A:779:U:N3      | 2.81        | 0.49     |
| 2:A:782:A:OP2    | 2:A:1778:U:H1'    | 2.13        | 0.49     |
| 2:A:993:G:C8     | 2:A:1162:G:N1     | 2.80        | 0.49     |
| 4:E:193:PHE:HA   | 4:E:197:GLU:OE1   | 2.12        | 0.49     |
| 2:A:2052:G:C4'   | 4:E:239:GLY:O     | 2.53        | 0.49     |
| 4:E:46:ALA:HB2   | 4:E:72:VAL:C      | 2.29        | 0.49     |
| 5:F:140:VAL:HB   | 5:F:235:PHE:O     | 2.12        | 0.49     |
| 5:F:155:SER:OG   | 5:F:156:LEU:N     | 2.45        | 0.49     |
| 5:F:157:LEU:O    | 5:F:158:GLU:C     | 2.47        | 0.49     |
| 5:F:28:SER:O     | 5:F:29:ASP:C      | 2.50        | 0.49     |
| 7:H:32:LEU:CD1   | 7:H:136:ASP:OD2   | 2.60        | 0.49     |
| 7:H:140:VAL:HA   | 7:H:143:LEU:HD22  | 1.94        | 0.49     |
| 7:H:87:GLU:CG    | 7:H:162:ARG:HB2   | 2.42        | 0.49     |
| 2:A:2748:A:H4'   | 7:H:65:GLY:O      | 2.12        | 0.49     |
| 9:N:12:VAL:O     | 9:N:38:VAL:HA     | 2.11        | 0.49     |
| 9:N:15:ARG:CB    | 9:N:43:ARG:HD2    | 2.22        | 0.49     |
| 9:N:52:GLN:CA    | 9:N:55:GLU:HG3    | 2.41        | 0.49     |
| 9:N:80:LYS:O     | 9:N:81:ARG:C      | 2.49        | 0.49     |
| 10:O:98:ILE:CG2  | 10:O:99:PHE:N     | 2.53        | 0.49     |
| 11:P:58:GLN:HG3  | 11:P:59:GLU:H     | 1.77        | 0.49     |
| 11:P:69:ILE:CA   | 11:P:73:VAL:HG21  | 2.40        | 0.49     |
| 6:G:145:ASP:CB   | 13:S:16:ALA:N     | 2.72        | 0.49     |
| 14:T:37:GLU:CG   | 14:T:38:ASN:N     | 2.37        | 0.49     |
| 20:U:66:ASN:CG   | 20:U:76:TYR:CZ    | 2.85        | 0.49     |
| 20:U:69:ALA:HB3  | 20:U:76:TYR:CE1   | 2.47        | 0.49     |
| 20:U:69:ALA:O    | 20:U:74:MET:O     | 2.30        | 0.49     |
| 15:W:24:ILE:HA   | 15:W:35:ILE:CD1   | 2.42        | 0.49     |
| 15:W:80:PRO:HB2  | 15:W:100:THR:CG2  | 2.30        | 0.49     |
| 17:Y:40:VAL:O    | 17:Y:41:ARG:CB    | 2.59        | 0.49     |
| 18:Z:94:VAL:HG11 | 18:Z:130:ILE:HG21 | 1.94        | 0.49     |
| 18:Z:26:LYS:O    | 18:Z:27:GLU:HB2   | 2.10        | 0.49     |
| 18:Z:67:LYS:HD2  | 18:Z:93:GLU:OE2   | 2.03        | 0.49     |
| 6:G:60:GLU:O     | 6:G:61:PHE:CD1    | 2.65        | 0.49     |
| 2:A:440:G:H3'    | 17:Y:3:GLN:HE21   | 1.77        | 0.49     |
| 2:A:265:A:C6     | 2:A:281:G:OP1     | 2.64        | 0.49     |
| 17:Y:81:LYS:NZ   | 17:Y:83:ASP:HB2   | 2.26        | 0.49     |
| 2:A:1924:C:C6    | 2:A:1925:C:H5     | 2.29        | 0.49     |
| 1:B:60:C:H2'     | 1:B:61:G:H8       | 1.77        | 0.49     |
| 2:A:1602:U:OP2   | 2:A:1602:U:C4     | 2.64        | 0.49     |
| 25:4:43:TRP:HA   | 25:4:56:VAL:O     | 2.13        | 0.49     |
| 19:R:100:LEU:HA  | 26:5:44:HIS:HD2   | 1.77        | 0.49     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 28:7:26:SER:O   | 28:7:27:GLY:O    | 2.30        | 0.49     |
| 2:A:467:G:OP1   | 28:7:30:ILE:HD12 | 2.12        | 0.49     |
| 30:9:2:LYS:C    | 30:9:4:ARG:H     | 2.14        | 0.49     |
| 2:A:1263:U:H1'  | 26:5:16:ARG:HH22 | 1.77        | 0.49     |
| 2:A:14:A:N7     | 2:A:15:G:C5      | 2.78        | 0.49     |
| 2:A:1935:G:HO2' | 2:A:1937:A:H2    | 1.59        | 0.49     |
| 2:A:2185:C:C4   | 2:A:2186:G:N7    | 2.80        | 0.49     |
| 2:A:2242:G:N3   | 2:A:2243:U:C6    | 2.81        | 0.49     |
| 2:A:2327:A:H2'  | 2:A:2328:A:C8    | 2.48        | 0.49     |
| 2:A:2398:U:O2'  | 2:A:2399:G:P     | 2.69        | 0.49     |
| 2:A:2454:G:HO2' | 2:A:2455:G:H5'   | 1.74        | 0.49     |
| 2:A:2564:A:C6   | 2:A:2647:U:H4'   | 2.47        | 0.49     |
| 2:A:2605:U:C4'  | 2:A:2605:U:H6    | 2.26        | 0.49     |
| 2:A:2607:G:H2'  | 2:A:2608:G:O5'   | 2.12        | 0.49     |
| 2:A:2044:C:C5   | 2:A:2625:G:C2    | 3.00        | 0.49     |
| 2:A:2627:G:N3   | 2:A:2781:A:H2    | 2.10        | 0.49     |
| 2:A:2665:A:N3   | 2:A:2665:A:H2'   | 2.27        | 0.49     |
| 2:A:2714:G:H2'  | 2:A:2715:C:H5'   | 1.94        | 0.49     |
| 2:A:2747:G:C2   | 2:A:2754:U:N3    | 2.80        | 0.49     |
| 2:A:2854:G:N2   | 2:A:2864:G:C8    | 2.80        | 0.49     |
| 2:A:2865:U:C4   | 2:A:2866:U:C4    | 2.94        | 0.49     |
| 2:A:2894:G:C2'  | 2:A:2894:G:N3    | 2.75        | 0.49     |
| 2:A:290:G:OP2   | 2:A:290:G:C8     | 2.65        | 0.49     |
| 2:A:303:U:H2'   | 2:A:304:G:C8     | 2.45        | 0.49     |
| 2:A:388:G:P     | 25:4:29:PRO:CG   | 2.92        | 0.49     |
| 2:A:444(A):A:P  | 2:A:444(A):A:H8  | 2.35        | 0.49     |
| 2:A:452:G:C3'   | 2:A:453:C:H5''   | 2.36        | 0.49     |
| 2:A:648:G:H2'   | 2:A:649:G:H8     | 1.77        | 0.49     |
| 2:A:856:C:O2'   | 24:0:24:LYS:HG2  | 2.08        | 0.49     |
| 3:D:125:ILE:CG2 | 3:D:126:GLY:H    | 2.24        | 0.49     |
| 2:A:321:G:OP2   | 5:F:150:THR:OG1  | 2.30        | 0.49     |
| 6:G:20:LYS:HA   | 6:G:76:ARG:HG2   | 1.93        | 0.49     |
| 7:H:147:ILE:HA  | 7:H:150:VAL:HG23 | 1.85        | 0.49     |
| 9:N:58:GLU:CB   | 9:N:61:VAL:CG2   | 2.89        | 0.49     |
| 9:N:77:GLY:HA2  | 9:N:80:LYS:CB    | 2.39        | 0.49     |
| 12:Q:74:ASN:HB3 | 18:Z:174:PRO:HB2 | 1.93        | 0.49     |
| 19:R:72:ASP:OD2 | 19:R:72:ASP:O    | 2.30        | 0.49     |
| 19:R:83:ILE:O   | 19:R:86:ARG:N    | 2.45        | 0.49     |
| 13:S:9:PRO:CG   | 13:S:14:ARG:CB   | 2.89        | 0.49     |
| 13:S:35:VAL:CG1 | 13:S:37:ARG:CZ   | 2.89        | 0.49     |
| 20:U:115:ASN:O  | 20:U:117:ARG:C   | 2.50        | 0.49     |
| 21:V:29:ALA:O   | 21:V:31:ASP:N    | 2.45        | 0.49     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:Z:154:LEU:C   | 18:Z:154:LEU:CD2 | 2.80        | 0.49     |
| 18:Z:164:PRO:O   | 18:Z:165:GLU:O   | 2.29        | 0.49     |
| 18:Z:98:VAL:HA   | 18:Z:134:LEU:O   | 2.11        | 0.49     |
| 2:A:729:G:H8     | 2:A:764:A:OP1    | 1.95        | 0.49     |
| 22:2:8:ILE:CA    | 22:2:11:MET:CG   | 2.75        | 0.49     |
| 4:E:107:GLU:C    | 4:E:110:ARG:HG3  | 2.29        | 0.49     |
| 7:H:155:PRO:HB2  | 7:H:169:ARG:CG   | 2.37        | 0.49     |
| 2:A:1545:A:C4'   | 2:A:545(A):A:P   | 3.00        | 0.49     |
| 2:A:1316:U:H2'   | 2:A:1317:A:C8    | 2.48        | 0.49     |
| 2:A:1539:G:H2'   | 2:A:1540:G:C8    | 2.48        | 0.49     |
| 5:F:120:ASP:N    | 5:F:120:ASP:OD1  | 2.45        | 0.49     |
| 24:0:45:PHE:CD1  | 24:0:78:PHE:CB   | 2.96        | 0.49     |
| 24:0:48:GLY:HA2  | 24:0:55:ARG:CA   | 2.40        | 0.49     |
| 23:3:50:VAL:CG1  | 23:3:53:LEU:HD12 | 2.42        | 0.49     |
| 27:6:37:LEU:CD2  | 27:6:51:ARG:CG   | 2.52        | 0.49     |
| 2:A:464:U:C4'    | 28:7:12:ARG:NH2  | 2.75        | 0.49     |
| 28:7:21:ARG:HH22 | 28:7:43:THR:CA   | 2.25        | 0.49     |
| 29:8:16:ILE:HG23 | 29:8:22:VAL:HG22 | 1.93        | 0.49     |
| 2:A:1326:U:O2'   | 2:A:2010:G:O2'   | 2.21        | 0.49     |
| 2:A:1462:C:C5'   | 2:A:2703:C:H5'   | 2.41        | 0.49     |
| 2:A:2053:G:H1'   | 4:E:245:ARG:CG   | 2.43        | 0.49     |
| 2:A:2259:G:H2'   | 2:A:2260:C:O4'   | 2.12        | 0.49     |
| 2:A:2322:A:P     | 2:A:2322:A:O4'   | 2.71        | 0.49     |
| 2:A:2337:G:C2    | 2:A:2338:G:N7    | 2.80        | 0.49     |
| 2:A:2341:G:O6    | 2:A:2342:C:N4    | 2.44        | 0.49     |
| 2:A:2356:C:O2'   | 2:A:2357:U:C5'   | 2.59        | 0.49     |
| 2:A:2395:C:OP2   | 2:A:2396:G:OP2   | 2.31        | 0.49     |
| 2:A:2399:G:C2'   | 2:A:2400:G:O5'   | 2.60        | 0.49     |
| 2:A:2834:G:C8    | 2:A:2834:G:C3'   | 2.95        | 0.49     |
| 2:A:291:C:N4     | 2:A:349:G:C6     | 2.81        | 0.49     |
| 2:A:487:C:H1'    | 15:W:53:SER:HA   | 1.95        | 0.49     |
| 2:A:512:G:H5'    | 2:A:513:A:OP1    | 2.13        | 0.49     |
| 2:A:565:C:O2'    | 2:A:1253:A:N3    | 2.45        | 0.49     |
| 3:D:105:ALA:N    | 3:D:106:PRO:HD2  | 2.24        | 0.49     |
| 3:D:173:VAL:O    | 3:D:175:LEU:HD23 | 2.12        | 0.49     |
| 3:D:80:ILE:HB    | 3:D:82:TYR:CZ    | 2.42        | 0.49     |
| 4:E:222:ARG:HG2  | 4:E:232:ARG:H    | 1.75        | 0.49     |
| 4:E:250:VAL:C    | 4:E:251:PRO:O    | 2.49        | 0.49     |
| 2:A:2682:U:C5    | 4:E:48:MET:SD    | 3.04        | 0.49     |
| 5:F:104:ASP:O    | 5:F:107:ARG:N    | 2.45        | 0.49     |
| 5:F:93:LYS:O     | 5:F:96:LYS:CB    | 2.57        | 0.49     |
| 6:G:98:PHE:CB    | 6:G:104:PHE:CE2  | 2.96        | 0.49     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:10:ILE:HD11  | 7:H:48:VAL:O      | 1.99        | 0.49     |
| 7:H:140:VAL:HA   | 7:H:143:LEU:CD2   | 2.42        | 0.49     |
| 7:H:69:SER:O     | 7:H:72:ALA:N      | 2.46        | 0.49     |
| 7:H:86:LEU:HB2   | 7:H:148:ARG:HE    | 1.78        | 0.49     |
| 9:N:134:GLU:O    | 9:N:138:THR:OG1   | 2.31        | 0.49     |
| 9:N:23:ALA:CA    | 9:N:26:VAL:HG23   | 2.41        | 0.49     |
| 9:N:52:GLN:HA    | 9:N:55:GLU:HG3    | 1.88        | 0.49     |
| 9:N:52:GLN:HB3   | 9:N:55:GLU:OE1    | 2.12        | 0.49     |
| 9:N:63:ILE:O     | 9:N:71:TYR:CE1    | 2.66        | 0.49     |
| 11:P:130:ARG:O   | 11:P:133:VAL:CB   | 2.53        | 0.49     |
| 19:R:110:PRO:O   | 19:R:111:LEU:C    | 2.50        | 0.49     |
| 13:S:86:LEU:N    | 13:S:121:GLY:CA   | 2.75        | 0.49     |
| 20:U:72:HIS:NE2  | 20:U:110:VAL:HG11 | 2.21        | 0.49     |
| 20:U:73:GLY:O    | 20:U:74:MET:CB    | 2.61        | 0.49     |
| 20:U:88:ILE:HG22 | 21:V:55:THR:CG2   | 2.42        | 0.49     |
| 20:U:47:TYR:CE2  | 21:V:74:TYR:C     | 2.85        | 0.49     |
| 18:Z:108:VAL:CG1 | 18:Z:108:VAL:O    | 2.55        | 0.49     |
| 18:Z:14:LEU:O    | 18:Z:14:LEU:CD2   | 2.56        | 0.49     |
| 18:Z:19:ILE:CG2  | 18:Z:39:PHE:HE1   | 2.25        | 0.49     |
| 18:Z:50:GLY:O    | 18:Z:51:LEU:HB3   | 2.11        | 0.49     |
| 8:I:98:ILE:O     | 8:I:99:ALA:O      | 2.30        | 0.49     |
| 16:X:25:GLN:C    | 16:X:26:PHE:CG    | 2.84        | 0.49     |
| 16:X:32:ALA:C    | 16:X:37:VAL:CG2   | 2.81        | 0.49     |
| 2:A:1062:G:N2    | 31:K:92:PRO:CD    | 2.66        | 0.49     |
| 2:A:2181:G:H2'   | 2:A:2182:G:H5''   | 1.93        | 0.49     |
| 2:A:704:G:C4     | 2:A:726:G:N2      | 2.80        | 0.49     |
| 23:3:13:ILE:O    | 23:3:15:TYR:CE1   | 2.65        | 0.49     |
| 2:A:1666:G:N2    | 2:A:1669:A:H62    | 2.09        | 0.49     |
| 2:A:2320:A:N3    | 2:A:2333:A:N1     | 2.59        | 0.49     |
| 2:A:2353:G:N2    | 24:0:32:LYS:HE2   | 2.27        | 0.49     |
| 2:A:2354:G:O2'   | 24:0:32:LYS:CB    | 2.60        | 0.49     |
| 2:A:2423:U:C6    | 2:A:2423:U:C4'    | 2.95        | 0.49     |
| 2:A:243:U:H5''   | 2:A:244:A:OP2     | 2.11        | 0.49     |
| 2:A:1129:A:H4'   | 2:A:2516:G:H5'    | 1.94        | 0.49     |
| 2:A:2540:C:H2'   | 2:A:2541:A:O5'    | 2.12        | 0.49     |
| 2:A:2555:U:H2'   | 2:A:2556:C:O5'    | 2.10        | 0.49     |
| 2:A:2584:U:H6    | 2:A:2585:U:H6     | 1.49        | 0.49     |
| 2:A:1783:A:C6    | 2:A:2587:A:C2     | 3.00        | 0.49     |
| 2:A:2606:C:O2    | 2:A:2607:G:N9     | 2.46        | 0.49     |
| 2:A:2640:G:H5''  | 9:N:70:PHE:HB3    | 1.95        | 0.49     |
| 2:A:2843:G:C6    | 2:A:2844:G:N7     | 2.80        | 0.49     |
| 2:A:525:U:H5''   | 2:A:526:A:P       | 2.52        | 0.49     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:611:C:H2'    | 2:A:611:C:O2     | 2.11        | 0.49     |
| 2:A:911:A:H5''   | 2:A:912:C:C5'    | 2.39        | 0.49     |
| 2:A:2820:A:O2'   | 4:E:207:GLY:CA   | 2.60        | 0.49     |
| 4:E:305:LYS:O    | 4:E:306:ARG:HB2  | 2.12        | 0.49     |
| 6:G:98:PHE:HB3   | 6:G:104:PHE:HE2  | 1.77        | 0.49     |
| 7:H:55:SER:HB2   | 7:H:60:HIS:CB    | 2.39        | 0.49     |
| 9:N:46:ILE:O     | 9:N:47:THR:C     | 2.49        | 0.49     |
| 10:O:104:ARG:N   | 10:O:104:ARG:HD2 | 2.19        | 0.49     |
| 12:Q:16:ARG:C    | 12:Q:17:ARG:HD3  | 2.32        | 0.49     |
| 12:Q:61:LEU:O    | 12:Q:63:ALA:C    | 2.50        | 0.49     |
| 12:Q:68:ALA:CB   | 12:Q:136:TRP:CZ3 | 2.89        | 0.49     |
| 19:R:65:LEU:O    | 19:R:68:ARG:HB2  | 2.12        | 0.49     |
| 20:U:21:ALA:O    | 20:U:22:LYS:O    | 2.30        | 0.49     |
| 20:U:87:ASN:HD22 | 20:U:87:ASN:C    | 2.16        | 0.49     |
| 21:V:10:LYS:O    | 21:V:11:GLN:C    | 2.50        | 0.49     |
| 21:V:22:VAL:O    | 21:V:23:GLU:O    | 2.30        | 0.49     |
| 21:V:40:VAL:HG13 | 21:V:55:THR:CG2  | 2.41        | 0.49     |
| 18:Z:21:ALA:H    | 18:Z:32:PHE:HB2  | 1.76        | 0.49     |
| 18:Z:51:LEU:CD2  | 18:Z:52:PHE:O    | 2.60        | 0.49     |
| 18:Z:74:ARG:O    | 18:Z:76:ARG:HG2  | 2.12        | 0.49     |
| 18:Z:69:VAL:HG13 | 18:Z:81:VAL:HA   | 1.95        | 0.49     |
| 18:Z:69:VAL:CG1  | 18:Z:81:VAL:HG13 | 2.43        | 0.49     |
| 8:I:82:LYS:O     | 8:I:89:LEU:HD23  | 2.12        | 0.49     |
| 8:I:94:THR:HG22  | 8:I:97:GLN:CG    | 2.37        | 0.49     |
| 2:A:1789:A:H5''  | 2:A:1790:C:OP2   | 2.13        | 0.49     |
| 3:D:213:LYS:HB3  | 3:D:215:LYS:O    | 2.11        | 0.49     |
| 22:2:22:ASP:O    | 22:2:26:GLU:CD   | 2.47        | 0.49     |
| 22:2:25:THR:O    | 22:2:26:GLU:C    | 2.48        | 0.49     |
| 2:A:1394:U:H5''  | 2:A:1603:A:O3'   | 2.12        | 0.49     |
| 2:A:176:G:C2     | 2:A:177:G:H1'    | 2.47        | 0.49     |
| 31:K:93:LYS:H    | 31:K:96:ILE:HD11 | 1.77        | 0.49     |
| 2:A:1697:G:C5'   | 2:A:1698:A:H5'   | 2.40        | 0.49     |
| 2:A:1213:A:N1    | 2:A:1237:A:H1'   | 2.27        | 0.49     |
| 2:A:1422:G:N2    | 2:A:1576:U:C2    | 2.80        | 0.49     |
| 15:W:52:GLU:HA   | 15:W:52:GLU:OE2  | 2.13        | 0.49     |
| 31:K:95:LYS:O    | 31:K:95:LYS:HG2  | 2.12        | 0.49     |
| 2:A:1497:U:O5'   | 2:A:1497:U:H6    | 1.95        | 0.49     |
| 24:0:35:ASN:C    | 24:0:36:ILE:HG12 | 2.30        | 0.49     |
| 27:6:31:THR:O    | 27:6:32:GLN:O    | 2.31        | 0.49     |
| 2:A:2393:A:H5''  | 29:8:13:ARG:NH2  | 2.28        | 0.49     |
| 2:A:1265:A:N6    | 2:A:2013:A:H5'   | 2.27        | 0.49     |
| 2:A:1627:G:H1    | 2:A:1639:U:H3    | 1.60        | 0.49     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1657:C:H3'   | 2:A:1657:C:H6     | 1.77        | 0.49     |
| 2:A:1818:U:O2    | 3:D:153:LEU:CA    | 2.50        | 0.49     |
| 2:A:2060:A:O2'   | 2:A:2502:G:H5'    | 2.07        | 0.49     |
| 2:A:2300:G:H1    | 2:A:2316:C:H42    | 1.59        | 0.49     |
| 2:A:2300:G:HO2'  | 2:A:2301:C:H5'    | 1.73        | 0.49     |
| 2:A:2340:G:HO2'  | 2:A:2341:G:C5'    | 2.20        | 0.49     |
| 2:A:2366:A:N7    | 2:A:2367:G:C8     | 2.78        | 0.49     |
| 2:A:2416:C:C2'   | 2:A:2417:C:H5'    | 2.32        | 0.49     |
| 2:A:2509:G:C4    | 2:A:2580:U:O2     | 2.65        | 0.49     |
| 2:A:2819:G:C5'   | 2:A:2821:A:H62    | 2.17        | 0.49     |
| 2:A:2854:G:C2    | 2:A:2864:G:C4     | 3.00        | 0.49     |
| 2:A:2870:C:O2    | 2:A:2871:C:N1     | 2.45        | 0.49     |
| 2:A:617:G:C8     | 2:A:618:G:N7      | 2.80        | 0.49     |
| 3:D:107:LYS:HG2  | 3:D:108:ASN:N     | 2.27        | 0.49     |
| 3:D:107:LYS:O    | 3:D:108:ASN:CB    | 2.59        | 0.49     |
| 4:E:177:ALA:C    | 4:E:179:ASP:H     | 2.13        | 0.49     |
| 5:F:103:ASN:O    | 5:F:106:GLU:HB2   | 2.12        | 0.49     |
| 7:H:66:THR:HG22  | 7:H:67:THR:H      | 1.77        | 0.49     |
| 7:H:8:ILE:CG2    | 7:H:9:GLU:H       | 2.13        | 0.49     |
| 10:O:106:LEU:O   | 10:O:107:ARG:C    | 2.51        | 0.49     |
| 11:P:113:GLN:O   | 11:P:115:ARG:CG   | 2.61        | 0.49     |
| 11:P:129:ALA:C   | 11:P:131:GLU:N    | 2.65        | 0.49     |
| 12:Q:143:VAL:C   | 12:Q:144:THR:HG23 | 2.21        | 0.49     |
| 12:Q:31:PHE:CZ   | 12:Q:88:PHE:CE2   | 2.98        | 0.49     |
| 12:Q:50:VAL:C    | 12:Q:51:GLU:OE1   | 2.50        | 0.49     |
| 19:R:105:ARG:O   | 19:R:107:ASP:HB3  | 2.12        | 0.49     |
| 19:R:34:ILE:HG23 | 19:R:35:THR:N     | 2.03        | 0.49     |
| 13:S:81:ALA:C    | 13:S:83:LEU:H     | 2.13        | 0.49     |
| 10:O:80:ASP:N    | 14:T:22:VAL:O     | 2.40        | 0.49     |
| 20:U:68:GLY:C    | 20:U:70:ARG:N     | 2.64        | 0.49     |
| 20:U:91:ASN:O    | 20:U:95:LEU:HD13  | 2.10        | 0.49     |
| 15:W:60:ASN:C    | 15:W:61:ASN:OD1   | 2.51        | 0.49     |
| 15:W:86:LEU:N    | 15:W:86:LEU:HD23  | 2.10        | 0.49     |
| 17:Y:16:LEU:O    | 17:Y:19:ARG:N     | 2.40        | 0.49     |
| 17:Y:71:VAL:CG1  | 17:Y:93:THR:N     | 2.76        | 0.49     |
| 17:Y:89:ARG:O    | 17:Y:91:LEU:CD2   | 2.61        | 0.49     |
| 18:Z:166:LEU:O   | 18:Z:167:THR:C    | 2.50        | 0.49     |
| 18:Z:2:GLU:O     | 18:Z:54:ILE:HG22  | 1.99        | 0.49     |
| 2:A:1566:A:N3    | 3:D:212:HIS:O     | 2.46        | 0.49     |
| 2:A:729:G:C1'    | 2:A:763:G:H4'     | 2.41        | 0.49     |
| 2:A:1:G:C6       | 2:A:2902:C:N4     | 2.71        | 0.49     |
| 2:A:1301:A:N7    | 2:A:1303:G:O4'    | 2.45        | 0.49     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1547:C:H2'   | 2:A:1548:C:C6    | 2.47        | 0.49     |
| 2:A:662:G:H2'    | 2:A:663:G:C8     | 2.48        | 0.49     |
| 23:3:12:PRO:HG2  | 23:3:20:LYS:HZ3  | 1.74        | 0.49     |
| 23:3:31:LEU:CG   | 23:3:32:GLN:H    | 2.14        | 0.49     |
| 25:4:58:LYS:CG   | 25:4:59:PHE:N    | 2.66        | 0.49     |
| 26:5:16:ARG:O    | 26:5:17:ASP:C    | 2.49        | 0.49     |
| 26:5:25:LEU:C    | 26:5:26:THR:HG23 | 2.25        | 0.49     |
| 28:7:35:ARG:O    | 28:7:36:ALA:C    | 2.50        | 0.49     |
| 30:9:4:ARG:C     | 30:9:36:GLN:HA   | 2.33        | 0.49     |
| 2:A:2297:C:O2'   | 2:A:2298:A:C5'   | 2.61        | 0.49     |
| 2:A:2347:C:N3    | 2:A:2348:U:C5    | 2.80        | 0.49     |
| 2:A:2358:G:C6    | 2:A:2359:C:C2    | 3.00        | 0.49     |
| 2:A:2359:C:N3    | 2:A:2360:A:H2    | 2.09        | 0.49     |
| 2:A:2373:G:H2'   | 2:A:2374:C:C6    | 2.47        | 0.49     |
| 2:A:2402:C:C6    | 2:A:2402:C:O5'   | 2.65        | 0.49     |
| 2:A:2431:U:N3    | 2:A:2433:A:OP2   | 2.43        | 0.49     |
| 2:A:2492:U:O2'   | 2:A:2493:U:P     | 2.68        | 0.49     |
| 2:A:2523:G:H2'   | 2:A:2524:G:C5'   | 2.37        | 0.49     |
| 2:A:2536:G:C3'   | 2:A:2537:U:H5'   | 2.42        | 0.49     |
| 2:A:2544:G:C5'   | 2:A:2645:G:C8    | 2.89        | 0.49     |
| 2:A:2564:A:N6    | 2:A:2565:A:N6    | 2.60        | 0.49     |
| 2:A:2565:A:O3'   | 2:A:2566:A:H4'   | 2.09        | 0.49     |
| 2:A:2703:C:O2    | 2:A:2703:C:O4'   | 2.29        | 0.49     |
| 2:A:2729:G:N3    | 2:A:2730:C:C2    | 2.80        | 0.49     |
| 2:A:527:C:C6     | 2:A:2779:U:H3'   | 2.47        | 0.49     |
| 2:A:452:G:C2     | 2:A:458:G:C2     | 3.01        | 0.49     |
| 2:A:80:G:H8      | 2:A:80:G:O5'     | 1.95        | 0.49     |
| 3:D:146:LYS:HB3  | 3:D:149:ARG:CG   | 2.42        | 0.49     |
| 4:E:176:HIS:HA   | 4:E:179:ASP:OD1  | 2.13        | 0.49     |
| 4:E:198:TYR:HD2  | 4:E:265:ASN:C    | 2.13        | 0.49     |
| 7:H:10:ILE:CG1   | 7:H:49:ILE:HG13  | 2.42        | 0.49     |
| 8:I:43:ASN:CA    | 8:I:46:ALA:H     | 2.26        | 0.49     |
| 9:N:12:VAL:C     | 9:N:38:VAL:CB    | 2.79        | 0.49     |
| 10:O:43:VAL:CG1  | 10:O:54:LYS:HA   | 2.42        | 0.49     |
| 2:A:1665:A:C1'   | 10:O:67:ARG:CD   | 2.89        | 0.49     |
| 11:P:71:GLU:HG3  | 11:P:72:ASN:H    | 1.78        | 0.49     |
| 19:R:28:LEU:CD1  | 19:R:28:LEU:C    | 2.81        | 0.49     |
| 19:R:38:VAL:CG2  | 19:R:99:LYS:HE3  | 2.41        | 0.49     |
| 13:S:76:GLY:HA2  | 13:S:82:TYR:HB2  | 1.94        | 0.49     |
| 20:U:40:LEU:HD21 | 21:V:83:ARG:NH1  | 2.27        | 0.49     |
| 20:U:44:THR:O    | 20:U:47:TYR:CB   | 2.38        | 0.49     |
| 21:V:34:GLU:O    | 21:V:35:LEU:CG   | 2.58        | 0.49     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 21:V:61:VAL:CG1  | 21:V:96:LEU:N     | 2.75        | 0.49     |
| 18:Z:151:ASP:OD1 | 18:Z:151:ASP:N    | 2.46        | 0.49     |
| 18:Z:6:LYS:CB    | 18:Z:31:SER:HB3   | 2.43        | 0.49     |
| 8:I:108:LEU:HD23 | 8:I:109:LYS:C     | 2.33        | 0.49     |
| 22:2:51:LYS:O    | 22:2:53:ILE:N     | 2.45        | 0.49     |
| 16:X:14:ALA:O    | 16:X:15:MET:C     | 2.51        | 0.49     |
| 16:X:28:VAL:HG22 | 16:X:62:LYS:C     | 2.32        | 0.49     |
| 16:X:6:LYS:HZ2   | 16:X:29:ASP:N     | 2.09        | 0.49     |
| 18:Z:95:SER:HB3  | 18:Z:122:ILE:HG12 | 1.89        | 0.49     |
| 2:A:1619:G:N2    | 28:7:1:MET:HB3    | 2.25        | 0.49     |
| 24:0:11:LYS:O    | 24:0:12:ASN:C     | 2.50        | 0.49     |
| 2:A:545(A):A:O3' | 2:A:1546:C:P      | 2.71        | 0.49     |
| 2:A:1085:A:H1'   | 2:A:1086:A:C4'    | 2.43        | 0.49     |
| 2:A:1324:G:O3'   | 2:A:1325:G:H4'    | 2.13        | 0.49     |
| 9:N:7:ASP:O      | 9:N:8:ALA:CB      | 2.59        | 0.49     |
| 2:A:1819:A:C8    | 3:D:177:SER:OG    | 2.65        | 0.49     |
| 2:A:2023:G:H2'   | 2:A:2024:G:C8     | 2.48        | 0.49     |
| 2:A:2205:C:N4    | 2:A:2206:C:H41    | 2.11        | 0.49     |
| 2:A:2242:G:C2    | 2:A:2243:U:C6     | 2.99        | 0.49     |
| 2:A:2254:C:C2'   | 2:A:2255:G:O5'    | 2.61        | 0.49     |
| 2:A:2322:A:N3    | 2:A:2322:A:C2'    | 2.76        | 0.49     |
| 2:A:2340:G:C2'   | 2:A:2341:G:O5'    | 2.61        | 0.49     |
| 2:A:2349:G:N1    | 2:A:2369:A:N1     | 2.60        | 0.49     |
| 2:A:2410:G:C2    | 2:A:2411:A:C5     | 3.01        | 0.49     |
| 2:A:2463:C:C2    | 2:A:2464:C:C6     | 2.93        | 0.49     |
| 2:A:2523:G:N2    | 2:A:2541:A:H1'    | 2.28        | 0.49     |
| 2:A:2519:U:C6    | 2:A:2541:A:N6     | 2.80        | 0.49     |
| 2:A:2556:C:C3'   | 2:A:2557:G:C5'    | 2.78        | 0.49     |
| 2:A:2571:C:H2'   | 2:A:2572:A:OP1    | 2.12        | 0.49     |
| 2:A:2544:G:C4'   | 2:A:2645:G:N7     | 2.74        | 0.49     |
| 2:A:2653:U:N3    | 2:A:2654:A:C5     | 2.79        | 0.49     |
| 2:A:2729:G:C4'   | 4:E:298:GLY:HA3   | 2.43        | 0.49     |
| 2:A:2821:A:H2'   | 2:A:2822:G:H1'    | 1.92        | 0.49     |
| 2:A:28:A:N3      | 20:U:11:ARG:NH2   | 2.60        | 0.49     |
| 4:E:207:GLY:N    | 4:E:257:GLY:O     | 2.46        | 0.49     |
| 4:E:193:PHE:CD2  | 4:E:311:PHE:CD1   | 3.00        | 0.49     |
| 5:F:99:SER:O     | 5:F:100:LEU:HG    | 2.13        | 0.49     |
| 5:F:145:GLU:HG3  | 5:F:196:THR:CG2   | 2.43        | 0.49     |
| 5:F:197:SER:O    | 5:F:238:SER:HB3   | 2.13        | 0.49     |
| 6:G:29:HIS:HE2   | 6:G:64:ARG:HH22   | 1.61        | 0.49     |
| 6:G:47:GLN:CD    | 6:G:75:LEU:HD23   | 2.33        | 0.49     |
| 7:H:62:ALA:O     | 7:H:63:LEU:C      | 2.51        | 0.49     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1007:C:O4'   | 9:N:86:MET:O      | 2.31        | 0.49     |
| 11:P:116:HIS:CD2 | 11:P:118:LEU:HD21 | 2.48        | 0.49     |
| 2:A:636:G:OP2    | 11:P:126:SER:HA   | 2.12        | 0.49     |
| 12:Q:85:ILE:HA   | 12:Q:122:PHE:CD2  | 2.47        | 0.49     |
| 12:Q:122:PHE:CB  | 12:Q:136:TRP:HZ2  | 2.25        | 0.49     |
| 19:R:101:ALA:CA  | 26:5:41:LEU:HD12  | 2.43        | 0.49     |
| 19:R:28:LEU:C    | 19:R:30:THR:N     | 2.66        | 0.49     |
| 19:R:22:ARG:HH21 | 19:R:69:ASP:HB3   | 1.77        | 0.49     |
| 13:S:86:LEU:O    | 13:S:87:LEU:C     | 2.50        | 0.49     |
| 20:U:102:GLU:HB3 | 21:V:43:GLU:OE2   | 2.10        | 0.49     |
| 15:W:5:ALA:HB2   | 15:W:54:ALA:CB    | 2.34        | 0.49     |
| 15:W:85:VAL:HG12 | 15:W:95:ILE:CG1   | 2.43        | 0.49     |
| 2:A:1912:A:C5    | 2:A:1918:A:H2     | 2.30        | 0.49     |
| 2:A:270(A):A:H62 | 2:A:270(Z):U:H5'' | 1.78        | 0.49     |
| 2:A:1358:G:C5    | 2:A:1371:G:C5     | 3.01        | 0.49     |
| 2:A:1804:C:N4    | 2:A:1813:G:H1     | 2.11        | 0.49     |
| 2:A:1644:C:H2'   | 2:A:1645:G:H8     | 1.76        | 0.49     |
| 2:A:880:G:H1     | 2:A:897:C:H42     | 1.61        | 0.49     |
| 23:3:31:LEU:HD21 | 23:3:32:GLN:HB3   | 1.90        | 0.49     |
| 27:6:8:ILE:HD13  | 27:6:29:ARG:CZ    | 2.43        | 0.49     |
| 2:A:594:U:C5'    | 29:8:58:MET:CE    | 2.89        | 0.49     |
| 2:A:1264:G:H3'   | 2:A:1265:A:C5'    | 2.43        | 0.49     |
| 2:A:1968:G:H3'   | 2:A:1968:G:C8     | 2.47        | 0.49     |
| 2:A:2022:U:H2'   | 2:A:2617:C:C4'    | 2.43        | 0.49     |
| 2:A:2215:G:O2'   | 2:A:2216:G:C4'    | 2.58        | 0.49     |
| 2:A:2239:G:C5    | 2:A:2240:C:C5     | 3.00        | 0.49     |
| 2:A:2294:C:N3    | 2:A:2339:G:O6     | 2.45        | 0.49     |
| 2:A:2334:G:H5'   | 13:S:20:TYR:CE1   | 2.48        | 0.49     |
| 2:A:2334:G:OP2   | 13:S:12:ARG:O     | 2.30        | 0.49     |
| 2:A:2392:A:C5    | 2:A:2393:A:C5     | 3.01        | 0.49     |
| 2:A:2399:G:C2    | 2:A:2400:G:N9     | 2.81        | 0.49     |
| 2:A:2434:A:O2'   | 2:A:2435:A:C5'    | 2.60        | 0.49     |
| 2:A:2493:U:O2'   | 2:A:2494:G:O5'    | 2.31        | 0.49     |
| 2:A:2521:C:O4'   | 2:A:2565:A:C1'    | 2.60        | 0.49     |
| 2:A:2543:G:C3'   | 2:A:2544:G:H5'    | 2.43        | 0.49     |
| 2:A:2553:G:C8    | 2:A:2554:U:C1'    | 2.95        | 0.49     |
| 2:A:2622:C:O2    | 2:A:2623:G:H8     | 1.79        | 0.49     |
| 2:A:2712:U:H5''  | 2:A:2714:G:C4'    | 2.43        | 0.49     |
| 2:A:2808:U:H5''  | 2:A:2809:A:OP2    | 2.13        | 0.49     |
| 2:A:2885:C:N3    | 2:A:2886:G:N9     | 2.61        | 0.49     |
| 2:A:311:A:H1'    | 2:A:332:A:C4      | 2.48        | 0.49     |
| 2:A:529:A:O2'    | 2:A:530:G:P       | 2.71        | 0.49     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 3:D:74:PRO:C      | 3:D:116:MET:HE2  | 2.33        | 0.49     |
| 3:D:124:LYS:O     | 3:D:127:ASN:ND2  | 2.46        | 0.49     |
| 3:D:167:GLU:CB    | 3:D:170:TYR:HD1  | 1.99        | 0.49     |
| 3:D:76:ARG:HG2    | 3:D:76:ARG:NH1   | 2.28        | 0.49     |
| 4:E:252:GLN:C     | 4:E:254:GLY:N    | 2.67        | 0.49     |
| 5:F:167:ASP:HB2   | 5:F:232:LEU:HB2  | 1.95        | 0.49     |
| 5:F:223:LEU:O     | 5:F:231:ARG:CG   | 2.61        | 0.49     |
| 6:G:35:ALA:O      | 6:G:36:ASN:HB2   | 2.12        | 0.49     |
| 7:H:36:PHE:C      | 7:H:37:HIS:HD1   | 2.16        | 0.49     |
| 7:H:43:THR:HG21   | 7:H:51:VAL:C     | 2.33        | 0.49     |
| 2:A:1665:A:C4     | 10:O:67:ARG:NH1  | 2.80        | 0.49     |
| 11:P:60:GLU:O     | 11:P:61:ALA:HB3  | 2.12        | 0.49     |
| 19:R:63:ARG:NH2   | 19:R:77:ARG:HA   | 2.28        | 0.49     |
| 13:S:115:VAL:HG12 | 13:S:116:PHE:N   | 2.28        | 0.49     |
| 20:U:36:PHE:O     | 20:U:39:LEU:HB3  | 2.07        | 0.49     |
| 20:U:94:VAL:HG11  | 21:V:4:ILE:HD13  | 1.94        | 0.49     |
| 21:V:93:ILE:O     | 21:V:95:ILE:HD13 | 2.12        | 0.49     |
| 15:W:45:TYR:O     | 15:W:48:ALA:HB3  | 2.13        | 0.49     |
| 2:A:294:A:O2'     | 17:Y:15:PRO:CG   | 2.61        | 0.49     |
| 17:Y:51:LEU:CD2   | 17:Y:52:ARG:HG3  | 2.41        | 0.49     |
| 18:Z:110:GLY:C    | 18:Z:112:LEU:N   | 2.65        | 0.49     |
| 18:Z:20:ALA:O     | 18:Z:21:ALA:HB2  | 2.13        | 0.49     |
| 2:A:1566:A:N6     | 3:D:212:HIS:HE1  | 2.08        | 0.49     |
| 2:A:1566:A:N1     | 3:D:212:HIS:CG   | 2.79        | 0.49     |
| 22:2:50:ARG:O     | 22:2:53:ILE:HD12 | 2.13        | 0.49     |
| 2:A:76:C:H5''     | 22:2:55:ARG:HE   | 1.78        | 0.49     |
| 2:A:145:G:H2'     | 2:A:146:G:H8     | 1.78        | 0.49     |
| 2:A:67:U:C2       | 2:A:68:G:N7      | 2.81        | 0.49     |
| 16:X:9:HIS:ND1    | 16:X:27:ALA:HA   | 2.10        | 0.49     |
| 17:Y:9:LYS:NZ     | 17:Y:13:ARG:CZ   | 2.76        | 0.49     |
| 2:A:1496:A:O5'    | 2:A:1496:A:H8    | 1.93        | 0.49     |
| 2:A:1796:U:H2'    | 2:A:1797:C:C5    | 2.47        | 0.49     |
| 2:A:1068:G:O2'    | 2:A:1096:A:O2'   | 2.17        | 0.49     |
| 2:A:1208:C:H2'    | 2:A:1209:G:C8    | 2.47        | 0.49     |
| 2:A:1752:C:H4'    | 2:A:2862:G:OP1   | 2.12        | 0.49     |
| 2:A:2207:C:C4     | 2:A:2218:G:C6    | 3.00        | 0.49     |
| 2:A:2218:G:N3     | 2:A:2219:G:C8    | 2.81        | 0.49     |
| 2:A:2329:G:N3     | 2:A:2330:G:C8    | 2.80        | 0.49     |
| 2:A:2334:G:H21    | 13:S:12:ARG:HD2  | 1.74        | 0.49     |
| 2:A:2478:A:H2'    | 2:A:2479:G:C5'   | 2.42        | 0.49     |
| 2:A:1129:A:H4'    | 2:A:2516:G:C5'   | 2.43        | 0.49     |
| 2:A:2574:G:H1'    | 4:E:240:PRO:HG3  | 1.94        | 0.49     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:747:U:H5      | 2:A:2613:U:C5     | 2.29        | 0.49     |
| 2:A:2045:C:C2     | 2:A:2624:G:C2     | 2.95        | 0.49     |
| 2:A:2633:G:OP2    | 2:A:2633:G:H8     | 1.95        | 0.49     |
| 2:A:2657:A:H8     | 2:A:2658:C:H5     | 1.41        | 0.49     |
| 2:A:2722:G:C5     | 2:A:2723:C:C5     | 3.01        | 0.49     |
| 2:A:511:U:C5      | 2:A:512:G:H1'     | 2.48        | 0.49     |
| 2:A:525:U:C5'     | 2:A:526:A:P       | 3.01        | 0.49     |
| 2:A:527:C:H6      | 2:A:2779:U:C2'    | 2.24        | 0.49     |
| 3:D:134:ILE:CG2   | 3:D:163:VAL:HG21  | 2.43        | 0.49     |
| 3:D:170:TYR:C     | 3:D:182:MET:SD    | 2.92        | 0.49     |
| 3:D:62:ARG:HH22   | 3:D:83:ASP:HB3    | 1.78        | 0.49     |
| 4:E:176:HIS:HA    | 4:E:179:ASP:CG    | 2.33        | 0.49     |
| 5:F:113:SER:O     | 5:F:114:ALA:C     | 2.51        | 0.49     |
| 5:F:200:PRO:HD3   | 5:F:214:THR:HG22  | 1.94        | 0.49     |
| 6:G:99:ASP:N      | 6:G:104:PHE:HD2   | 1.96        | 0.49     |
| 1:B:59:A:C4'      | 6:G:144:ARG:NE    | 2.76        | 0.49     |
| 7:H:159:LYS:N     | 7:H:162:ARG:NH1   | 2.61        | 0.49     |
| 8:I:6:LEU:O       | 8:I:6:LEU:HD22    | 2.13        | 0.49     |
| 10:O:114:ILE:O    | 10:O:115:ILE:C    | 2.51        | 0.49     |
| 19:R:100:LEU:HD21 | 19:R:113:LEU:HB3  | 1.94        | 0.49     |
| 19:R:105:ARG:CZ   | 19:R:105:ARG:H    | 2.26        | 0.49     |
| 19:R:20:LEU:HD12  | 19:R:21:TYR:CE2   | 2.43        | 0.49     |
| 19:R:58:GLY:O     | 19:R:59:ASP:CB    | 2.59        | 0.49     |
| 20:U:50:ARG:CZ    | 21:V:74:TYR:HD2   | 2.26        | 0.49     |
| 2:A:535:C:H5''    | 20:U:53:LYS:CE    | 2.35        | 0.49     |
| 17:Y:33:GLU:C     | 17:Y:35:TYR:N     | 2.66        | 0.49     |
| 17:Y:51:LEU:HD22  | 17:Y:95:ASN:CB    | 2.43        | 0.49     |
| 18:Z:126:GLY:C    | 18:Z:129:ARG:HB2  | 2.17        | 0.49     |
| 18:Z:142:ASN:O    | 18:Z:171:VAL:HG21 | 2.13        | 0.49     |
| 2:A:1062:G:N3     | 2:A:1062:G:H2'    | 2.28        | 0.49     |
| 18:Z:95:SER:CA    | 18:Z:122:ILE:HA   | 2.40        | 0.49     |
| 2:A:2182:G:C2     | 2:A:2183:C:N3     | 2.81        | 0.49     |
| 2:A:391:G:H2'     | 2:A:392:C:H6      | 1.77        | 0.49     |
| 2:A:678:C:N4      | 2:A:799:G:H1      | 2.11        | 0.49     |
| 1:B:60:C:H2'      | 1:B:61:G:C8       | 2.48        | 0.49     |
| 2:A:1065:U:H3'    | 2:A:1066:U:H5''   | 1.95        | 0.49     |
| 28:7:10:ARG:O     | 28:7:13:ALA:HB3   | 2.13        | 0.48     |
| 29:8:4:MET:CE     | 29:8:4:MET:N      | 2.76        | 0.48     |
| 29:8:61:MET:O     | 29:8:63:PRO:CD    | 2.46        | 0.48     |
| 2:A:1012:U:O2     | 9:N:21:ARG:CG     | 2.61        | 0.48     |
| 2:A:106:C:C2'     | 2:A:107:C:H5''    | 2.35        | 0.48     |
| 2:A:2628:C:H1'    | 2:A:2781:A:N3     | 2.28        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2645:G:OP2   | 2:A:2645:G:C8    | 2.66        | 0.48     |
| 2:A:2647:U:O2    | 2:A:2648:C:C5    | 2.66        | 0.48     |
| 2:A:2865:U:N3    | 2:A:2866:U:C4    | 2.80        | 0.48     |
| 2:A:676:A:C8     | 2:A:2443:C:O2    | 2.67        | 0.48     |
| 2:A:797:C:P      | 5:F:59:GLU:OE1   | 2.71        | 0.48     |
| 1:B:77:U:H4'     | 18:Z:73:LYS:NZ   | 2.28        | 0.48     |
| 3:D:128:ALA:CA   | 3:D:190:THR:HA   | 2.43        | 0.48     |
| 4:E:215:LYS:HB3  | 4:E:215:LYS:HZ3  | 1.78        | 0.48     |
| 5:F:6:TYR:CD1    | 5:F:139:VAL:CG1  | 2.96        | 0.48     |
| 7:H:102:LEU:N    | 7:H:102:LEU:CD2  | 2.70        | 0.48     |
| 8:I:7:LYS:HA     | 8:I:12:LYS:CD    | 2.29        | 0.48     |
| 9:N:12:VAL:O     | 9:N:38:VAL:CB    | 2.60        | 0.48     |
| 9:N:74:ARG:HD2   | 9:N:141:ALA:C    | 2.32        | 0.48     |
| 10:O:77:ILE:O    | 10:O:78:ARG:HG2  | 2.12        | 0.48     |
| 11:P:116:HIS:CD2 | 11:P:118:LEU:CD1 | 2.71        | 0.48     |
| 11:P:71:GLU:C    | 11:P:73:VAL:H    | 2.16        | 0.48     |
| 11:P:76:LEU:CB   | 11:P:81:VAL:CG2  | 2.91        | 0.48     |
| 13:S:106:LEU:C   | 13:S:107:ASN:O   | 2.44        | 0.48     |
| 20:U:109:LEU:C   | 20:U:111:ASP:N   | 2.64        | 0.48     |
| 20:U:39:LEU:O    | 20:U:41:ASN:CA   | 2.61        | 0.48     |
| 20:U:72:HIS:ND1  | 20:U:110:VAL:CG2 | 2.77        | 0.48     |
| 21:V:18:ASP:OD2  | 21:V:94:LYS:HE2  | 2.13        | 0.48     |
| 17:Y:28:SER:HB3  | 17:Y:99:THR:CA   | 2.34        | 0.48     |
| 17:Y:49:GLU:C    | 17:Y:49:GLU:OE2  | 2.51        | 0.48     |
| 18:Z:29:ASN:O    | 18:Z:30:VAL:HG22 | 2.12        | 0.48     |
| 18:Z:52:PHE:H    | 18:Z:65:LEU:CD1  | 2.26        | 0.48     |
| 2:A:1790:C:O3'   | 3:D:210:LYS:HD2  | 2.12        | 0.48     |
| 16:X:50:GLU:H    | 16:X:50:GLU:CD   | 2.15        | 0.48     |
| 16:X:52:VAL:HA   | 16:X:65:VAL:O    | 2.13        | 0.48     |
| 2:A:1082:U:C1'   | 31:K:118:ALA:HB2 | 2.35        | 0.48     |
| 2:A:440:G:O5'    | 17:Y:3:GLN:CD    | 2.52        | 0.48     |
| 2:A:1851:U:H3    | 2:A:1891:G:H1    | 1.60        | 0.48     |
| 2:A:823:G:H2'    | 2:A:824:A:C8     | 2.48        | 0.48     |
| 2:A:366:C:O2     | 2:A:366:C:H2'    | 2.12        | 0.48     |
| 26:5:34:PRO:HG2  | 26:5:35:GLN:H    | 1.77        | 0.48     |
| 25:4:14:ILE:HD11 | 25:4:39:VAL:CG2  | 2.43        | 0.48     |
| 28:7:9:ASN:O     | 28:7:10:ARG:O    | 2.29        | 0.48     |
| 30:9:29:ASN:HB3  | 30:9:32:HIS:ND1  | 2.28        | 0.48     |
| 2:A:1267:U:C5    | 2:A:2012:G:N2    | 2.81        | 0.48     |
| 2:A:1321:A:N3    | 2:A:1321:A:H2'   | 2.28        | 0.48     |
| 2:A:1638:C:O2    | 2:A:2698:U:O2'   | 2.28        | 0.48     |
| 2:A:2089:U:H3    | 2:A:2231:C:N4    | 2.05        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2239:G:C2    | 2:A:2240:C:C6    | 3.01        | 0.48     |
| 2:A:2259:G:C8    | 2:A:2260:C:C6    | 3.00        | 0.48     |
| 2:A:2264:C:H2'   | 2:A:2265:U:H5'   | 1.94        | 0.48     |
| 2:A:2316:C:H4'   | 6:G:151:ILE:HD12 | 0.48        | 0.48     |
| 2:A:2331:G:C5    | 2:A:2332:U:C2    | 2.99        | 0.48     |
| 2:A:2354:G:C4    | 2:A:2355:C:C6    | 3.01        | 0.48     |
| 2:A:2439:A:O2'   | 2:A:2439:A:N3    | 2.45        | 0.48     |
| 2:A:2474:C:H2'   | 2:A:2475:C:C5'   | 2.23        | 0.48     |
| 2:A:2488:A:O5'   | 2:A:2488:A:H8    | 1.95        | 0.48     |
| 2:A:2517:C:O2'   | 2:A:2518:A:P     | 2.71        | 0.48     |
| 2:A:2549:G:C2    | 2:A:2550:G:N7    | 2.81        | 0.48     |
| 2:A:2644:G:C8    | 2:A:2644:G:H3'   | 2.47        | 0.48     |
| 2:A:2679:A:N3    | 4:E:300:VAL:CB   | 2.72        | 0.48     |
| 2:A:2739:U:HO2'  | 2:A:2740:A:H5''  | 1.75        | 0.48     |
| 2:A:2805:G:H3'   | 2:A:2807:G:C5'   | 2.43        | 0.48     |
| 2:A:2857:G:N2    | 2:A:2860:A:OP2   | 2.40        | 0.48     |
| 2:A:307:G:N2     | 2:A:310:A:O4'    | 2.45        | 0.48     |
| 2:A:35:G:H5'     | 2:A:455:C:H42    | 1.78        | 0.48     |
| 2:A:585:G:N2     | 2:A:1256:G:C6    | 2.82        | 0.48     |
| 2:A:775:G:H1'    | 2:A:777:A:C2     | 2.47        | 0.48     |
| 2:A:873:G:H2'    | 2:A:874:G:O4'    | 2.13        | 0.48     |
| 3:D:65:ASP:OD2   | 3:D:101:ARG:HD3  | 2.13        | 0.48     |
| 3:D:198:GLY:C    | 3:D:200:THR:H    | 2.07        | 0.48     |
| 2:A:2572:A:OP1   | 4:E:240:PRO:HB3  | 2.13        | 0.48     |
| 5:F:221:GLU:O    | 5:F:222:ASP:C    | 2.50        | 0.48     |
| 2:A:2317:C:C4'   | 6:G:150:SER:HB3  | 2.42        | 0.48     |
| 1:B:42:C:C1'     | 6:G:47:GLN:HA    | 2.42        | 0.48     |
| 7:H:101:LYS:CB   | 7:H:113:GLU:CD   | 2.81        | 0.48     |
| 7:H:101:LYS:CE   | 7:H:115:GLU:CG   | 2.90        | 0.48     |
| 7:H:147:ILE:CD1  | 7:H:150:VAL:HB   | 2.28        | 0.48     |
| 9:N:21:ARG:CA    | 9:N:24:SER:OG    | 2.61        | 0.48     |
| 9:N:41:ALA:O     | 9:N:132:LEU:O    | 2.31        | 0.48     |
| 10:O:91:LYS:HB3  | 10:O:111:PHE:HE2 | 1.77        | 0.48     |
| 12:Q:18:GLU:HB3  | 12:Q:23:ILE:HD11 | 1.95        | 0.48     |
| 2:A:873:G:C5'    | 12:Q:32:LYS:HG3  | 2.44        | 0.48     |
| 12:Q:43:PRO:O    | 12:Q:44:ALA:C    | 2.52        | 0.48     |
| 12:Q:56:ILE:HD11 | 12:Q:113:ALA:O   | 2.09        | 0.48     |
| 12:Q:82:LYS:HG2  | 12:Q:84:ARG:CG   | 2.34        | 0.48     |
| 14:T:5:GLU:O     | 14:T:6:CYS:C     | 2.49        | 0.48     |
| 20:U:39:LEU:HB3  | 20:U:40:LEU:CD2  | 2.41        | 0.48     |
| 21:V:22:VAL:CG1  | 21:V:23:GLU:N    | 2.76        | 0.48     |
| 21:V:39:PHE:HE2  | 21:V:41:GLY:C    | 2.11        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:294:A:H4'    | 17:Y:15:PRO:CD   | 2.43        | 0.48     |
| 18:Z:128:ARG:O   | 18:Z:129:ARG:HG2 | 2.13        | 0.48     |
| 18:Z:139:THR:O   | 18:Z:140:LYS:CB  | 2.60        | 0.48     |
| 18:Z:1:MET:O     | 18:Z:2:GLU:CB    | 2.61        | 0.48     |
| 18:Z:54:ILE:HG23 | 18:Z:55:THR:H    | 1.78        | 0.48     |
| 8:I:114:LYS:O    | 8:I:115:ILE:C    | 2.51        | 0.48     |
| 8:I:68:LEU:HB3   | 8:I:72:LEU:HD21  | 1.94        | 0.48     |
| 22:2:34:GLN:O    | 22:2:37:GLY:N    | 2.45        | 0.48     |
| 2:A:138:G:C8     | 16:X:39:ASP:OD1  | 2.65        | 0.48     |
| 2:A:1063:G:H5'   | 31:K:88:GLY:CA   | 2.43        | 0.48     |
| 16:X:46:ASP:O    | 16:X:47:VAL:C    | 2.50        | 0.48     |
| 2:A:1513:C:H3'   | 2:A:1513:C:H6    | 1.78        | 0.48     |
| 2:A:1351:C:H42   | 2:A:1380:G:H1    | 1.61        | 0.48     |
| 2:A:410:G:C2     | 2:A:2407:G:N7    | 2.82        | 0.48     |
| 2:A:850:C:C4'    | 23:3:18:ASP:CG   | 2.61        | 0.48     |
| 23:3:30:ARG:NE   | 23:3:33:GLN:CB   | 2.77        | 0.48     |
| 2:A:1239:G:C2'   | 2:A:1240:U:H6    | 2.26        | 0.48     |
| 2:A:2212:A:H2'   | 2:A:2213:U:H5''  | 1.94        | 0.48     |
| 2:A:2237:G:O2'   | 2:A:2239:G:N7    | 2.47        | 0.48     |
| 2:A:2256:G:N1    | 2:A:2257:U:O2    | 2.46        | 0.48     |
| 2:A:2287:A:C6    | 2:A:2289:G:C4    | 3.01        | 0.48     |
| 2:A:2298:A:C4    | 2:A:2321:G:N1    | 2.79        | 0.48     |
| 2:A:2326:C:C2'   | 2:A:2326:C:O2    | 2.41        | 0.48     |
| 2:A:2487:G:H2'   | 2:A:2488:A:C5'   | 2.43        | 0.48     |
| 2:A:2513:G:C6    | 2:A:2514:U:N3    | 2.81        | 0.48     |
| 2:A:2586:C:C6    | 2:A:2586:C:H3'   | 2.49        | 0.48     |
| 2:A:783:A:C4'    | 2:A:2589:A:P     | 3.01        | 0.48     |
| 2:A:2023:G:O4'   | 2:A:2618:G:OP1   | 2.31        | 0.48     |
| 2:A:2622:C:C2'   | 2:A:2623:G:O5'   | 2.62        | 0.48     |
| 2:A:2652:C:C2'   | 2:A:2653:U:C6    | 2.92        | 0.48     |
| 2:A:2658:C:C2'   | 2:A:2659:G:C5'   | 2.86        | 0.48     |
| 2:A:2700:C:C2'   | 2:A:2701:C:C5'   | 2.90        | 0.48     |
| 2:A:2720:U:O4    | 2:A:2872:G:C6    | 2.66        | 0.48     |
| 2:A:2822:G:OP1   | 4:E:207:GLY:HA3  | 2.03        | 0.48     |
| 2:A:530:G:H1'    | 2:A:532:A:P      | 2.54        | 0.48     |
| 2:A:585:G:H2'    | 2:A:586:A:C8     | 2.47        | 0.48     |
| 2:A:630(A):C:H3' | 2:A:1631:A:OP2   | 2.07        | 0.48     |
| 2:A:641:C:H2'    | 2:A:642:G:O4'    | 2.13        | 0.48     |
| 2:A:647:G:H2'    | 2:A:648:G:C8     | 2.46        | 0.48     |
| 3:D:108:ASN:CG   | 3:D:109:LEU:N    | 2.64        | 0.48     |
| 3:D:175:LEU:CD1  | 3:D:179:GLU:HB3  | 2.40        | 0.48     |
| 4:E:225:LYS:O    | 4:E:226:HIS:CG   | 2.66        | 0.48     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2051:A:C2'    | 4:E:238:LEU:CD2  | 2.90        | 0.48     |
| 5:F:37:ALA:HB2    | 5:F:102:LEU:CG   | 2.43        | 0.48     |
| 7:H:104:LEU:N     | 7:H:104:LEU:HD12 | 2.27        | 0.48     |
| 7:H:52:THR:O      | 7:H:64:HIS:HD2   | 1.97        | 0.48     |
| 7:H:93:TYR:CD2    | 7:H:159:LYS:HE2  | 2.48        | 0.48     |
| 8:I:1:MET:HB3     | 8:I:22:ALA:H     | 1.77        | 0.48     |
| 8:I:23:ASP:O      | 8:I:24:GLY:C     | 2.51        | 0.48     |
| 9:N:61:VAL:HG11   | 9:N:62:ASP:OD1   | 2.03        | 0.48     |
| 10:O:24:VAL:HG11  | 10:O:32:TYR:C    | 2.34        | 0.48     |
| 11:P:115:ARG:C    | 11:P:117:GLU:H   | 2.16        | 0.48     |
| 12:Q:111:THR:HG22 | 12:Q:112:ALA:N   | 2.27        | 0.48     |
| 12:Q:27:GLY:C     | 12:Q:28:ILE:HG13 | 2.32        | 0.48     |
| 12:Q:62:GLU:O     | 12:Q:63:ALA:C    | 2.42        | 0.48     |
| 19:R:62:ALA:HB3   | 19:R:80:PHE:HZ   | 1.73        | 0.48     |
| 20:U:8:ILE:N      | 20:U:11:ARG:HH11 | 1.90        | 0.48     |
| 20:U:47:TYR:HA    | 20:U:50:ARG:CG   | 2.43        | 0.48     |
| 20:U:8:ILE:C      | 20:U:11:ARG:CD   | 2.81        | 0.48     |
| 17:Y:20:HIS:O     | 17:Y:23:VAL:N    | 2.46        | 0.48     |
| 17:Y:80:GLU:HG2   | 17:Y:86:GLU:CG   | 2.43        | 0.48     |
| 17:Y:93:THR:O     | 17:Y:94:SER:C    | 2.51        | 0.48     |
| 18:Z:148:THR:HB   | 18:Z:166:LEU:O   | 2.14        | 0.48     |
| 18:Z:25:ASN:OD1   | 18:Z:25:ASN:C    | 2.51        | 0.48     |
| 3:D:206:LYS:HD3   | 3:D:206:LYS:H    | 1.78        | 0.48     |
| 22:2:34:GLN:O     | 22:2:35:ALA:O    | 2.31        | 0.48     |
| 16:X:77:VAL:O     | 16:X:78:ALA:C    | 2.51        | 0.48     |
| 2:A:1544:C:H2'    | 2:A:1545:A:C4'   | 2.33        | 0.48     |
| 3:D:122:ASP:O     | 3:D:122:ASP:CG   | 2.51        | 0.48     |
| 31:K:9:ILE:HG22   | 31:K:10:LYS:H    | 1.78        | 0.48     |
| 24:0:37:LEU:HD11  | 24:0:71:ASN:HD21 | 1.76        | 0.48     |
| 23:3:3:ARG:HH11   | 23:3:3:ARG:HG2   | 1.79        | 0.48     |
| 25:4:5:LEU:CD2    | 25:4:9:ALA:HA    | 2.43        | 0.48     |
| 27:6:49:VAL:C     | 27:6:50:PHE:CD1  | 2.87        | 0.48     |
| 27:6:37:LEU:CD2   | 27:6:51:ARG:N    | 2.75        | 0.48     |
| 2:A:1011:G:OP2    | 20:U:75:ASN:CB   | 2.54        | 0.48     |
| 2:A:2077:A:H1'    | 2:A:2435:A:C8    | 2.48        | 0.48     |
| 2:A:2206:C:H2'    | 2:A:2207:C:C6    | 2.48        | 0.48     |
| 2:A:2259:G:C2     | 2:A:2282:G:O6    | 2.64        | 0.48     |
| 2:A:2354:G:C5     | 2:A:2355:C:C5    | 3.01        | 0.48     |
| 2:A:2393:A:O2'    | 2:A:2394:C:P     | 2.71        | 0.48     |
| 2:A:2423:U:O4'    | 2:A:2425:A:N7    | 2.46        | 0.48     |
| 2:A:2465:C:O3'    | 30:9:5:SER:OG    | 2.27        | 0.48     |
| 2:A:2468:G:C2'    | 2:A:2469:A:C8    | 2.97        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2519:U:O2    | 2:A:2542:A:N1    | 2.46        | 0.48     |
| 2:A:2595:G:H2'   | 2:A:2597:G:OP2   | 2.13        | 0.48     |
| 2:A:2696:U:N3    | 2:A:2714:G:N2    | 2.61        | 0.48     |
| 2:A:2817:G:N2    | 2:A:2818:G:H1'   | 2.28        | 0.48     |
| 2:A:2830:G:N2    | 2:A:2883:A:C2    | 2.80        | 0.48     |
| 2:A:2842:G:N2    | 2:A:2876:G:C4    | 2.81        | 0.48     |
| 2:A:527:C:C5     | 2:A:2779:U:C6    | 3.01        | 0.48     |
| 2:A:686:G:H4'    | 2:A:687:C:P      | 2.53        | 0.48     |
| 2:A:911:A:OP1    | 2:A:912:C:H6     | 1.97        | 0.48     |
| 1:B:42:C:C2      | 6:G:74:THR:OG1   | 2.66        | 0.48     |
| 3:D:167:GLU:O    | 3:D:170:TYR:CA   | 2.61        | 0.48     |
| 3:D:175:LEU:N    | 3:D:179:GLU:O    | 2.45        | 0.48     |
| 4:E:205:THR:CB   | 4:E:259:HIS:N    | 2.71        | 0.48     |
| 5:F:32:GLY:O     | 5:F:35:VAL:CA    | 2.61        | 0.48     |
| 5:F:55:ARG:CG    | 5:F:56:THR:N     | 2.68        | 0.48     |
| 5:F:89:ALA:CB    | 5:F:90:HIS:NE2   | 2.73        | 0.48     |
| 2:A:2250:G:H5''  | 12:Q:102:ARG:CB  | 2.43        | 0.48     |
| 2:A:957:A:OP1    | 12:Q:95:GLU:HB3  | 2.12        | 0.48     |
| 17:Y:34:GLU:O    | 17:Y:35:TYR:CG   | 2.65        | 0.48     |
| 17:Y:51:LEU:HD21 | 17:Y:95:ASN:CB   | 2.43        | 0.48     |
| 17:Y:58:GLU:HG2  | 17:Y:76:ASP:OD2  | 2.13        | 0.48     |
| 18:Z:126:GLY:O   | 18:Z:127:PRO:C   | 2.51        | 0.48     |
| 8:I:116:GLU:CG   | 8:I:130:PRO:O    | 2.61        | 0.48     |
| 9:N:107:ASN:HD22 | 9:N:107:ASN:N    | 2.09        | 0.48     |
| 2:A:1936:A:C5    | 2:A:1945:G:C6    | 3.02        | 0.48     |
| 2:A:119:A:O2'    | 2:A:120:U:P      | 2.72        | 0.48     |
| 2:A:1257:C:O2'   | 5:F:83:ALA:HB1   | 2.13        | 0.48     |
| 2:A:388:G:OP2    | 25:4:29:PRO:CG   | 2.61        | 0.48     |
| 25:4:46:GLU:CD   | 25:4:54:GLY:HA3  | 2.30        | 0.48     |
| 27:6:13:GLU:O    | 27:6:52:GLU:CA   | 2.61        | 0.48     |
| 30:9:3:VAL:C     | 30:9:5:SER:N     | 2.65        | 0.48     |
| 2:A:1152:C:O2'   | 20:U:80:ILE:HD12 | 2.14        | 0.48     |
| 2:A:1651:G:H2'   | 2:A:1652:A:H8    | 1.76        | 0.48     |
| 2:A:1655:A:H2'   | 2:A:1656:C:O4'   | 2.14        | 0.48     |
| 2:A:1665:A:N7    | 2:A:2726:U:C2    | 2.81        | 0.48     |
| 2:A:2034:U:O2    | 2:A:2034:U:H2'   | 2.13        | 0.48     |
| 2:A:2225:A:O2'   | 2:A:2226:C:P     | 2.67        | 0.48     |
| 2:A:2226:C:C4    | 2:A:2227:A:N3    | 2.82        | 0.48     |
| 2:A:2234:G:C6    | 2:A:2235:G:C6    | 3.01        | 0.48     |
| 2:A:2242:G:N3    | 2:A:2243:U:C5    | 2.80        | 0.48     |
| 2:A:2302:G:C2'   | 2:A:2303:G:O5'   | 2.60        | 0.48     |
| 2:A:2308:G:H5'   | 2:A:2309:A:P     | 2.52        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2372:G:N1    | 2:A:2373:G:C5    | 2.82        | 0.48     |
| 2:A:2447:G:C8    | 2:A:2500:U:C5    | 2.99        | 0.48     |
| 2:A:2567:G:N2    | 2:A:2568:C:C5    | 2.81        | 0.48     |
| 2:A:2049:G:H1    | 2:A:2619:C:N4    | 2.11        | 0.48     |
| 2:A:2633:G:H2'   | 2:A:2634:G:O5'   | 2.14        | 0.48     |
| 2:A:2691:C:O4'   | 2:A:2872:G:C5    | 2.66        | 0.48     |
| 2:A:2729:G:C2'   | 2:A:2730:C:O4'   | 2.58        | 0.48     |
| 2:A:2773:C:OP1   | 4:E:260:GLN:O    | 2.31        | 0.48     |
| 2:A:2832:U:O2'   | 2:A:2834:G:C4    | 2.61        | 0.48     |
| 2:A:602:G:O2'    | 2:A:655:A:C2     | 2.67        | 0.48     |
| 3:D:103:ILE:HG13 | 3:D:104:ILE:CD1  | 2.21        | 0.48     |
| 3:D:106:PRO:O    | 3:D:107:LYS:C    | 2.51        | 0.48     |
| 3:D:89:ASN:O     | 3:D:105:ALA:HB2  | 1.88        | 0.48     |
| 4:E:205:THR:CG2  | 4:E:259:HIS:H    | 1.84        | 0.48     |
| 4:E:317:PRO:HG2  | 4:E:320:GLN:HG2  | 1.94        | 0.48     |
| 5:F:197:SER:O    | 5:F:238:SER:CB   | 2.61        | 0.48     |
| 5:F:194:PHE:N    | 5:F:211:ASP:OD2  | 2.46        | 0.48     |
| 5:F:238:SER:C    | 5:F:241:ALA:HB2  | 2.33        | 0.48     |
| 6:G:136:ARG:HB3  | 6:G:137:PRO:CD   | 2.39        | 0.48     |
| 6:G:77:ASP:O     | 6:G:79:MET:N     | 2.47        | 0.48     |
| 7:H:101:LYS:HB2  | 7:H:113:GLU:OE2  | 2.13        | 0.48     |
| 7:H:10:ILE:HD11  | 7:H:49:ILE:CG2   | 2.42        | 0.48     |
| 7:H:123:GLU:C    | 7:H:125:PRO:CD   | 2.81        | 0.48     |
| 2:A:1140:C:H42   | 9:N:49:ARG:CZ    | 2.23        | 0.48     |
| 2:A:245:G:P      | 11:P:53:ARG:CZ   | 3.01        | 0.48     |
| 12:Q:16:ARG:HB2  | 12:Q:16:ARG:HH11 | 1.54        | 0.48     |
| 19:R:20:LEU:CD1  | 19:R:21:TYR:CE2  | 2.89        | 0.48     |
| 13:S:15:GLU:HG2  | 13:S:16:ALA:N    | 2.29        | 0.48     |
| 21:V:67:LYS:HG2  | 21:V:70:TYR:CE1  | 2.47        | 0.48     |
| 18:Z:24:TYR:HD2  | 18:Z:25:ASN:N    | 2.11        | 0.48     |
| 18:Z:29:ASN:C    | 18:Z:30:VAL:CG2  | 2.82        | 0.48     |
| 18:Z:6:LYS:HB2   | 18:Z:31:SER:HB3  | 1.96        | 0.48     |
| 18:Z:66:VAL:CG2  | 18:Z:69:VAL:CG2  | 2.92        | 0.48     |
| 2:A:1969:A:C4'   | 2:A:1970:A:H5'   | 2.41        | 0.48     |
| 2:A:140:A:C8     | 16:X:48:THR:CG2  | 2.96        | 0.48     |
| 9:N:5:GLU:CA     | 9:N:109:TYR:HE2  | 2.27        | 0.48     |
| 2:A:1523:U:C4    | 2:A:1524:G:N7    | 2.82        | 0.48     |
| 2:A:1474:C:H2'   | 2:A:1475:G:N7    | 2.29        | 0.48     |
| 2:A:1171:G:H2'   | 2:A:1173:G:H4'   | 1.94        | 0.48     |
| 2:A:259:G:H2'    | 2:A:260:G:C8     | 2.47        | 0.48     |
| 2:A:1889:A:H2'   | 2:A:1890:A:H8    | 1.77        | 0.48     |
| 2:A:221:A:H4'    | 2:A:222:A:O5'    | 2.12        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 26:5:33:CYS:HB2  | 26:5:37:HIS:N    | 2.28        | 0.48     |
| 24:0:16:SER:O    | 24:0:17:ASN:CB   | 2.62        | 0.48     |
| 24:0:30:VAL:C    | 24:0:31:VAL:HG23 | 2.33        | 0.48     |
| 23:3:53:LEU:HD22 | 23:3:54:VAL:HG22 | 1.95        | 0.48     |
| 28:7:22:MET:O    | 28:7:28:ARG:CG   | 2.58        | 0.48     |
| 2:A:1028:A:H2'   | 2:A:1029:A:C8    | 2.48        | 0.48     |
| 2:A:125:G:H3'    | 28:7:19:ARG:HH12 | 1.70        | 0.48     |
| 2:A:2196:C:C2    | 2:A:2197:U:O2    | 2.66        | 0.48     |
| 2:A:2206:C:H5'   | 2:A:2228:G:H21   | 1.78        | 0.48     |
| 2:A:2315:G:C2'   | 2:A:2316:C:O5'   | 2.61        | 0.48     |
| 2:A:631:A:C2     | 2:A:2415:G:N3    | 2.65        | 0.48     |
| 2:A:2472:G:H21   | 2:A:2529:G:H1    | 1.62        | 0.48     |
| 2:A:2524:G:N2    | 2:A:2540:C:C6    | 2.82        | 0.48     |
| 2:A:2548:G:C5    | 2:A:2549:G:N7    | 2.82        | 0.48     |
| 2:A:2633:G:N1    | 2:A:2634:G:C6    | 2.81        | 0.48     |
| 2:A:270(Q):C:H2' | 2:A:270(R):G:H8  | 1.79        | 0.48     |
| 2:A:2840:C:O2'   | 2:A:2841:C:C5'   | 2.61        | 0.48     |
| 2:A:2848:G:C2    | 2:A:2867:G:N3    | 2.81        | 0.48     |
| 2:A:603:A:C6     | 2:A:625:G:C6     | 3.02        | 0.48     |
| 2:A:780:G:N1     | 3:D:233:ASP:CG   | 2.64        | 0.48     |
| 3:D:62:ARG:N     | 3:D:62:ARG:HD3   | 2.27        | 0.48     |
| 2:A:2733:A:N6    | 4:E:316:ARG:HD3  | 2.27        | 0.48     |
| 5:F:6:TYR:OH     | 5:F:234:VAL:HG12 | 2.13        | 0.48     |
| 2:A:2747:G:HO2'  | 7:H:66:THR:HG1   | 1.60        | 0.48     |
| 7:H:68:ARG:O     | 7:H:71:LEU:HB2   | 2.13        | 0.48     |
| 9:N:39:VAL:HA    | 9:N:103:VAL:HG12 | 1.93        | 0.48     |
| 9:N:63:ILE:CB    | 9:N:71:TYR:CE1   | 2.95        | 0.48     |
| 12:Q:16:ARG:HA   | 12:Q:17:ARG:HD3  | 1.95        | 0.48     |
| 19:R:45:ARG:O    | 19:R:49:ASP:N    | 2.41        | 0.48     |
| 19:R:67:LEU:HD22 | 19:R:67:LEU:O    | 2.14        | 0.48     |
| 13:S:87:LEU:O    | 13:S:90:LEU:CA   | 2.62        | 0.48     |
| 21:V:69:ILE:HG21 | 21:V:88:GLN:CB   | 2.42        | 0.48     |
| 21:V:88:GLN:O    | 21:V:89:ASN:OD1  | 2.30        | 0.48     |
| 3:D:216:ALA:CA   | 3:D:222:PRO:N    | 2.69        | 0.48     |
| 3:D:216:ALA:HB1  | 3:D:223:ASN:N    | 2.28        | 0.48     |
| 2:A:1598:C:C5'   | 16:X:34:LYS:CB   | 2.91        | 0.48     |
| 16:X:14:ALA:CB   | 16:X:18:MET:HE1  | 2.42        | 0.48     |
| 16:X:18:MET:SD   | 16:X:24:LEU:CA   | 2.99        | 0.48     |
| 16:X:38:ALA:O    | 16:X:41:VAL:HG23 | 2.13        | 0.48     |
| 16:X:76:GLU:CD   | 16:X:77:VAL:CG2  | 2.81        | 0.48     |
| 2:A:1528:A:H61   | 2:A:1543:A:N6    | 2.09        | 0.48     |
| 24:0:65:GLY:O    | 24:0:66:LYS:HE3  | 2.12        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 25:4:68:ARG:HH11 | 25:4:72:LYS:HE2  | 1.78        | 0.48     |
| 26:5:30:LEU:HD22 | 26:5:41:LEU:HD23 | 1.92        | 0.48     |
| 2:A:686:G:C8     | 28:7:6:GLN:O     | 2.66        | 0.48     |
| 29:8:31:HIS:C    | 29:8:32:GLN:HG3  | 2.34        | 0.48     |
| 2:A:1273:U:H5''  | 2:A:1646:C:N4    | 2.29        | 0.48     |
| 2:A:1777:U:H2'   | 2:A:1778:U:H6    | 1.78        | 0.48     |
| 2:A:1967:C:N4    | 2:A:1968:G:C2    | 2.81        | 0.48     |
| 2:A:2189:U:C2'   | 2:A:2190:G:C8    | 2.94        | 0.48     |
| 2:A:2213:U:H4'   | 2:A:2215:G:N7    | 2.29        | 0.48     |
| 2:A:2217:G:C2    | 2:A:2218:G:C8    | 3.02        | 0.48     |
| 2:A:2348:U:O2'   | 2:A:2349:G:H5'   | 2.14        | 0.48     |
| 2:A:2401:U:H2'   | 2:A:2402:C:O4'   | 2.12        | 0.48     |
| 2:A:2450:A:C2    | 2:A:2451:A:N3    | 2.82        | 0.48     |
| 2:A:2561:A:C8    | 2:A:2561:A:C3'   | 2.96        | 0.48     |
| 2:A:2685:G:N2    | 2:A:2725:A:C5    | 2.82        | 0.48     |
| 2:A:270(H):C:C2  | 2:A:270(R):G:N2  | 2.82        | 0.48     |
| 2:A:2747:G:O2'   | 7:H:66:THR:OG1   | 2.32        | 0.48     |
| 2:A:2785:C:C2'   | 2:A:2786:U:H6    | 2.09        | 0.48     |
| 2:A:294:A:H2'    | 2:A:295:G:H5''   | 1.96        | 0.48     |
| 4:E:102:ASP:O    | 4:E:103:GLU:CG   | 2.62        | 0.48     |
| 4:E:42:ALA:HB2   | 4:E:310:PHE:HA   | 1.91        | 0.48     |
| 5:F:1:MET:SD     | 5:F:23:GLU:HG2   | 2.53        | 0.48     |
| 5:F:22:PHE:CD2   | 5:F:116:ALA:HA   | 2.49        | 0.48     |
| 5:F:236:THR:O    | 5:F:237:GLU:O    | 2.31        | 0.48     |
| 5:F:197:SER:OG   | 5:F:236:THR:OG1  | 2.25        | 0.48     |
| 2:A:801:G:N7     | 5:F:54:LEU:HD22  | 2.29        | 0.48     |
| 5:F:93:LYS:C     | 5:F:96:LYS:HG3   | 2.14        | 0.48     |
| 7:H:59:HIS:O     | 7:H:60:HIS:C     | 2.50        | 0.48     |
| 7:H:75:VAL:O     | 7:H:77:GLY:CA    | 2.58        | 0.48     |
| 10:O:73:ASP:HB3  | 10:O:75:SER:OG   | 2.14        | 0.48     |
| 10:O:11:ALA:CA   | 10:O:99:PHE:HB2  | 2.44        | 0.48     |
| 2:A:637:A:P      | 11:P:126:SER:CB  | 3.02        | 0.48     |
| 12:Q:85:ILE:CG2  | 12:Q:136:TRP:CZ2 | 2.95        | 0.48     |
| 12:Q:152:SER:OG  | 12:Q:153:PRO:CD  | 2.60        | 0.48     |
| 19:R:36:THR:HG21 | 19:R:40:LYS:CD   | 2.29        | 0.48     |
| 19:R:59:ASP:CG   | 19:R:60:LEU:CD2  | 2.82        | 0.48     |
| 13:S:66:LEU:O    | 13:S:67:ALA:O    | 2.31        | 0.48     |
| 15:W:96:ILE:CD1  | 15:W:96:ILE:C    | 2.82        | 0.48     |
| 18:Z:26:LYS:HZ2  | 18:Z:26:LYS:CB   | 2.27        | 0.48     |
| 18:Z:3:LEU:CD2   | 18:Z:35:ASP:HB3  | 2.44        | 0.48     |
| 8:I:83:ALA:CB    | 8:I:89:LEU:HA    | 2.44        | 0.48     |
| 22:2:27:LEU:CD1  | 22:2:53:ILE:HD11 | 2.41        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:2:7:GLU:OE2   | 22:2:8:ILE:CD1   | 2.62        | 0.48     |
| 17:Y:9:LYS:CE    | 17:Y:13:ARG:NH2  | 2.75        | 0.48     |
| 8:I:63:ALA:HA    | 8:I:66:LYS:HE3   | 1.96        | 0.48     |
| 2:A:984:A:H3'    | 2:A:985:C:C5     | 2.48        | 0.48     |
| 1:B:70:C:H42     | 1:B:106:G:H1     | 1.61        | 0.48     |
| 25:4:56:VAL:CG1  | 25:4:61:LYS:NZ   | 2.77        | 0.48     |
| 30:9:2:LYS:N     | 30:9:2:LYS:HZ3   | 2.12        | 0.48     |
| 2:A:1264:G:H3'   | 2:A:1265:A:H5''  | 1.95        | 0.48     |
| 2:A:1265:A:OP2   | 2:A:2615:U:P     | 2.72        | 0.48     |
| 2:A:1638:C:C3'   | 2:A:2709:G:N2    | 2.69        | 0.48     |
| 2:A:1638:C:C4'   | 2:A:2709:G:N2    | 2.75        | 0.48     |
| 2:A:2033:A:O2'   | 2:A:2034:U:P     | 2.71        | 0.48     |
| 2:A:2185:C:H2'   | 2:A:2186:G:O4'   | 2.14        | 0.48     |
| 2:A:2210:G:C5    | 3:D:148:GLY:HA3  | 2.49        | 0.48     |
| 2:A:2352:A:H2'   | 2:A:2353:G:O4'   | 2.14        | 0.48     |
| 2:A:2368:C:H42   | 2:A:2369:A:N6    | 2.12        | 0.48     |
| 2:A:2285:C:C2    | 2:A:2384:G:N2    | 2.82        | 0.48     |
| 2:A:2423:U:H5'   | 2:A:2423:U:C5    | 2.40        | 0.48     |
| 2:A:2453:A:H4'   | 2:A:2572:A:O2'   | 2.14        | 0.48     |
| 2:A:2447:G:C5    | 2:A:2501:C:N3    | 2.82        | 0.48     |
| 2:A:2528:U:H5    | 2:A:2530:A:C5    | 2.28        | 0.48     |
| 2:A:2617:C:H2'   | 2:A:2617:C:O2    | 2.13        | 0.48     |
| 2:A:2634:G:N1    | 2:A:2635:C:C5    | 2.82        | 0.48     |
| 2:A:2645:G:P     | 2:A:2645:G:O4'   | 2.71        | 0.48     |
| 2:A:2679:A:C2'   | 2:A:2680:C:O5'   | 2.61        | 0.48     |
| 2:A:2773:C:C2'   | 2:A:2774:C:H6    | 2.24        | 0.48     |
| 2:A:2793:G:C5    | 2:A:2794:C:C5    | 3.01        | 0.48     |
| 2:A:2819:G:C4    | 2:A:2821:A:C5    | 3.02        | 0.48     |
| 2:A:2691:C:C2    | 2:A:2872:G:O6    | 2.67        | 0.48     |
| 2:A:332:A:C2'    | 2:A:334:C:OP2    | 2.58        | 0.48     |
| 2:A:689:A:O2'    | 2:A:780:G:H4'    | 2.14        | 0.48     |
| 3:D:104:ILE:CB   | 3:D:106:PRO:HD3  | 2.39        | 0.48     |
| 3:D:168:GLY:N    | 3:D:170:TYR:CE1  | 2.82        | 0.48     |
| 3:D:89:ASN:ND2   | 3:D:199:ARG:HE   | 1.88        | 0.48     |
| 4:E:214:VAL:HG21 | 4:E:221:LYS:HZ2  | 1.61        | 0.48     |
| 2:A:2679:A:C2'   | 4:E:300:VAL:HG12 | 2.44        | 0.48     |
| 5:F:203:ALA:C    | 5:F:205:ARG:N    | 2.64        | 0.48     |
| 5:F:32:GLY:O     | 5:F:36:ARG:HG2   | 2.14        | 0.48     |
| 5:F:96:LYS:C     | 5:F:98:ARG:NH1   | 2.53        | 0.48     |
| 7:H:136:ASP:O    | 7:H:138:GLN:N    | 2.47        | 0.48     |
| 7:H:85:ALA:HB1   | 7:H:164:GLU:HG2  | 1.94        | 0.48     |
| 8:I:30:LEU:HA    | 8:I:33:GLN:NE2   | 2.29        | 0.48     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:O:1:MET:HB2   | 10:O:2:ILE:HD11   | 1.93        | 0.48     |
| 10:O:63:VAL:HG11 | 10:O:102:VAL:HG21 | 1.93        | 0.48     |
| 12:Q:84:ARG:HH21 | 12:Q:123:ILE:CD1  | 2.26        | 0.48     |
| 12:Q:17:ARG:HA   | 12:Q:22:GLY:HA3   | 1.95        | 0.48     |
| 12:Q:52:LYS:HA   | 12:Q:52:LYS:HD3   | 1.57        | 0.48     |
| 19:R:65:LEU:HD23 | 19:R:68:ARG:HD2   | 1.95        | 0.48     |
| 19:R:81:ASP:O    | 19:R:82:GLU:C     | 2.52        | 0.48     |
| 13:S:128:ASP:O   | 13:S:129:ILE:CG1  | 2.58        | 0.48     |
| 13:S:12:ARG:CD   | 13:S:20:TYR:CE2   | 2.91        | 0.48     |
| 13:S:52:PRO:O    | 13:S:53:ASN:O     | 2.31        | 0.48     |
| 20:U:107:LYS:O   | 20:U:111:ASP:OD1  | 2.32        | 0.48     |
| 20:U:42:ALA:O    | 20:U:46:GLU:HG3   | 2.13        | 0.48     |
| 20:U:89:ASP:CB   | 21:V:51:ALA:HB3   | 2.41        | 0.48     |
| 21:V:72:ARG:O    | 21:V:88:GLN:CG    | 2.59        | 0.48     |
| 21:V:88:GLN:OE1  | 21:V:90:PHE:CE1   | 2.67        | 0.48     |
| 21:V:67:LYS:HG3  | 21:V:94:LYS:CG    | 2.43        | 0.48     |
| 15:W:83:LYS:HA   | 15:W:97:LYS:CG    | 2.36        | 0.48     |
| 17:Y:19:ARG:O    | 17:Y:22:GLN:N     | 2.42        | 0.48     |
| 18:Z:139:THR:C   | 18:Z:141:MET:CE   | 2.82        | 0.48     |
| 18:Z:114:ASP:HA  | 18:Z:171:VAL:HA   | 1.96        | 0.48     |
| 8:I:103:GLN:NE2  | 8:I:109:LYS:CB    | 2.76        | 0.48     |
| 8:I:119:ASP:CG   | 8:I:120:ALA:H     | 2.15        | 0.48     |
| 3:D:210:LYS:HG3  | 3:D:211:HIS:H     | 1.79        | 0.48     |
| 2:A:1:G:N2       | 2:A:2902:C:N3     | 2.61        | 0.48     |
| 24:0:9:SER:O     | 24:0:11:LYS:HG3   | 2.13        | 0.48     |
| 8:I:60:GLU:C     | 8:I:62:LEU:H      | 2.17        | 0.48     |
| 2:A:1907:G:N2    | 2:A:1924:C:C2     | 2.82        | 0.48     |
| 2:A:1197:G:N3    | 2:A:1250:G:N2     | 2.62        | 0.48     |
| 31:K:19:THR:H    | 31:K:20:PRO:HD2   | 1.78        | 0.48     |
| 9:N:8:ALA:O      | 9:N:11:ILE:HG13   | 2.14        | 0.48     |
| 2:A:1358:G:H1    | 2:A:1371:G:H2'    | 1.79        | 0.48     |
| 2:A:1718:G:N1    | 2:A:1741:C:N4     | 2.58        | 0.48     |
| 2:A:1369:G:H2'   | 2:A:1370:C:O4'    | 2.14        | 0.48     |
| 2:A:44:A:H2'     | 2:A:45:G:C8       | 2.48        | 0.48     |
| 2:A:896:A:H3'    | 2:A:896:A:N3      | 2.29        | 0.48     |
| 2:A:1044:G:O3'   | 2:A:1045:A:H4'    | 2.14        | 0.48     |
| 2:A:2355:C:H5'   | 24:0:21:LEU:HD22  | 1.96        | 0.48     |
| 25:4:20:VAL:O    | 25:4:30:GLU:CD    | 2.51        | 0.48     |
| 29:8:23:MET:HG3  | 29:8:46:LYS:HB3   | 1.95        | 0.48     |
| 2:A:1129:A:N1    | 2:A:2570:G:C4'    | 2.77        | 0.48     |
| 2:A:1638:C:H5'   | 2:A:2710:C:H1'    | 1.95        | 0.48     |
| 2:A:1800:C:C4    | 2:A:1817:G:N1     | 2.81        | 0.48     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:2197:U:H2'  | 2:A:2224:G:N1    | 2.23        | 0.48     |
| 2:A:2092:U:OP1  | 2:A:2199:A:H1'   | 2.14        | 0.48     |
| 2:A:2281:C:C6   | 2:A:2281:C:OP2   | 2.67        | 0.48     |
| 2:A:2399:G:H1'  | 27:6:22:TYR:CE1  | 2.49        | 0.48     |
| 2:A:2417:C:H2'  | 2:A:2418:A:H8    | 1.78        | 0.48     |
| 2:A:2461:C:H2'  | 2:A:2462:U:C5'   | 2.44        | 0.48     |
| 2:A:2695:C:H2'  | 2:A:2696:U:H6    | 1.68        | 0.48     |
| 2:A:2766:G:N3   | 2:A:2766:G:C2'   | 2.75        | 0.48     |
| 2:A:2639:A:H1'  | 2:A:2778:A:H2    | 1.78        | 0.48     |
| 2:A:2815:C:HO2' | 2:A:2816:C:H5''  | 1.70        | 0.48     |
| 2:A:297:C:C5    | 2:A:298:G:C4     | 3.02        | 0.48     |
| 2:A:603:A:H2'   | 2:A:604:G:H8     | 1.77        | 0.48     |
| 3:D:145:LEU:CD1 | 3:D:146:LYS:N    | 2.77        | 0.48     |
| 2:A:2785:C:C2   | 4:E:100:TRP:NE1  | 2.82        | 0.48     |
| 4:E:111:THR:O   | 4:E:111:THR:HG22 | 2.13        | 0.48     |
| 4:E:44:TYR:N    | 4:E:309:PRO:HG2  | 1.92        | 0.48     |
| 4:E:71:THR:HG21 | 4:E:299:SER:HA   | 1.88        | 0.48     |
| 2:A:606:U:P     | 5:F:104:ASP:HB2  | 2.53        | 0.48     |
| 6:G:36:ASN:O    | 6:G:37:ALA:C     | 2.52        | 0.48     |
| 6:G:29:HIS:CE1  | 6:G:64:ARG:NH2   | 2.81        | 0.48     |
| 7:H:22:THR:HG23 | 7:H:34:ARG:O     | 2.14        | 0.48     |
| 7:H:34:ARG:HH11 | 7:H:70:LEU:HD23  | 1.78        | 0.48     |
| 7:H:34:ARG:NH1  | 7:H:73:ASN:HB2   | 2.10        | 0.48     |
| 7:H:75:VAL:CG1  | 7:H:76:GLU:H     | 2.22        | 0.48     |
| 9:N:92:GLN:O    | 9:N:93:ARG:C     | 2.51        | 0.48     |
| 10:O:5:GLU:HB2  | 10:O:20:LEU:HD22 | 1.95        | 0.48     |
| 2:A:2250:G:H5'' | 12:Q:102:ARG:HB3 | 1.95        | 0.48     |
| 12:Q:87:LYS:HZ2 | 12:Q:115:SER:HA  | 1.79        | 0.48     |
| 12:Q:88:PHE:O   | 12:Q:113:ALA:HB2 | 2.14        | 0.48     |
| 19:R:24:GLN:C   | 19:R:44:LEU:HD21 | 2.34        | 0.48     |
| 13:S:22:GLN:OE1 | 13:S:22:GLN:C    | 2.53        | 0.48     |
| 20:U:66:ASN:OD1 | 20:U:76:TYR:CZ   | 2.66        | 0.48     |
| 20:U:8:ILE:N    | 20:U:11:ARG:HD2  | 2.28        | 0.48     |
| 15:W:68:ARG:HE  | 15:W:110:LYS:HB3 | 1.79        | 0.48     |
| 17:Y:18:GLU:HB3 | 17:Y:21:LYS:HZ1  | 1.74        | 0.48     |
| 8:I:102:LEU:HA  | 8:I:106:HIS:HB2  | 1.96        | 0.48     |
| 8:I:84:GLY:O    | 8:I:85:GLU:HG3   | 2.14        | 0.48     |
| 2:A:121:G:N2    | 2:A:131:G:C5     | 2.82        | 0.48     |
| 2:A:978:G:N2    | 2:A:986:C:N3     | 2.62        | 0.48     |
| 2:A:1071:G:N7   | 2:A:1089:G:C2    | 2.82        | 0.48     |
| 2:A:286:C:H2'   | 2:A:287:C:O5'    | 2.14        | 0.48     |
| 31:K:73:PRO:HD2 | 31:K:74:PRO:HA   | 1.96        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:710:G:H1     | 2:A:721:C:H42    | 1.61        | 0.48     |
| 2:A:1795:C:H1'   | 2:A:1901:A:OP2   | 2.14        | 0.48     |
| 23:3:5:LYS:HG3   | 23:3:36:VAL:HG12 | 1.95        | 0.48     |
| 2:A:2400:G:O2'   | 27:6:20:PHE:CD1  | 2.51        | 0.48     |
| 29:8:14:ILE:HG23 | 29:8:15:LYS:H    | 1.78        | 0.48     |
| 2:A:2208:U:O4    | 2:A:2216:G:O6    | 2.31        | 0.48     |
| 2:A:2241:A:O2'   | 2:A:2242:G:O5'   | 2.32        | 0.48     |
| 2:A:2256:G:N2    | 2:A:2257:U:C1'   | 2.77        | 0.48     |
| 2:A:2259:G:O6    | 2:A:2281:C:N3    | 2.47        | 0.48     |
| 2:A:2304:G:H2'   | 2:A:2305:A:O5'   | 2.14        | 0.48     |
| 2:A:2324:C:O2'   | 2:A:2325:G:P     | 2.71        | 0.48     |
| 2:A:2331:G:H4'   | 24:0:70:ILE:HG12 | 1.72        | 0.48     |
| 2:A:2341:G:C8    | 2:A:2342:C:C5    | 3.02        | 0.48     |
| 2:A:2519:U:OP2   | 2:A:2519:U:C6    | 2.67        | 0.48     |
| 2:A:2538:C:C2'   | 2:A:2539:C:O5'   | 2.61        | 0.48     |
| 2:A:2549:G:N1    | 2:A:2550:G:N7    | 2.62        | 0.48     |
| 2:A:2673:G:N1    | 2:A:2674:G:C5    | 2.81        | 0.48     |
| 2:A:2711:A:P     | 2:A:2714:G:OP1   | 2.67        | 0.48     |
| 2:A:2627:G:H1'   | 2:A:2781:A:H2    | 1.78        | 0.48     |
| 2:A:2844:G:C6    | 2:A:2845:G:C5    | 3.01        | 0.48     |
| 2:A:2857:G:N2    | 2:A:2859:G:H3'   | 2.29        | 0.48     |
| 2:A:337:C:P      | 17:Y:24:ARG:HB3  | 2.51        | 0.48     |
| 2:A:558:G:OP1    | 9:N:91:LYS:CA    | 2.59        | 0.48     |
| 2:A:775:G:H4'    | 2:A:777:A:N3     | 2.28        | 0.48     |
| 2:A:669:G:HO2'   | 2:A:801:G:N2     | 2.12        | 0.48     |
| 2:A:954:G:H2'    | 2:A:955:C:O4'    | 2.13        | 0.48     |
| 3:D:130:PRO:O    | 3:D:134:ILE:CD1  | 2.62        | 0.48     |
| 3:D:198:GLY:O    | 3:D:199:ARG:C    | 2.45        | 0.48     |
| 4:E:102:ASP:C    | 4:E:103:GLU:CG   | 2.82        | 0.48     |
| 4:E:221:LYS:HZ1  | 4:E:233:ARG:CG   | 2.07        | 0.48     |
| 5:F:102:LEU:CA   | 5:F:107:ARG:HH21 | 2.23        | 0.48     |
| 5:F:164:ALA:O    | 5:F:167:ASP:HB2  | 2.14        | 0.48     |
| 5:F:50:GLU:HG3   | 5:F:51:TYR:H     | 1.79        | 0.48     |
| 2:A:2311:A:C2    | 6:G:53:LYS:HE2   | 2.49        | 0.48     |
| 7:H:40:MET:CA    | 7:H:54:PRO:HG3   | 2.44        | 0.48     |
| 7:H:86:LEU:CG    | 7:H:87:GLU:N     | 2.77        | 0.48     |
| 9:N:15:ARG:NH1   | 9:N:40:ASN:CB    | 2.77        | 0.48     |
| 10:O:37:ASP:CB   | 10:O:62:VAL:HG21 | 2.30        | 0.48     |
| 10:O:64:ARG:HG2  | 10:O:81:GLU:O    | 2.14        | 0.48     |
| 10:O:71:ARG:O    | 10:O:72:PRO:C    | 2.51        | 0.48     |
| 10:O:81:GLU:CG   | 10:O:82:ASN:H    | 2.14        | 0.48     |
| 10:O:90:ASP:C    | 10:O:92:SER:N    | 2.66        | 0.48     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 13:S:86:LEU:HD21 | 13:S:124:ASP:HB2 | 1.95        | 0.48     |
| 14:T:38:ASN:O    | 14:T:39:ASN:C    | 2.52        | 0.48     |
| 20:U:94:VAL:HG13 | 21:V:13:ARG:HG2  | 1.96        | 0.48     |
| 21:V:33:VAL:C    | 21:V:63:HIS:ND1  | 2.67        | 0.48     |
| 18:Z:127:PRO:O   | 18:Z:128:ARG:C   | 2.53        | 0.48     |
| 18:Z:135:VAL:O   | 18:Z:136:VAL:CG2 | 2.61        | 0.48     |
| 18:Z:37:LYS:CA   | 18:Z:41:ARG:HH12 | 2.25        | 0.48     |
| 8:I:124:LEU:HD12 | 8:I:125:GLY:H    | 1.79        | 0.48     |
| 8:I:83:ALA:N     | 8:I:147:GLU:HB3  | 2.29        | 0.48     |
| 2:A:764:A:H8     | 2:A:764:A:H5''   | 1.79        | 0.48     |
| 2:A:1080:C:O4'   | 31:K:126:LYS:O   | 2.31        | 0.48     |
| 22:2:23:LEU:H    | 22:2:23:LEU:HD23 | 1.79        | 0.48     |
| 22:2:8:ILE:O     | 22:2:11:MET:CB   | 2.61        | 0.48     |
| 2:A:60:G:H1'     | 2:A:74:A:C2      | 2.49        | 0.48     |
| 2:A:71:A:C2      | 2:A:73:A:N7      | 2.82        | 0.48     |
| 2:A:59:U:O4'     | 2:A:73:A:C5      | 2.66        | 0.48     |
| 16:X:6:LYS:CD    | 16:X:27:ALA:HB1  | 2.43        | 0.48     |
| 9:N:108:PRO:HD2  | 9:N:109:TYR:H    | 1.78        | 0.48     |
| 12:Q:94:ARG:HG3  | 12:Q:107:LYS:N   | 2.28        | 0.48     |
| 2:A:414:C:N3     | 2:A:2409:G:C2    | 2.80        | 0.48     |
| 2:A:270(A):A:N3  | 2:A:270(A):A:H3' | 2.29        | 0.48     |
| 2:A:120:U:H2'    | 2:A:120:U:O2     | 2.14        | 0.48     |
| 31:K:19:THR:N    | 31:K:20:PRO:HD2  | 2.28        | 0.48     |
| 25:4:41:PRO:CG   | 25:4:57:ASP:CG   | 2.80        | 0.47     |
| 26:5:11:THR:HG22 | 26:5:19:ARG:NH2  | 2.28        | 0.47     |
| 27:6:54:LYS:CA   | 27:6:54:LYS:NZ   | 2.76        | 0.47     |
| 29:8:30:ARG:HG2  | 29:8:31:HIS:H    | 1.78        | 0.47     |
| 29:8:9:MET:O     | 29:8:14:ILE:HG12 | 2.14        | 0.47     |
| 2:A:1140:C:H42   | 9:N:49:ARG:NH1   | 2.12        | 0.47     |
| 2:A:1277:G:H1'   | 19:R:23:ASN:HD21 | 1.79        | 0.47     |
| 2:A:1279:G:H5'   | 19:R:34:ILE:CD1  | 2.44        | 0.47     |
| 2:A:1665:A:N7    | 2:A:2726:U:N3    | 2.60        | 0.47     |
| 2:A:199:A:C2     | 2:A:2433:A:C6    | 2.98        | 0.47     |
| 2:A:2033:A:O2'   | 2:A:2034:U:O5'   | 2.29        | 0.47     |
| 2:A:2103:C:H42   | 2:A:2186:G:H1    | 1.60        | 0.47     |
| 2:A:2195:C:C6    | 2:A:2195:C:C4'   | 2.97        | 0.47     |
| 2:A:2257:U:H2'   | 2:A:2258:C:OP2   | 2.13        | 0.47     |
| 2:A:2346:A:O2'   | 2:A:2347:C:P     | 2.70        | 0.47     |
| 2:A:2364:C:C2'   | 2:A:2365:G:O5'   | 2.62        | 0.47     |
| 2:A:2390:U:C6    | 2:A:2390:U:H3'   | 2.48        | 0.47     |
| 2:A:2069:G:C2    | 2:A:2443:C:O2    | 2.67        | 0.47     |
| 2:A:2461:C:C2    | 2:A:2462:U:H6    | 2.27        | 0.47     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2560:C:O2    | 2:A:2560:C:H2'   | 2.14        | 0.47     |
| 2:A:2049:G:H1    | 2:A:2619:C:H42   | 1.62        | 0.47     |
| 2:A:2785:C:C2'   | 2:A:2786:U:O5'   | 2.58        | 0.47     |
| 2:A:27:G:H2'     | 2:A:28:A:H8      | 1.79        | 0.47     |
| 2:A:807:U:O4'    | 2:A:2445:G:C5'   | 2.61        | 0.47     |
| 1:B:114:G:H1'    | 13:S:46:GLN:HE21 | 1.79        | 0.47     |
| 3:D:144:GLU:CG   | 3:D:188:ARG:H    | 2.27        | 0.47     |
| 3:D:70:LYS:NZ    | 3:D:70:LYS:CB    | 2.76        | 0.47     |
| 3:D:80:ILE:O     | 3:D:82:TYR:CD1   | 2.67        | 0.47     |
| 4:E:215:LYS:O    | 4:E:216:ARG:C    | 2.53        | 0.47     |
| 4:E:270:ASP:N    | 4:E:270:ASP:OD2  | 2.46        | 0.47     |
| 5:F:230:GLY:C    | 5:F:231:ARG:HG3  | 2.19        | 0.47     |
| 2:A:443:A:C5     | 5:F:43:LYS:HD3   | 2.49        | 0.47     |
| 7:H:129:LYS:O    | 7:H:130:ILE:CG1  | 2.60        | 0.47     |
| 8:I:9:VAL:C      | 8:I:10:LYS:HG2   | 2.35        | 0.47     |
| 10:O:2:ILE:HG21  | 10:O:8:LEU:HD13  | 1.96        | 0.47     |
| 12:Q:116:HIS:CD2 | 12:Q:118:ALA:O   | 2.67        | 0.47     |
| 12:Q:45:GLN:CD   | 12:Q:153:PRO:N   | 2.67        | 0.47     |
| 12:Q:36:ASN:ND2  | 12:Q:41:THR:N    | 2.62        | 0.47     |
| 12:Q:34:GLY:C    | 12:Q:74:ASN:O    | 2.53        | 0.47     |
| 12:Q:87:LYS:O    | 12:Q:88:PHE:HB3  | 2.14        | 0.47     |
| 19:R:20:LEU:CD1  | 19:R:21:TYR:CA   | 2.48        | 0.47     |
| 13:S:104:ILE:C   | 13:S:106:LEU:N   | 2.62        | 0.47     |
| 20:U:88:ILE:CG2  | 21:V:52:GLY:HA2  | 2.44        | 0.47     |
| 21:V:40:VAL:C    | 21:V:51:ALA:HB2  | 2.32        | 0.47     |
| 20:U:89:ASP:CG   | 21:V:51:ALA:N    | 2.64        | 0.47     |
| 21:V:61:VAL:HG13 | 21:V:96:LEU:N    | 2.29        | 0.47     |
| 21:V:69:ILE:N    | 21:V:91:THR:HG22 | 2.11        | 0.47     |
| 15:W:12:ILE:HD11 | 15:W:42:ARG:HD2  | 1.96        | 0.47     |
| 17:Y:75:GLU:O    | 17:Y:76:ASP:O    | 2.32        | 0.47     |
| 18:Z:79:ILE:C    | 18:Z:80:HIS:CG   | 2.85        | 0.47     |
| 8:I:68:LEU:CD1   | 8:I:108:LEU:CD2  | 2.81        | 0.47     |
| 8:I:68:LEU:CD1   | 8:I:108:LEU:HD22 | 2.43        | 0.47     |
| 22:2:25:THR:O    | 22:2:26:GLU:O    | 2.32        | 0.47     |
| 22:2:43:PRO:O    | 22:2:46:ILE:HB   | 2.14        | 0.47     |
| 16:X:31:ARG:O    | 16:X:32:ALA:C    | 2.46        | 0.47     |
| 4:E:109:ASP:OD2  | 4:E:112:LEU:CD2  | 2.57        | 0.47     |
| 18:Z:143:ILE:CG2 | 18:Z:144:GLY:N   | 2.37        | 0.47     |
| 2:A:265:A:N6     | 2:A:281:G:C5'    | 2.74        | 0.47     |
| 2:A:1470:G:N2    | 2:A:1522:G:N1    | 2.60        | 0.47     |
| 12:Q:149:ILE:CD1 | 12:Q:149:ILE:H   | 2.17        | 0.47     |
| 2:A:382:G:H1     | 2:A:392:C:N4     | 2.09        | 0.47     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:221:A:N7     | 2:A:266:G:N7     | 2.62        | 0.47     |
| 24:0:37:LEU:CA   | 24:0:68:VAL:HG13 | 2.36        | 0.47     |
| 23:3:5:LYS:HA    | 23:3:35:ARG:O    | 2.14        | 0.47     |
| 2:A:380:U:HO2'   | 25:4:15:ILE:HB   | 1.77        | 0.47     |
| 2:A:1030:G:C6    | 2:A:1125:G:N2    | 2.82        | 0.47     |
| 2:A:1312:U:H1'   | 2:A:1313:U:C5    | 2.49        | 0.47     |
| 2:A:2012:G:OP1   | 15:W:98:LYS:CG   | 2.59        | 0.47     |
| 2:A:2045:C:C4    | 2:A:2624:G:N1    | 2.81        | 0.47     |
| 2:A:2075:U:C4    | 2:A:2238:G:N1    | 2.82        | 0.47     |
| 2:A:2228:G:N7    | 2:A:2229:C:N3    | 2.61        | 0.47     |
| 2:A:2234:G:N2    | 2:A:2235:G:C4    | 2.82        | 0.47     |
| 2:A:2247:A:C2'   | 2:A:2248:C:O5'   | 2.62        | 0.47     |
| 2:A:2269:A:H2'   | 2:A:2270:G:O4'   | 2.14        | 0.47     |
| 2:A:2276:G:H2'   | 2:A:2277:G:O5'   | 2.13        | 0.47     |
| 2:A:2294:C:C2    | 2:A:2339:G:C6    | 3.02        | 0.47     |
| 2:A:2296:U:H3'   | 2:A:2296:U:C6    | 2.47        | 0.47     |
| 2:A:2310:A:C4    | 6:G:55:LYS:CE    | 2.98        | 0.47     |
| 2:A:2313:C:C5    | 2:A:2314:C:N4    | 2.79        | 0.47     |
| 2:A:2320:A:N7    | 13:S:9:PRO:CG    | 2.78        | 0.47     |
| 2:A:2367:G:C2    | 2:A:2368:C:C6    | 3.01        | 0.47     |
| 2:A:2380:C:C3'   | 2:A:2380:C:C6    | 2.97        | 0.47     |
| 2:A:2392:A:N6    | 2:A:2393:A:C6    | 2.82        | 0.47     |
| 2:A:2402:C:H6    | 2:A:2402:C:O5'   | 1.96        | 0.47     |
| 2:A:2436:G:O6    | 2:A:2437:U:O4    | 2.31        | 0.47     |
| 2:A:2475:C:H2'   | 2:A:2477:C:P     | 2.54        | 0.47     |
| 2:A:2537:U:C5    | 2:A:2538:C:H5    | 2.31        | 0.47     |
| 2:A:2562:U:O2    | 2:A:2563:U:N1    | 2.47        | 0.47     |
| 2:A:2051:A:C2    | 2:A:2618:G:N1    | 2.76        | 0.47     |
| 2:A:2683:C:C5    | 2:A:2684:U:H5    | 2.25        | 0.47     |
| 2:A:2717:G:C5    | 2:A:2718:G:N7    | 2.82        | 0.47     |
| 2:A:873:G:H5'    | 12:Q:32:LYS:HG3  | 1.95        | 0.47     |
| 2:A:971:C:P      | 2:A:974(A):C:O2  | 2.71        | 0.47     |
| 3:D:111:VAL:C    | 3:D:113:MET:N    | 2.57        | 0.47     |
| 4:E:214:VAL:HG12 | 4:E:215:LYS:N    | 2.28        | 0.47     |
| 4:E:203:GLY:CA   | 4:E:303:PRO:CD   | 2.81        | 0.47     |
| 4:E:45:LYS:HD2   | 4:E:303:PRO:C    | 2.33        | 0.47     |
| 7:H:123:GLU:C    | 7:H:125:PRO:HD2  | 2.35        | 0.47     |
| 7:H:120:LEU:HD12 | 7:H:143:LEU:HD12 | 1.91        | 0.47     |
| 7:H:161:ILE:HG13 | 7:H:161:ILE:O    | 2.13        | 0.47     |
| 7:H:51:VAL:HG23  | 7:H:68:ARG:HG2   | 1.95        | 0.47     |
| 9:N:63:ILE:HB    | 9:N:71:TYR:CD1   | 2.49        | 0.47     |
| 12:Q:28:ILE:CG1  | 12:Q:62:GLU:HG2  | 2.44        | 0.47     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1279:G:H4'   | 19:R:31:HIS:NE2  | 2.29        | 0.47     |
| 19:R:61:HIS:O    | 19:R:63:ARG:N    | 2.47        | 0.47     |
| 13:S:41:LYS:HZ2  | 13:S:42:HIS:CG   | 2.24        | 0.47     |
| 20:U:103:PRO:CB  | 20:U:107:LYS:HE2 | 2.44        | 0.47     |
| 20:U:95:LEU:H    | 20:U:95:LEU:CD2  | 2.19        | 0.47     |
| 21:V:61:VAL:CG1  | 21:V:95:ILE:C    | 2.82        | 0.47     |
| 15:W:20:VAL:HG12 | 15:W:47:VAL:HG11 | 1.96        | 0.47     |
| 17:Y:17:HIS:O    | 17:Y:20:HIS:N    | 2.47        | 0.47     |
| 17:Y:19:ARG:HA   | 17:Y:22:GLN:HG3  | 1.96        | 0.47     |
| 18:Z:151:ASP:O   | 18:Z:153:LYS:HD2 | 2.13        | 0.47     |
| 18:Z:40:ASP:O    | 18:Z:41:ARG:O    | 2.32        | 0.47     |
| 18:Z:66:VAL:HG23 | 18:Z:69:VAL:HG23 | 1.96        | 0.47     |
| 2:A:729:G:N3     | 2:A:729:G:C3'    | 2.75        | 0.47     |
| 22:2:27:LEU:HD22 | 22:2:49:LEU:HB3  | 1.96        | 0.47     |
| 2:A:1343:G:H5'   | 2:A:1598:C:OP2   | 2.14        | 0.47     |
| 2:A:1339:G:H22   | 2:A:1603:A:H8    | 1.60        | 0.47     |
| 5:F:151:GLN:HA   | 5:F:154:VAL:CG2  | 2.39        | 0.47     |
| 2:A:1905:C:H5''  | 2:A:1906:G:OP1   | 2.14        | 0.47     |
| 2:A:1520:U:H6    | 2:A:1520:U:H3'   | 1.79        | 0.47     |
| 2:A:152:G:C8     | 2:A:152:G:H3'    | 2.48        | 0.47     |
| 2:A:949:C:H2'    | 2:A:950:G:H8     | 1.79        | 0.47     |
| 2:A:1855:G:H1    | 2:A:1887:C:H42   | 1.62        | 0.47     |
| 2:A:2354:G:C4    | 24:0:32:LYS:CE   | 2.80        | 0.47     |
| 24:0:78:PHE:N    | 24:0:78:PHE:CD1  | 2.81        | 0.47     |
| 26:5:31:THR:HG23 | 26:5:32:GLU:N    | 2.28        | 0.47     |
| 2:A:31:C:C5'     | 2:A:1239:G:OP1   | 2.53        | 0.47     |
| 2:A:1264:G:N7    | 2:A:1265:A:C5    | 2.81        | 0.47     |
| 2:A:2354:G:C4    | 2:A:2355:C:C5    | 3.02        | 0.47     |
| 2:A:2462:U:N3    | 2:A:2463:C:C4    | 2.83        | 0.47     |
| 2:A:2468:G:C5    | 2:A:2481:G:C2    | 3.02        | 0.47     |
| 2:A:2075:U:O2'   | 2:A:2596:U:N3    | 2.47        | 0.47     |
| 2:A:2711:A:H3'   | 2:A:2712:U:H5'   | 1.96        | 0.47     |
| 2:A:2733:A:C3'   | 2:A:2733:A:C8    | 2.96        | 0.47     |
| 2:A:2885:C:N4    | 2:A:2886:G:C5    | 2.83        | 0.47     |
| 2:A:674:G:C4'    | 5:F:69:HIS:CA    | 2.89        | 0.47     |
| 3:D:107:LYS:CG   | 3:D:193:GLU:OE1  | 2.62        | 0.47     |
| 3:D:152:GLN:OE1  | 3:D:152:GLN:CA   | 2.62        | 0.47     |
| 3:D:164:LEU:HD23 | 3:D:164:LEU:HA   | 1.66        | 0.47     |
| 3:D:194:VAL:HG21 | 3:D:196:ASN:OD1  | 2.14        | 0.47     |
| 3:D:196:ASN:HB2  | 3:D:199:ARG:HD3  | 1.96        | 0.47     |
| 5:F:6:TYR:CE1    | 5:F:138:VAL:C    | 2.88        | 0.47     |
| 5:F:39:GLN:O     | 5:F:42:ARG:CA    | 2.62        | 0.47     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:148:ARG:HH12 | 7:H:163:TYR:HA    | 1.63        | 0.47     |
| 8:I:5:PHE:CD2    | 8:I:17:GLU:C      | 2.87        | 0.47     |
| 14:T:24:LYS:O    | 14:T:25:ASP:CB    | 2.60        | 0.47     |
| 15:W:24:ILE:HD13 | 15:W:36:LEU:CD1   | 2.45        | 0.47     |
| 15:W:40:ASN:O    | 15:W:41:LYS:C     | 2.51        | 0.47     |
| 15:W:11:ARG:CZ   | 15:W:98:LYS:HB3   | 2.34        | 0.47     |
| 17:Y:17:HIS:O    | 17:Y:20:HIS:CB    | 2.53        | 0.47     |
| 17:Y:19:ARG:HA   | 17:Y:22:GLN:NE2   | 2.29        | 0.47     |
| 17:Y:76:ASP:O    | 17:Y:77:VAL:C     | 2.51        | 0.47     |
| 18:Z:154:LEU:CD1 | 18:Z:160:LEU:HD12 | 2.45        | 0.47     |
| 18:Z:52:PHE:N    | 18:Z:65:LEU:HD11  | 2.28        | 0.47     |
| 18:Z:71:MET:O    | 18:Z:72:ASP:C     | 2.52        | 0.47     |
| 22:2:59:ILE:HG12 | 22:2:60:GLN:H     | 1.76        | 0.47     |
| 24:0:48:GLY:C    | 24:0:55:ARG:HA    | 2.34        | 0.47     |
| 27:6:42:PRO:C    | 27:6:44:ALA:H     | 2.17        | 0.47     |
| 2:A:1006:C:H1'   | 9:N:86:MET:SD     | 2.55        | 0.47     |
| 2:A:2082:A:H61   | 2:A:2237:G:H1'    | 1.79        | 0.47     |
| 2:A:2212:A:O2'   | 2:A:2213:U:C6     | 2.51        | 0.47     |
| 2:A:2252:G:C3'   | 2:A:2253:G:C5'    | 2.93        | 0.47     |
| 2:A:2263:C:H42   | 2:A:2278:A:N6     | 2.12        | 0.47     |
| 2:A:2316:C:C4    | 2:A:2317:C:C4     | 3.03        | 0.47     |
| 2:A:2415:G:H22   | 2:A:2416:C:C1'    | 2.16        | 0.47     |
| 2:A:2447:G:C5    | 2:A:2500:U:C6     | 2.94        | 0.47     |
| 2:A:2475:C:HO2'  | 2:A:2477:C:P      | 2.35        | 0.47     |
| 2:A:2479:G:H2'   | 2:A:2480:C:O4'    | 2.14        | 0.47     |
| 2:A:2657:A:C5    | 2:A:2665:A:C5     | 3.02        | 0.47     |
| 2:A:2679:A:C5    | 2:A:2680:C:C6     | 3.02        | 0.47     |
| 2:A:2740:A:O2'   | 2:A:2741:A:H5''   | 2.13        | 0.47     |
| 2:A:2817:G:C4    | 2:A:2830:G:N2     | 2.81        | 0.47     |
| 2:A:2882:A:C2'   | 2:A:2883:A:O5'    | 2.62        | 0.47     |
| 2:A:386:G:HO2'   | 2:A:387:U:P       | 2.37        | 0.47     |
| 2:A:603:A:N1     | 2:A:625:G:C5      | 2.82        | 0.47     |
| 2:A:673:C:C5'    | 5:F:80:VAL:HG11   | 2.44        | 0.47     |
| 2:A:826:U:C6     | 2:A:828:U:H6      | 2.32        | 0.47     |
| 3:D:81:GLU:C     | 3:D:82:TYR:O      | 2.51        | 0.47     |
| 4:E:211:GLN:HB3  | 4:E:216:ARG:HG2   | 1.95        | 0.47     |
| 4:E:264:LEU:O    | 4:E:265:ASN:C     | 2.52        | 0.47     |
| 5:F:195:VAL:HG13 | 5:F:213:ALA:C     | 2.35        | 0.47     |
| 5:F:93:LYS:O     | 5:F:94:THR:C      | 2.53        | 0.47     |
| 7:H:138:GLN:C    | 7:H:140:VAL:H     | 2.18        | 0.47     |
| 7:H:147:ILE:O    | 7:H:150:VAL:HB    | 2.14        | 0.47     |
| 9:N:45:VAL:N     | 9:N:132:LEU:CG    | 2.76        | 0.47     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:O:21:VAL:HG22 | 10:O:39:VAL:HG11 | 1.95        | 0.47     |
| 2:A:1666:G:O3'   | 10:O:6:SER:HB3   | 2.15        | 0.47     |
| 2:A:636:G:P      | 11:P:126:SER:HA  | 2.54        | 0.47     |
| 13:S:100:ALA:HB3 | 13:S:127:LEU:CD2 | 2.40        | 0.47     |
| 13:S:121:GLY:O   | 13:S:125:ALA:HB2 | 2.15        | 0.47     |
| 13:S:62:HIS:HB2  | 13:S:65:ASP:OD2  | 2.14        | 0.47     |
| 13:S:83:LEU:C    | 13:S:87:LEU:HD23 | 2.35        | 0.47     |
| 13:S:85:GLY:O    | 13:S:86:LEU:O    | 2.32        | 0.47     |
| 20:U:10:ARG:CA   | 20:U:13:ARG:HH12 | 2.26        | 0.47     |
| 20:U:55:ARG:HA   | 20:U:58:ARG:HD2  | 1.96        | 0.47     |
| 20:U:66:ASN:C    | 20:U:68:GLY:N    | 2.67        | 0.47     |
| 20:U:98:ILE:CG2  | 20:U:106:PHE:HD1 | 2.25        | 0.47     |
| 15:W:6:ILE:HG23  | 15:W:7:ALA:N     | 2.30        | 0.47     |
| 15:W:82:LEU:CD2  | 15:W:82:LEU:N    | 2.74        | 0.47     |
| 2:A:85:G:OP2     | 17:Y:65:VAL:CG2  | 2.62        | 0.47     |
| 2:A:1771:C:H2'   | 2:A:1772:G:C8    | 2.49        | 0.47     |
| 2:A:1395:A:OP2   | 2:A:1603:A:H5''  | 2.14        | 0.47     |
| 2:A:140:A:C8     | 16:X:48:THR:HG21 | 2.49        | 0.47     |
| 15:W:89:ALA:O    | 15:W:90:ARG:HB2  | 2.13        | 0.47     |
| 6:G:88:LEU:C     | 6:G:88:LEU:CD2   | 2.79        | 0.47     |
| 1:B:41:U:O4      | 6:G:50:VAL:O     | 2.31        | 0.47     |
| 2:A:185:U:H4'    | 2:A:218:A:H4'    | 1.95        | 0.47     |
| 2:A:651:G:H3'    | 2:A:652:C:C6     | 2.49        | 0.47     |
| 2:A:1040:C:H2'   | 2:A:1040:C:O2    | 2.15        | 0.47     |
| 25:4:9:ALA:O     | 25:4:10:VAL:CG2  | 2.62        | 0.47     |
| 29:8:16:ILE:HG23 | 29:8:22:VAL:HG23 | 1.95        | 0.47     |
| 2:A:1263:U:C4'   | 26:5:16:ARG:NH1  | 2.66        | 0.47     |
| 2:A:1364:G:OP2   | 25:4:2:GLN:O     | 2.32        | 0.47     |
| 2:A:2254:C:O2'   | 2:A:2255:G:H5''  | 2.09        | 0.47     |
| 2:A:2333:A:H4'   | 2:A:2335:A:O4'   | 2.14        | 0.47     |
| 2:A:2077:A:H1'   | 2:A:2435:A:C1'   | 2.44        | 0.47     |
| 2:A:2454:G:C6    | 2:A:2455:G:N9    | 2.83        | 0.47     |
| 2:A:2475:C:O2    | 2:A:2529:G:C2    | 2.66        | 0.47     |
| 2:A:2478:A:C2'   | 2:A:2479:G:H5'   | 2.41        | 0.47     |
| 2:A:2484:G:C2'   | 2:A:2485:G:C5'   | 2.83        | 0.47     |
| 2:A:2550:G:C2'   | 2:A:2551:C:H6    | 2.25        | 0.47     |
| 2:A:2567:G:N2    | 2:A:2568:C:C4    | 2.80        | 0.47     |
| 2:A:2633:G:C2    | 2:A:2634:G:C4    | 2.94        | 0.47     |
| 2:A:2656:U:C6    | 2:A:2656:U:C3'   | 2.98        | 0.47     |
| 2:A:2657:A:C4    | 2:A:2665:A:C6    | 3.01        | 0.47     |
| 2:A:2679:A:H5''  | 4:E:261:ARG:CD   | 2.44        | 0.47     |
| 2:A:2735:G:C5    | 2:A:2770:G:N2    | 2.79        | 0.47     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2836:U:C3'    | 2:A:2836:U:C6     | 2.98        | 0.47     |
| 2:A:2841:C:C2     | 2:A:2877:G:N1     | 2.83        | 0.47     |
| 2:A:2712:U:N1     | 2:A:712(A):A:N7   | 2.58        | 0.47     |
| 1:B:37:C:O2       | 13:S:111:PRO:HG2  | 2.14        | 0.47     |
| 1:B:50:G:P        | 13:S:74:PRO:CG    | 2.82        | 0.47     |
| 3:D:146:LYS:C     | 3:D:149:ARG:HG2   | 2.34        | 0.47     |
| 4:E:44:TYR:HA     | 4:E:309:PRO:HG3   | 1.43        | 0.47     |
| 5:F:35:VAL:O      | 5:F:38:ALA:CB     | 2.62        | 0.47     |
| 6:G:95:THR:CG2    | 6:G:96:SER:H      | 2.25        | 0.47     |
| 2:A:1952:A:C2     | 10:O:22:ILE:CG2   | 2.81        | 0.47     |
| 10:O:60:ALA:CB    | 10:O:85:VAL:O     | 2.63        | 0.47     |
| 11:P:65:ASP:CA    | 11:P:109:LEU:N    | 2.56        | 0.47     |
| 11:P:92:ASP:N     | 11:P:118:LEU:HD22 | 2.30        | 0.47     |
| 19:R:39:PRO:HA    | 19:R:42:LYS:HB2   | 1.96        | 0.47     |
| 13:S:121:GLY:O    | 13:S:125:ALA:CB   | 2.63        | 0.47     |
| 13:S:46:GLN:C     | 13:S:47:LEU:HG    | 2.35        | 0.47     |
| 13:S:49:THR:N     | 13:S:55:ASP:OD2   | 2.47        | 0.47     |
| 14:T:36:CYS:O     | 14:T:37:GLU:C     | 2.46        | 0.47     |
| 20:U:93:LYS:C     | 20:U:94:VAL:HG23  | 2.35        | 0.47     |
| 21:V:68:LYS:C     | 21:V:69:ILE:HD12  | 2.35        | 0.47     |
| 21:V:78:VAL:HG21  | 21:V:80:TYR:HD1   | 1.80        | 0.47     |
| 21:V:61:VAL:C     | 21:V:98:ILE:HD12  | 2.18        | 0.47     |
| 15:W:8:ARG:CD     | 15:W:102:HIS:HE1  | 2.26        | 0.47     |
| 12:Q:42:TYR:C     | 18:Z:119:ASN:ND2  | 2.65        | 0.47     |
| 18:Z:91:PRO:CB    | 18:Z:127:PRO:CA   | 2.83        | 0.47     |
| 18:Z:12:GLN:O     | 18:Z:15:ASP:CB    | 2.59        | 0.47     |
| 18:Z:134:LEU:HD11 | 18:Z:155:PRO:HG2  | 1.95        | 0.47     |
| 18:Z:3:LEU:HD22   | 18:Z:35:ASP:HB3   | 1.97        | 0.47     |
| 18:Z:4:THR:O      | 18:Z:33:ALA:CA    | 2.62        | 0.47     |
| 8:I:68:LEU:CD1    | 8:I:108:LEU:HD11  | 2.45        | 0.47     |
| 2:A:1790:C:H5'    | 2:A:1791:A:OP2    | 2.14        | 0.47     |
| 2:A:131:G:N2      | 2:A:132:G:C5      | 2.83        | 0.47     |
| 2:A:135:G:H1'     | 2:A:145:G:H22     | 1.79        | 0.47     |
| 2:A:70:G:H5''     | 2:A:71:A:OP1      | 2.14        | 0.47     |
| 16:X:13:LYS:O     | 16:X:16:ASN:CG    | 2.48        | 0.47     |
| 16:X:67:ARG:C     | 16:X:68:LEU:HD23  | 2.34        | 0.47     |
| 2:A:95:G:OP1      | 22:2:41:GLU:OE1   | 2.32        | 0.47     |
| 2:A:5:A:C4        | 2:A:2899:G:N2     | 2.83        | 0.47     |
| 12:Q:93:ILE:HG22  | 12:Q:94:ARG:H     | 1.79        | 0.47     |
| 2:A:359:A:O2'     | 2:A:360:G:N9      | 2.46        | 0.47     |
| 2:A:2755:C:O5'    | 2:A:2755:C:C5     | 2.64        | 0.47     |
| 8:I:65:ALA:CB     | 8:I:134:HIS:CG    | 2.97        | 0.47     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1174:A:N6    | 2:A:1177:A:C2     | 2.83        | 0.47     |
| 2:A:619:G:C8     | 2:A:619:G:H3'     | 2.50        | 0.47     |
| 2:A:914:C:H2'    | 2:A:915:C:H5'     | 1.97        | 0.47     |
| 24:0:28:GLY:N    | 24:0:60:PHE:HB3   | 2.29        | 0.47     |
| 23:3:33:GLN:CG   | 23:3:34:GLU:N     | 2.77        | 0.47     |
| 23:3:40:THR:HG21 | 23:3:43:ILE:HD11  | 1.80        | 0.47     |
| 2:A:929:G:N2     | 23:3:43:ILE:N     | 2.49        | 0.47     |
| 25:4:39:VAL:C    | 25:4:40:HIS:CG    | 2.88        | 0.47     |
| 27:6:36:GLU:HA   | 27:6:52:GLU:OE2   | 2.14        | 0.47     |
| 28:7:33:ARG:CA   | 28:7:37:LYS:HD2   | 2.45        | 0.47     |
| 2:A:1004:C:H1'   | 2:A:1010:A:C4     | 2.49        | 0.47     |
| 2:A:1647:G:OP2   | 2:A:1647:G:H3'    | 2.14        | 0.47     |
| 2:A:2056:G:N2    | 26:5:5:PRO:HA     | 2.29        | 0.47     |
| 2:A:2199:A:C4    | 2:A:2225:A:C2     | 3.03        | 0.47     |
| 2:A:2255:G:C6    | 2:A:2256:G:C4     | 3.02        | 0.47     |
| 2:A:2278:A:OP1   | 12:Q:20:ILE:CG2   | 2.59        | 0.47     |
| 2:A:2282:G:C4'   | 2:A:2283:C:O5'    | 2.62        | 0.47     |
| 2:A:2305:A:N7    | 2:A:2306:C:C6     | 2.82        | 0.47     |
| 2:A:2325:G:N3    | 2:A:2326:C:H6     | 2.12        | 0.47     |
| 2:A:389:G:H1'    | 2:A:2413:G:O4'    | 2.14        | 0.47     |
| 2:A:2478:A:C8    | 2:A:2479:G:C8     | 3.02        | 0.47     |
| 2:A:2465:C:C2    | 2:A:2485:G:N1     | 2.70        | 0.47     |
| 2:A:2494:G:N1    | 2:A:2495:G:C6     | 2.82        | 0.47     |
| 2:A:2508:G:C2    | 2:A:2509:G:N9     | 2.83        | 0.47     |
| 2:A:2565:A:C4'   | 2:A:2566:A:OP2    | 2.59        | 0.47     |
| 2:A:2593:U:O2    | 2:A:2600:A:C2     | 2.67        | 0.47     |
| 2:A:2045:C:N4    | 2:A:2624:G:C6     | 2.82        | 0.47     |
| 2:A:2733:A:N3    | 4:E:318:ASN:CB    | 2.75        | 0.47     |
| 2:A:2637:U:N3    | 2:A:2782:G:C2     | 2.83        | 0.47     |
| 2:A:2875:C:C4    | 2:A:2876:G:N7     | 2.83        | 0.47     |
| 1:B:58:A:N3      | 6:G:140:ARG:NH1   | 2.63        | 0.47     |
| 3:D:131:LEU:HG   | 3:D:187:CYS:C     | 2.34        | 0.47     |
| 4:E:263:GLU:O    | 4:E:266:LYS:HE3   | 2.15        | 0.47     |
| 4:E:45:LYS:CE    | 4:E:303:PRO:CA    | 2.93        | 0.47     |
| 5:F:93:LYS:C     | 5:F:96:LYS:CE     | 2.80        | 0.47     |
| 7:H:48:VAL:CG2   | 7:H:49:ILE:H      | 2.18        | 0.47     |
| 8:I:30:LEU:O     | 8:I:35:LEU:HG     | 2.15        | 0.47     |
| 9:N:136:SER:C    | 9:N:139:LEU:HD22  | 2.35        | 0.47     |
| 9:N:88:PRO:CB    | 9:N:90:LYS:N      | 2.68        | 0.47     |
| 11:P:102:ASP:O   | 11:P:102:ASP:CG   | 2.53        | 0.47     |
| 11:P:120:LEU:O   | 11:P:140:VAL:O    | 2.31        | 0.47     |
| 11:P:94:ARG:HD3  | 11:P:120:LEU:HD22 | 1.59        | 0.47     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:Q:85:ILE:HG23 | 12:Q:136:TRP:CZ2  | 2.49        | 0.47     |
| 12:Q:91:HIS:N    | 12:Q:111:THR:HG21 | 2.26        | 0.47     |
| 19:R:107:ASP:C   | 19:R:107:ASP:OD1  | 2.53        | 0.47     |
| 19:R:46:GLY:O    | 19:R:47:PHE:C     | 2.53        | 0.47     |
| 20:U:8:ILE:O     | 20:U:11:ARG:HG3   | 2.14        | 0.47     |
| 15:W:23:LEU:HD13 | 15:W:35:ILE:HG22  | 1.96        | 0.47     |
| 15:W:36:LEU:HD22 | 15:W:44:ALA:CA    | 2.32        | 0.47     |
| 17:Y:30:ASP:HB2  | 17:Y:31:LEU:HD23  | 1.97        | 0.47     |
| 18:Z:71:MET:CA   | 18:Z:78:PRO:HA    | 2.32        | 0.47     |
| 18:Z:8:ARG:O     | 18:Z:9:THR:HG23   | 2.15        | 0.47     |
| 3:D:213:LYS:HG3  | 3:D:215:LYS:CG    | 2.34        | 0.47     |
| 2:A:1079:C:O2    | 31:K:130:GLY:HA3  | 2.14        | 0.47     |
| 16:X:12:GLU:C    | 16:X:16:ASN:OD1   | 2.45        | 0.47     |
| 2:A:140:A:H8     | 16:X:48:THR:HG21  | 1.78        | 0.47     |
| 2:A:1304:C:H42   | 2:A:1624:G:H1     | 1.60        | 0.47     |
| 2:A:1401:G:C6    | 2:A:1402:C:C4     | 3.02        | 0.47     |
| 24:0:77:ARG:O    | 24:0:78:PHE:C     | 2.41        | 0.47     |
| 23:3:51:ALA:O    | 23:3:53:LEU:CA    | 2.58        | 0.47     |
| 2:A:2395:C:C5'   | 25:4:28:ARG:NH1   | 2.59        | 0.47     |
| 28:7:43:THR:O    | 28:7:45:SER:CA    | 2.62        | 0.47     |
| 2:A:2044:C:C4    | 2:A:2625:G:C2     | 3.02        | 0.47     |
| 2:A:2086:U:O4    | 2:A:2233:U:O4     | 2.32        | 0.47     |
| 2:A:2261:C:C2'   | 2:A:2261:C:O2     | 2.63        | 0.47     |
| 2:A:2287:A:C4    | 2:A:2289:G:C8     | 3.02        | 0.47     |
| 2:A:2364:C:H1'   | 24:0:32:LYS:HZ3   | 1.70        | 0.47     |
| 2:A:2402:C:C3'   | 2:A:2402:C:C6     | 2.97        | 0.47     |
| 2:A:2428:G:C5'   | 2:A:2429:G:P      | 2.97        | 0.47     |
| 2:A:2078:C:H1'   | 2:A:2434:A:N3     | 2.30        | 0.47     |
| 2:A:2479:G:OP1   | 2:A:2537:U:C1'    | 2.62        | 0.47     |
| 2:A:2488:A:N1    | 2:A:2489:G:C4     | 2.83        | 0.47     |
| 2:A:2531:A:O5'   | 2:A:2531:A:C8     | 2.67        | 0.47     |
| 2:A:2543:G:O2'   | 2:A:2645:G:C5     | 2.62        | 0.47     |
| 2:A:2692:C:C2'   | 2:A:2693:A:O5'    | 2.62        | 0.47     |
| 2:A:2679:A:N6    | 2:A:2729:G:O6     | 2.47        | 0.47     |
| 2:A:338:G:C4'    | 17:Y:24:ARG:NH1   | 2.78        | 0.47     |
| 2:A:910:A:C5     | 12:Q:12:PRO:O     | 2.68        | 0.47     |
| 3:D:84:PRO:O     | 3:D:85:ASN:HB3    | 2.14        | 0.47     |
| 4:E:193:PHE:CD2  | 4:E:311:PHE:HD1   | 2.28        | 0.47     |
| 5:F:112:ARG:O    | 5:F:114:ALA:C     | 2.53        | 0.47     |
| 5:F:223:LEU:HD13 | 5:F:224:ALA:N     | 2.14        | 0.47     |
| 6:G:49:PRO:HG3   | 6:G:72:LYS:C      | 2.32        | 0.47     |
| 6:G:53:LYS:O     | 6:G:54:ALA:CB     | 2.63        | 0.47     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:H:124:VAL:O    | 7:H:126:SER:N     | 2.47        | 0.47     |
| 9:N:74:ARG:HB3   | 9:N:76:ASP:CG     | 2.34        | 0.47     |
| 2:A:1138:G:OP1   | 9:N:82:THR:CG2    | 2.62        | 0.47     |
| 10:O:31:ARG:HB3  | 10:O:32:TYR:CE1   | 2.48        | 0.47     |
| 11:P:62:ALA:C    | 11:P:107:LYS:CD   | 2.69        | 0.47     |
| 12:Q:45:GLN:HA   | 12:Q:125:TRP:CD1  | 2.49        | 0.47     |
| 19:R:90:ARG:NH2  | 19:R:117:VAL:HG22 | 2.18        | 0.47     |
| 20:U:99:ALA:HB3  | 20:U:106:PHE:CE1  | 2.41        | 0.47     |
| 21:V:19:VAL:CG1  | 21:V:21:ARG:CZ    | 2.46        | 0.47     |
| 21:V:43:GLU:H    | 21:V:44:GLN:HE22  | 1.62        | 0.47     |
| 15:W:19:LEU:O    | 15:W:20:VAL:O     | 2.32        | 0.47     |
| 15:W:36:LEU:HD13 | 15:W:47:VAL:CG1   | 2.38        | 0.47     |
| 18:Z:118:HIS:O   | 18:Z:119:ASN:HB3  | 2.13        | 0.47     |
| 2:A:904:C:C1'    | 18:Z:166:LEU:HD11 | 2.45        | 0.47     |
| 18:Z:62:PHE:CD1  | 18:Z:87:THR:CG2   | 2.97        | 0.47     |
| 2:A:2356:C:H4'   | 24:0:17:ASN:CG    | 2.35        | 0.47     |
| 24:0:31:VAL:CG1  | 24:0:32:LYS:N     | 2.77        | 0.47     |
| 23:3:50:VAL:HB   | 23:3:53:LEU:CB    | 2.44        | 0.47     |
| 25:4:20:VAL:O    | 25:4:30:GLU:CG    | 2.63        | 0.47     |
| 25:4:11:PRO:CA   | 25:4:40:HIS:HD2   | 2.22        | 0.47     |
| 25:4:40:HIS:CB   | 25:4:41:PRO:HD3   | 2.42        | 0.47     |
| 27:6:16:ALA:HB1  | 27:6:42:PRO:CG    | 2.45        | 0.47     |
| 28:7:33:ARG:CB   | 28:7:37:LYS:HD2   | 2.45        | 0.47     |
| 29:8:30:ARG:HD2  | 29:8:44:LYS:HZ2   | 1.79        | 0.47     |
| 29:8:58:MET:HB3  | 29:8:59:LYS:H     | 1.53        | 0.47     |
| 2:A:1809:A:H3'   | 2:A:1810:A:N3     | 2.30        | 0.47     |
| 2:A:1818:U:O2    | 3:D:153:LEU:HD12  | 2.15        | 0.47     |
| 2:A:2255:G:C6    | 2:A:2256:G:C5     | 3.02        | 0.47     |
| 2:A:2266:A:N1    | 2:A:2272:U:H3'    | 2.29        | 0.47     |
| 2:A:2305:A:N7    | 2:A:2306:C:C5     | 2.83        | 0.47     |
| 2:A:2367:G:N3    | 2:A:2368:C:C6     | 2.83        | 0.47     |
| 2:A:2467:C:O3'   | 12:Q:141:MET:HE3  | 2.14        | 0.47     |
| 2:A:2533:A:N7    | 2:A:2534:A:N7     | 2.62        | 0.47     |
| 2:A:2615:U:H2'   | 2:A:2616:C:C5'    | 2.44        | 0.47     |
| 2:A:2649:U:H2'   | 2:A:2650:U:O5'    | 2.12        | 0.47     |
| 2:A:2673:G:N1    | 2:A:2674:G:C6     | 2.82        | 0.47     |
| 2:A:2742:C:C2'   | 2:A:2742:C:O2     | 2.59        | 0.47     |
| 2:A:642:G:H21    | 2:A:646:A:H61     | 1.63        | 0.47     |
| 3:D:85:ASN:HD21  | 3:D:86:ARG:CZ     | 2.25        | 0.47     |
| 2:A:2574:G:C1'   | 4:E:240:PRO:HB3   | 2.44        | 0.47     |
| 4:E:262:THR:OG1  | 4:E:266:LYS:NZ    | 2.47        | 0.47     |
| 5:F:58:ALA:C     | 5:F:59:GLU:OE2    | 2.53        | 0.47     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:H:94:ARG:CA    | 7:H:127:GLN:HE22 | 2.27        | 0.47     |
| 9:N:15:ARG:HA    | 9:N:44:ALA:N     | 2.29        | 0.47     |
| 10:O:33:ALA:HB1  | 10:O:39:VAL:CG2  | 2.44        | 0.47     |
| 11:P:114:VAL:O   | 11:P:115:ARG:CB  | 2.53        | 0.47     |
| 11:P:66:VAL:HG23 | 11:P:109:LEU:C   | 2.21        | 0.47     |
| 12:Q:122:PHE:HB2 | 12:Q:136:TRP:HZ2 | 1.77        | 0.47     |
| 12:Q:136:TRP:HA  | 12:Q:139:ALA:HB3 | 1.96        | 0.47     |
| 12:Q:143:VAL:CG2 | 12:Q:144:THR:N   | 2.64        | 0.47     |
| 12:Q:65:ARG:HG2  | 12:Q:85:ILE:HG21 | 1.96        | 0.47     |
| 13:S:34:LEU:HD11 | 13:S:103:ASP:N   | 2.07        | 0.47     |
| 13:S:80:SER:OG   | 13:S:81:ALA:N    | 2.48        | 0.47     |
| 13:S:98:GLU:CG   | 13:S:99:GLU:N    | 2.60        | 0.47     |
| 2:A:533:G:OP1    | 20:U:25:TRP:HB2  | 2.15        | 0.47     |
| 2:A:994:C:O2     | 20:U:53:LYS:HB3  | 2.15        | 0.47     |
| 21:V:12:TYR:O    | 21:V:13:ARG:CB   | 2.58        | 0.47     |
| 21:V:40:VAL:CA   | 21:V:54:TYR:HD1  | 2.28        | 0.47     |
| 15:W:57:ASN:O    | 15:W:58:ALA:O    | 2.32        | 0.47     |
| 17:Y:101:LEU:CD2 | 17:Y:112:LEU:CD2 | 2.55        | 0.47     |
| 18:Z:149:ALA:HB1 | 18:Z:163:ASP:O   | 2.15        | 0.47     |
| 18:Z:63:PRO:O    | 18:Z:64:ALA:HB3  | 2.12        | 0.47     |
| 18:Z:73:LYS:HG3  | 18:Z:75:LYS:CE   | 2.45        | 0.47     |
| 3:D:208:GLY:CA   | 3:D:211:HIS:CD2  | 2.94        | 0.47     |
| 22:2:11:MET:O    | 22:2:12:THR:C    | 2.51        | 0.47     |
| 2:A:148:C:O2'    | 2:A:149:A:O4'    | 2.30        | 0.47     |
| 16:X:25:GLN:HA   | 16:X:64:ALA:O    | 2.14        | 0.47     |
| 16:X:43:GLU:CD   | 16:X:43:GLU:H    | 2.16        | 0.47     |
| 2:A:63:U:H3'     | 2:A:63:U:C6      | 2.48        | 0.47     |
| 16:X:13:LYS:O    | 16:X:15:MET:N    | 2.47        | 0.47     |
| 16:X:48:THR:O    | 16:X:50:GLU:CD   | 2.52        | 0.47     |
| 2:A:1617:C:H5''  | 2:A:1618:A:OP2   | 2.15        | 0.47     |
| 2:A:1832:C:N4    | 2:A:1833:U:C4    | 2.82        | 0.47     |
| 2:A:479:A:H1'    | 2:A:480:A:C8     | 2.50        | 0.47     |
| 31:K:18:ALA:O    | 31:K:19:THR:HG23 | 2.15        | 0.47     |
| 2:A:124:G:OP1    | 2:A:1376:C:H1'   | 2.14        | 0.47     |
| 31:K:73:PRO:HD2  | 31:K:74:PRO:N    | 2.30        | 0.47     |
| 2:A:721:C:H2'    | 2:A:722:A:H8     | 1.80        | 0.47     |
| 2:A:88:G:N3      | 2:A:88:G:H2'     | 2.30        | 0.47     |
| 24:0:36:ILE:N    | 24:0:68:VAL:HG21 | 2.28        | 0.47     |
| 2:A:2081:C:C5'   | 25:4:35:VAL:HG21 | 2.45        | 0.47     |
| 2:A:818:G:C4     | 2:A:1187:G:N2    | 2.83        | 0.47     |
| 2:A:1270:C:O3'   | 2:A:1648:C:OP1   | 2.33        | 0.47     |
| 2:A:2052:G:H21   | 4:E:245:ARG:CB   | 2.26        | 0.47     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2053:G:N1    | 2:A:2617:C:C4    | 2.82        | 0.47     |
| 2:A:2273:A:H8    | 2:A:2274:A:C8    | 2.20        | 0.47     |
| 2:A:2320:A:N7    | 13:S:9:PRO:CB    | 2.76        | 0.47     |
| 2:A:2411:A:HO2'  | 2:A:2412:A:C5'   | 2.25        | 0.47     |
| 2:A:2071:A:C2    | 2:A:2441:C:C4    | 3.03        | 0.47     |
| 2:A:2515:C:N4    | 2:A:2570:G:C6    | 2.83        | 0.47     |
| 2:A:2596:U:C6    | 2:A:2597:G:C8    | 3.03        | 0.47     |
| 2:A:2611:U:C6    | 2:A:2611:U:C5'   | 2.98        | 0.47     |
| 2:A:2657:A:N7    | 2:A:2665:A:N6    | 2.63        | 0.47     |
| 2:A:2875:C:N3    | 2:A:2876:G:C5    | 2.83        | 0.47     |
| 2:A:605:C:H2'    | 2:A:606:U:H6     | 1.79        | 0.47     |
| 2:A:780:G:N3     | 2:A:785:G:O6     | 2.48        | 0.47     |
| 2:A:775:G:N2     | 2:A:787:U:C3'    | 2.77        | 0.47     |
| 2:A:971:C:H42    | 2:A:972:G:H21    | 1.62        | 0.47     |
| 2:A:99:U:C2      | 17:Y:107:LYS:HD3 | 2.49        | 0.47     |
| 3:D:110:LYS:O    | 3:D:111:VAL:O    | 2.32        | 0.47     |
| 3:D:191:VAL:HG23 | 3:D:192:GLY:N    | 2.30        | 0.47     |
| 3:D:75:GLY:H     | 3:D:116:MET:HB2  | 1.79        | 0.47     |
| 4:E:225:LYS:O    | 4:E:226:HIS:CE1  | 2.68        | 0.47     |
| 4:E:246:VAL:HG13 | 4:E:247:ARG:H    | 1.79        | 0.47     |
| 4:E:202:ALA:CA   | 4:E:262:THR:HB   | 2.44        | 0.47     |
| 4:E:269:ILE:N    | 4:E:269:ILE:CD1  | 2.51        | 0.47     |
| 4:E:315:VAL:C    | 4:E:317:PRO:CD   | 2.80        | 0.47     |
| 5:F:22:PHE:HE2   | 5:F:115:LEU:C    | 2.18        | 0.47     |
| 5:F:55:ARG:HG3   | 5:F:56:THR:OG1   | 2.15        | 0.47     |
| 6:G:136:ARG:H    | 6:G:136:ARG:HD2  | 1.80        | 0.47     |
| 8:I:6:LEU:O      | 8:I:6:LEU:CD1    | 2.58        | 0.47     |
| 12:Q:61:LEU:O    | 12:Q:63:ALA:N    | 2.47        | 0.47     |
| 14:T:50:GLU:O    | 14:T:51:TRP:C    | 2.46        | 0.47     |
| 2:A:18:C:O3'     | 20:U:23:GLY:HA3  | 2.15        | 0.47     |
| 20:U:9:VAL:HG12  | 20:U:13:ARG:NH2  | 2.28        | 0.47     |
| 21:V:87:ARG:O    | 21:V:88:GLN:O    | 2.33        | 0.47     |
| 17:Y:32:ARG:C    | 17:Y:33:GLU:CD   | 2.72        | 0.47     |
| 17:Y:33:GLU:C    | 17:Y:35:TYR:H    | 2.18        | 0.47     |
| 18:Z:114:ASP:OD1 | 18:Z:114:ASP:N   | 2.47        | 0.47     |
| 18:Z:118:HIS:CE1 | 18:Z:166:LEU:O   | 2.67        | 0.47     |
| 8:I:116:GLU:HG3  | 8:I:130:PRO:O    | 2.14        | 0.47     |
| 22:2:19:GLU:CD   | 22:2:20:LEU:N    | 2.68        | 0.47     |
| 2:A:131:G:C2     | 2:A:149:A:N1     | 2.83        | 0.47     |
| 2:A:2900:A:H2'   | 2:A:2901:C:O4'   | 2.15        | 0.47     |
| 2:A:1906:G:H1'   | 2:A:1929:G:N7    | 2.30        | 0.47     |
| 14:T:44:ARG:HG3  | 14:T:45:GLU:N    | 2.17        | 0.47     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:1072:C:H42   | 2:A:1100:C:N4     | 2.12        | 0.47     |
| 24:0:41:ARG:O    | 24:0:67:VAL:CG1   | 2.62        | 0.47     |
| 23:3:1:MET:SD    | 23:3:3:ARG:CD     | 2.96        | 0.47     |
| 23:3:43:ILE:H    | 23:3:43:ILE:CD1   | 2.08        | 0.47     |
| 23:3:26:LEU:HD22 | 23:3:47:VAL:HG23  | 1.95        | 0.47     |
| 26:5:18:MET:O    | 26:5:21:SER:N     | 2.48        | 0.47     |
| 15:W:19:LEU:CD1  | 26:5:25:LEU:CG    | 2.91        | 0.47     |
| 28:7:31:LEU:C    | 28:7:33:ARG:N     | 2.64        | 0.47     |
| 29:8:26:LYS:H    | 29:8:45:GLY:C     | 2.18        | 0.47     |
| 29:8:3:LYS:HA    | 29:8:4:MET:HE1    | 1.97        | 0.47     |
| 30:9:24:LEU:CD2  | 30:9:35:ARG:HG3   | 2.45        | 0.47     |
| 2:A:1010:A:O2'   | 2:A:1152:C:O2     | 2.33        | 0.47     |
| 2:A:1019:U:C2    | 2:A:1143:A:N1     | 2.83        | 0.47     |
| 2:A:197:A:N6     | 2:A:2430:A:H8     | 2.12        | 0.47     |
| 2:A:2093:G:C5    | 2:A:2225:A:C6     | 3.03        | 0.47     |
| 2:A:2299:G:O2'   | 2:A:2300:G:H5'    | 2.15        | 0.47     |
| 2:A:2309:A:H5'   | 2:A:2310:A:P      | 2.48        | 0.47     |
| 2:A:2331:G:C4    | 2:A:2332:U:N3     | 2.80        | 0.47     |
| 2:A:2370:G:O2'   | 2:A:2371:G:O5'    | 2.33        | 0.47     |
| 2:A:2283:C:C6    | 2:A:2389:G:C2     | 3.03        | 0.47     |
| 2:A:2505:G:O2'   | 2:A:2506:U:H5''   | 2.15        | 0.47     |
| 2:A:2527:C:C2'   | 2:A:2528:U:O5'    | 2.62        | 0.47     |
| 2:A:2554:U:C6    | 2:A:2554:U:C4'    | 2.98        | 0.47     |
| 2:A:2579:C:H2'   | 2:A:2580:U:H5'    | 0.62        | 0.47     |
| 2:A:2772:C:N3    | 2:A:2773:C:C4     | 2.83        | 0.47     |
| 2:A:2836:U:H3'   | 2:A:2836:U:C6     | 2.48        | 0.47     |
| 2:A:2881:C:C6    | 2:A:2881:C:C3'    | 2.98        | 0.47     |
| 2:A:2881:C:C6    | 2:A:2881:C:H3'    | 2.50        | 0.47     |
| 2:A:792:G:O2'    | 2:A:793:A:P       | 2.73        | 0.47     |
| 2:A:964:C:O2'    | 2:A:2273:A:C8     | 2.67        | 0.47     |
| 2:A:997:G:P      | 20:U:93:LYS:CE    | 2.92        | 0.47     |
| 3:D:131:LEU:HD11 | 3:D:187:CYS:HB2   | 1.95        | 0.47     |
| 3:D:173:VAL:O    | 3:D:175:LEU:CD2   | 2.63        | 0.47     |
| 4:E:247:ARG:CB   | 4:E:249:THR:OG1   | 2.62        | 0.47     |
| 5:F:113:SER:O    | 5:F:114:ALA:O     | 2.32        | 0.47     |
| 7:H:158:GLY:O    | 7:H:159:LYS:CB    | 2.60        | 0.47     |
| 7:H:60:HIS:O     | 7:H:61:ARG:C      | 2.53        | 0.47     |
| 8:I:3:VAL:HG21   | 8:I:21:VAL:HB     | 1.95        | 0.47     |
| 9:N:77:GLY:O     | 9:N:79:PHE:C      | 2.52        | 0.47     |
| 10:O:107:ARG:HG3 | 10:O:115:ILE:HG21 | 1.96        | 0.47     |
| 10:O:9:LYS:N     | 10:O:83:ALA:CB    | 2.78        | 0.47     |
| 11:P:127:GLU:O   | 11:P:131:GLU:HG3  | 2.15        | 0.47     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 11:P:65:ASP:CB    | 11:P:109:LEU:N   | 2.77        | 0.47     |
| 2:A:910:A:C2'     | 12:Q:17:ARG:HH22 | 2.25        | 0.47     |
| 12:Q:56:ILE:CD1   | 12:Q:56:ILE:N    | 2.24        | 0.47     |
| 21:V:61:VAL:HG13  | 21:V:96:LEU:HD23 | 1.97        | 0.47     |
| 17:Y:27:LEU:HB3   | 17:Y:98:VAL:N    | 2.30        | 0.47     |
| 8:I:95:SER:HB2    | 8:I:117:LEU:HD11 | 1.97        | 0.47     |
| 31:K:116:LEU:HD11 | 31:K:124:ALA:HA  | 1.96        | 0.47     |
| 16:X:32:ALA:CB    | 16:X:36:GLU:HB2  | 2.44        | 0.47     |
| 4:E:109:ASP:CA    | 4:E:112:LEU:CB   | 2.80        | 0.47     |
| 3:D:230:ASN:O     | 3:D:231:ALA:CB   | 2.53        | 0.47     |
| 2:A:1823:G:C2     | 2:A:1824:G:C8    | 3.03        | 0.47     |
| 25:4:14:ILE:CG1   | 25:4:39:VAL:HB   | 2.45        | 0.47     |
| 25:4:68:ARG:HB2   | 25:4:72:LYS:HG3  | 1.97        | 0.47     |
| 27:6:12:MET:HA    | 27:6:13:GLU:OE1  | 2.13        | 0.47     |
| 28:7:21:ARG:NH2   | 28:7:43:THR:CA   | 2.77        | 0.47     |
| 2:A:1184:G:H2'    | 2:A:1185:C:H5'   | 1.97        | 0.47     |
| 2:A:14:A:C8       | 2:A:15:G:C8      | 3.03        | 0.47     |
| 2:A:1664:A:C3'    | 2:A:1664:A:C8    | 2.96        | 0.47     |
| 2:A:1670:C:OP2    | 2:A:1671:U:H5    | 1.97        | 0.47     |
| 2:A:2092:U:H5     | 2:A:2227:A:N6    | 2.13        | 0.47     |
| 2:A:2248:C:C3'    | 2:A:2249:U:C5'   | 2.93        | 0.47     |
| 2:A:2343:C:HO2'   | 2:A:2344:U:H5'   | 1.70        | 0.47     |
| 2:A:2442:C:O2'    | 2:A:2443:C:H5'   | 2.15        | 0.47     |
| 2:A:2067:G:N2     | 2:A:2444:G:N3    | 2.62        | 0.47     |
| 2:A:2511:U:C4     | 2:A:2512:C:C5    | 3.03        | 0.47     |
| 2:A:2511:U:H2'    | 2:A:2512:C:O5'   | 2.15        | 0.47     |
| 2:A:242:G:O2'     | 2:A:254:G:N1     | 2.46        | 0.47     |
| 2:A:2509:G:H1     | 2:A:2579:C:H42   | 1.62        | 0.47     |
| 2:A:2649:U:H2'    | 2:A:2650:U:C5    | 2.49        | 0.47     |
| 2:A:2816:C:C5'    | 2:A:2816:C:H6    | 2.27        | 0.47     |
| 2:A:2623:G:H4'    | 2:A:2826:A:H1'   | 1.97        | 0.47     |
| 2:A:775:G:HO2'    | 2:A:794:G:H8     | 1.61        | 0.47     |
| 3:D:119:PRO:HA    | 3:D:129:LEU:CD2  | 2.44        | 0.47     |
| 3:D:162:GLN:OE1   | 3:D:162:GLN:N    | 2.48        | 0.47     |
| 3:D:188:ARG:HB3   | 3:D:189:ALA:H    | 1.57        | 0.47     |
| 3:D:74:PRO:HD2    | 3:D:96:ALA:H     | 1.80        | 0.47     |
| 3:D:97:ASP:HB3    | 3:D:99:GLU:OE2   | 2.15        | 0.47     |
| 4:E:176:HIS:O     | 4:E:179:ASP:CA   | 2.64        | 0.47     |
| 4:E:199:ALA:CA    | 4:E:312:ARG:C    | 2.82        | 0.47     |
| 4:E:74:GLU:CA     | 4:E:293:TYR:HD2  | 2.06        | 0.47     |
| 2:A:2682:U:C1'    | 4:E:49:THR:HA    | 2.45        | 0.47     |
| 5:F:244:ALA:C     | 5:F:246:ARG:H    | 2.15        | 0.47     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 6:G:23:VAL:CG2    | 6:G:23:VAL:O     | 2.62        | 0.47     |
| 7:H:159:LYS:N     | 7:H:162:ARG:HH12 | 2.13        | 0.47     |
| 7:H:36:PHE:C      | 7:H:37:HIS:ND1   | 2.68        | 0.47     |
| 8:I:40:THR:O      | 8:I:43:ASN:N     | 2.48        | 0.47     |
| 8:I:7:LYS:CD      | 8:I:12:LYS:CE    | 2.84        | 0.47     |
| 8:I:8:ASP:N       | 8:I:12:LYS:HA    | 2.18        | 0.47     |
| 10:O:102:VAL:HG12 | 10:O:103:ALA:N   | 2.30        | 0.47     |
| 11:P:94:ARG:HH21  | 11:P:118:LEU:HB2 | 1.80        | 0.47     |
| 12:Q:101:MET:SD   | 12:Q:101:MET:O   | 2.73        | 0.47     |
| 12:Q:18:GLU:HG2   | 12:Q:23:ILE:CD1  | 2.41        | 0.47     |
| 12:Q:54:VAL:O     | 12:Q:54:VAL:HG13 | 2.15        | 0.47     |
| 13:S:46:GLN:CB    | 13:S:57:THR:HG21 | 2.38        | 0.47     |
| 13:S:76:GLY:C     | 13:S:83:LEU:CD1  | 2.83        | 0.47     |
| 14:T:13:ILE:CG1   | 14:T:33:SER:HB2  | 2.45        | 0.47     |
| 14:T:6:CYS:C      | 14:T:8:TYR:N     | 2.65        | 0.47     |
| 21:V:18:ASP:HA    | 21:V:96:LEU:HA   | 1.97        | 0.47     |
| 17:Y:103:LEU:HD23 | 17:Y:108:ARG:CB  | 2.26        | 0.47     |
| 17:Y:102:ASP:O    | 17:Y:103:LEU:HG  | 2.15        | 0.47     |
| 17:Y:52:ARG:CD    | 17:Y:95:ASN:OD1  | 2.48        | 0.47     |
| 18:Z:63:PRO:O     | 18:Z:85:MET:HA   | 2.15        | 0.47     |
| 8:I:145:VAL:C     | 8:I:146:THR:CG2  | 2.72        | 0.47     |
| 2:A:1566:A:N3     | 3:D:212:HIS:HB3  | 2.30        | 0.47     |
| 2:A:143:C:OP2     | 2:A:143:C:O4'    | 2.33        | 0.47     |
| 16:X:11:THR:O     | 16:X:15:MET:SD   | 2.68        | 0.47     |
| 2:A:138:G:H1'     | 16:X:42:GLU:HG2  | 1.97        | 0.47     |
| 2:A:1076:C:H4'    | 31:K:94:ARG:CZ   | 2.44        | 0.47     |
| 2:A:734:A:C3'     | 2:A:735:A:P      | 2.99        | 0.47     |
| 2:A:1917:U:C3'    | 2:A:1918:A:C8    | 2.79        | 0.47     |
| 2:A:1862:G:H1     | 2:A:1880:C:N4    | 2.13        | 0.47     |
| 2:A:1890:A:C2     | 2:A:1891:G:H1'   | 2.49        | 0.47     |
| 2:A:89:G:H3'      | 2:A:90:U:H5''    | 1.96        | 0.47     |
| 24:O:67:VAL:HG11  | 24:O:74:LYS:CD   | 2.38        | 0.46     |
| 25:4:68:ARG:NE    | 25:4:72:LYS:HG2  | 2.25        | 0.46     |
| 27:6:12:MET:HE3   | 27:6:54:LYS:CA   | 2.45        | 0.46     |
| 28:7:17:GLY:C     | 28:7:44:VAL:CG2  | 2.49        | 0.46     |
| 30:9:10:MET:HB3   | 30:9:32:HIS:HE2  | 1.77        | 0.46     |
| 2:A:1023:U:H2'    | 2:A:1024:G:O4'   | 2.15        | 0.46     |
| 2:A:1005:C:H5     | 2:A:1143:A:H5''  | 1.79        | 0.46     |
| 2:A:1781:C:H3'    | 2:A:1781:C:H6    | 1.80        | 0.46     |
| 2:A:2024:G:H2'    | 2:A:2025:C:O4'   | 2.15        | 0.46     |
| 2:A:2217:G:C2     | 2:A:2218:G:C5    | 3.02        | 0.46     |
| 2:A:2307:G:C8     | 2:A:2307:G:H5''  | 2.47        | 0.46     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2341:G:C6     | 2:A:2342:C:N3    | 2.84        | 0.46     |
| 2:A:2491:U:O2'    | 2:A:2492:U:O5'   | 2.31        | 0.46     |
| 2:A:2495:G:C2     | 2:A:2496:C:H1'   | 2.50        | 0.46     |
| 2:A:2503:A:O2'    | 2:A:2504:U:OP1   | 2.20        | 0.46     |
| 2:A:2682:U:C2'    | 2:A:2683:C:O5'   | 2.63        | 0.46     |
| 2:A:2705:A:C5     | 2:A:2706:G:C5    | 3.03        | 0.46     |
| 2:A:2817:G:C2     | 2:A:2818:G:C1'   | 2.98        | 0.46     |
| 2:A:443:A:N7      | 5:F:43:LYS:CG    | 2.78        | 0.46     |
| 4:E:268:LEU:CD2   | 4:E:270:ASP:N    | 2.78        | 0.46     |
| 2:A:2313:C:H4'    | 6:G:72:LYS:HB3   | 1.97        | 0.46     |
| 6:G:71:ALA:C      | 6:G:72:LYS:HD3   | 2.24        | 0.46     |
| 6:G:97:GLN:HB2    | 6:G:106:PHE:CZ   | 2.38        | 0.46     |
| 7:H:147:ILE:HD12  | 7:H:150:VAL:CG1  | 2.44        | 0.46     |
| 9:N:103:VAL:CG1   | 9:N:104:TYR:N    | 2.71        | 0.46     |
| 2:A:1139:G:P      | 9:N:46:ILE:CG2   | 3.03        | 0.46     |
| 2:A:911:A:C2'     | 12:Q:16:ARG:HD2  | 2.45        | 0.46     |
| 12:Q:52:LYS:HD2   | 12:Q:53:PRO:HD2  | 1.96        | 0.46     |
| 19:R:20:LEU:C     | 19:R:20:LEU:HD22 | 2.35        | 0.46     |
| 13:S:34:LEU:HB3   | 13:S:101:VAL:O   | 2.15        | 0.46     |
| 13:S:18:THR:O     | 13:S:19:ASP:CG   | 2.53        | 0.46     |
| 1:B:7:G:O3'       | 13:S:37:ARG:HB3  | 2.15        | 0.46     |
| 21:V:43:GLU:N     | 21:V:44:GLN:HE22 | 2.13        | 0.46     |
| 15:W:14:PRO:CG    | 15:W:99:ARG:O    | 2.62        | 0.46     |
| 18:Z:112:LEU:HD21 | 18:Z:171:VAL:C   | 2.35        | 0.46     |
| 18:Z:117:VAL:HB   | 18:Z:167:THR:HB  | 1.96        | 0.46     |
| 18:Z:71:MET:HA    | 18:Z:78:PRO:HB3  | 1.95        | 0.46     |
| 8:I:141:LEU:CD2   | 8:I:142:LYS:H    | 2.25        | 0.46     |
| 2:A:1775:U:H2'    | 2:A:1776:G:O4'   | 2.15        | 0.46     |
| 4:E:109:ASP:HA    | 4:E:112:LEU:N    | 2.29        | 0.46     |
| 2:A:1434:A:H61    | 2:A:1558:A:N6    | 2.13        | 0.46     |
| 2:A:1466:G:H2'    | 2:A:1547:C:C5    | 2.49        | 0.46     |
| 2:A:1872:A:C5     | 2:A:1878:G:H1'   | 2.50        | 0.46     |
| 25:4:14:ILE:HD11  | 25:4:39:VAL:CB   | 2.45        | 0.46     |
| 25:4:33:VAL:O     | 25:4:34:ASP:CG   | 2.51        | 0.46     |
| 2:A:2286:A:OP2    | 27:6:28:ARG:HD2  | 2.15        | 0.46     |
| 29:8:26:LYS:HD3   | 29:8:43:GLY:O    | 2.16        | 0.46     |
| 30:9:25:VAL:HG23  | 30:9:34:GLN:HB3  | 1.84        | 0.46     |
| 2:A:1027:A:N6     | 2:A:1126:A:N3    | 2.63        | 0.46     |
| 2:A:1678:G:N2     | 2:A:1989:G:N2    | 2.63        | 0.46     |
| 2:A:2000:G:H2'    | 2:A:2001:A:H8    | 1.81        | 0.46     |
| 2:A:2367:G:N3     | 2:A:2368:C:C5    | 2.83        | 0.46     |
| 2:A:2380:C:H3'    | 2:A:2380:C:H6    | 1.80        | 0.46     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2412:A:H2'   | 2:A:2413:G:O4'    | 2.16        | 0.46     |
| 2:A:2419:U:O4    | 29:8:31:HIS:CE1   | 2.68        | 0.46     |
| 2:A:2431:U:C2    | 2:A:2433:A:C8     | 3.03        | 0.46     |
| 2:A:245:G:H1     | 2:A:253:C:N4      | 2.12        | 0.46     |
| 2:A:2706:G:H4'   | 2:A:2851:A:H4'    | 1.97        | 0.46     |
| 2:A:2785:C:H5'   | 4:E:99:VAL:CA     | 2.38        | 0.46     |
| 2:A:2808:U:P     | 2:A:2809:A:OP2    | 2.73        | 0.46     |
| 2:A:2817:G:C2    | 2:A:2818:G:N9     | 2.84        | 0.46     |
| 2:A:746:A:O2'    | 26:5:2:ALA:CB     | 2.59        | 0.46     |
| 2:A:988:A:H62    | 23:3:13:ILE:CG2   | 2.28        | 0.46     |
| 1:B:104:A:H1'    | 18:Z:24:TYR:CE2   | 2.48        | 0.46     |
| 3:D:141:HIS:CE1  | 3:D:193:GLU:O     | 2.69        | 0.46     |
| 4:E:200:ASP:O    | 4:E:312:ARG:N     | 2.48        | 0.46     |
| 5:F:148:VAL:O    | 5:F:149:LYS:HG3   | 2.15        | 0.46     |
| 7:H:33:THR:OG1   | 7:H:33:THR:O      | 2.32        | 0.46     |
| 7:H:70:LEU:O     | 7:H:73:ASN:CB     | 2.62        | 0.46     |
| 7:H:83:GLU:CD    | 7:H:84:LYS:C      | 2.74        | 0.46     |
| 7:H:85:ALA:CB    | 7:H:164:GLU:HG2   | 2.45        | 0.46     |
| 7:H:86:LEU:CA    | 7:H:148:ARG:HH22  | 2.04        | 0.46     |
| 8:I:23:ASP:O     | 8:I:25:TYR:N      | 2.48        | 0.46     |
| 11:P:67:ARG:CZ   | 11:P:109:LEU:HD12 | 2.45        | 0.46     |
| 12:Q:45:GLN:HA   | 12:Q:125:TRP:NE1  | 2.30        | 0.46     |
| 1:B:8:U:H5'      | 13:S:37:ARG:CZ    | 2.45        | 0.46     |
| 13:S:97:VAL:HG12 | 13:S:98:GLU:H     | 1.78        | 0.46     |
| 20:U:110:VAL:C   | 20:U:113:SER:HG   | 2.12        | 0.46     |
| 20:U:95:LEU:O    | 20:U:98:ILE:CD1   | 2.62        | 0.46     |
| 21:V:67:LYS:HG3  | 21:V:94:LYS:HD2   | 1.98        | 0.46     |
| 15:W:45:TYR:O    | 15:W:46:PHE:O     | 2.34        | 0.46     |
| 17:Y:102:ASP:O   | 17:Y:108:ARG:HB3  | 2.15        | 0.46     |
| 2:A:309:G:O5'    | 17:Y:54:ASP:OD1   | 2.33        | 0.46     |
| 18:Z:51:LEU:HD21 | 18:Z:63:PRO:HB3   | 1.97        | 0.46     |
| 2:A:1057:A:H61   | 2:A:1081:U:H3     | 1.64        | 0.46     |
| 2:A:139:G:C8     | 2:A:142:G:H1'     | 2.51        | 0.46     |
| 16:X:25:GLN:NE2  | 16:X:65:VAL:CG2   | 2.78        | 0.46     |
| 12:Q:93:ILE:HG22 | 12:Q:94:ARG:N     | 2.30        | 0.46     |
| 15:W:52:GLU:CA   | 15:W:52:GLU:OE2   | 2.63        | 0.46     |
| 24:0:29:GLU:OE1  | 24:0:29:GLU:CA    | 2.62        | 0.46     |
| 2:A:2386:C:H1'   | 24:0:39:ARG:NH2   | 2.30        | 0.46     |
| 24:0:45:PHE:C    | 24:0:46:LYS:HD2   | 2.35        | 0.46     |
| 23:3:20:LYS:HD2  | 23:3:23:LEU:HD12  | 1.90        | 0.46     |
| 25:4:38:GLY:O    | 25:4:39:VAL:CB    | 2.63        | 0.46     |
| 2:A:2052:G:N2    | 4:E:245:ARG:CD    | 2.77        | 0.46     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2370:G:C6    | 2:A:2371:G:C5    | 3.04        | 0.46     |
| 2:A:2474:C:C5    | 2:A:2475:C:C4    | 3.03        | 0.46     |
| 2:A:2478:A:N7    | 2:A:2479:G:C5    | 2.83        | 0.46     |
| 2:A:2485:G:C2'   | 2:A:2486:G:O4'   | 2.63        | 0.46     |
| 2:A:2489:G:O6    | 2:A:2490:G:C6    | 2.68        | 0.46     |
| 2:A:2491:U:C2'   | 2:A:2492:U:H5'   | 2.26        | 0.46     |
| 2:A:2460:U:C2    | 2:A:2493:U:C5    | 3.00        | 0.46     |
| 2:A:2516:G:H22   | 2:A:2569:G:H1'   | 1.81        | 0.46     |
| 2:A:1952:A:C1'   | 2:A:2560:C:O2'   | 2.52        | 0.46     |
| 2:A:2576:G:N3    | 2:A:2576:G:C2'   | 2.77        | 0.46     |
| 2:A:2584:U:N1    | 2:A:2585:U:C4    | 2.82        | 0.46     |
| 2:A:2631:G:C2    | 2:A:2632:A:H1'   | 2.51        | 0.46     |
| 2:A:2681:C:O2'   | 2:A:2682:U:H5'   | 2.12        | 0.46     |
| 2:A:2679:A:N6    | 2:A:2728:U:H3    | 2.00        | 0.46     |
| 2:A:2748:A:H8    | 2:A:2749:A:C5    | 2.21        | 0.46     |
| 2:A:2842:G:C2    | 2:A:2876:G:N2    | 2.83        | 0.46     |
| 2:A:684:G:C2     | 2:A:775:G:C6     | 3.03        | 0.46     |
| 2:A:828:U:H4'    | 2:A:831:G:C2     | 2.50        | 0.46     |
| 2:A:932:G:O2'    | 2:A:933:A:C8     | 2.63        | 0.46     |
| 1:B:45:A:H1'     | 6:G:76:ARG:HH11  | 1.70        | 0.46     |
| 3:D:109:LEU:HD11 | 3:D:126:GLY:HA3  | 1.96        | 0.46     |
| 4:E:205:THR:CG2  | 4:E:258:TYR:C    | 2.74        | 0.46     |
| 4:E:212:GLY:O    | 4:E:216:ARG:CG   | 2.45        | 0.46     |
| 2:A:2578:G:C6    | 4:E:237:ASN:ND2  | 2.84        | 0.46     |
| 5:F:202:THR:CG2  | 5:F:203:ALA:H    | 2.27        | 0.46     |
| 2:A:590:A:C3'    | 5:F:97:ASP:OD2   | 2.63        | 0.46     |
| 7:H:115:GLU:CD   | 7:H:115:GLU:O    | 2.54        | 0.46     |
| 8:I:26:ALA:HB1   | 8:I:30:LEU:HD12  | 1.96        | 0.46     |
| 10:O:21:VAL:HG13 | 10:O:39:VAL:CG1  | 2.45        | 0.46     |
| 12:Q:126:VAL:CG1 | 12:Q:127:ASN:N   | 2.77        | 0.46     |
| 19:R:18:LEU:HD21 | 19:R:22:ARG:NH2  | 2.30        | 0.46     |
| 13:S:66:LEU:N    | 13:S:66:LEU:CD1  | 2.77        | 0.46     |
| 20:U:46:GLU:C    | 20:U:49:ASP:HB2  | 2.30        | 0.46     |
| 21:V:14:VAL:CG1  | 21:V:15:SER:N    | 2.39        | 0.46     |
| 21:V:55:THR:O    | 21:V:56:VAL:HG23 | 2.15        | 0.46     |
| 15:W:25:ARG:O    | 15:W:27:LYS:N    | 2.48        | 0.46     |
| 2:A:495:G:N3     | 15:W:61:ASN:ND2  | 2.63        | 0.46     |
| 18:Z:159:THR:O   | 18:Z:160:LEU:CG  | 2.63        | 0.46     |
| 18:Z:18:MET:HA   | 18:Z:36:ARG:N    | 2.28        | 0.46     |
| 18:Z:62:PHE:CZ   | 18:Z:87:THR:CG2  | 2.99        | 0.46     |
| 22:2:4:HIS:O     | 22:2:8:ILE:HG13  | 2.13        | 0.46     |
| 17:Y:6:LYS:HA    | 17:Y:9:LYS:HB2   | 1.96        | 0.46     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:I:56:ARG:O     | 8:I:60:GLU:CB    | 2.64        | 0.46     |
| 2:A:1418:G:N2    | 2:A:1580:A:H2    | 2.13        | 0.46     |
| 2:A:194:G:C6     | 2:A:195:A:C5     | 3.04        | 0.46     |
| 2:A:885:C:H41    | 2:A:889:C:C1'    | 2.23        | 0.46     |
| 2:A:270:A:H2'    | 2:A:270(A):A:C4' | 2.46        | 0.46     |
| 16:X:71:ASP:HB3  | 16:X:72:ASP:H    | 1.57        | 0.46     |
| 24:O:22:GLY:C    | 24:O:23:VAL:O    | 2.52        | 0.46     |
| 27:6:16:ALA:CB   | 27:6:42:PRO:CG   | 2.93        | 0.46     |
| 29:8:30:ARG:HH21 | 29:8:41:ILE:CG2  | 2.22        | 0.46     |
| 2:A:974:G:OP2    | 2:A:1188:U:C6    | 2.69        | 0.46     |
| 2:A:2314:C:H2'   | 2:A:2315:G:H8    | 1.80        | 0.46     |
| 2:A:2297:C:N4    | 2:A:2320:A:N9    | 2.64        | 0.46     |
| 2:A:2385:C:C2    | 2:A:2386:C:H6    | 2.18        | 0.46     |
| 2:A:2395:C:C4'   | 2:A:2395:C:C6    | 2.98        | 0.46     |
| 2:A:2469:A:C5    | 2:A:2470:G:C8    | 3.03        | 0.46     |
| 2:A:2546:U:C2'   | 2:A:2547:U:OP2   | 2.63        | 0.46     |
| 2:A:2616:C:C5'   | 2:A:2616:C:H6    | 2.28        | 0.46     |
| 2:A:2620:C:C5    | 2:A:2621:A:C8    | 3.03        | 0.46     |
| 2:A:2636:U:H3    | 2:A:2782:G:H1    | 1.64        | 0.46     |
| 2:A:2652:C:H2'   | 2:A:2653:U:C5'   | 2.45        | 0.46     |
| 2:A:2662:A:H2    | 2:A:2663:G:H4'   | 1.80        | 0.46     |
| 2:A:1759:A:C5'   | 2:A:2715:C:O4'   | 2.63        | 0.46     |
| 2:A:2720:U:C2    | 2:A:2721:A:C8    | 3.03        | 0.46     |
| 2:A:2773:C:H2'   | 2:A:2774:C:O5'   | 2.16        | 0.46     |
| 2:A:2793:G:C5    | 2:A:2794:C:C4    | 3.03        | 0.46     |
| 2:A:2813:A:C4    | 2:A:2814:C:C5    | 3.03        | 0.46     |
| 2:A:532:A:C2'    | 2:A:533:G:O4'    | 2.63        | 0.46     |
| 2:A:783:A:C6     | 2:A:785:G:H1'    | 2.49        | 0.46     |
| 2:A:817:C:H2'    | 2:A:818:G:O4'    | 2.15        | 0.46     |
| 2:A:872:A:H2'    | 2:A:873:G:H8     | 1.80        | 0.46     |
| 2:A:990:A:OP2    | 2:A:1185:C:OP1   | 2.32        | 0.46     |
| 3:D:167:GLU:C    | 3:D:170:TYR:O    | 2.53        | 0.46     |
| 3:D:175:LEU:HB2  | 3:D:179:GLU:N    | 2.28        | 0.46     |
| 3:D:131:LEU:CG   | 3:D:187:CYS:O    | 2.59        | 0.46     |
| 2:A:2729:G:H4'   | 4:E:298:GLY:HA3  | 1.96        | 0.46     |
| 5:F:157:LEU:O    | 5:F:160:LEU:N    | 2.48        | 0.46     |
| 6:G:29:HIS:N     | 6:G:69:ILE:CG1   | 2.76        | 0.46     |
| 6:G:63:ILE:O     | 6:G:64:ARG:C     | 2.53        | 0.46     |
| 6:G:97:GLN:HB3   | 6:G:106:PHE:CZ   | 2.49        | 0.46     |
| 7:H:52:THR:O     | 7:H:64:HIS:CD2   | 2.68        | 0.46     |
| 7:H:40:MET:HA    | 7:H:54:PRO:CG    | 2.46        | 0.46     |
| 8:I:21:VAL:HG21  | 8:I:30:LEU:HD12  | 1.96        | 0.46     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 9:N:56:LYS:CD    | 9:N:56:LYS:H     | 2.22        | 0.46     |
| 10:O:19:VAL:HA   | 10:O:42:THR:O    | 2.15        | 0.46     |
| 10:O:77:ILE:CD1  | 10:O:78:ARG:HA   | 2.42        | 0.46     |
| 11:P:53:ARG:CB   | 11:P:54:PRO:CD   | 2.93        | 0.46     |
| 12:Q:145:PRO:O   | 12:Q:146:THR:CB  | 2.58        | 0.46     |
| 12:Q:32:LYS:O    | 12:Q:32:LYS:HD2  | 2.15        | 0.46     |
| 12:Q:70:ARG:H    | 12:Q:70:ARG:HG3  | 1.58        | 0.46     |
| 19:R:56:LYS:O    | 19:R:57:ARG:C    | 2.54        | 0.46     |
| 2:A:2377:A:O2'   | 13:S:129:ILE:O   | 2.20        | 0.46     |
| 13:S:21:HIS:CD2  | 13:S:24:LEU:CD1  | 2.96        | 0.46     |
| 14:T:11:THR:CG2  | 14:T:12:ASP:H    | 1.94        | 0.46     |
| 20:U:7:GLY:HA3   | 20:U:8:ILE:CD1   | 2.44        | 0.46     |
| 21:V:67:LYS:HG3  | 21:V:94:LYS:CD   | 2.46        | 0.46     |
| 17:Y:50:VAL:CA   | 17:Y:51:LEU:HD13 | 2.44        | 0.46     |
| 17:Y:49:GLU:CB   | 17:Y:97:ARG:HH11 | 2.29        | 0.46     |
| 16:X:52:VAL:HG22 | 16:X:66:VAL:HA   | 1.97        | 0.46     |
| 16:X:52:VAL:HG13 | 16:X:65:VAL:O    | 2.15        | 0.46     |
| 17:Y:2:LYS:C     | 17:Y:3:GLN:HG3   | 2.35        | 0.46     |
| 2:A:1300:U:C6    | 2:A:1301:A:C2    | 3.02        | 0.46     |
| 2:A:1522:G:H8    | 2:A:1522:G:O5'   | 1.99        | 0.46     |
| 2:A:2795:G:OP2   | 2:A:2795:G:H3'   | 2.15        | 0.46     |
| 14:T:44:ARG:CG   | 14:T:45:GLU:N    | 2.78        | 0.46     |
| 23:3:41:PRO:HA   | 23:3:44:ARG:HB3  | 1.97        | 0.46     |
| 27:6:39:LYS:O    | 27:6:40:TYR:CD1  | 2.64        | 0.46     |
| 2:A:2419:U:P     | 29:8:41:ILE:HD11 | 2.55        | 0.46     |
| 2:A:1254:A:N7    | 2:A:1256:G:C4    | 2.84        | 0.46     |
| 2:A:1309:G:OP1   | 28:7:8:ASN:HA    | 2.15        | 0.46     |
| 2:A:1781:C:H3'   | 2:A:1781:C:C6    | 2.51        | 0.46     |
| 2:A:2256:G:C6    | 2:A:2257:U:N3    | 2.83        | 0.46     |
| 2:A:2320:A:C2    | 2:A:2333:A:C6    | 3.04        | 0.46     |
| 2:A:2343:C:H2'   | 2:A:2343:C:O2    | 2.15        | 0.46     |
| 2:A:2402:C:C6    | 2:A:2402:C:H3'   | 2.50        | 0.46     |
| 2:A:199:A:N3     | 2:A:2433:A:C5    | 2.80        | 0.46     |
| 2:A:2435:A:C2    | 2:A:2436:G:C8    | 3.04        | 0.46     |
| 2:A:576:U:H5''   | 2:A:2503:A:OP1   | 2.16        | 0.46     |
| 2:A:2515:C:C2'   | 2:A:2515:C:O2    | 2.64        | 0.46     |
| 2:A:2546:U:C2    | 2:A:2567:G:C8    | 3.03        | 0.46     |
| 2:A:2555:U:HO2'  | 2:A:2556:C:P     | 2.39        | 0.46     |
| 2:A:2564:A:C4    | 2:A:2565:A:N7    | 2.84        | 0.46     |
| 2:A:2579:C:O4'   | 4:E:231:TRP:CH2  | 2.69        | 0.46     |
| 2:A:2617:C:O2    | 2:A:2618:G:H5'   | 2.14        | 0.46     |
| 2:A:2633:G:C8    | 2:A:2633:G:O5'   | 2.64        | 0.46     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2762:G:C4    | 2:A:2763:G:C8    | 3.02        | 0.46     |
| 2:A:2772:C:C2    | 2:A:2773:C:C5    | 3.03        | 0.46     |
| 2:A:2623:G:H4'   | 2:A:2826:A:C1'   | 2.46        | 0.46     |
| 2:A:2839:G:N2    | 2:A:2840:C:N1    | 2.64        | 0.46     |
| 2:A:349:G:H2'    | 2:A:349:G:N3     | 2.31        | 0.46     |
| 2:A:510:C:P      | 2:A:512:G:H22    | 2.38        | 0.46     |
| 2:A:580:C:OP1    | 2:A:2018:G:O2'   | 2.28        | 0.46     |
| 2:A:989:G:HO2'   | 2:A:990:A:P      | 2.38        | 0.46     |
| 2:A:996:A:O2'    | 21:V:10:LYS:HE3  | 2.16        | 0.46     |
| 4:E:256:THR:CA   | 4:E:259:HIS:HE1  | 2.03        | 0.46     |
| 4:E:262:THR:OG1  | 4:E:263:GLU:N    | 2.46        | 0.46     |
| 5:F:102:LEU:CB   | 5:F:107:ARG:HH21 | 2.24        | 0.46     |
| 5:F:167:ASP:N    | 5:F:167:ASP:OD1  | 2.44        | 0.46     |
| 5:F:199:GLU:O    | 5:F:200:PRO:O    | 2.34        | 0.46     |
| 5:F:215:ALA:CA   | 5:F:239:ALA:HA   | 2.42        | 0.46     |
| 6:G:134:LEU:C    | 6:G:135:VAL:HG23 | 2.36        | 0.46     |
| 6:G:19:GLU:HB2   | 6:G:135:VAL:CB   | 2.43        | 0.46     |
| 6:G:48:MET:HA    | 6:G:49:PRO:HD3   | 1.74        | 0.46     |
| 6:G:67:ASP:N     | 6:G:67:ASP:OD1   | 2.46        | 0.46     |
| 7:H:15:THR:CG2   | 7:H:26:LYS:C     | 2.83        | 0.46     |
| 7:H:40:MET:HE1   | 7:H:42:ILE:N     | 2.30        | 0.46     |
| 8:I:42:ALA:HB3   | 8:I:43:ASN:ND2   | 2.30        | 0.46     |
| 9:N:12:VAL:CG1   | 9:N:38:VAL:CG2   | 2.82        | 0.46     |
| 9:N:63:ILE:CG2   | 9:N:71:TYR:OH    | 2.55        | 0.46     |
| 12:Q:130:PRO:HB2 | 12:Q:134:PHE:CE1 | 2.51        | 0.46     |
| 2:A:2009:G:C2'   | 19:R:106:GLY:O   | 2.63        | 0.46     |
| 19:R:41:ALA:O    | 19:R:42:LYS:C    | 2.54        | 0.46     |
| 21:V:14:VAL:HG13 | 21:V:15:SER:H    | 1.74        | 0.46     |
| 21:V:35:LEU:N    | 21:V:60:VAL:HG11 | 2.28        | 0.46     |
| 21:V:69:ILE:HG23 | 21:V:89:ASN:O    | 2.15        | 0.46     |
| 17:Y:11:GLN:HA   | 17:Y:21:LYS:HZ1  | 1.80        | 0.46     |
| 17:Y:92:ASP:OD1  | 17:Y:94:SER:HB3  | 2.13        | 0.46     |
| 18:Z:174:PRO:C   | 18:Z:175:ARG:HG2 | 2.36        | 0.46     |
| 16:X:7:HIS:CB    | 16:X:8:PRO:HD2   | 2.41        | 0.46     |
| 14:T:18:GLY:O    | 14:T:19:THR:HB   | 2.15        | 0.46     |
| 23:3:4:LEU:HD11  | 23:3:39:ASP:HA   | 1.98        | 0.46     |
| 28:7:34:ARG:HH12 | 28:7:42:LEU:CA   | 2.14        | 0.46     |
| 28:7:38:GLY:C    | 28:7:40:HIS:CE1  | 2.89        | 0.46     |
| 2:A:458:G:H8     | 28:7:38:GLY:O    | 1.99        | 0.46     |
| 29:8:30:ARG:CG   | 29:8:31:HIS:H    | 2.27        | 0.46     |
| 30:9:31:LYS:O    | 30:9:32:HIS:CG   | 2.68        | 0.46     |
| 2:A:1665:A:C4'   | 10:O:67:ARG:HD3  | 2.43        | 0.46     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2094:G:C5    | 2:A:2196:C:N3     | 2.80        | 0.46     |
| 2:A:2250:G:N7    | 12:Q:102:ARG:HA   | 2.31        | 0.46     |
| 2:A:2358:G:C2    | 2:A:2359:C:H5'    | 2.49        | 0.46     |
| 2:A:2348:U:O4    | 2:A:2382:G:N2     | 2.48        | 0.46     |
| 2:A:2399:G:H1'   | 27:6:22:TYR:OH    | 2.16        | 0.46     |
| 2:A:2414:G:C5    | 2:A:2415:G:N7     | 2.84        | 0.46     |
| 2:A:2653:U:OP2   | 2:A:2654:A:H2'    | 2.15        | 0.46     |
| 2:A:325:G:H21    | 17:Y:7:GLN:HE22   | 1.45        | 0.46     |
| 2:A:487:C:H42    | 2:A:493:G:H1      | 1.62        | 0.46     |
| 3:D:158:GLY:O    | 3:D:160:SER:N     | 2.49        | 0.46     |
| 3:D:86:ARG:HG2   | 3:D:88:ALA:CB     | 2.45        | 0.46     |
| 4:E:232:ARG:O    | 4:E:233:ARG:C     | 2.53        | 0.46     |
| 4:E:251:PRO:O    | 4:E:252:GLN:HG2   | 2.15        | 0.46     |
| 5:F:11:ASN:HD21  | 5:F:160:LEU:CG    | 2.27        | 0.46     |
| 7:H:95:ALA:N     | 7:H:127:GLN:NE2   | 2.54        | 0.46     |
| 7:H:58:LYS:O     | 7:H:59:HIS:C      | 2.54        | 0.46     |
| 7:H:86:LEU:HD11  | 7:H:87:GLU:C      | 2.35        | 0.46     |
| 9:N:44:ALA:C     | 9:N:45:VAL:HG23   | 2.36        | 0.46     |
| 9:N:47:THR:O     | 9:N:48:GLY:O      | 2.34        | 0.46     |
| 9:N:68:GLY:O     | 9:N:69:TYR:CG     | 2.69        | 0.46     |
| 2:A:1669:A:C1'   | 10:O:4:GLN:OE1    | 2.64        | 0.46     |
| 11:P:108:VAL:O   | 11:P:125:PHE:HB3  | 2.15        | 0.46     |
| 11:P:73:VAL:HG13 | 11:P:76:LEU:CB    | 2.46        | 0.46     |
| 12:Q:35:ASN:O    | 12:Q:126:VAL:HG22 | 2.15        | 0.46     |
| 19:R:96:ARG:HH21 | 19:R:117:VAL:HG23 | 1.80        | 0.46     |
| 19:R:18:LEU:HD12 | 19:R:19:ALA:H     | 1.80        | 0.46     |
| 19:R:65:LEU:HA   | 19:R:68:ARG:HB2   | 1.98        | 0.46     |
| 13:S:32:PRO:CG   | 13:S:100:ALA:HA   | 2.38        | 0.46     |
| 13:S:31:LYS:C    | 13:S:101:VAL:HG12 | 2.35        | 0.46     |
| 13:S:34:LEU:HG   | 13:S:103:ASP:N    | 2.31        | 0.46     |
| 20:U:108:ALA:O   | 20:U:110:VAL:HB   | 2.15        | 0.46     |
| 20:U:113:SER:C   | 20:U:115:ASN:H    | 2.11        | 0.46     |
| 20:U:117:ARG:HG3 | 20:U:118:GLN:N    | 2.28        | 0.46     |
| 20:U:57:PHE:O    | 20:U:60:LEU:N     | 2.48        | 0.46     |
| 21:V:59:GLU:HB3  | 21:V:60:VAL:H     | 1.51        | 0.46     |
| 15:W:61:ASN:N    | 15:W:61:ASN:OD1   | 2.49        | 0.46     |
| 15:W:69:LEU:O    | 15:W:70:TYR:HB3   | 2.15        | 0.46     |
| 15:W:8:ARG:HB3   | 15:W:8:ARG:NH1    | 2.28        | 0.46     |
| 17:Y:51:LEU:CA   | 17:Y:97:ARG:NH2   | 2.44        | 0.46     |
| 17:Y:51:LEU:HD22 | 17:Y:95:ASN:ND2   | 2.31        | 0.46     |
| 18:Z:92:VAL:HA   | 18:Z:124:ALA:HB1  | 1.96        | 0.46     |
| 2:A:138:G:H1'    | 16:X:42:GLU:CG    | 2.46        | 0.46     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:X:1:SER:C     | 16:X:2:TRP:HD1   | 2.19        | 0.46     |
| 2:A:1076:C:O2'   | 31:K:91:GLU:HB2  | 2.14        | 0.46     |
| 2:A:95:G:O2'     | 22:2:42:ASN:OD1  | 2.34        | 0.46     |
| 2:A:940:G:H21    | 2:A:1191:G:H4'   | 1.81        | 0.46     |
| 2:A:1315:C:O2'   | 2:A:1392:A:C1'   | 2.48        | 0.46     |
| 2:A:1956:U:H2'   | 2:A:1956:U:O2    | 2.15        | 0.46     |
| 23:3:1:MET:N     | 23:3:2:PRO:CD    | 2.78        | 0.46     |
| 23:3:47:VAL:C    | 23:3:48:GLU:OE1  | 2.49        | 0.46     |
| 27:6:37:LEU:CG   | 27:6:51:ARG:HG2  | 2.40        | 0.46     |
| 30:9:10:MET:HB3  | 30:9:11:CYS:H    | 1.48        | 0.46     |
| 2:A:1252:G:N2    | 20:U:37:GLN:HB2  | 2.31        | 0.46     |
| 2:A:1639:U:O2'   | 2:A:2699:C:H4'   | 2.15        | 0.46     |
| 2:A:2096:U:H2'   | 2:A:2097:C:H6    | 1.81        | 0.46     |
| 2:A:2100:G:H1'   | 2:A:2190:G:H21   | 1.78        | 0.46     |
| 2:A:2097:C:N4    | 2:A:2192:G:H1    | 2.14        | 0.46     |
| 2:A:2216:G:C2    | 2:A:2217:G:C8    | 3.03        | 0.46     |
| 2:A:2348:U:C3'   | 29:8:42:ARG:NH2  | 2.78        | 0.46     |
| 2:A:2361:A:N3    | 2:A:2362:G:O4'   | 2.48        | 0.46     |
| 2:A:2450:A:N3    | 2:A:2451:A:N9    | 2.63        | 0.46     |
| 2:A:2461:C:C1'   | 2:A:2492:U:N3    | 2.78        | 0.46     |
| 2:A:2461:C:C2'   | 2:A:2462:U:H5'   | 2.46        | 0.46     |
| 2:A:2514:U:H2'   | 2:A:2515:C:C6    | 2.51        | 0.46     |
| 2:A:2538:C:O2'   | 2:A:2539:C:P     | 2.71        | 0.46     |
| 2:A:2584:U:H5    | 2:A:2585:U:H3'   | 1.80        | 0.46     |
| 2:A:2679:A:C1'   | 4:E:300:VAL:CG1  | 2.94        | 0.46     |
| 2:A:2776:A:N3    | 2:A:2778:A:C4    | 2.77        | 0.46     |
| 2:A:2824:C:C4    | 2:A:2825:C:C2    | 3.04        | 0.46     |
| 2:A:2885:C:N3    | 2:A:2886:G:H1'   | 2.31        | 0.46     |
| 2:A:301:G:C8     | 2:A:317:G:C2     | 3.04        | 0.46     |
| 2:A:989:G:O2'    | 2:A:990:A:P      | 2.74        | 0.46     |
| 3:D:159:THR:O    | 3:D:176:ALA:HB1  | 2.16        | 0.46     |
| 3:D:76:ARG:HA    | 3:D:114:GLU:N    | 2.30        | 0.46     |
| 4:E:217:TRP:CD2  | 4:E:251:PRO:CG   | 2.97        | 0.46     |
| 5:F:16:VAL:CG1   | 5:F:17:ASP:H     | 2.29        | 0.46     |
| 6:G:27:ILE:O     | 6:G:69:ILE:HG21  | 1.68        | 0.46     |
| 7:H:166:GLU:HA   | 7:H:167:LEU:HD23 | 1.88        | 0.46     |
| 11:P:76:LEU:CB   | 11:P:81:VAL:HG21 | 2.46        | 0.46     |
| 12:Q:16:ARG:HA   | 12:Q:17:ARG:NH1  | 2.26        | 0.46     |
| 19:R:63:ARG:HH22 | 19:R:77:ARG:HA   | 1.81        | 0.46     |
| 19:R:89:ASP:C    | 19:R:89:ASP:OD1  | 2.49        | 0.46     |
| 20:U:14:HIS:NE2  | 20:U:36:PHE:HE2  | 2.10        | 0.46     |
| 21:V:37:ALA:O    | 21:V:58:ALA:HB1  | 2.15        | 0.46     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:973:A:N7     | 21:V:80:TYR:HA   | 2.31        | 0.46     |
| 15:W:69:LEU:HD22 | 15:W:109:GLU:HB3 | 1.91        | 0.46     |
| 17:Y:34:GLU:O    | 17:Y:35:TYR:HB3  | 2.16        | 0.46     |
| 17:Y:92:ASP:CG   | 17:Y:94:SER:HB3  | 2.36        | 0.46     |
| 18:Z:71:MET:HA   | 18:Z:78:PRO:N    | 2.31        | 0.46     |
| 18:Z:8:ARG:C     | 18:Z:9:THR:HG23  | 2.36        | 0.46     |
| 2:A:1063:G:C4'   | 31:K:88:GLY:HA3  | 2.41        | 0.46     |
| 9:N:5:GLU:HA     | 9:N:109:TYR:HE2  | 1.78        | 0.46     |
| 2:A:264:C:C2'    | 2:A:265:A:H5''   | 2.46        | 0.46     |
| 2:A:265:A:N7     | 2:A:428:A:N1     | 2.64        | 0.46     |
| 2:A:223:A:H3'    | 2:A:224:G:P      | 2.55        | 0.46     |
| 2:A:476:G:H22    | 2:A:478:A:H2'    | 1.79        | 0.46     |
| 23:3:31:LEU:O    | 23:3:32:GLN:C    | 2.53        | 0.46     |
| 25:4:58:LYS:CG   | 25:4:62:ARG:HE   | 2.04        | 0.46     |
| 28:7:26:SER:OG   | 28:7:27:GLY:N    | 2.47        | 0.46     |
| 2:A:1020:A:H1'   | 9:N:49:ARG:HH21  | 1.80        | 0.46     |
| 2:A:1031:G:H4'   | 30:9:8:LYS:HZ3   | 1.78        | 0.46     |
| 2:A:1676:A:H2'   | 2:A:1677:A:O4'   | 2.16        | 0.46     |
| 2:A:1759:A:C5'   | 2:A:2715:C:C1'   | 2.93        | 0.46     |
| 2:A:1818:U:P     | 3:D:155:ARG:HB3  | 2.55        | 0.46     |
| 2:A:2013:A:H5''  | 2:A:2013:A:H8    | 1.81        | 0.46     |
| 2:A:2194:G:N3    | 2:A:2194:G:H2'   | 2.30        | 0.46     |
| 2:A:2234:G:O6    | 2:A:2235:G:C6    | 2.69        | 0.46     |
| 2:A:2271:G:O2'   | 2:A:2272:U:P     | 2.72        | 0.46     |
| 2:A:2292:C:N3    | 2:A:2293:C:C6    | 2.59        | 0.46     |
| 2:A:2349:G:O6    | 2:A:2350:C:C6    | 2.69        | 0.46     |
| 2:A:2377:A:H2'   | 2:A:2378:A:N7    | 2.30        | 0.46     |
| 2:A:2390:U:C6    | 2:A:2390:U:C3'   | 2.99        | 0.46     |
| 2:A:2520:C:N4    | 2:A:2567:G:N7    | 2.63        | 0.46     |
| 2:A:2648:C:C5    | 2:A:2649:U:C5    | 3.03        | 0.46     |
| 2:A:2649:U:HO2'  | 2:A:2650:U:P     | 2.38        | 0.46     |
| 2:A:2657:A:N6    | 2:A:2664:G:C2    | 2.66        | 0.46     |
| 2:A:270(O):U:O4  | 8:I:53:LYS:NZ    | 2.49        | 0.46     |
| 2:A:2713:A:C3'   | 2:A:2714:G:H5''  | 2.45        | 0.46     |
| 2:A:2043:C:C4    | 2:A:2777:G:C4    | 2.99        | 0.46     |
| 2:A:2830:G:C2    | 2:A:2883:A:H2    | 2.34        | 0.46     |
| 2:A:2857:G:H22   | 2:A:2859:G:H3'   | 1.81        | 0.46     |
| 2:A:2869:G:C2'   | 2:A:2870:C:C5'   | 2.83        | 0.46     |
| 2:A:2882:A:H2'   | 2:A:2883:A:O5'   | 2.16        | 0.46     |
| 2:A:2887:U:C2'   | 2:A:2888:C:H5'   | 2.46        | 0.46     |
| 2:A:640:C:O2     | 2:A:648:G:C2     | 2.69        | 0.46     |
| 2:A:853:G:H2'    | 2:A:854:G:C8     | 2.51        | 0.46     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:85:G:P        | 17:Y:65:VAL:CG2   | 3.03        | 0.46     |
| 3:D:63:ILE:O      | 3:D:64:ILE:CG2    | 2.64        | 0.46     |
| 4:E:246:VAL:HG12  | 4:E:247:ARG:O     | 2.16        | 0.46     |
| 4:E:44:TYR:CD2    | 4:E:306:ARG:O     | 2.69        | 0.46     |
| 4:E:77:PRO:HB3    | 4:E:187:HIS:CA    | 2.43        | 0.46     |
| 5:F:159:ALA:O     | 5:F:160:LEU:CD2   | 2.49        | 0.46     |
| 5:F:200:PRO:HB2   | 5:F:205:ARG:HD3   | 1.97        | 0.46     |
| 5:F:193:LEU:HA    | 5:F:211:ASP:OD1   | 2.15        | 0.46     |
| 6:G:98:PHE:C      | 6:G:104:PHE:CE2   | 2.90        | 0.46     |
| 9:N:27:ALA:O      | 9:N:31:LEU:N      | 2.48        | 0.46     |
| 9:N:84:ARG:CA     | 9:N:87:LEU:HD13   | 2.45        | 0.46     |
| 12:Q:29:ALA:O     | 12:Q:30:GLN:O     | 2.34        | 0.46     |
| 2:A:873:G:C4'     | 12:Q:32:LYS:CG    | 2.91        | 0.46     |
| 19:R:72:ASP:O     | 19:R:73:VAL:O     | 2.34        | 0.46     |
| 2:A:2839:G:HO2'   | 19:R:92:GLY:HA3   | 1.73        | 0.46     |
| 13:S:19:ASP:HB3   | 13:S:22:GLN:HG3   | 1.51        | 0.46     |
| 2:A:2378:A:HO2'   | 13:S:30:GLY:CA    | 2.14        | 0.46     |
| 1:B:50:G:P        | 13:S:74:PRO:HB2   | 2.56        | 0.46     |
| 13:S:82:TYR:CB    | 13:S:83:LEU:HD12  | 2.46        | 0.46     |
| 13:S:84:THR:O     | 13:S:88:ALA:HB2   | 2.15        | 0.46     |
| 14:T:50:GLU:C     | 14:T:52:THR:N     | 2.66        | 0.46     |
| 20:U:10:ARG:HA    | 20:U:13:ARG:NH1   | 2.31        | 0.46     |
| 20:U:91:ASN:CG    | 20:U:95:LEU:HD21  | 2.25        | 0.46     |
| 15:W:36:LEU:HD23  | 15:W:39:THR:HG21  | 1.98        | 0.46     |
| 17:Y:50:VAL:CA    | 17:Y:97:ARG:HG3   | 2.46        | 0.46     |
| 18:Z:112:LEU:HD12 | 18:Z:177:THR:HG21 | 1.96        | 0.46     |
| 12:Q:36:ASN:ND2   | 18:Z:116:VAL:HG11 | 2.31        | 0.46     |
| 18:Z:124:ALA:O    | 18:Z:159:THR:HB   | 2.16        | 0.46     |
| 8:I:96:LYS:C      | 8:I:98:ILE:H      | 2.18        | 0.46     |
| 2:A:74:A:H4'      | 2:A:75:G:O4'      | 2.16        | 0.46     |
| 16:X:54:THR:O     | 16:X:55:GLN:HB2   | 2.15        | 0.46     |
| 2:A:265:A:C5      | 2:A:428:A:C6      | 3.04        | 0.46     |
| 2:A:1520:U:C6     | 2:A:1520:U:C3'    | 2.98        | 0.46     |
| 2:A:1332:G:C5     | 2:A:1609:A:N6     | 2.83        | 0.46     |
| 2:A:1899:G:H22    | 2:A:1902:C:N4     | 2.11        | 0.46     |
| 2:A:300:A:H4'     | 2:A:318:C:O2'     | 2.16        | 0.46     |
| 18:Z:131:PRO:C    | 18:Z:133:GLU:N    | 2.69        | 0.46     |
| 2:A:588:U:O4      | 2:A:670:A:H2'     | 2.14        | 0.46     |
| 24:O:44:LYS:O     | 24:O:45:PHE:CB    | 2.63        | 0.46     |
| 24:O:30:VAL:HG13  | 24:O:63:SER:OG    | 2.16        | 0.46     |
| 2:A:747:U:P       | 26:5:2:ALA:N      | 2.88        | 0.46     |
| 28:7:31:LEU:CD2   | 28:7:31:LEU:H     | 2.05        | 0.46     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:14:A:N7      | 2:A:15:G:N9       | 2.64        | 0.46     |
| 2:A:1707:G:H1    | 2:A:1751:C:H42    | 1.64        | 0.46     |
| 2:A:1938:A:HO2'  | 2:A:1939:U:C5'    | 2.29        | 0.46     |
| 2:A:2273:A:C8    | 2:A:2274:A:N9     | 2.84        | 0.46     |
| 2:A:2283:C:OP1   | 27:6:3:LYS:NZ     | 2.47        | 0.46     |
| 2:A:2384:G:H3'   | 2:A:2386:C:OP2    | 2.16        | 0.46     |
| 2:A:2482:G:N7    | 2:A:2483:C:C5     | 2.61        | 0.46     |
| 2:A:2567:G:C2'   | 2:A:2568:C:C6     | 2.99        | 0.46     |
| 2:A:2637:U:C2    | 2:A:2782:G:N2     | 2.84        | 0.46     |
| 2:A:2729:G:C2    | 2:A:2730:C:N3     | 2.84        | 0.46     |
| 2:A:2638:G:N2    | 2:A:2776:A:C8     | 2.83        | 0.46     |
| 2:A:631:A:H2     | 2:A:2415:G:N2     | 2.02        | 0.46     |
| 2:A:791:C:O2'    | 2:A:792:G:H5''    | 2.15        | 0.46     |
| 1:B:8:U:O2       | 1:B:112:G:O6      | 2.34        | 0.46     |
| 4:E:77:PRO:CG    | 4:E:186:GLU:HB2   | 2.46        | 0.46     |
| 4:E:82:ALA:O     | 4:E:83:LEU:CB     | 2.63        | 0.46     |
| 5:F:11:ASN:HD21  | 5:F:160:LEU:HG    | 1.81        | 0.46     |
| 6:G:11:HIS:CG    | 6:G:15:GLU:OE2    | 2.58        | 0.46     |
| 6:G:22:VAL:CG2   | 6:G:24:HIS:CE1    | 2.98        | 0.46     |
| 7:H:147:ILE:CD1  | 7:H:150:VAL:CB    | 2.91        | 0.46     |
| 7:H:41:THR:N     | 7:H:54:PRO:HG3    | 2.31        | 0.46     |
| 7:H:66:THR:O     | 7:H:67:THR:C      | 2.54        | 0.46     |
| 8:I:4:ILE:HG23   | 8:I:4:ILE:O       | 2.11        | 0.46     |
| 12:Q:152:SER:O   | 12:Q:153:PRO:C    | 2.54        | 0.46     |
| 19:R:44:LEU:C    | 19:R:44:LEU:HD13  | 2.34        | 0.46     |
| 19:R:99:LYS:HA   | 19:R:112:ALA:CB   | 2.44        | 0.46     |
| 13:S:41:LYS:O    | 13:S:42:HIS:CB    | 2.64        | 0.46     |
| 13:S:94:GLU:CG   | 13:S:95:ALA:N     | 2.78        | 0.46     |
| 20:U:8:ILE:C     | 20:U:11:ARG:HG2   | 2.37        | 0.46     |
| 18:Z:114:ASP:HB3 | 18:Z:171:VAL:HG12 | 1.97        | 0.46     |
| 8:I:115:ILE:CG2  | 8:I:129:VAL:HG12  | 2.45        | 0.46     |
| 8:I:77:VAL:HG12  | 8:I:143:VAL:HG13  | 1.97        | 0.46     |
| 2:A:2898:U:C2'   | 2:A:2898:U:O2     | 2.63        | 0.46     |
| 25:4:48:ARG:CG   | 25:4:49:PHE:CE1   | 2.99        | 0.46     |
| 8:I:62:LEU:O     | 8:I:66:LYS:CG     | 2.64        | 0.46     |
| 2:A:1582:C:C3'   | 2:A:1583:A:H4'    | 2.46        | 0.46     |
| 2:A:385:C:H42    | 2:A:391:G:H1      | 1.64        | 0.46     |
| 25:4:5:LEU:HD11  | 25:4:8:LYS:CB     | 2.32        | 0.46     |
| 29:8:16:ILE:HD13 | 29:8:64:ARG:OXT   | 2.16        | 0.46     |
| 2:A:2015:A:C8    | 2:A:2016:U:C6     | 3.01        | 0.46     |
| 2:A:2067:G:H3'   | 2:A:2068:U:C5'    | 2.46        | 0.46     |
| 2:A:2224:G:O5'   | 2:A:2224:G:H8     | 1.99        | 0.46     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2271:G:C2'    | 2:A:2272:U:O5'    | 2.62        | 0.46     |
| 2:A:2331:G:C2'    | 2:A:2332:U:O4'    | 2.63        | 0.46     |
| 2:A:2361:A:H2     | 2:A:2362:G:H1'    | 1.75        | 0.46     |
| 2:A:2454:G:C6     | 2:A:2455:G:C8     | 3.02        | 0.46     |
| 2:A:2479:G:C6     | 2:A:2480:C:C2     | 3.03        | 0.46     |
| 2:A:2519:U:C2     | 2:A:2542:A:C5     | 3.04        | 0.46     |
| 2:A:2548:G:C6     | 2:A:2549:G:N7     | 2.84        | 0.46     |
| 2:A:2586:C:C3'    | 2:A:2586:C:C6     | 2.99        | 0.46     |
| 2:A:2051:A:C6     | 2:A:2614:A:C5     | 3.04        | 0.46     |
| 2:A:2627:G:C5'    | 2:A:2627:G:H8     | 2.20        | 0.46     |
| 2:A:2641:G:O6     | 2:A:2774:C:N4     | 2.48        | 0.46     |
| 2:A:2644:G:C8     | 2:A:2644:G:C3'    | 2.99        | 0.46     |
| 2:A:2676:C:C3'    | 2:A:2676:C:H6     | 2.23        | 0.46     |
| 2:A:2677:G:C4     | 2:A:2678:C:C5     | 3.04        | 0.46     |
| 2:A:2728:U:O2'    | 2:A:2729:G:H5'    | 2.16        | 0.46     |
| 2:A:27:G:H3'      | 2:A:27:G:H8       | 1.80        | 0.46     |
| 2:A:2826:A:OP2    | 2:A:2826:A:H8     | 1.99        | 0.46     |
| 2:A:2832:U:C3'    | 2:A:2832:U:C6     | 2.94        | 0.46     |
| 2:A:2857:G:H8     | 2:A:2857:G:C5'    | 2.26        | 0.46     |
| 2:A:37:C:OP1      | 2:A:451:C:H1'     | 2.17        | 0.46     |
| 2:A:593:G:C2      | 2:A:665:C:C2      | 3.04        | 0.46     |
| 2:A:605:C:OP1     | 5:F:105:LYS:HG2   | 2.16        | 0.46     |
| 3:D:114:GLU:O     | 3:D:115:ILE:HG23  | 2.16        | 0.46     |
| 4:E:226:HIS:CD2   | 4:E:229:GLN:OE1   | 2.68        | 0.46     |
| 4:E:67:THR:C      | 4:E:68:VAL:HG23   | 2.35        | 0.46     |
| 4:E:72:VAL:CA     | 4:E:73:ILE:HD13   | 2.30        | 0.46     |
| 5:F:239:ALA:O     | 5:F:242:GLU:HG3   | 2.16        | 0.46     |
| 5:F:31:ILE:HG22   | 5:F:32:GLY:N      | 2.31        | 0.46     |
| 1:B:42:C:H4'      | 6:G:48:MET:H      | 1.79        | 0.46     |
| 2:A:270(O):U:C4   | 8:I:53:LYS:NZ     | 2.84        | 0.46     |
| 8:I:6:LEU:CB      | 8:I:36:ALA:CB     | 2.75        | 0.46     |
| 10:O:5:GLU:CB     | 10:O:20:LEU:HD22  | 2.46        | 0.46     |
| 11:P:109:LEU:HD13 | 11:P:110:GLY:C    | 2.36        | 0.46     |
| 12:Q:134:PHE:O    | 12:Q:138:ARG:HG3  | 2.16        | 0.46     |
| 12:Q:43:PRO:O     | 12:Q:45:GLN:HG2   | 2.15        | 0.46     |
| 12:Q:92:VAL:HG12  | 12:Q:111:THR:HA   | 0.92        | 0.46     |
| 19:R:103:ARG:O    | 19:R:105:ARG:NH2  | 2.49        | 0.46     |
| 19:R:97:VAL:CG1   | 19:R:114:VAL:HG22 | 2.36        | 0.46     |
| 19:R:94:TYR:O     | 19:R:116:LEU:HA   | 2.16        | 0.46     |
| 19:R:73:VAL:O     | 19:R:75:LEU:C     | 2.54        | 0.46     |
| 13:S:86:LEU:HD21  | 13:S:124:ASP:CB   | 2.46        | 0.46     |
| 13:S:49:THR:HG23  | 13:S:52:PRO:HD2   | 1.98        | 0.46     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 21:V:33:VAL:CG1   | 21:V:34:GLU:N    | 2.78        | 0.46     |
| 15:W:73:ALA:O     | 15:W:106:ILE:HB  | 2.16        | 0.46     |
| 17:Y:47:THR:HG23  | 17:Y:100:ASP:HB2 | 1.93        | 0.46     |
| 18:Z:12:GLN:O     | 18:Z:15:ASP:O    | 2.34        | 0.46     |
| 18:Z:154:LEU:HD23 | 18:Z:154:LEU:O   | 2.15        | 0.46     |
| 1:B:76:G:H4'      | 18:Z:80:HIS:CG   | 2.51        | 0.46     |
| 8:I:77:VAL:HG12   | 8:I:79:ILE:HD11  | 1.98        | 0.46     |
| 22:2:45:ARG:HE    | 22:2:49:LEU:CD2  | 2.29        | 0.46     |
| 22:2:7:GLU:CD     | 22:2:8:ILE:N     | 2.64        | 0.46     |
| 2:A:1341:U:O2'    | 16:X:53:ASN:CB   | 2.50        | 0.46     |
| 16:X:3:ASP:HA     | 22:2:24:LYS:CD   | 2.26        | 0.46     |
| 6:G:60:GLU:C      | 6:G:61:PHE:CD1   | 2.89        | 0.46     |
| 8:I:59:ALA:HA     | 8:I:62:LEU:CG    | 2.44        | 0.46     |
| 2:A:861:A:H62     | 2:A:916:G:H21    | 1.64        | 0.46     |
| 2:A:2356:C:O2'    | 24:0:17:ASN:ND2  | 2.49        | 0.45     |
| 24:0:41:ARG:HB2   | 24:0:74:LYS:CE   | 2.46        | 0.45     |
| 23:3:22:ALA:CB    | 23:3:46:ASN:ND2  | 2.79        | 0.45     |
| 2:A:1364:G:OP1    | 25:4:3:LYS:HA    | 2.15        | 0.45     |
| 27:6:12:MET:CE    | 27:6:54:LYS:H    | 2.18        | 0.45     |
| 29:8:57:ARG:O     | 29:8:60:LEU:HB3  | 2.16        | 0.45     |
| 29:8:60:LEU:CG    | 29:8:64:ARG:HB2  | 2.42        | 0.45     |
| 2:A:1166:C:H2'    | 2:A:1167:U:C6    | 2.51        | 0.45     |
| 2:A:1239:G:O2'    | 2:A:1240:U:H6    | 1.98        | 0.45     |
| 2:A:1287:A:C5'    | 19:R:104:ARG:HG3 | 2.47        | 0.45     |
| 2:A:2012:G:OP1    | 15:W:98:LYS:CB   | 2.64        | 0.45     |
| 2:A:2066:C:N3     | 2:A:2445:G:N1    | 2.64        | 0.45     |
| 2:A:2100:G:C4     | 2:A:2190:G:N1    | 2.79        | 0.45     |
| 2:A:2308:G:OP2    | 2:A:2310:A:N6    | 2.49        | 0.45     |
| 2:A:2380:C:C5     | 2:A:2381:C:C5    | 3.05        | 0.45     |
| 2:A:2380:C:C4     | 2:A:2381:C:C5    | 3.03        | 0.45     |
| 2:A:197:A:C4      | 2:A:2430:A:N7    | 2.84        | 0.45     |
| 2:A:2534:A:C2     | 2:A:2535:G:C8    | 3.04        | 0.45     |
| 2:A:2543:G:H2'    | 2:A:2544:G:C5'   | 2.41        | 0.45     |
| 2:A:2516:G:C2     | 2:A:2569:G:C2    | 3.04        | 0.45     |
| 2:A:2580:U:H2'    | 2:A:2581:G:O4'   | 2.15        | 0.45     |
| 2:A:2658:C:C4     | 2:A:2664:G:N2    | 2.84        | 0.45     |
| 2:A:794:G:C2      | 2:A:795:C:C2     | 3.04        | 0.45     |
| 2:A:821:A:O2'     | 2:A:945:A:H3'    | 2.15        | 0.45     |
| 1:B:8:U:H2'       | 1:B:9:G:H8       | 1.81        | 0.45     |
| 3:D:144:GLU:OE2   | 3:D:187:CYS:HA   | 2.16        | 0.45     |
| 3:D:80:ILE:CB     | 3:D:82:TYR:HE1   | 2.15        | 0.45     |
| 4:E:221:LYS:CE    | 4:E:233:ARG:CB   | 2.94        | 0.45     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2682:U:O2'   | 4:E:61:PRO:HD3    | 2.16        | 0.45     |
| 4:E:61:PRO:CB    | 4:E:69:PRO:CA     | 2.95        | 0.45     |
| 5:F:220:THR:O    | 5:F:222:ASP:N     | 2.50        | 0.45     |
| 7:H:119:GLY:O    | 7:H:121:GLU:OE2   | 2.34        | 0.45     |
| 7:H:88:LEU:CD2   | 7:H:88:LEU:O      | 2.62        | 0.45     |
| 8:I:31:PHE:O     | 8:I:34:GLY:N      | 2.49        | 0.45     |
| 9:N:14:ALA:N     | 9:N:40:ASN:ND2    | 2.56        | 0.45     |
| 10:O:105:GLU:CD  | 10:O:105:GLU:H    | 2.20        | 0.45     |
| 11:P:110:GLY:N   | 11:P:126:SER:HG   | 2.14        | 0.45     |
| 12:Q:137:ARG:O   | 12:Q:141:MET:HG2  | 2.16        | 0.45     |
| 12:Q:36:ASN:HD21 | 18:Z:116:VAL:HG11 | 1.81        | 0.45     |
| 12:Q:42:TYR:HD2  | 18:Z:119:ASN:CA   | 2.17        | 0.45     |
| 19:R:29:LEU:CD2  | 19:R:29:LEU:H     | 2.23        | 0.45     |
| 13:S:87:LEU:HA   | 13:S:90:LEU:HB2   | 1.98        | 0.45     |
| 2:A:18:C:C4'     | 20:U:23:GLY:O     | 2.54        | 0.45     |
| 20:U:46:GLU:O    | 20:U:50:ARG:N     | 2.48        | 0.45     |
| 2:A:535:C:H5'    | 20:U:53:LYS:CE    | 2.40        | 0.45     |
| 21:V:33:VAL:CG1  | 21:V:34:GLU:H     | 2.21        | 0.45     |
| 21:V:49:GLU:HB3  | 21:V:53:LYS:HD3   | 1.94        | 0.45     |
| 21:V:49:GLU:O    | 21:V:54:TYR:OH    | 2.32        | 0.45     |
| 15:W:68:ARG:HE   | 15:W:110:LYS:CB   | 2.29        | 0.45     |
| 17:Y:102:ASP:O   | 17:Y:103:LEU:CG   | 2.64        | 0.45     |
| 17:Y:49:GLU:CG   | 17:Y:59:GLU:CA    | 2.66        | 0.45     |
| 17:Y:31:LEU:CD1  | 17:Y:99:THR:O     | 2.64        | 0.45     |
| 18:Z:154:LEU:HA  | 18:Z:155:PRO:HD3  | 1.81        | 0.45     |
| 8:I:75:LEU:HD12  | 8:I:76:THR:N      | 2.20        | 0.45     |
| 22:2:19:GLU:HG2  | 22:2:23:LEU:CD2   | 2.45        | 0.45     |
| 2:A:1341:U:O2'   | 2:A:1342:A:P      | 2.74        | 0.45     |
| 2:A:1394:U:H4'   | 2:A:1603:A:C5'    | 2.46        | 0.45     |
| 2:A:693:C:O2'    | 2:A:1353:A:H2     | 1.97        | 0.45     |
| 2:A:1906:G:C8    | 2:A:1929:G:H2'    | 2.51        | 0.45     |
| 2:A:1741:C:H2'   | 2:A:1742:C:O4'    | 2.17        | 0.45     |
| 2:A:1068:G:N2    | 2:A:1096:A:OP1    | 2.49        | 0.45     |
| 23:3:8:LEU:C     | 23:3:9:VAL:HG13   | 2.36        | 0.45     |
| 25:4:23:GLU:C    | 25:4:25:MET:N     | 2.70        | 0.45     |
| 2:A:2395:C:H4'   | 25:4:28:ARG:HH11  | 1.80        | 0.45     |
| 25:4:41:PRO:CD   | 25:4:57:ASP:OD2   | 2.63        | 0.45     |
| 2:A:1008:C:O2'   | 2:A:1009:A:H8     | 1.99        | 0.45     |
| 2:A:2228:G:C5    | 2:A:2229:C:C2     | 3.04        | 0.45     |
| 2:A:2292:C:C4    | 2:A:2293:C:H5     | 2.23        | 0.45     |
| 2:A:825:C:H5'    | 2:A:2428:G:O6     | 2.15        | 0.45     |
| 2:A:2464:C:C2'   | 2:A:2465:C:H6     | 2.21        | 0.45     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2447:G:N1     | 2:A:2500:U:C4    | 2.84        | 0.45     |
| 2:A:2511:U:H5'    | 4:E:223:LYS:HE2  | 1.97        | 0.45     |
| 2:A:2512:C:O2     | 2:A:2513:G:H1'   | 2.16        | 0.45     |
| 2:A:2517:C:C6     | 2:A:2542:A:N7    | 2.84        | 0.45     |
| 2:A:2536:G:N1     | 2:A:2537:U:C2    | 2.84        | 0.45     |
| 2:A:2547:U:C6     | 2:A:2566:A:C6    | 3.05        | 0.45     |
| 2:A:2570:G:H5'    | 2:A:2571:C:OP2   | 2.15        | 0.45     |
| 2:A:25:U:P        | 15:W:102:HIS:HE2 | 2.39        | 0.45     |
| 2:A:2643:G:C6     | 2:A:2644:G:C2    | 3.04        | 0.45     |
| 2:A:2677:G:C2'    | 2:A:2678:C:C5'   | 2.93        | 0.45     |
| 2:A:2782:G:C8     | 2:A:2782:G:O5'   | 2.69        | 0.45     |
| 2:A:2803:C:O2     | 2:A:2803:C:C2'   | 2.64        | 0.45     |
| 2:A:2857:G:C2     | 2:A:2859:G:OP2   | 2.69        | 0.45     |
| 2:A:491:G:H2'     | 2:A:492:A:C8     | 2.52        | 0.45     |
| 2:A:617:G:OP1     | 5:F:221:GLU:CG   | 2.64        | 0.45     |
| 4:E:101:THR:O     | 4:E:102:ASP:O    | 2.33        | 0.45     |
| 4:E:102:ASP:OD1   | 4:E:104:PHE:HZ   | 2.00        | 0.45     |
| 2:A:2575:C:C5'    | 4:E:241:TRP:HE1  | 2.16        | 0.45     |
| 4:E:68:VAL:HG13   | 4:E:69:PRO:HD2   | 1.97        | 0.45     |
| 5:F:3:ALA:HB2     | 5:F:17:ASP:C     | 2.36        | 0.45     |
| 5:F:213:ALA:HB2   | 5:F:218:VAL:HG13 | 1.33        | 0.45     |
| 2:A:673:C:H5'     | 5:F:80:VAL:HG11  | 1.97        | 0.45     |
| 6:G:103:ASN:O     | 6:G:104:PHE:CD1  | 2.64        | 0.45     |
| 6:G:74:THR:C      | 6:G:75:LEU:HG    | 2.36        | 0.45     |
| 7:H:84:LYS:CG     | 7:H:140:VAL:CG1  | 2.86        | 0.45     |
| 8:I:4:ILE:O       | 8:I:5:PHE:C      | 2.51        | 0.45     |
| 9:N:60:ARG:CD     | 9:N:71:TYR:HE2   | 2.29        | 0.45     |
| 9:N:65:ASN:CB     | 9:N:68:GLY:O     | 2.64        | 0.45     |
| 12:Q:124:ALA:HB2  | 12:Q:136:TRP:CD1 | 2.51        | 0.45     |
| 19:R:95:THR:HG23  | 19:R:115:GLU:O   | 2.17        | 0.45     |
| 13:S:48:VAL:HG13  | 13:S:55:ASP:OD2  | 2.16        | 0.45     |
| 2:A:2319:G:O5'    | 13:S:9:PRO:CD    | 2.63        | 0.45     |
| 20:U:24:PHE:CD1   | 20:U:24:PHE:N    | 2.82        | 0.45     |
| 20:U:32:TYR:N     | 20:U:32:TYR:HD2  | 2.08        | 0.45     |
| 2:A:1260:G:H5'    | 15:W:83:LYS:HZ2  | 1.76        | 0.45     |
| 17:Y:101:LEU:HD13 | 17:Y:103:LEU:CD1 | 2.39        | 0.45     |
| 17:Y:78:THR:N     | 17:Y:89:ARG:HD2  | 2.31        | 0.45     |
| 18:Z:166:LEU:HD13 | 18:Z:167:THR:N   | 2.31        | 0.45     |
| 22:2:29:ASN:O     | 22:2:30:ALA:C    | 2.53        | 0.45     |
| 2:A:1406:U:H2'    | 2:A:1407:C:H6    | 1.79        | 0.45     |
| 2:A:148:C:O3'     | 2:A:149:A:C5'    | 2.64        | 0.45     |
| 16:X:37:VAL:O     | 16:X:38:ALA:O    | 2.33        | 0.45     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1618:A:OP1   | 2:A:1618:A:H8    | 1.99        | 0.45     |
| 12:Q:97:ASP:OD1  | 12:Q:107:LYS:HD2 | 2.16        | 0.45     |
| 2:A:1530:G:O6    | 2:A:1540:G:C6    | 2.70        | 0.45     |
| 2:A:1106:G:H2'   | 2:A:1107:G:C8    | 2.51        | 0.45     |
| 24:0:37:LEU:CB   | 24:0:68:VAL:CG1  | 2.93        | 0.45     |
| 25:4:42:PHE:CG   | 25:4:43:TRP:N    | 2.84        | 0.45     |
| 2:A:2611:U:H5    | 26:5:4:HIS:HE2   | 1.64        | 0.45     |
| 2:A:142(A):A:OP1 | 2:A:1143:A:H8    | 1.96        | 0.45     |
| 2:A:126:A:N7     | 2:A:127:A:C6     | 2.84        | 0.45     |
| 2:A:1782:C:H5''  | 2:A:1783:A:P     | 2.56        | 0.45     |
| 2:A:1778:U:C6    | 2:A:1784:A:C2    | 3.04        | 0.45     |
| 2:A:1779:U:H3    | 2:A:1785:A:N6    | 2.14        | 0.45     |
| 2:A:1655:A:H2    | 2:A:2050:C:OP1   | 1.99        | 0.45     |
| 2:A:2212:A:H1'   | 2:A:2213:U:C4    | 2.52        | 0.45     |
| 2:A:2215:G:C2'   | 2:A:2216:G:C5'   | 2.94        | 0.45     |
| 2:A:2219:G:HO2'  | 2:A:2224:G:P     | 2.15        | 0.45     |
| 2:A:2262:U:H3    | 2:A:2278:A:H61   | 1.65        | 0.45     |
| 2:A:2331:G:N7    | 2:A:2332:U:O4    | 2.48        | 0.45     |
| 2:A:2453:A:HO2'  | 2:A:2454:G:C5'   | 2.19        | 0.45     |
| 2:A:2570:G:C2'   | 2:A:2571:C:C5    | 2.80        | 0.45     |
| 2:A:2603:G:O2'   | 2:A:2604:U:H5'   | 2.16        | 0.45     |
| 2:A:2666:C:O5'   | 2:A:2666:C:H6    | 1.98        | 0.45     |
| 2:A:2688:U:C2'   | 2:A:2688:U:O2    | 2.55        | 0.45     |
| 2:A:2740:A:N9    | 2:A:2741:A:C8    | 2.81        | 0.45     |
| 2:A:2759:G:C8    | 2:A:2759:G:C3'   | 2.99        | 0.45     |
| 2:A:2780:G:H22   | 9:N:80:LYS:HZ1   | 1.64        | 0.45     |
| 2:A:2788:C:HO3'  | 2:A:2789:C:P     | 2.34        | 0.45     |
| 2:A:2826:A:C2    | 2:A:2827:C:C6    | 2.99        | 0.45     |
| 2:A:2828:C:O2    | 2:A:2829:C:C6    | 2.69        | 0.45     |
| 2:A:387:U:O2     | 2:A:387:U:H2'    | 2.15        | 0.45     |
| 2:A:593:G:C5'    | 29:8:62:LEU:CD2  | 2.54        | 0.45     |
| 2:A:685:A:H5''   | 2:A:686:G:H21    | 1.81        | 0.45     |
| 2:A:792:G:N9     | 2:A:2440:C:C2    | 2.85        | 0.45     |
| 3:D:143:ILE:CG2  | 3:D:153:LEU:HB2  | 2.43        | 0.45     |
| 3:D:194:VAL:CG2  | 3:D:195:GLY:N    | 2.69        | 0.45     |
| 3:D:80:ILE:CG1   | 3:D:82:TYR:CE1   | 2.85        | 0.45     |
| 2:A:1656:C:OP1   | 4:E:233:ARG:HB3  | 2.15        | 0.45     |
| 4:E:81:VAL:O     | 4:E:81:VAL:HG23  | 2.17        | 0.45     |
| 5:F:163:HIS:HA   | 5:F:166:ILE:HD11 | 1.98        | 0.45     |
| 5:F:150:THR:CG2  | 5:F:203:ALA:HB1  | 2.43        | 0.45     |
| 1:B:57:A:O2'     | 6:G:13:MET:CG    | 2.63        | 0.45     |
| 7:H:55:SER:OG    | 7:H:57:GLU:CG    | 2.64        | 0.45     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:O:39:VAL:HG12 | 10:O:40:VAL:N    | 2.30        | 0.45     |
| 12:Q:52:LYS:HA   | 12:Q:53:PRO:HD3  | 1.82        | 0.45     |
| 12:Q:64:ALA:HA   | 12:Q:142:LYS:HG2 | 1.98        | 0.45     |
| 13:S:27:LEU:CB   | 13:S:33:ARG:HH21 | 2.02        | 0.45     |
| 21:V:65:ARG:O    | 21:V:93:ILE:CG1  | 2.64        | 0.45     |
| 15:W:15:ARG:O    | 15:W:18:ARG:CB   | 2.62        | 0.45     |
| 15:W:81:ALA:CA   | 15:W:82:LEU:HD22 | 2.46        | 0.45     |
| 15:W:85:VAL:HG13 | 15:W:95:ILE:CD1  | 2.43        | 0.45     |
| 17:Y:55:PHE:HE2  | 17:Y:89:ARG:NH2  | 2.00        | 0.45     |
| 18:Z:19:ILE:N    | 18:Z:19:ILE:HD12 | 2.26        | 0.45     |
| 18:Z:8:ARG:O     | 18:Z:9:THR:CG2   | 2.64        | 0.45     |
| 22:2:59:ILE:O    | 22:2:60:GLN:O    | 2.34        | 0.45     |
| 2:A:59:U:C1'     | 2:A:73:A:C5      | 2.99        | 0.45     |
| 16:X:23:LYS:O    | 16:X:68:LEU:HD21 | 2.07        | 0.45     |
| 6:G:88:LEU:H     | 6:G:89:PRO:HD3   | 1.80        | 0.45     |
| 2:A:358:U:C3'    | 2:A:359:A:H5'    | 2.40        | 0.45     |
| 8:I:63:ALA:CA    | 8:I:66:LYS:HE2   | 2.45        | 0.45     |
| 2:A:223:A:N1     | 2:A:407:G:O2'    | 2.46        | 0.45     |
| 2:A:1315:C:H42   | 2:A:1337:G:H1    | 1.63        | 0.45     |
| 2:A:1174:A:N1    | 2:A:1176:G:C8    | 2.84        | 0.45     |
| 2:A:551:G:O4'    | 2:A:1220:A:C2    | 2.69        | 0.45     |
| 2:A:692:C:H42    | 2:A:770:G:H1     | 1.64        | 0.45     |
| 24:0:37:LEU:HG   | 24:0:71:ASN:ND2  | 2.32        | 0.45     |
| 24:0:49:GLN:O    | 24:0:72:LYS:O    | 2.34        | 0.45     |
| 25:4:47:GLU:O    | 25:4:72:LYS:O    | 2.34        | 0.45     |
| 27:6:33:ALA:C    | 27:6:35:LEU:N    | 2.63        | 0.45     |
| 2:A:14:A:H8      | 2:A:15:G:C1'     | 2.29        | 0.45     |
| 2:A:1628:G:H1    | 2:A:1638:C:H42   | 1.63        | 0.45     |
| 2:A:1779:U:C3'   | 2:A:1779:U:C6    | 2.99        | 0.45     |
| 2:A:2187:G:C2'   | 2:A:2188:C:C5'   | 2.72        | 0.45     |
| 2:A:2325:G:N3    | 2:A:2326:C:C6    | 2.84        | 0.45     |
| 2:A:792:G:C2'    | 2:A:2440:C:N3    | 2.77        | 0.45     |
| 2:A:2447:G:N7    | 2:A:2500:U:C6    | 2.84        | 0.45     |
| 2:A:2570:G:N2    | 2:A:2571:C:N1    | 2.65        | 0.45     |
| 2:A:2581:G:H1    | 2:A:2610:C:C2'   | 2.28        | 0.45     |
| 2:A:2589:A:N6    | 2:A:2590:A:H62   | 2.14        | 0.45     |
| 2:A:2722:G:N3    | 2:A:2723:C:N1    | 2.60        | 0.45     |
| 2:A:2792:G:N2    | 2:A:2804:C:C4    | 2.83        | 0.45     |
| 2:A:301:G:C6     | 2:A:317:G:C5     | 3.04        | 0.45     |
| 2:A:511:U:OP2    | 2:A:512:G:C6     | 2.70        | 0.45     |
| 2:A:532:A:OP1    | 20:U:25:TRP:CD1  | 2.69        | 0.45     |
| 2:A:671:C:N3     | 2:A:809:G:N2     | 2.65        | 0.45     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:466:A:N3     | 2:A:683:C:H1'     | 2.32        | 0.45     |
| 2:A:751:A:N1     | 2:A:789:A:C5      | 2.85        | 0.45     |
| 2:A:872:A:H2'    | 2:A:873:G:C8      | 2.51        | 0.45     |
| 2:A:944:G:O2'    | 2:A:945:A:OP2     | 2.22        | 0.45     |
| 3:D:126:GLY:C    | 3:D:127:ASN:O     | 2.53        | 0.45     |
| 3:D:146:LYS:CB   | 3:D:149:ARG:HG2   | 2.47        | 0.45     |
| 3:D:143:ILE:CB   | 3:D:152:GLN:C     | 2.66        | 0.45     |
| 4:E:210:THR:C    | 4:E:216:ARG:NH2   | 2.70        | 0.45     |
| 4:E:222:ARG:O    | 4:E:227:ALA:CA    | 2.63        | 0.45     |
| 5:F:214:THR:O    | 5:F:216:SER:CA    | 2.61        | 0.45     |
| 2:A:451:C:O5'    | 5:F:49:ASP:HB2    | 2.17        | 0.45     |
| 6:G:101:THR:O    | 6:G:103:ASN:CG    | 2.54        | 0.45     |
| 7:H:25:VAL:HG12  | 7:H:78:VAL:CG2    | 2.38        | 0.45     |
| 7:H:41:THR:C     | 7:H:52:THR:HG21   | 2.37        | 0.45     |
| 8:I:21:VAL:HG13  | 8:I:30:LEU:HD11   | 1.93        | 0.45     |
| 9:N:79:PHE:O     | 9:N:83:ILE:HG12   | 2.16        | 0.45     |
| 10:O:7:ARG:HH21  | 10:O:44:LYS:HD2   | 1.75        | 0.45     |
| 11:P:67:ARG:CD   | 11:P:111:ALA:O    | 2.64        | 0.45     |
| 12:Q:140:TYR:CB  | 12:Q:147:VAL:HG11 | 2.47        | 0.45     |
| 19:R:38:VAL:O    | 19:R:39:PRO:O     | 2.33        | 0.45     |
| 13:S:86:LEU:HB2  | 13:S:87:LEU:HD22  | 1.98        | 0.45     |
| 20:U:114:ARG:HA  | 20:U:117:ARG:HD2  | 1.98        | 0.45     |
| 20:U:104:GLU:OE1 | 21:V:46:VAL:HG12  | 2.15        | 0.45     |
| 15:W:55:ALA:CA   | 15:W:107:LEU:HD11 | 2.35        | 0.45     |
| 15:W:13:SER:O    | 15:W:14:PRO:O     | 2.35        | 0.45     |
| 17:Y:30:ASP:CG   | 17:Y:31:LEU:HG    | 2.37        | 0.45     |
| 8:I:117:LEU:CD2  | 8:I:121:ILE:HD11  | 2.47        | 0.45     |
| 8:I:81:ALA:N     | 8:I:146:THR:O     | 2.49        | 0.45     |
| 22:2:58:THR:O    | 22:2:60:GLN:N     | 2.49        | 0.45     |
| 2:A:138:G:C5'    | 16:X:43:GLU:CG    | 2.76        | 0.45     |
| 2:A:139:G:C3'    | 2:A:141(A):C:H1'  | 2.47        | 0.45     |
| 16:X:32:ALA:HA   | 16:X:36:GLU:CG    | 2.42        | 0.45     |
| 2:A:940:G:H21    | 2:A:1191:G:C4'    | 2.29        | 0.45     |
| 2:A:1805:U:H4'   | 3:D:235:PRO:HG2   | 1.98        | 0.45     |
| 2:A:271:G:H2'    | 2:A:272:G:H8      | 1.81        | 0.45     |
| 2:A:136:G:H3'    | 2:A:137:C:H4'     | 1.98        | 0.45     |
| 2:A:725:G:N1     | 2:A:726:G:N2      | 2.65        | 0.45     |
| 23:3:40:THR:HG23 | 23:3:43:ILE:CG1   | 2.37        | 0.45     |
| 25:4:31:ILE:HG22 | 25:4:32:HIS:H     | 1.80        | 0.45     |
| 25:4:14:ILE:HD11 | 25:4:39:VAL:HB    | 1.97        | 0.45     |
| 28:7:20:ALA:O    | 28:7:23:LYS:N     | 2.49        | 0.45     |
| 28:7:30:ILE:CB   | 28:7:33:ARG:CD    | 2.72        | 0.45     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 30:9:11:CYS:N     | 30:9:14:CYS:SG    | 2.89        | 0.45     |
| 30:9:17:VAL:CG2   | 30:9:26:ILE:HD12  | 2.46        | 0.45     |
| 30:9:14:CYS:HA    | 30:9:26:ILE:O     | 2.16        | 0.45     |
| 2:A:1313:U:H2'    | 2:A:1610:A:C2     | 2.51        | 0.45     |
| 2:A:2292:C:C2     | 2:A:2293:C:H6     | 2.18        | 0.45     |
| 2:A:2430:A:H2'    | 2:A:2431:U:H5'    | 1.97        | 0.45     |
| 2:A:2463:C:C2'    | 2:A:2464:C:O5'    | 2.65        | 0.45     |
| 2:A:2494:G:C6     | 2:A:2495:G:N7     | 2.84        | 0.45     |
| 2:A:2574:G:H1'    | 4:E:240:PRO:CG    | 2.47        | 0.45     |
| 2:A:2617:C:C2'    | 2:A:2618:G:O5'    | 2.45        | 0.45     |
| 2:A:2689:U:O4'    | 2:A:2713:A:H2     | 1.95        | 0.45     |
| 2:A:2734:A:C5     | 2:A:2735:G:N9     | 2.84        | 0.45     |
| 2:A:2766:G:C5'    | 2:A:2767:C:P      | 3.02        | 0.45     |
| 2:A:2787:C:O2     | 2:A:2787:C:C2'    | 2.62        | 0.45     |
| 2:A:27:G:C3'      | 2:A:27:G:C8       | 3.00        | 0.45     |
| 2:A:2864:G:O2'    | 2:A:2865:U:C6     | 2.70        | 0.45     |
| 2:A:791:C:C4      | 2:A:794:G:O4'     | 2.69        | 0.45     |
| 3:D:106:PRO:CB    | 3:D:141:HIS:NE2   | 2.74        | 0.45     |
| 3:D:146:LYS:HD2   | 3:D:147:PRO:CG    | 2.45        | 0.45     |
| 3:D:141:HIS:CB    | 3:D:154:VAL:HG11  | 2.41        | 0.45     |
| 3:D:131:LEU:CB    | 3:D:171:VAL:HG11  | 2.46        | 0.45     |
| 5:F:194:PHE:CZ    | 5:F:204:ALA:O     | 2.70        | 0.45     |
| 6:G:102:GLY:C     | 6:G:134:LEU:HG    | 2.37        | 0.45     |
| 6:G:25:MET:CE     | 6:G:128:LEU:HB3   | 2.47        | 0.45     |
| 7:H:113:GLU:OE1   | 7:H:114:ILE:C     | 2.55        | 0.45     |
| 7:H:124:VAL:O     | 7:H:124:VAL:CG1   | 2.54        | 0.45     |
| 2:A:2093:G:C4'    | 8:I:25:TYR:HA     | 2.41        | 0.45     |
| 9:N:77:GLY:C      | 9:N:79:PHE:N      | 2.55        | 0.45     |
| 9:N:90:LYS:HZ2    | 9:N:95:ARG:NH2    | 2.15        | 0.45     |
| 10:O:1:MET:HB3    | 10:O:67:ARG:HG3   | 1.99        | 0.45     |
| 12:Q:47:GLU:C     | 12:Q:47:GLU:OE1   | 2.54        | 0.45     |
| 19:R:73:VAL:HG12  | 19:R:77:ARG:NE    | 2.27        | 0.45     |
| 19:R:55:ALA:CA    | 19:R:80:PHE:CE1   | 2.92        | 0.45     |
| 13:S:118:ILE:CG2  | 13:S:119:GLN:H    | 2.23        | 0.45     |
| 20:U:25:TRP:HB3   | 20:U:28:ARG:CZ    | 2.45        | 0.45     |
| 20:U:17:VAL:HG13  | 20:U:39:LEU:HD12  | 1.99        | 0.45     |
| 20:U:55:ARG:HA    | 20:U:58:ARG:CD    | 2.47        | 0.45     |
| 20:U:96:ALA:O     | 20:U:106:PHE:HE1  | 2.00        | 0.45     |
| 21:V:46:VAL:O     | 21:V:46:VAL:CG1   | 2.58        | 0.45     |
| 21:V:71:ILE:O     | 21:V:88:GLN:HG3   | 2.16        | 0.45     |
| 15:W:75:TYR:CZ    | 15:W:104:THR:HG21 | 2.52        | 0.45     |
| 15:W:106:ILE:HG22 | 15:W:107:LEU:N    | 2.32        | 0.45     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:Y:71:VAL:CG1  | 17:Y:91:LEU:HB2  | 2.44        | 0.45     |
| 17:Y:74:VAL:O    | 17:Y:77:VAL:HG23 | 2.16        | 0.45     |
| 17:Y:28:SER:N    | 17:Y:99:THR:OG1  | 2.49        | 0.45     |
| 18:Z:64:ALA:HB3  | 18:Z:84:TYR:O    | 2.14        | 0.45     |
| 18:Z:62:PHE:CB   | 18:Z:85:MET:SD   | 3.01        | 0.45     |
| 8:I:110:LEU:HD11 | 8:I:133:LEU:HD22 | 1.99        | 0.45     |
| 3:D:202:LYS:HA   | 3:D:203:PRO:HD3  | 1.87        | 0.45     |
| 16:X:28:VAL:CG2  | 16:X:62:LYS:HG2  | 2.46        | 0.45     |
| 2:A:72:U:C5'     | 16:X:2:TRP:CH2   | 2.98        | 0.45     |
| 2:A:144:C:C4'    | 16:X:36:GLU:OE1  | 2.64        | 0.45     |
| 2:A:1835:G:H1'   | 2:A:1931:U:O2    | 2.17        | 0.45     |
| 2:A:1853:A:H2'   | 2:A:1854:A:H8    | 1.78        | 0.45     |
| 23:3:21:ALA:O    | 23:3:25:ALA:N    | 2.43        | 0.45     |
| 23:3:46:ASN:O    | 23:3:47:VAL:C    | 2.54        | 0.45     |
| 27:6:49:VAL:CG1  | 27:6:50:PHE:N    | 2.80        | 0.45     |
| 2:A:1252:G:H8    | 2:A:1253:A:C8    | 2.35        | 0.45     |
| 2:A:1758:G:C5    | 2:A:2695:C:H4'   | 2.52        | 0.45     |
| 2:A:2095:C:N3    | 2:A:2194:G:C6    | 2.84        | 0.45     |
| 2:A:2234:G:C3'   | 2:A:2235:G:H5'   | 2.44        | 0.45     |
| 2:A:2077:A:N9    | 2:A:2435:A:C8    | 2.82        | 0.45     |
| 2:A:2458:G:O2'   | 2:A:2459:A:N7    | 2.45        | 0.45     |
| 2:A:2476:A:C8    | 2:A:2477:C:H6    | 2.27        | 0.45     |
| 2:A:2531:A:C6    | 2:A:2532:G:C4    | 3.04        | 0.45     |
| 2:A:10:G:C2      | 2:A:2629:A:C6    | 3.04        | 0.45     |
| 2:A:2657:A:H2'   | 2:A:2658:C:C5'   | 2.42        | 0.45     |
| 2:A:2714:G:C2'   | 2:A:2715:C:H5'   | 2.46        | 0.45     |
| 2:A:2717:G:C2    | 2:A:2718:G:N9    | 2.77        | 0.45     |
| 2:A:2731:G:H1    | 2:A:2732:G:N2    | 2.15        | 0.45     |
| 2:A:2630:G:O6    | 2:A:2788:C:N3    | 2.50        | 0.45     |
| 2:A:2793:G:N2    | 2:A:2803:C:C2    | 2.83        | 0.45     |
| 2:A:2810:A:O2'   | 2:A:2811:G:C5'   | 2.42        | 0.45     |
| 2:A:946:G:H2'    | 2:A:947:G:O4'    | 2.15        | 0.45     |
| 3:D:152:GLN:O    | 3:D:153:LEU:HD13 | 2.17        | 0.45     |
| 3:D:170:TYR:O    | 3:D:182:MET:SD   | 2.75        | 0.45     |
| 4:E:224:GLY:O    | 4:E:225:LYS:HG3  | 2.15        | 0.45     |
| 4:E:311:PHE:O    | 4:E:312:ARG:HG3  | 2.16        | 0.45     |
| 5:F:115:LEU:HG   | 5:F:246:ARG:HH12 | 1.80        | 0.45     |
| 5:F:200:PRO:HD3  | 5:F:214:THR:CG2  | 2.47        | 0.45     |
| 5:F:238:SER:CA   | 5:F:241:ALA:HB2  | 2.45        | 0.45     |
| 9:N:42:GLU:O     | 9:N:43:ARG:C     | 2.53        | 0.45     |
| 9:N:15:ARG:HA    | 9:N:43:ARG:HG2   | 1.83        | 0.45     |
| 9:N:47:THR:OG1   | 9:N:53:ILE:HD12  | 2.09        | 0.45     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1669:A:H1'   | 10:O:4:GLN:OE1   | 2.16        | 0.45     |
| 2:A:2495:G:H4'   | 12:Q:101:MET:CE  | 2.46        | 0.45     |
| 12:Q:45:GLN:CD   | 12:Q:153:PRO:CA  | 2.85        | 0.45     |
| 12:Q:50:VAL:HG23 | 12:Q:121:ASP:OD1 | 2.17        | 0.45     |
| 19:R:24:GLN:CB   | 19:R:44:LEU:HD21 | 2.46        | 0.45     |
| 2:A:1279:G:H5'   | 19:R:34:ILE:HD11 | 1.97        | 0.45     |
| 19:R:39:PRO:O    | 19:R:41:ALA:C    | 2.54        | 0.45     |
| 13:S:81:ALA:CB   | 13:S:118:ILE:H   | 2.28        | 0.45     |
| 13:S:30:GLY:O    | 13:S:31:LYS:CG   | 2.65        | 0.45     |
| 13:S:35:VAL:O    | 13:S:45:ALA:CB   | 2.64        | 0.45     |
| 1:B:50:G:P       | 13:S:74:PRO:CB   | 3.05        | 0.45     |
| 13:S:83:LEU:O    | 13:S:87:LEU:HD23 | 2.16        | 0.45     |
| 20:U:109:LEU:O   | 20:U:113:SER:OG  | 2.33        | 0.45     |
| 20:U:63:GLN:O    | 20:U:65:ILE:C    | 2.54        | 0.45     |
| 20:U:95:LEU:N    | 20:U:95:LEU:CD2  | 2.73        | 0.45     |
| 15:W:5:ALA:HB1   | 15:W:50:VAL:HG13 | 1.99        | 0.45     |
| 18:Z:129:ARG:NE  | 18:Z:129:ARG:CA  | 2.62        | 0.45     |
| 8:I:115:ILE:CA   | 8:I:131:VAL:HG13 | 2.47        | 0.45     |
| 2:A:1790:C:N4    | 2:A:1828:G:H2'   | 2.31        | 0.45     |
| 22:2:55:ARG:HD2  | 22:2:55:ARG:N    | 2.32        | 0.45     |
| 16:X:52:VAL:C    | 16:X:53:ASN:ND2  | 2.70        | 0.45     |
| 16:X:58:MET:C    | 16:X:59:ASP:CG   | 2.76        | 0.45     |
| 2:A:1992:G:N2    | 2:A:1995:U:H5    | 2.15        | 0.45     |
| 2:A:2898:U:C4    | 2:A:2899:G:N7    | 2.85        | 0.45     |
| 6:G:83:PHE:O     | 6:G:87:ALA:HB3   | 2.16        | 0.45     |
| 24:O:51:VAL:O    | 24:O:51:VAL:CG1  | 2.63        | 0.45     |
| 1:B:16:G:OP2     | 1:B:16:G:H3'     | 2.17        | 0.45     |
| 2:A:1149:G:H2'   | 2:A:1150:C:O4'   | 2.16        | 0.45     |
| 23:3:6:VAL:CA    | 23:3:55:ARG:O    | 2.64        | 0.45     |
| 2:A:396:G:C4'    | 25:4:39:VAL:HG12 | 2.35        | 0.45     |
| 27:6:8:ILE:HG21  | 27:6:30:ASN:HB2  | 1.97        | 0.45     |
| 2:A:125:G:C5'    | 28:7:19:ARG:CD   | 2.94        | 0.45     |
| 30:9:24:LEU:CG   | 30:9:35:ARG:HG3  | 2.47        | 0.45     |
| 2:A:1261:C:OP1   | 15:W:83:LYS:CE   | 2.65        | 0.45     |
| 2:A:2296:U:C3'   | 2:A:2296:U:C6    | 2.99        | 0.45     |
| 2:A:2317:C:N4    | 2:A:2318:G:C6    | 2.85        | 0.45     |
| 2:A:2392:A:C3'   | 2:A:2393:A:C5'   | 2.94        | 0.45     |
| 2:A:2400:G:H4'   | 27:6:20:PHE:CZ   | 2.49        | 0.45     |
| 2:A:197:A:C5     | 2:A:2430:A:C5    | 3.05        | 0.45     |
| 2:A:199:A:H62    | 2:A:2434:A:N6    | 2.15        | 0.45     |
| 2:A:2446:G:H21   | 2:A:2501:C:N4    | 1.99        | 0.45     |
| 2:A:2454:G:C4    | 2:A:2455:G:O4'   | 2.70        | 0.45     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2468:G:N7     | 2:A:2476:A:N1    | 2.63        | 0.45     |
| 2:A:2489:G:C6     | 2:A:2490:G:C6    | 3.04        | 0.45     |
| 2:A:2494:G:N2     | 2:A:2495:G:C1'   | 2.77        | 0.45     |
| 2:A:2618:G:O2'    | 2:A:2619:C:P     | 2.66        | 0.45     |
| 2:A:2645:G:C1'    | 2:A:2645:G:OP2   | 2.63        | 0.45     |
| 2:A:1455:G:O6     | 2:A:2705:A:C2    | 2.69        | 0.45     |
| 2:A:2741:A:C2'    | 2:A:2742:C:C4'   | 2.93        | 0.45     |
| 2:A:2821:A:H2     | 2:A:2822:G:C6    | 2.28        | 0.45     |
| 2:A:2828:C:N4     | 2:A:2829:C:N4    | 2.65        | 0.45     |
| 2:A:2852:G:C4     | 2:A:2853:C:N3    | 2.84        | 0.45     |
| 2:A:558:G:OP2     | 9:N:91:LYS:CB    | 2.50        | 0.45     |
| 2:A:674:G:H5''    | 5:F:69:HIS:C     | 2.36        | 0.45     |
| 2:A:992:C:H2'     | 2:A:993:G:H5''   | 1.99        | 0.45     |
| 3:D:77:VAL:O      | 3:D:111:VAL:O    | 2.35        | 0.45     |
| 3:D:161:ALA:O     | 3:D:162:GLN:NE2  | 2.50        | 0.45     |
| 4:E:83:LEU:CD1    | 4:E:178:LEU:HD23 | 2.47        | 0.45     |
| 6:G:52:THR:HB     | 6:G:67:ASP:O     | 2.16        | 0.45     |
| 6:G:49:PRO:CD     | 6:G:73:VAL:CG2   | 2.91        | 0.45     |
| 7:H:10:ILE:HG22   | 7:H:14:VAL:CG2   | 2.42        | 0.45     |
| 7:H:35:THR:C      | 7:H:36:PHE:CD1   | 2.89        | 0.45     |
| 7:H:36:PHE:O      | 7:H:37:HIS:C     | 2.54        | 0.45     |
| 9:N:46:ILE:HD11   | 9:N:132:LEU:HD13 | 1.86        | 0.45     |
| 9:N:96:GLU:C      | 9:N:98:PHE:H     | 2.20        | 0.45     |
| 10:O:79:PHE:HA    | 14:T:22:VAL:HG23 | 1.94        | 0.45     |
| 10:O:86:ILE:HG21  | 10:O:94:ARG:NE   | 2.32        | 0.45     |
| 11:P:92:ASP:O     | 11:P:119:THR:O   | 2.34        | 0.45     |
| 13:S:102:LEU:HD12 | 13:S:129:ILE:CD1 | 2.25        | 0.45     |
| 13:S:76:GLY:O     | 13:S:83:LEU:HD12 | 2.17        | 0.45     |
| 20:U:72:HIS:CE1   | 20:U:107:LYS:HA  | 2.50        | 0.45     |
| 20:U:114:ARG:CA   | 20:U:117:ARG:HD2 | 2.46        | 0.45     |
| 21:V:54:TYR:O     | 21:V:56:VAL:HB   | 2.17        | 0.45     |
| 21:V:34:GLU:N     | 21:V:63:HIS:CE1  | 2.85        | 0.45     |
| 2:A:1161:C:C4'    | 21:V:8:GLY:HA3   | 2.45        | 0.45     |
| 15:W:3:ALA:C      | 15:W:4:LYS:HG3   | 2.36        | 0.45     |
| 17:Y:19:ARG:O     | 17:Y:22:GLN:CB   | 2.63        | 0.45     |
| 17:Y:71:VAL:HG13  | 17:Y:72:ILE:H    | 1.73        | 0.45     |
| 8:I:141:LEU:HD22  | 8:I:142:LYS:HG2  | 1.98        | 0.45     |
| 3:D:211:HIS:O     | 3:D:212:HIS:C    | 2.53        | 0.45     |
| 16:X:50:GLU:CG    | 16:X:67:ARG:O    | 2.63        | 0.45     |
| 9:N:5:GLU:CA      | 9:N:109:TYR:CE2  | 2.97        | 0.45     |
| 2:A:839:U:H2'     | 2:A:840:C:C6     | 2.52        | 0.45     |
| 17:Y:2:LYS:O      | 17:Y:3:GLN:HG3   | 2.16        | 0.45     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1697:G:C3'   | 2:A:1698:A:C5'   | 2.77        | 0.45     |
| 2:A:1300:U:H2'   | 2:A:1634:A:O2'   | 2.17        | 0.45     |
| 2:A:120:U:C2     | 2:A:150:C:C5     | 3.05        | 0.45     |
| 9:N:8:ALA:CB     | 9:N:11:ILE:HD11  | 2.46        | 0.45     |
| 2:A:171:G:H2'    | 2:A:172:C:C5     | 2.51        | 0.45     |
| 17:Y:109:GLU:O   | 17:Y:109:GLU:CG  | 2.65        | 0.45     |
| 2:A:1227:A:C3'   | 2:A:1227:A:C8    | 2.99        | 0.45     |
| 24:0:46:LYS:CE   | 24:0:60:PHE:H    | 2.30        | 0.45     |
| 24:0:46:LYS:HE2  | 24:0:58:THR:C    | 2.37        | 0.45     |
| 2:A:932:G:OP1    | 23:3:29:ARG:CZ   | 2.65        | 0.45     |
| 15:W:19:LEU:CD1  | 26:5:25:LEU:HG   | 2.46        | 0.45     |
| 30:9:29:ASN:CB   | 30:9:32:HIS:CE1  | 3.00        | 0.45     |
| 2:A:2100:G:N3    | 2:A:2190:G:C2    | 2.85        | 0.45     |
| 2:A:2264:C:N4    | 2:A:2277:G:C6    | 2.83        | 0.45     |
| 2:A:2283:C:C4    | 2:A:2284:C:C1'   | 2.99        | 0.45     |
| 2:A:2290:G:C2    | 2:A:2291:U:O2    | 2.70        | 0.45     |
| 2:A:2330:G:O2'   | 24:0:71:ASN:OD1  | 2.35        | 0.45     |
| 2:A:2485:G:H5'   | 12:Q:144:THR:CG2 | 2.34        | 0.45     |
| 2:A:2692:C:N3    | 2:A:2717:G:N2    | 2.53        | 0.45     |
| 2:A:2708:G:H2'   | 2:A:2709:G:H8    | 1.82        | 0.45     |
| 2:A:2734:A:H62   | 2:A:2735:G:N3    | 1.47        | 0.45     |
| 2:A:2844:G:N1    | 2:A:2845:G:C4    | 2.85        | 0.45     |
| 2:A:298:G:O6     | 2:A:338:G:H4'    | 2.17        | 0.45     |
| 2:A:489:G:N2     | 2:A:1321:A:OP1   | 2.49        | 0.45     |
| 2:A:611:C:O2     | 2:A:617:G:C2     | 2.70        | 0.45     |
| 2:A:827:U:H4'    | 2:A:828:U:O2     | 2.17        | 0.45     |
| 3:D:165:GLY:O    | 3:D:172:ILE:CA   | 2.60        | 0.45     |
| 4:E:269:ILE:CD1  | 4:E:296:VAL:N    | 2.75        | 0.45     |
| 4:E:42:ALA:HA    | 4:E:311:PHE:CD2  | 2.51        | 0.45     |
| 5:F:118:THR:O    | 5:F:119:ALA:C    | 2.55        | 0.45     |
| 1:B:42:C:C4'     | 6:G:48:MET:N     | 2.80        | 0.45     |
| 6:G:95:THR:CG2   | 6:G:96:SER:N     | 2.76        | 0.45     |
| 7:H:34:ARG:HG2   | 7:H:35:THR:N     | 2.32        | 0.45     |
| 8:I:1:MET:HE3    | 8:I:23:ASP:CA    | 2.47        | 0.45     |
| 9:N:21:ARG:O     | 9:N:22:VAL:C     | 2.55        | 0.45     |
| 2:A:2040:C:C4'   | 9:N:69:TYR:HE2   | 2.26        | 0.45     |
| 20:U:15:LYS:HG2  | 20:U:19:LYS:CE   | 2.47        | 0.45     |
| 20:U:33:ARG:HG2  | 20:U:34:ASN:N    | 2.25        | 0.45     |
| 21:V:11:GLN:OE1  | 21:V:22:VAL:HG23 | 2.15        | 0.45     |
| 21:V:39:PHE:CZ   | 21:V:42:GLY:CA   | 2.97        | 0.45     |
| 15:W:85:VAL:HG13 | 15:W:95:ILE:HD13 | 1.99        | 0.45     |
| 17:Y:42:VAL:O    | 17:Y:112:LEU:HB3 | 2.17        | 0.45     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 17:Y:31:LEU:CD2 | 17:Y:31:LEU:N    | 2.40        | 0.45     |
| 17:Y:54:ASP:C   | 17:Y:56:ALA:N    | 2.69        | 0.45     |
| 18:Z:168:VAL:O  | 18:Z:169:VAL:CB  | 2.59        | 0.45     |
| 18:Z:69:VAL:CG2 | 18:Z:82:ASP:H    | 2.15        | 0.45     |
| 8:I:133:LEU:H   | 8:I:138:THR:HB   | 1.80        | 0.45     |
| 8:I:86:GLY:HA3  | 8:I:88:ARG:N     | 2.30        | 0.45     |
| 2:A:1826:G:C5   | 2:A:1827:C:C5    | 3.05        | 0.45     |
| 3:D:204:PHE:O   | 3:D:205:VAL:O    | 2.35        | 0.45     |
| 3:D:211:HIS:O   | 3:D:214:MET:N    | 2.43        | 0.45     |
| 22:2:52:ALA:HA  | 22:2:55:ARG:HD3  | 1.98        | 0.45     |
| 2:A:139:G:H3'   | 2:A:141(A):C:H1' | 1.97        | 0.45     |
| 16:X:29:ASP:CG  | 16:X:30:ASP:OD1  | 2.55        | 0.45     |
| 2:A:1609:A:N3   | 2:A:1609:A:H2'   | 2.31        | 0.45     |
| 2:A:182:A:H2'   | 2:A:183:C:C6     | 2.52        | 0.45     |
| 1:B:83:G:H4'    | 23:3:52:HIS:CD2  | 2.52        | 0.45     |
| 26:5:42:SER:O   | 26:5:43:HIS:CG   | 2.69        | 0.45     |
| 27:6:22:TYR:O   | 27:6:23:THR:CB   | 2.65        | 0.45     |
| 2:A:2092:U:H5   | 2:A:2227:A:H62   | 1.65        | 0.45     |
| 2:A:2279:G:C4   | 2:A:2280:G:N7    | 2.85        | 0.45     |
| 2:A:2333:A:H1'  | 2:A:2335:A:N1    | 2.30        | 0.45     |
| 2:A:826:U:P     | 2:A:2428:G:C8    | 3.09        | 0.45     |
| 2:A:2562:U:C2'  | 2:A:2563:U:H5'   | 2.47        | 0.45     |
| 2:A:2596:U:H5   | 2:A:2597:G:N7    | 2.15        | 0.45     |
| 2:A:2723:C:O2'  | 2:A:2724:C:H5'   | 2.16        | 0.45     |
| 2:A:2762:G:C4   | 2:A:2763:G:N7    | 2.85        | 0.45     |
| 2:A:2844:G:C2   | 2:A:2845:G:N9    | 2.85        | 0.45     |
| 2:A:2866:U:O2   | 2:A:2868:A:C4'   | 2.64        | 0.45     |
| 2:A:2869:G:C5   | 2:A:2870:C:C6    | 2.72        | 0.45     |
| 2:A:774:A:H5'   | 2:A:778:G:H4'    | 1.99        | 0.45     |
| 3:D:158:GLY:C   | 3:D:194:VAL:HG13 | 2.37        | 0.45     |
| 4:E:270:ASP:OD2 | 4:E:295:LEU:HB3  | 2.16        | 0.45     |
| 4:E:44:TYR:CB   | 4:E:309:PRO:HD3  | 2.43        | 0.45     |
| 5:F:1:MET:O     | 5:F:18:LEU:CG    | 2.53        | 0.45     |
| 7:H:14:VAL:CG1  | 7:H:16:VAL:CG2   | 2.95        | 0.45     |
| 10:O:33:ALA:CB  | 10:O:39:VAL:HG22 | 2.47        | 0.45     |
| 2:A:1666:G:C2'  | 10:O:6:SER:HB3   | 2.41        | 0.45     |
| 2:A:1251:C:C5'  | 20:U:10:ARG:CG   | 2.94        | 0.45     |
| 20:U:89:ASP:O   | 20:U:90:LEU:CD2  | 2.47        | 0.45     |
| 21:V:31:ASP:O   | 21:V:63:HIS:C    | 2.50        | 0.45     |
| 21:V:60:VAL:C   | 21:V:98:ILE:CD1  | 2.83        | 0.45     |
| 2:A:496:G:C1'   | 15:W:61:ASN:HD22 | 2.28        | 0.45     |
| 15:W:81:ALA:C   | 15:W:82:LEU:CD2  | 2.66        | 0.45     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 17:Y:51:LEU:CD2   | 17:Y:51:LEU:C    | 2.85        | 0.45     |
| 17:Y:71:VAL:CG1   | 17:Y:72:ILE:N    | 2.39        | 0.45     |
| 17:Y:75:GLU:O     | 17:Y:76:ASP:C    | 2.54        | 0.45     |
| 18:Z:152:ILE:HG22 | 18:Z:153:LYS:H   | 1.82        | 0.45     |
| 18:Z:69:VAL:HG21  | 18:Z:81:VAL:HG11 | 1.87        | 0.45     |
| 12:Q:120:HIS:CE1  | 18:Z:76:ARG:HH12 | 2.35        | 0.45     |
| 8:I:101:SER:C     | 8:I:103:GLN:N    | 2.69        | 0.45     |
| 8:I:75:LEU:O      | 8:I:141:LEU:HD21 | 2.17        | 0.45     |
| 3:D:209:ASN:O     | 3:D:210:LYS:O    | 2.34        | 0.45     |
| 3:D:213:LYS:CG    | 3:D:215:LYS:CA   | 2.94        | 0.45     |
| 2:A:146:G:H2'     | 2:A:147:U:O4'    | 2.16        | 0.45     |
| 16:X:23:LYS:HD3   | 16:X:65:VAL:HG11 | 1.98        | 0.45     |
| 2:A:1614:A:H61    | 15:W:88:ARG:H    | 1.65        | 0.45     |
| 6:G:83:PHE:O      | 6:G:84:LEU:C     | 2.56        | 0.45     |
| 2:A:1834:U:C3'    | 2:A:1835:G:P     | 3.01        | 0.45     |
| 2:A:440:G:H3'     | 17:Y:3:GLN:NE2   | 2.32        | 0.45     |
| 2:A:1991:U:C6     | 2:A:1991:U:C3'   | 2.99        | 0.45     |
| 2:A:1602:U:C2     | 2:A:1602:U:O5'   | 2.70        | 0.45     |
| 2:A:1978:A:H2'    | 2:A:1979:C:O4'   | 2.16        | 0.45     |
| 25:4:20:VAL:HB    | 25:4:30:GLU:CD   | 2.38        | 0.45     |
| 25:4:8:LYS:CA     | 25:4:9:ALA:N     | 2.77        | 0.45     |
| 26:5:18:MET:O     | 26:5:19:ARG:C    | 2.55        | 0.45     |
| 29:8:16:ILE:HA    | 29:8:22:VAL:HA   | 1.99        | 0.45     |
| 30:9:17:VAL:HG21  | 30:9:26:ILE:HD12 | 1.98        | 0.45     |
| 2:A:1155:A:O2'    | 2:A:1156:A:H2'   | 2.17        | 0.45     |
| 2:A:2219:G:N3     | 2:A:2224:G:O4'   | 2.49        | 0.45     |
| 2:A:2280:G:N1     | 2:A:2281:C:C4    | 2.85        | 0.45     |
| 2:A:2305:A:H8     | 2:A:2306:C:C5'   | 2.29        | 0.45     |
| 2:A:2322:A:N7     | 2:A:2323:G:N7    | 2.65        | 0.45     |
| 2:A:2341:G:N7     | 2:A:2342:C:C4    | 2.85        | 0.45     |
| 2:A:825:C:C5'     | 2:A:2428:G:O6    | 2.64        | 0.45     |
| 2:A:2077:A:C2     | 2:A:2435:A:N7    | 2.85        | 0.45     |
| 2:A:2438:U:C4'    | 2:A:2440:C:OP1   | 2.63        | 0.45     |
| 2:A:2533:A:H2'    | 2:A:2534:A:O4'   | 2.17        | 0.45     |
| 2:A:2553:G:N7     | 2:A:2554:U:N1    | 2.64        | 0.45     |
| 2:A:2592:G:H2'    | 2:A:2593:U:O5'   | 2.17        | 0.45     |
| 2:A:2757:A:H2'    | 2:A:2758:A:O4'   | 2.17        | 0.45     |
| 2:A:2766:G:N2     | 2:A:2767:C:C6    | 2.85        | 0.45     |
| 2:A:2771:C:H42    | 2:A:2772:C:N4    | 2.15        | 0.45     |
| 2:A:2840:C:C2     | 2:A:2841:C:C4    | 3.04        | 0.45     |
| 2:A:322:A:C2      | 2:A:341:G:C5     | 3.05        | 0.45     |
| 2:A:396:G:OP1     | 25:4:10:VAL:CA   | 2.65        | 0.45     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:450:G:C2     | 2:A:454:A:H2     | 2.34        | 0.45     |
| 2:A:566:U:H3'    | 2:A:567:A:H8     | 1.81        | 0.45     |
| 1:B:57:A:N3      | 6:G:13:MET:HE2   | 2.24        | 0.45     |
| 3:D:106:PRO:CG   | 3:D:141:HIS:CD2  | 2.98        | 0.45     |
| 3:D:172:ILE:HG13 | 3:D:182:MET:HE3  | 1.98        | 0.45     |
| 3:D:75:GLY:O     | 3:D:115:ILE:C    | 2.55        | 0.45     |
| 2:A:2621:A:O2'   | 4:E:255:GLN:CD   | 2.54        | 0.45     |
| 4:E:206:LYS:CA   | 4:E:257:GLY:O    | 2.64        | 0.45     |
| 4:E:268:LEU:HD11 | 4:E:271:ILE:CD1  | 2.46        | 0.45     |
| 4:E:204:VAL:N    | 4:E:303:PRO:HD3  | 2.32        | 0.45     |
| 4:E:68:VAL:HA    | 4:E:69:PRO:HD3   | 1.72        | 0.45     |
| 5:F:6:TYR:OH     | 5:F:139:VAL:N    | 2.50        | 0.45     |
| 5:F:168:ARG:HD3  | 5:F:168:ARG:O    | 2.06        | 0.45     |
| 5:F:56:THR:O     | 5:F:79:ARG:HD2   | 2.17        | 0.45     |
| 5:F:93:LYS:C     | 5:F:96:LYS:CD    | 2.85        | 0.45     |
| 6:G:19:GLU:OE1   | 6:G:134:LEU:O    | 2.34        | 0.45     |
| 6:G:55:LYS:O     | 6:G:56:ARG:CG    | 2.64        | 0.45     |
| 7:H:85:ALA:O     | 7:H:148:ARG:CZ   | 2.56        | 0.45     |
| 11:P:94:ARG:HD2  | 11:P:119:THR:O   | 2.17        | 0.45     |
| 12:Q:26:LYS:NZ   | 12:Q:88:PHE:HB3  | 2.32        | 0.45     |
| 13:S:33:ARG:CG   | 13:S:48:VAL:O    | 2.65        | 0.45     |
| 20:U:60:LEU:HD23 | 20:U:60:LEU:H    | 1.82        | 0.45     |
| 20:U:91:ASN:C    | 20:U:95:LEU:CD1  | 2.75        | 0.45     |
| 21:V:54:TYR:O    | 21:V:56:VAL:CB   | 2.65        | 0.45     |
| 15:W:29:LEU:C    | 15:W:33:ARG:HG3  | 2.37        | 0.45     |
| 15:W:26:GLY:CA   | 15:W:71:VAL:HG23 | 2.47        | 0.45     |
| 17:Y:63:ILE:HG13 | 17:Y:74:VAL:HA   | 1.98        | 0.45     |
| 8:I:132:LYS:HA   | 8:I:138:THR:HB   | 1.98        | 0.45     |
| 2:A:1059:G:N2    | 31:K:131:THR:N   | 2.65        | 0.45     |
| 22:2:26:GLU:CG   | 22:2:27:LEU:N    | 2.54        | 0.45     |
| 22:2:29:ASN:C    | 22:2:34:GLN:CD   | 2.71        | 0.45     |
| 2:A:75:G:C4'     | 22:2:51:LYS:NZ   | 2.68        | 0.45     |
| 6:G:44:ILE:O     | 6:G:83:PHE:HE2   | 1.86        | 0.45     |
| 2:A:270(L):U:H4' | 2:A:270(M):U:OP1 | 2.16        | 0.45     |
| 2:A:422:A:H2'    | 2:A:422:A:N3     | 2.31        | 0.45     |
| 2:A:1908:C:H42   | 2:A:1922:G:H1    | 1.65        | 0.45     |
| 1:B:105:G:H2'    | 1:B:106:G:C8     | 2.47        | 0.45     |
| 2:A:1910:G:N2    | 2:A:1921:G:H1'   | 2.32        | 0.45     |
| 2:A:528:A:C8     | 2:A:528:A:H3'    | 2.51        | 0.45     |
| 23:3:20:LYS:O    | 23:3:23:LEU:HB2  | 2.09        | 0.44     |
| 28:7:43:THR:N    | 28:7:46:ASP:OD1  | 2.49        | 0.44     |
| 29:8:22:VAL:N    | 29:8:48:PHE:HE2  | 1.90        | 0.44     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1028:A:H2    | 2:A:2486:G:O2'   | 1.98        | 0.44     |
| 2:A:1152:C:C4'   | 20:U:77:SER:HA   | 2.47        | 0.44     |
| 2:A:1651:G:H2'   | 2:A:1652:A:C8    | 2.52        | 0.44     |
| 2:A:1809:A:N6    | 25:4:3:LYS:CB    | 2.80        | 0.44     |
| 2:A:2017:U:O2    | 26:5:10:LYS:NZ   | 2.26        | 0.44     |
| 2:A:2185:C:N3    | 2:A:2186:G:C5    | 2.85        | 0.44     |
| 2:A:2234:G:O6    | 2:A:2235:G:O6    | 2.34        | 0.44     |
| 2:A:2251:G:C2    | 2:A:2252:G:C4    | 3.03        | 0.44     |
| 2:A:2263:C:N4    | 2:A:2278:A:N6    | 2.65        | 0.44     |
| 2:A:2292:C:N3    | 2:A:2340:G:N2    | 2.61        | 0.44     |
| 2:A:2298:A:C6    | 2:A:2321:G:N1    | 2.85        | 0.44     |
| 2:A:2353:G:C6    | 2:A:2364:C:N4    | 2.71        | 0.44     |
| 2:A:2329:G:O6    | 2:A:2387:U:O4    | 2.35        | 0.44     |
| 2:A:2455:G:C3'   | 2:A:2456:C:H5'   | 2.47        | 0.44     |
| 2:A:2464:C:C5    | 2:A:2487:G:N1    | 2.85        | 0.44     |
| 2:A:2508:G:C2    | 2:A:2509:G:C1'   | 3.00        | 0.44     |
| 2:A:1128:A:N6    | 2:A:2518:A:C6    | 2.85        | 0.44     |
| 2:A:2611:U:H5'   | 2:A:2611:U:C6    | 2.51        | 0.44     |
| 2:A:2644:G:H8    | 2:A:2644:G:C5'   | 2.16        | 0.44     |
| 2:A:2748:A:H1'   | 7:H:66:THR:HB    | 1.99        | 0.44     |
| 2:A:492:A:H2'    | 2:A:493:G:O4'    | 2.17        | 0.44     |
| 2:A:54:G:H1      | 2:A:116:C:H42    | 1.64        | 0.44     |
| 2:A:564:C:OP2    | 21:V:79:GLN:CG   | 2.60        | 0.44     |
| 2:A:629:G:H21    | 2:A:640:C:P      | 2.40        | 0.44     |
| 3:D:124:LYS:HB2  | 3:D:127:ASN:ND2  | 2.31        | 0.44     |
| 3:D:175:LEU:HD21 | 3:D:181:ARG:H    | 1.81        | 0.44     |
| 2:A:1656:C:P     | 4:E:212:GLY:HA3  | 2.57        | 0.44     |
| 2:A:2679:A:C4    | 4:E:300:VAL:CG1  | 2.85        | 0.44     |
| 4:E:45:LYS:NZ    | 4:E:301:PRO:C    | 2.62        | 0.44     |
| 4:E:201:VAL:HA   | 4:E:311:PHE:HA   | 1.98        | 0.44     |
| 4:E:80:ALA:HB3   | 4:E:181:VAL:HA   | 1.51        | 0.44     |
| 5:F:142:ASP:O    | 5:F:145:GLU:N    | 2.47        | 0.44     |
| 6:G:146:LYS:C    | 6:G:148:SER:N    | 2.70        | 0.44     |
| 7:H:120:LEU:HA   | 7:H:121:GLU:OE1  | 2.12        | 0.44     |
| 7:H:122:ILE:HG22 | 7:H:123:GLU:H    | 1.82        | 0.44     |
| 7:H:51:VAL:CG2   | 7:H:68:ARG:HG3   | 2.43        | 0.44     |
| 7:H:97:LYS:C     | 7:H:98:GLN:HG3   | 2.20        | 0.44     |
| 8:I:7:LYS:CG     | 8:I:12:LYS:CE    | 2.93        | 0.44     |
| 9:N:42:GLU:HG2   | 9:N:43:ARG:H     | 1.81        | 0.44     |
| 9:N:78:ILE:CG2   | 9:N:79:PHE:CD1   | 2.99        | 0.44     |
| 10:O:112:MET:O   | 10:O:114:ILE:C   | 2.55        | 0.44     |
| 20:U:76:TYR:O    | 20:U:80:ILE:HD11 | 1.95        | 0.44     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:V:19:VAL:O    | 21:V:20:ILE:C    | 2.55        | 0.44     |
| 21:V:61:VAL:CG1  | 21:V:95:ILE:CG2  | 2.41        | 0.44     |
| 17:Y:43:ASN:CG   | 17:Y:112:LEU:CD2 | 2.81        | 0.44     |
| 18:Z:148:THR:O   | 18:Z:149:ALA:C   | 2.55        | 0.44     |
| 2:A:1914:C:OP2   | 2:A:1916:A:N6    | 2.50        | 0.44     |
| 2:A:1916:A:C8    | 2:A:1916:A:OP2   | 2.68        | 0.44     |
| 2:A:1559:G:C4    | 2:A:1559:G:C3'   | 2.92        | 0.44     |
| 2:A:1071:G:C8    | 2:A:1089:G:C6    | 3.05        | 0.44     |
| 2:A:1763:G:H8    | 2:A:1763:G:H5'   | 1.82        | 0.44     |
| 25:4:35:VAL:C    | 25:4:36:TRP:HD1  | 2.17        | 0.44     |
| 26:5:12:SER:O    | 26:5:14:SER:N    | 2.50        | 0.44     |
| 26:5:50:GLY:HA2  | 26:5:57:VAL:CG2  | 2.47        | 0.44     |
| 28:7:44:VAL:O    | 28:7:45:SER:C    | 2.55        | 0.44     |
| 2:A:2191:G:H21   | 2:A:2192:G:H1'   | 1.78        | 0.44     |
| 2:A:2240:C:H2'   | 2:A:2241:A:C8    | 2.52        | 0.44     |
| 2:A:2246:G:C8    | 2:A:2426:A:N1    | 2.85        | 0.44     |
| 2:A:2266:A:H2    | 2:A:2272:U:C2    | 2.35        | 0.44     |
| 2:A:2314:C:H2'   | 2:A:2315:G:O5'   | 2.14        | 0.44     |
| 2:A:2385:C:C2'   | 2:A:2386:C:C5'   | 2.93        | 0.44     |
| 2:A:2397:G:C5    | 2:A:2398:U:C4    | 3.04        | 0.44     |
| 2:A:2531:A:C5    | 2:A:2532:G:N7    | 2.85        | 0.44     |
| 2:A:2023:G:H5'   | 2:A:2617:C:O2'   | 2.13        | 0.44     |
| 2:A:2634:G:N1    | 2:A:2635:C:C6    | 2.86        | 0.44     |
| 2:A:2670:A:H8    | 2:A:2670:A:C5'   | 2.15        | 0.44     |
| 2:A:1999:C:C2'   | 2:A:2687:U:O2'   | 2.65        | 0.44     |
| 2:A:2774:C:C2'   | 2:A:2774:C:O2    | 2.63        | 0.44     |
| 2:A:2822:G:O2'   | 2:A:2825:C:N4    | 2.47        | 0.44     |
| 2:A:2857:G:H2'   | 2:A:2858:C:H5''  | 1.98        | 0.44     |
| 2:A:396:G:OP1    | 25:4:10:VAL:CG2  | 2.63        | 0.44     |
| 5:F:144:PHE:HD2  | 5:F:156:LEU:CD1  | 2.25        | 0.44     |
| 6:G:24:HIS:HB3   | 6:G:72:LYS:HD3   | 1.99        | 0.44     |
| 7:H:9:GLU:C      | 7:H:10:ILE:HG13  | 2.37        | 0.44     |
| 9:N:39:VAL:HG12  | 9:N:104:TYR:CA   | 2.46        | 0.44     |
| 10:O:25:LEU:CB   | 10:O:38:VAL:O    | 2.64        | 0.44     |
| 10:O:35:ILE:HG22 | 10:O:63:VAL:HA   | 1.68        | 0.44     |
| 10:O:97:ARG:HG2  | 10:O:98:ILE:H    | 1.82        | 0.44     |
| 12:Q:59:ASN:CG   | 12:Q:60:ALA:N    | 2.47        | 0.44     |
| 12:Q:66:ASN:O    | 12:Q:70:ARG:HG3  | 2.16        | 0.44     |
| 12:Q:85:ILE:HD12 | 12:Q:85:ILE:O    | 2.16        | 0.44     |
| 12:Q:88:PHE:O    | 12:Q:88:PHE:HD1  | 2.00        | 0.44     |
| 19:R:73:VAL:O    | 19:R:74:LYS:O    | 2.35        | 0.44     |
| 19:R:77:ARG:CB   | 19:R:77:ARG:CZ   | 2.58        | 0.44     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 13:S:117:ALA:HA | 13:S:120:GLU:OE2 | 2.16        | 0.44     |
| 20:U:103:PRO:O  | 20:U:107:LYS:N   | 2.50        | 0.44     |
| 20:U:34:ASN:O   | 20:U:35:ALA:C    | 2.55        | 0.44     |
| 15:W:30:GLU:CA  | 15:W:33:ARG:CG   | 2.93        | 0.44     |
| 17:Y:93:THR:O   | 17:Y:96:VAL:HG23 | 2.17        | 0.44     |
| 3:D:213:LYS:HG3 | 3:D:215:LYS:HB2  | 0.49        | 0.44     |
| 16:X:38:ALA:O   | 16:X:41:VAL:HB   | 2.18        | 0.44     |
| 2:A:1340:U:H5   | 16:X:55:GLN:NE2  | 2.10        | 0.44     |
| 2:A:5:A:H2'     | 2:A:6:A:O4'      | 2.16        | 0.44     |
| 2:A:1698:A:H1'  | 2:A:1700:A:O5'   | 2.17        | 0.44     |
| 2:A:2755:C:C3'  | 2:A:2755:C:C6    | 3.00        | 0.44     |
| 2:A:504:U:H5''  | 2:A:506:G:OP2    | 2.16        | 0.44     |
| 2:A:1528:A:C2   | 2:A:1529:A:H1'   | 2.52        | 0.44     |
| 2:A:1529:A:H2'  | 2:A:1530:G:H5'   | 1.99        | 0.44     |
| 2:A:476:G:H2'   | 2:A:478:A:OP2    | 2.17        | 0.44     |
| 31:K:80:LYS:HD2 | 31:K:86:GLU:HG2  | 1.98        | 0.44     |
| 2:A:1283:G:H2'  | 2:A:1285:G:N7    | 2.32        | 0.44     |
| 2:A:1602:U:C3'  | 2:A:1602:U:C6    | 3.00        | 0.44     |
| 24:O:61:ALA:CB  | 24:O:80:SER:C    | 2.84        | 0.44     |
| 23:3:42:ALA:CB  | 23:3:43:ILE:HD12 | 2.42        | 0.44     |
| 2:A:125:G:C5'   | 28:7:19:ARG:HD2  | 2.46        | 0.44     |
| 2:A:1491:G:O2'  | 2:A:1492:G:O4'   | 2.35        | 0.44     |
| 2:A:2195:C:C6   | 2:A:2195:C:H5''  | 2.46        | 0.44     |
| 2:A:2226:C:N4   | 2:A:2227:A:C2    | 2.86        | 0.44     |
| 2:A:2295:C:C6   | 2:A:2338:G:N1    | 2.85        | 0.44     |
| 2:A:2333:A:H4'  | 2:A:2334:G:H2'   | 2.00        | 0.44     |
| 2:A:2394:C:H2'  | 2:A:2394:C:O2    | 2.17        | 0.44     |
| 2:A:2416:C:N3   | 2:A:2417:C:H5    | 2.10        | 0.44     |
| 2:A:2464:C:C4   | 2:A:2487:G:C2    | 3.06        | 0.44     |
| 2:A:2474:C:C5   | 2:A:2475:C:N3    | 2.85        | 0.44     |
| 2:A:2514:U:O5'  | 2:A:2514:U:H6    | 2.00        | 0.44     |
| 2:A:2535:G:N2   | 2:A:2536:G:C1'   | 2.72        | 0.44     |
| 2:A:2553:G:N3   | 2:A:2583:G:O4'   | 2.51        | 0.44     |
| 2:A:2620:C:O4'  | 4:E:252:GLN:HG3  | 2.17        | 0.44     |
| 2:A:2636:U:C4'  | 4:E:84:ARG:NH2   | 2.42        | 0.44     |
| 2:A:2643:G:O5'  | 2:A:2643:G:H8    | 1.99        | 0.44     |
| 2:A:2655:G:O2'  | 2:A:2656:U:C5    | 2.66        | 0.44     |
| 2:A:2737:G:C2'  | 2:A:2738:A:H8    | 2.18        | 0.44     |
| 2:A:2777:G:N9   | 2:A:2777:G:C5'   | 2.80        | 0.44     |
| 2:A:2816:C:C2   | 2:A:2831:G:C2    | 3.05        | 0.44     |
| 2:A:2842:G:C2   | 2:A:2876:G:N3    | 2.78        | 0.44     |
| 2:A:2869:G:H2'  | 2:A:2870:C:O4'   | 2.17        | 0.44     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2842:G:N1    | 2:A:2876:G:C6     | 2.85        | 0.44     |
| 2:A:37:C:H42     | 2:A:442:G:H1      | 1.63        | 0.44     |
| 2:A:387:U:H3'    | 25:4:29:PRO:CG    | 2.47        | 0.44     |
| 2:A:781:A:H5'    | 2:A:782:A:C8      | 2.51        | 0.44     |
| 1:B:17:C:H2'     | 1:B:18:G:O4'      | 2.17        | 0.44     |
| 3:D:175:LEU:O    | 3:D:178:GLY:N     | 2.50        | 0.44     |
| 5:F:140:VAL:HG12 | 5:F:236:THR:HA    | 2.00        | 0.44     |
| 5:F:168:ARG:HA   | 5:F:232:LEU:O     | 2.18        | 0.44     |
| 5:F:243:VAL:O    | 5:F:246:ARG:C     | 2.54        | 0.44     |
| 6:G:102:GLY:HA2  | 6:G:134:LEU:HD11  | 1.95        | 0.44     |
| 6:G:56:ARG:HG3   | 6:G:65:GLU:CG     | 2.47        | 0.44     |
| 9:N:21:ARG:HA    | 9:N:24:SER:OG     | 2.17        | 0.44     |
| 10:O:3:GLN:CA    | 10:O:21:VAL:CG1   | 2.93        | 0.44     |
| 11:P:61:ALA:CB   | 11:P:107:LYS:HE2  | 2.39        | 0.44     |
| 11:P:144:ASP:CA  | 11:P:145:LEU:HD12 | 2.32        | 0.44     |
| 19:R:36:THR:O    | 19:R:112:ALA:O    | 2.34        | 0.44     |
| 13:S:87:LEU:O    | 13:S:88:ALA:O     | 2.36        | 0.44     |
| 14:T:13:ILE:CD1  | 14:T:33:SER:HB2   | 2.47        | 0.44     |
| 20:U:7:GLY:C     | 20:U:9:VAL:N      | 2.51        | 0.44     |
| 21:V:33:VAL:CG2  | 21:V:63:HIS:CG    | 3.00        | 0.44     |
| 2:A:1223:C:H42   | 21:V:87:ARG:HE    | 1.58        | 0.44     |
| 15:W:14:PRO:O    | 15:W:17:VAL:CB    | 2.61        | 0.44     |
| 15:W:45:TYR:CD2  | 15:W:45:TYR:C     | 2.91        | 0.44     |
| 2:A:84:A:N7      | 17:Y:111:ARG:NH2  | 2.61        | 0.44     |
| 17:Y:40:VAL:CG1  | 17:Y:41:ARG:HG2   | 2.46        | 0.44     |
| 17:Y:51:LEU:HD22 | 17:Y:95:ASN:CG    | 2.37        | 0.44     |
| 18:Z:125:PRO:O   | 18:Z:127:PRO:CD   | 2.61        | 0.44     |
| 18:Z:146:HIS:HB3 | 18:Z:170:SER:HB3  | 1.98        | 0.44     |
| 1:B:104:A:O2'    | 18:Z:24:TYR:HE2   | 1.99        | 0.44     |
| 8:I:141:LEU:HD13 | 8:I:142:LYS:H     | 1.73        | 0.44     |
| 2:A:1790:C:O3'   | 3:D:210:LYS:HE3   | 2.17        | 0.44     |
| 2:A:1789:A:P     | 3:D:226:GLY:HA2   | 2.55        | 0.44     |
| 16:X:31:ARG:CZ   | 16:X:31:ARG:HA    | 2.47        | 0.44     |
| 2:A:1055:G:C4    | 2:A:1056:G:O2'    | 2.68        | 0.44     |
| 2:A:1417:C:H42   | 2:A:1581:G:N2     | 2.14        | 0.44     |
| 2:A:1352:U:O2    | 2:A:1353:A:N7     | 2.51        | 0.44     |
| 2:A:154:G:H3'    | 2:A:155:C:H6      | 1.82        | 0.44     |
| 24:O:62:LEU:O    | 24:O:63:SER:O     | 2.35        | 0.44     |
| 23:3:3:ARG:HD3   | 23:3:60:GLU:HA    | 1.99        | 0.44     |
| 25:4:58:LYS:CG   | 25:4:62:ARG:NH2   | 2.76        | 0.44     |
| 26:5:30:LEU:HD21 | 26:5:41:LEU:CD2   | 2.42        | 0.44     |
| 28:7:21:ARG:HB3  | 28:7:31:LEU:HD12  | 1.78        | 0.44     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2349:G:C5    | 2:A:2350:C:C6     | 3.06        | 0.44     |
| 2:A:1954:G:N3    | 2:A:2551:C:H5''   | 2.32        | 0.44     |
| 2:A:2439:A:C8    | 2:A:2586:C:O3'    | 2.70        | 0.44     |
| 2:A:2689:U:C4'   | 2:A:2690:C:C5'    | 2.78        | 0.44     |
| 2:A:2705:A:O5'   | 2:A:2705:A:H8     | 2.00        | 0.44     |
| 2:A:2756:U:O2'   | 2:A:2757:A:O5'    | 2.33        | 0.44     |
| 2:A:2814:C:N1    | 2:A:2815:C:H5     | 2.16        | 0.44     |
| 2:A:2876:G:H2'   | 2:A:2877:G:H8     | 1.82        | 0.44     |
| 2:A:772:C:O5'    | 2:A:772:C:H6      | 2.01        | 0.44     |
| 2:A:674:G:C2     | 2:A:804:A:C2      | 3.05        | 0.44     |
| 3:D:194:VAL:CG2  | 3:D:195:GLY:H     | 2.04        | 0.44     |
| 2:A:2633:G:O2'   | 4:E:111:THR:HG22  | 2.17        | 0.44     |
| 5:F:160:LEU:O    | 5:F:165:ASP:OD2   | 2.36        | 0.44     |
| 5:F:164:ALA:C    | 5:F:232:LEU:HD12  | 2.31        | 0.44     |
| 6:G:13:MET:C     | 6:G:15:GLU:N      | 2.71        | 0.44     |
| 7:H:101:LYS:HG2  | 7:H:115:GLU:N     | 2.32        | 0.44     |
| 7:H:55:SER:O     | 7:H:57:GLU:CG     | 2.53        | 0.44     |
| 8:I:50:GLN:O     | 8:I:50:GLN:CG     | 2.66        | 0.44     |
| 9:N:54:VAL:CG1   | 9:N:139:LEU:CD1   | 2.96        | 0.44     |
| 9:N:41:ALA:HB1   | 9:N:75:PRO:HB2    | 1.95        | 0.44     |
| 9:N:74:ARG:O     | 9:N:75:PRO:O      | 2.35        | 0.44     |
| 10:O:107:ARG:HG3 | 10:O:115:ILE:CG2  | 2.48        | 0.44     |
| 10:O:73:ASP:O    | 10:O:74:GLY:C     | 2.49        | 0.44     |
| 11:P:56:LYS:O    | 11:P:57:VAL:HB    | 2.18        | 0.44     |
| 2:A:911:A:C1'    | 12:Q:16:ARG:HD2   | 2.46        | 0.44     |
| 12:Q:16:ARG:O    | 12:Q:20:ILE:HG12  | 2.17        | 0.44     |
| 12:Q:95:GLU:N    | 12:Q:95:GLU:CD    | 2.70        | 0.44     |
| 2:A:1275:A:H61   | 19:R:19:ALA:CB    | 2.30        | 0.44     |
| 14:T:27:ALA:C    | 14:T:28:THR:HG23  | 2.38        | 0.44     |
| 14:T:5:GLU:O     | 14:T:8:TYR:CA     | 2.66        | 0.44     |
| 20:U:63:GLN:O    | 20:U:65:ILE:CA    | 2.65        | 0.44     |
| 21:V:50:ASP:HB2  | 21:V:53:LYS:HG3   | 0.53        | 0.44     |
| 21:V:18:ASP:CB   | 21:V:96:LEU:HA    | 2.47        | 0.44     |
| 2:A:1261:C:OP1   | 15:W:97:LYS:NZ    | 2.51        | 0.44     |
| 17:Y:105:ASP:O   | 17:Y:106:GLU:C    | 2.55        | 0.44     |
| 17:Y:103:LEU:CG  | 17:Y:112:LEU:HD21 | 2.24        | 0.44     |
| 17:Y:46:ASP:OD1  | 17:Y:47:THR:O     | 2.36        | 0.44     |
| 17:Y:79:LEU:O    | 17:Y:87:VAL:N     | 2.50        | 0.44     |
| 2:A:874:G:OP1    | 18:Z:172:LEU:HD11 | 2.16        | 0.44     |
| 8:I:140:THR:HG22 | 8:I:140:THR:O     | 2.17        | 0.44     |
| 8:I:95:SER:HG    | 8:I:98:ILE:CD1    | 2.01        | 0.44     |
| 22:2:59:ILE:CG1  | 22:2:60:GLN:H     | 2.29        | 0.44     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:1300:U:C6   | 2:A:1301:A:H2    | 2.35        | 0.44     |
| 2:A:227:A:N6    | 2:A:2407:G:C8    | 2.74        | 0.44     |
| 2:A:1102:C:H2'  | 2:A:1103:A:H8    | 1.82        | 0.44     |
| 24:0:39:ARG:CG  | 24:0:69:PHE:HE1  | 2.17        | 0.44     |
| 26:5:10:LYS:HB2 | 26:5:10:LYS:NZ   | 2.33        | 0.44     |
| 28:7:11:LYS:O   | 28:7:13:ALA:CA   | 2.62        | 0.44     |
| 28:7:32:ALA:HA  | 28:7:35:ARG:HD3  | 1.93        | 0.44     |
| 2:A:1364:G:H3'  | 25:4:3:LYS:NZ    | 2.31        | 0.44     |
| 2:A:1649:G:O2'  | 19:R:104:ARG:NH1 | 2.48        | 0.44     |
| 2:A:1657:C:C5   | 2:A:1658:C:H5    | 2.36        | 0.44     |
| 2:A:2023:G:OP2  | 2:A:2023:G:C8    | 2.70        | 0.44     |
| 2:A:2044:C:N4   | 2:A:2624:G:N1    | 2.32        | 0.44     |
| 2:A:2073:C:H42  | 2:A:2437:U:H3    | 1.64        | 0.44     |
| 2:A:2234:G:N1   | 2:A:2235:G:C6    | 2.84        | 0.44     |
| 2:A:2246:G:C5   | 2:A:2426:A:C4    | 3.05        | 0.44     |
| 2:A:2256:G:C2   | 2:A:2257:U:N1    | 2.85        | 0.44     |
| 2:A:2259:G:C6   | 2:A:2281:C:N3    | 2.85        | 0.44     |
| 2:A:2302:G:C6   | 2:A:2315:G:N1    | 2.81        | 0.44     |
| 2:A:2309:A:H2'  | 2:A:2309:A:N3    | 2.32        | 0.44     |
| 2:A:2337:G:N1   | 2:A:2338:G:O6    | 2.49        | 0.44     |
| 2:A:2400:G:N1   | 2:A:2401:U:C2    | 2.85        | 0.44     |
| 2:A:2516:G:N7   | 2:A:2517:C:C4    | 2.86        | 0.44     |
| 2:A:2531:A:O2'  | 2:A:2532:G:H5''  | 2.18        | 0.44     |
| 2:A:2804:C:H2'  | 2:A:2804:C:H6    | 1.67        | 0.44     |
| 2:A:2852:G:C6   | 2:A:2866:U:O4    | 2.71        | 0.44     |
| 2:A:337:C:OP1   | 17:Y:24:ARG:CD   | 2.65        | 0.44     |
| 2:A:342:G:H1    | 2:A:344:G:H22    | 1.62        | 0.44     |
| 2:A:37:C:H5'    | 2:A:451:C:O4'    | 2.17        | 0.44     |
| 2:A:604:G:N2    | 2:A:657:U:H4'    | 2.30        | 0.44     |
| 3:D:66:PHE:HD2  | 3:D:67:LYS:CD    | 2.22        | 0.44     |
| 2:A:2679:A:H5'' | 4:E:261:ARG:HD3  | 1.98        | 0.44     |
| 5:F:22:PHE:HZ   | 5:F:115:LEU:CG   | 2.30        | 0.44     |
| 6:G:24:HIS:O    | 6:G:129:ASP:HB3  | 2.17        | 0.44     |
| 6:G:129:ASP:O   | 6:G:130:VAL:HG12 | 2.17        | 0.44     |
| 7:H:159:LYS:N   | 7:H:162:ARG:CZ   | 2.74        | 0.44     |
| 8:I:5:PHE:CD2   | 8:I:17:GLU:O     | 2.70        | 0.44     |
| 9:N:52:GLN:CA   | 9:N:55:GLU:OE2   | 2.61        | 0.44     |
| 2:A:2563:U:H4'  | 10:O:27:GLY:HA2  | 2.00        | 0.44     |
| 10:O:62:VAL:O   | 10:O:63:VAL:HG23 | 2.17        | 0.44     |
| 13:S:52:PRO:O   | 13:S:55:ASP:HB3  | 2.14        | 0.44     |
| 14:T:15:PRO:C   | 14:T:17:THR:N    | 2.63        | 0.44     |
| 2:A:1251:C:O5'  | 20:U:10:ARG:HG3  | 2.17        | 0.44     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 20:U:66:ASN:CB  | 20:U:76:TYR:CZ   | 2.74        | 0.44     |
| 20:U:63:GLN:HA  | 20:U:66:ASN:CG   | 2.38        | 0.44     |
| 20:U:88:ILE:O   | 21:V:52:GLY:CA   | 2.61        | 0.44     |
| 21:V:5:ILE:N    | 21:V:12:TYR:CZ   | 2.65        | 0.44     |
| 18:Z:6:LYS:H    | 18:Z:7:PRO:HD2   | 1.73        | 0.44     |
| 2:A:1790:C:O3'  | 3:D:210:LYS:CD   | 2.65        | 0.44     |
| 22:2:55:ARG:HB2 | 22:2:56:ILE:H    | 1.67        | 0.44     |
| 2:A:121:G:N2    | 2:A:131:G:C8     | 2.85        | 0.44     |
| 1:B:40:U:H3'    | 1:B:41:U:C5'     | 2.35        | 0.44     |
| 2:A:269:U:C5'   | 2:A:270(Y):G:H2' | 2.44        | 0.44     |
| 2:A:184:C:H4'   | 2:A:217:G:N2     | 2.32        | 0.44     |
| 2:A:1379:A:H3'  | 2:A:1379:A:N3    | 2.31        | 0.44     |
| 24:0:49:GLN:NE2 | 24:0:49:GLN:N    | 2.66        | 0.44     |
| 24:0:37:LEU:HG  | 24:0:71:ASN:HD22 | 1.82        | 0.44     |
| 23:3:24:LYS:O   | 23:3:24:LYS:HG3  | 2.17        | 0.44     |
| 25:4:62:ARG:H   | 25:4:62:ARG:HG3  | 1.42        | 0.44     |
| 2:A:126:A:C4    | 28:7:18:PHE:CG   | 3.05        | 0.44     |
| 28:7:28:ARG:O   | 28:7:31:LEU:HG   | 2.18        | 0.44     |
| 28:7:31:LEU:O   | 28:7:35:ARG:HG3  | 2.17        | 0.44     |
| 2:A:1651:G:H1   | 2:A:2006:C:N4    | 2.10        | 0.44     |
| 2:A:2032:G:N2   | 2:A:2055:C:H42   | 2.16        | 0.44     |
| 2:A:2272:U:C6   | 2:A:2273:A:H2    | 2.36        | 0.44     |
| 2:A:2400:G:N1   | 2:A:2401:U:O2    | 2.50        | 0.44     |
| 2:A:2417:C:C4   | 2:A:2418:A:N7    | 2.85        | 0.44     |
| 2:A:2461:C:H2'  | 2:A:2462:U:O5'   | 2.18        | 0.44     |
| 2:A:2514:U:H2'  | 2:A:2515:C:H6    | 1.81        | 0.44     |
| 2:A:2548:G:C5   | 2:A:2549:G:C8    | 3.06        | 0.44     |
| 2:A:2611:U:C6   | 2:A:2611:U:C4'   | 3.01        | 0.44     |
| 2:A:2623:G:H5'  | 2:A:2826:A:O2'   | 2.17        | 0.44     |
| 2:A:2676:C:C2'  | 2:A:2677:G:O5'   | 2.66        | 0.44     |
| 2:A:2793:G:N2   | 2:A:2803:C:O2    | 2.49        | 0.44     |
| 2:A:2841:C:P    | 19:R:53:HIS:CE1  | 3.10        | 0.44     |
| 2:A:297:C:C2    | 2:A:342:G:N2     | 2.84        | 0.44     |
| 2:A:594:U:OP1   | 29:8:61:MET:HE1  | 2.15        | 0.44     |
| 2:A:611:C:O2'   | 2:A:616:A:C2     | 2.68        | 0.44     |
| 2:A:84:A:OP1    | 17:Y:20:HIS:CD2  | 2.70        | 0.44     |
| 2:A:920:G:C8    | 2:A:920:G:O5'    | 2.71        | 0.44     |
| 2:A:997:G:C5'   | 20:U:92:ARG:CZ   | 2.79        | 0.44     |
| 3:D:229:MET:SD  | 3:D:233:ASP:HB2  | 2.58        | 0.44     |
| 2:A:1568:G:C5'  | 3:D:60:GLN:CG    | 2.85        | 0.44     |
| 4:E:96:LEU:C    | 4:E:97:THR:HG23  | 2.38        | 0.44     |
| 5:F:11:ASN:HD21 | 5:F:160:LEU:HD11 | 1.82        | 0.44     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:220:THR:CB   | 5:F:224:ALA:CB   | 2.84        | 0.44     |
| 5:F:62:GLY:N     | 5:F:65:ARG:CZ    | 2.78        | 0.44     |
| 6:G:103:ASN:N    | 6:G:104:PHE:CE1  | 2.86        | 0.44     |
| 6:G:128:LEU:O    | 6:G:129:ASP:HB2  | 2.15        | 0.44     |
| 8:I:22:ALA:O     | 8:I:23:ASP:C     | 2.47        | 0.44     |
| 9:N:22:VAL:O     | 9:N:23:ALA:C     | 2.55        | 0.44     |
| 9:N:21:ARG:C     | 9:N:24:SER:OG    | 2.42        | 0.44     |
| 10:O:17:ARG:CZ   | 10:O:47:THR:N    | 2.79        | 0.44     |
| 10:O:1:MET:HB3   | 10:O:67:ARG:NE   | 2.32        | 0.44     |
| 10:O:53:LYS:O    | 10:O:54:LYS:O    | 2.35        | 0.44     |
| 12:Q:42:TYR:N    | 12:Q:43:PRO:CD   | 2.81        | 0.44     |
| 2:A:1287:A:H1'   | 19:R:104:ARG:NH1 | 2.32        | 0.44     |
| 13:S:21:HIS:HA   | 13:S:24:LEU:HG   | 1.99        | 0.44     |
| 2:A:994:C:C3'    | 20:U:54:LYS:HE2  | 2.46        | 0.44     |
| 20:U:85:ARG:C    | 20:U:86:ALA:O    | 2.56        | 0.44     |
| 18:Z:148:THR:HB  | 18:Z:166:LEU:H   | 1.81        | 0.44     |
| 18:Z:40:ASP:C    | 18:Z:44:ARG:CG   | 2.86        | 0.44     |
| 18:Z:74:ARG:O    | 18:Z:75:LYS:C    | 2.56        | 0.44     |
| 22:2:18:ALA:O    | 22:2:21:ASP:HB2  | 2.18        | 0.44     |
| 22:2:52:ALA:HA   | 22:2:55:ARG:HH11 | 1.82        | 0.44     |
| 16:X:6:LYS:HE2   | 16:X:29:ASP:HA   | 1.92        | 0.44     |
| 2:A:49:A:H61     | 2:A:176:G:H1     | 1.64        | 0.44     |
| 2:A:1330:C:H2'   | 2:A:1330:C:O2    | 2.17        | 0.44     |
| 25:4:58:LYS:O    | 25:4:61:LYS:CB   | 2.65        | 0.44     |
| 28:7:20:ALA:O    | 28:7:22:MET:C    | 2.56        | 0.44     |
| 2:A:2393:A:H5''  | 29:8:13:ARG:HH21 | 1.83        | 0.44     |
| 29:8:8:LYS:HA    | 29:8:11:LYS:HG3  | 1.99        | 0.44     |
| 30:9:24:LEU:HD22 | 30:9:36:GLN:N    | 2.28        | 0.44     |
| 2:A:1778:U:H3    | 2:A:1785:A:H62   | 1.64        | 0.44     |
| 2:A:1933:G:O6    | 2:A:1968:G:N2    | 2.50        | 0.44     |
| 2:A:2029:G:C5    | 2:A:2031:A:OP1   | 2.70        | 0.44     |
| 2:A:2061:G:C4    | 2:A:2503:A:C2    | 3.06        | 0.44     |
| 2:A:2232:U:C2'   | 2:A:2233:U:H5''  | 2.45        | 0.44     |
| 2:A:2271:G:O2'   | 2:A:2272:U:O2    | 2.35        | 0.44     |
| 2:A:2336:A:H2'   | 2:A:2337:G:H8    | 1.82        | 0.44     |
| 2:A:2376:A:H62   | 13:S:109:PRO:CG  | 2.31        | 0.44     |
| 2:A:2397:G:C6    | 2:A:2398:U:C4    | 3.06        | 0.44     |
| 2:A:2550:G:N3    | 2:A:2551:C:C5    | 2.85        | 0.44     |
| 2:A:2561:A:H3'   | 2:A:2561:A:H8    | 1.79        | 0.44     |
| 2:A:2679:A:C6    | 2:A:2729:G:N1    | 2.86        | 0.44     |
| 2:A:2701:C:H42   | 2:A:2705:A:H62   | 1.65        | 0.44     |
| 2:A:2721:A:O2'   | 2:A:2874:C:H5'   | 2.17        | 0.44     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:338:G:O5'    | 17:Y:21:LYS:HB2  | 2.17        | 0.44     |
| 2:A:380:U:HO2'   | 25:4:15:ILE:C    | 2.21        | 0.44     |
| 2:A:592:G:H1'    | 29:8:2:PRO:N     | 2.32        | 0.44     |
| 2:A:834:C:HO2'   | 2:A:2358:G:H2'   | 1.83        | 0.44     |
| 2:A:918:A:H4'    | 2:A:918:A:OP1    | 2.18        | 0.44     |
| 2:A:2218:G:H4'   | 3:D:147:PRO:HG3  | 1.98        | 0.44     |
| 3:D:197:GLY:N    | 3:D:199:ARG:HH11 | 2.15        | 0.44     |
| 3:D:73:ILE:HG13  | 3:D:73:ILE:H     | 1.59        | 0.44     |
| 4:E:180:ILE:CG2  | 4:E:183:ASP:OD2  | 2.65        | 0.44     |
| 4:E:180:ILE:CG2  | 4:E:186:GLU:C    | 2.80        | 0.44     |
| 5:F:153:VAL:HG12 | 5:F:157:LEU:HD11 | 2.00        | 0.44     |
| 5:F:36:ARG:HA    | 5:F:39:GLN:HE21  | 1.64        | 0.44     |
| 10:O:24:VAL:CG1  | 10:O:32:TYR:C    | 2.86        | 0.44     |
| 19:R:39:PRO:HB2  | 19:R:40:LYS:H    | 1.65        | 0.44     |
| 13:S:81:ALA:CB   | 13:S:118:ILE:N   | 2.69        | 0.44     |
| 6:G:145:ASP:CG   | 13:S:15:GLU:O    | 2.54        | 0.44     |
| 14:T:52:THR:HB   | 14:T:53:ASP:H    | 1.61        | 0.44     |
| 2:A:533:G:OP1    | 20:U:24:PHE:HB2  | 2.17        | 0.44     |
| 21:V:64:GLY:N    | 21:V:94:LYS:O    | 2.49        | 0.44     |
| 15:W:53:SER:O    | 15:W:57:ASN:HB2  | 2.18        | 0.44     |
| 17:Y:55:PHE:O    | 17:Y:56:ALA:C    | 2.55        | 0.44     |
| 18:Z:164:PRO:O   | 18:Z:165:GLU:C   | 2.55        | 0.44     |
| 18:Z:69:VAL:CG1  | 18:Z:70:GLN:N    | 2.58        | 0.44     |
| 8:I:92:SER:O     | 8:I:93:ILE:HG22  | 2.18        | 0.44     |
| 2:A:1080:C:H2'   | 2:A:1081:U:O4'   | 2.17        | 0.44     |
| 22:2:24:LYS:O    | 22:2:27:LEU:N    | 2.51        | 0.44     |
| 2:A:59:U:N1      | 2:A:73:A:C6      | 2.86        | 0.44     |
| 7:H:53:ARG:HD2   | 7:H:56:ASP:CA    | 2.44        | 0.44     |
| 2:A:1924:C:N4    | 2:A:1925:C:H41   | 2.13        | 0.44     |
| 2:A:1520:U:C2'   | 2:A:1521:G:H5''  | 2.44        | 0.44     |
| 2:A:1472:A:C1'   | 2:A:1473:G:C8    | 3.01        | 0.44     |
| 2:A:204:A:O2'    | 2:A:205:G:P      | 2.75        | 0.44     |
| 2:A:651:G:H3'    | 2:A:652:C:H6     | 1.82        | 0.44     |
| 25:4:68:ARG:NH1  | 25:4:72:LYS:HE2  | 2.33        | 0.44     |
| 28:7:30:ILE:C    | 28:7:33:ARG:CB   | 2.48        | 0.44     |
| 2:A:1022:G:O2'   | 2:A:1023:U:OP2   | 2.35        | 0.44     |
| 2:A:2228:G:C4'   | 2:A:2228:G:C8    | 3.01        | 0.44     |
| 2:A:2279:G:C6    | 2:A:2280:G:C6    | 3.05        | 0.44     |
| 2:A:2330:G:N2    | 2:A:2331:G:C4    | 2.79        | 0.44     |
| 2:A:2333:A:C5    | 2:A:2335:A:C2    | 3.05        | 0.44     |
| 2:A:2497:A:O2'   | 2:A:2498:C:C5    | 2.67        | 0.44     |
| 2:A:2548:G:C6    | 2:A:2549:G:C5    | 3.05        | 0.44     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2581:G:H1    | 2:A:2610:C:H2'    | 1.74        | 0.44     |
| 2:A:2048:G:C5    | 2:A:2621:A:C2     | 3.03        | 0.44     |
| 2:A:2620:C:C6    | 2:A:2621:A:C8     | 3.06        | 0.44     |
| 2:A:2634:G:C2'   | 2:A:2635:C:C5'    | 2.93        | 0.44     |
| 2:A:2657:A:H3'   | 2:A:2658:C:H5'    | 1.97        | 0.44     |
| 2:A:2657:A:C5    | 2:A:2665:A:N6     | 2.86        | 0.44     |
| 2:A:2786:U:H4'   | 4:E:102:ASP:OD1   | 2.18        | 0.44     |
| 2:A:2839:G:C2    | 2:A:2840:C:C5     | 3.06        | 0.44     |
| 2:A:2845:G:HO2'  | 2:A:2846:G:C5'    | 1.91        | 0.44     |
| 2:A:292:C:H5''   | 2:A:293:U:OP1     | 2.17        | 0.44     |
| 2:A:338:G:H8     | 17:Y:21:LYS:HB2   | 1.83        | 0.44     |
| 2:A:775:G:C4'    | 2:A:777:A:N3      | 2.81        | 0.44     |
| 1:B:37:C:O2      | 13:S:111:PRO:CG   | 2.66        | 0.44     |
| 3:D:143:ILE:CD1  | 3:D:143:ILE:N     | 2.54        | 0.44     |
| 2:A:1819:A:P     | 3:D:154:VAL:CA    | 3.04        | 0.44     |
| 3:D:197:GLY:N    | 3:D:199:ARG:HD2   | 2.33        | 0.44     |
| 3:D:79:THR:N     | 3:D:91:ALA:HB1    | 2.32        | 0.44     |
| 4:E:105:HIS:ND1  | 4:E:108:LEU:CD1   | 2.74        | 0.44     |
| 4:E:267:ARG:HD3  | 4:E:297:LYS:HB3   | 1.99        | 0.44     |
| 5:F:99:SER:O     | 5:F:100:LEU:CG    | 2.65        | 0.44     |
| 2:A:600:G:HO2'   | 5:F:109:LEU:HD11  | 1.78        | 0.44     |
| 5:F:33:LYS:O     | 5:F:34:ALA:O      | 2.34        | 0.44     |
| 6:G:134:LEU:O    | 6:G:135:VAL:CG2   | 2.65        | 0.44     |
| 6:G:55:LYS:C     | 6:G:56:ARG:CG     | 2.86        | 0.44     |
| 6:G:98:PHE:HD2   | 6:G:98:PHE:N      | 2.16        | 0.44     |
| 7:H:85:ALA:C     | 7:H:164:GLU:HG2   | 2.38        | 0.44     |
| 7:H:37:HIS:HA    | 7:H:38:PRO:HD3    | 1.90        | 0.44     |
| 7:H:55:SER:OG    | 7:H:57:GLU:HG2    | 2.18        | 0.44     |
| 7:H:8:ILE:HD13   | 7:H:72:ALA:HB2    | 1.99        | 0.44     |
| 9:N:78:ILE:O     | 9:N:82:THR:HG21   | 2.12        | 0.44     |
| 10:O:8:LEU:CD2   | 10:O:19:VAL:O     | 2.65        | 0.44     |
| 10:O:13:ASN:HD21 | 10:O:97:ARG:HB3   | 1.83        | 0.44     |
| 19:R:51:LEU:HD23 | 19:R:51:LEU:HA    | 1.84        | 0.44     |
| 19:R:90:ARG:HB3  | 19:R:91:GLN:H     | 1.57        | 0.44     |
| 13:S:103:ASP:C   | 13:S:105:GLY:N    | 2.68        | 0.44     |
| 13:S:37:ARG:HB2  | 13:S:44:ARG:O     | 2.18        | 0.44     |
| 13:S:37:ARG:N    | 13:S:44:ARG:O     | 2.51        | 0.44     |
| 2:A:444:C:OP2    | 20:U:2:PRO:HD3    | 2.18        | 0.44     |
| 3:D:215:LYS:O    | 3:D:216:ALA:C     | 2.56        | 0.44     |
| 2:A:1059:G:H1'   | 31:K:127:ILE:HG21 | 1.99        | 0.44     |
| 16:X:4:VAL:CB    | 22:2:24:LYS:HZ2   | 2.20        | 0.44     |
| 2:A:148:C:HO3'   | 2:A:149:A:C4'     | 2.30        | 0.44     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:X:14:ALA:O    | 16:X:17:ASP:OD1  | 2.35        | 0.44     |
| 16:X:11:THR:O    | 16:X:15:MET:HE2  | 2.16        | 0.44     |
| 8:I:59:ALA:C     | 8:I:62:LEU:HB2   | 2.34        | 0.44     |
| 2:A:1942:C:H2'   | 2:A:1943:U:C5    | 2.53        | 0.44     |
| 1:B:99:A:H2'     | 1:B:100:G:H8     | 1.73        | 0.44     |
| 2:A:482:A:N6     | 2:A:506:G:C4     | 2.86        | 0.44     |
| 2:A:1476:C:N4    | 2:A:1517:G:H1'   | 2.33        | 0.44     |
| 7:H:19:ASN:O     | 7:H:21:ASN:N     | 2.46        | 0.44     |
| 2:A:1173:G:N2    | 2:A:1174:A:C2    | 2.84        | 0.44     |
| 9:N:11:ILE:O     | 9:N:11:ILE:HG22  | 2.18        | 0.44     |
| 2:A:273(A):G:C6  | 2:A:363(D):G:O6  | 2.71        | 0.44     |
| 2:A:270(S):G:H2' | 2:A:270(T):G:H8  | 1.81        | 0.44     |
| 24:0:49:GLN:NE2  | 24:0:49:GLN:CA   | 2.76        | 0.44     |
| 27:6:8:ILE:HD12  | 27:6:29:ARG:NE   | 2.33        | 0.44     |
| 2:A:2286:A:N6    | 27:6:32:GLN:O    | 2.51        | 0.44     |
| 2:A:1166:C:H42   | 2:A:1183:G:H1    | 1.66        | 0.44     |
| 2:A:125:G:H21    | 28:7:9:ASN:C     | 2.21        | 0.44     |
| 2:A:1935:G:H2'   | 2:A:1962:C:C4    | 2.53        | 0.44     |
| 2:A:2287:A:O2'   | 2:A:2288:A:O5'   | 2.34        | 0.44     |
| 2:A:2302:G:C2    | 2:A:2315:G:C5    | 3.06        | 0.44     |
| 2:A:2376:A:N3    | 2:A:2377:A:C8    | 2.86        | 0.44     |
| 2:A:199:A:H2     | 2:A:2433:A:C4    | 2.28        | 0.44     |
| 2:A:2511:U:C4    | 2:A:2512:C:C4    | 3.06        | 0.44     |
| 2:A:2525:G:H1    | 2:A:2539:C:N4    | 2.13        | 0.44     |
| 2:A:2519:U:O2    | 2:A:2542:A:C6    | 2.70        | 0.44     |
| 2:A:2521:C:H4'   | 2:A:2564:A:O2'   | 2.18        | 0.44     |
| 2:A:2620:C:HO2'  | 2:A:2621:A:P     | 2.35        | 0.44     |
| 2:A:2751:G:C2'   | 2:A:2751:G:N3    | 2.81        | 0.44     |
| 2:A:2805:G:H8    | 2:A:2807:G:O4'   | 2.01        | 0.44     |
| 2:A:2888:C:N3    | 2:A:2889:C:C4    | 2.85        | 0.44     |
| 2:A:396:G:OP1    | 25:4:10:VAL:CG1  | 2.63        | 0.44     |
| 2:A:569:U:C4     | 2:A:570:G:C6     | 3.06        | 0.44     |
| 2:A:680:G:C6     | 2:A:681:G:C6     | 3.06        | 0.44     |
| 2:A:853:G:H2'    | 2:A:854:G:H8     | 1.82        | 0.44     |
| 1:B:18:G:H2'     | 1:B:19:G:H8      | 1.82        | 0.44     |
| 1:B:51:G:OP2     | 13:S:72:GLU:CG   | 2.65        | 0.44     |
| 3:D:142:ASN:CG   | 3:D:190:THR:HG23 | 2.39        | 0.44     |
| 2:A:2786:U:O5'   | 4:E:100:TRP:O    | 2.30        | 0.44     |
| 4:E:176:HIS:O    | 4:E:177:ALA:C    | 2.55        | 0.44     |
| 5:F:195:VAL:HG13 | 5:F:213:ALA:CA   | 2.47        | 0.44     |
| 6:G:14:ARG:HG3   | 6:G:137:PRO:HG3  | 2.00        | 0.44     |
| 1:B:59:A:O4'     | 6:G:144:ARG:NE   | 2.51        | 0.44     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:G:98:PHE:HA    | 6:G:104:PHE:CE2  | 2.27        | 0.44     |
| 7:H:151:ARG:HA   | 7:H:152:PRO:HD2  | 1.76        | 0.44     |
| 7:H:44:VAL:CB    | 7:H:49:ILE:HG22  | 2.46        | 0.44     |
| 7:H:87:GLU:HB3   | 7:H:164:GLU:CD   | 2.38        | 0.44     |
| 8:I:39:ALA:O     | 8:I:40:THR:O     | 2.36        | 0.44     |
| 8:I:49:ALA:O     | 8:I:53:LYS:HG2   | 2.18        | 0.44     |
| 8:I:5:PHE:CG     | 8:I:17:GLU:O     | 2.71        | 0.44     |
| 2:A:1140:C:P     | 9:N:18:ILE:HD11  | 2.58        | 0.44     |
| 9:N:21:ARG:O     | 9:N:22:VAL:O     | 2.35        | 0.44     |
| 9:N:25:GLN:CA    | 9:N:28:GLU:HG3   | 2.28        | 0.44     |
| 9:N:31:LEU:C     | 9:N:33:GLY:N     | 2.67        | 0.44     |
| 9:N:44:ALA:O     | 9:N:45:VAL:CG2   | 2.65        | 0.44     |
| 9:N:96:GLU:O     | 9:N:98:PHE:N     | 2.51        | 0.44     |
| 10:O:11:ALA:CA   | 10:O:99:PHE:CB   | 2.96        | 0.44     |
| 12:Q:102:ARG:O   | 12:Q:104:PRO:N   | 2.51        | 0.44     |
| 13:S:120:GLU:OE1 | 13:S:120:GLU:N   | 2.51        | 0.44     |
| 13:S:123:ILE:O   | 13:S:124:ASP:C   | 2.55        | 0.44     |
| 20:U:99:ALA:HB3  | 20:U:106:PHE:CZ  | 2.41        | 0.44     |
| 2:A:1156:A:P     | 20:U:55:ARG:NH1  | 2.90        | 0.44     |
| 20:U:55:ARG:O    | 20:U:57:PHE:C    | 2.56        | 0.44     |
| 20:U:64:ARG:O    | 20:U:67:ALA:HB3  | 2.18        | 0.44     |
| 20:U:65:ILE:O    | 20:U:66:ASN:C    | 2.56        | 0.44     |
| 20:U:61:TRP:CE3  | 20:U:93:LYS:HA   | 2.53        | 0.44     |
| 2:A:566:U:C5'    | 21:V:81:ARG:HH22 | 2.30        | 0.44     |
| 21:V:89:ASN:O    | 21:V:90:PHE:C    | 2.56        | 0.44     |
| 15:W:13:SER:HB3  | 15:W:16:LYS:HB2  | 2.00        | 0.44     |
| 15:W:24:ILE:HD13 | 15:W:36:LEU:HG   | 2.00        | 0.44     |
| 15:W:3:ALA:HB2   | 15:W:62:HIS:CB   | 2.48        | 0.44     |
| 17:Y:22:GLN:O    | 17:Y:24:ARG:N    | 2.51        | 0.44     |
| 18:Z:21:ALA:HA   | 18:Z:81:VAL:O    | 2.18        | 0.44     |
| 8:I:116:GLU:OE1  | 8:I:130:PRO:HB2  | 2.17        | 0.44     |
| 8:I:93:ILE:HG23  | 8:I:122:ARG:HA   | 1.99        | 0.44     |
| 2:A:59:U:C2      | 2:A:73:A:N1      | 2.86        | 0.44     |
| 2:A:95:G:O2'     | 22:2:42:ASN:C    | 2.51        | 0.44     |
| 16:X:46:ASP:HB2  | 16:X:47:VAL:H    | 1.64        | 0.44     |
| 2:A:1805:U:H2'   | 2:A:1806:C:H6    | 1.83        | 0.44     |
| 2:A:1554:A:N6    | 2:A:1626:G:OP2   | 2.50        | 0.44     |
| 2:A:162:U:H4'    | 2:A:171:G:N3     | 2.33        | 0.44     |
| 2:A:546:C:C5     | 2:A:1221:C:OP1   | 2.71        | 0.44     |
| 4:E:274:GLY:H    | 4:E:291:GLY:C    | 2.21        | 0.44     |
| 23:3:8:LEU:HD23  | 23:3:31:LEU:HD23 | 1.98        | 0.43     |
| 25:4:68:ARG:HB3  | 25:4:72:LYS:HA   | 2.00        | 0.43     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 27:6:28:ARG:O     | 27:6:29:ARG:C    | 2.57        | 0.43     |
| 27:6:48:VAL:C     | 27:6:50:PHE:CE1  | 2.78        | 0.43     |
| 2:A:54:G:HO2'     | 28:7:35:ARG:NH2  | 2.06        | 0.43     |
| 28:7:43:THR:C     | 28:7:45:SER:N    | 2.68        | 0.43     |
| 2:A:1657:C:C3'    | 2:A:1657:C:C6    | 3.01        | 0.43     |
| 2:A:2093:G:C1'    | 2:A:2198:A:C6    | 2.91        | 0.43     |
| 2:A:2322:A:OP1    | 2:A:2322:A:C4'   | 2.66        | 0.43     |
| 2:A:2328:A:C6     | 2:A:2329:G:N7    | 2.83        | 0.43     |
| 2:A:2352:A:C2'    | 2:A:2353:G:O5'   | 2.66        | 0.43     |
| 2:A:2422:A:C2     | 2:A:2424:C:C4    | 3.06        | 0.43     |
| 2:A:2532:G:O2'    | 2:A:2533:A:H5'   | 2.18        | 0.43     |
| 2:A:2588:G:H5''   | 2:A:2589:A:OP2   | 2.18        | 0.43     |
| 2:A:2605:U:C3'    | 2:A:2605:U:C6    | 3.01        | 0.43     |
| 2:A:2611:U:H6     | 2:A:2611:U:H5'   | 1.83        | 0.43     |
| 2:A:2747:G:O2'    | 2:A:2748:A:H5''  | 2.18        | 0.43     |
| 2:A:2638:G:C6     | 2:A:2776:A:OP2   | 2.70        | 0.43     |
| 2:A:452:G:N2      | 2:A:457:A:H2     | 2.13        | 0.43     |
| 2:A:13:A:N1       | 2:A:525:U:H2'    | 2.32        | 0.43     |
| 2:A:994:C:O2      | 20:U:53:LYS:CG   | 2.66        | 0.43     |
| 1:B:6:C:H2'       | 1:B:7:G:C8       | 2.53        | 0.43     |
| 3:D:107:LYS:H     | 3:D:194:VAL:C    | 2.06        | 0.43     |
| 3:D:141:HIS:HE1   | 3:D:192:GLY:CA   | 2.30        | 0.43     |
| 3:D:74:PRO:HA     | 3:D:116:MET:HE3  | 1.94        | 0.43     |
| 4:E:43:GLY:HA3    | 4:E:75:THR:HG1   | 1.79        | 0.43     |
| 5:F:37:ALA:HB2    | 5:F:102:LEU:HG   | 2.00        | 0.43     |
| 5:F:113:SER:O     | 5:F:116:ALA:CB   | 2.51        | 0.43     |
| 5:F:164:ALA:O     | 5:F:232:LEU:HB2  | 2.18        | 0.43     |
| 6:G:145:ASP:HB2   | 13:S:15:GLU:HG2  | 1.99        | 0.43     |
| 6:G:56:ARG:CG     | 6:G:65:GLU:CG    | 2.96        | 0.43     |
| 6:G:98:PHE:CD2    | 6:G:98:PHE:N     | 2.85        | 0.43     |
| 7:H:34:ARG:HD2    | 7:H:36:PHE:CE1   | 2.52        | 0.43     |
| 8:I:6:LEU:CD2     | 8:I:14:LYS:HD3   | 2.28        | 0.43     |
| 9:N:54:VAL:HG13   | 9:N:138:THR:OG1  | 2.18        | 0.43     |
| 11:P:55:GLN:CG    | 11:P:56:LYS:N    | 2.80        | 0.43     |
| 11:P:71:GLU:O     | 11:P:74:THR:OG1  | 2.33        | 0.43     |
| 19:R:28:LEU:C     | 19:R:28:LEU:HD13 | 2.37        | 0.43     |
| 13:S:103:ASP:OD2  | 13:S:105:GLY:CA  | 2.66        | 0.43     |
| 13:S:104:ILE:O    | 13:S:104:ILE:CG2 | 2.65        | 0.43     |
| 2:A:995:C:C1'     | 20:U:57:PHE:CE2  | 2.96        | 0.43     |
| 15:W:66:GLU:CD    | 15:W:67:ASP:N    | 2.67        | 0.43     |
| 18:Z:141:MET:HB2  | 18:Z:171:VAL:CG1 | 2.47        | 0.43     |
| 18:Z:166:LEU:HD13 | 18:Z:167:THR:OG1 | 2.17        | 0.43     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:D:216:ALA:CB   | 3:D:223:ASN:H    | 2.31        | 0.43     |
| 22:2:19:GLU:OE1  | 22:2:20:LEU:N    | 2.50        | 0.43     |
| 2:A:148:C:O2'    | 2:A:149:A:C1'    | 2.65        | 0.43     |
| 16:X:11:THR:O    | 16:X:12:GLU:C    | 2.56        | 0.43     |
| 16:X:55:GLN:N    | 16:X:63:LYS:O    | 2.51        | 0.43     |
| 16:X:28:VAL:HG21 | 16:X:64:ALA:HB2  | 2.00        | 0.43     |
| 8:I:47:LEU:O     | 8:I:51:LYS:HG3   | 2.18        | 0.43     |
| 2:A:707:G:H1     | 2:A:724:U:H3     | 1.66        | 0.43     |
| 2:A:668:G:C2'    | 2:A:670:A:H62    | 2.29        | 0.43     |
| 2:A:161:U:H5'    | 2:A:162:U:C6     | 2.53        | 0.43     |
| 2:A:1375:C:H2'   | 2:A:1376:C:H6    | 1.83        | 0.43     |
| 2:A:521:G:H2'    | 2:A:522:G:H8     | 1.81        | 0.43     |
| 26:5:34:PRO:HD2  | 26:5:36:CYS:CB   | 2.48        | 0.43     |
| 24:0:35:ASN:CA   | 24:0:68:VAL:CG2  | 2.95        | 0.43     |
| 23:3:7:LYS:CG    | 23:3:8:LEU:N     | 2.81        | 0.43     |
| 25:4:35:VAL:CG1  | 25:4:36:TRP:N    | 2.58        | 0.43     |
| 2:A:1263:U:O4'   | 26:5:16:ARG:NH2  | 2.50        | 0.43     |
| 27:6:49:VAL:O    | 27:6:50:PHE:CD1  | 2.71        | 0.43     |
| 27:6:16:ALA:HA   | 27:6:50:PHE:CE2  | 2.53        | 0.43     |
| 27:6:14:SER:CA   | 27:6:51:ARG:O    | 2.66        | 0.43     |
| 28:7:11:LYS:HG3  | 28:7:12:ARG:N    | 2.33        | 0.43     |
| 2:A:1028:A:H1'   | 2:A:2487:G:OP1   | 2.18        | 0.43     |
| 2:A:1265:A:OP2   | 2:A:2615:U:OP1   | 2.37        | 0.43     |
| 2:A:1707:G:H2'   | 2:A:1708:C:C6    | 2.53        | 0.43     |
| 2:A:1993:U:C5'   | 4:E:228:ARG:HE   | 2.31        | 0.43     |
| 2:A:2218:G:N1    | 2:A:2219:G:C5    | 2.86        | 0.43     |
| 2:A:2246:G:O2'   | 2:A:2247:A:H5''  | 2.11        | 0.43     |
| 2:A:2264:C:N3    | 2:A:2265:U:C6    | 2.86        | 0.43     |
| 2:A:2286:A:H1'   | 2:A:2346:A:N6    | 2.23        | 0.43     |
| 2:A:2297:C:O2'   | 2:A:2298:A:O4'   | 2.27        | 0.43     |
| 2:A:792:G:C6     | 2:A:2440:C:N1    | 2.85        | 0.43     |
| 2:A:2478:A:C8    | 2:A:2478:A:H3'   | 2.53        | 0.43     |
| 2:A:2726:U:H2'   | 2:A:2726:U:H6    | 1.61        | 0.43     |
| 2:A:2743:C:C2    | 2:A:2762:G:N2    | 2.86        | 0.43     |
| 2:A:2792:G:C2    | 2:A:2804:C:C4    | 3.06        | 0.43     |
| 2:A:2828:C:C2    | 2:A:2829:C:C6    | 3.05        | 0.43     |
| 2:A:2875:C:N4    | 2:A:2876:G:C5    | 2.86        | 0.43     |
| 2:A:2892:A:C2'   | 2:A:2893:G:C1'   | 2.94        | 0.43     |
| 2:A:563:G:H2'    | 2:A:563:G:N3     | 2.33        | 0.43     |
| 2:A:685:A:H4'    | 2:A:686:G:O5'    | 2.19        | 0.43     |
| 1:B:28:C:H2'     | 1:B:29:A:O4'     | 2.18        | 0.43     |
| 4:E:41:PHE:HE1   | 4:E:173:ARG:HH11 | 1.65        | 0.43     |

