



Full wwPDB X-ray Structure Validation Report

Feb 27, 2014 – 04:24 AM GMT

PDB ID : 2HGJ
Title : Crystal structure of the 70S *Thermus thermophilus* ribosome showing how the 16S 3'-end mimicks mRNA E and P codons. This entry 2HGJ contains 50S ribosomal subunit. The 30S ribosomal subunit can be found in PDB entry 2HGI.
Authors : Jenner, L.; Yusupova, G.; Rees, B.; Moras, D.; Yusupov, M.
Deposited on : 2006-06-27
Resolution : 5.00 Å(reported)

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

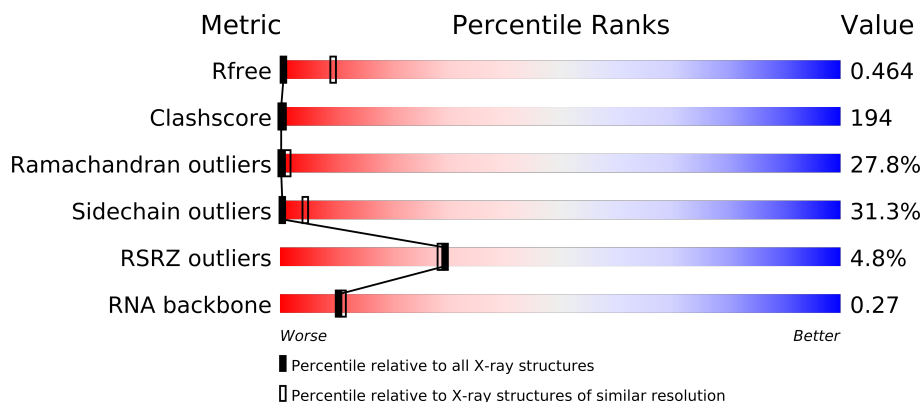
The following versions of software and data (see [references](#)) were used in the production of this report:

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 5.00 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 (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| R_{free} | 66092 | 1052 (6.50-3.50) |
| Clashscore | 79885 | 1327 (6.50-3.50) |
| Ramachandran outliers | 78287 | 1242 (6.50-3.50) |
| Sidechain outliers | 78261 | 1221 (6.50-3.50) |
| RSRZ outliers | 66119 | 1051 (6.50-3.50) |
| RNA backbone | 1838 | 1037 (7.00-2.80) |

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 ≥ 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 | A | 2916 | |
| 2 | B | 123 | |
| 3 | C | 229 | |
| 4 | D | 276 | |
| 5 | E | 206 | |
| 6 | F | 210 | |
| 7 | G | 182 | |
| 8 | H | 180 | |
| 9 | K | 148 | |
| 10 | L | 147 | |
| 11 | M | 140 | |
| 12 | N | 122 | |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 13 | O | 150 | |
| 14 | P | 141 | |
| 15 | Q | 118 | |
| 16 | R | 112 | |
| 17 | S | 146 | |
| 18 | T | 118 | |
| 19 | U | 101 | |
| 20 | V | 113 | |
| 21 | W | 96 | |
| 22 | X | 110 | |
| 23 | Y | 206 | |
| 24 | Z | 85 | |
| 25 | 1 | 67 | |
| 26 | 2 | 60 | |
| 27 | 3 | 71 | |
| 28 | 4 | 60 | |
| 29 | 5 | 54 | |
| 30 | 6 | 49 | |
| 31 | 7 | 65 | |
| 32 | 8 | 37 | |

2 Entry composition

There are 32 unique types of molecules in this entry. The entry contains 94012 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 23S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|---------|-------|
| 1 | A | 2889 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 62218 | 27691 | 11629 | 20009 | 2889 | | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|-----------|-----------|
| A | 496 | G | - | INSERTION | GB 48268 |

- Molecule 2 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|---------|-------|
| 2 | B | 123 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 2641 | 1175 | 488 | 855 | 123 | | | |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|-----------|-----------|
| B | -1 | A | - | INSERTION | GB 48271 |
| B | 120 | U | - | INSERTION | GB 48271 |

- Molecule 3 is a protein called 50S ribosomal protein L1.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 3 | C | 228 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1742 | 1102 | 318 | 319 | 3 | | | |

- Molecule 4 is a protein called 50S ribosomal protein L2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 4 | D | 272 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 2124 | 1339 | 424 | 358 | 3 | | | |

- Molecule 5 is a protein called 50S ribosomal protein L3.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 5 | E | 206 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1578 | 997 | 302 | 273 | 6 | | | |

- Molecule 6 is a protein called 50S ribosomal protein L4.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 6 | F | 208 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1625 | 1034 | 303 | 286 | 2 | | | |

- Molecule 7 is a protein called 50S ribosomal protein L5.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 7 | G | 182 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1482 | 947 | 269 | 261 | 5 | | | |

- Molecule 8 is a protein called 50S ribosomal protein L6.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 8 | H | 174 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1328 | 844 | 248 | 235 | 1 | | | |

- Molecule 9 is a protein called 50S ribosomal protein L9.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 9 | K | 148 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1155 | 737 | 205 | 212 | 1 | | | |

- Molecule 10 is a protein called 50S ribosomal protein L11.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 10 | L | 138 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1025 | 654 | 181 | 185 | 5 | | | |

- Molecule 11 is a protein called 50S ribosomal protein L13.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 11 | M | 139 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1113 | 717 | 207 | 186 | 3 | | | |

- Molecule 12 is a protein called 50S ribosomal protein L14.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 12 | N | 122 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 932 | 587 | 171 | 170 | 4 | | | |

- Molecule 13 is a protein called 50S ribosomal protein L15.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 13 | O | 145 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1106 | 688 | 226 | 190 | 2 | | | |

- Molecule 14 is a protein called 50S ribosomal protein L16.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 14 | P | 136 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1080 | 688 | 204 | 183 | 5 | | | |

- Molecule 15 is a protein called 50S ribosomal protein L17.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 15 | Q | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 960 | 599 | 202 | 159 | | | | |

- Molecule 16 is a protein called 50S ribosomal protein L18.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 16 | R | 110 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 877 | 553 | 175 | 149 | | | | |

- Molecule 17 is a protein called 50S ribosomal protein L19.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 17 | S | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 976 | 614 | 197 | 164 | 1 | | | |

- Molecule 18 is a protein called 50S ribosomal protein L20.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 18 | T | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 964 | 610 | 202 | 151 | 1 | | | |

- Molecule 19 is a protein called 50S ribosomal protein L21.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 19 | U | 101 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 779 | 501 | 142 | 135 | 1 | | | |

- Molecule 20 is a protein called 50S ribosomal protein L22.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 20 | V | 110 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 876 | 552 | 171 | 151 | 2 | | | |

- Molecule 21 is a protein called 50S ribosomal protein L23.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 21 | W | 94 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 742 | 483 | 133 | 126 | | | | |

- Molecule 22 is a protein called 50S ribosomal protein L24.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 22 | X | 110 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 844 | 539 | 158 | 141 | 6 | | | |

- Molecule 23 is a protein called 50S ribosomal protein L25.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 23 | Y | 180 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1435 | 916 | 256 | 260 | 3 | | | |

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

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 24 | Z | 85 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 670 | 415 | 141 | 112 | 2 | | | |

- Molecule 25 is a protein called 50S ribosomal protein L29.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 25 | 1 | 67 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 567 | 350 | 116 | 99 | 2 | | | |

- Molecule 26 is a protein called 50S ribosomal protein L30.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|---------|-------|
| 26 | 2 | 59 | Total | C | N | O | | | |
| | | | 469 | 298 | 90 | 81 | 0 | 0 | 0 |

- Molecule 27 is a protein called 50S ribosomal protein L31.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 27 | 3 | 71 | Total | C | N | O | S | | | |
| | | | 581 | 364 | 108 | 104 | 5 | 0 | 0 | 0 |

- Molecule 28 is a protein called 50S ribosomal protein L32.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 28 | 4 | 57 | Total | C | N | O | S | | | |
| | | | 445 | 279 | 87 | 74 | 5 | 0 | 0 | 0 |

- Molecule 29 is a protein called 50S ribosomal protein L33.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 29 | 5 | 49 | Total | C | N | O | S | | | |
| | | | 426 | 265 | 87 | 70 | 4 | 0 | 0 | 0 |

- Molecule 30 is a protein called 50S ribosomal protein L34.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 30 | 6 | 49 | Total | C | N | O | S | | | |
| | | | 430 | 263 | 108 | 57 | 2 | 0 | 0 | 0 |

- Molecule 31 is a protein called 50S ribosomal protein L35.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 31 | 7 | 64 | Total | C | N | O | S | | | |
| | | | 515 | 331 | 102 | 79 | 3 | 0 | 0 | 0 |

- Molecule 32 is a protein called 50S ribosomal protein L36.

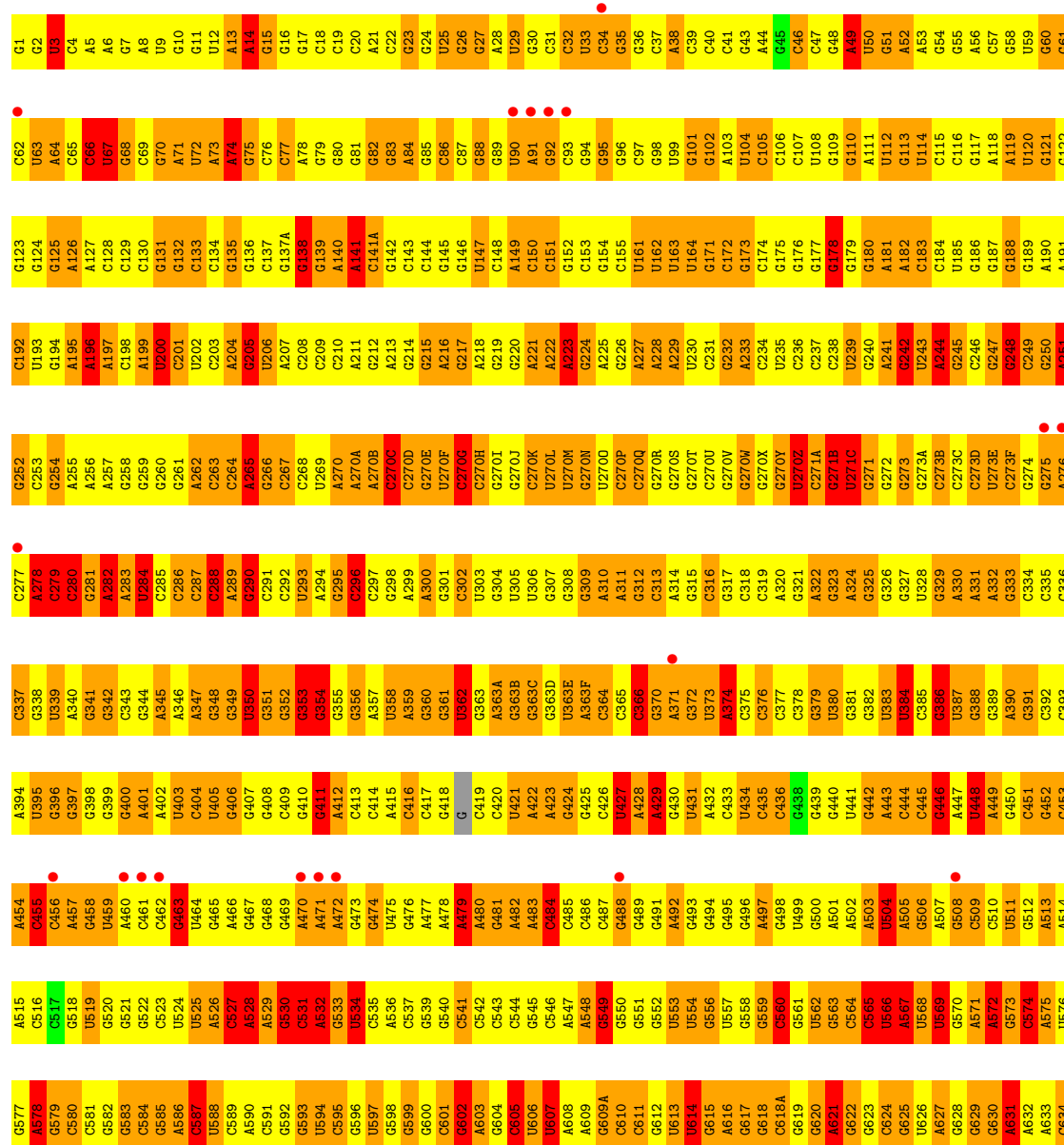
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 32 | 8 | 37 | Total | C | N | O | S | | | |
| | | | 307 | 188 | 68 | 47 | 4 | 0 | 0 | 0 |

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.

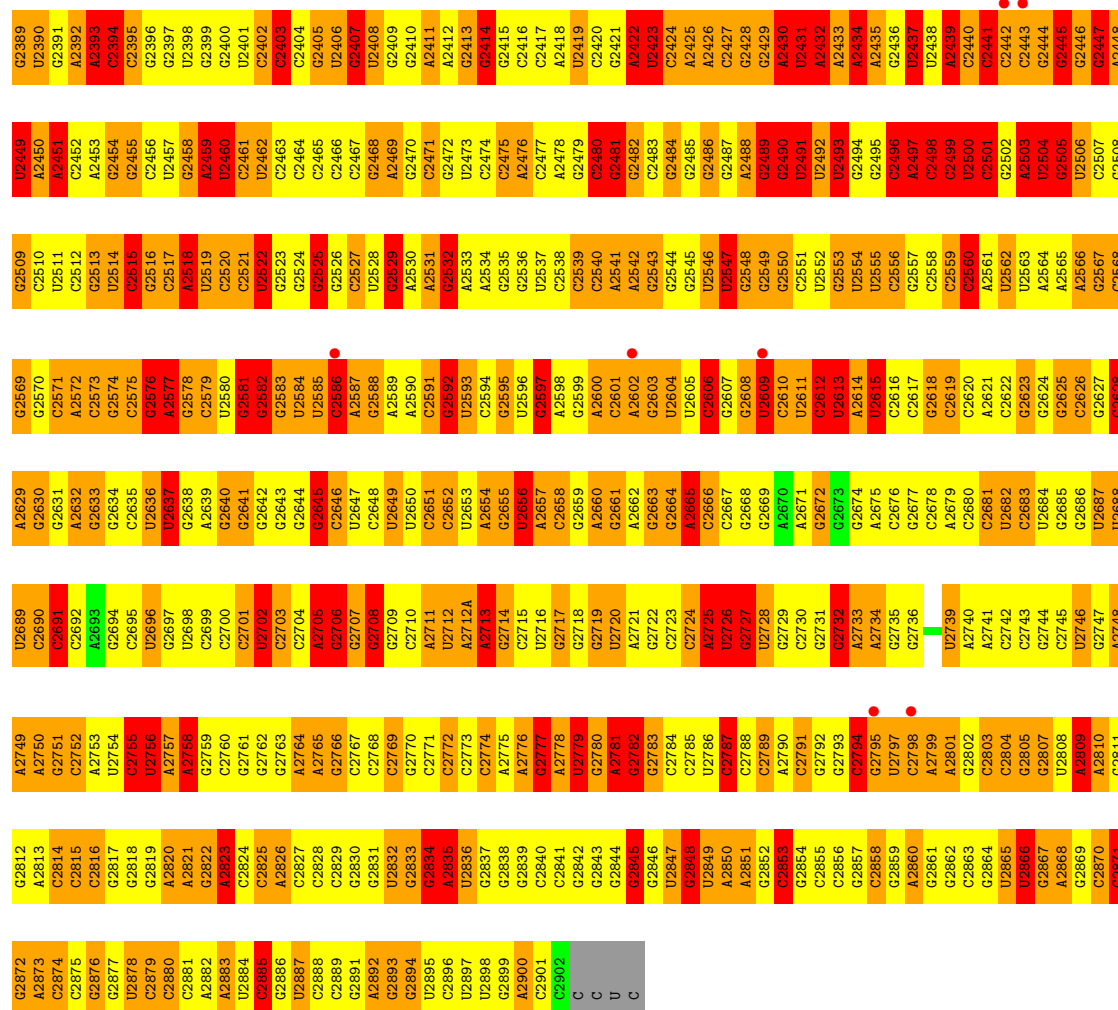
• Molecule 1: 23S ribosomal RNA

Chain A: 



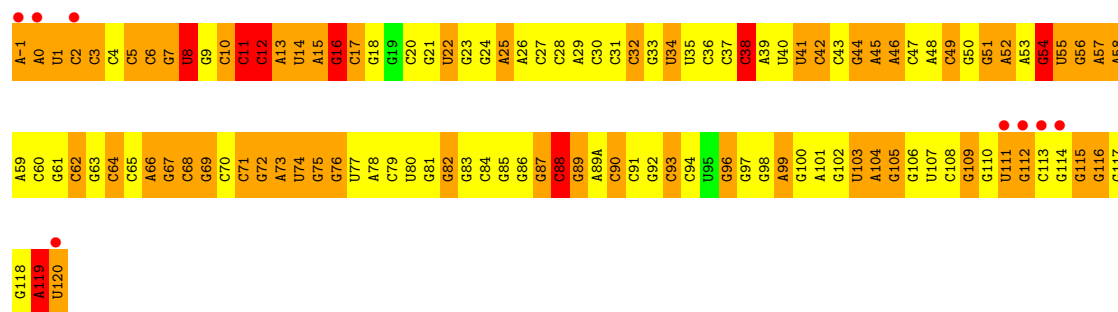
| | | | | | | | | | | | | |
|--------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|
| U1454 | A1395 | G1215 | G1154 | U1094 | G1034 | C974A | C914 | G853 | A793 | G733 | G673 | G635 |
| G1455 | U1396 | G1216 | A1155 | A1095 | U1035 | G975 | C915 | G854 | G794 | A734 | G674 | G636 |
| A1456 | U1397 | C1217 | A1156 | A1096 | G1036 | G976 | G916 | G855 | G795 | A735 | A675 | A637 |
| G1457 | C1398 | C1218 | A1157 | U1097 | G1037 | G977 | A917 | C856 | C796 | C736 | A676 | A638 |
| C1458 | C1399 | G1219 | A1158 | A1098 | G1038 | G978 | A918 | C857 | C797 | C737 | G677 | U639 |
| G1459 | G1400 | A1220 | U1159 | G1099 | C1039 | G979 | G919 | U858 | G798 | G738 | G678 | C640 |
| A1460 | G1401 | C1221 | G1160 | C1100 | C1040 | A980 | G920 | C859 | G799 | G739 | G679 | G641 |
| G1461 | A1342 | C1222 | C1161 | U1101 | G1041 | A981 | G921 | U860 | A800 | U740 | G680 | G642 |
| C1462 | G1343 | C1223 | G1162 | C1102 | A1042 | C982 | U922 | A861 | G801 | G741 | G681 | A643 |
| G1463 | A1344 | G1224 | G1163 | A1103 | C1043 | A983 | C923 | G862 | A802 | G742 | G682 | A644 |
| C1464 | C1345 | C1225 | G1164 | A1104 | A1044 | A984 | C924 | A863 | U803 | G743 | C683 | C645 |
| U1465 | U1406 | G1226 | U1165 | U1105 | A1045 | C985 | C925 | G864 | A804 | G744 | G684 | A646 |
| G1466 | G1346 | A1227 | C1166 | G1106 | A1046 | C986 | G926 | C865 | G805 | G745 | A685 | A647 |
| G1467 | A1287 | G1227 | U1167 | G1107 | G1047 | G987 | G928 | A866 | C806 | A746 | G686 | G648 |
| A1468 | U1288 | G1228 | U1168 | U1108 | A1048 | A988 | G929 | C867 | U807 | U747 | G687 | G649 |
| G1469 | C1289 | G1229 | G1168 | C1109 | A1049 | G989 | U930 | U868 | G808 | G748 | U688 | C |
| A1470 | C1290 | C1230 | G1169 | G1110 | A1050 | A990 | G931 | C869 | G809 | C749 | A689 | G |
| C1471 | U1291 | G1231 | G1170 | A1111 | G1051 | C991 | G932 | A870 | U810 | A750 | G690 | C |
| G1472 | C1292 | C1232 | G1171 | G1112 | G1052 | C992 | A933 | U871 | U811 | A751 | C691 | A |
| U1473 | U1293 | C1233 | G1172 | U1113 | A1053 | C993 | G934 | A872 | C812 | A752 | C692 | A |
| G1474 | U1294 | U1234 | U1173 | G1114 | A1054 | C994 | C935 | U873 | U813 | C753 | C693 | G |
| C1475 | G1295 | G1235 | U1175 | G1115 | G1055 | C995 | C936 | G874 | C814 | C754 | U694 | C |
| G1476 | G1296 | G1236 | G1176 | G1116 | G1056 | A996 | U937 | G875 | C815 | C755 | G695 | G |
| A1477 | C1297 | A1237 | A1177 | C1117 | A1057 | G997 | G938 | C876 | C816 | C756 | G696 | G |
| G1478 | C1298 | G1238 | C1178 | G1118 | G1058 | C998 | G939 | U877 | C817 | U757 | G697 | G |
| U1479 | G1299 | G1239 | G1179 | C1119 | G1059 | U999 | G940 | A878 | G818 | C758 | C698 | C |
| G1480 | U1300 | U1240 | C1180 | G1120 | G1060 | A1000 | A941 | G879 | A819 | G759 | A699 | C |
| A1481 | A1301 | A1241 | C1181 | A1121 | U1061 | A1001 | G942 | C880 | A820 | G760 | G700 | G |
| G1482 | C1362 | A1242 | A1182 | C1122 | G1062 | G1002 | U943 | C881 | A821 | A761 | G701 | C |
| C1483 | G1363 | G1243 | G1183 | G1123 | G1063 | G1003 | G944 | C882 | U822 | U762 | G702 | A |
| G1484 | C1304 | G1244 | G1184 | C1124 | G1064 | C1004 | A945 | C883 | G823 | G763 | U703 | C |
| U1485 | G1425 | G1245 | C1185 | G1125 | U1065 | G1005 | G946 | C884 | A824 | A764 | G704 | G |
| A1486 | C1306 | A1246 | G1186 | G1126 | U1066 | C1006 | G947 | C885 | C825 | G765 | A705 | C |
| G1487 | A1307 | A1247 | U1187 | A1127 | A1067 | G1007 | G948 | C886 | U826 | C766 | A706 | G |
| C1488 | C1308 | U1248 | U1188 | A1128 | G1068 | C1008 | C949 | A887 | U827 | U767 | G707 | G |
| U1489 | G1309 | U1249 | A1189 | A1129 | A1069 | A1009 | G950 | C888 | U828 | G768 | C708 | C |
| A1490 | C1370 | G1250 | G1190 | U1130 | A1070 | A1010 | C951 | C889 | A829 | G769 | U709 | C |
| G1491 | G1311 | C1251 | G1191 | G1131 | G1071 | G1011 | G952 | A890 | G830 | G770 | G710 | C |
| C1492 | U1312 | G1252 | G1192 | A1132 | C1072 | U1012 | A953 | C892 | G831 | C771 | G711 | G650 |
| U1493 | U1313 | A1253 | G1193 | U1133 | A1073 | C1013 | G954 | C893 | G832 | C772 | G712 | G651 |
| A1494 | C1314 | U1254 | G1194 | G1134 | G1074 | U1014 | C955 | C894 | U833 | U773 | G713 | G652 |
| G1495 | G1315 | U1255 | C1195 | C1135 | C1075 | G1015 | G956 | U895 | C834 | A774 | U714 | A653 |
| A1496 | C1376 | G1256 | C1196 | G1136 | C1076 | G1016 | A957 | A896 | A835 | G775 | G715 | A655 |
| U1497 | A1317 | C1257 | G1197 | G1137 | A1077 | G1017 | U958 | C897 | G836 | G776 | A716 | A656 |
| C1498 | C1318 | C1258 | U1198 | G1138 | U1078 | C1018 | A959 | C898 | C837 | A777 | G717 | U657 |
| U1499 | G1319 | G1259 | U1199 | G1139 | U1079 | U1019 | A960 | A899 | C838 | G778 | A718 | C658 |
| G1500 | C1320 | U1260 | C1200 | C1140 | C1080 | A1020 | C961 | A900 | U839 | U779 | G719 | C659 |
| C1501 | A1321 | C1261 | C1201 | U1141 | U1081 | G962 | G962 | A901 | C940 | G780 | C720 | G660 |
| U1502 | A1322 | A1262 | C1202 | U1142 | U1082 | G1022 | U963 | C902 | A841 | A781 | C721 | G661 |
| G1503 | C1323 | U1263 | G1203 | U1143 | U1083 | U1023 | C964 | C903 | G842 | A782 | A722 | G662 |
| C1504 | A1324 | G1264 | A1204 | A1144 | A1084 | G1024 | C965 | C904 | G843 | A783 | G723 | G663 |
| U1505 | G1325 | A1265 | U1205 | A1145 | U1085 | G1025 | G966 | U905 | C944 | A784 | U724 | C664 |
| C1506 | U1266 | G1266 | G1206 | G1146 | A1086 | U1026 | C967 | G906 | G845 | G785 | G725 | C665 |
| A1507 | C1327 | U1267 | C1207 | C1147 | A1087 | G1027 | G968 | U907 | C946 | C786 | G726 | G666 |
| U1508 | G1328 | A1268 | C1208 | U1148 | A1088 | A1028 | U969 | C908 | U847 | U787 | G727 | G667 |
| C1509 | U1329 | U1269 | G1209 | A1149 | A1089 | A1029 | C970 | A909 | G848 | A788 | G728 | G668 |
| U1510 | C1330 | A1270 | A1210 | G1149 | G1089 | U1029 | C971 | A910 | A849 | A789 | G729 | G669 |
| A1511 | G1331 | G1271 | U1211 | C1150 | U1090 | G1030 | G972 | A911 | C950 | C790 | C730 | A670 |
| G1449A | U1391 | G1272 | U1212 | G1151 | G1091 | G1031 | A973 | A912 | C951 | C791 | C671 | C672 |
| C1512 | C1392 | U1273 | A1213 | C1152 | C1092 | A1032 | G974 | U913 | G852 | G792 | G732 | |

| | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| G2329 | A2269 | A2199 | C2139 | U2079 | A2019 | G1959 | G1839 | G1770 | C1694 | A1634 | C1574 | G1515 |
| G2330 | G2270 | C2205 | C2140 | G2080 | A2020 | A1960 | G1831 | C1771 | G1694 | G1635 | C1675 | U1516 |
| G2331 | G2271 | C2206 | G2141 | A2081 | C2021 | A1900 | G1832 | C1772 | G1696 | C1636 | U1576 | G1517 |
| G2332 | U2272 | C2207 | C2142 | A2082 | U2022 | A1901 | U1833 | A1773 | G1697 | A1637 | C1577 | C1518 |
| A2333 | U2208 | U2208 | C2143 | G2083 | G2023 | G1903 | U1834 | C1774 | A1698 | C1638 | U1578 | U1519 |
| G2334 | A2274 | G2209 | C2144 | C2084 | G2024 | G1904 | G1835 | U1775 | G1699 | U1639 | A1579 | U1520 |
| A2335 | C2275 | G2210 | C2145 | C2085 | C2025 | C1905 | C1836 | G1776 | A1700 | C1640 | A1580 | G1521 |
| A2336 | G2276 | G2211 | C2146 | U2086 | C2026 | A1966 | C1837 | U1777 | A1701 | C1641 | G1582 | U1522 |
| G2337 | G2277 | A2212 | G2147 | G2087 | G2027 | C1967 | U1838 | U1778 | G1702 | G1642 | C1582 | U1523 |
| G2338 | U2213 | U2213 | G2148 | G2088 | U2028 | G1968 | G1839 | A1779 | G1703 | G1643 | A1583 | G1524 |
| G2339 | G2278 | G2215 | G2149 | G2089 | G2029 | A1969 | G1840 | U1780 | G1704 | C1644 | C1585 | U1525 |
| G2340 | G2280 | G2216 | U2150 | G2090 | A2030 | A1970 | U1841 | C1781 | G1705 | G1645 | A1586 | G1526 |
| G2341 | C2281 | G2217 | G2151 | G2091 | A2031 | A1971 | G1842 | C1782 | U1706 | G1646 | A1587 | G1527 |
| C2342 | G2282 | G2218 | G2152 | U2092 | G2032 | A1972 | C1843 | A1783 | G1707 | G1647 | C1588 | A1528 |
| U2343 | C2283 | G2219 | G2153 | G2093 | A2033 | A1973 | G1844 | A1784 | C1708 | C1648 | C1589 | A1529 |
| U2344 | G2284 | G2224 | G2154 | G2094 | U2034 | A1974 | G1845 | A1785 | U1709 | G1649 | U1590 | U1530 |
| G2345 | C2285 | A2225 | G2155 | C2095 | G2035 | G1975 | G1846 | A1786 | C1710 | G1650 | G1591 | C1531 |
| A2346 | A2286 | G2226 | G2156 | U2096 | G2036 | A1916 | A1847 | A1787 | C1711 | G1651 | C1592 | U1532 |
| G2347 | U2287 | A2227 | G2157 | C2097 | G2037 | U1917 | A1848 | C1788 | C1712 | A1652 | G1593 | C1533 |
| U2348 | A2288 | G2228 | A2158 | U2098 | G2038 | A1978 | G1849 | A1789 | U1716 | G1653 | G1594 | U1534 |
| G2349 | G2289 | C2229 | G2159 | U2099 | C2039 | A1979 | G1850 | C1790 | G1717 | A1654 | G1595 | U1535 |
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| G2351 | U2291 | C2231 | G2161 | G2101 | U2041 | A1981 | C1852 | G1792 | G1725 | C1656 | A1597 | C1537 |
| A2352 | C2292 | U2232 | G2162 | U2102 | A2042 | C1982 | A1853 | U1793 | G1726 | C1657 | C1598 | G1538 |
| G2353 | C2293 | U2233 | C2163 | C2103 | C2043 | C1983 | A1854 | U1794 | U1727 | C1658 | C1599 | G1539 |
| G2354 | C2294 | G2234 | C2164 | G2104 | G2044 | C1984 | G1855 | C1795 | G1728 | U1659 | C1600 | G1540 |
| C2355 | G2295 | G2235 | G2165 | C2105 | G2045 | C1985 | G1856 | U1796 | A1729 | C1660 | G1601 | U1541 |
| C2356 | U2296 | G2236 | G2166 | G2106 | G2046 | A1986 | G1857 | C1797 | U1730 | G1661 | U1602 | G1542 |
| U2357 | G2297 | U2167 | C2167 | C2107 | U2047 | A1987 | G1858 | U1798 | G1731 | C1662 | A1603 | A1543 |
| G2358 | A2298 | G2237 | G2168 | C2108 | G2048 | C1988 | A1859 | G1799 | A1732 | C1663 | C1604 | C1544 |
| G2359 | G2299 | G2239 | A2169 | U2109 | G2049 | G1989 | G1860 | C1800 | G1733 | A1664 | C1605 | A1545 |
| C2300 | C2300 | C2240 | A2170 | C2110 | G2050 | C1990 | G1861 | G1801 | C1734 | A1665 | G1606 | A1545A |
| A2361 | A2361 | A2241 | A2171 | G2111 | A2051 | U1991 | G1862 | A1802 | C1735 | G1666 | C1607 | C1546 |
| G2362 | G2302 | G2242 | U2172 | G2112 | G2052 | C1992 | G1863 | A1803 | C1741 | G1667 | A1608 | C1547 |
| C2363 | G2303 | U2243 | A2173 | U1993 | G2053 | C1993 | U1864 | C1804 | C1742 | A1668 | A1609 | C1548 |
| G2364 | C2304 | U2244 | A2174 | C1994 | A2054 | G1994 | G1869 | U1805 | G1743 | A1669 | A1610 | C1549 |
| G2365 | A2305 | U2245 | C2175 | U1995 | G2055 | C1995 | C1870 | C1806 | G1746 | C1670 | C1611 | C1550 |
| A2366 | C2306 | G2246 | A2176 | C2116 | G2056 | C1996 | A1871 | G1807 | G1747 | U1671 | C1612 | C1551 |
| G2367 | G2307 | A2247 | C2177 | A2117 | A2057 | C1997 | A1872 | U1808 | G1748 | C1672 | G1613 | G1552 |
| G2368 | G2308 | C2248 | C2178 | U2118 | A2058 | A1998 | G1878 | A1809 | A1749 | U1673 | A1614 | A1553 |
| A2369 | A2309 | U2249 | C2179 | A2119 | A2059 | C1999 | C1879 | G1810 | G1750 | G1674 | C1615 | A1554 |
| G2370 | A2310 | G2250 | U2180 | G2120 | A2060 | U1940 | C1880 | G1811 | C1751 | C1675 | A1555 | G1555 |
| A2371 | A2311 | G2251 | G2181 | G2121 | G2061 | C2001 | C1881 | A1812 | G1752 | A1676 | C1617 | C1556 |
| G2372 | U2312 | G2252 | G2182 | U2122 | A2062 | G2002 | C1942 | G1813 | G1753 | C1677 | A1618 | C1557 |
| G2373 | C2313 | G2253 | C2183 | G2123 | C2063 | G2003 | G1883 | G1814 | C1754 | G1678 | G1619 | A1558 |
| C2374 | G2314 | C2254 | G2184 | G2124 | C2064 | G2004 | A1884 | A1815 | A1755 | U1679 | G1620 | G1559 |
| G2375 | G2315 | G2255 | C2185 | G2125 | C2065 | A2005 | A1885 | G1816 | G1756 | U1680 | U1621 | G1560 |
| A2376 | G2316 | G2256 | G2186 | A2126 | C2066 | C2006 | C1886 | G1817 | G1757 | G1681 | G1622 | G1561 |
| A2377 | C2317 | U2257 | G2187 | G2127 | G2067 | C2007 | C1887 | U1818 | U1758 | G1682 | G1623 | A1562 |
| A2378 | G2318 | C2258 | C2188 | C2128 | U2068 | G2008 | G1888 | A1819 | A1759 | C1683 | G1624 | G1563 |
| G2379 | G2319 | G2259 | U2189 | C2129 | G2069 | G1949 | A1889 | U1820 | A1760 | C1684 | G1625 | G1564 |
| C2380 | A2320 | C2260 | G2190 | U2130 | G2070 | G1950 | A1890 | A1821 | C1761 | C1685 | G1626 | C1565 |
| C2381 | G2321 | C2261 | G2191 | A2071 | U2011 | U1951 | G1891 | A1822 | A1762 | C1686 | G1627 | A1566 |
| A2382 | A2322 | U2262 | G2192 | U2132 | G2072 | A1952 | C1892 | G1823 | G1763 | C1687 | G1628 | A1567 |
| G2383 | G2323 | C2263 | G2193 | C2133 | G2073 | A1953 | C1893 | G1824 | G1764 | U1688 | U1629 | G1568 |
| G2384 | C2324 | C2264 | A2194 | A2134 | U2074 | G1954 | C1894 | A1825 | C1765 | A1689 | G1630 | G1569 |
| C2385 | G2325 | U2265 | C2195 | A2135 | U2075 | U1955 | C1895 | G1826 | U1766 | A1690 | C1630A | A1570 |
| C2386 | A2266 | A2266 | C2196 | U2136 | U2076 | U1956 | G1896 | G1827 | C1767 | C1691 | A1631 | A1571 |
| U2387 | U2327 | A2267 | C2197 | C2137 | A2077 | C1957 | G1897 | G1828 | U1768 | U1692 | A1632 | A1572 |
| A2388 | A2328 | A2268 | A2198 | C2138 | C2078 | C1958 | U1898 | A1829 | G1769 | U1693 | G1633 | G1573 |



• Molecule 2: 5S ribosomal RNA

Chain B:



• Molecule 3: 50S ribosomal protein L1

Chain C:



G60 T61
V62 S63
L64 P65
H66 G67
L68 G69
Q71 K70
V72 W73
V74 V75
A76 A77
I77 A78
K79 K80
E81 E82
K82 E83
I83 I84
E85 E86
F147 E148
I149 E150
E151 E152
I153 E154
E155 E156
G157 E158
E159 E160
I161 E162
E163 E164
I165 E166
G167 E168
W169 E170
F171 E172
D173 E174
P175 E176
A177 E178
T179 E180
V181

M120 G121
V122 V123
K126 K127
G128 R129
R130 E131
L132 E133
P134 E135
G136 E137
L138 E139
M140 E141
K142 E143
G144 E145
V146 E147
G148 E149
F150 E151
I152 E153
E154 E155
G156 E157
E158 E159
I160 E161
E162 E163
E164 E165
E166 E167
E168 E169
E170 E171
E172 E173
E174 E175
E176 E177
E178 E179
E180 E181

P182 E183
K184 E185
L186 E187
D188 E189
Y190 E191
A192 E193
F194 E195
A196 E197
E198 E199
K200 E201
F202 E203
G204 E205
A206 E207
K208 E209
G210 E211
S212 E213
Y214 E215
T216 E217
W218 E219
G220 E221
S222 E223
V224 E225
H227 E228

• Molecule 4: 50S ribosomal protein L2

Chain D:

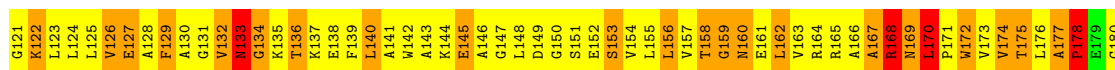
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K5 K6
F6 F7
K7 K8
F8 F9
Y9 T10
A110 E111
P111 E112
S113 E114
R115 E116
L117 E118
G119 E120
K121 E122
D123 E124
P125 E126
H127 E128
G129 E130
R131 E132
L133 E134
F135 E136
A137 E138
T139 E140
Y141 E142
S143 E144
K145 E146
G147 E148
V149 E150
E151 E152
I153 E154
E155 E156
G157 E158
E159 E160
I161 E162
E163 E164
I165 E166
G167 E168
W169 E170
F171 E172
D173 E174
P175 E176
A177 E178
T179 E180
V181

L61 Y62
R63 E64
I65 E66
D67 E68
K69 E70
W71 E72
K73 E74
G75 E76
F77 E78
V79 E80
A81 E82
S83 E84
Y85 E86
K87 E88
D89 E89
T90 E90
A91 E92
P93 E94
S95 E96
K97 E98
D99 E99
T100 E101
A102 E103
S104 E105
Y106 E107
K108 E109
D110 E111
T112 E113
P114 E115
S116 E117
K118 E119
D120 E121
W122 E123
H124 E125
G126 E127
V128 E129
E130 E131
I132 E133
E134 E135
G136 E137
L138 E139
M140 E141
K142 E143
G144 E145
V146 E147
G148 E149
F150 E151
I152 E153
E154 E155
G156 E157
E158 E159
I160 E161
E162 E163
E164 E165
E166 E167
E168 E169
E170 E171
E172 E173
E174 E175
E176 E177
E178 E179
E180 E181

P121 D122
A123 E124
I125 E126
H127 E128
G129 E130
R131 E132
L133 E134
F135 E136
A137 E138
T139 E140
Y141 E142
S143 E144
K145 E146
G147 E148
V149 E150
E151 E152
I153 E154
E155 E156
G157 E158
E159 E160
I161 E162
E163 E164
I165 E166
G167 E168
W169 E170
F171 E172
D173 E174
P175 E176
A177 E178
T179 E180
V181

E181 L182
K183 E184
I185 E186
D187 E188
K189 E190
T191 E192
A193 E194
S195 E196
Y197 E198
K199 E200
D201 E202
W203 E204
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S255 E256
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E1131 E1132
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E1135 E1136
G1137 E1138
V1139 E1140
E1141 E1142
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E1145 E1146
G1147 E1148
V1149 E1150
E1151 E1152
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G1157 E1158
V1159 E1160
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G1167 E1168
V1169 E1170
E1171 E1172
I1173 E1174
E1175 E1176
G1177 E1178
V1179 E1180
E1181 E1182
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G1187 E1188
V1189 E1190
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I1193 E1194
E1195 E1196
G1197 E1198
V1199 E1200
E1201 E1202
I1203 E1204
E1205 E1206
G1207 E1208
V1209 E1210
E1211 E1212
I1213 E1214
E1215 E1216
G1217 E1218
V1219 E1220
E1221 E1222
S1223 E1224
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T1241 E1242
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T1251 E1252
P1253 E1254
S1255 E1256
Y1257 E1258
K1259 E1260
D1261 E1262
W1263 E1264
H1265 E1266
G1267 E1268
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E1271 E1272
I1273 E1274
E1275 E1276
G1277 E1278
V1279 E1280
E1281 E1282
I1283 E1284
E1285 E1286
G1287 E1288
V1289 E1290
E1291 E1292
I1293 E1294
E1295 E1296
G1297 E1298
V1299 E1300
E1301 E1302
I1303 E1304
E1305 E1306
G1307 E1308
V1309 E1310
E1311 E1312
I1313 E1314
E1315 E1316
G1317 E1318
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G1347 E1348
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E1351 E1352
I1353 E1354
E1355 E1356
G1357 E1358
V1359 E1360
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I1363 E1364
E1365 E1366
G1367 E1368
V1369 E1370
E1371 E1372
I1373 E1374
E1375 E1376
G1377 E1378
V1379 E1380
E1381 E1382
I1383 E1384
E1385 E1386
G1387 E1388
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I1393 E1394
E1395 E1396
G1397 E1398
V1399 E1400
E1401 E1402
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E1415 E1416
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G1567 E1568
V1569 E1570
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E1581 E1582
I1583 E1584
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G1587 E1588
V1589 E1590
E1591 E1592
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E1595 E1596
G1597 E1598
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E1601 E1602
I1603 E1604
E1605 E1606
G1607 E1608
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E1611 E1612
I1613 E1614
E1615 E1616
G1617 E1618
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I1693 E1694
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V1699 E1700
E1701 E1702
I1703 E1704
E1705 E1706
G1707 E1708
V1709 E1710
E1711 E1712
I1713 E1714
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E1745 E1746
G1747 E1748
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E1755 E1756
G1757 E1758
V1759 E1760
E1761 E1762
I1763 E1764
E1765 E1766
G1767 E1768
V1769 E1770
E1771 E1772
I1773 E1774
E1775 E1776
G1777 E1778
V1779 E1780
E1781 E1782
I1783 E1784
E1785 E1786
G1787 E1788
V1789 E1790
E1791 E1792
I1793 E1794
E1795 E1796
G1797 E1798
V1799 E1800
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I1803 E1804
E1805 E1806
G1807 E1808
V1809 E1810
E1811 E1812
I1813 E1814
E1815 E1816
G1817 E1818
V1819 E1820
E1821 E1822
I1823 E1824
E1825 E1826
G1827 E1828
V1829 E1830
E1831 E1832
I1833 E1834
E1835 E1836
G1837 E1838
V1839 E1840
E1841 E1842
I1843 E1844
E1845 E1846
G1847 E1848
V1849 E1850
E1851 E1852
I1853 E1854
E1855 E1856
G1857 E1858
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G1867 E1868
V1869 E1870
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G1877 E1878
V1879 E1880
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G1897 E1898
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I1903 E1904
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G1907 E1908
V1909 E1910
E1911 E1912
I1913 E1914
E1915 E1916
G1917 E1918
V1919 E1920
E1921 E1922
I1923 E1924
E1925 E1926
G1927 E1928
V1929 E1930
E1931 E1932
I1933 E1934
E1935 E1936
G1937 E1938
V1939 E1940
E1941 E1942
I1943 E1944
E1945 E1946
G1947 E1948
V1949 E1950
E1951 E1952
I



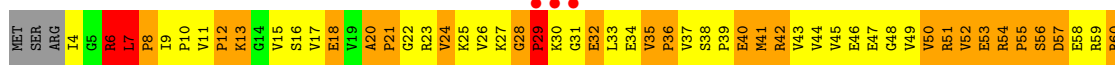
• Molecule 7: 50S ribosomal protein L5

Chain G:



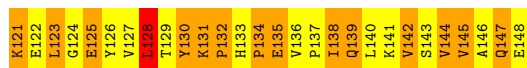
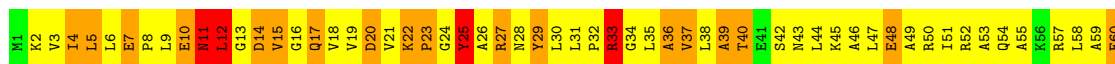
• Molecule 8: 50S ribosomal protein L6

Chain H:



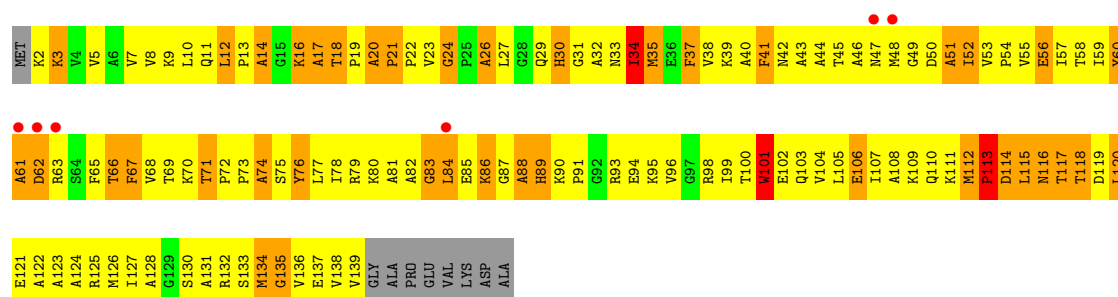
• Molecule 9: 50S ribosomal protein L9

Chain K:



• Molecule 10: 50S ribosomal protein L11

Chain L:



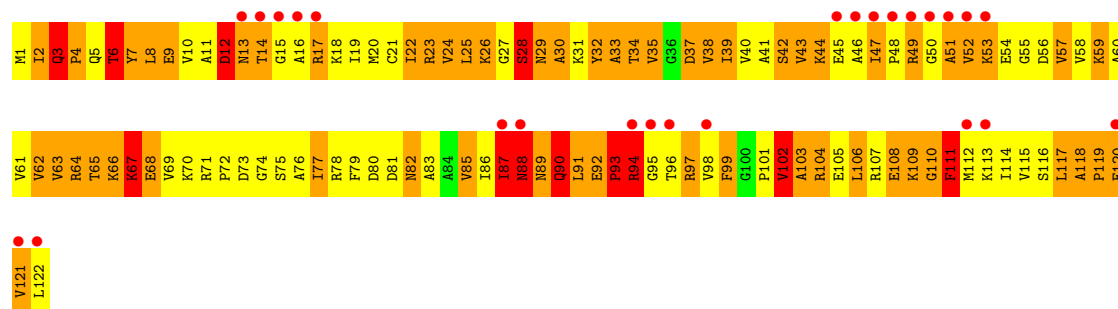
• Molecule 11: 50S ribosomal protein L13

Chain M:



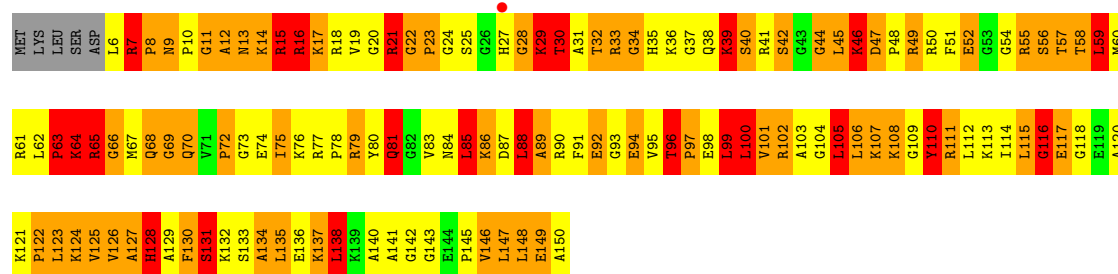
• Molecule 12: 50S ribosomal protein L14

Chain N:



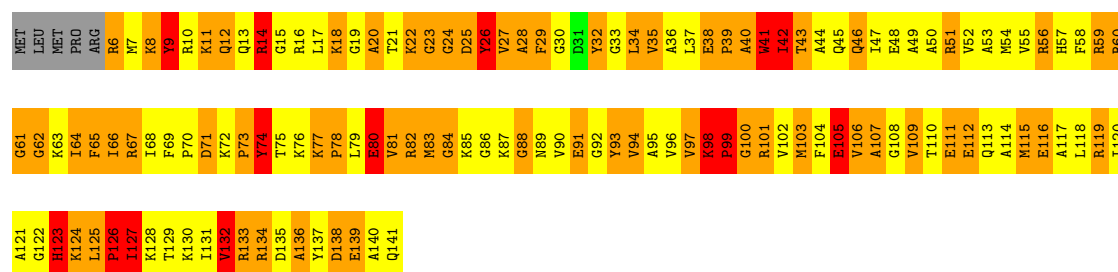
• Molecule 13: 50S ribosomal protein L15

Chain O:



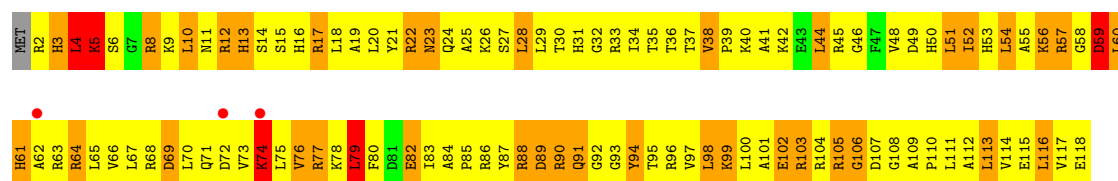
• Molecule 14: 50S ribosomal protein L16

Chain P:



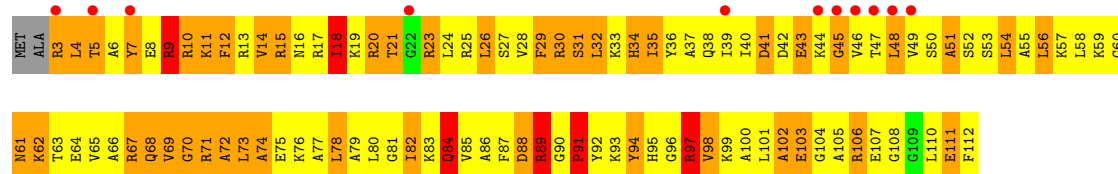
- Molecule 15: 50S ribosomal protein L17

Chain Q:



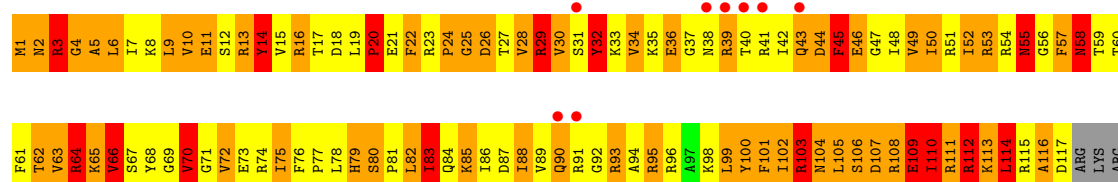
- Molecule 16: 50S ribosomal protein L18

Chain R:



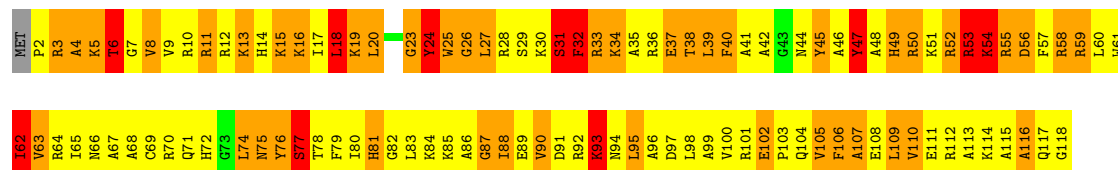
- Molecule 17: 50S ribosomal protein L19

Chain S:



- Molecule 18: 50S ribosomal protein L20

Chain T:



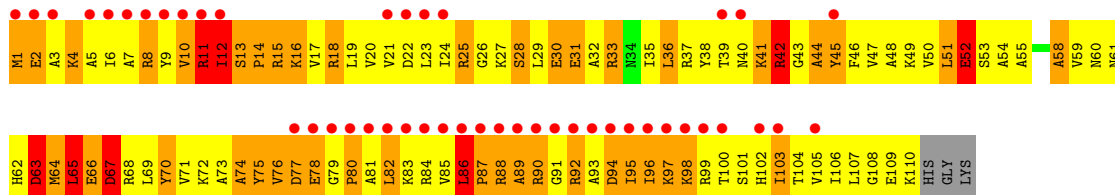
- Molecule 19: 50S ribosomal protein L21

Chain U:



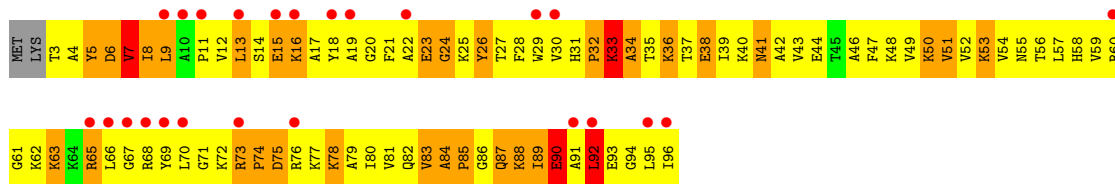
- Molecule 20: 50S ribosomal protein L22

Chain V:



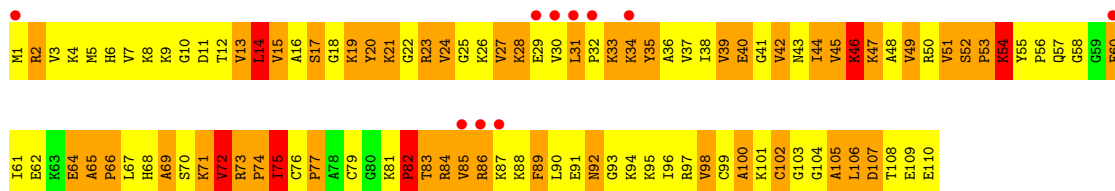
- Molecule 21: 50S ribosomal protein L23

Chain W:



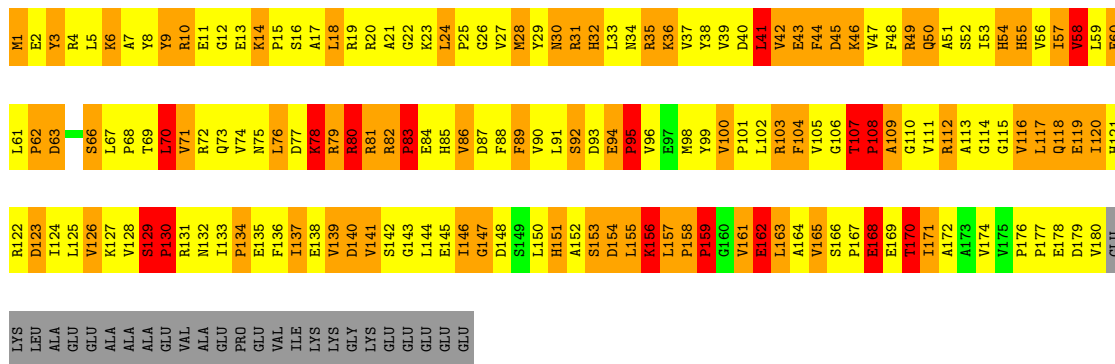
- Molecule 22: 50S ribosomal protein L24

Chain X:



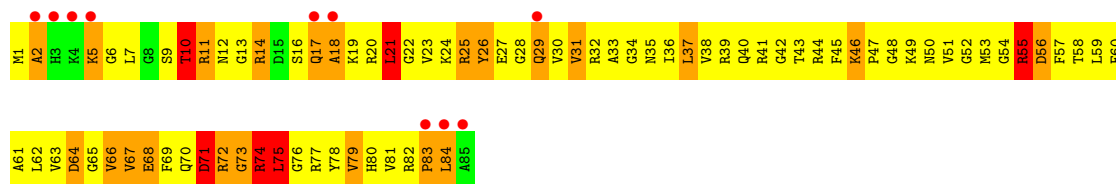
- Molecule 23: 50S ribosomal protein L25

Chain Y:



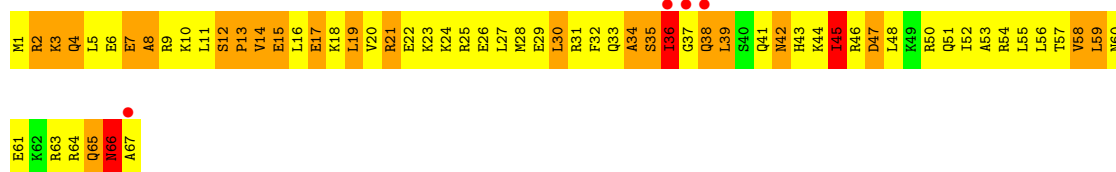
- Molecule 24: 50S ribosomal protein L27

Chain Z:



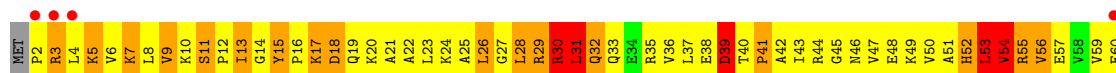
- Molecule 25: 50S ribosomal protein L29

Chain 1:



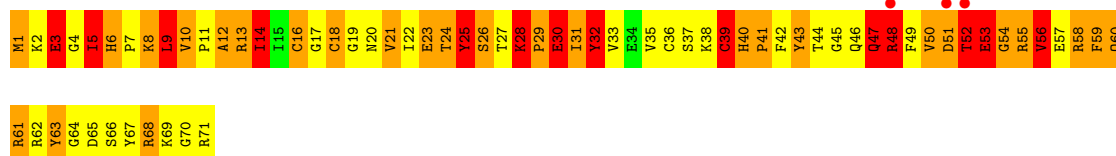
- Molecule 26: 50S ribosomal protein L30

Chain 2:



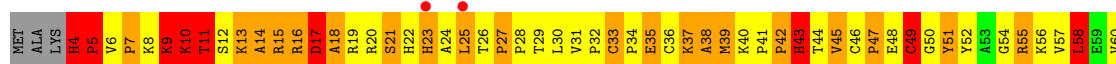
- Molecule 27: 50S ribosomal protein L31

Chain 3:



- Molecule 28: 50S ribosomal protein L32

Chain 4:



- Molecule 29: 50S ribosomal protein L33

Chain 5:



- Molecule 30: 50S ribosomal protein L34

Chain 6:



● Molecule 31: 50S ribosomal protein L35

Chain 7:



● Molecule 32: 50S ribosomal protein L36

Chain 8:



4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | I 4 2 2 | Depositor |
| Cell constants a, b, c, α , β , γ | 509.52Å 509.52Å 804.94Å 90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 300.00 – 5.00 430.52 – 4.80 | Depositor EDS |
| % Data completeness (in resolution range) | 93.9 (300.00-5.00) 96.7 (430.52-4.80) | Depositor EDS |
| R_{merge} | 0.08 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 3.09 (at 4.88Å) | Xtriage |
| Refinement program | CNS | Depositor |
| R, R_{free} | 0.263 , 0.323 0.435 , 0.464 | Depositor DCC |
| R_{free} test set | 10525 reflections (5.02%) | DCC |
| Wilson B-factor (Å ²) | 99.7 | Xtriage |
| Anisotropy | 0.066 | Xtriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.09 , 18.9 | EDS |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| L-test for twinning | $\langle L \rangle = 0.55$, $\langle L^2 \rangle = 0.39$ | Xtriage |
| Outliers | 1 of 252174 reflections (0.000%) | Xtriage |
| F_o, F_c correlation | 0.74 | EDS |
| Total number of atoms | 94012 | wwPDB-VP |
| Average B, all atoms (Å ²) | 166.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.30% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities 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 | A | 1.06 | 154/69685 (0.2%) | 1.16 | 463/108786 (0.4%) |
| 2 | B | 0.86 | 4/2954 (0.1%) | 1.01 | 8/4606 (0.2%) |
| 3 | C | 0.50 | 0/1775 | 0.89 | 2/2393 (0.1%) |
| 4 | D | 0.83 | 3/2174 (0.1%) | 1.25 | 12/2927 (0.4%) |
| 5 | E | 0.86 | 2/1611 (0.1%) | 1.29 | 13/2171 (0.6%) |
| 6 | F | 0.69 | 0/1660 | 1.11 | 8/2247 (0.4%) |
| 7 | G | 0.63 | 0/1507 | 1.05 | 4/2027 (0.2%) |
| 8 | H | 0.62 | 0/1354 | 1.06 | 5/1831 (0.3%) |
| 9 | K | 0.69 | 0/1170 | 1.08 | 2/1581 (0.1%) |
| 10 | L | 0.49 | 0/1044 | 0.90 | 1/1415 (0.1%) |
| 11 | M | 0.83 | 1/1140 (0.1%) | 1.19 | 8/1537 (0.5%) |
| 12 | N | 1.00 | 0/942 | 1.39 | 8/1268 (0.6%) |
| 13 | O | 0.79 | 0/1123 | 1.27 | 15/1493 (1.0%) |
| 14 | P | 0.85 | 1/1100 (0.1%) | 1.27 | 6/1470 (0.4%) |
| 15 | Q | 0.69 | 0/974 | 1.08 | 2/1302 (0.2%) |
| 16 | R | 0.78 | 0/887 | 1.11 | 2/1180 (0.2%) |
| 17 | S | 0.95 | 0/990 | 1.44 | 13/1325 (1.0%) |
| 18 | T | 0.79 | 0/982 | 1.18 | 6/1306 (0.5%) |
| 19 | U | 0.90 | 1/790 (0.1%) | 1.44 | 11/1057 (1.0%) |
| 20 | V | 0.78 | 0/886 | 1.11 | 2/1189 (0.2%) |
| 21 | W | 0.57 | 0/756 | 0.91 | 0/1015 |
| 22 | X | 0.53 | 0/857 | 1.09 | 4/1142 (0.4%) |
| 23 | Y | 0.66 | 0/1467 | 1.13 | 6/1992 (0.3%) |
| 24 | Z | 0.72 | 0/679 | 1.11 | 2/902 (0.2%) |
| 25 | 1 | 0.64 | 0/569 | 0.91 | 0/751 |
| 26 | 2 | 0.63 | 0/474 | 1.08 | 1/635 (0.2%) |
| 27 | 3 | 1.00 | 2/594 (0.3%) | 1.37 | 8/795 (1.0%) |
| 28 | 4 | 0.74 | 1/459 (0.2%) | 1.12 | 2/621 (0.3%) |
| 29 | 5 | 0.91 | 0/433 | 1.61 | 7/576 (1.2%) |
| 30 | 6 | 0.81 | 0/438 | 1.03 | 1/575 (0.2%) |
| 31 | 7 | 0.70 | 0/523 | 1.23 | 3/690 (0.4%) |
| 32 | 8 | 0.69 | 0/310 | 1.19 | 2/407 (0.5%) |
| All | All | 0.97 | 169/102307 (0.2%) | 1.16 | 627/153212 (0.4%) |

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 |
|-----|-------|---------------------|---------------------|
| 1 | A | 0 | 546 |
| 2 | B | 0 | 16 |
| 4 | D | 0 | 2 |
| 5 | E | 0 | 1 |
| 6 | F | 0 | 1 |
| 8 | H | 0 | 1 |
| 14 | P | 0 | 3 |
| 17 | S | 0 | 2 |
| 19 | U | 0 | 2 |
| 20 | V | 0 | 1 |
| 21 | W | 0 | 1 |
| 27 | 3 | 0 | 2 |
| All | All | 0 | 578 |

All (169) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|--------|-------------|----------|
| 1 | A | 1203 | G | O3'-P | -34.70 | 1.19 | 1.61 |
| 1 | A | 607 | U | N3-C4 | -31.59 | 1.10 | 1.38 |
| 1 | A | 2501 | C | O3'-P | 24.61 | 1.90 | 1.61 |
| 1 | A | 607 | U | C2-N3 | -22.10 | 1.22 | 1.37 |
| 1 | A | 607 | U | C4-C5 | 19.62 | 1.61 | 1.43 |
| 1 | A | 2499 | C | O3'-P | -18.96 | 1.38 | 1.61 |
| 1 | A | 2500 | U | C4-O4 | 18.52 | 1.38 | 1.23 |
| 1 | A | 2446 | G | O3'-P | -17.45 | 1.40 | 1.61 |
| 1 | A | 1202 | C | O3'-P | -16.02 | 1.42 | 1.61 |
| 1 | A | 621 | A | C5-C6 | -14.60 | 1.27 | 1.41 |
| 1 | A | 1993 | U | N1-C2 | 14.32 | 1.51 | 1.38 |
| 1 | A | 2491 | U | N1-C2 | 13.11 | 1.50 | 1.38 |
| 1 | A | 621 | A | N1-C2 | -12.97 | 1.22 | 1.34 |
| 1 | A | 775 | G | N9-C4 | 11.64 | 1.47 | 1.38 |
| 1 | A | 1626 | G | C5'-C4' | 10.70 | 1.64 | 1.51 |
| 1 | A | 2460 | U | N3-C4 | 10.60 | 1.48 | 1.38 |
| 1 | A | 687 | C | N1-C2 | 10.34 | 1.50 | 1.40 |
| 1 | A | 2460 | U | C2-N3 | 10.25 | 1.45 | 1.37 |
| 1 | A | 1625 | C | C3'-O3' | 10.22 | 1.56 | 1.42 |
| 1 | A | 1956 | U | N1-C2 | 9.86 | 1.47 | 1.38 |
| 1 | A | 2063 | C | N1-C2 | 9.76 | 1.50 | 1.40 |
| 1 | A | 621 | A | C5-C4 | -9.36 | 1.32 | 1.38 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | A | 2612 | C | N1-C2 | 9.29 | 1.49 | 1.40 |
| 1 | A | 2755 | C | O3'-P | -8.71 | 1.50 | 1.61 |
| 1 | A | 2460 | U | N1-C2 | 8.64 | 1.46 | 1.38 |
| 1 | A | 2035 | G | N9-C4 | 8.63 | 1.44 | 1.38 |
| 1 | A | 775 | G | C2-N3 | 8.62 | 1.39 | 1.32 |
| 1 | A | 1359 | A | C5-C6 | -8.48 | 1.33 | 1.41 |
| 1 | A | 2460 | U | C4-O4 | 8.47 | 1.30 | 1.23 |
| 1 | A | 2491 | U | C2-N3 | 8.45 | 1.43 | 1.37 |
| 1 | A | 1956 | U | N3-C4 | 8.39 | 1.46 | 1.38 |
| 1 | A | 917 | A | C6-N1 | 8.32 | 1.41 | 1.35 |
| 1 | A | 1786 | A | N9-C4 | 8.28 | 1.42 | 1.37 |
| 1 | A | 1789 | A | C5-C6 | 8.17 | 1.48 | 1.41 |
| 11 | M | 42 | TRP | CB-CG | 8.14 | 1.65 | 1.50 |
| 1 | A | 1778 | U | N3-C4 | 8.10 | 1.45 | 1.38 |
| 1 | A | 917 | A | C5-C4 | -8.09 | 1.33 | 1.38 |
| 4 | D | 250 | TRP | CB-CG | -7.71 | 1.36 | 1.50 |
| 1 | A | 1303 | G | C5-C6 | 7.70 | 1.50 | 1.42 |
| 1 | A | 1950 | G | C5-C6 | 7.44 | 1.49 | 1.42 |
| 1 | A | 1993 | U | C2-N3 | 7.41 | 1.43 | 1.37 |
| 1 | A | 1 | G | OP3-P | -7.31 | 1.52 | 1.61 |
| 1 | A | 2489 | G | C6-O6 | -7.25 | 1.17 | 1.24 |
| 2 | B | -1 | A | OP3-P | -7.23 | 1.52 | 1.61 |
| 1 | A | 1824 | G | N9-C4 | -7.09 | 1.32 | 1.38 |
| 1 | A | 2195 | C | C3'-O3' | 7.06 | 1.52 | 1.42 |
| 27 | 3 | 48 | ARG | CG-CD | 7.04 | 1.69 | 1.51 |
| 1 | A | 1786 | A | C2-N3 | 6.98 | 1.39 | 1.33 |
| 1 | A | 607 | U | N1-C6 | -6.98 | 1.31 | 1.38 |
| 19 | U | 81 | TYR | CB-CG | 6.96 | 1.62 | 1.51 |
| 1 | A | 2459 | A | N9-C4 | 6.87 | 1.42 | 1.37 |
| 1 | A | 1956 | U | C2-N3 | 6.85 | 1.42 | 1.37 |
| 1 | A | 1625 | C | O3'-P | 6.81 | 1.69 | 1.61 |
| 1 | A | 2461 | C | C2-N3 | -6.70 | 1.30 | 1.35 |
| 1 | A | 1938 | A | C5'-C4' | 6.64 | 1.59 | 1.51 |
| 1 | A | 1781 | C | N1-C2 | 6.63 | 1.46 | 1.40 |
| 1 | A | 2445 | G | C6-O6 | -6.62 | 1.18 | 1.24 |
| 1 | A | 860 | U | N3-C4 | -6.61 | 1.32 | 1.38 |
| 1 | A | 1993 | U | C2-O2 | 6.56 | 1.28 | 1.22 |
| 1 | A | 1666 | G | N9-C4 | -6.54 | 1.32 | 1.38 |
| 1 | A | 1938 | A | C5-C4 | 6.54 | 1.43 | 1.38 |
| 1 | A | 1778 | U | C5-C6 | -6.50 | 1.28 | 1.34 |
| 1 | A | 745 | G | C3'-O3' | 6.41 | 1.51 | 1.42 |
| 1 | A | 1313 | U | N1-C2 | 6.40 | 1.44 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | A | 1746 | G | N9-C4 | -6.36 | 1.32 | 1.38 |
| 1 | A | 2500 | U | O3'-P | -6.36 | 1.53 | 1.61 |
| 27 | 3 | 48 | ARG | CB-CG | 6.32 | 1.69 | 1.52 |
| 1 | A | 860 | U | C5-C6 | -6.32 | 1.28 | 1.34 |
| 1 | A | 595 | C | N1-C2 | -6.31 | 1.33 | 1.40 |
| 1 | A | 917 | A | N9-C4 | 6.30 | 1.41 | 1.37 |
| 1 | A | 917 | A | C2-N3 | 6.26 | 1.39 | 1.33 |
| 1 | A | 2255 | G | N1-C2 | 6.25 | 1.42 | 1.37 |
| 1 | A | 2461 | C | C2-O2 | -6.22 | 1.18 | 1.24 |
| 1 | A | 1575 | C | N1-C2 | -6.20 | 1.33 | 1.40 |
| 1 | A | 2491 | U | N3-C4 | 6.19 | 1.44 | 1.38 |
| 1 | A | 2541 | A | C5-C6 | 6.16 | 1.46 | 1.41 |
| 1 | A | 2009 | G | N9-C4 | -6.15 | 1.33 | 1.38 |
| 1 | A | 2490 | G | N1-C2 | -6.14 | 1.32 | 1.37 |
| 1 | A | 1524 | G | C2-N3 | -6.12 | 1.27 | 1.32 |
| 1 | A | 587 | C | N1-C2 | 6.11 | 1.46 | 1.40 |
| 1 | A | 1625 | C | C2-O2 | -6.10 | 1.19 | 1.24 |
| 1 | A | 1372 | U | N3-C4 | 6.05 | 1.43 | 1.38 |
| 1 | A | 1769 | G | N9-C4 | -6.04 | 1.33 | 1.38 |
| 1 | A | 1951 | U | N1-C2 | 6.02 | 1.44 | 1.38 |
| 1 | A | 2447 | G | O3'-P | -5.97 | 1.53 | 1.61 |
| 1 | A | 1530 | G | N9-C4 | -5.93 | 1.33 | 1.38 |
| 1 | A | 688 | U | N1-C2 | 5.92 | 1.43 | 1.38 |
| 1 | A | 821 | A | C5-C6 | 5.92 | 1.46 | 1.41 |
| 1 | A | 1240 | U | N3-C4 | -5.91 | 1.33 | 1.38 |
| 1 | A | 290 | G | N9-C4 | -5.90 | 1.33 | 1.38 |
| 1 | A | 1313 | U | C4-C5 | -5.89 | 1.38 | 1.43 |
| 1 | A | 1661 | G | C6-O6 | -5.89 | 1.18 | 1.24 |
| 1 | A | 1828 | G | N9-C4 | -5.85 | 1.33 | 1.38 |
| 1 | A | 2618 | G | N9-C4 | -5.84 | 1.33 | 1.38 |
| 1 | A | 2665 | A | C5-C6 | -5.83 | 1.35 | 1.41 |
| 1 | A | 1695 | G | C5-C6 | -5.83 | 1.36 | 1.42 |
| 1 | A | 817 | C | N1-C2 | 5.82 | 1.46 | 1.40 |
| 1 | A | 2588 | G | C6-N1 | -5.81 | 1.35 | 1.39 |
| 1 | A | 1478 | G | N9-C4 | -5.79 | 1.33 | 1.38 |
| 1 | A | 2522 | U | N1-C2 | 5.78 | 1.43 | 1.38 |
| 1 | A | 1938 | A | O3'-P | 5.78 | 1.68 | 1.61 |
| 1 | A | 1938 | A | C3'-C2' | 5.76 | 1.59 | 1.52 |
| 1 | A | 745 | G | O3'-P | 5.76 | 1.68 | 1.61 |
| 1 | A | 979 | G | C5-C6 | 5.74 | 1.48 | 1.42 |
| 1 | A | 1957 | C | C2-O2 | -5.73 | 1.19 | 1.24 |
| 1 | A | 930 | U | N1-C2 | -5.72 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | A | 2577 | A | N9-C4 | 5.72 | 1.41 | 1.37 |
| 1 | A | 2459 | A | C2-N3 | 5.71 | 1.38 | 1.33 |
| 1 | A | 1778 | U | C2-N3 | 5.69 | 1.41 | 1.37 |
| 1 | A | 2072 | G | C6-O6 | -5.69 | 1.19 | 1.24 |
| 14 | P | 41 | TRP | CB-CG | -5.68 | 1.40 | 1.50 |
| 1 | A | 2491 | U | O3'-P | 5.65 | 1.68 | 1.61 |
| 1 | A | 2445 | G | N1-C2 | -5.64 | 1.33 | 1.37 |
| 1 | A | 1524 | G | N9-C4 | -5.61 | 1.33 | 1.38 |
| 1 | A | 1338 | G | C6-O6 | -5.61 | 1.19 | 1.24 |
| 1 | A | 607 | U | N1-C2 | -5.60 | 1.33 | 1.38 |
| 1 | A | 484 | C | N1-C2 | -5.59 | 1.34 | 1.40 |
| 1 | A | 1704 | G | C2-N2 | -5.57 | 1.28 | 1.34 |
| 1 | A | 2656 | U | C5-C6 | -5.57 | 1.29 | 1.34 |
| 1 | A | 1786 | A | C5-C6 | -5.53 | 1.36 | 1.41 |
| 1 | A | 1524 | G | C6-N1 | -5.50 | 1.35 | 1.39 |
| 1 | A | 979 | G | C6-O6 | 5.49 | 1.29 | 1.24 |
| 1 | A | 1778 | U | N1-C2 | 5.48 | 1.43 | 1.38 |
| 1 | A | 2656 | U | N1-C6 | -5.48 | 1.33 | 1.38 |
| 1 | A | 2509 | G | N9-C4 | -5.47 | 1.33 | 1.38 |
| 1 | A | 789 | A | C5-C6 | 5.42 | 1.46 | 1.41 |
| 1 | A | 383 | U | N1-C2 | 5.41 | 1.43 | 1.38 |
| 1 | A | 1337 | G | C6-O6 | -5.41 | 1.19 | 1.24 |
| 1 | A | 1153 | C | C2-O2 | -5.41 | 1.19 | 1.24 |
| 1 | A | 2553 | G | C2-N2 | -5.39 | 1.29 | 1.34 |
| 1 | A | 1786 | A | N1-C2 | 5.38 | 1.39 | 1.34 |
| 1 | A | 532 | A | C5-C6 | 5.33 | 1.45 | 1.41 |
| 1 | A | 1913 | A | C5'-C4' | 5.32 | 1.57 | 1.51 |
| 4 | D | 15 | PHE | CB-CG | -5.32 | 1.42 | 1.51 |
| 1 | A | 975 | G | C5'-C4' | 5.31 | 1.57 | 1.51 |
| 1 | A | 1993 | U | N3-C4 | 5.29 | 1.43 | 1.38 |
| 1 | A | 917 | A | N7-C5 | 5.29 | 1.42 | 1.39 |
| 1 | A | 1957 | C | C2-N3 | -5.29 | 1.31 | 1.35 |
| 1 | A | 2488 | A | C5-C6 | -5.28 | 1.36 | 1.41 |
| 1 | A | 2056 | G | C2-N3 | 5.27 | 1.36 | 1.32 |
| 28 | 4 | 11 | THR | CA-CB | 5.26 | 1.67 | 1.53 |
| 1 | A | 605 | C | N1-C2 | -5.26 | 1.34 | 1.40 |
| 1 | A | 2195 | C | O3'-P | 5.26 | 1.67 | 1.61 |
| 1 | A | 2505 | G | N3-C4 | -5.26 | 1.31 | 1.35 |
| 1 | A | 1778 | U | C4-O4 | -5.22 | 1.19 | 1.23 |
| 1 | A | 2665 | A | C2-N3 | 5.22 | 1.38 | 1.33 |
| 1 | A | 917 | A | C5-C6 | 5.20 | 1.45 | 1.41 |
| 1 | A | 740 | U | N1-C2 | -5.19 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2 | B | 16 | G | N9-C4 | -5.18 | 1.33 | 1.38 |
| 1 | A | 2364 | C | C2-O2 | -5.18 | 1.19 | 1.24 |
| 1 | A | 2209 | C | N1-C2 | -5.18 | 1.34 | 1.40 |
| 1 | A | 1220 | A | C3'-O3' | 5.12 | 1.49 | 1.42 |
| 2 | B | 72 | G | N9-C4 | 5.11 | 1.42 | 1.38 |
| 1 | A | 1822 | G | C6-O6 | 5.10 | 1.28 | 1.24 |
| 2 | B | 82 | G | N9-C4 | -5.10 | 1.33 | 1.38 |
| 4 | D | 70 | TRP | CB-CG | -5.10 | 1.41 | 1.50 |
| 1 | A | 775 | G | N3-C4 | 5.09 | 1.39 | 1.35 |
| 1 | A | 717 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 1 | A | 1826 | G | O3'-P | 5.07 | 1.67 | 1.61 |
| 1 | A | 1678 | G | N9-C4 | -5.05 | 1.33 | 1.38 |
| 1 | A | 1625 | C | P-O5' | 5.05 | 1.64 | 1.59 |
| 1 | A | 1303 | G | C6-N1 | -5.04 | 1.36 | 1.39 |
| 5 | E | 100 | GLU | CB-CG | 5.03 | 1.61 | 1.52 |
| 1 | A | 950 | G | N9-C4 | -5.02 | 1.33 | 1.38 |
| 5 | E | 135 | HIS | CA-CB | 5.02 | 1.65 | 1.53 |
| 1 | A | 814 | C | N1-C2 | -5.01 | 1.35 | 1.40 |
| 1 | A | 1999 | C | C2-O2 | -5.01 | 1.20 | 1.24 |
| 1 | A | 2243 | U | C5-C6 | -5.01 | 1.29 | 1.34 |
| 1 | A | 705 | A | C5-C6 | -5.00 | 1.36 | 1.41 |