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| Atom-1          | Atom-2            | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 4:E:44:TYR:HD2  | 4:E:306:ARG:O     | 2.01        | 0.43     |
| 5:F:25:PRO:HG2  | 5:F:26:VAL:H      | 1.83        | 0.43     |
| 6:G:14:ARG:H    | 6:G:14:ARG:CD     | 2.28        | 0.43     |
| 7:H:90:GLY:HA2  | 7:H:159:LYS:CE    | 2.48        | 0.43     |
| 8:I:12:LYS:O    | 8:I:13:GLY:C      | 2.57        | 0.43     |
| 9:N:55:GLU:O    | 9:N:56:LYS:C      | 2.56        | 0.43     |
| 9:N:65:ASN:C    | 9:N:68:GLY:O      | 2.56        | 0.43     |
| 10:O:107:ARG:CG | 10:O:115:ILE:HG21 | 2.48        | 0.43     |
| 13:S:109:PRO:O  | 13:S:116:PHE:CG   | 2.66        | 0.43     |
| 13:S:53:ASN:O   | 13:S:53:ASN:CG    | 2.55        | 0.43     |
| 15:W:6:ILE:HG13 | 15:W:104:THR:HG22 | 1.99        | 0.43     |
| 15:W:14:PRO:O   | 15:W:15:ARG:C     | 2.57        | 0.43     |
| 15:W:26:GLY:C   | 15:W:27:LYS:HG3   | 2.38        | 0.43     |
| 15:W:58:ALA:C   | 15:W:60:ASN:N     | 2.71        | 0.43     |
| 17:Y:19:ARG:NH1 | 17:Y:68:ASP:N     | 2.66        | 0.43     |
| 18:Z:150:GLY:H  | 18:Z:164:PRO:HA   | 1.83        | 0.43     |
| 18:Z:26:LYS:CA  | 18:Z:84:TYR:OH    | 2.66        | 0.43     |
| 18:Z:38:ALA:C   | 18:Z:40:ASP:N     | 2.71        | 0.43     |
| 22:2:3:LEU:HB3  | 22:2:4:HIS:H      | 1.42        | 0.43     |
| 16:X:22:ASN:CA  | 16:X:68:LEU:HG    | 2.48        | 0.43     |
| 9:N:5:GLU:HA    | 9:N:109:TYR:CD2   | 2.52        | 0.43     |
| 16:X:45:TYR:O   | 16:X:47:VAL:O     | 2.35        | 0.43     |
| 2:A:1906:G:C4   | 2:A:1929:G:N7     | 2.85        | 0.43     |
| 2:A:1857:G:C2   | 2:A:1858:G:O6     | 2.71        | 0.43     |
| 1:B:106:G:N1    | 1:B:107:U:C4      | 2.86        | 0.43     |
| 2:A:1547:C:H2'  | 2:A:1548:C:H6     | 1.83        | 0.43     |
| 2:A:860:U:H2'   | 2:A:861:A:H5'     | 1.99        | 0.43     |
| 2:A:347:A:C8    | 2:A:347:A:H3'     | 2.53        | 0.43     |
| 26:5:33:CYS:HB2 | 26:5:38:GLY:N     | 2.33        | 0.43     |
| 25:4:63:PHE:C   | 25:4:65:ASP:N     | 2.71        | 0.43     |
| 2:A:242:G:C3'   | 29:8:5:LYS:NZ     | 2.66        | 0.43     |
| 2:A:585:G:C6    | 2:A:1251:C:C5     | 3.05        | 0.43     |
| 2:A:1709:U:O2'  | 2:A:2859:G:H1'    | 2.18        | 0.43     |
| 2:A:1780:A:H3'  | 2:A:1781:C:H5'    | 1.95        | 0.43     |
| 2:A:1996:C:C5'  | 2:A:1996:C:C6     | 2.95        | 0.43     |
| 2:A:747:U:C2    | 2:A:2015:A:C2     | 3.06        | 0.43     |
| 2:A:2060:A:O2'  | 2:A:2502:G:O4'    | 2.35        | 0.43     |
| 2:A:2255:G:C6   | 2:A:2256:G:N9     | 2.86        | 0.43     |
| 2:A:2259:G:H2'  | 2:A:2260:C:H6     | 1.82        | 0.43     |
| 2:A:2304:G:C2'  | 2:A:2305:A:O5'    | 2.66        | 0.43     |
| 2:A:2298:A:H1'  | 2:A:2322:A:O2'    | 2.18        | 0.43     |
| 2:A:2295:C:C5   | 2:A:2338:G:N1     | 2.86        | 0.43     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2392:A:C8    | 2:A:2393:A:N9    | 2.86        | 0.43     |
| 2:A:2391:G:H21   | 2:A:2429:G:H21   | 1.65        | 0.43     |
| 2:A:2482:G:C3'   | 2:A:2483:C:H5'   | 2.41        | 0.43     |
| 2:A:2509:G:HO2'  | 2:A:2510:C:C5'   | 2.23        | 0.43     |
| 2:A:2578:G:H2'   | 2:A:2579:C:H5''  | 1.99        | 0.43     |
| 2:A:2596:U:H3'   | 2:A:2597:G:C8    | 2.53        | 0.43     |
| 2:A:2679:A:H1'   | 4:E:300:VAL:CG1  | 2.49        | 0.43     |
| 2:A:2679:A:H2'   | 4:E:300:VAL:CG1  | 2.48        | 0.43     |
| 2:A:2736:G:C2'   | 2:A:2737:G:H5'   | 2.48        | 0.43     |
| 2:A:2783:G:C6    | 2:A:2784:C:C5    | 3.04        | 0.43     |
| 2:A:2885:C:O2    | 2:A:2885:C:C2'   | 2.64        | 0.43     |
| 2:A:321:G:O2'    | 2:A:341:G:H4'    | 2.17        | 0.43     |
| 2:A:558:G:H2'    | 2:A:559:G:H8     | 1.82        | 0.43     |
| 2:A:792:G:H21    | 2:A:2072:G:C1'   | 2.28        | 0.43     |
| 2:A:968:G:H2'    | 2:A:969:U:O4'    | 2.18        | 0.43     |
| 1:B:55:U:H2'     | 1:B:56:G:C8      | 2.54        | 0.43     |
| 3:D:142:ASN:O    | 3:D:189:ALA:HA   | 2.18        | 0.43     |
| 3:D:166:LYS:CB   | 3:D:171:VAL:HA   | 2.45        | 0.43     |
| 3:D:76:ARG:HD3   | 3:D:113:MET:HE1  | 1.99        | 0.43     |
| 4:E:180:ILE:CD1  | 4:E:187:HIS:CB   | 2.97        | 0.43     |
| 4:E:267:ARG:CG   | 4:E:297:LYS:HD2  | 2.48        | 0.43     |
| 5:F:111:VAL:CA   | 5:F:114:ALA:HB3  | 2.49        | 0.43     |
| 5:F:38:ALA:O     | 5:F:39:GLN:O     | 2.35        | 0.43     |
| 7:H:34:ARG:HB3   | 7:H:36:PHE:HE1   | 1.83        | 0.43     |
| 7:H:55:SER:C     | 7:H:57:GLU:HG2   | 2.38        | 0.43     |
| 8:I:2:LYS:HD3    | 8:I:39:ALA:CB    | 2.47        | 0.43     |
| 10:O:53:LYS:O    | 10:O:54:LYS:C    | 2.56        | 0.43     |
| 12:Q:23:ILE:O    | 12:Q:23:ILE:CG2  | 2.62        | 0.43     |
| 12:Q:32:LYS:HD2  | 12:Q:33:MET:N    | 2.32        | 0.43     |
| 13:S:54:GLY:O    | 13:S:55:ASP:O    | 2.35        | 0.43     |
| 20:U:10:ARG:HA   | 20:U:13:ARG:HH12 | 1.83        | 0.43     |
| 20:U:18:LEU:HA   | 20:U:18:LEU:HD22 | 1.79        | 0.43     |
| 20:U:68:GLY:HA2  | 20:U:71:LEU:CB   | 2.47        | 0.43     |
| 20:U:7:GLY:O     | 20:U:8:ILE:CD1   | 2.63        | 0.43     |
| 21:V:54:TYR:O    | 21:V:56:VAL:CA   | 2.63        | 0.43     |
| 15:W:17:VAL:CA   | 15:W:20:VAL:CG2  | 2.95        | 0.43     |
| 17:Y:20:HIS:C    | 17:Y:22:GLN:H    | 2.20        | 0.43     |
| 17:Y:73:HIS:CE1  | 17:Y:90:PRO:CA   | 2.91        | 0.43     |
| 18:Z:51:LEU:HD21 | 18:Z:63:PRO:HA   | 2.00        | 0.43     |
| 2:A:1788:C:C2    | 2:A:1789:A:C8    | 3.07        | 0.43     |
| 22:2:56:ILE:O    | 22:2:57:LYS:C    | 2.55        | 0.43     |
| 2:A:72:U:H4'     | 22:2:57:LYS:NZ   | 2.27        | 0.43     |

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| Atom-1           | Atom-2          | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 22:2:9:ARG:HB2   | 22:2:59:ILE:CD1 | 2.49        | 0.43     |
| 2:A:133:C:H2'    | 2:A:134:C:H6    | 1.83        | 0.43     |
| 16:X:1:SER:C     | 16:X:2:TRP:CD1  | 2.92        | 0.43     |
| 8:I:134:HIS:N    | 8:I:137:VAL:O   | 2.48        | 0.43     |
| 2:A:1906:G:H2'   | 2:A:1907:G:C8   | 2.52        | 0.43     |
| 2:A:323:G:OP2    | 2:A:340:A:C2    | 2.72        | 0.43     |
| 2:A:1812:A:H2'   | 2:A:1813:G:O4'  | 2.19        | 0.43     |
| 2:A:1794:U:H5'   | 2:A:1900:A:N6   | 2.33        | 0.43     |
| 24:0:67:VAL:HG11 | 24:0:74:LYS:CE  | 2.49        | 0.43     |
| 24:0:45:PHE:CE1  | 24:0:78:PHE:CA  | 2.96        | 0.43     |
| 25:4:7:PRO:CD    | 25:4:56:VAL:CB  | 2.90        | 0.43     |
| 26:5:44:HIS:CG   | 26:5:52:TYR:OH  | 2.72        | 0.43     |
| 26:5:45:ILE:N    | 26:5:52:TYR:OH  | 2.51        | 0.43     |
| 27:6:5:GLY:C     | 27:6:7:ARG:N    | 2.42        | 0.43     |
| 2:A:142(A):A:H2' | 2:A:1143:A:O4'  | 2.19        | 0.43     |
| 2:A:1655:A:H5''  | 4:E:211:GLN:CG  | 2.47        | 0.43     |
| 2:A:2000:G:H2'   | 2:A:2001:A:C8   | 2.53        | 0.43     |
| 2:A:2058:A:H8    | 2:A:2058:A:O5'  | 2.01        | 0.43     |
| 2:A:2217:G:C2    | 2:A:2218:G:N7   | 2.86        | 0.43     |
| 2:A:2249:U:N3    | 2:A:2253:G:OP1  | 2.43        | 0.43     |
| 2:A:2267:A:C6    | 2:A:2272:U:O4   | 2.72        | 0.43     |
| 2:A:2302:G:C5    | 2:A:2315:G:N1   | 2.86        | 0.43     |
| 2:A:2325:G:C4    | 2:A:2326:C:H5   | 2.36        | 0.43     |
| 2:A:2328:A:C6    | 2:A:2329:G:C5   | 3.07        | 0.43     |
| 2:A:2352:A:N3    | 2:A:2353:G:O4'  | 2.51        | 0.43     |
| 2:A:2432:A:N7    | 25:4:30:GLU:HB3 | 2.34        | 0.43     |
| 2:A:2638:G:H2'   | 2:A:2775:A:C2   | 2.53        | 0.43     |
| 2:A:2648:C:N3    | 2:A:2672:G:N2   | 2.59        | 0.43     |
| 2:A:2648:C:C2    | 2:A:2673:G:C2   | 3.05        | 0.43     |
| 2:A:1456:G:N2    | 2:A:2703:C:H5   | 2.14        | 0.43     |
| 2:A:1638:C:C4'   | 2:A:2710:C:O2   | 2.65        | 0.43     |
| 2:A:2729:G:O4'   | 4:E:298:GLY:HA3 | 2.18        | 0.43     |
| 2:A:27:G:O2'     | 2:A:513:A:N6    | 2.52        | 0.43     |
| 2:A:295:G:C8     | 2:A:345:A:H2    | 2.36        | 0.43     |
| 2:A:307:G:N2     | 2:A:309:G:H3'   | 2.33        | 0.43     |
| 1:B:42:C:H1'     | 6:G:47:GLN:O    | 2.17        | 0.43     |
| 3:D:77:VAL:O     | 3:D:78:ALA:C    | 2.57        | 0.43     |
| 4:E:39:GLN:OE1   | 4:E:174:LEU:CD1 | 2.57        | 0.43     |
| 2:A:2622:C:H5'   | 4:E:255:GLN:OE1 | 2.18        | 0.43     |
| 4:E:42:ALA:CB    | 4:E:310:PHE:CD2 | 3.02        | 0.43     |
| 5:F:167:ASP:OD2  | 5:F:231:ARG:C   | 2.56        | 0.43     |
| 2:A:673:C:OP1    | 5:F:80:VAL:CG1  | 2.64        | 0.43     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:G:140:ARG:O    | 6:G:143:LYS:HG3  | 2.17        | 0.43     |
| 2:A:2317:C:H5''  | 6:G:150:SER:HB3  | 1.97        | 0.43     |
| 9:N:12:VAL:N     | 9:N:38:VAL:HG22  | 2.33        | 0.43     |
| 10:O:60:ALA:HA   | 10:O:85:VAL:O    | 2.18        | 0.43     |
| 11:P:69:ILE:CG1  | 11:P:70:ASP:N    | 2.30        | 0.43     |
| 13:S:34:LEU:C    | 13:S:103:ASP:CB  | 2.83        | 0.43     |
| 20:U:21:ALA:CB   | 20:U:24:PHE:HZ   | 2.27        | 0.43     |
| 21:V:22:VAL:HG12 | 21:V:23:GLU:N    | 2.33        | 0.43     |
| 15:W:8:ARG:C     | 15:W:10:VAL:HG23 | 2.28        | 0.43     |
| 15:W:23:LEU:HD23 | 15:W:23:LEU:C    | 2.37        | 0.43     |
| 9:N:10:VAL:CG1   | 9:N:36:VAL:CA    | 2.94        | 0.43     |
| 22:2:56:ILE:HB   | 22:2:57:LYS:H    | 1.48        | 0.43     |
| 16:X:22:ASN:CB   | 16:X:68:LEU:HG   | 2.48        | 0.43     |
| 1:B:100:G:H2'    | 1:B:101:A:O4'    | 2.18        | 0.43     |
| 2:A:1317:A:H2'   | 2:A:1318:C:H6    | 1.80        | 0.43     |
| 23:3:4:LEU:HD23  | 23:3:4:LEU:N     | 2.32        | 0.43     |
| 26:5:44:HIS:C    | 26:5:52:TYR:CZ   | 2.92        | 0.43     |
| 27:6:16:ALA:HB3  | 27:6:42:PRO:HB3  | 2.00        | 0.43     |
| 2:A:1935:G:N2    | 2:A:1962:C:H2'   | 2.34        | 0.43     |
| 2:A:2208:U:H2'   | 2:A:2209:C:O4'   | 2.18        | 0.43     |
| 2:A:2404:C:N4    | 2:A:2405:G:C4    | 2.86        | 0.43     |
| 2:A:2416:C:C3'   | 2:A:2417:C:C5'   | 2.96        | 0.43     |
| 2:A:2475:C:C2'   | 2:A:2477:C:P     | 3.07        | 0.43     |
| 2:A:2048:G:N2    | 2:A:2620:C:N3    | 2.64        | 0.43     |
| 2:A:2666:C:C2'   | 2:A:2667:C:C5'   | 2.93        | 0.43     |
| 2:A:2666:C:OP2   | 2:A:2667:C:C5    | 2.66        | 0.43     |
| 2:A:2772:C:C4    | 2:A:2773:C:C4    | 3.05        | 0.43     |
| 2:A:2810:A:N6    | 2:A:2811:G:C2    | 2.83        | 0.43     |
| 2:A:2834:G:O6    | 2:A:2835:A:C2    | 2.71        | 0.43     |
| 2:A:2849:U:O4'   | 2:A:2868:A:N3    | 2.50        | 0.43     |
| 2:A:686:G:C3'    | 2:A:687:C:P      | 3.02        | 0.43     |
| 2:A:2712:U:H5    | 2:A:712(A):A:C8  | 2.10        | 0.43     |
| 2:A:775:G:C5'    | 2:A:777:A:C1'    | 2.63        | 0.43     |
| 2:A:948:G:H1     | 2:A:969:U:H3     | 1.65        | 0.43     |
| 1:B:76:G:O3'     | 18:Z:80:HIS:ND1  | 2.51        | 0.43     |
| 3:D:140:VAL:HG13 | 3:D:191:VAL:N    | 2.31        | 0.43     |
| 2:A:1819:A:C4    | 3:D:177:SER:HB3  | 2.54        | 0.43     |
| 4:E:180:ILE:CD1  | 4:E:187:HIS:HB3  | 2.49        | 0.43     |
| 4:E:263:GLU:O    | 4:E:264:LEU:HD23 | 2.18        | 0.43     |
| 4:E:63:GLU:HB2   | 4:E:64:GLY:H     | 1.59        | 0.43     |
| 5:F:220:THR:O    | 5:F:225:PRO:HD2  | 2.19        | 0.43     |
| 5:F:238:SER:O    | 5:F:241:ALA:N    | 2.51        | 0.43     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:F:87:ARG:O     | 5:F:88:SER:HB2   | 2.16        | 0.43     |
| 6:G:27:ILE:C     | 6:G:29:HIS:N     | 2.64        | 0.43     |
| 7:H:10:ILE:CG1   | 7:H:49:ILE:HG12  | 2.48        | 0.43     |
| 7:H:60:HIS:O     | 7:H:63:LEU:N     | 2.52        | 0.43     |
| 9:N:103:VAL:O    | 9:N:104:TYR:CE2  | 2.68        | 0.43     |
| 9:N:83:ILE:HD11  | 9:N:84:ARG:HE    | 1.84        | 0.43     |
| 10:O:20:LEU:CD2  | 10:O:44:LYS:HD3  | 2.49        | 0.43     |
| 12:Q:92:VAL:HG11 | 12:Q:111:THR:N   | 2.31        | 0.43     |
| 12:Q:26:LYS:NZ   | 12:Q:88:PHE:CB   | 2.82        | 0.43     |
| 12:Q:59:ASN:C    | 12:Q:61:LEU:N    | 2.68        | 0.43     |
| 19:R:105:ARG:N   | 19:R:105:ARG:HE  | 2.13        | 0.43     |
| 13:S:10:MET:O    | 13:S:11:ARG:C    | 2.55        | 0.43     |
| 13:S:115:VAL:C   | 13:S:117:ALA:N   | 2.72        | 0.43     |
| 13:S:27:LEU:N    | 13:S:33:ARG:NH1  | 2.66        | 0.43     |
| 1:B:8:U:C5'      | 13:S:37:ARG:CZ   | 2.95        | 0.43     |
| 13:S:74:PRO:C    | 13:S:75:THR:O    | 2.52        | 0.43     |
| 20:U:108:ALA:C   | 20:U:110:VAL:N   | 2.59        | 0.43     |
| 20:U:60:LEU:O    | 20:U:61:TRP:C    | 2.57        | 0.43     |
| 21:V:78:VAL:CG2  | 21:V:82:ARG:HB2  | 2.48        | 0.43     |
| 17:Y:11:GLN:HG3  | 17:Y:21:LYS:NZ   | 2.34        | 0.43     |
| 17:Y:11:GLN:HG3  | 17:Y:22:GLN:HE21 | 1.83        | 0.43     |
| 2:A:338:G:OP2    | 17:Y:21:LYS:CG   | 2.66        | 0.43     |
| 17:Y:27:LEU:O    | 17:Y:28:SER:O    | 2.37        | 0.43     |
| 22:2:17:GLU:O    | 22:2:19:GLU:OE1  | 2.37        | 0.43     |
| 2:A:75:G:C3'     | 22:2:51:LYS:HZ3  | 2.28        | 0.43     |
| 2:A:76:C:HO2'    | 22:2:58:THR:HG21 | 1.84        | 0.43     |
| 2:A:1341:U:N3    | 2:A:1398:C:H5'   | 2.33        | 0.43     |
| 2:A:63:U:H2'     | 2:A:64:A:N7      | 2.34        | 0.43     |
| 2:A:1930:G:O2'   | 2:A:1931:U:P     | 2.77        | 0.43     |
| 2:A:1917:U:H6    | 2:A:1918:A:C8    | 2.36        | 0.43     |
| 2:A:1936:A:C5    | 2:A:1945:G:C5    | 3.06        | 0.43     |
| 2:A:1496:A:N1    | 2:A:1577:C:O2'   | 2.46        | 0.43     |
| 2:A:1859:A:N6    | 2:A:1883:G:O2'   | 2.51        | 0.43     |
| 2:A:705:A:C8     | 2:A:705:A:OP2    | 2.71        | 0.43     |
| 24:0:45:PHE:HE1  | 24:0:78:PHE:CG   | 2.10        | 0.43     |
| 24:0:70:ILE:N    | 24:0:70:ILE:CD1  | 2.81        | 0.43     |
| 2:A:929:G:C2'    | 23:3:43:ILE:HG12 | 2.49        | 0.43     |
| 23:3:4:LEU:O     | 23:3:37:LEU:N    | 2.50        | 0.43     |
| 23:3:5:LYS:CG    | 23:3:36:VAL:HG12 | 2.48        | 0.43     |
| 27:6:19:GLY:O    | 27:6:44:ALA:HB2  | 2.19        | 0.43     |
| 29:8:29:LYS:C    | 29:8:30:ARG:O    | 2.54        | 0.43     |
| 2:A:1162:G:H5''  | 21:V:24:SER:HA   | 2.00        | 0.43     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:2033:A:N6    | 2:A:2036:C:C2     | 2.86        | 0.43     |
| 2:A:2210:G:H4'   | 2:A:2211:G:C5'    | 2.49        | 0.43     |
| 2:A:2218:G:C2'   | 2:A:2219:G:O5'    | 2.67        | 0.43     |
| 2:A:2093:G:O6    | 2:A:2225:A:N7     | 2.52        | 0.43     |
| 2:A:2226:C:C3'   | 2:A:2227:A:O4'    | 2.64        | 0.43     |
| 2:A:2246:G:C2    | 2:A:2247:A:C8     | 3.06        | 0.43     |
| 2:A:2290:G:C6    | 2:A:2291:U:C2     | 3.06        | 0.43     |
| 2:A:2317:C:OP1   | 6:G:149:ARG:C     | 2.57        | 0.43     |
| 2:A:2337:G:O6    | 2:A:2338:G:O6     | 2.36        | 0.43     |
| 2:A:2356:C:OP2   | 24:0:21:LEU:HD21  | 2.19        | 0.43     |
| 2:A:2391:G:H21   | 2:A:2429:G:N2     | 2.15        | 0.43     |
| 2:A:2458:G:C5    | 2:A:2490:G:C4     | 3.07        | 0.43     |
| 2:A:2528:U:O2'   | 2:A:2529:G:C8     | 2.61        | 0.43     |
| 2:A:2535:G:N3    | 2:A:2535:G:C2'    | 2.80        | 0.43     |
| 2:A:2540:C:P     | 2:A:2540:C:H3'    | 2.58        | 0.43     |
| 2:A:2561:A:C4    | 2:A:2562:U:C6     | 3.04        | 0.43     |
| 2:A:2562:U:O2    | 2:A:2563:U:C1'    | 2.66        | 0.43     |
| 2:A:2626:C:H6    | 2:A:2626:C:H5'    | 1.72        | 0.43     |
| 2:A:2664:G:N2    | 2:A:2665:A:H62    | 2.16        | 0.43     |
| 2:A:2756:U:O2    | 2:A:2756:U:O2'    | 2.31        | 0.43     |
| 2:A:2641:G:O6    | 2:A:2774:C:C4     | 2.71        | 0.43     |
| 2:A:2639:A:N3    | 2:A:2778:A:C2     | 2.86        | 0.43     |
| 2:A:2803:C:N3    | 2:A:2804:C:N3     | 2.66        | 0.43     |
| 2:A:2809:A:N3    | 2:A:2811:G:O6     | 2.51        | 0.43     |
| 2:A:2861:G:H2'   | 2:A:2862:G:H8     | 1.83        | 0.43     |
| 2:A:292:C:C2'    | 2:A:293:U:H3      | 2.22        | 0.43     |
| 2:A:611:C:O2     | 2:A:617:G:N2      | 2.52        | 0.43     |
| 2:A:689:A:O2'    | 2:A:780:G:C5'     | 2.66        | 0.43     |
| 3:D:85:ASN:CG    | 3:D:86:ARG:HE     | 2.10        | 0.43     |
| 3:D:90:ILE:HG23  | 3:D:91:ALA:H      | 1.82        | 0.43     |
| 4:E:96:LEU:O     | 4:E:97:THR:HG23   | 2.19        | 0.43     |
| 5:F:6:TYR:C      | 5:F:11:ASN:N      | 2.71        | 0.43     |
| 5:F:1:MET:O      | 5:F:18:LEU:HD21   | 2.15        | 0.43     |
| 5:F:215:ALA:C    | 5:F:242:GLU:HG2   | 2.37        | 0.43     |
| 5:F:35:VAL:HB    | 5:F:36:ARG:H      | 1.39        | 0.43     |
| 5:F:81:PRO:HA    | 5:F:87:ARG:HG2    | 0.53        | 0.43     |
| 6:G:97:GLN:CG    | 6:G:106:PHE:CD2   | 3.01        | 0.43     |
| 7:H:105:SER:C    | 7:H:106:VAL:CG2   | 2.86        | 0.43     |
| 7:H:120:LEU:CD2  | 7:H:120:LEU:H     | 2.15        | 0.43     |
| 10:O:102:VAL:CG1 | 10:O:106:LEU:HD11 | 2.49        | 0.43     |
| 10:O:27:GLY:O    | 10:O:28:SER:C     | 2.54        | 0.43     |
| 10:O:2:ILE:HB    | 10:O:33:ALA:HB3   | 2.01        | 0.43     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:140:TYR:O   | 12:Q:142:LYS:O   | 2.35        | 0.43     |
| 12:Q:151:SER:HB3 | 12:Q:155:GLY:CA  | 2.48        | 0.43     |
| 2:A:2278:A:C4'   | 12:Q:19:TYR:HB3  | 2.40        | 0.43     |
| 12:Q:49:VAL:HG23 | 12:Q:121:ASP:N   | 1.96        | 0.43     |
| 19:R:43:GLU:OE2  | 19:R:43:GLU:CA   | 2.63        | 0.43     |
| 2:A:2840:C:H4'   | 19:R:53:HIS:CD2  | 2.54        | 0.43     |
| 19:R:79:LEU:O    | 19:R:80:PHE:C    | 2.57        | 0.43     |
| 13:S:33:ARG:HG2  | 13:S:48:VAL:O    | 2.19        | 0.43     |
| 20:U:34:ASN:O    | 20:U:38:THR:CG2  | 2.66        | 0.43     |
| 20:U:94:VAL:CG1  | 20:U:98:ILE:HD11 | 2.49        | 0.43     |
| 15:W:7:ALA:O     | 15:W:10:VAL:HG21 | 2.18        | 0.43     |
| 17:Y:45:GLY:HA2  | 17:Y:62:VAL:HG13 | 1.68        | 0.43     |
| 18:Z:39:PHE:HB3  | 18:Z:43:PHE:CE1  | 2.54        | 0.43     |
| 18:Z:37:LYS:HA   | 18:Z:41:ARG:NH1  | 2.31        | 0.43     |
| 18:Z:95:SER:OG   | 18:Z:122:ILE:CG2 | 2.66        | 0.43     |
| 7:H:80:LYS:O     | 7:H:81:GLY:C     | 2.31        | 0.43     |
| 7:H:108:TYR:N    | 7:H:108:TYR:HD2  | 2.10        | 0.43     |
| 2:A:1559:G:C2'   | 2:A:1559:G:N3    | 2.81        | 0.43     |
| 2:A:881:G:H3'    | 2:A:882:G:H8     | 1.82        | 0.43     |
| 2:A:120:U:C2'    | 2:A:120:U:O2     | 2.67        | 0.43     |
| 23:3:42:ALA:O    | 23:3:45:GLY:N    | 2.52        | 0.43     |
| 25:4:14:ILE:HG21 | 25:4:37:SER:CB   | 2.44        | 0.43     |
| 2:A:2396:G:OP1   | 25:4:28:ARG:CZ   | 2.66        | 0.43     |
| 2:A:592:G:N2     | 29:8:3:LYS:HZ1   | 2.09        | 0.43     |
| 2:A:1249:U:C6    | 2:A:1249:U:C3'   | 3.02        | 0.43     |
| 2:A:2103:C:C2    | 2:A:2187:G:C6    | 3.07        | 0.43     |
| 2:A:2212:A:C2'   | 2:A:2212:A:N3    | 2.78        | 0.43     |
| 2:A:2233:U:H2'   | 2:A:2234:G:O4'   | 2.18        | 0.43     |
| 2:A:2264:C:C2    | 2:A:2265:U:C6    | 3.07        | 0.43     |
| 2:A:2264:C:C2'   | 2:A:2265:U:C5'   | 2.91        | 0.43     |
| 2:A:2309:A:H3'   | 2:A:2310:A:O4'   | 2.19        | 0.43     |
| 2:A:2359:C:C2    | 2:A:2360:A:C2    | 3.07        | 0.43     |
| 2:A:2396:G:C2    | 2:A:2397:G:C8    | 3.07        | 0.43     |
| 2:A:2398:U:H2'   | 2:A:2399:G:C8    | 2.52        | 0.43     |
| 2:A:2481:G:O2'   | 2:A:2482:G:C8    | 2.71        | 0.43     |
| 2:A:2520:C:N4    | 2:A:2567:G:C6    | 2.87        | 0.43     |
| 2:A:2589:A:C6    | 2:A:2606:C:N4    | 2.86        | 0.43     |
| 2:A:2647:U:O2    | 2:A:2648:C:C6    | 2.71        | 0.43     |
| 2:A:1999:C:C2'   | 2:A:2687:U:HO2'  | 2.28        | 0.43     |
| 2:A:2731:G:C6    | 2:A:2732:G:N1    | 2.86        | 0.43     |
| 2:A:2737:G:N1    | 2:A:2738:A:C5    | 2.87        | 0.43     |
| 2:A:2739:U:C3'   | 2:A:2740:A:C5'   | 2.97        | 0.43     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2746:U:H4'   | 7:H:138:GLN:CA   | 2.37        | 0.43     |
| 2:A:2757:A:H2'   | 2:A:2758:A:C8    | 2.46        | 0.43     |
| 2:A:2819:G:C2'   | 2:A:2821:A:H62   | 2.30        | 0.43     |
| 2:A:2854:G:C6    | 2:A:2855:C:C4    | 3.06        | 0.43     |
| 2:A:2850:A:N3    | 2:A:2869:G:H4'   | 2.32        | 0.43     |
| 2:A:2880:C:C4    | 2:A:2881:C:C4    | 3.07        | 0.43     |
| 2:A:396:G:OP1    | 25:4:10:VAL:CB   | 2.67        | 0.43     |
| 2:A:28:A:N6      | 2:A:512:G:O2'    | 2.52        | 0.43     |
| 2:A:527:C:C6     | 2:A:2779:U:C2'   | 3.00        | 0.43     |
| 2:A:684:G:N1     | 2:A:794:G:C2     | 2.87        | 0.43     |
| 2:A:747:U:O4'    | 26:5:3:LYS:NZ    | 2.51        | 0.43     |
| 2:A:1658:C:O5'   | 4:E:230:GLY:HA3  | 2.16        | 0.43     |
| 5:F:6:TYR:CZ     | 5:F:139:VAL:N    | 2.86        | 0.43     |
| 5:F:59:GLU:OE2   | 5:F:59:GLU:CA    | 2.67        | 0.43     |
| 6:G:135:VAL:C    | 6:G:136:ARG:O    | 2.57        | 0.43     |
| 6:G:51:ARG:NH1   | 6:G:72:LYS:CB    | 2.82        | 0.43     |
| 6:G:56:ARG:HA    | 6:G:63:ILE:CA    | 2.47        | 0.43     |
| 8:I:43:ASN:HA    | 8:I:46:ALA:H     | 1.84        | 0.43     |
| 9:N:135:ILE:CG2  | 9:N:139:LEU:HD11 | 2.48        | 0.43     |
| 10:O:25:LEU:HD12 | 10:O:38:VAL:O    | 2.13        | 0.43     |
| 10:O:25:LEU:HD11 | 10:O:39:VAL:C    | 2.39        | 0.43     |
| 10:O:84:CYS:HB3  | 10:O:85:VAL:H    | 1.57        | 0.43     |
| 12:Q:133:GLU:HG3 | 12:Q:134:PHE:N   | 2.29        | 0.43     |
| 12:Q:16:ARG:CA   | 12:Q:17:ARG:HD3  | 2.48        | 0.43     |
| 19:R:63:ARG:HH22 | 19:R:77:ARG:CG   | 2.22        | 0.43     |
| 13:S:102:LEU:N   | 13:S:102:LEU:CD1 | 2.81        | 0.43     |
| 21:V:39:PHE:CZ   | 21:V:42:GLY:N    | 2.87        | 0.43     |
| 21:V:68:LYS:CG   | 21:V:69:ILE:HD12 | 2.49        | 0.43     |
| 21:V:5:ILE:C     | 21:V:6:GLN:HG2   | 2.19        | 0.43     |
| 21:V:93:ILE:N    | 21:V:93:ILE:HD12 | 2.32        | 0.43     |
| 15:W:48:ALA:O    | 15:W:51:LEU:N    | 2.41        | 0.43     |
| 15:W:55:ALA:N    | 15:W:107:LEU:CD1 | 2.72        | 0.43     |
| 17:Y:19:ARG:HH12 | 17:Y:68:ASP:N    | 2.17        | 0.43     |
| 17:Y:51:LEU:CD2  | 17:Y:95:ASN:ND2  | 2.82        | 0.43     |
| 17:Y:27:LEU:HB3  | 17:Y:98:VAL:H    | 1.83        | 0.43     |
| 8:I:102:LEU:O    | 8:I:107:GLY:N    | 2.48        | 0.43     |
| 2:A:133:C:H2'    | 2:A:134:C:C6     | 2.54        | 0.43     |
| 2:A:134:C:C2     | 2:A:135:G:C8     | 3.06        | 0.43     |
| 2:A:66:C:H2'     | 2:A:67:U:O4'     | 2.19        | 0.43     |
| 16:X:11:THR:O    | 16:X:15:MET:N    | 2.50        | 0.43     |
| 3:D:234:HIS:HB3  | 3:D:235:PRO:HD2  | 2.00        | 0.43     |
| 7:H:117:GLU:HG2  | 7:H:118:GLU:N    | 2.34        | 0.43     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:521:G:H2'   | 2:A:522:G:C8     | 2.54        | 0.43     |
| 2:A:346:A:H2'   | 2:A:347:A:N7     | 2.34        | 0.43     |
| 24:0:24:LYS:HG3 | 24:0:56:ASP:CG   | 2.25        | 0.43     |
| 24:0:75:GLY:O   | 24:0:76:ALA:CB   | 2.66        | 0.43     |
| 25:4:14:ILE:O   | 25:4:36:TRP:HA   | 2.18        | 0.43     |
| 25:4:7:PRO:HD2  | 25:4:56:VAL:HG11 | 2.01        | 0.43     |
| 2:A:1650:G:H1   | 2:A:2007:C:H42   | 1.67        | 0.43     |
| 2:A:2199:A:C2'  | 2:A:2205:C:C5'   | 2.95        | 0.43     |
| 2:A:2267:A:C5'  | 2:A:2268:A:P     | 3.02        | 0.43     |
| 2:A:2373:G:N3   | 2:A:2374:C:C5    | 2.87        | 0.43     |
| 2:A:2410:G:C6   | 2:A:2411:A:C6    | 3.07        | 0.43     |
| 2:A:2440:C:H5'' | 2:A:2587:A:H4'   | 2.01        | 0.43     |
| 2:A:2489:G:C8   | 2:A:2490:G:C8    | 3.06        | 0.43     |
| 2:A:2586:C:H42  | 2:A:2608:G:H1'   | 1.84        | 0.43     |
| 2:A:2648:C:N3   | 2:A:2673:G:C2    | 2.87        | 0.43     |
| 2:A:1663:C:H1'  | 2:A:2686:G:H4'   | 2.00        | 0.43     |
| 2:A:2774:C:O2   | 2:A:2775:A:C8    | 2.71        | 0.43     |
| 2:A:517:C:H2'   | 15:W:18:ARG:NH2  | 2.31        | 0.43     |
| 2:A:774:A:HO2'  | 2:A:775:G:H8     | 1.64        | 0.43     |
| 2:A:917:A:N7    | 2:A:2268:A:N6    | 2.67        | 0.43     |
| 3:D:89:ASN:N    | 3:D:105:ALA:HB2  | 2.34        | 0.43     |
| 3:D:176:ALA:O   | 3:D:177:SER:C    | 2.57        | 0.43     |
| 3:D:183:ILE:C   | 3:D:184:LEU:CD2  | 2.75        | 0.43     |
| 3:D:65:ASP:O    | 3:D:66:PHE:HB3   | 2.19        | 0.43     |
| 3:D:86:ARG:HD2  | 3:D:86:ARG:H     | 1.76        | 0.43     |
| 4:E:102:ASP:CG  | 4:E:104:PHE:CZ   | 2.90        | 0.43     |
| 4:E:242:ASN:ND2 | 4:E:242:ASN:N    | 2.67        | 0.43     |
| 4:E:247:ARG:C   | 4:E:249:THR:H    | 2.21        | 0.43     |
| 5:F:213:ALA:HB3 | 5:F:218:VAL:HG11 | 1.50        | 0.43     |
| 9:N:38:VAL:CG1  | 9:N:39:VAL:H     | 2.29        | 0.43     |
| 10:O:103:ALA:CB | 10:O:105:GLU:CG  | 2.91        | 0.43     |
| 10:O:42:THR:CG2 | 10:O:57:VAL:HA   | 2.45        | 0.43     |
| 2:A:245:G:H4'   | 11:P:55:GLN:OE1  | 2.19        | 0.43     |
| 19:R:61:HIS:HB3 | 19:R:64:ARG:CZ   | 2.49        | 0.43     |
| 13:S:19:ASP:C   | 13:S:21:HIS:N    | 2.63        | 0.43     |
| 13:S:27:LEU:N   | 13:S:33:ARG:CZ   | 2.81        | 0.43     |
| 13:S:66:LEU:C   | 13:S:67:ALA:O    | 2.57        | 0.43     |
| 14:T:23:HIS:CD2 | 14:T:28:THR:N    | 2.87        | 0.43     |
| 20:U:88:ILE:CG2 | 21:V:55:THR:HG1  | 2.23        | 0.43     |
| 21:V:35:LEU:H   | 21:V:60:VAL:HG13 | 1.72        | 0.43     |
| 15:W:19:LEU:HB3 | 26:5:25:LEU:CD1  | 2.49        | 0.43     |
| 2:A:1079:C:O2   | 31:K:130:GLY:CA  | 2.66        | 0.43     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:95:G:C2'     | 22:2:42:ASN:HB3  | 2.48        | 0.43     |
| 8:I:52:GLN:HA    | 8:I:55:GLN:HG3   | 2.00        | 0.43     |
| 2:A:1510:A:H3'   | 2:A:1511:A:C8    | 2.52        | 0.43     |
| 2:A:1359:A:N6    | 2:A:1372:U:H3    | 2.16        | 0.43     |
| 2:A:799:G:OP1    | 2:A:800:A:H3'    | 2.18        | 0.43     |
| 2:A:812:C:H42    | 2:A:1195:G:H1    | 1.66        | 0.43     |
| 2:A:1586:A:O2'   | 2:A:1587:A:C8    | 2.70        | 0.43     |
| 2:A:856:C:C3'    | 24:0:56:ASP:OD2  | 2.66        | 0.43     |
| 23:3:3:ARG:C     | 23:3:4:LEU:HD23  | 2.39        | 0.43     |
| 26:5:12:SER:O    | 26:5:14:SER:C    | 2.57        | 0.43     |
| 27:6:53:LYS:HB3  | 27:6:53:LYS:HE3  | 1.90        | 0.43     |
| 2:A:2243:U:O2    | 2:A:2243:U:H2'   | 2.18        | 0.43     |
| 2:A:2317:C:OP1   | 6:G:150:SER:CA   | 2.65        | 0.43     |
| 2:A:2414:G:C6    | 2:A:2415:G:N7    | 2.86        | 0.43     |
| 2:A:2078:C:H1'   | 2:A:2434:A:C2    | 2.52        | 0.43     |
| 2:A:2450:A:N3    | 2:A:2451:A:C8    | 2.87        | 0.43     |
| 2:A:2476:A:H8    | 2:A:2476:A:H3'   | 1.83        | 0.43     |
| 2:A:2550:G:C5    | 2:A:2551:C:C5    | 3.06        | 0.43     |
| 2:A:2550:G:C5    | 2:A:2551:C:H5    | 2.34        | 0.43     |
| 2:A:2615:U:C4    | 26:5:8:LYS:HE3   | 2.54        | 0.43     |
| 2:A:2623:G:H2'   | 2:A:2623:G:N3    | 2.34        | 0.43     |
| 2:A:1755:A:H61   | 2:A:2694:G:H21   | 1.65        | 0.43     |
| 2:A:2739:U:H5    | 2:A:2763:G:N1    | 2.17        | 0.43     |
| 2:A:650:C:H5''   | 29:8:19:THR:CG2  | 2.40        | 0.43     |
| 2:A:80:G:C8      | 2:A:80:G:O5'     | 2.72        | 0.43     |
| 2:A:918:A:N3     | 2:A:918:A:C5'    | 2.82        | 0.43     |
| 2:A:920:G:H8     | 2:A:920:G:O5'    | 2.01        | 0.43     |
| 2:A:2785:C:H5'   | 4:E:99:VAL:CG2   | 2.45        | 0.43     |
| 6:G:102:GLY:O    | 6:G:134:LEU:HB2  | 2.19        | 0.43     |
| 7:H:153:PRO:O    | 7:H:154:GLU:O    | 2.37        | 0.43     |
| 8:I:3:VAL:CG1    | 8:I:21:VAL:CG2   | 2.91        | 0.43     |
| 8:I:7:LYS:HB2    | 8:I:12:LYS:CD    | 2.38        | 0.43     |
| 2:A:2780:G:N2    | 9:N:80:LYS:HZ1   | 2.17        | 0.43     |
| 10:O:63:VAL:HG22 | 10:O:106:LEU:CD2 | 2.49        | 0.43     |
| 19:R:36:THR:CG2  | 19:R:37:THR:H    | 2.30        | 0.43     |
| 2:A:2840:C:C4'   | 19:R:53:HIS:NE2  | 2.82        | 0.43     |
| 13:S:34:LEU:HD23 | 13:S:102:LEU:HA  | 1.79        | 0.43     |
| 13:S:17:ARG:HH11 | 13:S:18:THR:CB   | 2.31        | 0.43     |
| 13:S:46:GLN:OE1  | 13:S:57:THR:HG21 | 2.19        | 0.43     |
| 20:U:15:LYS:O    | 20:U:18:LEU:HB2  | 2.19        | 0.43     |
| 21:V:61:VAL:HG22 | 21:V:96:LEU:C    | 2.15        | 0.43     |
| 15:W:51:LEU:O    | 15:W:54:ALA:HB3  | 2.19        | 0.43     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 18:Z:20:ALA:HB3 | 18:Z:80:HIS:HA   | 2.00        | 0.43     |
| 22:2:54:ALA:O   | 22:2:56:ILE:CA   | 2.57        | 0.43     |
| 2:A:76:C:O2'    | 22:2:58:THR:HG21 | 2.19        | 0.43     |
| 2:A:2:G:H2'     | 2:A:3:U:C6       | 2.53        | 0.43     |
| 2:A:978:G:C2    | 2:A:986:C:N3     | 2.86        | 0.43     |
| 2:A:1196:C:H2'  | 2:A:1197:G:C8    | 2.54        | 0.43     |
| 2:A:270:A:C8    | 2:A:270(A):A:H1' | 2.53        | 0.43     |
| 2:A:1202:C:H2'  | 2:A:1202:C:O2    | 2.18        | 0.43     |
| 2:A:1802:A:N3   | 2:A:1802:A:H2'   | 2.33        | 0.43     |
| 2:A:1411:C:H2'  | 2:A:1412:A:H8    | 1.83        | 0.43     |
| 1:B:87:G:H3'    | 1:B:88:C:C5'     | 2.49        | 0.43     |
| 23:3:22:ALA:O   | 23:3:26:LEU:HD11 | 2.14        | 0.43     |
| 25:4:46:GLU:HB2 | 25:4:47:GLU:H    | 1.44        | 0.43     |
| 2:A:1777:U:H2'  | 2:A:1778:U:C6    | 2.53        | 0.43     |
| 2:A:1996:C:OP1  | 10:O:31:ARG:NH1  | 2.48        | 0.43     |
| 2:A:2086:U:H2'  | 2:A:2087:G:C8    | 2.54        | 0.43     |
| 2:A:2244:U:O2   | 2:A:2434:A:H1'   | 2.19        | 0.43     |
| 2:A:2251:G:H2'  | 2:A:2251:G:N3    | 2.34        | 0.43     |
| 2:A:2275:C:O2'  | 2:A:2276:G:OP2   | 2.37        | 0.43     |
| 2:A:2299:G:N1   | 2:A:2300:G:C6    | 2.87        | 0.43     |
| 2:A:2403:C:C2'  | 2:A:2404:C:H5'   | 2.48        | 0.43     |
| 2:A:2438:U:O3'  | 2:A:2439:A:H3'   | 2.19        | 0.43     |
| 2:A:807:U:C1'   | 2:A:2445:G:H5'   | 2.49        | 0.43     |
| 2:A:2472:G:N2   | 2:A:2475:C:C2    | 2.87        | 0.43     |
| 2:A:2450:A:C4'  | 2:A:2497:A:N6    | 2.71        | 0.43     |
| 2:A:2549:G:HO2' | 2:A:2550:G:H5'   | 1.78        | 0.43     |
| 2:A:2587:A:O2'  | 2:A:2588:G:O5'   | 2.37        | 0.43     |
| 2:A:2615:U:H2'  | 2:A:2616:C:C5    | 2.53        | 0.43     |
| 2:A:2678:C:O2   | 2:A:2679:A:H1'   | 2.07        | 0.43     |
| 2:A:2690:C:C6   | 2:A:2690:C:C4'   | 3.02        | 0.43     |
| 2:A:2710:C:C2'  | 2:A:2711:A:C5'   | 2.94        | 0.43     |
| 2:A:2725:A:C5   | 2:A:2727:G:C4    | 3.07        | 0.43     |
| 2:A:2769:C:H2'  | 2:A:2770:G:O4'   | 2.18        | 0.43     |
| 2:A:2773:C:C2'  | 2:A:2774:C:O5'   | 2.66        | 0.43     |
| 2:A:446:G:OP1   | 20:U:3:ARG:HB2   | 2.19        | 0.43     |
| 2:A:628:G:H8    | 2:A:628:G:O5'    | 2.02        | 0.43     |
| 3:D:149:ARG:CG  | 3:D:152:GLN:NE2  | 2.77        | 0.43     |
| 3:D:75:GLY:O    | 3:D:115:ILE:CA   | 2.64        | 0.43     |
| 2:A:1655:A:H5'' | 4:E:211:GLN:HA   | 1.96        | 0.43     |
| 2:A:1673:U:C5   | 4:E:225:LYS:HD3  | 2.46        | 0.43     |
| 4:E:87:GLU:OE1  | 4:E:96:LEU:HD12  | 2.18        | 0.43     |
| 6:G:140:ARG:C   | 6:G:142:ALA:N    | 2.68        | 0.43     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:G:36:ASN:C      | 6:G:38:GLU:N      | 2.72        | 0.43     |
| 6:G:93:LEU:HD21   | 6:G:106:PHE:CG    | 2.53        | 0.43     |
| 7:H:82:TYR:OH     | 7:H:137:LYS:HG2   | 2.19        | 0.43     |
| 7:H:45:GLU:OE1    | 7:H:49:ILE:HA     | 2.19        | 0.43     |
| 9:N:49:ARG:O      | 9:N:53:ILE:N      | 2.51        | 0.43     |
| 10:O:65:THR:O     | 10:O:65:THR:HG23  | 2.19        | 0.43     |
| 2:A:637:A:N7      | 11:P:111:ALA:CB   | 2.77        | 0.43     |
| 11:P:125:PHE:O    | 11:P:130:ARG:CZ   | 2.67        | 0.43     |
| 11:P:117:GLU:CA   | 11:P:136:ALA:O    | 2.45        | 0.43     |
| 11:P:68:GLU:HA    | 11:P:71:GLU:OE2   | 2.18        | 0.43     |
| 12:Q:137:ARG:C    | 12:Q:137:ARG:HD3  | 2.36        | 0.43     |
| 19:R:106:GLY:O    | 19:R:107:ASP:O    | 2.36        | 0.43     |
| 19:R:54:LEU:N     | 19:R:54:LEU:CD1   | 2.82        | 0.43     |
| 13:S:109:PRO:CB   | 13:S:116:PHE:CE2  | 3.02        | 0.43     |
| 13:S:28:LYS:HZ2   | 13:S:28:LYS:CB    | 2.31        | 0.43     |
| 13:S:31:LYS:C     | 13:S:32:PRO:CA    | 2.80        | 0.43     |
| 14:T:23:HIS:CE1   | 14:T:24:LYS:O     | 2.71        | 0.43     |
| 17:Y:31:LEU:HA    | 17:Y:113:GLU:OE2  | 2.19        | 0.43     |
| 18:Z:135:VAL:C    | 18:Z:136:VAL:HG23 | 2.39        | 0.43     |
| 18:Z:16:GLU:OE1   | 18:Z:16:GLU:CA    | 2.49        | 0.43     |
| 18:Z:112:LEU:HD21 | 18:Z:172:LEU:O    | 2.15        | 0.43     |
| 8:I:148:GLN:O     | 8:I:149:LYS:HB3   | 2.18        | 0.43     |
| 3:D:213:LYS:O     | 3:D:214:MET:HB2   | 2.19        | 0.43     |
| 22:2:36:ALA:O     | 22:2:37:GLY:C     | 2.57        | 0.43     |
| 22:2:7:GLU:O      | 22:2:10:ASP:N     | 2.43        | 0.43     |
| 2:A:359:A:H2'     | 2:A:360:G:N7      | 2.32        | 0.43     |
| 2:A:409:C:H2'     | 2:A:410:G:C8      | 2.54        | 0.43     |
| 26:5:33:CYS:SG    | 26:5:34:PRO:HD2   | 2.59        | 0.42     |
| 24:0:17:ASN:H     | 24:0:18:PRO:HD3   | 1.82        | 0.42     |
| 23:3:33:GLN:CG    | 23:3:34:GLU:H     | 2.32        | 0.42     |
| 23:3:49:LYS:C     | 23:3:51:ALA:N     | 2.72        | 0.42     |
| 23:3:52:HIS:O     | 23:3:53:LEU:C     | 2.57        | 0.42     |
| 29:8:36:LYS:HG2   | 29:8:40:GLU:OE1   | 2.19        | 0.42     |
| 2:A:2283:C:C1'    | 2:A:2389:G:H21    | 2.27        | 0.42     |
| 2:A:2389:G:OP2    | 2:A:2389:G:H3'    | 2.19        | 0.42     |
| 2:A:2416:C:HO2'   | 2:A:2417:C:H5''   | 1.80        | 0.42     |
| 2:A:2441:C:HO2'   | 2:A:2442:C:C5'    | 2.27        | 0.42     |
| 2:A:830:G:C4      | 2:A:2448:A:N7     | 2.87        | 0.42     |
| 2:A:2453:A:H61    | 2:A:2500:U:H3     | 1.66        | 0.42     |
| 2:A:2571:C:C2'    | 2:A:2572:A:OP1    | 2.66        | 0.42     |
| 2:A:2697:G:H2'    | 2:A:2698:U:O4'    | 2.18        | 0.42     |
| 2:A:2698:U:H2'    | 2:A:2699:C:C5     | 2.47        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2725:A:C2'   | 2:A:2726:U:H5''  | 2.48        | 0.42     |
| 2:A:2886:G:N2    | 2:A:2887:U:C6    | 2.82        | 0.42     |
| 2:A:34:C:O4'     | 17:Y:8:ARG:NH1   | 2.52        | 0.42     |
| 3:D:115:ILE:C    | 3:D:115:ILE:CD1  | 2.87        | 0.42     |
| 3:D:78:ALA:HA    | 3:D:94:ASN:ND2   | 2.33        | 0.42     |
| 5:F:147:LEU:CD1  | 5:F:156:LEU:CG   | 2.93        | 0.42     |
| 6:G:103:ASN:CB   | 6:G:133:ASN:HA   | 2.49        | 0.42     |
| 7:H:88:LEU:HD22  | 7:H:128:THR:HA   | 2.00        | 0.42     |
| 7:H:83:GLU:OE2   | 7:H:132:VAL:O    | 2.36        | 0.42     |
| 7:H:86:LEU:HD13  | 7:H:87:GLU:C     | 2.39        | 0.42     |
| 8:I:5:PHE:O      | 8:I:6:LEU:HB2    | 2.19        | 0.42     |
| 9:N:19:MET:HE2   | 9:N:22:VAL:CB    | 2.48        | 0.42     |
| 10:O:106:LEU:O   | 10:O:109:LYS:N   | 2.49        | 0.42     |
| 19:R:19:ALA:O    | 19:R:20:LEU:C    | 2.57        | 0.42     |
| 19:R:48:VAL:O    | 19:R:49:ASP:C    | 2.57        | 0.42     |
| 13:S:103:ASP:C   | 13:S:103:ASP:OD2 | 2.57        | 0.42     |
| 13:S:93:GLN:OE1  | 13:S:94:GLU:N    | 2.51        | 0.42     |
| 10:O:101:PRO:HD3 | 14:T:26:GLY:H    | 1.84        | 0.42     |
| 20:U:47:TYR:HA   | 20:U:50:ARG:HG3  | 2.00        | 0.42     |
| 20:U:7:GLY:O     | 20:U:8:ILE:HD13  | 2.18        | 0.42     |
| 15:W:30:GLU:O    | 15:W:33:ARG:CB   | 2.64        | 0.42     |
| 17:Y:27:LEU:HD23 | 17:Y:98:VAL:CB   | 2.49        | 0.42     |
| 17:Y:51:LEU:CB   | 17:Y:97:ARG:HE   | 2.29        | 0.42     |
| 17:Y:44:ALA:O    | 17:Y:62:VAL:HG11 | 2.19        | 0.42     |
| 18:Z:18:MET:HG3  | 18:Z:35:ASP:CA   | 2.47        | 0.42     |
| 18:Z:26:LYS:N    | 18:Z:84:TYR:OH   | 2.52        | 0.42     |
| 8:I:122:ARG:C    | 8:I:124:LEU:N    | 2.71        | 0.42     |
| 8:I:89:LEU:HD12  | 8:I:122:ARG:HA   | 2.01        | 0.42     |
| 8:I:94:THR:C     | 8:I:96:LYS:N     | 2.73        | 0.42     |
| 22:2:26:GLU:OE2  | 22:2:26:GLU:N    | 2.53        | 0.42     |
| 22:2:51:LYS:O    | 22:2:53:ILE:C    | 2.43        | 0.42     |
| 22:2:55:ARG:C    | 22:2:58:THR:CB   | 2.77        | 0.42     |
| 22:2:57:LYS:O    | 22:2:60:GLN:CB   | 2.50        | 0.42     |
| 2:A:63:U:H2'     | 2:A:64:A:C8      | 2.54        | 0.42     |
| 16:X:52:VAL:HG13 | 16:X:53:ASN:N    | 2.34        | 0.42     |
| 2:A:7:G:H5'      | 9:N:6:PHE:HD2    | 1.76        | 0.42     |
| 2:A:1086:A:C3'   | 2:A:1087:G:P     | 3.05        | 0.42     |
| 2:A:1857:G:H21   | 2:A:1886:C:H42   | 1.67        | 0.42     |
| 2:A:1829:A:N3    | 2:A:1829:A:H2'   | 2.34        | 0.42     |
| 3:D:169:LYS:HE2  | 3:D:169:LYS:HB2  | 1.88        | 0.42     |
| 2:A:727:A:C2'    | 2:A:728:G:O5'    | 2.67        | 0.42     |
| 2:A:1420:U:O2    | 2:A:1421:G:N7    | 2.52        | 0.42     |