All (627) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|--------|-------------|----------|
| 1 | A | 607 | U | N3-C4-O4 | -29.32 | 98.87 | 119.40 |
| 1 | A | 1203 | G | P-O3'-C3' | 27.75 | 153.00 | 119.70 |
| 1 | A | 607 | U | C5-C4-O4 | 20.38 | 138.13 | 125.90 |
| 1 | A | 2756 | U | P-O3'-C3' | 18.31 | 141.67 | 119.70 |
| 1 | A | 2501 | C | O3'-P-O5' | -17.22 | 71.28 | 104.00 |
| 1 | A | 1992 | G | N9-C1'-C2' | 15.88 | 134.65 | 114.00 |
| 1 | A | 607 | U | N3-C2-O2 | -15.03 | 111.68 | 122.20 |
| 1 | A | 1204 | A | N9-C1'-C2' | 14.59 | 132.97 | 114.00 |
| 1 | A | 2500 | U | P-O3'-C3' | 14.30 | 136.87 | 119.70 |
| 1 | A | 801 | G | N9-C1'-C2' | 13.35 | 131.35 | 114.00 |
| 1 | A | 2501 | C | P-O3'-C3' | -13.31 | 103.72 | 119.70 |
| 29 | 5 | 24 | GLU | N-CA-C | 12.82 | 145.62 | 111.00 |
| 1 | A | 1800 | C | N1-C1'-C2' | -12.77 | 97.39 | 114.00 |
| 1 | A | 2460 | U | N1-C1'-C2' | 12.36 | 130.07 | 114.00 |
| 4 | D | 251 | GLY | N-CA-C | -11.93 | 83.28 | 113.10 |
| 1 | A | 607 | U | N1-C2-O2 | 11.78 | 131.04 | 122.80 |
| 1 | A | 607 | U | C4-C5-C6 | -11.75 | 112.65 | 119.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 1 | A | 1699 | G | N9-C1'-C2' | 11.31 | 128.70 | 114.00 |
| 1 | A | 2384 | G | N9-C1'-C2' | 11.29 | 128.68 | 114.00 |
| 1 | A | 2500 | U | N3-C4-O4 | 11.19 | 127.23 | 119.40 |
| 1 | A | 2779 | U | N1-C1'-C2' | -11.06 | 99.62 | 114.00 |
| 1 | A | 1970 | A | O4'-C1'-N9 | 10.88 | 116.91 | 108.20 |
| 1 | A | 2500 | U | C5-C4-O4 | -10.84 | 119.39 | 125.90 |
| 1 | A | 1775 | U | N1-C1'-C2' | 10.71 | 127.93 | 114.00 |
| 1 | A | 1313 | U | N1-C1'-C2' | 10.71 | 127.92 | 114.00 |
| 1 | A | 2459 | A | N9-C1'-C2' | 10.67 | 127.87 | 114.00 |
| 1 | A | 1938 | A | N9-C1'-C2' | 10.64 | 127.83 | 114.00 |
| 1 | A | 1005 | C | N1-C1'-C2' | 10.64 | 127.83 | 114.00 |
| 1 | A | 1786 | A | C5-C6-N6 | -10.60 | 115.22 | 123.70 |
| 1 | A | 1363 | C | N1-C1'-C2' | -10.55 | 100.29 | 114.00 |
| 1 | A | 730 | C | N1-C1'-C2' | 10.54 | 127.70 | 114.00 |
| 1 | A | 2581 | G | N9-C1'-C2' | 10.48 | 127.62 | 114.00 |
| 1 | A | 2035 | G | N9-C1'-C2' | 10.41 | 127.54 | 114.00 |
| 1 | A | 860 | U | N3-C4-O4 | -10.23 | 112.24 | 119.40 |
| 1 | A | 917 | A | C6-N1-C2 | -10.23 | 112.46 | 118.60 |
| 13 | O | 30 | THR | N-CA-C | 10.18 | 138.49 | 111.00 |
| 1 | A | 2665 | A | C4-N9-C1' | 10.15 | 144.56 | 126.30 |
| 1 | A | 2665 | A | C8-N9-C1' | -10.14 | 109.45 | 127.70 |
| 1 | A | 1951 | U | N1-C1'-C2' | 10.14 | 127.18 | 114.00 |
| 1 | A | 1559 | G | N9-C1'-C2' | -10.06 | 100.93 | 114.00 |
| 1 | A | 1203 | G | O3'-P-O5' | 10.04 | 123.07 | 104.00 |
| 1 | A | 2665 | A | C5-C6-N6 | -9.99 | 115.70 | 123.70 |
| 2 | B | 119 | A | N9-C1'-C2' | -9.95 | 101.06 | 112.00 |
| 1 | A | 196 | A | N9-C1'-C2' | 9.94 | 126.92 | 114.00 |
| 1 | A | 1626 | G | C5'-C4'-O4' | 9.93 | 121.02 | 109.10 |
| 1 | A | 860 | U | N1-C1'-C2' | -9.91 | 101.09 | 112.00 |
| 1 | A | 2446 | G | OP2-P-O3' | 9.89 | 126.97 | 105.20 |
| 1 | A | 1778 | U | C5-C4-O4 | -9.83 | 120.00 | 125.90 |
| 12 | N | 74 | GLY | N-CA-C | -9.83 | 88.52 | 113.10 |
| 1 | A | 1778 | U | C2-N3-C4 | -9.80 | 121.12 | 127.00 |
| 1 | A | 621 | A | C5-C6-N6 | -9.77 | 115.89 | 123.70 |
| 1 | A | 1822 | G | N9-C1'-C2' | -9.67 | 101.36 | 112.00 |
| 1 | A | 2756 | U | OP1-P-O3' | 9.60 | 126.32 | 105.20 |
| 1 | A | 2459 | A | C4-N9-C1' | 9.55 | 143.50 | 126.30 |
| 1 | A | 621 | A | C5-C6-N1 | 9.53 | 122.47 | 117.70 |
| 1 | A | 1786 | A | C4-N9-C1' | 9.48 | 143.36 | 126.30 |
| 1 | A | 1788 | C | N1-C1'-C2' | -9.39 | 101.67 | 112.00 |
| 1 | A | 2656 | U | C5-C4-O4 | -9.38 | 120.27 | 125.90 |
| 1 | A | 1610 | A | N9-C1'-C2' | 9.38 | 126.19 | 114.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | A | 1786 | A | C6-N1-C2 | -9.36 | 112.98 | 118.60 |
| 19 | U | 49 | THR | C-N-CD | -9.36 | 100.00 | 120.60 |
| 17 | S | 57 | PHE | N-CA-C | 9.30 | 136.12 | 111.00 |
| 1 | A | 1809 | A | O4'-C1'-N9 | 9.27 | 115.62 | 108.20 |
| 17 | S | 29 | ARG | N-CA-C | -9.12 | 86.38 | 111.00 |
| 1 | A | 2459 | A | C8-N9-C1' | -9.11 | 111.30 | 127.70 |
| 1 | A | 621 | A | N9-C1'-C2' | -9.07 | 102.02 | 112.00 |
| 1 | A | 2725 | A | N9-C1'-C2' | 9.04 | 125.75 | 114.00 |
| 1 | A | 917 | A | C5-C6-N6 | -9.03 | 116.48 | 123.70 |
| 1 | A | 1786 | A | C8-N9-C1' | -9.02 | 111.46 | 127.70 |
| 29 | 5 | 39 | TYR | N-CA-C | 9.02 | 135.36 | 111.00 |
| 1 | A | 860 | U | O4'-C1'-N1 | -8.97 | 101.02 | 108.20 |
| 1 | A | 2459 | A | O5'-P-OP2 | 8.84 | 121.31 | 110.70 |
| 1 | A | 1489 | U | O4'-C1'-N1 | 8.83 | 115.27 | 108.20 |
| 1 | A | 2198 | A | N9-C1'-C2' | 8.79 | 125.43 | 114.00 |
| 1 | A | 2756 | U | N1-C1'-C2' | 8.78 | 125.41 | 114.00 |
| 19 | U | 52 | VAL | N-CA-C | -8.77 | 87.33 | 111.00 |
| 1 | A | 2587 | A | N9-C1'-C2' | 8.77 | 125.39 | 114.00 |
| 1 | A | 1786 | A | C4-C5-C6 | 8.68 | 121.34 | 117.00 |
| 1 | A | 2665 | A | N1-C6-N6 | 8.65 | 123.79 | 118.60 |
| 19 | U | 50 | PRO | N-CA-C | 8.64 | 134.56 | 112.10 |
| 1 | A | 1944 | U | N1-C1'-C2' | -8.62 | 102.51 | 112.00 |
| 1 | A | 687 | C | N1-C1'-C2' | 8.62 | 125.21 | 114.00 |
| 1 | A | 2491 | U | C2'-C3'-O3' | 8.62 | 128.46 | 109.50 |
| 1 | A | 2665 | A | O4'-C1'-N9 | -8.59 | 101.32 | 108.20 |
| 1 | A | 2597 | G | N9-C1'-C2' | 8.57 | 125.14 | 114.00 |
| 1 | A | 607 | U | C5-C6-N1 | -8.55 | 118.42 | 122.70 |
| 1 | A | 1544 | C | N1-C1'-C2' | 8.51 | 125.06 | 114.00 |
| 13 | O | 138 | LEU | CA-CB-CG | 8.50 | 134.86 | 115.30 |
| 1 | A | 205 | G | N9-C1'-C2' | 8.50 | 125.05 | 114.00 |
| 31 | 7 | 17 | THR | N-CA-C | -8.49 | 88.06 | 111.00 |
| 1 | A | 2726 | U | N1-C1'-C2' | 8.43 | 124.97 | 114.00 |
| 1 | A | 917 | A | C2-N3-C4 | 8.33 | 114.76 | 110.60 |
| 1 | A | 607 | U | C2-N3-C4 | 8.29 | 131.97 | 127.00 |
| 1 | A | 446 | G | N9-C1'-C2' | 8.27 | 124.76 | 114.00 |
| 1 | A | 1610 | A | O4'-C1'-N9 | 8.26 | 114.81 | 108.20 |
| 1 | A | 2320 | A | N9-C1'-C2' | 8.17 | 124.62 | 114.00 |
| 1 | A | 1359 | A | C5-C6-N6 | -8.15 | 117.18 | 123.70 |
| 1 | A | 1786 | A | C6-C5-N7 | -8.12 | 126.61 | 132.30 |
| 1 | A | 2447 | G | OP2-P-O3' | 8.10 | 123.02 | 105.20 |
| 1 | A | 1498 | C | N1-C1'-C2' | 8.07 | 124.50 | 114.00 |
| 1 | A | 1775 | U | C5-C4-O4 | -8.05 | 121.07 | 125.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | A | 654 | A | N9-C1'-C2' | -8.05 | 103.14 | 112.00 |
| 1 | A | 740 | U | O5'-P-OP1 | -8.04 | 98.47 | 105.70 |
| 29 | 5 | 26 | ASN | N-CA-C | 8.02 | 132.66 | 111.00 |
| 1 | A | 2422 | A | N9-C1'-C2' | 8.02 | 124.43 | 114.00 |
| 4 | D | 63 | ARG | N-CA-C | 8.01 | 132.64 | 111.00 |
| 17 | S | 66 | VAL | N-CA-C | -8.00 | 89.40 | 111.00 |
| 1 | A | 828 | U | N1-C1'-C2' | 8.00 | 124.40 | 114.00 |
| 1 | A | 2491 | U | C5-C4-O4 | -7.99 | 121.11 | 125.90 |
| 1 | A | 2061 | G | N9-C1'-C2' | 7.98 | 124.38 | 114.00 |
| 1 | A | 1786 | A | N1-C6-N6 | 7.94 | 123.36 | 118.60 |
| 1 | A | 1359 | A | N1-C6-N6 | 7.92 | 123.36 | 118.60 |
| 13 | O | 59 | LEU | CA-CB-CG | 7.92 | 133.51 | 115.30 |
| 1 | A | 2459 | A | C6-N1-C2 | -7.91 | 113.85 | 118.60 |
| 1 | A | 282 | A | N9-C1'-C2' | -7.88 | 103.33 | 112.00 |
| 1 | A | 1372 | U | C5-C4-O4 | -7.85 | 121.19 | 125.90 |
| 2 | B | 38 | C | N1-C1'-C2' | -7.84 | 103.37 | 112.00 |
| 1 | A | 2423 | U | N1-C1'-C2' | 7.82 | 124.16 | 114.00 |
| 1 | A | 728 | G | N9-C1'-C2' | 7.80 | 124.14 | 114.00 |
| 1 | A | 1247 | A | N9-C1'-C2' | 7.78 | 124.11 | 114.00 |
| 1 | A | 2358 | G | N9-C1'-C2' | -7.78 | 103.44 | 112.00 |
| 1 | A | 2834 | G | N9-C1'-C2' | -7.71 | 103.52 | 112.00 |
| 1 | A | 2835 | A | N9-C1'-C2' | 7.70 | 124.02 | 114.00 |
| 19 | U | 63 | GLY | N-CA-C | -7.65 | 93.97 | 113.10 |
| 1 | A | 774 | A | C2'-C3'-O3' | 7.62 | 126.28 | 109.50 |
| 1 | A | 776 | G | N9-C1'-C2' | 7.62 | 123.91 | 114.00 |
| 1 | A | 2491 | U | O4'-C1'-C2' | -7.59 | 98.21 | 105.80 |
| 1 | A | 917 | A | C5-C6-N1 | 7.56 | 121.48 | 117.70 |
| 15 | Q | 3 | HIS | N-CA-C | 7.56 | 131.41 | 111.00 |
| 1 | A | 945 | A | O4'-C1'-N9 | 7.53 | 114.23 | 108.20 |
| 1 | A | 67 | U | N1-C2-O2 | 7.51 | 128.06 | 122.80 |
| 1 | A | 2657 | A | N9-C1'-C2' | -7.51 | 103.74 | 112.00 |
| 1 | A | 1559 | G | C3'-C2'-C1' | -7.48 | 95.52 | 101.50 |
| 17 | S | 110 | ILE | N-CA-C | -7.48 | 90.82 | 111.00 |
| 1 | A | 1694 | C | O4'-C1'-N1 | 7.46 | 114.17 | 108.20 |
| 1 | A | 2076 | U | N1-C1'-C2' | 7.45 | 123.68 | 114.00 |
| 1 | A | 2609 | U | N1-C1'-C2' | 7.42 | 123.65 | 114.00 |
| 1 | A | 1786 | A | N3-C4-N9 | 7.42 | 133.34 | 127.40 |
| 1 | A | 917 | A | N9-C1'-C2' | 7.40 | 123.62 | 114.00 |
| 1 | A | 1786 | A | C5-C6-N1 | 7.40 | 121.40 | 117.70 |
| 1 | A | 1625 | C | N1-C1'-C2' | 7.39 | 123.61 | 114.00 |
| 22 | X | 14 | LEU | CA-CB-CG | 7.37 | 132.24 | 115.30 |
| 1 | A | 1203 | G | OP2-P-O3' | -7.34 | 89.04 | 105.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 1 | A | 911 | A | N9-C1'-C2' | 7.32 | 123.52 | 114.00 |
| 1 | A | 1610 | A | C1'-O4'-C4' | -7.31 | 104.05 | 109.90 |
| 11 | M | 116 | LEU | CA-CB-CG | -7.30 | 98.51 | 115.30 |
| 4 | D | 9 | TYR | N-CA-C | -7.29 | 91.32 | 111.00 |
| 1 | A | 2336 | A | N9-C1'-C2' | 7.27 | 123.45 | 114.00 |
| 1 | A | 860 | U | C5-C4-O4 | -7.26 | 121.54 | 125.90 |
| 1 | A | 821 | A | N9-C1'-C2' | 7.25 | 123.42 | 114.00 |
| 5 | E | 182 | LEU | CA-CB-CG | -7.22 | 98.69 | 115.30 |
| 1 | A | 2063 | C | N1-C2-O2 | 7.22 | 123.23 | 118.90 |
| 1 | A | 745 | G | N9-C1'-C2' | 7.21 | 123.37 | 114.00 |
| 1 | A | 2490 | G | N9-C1'-C2' | 7.21 | 123.37 | 114.00 |
| 1 | A | 1253 | A | N9-C1'-C2' | 7.20 | 123.36 | 114.00 |
| 1 | A | 2885 | C | N1-C1'-C2' | -7.19 | 104.09 | 112.00 |
| 1 | A | 2460 | U | N3-C4-O4 | 7.17 | 124.42 | 119.40 |
| 29 | 5 | 37 | ARG | N-CA-C | 7.16 | 130.33 | 111.00 |
| 1 | A | 1161 | C | N1-C1'-C2' | -7.16 | 104.13 | 112.00 |
| 1 | A | 791 | C | N1-C1'-C2' | 7.15 | 123.30 | 114.00 |
| 1 | A | 1954 | G | N9-C1'-C2' | 7.14 | 123.28 | 114.00 |
| 6 | F | 13 | SER | C-N-CD | -7.13 | 104.90 | 120.60 |
| 1 | A | 1956 | U | C2-N1-C1' | 7.13 | 126.26 | 117.70 |
| 1 | A | 1205 | U | O4'-C1'-N1 | 7.12 | 113.89 | 108.20 |
| 1 | A | 2491 | U | O4'-C4'-C3' | -7.11 | 96.89 | 104.00 |
| 1 | A | 987 | G | N9-C1'-C2' | -7.10 | 104.19 | 112.00 |
| 1 | A | 1359 | A | N9-C1'-C2' | -7.10 | 104.19 | 112.00 |
| 1 | A | 2612 | C | O4'-C1'-N1 | 7.09 | 113.87 | 108.20 |
| 1 | A | 762 | U | N1-C1'-C2' | 7.09 | 123.21 | 114.00 |
| 18 | T | 31 | SER | N-CA-C | 7.08 | 130.13 | 111.00 |
| 1 | A | 66 | C | N1-C1'-C2' | -7.08 | 104.22 | 112.00 |
| 1 | A | 532 | A | N9-C1'-C2' | 7.07 | 123.18 | 114.00 |
| 1 | A | 554 | U | N1-C1'-C2' | 7.00 | 123.11 | 114.00 |
| 1 | A | 2628 | C | O4'-C1'-N1 | 7.00 | 113.80 | 108.20 |
| 19 | U | 98 | GLU | N-CA-C | 6.98 | 129.85 | 111.00 |
| 1 | A | 775 | G | N3-C4-N9 | 6.98 | 130.19 | 126.00 |
| 1 | A | 2517 | C | N1-C1'-C2' | 6.96 | 123.04 | 114.00 |
| 1 | A | 1440 | G | N9-C1'-C2' | -6.95 | 104.36 | 112.00 |
| 12 | N | 67 | LYS | N-CA-C | 6.94 | 129.75 | 111.00 |
| 1 | A | 150 | C | N1-C1'-C2' | 6.94 | 123.02 | 114.00 |
| 1 | A | 687 | C | N1-C2-O2 | 6.91 | 123.05 | 118.90 |
| 1 | A | 2501 | C | OP2-P-O3' | 6.91 | 120.40 | 105.20 |
| 1 | A | 974(A) | C | N1-C1'-C2' | 6.90 | 122.97 | 114.00 |
| 11 | M | 139 | GLU | N-CA-C | 6.88 | 129.59 | 111.00 |
| 1 | A | 2579 | C | O4'-C1'-N1 | -6.87 | 102.71 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | A | 1207 | C | N1-C1'-C2' | 6.86 | 122.92 | 114.00 |
| 19 | U | 94 | LEU | N-CA-C | -6.85 | 92.49 | 111.00 |
| 1 | A | 1704 | G | N9-C1'-C2' | -6.85 | 104.46 | 112.00 |
| 1 | A | 1360 | A | N9-C1'-C2' | -6.84 | 104.47 | 112.00 |
| 11 | M | 36 | GLY | N-CA-C | -6.83 | 96.02 | 113.10 |
| 1 | A | 280 | C | N1-C1'-C2' | 6.83 | 122.88 | 114.00 |
| 1 | A | 530 | G | N9-C1'-C2' | 6.83 | 122.88 | 114.00 |
| 1 | A | 699 | A | N9-C1'-C2' | -6.82 | 104.50 | 112.00 |
| 1 | A | 2146 | C | N1-C1'-C2' | -6.81 | 104.51 | 112.00 |
| 1 | A | 746 | A | N9-C1'-C2' | 6.80 | 122.84 | 114.00 |
| 1 | A | 195 | A | N9-C1'-C2' | -6.79 | 104.53 | 112.00 |
| 1 | A | 1951 | U | O4'-C1'-N1 | 6.78 | 113.62 | 108.20 |
| 6 | F | 170 | LEU | CA-CB-CG | 6.76 | 130.84 | 115.30 |
| 1 | A | 866 | A | N9-C1'-C2' | -6.76 | 104.57 | 112.00 |
| 4 | D | 248 | SER | N-CA-C | -6.72 | 92.86 | 111.00 |
| 1 | A | 580 | C | N1-C1'-C2' | -6.72 | 104.61 | 112.00 |
| 1 | A | 2559 | C | N1-C1'-C2' | -6.71 | 104.62 | 112.00 |
| 1 | A | 2781 | A | N9-C1'-C2' | -6.71 | 104.62 | 112.00 |
| 1 | A | 1667 | G | C4'-C3'-C2' | -6.70 | 95.90 | 102.60 |
| 12 | N | 87 | ILE | N-CA-C | -6.70 | 92.91 | 111.00 |
| 1 | A | 2447 | G | N9-C1'-C2' | 6.67 | 122.67 | 114.00 |
| 1 | A | 1938 | A | C4-N9-C1' | 6.67 | 138.31 | 126.30 |
| 1 | A | 1938 | A | C5'-C4'-O4' | 6.67 | 117.10 | 109.10 |
| 1 | A | 1667 | G | O4'-C1'-N9 | 6.67 | 113.53 | 108.20 |
| 6 | F | 79 | GLY | N-CA-C | -6.66 | 96.44 | 113.10 |
| 1 | A | 1790 | C | N1-C1'-C2' | 6.65 | 122.65 | 114.00 |
| 1 | A | 2705 | A | N9-C1'-C2' | -6.65 | 104.69 | 112.00 |
| 1 | A | 574 | C | N1-C1'-C2' | 6.65 | 122.64 | 114.00 |
| 1 | A | 534 | U | O4'-C1'-N1 | 6.64 | 113.51 | 108.20 |
| 1 | A | 2656 | U | C2-N3-C4 | -6.63 | 123.02 | 127.00 |
| 1 | A | 141 | A | N9-C1'-C2' | -6.62 | 104.72 | 112.00 |
| 1 | A | 1617 | C | N1-C1'-C2' | 6.61 | 122.59 | 114.00 |
| 32 | 8 | 14 | CYS | CA-CB-SG | -6.61 | 102.10 | 114.00 |
| 17 | S | 52 | ILE | CB-CA-C | -6.61 | 98.39 | 111.60 |
| 1 | A | 955 | C | N1-C1'-C2' | -6.59 | 104.75 | 112.00 |
| 1 | A | 2782 | G | C5'-C4'-C3' | 6.59 | 126.55 | 116.00 |
| 1 | A | 2491 | U | C3'-C2'-C1' | -6.59 | 96.23 | 101.50 |
| 1 | A | 1642 | G | N9-C1'-C2' | -6.59 | 104.75 | 112.00 |
| 19 | U | 49 | THR | C-N-CA | 6.57 | 149.58 | 122.00 |
| 1 | A | 2702 | U | N1-C1'-C2' | -6.57 | 104.78 | 112.00 |
| 1 | A | 1516 | U | C5-C4-O4 | -6.55 | 121.97 | 125.90 |
| 18 | T | 20 | LEU | CA-CB-CG | 6.55 | 130.37 | 115.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|--------|------|------------|-------|-------------|----------|
| 1 | A | 775 | G | N3-C2-N2 | 6.54 | 124.48 | 119.90 |
| 1 | A | 775 | G | C4-N9-C1' | 6.53 | 135.00 | 126.50 |
| 19 | U | 82 | ARG | N-CA-C | 6.53 | 128.64 | 111.00 |
| 1 | A | 1397 | U | N1-C1'-C2' | 6.52 | 122.47 | 114.00 |
| 1 | A | 2665 | A | C6-N1-C2 | -6.51 | 114.69 | 118.60 |
| 29 | 5 | 22 | ALA | N-CA-C | 6.51 | 128.58 | 111.00 |
| 1 | A | 775 | G | N1-C2-N2 | -6.51 | 110.34 | 116.20 |
| 22 | X | 52 | SER | N-CA-C | -6.50 | 93.45 | 111.00 |
| 27 | 3 | 30 | GLU | N-CA-C | -6.50 | 93.45 | 111.00 |
| 1 | A | 1173 | G | N9-C1'-C2' | 6.50 | 122.44 | 114.00 |
| 1 | A | 2681 | C | N1-C1'-C2' | 6.46 | 122.39 | 114.00 |
| 1 | A | 273(B) | C | N1-C1'-C2' | -6.45 | 104.90 | 112.00 |
| 1 | A | 1780 | A | N9-C1'-C2' | 6.45 | 122.38 | 114.00 |
| 10 | L | 59 | ILE | N-CA-C | -6.43 | 93.62 | 111.00 |
| 1 | A | 2092 | U | N1-C1'-C2' | 6.43 | 122.36 | 114.00 |
| 1 | A | 1950 | G | O4'-C1'-N9 | 6.42 | 113.34 | 108.20 |
| 1 | A | 922 | U | N3-C4-O4 | -6.42 | 114.91 | 119.40 |
| 12 | N | 120 | GLU | N-CA-C | 6.42 | 128.33 | 111.00 |
| 1 | A | 1493 | C | N1-C1'-C2' | 6.41 | 122.34 | 114.00 |
| 1 | A | 1839 | G | N9-C1'-C2' | -6.41 | 104.94 | 112.00 |
| 23 | Y | 70 | LEU | CA-CB-CG | 6.41 | 130.04 | 115.30 |
| 1 | A | 1240 | U | N1-C1'-C2' | -6.39 | 104.97 | 112.00 |
| 1 | A | 383 | U | N1-C2-O2 | 6.38 | 127.27 | 122.80 |
| 8 | H | 8 | PRO | N-CA-C | 6.38 | 128.69 | 112.10 |
| 1 | A | 1189 | A | N9-C1'-C2' | -6.38 | 104.98 | 112.00 |
| 14 | P | 71 | ASP | N-CA-C | 6.38 | 128.21 | 111.00 |
| 1 | A | 2500 | U | OP2-P-O3' | 6.37 | 119.21 | 105.20 |
| 1 | A | 717 | G | N9-C1'-C2' | -6.36 | 105.00 | 112.00 |
| 5 | E | 52 | LEU | CA-CB-CG | 6.35 | 129.91 | 115.30 |
| 1 | A | 791 | C | O4'-C1'-N1 | 6.34 | 113.27 | 108.20 |
| 13 | O | 28 | GLY | N-CA-C | 6.34 | 128.95 | 113.10 |
| 1 | A | 1204 | A | C4-N9-C1' | 6.34 | 137.71 | 126.30 |
| 5 | E | 20 | ALA | N-CA-C | -6.31 | 93.95 | 111.00 |
| 1 | A | 1220 | A | N9-C1'-C2' | 6.31 | 122.20 | 114.00 |
| 1 | A | 271(B) | G | N9-C1'-C2' | 6.31 | 122.20 | 114.00 |
| 1 | A | 1046 | A | N9-C1'-C2' | 6.29 | 122.18 | 114.00 |
| 1 | A | 917 | A | C4-N9-C1' | 6.29 | 137.63 | 126.30 |
| 1 | A | 2249 | U | N1-C1'-C2' | 6.29 | 122.18 | 114.00 |
| 23 | Y | 6 | LYS | N-CA-C | 6.28 | 127.95 | 111.00 |
| 1 | A | 1694 | C | N1-C1'-C2' | 6.26 | 122.14 | 114.00 |
| 1 | A | 196 | A | O4'-C1'-N9 | 6.26 | 113.20 | 108.20 |
| 1 | A | 1116 | C | N1-C1'-C2' | -6.25 | 105.13 | 112.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | A | 1359 | A | C8-N9-C1' | -6.25 | 116.46 | 127.70 |
| 1 | A | 463 | G | N9-C1'-C2' | -6.23 | 105.15 | 112.00 |
| 1 | A | 205 | G | O4'-C1'-N9 | 6.23 | 113.18 | 108.20 |
| 2 | B | 86 | G | N9-C1'-C2' | -6.22 | 105.16 | 112.00 |
| 1 | A | 2009 | G | N9-C1'-C2' | -6.21 | 105.16 | 112.00 |
| 1 | A | 2032 | G | N9-C1'-C2' | 6.21 | 122.08 | 114.00 |
| 1 | A | 488 | G | N9-C1'-C2' | -6.21 | 105.17 | 112.00 |
| 5 | E | 5 | LEU | N-CA-C | 6.20 | 127.73 | 111.00 |
| 1 | A | 2190 | G | N9-C1'-C2' | -6.19 | 105.19 | 112.00 |
| 1 | A | 1625 | C | C3'-C2'-C1' | 6.19 | 106.45 | 101.50 |
| 1 | A | 2591 | C | N1-C1'-C2' | -6.18 | 105.21 | 112.00 |
| 1 | A | 2876 | G | N9-C1'-C2' | -6.18 | 105.21 | 112.00 |
| 1 | A | 1420 | U | N1-C1'-C2' | 6.17 | 122.03 | 114.00 |
| 1 | A | 2056 | G | N9-C1'-C2' | 6.17 | 122.03 | 114.00 |
| 1 | A | 2665 | A | C5'-C4'-C3' | -6.17 | 106.13 | 116.00 |
| 1 | A | 917 | A | C8-N9-C1' | -6.17 | 116.60 | 127.70 |
| 1 | A | 1303 | G | N1-C6-O6 | -6.17 | 116.20 | 119.90 |
| 1 | A | 444 | C | N1-C1'-C2' | -6.14 | 105.25 | 112.00 |
| 1 | A | 1516 | U | N3-C4-O4 | -6.14 | 115.10 | 119.40 |
| 1 | A | 729 | G | N9-C1'-C2' | 6.13 | 121.97 | 114.00 |
| 1 | A | 1359 | A | C4-N9-C1' | 6.13 | 137.34 | 126.30 |
| 1 | A | 2491 | U | C2-N3-C4 | -6.13 | 123.32 | 127.00 |
| 4 | D | 94 | LEU | CA-CB-CG | -6.13 | 101.20 | 115.30 |
| 1 | A | 687 | C | N3-C2-O2 | -6.12 | 117.62 | 121.90 |
| 1 | A | 2118 | U | N1-C1'-C2' | 6.11 | 121.94 | 114.00 |
| 17 | S | 49 | VAL | N-CA-C | -6.11 | 94.51 | 111.00 |
| 1 | A | 1993 | U | C2-N1-C1' | 6.09 | 125.01 | 117.70 |
| 1 | A | 384 | U | N1-C1'-C2' | -6.09 | 105.31 | 112.00 |
| 1 | A | 621 | A | N3-C4-C5 | -6.07 | 122.55 | 126.80 |
| 1 | A | 2063 | C | C2-N1-C1' | 6.07 | 125.47 | 118.80 |
| 18 | T | 95 | LEU | CA-CB-CG | -6.05 | 101.38 | 115.30 |
| 1 | A | 74 | A | O4'-C1'-N9 | 6.05 | 113.04 | 108.20 |
| 1 | A | 2072 | G | N9-C1'-C2' | -6.05 | 105.34 | 112.00 |
| 1 | A | 2060 | A | N9-C1'-C2' | 6.04 | 121.86 | 114.00 |
| 1 | A | 746 | A | C4'-C3'-O3' | -6.04 | 96.72 | 109.40 |
| 1 | A | 2491 | U | C6-N1-C2 | -6.03 | 117.38 | 121.00 |
| 5 | E | 200 | GLU | N-CA-C | 6.03 | 127.28 | 111.00 |
| 27 | 3 | 47 | GLN | N-CA-C | 6.02 | 127.26 | 111.00 |
| 1 | A | 1825 | A | N9-C1'-C2' | -6.02 | 105.38 | 112.00 |
| 1 | A | 1746 | G | O4'-C1'-N9 | 6.01 | 113.00 | 108.20 |
| 11 | M | 110 | GLY | N-CA-C | -6.00 | 98.09 | 113.10 |
| 1 | A | 1956 | U | C5-C4-O4 | -6.00 | 122.30 | 125.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|--------|------|-------------|-------|-------------|----------|
| 1 | A | 2439 | A | N9-C1'-C2' | 6.00 | 121.80 | 114.00 |
| 1 | A | 270(G) | C | O4'-C1'-N1 | 5.98 | 112.99 | 108.20 |
| 1 | A | 400 | G | N9-C1'-C2' | -5.98 | 105.43 | 112.00 |
| 18 | T | 109 | LEU | CA-CB-CG | -5.97 | 101.56 | 115.30 |
| 27 | 3 | 56 | VAL | N-CA-C | 5.97 | 127.12 | 111.00 |
| 5 | E | 73 | GLU | N-CA-C | 5.97 | 127.12 | 111.00 |
| 1 | A | 705 | A | N9-C1'-C2' | -5.94 | 105.46 | 112.00 |
| 1 | A | 1313 | U | C2-N1-C1' | 5.94 | 124.83 | 117.70 |
| 8 | H | 158 | HIS | N-CA-C | -5.94 | 94.96 | 111.00 |
| 1 | A | 739 | G | O4'-C1'-N9 | 5.93 | 112.94 | 108.20 |
| 1 | A | 775 | G | N9-C1'-C2' | 5.92 | 121.70 | 114.00 |
| 1 | A | 865 | C | N1-C1'-C2' | 5.92 | 121.70 | 114.00 |
| 1 | A | 1938 | A | C8-N9-C1' | -5.92 | 117.04 | 127.70 |
| 11 | M | 80 | GLY | N-CA-C | -5.92 | 98.31 | 113.10 |
| 27 | 3 | 40 | HIS | N-CA-C | 5.91 | 126.97 | 111.00 |
| 1 | A | 2108 | C | O4'-C1'-N1 | 5.90 | 112.92 | 108.20 |
| 23 | Y | 137 | ILE | N-CA-C | -5.89 | 95.10 | 111.00 |
| 13 | O | 116 | GLY | N-CA-C | -5.88 | 98.39 | 113.10 |
| 1 | A | 1694 | C | C1'-O4'-C4' | -5.88 | 105.19 | 109.90 |
| 1 | A | 2491 | U | C2-N1-C1' | 5.88 | 124.76 | 117.70 |
| 3 | C | 33 | ALA | N-CA-C | 5.87 | 126.86 | 111.00 |
| 12 | N | 87 | ILE | CB-CA-C | 5.86 | 123.32 | 111.60 |
| 1 | A | 2560 | C | N1-C1'-C2' | -5.86 | 105.56 | 112.00 |
| 1 | A | 1775 | U | C2-N1-C1' | 5.86 | 124.73 | 117.70 |
| 1 | A | 684 | G | N9-C1'-C2' | -5.85 | 105.56 | 112.00 |
| 1 | A | 459 | U | O4'-C1'-N1 | 5.85 | 112.88 | 108.20 |
| 1 | A | 2075 | U | C5'-C4'-O4' | -5.84 | 102.09 | 109.10 |
| 1 | A | 1734 | C | N1-C1'-C2' | 5.84 | 121.59 | 114.00 |
| 12 | N | 118 | ALA | C-N-CA | -5.84 | 97.49 | 122.00 |
| 1 | A | 2459 | A | C5-C6-N6 | -5.83 | 119.03 | 123.70 |
| 4 | D | 60 | ARG | N-CA-C | 5.83 | 126.75 | 111.00 |
| 14 | P | 94 | VAL | CB-CA-C | -5.83 | 100.33 | 111.40 |
| 1 | A | 95 | G | N9-C1'-C2' | -5.83 | 105.59 | 112.00 |
| 1 | A | 2525 | G | N9-C1'-C2' | -5.82 | 105.60 | 112.00 |
| 19 | U | 66 | ARG | N-CA-C | 5.82 | 126.70 | 111.00 |
| 1 | A | 922 | U | C5-C4-O4 | -5.80 | 122.42 | 125.90 |
| 1 | A | 1956 | U | C6-N1-C1' | -5.80 | 113.08 | 121.20 |
| 1 | A | 282 | A | C3'-C2'-C1' | -5.78 | 96.88 | 101.50 |
| 1 | A | 1861 | G | N9-C1'-C2' | -5.78 | 105.64 | 112.00 |
| 1 | A | 631 | A | N9-C1'-C2' | -5.77 | 105.65 | 112.00 |
| 1 | A | 2394 | C | O4'-C1'-N1 | 5.76 | 112.81 | 108.20 |
| 1 | A | 745 | G | OP2-P-O3' | 5.76 | 117.87 | 105.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | A | 1955 | U | N1-C1'-C2' | 5.76 | 121.49 | 114.00 |
| 1 | A | 2665 | A | C6-C5-N7 | -5.76 | 128.27 | 132.30 |
| 1 | A | 2345 | G | C5'-C4'-C3' | 5.75 | 125.21 | 116.00 |
| 15 | Q | 4 | LEU | CA-CB-CG | -5.75 | 102.07 | 115.30 |
| 1 | A | 2459 | A | N3-C4-N9 | 5.74 | 131.99 | 127.40 |
| 1 | A | 1292 | U | N1-C1'-C2' | -5.73 | 105.70 | 112.00 |
| 1 | A | 794 | G | O4'-C1'-N9 | -5.73 | 103.62 | 108.20 |
| 1 | A | 1903 | G | N9-C1'-C2' | -5.72 | 105.70 | 112.00 |
| 1 | A | 1204 | A | C8-N9-C1' | -5.72 | 117.41 | 127.70 |
| 1 | A | 1827 | C | O5'-P-OP1 | -5.72 | 100.55 | 105.70 |
| 7 | G | 95 | ARG | N-CA-C | 5.72 | 126.44 | 111.00 |
| 1 | A | 860 | U | C6-N1-C1' | -5.72 | 113.20 | 121.20 |
| 1 | A | 917 | A | C2'-C3'-O3' | 5.71 | 122.83 | 113.70 |
| 1 | A | 1824 | G | O5'-P-OP1 | -5.71 | 100.56 | 105.70 |
| 1 | A | 458 | G | N9-C1'-C2' | 5.70 | 121.42 | 114.00 |
| 1 | A | 2356 | C | N1-C1'-C2' | -5.70 | 105.73 | 112.00 |
| 1 | A | 2613 | U | N1-C1'-C2' | -5.69 | 105.74 | 112.00 |
| 11 | M | 43 | THR | N-CA-C | 5.69 | 126.36 | 111.00 |
| 1 | A | 917 | A | N1-C6-N6 | 5.68 | 122.01 | 118.60 |
| 1 | A | 2213 | U | O4'-C1'-N1 | -5.68 | 103.66 | 108.20 |
| 23 | Y | 41 | LEU | CA-CB-CG | -5.67 | 102.25 | 115.30 |
| 1 | A | 2726 | U | C2'-C3'-O3' | 5.67 | 122.78 | 113.70 |
| 4 | D | 16 | MET | N-CA-C | -5.67 | 95.70 | 111.00 |
| 1 | A | 2459 | A | C5-C6-N1 | 5.66 | 120.53 | 117.70 |
| 16 | R | 45 | GLY | N-CA-C | -5.66 | 98.95 | 113.10 |
| 1 | A | 687 | C | C2-N1-C1' | 5.65 | 125.02 | 118.80 |
| 1 | A | 1313 | U | C6-N1-C2 | -5.65 | 117.61 | 121.00 |
| 1 | A | 2665 | A | C4-C5-C6 | 5.65 | 119.83 | 117.00 |
| 2 | B | 8 | U | N1-C1'-C2' | 5.65 | 121.34 | 114.00 |
| 1 | A | 2265 | U | N1-C1'-C2' | -5.64 | 105.79 | 112.00 |
| 1 | A | 2774 | C | N1-C1'-C2' | 5.64 | 121.33 | 114.00 |
| 31 | 7 | 61 | LEU | CA-CB-CG | 5.64 | 128.26 | 115.30 |
| 1 | A | 1183 | G | N9-C1'-C2' | 5.63 | 121.32 | 114.00 |
| 1 | A | 2035 | G | C5'-C4'-C3' | 5.63 | 125.01 | 116.00 |
| 1 | A | 2042 | A | O4'-C4'-C3' | -5.63 | 98.37 | 104.00 |
| 1 | A | 2732 | G | C5'-C4'-C3' | -5.63 | 107.00 | 116.00 |
| 1 | A | 688 | U | C2-N3-C4 | -5.62 | 123.63 | 127.00 |
| 1 | A | 1784 | A | OP2-P-O3' | 5.62 | 117.57 | 105.20 |
| 1 | A | 2306 | C | N1-C1'-C2' | -5.62 | 105.82 | 112.00 |
| 1 | A | 578 | A | N9-C1'-C2' | 5.62 | 121.30 | 114.00 |
| 4 | D | 95 | LEU | CA-CB-CG | 5.62 | 128.22 | 115.30 |
| 1 | A | 686 | G | C2'-C3'-O3' | -5.61 | 97.16 | 109.50 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 7 | G | 175 | LEU | CA-CB-CG | -5.61 | 102.40 | 115.30 |
| 1 | A | 1746 | G | N9-C1'-C2' | -5.61 | 105.83 | 112.00 |
| 1 | A | 1265 | A | C1'-O4'-C4' | -5.59 | 105.42 | 109.90 |
| 1 | A | 2460 | U | C2-N1-C1' | 5.59 | 124.41 | 117.70 |
| 31 | 7 | 35 | GLN | N-CA-C | -5.59 | 95.91 | 111.00 |
| 1 | A | 2249 | U | N3-C4-O4 | -5.58 | 115.49 | 119.40 |
| 17 | S | 60 | THR | N-CA-C | -5.58 | 95.92 | 111.00 |
| 1 | A | 1635 | G | O4'-C1'-N9 | -5.58 | 103.73 | 108.20 |
| 1 | A | 2458 | G | C4'-C3'-O3' | -5.58 | 97.69 | 109.40 |
| 12 | N | 6 | THR | N-CA-C | 5.58 | 126.05 | 111.00 |
| 1 | A | 1718 | G | N9-C1'-C2' | -5.57 | 105.87 | 112.00 |
| 1 | A | 2287 | A | O4'-C1'-N9 | 5.56 | 112.65 | 108.20 |
| 1 | A | 2665 | A | C5-C6-N1 | 5.56 | 120.48 | 117.70 |
| 1 | A | 1786 | A | N9-C4-C5 | -5.56 | 103.58 | 105.80 |
| 1 | A | 2198 | A | O4'-C1'-N9 | 5.56 | 112.65 | 108.20 |
| 5 | E | 6 | GLY | N-CA-C | -5.56 | 99.20 | 113.10 |
| 1 | A | 1052 | C | O4'-C1'-N1 | 5.55 | 112.64 | 108.20 |
| 1 | A | 2031 | A | N9-C1'-C2' | -5.55 | 105.89 | 112.00 |
| 1 | A | 2067 | G | N9-C1'-C2' | 5.55 | 121.21 | 114.00 |
| 1 | A | 1939 | U | O5'-P-OP1 | -5.55 | 100.71 | 105.70 |
| 1 | A | 775 | G | N3-C4-C5 | -5.54 | 125.83 | 128.60 |
| 16 | R | 62 | LYS | N-CA-C | 5.54 | 125.97 | 111.00 |
| 1 | A | 2236 | C | O4'-C1'-N1 | -5.54 | 103.77 | 108.20 |
| 23 | Y | 147 | GLY | N-CA-C | -5.54 | 99.26 | 113.10 |
| 9 | K | 11 | ASN | N-CA-C | -5.53 | 96.06 | 111.00 |
| 1 | A | 1847 | A | C5'-C4'-O4' | 5.53 | 115.73 | 109.10 |
| 13 | O | 96 | THR | N-CA-C | 5.53 | 125.93 | 111.00 |
| 1 | A | 643 | A | N9-C1'-C2' | 5.53 | 121.19 | 114.00 |
| 5 | E | 127 | ASP | N-CA-C | 5.53 | 125.92 | 111.00 |
| 17 | S | 64 | ARG | N-CA-C | 5.53 | 125.93 | 111.00 |
| 1 | A | 1688 | U | N1-C1'-C2' | 5.52 | 121.17 | 114.00 |
| 13 | O | 88 | LEU | N-CA-C | 5.52 | 125.90 | 111.00 |
| 1 | A | 374 | A | N9-C1'-C2' | 5.51 | 121.17 | 114.00 |
| 1 | A | 1416 | G | N9-C1'-C2' | 5.51 | 121.16 | 114.00 |
| 1 | A | 775 | G | C8-N9-C1' | -5.50 | 119.84 | 127.00 |
| 13 | O | 39 | LYS | N-CA-C | -5.50 | 96.16 | 111.00 |
| 13 | O | 86 | LYS | N-CA-C | 5.50 | 125.84 | 111.00 |
| 1 | A | 834 | C | N1-C1'-C2' | -5.49 | 105.96 | 112.00 |
| 13 | O | 22 | GLY | C-N-CD | -5.49 | 108.53 | 120.60 |
| 1 | A | 574 | C | O4'-C1'-N1 | 5.47 | 112.58 | 108.20 |
| 1 | A | 1956 | U | N3-C4-O4 | 5.47 | 123.23 | 119.40 |
| 11 | M | 49 | GLY | N-CA-C | -5.47 | 99.43 | 113.10 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 18 | T | 87 | GLY | N-CA-C | 5.47 | 126.77 | 113.10 |
| 1 | A | 2755 | C | O3'-P-O5' | 5.46 | 114.38 | 104.00 |
| 1 | A | 1542 | G | O4'-C1'-N9 | -5.46 | 103.83 | 108.20 |
| 1 | A | 531 | C | C5'-C4'-O4' | 5.45 | 115.64 | 109.10 |
| 1 | A | 1240 | U | C5'-C4'-O4' | 5.45 | 115.64 | 109.10 |
| 1 | A | 2414 | G | N9-C1'-C2' | -5.45 | 106.01 | 112.00 |
| 13 | O | 105 | LEU | CA-CB-CG | -5.45 | 102.77 | 115.30 |
| 1 | A | 860 | U | C2-N1-C1' | 5.44 | 124.23 | 117.70 |
| 1 | A | 1205 | U | C5'-C4'-O4' | 5.44 | 115.63 | 109.10 |
| 1 | A | 2210 | G | N9-C1'-C2' | 5.44 | 121.07 | 114.00 |
| 1 | A | 783 | A | O4'-C1'-N9 | -5.44 | 103.85 | 108.20 |
| 1 | A | 1667 | G | C5'-C4'-C3' | 5.43 | 124.69 | 116.00 |
| 2 | B | -1 | A | O4'-C1'-N9 | 5.43 | 112.55 | 108.20 |
| 1 | A | 2794 | C | N1-C1'-C2' | -5.43 | 106.02 | 112.00 |
| 17 | S | 45 | PHE | N-CA-C | -5.43 | 96.33 | 111.00 |
| 1 | A | 35 | G | N9-C1'-C2' | -5.43 | 106.03 | 112.00 |
| 1 | A | 1303 | G | C5-C6-O6 | 5.43 | 131.86 | 128.60 |
| 1 | A | 1455 | G | N9-C1'-C2' | -5.42 | 106.04 | 112.00 |
| 1 | A | 67 | U | C2'-C3'-O3' | 5.40 | 122.35 | 113.70 |
| 1 | A | 1772 | G | C5'-C4'-C3' | -5.40 | 107.36 | 116.00 |
| 2 | B | 11 | C | N1-C1'-C2' | -5.39 | 106.07 | 112.00 |
| 1 | A | 2713 | A | C4'-C3'-O3' | -5.39 | 98.08 | 109.40 |
| 8 | H | 127 | GLU | N-CA-C | 5.39 | 125.55 | 111.00 |
| 1 | A | 953 | A | N9-C1'-C2' | -5.38 | 106.08 | 112.00 |
| 6 | F | 61 | GLY | N-CA-C | -5.38 | 99.64 | 113.10 |
| 12 | N | 102 | VAL | N-CA-C | 5.38 | 125.54 | 111.00 |
| 1 | A | 504 | U | N1-C1'-C2' | 5.38 | 121.00 | 114.00 |
| 1 | A | 431 | U | N1-C1'-C2' | -5.38 | 106.08 | 112.00 |
| 19 | U | 67 | GLY | N-CA-C | 5.38 | 126.55 | 113.10 |
| 1 | A | 1559 | G | C4'-C3'-O3' | 5.38 | 123.75 | 113.00 |
| 4 | D | 245 | PRO | N-CA-C | 5.38 | 126.08 | 112.10 |
| 1 | A | 1809 | A | C1'-O4'-C4' | -5.38 | 105.60 | 109.90 |
| 1 | A | 1260 | G | O4'-C1'-N9 | -5.37 | 103.90 | 108.20 |
| 1 | A | 1993 | U | N1-C2-O2 | 5.37 | 126.56 | 122.80 |
| 1 | A | 2787 | C | O4'-C1'-N1 | 5.37 | 112.50 | 108.20 |
| 6 | F | 75 | HIS | N-CA-C | 5.37 | 125.50 | 111.00 |
| 29 | 5 | 23 | THR | C-N-CA | 5.37 | 135.13 | 121.70 |
| 1 | A | 602 | G | N9-C1'-C2' | 5.37 | 120.98 | 114.00 |
| 1 | A | 2612 | C | C5'-C4'-O4' | 5.37 | 115.54 | 109.10 |
| 1 | A | 2665 | A | N9-C4-C5 | -5.37 | 103.65 | 105.80 |
| 17 | S | 63 | VAL | N-CA-C | -5.37 | 96.51 | 111.00 |
| 1 | A | 1418 | G | N9-C1'-C2' | -5.36 | 106.10 | 112.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|---------|------|-------------|-------|-------------|----------|
| 1 | A | 1444(A) | A | N9-C1'-C2' | 5.36 | 120.97 | 114.00 |
| 14 | P | 105 | GLU | N-CA-C | 5.36 | 125.48 | 111.00 |
| 1 | A | 2027 | G | C5'-C4'-C3' | 5.36 | 124.57 | 116.00 |
| 1 | A | 2777 | G | O4'-C1'-N9 | -5.36 | 103.91 | 108.20 |
| 1 | A | 1302 | A | C1'-O4'-C4' | -5.36 | 105.61 | 109.90 |
| 1 | A | 566 | U | O4'-C1'-N1 | -5.35 | 103.92 | 108.20 |
| 1 | A | 1541 | U | C6-N1-C2 | -5.35 | 117.79 | 121.00 |
| 1 | A | 909 | A | O4'-C1'-N9 | -5.35 | 103.92 | 108.20 |
| 1 | A | 1321 | A | N9-C1'-C2' | -5.35 | 106.11 | 112.00 |
| 19 | U | 41 | GLY | N-CA-C | -5.35 | 99.72 | 113.10 |
| 27 | 3 | 52 | THR | N-CA-C | 5.35 | 125.44 | 111.00 |
| 1 | A | 1312 | U | C5'-C4'-O4' | -5.35 | 102.69 | 109.10 |
| 1 | A | 1786 | A | N3-C4-C5 | -5.35 | 123.06 | 126.80 |
| 1 | A | 1775 | U | OP2-P-O3' | 5.34 | 116.94 | 105.20 |
| 1 | A | 763 | G | O4'-C4'-C3' | -5.34 | 98.66 | 104.00 |
| 29 | 5 | 23 | THR | N-CA-C | 5.33 | 125.40 | 111.00 |
| 1 | A | 2031 | A | O4'-C1'-N9 | -5.33 | 103.93 | 108.20 |
| 1 | A | 2481 | G | N9-C1'-C2' | 5.33 | 120.93 | 114.00 |
| 1 | A | 1788 | C | C4'-C3'-C2' | -5.33 | 97.27 | 102.60 |
| 1 | A | 528 | A | O4'-C1'-N9 | -5.32 | 103.94 | 108.20 |
| 1 | A | 1092 | C | N1-C1'-C2' | -5.32 | 106.14 | 112.00 |
| 1 | A | 2056 | G | N3-C2-N2 | 5.32 | 123.63 | 119.90 |
| 1 | A | 862 | G | C4-N9-C1' | 5.32 | 133.41 | 126.50 |
| 1 | A | 2325 | G | N9-C1'-C2' | 5.32 | 120.91 | 114.00 |
| 1 | A | 1625 | C | O4'-C4'-C3' | 5.32 | 110.35 | 106.10 |
| 1 | A | 2373 | G | N9-C1'-C2' | 5.32 | 120.91 | 114.00 |
| 5 | E | 49 | LEU | CA-CB-CG | 5.32 | 127.53 | 115.30 |
| 1 | A | 1994 | C | N1-C1'-C2' | -5.31 | 106.16 | 112.00 |
| 14 | P | 103 | MET | N-CA-C | -5.31 | 96.67 | 111.00 |
| 23 | Y | 52 | SER | N-CA-C | -5.31 | 96.67 | 111.00 |
| 1 | A | 49 | A | N9-C1'-C2' | -5.31 | 106.16 | 112.00 |
| 1 | A | 2051 | A | N9-C1'-C2' | 5.31 | 120.90 | 114.00 |
| 27 | 3 | 63 | TYR | CA-CB-CG | 5.30 | 123.48 | 113.40 |
| 14 | P | 82 | ARG | N-CA-C | -5.30 | 96.69 | 111.00 |
| 1 | A | 899 | A | N9-C1'-C2' | -5.30 | 106.17 | 112.00 |
| 1 | A | 2491 | U | C4-C5-C6 | 5.29 | 122.88 | 119.70 |
| 1 | A | 2606 | C | C5'-C4'-O4' | -5.29 | 102.75 | 109.10 |
| 5 | E | 166 | THR | N-CA-C | 5.29 | 125.29 | 111.00 |
| 28 | 4 | 13 | LYS | N-CA-C | -5.29 | 96.73 | 111.00 |
| 9 | K | 128 | LEU | CA-CB-CG | 5.28 | 127.45 | 115.30 |
| 1 | A | 739 | G | OP1-P-O3' | 5.28 | 116.82 | 105.20 |
| 1 | A | 1747 | G | O4'-C1'-N9 | 5.28 | 112.42 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 3 | C | 214 | VAL | N-CA-C | -5.28 | 96.74 | 111.00 |
| 7 | G | 34 | LEU | N-CA-C | 5.28 | 125.25 | 111.00 |
| 1 | A | 1746 | G | C4-N9-C1' | -5.27 | 119.65 | 126.50 |
| 1 | A | 1746 | G | O4'-C4'-C3' | -5.26 | 98.74 | 104.00 |
| 1 | A | 2848 | G | N9-C1'-C2' | 5.26 | 120.83 | 114.00 |
| 1 | A | 448 | U | O4'-C1'-N1 | 5.25 | 112.40 | 108.20 |
| 5 | E | 147 | PRO | N-CA-C | -5.25 | 98.44 | 112.10 |
| 1 | A | 1920 | C | N1-C1'-C2' | -5.25 | 106.22 | 112.00 |
| 18 | T | 18 | LEU | CA-CB-CG | 5.25 | 127.37 | 115.30 |
| 24 | Z | 74 | ARG | N-CA-C | 5.25 | 125.17 | 111.00 |
| 22 | X | 75 | ILE | N-CA-C | -5.25 | 96.83 | 111.00 |
| 4 | D | 34 | VAL | N-CA-C | 5.25 | 125.16 | 111.00 |
| 17 | S | 55 | ASN | N-CA-CB | -5.24 | 101.16 | 110.60 |
| 13 | O | 46 | LYS | N-CA-C | 5.24 | 125.14 | 111.00 |
| 13 | O | 63 | PRO | N-CA-C | 5.24 | 125.72 | 112.10 |
| 2 | B | -1 | A | OP1-P-OP2 | -5.24 | 111.75 | 119.60 |
| 1 | A | 1899 | G | O4'-C1'-N9 | -5.24 | 104.01 | 108.20 |
| 5 | E | 158 | GLY | N-CA-C | 5.24 | 126.19 | 113.10 |
| 1 | A | 1938 | A | C5'-C4'-C3' | 5.23 | 124.36 | 116.00 |
| 24 | Z | 75 | LEU | CA-CB-CG | 5.22 | 127.31 | 115.30 |
| 1 | A | 1691 | C | N1-C1'-C2' | -5.22 | 106.26 | 112.00 |
| 1 | A | 2403 | C | N1-C1'-C2' | 5.22 | 120.78 | 114.00 |
| 1 | A | 2665 | A | N3-C4-N9 | 5.21 | 131.57 | 127.40 |
| 27 | 3 | 48 | ARG | NE-CZ-NH1 | 5.21 | 122.91 | 120.30 |
| 1 | A | 296 | C | C4'-C3'-C2' | -5.21 | 97.39 | 102.60 |
| 1 | A | 2407 | G | O5'-P-OP1 | -5.21 | 101.01 | 105.70 |
| 1 | A | 479 | A | N9-C1'-C2' | 5.20 | 120.76 | 114.00 |
| 8 | H | 109 | PHE | N-CA-C | 5.20 | 125.03 | 111.00 |
| 1 | A | 205 | G | C1'-O4'-C4' | -5.20 | 105.74 | 109.90 |
| 4 | D | 58 | HIS | N-CA-C | 5.20 | 125.03 | 111.00 |
| 1 | A | 2460 | U | C5-C4-O4 | -5.19 | 122.78 | 125.90 |
| 1 | A | 1253 | A | O5'-P-OP1 | -5.19 | 101.03 | 105.70 |
| 1 | A | 2195 | C | N1-C1'-C2' | 5.19 | 120.75 | 114.00 |
| 17 | S | 88 | ILE | N-CA-C | -5.19 | 96.98 | 111.00 |
| 2 | B | 12 | C | C5'-C4'-O4' | 5.19 | 115.33 | 109.10 |
| 1 | A | 2036 | C | O5'-P-OP1 | -5.19 | 101.03 | 105.70 |
| 1 | A | 2332 | U | O4'-C4'-C3' | -5.19 | 98.81 | 104.00 |
| 1 | A | 1667 | G | C1'-O4'-C4' | -5.18 | 105.75 | 109.90 |
| 1 | A | 2056 | G | C4-N9-C1' | 5.18 | 133.24 | 126.50 |
| 1 | A | 2794 | C | C4'-C3'-O3' | 5.18 | 123.36 | 113.00 |
| 1 | A | 1663 | C | OP2-P-O3' | 5.18 | 116.60 | 105.20 |
| 1 | A | 826 | U | N1-C2-O2 | 5.18 | 126.42 | 122.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 7 | G | 132 | ASN | N-CA-C | 5.18 | 124.97 | 111.00 |
| 1 | A | 2446 | G | O3'-P-O5' | -5.17 | 94.17 | 104.00 |
| 1 | A | 2515 | C | N1-C1'-C2' | 5.17 | 120.72 | 114.00 |
| 1 | A | 1848 | A | N9-C1'-C2' | -5.17 | 106.31 | 112.00 |
| 22 | X | 46 | LYS | N-CA-C | 5.17 | 124.96 | 111.00 |
| 6 | F | 133 | ASN | N-CA-C | -5.17 | 97.05 | 111.00 |
| 1 | A | 2547 | U | O4'-C1'-N1 | -5.17 | 104.07 | 108.20 |
| 6 | F | 82 | ILE | N-CA-C | 5.16 | 124.94 | 111.00 |
| 1 | A | 774 | A | C6-N1-C2 | -5.16 | 115.50 | 118.60 |
| 1 | A | 1666 | G | C4-N9-C1' | -5.16 | 119.79 | 126.50 |
| 1 | A | 2582 | G | O4'-C1'-N9 | -5.16 | 104.07 | 108.20 |
| 1 | A | 1735 | C | O4'-C1'-N1 | 5.15 | 112.32 | 108.20 |
| 1 | A | 472 | A | N9-C1'-C2' | -5.14 | 106.34 | 112.00 |
| 4 | D | 272 | ALA | N-CA-C | 5.14 | 124.89 | 111.00 |
| 1 | A | 2592 | G | C3'-C2'-C1' | -5.14 | 97.39 | 101.50 |
| 32 | 8 | 15 | LYS | N-CA-C | 5.14 | 124.87 | 111.00 |
| 1 | A | 862 | G | C5'-C4'-O4' | 5.13 | 115.26 | 109.10 |
| 1 | A | 1668 | A | C5'-C4'-C3' | 5.13 | 124.21 | 116.00 |
| 1 | A | 2756 | U | O3'-P-O5' | -5.13 | 94.25 | 104.00 |
| 6 | F | 13 | SER | N-CA-C | -5.13 | 97.15 | 111.00 |
| 14 | P | 23 | GLY | N-CA-C | 5.13 | 125.92 | 113.10 |
| 20 | V | 65 | LEU | CA-CB-CG | 5.13 | 127.09 | 115.30 |
| 1 | A | 784 | A | C5'-C4'-C3' | -5.12 | 107.81 | 116.00 |
| 1 | A | 1566 | A | C2'-C3'-O3' | 5.11 | 121.88 | 113.70 |
| 1 | A | 2451 | A | C4'-C3'-C2' | -5.11 | 97.49 | 102.60 |
| 1 | A | 2501 | C | OP1-P-O3' | 5.11 | 116.45 | 105.20 |
| 1 | A | 2076 | U | C5'-C4'-C3' | -5.11 | 107.83 | 116.00 |
| 1 | A | 2586 | C | N1-C1'-C2' | -5.11 | 106.38 | 112.00 |
| 1 | A | 1951 | U | C6-N1-C2 | -5.11 | 117.94 | 121.00 |
| 1 | A | 2459 | A | N3-C4-C5 | -5.10 | 123.23 | 126.80 |
| 20 | V | 63 | ASP | N-CA-C | 5.10 | 124.77 | 111.00 |
| 1 | A | 979 | G | N9-C1'-C2' | 5.09 | 120.62 | 114.00 |
| 1 | A | 2238 | G | O4'-C1'-N9 | 5.09 | 112.27 | 108.20 |
| 1 | A | 1664 | A | C5'-C4'-O4' | 5.09 | 115.21 | 109.10 |
| 1 | A | 1706 | U | N1-C1'-C2' | 5.09 | 120.62 | 114.00 |
| 30 | 6 | 16 | HIS | N-CA-C | 5.09 | 124.74 | 111.00 |
| 1 | A | 1919 | A | O4'-C1'-N9 | -5.09 | 104.13 | 108.20 |
| 1 | A | 1651 | G | N9-C1'-C2' | -5.08 | 106.41 | 112.00 |
| 26 | 2 | 53 | LEU | CA-CB-CG | -5.08 | 103.61 | 115.30 |
| 8 | H | 111 | HIS | N-CA-C | 5.08 | 124.72 | 111.00 |
| 1 | A | 2640 | G | O4'-C1'-N9 | 5.08 | 112.26 | 108.20 |
| 1 | A | 1992 | G | C5'-C4'-C3' | 5.08 | 124.12 | 116.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 17 | S | 114 | LEU | CA-CB-CG | 5.07 | 126.97 | 115.30 |
| 13 | O | 105 | LEU | N-CA-C | 5.07 | 124.69 | 111.00 |
| 1 | A | 2665 | A | N9-C1'-C2' | 5.07 | 120.58 | 114.00 |
| 1 | A | 279 | C | N1-C1'-C2' | 5.06 | 120.58 | 114.00 |
| 1 | A | 2809 | A | N9-C1'-C2' | 5.06 | 120.58 | 114.00 |
| 5 | E | 65 | GLY | N-CA-C | -5.06 | 100.44 | 113.10 |
| 1 | A | 2593 | U | C5'-C4'-O4' | -5.06 | 103.03 | 109.10 |
| 1 | A | 353 | G | N9-C1'-C2' | 5.06 | 120.57 | 114.00 |
| 1 | A | 2414 | G | O4'-C4'-C3' | -5.06 | 98.94 | 104.00 |
| 1 | A | 1313 | U | C5-C6-N1 | 5.05 | 125.23 | 122.70 |
| 1 | A | 2056 | G | C5'-C4'-C3' | -5.04 | 107.93 | 116.00 |
| 1 | A | 2324 | C | C4'-C3'-O3' | -5.04 | 98.81 | 109.40 |
| 1 | A | 2243 | U | N1-C1'-C2' | 5.04 | 120.55 | 114.00 |
| 1 | A | 2471 | C | O4'-C4'-C3' | -5.04 | 98.96 | 104.00 |
| 13 | O | 100 | LEU | CA-CB-CG | 5.04 | 126.88 | 115.30 |
| 28 | 4 | 4 | HIS | N-CA-C | 5.03 | 124.59 | 111.00 |
| 11 | M | 75 | TYR | N-CA-C | -5.03 | 97.42 | 111.00 |
| 1 | A | 2135 | A | O4'-C1'-N9 | -5.03 | 104.18 | 108.20 |
| 27 | 3 | 12 | ALA | N-CA-C | 5.03 | 124.57 | 111.00 |
| 1 | A | 1833 | U | C5'-C4'-C3' | 5.02 | 124.03 | 116.00 |
| 1 | A | 429 | A | N9-C1'-C2' | 5.02 | 120.53 | 114.00 |
| 1 | A | 1162 | G | O4'-C1'-N9 | 5.01 | 112.21 | 108.20 |

There are no chirality outliers.

All (578) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 27 | 3 | 25 | TYR | Sidechain |
| 27 | 3 | 32 | TYR | Sidechain |
| 1 | A | 1010 | A | Sidechain |
| 1 | A | 1012 | U | Sidechain |
| 1 | A | 1018 | C | Sidechain |
| 1 | A | 1022 | G | Sidechain |
| 1 | A | 1023 | U | Sidechain |
| 1 | A | 1029 | A | Sidechain |
| 1 | A | 1040 | C | Sidechain |
| 1 | A | 1042 | G | Sidechain |
| 1 | A | 1043 | C | Sidechain |
| 1 | A | 105 | C | Sidechain |
| 1 | A | 1052 | C | Sidechain |
| 1 | A | 1053 | C | Sidechain |
| 1 | A | 1054 | A | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | A | 1080 | C | Sidechain |
| 1 | A | 1082 | U | Sidechain |
| 1 | A | 1092 | C | Sidechain |
| 1 | A | 1101 | U | Sidechain |
| 1 | A | 1102 | C | Sidechain |
| 1 | A | 1104 | C | Sidechain |
| 1 | A | 1105 | U | Sidechain |
| 1 | A | 1108 | U | Sidechain |
| 1 | A | 1129 | A | Sidechain |
| 1 | A | 1133 | U | Sidechain |
| 1 | A | 1134 | G | Sidechain |
| 1 | A | 114 | U | Sidechain |
| 1 | A | 1142 | U | Sidechain |
| 1 | A | 1143 | A | Sidechain |
| 1 | A | 1153 | C | Sidechain |
| 1 | A | 1156 | A | Sidechain |
| 1 | A | 1159 | U | Sidechain |
| 1 | A | 1160 | G | Sidechain |
| 1 | A | 1161 | C | Sidechain |
| 1 | A | 1165 | U | Sidechain |
| 1 | A | 1169 | G | Sidechain |
| 1 | A | 1179 | C | Sidechain |
| 1 | A | 1183 | G | Sidechain |
| 1 | A | 1187 | G | Sidechain |
| 1 | A | 1188 | U | Sidechain |
| 1 | A | 1194 | A | Sidechain |
| 1 | A | 1198 | U | Sidechain |
| 1 | A | 1206 | G | Sidechain |
| 1 | A | 1234 | U | Sidechain |
| 1 | A | 1236 | G | Sidechain |
| 1 | A | 1240 | U | Sidechain |
| 1 | A | 1242 | A | Sidechain |
| 1 | A | 1247 | A | Sidechain |
| 1 | A | 1260 | G | Sidechain |
| 1 | A | 1264 | G | Sidechain |
| 1 | A | 1265 | A | Sidechain |
| 1 | A | 1273 | U | Sidechain |
| 1 | A | 1274 | A | Sidechain |
| 1 | A | 1284 | A | Sidechain |
| 1 | A | 1310 | G | Sidechain |
| 1 | A | 1316 | U | Sidechain |
| 1 | A | 1322 | A | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|--------|------|-----------|
| 1 | A | 1326 | U | Sidechain |
| 1 | A | 1329 | U | Sidechain |
| 1 | A | 133 | C | Sidechain |
| 1 | A | 1330 | C | Sidechain |
| 1 | A | 1332 | G | Sidechain |
| 1 | A | 134 | C | Sidechain |
| 1 | A | 1343 | G | Sidechain |
| 1 | A | 135 | G | Sidechain |
| 1 | A | 1359 | A | Sidechain |
| 1 | A | 1362 | C | Sidechain |
| 1 | A | 1363 | C | Sidechain |
| 1 | A | 1368 | G | Sidechain |
| 1 | A | 1372 | U | Sidechain |
| 1 | A | 1379 | A | Sidechain |
| 1 | A | 138 | G | Sidechain |
| 1 | A | 1393 | A | Sidechain |
| 1 | A | 14 | A | Sidechain |
| 1 | A | 141(A) | C | Sidechain |
| 1 | A | 1421 | G | Sidechain |
| 1 | A | 1423 | G | Sidechain |
| 1 | A | 1437 | C | Sidechain |
| 1 | A | 1450 | C | Sidechain |
| 1 | A | 1451 | C | Sidechain |
| 1 | A | 1454 | U | Sidechain |
| 1 | A | 1462 | C | Sidechain |
| 1 | A | 1470 | G | Sidechain |
| 1 | A | 1474 | C | Sidechain |
| 1 | A | 1477 | A | Sidechain |
| 1 | A | 1479 | G | Sidechain |
| 1 | A | 1480 | G | Sidechain |
| 1 | A | 1497 | U | Sidechain |
| 1 | A | 151 | C | Sidechain |
| 1 | A | 1513 | C | Sidechain |
| 1 | A | 1514 | U | Sidechain |
| 1 | A | 1516 | U | Sidechain |
| 1 | A | 1517 | G | Sidechain |
| 1 | A | 1518 | C | Sidechain |
| 1 | A | 1520 | U | Sidechain |
| 1 | A | 1523 | U | Sidechain |
| 1 | A | 1525 | G | Sidechain |
| 1 | A | 1526 | G | Sidechain |
| 1 | A | 1533 | C | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | A | 1539 | G | Sidechain |
| 1 | A | 1541 | U | Sidechain |
| 1 | A | 1542 | G | Sidechain |
| 1 | A | 1549 | C | Sidechain |
| 1 | A | 1564 | C | Sidechain |
| 1 | A | 1575 | C | Sidechain |
| 1 | A | 1576 | U | Sidechain |
| 1 | A | 1597 | A | Sidechain |
| 1 | A | 1604 | C | Sidechain |
| 1 | A | 1606 | G | Sidechain |
| 1 | A | 1617 | C | Sidechain |
| 1 | A | 1623 | G | Sidechain |
| 1 | A | 1625 | C | Sidechain |
| 1 | A | 1627 | G | Sidechain |
| 1 | A | 1628 | G | Sidechain |
| 1 | A | 1635 | G | Sidechain |
| 1 | A | 1648 | C | Sidechain |
| 1 | A | 1650 | G | Sidechain |
| 1 | A | 1653 | G | Sidechain |
| 1 | A | 1657 | C | Sidechain |
| 1 | A | 1659 | U | Sidechain |
| 1 | A | 1664 | A | Sidechain |
| 1 | A | 1666 | G | Sidechain |
| 1 | A | 1667 | G | Sidechain |
| 1 | A | 1668 | A | Sidechain |
| 1 | A | 1671 | U | Sidechain |
| 1 | A | 1676 | A | Sidechain |
| 1 | A | 1686 | C | Sidechain |
| 1 | A | 1691 | C | Sidechain |
| 1 | A | 1695 | G | Sidechain |
| 1 | A | 1699 | G | Sidechain |
| 1 | A | 1700 | A | Sidechain |
| 1 | A | 1706 | U | Sidechain |
| 1 | A | 1716 | U | Sidechain |
| 1 | A | 1718 | G | Sidechain |
| 1 | A | 1726 | G | Sidechain |
| 1 | A | 1727 | U | Sidechain |
| 1 | A | 1734 | C | Sidechain |
| 1 | A | 1735 | C | Sidechain |
| 1 | A | 1752 | C | Sidechain |
| 1 | A | 1755 | A | Sidechain |
| 1 | A | 1757 | U | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | A | 1762 | A | Sidechain |
| 1 | A | 1764 | G | Sidechain |
| 1 | A | 1771 | C | Sidechain |
| 1 | A | 1775 | U | Sidechain |
| 1 | A | 1776 | G | Sidechain |
| 1 | A | 1777 | U | Sidechain |
| 1 | A | 1778 | U | Sidechain |
| 1 | A | 178 | G | Sidechain |
| 1 | A | 1783 | A | Sidechain |
| 1 | A | 1784 | A | Sidechain |
| 1 | A | 1788 | C | Sidechain |
| 1 | A | 1789 | A | Sidechain |
| 1 | A | 1790 | C | Sidechain |
| 1 | A | 1798 | U | Sidechain |
| 1 | A | 1800 | C | Sidechain |
| 1 | A | 1807 | G | Sidechain |
| 1 | A | 1809 | A | Sidechain |
| 1 | A | 1815 | A | Sidechain |
| 1 | A | 1818 | U | Sidechain |
| 1 | A | 1821 | A | Sidechain |
| 1 | A | 1822 | G | Sidechain |
| 1 | A | 1824 | G | Sidechain |
| 1 | A | 1826 | G | Sidechain |
| 1 | A | 1827 | C | Sidechain |
| 1 | A | 1834 | U | Sidechain |
| 1 | A | 1838 | C | Sidechain |
| 1 | A | 1839 | G | Sidechain |
| 1 | A | 1841 | U | Sidechain |
| 1 | A | 1851 | U | Sidechain |
| 1 | A | 188 | G | Sidechain |
| 1 | A | 1892 | C | Sidechain |
| 1 | A | 1893 | C | Sidechain |
| 1 | A | 1894 | C | Sidechain |
| 1 | A | 1899 | G | Sidechain |
| 1 | A | 1906 | G | Sidechain |
| 1 | A | 1911 | U | Sidechain |
| 1 | A | 1913 | A | Sidechain |
| 1 | A | 1918 | A | Sidechain |
| 1 | A | 1919 | A | Sidechain |
| 1 | A | 192 | C | Sidechain |
| 1 | A | 1923 | U | Sidechain |
| 1 | A | 1931 | U | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | A | 1936 | A | Sidechain |
| 1 | A | 1937 | A | Sidechain |
| 1 | A | 1952 | A | Sidechain |
| 1 | A | 1954 | G | Sidechain |
| 1 | A | 1955 | U | Sidechain |
| 1 | A | 1957 | C | Sidechain |
| 1 | A | 1965 | C | Sidechain |
| 1 | A | 1970 | A | Sidechain |
| 1 | A | 1977 | A | Sidechain |
| 1 | A | 1979 | C | Sidechain |
| 1 | A | 1981 | A | Sidechain |
| 1 | A | 1984 | G | Sidechain |
| 1 | A | 1994 | C | Sidechain |
| 1 | A | 1995 | U | Sidechain |
| 1 | A | 200 | U | Sidechain |
| 1 | A | 2000 | G | Sidechain |
| 1 | A | 2009 | G | Sidechain |
| 1 | A | 2021 | C | Sidechain |
| 1 | A | 2024 | G | Sidechain |
| 1 | A | 2033 | A | Sidechain |
| 1 | A | 2039 | C | Sidechain |
| 1 | A | 2040 | C | Sidechain |
| 1 | A | 2041 | U | Sidechain |
| 1 | A | 2044 | C | Sidechain |
| 1 | A | 2048 | G | Sidechain |
| 1 | A | 205 | G | Sidechain |
| 1 | A | 2051 | A | Sidechain |
| 1 | A | 2056 | G | Sidechain |
| 1 | A | 2061 | G | Sidechain |
| 1 | A | 2062 | A | Sidechain |
| 1 | A | 2065 | C | Sidechain |
| 1 | A | 2068 | U | Sidechain |
| 1 | A | 2073 | C | Sidechain |
| 1 | A | 2086 | U | Sidechain |
| 1 | A | 2089 | U | Sidechain |
| 1 | A | 2096 | U | Sidechain |
| 1 | A | 2098 | U | Sidechain |
| 1 | A | 2108 | C | Sidechain |
| 1 | A | 2115 | G | Sidechain |
| 1 | A | 2116 | G | Sidechain |
| 1 | A | 2118 | U | Sidechain |
| 1 | A | 2128 | C | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | A | 2130 | U | Sidechain |
| 1 | A | 2132 | U | Sidechain |
| 1 | A | 2138 | C | Sidechain |
| 1 | A | 2143 | C | Sidechain |
| 1 | A | 2161 | C | Sidechain |
| 1 | A | 2174 | C | Sidechain |
| 1 | A | 2175 | C | Sidechain |
| 1 | A | 2189 | U | Sidechain |
| 1 | A | 2192 | G | Sidechain |
| 1 | A | 2195 | C | Sidechain |
| 1 | A | 2208 | U | Sidechain |
| 1 | A | 2215 | G | Sidechain |
| 1 | A | 223 | A | Sidechain |
| 1 | A | 224 | G | Sidechain |
| 1 | A | 2246 | G | Sidechain |
| 1 | A | 2248 | C | Sidechain |
| 1 | A | 2249 | U | Sidechain |
| 1 | A | 2254 | C | Sidechain |
| 1 | A | 2255 | G | Sidechain |
| 1 | A | 2259 | G | Sidechain |
| 1 | A | 2265 | U | Sidechain |
| 1 | A | 2266 | A | Sidechain |
| 1 | A | 2272 | U | Sidechain |
| 1 | A | 2280 | G | Sidechain |
| 1 | A | 2282 | G | Sidechain |
| 1 | A | 2284 | C | Sidechain |
| 1 | A | 2287 | A | Sidechain |
| 1 | A | 2288 | A | Sidechain |
| 1 | A | 2293 | C | Sidechain |
| 1 | A | 2295 | C | Sidechain |
| 1 | A | 2299 | G | Sidechain |
| 1 | A | 2301 | C | Sidechain |
| 1 | A | 2308 | G | Sidechain |
| 1 | A | 2317 | C | Sidechain |
| 1 | A | 2318 | G | Sidechain |
| 1 | A | 2325 | G | Sidechain |
| 1 | A | 2326 | C | Sidechain |
| 1 | A | 2331 | G | Sidechain |
| 1 | A | 2332 | U | Sidechain |
| 1 | A | 2336 | A | Sidechain |
| 1 | A | 2337 | G | Sidechain |
| 1 | A | 2352 | A | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | A | 2364 | C | Sidechain |
| 1 | A | 2377 | A | Sidechain |
| 1 | A | 2384 | G | Sidechain |
| 1 | A | 2393 | A | Sidechain |
| 1 | A | 2394 | C | Sidechain |
| 1 | A | 2395 | C | Sidechain |
| 1 | A | 2411 | A | Sidechain |
| 1 | A | 2413 | G | Sidechain |
| 1 | A | 2419 | U | Sidechain |
| 1 | A | 242 | G | Sidechain |
| 1 | A | 2422 | A | Sidechain |
| 1 | A | 2423 | U | Sidechain |
| 1 | A | 2430 | A | Sidechain |
| 1 | A | 2431 | U | Sidechain |
| 1 | A | 2432 | A | Sidechain |
| 1 | A | 2434 | A | Sidechain |
| 1 | A | 2437 | U | Sidechain |
| 1 | A | 244 | A | Sidechain |
| 1 | A | 2441 | C | Sidechain |
| 1 | A | 2443 | C | Sidechain |
| 1 | A | 2444 | G | Sidechain |
| 1 | A | 2449 | U | Sidechain |
| 1 | A | 2454 | G | Sidechain |
| 1 | A | 2455 | G | Sidechain |
| 1 | A | 2459 | A | Sidechain |
| 1 | A | 2460 | U | Sidechain |
| 1 | A | 2462 | U | Sidechain |
| 1 | A | 248 | G | Sidechain |
| 1 | A | 2480 | C | Sidechain |
| 1 | A | 2481 | G | Sidechain |
| 1 | A | 2484 | G | Sidechain |
| 1 | A | 2486 | G | Sidechain |
| 1 | A | 2491 | U | Sidechain |
| 1 | A | 2493 | U | Sidechain |
| 1 | A | 2496 | C | Sidechain |
| 1 | A | 2497 | A | Sidechain |
| 1 | A | 2498 | C | Sidechain |
| 1 | A | 25 | U | Sidechain |
| 1 | A | 2500 | U | Sidechain |
| 1 | A | 2501 | C | Sidechain |
| 1 | A | 2503 | A | Sidechain |
| 1 | A | 2504 | U | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | A | 251 | A | Sidechain |
| 1 | A | 2514 | U | Sidechain |
| 1 | A | 2515 | C | Sidechain |
| 1 | A | 2516 | G | Sidechain |
| 1 | A | 2518 | A | Sidechain |
| 1 | A | 2521 | C | Sidechain |
| 1 | A | 2525 | G | Sidechain |
| 1 | A | 2527 | C | Sidechain |
| 1 | A | 2529 | G | Sidechain |
| 1 | A | 2532 | G | Sidechain |
| 1 | A | 254 | G | Sidechain |
| 1 | A | 2540 | C | Sidechain |
| 1 | A | 2546 | U | Sidechain |
| 1 | A | 2550 | G | Sidechain |
| 1 | A | 2560 | C | Sidechain |
| 1 | A | 2562 | U | Sidechain |
| 1 | A | 2568 | C | Sidechain |
| 1 | A | 2569 | G | Sidechain |
| 1 | A | 2571 | C | Sidechain |
| 1 | A | 2576 | G | Sidechain |
| 1 | A | 2577 | A | Sidechain |
| 1 | A | 2583 | G | Sidechain |
| 1 | A | 2584 | U | Sidechain |
| 1 | A | 2586 | C | Sidechain |
| 1 | A | 2592 | G | Sidechain |
| 1 | A | 2595 | G | Sidechain |
| 1 | A | 2600 | A | Sidechain |
| 1 | A | 2601 | C | Sidechain |
| 1 | A | 2604 | U | Sidechain |
| 1 | A | 2608 | G | Sidechain |
| 1 | A | 2609 | U | Sidechain |
| 1 | A | 2615 | U | Sidechain |
| 1 | A | 2619 | C | Sidechain |
| 1 | A | 2623 | G | Sidechain |
| 1 | A | 2636 | U | Sidechain |
| 1 | A | 2637 | U | Sidechain |
| 1 | A | 2641 | G | Sidechain |
| 1 | A | 2645 | G | Sidechain |
| 1 | A | 2649 | U | Sidechain |
| 1 | A | 265 | A | Sidechain |
| 1 | A | 2651 | C | Sidechain |
| 1 | A | 2652 | C | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|--------|------|-----------|
| 1 | A | 2656 | U | Sidechain |
| 1 | A | 2658 | C | Sidechain |
| 1 | A | 2665 | A | Sidechain |
| 1 | A | 2687 | U | Sidechain |
| 1 | A | 2689 | U | Sidechain |
| 1 | A | 2691 | C | Sidechain |
| 1 | A | 2696 | U | Sidechain |
| 1 | A | 270 | A | Sidechain |
| 1 | A | 270(C) | C | Sidechain |
| 1 | A | 270(G) | C | Sidechain |
| 1 | A | 270(H) | C | Sidechain |
| 1 | A | 270(P) | C | Sidechain |
| 1 | A | 270(Q) | C | Sidechain |
| 1 | A | 270(W) | G | Sidechain |
| 1 | A | 270(Z) | U | Sidechain |
| 1 | A | 2702 | U | Sidechain |
| 1 | A | 2706 | G | Sidechain |
| 1 | A | 2708 | G | Sidechain |
| 1 | A | 271(C) | U | Sidechain |
| 1 | A | 2724 | C | Sidechain |
| 1 | A | 2725 | A | Sidechain |
| 1 | A | 2726 | U | Sidechain |
| 1 | A | 2727 | G | Sidechain |
| 1 | A | 2728 | U | Sidechain |
| 1 | A | 273(B) | C | Sidechain |
| 1 | A | 273(D) | C | Sidechain |
| 1 | A | 273(E) | U | Sidechain |
| 1 | A | 2732 | G | Sidechain |
| 1 | A | 2739 | U | Sidechain |
| 1 | A | 2758 | A | Sidechain |
| 1 | A | 2769 | C | Sidechain |
| 1 | A | 2777 | G | Sidechain |
| 1 | A | 278 | A | Sidechain |
| 1 | A | 2781 | A | Sidechain |
| 1 | A | 2787 | C | Sidechain |
| 1 | A | 2791 | C | Sidechain |
| 1 | A | 280 | C | Sidechain |
| 1 | A | 2809 | A | Sidechain |
| 1 | A | 2816 | C | Sidechain |
| 1 | A | 2823 | A | Sidechain |
| 1 | A | 2825 | C | Sidechain |
| 1 | A | 2826 | A | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|--------|------|-----------|
| 1 | A | 2834 | G | Sidechain |
| 1 | A | 284 | U | Sidechain |
| 1 | A | 2845 | G | Sidechain |
| 1 | A | 2853 | C | Sidechain |
| 1 | A | 2865 | U | Sidechain |
| 1 | A | 2866 | U | Sidechain |
| 1 | A | 2871 | C | Sidechain |
| 1 | A | 288 | C | Sidechain |
| 1 | A | 2885 | C | Sidechain |
| 1 | A | 2887 | U | Sidechain |
| 1 | A | 296 | C | Sidechain |
| 1 | A | 3 | U | Sidechain |
| 1 | A | 32 | C | Sidechain |
| 1 | A | 337 | C | Sidechain |
| 1 | A | 350 | U | Sidechain |
| 1 | A | 353 | G | Sidechain |
| 1 | A | 354 | G | Sidechain |
| 1 | A | 358 | U | Sidechain |
| 1 | A | 362 | U | Sidechain |
| 1 | A | 363(E) | U | Sidechain |
| 1 | A | 366 | C | Sidechain |
| 1 | A | 376 | C | Sidechain |
| 1 | A | 379 | G | Sidechain |
| 1 | A | 380 | U | Sidechain |
| 1 | A | 384 | U | Sidechain |
| 1 | A | 386 | G | Sidechain |
| 1 | A | 387 | U | Sidechain |
| 1 | A | 411 | G | Sidechain |
| 1 | A | 416 | C | Sidechain |
| 1 | A | 421 | U | Sidechain |
| 1 | A | 427 | U | Sidechain |
| 1 | A | 429 | A | Sidechain |
| 1 | A | 446 | G | Sidechain |
| 1 | A | 448 | U | Sidechain |
| 1 | A | 455 | C | Sidechain |
| 1 | A | 463 | G | Sidechain |
| 1 | A | 474 | G | Sidechain |
| 1 | A | 511 | U | Sidechain |
| 1 | A | 520 | G | Sidechain |
| 1 | A | 521 | G | Sidechain |
| 1 | A | 525 | U | Sidechain |
| 1 | A | 527 | C | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|--------|------|-----------|
| 1 | A | 528 | A | Sidechain |
| 1 | A | 530 | G | Sidechain |
| 1 | A | 534 | U | Sidechain |
| 1 | A | 548 | A | Sidechain |
| 1 | A | 549 | G | Sidechain |
| 1 | A | 553 | U | Sidechain |
| 1 | A | 560 | C | Sidechain |
| 1 | A | 565 | C | Sidechain |
| 1 | A | 566 | U | Sidechain |
| 1 | A | 567 | A | Sidechain |
| 1 | A | 569 | U | Sidechain |
| 1 | A | 572 | A | Sidechain |
| 1 | A | 583 | G | Sidechain |
| 1 | A | 584 | C | Sidechain |
| 1 | A | 585 | G | Sidechain |
| 1 | A | 594 | U | Sidechain |
| 1 | A | 597 | U | Sidechain |
| 1 | A | 601 | C | Sidechain |
| 1 | A | 605 | C | Sidechain |
| 1 | A | 606 | U | Sidechain |
| 1 | A | 607 | U | Sidechain |
| 1 | A | 609(A) | G | Sidechain |
| 1 | A | 610 | C | Sidechain |
| 1 | A | 611 | C | Sidechain |
| 1 | A | 614 | U | Sidechain |
| 1 | A | 618(A) | C | Sidechain |
| 1 | A | 621 | A | Sidechain |
| 1 | A | 639 | U | Sidechain |
| 1 | A | 641 | C | Sidechain |
| 1 | A | 646 | A | Sidechain |
| 1 | A | 649 | G | Sidechain |
| 1 | A | 650 | C | Sidechain |
| 1 | A | 654 | A | Sidechain |
| 1 | A | 658 | C | Sidechain |
| 1 | A | 662 | G | Sidechain |
| 1 | A | 67 | U | Sidechain |
| 1 | A | 670 | A | Sidechain |
| 1 | A | 676 | A | Sidechain |
| 1 | A | 679 | C | Sidechain |
| 1 | A | 683 | C | Sidechain |
| 1 | A | 687 | C | Sidechain |
| 1 | A | 695 | G | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|-----------|
| 1 | A | 697 | C | Sidechain |
| 1 | A | 701 | G | Sidechain |
| 1 | A | 703 | U | Sidechain |
| 1 | A | 705 | A | Sidechain |
| 1 | A | 709 | U | Sidechain |
| 1 | A | 715 | G | Sidechain |
| 1 | A | 717 | G | Sidechain |
| 1 | A | 723 | G | Sidechain |
| 1 | A | 729 | G | Sidechain |
| 1 | A | 730 | C | Sidechain |
| 1 | A | 739 | G | Sidechain |
| 1 | A | 740 | U | Sidechain |
| 1 | A | 748 | G | Sidechain |
| 1 | A | 752 | A | Sidechain |
| 1 | A | 753 | C | Sidechain |
| 1 | A | 758 | C | Sidechain |
| 1 | A | 759 | G | Sidechain |
| 1 | A | 762 | U | Sidechain |
| 1 | A | 764 | A | Sidechain |
| 1 | A | 776 | G | Sidechain |
| 1 | A | 778 | G | Sidechain |
| 1 | A | 779 | U | Sidechain |
| 1 | A | 785 | G | Sidechain |
| 1 | A | 789 | A | Sidechain |
| 1 | A | 792 | G | Sidechain |
| 1 | A | 794 | G | Sidechain |
| 1 | A | 801 | G | Sidechain |
| 1 | A | 805 | G | Sidechain |
| 1 | A | 807 | U | Sidechain |
| 1 | A | 825 | C | Sidechain |
| 1 | A | 833 | U | Sidechain |
| 1 | A | 838 | C | Sidechain |
| 1 | A | 847 | U | Sidechain |
| 1 | A | 848 | G | Sidechain |
| 1 | A | 858 | U | Sidechain |
| 1 | A | 86 | C | Sidechain |
| 1 | A | 860 | U | Sidechain |
| 1 | A | 861 | A | Sidechain |
| 1 | A | 864 | G | Sidechain |
| 1 | A | 865 | C | Sidechain |
| 1 | A | 869 | G | Sidechain |
| 1 | A | 870 | A | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|-----------|
| 1 | A | 871 | U | Sidechain |
| 1 | A | 879 | G | Sidechain |
| 1 | A | 893 | C | Sidechain |
| 1 | A | 898 | C | Sidechain |
| 1 | A | 902 | C | Sidechain |
| 1 | A | 907 | U | Sidechain |
| 1 | A | 908 | C | Sidechain |
| 1 | A | 913 | U | Sidechain |
| 1 | A | 917 | A | Sidechain |
| 1 | A | 918 | A | Sidechain |
| 1 | A | 920 | G | Sidechain |
| 1 | A | 922 | U | Sidechain |
| 1 | A | 924 | C | Sidechain |
| 1 | A | 930 | U | Sidechain |
| 1 | A | 944 | G | Sidechain |
| 1 | A | 945 | A | Sidechain |
| 1 | A | 946 | G | Sidechain |
| 1 | A | 960 | A | Sidechain |
| 1 | A | 963 | U | Sidechain |
| 1 | A | 964 | C | Sidechain |
| 1 | A | 971 | C | Sidechain |
| 1 | A | 973 | A | Sidechain |
| 1 | A | 979 | G | Sidechain |
| 1 | A | 980 | A | Sidechain |
| 1 | A | 982 | C | Sidechain |
| 1 | A | 983 | A | Sidechain |
| 1 | A | 986 | C | Sidechain |
| 1 | A | 987 | G | Sidechain |
| 1 | A | 990 | A | Sidechain |
| 2 | B | 105 | G | Sidechain |
| 2 | B | 11 | C | Sidechain |
| 2 | B | 119 | A | Sidechain |
| 2 | B | 120 | U | Sidechain |
| 2 | B | 22 | U | Sidechain |
| 2 | B | 38 | C | Sidechain |
| 2 | B | 49 | C | Sidechain |
| 2 | B | 54 | G | Sidechain |
| 2 | B | 55 | U | Sidechain |
| 2 | B | 58 | A | Sidechain |
| 2 | B | 64 | C | Sidechain |
| 2 | B | 68 | C | Sidechain |
| 2 | B | 71 | C | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|-----------|
| 2 | B | 8 | U | Sidechain |
| 2 | B | 88 | C | Sidechain |
| 2 | B | 93 | C | Sidechain |
| 4 | D | 172 | TYR | Sidechain |
| 4 | D | 9 | TYR | Sidechain |
| 5 | E | 151 | TYR | Sidechain |
| 6 | F | 99 | TYR | Sidechain |
| 8 | H | 164 | TYR | Sidechain |
| 14 | P | 26 | TYR | Sidechain |
| 14 | P | 74 | TYR | Sidechain |
| 14 | P | 93 | TYR | Sidechain |
| 17 | S | 14 | TYR | Sidechain |
| 17 | S | 32 | TYR | Sidechain |
| 19 | U | 81 | TYR | Sidechain |
| 19 | U | 91 | TYR | Sidechain |
| 20 | V | 70 | TYR | Sidechain |
| 21 | W | 5 | TYR | Sidechain |

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 | A | 62218 | 0 | 31353 | 14943 | 0 |
| 2 | B | 2641 | 0 | 1337 | 589 | 1 |
| 3 | C | 1742 | 0 | 1796 | 843 | 0 |
| 4 | D | 2124 | 0 | 2207 | 1513 | 0 |
| 5 | E | 1578 | 0 | 1647 | 1071 | 0 |
| 6 | F | 1625 | 0 | 1666 | 891 | 0 |
| 7 | G | 1482 | 0 | 1546 | 922 | 0 |
| 8 | H | 1328 | 0 | 1408 | 737 | 0 |
| 9 | K | 1155 | 0 | 1244 | 550 | 0 |
| 10 | L | 1025 | 0 | 1074 | 489 | 0 |
| 11 | M | 1113 | 0 | 1183 | 765 | 0 |
| 12 | N | 932 | 0 | 994 | 687 | 0 |
| 13 | O | 1106 | 0 | 1183 | 834 | 0 |
| 14 | P | 1080 | 0 | 1127 | 704 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 15 | Q | 960 | 0 | 1021 | 511 | 0 |
| 16 | R | 877 | 0 | 938 | 586 | 0 |
| 17 | S | 976 | 0 | 1033 | 660 | 0 |
| 18 | T | 964 | 0 | 1022 | 665 | 0 |
| 19 | U | 779 | 0 | 852 | 580 | 0 |
| 20 | V | 876 | 0 | 941 | 448 | 0 |
| 21 | W | 742 | 0 | 800 | 376 | 0 |
| 22 | X | 844 | 0 | 930 | 504 | 0 |
| 23 | Y | 1435 | 0 | 1463 | 735 | 0 |
| 24 | Z | 670 | 0 | 700 | 368 | 0 |
| 25 | 1 | 567 | 0 | 621 | 314 | 0 |
| 26 | 2 | 469 | 0 | 518 | 304 | 0 |
| 27 | 3 | 581 | 0 | 577 | 358 | 0 |
| 28 | 4 | 445 | 0 | 459 | 296 | 0 |
| 29 | 5 | 426 | 0 | 452 | 291 | 0 |
| 30 | 6 | 430 | 0 | 480 | 261 | 0 |
| 31 | 7 | 515 | 0 | 587 | 388 | 0 |
| 32 | 8 | 307 | 0 | 335 | 148 | 0 |
| All | All | 94012 | 0 | 63494 | 30536 | 1 |

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 194.

All (30536) close contacts within the same asymmetric unit are listed below.

| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 23:Y:27:VAL:HG23 | 23:Y:85:HIS:CE1 | 1.45 | 1.50 |
| 23:Y:27:VAL:CG2 | 23:Y:85:HIS:CE1 | 1.95 | 1.45 |
| 12:N:64:ARG:HH11 | 12:N:68:GLU:N | 1.15 | 1.44 |
| 1:A:775:G:H2' | 1:A:794:G:C8 | 1.54 | 1.42 |
| 1:A:1201:C:N4 | 1:A:1241:A:H61 | 1.15 | 1.39 |
| 23:Y:27:VAL:HG23 | 23:Y:85:HIS:NE2 | 1.13 | 1.38 |
| 1:A:1241:A:C5' | 1:A:1241:A:N3 | 1.84 | 1.38 |
| 1:A:2553:G:N2 | 1:A:2554:U:H1' | 1.30 | 1.38 |
| 1:A:1298:C:H1' | 1:A:1302:A:N7 | 1.40 | 1.37 |
| 1:A:2459:A:N3 | 1:A:2460:U:H1' | 1.40 | 1.37 |
| 19:U:40:LEU:N | 19:U:54:GLY:HA3 | 1.40 | 1.35 |
| 1:A:1241:A:N3 | 1:A:1241:A:H5'' | 1.01 | 1.32 |
| 1:A:828:U:H2' | 1:A:829:A:C8 | 1.64 | 1.32 |
| 17:S:64:ARG:NH1 | 17:S:64:ARG:HA | 1.45 | 1.31 |
| 1:A:2596:U:H2' | 4:D:242:ARG:CZ | 1.59 | 1.31 |
| 1:A:775:G:N2 | 1:A:787:U:H2' | 1.47 | 1.29 |
| 1:A:459:U:OP2 | 30:6:40:TRP:HA | 1.30 | 1.28 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:861:A:N6 | 1:A:917:A:H62 | 1.29 | 1.28 |
| 1:A:1535:U:H2' | 1:A:1536:A:O4' | 1.32 | 1.28 |
| 1:A:632:A:H2' | 1:A:633:A:C8 | 1.68 | 1.28 |
| 8:H:8:PRO:HA | 8:H:51:ARG:NH1 | 1.47 | 1.28 |
| 17:S:33:LYS:HA | 17:S:46:GLU:O | 1.27 | 1.27 |
| 1:A:962:G:H2' | 1:A:963:U:C6 | 1.69 | 1.27 |
| 1:A:2459:A:H2' | 1:A:2460:U:O4' | 1.33 | 1.27 |
| 23:Y:24:LEU:O | 23:Y:39:VAL:HB | 1.31 | 1.26 |
| 1:A:2307:G:H3' | 1:A:2308:G:C8 | 1.69 | 1.26 |
| 14:P:137:TYR:OH | 23:Y:99:TYR:CE2 | 1.87 | 1.25 |
| 1:A:1312:U:H2' | 1:A:1313:U:O4' | 1.37 | 1.25 |
| 24:Z:51:VAL:HG21 | 24:Z:79:VAL:O | 1.37 | 1.25 |
| 26:2:4:LEU:O | 26:2:37:LEU:HB3 | 1.22 | 1.25 |
| 1:A:2491:U:C6 | 1:A:2492:U:H5' | 1.70 | 1.25 |
| 6:F:19:GLU:C | 6:F:20:LEU:HD22 | 1.55 | 1.24 |
| 1:A:1557:C:H2' | 1:A:1558:A:C8 | 1.73 | 1.24 |
| 1:A:2014:A:H2' | 1:A:2015:A:C2 | 1.71 | 1.24 |
| 17:S:21:GLU:O | 17:S:23:ARG:HG3 | 1.31 | 1.24 |
| 1:A:1790:C:O2' | 4:D:209:ALA:HB1 | 1.30 | 1.24 |
| 1:A:1492:G:H2' | 1:A:1493:C:C4 | 1.72 | 1.23 |
| 1:A:2491:U:C6 | 1:A:2491:U:H3' | 1.72 | 1.23 |
| 18:T:83:LEU:O | 18:T:86:ALA:HB3 | 1.38 | 1.23 |
| 9:K:87:LYS:HA | 9:K:121:LYS:O | 1.34 | 1.23 |
| 1:A:1809:A:N1 | 27:3:3:GLU:HG3 | 1.51 | 1.22 |
| 17:S:32:TYR:O | 17:S:47:GLY:HA2 | 1.31 | 1.22 |
| 1:A:1203:G:C6 | 1:A:1240:U:C2 | 2.28 | 1.22 |
| 1:A:1911:U:O2' | 1:A:1912:A:H5' | 1.31 | 1.22 |
| 1:A:1663:C:H2' | 1:A:1664:A:N3 | 1.52 | 1.22 |
| 1:A:29:U:OP1 | 1:A:583:G:H4' | 1.36 | 1.22 |
| 22:X:96:ILE:HB | 22:X:102:CYS:O | 1.29 | 1.21 |
| 1:A:1464:C:H4' | 1:A:1528:A:O2' | 1.40 | 1.21 |
| 12:N:97:ARG:CZ | 12:N:97:ARG:HA | 1.69 | 1.21 |
| 6:F:4:VAL:CG1 | 6:F:20:LEU:HG | 1.70 | 1.21 |
| 4:D:55:GLY:N | 4:D:219:PRO:HD2 | 1.56 | 1.21 |
| 19:U:19:LYS:HB3 | 19:U:21:ARG:NH1 | 1.56 | 1.21 |
| 1:A:2461:C:H1' | 1:A:2492:U:C5 | 1.76 | 1.20 |
| 1:A:1241:A:C2 | 1:A:1241:A:H5'' | 1.73 | 1.20 |
| 1:A:1967:C:H42 | 1:A:1968:G:N2 | 1.37 | 1.20 |
| 19:U:40:LEU:H | 19:U:54:GLY:CA | 1.54 | 1.20 |
| 15:Q:105:ARG:CZ | 15:Q:105:ARG:HA | 1.71 | 1.20 |
| 1:A:2019:A:H3' | 1:A:2020:A:H5'' | 1.21 | 1.20 |
| 12:N:7:TYR:HB3 | 12:N:18:LYS:NZ | 1.54 | 1.20 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:533:G:H2' | 1:A:534:U:O4' | 1.42 | 1.20 |
| 12:N:6:THR:O | 12:N:20:MET:HA | 1.38 | 1.19 |
| 11:M:55:VAL:HB | 11:M:130:HIS:NE2 | 1.54 | 1.19 |
| 23:Y:127:LYS:HD2 | 23:Y:164:ALA:N | 1.56 | 1.19 |
| 18:T:55:ARG:HG3 | 18:T:58:ARG:NH2 | 1.57 | 1.19 |
| 20:V:5:ALA:HB2 | 20:V:54:ALA:HB2 | 1.22 | 1.19 |
| 1:A:612:G:H4' | 1:A:616:A:N6 | 1.57 | 1.19 |
| 16:R:9:ARG:NH1 | 16:R:9:ARG:HB2 | 1.55 | 1.18 |
| 29:5:8:LYS:HE2 | 29:5:29:ASN:HA | 1.24 | 1.18 |
| 4:D:244:ARG:N | 4:D:245:PRO:HD3 | 1.47 | 1.18 |
| 1:A:2461:C:H1' | 1:A:2492:U:H5 | 1.03 | 1.18 |
| 1:A:2312:U:H5' | 7:G:43:LEU:HD22 | 1.25 | 1.18 |
| 11:M:36:GLY:O | 11:M:47:ALA:HB3 | 1.37 | 1.18 |
| 19:U:39:LEU:HD21 | 19:U:60:GLU:HG2 | 1.25 | 1.18 |
| 1:A:2329:G:H1 | 1:A:2386:C:N4 | 1.41 | 1.18 |
| 23:Y:27:VAL:HG21 | 23:Y:85:HIS:HE1 | 1.04 | 1.18 |
| 1:A:1782:C:N4 | 1:A:2587:A:H62 | 1.42 | 1.18 |
| 1:A:388:G:H2' | 1:A:390:A:N7 | 1.57 | 1.18 |
| 2:B:89(A):A:H2' | 2:B:90:C:H5' | 1.22 | 1.18 |
| 1:A:2063:C:H1' | 1:A:2451:A:H2 | 1.06 | 1.18 |
| 14:P:6:ARG:HB2 | 14:P:44:ALA:HB3 | 1.24 | 1.18 |
| 1:A:621:A:C8 | 1:A:622:G:H5' | 1.77 | 1.18 |
| 6:F:4:VAL:HG13 | 6:F:20:LEU:CG | 1.73 | 1.17 |
| 23:Y:57:ILE:CG1 | 23:Y:70:LEU:HB3 | 1.75 | 1.17 |
| 1:A:2685:G:H4' | 12:N:67:LYS:NZ | 1.59 | 1.17 |
| 1:A:1807:G:H1' | 1:A:1811:G:N2 | 1.59 | 1.17 |
| 17:S:64:ARG:HH11 | 17:S:64:ARG:CA | 1.55 | 1.17 |
| 9:K:125:GLU:CB | 9:K:143:SER:HA | 1.73 | 1.17 |
| 1:A:729:G:H2' | 1:A:730:C:C4' | 1.73 | 1.17 |
| 16:R:11:LYS:NZ | 16:R:15:ARG:HH22 | 1.42 | 1.17 |
| 16:R:6:ALA:O | 16:R:9:ARG:HB3 | 1.44 | 1.17 |
| 10:L:57:ILE:HA | 10:L:66:THR:O | 1.45 | 1.17 |
| 3:C:113:VAL:HB | 3:C:138:PRO:HG3 | 1.22 | 1.17 |
| 11:M:78:TYR:HD1 | 11:M:79:PRO:HD2 | 1.01 | 1.16 |
| 6:F:153:SER:HA | 6:F:172:TRP:O | 1.41 | 1.16 |
| 1:A:2636:U:H1' | 1:A:2783:G:N2 | 1.58 | 1.16 |
| 6:F:20:LEU:HD22 | 6:F:20:LEU:N | 1.51 | 1.16 |
| 7:G:47:LYS:NZ | 7:G:73:ALA:HB3 | 1.59 | 1.16 |
| 13:O:88:LEU:HG | 13:O:124:LYS:HE3 | 1.18 | 1.16 |
| 12:N:18:LYS:HE2 | 12:N:44:LYS:HD3 | 1.19 | 1.16 |
| 8:H:35:VAL:HB | 8:H:72:ILE:HD13 | 1.27 | 1.16 |
| 11:M:74:ARG:HG3 | 11:M:82:LEU:HD22 | 1.23 | 1.16 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1241:A:OP2 | 1:A:1241:A:C4 | 1.98 | 1.16 |
| 1:A:2521:C:C2' | 1:A:2522:U:H5'' | 1.73 | 1.16 |
| 18:T:92:ARG:HG2 | 18:T:93:LYS:NZ | 1.60 | 1.16 |
| 1:A:2333:A:H1' | 1:A:2335:A:N3 | 1.60 | 1.16 |
| 1:A:2756:U:C5 | 1:A:2758:A:N6 | 2.13 | 1.16 |
| 1:A:2063:C:H1' | 1:A:2451:A:C2 | 1.78 | 1.16 |
| 1:A:2332:U:H4' | 1:A:2336:A:N6 | 1.60 | 1.16 |
| 27:3:58:ARG:O | 27:3:61:ARG:HB2 | 1.41 | 1.15 |
| 1:A:1789:A:H2' | 4:D:213:ARG:HH22 | 1.00 | 1.15 |
| 1:A:2415:G:H5'' | 13:O:61:ARG:HB2 | 1.27 | 1.15 |
| 29:5:20:ASN:ND2 | 29:5:41:PRO:HB2 | 1.61 | 1.15 |
| 13:O:124:LYS:HB2 | 13:O:143:GLY:CA | 1.76 | 1.15 |
| 1:A:1625:C:H2' | 1:A:1626:G:H4' | 1.18 | 1.15 |
| 5:E:36:ARG:HB3 | 5:E:41:LYS:HB2 | 1.25 | 1.15 |
| 1:A:323:G:H2' | 6:F:170:LEU:HB2 | 1.27 | 1.15 |
| 6:F:20:LEU:CD2 | 6:F:20:LEU:N | 2.07 | 1.15 |
| 8:H:103:LEU:HB2 | 8:H:115:VAL:HB | 1.27 | 1.15 |
| 18:T:56:ASP:O | 18:T:60:LEU:HD13 | 1.46 | 1.15 |
| 1:A:2135:A:H4' | 1:A:2136:C:C5 | 1.80 | 1.15 |
| 1:A:783:A:H4' | 1:A:2588:G:O3' | 1.46 | 1.15 |
| 18:T:102:GLU:O | 18:T:105:VAL:HG12 | 1.41 | 1.15 |
| 1:A:287:C:H2' | 1:A:288:C:C5 | 1.81 | 1.15 |
| 1:A:627:A:H2' | 1:A:628:G:O4' | 1.44 | 1.15 |
| 1:A:1201:C:N4 | 1:A:1241:A:N6 | 1.92 | 1.15 |
| 4:D:182:LEU:HD12 | 4:D:270:ILE:HD11 | 1.27 | 1.15 |
| 8:H:94:TYR:HA | 8:H:106:THR:O | 1.46 | 1.15 |
| 7:G:49:ASP:HA | 7:G:53:LEU:HD22 | 1.29 | 1.15 |
| 1:A:2701:C:H3' | 1:A:2702:U:H5'' | 1.23 | 1.15 |
| 1:A:2756:U:C4 | 1:A:2758:A:N6 | 2.13 | 1.15 |
| 1:A:997:G:O2' | 1:A:998:C:H5' | 1.45 | 1.15 |
| 21:W:39:ILE:HG21 | 21:W:54:VAL:HG11 | 1.22 | 1.15 |
| 1:A:1784:A:H1' | 1:A:1785:A:N7 | 1.61 | 1.15 |
| 13:O:73:GLY:HA2 | 13:O:111:ARG:HG2 | 1.29 | 1.15 |
| 30:6:1:MET:HB3 | 30:6:3:ARG:HH11 | 1.08 | 1.14 |
| 4:D:107:ALA:H | 4:D:108:PRO:HD3 | 1.12 | 1.14 |
| 4:D:51:VAL:C | 4:D:52:ARG:HD3 | 1.67 | 1.14 |
| 1:A:1324:G:H1' | 1:A:1616:A:N6 | 1.59 | 1.14 |
| 9:K:4:ILE:O | 9:K:36:ALA:HB1 | 1.45 | 1.14 |
| 5:E:18:ASP:HB3 | 12:N:72:PRO:HA | 1.25 | 1.14 |
| 15:Q:99:LYS:H | 15:Q:99:LYS:HD2 | 1.10 | 1.14 |
| 19:U:20:LEU:HD13 | 19:U:68:LYS:HZ1 | 1.08 | 1.14 |
| 20:V:13:SER:HB3 | 20:V:16:LYS:HE2 | 1.28 | 1.14 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1498:C:C6 | 1:A:1576:U:H4' | 1.81 | 1.14 |
| 1:A:1568:G:P | 4:D:61:LEU:HB2 | 1.86 | 1.14 |
| 6:F:6:VAL:H | 6:F:20:LEU:HD12 | 1.08 | 1.14 |
| 7:G:78:SER:HB3 | 7:G:82:LEU:HG | 1.27 | 1.14 |
| 17:S:53:ARG:O | 17:S:64:ARG:HB3 | 1.45 | 1.14 |
| 4:D:234:GLY:H | 4:D:241:PRO:HG2 | 1.10 | 1.14 |
| 8:H:11:VAL:HG22 | 8:H:15:VAL:HG11 | 1.30 | 1.14 |
| 14:P:43:THR:HG23 | 14:P:46:GLN:HE21 | 1.06 | 1.14 |
| 1:A:1664:A:H2' | 1:A:1665:A:C8 | 1.81 | 1.14 |
| 1:A:775:G:H1' | 1:A:791:C:H42 | 1.07 | 1.14 |
| 11:M:43:THR:HB | 11:M:44:PRO:CD | 1.73 | 1.14 |
| 21:W:25:LYS:HG2 | 21:W:82:GLN:HG3 | 1.25 | 1.14 |
| 5:E:167:VAL:HG11 | 5:E:170:LEU:HD13 | 1.28 | 1.14 |
| 14:P:137:TYR:O | 14:P:138:ASP:CG | 1.86 | 1.14 |
| 6:F:6:VAL:HA | 6:F:20:LEU:HD13 | 1.28 | 1.14 |
| 23:Y:94:GLU:H | 23:Y:95:PRO:CD | 1.59 | 1.14 |
| 7:G:49:ASP:O | 7:G:53:LEU:HB2 | 1.47 | 1.14 |
| 1:A:1935:G:H2' | 1:A:1962:C:N3 | 1.63 | 1.14 |
| 26:2:9:VAL:HG23 | 26:2:10:LYS:H | 0.97 | 1.13 |
| 1:A:2658:C:C2' | 1:A:2659:G:H5' | 1.76 | 1.13 |
| 1:A:687:C:O2 | 1:A:787:U:O3' | 1.66 | 1.13 |
| 1:A:833:U:H1' | 13:O:48:PRO:HD2 | 1.30 | 1.13 |
| 13:O:121:LYS:C | 13:O:137:LYS:HB2 | 1.68 | 1.13 |
| 1:A:1668:A:N1 | 1:A:1993:U:H1' | 1.62 | 1.13 |
| 1:A:2210:G:C5 | 4:D:150:LYS:HA | 1.82 | 1.13 |
| 9:K:92:VAL:HB | 9:K:120:ILE:O | 1.47 | 1.13 |
| 1:A:953:A:H2' | 1:A:954:G:H5' | 1.28 | 1.13 |
| 23:Y:127:LYS:HA | 23:Y:164:ALA:HB3 | 1.24 | 1.13 |
| 1:A:2517:C:O2' | 1:A:2518:A:H5'' | 1.48 | 1.13 |
| 11:M:18:ALA:HB3 | 11:M:55:VAL:O | 1.46 | 1.13 |
| 12:N:9:GLU:HA | 12:N:17:ARG:O | 1.46 | 1.13 |
| 20:V:13:SER:OG | 20:V:14:PRO:HD2 | 1.48 | 1.13 |
| 22:X:82:PRO:CD | 22:X:97:ARG:H | 1.61 | 1.13 |
| 28:4:20:ARG:O | 28:4:23:HIS:HB2 | 1.47 | 1.13 |
| 1:A:1394:U:H5'' | 1:A:1603:A:O3' | 1.49 | 1.13 |
| 15:Q:66:VAL:HA | 15:Q:69:ASP:OD2 | 1.47 | 1.13 |
| 23:Y:24:LEU:HD23 | 23:Y:25:PRO:HD2 | 1.14 | 1.13 |
| 28:4:40:LYS:CE | 28:4:44:THR:H | 1.61 | 1.13 |
| 7:G:173:LEU:HD12 | 7:G:176:LEU:HD12 | 1.27 | 1.13 |
| 23:Y:157:LEU:HD21 | 23:Y:163:LEU:HG | 1.24 | 1.13 |
| 1:A:1417:C:N4 | 1:A:1581:G:H1 | 1.45 | 1.13 |
| 1:A:1565:C:N3 | 1:A:1567:A:H1' | 1.62 | 1.13 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:U:6:LYS:HG2 | 19:U:12:TYR:N | 1.62 | 1.13 |
| 32:8:25:VAL:HB | 32:8:34:GLN:HB2 | 1.29 | 1.13 |
| 1:A:2544:G:H5' | 1:A:2645:G:N7 | 1.63 | 1.13 |
| 1:A:950:G:H2' | 1:A:951:C:C6 | 1.83 | 1.13 |
| 11:M:71:ILE:HD11 | 11:M:90:MET:HE3 | 1.28 | 1.13 |
| 19:U:40:LEU:HD21 | 19:U:55:ALA:HB2 | 1.29 | 1.13 |
| 9:K:59:ALA:HA | 9:K:62:LYS:HD2 | 1.30 | 1.13 |
| 5:E:5:LEU:HD21 | 5:E:25:VAL:HG12 | 1.16 | 1.13 |
| 1:A:2306:C:H42 | 7:G:45:GLU:HB2 | 1.09 | 1.13 |
| 13:O:126:VAL:HB | 13:O:146:VAL:HG23 | 1.20 | 1.13 |
| 15:Q:99:LYS:HA | 15:Q:112:ALA:HB2 | 1.31 | 1.13 |
| 23:Y:98:MET:O | 23:Y:126:VAL:HA | 1.47 | 1.13 |
| 1:A:1227:A:H8 | 1:A:1228:G:H5'' | 1.14 | 1.12 |
| 2:B:71:C:C2' | 2:B:72:G:H5' | 1.77 | 1.12 |
| 4:D:5:LYS:HG3 | 4:D:82:ILE:H | 1.13 | 1.12 |
| 11:M:89:LYS:NZ | 11:M:89:LYS:H | 1.46 | 1.12 |
| 12:N:96:THR:HG22 | 12:N:97:ARG:H | 0.98 | 1.12 |
| 1:A:1326:U:C2' | 1:A:1327:C:H5' | 1.79 | 1.12 |
| 1:A:2521:C:H2' | 1:A:2522:U:C5' | 1.78 | 1.12 |
| 16:R:20:ARG:NH2 | 16:R:20:ARG:HA | 1.62 | 1.12 |
| 9:K:39:ALA:O | 9:K:43:ASN:HB2 | 1.44 | 1.12 |
| 13:O:124:LYS:HB2 | 13:O:143:GLY:HA3 | 1.14 | 1.12 |
| 1:A:747:U:O2' | 20:V:88:ARG:HG3 | 1.50 | 1.12 |
| 27:3:7:PRO:HD2 | 27:3:56:VAL:HG13 | 1.27 | 1.12 |
| 1:A:2447:G:C3' | 1:A:2499:C:OP2 | 1.97 | 1.12 |
| 1:A:861:A:H2' | 1:A:862:G:H5' | 1.29 | 1.12 |
| 5:E:12:THR:HA | 5:E:21:VAL:HB | 1.22 | 1.12 |
| 20:V:82:LEU:HD12 | 20:V:84:ARG:HG3 | 1.23 | 1.12 |
| 25:1:23:LYS:HD3 | 25:1:55:LEU:HD21 | 1.28 | 1.12 |
| 32:8:19:ARG:O | 32:8:22:ARG:HB2 | 1.48 | 1.12 |
| 1:A:1566:A:N1 | 4:D:215:LEU:HD13 | 1.63 | 1.12 |
| 1:A:2700:C:H2' | 1:A:2701:C:H5'' | 1.15 | 1.12 |
| 1:A:704:G:H2' | 1:A:726:G:N2 | 1.64 | 1.12 |
| 1:A:786:C:O2' | 1:A:787:U:H5' | 1.50 | 1.12 |
| 2:B:46:A:H2' | 2:B:47:C:C6 | 1.84 | 1.12 |
| 1:A:1813:G:H4' | 4:D:46:GLN:HB3 | 1.29 | 1.12 |
| 6:F:168:ARG:NH2 | 6:F:169:ASN:H | 1.47 | 1.12 |
| 8:H:43:VAL:HG22 | 8:H:52:VAL:HA | 1.22 | 1.12 |
| 1:A:833:U:C1' | 13:O:48:PRO:HD2 | 1.79 | 1.12 |
| 18:T:82:GLY:HA2 | 18:T:117:GLN:NE2 | 1.64 | 1.12 |
| 1:A:614:U:H3' | 1:A:615:G:H4' | 1.16 | 1.12 |
| 5:E:175:VAL:HG12 | 5:E:182:LEU:HD11 | 1.26 | 1.12 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:S:50:ILE:HB | 17:S:66:VAL:HB | 1.32 | 1.12 |
| 1:A:1771:C:H2' | 1:A:1772:G:H5'' | 1.31 | 1.12 |
| 6:F:103:LYS:HA | 6:F:106:ARG:HG2 | 1.27 | 1.12 |
| 7:G:96:ARG:O | 7:G:99:MET:HB2 | 1.50 | 1.12 |
| 14:P:16:ARG:CZ | 14:P:73:PRO:HD3 | 1.80 | 1.12 |
| 19:U:28:GLU:HB3 | 19:U:94:LEU:HD12 | 1.13 | 1.12 |
| 19:U:40:LEU:HB3 | 19:U:51:VAL:HG22 | 1.29 | 1.12 |
| 1:A:1779:U:C2' | 1:A:1783:A:H62 | 1.62 | 1.12 |
| 1:A:2748:A:N3 | 8:H:67:LEU:HD21 | 1.65 | 1.12 |
| 1:A:2832:U:H1' | 1:A:2834:G:N2 | 1.64 | 1.12 |
| 1:A:87:C:H1' | 25:1:46:ARG:HH22 | 1.15 | 1.12 |
| 4:D:232:PRO:HG2 | 4:D:247:ALA:CA | 1.80 | 1.12 |
| 11:M:46:VAL:HG12 | 11:M:47:ALA:N | 1.60 | 1.12 |
| 18:T:107:ALA:O | 18:T:110:VAL:HB | 1.50 | 1.12 |
| 29:5:15:GLU:HA | 29:5:21:TYR:HA | 1.27 | 1.11 |
| 1:A:1144:G:H2' | 1:A:1145:C:C6 | 1.85 | 1.11 |
| 1:A:1270:C:H5' | 1:A:1271:G:H5'' | 1.16 | 1.11 |
| 1:A:1510:A:H3' | 1:A:1511:A:C8 | 1.84 | 1.11 |
| 1:A:443:A:H5' | 6:F:45:ARG:HH12 | 1.13 | 1.11 |
| 1:A:1803:A:H4' | 4:D:257:LEU:HD13 | 1.18 | 1.11 |
| 6:F:164:ARG:HB2 | 6:F:177:ALA:CB | 1.78 | 1.11 |
| 7:G:125:PHE:O | 7:G:126:ASP:HB2 | 1.48 | 1.11 |
| 10:L:14:ALA:HB3 | 10:L:49:GLY:HA3 | 1.18 | 1.11 |
| 18:T:17:ILE:CA | 18:T:20:LEU:HG | 1.80 | 1.11 |
| 18:T:89:GLU:HB3 | 19:U:52:VAL:N | 1.66 | 1.11 |
| 31:7:30:ARG:HD2 | 31:7:44:LYS:HD2 | 1.25 | 1.11 |
| 1:A:1005:C:H2' | 1:A:1006:C:H6 | 1.11 | 1.11 |
| 1:A:1513:C:H2' | 1:A:1514:U:C5 | 1.85 | 1.11 |
| 1:A:414:C:H2' | 1:A:415:A:H8 | 1.16 | 1.11 |
| 1:A:64:A:O2' | 21:W:71:GLY:HA3 | 1.49 | 1.11 |
| 13:O:113:LYS:HA | 13:O:129:ALA:CB | 1.77 | 1.11 |
| 31:7:25:MET:O | 31:7:27:THR:HG22 | 1.46 | 1.11 |
| 1:A:2681:C:O2' | 1:A:2682:U:H5' | 1.47 | 1.11 |
| 4:D:54:ARG:HB3 | 4:D:218:ARG:HB3 | 1.32 | 1.11 |
| 1:A:2512:C:H5'' | 5:E:120:TRP:CH2 | 1.85 | 1.11 |
| 12:N:21:CYS:HA | 12:N:41:ALA:HB2 | 1.13 | 1.11 |
| 1:A:1697:G:C5' | 1:A:1698:A:H5' | 1.80 | 1.11 |
| 7:G:74:LYS:HD3 | 7:G:87:PRO:HB2 | 1.27 | 1.11 |
| 11:M:34:LEU:HD22 | 11:M:116:LEU:HD21 | 1.31 | 1.11 |
| 23:Y:95:PRO:HG2 | 23:Y:131:ARG:H | 1.13 | 1.11 |
| 1:A:2889:C:H2' | 1:A:2891:G:H8 | 1.11 | 1.11 |
| 1:A:1275:A:H2 | 15:Q:16:HIS:HA | 1.11 | 1.11 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2576:G:H4' | 1:A:2577:A:H5' | 1.14 | 1.11 |
| 7:G:173:LEU:HA | 7:G:176:LEU:HB3 | 1.32 | 1.11 |
| 7:G:53:LEU:HG | 7:G:72:ARG:HD3 | 1.13 | 1.11 |
| 12:N:77:ILE:HG12 | 17:S:75:ILE:HD12 | 1.26 | 1.11 |
| 17:S:96:ARG:HG2 | 17:S:117:ASP:HB3 | 1.23 | 1.11 |
| 18:T:17:ILE:HA | 18:T:20:LEU:CG | 1.80 | 1.11 |
| 9:K:134:PRO:HB2 | 9:K:135:GLU:OE2 | 1.50 | 1.11 |
| 1:A:2286:A:H4' | 1:A:2287:A:H1' | 1.24 | 1.11 |
| 1:A:2498:C:C2' | 1:A:2499:C:H5'' | 1.80 | 1.11 |
| 1:A:2447:G:C2 | 1:A:2500:U:O4 | 2.03 | 1.11 |
| 1:A:623:G:H3' | 13:O:105:LEU:HD22 | 1.21 | 1.11 |
| 5:E:49:LEU:HD11 | 5:E:74:PRO:HB2 | 1.15 | 1.11 |
| 11:M:37:LYS:HD3 | 11:M:43:THR:HG23 | 1.15 | 1.11 |
| 11:M:4:TYR:HB2 | 18:T:64:ARG:HH12 | 1.11 | 1.11 |
| 12:N:63:VAL:HG12 | 12:N:99:PHE:CE1 | 1.85 | 1.11 |
| 13:O:122:PRO:HA | 13:O:137:LYS:O | 1.50 | 1.11 |
| 18:T:15:LYS:O | 18:T:18:LEU:HB3 | 1.48 | 1.11 |
| 1:A:1777:U:O2' | 1:A:1778:U:H5' | 1.50 | 1.11 |
| 1:A:336:C:H2' | 1:A:337:C:H5' | 1.32 | 1.11 |
| 11:M:46:VAL:HG12 | 11:M:47:ALA:H | 0.94 | 1.11 |
| 12:N:18:LYS:CE | 12:N:44:LYS:HD3 | 1.81 | 1.11 |
| 14:P:16:ARG:HG3 | 14:P:72:LYS:HD2 | 1.14 | 1.11 |
| 18:T:59:ARG:HH11 | 18:T:59:ARG:HB3 | 1.14 | 1.11 |
| 1:A:1520:U:H2' | 1:A:1521:G:H5'' | 1.32 | 1.10 |
| 2:B:51:G:H2' | 2:B:52:A:H5'' | 1.26 | 1.10 |
| 4:D:244:ARG:H | 4:D:245:PRO:CD | 1.63 | 1.10 |
| 7:G:118:ARG:CZ | 7:G:120:LEU:HD21 | 1.81 | 1.10 |
| 7:G:47:LYS:HG2 | 7:G:73:ALA:HB2 | 1.27 | 1.10 |
| 28:4:10:LYS:HD2 | 28:4:15:ARG:NH2 | 1.66 | 1.10 |
| 1:A:2809:A:H1' | 1:A:2811:G:N7 | 1.65 | 1.10 |
| 13:O:55:ARG:HB3 | 13:O:55:ARG:HH21 | 1.08 | 1.10 |
| 24:Z:72:ARG:HB3 | 24:Z:75:LEU:HD13 | 1.32 | 1.10 |
| 9:K:81:VAL:HG22 | 9:K:144:VAL:HG22 | 1.26 | 1.10 |
| 1:A:241:A:O2' | 1:A:242:G:H4' | 1.50 | 1.10 |
| 1:A:2700:C:C2' | 1:A:2701:C:H5'' | 1.80 | 1.10 |
| 1:A:2889:C:H2' | 1:A:2891:G:C8 | 1.86 | 1.10 |
| 20:V:95:ILE:H | 20:V:95:ILE:HD12 | 1.10 | 1.10 |
| 1:A:2250:G:O2' | 1:A:2496:C:H5' | 1.51 | 1.10 |
| 1:A:503:A:H4' | 1:A:504:U:H5'' | 1.34 | 1.10 |
| 25:1:45:ILE:HG13 | 25:1:46:ARG:N | 1.63 | 1.10 |
| 1:A:1312:U:H3' | 1:A:1313:U:C5 | 1.85 | 1.10 |
| 1:A:2754:U:H2' | 1:A:2755:C:H5'' | 1.26 | 1.10 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:S:28:VAL:HG22 | 17:S:93:ARG:C | 1.70 | 1.10 |
| 19:U:76:LYS:HG2 | 19:U:86:GLY:HA3 | 1.21 | 1.10 |
| 1:A:1540:G:H2' | 1:A:1541:U:H5' | 1.34 | 1.10 |
| 1:A:2756:U:C4 | 1:A:2758:A:C6 | 2.40 | 1.10 |
| 1:A:729:G:C2' | 1:A:730:C:H4' | 1.80 | 1.10 |
| 6:F:155:LEU:HA | 6:F:174:VAL:HG22 | 1.29 | 1.10 |
| 7:G:113:ARG:HE | 7:G:139:LEU:CD2 | 1.63 | 1.10 |
| 11:M:78:TYR:CD1 | 11:M:79:PRO:HD2 | 1.86 | 1.10 |
| 18:T:89:GLU:HB3 | 19:U:52:VAL:H | 1.06 | 1.10 |
| 1:A:1044:G:H5'' | 1:A:1045:A:H4' | 1.18 | 1.10 |
| 2:B:104:A:H2' | 2:B:105:G:O4' | 1.50 | 1.10 |
| 1:A:2748:A:H1' | 8:H:67:LEU:HD22 | 1.33 | 1.10 |
| 11:M:74:ARG:HD2 | 11:M:82:LEU:HD13 | 1.25 | 1.10 |
| 1:A:2261:C:OP2 | 24:Z:17:GLN:HB3 | 1.52 | 1.10 |
| 14:P:137:TYR:OH | 23:Y:99:TYR:HE2 | 1.28 | 1.10 |
| 9:K:103:ARG:HH12 | 9:K:104:GLN:NE2 | 1.49 | 1.10 |
| 21:W:27:THR:HB | 21:W:80:ILE:HD12 | 1.34 | 1.10 |
| 1:A:1996:C:C5' | 1:A:1996:C:H6 | 1.64 | 1.10 |
| 4:D:131:LEU:HG | 4:D:132:PRO:HD2 | 1.31 | 1.10 |
| 27:3:6:HIS:NE2 | 27:3:55:ARG:HD3 | 1.67 | 1.09 |
| 1:A:1813:G:C4' | 4:D:46:GLN:HB3 | 1.81 | 1.09 |
| 4:D:33:LEU:HD11 | 4:D:61:LEU:HD11 | 1.19 | 1.09 |
| 12:N:71:ARG:HG3 | 12:N:72:PRO:HD3 | 1.31 | 1.09 |
| 1:A:71:A:H4' | 1:A:72:U:H5'' | 1.25 | 1.09 |
| 4:D:181:GLU:OE2 | 4:D:272:ALA:HA | 1.52 | 1.09 |
| 1:A:1790:C:H5'' | 1:A:1828:G:H1 | 0.95 | 1.09 |
| 4:D:51:VAL:HG12 | 4:D:52:ARG:HD2 | 1.25 | 1.09 |
| 23:Y:127:LYS:HD2 | 23:Y:164:ALA:H | 0.94 | 1.09 |
| 1:A:2453:A:H4' | 1:A:2572:A:O2' | 1.51 | 1.09 |
| 1:A:2808:U:H3' | 1:A:2809:A:H5'' | 1.31 | 1.09 |
| 4:D:175:LEU:O | 4:D:182:LEU:HA | 1.53 | 1.09 |
| 4:D:24:ILE:HG22 | 4:D:25:THR:H | 1.17 | 1.09 |
| 1:A:2553:G:N2 | 1:A:2554:U:C1' | 2.15 | 1.09 |
| 4:D:5:LYS:HD2 | 4:D:29:PRO:HA | 1.09 | 1.09 |
| 5:E:13:ARG:HG3 | 5:E:22:PRO:HD3 | 1.19 | 1.09 |
| 16:R:74:ALA:HB1 | 16:R:108:GLY:HA3 | 1.10 | 1.09 |
| 17:S:54:ARG:HG2 | 17:S:100:TYR:HB2 | 1.11 | 1.09 |
| 26:2:3:ARG:HH12 | 26:2:59:VAL:HB | 1.12 | 1.09 |
| 1:A:1649:G:H21 | 15:Q:107:ASP:HB2 | 1.12 | 1.09 |
| 10:L:10:LEU:HD22 | 10:L:57:ILE:HG12 | 1.30 | 1.09 |
| 14:P:41:TRP:HB3 | 14:P:94:VAL:HG21 | 1.32 | 1.09 |
| 14:P:66:ILE:HG22 | 14:P:67:ARG:H | 1.16 | 1.09 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:127:ASP:HB2 | 5:E:135:HIS:HA | 1.19 | 1.09 |
| 13:O:45:LEU:HD13 | 31:7:59:LYS:NZ | 1.64 | 1.09 |
| 1:A:1475:G:H21 | 1:A:1476:C:H5'' | 1.10 | 1.09 |
| 1:A:1789:A:O5' | 4:D:222:ARG:HG2 | 1.52 | 1.09 |
| 7:G:68:PRO:HB3 | 7:G:72:ARG:HH22 | 1.16 | 1.09 |
| 17:S:30:VAL:HG22 | 17:S:32:TYR:CE2 | 1.87 | 1.09 |
| 28:4:10:LYS:HE3 | 28:4:15:ARG:HD3 | 1.30 | 1.09 |
| 32:8:2:LYS:HG2 | 32:8:35:ARG:HB2 | 1.32 | 1.09 |
| 1:A:287:C:H2' | 1:A:288:C:H5 | 1.09 | 1.09 |
| 8:H:147:ASN:O | 8:H:151:ILE:HG22 | 1.52 | 1.09 |
| 20:V:42:ARG:HD2 | 20:V:46:PHE:HE1 | 1.05 | 1.09 |
| 1:A:1063:G:H5' | 10:L:87:GLY:HA3 | 1.23 | 1.09 |
| 1:A:2787:C:H1' | 5:E:61:ARG:HD2 | 1.33 | 1.09 |
| 6:F:157:VAL:HG12 | 6:F:176:LEU:HD23 | 1.28 | 1.09 |
| 11:M:109:LYS:HG2 | 11:M:112:LEU:HB2 | 1.25 | 1.09 |
| 11:M:104:LYS:HA | 11:M:117:PHE:HZ | 1.11 | 1.09 |
| 26:2:3:ARG:NH1 | 26:2:3:ARG:HB3 | 1.67 | 1.09 |
| 1:A:1203:G:N3 | 1:A:1203:G:H2' | 1.60 | 1.09 |
| 5:E:178:GLU:HB2 | 5:E:179:GLU:OE2 | 1.53 | 1.09 |
| 6:F:9:ILE:HG12 | 6:F:124:LEU:HB2 | 1.16 | 1.09 |
| 21:W:92:LEU:CD1 | 21:W:92:LEU:H | 1.65 | 1.09 |
| 1:A:1309:G:H2' | 1:A:1310:G:H5' | 1.35 | 1.08 |
| 1:A:1637:A:H4' | 1:A:2711:A:O2' | 1.51 | 1.08 |
| 1:A:2623:G:N2 | 28:4:22:HIS:HE1 | 1.49 | 1.08 |
| 1:A:618:G:H2' | 1:A:618(A):C:C6 | 1.88 | 1.08 |
| 12:N:96:THR:HG22 | 12:N:97:ARG:N | 1.66 | 1.08 |
| 16:R:89:ARG:CG | 16:R:90:GLY:H | 1.66 | 1.08 |
| 27:3:28:LYS:HB3 | 27:3:29:PRO:HD2 | 1.35 | 1.08 |
| 1:A:30:G:H2' | 1:A:31:C:C6 | 1.88 | 1.08 |
| 1:A:729:G:H2' | 1:A:730:C:H4' | 1.27 | 1.08 |
| 1:A:806:C:H2' | 1:A:807:U:H6 | 1.10 | 1.08 |
| 5:E:137:HIS:HB2 | 5:E:138:PRO:HD2 | 1.29 | 1.08 |
| 11:M:35:ARG:HD3 | 11:M:38:HIS:HB3 | 1.16 | 1.08 |
| 14:P:42:ILE:HD12 | 14:P:47:ILE:HG13 | 1.20 | 1.08 |
| 21:W:12:VAL:HB | 21:W:27:THR:O | 1.50 | 1.08 |
| 30:6:41:ARG:NH1 | 30:6:41:ARG:HB2 | 1.66 | 1.08 |
| 7:G:36:LYS:HE2 | 7:G:38:VAL:HG13 | 1.19 | 1.08 |
| 12:N:7:TYR:HA | 12:N:18:LYS:HE3 | 1.22 | 1.08 |
| 14:P:23:GLY:HA3 | 14:P:101:ARG:HH21 | 0.93 | 1.08 |
| 23:Y:158:PRO:HB2 | 23:Y:159:PRO:HD2 | 1.28 | 1.08 |
| 1:A:1805:U:H1' | 4:D:51:VAL:HG11 | 1.26 | 1.08 |
| 6:F:119:ARG:HB2 | 6:F:119:ARG:HH21 | 1.01 | 1.08 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 20:V:59:VAL:HA | 20:V:63:ASP:HA | 1.26 | 1.08 |
| 25:1:16:LEU:HD21 | 25:1:59:LEU:HB2 | 1.28 | 1.08 |
| 32:8:1:MET:H3 | 32:8:33:LYS:HB2 | 1.18 | 1.08 |
| 1:A:296:C:H2' | 1:A:297:C:H6 | 1.13 | 1.08 |
| 1:A:636:G:H22 | 13:O:75:ILE:HD12 | 1.04 | 1.08 |
| 1:A:786:C:C2' | 1:A:787:U:H5' | 1.83 | 1.08 |
| 4:D:147:LEU:HG | 4:D:154:LYS:HD2 | 1.13 | 1.08 |
| 7:G:120:LEU:HD22 | 7:G:181:ARG:HB2 | 1.13 | 1.08 |
| 8:H:60:ARG:HH21 | 8:H:64:LEU:HD11 | 1.18 | 1.08 |
| 1:A:364:C:H2' | 1:A:365:C:C6 | 1.87 | 1.08 |
| 1:A:775:G:N2 | 1:A:787:U:C2' | 2.16 | 1.08 |
| 12:N:47:ILE:HD11 | 12:N:50:GLY:HA3 | 1.29 | 1.08 |
| 16:R:97:ARG:O | 16:R:100:ALA:HB3 | 1.50 | 1.08 |
| 21:W:92:LEU:HD12 | 21:W:92:LEU:H | 0.94 | 1.08 |
| 23:Y:95:PRO:CG | 23:Y:131:ARG:H | 1.65 | 1.08 |
| 3:C:14:VAL:HG21 | 3:C:220:PRO:HB3 | 1.30 | 1.08 |
| 1:A:1582:C:H3' | 1:A:1583:A:H5'' | 1.10 | 1.08 |
| 29:5:19:ARG:HH12 | 29:5:41:PRO:HG3 | 1.18 | 1.08 |
| 1:A:1841:U:H2' | 1:A:1842:G:C8 | 1.87 | 1.08 |
| 1:A:292:C:H3' | 1:A:293:U:C4 | 1.87 | 1.08 |
| 1:A:979:G:H3' | 1:A:980:A:H5'' | 1.30 | 1.08 |
| 6:F:155:LEU:HA | 6:F:174:VAL:CG2 | 1.83 | 1.08 |
| 12:N:99:PHE:HA | 17:S:74:ARG:HH12 | 0.97 | 1.08 |
| 19:U:3:ALA:HA | 19:U:44:LYS:NZ | 1.67 | 1.08 |
| 1:A:686:G:N7 | 30:6:12:ARG:HD2 | 1.69 | 1.08 |
| 1:A:29:U:H2' | 1:A:30:G:C8 | 1.88 | 1.08 |
| 17:S:30:VAL:HG13 | 17:S:32:TYR:OH | 1.54 | 1.08 |
| 19:U:62:LEU:CD1 | 19:U:96:ILE:HB | 1.83 | 1.08 |
| 3:C:160:ARG:HD3 | 3:C:161:ILE:H | 1.07 | 1.08 |
| 3:C:86:ALA:HA | 3:C:150:GLY:HA2 | 1.27 | 1.08 |
| 26:2:13:ILE:HG23 | 26:2:14:GLY:H | 1.12 | 1.08 |
| 1:A:2239:G:H5' | 1:A:2240:C:OP2 | 1.52 | 1.08 |
| 4:D:246:PRO:CD | 4:D:250:TRP:HB2 | 1.84 | 1.08 |
| 7:G:139:LEU:HD22 | 7:G:142:PRO:HB3 | 1.21 | 1.08 |
| 12:N:16:ALA:HB1 | 12:N:45:GLU:HB2 | 1.31 | 1.08 |
| 12:N:52:VAL:O | 12:N:53:LYS:HG2 | 1.53 | 1.08 |
| 18:T:53:ARG:HH11 | 18:T:53:ARG:HB2 | 1.07 | 1.08 |
| 26:2:6:VAL:HG22 | 26:2:56:VAL:HA | 1.08 | 1.08 |
| 4:D:246:PRO:HD2 | 4:D:250:TRP:HB2 | 1.18 | 1.08 |
| 5:E:59:VAL:HB | 5:E:62:PRO:HG2 | 1.36 | 1.08 |
| 13:O:81:GLN:O | 13:O:86:LYS:HG2 | 1.53 | 1.08 |
| 1:A:1568:G:OP2 | 4:D:61:LEU:HD12 | 1.51 | 1.07 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:E:8:LYS:HA | 5:E:8:LYS:HE2 | 1.15 | 1.07 |
| 15:Q:59:ASP:O | 15:Q:63:ARG:HG3 | 1.52 | 1.07 |
| 1:A:228:A:H2' | 1:A:229:A:H4' | 1.11 | 1.07 |
| 1:A:2312:U:H4' | 7:G:43:LEU:HD13 | 1.10 | 1.07 |
| 1:A:1813:G:O2' | 4:D:46:GLN:HG2 | 1.54 | 1.07 |
| 7:G:75:LYS:HB3 | 7:G:84:LYS:HB2 | 1.28 | 1.07 |
| 11:M:85:ILE:HG23 | 11:M:89:LYS:HD3 | 1.34 | 1.07 |
| 18:T:88:ILE:HG12 | 19:U:52:VAL:HG22 | 1.35 | 1.07 |
| 1:A:1665:A:H5'' | 12:N:65:THR:HG22 | 1.33 | 1.07 |
| 1:A:179:G:H5' | 30:6:32:LYS:NZ | 1.67 | 1.07 |
| 1:A:476:G:H22 | 1:A:478:A:H3' | 1.08 | 1.07 |
| 6:F:164:ARG:HB2 | 6:F:177:ALA:HB2 | 1.12 | 1.07 |
| 8:H:18:GLU:OE2 | 8:H:25:LYS:HB3 | 1.54 | 1.07 |
| 17:S:64:ARG:HD3 | 17:S:65:LYS:H | 0.97 | 1.07 |
| 24:Z:19:LYS:NZ | 24:Z:41:ARG:HE | 1.50 | 1.07 |
| 1:A:1178:C:H2' | 1:A:1179:C:C6 | 1.89 | 1.07 |
| 1:A:2756:U:O2' | 1:A:2757:A:H5'' | 1.55 | 1.07 |
| 1:A:476:G:N2 | 1:A:478:A:H3' | 1.70 | 1.07 |
| 3:C:111:ASP:HA | 3:C:136:LEU:HD22 | 1.27 | 1.07 |
| 1:A:1996:C:H5'' | 1:A:1996:C:H6 | 1.11 | 1.07 |
| 1:A:2226:C:H2' | 1:A:2227:A:O4' | 1.54 | 1.07 |
| 8:H:96:ALA:HB3 | 8:H:128:PRO:CB | 1.83 | 1.07 |
| 12:N:3:GLN:HE22 | 12:N:33:ALA:HB3 | 1.15 | 1.07 |
| 18:T:111:GLU:O | 18:T:114:LYS:HG2 | 1.51 | 1.07 |
| 1:A:142:G:H4' | 21:W:35:THR:HG21 | 1.08 | 1.07 |
| 1:A:858:U:O2' | 1:A:2268:A:H2' | 1.54 | 1.07 |
| 6:F:130:ALA:HB3 | 6:F:142:TRP:HB2 | 1.27 | 1.07 |
| 7:G:61:ALA:HB2 | 7:G:67:LYS:HB3 | 1.10 | 1.07 |
| 1:A:2596:U:H2' | 4:D:242:ARG:NH1 | 1.68 | 1.07 |
| 1:A:2805:G:H3' | 1:A:2807:G:H5'' | 1.33 | 1.07 |
| 1:A:728:G:H4' | 4:D:16:MET:SD | 1.94 | 1.07 |
| 12:N:96:THR:CG2 | 12:N:97:ARG:H | 1.66 | 1.07 |
| 1:A:1083:U:H1' | 1:A:1085:A:N7 | 1.70 | 1.07 |
| 1:A:1520:U:C2' | 1:A:1521:G:H5'' | 1.83 | 1.07 |
| 1:A:974:G:OP1 | 1:A:974(A):C:OP2 | 1.72 | 1.07 |
| 1:A:2620:C:OP1 | 5:E:153:GLY:HA2 | 1.54 | 1.07 |
| 14:P:28:ALA:HB2 | 14:P:134:ARG:HB3 | 1.29 | 1.07 |
| 16:R:48:LEU:HD22 | 16:R:49:VAL:HG12 | 1.37 | 1.07 |
| 3:C:59:ARG:HD3 | 3:C:164:ARG:HG2 | 1.11 | 1.07 |
| 13:O:59:LEU:HD23 | 31:7:25:MET:HE2 | 1.27 | 1.07 |
| 15:Q:3:HIS:O | 15:Q:4:LEU:HG | 1.55 | 1.07 |
| 23:Y:57:ILE:HG12 | 23:Y:70:LEU:HB3 | 1.14 | 1.07 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:775:G:H2' | 1:A:794:G:N7 | 1.69 | 1.07 |
| 1:A:861:A:N6 | 1:A:917:A:N6 | 2.01 | 1.07 |
| 10:L:52:ILE:HD11 | 10:L:80:LYS:HE3 | 1.35 | 1.07 |
| 1:A:2132:U:H3' | 1:A:2133:G:C5' | 1.82 | 1.07 |
| 7:G:113:ARG:HG2 | 7:G:139:LEU:HA | 1.36 | 1.06 |
| 12:N:64:ARG:NH1 | 12:N:68:GLU:N | 2.00 | 1.06 |
| 12:N:94:ARG:HG3 | 12:N:95:GLY:N | 1.67 | 1.06 |
| 1:A:871:U:H5'' | 14:P:9:TYR:HE2 | 1.09 | 1.06 |
| 18:T:70:ARG:HG2 | 18:T:75:ASN:HA | 1.17 | 1.06 |
| 1:A:1598:C:H5'' | 21:W:36:LYS:HB3 | 1.37 | 1.06 |
| 22:X:2:ARG:HD2 | 22:X:3:VAL:HG23 | 1.32 | 1.06 |
| 29:5:20:ASN:HD22 | 29:5:41:PRO:CB | 1.68 | 1.06 |
| 1:A:1935:G:H4' | 1:A:1937:A:C2 | 1.88 | 1.06 |
| 1:A:2078:C:H2' | 1:A:2079:U:C6 | 1.89 | 1.06 |
| 1:A:2327:A:H2' | 1:A:2328:A:H8 | 1.13 | 1.06 |
| 1:A:2661:G:H2' | 1:A:2662:A:H8 | 1.04 | 1.06 |
| 1:A:632:A:H2' | 1:A:633:A:H8 | 0.92 | 1.06 |
| 4:D:6:PHE:O | 4:D:27:THR:HA | 1.51 | 1.06 |
| 5:E:37:ARG:HG3 | 5:E:39:PRO:HD2 | 1.31 | 1.06 |
| 8:H:59:ARG:HA | 8:H:62:LYS:HD3 | 1.29 | 1.06 |
| 22:X:2:ARG:HH21 | 22:X:4:LYS:HB2 | 1.14 | 1.06 |
| 29:5:14:THR:HB | 29:5:51:GLU:HG2 | 1.12 | 1.06 |
| 1:A:623:G:H3' | 13:O:105:LEU:CD2 | 1.84 | 1.06 |
| 1:A:1405:U:H2' | 1:A:1406:U:C6 | 1.91 | 1.06 |
| 7:G:54:GLU:O | 7:G:57:ALA:HB3 | 1.54 | 1.06 |
| 11:M:67:LEU:HA | 11:M:70:LYS:HZ3 | 1.20 | 1.06 |
| 1:A:2742:C:H5'' | 32:8:35:ARG:HH12 | 1.02 | 1.06 |
| 1:A:1965:C:H3' | 1:A:1966:A:C8 | 1.89 | 1.06 |
| 1:A:861:A:C2' | 1:A:862:G:H5' | 1.85 | 1.06 |
| 1:A:881:G:H22 | 1:A:896:A:N6 | 1.53 | 1.06 |
| 14:P:34:LEU:HD12 | 14:P:67:ARG:HH12 | 0.93 | 1.06 |
| 19:U:62:LEU:HD12 | 19:U:96:ILE:CB | 1.84 | 1.06 |
| 28:4:51:TYR:HB3 | 28:4:55:ARG:HA | 1.38 | 1.06 |
| 24:Z:47:PRO:HG2 | 24:Z:53:MET:HB2 | 1.33 | 1.06 |
| 3:C:131:LEU:HB3 | 3:C:136:LEU:HB2 | 1.29 | 1.06 |
| 3:C:150:GLY:O | 3:C:154:ARG:HB2 | 1.53 | 1.06 |
| 1:A:469:G:N2 | 30:6:40:TRP:HZ2 | 1.53 | 1.06 |
| 1:A:1863:G:H2' | 1:A:1864:U:C6 | 1.91 | 1.06 |
| 1:A:2327:A:H2' | 1:A:2328:A:C8 | 1.89 | 1.06 |
| 1:A:2637:U:H5'' | 5:E:81:ILE:HD11 | 1.09 | 1.06 |
| 1:A:662:G:O3' | 13:O:18:ARG:HB3 | 1.53 | 1.06 |
| 17:S:54:ARG:O | 17:S:64:ARG:HB2 | 1.56 | 1.06 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:S:72:VAL:HG12 | 17:S:73:GLU:H | 1.18 | 1.06 |
| 23:Y:39:VAL:HG13 | 23:Y:44:PHE:CD2 | 1.90 | 1.06 |
| 1:A:662:G:H5' | 13:O:17:LYS:H | 1.20 | 1.06 |
| 10:L:52:ILE:HG13 | 10:L:76:TYR:HB3 | 1.24 | 1.06 |
| 23:Y:95:PRO:HG2 | 23:Y:131:ARG:HG2 | 1.37 | 1.06 |
| 29:5:19:ARG:NH1 | 29:5:41:PRO:HG3 | 1.70 | 1.06 |
| 1:A:1203:G:O6 | 1:A:1240:U:C2 | 2.08 | 1.06 |
| 1:A:386:G:H4' | 1:A:387:U:C5 | 1.90 | 1.06 |
| 8:H:45:VAL:HG22 | 8:H:50:VAL:HG12 | 1.36 | 1.06 |
| 11:M:15:LEU:HD21 | 11:M:137:LYS:HA | 1.37 | 1.06 |
| 14:P:34:LEU:HA | 14:P:131:ILE:HG12 | 1.33 | 1.06 |
| 19:U:40:LEU:HD23 | 19:U:51:VAL:HG13 | 1.08 | 1.06 |
| 31:7:21:LYS:HB2 | 31:7:21:LYS:HZ2 | 1.19 | 1.06 |
| 1:A:1790:C:H5'' | 1:A:1828:G:N1 | 1.71 | 1.06 |
| 1:A:2076:U:H4' | 1:A:2077:A:OP1 | 1.56 | 1.06 |
| 12:N:17:ARG:NH2 | 12:N:98:VAL:HG23 | 1.71 | 1.06 |
| 19:U:68:LYS:HG2 | 19:U:95:LEU:HD21 | 1.37 | 1.06 |
| 1:A:1448:G:H4' | 1:A:1543:A:N6 | 1.70 | 1.05 |
| 1:A:2491:U:H6 | 1:A:2491:U:H3' | 0.89 | 1.05 |
| 1:A:386:G:H4' | 1:A:387:U:C6 | 1.90 | 1.05 |
| 1:A:503:A:H4' | 1:A:504:U:C5' | 1.84 | 1.05 |
| 1:A:858:U:C5 | 1:A:859:G:N2 | 2.24 | 1.05 |
| 1:A:2053:G:H4' | 5:E:145:LYS:NZ | 1.71 | 1.05 |
| 5:E:36:ARG:HD3 | 5:E:41:LYS:HZ1 | 1.20 | 1.05 |
| 6:F:174:VAL:HG11 | 6:F:189:THR:HG22 | 1.32 | 1.05 |
| 12:N:10:VAL:H | 12:N:17:ARG:HG2 | 1.19 | 1.05 |
| 1:A:2333:A:H1' | 1:A:2335:A:C4 | 1.91 | 1.05 |
| 6:F:168:ARG:HB2 | 6:F:168:ARG:HH21 | 1.21 | 1.05 |
| 12:N:66:LYS:HE3 | 12:N:67:LYS:NZ | 1.69 | 1.05 |
| 18:T:55:ARG:HG2 | 18:T:55:ARG:HH11 | 1.16 | 1.05 |
| 22:X:81:LYS:HG2 | 22:X:96:ILE:HG23 | 1.38 | 1.05 |
| 1:A:2124:G:H2' | 3:C:217:THR:HG23 | 1.36 | 1.05 |
| 3:C:10:LEU:HD21 | 3:C:220:PRO:HD3 | 1.34 | 1.05 |
| 1:A:1024:G:H5' | 1:A:1025:G:H5'' | 1.08 | 1.05 |
| 1:A:1156:A:H5' | 1:A:1157:G:N7 | 1.70 | 1.05 |
| 1:A:1394:U:H4' | 1:A:1603:A:H4' | 1.12 | 1.05 |
| 1:A:1956:U:H2' | 1:A:1957:C:H6 | 1.12 | 1.05 |
| 1:A:2075:U:H2' | 1:A:2076:U:C5' | 1.86 | 1.05 |
| 1:A:594:U:H2' | 1:A:595:C:C6 | 1.90 | 1.05 |
| 24:Z:82:ARG:HD2 | 24:Z:83:PRO:HD2 | 1.37 | 1.05 |
| 30:6:34:ARG:HH22 | 30:6:42:LEU:HA | 1.19 | 1.05 |
| 1:A:1784:A:O2' | 1:A:1785:A:OP2 | 1.75 | 1.05 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:270(Z):U:H3' | 1:A:271(A):C:C5' | 1.85 | 1.05 |
| 16:R:11:LYS:O | 16:R:14:VAL:HB | 1.57 | 1.05 |
| 17:S:64:ARG:HD3 | 17:S:65:LYS:N | 1.70 | 1.05 |
| 23:Y:122:ARG:HH22 | 23:Y:169:GLU:HG2 | 1.15 | 1.05 |
| 3:C:87:GLU:HG3 | 3:C:94:VAL:HG21 | 1.08 | 1.05 |
| 1:A:2239:G:H3' | 1:A:2240:C:H5'' | 1.37 | 1.05 |
| 1:A:68:G:H2' | 1:A:69:C:C6 | 1.91 | 1.05 |
| 6:F:139:PHE:CD2 | 6:F:166:ALA:HB3 | 1.92 | 1.05 |
| 7:G:92:VAL:HG13 | 7:G:94:LEU:HD13 | 1.37 | 1.05 |
| 8:H:35:VAL:HG11 | 8:H:72:ILE:HA | 1.37 | 1.05 |
| 13:O:15:ARG:CZ | 13:O:16:ARG:H | 1.69 | 1.05 |
| 16:R:30:ARG:HH21 | 16:R:91:PRO:HB2 | 0.99 | 1.05 |
| 1:A:997:G:OP1 | 18:T:92:ARG:HD2 | 1.55 | 1.05 |
| 1:A:2195:C:O2' | 1:A:2196:C:H5' | 1.55 | 1.05 |
| 1:A:714:U:H2' | 1:A:715:G:N7 | 1.70 | 1.05 |
| 1:A:2447:G:H3' | 1:A:2499:C:P | 1.97 | 1.05 |
| 1:A:270(C):C:H2' | 1:A:270(D):C:C6 | 1.92 | 1.05 |
| 1:A:858:U:H5 | 1:A:859:G:N2 | 1.52 | 1.05 |
| 1:A:2406:U:C4 | 13:O:65:ARG:HB3 | 1.91 | 1.05 |
| 13:O:74:GLU:HB2 | 13:O:107:LYS:HZ2 | 1.16 | 1.05 |
| 21:W:44:GLU:HG3 | 21:W:51:VAL:HG23 | 1.34 | 1.05 |
| 1:A:1438:U:H2' | 1:A:1439:A:H5' | 1.38 | 1.05 |
| 4:D:5:LYS:HE3 | 4:D:81:ALA:HB1 | 1.11 | 1.05 |
| 4:D:85:ASP:HB2 | 4:D:87:ASN:ND2 | 1.72 | 1.05 |
| 7:G:113:ARG:NE | 7:G:139:LEU:HD23 | 1.70 | 1.05 |
| 11:M:74:ARG:HB2 | 11:M:82:LEU:HB3 | 1.28 | 1.05 |
| 1:A:2132:U:H3' | 1:A:2133:G:H5' | 1.38 | 1.05 |
| 20:V:19:LEU:HB3 | 28:4:25:LEU:HD13 | 1.08 | 1.05 |
| 1:A:1513:C:H2' | 1:A:1514:U:H5 | 1.16 | 1.05 |
| 1:A:1773:A:N6 | 1:A:1829:A:H1' | 1.71 | 1.05 |
| 4:D:63:ARG:HH11 | 4:D:63:ARG:CB | 1.70 | 1.05 |
| 7:G:91:ARG:HB2 | 7:G:91:ARG:HH21 | 1.17 | 1.05 |
| 13:O:27:HIS:NE2 | 19:U:83:ARG:HB2 | 1.71 | 1.05 |
| 23:Y:118:GLN:NE2 | 23:Y:174:VAL:HA | 1.72 | 1.05 |
| 26:2:4:LEU:HD22 | 26:2:37:LEU:HD13 | 1.33 | 1.05 |
| 26:2:4:LEU:HB3 | 26:2:37:LEU:HD22 | 1.35 | 1.05 |
| 28:4:40:LYS:HE3 | 28:4:44:THR:H | 1.12 | 1.05 |
| 1:A:1203:G:C6 | 1:A:1240:U:N3 | 2.25 | 1.05 |
| 2:B:30:C:H2' | 2:B:31:C:H5' | 1.33 | 1.05 |
| 17:S:22:PHE:O | 17:S:24:PRO:HD3 | 1.56 | 1.05 |
| 27:3:13:ARG:HG2 | 27:3:14:ILE:H | 0.89 | 1.04 |
| 1:A:1270:C:H5' | 1:A:1271:G:C5' | 1.86 | 1.04 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:270(M):U:C4' | 1:A:270(N):G:H4' | 1.85 | 1.04 |
| 5:E:60:ASN:HA | 5:E:63:LEU:HD12 | 1.10 | 1.04 |
| 7:G:47:LYS:HB2 | 7:G:72:ARG:HB3 | 1.06 | 1.04 |
| 17:S:10:VAL:HG23 | 17:S:11:GLU:OE2 | 1.55 | 1.04 |
| 1:A:1056:G:H5' | 1:A:1057:A:H5' | 1.38 | 1.04 |
| 1:A:1996:C:H2' | 1:A:1997:G:C5' | 1.87 | 1.04 |
| 1:A:296:C:H2' | 1:A:297:C:C6 | 1.91 | 1.04 |
| 1:A:470:A:C2 | 1:A:471:A:H1' | 1.92 | 1.04 |
| 4:D:14:ARG:HA | 4:D:14:ARG:CZ | 1.85 | 1.04 |
| 12:N:10:VAL:HG13 | 12:N:11:ALA:H | 1.16 | 1.04 |
| 12:N:97:ARG:NE | 12:N:98:VAL:H | 1.54 | 1.04 |
| 31:7:10:ALA:HA | 31:7:60:LEU:HD12 | 1.35 | 1.04 |
| 1:A:1204:A:O4' | 1:A:1204:A:OP2 | 1.73 | 1.04 |
| 1:A:1423:G:H2' | 1:A:1424:G:H8 | 1.20 | 1.04 |
| 1:A:783:A:H5'' | 1:A:2589:A:OP1 | 1.55 | 1.04 |
| 1:A:2074:U:H2' | 1:A:2597:G:H21 | 1.22 | 1.04 |
| 1:A:945:A:N3 | 1:A:945:A:H2' | 1.64 | 1.04 |
| 4:D:85:ASP:HB2 | 4:D:87:ASN:HD21 | 1.19 | 1.04 |
| 19:U:5:VAL:HG11 | 19:U:37:VAL:HG13 | 1.36 | 1.04 |
| 1:A:1826:G:H2' | 1:A:1827:C:H5' | 1.38 | 1.04 |
| 2:B:71:C:H2' | 2:B:72:G:C5' | 1.87 | 1.04 |
| 7:G:139:LEU:HD22 | 7:G:142:PRO:CB | 1.87 | 1.04 |
| 11:M:15:LEU:HD21 | 11:M:137:LYS:CA | 1.86 | 1.04 |
| 20:V:16:LYS:H | 20:V:16:LYS:HD3 | 1.17 | 1.04 |
| 23:Y:118:GLN:HE22 | 23:Y:174:VAL:HA | 1.16 | 1.04 |
| 23:Y:75:ASN:HD22 | 23:Y:85:HIS:HB3 | 1.22 | 1.04 |
| 3:C:211:SER:HB2 | 3:C:213:TYR:HE1 | 1.16 | 1.04 |
| 26:2:6:VAL:HG13 | 26:2:55:ARG:O | 1.57 | 1.04 |
| 26:2:7:LYS:O | 26:2:54:VAL:HG22 | 1.58 | 1.04 |
| 31:7:30:ARG:CZ | 31:7:44:LYS:HB2 | 1.88 | 1.04 |
| 1:A:1530:G:H2' | 1:A:1531:C:C6 | 1.93 | 1.04 |
| 5:E:165:VAL:HG12 | 5:E:166:THR:H | 1.18 | 1.04 |
| 1:A:1746:G:H2' | 1:A:1747:G:C8 | 1.92 | 1.04 |
| 1:A:2078:C:H2' | 1:A:2079:U:H6 | 1.16 | 1.04 |
| 1:A:26:G:H1 | 1:A:27:G:N2 | 1.55 | 1.04 |
| 4:D:63:ARG:HH11 | 4:D:63:ARG:HB2 | 1.18 | 1.04 |
| 1:A:1491:G:O4' | 4:D:99:ASP:HB2 | 1.57 | 1.04 |
| 6:F:25:PRO:O | 6:F:28:ILE:HG22 | 1.55 | 1.04 |
| 18:T:55:ARG:HG3 | 18:T:58:ARG:HH21 | 0.91 | 1.04 |
| 23:Y:102:LEU:HD21 | 23:Y:137:ILE:HD12 | 1.37 | 1.04 |
| 23:Y:57:ILE:HG23 | 23:Y:69:THR:O | 1.57 | 1.04 |
| 9:K:100:ALA:O | 9:K:104:GLN:HB2 | 1.57 | 1.04 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:C:212:VAL:O | 3:C:223:ARG:HG3 | 1.56 | 1.04 |
| 3:C:19:ILE:HD12 | 3:C:223:ARG:HB3 | 1.37 | 1.04 |
| 32:8:19:ARG:NH1 | 32:8:19:ARG:HB2 | 1.71 | 1.04 |
| 1:A:2418:A:H2' | 1:A:2419:U:O4' | 1.56 | 1.04 |
| 5:E:120:TRP:CH2 | 5:E:122:PHE:HB2 | 1.93 | 1.04 |
| 1:A:2052:G:H1' | 5:E:149:ARG:C | 1.77 | 1.04 |
| 7:G:57:ALA:HA | 7:G:68:PRO:HD2 | 1.37 | 1.04 |
| 12:N:3:GLN:NE2 | 12:N:33:ALA:HB3 | 1.71 | 1.04 |
| 20:V:90:ARG:NH2 | 20:V:90:ARG:H | 1.55 | 1.04 |
| 26:2:45:GLY:O | 26:2:48:GLU:HG2 | 1.57 | 1.04 |
| 2:B:7:G:H4' | 16:R:29:PHE:HE2 | 1.23 | 1.04 |
| 14:P:23:GLY:HA3 | 14:P:101:ARG:NH2 | 1.71 | 1.04 |
| 14:P:81:VAL:HG12 | 14:P:82:ARG:H | 1.23 | 1.04 |
| 18:T:91:ASP:OD2 | 19:U:10:LYS:HD3 | 1.55 | 1.04 |
| 23:Y:95:PRO:HB2 | 23:Y:130:PRO:HA | 1.36 | 1.04 |
| 1:A:1786:A:H4' | 1:A:1938:A:H61 | 0.88 | 1.04 |
| 1:A:60:G:H21 | 1:A:74:A:H4' | 1.22 | 1.04 |
| 1:A:865:C:H42 | 1:A:909:A:N6 | 1.56 | 1.04 |
| 1:A:976:C:N4 | 1:A:988:A:C2 | 2.24 | 1.04 |
| 4:D:208:LYS:HZ2 | 4:D:211:ARG:CG | 1.69 | 1.04 |
| 6:F:154:VAL:HG12 | 6:F:191:ARG:HB3 | 1.40 | 1.04 |
| 6:F:30:PRO:O | 6:F:33:LEU:HG | 1.56 | 1.04 |
| 1:A:1206:G:H2' | 1:A:1207:C:O4' | 1.56 | 1.04 |
| 1:A:2661:G:H2' | 1:A:2662:A:C8 | 1.93 | 1.04 |
| 5:E:36:ARG:O | 5:E:44:TYR:HA | 1.56 | 1.04 |
| 23:Y:2:GLU:O | 23:Y:60:GLU:HA | 1.58 | 1.04 |
| 3:C:22:ILE:HG21 | 3:C:190:ARG:NH1 | 1.73 | 1.04 |
| 31:7:12:LYS:HG2 | 31:7:13:ARG:HH12 | 1.21 | 1.03 |
| 1:A:1021:A:H2 | 1:A:1122:G:H4' | 1.22 | 1.03 |
| 1:A:1872:A:H2' | 1:A:1878:G:H5' | 1.39 | 1.03 |
| 1:A:242:G:H3' | 31:7:4:MET:SD | 1.98 | 1.03 |
| 1:A:2571:C:O2' | 5:E:146:THR:HA | 1.58 | 1.03 |
| 1:A:355:G:H2' | 1:A:356:G:C8 | 1.92 | 1.03 |
| 5:E:147:PRO:HG2 | 5:E:149:ARG:HD2 | 1.37 | 1.03 |
| 10:L:99:ILE:HG22 | 10:L:100:THR:H | 1.20 | 1.03 |
| 11:M:16:ILE:HB | 11:M:54:VAL:HB | 1.35 | 1.03 |
| 26:2:6:VAL:HB | 26:2:35:ARG:NE | 1.73 | 1.03 |
| 1:A:270(K):C:H3' | 1:A:270(L):U:H6 | 1.19 | 1.03 |
| 7:G:113:ARG:HE | 7:G:139:LEU:HD23 | 1.16 | 1.03 |
| 9:K:2:LYS:HD2 | 9:K:39:ALA:HB2 | 1.38 | 1.03 |
| 12:N:4:PRO:HG2 | 12:N:5:GLN:H | 1.20 | 1.03 |
| 21:W:50:LYS:HG3 | 21:W:84:ALA:HB3 | 1.40 | 1.03 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 30:6:17:GLY:N | 30:6:21:ARG:HH22 | 1.55 | 1.03 |
| 1:A:1786:A:H4' | 1:A:1938:A:N6 | 1.72 | 1.03 |
| 1:A:2658:C:H2' | 1:A:2659:G:C5' | 1.86 | 1.03 |
| 1:A:297:C:H2' | 1:A:298:G:O4' | 1.58 | 1.03 |
| 1:A:928:G:N7 | 1:A:929:G:N3 | 2.05 | 1.03 |
| 2:B:68:C:H2' | 2:B:69:G:H8 | 1.18 | 1.03 |
| 8:H:28:GLY:HA3 | 8:H:79:VAL:HB | 1.39 | 1.03 |
| 10:L:34:ILE:O | 10:L:38:VAL:HB | 1.57 | 1.03 |
| 12:N:16:ALA:HB1 | 12:N:45:GLU:CB | 1.87 | 1.03 |
| 20:V:47:VAL:O | 20:V:51:LEU:HD13 | 1.56 | 1.03 |
| 25:1:36:ILE:HG23 | 25:1:37:GLY:H | 1.24 | 1.03 |
| 1:A:576:U:H2' | 1:A:577:G:H8 | 1.21 | 1.03 |
| 1:A:2637:U:H5' | 5:E:43:GLY:HA3 | 1.34 | 1.03 |
| 5:E:33:VAL:HG21 | 5:E:77:ILE:HD11 | 1.38 | 1.03 |
| 8:H:24:VAL:HG13 | 8:H:35:VAL:O | 1.57 | 1.03 |
| 17:S:30:VAL:CG2 | 17:S:90:GLN:HA | 1.88 | 1.03 |
| 1:A:911:A:H8 | 1:A:2264:C:H1' | 1.20 | 1.03 |
| 5:E:22:PRO:HA | 5:E:185:LYS:HA | 1.41 | 1.03 |
| 7:G:26:GLN:NE2 | 7:G:31:VAL:HG22 | 1.74 | 1.03 |
| 9:K:32:PRO:HG2 | 9:K:33:ARG:H | 1.14 | 1.03 |
| 26:2:9:VAL:HG13 | 26:2:54:VAL:HA | 1.37 | 1.03 |
| 1:A:2528:U:O2' | 1:A:2529:G:H3' | 1.59 | 1.03 |
| 19:U:79:VAL:HG12 | 19:U:81:TYR:HD1 | 1.19 | 1.03 |
| 22:X:73:ARG:HB3 | 22:X:77:PRO:HA | 1.37 | 1.03 |
| 31:7:39:LYS:O | 31:7:42:ARG:HB2 | 1.58 | 1.03 |
| 1:A:1470:G:N2 | 1:A:1522:G:H1 | 1.55 | 1.03 |
| 1:A:574:C:H41 | 1:A:2054:A:H5'' | 1.20 | 1.03 |
| 1:A:270(Z):U:H3' | 1:A:271(A):C:H5' | 1.40 | 1.03 |
| 4:D:55:GLY:H | 4:D:219:PRO:CD | 1.70 | 1.03 |
| 5:E:11:MET:O | 5:E:22:PRO:HD2 | 1.55 | 1.03 |
| 9:K:7:GLU:HA | 9:K:14:ASP:CG | 1.78 | 1.03 |
| 11:M:100:GLU:O | 11:M:103:VAL:HG22 | 1.59 | 1.03 |
| 20:V:25:ARG:NH2 | 20:V:74:ALA:H | 1.55 | 1.03 |
| 25:1:19:LEU:HD13 | 25:1:20:VAL:N | 1.73 | 1.03 |
| 26:2:9:VAL:HG22 | 26:2:53:LEU:C | 1.79 | 1.03 |
| 1:A:2306:C:N4 | 7:G:45:GLU:HB2 | 1.72 | 1.03 |
| 1:A:2514:U:H2' | 1:A:2515:C:C6 | 1.94 | 1.03 |
| 1:A:2521:C:H2' | 1:A:2522:U:H5'' | 1.06 | 1.03 |
| 1:A:494:G:H4' | 20:V:6:ILE:O | 1.58 | 1.03 |
| 1:A:624:C:H41 | 13:O:104:GLY:HA2 | 1.21 | 1.03 |
| 1:A:996:A:H4' | 18:T:93:LYS:HG3 | 1.37 | 1.03 |
| 6:F:131:GLY:HA2 | 6:F:138:GLU:HG3 | 1.40 | 1.03 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 9:K:37:VAL:HG12 | 9:K:38:LEU:H | 1.20 | 1.03 |
| 18:T:55:ARG:CG | 18:T:58:ARG:HH21 | 1.70 | 1.03 |
| 20:V:12:ILE:HG12 | 20:V:101:SER:HB2 | 1.39 | 1.03 |
| 9:K:114:LEU:HA | 9:K:130:TYR:HB3 | 1.40 | 1.03 |
| 9:K:57:ARG:HB3 | 9:K:61:ARG:NH2 | 1.74 | 1.03 |
| 1:A:2346:A:H1' | 1:A:2383:G:C8 | 1.93 | 1.03 |
| 1:A:270(I):G:C2 | 1:A:270(J):G:H1' | 1.93 | 1.03 |
| 1:A:848:G:H2' | 1:A:849:A:C8 | 1.93 | 1.03 |
| 2:B:7:G:H4' | 16:R:29:PHE:CE2 | 1.93 | 1.03 |
| 7:G:19:LEU:H | 7:G:19:LEU:HD12 | 1.20 | 1.03 |
| 1:A:1087:G:H21 | 1:A:1103:A:H2' | 1.22 | 1.03 |
| 1:A:931:G:H8 | 1:A:932:G:H1' | 1.17 | 1.03 |
| 11:M:104:LYS:HA | 11:M:117:PHE:CZ | 1.94 | 1.03 |
| 13:O:112:LEU:H | 13:O:128:HIS:CE1 | 1.77 | 1.03 |
| 9:K:93:THR:HG22 | 9:K:96:ASP:OD1 | 1.58 | 1.03 |
| 1:A:270(M):U:H4' | 1:A:270(N):G:C4' | 1.89 | 1.02 |
| 5:E:104:VAL:HG22 | 5:E:198:VAL:HA | 1.38 | 1.02 |
| 5:E:98:PRO:HB3 | 5:E:174:ASP:HA | 1.40 | 1.02 |
| 8:H:120:GLY:HA3 | 8:H:136:ILE:HG22 | 1.38 | 1.02 |
| 12:N:68:GLU:O | 12:N:68:GLU:HG3 | 1.58 | 1.02 |
| 14:P:109:VAL:HG11 | 14:P:114:ALA:H | 1.21 | 1.02 |
| 27:3:46:GLN:HG2 | 27:3:47:GLN:H | 1.16 | 1.02 |
| 1:A:1267:U:H2' | 1:A:1268:A:C5' | 1.89 | 1.02 |
| 5:E:36:ARG:HD3 | 5:E:41:LYS:NZ | 1.72 | 1.02 |
| 14:P:83:MET:SD | 14:P:83:MET:N | 2.28 | 1.02 |
| 14:P:8:LYS:HE3 | 14:P:93:TYR:HB3 | 1.41 | 1.02 |
| 15:Q:13:HIS:HB3 | 15:Q:16:HIS:CD2 | 1.94 | 1.02 |
| 16:R:25:ARG:HA | 16:R:87:PHE:O | 1.57 | 1.02 |
| 19:U:20:LEU:HD13 | 19:U:68:LYS:NZ | 1.72 | 1.02 |
| 9:K:94:ALA:HB1 | 9:K:114:LEU:HD12 | 1.38 | 1.02 |
| 9:K:81:VAL:HG12 | 9:K:88:ILE:HG12 | 1.38 | 1.02 |
| 1:A:931:G:C8 | 1:A:932:G:H1' | 1.93 | 1.02 |
| 1:A:1491:G:H2' | 1:A:1492:G:H4' | 1.02 | 1.02 |
| 1:A:270(Q):C:H2' | 1:A:270(R):G:H8 | 1.20 | 1.02 |
| 1:A:482:A:H2' | 1:A:482:A:N3 | 1.71 | 1.02 |
| 1:A:2683:C:C4' | 5:E:19:ARG:HH12 | 1.71 | 1.02 |
| 14:P:25:ASP:HB3 | 14:P:102:VAL:H | 1.24 | 1.02 |
| 14:P:77:LYS:CE | 14:P:87:LYS:HG3 | 1.89 | 1.02 |
| 17:S:17:THR:HG21 | 17:S:20:PRO:HG3 | 1.39 | 1.02 |
| 17:S:65:LYS:HG2 | 17:S:75:ILE:HB | 1.37 | 1.02 |
| 19:U:6:LYS:CG | 19:U:12:TYR:H | 1.72 | 1.02 |
| 1:A:1051:G:H4' | 1:A:2752:C:H1' | 1.37 | 1.02 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:B:100:G:H2' | 2:B:101:A:C8 | 1.95 | 1.02 |
| 5:E:23:VAL:HG22 | 5:E:184:VAL:HG22 | 1.41 | 1.02 |
| 8:H:121:ILE:HA | 8:H:134:SER:O | 1.60 | 1.02 |
| 8:H:96:ALA:HA | 8:H:105:LEU:HG | 1.38 | 1.02 |
| 13:O:114:ILE:HG21 | 13:O:123:LEU:HD11 | 1.38 | 1.02 |
| 29:5:9:LEU:HD22 | 29:5:27:LYS:HG3 | 1.41 | 1.02 |
| 1:A:1770:G:H2' | 1:A:1771:C:C5 | 1.94 | 1.02 |
| 23:Y:119:GLU:O | 23:Y:172:ALA:HB1 | 1.58 | 1.02 |
| 24:Z:68:GLU:HB2 | 24:Z:80:HIS:O | 1.59 | 1.02 |
| 1:A:2135:A:H4' | 1:A:2136:C:H5 | 1.12 | 1.02 |
| 28:4:55:ARG:O | 28:4:56:LYS:HG2 | 1.58 | 1.02 |
| 1:A:624:C:OP2 | 13:O:105:LEU:HD23 | 1.58 | 1.02 |
| 5:E:13:ARG:CZ | 5:E:20:ALA:HB3 | 1.88 | 1.02 |
| 12:N:117:LEU:HD23 | 12:N:118:ALA:N | 1.75 | 1.02 |
| 13:O:93:GLY:H | 13:O:112:LEU:HD11 | 1.19 | 1.02 |
| 1:A:492:A:H2' | 1:A:493:G:O4' | 1.58 | 1.02 |
| 5:E:52:LEU:HA | 5:E:74:PRO:HA | 1.38 | 1.02 |
| 12:N:15:GLY:HA3 | 12:N:47:ILE:HB | 1.39 | 1.02 |
| 15:Q:97:VAL:HA | 15:Q:114:VAL:HG22 | 1.39 | 1.02 |
| 23:Y:4:ARG:HG2 | 23:Y:5:LEU:H | 1.23 | 1.02 |
| 1:A:1210:A:H1' | 1:A:1212:G:H21 | 1.22 | 1.02 |
| 1:A:1264:G:H5'' | 1:A:1265:A:H5'' | 1.42 | 1.02 |
| 1:A:673:C:H5'' | 6:F:81:PRO:CG | 1.90 | 1.02 |
| 27:3:38:LYS:HG2 | 27:3:39:CYS:H | 1.21 | 1.02 |
| 1:A:1259:G:H2' | 1:A:1260:G:H8 | 1.21 | 1.02 |
| 1:A:641:C:H2' | 1:A:642:G:H5' | 1.38 | 1.02 |
| 14:P:34:LEU:CD1 | 14:P:67:ARG:HH12 | 1.72 | 1.02 |
| 3:C:97:GLU:HA | 3:C:100:ILE:HD12 | 1.39 | 1.02 |
| 1:A:1142:U:H3' | 1:A:1142(A):A:N7 | 1.75 | 1.01 |
| 1:A:1936:A:H1' | 1:A:1940:U:N3 | 1.75 | 1.01 |
| 6:F:201:VAL:HG11 | 6:F:205:ARG:HH21 | 1.25 | 1.01 |
| 22:X:12:THR:HG22 | 22:X:13:VAL:H | 1.23 | 1.01 |
| 23:Y:43:GLU:H | 23:Y:43:GLU:CD | 1.61 | 1.01 |
| 24:Z:33:ALA:HA | 24:Z:61:ALA:O | 1.59 | 1.01 |
| 1:A:728:G:N1 | 1:A:762:U:H3' | 1.75 | 1.01 |
| 1:A:806:C:H2' | 1:A:807:U:C6 | 1.95 | 1.01 |
| 14:P:32:TYR:HB2 | 14:P:105:GLU:O | 1.60 | 1.01 |
| 17:S:29:ARG:HA | 17:S:50:ILE:O | 1.59 | 1.01 |
| 17:S:30:VAL:HG23 | 17:S:90:GLN:HA | 1.41 | 1.01 |
| 19:U:3:ALA:HA | 19:U:44:LYS:HZ2 | 1.19 | 1.01 |
| 23:Y:7:ALA:HB3 | 23:Y:36:LYS:O | 1.60 | 1.01 |
| 9:K:125:GLU:HB2 | 9:K:143:SER:CA | 1.88 | 1.01 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 30:6:8:ASN:HD21 | 30:6:10:ARG:HB2 | 1.19 | 1.01 |
| 1:A:1647:G:H4' | 1:A:1648:C:OP1 | 1.59 | 1.01 |
| 1:A:2555:U:H6 | 1:A:2555:U:H3' | 1.21 | 1.01 |
| 1:A:673:C:H2' | 1:A:674:G:H5' | 1.40 | 1.01 |
| 18:T:93:LYS:H | 19:U:10:LYS:HE2 | 1.22 | 1.01 |
| 31:7:44:LYS:HA | 31:7:44:LYS:HZ2 | 1.21 | 1.01 |
| 1:A:1190:G:OP2 | 13:O:30:THR:HA | 1.60 | 1.01 |
| 1:A:1779:U:O2' | 1:A:1783:A:N6 | 1.91 | 1.01 |
| 1:A:18:C:OP1 | 18:T:26:GLY:HA3 | 1.57 | 1.01 |
| 1:A:1996:C:O2' | 5:E:123:ALA:HB3 | 1.59 | 1.01 |
| 6:F:131:GLY:HA2 | 6:F:138:GLU:CG | 1.89 | 1.01 |
| 12:N:47:ILE:HD12 | 12:N:52:VAL:HG13 | 1.38 | 1.01 |
| 18:T:97:ASP:O | 18:T:101:ARG:HG2 | 1.58 | 1.01 |
| 1:A:987:G:OP2 | 26:2:13:ILE:HD13 | 1.59 | 1.01 |
| 1:A:1771:C:C2' | 1:A:1772:G:H5'' | 1.91 | 1.01 |
| 1:A:2498:C:O2 | 1:A:2498:C:H2' | 1.53 | 1.01 |
| 1:A:1252:G:H22 | 18:T:37:GLU:HG3 | 1.16 | 1.01 |
| 1:A:1203:G:C4 | 1:A:1241:A:C8 | 2.49 | 1.01 |
| 7:G:22:ARG:HB3 | 7:G:22:ARG:NH2 | 1.73 | 1.01 |
| 7:G:34:LEU:HD12 | 7:G:34:LEU:H | 1.24 | 1.01 |
| 3:C:209:LEU:HD11 | 3:C:226:PRO:HG3 | 1.42 | 1.01 |
| 3:C:22:ILE:HG23 | 3:C:189:ILE:HG21 | 1.43 | 1.01 |
| 1:A:2023:G:H2' | 1:A:2024:G:C8 | 1.96 | 1.01 |
| 1:A:2296:U:H1' | 1:A:2335:A:N6 | 1.73 | 1.01 |
| 1:A:2749:A:C2 | 1:A:2757:A:N1 | 2.29 | 1.01 |
| 1:A:279:C:N4 | 1:A:359:A:C4 | 2.26 | 1.01 |
| 1:A:2861:G:H2' | 1:A:2862:G:H8 | 1.25 | 1.01 |
| 7:G:57:ALA:HA | 7:G:68:PRO:CD | 1.89 | 1.01 |
| 8:H:6:ARG:HA | 8:H:6:ARG:NH1 | 1.76 | 1.01 |
| 11:M:67:LEU:HA | 11:M:70:LYS:NZ | 1.74 | 1.01 |
| 1:A:627:A:H5'' | 13:O:75:ILE:CB | 1.90 | 1.01 |
| 17:S:29:ARG:HG2 | 17:S:51:ARG:HG2 | 1.40 | 1.01 |
| 17:S:45:PHE:CZ | 17:S:87:ASP:HB2 | 1.95 | 1.01 |
| 1:A:1567:A:H2 | 4:D:61:LEU:HD13 | 1.21 | 1.01 |
| 1:A:269:U:H3 | 1:A:270:A:H62 | 1.01 | 1.01 |
| 1:A:763:G:C2' | 1:A:764:A:H5'' | 1.90 | 1.01 |
| 6:F:34:TRP:HD1 | 6:F:38:ARG:HH11 | 1.03 | 1.01 |
| 11:M:127:ASP:H | 11:M:129:PRO:HD2 | 1.25 | 1.01 |
| 11:M:15:LEU:HG | 11:M:138:LEU:O | 1.60 | 1.01 |
| 12:N:86:ILE:HG23 | 12:N:90:GLN:O | 1.61 | 1.01 |
| 1:A:1312:U:H5 | 21:W:62:LYS:HD2 | 1.24 | 1.01 |
| 23:Y:15:PRO:HB3 | 23:Y:25:PRO:HB3 | 1.41 | 1.01 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 24:Z:47:PRO:HG3 | 24:Z:59:LEU:HD21 | 1.43 | 1.01 |
| 29:5:19:ARG:HG3 | 29:5:44:ARG:NH1 | 1.74 | 1.01 |
| 2:B:12:C:C6 | 24:Z:74:ARG:HB2 | 1.96 | 1.01 |
| 5:E:101:ARG:NH2 | 5:E:171:GLU:HG2 | 1.74 | 1.01 |
| 8:H:52:VAL:HG11 | 8:H:69:ARG:HB3 | 1.40 | 1.01 |
| 13:O:123:LEU:HD12 | 13:O:130:PHE:CD1 | 1.95 | 1.01 |
| 13:O:38:GLN:C | 13:O:40:SER:H | 1.60 | 1.01 |
| 13:O:46:LYS:HG2 | 13:O:50:ARG:HB2 | 1.41 | 1.01 |
| 14:P:77:LYS:HE2 | 14:P:87:LYS:HG3 | 1.41 | 1.01 |
| 15:Q:61:HIS:HA | 15:Q:64:ARG:HD2 | 1.42 | 1.01 |
| 25:1:44:LYS:O | 25:1:48:LEU:HB2 | 1.60 | 1.01 |
| 11:M:34:LEU:HB3 | 11:M:116:LEU:HD11 | 1.43 | 1.01 |
| 11:M:57:ALA:HB3 | 11:M:124:ALA:HB2 | 1.42 | 1.01 |
| 23:Y:57:ILE:HG12 | 23:Y:70:LEU:CB | 1.90 | 1.01 |
| 3:C:74:VAL:HG22 | 3:C:112:ALA:HB3 | 1.40 | 1.01 |
| 3:C:100:ILE:HD11 | 3:C:123:VAL:HG22 | 1.38 | 1.01 |
| 31:7:34:TRP:C | 31:7:36:LYS:H | 1.48 | 1.00 |
| 1:A:220:G:H4' | 1:A:234:C:H4' | 1.41 | 1.00 |
| 19:U:12:TYR:CE1 | 19:U:14:VAL:HB | 1.94 | 1.00 |
| 20:V:64:MET:HG3 | 20:V:65:LEU:H | 1.26 | 1.00 |
| 29:5:27:LYS:HG2 | 29:5:29:ASN:HD21 | 1.24 | 1.00 |
| 1:A:2583:G:H2' | 1:A:2584:U:O2 | 1.58 | 1.00 |
| 1:A:296:C:H6 | 1:A:338:G:H21 | 1.01 | 1.00 |
| 12:N:77:ILE:HG12 | 17:S:65:LYS:HE2 | 1.41 | 1.00 |
| 13:O:17:LYS:HA | 13:O:17:LYS:HE3 | 1.41 | 1.00 |
| 1:A:627:A:H5'' | 13:O:75:ILE:HB | 1.42 | 1.00 |
| 17:S:15:VAL:HG13 | 17:S:81:PRO:HB3 | 1.39 | 1.00 |
| 1:A:1178:C:H2' | 1:A:1179:C:H6 | 1.23 | 1.00 |
| 1:A:1567:A:H4' | 1:A:1568:G:N2 | 1.76 | 1.00 |
| 1:A:1711:C:H2' | 1:A:1712:C:C6 | 1.96 | 1.00 |
| 1:A:270(A):A:H61 | 1:A:270(X):G:H2' | 1.24 | 1.00 |
| 1:A:2841:C:H2' | 1:A:2842:G:H8 | 1.24 | 1.00 |
| 1:A:673:C:H4' | 6:F:82:ILE:HD12 | 1.43 | 1.00 |
| 8:H:103:LEU:HB2 | 8:H:115:VAL:CB | 1.90 | 1.00 |
| 8:H:6:ARG:CZ | 8:H:6:ARG:HA | 1.91 | 1.00 |
| 9:K:32:PRO:CG | 9:K:33:ARG:H | 1.73 | 1.00 |
| 12:N:68:GLU:HA | 12:N:104:ARG:NH1 | 1.74 | 1.00 |
| 13:O:95:VAL:O | 13:O:97:PRO:HD2 | 1.62 | 1.00 |
| 14:P:44:ALA:HA | 14:P:47:ILE:HD12 | 1.39 | 1.00 |
| 23:Y:73:GLN:O | 23:Y:87:ASP:HB2 | 1.59 | 1.00 |
| 29:5:11:LEU:HD22 | 31:7:35:GLN:HE22 | 1.25 | 1.00 |
| 1:A:2492:U:H2' | 1:A:2492:U:O2 | 1.59 | 1.00 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 4:D:16:MET:O | 4:D:19:ALA:HB3 | 1.62 | 1.00 |
| 1:A:1803:A:C4' | 4:D:257:LEU:HD13 | 1.91 | 1.00 |
| 5:E:167:VAL:HG23 | 5:E:189:PRO:HB3 | 1.44 | 1.00 |
| 14:P:111:GLU:HB3 | 14:P:113:GLN:HG3 | 1.41 | 1.00 |
| 21:W:50:LYS:HZ2 | 21:W:85:PRO:HD2 | 1.21 | 1.00 |
| 9:K:79:ILE:HB | 9:K:144:VAL:HG23 | 1.40 | 1.00 |
| 1:A:1072:C:H2' | 1:A:1093:G:O6 | 1.62 | 1.00 |
| 1:A:1889:A:H2' | 1:A:1890:A:H8 | 1.24 | 1.00 |
| 1:A:2431:U:H2' | 1:A:2432:A:H5'' | 1.43 | 1.00 |
| 1:A:26:G:H1 | 1:A:27:G:H21 | 1.07 | 1.00 |
| 1:A:27:G:C2 | 1:A:512:G:H2' | 1.95 | 1.00 |
| 8:H:38:SER:HB3 | 8:H:41:MET:HG3 | 1.43 | 1.00 |
| 16:R:37:ALA:O | 16:R:51:ALA:HB3 | 1.61 | 1.00 |
| 22:X:84:ARG:HG2 | 22:X:86:ARG:H | 1.22 | 1.00 |
| 27:3:66:SER:O | 27:3:69:LYS:HB2 | 1.61 | 1.00 |
| 1:A:422:A:H2' | 1:A:422:A:N3 | 1.74 | 1.00 |
| 1:A:683:C:N3 | 1:A:684:G:N2 | 2.09 | 1.00 |
| 2:B:33:G:H2' | 2:B:34:U:C6 | 1.97 | 1.00 |
| 12:N:23:ARG:HH11 | 12:N:23:ARG:HB2 | 1.27 | 1.00 |
| 29:5:19:ARG:NH1 | 29:5:43:CYS:HB2 | 1.76 | 1.00 |
| 1:A:878:A:H2 | 1:A:879:G:H3' | 1.22 | 1.00 |
| 4:D:146:GLU:HB2 | 4:D:153:ALA:HA | 1.43 | 1.00 |
| 5:E:33:VAL:HG22 | 5:E:47:VAL:O | 1.60 | 1.00 |
| 18:T:102:GLU:HB3 | 18:T:105:VAL:HB | 1.39 | 1.00 |
| 27:3:56:VAL:HG12 | 27:3:57:GLU:H | 1.24 | 1.00 |
| 1:A:1024:G:H5' | 1:A:1025:G:C5' | 1.91 | 1.00 |
| 1:A:973:A:O2' | 1:A:1188:U:H5 | 1.44 | 1.00 |
| 1:A:1786:A:C4' | 1:A:1938:A:H61 | 1.75 | 1.00 |
| 1:A:197:A:N6 | 1:A:248:G:H22 | 1.59 | 1.00 |
| 1:A:270(A):A:H5' | 1:A:270(B):A:OP2 | 1.61 | 1.00 |
| 1:A:963:U:H1' | 1:A:2250:G:H21 | 1.26 | 1.00 |
| 12:N:21:CYS:HA | 12:N:41:ALA:CB | 1.90 | 1.00 |
| 14:P:26:TYR:N | 14:P:102:VAL:HB | 1.76 | 1.00 |
| 29:5:16:CYS:SG | 29:5:19:ARG:CZ | 2.50 | 1.00 |
| 1:A:2266:A:H1' | 1:A:2272:U:C4 | 1.96 | 1.00 |
| 1:A:2776:A:H4' | 1:A:2777:G:H5'' | 1.44 | 1.00 |
| 4:D:225:ALA:HB3 | 4:D:231:HIS:CE1 | 1.97 | 1.00 |
| 4:D:246:PRO:HD2 | 4:D:250:TRP:CB | 1.91 | 1.00 |
| 11:M:67:LEU:H | 11:M:87:LEU:HD21 | 1.25 | 1.00 |
| 3:C:10:LEU:HG | 3:C:220:PRO:HG3 | 1.42 | 1.00 |
| 26:2:9:VAL:HG23 | 26:2:10:LYS:N | 1.75 | 1.00 |
| 1:A:1557:C:H2' | 1:A:1558:A:H8 | 1.05 | 1.00 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2431:U:C2' | 1:A:2432:A:H5'' | 1.92 | 1.00 |
| 1:A:332:A:H4' | 1:A:333:G:OP1 | 1.62 | 1.00 |
| 5:E:136:ARG:NH1 | 5:E:137:HIS:HA | 1.75 | 1.00 |
| 16:R:3:ARG:CG | 16:R:4:LEU:H | 1.75 | 1.00 |
| 17:S:59:THR:O | 17:S:81:PRO:HG2 | 1.60 | 1.00 |
| 19:U:20:LEU:HA | 19:U:95:LEU:HB3 | 1.43 | 1.00 |
| 23:Y:27:VAL:HG21 | 23:Y:85:HIS:CE1 | 1.78 | 1.00 |
| 32:8:9:ARG:HA | 32:8:34:GLN:HE22 | 1.23 | 0.99 |
| 1:A:270(X):G:H4' | 1:A:272:G:O3' | 1.62 | 0.99 |
| 1:A:636:G:N2 | 13:O:75:ILE:HD12 | 1.75 | 0.99 |
| 1:A:84:A:H5' | 22:X:8:LYS:HE2 | 1.41 | 0.99 |
| 1:A:1658:C:OP1 | 5:E:134:ILE:HD12 | 1.61 | 0.99 |
| 15:Q:12:ARG:CZ | 15:Q:16:HIS:HB3 | 1.92 | 0.99 |
| 19:U:27:ALA:O | 19:U:33:VAL:HG21 | 1.60 | 0.99 |
| 27:3:47:GLN:HA | 27:3:52:THR:OG1 | 1.62 | 0.99 |
| 1:A:1930:G:H2' | 1:A:1968:G:O6 | 1.61 | 0.99 |
| 4:D:232:PRO:HG2 | 4:D:247:ALA:HA | 1.42 | 0.99 |
| 5:E:100:GLU:H | 5:E:172:VAL:HG21 | 1.21 | 0.99 |
| 5:E:4:ILE:N | 5:E:27:LEU:HD22 | 1.77 | 0.99 |
| 7:G:55:LYS:HE3 | 7:G:152:LEU:HD21 | 1.42 | 0.99 |
| 20:V:74:ALA:HB1 | 20:V:105:VAL:HA | 1.41 | 0.99 |
| 20:V:16:LYS:H | 20:V:16:LYS:CD | 1.75 | 0.99 |
| 1:A:2178:C:C5' | 3:C:46:LYS:HG2 | 1.92 | 0.99 |
| 1:A:1155:A:C2' | 1:A:1156:A:H5'' | 1.92 | 0.99 |
| 1:A:1255:U:H5'' | 1:A:1256:G:H5'' | 1.41 | 0.99 |
| 1:A:1405:U:H2' | 1:A:1406:U:C5 | 1.96 | 0.99 |
| 1:A:1956:U:H2' | 1:A:1957:C:C6 | 1.96 | 0.99 |
| 1:A:2075:U:H2' | 1:A:2076:U:H5' | 1.43 | 0.99 |
| 1:A:2841:C:H2' | 1:A:2842:G:C8 | 1.98 | 0.99 |
| 1:A:449:A:O2' | 1:A:450:G:H5' | 1.62 | 0.99 |
| 5:E:13:ARG:NH1 | 5:E:20:ALA:HB3 | 1.76 | 0.99 |
| 7:G:111:LEU:HB3 | 7:G:112:PRO:CD | 1.92 | 0.99 |
| 11:M:15:LEU:HD11 | 11:M:137:LYS:HB3 | 1.44 | 0.99 |
| 1:A:2183:C:H2' | 1:A:2184:G:H8 | 1.25 | 0.99 |
| 1:A:1969:A:H4' | 1:A:1970:A:H5' | 1.43 | 0.99 |
| 1:A:674:G:H4' | 6:F:74:ARG:NE | 1.76 | 0.99 |
| 1:A:704:G:H2' | 1:A:726:G:H22 | 1.16 | 0.99 |
| 4:D:9:TYR:HA | 4:D:24:ILE:O | 1.61 | 0.99 |
| 1:A:2631:G:N2 | 5:E:61:ARG:HH12 | 1.60 | 0.99 |
| 7:G:33:ARG:NH1 | 7:G:35:GLU:HB2 | 1.76 | 0.99 |
| 8:H:43:VAL:HG13 | 8:H:51:ARG:O | 1.61 | 0.99 |
| 11:M:26:LEU:O | 11:M:30:ILE:HD12 | 1.61 | 0.99 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:N:10:VAL:H | 12:N:17:ARG:CG | 1.75 | 0.99 |
| 19:U:5:VAL:HA | 19:U:39:LEU:O | 1.63 | 0.99 |
| 1:A:1695:G:H2' | 1:A:1696:G:H5' | 1.40 | 0.99 |
| 1:A:1944:U:H1' | 1:A:1955:U:C1' | 1.91 | 0.99 |
| 1:A:2638:G:HO2' | 1:A:2639:A:H8 | 1.01 | 0.99 |
| 9:K:28:ASN:O | 9:K:32:PRO:HG3 | 1.61 | 0.99 |
| 10:L:115:LEU:HB3 | 10:L:118:THR:HG22 | 1.44 | 0.99 |
| 16:R:15:ARG:HH21 | 16:R:15:ARG:HG2 | 1.23 | 0.99 |
| 16:R:89:ARG:HG2 | 16:R:90:GLY:H | 1.25 | 0.99 |
| 17:S:48:ILE:HD13 | 17:S:50:ILE:HD13 | 1.44 | 0.99 |
| 9:K:79:ILE:HD11 | 9:K:142:VAL:HG12 | 1.41 | 0.99 |
| 26:2:6:VAL:CG2 | 26:2:56:VAL:HA | 1.93 | 0.99 |
| 27:3:13:ARG:HG2 | 27:3:14:ILE:N | 1.72 | 0.99 |
| 1:A:1472:A:H1' | 1:A:1473:G:N7 | 1.78 | 0.99 |
| 1:A:1860:G:H5'' | 3:C:206:GLY:HA3 | 1.45 | 0.99 |
| 1:A:2059:A:N1 | 1:A:2503:A:N7 | 2.11 | 0.99 |
| 1:A:2791:C:H2' | 1:A:2792:G:H8 | 1.26 | 0.99 |
| 12:N:19:ILE:HB | 12:N:42:SER:O | 1.62 | 0.99 |
| 13:O:49:ARG:HH21 | 13:O:49:ARG:HG2 | 1.28 | 0.99 |
| 1:A:1418:G:H5' | 1:A:1587:A:O2' | 1.60 | 0.99 |
| 1:A:1024:G:C5' | 1:A:1025:G:H5'' | 1.93 | 0.99 |
| 1:A:2384:G:H5'' | 1:A:2386:C:OP1 | 1.61 | 0.99 |
| 1:A:2698:U:H2' | 1:A:2699:C:C5 | 1.97 | 0.99 |
| 1:A:1790:C:HO2' | 4:D:209:ALA:HB1 | 0.95 | 0.99 |
| 23:Y:27:VAL:CG2 | 23:Y:85:HIS:NE2 | 2.08 | 0.99 |
| 9:K:87:LYS:NZ | 9:K:121:LYS:H | 1.59 | 0.99 |
| 1:A:1454:U:H5' | 1:A:1455:G:OP2 | 1.62 | 0.99 |
| 1:A:1533:C:C2 | 1:A:1539:G:N2 | 2.30 | 0.99 |
| 1:A:1799:G:C8 | 4:D:268:ARG:NH1 | 2.31 | 0.99 |
| 1:A:2243:U:H2' | 1:A:2244:U:H6 | 1.25 | 0.99 |
| 1:A:2742:C:H5'' | 32:8:35:ARG:NH1 | 1.77 | 0.99 |
| 2:B:45:A:H1' | 7:G:95:ARG:NH1 | 1.77 | 0.99 |
| 11:M:57:ALA:HB3 | 11:M:124:ALA:CB | 1.92 | 0.99 |
| 12:N:18:LYS:NZ | 12:N:44:LYS:HZ3 | 1.59 | 0.99 |
| 16:R:74:ALA:HB1 | 16:R:108:GLY:CA | 1.92 | 0.99 |
| 1:A:2378:A:H2' | 16:R:20:ARG:NH1 | 1.78 | 0.99 |
| 16:R:78:LEU:HD13 | 16:R:79:ALA:N | 1.77 | 0.99 |
| 25:1:20:VAL:HA | 25:1:55:LEU:HD23 | 1.43 | 0.99 |
| 25:1:5:LEU:O | 25:1:8:ALA:HB3 | 1.61 | 0.99 |
| 1:A:1612:C:O3' | 30:6:5:TRP:HD1 | 1.46 | 0.99 |
| 1:A:1799:G:H3' | 4:D:183:ARG:HH22 | 1.27 | 0.99 |
| 1:A:215:G:H4' | 1:A:216:A:O5' | 1.62 | 0.99 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2207:C:H2' | 1:A:2208:U:H4' | 1.40 | 0.99 |
| 1:A:2409:G:N2 | 1:A:2410:G:H1' | 1.77 | 0.99 |
| 1:A:945:A:N6 | 1:A:2448:A:H2 | 1.59 | 0.99 |
| 1:A:2683:C:H4' | 5:E:19:ARG:HH12 | 1.24 | 0.99 |
| 13:O:135:LEU:O | 13:O:138:LEU:HB3 | 1.61 | 0.99 |
| 14:P:48:GLU:HA | 14:P:51:ARG:HG2 | 1.44 | 0.99 |
| 3:C:30:LYS:HZ1 | 3:C:182:PRO:HD3 | 1.26 | 0.99 |
| 1:A:1488:G:H2' | 1:A:1489:U:H5' | 1.41 | 0.99 |
| 1:A:2331:G:H2' | 1:A:2332:U:O4' | 1.63 | 0.99 |