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| Atom-1          | Atom-2          | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 25:4:17:GLN:NE2 | 25:4:34:ASP:HA  | 2.34        | 0.42     |
| 30:9:2:LYS:HA   | 30:9:2:LYS:NZ   | 2.34        | 0.42     |
| 2:A:1363:C:O2   | 2:A:1363:C:H2'  | 2.18        | 0.42     |
| 2:A:1647:G:H4'  | 2:A:1648:C:C5'  | 2.49        | 0.42     |
| 2:A:1983:C:H4'  | 2:A:2606:C:O2'  | 2.19        | 0.42     |
| 2:A:2009:G:H5'' | 15:W:41:LYS:HD2 | 1.13        | 0.42     |
| 2:A:2196:C:C2'  | 2:A:2196:C:O2   | 2.67        | 0.42     |
| 2:A:2256:G:N2   | 2:A:2257:U:H1'  | 2.33        | 0.42     |
| 2:A:2255:G:N1   | 2:A:2256:G:N9   | 2.67        | 0.42     |
| 2:A:2328:A:C8   | 2:A:2329:G:N7   | 2.88        | 0.42     |
| 2:A:2410:G:C2   | 2:A:2411:A:N9   | 2.88        | 0.42     |
| 2:A:2419:U:OP2  | 29:8:41:ILE:CD1 | 2.67        | 0.42     |
| 2:A:2422:A:C1'  | 2:A:2424:C:H5   | 2.31        | 0.42     |
| 2:A:2461:C:O5'  | 2:A:2461:C:C6   | 2.72        | 0.42     |
| 2:A:2461:C:H2'  | 2:A:2462:U:H5'  | 2.01        | 0.42     |
| 2:A:2498:C:O2'  | 2:A:2499:C:C4'  | 2.64        | 0.42     |
| 2:A:2554:U:O4   | 2:A:2555:U:O4   | 2.37        | 0.42     |
| 2:A:2606:C:C6   | 2:A:2606:C:C4'  | 3.02        | 0.42     |
| 2:A:2625:G:C3'  | 2:A:2626:C:H5   | 2.04        | 0.42     |
| 2:A:2634:G:O6   | 2:A:2785:C:N4   | 2.53        | 0.42     |
| 2:A:2638:G:N9   | 2:A:2775:A:N1   | 2.67        | 0.42     |
| 2:A:2652:C:N4   | 2:A:2653:U:C4   | 2.86        | 0.42     |
| 2:A:2741:A:H5'  | 2:A:2741:A:H8   | 1.82        | 0.42     |
| 2:A:2768:C:H3'  | 2:A:2768:C:C6   | 2.53        | 0.42     |
| 2:A:2819:G:C8   | 2:A:2819:G:O5'  | 2.69        | 0.42     |
| 2:A:2839:G:N2   | 2:A:2840:C:C1'  | 2.82        | 0.42     |
| 2:A:2840:C:O2   | 2:A:2841:C:C6   | 2.72        | 0.42     |
| 2:A:371:A:O2'   | 2:A:372:G:P     | 2.77        | 0.42     |
| 2:A:412:A:H2'   | 2:A:413:C:O4'   | 2.18        | 0.42     |
| 2:A:530:G:N1    | 2:A:2021:C:N1   | 2.67        | 0.42     |
| 2:A:681:G:H1    | 2:A:796:C:H42   | 1.65        | 0.42     |
| 2:A:746:A:C5'   | 2:A:2612:C:C5   | 3.01        | 0.42     |
| 2:A:807:U:C4'   | 2:A:2445:G:H4'  | 2.49        | 0.42     |
| 2:A:831:G:C6    | 2:A:832:G:C5    | 3.07        | 0.42     |
| 3:D:71:ASP:O    | 3:D:73:ILE:HG13 | 2.19        | 0.42     |
| 3:D:93:ILE:CG2  | 3:D:93:ILE:O    | 2.64        | 0.42     |
| 2:A:1657:C:OP1  | 4:E:233:ARG:O   | 2.37        | 0.42     |
| 4:E:203:GLY:CA  | 4:E:303:PRO:HG3 | 2.49        | 0.42     |
| 4:E:311:PHE:HD2 | 4:E:311:PHE:N   | 2.15        | 0.42     |
| 2:A:2681:C:C4'  | 4:E:48:MET:SD   | 3.08        | 0.42     |
| 5:F:11:ASN:HD21 | 5:F:160:LEU:CD1 | 2.32        | 0.42     |
| 7:H:122:ILE:CG2 | 7:H:123:GLU:N   | 2.81        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:I:3:VAL:HG11   | 8:I:21:VAL:HG23  | 1.98        | 0.42     |
| 9:N:39:VAL:N     | 9:N:103:VAL:HG13 | 2.34        | 0.42     |
| 9:N:78:ILE:HG22  | 9:N:79:PHE:HD1   | 1.81        | 0.42     |
| 9:N:90:LYS:HD3   | 9:N:95:ARG:NE    | 2.34        | 0.42     |
| 10:O:17:ARG:HG3  | 10:O:47:THR:H    | 1.84        | 0.42     |
| 12:Q:91:HIS:O    | 12:Q:111:THR:CB  | 2.62        | 0.42     |
| 6:G:145:ASP:C    | 13:S:15:GLU:HA   | 2.36        | 0.42     |
| 2:A:2296:U:H3    | 13:S:16:ALA:CA   | 2.29        | 0.42     |
| 13:S:76:GLY:O    | 13:S:81:ALA:C    | 2.57        | 0.42     |
| 21:V:59:GLU:HG2  | 21:V:99:GLN:HA   | 2.00        | 0.42     |
| 15:W:8:ARG:HB2   | 15:W:102:HIS:ND1 | 2.33        | 0.42     |
| 15:W:110:LYS:HA  | 15:W:110:LYS:HD2 | 1.80        | 0.42     |
| 15:W:50:VAL:HG11 | 15:W:103:ILE:CG2 | 2.49        | 0.42     |
| 17:Y:73:HIS:CG   | 17:Y:91:LEU:HD21 | 2.54        | 0.42     |
| 17:Y:78:THR:HG22 | 17:Y:89:ARG:H    | 1.84        | 0.42     |
| 18:Z:90:GLU:O    | 18:Z:91:PRO:C    | 2.56        | 0.42     |
| 22:2:30:ALA:N    | 22:2:34:GLN:HG2  | 2.32        | 0.42     |
| 2:A:1598:C:C5'   | 16:X:34:LYS:HB2  | 2.46        | 0.42     |
| 16:X:2:TRP:N     | 16:X:2:TRP:CD1   | 2.86        | 0.42     |
| 2:A:1513:C:H2'   | 2:A:1514:U:C5    | 2.54        | 0.42     |
| 2:A:279:C:O4'    | 2:A:359:A:C2     | 2.72        | 0.42     |
| 2:A:1942:C:H3'   | 2:A:1942:C:P     | 2.59        | 0.42     |
| 2:A:117:G:C4     | 2:A:119:A:N6     | 2.86        | 0.42     |
| 2:A:273:G:H1     | 2:A:364:C:H42    | 1.66        | 0.42     |
| 2:A:123:G:H2'    | 2:A:124:G:O4'    | 2.19        | 0.42     |
| 2:A:1509:C:O2    | 2:A:1509:C:H2'   | 2.19        | 0.42     |
| 23:3:53:LEU:O    | 23:3:54:VAL:CG1  | 2.67        | 0.42     |
| 25:4:6:HIS:HB2   | 25:4:56:VAL:HG23 | 1.88        | 0.42     |
| 15:W:37:ARG:HH22 | 26:5:48:ASN:HD21 | 1.67        | 0.42     |
| 26:5:43:HIS:O    | 26:5:52:TYR:HE2  | 2.02        | 0.42     |
| 27:6:37:LEU:O    | 27:6:38:LYS:HG2  | 2.12        | 0.42     |
| 28:7:24:THR:OG1  | 28:7:26:SER:OG   | 2.33        | 0.42     |
| 2:A:2393:A:C5'   | 29:8:13:ARG:NH2  | 2.83        | 0.42     |
| 29:8:58:MET:O    | 29:8:60:LEU:C    | 2.57        | 0.42     |
| 29:8:8:LYS:HB3   | 29:8:9:MET:H     | 1.57        | 0.42     |
| 2:A:1131:G:H4'   | 2:A:1132:A:OP1   | 2.18        | 0.42     |
| 2:A:1137:G:C5    | 2:A:1138:G:H1'   | 2.54        | 0.42     |
| 2:A:1266:G:HO2'  | 2:A:2012:G:H1    | 1.67        | 0.42     |
| 2:A:2077:A:OP2   | 2:A:2238:G:N1    | 2.49        | 0.42     |
| 2:A:2218:G:C6    | 2:A:2219:G:N7    | 2.87        | 0.42     |
| 2:A:2262:U:C6    | 24:0:14:ARG:NH2  | 2.71        | 0.42     |
| 2:A:2267:A:O5'   | 2:A:2268:A:OP1   | 2.35        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2313:C:N4    | 2:A:2314:C:H42   | 2.09        | 0.42     |
| 2:A:2348:U:C2'   | 2:A:2349:G:H5'   | 2.49        | 0.42     |
| 2:A:2392:A:C6    | 2:A:2393:A:N6    | 2.87        | 0.42     |
| 2:A:2512:C:O2    | 2:A:2513:G:C1'   | 2.67        | 0.42     |
| 2:A:2547:U:C4    | 2:A:2566:A:C5    | 3.08        | 0.42     |
| 2:A:2554:U:C4    | 2:A:2555:U:O4    | 2.73        | 0.42     |
| 2:A:2576:G:H4'   | 2:A:2577:A:C5'   | 2.49        | 0.42     |
| 2:A:2752:C:H42   | 2:A:2753:A:H2    | 1.42        | 0.42     |
| 2:A:2827:C:H2'   | 2:A:2828:C:O5'   | 2.17        | 0.42     |
| 2:A:2886:G:C2    | 2:A:2887:U:C5    | 3.07        | 0.42     |
| 2:A:322:A:H1'    | 2:A:341:G:O4'    | 2.19        | 0.42     |
| 2:A:680:G:H2'    | 2:A:681:G:C8     | 2.54        | 0.42     |
| 2:A:747:U:C5     | 2:A:2613:U:C4    | 3.08        | 0.42     |
| 2:A:826:U:C6     | 2:A:828:U:C6     | 3.07        | 0.42     |
| 3:D:140:VAL:HG22 | 3:D:191:VAL:HA   | 2.02        | 0.42     |
| 4:E:214:VAL:HG21 | 4:E:233:ARG:HG2  | 1.97        | 0.42     |
| 4:E:222:ARG:HB3  | 4:E:226:HIS:O    | 2.20        | 0.42     |
| 4:E:270:ASP:O    | 4:E:271:ILE:CG1  | 2.66        | 0.42     |
| 4:E:42:ALA:HB1   | 4:E:310:PHE:CA   | 2.43        | 0.42     |
| 5:F:163:HIS:O    | 5:F:166:ILE:CD1  | 2.66        | 0.42     |
| 5:F:222:ASP:O    | 5:F:231:ARG:NH1  | 2.53        | 0.42     |
| 6:G:13:MET:HB3   | 6:G:14:ARG:HD2   | 2.01        | 0.42     |
| 6:G:23:VAL:HB    | 6:G:130:VAL:HG12 | 2.00        | 0.42     |
| 8:I:31:PHE:O     | 8:I:32:LYS:C     | 2.56        | 0.42     |
| 10:O:10:VAL:HG11 | 10:O:12:ASP:O    | 2.17        | 0.42     |
| 10:O:3:GLN:O     | 10:O:21:VAL:HB   | 2.19        | 0.42     |
| 11:P:102:ASP:O   | 11:P:103:ALA:HB3 | 2.17        | 0.42     |
| 12:Q:54:VAL:O    | 12:Q:54:VAL:CG1  | 2.67        | 0.42     |
| 12:Q:31:PHE:CG   | 12:Q:85:ILE:CD1  | 3.03        | 0.42     |
| 19:R:104:ARG:HB3 | 19:R:107:ASP:OD2 | 2.19        | 0.42     |
| 19:R:65:LEU:O    | 19:R:68:ARG:CB   | 2.68        | 0.42     |
| 13:S:83:LEU:C    | 13:S:85:GLY:N    | 2.71        | 0.42     |
| 14:T:31:PHE:HD2  | 14:T:32:CYS:SG   | 2.42        | 0.42     |
| 20:U:32:TYR:CD2  | 20:U:32:TYR:N    | 2.79        | 0.42     |
| 20:U:33:ARG:CA   | 20:U:36:PHE:CD1  | 3.02        | 0.42     |
| 20:U:7:GLY:O     | 20:U:9:VAL:CG2   | 2.52        | 0.42     |
| 20:U:87:ASN:O    | 20:U:88:ILE:HD13 | 2.19        | 0.42     |
| 20:U:88:ILE:HG22 | 21:V:55:THR:CB   | 2.49        | 0.42     |
| 17:Y:34:GLU:O    | 17:Y:35:TYR:HD2  | 1.94        | 0.42     |
| 18:Z:100:THR:CG2 | 18:Z:137:ASP:CG  | 2.79        | 0.42     |
| 18:Z:41:ARG:N    | 18:Z:41:ARG:CD   | 2.83        | 0.42     |
| 2:A:1076:C:H1'   | 31:K:91:GLU:CB   | 2.44        | 0.42     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 15:W:90:ARG:CZ   | 15:W:90:ARG:HB3   | 2.41        | 0.42     |
| 9:N:108:PRO:CD   | 9:N:109:TYR:H     | 2.32        | 0.42     |
| 2:A:2408:U:C2    | 2:A:2409:G:N7     | 2.87        | 0.42     |
| 2:A:1328:G:H4'   | 2:A:1329:U:C5     | 2.53        | 0.42     |
| 2:A:1476:C:C5    | 2:A:1477:A:N3     | 2.87        | 0.42     |
| 2:A:299:A:N3     | 2:A:320:A:H5'     | 2.34        | 0.42     |
| 2:A:162:U:H4'    | 2:A:171:G:N2      | 2.31        | 0.42     |
| 2:A:285:C:H2'    | 2:A:286:C:N1      | 2.34        | 0.42     |
| 2:A:285:C:C4     | 2:A:286:C:N4      | 2.87        | 0.42     |
| 2:A:1934:C:H4'   | 2:A:1974:C:H4'    | 2.00        | 0.42     |
| 2:A:1974:C:O5'   | 2:A:1974:C:H6     | 2.02        | 0.42     |
| 2:A:500:G:C8     | 2:A:500:G:H3'     | 2.54        | 0.42     |
| 2:A:536:A:H8     | 2:A:536:A:O5'     | 2.02        | 0.42     |
| 25:4:38:GLY:O    | 25:4:39:VAL:HB    | 2.19        | 0.42     |
| 25:4:38:GLY:O    | 25:4:39:VAL:HG23  | 2.18        | 0.42     |
| 29:8:16:ILE:CG2  | 29:8:17:THR:N     | 2.82        | 0.42     |
| 30:9:19:ARG:HG3  | 30:9:19:ARG:O     | 2.19        | 0.42     |
| 2:A:1162:G:H2'   | 2:A:1163:G:C8     | 2.55        | 0.42     |
| 2:A:991:C:C5     | 2:A:1185:C:N4     | 2.88        | 0.42     |
| 2:A:1968:G:H3'   | 2:A:1968:G:H8     | 1.85        | 0.42     |
| 2:A:2249:U:C4    | 2:A:2253:G:OP1    | 2.73        | 0.42     |
| 2:A:2251:G:C5'   | 12:Q:102:ARG:HH21 | 2.31        | 0.42     |
| 2:A:2251:G:C2    | 2:A:2252:G:C2     | 3.07        | 0.42     |
| 2:A:2329:G:N2    | 2:A:2386:C:C4     | 2.37        | 0.42     |
| 2:A:2465:C:HO2'  | 2:A:2466:C:C5'    | 2.18        | 0.42     |
| 2:A:2494:G:H21   | 2:A:2495:G:C1'    | 2.32        | 0.42     |
| 2:A:2509:G:N2    | 2:A:2510:C:C1'    | 2.82        | 0.42     |
| 2:A:2522:U:C2    | 2:A:2543:G:N1     | 2.79        | 0.42     |
| 2:A:2533:A:N7    | 2:A:2534:A:C5     | 2.88        | 0.42     |
| 2:A:2622:C:H2'   | 2:A:2623:G:O5'    | 2.20        | 0.42     |
| 2:A:2626:C:C5    | 2:A:2626:C:O5'    | 2.69        | 0.42     |
| 2:A:2707:G:O2'   | 2:A:2708:G:P      | 2.76        | 0.42     |
| 2:A:2717:G:N1    | 2:A:2718:G:C6     | 2.86        | 0.42     |
| 2:A:2844:G:C2    | 2:A:2845:G:C8     | 3.07        | 0.42     |
| 2:A:2848:G:C2    | 2:A:2849:U:N3     | 2.68        | 0.42     |
| 4:E:242:ASN:N    | 4:E:243:PRO:CD    | 2.81        | 0.42     |
| 4:E:202:ALA:CB   | 4:E:262:THR:HB    | 2.49        | 0.42     |
| 4:E:87:GLU:CD    | 4:E:87:GLU:H      | 2.22        | 0.42     |
| 4:E:96:LEU:O     | 4:E:97:THR:CG2    | 2.67        | 0.42     |
| 2:A:606:U:OP1    | 5:F:104:ASP:N     | 2.52        | 0.42     |
| 6:G:55:LYS:H     | 6:G:65:GLU:HG2    | 1.85        | 0.42     |
| 7:H:104:LEU:HD23 | 7:H:151:ARG:HD2   | 2.01        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:H:10:ILE:HD11  | 7:H:49:ILE:HG21  | 2.01        | 0.42     |
| 7:H:7:PRO:C      | 7:H:8:ILE:HG13   | 2.38        | 0.42     |
| 8:I:7:LYS:HB2    | 8:I:12:LYS:NZ    | 2.34        | 0.42     |
| 9:N:95:ARG:C     | 9:N:97:ALA:N     | 2.71        | 0.42     |
| 10:O:64:ARG:CD   | 10:O:81:GLU:OE1  | 2.67        | 0.42     |
| 12:Q:65:ARG:HE   | 12:Q:85:ILE:HG21 | 1.83        | 0.42     |
| 13:S:110:THR:C   | 13:S:116:PHE:CD1 | 2.93        | 0.42     |
| 13:S:27:LEU:HD13 | 13:S:28:LYS:CA   | 2.49        | 0.42     |
| 14:T:11:THR:CG2  | 14:T:12:ASP:N    | 2.58        | 0.42     |
| 14:T:54:THR:C    | 14:T:56:ARG:H    | 2.22        | 0.42     |
| 20:U:106:PHE:C   | 20:U:108:ALA:N   | 2.73        | 0.42     |
| 2:A:1009:A:O4'   | 20:U:59:ARG:CD   | 2.67        | 0.42     |
| 2:A:30:G:H5'     | 20:U:8:ILE:HG12  | 1.99        | 0.42     |
| 21:V:30:GLY:O    | 21:V:31:ASP:C    | 2.53        | 0.42     |
| 21:V:35:LEU:O    | 21:V:60:VAL:HA   | 2.19        | 0.42     |
| 21:V:93:ILE:CD1  | 21:V:93:ILE:N    | 2.82        | 0.42     |
| 17:Y:46:ASP:N    | 17:Y:62:VAL:HG21 | 2.34        | 0.42     |
| 18:Z:40:ASP:HB2  | 18:Z:41:ARG:H    | 1.39        | 0.42     |
| 8:I:120:ALA:C    | 8:I:121:ILE:O    | 2.54        | 0.42     |
| 2:A:1971:A:H3'   | 2:A:1971:A:H8    | 1.84        | 0.42     |
| 2:A:72:U:C6      | 22:2:57:LYS:HD2  | 2.55        | 0.42     |
| 16:X:50:GLU:N    | 16:X:50:GLU:OE1  | 2.53        | 0.42     |
| 6:G:78:GLU:O     | 6:G:81:GLU:HB2   | 2.19        | 0.42     |
| 2:A:281:G:C8     | 2:A:281:G:O5'    | 2.73        | 0.42     |
| 2:A:265:A:C5     | 2:A:281:G:OP2    | 2.72        | 0.42     |
| 2:A:1718:G:N2    | 2:A:1742:C:C2    | 2.87        | 0.42     |
| 7:H:139:ARG:HG3  | 7:H:139:ARG:H    | 1.61        | 0.42     |
| 10:O:89:ASP:N    | 10:O:89:ASP:OD1  | 2.52        | 0.42     |
| 31:K:11:LEU:HD11 | 31:K:28:LEU:HD21 | 2.01        | 0.42     |
| 24:0:30:VAL:CG1  | 24:0:63:SER:OG   | 2.67        | 0.42     |
| 23:3:48:GLU:O    | 23:3:51:ALA:HB2  | 2.19        | 0.42     |
| 26:5:12:SER:CB   | 26:5:15:LYS:HZ2  | 2.13        | 0.42     |
| 27:6:37:LEU:HD23 | 27:6:37:LEU:HA   | 1.79        | 0.42     |
| 28:7:21:ARG:HH12 | 28:7:43:THR:N    | 2.07        | 0.42     |
| 2:A:1024:G:H3'   | 2:A:1025:G:C5'   | 2.50        | 0.42     |
| 2:A:1270:C:O2'   | 2:A:1648:C:P     | 2.77        | 0.42     |
| 2:A:1755:A:OP2   | 2:A:1755:A:H8    | 2.02        | 0.42     |
| 2:A:2228:G:C8    | 2:A:2229:C:N1    | 2.72        | 0.42     |
| 2:A:397:G:O2'    | 2:A:2231:C:H1'   | 2.20        | 0.42     |
| 2:A:2361:A:C2    | 2:A:2362:G:N9    | 2.87        | 0.42     |
| 2:A:1462:C:C4'   | 2:A:2703:C:H5'   | 2.47        | 0.42     |
| 2:A:2727:G:H2'   | 2:A:2727:G:N3    | 2.34        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2523:G:H1'   | 2:A:2765:A:N7    | 2.34        | 0.42     |
| 2:A:310:A:P      | 17:Y:53:GLY:N    | 2.78        | 0.42     |
| 2:A:465:G:C6     | 2:A:466:A:N6     | 2.88        | 0.42     |
| 2:A:515:A:H3'    | 2:A:516:C:C6     | 2.54        | 0.42     |
| 2:A:650:C:P      | 29:8:19:THR:HG23 | 2.57        | 0.42     |
| 2:A:995:C:O2     | 20:U:61:TRP:CZ2  | 2.72        | 0.42     |
| 4:E:211:GLN:HG2  | 4:E:212:GLY:N    | 2.22        | 0.42     |
| 2:A:2680:C:H5''  | 4:E:302:GLY:O    | 2.20        | 0.42     |
| 4:E:77:PRO:CB    | 4:E:187:HIS:CA   | 2.98        | 0.42     |
| 5:F:6:TYR:O      | 5:F:11:ASN:N     | 2.52        | 0.42     |
| 5:F:33:LYS:CA    | 5:F:36:ARG:HG2   | 2.48        | 0.42     |
| 5:F:63:SER:O     | 5:F:64:GLY:C     | 2.57        | 0.42     |
| 6:G:49:PRO:CG    | 6:G:72:LYS:H     | 2.31        | 0.42     |
| 7:H:88:LEU:HD13  | 7:H:128:THR:HA   | 2.01        | 0.42     |
| 2:A:2780:G:N2    | 9:N:80:LYS:NZ    | 2.65        | 0.42     |
| 10:O:109:LYS:O   | 10:O:110:ASP:HB2 | 2.20        | 0.42     |
| 12:Q:117:GLY:O   | 12:Q:118:ALA:CB  | 2.66        | 0.42     |
| 13:S:90:LEU:HD23 | 13:S:93:GLN:HE21 | 1.84        | 0.42     |
| 21:V:58:ALA:O    | 21:V:100:GLY:O   | 2.38        | 0.42     |
| 15:W:105:VAL:CG2 | 15:W:105:VAL:O   | 2.68        | 0.42     |
| 15:W:23:LEU:HD11 | 15:W:35:ILE:CG2  | 2.49        | 0.42     |
| 17:Y:47:THR:C    | 17:Y:48:VAL:HG23 | 2.33        | 0.42     |
| 18:Z:151:ASP:CA  | 18:Z:153:LYS:HZ2 | 2.32        | 0.42     |
| 18:Z:92:VAL:HG12 | 18:Z:93:GLU:N    | 2.33        | 0.42     |
| 22:2:43:PRO:C    | 22:2:45:ARG:N    | 2.71        | 0.42     |
| 16:X:14:ALA:HA   | 16:X:17:ASP:CB   | 2.48        | 0.42     |
| 2:A:1398:C:H4'   | 16:X:23:LYS:HZ2  | 1.82        | 0.42     |
| 9:N:106:GLY:O    | 9:N:107:ASN:OD1  | 2.28        | 0.42     |
| 6:G:40:ILE:O     | 6:G:44:ILE:HG13  | 2.19        | 0.42     |
| 2:A:1315:C:H2'   | 2:A:1316:U:C6    | 2.54        | 0.42     |
| 2:A:480:A:H3'    | 2:A:481:G:H5''   | 2.00        | 0.42     |
| 2:A:51:G:H1'     | 2:A:118:A:H62    | 1.84        | 0.42     |
| 2:A:587:C:H4'    | 2:A:588:U:OP2    | 2.19        | 0.42     |
| 2:A:855:G:N2     | 24:0:26:PHE:CZ   | 2.87        | 0.42     |
| 23:3:39:ASP:O    | 23:3:40:THR:O    | 2.38        | 0.42     |
| 23:3:6:VAL:CG2   | 23:3:55:ARG:O    | 2.63        | 0.42     |
| 25:4:5:LEU:HG    | 25:4:8:LYS:N     | 2.35        | 0.42     |
| 26:5:3:LYS:O     | 26:5:4:HIS:C     | 2.58        | 0.42     |
| 27:6:39:LYS:C    | 27:6:50:PHE:CD1  | 2.93        | 0.42     |
| 2:A:1259:G:C4    | 2:A:1260:G:C8    | 3.08        | 0.42     |
| 2:A:1500:G:O2'   | 3:D:98:GLY:O     | 2.37        | 0.42     |
| 2:A:1656:C:OP1   | 4:E:212:GLY:HA3  | 2.18        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:1666:G:O3'   | 10:O:6:SER:CB    | 2.68        | 0.42     |
| 2:A:1668:A:HO2'  | 2:A:1669:A:P     | 2.42        | 0.42     |
| 2:A:2217:G:C2'   | 2:A:2218:G:C5'   | 2.97        | 0.42     |
| 2:A:2321:G:H21   | 2:A:2322:A:H1'   | 1.83        | 0.42     |
| 2:A:2393:A:C5'   | 29:8:13:ARG:HH21 | 2.32        | 0.42     |
| 2:A:2444:G:C6    | 2:A:2445:G:N1    | 2.87        | 0.42     |
| 2:A:2487:G:C2'   | 2:A:2488:A:H5'   | 2.49        | 0.42     |
| 2:A:2581:G:C2'   | 2:A:2581:G:N3    | 2.76        | 0.42     |
| 2:A:451:C:H2'    | 2:A:452:G:N7     | 2.34        | 0.42     |
| 2:A:774:A:O2'    | 2:A:775:G:H8     | 2.02        | 0.42     |
| 2:A:807:U:H1'    | 2:A:2445:G:OP1   | 2.19        | 0.42     |
| 5:F:37:ALA:HB2   | 5:F:102:LEU:HB2  | 1.93        | 0.42     |
| 5:F:84:VAL:N     | 5:F:87:ARG:HE    | 2.17        | 0.42     |
| 6:G:149:ARG:C    | 6:G:151:ILE:N    | 2.66        | 0.42     |
| 6:G:57:THR:CG2   | 6:G:58:VAL:N     | 2.62        | 0.42     |
| 6:G:51:ARG:HH11  | 6:G:72:LYS:HB2   | 1.82        | 0.42     |
| 7:H:101:LYS:HG3  | 7:H:116:PRO:CD   | 2.49        | 0.42     |
| 7:H:148:ARG:NH1  | 7:H:164:GLU:N    | 2.63        | 0.42     |
| 7:H:30:GLY:HA3   | 7:H:78:VAL:HA    | 2.02        | 0.42     |
| 7:H:96:SER:C     | 7:H:97:LYS:O     | 2.45        | 0.42     |
| 8:I:3:VAL:CG2    | 8:I:19:LYS:O     | 2.68        | 0.42     |
| 8:I:1:MET:HG3    | 8:I:3:VAL:HG22   | 1.96        | 0.42     |
| 9:N:80:LYS:O     | 9:N:84:ARG:CG    | 2.44        | 0.42     |
| 10:O:105:GLU:HB2 | 10:O:106:LEU:H   | 1.57        | 0.42     |
| 19:R:74:LYS:O    | 19:R:75:LEU:C    | 2.58        | 0.42     |
| 13:S:97:VAL:O    | 13:S:98:GLU:CG   | 2.68        | 0.42     |
| 21:V:66:GLY:HA2  | 21:V:93:ILE:HG13 | 2.02        | 0.42     |
| 17:Y:105:ASP:N   | 17:Y:105:ASP:OD1 | 2.53        | 0.42     |
| 18:Z:118:HIS:CD2 | 18:Z:168:VAL:HA  | 2.54        | 0.42     |
| 18:Z:71:MET:HG2  | 18:Z:78:PRO:HD3  | 0.44        | 0.42     |
| 18:Z:94:VAL:O    | 18:Z:123:VAL:N   | 2.37        | 0.42     |
| 8:I:103:GLN:O    | 8:I:104:ALA:O    | 2.38        | 0.42     |
| 8:I:82:LYS:O     | 8:I:83:ALA:CB    | 2.68        | 0.42     |
| 8:I:92:SER:H     | 8:I:122:ARG:NH2  | 2.18        | 0.42     |
| 22:2:60:GLN:HE22 | 22:2:65:ASP:HA   | 1.83        | 0.42     |
| 16:X:7:HIS:CG    | 16:X:8:PRO:CD    | 3.01        | 0.42     |
| 2:A:1075:C:H2'   | 31:K:91:GLU:OE2  | 2.19        | 0.42     |
| 2:A:176:G:N3     | 2:A:177:G:C1'    | 2.82        | 0.42     |
| 2:A:5:A:C2       | 2:A:2899:G:C2    | 3.08        | 0.42     |
| 2:A:863:A:H61    | 2:A:913:U:H3     | 1.66        | 0.42     |
| 14:T:46:ALA:O    | 14:T:49:LEU:N    | 2.38        | 0.42     |
| 2:A:1858:G:C2    | 2:A:1885:A:C5    | 3.07        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:3:8:LEU:CA    | 23:3:54:VAL:CG1  | 2.85        | 0.42     |
| 25:4:14:ILE:HG21 | 25:4:37:SER:CA   | 2.49        | 0.42     |
| 25:4:14:ILE:CG2  | 25:4:37:SER:C    | 2.87        | 0.42     |
| 2:A:1809:A:H61   | 25:4:3:LYS:HB3   | 1.82        | 0.42     |
| 2:A:747:U:C1'    | 26:5:3:LYS:HZ2   | 2.31        | 0.42     |
| 2:A:13:A:N7      | 2:A:525:U:O4     | 2.51        | 0.42     |
| 2:A:197:A:H2'    | 2:A:198:C:O4'    | 2.20        | 0.42     |
| 2:A:2077:A:H1'   | 2:A:2435:A:O4'   | 2.20        | 0.42     |
| 2:A:2353:G:H8    | 2:A:2353:G:O5'   | 2.03        | 0.42     |
| 2:A:2370:G:C5    | 2:A:2371:G:N7    | 2.88        | 0.42     |
| 2:A:2290:G:O2'   | 2:A:2381:C:H1'   | 2.20        | 0.42     |
| 2:A:2400:G:C2    | 2:A:2401:U:C2    | 3.07        | 0.42     |
| 2:A:2403:C:C5    | 2:A:2415:G:C2    | 3.07        | 0.42     |
| 2:A:2436:G:N2    | 2:A:2437:U:C2    | 2.87        | 0.42     |
| 2:A:2031:A:N6    | 2:A:2498:C:C6    | 2.85        | 0.42     |
| 2:A:1128:A:N1    | 2:A:2518:A:N6    | 2.59        | 0.42     |
| 2:A:2571:C:O2    | 2:A:2574:G:H1'   | 2.20        | 0.42     |
| 2:A:2649:U:C2    | 2:A:2650:U:C5    | 3.07        | 0.42     |
| 2:A:2673:G:O2'   | 10:O:30:ARG:NH2  | 2.52        | 0.42     |
| 2:A:2737:G:O6    | 2:A:2738:A:N6    | 2.52        | 0.42     |
| 2:A:2816:C:C2    | 2:A:2831:G:N2    | 2.88        | 0.42     |
| 2:A:2832:U:C1'   | 2:A:2834:G:N2    | 2.62        | 0.42     |
| 2:A:389:G:O4'    | 2:A:2413:G:C4'   | 2.68        | 0.42     |
| 2:A:535:C:C3'    | 20:U:53:LYS:CE   | 2.62        | 0.42     |
| 2:A:752:A:C8     | 2:A:752:A:O5'    | 2.72        | 0.42     |
| 2:A:803:U:H2'    | 2:A:804:A:C5'    | 2.33        | 0.42     |
| 2:A:965:C:H1'    | 2:A:2273:A:N1    | 2.34        | 0.42     |
| 2:A:994:C:O2'    | 20:U:54:LYS:CG   | 2.47        | 0.42     |
| 3:D:171:VAL:C    | 3:D:182:MET:HG2  | 2.40        | 0.42     |
| 3:D:80:ILE:CD1   | 3:D:82:TYR:CD1   | 2.95        | 0.42     |
| 3:D:82:TYR:HA    | 3:D:89:ASN:HB3   | 2.01        | 0.42     |
| 3:D:89:ASN:ND2   | 3:D:199:ARG:CZ   | 2.83        | 0.42     |
| 4:E:222:ARG:NH2  | 4:E:234:ARG:CB   | 2.71        | 0.42     |
| 5:F:215:ALA:HB2  | 5:F:239:ALA:N    | 2.32        | 0.42     |
| 5:F:45:ASP:HB3   | 5:F:98:ARG:HG3   | 2.01        | 0.42     |
| 5:F:52:ALA:O     | 5:F:55:ARG:CB    | 2.68        | 0.42     |
| 6:G:55:LYS:O     | 6:G:65:GLU:CA    | 2.67        | 0.42     |
| 7:H:162:ARG:HB3  | 7:H:166:GLU:CG   | 2.43        | 0.42     |
| 7:H:43:THR:HG21  | 7:H:51:VAL:O     | 2.20        | 0.42     |
| 10:O:45:ASP:O    | 10:O:45:ASP:OD1  | 2.37        | 0.42     |
| 10:O:65:THR:HG1  | 10:O:67:ARG:CG   | 2.25        | 0.42     |
| 12:Q:122:PHE:CB  | 12:Q:136:TRP:CZ2 | 3.00        | 0.42     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:Q:72:VAL:HB   | 12:Q:83:PHE:CZ    | 2.55        | 0.42     |
| 2:A:1287:A:H5''  | 19:R:104:ARG:HG3  | 2.02        | 0.42     |
| 19:R:20:LEU:HD22 | 19:R:24:GLN:CG    | 2.41        | 0.42     |
| 13:S:58:LEU:HD11 | 13:S:92:ALA:HA    | 2.00        | 0.42     |
| 20:U:47:TYR:HE2  | 20:U:50:ARG:NH1   | 2.17        | 0.42     |
| 21:V:41:GLY:CA   | 21:V:54:TYR:CE1   | 3.03        | 0.42     |
| 21:V:43:GLU:N    | 21:V:44:GLN:NE2   | 2.68        | 0.42     |
| 21:V:94:LYS:N    | 21:V:95:ILE:CD1   | 2.82        | 0.42     |
| 17:Y:57:GLY:CA   | 17:Y:97:ARG:NH2   | 2.50        | 0.42     |
| 17:Y:92:ASP:C    | 17:Y:94:SER:N     | 2.73        | 0.42     |
| 18:Z:101:THR:HB  | 18:Z:103:ARG:HD3  | 2.02        | 0.42     |
| 2:A:904:C:H1'    | 18:Z:166:LEU:HD21 | 2.01        | 0.42     |
| 8:I:110:LEU:HD23 | 8:I:111:ASP:N     | 2.35        | 0.42     |
| 9:N:10:VAL:CG1   | 9:N:36:VAL:CB     | 2.88        | 0.42     |
| 22:2:55:ARG:O    | 22:2:57:LYS:N     | 2.53        | 0.42     |
| 2:A:75:G:O3'     | 22:2:51:LYS:NZ    | 2.36        | 0.42     |
| 12:Q:93:ILE:CG2  | 12:Q:94:ARG:H     | 2.30        | 0.42     |
| 2:A:2408:U:C2'   | 2:A:2409:G:O5'    | 2.68        | 0.42     |
| 2:A:1559:G:H2'   | 2:A:1559:G:N3     | 2.35        | 0.42     |
| 2:A:618(A):C:N4  | 2:A:619:G:H21     | 2.18        | 0.42     |
| 24:0:33:ALA:CB   | 24:0:66:LYS:N     | 2.77        | 0.42     |
| 2:A:2364:C:C4'   | 24:0:38:VAL:CG1   | 2.96        | 0.42     |
| 23:3:47:VAL:N    | 23:3:48:GLU:OE1   | 2.52        | 0.42     |
| 27:6:46:LYS:C    | 27:6:47:HIS:HD1   | 2.23        | 0.42     |
| 27:6:40:TYR:CA   | 27:6:50:PHE:CE1   | 3.03        | 0.42     |
| 29:8:15:LYS:HE3  | 29:8:15:LYS:HB2   | 1.73        | 0.42     |
| 2:A:2249:U:O4    | 2:A:2253:G:OP1    | 2.38        | 0.42     |
| 2:A:2251:G:H5''  | 12:Q:102:ARG:CZ   | 2.46        | 0.42     |
| 2:A:2257:U:HO2'  | 2:A:2258:C:C4'    | 2.32        | 0.42     |
| 2:A:2263:C:C6    | 2:A:2263:C:H5'    | 2.53        | 0.42     |
| 2:A:2417:C:N4    | 2:A:2418:A:N6     | 2.68        | 0.42     |
| 2:A:2453:A:HO2'  | 2:A:2454:G:H5'    | 1.64        | 0.42     |
| 2:A:2488:A:C6    | 2:A:2489:G:C6     | 3.08        | 0.42     |
| 2:A:2458:G:H2'   | 2:A:2490:G:H1     | 1.85        | 0.42     |
| 2:A:2513:G:H2'   | 2:A:2514:U:C6     | 2.55        | 0.42     |
| 2:A:2522:U:C2    | 2:A:2543:G:O6     | 2.73        | 0.42     |
| 2:A:2530:A:C2'   | 2:A:2531:A:C5'    | 2.71        | 0.42     |
| 2:A:2537:U:C5    | 2:A:2538:C:C5     | 3.07        | 0.42     |
| 2:A:2634:G:O2'   | 2:A:2635:C:C5'    | 2.68        | 0.42     |
| 2:A:2703:C:H2'   | 2:A:2704:C:C6     | 2.54        | 0.42     |
| 2:A:2729:G:O5'   | 2:A:2729:G:H8     | 2.03        | 0.42     |
| 2:A:2817:G:C4    | 2:A:2818:G:C8     | 3.08        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2623:G:H4'   | 2:A:2826:A:O4'   | 2.20        | 0.42     |
| 2:A:2892:A:H3'   | 2:A:2893:G:H8    | 1.84        | 0.42     |
| 2:A:342:G:C2     | 2:A:343:C:C2     | 3.08        | 0.42     |
| 2:A:295:G:C8     | 2:A:345:A:C2     | 3.08        | 0.42     |
| 2:A:774:A:H5''   | 2:A:778:G:H4'    | 2.01        | 0.42     |
| 2:A:777:A:N7     | 2:A:793:A:H2     | 2.17        | 0.42     |
| 2:A:826:U:OP1    | 2:A:2429:G:P     | 2.74        | 0.42     |
| 4:E:211:GLN:CG   | 4:E:212:GLY:H    | 2.18        | 0.42     |
| 4:E:242:ASN:O    | 4:E:243:PRO:C    | 2.58        | 0.42     |
| 2:A:2514:U:C1'   | 4:E:247:ARG:HH12 | 2.33        | 0.42     |
| 4:E:193:PHE:HZ   | 4:E:312:ARG:O    | 2.00        | 0.42     |
| 4:E:94:ARG:CB    | 4:E:95:PRO:HD3   | 2.40        | 0.42     |
| 5:F:22:PHE:O     | 5:F:24:THR:OG1   | 2.38        | 0.42     |
| 5:F:33:LYS:C     | 5:F:36:ARG:HG2   | 2.40        | 0.42     |
| 5:F:39:GLN:O     | 5:F:42:ARG:HB3   | 2.19        | 0.42     |
| 5:F:44:GLN:HB3   | 5:F:45:ASP:H     | 1.76        | 0.42     |
| 5:F:52:ALA:C     | 5:F:54:LEU:N     | 2.73        | 0.42     |
| 5:F:52:ALA:O     | 5:F:55:ARG:N     | 2.53        | 0.42     |
| 6:G:19:GLU:N     | 6:G:135:VAL:HG21 | 2.34        | 0.42     |
| 6:G:71:ALA:O     | 6:G:72:LYS:HE3   | 2.17        | 0.42     |
| 7:H:90:GLY:HA2   | 7:H:159:LYS:CD   | 2.47        | 0.42     |
| 9:N:137:GLU:O    | 9:N:140:GLY:N    | 2.42        | 0.42     |
| 9:N:82:THR:O     | 9:N:85:GLY:HA3   | 2.20        | 0.42     |
| 10:O:21:VAL:HG13 | 10:O:39:VAL:HG13 | 2.02        | 0.42     |
| 12:Q:49:VAL:HG13 | 12:Q:50:VAL:N    | 2.02        | 0.42     |
| 12:Q:57:ARG:O    | 12:Q:60:ALA:HB3  | 2.20        | 0.42     |
| 2:A:1287:A:C8    | 19:R:104:ARG:CD  | 2.95        | 0.42     |
| 19:R:41:ALA:C    | 19:R:43:GLU:N    | 2.73        | 0.42     |
| 14:T:29:THR:HB   | 14:T:31:PHE:HE1  | 1.83        | 0.42     |
| 20:U:16:LYS:HB3  | 20:U:17:VAL:H    | 1.39        | 0.42     |
| 20:U:28:ARG:C    | 20:U:30:LYS:N    | 2.73        | 0.42     |
| 20:U:72:HIS:ND1  | 20:U:110:VAL:CG1 | 2.81        | 0.42     |
| 20:U:94:VAL:CA   | 20:U:98:ILE:HD11 | 2.46        | 0.42     |
| 21:V:18:ASP:HB3  | 21:V:96:LEU:HA   | 2.00        | 0.42     |
| 15:W:46:PHE:O    | 15:W:48:ALA:N    | 2.53        | 0.42     |
| 17:Y:32:ARG:HG2  | 17:Y:33:GLU:H    | 1.84        | 0.42     |
| 18:Z:171:VAL:CG2 | 18:Z:171:VAL:O   | 2.68        | 0.42     |
| 2:A:1771:C:H2'   | 2:A:1772:G:H8    | 1.85        | 0.42     |
| 2:A:729:G:C2     | 2:A:1775:U:C6    | 3.08        | 0.42     |
| 2:A:1351:C:H4'   | 2:A:1571:A:H2'   | 2.02        | 0.42     |
| 2:A:2182:G:H2'   | 2:A:2183:C:C2    | 2.55        | 0.42     |
| 2:A:205:G:O2'    | 2:A:206:U:P      | 2.78        | 0.42     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:212:G:H2'    | 2:A:213:A:H8     | 1.85        | 0.42     |
| 2:A:270(C):C:H2' | 2:A:270(D):C:C6  | 2.54        | 0.42     |
| 25:4:59:PHE:H    | 25:4:62:ARG:NE   | 2.12        | 0.42     |
| 25:4:5:LEU:HB2   | 25:4:56:VAL:HG11 | 1.85        | 0.42     |
| 26:5:41:LEU:O    | 26:5:42:SER:O    | 2.38        | 0.42     |
| 27:6:8:ILE:C     | 27:6:29:ARG:HH21 | 2.18        | 0.42     |
| 27:6:44:ALA:O    | 27:6:45:LYS:O    | 2.38        | 0.42     |
| 2:A:464:U:O2'    | 28:7:12:ARG:NH2  | 2.52        | 0.42     |
| 29:8:26:LYS:NZ   | 29:8:44:LYS:H    | 1.93        | 0.42     |
| 2:A:2358:G:N2    | 29:8:52:LYS:HZ3  | 2.02        | 0.42     |
| 2:A:1140:C:OP2   | 9:N:47:THR:N     | 2.50        | 0.42     |
| 2:A:1203:G:N3    | 2:A:1203:G:H3'   | 2.34        | 0.42     |
| 2:A:1661:G:H1    | 2:A:1999:C:N4    | 2.15        | 0.42     |
| 2:A:2020:A:N7    | 26:5:9:LYS:NZ    | 2.49        | 0.42     |
| 2:A:2370:G:C6    | 2:A:2371:G:C6    | 3.07        | 0.42     |
| 2:A:2385:C:O2    | 2:A:2386:C:N1    | 2.49        | 0.42     |
| 2:A:2428:G:H1'   | 2:A:2429:G:C6    | 2.55        | 0.42     |
| 2:A:2648:C:C5    | 2:A:2649:U:C4    | 3.08        | 0.42     |
| 2:A:2684:U:C2'   | 2:A:2685:G:O5'   | 2.67        | 0.42     |
| 2:A:26:G:H1      | 2:A:27:G:N2      | 2.05        | 0.42     |
| 2:A:2744:G:O2'   | 2:A:2745:C:H5'   | 2.20        | 0.42     |
| 2:A:2043:C:P     | 2:A:2779:U:O4    | 2.77        | 0.42     |
| 2:A:2783:G:C4    | 2:A:2784:C:C6    | 3.08        | 0.42     |
| 2:A:2812:G:C2'   | 2:A:2813:A:O5'   | 2.68        | 0.42     |
| 2:A:650:C:C5'    | 29:8:19:THR:CG2  | 2.89        | 0.42     |
| 2:A:690:G:O2'    | 2:A:780:G:P      | 2.78        | 0.42     |
| 1:B:42:C:H4'     | 6:G:48:MET:N     | 2.34        | 0.42     |
| 3:D:131:LEU:HG   | 3:D:187:CYS:CB   | 2.44        | 0.42     |
| 3:D:144:GLU:OE1  | 3:D:144:GLU:C    | 2.58        | 0.42     |
| 3:D:156:ALA:C    | 3:D:158:GLY:H    | 2.23        | 0.42     |
| 2:A:1819:A:C2'   | 3:D:177:SER:OG   | 2.62        | 0.42     |
| 5:F:111:VAL:O    | 5:F:115:LEU:HD23 | 2.19        | 0.42     |
| 6:G:150:SER:O    | 6:G:151:ILE:O    | 2.38        | 0.42     |
| 9:N:17:CYS:O     | 9:N:45:VAL:CG1   | 2.58        | 0.42     |
| 9:N:63:ILE:CG2   | 9:N:71:TYR:CE1   | 3.03        | 0.42     |
| 10:O:116:SER:O   | 10:O:117:LEU:C   | 2.58        | 0.42     |
| 11:P:128:GLY:O   | 11:P:132:LYS:CD  | 2.65        | 0.42     |
| 11:P:65:ASP:HB3  | 11:P:109:LEU:N   | 2.35        | 0.42     |
| 11:P:73:VAL:O    | 11:P:76:LEU:CB   | 2.65        | 0.42     |
| 11:P:80:ASP:O    | 11:P:92:ASP:HA   | 2.20        | 0.42     |
| 12:Q:70:ARG:HD2  | 12:Q:71:PHE:CE1  | 2.52        | 0.42     |
| 13:S:22:GLN:OE1  | 13:S:22:GLN:CA   | 2.67        | 0.42     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 14:T:21:PHE:HB2 | 14:T:31:PHE:CD1  | 2.52        | 0.42     |
| 20:U:9:VAL:O    | 20:U:10:ARG:C    | 2.56        | 0.42     |
| 15:W:46:PHE:O   | 15:W:49:LYS:N    | 2.52        | 0.42     |
| 17:Y:92:ASP:OD1 | 17:Y:94:SER:HB2  | 2.16        | 0.42     |
| 8:I:80:PRO:C    | 8:I:146:THR:O    | 2.58        | 0.42     |
| 22:2:49:LEU:HA  | 22:2:49:LEU:HD23 | 1.87        | 0.42     |
| 22:2:59:ILE:CG2 | 22:2:60:GLN:N    | 2.71        | 0.42     |
| 2:A:138:G:C2'   | 2:A:139:G:H4'    | 2.38        | 0.42     |
| 2:A:1995:U:P    | 4:E:220:GLN:NE2  | 2.81        | 0.42     |
| 4:E:112:LEU:CD1 | 4:E:112:LEU:C    | 2.88        | 0.42     |
| 2:A:265:A:C6    | 2:A:281:G:OP2    | 2.73        | 0.42     |
| 2:A:481:G:O2'   | 2:A:482:A:C8     | 2.71        | 0.42     |
| 2:A:323:G:C5    | 2:A:333:G:C8     | 3.08        | 0.42     |
| 2:A:220:G:H1    | 2:A:427:U:H3'    | 1.84        | 0.42     |
| 2:A:221:A:H3'   | 2:A:221:A:H8     | 1.85        | 0.42     |
| 2:A:1602:U:H3'  | 2:A:1602:U:C6    | 2.55        | 0.42     |
| 8:I:70:GLU:CG   | 8:I:71:GLN:N     | 2.78        | 0.42     |
| 24:0:29:GLU:OE1 | 24:0:62:LEU:CD2  | 2.68        | 0.42     |
| 23:3:20:LYS:CA  | 23:3:23:LEU:HD12 | 2.36        | 0.42     |
| 23:3:44:ARG:O   | 23:3:48:GLU:CD   | 2.55        | 0.42     |
| 25:4:5:LEU:CD1  | 25:4:60:ASN:ND2  | 2.67        | 0.42     |
| 28:7:28:ARG:O   | 28:7:31:LEU:CB   | 2.68        | 0.42     |
| 29:8:6:THR:O    | 29:8:8:LYS:C     | 2.59        | 0.42     |
| 2:A:2022:U:C3'  | 2:A:2617:C:H4'   | 2.50        | 0.42     |
| 2:A:2259:G:N2   | 2:A:2282:G:C2    | 2.88        | 0.42     |
| 2:A:2333:A:C4'  | 2:A:2335:A:O4'   | 2.68        | 0.42     |
| 2:A:2418:A:C2   | 2:A:2419:U:O2    | 2.73        | 0.42     |
| 2:A:2063:C:O2   | 2:A:2450:A:N1    | 2.53        | 0.42     |
| 2:A:2454:G:C5   | 2:A:2455:G:N7    | 2.88        | 0.42     |
| 2:A:2531:A:C2   | 2:A:2532:G:C1'   | 3.02        | 0.42     |
| 2:A:2576:G:H4'  | 2:A:2577:A:H5'   | 2.01        | 0.42     |
| 2:A:2635:C:N4   | 2:A:2784:C:N4    | 2.65        | 0.42     |
| 2:A:2744:G:N1   | 2:A:2745:C:N3    | 2.68        | 0.42     |
| 2:A:2749:A:N7   | 2:A:2750:A:C8    | 2.88        | 0.42     |
| 2:A:2809:A:C1'  | 2:A:2811:G:N7    | 2.81        | 0.42     |
| 2:A:297:C:H2'   | 2:A:298:G:O4'    | 2.20        | 0.42     |
| 2:A:337:C:OP2   | 17:Y:24:ARG:HB3  | 2.20        | 0.42     |
| 2:A:464:U:C4'   | 28:7:12:ARG:HH22 | 2.32        | 0.42     |
| 5:F:115:LEU:O   | 5:F:117:ALA:N    | 2.53        | 0.42     |
| 5:F:200:PRO:HB3 | 5:F:205:ARG:HD3  | 2.02        | 0.42     |
| 5:F:38:ALA:HB1  | 5:F:221:GLU:HG2  | 2.02        | 0.42     |
| 5:F:168:ARG:CA  | 5:F:233:THR:HG22 | 2.48        | 0.42     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:G:141:VAL:N    | 6:G:144:ARG:HH11  | 2.15        | 0.42     |
| 6:G:140:ARG:CB   | 6:G:144:ARG:HH12  | 2.33        | 0.42     |
| 7:H:129:LYS:CA   | 7:H:130:ILE:HD12  | 2.31        | 0.42     |
| 7:H:138:GLN:C    | 7:H:140:VAL:N     | 2.72        | 0.42     |
| 7:H:91:VAL:C     | 7:H:159:LYS:HZ2   | 2.23        | 0.42     |
| 7:H:71:LEU:O     | 7:H:74:MET:N      | 2.52        | 0.42     |
| 9:N:50:GLU:HB2   | 9:N:51:GLU:H      | 1.65        | 0.42     |
| 9:N:82:THR:HG1   | 9:N:83:ILE:HG23   | 1.85        | 0.42     |
| 10:O:63:VAL:HG22 | 10:O:106:LEU:HD22 | 2.02        | 0.42     |
| 10:O:7:ARG:C     | 10:O:8:LEU:CD2    | 2.87        | 0.42     |
| 19:R:22:ARG:NH2  | 19:R:69:ASP:HA    | 2.35        | 0.42     |
| 19:R:75:LEU:O    | 19:R:77:ARG:C     | 2.58        | 0.42     |
| 13:S:23:ARG:CZ   | 13:S:37:ARG:NH2   | 2.50        | 0.42     |
| 15:W:32:ALA:HB2  | 15:W:35:ILE:HD11  | 1.94        | 0.42     |
| 15:W:60:ASN:HB3  | 15:W:61:ASN:OD1   | 2.19        | 0.42     |
| 15:W:68:ARG:HH21 | 15:W:110:LYS:CG   | 2.30        | 0.42     |
| 15:W:8:ARG:CB    | 15:W:102:HIS:ND1  | 2.83        | 0.42     |
| 17:Y:54:ASP:C    | 17:Y:56:ALA:H     | 2.24        | 0.42     |
| 2:A:308:G:O2'    | 17:Y:54:ASP:OD2   | 2.38        | 0.42     |
| 18:Z:6:LYS:HA    | 18:Z:31:SER:CB    | 2.48        | 0.42     |
| 22:2:23:LEU:O    | 22:2:24:LYS:C     | 2.56        | 0.42     |
| 16:X:9:HIS:CB    | 16:X:26:PHE:HA    | 2.42        | 0.42     |
| 2:A:1078:U:O2    | 2:A:1088:A:H4'    | 2.20        | 0.42     |
| 2:A:1418:G:O6    | 2:A:1577:C:H5''   | 2.20        | 0.42     |
| 2:A:1212:G:N7    | 2:A:1235:G:O6     | 2.53        | 0.42     |
| 2:A:1299:G:H5'   | 2:A:1301:A:H1'    | 2.00        | 0.42     |
| 2:A:227:A:H8     | 2:A:227:A:O5'     | 2.02        | 0.42     |
| 2:A:706:A:H2'    | 2:A:707:G:O4'     | 2.20        | 0.42     |
| 2:A:2181:G:C2'   | 2:A:2182:G:H5''   | 2.49        | 0.42     |
| 31:K:99:LYS:HD2  | 31:K:99:LYS:N     | 2.35        | 0.42     |
| 2:A:1443:G:C2    | 2:A:1444:G:H1'    | 2.54        | 0.42     |
| 31:K:42:PHE:C    | 31:K:44:ALA:H     | 2.23        | 0.42     |
| 24:0:67:VAL:HG11 | 24:0:74:LYS:HE2   | 2.02        | 0.41     |
| 25:4:16:TYR:CE1  | 25:4:37:SER:OG    | 2.73        | 0.41     |
| 30:9:3:VAL:O     | 30:9:4:ARG:C      | 2.48        | 0.41     |
| 2:A:1500:G:H21   | 3:D:97:ASP:CG     | 2.21        | 0.41     |
| 2:A:1764:G:N1    | 2:A:1989:G:C4     | 2.88        | 0.41     |
| 2:A:2090:G:N1    | 2:A:2230:G:C6     | 2.71        | 0.41     |
| 2:A:2262:U:C5    | 24:0:14:ARG:NH1   | 2.87        | 0.41     |
| 2:A:2317:C:C2'   | 2:A:2318:G:C8     | 3.03        | 0.41     |
| 2:A:2353:G:H2'   | 2:A:2354:G:O5'    | 2.19        | 0.41     |
| 2:A:2431:U:P     | 2:A:2432:A:OP2    | 2.78        | 0.41     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2519:U:H6    | 2:A:2519:U:H2'   | 1.59        | 0.41     |
| 2:A:1672:C:H4'   | 2:A:2553:G:O3'   | 2.20        | 0.41     |
| 2:A:2567:G:N1    | 2:A:2568:C:N4    | 2.68        | 0.41     |
| 2:A:2572:A:OP1   | 2:A:2574:G:H4'   | 2.20        | 0.41     |
| 2:A:2693:A:C4    | 2:A:2694:G:N7    | 2.88        | 0.41     |
| 2:A:2774:C:C2'   | 2:A:2775:A:H8    | 2.30        | 0.41     |
| 2:A:2801:A:OP1   | 2:A:2802:G:O4'   | 2.38        | 0.41     |
| 2:A:2837:G:C6    | 2:A:2882:A:N1    | 2.88        | 0.41     |
| 2:A:626:U:H3'    | 2:A:627:A:C5'    | 2.49        | 0.41     |
| 2:A:466:A:H2     | 2:A:682:G:H22    | 1.68        | 0.41     |
| 2:A:1567:A:N1    | 3:D:82:TYR:O     | 2.53        | 0.41     |
| 4:E:200:ASP:O    | 4:E:311:PHE:C    | 2.58        | 0.41     |
| 5:F:203:ALA:C    | 5:F:205:ARG:H    | 2.22        | 0.41     |
| 5:F:1:MET:HB2    | 5:F:2:GLU:H      | 1.59        | 0.41     |
| 5:F:46:TYR:O     | 5:F:92:PRO:HB2   | 2.19        | 0.41     |
| 6:G:25:MET:SD    | 6:G:128:LEU:CB   | 3.08        | 0.41     |
| 7:H:140:VAL:CA   | 7:H:143:LEU:HD22 | 2.50        | 0.41     |
| 7:H:142:GLU:O    | 7:H:143:LEU:C    | 2.58        | 0.41     |
| 12:Q:72:VAL:CB   | 12:Q:83:PHE:HZ   | 2.33        | 0.41     |
| 19:R:70:LEU:N    | 19:R:70:LEU:HD23 | 2.34        | 0.41     |
| 21:V:19:VAL:CG1  | 21:V:21:ARG:NH2  | 2.58        | 0.41     |
| 15:W:68:ARG:O    | 15:W:110:LYS:CA  | 2.66        | 0.41     |
| 18:Z:125:PRO:HB2 | 18:Z:126:GLY:H   | 1.71        | 0.41     |
| 18:Z:136:VAL:O   | 18:Z:137:ASP:OD1 | 2.38        | 0.41     |
| 18:Z:148:THR:CB  | 18:Z:166:LEU:H   | 2.33        | 0.41     |
| 18:Z:78:PRO:O    | 18:Z:79:ILE:HG12 | 2.12        | 0.41     |
| 8:I:102:LEU:O    | 8:I:106:HIS:HB2  | 2.19        | 0.41     |
| 22:2:34:GLN:HB2  | 22:2:35:ALA:H    | 1.73        | 0.41     |
| 22:2:46:ILE:HG22 | 22:2:47:LYS:N    | 2.35        | 0.41     |
| 2:A:1394:U:C4'   | 2:A:1603:A:H4'   | 2.48        | 0.41     |
| 2:A:1603:A:C2'   | 2:A:1604:C:H6    | 2.17        | 0.41     |
| 2:A:279:C:H2'    | 2:A:360:G:O6     | 2.20        | 0.41     |
| 2:A:1905:C:H4'   | 2:A:1928:A:N1    | 2.35        | 0.41     |
| 2:A:1521:G:H3'   | 2:A:1522:G:O4'   | 2.19        | 0.41     |
| 2:A:124:G:H5'    | 2:A:1376:C:O2'   | 2.20        | 0.41     |
| 24:0:30:VAL:HG13 | 24:0:63:SER:HG   | 1.84        | 0.41     |
| 2:A:2399:G:C1'   | 27:6:22:TYR:OH   | 2.68        | 0.41     |
| 27:6:8:ILE:H     | 27:6:8:ILE:CD1   | 2.14        | 0.41     |
| 2:A:1033:U:H6    | 2:A:2750:A:C2    | 2.21        | 0.41     |
| 2:A:126:A:N7     | 2:A:127:A:C5     | 2.88        | 0.41     |
| 2:A:1365:A:H5''  | 25:4:3:LYS:NZ    | 2.34        | 0.41     |
| 2:A:1996:C:O2    | 2:A:1997:G:H4'   | 2.21        | 0.41     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2187:G:H2'   | 2:A:2188:C:C4'   | 2.50        | 0.41     |
| 2:A:2208:U:C2'   | 2:A:2209:C:O4'   | 2.68        | 0.41     |
| 2:A:2082:A:N6    | 2:A:2237:G:H1'   | 2.35        | 0.41     |
| 2:A:2246:G:H1    | 2:A:2258:C:N4    | 2.18        | 0.41     |
| 2:A:2303:G:C5'   | 6:G:99:ASP:CG    | 2.86        | 0.41     |
| 2:A:2341:G:N7    | 2:A:2342:C:N4    | 2.68        | 0.41     |
| 2:A:2462:U:O2    | 2:A:2463:C:C6    | 2.73        | 0.41     |
| 2:A:2479:G:O2'   | 2:A:2480:C:O5'   | 2.38        | 0.41     |
| 2:A:2485:G:C2'   | 2:A:2486:G:C4'   | 2.97        | 0.41     |
| 2:A:2487:G:H2'   | 2:A:2488:A:C8    | 2.55        | 0.41     |
| 2:A:2447:G:C5    | 2:A:2501:C:C2    | 3.08        | 0.41     |
| 2:A:2547:U:C5    | 2:A:2566:A:N3    | 2.88        | 0.41     |
| 2:A:2611:U:H2'   | 26:5:2:ALA:HB1   | 2.02        | 0.41     |
| 2:A:2616:C:O2    | 2:A:2617:C:C6    | 2.73        | 0.41     |
| 2:A:2652:C:C4    | 2:A:2653:U:C5    | 2.91        | 0.41     |
| 2:A:2661:G:N3    | 2:A:2662:A:C8    | 2.86        | 0.41     |
| 2:A:2694:G:O5'   | 2:A:2694:G:H8    | 2.02        | 0.41     |
| 2:A:2830:G:C6    | 2:A:2831:G:N7    | 2.89        | 0.41     |
| 2:A:2886:G:N3    | 2:A:2887:U:C6    | 2.89        | 0.41     |
| 2:A:327:G:C2     | 2:A:328:U:C6     | 3.08        | 0.41     |
| 2:A:329:G:H8     | 2:A:329:G:OP2    | 2.03        | 0.41     |
| 2:A:443:A:H62    | 5:F:39:GLN:CB    | 2.29        | 0.41     |
| 2:A:796:C:H2'    | 2:A:797:C:C6     | 2.55        | 0.41     |
| 3:D:134:ILE:CG2  | 3:D:135:PRO:CD   | 2.94        | 0.41     |
| 2:A:2634:G:H5'   | 4:E:111:THR:CG2  | 2.50        | 0.41     |
| 4:E:268:LEU:HD11 | 4:E:271:ILE:HG13 | 2.02        | 0.41     |
| 5:F:7:ASP:HB3    | 5:F:13:ASP:HB2   | 2.01        | 0.41     |
| 2:A:2304:G:H5'   | 6:G:105:SER:O    | 2.20        | 0.41     |
| 6:G:102:GLY:C    | 6:G:134:LEU:HD12 | 2.27        | 0.41     |
| 6:G:136:ARG:N    | 6:G:136:ARG:HD2  | 2.36        | 0.41     |
| 7:H:37:HIS:CE1   | 7:H:67:THR:HG21  | 2.55        | 0.41     |
| 7:H:51:VAL:HG22  | 7:H:68:ARG:HG3   | 2.02        | 0.41     |
| 9:N:23:ALA:O     | 9:N:26:VAL:HG23  | 2.20        | 0.41     |
| 10:O:17:ARG:CZ   | 10:O:46:ALA:C    | 2.89        | 0.41     |
| 12:Q:46:VAL:CG1  | 12:Q:124:ALA:CB  | 2.90        | 0.41     |
| 19:R:86:ARG:O    | 19:R:87:TYR:HD2  | 2.03        | 0.41     |
| 20:U:39:LEU:O    | 20:U:42:ALA:N    | 2.52        | 0.41     |
| 20:U:91:ASN:CG   | 20:U:92:ARG:N    | 2.73        | 0.41     |
| 17:Y:32:ARG:HB3  | 17:Y:33:GLU:OE2  | 2.20        | 0.41     |
| 18:Z:149:ALA:HB1 | 18:Z:164:PRO:CA  | 2.47        | 0.41     |
| 8:I:124:LEU:HA   | 8:I:145:VAL:HB   | 2.02        | 0.41     |
| 22:2:28:LEU:O    | 22:2:29:ASN:C    | 2.59        | 0.41     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 16:X:17:ASP:C     | 16:X:20:PHE:CE1  | 2.93        | 0.41     |
| 8:I:134:HIS:O     | 8:I:136:GLU:N    | 2.53        | 0.41     |
| 2:A:738:G:H2'     | 2:A:739:G:O4'    | 2.20        | 0.41     |
| 2:A:618(A):C:C5   | 2:A:619:G:N2     | 2.88        | 0.41     |
| 2:A:1378:A:HO2'   | 2:A:1379:A:P     | 2.43        | 0.41     |
| 31:K:100:VAL:HG12 | 31:K:101:THR:N   | 2.35        | 0.41     |
| 2:A:1377:G:O5'    | 2:A:1377:G:H8    | 2.03        | 0.41     |
| 24:O:16:SER:O     | 24:O:17:ASN:HB2  | 2.20        | 0.41     |
| 2:A:1021:A:C2     | 2:A:1023:U:H1'   | 2.55        | 0.41     |
| 2:A:142(A):A:OP1  | 2:A:1143:A:C8    | 2.72        | 0.41     |
| 2:A:199:A:C5      | 2:A:2434:A:C6    | 3.08        | 0.41     |
| 2:A:1268:A:N6     | 2:A:2012:G:O2'   | 2.52        | 0.41     |
| 2:A:2093:G:N7     | 2:A:2225:A:C6    | 2.85        | 0.41     |
| 2:A:2352:A:H2'    | 2:A:2353:G:C5'   | 2.50        | 0.41     |
| 2:A:2423:U:H5'    | 2:A:2423:U:N1    | 2.26        | 0.41     |
| 2:A:2524:G:C6     | 2:A:2525:G:C5    | 3.08        | 0.41     |
| 2:A:2533:A:H3'    | 2:A:2534:A:H8    | 1.85        | 0.41     |
| 2:A:2539:C:O2     | 2:A:2539:C:H2'   | 2.20        | 0.41     |
| 2:A:2568:C:O2     | 2:A:2568:C:H2'   | 2.19        | 0.41     |
| 2:A:2636:U:O2'    | 2:A:2637:U:O5'   | 2.34        | 0.41     |
| 2:A:1663:C:O2'    | 2:A:2686:G:C5'   | 2.68        | 0.41     |
| 2:A:2694:G:C5     | 2:A:2695:C:C5    | 3.07        | 0.41     |
| 2:A:654:A:C2      | 2:A:655:A:C8     | 3.09        | 0.41     |
| 1:B:5:C:H2'       | 1:B:6:C:C6       | 2.55        | 0.41     |
| 1:B:5:C:H2'       | 1:B:6:C:H6       | 1.85        | 0.41     |
| 3:D:144:GLU:HA    | 3:D:150:GLY:O    | 2.20        | 0.41     |
| 3:D:77:VAL:CG1    | 3:D:111:VAL:O    | 2.67        | 0.41     |
| 4:E:105:HIS:HB3   | 4:E:106:SER:H    | 1.55        | 0.41     |
| 4:E:180:ILE:HG23  | 4:E:183:ASP:OD2  | 2.20        | 0.41     |
| 4:E:251:PRO:O     | 4:E:252:GLN:CG   | 2.68        | 0.41     |
| 5:F:166:ILE:O     | 5:F:167:ASP:C    | 2.59        | 0.41     |
| 5:F:140:VAL:CG1   | 5:F:236:THR:HA   | 2.50        | 0.41     |
| 5:F:242:GLU:O     | 5:F:245:GLU:CD   | 2.55        | 0.41     |
| 2:A:38:A:N3       | 5:F:46:TYR:CE2   | 2.88        | 0.41     |
| 6:G:56:ARG:CA     | 6:G:63:ILE:HG13  | 2.51        | 0.41     |
| 6:G:20:LYS:H      | 6:G:76:ARG:HB3   | 1.85        | 0.41     |
| 9:N:41:ALA:O      | 9:N:44:ALA:N     | 2.53        | 0.41     |
| 9:N:96:GLU:C      | 9:N:98:PHE:N     | 2.73        | 0.41     |
| 10:O:14:SER:H     | 10:O:95:GLY:CA   | 2.34        | 0.41     |
| 2:A:1996:C:P      | 10:O:31:ARG:HH12 | 2.43        | 0.41     |
| 10:O:88:ARG:HB2   | 10:O:92:SER:OG   | 2.19        | 0.41     |
| 11:P:55:GLN:HG3   | 11:P:56:LYS:N    | 2.35        | 0.41     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:Q:140:TYR:C   | 12:Q:142:LYS:N   | 2.72        | 0.41     |
| 12:Q:64:ALA:O    | 12:Q:66:ASN:N    | 2.53        | 0.41     |
| 21:V:14:VAL:HG11 | 21:V:19:VAL:HG23 | 2.02        | 0.41     |
| 21:V:71:ILE:HG22 | 21:V:72:ARG:N    | 2.35        | 0.41     |
| 2:A:519:U:C5'    | 15:W:25:ARG:HH22 | 2.29        | 0.41     |
| 17:Y:20:HIS:O    | 17:Y:21:LYS:C    | 2.58        | 0.41     |
| 18:Z:104:SER:O   | 18:Z:105:GLN:CD  | 2.59        | 0.41     |
| 18:Z:18:MET:O    | 18:Z:36:ARG:NE   | 2.29        | 0.41     |
| 2:A:1339:G:O5'   | 2:A:1339:G:C8    | 2.73        | 0.41     |
| 2:A:143:C:O2'    | 2:A:144:C:O4'    | 2.34        | 0.41     |
| 2:A:1055:G:C2'   | 2:A:1056:G:H4'   | 2.50        | 0.41     |
| 2:A:440:G:OP1    | 17:Y:6:LYS:HD3   | 2.12        | 0.41     |
| 8:I:134:HIS:CE1  | 8:I:135:PRO:HD2  | 2.54        | 0.41     |
| 2:A:1857:G:H2'   | 2:A:1858:G:N7    | 2.32        | 0.41     |
| 2:A:272:G:H1     | 2:A:365:C:H42    | 1.68        | 0.41     |
| 2:A:211:A:H2'    | 2:A:212:G:O4'    | 2.20        | 0.41     |
| 2:A:929:G:HO2'   | 23:3:43:ILE:HG12 | 1.85        | 0.41     |
| 26:5:42:SER:C    | 26:5:43:HIS:HD1  | 2.22        | 0.41     |
| 29:8:26:LYS:CG   | 29:8:44:LYS:CA   | 2.68        | 0.41     |
| 29:8:58:MET:HA   | 29:8:61:MET:CG   | 2.49        | 0.41     |
| 29:8:58:MET:CE   | 29:8:61:MET:HE3  | 2.49        | 0.41     |
| 2:A:1152:C:H1'   | 20:U:77:SER:CB   | 2.49        | 0.41     |
| 2:A:1264:G:O3'   | 2:A:2615:U:H5''  | 2.20        | 0.41     |
| 2:A:1667:G:C8    | 2:A:1667:G:OP2   | 2.64        | 0.41     |
| 2:A:2096:U:H2'   | 2:A:2097:C:C6    | 2.55        | 0.41     |
| 2:A:2250:G:H8    | 2:A:2250:G:C3'   | 2.22        | 0.41     |
| 2:A:2307:G:O2'   | 2:A:2311:A:C6    | 2.62        | 0.41     |
| 2:A:2303:G:C2    | 2:A:2314:C:C2    | 3.08        | 0.41     |
| 2:A:2436:G:N2    | 2:A:2437:U:H1'   | 2.35        | 0.41     |
| 2:A:2436:G:C2    | 2:A:2437:U:C1'   | 3.02        | 0.41     |
| 2:A:2486:G:C6    | 2:A:2487:G:N7    | 2.89        | 0.41     |
| 2:A:2537:U:O2'   | 2:A:2538:C:H5'   | 2.20        | 0.41     |
| 2:A:2546:U:N3    | 2:A:2567:G:C8    | 2.84        | 0.41     |
| 2:A:2683:C:C4    | 2:A:2684:U:C5    | 3.09        | 0.41     |
| 2:A:1456:G:H1    | 2:A:2704:C:H42   | 1.66        | 0.41     |
| 2:A:1456:G:N1    | 2:A:2704:C:N4    | 2.67        | 0.41     |
| 2:A:2818:G:H1    | 2:A:2828:C:H42   | 1.67        | 0.41     |
| 2:A:603:A:C2     | 2:A:625:G:C5     | 3.08        | 0.41     |
| 2:A:2712:U:H6    | 2:A:712(A):A:H8  | 1.11        | 0.41     |
| 2:A:944:G:H2'    | 2:A:944:G:N3     | 2.36        | 0.41     |
| 2:A:965:C:H4'    | 2:A:2273:A:C2    | 2.43        | 0.41     |
| 1:B:59:A:H4'     | 6:G:144:ARG:NE   | 2.36        | 0.41     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:B:75:G:C4      | 18:Z:22:VAL:CG2  | 3.02        | 0.41     |
| 4:E:44:TYR:CD1   | 4:E:307:LEU:O    | 2.71        | 0.41     |
| 5:F:100:LEU:HA   | 5:F:100:LEU:HD23 | 1.66        | 0.41     |
| 5:F:163:HIS:O    | 5:F:166:ILE:CA   | 2.62        | 0.41     |
| 2:A:443:A:N7     | 5:F:43:LYS:HG2   | 2.35        | 0.41     |
| 9:N:132:LEU:HA   | 9:N:132:LEU:HD12 | 1.92        | 0.41     |
| 9:N:70:PHE:HB2   | 9:N:71:TYR:H     | 1.64        | 0.41     |
| 11:P:110:GLY:C   | 11:P:111:ALA:O   | 2.51        | 0.41     |
| 12:Q:151:SER:HB3 | 12:Q:155:GLY:HA2 | 2.03        | 0.41     |
| 12:Q:70:ARG:HB2  | 12:Q:71:PHE:CD1  | 2.55        | 0.41     |
| 19:R:28:LEU:HD13 | 19:R:32:GLY:H    | 1.85        | 0.41     |
| 19:R:67:LEU:C    | 19:R:69:ASP:N    | 2.72        | 0.41     |
| 13:S:123:ILE:O   | 13:S:126:GLY:N   | 2.40        | 0.41     |
| 20:U:17:VAL:O    | 20:U:20:ARG:CB   | 2.66        | 0.41     |
| 20:U:60:LEU:N    | 20:U:60:LEU:HD23 | 2.35        | 0.41     |
| 15:W:18:ARG:O    | 15:W:19:LEU:C    | 2.59        | 0.41     |
| 18:Z:118:HIS:O   | 18:Z:119:ASN:CB  | 2.67        | 0.41     |
| 2:A:1788:C:O2'   | 2:A:1789:A:H5'   | 2.20        | 0.41     |
| 3:D:205:VAL:HB   | 3:D:206:LYS:HD3  | 2.01        | 0.41     |
| 22:2:35:ALA:C    | 22:2:37:GLY:N    | 2.73        | 0.41     |
| 22:2:51:LYS:C    | 22:2:54:ALA:CB   | 2.88        | 0.41     |
| 16:X:28:VAL:C    | 16:X:30:ASP:H    | 2.23        | 0.41     |
| 2:A:1055:G:O6    | 2:A:1056:G:N2    | 2.54        | 0.41     |
| 8:I:52:GLN:HA    | 8:I:55:GLN:NE2   | 2.34        | 0.41     |
| 2:A:1418:G:C2    | 2:A:1580:A:H2    | 2.39        | 0.41     |
| 2:A:1530:G:P     | 2:A:1539:G:H1    | 2.43        | 0.41     |
| 2:A:191:A:H62    | 2:A:204:A:H62    | 1.66        | 0.41     |
| 2:A:711:G:H1     | 2:A:720:C:N4     | 2.16        | 0.41     |
| 2:A:212:G:H2'    | 2:A:213:A:C8     | 2.55        | 0.41     |
| 2:A:981:A:C8     | 2:A:982:C:C5     | 3.08        | 0.41     |
| 24:0:28:GLY:O    | 24:0:62:LEU:HD22 | 2.20        | 0.41     |
| 23:3:1:MET:CG    | 23:3:1:MET:O     | 2.65        | 0.41     |
| 23:3:26:LEU:HG   | 23:3:26:LEU:H    | 1.46        | 0.41     |
| 23:3:27:GLY:C    | 23:3:28:LEU:HD23 | 2.41        | 0.41     |
| 30:9:2:LYS:C     | 30:9:4:ARG:N     | 2.74        | 0.41     |
| 2:A:1124:C:H3'   | 2:A:1125:G:C8    | 2.55        | 0.41     |
| 2:A:1127:A:H2    | 2:A:2518:A:C1'   | 2.31        | 0.41     |
| 2:A:1365:A:H1'   | 25:4:12:CYS:SG   | 2.60        | 0.41     |
| 2:A:1764:G:C5    | 2:A:1989:G:N2    | 2.88        | 0.41     |
| 2:A:2276:G:HO2'  | 2:A:2277:G:C5'   | 2.24        | 0.41     |
| 2:A:2376:A:N6    | 13:S:109:PRO:CG  | 2.84        | 0.41     |
| 2:A:2431:U:H2'   | 2:A:2433:A:OP2   | 2.20        | 0.41     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:A:199:A:N6     | 2:A:2433:A:C8     | 2.88        | 0.41     |
| 2:A:792:G:C5     | 2:A:2440:C:C6     | 3.06        | 0.41     |
| 2:A:2540:C:O2    | 2:A:2541:A:C1'    | 2.69        | 0.41     |
| 2:A:2546:U:C3'   | 2:A:2546:U:C6     | 3.03        | 0.41     |
| 2:A:2729:G:C6    | 2:A:2730:C:C4     | 3.07        | 0.41     |
| 2:A:2747:G:N2    | 2:A:2754:U:H3     | 2.16        | 0.41     |
| 2:A:2748:A:HO2'  | 7:H:62:ALA:C      | 2.22        | 0.41     |
| 2:A:2756:U:H2'   | 2:A:2756:U:O2     | 2.18        | 0.41     |
| 2:A:2839:G:O2'   | 19:R:92:GLY:CA    | 2.42        | 0.41     |
| 2:A:2842:G:O5'   | 2:A:2842:G:H8     | 2.04        | 0.41     |
| 2:A:2831:G:O2'   | 2:A:2883:A:H2'    | 2.20        | 0.41     |
| 2:A:556:G:H2'    | 2:A:557:U:O4'     | 2.20        | 0.41     |
| 2:A:742:G:H4'    | 2:A:1675:C:O2'    | 2.20        | 0.41     |
| 2:A:742:G:O2'    | 2:A:1676:A:H4'    | 2.21        | 0.41     |
| 1:B:28:C:OP2     | 13:S:41:LYS:CE    | 2.68        | 0.41     |
| 3:D:125:ILE:HG22 | 3:D:126:GLY:H     | 1.80        | 0.41     |
| 3:D:93:ILE:HD11  | 3:D:115:ILE:HD11  | 2.02        | 0.41     |
| 4:E:80:ALA:N     | 4:E:185:GLY:O     | 2.53        | 0.41     |
| 4:E:87:GLU:CA    | 4:E:93:GLN:N      | 2.75        | 0.41     |
| 5:F:149:LYS:CB   | 5:F:152:GLU:HG3   | 2.40        | 0.41     |
| 5:F:167:ASP:OD2  | 5:F:232:LEU:CD2   | 2.63        | 0.41     |
| 5:F:196:THR:CG2  | 5:F:197:SER:H     | 2.24        | 0.41     |
| 5:F:1:MET:C      | 5:F:18:LEU:HD21   | 2.38        | 0.41     |
| 5:F:61:PHE:HB3   | 5:F:65:ARG:NH1    | 2.35        | 0.41     |
| 6:G:24:HIS:HB2   | 6:G:72:LYS:CD     | 2.51        | 0.41     |
| 7:H:10:ILE:O     | 7:H:11:PRO:O      | 2.39        | 0.41     |
| 9:N:136:SER:O    | 9:N:138:THR:CA    | 2.66        | 0.41     |
| 10:O:63:VAL:HG22 | 10:O:102:VAL:HG11 | 2.02        | 0.41     |
| 19:R:21:TYR:O    | 19:R:25:ALA:CB    | 2.69        | 0.41     |
| 2:A:2841:C:OP1   | 19:R:53:HIS:HE1   | 2.04        | 0.41     |
| 13:S:9:PRO:HG3   | 13:S:14:ARG:CB    | 2.51        | 0.41     |
| 13:S:22:GLN:H    | 13:S:22:GLN:CD    | 2.20        | 0.41     |
| 13:S:82:TYR:O    | 13:S:86:LEU:HD12  | 2.19        | 0.41     |
| 20:U:98:ILE:CB   | 20:U:106:PHE:CD1  | 3.04        | 0.41     |
| 20:U:117:ARG:NH1 | 20:U:118:GLN:CD   | 2.74        | 0.41     |
| 20:U:25:TRP:O    | 20:U:26:GLY:C     | 2.58        | 0.41     |
| 20:U:24:PHE:HB2  | 20:U:28:ARG:HD2   | 2.02        | 0.41     |
| 21:V:50:ASP:O    | 21:V:54:TYR:CE1   | 2.73        | 0.41     |
| 17:Y:11:GLN:HA   | 17:Y:21:LYS:NZ    | 2.35        | 0.41     |
| 18:Z:18:MET:C    | 18:Z:19:ILE:HD12  | 2.38        | 0.41     |
| 18:Z:70:GLN:HG3  | 18:Z:72:ASP:HB3   | 2.02        | 0.41     |
| 8:I:144:HIS:CG   | 8:I:144:HIS:O     | 2.74        | 0.41     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 2:A:1058:G:C2   | 31:K:117:ASN:OD1 | 2.73        | 0.41     |
| 22:2:2:VAL:CG1  | 22:2:3:LEU:H     | 2.25        | 0.41     |
| 8:I:63:ALA:O    | 8:I:67:LYS:CG    | 2.54        | 0.41     |
| 2:A:1924:C:N4   | 2:A:1925:C:C4    | 2.84        | 0.41     |
| 2:A:1324:G:N2   | 2:A:1331:A:C4    | 2.89        | 0.41     |
| 2:A:404:C:O4'   | 2:A:406:G:C8     | 2.73        | 0.41     |
| 2:A:1328:G:N2   | 2:A:1330:C:C2    | 2.89        | 0.41     |
| 2:A:2182:G:C4   | 2:A:2183:C:C4    | 3.07        | 0.41     |
| 18:Z:131:PRO:C  | 18:Z:133:GLU:H   | 2.23        | 0.41     |
| 2:A:1811:G:H2'  | 2:A:1812:A:C8    | 2.55        | 0.41     |
| 23:3:42:ALA:HB3 | 23:3:43:ILE:CD1  | 2.41        | 0.41     |
| 25:4:6:HIS:CE1  | 25:4:55:ARG:CG   | 3.02        | 0.41     |
| 25:4:63:PHE:HB3 | 25:4:64:GLY:H    | 1.47        | 0.41     |
| 2:A:1263:U:C3'  | 26:5:16:ARG:NH2  | 2.83        | 0.41     |
| 27:6:8:ILE:CA   | 27:6:29:ARG:CZ   | 2.88        | 0.41     |
| 2:A:687:C:H5''  | 28:7:4:THR:HA    | 2.02        | 0.41     |
| 2:A:1021:A:H8   | 9:N:49:ARG:HH11  | 1.51        | 0.41     |
| 2:A:1022:G:N2   | 2:A:1140:C:C2    | 2.88        | 0.41     |
| 2:A:1130:U:O2'  | 2:A:1131:G:H8    | 2.03        | 0.41     |
| 2:A:1238:G:C5   | 2:A:1239:G:C8    | 3.08        | 0.41     |
| 2:A:1239:G:N3   | 2:A:1240:U:C5    | 2.88        | 0.41     |
| 2:A:1647:G:H4'  | 2:A:1648:C:O5'   | 2.20        | 0.41     |
| 2:A:1935:G:H2'  | 2:A:1962:C:N4    | 2.35        | 0.41     |
| 2:A:2228:G:C3'  | 2:A:2228:G:C8    | 3.03        | 0.41     |
| 2:A:2263:C:H2'  | 2:A:2264:C:H6    | 1.85        | 0.41     |
| 2:A:2289:G:C2   | 2:A:2290:G:C4    | 3.09        | 0.41     |
| 2:A:2411:A:O2'  | 2:A:2412:A:C8    | 2.49        | 0.41     |
| 2:A:2418:A:O2'  | 2:A:2419:U:C5'   | 2.68        | 0.41     |
| 2:A:2246:G:C8   | 2:A:2426:A:C2    | 3.08        | 0.41     |
| 2:A:792:G:C2    | 2:A:2440:C:C5    | 3.09        | 0.41     |
| 2:A:245:G:OP2   | 11:P:53:ARG:CZ   | 2.67        | 0.41     |
| 2:A:2522:U:O2   | 2:A:2543:G:C6    | 2.74        | 0.41     |
| 2:A:2606:C:C2   | 2:A:2607:G:C8    | 3.08        | 0.41     |
| 2:A:2656:U:H2'  | 2:A:2657:A:H5'   | 2.01        | 0.41     |
| 2:A:2648:C:N4   | 2:A:2672:G:N1    | 2.52        | 0.41     |
| 2:A:26:G:H8     | 2:A:26:G:O5'     | 2.03        | 0.41     |
| 2:A:2711:A:C3'  | 2:A:2712:U:H5'   | 2.50        | 0.41     |
| 2:A:2692:C:C4   | 2:A:2718:G:N1    | 2.87        | 0.41     |
| 2:A:2721:A:C2'  | 2:A:2722:G:H8    | 2.20        | 0.41     |
| 2:A:2771:C:N4   | 2:A:2772:C:N4    | 2.69        | 0.41     |
| 2:A:2857:G:C4   | 2:A:2859:G:OP2   | 2.73        | 0.41     |
| 2:A:2720:U:O4   | 2:A:2872:G:C2    | 2.73        | 0.41     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:466:A:H2     | 2:A:795:C:O2     | 2.03        | 0.41     |
| 2:A:612:G:C4'    | 2:A:616:A:N6     | 2.67        | 0.41     |
| 2:A:669:G:N3     | 2:A:669:G:C2'    | 2.83        | 0.41     |
| 2:A:673:C:N4     | 2:A:808:G:N1     | 2.68        | 0.41     |
| 2:A:687:C:O2     | 2:A:787:U:H5'    | 2.18        | 0.41     |
| 2:A:775:G:H4'    | 2:A:777:A:N9     | 2.33        | 0.41     |
| 1:B:43:C:H1'     | 6:G:47:GLN:CG    | 2.49        | 0.41     |
| 3:D:108:ASN:O    | 3:D:109:LEU:C    | 2.59        | 0.41     |
| 3:D:152:GLN:OE1  | 3:D:152:GLN:N    | 2.51        | 0.41     |
| 2:A:1818:U:P     | 3:D:155:ARG:CB   | 3.08        | 0.41     |
| 3:D:166:LYS:HA   | 3:D:172:ILE:N    | 2.30        | 0.41     |
| 3:D:81:GLU:C     | 3:D:83:ASP:OD2   | 2.48        | 0.41     |
| 2:A:1656:C:OP2   | 4:E:233:ARG:HD3  | 2.21        | 0.41     |
| 4:E:77:PRO:O     | 4:E:79:ARG:N     | 2.49        | 0.41     |
| 5:F:40:ALA:HB1   | 5:F:100:LEU:HB2  | 2.02        | 0.41     |
| 5:F:167:ASP:HB2  | 5:F:232:LEU:CB   | 2.51        | 0.41     |
| 5:F:38:ALA:O     | 5:F:40:ALA:N     | 2.53        | 0.41     |
| 6:G:106:PHE:O    | 6:G:107:GLY:C    | 2.58        | 0.41     |
| 6:G:24:HIS:CB    | 6:G:72:LYS:CD    | 2.98        | 0.41     |
| 2:A:2312:U:C5'   | 6:G:53:LYS:CA    | 2.57        | 0.41     |
| 7:H:124:VAL:HA   | 7:H:130:ILE:HG13 | 2.03        | 0.41     |
| 7:H:82:TYR:CD1   | 7:H:137:LYS:N    | 2.78        | 0.41     |
| 7:H:91:VAL:H     | 7:H:159:LYS:HD2  | 1.86        | 0.41     |
| 8:I:28:ASN:O     | 8:I:32:LYS:CG    | 2.69        | 0.41     |
| 9:N:44:ALA:O     | 9:N:45:VAL:HG23  | 2.21        | 0.41     |
| 9:N:55:GLU:O     | 9:N:58:GLU:N     | 2.53        | 0.41     |
| 11:P:64:ILE:HD11 | 11:P:106:VAL:HA  | 1.86        | 0.41     |
| 12:Q:31:PHE:CZ   | 12:Q:87:LYS:O    | 2.73        | 0.41     |
| 12:Q:50:VAL:CA   | 12:Q:51:GLU:OE1  | 2.69        | 0.41     |
| 12:Q:66:ASN:CB   | 12:Q:70:ARG:HH21 | 2.24        | 0.41     |
| 12:Q:91:HIS:C    | 12:Q:92:VAL:CG1  | 2.81        | 0.41     |
| 19:R:37:THR:HA   | 19:R:111:LEU:C   | 2.40        | 0.41     |
| 14:T:54:THR:O    | 14:T:56:ARG:N    | 2.47        | 0.41     |
| 21:V:49:GLU:HA   | 21:V:53:LYS:HZ2  | 1.75        | 0.41     |
| 21:V:65:ARG:O    | 21:V:93:ILE:CA   | 2.69        | 0.41     |
| 21:V:78:VAL:HG22 | 21:V:82:ARG:HB2  | 2.02        | 0.41     |
| 17:Y:30:ASP:OD2  | 17:Y:31:LEU:CG   | 2.61        | 0.41     |
| 18:Z:107:GLU:C   | 18:Z:109:GLN:N   | 2.70        | 0.41     |
| 18:Z:172:LEU:C   | 18:Z:172:LEU:CD2 | 2.81        | 0.41     |
| 18:Z:2:GLU:HA    | 18:Z:54:ILE:CG2  | 2.24        | 0.41     |
| 16:X:8:PRO:CD    | 22:2:33:VAL:HG22 | 2.50        | 0.41     |
| 2:A:76:C:H5'     | 22:2:51:LYS:HB3  | 2.03        | 0.41     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:X:37:VAL:HG12 | 16:X:38:ALA:N    | 2.36        | 0.41     |
| 2:A:1061:U:OP1   | 2:A:1062:G:H8    | 2.03        | 0.41     |
| 6:G:83:PHE:C     | 6:G:85:GLN:N     | 2.72        | 0.41     |
| 25:4:51:ASP:N    | 25:4:51:ASP:OD1  | 2.53        | 0.41     |
| 16:X:44:GLN:CD   | 16:X:45:TYR:CA   | 2.86        | 0.41     |
| 2:A:1832:C:C4    | 2:A:1833:U:C4    | 3.08        | 0.41     |
| 2:A:282:A:C5     | 2:A:360:G:N2     | 2.88        | 0.41     |
| 2:A:1470:G:N2    | 2:A:1522:G:N2    | 2.67        | 0.41     |
| 2:A:1539:G:H2'   | 2:A:1540:G:C5    | 2.56        | 0.41     |
| 2:A:319:C:H2'    | 2:A:320:A:C8     | 2.54        | 0.41     |
| 2:A:1202:C:N3    | 2:A:1243:G:N2    | 2.56        | 0.41     |
| 2:A:1216:G:N2    | 2:A:1234:U:C1'   | 2.82        | 0.41     |
| 2:A:364:C:H2'    | 2:A:365:C:C5     | 2.55        | 0.41     |
| 2:A:1424:G:N1    | 2:A:1574:C:O2    | 2.53        | 0.41     |
| 24:0:14:ARG:CD   | 24:0:15:ASP:N    | 2.83        | 0.41     |
| 2:A:1364:G:C5    | 25:4:2:GLN:OE1   | 2.74        | 0.41     |
| 2:A:2432:A:H62   | 25:4:31:ILE:H    | 1.65        | 0.41     |
| 29:8:51:ALA:O    | 29:8:54:GLU:HG3  | 2.20        | 0.41     |
| 2:A:1451:C:H6    | 2:A:1453:A:H4'   | 1.85        | 0.41     |
| 2:A:1653:G:OP1   | 2:A:2822:G:N1    | 2.50        | 0.41     |
| 2:A:2235:G:C6    | 2:A:2236:C:C4    | 3.08        | 0.41     |
| 2:A:2339:G:C2    | 2:A:2340:G:C4    | 3.08        | 0.41     |
| 2:A:2351:G:H5'   | 2:A:2352:A:OP1   | 2.19        | 0.41     |
| 2:A:2343:C:H4'   | 2:A:2373:G:H4'   | 2.02        | 0.41     |
| 2:A:2476:A:H3'   | 2:A:2476:A:C8    | 2.56        | 0.41     |
| 2:A:2458:G:N7    | 2:A:2490:G:N1    | 2.68        | 0.41     |
| 2:A:2459:A:N1    | 2:A:2494:G:C5    | 2.89        | 0.41     |
| 2:A:2634:G:C6    | 2:A:2785:C:N4    | 2.88        | 0.41     |
| 2:A:2846:G:C2    | 2:A:2847:U:O2    | 2.73        | 0.41     |
| 2:A:628:G:H2'    | 2:A:629:G:H8     | 1.86        | 0.41     |
| 2:A:873:G:C5'    | 12:Q:32:LYS:CG   | 2.99        | 0.41     |
| 2:A:910:A:H62    | 12:Q:12:PRO:N    | 2.17        | 0.41     |
| 3:D:198:GLY:O    | 3:D:200:THR:OG1  | 2.37        | 0.41     |
| 4:E:267:ARG:CD   | 4:E:297:LYS:CB   | 2.98        | 0.41     |
| 5:F:144:PHE:HE2  | 5:F:156:LEU:HD22 | 1.86        | 0.41     |
| 5:F:56:THR:O     | 5:F:79:ARG:CD    | 2.68        | 0.41     |
| 5:F:89:ALA:CB    | 5:F:90:HIS:CD2   | 3.04        | 0.41     |
| 6:G:97:GLN:HB3   | 6:G:106:PHE:CD2  | 2.52        | 0.41     |
| 7:H:102:LEU:O    | 7:H:113:GLU:HA   | 2.21        | 0.41     |
| 7:H:123:GLU:CD   | 7:H:123:GLU:N    | 2.73        | 0.41     |
| 7:H:98:GLN:HB2   | 7:H:103:VAL:HG23 | 1.97        | 0.41     |
| 9:N:75:PRO:HD3   | 9:N:136:SER:CB   | 2.44        | 0.41     |

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| Atom-1            | Atom-2           | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:A:2566:A:H61    | 10:O:28:SER:HA   | 1.85        | 0.41     |
| 10:O:27:GLY:C     | 10:O:28:SER:O    | 2.56        | 0.41     |
| 11:P:109:LEU:HD13 | 11:P:110:GLY:CA  | 2.49        | 0.41     |
| 12:Q:25:GLY:O     | 12:Q:26:LYS:HG3  | 2.06        | 0.41     |
| 19:R:47:PHE:C     | 19:R:49:ASP:N    | 2.74        | 0.41     |
| 19:R:51:LEU:O     | 19:R:54:LEU:N    | 2.44        | 0.41     |
| 20:U:11:ARG:CG    | 20:U:12:ARG:H    | 2.34        | 0.41     |
| 20:U:18:LEU:HD11  | 20:U:30:LYS:HA   | 2.03        | 0.41     |
| 2:A:1152:C:H4'    | 20:U:80:ILE:CG2  | 2.50        | 0.41     |
| 21:V:31:ASP:O     | 21:V:33:VAL:N    | 2.53        | 0.41     |
| 21:V:61:VAL:HG22  | 21:V:97:GLY:N    | 2.35        | 0.41     |
| 15:W:96:ILE:HD13  | 15:W:96:ILE:C    | 2.41        | 0.41     |
| 18:Z:70:GLN:C     | 18:Z:72:ASP:H    | 2.24        | 0.41     |
| 8:I:129:VAL:HA    | 8:I:130:PRO:HD2  | 1.96        | 0.41     |
| 22:2:48:GLU:HB3   | 22:2:49:LEU:H    | 1.54        | 0.41     |
| 16:X:33:SER:C     | 16:X:37:VAL:CB   | 2.87        | 0.41     |
| 16:X:35:GLY:C     | 16:X:37:VAL:H    | 2.24        | 0.41     |
| 2:A:815:C:H2'     | 2:A:816:C:H6     | 1.85        | 0.41     |
| 2:A:769:G:H2'     | 2:A:770:G:H8     | 1.85        | 0.41     |
| 2:A:1396:U:H3'    | 2:A:1396:U:H6    | 1.86        | 0.41     |
| 23:3:47:VAL:HA    | 23:3:50:VAL:HG21 | 1.81        | 0.41     |
| 25:4:20:VAL:O     | 25:4:30:GLU:HG2  | 2.20        | 0.41     |
| 26:5:6:VAL:H      | 26:5:8:LYS:HZ3   | 1.67        | 0.41     |
| 27:6:29:ARG:C     | 27:6:31:THR:N    | 2.71        | 0.41     |
| 27:6:46:LYS:C     | 27:6:47:HIS:ND1  | 2.74        | 0.41     |
| 29:8:16:ILE:CG1   | 29:8:22:VAL:HG21 | 2.23        | 0.41     |
| 2:A:1239:G:H2'    | 2:A:1240:U:H6    | 1.85        | 0.41     |
| 2:A:1647:G:H4'    | 2:A:1648:C:H5'   | 2.03        | 0.41     |
| 2:A:1709:U:O2'    | 2:A:2859:G:C1'   | 2.68        | 0.41     |
| 2:A:2347:C:C2     | 2:A:2348:U:H5    | 2.32        | 0.41     |
| 2:A:2488:A:C5     | 2:A:2489:G:N7    | 2.89        | 0.41     |
| 2:A:2574:G:C5'    | 2:A:2575:C:P     | 2.99        | 0.41     |
| 2:A:2577:A:O2'    | 26:5:4:HIS:CG    | 2.74        | 0.41     |
| 2:A:2604:U:C2'    | 2:A:2605:U:H5'   | 2.49        | 0.41     |
| 2:A:2581:G:C6     | 2:A:2610:C:H2'   | 2.56        | 0.41     |
| 2:A:2763:G:H8     | 2:A:2763:G:O5'   | 2.04        | 0.41     |
| 2:A:2785:C:H5''   | 4:E:99:VAL:CB    | 2.51        | 0.41     |
| 2:A:2830:G:H2'    | 2:A:2883:A:N1    | 2.36        | 0.41     |
| 2:A:29:U:H6       | 2:A:29:U:O5'     | 2.03        | 0.41     |
| 2:A:556:G:H2'     | 2:A:557:U:C6     | 2.56        | 0.41     |
| 2:A:628:G:H2'     | 2:A:629:G:C8     | 2.55        | 0.41     |
| 2:A:784:A:N7      | 2:A:792:G:C4     | 2.89        | 0.41     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:817:C:H42    | 2:A:1190:G:H1    | 1.67        | 0.41     |
| 2:A:910:A:H62    | 12:Q:12:PRO:C    | 2.22        | 0.41     |
| 3:D:77:VAL:HG11  | 3:D:109:LEU:O    | 2.20        | 0.41     |
| 3:D:89:ASN:O     | 3:D:105:ALA:CA   | 2.66        | 0.41     |
| 4:E:71:THR:HG22  | 4:E:299:SER:CB   | 2.03        | 0.41     |
| 5:F:210:ALA:O    | 5:F:211:ASP:CG   | 2.59        | 0.41     |
| 7:H:124:VAL:N    | 7:H:125:PRO:CD   | 2.83        | 0.41     |
| 7:H:59:HIS:C     | 7:H:61:ARG:N     | 2.72        | 0.41     |
| 7:H:25:VAL:CB    | 7:H:78:VAL:HG21  | 2.44        | 0.41     |
| 10:O:60:ALA:CA   | 10:O:85:VAL:O    | 2.69        | 0.41     |
| 11:P:133:VAL:C   | 11:P:135:GLY:N   | 2.72        | 0.41     |
| 11:P:51:PHE:N    | 11:P:51:PHE:CD1  | 2.88        | 0.41     |
| 12:Q:134:PHE:O   | 12:Q:137:ARG:HD2 | 2.20        | 0.41     |
| 12:Q:140:TYR:CE1 | 12:Q:147:VAL:CG1 | 2.80        | 0.41     |
| 12:Q:20:ILE:HG13 | 12:Q:21:SER:OG   | 2.20        | 0.41     |
| 13:S:27:LEU:N    | 13:S:33:ARG:NH2  | 2.68        | 0.41     |
| 20:U:11:ARG:O    | 20:U:12:ARG:C    | 2.59        | 0.41     |
| 20:U:80:ILE:O    | 20:U:83:LEU:HB2  | 2.21        | 0.41     |
| 20:U:88:ILE:HG22 | 21:V:55:THR:HG21 | 2.02        | 0.41     |
| 20:U:50:ARG:NH2  | 21:V:74:TYR:CD2  | 2.86        | 0.41     |
| 15:W:69:LEU:CD2  | 15:W:109:GLU:HB2 | 2.50        | 0.41     |
| 17:Y:41:ARG:HD3  | 17:Y:111:ARG:HG2 | 2.02        | 0.41     |
| 17:Y:55:PHE:O    | 17:Y:56:ALA:O    | 2.39        | 0.41     |
| 18:Z:40:ASP:CB   | 18:Z:41:ARG:NE   | 2.56        | 0.41     |
| 8:I:78:THR:O     | 8:I:79:ILE:HG13  | 2.21        | 0.41     |
| 2:A:76:C:O3'     | 22:2:55:ARG:CG   | 2.68        | 0.41     |
| 2:A:65:C:H2'     | 2:A:66:C:H6      | 1.85        | 0.41     |
| 2:A:95:G:N3      | 22:2:42:ASN:ND2  | 2.69        | 0.41     |
| 2:A:1544:C:C2    | 2:A:1545:A:H1'   | 2.55        | 0.41     |
| 2:A:256:A:H2'    | 2:A:257:A:H8     | 1.78        | 0.41     |
| 2:A:1102:C:H2'   | 2:A:1103:A:C8    | 2.56        | 0.41     |
| 19:R:118:GLU:HA  | 19:R:118:GLU:OE2 | 2.19        | 0.41     |
| 24:0:26:PHE:N    | 24:0:26:PHE:CD1  | 2.89        | 0.41     |
| 24:0:41:ARG:C    | 24:0:67:VAL:HG22 | 2.41        | 0.41     |
| 23:3:12:PRO:C    | 23:3:15:TYR:HD1  | 2.25        | 0.41     |
| 25:4:14:ILE:HG23 | 25:4:16:TYR:HD1  | 1.70        | 0.41     |
| 29:8:23:MET:SD   | 29:8:48:PHE:CA   | 3.08        | 0.41     |
| 30:9:17:VAL:HG13 | 30:9:18:ARG:N    | 2.36        | 0.41     |
| 2:A:1152:C:H4'   | 20:U:80:ILE:CB   | 2.51        | 0.41     |
| 2:A:1166:C:O2    | 2:A:1184:G:N2    | 2.54        | 0.41     |
| 2:A:1252:G:C8    | 2:A:1253:A:C1'   | 3.03        | 0.41     |
| 2:A:1629:U:O2    | 2:A:2698:U:H4'   | 2.21        | 0.41     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:530:G:C2      | 2:A:2021:C:N1     | 2.89        | 0.41     |
| 2:A:2049:G:N1     | 2:A:2619:C:N4     | 2.66        | 0.41     |
| 2:A:2058:A:C8     | 2:A:2058:A:O5'    | 2.74        | 0.41     |
| 2:A:2306:C:C4     | 2:A:2311:A:N1     | 2.88        | 0.41     |
| 2:A:2334:G:OP1    | 2:A:2334:G:O4'    | 2.39        | 0.41     |
| 2:A:2358:G:H21    | 2:A:2359:C:C4'    | 2.30        | 0.41     |
| 2:A:807:U:C5'     | 2:A:2445:G:O3'    | 2.69        | 0.41     |
| 2:A:2468:G:C2'    | 2:A:2469:A:C5'    | 2.96        | 0.41     |
| 2:A:2555:U:O2'    | 2:A:2556:C:P      | 2.78        | 0.41     |
| 2:A:2689:U:C1'    | 2:A:2713:A:N1     | 2.84        | 0.41     |
| 2:A:2691:C:C2'    | 2:A:2692:C:O5'    | 2.69        | 0.41     |
| 2:A:2743:C:N1     | 2:A:2762:G:N2     | 2.69        | 0.41     |
| 2:A:2779:U:C5'    | 2:A:2781:A:C8     | 3.04        | 0.41     |
| 2:A:2785:C:C5'    | 4:E:99:VAL:CB     | 2.99        | 0.41     |
| 2:A:2820:A:N7     | 4:E:304:ASP:OD2   | 2.53        | 0.41     |
| 3:D:140:VAL:N     | 3:D:161:ALA:O     | 2.50        | 0.41     |
| 3:D:157:ALA:C     | 3:D:194:VAL:HG11  | 2.30        | 0.41     |
| 4:E:216:ARG:NH2   | 4:E:255:GLN:CA    | 2.77        | 0.41     |
| 5:F:3:ALA:HB2     | 5:F:18:LEU:HD23   | 2.03        | 0.41     |
| 5:F:25:PRO:CG     | 5:F:26:VAL:H      | 2.34        | 0.41     |
| 2:A:2315:G:C4'    | 6:G:133:ASN:HD22  | 2.33        | 0.41     |
| 6:G:29:HIS:ND1    | 6:G:69:ILE:CG1    | 2.84        | 0.41     |
| 6:G:63:ILE:CG2    | 6:G:64:ARG:N      | 2.83        | 0.41     |
| 7:H:82:TYR:CE1    | 7:H:137:LYS:CB    | 3.02        | 0.41     |
| 7:H:145:ALA:HA    | 7:H:148:ARG:HG3   | 2.01        | 0.41     |
| 7:H:75:VAL:CG1    | 7:H:76:GLU:N      | 2.71        | 0.41     |
| 7:H:99:GLY:C      | 7:H:101:LYS:H     | 2.22        | 0.41     |
| 10:O:77:ILE:C     | 10:O:78:ARG:CG    | 2.89        | 0.41     |
| 12:Q:137:ARG:C    | 12:Q:139:ALA:N    | 2.73        | 0.41     |
| 12:Q:136:TRP:C    | 12:Q:139:ALA:HB3  | 2.37        | 0.41     |
| 12:Q:25:GLY:C     | 12:Q:27:GLY:H     | 2.24        | 0.41     |
| 12:Q:61:LEU:O     | 12:Q:62:GLU:O     | 2.38        | 0.41     |
| 19:R:91:GLN:O     | 19:R:92:GLY:C     | 2.54        | 0.41     |
| 13:S:102:LEU:HD21 | 13:S:129:ILE:HG22 | 1.47        | 0.41     |
| 14:T:14:GLU:O     | 14:T:15:PRO:O     | 2.39        | 0.41     |
| 2:A:2021:C:H6     | 20:U:25:TRP:CH2   | 2.34        | 0.41     |
| 17:Y:101:LEU:O    | 17:Y:103:LEU:CD1  | 2.68        | 0.41     |
| 17:Y:34:GLU:H     | 17:Y:34:GLU:HG3   | 1.44        | 0.41     |
| 17:Y:47:THR:HA    | 17:Y:61:GLU:HA    | 2.03        | 0.41     |
| 17:Y:20:HIS:CA    | 17:Y:67:LEU:CD2   | 2.98        | 0.41     |
| 18:Z:41:ARG:H     | 18:Z:41:ARG:CD    | 2.33        | 0.41     |
| 23:3:40:THR:O     | 23:3:41:PRO:C     | 2.60        | 0.41     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 26:5:31:THR:HG22 | 26:5:42:SER:HA   | 2.02        | 0.41     |
| 28:7:13:ALA:O    | 28:7:16:HIS:C    | 2.54        | 0.41     |
| 28:7:21:ARG:HH21 | 28:7:44:VAL:HG23 | 1.85        | 0.41     |
| 28:7:30:ILE:O    | 28:7:31:LEU:O    | 2.38        | 0.41     |
| 2:A:1012:U:H3'   | 2:A:1012:U:C6    | 2.56        | 0.41     |
| 2:A:1023:U:H2'   | 2:A:1024:G:C4'   | 2.51        | 0.41     |
| 2:A:1277:G:H1'   | 19:R:23:ASN:ND2  | 2.35        | 0.41     |
| 2:A:15:G:C2      | 2:A:16:G:H1'     | 2.55        | 0.41     |
| 2:A:1781:C:C3'   | 2:A:1781:C:C6    | 3.04        | 0.41     |
| 2:A:2093:G:C4    | 2:A:2198:A:N1    | 2.87        | 0.41     |
| 2:A:2199:A:H61   | 2:A:2224:G:H1'   | 1.86        | 0.41     |
| 2:A:2206:C:C2    | 2:A:2207:C:C6    | 3.09        | 0.41     |
| 2:A:2207:C:N4    | 2:A:2218:G:C6    | 2.89        | 0.41     |
| 2:A:2239:G:H5''  | 2:A:2240:C:OP2   | 2.21        | 0.41     |
| 2:A:2250:G:OP1   | 2:A:2275:C:C2    | 2.74        | 0.41     |
| 2:A:2272:U:O2    | 2:A:2272:U:O4'   | 2.38        | 0.41     |
| 2:A:2491:U:C2'   | 2:A:2492:U:C5'   | 2.88        | 0.41     |
| 2:A:2061:G:C4    | 2:A:2503:A:H2    | 2.38        | 0.41     |
| 2:A:2516:G:C2'   | 2:A:2517:C:O5'   | 2.68        | 0.41     |
| 2:A:2548:G:O5'   | 2:A:2548:G:H8    | 2.04        | 0.41     |
| 2:A:2572:A:C3'   | 2:A:2572:A:C8    | 3.04        | 0.41     |
| 2:A:2053:G:N2    | 2:A:2617:C:C6    | 2.89        | 0.41     |
| 2:A:2048:G:O6    | 2:A:2621:A:N1    | 2.53        | 0.41     |
| 2:A:2686:G:C6    | 2:A:2687:U:C6    | 3.09        | 0.41     |
| 2:A:2693:A:N3    | 2:A:2694:G:N7    | 2.68        | 0.41     |
| 2:A:2695:C:C2'   | 2:A:2696:U:C5    | 2.93        | 0.41     |
| 2:A:2710:C:H2'   | 2:A:2711:A:H8    | 1.86        | 0.41     |
| 2:A:2783:G:H2'   | 2:A:2784:C:O4'   | 2.21        | 0.41     |
| 2:A:388:G:C2'    | 2:A:390:A:N7     | 2.77        | 0.41     |
| 2:A:747:U:N3     | 26:5:3:LYS:HD2   | 2.35        | 0.41     |
| 2:A:774:A:H4'    | 2:A:778:G:O4'    | 2.21        | 0.41     |
| 1:B:8:U:H2'      | 1:B:9:G:C8       | 2.55        | 0.41     |
| 3:D:104:ILE:HB   | 3:D:106:PRO:CG   | 2.49        | 0.41     |
| 4:E:41:PHE:CD1   | 4:E:193:PHE:CE1  | 3.09        | 0.41     |
| 4:E:86:TYR:N     | 4:E:86:TYR:CD1   | 2.88        | 0.41     |
| 5:F:220:THR:O    | 5:F:225:PRO:CD   | 2.68        | 0.41     |
| 5:F:164:ALA:HB1  | 5:F:232:LEU:HD12 | 1.71        | 0.41     |
| 7:H:143:LEU:O    | 7:H:144:ALA:C    | 2.57        | 0.41     |
| 9:N:101:VAL:O    | 9:N:102:ARG:HG2  | 2.21        | 0.41     |
| 9:N:135:ILE:CA   | 9:N:139:LEU:HD11 | 2.51        | 0.41     |
| 9:N:16:ASP:HA    | 9:N:45:VAL:HG22  | 1.47        | 0.41     |
| 9:N:48:GLY:C     | 9:N:50:GLU:N     | 2.74        | 0.41     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:O:81:GLU:CG   | 10:O:82:ASN:N     | 2.66        | 0.41     |
| 11:P:132:LYS:O   | 11:P:135:GLY:HA3  | 2.19        | 0.41     |
| 12:Q:16:ARG:N    | 12:Q:20:ILE:HG12  | 2.34        | 0.41     |
| 12:Q:42:TYR:H    | 12:Q:43:PRO:CD    | 2.34        | 0.41     |
| 12:Q:72:VAL:CG2  | 12:Q:135:ALA:HB2  | 2.42        | 0.41     |
| 2:A:2334:G:N9    | 13:S:21:HIS:CE1   | 2.88        | 0.41     |
| 13:S:36:ALA:CB   | 13:S:118:ILE:HD13 | 2.51        | 0.41     |
| 13:S:86:LEU:HA   | 13:S:125:ALA:HB2  | 2.03        | 0.41     |
| 14:T:53:ASP:CA   | 14:T:56:ARG:HG2   | 2.42        | 0.41     |
| 20:U:68:GLY:O    | 20:U:70:ARG:C     | 2.58        | 0.41     |
| 20:U:84:LYS:C    | 20:U:86:ALA:H     | 2.23        | 0.41     |
| 21:V:73:LYS:C    | 21:V:74:TYR:CD2   | 2.94        | 0.41     |
| 18:Z:34:LEU:HD13 | 18:Z:35:ASP:N     | 2.16        | 0.41     |
| 8:I:68:LEU:HD22  | 8:I:72:LEU:CD2    | 2.49        | 0.41     |
| 2:A:1080:C:O2    | 31:K:127:ILE:HG13 | 2.21        | 0.41     |
| 22:2:50:ARG:O    | 22:2:51:LYS:C     | 2.57        | 0.41     |
| 22:2:61:GLY:O    | 22:2:65:ASP:N     | 2.47        | 0.41     |
| 2:A:131:G:H1     | 2:A:148:C:H42     | 1.69        | 0.41     |
| 2:A:1063:G:O5'   | 31:K:135:MET:HG2  | 2.20        | 0.41     |
| 24:0:6:GLY:O     | 24:0:7:VAL:C      | 2.58        | 0.41     |
| 2:A:1513:C:H2'   | 2:A:1514:U:C6     | 2.56        | 0.41     |
| 8:I:63:ALA:N     | 8:I:66:LYS:HE2    | 2.35        | 0.41     |
| 2:A:1298:C:H4'   | 2:A:1302:A:N6     | 2.36        | 0.41     |
| 2:A:1303:G:H1    | 2:A:1625:C:N4     | 2.19        | 0.41     |
| 2:A:194:G:C6     | 2:A:195:A:C6      | 3.09        | 0.41     |
| 2:A:2181:G:H3'   | 2:A:2182:G:H5''   | 2.03        | 0.41     |
| 2:A:1174:A:N6    | 2:A:1177:A:N3     | 2.69        | 0.41     |
| 2:A:798:G:N1     | 2:A:799:G:C6      | 2.88        | 0.41     |
| 2:A:619:G:C8     | 2:A:619:G:C3'     | 3.03        | 0.41     |
| 2:A:261:G:H2'    | 2:A:262:A:H8      | 1.86        | 0.41     |
| 2:A:1382:G:H2'   | 2:A:1383:C:C6     | 2.56        | 0.41     |
| 2:A:697:C:H2'    | 2:A:698:C:H6      | 1.85        | 0.41     |
| 24:0:35:ASN:C    | 24:0:68:VAL:HG21  | 2.41        | 0.41     |
| 29:8:16:ILE:CA   | 29:8:22:VAL:HG22  | 2.50        | 0.41     |
| 29:8:29:LYS:HB2  | 29:8:30:ARG:H     | 1.71        | 0.41     |
| 29:8:4:MET:CB    | 29:8:5:LYS:HZ2    | 2.35        | 0.41     |
| 2:A:1364:G:C8    | 2:A:1364:G:C5'    | 3.00        | 0.41     |
| 2:A:1441:G:O3'   | 2:A:1628:G:H5'    | 2.21        | 0.41     |
| 2:A:2043:C:N4    | 2:A:2777:G:N9     | 2.64        | 0.41     |
| 2:A:2246:G:HO2'  | 2:A:2247:A:C5'    | 2.07        | 0.41     |
| 2:A:2305:A:C8    | 2:A:2306:C:C6     | 3.09        | 0.41     |
| 2:A:2330:G:H2'   | 2:A:2331:G:C4'    | 2.51        | 0.41     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:2562:U:H2'    | 2:A:2563:U:H5'    | 2.02        | 0.41     |
| 2:A:2574:G:N3     | 2:A:2575:C:C6     | 2.88        | 0.41     |
| 2:A:2588:G:H2'    | 2:A:2589:A:O4'    | 2.21        | 0.41     |
| 2:A:2637:U:H5     | 2:A:2638:G:C6     | 2.37        | 0.41     |
| 2:A:2648:C:C6     | 2:A:2649:U:C5     | 3.09        | 0.41     |
| 2:A:2842:G:C2'    | 2:A:2843:G:C5'    | 2.54        | 0.41     |
| 2:A:2861:G:C4     | 2:A:2862:G:N7     | 2.89        | 0.41     |
| 2:A:294:A:H4'     | 17:Y:15:PRO:CG    | 2.51        | 0.41     |
| 2:A:957:A:C2      | 2:A:2459:A:C5'    | 2.94        | 0.41     |
| 3:D:175:LEU:HD12  | 3:D:179:GLU:C     | 2.16        | 0.41     |
| 3:D:78:ALA:HA     | 3:D:94:ASN:HD22   | 1.86        | 0.41     |
| 6:G:100:ASP:HB2   | 6:G:101:THR:H     | 1.66        | 0.41     |
| 6:G:144:ARG:N     | 6:G:144:ARG:HD2   | 2.36        | 0.41     |
| 6:G:71:ALA:C      | 6:G:72:LYS:CD     | 2.84        | 0.41     |
| 7:H:128:THR:CG2   | 7:H:129:LYS:H     | 2.27        | 0.41     |
| 7:H:140:VAL:C     | 7:H:143:LEU:CD2   | 2.84        | 0.41     |
| 7:H:10:ILE:HG13   | 7:H:49:ILE:CG1    | 2.51        | 0.41     |
| 7:H:71:LEU:C      | 7:H:73:ASN:H      | 2.22        | 0.41     |
| 9:N:135:ILE:O     | 9:N:139:LEU:HD22  | 2.20        | 0.41     |
| 10:O:102:VAL:HG11 | 10:O:106:LEU:HD11 | 2.03        | 0.41     |
| 12:Q:35:ASN:CB    | 12:Q:75:SER:CA    | 2.98        | 0.41     |
| 2:A:2484:G:O2'    | 12:Q:60:ALA:HB1   | 2.20        | 0.41     |
| 2:A:1287:A:C8     | 19:R:104:ARG:CG   | 2.89        | 0.41     |
| 19:R:20:LEU:HD13  | 19:R:21:TYR:CB    | 2.40        | 0.41     |
| 13:S:60:SER:O     | 13:S:88:ALA:CA    | 2.43        | 0.41     |
| 13:S:61:ALA:CB    | 13:S:88:ALA:CB    | 2.70        | 0.41     |
| 21:V:3:ALA:O      | 21:V:14:VAL:N     | 2.52        | 0.41     |
| 15:W:4:LYS:HG2    | 15:W:106:ILE:HG12 | 2.03        | 0.41     |
| 17:Y:73:HIS:C     | 17:Y:91:LEU:HD12  | 2.26        | 0.41     |
| 17:Y:51:LEU:N     | 17:Y:97:ARG:HH21  | 2.16        | 0.41     |
| 18:Z:102:GLY:O    | 18:Z:103:ARG:O    | 2.39        | 0.41     |
| 18:Z:112:LEU:HD12 | 18:Z:177:THR:CG2  | 2.51        | 0.41     |
| 18:Z:35:ASP:OD1   | 18:Z:38:ALA:N     | 2.48        | 0.41     |
| 18:Z:19:ILE:H     | 18:Z:36:ARG:N     | 2.18        | 0.41     |
| 8:I:92:SER:C      | 8:I:93:ILE:CG2    | 2.90        | 0.41     |
| 2:A:816:C:N4      | 2:A:1192:G:O6     | 2.54        | 0.41     |
| 2:A:1315:C:N4     | 2:A:1337:G:H1     | 2.19        | 0.41     |
| 2:A:1906:G:C5     | 2:A:1929:G:N1     | 2.88        | 0.41     |
| 2:A:1529:A:H3'    | 2:A:1530:G:O4'    | 2.21        | 0.41     |
| 2:A:477:A:C6      | 2:A:478:A:N6      | 2.88        | 0.41     |
| 2:A:1842:G:H2'    | 2:A:1843:C:O4'    | 2.21        | 0.41     |
| 2:A:1802:A:OP2    | 2:A:1815:A:N6     | 2.51        | 0.41     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:705:A:H8      | 2:A:705:A:OP2     | 2.04        | 0.41     |
| 2:A:1484:G:C2     | 2:A:1506:C:C4     | 3.09        | 0.41     |
| 24:0:37:LEU:CG    | 24:0:71:ASN:ND2   | 2.84        | 0.40     |
| 23:3:26:LEU:HD22  | 23:3:47:VAL:CG2   | 2.52        | 0.40     |
| 23:3:39:ASP:O     | 23:3:44:ARG:HB2   | 2.21        | 0.40     |
| 25:4:23:GLU:CG    | 25:4:29:PRO:CB    | 2.96        | 0.40     |
| 27:6:19:GLY:C     | 27:6:44:ALA:HB2   | 2.42        | 0.40     |
| 28:7:21:ARG:O     | 28:7:22:MET:O     | 2.40        | 0.40     |
| 28:7:31:LEU:O     | 28:7:33:ARG:N     | 2.54        | 0.40     |
| 29:8:26:LYS:HE3   | 29:8:44:LYS:C     | 2.30        | 0.40     |
| 2:A:1276:A:C2     | 2:A:1295:C:H1'    | 2.56        | 0.40     |
| 2:A:1764:G:C5     | 2:A:1989:G:C2     | 3.09        | 0.40     |
| 2:A:1996:C:H2'    | 2:A:1997:G:O5'    | 2.22        | 0.40     |
| 2:A:747:U:N3      | 2:A:2015:A:C2     | 2.86        | 0.40     |
| 2:A:2218:G:C4     | 2:A:2219:G:C8     | 3.08        | 0.40     |
| 2:A:2243:U:O2     | 2:A:2244:U:O4'    | 2.38        | 0.40     |
| 2:A:2257:U:O2'    | 2:A:2258:C:P      | 2.79        | 0.40     |
| 2:A:2276:G:C2     | 2:A:2277:G:N7     | 2.86        | 0.40     |
| 2:A:2327:A:N1     | 2:A:2328:A:H2     | 2.03        | 0.40     |
| 2:A:2372:G:O6     | 2:A:2373:G:O6     | 2.38        | 0.40     |
| 2:A:2381:C:C3'    | 2:A:2381:C:C6     | 3.04        | 0.40     |
| 2:A:827:U:P       | 2:A:2429:G:OP2    | 2.77        | 0.40     |
| 2:A:2531:A:O5'    | 2:A:2531:A:H8     | 2.03        | 0.40     |
| 2:A:2681:C:H4'    | 4:E:48:MET:SD     | 2.60        | 0.40     |
| 2:A:2768:C:C6     | 2:A:2768:C:C3'    | 3.04        | 0.40     |
| 2:A:2774:C:H2'    | 2:A:2775:A:C8     | 2.47        | 0.40     |
| 2:A:2816:C:O2'    | 2:A:2817:G:O5'    | 2.39        | 0.40     |
| 2:A:2870:C:H2'    | 2:A:2871:C:O5'    | 2.21        | 0.40     |
| 2:A:530:G:O2'     | 2:A:531:C:O5'     | 2.36        | 0.40     |
| 2:A:636:G:OP1     | 11:P:127:GLU:N    | 2.54        | 0.40     |
| 2:A:780:G:H1      | 3:D:233:ASP:CG    | 2.21        | 0.40     |
| 4:E:45:LYS:HD3    | 4:E:301:PRO:CG    | 2.52        | 0.40     |
| 5:F:196:THR:OG1   | 5:F:201:SER:CA    | 2.69        | 0.40     |
| 5:F:32:GLY:C      | 5:F:36:ARG:HG2    | 2.41        | 0.40     |
| 6:G:141:VAL:C     | 6:G:143:LYS:N     | 2.74        | 0.40     |
| 7:H:57:GLU:HG2    | 7:H:57:GLU:H      | 1.68        | 0.40     |
| 9:N:57:TYR:HB2    | 9:N:135:ILE:CG2   | 2.51        | 0.40     |
| 10:O:34:ASN:C     | 10:O:62:VAL:HG21  | 2.40        | 0.40     |
| 11:P:106:VAL:HG21 | 11:P:122:ALA:CA   | 2.51        | 0.40     |
| 11:P:66:VAL:O     | 11:P:69:ILE:N     | 2.53        | 0.40     |
| 12:Q:47:GLU:CB    | 12:Q:123:ILE:HG12 | 2.49        | 0.40     |
| 19:R:37:THR:HG22  | 19:R:111:LEU:HD23 | 2.02        | 0.40     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:B:113:C:O2'    | 13:S:56:ASP:OD1  | 2.38        | 0.40     |
| 13:S:65:ASP:C    | 13:S:66:LEU:HD12 | 2.41        | 0.40     |
| 14:T:13:ILE:HD12 | 14:T:33:SER:HB2  | 2.03        | 0.40     |
| 18:Z:107:GLU:OE1 | 18:Z:107:GLU:N   | 2.35        | 0.40     |
| 18:Z:77:ALA:HA   | 18:Z:78:PRO:HD2  | 1.77        | 0.40     |
| 8:I:84:GLY:O     | 8:I:85:GLU:CG    | 2.70        | 0.40     |
| 8:I:84:GLY:C     | 8:I:85:GLU:HG3   | 2.42        | 0.40     |
| 8:I:88:ARG:HD3   | 8:I:122:ARG:CB   | 2.41        | 0.40     |
| 2:A:1789:A:H2'   | 2:A:1790:C:H1'   | 2.04        | 0.40     |
| 2:A:729:G:C2     | 3:D:206:LYS:O    | 2.73        | 0.40     |
| 22:2:21:ASP:O    | 22:2:22:ASP:O    | 2.36        | 0.40     |
| 22:2:22:ASP:HB2  | 22:2:23:LEU:H    | 1.78        | 0.40     |
| 22:2:9:ARG:HB2   | 22:2:59:ILE:HD11 | 2.03        | 0.40     |
| 2:A:176:G:H2'    | 2:A:177:G:C1'    | 2.51        | 0.40     |
| 5:F:151:GLN:OE1  | 5:F:154:VAL:HG23 | 2.07        | 0.40     |
| 2:A:1913:A:N6    | 2:A:1917:U:O5'   | 2.54        | 0.40     |
| 2:A:359:A:C2'    | 2:A:360:G:N7     | 2.84        | 0.40     |
| 2:A:1906:G:H1    | 2:A:1924:C:H42   | 1.69        | 0.40     |
| 31:K:86:GLU:HB2  | 31:K:87:LYS:N    | 2.30        | 0.40     |
| 2:A:1422:G:H2'   | 2:A:1423:G:H8    | 1.86        | 0.40     |
| 2:A:273:G:H2'    | 2:A:273(A):G:C8  | 2.56        | 0.40     |
| 2:A:1895:C:H2'   | 2:A:1896:G:O4'   | 2.20        | 0.40     |
| 24:0:39:ARG:CB   | 24:0:69:PHE:HZ   | 2.35        | 0.40     |
| 24:0:65:GLY:C    | 24:0:66:LYS:CE   | 2.77        | 0.40     |
| 26:5:58:LEU:HB3  | 26:5:59:ALA:H    | 1.47        | 0.40     |
| 26:5:6:VAL:CG1   | 26:5:7:PRO:N     | 2.83        | 0.40     |
| 27:6:45:LYS:C    | 27:6:46:LYS:NZ   | 2.73        | 0.40     |
| 29:8:23:MET:HE3  | 29:8:48:PHE:CB   | 2.50        | 0.40     |
| 2:A:13:A:N6      | 2:A:525:U:C5     | 2.89        | 0.40     |
| 2:A:2215:G:C2'   | 2:A:2216:G:O5'   | 2.69        | 0.40     |
| 2:A:2279:G:N1    | 2:A:2280:G:C5    | 2.89        | 0.40     |
| 2:A:2354:G:H1'   | 24:0:32:LYS:H    | 1.87        | 0.40     |
| 2:A:2355:C:C5'   | 2:A:2356:C:OP2   | 2.69        | 0.40     |
| 2:A:2468:G:H2'   | 2:A:2469:A:C8    | 2.56        | 0.40     |
| 2:A:2491:U:O2    | 2:A:2491:U:C2'   | 2.69        | 0.40     |
| 2:A:2447:G:N1    | 2:A:2500:U:O4    | 2.50        | 0.40     |
| 2:A:2557:G:N9    | 2:A:2558:C:H5    | 2.19        | 0.40     |
| 2:A:2549:G:N2    | 2:A:2559:C:O2    | 2.44        | 0.40     |
| 2:A:2589:A:N1    | 2:A:2606:C:C4    | 2.89        | 0.40     |
| 2:A:2710:C:H2'   | 2:A:2711:A:O4'   | 2.20        | 0.40     |
| 2:A:2717:G:C2'   | 2:A:2718:G:H5''  | 2.51        | 0.40     |
| 2:A:575:A:OP1    | 2:A:2499:C:O2'   | 2.26        | 0.40     |