| 1:A:2415:G:H5'' | 13:O:61:ARG:CB | 1.93 | 0.99 |
| 1:A:323:G:H5' | 1:A:324:A:OP1 | 1.63 | 0.99 |
| 1:A:783:A:H3' | 4:D:227:ASN:OD1 | 1.63 | 0.99 |
| 6:F:155:LEU:HG | 6:F:189:THR:CG2 | 1.93 | 0.99 |
| 7:G:107:LEU:HD11 | 7:G:177:GLY:O | 1.63 | 0.99 |
| 12:N:79:PHE:HB2 | 17:S:73:GLU:HG3 | 1.45 | 0.99 |
| 3:C:211:SER:HB2 | 3:C:213:TYR:CE1 | 1.97 | 0.99 |
| 29:5:19:ARG:HH12 | 29:5:43:CYS:HB2 | 1.21 | 0.98 |
| 1:A:1691:C:O2' | 1:A:1692:U:H5' | 1.63 | 0.98 |
| 1:A:270(D):C:H2' | 1:A:270(E):G:C8 | 1.98 | 0.98 |
| 1:A:861:A:N6 | 1:A:917:A:N7 | 2.11 | 0.98 |
| 6:F:155:LEU:HG | 6:F:189:THR:HG21 | 1.02 | 0.98 |
| 8:H:96:ALA:HB3 | 8:H:128:PRO:HB2 | 0.99 | 0.98 |
| 8:H:35:VAL:CG1 | 8:H:75:ALA:HB2 | 1.93 | 0.98 |
| 12:N:18:LYS:HB3 | 12:N:45:GLU:CD | 1.82 | 0.98 |
| 15:Q:52:ILE:HD12 | 15:Q:94:TYR:HD1 | 1.25 | 0.98 |
| 20:V:29:LEU:O | 20:V:33:ARG:HB2 | 1.62 | 0.98 |
| 20:V:42:ARG:HD2 | 20:V:46:PHE:CE1 | 1.97 | 0.98 |
| 30:6:43:THR:N | 30:6:44:PRO:HD2 | 1.78 | 0.98 |
| 5:E:12:THR:HG21 | 5:E:19:ARG:HH11 | 1.28 | 0.98 |
| 8:H:33:LEU:HD13 | 8:H:75:ALA:HA | 1.45 | 0.98 |
| 9:K:2:LYS:O | 9:K:38:LEU:HD22 | 1.62 | 0.98 |
| 1:A:389:G:O6 | 13:O:64:LYS:HG2 | 1.63 | 0.98 |
| 14:P:74:TYR:OH | 14:P:94:VAL:HG22 | 1.60 | 0.98 |
| 18:T:89:GLU:HA | 19:U:51:VAL:HG12 | 1.45 | 0.98 |
| 24:Z:21:LEU:HG | 24:Z:39:ARG:O | 1.62 | 0.98 |
| 28:4:10:LYS:C | 28:4:12:SER:H | 1.61 | 0.98 |
| 1:A:1177:A:H2' | 1:A:1178:C:C6 | 1.97 | 0.98 |
| 1:A:1491:G:C2' | 1:A:1492:G:H4' | 1.93 | 0.98 |
| 1:A:1746:G:H3' | 1:A:1746:G:OP2 | 1.63 | 0.98 |
| 1:A:1940:U:H5'' | 1:A:1941:C:H5' | 1.42 | 0.98 |
| 1:A:364:C:H2' | 1:A:365:C:C5 | 1.97 | 0.98 |
| 1:A:1775:U:C5 | 4:D:208:LYS:HD2 | 1.97 | 0.98 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 4:D:54:ARG:CB | 4:D:218:ARG:HB3 | 1.93 | 0.98 |
| 7:G:165:THR:HB | 7:G:168:GLU:OE2 | 1.62 | 0.98 |
| 20:V:16:LYS:HZ2 | 20:V:16:LYS:N | 1.60 | 0.98 |
| 27:3:10:VAL:H | 27:3:11:PRO:HD2 | 1.29 | 0.98 |
| 27:3:7:PRO:CD | 27:3:56:VAL:HG13 | 1.92 | 0.98 |
| 29:5:19:ARG:HG2 | 29:5:43:CYS:SG | 2.03 | 0.98 |
| 30:6:21:ARG:HB3 | 30:6:31:LEU:HD11 | 1.44 | 0.98 |
| 1:A:1227:A:C8 | 1:A:1228:G:H5'' | 1.97 | 0.98 |
| 1:A:1839:G:N3 | 1:A:1839:G:H2' | 1.79 | 0.98 |
| 1:A:2304:G:H4' | 7:G:132:ASN:HD21 | 1.26 | 0.98 |
| 1:A:336:C:C2' | 1:A:337:C:H5' | 1.92 | 0.98 |
| 1:A:5:A:H2' | 1:A:6:A:H8 | 1.24 | 0.98 |
| 2:B:89:G:H2' | 2:B:89(A):A:C8 | 1.97 | 0.98 |
| 11:M:67:LEU:H | 11:M:87:LEU:CD2 | 1.76 | 0.98 |
| 20:V:74:ALA:CB | 20:V:105:VAL:HA | 1.93 | 0.98 |
| 30:6:17:GLY:H | 30:6:21:ARG:NH2 | 1.60 | 0.98 |
| 1:A:323:G:C2 | 1:A:333:G:H1' | 1.98 | 0.98 |
| 1:A:592:G:H5' | 1:A:593:G:OP2 | 1.63 | 0.98 |
| 17:S:54:ARG:CG | 17:S:100:TYR:HB2 | 1.94 | 0.98 |
| 23:Y:157:LEU:HD21 | 23:Y:163:LEU:CG | 1.93 | 0.98 |
| 1:A:1418:G:H1' | 1:A:1581:G:H21 | 1.23 | 0.98 |
| 31:7:31:HIS:N | 31:7:34:TRP:HE1 | 1.61 | 0.98 |
| 32:8:10:ILE:C | 32:8:12:ASP:H | 1.53 | 0.98 |
| 1:A:1312:U:C5 | 21:W:62:LYS:HD2 | 1.98 | 0.98 |
| 1:A:2023:G:H2' | 1:A:2024:G:H8 | 1.22 | 0.98 |
| 1:A:2304:G:C4' | 7:G:132:ASN:HD21 | 1.76 | 0.98 |
| 1:A:2848:G:H21 | 1:A:2849:U:H3 | 1.08 | 0.98 |
| 1:A:817:C:H2' | 1:A:818:G:O4' | 1.63 | 0.98 |
| 6:F:162:LEU:HA | 6:F:165:ARG:NH2 | 1.78 | 0.98 |
| 20:V:78:GLU:OE2 | 20:V:99:ARG:HB3 | 1.62 | 0.98 |
| 23:Y:127:LYS:HZ3 | 23:Y:165:VAL:HB | 1.24 | 0.98 |
| 9:K:87:LYS:HD3 | 9:K:121:LYS:C | 1.83 | 0.98 |
| 9:K:82:ARG:O | 9:K:88:ILE:HG23 | 1.64 | 0.98 |
| 1:A:2135:A:N7 | 1:A:2160:G:H1' | 1.79 | 0.98 |
| 1:A:809:G:H1' | 1:A:1254:A:N3 | 1.78 | 0.98 |
| 1:A:2307:G:H5'' | 1:A:2308:G:N7 | 1.77 | 0.98 |
| 1:A:2626:C:H2' | 1:A:2627:G:H8 | 1.23 | 0.98 |
| 1:A:270(M):U:H4' | 1:A:270(N):G:H4' | 0.99 | 0.98 |
| 1:A:613:U:H5' | 1:A:614:U:C5 | 1.99 | 0.98 |
| 6:F:4:VAL:HG13 | 6:F:20:LEU:HG | 0.98 | 0.98 |
| 7:G:102:PHE:HD2 | 7:G:106:LEU:HD11 | 1.27 | 0.98 |
| 7:G:47:LYS:CB | 7:G:72:ARG:HB3 | 1.93 | 0.98 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 9:K:4:ILE:HA | 9:K:18:VAL:HG22 | 1.44 | 0.98 |
| 13:O:23:PRO:HB2 | 13:O:29:LYS:H | 1.28 | 0.98 |
| 22:X:82:PRO:HD3 | 22:X:97:ARG:H | 1.26 | 0.98 |
| 3:C:64:LEU:HD22 | 3:C:191:ALA:CB | 1.94 | 0.98 |
| 1:A:1065:U:H2' | 1:A:1066:U:H4' | 1.45 | 0.98 |
| 1:A:1204:A:N7 | 13:O:6:LEU:HB2 | 1.76 | 0.98 |
| 16:R:24:LEU:HG | 16:R:40:ILE:O | 1.62 | 0.98 |
| 21:W:63:LYS:H | 21:W:72:LYS:HD2 | 1.27 | 0.98 |
| 9:K:98:ALA:O | 9:K:102:SER:HB2 | 1.63 | 0.98 |
| 27:3:13:ARG:CG | 27:3:14:ILE:H | 1.77 | 0.98 |
| 1:A:1996:C:H5'' | 1:A:1996:C:C6 | 1.99 | 0.98 |
| 1:A:2593:U:O4 | 4:D:239:ARG:NH2 | 1.97 | 0.98 |
| 4:D:154:LYS:O | 4:D:155:LEU:HB3 | 1.60 | 0.98 |
| 4:D:127:VAL:HA | 4:D:193:VAL:HG11 | 1.43 | 0.98 |
| 4:D:57:GLY:N | 4:D:217:ARG:HH11 | 1.61 | 0.98 |
| 4:D:72:LYS:HG2 | 4:D:75:ILE:HD12 | 1.42 | 0.98 |
| 7:G:53:LEU:HD21 | 7:G:72:ARG:H | 1.26 | 0.98 |
| 9:K:9:LEU:HB2 | 9:K:13:GLY:O | 1.63 | 0.98 |
| 14:P:34:LEU:HD12 | 14:P:67:ARG:NH1 | 1.79 | 0.98 |
| 1:A:2876:G:H5' | 17:S:1:MET:H3 | 1.28 | 0.98 |
| 23:Y:24:LEU:HB2 | 23:Y:41:LEU:HD21 | 1.45 | 0.98 |
| 1:A:1254:A:H5' | 1:A:1255:U:H5' | 1.42 | 0.98 |
| 7:G:105:LYS:NZ | 7:G:139:LEU:HD13 | 1.79 | 0.98 |
| 10:L:108:ALA:HB1 | 10:L:123:ALA:HB1 | 1.45 | 0.98 |
| 14:P:66:ILE:HG22 | 14:P:67:ARG:N | 1.77 | 0.98 |
| 18:T:105:VAL:HG22 | 18:T:109:LEU:HD11 | 1.43 | 0.98 |
| 1:A:712:G:H2' | 1:A:713:G:H8 | 1.23 | 0.98 |
| 1:A:1770:G:H2' | 1:A:1771:C:C6 | 1.97 | 0.97 |
| 1:A:2439:A:H4' | 1:A:2440:C:O5' | 1.58 | 0.97 |
| 1:A:270(P):C:H5' | 9:K:45:LYS:HD2 | 1.46 | 0.97 |
| 1:A:776:G:H1' | 1:A:793:A:N1 | 1.79 | 0.97 |
| 4:D:258:LYS:HG3 | 4:D:264:LYS:CG | 1.93 | 0.97 |
| 6:F:6:VAL:HA | 6:F:20:LEU:CD1 | 1.93 | 0.97 |
| 6:F:41:LEU:O | 6:F:44:ARG:HG3 | 1.64 | 0.97 |
| 16:R:74:ALA:CB | 16:R:108:GLY:HA3 | 1.93 | 0.97 |
| 23:Y:118:GLN:HE21 | 23:Y:118:GLN:HA | 1.26 | 0.97 |
| 23:Y:94:GLU:H | 23:Y:95:PRO:HD3 | 1.25 | 0.97 |
| 1:A:1510:A:H3' | 1:A:1511:A:N7 | 1.78 | 0.97 |
| 1:A:237:C:H2' | 1:A:238:C:H6 | 1.27 | 0.97 |
| 4:D:54:ARG:HA | 4:D:220:HIS:H | 1.27 | 0.97 |
| 7:G:47:LYS:HB2 | 7:G:72:ARG:CB | 1.93 | 0.97 |
| 17:S:102:ILE:O | 17:S:104:ASN:N | 1.95 | 0.97 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:73:SER:O | 19:U:89:GLN:HB2 | 1.65 | 0.97 |
| 20:V:14:PRO:HD3 | 20:V:78:GLU:OE2 | 1.63 | 0.97 |
| 21:W:92:LEU:HD12 | 21:W:92:LEU:N | 1.79 | 0.97 |
| 2:B:12:C:H5'' | 24:Z:74:ARG:HG2 | 1.46 | 0.97 |
| 1:A:1312:U:H3' | 1:A:1313:U:C6 | 1.99 | 0.97 |
| 1:A:1697:G:H5'' | 1:A:1698:A:H5' | 1.42 | 0.97 |
| 1:A:282:A:C5 | 1:A:283:A:H4' | 2.00 | 0.97 |
| 1:A:627:A:H61 | 1:A:638:G:H1' | 1.24 | 0.97 |
| 7:G:110:ALA:HA | 7:G:113:ARG:HD3 | 1.46 | 0.97 |
| 11:M:46:VAL:CG1 | 11:M:47:ALA:H | 1.69 | 0.97 |
| 14:P:134:ARG:HD3 | 14:P:137:TYR:HA | 1.46 | 0.97 |
| 14:P:85:LYS:HG3 | 14:P:86:GLY:N | 1.78 | 0.97 |
| 18:T:88:ILE:C | 19:U:52:VAL:HA | 1.84 | 0.97 |
| 19:U:65:GLY:N | 19:U:97:LYS:HE3 | 1.79 | 0.97 |
| 27:3:18:CYS:H | 27:3:33:VAL:HB | 1.25 | 0.97 |
| 28:4:31:VAL:HB | 28:4:32:PRO:HD2 | 1.45 | 0.97 |
| 28:4:48:GLU:HA | 28:4:58:LEU:HG | 1.43 | 0.97 |
| 31:7:12:LYS:HG2 | 31:7:13:ARG:NH1 | 1.78 | 0.97 |
| 1:A:2587:A:C2' | 1:A:2588:G:H5' | 1.94 | 0.97 |
| 1:A:775:G:H1' | 1:A:791:C:N4 | 1.79 | 0.97 |
| 1:A:987:G:OP2 | 26:2:13:ILE:HG21 | 1.62 | 0.97 |
| 2:B:87:G:H8 | 2:B:87:G:OP2 | 1.47 | 0.97 |
| 7:G:53:LEU:HB3 | 7:G:69:ALA:O | 1.62 | 0.97 |
| 7:G:78:SER:HB2 | 7:G:83:ARG:HD2 | 1.47 | 0.97 |
| 12:N:85:VAL:HG12 | 12:N:93:PRO:HG3 | 1.46 | 0.97 |
| 18:T:76:TYR:CE2 | 18:T:80:ILE:HD11 | 1.98 | 0.97 |
| 25:1:27:LEU:HA | 25:1:30:LEU:HG | 1.42 | 0.97 |
| 27:3:46:GLN:HE22 | 27:3:69:LYS:HE2 | 1.23 | 0.97 |
| 30:6:28:ARG:HA | 30:6:31:LEU:HD12 | 1.41 | 0.97 |
| 1:A:1684:C:H2' | 1:A:1685:C:C6 | 2.00 | 0.97 |
| 1:A:1710:C:H2' | 1:A:1711:C:H6 | 1.26 | 0.97 |
| 1:A:20:C:O2' | 1:A:21:A:H5' | 1.62 | 0.97 |
| 1:A:2564:A:H2' | 1:A:2565:A:C8 | 1.97 | 0.97 |
| 1:A:2832:U:H1' | 1:A:2834:G:H21 | 1.28 | 0.97 |
| 1:A:373:U:H4' | 1:A:374:A:C8 | 1.98 | 0.97 |
| 1:A:637:A:C2 | 1:A:651:G:H4' | 2.00 | 0.97 |
| 1:A:641:C:C2' | 1:A:642:G:H5' | 1.93 | 0.97 |
| 1:A:648:G:H2' | 1:A:649:G:H8 | 1.30 | 0.97 |
| 2:B:12:C:H5'' | 24:Z:74:ARG:CG | 1.94 | 0.97 |
| 16:R:40:ILE:HG23 | 16:R:46:VAL:O | 1.64 | 0.97 |
| 16:R:99:LYS:O | 16:R:102:ALA:HB3 | 1.64 | 0.97 |
| 20:V:88:ARG:HA | 20:V:88:ARG:NE | 1.76 | 0.97 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:K:68:LEU:HD21 | 9:K:107:VAL:HG21 | 1.46 | 0.97 |
| 1:A:1853:A:H2' | 1:A:1854:A:H8 | 1.29 | 0.97 |
| 1:A:1859:A:H2' | 1:A:1860:G:O4' | 1.65 | 0.97 |
| 1:A:1782:C:C5 | 1:A:2587:A:N6 | 2.33 | 0.97 |
| 1:A:2862:G:H2' | 1:A:2863:C:H6 | 1.25 | 0.97 |
| 1:A:320:A:H2' | 6:F:136:THR:HG21 | 1.44 | 0.97 |
| 1:A:828:U:H2' | 1:A:829:A:H8 | 1.04 | 0.97 |
| 1:A:911:A:C8 | 1:A:2264:C:H1' | 1.97 | 0.97 |
| 2:B:12:C:O4' | 24:Z:74:ARG:NE | 1.96 | 0.97 |
| 5:E:14:ILE:HA | 5:E:19:ARG:HB2 | 1.42 | 0.97 |
| 5:E:4:ILE:O | 5:E:27:LEU:HD13 | 1.64 | 0.97 |
| 7:G:58:GLN:O | 7:G:61:ALA:HB3 | 1.64 | 0.97 |
| 8:H:118:PRO:HD2 | 8:H:121:ILE:HD13 | 1.44 | 0.97 |
| 14:P:48:GLU:O | 14:P:51:ARG:HG3 | 1.62 | 0.97 |
| 19:U:69:LYS:O | 19:U:91:TYR:O | 1.82 | 0.97 |
| 1:A:2208:U:H2' | 1:A:2209:C:H5' | 1.42 | 0.97 |
| 1:A:2445:G:H2' | 1:A:2446:G:C8 | 2.00 | 0.97 |
| 1:A:452:G:H3' | 1:A:453:C:H5'' | 1.47 | 0.97 |
| 1:A:455:C:H5'' | 1:A:456:C:OP1 | 1.65 | 0.97 |
| 1:A:775:G:C2' | 1:A:794:G:C8 | 2.48 | 0.97 |
| 4:D:232:PRO:HG2 | 4:D:247:ALA:N | 1.79 | 0.97 |
| 4:D:258:LYS:HG3 | 4:D:264:LYS:HG3 | 0.97 | 0.97 |
| 5:E:66:HIS:ND1 | 5:E:67:PHE:N | 2.12 | 0.97 |
| 6:F:45:ARG:HD3 | 6:F:97:TYR:CD1 | 2.00 | 0.97 |
| 7:G:135:LEU:HD13 | 7:G:136:ARG:H | 1.30 | 0.97 |
| 7:G:47:LYS:HZ3 | 7:G:73:ALA:HB3 | 1.08 | 0.97 |
| 8:H:125:VAL:HA | 8:H:131:VAL:HG22 | 1.44 | 0.97 |
| 11:M:34:LEU:HD21 | 11:M:120:LEU:HB2 | 1.44 | 0.97 |
| 14:P:23:GLY:CA | 14:P:101:ARG:HH21 | 1.77 | 0.97 |
| 15:Q:99:LYS:H | 15:Q:99:LYS:CD | 1.74 | 0.97 |
| 1:A:154:G:H2' | 1:A:155:C:C6 | 1.99 | 0.97 |
| 28:4:48:GLU:CA | 28:4:58:LEU:HG | 1.95 | 0.97 |
| 1:A:1944:U:H1' | 1:A:1955:U:H1' | 1.44 | 0.97 |
| 1:A:2658:C:H2' | 1:A:2659:G:H5' | 0.98 | 0.97 |
| 1:A:2698:U:H2' | 1:A:2699:C:C6 | 1.99 | 0.97 |
| 4:D:62:TYR:CE1 | 4:D:86:PRO:HB2 | 2.00 | 0.97 |
| 11:M:33:LEU:HD13 | 11:M:34:LEU:N | 1.79 | 0.97 |
| 13:O:126:VAL:HA | 13:O:146:VAL:H | 1.29 | 0.97 |
| 14:P:124:LYS:HE2 | 14:P:125:LEU:N | 1.80 | 0.97 |
| 15:Q:8:ARG:HG2 | 15:Q:10:LEU:HD21 | 1.43 | 0.97 |
| 16:R:62:LYS:O | 16:R:65:VAL:HG12 | 1.64 | 0.97 |
| 26:2:4:LEU:O | 26:2:37:LEU:CB | 2.12 | 0.97 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2886:G:O2' | 28:4:31:VAL:HB | 1.64 | 0.97 |
| 1:A:1625:C:H2' | 1:A:1626:G:C4' | 1.95 | 0.97 |
| 1:A:2412:A:H2' | 1:A:2413:G:O4' | 1.63 | 0.97 |
| 1:A:319:C:H2' | 1:A:320:A:C8 | 2.00 | 0.97 |
| 4:D:196:VAL:HG12 | 4:D:197:GLY:N | 1.79 | 0.97 |
| 4:D:258:LYS:CG | 4:D:264:LYS:HG3 | 1.93 | 0.97 |
| 6:F:131:GLY:HA2 | 6:F:138:GLU:CB | 1.95 | 0.97 |
| 6:F:183:VAL:O | 6:F:186:ILE:HB | 1.64 | 0.97 |
| 8:H:164:TYR:HE2 | 8:H:167:GLU:H | 1.05 | 0.97 |
| 13:O:45:LEU:HD13 | 31:7:59:LYS:HZ1 | 0.85 | 0.97 |
| 1:A:1315:C:O2' | 1:A:1392:A:H1' | 1.63 | 0.97 |
| 4:D:133:LEU:HD11 | 4:D:185:VAL:HG12 | 1.47 | 0.97 |
| 7:G:120:LEU:HD22 | 7:G:181:ARG:CB | 1.93 | 0.97 |
| 12:N:63:VAL:HA | 12:N:78:ARG:HG3 | 1.43 | 0.97 |
| 12:N:68:GLU:OE2 | 12:N:76:ALA:HB3 | 1.63 | 0.97 |
| 16:R:76:LYS:O | 16:R:80:LEU:HD23 | 1.63 | 0.97 |
| 18:T:89:GLU:HG2 | 19:U:52:VAL:HG23 | 1.44 | 0.97 |
| 19:U:76:LYS:HA | 19:U:85:LYS:O | 1.63 | 0.97 |
| 21:W:89:ILE:HG23 | 21:W:92:LEU:HD22 | 1.43 | 0.97 |
| 27:3:47:GLN:HA | 27:3:52:THR:CB | 1.95 | 0.96 |
| 1:A:1212:G:HO2' | 1:A:1213:A:H8 | 1.05 | 0.96 |
| 4:D:147:LEU:CG | 4:D:154:LYS:HD2 | 1.95 | 0.96 |
| 1:A:1789:A:H2' | 4:D:213:ARG:NH2 | 1.80 | 0.96 |
| 5:E:30:PRO:HG2 | 5:E:90:THR:HG22 | 1.47 | 0.96 |
| 6:F:168:ARG:HB2 | 6:F:168:ARG:NH2 | 1.80 | 0.96 |
| 28:4:51:TYR:CD1 | 28:4:55:ARG:HD3 | 2.01 | 0.96 |
| 1:A:1019:U:H2' | 1:A:1020:A:O4' | 1.64 | 0.96 |
| 1:A:1222:C:H42 | 1:A:1227:A:H62 | 1.10 | 0.96 |
| 1:A:1706:U:H3 | 1:A:1757:U:H5'' | 1.28 | 0.96 |
| 1:A:2346:A:N6 | 29:5:37:ARG:HH12 | 1.63 | 0.96 |
| 1:A:2491:U:H6 | 1:A:2491:U:C3' | 1.77 | 0.96 |
| 6:F:154:VAL:O | 6:F:174:VAL:HG13 | 1.65 | 0.96 |
| 12:N:7:TYR:CD1 | 12:N:7:TYR:N | 2.31 | 0.96 |
| 16:R:73:LEU:O | 16:R:76:LYS:HE3 | 1.65 | 0.96 |
| 16:R:13:ARG:HD3 | 16:R:90:GLY:O | 1.65 | 0.96 |
| 20:V:48:ALA:HA | 20:V:51:LEU:HD22 | 1.42 | 0.96 |
| 23:Y:96:VAL:HA | 23:Y:128:VAL:HG13 | 1.45 | 0.96 |
| 23:Y:127:LYS:CD | 23:Y:164:ALA:H | 1.75 | 0.96 |
| 24:Z:37:LEU:HD21 | 24:Z:61:ALA:N | 1.80 | 0.96 |
| 3:C:47:LEU:HD23 | 3:C:47:LEU:H | 1.30 | 0.96 |
| 9:K:133:HIS:ND1 | 9:K:134:PRO:HD2 | 1.78 | 0.96 |
| 25:1:30:LEU:HD11 | 25:1:48:LEU:HD23 | 1.44 | 0.96 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 25:1:48:LEU:O | 25:1:52:ILE:HG12 | 1.63 | 0.96 |
| 1:A:1203:G:C2 | 1:A:1241:A:H8 | 1.83 | 0.96 |
| 1:A:1312:U:H2' | 1:A:1313:U:C6 | 1.98 | 0.96 |
| 1:A:1864:U:H2' | 1:A:1869:G:H5' | 1.45 | 0.96 |
| 1:A:2853:C:H2' | 1:A:2854:G:H8 | 1.30 | 0.96 |
| 1:A:612:G:H4' | 1:A:616:A:H61 | 1.15 | 0.96 |
| 15:Q:12:ARG:NH1 | 15:Q:16:HIS:HB3 | 1.80 | 0.96 |
| 9:K:69:LYS:HE3 | 9:K:70:LYS:HG3 | 1.46 | 0.96 |
| 3:C:149:ILE:HG12 | 3:C:153:ILE:HD11 | 1.47 | 0.96 |
| 3:C:68:LEU:HD23 | 3:C:69:GLY:N | 1.80 | 0.96 |
| 1:A:1144:G:H2' | 1:A:1145:C:H6 | 1.21 | 0.96 |
| 1:A:2556:C:O2' | 1:A:2557:G:H5' | 1.65 | 0.96 |
| 2:B:51:G:H2' | 2:B:52:A:C5' | 1.95 | 0.96 |
| 4:D:204:ILE:HG13 | 4:D:205:VAL:H | 1.29 | 0.96 |
| 4:D:7:LYS:NZ | 4:D:91:ARG:HH11 | 1.62 | 0.96 |
| 6:F:131:GLY:HA2 | 6:F:138:GLU:HB2 | 1.47 | 0.96 |
| 6:F:18:ARG:NH1 | 6:F:20:LEU:HD11 | 1.80 | 0.96 |
| 8:H:96:ALA:CB | 8:H:128:PRO:HB2 | 1.95 | 0.96 |
| 9:K:21:VAL:HG11 | 9:K:30:LEU:HD13 | 1.48 | 0.96 |
| 13:O:74:GLU:HB2 | 13:O:107:LYS:NZ | 1.81 | 0.96 |
| 18:T:47:TYR:CE2 | 19:U:75:PHE:HB3 | 1.99 | 0.96 |
| 23:Y:4:ARG:HH11 | 23:Y:37:VAL:HB | 1.28 | 0.96 |
| 29:5:16:CYS:HB2 | 29:5:49:HIS:HA | 1.45 | 0.96 |
| 1:A:1267:U:H2' | 1:A:1268:A:H5' | 1.45 | 0.96 |
| 1:A:1824:G:OP1 | 4:D:53:PHE:CZ | 2.18 | 0.96 |
| 1:A:2047:U:H2' | 1:A:2048:G:H8 | 1.28 | 0.96 |
| 1:A:2061:G:O2' | 1:A:2062:A:H5'' | 1.65 | 0.96 |
| 1:A:2530:A:C3' | 1:A:2531:A:H5'' | 1.95 | 0.96 |
| 6:F:155:LEU:CG | 6:F:189:THR:HG21 | 1.96 | 0.96 |
| 18:T:74:LEU:CD1 | 18:T:78:THR:HG21 | 1.94 | 0.96 |
| 21:W:8:ILE:HD11 | 21:W:42:ALA:CB | 1.95 | 0.96 |
| 22:X:12:THR:HA | 22:X:73:ARG:CZ | 1.95 | 0.96 |
| 1:A:2123:G:H4' | 3:C:172:HIS:CD2 | 2.00 | 0.96 |
| 3:C:100:ILE:HG23 | 3:C:127:LEU:HG | 1.43 | 0.96 |
| 1:A:1790:C:H2' | 1:A:1791:A:N7 | 1.81 | 0.96 |
| 1:A:2471:C:H2' | 1:A:2472:G:H5' | 1.48 | 0.96 |
| 1:A:2636:U:H4' | 5:E:79:ARG:HD3 | 1.48 | 0.96 |
| 1:A:443:A:H5' | 6:F:45:ARG:NH1 | 1.78 | 0.96 |
| 7:G:68:PRO:CG | 7:G:72:ARG:HH12 | 1.78 | 0.96 |
| 8:H:65:HIS:O | 8:H:69:ARG:HG2 | 1.63 | 0.96 |
| 15:Q:77:ARG:HH11 | 15:Q:77:ARG:HG3 | 1.25 | 0.96 |
| 18:T:112:ARG:HH12 | 19:U:49:THR:HG23 | 1.28 | 0.96 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 3:C:93:TYR:CE1 | 3:C:109:ASP:HB2 | 1.99 | 0.96 |
| 1:A:1400:G:H2' | 1:A:1401:G:H8 | 1.26 | 0.96 |
| 1:A:1889:A:H2' | 1:A:1890:A:C8 | 1.99 | 0.96 |
| 1:A:1890:A:C2 | 1:A:1891:G:H1' | 2.00 | 0.96 |
| 1:A:653:A:N6 | 1:A:655:A:N3 | 2.13 | 0.96 |
| 1:A:871:U:H5'' | 14:P:9:TYR:CE2 | 2.00 | 0.96 |
| 18:T:105:VAL:HA | 18:T:108:GLU:OE1 | 1.65 | 0.96 |
| 1:A:2019:A:H3' | 1:A:2020:A:C5' | 1.96 | 0.96 |
| 1:A:874:G:N3 | 1:A:874:G:H2' | 1.79 | 0.96 |
| 12:N:57:VAL:O | 12:N:59:LYS:NZ | 1.99 | 0.96 |
| 13:O:45:LEU:O | 13:O:46:LYS:HB3 | 1.66 | 0.96 |
| 15:Q:58:GLY:HA2 | 15:Q:80:PHE:CE2 | 2.00 | 0.96 |
| 17:S:50:ILE:CB | 17:S:66:VAL:HB | 1.96 | 0.96 |
| 19:U:36:PRO:HA | 19:U:60:GLU:O | 1.65 | 0.96 |
| 1:A:1072:C:H42 | 1:A:1100:C:N4 | 1.63 | 0.96 |
| 1:A:1543:A:OP2 | 1:A:1544:C:H6 | 1.48 | 0.96 |
| 1:A:1697:G:H3' | 1:A:1698:A:C5' | 1.95 | 0.96 |
| 1:A:775:G:H21 | 1:A:787:U:H2' | 1.02 | 0.96 |
| 6:F:31:HIS:CG | 13:O:14:LYS:HZ1 | 1.84 | 0.96 |
| 7:G:63:ILE:HD11 | 7:G:105:LYS:NZ | 1.79 | 0.96 |
| 11:M:69:GLN:NE2 | 11:M:87:LEU:HD22 | 1.81 | 0.96 |
| 12:N:105:GLU:O | 12:N:111:PHE:HZ | 1.46 | 0.96 |
| 14:P:44:ALA:O | 14:P:47:ILE:HB | 1.63 | 0.96 |
| 11:M:4:TYR:OH | 18:T:101:ARG:HB3 | 1.65 | 0.96 |
| 22:X:76:CYS:HB3 | 22:X:100:ALA:HB3 | 1.47 | 0.96 |
| 24:Z:82:ARG:HD2 | 24:Z:83:PRO:CD | 1.95 | 0.96 |
| 3:C:22:ILE:O | 3:C:25:ALA:HB3 | 1.65 | 0.96 |
| 1:A:2178:C:H5' | 3:C:46:LYS:HG2 | 1.45 | 0.96 |
| 1:A:1182:A:O3' | 1:A:1183:G:H3' | 1.64 | 0.96 |
| 1:A:1425:G:H2' | 1:A:1426:G:C8 | 2.01 | 0.96 |
| 1:A:1518:C:H2' | 1:A:1519:G:H4' | 1.47 | 0.96 |
| 1:A:1916:A:H3' | 1:A:1916:A:N3 | 1.79 | 0.96 |
| 1:A:2459:A:N3 | 1:A:2460:U:C1' | 2.29 | 0.96 |
| 1:A:2506:U:O2' | 1:A:2507:C:H5' | 1.64 | 0.96 |
| 1:A:2563:U:H4' | 12:N:28:SER:OG | 1.66 | 0.96 |
| 1:A:2897:U:H2' | 1:A:2898:U:H6 | 1.29 | 0.96 |
| 1:A:566:U:C5' | 19:U:82:ARG:HH12 | 1.78 | 0.96 |
| 1:A:832:G:H2' | 1:A:833:U:C5 | 1.99 | 0.96 |
| 1:A:932:G:H2' | 1:A:933:A:C8 | 2.01 | 0.96 |
| 5:E:110:GLY:HA2 | 5:E:161:GLY:O | 1.63 | 0.96 |
| 6:F:103:LYS:CA | 6:F:106:ARG:HG2 | 1.95 | 0.96 |
| 6:F:106:ARG:HG3 | 6:F:107:LYS:N | 1.80 | 0.96 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:N:85:VAL:O | 12:N:93:PRO:HD2 | 1.64 | 0.96 |
| 20:V:6:ILE:HG12 | 20:V:104:THR:HA | 1.45 | 0.96 |
| 1:A:1498:C:H6 | 1:A:1576:U:H4' | 1.23 | 0.96 |
| 25:1:55:LEU:O | 25:1:58:VAL:HG22 | 1.65 | 0.95 |
| 1:A:2432:A:H2 | 27:3:30:GLU:HA | 1.30 | 0.95 |
| 32:8:7:VAL:HB | 32:8:36:GLN:NE2 | 1.80 | 0.95 |
| 1:A:1157:G:OP2 | 1:A:1157:G:H3' | 1.63 | 0.95 |
| 1:A:1266:G:H2' | 1:A:2012:G:O6 | 1.66 | 0.95 |
| 1:A:2371:G:H5' | 29:5:45:LYS:HB3 | 1.44 | 0.95 |
| 1:A:2542:A:H5' | 1:A:2543:G:OP1 | 1.66 | 0.95 |
| 1:A:2720:U:H3' | 1:A:2721:A:H8 | 1.30 | 0.95 |
| 1:A:2781:A:C8 | 1:A:2781:A:H3' | 2.01 | 0.95 |
| 1:A:2791:C:H2' | 1:A:2792:G:C8 | 2.01 | 0.95 |
| 5:E:49:LEU:HD13 | 5:E:50:GLY:H | 1.27 | 0.95 |
| 12:N:70:LYS:HD3 | 12:N:107:ARG:HH22 | 1.28 | 0.95 |
| 14:P:34:LEU:HD23 | 14:P:34:LEU:N | 1.80 | 0.95 |
| 15:Q:96:ARG:HG2 | 15:Q:98:LEU:HD21 | 1.43 | 0.95 |
| 15:Q:98:LEU:O | 15:Q:112:ALA:HB1 | 1.66 | 0.95 |
| 1:A:519:U:H5'' | 20:V:75:TYR:HB2 | 1.44 | 0.95 |
| 22:X:54:LYS:HA | 22:X:54:LYS:HE2 | 1.45 | 0.95 |
| 23:Y:144:LEU:C | 23:Y:174:VAL:HG11 | 1.86 | 0.95 |
| 23:Y:15:PRO:O | 23:Y:18:LEU:HB2 | 1.66 | 0.95 |
| 26:2:4:LEU:HD21 | 26:2:56:VAL:HG22 | 1.47 | 0.95 |
| 27:3:68:ARG:HD3 | 27:3:68:ARG:H | 1.31 | 0.95 |
| 1:A:2701:C:H3' | 1:A:2702:U:C5' | 1.95 | 0.95 |
| 1:A:918:A:H5' | 1:A:919:G:OP2 | 1.66 | 0.95 |
| 2:B:88:C:N4 | 2:B:89:G:H21 | 1.62 | 0.95 |
| 4:D:107:ALA:H | 4:D:108:PRO:CD | 1.79 | 0.95 |
| 6:F:119:ARG:NH2 | 6:F:119:ARG:HB2 | 1.80 | 0.95 |
| 14:P:82:ARG:HG2 | 14:P:83:MET:SD | 2.06 | 0.95 |
| 15:Q:33:ARG:HH22 | 28:4:56:LYS:HB2 | 1.25 | 0.95 |
| 18:T:44:ASN:O | 18:T:47:TYR:HB2 | 1.64 | 0.95 |
| 23:Y:74:VAL:HG22 | 23:Y:87:ASP:H | 1.31 | 0.95 |
| 1:A:472:A:H2' | 1:A:473:G:H5' | 1.48 | 0.95 |
| 1:A:2619:C:H5'' | 5:E:152:LYS:HA | 1.46 | 0.95 |
| 6:F:164:ARG:CB | 6:F:177:ALA:HB2 | 1.97 | 0.95 |
| 7:G:111:LEU:HD21 | 7:G:178:PHE:CD2 | 2.02 | 0.95 |
| 12:N:24:VAL:HA | 12:N:39:ILE:HG22 | 1.45 | 0.95 |
| 12:N:43:VAL:HG13 | 12:N:54:GLU:OE2 | 1.65 | 0.95 |
| 14:P:22:LYS:HD2 | 14:P:99:PRO:CG | 1.96 | 0.95 |
| 15:Q:33:ARG:HB2 | 15:Q:113:LEU:HD21 | 1.46 | 0.95 |
| 20:V:19:LEU:HB3 | 28:4:25:LEU:CD1 | 1.95 | 0.95 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:C:68:LEU:HD13 | 3:C:160:ARG:H | 1.29 | 0.95 |
| 29:5:16:CYS:HB3 | 29:5:49:HIS:CG | 2.01 | 0.95 |
| 30:6:19:ARG:HB3 | 30:6:23:ARG:HH21 | 1.27 | 0.95 |
| 1:A:1626:G:N2 | 1:A:1634:A:H1' | 1.81 | 0.95 |
| 1:A:1820:U:H2' | 4:D:202:LYS:HZ3 | 1.30 | 0.95 |
| 1:A:297:C:H3' | 1:A:298:G:C8 | 2.02 | 0.95 |
| 1:A:332:A:H2' | 1:A:335:C:H41 | 1.31 | 0.95 |
| 12:N:20:MET:O | 12:N:41:ALA:HB1 | 1.66 | 0.95 |
| 14:P:125:LEU:HB3 | 14:P:126:PRO:CD | 1.96 | 0.95 |
| 14:P:41:TRP:CB | 14:P:94:VAL:HG21 | 1.96 | 0.95 |
| 21:W:66:LEU:HG | 21:W:69:TYR:O | 1.67 | 0.95 |
| 1:A:2122:U:H2' | 1:A:2123:G:H5'' | 1.45 | 0.95 |
| 1:A:1581:G:H2' | 1:A:1582:C:O4' | 1.66 | 0.95 |
| 1:A:1789:A:P | 4:D:222:ARG:HG2 | 2.05 | 0.95 |
| 1:A:2074:U:H2' | 1:A:2597:G:N2 | 1.81 | 0.95 |
| 1:A:2414:G:N3 | 1:A:2414:G:H2' | 1.77 | 0.95 |
| 1:A:2514:U:H2' | 1:A:2515:C:H6 | 1.28 | 0.95 |
| 1:A:261:G:H4' | 1:A:608:A:H2 | 1.26 | 0.95 |
| 1:A:95:G:O2' | 25:1:42:ASN:HB2 | 1.66 | 0.95 |
| 4:D:92:ILE:HD11 | 4:D:104:TYR:HD1 | 1.31 | 0.95 |
| 6:F:33:LEU:O | 6:F:36:VAL:HG12 | 1.64 | 0.95 |
| 12:N:99:PHE:HE2 | 12:N:105:GLU:OE2 | 1.49 | 0.95 |
| 18:T:105:VAL:O | 18:T:109:LEU:HG | 1.67 | 0.95 |
| 21:W:50:LYS:NZ | 21:W:85:PRO:HD2 | 1.81 | 0.95 |
| 27:3:68:ARG:HD3 | 27:3:68:ARG:N | 1.79 | 0.95 |
| 1:A:104:U:H2' | 1:A:105:C:O4' | 1.66 | 0.95 |
| 1:A:1241:A:OP2 | 1:A:1241:A:N3 | 1.99 | 0.95 |
| 1:A:816:C:O2' | 1:A:817:C:H5' | 1.64 | 0.95 |
| 1:A:960:A:O2' | 1:A:961:C:H5' | 1.66 | 0.95 |
| 4:D:176:ARG:HH12 | 4:D:182:LEU:HD11 | 1.32 | 0.95 |
| 5:E:147:PRO:CG | 5:E:149:ARG:HD2 | 1.97 | 0.95 |
| 1:A:1151:G:H2' | 1:A:1152:C:C6 | 2.01 | 0.95 |
| 1:A:1157:G:O2' | 26:2:31:LEU:HD12 | 1.66 | 0.95 |
| 1:A:1524:G:H2' | 1:A:1525:G:H8 | 1.31 | 0.95 |
| 1:A:183:C:H42 | 1:A:214:G:H1 | 1.00 | 0.95 |
| 1:A:2051:A:O3' | 5:E:141:ILE:HG12 | 1.66 | 0.95 |
| 4:D:44:ASN:HD22 | 4:D:218:ARG:HH12 | 1.08 | 0.95 |
| 6:F:158:THR:HB | 6:F:195:ASP:HB2 | 1.46 | 0.95 |
| 16:R:38:GLN:NE2 | 16:R:40:ILE:HD11 | 1.80 | 0.95 |
| 9:K:124:GLY:O | 9:K:144:VAL:O | 1.84 | 0.95 |
| 27:3:10:VAL:H | 27:3:11:PRO:CD | 1.80 | 0.95 |
| 1:A:1203:G:N1 | 1:A:1240:U:C2 | 2.35 | 0.95 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1672:C:H3' | 1:A:1673:U:H5'' | 1.48 | 0.95 |
| 1:A:1917:U:C5 | 1:A:1918:A:N3 | 2.35 | 0.95 |
| 1:A:1918:A:C8 | 1:A:1919:A:N6 | 2.35 | 0.95 |
| 1:A:640:C:H2' | 1:A:641:C:H5' | 1.49 | 0.95 |
| 1:A:68:G:H2' | 1:A:69:C:H6 | 1.23 | 0.95 |
| 1:A:950:G:H2' | 1:A:951:C:C5 | 2.01 | 0.95 |
| 2:B:37:C:H2' | 2:B:38:C:O4' | 1.66 | 0.95 |
| 2:B:42:C:C2 | 7:G:93:THR:HB | 2.02 | 0.95 |
| 4:D:5:LYS:HE3 | 4:D:81:ALA:CB | 1.97 | 0.95 |
| 6:F:122:LYS:HD2 | 6:F:124:LEU:HD12 | 1.48 | 0.95 |
| 6:F:196:LEU:HD22 | 6:F:199:TRP:HD1 | 1.32 | 0.95 |
| 9:K:21:VAL:HB | 9:K:26:ALA:HB2 | 1.48 | 0.95 |
| 12:N:63:VAL:CA | 12:N:78:ARG:HG3 | 1.97 | 0.95 |
| 12:N:62:VAL:HG23 | 12:N:83:ALA:HA | 1.46 | 0.95 |
| 16:R:11:LYS:NZ | 16:R:11:LYS:HB3 | 1.81 | 0.95 |
| 1:A:2845:G:H5'' | 17:S:57:PHE:HB3 | 1.49 | 0.95 |
| 12:N:122:LEU:HD12 | 17:S:71:GLY:HA2 | 1.46 | 0.95 |
| 20:V:59:VAL:HA | 20:V:63:ASP:CA | 1.96 | 0.95 |
| 9:K:101:LEU:HG | 9:K:102:SER:H | 1.31 | 0.95 |
| 30:6:34:ARG:NH2 | 30:6:42:LEU:HA | 1.80 | 0.95 |
| 1:A:1966:A:H1' | 1:A:2593:U:H5' | 1.48 | 0.95 |
| 1:A:2361:A:OP2 | 31:7:28:GLY:HA2 | 1.66 | 0.95 |
| 1:A:2805:G:C3' | 1:A:2807:G:H5'' | 1.95 | 0.95 |
| 1:A:751:A:H5' | 20:V:90:ARG:NH2 | 1.81 | 0.95 |
| 12:N:64:ARG:HG3 | 12:N:64:ARG:HH21 | 1.29 | 0.95 |
| 12:N:99:PHE:HA | 17:S:74:ARG:NH1 | 1.81 | 0.95 |
| 13:O:113:LYS:HA | 13:O:129:ALA:HB1 | 1.49 | 0.95 |
| 14:P:67:ARG:NH1 | 14:P:103:MET:HB3 | 1.82 | 0.95 |
| 1:A:26:G:N1 | 1:A:27:G:N2 | 2.14 | 0.95 |
| 1:A:390:A:H5'' | 1:A:391:G:OP1 | 1.66 | 0.95 |
| 1:A:627:A:N6 | 1:A:637:A:H1' | 1.82 | 0.95 |
| 2:B:71:C:H2' | 2:B:72:G:H5' | 0.96 | 0.95 |
| 4:D:5:LYS:HD2 | 4:D:29:PRO:CA | 1.95 | 0.95 |
| 5:E:49:LEU:CD1 | 5:E:50:GLY:H | 1.80 | 0.95 |
| 6:F:158:THR:HG21 | 6:F:196:LEU:H | 1.31 | 0.95 |
| 7:G:138:GLN:OE1 | 7:G:152:LEU:HB2 | 1.66 | 0.95 |
| 12:N:103:ALA:HA | 12:N:106:LEU:HD23 | 1.49 | 0.95 |
| 14:P:43:THR:HA | 14:P:94:VAL:HG12 | 1.49 | 0.95 |
| 3:C:30:LYS:HZ2 | 3:C:182:PRO:HB3 | 1.29 | 0.95 |
| 1:A:1406:U:H2' | 1:A:1407:C:H6 | 1.31 | 0.94 |
| 1:A:1820:U:C2 | 4:D:202:LYS:HG2 | 2.02 | 0.94 |
| 1:A:1860:G:H5'' | 3:C:206:GLY:CA | 1.96 | 0.94 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 8:H:29:PRO:HD3 | 8:H:79:VAL:HA | 1.49 | 0.94 |
| 1:A:142:G:C4' | 21:W:35:THR:HG21 | 1.96 | 0.94 |
| 1:A:2120:G:H21 | 3:C:167:LYS:HZ2 | 1.13 | 0.94 |
| 32:8:1:MET:N | 32:8:33:LYS:HB2 | 1.82 | 0.94 |
| 1:A:1820:U:H2' | 4:D:202:LYS:NZ | 1.82 | 0.94 |
| 1:A:2307:G:N7 | 1:A:2308:G:C2 | 2.35 | 0.94 |
| 7:G:131:TYR:CG | 7:G:132:ASN:N | 2.30 | 0.94 |
| 8:H:43:VAL:CG2 | 8:H:52:VAL:HA | 1.96 | 0.94 |
| 11:M:120:LEU:HD12 | 11:M:121:LYS:N | 1.82 | 0.94 |
| 11:M:12:ARG:HG3 | 11:M:12:ARG:HH11 | 1.32 | 0.94 |
| 13:O:72:PRO:HB3 | 13:O:110:TYR:C | 1.87 | 0.94 |
| 18:T:92:ARG:HG2 | 18:T:93:LYS:HZ3 | 1.32 | 0.94 |
| 3:C:212:VAL:H | 3:C:223:ARG:HE | 1.14 | 0.94 |
| 1:A:973:A:H1' | 1:A:1188:U:O4 | 1.67 | 0.94 |
| 1:A:2393:A:C5' | 13:O:56:SER:H | 1.80 | 0.94 |
| 1:A:676:A:H2' | 1:A:677:A:H5' | 1.50 | 0.94 |
| 1:A:728:G:C6 | 1:A:762:U:H3' | 2.03 | 0.94 |
| 4:D:8:PRO:O | 4:D:25:THR:HA | 1.64 | 0.94 |
| 5:E:149:ARG:C | 5:E:149:ARG:HD3 | 1.86 | 0.94 |
| 13:O:123:LEU:O | 13:O:138:LEU:HG | 1.67 | 0.94 |
| 14:P:22:LYS:HB2 | 23:Y:79:ARG:NH2 | 1.81 | 0.94 |
| 17:S:54:ARG:HG2 | 17:S:100:TYR:CB | 1.96 | 0.94 |
| 18:T:88:ILE:N | 18:T:88:ILE:HD13 | 1.82 | 0.94 |
| 1:A:2160:G:H2' | 1:A:2161:C:C6 | 2.02 | 0.94 |
| 1:A:1085:A:H1' | 1:A:1086:A:H4' | 1.46 | 0.94 |
| 1:A:2570:G:H5' | 1:A:2571:C:OP2 | 1.67 | 0.94 |
| 1:A:27:G:N1 | 1:A:512:G:H2' | 1.82 | 0.94 |
| 2:B:17:C:H2' | 2:B:18:G:O4' | 1.68 | 0.94 |
| 5:E:146:THR:HB | 5:E:147:PRO:HD3 | 1.49 | 0.94 |
| 6:F:56:GLU:O | 6:F:58:ALA:N | 1.99 | 0.94 |
| 13:O:51:PHE:O | 13:O:55:ARG:HG3 | 1.68 | 0.94 |
| 1:A:636:G:N2 | 13:O:75:ILE:HG23 | 1.83 | 0.94 |
| 13:O:79:ARG:HE | 13:O:83:VAL:CG1 | 1.79 | 0.94 |
| 18:T:59:ARG:HD2 | 18:T:62:ILE:HD12 | 1.50 | 0.94 |
| 23:Y:151:HIS:HA | 23:Y:170:THR:HA | 1.47 | 0.94 |
| 27:3:53:GLU:HG2 | 27:3:54:GLY:H | 1.31 | 0.94 |
| 1:A:247:G:H1 | 31:7:8:LYS:HZ3 | 1.12 | 0.94 |
| 1:A:1275:A:C2 | 15:Q:16:HIS:HA | 2.02 | 0.94 |
| 1:A:574:C:H41 | 1:A:2054:A:C5' | 1.80 | 0.94 |
| 1:A:2084:C:H2' | 1:A:2085:C:H6 | 1.30 | 0.94 |
| 1:A:2459:A:C2' | 1:A:2460:U:O4' | 2.16 | 0.94 |
| 1:A:685:A:H5'' | 1:A:686:G:N2 | 1.81 | 0.94 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:B:48:A:OP1 | 16:R:92:TYR:HB3 | 1.67 | 0.94 |
| 1:A:1059:G:H2' | 10:L:74:ALA:HB2 | 1.49 | 0.94 |
| 11:M:89:LYS:HA | 11:M:92:ALA:HB3 | 1.46 | 0.94 |
| 13:O:111:ARG:HD2 | 13:O:129:ALA:HB2 | 1.48 | 0.94 |
| 14:P:96:VAL:HG12 | 14:P:98:LYS:NZ | 1.82 | 0.94 |
| 19:U:27:ALA:HB1 | 19:U:33:VAL:HG11 | 1.50 | 0.94 |
| 23:Y:98:MET:HG3 | 23:Y:100:VAL:HG22 | 1.48 | 0.94 |
| 1:A:216:A:H2' | 1:A:217:G:C8 | 2.02 | 0.94 |
| 1:A:576:U:H2' | 1:A:577:G:C8 | 2.00 | 0.94 |
| 1:A:972:G:OP1 | 1:A:974(A):C:H5'' | 1.68 | 0.94 |
| 8:H:103:LEU:O | 8:H:104:GLU:HB2 | 1.68 | 0.94 |
| 11:M:53:VAL:HA | 11:M:121:LYS:O | 1.68 | 0.94 |
| 13:O:96:THR:HB | 13:O:99:LEU:HD12 | 1.48 | 0.94 |
| 19:U:23:GLU:HB2 | 19:U:92:THR:O | 1.67 | 0.94 |
| 3:C:77:ILE:HG22 | 3:C:96:GLY:HA2 | 1.47 | 0.94 |
| 1:A:1005:C:H2' | 1:A:1006:C:C6 | 2.01 | 0.94 |
| 1:A:1222:C:H42 | 1:A:1227:A:N6 | 1.64 | 0.94 |
| 1:A:647:G:H4' | 1:A:2352:A:OP1 | 1.67 | 0.94 |
| 4:D:188:GLU:CD | 4:D:188:GLU:H | 1.69 | 0.94 |
| 12:N:58:VAL:HG21 | 12:N:88:ASN:HA | 1.48 | 0.94 |
| 13:O:65:ARG:HH11 | 13:O:68:GLN:HE22 | 1.05 | 0.94 |
| 13:O:93:GLY:HA3 | 13:O:112:LEU:HD21 | 1.46 | 0.94 |
| 15:Q:99:LYS:HA | 15:Q:112:ALA:CB | 1.98 | 0.94 |
| 2:B:49:C:OP1 | 16:R:97:ARG:N | 2.01 | 0.94 |
| 17:S:105:LEU:HD12 | 17:S:106:SER:H | 1.33 | 0.94 |
| 12:N:106:LEU:HD22 | 17:S:39:ARG:NH2 | 1.83 | 0.94 |
| 19:U:83:ARG:HH21 | 19:U:85:LYS:HE2 | 1.32 | 0.94 |
| 22:X:12:THR:HG23 | 22:X:73:ARG:HG3 | 1.50 | 0.94 |
| 23:Y:100:VAL:HG23 | 23:Y:137:ILE:HD11 | 1.47 | 0.94 |
| 1:A:120:U:O2' | 1:A:121:G:H5'' | 1.68 | 0.94 |
| 1:A:228:A:H2' | 1:A:229:A:C4' | 1.97 | 0.94 |
| 1:A:2312:U:H4' | 7:G:43:LEU:CD1 | 1.98 | 0.94 |
| 1:A:2501:C:H4' | 1:A:2503:A:H1' | 1.49 | 0.94 |
| 1:A:2532:G:H2' | 1:A:2533:A:O4' | 1.68 | 0.94 |
| 16:R:20:ARG:HH21 | 16:R:20:ARG:HA | 1.27 | 0.94 |
| 23:Y:39:VAL:HG22 | 23:Y:44:PHE:CE2 | 2.03 | 0.94 |
| 1:A:1188:U:H2' | 1:A:1189:A:O4' | 1.65 | 0.94 |
| 1:A:1834:U:H1' | 1:A:1969:A:C2 | 2.03 | 0.94 |
| 1:A:2539:C:O2' | 1:A:2540:C:H5' | 1.66 | 0.94 |
| 1:A:2612:C:O2 | 28:4:4:HIS:HB2 | 1.68 | 0.94 |
| 1:A:2657:A:H62 | 1:A:2664:G:H21 | 1.04 | 0.94 |
| 1:A:609:A:C6 | 1:A:609(A):G:O6 | 2.21 | 0.94 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:206:LEU:H | 4:D:206:LEU:HD13 | 1.31 | 0.94 |
| 4:D:182:LEU:CD1 | 4:D:270:ILE:HD11 | 1.98 | 0.94 |
| 5:E:13:ARG:CG | 5:E:22:PRO:HD3 | 1.98 | 0.94 |
| 6:F:9:ILE:HD11 | 6:F:122:LYS:HG3 | 1.50 | 0.94 |
| 6:F:74:ARG:CZ | 6:F:75:HIS:HA | 1.98 | 0.94 |
| 12:N:97:ARG:HB3 | 12:N:117:LEU:HD21 | 1.50 | 0.94 |
| 17:S:104:ASN:HA | 17:S:108:ARG:NH2 | 1.83 | 0.94 |
| 18:T:59:ARG:HB3 | 18:T:59:ARG:NH1 | 1.82 | 0.94 |
| 22:X:74:PRO:HB3 | 22:X:101:LYS:C | 1.88 | 0.94 |
| 22:X:12:THR:HA | 22:X:73:ARG:NE | 1.83 | 0.94 |
| 1:A:2185:C:H2' | 1:A:2186:G:H8 | 1.33 | 0.94 |
| 1:A:1790:C:C5' | 1:A:1828:G:H1 | 1.81 | 0.94 |
| 1:A:2897:U:H2' | 1:A:2898:U:C6 | 2.03 | 0.94 |
| 1:A:789:A:H4' | 1:A:790:C:OP1 | 1.65 | 0.94 |
| 1:A:943:U:O4' | 1:A:943:U:OP1 | 1.84 | 0.94 |
| 1:A:1799:G:H1 | 4:D:157:ARG:NH1 | 1.64 | 0.94 |
| 5:E:49:LEU:HD11 | 5:E:74:PRO:CB | 1.98 | 0.94 |
| 7:G:55:LYS:HB3 | 7:G:151:ALA:HB1 | 1.48 | 0.94 |
| 10:L:90:LYS:HZ3 | 10:L:93:ARG:HH22 | 1.14 | 0.94 |
| 17:S:110:ILE:HD13 | 17:S:113:LYS:NZ | 1.83 | 0.94 |
| 1:A:2056:G:N2 | 28:4:4:HIS:CD2 | 2.36 | 0.94 |
| 1:A:1342:A:H2' | 1:A:1345:C:H41 | 1.33 | 0.94 |
| 1:A:1406:U:H2' | 1:A:1407:C:C6 | 2.03 | 0.94 |
| 1:A:1343:G:H1' | 1:A:1597:A:C2 | 2.03 | 0.94 |
| 1:A:1811:G:H2' | 1:A:1812:A:H8 | 1.31 | 0.94 |
| 1:A:1915:U:P | 1:A:1915:U:H3' | 2.08 | 0.94 |
| 1:A:2051:A:C2 | 1:A:2614:A:N6 | 2.36 | 0.94 |
| 1:A:2311:A:H5'' | 1:A:2312:U:H5 | 1.31 | 0.94 |
| 1:A:612:G:H2' | 1:A:615:G:C4 | 2.02 | 0.94 |
| 1:A:722:A:H2' | 1:A:723:G:H8 | 1.31 | 0.94 |
| 4:D:42:GLY:H | 4:D:60:ARG:HH12 | 0.96 | 0.94 |
| 11:M:97:ARG:HA | 11:M:100:GLU:HG2 | 1.50 | 0.94 |
| 11:M:70:LYS:HD2 | 11:M:86:PRO:HA | 1.51 | 0.94 |
| 16:R:17:ARG:CZ | 16:R:89:ARG:HB2 | 1.97 | 0.94 |
| 4:D:27:THR:HG22 | 4:D:29:PRO:CD | 1.98 | 0.93 |
| 5:E:13:ARG:O | 5:E:13:ARG:HD2 | 1.68 | 0.93 |
| 9:K:38:LEU:HD13 | 9:K:39:ALA:N | 1.83 | 0.93 |
| 11:M:97:ARG:O | 11:M:100:GLU:HB2 | 1.68 | 0.93 |
| 12:N:60:ALA:O | 12:N:83:ALA:HB1 | 1.67 | 0.93 |
| 23:Y:152:ALA:HA | 23:Y:155:LEU:HD13 | 1.48 | 0.93 |
| 23:Y:24:LEU:O | 23:Y:39:VAL:CB | 2.16 | 0.93 |
| 9:K:132:PRO:HG3 | 9:K:138:ILE:HB | 1.48 | 0.93 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:C:149:ILE:O | 3:C:153:ILE:HG13 | 1.65 | 0.93 |
| 25:1:24:LYS:HE2 | 25:1:52:ILE:HG22 | 1.47 | 0.93 |
| 1:A:687:C:H4' | 30:6:4:THR:HG22 | 1.50 | 0.93 |
| 1:A:1914:C:C4 | 1:A:1915:U:H5 | 1.87 | 0.93 |
| 1:A:2345:G:N7 | 1:A:2371:G:N2 | 2.16 | 0.93 |
| 1:A:99:U:H3 | 22:X:106:LEU:HD22 | 1.32 | 0.93 |
| 4:D:7:LYS:HZ2 | 4:D:91:ARG:HD2 | 1.33 | 0.93 |
| 6:F:197:ASP:HA | 6:F:200:GLU:HG2 | 1.49 | 0.93 |
| 15:Q:64:ARG:NH1 | 15:Q:65:LEU:HB2 | 1.81 | 0.93 |
| 16:R:76:LYS:HZ1 | 16:R:77:ALA:HB2 | 1.32 | 0.93 |
| 18:T:88:ILE:CG1 | 19:U:52:VAL:HG22 | 1.98 | 0.93 |
| 19:U:14:VAL:HG12 | 19:U:15:GLU:H | 1.33 | 0.93 |
| 19:U:20:LEU:HB3 | 19:U:95:LEU:HD13 | 1.50 | 0.93 |
| 21:W:8:ILE:HD11 | 21:W:42:ALA:HB2 | 1.50 | 0.93 |
| 1:A:1534:G:H21 | 1:A:1537:C:H41 | 1.15 | 0.93 |
| 1:A:1826:G:C2' | 1:A:1827:C:H5' | 1.98 | 0.93 |
| 1:A:1841:U:H2' | 1:A:1842:G:H8 | 1.22 | 0.93 |
| 4:D:161:THR:HG22 | 4:D:196:VAL:HB | 1.48 | 0.93 |
| 5:E:32:PRO:HG3 | 5:E:88:GLY:HA2 | 1.50 | 0.93 |
| 27:3:58:ARG:H | 27:3:61:ARG:NH1 | 1.66 | 0.93 |
| 1:A:1173:G:H1' | 1:A:1177:A:N6 | 1.83 | 0.93 |
| 1:A:1810:A:H2' | 1:A:1811:G:H5' | 1.47 | 0.93 |
| 1:A:2623:G:N2 | 28:4:22:HIS:CE1 | 2.35 | 0.93 |
| 1:A:263:C:O2 | 1:A:263:C:H2' | 1.66 | 0.93 |
| 1:A:388:G:C2' | 1:A:390:A:N7 | 2.29 | 0.93 |
| 1:A:853:G:H2' | 1:A:854:G:H8 | 1.30 | 0.93 |
| 2:B:42:C:N3 | 7:G:93:THR:HB | 1.84 | 0.93 |
| 11:M:46:VAL:HG11 | 11:M:119:ARG:NH2 | 1.81 | 0.93 |
| 17:S:87:ASP:OD2 | 17:S:89:VAL:HG23 | 1.68 | 0.93 |
| 23:Y:24:LEU:CD2 | 23:Y:25:PRO:HD2 | 1.97 | 0.93 |
| 3:C:153:ILE:HA | 3:C:156:ILE:HD12 | 1.49 | 0.93 |
| 1:A:2120:G:H21 | 3:C:167:LYS:NZ | 1.65 | 0.93 |
| 4:D:273:ARG:HH11 | 4:D:273:ARG:HG3 | 1.28 | 0.93 |
| 1:A:2058:A:H2' | 1:A:2059:A:H8 | 1.30 | 0.93 |
| 1:A:2296:U:H1' | 1:A:2335:A:H61 | 1.29 | 0.93 |
| 1:A:859:G:O2' | 1:A:860:U:H5'' | 1.69 | 0.93 |
| 5:E:46:ALA:HB2 | 5:E:85:ASN:HD21 | 1.30 | 0.93 |
| 13:O:113:LYS:HA | 13:O:129:ALA:HB3 | 1.49 | 0.93 |
| 13:O:13:ASN:CG | 13:O:14:LYS:H | 1.70 | 0.93 |
| 1:A:2415:G:C5' | 13:O:61:ARG:HB2 | 1.97 | 0.93 |
| 1:A:2183:C:H2' | 1:A:2184:G:C8 | 2.02 | 0.93 |
| 25:1:44:LYS:HG3 | 25:1:48:LEU:HD22 | 1.50 | 0.93 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1968:G:HO2' | 1:A:1969:A:H8 | 0.94 | 0.93 |
| 1:A:2208:U:C2' | 1:A:2209:C:H5' | 1.98 | 0.93 |
| 1:A:2652:C:H2' | 1:A:2653:U:C6 | 2.04 | 0.93 |
| 1:A:299:A:O2' | 1:A:319:C:H4' | 1.69 | 0.93 |
| 1:A:917:A:H2' | 1:A:918:A:O4' | 1.67 | 0.93 |
| 5:E:133:LYS:HB3 | 5:E:137:HIS:CE1 | 2.03 | 0.93 |
| 8:H:87:LEU:H | 8:H:132:ARG:CB | 1.81 | 0.93 |
| 8:H:8:PRO:HA | 8:H:51:ARG:HH12 | 1.28 | 0.93 |
| 17:S:21:GLU:HA | 17:S:21:GLU:OE1 | 1.68 | 0.93 |
| 17:S:80:SER:HB3 | 17:S:81:PRO:HD3 | 1.48 | 0.93 |
| 18:T:46:ALA:O | 18:T:50:ARG:HD3 | 1.68 | 0.93 |
| 20:V:90:ARG:HH21 | 20:V:90:ARG:N | 1.65 | 0.93 |
| 23:Y:46:LYS:O | 23:Y:49:ARG:HB2 | 1.68 | 0.93 |
| 3:C:19:ILE:HG23 | 3:C:223:ARG:HG2 | 1.49 | 0.93 |
| 28:4:40:LYS:HE3 | 28:4:44:THR:N | 1.84 | 0.93 |
| 1:A:1820:U:C2' | 4:D:202:LYS:HG3 | 1.99 | 0.93 |
| 1:A:2010:G:H2' | 1:A:2011:U:H5' | 1.47 | 0.93 |
| 1:A:2557:G:H2' | 1:A:2558:C:C6 | 2.04 | 0.93 |
| 1:A:2559:C:O2' | 1:A:2560:C:H5' | 1.68 | 0.93 |
| 1:A:612:G:H4' | 1:A:616:A:C6 | 2.03 | 0.93 |
| 7:G:4:ASP:HB3 | 7:G:104:GLU:HG2 | 1.48 | 0.93 |
| 7:G:131:TYR:HB2 | 7:G:159:VAL:HG22 | 1.50 | 0.93 |
| 8:H:149:ARG:HA | 8:H:162:ILE:HD13 | 1.51 | 0.93 |
| 10:L:132:ARG:HG2 | 10:L:137:GLU:HA | 1.47 | 0.93 |
| 11:M:35:ARG:CD | 11:M:38:HIS:HB3 | 1.99 | 0.93 |
| 11:M:39:ARG:HG2 | 11:M:40:PRO:HD2 | 1.51 | 0.93 |
| 11:M:6:PRO:HA | 11:M:41:ASP:HB3 | 1.51 | 0.93 |
| 12:N:47:ILE:CD1 | 12:N:52:VAL:HG13 | 1.98 | 0.93 |
| 1:A:2000:G:P | 15:Q:2:ARG:HA | 2.08 | 0.93 |
| 19:U:43:GLU:HB2 | 19:U:48:GLY:HA2 | 1.48 | 0.93 |
| 22:X:50:ARG:HB2 | 22:X:54:LYS:HE3 | 1.49 | 0.93 |
| 23:Y:16:SER:HA | 23:Y:19:ARG:HD2 | 1.50 | 0.93 |
| 9:K:132:PRO:HD2 | 9:K:137:PRO:HA | 1.46 | 0.93 |
| 28:4:10:LYS:HD2 | 28:4:15:ARG:HH21 | 1.26 | 0.93 |
| 1:A:1079:C:H41 | 1:A:1088:A:H5' | 1.30 | 0.93 |
| 1:A:239:U:O2' | 1:A:240:G:H5' | 1.69 | 0.93 |
| 1:A:699:A:H2' | 1:A:700:G:H5' | 1.49 | 0.93 |
| 1:A:1819:A:H5'' | 4:D:178:PRO:CG | 1.99 | 0.93 |
| 11:M:66:LYS:HA | 11:M:87:LEU:HD11 | 1.51 | 0.93 |
| 12:N:20:MET:HE2 | 12:N:44:LYS:HD2 | 1.50 | 0.93 |
| 14:P:56:ARG:NH1 | 14:P:57:HIS:HA | 1.83 | 0.93 |
| 1:A:1223:C:N3 | 19:U:88:ARG:NH2 | 2.16 | 0.93 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:W:25:LYS:HG2 | 21:W:82:GLN:CG | 1.98 | 0.93 |
| 27:3:57:GLU:HA | 27:3:61:ARG:NH1 | 1.83 | 0.93 |
| 1:A:469:G:H22 | 30:6:40:TRP:HZ2 | 1.02 | 0.93 |
| 1:A:2213:U:H5' | 1:A:2215:G:C5 | 2.03 | 0.93 |
| 1:A:2581:G:H4' | 1:A:2582:G:N7 | 1.83 | 0.93 |
| 1:A:324:A:N6 | 1:A:339:U:H1' | 1.83 | 0.93 |
| 2:B:47:C:H2' | 2:B:48:A:H5' | 1.47 | 0.93 |
| 2:B:27:C:N4 | 2:B:56:G:H1 | 1.67 | 0.93 |
| 10:L:90:LYS:HZ3 | 10:L:93:ARG:NH2 | 1.67 | 0.93 |
| 13:O:73:GLY:CA | 13:O:111:ARG:HG2 | 1.99 | 0.93 |
| 14:P:42:ILE:O | 14:P:94:VAL:HB | 1.69 | 0.93 |
| 17:S:57:PHE:HA | 17:S:61:PHE:CD2 | 2.03 | 0.93 |
| 17:S:45:PHE:CE1 | 17:S:87:ASP:HB2 | 2.04 | 0.93 |
| 31:7:34:TRP:C | 31:7:36:LYS:N | 2.16 | 0.93 |
| 1:A:2021:C:OP2 | 28:4:11:THR:HB | 1.69 | 0.93 |
| 1:A:531:C:H2' | 1:A:531:C:O2 | 1.67 | 0.93 |
| 1:A:575:A:O2' | 1:A:576:U:H5' | 1.69 | 0.93 |
| 1:A:613:U:H5' | 1:A:614:U:C4 | 2.04 | 0.93 |
| 2:B:73:A:N1 | 23:Y:29:TYR:HE1 | 1.66 | 0.93 |
| 4:D:42:GLY:H | 4:D:60:ARG:NH1 | 1.66 | 0.93 |
| 4:D:80:ALA:HB3 | 4:D:94:LEU:O | 1.69 | 0.93 |
| 1:A:2052:G:N9 | 5:E:150:VAL:HG23 | 1.83 | 0.93 |
| 6:F:168:ARG:HH21 | 6:F:169:ASN:N | 1.64 | 0.93 |
| 6:F:197:ASP:HA | 6:F:200:GLU:CG | 1.98 | 0.93 |
| 7:G:49:ASP:HA | 7:G:53:LEU:CD2 | 1.98 | 0.93 |
| 8:H:153:LYS:HB2 | 8:H:162:ILE:HG23 | 1.50 | 0.93 |
| 18:T:55:ARG:O | 18:T:58:ARG:HG2 | 1.69 | 0.93 |
| 20:V:41:LYS:HZ3 | 20:V:41:LYS:HB3 | 1.33 | 0.93 |
| 23:Y:127:LYS:HB3 | 23:Y:162:GLU:O | 1.69 | 0.93 |
| 23:Y:6:LYS:HD3 | 23:Y:35:ARG:HD3 | 1.50 | 0.93 |
| 3:C:62:VAL:HG11 | 3:C:195:ALA:HB2 | 1.50 | 0.93 |
| 1:A:1154:G:OP1 | 18:T:62:ILE:HD11 | 1.68 | 0.92 |
| 1:A:2352:A:H2' | 1:A:2353:G:O4' | 1.69 | 0.92 |
| 1:A:2447:G:C6 | 1:A:2500:U:N3 | 2.36 | 0.92 |
| 1:A:2596:U:C2' | 4:D:242:ARG:CZ | 2.48 | 0.92 |
| 1:A:2649:U:H2' | 1:A:2650:U:C6 | 2.04 | 0.92 |
| 2:B:104:A:H1' | 23:Y:29:TYR:OH | 1.69 | 0.92 |
| 4:D:159:ALA:C | 4:D:196:VAL:HG21 | 1.89 | 0.92 |
| 4:D:256:GLY:O | 4:D:257:LEU:HG | 1.68 | 0.92 |
| 7:G:79:ASN:CG | 7:G:82:LEU:HD21 | 1.90 | 0.92 |
| 8:H:82:GLY:O | 8:H:83:TYR:HB2 | 1.67 | 0.92 |
| 9:K:7:GLU:N | 9:K:8:PRO:HD3 | 1.83 | 0.92 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 10:L:11:GLN:O | 10:L:12:LEU:HD23 | 1.69 | 0.92 |
| 12:N:97:ARG:HE | 12:N:98:VAL:H | 1.08 | 0.92 |
| 13:O:78:PRO:O | 13:O:81:GLN:HB2 | 1.69 | 0.92 |
| 14:P:75:THR:HG21 | 14:P:88:GLY:O | 1.69 | 0.92 |
| 18:T:53:ARG:HB2 | 18:T:53:ARG:NH1 | 1.84 | 0.92 |
| 22:X:33:LYS:HB3 | 22:X:35:TYR:CE2 | 2.04 | 0.92 |
| 23:Y:104:PHE:HA | 23:Y:139:VAL:O | 1.69 | 0.92 |
| 23:Y:39:VAL:HA | 23:Y:44:PHE:CE1 | 2.04 | 0.92 |
| 24:Z:17:GLN:NE2 | 24:Z:18:ALA:H | 1.67 | 0.92 |
| 25:1:30:LEU:O | 25:1:33:GLN:HB2 | 1.69 | 0.92 |
| 1:A:1188:U:O2' | 1:A:1189:A:H5' | 1.69 | 0.92 |
| 1:A:1814:G:OP1 | 4:D:43:ARG:HB3 | 1.69 | 0.92 |
| 1:A:2075:U:H6 | 1:A:2597:G:H22 | 1.13 | 0.92 |
| 1:A:2576:G:OP1 | 1:A:2577:A:OP1 | 1.88 | 0.92 |
| 1:A:2807:G:N3 | 1:A:2807:G:H2' | 1.82 | 0.92 |
| 1:A:563:G:N2 | 1:A:578:A:N1 | 2.17 | 0.92 |
| 1:A:638:G:H2' | 1:A:639:U:H5' | 1.48 | 0.92 |
| 4:D:261:LYS:C | 4:D:263:ARG:H | 1.69 | 0.92 |
| 13:O:76:LYS:HE3 | 13:O:99:LEU:HD13 | 1.50 | 0.92 |
| 23:Y:24:LEU:HD23 | 23:Y:25:PRO:CD | 1.98 | 0.92 |
| 9:K:77:LEU:HG | 9:K:141:LYS:O | 1.69 | 0.92 |
| 1:A:1341:U:O2 | 1:A:1341:U:H2' | 1.68 | 0.92 |
| 1:A:1542:G:H2' | 1:A:1543:A:C5 | 2.04 | 0.92 |
| 1:A:1913:A:H1' | 1:A:1918:A:H61 | 1.33 | 0.92 |
| 1:A:2305:A:H3' | 1:A:2306:C:H5'' | 1.50 | 0.92 |
| 2:B:48:A:H2' | 2:B:49:C:C6 | 2.04 | 0.92 |
| 11:M:34:LEU:C | 11:M:49:GLY:HA2 | 1.90 | 0.92 |
| 14:P:85:LYS:HE2 | 14:P:88:GLY:HA3 | 1.50 | 0.92 |
| 14:P:99:PRO:O | 14:P:101:ARG:HD3 | 1.68 | 0.92 |
| 17:S:103:ARG:HH21 | 17:S:103:ARG:HG3 | 1.31 | 0.92 |
| 21:W:27:THR:CB | 21:W:80:ILE:HD12 | 1.98 | 0.92 |
| 1:A:2742:C:C5' | 32:8:35:ARG:HH12 | 1.82 | 0.92 |
| 1:A:1448:G:H4' | 1:A:1543:A:C6 | 2.05 | 0.92 |
| 1:A:1789:A:H4' | 4:D:222:ARG:NE | 1.83 | 0.92 |
| 1:A:1809:A:OP1 | 1:A:1809:A:H4' | 1.68 | 0.92 |
| 1:A:1943:U:H4' | 1:A:1944:U:O5' | 1.67 | 0.92 |
| 1:A:1950:G:N7 | 1:A:1951:U:C5 | 2.38 | 0.92 |
| 1:A:2864:G:H2' | 1:A:2865:U:C6 | 2.04 | 0.92 |
| 1:A:479:A:H1' | 1:A:480:A:C8 | 2.04 | 0.92 |
| 4:D:181:GLU:CD | 4:D:272:ALA:HA | 1.88 | 0.92 |
| 6:F:201:VAL:HA | 6:F:204:ASN:HD21 | 1.32 | 0.92 |
| 7:G:53:LEU:CG | 7:G:72:ARG:HD3 | 2.00 | 0.92 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 11:M:69:GLN:HE22 | 11:M:87:LEU:HD22 | 1.34 | 0.92 |
| 20:V:25:ARG:HH21 | 20:V:74:ALA:H | 0.96 | 0.92 |
| 9:K:125:GLU:HB2 | 9:K:143:SER:HA | 0.93 | 0.92 |
| 1:A:1416:G:N3 | 1:A:1583:A:N6 | 2.18 | 0.92 |
| 29:5:20:ASN:HD22 | 29:5:41:PRO:HB2 | 0.78 | 0.92 |
| 1:A:142:G:H4' | 21:W:35:THR:CG2 | 1.99 | 0.92 |
| 1:A:1508:A:H5'' | 1:A:1510:A:N7 | 1.84 | 0.92 |
| 1:A:1519:G:H3' | 1:A:1520:U:O4' | 1.68 | 0.92 |
| 1:A:980:A:H2 | 1:A:2038:G:O4' | 1.53 | 0.92 |
| 2:B:27:C:N4 | 2:B:56:G:N1 | 2.16 | 0.92 |
| 4:D:142:VAL:O | 4:D:163:ALA:HB3 | 1.69 | 0.92 |
| 7:G:103:LEU:O | 7:G:107:LEU:HB2 | 1.68 | 0.92 |
| 7:G:51:ARG:HD2 | 7:G:51:ARG:H | 1.34 | 0.92 |
| 7:G:5:VAL:HG12 | 7:G:9:ARG:NH1 | 1.85 | 0.92 |
| 12:N:7:TYR:HB3 | 12:N:18:LYS:HZ2 | 1.25 | 0.92 |
| 1:A:1204:A:N6 | 13:O:7:ARG:HH11 | 1.68 | 0.92 |
| 14:P:42:ILE:HD13 | 14:P:43:THR:N | 1.84 | 0.92 |
| 15:Q:107:ASP:OD1 | 15:Q:109:ALA:HB2 | 1.70 | 0.92 |
| 19:U:7:THR:HG23 | 19:U:11:GLN:NE2 | 1.84 | 0.92 |
| 20:V:90:ARG:HH21 | 20:V:90:ARG:H | 1.07 | 0.92 |
| 24:Z:44:ARG:HG2 | 24:Z:77:ARG:HG3 | 1.52 | 0.92 |
| 1:A:2112:G:H5'' | 1:A:2113:U:OP2 | 1.67 | 0.92 |
| 25:1:24:LYS:HG2 | 25:1:52:ILE:HG21 | 1.51 | 0.92 |
| 28:4:51:TYR:HD1 | 28:4:54:GLY:H | 1.10 | 0.92 |
| 29:5:22:ALA:HB1 | 29:5:39:TYR:HE2 | 1.33 | 0.92 |
| 1:A:1321:A:O3' | 20:V:11:ARG:NH1 | 2.02 | 0.92 |
| 1:A:2491:U:C6 | 1:A:2491:U:C3' | 2.50 | 0.92 |
| 1:A:2491:U:C6 | 1:A:2492:U:C5' | 2.52 | 0.92 |
| 1:A:455:C:OP1 | 1:A:472:A:N1 | 2.01 | 0.92 |
| 1:A:961:C:N4 | 1:A:2031:A:N3 | 2.17 | 0.92 |
| 10:L:98:ARG:HB3 | 10:L:139:VAL:HB | 1.48 | 0.92 |
| 14:P:41:TRP:HB3 | 14:P:94:VAL:CG2 | 1.99 | 0.92 |
| 14:P:51:ARG:O | 14:P:55:VAL:HG23 | 1.69 | 0.92 |
| 22:X:28:LYS:HE2 | 22:X:28:LYS:H | 1.34 | 0.92 |
| 3:C:45:ALA:HB1 | 3:C:211:SER:O | 1.68 | 0.92 |
| 1:A:2286:A:H62 | 29:5:32:ASN:N | 1.68 | 0.92 |
| 1:A:1665:A:H5' | 12:N:66:LYS:HB2 | 1.51 | 0.92 |
| 1:A:176:G:H2' | 1:A:177:G:O4' | 1.67 | 0.92 |
| 1:A:292:C:H2' | 1:A:293:U:N3 | 1.85 | 0.92 |
| 1:A:602:G:O3' | 1:A:603:A:H4' | 1.65 | 0.92 |
| 1:A:803:U:C2' | 1:A:804:A:H5' | 2.00 | 0.92 |
| 1:A:861:A:H2' | 1:A:862:G:C5' | 2.00 | 0.92 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1819:A:H5'' | 4:D:178:PRO:HG3 | 1.50 | 0.92 |
| 4:D:7:LYS:NZ | 4:D:91:ARG:NH1 | 2.18 | 0.92 |
| 6:F:128:ALA:O | 6:F:129:PHE:HB2 | 1.67 | 0.92 |
| 6:F:142:TRP:O | 6:F:145:GLU:HG2 | 1.70 | 0.92 |
| 1:A:2305:A:O2' | 7:G:136:ARG:HA | 1.68 | 0.92 |
| 9:K:32:PRO:HG2 | 9:K:33:ARG:N | 1.83 | 0.92 |
| 12:N:24:VAL:HG23 | 12:N:26:LYS:HG2 | 1.51 | 0.92 |
| 13:O:88:LEU:HG | 13:O:124:LYS:CE | 1.99 | 0.92 |
| 13:O:63:PRO:HB2 | 13:O:64:LYS:HE2 | 1.51 | 0.92 |
| 19:U:50:PRO:HG2 | 19:U:53:GLU:CD | 1.90 | 0.92 |
| 20:V:11:ARG:H | 20:V:11:ARG:HH21 | 1.18 | 0.92 |
| 1:A:1521:G:H3' | 1:A:1522:G:H5' | 1.49 | 0.92 |
| 1:A:1857:G:N2 | 1:A:1884:A:H61 | 1.67 | 0.92 |
| 1:A:221:A:O2' | 1:A:222:A:OP2 | 1.88 | 0.92 |
| 1:A:2733:A:H2' | 1:A:2734:A:O4' | 1.70 | 0.92 |
| 1:A:637:A:H2 | 1:A:651:G:H4' | 1.32 | 0.92 |
| 1:A:700:G:H22 | 1:A:733:G:H1' | 1.32 | 0.92 |
| 1:A:2734:A:H1' | 5:E:204:ALA:HB2 | 1.49 | 0.92 |
| 17:S:111:ARG:H | 17:S:111:ARG:HH11 | 1.07 | 0.92 |
| 21:W:40:LYS:HA | 21:W:51:VAL:HG11 | 1.50 | 0.92 |
| 21:W:84:ALA:HB3 | 21:W:85:PRO:HD3 | 1.51 | 0.92 |
| 3:C:14:VAL:HG12 | 3:C:16:PRO:HD3 | 1.52 | 0.92 |
| 1:A:1649:G:N2 | 15:Q:107:ASP:HB2 | 1.83 | 0.92 |
| 1:A:1944:U:C1' | 1:A:1955:U:H1' | 1.98 | 0.92 |
| 1:A:2000:G:OP2 | 15:Q:2:ARG:HG2 | 1.70 | 0.92 |
| 1:A:2519:U:H5'' | 1:A:2520:C:OP1 | 1.67 | 0.92 |
| 1:A:429:A:H2' | 1:A:430:G:C8 | 2.05 | 0.92 |
| 1:A:58:G:H1' | 1:A:70:G:N2 | 1.85 | 0.92 |
| 1:A:614:U:H3' | 1:A:615:G:C4' | 2.00 | 0.92 |
| 4:D:127:VAL:HA | 4:D:193:VAL:CG1 | 2.00 | 0.92 |
| 4:D:217:ARG:HG3 | 4:D:218:ARG:H | 1.34 | 0.92 |
| 4:D:92:ILE:CD1 | 4:D:104:TYR:HD1 | 1.83 | 0.92 |
| 5:E:4:ILE:HG13 | 5:E:27:LEU:HD13 | 1.48 | 0.92 |
| 6:F:6:VAL:N | 6:F:20:LEU:HD12 | 1.84 | 0.92 |
| 8:H:94:TYR:C | 8:H:95:ARG:HD2 | 1.89 | 0.92 |
| 15:Q:38:VAL:HB | 15:Q:39:PRO:HD3 | 1.52 | 0.92 |
| 20:V:41:LYS:NZ | 20:V:41:LYS:HB3 | 1.85 | 0.92 |
| 24:Z:46:LYS:HG2 | 24:Z:77:ARG:O | 1.70 | 0.92 |
| 1:A:2125:G:H21 | 1:A:2173:A:H62 | 1.13 | 0.92 |
| 27:3:58:ARG:H | 27:3:61:ARG:HH11 | 0.93 | 0.92 |
| 27:3:58:ARG:N | 27:3:61:ARG:HH11 | 1.67 | 0.92 |
| 1:A:1378:A:C2 | 1:A:1380:G:H1' | 2.05 | 0.92 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:A:1617:C:H4' | 1:A:1617:C:OP2 | 1.68 | 0.92 |
| 1:A:1812:A:H2' | 1:A:1813:G:O4' | 1.68 | 0.92 |
| 1:A:2390:U:O2' | 1:A:2391:G:H5' | 1.70 | 0.92 |
| 1:A:546:C:H2' | 1:A:547:A:C8 | 2.04 | 0.92 |
| 1:A:835:A:O4' | 1:A:2358:G:H1' | 1.70 | 0.92 |
| 1:A:977:G:O2' | 1:A:978:G:H5' | 1.69 | 0.92 |
| 6:F:9:ILE:CG1 | 6:F:124:LEU:HB2 | 2.00 | 0.92 |
| 8:H:132:ARG:HD3 | 8:H:132:ARG:N | 1.85 | 0.92 |
| 11:M:89:LYS:H | 11:M:89:LYS:HZ1 | 1.17 | 0.92 |
| 13:O:112:LEU:HG | 13:O:128:HIS:HE1 | 1.34 | 0.92 |
| 13:O:18:ARG:HD3 | 13:O:20:GLY:H | 1.33 | 0.92 |
| 13:O:49:ARG:O | 13:O:52:GLU:HG2 | 1.69 | 0.92 |
| 15:Q:103:ARG:HB2 | 15:Q:108:GLY:HA2 | 1.51 | 0.92 |
| 17:S:53:ARG:HH22 | 17:S:102:ILE:H | 1.04 | 0.92 |
| 18:T:33:ARG:HB2 | 18:T:33:ARG:NH1 | 1.85 | 0.92 |
| 27:3:56:VAL:HG12 | 27:3:57:GLU:N | 1.80 | 0.91 |
| 1:A:179:G:H5' | 30:6:32:LYS:HZ3 | 1.32 | 0.91 |
| 1:A:1298:C:C1' | 1:A:1302:A:N7 | 2.30 | 0.91 |
| 1:A:1856:G:H2' | 1:A:1857:G:H5' | 1.52 | 0.91 |
| 1:A:1999:C:H2' | 1:A:2000:G:O5' | 1.70 | 0.91 |
| 1:A:2582:G:N2 | 1:A:2583:G:H1' | 1.85 | 0.91 |
| 1:A:2712:U:H2' | 1:A:2712(A):A:H5'' | 1.50 | 0.91 |
| 1:A:324:A:H62 | 1:A:339:U:H1' | 1.33 | 0.91 |
| 1:A:603:A:N6 | 1:A:624:C:N4 | 2.18 | 0.91 |
| 1:A:64:A:O2' | 1:A:65:C:H5' | 1.67 | 0.91 |
| 4:D:196:VAL:HG12 | 4:D:198:ASN:H | 1.35 | 0.91 |
| 1:A:1803:A:H4' | 4:D:257:LEU:CD1 | 1.98 | 0.91 |
| 6:F:27:GLU:HG3 | 6:F:116:ASP:HB2 | 1.52 | 0.91 |
| 6:F:194:MET:SD | 6:F:200:GLU:HG2 | 2.09 | 0.91 |
| 7:G:130:ASN:HA | 7:G:161:THR:HG23 | 1.49 | 0.91 |
| 9:K:2:LYS:HD2 | 9:K:39:ALA:CB | 1.99 | 0.91 |
| 1:A:623:G:P | 13:O:105:LEU:HD21 | 2.09 | 0.91 |
| 16:R:11:LYS:HZ3 | 16:R:11:LYS:HB3 | 1.32 | 0.91 |
| 5:E:8:LYS:HD2 | 17:S:3:ARG:HG3 | 1.51 | 0.91 |
| 23:Y:116:VAL:HG21 | 23:Y:145:GLU:HG2 | 1.52 | 0.91 |
| 25:1:19:LEU:HD13 | 25:1:20:VAL:H | 1.34 | 0.91 |
| 28:4:40:LYS:HE3 | 28:4:44:THR:O | 1.70 | 0.91 |
| 1:A:1326:U:H2' | 1:A:1327:C:H5' | 1.48 | 0.91 |
| 1:A:2093:G:H4' | 9:K:25:TYR:HA | 1.51 | 0.91 |
| 1:A:2226:C:H1' | 4:D:262:ARG:NH1 | 1.85 | 0.91 |
| 1:A:2555:U:C6 | 1:A:2555:U:H3' | 2.04 | 0.91 |
| 4:D:44:ASN:ND2 | 4:D:218:ARG:HH12 | 1.69 | 0.91 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:F:74:ARG:NH1 | 6:F:75:HIS:HA | 1.85 | 0.91 |
| 8:H:7:LEU:H | 8:H:8:PRO:CD | 1.83 | 0.91 |
| 8:H:89:ILE:HD12 | 8:H:90:LYS:N | 1.83 | 0.91 |
| 10:L:10:LEU:HD23 | 10:L:55:VAL:O | 1.70 | 0.91 |
| 12:N:18:LYS:NZ | 12:N:44:LYS:NZ | 2.18 | 0.91 |
| 1:A:2675:A:H5' | 12:N:29:ASN:HB3 | 1.52 | 0.91 |
| 12:N:15:GLY:CA | 12:N:47:ILE:HB | 1.99 | 0.91 |
| 13:O:131:SER:O | 13:O:134:ALA:HB3 | 1.68 | 0.91 |
| 15:Q:20:LEU:HD21 | 15:Q:24:GLN:HG3 | 1.53 | 0.91 |
| 20:V:36:LEU:HG | 20:V:51:LEU:HD21 | 1.51 | 0.91 |
| 20:V:76:VAL:HG22 | 20:V:77:ASP:H | 1.35 | 0.91 |
| 1:A:751:A:O4' | 20:V:90:ARG:HD3 | 1.68 | 0.91 |
| 22:X:86:ARG:HH21 | 22:X:86:ARG:HB3 | 1.35 | 0.91 |
| 1:A:2295:C:H1' | 1:A:2338:G:N2 | 1.85 | 0.91 |
| 26:2:45:GLY:HA2 | 26:2:48:GLU:CD | 1.90 | 0.91 |
| 1:A:1504:C:H2' | 1:A:1505:C:C6 | 2.06 | 0.91 |
| 1:A:1663:C:C2' | 1:A:1664:A:N3 | 2.34 | 0.91 |
| 1:A:2485:G:O2' | 1:A:2486:G:H5' | 1.70 | 0.91 |
| 1:A:477:A:H2' | 1:A:478:A:C8 | 2.05 | 0.91 |
| 7:G:101:ILE:HD13 | 7:G:101:ILE:O | 1.70 | 0.91 |
| 7:G:130:ASN:ND2 | 7:G:161:THR:H | 1.67 | 0.91 |
| 8:H:35:VAL:HB | 8:H:72:ILE:CD1 | 2.00 | 0.91 |
| 12:N:25:LEU:HD22 | 12:N:38:VAL:O | 1.69 | 0.91 |
| 14:P:51:ARG:HG3 | 14:P:52:VAL:H | 1.33 | 0.91 |
| 16:R:17:ARG:NE | 16:R:89:ARG:HB2 | 1.85 | 0.91 |
| 1:A:2153:G:H2' | 1:A:2154:G:O4' | 1.71 | 0.91 |
| 1:A:1913:A:H2 | 1:A:1917:U:C5 | 1.88 | 0.91 |
| 1:A:2512:C:H5'' | 5:E:120:TRP:HH2 | 1.24 | 0.91 |
| 1:A:2576:G:H4' | 1:A:2577:A:C5' | 1.99 | 0.91 |
| 1:A:270(A):A:N6 | 1:A:270(Y):G:H4' | 1.85 | 0.91 |
| 1:A:94:G:H21 | 25:1:42:ASN:ND2 | 1.68 | 0.91 |
| 2:B:9:G:H4' | 16:R:43:GLU:OE2 | 1.69 | 0.91 |
| 7:G:19:LEU:HD12 | 7:G:19:LEU:N | 1.86 | 0.91 |
| 18:T:17:ILE:HA | 18:T:20:LEU:HG | 0.95 | 0.91 |
| 18:T:93:LYS:HG2 | 19:U:10:LYS:HZ1 | 1.34 | 0.91 |
| 29:5:19:ARG:HH12 | 29:5:41:PRO:CG | 1.83 | 0.91 |
| 29:5:19:ARG:NH2 | 29:5:41:PRO:HG3 | 1.85 | 0.91 |
| 1:A:1044:G:H5'' | 1:A:1045:A:C4' | 2.00 | 0.91 |
| 1:A:1114:G:N2 | 1:A:1115:G:H1' | 1.85 | 0.91 |
| 1:A:1808:U:C4 | 1:A:1810:A:N1 | 2.38 | 0.91 |
| 1:A:201:C:H2' | 1:A:202:U:H5' | 1.48 | 0.91 |
| 1:A:2394:C:H41 | 1:A:2422:A:N6 | 1.68 | 0.91 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2468:G:N2 | 1:A:2481:G:H2' | 1.85 | 0.91 |
| 1:A:270(C):C:H2' | 1:A:270(D):C:H6 | 1.34 | 0.91 |
| 1:A:286:C:H2' | 1:A:287:C:C6 | 2.04 | 0.91 |
| 1:A:292:C:C2' | 1:A:293:U:H3 | 1.83 | 0.91 |
| 2:B:78:A:C5 | 2:B:99:A:N6 | 2.38 | 0.91 |
| 5:E:169:ASN:ND2 | 5:E:170:LEU:N | 2.19 | 0.91 |
| 6:F:5:ALA:HB3 | 6:F:7:TYR:CE1 | 2.05 | 0.91 |
| 11:M:136:GLU:O | 11:M:137:LYS:HG2 | 1.71 | 0.91 |
| 12:N:9:GLU:HB3 | 12:N:17:ARG:HG2 | 1.52 | 0.91 |
| 12:N:4:PRO:HG2 | 12:N:5:GLN:N | 1.83 | 0.91 |
| 13:O:113:LYS:HD3 | 13:O:114:ILE:N | 1.84 | 0.91 |
| 13:O:56:SER:HB3 | 31:7:13:ARG:NH2 | 1.85 | 0.91 |
| 19:U:82:ARG:HG3 | 19:U:82:ARG:O | 1.71 | 0.91 |
| 1:A:1582:C:H3' | 1:A:1583:A:C5' | 1.98 | 0.91 |
| 1:A:716:A:H2' | 1:A:717:G:H5' | 1.52 | 0.91 |
| 1:A:388:G:OP2 | 27:3:23:GLU:HG2 | 1.71 | 0.91 |
| 29:5:19:ARG:CZ | 29:5:41:PRO:HG3 | 1.99 | 0.91 |
| 1:A:1324:G:H1' | 1:A:1616:A:H62 | 1.19 | 0.91 |
| 1:A:1555:G:H2' | 1:A:1556:C:C6 | 2.06 | 0.91 |
| 1:A:1975:G:O2' | 1:A:1976:U:H5' | 1.70 | 0.91 |
| 1:A:2528:U:HO2' | 1:A:2529:G:H3' | 1.32 | 0.91 |
| 1:A:2537:U:H2' | 1:A:2538:C:C6 | 2.05 | 0.91 |
| 1:A:2712:U:H3' | 1:A:2714:G:OP2 | 1.69 | 0.91 |
| 1:A:640:C:N4 | 1:A:647:G:H1 | 1.69 | 0.91 |
| 4:D:131:LEU:CG | 4:D:132:PRO:HD2 | 2.00 | 0.91 |
| 4:D:168:ARG:HG3 | 4:D:173:VAL:HG13 | 1.51 | 0.91 |
| 4:D:236:GLY:O | 4:D:237:GLU:HG2 | 1.70 | 0.91 |
| 4:D:181:GLU:OE2 | 4:D:270:ILE:HG22 | 1.70 | 0.91 |
| 6:F:41:LEU:HB2 | 6:F:44:ARG:NH1 | 1.85 | 0.91 |
| 12:N:11:ALA:N | 12:N:17:ARG:HG3 | 1.85 | 0.91 |
| 16:R:106:ARG:O | 16:R:106:ARG:NH1 | 2.03 | 0.91 |
| 16:R:63:THR:O | 16:R:66:ALA:HB3 | 1.68 | 0.91 |
| 26:2:29:ARG:HB2 | 26:2:30:ARG:HH11 | 1.35 | 0.91 |
| 1:A:1448:G:H21 | 1:A:1529:A:H2 | 0.96 | 0.91 |
| 1:A:1790:C:H3' | 1:A:1828:G:H22 | 1.33 | 0.91 |
| 1:A:1795:C:O2' | 1:A:1796:U:H5' | 1.71 | 0.91 |
| 1:A:2058:A:C2 | 1:A:2059:A:N7 | 2.38 | 0.91 |
| 1:A:270(B):A:H4' | 1:A:270(C):C:C6 | 2.06 | 0.91 |
| 4:D:138:VAL:HA | 4:D:165:ILE:HG21 | 1.51 | 0.91 |
| 11:M:97:ARG:HA | 11:M:100:GLU:CG | 2.01 | 0.91 |
| 14:P:75:THR:HG22 | 14:P:77:LYS:H | 1.33 | 0.91 |
| 12:N:99:PHE:CA | 17:S:74:ARG:HH12 | 1.84 | 0.91 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 18:T:64:ARG:O | 18:T:67:ALA:HB3 | 1.69 | 0.91 |
| 19:U:74:LYS:N | 19:U:74:LYS:HD3 | 1.83 | 0.91 |
| 23:Y:103:ARG:HA | 23:Y:103:ARG:HE | 1.34 | 0.91 |
| 26:2:20:LYS:HA | 26:2:23:LEU:HD22 | 1.52 | 0.91 |
| 1:A:1080:C:O2' | 10:L:126:MET:HG3 | 1.70 | 0.91 |
| 1:A:1111:A:O2' | 1:A:1112:G:H1' | 1.69 | 0.91 |
| 1:A:1183:G:H4' | 1:A:1184:G:O5' | 1.69 | 0.91 |
| 1:A:1670:C:OP2 | 1:A:1671:U:H5 | 1.52 | 0.91 |
| 1:A:1807:G:H1' | 1:A:1811:G:H22 | 1.26 | 0.91 |
| 1:A:2282:G:H1 | 1:A:2427:C:H42 | 1.00 | 0.91 |
| 1:A:311:A:H3' | 1:A:312:G:C8 | 2.05 | 0.91 |
| 1:A:510:C:P | 1:A:512:G:H1 | 1.94 | 0.91 |
| 1:A:647:G:H2' | 1:A:648:G:C8 | 2.05 | 0.91 |
| 1:A:945:A:N6 | 1:A:2448:A:C2 | 2.38 | 0.91 |
| 4:D:95:LEU:O | 4:D:102:LYS:HB3 | 1.71 | 0.91 |
| 7:G:68:PRO:HB3 | 7:G:72:ARG:NH2 | 1.85 | 0.91 |
| 8:H:6:ARG:O | 8:H:69:ARG:HD2 | 1.70 | 0.91 |
| 11:M:67:LEU:CA | 11:M:70:LYS:HZ3 | 1.84 | 0.91 |
| 12:N:68:GLU:HG2 | 12:N:76:ALA:O | 1.71 | 0.91 |
| 13:O:125:VAL:O | 13:O:125:VAL:HG12 | 1.71 | 0.91 |
| 14:P:22:LYS:HD2 | 14:P:99:PRO:HG3 | 1.53 | 0.91 |
| 16:R:30:ARG:NH2 | 16:R:91:PRO:HB2 | 1.84 | 0.91 |
| 17:S:31:SER:OG | 17:S:49:VAL:HG22 | 1.71 | 0.91 |
| 18:T:92:ARG:HA | 18:T:95:LEU:HG | 1.49 | 0.91 |
| 19:U:38:LEU:HD23 | 19:U:38:LEU:H | 1.34 | 0.91 |
| 19:U:77:ALA:O | 19:U:84:LYS:HA | 1.70 | 0.91 |
| 22:X:88:LYS:HG2 | 22:X:89:PHE:N | 1.84 | 0.91 |
| 1:A:2677:G:O2' | 1:A:2678:C:H5' | 1.71 | 0.91 |
| 28:4:51:TYR:HD1 | 28:4:54:GLY:N | 1.68 | 0.91 |
| 30:6:32:LYS:HA | 30:6:35:ARG:HH11 | 1.33 | 0.91 |
| 1:A:125:G:H22 | 30:6:10:ARG:HA | 1.36 | 0.91 |
| 1:A:1281:G:H2' | 1:A:1282:U:H6 | 1.35 | 0.91 |
| 1:A:1912:A:N1 | 1:A:1919:A:C4 | 2.39 | 0.91 |
| 1:A:2052:G:H2' | 1:A:2053:G:H8 | 1.35 | 0.91 |
| 1:A:2807:G:H22 | 1:A:2892:A:H62 | 1.19 | 0.91 |
| 1:A:684:G:N7 | 1:A:774:A:N7 | 2.18 | 0.91 |
| 4:D:159:ALA:HA | 4:D:196:VAL:HG11 | 1.52 | 0.91 |
| 5:E:119:ARG:CZ | 5:E:155:LYS:HB3 | 2.01 | 0.91 |
| 1:A:2730:C:H4' | 5:E:169:ASN:O | 1.69 | 0.91 |
| 5:E:49:LEU:CD1 | 5:E:76:ARG:HG2 | 2.00 | 0.91 |
| 6:F:36:VAL:HG11 | 6:F:183:VAL:HG21 | 1.51 | 0.91 |
| 7:G:148:MET:SD | 7:G:151:ALA:HB2 | 2.10 | 0.91 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:871:U:H4' | 14:P:69:PHE:CZ | 2.05 | 0.91 |
| 15:Q:33:ARG:NH2 | 28:4:56:LYS:HB2 | 1.86 | 0.91 |
| 1:A:1009:A:O2' | 18:T:62:ILE:HD13 | 1.71 | 0.91 |
| 9:K:81:VAL:CG2 | 9:K:144:VAL:HG22 | 2.01 | 0.91 |
| 1:A:2148:G:H2' | 1:A:2149:G:C8 | 2.05 | 0.91 |
| 1:A:1176:G:H5'' | 1:A:1177:A:C8 | 2.06 | 0.91 |
| 1:A:1324:G:C1' | 1:A:1616:A:H62 | 1.84 | 0.91 |
| 1:A:2254:C:O2' | 1:A:2255:G:H5' | 1.68 | 0.91 |
| 1:A:2394:C:H2' | 1:A:2394:C:O2 | 1.68 | 0.91 |
| 1:A:199:A:N1 | 1:A:2433:A:H2' | 1.86 | 0.91 |
| 1:A:2447:G:C3' | 1:A:2499:C:P | 2.57 | 0.91 |
| 1:A:410:G:H2' | 1:A:411:G:N7 | 1.85 | 0.91 |
| 1:A:467:G:C2' | 1:A:468:G:H5' | 2.00 | 0.91 |
| 1:A:979:G:H3' | 1:A:980:A:C5' | 2.01 | 0.91 |
| 4:D:84:TYR:HA | 4:D:92:ILE:CG2 | 2.00 | 0.91 |
| 5:E:4:ILE:HD11 | 5:E:76:ARG:HE | 1.36 | 0.91 |
| 1:A:2637:U:C5' | 5:E:81:ILE:HD11 | 1.99 | 0.91 |
| 11:M:37:LYS:CD | 11:M:43:THR:HG23 | 2.00 | 0.91 |
| 11:M:74:ARG:HB2 | 11:M:82:LEU:CB | 2.01 | 0.91 |
| 17:S:50:ILE:HB | 17:S:66:VAL:CB | 2.01 | 0.91 |
| 18:T:17:ILE:HD12 | 18:T:20:LEU:HD11 | 1.53 | 0.91 |
| 1:A:994:C:H3' | 18:T:54:LYS:HZ1 | 1.35 | 0.91 |
| 21:W:16:LYS:HE2 | 21:W:16:LYS:H | 1.37 | 0.91 |
| 22:X:86:ARG:HG2 | 22:X:91:GLU:O | 1.70 | 0.91 |
| 24:Z:36:ILE:HD11 | 24:Z:39:ARG:HG3 | 1.51 | 0.91 |
| 9:K:77:LEU:HD12 | 9:K:142:VAL:HG13 | 1.52 | 0.91 |
| 3:C:59:ARG:HD3 | 3:C:164:ARG:CG | 2.00 | 0.91 |
| 3:C:83:ILE:O | 3:C:87:GLU:HB2 | 1.71 | 0.91 |
| 26:2:22:ALA:O | 26:2:26:LEU:HD22 | 1.71 | 0.90 |
| 27:3:11:PRO:HA | 27:3:40:HIS:NE2 | 1.86 | 0.90 |
| 1:A:1189:A:H2' | 1:A:1189:A:N3 | 1.83 | 0.90 |
| 1:A:1917:U:H3' | 1:A:1917:U:C6 | 2.07 | 0.90 |
| 1:A:1267:U:H5 | 1:A:2012:G:H22 | 1.18 | 0.90 |
| 1:A:2059:A:N1 | 1:A:2503:A:N6 | 2.19 | 0.90 |
| 1:A:1265:A:OP2 | 1:A:2615:U:OP1 | 1.86 | 0.90 |
| 1:A:2767:C:C2 | 1:A:2768:C:C5 | 2.59 | 0.90 |
| 1:A:295:G:H3' | 1:A:338:G:H1 | 1.34 | 0.90 |
| 4:D:146:GLU:OE1 | 4:D:149:PRO:HA | 1.69 | 0.90 |
| 4:D:171:ASP:O | 4:D:186:HIS:HA | 1.69 | 0.90 |
| 5:E:100:GLU:O | 5:E:172:VAL:HG13 | 1.71 | 0.90 |