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| Atom-1           | Atom-2            | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:D:144:GLU:HB3  | 3:D:188:ARG:C     | 2.42        | 0.40     |
| 3:D:145:LEU:HD13 | 3:D:145:LEU:C     | 2.41        | 0.40     |
| 2:A:1799:G:N2    | 3:D:153:LEU:HD11  | 2.32        | 0.40     |
| 3:D:74:PRO:HG2   | 3:D:96:ALA:H      | 1.78        | 0.40     |
| 5:F:94:THR:HG23  | 5:F:95:GLU:N      | 2.36        | 0.40     |
| 6:G:140:ARG:HD2  | 6:G:144:ARG:CZ    | 2.51        | 0.40     |
| 7:H:7:PRO:HA     | 7:H:50:THR:OG1    | 2.21        | 0.40     |
| 8:I:3:VAL:CG1    | 8:I:21:VAL:HG21   | 2.47        | 0.40     |
| 9:N:96:GLU:O     | 9:N:99:GLU:N      | 2.54        | 0.40     |
| 10:O:115:ILE:O   | 10:O:121:VAL:HG21 | 2.21        | 0.40     |
| 12:Q:131:ALA:N   | 12:Q:134:PHE:CE2  | 2.89        | 0.40     |
| 12:Q:17:ARG:O    | 12:Q:22:GLY:O     | 2.38        | 0.40     |
| 12:Q:74:ASN:N    | 12:Q:74:ASN:OD1   | 2.54        | 0.40     |
| 19:R:17:ARG:O    | 19:R:20:LEU:HB3   | 2.21        | 0.40     |
| 14:T:13:ILE:HG22 | 14:T:14:GLU:CD    | 2.41        | 0.40     |
| 14:T:10:GLY:CA   | 14:T:53:ASP:CG    | 2.89        | 0.40     |
| 2:A:444:C:OP2    | 20:U:2:PRO:HG3    | 2.21        | 0.40     |
| 20:U:34:ASN:O    | 20:U:38:THR:HG23  | 2.21        | 0.40     |
| 20:U:52:ASN:HB2  | 20:U:53:LYS:H     | 1.65        | 0.40     |
| 21:V:49:GLU:O    | 21:V:50:ASP:C     | 2.60        | 0.40     |
| 15:W:28:SER:O    | 15:W:31:GLU:HB3   | 2.21        | 0.40     |
| 17:Y:50:VAL:CG1  | 17:Y:52:ARG:H     | 2.28        | 0.40     |
| 17:Y:71:VAL:CB   | 17:Y:93:THR:H     | 2.26        | 0.40     |
| 17:Y:48:VAL:HG21 | 17:Y:98:VAL:HG23  | 1.32        | 0.40     |
| 18:Z:111:GLY:O   | 18:Z:112:LEU:O    | 2.40        | 0.40     |
| 16:X:3:ASP:CB    | 22:2:24:LYS:HD3   | 2.52        | 0.40     |
| 22:2:33:VAL:O    | 22:2:34:GLN:O     | 2.39        | 0.40     |
| 8:I:56:ARG:O     | 8:I:60:GLU:HB2    | 2.22        | 0.40     |
| 2:A:1351:C:N4    | 2:A:1380:G:H1     | 2.19        | 0.40     |
| 8:I:134:HIS:CD2  | 8:I:136:GLU:OE1   | 2.74        | 0.40     |
| 17:Y:81:LYS:HZ2  | 17:Y:81:LYS:CB    | 2.34        | 0.40     |
| 2:A:1624:G:H2'   | 2:A:1625:C:C6     | 2.56        | 0.40     |
| 2:A:1906:G:C2    | 2:A:1929:G:C6     | 3.09        | 0.40     |
| 2:A:120:U:C5     | 2:A:150:C:N3      | 2.90        | 0.40     |
| 31:K:70:ILE:HD12 | 31:K:70:ILE:N     | 2.35        | 0.40     |
| 2:A:1882:C:C2'   | 2:A:1883:G:H5'    | 2.52        | 0.40     |
| 2:A:1153:C:C4    | 2:A:1154:G:C6     | 3.09        | 0.40     |
| 2:A:855:G:C2'    | 24:0:25:LYS:HZ3   | 2.33        | 0.40     |
| 23:3:37:LEU:HA   | 23:3:37:LEU:HD23  | 1.85        | 0.40     |
| 28:7:27:GLY:O    | 28:7:28:ARG:O     | 2.39        | 0.40     |
| 28:7:41:GLN:HB2  | 28:7:42:LEU:H     | 1.60        | 0.40     |
| 29:8:52:LYS:HE3  | 29:8:52:LYS:HB2   | 1.75        | 0.40     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:A:14:A:C8       | 2:A:15:G:C1'      | 3.03        | 0.40     |
| 2:A:2049:G:C6     | 2:A:2619:C:N4     | 2.81        | 0.40     |
| 2:A:2317:C:OP1    | 6:G:149:ARG:O     | 2.39        | 0.40     |
| 2:A:2376:A:N3     | 2:A:2376:A:H2'    | 2.36        | 0.40     |
| 2:A:2395:C:H5''   | 25:4:28:ARG:HH12  | 1.75        | 0.40     |
| 2:A:2416:C:O2     | 2:A:2416:C:C2'    | 2.69        | 0.40     |
| 2:A:2475:C:OP1    | 2:A:2476:A:OP2    | 2.39        | 0.40     |
| 2:A:2525:G:N2     | 2:A:2539:C:C6     | 2.90        | 0.40     |
| 2:A:2599:G:C2'    | 2:A:2600:A:O4'    | 2.49        | 0.40     |
| 2:A:2646:C:C2'    | 2:A:2647:U:C5'    | 2.89        | 0.40     |
| 2:A:2689:U:N1     | 2:A:2713:A:C6     | 2.88        | 0.40     |
| 2:A:2805:G:O3'    | 2:A:2807:G:P      | 2.79        | 0.40     |
| 2:A:388:G:H5'     | 2:A:389:G:OP2     | 2.21        | 0.40     |
| 2:A:466:A:OP1     | 28:7:34:ARG:NH2   | 2.53        | 0.40     |
| 2:A:632:A:N6      | 2:A:641:C:OP1     | 2.53        | 0.40     |
| 2:A:774:A:O2'     | 2:A:775:G:C8      | 2.73        | 0.40     |
| 2:A:910:A:H2'     | 12:Q:17:ARG:HH22  | 1.81        | 0.40     |
| 3:D:128:ALA:HB1   | 3:D:189:ALA:C     | 2.41        | 0.40     |
| 3:D:167:GLU:N     | 3:D:182:MET:CE    | 2.51        | 0.40     |
| 4:E:199:ALA:CA    | 4:E:314:ALA:HA    | 2.50        | 0.40     |
| 5:F:6:TYR:H       | 5:F:139:VAL:HG12  | 1.86        | 0.40     |
| 5:F:158:GLU:HA    | 5:F:161:ASP:OD2   | 2.22        | 0.40     |
| 5:F:240:LEU:HA    | 5:F:243:VAL:CG2   | 2.41        | 0.40     |
| 5:F:56:THR:CG2    | 5:F:57:PRO:HD3    | 2.46        | 0.40     |
| 7:H:146:ASN:C     | 7:H:150:VAL:HG23  | 2.25        | 0.40     |
| 8:I:30:LEU:HA     | 8:I:33:GLN:HE21   | 1.87        | 0.40     |
| 9:N:54:VAL:HG11   | 9:N:138:THR:CG2   | 2.52        | 0.40     |
| 10:O:112:MET:HG2  | 10:O:115:ILE:HD13 | 1.76        | 0.40     |
| 10:O:63:VAL:CG2   | 10:O:102:VAL:HG11 | 2.51        | 0.40     |
| 11:P:110:GLY:O    | 11:P:111:ALA:C    | 2.48        | 0.40     |
| 12:Q:137:ARG:HD3  | 12:Q:138:ARG:CA   | 2.47        | 0.40     |
| 12:Q:85:ILE:HB    | 12:Q:122:PHE:CE2  | 2.53        | 0.40     |
| 19:R:100:LEU:HD13 | 19:R:100:LEU:HA   | 1.90        | 0.40     |
| 19:R:16:HIS:O     | 19:R:17:ARG:C     | 2.59        | 0.40     |
| 13:S:81:ALA:O     | 13:S:83:LEU:CA    | 2.59        | 0.40     |
| 14:T:9:CYS:HB2    | 14:T:36:CYS:HB3   | 1.68        | 0.40     |
| 2:A:995:C:H2'     | 20:U:61:TRP:HZ2   | 1.86        | 0.40     |
| 21:V:41:GLY:C     | 21:V:54:TYR:CE1   | 2.87        | 0.40     |
| 21:V:71:ILE:O     | 21:V:72:ARG:CB    | 2.60        | 0.40     |
| 15:W:100:THR:C    | 15:W:101:SER:OG   | 2.60        | 0.40     |
| 15:W:23:LEU:HD21  | 26:5:27:ALA:HB2   | 2.03        | 0.40     |
| 17:Y:50:VAL:HG12  | 17:Y:52:ARG:N     | 2.26        | 0.40     |

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| Atom-1           | Atom-2          | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 18:Z:39:PHE:CA   | 18:Z:43:PHE:CZ  | 2.80        | 0.40     |
| 18:Z:66:VAL:HG23 | 18:Z:69:VAL:CG2 | 2.52        | 0.40     |
| 2:A:1058:G:H21   | 31:K:117:ASN:CG | 2.17        | 0.40     |
| 2:A:1397:U:O2    | 2:A:1397:U:C2'  | 2.69        | 0.40     |
| 16:X:58:MET:O    | 16:X:59:ASP:OD2 | 2.39        | 0.40     |
| 2:A:977:G:H2'    | 2:A:978:G:O4'   | 2.21        | 0.40     |
| 2:A:1857:G:H1    | 2:A:1884:A:H61  | 1.68        | 0.40     |
| 2:A:1575:C:C3'   | 2:A:1575:C:C6   | 3.05        | 0.40     |
| 2:A:1206:G:H1'   | 2:A:1242:A:N6   | 2.36        | 0.40     |
| 24:O:71:ASN:O    | 24:O:73:GLY:N   | 2.54        | 0.40     |
| 23:3:48:GLU:O    | 23:3:51:ALA:CB  | 2.69        | 0.40     |
| 25:4:24:THR:C    | 25:4:26:SER:N   | 2.75        | 0.40     |
| 25:4:5:LEU:CD1   | 25:4:8:LYS:CB   | 2.99        | 0.40     |
| 28:7:21:ARG:O    | 28:7:22:MET:C   | 2.58        | 0.40     |
| 2:A:1163:G:C2    | 2:A:1164:G:C8   | 3.09        | 0.40     |
| 2:A:1208:C:C4    | 2:A:1240:U:O4   | 2.74        | 0.40     |
| 2:A:810:U:OP1    | 2:A:1253:A:C5   | 2.75        | 0.40     |
| 2:A:1363:C:O2    | 2:A:1364:G:H5'  | 2.22        | 0.40     |
| 2:A:2045:C:H2'   | 2:A:2046:G:O4'  | 2.21        | 0.40     |
| 2:A:2190:G:H2'   | 2:A:2191:G:H8   | 1.87        | 0.40     |
| 2:A:2247:A:H2'   | 2:A:2248:C:O5'  | 2.21        | 0.40     |
| 2:A:2309:A:H3'   | 2:A:2310:A:C4'  | 2.50        | 0.40     |
| 2:A:2484:G:C2'   | 12:Q:142:LYS:NZ | 2.85        | 0.40     |
| 2:A:2543:G:C6    | 2:A:2544:G:O6   | 2.71        | 0.40     |
| 2:A:2507:C:C6    | 2:A:2583:G:N2   | 2.90        | 0.40     |
| 2:A:2588:G:C6    | 2:A:2589:A:C5   | 3.09        | 0.40     |
| 2:A:2704:C:H2'   | 2:A:2705:A:C1'  | 2.51        | 0.40     |
| 2:A:2742:C:OP1   | 30:9:35:ARG:HD3 | 2.21        | 0.40     |
| 2:A:2748:A:C5    | 2:A:2749:A:C2   | 2.95        | 0.40     |
| 2:A:2768:C:N4    | 2:A:2769:C:N4   | 2.57        | 0.40     |
| 2:A:2779:U:O4'   | 2:A:2781:A:N7   | 2.55        | 0.40     |
| 2:A:27:G:H2'     | 2:A:28:A:C8     | 2.56        | 0.40     |
| 2:A:2813:A:C2    | 2:A:2888:C:C2   | 3.10        | 0.40     |
| 2:A:2815:C:H2'   | 2:A:2815:C:O2   | 2.21        | 0.40     |
| 2:A:2821:A:C2'   | 2:A:2822:G:H1'  | 2.50        | 0.40     |
| 2:A:294:A:C3'    | 2:A:294:A:C8    | 3.05        | 0.40     |
| 2:A:296:C:N3     | 2:A:297:C:C4    | 2.90        | 0.40     |
| 2:A:296:C:C2     | 2:A:344:G:N2    | 2.89        | 0.40     |
| 2:A:460:A:C8     | 2:A:461:C:C5    | 3.10        | 0.40     |
| 2:A:30:G:N2      | 2:A:511:U:H1'   | 2.36        | 0.40     |
| 2:A:611:C:O2'    | 2:A:616:A:H2    | 2.02        | 0.40     |
| 2:A:821:A:H2'    | 2:A:946:G:C8    | 2.56        | 0.40     |

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| Atom-1            | Atom-2            | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:B:10:C:H2'      | 1:B:11:C:H6       | 1.86        | 0.40     |
| 1:B:76:G:O2'      | 18:Z:80:HIS:CB    | 2.69        | 0.40     |
| 3:D:143:ILE:HG21  | 3:D:153:LEU:CB    | 2.46        | 0.40     |
| 3:D:146:LYS:O     | 3:D:149:ARG:HG2   | 2.21        | 0.40     |
| 2:A:1799:G:N1     | 3:D:153:LEU:CD2   | 2.68        | 0.40     |
| 4:E:211:GLN:CD    | 4:E:211:GLN:C     | 2.79        | 0.40     |
| 5:F:36:ARG:HB2    | 5:F:37:ALA:H      | 1.53        | 0.40     |
| 5:F:67:GLN:HB3    | 5:F:68:ALA:H      | 1.67        | 0.40     |
| 7:H:137:LYS:O     | 7:H:138:GLN:O     | 2.38        | 0.40     |
| 7:H:9:GLU:CA      | 7:H:49:ILE:HD11   | 2.52        | 0.40     |
| 10:O:111:PHE:O    | 10:O:113:LYS:HB2  | 2.21        | 0.40     |
| 10:O:33:ALA:HB2   | 10:O:39:VAL:HG22  | 2.04        | 0.40     |
| 10:O:39:VAL:CG1   | 10:O:40:VAL:N     | 2.84        | 0.40     |
| 10:O:20:LEU:CG    | 10:O:44:LYS:HD3   | 2.47        | 0.40     |
| 12:Q:136:TRP:CA   | 12:Q:139:ALA:HB3  | 2.52        | 0.40     |
| 12:Q:58:HIS:O     | 12:Q:61:LEU:CB    | 2.68        | 0.40     |
| 12:Q:61:LEU:HB2   | 12:Q:62:GLU:H     | 1.60        | 0.40     |
| 12:Q:65:ARG:NH2   | 12:Q:86:ARG:N     | 2.69        | 0.40     |
| 19:R:33:ARG:C     | 19:R:113:LEU:HD21 | 2.42        | 0.40     |
| 2:A:2378:A:H1'    | 13:S:101:VAL:CG2  | 2.52        | 0.40     |
| 20:U:24:PHE:HB2   | 20:U:25:TRP:H     | 1.47        | 0.40     |
| 20:U:60:LEU:C     | 20:U:62:ILE:N     | 2.73        | 0.40     |
| 15:W:24:ILE:HG22  | 15:W:35:ILE:CG1   | 2.52        | 0.40     |
| 15:W:42:ARG:CG    | 15:W:43:GLY:N     | 2.82        | 0.40     |
| 15:W:27:LYS:H     | 15:W:71:VAL:HG23  | 1.87        | 0.40     |
| 17:Y:80:GLU:CG    | 17:Y:86:GLU:HG2   | 2.46        | 0.40     |
| 17:Y:49:GLU:HB3   | 17:Y:97:ARG:HH11  | 1.85        | 0.40     |
| 18:Z:172:LEU:HD21 | 18:Z:173:PRO:CD   | 2.29        | 0.40     |
| 2:A:1342:A:O5'    | 2:A:1342:A:H8     | 2.05        | 0.40     |
| 2:A:357:A:H2'     | 2:A:358:U:O4'     | 2.22        | 0.40     |
| 2:A:1518:C:N1     | 2:A:1519:G:H1'    | 2.37        | 0.40     |
| 2:A:1795:C:O5'    | 2:A:1795:C:H6     | 2.05        | 0.40     |
| 2:A:812:C:H2'     | 2:A:813:U:H6      | 1.86        | 0.40     |
| 2:A:1729:A:OP2    | 2:A:1730:U:C4     | 2.75        | 0.40     |
| 29:8:18:GLY:C     | 29:8:20:GLY:N     | 2.75        | 0.40     |
| 24:0:38:VAL:C     | 24:0:69:PHE:CZ    | 2.95        | 0.40     |
| 2:A:1024:G:N2     | 2:A:1139:G:N2     | 2.69        | 0.40     |
| 2:A:2014:A:C4     | 2:A:2015:A:N1     | 2.90        | 0.40     |
| 2:A:2317:C:C4     | 2:A:2318:G:C5     | 3.09        | 0.40     |
| 2:A:2320:A:H8     | 2:A:2320:A:P      | 2.41        | 0.40     |
| 2:A:2543:G:C4     | 2:A:2544:G:N7     | 2.86        | 0.40     |
| 2:A:2553:G:H8     | 2:A:2553:G:H3'    | 1.86        | 0.40     |

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| Atom-1           | Atom-2           | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:A:2563:U:H3    | 2:A:2566:A:H8    | 1.69        | 0.40     |
| 2:A:2644:G:C8    | 2:A:2644:G:C5'   | 2.99        | 0.40     |
| 2:A:2666:C:C6    | 2:A:2667:C:C5    | 3.08        | 0.40     |
| 2:A:2669:G:H2'   | 2:A:2670:A:O5'   | 2.20        | 0.40     |
| 2:A:2695:C:C2    | 2:A:2696:U:C5    | 3.10        | 0.40     |
| 2:A:2808:U:C5'   | 2:A:2809:A:OP2   | 2.69        | 0.40     |
| 2:A:2850:A:C6    | 2:A:2851:A:C5    | 3.10        | 0.40     |
| 2:A:856:C:H1'    | 24:0:24:LYS:HB2  | 2.02        | 0.40     |
| 3:D:141:HIS:N    | 3:D:141:HIS:HD1  | 2.18        | 0.40     |
| 3:D:69:ASP:HA    | 3:D:188:ARG:HH12 | 1.87        | 0.40     |
| 3:D:140:VAL:CG1  | 3:D:190:THR:O    | 2.65        | 0.40     |
| 3:D:105:ALA:C    | 3:D:194:VAL:O    | 2.60        | 0.40     |
| 3:D:83:ASP:HA    | 3:D:84:PRO:HD3   | 1.85        | 0.40     |
| 4:E:179:ASP:N    | 4:E:179:ASP:OD1  | 2.55        | 0.40     |
| 4:E:215:LYS:HG3  | 4:E:216:ARG:N    | 2.37        | 0.40     |
| 2:A:2784:C:H1'   | 4:E:98:GLU:CD    | 2.42        | 0.40     |
| 5:F:51:TYR:O     | 5:F:54:LEU:O     | 2.39        | 0.40     |
| 5:F:52:ALA:N     | 5:F:55:ARG:HE    | 2.13        | 0.40     |
| 7:H:141:GLY:O    | 7:H:144:ALA:HB3  | 2.22        | 0.40     |
| 7:H:8:ILE:CD1    | 7:H:72:ALA:HB2   | 2.52        | 0.40     |
| 9:N:42:GLU:HA    | 9:N:132:LEU:O    | 2.20        | 0.40     |
| 9:N:24:SER:HG    | 9:N:25:GLN:H     | 1.70        | 0.40     |
| 9:N:92:GLN:HG2   | 9:N:93:ARG:N     | 2.36        | 0.40     |
| 10:O:22:ILE:H    | 10:O:41:ALA:HB2  | 1.87        | 0.40     |
| 10:O:43:VAL:HG21 | 10:O:53:LYS:O    | 2.21        | 0.40     |
| 10:O:2:ILE:HA    | 10:O:6:SER:OG    | 2.22        | 0.40     |
| 11:P:129:ALA:N   | 11:P:132:LYS:HD3 | 2.35        | 0.40     |
| 12:Q:49:VAL:HG11 | 12:Q:119:ASN:H   | 1.85        | 0.40     |
| 12:Q:11:LYS:HD2  | 12:Q:91:HIS:NE2  | 2.34        | 0.40     |
| 12:Q:28:ILE:CB   | 12:Q:62:GLU:HG2  | 2.49        | 0.40     |
| 19:R:100:LEU:CB  | 19:R:112:ALA:HA  | 2.52        | 0.40     |
| 19:R:49:ASP:HB3  | 19:R:50:HIS:H    | 1.76        | 0.40     |
| 19:R:62:ALA:HB3  | 19:R:80:PHE:CZ   | 2.52        | 0.40     |
| 13:S:34:LEU:CG   | 13:S:103:ASP:N   | 2.84        | 0.40     |
| 13:S:59:ALA:HA   | 13:S:62:HIS:HE1  | 1.87        | 0.40     |
| 13:S:91:ARG:O    | 13:S:94:GLU:CG   | 2.61        | 0.40     |
| 14:T:10:GLY:N    | 14:T:52:THR:HB   | 2.33        | 0.40     |
| 20:U:27:SER:HB3  | 20:U:28:ARG:H    | 1.65        | 0.40     |
| 20:U:39:LEU:HB3  | 20:U:40:LEU:H    | 1.46        | 0.40     |
| 20:U:53:LYS:O    | 20:U:56:ASP:N    | 2.54        | 0.40     |
| 20:U:95:LEU:O    | 20:U:96:ALA:O    | 2.40        | 0.40     |
| 18:Z:18:MET:C    | 18:Z:36:ARG:NE   | 2.75        | 0.40     |

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| Atom-1          | Atom-2           | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 8:I:132:LYS:C   | 8:I:138:THR:HG22 | 2.42        | 0.40     |
| 2:A:1341:U:OP2  | 2:A:1397:U:O2    | 2.39        | 0.40     |
| 2:A:135:G:N1    | 2:A:144:C:N4     | 2.63        | 0.40     |
| 2:A:145:G:H2'   | 2:A:146:G:C8     | 2.56        | 0.40     |
| 16:X:9:HIS:N    | 16:X:26:PHE:HA   | 2.28        | 0.40     |
| 16:X:39:ASP:O   | 16:X:41:VAL:CA   | 2.70        | 0.40     |
| 17:Y:3:GLN:HB2  | 17:Y:6:LYS:CD    | 2.49        | 0.40     |
| 2:A:117:G:C5    | 2:A:119:A:N6     | 2.89        | 0.40     |
| 2:A:619:G:H8    | 2:A:619:G:H3'    | 1.86        | 0.40     |
| 31:K:15:ALA:HB3 | 31:K:51:GLY:H    | 1.87        | 0.40     |
| 2:A:898:C:H3'   | 2:A:899:A:H5''   | 2.02        | 0.40     |

All (132) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1        | Atom-2                | Distance(Å) | Clash(Å) |
|---------------|-----------------------|-------------|----------|
| 2:A:6:A:O4'   | 2:A:2902:C:C1'[8_554] | 0.64        | 1.56     |
| 2:A:6:A:C4'   | 2:A:2902:C:O2'[8_554] | 0.74        | 1.46     |
| 2:A:6:A:C4'   | 2:A:2902:C:C2'[8_554] | 0.77        | 1.43     |
| 2:A:5:A:N7    | 2:A:2901:C:N1[8_554]  | 0.83        | 1.37     |
| 2:A:6:A:O4'   | 2:A:2902:C:C2'[8_554] | 0.90        | 1.30     |
| 2:A:5:A:N6    | 2:A:2901:C:C5[8_554]  | 1.06        | 1.14     |
| 2:A:1:G:C5    | 2:A:2898:U:O2'[8_554] | 1.09        | 1.11     |
| 2:A:5:A:N7    | 2:A:2901:C:C1'[8_554] | 1.11        | 1.09     |
| 2:A:4:C:C5    | 2:A:2900:A:C2'[8_554] | 1.16        | 1.04     |
| 2:A:6:A:N9    | 2:A:2902:C:C6[8_554]  | 1.16        | 1.04     |
| 2:A:5:A:N9    | 2:A:2901:C:O2[8_554]  | 1.17        | 1.03     |
| 2:A:3:U:O4    | 2:A:2899:G:O2'[8_554] | 1.20        | 1.00     |
| 2:A:1:G:O6    | 2:A:2898:U:O2[8_554]  | 1.28        | 0.92     |
| 2:A:5:A:C5    | 2:A:2901:C:C2[8_554]  | 1.29        | 0.91     |
| 2:A:6:A:O5'   | 2:A:2902:C:C4'[8_554] | 1.29        | 0.91     |
| 2:A:2899:G:N1 | 2:A:2901:C:C4[8_554]  | 1.30        | 0.90     |
| 2:A:4:C:C2    | 2:A:2900:A:N3[8_554]  | 1.31        | 0.89     |
| 2:A:5:A:C5    | 2:A:2901:C:N1[8_554]  | 1.33        | 0.87     |
| 2:A:4:C:N3    | 2:A:2900:A:N3[8_554]  | 1.38        | 0.82     |
| 2:A:1:G:O6    | 2:A:2898:U:C2'[8_554] | 1.40        | 0.80     |
| 2:A:2899:G:C6 | 2:A:2901:C:N4[8_554]  | 1.42        | 0.78     |
| 2:A:2900:A:C6 | 2:A:2900:A:C6[8_554]  | 1.44        | 0.76     |
| 2:A:4:C:O2    | 2:A:2900:A:C2[8_554]  | 1.45        | 0.75     |
| 2:A:4:C:C5    | 2:A:2900:A:O2'[8_554] | 1.45        | 0.75     |
| 2:A:5:A:C6    | 2:A:2901:C:C5[8_554]  | 1.45        | 0.75     |
| 2:A:1:G:N7    | 2:A:2898:U:O2'[8_554] | 1.47        | 0.73     |

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| Atom-1         | Atom-2                | Distance(Å) | Clash(Å) |
|----------------|-----------------------|-------------|----------|
| 4:E:93:GLN:NE2 | 4:E:96:LEU:CD2[8_554] | 1.47        | 0.73     |
| 2:A:6:A:C3'    | 2:A:2902:C:C2'[8_554] | 1.48        | 0.72     |
| 2:A:6:A:C1'    | 2:A:2902:C:N1[8_554]  | 1.48        | 0.72     |
| 2:A:5:A:C4     | 2:A:2901:C:C2[8_554]  | 1.50        | 0.70     |
| 2:A:2899:G:N1  | 2:A:2901:C:N3[8_554]  | 1.52        | 0.68     |
| 4:E:93:GLN:NE2 | 4:E:96:LEU:CD1[8_554] | 1.52        | 0.68     |
| 2:A:5:A:N6     | 2:A:2901:C:C6[8_554]  | 1.53        | 0.67     |
| 2:A:6:A:C5'    | 2:A:2902:C:O2'[8_554] | 1.53        | 0.67     |
| 2:A:6:A:C1'    | 2:A:2902:C:C6[8_554]  | 1.54        | 0.66     |
| 2:A:2900:A:N7  | 2:A:2900:A:N6[8_554]  | 1.54        | 0.66     |
| 2:A:3:U:C5     | 2:A:2900:A:O4'[8_554] | 1.55        | 0.65     |
| 2:A:5:A:C6     | 2:A:2901:C:C4[8_554]  | 1.55        | 0.65     |
| 2:A:5:A:C8     | 2:A:2901:C:O2[8_554]  | 1.58        | 0.62     |
| 2:A:2899:G:C5  | 2:A:2901:C:N4[8_554]  | 1.58        | 0.62     |
| 2:A:4:C:O2     | 2:A:2900:A:N3[8_554]  | 1.59        | 0.61     |
| 2:A:6:A:C4     | 2:A:2902:C:C6[8_554]  | 1.60        | 0.60     |
| 2:A:5:A:C8     | 2:A:2901:C:C1'[8_554] | 1.61        | 0.59     |
| 2:A:6:A:C1'    | 2:A:2902:C:C2'[8_554] | 1.61        | 0.59     |
| 2:A:6:A:C1'    | 2:A:2902:C:C1'[8_554] | 1.61        | 0.59     |
| 2:A:2900:A:C5  | 2:A:2900:A:N6[8_554]  | 1.61        | 0.59     |
| 2:A:1:G:C6     | 2:A:2898:U:C2'[8_554] | 1.62        | 0.58     |
| 2:A:99:U:OP2   | 2:A:101:G:O6[7_555]   | 1.62        | 0.58     |
| 2:A:6:A:C3'    | 2:A:2902:C:C3'[8_554] | 1.63        | 0.57     |
| 2:A:1:G:O6     | 2:A:2898:U:C2[8_554]  | 1.65        | 0.55     |
| 4:E:93:GLN:NE2 | 4:E:96:LEU:CG[8_554]  | 1.66        | 0.54     |
| 2:A:6:A:O4'    | 2:A:2902:C:O4'[8_554] | 1.67        | 0.53     |
| 2:A:2899:G:C2  | 2:A:2901:C:N3[8_554]  | 1.67        | 0.53     |
| 2:A:6:A:C8     | 2:A:2902:C:O4'[8_554] | 1.68        | 0.52     |
| 2:A:1:G:O6     | 2:A:2898:U:C1'[8_554] | 1.69        | 0.51     |
| 2:A:5:A:N7     | 2:A:2901:C:C2[8_554]  | 1.69        | 0.51     |
| 2:A:2899:G:C6  | 2:A:2901:C:C4[8_554]  | 1.69        | 0.51     |
| 2:A:5:A:C4     | 2:A:2901:C:O2[8_554]  | 1.70        | 0.50     |
| 2:A:5:A:C8     | 2:A:2901:C:C2'[8_554] | 1.71        | 0.49     |
| 2:A:5:A:N1     | 2:A:2901:C:C4[8_554]  | 1.71        | 0.49     |
| 2:A:2900:A:C5  | 2:A:2900:A:C6[8_554]  | 1.71        | 0.49     |
| 2:A:4:C:N3     | 2:A:2900:A:C4[8_554]  | 1.73        | 0.47     |
| 2:A:3:U:C4     | 2:A:2899:G:O2'[8_554] | 1.74        | 0.46     |
| 2:A:3:U:O4     | 2:A:2900:A:C8[8_554]  | 1.74        | 0.46     |
| 2:A:5:A:N7     | 2:A:2901:C:C2'[8_554] | 1.74        | 0.46     |
| 2:A:4:C:C6     | 2:A:2900:A:O2'[8_554] | 1.75        | 0.45     |
| 2:A:1:G:C6     | 2:A:2898:U:O2'[8_554] | 1.77        | 0.43     |
| 2:A:4:C:C4     | 2:A:2900:A:C2'[8_554] | 1.77        | 0.43     |

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| Atom-1        | Atom-2                | Distance(Å) | Clash(Å) |
|---------------|-----------------------|-------------|----------|
| 2:A:2:G:O6    | 2:A:2899:G:C4[8_554]  | 1.78        | 0.42     |
| 2:A:3:U:C6    | 2:A:2900:A:O4'[8_554] | 1.78        | 0.42     |
| 2:A:6:A:C4'   | 2:A:2902:C:C3'[8_554] | 1.79        | 0.41     |
| 2:A:2899:G:N1 | 2:A:2901:C:N4[8_554]  | 1.80        | 0.40     |
| 2:A:5:A:C6    | 2:A:2901:C:C6[8_554]  | 1.82        | 0.38     |
| 2:A:1:G:O6    | 2:A:2898:U:N1[8_554]  | 1.83        | 0.37     |
| 2:A:5:A:C5    | 2:A:2901:C:N3[8_554]  | 1.83        | 0.37     |
| 2:A:1:G:C5    | 2:A:2898:U:C2'[8_554] | 1.84        | 0.36     |
| 2:A:2:G:O6    | 2:A:2899:G:N3[8_554]  | 1.84        | 0.36     |
| 2:A:6:A:N3    | 2:A:2902:C:C5[8_554]  | 1.84        | 0.36     |
| 2:A:6:A:O4'   | 2:A:2902:C:N1[8_554]  | 1.85        | 0.35     |
| 2:A:6:A:C3'   | 2:A:2902:C:O3'[8_554] | 1.85        | 0.35     |
| 2:A:2:G:O6    | 2:A:2899:G:N9[8_554]  | 1.86        | 0.34     |
| 2:A:2899:G:N2 | 2:A:2901:C:N3[8_554]  | 1.86        | 0.34     |
| 2:A:1:G:N7    | 2:A:2898:U:O3'[8_554] | 1.87        | 0.33     |
| 2:A:6:A:C2'   | 2:A:2902:C:C2'[8_554] | 1.87        | 0.33     |
| 2:A:5:A:C4    | 2:A:2901:C:N3[8_554]  | 1.88        | 0.32     |
| 2:A:6:A:O4'   | 2:A:2902:C:C3'[8_554] | 1.89        | 0.31     |
| 2:A:5:A:N9    | 2:A:2901:C:C2[8_554]  | 1.90        | 0.30     |
| 2:A:5:A:C2    | 2:A:2902:C:C4[8_554]  | 1.90        | 0.30     |
| 2:A:5:A:C8    | 2:A:2901:C:N1[8_554]  | 1.91        | 0.29     |
| 2:A:3:U:O4    | 2:A:2899:G:C2'[8_554] | 1.92        | 0.28     |
| 2:A:5:A:C8    | 2:A:2901:C:C2[8_554]  | 1.92        | 0.28     |
| 2:A:5:A:C5    | 2:A:2901:C:C6[8_554]  | 1.92        | 0.28     |
| 2:A:6:A:N9    | 2:A:2902:C:N1[8_554]  | 1.92        | 0.28     |
| 2:A:6:A:C4    | 2:A:2902:C:C5[8_554]  | 1.92        | 0.28     |
| 2:A:2899:G:O6 | 2:A:2901:C:C5[8_554]  | 1.92        | 0.28     |
| 2:A:1:G:C6    | 2:A:2898:U:O2[8_554]  | 1.93        | 0.27     |
| 2:A:6:A:O4'   | 2:A:2902:C:O2'[8_554] | 1.95        | 0.25     |
| 2:A:2900:A:C6 | 2:A:2900:A:N6[8_554]  | 1.95        | 0.25     |
| 2:A:5:A:N7    | 2:A:2901:C:C6[8_554]  | 1.96        | 0.24     |
| 2:A:4:C:C5    | 2:A:2901:C:O4'[8_554] | 1.97        | 0.23     |
| 2:A:1:G:N7    | 2:A:2898:U:C2'[8_554] | 1.99        | 0.21     |
| 2:A:5:A:N1    | 2:A:2901:C:N4[8_554]  | 2.00        | 0.20     |
| 2:A:3:U:C4    | 2:A:2900:A:O4'[8_554] | 2.02        | 0.18     |
| 2:A:4:C:OP2   | 2:A:2900:A:O2'[8_554] | 2.02        | 0.18     |
| 2:A:6:A:OP2   | 2:A:2902:C:C5'[8_554] | 2.02        | 0.18     |
| 2:A:6:A:O5'   | 2:A:2902:C:C3'[8_554] | 2.02        | 0.18     |
| 2:A:6:A:C4'   | 2:A:2902:C:C1'[8_554] | 2.02        | 0.18     |
| 2:A:5:A:C6    | 2:A:2901:C:N3[8_554]  | 2.03        | 0.17     |
| 2:A:2:G:O6    | 2:A:2899:G:C1'[8_554] | 2.04        | 0.16     |
| 2:A:6:A:C3'   | 2:A:2902:C:O2'[8_554] | 2.04        | 0.16     |

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| Atom-1        | Atom-2                | Distance(Å) | Clash(Å) |
|---------------|-----------------------|-------------|----------|
| 2:A:2900:A:C5 | 2:A:2900:A:N1[8.554]  | 2.04        | 0.16     |
| 2:A:4:C:C2    | 2:A:2900:A:C2[8.554]  | 2.05        | 0.15     |
| 2:A:1:G:C4    | 2:A:2898:U:O2'[8.554] | 2.07        | 0.13     |
| 2:A:2900:A:N6 | 2:A:2900:A:N6[8.554]  | 2.08        | 0.12     |
| 4:E:93:GLN:CD | 4:E:96:LEU:CD2[8.554] | 2.08        | 0.12     |
| 2:A:2899:G:C4 | 2:A:2901:C:N4[8.554]  | 2.09        | 0.11     |
| 1:B:0:A:O5'   | 1:B:120:U:O5'[7.554]  | 2.11        | 0.09     |
| 2:A:6:A:C5'   | 2:A:2902:C:C2'[8.554] | 2.11        | 0.09     |
| 2:A:3:U:C4    | 2:A:2900:A:C8[8.554]  | 2.12        | 0.08     |
| 2:A:6:A:O4'   | 2:A:2902:C:C4'[8.554] | 2.13        | 0.07     |
| 2:A:2900:A:N1 | 2:A:2900:A:C4[8.554]  | 2.13        | 0.07     |
| 2:A:3:U:C5    | 2:A:2899:G:O2'[8.554] | 2.14        | 0.06     |
| 2:A:5:A:C1'   | 2:A:2901:C:O2[8.554]  | 2.14        | 0.06     |
| 2:A:2:G:C6    | 2:A:2899:G:N3[8.554]  | 2.15        | 0.05     |
| 2:A:4:C:N4    | 2:A:2901:C:C6[8.554]  | 2.15        | 0.05     |
| 2:A:5:A:N3    | 2:A:2902:C:N3[8.554]  | 2.15        | 0.05     |
| 2:A:5:A:N3    | 2:A:2902:C:C2[8.554]  | 2.17        | 0.03     |
| 2:A:5:A:N6    | 2:A:2901:C:C4[8.554]  | 2.18        | 0.02     |
| 2:A:5:A:N3    | 2:A:2901:C:N3[8.554]  | 2.18        | 0.02     |
| 2:A:101:G:O5' | 2:A:101:G:N2[7.555]   | 2.18        | 0.02     |
| 2:A:6:A:N3    | 2:A:2902:C:C6[8.554]  | 2.19        | 0.01     |
| 2:A:2899:G:C2 | 2:A:2901:C:C4[8.554]  | 2.19        | 0.01     |

## 5.3 Torsion angles

### 5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed      | Favoured | Allowed  | Outliers | Percentiles |   |
|-----|-------|---------------|----------|----------|----------|-------------|---|
| 3   | D     | 169/173 (98%) | 60 (36%) | 34 (20%) | 75 (44%) | 0           | 0 |
| 4   | E     | 183/338 (54%) | 90 (49%) | 34 (19%) | 59 (32%) | 0           | 1 |
| 5   | F     | 179/246 (73%) | 51 (28%) | 47 (26%) | 81 (45%) | 0           | 0 |
| 6   | G     | 116/176 (66%) | 46 (40%) | 31 (27%) | 39 (34%) | 0           | 0 |
| 7   | H     | 162/177 (92%) | 74 (46%) | 39 (24%) | 49 (30%) | 0           | 1 |
| 8   | I     | 144/149 (97%) | 71 (49%) | 29 (20%) | 44 (31%) | 0           | 1 |

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| Mol | Chain | Analysed        | Favoured   | Allowed   | Outliers   | Percentiles |    |
|-----|-------|-----------------|------------|-----------|------------|-------------|----|
| 9   | N     | 111/145 (77%)   | 34 (31%)   | 20 (18%)  | 57 (51%)   | 0           | 0  |
| 10  | O     | 120/122 (98%)   | 61 (51%)   | 27 (22%)  | 32 (27%)   | 0           | 2  |
| 11  | P     | 82/164 (50%)    | 29 (35%)   | 19 (23%)  | 34 (42%)   | 0           | 0  |
| 12  | Q     | 130/138 (94%)   | 38 (29%)   | 35 (27%)  | 57 (44%)   | 0           | 0  |
| 13  | S     | 105/186 (56%)   | 36 (34%)   | 20 (19%)  | 49 (47%)   | 0           | 0  |
| 14  | T     | 48/66 (73%)     | 17 (35%)   | 13 (27%)  | 18 (38%)   | 0           | 0  |
| 15  | W     | 104/113 (92%)   | 41 (39%)   | 16 (15%)  | 47 (45%)   | 0           | 0  |
| 16  | X     | 72/84 (86%)     | 26 (36%)   | 18 (25%)  | 28 (39%)   | 0           | 0  |
| 17  | Y     | 108/119 (91%)   | 49 (45%)   | 20 (18%)  | 39 (36%)   | 0           | 0  |
| 18  | Z     | 175/253 (69%)   | 53 (30%)   | 52 (30%)  | 70 (40%)   | 0           | 0  |
| 19  | R     | 103/118 (87%)   | 35 (34%)   | 20 (19%)  | 48 (47%)   | 0           | 0  |
| 20  | U     | 115/118 (98%)   | 22 (19%)   | 23 (20%)  | 70 (61%)   | 0           | 0  |
| 21  | V     | 96/100 (96%)    | 39 (41%)   | 25 (26%)  | 32 (33%)   | 0           | 0  |
| 22  | 2     | 62/70 (89%)     | 8 (13%)    | 9 (14%)   | 45 (73%)   | 0           | 0  |
| 23  | 3     | 58/60 (97%)     | 24 (41%)   | 13 (22%)  | 21 (36%)   | 0           | 0  |
| 24  | 0     | 84/91 (92%)     | 33 (39%)   | 17 (20%)  | 34 (40%)   | 0           | 0  |
| 25  | 4     | 71/73 (97%)     | 21 (30%)   | 16 (22%)  | 34 (48%)   | 0           | 0  |
| 26  | 5     | 56/60 (93%)     | 16 (29%)   | 17 (30%)  | 23 (41%)   | 0           | 0  |
| 27  | 6     | 51/82 (62%)     | 21 (41%)   | 9 (18%)   | 21 (41%)   | 0           | 0  |
| 28  | 7     | 44/47 (94%)     | 4 (9%)     | 7 (16%)   | 33 (75%)   | 0           | 0  |
| 29  | 8     | 61/64 (95%)     | 22 (36%)   | 9 (15%)   | 30 (49%)   | 0           | 0  |
| 30  | 9     | 33/36 (92%)     | 14 (42%)   | 9 (27%)   | 10 (30%)   | 0           | 1  |
| 31  | K     | 124/141 (88%)   | 92 (74%)   | 26 (21%)  | 6 (5%)     | 4           | 44 |
| All | All   | 2966/3709 (80%) | 1127 (38%) | 654 (22%) | 1185 (40%) | 0           | 0  |

All (1185) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 64  | ILE  |
| 3   | D     | 66  | PHE  |
| 3   | D     | 67  | LYS  |
| 3   | D     | 82  | TYR  |
| 3   | D     | 85  | ASN  |
| 3   | D     | 104 | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 106 | PRO  |
| 3   | D     | 107 | LYS  |
| 3   | D     | 108 | ASN  |
| 3   | D     | 111 | VAL  |
| 3   | D     | 112 | GLY  |
| 3   | D     | 113 | MET  |
| 3   | D     | 114 | GLU  |
| 3   | D     | 116 | MET  |
| 3   | D     | 120 | ASP  |
| 3   | D     | 122 | ASP  |
| 3   | D     | 124 | LYS  |
| 3   | D     | 125 | ILE  |
| 3   | D     | 127 | ASN  |
| 3   | D     | 142 | ASN  |
| 3   | D     | 143 | ILE  |
| 3   | D     | 145 | LEU  |
| 3   | D     | 149 | ARG  |
| 3   | D     | 153 | LEU  |
| 3   | D     | 156 | ALA  |
| 3   | D     | 163 | VAL  |
| 3   | D     | 164 | LEU  |
| 3   | D     | 168 | GLY  |
| 3   | D     | 169 | LYS  |
| 3   | D     | 187 | CYS  |
| 3   | D     | 189 | ALA  |
| 3   | D     | 191 | VAL  |
| 3   | D     | 199 | ARG  |
| 3   | D     | 205 | VAL  |
| 3   | D     | 210 | LYS  |
| 3   | D     | 223 | ASN  |
| 3   | D     | 224 | VAL  |
| 3   | D     | 227 | VAL  |
| 3   | D     | 229 | MET  |
| 3   | D     | 231 | ALA  |
| 3   | D     | 232 | VAL  |
| 4   | E     | 41  | PHE  |
| 4   | E     | 61  | PRO  |
| 4   | E     | 79  | ARG  |
| 4   | E     | 93  | GLN  |
| 4   | E     | 94  | ARG  |
| 4   | E     | 105 | HIS  |
| 4   | E     | 108 | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | E     | 178 | LEU  |
| 4   | E     | 205 | THR  |
| 4   | E     | 207 | GLY  |
| 4   | E     | 214 | VAL  |
| 4   | E     | 229 | GLN  |
| 4   | E     | 230 | GLY  |
| 4   | E     | 232 | ARG  |
| 4   | E     | 233 | ARG  |
| 4   | E     | 234 | ARG  |
| 4   | E     | 244 | SER  |
| 4   | E     | 251 | PRO  |
| 4   | E     | 253 | GLN  |
| 4   | E     | 255 | GLN  |
| 4   | E     | 315 | VAL  |
| 4   | E     | 316 | ARG  |
| 5   | F     | 2   | GLU  |
| 5   | F     | 6   | TYR  |
| 5   | F     | 21  | VAL  |
| 5   | F     | 23  | GLU  |
| 5   | F     | 24  | THR  |
| 5   | F     | 25  | PRO  |
| 5   | F     | 31  | ILE  |
| 5   | F     | 35  | VAL  |
| 5   | F     | 36  | ARG  |
| 5   | F     | 37  | ALA  |
| 5   | F     | 40  | ALA  |
| 5   | F     | 41  | ASN  |
| 5   | F     | 53  | GLY  |
| 5   | F     | 54  | LEU  |
| 5   | F     | 57  | PRO  |
| 5   | F     | 58  | ALA  |
| 5   | F     | 62  | GLY  |
| 5   | F     | 63  | SER  |
| 5   | F     | 82  | GLN  |
| 5   | F     | 84  | VAL  |
| 5   | F     | 85  | LYS  |
| 5   | F     | 87  | ARG  |
| 5   | F     | 88  | SER  |
| 5   | F     | 89  | ALA  |
| 5   | F     | 90  | HIS  |
| 5   | F     | 91  | PRO  |
| 5   | F     | 93  | LYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | F     | 95  | GLU  |
| 5   | F     | 99  | SER  |
| 5   | F     | 100 | LEU  |
| 5   | F     | 102 | LEU  |
| 5   | F     | 104 | ASP  |
| 5   | F     | 105 | LYS  |
| 5   | F     | 106 | GLU  |
| 5   | F     | 107 | ARG  |
| 5   | F     | 108 | GLN  |
| 5   | F     | 110 | ALA  |
| 5   | F     | 111 | VAL  |
| 5   | F     | 112 | ARG  |
| 5   | F     | 113 | SER  |
| 5   | F     | 114 | ALA  |
| 5   | F     | 139 | VAL  |
| 5   | F     | 145 | GLU  |
| 5   | F     | 156 | LEU  |
| 5   | F     | 158 | GLU  |
| 5   | F     | 162 | VAL  |
| 5   | F     | 166 | ILE  |
| 5   | F     | 167 | ASP  |
| 5   | F     | 193 | LEU  |
| 5   | F     | 195 | VAL  |
| 5   | F     | 198 | ASP  |
| 5   | F     | 200 | PRO  |
| 5   | F     | 202 | THR  |
| 5   | F     | 203 | ALA  |
| 5   | F     | 207 | LEU  |
| 5   | F     | 210 | ALA  |
| 5   | F     | 211 | ASP  |
| 5   | F     | 215 | ALA  |
| 5   | F     | 218 | VAL  |
| 5   | F     | 222 | ASP  |
| 5   | F     | 224 | ALA  |
| 5   | F     | 237 | GLU  |
| 5   | F     | 238 | SER  |
| 5   | F     | 240 | LEU  |
| 6   | G     | 11  | HIS  |
| 6   | G     | 14  | ARG  |
| 6   | G     | 18  | ILE  |
| 6   | G     | 19  | GLU  |
| 6   | G     | 21  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | G     | 23  | VAL  |
| 6   | G     | 36  | ASN  |
| 6   | G     | 54  | ALA  |
| 6   | G     | 55  | LYS  |
| 6   | G     | 60  | GLU  |
| 6   | G     | 77  | ASP  |
| 6   | G     | 78  | GLU  |
| 6   | G     | 96  | SER  |
| 6   | G     | 97  | GLN  |
| 6   | G     | 100 | ASP  |
| 6   | G     | 101 | THR  |
| 6   | G     | 129 | ASP  |
| 6   | G     | 141 | VAL  |
| 6   | G     | 147 | ALA  |
| 6   | G     | 150 | SER  |
| 7   | H     | 11  | PRO  |
| 7   | H     | 14  | VAL  |
| 7   | H     | 21  | ASN  |
| 7   | H     | 28  | PRO  |
| 7   | H     | 37  | HIS  |
| 7   | H     | 48  | VAL  |
| 7   | H     | 49  | ILE  |
| 7   | H     | 56  | ASP  |
| 7   | H     | 58  | LYS  |
| 7   | H     | 59  | HIS  |
| 7   | H     | 72  | ALA  |
| 7   | H     | 75  | VAL  |
| 7   | H     | 76  | GLU  |
| 7   | H     | 81  | GLY  |
| 7   | H     | 97  | LYS  |
| 7   | H     | 106 | VAL  |
| 7   | H     | 111 | PRO  |
| 7   | H     | 127 | GLN  |
| 7   | H     | 138 | GLN  |
| 7   | H     | 142 | GLU  |
| 7   | H     | 146 | ASN  |
| 7   | H     | 150 | VAL  |
| 7   | H     | 167 | LEU  |
| 7   | H     | 169 | ARG  |
| 8   | I     | 5   | PHE  |
| 8   | I     | 6   | LEU  |
| 8   | I     | 7   | LYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | I     | 9   | VAL  |
| 8   | I     | 13  | GLY  |
| 8   | I     | 20  | ASN  |
| 8   | I     | 23  | ASP  |
| 8   | I     | 25  | TYR  |
| 8   | I     | 36  | ALA  |
| 8   | I     | 39  | ALA  |
| 8   | I     | 44  | LEU  |
| 8   | I     | 92  | SER  |
| 8   | I     | 98  | ILE  |
| 8   | I     | 99  | ALA  |
| 8   | I     | 100 | GLU  |
| 8   | I     | 101 | SER  |
| 8   | I     | 102 | LEU  |
| 8   | I     | 103 | GLN  |
| 8   | I     | 104 | ALA  |
| 8   | I     | 105 | GLN  |
| 8   | I     | 111 | ASP  |
| 8   | I     | 114 | LYS  |
| 8   | I     | 115 | ILE  |
| 8   | I     | 121 | ILE  |
| 8   | I     | 146 | THR  |
| 8   | I     | 148 | GLN  |
| 9   | N     | 5   | GLU  |
| 9   | N     | 8   | ALA  |
| 9   | N     | 15  | ARG  |
| 9   | N     | 17  | CYS  |
| 9   | N     | 21  | ARG  |
| 9   | N     | 22  | VAL  |
| 9   | N     | 24  | SER  |
| 9   | N     | 26  | VAL  |
| 9   | N     | 28  | GLU  |
| 9   | N     | 32  | ASP  |
| 9   | N     | 39  | VAL  |
| 9   | N     | 44  | ALA  |
| 9   | N     | 47  | THR  |
| 9   | N     | 49  | ARG  |
| 9   | N     | 50  | GLU  |
| 9   | N     | 51  | GLU  |
| 9   | N     | 52  | GLN  |
| 9   | N     | 61  | VAL  |
| 9   | N     | 63  | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | N     | 67  | ASN  |
| 9   | N     | 69  | TYR  |
| 9   | N     | 70  | PHE  |
| 9   | N     | 72  | PRO  |
| 9   | N     | 76  | ASP  |
| 9   | N     | 78  | ILE  |
| 9   | N     | 80  | LYS  |
| 9   | N     | 81  | ARG  |
| 9   | N     | 83  | ILE  |
| 9   | N     | 84  | ARG  |
| 9   | N     | 95  | ARG  |
| 9   | N     | 105 | LEU  |
| 9   | N     | 136 | SER  |
| 9   | N     | 137 | GLU  |
| 10  | O     | 4   | GLN  |
| 10  | O     | 14  | SER  |
| 10  | O     | 28  | SER  |
| 10  | O     | 30  | ARG  |
| 10  | O     | 35  | ILE  |
| 10  | O     | 47  | THR  |
| 10  | O     | 74  | GLY  |
| 10  | O     | 89  | ASP  |
| 10  | O     | 91  | LYS  |
| 10  | O     | 96  | THR  |
| 10  | O     | 101 | PRO  |
| 10  | O     | 102 | VAL  |
| 10  | O     | 105 | GLU  |
| 10  | O     | 106 | LEU  |
| 10  | O     | 111 | PHE  |
| 10  | O     | 112 | MET  |
| 10  | O     | 113 | LYS  |
| 10  | O     | 115 | ILE  |
| 11  | P     | 55  | GLN  |
| 11  | P     | 61  | ALA  |
| 11  | P     | 66  | VAL  |
| 11  | P     | 67  | ARG  |
| 11  | P     | 69  | ILE  |
| 11  | P     | 70  | ASP  |
| 11  | P     | 72  | ASN  |
| 11  | P     | 95  | ASP  |
| 11  | P     | 96  | VAL  |
| 11  | P     | 100 | ALA  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11  | P     | 102 | ASP  |
| 11  | P     | 103 | ALA  |
| 11  | P     | 105 | TYR  |
| 11  | P     | 111 | ALA  |
| 11  | P     | 114 | VAL  |
| 11  | P     | 115 | ARG  |
| 11  | P     | 117 | GLU  |
| 11  | P     | 127 | GLU  |
| 11  | P     | 129 | ALA  |
| 11  | P     | 131 | GLU  |
| 11  | P     | 133 | VAL  |
| 11  | P     | 143 | THR  |
| 12  | Q     | 10  | ILE  |
| 12  | Q     | 18  | GLU  |
| 12  | Q     | 23  | ILE  |
| 12  | Q     | 28  | ILE  |
| 12  | Q     | 30  | GLN  |
| 12  | Q     | 43  | PRO  |
| 12  | Q     | 55  | GLN  |
| 12  | Q     | 56  | ILE  |
| 12  | Q     | 58  | HIS  |
| 12  | Q     | 59  | ASN  |
| 12  | Q     | 61  | LEU  |
| 12  | Q     | 62  | GLU  |
| 12  | Q     | 63  | ALA  |
| 12  | Q     | 73  | GLN  |
| 12  | Q     | 83  | PHE  |
| 12  | Q     | 88  | PHE  |
| 12  | Q     | 93  | ILE  |
| 12  | Q     | 94  | ARG  |
| 12  | Q     | 102 | ARG  |
| 12  | Q     | 105 | PHE  |
| 12  | Q     | 109 | VAL  |
| 12  | Q     | 119 | ASN  |
| 12  | Q     | 127 | ASN  |
| 12  | Q     | 135 | ALA  |
| 12  | Q     | 141 | MET  |
| 12  | Q     | 142 | LYS  |
| 12  | Q     | 144 | THR  |
| 12  | Q     | 147 | VAL  |
| 12  | Q     | 154 | ALA  |
| 13  | S     | 11  | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13  | S     | 16  | ALA  |
| 13  | S     | 17  | ARG  |
| 13  | S     | 20  | TYR  |
| 13  | S     | 31  | LYS  |
| 13  | S     | 34  | LEU  |
| 13  | S     | 41  | LYS  |
| 13  | S     | 53  | ASN  |
| 13  | S     | 54  | GLY  |
| 13  | S     | 55  | ASP  |
| 13  | S     | 59  | ALA  |
| 13  | S     | 72  | GLU  |
| 13  | S     | 74  | PRO  |
| 13  | S     | 75  | THR  |
| 13  | S     | 81  | ALA  |
| 13  | S     | 82  | TYR  |
| 13  | S     | 84  | THR  |
| 13  | S     | 86  | LEU  |
| 13  | S     | 97  | VAL  |
| 13  | S     | 98  | GLU  |
| 13  | S     | 105 | GLY  |
| 13  | S     | 107 | ASN  |
| 13  | S     | 109 | PRO  |
| 13  | S     | 115 | VAL  |
| 13  | S     | 116 | PHE  |
| 13  | S     | 117 | ALA  |
| 13  | S     | 118 | ILE  |
| 13  | S     | 123 | ILE  |
| 13  | S     | 128 | ASP  |
| 14  | T     | 5   | GLU  |
| 14  | T     | 9   | CYS  |
| 14  | T     | 11  | THR  |
| 14  | T     | 12  | ASP  |
| 14  | T     | 15  | PRO  |
| 14  | T     | 29  | THR  |
| 14  | T     | 37  | GLU  |
| 14  | T     | 38  | ASN  |
| 14  | T     | 51  | TRP  |
| 15  | W     | 6   | ILE  |
| 15  | W     | 7   | ALA  |
| 15  | W     | 9   | TYR  |
| 15  | W     | 17  | VAL  |
| 15  | W     | 20  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 15  | W     | 22  | ASP  |
| 15  | W     | 24  | ILE  |
| 15  | W     | 25  | ARG  |
| 15  | W     | 29  | LEU  |
| 15  | W     | 30  | GLU  |
| 15  | W     | 33  | ARG  |
| 15  | W     | 39  | THR  |
| 15  | W     | 41  | LYS  |
| 15  | W     | 42  | ARG  |
| 15  | W     | 43  | GLY  |
| 15  | W     | 44  | ALA  |
| 15  | W     | 45  | TYR  |
| 15  | W     | 46  | PHE  |
| 15  | W     | 56  | ALA  |
| 15  | W     | 57  | ASN  |
| 15  | W     | 58  | ALA  |
| 15  | W     | 59  | VAL  |
| 15  | W     | 66  | GLU  |
| 15  | W     | 67  | ASP  |
| 15  | W     | 68  | ARG  |
| 15  | W     | 89  | ALA  |
| 15  | W     | 100 | THR  |
| 16  | X     | 2   | TRP  |
| 16  | X     | 3   | ASP  |
| 16  | X     | 4   | VAL  |
| 16  | X     | 5   | ILE  |
| 16  | X     | 13  | LYS  |
| 16  | X     | 19  | ASP  |
| 16  | X     | 29  | ASP  |
| 16  | X     | 30  | ASP  |
| 16  | X     | 31  | ARG  |
| 16  | X     | 32  | ALA  |
| 16  | X     | 35  | GLY  |
| 16  | X     | 36  | GLU  |
| 16  | X     | 37  | VAL  |
| 16  | X     | 38  | ALA  |
| 16  | X     | 39  | ASP  |
| 16  | X     | 40  | ALA  |
| 16  | X     | 46  | ASP  |
| 16  | X     | 47  | VAL  |
| 16  | X     | 52  | VAL  |
| 16  | X     | 57  | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16  | X     | 76  | GLU  |
| 17  | Y     | 14  | ALA  |
| 17  | Y     | 25  | ALA  |
| 17  | Y     | 27  | LEU  |
| 17  | Y     | 28  | SER  |
| 17  | Y     | 30  | ASP  |
| 17  | Y     | 31  | LEU  |
| 17  | Y     | 32  | ARG  |
| 17  | Y     | 33  | GLU  |
| 17  | Y     | 35  | TYR  |
| 17  | Y     | 44  | ALA  |
| 17  | Y     | 48  | VAL  |
| 17  | Y     | 50  | VAL  |
| 17  | Y     | 54  | ASP  |
| 17  | Y     | 67  | LEU  |
| 17  | Y     | 75  | GLU  |
| 17  | Y     | 76  | ASP  |
| 17  | Y     | 85  | GLU  |
| 17  | Y     | 93  | THR  |
| 17  | Y     | 94  | SER  |
| 18  | Z     | 3   | LEU  |
| 18  | Z     | 6   | LYS  |
| 18  | Z     | 14  | LEU  |
| 18  | Z     | 16  | GLU  |
| 18  | Z     | 31  | SER  |
| 18  | Z     | 34  | LEU  |
| 18  | Z     | 35  | ASP  |
| 18  | Z     | 40  | ASP  |
| 18  | Z     | 41  | ARG  |
| 18  | Z     | 46  | GLN  |
| 18  | Z     | 47  | SER  |
| 18  | Z     | 48  | THR  |
| 18  | Z     | 51  | LEU  |
| 18  | Z     | 69  | VAL  |
| 18  | Z     | 72  | ASP  |
| 18  | Z     | 73  | LYS  |
| 18  | Z     | 75  | LYS  |
| 18  | Z     | 79  | ILE  |
| 18  | Z     | 80  | HIS  |
| 18  | Z     | 86  | VAL  |
| 18  | Z     | 93  | GLU  |
| 18  | Z     | 108 | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18  | Z     | 132 | GLN  |
| 18  | Z     | 142 | ASN  |
| 18  | Z     | 149 | ALA  |
| 18  | Z     | 153 | LYS  |
| 18  | Z     | 160 | LEU  |
| 18  | Z     | 161 | ALA  |
| 18  | Z     | 165 | GLU  |
| 18  | Z     | 169 | VAL  |
| 19  | R     | 18  | LEU  |
| 19  | R     | 19  | ALA  |
| 19  | R     | 20  | LEU  |
| 19  | R     | 21  | TYR  |
| 19  | R     | 22  | ARG  |
| 19  | R     | 26  | LYS  |
| 19  | R     | 28  | LEU  |
| 19  | R     | 29  | LEU  |
| 19  | R     | 33  | ARG  |
| 19  | R     | 38  | VAL  |
| 19  | R     | 39  | PRO  |
| 19  | R     | 40  | LYS  |
| 19  | R     | 44  | LEU  |
| 19  | R     | 45  | ARG  |
| 19  | R     | 47  | PHE  |
| 19  | R     | 48  | VAL  |
| 19  | R     | 52  | ILE  |
| 19  | R     | 53  | HIS  |
| 19  | R     | 60  | LEU  |
| 19  | R     | 61  | HIS  |
| 19  | R     | 62  | ALA  |
| 19  | R     | 66  | VAL  |
| 19  | R     | 68  | ARG  |
| 19  | R     | 72  | ASP  |
| 19  | R     | 73  | VAL  |
| 19  | R     | 74  | LYS  |
| 19  | R     | 75  | LEU  |
| 19  | R     | 76  | VAL  |
| 19  | R     | 82  | GLU  |
| 19  | R     | 84  | ALA  |
| 19  | R     | 86  | ARG  |
| 19  | R     | 89  | ASP  |
| 19  | R     | 94  | TYR  |
| 19  | R     | 106 | GLY  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 19  | R     | 107 | ASP  |
| 19  | R     | 111 | LEU  |
| 19  | R     | 112 | ALA  |
| 20  | U     | 5   | LYS  |
| 20  | U     | 6   | THR  |
| 20  | U     | 7   | GLY  |
| 20  | U     | 8   | ILE  |
| 20  | U     | 13  | ARG  |
| 20  | U     | 16  | LYS  |
| 20  | U     | 17  | VAL  |
| 20  | U     | 20  | ARG  |
| 20  | U     | 22  | LYS  |
| 20  | U     | 24  | PHE  |
| 20  | U     | 27  | SER  |
| 20  | U     | 28  | ARG  |
| 20  | U     | 29  | SER  |
| 20  | U     | 32  | TYR  |
| 20  | U     | 34  | ASN  |
| 20  | U     | 35  | ALA  |
| 20  | U     | 37  | GLN  |
| 20  | U     | 38  | THR  |
| 20  | U     | 39  | LEU  |
| 20  | U     | 40  | LEU  |
| 20  | U     | 41  | ASN  |
| 20  | U     | 43  | ALA  |
| 20  | U     | 44  | THR  |
| 20  | U     | 47  | TYR  |
| 20  | U     | 48  | ARG  |
| 20  | U     | 52  | ASN  |
| 20  | U     | 53  | LYS  |
| 20  | U     | 54  | LYS  |
| 20  | U     | 56  | ASP  |
| 20  | U     | 58  | ARG  |
| 20  | U     | 64  | ARG  |
| 20  | U     | 67  | ALA  |
| 20  | U     | 69  | ALA  |
| 20  | U     | 71  | LEU  |
| 20  | U     | 79  | PHE  |
| 20  | U     | 80  | ILE  |
| 20  | U     | 86  | ALA  |
| 20  | U     | 94  | VAL  |
| 20  | U     | 96  | ALA  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | U     | 97  | ASP  |
| 20  | U     | 99  | ALA  |
| 20  | U     | 105 | ALA  |
| 20  | U     | 106 | PHE  |
| 20  | U     | 107 | LYS  |
| 20  | U     | 108 | ALA  |
| 20  | U     | 109 | LEU  |
| 20  | U     | 112 | ALA  |
| 20  | U     | 114 | ARG  |
| 20  | U     | 116 | ALA  |
| 20  | U     | 117 | ARG  |
| 21  | V     | 5   | ILE  |
| 21  | V     | 6   | GLN  |
| 21  | V     | 8   | GLY  |
| 21  | V     | 11  | GLN  |
| 21  | V     | 13  | ARG  |
| 21  | V     | 23  | GLU  |
| 21  | V     | 24  | SER  |
| 21  | V     | 28  | GLU  |
| 21  | V     | 29  | ALA  |
| 21  | V     | 31  | ASP  |
| 21  | V     | 40  | VAL  |
| 21  | V     | 55  | THR  |
| 21  | V     | 58  | ALA  |
| 21  | V     | 69  | ILE  |
| 21  | V     | 71  | ILE  |
| 21  | V     | 72  | ARG  |
| 21  | V     | 84  | THR  |
| 21  | V     | 88  | GLN  |
| 21  | V     | 92  | ALA  |
| 22  | 2     | 2   | VAL  |
| 22  | 2     | 4   | HIS  |
| 22  | 2     | 5   | VAL  |
| 22  | 2     | 6   | GLN  |
| 22  | 2     | 7   | GLU  |
| 22  | 2     | 12  | THR  |
| 22  | 2     | 16  | ARG  |
| 22  | 2     | 17  | GLU  |
| 22  | 2     | 18  | ALA  |
| 22  | 2     | 21  | ASP  |
| 22  | 2     | 23  | LEU  |
| 22  | 2     | 25  | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | 2     | 26  | GLU  |
| 22  | 2     | 31  | ARG  |
| 22  | 2     | 33  | VAL  |
| 22  | 2     | 34  | GLN  |
| 22  | 2     | 35  | ALA  |
| 22  | 2     | 36  | ALA  |
| 22  | 2     | 40  | PRO  |
| 22  | 2     | 46  | ILE  |
| 22  | 2     | 47  | LYS  |
| 22  | 2     | 48  | GLU  |
| 22  | 2     | 49  | LEU  |
| 22  | 2     | 50  | ARG  |
| 22  | 2     | 51  | LYS  |
| 22  | 2     | 52  | ALA  |
| 22  | 2     | 53  | ILE  |
| 22  | 2     | 54  | ALA  |
| 22  | 2     | 55  | ARG  |
| 22  | 2     | 56  | ILE  |
| 22  | 2     | 58  | THR  |
| 22  | 2     | 59  | ILE  |
| 22  | 2     | 60  | GLN  |
| 22  | 2     | 63  | GLU  |
| 23  | 3     | 17  | LYS  |
| 23  | 3     | 18  | ASP  |
| 23  | 3     | 19  | GLN  |
| 23  | 3     | 26  | LEU  |
| 23  | 3     | 30  | ARG  |
| 23  | 3     | 32  | GLN  |
| 23  | 3     | 42  | ALA  |
| 23  | 3     | 43  | ILE  |
| 23  | 3     | 46  | ASN  |
| 23  | 3     | 51  | ALA  |
| 23  | 3     | 52  | HIS  |
| 23  | 3     | 54  | VAL  |
| 24  | 0     | 9   | SER  |
| 24  | 0     | 10  | SER  |
| 24  | 0     | 12  | ASN  |
| 24  | 0     | 17  | ASN  |
| 24  | 0     | 21  | LEU  |
| 24  | 0     | 23  | VAL  |
| 24  | 0     | 25  | LYS  |
| 24  | 0     | 30  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 24  | 0     | 33  | ALA  |
| 24  | 0     | 36  | ILE  |
| 24  | 0     | 38  | VAL  |
| 24  | 0     | 39  | ARG  |
| 24  | 0     | 40  | GLN  |
| 24  | 0     | 51  | VAL  |
| 24  | 0     | 53  | MET  |
| 24  | 0     | 59  | LEU  |
| 24  | 0     | 63  | SER  |
| 24  | 0     | 68  | VAL  |
| 24  | 0     | 70  | ILE  |
| 24  | 0     | 71  | ASN  |
| 24  | 0     | 72  | LYS  |
| 24  | 0     | 74  | LYS  |
| 24  | 0     | 76  | ALA  |
| 24  | 0     | 78  | PHE  |
| 24  | 0     | 79  | ILE  |
| 24  | 0     | 81  | ILE  |
| 25  | 4     | 6   | HIS  |
| 25  | 4     | 10  | VAL  |
| 25  | 4     | 14  | ILE  |
| 25  | 4     | 17  | GLN  |
| 25  | 4     | 21  | VAL  |
| 25  | 4     | 24  | THR  |
| 25  | 4     | 27  | THR  |
| 25  | 4     | 32  | HIS  |
| 25  | 4     | 33  | VAL  |
| 25  | 4     | 39  | VAL  |
| 25  | 4     | 40  | HIS  |
| 25  | 4     | 41  | PRO  |
| 25  | 4     | 49  | PHE  |
| 25  | 4     | 50  | LEU  |
| 25  | 4     | 51  | ASP  |
| 25  | 4     | 52  | THR  |
| 25  | 4     | 55  | ARG  |
| 25  | 4     | 56  | VAL  |
| 25  | 4     | 58  | LYS  |
| 25  | 4     | 59  | PHE  |
| 25  | 4     | 60  | ASN  |
| 25  | 4     | 64  | GLY  |
| 25  | 4     | 68  | ARG  |
| 26  | 5     | 7   | PRO  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 26  | 5     | 9   | LYS  |
| 26  | 5     | 13  | LYS  |
| 26  | 5     | 14  | SER  |
| 26  | 5     | 16  | ARG  |
| 26  | 5     | 19  | ARG  |
| 26  | 5     | 20  | ARG  |
| 26  | 5     | 30  | LEU  |
| 26  | 5     | 43  | HIS  |
| 26  | 5     | 52  | TYR  |
| 26  | 5     | 57  | VAL  |
| 27  | 6     | 6   | PRO  |
| 27  | 6     | 8   | ILE  |
| 27  | 6     | 19  | GLY  |
| 27  | 6     | 20  | PHE  |
| 27  | 6     | 30  | ASN  |
| 27  | 6     | 32  | GLN  |
| 27  | 6     | 33  | ALA  |
| 27  | 6     | 34  | LYS  |
| 27  | 6     | 36  | GLU  |
| 27  | 6     | 45  | LYS  |
| 28  | 7     | 4   | THR  |
| 28  | 7     | 9   | ASN  |
| 28  | 7     | 10  | ARG  |
| 28  | 7     | 11  | LYS  |
| 28  | 7     | 12  | ARG  |
| 28  | 7     | 13  | ALA  |
| 28  | 7     | 14  | LYS  |
| 28  | 7     | 15  | THR  |
| 28  | 7     | 18  | PHE  |
| 28  | 7     | 19  | ARG  |
| 28  | 7     | 20  | ALA  |
| 28  | 7     | 22  | MET  |
| 28  | 7     | 23  | LYS  |
| 28  | 7     | 26  | SER  |
| 28  | 7     | 29  | ASN  |
| 28  | 7     | 30  | ILE  |
| 28  | 7     | 31  | LEU  |
| 28  | 7     | 33  | ARG  |
| 28  | 7     | 34  | ARG  |
| 28  | 7     | 35  | ARG  |
| 28  | 7     | 36  | ALA  |
| 28  | 7     | 37  | LYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 28  | 7     | 39  | ARG  |
| 28  | 7     | 43  | THR  |
| 28  | 7     | 44  | VAL  |
| 28  | 7     | 45  | SER  |
| 29  | 8     | 5   | LYS  |
| 29  | 8     | 6   | THR  |
| 29  | 8     | 7   | HIS  |
| 29  | 8     | 8   | LYS  |
| 29  | 8     | 9   | MET  |
| 29  | 8     | 11  | LYS  |
| 29  | 8     | 13  | ARG  |
| 29  | 8     | 14  | ILE  |
| 29  | 8     | 15  | LYS  |
| 29  | 8     | 26  | LYS  |
| 29  | 8     | 27  | SER  |
| 29  | 8     | 30  | ARG  |
| 29  | 8     | 32  | GLN  |
| 29  | 8     | 34  | THR  |
| 29  | 8     | 39  | ASP  |
| 29  | 8     | 42  | ARG  |
| 29  | 8     | 53  | ALA  |
| 29  | 8     | 56  | ALA  |
| 29  | 8     | 57  | ARG  |
| 29  | 8     | 58  | MET  |
| 29  | 8     | 59  | LYS  |
| 29  | 8     | 61  | MET  |
| 29  | 8     | 62  | LEU  |
| 30  | 9     | 4   | ARG  |
| 30  | 9     | 6   | SER  |
| 30  | 9     | 11  | CYS  |
| 30  | 9     | 14  | CYS  |
| 30  | 9     | 28  | SER  |
| 30  | 9     | 33  | LYS  |
| 31  | K     | 19  | THR  |
| 31  | K     | 86  | GLU  |
| 3   | D     | 77  | VAL  |
| 3   | D     | 86  | ARG  |
| 3   | D     | 117 | SER  |
| 3   | D     | 147 | PRO  |
| 3   | D     | 154 | VAL  |
| 3   | D     | 158 | GLY  |
| 3   | D     | 159 | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 160 | SER  |
| 3   | D     | 176 | ALA  |
| 3   | D     | 178 | GLY  |
| 3   | D     | 183 | ILE  |
| 3   | D     | 198 | GLY  |
| 3   | D     | 209 | ASN  |
| 3   | D     | 211 | HIS  |
| 3   | D     | 212 | HIS  |
| 3   | D     | 235 | PRO  |
| 4   | E     | 67  | THR  |
| 4   | E     | 76  | PRO  |
| 4   | E     | 87  | GLU  |
| 4   | E     | 102 | ASP  |
| 4   | E     | 104 | PHE  |
| 4   | E     | 176 | HIS  |
| 4   | E     | 186 | GLU  |
| 4   | E     | 225 | LYS  |
| 4   | E     | 245 | ARG  |
| 5   | F     | 20  | ASP  |
| 5   | F     | 26  | VAL  |
| 5   | F     | 29  | ASP  |
| 5   | F     | 33  | LYS  |
| 5   | F     | 49  | ASP  |
| 5   | F     | 101 | ASP  |
| 5   | F     | 143 | ASP  |
| 5   | F     | 213 | ALA  |
| 5   | F     | 217 | GLU  |
| 5   | F     | 239 | ALA  |
| 6   | G     | 28  | GLY  |
| 6   | G     | 37  | ALA  |
| 6   | G     | 61  | PHE  |
| 6   | G     | 102 | GLY  |
| 7   | H     | 8   | ILE  |
| 7   | H     | 50  | THR  |
| 7   | H     | 60  | HIS  |
| 7   | H     | 65  | GLY  |
| 7   | H     | 70  | LEU  |
| 7   | H     | 71  | LEU  |
| 7   | H     | 98  | GLN  |
| 7   | H     | 109 | SER  |
| 7   | H     | 131 | ILE  |
| 7   | H     | 139 | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7   | H     | 159 | LYS  |
| 8   | I     | 8   | ASP  |
| 8   | I     | 10  | LYS  |
| 8   | I     | 22  | ALA  |
| 8   | I     | 61  | GLU  |
| 8   | I     | 83  | ALA  |
| 8   | I     | 106 | HIS  |
| 8   | I     | 122 | ARG  |
| 8   | I     | 123 | ALA  |
| 8   | I     | 124 | LEU  |
| 8   | I     | 145 | VAL  |
| 9   | N     | 19  | MET  |
| 9   | N     | 31  | LEU  |
| 9   | N     | 40  | ASN  |
| 9   | N     | 42  | GLU  |
| 9   | N     | 46  | ILE  |
| 9   | N     | 48  | GLY  |
| 9   | N     | 66  | ASP  |
| 9   | N     | 77  | GLY  |
| 9   | N     | 82  | THR  |
| 9   | N     | 92  | GLN  |
| 9   | N     | 94  | GLY  |
| 9   | N     | 96  | GLU  |
| 10  | O     | 22  | ILE  |
| 10  | O     | 29  | GLY  |
| 10  | O     | 53  | LYS  |
| 10  | O     | 54  | LYS  |
| 10  | O     | 72  | PRO  |
| 11  | P     | 71  | GLU  |
| 11  | P     | 110 | GLY  |
| 11  | P     | 116 | HIS  |
| 11  | P     | 130 | ARG  |
| 12  | Q     | 27  | GLY  |
| 12  | Q     | 57  | ARG  |
| 12  | Q     | 64  | ALA  |
| 12  | Q     | 67  | ALA  |
| 12  | Q     | 90  | PHE  |
| 12  | Q     | 95  | GLU  |
| 12  | Q     | 116 | HIS  |
| 12  | Q     | 117 | GLY  |
| 12  | Q     | 121 | ASP  |
| 12  | Q     | 131 | ALA  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12  | Q     | 136 | TRP  |
| 13  | S     | 18  | THR  |
| 13  | S     | 40  | ASN  |
| 13  | S     | 42  | HIS  |
| 13  | S     | 65  | ASP  |
| 13  | S     | 67  | ALA  |
| 13  | S     | 88  | ALA  |
| 13  | S     | 93  | GLN  |
| 13  | S     | 121 | GLY  |
| 13  | S     | 122 | ALA  |
| 14  | T     | 16  | GLY  |
| 14  | T     | 25  | ASP  |
| 14  | T     | 48  | ASN  |
| 15  | W     | 12  | ILE  |
| 15  | W     | 13  | SER  |
| 15  | W     | 15  | ARG  |
| 15  | W     | 16  | LYS  |
| 15  | W     | 26  | GLY  |
| 15  | W     | 31  | GLU  |
| 15  | W     | 47  | VAL  |
| 15  | W     | 49  | LYS  |
| 15  | W     | 50  | VAL  |
| 15  | W     | 70  | TYR  |
| 15  | W     | 80  | PRO  |
| 15  | W     | 91  | GLY  |
| 15  | W     | 99  | ARG  |
| 15  | W     | 105 | VAL  |
| 16  | X     | 14  | ALA  |
| 16  | X     | 41  | VAL  |
| 16  | X     | 50  | GLU  |
| 16  | X     | 59  | ASP  |
| 16  | X     | 73  | ASP  |
| 17  | Y     | 5   | ASP  |
| 17  | Y     | 21  | LYS  |
| 17  | Y     | 34  | GLU  |
| 17  | Y     | 56  | ALA  |
| 17  | Y     | 68  | ASP  |
| 17  | Y     | 81  | LYS  |
| 17  | Y     | 92  | ASP  |
| 17  | Y     | 106 | GLU  |
| 18  | Z     | 2   | GLU  |
| 18  | Z     | 5   | ALA  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18  | Z     | 7   | PRO  |
| 18  | Z     | 21  | ALA  |
| 18  | Z     | 27  | GLU  |
| 18  | Z     | 37  | LYS  |
| 18  | Z     | 39  | PHE  |
| 18  | Z     | 42  | ALA  |
| 18  | Z     | 53  | ASP  |
| 18  | Z     | 58  | GLY  |
| 18  | Z     | 59  | GLY  |
| 18  | Z     | 64  | ALA  |
| 18  | Z     | 76  | ARG  |
| 18  | Z     | 112 | LEU  |
| 18  | Z     | 127 | PRO  |
| 18  | Z     | 139 | THR  |
| 18  | Z     | 143 | ILE  |
| 18  | Z     | 150 | GLY  |
| 18  | Z     | 157 | GLY  |
| 18  | Z     | 167 | THR  |
| 19  | R     | 42  | LYS  |
| 19  | R     | 46  | GLY  |
| 19  | R     | 49  | ASP  |
| 19  | R     | 58  | GLY  |
| 19  | R     | 88  | ARG  |
| 19  | R     | 90  | ARG  |
| 19  | R     | 92  | GLY  |
| 19  | R     | 117 | VAL  |
| 20  | U     | 12  | ARG  |
| 20  | U     | 18  | LEU  |
| 20  | U     | 31  | GLN  |
| 20  | U     | 42  | ALA  |
| 20  | U     | 45  | TYR  |
| 20  | U     | 73  | GLY  |
| 20  | U     | 110 | VAL  |
| 20  | U     | 113 | SER  |
| 20  | U     | 115 | ASN  |
| 21  | V     | 17  | GLY  |
| 21  | V     | 30  | GLY  |
| 21  | V     | 42  | GLY  |
| 21  | V     | 56  | VAL  |
| 21  | V     | 75  | LYS  |
| 22  | 2     | 22  | ASP  |
| 22  | 2     | 27  | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | 2     | 39  | ALA  |
| 22  | 2     | 61  | GLY  |
| 23  | 3     | 16  | PRO  |
| 23  | 3     | 44  | ARG  |
| 23  | 3     | 45  | GLY  |
| 24  | 0     | 42  | GLY  |
| 24  | 0     | 54  | GLY  |
| 24  | 0     | 67  | VAL  |
| 25  | 4     | 8   | LYS  |
| 25  | 4     | 12  | CYS  |
| 25  | 4     | 22  | MET  |
| 25  | 4     | 26  | SER  |
| 25  | 4     | 47  | GLU  |
| 25  | 4     | 63  | PHE  |
| 26  | 5     | 15  | LYS  |
| 26  | 5     | 24  | ALA  |
| 26  | 5     | 37  | HIS  |
| 26  | 5     | 42  | SER  |
| 26  | 5     | 45  | ILE  |
| 26  | 5     | 47  | PRO  |
| 27  | 6     | 3   | LYS  |
| 27  | 6     | 17  | GLY  |
| 27  | 6     | 18  | THR  |
| 27  | 6     | 23  | THR  |
| 27  | 6     | 43  | VAL  |
| 27  | 6     | 48  | VAL  |
| 28  | 7     | 21  | ARG  |
| 28  | 7     | 25  | LYS  |
| 28  | 7     | 27  | GLY  |
| 28  | 7     | 28  | ARG  |
| 28  | 7     | 42  | LEU  |
| 29  | 8     | 28  | GLY  |
| 29  | 8     | 36  | LYS  |
| 30  | 9     | 3   | VAL  |
| 30  | 9     | 9   | LYS  |
| 31  | K     | 23  | PRO  |
| 3   | D     | 69  | ASP  |
| 3   | D     | 78  | ALA  |
| 3   | D     | 84  | PRO  |
| 3   | D     | 101 | ARG  |
| 3   | D     | 109 | LEU  |
| 3   | D     | 115 | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 132 | GLU  |
| 3   | D     | 193 | GLU  |
| 4   | E     | 39  | GLN  |
| 4   | E     | 63  | GLU  |
| 4   | E     | 75  | THR  |
| 4   | E     | 77  | PRO  |
| 4   | E     | 83  | LEU  |
| 4   | E     | 103 | GLU  |
| 4   | E     | 177 | ALA  |
| 4   | E     | 187 | HIS  |
| 4   | E     | 193 | PHE  |
| 4   | E     | 213 | PRO  |
| 4   | E     | 222 | ARG  |
| 4   | E     | 223 | LYS  |
| 4   | E     | 299 | SER  |
| 5   | F     | 34  | ALA  |
| 5   | F     | 52  | ALA  |
| 5   | F     | 154 | VAL  |
| 6   | G     | 20  | LYS  |
| 6   | G     | 53  | LYS  |
| 6   | G     | 64  | ARG  |
| 6   | G     | 66  | GLY  |
| 6   | G     | 93  | LEU  |
| 7   | H     | 55  | SER  |
| 7   | H     | 68  | ARG  |
| 7   | H     | 91  | VAL  |
| 7   | H     | 112 | VAL  |
| 7   | H     | 137 | LYS  |
| 7   | H     | 154 | GLU  |
| 7   | H     | 168 | VAL  |
| 9   | N     | 38  | VAL  |
| 9   | N     | 41  | ALA  |
| 9   | N     | 108 | PRO  |
| 10  | O     | 45  | ASP  |
| 10  | O     | 50  | GLY  |
| 10  | O     | 99  | PHE  |
| 11  | P     | 57  | VAL  |
| 11  | P     | 68  | GLU  |
| 11  | P     | 104 | ASP  |
| 11  | P     | 132 | LYS  |
| 11  | P     | 136 | ALA  |
| 12  | Q     | 21  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12  | Q     | 44  | ALA  |
| 12  | Q     | 51  | GLU  |
| 12  | Q     | 60  | ALA  |
| 12  | Q     | 65  | ARG  |
| 12  | Q     | 112 | ALA  |
| 12  | Q     | 126 | VAL  |
| 12  | Q     | 146 | THR  |
| 13  | S     | 15  | GLU  |
| 13  | S     | 28  | LYS  |
| 13  | S     | 56  | ASP  |
| 13  | S     | 87  | LEU  |
| 14  | T     | 36  | CYS  |
| 15  | W     | 83  | LYS  |
| 15  | W     | 98  | LYS  |
| 16  | X     | 24  | LEU  |
| 16  | X     | 34  | LYS  |
| 17  | Y     | 49  | GLU  |
| 17  | Y     | 70  | ALA  |
| 17  | Y     | 71  | VAL  |
| 17  | Y     | 102 | ASP  |
| 18  | Z     | 10  | PRO  |
| 18  | Z     | 11  | LYS  |
| 18  | Z     | 26  | LYS  |
| 18  | Z     | 103 | ARG  |
| 18  | Z     | 125 | PRO  |
| 20  | U     | 11  | ARG  |
| 20  | U     | 19  | LYS  |
| 20  | U     | 26  | GLY  |
| 20  | U     | 60  | LEU  |
| 21  | V     | 32  | LYS  |
| 21  | V     | 50  | ASP  |
| 21  | V     | 60  | VAL  |
| 21  | V     | 90  | PHE  |
| 22  | 2     | 24  | LYS  |
| 22  | 2     | 45  | ARG  |
| 23  | 3     | 2   | PRO  |
| 24  | 0     | 32  | LYS  |
| 24  | 0     | 45  | PHE  |
| 24  | 0     | 69  | PHE  |
| 25  | 4     | 67  | TYR  |
| 26  | 5     | 51  | TYR  |
| 28  | 7     | 2   | LYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29  | 8     | 12  | ARG  |
| 29  | 8     | 55  | TRP  |
| 3   | D     | 197 | GLY  |
| 3   | D     | 206 | LYS  |
| 3   | D     | 214 | MET  |
| 3   | D     | 236 | PHE  |
| 4   | E     | 173 | ARG  |
| 4   | E     | 243 | PRO  |
| 4   | E     | 254 | GLY  |
| 4   | E     | 262 | THR  |
| 4   | E     | 263 | GLU  |
| 5   | F     | 32  | GLY  |
| 5   | F     | 39  | GLN  |
| 5   | F     | 119 | ALA  |
| 6   | G     | 25  | MET  |
| 6   | G     | 45  | THR  |
| 6   | G     | 46  | GLY  |
| 6   | G     | 85  | GLN  |
| 6   | G     | 135 | VAL  |
| 7   | H     | 74  | MET  |
| 7   | H     | 152 | PRO  |
| 8   | I     | 24  | GLY  |
| 8   | I     | 37  | ILE  |
| 8   | I     | 60  | GLU  |
| 8   | I     | 69  | LYS  |
| 8   | I     | 135 | PRO  |
| 9   | N     | 33  | GLY  |
| 9   | N     | 71  | TYR  |
| 9   | N     | 75  | PRO  |
| 10  | O     | 17  | ARG  |
| 10  | O     | 104 | ARG  |
| 11  | P     | 101 | ASP  |
| 12  | Q     | 120 | HIS  |
| 12  | Q     | 137 | ARG  |
| 12  | Q     | 143 | VAL  |
| 13  | S     | 19  | ASP  |
| 13  | S     | 119 | GLN  |
| 14  | T     | 14  | GLU  |
| 14  | T     | 39  | ASN  |
| 15  | W     | 103 | ILE  |
| 17  | Y     | 41  | ARG  |
| 18  | Z     | 70  | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18  | Z     | 91  | PRO  |
| 18  | Z     | 109 | GLN  |
| 18  | Z     | 117 | VAL  |
| 18  | Z     | 151 | ASP  |
| 18  | Z     | 152 | ILE  |
| 18  | Z     | 156 | GLU  |
| 18  | Z     | 166 | LEU  |
| 19  | R     | 27  | SER  |
| 19  | R     | 59  | ASP  |
| 20  | U     | 14  | HIS  |
| 20  | U     | 46  | GLU  |
| 20  | U     | 87  | ASN  |
| 20  | U     | 104 | GLU  |
| 21  | V     | 20  | ILE  |
| 21  | V     | 54  | TYR  |
| 22  | 2     | 14  | ALA  |
| 22  | 2     | 15  | GLU  |
| 23  | 3     | 40  | THR  |
| 24  | 0     | 7   | VAL  |
| 26  | 5     | 11  | THR  |
| 27  | 6     | 21  | TYR  |
| 29  | 8     | 19  | THR  |
| 29  | 8     | 25  | PHE  |
| 30  | 9     | 12  | ASP  |
| 30  | 9     | 21  | GLY  |
| 3   | D     | 63  | ILE  |
| 3   | D     | 196 | ASN  |
| 3   | D     | 202 | LYS  |
| 4   | E     | 62  | ARG  |
| 4   | E     | 70  | VAL  |
| 4   | E     | 265 | ASN  |
| 6   | G     | 151 | ILE  |
| 7   | H     | 118 | GLU  |
| 7   | H     | 157 | LYS  |
| 9   | N     | 7   | ASP  |
| 9   | N     | 27  | ALA  |
| 9   | N     | 87  | LEU  |
| 9   | N     | 97  | ALA  |
| 10  | O     | 2   | ILE  |
| 10  | O     | 63  | VAL  |
| 10  | O     | 110 | ASP  |
| 12  | Q     | 54  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12  | Q     | 100 | GLY  |
| 12  | Q     | 103 | ALA  |
| 14  | T     | 6   | CYS  |
| 14  | T     | 32  | CYS  |
| 14  | T     | 55  | ALA  |
| 15  | W     | 48  | ALA  |
| 17  | Y     | 51  | LEU  |
| 17  | Y     | 101 | LEU  |
| 18  | Z     | 50  | GLY  |
| 18  | Z     | 52  | PHE  |
| 18  | Z     | 111 | GLY  |
| 19  | R     | 85  | PRO  |
| 20  | U     | 74  | MET  |
| 20  | U     | 111 | ASP  |
| 22  | 2     | 13  | PRO  |
| 22  | 2     | 62  | GLU  |
| 23  | 3     | 25  | ALA  |
| 23  | 3     | 59  | VAL  |
| 25  | 4     | 3   | LYS  |
| 25  | 4     | 70  | GLY  |
| 25  | 4     | 71  | SER  |
| 26  | 5     | 5   | PRO  |
| 26  | 5     | 26  | THR  |
| 27  | 6     | 40  | TYR  |
| 27  | 6     | 47  | HIS  |
| 29  | 8     | 52  | LYS  |
| 31  | K     | 100 | VAL  |
| 3   | D     | 185 | GLY  |
| 4   | E     | 226 | HIS  |
| 4   | E     | 240 | PRO  |
| 4   | E     | 309 | PRO  |
| 6   | G     | 68  | PRO  |
| 6   | G     | 95  | THR  |
| 6   | G     | 140 | ARG  |
| 7   | H     | 117 | GLU  |
| 8   | I     | 40  | THR  |
| 9   | N     | 93  | ARG  |
| 10  | O     | 95  | GLY  |
| 11  | P     | 94  | ARG  |
| 12  | Q     | 72  | VAL  |
| 12  | Q     | 153 | PRO  |
| 13  | S     | 47  | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13  | S     | 96  | GLY  |
| 13  | S     | 104 | ILE  |
| 15  | W     | 14  | PRO  |
| 18  | Z     | 78  | PRO  |
| 18  | Z     | 175 | ARG  |
| 20  | U     | 15  | LYS  |
| 23  | 3     | 47  | VAL  |
| 25  | 4     | 25  | MET  |
| 26  | 5     | 46  | CYS  |
| 27  | 6     | 49  | VAL  |
| 31  | K     | 90  | SER  |
| 31  | K     | 136 | GLY  |
| 4   | E     | 218 | GLY  |
| 4   | E     | 298 | GLY  |
| 5   | F     | 209 | GLY  |
| 7   | H     | 125 | PRO  |
| 15  | W     | 21  | VAL  |
| 17  | Y     | 23  | VAL  |
| 17  | Y     | 42  | VAL  |
| 17  | Y     | 77  | VAL  |
| 22  | 2     | 43  | PRO  |
| 27  | 6     | 41  | ASP  |
| 28  | 7     | 6   | GLN  |
| 3   | D     | 105 | ALA  |
| 3   | D     | 194 | VAL  |
| 4   | E     | 219 | VAL  |
| 6   | G     | 136 | ARG  |
| 9   | N     | 133 | GLY  |
| 11  | P     | 128 | GLY  |
| 13  | S     | 85  | GLY  |
| 17  | Y     | 53  | GLY  |
| 4   | E     | 235 | ILE  |
| 8   | I     | 130 | PRO  |
| 17  | Y     | 36  | GLY  |
| 18  | Z     | 90  | GLU  |
| 21  | V     | 46  | VAL  |
| 24  | 0     | 73  | GLY  |
| 7   | H     | 130 | ILE  |
| 8   | I     | 4   | ILE  |
| 13  | S     | 110 | THR  |
| 18  | Z     | 113 | VAL  |
| 23  | 3     | 13  | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12  | Q     | 50  | VAL  |
| 21  | V     | 22  | VAL  |
| 26  | 5     | 33  | CYS  |

### 5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed       | Rotameric | Outliers | Percentiles |    |
|-----|-------|----------------|-----------|----------|-------------|----|
| 3   | D     | 135/135 (100%) | 99 (73%)  | 36 (27%) | 1           | 6  |
| 4   | E     | 156/284 (55%)  | 128 (82%) | 28 (18%) | 2           | 19 |
| 5   | F     | 152/193 (79%)  | 124 (82%) | 28 (18%) | 2           | 17 |
| 6   | G     | 102/147 (69%)  | 93 (91%)  | 9 (9%)   | 14          | 57 |
| 7   | H     | 137/147 (93%)  | 111 (81%) | 26 (19%) | 2           | 16 |
| 8   | I     | 119/119 (100%) | 98 (82%)  | 21 (18%) | 3           | 20 |
| 9   | N     | 95/121 (78%)   | 80 (84%)  | 15 (16%) | 4           | 27 |
| 10  | O     | 101/101 (100%) | 81 (80%)  | 20 (20%) | 2           | 14 |
| 11  | P     | 67/126 (53%)   | 56 (84%)  | 11 (16%) | 3           | 24 |
| 12  | Q     | 110/110 (100%) | 83 (76%)  | 27 (24%) | 1           | 8  |
| 13  | S     | 89/149 (60%)   | 73 (82%)  | 16 (18%) | 2           | 18 |
| 14  | T     | 44/52 (85%)    | 30 (68%)  | 14 (32%) | 0           | 4  |
| 15  | W     | 88/92 (96%)    | 74 (84%)  | 14 (16%) | 4           | 26 |
| 16  | X     | 67/73 (92%)    | 44 (66%)  | 23 (34%) | 0           | 3  |
| 17  | Y     | 97/105 (92%)   | 80 (82%)  | 17 (18%) | 3           | 20 |
| 18  | Z     | 151/203 (74%)  | 130 (86%) | 21 (14%) | 5           | 33 |
| 19  | R     | 89/101 (88%)   | 71 (80%)  | 18 (20%) | 2           | 14 |
| 20  | U     | 96/97 (99%)    | 68 (71%)  | 28 (29%) | 0           | 5  |
| 21  | V     | 79/79 (100%)   | 69 (87%)  | 10 (13%) | 6           | 37 |
| 22  | 2     | 51/56 (91%)    | 37 (72%)  | 14 (28%) | 0           | 6  |
| 23  | 3     | 52/52 (100%)   | 47 (90%)  | 5 (10%)  | 12          | 52 |
| 24  | 0     | 64/67 (96%)    | 57 (89%)  | 7 (11%)  | 9           | 46 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers  | Percentiles |    |
|-----|-------|-----------------|------------|-----------|-------------|----|
| 25  | 4     | 66/66 (100%)    | 54 (82%)   | 12 (18%)  | 2           | 18 |
| 26  | 5     | 51/53 (96%)     | 43 (84%)   | 8 (16%)   | 4           | 27 |
| 27  | 6     | 46/69 (67%)     | 39 (85%)   | 7 (15%)   | 4           | 28 |
| 28  | 7     | 39/40 (98%)     | 31 (80%)   | 8 (20%)   | 2           | 13 |
| 29  | 8     | 50/51 (98%)     | 39 (78%)   | 11 (22%)  | 1           | 11 |
| 30  | 9     | 34/35 (97%)     | 30 (88%)   | 4 (12%)   | 8           | 41 |
| 31  | K     | 108/113 (96%)   | 105 (97%)  | 3 (3%)    | 56          | 88 |
| All | All   | 2535/3036 (84%) | 2074 (82%) | 461 (18%) | 2           | 18 |

All (461) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 62  | ARG  |
| 3   | D     | 64  | ILE  |
| 3   | D     | 65  | ASP  |
| 3   | D     | 66  | PHE  |
| 3   | D     | 67  | LYS  |
| 3   | D     | 68  | ARG  |
| 3   | D     | 70  | LYS  |
| 3   | D     | 71  | ASP  |
| 3   | D     | 76  | ARG  |
| 3   | D     | 83  | ASP  |
| 3   | D     | 85  | ASN  |
| 3   | D     | 86  | ARG  |
| 3   | D     | 104 | ILE  |
| 3   | D     | 110 | LYS  |
| 3   | D     | 114 | GLU  |
| 3   | D     | 120 | ASP  |
| 3   | D     | 139 | LEU  |
| 3   | D     | 141 | HIS  |
| 3   | D     | 142 | ASN  |
| 3   | D     | 143 | ILE  |
| 3   | D     | 144 | GLU  |
| 3   | D     | 152 | GLN  |
| 3   | D     | 162 | GLN  |
| 3   | D     | 174 | ARG  |
| 3   | D     | 175 | LEU  |
| 3   | D     | 181 | ARG  |
| 3   | D     | 190 | THR  |
| 3   | D     | 199 | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 201 | ASP  |
| 3   | D     | 204 | PHE  |
| 3   | D     | 205 | VAL  |
| 3   | D     | 206 | LYS  |
| 3   | D     | 223 | ASN  |
| 3   | D     | 232 | VAL  |
| 3   | D     | 233 | ASP  |
| 3   | D     | 236 | PHE  |
| 4   | E     | 38  | VAL  |
| 4   | E     | 41  | PHE  |
| 4   | E     | 49  | THR  |
| 4   | E     | 63  | GLU  |
| 4   | E     | 65  | MET  |
| 4   | E     | 73  | ILE  |
| 4   | E     | 86  | TYR  |
| 4   | E     | 98  | GLU  |
| 4   | E     | 104 | PHE  |
| 4   | E     | 107 | GLU  |
| 4   | E     | 109 | ASP  |
| 4   | E     | 174 | LEU  |
| 4   | E     | 179 | ASP  |
| 4   | E     | 183 | ASP  |
| 4   | E     | 187 | HIS  |
| 4   | E     | 192 | ILE  |
| 4   | E     | 211 | GLN  |
| 4   | E     | 215 | LYS  |
| 4   | E     | 222 | ARG  |
| 4   | E     | 228 | ARG  |
| 4   | E     | 235 | ILE  |
| 4   | E     | 238 | LEU  |
| 4   | E     | 265 | ASN  |
| 4   | E     | 268 | LEU  |
| 4   | E     | 269 | ILE  |
| 4   | E     | 295 | LEU  |
| 4   | E     | 304 | ASP  |
| 4   | E     | 311 | PHE  |
| 5   | F     | 1   | MET  |
| 5   | F     | 20  | ASP  |
| 5   | F     | 35  | VAL  |
| 5   | F     | 36  | ARG  |
| 5   | F     | 39  | GLN  |
| 5   | F     | 45  | ASP  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | F     | 49  | ASP  |
| 5   | F     | 50  | GLU  |
| 5   | F     | 54  | LEU  |
| 5   | F     | 55  | ARG  |
| 5   | F     | 56  | THR  |
| 5   | F     | 59  | GLU  |
| 5   | F     | 82  | GLN  |
| 5   | F     | 85  | LYS  |
| 5   | F     | 87  | ARG  |
| 5   | F     | 94  | THR  |
| 5   | F     | 100 | LEU  |
| 5   | F     | 103 | ASN  |
| 5   | F     | 107 | ARG  |
| 5   | F     | 120 | ASP  |
| 5   | F     | 142 | ASP  |
| 5   | F     | 158 | GLU  |
| 5   | F     | 167 | ASP  |
| 5   | F     | 211 | ASP  |
| 5   | F     | 219 | ASN  |
| 5   | F     | 223 | LEU  |
| 5   | F     | 242 | GLU  |
| 5   | F     | 245 | GLU  |
| 6   | G     | 13  | MET  |
| 6   | G     | 24  | HIS  |
| 6   | G     | 67  | ASP  |
| 6   | G     | 76  | ARG  |
| 6   | G     | 77  | ASP  |
| 6   | G     | 85  | GLN  |
| 6   | G     | 93  | LEU  |
| 6   | G     | 100 | ASP  |
| 6   | G     | 104 | PHE  |
| 7   | H     | 19  | ASN  |
| 7   | H     | 32  | LEU  |
| 7   | H     | 37  | HIS  |
| 7   | H     | 40  | MET  |
| 7   | H     | 49  | ILE  |
| 7   | H     | 70  | LEU  |
| 7   | H     | 76  | GLU  |
| 7   | H     | 83  | GLU  |
| 7   | H     | 86  | LEU  |
| 7   | H     | 87  | GLU  |
| 7   | H     | 101 | LYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7   | H     | 102 | LEU  |
| 7   | H     | 108 | TYR  |
| 7   | H     | 113 | GLU  |
| 7   | H     | 115 | GLU  |
| 7   | H     | 120 | LEU  |
| 7   | H     | 121 | GLU  |
| 7   | H     | 127 | GLN  |
| 7   | H     | 130 | ILE  |
| 7   | H     | 131 | ILE  |
| 7   | H     | 137 | LYS  |
| 7   | H     | 143 | LEU  |
| 7   | H     | 157 | LYS  |
| 7   | H     | 164 | GLU  |
| 7   | H     | 167 | LEU  |
| 7   | H     | 170 | LEU  |
| 8   | I     | 5   | PHE  |
| 8   | I     | 8   | ASP  |
| 8   | I     | 12  | LYS  |
| 8   | I     | 15  | LYS  |
| 8   | I     | 18  | ILE  |
| 8   | I     | 19  | LYS  |
| 8   | I     | 23  | ASP  |
| 8   | I     | 25  | TYR  |
| 8   | I     | 29  | PHE  |
| 8   | I     | 43  | ASN  |
| 8   | I     | 64  | ASN  |
| 8   | I     | 70  | GLU  |
| 8   | I     | 75  | LEU  |
| 8   | I     | 79  | ILE  |
| 8   | I     | 93  | ILE  |
| 8   | I     | 102 | LEU  |
| 8   | I     | 109 | LYS  |
| 8   | I     | 110 | LEU  |
| 8   | I     | 112 | LYS  |
| 8   | I     | 119 | ASP  |
| 8   | I     | 148 | GLN  |
| 9   | N     | 7   | ASP  |
| 9   | N     | 17  | CYS  |
| 9   | N     | 19  | MET  |
| 9   | N     | 21  | ARG  |
| 9   | N     | 62  | ASP  |
| 9   | N     | 70  | PHE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | N     | 74  | ARG  |
| 9   | N     | 76  | ASP  |
| 9   | N     | 79  | PHE  |
| 9   | N     | 87  | LEU  |
| 9   | N     | 90  | LYS  |
| 9   | N     | 98  | PHE  |
| 9   | N     | 100 | SER  |
| 9   | N     | 107 | ASN  |
| 9   | N     | 139 | LEU  |
| 10  | O     | 2   | ILE  |
| 10  | O     | 3   | GLN  |
| 10  | O     | 5   | GLU  |
| 10  | O     | 7   | ARG  |
| 10  | O     | 8   | LEU  |
| 10  | O     | 23  | LYS  |
| 10  | O     | 35  | ILE  |
| 10  | O     | 66  | LYS  |
| 10  | O     | 73  | ASP  |
| 10  | O     | 77  | ILE  |
| 10  | O     | 78  | ARG  |
| 10  | O     | 79  | PHE  |
| 10  | O     | 82  | ASN  |
| 10  | O     | 84  | CYS  |
| 10  | O     | 87  | ILE  |
| 10  | O     | 89  | ASP  |
| 10  | O     | 90  | ASP  |
| 10  | O     | 104 | ARG  |
| 10  | O     | 106 | LEU  |
| 10  | O     | 122 | ILE  |
| 11  | P     | 53  | ARG  |
| 11  | P     | 59  | GLU  |
| 11  | P     | 67  | ARG  |
| 11  | P     | 92  | ASP  |
| 11  | P     | 94  | ARG  |
| 11  | P     | 95  | ASP  |
| 11  | P     | 109 | LEU  |
| 11  | P     | 113 | GLN  |
| 11  | P     | 123 | ASP  |
| 11  | P     | 141 | GLU  |
| 11  | P     | 145 | LEU  |
| 12  | Q     | 10  | ILE  |
| 12  | Q     | 16  | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12  | Q     | 17  | ARG  |
| 12  | Q     | 32  | LYS  |
| 12  | Q     | 33  | MET  |
| 12  | Q     | 47  | GLU  |
| 12  | Q     | 48  | ASN  |
| 12  | Q     | 51  | GLU  |
| 12  | Q     | 56  | ILE  |
| 12  | Q     | 59  | ASN  |
| 12  | Q     | 61  | LEU  |
| 12  | Q     | 69  | ASN  |
| 12  | Q     | 71  | PHE  |
| 12  | Q     | 74  | ASN  |
| 12  | Q     | 85  | ILE  |
| 12  | Q     | 88  | PHE  |
| 12  | Q     | 91  | HIS  |
| 12  | Q     | 95  | GLU  |
| 12  | Q     | 116 | HIS  |
| 12  | Q     | 125 | TRP  |
| 12  | Q     | 133 | GLU  |
| 12  | Q     | 134 | PHE  |
| 12  | Q     | 136 | TRP  |
| 12  | Q     | 142 | LYS  |
| 12  | Q     | 148 | ASN  |
| 12  | Q     | 149 | ILE  |
| 12  | Q     | 152 | SER  |
| 13  | S     | 12  | ARG  |
| 13  | S     | 14  | ARG  |
| 13  | S     | 17  | ARG  |
| 13  | S     | 19  | ASP  |
| 13  | S     | 21  | HIS  |
| 13  | S     | 22  | GLN  |
| 13  | S     | 27  | LEU  |
| 13  | S     | 28  | LYS  |
| 13  | S     | 34  | LEU  |
| 13  | S     | 41  | LYS  |
| 13  | S     | 83  | LEU  |
| 13  | S     | 87  | LEU  |
| 13  | S     | 93  | GLN  |
| 13  | S     | 94  | GLU  |
| 13  | S     | 106 | LEU  |
| 13  | S     | 127 | LEU  |
| 14  | T     | 4   | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 14  | T     | 7   | ASP  |
| 14  | T     | 8   | TYR  |
| 14  | T     | 9   | CYS  |
| 14  | T     | 12  | ASP  |
| 14  | T     | 14  | GLU  |
| 14  | T     | 20  | MET  |
| 14  | T     | 21  | PHE  |
| 14  | T     | 25  | ASP  |
| 14  | T     | 36  | CYS  |
| 14  | T     | 47  | ARG  |
| 14  | T     | 49  | LEU  |
| 14  | T     | 51  | TRP  |
| 14  | T     | 54  | THR  |
| 15  | W     | 11  | ARG  |
| 15  | W     | 23  | LEU  |
| 15  | W     | 52  | GLU  |
| 15  | W     | 59  | VAL  |
| 15  | W     | 61  | ASN  |
| 15  | W     | 67  | ASP  |
| 15  | W     | 69  | LEU  |
| 15  | W     | 84  | ARG  |
| 15  | W     | 86  | LEU  |
| 15  | W     | 90  | ARG  |
| 15  | W     | 96  | ILE  |
| 15  | W     | 103 | ILE  |
| 15  | W     | 104 | THR  |
| 15  | W     | 107 | LEU  |
| 16  | X     | 2   | TRP  |
| 16  | X     | 16  | ASN  |
| 16  | X     | 17  | ASP  |
| 16  | X     | 19  | ASP  |
| 16  | X     | 20  | PHE  |
| 16  | X     | 24  | LEU  |
| 16  | X     | 25  | GLN  |
| 16  | X     | 26  | PHE  |
| 16  | X     | 30  | ASP  |
| 16  | X     | 31  | ARG  |
| 16  | X     | 36  | GLU  |
| 16  | X     | 44  | GLN  |
| 16  | X     | 45  | TYR  |
| 16  | X     | 46  | ASP  |
| 16  | X     | 47  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16  | X     | 50  | GLU  |
| 16  | X     | 56  | ASN  |
| 16  | X     | 57  | THR  |
| 16  | X     | 58  | MET  |
| 16  | X     | 59  | ASP  |
| 16  | X     | 68  | LEU  |
| 16  | X     | 71  | ASP  |
| 16  | X     | 76  | GLU  |
| 17  | Y     | 27  | LEU  |
| 17  | Y     | 31  | LEU  |
| 17  | Y     | 34  | GLU  |
| 17  | Y     | 51  | LEU  |
| 17  | Y     | 61  | GLU  |
| 17  | Y     | 66  | ASP  |
| 17  | Y     | 68  | ASP  |
| 17  | Y     | 73  | HIS  |
| 17  | Y     | 76  | ASP  |
| 17  | Y     | 77  | VAL  |
| 17  | Y     | 81  | LYS  |
| 17  | Y     | 83  | ASP  |
| 17  | Y     | 91  | LEU  |
| 17  | Y     | 92  | ASP  |
| 17  | Y     | 97  | ARG  |
| 17  | Y     | 105 | ASP  |
| 17  | Y     | 112 | LEU  |
| 18  | Z     | 2   | GLU  |
| 18  | Z     | 24  | TYR  |
| 18  | Z     | 26  | LYS  |
| 18  | Z     | 32  | PHE  |
| 18  | Z     | 35  | ASP  |
| 18  | Z     | 39  | PHE  |
| 18  | Z     | 40  | ASP  |
| 18  | Z     | 41  | ARG  |
| 18  | Z     | 43  | PHE  |
| 18  | Z     | 45  | GLN  |
| 18  | Z     | 49  | THR  |
| 18  | Z     | 67  | LYS  |
| 18  | Z     | 70  | GLN  |
| 18  | Z     | 74  | ARG  |
| 18  | Z     | 103 | ARG  |
| 18  | Z     | 118 | HIS  |
| 18  | Z     | 120 | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18  | Z     | 129 | ARG  |
| 18  | Z     | 141 | MET  |
| 18  | Z     | 151 | ASP  |
| 18  | Z     | 154 | LEU  |
| 19  | R     | 16  | HIS  |
| 19  | R     | 20  | LEU  |
| 19  | R     | 23  | ASN  |
| 19  | R     | 28  | LEU  |
| 19  | R     | 43  | GLU  |
| 19  | R     | 52  | ILE  |
| 19  | R     | 64  | ARG  |
| 19  | R     | 67  | LEU  |
| 19  | R     | 72  | ASP  |
| 19  | R     | 77  | ARG  |
| 19  | R     | 79  | LEU  |
| 19  | R     | 80  | PHE  |
| 19  | R     | 88  | ARG  |
| 19  | R     | 91  | GLN  |
| 19  | R     | 98  | LEU  |
| 19  | R     | 105 | ARG  |
| 19  | R     | 107 | ASP  |
| 19  | R     | 116 | LEU  |
| 20  | U     | 8   | ILE  |
| 20  | U     | 11  | ARG  |
| 20  | U     | 13  | ARG  |
| 20  | U     | 16  | LYS  |
| 20  | U     | 18  | LEU  |
| 20  | U     | 24  | PHE  |
| 20  | U     | 25  | TRP  |
| 20  | U     | 27  | SER  |
| 20  | U     | 28  | ARG  |
| 20  | U     | 32  | TYR  |
| 20  | U     | 36  | PHE  |
| 20  | U     | 39  | LEU  |
| 20  | U     | 40  | LEU  |
| 20  | U     | 41  | ASN  |
| 20  | U     | 44  | THR  |
| 20  | U     | 51  | ARG  |
| 20  | U     | 59  | ARG  |
| 20  | U     | 66  | ASN  |
| 20  | U     | 71  | LEU  |
| 20  | U     | 76  | TYR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | U     | 85  | ARG  |
| 20  | U     | 87  | ASN  |
| 20  | U     | 95  | LEU  |
| 20  | U     | 106 | PHE  |
| 20  | U     | 111 | ASP  |
| 20  | U     | 114 | ARG  |
| 20  | U     | 115 | ASN  |
| 20  | U     | 117 | ARG  |
| 21  | V     | 13  | ARG  |
| 21  | V     | 39  | PHE  |
| 21  | V     | 44  | GLN  |
| 21  | V     | 63  | HIS  |
| 21  | V     | 69  | ILE  |
| 21  | V     | 74  | TYR  |
| 21  | V     | 80  | TYR  |
| 21  | V     | 84  | THR  |
| 21  | V     | 90  | PHE  |
| 21  | V     | 95  | ILE  |
| 22  | 2     | 7   | GLU  |
| 22  | 2     | 19  | GLU  |
| 22  | 2     | 20  | LEU  |
| 22  | 2     | 22  | ASP  |
| 22  | 2     | 26  | GLU  |
| 22  | 2     | 34  | GLN  |
| 22  | 2     | 45  | ARG  |
| 22  | 2     | 55  | ARG  |
| 22  | 2     | 56  | ILE  |
| 22  | 2     | 58  | THR  |
| 22  | 2     | 59  | ILE  |
| 22  | 2     | 60  | GLN  |
| 22  | 2     | 62  | GLU  |
| 22  | 2     | 63  | GLU  |
| 23  | 3     | 23  | LEU  |
| 23  | 3     | 30  | ARG  |
| 23  | 3     | 32  | GLN  |
| 23  | 3     | 38  | GLU  |
| 23  | 3     | 43  | ILE  |
| 24  | 0     | 10  | SER  |
| 24  | 0     | 14  | ARG  |
| 24  | 0     | 49  | GLN  |
| 24  | 0     | 57  | HIS  |
| 24  | 0     | 58  | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 24  | 0     | 70  | ILE  |
| 24  | 0     | 81  | ILE  |
| 25  | 4     | 5   | LEU  |
| 25  | 4     | 15  | ILE  |
| 25  | 4     | 27  | THR  |
| 25  | 4     | 30  | GLU  |
| 25  | 4     | 31  | ILE  |
| 25  | 4     | 43  | TRP  |
| 25  | 4     | 46  | GLU  |
| 25  | 4     | 49  | PHE  |
| 25  | 4     | 57  | ASP  |
| 25  | 4     | 59  | PHE  |
| 25  | 4     | 68  | ARG  |
| 25  | 4     | 73  | LYS  |
| 26  | 5     | 3   | LYS  |
| 26  | 5     | 8   | LYS  |
| 26  | 5     | 10  | LYS  |
| 26  | 5     | 11  | THR  |
| 26  | 5     | 17  | ASP  |
| 26  | 5     | 22  | HIS  |
| 26  | 5     | 33  | CYS  |
| 26  | 5     | 45  | ILE  |
| 27  | 6     | 4   | ASP  |
| 27  | 6     | 10  | VAL  |
| 27  | 6     | 22  | TYR  |
| 27  | 6     | 28  | ARG  |
| 27  | 6     | 40  | TYR  |
| 27  | 6     | 46  | LYS  |
| 27  | 6     | 54  | LYS  |
| 28  | 7     | 3   | ARG  |
| 28  | 7     | 4   | THR  |
| 28  | 7     | 8   | ASN  |
| 28  | 7     | 11  | LYS  |
| 28  | 7     | 24  | THR  |
| 28  | 7     | 31  | LEU  |
| 28  | 7     | 43  | THR  |
| 28  | 7     | 46  | ASP  |
| 29  | 8     | 4   | MET  |
| 29  | 8     | 5   | LYS  |
| 29  | 8     | 12  | ARG  |
| 29  | 8     | 16  | ILE  |
| 29  | 8     | 23  | MET  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29  | 8     | 25  | PHE  |
| 29  | 8     | 31  | HIS  |
| 29  | 8     | 42  | ARG  |
| 29  | 8     | 58  | MET  |
| 29  | 8     | 60  | LEU  |
| 29  | 8     | 61  | MET  |
| 30  | 9     | 2   | LYS  |
| 30  | 9     | 8   | LYS  |
| 30  | 9     | 10  | MET  |
| 30  | 9     | 27  | CYS  |
| 31  | K     | 101 | THR  |
| 31  | K     | 106 | GLU  |
| 31  | K     | 107 | GLU  |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (82) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 60  | GLN  |
| 3   | D     | 85  | ASN  |
| 3   | D     | 89  | ASN  |
| 3   | D     | 133 | ASN  |
| 3   | D     | 141 | HIS  |
| 3   | D     | 142 | ASN  |
| 3   | D     | 162 | GLN  |
| 3   | D     | 212 | HIS  |
| 3   | D     | 223 | ASN  |
| 4   | E     | 242 | ASN  |
| 4   | E     | 259 | HIS  |
| 4   | E     | 260 | GLN  |
| 4   | E     | 318 | ASN  |
| 5   | F     | 90  | HIS  |
| 5   | F     | 103 | ASN  |
| 5   | F     | 163 | HIS  |
| 5   | F     | 206 | ASN  |
| 5   | F     | 219 | ASN  |
| 6   | G     | 47  | GLN  |
| 6   | G     | 133 | ASN  |
| 7   | H     | 127 | GLN  |
| 8   | I     | 33  | GLN  |
| 8   | I     | 43  | ASN  |
| 8   | I     | 52  | GLN  |
| 8   | I     | 64  | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | I     | 103 | GLN  |
| 9   | N     | 92  | GLN  |
| 9   | N     | 107 | ASN  |
| 10  | O     | 82  | ASN  |
| 11  | P     | 113 | GLN  |
| 12  | Q     | 55  | GLN  |
| 12  | Q     | 59  | ASN  |
| 12  | Q     | 66  | ASN  |
| 12  | Q     | 69  | ASN  |
| 12  | Q     | 116 | HIS  |
| 12  | Q     | 120 | HIS  |
| 12  | Q     | 148 | ASN  |
| 13  | S     | 21  | HIS  |
| 13  | S     | 46  | GLN  |
| 14  | T     | 39  | ASN  |
| 15  | W     | 60  | ASN  |
| 15  | W     | 61  | ASN  |
| 15  | W     | 102 | HIS  |
| 16  | X     | 53  | ASN  |
| 16  | X     | 56  | ASN  |
| 17  | Y     | 7   | GLN  |
| 17  | Y     | 11  | GLN  |
| 17  | Y     | 17  | HIS  |
| 17  | Y     | 22  | GLN  |
| 17  | Y     | 43  | ASN  |
| 17  | Y     | 73  | HIS  |
| 18  | Z     | 45  | GLN  |
| 18  | Z     | 70  | GLN  |
| 18  | Z     | 146 | HIS  |
| 19  | R     | 31  | HIS  |
| 19  | R     | 53  | HIS  |
| 19  | R     | 61  | HIS  |
| 19  | R     | 71  | GLN  |
| 20  | U     | 37  | GLN  |
| 20  | U     | 52  | ASN  |
| 20  | U     | 72  | HIS  |
| 20  | U     | 81  | ASN  |
| 20  | U     | 87  | ASN  |
| 20  | U     | 115 | ASN  |
| 21  | V     | 44  | GLN  |
| 21  | V     | 57  | GLN  |
| 21  | V     | 86  | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | 2     | 29  | ASN  |
| 22  | 2     | 42  | ASN  |
| 23  | 3     | 46  | ASN  |
| 23  | 3     | 52  | HIS  |
| 24  | 0     | 17  | ASN  |
| 24  | 0     | 71  | ASN  |
| 25  | 4     | 2   | GLN  |
| 26  | 5     | 4   | HIS  |
| 26  | 5     | 29  | ASN  |
| 26  | 5     | 48  | ASN  |
| 27  | 6     | 27  | ASN  |
| 28  | 7     | 8   | ASN  |
| 28  | 7     | 29  | ASN  |
| 29  | 8     | 31  | HIS  |
| 30  | 9     | 29  | ASN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | B     | 122/123 (99%)   | 44 (36%)          | 3 (2%)          |
| 2   | A     | 2779/2916 (95%) | 1485 (53%)        | 361 (12%)       |
| All | All   | 2901/3039 (95%) | 1529 (52%)        | 364 (12%)       |

All (1529) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | B     | 0   | A    |
| 1   | B     | 1   | U    |
| 1   | B     | 2   | C    |
| 1   | B     | 3   | C    |
| 1   | B     | 6   | C    |
| 1   | B     | 8   | U    |
| 1   | B     | 9   | G    |
| 1   | B     | 10  | C    |
| 1   | B     | 12  | C    |
| 1   | B     | 13  | A    |
| 1   | B     | 14  | U    |
| 1   | B     | 15  | A    |
| 1   | B     | 16  | G    |
| 1   | B     | 21  | G    |
| 1   | B     | 25  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | B     | 35  | U    |
| 1   | B     | 40  | U    |
| 1   | B     | 41  | U    |
| 1   | B     | 42  | C    |
| 1   | B     | 43  | C    |
| 1   | B     | 45  | A    |
| 1   | B     | 46  | A    |
| 1   | B     | 48  | A    |
| 1   | B     | 57  | A    |
| 1   | B     | 59  | A    |
| 1   | B     | 62  | C    |
| 1   | B     | 67  | G    |
| 1   | B     | 69  | G    |
| 1   | B     | 73  | A    |
| 1   | B     | 76  | G    |
| 1   | B     | 84  | C    |
| 1   | B     | 87  | G    |
| 1   | B     | 88  | C    |
| 1   | B     | 89  | G    |
| 1   | B     | 90  | C    |
| 1   | B     | 96  | G    |
| 1   | B     | 99  | A    |
| 1   | B     | 103 | U    |
| 1   | B     | 108 | C    |
| 1   | B     | 109 | G    |
| 1   | B     | 111 | U    |
| 1   | B     | 117 | G    |
| 1   | B     | 119 | A    |
| 1   | B     | 120 | U    |
| 2   | A     | 14  | A    |
| 2   | A     | 16  | G    |
| 2   | A     | 26  | G    |
| 2   | A     | 27  | G    |
| 2   | A     | 34  | C    |
| 2   | A     | 40  | C    |
| 2   | A     | 46  | C    |
| 2   | A     | 49  | A    |
| 2   | A     | 50  | U    |
| 2   | A     | 51  | G    |
| 2   | A     | 52  | A    |
| 2   | A     | 54  | G    |
| 2   | A     | 55  | G    |

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| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 2   | A     | 60     | G    |
| 2   | A     | 61     | G    |
| 2   | A     | 63     | U    |
| 2   | A     | 71     | A    |
| 2   | A     | 72     | U    |
| 2   | A     | 73     | A    |
| 2   | A     | 74     | A    |
| 2   | A     | 75     | G    |
| 2   | A     | 76     | C    |
| 2   | A     | 82     | G    |
| 2   | A     | 83     | G    |
| 2   | A     | 84     | A    |
| 2   | A     | 87     | C    |
| 2   | A     | 88     | G    |
| 2   | A     | 89     | G    |
| 2   | A     | 90     | U    |
| 2   | A     | 91     | A    |
| 2   | A     | 92     | G    |
| 2   | A     | 94     | G    |
| 2   | A     | 95     | G    |
| 2   | A     | 97     | C    |
| 2   | A     | 98     | G    |
| 2   | A     | 102    | G    |
| 2   | A     | 103    | A    |
| 2   | A     | 107    | C    |
| 2   | A     | 108    | U    |
| 2   | A     | 109    | G    |
| 2   | A     | 110    | G    |
| 2   | A     | 112    | U    |
| 2   | A     | 113    | G    |
| 2   | A     | 117    | G    |
| 2   | A     | 119    | A    |
| 2   | A     | 120    | U    |
| 2   | A     | 121    | G    |
| 2   | A     | 125    | G    |
| 2   | A     | 126    | A    |
| 2   | A     | 129    | C    |
| 2   | A     | 132    | G    |
| 2   | A     | 133    | C    |
| 2   | A     | 136    | G    |
| 2   | A     | 137    | C    |
| 2   | A     | 137(A) | G    |

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| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 2   | A     | 138    | G    |
| 2   | A     | 139    | G    |
| 2   | A     | 140    | A    |
| 2   | A     | 141    | A    |
| 2   | A     | 141(A) | C    |
| 2   | A     | 142    | G    |
| 2   | A     | 143    | C    |
| 2   | A     | 144    | C    |
| 2   | A     | 152    | G    |
| 2   | A     | 154    | G    |
| 2   | A     | 163    | U    |
| 2   | A     | 164    | U    |
| 2   | A     | 172    | C    |
| 2   | A     | 173    | G    |
| 2   | A     | 175    | G    |
| 2   | A     | 177    | G    |
| 2   | A     | 178    | G    |
| 2   | A     | 179    | G    |
| 2   | A     | 181    | A    |
| 2   | A     | 182    | A    |
| 2   | A     | 186    | G    |
| 2   | A     | 191    | A    |
| 2   | A     | 192    | C    |
| 2   | A     | 193    | U    |
| 2   | A     | 195    | A    |
| 2   | A     | 196    | A    |
| 2   | A     | 197    | A    |
| 2   | A     | 198    | C    |
| 2   | A     | 199    | A    |
| 2   | A     | 204    | A    |
| 2   | A     | 205    | G    |
| 2   | A     | 215    | G    |
| 2   | A     | 216    | A    |
| 2   | A     | 218    | A    |
| 2   | A     | 221    | A    |
| 2   | A     | 222    | A    |
| 2   | A     | 223    | A    |
| 2   | A     | 224    | G    |
| 2   | A     | 225    | A    |
| 2   | A     | 226    | G    |
| 2   | A     | 227    | A    |
| 2   | A     | 228    | A    |

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| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 2   | A     | 229    | A    |
| 2   | A     | 232    | G    |
| 2   | A     | 233    | A    |
| 2   | A     | 241    | A    |
| 2   | A     | 242    | G    |
| 2   | A     | 243    | U    |
| 2   | A     | 245    | G    |
| 2   | A     | 247    | G    |
| 2   | A     | 248    | G    |
| 2   | A     | 249    | C    |
| 2   | A     | 250    | G    |
| 2   | A     | 252    | G    |
| 2   | A     | 255    | A    |
| 2   | A     | 259    | G    |
| 2   | A     | 265    | A    |
| 2   | A     | 266    | G    |
| 2   | A     | 268    | C    |
| 2   | A     | 269    | U    |
| 2   | A     | 270    | A    |
| 2   | A     | 270(A) | A    |
| 2   | A     | 270(B) | A    |
| 2   | A     | 270(C) | C    |
| 2   | A     | 270(D) | C    |
| 2   | A     | 270(G) | C    |
| 2   | A     | 270(L) | U    |
| 2   | A     | 270(M) | U    |
| 2   | A     | 270(N) | G    |
| 2   | A     | 270(O) | U    |
| 2   | A     | 270(T) | G    |
| 2   | A     | 270(U) | C    |
| 2   | A     | 270(V) | G    |
| 2   | A     | 270(X) | G    |
| 2   | A     | 270(Y) | G    |
| 2   | A     | 270(Z) | U    |
| 2   | A     | 271(A) | C    |
| 2   | A     | 271(B) | G    |
| 2   | A     | 271(C) | U    |
| 2   | A     | 271    | G    |
| 2   | A     | 273(F) | C    |
| 2   | A     | 274    | G    |
| 2   | A     | 275    | G    |
| 2   | A     | 276    | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | A     | 277 | C    |
| 2   | A     | 279 | C    |
| 2   | A     | 280 | C    |
| 2   | A     | 282 | A    |
| 2   | A     | 283 | A    |
| 2   | A     | 286 | C    |
| 2   | A     | 288 | C    |
| 2   | A     | 289 | A    |
| 2   | A     | 290 | G    |
| 2   | A     | 291 | C    |
| 2   | A     | 293 | U    |
| 2   | A     | 295 | G    |
| 2   | A     | 297 | C    |
| 2   | A     | 302 | C    |
| 2   | A     | 310 | A    |
| 2   | A     | 311 | A    |
| 2   | A     | 312 | G    |
| 2   | A     | 313 | C    |
| 2   | A     | 316 | C    |
| 2   | A     | 317 | G    |
| 2   | A     | 320 | A    |
| 2   | A     | 321 | G    |
| 2   | A     | 322 | A    |
| 2   | A     | 323 | G    |
| 2   | A     | 324 | A    |
| 2   | A     | 325 | G    |
| 2   | A     | 328 | U    |
| 2   | A     | 329 | G    |
| 2   | A     | 330 | A    |
| 2   | A     | 331 | A    |
| 2   | A     | 332 | A    |
| 2   | A     | 333 | G    |
| 2   | A     | 334 | C    |
| 2   | A     | 337 | C    |
| 2   | A     | 338 | G    |
| 2   | A     | 339 | U    |
| 2   | A     | 340 | A    |
| 2   | A     | 341 | G    |
| 2   | A     | 342 | G    |
| 2   | A     | 347 | A    |
| 2   | A     | 348 | G    |
| 2   | A     | 349 | G    |

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| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 2   | A     | 350    | U    |
| 2   | A     | 351    | G    |
| 2   | A     | 354    | G    |
| 2   | A     | 358    | U    |
| 2   | A     | 359    | A    |
| 2   | A     | 360    | G    |
| 2   | A     | 362    | U    |
| 2   | A     | 363(A) | A    |
| 2   | A     | 363(C) | G    |
| 2   | A     | 363(F) | A    |
| 2   | A     | 364    | C    |
| 2   | A     | 365    | C    |
| 2   | A     | 371    | A    |
| 2   | A     | 372    | G    |
| 2   | A     | 373    | U    |
| 2   | A     | 374    | A    |
| 2   | A     | 380    | U    |
| 2   | A     | 386    | G    |
| 2   | A     | 387    | U    |
| 2   | A     | 388    | G    |
| 2   | A     | 390    | A    |
| 2   | A     | 391    | G    |
| 2   | A     | 397    | G    |
| 2   | A     | 401    | A    |
| 2   | A     | 404    | C    |
| 2   | A     | 405    | U    |
| 2   | A     | 406    | G    |
| 2   | A     | 408    | G    |
| 2   | A     | 411    | G    |
| 2   | A     | 422    | A    |
| 2   | A     | 423    | A    |
| 2   | A     | 428    | A    |
| 2   | A     | 431    | U    |
| 2   | A     | 434    | U    |
| 2   | A     | 435    | C    |
| 2   | A     | 436    | C    |
| 2   | A     | 442    | G    |
| 2   | A     | 444    | C    |
| 2   | A     | 445    | C    |
| 2   | A     | 446    | G    |
| 2   | A     | 447    | A    |
| 2   | A     | 448    | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | A     | 449 | A    |
| 2   | A     | 451 | C    |
| 2   | A     | 452 | G    |
| 2   | A     | 453 | C    |
| 2   | A     | 455 | C    |
| 2   | A     | 456 | C    |
| 2   | A     | 457 | A    |
| 2   | A     | 470 | A    |
| 2   | A     | 471 | A    |
| 2   | A     | 473 | G    |
| 2   | A     | 474 | G    |
| 2   | A     | 475 | U    |
| 2   | A     | 477 | A    |
| 2   | A     | 478 | A    |
| 2   | A     | 479 | A    |
| 2   | A     | 480 | A    |
| 2   | A     | 481 | G    |
| 2   | A     | 482 | A    |
| 2   | A     | 483 | A    |
| 2   | A     | 489 | G    |
| 2   | A     | 492 | A    |
| 2   | A     | 493 | G    |
| 2   | A     | 497 | A    |
| 2   | A     | 501 | A    |
| 2   | A     | 503 | A    |
| 2   | A     | 504 | U    |
| 2   | A     | 505 | A    |
| 2   | A     | 506 | G    |
| 2   | A     | 507 | A    |
| 2   | A     | 508 | G    |
| 2   | A     | 509 | C    |
| 2   | A     | 512 | G    |
| 2   | A     | 518 | G    |
| 2   | A     | 525 | U    |
| 2   | A     | 526 | A    |
| 2   | A     | 527 | C    |
| 2   | A     | 528 | A    |
| 2   | A     | 529 | A    |
| 2   | A     | 530 | G    |
| 2   | A     | 531 | C    |
| 2   | A     | 532 | A    |
| 2   | A     | 533 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | A     | 535 | C    |
| 2   | A     | 541 | C    |
| 2   | A     | 544 | C    |
| 2   | A     | 545 | G    |
| 2   | A     | 546 | C    |
| 2   | A     | 548 | A    |
| 2   | A     | 549 | G    |
| 2   | A     | 551 | G    |
| 2   | A     | 554 | U    |
| 2   | A     | 559 | G    |
| 2   | A     | 560 | C    |
| 2   | A     | 561 | G    |
| 2   | A     | 562 | U    |
| 2   | A     | 563 | G    |
| 2   | A     | 565 | C    |
| 2   | A     | 566 | U    |
| 2   | A     | 567 | A    |
| 2   | A     | 568 | U    |
| 2   | A     | 570 | G    |
| 2   | A     | 571 | A    |
| 2   | A     | 572 | A    |
| 2   | A     | 573 | G    |
| 2   | A     | 574 | C    |
| 2   | A     | 575 | A    |
| 2   | A     | 579 | G    |
| 2   | A     | 586 | A    |
| 2   | A     | 587 | C    |
| 2   | A     | 588 | U    |
| 2   | A     | 593 | G    |
| 2   | A     | 595 | C    |
| 2   | A     | 598 | G    |
| 2   | A     | 599 | G    |
| 2   | A     | 600 | G    |
| 2   | A     | 601 | C    |
| 2   | A     | 602 | G    |
| 2   | A     | 603 | A    |
| 2   | A     | 608 | A    |
| 2   | A     | 609 | A    |
| 2   | A     | 612 | G    |
| 2   | A     | 613 | U    |
| 2   | A     | 614 | U    |
| 2   | A     | 615 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | A     | 616 | A    |
| 2   | A     | 617 | G    |
| 2   | A     | 620 | G    |
| 2   | A     | 621 | A    |
| 2   | A     | 622 | G    |
| 2   | A     | 624 | C    |
| 2   | A     | 625 | G    |
| 2   | A     | 627 | A    |
| 2   | A     | 628 | G    |
| 2   | A     | 634 | C    |
| 2   | A     | 637 | A    |
| 2   | A     | 639 | U    |
| 2   | A     | 640 | C    |
| 2   | A     | 641 | C    |
| 2   | A     | 643 | A    |
| 2   | A     | 646 | A    |
| 2   | A     | 647 | G    |
| 2   | A     | 650 | C    |
| 2   | A     | 653 | A    |
| 2   | A     | 654 | A    |
| 2   | A     | 655 | A    |
| 2   | A     | 656 | G    |
| 2   | A     | 662 | G    |
| 2   | A     | 668 | G    |
| 2   | A     | 669 | G    |
| 2   | A     | 670 | A    |
| 2   | A     | 671 | C    |
| 2   | A     | 673 | C    |
| 2   | A     | 675 | A    |
| 2   | A     | 677 | A    |
| 2   | A     | 684 | G    |
| 2   | A     | 686 | G    |
| 2   | A     | 687 | C    |
| 2   | A     | 688 | U    |
| 2   | A     | 690 | G    |
| 2   | A     | 698 | C    |
| 2   | A     | 699 | A    |
| 2   | A     | 704 | G    |
| 2   | A     | 705 | A    |
| 2   | A     | 713 | G    |
| 2   | A     | 715 | G    |
| 2   | A     | 717 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | A     | 718 | A    |
| 2   | A     | 721 | C    |
| 2   | A     | 726 | G    |
| 2   | A     | 727 | A    |
| 2   | A     | 728 | G    |
| 2   | A     | 729 | G    |
| 2   | A     | 730 | C    |
| 2   | A     | 736 | C    |
| 2   | A     | 739 | G    |
| 2   | A     | 740 | U    |
| 2   | A     | 741 | G    |
| 2   | A     | 746 | A    |
| 2   | A     | 747 | U    |
| 2   | A     | 748 | G    |
| 2   | A     | 750 | A    |
| 2   | A     | 751 | A    |
| 2   | A     | 752 | A    |
| 2   | A     | 753 | C    |
| 2   | A     | 762 | U    |
| 2   | A     | 764 | A    |
| 2   | A     | 765 | G    |
| 2   | A     | 771 | G    |
| 2   | A     | 775 | G    |
| 2   | A     | 776 | G    |
| 2   | A     | 777 | A    |
| 2   | A     | 779 | U    |
| 2   | A     | 781 | A    |
| 2   | A     | 782 | A    |
| 2   | A     | 783 | A    |
| 2   | A     | 784 | A    |
| 2   | A     | 785 | G    |
| 2   | A     | 786 | C    |
| 2   | A     | 787 | U    |
| 2   | A     | 788 | A    |
| 2   | A     | 789 | A    |
| 2   | A     | 790 | C    |
| 2   | A     | 791 | C    |
| 2   | A     | 793 | A    |
| 2   | A     | 794 | G    |
| 2   | A     | 799 | G    |
| 2   | A     | 800 | A    |
| 2   | A     | 801 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | A     | 802 | A    |
| 2   | A     | 805 | G    |
| 2   | A     | 806 | C    |
| 2   | A     | 811 | U    |
| 2   | A     | 812 | C    |
| 2   | A     | 813 | U    |
| 2   | A     | 816 | C    |
| 2   | A     | 819 | A    |
| 2   | A     | 820 | A    |
| 2   | A     | 822 | U    |
| 2   | A     | 826 | U    |
| 2   | A     | 827 | U    |
| 2   | A     | 828 | U    |
| 2   | A     | 829 | A    |
| 2   | A     | 830 | G    |
| 2   | A     | 831 | G    |
| 2   | A     | 833 | U    |
| 2   | A     | 847 | U    |
| 2   | A     | 848 | G    |
| 2   | A     | 859 | G    |
| 2   | A     | 860 | U    |
| 2   | A     | 861 | A    |
| 2   | A     | 863 | A    |
| 2   | A     | 866 | A    |
| 2   | A     | 867 | C    |
| 2   | A     | 870 | A    |
| 2   | A     | 873 | G    |
| 2   | A     | 875 | G    |
| 2   | A     | 877 | U    |
| 2   | A     | 878 | A    |
| 2   | A     | 881 | G    |
| 2   | A     | 886 | C    |
| 2   | A     | 887 | A    |
| 2   | A     | 888 | C    |
| 2   | A     | 889 | C    |
| 2   | A     | 890 | A    |
| 2   | A     | 896 | A    |
| 2   | A     | 897 | C    |
| 2   | A     | 899 | A    |
| 2   | A     | 902 | C    |
| 2   | A     | 906 | G    |
| 2   | A     | 907 | U    |