| 11:M:123:TYR:O | 11:M:125:GLY:N | 2.04 | 0.90 |
| 12:N:25:LEU:HD23 | 12:N:26:LYS:H | 1.36 | 0.90 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 12:N:2:ILE:HD12 | 12:N:32:TYR:HD1 | 1.34 | 0.90 |
| 13:O:13:ASN:ND2 | 13:O:14:LYS:H | 1.69 | 0.90 |
| 22:X:67:LEU:CD1 | 22:X:71:LYS:HZ1 | 1.84 | 0.90 |
| 22:X:72:VAL:HG11 | 22:X:96:ILE:HG21 | 1.53 | 0.90 |
| 9:K:146:ALA:C | 9:K:148:GLU:H | 1.72 | 0.90 |
| 3:C:87:GLU:OE1 | 3:C:94:VAL:HG11 | 1.70 | 0.90 |
| 1:A:1084:A:O2' | 1:A:1105:U:H1' | 1.71 | 0.90 |
| 1:A:1203:G:N1 | 1:A:1240:U:O2 | 2.03 | 0.90 |
| 1:A:1604:C:O2' | 1:A:1605:C:H5' | 1.70 | 0.90 |
| 1:A:197:A:H61 | 1:A:248:G:N2 | 1.70 | 0.90 |
| 1:A:224:G:N2 | 1:A:225:A:H1' | 1.85 | 0.90 |
| 1:A:2006:C:O2' | 1:A:2823:A:N3 | 2.02 | 0.90 |
| 4:D:146:GLU:HA | 4:D:154:LYS:HG2 | 1.49 | 0.90 |
| 6:F:183:VAL:HA | 6:F:186:ILE:HD12 | 1.53 | 0.90 |
| 8:H:105:LEU:O | 8:H:113:VAL:HG21 | 1.71 | 0.90 |
| 9:K:21:VAL:HB | 9:K:26:ALA:CB | 2.02 | 0.90 |
| 1:A:1080:C:H4' | 10:L:125:ARG:HB3 | 1.53 | 0.90 |
| 12:N:59:LYS:HA | 12:N:86:ILE:HD13 | 1.53 | 0.90 |
| 12:N:97:ARG:CB | 12:N:117:LEU:HD21 | 2.02 | 0.90 |
| 13:O:122:PRO:HB3 | 13:O:141:ALA:HB3 | 1.52 | 0.90 |
| 14:P:124:LYS:HE2 | 14:P:125:LEU:H | 1.32 | 0.90 |
| 16:R:106:ARG:HH12 | 16:R:110:LEU:HB3 | 1.35 | 0.90 |
| 18:T:19:LYS:NZ | 18:T:19:LYS:HB2 | 1.86 | 0.90 |
| 18:T:93:LYS:HA | 18:T:93:LYS:HZ2 | 1.35 | 0.90 |
| 29:5:8:LYS:CE | 29:5:29:ASN:HA | 2.00 | 0.90 |
| 1:A:1400:G:H2' | 1:A:1401:G:C8 | 2.06 | 0.90 |
| 1:A:1516:U:H2' | 1:A:1517:G:C8 | 2.05 | 0.90 |
| 1:A:2498:C:H2' | 1:A:2499:C:H5'' | 1.52 | 0.90 |
| 1:A:2453:A:O2' | 1:A:2572:A:H1' | 1.70 | 0.90 |
| 1:A:2746:U:O4' | 8:H:139:GLN:HB3 | 1.71 | 0.90 |
| 1:A:2876:G:OP1 | 17:S:2:ASN:HB3 | 1.71 | 0.90 |
| 1:A:2900:A:H2' | 1:A:2901:C:C6 | 2.06 | 0.90 |
| 1:A:559:G:H5' | 1:A:559:G:H8 | 1.36 | 0.90 |
| 1:A:84:A:C6 | 1:A:99:U:H1' | 2.05 | 0.90 |
| 4:D:206:LEU:HD23 | 4:D:207:GLY:H | 1.35 | 0.90 |
| 4:D:208:LYS:HZ2 | 4:D:211:ARG:HG2 | 1.34 | 0.90 |
| 4:D:7:LYS:HZ2 | 4:D:91:ARG:HH11 | 1.12 | 0.90 |
| 11:M:26:LEU:O | 11:M:29:LYS:HB2 | 1.72 | 0.90 |
| 11:M:74:ARG:HD2 | 11:M:82:LEU:CD1 | 2.00 | 0.90 |
| 14:P:14:ARG:HA | 14:P:14:ARG:HE | 1.31 | 0.90 |
| 14:P:51:ARG:NH1 | 14:P:51:ARG:HB2 | 1.87 | 0.90 |
| 15:Q:87:TYR:OH | 15:Q:116:LEU:HB2 | 1.71 | 0.90 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:62:LEU:HD22 | 19:U:99:ILE:H | 1.36 | 0.90 |
| 1:A:1128:A:N3 | 1:A:1128:A:H2' | 1.84 | 0.90 |
| 1:A:2472:G:H2' | 1:A:2475:C:H42 | 1.34 | 0.90 |
| 1:A:387:U:H4' | 1:A:388:G:O4' | 1.72 | 0.90 |
| 4:D:120:GLY:O | 4:D:131:LEU:HD11 | 1.72 | 0.90 |
| 1:A:1813:G:H4' | 4:D:46:GLN:CB | 2.01 | 0.90 |
| 4:D:51:VAL:HG12 | 4:D:52:ARG:CD | 2.00 | 0.90 |
| 5:E:43:GLY:O | 5:E:45:THR:HG22 | 1.72 | 0.90 |
| 8:H:35:VAL:HG11 | 8:H:75:ALA:HB2 | 1.52 | 0.90 |
| 11:M:70:LYS:NZ | 11:M:86:PRO:HB3 | 1.87 | 0.90 |
| 12:N:64:ARG:HH11 | 12:N:68:GLU:H | 1.05 | 0.90 |
| 19:U:3:ALA:CA | 19:U:44:LYS:HZ2 | 1.84 | 0.90 |
| 22:X:86:ARG:HB3 | 22:X:86:ARG:NH2 | 1.86 | 0.90 |
| 9:K:76:THR:HA | 9:K:141:LYS:HE2 | 1.51 | 0.90 |
| 31:7:30:ARG:NE | 31:7:44:LYS:HB2 | 1.86 | 0.90 |
| 1:A:2332:U:H4' | 1:A:2336:A:C6 | 2.06 | 0.90 |
| 1:A:2394:C:N4 | 1:A:2422:A:N6 | 2.18 | 0.90 |
| 1:A:2606:C:H5' | 1:A:2606:C:H6 | 1.33 | 0.90 |
| 4:D:182:LEU:N | 4:D:270:ILE:HG13 | 1.85 | 0.90 |
| 13:O:126:VAL:H | 13:O:145:PRO:HA | 1.35 | 0.90 |
| 18:T:92:ARG:HG2 | 18:T:93:LYS:HZ1 | 1.34 | 0.90 |
| 22:X:42:VAL:HG22 | 22:X:61:ILE:HG21 | 1.54 | 0.90 |
| 23:Y:18:LEU:HD22 | 23:Y:23:LYS:HB3 | 1.54 | 0.90 |
| 1:A:2129:C:OP1 | 3:C:6:ARG:HG3 | 1.70 | 0.90 |
| 20:V:19:LEU:HD22 | 28:4:25:LEU:HB3 | 1.53 | 0.90 |
| 30:6:1:MET:HB3 | 30:6:3:ARG:NH1 | 1.85 | 0.90 |
| 1:A:1558:A:H1' | 1:A:1559:G:N7 | 1.85 | 0.90 |
| 1:A:1567:A:H61 | 4:D:85:ASP:C | 1.75 | 0.90 |
| 1:A:2064:C:H1' | 1:A:2450:A:N6 | 1.85 | 0.90 |
| 1:A:2893:G:H1' | 1:A:2894:G:H8 | 1.37 | 0.90 |
| 1:A:687:C:H1' | 1:A:788:A:H5' | 1.53 | 0.90 |
| 4:D:55:GLY:H | 4:D:219:PRO:HD2 | 0.76 | 0.90 |
| 6:F:7:TYR:CD2 | 6:F:119:ARG:HB3 | 2.06 | 0.90 |
| 1:A:2690:C:H5 | 15:Q:14:SER:HB2 | 1.36 | 0.90 |
| 22:X:74:PRO:HG2 | 22:X:76:CYS:HB3 | 1.52 | 0.90 |
| 24:Z:37:LEU:HG | 24:Z:59:LEU:O | 1.72 | 0.90 |
| 3:C:77:ILE:CD1 | 3:C:123:VAL:HG11 | 2.01 | 0.90 |
| 3:C:54:SER:HA | 3:C:57:ASN:HD22 | 1.37 | 0.90 |
| 2:B:93:C:H2' | 2:B:94:C:C6 | 2.07 | 0.90 |
| 29:5:25:LYS:HE2 | 31:7:35:GLN:HG3 | 1.53 | 0.90 |
| 1:A:1033:U:H5'' | 32:8:16:VAL:HG11 | 1.54 | 0.90 |
| 1:A:1716:U:H2' | 1:A:1716:U:O2 | 1.71 | 0.90 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2014:A:H2' | 1:A:2015:A:H2 | 1.34 | 0.90 |
| 1:A:2393:A:H2' | 1:A:2394:C:O4' | 1.71 | 0.90 |
| 1:A:2421:G:H2' | 1:A:2422:A:C8 | 2.06 | 0.90 |
| 1:A:2447:G:C2' | 1:A:2499:C:OP2 | 2.18 | 0.90 |
| 1:A:307:G:H21 | 1:A:310:A:H8 | 0.96 | 0.90 |
| 1:A:412:A:C2 | 1:A:413:C:H1' | 2.06 | 0.90 |
| 1:A:603:A:H61 | 1:A:624:C:N4 | 1.70 | 0.90 |
| 1:A:638:G:H2' | 1:A:639:U:C5' | 2.02 | 0.90 |
| 1:A:821:A:H2' | 1:A:946:G:C8 | 2.06 | 0.90 |
| 1:A:861:A:H62 | 1:A:916:G:H21 | 1.18 | 0.90 |
| 5:E:49:LEU:HD13 | 5:E:76:ARG:CG | 2.02 | 0.90 |
| 13:O:15:ARG:NH2 | 13:O:16:ARG:HB2 | 1.87 | 0.90 |
| 14:P:97:VAL:HG11 | 14:P:103:MET:HE1 | 1.53 | 0.90 |
| 25:1:27:LEU:HG | 25:1:48:LEU:HD23 | 1.54 | 0.90 |
| 28:4:40:LYS:HE2 | 28:4:41:PRO:O | 1.72 | 0.90 |
| 32:8:16:VAL:O | 32:8:16:VAL:HG13 | 1.70 | 0.90 |
| 1:A:1882:C:H2' | 1:A:1883:G:O4' | 1.72 | 0.90 |
| 1:A:1826:G:O2' | 1:A:1971:A:H4' | 1.70 | 0.90 |
| 1:A:251:A:H2' | 1:A:252:G:O4' | 1.72 | 0.90 |
| 1:A:387:U:H4' | 1:A:388:G:C1' | 2.01 | 0.90 |
| 1:A:953:A:C2' | 1:A:954:G:H5' | 2.02 | 0.90 |
| 8:H:9:ILE:O | 8:H:50:VAL:HG23 | 1.72 | 0.90 |
| 11:M:74:ARG:CG | 11:M:82:LEU:HD22 | 2.02 | 0.90 |
| 12:N:39:ILE:HD13 | 12:N:39:ILE:N | 1.86 | 0.90 |
| 15:Q:74:LYS:H | 15:Q:74:LYS:HZ2 | 1.19 | 0.90 |
| 16:R:9:ARG:CZ | 16:R:9:ARG:HB2 | 2.00 | 0.90 |
| 3:C:46:LYS:HG3 | 3:C:211:SER:OG | 1.72 | 0.90 |
| 1:A:1309:G:H5'' | 30:6:9:ARG:H | 1.36 | 0.90 |
| 1:A:1996:C:OP2 | 12:N:31:LYS:NZ | 2.05 | 0.90 |
| 1:A:2308:G:O3' | 1:A:2310:A:N6 | 2.04 | 0.90 |
| 4:D:147:LEU:HG | 4:D:154:LYS:CD | 1.99 | 0.90 |
| 6:F:35:GLU:HA | 6:F:38:ARG:HD2 | 1.54 | 0.90 |
| 7:G:118:ARG:HH11 | 7:G:118:ARG:HB2 | 1.37 | 0.90 |
| 8:H:85:LYS:CD | 8:H:145:ALA:HB2 | 2.01 | 0.90 |
| 8:H:89:ILE:HD12 | 8:H:90:LYS:H | 1.34 | 0.90 |
| 11:M:19:GLU:HB2 | 11:M:56:ASN:HB3 | 1.52 | 0.90 |
| 12:N:63:VAL:O | 12:N:64:ARG:HB3 | 1.71 | 0.90 |
| 15:Q:32:GLY:O | 15:Q:115:GLU:HB2 | 1.71 | 0.90 |
| 19:U:50:PRO:HG2 | 19:U:53:GLU:OE2 | 1.72 | 0.90 |
| 1:A:2286:A:H4' | 1:A:2287:A:C1' | 2.02 | 0.90 |
| 1:A:2320:A:H1' | 1:A:2333:A:N6 | 1.86 | 0.90 |
| 1:A:2468:G:O2' | 1:A:2469:A:H8 | 1.53 | 0.90 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2685:G:H4' | 12:N:67:LYS:HZ1 | 1.30 | 0.90 |
| 1:A:820:A:H2' | 1:A:821:A:H5' | 1.52 | 0.90 |
| 1:A:928:G:O2' | 26:2:43:ILE:HG12 | 1.71 | 0.90 |
| 2:B:51:G:C2' | 2:B:52:A:H5'' | 2.02 | 0.90 |
| 6:F:30:PRO:HA | 6:F:33:LEU:HD21 | 1.52 | 0.90 |
| 1:A:2093:G:H5' | 9:K:25:TYR:CD1 | 2.06 | 0.90 |
| 9:K:27:ARG:O | 9:K:32:PRO:HD3 | 1.72 | 0.90 |
| 13:O:72:PRO:CB | 13:O:111:ARG:HB3 | 2.00 | 0.90 |
| 16:R:73:LEU:HD13 | 16:R:73:LEU:H | 1.37 | 0.90 |
| 19:U:35:LEU:O | 19:U:61:VAL:HG13 | 1.72 | 0.90 |
| 22:X:38:ILE:HA | 22:X:60:PHE:HZ | 1.34 | 0.90 |
| 1:A:1547:C:O2' | 1:A:1548:C:H5' | 1.73 | 0.89 |
| 1:A:1299:G:O6 | 1:A:1639:U:H5'' | 1.71 | 0.89 |
| 1:A:15:G:O2' | 1:A:16:G:H5' | 1.72 | 0.89 |
| 1:A:1784:A:O2' | 1:A:1785:A:C8 | 2.25 | 0.89 |
| 1:A:2075:U:O2 | 1:A:2076:U:H5' | 1.72 | 0.89 |
| 1:A:2218:G:H4' | 4:D:186:HIS:NE2 | 1.87 | 0.89 |
| 1:A:2848:G:N2 | 1:A:2867:G:N3 | 2.19 | 0.89 |
| 1:A:308:G:C2 | 1:A:309:G:H1' | 2.07 | 0.89 |
| 1:A:636:G:H4' | 1:A:638:G:O2' | 1.70 | 0.89 |
| 1:A:828:U:C2' | 1:A:829:A:C8 | 2.53 | 0.89 |
| 1:A:865:C:O2' | 1:A:866:A:H8 | 1.53 | 0.89 |
| 4:D:157:ARG:HB3 | 4:D:160:GLY:HA3 | 1.55 | 0.89 |
| 4:D:246:PRO:HG3 | 4:D:252:TRP:HA | 1.53 | 0.89 |
| 4:D:29:PRO:HB3 | 4:D:82:ILE:C | 1.92 | 0.89 |
| 8:H:76:VAL:HA | 8:H:79:VAL:HG22 | 1.52 | 0.89 |
| 8:H:84:SER:HA | 8:H:134:SER:HA | 1.53 | 0.89 |
| 10:L:14:ALA:HB3 | 10:L:49:GLY:CA | 2.02 | 0.89 |
| 11:M:109:LYS:HG3 | 11:M:110:GLY:H | 1.36 | 0.89 |
| 12:N:58:VAL:C | 12:N:59:LYS:HD3 | 1.92 | 0.89 |
| 12:N:66:LYS:HG3 | 12:N:67:LYS:HE2 | 1.52 | 0.89 |
| 13:O:114:ILE:HB | 13:O:129:ALA:O | 1.71 | 0.89 |
| 14:P:43:THR:HG23 | 14:P:46:GLN:NE2 | 1.86 | 0.89 |
| 16:R:49:VAL:HG13 | 16:R:76:LYS:NZ | 1.87 | 0.89 |
| 21:W:16:LYS:HE2 | 21:W:16:LYS:N | 1.87 | 0.89 |
| 21:W:27:THR:HG22 | 21:W:80:ILE:HG23 | 1.54 | 0.89 |
| 31:7:15:LYS:O | 31:7:22:VAL:HA | 1.71 | 0.89 |
| 1:A:1160:G:H2' | 1:A:1161:C:H5 | 1.36 | 0.89 |
| 1:A:1180:C:H2' | 1:A:1181:C:C6 | 2.07 | 0.89 |
| 1:A:1206:G:H2' | 1:A:1207:C:C1' | 2.02 | 0.89 |
| 1:A:1772:G:H2' | 1:A:1773:A:H4' | 1.53 | 0.89 |
| 1:A:332:A:H2' | 1:A:335:C:N4 | 1.87 | 0.89 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:459:U:OP2 | 30:6:40:TRP:CA | 2.18 | 0.89 |
| 1:A:558:G:H5' | 11:M:112:LEU:HG | 1.52 | 0.89 |
| 1:A:612:G:N2 | 1:A:617:G:O6 | 2.05 | 0.89 |
| 4:D:96:HIS:HA | 4:D:102:LYS:HG2 | 1.52 | 0.89 |
| 6:F:9:ILE:HD11 | 6:F:122:LYS:CG | 2.02 | 0.89 |
| 8:H:121:ILE:HG13 | 8:H:133:VAL:HG21 | 1.53 | 0.89 |
| 16:R:62:LYS:HB3 | 16:R:65:VAL:H | 1.38 | 0.89 |
| 23:Y:118:GLN:NE2 | 23:Y:118:GLN:HA | 1.83 | 0.89 |
| 29:5:15:GLU:OE2 | 29:5:21:TYR:HB3 | 1.72 | 0.89 |
| 30:6:21:ARG:HG2 | 30:6:31:LEU:HD21 | 1.54 | 0.89 |
| 1:A:1675:C:O2 | 1:A:1676:A:O4' | 1.90 | 0.89 |
| 1:A:2562:U:H1' | 12:N:23:ARG:HH21 | 1.35 | 0.89 |
| 1:A:576:U:C2 | 1:A:577:G:N7 | 2.40 | 0.89 |
| 1:A:628:G:H8 | 1:A:628:G:O5' | 1.55 | 0.89 |
| 1:A:684:G:N1 | 1:A:775:G:N7 | 2.21 | 0.89 |
| 1:A:816:C:C2' | 1:A:817:C:H5' | 2.02 | 0.89 |
| 1:A:2787:C:C1' | 5:E:61:ARG:HD2 | 2.02 | 0.89 |
| 5:E:80:GLU:HG2 | 5:E:83:ASP:CG | 1.91 | 0.89 |
| 6:F:7:TYR:HD2 | 6:F:119:ARG:HB3 | 1.35 | 0.89 |
| 8:H:120:GLY:N | 8:H:140:LYS:NZ | 2.20 | 0.89 |
| 12:N:76:ALA:HA | 17:S:77:PRO:HD2 | 1.51 | 0.89 |
| 15:Q:51:LEU:HD11 | 15:Q:70:LEU:HD11 | 1.53 | 0.89 |
| 19:U:19:LYS:HG2 | 19:U:98:GLU:OE2 | 1.71 | 0.89 |
| 22:X:98:VAL:O | 22:X:99:CYS:SG | 2.31 | 0.89 |
| 23:Y:152:ALA:O | 23:Y:155:LEU:HD22 | 1.71 | 0.89 |
| 23:Y:39:VAL:HA | 23:Y:44:PHE:CZ | 2.07 | 0.89 |
| 3:C:134:ARG:HB3 | 3:C:134:ARG:NH1 | 1.87 | 0.89 |
| 26:2:13:ILE:HG23 | 26:2:14:GLY:N | 1.88 | 0.89 |
| 26:2:29:ARG:CB | 26:2:30:ARG:HH11 | 1.85 | 0.89 |
| 29:5:20:ASN:HD21 | 29:5:43:CYS:N | 1.71 | 0.89 |
| 1:A:973:A:C1' | 1:A:1188:U:O4 | 2.20 | 0.89 |
| 1:A:1609:A:N6 | 1:A:1616:A:H2 | 1.71 | 0.89 |
| 1:A:1937:A:N6 | 1:A:1939:U:C5 | 2.39 | 0.89 |
| 1:A:2408:U:O5' | 1:A:2408:U:H6 | 1.55 | 0.89 |
| 1:A:270(F):U:H2' | 1:A:270(G):C:O4' | 1.72 | 0.89 |
| 1:A:38:A:H1' | 6:F:48:THR:HB | 1.53 | 0.89 |
| 4:D:225:ALA:HB3 | 4:D:231:HIS:NE2 | 1.86 | 0.89 |
| 8:H:8:PRO:HA | 8:H:51:ARG:CZ | 2.02 | 0.89 |
| 10:L:37:PHE:CE2 | 10:L:65:PHE:HB2 | 2.08 | 0.89 |
| 12:N:63:VAL:HG12 | 12:N:99:PHE:HE1 | 1.34 | 0.89 |
| 15:Q:52:ILE:O | 15:Q:52:ILE:HD13 | 1.71 | 0.89 |
| 20:V:25:ARG:HH21 | 20:V:74:ALA:N | 1.69 | 0.89 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 24:Z:11:ARG:HB3 | 24:Z:11:ARG:HH11 | 1.37 | 0.89 |
| 3:C:87:GLU:CG | 3:C:94:VAL:HG21 | 1.99 | 0.89 |
| 30:6:41:ARG:C | 30:6:42:LEU:HG | 1.93 | 0.89 |
| 30:6:41:ARG:HH11 | 30:6:41:ARG:HB2 | 1.31 | 0.89 |
| 1:A:1085:A:O2' | 1:A:1086:A:O4' | 1.89 | 0.89 |
| 1:A:1173:G:H21 | 1:A:1175:U:P | 1.95 | 0.89 |
| 1:A:1359:A:N6 | 1:A:1360:A:C5 | 2.39 | 0.89 |
| 1:A:1491:G:H2' | 1:A:1492:G:C4' | 1.99 | 0.89 |
| 4:D:177:LEU:O | 4:D:177:LEU:HD12 | 1.72 | 0.89 |
| 4:D:55:GLY:HA2 | 4:D:218:ARG:NH1 | 1.87 | 0.89 |
| 10:L:99:ILE:HG22 | 10:L:100:THR:N | 1.87 | 0.89 |
| 16:R:103:GLU:O | 16:R:106:ARG:HB3 | 1.72 | 0.89 |
| 16:R:14:VAL:O | 16:R:18:ILE:HD13 | 1.71 | 0.89 |
| 17:S:52:ILE:HA | 17:S:66:VAL:HG13 | 1.54 | 0.89 |
| 1:A:1335:U:OP1 | 21:W:65:ARG:HG3 | 1.73 | 0.89 |
| 1:A:1312:U:C3' | 1:A:1313:U:C6 | 2.56 | 0.89 |
| 1:A:1782:C:C4 | 1:A:2587:A:N6 | 2.39 | 0.89 |
| 1:A:247:G:H1 | 31:7:8:LYS:NZ | 1.70 | 0.89 |
| 1:A:2572:A:H4' | 1:A:2573:C:C5' | 2.03 | 0.89 |
| 1:A:2720:U:O4 | 1:A:2872:G:C6 | 2.25 | 0.89 |
| 1:A:371:A:H5'' | 1:A:423:A:C8 | 2.08 | 0.89 |
| 1:A:616:A:OP2 | 1:A:616:A:H3' | 1.72 | 0.89 |
| 8:H:28:GLY:CA | 8:H:79:VAL:HB | 2.02 | 0.89 |
| 12:N:7:TYR:CA | 12:N:18:LYS:HE3 | 2.03 | 0.89 |
| 13:O:124:LYS:CB | 13:O:143:GLY:HA3 | 2.01 | 0.89 |
| 13:O:97:PRO:HA | 13:O:102:ARG:CZ | 2.03 | 0.89 |
| 17:S:28:VAL:HG11 | 17:S:90:GLN:OE1 | 1.71 | 0.89 |
| 18:T:76:TYR:CD2 | 18:T:80:ILE:HD11 | 2.07 | 0.89 |
| 20:V:6:ILE:CG1 | 20:V:104:THR:HA | 2.01 | 0.89 |
| 22:X:14:LEU:HD22 | 22:X:20:TYR:H | 1.37 | 0.89 |
| 23:Y:116:VAL:HG11 | 23:Y:174:VAL:HB | 1.54 | 0.89 |
| 23:Y:145:GLU:O | 23:Y:147:GLY:N | 2.04 | 0.89 |
| 1:A:1259:G:H2' | 1:A:1260:G:C8 | 2.08 | 0.89 |
| 1:A:2209:C:H4' | 4:D:150:LYS:HB3 | 1.55 | 0.89 |
| 1:A:748:G:H3' | 1:A:750:A:OP2 | 1.70 | 0.89 |
| 1:A:2786:U:O2 | 5:E:61:ARG:HG3 | 1.73 | 0.89 |
| 6:F:157:VAL:HG22 | 6:F:194:MET:HA | 1.54 | 0.89 |
| 16:R:24:LEU:HD21 | 16:R:39:ILE:HG22 | 1.55 | 0.89 |
| 9:K:83:ALA:HB3 | 9:K:88:ILE:HA | 1.54 | 0.89 |
| 26:2:6:VAL:O | 26:2:35:ARG:HG3 | 1.72 | 0.89 |
| 1:A:1965:C:H3' | 1:A:1966:A:H8 | 1.30 | 0.89 |
| 1:A:1127:A:C6 | 1:A:2518:A:C2 | 2.61 | 0.89 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2832:U:H1' | 1:A:2834:G:C2 | 2.08 | 0.89 |
| 1:A:866:A:N3 | 1:A:866:A:H2' | 1.88 | 0.89 |
| 1:A:95:G:H2' | 25:1:43:HIS:HE1 | 1.38 | 0.89 |
| 4:D:129:ASN:O | 4:D:193:VAL:HG23 | 1.71 | 0.89 |
| 5:E:22:PRO:HA | 5:E:185:LYS:CA | 2.03 | 0.89 |
| 5:E:49:LEU:HG | 5:E:74:PRO:CG | 2.03 | 0.89 |
| 6:F:137:LYS:O | 6:F:140:LEU:HB3 | 1.71 | 0.89 |
| 6:F:142:TRP:HA | 6:F:145:GLU:HG2 | 1.54 | 0.89 |
| 7:G:105:LYS:O | 7:G:109:VAL:HG22 | 1.72 | 0.89 |
| 9:K:28:ASN:HA | 9:K:32:PRO:HB3 | 1.55 | 0.89 |
| 10:L:9:LYS:HA | 10:L:56:GLU:HG2 | 1.53 | 0.89 |
| 13:O:65:ARG:HH11 | 13:O:68:GLN:NE2 | 1.70 | 0.89 |
| 13:O:85:LEU:HB2 | 13:O:86:LYS:HZ3 | 1.36 | 0.89 |
| 20:V:17:VAL:O | 20:V:20:VAL:HG12 | 1.72 | 0.89 |
| 23:Y:122:ARG:NH2 | 23:Y:169:GLU:HG2 | 1.86 | 0.89 |
| 1:A:1201:C:H41 | 1:A:1241:A:H61 | 1.18 | 0.89 |
| 1:A:1482:U:H2' | 1:A:1483:G:H4' | 1.55 | 0.89 |
| 1:A:1565:C:C4 | 1:A:1567:A:H1' | 2.06 | 0.89 |
| 1:A:1783:A:C2 | 1:A:2587:A:C2 | 2.61 | 0.89 |
| 1:A:270(E):G:H2' | 1:A:270(F):U:C6 | 2.08 | 0.89 |
| 1:A:974(A):C:H5' | 1:A:975:G:OP1 | 1.72 | 0.89 |
| 2:B:55:U:H2' | 2:B:56:G:O4' | 1.73 | 0.89 |
| 6:F:37:VAL:HA | 6:F:184:TYR:CE2 | 2.08 | 0.89 |
| 1:A:600:G:H5' | 6:F:32:LEU:HD11 | 1.54 | 0.89 |
| 7:G:169:ALA:O | 7:G:172:LEU:HB3 | 1.71 | 0.89 |
| 9:K:37:VAL:HG12 | 9:K:38:LEU:N | 1.86 | 0.89 |
| 10:L:13:PRO:O | 10:L:16:LYS:HB2 | 1.71 | 0.89 |
| 14:P:81:VAL:HG12 | 14:P:82:ARG:N | 1.87 | 0.89 |
| 23:Y:95:PRO:HG2 | 23:Y:131:ARG:N | 1.86 | 0.89 |
| 3:C:192:PHE:CE1 | 3:C:196:LEU:HD13 | 2.08 | 0.89 |
| 9:K:133:HIS:HB3 | 9:K:136:VAL:CG2 | 2.03 | 0.89 |
| 27:3:18:CYS:H | 27:3:33:VAL:CB | 1.86 | 0.89 |
| 31:7:12:LYS:O | 31:7:14:VAL:HG23 | 1.71 | 0.89 |
| 1:A:1198:U:H2' | 1:A:1199:U:C6 | 2.07 | 0.89 |
| 1:A:1473:G:H1 | 1:A:1519:G:H1' | 1.38 | 0.89 |
| 1:A:832:G:P | 13:O:35:HIS:HB2 | 2.13 | 0.89 |
| 1:A:878:A:C2 | 1:A:879:G:H3' | 2.07 | 0.89 |
| 4:D:147:LEU:HB3 | 4:D:185:VAL:HG22 | 1.55 | 0.89 |
| 7:G:68:PRO:HG3 | 7:G:72:ARG:HH12 | 1.35 | 0.89 |
| 8:H:117:PRO:HB3 | 8:H:123:PHE:CE1 | 2.08 | 0.89 |
| 9:K:2:LYS:HZ2 | 9:K:44:LEU:HD11 | 1.37 | 0.89 |
| 11:M:109:LYS:HG2 | 11:M:112:LEU:CB | 2.03 | 0.89 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:109:LYS:HG3 | 11:M:110:GLY:N | 1.88 | 0.89 |
| 13:O:112:LEU:O | 13:O:129:ALA:HB3 | 1.71 | 0.89 |
| 13:O:131:SER:O | 13:O:135:LEU:HD13 | 1.73 | 0.89 |
| 16:R:44:LYS:HB2 | 16:R:46:VAL:HG13 | 1.55 | 0.89 |
| 16:R:76:LYS:NZ | 16:R:77:ALA:HB2 | 1.87 | 0.89 |
| 1:A:1161:C:H1' | 19:U:22:VAL:HG11 | 1.55 | 0.89 |
| 22:X:2:ARG:CD | 22:X:3:VAL:H | 1.86 | 0.89 |
| 9:K:128:LEU:HD13 | 9:K:129:THR:H | 1.38 | 0.89 |
| 1:A:131:G:H2' | 1:A:132:G:H8 | 1.34 | 0.89 |
| 1:A:2247:A:H2' | 1:A:2248:C:C6 | 2.07 | 0.89 |
| 25:1:16:LEU:HA | 25:1:19:LEU:HD12 | 1.55 | 0.88 |
| 25:1:17:GLU:O | 25:1:21:ARG:HG2 | 1.73 | 0.88 |
| 1:A:1188:U:O2 | 1:A:1189:A:O4' | 1.90 | 0.88 |
| 1:A:1668:A:C6 | 1:A:1993:U:H1' | 2.06 | 0.88 |
| 1:A:1819:A:H5'' | 4:D:178:PRO:CB | 2.03 | 0.88 |
| 1:A:1918:A:H8 | 1:A:1919:A:H62 | 1.10 | 0.88 |
| 1:A:2212:A:H2' | 1:A:2213:U:C4 | 2.08 | 0.88 |
| 1:A:2453:A:O2' | 1:A:2454:G:H5' | 1.71 | 0.88 |
| 1:A:2645:G:H4' | 1:A:2732:G:O2' | 1.73 | 0.88 |
| 4:D:136:ILE:CD1 | 4:D:173:VAL:HG21 | 2.03 | 0.88 |
| 4:D:229:VAL:HG13 | 4:D:230:ASP:OD2 | 1.72 | 0.88 |
| 4:D:24:ILE:O | 4:D:25:THR:HG23 | 1.72 | 0.88 |
| 1:A:1080:C:H1' | 10:L:126:MET:HA | 1.53 | 0.88 |
| 14:P:110:THR:O | 14:P:111:GLU:HG2 | 1.73 | 0.88 |
| 20:V:74:ALA:CB | 20:V:105:VAL:HG23 | 2.02 | 0.88 |
| 3:C:64:LEU:HD22 | 3:C:191:ALA:HB1 | 1.53 | 0.88 |
| 3:C:95:GLY:HA3 | 3:C:99:ILE:HG13 | 1.54 | 0.88 |
| 1:A:1809:A:C6 | 27:3:3:GLU:HG3 | 2.07 | 0.88 |
| 1:A:1312:U:C2' | 1:A:1313:U:C6 | 2.55 | 0.88 |
| 1:A:2346:A:H62 | 29:5:37:ARG:HH12 | 0.90 | 0.88 |
| 1:A:684:G:O6 | 1:A:774:A:C8 | 2.26 | 0.88 |
| 1:A:751:A:H5' | 20:V:90:ARG:CZ | 2.02 | 0.88 |
| 6:F:31:HIS:O | 6:F:35:GLU:HG3 | 1.73 | 0.88 |
| 8:H:152:ARG:HH21 | 8:H:152:ARG:HG3 | 1.35 | 0.88 |
| 1:A:1076:C:H4' | 10:L:93:ARG:NH2 | 1.87 | 0.88 |
| 11:M:55:VAL:HG13 | 11:M:56:ASN:N | 1.88 | 0.88 |
| 12:N:18:LYS:HZ3 | 12:N:44:LYS:HZ3 | 0.93 | 0.88 |
| 14:P:126:PRO:HG2 | 14:P:127:ILE:HG13 | 1.55 | 0.88 |
| 14:P:22:LYS:HA | 14:P:99:PRO:HB3 | 1.54 | 0.88 |
| 16:R:31:SER:HB3 | 16:R:34:HIS:HB2 | 1.53 | 0.88 |
| 1:A:997:G:H5'' | 18:T:92:ARG:CZ | 2.03 | 0.88 |
| 22:X:23:ARG:HD2 | 22:X:39:VAL:HG22 | 1.55 | 0.88 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:Y:127:LYS:HA | 23:Y:164:ALA:CB | 2.01 | 0.88 |
| 26:2:50:VAL:HG13 | 26:2:53:LEU:HD12 | 1.55 | 0.88 |
| 31:7:38:GLY:O | 31:7:40:GLU:HG3 | 1.73 | 0.88 |
| 1:A:1056:G:H21 | 1:A:1104:C:N4 | 1.70 | 0.88 |
| 1:A:1996:C:H2' | 1:A:1997:G:H4' | 1.55 | 0.88 |
| 1:A:2238:G:O2' | 1:A:2239:G:H5'' | 1.73 | 0.88 |
| 1:A:270(G):C:H2' | 1:A:270(H):C:C6 | 2.08 | 0.88 |
| 1:A:2866:U:O2 | 1:A:2868:A:O2' | 1.91 | 0.88 |
| 1:A:475:U:H4' | 1:A:510:C:OP2 | 1.74 | 0.88 |
| 1:A:51:G:H22 | 1:A:120:U:H3 | 1.14 | 0.88 |
| 2:B:68:C:H2' | 2:B:69:G:C8 | 2.08 | 0.88 |
| 1:A:2051:A:H1' | 5:E:141:ILE:HD13 | 1.53 | 0.88 |
| 10:L:79:ARG:HD2 | 10:L:134:MET:HE3 | 1.51 | 0.88 |
| 13:O:23:PRO:HB3 | 13:O:30:THR:HG23 | 1.55 | 0.88 |
| 15:Q:20:LEU:C | 15:Q:20:LEU:HD13 | 1.94 | 0.88 |
| 16:R:89:ARG:CG | 16:R:90:GLY:N | 2.36 | 0.88 |
| 28:4:10:LYS:CE | 28:4:15:ARG:HD3 | 2.04 | 0.88 |
| 1:A:2624:G:H1' | 28:4:22:HIS:NE2 | 1.87 | 0.88 |
| 1:A:2685:G:H4' | 12:N:67:LYS:HZ2 | 1.30 | 0.88 |
| 1:A:90:U:HO2' | 1:A:91:A:H8 | 0.89 | 0.88 |
| 4:D:5:LYS:CD | 4:D:29:PRO:HA | 2.00 | 0.88 |
| 4:D:37:LEU:HD22 | 4:D:63:ARG:HG3 | 1.55 | 0.88 |
| 5:E:91:VAL:HG23 | 5:E:180:ASN:OD1 | 1.74 | 0.88 |
| 7:G:139:LEU:CD2 | 7:G:142:PRO:HB3 | 2.03 | 0.88 |
| 8:H:7:LEU:CB | 8:H:52:VAL:HG13 | 2.02 | 0.88 |
| 11:M:86:PRO:O | 11:M:89:LYS:HD2 | 1.74 | 0.88 |
| 14:P:35:VAL:HG13 | 14:P:130:LYS:O | 1.73 | 0.88 |
| 1:A:957:A:OP2 | 14:P:77:LYS:HD3 | 1.71 | 0.88 |
| 21:W:14:SER:HB2 | 21:W:16:LYS:HE3 | 1.55 | 0.88 |
| 23:Y:45:ASP:HA | 23:Y:48:PHE:HD1 | 1.39 | 0.88 |
| 3:C:6:ARG:C | 3:C:6:ARG:HD2 | 1.93 | 0.88 |
| 1:A:2247:A:H2' | 1:A:2248:C:H6 | 1.35 | 0.88 |
| 1:A:396:G:OP1 | 27:3:10:VAL:HG22 | 1.74 | 0.88 |
| 1:A:1155:A:H2' | 1:A:1156:A:H5'' | 1.56 | 0.88 |
| 1:A:1790:C:H3' | 1:A:1828:G:N2 | 1.88 | 0.88 |
| 1:A:1967:C:N4 | 1:A:1968:G:N2 | 2.22 | 0.88 |
| 1:A:2662:A:H2' | 1:A:2663:G:H5' | 1.52 | 0.88 |
| 1:A:266:G:H2' | 1:A:267:C:O5' | 1.72 | 0.88 |
| 1:A:2787:C:H1' | 5:E:61:ARG:CD | 2.04 | 0.88 |
| 1:A:391:G:H2' | 1:A:392:C:C6 | 2.08 | 0.88 |
| 4:D:34:VAL:O | 4:D:36:PRO:HD2 | 1.74 | 0.88 |
| 8:H:127:GLU:HB3 | 8:H:129:THR:N | 1.87 | 0.88 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:N:18:LYS:HZ3 | 12:N:44:LYS:NZ | 1.71 | 0.88 |
| 14:P:112:GLU:O | 14:P:115:MET:HB3 | 1.74 | 0.88 |
| 15:Q:99:LYS:HD2 | 15:Q:99:LYS:N | 1.85 | 0.88 |
| 19:U:40:LEU:CD2 | 19:U:55:ALA:HB2 | 2.02 | 0.88 |
| 2:B:75:G:O2' | 23:Y:27:VAL:HG22 | 1.72 | 0.88 |
| 1:A:2432:A:C2 | 27:3:30:GLU:HA | 2.08 | 0.88 |
| 27:3:5:ILE:HD11 | 27:3:10:VAL:CG2 | 2.03 | 0.88 |
| 1:A:966:G:H1' | 1:A:2267:A:N6 | 1.89 | 0.88 |
| 1:A:237:C:H2' | 1:A:238:C:C6 | 2.09 | 0.88 |
| 1:A:2447:G:O3' | 1:A:2499:C:P | 2.31 | 0.88 |
| 1:A:261:G:C4' | 1:A:608:A:H2 | 1.84 | 0.88 |
| 1:A:265:A:N6 | 1:A:266:G:C2 | 2.42 | 0.88 |
| 1:A:484:C:H2' | 1:A:485:C:H6 | 1.37 | 0.88 |
| 4:D:228:PRO:HA | 4:D:231:HIS:HB2 | 1.56 | 0.88 |
| 5:E:49:LEU:HD13 | 5:E:76:ARG:HG2 | 1.53 | 0.88 |
| 6:F:123:LEU:HD11 | 6:F:191:ARG:HD3 | 1.56 | 0.88 |
| 7:G:33:ARG:C | 7:G:33:ARG:HH21 | 1.77 | 0.88 |
| 8:H:94:TYR:H | 8:H:95:ARG:NH2 | 1.71 | 0.88 |
| 11:M:63:THR:OG1 | 11:M:65:LYS:HD3 | 1.74 | 0.88 |
| 13:O:77:ARG:HA | 13:O:115:LEU:HB2 | 1.52 | 0.88 |
| 14:P:85:LYS:HZ1 | 24:Z:10:THR:HG21 | 1.38 | 0.88 |
| 19:U:19:LYS:HB3 | 19:U:21:ARG:HH12 | 1.35 | 0.88 |
| 20:V:42:ARG:HH21 | 20:V:42:ARG:HB2 | 1.37 | 0.88 |
| 23:Y:155:LEU:O | 23:Y:156:LYS:HB2 | 1.71 | 0.88 |
| 24:Z:19:LYS:HZ3 | 24:Z:41:ARG:HE | 1.21 | 0.88 |
| 1:A:2246:G:H2' | 1:A:2247:A:C8 | 2.09 | 0.88 |
| 1:A:1072:C:N4 | 1:A:1100:C:N4 | 2.20 | 0.88 |
| 1:A:1176:G:H2' | 1:A:1177:A:H5' | 1.55 | 0.88 |
| 1:A:1617:C:H5' | 1:A:1618:A:OP2 | 1.72 | 0.88 |
| 1:A:2269:A:C2 | 1:A:2270:G:H1' | 2.09 | 0.88 |
| 1:A:515:A:O5' | 1:A:515:A:H8 | 1.55 | 0.88 |
| 1:A:687:C:H4' | 30:6:4:THR:CG2 | 2.03 | 0.88 |
| 6:F:41:LEU:HB2 | 6:F:44:ARG:HH11 | 1.38 | 0.88 |
| 7:G:4:ASP:HB3 | 7:G:104:GLU:CG | 2.02 | 0.88 |
| 18:T:28:ARG:HB2 | 18:T:38:THR:HG21 | 1.55 | 0.88 |
| 24:Z:36:ILE:HG12 | 24:Z:37:LEU:N | 1.87 | 0.88 |
| 28:4:40:LYS:HG2 | 28:4:41:PRO:CD | 2.04 | 0.88 |
| 28:4:40:LYS:CE | 28:4:44:THR:N | 2.35 | 0.88 |
| 32:8:10:ILE:C | 32:8:12:ASP:N | 2.24 | 0.88 |
| 1:A:1711:C:H2' | 1:A:1712:C:H6 | 1.37 | 0.88 |
| 1:A:1268:A:H62 | 1:A:2012:G:H21 | 1.16 | 0.88 |
| 1:A:2051:A:C6 | 1:A:2614:A:N7 | 2.42 | 0.88 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2254:C:C2' | 1:A:2255:G:H5' | 2.03 | 0.88 |
| 1:A:2268:A:C3' | 1:A:2269:A:H5'' | 2.03 | 0.88 |
| 1:A:323:G:N2 | 1:A:333:G:H1' | 1.87 | 0.88 |
| 1:A:574:C:O2' | 1:A:575:A:OP2 | 1.90 | 0.88 |
| 1:A:71:A:C4' | 1:A:72:U:H5'' | 2.03 | 0.88 |
| 11:M:85:ILE:HG23 | 11:M:89:LYS:CD | 2.03 | 0.88 |
| 12:N:7:TYR:HD1 | 12:N:7:TYR:H | 1.05 | 0.88 |
| 15:Q:55:ALA:HA | 15:Q:80:PHE:CD1 | 2.09 | 0.88 |
| 15:Q:64:ARG:HD3 | 15:Q:65:LEU:N | 1.88 | 0.88 |
| 17:S:50:ILE:HG23 | 17:S:68:TYR:HB2 | 1.54 | 0.88 |
| 25:1:59:LEU:HD11 | 25:1:63:ARG:NE | 1.88 | 0.88 |
| 1:A:2434:A:O2' | 1:A:2435:A:H5'' | 1.73 | 0.88 |
| 1:A:2448:A:OP2 | 1:A:2498:C:P | 2.32 | 0.88 |
| 1:A:945:A:H62 | 1:A:2448:A:H2 | 0.95 | 0.88 |
| 1:A:2631:G:N2 | 5:E:61:ARG:NH1 | 2.21 | 0.88 |
| 10:L:130:SER:O | 10:L:133:SER:HB3 | 1.73 | 0.88 |
| 11:M:33:LEU:O | 11:M:35:ARG:HG3 | 1.74 | 0.88 |
| 13:O:15:ARG:HH22 | 13:O:16:ARG:HB2 | 1.39 | 0.88 |
| 1:A:1809:A:N1 | 27:3:3:GLU:CG | 2.37 | 0.88 |
| 1:A:1312:U:C2' | 1:A:1313:U:O4' | 2.22 | 0.88 |
| 1:A:1388:G:O2' | 1:A:1525:G:H5' | 1.74 | 0.88 |
| 1:A:1638:C:H2' | 1:A:1639:U:O4' | 1.73 | 0.88 |
| 1:A:2458:G:N7 | 1:A:2490:G:C6 | 2.42 | 0.88 |
| 1:A:1939:U:H1' | 1:A:2592:G:O4' | 1.74 | 0.88 |
| 1:A:392:C:H2' | 1:A:393:C:C6 | 2.09 | 0.88 |
| 1:A:484:C:H2' | 1:A:485:C:C6 | 2.08 | 0.88 |
| 9:K:5:LEU:HG | 9:K:17:GLN:O | 1.74 | 0.88 |
| 13:O:123:LEU:HD12 | 13:O:130:PHE:CG | 2.09 | 0.88 |
| 15:Q:36:THR:HB | 15:Q:40:LYS:HD3 | 1.55 | 0.88 |
| 24:Z:72:ARG:HB2 | 24:Z:76:GLY:O | 1.74 | 0.88 |
| 9:K:132:PRO:HD3 | 9:K:138:ILE:H | 1.39 | 0.88 |
| 26:2:3:ARG:NH1 | 26:2:59:VAL:HB | 1.87 | 0.87 |
| 26:2:8:LEU:HB2 | 26:2:33:GLN:HB3 | 1.54 | 0.87 |
| 1:A:1006:C:O2 | 11:M:106:MET:HG2 | 1.73 | 0.87 |
| 1:A:1083:U:H1' | 1:A:1085:A:C8 | 2.09 | 0.87 |
| 1:A:1086:A:H3' | 1:A:1087:G:H5' | 1.54 | 0.87 |
| 1:A:1142:U:H3' | 1:A:1142(A):A:C8 | 2.09 | 0.87 |
| 1:A:1924:C:H2' | 1:A:1925:C:H6 | 1.39 | 0.87 |
| 1:A:2016:U:O4' | 28:4:6:VAL:HG11 | 1.74 | 0.87 |
| 1:A:2359:C:H2' | 1:A:2360:A:O4' | 1.73 | 0.87 |
| 1:A:2503:A:O2' | 1:A:2504:U:H5 | 1.57 | 0.87 |
| 1:A:2862:G:H2' | 1:A:2863:C:C6 | 2.09 | 0.87 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:366:C:H5'' | 1:A:403:U:N3 | 1.89 | 0.87 |
| 1:A:785:G:H2' | 1:A:786:C:C6 | 2.08 | 0.87 |
| 1:A:2619:C:C5' | 5:E:152:LYS:HA | 2.03 | 0.87 |
| 10:L:7:VAL:HG12 | 10:L:58:THR:HG22 | 1.57 | 0.87 |
| 11:M:91:LEU:HG | 11:M:92:ALA:H | 1.35 | 0.87 |
| 13:O:55:ARG:HH21 | 13:O:55:ARG:CB | 1.87 | 0.87 |
| 19:U:28:GLU:HG2 | 19:U:94:LEU:HB2 | 1.56 | 0.87 |
| 3:C:116:THR:HG23 | 3:C:149:ILE:HB | 1.53 | 0.87 |
| 3:C:160:ARG:HD3 | 3:C:161:ILE:N | 1.89 | 0.87 |
| 3:C:211:SER:CB | 3:C:213:TYR:HE1 | 1.87 | 0.87 |
| 1:A:1212:G:C6 | 1:A:1236:G:O6 | 2.27 | 0.87 |
| 1:A:1517:G:N2 | 1:A:1518:C:H1' | 1.88 | 0.87 |
| 1:A:1690:A:H62 | 1:A:1697:G:N2 | 1.71 | 0.87 |
| 1:A:311:A:H3' | 1:A:312:G:H8 | 1.39 | 0.87 |
| 1:A:450:G:H5'' | 1:A:451:C:OP2 | 1.74 | 0.87 |
| 4:D:146:GLU:O | 4:D:189:CYS:HB3 | 1.73 | 0.87 |
| 6:F:65:TRP:HZ2 | 6:F:71:GLY:O | 1.56 | 0.87 |
| 1:A:1058:G:H21 | 10:L:116:ASN:HD21 | 1.21 | 0.87 |
| 13:O:105:LEU:O | 13:O:106:LEU:HG | 1.74 | 0.87 |
| 13:O:70:GLN:HB2 | 13:O:110:TYR:OH | 1.72 | 0.87 |
| 22:X:7:VAL:HG22 | 22:X:71:LYS:HG3 | 1.53 | 0.87 |
| 2:B:93:C:H2' | 2:B:94:C:H6 | 1.39 | 0.87 |
| 2:B:116:G:H2' | 2:B:117:G:O4' | 1.72 | 0.87 |
| 26:2:50:VAL:HG22 | 26:2:53:LEU:HD12 | 1.54 | 0.87 |
| 1:A:2815:C:H4' | 28:4:42:PRO:HG2 | 1.56 | 0.87 |
| 1:A:1321:A:N3 | 1:A:1321:A:H2' | 1.90 | 0.87 |
| 1:A:1675:C:C2' | 1:A:1676:A:H5' | 2.03 | 0.87 |
| 1:A:2331:G:N2 | 1:A:2385:C:C5 | 2.43 | 0.87 |
| 1:A:2754:U:H2' | 1:A:2755:C:C5' | 2.04 | 0.87 |
| 1:A:292:C:C2' | 1:A:293:U:N3 | 2.37 | 0.87 |
| 1:A:183:C:H1' | 1:A:433:C:H1' | 1.54 | 0.87 |
| 1:A:748:G:H5' | 1:A:749:C:OP2 | 1.74 | 0.87 |
| 4:D:234:GLY:H | 4:D:241:PRO:CG | 1.87 | 0.87 |
| 4:D:9:TYR:OH | 4:D:91:ARG:NH2 | 2.06 | 0.87 |
| 5:E:132:HIS:O | 5:E:133:LYS:HB2 | 1.74 | 0.87 |
| 11:M:26:LEU:HG | 11:M:30:ILE:HD11 | 1.56 | 0.87 |
| 13:O:121:LYS:O | 13:O:137:LYS:HB2 | 1.73 | 0.87 |
| 14:P:98:LYS:HE3 | 14:P:98:LYS:N | 1.89 | 0.87 |
| 1:A:1005:C:O2 | 1:A:1006:C:C5 | 2.27 | 0.87 |
| 1:A:1203:G:N3 | 1:A:1241:A:H8 | 1.70 | 0.87 |
| 1:A:1252:G:N2 | 18:T:37:GLU:HG3 | 1.89 | 0.87 |
| 1:A:1488:G:C2' | 1:A:1489:U:H5' | 2.04 | 0.87 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1537:C:C6 | 1:A:1537:C:H3' | 2.09 | 0.87 |
| 1:A:2298:A:H2' | 1:A:2299:G:O4' | 1.73 | 0.87 |
| 1:A:2329:G:H1 | 1:A:2386:C:H42 | 0.89 | 0.87 |
| 4:D:206:LEU:CD2 | 4:D:207:GLY:H | 1.86 | 0.87 |
| 5:E:133:LYS:HB3 | 5:E:137:HIS:NE2 | 1.89 | 0.87 |
| 7:G:169:ALA:HA | 7:G:172:LEU:HD23 | 1.53 | 0.87 |
| 1:A:2312:U:C4' | 7:G:43:LEU:HD13 | 2.02 | 0.87 |
| 8:H:13:LYS:HD2 | 8:H:15:VAL:HA | 1.53 | 0.87 |
| 8:H:20:ALA:HB1 | 8:H:21:PRO:CD | 2.05 | 0.87 |
| 16:R:36:TYR:OH | 16:R:50:SER:HB2 | 1.73 | 0.87 |
| 16:R:89:ARG:HH21 | 16:R:89:ARG:HG2 | 1.40 | 0.87 |
| 18:T:67:ALA:HB1 | 18:T:71:GLN:HE22 | 1.40 | 0.87 |
| 21:W:32:PRO:HA | 21:W:77:LYS:HD2 | 1.56 | 0.87 |
| 30:6:17:GLY:H | 30:6:21:ARG:HH22 | 0.87 | 0.87 |
| 1:A:112:U:H3' | 1:A:113:G:H5'' | 1.56 | 0.87 |
| 1:A:1263:U:O3' | 28:4:10:LYS:HD3 | 1.74 | 0.87 |
| 1:A:1800:C:C6 | 1:A:1800:C:H3' | 2.09 | 0.87 |
| 1:A:2064:C:C1' | 1:A:2450:A:N6 | 2.37 | 0.87 |
| 1:A:2493:U:H6 | 1:A:2493:U:H5'' | 1.38 | 0.87 |
| 1:A:763:G:H2' | 1:A:764:A:H5'' | 1.57 | 0.87 |
| 2:B:27:C:H3' | 2:B:28:C:C6 | 2.09 | 0.87 |
| 5:E:7:VAL:HG23 | 5:E:24:THR:O | 1.75 | 0.87 |
| 6:F:125:LEU:HB2 | 6:F:194:MET:O | 1.74 | 0.87 |
| 9:K:9:LEU:HA | 9:K:17:GLN:OE1 | 1.75 | 0.87 |
| 10:L:75:SER:O | 10:L:78:ILE:HG22 | 1.72 | 0.87 |
| 11:M:34:LEU:CD2 | 11:M:120:LEU:HB2 | 2.05 | 0.87 |
| 12:N:47:ILE:CD1 | 12:N:50:GLY:HA3 | 2.04 | 0.87 |
| 13:O:56:SER:HB3 | 31:7:13:ARG:CZ | 2.02 | 0.87 |
| 13:O:96:THR:OG1 | 13:O:102:ARG:HD3 | 1.74 | 0.87 |
| 1:A:956:G:OP2 | 14:P:77:LYS:HE2 | 1.73 | 0.87 |
| 1:A:2112:G:N2 | 1:A:2113:U:H3 | 1.73 | 0.87 |
| 30:6:19:ARG:HB3 | 30:6:23:ARG:NH2 | 1.87 | 0.87 |
| 31:7:15:LYS:N | 31:7:22:VAL:HG13 | 1.89 | 0.87 |
| 1:A:1312:U:H3' | 1:A:1313:U:H5 | 1.39 | 0.87 |
| 1:A:1567:A:C2 | 4:D:61:LEU:HD13 | 2.08 | 0.87 |
| 1:A:1567:A:H2 | 4:D:61:LEU:CD1 | 1.86 | 0.87 |
| 1:A:1570:A:N6 | 1:A:1571:A:H62 | 1.71 | 0.87 |
| 1:A:1964:G:C2 | 1:A:1967:C:H5 | 1.92 | 0.87 |
| 1:A:2027:G:O2' | 1:A:2028:U:H5' | 1.74 | 0.87 |
| 1:A:2805:G:H2' | 1:A:2807:G:C4' | 2.04 | 0.87 |
| 1:A:283:A:O2' | 1:A:284:U:H5' | 1.74 | 0.87 |
| 1:A:292:C:H2' | 1:A:293:U:H3 | 1.37 | 0.87 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:42:GLY:N | 4:D:60:ARG:HH12 | 1.71 | 0.87 |
| 5:E:147:PRO:HB2 | 5:E:149:ARG:NH2 | 1.88 | 0.87 |
| 8:H:59:ARG:O | 8:H:62:LYS:HG2 | 1.74 | 0.87 |
| 12:N:117:LEU:O | 12:N:119:PRO:HD3 | 1.75 | 0.87 |
| 14:P:127:ILE:HD13 | 14:P:129:THR:HG23 | 1.54 | 0.87 |
| 14:P:75:THR:HB | 14:P:77:LYS:CE | 2.04 | 0.87 |
| 15:Q:64:ARG:HD3 | 15:Q:65:LEU:H | 1.39 | 0.87 |
| 19:U:43:GLU:O | 19:U:44:LYS:HD3 | 1.75 | 0.87 |
| 21:W:63:LYS:N | 21:W:72:LYS:HD2 | 1.90 | 0.87 |
| 9:K:127:VAL:HG22 | 9:K:141:LYS:HA | 1.56 | 0.87 |
| 9:K:87:LYS:HZ3 | 9:K:121:LYS:N | 1.71 | 0.87 |
| 3:C:39:GLU:O | 3:C:178:ALA:HB2 | 1.73 | 0.87 |
| 1:A:1238:G:O2' | 1:A:1239:G:H5' | 1.74 | 0.87 |
| 1:A:1264:G:N7 | 1:A:1265:A:C5 | 2.42 | 0.87 |
| 1:A:1513:C:N3 | 1:A:1514:U:O4 | 2.07 | 0.87 |
| 1:A:1534:G:N2 | 1:A:1537:C:H41 | 1.72 | 0.87 |
| 1:A:1742:C:H2' | 1:A:1743:G:O4' | 1.75 | 0.87 |
| 1:A:1796:U:H2' | 1:A:1797:C:C6 | 2.10 | 0.87 |
| 1:A:2213:U:H5' | 1:A:2215:G:N7 | 1.89 | 0.87 |
| 1:A:2421:G:H2' | 1:A:2422:A:H8 | 1.36 | 0.87 |
| 4:D:44:ASN:HD22 | 4:D:218:ARG:NH1 | 1.73 | 0.87 |
| 5:E:173:VAL:HG22 | 5:E:174:ASP:N | 1.89 | 0.87 |
| 11:M:14:VAL:HA | 11:M:138:LEU:HB2 | 1.54 | 0.87 |
| 16:R:51:ALA:HB1 | 16:R:73:LEU:HG | 1.57 | 0.87 |
| 16:R:26:LEU:O | 16:R:88:ASP:HB2 | 1.73 | 0.87 |
| 21:W:61:GLY:HA3 | 21:W:73:ARG:HD3 | 1.54 | 0.87 |
| 5:E:127:ASP:CB | 5:E:135:HIS:HA | 2.04 | 0.87 |
| 1:A:154:G:H2' | 1:A:155:C:H6 | 1.40 | 0.87 |
| 25:1:28:MET:HG2 | 25:1:32:PHE:HE1 | 1.37 | 0.87 |
| 30:6:42:LEU:C | 30:6:44:PRO:HD2 | 1.95 | 0.87 |
| 31:7:21:LYS:HB2 | 31:7:21:LYS:NZ | 1.89 | 0.87 |
| 1:A:1471:A:H62 | 1:A:1519:G:N2 | 1.71 | 0.87 |
| 1:A:1784:A:H2' | 1:A:1981:A:N7 | 1.90 | 0.87 |
| 1:A:2063:C:H3' | 1:A:2064:C:H5'' | 1.55 | 0.87 |
| 1:A:259:G:H2' | 1:A:260:G:H8 | 1.38 | 0.87 |
| 1:A:414:C:H2' | 1:A:415:A:C8 | 2.07 | 0.87 |
| 1:A:638:G:C2' | 1:A:639:U:H5' | 2.05 | 0.87 |
| 1:A:675:A:H2' | 1:A:676:A:N3 | 1.90 | 0.87 |
| 1:A:728:G:H1' | 1:A:729:G:C8 | 2.09 | 0.87 |
| 1:A:84:A:H1' | 1:A:103:A:N6 | 1.90 | 0.87 |
| 8:H:117:PRO:HD3 | 8:H:123:PHE:CZ | 2.10 | 0.87 |
| 8:H:82:GLY:O | 8:H:136:ILE:HA | 1.74 | 0.87 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 10:L:105:LEU:O | 10:L:108:ALA:HB3 | 1.74 | 0.87 |
| 13:O:114:ILE:HG22 | 13:O:114:ILE:O | 1.73 | 0.87 |
| 15:Q:105:ARG:CZ | 15:Q:105:ARG:CA | 2.53 | 0.87 |
| 19:U:79:VAL:HG12 | 19:U:81:TYR:CD1 | 2.08 | 0.87 |
| 25:1:16:LEU:O | 25:1:20:VAL:HG12 | 1.74 | 0.87 |
| 1:A:1022:G:H2' | 1:A:1025:G:O6 | 1.74 | 0.87 |
| 1:A:1257:C:O2' | 6:F:83:PHE:HB2 | 1.74 | 0.87 |
| 1:A:1913:A:C4 | 1:A:1918:A:C6 | 2.63 | 0.87 |
| 1:A:2020:A:OP2 | 18:T:27:LEU:HD13 | 1.75 | 0.87 |
| 1:A:2058:A:N3 | 1:A:2059:A:N7 | 2.23 | 0.87 |
| 1:A:2207:C:H2' | 1:A:2208:U:C4' | 2.04 | 0.87 |
| 1:A:2591:C:H2' | 1:A:2592:G:C8 | 2.10 | 0.87 |
| 1:A:403:U:O2 | 1:A:403:U:H2' | 1.73 | 0.87 |
| 1:A:568:U:H2' | 1:A:570:G:C8 | 2.09 | 0.87 |
| 1:A:624:C:C6 | 1:A:624:C:H3' | 2.10 | 0.87 |
| 1:A:781:A:H1' | 4:D:222:ARG:CZ | 2.05 | 0.87 |
| 5:E:137:HIS:CB | 5:E:138:PRO:HD2 | 2.05 | 0.87 |
| 6:F:130:ALA:HB2 | 6:F:142:TRP:HE3 | 1.36 | 0.87 |
| 11:M:4:TYR:HB2 | 18:T:64:ARG:NH1 | 1.88 | 0.87 |
| 14:P:26:TYR:HD1 | 14:P:27:VAL:H | 0.91 | 0.87 |
| 14:P:7:MET:O | 14:P:70:PRO:HB2 | 1.75 | 0.87 |
| 19:U:64:HIS:HA | 19:U:97:LYS:CD | 2.04 | 0.87 |
| 22:X:96:ILE:CB | 22:X:102:CYS:O | 2.20 | 0.87 |
| 23:Y:158:PRO:CB | 23:Y:159:PRO:HD2 | 2.05 | 0.87 |
| 1:A:2121:G:H1' | 3:C:167:LYS:HD2 | 1.57 | 0.87 |
| 3:C:62:VAL:HG11 | 3:C:195:ALA:CB | 2.05 | 0.87 |
| 30:6:5:TRP:HZ3 | 30:6:12:ARG:HH11 | 1.22 | 0.86 |
| 1:A:1005:C:O2 | 1:A:1006:C:H5 | 1.57 | 0.86 |
| 1:A:1142(A):A:N6 | 1:A:1143:A:N7 | 2.23 | 0.86 |
| 1:A:2318:G:OP2 | 1:A:2318:G:H8 | 1.57 | 0.86 |
| 1:A:360:G:H2' | 1:A:361:G:C5' | 2.05 | 0.86 |
| 1:A:962:G:C2' | 1:A:963:U:C6 | 2.56 | 0.86 |
| 1:A:1568:G:OP1 | 4:D:61:LEU:HB2 | 1.73 | 0.86 |
| 7:G:75:LYS:HB3 | 7:G:84:LYS:CB | 2.04 | 0.86 |
| 9:K:29:TYR:N | 9:K:29:TYR:HD1 | 1.73 | 0.86 |
| 11:M:69:GLN:C | 11:M:70:LYS:HD3 | 1.94 | 0.86 |
| 1:A:1665:A:H5'' | 12:N:65:THR:CG2 | 2.04 | 0.86 |
| 14:P:34:LEU:O | 14:P:103:MET:HB2 | 1.75 | 0.86 |
| 16:R:26:LEU:HD21 | 16:R:37:ALA:HB1 | 1.55 | 0.86 |
| 16:R:95:HIS:CG | 16:R:96:GLY:N | 2.42 | 0.86 |
| 16:R:95:HIS:N | 16:R:99:LYS:HB2 | 1.88 | 0.86 |
| 23:Y:151:HIS:CA | 23:Y:170:THR:HA | 2.05 | 0.86 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:363(D):G:N2 | 1:A:363(E):U:H1' | 1.90 | 0.86 |
| 13:O:45:LEU:CD1 | 31:7:59:LYS:HZ1 | 1.80 | 0.86 |
| 1:A:1291:C:O2' | 1:A:1292:U:H5' | 1.74 | 0.86 |
| 1:A:146:G:C3' | 1:A:147:U:H5'' | 2.04 | 0.86 |
| 1:A:1475:G:N2 | 1:A:1476:C:H5'' | 1.89 | 0.86 |
| 1:A:1531:C:H2' | 1:A:1532:C:C5 | 2.09 | 0.86 |
| 1:A:1784:A:H1' | 1:A:1785:A:C5 | 2.09 | 0.86 |
| 1:A:2520:C:H2' | 1:A:2521:C:H6 | 1.40 | 0.86 |
| 1:A:308:G:H22 | 1:A:329:G:H2' | 1.40 | 0.86 |
| 4:D:202:LYS:N | 4:D:202:LYS:HD2 | 1.87 | 0.86 |
| 7:G:75:LYS:HD3 | 7:G:85:GLY:H | 1.40 | 0.86 |
| 8:H:85:LYS:HB3 | 8:H:133:VAL:HG12 | 1.54 | 0.86 |
| 11:M:17:ASP:HB3 | 11:M:21:LYS:NZ | 1.89 | 0.86 |
| 14:P:75:THR:HG22 | 14:P:77:LYS:HA | 1.56 | 0.86 |
| 17:S:54:ARG:C | 17:S:64:ARG:HB2 | 1.96 | 0.86 |
| 18:T:53:ARG:HH11 | 18:T:53:ARG:CB | 1.86 | 0.86 |
| 19:U:5:VAL:HG11 | 19:U:37:VAL:CG1 | 2.03 | 0.86 |
| 19:U:62:LEU:HD13 | 19:U:97:LYS:C | 1.96 | 0.86 |
| 13:O:45:LEU:HD22 | 31:7:59:LYS:CD | 2.05 | 0.86 |
| 32:8:7:VAL:HG13 | 32:8:34:GLN:OE1 | 1.76 | 0.86 |
| 1:A:1024:G:C5 | 1:A:1025:G:C8 | 2.63 | 0.86 |
| 1:A:1061:U:H5'' | 1:A:1070:A:H4' | 1.55 | 0.86 |
| 1:A:1476:C:H42 | 1:A:1516:U:H2' | 1.41 | 0.86 |
| 1:A:1543:A:C8 | 1:A:1544:C:H1' | 2.11 | 0.86 |
| 1:A:1789:A:H4' | 4:D:222:ARG:CZ | 2.05 | 0.86 |
| 1:A:2282:G:H1' | 1:A:2390:U:O4 | 1.76 | 0.86 |
| 1:A:197:A:N6 | 1:A:248:G:N2 | 2.21 | 0.86 |
| 1:A:2776:A:H4' | 1:A:2777:G:C5' | 2.04 | 0.86 |
| 1:A:223:A:N1 | 1:A:407:G:O2' | 2.08 | 0.86 |
| 4:D:11:PRO:O | 4:D:23:GLU:HA | 1.75 | 0.86 |
| 5:E:60:ASN:CG | 5:E:61:ARG:H | 1.78 | 0.86 |
| 6:F:89:VAL:O | 6:F:91:GLY:N | 2.08 | 0.86 |
| 8:H:7:LEU:H | 8:H:8:PRO:HD2 | 1.39 | 0.86 |
| 15:Q:20:LEU:CD2 | 15:Q:24:GLN:HG3 | 2.05 | 0.86 |
| 16:R:77:ALA:HA | 16:R:80:LEU:HB2 | 1.57 | 0.86 |
| 3:C:113:VAL:CB | 3:C:138:PRO:HG3 | 2.05 | 0.86 |
| 32:8:19:ARG:HD3 | 32:8:22:ARG:CB | 2.05 | 0.86 |
| 1:A:1662:C:H2' | 1:A:1663:C:C6 | 2.10 | 0.86 |
| 1:A:1743:G:H2' | 1:A:1746:G:O4' | 1.75 | 0.86 |
| 1:A:1807:G:C1' | 1:A:1811:G:H22 | 1.88 | 0.86 |
| 1:A:2231:C:H2' | 1:A:2232:U:H6 | 1.39 | 0.86 |
| 1:A:2305:A:C3' | 1:A:2306:C:H5'' | 2.04 | 0.86 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:261:G:H4' | 1:A:608:A:C2 | 2.10 | 0.86 |
| 1:A:269:U:H3 | 1:A:270:A:N6 | 1.73 | 0.86 |
| 1:A:64:A:HO2' | 21:W:71:GLY:HA3 | 1.38 | 0.86 |
| 2:B:88:C:H41 | 2:B:89:G:H21 | 0.90 | 0.86 |
| 5:E:49:LEU:CD1 | 5:E:74:PRO:HB2 | 2.02 | 0.86 |
| 8:H:41:MET:SD | 8:H:64:LEU:HD22 | 2.15 | 0.86 |
| 10:L:23:VAL:HG13 | 10:L:27:LEU:HD12 | 1.57 | 0.86 |
| 11:M:70:LYS:HZ2 | 11:M:86:PRO:HB3 | 1.39 | 0.86 |
| 12:N:47:ILE:HD11 | 12:N:50:GLY:CA | 2.04 | 0.86 |
| 15:Q:36:THR:O | 15:Q:111:LEU:HB3 | 1.76 | 0.86 |
| 15:Q:53:HIS:HA | 15:Q:56:LYS:HD3 | 1.55 | 0.86 |
| 17:S:104:ASN:HB3 | 17:S:108:ARG:HH22 | 1.41 | 0.86 |
| 17:S:28:VAL:HG13 | 17:S:92:GLY:C | 1.93 | 0.86 |
| 26:2:10:LYS:HZ3 | 26:2:12:PRO:CG | 1.88 | 0.86 |
| 26:2:35:ARG:HH12 | 26:2:47:VAL:HG11 | 1.40 | 0.86 |
| 31:7:62:LEU:HB3 | 31:7:63:PRO:HD3 | 1.56 | 0.86 |
| 1:A:1203:G:C2 | 1:A:1241:A:C8 | 2.63 | 0.86 |
| 1:A:1784:A:N3 | 1:A:1785:A:C6 | 2.43 | 0.86 |
| 1:A:1956:U:H6 | 1:A:1956:U:O5' | 1.55 | 0.86 |
| 1:A:2209:C:H1' | 4:D:150:LYS:NZ | 1.89 | 0.86 |
| 1:A:1966:A:N3 | 1:A:2593:U:H5' | 1.90 | 0.86 |
| 1:A:2781:A:H2' | 1:A:2782:G:O2' | 1.74 | 0.86 |
| 1:A:5:A:H2' | 1:A:6:A:C8 | 2.11 | 0.86 |
| 4:D:11:PRO:HB2 | 4:D:24:ILE:HG13 | 1.56 | 0.86 |
| 4:D:244:ARG:C | 4:D:252:TRP:CD1 | 2.49 | 0.86 |
| 5:E:52:LEU:HA | 5:E:74:PRO:CA | 2.04 | 0.86 |
| 9:K:25:TYR:O | 9:K:29:TYR:HB2 | 1.76 | 0.86 |
| 1:A:2485:G:H4' | 14:P:125:LEU:O | 1.73 | 0.86 |
| 14:P:48:GLU:O | 14:P:51:ARG:CG | 2.23 | 0.86 |
| 14:P:75:THR:HG22 | 14:P:77:LYS:N | 1.90 | 0.86 |
| 16:R:57:LYS:HG3 | 16:R:68:GLN:OE1 | 1.76 | 0.86 |
| 17:S:111:ARG:HB2 | 17:S:111:ARG:NH1 | 1.88 | 0.86 |
| 20:V:15:ARG:HB2 | 20:V:16:LYS:HD3 | 1.57 | 0.86 |
| 25:1:5:LEU:HD11 | 25:1:9:ARG:HH11 | 1.36 | 0.86 |
| 1:A:2045:C:O2' | 28:4:22:HIS:HB2 | 1.74 | 0.86 |
| 1:A:1438:U:C2' | 1:A:1439:A:H5' | 2.05 | 0.86 |
| 1:A:754:C:H4' | 1:A:1618:A:H2 | 1.40 | 0.86 |
| 1:A:1872:A:H2' | 1:A:1878:G:C5' | 2.04 | 0.86 |
| 1:A:2330:G:H1 | 1:A:2385:C:H42 | 0.89 | 0.86 |
| 1:A:2498:C:O2' | 1:A:2499:C:H5'' | 1.73 | 0.86 |
| 1:A:428:A:H3' | 1:A:429:A:C8 | 2.10 | 0.86 |
| 1:A:894:C:H2' | 1:A:895:U:C6 | 2.10 | 0.86 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:962:G:H2' | 1:A:963:U:H6 | 1.32 | 0.86 |
| 4:D:29:PRO:HB3 | 4:D:82:ILE:HG22 | 1.55 | 0.86 |
| 5:E:8:LYS:HA | 5:E:8:LYS:CE | 1.99 | 0.86 |
| 8:H:70:THR:O | 8:H:73:ALA:HB3 | 1.75 | 0.86 |
| 8:H:35:VAL:CG2 | 8:H:72:ILE:HG23 | 2.05 | 0.86 |
| 12:N:21:CYS:CA | 12:N:41:ALA:HB2 | 2.04 | 0.86 |
| 14:P:45:GLN:HA | 14:P:48:GLU:HG2 | 1.57 | 0.86 |
| 16:R:62:LYS:HD2 | 16:R:64:GLU:HB3 | 1.55 | 0.86 |
| 23:Y:18:LEU:HB3 | 23:Y:23:LYS:O | 1.74 | 0.86 |
| 23:Y:4:ARG:HG2 | 23:Y:5:LEU:N | 1.91 | 0.86 |
| 24:Z:50:ASN:O | 24:Z:62:LEU:HB3 | 1.73 | 0.86 |
| 3:C:190:ARG:HB2 | 3:C:190:ARG:CZ | 2.05 | 0.86 |
| 25:1:52:ILE:O | 25:1:56:LEU:HD22 | 1.75 | 0.86 |
| 1:A:1006:C:H1' | 11:M:106:MET:SD | 2.15 | 0.86 |
| 1:A:1050:A:O2' | 1:A:1051:G:H5' | 1.75 | 0.86 |
| 1:A:1820:U:H5 | 4:D:159:ALA:C | 1.79 | 0.86 |
| 1:A:2335:A:H2' | 1:A:2337:G:N7 | 1.91 | 0.86 |
| 1:A:2456:C:C2' | 1:A:2457:U:H5' | 2.04 | 0.86 |
| 1:A:729:G:H2' | 1:A:730:C:C1' | 2.05 | 0.86 |
| 1:A:979:G:H22 | 1:A:985:C:N4 | 1.74 | 0.86 |
| 4:D:76:PRO:HA | 4:D:118:VAL:HG13 | 1.58 | 0.86 |
| 4:D:134:ARG:HA | 4:D:168:ARG:NH1 | 1.90 | 0.86 |
| 4:D:55:GLY:HA2 | 4:D:218:ARG:HH11 | 1.38 | 0.86 |
| 5:E:131:ALA:CA | 5:E:134:ILE:HG13 | 2.06 | 0.86 |
| 5:E:154:LYS:HZ1 | 5:E:156:MET:HB2 | 1.41 | 0.86 |
| 5:E:48:GLN:O | 5:E:77:ILE:HG13 | 1.75 | 0.86 |
| 7:G:75:LYS:CB | 7:G:84:LYS:HB2 | 2.05 | 0.86 |
| 7:G:92:VAL:HG11 | 7:G:94:LEU:HD22 | 1.53 | 0.86 |
| 11:M:55:VAL:HG22 | 11:M:123:TYR:C | 1.95 | 0.86 |
| 13:O:122:PRO:O | 13:O:123:LEU:HD23 | 1.74 | 0.86 |
| 14:P:131:ILE:O | 14:P:132:VAL:HG13 | 1.75 | 0.86 |
| 14:P:75:THR:HG22 | 14:P:77:LYS:CA | 2.06 | 0.86 |
| 17:S:23:ARG:HH12 | 17:S:88:ILE:HG22 | 1.39 | 0.86 |
| 18:T:70:ARG:CG | 18:T:75:ASN:HA | 2.05 | 0.86 |
| 21:W:85:PRO:HG2 | 21:W:87:GLN:HE21 | 1.40 | 0.86 |
| 22:X:12:THR:HG21 | 22:X:70:SER:O | 1.76 | 0.86 |
| 23:Y:100:VAL:HG11 | 23:Y:133:ILE:HD13 | 1.57 | 0.86 |
| 23:Y:95:PRO:CB | 23:Y:130:PRO:HA | 2.05 | 0.86 |
| 23:Y:136:PHE:HB3 | 23:Y:138:GLU:OE2 | 1.74 | 0.86 |
| 9:K:135:GLU:CD | 9:K:135:GLU:N | 2.29 | 0.86 |
| 26:2:3:ARG:HH22 | 26:2:59:VAL:HG11 | 1.40 | 0.86 |
| 27:3:41:PRO:HB3 | 27:3:58:ARG:HD2 | 1.57 | 0.86 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1543:A:OP2 | 1:A:1544:C:C6 | 2.29 | 0.86 |
| 1:A:1708:C:C2' | 1:A:1709:U:H5'' | 2.05 | 0.86 |
| 1:A:2457:U:H2' | 1:A:2458:G:O4' | 1.76 | 0.86 |
| 1:A:2459:A:OP2 | 1:A:2460:U:C4 | 2.28 | 0.86 |
| 1:A:2530:A:H3' | 1:A:2531:A:H5'' | 1.56 | 0.86 |
| 1:A:2595:G:H1' | 1:A:2599:G:H22 | 1.39 | 0.86 |
| 1:A:2602:A:O2' | 1:A:2603:G:OP2 | 1.93 | 0.86 |
| 1:A:2734:A:H1' | 5:E:204:ALA:CB | 2.06 | 0.86 |
| 1:A:625:G:N2 | 1:A:653:A:H61 | 1.74 | 0.86 |
| 1:A:886:C:O5' | 1:A:886:C:H6 | 1.59 | 0.86 |
| 1:A:996:A:H2' | 1:A:997:G:H8 | 1.39 | 0.86 |
| 5:E:4:ILE:H | 5:E:27:LEU:HD22 | 1.39 | 0.86 |
| 7:G:39:ILE:HG23 | 7:G:157:ILE:CB | 2.06 | 0.86 |
| 8:H:20:ALA:HB1 | 8:H:21:PRO:HD2 | 1.55 | 0.86 |
| 10:L:72:PRO:HG2 | 10:L:111:LYS:NZ | 1.90 | 0.86 |
| 14:P:51:ARG:HH21 | 14:P:55:VAL:HG21 | 1.40 | 0.86 |
| 23:Y:102:LEU:HD11 | 23:Y:125:LEU:HD12 | 1.58 | 0.86 |
| 23:Y:104:PHE:HD2 | 23:Y:104:PHE:N | 1.72 | 0.86 |
| 23:Y:136:PHE:O | 23:Y:138:GLU:HG3 | 1.75 | 0.86 |
| 23:Y:68:PRO:O | 23:Y:90:VAL:HA | 1.76 | 0.86 |
| 9:K:135:GLU:CD | 9:K:135:GLU:H | 1.78 | 0.86 |
| 26:2:10:LYS:HZ3 | 26:2:12:PRO:CD | 1.89 | 0.86 |
| 28:4:4:HIS:C | 28:4:4:HIS:CD2 | 2.48 | 0.86 |
| 1:A:1312:U:H3 | 1:A:1604:C:H41 | 1.22 | 0.86 |
| 1:A:2051:A:N6 | 1:A:2614:A:N7 | 2.24 | 0.86 |
| 1:A:649:G:O3' | 31:7:17:THR:HG21 | 1.74 | 0.86 |
| 1:A:972:G:H5'' | 1:A:974:G:OP2 | 1.75 | 0.86 |
| 2:B:27:C:H41 | 2:B:56:G:H1 | 0.88 | 0.86 |
| 2:B:88:C:H2' | 2:B:89:G:H5' | 1.57 | 0.86 |
| 1:A:1799:G:H1 | 4:D:157:ARG:HH12 | 0.90 | 0.86 |
| 6:F:197:ASP:O | 6:F:200:GLU:HG3 | 1.74 | 0.86 |
| 6:F:18:ARG:HH12 | 6:F:20:LEU:HD11 | 1.41 | 0.86 |
| 7:G:60:LEU:O | 7:G:63:ILE:HG22 | 1.75 | 0.86 |
| 1:A:2749:A:H4' | 8:H:62:LYS:HG3 | 1.58 | 0.86 |
| 9:K:21:VAL:O | 9:K:25:TYR:HB2 | 1.76 | 0.86 |
| 10:L:108:ALA:O | 10:L:112:MET:HG2 | 1.74 | 0.86 |
| 12:N:19:ILE:HG22 | 12:N:43:VAL:HA | 1.55 | 0.86 |
| 13:O:76:LYS:NZ | 13:O:112:LEU:HD22 | 1.90 | 0.86 |
| 16:R:67:ARG:O | 16:R:71:ARG:HG3 | 1.76 | 0.86 |
| 16:R:9:ARG:HE | 16:R:12:PHE:HE2 | 1.24 | 0.86 |
| 3:C:135:GLY:O | 3:C:136:LEU:HD23 | 1.74 | 0.86 |
| 1:A:1062:G:H5'' | 1:A:1070:A:H5' | 1.56 | 0.86 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1160:G:H2' | 1:A:1161:C:C5 | 2.10 | 0.86 |
| 1:A:1314:C:H2' | 1:A:1315:C:H6 | 1.39 | 0.86 |
| 1:A:2286:A:H61 | 29:5:28:ARG:C | 1.79 | 0.86 |
| 1:A:2330:G:H1 | 1:A:2385:C:N4 | 1.74 | 0.86 |
| 1:A:2416:C:H5'' | 13:O:59:LEU:HB2 | 1.57 | 0.86 |
| 1:A:2555:U:H5 | 1:A:2556:C:C6 | 1.94 | 0.86 |
| 1:A:1953:A:N3 | 1:A:2560:C:H1' | 1.90 | 0.86 |
| 1:A:892:G:H2' | 1:A:893:C:C6 | 2.11 | 0.86 |
| 1:A:996:A:H2' | 1:A:997:G:C8 | 2.10 | 0.86 |
| 2:B:24:G:H8 | 2:B:24:G:O5' | 1.57 | 0.86 |
| 1:A:2051:A:O2' | 5:E:141:ILE:HD11 | 1.76 | 0.86 |
| 5:E:49:LEU:HA | 5:E:76:ARG:O | 1.75 | 0.86 |
| 6:F:160:ASN:HD21 | 6:F:195:ASP:HB3 | 1.38 | 0.86 |
| 10:L:10:LEU:HD12 | 10:L:12:LEU:HD11 | 1.57 | 0.86 |
| 12:N:62:VAL:O | 12:N:63:VAL:HG22 | 1.74 | 0.86 |
| 13:O:124:LYS:HZ3 | 13:O:141:ALA:CB | 1.88 | 0.86 |
| 13:O:124:LYS:HZ3 | 13:O:141:ALA:HB3 | 1.41 | 0.86 |
| 14:P:46:GLN:O | 14:P:49:ALA:HB3 | 1.75 | 0.86 |
| 14:P:6:ARG:HB2 | 14:P:44:ALA:CB | 2.05 | 0.86 |
| 16:R:3:ARG:HG2 | 16:R:4:LEU:H | 1.40 | 0.86 |
| 19:U:66:ARG:NE | 19:U:95:LEU:HD12 | 1.90 | 0.86 |
| 1:A:1224:G:H2' | 19:U:87:HIS:CE1 | 2.11 | 0.86 |
| 20:V:65:LEU:HB3 | 20:V:68:ARG:HG2 | 1.57 | 0.86 |
| 21:W:73:ARG:NH2 | 21:W:76:ARG:HB2 | 1.91 | 0.86 |
| 1:A:2246:G:C2 | 1:A:2247:A:C5 | 2.63 | 0.86 |
| 1:A:2612:C:O2' | 28:4:4:HIS:HB3 | 1.76 | 0.85 |
| 1:A:1936:A:H5' | 1:A:1937:A:N3 | 1.91 | 0.85 |
| 1:A:2053:G:H4' | 5:E:145:LYS:HZ1 | 1.37 | 0.85 |
| 1:A:411:G:H1' | 1:A:2408:U:O4 | 1.74 | 0.85 |
| 1:A:2627:G:C2' | 1:A:2628:C:H5'' | 2.06 | 0.85 |
| 1:A:656:G:H2' | 1:A:657:U:C6 | 2.09 | 0.85 |
| 1:A:683:C:C2 | 1:A:684:G:N2 | 2.44 | 0.85 |
| 1:A:880:G:C2 | 1:A:881:G:H1' | 2.11 | 0.85 |
| 4:D:27:THR:HG22 | 4:D:29:PRO:HD2 | 1.56 | 0.85 |
| 5:E:176:ILE:HD13 | 5:E:176:ILE:O | 1.74 | 0.85 |
| 6:F:201:VAL:HG12 | 6:F:205:ARG:HE | 1.41 | 0.85 |
| 10:L:79:ARG:HD2 | 10:L:134:MET:CE | 2.05 | 0.85 |
| 10:L:95:LYS:HB3 | 10:L:98:ARG:HH21 | 1.41 | 0.85 |
| 14:P:14:ARG:CA | 14:P:14:ARG:HE | 1.88 | 0.85 |
| 14:P:48:GLU:CA | 14:P:51:ARG:HG2 | 2.06 | 0.85 |
| 12:N:73:ASP:HB3 | 17:S:79:HIS:CD2 | 2.10 | 0.85 |
| 18:T:13:LYS:O | 18:T:17:ILE:HG12 | 1.76 | 0.85 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 21:W:12:VAL:HG23 | 21:W:28:PHE:CA | 2.06 | 0.85 |
| 21:W:51:VAL:HG13 | 21:W:81:VAL:HG21 | 1.56 | 0.85 |
| 3:C:190:ARG:O | 3:C:193:ILE:HB | 1.75 | 0.85 |
| 26:2:9:VAL:HG22 | 26:2:53:LEU:O | 1.73 | 0.85 |
| 27:3:46:GLN:O | 27:3:52:THR:HB | 1.77 | 0.85 |
| 1:A:1819:A:H1' | 1:A:1821:A:C2 | 2.11 | 0.85 |
| 1:A:2082:A:H2' | 1:A:2083:G:H8 | 1.40 | 0.85 |
| 1:A:2548:G:H8 | 1:A:2548:G:H5' | 1.41 | 0.85 |
| 1:A:292:C:H3' | 1:A:293:U:N3 | 1.90 | 0.85 |
| 1:A:563:G:H1 | 1:A:578:A:H61 | 1.24 | 0.85 |
| 1:A:6:A:H4' | 11:M:132:ALA:O | 1.76 | 0.85 |
| 4:D:89:SER:OG | 4:D:159:ALA:N | 2.08 | 0.85 |
| 5:E:154:LYS:NZ | 5:E:156:MET:HB2 | 1.90 | 0.85 |
| 5:E:8:LYS:HE3 | 17:S:2:ASN:OD1 | 1.75 | 0.85 |
| 6:F:168:ARG:HH21 | 6:F:169:ASN:H | 0.89 | 0.85 |
| 6:F:196:LEU:HD22 | 6:F:199:TRP:CD1 | 2.11 | 0.85 |
| 11:M:46:VAL:CG1 | 11:M:47:ALA:N | 2.34 | 0.85 |
| 14:P:22:LYS:CG | 14:P:23:GLY:H | 1.88 | 0.85 |
| 14:P:66:ILE:CG2 | 14:P:67:ARG:H | 1.84 | 0.85 |
| 1:A:456:C:H5 | 21:W:68:ARG:NH1 | 1.72 | 0.85 |
| 1:A:2135:A:C4' | 1:A:2136:C:H5 | 1.88 | 0.85 |
| 3:C:47:LEU:HG | 3:C:49:ILE:HG12 | 1.57 | 0.85 |
| 29:5:13:CYS:O | 29:5:53:LYS:HB3 | 1.75 | 0.85 |
| 31:7:44:LYS:HA | 31:7:44:LYS:NZ | 1.90 | 0.85 |
| 1:A:1065:U:H3' | 1:A:1066:U:H5'' | 1.56 | 0.85 |
| 1:A:1246:A:OP2 | 13:O:15:ARG:HD3 | 1.75 | 0.85 |
| 1:A:1605:C:H1' | 1:A:1610:A:C8 | 2.11 | 0.85 |
| 1:A:1672:C:C3' | 1:A:1673:U:H5'' | 2.06 | 0.85 |
| 1:A:1772:G:H21 | 1:A:1774:C:H5' | 1.38 | 0.85 |
| 1:A:1782:C:N4 | 1:A:2587:A:N6 | 2.24 | 0.85 |
| 1:A:2075:U:H2' | 1:A:2076:U:H5'' | 1.57 | 0.85 |
| 1:A:548:A:N6 | 1:A:549:G:N2 | 2.24 | 0.85 |
| 4:D:33:LEU:HD23 | 4:D:33:LEU:H | 1.37 | 0.85 |
| 7:G:61:ALA:CB | 7:G:67:LYS:HE2 | 2.05 | 0.85 |
| 12:N:97:ARG:HB3 | 12:N:117:LEU:CD2 | 2.06 | 0.85 |
| 13:O:38:GLN:O | 13:O:40:SER:N | 2.08 | 0.85 |
| 14:P:16:ARG:HG3 | 14:P:72:LYS:CD | 2.05 | 0.85 |
| 14:P:42:ILE:HD12 | 14:P:47:ILE:CG1 | 2.05 | 0.85 |
| 16:R:71:ARG:HA | 16:R:104:GLY:O | 1.74 | 0.85 |
| 17:S:11:GLU:N | 17:S:11:GLU:OE2 | 2.08 | 0.85 |
| 17:S:6:LEU:HD13 | 17:S:6:LEU:H | 1.39 | 0.85 |
| 20:V:72:LYS:O | 20:V:106:ILE:HG22 | 1.76 | 0.85 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 24:Z:72:ARG:O | 24:Z:75:LEU:HD12 | 1.76 | 0.85 |
| 3:C:22:ILE:HG21 | 3:C:190:ARG:HH12 | 1.40 | 0.85 |
| 29:5:48:VAL:O | 29:5:49:HIS:CB | 2.22 | 0.85 |
| 1:A:136:G:H2' | 1:A:137:C:C6 | 2.12 | 0.85 |
| 1:A:1552:G:O2' | 1:A:1553:A:H5' | 1.76 | 0.85 |
| 1:A:1964:G:C2 | 1:A:1967:C:C5 | 2.64 | 0.85 |
| 1:A:270(Q):C:H2' | 1:A:270(R):G:C8 | 2.10 | 0.85 |
| 1:A:410:G:H2' | 1:A:411:G:C8 | 2.12 | 0.85 |
| 1:A:527:C:OP1 | 1:A:527:C:H4' | 1.73 | 0.85 |
| 1:A:957:A:N7 | 1:A:959:A:N7 | 2.24 | 0.85 |
| 1:A:1799:G:H22 | 4:D:157:ARG:HH22 | 1.20 | 0.85 |
| 4:D:7:LYS:NZ | 4:D:91:ARG:HD2 | 1.90 | 0.85 |
| 5:E:101:ARG:HH22 | 5:E:171:GLU:HG2 | 1.38 | 0.85 |
| 5:E:23:VAL:HG22 | 5:E:184:VAL:CG2 | 2.06 | 0.85 |
| 6:F:131:GLY:CA | 6:F:138:GLU:HG3 | 2.06 | 0.85 |
| 8:H:107:VAL:HG22 | 8:H:152:ARG:HD3 | 1.55 | 0.85 |
| 8:H:38:SER:H | 8:H:41:MET:CE | 1.90 | 0.85 |
| 8:H:45:VAL:HG13 | 8:H:50:VAL:HG13 | 1.56 | 0.85 |
| 8:H:35:VAL:HG21 | 8:H:72:ILE:HG23 | 1.57 | 0.85 |
| 11:M:54:VAL:O | 11:M:122:VAL:HG23 | 1.76 | 0.85 |
| 18:T:50:ARG:HB2 | 18:T:50:ARG:NH1 | 1.89 | 0.85 |
| 22:X:73:ARG:CB | 22:X:77:PRO:HA | 2.06 | 0.85 |
| 3:C:18:LYS:HG2 | 3:C:20:TYR:H | 1.40 | 0.85 |
| 26:2:9:VAL:CG1 | 26:2:54:VAL:HA | 2.05 | 0.85 |
| 1:A:1078:U:H5'' | 1:A:1079:C:OP1 | 1.75 | 0.85 |
| 1:A:1444(A):A:H8 | 1:A:1460:A:C2' | 1.88 | 0.85 |
| 1:A:2319:G:H4' | 1:A:2320:A:OP1 | 1.75 | 0.85 |
| 1:A:2523:G:H1' | 1:A:2765:A:N7 | 1.91 | 0.85 |
| 1:A:2866:U:H1' | 1:A:2868:A:H1' | 1.57 | 0.85 |
| 1:A:800:A:C2 | 1:A:802:A:C8 | 2.64 | 0.85 |
| 5:E:59:VAL:HB | 5:E:62:PRO:CG | 2.06 | 0.85 |
| 14:P:111:GLU:HB2 | 14:P:113:GLN:NE2 | 1.91 | 0.85 |
| 14:P:126:PRO:O | 14:P:127:ILE:HG23 | 1.77 | 0.85 |
| 15:Q:84:ALA:HB3 | 15:Q:85:PRO:HD3 | 1.56 | 0.85 |
| 18:T:31:SER:O | 18:T:33:ARG:N | 2.09 | 0.85 |
| 18:T:83:LEU:O | 18:T:90:VAL:HG22 | 1.76 | 0.85 |
| 20:V:13:SER:HB3 | 20:V:16:LYS:CE | 2.06 | 0.85 |
| 20:V:59:VAL:HG13 | 20:V:63:ASP:HB3 | 1.58 | 0.85 |
| 3:C:86:ALA:HB1 | 3:C:153:ILE:HD12 | 1.58 | 0.85 |
| 1:A:1580:A:H2' | 1:A:1581:G:N9 | 1.91 | 0.85 |
| 1:A:2100:G:H1' | 1:A:2190:G:N2 | 1.91 | 0.85 |
| 27:3:41:PRO:HB2 | 27:3:57:GLU:OE2 | 1.76 | 0.85 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 29:5:26:ASN:O | 29:5:27:LYS:HB2 | 1.74 | 0.85 |
| 32:8:19:ARG:HH11 | 32:8:19:ARG:HB2 | 1.39 | 0.85 |
| 1:A:1071:G:C2' | 1:A:1072:C:H5' | 2.06 | 0.85 |
| 1:A:1338:G:H21 | 1:A:1393:A:H2 | 1.24 | 0.85 |
| 1:A:1846:G:N2 | 1:A:1895:C:C2 | 2.45 | 0.85 |
| 1:A:401:A:N6 | 1:A:423:A:N1 | 2.24 | 0.85 |
| 1:A:881:G:N2 | 1:A:896:A:N6 | 2.24 | 0.85 |
| 1:A:320:A:H3' | 6:F:136:THR:OG1 | 1.76 | 0.85 |
| 1:A:557:U:O2' | 11:M:112:LEU:HD11 | 1.76 | 0.85 |
| 14:P:25:ASP:CB | 14:P:102:VAL:HG12 | 2.06 | 0.85 |
| 24:Z:11:ARG:CB | 24:Z:11:ARG:HH11 | 1.89 | 0.85 |
| 1:A:718:A:H5'' | 1:A:719:C:C5 | 2.12 | 0.85 |
| 1:A:1062:G:O2' | 10:L:134:MET:HB2 | 1.75 | 0.85 |
| 1:A:107:C:H5' | 1:A:293:U:O4' | 1.76 | 0.85 |
| 1:A:1081:U:H5' | 10:L:122:ALA:HA | 1.57 | 0.85 |
| 1:A:1142(A):A:H3' | 1:A:1143:A:C5' | 2.07 | 0.85 |
| 1:A:1826:G:H8 | 1:A:1826:G:O5' | 1.60 | 0.85 |
| 1:A:2323:G:H2' | 1:A:2324:C:C6 | 2.10 | 0.85 |
| 1:A:2518:A:H5' | 1:A:2519:U:OP2 | 1.76 | 0.85 |
| 1:A:2649:U:H2' | 1:A:2650:U:H6 | 1.41 | 0.85 |
| 1:A:392:C:H2' | 1:A:393:C:H6 | 1.38 | 0.85 |
| 1:A:532:A:N7 | 18:T:45:TYR:HE2 | 1.74 | 0.85 |
| 1:A:635:C:O2' | 1:A:636:G:H5' | 1.76 | 0.85 |
| 1:A:745:G:H8 | 1:A:745:G:O5' | 1.57 | 0.85 |
| 1:A:914:C:H3' | 1:A:914:C:H6 | 1.39 | 0.85 |
| 4:D:37:LEU:HD11 | 4:D:63:ARG:HA | 1.57 | 0.85 |
| 4:D:93:ALA:HB3 | 4:D:105:ILE:HG23 | 1.59 | 0.85 |
| 5:E:66:HIS:CD2 | 5:E:71:GLY:H | 1.94 | 0.85 |
| 6:F:103:LYS:HA | 6:F:106:ARG:CG | 2.05 | 0.85 |
| 8:H:155:SER:OG | 8:H:159:GLU:HG3 | 1.77 | 0.85 |
| 8:H:172:LYS:HB2 | 8:H:172:LYS:NZ | 1.90 | 0.85 |
| 8:H:43:VAL:HA | 8:H:53:GLU:OE2 | 1.75 | 0.85 |
| 12:N:24:VAL:HG21 | 12:N:26:LYS:HE3 | 1.55 | 0.85 |
| 14:P:59:ARG:O | 14:P:59:ARG:HD2 | 1.76 | 0.85 |
| 14:P:78:PRO:O | 14:P:79:LEU:HD23 | 1.76 | 0.85 |
| 1:A:2708:G:H1' | 15:Q:71:GLN:HE22 | 1.40 | 0.85 |
| 19:U:67:GLY:O | 19:U:93:GLU:O | 1.95 | 0.85 |
| 19:U:62:LEU:HD22 | 19:U:98:GLU:HA | 1.58 | 0.85 |
| 23:Y:56:VAL:HG22 | 23:Y:100:VAL:HG12 | 1.57 | 0.85 |
| 26:2:9:VAL:CG2 | 26:2:10:LYS:H | 1.84 | 0.85 |
| 27:3:53:GLU:CG | 27:3:54:GLY:H | 1.90 | 0.85 |
| 27:3:5:ILE:HD12 | 27:3:60:GLN:HE22 | 1.39 | 0.85 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 27:3:65:ASP:HB2 | 27:3:69:LYS:HE3 | 1.59 | 0.85 |
| 1:A:1095:A:H2' | 1:A:1096:A:O4' | 1.76 | 0.85 |
| 1:A:1685:C:O2' | 1:A:1686:C:H5' | 1.77 | 0.85 |
| 1:A:183:C:N4 | 1:A:214:G:H1 | 1.74 | 0.85 |
| 1:A:415:A:N1 | 1:A:416:C:O2 | 2.09 | 0.85 |
| 1:A:541:C:H2' | 1:A:542:C:C6 | 2.11 | 0.85 |
| 1:A:196:A:N1 | 1:A:828:U:H5'' | 1.91 | 0.85 |
| 1:A:860:U:H1' | 1:A:2267:A:H4' | 1.59 | 0.85 |
| 1:A:957:A:H4' | 1:A:958:U:OP1 | 1.76 | 0.85 |
| 5:E:45:THR:HB | 5:E:81:ILE:HA | 1.56 | 0.85 |
| 7:G:49:ASP:CA | 7:G:53:LEU:HD22 | 2.06 | 0.85 |
| 13:O:123:LEU:HB2 | 13:O:138:LEU:HB2 | 1.58 | 0.85 |
| 16:R:11:LYS:NZ | 16:R:15:ARG:NH2 | 2.24 | 0.85 |
| 16:R:10:ARG:NH2 | 16:R:91:PRO:HA | 1.92 | 0.85 |
| 17:S:103:ARG:HH21 | 17:S:103:ARG:CG | 1.89 | 0.85 |
| 20:V:5:ALA:HB1 | 20:V:50:VAL:HG12 | 1.59 | 0.85 |
| 22:X:14:LEU:HD13 | 22:X:20:TYR:N | 1.92 | 0.85 |
| 9:K:123:LEU:HD11 | 9:K:145:VAL:HA | 1.56 | 0.85 |
| 26:2:55:ARG:NH2 | 26:2:55:ARG:HA | 1.92 | 0.85 |
| 1:A:72:U:O4 | 1:A:112:U:H1' | 1.76 | 0.85 |
| 1:A:1183:G:P | 1:A:1183:G:H3' | 2.16 | 0.85 |
| 1:A:1202:C:C5 | 1:A:1203:G:H1' | 2.12 | 0.85 |
| 1:A:1444(A):A:H8 | 1:A:1460:A:H2' | 1.40 | 0.85 |
| 1:A:1799:G:H8 | 4:D:268:ARG:NH1 | 1.73 | 0.85 |
| 1:A:196:A:H3' | 1:A:197:A:H5'' | 1.57 | 0.85 |
| 1:A:2016:U:H2' | 1:A:2017:U:O4' | 1.76 | 0.85 |
| 1:A:961:C:H42 | 1:A:2031:A:H1' | 1.39 | 0.85 |
| 1:A:2595:G:H1' | 1:A:2599:G:N2 | 1.91 | 0.85 |
| 1:A:282:A:H2' | 1:A:284:U:OP1 | 1.77 | 0.85 |
| 1:A:28:A:C2 | 1:A:29:U:H1' | 2.12 | 0.85 |
| 2:B:89(A):A:C2' | 2:B:90:C:H5' | 2.06 | 0.85 |
| 4:D:121:PRO:O | 4:D:135:PHE:HE2 | 1.59 | 0.85 |
| 4:D:8:PRO:O | 4:D:25:THR:CA | 2.25 | 0.85 |
| 5:E:12:THR:HA | 5:E:21:VAL:CB | 2.05 | 0.85 |
| 7:G:32:PRO:O | 7:G:33:ARG:HB3 | 1.73 | 0.85 |
| 8:H:120:GLY:H | 8:H:140:LYS:NZ | 1.75 | 0.85 |
| 8:H:149:ARG:HG2 | 8:H:153:LYS:HD2 | 1.59 | 0.85 |
| 8:H:51:ARG:CA | 8:H:51:ARG:HE | 1.85 | 0.85 |
| 8:H:94:TYR:HE2 | 8:H:96:ALA:HB2 | 1.38 | 0.85 |
| 22:X:50:ARG:NH2 | 22:X:50:ARG:HB3 | 1.91 | 0.85 |
| 3:C:86:ALA:HB2 | 3:C:149:ILE:HG23 | 1.57 | 0.85 |
| 25:1:45:ILE:CG1 | 25:1:46:ARG:N | 2.40 | 0.85 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1274:A:OP1 | 1:A:1646:C:N4 | 2.10 | 0.85 |
| 1:A:1567:A:C5' | 4:D:59:LYS:HE2 | 2.06 | 0.85 |
| 1:A:1996:C:H2' | 1:A:1997:G:C4' | 2.07 | 0.85 |
| 1:A:279:C:N4 | 1:A:359:A:N3 | 2.25 | 0.85 |
| 7:G:181:ARG:HG3 | 7:G:182:LYS:H | 1.42 | 0.85 |
| 7:G:43:LEU:HD11 | 7:G:88:ILE:O | 1.77 | 0.85 |
| 8:H:117:PRO:HA | 8:H:121:ILE:HD13 | 1.57 | 0.85 |
| 1:A:270(P):C:C5' | 9:K:45:LYS:HD2 | 2.07 | 0.85 |
| 15:Q:13:HIS:CE1 | 15:Q:15:SER:H | 1.94 | 0.85 |
| 16:R:57:LYS:O | 16:R:57:LYS:HD3 | 1.77 | 0.85 |
| 17:S:105:LEU:CD1 | 17:S:106:SER:H | 1.89 | 0.85 |
| 20:V:86:LEU:HB3 | 20:V:87:PRO:HD2 | 1.58 | 0.85 |
| 1:A:1314:C:OP1 | 1:A:1332:G:H5' | 1.77 | 0.84 |
| 1:A:2459:A:H2' | 1:A:2460:U:C4' | 2.07 | 0.84 |
| 1:A:2798:C:N4 | 1:A:2801:A:H61 | 1.75 | 0.84 |
| 1:A:569:U:OP1 | 1:A:945:A:N6 | 2.09 | 0.84 |
| 4:D:133:LEU:C | 4:D:136:ILE:HG13 | 1.97 | 0.84 |
| 5:E:113:PHE:HA | 5:E:158:GLY:O | 1.76 | 0.84 |
| 12:N:43:VAL:HG11 | 12:N:54:GLU:HA | 1.59 | 0.84 |
| 13:O:104:GLY:O | 13:O:105:LEU:HD12 | 1.77 | 0.84 |
| 14:P:120:ILE:HG23 | 14:P:123:HIS:HD2 | 1.38 | 0.84 |
| 15:Q:102:GLU:OE2 | 15:Q:102:GLU:HA | 1.75 | 0.84 |
| 15:Q:61:HIS:CA | 15:Q:64:ARG:HD2 | 2.07 | 0.84 |
| 17:S:7:ILE:O | 17:S:11:GLU:OE2 | 1.95 | 0.84 |
| 12:N:72:PRO:HB2 | 17:S:84:GLN:HE21 | 1.40 | 0.84 |
| 18:T:88:ILE:HB | 19:U:52:VAL:HA | 1.59 | 0.84 |
| 23:Y:155:LEU:HD23 | 23:Y:163:LEU:HD23 | 1.59 | 0.84 |
| 29:5:7:ILE:HG13 | 29:5:9:LEU:O | 1.77 | 0.84 |
| 1:A:1024:G:C4 | 1:A:1025:G:N7 | 2.44 | 0.84 |
| 1:A:1171:G:H1 | 1:A:1179:C:N4 | 1.74 | 0.84 |
| 1:A:1175:U:H5' | 1:A:1176:G:OP2 | 1.76 | 0.84 |