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| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 2   | A     | 910    | A    |
| 2   | A     | 914    | C    |
| 2   | A     | 915    | C    |
| 2   | A     | 918    | A    |
| 2   | A     | 919    | G    |
| 2   | A     | 930    | U    |
| 2   | A     | 931    | G    |
| 2   | A     | 932    | G    |
| 2   | A     | 933    | A    |
| 2   | A     | 935    | C    |
| 2   | A     | 941    | A    |
| 2   | A     | 942    | G    |
| 2   | A     | 943    | U    |
| 2   | A     | 944    | G    |
| 2   | A     | 945    | A    |
| 2   | A     | 946    | G    |
| 2   | A     | 949    | C    |
| 2   | A     | 957    | A    |
| 2   | A     | 958    | U    |
| 2   | A     | 959    | A    |
| 2   | A     | 961    | C    |
| 2   | A     | 962    | G    |
| 2   | A     | 964    | C    |
| 2   | A     | 966    | G    |
| 2   | A     | 968    | G    |
| 2   | A     | 972    | G    |
| 2   | A     | 973    | A    |
| 2   | A     | 974    | G    |
| 2   | A     | 974(A) | C    |
| 2   | A     | 975    | G    |
| 2   | A     | 976    | C    |
| 2   | A     | 980    | A    |
| 2   | A     | 982    | C    |
| 2   | A     | 983    | A    |
| 2   | A     | 984    | A    |
| 2   | A     | 985    | C    |
| 2   | A     | 986    | C    |
| 2   | A     | 989    | G    |
| 2   | A     | 990    | A    |
| 2   | A     | 991    | C    |
| 2   | A     | 993    | G    |
| 2   | A     | 994    | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 995  | C    |
| 2   | A     | 996  | A    |
| 2   | A     | 997  | G    |
| 2   | A     | 999  | U    |
| 2   | A     | 1003 | G    |
| 2   | A     | 1008 | C    |
| 2   | A     | 1009 | A    |
| 2   | A     | 1012 | U    |
| 2   | A     | 1013 | C    |
| 2   | A     | 1017 | G    |
| 2   | A     | 1019 | U    |
| 2   | A     | 1021 | A    |
| 2   | A     | 1022 | G    |
| 2   | A     | 1023 | U    |
| 2   | A     | 1024 | G    |
| 2   | A     | 1025 | G    |
| 2   | A     | 1026 | U    |
| 2   | A     | 1033 | U    |
| 2   | A     | 1039 | G    |
| 2   | A     | 1041 | C    |
| 2   | A     | 1044 | G    |
| 2   | A     | 1045 | A    |
| 2   | A     | 1046 | A    |
| 2   | A     | 1049 | C    |
| 2   | A     | 1056 | G    |
| 2   | A     | 1058 | G    |
| 2   | A     | 1060 | U    |
| 2   | A     | 1061 | U    |
| 2   | A     | 1062 | G    |
| 2   | A     | 1063 | G    |
| 2   | A     | 1066 | U    |
| 2   | A     | 1067 | A    |
| 2   | A     | 1068 | G    |
| 2   | A     | 1069 | A    |
| 2   | A     | 1070 | A    |
| 2   | A     | 1071 | G    |
| 2   | A     | 1072 | C    |
| 2   | A     | 1073 | A    |
| 2   | A     | 1081 | U    |
| 2   | A     | 1084 | A    |
| 2   | A     | 1085 | A    |
| 2   | A     | 1086 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1087 | G    |
| 2   | A     | 1088 | A    |
| 2   | A     | 1089 | G    |
| 2   | A     | 1090 | U    |
| 2   | A     | 1093 | G    |
| 2   | A     | 1096 | A    |
| 2   | A     | 1097 | U    |
| 2   | A     | 1098 | A    |
| 2   | A     | 1099 | G    |
| 2   | A     | 1101 | U    |
| 2   | A     | 1102 | C    |
| 2   | A     | 1103 | A    |
| 2   | A     | 1105 | U    |
| 2   | A     | 1106 | G    |
| 2   | A     | 1110 | G    |
| 2   | A     | 1111 | A    |
| 2   | A     | 1112 | G    |
| 2   | A     | 1114 | G    |
| 2   | A     | 1116 | C    |
| 2   | A     | 1120 | G    |
| 2   | A     | 1123 | C    |
| 2   | A     | 1124 | C    |
| 2   | A     | 1125 | G    |
| 2   | A     | 1126 | A    |
| 2   | A     | 1127 | A    |
| 2   | A     | 1128 | A    |
| 2   | A     | 1129 | A    |
| 2   | A     | 1130 | U    |
| 2   | A     | 1131 | G    |
| 2   | A     | 1132 | A    |
| 2   | A     | 1133 | U    |
| 2   | A     | 1134 | G    |
| 2   | A     | 1135 | C    |
| 2   | A     | 1138 | G    |
| 2   | A     | 1140 | C    |
| 2   | A     | 1141 | U    |
| 2   | A     | 1142 | U    |
| 2   | A     | 1149 | G    |
| 2   | A     | 1153 | C    |
| 2   | A     | 1154 | G    |
| 2   | A     | 1155 | A    |
| 2   | A     | 1156 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1157 | G    |
| 2   | A     | 1159 | U    |
| 2   | A     | 1162 | G    |
| 2   | A     | 1166 | C    |
| 2   | A     | 1171 | G    |
| 2   | A     | 1174 | A    |
| 2   | A     | 1175 | U    |
| 2   | A     | 1176 | G    |
| 2   | A     | 1177 | A    |
| 2   | A     | 1179 | C    |
| 2   | A     | 1180 | C    |
| 2   | A     | 1181 | C    |
| 2   | A     | 1182 | A    |
| 2   | A     | 1183 | G    |
| 2   | A     | 1184 | G    |
| 2   | A     | 1185 | C    |
| 2   | A     | 1186 | G    |
| 2   | A     | 1190 | G    |
| 2   | A     | 1197 | G    |
| 2   | A     | 1199 | U    |
| 2   | A     | 1202 | C    |
| 2   | A     | 1203 | G    |
| 2   | A     | 1204 | A    |
| 2   | A     | 1205 | U    |
| 2   | A     | 1206 | G    |
| 2   | A     | 1207 | C    |
| 2   | A     | 1208 | C    |
| 2   | A     | 1209 | G    |
| 2   | A     | 1210 | A    |
| 2   | A     | 1211 | U    |
| 2   | A     | 1212 | G    |
| 2   | A     | 1214 | A    |
| 2   | A     | 1220 | A    |
| 2   | A     | 1221 | C    |
| 2   | A     | 1222 | C    |
| 2   | A     | 1227 | A    |
| 2   | A     | 1228 | G    |
| 2   | A     | 1229 | G    |
| 2   | A     | 1234 | U    |
| 2   | A     | 1236 | G    |
| 2   | A     | 1237 | A    |
| 2   | A     | 1239 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1240 | U    |
| 2   | A     | 1241 | A    |
| 2   | A     | 1244 | G    |
| 2   | A     | 1246 | A    |
| 2   | A     | 1247 | A    |
| 2   | A     | 1248 | G    |
| 2   | A     | 1249 | U    |
| 2   | A     | 1251 | C    |
| 2   | A     | 1252 | G    |
| 2   | A     | 1253 | A    |
| 2   | A     | 1254 | A    |
| 2   | A     | 1255 | U    |
| 2   | A     | 1256 | G    |
| 2   | A     | 1260 | G    |
| 2   | A     | 1261 | C    |
| 2   | A     | 1265 | A    |
| 2   | A     | 1266 | G    |
| 2   | A     | 1267 | U    |
| 2   | A     | 1268 | A    |
| 2   | A     | 1269 | A    |
| 2   | A     | 1270 | C    |
| 2   | A     | 1271 | G    |
| 2   | A     | 1272 | A    |
| 2   | A     | 1273 | U    |
| 2   | A     | 1275 | A    |
| 2   | A     | 1284 | A    |
| 2   | A     | 1286 | A    |
| 2   | A     | 1287 | A    |
| 2   | A     | 1288 | U    |
| 2   | A     | 1289 | C    |
| 2   | A     | 1298 | C    |
| 2   | A     | 1300 | U    |
| 2   | A     | 1301 | A    |
| 2   | A     | 1302 | A    |
| 2   | A     | 1304 | C    |
| 2   | A     | 1307 | A    |
| 2   | A     | 1309 | G    |
| 2   | A     | 1311 | G    |
| 2   | A     | 1312 | U    |
| 2   | A     | 1313 | U    |
| 2   | A     | 1314 | C    |
| 2   | A     | 1320 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1321 | A    |
| 2   | A     | 1325 | G    |
| 2   | A     | 1326 | U    |
| 2   | A     | 1329 | U    |
| 2   | A     | 1330 | C    |
| 2   | A     | 1332 | G    |
| 2   | A     | 1333 | C    |
| 2   | A     | 1340 | U    |
| 2   | A     | 1341 | U    |
| 2   | A     | 1342 | A    |
| 2   | A     | 1343 | G    |
| 2   | A     | 1344 | G    |
| 2   | A     | 1345 | C    |
| 2   | A     | 1350 | C    |
| 2   | A     | 1352 | U    |
| 2   | A     | 1361 | G    |
| 2   | A     | 1363 | C    |
| 2   | A     | 1364 | G    |
| 2   | A     | 1365 | A    |
| 2   | A     | 1366 | A    |
| 2   | A     | 1368 | G    |
| 2   | A     | 1378 | A    |
| 2   | A     | 1379 | A    |
| 2   | A     | 1384 | A    |
| 2   | A     | 1385 | G    |
| 2   | A     | 1391 | U    |
| 2   | A     | 1392 | A    |
| 2   | A     | 1394 | U    |
| 2   | A     | 1395 | A    |
| 2   | A     | 1397 | U    |
| 2   | A     | 1398 | C    |
| 2   | A     | 1402 | C    |
| 2   | A     | 1404 | C    |
| 2   | A     | 1407 | C    |
| 2   | A     | 1415 | U    |
| 2   | A     | 1416 | G    |
| 2   | A     | 1417 | C    |
| 2   | A     | 1418 | G    |
| 2   | A     | 1419 | A    |
| 2   | A     | 1420 | U    |
| 2   | A     | 1421 | G    |
| 2   | A     | 1422 | G    |

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| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 2   | A     | 1425   | G    |
| 2   | A     | 1426   | G    |
| 2   | A     | 1427   | A    |
| 2   | A     | 1428   | C    |
| 2   | A     | 1429   | G    |
| 2   | A     | 1438   | U    |
| 2   | A     | 1439   | A    |
| 2   | A     | 444(A) | A    |
| 2   | A     | 449(A) | G    |
| 2   | A     | 1451   | C    |
| 2   | A     | 1454   | U    |
| 2   | A     | 1455   | G    |
| 2   | A     | 1460   | A    |
| 2   | A     | 1461   | G    |
| 2   | A     | 1462   | C    |
| 2   | A     | 1467   | C    |
| 2   | A     | 1475   | G    |
| 2   | A     | 1478   | G    |
| 2   | A     | 1480   | G    |
| 2   | A     | 1483   | G    |
| 2   | A     | 1484   | G    |
| 2   | A     | 1485   | G    |
| 2   | A     | 1489   | U    |
| 2   | A     | 1490   | A    |
| 2   | A     | 1491   | G    |
| 2   | A     | 1494   | A    |
| 2   | A     | 1495   | A    |
| 2   | A     | 1496   | A    |
| 2   | A     | 1497   | U    |
| 2   | A     | 1498   | C    |
| 2   | A     | 1499   | C    |
| 2   | A     | 1502   | C    |
| 2   | A     | 1506   | C    |
| 2   | A     | 1507   | A    |
| 2   | A     | 1508   | A    |
| 2   | A     | 1509   | C    |
| 2   | A     | 1510   | A    |
| 2   | A     | 1512   | G    |
| 2   | A     | 1513   | C    |
| 2   | A     | 1514   | U    |
| 2   | A     | 1515   | C    |
| 2   | A     | 1516   | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1517 | G    |
| 2   | A     | 1519 | G    |
| 2   | A     | 1521 | G    |
| 2   | A     | 1522 | G    |
| 2   | A     | 1525 | G    |
| 2   | A     | 1527 | G    |
| 2   | A     | 1528 | A    |
| 2   | A     | 1530 | G    |
| 2   | A     | 1531 | C    |
| 2   | A     | 1533 | C    |
| 2   | A     | 1534 | G    |
| 2   | A     | 1536 | A    |
| 2   | A     | 1537 | C    |
| 2   | A     | 1538 | G    |
| 2   | A     | 1539 | G    |
| 2   | A     | 1540 | G    |
| 2   | A     | 1543 | A    |
| 2   | A     | 1544 | C    |
| 2   | A     | 1545 | A    |
| 2   | A     | 1547 | C    |
| 2   | A     | 1553 | A    |
| 2   | A     | 1554 | A    |
| 2   | A     | 1555 | G    |
| 2   | A     | 1558 | A    |
| 2   | A     | 1559 | G    |
| 2   | A     | 1560 | G    |
| 2   | A     | 1561 | G    |
| 2   | A     | 1566 | A    |
| 2   | A     | 1567 | A    |
| 2   | A     | 1568 | G    |
| 2   | A     | 1569 | A    |
| 2   | A     | 1571 | A    |
| 2   | A     | 1572 | A    |
| 2   | A     | 1573 | G    |
| 2   | A     | 1574 | C    |
| 2   | A     | 1575 | C    |
| 2   | A     | 1577 | C    |
| 2   | A     | 1578 | U    |
| 2   | A     | 1579 | A    |
| 2   | A     | 1583 | A    |
| 2   | A     | 1586 | A    |
| 2   | A     | 1587 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1588 | C    |
| 2   | A     | 1602 | U    |
| 2   | A     | 1603 | A    |
| 2   | A     | 1606 | G    |
| 2   | A     | 1607 | C    |
| 2   | A     | 1608 | A    |
| 2   | A     | 1609 | A    |
| 2   | A     | 1610 | A    |
| 2   | A     | 1611 | C    |
| 2   | A     | 1612 | C    |
| 2   | A     | 1613 | G    |
| 2   | A     | 1614 | A    |
| 2   | A     | 1615 | C    |
| 2   | A     | 1616 | A    |
| 2   | A     | 1617 | C    |
| 2   | A     | 1618 | A    |
| 2   | A     | 1619 | G    |
| 2   | A     | 1625 | C    |
| 2   | A     | 1626 | G    |
| 2   | A     | 1627 | G    |
| 2   | A     | 1634 | A    |
| 2   | A     | 1635 | G    |
| 2   | A     | 1639 | U    |
| 2   | A     | 1640 | C    |
| 2   | A     | 1645 | G    |
| 2   | A     | 1646 | C    |
| 2   | A     | 1647 | G    |
| 2   | A     | 1648 | C    |
| 2   | A     | 1649 | G    |
| 2   | A     | 1652 | A    |
| 2   | A     | 1653 | G    |
| 2   | A     | 1654 | A    |
| 2   | A     | 1655 | A    |
| 2   | A     | 1658 | C    |
| 2   | A     | 1664 | A    |
| 2   | A     | 1665 | A    |
| 2   | A     | 1667 | G    |
| 2   | A     | 1668 | A    |
| 2   | A     | 1669 | A    |
| 2   | A     | 1670 | C    |
| 2   | A     | 1674 | G    |
| 2   | A     | 1675 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1679 | U    |
| 2   | A     | 1681 | G    |
| 2   | A     | 1682 | G    |
| 2   | A     | 1686 | C    |
| 2   | A     | 1688 | U    |
| 2   | A     | 1689 | A    |
| 2   | A     | 1695 | G    |
| 2   | A     | 1696 | G    |
| 2   | A     | 1698 | A    |
| 2   | A     | 1699 | G    |
| 2   | A     | 1700 | A    |
| 2   | A     | 1701 | A    |
| 2   | A     | 1703 | G    |
| 2   | A     | 1705 | G    |
| 2   | A     | 1706 | U    |
| 2   | A     | 1707 | G    |
| 2   | A     | 1718 | G    |
| 2   | A     | 1726 | G    |
| 2   | A     | 1728 | G    |
| 2   | A     | 1729 | A    |
| 2   | A     | 1730 | U    |
| 2   | A     | 1731 | G    |
| 2   | A     | 1732 | A    |
| 2   | A     | 1733 | G    |
| 2   | A     | 1735 | C    |
| 2   | A     | 1743 | G    |
| 2   | A     | 1747 | G    |
| 2   | A     | 1755 | A    |
| 2   | A     | 1756 | G    |
| 2   | A     | 1757 | U    |
| 2   | A     | 1758 | G    |
| 2   | A     | 1759 | A    |
| 2   | A     | 1760 | A    |
| 2   | A     | 1762 | A    |
| 2   | A     | 1763 | G    |
| 2   | A     | 1764 | G    |
| 2   | A     | 1767 | C    |
| 2   | A     | 1772 | G    |
| 2   | A     | 1773 | A    |
| 2   | A     | 1774 | C    |
| 2   | A     | 1775 | U    |
| 2   | A     | 1776 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1780 | A    |
| 2   | A     | 1781 | C    |
| 2   | A     | 1782 | C    |
| 2   | A     | 1783 | A    |
| 2   | A     | 1784 | A    |
| 2   | A     | 1786 | A    |
| 2   | A     | 1787 | A    |
| 2   | A     | 1788 | C    |
| 2   | A     | 1790 | C    |
| 2   | A     | 1791 | A    |
| 2   | A     | 1800 | C    |
| 2   | A     | 1801 | G    |
| 2   | A     | 1802 | A    |
| 2   | A     | 1805 | U    |
| 2   | A     | 1808 | U    |
| 2   | A     | 1809 | A    |
| 2   | A     | 1810 | A    |
| 2   | A     | 1811 | G    |
| 2   | A     | 1815 | A    |
| 2   | A     | 1816 | G    |
| 2   | A     | 1817 | G    |
| 2   | A     | 1818 | U    |
| 2   | A     | 1820 | U    |
| 2   | A     | 1821 | A    |
| 2   | A     | 1823 | G    |
| 2   | A     | 1824 | G    |
| 2   | A     | 1825 | A    |
| 2   | A     | 1826 | G    |
| 2   | A     | 1828 | G    |
| 2   | A     | 1829 | A    |
| 2   | A     | 1834 | U    |
| 2   | A     | 1837 | C    |
| 2   | A     | 1838 | C    |
| 2   | A     | 1839 | G    |
| 2   | A     | 1840 | G    |
| 2   | A     | 1843 | C    |
| 2   | A     | 1847 | A    |
| 2   | A     | 1852 | C    |
| 2   | A     | 1858 | G    |
| 2   | A     | 1860 | G    |
| 2   | A     | 1870 | C    |
| 2   | A     | 1880 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1881 | C    |
| 2   | A     | 1883 | G    |
| 2   | A     | 1884 | A    |
| 2   | A     | 1891 | G    |
| 2   | A     | 1895 | C    |
| 2   | A     | 1899 | G    |
| 2   | A     | 1901 | A    |
| 2   | A     | 1903 | G    |
| 2   | A     | 1906 | G    |
| 2   | A     | 1913 | A    |
| 2   | A     | 1914 | C    |
| 2   | A     | 1915 | U    |
| 2   | A     | 1916 | A    |
| 2   | A     | 1917 | U    |
| 2   | A     | 1918 | A    |
| 2   | A     | 1919 | A    |
| 2   | A     | 1923 | U    |
| 2   | A     | 1925 | C    |
| 2   | A     | 1928 | A    |
| 2   | A     | 1929 | G    |
| 2   | A     | 1930 | G    |
| 2   | A     | 1931 | U    |
| 2   | A     | 1934 | C    |
| 2   | A     | 1936 | A    |
| 2   | A     | 1937 | A    |
| 2   | A     | 1938 | A    |
| 2   | A     | 1939 | U    |
| 2   | A     | 1940 | U    |
| 2   | A     | 1941 | C    |
| 2   | A     | 1942 | C    |
| 2   | A     | 1943 | U    |
| 2   | A     | 1944 | U    |
| 2   | A     | 1945 | G    |
| 2   | A     | 1947 | C    |
| 2   | A     | 1953 | A    |
| 2   | A     | 1954 | G    |
| 2   | A     | 1955 | U    |
| 2   | A     | 1956 | U    |
| 2   | A     | 1957 | C    |
| 2   | A     | 1958 | C    |
| 2   | A     | 1960 | A    |
| 2   | A     | 1962 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1963 | U    |
| 2   | A     | 1964 | G    |
| 2   | A     | 1965 | C    |
| 2   | A     | 1966 | A    |
| 2   | A     | 1967 | C    |
| 2   | A     | 1968 | G    |
| 2   | A     | 1969 | A    |
| 2   | A     | 1970 | A    |
| 2   | A     | 1971 | A    |
| 2   | A     | 1972 | A    |
| 2   | A     | 1981 | A    |
| 2   | A     | 1982 | C    |
| 2   | A     | 1991 | U    |
| 2   | A     | 1993 | U    |
| 2   | A     | 1995 | U    |
| 2   | A     | 1996 | C    |
| 2   | A     | 1997 | G    |
| 2   | A     | 2003 | G    |
| 2   | A     | 2015 | A    |
| 2   | A     | 2016 | U    |
| 2   | A     | 2018 | G    |
| 2   | A     | 2020 | A    |
| 2   | A     | 2021 | C    |
| 2   | A     | 2022 | U    |
| 2   | A     | 2023 | G    |
| 2   | A     | 2027 | G    |
| 2   | A     | 2030 | A    |
| 2   | A     | 2031 | A    |
| 2   | A     | 2032 | G    |
| 2   | A     | 2033 | A    |
| 2   | A     | 2034 | U    |
| 2   | A     | 2036 | C    |
| 2   | A     | 2039 | C    |
| 2   | A     | 2041 | U    |
| 2   | A     | 2043 | C    |
| 2   | A     | 2044 | C    |
| 2   | A     | 2045 | C    |
| 2   | A     | 2047 | U    |
| 2   | A     | 2048 | G    |
| 2   | A     | 2050 | C    |
| 2   | A     | 2051 | A    |
| 2   | A     | 2052 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2055 | C    |
| 2   | A     | 2056 | G    |
| 2   | A     | 2059 | A    |
| 2   | A     | 2060 | A    |
| 2   | A     | 2061 | G    |
| 2   | A     | 2062 | A    |
| 2   | A     | 2063 | C    |
| 2   | A     | 2064 | C    |
| 2   | A     | 2065 | C    |
| 2   | A     | 2066 | C    |
| 2   | A     | 2068 | U    |
| 2   | A     | 2069 | G    |
| 2   | A     | 2076 | U    |
| 2   | A     | 2077 | A    |
| 2   | A     | 2080 | G    |
| 2   | A     | 2083 | G    |
| 2   | A     | 2087 | G    |
| 2   | A     | 2091 | U    |
| 2   | A     | 2092 | U    |
| 2   | A     | 2093 | G    |
| 2   | A     | 2094 | G    |
| 2   | A     | 2098 | U    |
| 2   | A     | 2099 | U    |
| 2   | A     | 2182 | G    |
| 2   | A     | 2188 | C    |
| 2   | A     | 2190 | G    |
| 2   | A     | 2191 | G    |
| 2   | A     | 2192 | G    |
| 2   | A     | 2193 | G    |
| 2   | A     | 2194 | G    |
| 2   | A     | 2195 | C    |
| 2   | A     | 2196 | C    |
| 2   | A     | 2198 | A    |
| 2   | A     | 2205 | C    |
| 2   | A     | 2206 | C    |
| 2   | A     | 2207 | C    |
| 2   | A     | 2208 | U    |
| 2   | A     | 2209 | C    |
| 2   | A     | 2210 | G    |
| 2   | A     | 2211 | G    |
| 2   | A     | 2212 | A    |
| 2   | A     | 2213 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2217 | G    |
| 2   | A     | 2224 | G    |
| 2   | A     | 2225 | A    |
| 2   | A     | 2226 | C    |
| 2   | A     | 2227 | A    |
| 2   | A     | 2228 | G    |
| 2   | A     | 2232 | U    |
| 2   | A     | 2233 | U    |
| 2   | A     | 2234 | G    |
| 2   | A     | 2235 | G    |
| 2   | A     | 2236 | C    |
| 2   | A     | 2237 | G    |
| 2   | A     | 2238 | G    |
| 2   | A     | 2239 | G    |
| 2   | A     | 2240 | C    |
| 2   | A     | 2241 | A    |
| 2   | A     | 2242 | G    |
| 2   | A     | 2243 | U    |
| 2   | A     | 2245 | U    |
| 2   | A     | 2247 | A    |
| 2   | A     | 2250 | G    |
| 2   | A     | 2251 | G    |
| 2   | A     | 2253 | G    |
| 2   | A     | 2254 | C    |
| 2   | A     | 2255 | G    |
| 2   | A     | 2257 | U    |
| 2   | A     | 2258 | C    |
| 2   | A     | 2259 | G    |
| 2   | A     | 2262 | U    |
| 2   | A     | 2263 | C    |
| 2   | A     | 2264 | C    |
| 2   | A     | 2265 | U    |
| 2   | A     | 2266 | A    |
| 2   | A     | 2267 | A    |
| 2   | A     | 2268 | A    |
| 2   | A     | 2269 | A    |
| 2   | A     | 2270 | G    |
| 2   | A     | 2272 | U    |
| 2   | A     | 2275 | C    |
| 2   | A     | 2276 | G    |
| 2   | A     | 2277 | G    |
| 2   | A     | 2278 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2279 | G    |
| 2   | A     | 2281 | C    |
| 2   | A     | 2282 | G    |
| 2   | A     | 2283 | C    |
| 2   | A     | 2284 | C    |
| 2   | A     | 2286 | A    |
| 2   | A     | 2287 | A    |
| 2   | A     | 2288 | A    |
| 2   | A     | 2289 | G    |
| 2   | A     | 2291 | U    |
| 2   | A     | 2294 | C    |
| 2   | A     | 2296 | U    |
| 2   | A     | 2297 | C    |
| 2   | A     | 2300 | G    |
| 2   | A     | 2303 | G    |
| 2   | A     | 2304 | G    |
| 2   | A     | 2306 | C    |
| 2   | A     | 2307 | G    |
| 2   | A     | 2308 | G    |
| 2   | A     | 2309 | A    |
| 2   | A     | 2310 | A    |
| 2   | A     | 2311 | A    |
| 2   | A     | 2312 | U    |
| 2   | A     | 2313 | C    |
| 2   | A     | 2314 | C    |
| 2   | A     | 2315 | G    |
| 2   | A     | 2317 | C    |
| 2   | A     | 2318 | G    |
| 2   | A     | 2319 | G    |
| 2   | A     | 2320 | A    |
| 2   | A     | 2321 | G    |
| 2   | A     | 2322 | A    |
| 2   | A     | 2323 | G    |
| 2   | A     | 2325 | G    |
| 2   | A     | 2327 | A    |
| 2   | A     | 2334 | G    |
| 2   | A     | 2335 | A    |
| 2   | A     | 2336 | A    |
| 2   | A     | 2337 | G    |
| 2   | A     | 2339 | G    |
| 2   | A     | 2341 | G    |
| 2   | A     | 2342 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2343 | C    |
| 2   | A     | 2345 | G    |
| 2   | A     | 2346 | A    |
| 2   | A     | 2347 | C    |
| 2   | A     | 2348 | U    |
| 2   | A     | 2350 | C    |
| 2   | A     | 2351 | G    |
| 2   | A     | 2352 | A    |
| 2   | A     | 2353 | G    |
| 2   | A     | 2355 | C    |
| 2   | A     | 2357 | U    |
| 2   | A     | 2358 | G    |
| 2   | A     | 2359 | C    |
| 2   | A     | 2360 | A    |
| 2   | A     | 2361 | A    |
| 2   | A     | 2362 | G    |
| 2   | A     | 2366 | A    |
| 2   | A     | 2371 | G    |
| 2   | A     | 2372 | G    |
| 2   | A     | 2373 | G    |
| 2   | A     | 2374 | C    |
| 2   | A     | 2378 | A    |
| 2   | A     | 2379 | G    |
| 2   | A     | 2381 | C    |
| 2   | A     | 2382 | G    |
| 2   | A     | 2383 | G    |
| 2   | A     | 2384 | G    |
| 2   | A     | 2385 | C    |
| 2   | A     | 2386 | C    |
| 2   | A     | 2387 | U    |
| 2   | A     | 2389 | G    |
| 2   | A     | 2390 | U    |
| 2   | A     | 2392 | A    |
| 2   | A     | 2393 | A    |
| 2   | A     | 2394 | C    |
| 2   | A     | 2395 | C    |
| 2   | A     | 2396 | G    |
| 2   | A     | 2397 | G    |
| 2   | A     | 2399 | G    |
| 2   | A     | 2400 | G    |
| 2   | A     | 2401 | U    |
| 2   | A     | 2402 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2403 | C    |
| 2   | A     | 2405 | G    |
| 2   | A     | 2406 | U    |
| 2   | A     | 2407 | G    |
| 2   | A     | 2408 | U    |
| 2   | A     | 2409 | G    |
| 2   | A     | 2411 | A    |
| 2   | A     | 2412 | A    |
| 2   | A     | 2413 | G    |
| 2   | A     | 2417 | C    |
| 2   | A     | 2422 | A    |
| 2   | A     | 2423 | U    |
| 2   | A     | 2424 | C    |
| 2   | A     | 2425 | A    |
| 2   | A     | 2426 | A    |
| 2   | A     | 2427 | C    |
| 2   | A     | 2428 | G    |
| 2   | A     | 2430 | A    |
| 2   | A     | 2431 | U    |
| 2   | A     | 2432 | A    |
| 2   | A     | 2434 | A    |
| 2   | A     | 2435 | A    |
| 2   | A     | 2436 | G    |
| 2   | A     | 2437 | U    |
| 2   | A     | 2438 | U    |
| 2   | A     | 2439 | A    |
| 2   | A     | 2441 | C    |
| 2   | A     | 2442 | C    |
| 2   | A     | 2444 | G    |
| 2   | A     | 2446 | G    |
| 2   | A     | 2448 | A    |
| 2   | A     | 2449 | U    |
| 2   | A     | 2451 | A    |
| 2   | A     | 2453 | A    |
| 2   | A     | 2456 | C    |
| 2   | A     | 2458 | G    |
| 2   | A     | 2463 | C    |
| 2   | A     | 2464 | C    |
| 2   | A     | 2465 | C    |
| 2   | A     | 2466 | C    |
| 2   | A     | 2468 | G    |
| 2   | A     | 2469 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2470 | G    |
| 2   | A     | 2472 | G    |
| 2   | A     | 2473 | U    |
| 2   | A     | 2475 | C    |
| 2   | A     | 2476 | A    |
| 2   | A     | 2478 | A    |
| 2   | A     | 2479 | G    |
| 2   | A     | 2480 | C    |
| 2   | A     | 2482 | G    |
| 2   | A     | 2483 | C    |
| 2   | A     | 2484 | G    |
| 2   | A     | 2485 | G    |
| 2   | A     | 2488 | A    |
| 2   | A     | 2490 | G    |
| 2   | A     | 2491 | U    |
| 2   | A     | 2493 | U    |
| 2   | A     | 2494 | G    |
| 2   | A     | 2495 | G    |
| 2   | A     | 2496 | C    |
| 2   | A     | 2497 | A    |
| 2   | A     | 2498 | C    |
| 2   | A     | 2499 | C    |
| 2   | A     | 2500 | U    |
| 2   | A     | 2502 | G    |
| 2   | A     | 2503 | A    |
| 2   | A     | 2504 | U    |
| 2   | A     | 2505 | G    |
| 2   | A     | 2506 | U    |
| 2   | A     | 2507 | C    |
| 2   | A     | 2512 | C    |
| 2   | A     | 2513 | G    |
| 2   | A     | 2517 | C    |
| 2   | A     | 2518 | A    |
| 2   | A     | 2519 | U    |
| 2   | A     | 2520 | C    |
| 2   | A     | 2521 | C    |
| 2   | A     | 2522 | U    |
| 2   | A     | 2526 | G    |
| 2   | A     | 2529 | G    |
| 2   | A     | 2532 | G    |
| 2   | A     | 2533 | A    |
| 2   | A     | 2535 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2536 | G    |
| 2   | A     | 2537 | U    |
| 2   | A     | 2539 | C    |
| 2   | A     | 2540 | C    |
| 2   | A     | 2541 | A    |
| 2   | A     | 2542 | A    |
| 2   | A     | 2543 | G    |
| 2   | A     | 2544 | G    |
| 2   | A     | 2545 | G    |
| 2   | A     | 2546 | U    |
| 2   | A     | 2547 | U    |
| 2   | A     | 2549 | G    |
| 2   | A     | 2551 | C    |
| 2   | A     | 2552 | U    |
| 2   | A     | 2553 | G    |
| 2   | A     | 2554 | U    |
| 2   | A     | 2555 | U    |
| 2   | A     | 2556 | C    |
| 2   | A     | 2557 | G    |
| 2   | A     | 2558 | C    |
| 2   | A     | 2561 | A    |
| 2   | A     | 2562 | U    |
| 2   | A     | 2565 | A    |
| 2   | A     | 2566 | A    |
| 2   | A     | 2567 | G    |
| 2   | A     | 2568 | C    |
| 2   | A     | 2569 | G    |
| 2   | A     | 2570 | G    |
| 2   | A     | 2572 | A    |
| 2   | A     | 2573 | C    |
| 2   | A     | 2574 | G    |
| 2   | A     | 2575 | C    |
| 2   | A     | 2576 | G    |
| 2   | A     | 2577 | A    |
| 2   | A     | 2578 | G    |
| 2   | A     | 2579 | C    |
| 2   | A     | 2580 | U    |
| 2   | A     | 2581 | G    |
| 2   | A     | 2582 | G    |
| 2   | A     | 2583 | G    |
| 2   | A     | 2584 | U    |
| 2   | A     | 2585 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2586 | C    |
| 2   | A     | 2587 | A    |
| 2   | A     | 2588 | G    |
| 2   | A     | 2590 | A    |
| 2   | A     | 2591 | C    |
| 2   | A     | 2596 | U    |
| 2   | A     | 2597 | G    |
| 2   | A     | 2598 | A    |
| 2   | A     | 2599 | G    |
| 2   | A     | 2600 | A    |
| 2   | A     | 2601 | C    |
| 2   | A     | 2602 | A    |
| 2   | A     | 2603 | G    |
| 2   | A     | 2604 | U    |
| 2   | A     | 2605 | U    |
| 2   | A     | 2606 | C    |
| 2   | A     | 2607 | G    |
| 2   | A     | 2609 | U    |
| 2   | A     | 2610 | C    |
| 2   | A     | 2611 | U    |
| 2   | A     | 2612 | C    |
| 2   | A     | 2613 | U    |
| 2   | A     | 2614 | A    |
| 2   | A     | 2615 | U    |
| 2   | A     | 2616 | C    |
| 2   | A     | 2617 | C    |
| 2   | A     | 2618 | G    |
| 2   | A     | 2619 | C    |
| 2   | A     | 2620 | C    |
| 2   | A     | 2621 | A    |
| 2   | A     | 2625 | G    |
| 2   | A     | 2626 | C    |
| 2   | A     | 2627 | G    |
| 2   | A     | 2629 | A    |
| 2   | A     | 2630 | G    |
| 2   | A     | 2631 | G    |
| 2   | A     | 2633 | G    |
| 2   | A     | 2635 | C    |
| 2   | A     | 2637 | U    |
| 2   | A     | 2638 | G    |
| 2   | A     | 2640 | G    |
| 2   | A     | 2641 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2645 | G    |
| 2   | A     | 2646 | C    |
| 2   | A     | 2648 | C    |
| 2   | A     | 2650 | U    |
| 2   | A     | 2654 | A    |
| 2   | A     | 2655 | G    |
| 2   | A     | 2658 | C    |
| 2   | A     | 2659 | G    |
| 2   | A     | 2661 | G    |
| 2   | A     | 2662 | A    |
| 2   | A     | 2663 | G    |
| 2   | A     | 2665 | A    |
| 2   | A     | 2666 | C    |
| 2   | A     | 2667 | C    |
| 2   | A     | 2672 | G    |
| 2   | A     | 2676 | C    |
| 2   | A     | 2677 | G    |
| 2   | A     | 2678 | C    |
| 2   | A     | 2679 | A    |
| 2   | A     | 2680 | C    |
| 2   | A     | 2681 | C    |
| 2   | A     | 2682 | U    |
| 2   | A     | 2683 | C    |
| 2   | A     | 2685 | G    |
| 2   | A     | 2686 | G    |
| 2   | A     | 2687 | U    |
| 2   | A     | 2689 | U    |
| 2   | A     | 2690 | C    |
| 2   | A     | 2691 | C    |
| 2   | A     | 2693 | A    |
| 2   | A     | 2698 | U    |
| 2   | A     | 2699 | C    |
| 2   | A     | 2701 | C    |
| 2   | A     | 2702 | U    |
| 2   | A     | 2703 | C    |
| 2   | A     | 2704 | C    |
| 2   | A     | 2705 | A    |
| 2   | A     | 2707 | G    |
| 2   | A     | 2708 | G    |
| 2   | A     | 2709 | G    |
| 2   | A     | 2710 | C    |
| 2   | A     | 2712 | U    |

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| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 2   | A     | 712(A) | A    |
| 2   | A     | 2713   | A    |
| 2   | A     | 2714   | G    |
| 2   | A     | 2717   | G    |
| 2   | A     | 2718   | G    |
| 2   | A     | 2719   | G    |
| 2   | A     | 2720   | U    |
| 2   | A     | 2721   | A    |
| 2   | A     | 2723   | C    |
| 2   | A     | 2725   | A    |
| 2   | A     | 2726   | U    |
| 2   | A     | 2727   | G    |
| 2   | A     | 2729   | G    |
| 2   | A     | 2732   | G    |
| 2   | A     | 2733   | A    |
| 2   | A     | 2738   | A    |
| 2   | A     | 2740   | A    |
| 2   | A     | 2741   | A    |
| 2   | A     | 2742   | C    |
| 2   | A     | 2743   | C    |
| 2   | A     | 2744   | G    |
| 2   | A     | 2746   | U    |
| 2   | A     | 2747   | G    |
| 2   | A     | 2748   | A    |
| 2   | A     | 2750   | A    |
| 2   | A     | 2751   | G    |
| 2   | A     | 2752   | C    |
| 2   | A     | 2755   | C    |
| 2   | A     | 2756   | U    |
| 2   | A     | 2757   | A    |
| 2   | A     | 2758   | A    |
| 2   | A     | 2759   | G    |
| 2   | A     | 2760   | C    |
| 2   | A     | 2762   | G    |
| 2   | A     | 2763   | G    |
| 2   | A     | 2764   | A    |
| 2   | A     | 2765   | A    |
| 2   | A     | 2766   | G    |
| 2   | A     | 2768   | C    |
| 2   | A     | 2769   | C    |
| 2   | A     | 2770   | G    |
| 2   | A     | 2771   | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2772 | C    |
| 2   | A     | 2773 | C    |
| 2   | A     | 2774 | C    |
| 2   | A     | 2775 | A    |
| 2   | A     | 2776 | A    |
| 2   | A     | 2777 | G    |
| 2   | A     | 2778 | A    |
| 2   | A     | 2779 | U    |
| 2   | A     | 2780 | G    |
| 2   | A     | 2781 | A    |
| 2   | A     | 2782 | G    |
| 2   | A     | 2783 | G    |
| 2   | A     | 2784 | C    |
| 2   | A     | 2786 | U    |
| 2   | A     | 2787 | C    |
| 2   | A     | 2788 | C    |
| 2   | A     | 2789 | C    |
| 2   | A     | 2790 | A    |
| 2   | A     | 2791 | C    |
| 2   | A     | 2793 | G    |
| 2   | A     | 2794 | C    |
| 2   | A     | 2795 | G    |
| 2   | A     | 2798 | C    |
| 2   | A     | 2799 | A    |
| 2   | A     | 2802 | G    |
| 2   | A     | 2803 | C    |
| 2   | A     | 2804 | C    |
| 2   | A     | 2805 | G    |
| 2   | A     | 2809 | A    |
| 2   | A     | 2810 | A    |
| 2   | A     | 2811 | G    |
| 2   | A     | 2812 | G    |
| 2   | A     | 2815 | C    |
| 2   | A     | 2816 | C    |
| 2   | A     | 2817 | G    |
| 2   | A     | 2818 | G    |
| 2   | A     | 2819 | G    |
| 2   | A     | 2820 | A    |
| 2   | A     | 2821 | A    |
| 2   | A     | 2822 | G    |
| 2   | A     | 2826 | A    |
| 2   | A     | 2827 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2829 | C    |
| 2   | A     | 2832 | U    |
| 2   | A     | 2833 | G    |
| 2   | A     | 2834 | G    |
| 2   | A     | 2835 | A    |
| 2   | A     | 2836 | U    |
| 2   | A     | 2839 | G    |
| 2   | A     | 2843 | G    |
| 2   | A     | 2844 | G    |
| 2   | A     | 2845 | G    |
| 2   | A     | 2846 | G    |
| 2   | A     | 2847 | U    |
| 2   | A     | 2848 | G    |
| 2   | A     | 2849 | U    |
| 2   | A     | 2850 | A    |
| 2   | A     | 2853 | C    |
| 2   | A     | 2854 | G    |
| 2   | A     | 2858 | C    |
| 2   | A     | 2860 | A    |
| 2   | A     | 2861 | G    |
| 2   | A     | 2862 | G    |
| 2   | A     | 2863 | C    |
| 2   | A     | 2866 | U    |
| 2   | A     | 2867 | G    |
| 2   | A     | 2868 | A    |
| 2   | A     | 2869 | G    |
| 2   | A     | 2871 | C    |
| 2   | A     | 2872 | G    |
| 2   | A     | 2874 | C    |
| 2   | A     | 2877 | G    |
| 2   | A     | 2879 | C    |
| 2   | A     | 2880 | C    |
| 2   | A     | 2881 | C    |
| 2   | A     | 2882 | A    |
| 2   | A     | 2883 | A    |
| 2   | A     | 2884 | U    |
| 2   | A     | 2889 | C    |
| 2   | A     | 2891 | G    |
| 2   | A     | 2892 | A    |
| 2   | A     | 2893 | G    |
| 2   | A     | 2894 | G    |
| 2   | A     | 2895 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2899 | G    |
| 2   | A     | 2902 | C    |

All (364) RNA pucker outliers are listed below:

| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 1   | B     | 14     | U    |
| 1   | B     | 56     | G    |
| 1   | B     | 119    | A    |
| 2   | A     | 13     | A    |
| 2   | A     | 14     | A    |
| 2   | A     | 16     | G    |
| 2   | A     | 36     | G    |
| 2   | A     | 51     | G    |
| 2   | A     | 60     | G    |
| 2   | A     | 71     | A    |
| 2   | A     | 74     | A    |
| 2   | A     | 83     | G    |
| 2   | A     | 90     | U    |
| 2   | A     | 102    | G    |
| 2   | A     | 107    | C    |
| 2   | A     | 119    | A    |
| 2   | A     | 128    | C    |
| 2   | A     | 137    | C    |
| 2   | A     | 139    | G    |
| 2   | A     | 162    | U    |
| 2   | A     | 181    | A    |
| 2   | A     | 197    | A    |
| 2   | A     | 204    | A    |
| 2   | A     | 215    | G    |
| 2   | A     | 221    | A    |
| 2   | A     | 232    | G    |
| 2   | A     | 241    | A    |
| 2   | A     | 247    | G    |
| 2   | A     | 249    | C    |
| 2   | A     | 265    | A    |
| 2   | A     | 270(B) | A    |
| 2   | A     | 270(L) | U    |
| 2   | A     | 270(M) | U    |
| 2   | A     | 270(Y) | G    |
| 2   | A     | 271(B) | G    |
| 2   | A     | 289    | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | A     | 296 | C    |
| 2   | A     | 312 | G    |
| 2   | A     | 320 | A    |
| 2   | A     | 323 | G    |
| 2   | A     | 331 | A    |
| 2   | A     | 332 | A    |
| 2   | A     | 333 | G    |
| 2   | A     | 338 | G    |
| 2   | A     | 370 | G    |
| 2   | A     | 371 | A    |
| 2   | A     | 386 | G    |
| 2   | A     | 387 | U    |
| 2   | A     | 390 | A    |
| 2   | A     | 404 | C    |
| 2   | A     | 434 | U    |
| 2   | A     | 446 | G    |
| 2   | A     | 448 | U    |
| 2   | A     | 455 | C    |
| 2   | A     | 463 | G    |
| 2   | A     | 478 | A    |
| 2   | A     | 479 | A    |
| 2   | A     | 482 | A    |
| 2   | A     | 508 | G    |
| 2   | A     | 526 | A    |
| 2   | A     | 529 | A    |
| 2   | A     | 530 | G    |
| 2   | A     | 532 | A    |
| 2   | A     | 548 | A    |
| 2   | A     | 559 | G    |
| 2   | A     | 566 | U    |
| 2   | A     | 574 | C    |
| 2   | A     | 579 | G    |
| 2   | A     | 587 | C    |
| 2   | A     | 615 | G    |
| 2   | A     | 616 | A    |
| 2   | A     | 620 | G    |
| 2   | A     | 646 | A    |
| 2   | A     | 654 | A    |
| 2   | A     | 669 | G    |
| 2   | A     | 670 | A    |
| 2   | A     | 685 | A    |
| 2   | A     | 686 | G    |

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| Mol | Chain | Res    | Type |
|-----|-------|--------|------|
| 2   | A     | 687    | C    |
| 2   | A     | 704    | G    |
| 2   | A     | 728    | G    |
| 2   | A     | 729    | G    |
| 2   | A     | 746    | A    |
| 2   | A     | 750    | A    |
| 2   | A     | 751    | A    |
| 2   | A     | 752    | A    |
| 2   | A     | 761    | A    |
| 2   | A     | 762    | U    |
| 2   | A     | 764    | A    |
| 2   | A     | 776    | G    |
| 2   | A     | 782    | A    |
| 2   | A     | 787    | U    |
| 2   | A     | 788    | A    |
| 2   | A     | 789    | A    |
| 2   | A     | 790    | C    |
| 2   | A     | 792    | G    |
| 2   | A     | 793    | A    |
| 2   | A     | 800    | A    |
| 2   | A     | 801    | G    |
| 2   | A     | 805    | G    |
| 2   | A     | 811    | U    |
| 2   | A     | 827    | U    |
| 2   | A     | 829    | A    |
| 2   | A     | 830    | G    |
| 2   | A     | 837    | C    |
| 2   | A     | 845    | G    |
| 2   | A     | 846    | C    |
| 2   | A     | 886    | C    |
| 2   | A     | 930    | U    |
| 2   | A     | 944    | G    |
| 2   | A     | 945    | A    |
| 2   | A     | 957    | A    |
| 2   | A     | 973    | A    |
| 2   | A     | 974    | G    |
| 2   | A     | 974(A) | C    |
| 2   | A     | 982    | C    |
| 2   | A     | 989    | G    |
| 2   | A     | 994    | C    |
| 2   | A     | 1011   | G    |
| 2   | A     | 1022   | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1025 | G    |
| 2   | A     | 1033 | U    |
| 2   | A     | 1045 | A    |
| 2   | A     | 1061 | U    |
| 2   | A     | 1069 | A    |
| 2   | A     | 1085 | A    |
| 2   | A     | 1100 | C    |
| 2   | A     | 1102 | C    |
| 2   | A     | 1110 | G    |
| 2   | A     | 1124 | C    |
| 2   | A     | 1126 | A    |
| 2   | A     | 1128 | A    |
| 2   | A     | 1130 | U    |
| 2   | A     | 1131 | G    |
| 2   | A     | 1140 | C    |
| 2   | A     | 1141 | U    |
| 2   | A     | 1150 | C    |
| 2   | A     | 1154 | G    |
| 2   | A     | 1169 | G    |
| 2   | A     | 1173 | G    |
| 2   | A     | 1179 | C    |
| 2   | A     | 1180 | C    |
| 2   | A     | 1181 | C    |
| 2   | A     | 1183 | G    |
| 2   | A     | 1190 | G    |
| 2   | A     | 1202 | C    |
| 2   | A     | 1206 | G    |
| 2   | A     | 1210 | A    |
| 2   | A     | 1220 | A    |
| 2   | A     | 1248 | G    |
| 2   | A     | 1250 | G    |
| 2   | A     | 1252 | G    |
| 2   | A     | 1253 | A    |
| 2   | A     | 1254 | A    |
| 2   | A     | 1255 | U    |
| 2   | A     | 1265 | A    |
| 2   | A     | 1287 | A    |
| 2   | A     | 1288 | U    |
| 2   | A     | 1300 | U    |
| 2   | A     | 1302 | A    |
| 2   | A     | 1311 | G    |
| 2   | A     | 1312 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1320 | C    |
| 2   | A     | 1324 | G    |
| 2   | A     | 1325 | G    |
| 2   | A     | 1329 | U    |
| 2   | A     | 1341 | U    |
| 2   | A     | 1342 | A    |
| 2   | A     | 1364 | G    |
| 2   | A     | 1378 | A    |
| 2   | A     | 1420 | U    |
| 2   | A     | 1427 | A    |
| 2   | A     | 1428 | C    |
| 2   | A     | 1437 | C    |
| 2   | A     | 1444 | G    |
| 2   | A     | 1454 | U    |
| 2   | A     | 1460 | A    |
| 2   | A     | 1476 | C    |
| 2   | A     | 1489 | U    |
| 2   | A     | 1490 | A    |
| 2   | A     | 1496 | A    |
| 2   | A     | 1498 | C    |
| 2   | A     | 1507 | A    |
| 2   | A     | 1521 | G    |
| 2   | A     | 1535 | U    |
| 2   | A     | 1544 | C    |
| 2   | A     | 1545 | A    |
| 2   | A     | 1552 | G    |
| 2   | A     | 1554 | A    |
| 2   | A     | 1557 | C    |
| 2   | A     | 1567 | A    |
| 2   | A     | 1568 | G    |
| 2   | A     | 1571 | A    |
| 2   | A     | 1585 | C    |
| 2   | A     | 1602 | U    |
| 2   | A     | 1608 | A    |
| 2   | A     | 1609 | A    |
| 2   | A     | 1610 | A    |
| 2   | A     | 1614 | A    |
| 2   | A     | 1616 | A    |
| 2   | A     | 1618 | A    |
| 2   | A     | 1634 | A    |
| 2   | A     | 1647 | G    |
| 2   | A     | 1653 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 1668 | A    |
| 2   | A     | 1681 | G    |
| 2   | A     | 1693 | U    |
| 2   | A     | 1699 | G    |
| 2   | A     | 1702 | G    |
| 2   | A     | 1742 | C    |
| 2   | A     | 1758 | G    |
| 2   | A     | 1763 | G    |
| 2   | A     | 1772 | G    |
| 2   | A     | 1784 | A    |
| 2   | A     | 1800 | C    |
| 2   | A     | 1809 | A    |
| 2   | A     | 1815 | A    |
| 2   | A     | 1816 | G    |
| 2   | A     | 1819 | A    |
| 2   | A     | 1820 | U    |
| 2   | A     | 1828 | G    |
| 2   | A     | 1834 | U    |
| 2   | A     | 1838 | C    |
| 2   | A     | 1848 | A    |
| 2   | A     | 1914 | C    |
| 2   | A     | 1915 | U    |
| 2   | A     | 1924 | C    |
| 2   | A     | 1929 | G    |
| 2   | A     | 1930 | G    |
| 2   | A     | 1936 | A    |
| 2   | A     | 1938 | A    |
| 2   | A     | 1939 | U    |
| 2   | A     | 1943 | U    |
| 2   | A     | 1954 | G    |
| 2   | A     | 1964 | G    |
| 2   | A     | 1966 | A    |
| 2   | A     | 1968 | G    |
| 2   | A     | 1970 | A    |
| 2   | A     | 1980 | G    |
| 2   | A     | 1992 | G    |
| 2   | A     | 2019 | A    |
| 2   | A     | 2022 | U    |
| 2   | A     | 2030 | A    |
| 2   | A     | 2032 | G    |
| 2   | A     | 2033 | A    |
| 2   | A     | 2042 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2047 | U    |
| 2   | A     | 2049 | G    |
| 2   | A     | 2059 | A    |
| 2   | A     | 2062 | A    |
| 2   | A     | 2064 | C    |
| 2   | A     | 2067 | G    |
| 2   | A     | 2076 | U    |
| 2   | A     | 2195 | C    |
| 2   | A     | 2199 | A    |
| 2   | A     | 2210 | G    |
| 2   | A     | 2219 | G    |
| 2   | A     | 2225 | A    |
| 2   | A     | 2237 | G    |
| 2   | A     | 2238 | G    |
| 2   | A     | 2241 | A    |
| 2   | A     | 2244 | U    |
| 2   | A     | 2249 | U    |
| 2   | A     | 2253 | G    |
| 2   | A     | 2265 | U    |
| 2   | A     | 2266 | A    |
| 2   | A     | 2267 | A    |
| 2   | A     | 2268 | A    |
| 2   | A     | 2274 | A    |
| 2   | A     | 2282 | G    |
| 2   | A     | 2287 | A    |
| 2   | A     | 2288 | A    |
| 2   | A     | 2311 | A    |
| 2   | A     | 2318 | G    |
| 2   | A     | 2320 | A    |
| 2   | A     | 2334 | G    |
| 2   | A     | 2344 | U    |
| 2   | A     | 2345 | G    |
| 2   | A     | 2359 | C    |
| 2   | A     | 2386 | C    |
| 2   | A     | 2391 | G    |
| 2   | A     | 2393 | A    |
| 2   | A     | 2398 | U    |
| 2   | A     | 2401 | U    |
| 2   | A     | 2411 | A    |
| 2   | A     | 2423 | U    |
| 2   | A     | 2425 | A    |
| 2   | A     | 2426 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2432 | A    |
| 2   | A     | 2434 | A    |
| 2   | A     | 2436 | G    |
| 2   | A     | 2437 | U    |
| 2   | A     | 2439 | A    |
| 2   | A     | 2447 | G    |
| 2   | A     | 2449 | U    |
| 2   | A     | 2451 | A    |
| 2   | A     | 2469 | A    |
| 2   | A     | 2472 | G    |
| 2   | A     | 2481 | G    |
| 2   | A     | 2484 | G    |
| 2   | A     | 2492 | U    |
| 2   | A     | 2493 | U    |
| 2   | A     | 2497 | A    |
| 2   | A     | 2498 | C    |
| 2   | A     | 2502 | G    |
| 2   | A     | 2503 | A    |
| 2   | A     | 2506 | U    |
| 2   | A     | 2517 | C    |
| 2   | A     | 2519 | U    |
| 2   | A     | 2532 | G    |
| 2   | A     | 2545 | G    |
| 2   | A     | 2555 | U    |
| 2   | A     | 2565 | A    |
| 2   | A     | 2576 | G    |
| 2   | A     | 2578 | G    |
| 2   | A     | 2581 | G    |
| 2   | A     | 2582 | G    |
| 2   | A     | 2587 | A    |
| 2   | A     | 2589 | A    |
| 2   | A     | 2598 | A    |
| 2   | A     | 2606 | C    |
| 2   | A     | 2609 | U    |
| 2   | A     | 2610 | C    |
| 2   | A     | 2612 | C    |
| 2   | A     | 2613 | U    |
| 2   | A     | 2620 | C    |
| 2   | A     | 2627 | G    |
| 2   | A     | 2654 | A    |
| 2   | A     | 2665 | A    |
| 2   | A     | 2681 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | A     | 2688 | U    |
| 2   | A     | 2689 | U    |
| 2   | A     | 2690 | C    |
| 2   | A     | 2703 | C    |
| 2   | A     | 2707 | G    |
| 2   | A     | 2712 | U    |
| 2   | A     | 2717 | G    |
| 2   | A     | 2720 | U    |
| 2   | A     | 2722 | G    |
| 2   | A     | 2726 | U    |
| 2   | A     | 2740 | A    |
| 2   | A     | 2741 | A    |
| 2   | A     | 2756 | U    |
| 2   | A     | 2757 | A    |
| 2   | A     | 2763 | G    |
| 2   | A     | 2774 | C    |
| 2   | A     | 2777 | G    |
| 2   | A     | 2781 | A    |
| 2   | A     | 2783 | G    |
| 2   | A     | 2790 | A    |
| 2   | A     | 2809 | A    |
| 2   | A     | 2810 | A    |
| 2   | A     | 2819 | G    |
| 2   | A     | 2820 | A    |
| 2   | A     | 2835 | A    |
| 2   | A     | 2849 | U    |
| 2   | A     | 2858 | C    |
| 2   | A     | 2862 | G    |
| 2   | A     | 2866 | U    |
| 2   | A     | 2867 | G    |
| 2   | A     | 2879 | C    |
| 2   | A     | 2881 | C    |
| 2   | A     | 2882 | A    |
| 2   | A     | 2891 | G    |

## 5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 5.6 Ligand geometry ⓘ

There are no ligands in this entry.

## 5.7 Other polymers ⓘ

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed        | <RSRZ> | #RSRZ>2        | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|-----------------|--------|----------------|-----------------------|-------|
| 1   | B     | 123/123 (100%)  | 0.66   | 13 (10%) 7 15  | 242, 265, 342, 342    | 0     |
| 2   | A     | 2814/2916 (96%) | 0.43   | 180 (6%) 19 25 | 67, 222, 387, 400     | 0     |
| 3   | D     | 173/173 (100%)  | 0.02   | 2 (1%) 75 64   | 398, 398, 400, 400    | 0     |
| 4   | E     | 191/338 (56%)   | 0.61   | 21 (10%) 6 14  | 388, 400, 400, 400    | 0     |
| 5   | F     | 189/246 (76%)   | 0.44   | 7 (3%) 39 37   | 398, 398, 399, 399    | 0     |
| 6   | G     | 122/176 (69%)   | 0.81   | 20 (16%) 2 8   | 400, 400, 400, 400    | 0     |
| 7   | H     | 164/177 (92%)   | 0.39   | 17 (10%) 7 15  | 399, 399, 400, 400    | 0     |
| 8   | I     | 148/149 (99%)   | 0.51   | 10 (6%) 17 24  | 400, 400, 400, 400    | 0     |
| 9   | N     | 117/145 (80%)   | 0.33   | 11 (9%) 9 17   | 388, 388, 388, 388    | 0     |
| 10  | O     | 122/122 (100%)  | 0.71   | 13 (10%) 6 14  | 400, 400, 400, 400    | 0     |
| 11  | P     | 84/164 (51%)    | 0.57   | 12 (14%) 3 9   | 400, 400, 400, 400    | 0     |
| 12  | Q     | 138/138 (100%)  | 0.85   | 20 (14%) 3 9   | 391, 391, 391, 391    | 0     |
| 13  | S     | 113/186 (60%)   | 0.83   | 18 (15%) 3 8   | 275, 370, 400, 400    | 0     |
| 14  | T     | 52/66 (78%)     | 1.05   | 10 (19%) 2 6   | 400, 400, 400, 400    | 0     |
| 15  | W     | 108/113 (95%)   | 0.11   | 3 (2%) 50 44   | 275, 277, 400, 400    | 0     |
| 16  | X     | 76/84 (90%)     | 0.40   | 11 (14%) 3 9   | 400, 400, 400, 400    | 0     |
| 17  | Y     | 110/119 (92%)   | 0.49   | 11 (10%) 8 16  | 400, 400, 400, 400    | 0     |
| 18  | Z     | 177/253 (69%)   | 0.28   | 11 (6%) 20 26  | 376, 376, 379, 379    | 0     |
| 19  | R     | 105/118 (88%)   | 0.45   | 12 (11%) 6 13  | 345, 345, 345, 345    | 0     |
| 20  | U     | 117/118 (99%)   | 0.26   | 8 (6%) 17 24   | 356, 356, 392, 392    | 0     |
| 21  | V     | 100/100 (100%)  | 0.34   | 7 (7%) 16 23   | 385, 385, 400, 400    | 0     |
| 22  | 2     | 64/70 (91%)     | -0.05  | 0 100 100      | 287, 287, 287, 287    | 0     |
| 23  | 3     | 60/60 (100%)    | -0.05  | 1 (1%) 67 57   | 343, 343, 343, 343    | 0     |
| 24  | 0     | 86/91 (94%)     | 0.64   | 10 (11%) 5 13  | 400, 400, 400, 400    | 0     |

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| Mol | Chain | Analysed        | <RSRZ> | #RSRZ>2        | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|-----------------|--------|----------------|-----------------------|-------|
| 25  | 4     | 73/73 (100%)    | 0.91   | 7 (9%) 8 16    | 400, 400, 400, 400    | 0     |
| 26  | 5     | 58/60 (96%)     | 0.60   | 7 (12%) 5 12   | 400, 400, 400, 400    | 0     |
| 27  | 6     | 53/82 (64%)     | 0.29   | 3 (5%) 23 27   | 400, 400, 400, 400    | 0     |
| 28  | 7     | 46/47 (97%)     | 0.61   | 2 (4%) 34 34   | 400, 400, 400, 400    | 0     |
| 29  | 8     | 63/64 (98%)     | 1.44   | 19 (30%) 1 4   | 400, 400, 400, 400    | 0     |
| 30  | 9     | 35/36 (97%)     | 1.03   | 4 (11%) 6 13   | 400, 400, 400, 400    | 0     |
| 31  | K     | 133/141 (94%)   | 1.17   | 39 (29%) 1 4   | 397, 400, 400, 400    | 0     |
| All | All   | 6014/6748 (89%) | 0.48   | 509 (8%) 11 19 | 67, 356, 400, 400     | 0     |

All (509) RSRZ outliers are listed below:

| Mol | Chain | Res    | Type | RSRZ |
|-----|-------|--------|------|------|
| 2   | A     | 546    | C    | 11.4 |
| 13  | S     | 42     | HIS  | 8.7  |
| 12  | Q     | 98     | GLY  | 8.4  |
| 2   | A     | 545    | G    | 8.2  |
| 2   | A     | 1467   | C    | 8.1  |
| 4   | E     | 63     | GLU  | 7.1  |
| 2   | A     | 271(C) | U    | 7.0  |
| 4   | E     | 61     | PRO  | 7.0  |
| 2   | A     | 1541   | U    | 6.9  |
| 31  | K     | 54     | LEU  | 6.7  |
| 31  | K     | 53     | ILE  | 6.6  |
| 10  | O     | 96     | THR  | 6.6  |
| 29  | 8     | 23     | MET  | 6.5  |
| 30  | 9     | 34     | GLN  | 6.5  |
| 31  | K     | 74     | PRO  | 6.5  |
| 31  | K     | 14     | PRO  | 6.4  |
| 10  | O     | 97     | ARG  | 6.4  |
| 31  | K     | 80     | LYS  | 6.4  |
| 1   | B     | 28     | C    | 6.1  |
| 31  | K     | 86     | GLU  | 6.1  |
| 12  | Q     | 97     | ASP  | 6.0  |
| 9   | N     | 71     | TYR  | 6.0  |
| 4   | E     | 227    | ALA  | 5.8  |
| 31  | K     | 78     | LEU  | 5.8  |
| 2   | A     | 2604   | U    | 5.8  |
| 4   | E     | 62     | ARG  | 5.7  |
| 31  | K     | 52     | MET  | 5.7  |
| 24  | 0     | 2      | ALA  | 5.7  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 20  | U     | 7    | GLY  | 5.7  |
| 31  | K     | 85   | ILE  | 5.7  |
| 25  | 4     | 72   | LYS  | 5.6  |
| 2   | A     | 1103 | A    | 5.6  |
| 8   | I     | 128  | ASN  | 5.5  |
| 2   | A     | 1104 | C    | 5.4  |
| 2   | A     | 2615 | U    | 5.4  |
| 5   | F     | 208  | ALA  | 5.2  |
| 29  | 8     | 22   | VAL  | 5.2  |
| 30  | 9     | 25   | VAL  | 5.2  |
| 24  | 0     | 3    | HIS  | 5.2  |
| 2   | A     | 1168 | G    | 5.1  |
| 2   | A     | 2590 | A    | 5.0  |
| 12  | Q     | 100  | GLY  | 5.0  |
| 13  | S     | 21   | HIS  | 5.0  |
| 2   | A     | 702  | G    | 5.0  |
| 13  | S     | 41   | LYS  | 5.0  |
| 8   | I     | 91   | GLY  | 5.0  |
| 7   | H     | 111  | PRO  | 5.0  |
| 9   | N     | 72   | PRO  | 5.0  |
| 2   | A     | 954  | G    | 4.9  |
| 24  | 0     | 6    | GLY  | 4.9  |
| 10  | O     | 99   | PHE  | 4.9  |
| 14  | T     | 24   | LYS  | 4.9  |
| 2   | A     | 1585 | C    | 4.8  |
| 2   | A     | 1842 | G    | 4.8  |
| 31  | K     | 121  | LEU  | 4.8  |
| 2   | A     | 101  | G    | 4.8  |
| 29  | 8     | 24   | ALA  | 4.7  |
| 2   | A     | 363  | G    | 4.7  |
| 2   | A     | 1555 | G    | 4.6  |
| 16  | X     | 62   | LYS  | 4.6  |
| 1   | B     | 27   | C    | 4.6  |
| 19  | R     | 112  | ALA  | 4.5  |
| 31  | K     | 81   | LYS  | 4.5  |
| 2   | A     | 2035 | G    | 4.5  |
| 4   | E     | 226  | HIS  | 4.5  |
| 1   | B     | 52   | A    | 4.5  |
| 8   | I     | 85   | GLU  | 4.5  |
| 2   | A     | 1938 | A    | 4.4  |
| 18  | Z     | 173  | PRO  | 4.4  |
| 4   | E     | 68   | VAL  | 4.4  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 4   | E     | 69   | PRO  | 4.4  |
| 26  | 5     | 19   | ARG  | 4.4  |
| 14  | T     | 25   | ASP  | 4.4  |
| 19  | R     | 70   | LEU  | 4.4  |
| 7   | H     | 104  | LEU  | 4.4  |
| 13  | S     | 65   | ASP  | 4.3  |
| 10  | O     | 100  | GLY  | 4.3  |
| 2   | A     | 2605 | U    | 4.3  |
| 2   | A     | 701  | G    | 4.3  |
| 2   | A     | 1302 | A    | 4.2  |
| 7   | H     | 106  | VAL  | 4.2  |
| 29  | 8     | 48   | PHE  | 4.2  |
| 14  | T     | 26   | GLY  | 4.2  |
| 2   | A     | 1843 | C    | 4.2  |
| 2   | A     | 1607 | C    | 4.2  |
| 12  | Q     | 115  | SER  | 4.2  |
| 2   | A     | 1554 | A    | 4.1  |
| 8   | I     | 90   | PHE  | 4.1  |
| 2   | A     | 105  | C    | 4.1  |
| 13  | S     | 20   | TYR  | 4.1  |
| 24  | 0     | 7    | VAL  | 4.1  |
| 10  | O     | 119  | PRO  | 4.1  |
| 24  | 0     | 50   | GLY  | 4.0  |
| 17  | Y     | 66   | ASP  | 4.0  |
| 29  | 8     | 14   | ILE  | 4.0  |
| 2   | A     | 1105 | U    | 4.0  |
| 31  | K     | 13   | LEU  | 4.0  |
| 31  | K     | 79   | LEU  | 4.0  |
| 27  | 6     | 6    | PRO  | 4.0  |
| 30  | 9     | 24   | LEU  | 4.0  |
| 13  | S     | 44   | ARG  | 4.0  |
| 18  | Z     | 124  | ALA  | 4.0  |
| 6   | G     | 138  | GLY  | 3.9  |
| 2   | A     | 1087 | G    | 3.9  |
| 2   | A     | 1098 | A    | 3.9  |
| 2   | A     | 2695 | C    | 3.9  |
| 18  | Z     | 177  | THR  | 3.9  |
| 2   | A     | 626  | U    | 3.9  |
| 4   | E     | 222  | ARG  | 3.9  |
| 2   | A     | 1199 | U    | 3.9  |
| 2   | A     | 1205 | U    | 3.9  |
| 25  | 4     | 73   | LYS  | 3.9  |

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| Mol | Chain | Res    | Type | RSRZ |
|-----|-------|--------|------|------|
| 2   | A     | 992    | C    | 3.9  |
| 2   | A     | 2103   | C    | 3.8  |
| 2   | A     | 2054   | A    | 3.8  |
| 12  | Q     | 99     | ASP  | 3.8  |
| 2   | A     | 1301   | A    | 3.8  |
| 2   | A     | 2790   | A    | 3.8  |
| 2   | A     | 2820   | A    | 3.8  |
| 2   | A     | 449(A) | G    | 3.8  |
| 2   | A     | 1156   | A    | 3.8  |
| 2   | A     | 2603   | G    | 3.7  |
| 2   | A     | 2694   | G    | 3.7  |
| 16  | X     | 7      | HIS  | 3.7  |
| 26  | 5     | 21     | SER  | 3.7  |
| 7   | H     | 107    | GLY  | 3.7  |
| 31  | K     | 37     | GLU  | 3.7  |
| 10  | O     | 11     | ALA  | 3.7  |
| 2   | A     | 1089   | G    | 3.7  |
| 2   | A     | 2023   | G    | 3.7  |
| 2   | A     | 974    | G    | 3.6  |
| 31  | K     | 77     | PHE  | 3.6  |
| 2   | A     | 2602   | A    | 3.6  |
| 19  | R     | 36     | THR  | 3.6  |
| 1   | B     | 103    | U    | 3.6  |
| 13  | S     | 68     | GLU  | 3.6  |
| 2   | A     | 964    | C    | 3.6  |
| 2   | A     | 271(B) | G    | 3.5  |
| 12  | Q     | 30     | GLN  | 3.5  |
| 10  | O     | 98     | ILE  | 3.5  |
| 8   | I     | 58     | ALA  | 3.5  |
| 2   | A     | 1631   | A    | 3.5  |
| 7   | H     | 151    | ARG  | 3.5  |
| 13  | S     | 22     | GLN  | 3.5  |
| 2   | A     | 1332   | G    | 3.5  |
| 26  | 5     | 18     | MET  | 3.5  |
| 8   | I     | 127    | THR  | 3.5  |
| 2   | A     | 1255   | U    | 3.5  |
| 12  | Q     | 54     | VAL  | 3.5  |
| 2   | A     | 1106   | G    | 3.4  |
| 7   | H     | 110    | HIS  | 3.4  |
| 2   | A     | 125    | G    | 3.4  |
| 2   | A     | 1606   | G    | 3.4  |
| 10  | O     | 101    | PRO  | 3.4  |

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| Mol | Chain | Res    | Type | RSRZ |
|-----|-------|--------|------|------|
| 4   | E     | 229    | GLN  | 3.4  |
| 21  | V     | 25     | LEU  | 3.4  |
| 2   | A     | 877    | U    | 3.4  |
| 2   | A     | 1107   | G    | 3.4  |
| 18  | Z     | 93     | GLU  | 3.4  |
| 16  | X     | 8      | PRO  | 3.4  |
| 24  | O     | 35     | ASN  | 3.4  |
| 2   | A     | 1525   | G    | 3.4  |
| 2   | A     | 732    | C    | 3.4  |
| 31  | K     | 82     | ALA  | 3.4  |
| 10  | O     | 77     | ILE  | 3.4  |
| 29  | 8     | 41     | ILE  | 3.3  |
| 2   | A     | 271(A) | C    | 3.3  |
| 9   | N     | 61     | VAL  | 3.3  |
| 18  | Z     | 176    | LEU  | 3.3  |
| 2   | A     | 953    | A    | 3.3  |
| 31  | K     | 120    | SER  | 3.3  |
| 2   | A     | 1547   | C    | 3.3  |
| 6   | G     | 19     | GLU  | 3.3  |
| 20  | U     | 6      | THR  | 3.3  |
| 16  | X     | 61     | GLU  | 3.3  |
| 2   | A     | 1468   | C    | 3.3  |
| 2   | A     | 1609   | A    | 3.3  |
| 9   | N     | 63     | ILE  | 3.3  |
| 2   | A     | 1992   | G    | 3.3  |
| 13  | S     | 43     | VAL  | 3.2  |
| 2   | A     | 1198   | U    | 3.2  |
| 12  | Q     | 53     | PRO  | 3.2  |
| 2   | A     | 2452   | C    | 3.2  |
| 2   | A     | 2060   | A    | 3.2  |
| 6   | G     | 71     | ALA  | 3.2  |
| 31  | K     | 119    | ASN  | 3.2  |
| 13  | S     | 64     | SER  | 3.2  |
| 19  | R     | 41     | ALA  | 3.2  |
| 2   | A     | 405    | U    | 3.2  |
| 2   | A     | 2102   | U    | 3.2  |
| 29  | 8     | 53     | ALA  | 3.2  |
| 11  | P     | 113    | GLN  | 3.2  |
| 31  | K     | 83     | ALA  | 3.2  |
| 13  | S     | 63     | SER  | 3.1  |
| 2   | A     | 2371   | G    | 3.1  |
| 9   | N     | 134    | GLU  | 3.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 16  | X     | 57   | THR  | 3.1  |
| 9   | N     | 52   | GLN  | 3.1  |
| 2   | A     | 878  | A    | 3.1  |
| 2   | A     | 1090 | U    | 3.1  |
| 2   | A     | 2334 | G    | 3.1  |
| 31  | K     | 55   | PRO  | 3.1  |
| 2   | A     | 2798 | C    | 3.1  |
| 21  | V     | 26   | GLN  | 3.1  |
| 2   | A     | 731  | C    | 3.1  |
| 6   | G     | 45   | THR  | 3.1  |
| 31  | K     | 84   | GLY  | 3.1  |
| 2   | A     | 508  | G    | 3.1  |
| 2   | A     | 2036 | C    | 3.0  |
| 15  | W     | 44   | ALA  | 3.0  |
| 11  | P     | 78   | ALA  | 3.0  |
| 4   | E     | 93   | GLN  | 3.0  |
| 13  | S     | 19   | ASP  | 3.0  |
| 25  | 4     | 47   | GLU  | 3.0  |
| 4   | E     | 110  | ARG  | 3.0  |
| 6   | G     | 152  | PRO  | 3.0  |
| 2   | A     | 1546 | C    | 3.0  |
| 14  | T     | 44   | ARG  | 3.0  |
| 2   | A     | 373  | U    | 3.0  |
| 2   | A     | 1264 | G    | 3.0  |
| 2   | A     | 654  | A    | 3.0  |
| 2   | A     | 2099 | U    | 3.0  |
| 17  | Y     | 6    | LYS  | 2.9  |
| 9   | N     | 69   | TYR  | 2.9  |
| 2   | A     | 1247 | A    | 2.9  |
| 2   | A     | 1532 | C    | 2.9  |
| 27  | 6     | 23   | THR  | 2.9  |
| 2   | A     | 2191 | G    | 2.9  |
| 2   | A     | 653  | A    | 2.9  |
| 6   | G     | 79   | MET  | 2.9  |
| 2   | A     | 1829 | A    | 2.9  |
| 2   | A     | 1997 | G    | 2.9  |
| 14  | T     | 50   | GLU  | 2.9  |
| 2   | A     | 1187 | G    | 2.9  |
| 2   | A     | 2024 | G    | 2.9  |
| 13  | S     | 62   | HIS  | 2.9  |
| 2   | A     | 586  | A    | 2.9  |
| 2   | A     | 671  | C    | 2.9  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 2   | A     | 1088 | A    | 2.9  |
| 2   | A     | 1463 | C    | 2.9  |
| 18  | Z     | 174  | PRO  | 2.9  |
| 12  | Q     | 107  | LYS  | 2.9  |
| 17  | Y     | 14   | ALA  | 2.9  |
| 21  | V     | 11   | GLN  | 2.9  |
| 9   | N     | 55   | GLU  | 2.9  |
| 12  | Q     | 55   | GLN  | 2.9  |
| 31  | K     | 124  | ALA  | 2.8  |
| 8   | I     | 92   | SER  | 2.8  |
| 12  | Q     | 56   | ILE  | 2.8  |
| 2   | A     | 739  | G    | 2.8  |
| 12  | Q     | 96   | GLN  | 2.8  |
| 31  | K     | 76   | SER  | 2.8  |
| 31  | K     | 113  | MET  | 2.8  |
| 17  | Y     | 5    | ASP  | 2.8  |
| 20  | U     | 8    | ILE  | 2.8  |
| 29  | 8     | 45   | GLY  | 2.8  |
| 2   | A     | 271  | G    | 2.8  |
| 2   | A     | 1450 | C    | 2.8  |
| 24  | 0     | 27   | GLY  | 2.8  |
| 16  | X     | 27   | ALA  | 2.8  |
| 29  | 8     | 47   | GLY  | 2.8  |
| 6   | G     | 18   | ILE  | 2.8  |
| 30  | 9     | 23   | VAL  | 2.8  |
| 16  | X     | 28   | VAL  | 2.8  |
| 29  | 8     | 38   | GLY  | 2.8  |
| 19  | R     | 37   | THR  | 2.8  |
| 5   | F     | 11   | ASN  | 2.8  |
| 20  | U     | 118  | GLN  | 2.8  |
| 13  | S     | 10   | MET  | 2.8  |
| 17  | Y     | 7    | GLN  | 2.8  |
| 2   | A     | 389  | G    | 2.8  |
| 21  | V     | 80   | TYR  | 2.8  |
| 2   | A     | 547  | A    | 2.8  |
| 7   | H     | 27   | GLY  | 2.7  |
| 31  | K     | 109  | ALA  | 2.7  |
| 31  | K     | 40   | LYS  | 2.7  |
| 18  | Z     | 175  | ARG  | 2.7  |
| 21  | V     | 70   | TYR  | 2.7  |
| 1   | B     | 67   | G    | 2.7  |
| 2   | A     | 1167 | U    | 2.7  |

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| Mol | Chain | Res    | Type | RSRZ |
|-----|-------|--------|------|------|
| 16  | X     | 6      | LYS  | 2.7  |
| 2   | A     | 2502   | G    | 2.7  |
| 15  | W     | 43     | GLY  | 2.7  |
| 2   | A     | 677    | A    | 2.7  |
| 2   | A     | 124    | G    | 2.7  |
| 10  | O     | 95     | GLY  | 2.7  |
| 24  | O     | 8      | GLY  | 2.7  |
| 7   | H     | 105    | SER  | 2.7  |
| 6   | G     | 68     | PRO  | 2.7  |
| 12  | Q     | 22     | GLY  | 2.7  |
| 2   | A     | 2271   | G    | 2.7  |
| 20  | U     | 43     | ALA  | 2.7  |
| 5   | F     | 34     | ALA  | 2.7  |
| 19  | R     | 71     | GLN  | 2.7  |
| 29  | 8     | 60     | LEU  | 2.7  |
| 12  | Q     | 12     | PRO  | 2.7  |
| 19  | R     | 111    | LEU  | 2.7  |
| 1   | B     | 2      | C    | 2.7  |
| 2   | A     | 2591   | C    | 2.7  |
| 17  | Y     | 67     | LEU  | 2.7  |
| 2   | A     | 363(F) | A    | 2.7  |
| 12  | Q     | 113    | ALA  | 2.7  |
| 2   | A     | 2690   | C    | 2.6  |
| 5   | F     | 12     | THR  | 2.6  |
| 13  | S     | 23     | ARG  | 2.6  |
| 2   | A     | 1980   | G    | 2.6  |
| 11  | P     | 79     | ASP  | 2.6  |
| 21  | V     | 77     | GLY  | 2.6  |
| 6   | G     | 51     | ARG  | 2.6  |
| 2   | A     | 1327   | C    | 2.6  |
| 26  | 5     | 17     | ASP  | 2.6  |
| 12  | Q     | 106    | GLY  | 2.6  |
| 17  | Y     | 85     | GLU  | 2.6  |
| 31  | K     | 36     | MET  | 2.6  |
| 6   | G     | 67     | ASP  | 2.6  |
| 11  | P     | 62     | ALA  | 2.6  |
| 12  | Q     | 21     | SER  | 2.6  |
| 4   | E     | 295    | LEU  | 2.6  |
| 2   | A     | 1786   | A    | 2.6  |
| 2   | A     | 1830   | C    | 2.6  |
| 14  | T     | 40     | ALA  | 2.6  |
| 4   | E     | 49     | THR  | 2.6  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 26  | 5     | 16   | ARG  | 2.6  |
| 11  | P     | 112  | GLY  | 2.6  |
| 31  | K     | 116  | LEU  | 2.6  |
| 29  | 8     | 57   | ARG  | 2.5  |
| 1   | B     | 26   | A    | 2.5  |
| 2   | A     | 1111 | A    | 2.5  |
| 2   | A     | 2266 | A    | 2.5  |
| 17  | Y     | 3    | GLN  | 2.5  |
| 4   | E     | 64   | GLY  | 2.5  |
| 31  | K     | 51   | GLY  | 2.5  |
| 10  | O     | 94   | ARG  | 2.5  |
| 31  | K     | 41   | ARG  | 2.5  |
| 2   | A     | 104  | U    | 2.5  |
| 2   | A     | 1033 | U    | 2.5  |
| 2   | A     | 973  | A    | 2.5  |
| 2   | A     | 2069 | G    | 2.5  |
| 4   | E     | 95   | PRO  | 2.5  |
| 2   | A     | 1155 | A    | 2.5  |
| 29  | 8     | 30   | ARG  | 2.5  |
| 7   | H     | 28   | PRO  | 2.5  |
| 16  | X     | 56   | ASN  | 2.5  |
| 2   | A     | 1770 | G    | 2.5  |
| 2   | A     | 2104 | G    | 2.5  |
| 28  | 7     | 32   | ALA  | 2.5  |
| 7   | H     | 13   | GLY  | 2.5  |
| 14  | T     | 55   | ALA  | 2.5  |
| 7   | H     | 112  | VAL  | 2.5  |
| 2   | A     | 562  | U    | 2.5  |
| 31  | K     | 12   | GLN  | 2.4  |
| 24  | 0     | 21   | LEU  | 2.4  |
| 25  | 4     | 44   | THR  | 2.4  |
| 4   | E     | 224  | GLY  | 2.4  |
| 14  | T     | 27   | ALA  | 2.4  |
| 9   | N     | 62   | ASP  | 2.4  |
| 2   | A     | 955  | C    | 2.4  |
| 2   | A     | 991  | C    | 2.4  |
| 2   | A     | 2606 | C    | 2.4  |
| 7   | H     | 26   | LYS  | 2.4  |
| 2   | A     | 976  | C    | 2.4  |
| 11  | P     | 68   | GLU  | 2.4  |
| 2   | A     | 782  | A    | 2.4  |
| 19  | R     | 113  | LEU  | 2.4  |

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| Mol | Chain | Res    | Type | RSRZ |
|-----|-------|--------|------|------|
| 2   | A     | 703    | U    | 2.4  |
| 6   | G     | 141    | VAL  | 2.4  |
| 10  | O     | 120    | GLU  | 2.4  |
| 13  | S     | 66     | LEU  | 2.4  |
| 11  | P     | 64     | ILE  | 2.4  |
| 6   | G     | 52     | THR  | 2.4  |
| 2   | A     | 1482   | U    | 2.4  |
| 25  | 4     | 17     | GLN  | 2.4  |
| 31  | K     | 87     | LYS  | 2.4  |
| 11  | P     | 102    | ASP  | 2.4  |
| 2   | A     | 2370   | G    | 2.4  |
| 17  | Y     | 10     | SER  | 2.4  |
| 12  | Q     | 87     | LYS  | 2.4  |
| 13  | S     | 93     | GLN  | 2.4  |
| 1   | B     | 6      | C    | 2.3  |
| 2   | A     | 2616   | C    | 2.3  |
| 4   | E     | 228    | ARG  | 2.3  |
| 6   | G     | 80     | ALA  | 2.3  |
| 12  | Q     | 128    | PRO  | 2.3  |
| 16  | X     | 59     | ASP  | 2.3  |
| 25  | 4     | 30     | GLU  | 2.3  |
| 2   | A     | 75     | G    | 2.3  |
| 2   | A     | 993    | G    | 2.3  |
| 4   | E     | 221    | LYS  | 2.3  |
| 8   | I     | 84     | GLY  | 2.3  |
| 23  | 3     | 12     | PRO  | 2.3  |
| 2   | A     | 273(C) | C    | 2.3  |
| 2   | A     | 902    | C    | 2.3  |
| 2   | A     | 1164   | G    | 2.3  |
| 2   | A     | 1483   | G    | 2.3  |
| 9   | N     | 58     | GLU  | 2.3  |
| 2   | A     | 910    | A    | 2.3  |
| 4   | E     | 96     | LEU  | 2.3  |
| 29  | 8     | 16     | ILE  | 2.3  |
| 31  | K     | 39     | CYS  | 2.3  |
| 6   | G     | 82     | GLU  | 2.3  |
| 31  | K     | 73     | PRO  | 2.3  |
| 2   | A     | 2016   | U    | 2.3  |
| 2   | A     | 2070   | G    | 2.3  |
| 14  | T     | 52     | THR  | 2.3  |
| 2   | A     | 1307   | A    | 2.3  |
| 2   | A     | 66     | C    | 2.3  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 20  | U     | 42   | ALA  | 2.3  |
| 2   | A     | 759  | G    | 2.3  |
| 7   | H     | 16   | VAL  | 2.3  |
| 2   | A     | 1667 | G    | 2.3  |
| 2   | A     | 2451 | A    | 2.3  |
| 6   | G     | 38   | GLU  | 2.3  |
| 9   | N     | 68   | GLY  | 2.3  |
| 18  | Z     | 133  | GLU  | 2.3  |
| 19  | R     | 109  | ALA  | 2.2  |
| 2   | A     | 2376 | A    | 2.2  |
| 20  | U     | 55   | ARG  | 2.2  |
| 3   | D     | 212  | HIS  | 2.2  |
| 4   | E     | 70   | VAL  | 2.2  |
| 1   | B     | -1   | A    | 2.2  |
| 2   | A     | 311  | A    | 2.2  |
| 2   | A     | 984  | A    | 2.2  |
| 4   | E     | 87   | GLU  | 2.2  |
| 1   | B     | 12   | C    | 2.2  |
| 2   | A     | 2610 | C    | 2.2  |
| 11  | P     | 59   | GLU  | 2.2  |
| 31  | K     | 72   | THR  | 2.2  |
| 2   | A     | 2041 | U    | 2.2  |
| 18  | Z     | 125  | PRO  | 2.2  |
| 6   | G     | 50   | VAL  | 2.2  |
| 2   | A     | 1500 | G    | 2.2  |
| 10  | O     | 25   | LEU  | 2.2  |
| 27  | 6     | 24   | THR  | 2.2  |
| 26  | 5     | 6    | VAL  | 2.2  |
| 5   | F     | 143  | ASP  | 2.2  |
| 2   | A     | 329  | G    | 2.2  |
| 17  | Y     | 71   | VAL  | 2.2  |
| 14  | T     | 51   | TRP  | 2.2  |
| 29  | 8     | 43   | GLY  | 2.2  |
| 19  | R     | 100  | LEU  | 2.2  |
| 2   | A     | 1169 | G    | 2.2  |
| 2   | A     | 1020 | A    | 2.2  |
| 24  | 0     | 22   | GLY  | 2.2  |
| 6   | G     | 78   | GLU  | 2.2  |
| 6   | G     | 70   | GLY  | 2.2  |
| 19  | R     | 101  | ALA  | 2.2  |
| 6   | G     | 154  | LYS  | 2.2  |
| 31  | K     | 114  | PRO  | 2.2  |

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| Mol | Chain | Res    | Type | RSRZ |
|-----|-------|--------|------|------|
| 31  | K     | 75     | ALA  | 2.2  |
| 29  | 8     | 26     | LYS  | 2.2  |
| 18  | Z     | 92     | VAL  | 2.2  |
| 21  | V     | 7      | THR  | 2.2  |
| 2   | A     | 2061   | G    | 2.2  |
| 31  | K     | 125    | MET  | 2.2  |
| 7   | H     | 15     | THR  | 2.2  |
| 29  | 8     | 21     | LYS  | 2.2  |
| 11  | P     | 65     | ASP  | 2.2  |
| 2   | A     | 192    | C    | 2.1  |
| 17  | Y     | 9      | LYS  | 2.1  |
| 25  | 4     | 35     | VAL  | 2.1  |
| 2   | A     | 2693   | A    | 2.1  |
| 2   | A     | 1152   | C    | 2.1  |
| 11  | P     | 103    | ALA  | 2.1  |
| 18  | Z     | 123    | VAL  | 2.1  |
| 2   | A     | 963    | U    | 2.1  |
| 2   | A     | 675    | A    | 2.1  |
| 28  | 7     | 43     | THR  | 2.1  |
| 5   | F     | 62     | GLY  | 2.1  |
| 6   | G     | 81     | GLU  | 2.1  |
| 8   | I     | 61     | GLU  | 2.1  |
| 12  | Q     | 18     | GLU  | 2.1  |
| 3   | D     | 233    | ASP  | 2.1  |
| 26  | 5     | 20     | ARG  | 2.1  |
| 29  | 8     | 13     | ARG  | 2.1  |
| 19  | R     | 69     | ASP  | 2.1  |
| 2   | A     | 2614   | A    | 2.1  |
| 2   | A     | 674    | G    | 2.1  |
| 2   | A     | 2608   | G    | 2.1  |
| 2   | A     | 1775   | U    | 2.1  |
| 5   | F     | 60     | SER  | 2.1  |
| 2   | A     | 738    | G    | 2.1  |
| 2   | A     | 1657   | C    | 2.1  |
| 2   | A     | 270(B) | A    | 2.1  |
| 2   | A     | 1608   | A    | 2.1  |
| 2   | A     | 805    | G    | 2.1  |
| 29  | 8     | 44     | LYS  | 2.1  |
| 31  | K     | 128    | ILE  | 2.1  |
| 1   | B     | 53     | A    | 2.1  |
| 2   | A     | 1265   | A    | 2.1  |
| 2   | A     | 2100   | G    | 2.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 7   | H     | 59   | HIS  | 2.1  |
| 2   | A     | 1610 | A    | 2.1  |
| 16  | X     | 30   | ASP  | 2.1  |
| 13  | S     | 67   | ALA  | 2.0  |
| 20  | U     | 117  | ARG  | 2.0  |
| 1   | B     | 58   | A    | 2.0  |
| 7   | H     | 58   | LYS  | 2.0  |
| 2   | A     | 2053 | G    | 2.0  |
| 1   | B     | 1    | U    | 2.0  |
| 2   | A     | 1983 | C    | 2.0  |
| 7   | H     | 108  | TYR  | 2.0  |
| 2   | A     | 1086 | A    | 2.0  |
| 2   | A     | 2309 | A    | 2.0  |
| 11  | P     | 69   | ILE  | 2.0  |
| 2   | A     | 1991 | U    | 2.0  |
| 2   | A     | 2609 | U    | 2.0  |
| 8   | I     | 122  | ARG  | 2.0  |
| 15  | W     | 93   | ALA  | 2.0  |
| 2   | A     | 1732 | A    | 2.0  |

## 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

## 6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 6.4 Ligands ⓘ

There are no ligands in this entry.

## 6.5 Other polymers ⓘ

There are no such residues in this entry.