| 1:A:974(A):C:O2 | 1:A:1186:G:N2 | 2.09 | 0.84 |
| 1:A:1475:G:H21 | 1:A:1476:C:C5' | 1.89 | 0.84 |
| 1:A:1669:A:H4' | 1:A:2549:G:O3' | 1.77 | 0.84 |
| 1:A:1996:C:C5' | 1:A:1996:C:C6 | 2.57 | 0.84 |
| 1:A:2377:A:C2 | 1:A:2378:A:N7 | 2.44 | 0.84 |
| 1:A:2459:A:OP2 | 1:A:2460:U:C5 | 2.31 | 0.84 |
| 1:A:2748:A:N1 | 1:A:2756:U:C2 | 2.45 | 0.84 |
| 1:A:300:A:O2' | 1:A:318:C:H1' | 1.77 | 0.84 |
| 1:A:685:A:C1' | 1:A:688:U:O4 | 2.25 | 0.84 |
| 1:A:689:A:H2' | 1:A:690:G:O4' | 1.75 | 0.84 |
| 1:A:709:U:H2' | 1:A:710:G:C8 | 2.12 | 0.84 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:861:A:H62 | 1:A:917:A:H62 | 0.86 | 0.84 |
| 6:F:139:PHE:HD2 | 6:F:166:ALA:HB3 | 1.42 | 0.84 |
| 7:G:30:GLU:C | 7:G:32:PRO:HA | 1.96 | 0.84 |
| 8:H:8:PRO:CA | 8:H:51:ARG:NH1 | 2.36 | 0.84 |
| 11:M:128:HIS:N | 11:M:129:PRO:HD2 | 1.92 | 0.84 |
| 11:M:89:LYS:CE | 11:M:89:LYS:H | 1.91 | 0.84 |
| 12:N:10:VAL:HG13 | 12:N:11:ALA:N | 1.91 | 0.84 |
| 1:A:623:G:C8 | 13:O:105:LEU:HD13 | 2.11 | 0.84 |
| 20:V:65:LEU:HG | 20:V:68:ARG:HD3 | 1.58 | 0.84 |
| 3:C:113:VAL:O | 3:C:144:THR:HA | 1.77 | 0.84 |
| 25:1:33:GLN:O | 25:1:35:SER:N | 2.10 | 0.84 |
| 31:7:50:LEU:CG | 31:7:51:ALA:H | 1.90 | 0.84 |
| 1:A:146:G:H3' | 1:A:147:U:H5'' | 1.58 | 0.84 |
| 1:A:1530:G:H22 | 1:A:1541:U:H2' | 1.42 | 0.84 |
| 1:A:1559:G:N1 | 1:A:1560:G:H4' | 1.92 | 0.84 |
| 1:A:1970:A:O2' | 1:A:1971:A:H5' | 1.77 | 0.84 |
| 1:A:1972:A:H2' | 1:A:1973:G:H8 | 1.42 | 0.84 |
| 1:A:572:A:H2 | 1:A:2033:A:C2 | 1.96 | 0.84 |
| 1:A:2392:A:H2' | 1:A:2393:A:C5' | 2.06 | 0.84 |
| 1:A:2473:U:H2' | 1:A:2473:U:O2 | 1.76 | 0.84 |
| 1:A:1783:A:C2 | 1:A:2587:A:H2 | 1.95 | 0.84 |
| 1:A:273:G:H2' | 1:A:273(A):G:H8 | 1.40 | 0.84 |
| 1:A:2748:A:O2' | 8:H:66:GLY:HA3 | 1.76 | 0.84 |
| 1:A:385:C:O2' | 1:A:386:G:H5'' | 1.76 | 0.84 |
| 1:A:70:G:O2' | 1:A:71:A:H5' | 1.77 | 0.84 |
| 4:D:37:LEU:CD1 | 4:D:63:ARG:HA | 2.07 | 0.84 |
| 7:G:5:VAL:HG12 | 7:G:9:ARG:HH12 | 1.40 | 0.84 |
| 10:L:78:ILE:HD11 | 10:L:127:ILE:HG23 | 1.59 | 0.84 |
| 12:N:6:THR:HA | 12:N:7:TYR:CD1 | 2.12 | 0.84 |
| 14:P:42:ILE:CD1 | 14:P:47:ILE:HG13 | 2.07 | 0.84 |
| 15:Q:42:LYS:O | 15:Q:45:ARG:HB3 | 1.77 | 0.84 |
| 1:A:2020:A:P | 18:T:27:LEU:HD13 | 2.17 | 0.84 |
| 19:U:73:SER:HB3 | 19:U:89:GLN:NE2 | 1.92 | 0.84 |
| 23:Y:10:ARG:HG2 | 23:Y:36:LYS:HD2 | 1.58 | 0.84 |
| 9:K:69:LYS:CE | 9:K:70:LYS:HG3 | 2.06 | 0.84 |
| 3:C:26:ALA:O | 3:C:29:VAL:HG12 | 1.77 | 0.84 |
| 25:1:52:ILE:HA | 25:1:55:LEU:HD22 | 1.60 | 0.84 |
| 1:A:1518:C:H3' | 1:A:1519:G:H5'' | 1.58 | 0.84 |
| 1:A:1566:A:C5 | 4:D:215:LEU:HD22 | 2.12 | 0.84 |
| 1:A:1270:C:O2' | 1:A:1648:C:OP2 | 1.95 | 0.84 |
| 1:A:1363:C:H4' | 1:A:1809:A:N7 | 1.92 | 0.84 |
| 1:A:2323:G:H2' | 1:A:2324:C:H6 | 1.41 | 0.84 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2576:G:C4' | 1:A:2577:A:H5' | 2.05 | 0.84 |
| 4:D:159:ALA:O | 4:D:196:VAL:HG21 | 1.77 | 0.84 |
| 4:D:182:LEU:HD12 | 4:D:270:ILE:CD1 | 2.08 | 0.84 |
| 2:B:45:A:H1' | 7:G:95:ARG:HH11 | 1.43 | 0.84 |
| 10:L:12:LEU:HD22 | 10:L:19:PRO:HG3 | 1.59 | 0.84 |
| 10:L:52:ILE:HG12 | 10:L:80:LYS:HG2 | 1.58 | 0.84 |
| 14:P:45:GLN:O | 14:P:48:GLU:N | 2.09 | 0.84 |
| 17:S:26:ASP:CG | 17:S:27:THR:H | 1.80 | 0.84 |
| 19:U:11:GLN:OE1 | 19:U:21:ARG:HB3 | 1.76 | 0.84 |
| 19:U:40:LEU:HG | 19:U:55:ALA:N | 1.92 | 0.84 |
| 14:P:136:ALA:HB1 | 23:Y:76:LEU:HD13 | 1.58 | 0.84 |
| 9:K:87:LYS:HZ3 | 9:K:121:LYS:H | 0.86 | 0.84 |
| 1:A:2117:A:H61 | 1:A:2171:A:H61 | 1.24 | 0.84 |
| 1:A:718:A:H5'' | 1:A:719:C:C6 | 2.11 | 0.84 |
| 26:2:45:GLY:HA2 | 26:2:48:GLU:OE1 | 1.76 | 0.84 |
| 26:2:6:VAL:HB | 26:2:35:ARG:HE | 1.42 | 0.84 |
| 29:5:36:LEU:O | 29:5:51:GLU:HB3 | 1.77 | 0.84 |
| 1:A:1087:G:N2 | 1:A:1103:A:H2' | 1.90 | 0.84 |
| 1:A:1528:A:H2 | 1:A:1545:A:H61 | 1.25 | 0.84 |
| 1:A:1754:C:H2' | 1:A:1755:A:C1' | 2.08 | 0.84 |
| 1:A:1970:A:H2' | 1:A:1971:A:OP2 | 1.78 | 0.84 |
| 1:A:2448:A:OP2 | 1:A:2498:C:OP1 | 1.95 | 0.84 |
| 1:A:673:C:C2' | 1:A:674:G:H5' | 2.06 | 0.84 |
| 1:A:997:G:O2' | 1:A:998:C:C5' | 2.26 | 0.84 |
| 1:A:2619:C:H4' | 5:E:152:LYS:HA | 1.58 | 0.84 |
| 1:A:674:G:H5'' | 6:F:74:ARG:NH1 | 1.92 | 0.84 |
| 7:G:45:GLU:C | 7:G:47:LYS:H | 1.81 | 0.84 |
| 7:G:61:ALA:HB2 | 7:G:67:LYS:CB | 2.03 | 0.84 |
| 11:M:107:LEU:HD12 | 11:M:116:LEU:CD2 | 2.08 | 0.84 |
| 11:M:89:LYS:NZ | 11:M:89:LYS:N | 2.26 | 0.84 |
| 12:N:64:ARG:HH11 | 12:N:67:LYS:C | 1.80 | 0.84 |
| 14:P:134:ARG:HD3 | 14:P:137:TYR:CA | 2.07 | 0.84 |
| 17:S:102:ILE:C | 17:S:104:ASN:H | 1.79 | 0.84 |
| 18:T:93:LYS:HG2 | 19:U:10:LYS:NZ | 1.92 | 0.84 |
| 19:U:32:THR:HA | 19:U:64:HIS:O | 1.76 | 0.84 |
| 22:X:9:LYS:NZ | 22:X:9:LYS:HB2 | 1.93 | 0.84 |
| 23:Y:127:LYS:HZ2 | 23:Y:165:VAL:H | 1.24 | 0.84 |
| 3:C:185:LEU:O | 3:C:189:ILE:HG13 | 1.78 | 0.84 |
| 29:5:19:ARG:HH22 | 29:5:41:PRO:HG3 | 1.39 | 0.84 |
| 31:7:50:LEU:HG | 31:7:51:ALA:H | 1.41 | 0.84 |
| 31:7:54:GLU:O | 31:7:57:ARG:HB3 | 1.78 | 0.84 |
| 1:A:1438:U:H3 | 1:A:1553:A:N6 | 1.75 | 0.84 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1592:C:H2' | 1:A:1593:G:H8 | 1.41 | 0.84 |
| 1:A:2068:U:O2 | 1:A:2430:A:N1 | 2.11 | 0.84 |
| 1:A:2627:G:N2 | 1:A:2628:C:C6 | 2.45 | 0.84 |
| 1:A:2744:G:O2' | 1:A:2745:C:H5' | 1.76 | 0.84 |
| 1:A:349:G:H3' | 1:A:350:U:H5 | 1.41 | 0.84 |
| 1:A:28:A:H1' | 1:A:513:A:N1 | 1.92 | 0.84 |
| 1:A:784:A:N6 | 1:A:792:G:N3 | 2.25 | 0.84 |
| 6:F:12:LEU:O | 6:F:14:PRO:HD3 | 1.76 | 0.84 |
| 6:F:34:TRP:HD1 | 6:F:38:ARG:NH1 | 1.74 | 0.84 |
| 7:G:53:LEU:HD23 | 7:G:70:VAL:HA | 1.59 | 0.84 |
| 8:H:73:ALA:O | 8:H:76:VAL:HG23 | 1.77 | 0.84 |
| 8:H:94:TYR:H | 8:H:95:ARG:HH21 | 1.23 | 0.84 |
| 11:M:100:GLU:HB3 | 11:M:104:LYS:HE3 | 1.57 | 0.84 |
| 12:N:8:LEU:HD11 | 12:N:19:ILE:CD1 | 2.08 | 0.84 |
| 13:O:79:ARG:HE | 13:O:83:VAL:HG11 | 1.42 | 0.84 |
| 1:A:2467:C:O2' | 14:P:120:ILE:HG21 | 1.77 | 0.84 |
| 16:R:11:LYS:HZ1 | 16:R:15:ARG:HH22 | 1.22 | 0.84 |
| 1:A:2125:G:H21 | 1:A:2173:A:N6 | 1.75 | 0.84 |
| 3:C:86:ALA:HB1 | 3:C:153:ILE:CD1 | 2.08 | 0.84 |
| 1:A:1274:A:N3 | 1:A:1297:C:H1' | 1.93 | 0.84 |
| 1:A:1804:C:H5'' | 4:D:250:TRP:CH2 | 2.12 | 0.84 |
| 1:A:2553:G:C8 | 1:A:2583:G:H4' | 2.13 | 0.84 |
| 1:A:532:A:H4' | 18:T:28:ARG:NH1 | 1.93 | 0.84 |
| 4:D:183:ARG:HA | 4:D:268:ARG:HA | 1.57 | 0.84 |
| 6:F:4:VAL:HG12 | 6:F:20:LEU:CD1 | 2.08 | 0.84 |
| 14:P:48:GLU:O | 14:P:52:VAL:HG23 | 1.77 | 0.84 |
| 17:S:59:THR:N | 17:S:61:PHE:CE1 | 2.45 | 0.84 |
| 22:X:31:LEU:HB3 | 22:X:32:PRO:CD | 2.07 | 0.84 |
| 1:A:2365:G:OP1 | 24:Z:55:ARG:HG2 | 1.78 | 0.84 |
| 28:4:30:LEU:HD22 | 28:4:39:MET:SD | 2.18 | 0.84 |
| 1:A:242:G:H3' | 31:7:4:MET:CE | 2.07 | 0.84 |
| 1:A:1309:G:H2' | 1:A:1310:G:C5' | 2.07 | 0.84 |
| 1:A:1602:U:H3' | 1:A:1602:U:C6 | 2.12 | 0.84 |
| 1:A:1672:C:C5 | 1:A:1673:U:H6 | 1.95 | 0.84 |
| 1:A:1697:G:H5'' | 1:A:1698:A:C5' | 2.06 | 0.84 |
| 1:A:2448:A:OP2 | 1:A:2498:C:O5' | 1.94 | 0.84 |
| 1:A:2602:A:O2' | 24:Z:2:ALA:HB2 | 1.77 | 0.84 |
| 1:A:343:C:O2' | 1:A:344:G:H5' | 1.78 | 0.84 |
| 2:B:88:C:H41 | 2:B:89:G:N2 | 1.74 | 0.84 |
| 5:E:103:ASP:O | 5:E:104:VAL:HG23 | 1.78 | 0.84 |
| 5:E:184:VAL:HG23 | 5:E:186:GLY:H | 1.41 | 0.84 |
| 7:G:34:LEU:HD21 | 7:G:176:LEU:HD21 | 1.57 | 0.84 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 8:H:7:LEU:N | 8:H:8:PRO:HD2 | 1.93 | 0.84 |
| 12:N:19:ILE:C | 12:N:19:ILE:HD12 | 1.98 | 0.84 |
| 6:F:34:TRP:CH2 | 13:O:8:PRO:HD2 | 2.13 | 0.84 |
| 13:O:97:PRO:HA | 13:O:102:ARG:NE | 1.93 | 0.84 |
| 17:S:27:THR:HG23 | 17:S:52:ILE:O | 1.77 | 0.84 |
| 20:V:5:ALA:HB2 | 20:V:54:ALA:CB | 2.06 | 0.84 |
| 1:A:1496:A:C2 | 1:A:1498:C:N4 | 2.46 | 0.84 |
| 1:A:1582:C:H5'' | 1:A:1583:A:OP2 | 1.76 | 0.84 |
| 1:A:458:G:O2' | 30:6:40:TRP:CE2 | 2.30 | 0.84 |
| 1:A:1464:C:O2' | 1:A:1528:A:H1' | 1.77 | 0.84 |
| 1:A:1710:C:H2' | 1:A:1711:C:C6 | 2.11 | 0.84 |
| 1:A:2389:G:H5'' | 1:A:2390:U:O5' | 1.76 | 0.84 |
| 2:B:99:A:O2' | 2:B:100:G:H5' | 1.78 | 0.84 |
| 1:A:2210:G:N7 | 4:D:150:LYS:HA | 1.93 | 0.84 |
| 7:G:61:ALA:CB | 7:G:67:LYS:HB3 | 2.02 | 0.84 |
| 10:L:79:ARG:HH11 | 10:L:134:MET:HE2 | 1.41 | 0.84 |
| 12:N:24:VAL:CG2 | 12:N:26:LYS:HG2 | 2.08 | 0.84 |
| 1:A:623:G:C3' | 13:O:105:LEU:HD22 | 2.08 | 0.84 |
| 13:O:13:ASN:ND2 | 13:O:14:LYS:N | 2.25 | 0.84 |
| 23:Y:122:ARG:HH22 | 23:Y:169:GLU:CG | 1.89 | 0.84 |
| 14:P:85:LYS:NZ | 24:Z:10:THR:HG21 | 1.93 | 0.84 |
| 3:C:119:VAL:O | 3:C:123:VAL:HG23 | 1.77 | 0.84 |
| 25:1:46:ARG:O | 25:1:50:ARG:HG3 | 1.78 | 0.84 |
| 1:A:2623:G:H21 | 28:4:22:HIS:HE1 | 1.24 | 0.84 |
| 1:A:1180:C:H2' | 1:A:1181:C:H6 | 1.40 | 0.84 |
| 1:A:1351:C:H2' | 1:A:1352:U:C6 | 2.13 | 0.84 |
| 1:A:1613:G:H3' | 1:A:1614:A:C5' | 2.07 | 0.84 |
| 1:A:1718:G:N2 | 1:A:1742:C:N3 | 2.25 | 0.84 |
| 1:A:1790:C:O2' | 4:D:209:ALA:CB | 2.23 | 0.84 |
| 1:A:2016:U:C1' | 28:4:6:VAL:HG11 | 2.08 | 0.84 |
| 1:A:2556:C:H2' | 1:A:2557:G:O4' | 1.78 | 0.84 |
| 1:A:265:A:H8 | 1:A:265:A:H3' | 1.41 | 0.84 |
| 1:A:2748:A:H1' | 8:H:67:LEU:CD2 | 2.08 | 0.84 |
| 1:A:1710:C:H1' | 1:A:2858:C:H42 | 1.40 | 0.84 |
| 1:A:893:C:H2' | 1:A:894:C:H6 | 1.39 | 0.84 |
| 4:D:177:LEU:HB2 | 4:D:178:PRO:HD2 | 1.60 | 0.84 |
| 5:E:200:GLU:HB3 | 5:E:202:LYS:NZ | 1.92 | 0.84 |
| 5:E:36:ARG:HB3 | 5:E:41:LYS:CB | 2.08 | 0.84 |
| 6:F:78:ILE:HD13 | 6:F:79:GLY:N | 1.93 | 0.84 |
| 7:G:170:ARG:HH11 | 7:G:170:ARG:HG2 | 1.43 | 0.84 |
| 8:H:127:GLU:HG3 | 8:H:130:ARG:H | 1.41 | 0.84 |
| 8:H:153:LYS:HB2 | 8:H:162:ILE:CG2 | 2.06 | 0.84 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:K:40:THR:O | 9:K:44:LEU:HG | 1.76 | 0.84 |
| 10:L:109:LYS:O | 10:L:112:MET:HB2 | 1.78 | 0.84 |
| 11:M:23:LEU:HD12 | 11:M:63:THR:HG23 | 1.60 | 0.84 |
| 11:M:87:LEU:HD23 | 11:M:88:GLU:OE2 | 1.76 | 0.84 |
| 18:T:97:ASP:O | 18:T:100:VAL:HG22 | 1.78 | 0.84 |
| 21:W:49:VAL:HG12 | 21:W:88:LYS:CB | 2.08 | 0.84 |
| 23:Y:57:ILE:HG22 | 23:Y:58:VAL:N | 1.90 | 0.84 |
| 9:K:86:THR:HG22 | 9:K:87:LYS:H | 1.43 | 0.84 |
| 3:C:77:ILE:HD13 | 3:C:123:VAL:HG11 | 1.60 | 0.84 |
| 1:A:1496:A:C2 | 1:A:1577:C:H1' | 2.13 | 0.84 |
| 28:4:51:TYR:HB3 | 28:4:55:ARG:CA | 2.07 | 0.83 |
| 31:7:16:ILE:HG23 | 31:7:22:VAL:HG23 | 1.60 | 0.83 |
| 1:A:1059:G:O6 | 1:A:1060:U:H1' | 1.77 | 0.83 |
| 1:A:1188:U:O2 | 1:A:1189:A:C1' | 2.26 | 0.83 |
| 1:A:144:C:H2' | 1:A:145:G:H5' | 1.60 | 0.83 |
| 1:A:1567:A:OP2 | 4:D:86:PRO:HB3 | 1.78 | 0.83 |
| 1:A:2227:A:H2' | 1:A:2228:G:O4' | 1.78 | 0.83 |
| 1:A:2232:U:O2' | 1:A:2233:U:H5' | 1.77 | 0.83 |
| 1:A:2243:U:H2' | 1:A:2244:U:C6 | 2.12 | 0.83 |
| 1:A:2262:U:H4' | 1:A:2328:A:H2 | 1.43 | 0.83 |
| 1:A:2720:U:H3' | 1:A:2721:A:C8 | 2.12 | 0.83 |
| 1:A:768:G:H2' | 1:A:769:G:H8 | 1.41 | 0.83 |
| 1:A:819:A:H2' | 1:A:820:A:C8 | 2.13 | 0.83 |
| 4:D:208:LYS:HG2 | 4:D:211:ARG:CG | 2.08 | 0.83 |
| 5:E:176:ILE:HD11 | 5:E:179:GLU:HG2 | 1.60 | 0.83 |
| 11:M:109:LYS:HB3 | 11:M:113:GLY:H | 1.43 | 0.83 |
| 11:M:28:THR:O | 11:M:31:ALA:HB3 | 1.77 | 0.83 |
| 12:N:112:MET:HA | 12:N:115:VAL:CG2 | 2.08 | 0.83 |
| 12:N:9:GLU:CA | 12:N:17:ARG:O | 2.24 | 0.83 |
| 17:S:17:THR:HB | 17:S:20:PRO:HD3 | 1.59 | 0.83 |
| 23:Y:153:SER:O | 23:Y:155:LEU:HB2 | 1.78 | 0.83 |
| 27:3:5:ILE:HG21 | 27:3:8:LYS:O | 1.77 | 0.83 |
| 1:A:1087:G:C8 | 1:A:1089:G:H1' | 2.13 | 0.83 |
| 1:A:1223:C:N4 | 1:A:1227:A:H61 | 1.76 | 0.83 |
| 1:A:1815:A:H1' | 1:A:1817:G:N9 | 1.93 | 0.83 |
| 1:A:2447:G:H3' | 1:A:2499:C:OP2 | 1.75 | 0.83 |
| 1:A:339:U:H2' | 1:A:340:A:H8 | 1.42 | 0.83 |
| 1:A:880:G:H2' | 1:A:881:G:H4' | 1.58 | 0.83 |
| 2:B:29:A:H2' | 2:B:30:C:C6 | 2.13 | 0.83 |
| 7:G:90:LEU:HD13 | 7:G:90:LEU:O | 1.78 | 0.83 |
| 9:K:2:LYS:CD | 9:K:39:ALA:HB2 | 2.07 | 0.83 |
| 11:M:87:LEU:O | 11:M:90:MET:HB2 | 1.76 | 0.83 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:F:31:HIS:ND1 | 13:O:11:GLY:HA3 | 1.93 | 0.83 |
| 14:P:105:GLU:HA | 14:P:105:GLU:OE2 | 1.76 | 0.83 |
| 19:U:2:PHE:HB3 | 19:U:13:ARG:NH2 | 1.93 | 0.83 |
| 20:V:4:LYS:HA | 20:V:106:ILE:HD12 | 1.58 | 0.83 |
| 23:Y:105:VAL:H | 23:Y:140:ASP:HB2 | 1.43 | 0.83 |
| 23:Y:17:ALA:O | 23:Y:20:ARG:HB3 | 1.78 | 0.83 |
| 9:K:88:ILE:HD11 | 9:K:123:LEU:HD22 | 1.58 | 0.83 |
| 9:K:83:ALA:HB2 | 9:K:89:TYR:H | 1.42 | 0.83 |
| 1:A:712:G:H2' | 1:A:713:G:C8 | 2.11 | 0.83 |
| 1:A:2803:C:H6 | 1:A:2803:C:OP2 | 1.60 | 0.83 |
| 1:A:2046:G:H5'' | 28:4:19:ARG:HA | 1.58 | 0.83 |
| 29:5:38:LYS:O | 29:5:49:HIS:HB3 | 1.78 | 0.83 |
| 31:7:30:ARG:NH2 | 31:7:41:ILE:O | 2.11 | 0.83 |
| 31:7:5:LYS:HA | 31:7:59:LYS:O | 1.77 | 0.83 |
| 32:8:19:ARG:O | 32:8:22:ARG:CB | 2.27 | 0.83 |
| 1:A:1131:G:C1' | 11:M:82:LEU:HD11 | 2.09 | 0.83 |
| 1:A:1214:A:H2' | 1:A:1215:G:C8 | 2.12 | 0.83 |
| 1:A:207:A:H2' | 1:A:208:C:O4' | 1.78 | 0.83 |
| 1:A:2304:G:H4' | 7:G:132:ASN:ND2 | 1.93 | 0.83 |
| 1:A:2740:A:H2' | 1:A:2741:A:C8 | 2.13 | 0.83 |
| 1:A:391:G:H2' | 1:A:392:C:H6 | 1.43 | 0.83 |
| 1:A:826:U:OP1 | 1:A:2428:G:H3' | 1.77 | 0.83 |
| 1:A:87:C:H1' | 25:1:46:ARG:NH2 | 1.93 | 0.83 |
| 1:A:914:C:H2' | 1:A:915:C:H5' | 1.61 | 0.83 |
| 1:A:979:G:N2 | 1:A:985:C:N4 | 2.26 | 0.83 |
| 2:B:80:U:H2' | 2:B:81:G:C8 | 2.13 | 0.83 |
| 4:D:84:TYR:HA | 4:D:92:ILE:HG23 | 1.58 | 0.83 |
| 12:N:39:ILE:HD13 | 12:N:39:ILE:H | 1.43 | 0.83 |
| 12:N:66:LYS:HE3 | 12:N:67:LYS:HZ3 | 1.40 | 0.83 |
| 1:A:995:C:H1' | 18:T:57:PHE:CE1 | 2.13 | 0.83 |
| 20:V:18:ARG:CZ | 20:V:76:VAL:HG12 | 2.08 | 0.83 |
| 21:W:79:ALA:C | 21:W:80:ILE:HD13 | 1.98 | 0.83 |
| 9:K:59:ALA:CA | 9:K:62:LYS:HD2 | 2.08 | 0.83 |
| 31:7:3:LYS:O | 31:7:4:MET:HB2 | 1.78 | 0.83 |
| 31:7:5:LYS:HG3 | 31:7:7:HIS:HD2 | 1.43 | 0.83 |
| 1:A:1222:C:N4 | 1:A:1227:A:N6 | 2.26 | 0.83 |
| 1:A:1351:C:H2' | 1:A:1352:U:H6 | 1.42 | 0.83 |
| 1:A:1559:G:C6 | 1:A:1560:G:H4' | 2.12 | 0.83 |
| 1:A:1972:A:H2' | 1:A:1973:G:C8 | 2.13 | 0.83 |
| 1:A:2225:A:H5'' | 1:A:2226:C:H5' | 1.60 | 0.83 |
| 1:A:2371:G:H2' | 1:A:2372:G:C8 | 2.14 | 0.83 |
| 1:A:2458:G:C8 | 1:A:2490:G:C6 | 2.66 | 0.83 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2572:A:H5' | 1:A:2574:G:H5'' | 1.60 | 0.83 |
| 1:A:24:G:H2' | 1:A:25:U:H6 | 1.42 | 0.83 |
| 1:A:451:C:H41 | 1:A:453:C:H3' | 1.44 | 0.83 |
| 1:A:94:G:H21 | 25:1:42:ASN:HD21 | 1.26 | 0.83 |
| 5:E:164:ARG:O | 5:E:165:VAL:HG22 | 1.79 | 0.83 |
| 5:E:104:VAL:CG2 | 5:E:198:VAL:HG13 | 2.07 | 0.83 |
| 6:F:192:LEU:HD22 | 6:F:193:VAL:N | 1.93 | 0.83 |
| 6:F:39:TRP:HZ3 | 6:F:43:LYS:HD2 | 1.42 | 0.83 |
| 6:F:70:THR:C | 6:F:72:ARG:H | 1.79 | 0.83 |
| 7:G:19:LEU:H | 7:G:19:LEU:CD1 | 1.88 | 0.83 |
| 10:L:21:PRO:HG2 | 10:L:22:PRO:HD2 | 1.61 | 0.83 |
| 11:M:70:LYS:HD2 | 11:M:86:PRO:CA | 2.07 | 0.83 |
| 12:N:85:VAL:HG12 | 12:N:93:PRO:CG | 2.08 | 0.83 |
| 15:Q:52:ILE:HD12 | 15:Q:94:TYR:CD1 | 2.12 | 0.83 |
| 17:S:54:ARG:C | 17:S:55:ASN:CG | 2.36 | 0.83 |
| 20:V:14:PRO:C | 20:V:16:LYS:HZ1 | 1.82 | 0.83 |
| 22:X:74:PRO:HG2 | 22:X:100:ALA:HB3 | 1.58 | 0.83 |
| 23:Y:39:VAL:HG21 | 23:Y:86:VAL:HG23 | 1.60 | 0.83 |
| 1:A:1583:A:H5' | 1:A:1585:C:H5' | 1.60 | 0.83 |
| 29:5:14:THR:CB | 29:5:51:GLU:HG2 | 2.05 | 0.83 |
| 1:A:1049:C:N3 | 1:A:1050:A:N7 | 2.25 | 0.83 |
| 1:A:1203:G:O6 | 1:A:1240:U:N1 | 2.11 | 0.83 |
| 1:A:2619:C:O2' | 1:A:2620:C:H5' | 1.79 | 0.83 |
| 1:A:2674:G:H2' | 1:A:2675:A:C8 | 2.14 | 0.83 |
| 1:A:2746:U:OP1 | 8:H:142:GLY:HA3 | 1.77 | 0.83 |
| 1:A:31:C:H5'' | 1:A:1239:G:OP1 | 1.78 | 0.83 |
| 1:A:427:U:O2 | 1:A:428:A:H8 | 1.59 | 0.83 |
| 1:A:451:C:N4 | 1:A:453:C:H3' | 1.94 | 0.83 |
| 1:A:636:G:H22 | 13:O:75:ILE:CD1 | 1.89 | 0.83 |
| 1:A:64:A:N3 | 21:W:66:LEU:HD22 | 1.93 | 0.83 |
| 1:A:728:G:C1' | 1:A:729:G:H8 | 1.91 | 0.83 |
| 1:A:846:C:O2' | 1:A:847:U:OP2 | 1.96 | 0.83 |
| 1:A:966:G:H1' | 1:A:2267:A:H62 | 1.44 | 0.83 |
| 4:D:90:ALA:O | 4:D:91:ARG:O | 1.96 | 0.83 |
| 5:E:131:ALA:CB | 5:E:134:ILE:HG13 | 2.09 | 0.83 |
| 5:E:49:LEU:CD1 | 5:E:50:GLY:N | 2.41 | 0.83 |
| 6:F:123:LEU:HB2 | 6:F:192:LEU:O | 1.79 | 0.83 |
| 1:A:674:G:H5'' | 6:F:74:ARG:HH11 | 1.43 | 0.83 |
| 10:L:138:VAL:O | 10:L:139:VAL:HG23 | 1.77 | 0.83 |
| 11:M:55:VAL:HB | 11:M:130:HIS:CE1 | 2.13 | 0.83 |
| 13:O:89:ALA:C | 13:O:125:VAL:HG22 | 1.99 | 0.83 |
| 1:A:2847:U:P | 17:S:54:ARG:HH22 | 2.02 | 0.83 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:U:21:ARG:O | 19:U:22:VAL:O | 1.96 | 0.83 |
| 20:V:76:VAL:HG23 | 20:V:103:ILE:HA | 1.60 | 0.83 |
| 3:C:63:SER:OG | 3:C:155:GLU:HG2 | 1.78 | 0.83 |
| 3:C:62:VAL:O | 3:C:64:LEU:HG | 1.78 | 0.83 |
| 29:5:19:ARG:NH1 | 29:5:43:CYS:CB | 2.40 | 0.83 |
| 1:A:578:A:H2' | 1:A:2018:G:C5' | 2.09 | 0.83 |
| 1:A:2060:A:O2' | 1:A:2061:G:OP2 | 1.96 | 0.83 |
| 1:A:261:G:O2' | 1:A:262:A:H5' | 1.78 | 0.83 |
| 1:A:265:A:C8 | 1:A:266:G:H1' | 2.14 | 0.83 |
| 1:A:500:G:H1' | 1:A:503:A:H62 | 1.43 | 0.83 |
| 1:A:558:G:H5' | 11:M:112:LEU:CG | 2.09 | 0.83 |
| 1:A:603:A:H61 | 1:A:624:C:H41 | 1.27 | 0.83 |
| 1:A:910:A:C6 | 14:P:17:LEU:HD11 | 2.12 | 0.83 |
| 5:E:101:ARG:HD2 | 5:E:169:ASN:HD21 | 1.42 | 0.83 |
| 5:E:12:THR:CA | 5:E:21:VAL:HB | 2.06 | 0.83 |
| 1:A:2306:C:O2' | 7:G:153:ARG:HD3 | 1.77 | 0.83 |
| 10:L:52:ILE:HG13 | 10:L:76:TYR:CB | 2.08 | 0.83 |
| 11:M:104:LYS:HD3 | 11:M:117:PHE:CZ | 2.13 | 0.83 |
| 13:O:55:ARG:NH2 | 13:O:55:ARG:HB3 | 1.92 | 0.83 |
| 14:P:132:VAL:CG1 | 14:P:133:ARG:HH21 | 1.92 | 0.83 |
| 15:Q:54:LEU:HD12 | 15:Q:54:LEU:H | 1.43 | 0.83 |
| 24:Z:24:LYS:O | 24:Z:25:ARG:HG2 | 1.78 | 0.83 |
| 24:Z:41:ARG:NH1 | 24:Z:41:ARG:HB3 | 1.94 | 0.83 |
| 3:C:156:ILE:HA | 3:C:160:ARG:HG3 | 1.60 | 0.83 |
| 1:A:274:G:N3 | 1:A:274:G:H3' | 1.92 | 0.83 |
| 1:A:2096:U:H2' | 1:A:2097:C:C5 | 2.14 | 0.83 |
| 26:2:3:ARG:HH11 | 26:2:3:ARG:HB3 | 1.44 | 0.83 |
| 27:3:57:GLU:C | 27:3:61:ARG:HG3 | 1.99 | 0.83 |
| 31:7:10:ALA:CA | 31:7:60:LEU:HD12 | 2.08 | 0.83 |
| 1:A:1021:A:C2 | 1:A:1122:G:H4' | 2.11 | 0.83 |
| 1:A:111:A:H2' | 1:A:112:U:C6 | 2.14 | 0.83 |
| 1:A:1567:A:N3 | 1:A:1567:A:H3' | 1.93 | 0.83 |
| 1:A:2091:U:H2' | 1:A:2092:U:H5' | 1.59 | 0.83 |
| 1:A:2224:G:H4' | 4:D:262:ARG:HH12 | 1.44 | 0.83 |
| 1:A:2289:G:H5' | 1:A:2384:G:H1' | 1.61 | 0.83 |
| 1:A:2408:U:O5' | 1:A:2408:U:C6 | 2.32 | 0.83 |
| 1:A:666:G:H5' | 13:O:45:LEU:HD12 | 1.59 | 0.83 |
| 1:A:569:U:H1' | 1:A:947:G:O4' | 1.79 | 0.83 |
| 4:D:93:ALA:HB3 | 4:D:105:ILE:O | 1.78 | 0.83 |
| 5:E:197:ILE:HD12 | 5:E:197:ILE:N | 1.93 | 0.83 |
| 7:G:92:VAL:CG1 | 7:G:94:LEU:HD22 | 2.08 | 0.83 |
| 8:H:149:ARG:HA | 8:H:162:ILE:HG21 | 1.60 | 0.83 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 8:H:59:ARG:HA | 8:H:62:LYS:CD | 2.09 | 0.83 |
| 13:O:126:VAL:HG23 | 13:O:146:VAL:O | 1.78 | 0.83 |
| 16:R:106:ARG:HH22 | 16:R:110:LEU:HB3 | 1.43 | 0.83 |
| 17:S:44:ASP:O | 17:S:46:GLU:N | 2.11 | 0.83 |
| 18:T:93:LYS:HB2 | 19:U:10:LYS:HD2 | 1.59 | 0.83 |
| 29:5:30:THR:HB | 29:5:31:PRO:HD3 | 1.61 | 0.83 |
| 30:6:22:MET:HA | 30:6:28:ARG:HG3 | 1.60 | 0.83 |
| 1:A:1012:U:H5' | 1:A:1013:C:OP1 | 1.78 | 0.83 |
| 1:A:1915:U:H3' | 1:A:1915:U:OP2 | 1.79 | 0.83 |
| 1:A:1955:U:H5' | 1:A:1956:U:O4 | 1.78 | 0.83 |
| 1:A:2637:U:H5'' | 5:E:81:ILE:CD1 | 2.03 | 0.83 |
| 1:A:2720:U:C3' | 1:A:2721:A:H8 | 1.91 | 0.83 |
| 1:A:364:C:H2' | 1:A:365:C:H6 | 1.43 | 0.83 |
| 1:A:95:G:H2' | 25:1:43:HIS:CE1 | 2.13 | 0.83 |
| 4:D:136:ILE:HG22 | 4:D:138:VAL:H | 1.43 | 0.83 |
| 1:A:1791:A:H4' | 4:D:206:LEU:HD21 | 1.61 | 0.83 |
| 5:E:131:ALA:HA | 5:E:134:ILE:HG13 | 1.59 | 0.83 |
| 5:E:141:ILE:HD12 | 5:E:150:VAL:CG2 | 2.09 | 0.83 |
| 5:E:55:ASN:HA | 5:E:58:ARG:NH2 | 1.93 | 0.83 |
| 6:F:64:ILE:O | 6:F:65:TRP:O | 1.97 | 0.83 |
| 1:A:2748:A:N3 | 8:H:67:LEU:HD11 | 1.92 | 0.83 |
| 13:O:47:ASP:HB3 | 13:O:48:PRO:HD3 | 1.60 | 0.83 |
| 18:T:50:ARG:CZ | 18:T:50:ARG:HB2 | 2.09 | 0.83 |
| 19:U:36:PRO:CA | 19:U:61:VAL:HG22 | 2.07 | 0.83 |
| 1:A:565:C:H5'' | 19:U:82:ARG:HH21 | 1.41 | 0.83 |
| 25:1:28:MET:HG2 | 25:1:32:PHE:CE1 | 2.14 | 0.83 |
| 27:3:28:LYS:HB3 | 27:3:29:PRO:CD | 2.09 | 0.83 |
| 1:A:1329:U:H5' | 1:A:1330:C:H5 | 1.44 | 0.83 |
| 1:A:1526:G:H21 | 1:A:1545(A):A:H62 | 1.24 | 0.83 |
| 1:A:1937:A:H62 | 1:A:1939:U:H5 | 1.17 | 0.83 |
| 1:A:2448:A:P | 1:A:2498:C:O5' | 2.36 | 0.83 |
| 1:A:270(B):A:H4' | 1:A:270(C):C:H6 | 1.37 | 0.83 |
| 1:A:332:A:C2' | 1:A:335:C:H41 | 1.91 | 0.83 |
| 1:A:792:G:H21 | 1:A:2072:G:H1' | 1.42 | 0.83 |
| 4:D:155:LEU:HA | 4:D:157:ARG:HH21 | 1.43 | 0.83 |
| 1:A:1791:A:O4' | 4:D:209:ALA:HA | 1.77 | 0.83 |
| 4:D:52:ARG:N | 4:D:52:ARG:HD3 | 1.88 | 0.83 |
| 4:D:7:LYS:HZ2 | 4:D:91:ARG:NH1 | 1.75 | 0.83 |
| 5:E:101:ARG:CD | 5:E:169:ASN:HD21 | 1.92 | 0.83 |
| 5:E:8:LYS:HE2 | 5:E:8:LYS:CA | 2.07 | 0.83 |
| 6:F:34:TRP:HB3 | 6:F:38:ARG:CZ | 2.09 | 0.83 |
| 7:G:78:SER:HB3 | 7:G:82:LEU:CG | 2.08 | 0.83 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:L:104:VAL:HG22 | 10:L:127:ILE:HG21 | 1.61 | 0.83 |
| 11:M:22:THR:HG22 | 11:M:61:ARG:NH2 | 1.94 | 0.83 |
| 13:O:128:HIS:HB3 | 13:O:147:LEU:HD21 | 1.58 | 0.83 |
| 13:O:76:LYS:HG3 | 13:O:101:VAL:HG11 | 1.60 | 0.83 |
| 15:Q:113:LEU:C | 15:Q:113:LEU:HD13 | 1.98 | 0.83 |
| 20:V:11:ARG:HB2 | 20:V:98:LYS:NZ | 1.94 | 0.83 |
| 23:Y:156:LYS:HA | 23:Y:156:LYS:HE3 | 1.61 | 0.83 |
| 23:Y:6:LYS:HG2 | 23:Y:37:VAL:HG13 | 1.59 | 0.83 |
| 24:Z:28:GLY:O | 24:Z:66:VAL:HG22 | 1.79 | 0.83 |
| 1:A:2125:G:N2 | 1:A:2173:A:H62 | 1.77 | 0.83 |
| 1:A:987:G:P | 26:2:13:ILE:HG21 | 2.19 | 0.83 |
| 27:3:22:ILE:HB | 27:3:27:THR:HB | 1.59 | 0.83 |
| 1:A:1700:A:H3' | 1:A:1701:A:O4' | 1.78 | 0.83 |
| 1:A:1777:U:C2' | 1:A:1778:U:H5' | 2.09 | 0.83 |
| 1:A:1779:U:O5' | 1:A:1779:U:H6 | 1.60 | 0.83 |
| 1:A:2010:G:C2' | 1:A:2011:U:H5' | 2.09 | 0.83 |
| 1:A:2314:C:H5' | 7:G:38:VAL:HG21 | 1.61 | 0.83 |
| 1:A:2682:U:O2 | 5:E:12:THR:HG22 | 1.78 | 0.83 |
| 1:A:295:G:C2' | 1:A:296:C:H5' | 2.09 | 0.83 |
| 1:A:298:G:H8 | 1:A:298:G:O5' | 1.60 | 0.83 |
| 1:A:574:C:H5 | 1:A:2054:A:O3' | 1.61 | 0.83 |
| 1:A:654:A:N3 | 1:A:654:A:H2' | 1.93 | 0.83 |
| 4:D:33:LEU:HD11 | 4:D:61:LEU:CD1 | 2.08 | 0.83 |
| 4:D:59:LYS:HZ2 | 4:D:59:LYS:C | 1.82 | 0.83 |
| 4:D:7:LYS:HB2 | 4:D:27:THR:OG1 | 1.79 | 0.83 |
| 8:H:107:VAL:HG13 | 8:H:152:ARG:HG2 | 1.61 | 0.83 |
| 14:P:28:ALA:O | 14:P:29:PHE:HB2 | 1.78 | 0.83 |
| 17:S:105:LEU:HD12 | 17:S:106:SER:N | 1.93 | 0.83 |
| 21:W:61:GLY:HA3 | 21:W:73:ARG:HB3 | 1.59 | 0.83 |
| 23:Y:39:VAL:HG21 | 23:Y:86:VAL:CG2 | 2.09 | 0.83 |
| 24:Z:46:LYS:HB2 | 24:Z:78:TYR:CD2 | 2.13 | 0.83 |
| 9:K:108:THR:O | 9:K:109:ILE:HD12 | 1.78 | 0.83 |
| 1:A:2124:G:H2' | 3:C:217:THR:CG2 | 2.08 | 0.83 |
| 32:8:1:MET:H3 | 32:8:33:LYS:CB | 1.91 | 0.82 |
| 1:A:1310:G:H2' | 1:A:1311:G:O4' | 1.79 | 0.82 |
| 1:A:1460:A:N1 | 1:A:1732:A:N1 | 2.26 | 0.82 |
| 1:A:1466:G:C2' | 1:A:1547:C:H41 | 1.91 | 0.82 |
| 1:A:1521:G:H3' | 1:A:1522:G:C5' | 2.07 | 0.82 |
| 1:A:2461:C:C1' | 1:A:2492:U:C5 | 2.61 | 0.82 |
| 1:A:270(Z):U:C3' | 1:A:271(A):C:C5' | 2.55 | 0.82 |
| 1:A:2746:U:O4 | 1:A:2756:U:H5 | 1.62 | 0.82 |
| 1:A:2815:C:O2' | 1:A:2816:C:H5' | 1.78 | 0.82 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:574:C:N4 | 1:A:2054:A:H5'' | 1.93 | 0.82 |
| 1:A:70:G:H5'' | 1:A:71:A:OP1 | 1.78 | 0.82 |
| 1:A:729:G:C3' | 1:A:730:C:H4' | 2.08 | 0.82 |
| 4:D:39:LYS:HD2 | 4:D:39:LYS:N | 1.95 | 0.82 |
| 5:E:91:VAL:CG1 | 5:E:93:VAL:HG22 | 2.09 | 0.82 |
| 7:G:18:GLU:HB3 | 7:G:19:LEU:HD12 | 1.60 | 0.82 |
| 7:G:76:SER:O | 7:G:83:ARG:HG3 | 1.78 | 0.82 |
| 9:K:4:ILE:HD11 | 9:K:39:ALA:H | 1.42 | 0.82 |
| 12:N:105:GLU:C | 12:N:111:PHE:HZ | 1.81 | 0.82 |
| 14:P:8:LYS:HD3 | 14:P:11:LYS:HZ2 | 1.44 | 0.82 |
| 15:Q:55:ALA:HB2 | 15:Q:79:LEU:HD11 | 1.60 | 0.82 |
| 17:S:65:LYS:CG | 17:S:75:ILE:HB | 2.09 | 0.82 |
| 19:U:27:ALA:HB1 | 19:U:33:VAL:CG1 | 2.08 | 0.82 |
| 19:U:81:TYR:O | 19:U:82:ARG:HB2 | 1.77 | 0.82 |
| 22:X:88:LYS:HB3 | 22:X:91:GLU:CD | 1.99 | 0.82 |
| 9:K:69:LYS:NZ | 9:K:70:LYS:HE2 | 1.94 | 0.82 |
| 9:K:59:ALA:O | 9:K:62:LYS:HB2 | 1.79 | 0.82 |
| 27:3:5:ILE:HD12 | 27:3:8:LYS:O | 1.78 | 0.82 |
| 29:5:14:THR:HB | 29:5:51:GLU:CG | 2.03 | 0.82 |
| 1:A:1203:G:C5 | 1:A:1241:A:C8 | 2.66 | 0.82 |
| 1:A:1312:U:H2' | 1:A:1313:U:H6 | 1.36 | 0.82 |
| 1:A:1504:C:H2' | 1:A:1505:C:H6 | 1.44 | 0.82 |
| 1:A:1729:A:N7 | 1:A:1731:G:O6 | 2.12 | 0.82 |
| 1:A:197:A:H3' | 1:A:198:C:C5 | 2.14 | 0.82 |
| 1:A:2020:A:H2' | 1:A:2021:C:C5' | 2.09 | 0.82 |
| 1:A:184:C:O3' | 1:A:217:G:N2 | 2.12 | 0.82 |
| 1:A:2213:U:C5' | 1:A:2215:G:N7 | 2.42 | 0.82 |
| 1:A:2346:A:H62 | 29:5:37:ARG:NH1 | 1.74 | 0.82 |
| 1:A:2626:C:H2' | 1:A:2627:G:C8 | 2.11 | 0.82 |
| 1:A:602:G:H21 | 1:A:655:A:H2' | 1.43 | 0.82 |
| 1:A:728:G:H5' | 4:D:16:MET:SD | 2.19 | 0.82 |
| 1:A:729:G:C4 | 1:A:730:C:H1' | 2.13 | 0.82 |
| 4:D:63:ARG:HB2 | 4:D:63:ARG:NH1 | 1.93 | 0.82 |
| 5:E:133:LYS:HD2 | 5:E:137:HIS:CG | 2.14 | 0.82 |
| 5:E:4:ILE:H | 5:E:27:LEU:CD2 | 1.91 | 0.82 |
| 10:L:54:PRO:HG3 | 10:L:73:PRO:HD3 | 1.59 | 0.82 |
| 1:A:1007:C:H4' | 11:M:108:PRO:HD3 | 1.58 | 0.82 |
| 12:N:111:PHE:O | 12:N:114:ILE:N | 2.13 | 0.82 |
| 15:Q:99:LYS:HG2 | 28:4:43:HIS:NE2 | 1.95 | 0.82 |
| 16:R:15:ARG:HG2 | 16:R:15:ARG:NH2 | 1.89 | 0.82 |
| 18:T:32:PHE:O | 18:T:35:ALA:HB3 | 1.79 | 0.82 |
| 20:V:4:LYS:HA | 20:V:106:ILE:CD1 | 2.09 | 0.82 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 23:Y:122:ARG:CG | 23:Y:171:ILE:HA | 2.09 | 0.82 |
| 1:A:2168:G:N2 | 1:A:2170:A:H3' | 1.93 | 0.82 |
| 3:C:135:GLY:C | 3:C:136:LEU:HD23 | 1.98 | 0.82 |
| 3:C:183:GLU:CD | 3:C:183:GLU:H | 1.82 | 0.82 |
| 26:2:20:LYS:O | 26:2:23:LEU:HB2 | 1.79 | 0.82 |
| 27:3:46:GLN:HG2 | 27:3:47:GLN:N | 1.94 | 0.82 |
| 1:A:469:G:N2 | 30:6:40:TRP:CZ2 | 2.43 | 0.82 |
| 1:A:1125:G:H4' | 32:8:4:ARG:HB3 | 1.59 | 0.82 |
| 1:A:1203:G:N3 | 1:A:1203:G:C2' | 2.42 | 0.82 |
| 1:A:2261:C:O2' | 1:A:2262:U:H5' | 1.79 | 0.82 |
| 1:A:531:C:H42 | 18:T:38:THR:HG22 | 1.43 | 0.82 |
| 1:A:832:G:H2' | 1:A:833:U:C6 | 2.14 | 0.82 |
| 1:A:87:C:H5'' | 1:A:88:G:H5'' | 1.59 | 0.82 |
| 5:E:152:LYS:HE2 | 11:M:77:GLY:O | 1.78 | 0.82 |
| 5:E:8:LYS:HB3 | 5:E:24:THR:HB | 1.58 | 0.82 |
| 6:F:116:ASP:O | 6:F:119:ARG:HD2 | 1.79 | 0.82 |
| 7:G:132:ASN:O | 7:G:133:LEU:HB2 | 1.79 | 0.82 |
| 7:G:57:ALA:HA | 7:G:68:PRO:N | 1.95 | 0.82 |
| 8:H:11:VAL:HG11 | 8:H:45:VAL:HG13 | 1.62 | 0.82 |
| 12:N:21:CYS:SG | 12:N:39:ILE:HB | 2.19 | 0.82 |
| 1:A:244:A:O2' | 13:O:66:GLY:HA2 | 1.79 | 0.82 |
| 14:P:134:ARG:HD2 | 14:P:135:ASP:N | 1.93 | 0.82 |
| 16:R:75:GLU:O | 16:R:78:LEU:HB3 | 1.79 | 0.82 |
| 19:U:6:LYS:HB3 | 19:U:10:LYS:HA | 1.61 | 0.82 |
| 1:A:566:U:H5' | 19:U:82:ARG:HH12 | 1.42 | 0.82 |
| 22:X:42:VAL:H | 22:X:61:ILE:HB | 1.43 | 0.82 |
| 23:Y:139:VAL:HG12 | 23:Y:140:ASP:H | 1.43 | 0.82 |
| 2:B:76:G:OP1 | 23:Y:36:LYS:HD3 | 1.79 | 0.82 |
| 9:K:93:THR:HG22 | 9:K:96:ASP:CG | 1.98 | 0.82 |
| 29:5:30:THR:HB | 29:5:31:PRO:CD | 2.10 | 0.82 |
| 29:5:25:LYS:HE2 | 31:7:35:GLN:CG | 2.09 | 0.82 |
| 32:8:2:LYS:HG2 | 32:8:35:ARG:CB | 2.07 | 0.82 |
| 1:A:1718:G:N7 | 1:A:1725:G:N7 | 2.27 | 0.82 |
| 1:A:1878:G:H2' | 1:A:1879:C:H6 | 1.44 | 0.82 |
| 1:A:1135:C:HO2' | 1:A:2038:G:HO2' | 1.12 | 0.82 |
| 1:A:2320:A:N6 | 16:R:4:LEU:HD21 | 1.94 | 0.82 |
| 1:A:373:U:H4' | 1:A:374:A:H8 | 1.41 | 0.82 |
| 11:M:100:GLU:OE2 | 11:M:100:GLU:HA | 1.78 | 0.82 |
| 14:P:109:VAL:HG11 | 14:P:114:ALA:N | 1.95 | 0.82 |
| 14:P:16:ARG:C | 14:P:17:LEU:HD12 | 2.00 | 0.82 |
| 14:P:51:ARG:HB2 | 14:P:51:ARG:CZ | 2.08 | 0.82 |
| 14:P:75:THR:HG23 | 14:P:91:GLU:CD | 2.00 | 0.82 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 15:Q:54:LEU:HA | 15:Q:57:ARG:HB2 | 1.59 | 0.82 |
| 16:R:49:VAL:HG13 | 16:R:76:LYS:HZ3 | 1.44 | 0.82 |
| 1:A:996:A:H5' | 18:T:93:LYS:HD2 | 1.61 | 0.82 |
| 21:W:50:LYS:NZ | 21:W:87:GLN:HB2 | 1.93 | 0.82 |
| 24:Z:21:LEU:HD13 | 24:Z:41:ARG:HG2 | 1.60 | 0.82 |
| 9:K:114:LEU:CA | 9:K:130:TYR:HB3 | 2.10 | 0.82 |
| 1:A:1300:U:H2' | 1:A:1626:G:C2 | 2.14 | 0.82 |
| 1:A:1690:A:N6 | 1:A:1697:G:H21 | 1.76 | 0.82 |
| 1:A:1940:U:C5' | 1:A:1941:C:H5' | 2.09 | 0.82 |
| 1:A:2636:U:C4' | 5:E:79:ARG:HD3 | 2.10 | 0.82 |
| 1:A:2653:U:H3' | 1:A:2654:A:H8 | 1.45 | 0.82 |
| 1:A:603:A:N6 | 13:O:104:GLY:HA2 | 1.94 | 0.82 |
| 4:D:136:ILE:HD13 | 4:D:173:VAL:HG11 | 1.60 | 0.82 |
| 4:D:37:LEU:HD13 | 4:D:64:ILE:N | 1.93 | 0.82 |
| 4:D:51:VAL:CG1 | 4:D:52:ARG:HD2 | 2.09 | 0.82 |
| 5:E:105:THR:OG1 | 5:E:165:VAL:O | 1.96 | 0.82 |
| 5:E:170:LEU:HD12 | 5:E:186:GLY:HA3 | 1.60 | 0.82 |
| 14:P:64:ILE:HG22 | 14:P:106:VAL:O | 1.80 | 0.82 |
| 14:P:51:ARG:HH21 | 14:P:55:VAL:CG2 | 1.93 | 0.82 |
| 16:R:14:VAL:O | 16:R:17:ARG:HB3 | 1.79 | 0.82 |
| 16:R:26:LEU:HD22 | 16:R:27:SER:N | 1.95 | 0.82 |
| 16:R:52:SER:OG | 16:R:69:VAL:HG13 | 1.79 | 0.82 |
| 19:U:43:GLU:O | 19:U:43:GLU:OE1 | 1.96 | 0.82 |
| 19:U:74:LYS:H | 19:U:74:LYS:HD3 | 1.41 | 0.82 |
| 21:W:27:THR:HG22 | 21:W:80:ILE:CG2 | 2.09 | 0.82 |
| 22:X:97:ARG:CZ | 22:X:101:LYS:HG2 | 2.09 | 0.82 |
| 3:C:46:LYS:HD3 | 3:C:210:ARG:HB2 | 1.61 | 0.82 |
| 3:C:81:GLU:HG3 | 3:C:82:LYS:N | 1.94 | 0.82 |
| 25:1:2:ARG:O | 25:1:5:LEU:HB3 | 1.80 | 0.82 |
| 28:4:42:PRO:O | 28:4:43:HIS:HB3 | 1.80 | 0.82 |
| 1:A:1213:A:C6 | 1:A:1237:A:H1' | 2.14 | 0.82 |
| 1:A:1454:U:O2 | 1:A:1454:U:H2' | 1.78 | 0.82 |
| 1:A:1847:A:N1 | 1:A:1851:U:O4 | 2.12 | 0.82 |
| 1:A:209:C:O2' | 1:A:210:C:H5' | 1.80 | 0.82 |
| 1:A:2639:A:N3 | 1:A:2639:A:H2' | 1.93 | 0.82 |
| 1:A:386:G:N3 | 1:A:386:G:H2' | 1.95 | 0.82 |
| 1:A:467:G:H2' | 1:A:468:G:H5' | 1.62 | 0.82 |
| 4:D:132:PRO:HA | 4:D:189:CYS:O | 1.79 | 0.82 |
| 4:D:146:GLU:HG2 | 4:D:154:LYS:HE3 | 1.61 | 0.82 |
| 9:K:37:VAL:CG1 | 9:K:38:LEU:H | 1.92 | 0.82 |
| 10:L:78:ILE:CD1 | 10:L:127:ILE:HG23 | 2.09 | 0.82 |
| 11:M:90:MET:HE1 | 11:M:98:VAL:HG13 | 1.62 | 0.82 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 12:N:25:LEU:HD21 | 12:N:38:VAL:HG23 | 1.62 | 0.82 |
| 13:O:93:GLY:H | 13:O:112:LEU:CD1 | 1.92 | 0.82 |
| 16:R:106:ARG:HH12 | 16:R:110:LEU:CB | 1.91 | 0.82 |
| 11:M:4:TYR:CB | 18:T:64:ARG:HH12 | 1.90 | 0.82 |
| 21:W:54:VAL:HG22 | 21:W:81:VAL:HB | 1.62 | 0.82 |
| 23:Y:19:ARG:HG3 | 23:Y:24:LEU:HG | 1.61 | 0.82 |
| 9:K:76:THR:CA | 9:K:141:LYS:HE2 | 2.10 | 0.82 |
| 1:A:2150:U:H2' | 1:A:2151:G:H8 | 1.43 | 0.82 |
| 3:C:32:LEU:HD22 | 3:C:220:PRO:HG2 | 1.62 | 0.82 |
| 9:K:57:ARG:HD2 | 9:K:61:ARG:HH22 | 1.44 | 0.82 |
| 25:1:37:GLY:HA3 | 25:1:41:GLN:HE21 | 1.44 | 0.82 |
| 29:5:20:ASN:ND2 | 29:5:43:CYS:SG | 2.52 | 0.82 |
| 31:7:25:MET:HE3 | 31:7:44:LYS:HD3 | 1.60 | 0.82 |
| 1:A:1149:G:O2' | 1:A:1150:C:H5' | 1.79 | 0.82 |
| 1:A:2014:A:C2' | 1:A:2015:A:C2 | 2.60 | 0.82 |
| 1:A:2519:U:OP1 | 1:A:2519:U:H3' | 1.78 | 0.82 |
| 1:A:2554:U:H5 | 1:A:2556:C:N3 | 1.76 | 0.82 |
| 1:A:2808:U:C3' | 1:A:2809:A:H5'' | 2.09 | 0.82 |
| 1:A:2865:U:C4 | 1:A:2866:U:H5 | 1.98 | 0.82 |
| 1:A:724:U:O2' | 1:A:725:G:H5' | 1.78 | 0.82 |
| 4:D:136:ILE:HD12 | 4:D:168:ARG:NH1 | 1.93 | 0.82 |
| 5:E:5:LEU:CD2 | 5:E:25:VAL:HG12 | 2.07 | 0.82 |
| 6:F:121:GLY:O | 6:F:191:ARG:HG3 | 1.80 | 0.82 |
| 8:H:35:VAL:HG12 | 8:H:71:LEU:HG | 1.59 | 0.82 |
| 10:L:10:LEU:HD13 | 10:L:27:LEU:HD21 | 1.59 | 0.82 |
| 11:M:100:GLU:HB3 | 11:M:104:LYS:CE | 2.10 | 0.82 |
| 12:N:12:ASP:HA | 12:N:94:ARG:HD2 | 1.60 | 0.82 |
| 1:A:1218:C:OP2 | 18:T:15:LYS:HE3 | 1.80 | 0.82 |
| 19:U:28:GLU:HB3 | 19:U:94:LEU:CD1 | 2.04 | 0.82 |
| 19:U:76:LYS:HG2 | 19:U:86:GLY:CA | 2.08 | 0.82 |
| 1:A:1338:G:O2' | 1:A:1339:G:H5' | 1.79 | 0.82 |
| 1:A:1939:U:H1' | 1:A:2592:G:C1' | 2.10 | 0.82 |
| 1:A:2602:A:H3' | 1:A:2602:A:OP1 | 1.79 | 0.82 |
| 1:A:343:C:C2' | 1:A:344:G:H5' | 2.10 | 0.82 |
| 1:A:397:G:P | 27:3:41:PRO:HG3 | 2.19 | 0.82 |
| 1:A:511:U:C5 | 1:A:512:G:N3 | 2.48 | 0.82 |
| 4:D:242:ARG:O | 4:D:243:GLY:C | 2.18 | 0.82 |
| 5:E:117:MET:HG2 | 5:E:136:ARG:NE | 1.95 | 0.82 |
| 5:E:13:ARG:NH2 | 5:E:20:ALA:HB3 | 1.95 | 0.82 |
| 5:E:60:ASN:CA | 5:E:63:LEU:HD12 | 2.04 | 0.82 |
| 7:G:111:LEU:HB3 | 7:G:112:PRO:HD3 | 1.60 | 0.82 |
| 7:G:130:ASN:O | 7:G:159:VAL:HG23 | 1.79 | 0.82 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:L:10:LEU:CD1 | 10:L:12:LEU:HD11 | 2.09 | 0.82 |
| 11:M:88:GLU:HB2 | 11:M:89:LYS:HZ1 | 1.43 | 0.82 |
| 13:O:96:THR:O | 13:O:102:ARG:HD3 | 1.80 | 0.82 |
| 14:P:54:MET:CE | 14:P:118:LEU:HD23 | 2.09 | 0.82 |
| 14:P:42:ILE:HG23 | 14:P:47:ILE:HD11 | 1.59 | 0.82 |
| 17:S:99:LEU:HD22 | 17:S:99:LEU:N | 1.94 | 0.82 |
| 18:T:101:ARG:HD2 | 19:U:13:ARG:NH1 | 1.95 | 0.82 |
| 23:Y:27:VAL:CG2 | 23:Y:85:HIS:HE1 | 1.54 | 0.82 |
| 27:3:7:PRO:HG2 | 27:3:60:GLN:OE1 | 1.80 | 0.82 |
| 32:8:17:ILE:HD12 | 32:8:26:ILE:HD12 | 1.62 | 0.82 |
| 1:A:1507:A:H2' | 1:A:1507:A:N3 | 1.94 | 0.82 |
| 1:A:1527:G:H3' | 1:A:1527:G:C8 | 2.15 | 0.82 |
| 1:A:752:A:H62 | 1:A:1781:C:C1' | 1.92 | 0.82 |
| 1:A:1949:G:O2' | 1:A:1950:G:H5' | 1.78 | 0.82 |
| 1:A:2013:A:H2' | 1:A:2014:A:O4' | 1.80 | 0.82 |
| 1:A:2492:U:O2 | 1:A:2492:U:C2' | 2.28 | 0.82 |
| 1:A:2031:A:N6 | 1:A:2498:C:C2 | 2.46 | 0.82 |
| 1:A:2756:U:O2' | 1:A:2757:A:C5' | 2.27 | 0.82 |
| 1:A:2861:G:H2' | 1:A:2862:G:C8 | 2.13 | 0.82 |
| 1:A:402:A:H2' | 1:A:402:A:N3 | 1.95 | 0.82 |
| 1:A:672:C:H2' | 1:A:673:C:C6 | 2.14 | 0.82 |
| 1:A:744:G:H2' | 1:A:745:G:C8 | 2.14 | 0.82 |
| 1:A:951:C:O2' | 1:A:952:G:H5' | 1.78 | 0.82 |
| 4:D:120:GLY:O | 4:D:122:ASP:N | 2.12 | 0.82 |
| 4:D:95:LEU:HB2 | 4:D:105:ILE:HG21 | 1.59 | 0.82 |
| 5:E:51:PHE:HE1 | 5:E:75:VAL:H | 1.24 | 0.82 |
| 7:G:11:TYR:O | 7:G:15:VAL:HG13 | 1.79 | 0.82 |
| 7:G:56:ALA:O | 7:G:60:LEU:HD23 | 1.80 | 0.82 |
| 8:H:51:ARG:HG3 | 8:H:53:GLU:OE1 | 1.79 | 0.82 |
| 13:O:15:ARG:CZ | 13:O:16:ARG:N | 2.43 | 0.82 |
| 14:P:22:LYS:HG3 | 14:P:23:GLY:H | 1.43 | 0.82 |
| 15:Q:73:VAL:HG23 | 15:Q:74:LYS:H | 1.44 | 0.82 |
| 18:T:111:GLU:HA | 18:T:114:LYS:CE | 2.09 | 0.82 |
| 20:V:13:SER:CB | 20:V:16:LYS:HE2 | 2.10 | 0.82 |
| 22:X:21:LYS:HB2 | 22:X:23:ARG:NH1 | 1.93 | 0.82 |
| 23:Y:25:PRO:HG2 | 23:Y:85:HIS:HA | 1.60 | 0.82 |
| 3:C:180:PHE:CE2 | 3:C:184:LYS:HD3 | 2.14 | 0.82 |
| 3:C:209:LEU:CD1 | 3:C:226:PRO:HG3 | 2.10 | 0.82 |
| 3:C:86:ALA:CA | 3:C:150:GLY:HA2 | 2.07 | 0.82 |
| 27:3:65:ASP:HA | 27:3:68:ARG:HH12 | 1.42 | 0.82 |
| 1:A:1059:G:C2' | 10:L:74:ALA:HB2 | 2.10 | 0.82 |
| 1:A:1546:C:H4' | 1:A:1547:C:H5 | 1.45 | 0.82 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1669:A:N3 | 1:A:1669:A:H2' | 1.93 | 0.82 |
| 1:A:1799:G:H8 | 4:D:268:ARG:HH12 | 0.87 | 0.82 |
| 1:A:1999:C:C2' | 1:A:2000:G:O5' | 2.28 | 0.82 |
| 1:A:2083:G:H2' | 1:A:2084:C:C6 | 2.14 | 0.82 |
| 1:A:2291:U:H2' | 1:A:2292:C:H6 | 1.45 | 0.82 |
| 1:A:2447:G:O2' | 1:A:2448:A:OP2 | 1.97 | 0.82 |
| 1:A:296:C:H6 | 1:A:338:G:N2 | 1.77 | 0.82 |
| 1:A:746:A:H2' | 1:A:2611:U:O2' | 1.80 | 0.82 |
| 4:D:176:ARG:NH1 | 4:D:182:LEU:HD11 | 1.94 | 0.82 |
| 4:D:232:PRO:CG | 4:D:247:ALA:HA | 2.10 | 0.82 |
| 5:E:109:LYS:HG2 | 5:E:191:PRO:HG3 | 1.62 | 0.82 |
| 6:F:133:ASN:HB3 | 6:F:162:LEU:HD22 | 1.61 | 0.82 |
| 7:G:75:LYS:CD | 7:G:85:GLY:H | 1.93 | 0.82 |
| 15:Q:105:ARG:NE | 15:Q:105:ARG:HA | 1.95 | 0.82 |
| 23:Y:102:LEU:HB2 | 23:Y:123:ASP:O | 1.79 | 0.82 |
| 3:C:131:LEU:O | 3:C:134:ARG:NH1 | 2.12 | 0.82 |
| 1:A:1579:A:N6 | 1:A:1581:G:N2 | 2.26 | 0.82 |
| 1:A:2097:C:C2' | 1:A:2098:U:H5' | 2.09 | 0.82 |
| 26:2:4:LEU:CD2 | 26:2:37:LEU:HD13 | 2.10 | 0.81 |
| 29:5:20:ASN:ND2 | 29:5:43:CYS:H | 1.76 | 0.81 |
| 29:5:16:CYS:HB2 | 29:5:49:HIS:CA | 2.09 | 0.81 |
| 1:A:1335:U:OP2 | 21:W:65:ARG:NE | 2.11 | 0.81 |
| 1:A:1479:G:H2' | 1:A:1480:G:C8 | 2.15 | 0.81 |
| 1:A:1464:C:C4' | 1:A:1528:A:O2' | 2.25 | 0.81 |
| 1:A:1784:A:H1' | 1:A:1785:A:C8 | 2.13 | 0.81 |
| 1:A:2784:C:H2' | 1:A:2785:C:C6 | 2.14 | 0.81 |
| 1:A:292:C:H2' | 1:A:293:U:C2 | 2.15 | 0.81 |
| 1:A:527:C:H1' | 1:A:528:A:N1 | 1.95 | 0.81 |
| 1:A:563:G:H1 | 1:A:578:A:N6 | 1.77 | 0.81 |
| 1:A:670:A:H4' | 1:A:671:C:H5' | 1.61 | 0.81 |
| 1:A:730:C:C3' | 1:A:731:C:H5' | 2.10 | 0.81 |
| 1:A:959:A:N6 | 1:A:960:A:N6 | 2.27 | 0.81 |
| 2:B:28:C:H6 | 2:B:28:C:O5' | 1.61 | 0.81 |
| 4:D:175:LEU:C | 4:D:182:LEU:HD23 | 1.99 | 0.81 |
| 1:A:1798:U:H5'' | 4:D:257:LEU:HB2 | 1.61 | 0.81 |
| 6:F:118:ALA:HA | 6:F:122:LYS:HZ3 | 1.44 | 0.81 |
| 6:F:152:GLU:HA | 6:F:152:GLU:OE2 | 1.78 | 0.81 |
| 7:G:37:VAL:HG13 | 7:G:159:VAL:HG12 | 1.60 | 0.81 |
| 7:G:53:LEU:HD11 | 7:G:72:ARG:HB2 | 1.62 | 0.81 |
| 8:H:68:THR:O | 8:H:72:ILE:HG12 | 1.80 | 0.81 |
| 10:L:17:ALA:HB1 | 10:L:38:VAL:HG13 | 1.62 | 0.81 |
| 12:N:2:ILE:HG21 | 12:N:32:TYR:HB3 | 1.61 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 13:O:127:ALA:O | 13:O:147:LEU:HD21 | 1.79 | 0.81 |
| 15:Q:61:HIS:O | 15:Q:64:ARG:CD | 2.28 | 0.81 |
| 15:Q:61:HIS:O | 15:Q:64:ARG:HD3 | 1.80 | 0.81 |
| 16:R:62:LYS:HB3 | 16:R:65:VAL:HB | 1.61 | 0.81 |
| 16:R:69:VAL:O | 16:R:73:LEU:HD13 | 1.79 | 0.81 |
| 18:T:102:GLU:CB | 18:T:105:VAL:HB | 2.10 | 0.81 |
| 19:U:65:GLY:O | 19:U:66:ARG:HG2 | 1.80 | 0.81 |
| 5:E:127:ASP:HB2 | 5:E:135:HIS:CA | 2.07 | 0.81 |
| 25:1:27:LEU:HA | 25:1:30:LEU:CG | 2.09 | 0.81 |
| 27:3:47:GLN:CA | 27:3:52:THR:OG1 | 2.28 | 0.81 |
| 27:3:48:ARG:N | 27:3:52:THR:OG1 | 2.12 | 0.81 |
| 31:7:14:VAL:HG12 | 31:7:22:VAL:HG11 | 1.61 | 0.81 |
| 1:A:1225:C:O2' | 1:A:1226:G:H5' | 1.79 | 0.81 |
| 1:A:1451:C:H3' | 1:A:1453:A:H4' | 1.62 | 0.81 |
| 1:A:1882:C:H2' | 1:A:1883:G:C4' | 2.10 | 0.81 |
| 1:A:1904:G:O2' | 1:A:1905:C:H5' | 1.79 | 0.81 |
| 1:A:2413:G:C2 | 1:A:2414:G:H1' | 2.14 | 0.81 |
| 1:A:292:C:C6 | 1:A:293:U:O4 | 2.33 | 0.81 |
| 1:A:30:G:H2' | 1:A:31:C:H6 | 1.42 | 0.81 |
| 1:A:324:A:H2 | 1:A:325:G:C1' | 1.92 | 0.81 |
| 1:A:606:U:OP1 | 6:F:103:LYS:N | 2.12 | 0.81 |
| 6:F:142:TRP:HA | 6:F:145:GLU:CG | 2.09 | 0.81 |
| 8:H:149:ARG:HG2 | 8:H:153:LYS:CD | 2.10 | 0.81 |
| 8:H:7:LEU:HB2 | 8:H:52:VAL:HG13 | 1.62 | 0.81 |
| 10:L:72:PRO:HG2 | 10:L:111:LYS:HZ2 | 1.45 | 0.81 |
| 1:A:804:A:H62 | 13:O:39:LYS:NZ | 1.76 | 0.81 |
| 15:Q:17:ARG:HB2 | 15:Q:17:ARG:HH11 | 1.45 | 0.81 |
| 16:R:37:ALA:O | 16:R:51:ALA:CB | 2.27 | 0.81 |
| 20:V:13:SER:O | 20:V:17:VAL:HG13 | 1.80 | 0.81 |
| 1:A:2254:C:O2 | 24:Z:7:LEU:HD11 | 1.80 | 0.81 |
| 1:A:2177:C:H5'' | 3:C:213:TYR:CD2 | 2.15 | 0.81 |
| 25:1:36:ILE:HG23 | 25:1:37:GLY:N | 1.95 | 0.81 |
| 27:3:43:TYR:HA | 27:3:61:ARG:NH2 | 1.95 | 0.81 |
| 29:5:17:LYS:H | 29:5:17:LYS:HD3 | 1.44 | 0.81 |
| 29:5:32:ASN:CG | 29:5:33:LYS:H | 1.81 | 0.81 |
| 30:6:34:ARG:HB3 | 30:6:34:ARG:HH11 | 1.45 | 0.81 |
| 32:8:7:VAL:HB | 32:8:36:GLN:CD | 2.01 | 0.81 |
| 1:A:1309:G:C2' | 1:A:1310:G:H5' | 2.09 | 0.81 |
| 1:A:1853:A:H2' | 1:A:1854:A:C8 | 2.15 | 0.81 |
| 1:A:1917:U:H2' | 1:A:1918:A:O4' | 1.80 | 0.81 |
| 1:A:1772:G:C4 | 1:A:1980:G:N2 | 2.48 | 0.81 |
| 1:A:2422:A:H5'' | 1:A:2423:U:OP1 | 1.80 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:2498:C:C2' | 1:A:2498:C:O2 | 2.29 | 0.81 |
| 1:A:568:U:H2' | 1:A:570:G:N7 | 1.95 | 0.81 |
| 1:A:877:U:O2' | 1:A:878:A:H5' | 1.80 | 0.81 |
| 1:A:2830:G:H5' | 5:E:57:LYS:CE | 2.10 | 0.81 |
| 6:F:122:LYS:HD2 | 6:F:124:LEU:CD1 | 2.09 | 0.81 |
| 8:H:163:TYR:HB3 | 8:H:166:GLY:HA2 | 1.61 | 0.81 |
| 10:L:104:VAL:HG13 | 10:L:127:ILE:HD12 | 1.61 | 0.81 |
| 12:N:105:GLU:O | 12:N:111:PHE:CZ | 2.32 | 0.81 |
| 12:N:16:ALA:O | 12:N:18:LYS:N | 2.14 | 0.81 |
| 18:T:38:THR:O | 18:T:41:ALA:HB3 | 1.80 | 0.81 |
| 21:W:9:LEU:HB3 | 21:W:30:VAL:HG12 | 1.60 | 0.81 |
| 23:Y:94:GLU:N | 23:Y:95:PRO:CD | 2.41 | 0.81 |
| 24:Z:45:PHE:HB3 | 24:Z:59:LEU:CD1 | 2.11 | 0.81 |
| 31:7:10:ALA:HA | 31:7:60:LEU:CD1 | 2.10 | 0.81 |
| 1:A:1265:A:C8 | 1:A:1267:U:O4 | 2.33 | 0.81 |
| 1:A:1790:C:HO2' | 4:D:209:ALA:CB | 1.87 | 0.81 |
| 1:A:1899:G:N2 | 1:A:1902:C:N4 | 2.28 | 0.81 |
| 1:A:2082:A:H2' | 1:A:2083:G:C8 | 2.14 | 0.81 |
| 1:A:2084:C:H2' | 1:A:2085:C:C6 | 2.13 | 0.81 |
| 1:A:2832:U:O2 | 1:A:2832:U:H2' | 1.80 | 0.81 |
| 6:F:158:THR:HG21 | 6:F:196:LEU:N | 1.96 | 0.81 |
| 1:A:675:A:H5'' | 6:F:67:GLN:NE2 | 1.95 | 0.81 |
| 7:G:165:THR:HB | 7:G:168:GLU:CD | 2.00 | 0.81 |
| 1:A:2690:C:C5 | 15:Q:14:SER:HB2 | 2.14 | 0.81 |
| 23:Y:104:PHE:CD2 | 23:Y:104:PHE:N | 2.44 | 0.81 |
| 1:A:1587:A:H2' | 1:A:1588:C:C6 | 2.16 | 0.81 |
| 1:A:1033:U:C5' | 32:8:16:VAL:HG11 | 2.10 | 0.81 |
| 1:A:1479:G:H2' | 1:A:1480:G:H8 | 1.43 | 0.81 |
| 1:A:1567:A:O2' | 1:A:1568:G:N1 | 2.14 | 0.81 |
| 1:A:1820:U:N1 | 4:D:202:LYS:HG2 | 1.96 | 0.81 |
| 1:A:1983:C:O2' | 1:A:1984:G:H5' | 1.81 | 0.81 |
| 1:A:602:G:H2' | 1:A:655:A:C6 | 2.15 | 0.81 |
| 1:A:673:C:H4' | 6:F:82:ILE:CD1 | 2.09 | 0.81 |
| 1:A:684:G:C1' | 1:A:687:C:H41 | 1.93 | 0.81 |
| 1:A:987:G:O2' | 1:A:1000:A:H1' | 1.80 | 0.81 |
| 1:A:1790:C:OP1 | 4:D:213:ARG:NH1 | 2.14 | 0.81 |
| 4:D:246:PRO:CG | 4:D:250:TRP:HB2 | 2.11 | 0.81 |
| 5:E:34:VAL:HG11 | 5:E:36:ARG:HH22 | 1.45 | 0.81 |
| 7:G:6:ALA:O | 7:G:10:LYS:HG2 | 1.79 | 0.81 |
| 9:K:29:TYR:N | 9:K:29:TYR:CD1 | 2.44 | 0.81 |
| 10:L:101:TRP:HZ3 | 10:L:105:LEU:HG | 1.46 | 0.81 |
| 11:M:52:VAL:HG13 | 11:M:120:LEU:HD13 | 1.61 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1131:G:N2 | 11:M:72:TYR:OH | 2.13 | 0.81 |
| 1:A:623:G:OP2 | 13:O:105:LEU:HD11 | 1.79 | 0.81 |
| 13:O:65:ARG:NH1 | 13:O:68:GLN:HE22 | 1.78 | 0.81 |
| 13:O:81:GLN:C | 13:O:86:LYS:HG2 | 2.01 | 0.81 |
| 15:Q:17:ARG:NH1 | 15:Q:17:ARG:HB2 | 1.95 | 0.81 |
| 15:Q:16:HIS:O | 15:Q:19:ALA:HB3 | 1.80 | 0.81 |
| 16:R:9:ARG:O | 16:R:12:PHE:CD2 | 2.33 | 0.81 |
| 17:S:32:TYR:CD1 | 17:S:32:TYR:N | 2.45 | 0.81 |
| 20:V:18:ARG:HD2 | 20:V:75:TYR:HB3 | 1.62 | 0.81 |
| 3:C:129:ARG:C | 3:C:130:ILE:HD12 | 2.00 | 0.81 |
| 9:K:19:VAL:HG12 | 9:K:20:ASP:H | 1.46 | 0.81 |
| 25:1:24:LYS:HG2 | 25:1:52:ILE:CG2 | 2.10 | 0.81 |
| 26:2:18:ASP:O | 26:2:21:ALA:HB3 | 1.80 | 0.81 |
| 1:A:1174:A:N6 | 1:A:1177:A:C4 | 2.46 | 0.81 |
| 1:A:1291:C:H5' | 1:A:1535:U:O2' | 1.80 | 0.81 |
| 1:A:1793:C:N4 | 1:A:1825:A:H61 | 1.78 | 0.81 |
| 1:A:2063:C:O2 | 1:A:2450:A:N6 | 2.14 | 0.81 |
| 1:A:2654:A:H1' | 1:A:2656:U:C5 | 2.15 | 0.81 |
| 1:A:270(V):G:H2' | 1:A:270(W):G:C8 | 2.16 | 0.81 |
| 1:A:271(B):G:H4' | 1:A:271(C):U:OP2 | 1.78 | 0.81 |
| 1:A:29:U:H2' | 1:A:30:G:H8 | 1.45 | 0.81 |
| 4:D:234:GLY:N | 4:D:241:PRO:HG2 | 1.93 | 0.81 |
| 4:D:5:LYS:HB3 | 4:D:82:ILE:HG22 | 1.63 | 0.81 |
| 5:E:114:ALA:CB | 5:E:118:LYS:HB2 | 2.10 | 0.81 |
| 5:E:169:ASN:HD22 | 5:E:170:LEU:H | 1.24 | 0.81 |
| 13:O:112:LEU:HG | 13:O:128:HIS:CE1 | 2.15 | 0.81 |
| 13:O:91:PHE:CE2 | 13:O:96:THR:HG22 | 2.15 | 0.81 |
| 14:P:16:ARG:NH2 | 14:P:73:PRO:HD3 | 1.96 | 0.81 |
| 14:P:8:LYS:HZ3 | 14:P:11:LYS:HE3 | 1.45 | 0.81 |
| 22:X:14:LEU:HD21 | 22:X:19:LYS:HE3 | 1.63 | 0.81 |
| 22:X:47:LYS:HZ3 | 22:X:51:VAL:HG21 | 1.45 | 0.81 |
| 23:Y:111:VAL:HG22 | 23:Y:117:LEU:HG | 1.63 | 0.81 |
| 23:Y:126:VAL:O | 23:Y:127:LYS:HD3 | 1.81 | 0.81 |
| 24:Z:19:LYS:HZ1 | 24:Z:41:ARG:HE | 1.25 | 0.81 |
| 3:C:33:ALA:O | 3:C:39:GLU:HB2 | 1.79 | 0.81 |
| 1:A:714:U:H2' | 1:A:715:G:C8 | 2.15 | 0.81 |
| 28:4:40:LYS:NZ | 28:4:43:HIS:HA | 1.94 | 0.81 |
| 31:7:16:ILE:HA | 31:7:21:LYS:O | 1.80 | 0.81 |
| 1:A:1001:A:H2' | 1:A:1002:G:O4' | 1.80 | 0.81 |
| 1:A:1342:A:O5' | 1:A:1342:A:H8 | 1.64 | 0.81 |
| 1:A:1540:G:C2' | 1:A:1541:U:H5' | 2.09 | 0.81 |
| 1:A:1394:U:O3' | 1:A:1603:A:H5'' | 1.81 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1657:C:H2' | 1:A:1658:C:H6 | 1.43 | 0.81 |
| 1:A:1862:G:H2' | 1:A:1863:G:C8 | 2.16 | 0.81 |
| 1:A:1902:C:H5' | 4:D:244:ARG:NE | 1.95 | 0.81 |
| 1:A:2456:C:O2' | 1:A:2457:U:H5' | 1.80 | 0.81 |
| 1:A:2522:U:C6 | 1:A:2522:U:H5' | 2.16 | 0.81 |
| 1:A:301:G:H2' | 1:A:302:C:C6 | 2.16 | 0.81 |
| 1:A:412:A:H2' | 1:A:413:C:O4' | 1.80 | 0.81 |
| 1:A:783:A:N6 | 1:A:785:G:C8 | 2.49 | 0.81 |
| 1:A:974:G:N7 | 1:A:974(A):C:C5 | 2.49 | 0.81 |
| 2:B:83:G:O2' | 2:B:84:C:H5' | 1.81 | 0.81 |
| 4:D:70:TRP:HZ3 | 4:D:190:TYR:HB2 | 1.46 | 0.81 |
| 6:F:146:ALA:O | 6:F:148:LEU:HD22 | 1.81 | 0.81 |
| 8:H:90:LYS:HB3 | 8:H:90:LYS:HZ2 | 1.45 | 0.81 |
| 11:M:109:LYS:CG | 11:M:110:GLY:H | 1.92 | 0.81 |
| 11:M:12:ARG:HG2 | 11:M:12:ARG:O | 1.78 | 0.81 |
| 11:M:33:LEU:HD11 | 11:M:52:VAL:HG11 | 1.62 | 0.81 |
| 12:N:103:ALA:O | 12:N:104:ARG:C | 2.19 | 0.81 |
| 17:S:76:PHE:HE2 | 17:S:78:LEU:HD11 | 1.44 | 0.81 |
| 18:T:55:ARG:HD2 | 18:T:55:ARG:H | 1.45 | 0.81 |
| 22:X:33:LYS:HB3 | 22:X:35:TYR:HE2 | 1.46 | 0.81 |
| 23:Y:120:ILE:H | 23:Y:120:ILE:HD12 | 1.43 | 0.81 |
| 23:Y:127:LYS:HD3 | 23:Y:165:VAL:HG23 | 1.62 | 0.81 |
| 3:C:103:ILE:HA | 3:C:107:TRP:O | 1.79 | 0.81 |
| 3:C:76:ALA:CA | 3:C:149:ILE:HD11 | 2.11 | 0.81 |
| 25:1:23:LYS:HE3 | 25:1:52:ILE:HD13 | 1.60 | 0.81 |
| 1:A:51:G:N2 | 1:A:120:U:N3 | 2.29 | 0.81 |
| 1:A:1799:G:N2 | 4:D:157:ARG:HH22 | 1.78 | 0.81 |
| 1:A:1968:G:O2' | 1:A:1969:A:H8 | 1.62 | 0.81 |
| 1:A:2461:C:C1' | 1:A:2492:U:H5 | 1.90 | 0.81 |
| 1:A:2832:U:C2' | 1:A:2879:C:H42 | 1.93 | 0.81 |
| 1:A:411:G:O5' | 1:A:2407:G:OP1 | 1.98 | 0.81 |
| 1:A:847:U:O4 | 1:A:933:A:N1 | 2.14 | 0.81 |
| 1:A:996:A:C4' | 18:T:93:LYS:HG3 | 2.10 | 0.81 |
| 5:E:91:VAL:HG13 | 5:E:95:ILE:HD13 | 1.62 | 0.81 |
| 7:G:56:ALA:HA | 7:G:59:GLU:OE1 | 1.79 | 0.81 |
| 9:K:4:ILE:HD11 | 9:K:39:ALA:N | 1.96 | 0.81 |
| 12:N:11:ALA:HB2 | 12:N:17:ARG:NE | 1.95 | 0.81 |
| 14:P:111:GLU:C | 14:P:113:GLN:H | 1.81 | 0.81 |
| 19:U:6:LYS:HG2 | 19:U:12:TYR:H | 0.76 | 0.81 |
| 19:U:13:ARG:HA | 19:U:13:ARG:HE | 1.44 | 0.81 |
| 19:U:61:VAL:HG12 | 19:U:62:LEU:N | 1.94 | 0.81 |
| 23:Y:76:LEU:HA | 23:Y:83:PRO:HA | 1.63 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:C:10:LEU:O | 3:C:13:LYS:HB2 | 1.81 | 0.81 |
| 3:C:116:THR:HA | 3:C:146:GLY:O | 1.80 | 0.81 |
| 3:C:89:ALA:HB1 | 3:C:154:ARG:HG3 | 1.63 | 0.81 |
| 1:A:1418:G:H1' | 1:A:1581:G:N2 | 1.95 | 0.81 |
| 25:1:14:VAL:HG22 | 25:1:18:LYS:HE3 | 1.63 | 0.81 |
| 30:6:20:ALA:HA | 30:6:23:ARG:NH1 | 1.96 | 0.81 |
| 1:A:1394:U:H5'' | 1:A:1604:C:P | 2.19 | 0.81 |
| 1:A:1819:A:H1' | 1:A:1821:A:N3 | 1.95 | 0.81 |
| 1:A:1935:G:C4' | 1:A:1937:A:C2 | 2.64 | 0.81 |
| 1:A:2884:U:H2' | 1:A:2885:C:O4' | 1.80 | 0.81 |
| 1:A:59:U:H3' | 1:A:60:G:H5'' | 1.63 | 0.81 |
| 1:A:727:A:C2 | 1:A:729:G:C6 | 2.69 | 0.81 |
| 1:A:728:G:C2 | 1:A:762:U:H3' | 2.15 | 0.81 |
| 1:A:805:G:H2' | 1:A:806:C:OP1 | 1.81 | 0.81 |
| 5:E:133:LYS:HD2 | 5:E:137:HIS:HB3 | 1.63 | 0.81 |
| 5:E:137:HIS:HB2 | 5:E:138:PRO:CD | 2.09 | 0.81 |
| 5:E:92:THR:C | 5:E:95:ILE:HB | 2.01 | 0.81 |
| 8:H:149:ARG:CA | 8:H:162:ILE:HD13 | 2.10 | 0.81 |
| 13:O:63:PRO:O | 13:O:65:ARG:HD3 | 1.80 | 0.81 |
| 13:O:76:LYS:HE3 | 13:O:101:VAL:HG21 | 1.62 | 0.81 |
| 13:O:76:LYS:O | 13:O:115:LEU:HD13 | 1.81 | 0.81 |
| 1:A:872:A:O2' | 14:P:66:ILE:HD13 | 1.80 | 0.81 |
| 15:Q:77:ARG:NH1 | 15:Q:77:ARG:HG3 | 1.91 | 0.81 |
| 16:R:89:ARG:NH2 | 16:R:90:GLY:O | 2.14 | 0.81 |
| 19:U:40:LEU:HD23 | 19:U:51:VAL:CG1 | 2.02 | 0.81 |
| 1:A:1339:G:C5' | 21:W:16:LYS:HD3 | 2.11 | 0.81 |
| 23:Y:50:GLN:HB3 | 23:Y:53:ILE:HB | 1.63 | 0.81 |
| 23:Y:98:MET:HE2 | 23:Y:99:TYR:N | 1.95 | 0.81 |
| 24:Z:82:ARG:CD | 24:Z:83:PRO:HD2 | 2.10 | 0.81 |
| 3:C:73:ARG:HD3 | 3:C:92:ASP:CG | 2.00 | 0.81 |
| 32:8:15:LYS:O | 32:8:25:VAL:HG13 | 1.81 | 0.81 |
| 1:A:1026:U:O2 | 1:A:1026:U:H2' | 1.80 | 0.81 |
| 1:A:1012:U:O2 | 1:A:1142(A):A:H4' | 1.81 | 0.81 |
| 1:A:1290:C:H2' | 1:A:1291:C:C6 | 2.16 | 0.81 |
| 1:A:1373:A:H2' | 1:A:1374:G:C8 | 2.16 | 0.81 |
| 1:A:1394:U:H4' | 1:A:1603:A:C4' | 2.05 | 0.81 |
| 1:A:1464:C:H2' | 1:A:1465:G:H8 | 1.46 | 0.81 |
| 1:A:2018:G:H2' | 1:A:2019:A:O4' | 1.81 | 0.81 |
| 1:A:2254:C:H2' | 1:A:2255:G:H5' | 1.63 | 0.81 |
| 1:A:2296:U:C1' | 1:A:2335:A:H61 | 1.93 | 0.81 |
| 1:A:2320:A:H1' | 1:A:2333:A:C6 | 2.15 | 0.81 |
| 1:A:2371:G:C5' | 29:5:45:LYS:HB3 | 2.10 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:447:A:H1' | 1:A:449:A:N6 | 1.96 | 0.81 |
| 4:D:169:GLU:HB3 | 4:D:174:ILE:HD11 | 1.61 | 0.81 |
| 5:E:2:LYS:CE | 5:E:83:ASP:HB3 | 2.11 | 0.81 |
| 6:F:36:VAL:HG21 | 6:F:183:VAL:HG21 | 1.60 | 0.81 |
| 7:G:55:LYS:CE | 7:G:152:LEU:HD21 | 2.10 | 0.81 |
| 9:K:34:GLY:O | 9:K:35:LEU:HD13 | 1.80 | 0.81 |
| 11:M:33:LEU:C | 11:M:33:LEU:HD22 | 2.01 | 0.81 |
| 12:N:35:VAL:HA | 12:N:61:VAL:HG11 | 1.62 | 0.81 |
| 13:O:112:LEU:CG | 13:O:128:HIS:HE1 | 1.93 | 0.81 |
| 14:P:27:VAL:HG23 | 14:P:138:ASP:OD2 | 1.81 | 0.81 |
| 16:R:106:ARG:HD3 | 16:R:107:GLU:N | 1.96 | 0.81 |
| 16:R:32:LEU:HA | 16:R:97:ARG:NH1 | 1.96 | 0.81 |
| 16:R:94:TYR:HA | 16:R:98:VAL:HG22 | 1.63 | 0.81 |
| 17:S:104:ASN:CA | 17:S:108:ARG:NH2 | 2.43 | 0.81 |
| 18:T:53:ARG:CB | 18:T:53:ARG:NH1 | 2.42 | 0.81 |
| 18:T:93:LYS:HA | 18:T:93:LYS:NZ | 1.95 | 0.81 |
| 1:A:2117:A:H61 | 1:A:2171:A:N6 | 1.78 | 0.81 |
| 1:A:2135:A:H5' | 1:A:2135:A:C4 | 2.15 | 0.81 |
| 3:C:39:GLU:OE2 | 3:C:216:THR:HB | 1.80 | 0.81 |
| 25:1:20:VAL:CA | 25:1:55:LEU:HD23 | 2.11 | 0.81 |
| 1:A:1204:A:H61 | 13:O:7:ARG:NH1 | 1.79 | 0.81 |
| 1:A:126:A:N7 | 1:A:127:A:C5 | 2.49 | 0.81 |
| 1:A:13:A:N6 | 1:A:525:U:C6 | 2.49 | 0.81 |
| 1:A:150:C:H2' | 1:A:151:C:C6 | 2.16 | 0.81 |
| 1:A:1791:A:H5' | 4:D:213:ARG:HG2 | 1.63 | 0.81 |
| 1:A:2231:C:H2' | 1:A:2232:U:C6 | 2.14 | 0.81 |
| 1:A:2665:A:H5'' | 1:A:2665:A:C8 | 2.16 | 0.81 |
| 1:A:566:U:H5' | 19:U:82:ARG:NH1 | 1.95 | 0.81 |
| 1:A:623:G:H2' | 1:A:624:C:H5'' | 1.60 | 0.81 |
| 1:A:919:G:H21 | 1:A:920:G:H1' | 1.45 | 0.81 |
| 1:A:989:G:O2' | 1:A:990:A:O5' | 1.99 | 0.81 |
| 1:A:1789:A:C2' | 4:D:213:ARG:HH22 | 1.90 | 0.81 |
| 1:A:1798:U:H5' | 4:D:257:LEU:HD12 | 1.63 | 0.81 |
| 1:A:2620:C:H4' | 5:E:156:MET:HB3 | 1.63 | 0.81 |
| 6:F:201:VAL:HA | 6:F:204:ASN:ND2 | 1.96 | 0.81 |
| 6:F:34:TRP:O | 6:F:37:VAL:HB | 1.80 | 0.81 |
| 1:A:2415:G:OP1 | 13:O:61:ARG:HD2 | 1.81 | 0.81 |
| 17:S:110:ILE:HD13 | 17:S:113:LYS:HZ3 | 1.43 | 0.81 |
| 17:S:2:ASN:OD1 | 17:S:3:ARG:N | 2.14 | 0.81 |
| 20:V:72:LYS:HB2 | 20:V:108:GLY:N | 1.96 | 0.81 |
| 21:W:65:ARG:HA | 21:W:70:LEU:HG | 1.62 | 0.81 |
| 23:Y:95:PRO:CG | 23:Y:131:ARG:HG2 | 2.11 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:K:73:GLU:HA | 9:K:140:LEU:HD21 | 1.63 | 0.81 |
| 3:C:42:GLU:OE2 | 3:C:174:PRO:HB3 | 1.81 | 0.81 |
| 32:8:13:LYS:NZ | 32:8:13:LYS:HA | 1.95 | 0.81 |
| 25:1:23:LYS:O | 25:1:26:GLU:HB3 | 1.80 | 0.80 |
| 25:1:27:LEU:CA | 25:1:30:LEU:HG | 2.11 | 0.80 |
| 25:1:58:VAL:CG2 | 25:1:59:LEU:N | 2.43 | 0.80 |
| 26:2:4:LEU:HD22 | 26:2:37:LEU:CD1 | 2.09 | 0.80 |
| 29:5:16:CYS:CB | 29:5:49:HIS:HA | 2.11 | 0.80 |
| 1:A:464:U:O2' | 30:6:12:ARG:NH2 | 2.14 | 0.80 |
| 1:A:1140:C:H4' | 1:A:1142(A):A:C2 | 2.16 | 0.80 |
| 1:A:1299:G:H5' | 1:A:1301:A:H1' | 1.61 | 0.80 |
| 1:A:1486:A:O2' | 1:A:1487:G:H5' | 1.81 | 0.80 |
| 1:A:1567:A:H5'' | 4:D:59:LYS:HE2 | 1.63 | 0.80 |
| 1:A:1676:A:H2 | 1:A:1993:U:H5' | 1.44 | 0.80 |
| 1:A:190:A:H2' | 1:A:191:A:C8 | 2.15 | 0.80 |
| 1:A:2007:C:H4' | 1:A:2824:C:O2' | 1.81 | 0.80 |
| 1:A:2018:G:H1' | 18:T:34:LYS:HZ2 | 1.46 | 0.80 |
| 1:A:2598:A:OP1 | 4:D:234:GLY:HA3 | 1.79 | 0.80 |
| 1:A:2720:U:O4 | 1:A:2873:A:N6 | 2.12 | 0.80 |
| 1:A:706:A:H2' | 1:A:707:G:H8 | 1.43 | 0.80 |
| 1:A:729:G:C5 | 1:A:730:C:C6 | 2.69 | 0.80 |
| 4:D:44:ASN:HB2 | 4:D:217:ARG:NH2 | 1.96 | 0.80 |
| 5:E:179:GLU:H | 5:E:179:GLU:CD | 1.84 | 0.80 |
| 5:E:200:GLU:HB3 | 5:E:202:LYS:HZ3 | 1.44 | 0.80 |
| 7:G:63:ILE:HD11 | 7:G:105:LYS:HZ1 | 1.45 | 0.80 |
| 7:G:103:LEU:HD21 | 7:G:176:LEU:HD11 | 1.61 | 0.80 |
| 11:M:6:PRO:HA | 11:M:41:ASP:CB | 2.09 | 0.80 |
| 1:A:603:A:H61 | 13:O:104:GLY:HA2 | 1.45 | 0.80 |
| 6:F:38:ARG:HH12 | 13:O:10:PRO:HA | 1.47 | 0.80 |
| 13:O:121:LYS:HB2 | 13:O:137:LYS:CG | 2.10 | 0.80 |
| 13:O:64:LYS:C | 13:O:65:ARG:HG3 | 2.01 | 0.80 |
| 15:Q:28:LEU:HD13 | 15:Q:29:LEU:N | 1.96 | 0.80 |
| 19:U:39:LEU:HD21 | 19:U:60:GLU:CG | 2.09 | 0.80 |
| 19:U:34:GLU:HA | 19:U:62:LEU:O | 1.81 | 0.80 |
| 23:Y:152:ALA:CA | 23:Y:155:LEU:HD13 | 2.10 | 0.80 |
| 23:Y:42:VAL:HB | 23:Y:43:GLU:OE1 | 1.81 | 0.80 |
| 1:A:2134:A:C2 | 1:A:2135:A:C2 | 2.69 | 0.80 |
| 3:C:76:ALA:HA | 3:C:149:ILE:HD11 | 1.63 | 0.80 |
| 3:C:26:ALA:CB | 3:C:185:LEU:HB2 | 2.11 | 0.80 |
| 26:2:4:LEU:HB3 | 26:2:37:LEU:CD2 | 2.11 | 0.80 |
| 1:A:1072:C:H42 | 1:A:1100:C:H42 | 1.28 | 0.80 |
| 1:A:1343:G:O6 | 1:A:1404:C:N4 | 2.12 | 0.80 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1746:G:H2' | 1:A:1747:G:H8 | 1.43 | 0.80 |
| 1:A:1840:G:O2' | 1:A:1841:U:H5' | 1.82 | 0.80 |
| 1:A:1996:C:HO2' | 5:E:123:ALA:HB3 | 1.46 | 0.80 |
| 1:A:2213:U:H5' | 1:A:2215:G:C6 | 2.15 | 0.80 |
| 1:A:2309:A:H5'' | 1:A:2310:A:N7 | 1.96 | 0.80 |
| 1:A:2522:U:H5' | 1:A:2522:U:H6 | 1.45 | 0.80 |
| 1:A:2636:U:H4' | 5:E:79:ARG:HH21 | 1.45 | 0.80 |
| 1:A:2636:U:H4' | 5:E:79:ARG:NH2 | 1.95 | 0.80 |
| 1:A:2681:C:H42 | 1:A:2725:A:H62 | 1.29 | 0.80 |
| 1:A:281:G:H1' | 1:A:427:U:O2 | 1.81 | 0.80 |
| 1:A:558:G:P | 11:M:112:LEU:HG | 2.22 | 0.80 |
| 1:A:648:G:H2' | 1:A:649:G:C8 | 2.14 | 0.80 |
| 1:A:788:A:H4' | 1:A:789:A:O5' | 1.81 | 0.80 |
| 1:A:995:C:H1' | 18:T:57:PHE:CZ | 2.16 | 0.80 |
| 2:B:46:A:H2' | 2:B:47:C:H6 | 1.45 | 0.80 |
| 4:D:151:LYS:HB2 | 4:D:154:LYS:HZ3 | 1.45 | 0.80 |
| 4:D:182:LEU:H | 4:D:270:ILE:HG13 | 1.44 | 0.80 |
| 5:E:151:TYR:CG | 5:E:152:LYS:N | 2.47 | 0.80 |
| 5:E:98:PRO:HA | 5:E:172:VAL:CG2 | 2.11 | 0.80 |
| 10:L:55:VAL:HG22 | 10:L:69:THR:HA | 1.60 | 0.80 |
| 11:M:127:ASP:N | 11:M:129:PRO:HD2 | 1.95 | 0.80 |
| 12:N:43:VAL:CG1 | 12:N:54:GLU:HA | 2.12 | 0.80 |
| 14:P:102:VAL:HG13 | 14:P:104:PHE:CE1 | 2.16 | 0.80 |
| 16:R:78:LEU:O | 16:R:78:LEU:HD22 | 1.79 | 0.80 |
| 17:S:82:LEU:HD22 | 17:S:84:GLN:H | 1.46 | 0.80 |
| 18:T:102:GLU:O | 18:T:105:VAL:CG1 | 2.27 | 0.80 |
| 20:V:42:ARG:HG3 | 20:V:43:GLY:N | 1.94 | 0.80 |
| 9:K:103:ARG:NH2 | 9:K:104:GLN:HA | 1.96 | 0.80 |
| 1:A:2111:C:H6 | 1:A:2111:C:OP2 | 1.62 | 0.80 |
| 26:2:6:VAL:HG11 | 26:2:54:VAL:CG1 | 2.11 | 0.80 |
| 30:6:34:ARG:NH1 | 30:6:34:ARG:HB3 | 1.96 | 0.80 |
| 30:6:1:MET:CB | 30:6:3:ARG:HH11 | 1.92 | 0.80 |
| 1:A:1212:G:H1' | 1:A:1237:A:N6 | 1.95 | 0.80 |
| 1:A:1249:U:O4 | 13:O:21:ARG:NH1 | 2.14 | 0.80 |
| 1:A:1264:G:N7 | 1:A:1265:A:C4 | 2.49 | 0.80 |
| 1:A:128:C:H2' | 1:A:129:C:C6 | 2.16 | 0.80 |
| 1:A:1343:G:N1 | 1:A:1404:C:N3 | 2.28 | 0.80 |
| 1:A:1423:G:H2' | 1:A:1424:G:C8 | 2.11 | 0.80 |
| 1:A:1613:G:H3' | 1:A:1614:A:H5' | 1.61 | 0.80 |
| 1:A:1788:C:N4 | 1:A:1789:A:C8 | 2.49 | 0.80 |
| 1:A:2092:U:C5 | 1:A:2227:A:N6 | 2.50 | 0.80 |
| 1:A:2212:A:H2' | 1:A:2213:U:O4 | 1.82 | 0.80 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:270(K):C:H3' | 1:A:270(L):U:C6 | 2.10 | 0.80 |
| 1:A:2725:A:H2' | 1:A:2726:U:H3' | 1.63 | 0.80 |
| 1:A:332:A:O2' | 1:A:334:C:OP2 | 1.99 | 0.80 |
| 1:A:371:A:O2' | 1:A:372:G:OP1 | 1.98 | 0.80 |
| 1:A:585:G:O2' | 1:A:586:A:C8 | 2.34 | 0.80 |
| 1:A:1798:U:C5' | 4:D:257:LEU:HB2 | 2.11 | 0.80 |
| 4:D:5:LYS:CE | 4:D:81:ALA:HB1 | 2.06 | 0.80 |
| 5:E:27:LEU:HD11 | 5:E:30:PRO:HD3 | 1.64 | 0.80 |
| 10:L:33:ASN:H | 10:L:37:PHE:HD1 | 1.25 | 0.80 |
| 12:N:64:ARG:HA | 12:N:81:ASP:OD2 | 1.82 | 0.80 |
| 13:O:47:ASP:CB | 13:O:48:PRO:HD3 | 2.11 | 0.80 |
| 16:R:13:ARG:CZ | 16:R:90:GLY:HA3 | 2.12 | 0.80 |
| 16:R:39:ILE:C | 16:R:40:ILE:HD12 | 2.01 | 0.80 |
| 19:U:12:TYR:HE1 | 19:U:14:VAL:HB | 1.45 | 0.80 |
| 19:U:83:ARG:HH21 | 19:U:85:LYS:CE | 1.94 | 0.80 |
| 1:A:72:U:H5' | 21:W:5:TYR:OH | 1.81 | 0.80 |
| 22:X:95:LYS:HG3 | 22:X:103:GLY:CA | 2.11 | 0.80 |
| 22:X:47:LYS:NZ | 22:X:51:VAL:HG21 | 1.96 | 0.80 |
| 9:K:77:LEU:HG | 9:K:141:LYS:C | 2.02 | 0.80 |
| 3:C:192:PHE:HE1 | 3:C:196:LEU:HD13 | 1.46 | 0.80 |
| 3:C:58:VAL:HG11 | 3:C:199:HIS:HB3 | 1.62 | 0.80 |
| 27:3:66:SER:HA | 27:3:69:LYS:HD2 | 1.63 | 0.80 |
| 28:4:48:GLU:HA | 28:4:58:LEU:CG | 2.10 | 0.80 |
| 29:5:19:ARG:HG3 | 29:5:44:ARG:HH12 | 1.45 | 0.80 |
| 1:A:139:G:H2' | 1:A:140:A:O5' | 1.80 | 0.80 |
| 1:A:1851:U:H2' | 1:A:1852:C:C6 | 2.17 | 0.80 |
| 1:A:1912:A:N7 | 1:A:1918:A:N6 | 2.28 | 0.80 |
| 1:A:1667:G:N2 | 1:A:1991:U:C4 | 2.49 | 0.80 |
| 1:A:567:A:C2 | 1:A:568:U:H1' | 2.16 | 0.80 |
| 1:A:578:A:H2' | 1:A:2018:G:H5' | 1.63 | 0.80 |
| 1:A:930:U:O2 | 1:A:932:G:C2 | 2.34 | 0.80 |
| 1:A:993:G:H1' | 19:U:91:TYR:CE2 | 2.17 | 0.80 |
| 5:E:26:ILE:HB | 5:E:181:LEU:HD21 | 1.60 | 0.80 |
| 7:G:151:ALA:C | 7:G:152:LEU:HD23 | 2.02 | 0.80 |
| 8:H:164:TYR:HD2 | 8:H:166:GLY:H | 1.27 | 0.80 |
| 8:H:29:PRO:HD3 | 8:H:79:VAL:CA | 2.12 | 0.80 |
| 11:M:16:ILE:CD1 | 11:M:52:VAL:HG23 | 2.11 | 0.80 |
| 11:M:55:VAL:CG1 | 11:M:56:ASN:N | 2.45 | 0.80 |
| 13:O:96:THR:HB | 13:O:99:LEU:CD1 | 2.10 | 0.80 |
| 14:P:68:ILE:HG23 | 14:P:95:ALA:HB1 | 1.61 | 0.80 |
| 17:S:115:ARG:O | 17:S:117:ASP:N | 2.14 | 0.80 |
| 18:T:100:VAL:HG23 | 18:T:101:ARG:N | 1.95 | 0.80 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:84:A:H5'' | 22:X:8:LYS:HG3 | 1.64 | 0.80 |
| 23:Y:78:LYS:H | 23:Y:78:LYS:HE2 | 1.45 | 0.80 |
| 1:A:1288:U:H5'' | 1:A:1289:C:OP2 | 1.81 | 0.80 |
| 1:A:1444(A):A:C8 | 1:A:1460:A:H2' | 2.16 | 0.80 |
| 1:A:1940:U:H5'' | 1:A:1941:C:C5' | 2.11 | 0.80 |
| 1:A:33:U:O2' | 1:A:34:C:H5 | 1.64 | 0.80 |
| 1:A:945:A:N3 | 1:A:945:A:C2' | 2.44 | 0.80 |
| 1:A:957:A:O3' | 1:A:958:U:H4' | 1.79 | 0.80 |
| 1:A:1799:G:H22 | 4:D:157:ARG:NH2 | 1.80 | 0.80 |
| 5:E:198:VAL:HG12 | 5:E:200:GLU:OE2 | 1.82 | 0.80 |
| 5:E:5:LEU:HB2 | 5:E:26:ILE:O | 1.79 | 0.80 |
| 12:N:10:VAL:N | 12:N:17:ARG:HG2 | 1.95 | 0.80 |
| 15:Q:32:GLY:HA2 | 15:Q:116:LEU:HG | 1.63 | 0.80 |
| 15:Q:86:ARG:HH11 | 15:Q:86:ARG:HB3 | 1.46 | 0.80 |
| 1:A:2334:G:H21 | 16:R:11:LYS:CE | 1.94 | 0.80 |
| 12:N:79:PHE:CB | 17:S:73:GLU:HG3 | 2.11 | 0.80 |
| 22:X:84:ARG:HG2 | 22:X:86:ARG:N | 1.96 | 0.80 |
| 1:A:2161:C:H2' | 1:A:2162:G:H8 | 1.45 | 0.80 |
| 1:A:2246:G:N2 | 1:A:2247:A:C5 | 2.50 | 0.80 |
| 25:1:16:LEU:CD2 | 25:1:59:LEU:HB2 | 2.10 | 0.80 |
| 27:3:18:CYS:N | 27:3:33:VAL:HB | 1.96 | 0.80 |
| 32:8:10:ILE:O | 32:8:12:ASP:N | 2.13 | 0.80 |
| 32:8:19:ARG:HD2 | 32:8:24:TYR:CG | 2.16 | 0.80 |
| 1:A:1937:A:N6 | 1:A:1939:U:H5 | 1.76 | 0.80 |
| 1:A:294:A:H2' | 1:A:295:G:H5' | 1.62 | 0.80 |
| 1:A:307:G:N2 | 1:A:310:A:H8 | 1.79 | 0.80 |
| 1:A:371:A:H5'' | 1:A:423:A:N7 | 1.97 | 0.80 |
| 1:A:503:A:O5' | 1:A:503:A:H8 | 1.65 | 0.80 |
| 1:A:853:G:H2' | 1:A:854:G:C8 | 2.15 | 0.80 |
| 1:A:928:G:H2' | 1:A:929:G:H5' | 1.61 | 0.80 |
| 5:E:154:LYS:NZ | 5:E:155:LYS:O | 2.14 | 0.80 |
| 1:A:2620:C:H4' | 5:E:156:MET:CB | 2.12 | 0.80 |
| 6:F:6:VAL:H | 6:F:20:LEU:CD1 | 1.91 | 0.80 |
| 12:N:66:LYS:HE3 | 12:N:67:LYS:HZ1 | 1.43 | 0.80 |
| 13:O:120:ALA:C | 13:O:122:PRO:HD2 | 2.02 | 0.80 |
| 13:O:123:LEU:HG | 13:O:134:ALA:HB1 | 1.63 | 0.80 |
| 17:S:72:VAL:HG12 | 17:S:73:GLU:N | 1.96 | 0.80 |
| 19:U:67:GLY:HA2 | 19:U:93:GLU:O | 1.81 | 0.80 |
| 22:X:32:PRO:HB2 | 22:X:34:LYS:HG3 | 1.64 | 0.80 |
| 22:X:65:ALA:HB3 | 22:X:66:PRO:HD3 | 1.63 | 0.80 |
| 23:Y:35:ARG:HG2 | 23:Y:36:LYS:N | 1.95 | 0.80 |
| 23:Y:51:ALA:C | 23:Y:53:ILE:N | 2.32 | 0.80 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 24:Z:38:VAL:HB | 24:Z:45:PHE:CE1 | 2.17 | 0.80 |
| 1:A:2132:U:O2 | 1:A:2133:G:H5' | 1.82 | 0.80 |
| 1:A:87:C:C1' | 25:1:46:ARG:HH22 | 1.93 | 0.80 |
| 28:4:10:LYS:C | 28:4:12:SER:N | 2.34 | 0.80 |
| 1:A:1024:G:N2 | 1:A:1139:G:H1 | 1.78 | 0.80 |
| 1:A:1651:G:H2' | 1:A:1652:A:C8 | 2.16 | 0.80 |
| 1:A:1667:G:O6 | 1:A:1992:G:OP2 | 2.00 | 0.80 |
| 1:A:1863:G:H2' | 1:A:1864:U:H6 | 1.43 | 0.80 |
| 1:A:1668:A:N6 | 1:A:1993:U:H1' | 1.97 | 0.80 |
| 1:A:2893:G:H4' | 1:A:2894:G:O4' | 1.81 | 0.80 |
| 1:A:295:G:H2' | 1:A:296:C:H5' | 1.63 | 0.80 |
| 1:A:67:U:H2' | 1:A:68:G:C8 | 2.16 | 0.80 |
| 1:A:906:G:H2' | 1:A:906:G:N3 | 1.95 | 0.80 |
| 4:D:208:LYS:NZ | 4:D:211:ARG:NE | 2.28 | 0.80 |
| 5:E:146:THR:HB | 5:E:147:PRO:CD | 2.11 | 0.80 |
| 1:A:2748:A:N3 | 8:H:67:LEU:CD2 | 2.45 | 0.80 |
| 10:L:99:ILE:CG2 | 10:L:100:THR:H | 1.95 | 0.80 |
| 11:M:33:LEU:O | 11:M:33:LEU:HD22 | 1.82 | 0.80 |
| 11:M:18:ALA:HB2 | 11:M:54:VAL:HG23 | 1.63 | 0.80 |
| 12:N:11:ALA:CB | 12:N:97:ARG:NE | 2.44 | 0.80 |
| 14:P:44:ALA:CA | 14:P:47:ILE:HD12 | 2.11 | 0.80 |
| 17:S:104:ASN:HA | 17:S:108:ARG:HH21 | 1.46 | 0.80 |
| 17:S:21:GLU:O | 17:S:23:ARG:CG | 2.23 | 0.80 |
| 22:X:49:VAL:N | 22:X:56:PRO:HG3 | 1.97 | 0.80 |
| 22:X:81:LYS:CG | 22:X:96:ILE:HG23 | 2.12 | 0.80 |
| 24:Z:53:MET:HE3 | 24:Z:57:PHE:HA | 1.64 | 0.80 |
| 1:A:2138:C:H2' | 1:A:2139:C:C6 | 2.17 | 0.80 |
| 3:C:8:ARG:HD2 | 3:C:11:LEU:HD23 | 1.62 | 0.80 |
| 3:C:131:LEU:CB | 3:C:136:LEU:HB2 | 2.11 | 0.80 |
| 3:C:117:PRO:HD3 | 3:C:146:GLY:O | 1.82 | 0.80 |
| 3:C:182:PRO:HG2 | 3:C:183:GLU:OE2 | 1.81 | 0.80 |
| 29:5:19:ARG:O | 29:5:43:CYS:SG | 2.39 | 0.80 |
| 1:A:125:G:N2 | 30:6:10:ARG:HA | 1.96 | 0.80 |
| 31:7:4:MET:HE1 | 31:7:62:LEU:HG | 1.63 | 0.80 |
| 1:A:1517:G:H2' | 1:A:1518:C:O4' | 1.80 | 0.80 |
| 1:A:1625:C:C2' | 1:A:1626:G:H4' | 2.08 | 0.80 |
| 1:A:1773:A:C6 | 1:A:1829:A:H1' | 2.15 | 0.80 |
| 1:A:414:C:H1' | 1:A:1864:U:H1' | 1.62 | 0.80 |
| 1:A:2287:A:N7 | 1:A:2289:G:C5 | 2.50 | 0.80 |
| 1:A:24:G:H2' | 1:A:25:U:C6 | 2.17 | 0.80 |
| 1:A:2627:G:H2' | 1:A:2628:C:C5' | 2.12 | 0.80 |
| 1:A:2900:A:H2' | 1:A:2901:C:H6 | 1.43 | 0.80 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:449:A:H2' | 1:A:450:G:O4' | 1.81 | 0.80 |
| 1:A:457:A:H1' | 1:A:459:U:N3 | 1.97 | 0.80 |
| 1:A:594:U:C4 | 1:A:595:C:N4 | 2.50 | 0.80 |
| 1:A:675:A:N7 | 1:A:804:A:C2 | 2.50 | 0.80 |
| 1:A:687:C:H1' | 1:A:788:A:C5' | 2.10 | 0.80 |
| 4:D:80:ALA:CB | 4:D:94:LEU:O | 2.29 | 0.80 |
| 6:F:106:ARG:HG3 | 6:F:107:LYS:H | 1.45 | 0.80 |
| 6:F:165:ARG:HB2 | 6:F:165:ARG:NH2 | 1.96 | 0.80 |
| 6:F:169:ASN:HD22 | 6:F:173:VAL:HG12 | 1.45 | 0.80 |
| 7:G:32:PRO:HB3 | 7:G:163:ALA:HA | 1.63 | 0.80 |
| 7:G:167:GLU:O | 7:G:170:ARG:HB3 | 1.81 | 0.80 |
| 11:M:13:TRP:NE1 | 11:M:51:PHE:HB3 | 1.97 | 0.80 |
| 1:A:1131:G:OP1 | 11:M:79:PRO:HD3 | 1.82 | 0.80 |
| 12:N:2:ILE:O | 12:N:3:GLN:HG3 | 1.82 | 0.80 |
| 13:O:135:LEU:H | 13:O:135:LEU:CD1 | 1.94 | 0.80 |
| 14:P:85:LYS:HG3 | 14:P:86:GLY:H | 1.45 | 0.80 |
| 1:A:997:G:OP1 | 18:T:93:LYS:HE2 | 1.82 | 0.80 |
| 1:A:2341:G:H2' | 1:A:2342:C:C6 | 2.17 | 0.80 |
| 29:5:33:LYS:NZ | 29:5:34:LEU:HD23 | 1.97 | 0.80 |
| 29:5:31:PRO:HB3 | 29:5:34:LEU:HD12 | 1.62 | 0.80 |
| 1:A:1061:U:O2' | 1:A:1070:A:H1' | 1.81 | 0.80 |
| 1:A:1970:A:C2' | 1:A:1971:A:OP2 | 2.29 | 0.80 |
| 1:A:640:C:H2' | 1:A:641:C:C5' | 2.11 | 0.80 |
| 1:A:754:C:O2' | 1:A:755:C:H5' | 1.82 | 0.80 |
| 1:A:814:C:H4' | 1:A:1224:G:N2 | 1.96 | 0.80 |
| 1:A:959:A:C6 | 1:A:960:A:N6 | 2.50 | 0.80 |
| 1:A:1501:C:O4' | 4:D:100:GLY:HA2 | 1.80 | 0.80 |
| 6:F:125:LEU:HD22 | 6:F:127:GLU:O | 1.82 | 0.80 |
| 1:A:1058:G:N2 | 10:L:126:MET:HE3 | 1.97 | 0.80 |
| 14:P:27:VAL:HG13 | 14:P:28:ALA:H | 1.47 | 0.80 |
| 19:U:17:GLY:HA3 | 19:U:19:LYS:NZ | 1.96 | 0.80 |
| 22:X:60:PHE:CE2 | 22:X:62:GLU:HB2 | 2.17 | 0.80 |
| 26:2:3:ARG:HH12 | 26:2:59:VAL:CB | 1.94 | 0.80 |
| 27:3:27:THR:HG22 | 27:3:28:LYS:N | 1.95 | 0.80 |
| 30:6:24:THR:HG23 | 30:6:27:GLY:HA3 | 1.64 | 0.80 |
| 1:A:1014:U:H2' | 1:A:1015:G:H5' | 1.61 | 0.80 |
| 1:A:1143:A:O2' | 1:A:1144:G:O5' | 1.99 | 0.80 |
| 1:A:1857:G:C8 | 1:A:1858:G:N7 | 2.50 | 0.80 |
| 1:A:248:G:H21 | 1:A:2431:U:C4' | 1.95 | 0.80 |
| 1:A:2447:G:C2 | 1:A:2500:U:C4 | 2.70 | 0.80 |
| 1:A:722:A:H2' | 1:A:723:G:C8 | 2.17 | 0.80 |
| 1:A:827:U:H4' | 1:A:828:U:O2 | 1.82 | 0.80 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:878:A:H1' | 1:A:879:G:N7 | 1.97 | 0.80 |
| 2:B:15:A:H5'' | 2:B:16:G:OP2 | 1.81 | 0.80 |
| 5:E:53:PRO:HG3 | 5:E:75:VAL:CG2 | 2.12 | 0.80 |
| 6:F:110:LEU:O | 6:F:114:VAL:HG23 | 1.82 | 0.80 |
| 7:G:101:ILE:O | 7:G:104:GLU:HB3 | 1.82 | 0.80 |
| 7:G:8:LYS:HE3 | 7:G:12:TYR:HB3 | 1.62 | 0.80 |
| 14:P:26:TYR:HD1 | 14:P:27:VAL:N | 1.75 | 0.80 |
| 15:Q:38:VAL:HG23 | 15:Q:110:PRO:O | 1.82 | 0.80 |
| 18:T:50:ARG:HA | 18:T:53:ARG:NH1 | 1.97 | 0.80 |
| 21:W:18:TYR:HA | 21:W:21:PHE:CD1 | 2.17 | 0.80 |
| 1:A:2160:G:H2' | 1:A:2161:C:H6 | 1.45 | 0.80 |
| 3:C:22:ILE:HG21 | 3:C:190:ARG:CZ | 2.12 | 0.80 |
| 30:6:42:LEU:HB3 | 30:6:44:PRO:HG2 | 1.65 | 0.79 |
| 1:A:1093:G:H21 | 1:A:1098:A:H62 | 1.30 | 0.79 |
| 1:A:140:A:H61 | 1:A:1596:A:H4' | 1.47 | 0.79 |
| 1:A:1534:G:H21 | 1:A:1537:C:N4 | 1.80 | 0.79 |
| 1:A:2089:U:H2' | 1:A:2090:G:C8 | 2.17 | 0.79 |
| 1:A:2784:C:H2' | 1:A:2785:C:H6 | 1.44 | 0.79 |
| 1:A:944:G:H5'' | 1:A:945:A:H5'' | 1.63 | 0.79 |
| 5:E:197:ILE:HD13 | 5:E:199:ARG:HH22 | 1.47 | 0.79 |
| 5:E:2:LYS:HE2 | 5:E:83:ASP:HB3 | 1.64 | 0.79 |
| 6:F:9:ILE:HG12 | 6:F:124:LEU:CB | 2.05 | 0.79 |
| 8:H:90:LYS:NZ | 8:H:90:LYS:HB3 | 1.96 | 0.79 |
| 14:P:111:GLU:CB | 14:P:113:GLN:HG3 | 2.12 | 0.79 |
| 14:P:56:ARG:CZ | 14:P:57:HIS:HA | 2.12 | 0.79 |
| 16:R:70:GLY:HA2 | 16:R:73:LEU:HD22 | 1.64 | 0.79 |
| 17:S:111:ARG:N | 17:S:111:ARG:HH11 | 1.80 | 0.79 |
| 19:U:28:GLU:CG | 19:U:94:LEU:HB2 | 2.12 | 0.79 |
| 21:W:43:VAL:HG12 | 21:W:49:VAL:HG21 | 1.62 | 0.79 |
| 23:Y:4:ARG:O | 23:Y:5:LEU:HD23 | 1.81 | 0.79 |
| 24:Z:47:PRO:HA | 24:Z:51:VAL:CG1 | 2.13 | 0.79 |
| 1:A:2126:A:C4 | 1:A:2163:C:H4' | 2.17 | 0.79 |
| 3:C:200:LYS:HG3 | 3:C:208:PHE:CE2 | 2.17 | 0.79 |
| 25:1:25:ARG:O | 25:1:28:MET:HB3 | 1.81 | 0.79 |
| 25:1:61:GLU:O | 25:1:64:ARG:HB2 | 1.81 | 0.79 |
| 1:A:2467:C:OP1 | 32:8:8:LYS:NZ | 2.15 | 0.79 |
| 1:A:1325:G:OP2 | 1:A:1616:A:C8 | 2.35 | 0.79 |
| 1:A:1655:A:H2' | 1:A:1656:C:C6 | 2.17 | 0.79 |
| 1:A:1762:A:H3' | 1:A:1762:A:C8 | 2.17 | 0.79 |
| 1:A:2047:U:H2' | 1:A:2048:G:C8 | 2.17 | 0.79 |
| 1:A:220:G:H4' | 1:A:234:C:C4' | 2.12 | 0.79 |
| 1:A:272:G:O2' | 1:A:273:G:H5' | 1.81 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:281:G:N2 | 1:A:283:A:H5'' | 1.98 | 0.79 |
| 1:A:2821:A:H2' | 1:A:2822:G:O4' | 1.82 | 0.79 |
| 1:A:2876:G:H5' | 17:S:1:MET:N | 1.97 | 0.79 |
| 1:A:411:G:N2 | 1:A:2408:U:H3 | 1.79 | 0.79 |
| 1:A:747:U:O2 | 1:A:747:U:H2' | 1.81 | 0.79 |
| 5:E:93:VAL:O | 5:E:95:ILE:N | 2.11 | 0.79 |
| 1:A:1257:C:H4' | 6:F:83:PHE:HD1 | 1.46 | 0.79 |
| 12:N:71:ARG:HG3 | 12:N:72:PRO:CD | 2.13 | 0.79 |
| 13:O:32:THR:OG1 | 13:O:35:HIS:NE2 | 2.14 | 0.79 |
| 14:P:37:LEU:H | 14:P:129:THR:HG22 | 1.45 | 0.79 |
| 1:A:2334:G:C2 | 16:R:15:ARG:NH1 | 2.50 | 0.79 |
| 16:R:49:VAL:HG21 | 16:R:80:LEU:CD1 | 2.12 | 0.79 |
| 19:U:88:ARG:NH1 | 19:U:88:ARG:HB3 | 1.98 | 0.79 |
| 9:K:68:LEU:HD21 | 9:K:107:VAL:CG2 | 2.12 | 0.79 |
| 1:A:242:G:H5'' | 31:7:62:LEU:HD11 | 1.62 | 0.79 |
| 1:A:1424:G:H5' | 1:A:1499:C:O2' | 1.81 | 0.79 |
| 1:A:49:A:N6 | 1:A:176:G:C5 | 2.50 | 0.79 |
| 1:A:1791:A:H4' | 4:D:206:LEU:CD2 | 2.12 | 0.79 |
| 1:A:1839:G:O6 | 1:A:1927:A:C2 | 2.36 | 0.79 |
| 1:A:2077:A:H1' | 1:A:2435:A:C1' | 2.13 | 0.79 |
| 1:A:476:G:H22 | 1:A:478:A:C3' | 1.94 | 0.79 |
| 1:A:632:A:C2' | 1:A:633:A:H8 | 1.86 | 0.79 |
| 1:A:830:G:C5 | 1:A:2448:A:C8 | 2.70 | 0.79 |
| 4:D:8:PRO:HG2 | 4:D:26:LYS:H | 1.47 | 0.79 |
| 4:D:180:GLY:O | 4:D:270:ILE:HG21 | 1.82 | 0.79 |
| 4:D:7:LYS:HZ2 | 4:D:91:ARG:CD | 1.95 | 0.79 |
| 5:E:54:GLN:HE21 | 5:E:56:PRO:HD2 | 1.45 | 0.79 |
| 5:E:91:VAL:CG2 | 5:E:93:VAL:HG13 | 2.13 | 0.79 |
| 11:M:12:ARG:CG | 11:M:12:ARG:HH11 | 1.95 | 0.79 |
| 1:A:2394:C:OP1 | 13:O:57:THR:HA | 1.82 | 0.79 |
| 14:P:25:ASP:HB2 | 14:P:101:ARG:HD2 | 1.63 | 0.79 |
| 1:A:2876:G:C5' | 17:S:1:MET:H3 | 1.95 | 0.79 |
| 12:N:106:LEU:HD22 | 17:S:39:ARG:HH22 | 1.47 | 0.79 |
| 1:A:1216:G:OP1 | 18:T:11:ARG:HD2 | 1.82 | 0.79 |
| 18:T:55:ARG:HG2 | 18:T:55:ARG:NH1 | 1.87 | 0.79 |
| 21:W:54:VAL:HA | 21:W:80:ILE:O | 1.82 | 0.79 |
| 23:Y:15:PRO:HG3 | 23:Y:38:TYR:OH | 1.81 | 0.79 |
| 23:Y:157:LEU:CD2 | 23:Y:163:LEU:HG | 2.10 | 0.79 |
| 25:1:19:LEU:HD22 | 25:1:19:LEU:C | 2.02 | 0.79 |
| 27:3:41:PRO:C | 27:3:58:ARG:NH1 | 2.36 | 0.79 |
| 1:A:242:G:H3' | 31:7:4:MET:HE3 | 1.64 | 0.79 |
| 1:A:1647:G:OP2 | 1:A:1647:G:H3' | 1.82 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1891:G:H3' | 1:A:1892:C:H6 | 1.45 | 0.79 |
| 1:A:1913:A:C2 | 1:A:1917:U:C5 | 2.71 | 0.79 |
| 1:A:2266:A:H1' | 1:A:2272:U:O4 | 1.81 | 0.79 |
| 1:A:2331:G:C2 | 1:A:2385:C:N4 | 2.50 | 0.79 |
| 1:A:2471:C:H2' | 1:A:2472:G:C5' | 2.11 | 0.79 |
| 1:A:270(O):U:H5'' | 1:A:270(P):C:C5 | 2.18 | 0.79 |
| 1:A:2845:G:H5'' | 17:S:57:PHE:CB | 2.11 | 0.79 |
| 1:A:312:G:H2' | 1:A:312:G:N3 | 1.98 | 0.79 |
| 1:A:371:A:N7 | 1:A:424:G:O4' | 2.16 | 0.79 |
| 1:A:587:C:H4' | 1:A:588:U:OP2 | 1.81 | 0.79 |
| 4:D:217:ARG:HE | 4:D:218:ARG:HD3 | 1.46 | 0.79 |
| 1:A:2572:A:H3' | 5:E:144:ARG:NH2 | 1.98 | 0.79 |
| 6:F:158:THR:CB | 6:F:195:ASP:HB2 | 2.12 | 0.79 |
| 6:F:5:ALA:HB3 | 6:F:7:TYR:HE1 | 1.45 | 0.79 |
| 7:G:120:LEU:CD2 | 7:G:181:ARG:HB2 | 2.06 | 0.79 |
| 8:H:149:ARG:NH2 | 8:H:164:TYR:HD1 | 1.80 | 0.79 |
| 8:H:24:VAL:HG22 | 8:H:35:VAL:HG23 | 1.61 | 0.79 |
| 8:H:69:ARG:HG3 | 8:H:69:ARG:HH21 | 1.46 | 0.79 |
| 9:K:39:ALA:O | 9:K:43:ASN:CB | 2.27 | 0.79 |
| 11:M:55:VAL:HG23 | 11:M:123:TYR:H | 1.48 | 0.79 |
| 12:N:10:VAL:O | 12:N:11:ALA:HB3 | 1.83 | 0.79 |
| 1:A:907:U:OP1 | 14:P:26:TYR:HE1 | 1.65 | 0.79 |
| 16:R:32:LEU:HA | 16:R:97:ARG:HH12 | 1.45 | 0.79 |
| 19:U:61:VAL:CG1 | 19:U:62:LEU:N | 2.46 | 0.79 |
| 20:V:76:VAL:HG22 | 20:V:102:HIS:O | 1.81 | 0.79 |
| 21:W:85:PRO:CG | 21:W:87:GLN:HE21 | 1.95 | 0.79 |
| 1:A:2132:U:C3' | 1:A:2133:G:H5' | 2.12 | 0.79 |
| 1:A:2177:C:H5'' | 3:C:213:TYR:CE2 | 2.17 | 0.79 |
| 3:C:14:VAL:HG21 | 3:C:220:PRO:CB | 2.11 | 0.79 |
| 25:1:63:ARG:HA | 25:1:66:ASN:HB3 | 1.64 | 0.79 |
| 31:7:44:LYS:O | 31:7:44:LYS:HG3 | 1.81 | 0.79 |
| 1:A:1029:A:O5' | 1:A:1029:A:H8 | 1.66 | 0.79 |
| 1:A:1555:G:H2' | 1:A:1556:C:H6 | 1.47 | 0.79 |
| 1:A:1602:U:H2' | 1:A:1603:A:C5' | 2.12 | 0.79 |
| 1:A:1913:A:C2 | 1:A:1917:U:H5 | 2.00 | 0.79 |
| 1:A:2286:A:N7 | 29:5:31:PRO:HB2 | 1.96 | 0.79 |
| 1:A:2547:U:C2' | 1:A:2548:G:H5'' | 2.13 | 0.79 |
| 1:A:2576:G:H5'' | 1:A:2577:A:OP1 | 1.82 | 0.79 |
| 1:A:447:A:H1' | 1:A:449:A:H61 | 1.47 | 0.79 |
| 1:A:675:A:C5' | 6:F:67:GLN:HE22 | 1.94 | 0.79 |
| 1:A:700:G:N2 | 1:A:733:G:H1' | 1.98 | 0.79 |
| 1:A:761:A:H2' | 1:A:761:A:N3 | 1.96 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:780:G:H2' | 1:A:782:A:N7 | 1.98 | 0.79 |
| 4:D:63:ARG:HD2 | 4:D:85:ASP:HB3 | 1.63 | 0.79 |
| 6:F:46:ARG:CZ | 6:F:46:ARG:HA | 2.11 | 0.79 |
| 7:G:134:GLY:HA3 | 7:G:156:ASP:OD2 | 1.82 | 0.79 |
| 11:M:107:LEU:HD12 | 11:M:116:LEU:HD22 | 1.64 | 0.79 |
| 14:P:51:ARG:HG3 | 14:P:52:VAL:N | 1.96 | 0.79 |
| 14:P:8:LYS:NZ | 14:P:93:TYR:HD2 | 1.79 | 0.79 |
| 15:Q:37:THR:HG23 | 15:Q:40:LYS:HD2 | 1.62 | 0.79 |
| 16:R:106:ARG:HD2 | 16:R:107:GLU:OE2 | 1.83 | 0.79 |
| 16:R:15:ARG:HD3 | 16:R:18:ILE:HG12 | 1.64 | 0.79 |
| 20:V:25:ARG:HD2 | 20:V:74:ALA:N | 1.98 | 0.79 |
| 21:W:88:LYS:HA | 21:W:90:GLU:OE2 | 1.82 | 0.79 |
| 23:Y:144:LEU:O | 23:Y:145:GLU:HG3 | 1.82 | 0.79 |
| 9:K:88:ILE:CD1 | 9:K:123:LEU:HB2 | 2.12 | 0.79 |
| 9:K:81:VAL:CG1 | 9:K:88:ILE:HG12 | 2.13 | 0.79 |
| 3:C:34:THR:HG22 | 3:C:34:THR:O | 1.82 | 0.79 |
| 3:C:78:ALA:HA | 3:C:119:VAL:HG22 | 1.64 | 0.79 |
| 29:5:19:ARG:HH11 | 29:5:19:ARG:HG2 | 1.47 | 0.79 |
| 1:A:1466:G:H2' | 1:A:1547:C:H41 | 1.47 | 0.79 |
| 1:A:1911:U:O4 | 1:A:1913:A:N6 | 2.16 | 0.79 |
| 1:A:1924:C:H2' | 1:A:1925:C:C6 | 2.17 | 0.79 |
| 1:A:792:G:N7 | 1:A:2440:C:H1' | 1.97 | 0.79 |
| 1:A:2779:U:H3' | 1:A:2779:U:C6 | 2.17 | 0.79 |
| 1:A:2886:G:O2' | 28:4:32:PRO:HD2 | 1.83 | 0.79 |
| 1:A:531:C:H42 | 18:T:38:THR:CG2 | 1.96 | 0.79 |
| 1:A:585:G:C6 | 1:A:1251:C:C5 | 2.70 | 0.79 |
| 1:A:637:A:H2 | 1:A:651:G:C4' | 1.94 | 0.79 |
| 2:B:48:A:OP1 | 16:R:92:TYR:CB | 2.30 | 0.79 |
| 4:D:56:GLY:C | 4:D:217:ARG:HH11 | 1.85 | 0.79 |
| 5:E:49:LEU:HG | 5:E:74:PRO:HG2 | 1.65 | 0.79 |
| 6:F:142:TRP:CA | 6:F:145:GLU:HG2 | 2.13 | 0.79 |
| 7:G:170:ARG:HG3 | 7:G:171:ALA:N | 1.96 | 0.79 |
| 8:H:51:ARG:HA | 8:H:51:ARG:HE | 1.46 | 0.79 |
| 13:O:93:GLY:CA | 13:O:112:LEU:HD21 | 2.11 | 0.79 |
| 17:S:50:ILE:CG1 | 17:S:66:VAL:HB | 2.12 | 0.79 |
| 18:T:50:ARG:NE | 19:U:75:PHE:CE2 | 2.50 | 0.79 |
| 1:A:566:U:H5'' | 19:U:82:ARG:HH12 | 1.47 | 0.79 |
| 24:Z:51:VAL:CG2 | 24:Z:80:HIS:HA | 2.13 | 0.79 |
| 3:C:176:GLY:O | 3:C:185:LEU:HD22 | 1.82 | 0.79 |
| 1:A:2395:C:H4' | 27:3:28:LYS:HD3 | 1.65 | 0.79 |
| 27:3:19:GLY:HA3 | 27:3:30:GLU:O | 1.82 | 0.79 |
| 29:5:11:LEU:CD2 | 31:7:35:GLN:HE22 | 1.96 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1048:A:C2 | 1:A:1049:C:H1' | 2.17 | 0.79 |
| 1:A:1058:G:H21 | 10:L:126:MET:HE3 | 1.45 | 0.79 |
| 1:A:1071:G:H2' | 1:A:1072:C:H5' | 1.62 | 0.79 |
| 1:A:1569:A:C2 | 1:A:1570:A:C5 | 2.71 | 0.79 |
| 1:A:188:G:H2' | 1:A:189:G:O4' | 1.83 | 0.79 |
| 1:A:1943:U:H4' | 1:A:1944:U:C5' | 2.13 | 0.79 |
| 1:A:2031:A:H61 | 1:A:2498:C:C1' | 1.94 | 0.79 |
| 1:A:2700:C:H2' | 1:A:2701:C:C5' | 2.08 | 0.79 |
| 1:A:472:A:H2' | 1:A:473:G:C5' | 2.12 | 0.79 |
| 1:A:51:G:H5' | 1:A:52:A:OP1 | 1.82 | 0.79 |
| 1:A:604:G:H1' | 1:A:657:U:H1' | 1.64 | 0.79 |
| 1:A:809:G:C5 | 1:A:810:U:C5 | 2.71 | 0.79 |
| 1:A:861:A:N6 | 1:A:917:A:C5 | 2.50 | 0.79 |
| 1:A:879:G:N2 | 1:A:880:G:C4 | 2.51 | 0.79 |
| 5:E:12:THR:HG21 | 5:E:19:ARG:NH1 | 1.97 | 0.79 |
| 5:E:133:LYS:HZ2 | 5:E:137:HIS:HB3 | 1.46 | 0.79 |
| 7:G:119:GLY:O | 7:G:120:LEU:HD23 | 1.83 | 0.79 |
| 11:M:74:ARG:CD | 11:M:82:LEU:HD13 | 2.10 | 0.79 |
| 12:N:64:ARG:NH1 | 12:N:68:GLU:H | 1.70 | 0.79 |
| 13:O:76:LYS:NZ | 13:O:96:THR:HG21 | 1.97 | 0.79 |
| 1:A:906:G:OP2 | 14:P:140:ALA:HB2 | 1.82 | 0.79 |
| 15:Q:25:ALA:O | 15:Q:29:LEU:HG | 1.82 | 0.79 |
| 18:T:15:LYS:HZ3 | 18:T:18:LEU:HG | 1.45 | 0.79 |
| 19:U:19:LYS:CB | 19:U:21:ARG:NH1 | 2.43 | 0.79 |
| 23:Y:1:MET:SD | 23:Y:2:GLU:N | 2.56 | 0.79 |
| 3:C:14:VAL:CG2 | 3:C:220:PRO:HB3 | 2.11 | 0.79 |
| 8:H:110:SER:C | 8:H:112:PRO:HD2 | 2.03 | 0.79 |
| 27:3:57:GLU:HA | 27:3:61:ARG:CZ | 2.11 | 0.79 |
| 27:3:46:GLN:NE2 | 27:3:69:LYS:HE2 | 1.98 | 0.79 |
| 1:A:1359:A:O5' | 1:A:1359:A:C8 | 2.36 | 0.79 |
| 1:A:1404:C:O2' | 1:A:1405:U:H5' | 1.82 | 0.79 |
| 1:A:1560:G:H2' | 1:A:1561:G:C8 | 2.17 | 0.79 |
| 1:A:1636:C:O2 | 1:A:1636:C:H2' | 1.83 | 0.79 |
| 1:A:2208:U:H1' | 1:A:2217:G:N1 | 1.97 | 0.79 |
| 1:A:2644:G:H1 | 1:A:2645:G:H21 | 1.28 | 0.79 |
| 1:A:292:C:C3' | 1:A:293:U:N3 | 2.46 | 0.79 |
| 1:A:500:G:H1' | 1:A:503:A:N6 | 1.97 | 0.79 |
| 1:A:526:A:H5'' | 1:A:527:C:OP2 | 1.83 | 0.79 |
| 1:A:565:C:O2 | 1:A:565:C:H2' | 1.82 | 0.79 |
| 4:D:82:ILE:HD13 | 4:D:92:ILE:O | 1.83 | 0.79 |
| 5:E:49:LEU:HD13 | 5:E:76:ARG:O | 1.81 | 0.79 |
| 6:F:4:VAL:CG1 | 6:F:20:LEU:CG | 2.45 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:148:MET:HG2 | 7:G:150:ASP:O | 1.82 | 0.79 |
| 7:G:131:TYR:CZ | 7:G:157:ILE:O | 2.36 | 0.79 |
| 7:G:49:ASP:O | 7:G:53:LEU:CB | 2.30 | 0.79 |
| 7:G:98:ARG:O | 7:G:101:ILE:HG22 | 1.82 | 0.79 |
| 9:K:9:LEU:O | 9:K:9:LEU:HD23 | 1.82 | 0.79 |
| 13:O:88:LEU:CG | 13:O:124:LYS:HE3 | 2.07 | 0.79 |
| 14:P:33:GLY:O | 14:P:131:ILE:HG23 | 1.83 | 0.79 |
| 1:A:2278:A:P | 14:P:14:ARG:HG3 | 2.22 | 0.79 |
| 16:R:31:SER:HB3 | 16:R:34:HIS:CB | 2.12 | 0.79 |
| 17:S:30:VAL:HG22 | 17:S:32:TYR:HE2 | 1.45 | 0.79 |
| 18:T:102:GLU:O | 18:T:105:VAL:N | 2.16 | 0.79 |
| 19:U:19:LYS:CB | 19:U:21:ARG:HH12 | 1.95 | 0.79 |
| 25:1:51:GLN:HA | 25:1:54:ARG:NE | 1.97 | 0.79 |
| 28:4:40:LYS:CE | 28:4:41:PRO:O | 2.31 | 0.79 |
| 29:5:17:LYS:O | 29:5:19:ARG:HD2 | 1.83 | 0.79 |
| 32:8:17:ILE:CD1 | 32:8:26:ILE:HD12 | 2.13 | 0.79 |
| 1:A:2081:C:O2' | 1:A:2082:A:H5' | 1.82 | 0.79 |
| 1:A:2244:U:H1' | 1:A:2434:A:C5 | 2.17 | 0.79 |
| 1:A:270(Z):U:H2' | 1:A:270(Z):U:O2 | 1.80 | 0.79 |
| 1:A:1750:G:O2' | 1:A:2860:A:N1 | 2.16 | 0.79 |
| 1:A:33:U:HO2' | 1:A:34:C:H5 | 1.29 | 0.79 |
| 1:A:35:G:O4' | 1:A:454:A:H1' | 1.83 | 0.79 |
| 1:A:455:C:O2' | 1:A:456:C:H5' | 1.82 | 0.79 |
| 1:A:590:A:H5'' | 6:F:95:ARG:HD2 | 1.64 | 0.79 |
| 1:A:627:A:C6 | 1:A:637:A:H1' | 2.18 | 0.79 |
| 1:A:685:A:O4' | 1:A:688:U:O4 | 2.00 | 0.79 |
| 1:A:686:G:N7 | 30:6:12:ARG:CD | 2.46 | 0.79 |
| 1:A:850:C:O2' | 1:A:851:U:H5' | 1.83 | 0.79 |
| 4:D:260:ARG:O | 4:D:261:LYS:C | 2.21 | 0.79 |
| 4:D:43:ARG:O | 4:D:44:ASN:HB3 | 1.82 | 0.79 |
| 4:D:77:ALA:HB1 | 4:D:96:HIS:O | 1.83 | 0.79 |
| 1:A:2571:C:HO2' | 5:E:146:THR:HA | 1.45 | 0.79 |
| 5:E:169:ASN:ND2 | 5:E:170:LEU:H | 1.78 | 0.79 |
| 5:E:174:ASP:O | 5:E:182:LEU:HG | 1.83 | 0.79 |
| 5:E:33:VAL:HG13 | 5:E:48:GLN:HA | 1.62 | 0.79 |
| 6:F:37:VAL:HA | 6:F:184:TYR:CZ | 2.17 | 0.79 |
| 7:G:60:LEU:HG | 7:G:90:LEU:HD21 | 1.64 | 0.79 |
| 10:L:75:SER:O | 10:L:79:ARG:HG3 | 1.83 | 0.79 |
| 11:M:12:ARG:HH12 | 11:M:48:MET:CE | 1.96 | 0.79 |
| 11:M:55:VAL:HG13 | 11:M:56:ASN:H | 1.48 | 0.79 |
| 12:N:104:ARG:HA | 12:N:107:ARG:HD2 | 1.63 | 0.79 |
| 17:S:23:ARG:NH2 | 17:S:90:GLN:N | 2.31 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 21:W:79:ALA:O | 21:W:80:ILE:HD13 | 1.82 | 0.79 |
| 23:Y:109:ALA:N | 23:Y:144:LEU:HD12 | 1.98 | 0.79 |
| 3:C:75:LEU:HD21 | 3:C:77:ILE:HG23 | 1.65 | 0.79 |
| 26:2:4:LEU:HD13 | 26:2:37:LEU:HD11 | 1.63 | 0.79 |
| 1:A:1023:U:OP2 | 1:A:1025:G:N1 | 2.15 | 0.79 |
| 1:A:1051:G:H5'' | 1:A:1052:C:OP2 | 1.83 | 0.79 |
| 1:A:1151:G:H2' | 1:A:1152:C:H6 | 1.46 | 0.79 |
| 1:A:1178:C:C2 | 1:A:1179:C:C5 | 2.71 | 0.79 |
| 1:A:51:G:N2 | 1:A:120:U:H3 | 1.81 | 0.79 |
| 1:A:1359:A:N6 | 1:A:1360:A:N7 | 2.31 | 0.79 |
| 1:A:1658:C:P | 5:E:134:ILE:HB | 2.23 | 0.79 |
| 1:A:1684:C:H2' | 1:A:1685:C:H6 | 1.43 | 0.79 |
| 1:A:1814:G:H2' | 1:A:1815:A:C8 | 2.18 | 0.79 |
| 1:A:2277:G:H3' | 24:Z:12:ASN:HD21 | 1.46 | 0.79 |
| 1:A:2523:G:C1' | 1:A:2765:A:N7 | 2.45 | 0.79 |
| 1:A:2589:A:O2' | 1:A:2590:A:H5' | 1.83 | 0.79 |
| 1:A:707:G:H2' | 1:A:708:C:C6 | 2.18 | 0.79 |
| 1:A:869:G:C6 | 1:A:909:A:N6 | 2.50 | 0.79 |
| 4:D:84:TYR:HB3 | 4:D:91:ARG:HG3 | 1.63 | 0.79 |
| 6:F:119:ARG:CB | 6:F:119:ARG:HH21 | 1.92 | 0.79 |
| 6:F:184:TYR:HD2 | 6:F:184:TYR:H | 1.29 | 0.79 |
| 7:G:39:ILE:HG23 | 7:G:157:ILE:HB | 1.65 | 0.79 |
| 10:L:14:ALA:HB1 | 10:L:45:THR:O | 1.82 | 0.79 |
| 11:M:22:THR:HG22 | 11:M:61:ARG:HH22 | 1.47 | 0.79 |
| 13:O:38:GLN:C | 13:O:40:SER:N | 2.25 | 0.79 |
| 14:P:115:MET:SD | 14:P:116:GLU:N | 2.56 | 0.79 |
| 15:Q:78:LYS:O | 15:Q:82:GLU:CB | 2.31 | 0.79 |
| 16:R:106:ARG:NH1 | 16:R:110:LEU:HB3 | 1.98 | 0.79 |
| 17:S:17:THR:HG21 | 17:S:20:PRO:CG | 2.12 | 0.79 |
| 21:W:12:VAL:O | 21:W:12:VAL:HG12 | 1.81 | 0.79 |
| 22:X:41:GLY:HA3 | 22:X:61:ILE:O | 1.83 | 0.79 |
| 23:Y:126:VAL:O | 23:Y:165:VAL:HG23 | 1.83 | 0.79 |
| 1:A:2353:G:H4' | 24:Z:32:ARG:HH12 | 1.48 | 0.79 |
| 3:C:59:ARG:HB2 | 3:C:59:ARG:HH11 | 1.46 | 0.79 |
| 25:1:51:GLN:O | 25:1:55:LEU:HD13 | 1.82 | 0.78 |
| 28:4:31:VAL:O | 28:4:39:MET:HB2 | 1.82 | 0.78 |
| 28:4:50:GLY:O | 28:4:55:ARG:HA | 1.84 | 0.78 |
| 31:7:1:MET:N | 31:7:2:PRO:HD2 | 1.97 | 0.78 |
| 1:A:1266:G:OP1 | 28:4:19:ARG:NE | 2.15 | 0.78 |
| 1:A:1314:C:H2' | 1:A:1315:C:C6 | 2.18 | 0.78 |
| 1:A:1356:G:O2' | 1:A:1357:U:H5' | 1.83 | 0.78 |
| 1:A:1702:G:H2' | 1:A:1703:G:H5'' | 1.62 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1862:G:H2' | 1:A:1863:G:H8 | 1.45 | 0.78 |
| 1:A:1903:G:H2' | 1:A:1904:G:H8 | 1.48 | 0.78 |
| 1:A:1999:C:H4' | 1:A:2723:C:O2 | 1.82 | 0.78 |
| 1:A:2584:U:H2' | 1:A:2585:U:C6 | 2.18 | 0.78 |
| 1:A:2607:G:H2' | 1:A:2608:G:H5' | 1.63 | 0.78 |
| 1:A:2712:U:H2' | 1:A:2712(A):A:C5' | 2.12 | 0.78 |
| 1:A:271(B):G:H5'' | 1:A:271(C):U:C4' | 2.12 | 0.78 |
| 1:A:2747:G:N2 | 1:A:2754:U:N3 | 2.32 | 0.78 |
| 1:A:388:G:N2 | 1:A:390:A:C2 | 2.51 | 0.78 |
| 1:A:559:G:H2' | 1:A:560:C:O4' | 1.82 | 0.78 |
| 1:A:627:A:N6 | 1:A:638:G:H1' | 1.98 | 0.78 |
| 1:A:757:U:O2' | 1:A:758:C:H5' | 1.82 | 0.78 |
| 1:A:845:G:O5' | 1:A:845:G:H8 | 1.65 | 0.78 |
| 1:A:898:C:N4 | 1:A:899:A:C8 | 2.51 | 0.78 |
| 1:A:919:G:N3 | 1:A:920:G:C8 | 2.52 | 0.78 |
| 2:B:103:U:H2' | 2:B:104:A:H5' | 1.64 | 0.78 |
| 4:D:231:HIS:O | 4:D:232:PRO:C | 2.18 | 0.78 |
| 6:F:110:LEU:HA | 6:F:183:VAL:HG22 | 1.64 | 0.78 |
| 6:F:201:VAL:CG1 | 6:F:205:ARG:HH21 | 1.94 | 0.78 |
| 11:M:36:GLY:N | 11:M:49:GLY:H | 1.79 | 0.78 |
| 11:M:33:LEU:HD11 | 11:M:52:VAL:CG1 | 2.12 | 0.78 |
| 11:M:91:LEU:HG | 11:M:92:ALA:N | 1.98 | 0.78 |
| 12:N:11:ALA:HB1 | 12:N:97:ARG:NE | 1.97 | 0.78 |
| 14:P:16:ARG:NH1 | 14:P:72:LYS:HA | 1.96 | 0.78 |
| 15:Q:57:ARG:NE | 15:Q:62:ALA:HB2 | 1.98 | 0.78 |
| 16:R:12:PHE:CD1 | 16:R:13:ARG:N | 2.52 | 0.78 |
| 16:R:3:ARG:O | 16:R:7:TYR:HB2 | 1.83 | 0.78 |
| 21:W:50:LYS:HZ3 | 21:W:87:GLN:HB2 | 1.45 | 0.78 |
| 22:X:47:LYS:HD3 | 22:X:51:VAL:HB | 1.63 | 0.78 |
| 23:Y:122:ARG:C | 23:Y:124:ILE:H | 1.86 | 0.78 |
| 3:C:193:ILE:HD13 | 3:C:226:PRO:O | 1.82 | 0.78 |
| 27:3:42:PHE:CG | 27:3:43:TYR:N | 2.47 | 0.78 |
| 27:3:64:GLY:C | 27:3:68:ARG:CZ | 2.51 | 0.78 |
| 1:A:830:G:C4 | 1:A:2448:A:C8 | 2.71 | 0.78 |
| 1:A:2748:A:N1 | 1:A:2756:U:N3 | 2.31 | 0.78 |
| 1:A:616:A:H4' | 1:A:617:G:OP1 | 1.82 | 0.78 |
| 1:A:775:G:H2' | 1:A:794:G:H8 | 1.44 | 0.78 |
| 1:A:813:U:H2' | 1:A:814:C:H6 | 1.48 | 0.78 |
| 4:D:130:ALA:O | 4:D:131:LEU:HD13 | 1.82 | 0.78 |
| 4:D:88:ARG:HD3 | 4:D:89:SER:H | 1.48 | 0.78 |
| 5:E:36:ARG:O | 5:E:44:TYR:CD2 | 2.36 | 0.78 |
| 6:F:52:LYS:O | 6:F:53:THR:HG23 | 1.84 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 7:G:22:ARG:CZ | 7:G:22:ARG:HB3 | 2.11 | 0.78 |
| 8:H:85:LYS:HD2 | 8:H:145:ALA:HB2 | 1.64 | 0.78 |
| 9:K:34:GLY:C | 9:K:35:LEU:HD22 | 2.02 | 0.78 |
| 11:M:16:ILE:N | 11:M:16:ILE:HD12 | 1.97 | 0.78 |
| 14:P:37:LEU:HB2 | 14:P:129:THR:HA | 1.64 | 0.78 |
| 17:S:35:LYS:O | 17:S:36:GLU:C | 2.21 | 0.78 |
| 17:S:65:LYS:HE2 | 17:S:75:ILE:HD12 | 1.63 | 0.78 |
| 18:T:92:ARG:C | 18:T:93:LYS:HZ3 | 1.86 | 0.78 |
| 23:Y:122:ARG:NE | 23:Y:170:THR:O | 2.16 | 0.78 |
| 24:Z:42:GLY:O | 24:Z:57:PHE:HD2 | 1.66 | 0.78 |
| 22:X:108:THR:HG22 | 22:X:109:GLU:OE1 | 1.83 | 0.78 |
| 1:A:1014:U:C2' | 1:A:1015:G:H5' | 2.14 | 0.78 |
| 1:A:1457:A:HO2' | 1:A:1459:G:H8 | 1.31 | 0.78 |
| 1:A:200:U:O4 | 1:A:248:G:N7 | 2.15 | 0.78 |
| 1:A:2658:C:C4 | 1:A:2664:G:N2 | 2.51 | 0.78 |
| 1:A:272:G:H2' | 1:A:273:G:O4' | 1.83 | 0.78 |
| 1:A:645:C:H5' | 1:A:646:A:OP1 | 1.82 | 0.78 |
| 1:A:71:A:H4' | 1:A:72:U:C5' | 2.10 | 0.78 |
| 1:A:904:C:H2' | 1:A:905:U:H6 | 1.47 | 0.78 |
| 1:A:962:G:N2 | 1:A:963:U:C2 | 2.51 | 0.78 |
| 1:A:976:C:H5'' | 1:A:1156:A:N6 | 1.99 | 0.78 |
| 4:D:17:THR:O | 4:D:19:ALA:N | 2.16 | 0.78 |
| 4:D:239:ARG:HD2 | 4:D:239:ARG:H | 1.48 | 0.78 |
| 1:A:1805:U:C1' | 4:D:51:VAL:HG11 | 2.12 | 0.78 |
| 5:E:51:PHE:C | 5:E:74:PRO:HB3 | 2.04 | 0.78 |
| 6:F:176:LEU:HD21 | 6:F:180:GLY:O | 1.83 | 0.78 |
| 8:H:137:ASP:HB3 | 8:H:140:LYS:HB3 | 1.63 | 0.78 |
| 11:M:51:PHE:CE2 | 11:M:119:ARG:HG2 | 2.19 | 0.78 |
| 11:M:93:THR:O | 11:M:94:HIS:HD2 | 1.65 | 0.78 |
| 12:N:24:VAL:HG13 | 12:N:30:ALA:HB1 | 1.65 | 0.78 |
| 14:P:114:ALA:O | 14:P:118:LEU:HG | 1.82 | 0.78 |
| 1:A:1287:A:OP1 | 15:Q:105:ARG:HB2 | 1.83 | 0.78 |
| 18:T:13:LYS:HA | 18:T:16:LYS:NZ | 1.98 | 0.78 |
| 18:T:53:ARG:HG3 | 18:T:56:ASP:OD2 | 1.84 | 0.78 |
| 1:A:2103:C:H2' | 1:A:2104:G:H8 | 1.47 | 0.78 |
| 1:A:315:G:H2' | 1:A:316:C:C1' | 2.12 | 0.78 |
| 25:1:38:GLN:H | 25:1:41:GLN:NE2 | 1.80 | 0.78 |
| 25:1:23:LYS:HE3 | 25:1:52:ILE:CD1 | 2.12 | 0.78 |
| 1:A:1160:G:C6 | 1:A:1161:C:N4 | 2.52 | 0.78 |
| 1:A:1279:G:H2' | 1:A:1280:G:H8 | 1.49 | 0.78 |
| 1:A:1608:A:H2' | 1:A:1611:C:H41 | 1.49 | 0.78 |
| 1:A:1608:A:H4' | 1:A:1609:A:OP1 | 1.82 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1826:G:H2' | 1:A:1827:C:C5' | 2.14 | 0.78 |
| 1:A:2216:G:O2' | 1:A:2217:G:H5' | 1.84 | 0.78 |
| 1:A:2690:C:O2' | 1:A:2691:C:H5' | 1.82 | 0.78 |
| 1:A:2839:G:O2' | 1:A:2840:C:H5' | 1.84 | 0.78 |
| 1:A:784:A:O2' | 1:A:785:G:H5' | 1.83 | 0.78 |
| 4:D:120:GLY:H | 4:D:131:LEU:CD1 | 1.97 | 0.78 |
| 1:A:2597:G:C4' | 4:D:242:ARG:HE | 1.96 | 0.78 |
| 1:A:2619:C:C4' | 5:E:152:LYS:HA | 2.12 | 0.78 |
| 7:G:102:PHE:CD2 | 7:G:106:LEU:HD11 | 2.17 | 0.78 |
| 7:G:107:LEU:HD12 | 7:G:108:ASN:OD1 | 1.82 | 0.78 |
| 12:N:63:VAL:HG21 | 12:N:82:ASN:ND2 | 1.99 | 0.78 |
| 14:P:77:LYS:HE3 | 14:P:87:LYS:HG3 | 1.64 | 0.78 |
| 17:S:109:GLU:O | 17:S:110:ILE:HD12 | 1.84 | 0.78 |
| 18:T:93:LYS:N | 18:T:93:LYS:HZ3 | 1.81 | 0.78 |
| 19:U:14:VAL:HG12 | 19:U:15:GLU:N | 1.98 | 0.78 |
| 19:U:62:LEU:HD12 | 19:U:96:ILE:HB | 0.90 | 0.78 |
| 20:V:35:ILE:HG13 | 28:4:28:PRO:CD | 2.13 | 0.78 |
| 20:V:4:LYS:HD3 | 20:V:4:LYS:N | 1.97 | 0.78 |
| 24:Z:13:GLY:C | 24:Z:14:ARG:HD3 | 2.03 | 0.78 |
| 24:Z:48:GLY:HA3 | 24:Z:80:HIS:NE2 | 1.98 | 0.78 |
| 1:A:2148:G:HO2' | 1:A:2149:G:H8 | 1.30 | 0.78 |
| 1:A:1496:A:OP2 | 1:A:1496:A:C8 | 2.36 | 0.78 |
| 4:D:273:ARG:HG3 | 4:D:273:ARG:NH1 | 1.97 | 0.78 |
| 1:A:2246:G:N3 | 1:A:2247:A:N7 | 2.31 | 0.78 |
| 13:O:148:LEU:HD23 | 13:O:149:GLU:H | 1.49 | 0.78 |
| 1:A:151:C:C2 | 1:A:176:G:N2 | 2.52 | 0.78 |
| 1:A:2016:U:H5'' | 1:A:2058:A:OP1 | 1.82 | 0.78 |
| 1:A:2281:C:C6 | 1:A:2281:C:OP2 | 2.36 | 0.78 |
| 1:A:2291:U:H2' | 1:A:2292:C:C6 | 2.18 | 0.78 |
| 1:A:2575:C:OP1 | 5:E:144:ARG:NH2 | 2.16 | 0.78 |
| 1:A:2756:U:N3 | 1:A:2758:A:C6 | 2.52 | 0.78 |
| 1:A:2859:G:H2' | 1:A:2860:A:C8 | 2.18 | 0.78 |
| 1:A:458:G:H3' | 30:6:39:ARG:HD2 | 1.65 | 0.78 |
| 1:A:727:A:N1 | 1:A:729:G:C6 | 2.51 | 0.78 |
| 5:E:36:ARG:CG | 5:E:79:ARG:HH11 | 1.97 | 0.78 |
| 5:E:38:THR:HB | 5:E:39:PRO:HD3 | 1.65 | 0.78 |
| 5:E:53:PRO:HD2 | 5:E:74:PRO:HA | 1.64 | 0.78 |
| 6:F:161:GLU:O | 6:F:165:ARG:HB2 | 1.83 | 0.78 |
| 7:G:41:GLN:O | 7:G:43:LEU:N | 2.16 | 0.78 |
| 8:H:11:VAL:HG21 | 8:H:17:VAL:HG11 | 1.66 | 0.78 |
| 8:H:87:LEU:H | 8:H:132:ARG:HB2 | 1.49 | 0.78 |
| 9:K:31:LEU:CD2 | 9:K:36:ALA:HB3 | 2.13 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 9:K:7:GLU:OE1 | 9:K:35:LEU:HA | 1.82 | 0.78 |
| 9:K:5:LEU:HA | 9:K:36:ALA:HB2 | 1.64 | 0.78 |
| 11:M:15:LEU:CD1 | 11:M:137:LYS:HB3 | 2.13 | 0.78 |
| 12:N:94:ARG:CG | 12:N:95:GLY:N | 2.45 | 0.78 |
| 14:P:134:ARG:HH11 | 14:P:137:TYR:H | 1.31 | 0.78 |
| 15:Q:100:LEU:HD22 | 15:Q:101:ALA:H | 1.49 | 0.78 |
| 16:R:19:LYS:HD3 | 16:R:19:LYS:C | 2.03 | 0.78 |
| 18:T:11:ARG:HG2 | 18:T:12:ARG:N | 1.96 | 0.78 |
| 18:T:88:ILE:HG12 | 19:U:52:VAL:CG2 | 2.12 | 0.78 |
| 20:V:36:LEU:HG | 20:V:51:LEU:CD2 | 2.13 | 0.78 |
| 21:W:57:LEU:HD22 | 21:W:78:LYS:HD2 | 1.66 | 0.78 |
| 3:C:68:LEU:HD22 | 3:C:156:ILE:O | 1.83 | 0.78 |
| 25:1:54:ARG:O | 25:1:58:VAL:HG13 | 1.84 | 0.78 |
| 28:4:51:TYR:CD1 | 28:4:54:GLY:N | 2.46 | 0.78 |
| 1:A:126:A:N6 | 1:A:127:A:N1 | 2.32 | 0.78 |
| 1:A:1270:C:H1' | 1:A:1325:G:N7 | 1.99 | 0.78 |
| 1:A:1478:G:O2' | 1:A:1479:G:H5' | 1.83 | 0.78 |
| 1:A:1657:C:H5' | 5:E:133:LYS:HD3 | 1.66 | 0.78 |
| 1:A:1695:G:N2 | 1:A:1696:G:C8 | 2.52 | 0.78 |
| 1:A:1878:G:H2' | 1:A:1879:C:C6 | 2.18 | 0.78 |
| 1:A:1912:A:C2 | 1:A:1919:A:N3 | 2.51 | 0.78 |
| 1:A:192:C:O2 | 1:A:192:C:H2' | 1.83 | 0.78 |
| 1:A:1955:U:O2 | 1:A:1955:U:H2' | 1.84 | 0.78 |
| 1:A:1989:G:O2' | 1:A:1990:C:H5' | 1.84 | 0.78 |
| 1:A:464:U:C4' | 30:6:12:ARG:HH22 | 1.96 | 0.78 |
| 1:A:728:G:C1' | 1:A:729:G:C8 | 2.67 | 0.78 |
| 4:D:44:ASN:HB2 | 4:D:217:ARG:HH22 | 1.48 | 0.78 |
| 6:F:130:ALA:HB3 | 6:F:142:TRP:CB | 2.12 | 0.78 |
| 6:F:123:LEU:CD1 | 6:F:191:ARG:HD3 | 2.14 | 0.78 |
| 6:F:45:ARG:HG2 | 6:F:97:TYR:HB2 | 1.66 | 0.78 |
| 10:L:10:LEU:HD12 | 10:L:23:VAL:CG2 | 2.12 | 0.78 |
| 1:A:558:G:H5' | 11:M:112:LEU:CD1 | 2.14 | 0.78 |
| 13:O:107:LYS:CE | 13:O:110:TYR:HB3 | 2.12 | 0.78 |
| 6:F:34:TRP:HH2 | 13:O:6:LEU:N | 1.81 | 0.78 |
| 13:O:81:GLN:CD | 13:O:86:LYS:HG3 | 2.03 | 0.78 |
| 14:P:33:GLY:C | 14:P:34:LEU:HD23 | 2.03 | 0.78 |
| 16:R:106:ARG:HH11 | 16:R:106:ARG:C | 1.85 | 0.78 |
| 17:S:52:ILE:CA | 17:S:66:VAL:HG13 | 2.13 | 0.78 |
| 18:T:68:ALA:HA | 18:T:71:GLN:HB2 | 1.66 | 0.78 |
| 21:W:12:VAL:HG23 | 21:W:28:PHE:HA | 1.64 | 0.78 |
| 21:W:9:LEU:N | 21:W:9:LEU:HD12 | 1.98 | 0.78 |
| 22:X:50:ARG:HB3 | 22:X:50:ARG:HH21 | 1.46 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:X:47:LYS:HZ2 | 22:X:51:VAL:HG11 | 1.49 | 0.78 |
| 24:Z:26:TYR:O | 24:Z:67:VAL:HG21 | 1.83 | 0.78 |
| 24:Z:47:PRO:HA | 24:Z:51:VAL:HG11 | 1.65 | 0.78 |
| 3:C:192:PHE:CE1 | 3:C:196:LEU:HD22 | 2.18 | 0.78 |
| 3:C:59:ARG:HH11 | 3:C:59:ARG:CB | 1.96 | 0.78 |
| 1:A:2195:C:C2 | 1:A:2196:C:C6 | 2.71 | 0.78 |
| 1:A:83:G:O6 | 1:A:102:G:H1' | 1.84 | 0.78 |
| 1:A:2597:G:H5' | 4:D:242:ARG:CD | 2.12 | 0.78 |
| 1:A:2848:G:N2 | 1:A:2849:U:H3 | 1.82 | 0.78 |
| 1:A:707:G:H2' | 1:A:708:C:H6 | 1.49 | 0.78 |
| 1:A:775:G:H21 | 1:A:787:U:C2' | 1.84 | 0.78 |
| 1:A:957:A:C2 | 1:A:2459:A:H5'' | 2.19 | 0.78 |
| 4:D:177:LEU:HD11 | 4:D:181:GLU:HB2 | 1.64 | 0.78 |
| 4:D:199:ALA:O | 4:D:202:LYS:HB2 | 1.84 | 0.78 |
| 6:F:6:VAL:CA | 6:F:20:LEU:CD1 | 2.62 | 0.78 |
| 8:H:149:ARG:HH21 | 8:H:164:TYR:HD1 | 1.32 | 0.78 |
| 8:H:83:TYR:O | 8:H:135:GLY:N | 2.15 | 0.78 |
| 11:M:57:ALA:H | 11:M:124:ALA:HA | 1.49 | 0.78 |
| 13:O:72:PRO:HG3 | 13:O:110:TYR:CD2 | 2.19 | 0.78 |
| 13:O:46:LYS:HB2 | 13:O:49:ARG:CB | 2.13 | 0.78 |
| 15:Q:118:GLU:HA | 15:Q:118:GLU:OE2 | 1.83 | 0.78 |
| 17:S:105:LEU:O | 17:S:109:GLU:HG3 | 1.84 | 0.78 |
| 23:Y:94:GLU:N | 23:Y:95:PRO:HD3 | 1.99 | 0.78 |
| 9:K:77:LEU:HD11 | 9:K:140:LEU:HB3 | 1.66 | 0.78 |
| 9:K:88:ILE:HG22 | 9:K:90:GLY:H | 1.48 | 0.78 |
| 1:A:2120:G:N2 | 3:C:167:LYS:HZ2 | 1.82 | 0.78 |
| 3:C:21:THR:HG22 | 3:C:225:ASN:HB3 | 1.65 | 0.78 |
| 3:C:78:ALA:HA | 3:C:119:VAL:CG2 | 2.14 | 0.78 |
| 3:C:73:ARG:HD2 | 3:C:93:TYR:CE2 | 2.18 | 0.78 |
| 8:H:170:ARG:O | 8:H:171:LEU:HD23 | 1.84 | 0.78 |
| 26:2:3:ARG:O | 26:2:59:VAL:O | 2.01 | 0.78 |
| 1:A:1058:G:H21 | 10:L:116:ASN:ND2 | 1.81 | 0.78 |
| 1:A:1647:G:C4' | 1:A:1648:C:OP1 | 2.32 | 0.78 |
| 1:A:1785:A:H2' | 1:A:1786:A:C8 | 2.18 | 0.78 |
| 1:A:2666:C:C3' | 1:A:2667:C:H5' | 2.13 | 0.78 |
| 1:A:341:G:H2' | 1:A:342:G:C8 | 2.19 | 0.78 |
| 1:A:688:U:H5' | 1:A:1780:A:C6 | 2.17 | 0.78 |
| 1:A:742:G:H5' | 1:A:1675:C:O2' | 1.84 | 0.78 |
| 1:A:861:A:H62 | 1:A:917:A:N6 | 1.70 | 0.78 |
| 1:A:914:C:H3' | 1:A:914:C:C6 | 2.19 | 0.78 |
| 1:A:2312:U:C5' | 7:G:43:LEU:HD22 | 2.10 | 0.78 |
| 8:H:120:GLY:HA3 | 8:H:136:ILE:CG2 | 2.13 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 10:L:23:VAL:CG1 | 10:L:34:ILE:HA | 2.14 | 0.78 |
| 11:M:43:THR:HB | 11:M:44:PRO:HD2 | 1.62 | 0.78 |
| 11:M:89:LYS:N | 11:M:89:LYS:HZ1 | 1.79 | 0.78 |
| 12:N:18:LYS:HE2 | 12:N:44:LYS:CD | 2.09 | 0.78 |
| 12:N:64:ARG:HG3 | 12:N:64:ARG:NH2 | 1.92 | 0.78 |
| 22:X:49:VAL:O | 22:X:56:PRO:HD3 | 1.84 | 0.78 |
| 3:C:74:VAL:HG22 | 3:C:112:ALA:CB | 2.12 | 0.78 |
| 3:C:78:ALA:O | 3:C:119:VAL:HG11 | 1.84 | 0.78 |
| 1:A:1022:G:N2 | 1:A:1023:U:O4 | 2.16 | 0.78 |
| 1:A:1025:G:N2 | 1:A:1026:U:OP1 | 2.16 | 0.78 |
| 1:A:1361:G:H2' | 1:A:1362:C:H6 | 1.48 | 0.78 |
| 1:A:1387:C:H2' | 1:A:1388:G:H8 | 1.49 | 0.78 |
| 1:A:1778:U:H2' | 1:A:1779:U:C6 | 2.18 | 0.78 |
| 1:A:2075:U:C2' | 1:A:2076:U:C5' | 2.62 | 0.78 |
| 1:A:285:C:H2' | 1:A:286:C:C6 | 2.19 | 0.78 |
| 1:A:950:G:H2' | 1:A:951:C:H6 | 1.46 | 0.78 |
| 2:B:14:U:O2' | 2:B:107:U:H1' | 1.84 | 0.78 |
| 2:B:32:C:H3' | 2:B:33:G:H8 | 1.47 | 0.78 |
| 4:D:159:ALA:HB1 | 4:D:198:ASN:O | 1.83 | 0.78 |
| 1:A:728:G:C4' | 4:D:16:MET:SD | 2.72 | 0.78 |
| 11:M:43:THR:CB | 11:M:44:PRO:CD | 2.60 | 0.78 |
| 12:N:41:ALA:H | 12:N:59:LYS:NZ | 1.82 | 0.78 |
| 12:N:7:TYR:HB3 | 12:N:18:LYS:HZ1 | 1.46 | 0.78 |
| 15:Q:102:GLU:CD | 15:Q:103:ARG:H | 1.87 | 0.78 |
| 16:R:11:LYS:HZ1 | 16:R:15:ARG:NH2 | 1.81 | 0.78 |
| 16:R:3:ARG:CD | 16:R:4:LEU:H | 1.96 | 0.78 |
| 17:S:3:ARG:O | 17:S:7:ILE:HG12 | 1.84 | 0.78 |
| 19:U:21:ARG:N | 19:U:93:GLU:OE2 | 2.16 | 0.78 |
| 1:A:519:U:H5'' | 20:V:75:TYR:CB | 2.13 | 0.78 |
| 22:X:13:VAL:CG2 | 22:X:14:LEU:N | 2.47 | 0.78 |
| 22:X:50:ARG:HB2 | 22:X:54:LYS:CE | 2.14 | 0.78 |
| 23:Y:57:ILE:CG2 | 23:Y:58:VAL:N | 2.45 | 0.78 |
| 24:Z:53:MET:CE | 24:Z:57:PHE:HA | 2.14 | 0.78 |
| 1:A:2344:U:H3' | 29:5:38:LYS:HG3 | 1.64 | 0.78 |
| 1:A:1162:G:H4' | 19:U:23:GLU:HB3 | 1.66 | 0.78 |
| 1:A:1222:C:C4 | 1:A:1223:C:H5 | 2.02 | 0.78 |
| 1:A:1223:C:N3 | 1:A:1227:A:N1 | 2.32 | 0.78 |
| 1:A:1438:U:H3 | 1:A:1553:A:H61 | 1.32 | 0.78 |
| 1:A:1712:C:H2' | 1:A:1716:U:H6 | 1.49 | 0.78 |
| 1:A:2070:G:O2' | 1:A:2071:A:H5' | 1.84 | 0.78 |
| 1:A:2883:A:H3' | 1:A:2884:U:H5' | 1.64 | 0.78 |
| 1:A:455:C:C5' | 1:A:456:C:OP1 | 2.32 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:507:A:H5'' | 1:A:508:G:OP1 | 1.84 | 0.78 |
| 1:A:752:A:H62 | 1:A:1781:C:C4' | 1.97 | 0.78 |
| 1:A:839:U:H2' | 1:A:840:C:C6 | 2.19 | 0.78 |
| 2:B:114:G:C1' | 16:R:47:THR:HG21 | 2.13 | 0.78 |
| 1:A:1798:U:H5' | 4:D:257:LEU:CD1 | 2.13 | 0.78 |
| 5:E:53:PRO:CD | 5:E:74:PRO:HA | 2.14 | 0.78 |
| 7:G:53:LEU:CD2 | 7:G:70:VAL:HA | 2.14 | 0.78 |
| 8:H:43:VAL:CG1 | 8:H:44:VAL:N | 2.46 | 0.78 |
| 9:K:28:ASN:C | 9:K:32:PRO:HG3 | 2.04 | 0.78 |
| 9:K:31:LEU:HD21 | 9:K:36:ALA:HB3 | 1.65 | 0.78 |
| 9:K:7:GLU:C | 9:K:14:ASP:HA | 2.04 | 0.78 |
| 10:L:108:ALA:HB1 | 10:L:123:ALA:CB | 2.14 | 0.78 |
| 12:N:97:ARG:CA | 12:N:97:ARG:CZ | 2.60 | 0.78 |
| 13:O:114:ILE:CG2 | 13:O:123:LEU:HD11 | 2.14 | 0.78 |
| 14:P:16:ARG:CZ | 14:P:72:LYS:HA | 2.14 | 0.78 |
| 18:T:108:GLU:HG2 | 18:T:109:LEU:N | 1.97 | 0.78 |
| 21:W:26:TYR:HB2 | 21:W:28:PHE:CZ | 2.19 | 0.78 |
| 22:X:82:PRO:HD3 | 22:X:97:ARG:N | 1.99 | 0.78 |
| 1:A:2124:G:H4' | 3:C:42:GLU:HG3 | 1.66 | 0.78 |
| 1:A:1612:C:O3' | 30:6:5:TRP:CD1 | 2.36 | 0.77 |
| 1:A:1206:G:H3' | 1:A:1206:G:H8 | 1.50 | 0.77 |
| 1:A:1255:U:C5' | 1:A:1256:G:H5'' | 2.14 | 0.77 |
| 1:A:1270:C:H6 | 1:A:1270:C:OP2 | 1.67 | 0.77 |
| 1:A:1368:G:O2' | 1:A:1369:G:H5' | 1.82 | 0.77 |
| 1:A:1811:G:H2' | 1:A:1812:A:C8 | 2.16 | 0.77 |
| 1:A:1966:A:H1' | 1:A:2593:U:C5' | 2.14 | 0.77 |
| 1:A:2018:G:N3 | 18:T:34:LYS:NZ | 2.31 | 0.77 |
| 1:A:2299:G:O2' | 1:A:2300:G:H5' | 1.84 | 0.77 |
| 1:A:2436:G:O2' | 1:A:2437:U:H5' | 1.85 | 0.77 |
| 1:A:370:G:C2 | 1:A:424:G:N7 | 2.52 | 0.77 |
| 1:A:454:A:O2' | 1:A:455:C:C4 | 2.37 | 0.77 |
| 1:A:783:A:H8 | 4:D:227:ASN:OD1 | 1.66 | 0.77 |
| 4:D:75:ILE:CG2 | 4:D:98:VAL:HB | 2.13 | 0.77 |
| 6:F:4:VAL:O | 6:F:20:LEU:HD12 | 1.82 | 0.77 |
| 8:H:111:HIS:O | 8:H:113:VAL:HG23 | 1.83 | 0.77 |
| 8:H:60:ARG:NH2 | 8:H:64:LEU:HD11 | 1.98 | 0.77 |
| 9:K:5:LEU:HA | 9:K:36:ALA:CB | 2.14 | 0.77 |
| 1:A:663:G:OP1 | 13:O:18:ARG:HD2 | 1.83 | 0.77 |
| 13:O:46:LYS:N | 13:O:46:LYS:HD2 | 1.99 | 0.77 |
| 14:P:25:ASP:HB3 | 14:P:102:VAL:HG12 | 1.65 | 0.77 |
| 14:P:79:LEU:HB2 | 14:P:80:GLU:OE2 | 1.84 | 0.77 |
| 16:R:110:LEU:O | 16:R:110:LEU:HD23 | 1.84 | 0.77 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 3:C:225:ASN:ND2 | 3:C:227:HIS:HB2 | 1.99 | 0.77 |
| 25:1:25:ARG:HG3 | 25:1:25:ARG:HH21 | 1.49 | 0.77 |
| 1:A:1078:U:O2 | 1:A:1088:A:H1' | 1.83 | 0.77 |
| 1:A:1326:U:O2' | 1:A:1327:C:H5' | 1.82 | 0.77 |
| 1:A:1634:A:O2' | 1:A:1635:G:OP1 | 2.01 | 0.77 |
| 1:A:1664:A:N6 | 1:A:1666:G:O6 | 2.17 | 0.77 |
| 1:A:1779:U:C6 | 1:A:1779:U:O5' | 2.37 | 0.77 |
| 1:A:2089:U:H2' | 1:A:2090:G:H8 | 1.48 | 0.77 |
| 1:A:2378:A:H2 | 1:A:2379:G:H1' | 1.48 | 0.77 |
| 1:A:2392:A:H2' | 1:A:2393:A:H5' | 1.66 | 0.77 |
| 1:A:2633:G:H5' | 1:A:2812:G:H5' | 1.67 | 0.77 |
| 1:A:2807:G:O6 | 1:A:2893:G:N7 | 2.18 | 0.77 |
| 1:A:523:C:O2' | 1:A:524:U:H5' | 1.83 | 0.77 |
| 1:A:675:A:N9 | 1:A:676:A:H2 | 1.82 | 0.77 |
| 4:D:5:LYS:O | 4:D:27:THR:HG22 | 1.84 | 0.77 |
| 4:D:71:ASP:O | 4:D:72:LYS:HB2 | 1.82 | 0.77 |
| 6:F:42:ALA:O | 6:F:45:ARG:HB2 | 1.82 | 0.77 |
| 12:N:10:VAL:CG1 | 12:N:17:ARG:HA | 2.15 | 0.77 |
| 12:N:31:LYS:HB3 | 12:N:32:TYR:CZ | 2.20 | 0.77 |
| 12:N:69:VAL:H | 12:N:104:ARG:NH2 | 1.81 | 0.77 |
| 13:O:73:GLY:H | 13:O:107:LYS:HE3 | 1.50 | 0.77 |
| 14:P:101:ARG:HG3 | 14:P:101:ARG:HH11 | 1.48 | 0.77 |
| 14:P:16:ARG:CG | 14:P:72:LYS:HD2 | 2.07 | 0.77 |
| 1:A:533:G:OP1 | 18:T:25:TRP:N | 2.18 | 0.77 |
| 19:U:4:ILE:N | 19:U:4:ILE:HD12 | 1.99 | 0.77 |
| 1:A:565:C:OP1 | 19:U:78:LYS:HE3 | 1.84 | 0.77 |
| 20:V:95:ILE:N | 20:V:95:ILE:HD12 | 1.95 | 0.77 |
| 23:Y:163:LEU:HD12 | 23:Y:163:LEU:H | 1.49 | 0.77 |
| 3:C:77:ILE:HB | 3:C:123:VAL:HG21 | 1.64 | 0.77 |
| 3:C:46:LYS:O | 3:C:210:ARG:HB2 | 1.83 | 0.77 |
| 3:C:216:THR:OG1 | 3:C:219:GLY:HA3 | 1.84 | 0.77 |
| 1:A:2615:U:C1' | 28:4:7:PRO:HB3 | 2.13 | 0.77 |
| 1:A:1062:G:N3 | 1:A:1062:G:H2' | 1.97 | 0.77 |
| 1:A:1319:G:O2' | 1:A:1320:C:H5' | 1.84 | 0.77 |
| 1:A:1672:C:C5 | 1:A:1673:U:C6 | 2.72 | 0.77 |
| 1:A:962:G:H21 | 1:A:2250:G:N2 | 1.81 | 0.77 |
| 1:A:2447:G:O3' | 1:A:2499:C:OP2 | 2.02 | 0.77 |
| 1:A:650:C:H2' | 1:A:650:C:O2 | 1.83 | 0.77 |
| 1:A:672:C:H2' | 1:A:673:C:H6 | 1.49 | 0.77 |
| 1:A:848:G:H2' | 1:A:849:A:N7 | 1.98 | 0.77 |
| 1:A:92:G:O2' | 1:A:93:C:H5' | 1.84 | 0.77 |
| 5:E:154:LYS:C | 5:E:154:LYS:HD2 | 2.03 | 0.77 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:H:120:GLY:N | 8:H:140:LYS:HZ1 | 1.82 | 0.77 |
| 8:H:8:PRO:CA | 8:H:51:ARG:HH12 | 1.93 | 0.77 |
| 10:L:127:ILE:O | 10:L:131:ALA:HB2 | 1.84 | 0.77 |
| 11:M:104:LYS:HD3 | 11:M:117:PHE:CE2 | 2.19 | 0.77 |
| 11:M:42:TRP:CZ3 | 18:T:67:ALA:HB1 | 2.18 | 0.77 |
| 11:M:87:LEU:O | 11:M:91:LEU:HD23 | 1.83 | 0.77 |
| 14:P:24:GLY:H | 14:P:101:ARG:NH2 | 1.80 | 0.77 |
| 16:R:58:LEU:HD12 | 16:R:60:GLY:H | 1.49 | 0.77 |
| 9:K:79:ILE:HD12 | 9:K:79:ILE:N | 1.98 | 0.77 |
| 26:2:12:PRO:HA | 26:2:15:TYR:CE2 | 2.20 | 0.77 |
| 1:A:1264:G:H4' | 28:4:15:ARG:NH1 | 2.00 | 0.77 |
| 30:6:8:ASN:ND2 | 30:6:10:ARG:HB2 | 1.99 | 0.77 |
| 1:A:1069:A:H4' | 1:A:1070:A:O5' | 1.82 | 0.77 |
| 1:A:1242:A:H3' | 1:A:1243:G:H8 | 1.49 | 0.77 |
| 1:A:1536:A:H2' | 1:A:1537:C:C6 | 2.18 | 0.77 |
| 1:A:2268:A:H3' | 1:A:2269:A:H5'' | 1.66 | 0.77 |
| 1:A:2329:G:H21 | 24:Z:41:ARG:HH22 | 1.30 | 0.77 |
| 1:A:2432:A:N7 | 1:A:2433:A:N7 | 2.32 | 0.77 |
| 1:A:2749:A:C5 | 1:A:2750:A:N7 | 2.53 | 0.77 |
| 1:A:293:U:H3' | 1:A:293:U:C6 | 2.20 | 0.77 |
| 1:A:344:G:C2 | 1:A:345:A:C6 | 2.72 | 0.77 |
| 1:A:602:G:H8 | 1:A:602:G:O5' | 1.68 | 0.77 |
| 1:A:702:G:O2' | 1:A:703:U:H5' | 1.84 | 0.77 |
| 1:A:830:G:C5 | 1:A:2448:A:H8 | 2.03 | 0.77 |
| 4:D:118:VAL:HG12 | 4:D:119:ALA:H | 1.49 | 0.77 |
| 4:D:147:LEU:HA | 4:D:185:VAL:HG13 | 1.64 | 0.77 |
| 5:E:116:VAL:O | 5:E:117:MET:C | 2.21 | 0.77 |
| 6:F:125:LEU:HD22 | 6:F:128:ALA:HB2 | 1.64 | 0.77 |
| 6:F:157:VAL:CG2 | 6:F:194:MET:HA | 2.14 | 0.77 |
| 8:H:11:VAL:CG2 | 8:H:15:VAL:HG11 | 2.12 | 0.77 |
| 13:O:85:LEU:O | 13:O:86:LYS:HD3 | 1.85 | 0.77 |
| 18:T:44:ASN:HD21 | 19:U:78:LYS:H | 1.32 | 0.77 |
| 22:X:23:ARG:HD2 | 22:X:39:VAL:CG2 | 2.14 | 0.77 |
| 22:X:13:VAL:C | 22:X:70:SER:HB3 | 2.05 | 0.77 |
| 22:X:13:VAL:HG13 | 22:X:70:SER:OG | 1.84 | 0.77 |
| 23:Y:105:VAL:HB | 23:Y:140:ASP:OD1 | 1.83 | 0.77 |
| 9:K:79:ILE:CD1 | 9:K:142:VAL:HG12 | 2.15 | 0.77 |
| 1:A:2106:G:O2' | 1:A:2107:C:H5' | 1.85 | 0.77 |
| 25:1:27:LEU:HD12 | 25:1:27:LEU:H | 1.50 | 0.77 |
| 26:2:5:LYS:HE2 | 26:2:57:GLU:OE1 | 1.83 | 0.77 |
| 31:7:22:VAL:O | 31:7:48:PHE:CD2 | 2.37 | 0.77 |
| 1:A:1297:C:O2' | 1:A:1298:C:H5' | 1.83 | 0.77 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1308:A:H2' | 1:A:1309:G:C8 | 2.20 | 0.77 |
| 1:A:1503:U:H2' | 1:A:1504:C:C6 | 2.20 | 0.77 |
| 1:A:1567:A:H4' | 1:A:1568:G:C2 | 2.18 | 0.77 |
| 1:A:2599:G:O2' | 1:A:2600:A:H5' | 1.83 | 0.77 |
| 1:A:2646:C:O2' | 1:A:2647:U:H5' | 1.85 | 0.77 |
| 1:A:2771:C:H2' | 1:A:2772:C:C6 | 2.19 | 0.77 |
| 1:A:2809:A:C1' | 1:A:2811:G:N7 | 2.44 | 0.77 |
| 1:A:280:C:H6 | 1:A:280:C:OP2 | 1.67 | 0.77 |
| 1:A:640:C:C2' | 1:A:641:C:H5' | 2.15 | 0.77 |
| 1:A:885:C:H42 | 1:A:889:C:H1' | 1.48 | 0.77 |
| 2:B:41:U:H5' | 2:B:42:C:H5' | 1.67 | 0.77 |
| 2:B:44:G:H1' | 2:B:47:C:H42 | 1.47 | 0.77 |
| 4:D:204:ILE:HG23 | 4:D:205:VAL:N | 1.98 | 0.77 |
| 6:F:4:VAL:HA | 6:F:20:LEU:HB2 | 1.66 | 0.77 |
| 8:H:11:VAL:HG22 | 8:H:15:VAL:CG1 | 2.13 | 0.77 |
| 8:H:85:LYS:HB3 | 8:H:133:VAL:CG1 | 2.14 | 0.77 |
| 13:O:46:LYS:HB2 | 13:O:49:ARG:HB2 | 1.67 | 0.77 |
| 14:P:51:ARG:HG3 | 14:P:52:VAL:HG23 | 1.66 | 0.77 |
| 12:N:75:SER:OG | 17:S:77:PRO:O | 2.02 | 0.77 |
| 20:V:16:LYS:HD3 | 20:V:16:LYS:N | 1.97 | 0.77 |
| 22:X:38:ILE:HA | 22:X:60:PHE:CZ | 2.19 | 0.77 |
| 22:X:16:ALA:HB3 | 22:X:68:HIS:CE1 | 2.19 | 0.77 |
| 23:Y:23:LYS:HE3 | 23:Y:38:TYR:HB3 | 1.67 | 0.77 |
| 2:B:73:A:N1 | 23:Y:29:TYR:CE1 | 2.53 | 0.77 |
| 3:C:71:GLN:HG3 | 3:C:72:VAL:N | 1.98 | 0.77 |
| 25:1:7:GLU:O | 25:1:10:LYS:HB2 | 1.84 | 0.77 |
| 27:3:38:LYS:HG2 | 27:3:39:CYS:N | 1.98 | 0.77 |
| 27:3:42:PHE:N | 27:3:58:ARG:NH1 | 2.32 | 0.77 |
| 1:A:1204:A:H61 | 13:O:7:ARG:HH11 | 1.28 | 0.77 |
| 1:A:197:A:H3' | 1:A:198:C:C6 | 2.20 | 0.77 |
| 1:A:2206:C:O2' | 1:A:2207:C:H5' | 1.84 | 0.77 |
| 1:A:2268:A:H5' | 1:A:2269:A:OP2 | 1.85 | 0.77 |
| 1:A:2407:G:H3' | 1:A:2408:U:C5 | 2.19 | 0.77 |
| 1:A:241:A:H1' | 1:A:243:U:C6 | 2.18 | 0.77 |
| 1:A:2493:U:C5' | 1:A:2493:U:H6 | 1.96 | 0.77 |
| 4:D:143:HIS:CD2 | 4:D:192:THR:HB | 2.20 | 0.77 |
| 4:D:52:ARG:N | 4:D:52:ARG:CD | 2.48 | 0.77 |
| 5:E:149:ARG:HD3 | 5:E:150:VAL:N | 1.98 | 0.77 |
| 1:A:675:A:C5' | 6:F:67:GLN:NE2 | 2.48 | 0.77 |
| 7:G:53:LEU:HG | 7:G:72:ARG:CD | 2.06 | 0.77 |
| 8:H:98:LEU:HG | 8:H:123:PHE:HB2 | 1.66 | 0.77 |
| 10:L:27:LEU:HB3 | 10:L:33:ASN:N | 2.00 | 0.77 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:48:MET:O | 11:M:119:ARG:NH1 | 2.17 | 0.77 |
| 12:N:23:ARG:CB | 12:N:23:ARG:HH11 | 1.96 | 0.77 |
| 13:O:113:LYS:HD2 | 13:O:115:LEU:HD12 | 1.64 | 0.77 |
| 1:A:2876:G:H4' | 17:S:1:MET:H2 | 1.49 | 0.77 |
| 18:T:88:ILE:H | 18:T:88:ILE:HD13 | 1.46 | 0.77 |
| 18:T:112:ARG:NH1 | 19:U:49:THR:HG23 | 1.97 | 0.77 |
| 20:V:6:ILE:HG12 | 20:V:103:ILE:O | 1.85 | 0.77 |
| 1:A:1339:G:H5'' | 21:W:16:LYS:HD3 | 1.67 | 0.77 |
| 9:K:77:LEU:N | 9:K:77:LEU:HD23 | 2.00 | 0.77 |
| 3:C:10:LEU:HD13 | 3:C:32:LEU:O | 1.85 | 0.77 |
| 25:1:30:LEU:HD11 | 25:1:48:LEU:CD2 | 2.14 | 0.77 |
| 28:4:16:ARG:HG3 | 28:4:20:ARG:NH2 | 2.00 | 0.77 |
| 29:5:48:VAL:O | 29:5:49:HIS:HB2 | 1.85 | 0.77 |
| 1:A:1036:G:OP1 | 8:H:59:ARG:HD3 | 1.84 | 0.77 |
| 1:A:1189:A:C2' | 1:A:1189:A:N3 | 2.46 | 0.77 |
| 1:A:1281:G:H2' | 1:A:1282:U:C6 | 2.19 | 0.77 |
| 1:A:1326:U:H2' | 1:A:1327:C:C5' | 2.15 | 0.77 |
| 1:A:1667:G:OP1 | 12:N:7:TYR:CD1 | 2.38 | 0.77 |
| 1:A:1917:U:H5 | 1:A:1918:A:N3 | 1.82 | 0.77 |
| 1:A:2037:G:H2' | 1:A:2038:G:C8 | 2.19 | 0.77 |
| 1:A:803:U:H2' | 1:A:804:A:H5' | 1.65 | 0.77 |
| 1:A:974:G:N7 | 1:A:974(A):C:C4 | 2.53 | 0.77 |
| 4:D:174:ILE:HD12 | 4:D:174:ILE:N | 1.99 | 0.77 |
| 4:D:237:GLU:OE1 | 4:D:239:ARG:NH1 | 2.15 | 0.77 |
| 5:E:47:VAL:HA | 5:E:79:ARG:HB2 | 1.65 | 0.77 |
| 5:E:91:VAL:HG11 | 5:E:93:VAL:HG22 | 1.67 | 0.77 |
| 1:A:616:A:H1' | 6:F:180:GLY:HA3 | 1.66 | 0.77 |
| 10:L:21:PRO:HG2 | 10:L:22:PRO:CD | 2.15 | 0.77 |
| 13:O:123:LEU:N | 13:O:138:LEU:HA | 2.00 | 0.77 |
| 1:A:670:A:H2' | 13:O:41:ARG:NH1 | 2.00 | 0.77 |
| 14:P:99:PRO:O | 14:P:100:GLY:O | 2.02 | 0.77 |
| 17:S:65:LYS:HG2 | 17:S:75:ILE:CB | 2.15 | 0.77 |
| 1:A:1156:A:P | 18:T:55:ARG:HH21 | 2.07 | 0.77 |
| 18:T:74:LEU:HD12 | 18:T:78:THR:HG21 | 1.65 | 0.77 |
| 18:T:82:GLY:HA2 | 18:T:117:GLN:CD | 2.04 | 0.77 |
| 23:Y:95:PRO:HB2 | 23:Y:130:PRO:CA | 2.14 | 0.77 |
| 9:K:115:ALA:HB2 | 9:K:129:THR:O | 1.83 | 0.77 |
| 1:A:163:U:H6 | 1:A:163:U:O5' | 1.67 | 0.77 |
| 10:L:120:LEU:H | 10:L:120:LEU:HD23 | 1.49 | 0.77 |
| 1:A:78:A:OP1 | 25:1:5:LEU:HD21 | 1.85 | 0.77 |
| 27:3:6:HIS:HB2 | 27:3:7:PRO:CD | 2.15 | 0.77 |
| 29:5:15:GLU:HG3 | 29:5:20:ASN:O | 1.85 | 0.77 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:49:A:H2 | 1:A:120:U:H3 | 1.31 | 0.77 |
| 1:A:1466:G:H2' | 1:A:1547:C:N4 | 1.99 | 0.77 |
| 1:A:1472:A:HO2' | 1:A:1473:G:H8 | 1.33 | 0.77 |
| 1:A:1530:G:C2' | 1:A:1531:C:C6 | 2.67 | 0.77 |
| 1:A:243:U:H2' | 1:A:244:A:H5' | 1.65 | 0.77 |
| 1:A:265:A:N7 | 1:A:266:G:H1' | 1.99 | 0.77 |
| 1:A:833:U:H1' | 13:O:48:PRO:CD | 2.13 | 0.77 |
| 4:D:183:ARG:HG3 | 4:D:268:ARG:HB2 | 1.66 | 0.77 |
| 4:D:5:LYS:O | 4:D:27:THR:CG2 | 2.33 | 0.77 |
| 1:A:2822:G:H5'' | 5:E:113:PHE:CZ | 2.19 | 0.77 |
| 5:E:176:ILE:CG2 | 5:E:181:LEU:HB2 | 2.15 | 0.77 |
| 6:F:153:SER:CA | 6:F:172:TRP:O | 2.29 | 0.77 |
| 6:F:30:PRO:O | 6:F:33:LEU:CG | 2.33 | 0.77 |
| 9:K:21:VAL:O | 9:K:22:LYS:O | 2.02 | 0.77 |
| 10:L:112:MET:SD | 10:L:123:ALA:HB2 | 2.24 | 0.77 |
| 11:M:30:ILE:H | 11:M:30:ILE:HD12 | 1.50 | 0.77 |
| 11:M:96:GLU:HG2 | 11:M:97:ARG:HD3 | 1.66 | 0.77 |
| 13:O:114:ILE:HG21 | 13:O:123:LEU:HD21 | 1.64 | 0.77 |
| 23:Y:102:LEU:HD21 | 23:Y:125:LEU:HB2 | 1.65 | 0.77 |
| 1:A:2246:G:H2' | 1:A:2247:A:H8 | 1.48 | 0.77 |
| 26:2:17:LYS:HA | 26:2:20:LYS:HD3 | 1.66 | 0.77 |
| 26:2:3:ARG:HH22 | 26:2:59:VAL:CG1 | 1.98 | 0.77 |
| 1:A:1144:G:H2' | 1:A:1145:C:C5 | 2.19 | 0.77 |
| 1:A:1709:U:H2' | 1:A:1710:C:C6 | 2.20 | 0.77 |
| 1:A:1956:U:C6 | 1:A:1956:U:O5' | 2.38 | 0.77 |
| 1:A:2501:C:H5'' | 1:A:2503:A:O4' | 1.85 | 0.77 |
| 1:A:270(P):C:H2' | 1:A:270(Q):C:H6 | 1.48 | 0.77 |
| 1:A:2718:G:H2' | 1:A:2719:G:H8 | 1.50 | 0.77 |
| 1:A:2832:U:H2' | 1:A:2879:C:H42 | 1.47 | 0.77 |
| 1:A:83:G:H1 | 1:A:102:G:HO2' | 1.31 | 0.77 |
| 4:D:17:THR:C | 4:D:19:ALA:H | 1.87 | 0.77 |
| 1:A:1790:C:H4' | 4:D:213:ARG:CZ | 2.14 | 0.77 |
| 5:E:21:VAL:O | 5:E:185:LYS:HA | 1.84 | 0.77 |
| 7:G:92:VAL:HG13 | 7:G:94:LEU:CD1 | 2.15 | 0.77 |
| 13:O:29:LYS:N | 13:O:29:LYS:HD2 | 1.98 | 0.77 |
| 14:P:37:LEU:N | 14:P:129:THR:HG22 | 1.99 | 0.77 |
| 19:U:50:PRO:O | 19:U:53:GLU:HB2 | 1.85 | 0.77 |
| 18:T:47:TYR:CD2 | 19:U:75:PHE:HB3 | 2.19 | 0.77 |
| 22:X:2:ARG:NH2 | 22:X:4:LYS:HB2 | 1.97 | 0.77 |
| 23:Y:19:ARG:NH2 | 23:Y:84:GLU:O | 2.17 | 0.77 |
| 1:A:2150:U:C2 | 1:A:2151:G:N7 | 2.52 | 0.77 |
| 25:1:16:LEU:HD21 | 25:1:59:LEU:CB | 2.10 | 0.77 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1155:A:OP2 | 1:A:1155:A:H8 | 1.66 | 0.77 |
| 1:A:1449:A:C2 | 1:A:1449(A):G:C1' | 2.68 | 0.77 |
| 1:A:1542:G:H1' | 1:A:1543:A:C6 | 2.19 | 0.77 |
| 1:A:2093:G:H5' | 9:K:25:TYR:CE1 | 2.20 | 0.77 |
| 1:A:304:G:O2' | 1:A:305:U:H5' | 1.85 | 0.77 |
| 1:A:916:G:H21 | 1:A:917:A:H62 | 1.32 | 0.77 |
| 1:A:954:G:H5'' | 14:P:17:LEU:CD2 | 2.14 | 0.77 |
| 4:D:139:GLY:H | 4:D:165:ILE:HB | 1.49 | 0.77 |
| 4:D:178:PRO:O | 4:D:180:GLY:N | 2.18 | 0.77 |
| 1:A:1820:U:O2' | 4:D:202:LYS:HG3 | 1.85 | 0.77 |
| 7:G:91:ARG:HB2 | 7:G:91:ARG:NH2 | 1.99 | 0.77 |
| 10:L:79:ARG:NH1 | 10:L:134:MET:HE2 | 2.00 | 0.77 |
| 12:N:107:ARG:O | 12:N:109:LYS:HG3 | 1.85 | 0.77 |
| 13:O:126:VAL:HB | 13:O:146:VAL:CG2 | 2.10 | 0.77 |
| 13:O:45:LEU:HD22 | 31:7:59:LYS:CE | 2.14 | 0.77 |
| 15:Q:57:ARG:HE | 15:Q:62:ALA:HB2 | 1.50 | 0.77 |
| 17:S:102:ILE:C | 17:S:104:ASN:N | 2.33 | 0.77 |
| 19:U:64:HIS:HB3 | 19:U:96:ILE:HG22 | 1.67 | 0.77 |
| 19:U:67:GLY:O | 19:U:68:LYS:HB2 | 1.83 | 0.77 |
| 23:Y:42:VAL:HB | 23:Y:43:GLU:CD | 2.04 | 0.77 |
| 24:Z:37:LEU:HD12 | 24:Z:59:LEU:HB3 | 1.67 | 0.77 |
| 9:K:132:PRO:HD3 | 9:K:138:ILE:N | 1.99 | 0.77 |
| 3:C:128:GLY:HA2 | 3:C:137:LEU:HD12 | 1.67 | 0.77 |
| 3:C:60:GLY:N | 3:C:163:PHE:HB2 | 2.00 | 0.77 |
| 2:B:3:C:H2' | 2:B:4:C:H6 | 1.50 | 0.77 |
| 25:1:48:LEU:HD12 | 25:1:51:GLN:NE2 | 2.00 | 0.76 |
| 26:2:6:VAL:HG11 | 26:2:54:VAL:HG11 | 1.65 | 0.76 |
| 28:4:10:LYS:HE3 | 28:4:15:ARG:CD | 2.13 | 0.76 |
| 32:8:20:HIS:C | 32:8:22:ARG:H | 1.88 | 0.76 |
| 1:A:136:G:H2' | 1:A:137:C:H6 | 1.48 | 0.76 |
| 1:A:270(G):C:H2' | 1:A:270(H):C:C5 | 2.19 | 0.76 |
| 1:A:2832:U:H4' | 1:A:2832:U:OP1 | 1.85 | 0.76 |
| 1:A:685:A:H1' | 1:A:688:U:O4 | 1.85 | 0.76 |
| 1:A:68:G:N2 | 1:A:74:A:O5' | 2.18 | 0.76 |
| 1:A:782:A:H5'' | 1:A:783:A:OP1 | 1.84 | 0.76 |
| 1:A:808:G:H2' | 1:A:809:G:O4' | 1.85 | 0.76 |
| 1:A:918:A:C2 | 1:A:919:G:C5 | 2.72 | 0.76 |
| 2:B:37:C:N4 | 2:B:44:G:N1 | 2.33 | 0.76 |
| 1:A:1818:U:OP2 | 4:D:88:ARG:NH1 | 2.18 | 0.76 |
| 7:G:108:ASN:OD1 | 7:G:111:LEU:HD22 | 1.85 | 0.76 |
| 11:M:115:ARG:HA | 11:M:118:LYS:HD2 | 1.65 | 0.76 |
| 18:T:52:ARG:HH11 | 18:T:53:ARG:HA | 1.50 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:565:C:H5'' | 19:U:82:ARG:NH2 | 2.00 | 0.76 |
| 20:V:5:ALA:CB | 20:V:54:ALA:HB2 | 2.10 | 0.76 |
| 3:C:97:GLU:CA | 3:C:100:ILE:HD12 | 2.15 | 0.76 |
| 1:A:1510:A:C3' | 1:A:1511:A:C8 | 2.67 | 0.76 |
| 1:A:142:G:OP1 | 1:A:1598:C:H1' | 1.84 | 0.76 |
| 1:A:1775:U:H2' | 1:A:1776:G:O4' | 1.85 | 0.76 |
| 1:A:1826:G:C6 | 1:A:1827:C:C5 | 2.73 | 0.76 |
| 1:A:1993:U:H3' | 1:A:1993:U:H6 | 1.51 | 0.76 |
| 1:A:2793:G:C6 | 1:A:2794:C:N4 | 2.53 | 0.76 |
| 1:A:861:A:C6 | 1:A:917:A:N6 | 2.53 | 0.76 |
| 7:G:63:ILE:HD11 | 7:G:105:LYS:HZ2 | 1.50 | 0.76 |
| 7:G:120:LEU:HB3 | 7:G:181:ARG:HB3 | 1.66 | 0.76 |
| 7:G:118:ARG:NH1 | 7:G:120:LEU:HD21 | 1.99 | 0.76 |
| 10:L:111:LYS:C | 10:L:113:PRO:HD2 | 2.04 | 0.76 |
| 10:L:75:SER:OG | 10:L:130:SER:HB2 | 1.85 | 0.76 |
| 1:A:2393:A:H5'' | 13:O:56:SER:H | 1.49 | 0.76 |
| 14:P:65:PHE:O | 14:P:66:ILE:HG13 | 1.86 | 0.76 |
| 17:S:61:PHE:O | 17:S:62:THR:HG23 | 1.84 | 0.76 |
| 23:Y:128:VAL:O | 23:Y:129:SER:HB2 | 1.85 | 0.76 |
| 23:Y:144:LEU:CA | 23:Y:174:VAL:HG11 | 2.15 | 0.76 |
| 9:K:68:LEU:HD11 | 9:K:107:VAL:HG13 | 1.68 | 0.76 |
| 3:C:62:VAL:HG13 | 3:C:62:VAL:O | 1.84 | 0.76 |
| 9:K:62:LYS:O | 9:K:65:ALA:HB3 | 1.84 | 0.76 |
| 1:A:1188:U:O2 | 1:A:1188:U:H2' | 1.83 | 0.76 |
| 1:A:1541:U:O2 | 1:A:1541:U:H2' | 1.84 | 0.76 |
| 1:A:1632:A:C2 | 1:A:1633:G:N2 | 2.52 | 0.76 |
| 1:A:740:U:H5' | 1:A:1784:A:OP1 | 1.84 | 0.76 |
| 1:A:2025:C:H2' | 1:A:2026:C:C6 | 2.20 | 0.76 |
| 1:A:2090:G:C6 | 1:A:2230:G:O6 | 2.39 | 0.76 |
| 1:A:2092:U:H5 | 1:A:2227:A:C6 | 2.03 | 0.76 |
| 1:A:231:C:N4 | 1:A:232:G:N2 | 2.33 | 0.76 |
| 1:A:2356:C:N4 | 1:A:2357:U:O4 | 2.17 | 0.76 |
| 1:A:2459:A:N7 | 1:A:2493:U:O4 | 2.18 | 0.76 |
| 1:A:2517:C:C5 | 1:A:2542:A:N7 | 2.53 | 0.76 |
| 1:A:398:G:N2 | 1:A:399:G:H1' | 2.00 | 0.76 |
| 1:A:846:C:H4' | 1:A:847:U:C6 | 2.20 | 0.76 |
| 4:D:124:PRO:C | 4:D:126:GLN:H | 1.89 | 0.76 |
| 5:E:109:LYS:CG | 5:E:191:PRO:HG3 | 2.14 | 0.76 |
| 7:G:39:ILE:HG23 | 7:G:157:ILE:CG1 | 2.15 | 0.76 |
| 7:G:86:MET:H | 7:G:87:PRO:CD | 1.97 | 0.76 |
| 8:H:42:ARG:NE | 8:H:42:ARG:HA | 2.00 | 0.76 |
| 10:L:115:LEU:HD13 | 10:L:116:ASN:N | 2.01 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:13:TRP:N | 11:M:138:LEU:HD12 | 2.00 | 0.76 |
| 11:M:25:ARG:O | 11:M:28:THR:HG23 | 1.85 | 0.76 |
| 1:A:907:U:OP1 | 14:P:26:TYR:CE1 | 2.37 | 0.76 |
| 24:Z:49:LYS:H | 24:Z:80:HIS:CE1 | 2.03 | 0.76 |
| 9:K:101:LEU:HG | 9:K:102:SER:N | 2.00 | 0.76 |
| 31:7:30:ARG:HH21 | 31:7:43:GLN:C | 1.89 | 0.76 |
| 31:7:60:LEU:O | 31:7:63:PRO:HD2 | 1.86 | 0.76 |
| 32:8:1:MET:O | 32:8:35:ARG:HD2 | 1.86 | 0.76 |
| 1:A:1023:U:P | 1:A:1025:G:H1 | 2.09 | 0.76 |
| 1:A:1061:U:H4' | 1:A:1070:A:C2' | 2.15 | 0.76 |
| 1:A:1204:A:OP2 | 1:A:1204:A:C4' | 2.34 | 0.76 |
| 1:A:1263:U:H4' | 28:4:10:LYS:HG3 | 1.67 | 0.76 |
| 1:A:1275:A:H1' | 15:Q:12:ARG:HH21 | 1.50 | 0.76 |
| 1:A:1782:C:OP1 | 1:A:1783:A:OP2 | 2.03 | 0.76 |
| 1:A:2056:G:N2 | 28:4:4:HIS:HD2 | 1.84 | 0.76 |
| 1:A:2866:U:H5'' | 1:A:2867:G:OP1 | 1.84 | 0.76 |
| 1:A:443:A:N3 | 1:A:1201:C:H1' | 2.00 | 0.76 |
| 1:A:624:C:C6 | 1:A:624:C:C3' | 2.68 | 0.76 |
| 1:A:763:G:O2' | 1:A:764:A:H3' | 1.84 | 0.76 |
| 4:D:250:TRP:HB3 | 4:D:251:GLY:O | 1.84 | 0.76 |
| 7:G:8:LYS:HE2 | 7:G:100:TRP:CD1 | 2.20 | 0.76 |
| 1:A:2305:A:N3 | 7:G:156:ASP:CB | 2.48 | 0.76 |
| 11:M:96:GLU:O | 11:M:100:GLU:HG2 | 1.85 | 0.76 |
| 11:M:7:LYS:HG2 | 11:M:10:GLU:OE1 | 1.86 | 0.76 |
| 14:P:134:ARG:C | 14:P:134:ARG:HD2 | 2.05 | 0.76 |
| 15:Q:83:ILE:HG23 | 15:Q:86:ARG:HE | 1.49 | 0.76 |
| 19:U:39:LEU:CD2 | 19:U:60:GLU:HG2 | 2.10 | 0.76 |
| 20:V:14:PRO:O | 20:V:17:VAL:HG22 | 1.84 | 0.76 |
| 20:V:55:ALA:O | 20:V:58:ALA:HB3 | 1.85 | 0.76 |
| 20:V:64:MET:HG3 | 20:V:65:LEU:N | 2.00 | 0.76 |
| 20:V:27:LYS:O | 20:V:70:TYR:HB2 | 1.85 | 0.76 |
| 24:Z:45:PHE:HB3 | 24:Z:59:LEU:HD11 | 1.67 | 0.76 |
| 24:Z:54:GLY:O | 24:Z:56:ASP:N | 2.16 | 0.76 |
| 24:Z:68:GLU:OE2 | 24:Z:82:ARG:HB2 | 1.85 | 0.76 |
| 26:2:8:LEU:HD12 | 26:2:31:LEU:O | 1.85 | 0.76 |
| 27:3:27:THR:CG2 | 27:3:28:LYS:N | 2.48 | 0.76 |
| 1:A:469:G:C2 | 30:6:40:TRP:HZ2 | 2.03 | 0.76 |
| 1:A:1315:C:H2' | 1:A:1316:U:C6 | 2.20 | 0.76 |
| 1:A:1375:C:H2' | 1:A:1376:C:H6 | 1.48 | 0.76 |
| 1:A:1448:G:H5'' | 1:A:1543:A:N1 | 2.00 | 0.76 |
| 1:A:1613:G:C3' | 1:A:1614:A:H5' | 2.15 | 0.76 |
| 1:A:226:G:N2 | 1:A:227:A:N3 | 2.33 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:136:ILE:HG22 | 4:D:138:VAL:N | 1.99 | 0.76 |
| 4:D:14:ARG:O | 4:D:16:MET:N | 2.19 | 0.76 |
| 4:D:61:LEU:HD22 | 4:D:63:ARG:HH12 | 1.51 | 0.76 |
| 5:E:71:GLY:O | 5:E:72:VAL:HG13 | 1.84 | 0.76 |
| 5:E:53:PRO:HG3 | 5:E:75:VAL:HG22 | 1.68 | 0.76 |
| 6:F:131:GLY:O | 6:F:133:ASN:N | 2.18 | 0.76 |
| 1:A:1204:A:N6 | 6:F:187:VAL:HG23 | 2.01 | 0.76 |
| 6:F:18:ARG:NH1 | 6:F:20:LEU:CD1 | 2.48 | 0.76 |
| 6:F:4:VAL:CG1 | 6:F:20:LEU:CD1 | 2.64 | 0.76 |
| 7:G:32:PRO:HG2 | 7:G:172:LEU:HD22 | 1.65 | 0.76 |
| 8:H:25:LYS:HE2 | 8:H:32:GLU:HG3 | 1.66 | 0.76 |
| 11:M:95:PRO:O | 11:M:98:VAL:HB | 1.86 | 0.76 |
| 12:N:97:ARG:NE | 12:N:98:VAL:N | 2.31 | 0.76 |
| 14:P:6:ARG:CB | 14:P:44:ALA:HB3 | 2.11 | 0.76 |
| 14:P:75:THR:HG23 | 14:P:91:GLU:OE2 | 1.85 | 0.76 |
| 1:A:1278:A:H5' | 15:Q:24:GLN:HE21 | 1.50 | 0.76 |
| 20:V:5:ALA:HB3 | 20:V:105:VAL:HG13 | 1.68 | 0.76 |
| 22:X:95:LYS:HG3 | 22:X:103:GLY:HA2 | 1.66 | 0.76 |
| 9:K:114:LEU:HA | 9:K:130:TYR:CB | 2.14 | 0.76 |
| 9:K:66:GLU:HG3 | 9:K:69:LYS:HE2 | 1.67 | 0.76 |
| 3:C:32:LEU:HD13 | 3:C:220:PRO:HG2 | 1.67 | 0.76 |
| 25:1:18:LYS:O | 25:1:22:GLU:HG2 | 1.86 | 0.76 |
| 1:A:1483:G:H2' | 1:A:1483:G:N3 | 2.01 | 0.76 |
| 1:A:1513:C:C4 | 1:A:1514:U:O4 | 2.39 | 0.76 |
| 1:A:1664:A:H2' | 1:A:1665:A:N7 | 2.01 | 0.76 |
| 1:A:1956:U:C2 | 1:A:1957:C:C5 | 2.73 | 0.76 |
| 1:A:1995:U:C5 | 1:A:1996:C:C5 | 2.73 | 0.76 |
| 1:A:2876:G:OP1 | 17:S:2:ASN:CB | 2.32 | 0.76 |
| 1:A:673:C:H2' | 1:A:674:G:C5' | 2.16 | 0.76 |
| 1:A:693:C:O2' | 1:A:694:U:H5' | 1.85 | 0.76 |
| 4:D:10:THR:HB | 4:D:11:PRO:HD3 | 1.66 | 0.76 |
| 4:D:129:ASN:O | 4:D:193:VAL:CG2 | 2.33 | 0.76 |
| 5:E:119:ARG:NH2 | 5:E:155:LYS:HB3 | 2.00 | 0.76 |
| 1:A:1665:A:C5' | 12:N:65:THR:HG22 | 2.14 | 0.76 |
| 1:A:2685:G:C4' | 12:N:67:LYS:HZ2 | 1.98 | 0.76 |
| 13:O:35:HIS:O | 13:O:36:LYS:NZ | 2.19 | 0.76 |
| 13:O:46:LYS:CG | 13:O:50:ARG:HB2 | 2.15 | 0.76 |
| 17:S:105:LEU:CG | 17:S:106:SER:H | 1.99 | 0.76 |
| 17:S:48:ILE:HG12 | 17:S:50:ILE:HG12 | 1.68 | 0.76 |
| 18:T:99:ALA:HB2 | 18:T:106:PHE:CD2 | 2.20 | 0.76 |
| 19:U:20:LEU:HD22 | 19:U:95:LEU:HD13 | 1.68 | 0.76 |
| 23:Y:122:ARG:O | 23:Y:124:ILE:N | 2.19 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:Y:45:ASP:C | 23:Y:49:ARG:HD2 | 2.05 | 0.76 |
| 24:Z:19:LYS:NZ | 24:Z:41:ARG:NE | 2.32 | 0.76 |
| 3:C:22:ILE:HD13 | 3:C:190:ARG:NH1 | 2.01 | 0.76 |
| 3:C:58:VAL:HG21 | 3:C:201:PRO:HD3 | 1.68 | 0.76 |
| 27:3:31:ILE:HD13 | 27:3:31:ILE:N | 1.99 | 0.76 |
| 27:3:5:ILE:CD1 | 27:3:60:GLN:HE22 | 1.97 | 0.76 |
| 27:3:6:HIS:HB2 | 27:3:7:PRO:HD2 | 1.67 | 0.76 |
| 1:A:1069:A:H5'' | 1:A:1070:A:O5' | 1.86 | 0.76 |
| 1:A:1142:U:H6 | 1:A:1142(A):A:H8 | 1.32 | 0.76 |
| 1:A:1264:G:C5' | 1:A:1265:A:H5'' | 2.16 | 0.76 |
| 1:A:1426:G:N3 | 1:A:1573:G:N2 | 2.33 | 0.76 |
| 1:A:1430:C:O2' | 1:A:1431:U:H5' | 1.85 | 0.76 |
| 1:A:2305:A:OP2 | 7:G:136:ARG:NH2 | 2.19 | 0.76 |
| 1:A:2853:C:H2' | 1:A:2854:G:C8 | 2.19 | 0.76 |
| 1:A:565:C:OP2 | 19:U:80:GLN:O | 2.02 | 0.76 |
| 1:A:680:G:O2' | 1:A:681:G:H5' | 1.86 | 0.76 |
| 1:A:775:G:H5' | 1:A:776:G:OP1 | 1.85 | 0.76 |
| 1:A:848:G:N3 | 1:A:933:A:N3 | 2.32 | 0.76 |
| 1:A:944:G:H5'' | 1:A:945:A:C5' | 2.16 | 0.76 |
| 4:D:76:PRO:O | 4:D:98:VAL:HG23 | 1.86 | 0.76 |
| 5:E:60:ASN:CG | 5:E:61:ARG:N | 2.39 | 0.76 |
| 5:E:77:ILE:O | 5:E:78:LEU:HD13 | 1.86 | 0.76 |
| 6:F:5:ALA:CB | 6:F:24:LEU:HG | 2.16 | 0.76 |
| 7:G:3:LEU:HD22 | 7:G:4:ASP:OD1 | 1.86 | 0.76 |
| 13:O:23:PRO:HB2 | 13:O:29:LYS:N | 2.00 | 0.76 |
| 13:O:45:LEU:HD22 | 31:7:59:LYS:HD2 | 1.68 | 0.76 |
| 18:T:44:ASN:C | 18:T:47:TYR:HB2 | 2.06 | 0.76 |
| 18:T:55:ARG:HG3 | 18:T:58:ARG:CZ | 2.15 | 0.76 |
| 9:K:113:ARG:O | 9:K:114:LEU:HG | 1.86 | 0.76 |
| 9:K:133:HIS:CG | 9:K:134:PRO:HD2 | 2.20 | 0.76 |
| 8:H:110:SER:O | 8:H:112:PRO:HD2 | 1.84 | 0.76 |
| 1:A:969:U:OP1 | 26:2:17:LYS:HB2 | 1.85 | 0.76 |
| 26:2:26:LEU:HD23 | 26:2:28:LEU:HD11 | 1.65 | 0.76 |
| 29:5:15:GLU:CD | 29:5:21:TYR:HB3 | 2.06 | 0.76 |
| 31:7:29:LYS:HB3 | 31:7:34:TRP:CH2 | 2.20 | 0.76 |
| 1:A:1085:A:H1' | 1:A:1086:A:C4' | 2.16 | 0.76 |
| 1:A:1270:C:H4' | 1:A:1271:G:H5' | 1.68 | 0.76 |
| 1:A:1422:G:H2' | 1:A:1423:G:H8 | 1.49 | 0.76 |
| 1:A:1471:A:C8 | 1:A:1521:G:C2 | 2.74 | 0.76 |
| 1:A:1675:C:O2' | 1:A:1676:A:H5' | 1.85 | 0.76 |
| 1:A:1772:G:N2 | 1:A:1774:C:H5' | 1.99 | 0.76 |
| 1:A:688:U:H5' | 1:A:1780:A:N1 | 2.00 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:186:G:O2' | 1:A:187:G:H5' | 1.85 | 0.76 |
| 1:A:2027:G:H2' | 1:A:2028:U:H6 | 1.51 | 0.76 |
| 1:A:2547:U:C3' | 1:A:2548:G:H5'' | 2.16 | 0.76 |
| 1:A:2561:A:O2' | 12:N:40:VAL:HG21 | 1.86 | 0.76 |
| 1:A:945:A:C2 | 1:A:946:G:H4' | 2.21 | 0.76 |
| 4:D:136:ILE:HG23 | 4:D:165:ILE:HG12 | 1.68 | 0.76 |
| 4:D:14:ARG:HA | 4:D:14:ARG:NH1 | 2.01 | 0.76 |
| 5:E:49:LEU:HD22 | 5:E:76:ARG:C | 2.06 | 0.76 |
| 6:F:53:THR:HG22 | 6:F:87:GLY:O | 1.86 | 0.76 |
| 7:G:36:LYS:HE2 | 7:G:38:VAL:CG1 | 2.08 | 0.76 |
| 8:H:16:SER:HB3 | 8:H:27:LYS:HB2 | 1.67 | 0.76 |
| 8:H:13:LYS:HE3 | 8:H:80:SER:HA | 1.68 | 0.76 |
| 13:O:60:MET:SD | 13:O:62:LEU:HD13 | 2.26 | 0.76 |
| 23:Y:100:VAL:CG2 | 23:Y:137:ILE:HD11 | 2.16 | 0.76 |
| 9:K:124:GLY:O | 9:K:144:VAL:HG12 | 1.86 | 0.76 |
| 9:K:69:LYS:HD2 | 9:K:70:LYS:N | 2.00 | 0.76 |
| 3:C:7:TYR:CD1 | 3:C:10:LEU:HB3 | 2.21 | 0.76 |
| 26:2:3:ARG:CZ | 26:2:3:ARG:HB3 | 2.13 | 0.76 |
| 28:4:55:ARG:H | 28:4:55:ARG:HE | 1.34 | 0.76 |
| 29:5:20:ASN:CG | 29:5:43:CYS:SG | 2.65 | 0.76 |
| 30:6:38:GLY:O | 30:6:39:ARG:HB2 | 1.85 | 0.76 |
| 1:A:242:G:C8 | 31:7:4:MET:HG2 | 2.20 | 0.76 |
| 1:A:1373:A:H2' | 1:A:1374:G:H8 | 1.51 | 0.76 |
| 1:A:1419:A:N6 | 1:A:1421:G:C2 | 2.54 | 0.76 |
| 1:A:1448:G:H4' | 1:A:1543:A:H61 | 1.48 | 0.76 |
| 1:A:1363:C:O3' | 1:A:1809:A:C6 | 2.39 | 0.76 |
| 1:A:2616:C:H2' | 1:A:2617:C:C6 | 2.21 | 0.76 |
| 1:A:292:C:O5' | 1:A:293:U:O4 | 2.04 | 0.76 |
| 1:A:344:G:H2' | 1:A:345:A:C1' | 2.16 | 0.76 |
| 1:A:558:G:OP1 | 11:M:112:LEU:HG | 1.85 | 0.76 |
| 1:A:865:C:N4 | 1:A:909:A:N6 | 2.32 | 0.76 |
| 1:A:972:G:N7 | 1:A:973:A:N7 | 2.34 | 0.76 |
| 1:A:974(A):C:OP1 | 19:U:79:VAL:HG11 | 1.85 | 0.76 |
| 2:B:30:C:C2' | 2:B:31:C:H5' | 2.15 | 0.76 |
| 4:D:69:ARG:NH2 | 4:D:130:ALA:HB2 | 2.01 | 0.76 |
| 5:E:5:LEU:HD13 | 5:E:196:VAL:HG23 | 1.68 | 0.76 |
| 7:G:37:VAL:CG1 | 7:G:159:VAL:HG12 | 2.16 | 0.76 |
| 13:O:49:ARG:HG3 | 31:7:52:LYS:CG | 2.16 | 0.76 |
| 14:P:22:LYS:C | 14:P:99:PRO:HG3 | 2.06 | 0.76 |
| 14:P:75:THR:HB | 14:P:77:LYS:HE3 | 1.68 | 0.76 |
| 15:Q:17:ARG:CG | 15:Q:18:LEU:N | 2.49 | 0.76 |
| 15:Q:63:ARG:NH1 | 15:Q:80:PHE:CD2 | 2.53 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 18:T:102:GLU:HB3 | 18:T:105:VAL:CB | 2.15 | 0.76 |
| 18:T:53:ARG:O | 18:T:56:ASP:HB2 | 1.86 | 0.76 |
| 19:U:64:HIS:HA | 19:U:97:LYS:HD3 | 1.68 | 0.76 |
| 20:V:13:SER:C | 20:V:16:LYS:NZ | 2.40 | 0.76 |
| 23:Y:116:VAL:CG2 | 23:Y:145:GLU:HG2 | 2.15 | 0.76 |
| 3:C:74:VAL:HG21 | 3:C:156:ILE:HD13 | 1.66 | 0.76 |
| 1:A:1581:G:O2' | 1:A:1582:C:H5' | 1.84 | 0.76 |
| 29:5:16:CYS:SG | 29:5:19:ARG:NH1 | 2.59 | 0.76 |
| 31:7:30:ARG:NH2 | 31:7:43:GLN:C | 2.40 | 0.76 |
| 1:A:1487:G:H2' | 1:A:1488:G:H8 | 1.49 | 0.76 |
| 1:A:1566:A:O2' | 1:A:1567:A:OP1 | 2.05 | 0.76 |
| 1:A:1797:C:H2' | 1:A:1798:U:C6 | 2.21 | 0.76 |
| 1:A:1799:G:C6 | 1:A:1819:A:N7 | 2.54 | 0.76 |
| 1:A:1829:A:H5'' | 1:A:1830:C:H5 | 1.50 | 0.76 |
| 1:A:2218:G:H4' | 4:D:186:HIS:CE1 | 2.21 | 0.76 |
| 1:A:2226:C:O2' | 4:D:262:ARG:HD3 | 1.85 | 0.76 |
| 1:A:2236:C:N4 | 1:A:2237:G:C2 | 2.53 | 0.76 |
| 1:A:2557:G:H2' | 1:A:2558:C:H6 | 1.47 | 0.76 |
| 1:A:270(R):G:H2' | 1:A:270(S):G:H8 | 1.48 | 0.76 |
| 1:A:270(Z):U:C3' | 1:A:271(A):C:H5'' | 2.16 | 0.76 |
| 1:A:289:A:C2' | 1:A:351:G:H22 | 1.99 | 0.76 |
| 1:A:745:G:O5' | 1:A:745:G:C8 | 2.39 | 0.76 |
| 1:A:904:C:H2' | 1:A:905:U:C6 | 2.21 | 0.76 |
| 2:B:101:A:H2' | 2:B:102:G:H8 | 1.50 | 0.76 |
| 4:D:51:VAL:HB | 4:D:52:ARG:CZ | 2.16 | 0.76 |
| 5:E:100:GLU:HB2 | 5:E:172:VAL:HG11 | 1.67 | 0.76 |
| 5:E:133:LYS:HD2 | 5:E:137:HIS:CB | 2.16 | 0.76 |
| 5:E:25:VAL:HG23 | 5:E:182:LEU:O | 1.86 | 0.76 |
| 6:F:194:MET:HE2 | 6:F:195:ASP:H | 1.51 | 0.76 |
| 6:F:34:TRP:CD1 | 6:F:38:ARG:NH1 | 2.52 | 0.76 |
| 1:A:2562:U:C1' | 12:N:23:ARG:HH21 | 1.99 | 0.76 |
| 13:O:7:ARG:HD2 | 13:O:7:ARG:N | 2.01 | 0.76 |
| 15:Q:96:ARG:O | 15:Q:114:VAL:HG13 | 1.85 | 0.76 |
| 15:Q:97:VAL:C | 15:Q:98:LEU:HG | 2.03 | 0.76 |
| 16:R:38:GLN:HE21 | 16:R:40:ILE:HD11 | 1.48 | 0.76 |
| 16:R:9:ARG:NH1 | 16:R:9:ARG:CB | 2.44 | 0.76 |
| 18:T:42:ALA:O | 18:T:45:TYR:HB2 | 1.86 | 0.76 |
| 24:Z:11:ARG:NH1 | 24:Z:11:ARG:HB3 | 2.01 | 0.76 |
| 24:Z:41:ARG:HB3 | 24:Z:41:ARG:HH11 | 1.49 | 0.76 |
| 1:A:132:G:H5' | 1:A:133:C:OP2 | 1.86 | 0.76 |
| 16:R:56:LEU:HD11 | 16:R:59:LYS:HD2 | 1.67 | 0.76 |
| 29:5:19:ARG:HH22 | 29:5:41:PRO:CG | 1.98 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 30:6:33:ARG:O | 30:6:37:LYS:HB2 | 1.86 | 0.75 |
| 31:7:30:ARG:HD2 | 31:7:44:LYS:CD | 2.10 | 0.75 |
| 1:A:1061:U:H4' | 1:A:1070:A:O2' | 1.85 | 0.75 |
| 1:A:1155:A:P | 18:T:58:ARG:HH12 | 2.09 | 0.75 |
| 1:A:1286:A:N3 | 1:A:1329:U:C4 | 2.53 | 0.75 |
| 1:A:1492:G:N3 | 1:A:1493:C:N4 | 2.33 | 0.75 |
| 1:A:1718:G:H2' | 1:A:1725:G:H8 | 1.50 | 0.75 |
| 1:A:1858:G:N2 | 1:A:1859:A:H62 | 1.84 | 0.75 |
| 1:A:2447:G:C8 | 1:A:2500:U:H3' | 2.21 | 0.75 |
| 1:A:2807:G:N2 | 1:A:2808:U:C6 | 2.54 | 0.75 |
| 1:A:220:G:O6 | 1:A:427:U:H3' | 1.87 | 0.75 |
| 1:A:558:G:H2' | 1:A:559:G:H5'' | 1.69 | 0.75 |
| 1:A:674:G:H4' | 6:F:74:ARG:CZ | 2.15 | 0.75 |
| 5:E:100:GLU:H | 5:E:172:VAL:CG2 | 1.95 | 0.75 |
| 1:A:2512:C:OP1 | 5:E:122:PHE:HB3 | 1.86 | 0.75 |
| 5:E:37:ARG:O | 5:E:38:THR:HB | 1.86 | 0.75 |
| 5:E:45:THR:HG21 | 5:E:79:ARG:CZ | 2.15 | 0.75 |
| 5:E:92:THR:CA | 5:E:95:ILE:HB | 2.16 | 0.75 |
| 6:F:12:LEU:HD22 | 6:F:142:TRP:CH2 | 2.21 | 0.75 |
| 7:G:139:LEU:HD22 | 7:G:142:PRO:CA | 2.16 | 0.75 |
| 8:H:153:LYS:N | 8:H:154:PRO:HD2 | 2.00 | 0.75 |
| 11:M:97:ARG:O | 11:M:100:GLU:CB | 2.33 | 0.75 |
| 12:N:106:LEU:HD21 | 17:S:38:ASN:ND2 | 2.01 | 0.75 |
| 13:O:128:HIS:CB | 13:O:147:LEU:HD21 | 2.16 | 0.75 |
| 18:T:56:ASP:C | 18:T:60:LEU:HD13 | 2.06 | 0.75 |
| 19:U:62:LEU:HD11 | 19:U:98:GLU:HG2 | 1.67 | 0.75 |
| 21:W:12:VAL:HG11 | 21:W:27:THR:OG1 | 1.86 | 0.75 |
| 3:C:75:LEU:HD22 | 3:C:110:PHE:CZ | 2.21 | 0.75 |
| 26:2:22:ALA:O | 26:2:25:ALA:HB3 | 1.87 | 0.75 |
| 26:2:6:VAL:HG22 | 26:2:56:VAL:CA | 2.04 | 0.75 |
| 26:2:9:VAL:HG11 | 26:2:55:ARG:NH1 | 2.01 | 0.75 |
| 1:A:1201:C:C4 | 1:A:1241:A:N6 | 2.54 | 0.75 |
| 1:A:1312:U:C3' | 1:A:1313:U:H6 | 1.97 | 0.75 |
| 1:A:1508:A:H3' | 1:A:1510:A:H8 | 1.47 | 0.75 |
| 1:A:1538:G:N2 | 1:A:1539:G:N3 | 2.34 | 0.75 |
| 1:A:1568:G:H5'' | 4:D:61:LEU:HA | 1.66 | 0.75 |
| 1:A:2047:U:O2' | 1:A:2048:G:H5' | 1.86 | 0.75 |
| 1:A:2437:U:H2' | 1:A:2438:U:C5 | 2.21 | 0.75 |
| 1:A:2784:C:H1' | 5:E:41:LYS:NZ | 2.00 | 0.75 |
| 1:A:280:C:C5 | 1:A:283:A:N6 | 2.49 | 0.75 |
| 1:A:2807:G:H22 | 1:A:2892:A:N6 | 1.84 | 0.75 |
| 1:A:411:G:C8 | 1:A:2407:G:OP1 | 2.39 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:459:U:H3' | 30:6:40:TRP:CH2 | 2.21 | 0.75 |
| 1:A:464:U:H4' | 30:6:12:ARG:HH22 | 1.50 | 0.75 |
| 1:A:819:A:C5 | 1:A:973:A:H2 | 2.04 | 0.75 |
| 4:D:181:GLU:HG2 | 4:D:268:ARG:HH21 | 1.50 | 0.75 |
| 5:E:118:LYS:O | 5:E:120:TRP:N | 2.19 | 0.75 |
| 5:E:8:LYS:CD | 17:S:3:ARG:HG3 | 2.15 | 0.75 |
| 8:H:23:ARG:HA | 8:H:37:VAL:HG13 | 1.67 | 0.75 |
| 10:L:18:THR:HB | 10:L:34:ILE:HG22 | 1.67 | 0.75 |
| 12:N:20:MET:CE | 12:N:44:LYS:HD2 | 2.16 | 0.75 |
| 13:O:124:LYS:CB | 13:O:143:GLY:CA | 2.59 | 0.75 |
| 14:P:43:THR:OG1 | 14:P:46:GLN:N | 2.18 | 0.75 |
| 15:Q:52:ILE:HD13 | 15:Q:56:LYS:HG2 | 1.67 | 0.75 |
| 18:T:13:LYS:HA | 18:T:16:LYS:HZ3 | 1.48 | 0.75 |
| 18:T:26:GLY:HA2 | 18:T:29:SER:OG | 1.86 | 0.75 |
| 1:A:310:A:OP1 | 22:X:16:ALA:HB1 | 1.85 | 0.75 |
| 9:K:87:LYS:CE | 9:K:122:GLU:HG2 | 2.16 | 0.75 |
| 26:2:5:LYS:HZ1 | 26:2:59:VAL:HG22 | 1.49 | 0.75 |
| 1:A:1483:G:H1' | 1:A:1507:A:N1 | 2.00 | 0.75 |
| 1:A:1619:G:N2 | 1:A:1620:G:C4 | 2.55 | 0.75 |
| 1:A:1838:C:N4 | 1:A:1899:G:O5' | 2.19 | 0.75 |
| 1:A:1923:U:H2' | 1:A:1924:C:C6 | 2.21 | 0.75 |
| 1:A:20:C:O2' | 1:A:21:A:C5' | 2.34 | 0.75 |
| 1:A:280:C:H4' | 1:A:281:G:OP2 | 1.84 | 0.75 |
| 1:A:612:G:H2' | 1:A:615:G:N3 | 2.01 | 0.75 |
| 1:A:625:G:H21 | 1:A:653:A:H61 | 1.34 | 0.75 |
| 1:A:630:G:H2' | 1:A:631:A:O5' | 1.86 | 0.75 |
| 1:A:805:G:N7 | 1:A:2068:U:OP1 | 2.19 | 0.75 |
| 1:A:942:G:C2 | 1:A:943:U:N3 | 2.54 | 0.75 |
| 4:D:118:VAL:H | 4:D:129:ASN:ND2 | 1.84 | 0.75 |
| 4:D:92:ILE:HD11 | 4:D:104:TYR:CD1 | 2.21 | 0.75 |
| 1:A:2821:A:H4' | 5:E:162:ALA:HB2 | 1.68 | 0.75 |
| 8:H:149:ARG:HA | 8:H:162:ILE:CG2 | 2.16 | 0.75 |
| 10:L:33:ASN:O | 10:L:37:PHE:HB2 | 1.86 | 0.75 |
| 11:M:35:ARG:CZ | 11:M:48:MET:SD | 2.74 | 0.75 |
| 12:N:4:PRO:CG | 12:N:5:GLN:N | 2.47 | 0.75 |
| 1:A:2394:C:P | 13:O:57:THR:HA | 2.27 | 0.75 |
| 18:T:108:GLU:HA | 18:T:111:GLU:HG2 | 1.67 | 0.75 |
| 19:U:67:GLY:CA | 19:U:93:GLU:O | 2.34 | 0.75 |
| 3:C:129:ARG:O | 3:C:130:ILE:HD12 | 1.85 | 0.75 |
| 4:D:112:GLN:O | 4:D:115:GLN:HG2 | 1.87 | 0.75 |
| 27:3:13:ARG:O | 27:3:14:ILE:HB | 1.86 | 0.75 |
| 29:5:20:ASN:ND2 | 29:5:43:CYS:CB | 2.50 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 31:7:22:VAL:O | 31:7:48:PHE:CG | 2.40 | 0.75 |
| 31:7:36:LYS:HB3 | 31:7:41:ILE:HD11 | 1.69 | 0.75 |
| 1:A:109:G:C2 | 1:A:110:G:H1' | 2.21 | 0.75 |
| 1:A:1341:U:H2' | 1:A:1342:A:OP1 | 1.85 | 0.75 |
| 1:A:1524:G:H2' | 1:A:1525:G:C8 | 2.18 | 0.75 |
| 1:A:1570:A:C2 | 1:A:1571:A:N7 | 2.54 | 0.75 |
| 1:A:2455:G:H2' | 1:A:2456:C:C6 | 2.21 | 0.75 |
| 1:A:2749:A:C2 | 1:A:2750:A:N6 | 2.55 | 0.75 |
| 1:A:624:C:H3' | 1:A:624:C:H6 | 1.48 | 0.75 |
| 1:A:764:A:H3' | 1:A:765:G:H5' | 1.67 | 0.75 |
| 2:B:38:C:N3 | 2:B:39:A:N7 | 2.35 | 0.75 |
| 4:D:239:ARG:CD | 4:D:239:ARG:H | 2.00 | 0.75 |
| 4:D:244:ARG:H | 4:D:245:PRO:HD3 | 0.70 | 0.75 |
| 4:D:59:LYS:NZ | 4:D:59:LYS:O | 2.20 | 0.75 |
| 7:G:115:ARG:O | 7:G:117:PHE:N | 2.19 | 0.75 |
| 7:G:79:ASN:OD1 | 7:G:82:LEU:HD11 | 1.86 | 0.75 |
| 8:H:103:LEU:HD23 | 8:H:113:VAL:HG12 | 1.68 | 0.75 |
| 12:N:97:ARG:HB3 | 12:N:118:ALA:HB2 | 1.67 | 0.75 |
| 13:O:76:LYS:HZ3 | 13:O:93:GLY:HA2 | 1.50 | 0.75 |
| 15:Q:103:ARG:HB2 | 15:Q:108:GLY:CA | 2.16 | 0.75 |
| 18:T:26:GLY:HA2 | 18:T:29:SER:HG | 1.49 | 0.75 |
| 19:U:18:LEU:H | 19:U:18:LEU:HD23 | 1.52 | 0.75 |
| 19:U:5:VAL:HG13 | 19:U:38:LEU:O | 1.87 | 0.75 |
| 19:U:6:LYS:HZ3 | 19:U:10:LYS:HB3 | 1.50 | 0.75 |
| 21:W:26:TYR:CD1 | 21:W:89:ILE:HD12 | 2.20 | 0.75 |
| 23:Y:56:VAL:O | 23:Y:57:ILE:O | 2.02 | 0.75 |
| 3:C:73:ARG:NH1 | 3:C:73:ARG:HB2 | 2.00 | 0.75 |
| 2:B:117:G:C2 | 2:B:118:G:C8 | 2.74 | 0.75 |
| 30:6:8:ASN:OD1 | 30:6:11:LYS:HB3 | 1.87 | 0.75 |
| 30:6:35:ARG:HG2 | 30:6:42:LEU:HD21 | 1.68 | 0.75 |
| 1:A:141(A):C:O5' | 1:A:141(A):C:H6 | 1.69 | 0.75 |
| 1:A:1655:A:H4' | 5:E:114:ALA:HA | 1.69 | 0.75 |
| 1:A:2014:A:C2' | 1:A:2015:A:H2 | 1.99 | 0.75 |
| 1:A:2423:U:H1' | 1:A:2425:A:C8 | 2.21 | 0.75 |
| 1:A:2834:G:O6 | 1:A:2835:A:C2 | 2.38 | 0.75 |
| 1:A:2864:G:H2' | 1:A:2865:U:C5 | 2.20 | 0.75 |
| 1:A:29:U:P | 1:A:583:G:H4' | 2.27 | 0.75 |
| 1:A:647:G:H2' | 1:A:648:G:H8 | 1.48 | 0.75 |
| 5:E:147:PRO:CD | 5:E:148:GLY:H | 1.98 | 0.75 |
| 5:E:55:ASN:HA | 5:E:58:ARG:HH22 | 1.51 | 0.75 |
| 6:F:43:LYS:NZ | 6:F:100:THR:HG22 | 2.02 | 0.75 |
| 6:F:44:ARG:HG3 | 6:F:45:ARG:H | 1.50 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:557:U:O3' | 11:M:112:LEU:HD21 | 1.87 | 0.75 |
| 11:M:22:THR:HG22 | 11:M:61:ARG:NH1 | 2.02 | 0.75 |
| 12:N:41:ALA:N | 12:N:59:LYS:NZ | 2.33 | 0.75 |
| 15:Q:17:ARG:NH1 | 15:Q:17:ARG:CB | 2.50 | 0.75 |
| 1:A:1652:A:OP1 | 15:Q:39:PRO:HG2 | 1.86 | 0.75 |
| 15:Q:44:LEU:O | 15:Q:48:VAL:HG23 | 1.86 | 0.75 |
| 16:R:8:GLU:O | 16:R:9:ARG:C | 2.23 | 0.75 |
| 17:S:18:ASP:CG | 17:S:81:PRO:HG3 | 2.06 | 0.75 |
| 18:T:91:ASP:O | 18:T:95:LEU:HD21 | 1.86 | 0.75 |
| 20:V:13:SER:O | 20:V:16:LYS:NZ | 2.19 | 0.75 |
| 21:W:24:GLY:O | 21:W:83:VAL:HG22 | 1.87 | 0.75 |
| 22:X:42:VAL:H | 22:X:61:ILE:CB | 2.00 | 0.75 |
| 1:A:2111:C:H4' | 1:A:2112:G:OP1 | 1.85 | 0.75 |
| 1:A:2114:A:H2' | 1:A:2115:G:O4' | 1.87 | 0.75 |
| 3:C:129:ARG:HG3 | 3:C:129:ARG:HH11 | 1.52 | 0.75 |
| 1:A:131:G:H2' | 1:A:132:G:C8 | 2.19 | 0.75 |
| 1:A:1589:C:H2' | 1:A:1590:U:O4' | 1.87 | 0.75 |
| 29:5:17:LYS:HZ2 | 29:5:50:ARG:HB2 | 1.49 | 0.75 |
| 1:A:1134:G:O6 | 1:A:1136:G:H3' | 1.87 | 0.75 |
| 1:A:1675:C:H2' | 1:A:1676:A:H5' | 1.68 | 0.75 |
| 1:A:175:G:O2' | 1:A:176:G:H5' | 1.87 | 0.75 |
| 1:A:1881:C:H5'' | 1:A:1881:C:H6 | 1.49 | 0.75 |
| 1:A:2052:G:H1' | 5:E:150:VAL:N | 2.02 | 0.75 |
| 1:A:2259:G:C4' | 1:A:2427:C:H2' | 2.17 | 0.75 |
| 1:A:2489:G:H2' | 1:A:2490:G:C8 | 2.22 | 0.75 |
| 1:A:2555:U:C6 | 1:A:2555:U:C3' | 2.67 | 0.75 |
| 1:A:2612:C:O2 | 28:4:4:HIS:CG | 2.40 | 0.75 |
| 1:A:2641:G:OP2 | 11:M:83:LYS:HD2 | 1.85 | 0.75 |
| 1:A:2523:G:C1' | 1:A:2765:A:H62 | 1.99 | 0.75 |
| 1:A:641:C:H2' | 1:A:642:G:C5' | 2.16 | 0.75 |
| 1:A:64:A:C2' | 1:A:65:C:H5' | 2.16 | 0.75 |
| 1:A:813:U:H2' | 1:A:814:C:C6 | 2.21 | 0.75 |
| 1:A:900:A:C8 | 1:A:901:A:C8 | 2.74 | 0.75 |
| 2:B:7:G:C4' | 16:R:29:PHE:HE2 | 1.97 | 0.75 |
| 4:D:133:LEU:O | 4:D:136:ILE:HG13 | 1.86 | 0.75 |
| 4:D:166:GLN:O | 4:D:174:ILE:HB | 1.87 | 0.75 |
| 1:A:2637:U:C5' | 5:E:43:GLY:HA3 | 2.16 | 0.75 |
| 6:F:118:ALA:CB | 6:F:122:LYS:HE2 | 2.16 | 0.75 |
| 6:F:19:GLU:CA | 6:F:20:LEU:HD22 | 2.16 | 0.75 |
| 6:F:39:TRP:CZ3 | 6:F:43:LYS:HD2 | 2.22 | 0.75 |
| 11:M:107:LEU:HD21 | 11:M:113:GLY:HA3 | 1.66 | 0.75 |
| 11:M:97:ARG:CA | 11:M:100:GLU:HG2 | 2.15 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 12:N:68:GLU:HA | 12:N:104:ARG:CZ | 2.17 | 0.75 |
| 13:O:92:GLU:CD | 13:O:126:VAL:HG13 | 2.07 | 0.75 |
| 13:O:85:LEU:HD13 | 13:O:86:LYS:HE2 | 1.68 | 0.75 |
| 16:R:26:LEU:HD13 | 16:R:28:VAL:H | 1.52 | 0.75 |
| 18:T:74:LEU:HD13 | 18:T:78:THR:HG21 | 1.69 | 0.75 |
| 19:U:35:LEU:H | 19:U:61:VAL:HG13 | 1.52 | 0.75 |
| 21:W:73:ARG:HG2 | 21:W:74:PRO:HD2 | 1.68 | 0.75 |
| 3:C:95:GLY:HA3 | 3:C:99:ILE:CG1 | 2.16 | 0.75 |
| 2:B:35:U:H2' | 2:B:36:C:H6 | 1.51 | 0.75 |
| 28:4:40:LYS:HG2 | 28:4:41:PRO:HD2 | 1.69 | 0.75 |
| 1:A:1559:G:C8 | 1:A:1559:G:H5'' | 2.21 | 0.75 |
| 1:A:1899:G:N2 | 1:A:1902:C:H41 | 1.83 | 0.75 |
| 1:A:2285:C:H1' | 1:A:2288:A:N7 | 2.01 | 0.75 |
| 1:A:2348:U:C4 | 1:A:2382:G:N2 | 2.54 | 0.75 |
| 1:A:2378:A:H5'' | 1:A:2379:G:OP2 | 1.85 | 0.75 |
| 1:A:2406:U:O2 | 13:O:67:MET:HB3 | 1.86 | 0.75 |
| 1:A:2432:A:H62 | 1:A:2433:A:N6 | 1.84 | 0.75 |
| 1:A:2523:G:H2' | 1:A:2524:G:H5' | 1.68 | 0.75 |
| 1:A:2686:G:OP1 | 12:N:66:LYS:NZ | 2.19 | 0.75 |
| 1:A:2698:U:N3 | 1:A:2699:C:N4 | 2.35 | 0.75 |
| 1:A:269:U:C5 | 1:A:270(Z):U:OP2 | 2.40 | 0.75 |
| 1:A:2713:A:H5'' | 1:A:2714:G:OP2 | 1.86 | 0.75 |
| 1:A:2718:G:H2' | 1:A:2719:G:C8 | 2.21 | 0.75 |
| 1:A:39:C:H2' | 1:A:40:C:H6 | 1.52 | 0.75 |
| 1:A:564:C:H42 | 1:A:578:A:N6 | 1.84 | 0.75 |
| 1:A:581:C:P | 18:T:33:ARG:HH12 | 2.10 | 0.75 |
| 1:A:675:A:N6 | 1:A:803:U:O2 | 2.19 | 0.75 |
| 1:A:832:G:OP1 | 13:O:35:HIS:HB2 | 1.86 | 0.75 |
| 1:A:848:G:H2' | 1:A:849:A:H8 | 1.51 | 0.75 |
| 5:E:131:ALA:HB1 | 5:E:134:ILE:CD1 | 2.17 | 0.75 |
| 5:E:49:LEU:HD12 | 5:E:50:GLY:N | 2.00 | 0.75 |
| 6:F:132:VAL:O | 6:F:133:ASN:HB2 | 1.85 | 0.75 |
| 10:L:88:ALA:HB3 | 10:L:135:GLY:HA3 | 1.67 | 0.75 |
| 10:L:17:ALA:O | 10:L:18:THR:HG23 | 1.86 | 0.75 |
| 14:P:134:ARG:HH11 | 14:P:136:ALA:N | 1.85 | 0.75 |
| 14:P:97:VAL:C | 14:P:98:LYS:HE3 | 2.06 | 0.75 |
| 16:R:30:ARG:HD2 | 16:R:91:PRO:CB | 2.16 | 0.75 |
| 16:R:95:HIS:CG | 16:R:96:GLY:H | 2.03 | 0.75 |
| 17:S:96:ARG:CG | 17:S:117:ASP:HB3 | 2.12 | 0.75 |
| 18:T:47:TYR:HE2 | 19:U:75:PHE:HB3 | 1.50 | 0.75 |
| 20:V:13:SER:C | 20:V:16:LYS:HZ1 | 1.89 | 0.75 |
| 23:Y:157:LEU:HD22 | 23:Y:161:VAL:CG1 | 2.16 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:Y:128:VAL:HG23 | 23:Y:164:ALA:HB2 | 1.68 | 0.75 |
| 3:C:59:ARG:NH1 | 3:C:164:ARG:HD3 | 2.01 | 0.75 |
| 29:5:7:ILE:C | 29:5:9:LEU:H | 1.90 | 0.75 |
| 29:5:25:LYS:HE2 | 31:7:35:GLN:CB | 2.17 | 0.75 |
| 1:A:1314:C:O2' | 1:A:1315:C:H5' | 1.86 | 0.75 |
| 1:A:1858:G:N2 | 1:A:1859:A:N6 | 2.35 | 0.75 |
| 1:A:2283:C:C6 | 1:A:2389:G:N3 | 2.54 | 0.75 |
| 1:A:2779:U:H6 | 1:A:2779:U:O5' | 1.70 | 0.75 |
| 1:A:293:U:H3' | 1:A:293:U:H6 | 1.50 | 0.75 |
| 1:A:659:C:O2' | 1:A:660:G:H5' | 1.86 | 0.75 |
| 1:A:675:A:H4' | 6:F:67:GLN:OE1 | 1.86 | 0.75 |
| 1:A:747:U:O2' | 1:A:748:G:OP1 | 2.05 | 0.75 |
| 1:A:898:C:H3' | 1:A:899:A:H5'' | 1.69 | 0.75 |
| 2:B:50:G:H2' | 2:B:50:G:N3 | 1.99 | 0.75 |
| 4:D:120:GLY:H | 4:D:131:LEU:HD13 | 1.52 | 0.75 |
| 5:E:151:TYR:CE1 | 5:E:153:GLY:N | 2.55 | 0.75 |
| 5:E:173:VAL:CG2 | 5:E:174:ASP:N | 2.49 | 0.75 |
| 7:G:173:LEU:CD1 | 7:G:176:LEU:HD12 | 2.11 | 0.75 |
| 8:H:103:LEU:HB3 | 8:H:113:VAL:O | 1.86 | 0.75 |
| 8:H:132:ARG:HD3 | 8:H:132:ARG:H | 1.51 | 0.75 |
| 12:N:18:LYS:NZ | 12:N:44:LYS:HD3 | 2.00 | 0.75 |
| 14:P:124:LYS:HE2 | 14:P:125:LEU:CA | 2.17 | 0.75 |
| 14:P:6:ARG:HH21 | 14:P:8:LYS:H | 1.31 | 0.75 |
| 20:V:3:ALA:O | 20:V:106:ILE:HG13 | 1.86 | 0.75 |
| 23:Y:29:TYR:O | 23:Y:89:PHE:HA | 1.86 | 0.75 |
| 23:Y:95:PRO:CB | 23:Y:131:ARG:H | 1.99 | 0.75 |
| 30:6:28:ARG:HA | 30:6:31:LEU:CD1 | 2.15 | 0.75 |
| 32:8:33:LYS:HB3 | 32:8:35:ARG:HE | 1.51 | 0.75 |
| 1:A:1027:A:H61 | 1:A:1126:A:H1' | 1.51 | 0.75 |
| 1:A:1449:A:C2 | 1:A:1449(A):G:H1' | 2.22 | 0.75 |
| 1:A:1445:C:N3 | 1:A:1466:G:N2 | 2.33 | 0.75 |
| 1:A:1617:C:OP2 | 1:A:1617:C:C4' | 2.34 | 0.75 |
| 1:A:1363:C:O3' | 1:A:1809:A:N6 | 2.20 | 0.75 |
| 1:A:2051:A:C6 | 1:A:2614:A:C5 | 2.74 | 0.75 |
| 1:A:2437:U:H2' | 1:A:2438:U:C6 | 2.21 | 0.75 |
| 1:A:270(A):A:C5' | 1:A:270(B):A:OP2 | 2.35 | 0.75 |
| 1:A:2832:U:C1' | 1:A:2834:G:H21 | 1.99 | 0.75 |
| 1:A:323:G:H2' | 6:F:170:LEU:CB | 2.14 | 0.75 |
| 1:A:662:G:H5' | 13:O:17:LYS:N | 2.01 | 0.75 |
| 1:A:935:C:H2' | 1:A:936:C:C6 | 2.22 | 0.75 |
| 4:D:23:GLU:O | 4:D:23:GLU:CD | 2.25 | 0.75 |
| 1:A:1813:G:O2' | 4:D:52:ARG:NH2 | 2.20 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:F:6:VAL:CA | 6:F:20:LEU:HD13 | 2.15 | 0.75 |
| 6:F:43:LYS:HZ2 | 6:F:100:THR:HG22 | 1.52 | 0.75 |
| 6:F:46:ARG:NH1 | 6:F:47:GLY:H | 1.85 | 0.75 |
| 8:H:130:ARG:O | 8:H:131:VAL:HG23 | 1.86 | 0.75 |
| 9:K:2:LYS:NZ | 9:K:44:LEU:HD11 | 2.02 | 0.75 |
| 5:E:18:ASP:CB | 12:N:72:PRO:HA | 2.14 | 0.75 |
| 14:P:111:GLU:CB | 14:P:113:GLN:HE21 | 1.99 | 0.75 |
| 17:S:2:ASN:O | 17:S:5:ALA:HB3 | 1.87 | 0.75 |
| 17:S:62:THR:CG2 | 17:S:79:HIS:HA | 2.16 | 0.75 |
| 18:T:13:LYS:O | 18:T:16:LYS:HB3 | 1.87 | 0.75 |
| 24:Z:47:PRO:HG3 | 24:Z:59:LEU:CD2 | 2.16 | 0.75 |
| 1:A:2122:U:C2' | 1:A:2123:G:H5'' | 2.17 | 0.75 |
| 17:S:40:THR:O | 17:S:40:THR:HG22 | 1.85 | 0.75 |
| 1:A:1264:G:O6 | 1:A:1265:A:N6 | 2.19 | 0.74 |
| 1:A:141:A:H1' | 1:A:1408:C:O4' | 1.87 | 0.74 |
| 1:A:1508:A:H5'' | 1:A:1510:A:C8 | 2.22 | 0.74 |
| 1:A:1595:G:C2 | 1:A:1596:A:H1' | 2.22 | 0.74 |
| 1:A:1695:G:H1' | 4:D:15:PHE:HB3 | 1.69 | 0.74 |
| 1:A:1825:A:C6 | 1:A:1826:G:O6 | 2.40 | 0.74 |
| 1:A:1928:A:C3' | 1:A:1929:G:H5' | 2.15 | 0.74 |
| 1:A:1935:G:H2' | 1:A:1962:C:C4 | 2.22 | 0.74 |
| 1:A:2052:G:H2' | 1:A:2053:G:C8 | 2.21 | 0.74 |
| 1:A:225:A:H62 | 1:A:419:C:H4' | 1.51 | 0.74 |
| 1:A:2434:A:C2' | 1:A:2435:A:H5'' | 2.17 | 0.74 |
| 1:A:2506:U:O2' | 1:A:2507:C:C5' | 2.35 | 0.74 |
| 1:A:2777:G:H4' | 1:A:2778:A:O5' | 1.85 | 0.74 |
| 1:A:431:U:H2' | 1:A:431:U:O2 | 1.86 | 0.74 |
| 1:A:491:G:C2 | 1:A:492:A:H1' | 2.22 | 0.74 |
| 1:A:544:C:H2' | 1:A:545:G:O4' | 1.87 | 0.74 |
| 1:A:962:G:C2' | 1:A:963:U:H6 | 1.96 | 0.74 |
| 2:B:33:G:H2' | 2:B:34:U:H6 | 1.51 | 0.74 |
| 2:B:44:G:H5'' | 2:B:45:A:OP1 | 1.86 | 0.74 |
| 4:D:157:ARG:HH11 | 4:D:178:PRO:HG3 | 1.52 | 0.74 |
| 4:D:53:PHE:CG | 4:D:221:VAL:HG22 | 2.22 | 0.74 |
| 1:A:2822:G:H5'' | 5:E:113:PHE:HZ | 1.52 | 0.74 |
| 5:E:91:VAL:HG22 | 5:E:93:VAL:H | 1.52 | 0.74 |
| 6:F:82:ILE:O | 6:F:83:PHE:HB3 | 1.87 | 0.74 |
| 7:G:86:MET:H | 7:G:87:PRO:HD2 | 1.50 | 0.74 |
| 12:N:66:LYS:HG3 | 12:N:67:LYS:CE | 2.17 | 0.74 |
| 13:O:114:ILE:HG21 | 13:O:123:LEU:CD1 | 2.16 | 0.74 |
| 14:P:130:LYS:HG2 | 14:P:131:ILE:H | 1.52 | 0.74 |
| 20:V:18:ARG:HH21 | 20:V:18:ARG:HB2 | 1.51 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 22:X:46:LYS:HD3 | 22:X:58:GLY:CA | 2.16 | 0.74 |
| 23:Y:82:ARG:HG2 | 23:Y:83:PRO:CD | 2.17 | 0.74 |
| 9:K:66:GLU:HA | 9:K:69:LYS:CG | 2.16 | 0.74 |
| 27:3:28:LYS:CB | 27:3:29:PRO:HD2 | 2.15 | 0.74 |
| 27:3:42:PHE:HB2 | 27:3:58:ARG:NH1 | 2.02 | 0.74 |
| 1:A:2284:C:C5' | 29:5:9:LEU:HG | 2.17 | 0.74 |
| 30:6:21:ARG:CG | 30:6:31:LEU:HD21 | 2.16 | 0.74 |
| 1:A:120:U:O2 | 1:A:120:U:H2' | 1.85 | 0.74 |
| 1:A:1650:G:H5' | 15:Q:104:ARG:NH2 | 2.01 | 0.74 |
| 1:A:1664:A:C8 | 1:A:1665:A:C5 | 2.74 | 0.74 |
| 1:A:1725:G:C5 | 1:A:1741:C:N4 | 2.55 | 0.74 |
| 1:A:1699:G:C8 | 1:A:1763:G:N2 | 2.55 | 0.74 |
| 1:A:1819:A:OP2 | 4:D:157:ARG:NE | 2.20 | 0.74 |
| 1:A:1824:G:H2' | 1:A:1825:A:O4' | 1.85 | 0.74 |
| 1:A:2284:C:H5'' | 29:5:9:LEU:HG | 1.69 | 0.74 |
| 1:A:2415:G:P | 13:O:61:ARG:HD2 | 2.27 | 0.74 |
| 1:A:271(B):G:H5'' | 1:A:271(C):U:O4' | 1.87 | 0.74 |
| 1:A:2761:G:C2' | 1:A:2762:G:H5' | 2.16 | 0.74 |
| 1:A:387:U:O2 | 1:A:387:U:H2' | 1.85 | 0.74 |
| 1:A:586:A:C6 | 1:A:1254:A:N1 | 2.55 | 0.74 |
| 1:A:629:G:H5'' | 1:A:649:G:O2' | 1.86 | 0.74 |
| 1:A:949:C:H2' | 1:A:950:G:H8 | 1.53 | 0.74 |
| 2:B:88:C:C4 | 2:B:89:G:N3 | 2.54 | 0.74 |
| 4:D:73:VAL:HB | 4:D:121:PRO:CD | 2.17 | 0.74 |
| 4:D:133:LEU:O | 4:D:135:PHE:N | 2.19 | 0.74 |
| 4:D:155:LEU:HA | 4:D:157:ARG:NH2 | 2.01 | 0.74 |
| 4:D:157:ARG:O | 4:D:158:ALA:O | 2.05 | 0.74 |
| 5:E:136:ARG:C | 5:E:137:HIS:ND1 | 2.41 | 0.74 |
| 5:E:165:VAL:HG12 | 5:E:166:THR:N | 1.99 | 0.74 |
| 6:F:118:ALA:O | 6:F:122:LYS:HB2 | 1.87 | 0.74 |
| 6:F:158:THR:HB | 6:F:195:ASP:CB | 2.17 | 0.74 |
| 6:F:36:VAL:HG11 | 6:F:183:VAL:HG11 | 1.68 | 0.74 |
| 7:G:113:ARG:HG2 | 7:G:139:LEU:CA | 2.16 | 0.74 |
| 10:L:37:PHE:HE2 | 10:L:65:PHE:HB2 | 1.49 | 0.74 |
| 11:M:54:VAL:O | 11:M:55:VAL:HG23 | 1.87 | 0.74 |
| 12:N:98:VAL:HG12 | 12:N:122:LEU:HD23 | 1.69 | 0.74 |
| 13:O:113:LYS:C | 13:O:113:LYS:HD3 | 2.06 | 0.74 |
| 14:P:6:ARG:HH21 | 14:P:8:LYS:N | 1.85 | 0.74 |
| 14:P:81:VAL:CG1 | 14:P:82:ARG:H | 1.90 | 0.74 |
| 1:A:1275:A:N3 | 15:Q:12:ARG:NH2 | 2.35 | 0.74 |
| 19:U:5:VAL:HG12 | 19:U:37:VAL:HG22 | 1.68 | 0.74 |
| 24:Z:23:VAL:HA | 24:Z:38:VAL:HG12 | 1.67 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:C:113:VAL:HG11 | 3:C:136:LEU:O | 1.87 | 0.74 |
| 1:A:1495:A:C6 | 1:A:1496:A:N6 | 2.54 | 0.74 |
| 1:A:2094:G:N2 | 1:A:2196:C:H1' | 2.01 | 0.74 |
| 26:2:40:THR:O | 26:2:44:ARG:CB | 2.35 | 0.74 |
| 31:7:23:VAL:HG22 | 31:7:47:LYS:C | 2.08 | 0.74 |
| 1:A:1112:G:H2' | 1:A:1113:U:H5 | 1.51 | 0.74 |
| 1:A:141(A):C:O2' | 1:A:142:G:H5' | 1.88 | 0.74 |
| 1:A:1471:A:OP2 | 1:A:1472:A:H2 | 1.70 | 0.74 |
| 1:A:2085:C:O2' | 1:A:2086:U:H5' | 1.87 | 0.74 |
| 1:A:2349:G:H3' | 1:A:2350:C:H5'' | 1.68 | 0.74 |
| 1:A:2607:G:C2' | 1:A:2608:G:H5' | 2.17 | 0.74 |
| 1:A:2821:A:O2' | 1:A:2822:G:H5' | 1.87 | 0.74 |
| 1:A:2831:G:O2' | 1:A:2883:A:H2' | 1.85 | 0.74 |
| 1:A:569:U:O5' | 1:A:570:G:OP2 | 2.05 | 0.74 |
| 1:A:893:C:H2' | 1:A:894:C:C6 | 2.20 | 0.74 |
| 1:A:2052:G:C4 | 5:E:150:VAL:HG23 | 2.22 | 0.74 |
| 5:E:30:PRO:HG2 | 5:E:90:THR:CG2 | 2.16 | 0.74 |
| 6:F:165:ARG:HB2 | 6:F:165:ARG:HH21 | 1.49 | 0.74 |
| 12:N:103:ALA:O | 12:N:105:GLU:N | 2.20 | 0.74 |
| 14:P:22:LYS:HE3 | 14:P:23:GLY:H | 1.53 | 0.74 |
| 14:P:65:PHE:N | 14:P:105:GLU:OE2 | 2.20 | 0.74 |
| 20:V:20:VAL:HG13 | 20:V:21:VAL:N | 2.03 | 0.74 |
| 20:V:25:ARG:HG2 | 20:V:71:VAL:HG21 | 1.68 | 0.74 |
| 22:X:13:VAL:O | 22:X:70:SER:N | 2.18 | 0.74 |
| 22:X:86:ARG:O | 22:X:91:GLU:HG2 | 1.86 | 0.74 |
| 9:K:97:ILE:HG22 | 9:K:101:LEU:HD23 | 1.69 | 0.74 |
| 1:A:2130:U:H1' | 1:A:2134:A:OP1 | 1.86 | 0.74 |
| 27:3:68:ARG:HB2 | 27:3:68:ARG:NH1 | 2.02 | 0.74 |
| 31:7:6:THR:OG1 | 31:7:8:LYS:HB2 | 1.87 | 0.74 |
| 1:A:1375:C:H2' | 1:A:1376:C:C6 | 2.21 | 0.74 |
| 1:A:1472:A:O2' | 1:A:1473:G:C8 | 2.40 | 0.74 |
| 1:A:1528:A:N7 | 1:A:1529:A:C6 | 2.56 | 0.74 |
| 1:A:1566:A:O2' | 1:A:1567:A:H5' | 1.86 | 0.74 |
| 1:A:1918:A:OP2 | 1:A:1918:A:C8 | 2.39 | 0.74 |
| 1:A:2426:A:H3' | 1:A:2427:C:C5' | 2.17 | 0.74 |
| 1:A:325:G:H2' | 1:A:326:G:C8 | 2.22 | 0.74 |
| 1:A:467:G:O2' | 1:A:468:G:H5' | 1.85 | 0.74 |
| 1:A:261:G:C4' | 1:A:608:A:C2 | 2.70 | 0.74 |
| 4:D:208:LYS:HB3 | 4:D:211:ARG:HB2 | 1.69 | 0.74 |
| 1:A:2787:C:H5'' | 5:E:64:LYS:HD2 | 1.69 | 0.74 |
| 6:F:158:THR:CG2 | 6:F:196:LEU:H | 1.98 | 0.74 |
| 6:F:168:ARG:NH2 | 6:F:169:ASN:N | 2.27 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:F:202:PHE:HD2 | 6:F:205:ARG:HD2 | 1.51 | 0.74 |
| 10:L:7:VAL:HG12 | 10:L:58:THR:CG2 | 2.17 | 0.74 |
| 12:N:95:GLY:O | 12:N:117:LEU:HD12 | 1.87 | 0.74 |
| 12:N:97:ARG:HE | 12:N:98:VAL:HG22 | 1.52 | 0.74 |
| 13:O:78:PRO:HG2 | 13:O:117:GLU:OE1 | 1.87 | 0.74 |
| 15:Q:101:ALA:O | 15:Q:102:GLU:HB2 | 1.87 | 0.74 |
| 16:R:9:ARG:HH11 | 16:R:9:ARG:HB2 | 1.47 | 0.74 |
| 12:N:77:ILE:CG1 | 17:S:75:ILE:HD12 | 2.11 | 0.74 |
| 11:M:37:LYS:HD2 | 18:T:63:VAL:HG11 | 1.69 | 0.74 |
| 18:T:63:VAL:O | 18:T:64:ARG:C | 2.26 | 0.74 |
| 19:U:36:PRO:N | 19:U:61:VAL:HG22 | 2.03 | 0.74 |
| 21:W:47:PHE:CZ | 21:W:92:LEU:HD11 | 2.22 | 0.74 |
| 9:K:66:GLU:O | 9:K:69:LYS:HG3 | 1.85 | 0.74 |
| 3:C:212:VAL:H | 3:C:223:ARG:NE | 1.85 | 0.74 |
| 3:C:78:ALA:HB2 | 3:C:116:THR:OG1 | 1.88 | 0.74 |
| 1:A:716:A:H2' | 1:A:717:G:C5' | 2.18 | 0.74 |
| 20:V:35:ILE:HG13 | 28:4:28:PRO:HD2 | 1.67 | 0.74 |
| 29:5:16:CYS:HB3 | 29:5:49:HIS:ND1 | 2.02 | 0.74 |
| 31:7:23:VAL:HG13 | 31:7:47:LYS:O | 1.87 | 0.74 |
| 1:A:1279:G:H2' | 1:A:1280:G:C8 | 2.23 | 0.74 |
| 1:A:1316:U:H2' | 1:A:1317:A:C8 | 2.22 | 0.74 |
| 1:A:142:G:H2' | 1:A:143:C:C6 | 2.23 | 0.74 |
| 1:A:1729:A:H8 | 1:A:1730:U:O4' | 1.70 | 0.74 |
| 1:A:1788:C:C4 | 1:A:1789:A:C8 | 2.75 | 0.74 |
| 1:A:1917:U:C6 | 1:A:1917:U:C3' | 2.68 | 0.74 |
| 1:A:1994:C:C2' | 1:A:1995:U:H5' | 2.17 | 0.74 |
| 1:A:2034:U:O2 | 1:A:2034:U:H2' | 1.86 | 0.74 |
| 1:A:2063:C:C3' | 1:A:2064:C:H5'' | 2.16 | 0.74 |
| 1:A:2459:A:C5 | 1:A:2493:U:O4 | 2.40 | 0.74 |
| 1:A:2625:G:H3' | 1:A:2626:C:C5 | 2.22 | 0.74 |
| 1:A:270(P):C:H2' | 1:A:270(Q):C:C6 | 2.21 | 0.74 |
| 1:A:320:A:H3' | 6:F:136:THR:HG1 | 1.53 | 0.74 |
| 1:A:670:A:H4' | 1:A:671:C:C5' | 2.17 | 0.74 |
| 1:A:709:U:H2' | 1:A:710:G:H8 | 1.50 | 0.74 |
| 1:A:761:A:H5'' | 1:A:762:U:OP1 | 1.88 | 0.74 |
| 2:B:114:G:H2' | 2:B:115:G:O4' | 1.87 | 0.74 |
| 2:B:52:A:H2' | 2:B:53:A:H5' | 1.69 | 0.74 |
| 4:D:5:LYS:HA | 4:D:28:GLU:C | 2.08 | 0.74 |
| 5:E:14:ILE:H | 5:E:14:ILE:HD12 | 1.52 | 0.74 |
| 5:E:8:LYS:HD3 | 5:E:9:VAL:N | 2.02 | 0.74 |
| 7:G:125:PHE:O | 7:G:126:ASP:CB | 2.32 | 0.74 |
| 7:G:56:ALA:O | 7:G:59:GLU:HG3 | 1.88 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 8:H:103:LEU:N | 8:H:115:VAL:HG12 | 2.02 | 0.74 |
| 11:M:85:ILE:CG2 | 11:M:89:LYS:HD3 | 2.16 | 0.74 |
| 15:Q:79:LEU:CG | 15:Q:80:PHE:N | 2.48 | 0.74 |
| 16:R:28:VAL:HB | 16:R:101:LEU:HG | 1.69 | 0.74 |
| 19:U:6:LYS:NZ | 19:U:10:LYS:HB3 | 2.02 | 0.74 |
| 19:U:27:ALA:HB2 | 19:U:35:LEU:HD13 | 1.70 | 0.74 |
| 22:X:74:PRO:HB2 | 22:X:101:LYS:N | 2.02 | 0.74 |
| 23:Y:171:ILE:HD12 | 23:Y:171:ILE:O | 1.88 | 0.74 |
| 9:K:93:THR:CG2 | 9:K:96:ASP:H | 2.01 | 0.74 |
| 3:C:134:ARG:HG2 | 3:C:134:ARG:O | 1.85 | 0.74 |
| 27:3:18:CYS:H | 27:3:33:VAL:CG2 | 2.01 | 0.74 |
| 32:8:15:LYS:O | 32:8:25:VAL:HA | 1.87 | 0.74 |
| 1:A:1005:C:H6 | 11:M:28:THR:HG21 | 1.52 | 0.74 |
| 1:A:1061:U:C5' | 1:A:1070:A:H4' | 2.16 | 0.74 |
| 1:A:1249:U:H2' | 1:A:1250:G:O4' | 1.88 | 0.74 |
| 1:A:2000:G:OP2 | 15:Q:2:ARG:HA | 1.88 | 0.74 |
| 1:A:312:G:OP1 | 1:A:312:G:O4' | 2.05 | 0.74 |
| 1:A:50:U:H3' | 1:A:50:U:H6 | 1.52 | 0.74 |
| 1:A:774:A:H5' | 1:A:778:G:C4' | 2.17 | 0.74 |
| 1:A:976:C:C5' | 1:A:1156:A:N6 | 2.51 | 0.74 |
| 4:D:106:ILE:HB | 4:D:108:PRO:HD3 | 1.67 | 0.74 |
| 4:D:151:LYS:HB2 | 4:D:154:LYS:NZ | 2.01 | 0.74 |
| 5:E:4:ILE:HG23 | 5:E:30:PRO:HB3 | 1.69 | 0.74 |
| 6:F:149:ASP:C | 6:F:172:TRP:HE1 | 1.90 | 0.74 |
| 8:H:85:LYS:HD3 | 8:H:145:ALA:CB | 2.17 | 0.74 |
| 12:N:16:ALA:CB | 12:N:45:GLU:HB2 | 2.16 | 0.74 |
| 12:N:59:LYS:HB3 | 12:N:85:VAL:HA | 1.68 | 0.74 |
| 12:N:8:LEU:H | 12:N:8:LEU:HD12 | 1.51 | 0.74 |
| 13:O:97:PRO:CA | 13:O:102:ARG:CZ | 2.65 | 0.74 |
| 1:A:2277:G:O3' | 14:P:14:ARG:HG3 | 1.88 | 0.74 |
| 15:Q:54:LEU:HD12 | 15:Q:54:LEU:N | 2.02 | 0.74 |
| 16:R:41:ASP:CG | 16:R:42:ASP:N | 2.40 | 0.74 |
| 18:T:58:ARG:HG3 | 18:T:59:ARG:HG2 | 1.70 | 0.74 |
| 22:X:12:THR:HG23 | 22:X:73:ARG:CG | 2.15 | 0.74 |
| 22:X:47:LYS:HB2 | 22:X:56:PRO:CB | 2.17 | 0.74 |
| 23:Y:4:ARG:NH1 | 23:Y:37:VAL:HB | 2.02 | 0.74 |
| 27:3:56:VAL:CG1 | 27:3:57:GLU:H | 1.90 | 0.74 |
| 31:7:15:LYS:C | 31:7:22:VAL:HG22 | 2.08 | 0.74 |
| 1:A:1023:U:P | 1:A:1025:G:N1 | 2.60 | 0.74 |
| 1:A:1177:A:H2' | 1:A:1178:C:C5 | 2.23 | 0.74 |
| 1:A:1265:A:H2' | 1:A:1265:A:N3 | 2.01 | 0.74 |
| 1:A:1392:A:C6 | 1:A:1393:A:N6 | 2.55 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:143:C:H2' | 1:A:144:C:C6 | 2.23 | 0.74 |
| 1:A:1517:G:C2 | 1:A:1518:C:H1' | 2.22 | 0.74 |
| 1:A:1567:A:C2 | 4:D:86:PRO:HG3 | 2.23 | 0.74 |
| 1:A:1668:A:H61 | 1:A:1993:U:H1' | 1.50 | 0.74 |
| 1:A:2075:U:C2' | 1:A:2076:U:H5'' | 2.16 | 0.74 |
| 1:A:2468:G:H22 | 1:A:2481:G:H2' | 1.48 | 0.74 |
| 1:A:2587:A:H2' | 1:A:2588:G:H5' | 1.68 | 0.74 |
| 1:A:2603:G:OP2 | 24:Z:1:MET:HB2 | 1.87 | 0.74 |
| 1:A:728:G:H1' | 1:A:729:G:H8 | 1.47 | 0.74 |
| 4:D:120:GLY:C | 4:D:131:LEU:HD11 | 2.07 | 0.74 |
| 1:A:1790:C:OP2 | 4:D:222:ARG:HD2 | 1.87 | 0.74 |
| 4:D:181:GLU:HA | 4:D:270:ILE:HG21 | 1.68 | 0.74 |
| 4:D:46:GLN:NE2 | 4:D:52:ARG:NH2 | 2.36 | 0.74 |
| 5:E:133:LYS:HB3 | 5:E:137:HIS:CD2 | 2.21 | 0.74 |
| 6:F:176:LEU:HG | 6:F:178:PRO:HD2 | 1.70 | 0.74 |
| 7:G:105:LYS:HZ3 | 7:G:139:LEU:HD13 | 1.51 | 0.74 |
| 8:H:87:LEU:O | 8:H:131:VAL:O | 2.05 | 0.74 |
| 8:H:11:VAL:HB | 8:H:50:VAL:CG1 | 2.16 | 0.74 |
| 10:L:61:ALA:C | 10:L:63:ARG:H | 1.89 | 0.74 |
| 13:O:15:ARG:HH21 | 13:O:15:ARG:HG3 | 1.52 | 0.74 |
| 14:P:26:TYR:H | 14:P:102:VAL:HB | 1.49 | 0.74 |
| 14:P:111:GLU:CG | 14:P:113:GLN:HE21 | 1.99 | 0.74 |
| 14:P:137:TYR:CE1 | 23:Y:124:ILE:HD12 | 2.22 | 0.74 |
| 14:P:20:ALA:HB1 | 14:P:98:LYS:HD2 | 1.69 | 0.74 |
| 18:T:33:ARG:HB2 | 18:T:33:ARG:CZ | 2.14 | 0.74 |
| 18:T:96:ALA:O | 18:T:100:VAL:HG13 | 1.87 | 0.74 |
| 19:U:69:LYS:HE2 | 19:U:70:ILE:CD1 | 2.18 | 0.74 |
| 22:X:13:VAL:HG23 | 22:X:14:LEU:H | 1.52 | 0.74 |
| 22:X:82:PRO:CG | 22:X:97:ARG:H | 1.99 | 0.74 |
| 22:X:9:LYS:HG3 | 22:X:28:LYS:HZ2 | 1.53 | 0.74 |
| 3:C:10:LEU:CG | 3:C:220:PRO:HG3 | 2.15 | 0.74 |
| 27:3:58:ARG:HH11 | 27:3:58:ARG:HG3 | 1.51 | 0.74 |
| 1:A:1107:G:N2 | 1:A:1108:U:H1' | 2.03 | 0.74 |
| 1:A:1156:A:OP1 | 18:T:55:ARG:NE | 2.21 | 0.74 |
| 1:A:974:G:O4' | 1:A:1187:G:H1' | 1.87 | 0.74 |
| 1:A:1205:U:O2' | 1:A:1206:G:N7 | 2.19 | 0.74 |
| 1:A:1206:G:C2' | 1:A:1207:C:O4' | 2.35 | 0.74 |
| 1:A:1483:G:H1' | 1:A:1507:A:C2 | 2.22 | 0.74 |
| 1:A:764:A:N6 | 1:A:1789:A:C2 | 2.55 | 0.74 |
| 1:A:1944:U:C6 | 1:A:1944:U:C3' | 2.70 | 0.74 |
| 1:A:2208:U:H1' | 1:A:2217:G:H1 | 1.53 | 0.74 |
| 1:A:2384:G:OP2 | 1:A:2384:G:H8 | 1.71 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2394:C:N4 | 1:A:2422:A:H61 | 1.85 | 0.74 |
| 1:A:2259:G:H4' | 1:A:2427:C:H2' | 1.68 | 0.74 |
| 1:A:2832:U:C1' | 1:A:2834:G:N2 | 2.49 | 0.74 |
| 1:A:428:A:H3' | 1:A:429:A:H8 | 1.52 | 0.74 |
| 1:A:618(A):C:N4 | 1:A:619:G:H21 | 1.86 | 0.74 |
| 1:A:626:U:H4' | 1:A:653:A:C2 | 2.22 | 0.74 |
| 1:A:760:G:H2' | 1:A:761:A:O4' | 1.86 | 0.74 |
| 1:A:829:A:OP1 | 1:A:831:G:H1' | 1.87 | 0.74 |
| 4:D:246:PRO:HG3 | 4:D:252:TRP:HE3 | 1.51 | 0.74 |
| 5:E:173:VAL:HG13 | 5:E:184:VAL:HA | 1.69 | 0.74 |
| 6:F:154:VAL:HA | 6:F:191:ARG:O | 1.88 | 0.74 |
| 8:H:85:LYS:HD3 | 8:H:145:ALA:HB2 | 1.70 | 0.74 |
| 10:L:18:THR:N | 10:L:38:VAL:HG21 | 2.03 | 0.74 |
| 11:M:34:LEU:HD22 | 11:M:116:LEU:CD2 | 2.14 | 0.74 |
| 11:M:69:GLN:CD | 11:M:87:LEU:HD22 | 2.07 | 0.74 |
| 15:Q:5:LYS:HZ1 | 15:Q:6:SER:C | 1.91 | 0.74 |
| 21:W:26:TYR:HB2 | 21:W:28:PHE:HZ | 1.53 | 0.74 |
| 24:Z:66:VAL:O | 24:Z:68:GLU:OE1 | 2.04 | 0.74 |
| 1:A:2246:G:N2 | 1:A:2247:A:C4 | 2.55 | 0.74 |
| 26:2:15:TYR:O | 26:2:20:LYS:NZ | 2.21 | 0.74 |
| 1:A:1152:C:O2' | 1:A:1153:C:H5' | 1.88 | 0.74 |
| 1:A:973:A:HO2' | 1:A:1188:U:H5 | 0.75 | 0.74 |
| 1:A:1275:A:N6 | 1:A:1295:C:O2' | 2.21 | 0.74 |
| 1:A:1556:C:H2' | 1:A:1557:C:H6 | 1.53 | 0.74 |
| 1:A:1823:G:C2 | 1:A:1824:G:C8 | 2.75 | 0.74 |
| 1:A:2408:U:O2 | 1:A:2409:G:N7 | 2.21 | 0.74 |
| 1:A:2472:G:C2' | 1:A:2475:C:H42 | 2.00 | 0.74 |
| 1:A:2687:U:H2' | 1:A:2687:U:O2 | 1.88 | 0.74 |
| 1:A:2709:G:O2' | 1:A:2710:C:H5' | 1.88 | 0.74 |
| 1:A:503:A:C4 | 1:A:505:A:N7 | 2.55 | 0.74 |
| 1:A:666:G:H5' | 13:O:45:LEU:CD1 | 2.17 | 0.74 |
| 1:A:730:C:H5' | 1:A:761:A:OP1 | 1.88 | 0.74 |
| 1:A:811:U:O2' | 1:A:1251:C:H1' | 1.88 | 0.74 |
| 4:D:159:ALA:O | 4:D:161:THR:HG23 | 1.87 | 0.74 |
| 6:F:38:ARG:NH1 | 13:O:10:PRO:N | 2.36 | 0.74 |
| 7:G:102:PHE:HD2 | 7:G:106:LEU:CD1 | 1.99 | 0.74 |
| 7:G:47:LYS:HZ2 | 7:G:73:ALA:HB3 | 1.53 | 0.74 |
| 8:H:150:ALA:O | 8:H:152:ARG:N | 2.21 | 0.74 |
| 8:H:33:LEU:HD22 | 8:H:75:ALA:CB | 2.18 | 0.74 |
| 12:N:41:ALA:H | 12:N:59:LYS:HZ3 | 1.36 | 0.74 |
| 12:N:37:ASP:H | 12:N:61:VAL:HB | 1.52 | 0.74 |
| 14:P:101:ARG:NH1 | 14:P:101:ARG:HG3 | 2.01 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 16:R:30:ARG:HD2 | 16:R:91:PRO:HB3 | 1.69 | 0.74 |
| 16:R:8:GLU:O | 16:R:11:LYS:N | 2.21 | 0.74 |
| 17:S:113:LYS:O | 17:S:114:LEU:C | 2.25 | 0.74 |
| 17:S:15:VAL:HG13 | 17:S:81:PRO:CB | 2.17 | 0.74 |
| 18:T:89:GLU:CG | 19:U:52:VAL:HG23 | 2.17 | 0.74 |
| 23:Y:168:GLU:CG | 23:Y:169:GLU:H | 1.98 | 0.74 |
| 9:K:127:VAL:HG13 | 9:K:140:LEU:C | 2.07 | 0.74 |
| 27:3:38:LYS:O | 27:3:39:CYS:HB2 | 1.88 | 0.74 |
| 1:A:179:G:H5' | 30:6:32:LYS:HZ1 | 1.53 | 0.74 |
| 1:A:1014:U:O2' | 1:A:1015:G:H5' | 1.88 | 0.74 |
| 1:A:1093:G:H21 | 1:A:1098:A:N6 | 1.85 | 0.74 |
| 1:A:1206:G:H2' | 1:A:1207:C:C4' | 2.18 | 0.74 |
| 1:A:1419:A:N7 | 1:A:1421:G:C6 | 2.55 | 0.74 |
| 1:A:144:C:C2' | 1:A:145:G:H5' | 2.18 | 0.74 |
| 1:A:1604:C:O2 | 1:A:1604:C:H2' | 1.87 | 0.74 |
| 1:A:1718:G:N2 | 1:A:1742:C:C4 | 2.56 | 0.74 |
| 1:A:2207:C:H3' | 1:A:2208:U:H5'' | 1.70 | 0.74 |
| 1:A:2320:A:H8 | 1:A:2320:A:OP2 | 1.71 | 0.74 |
| 1:A:1782:C:H41 | 1:A:2587:A:H62 | 1.30 | 0.74 |
| 1:A:2654:A:H1' | 1:A:2656:U:C4 | 2.23 | 0.74 |
| 1:A:2746:U:O4 | 1:A:2756:U:C5 | 2.40 | 0.74 |
| 1:A:2839:G:H2' | 1:A:2840:C:H6 | 1.53 | 0.74 |
| 1:A:28:A:C2 | 1:A:29:U:C1' | 2.71 | 0.74 |
| 1:A:407:G:H2' | 1:A:408:G:C8 | 2.23 | 0.74 |
| 1:A:462:C:C2 | 1:A:468:G:N2 | 2.55 | 0.74 |
| 1:A:566:U:H2' | 1:A:567:A:C8 | 2.22 | 0.74 |
| 2:B:29:A:C4 | 2:B:56:G:N2 | 2.56 | 0.74 |
| 4:D:24:ILE:HG22 | 4:D:25:THR:N | 2.00 | 0.74 |
| 5:E:102:VAL:HG23 | 5:E:200:GLU:OE1 | 1.87 | 0.74 |
| 5:E:105:THR:OG1 | 5:E:106:GLY:N | 2.18 | 0.74 |
| 1:A:2053:G:C4' | 5:E:145:LYS:HZ1 | 2.01 | 0.74 |
| 6:F:122:LYS:HA | 6:F:122:LYS:NZ | 2.02 | 0.74 |
| 6:F:194:MET:CE | 6:F:200:GLU:HG2 | 2.18 | 0.74 |
| 7:G:43:LEU:HD11 | 7:G:89:GLY:HA2 | 1.70 | 0.74 |
| 18:T:102:GLU:C | 18:T:105:VAL:HG12 | 2.07 | 0.74 |
| 19:U:35:LEU:C | 19:U:61:VAL:HG13 | 2.08 | 0.74 |
| 22:X:12:THR:CG2 | 22:X:70:SER:O | 2.35 | 0.74 |
| 22:X:84:ARG:HB2 | 22:X:93:GLY:O | 1.87 | 0.74 |
| 23:Y:102:LEU:CD2 | 23:Y:137:ILE:HD12 | 2.15 | 0.74 |
| 24:Z:42:GLY:O | 24:Z:57:PHE:CD2 | 2.41 | 0.74 |
| 24:Z:65:GLY:HA3 | 24:Z:81:VAL:HG12 | 1.68 | 0.74 |
| 25:1:20:VAL:CB | 25:1:55:LEU:HD23 | 2.18 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 25:1:48:LEU:HD12 | 25:1:51:GLN:HE22 | 1.53 | 0.73 |
| 28:4:17:ASP:O | 28:4:21:SER:OG | 2.06 | 0.73 |
| 1:A:1625:C:H6 | 1:A:1625:C:O5' | 1.71 | 0.73 |
| 1:A:1706:U:N3 | 1:A:1757:U:H5'' | 2.02 | 0.73 |
| 1:A:1717:G:N2 | 1:A:1718:G:N3 | 2.35 | 0.73 |
| 1:A:1800:C:C3' | 1:A:1800:C:C6 | 2.68 | 0.73 |
| 1:A:2212:A:H2' | 1:A:2212:A:N3 | 2.02 | 0.73 |
| 1:A:1638:C:H5'' | 1:A:2710:C:O2' | 1.88 | 0.73 |
| 1:A:2859:G:H2' | 1:A:2860:A:H8 | 1.50 | 0.73 |
| 1:A:675:A:C4 | 1:A:676:A:C2 | 2.76 | 0.73 |
| 5:E:197:ILE:HB | 5:E:199:ARG:NH2 | 2.02 | 0.73 |
| 8:H:104:GLU:HB3 | 8:H:105:LEU:HD12 | 1.68 | 0.73 |
| 8:H:11:VAL:HG11 | 8:H:45:VAL:CG1 | 2.18 | 0.73 |
| 9:K:3:VAL:O | 9:K:18:VAL:HA | 1.88 | 0.73 |
| 10:L:56:GLU:O | 10:L:67:PHE:HB3 | 1.87 | 0.73 |
| 15:Q:83:ILE:HG23 | 15:Q:86:ARG:NE | 2.03 | 0.73 |
| 16:R:71:ARG:O | 16:R:74:ALA:HB3 | 1.87 | 0.73 |
| 17:S:55:ASN:HA | 17:S:62:THR:O | 1.88 | 0.73 |
| 23:Y:98:MET:SD | 23:Y:100:VAL:HG13 | 2.27 | 0.73 |
| 1:A:2118:U:OP1 | 1:A:2147:G:N1 | 2.21 | 0.73 |
| 3:C:102:LYS:HB3 | 3:C:107:TRP:HE3 | 1.53 | 0.73 |
| 1:A:2183:C:C2 | 1:A:2184:G:N7 | 2.56 | 0.73 |
| 1:A:2098:U:H2' | 1:A:2099:U:C6 | 2.23 | 0.73 |
| 27:3:58:ARG:N | 27:3:61:ARG:HD2 | 2.02 | 0.73 |
| 29:5:33:LYS:HE3 | 29:5:34:LEU:N | 2.04 | 0.73 |
| 30:6:32:LYS:HA | 30:6:35:ARG:NH1 | 2.02 | 0.73 |
| 1:A:1188:U:C2' | 1:A:1189:A:H5' | 2.18 | 0.73 |
| 1:A:1514:U:H2' | 1:A:1514:U:O2 | 1.86 | 0.73 |
| 1:A:1725:G:C2 | 1:A:1726:G:C8 | 2.75 | 0.73 |
| 1:A:1799:G:C2' | 1:A:1800:C:O5' | 2.35 | 0.73 |
| 1:A:1858:G:H21 | 1:A:1859:A:N6 | 1.86 | 0.73 |
| 1:A:1928:A:H5' | 1:A:1929:G:OP2 | 1.87 | 0.73 |
| 1:A:2011:U:H2' | 1:A:2012:G:O4' | 1.87 | 0.73 |
| 1:A:2612:C:O2 | 28:4:4:HIS:CB | 2.35 | 0.73 |
| 1:A:2801:A:H2 | 1:A:2895:U:H1' | 1.52 | 0.73 |
| 1:A:352:G:H2' | 1:A:353:G:H5' | 1.70 | 0.73 |
| 1:A:402:A:N1 | 1:A:403:U:C6 | 2.56 | 0.73 |
| 1:A:452:G:N1 | 1:A:458:G:C2 | 2.57 | 0.73 |
| 1:A:565:C:N3 | 1:A:566:U:C4 | 2.56 | 0.73 |
| 1:A:621:A:C8 | 1:A:622:G:C5' | 2.66 | 0.73 |
| 1:A:603:A:N6 | 1:A:624:C:H41 | 1.83 | 0.73 |
| 1:A:979:G:C8 | 1:A:981:A:OP2 | 2.41 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:36:ARG:O | 5:E:44:TYR:HD2 | 1.70 | 0.73 |
| 6:F:171:PRO:O | 6:F:173:VAL:N | 2.21 | 0.73 |
| 6:F:56:GLU:O | 6:F:60:SER:N | 2.22 | 0.73 |
| 8:H:106:THR:HB | 8:H:111:HIS:ND1 | 2.03 | 0.73 |
| 8:H:103:LEU:CB | 8:H:115:VAL:HB | 2.14 | 0.73 |
| 11:M:43:THR:HB | 11:M:44:PRO:HD3 | 1.69 | 0.73 |
| 13:O:115:LEU:O | 13:O:117:GLU:N | 2.20 | 0.73 |
| 13:O:29:LYS:O | 13:O:29:LYS:HG2 | 1.88 | 0.73 |
| 13:O:72:PRO:HB2 | 13:O:111:ARG:HB3 | 1.69 | 0.73 |
| 15:Q:46:GLY:O | 15:Q:49:ASP:HB2 | 1.87 | 0.73 |
| 16:R:3:ARG:HA | 16:R:7:TYR:HD1 | 1.53 | 0.73 |
| 21:W:25:LYS:HE2 | 21:W:82:GLN:CD | 2.07 | 0.73 |
| 22:X:47:LYS:HB2 | 22:X:56:PRO:HB2 | 1.70 | 0.73 |
| 23:Y:106:GLY:O | 23:Y:144:LEU:HD11 | 1.87 | 0.73 |
| 9:K:83:ALA:CB | 9:K:88:ILE:HA | 2.17 | 0.73 |
| 3:C:153:ILE:O | 3:C:156:ILE:HB | 1.87 | 0.73 |
| 9:K:136:VAL:HG23 | 9:K:136:VAL:O | 1.88 | 0.73 |
| 21:W:7:VAL:HG22 | 25:1:31:ARG:NH1 | 2.02 | 0.73 |
| 1:A:1101:U:H2' | 1:A:1102:C:H6 | 1.53 | 0.73 |
| 1:A:1210:A:H1' | 1:A:1212:G:N2 | 2.01 | 0.73 |
| 1:A:1473:G:N1 | 1:A:1519:G:H1' | 2.03 | 0.73 |
| 1:A:1690:A:N6 | 1:A:1697:G:N2 | 2.33 | 0.73 |
| 1:A:1788:C:C4 | 1:A:1789:A:H8 | 2.06 | 0.73 |
| 1:A:2375:G:N2 | 1:A:2378:A:N1 | 2.36 | 0.73 |
| 1:A:2682:U:C2 | 5:E:21:VAL:HG11 | 2.24 | 0.73 |
| 1:A:2522:U:O2 | 1:A:2765:A:C6 | 2.41 | 0.73 |
| 1:A:360:G:H2' | 1:A:361:G:H5' | 1.69 | 0.73 |
| 1:A:371:A:C5' | 1:A:423:A:N7 | 2.51 | 0.73 |
| 1:A:499:U:C5 | 1:A:503:A:N6 | 2.56 | 0.73 |
| 2:B:99:A:C2 | 2:B:100:G:C4 | 2.76 | 0.73 |
| 2:B:112:G:N3 | 2:B:112:G:H2' | 2.01 | 0.73 |
| 7:G:114:ILE:HD12 | 7:G:115:ARG:H | 1.53 | 0.73 |
| 8:H:16:SER:OG | 8:H:27:LYS:HD3 | 1.87 | 0.73 |
| 10:L:27:LEU:CD2 | 10:L:57:ILE:HD11 | 2.19 | 0.73 |
| 11:M:78:TYR:HD1 | 11:M:79:PRO:CD | 1.93 | 0.73 |
| 12:N:2:ILE:HD12 | 12:N:32:TYR:CD1 | 2.20 | 0.73 |
| 13:O:46:LYS:HG2 | 13:O:50:ARG:CB | 2.18 | 0.73 |
| 14:P:22:LYS:HA | 14:P:99:PRO:CB | 2.17 | 0.73 |
| 15:Q:17:ARG:HG2 | 15:Q:18:LEU:H | 1.54 | 0.73 |
| 17:S:48:ILE:CD1 | 17:S:50:ILE:HD13 | 2.18 | 0.73 |
| 19:U:68:LYS:CG | 19:U:95:LEU:HD21 | 2.14 | 0.73 |
| 1:A:1598:C:H5'' | 21:W:36:LYS:CB | 2.18 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:Y:104:PHE:CA | 23:Y:139:VAL:O | 2.36 | 0.73 |
| 23:Y:179:ASP:CG | 23:Y:180:VAL:H | 1.90 | 0.73 |
| 9:K:122:GLU:HB2 | 9:K:126:TYR:OH | 1.87 | 0.73 |
| 9:K:61:ARG:HA | 9:K:64:GLU:OE1 | 1.88 | 0.73 |
| 1:A:2195:C:O2' | 1:A:2196:C:C5' | 2.36 | 0.73 |
| 26:2:40:THR:HG22 | 26:2:42:ALA:H | 1.52 | 0.73 |
| 1:A:210:C:OP1 | 30:6:29:LYS:HE2 | 1.87 | 0.73 |
| 1:A:1061:U:H4' | 1:A:1070:A:C4' | 2.18 | 0.73 |
| 1:A:1911:U:C4 | 1:A:1913:A:N6 | 2.56 | 0.73 |
| 1:A:2053:G:H4' | 5:E:145:LYS:HZ2 | 1.53 | 0.73 |
| 1:A:2459:A:C4 | 1:A:2460:U:H1' | 2.23 | 0.73 |
| 1:A:565:C:O3' | 1:A:1253:A:H2 | 1.70 | 0.73 |
| 1:A:864:G:H2' | 1:A:865:C:C1' | 2.18 | 0.73 |
| 2:B:78:A:H2' | 2:B:79:C:H5' | 1.69 | 0.73 |
| 5:E:5:LEU:HB3 | 5:E:27:LEU:HB2 | 1.70 | 0.73 |
| 5:E:46:ALA:HB2 | 5:E:85:ASN:ND2 | 2.03 | 0.73 |
| 7:G:8:LYS:HE2 | 7:G:103:LEU:HD23 | 1.70 | 0.73 |
| 12:N:15:GLY:H | 12:N:52:VAL:HG21 | 1.50 | 0.73 |
| 13:O:49:ARG:CG | 13:O:49:ARG:HH21 | 1.99 | 0.73 |
| 14:P:35:VAL:HG13 | 14:P:130:LYS:C | 2.07 | 0.73 |
| 14:P:75:THR:OG1 | 14:P:89:ASN:O | 2.06 | 0.73 |
| 16:R:51:ALA:C | 16:R:73:LEU:HG | 2.08 | 0.73 |
| 16:R:9:ARG:CB | 16:R:9:ARG:CZ | 2.67 | 0.73 |
| 18:T:52:ARG:HH11 | 18:T:53:ARG:CA | 2.01 | 0.73 |
| 19:U:1:MET:N | 19:U:44:LYS:HB3 | 2.03 | 0.73 |
| 9:K:87:LYS:HE2 | 9:K:122:GLU:HG2 | 1.70 | 0.73 |
| 3:C:134:ARG:HD2 | 3:C:136:LEU:HD21 | 1.69 | 0.73 |
| 3:C:87:GLU:HG3 | 3:C:94:VAL:CG2 | 2.04 | 0.73 |
| 27:3:59:PHE:HA | 27:3:62:ARG:NE | 2.03 | 0.73 |
| 27:3:9:LEU:HD22 | 27:3:11:PRO:CD | 2.18 | 0.73 |
| 28:4:36:CYS:HB2 | 28:4:37:LYS:HD2 | 1.71 | 0.73 |
| 1:A:242:G:H5'' | 31:7:62:LEU:CD1 | 2.19 | 0.73 |
| 1:A:1560:G:H2' | 1:A:1561:G:H8 | 1.53 | 0.73 |
| 1:A:1626:G:H5' | 1:A:1627:G:OP1 | 1.89 | 0.73 |
| 1:A:1326:U:C4 | 1:A:1648:C:H1' | 2.24 | 0.73 |
| 1:A:1709:U:H1' | 1:A:2860:A:H1' | 1.69 | 0.73 |
| 1:A:1798:U:H5' | 1:A:1803:A:H4' | 1.70 | 0.73 |
| 1:A:1982:C:N4 | 1:A:1983:C:N4 | 2.36 | 0.73 |
| 1:A:2305:A:HO2' | 7:G:136:ARG:HA | 1.52 | 0.73 |
| 1:A:2547:U:H2' | 1:A:2548:G:H5'' | 1.69 | 0.73 |
| 1:A:2611:U:H2' | 1:A:2612:C:O4' | 1.88 | 0.73 |
| 1:A:2626:C:C6 | 1:A:2626:C:H3' | 2.22 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:745:G:O2' | 1:A:748:G:H1' | 1.87 | 0.73 |
| 2:B:13:A:H2' | 2:B:14:U:H5'' | 1.69 | 0.73 |
| 4:D:14:ARG:HH11 | 4:D:15:PHE:H | 1.35 | 0.73 |
| 4:D:42:GLY:N | 4:D:60:ARG:NH1 | 2.32 | 0.73 |
| 6:F:9:ILE:CD1 | 6:F:122:LYS:HG3 | 2.18 | 0.73 |
| 7:G:13:GLU:O | 7:G:16:ARG:HB2 | 1.88 | 0.73 |
| 8:H:28:GLY:N | 8:H:79:VAL:HB | 2.03 | 0.73 |
| 12:N:47:ILE:HG12 | 12:N:48:PRO:O | 1.89 | 0.73 |
| 17:S:99:LEU:O | 17:S:100:TYR:O | 2.06 | 0.73 |
| 18:T:106:PHE:O | 18:T:107:ALA:C | 2.27 | 0.73 |
| 18:T:25:TRP:O | 18:T:28:ARG:HG2 | 1.88 | 0.73 |
| 20:V:42:ARG:HG3 | 20:V:43:GLY:H | 1.54 | 0.73 |
| 22:X:72:VAL:HG11 | 22:X:96:ILE:CG2 | 2.18 | 0.73 |
| 14:P:62:GLY:HA2 | 23:Y:177:PRO:CB | 2.19 | 0.73 |
| 24:Z:21:LEU:O | 24:Z:24:LYS:HE3 | 1.88 | 0.73 |
| 9:K:81:VAL:HG22 | 9:K:144:VAL:CG2 | 2.13 | 0.73 |
| 1:A:61:G:H5' | 25:1:45:ILE:CD1 | 2.18 | 0.73 |
| 26:2:10:LYS:HZ3 | 26:2:12:PRO:HD2 | 1.53 | 0.73 |
| 26:2:16:PRO:HG2 | 26:2:19:GLN:HB3 | 1.71 | 0.73 |
| 26:2:40:THR:O | 26:2:44:ARG:HB2 | 1.87 | 0.73 |
| 26:2:50:VAL:HG13 | 26:2:53:LEU:CD1 | 2.18 | 0.73 |
| 29:5:9:LEU:CD2 | 29:5:27:LYS:HG3 | 2.18 | 0.73 |
| 30:6:43:THR:N | 30:6:44:PRO:CD | 2.51 | 0.73 |
| 1:A:1223:C:C4 | 1:A:1227:A:N1 | 2.57 | 0.73 |
| 1:A:1275:A:H2 | 15:Q:16:HIS:CA | 1.96 | 0.73 |
| 1:A:1783:A:H8 | 1:A:1783:A:OP2 | 1.72 | 0.73 |
| 1:A:532:A:P | 1:A:2021:C:H41 | 2.12 | 0.73 |
| 1:A:2058:A:H2' | 1:A:2059:A:C8 | 2.21 | 0.73 |
| 1:A:2699:C:O2' | 1:A:2700:C:H5' | 1.89 | 0.73 |
| 1:A:2815:C:C4' | 28:4:42:PRO:HG2 | 2.19 | 0.73 |
| 1:A:39:C:H2' | 1:A:40:C:C6 | 2.24 | 0.73 |
| 1:A:503:A:C2 | 1:A:505:A:N6 | 2.56 | 0.73 |
| 1:A:568:U:H3' | 1:A:570:G:OP2 | 1.89 | 0.73 |
| 1:A:59:U:O4' | 1:A:73:A:C2 | 2.42 | 0.73 |
| 1:A:630:G:H1 | 1:A:634:C:N4 | 1.85 | 0.73 |
| 1:A:790:C:O5' | 1:A:1781:C:N4 | 2.19 | 0.73 |
| 1:A:999:U:O2 | 1:A:1157:G:N2 | 2.22 | 0.73 |
| 4:D:227:ASN:O | 4:D:229:VAL:HG12 | 1.89 | 0.73 |
| 1:A:2784:C:O4' | 5:E:41:LYS:HD2 | 1.88 | 0.73 |
| 6:F:125:LEU:C | 6:F:127:GLU:H | 1.90 | 0.73 |
| 7:G:153:ARG:O | 7:G:155:MET:SD | 2.46 | 0.73 |
| 11:M:91:LEU:O | 11:M:95:PRO:HD3 | 1.88 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 14:P:58:PHE:HE1 | 14:P:114:ALA:HA | 1.54 | 0.73 |
| 16:R:71:ARG:HD3 | 16:R:72:ALA:N | 2.04 | 0.73 |
| 16:R:92:TYR:CG | 16:R:93:LYS:N | 2.55 | 0.73 |
| 17:S:48:ILE:HD13 | 17:S:50:ILE:CD1 | 2.18 | 0.73 |
| 18:T:52:ARG:HD2 | 18:T:52:ARG:C | 2.08 | 0.73 |
| 19:U:6:LYS:HZ2 | 19:U:10:LYS:HD2 | 1.53 | 0.73 |
| 22:X:12:THR:HG22 | 22:X:13:VAL:N | 2.01 | 0.73 |
| 1:A:2134:A:C2 | 1:A:2135:A:H2 | 2.07 | 0.73 |
| 1:A:1496:A:O2' | 1:A:1497:U:C5 | 2.40 | 0.73 |
| 27:3:68:ARG:HH11 | 27:3:68:ARG:N | 1.85 | 0.73 |
| 31:7:12:LYS:CG | 31:7:13:ARG:HH12 | 2.00 | 0.73 |
| 31:7:56:GLU:N | 31:7:56:GLU:OE2 | 2.21 | 0.73 |
| 1:A:1113:U:H6 | 1:A:1113:U:O5' | 1.71 | 0.73 |
| 1:A:1189:A:H5'' | 13:O:29:LYS:HD3 | 1.71 | 0.73 |
| 1:A:1312:U:C2' | 1:A:1313:U:H6 | 1.95 | 0.73 |
| 1:A:178:G:H2' | 1:A:179:G:O4' | 1.89 | 0.73 |
| 1:A:1785:A:H5' | 1:A:1982:C:H4' | 1.69 | 0.73 |
| 1:A:2027:G:C2 | 1:A:2028:U:H1' | 2.23 | 0.73 |
| 1:A:2262:U:H4' | 1:A:2328:A:C2 | 2.24 | 0.73 |
| 1:A:2314:C:C5' | 7:G:38:VAL:HG21 | 2.19 | 0.73 |
| 1:A:411:G:H8 | 1:A:2407:G:OP1 | 1.72 | 0.73 |
| 1:A:2447:G:N7 | 1:A:2500:U:H3' | 2.03 | 0.73 |
| 1:A:2459:A:N3 | 1:A:2460:U:O2' | 2.22 | 0.73 |
| 1:A:265:A:C8 | 1:A:265:A:H3' | 2.23 | 0.73 |
| 1:A:2893:G:H1' | 1:A:2894:G:C8 | 2.22 | 0.73 |
| 1:A:294:A:C2' | 1:A:295:G:H5' | 2.18 | 0.73 |
| 1:A:343:C:H2' | 1:A:344:G:H5' | 1.69 | 0.73 |
| 1:A:501:A:O5' | 1:A:501:A:H8 | 1.72 | 0.73 |
| 1:A:544:C:O2' | 1:A:545:G:H5' | 1.89 | 0.73 |
| 1:A:572:A:C5 | 1:A:573:G:C2 | 2.76 | 0.73 |
| 1:A:705:A:N1 | 1:A:727:A:H1' | 2.03 | 0.73 |
| 1:A:882:G:N2 | 1:A:895:U:C2 | 2.56 | 0.73 |
| 1:A:903:C:H2' | 1:A:904:C:H6 | 1.54 | 0.73 |
| 4:D:159:ALA:CA | 4:D:196:VAL:HG11 | 2.18 | 0.73 |
| 5:E:105:THR:OG1 | 5:E:166:THR:HA | 1.89 | 0.73 |
| 5:E:171:GLU:HB2 | 5:E:185:LYS:HD2 | 1.70 | 0.73 |
| 5:E:22:PRO:CA | 5:E:185:LYS:HA | 2.18 | 0.73 |
| 5:E:4:ILE:HG13 | 5:E:27:LEU:CD1 | 2.17 | 0.73 |
| 6:F:142:TRP:CE3 | 6:F:145:GLU:HG3 | 2.24 | 0.73 |
| 7:G:3:LEU:O | 7:G:7:LEU:HG | 1.89 | 0.73 |
| 8:H:52:VAL:HG22 | 8:H:65:HIS:CE1 | 2.23 | 0.73 |
| 15:Q:20:LEU:HD21 | 15:Q:24:GLN:CG | 2.19 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:S:27:THR:O | 17:S:27:THR:HG22 | 1.86 | 0.73 |
| 17:S:30:VAL:HG22 | 17:S:32:TYR:CZ | 2.23 | 0.73 |
| 20:V:64:MET:CG | 20:V:65:LEU:H | 2.01 | 0.73 |
| 23:Y:155:LEU:CD2 | 23:Y:163:LEU:HD23 | 2.19 | 0.73 |
| 24:Z:21:LEU:HD11 | 24:Z:40:GLN:C | 2.07 | 0.73 |
| 1:A:2118:U:H4' | 1:A:2119:A:OP1 | 1.87 | 0.73 |
| 3:C:127:LEU:HA | 3:C:130:ILE:HD13 | 1.70 | 0.73 |
| 3:C:54:SER:HA | 3:C:57:ASN:ND2 | 2.03 | 0.73 |
| 26:2:50:VAL:HG13 | 26:2:53:LEU:CG | 2.19 | 0.73 |
| 31:7:38:GLY:O | 31:7:40:GLU:N | 2.22 | 0.73 |
| 1:A:1427:A:H1' | 1:A:1428:C:C5 | 2.23 | 0.73 |
| 1:A:1754:C:H2' | 1:A:1755:A:H1' | 1.71 | 0.73 |
| 1:A:1937:A:C2' | 1:A:1938:A:OP1 | 2.36 | 0.73 |
| 1:A:2059:A:N1 | 1:A:2503:A:C5 | 2.57 | 0.73 |
| 1:A:230:U:H2' | 1:A:231:C:O4' | 1.88 | 0.73 |
| 1:A:2327:A:C2' | 1:A:2328:A:H8 | 1.96 | 0.73 |
| 1:A:2570:G:N2 | 1:A:2571:C:C2 | 2.56 | 0.73 |
| 1:A:270(C):C:C2' | 1:A:270(D):C:H6 | 2.01 | 0.73 |
| 1:A:308:G:N2 | 1:A:329:G:H2' | 2.02 | 0.73 |
| 1:A:852:G:O4' | 26:2:42:ALA:HA | 1.88 | 0.73 |
| 1:A:943:U:H5'' | 1:A:944:G:C6 | 2.23 | 0.73 |
| 2:B:12:C:C5 | 24:Z:74:ARG:HB2 | 2.23 | 0.73 |
| 5:E:33:VAL:HG22 | 5:E:47:VAL:C | 2.07 | 0.73 |
| 1:A:673:C:H5'' | 6:F:81:PRO:HG2 | 1.68 | 0.73 |
| 8:H:107:VAL:HB | 8:H:160:LYS:HD3 | 1.70 | 0.73 |
| 8:H:115:VAL:HG13 | 8:H:116:GLU:N | 2.03 | 0.73 |
| 8:H:87:LEU:H | 8:H:132:ARG:HB3 | 1.53 | 0.73 |
| 11:M:10:GLU:OE2 | 11:M:39:ARG:NH1 | 2.22 | 0.73 |
| 11:M:37:LYS:NZ | 11:M:43:THR:HG22 | 2.04 | 0.73 |
| 11:M:87:LEU:HA | 11:M:90:MET:SD | 2.29 | 0.73 |
| 13:O:45:LEU:O | 13:O:46:LYS:CB | 2.35 | 0.73 |
| 15:Q:79:LEU:HD23 | 15:Q:80:PHE:H | 1.54 | 0.73 |
| 17:S:30:VAL:HG23 | 17:S:89:VAL:O | 1.89 | 0.73 |
| 19:U:15:GLU:HB3 | 19:U:16:PRO:HD2 | 1.69 | 0.73 |
| 2:B:75:G:H5' | 23:Y:11:GLU:HG2 | 1.69 | 0.73 |
| 23:Y:116:VAL:CG1 | 23:Y:174:VAL:HB | 2.17 | 0.73 |
| 25:1:36:ILE:HD13 | 25:1:37:GLY:N | 2.04 | 0.73 |
| 25:1:37:GLY:CA | 25:1:41:GLN:HE21 | 2.01 | 0.73 |
| 27:3:28:LYS:HE3 | 27:3:29:PRO:HD2 | 1.70 | 0.73 |
| 1:A:1014:U:H2' | 1:A:1015:G:C5' | 2.18 | 0.73 |
| 1:A:1021:A:C6 | 1:A:1023:U:C6 | 2.76 | 0.73 |
| 1:A:1061:U:C4' | 1:A:1070:A:H4' | 2.17 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1137:G:H2' | 1:A:1138:G:O4' | 1.87 | 0.73 |
| 1:A:243:U:H2' | 1:A:244:A:C5' | 2.19 | 0.73 |
| 1:A:2581:G:N1 | 1:A:2610:C:C6 | 2.56 | 0.73 |
| 1:A:2815:C:H2' | 1:A:2816:C:H6 | 1.53 | 0.73 |
| 1:A:408:G:O2' | 1:A:409:C:H5' | 1.89 | 0.73 |
| 1:A:67:U:H2' | 1:A:68:G:H8 | 1.53 | 0.73 |
| 4:D:146:GLU:HB2 | 4:D:153:ALA:CA | 2.17 | 0.73 |
| 4:D:54:ARG:HA | 4:D:220:HIS:N | 2.01 | 0.73 |
| 4:D:58:HIS:O | 4:D:59:LYS:HB3 | 1.88 | 0.73 |
| 5:E:55:ASN:O | 5:E:56:PRO:C | 2.26 | 0.73 |
| 6:F:126:VAL:HG23 | 6:F:197:ASP:HB2 | 1.70 | 0.73 |
| 7:G:130:ASN:ND2 | 7:G:161:THR:N | 2.36 | 0.73 |
| 7:G:31:VAL:N | 7:G:32:PRO:HA | 2.01 | 0.73 |
| 8:H:35:VAL:CG1 | 8:H:72:ILE:HA | 2.17 | 0.73 |
| 12:N:99:PHE:CE2 | 12:N:105:GLU:OE2 | 2.39 | 0.73 |
| 1:A:2685:G:C4' | 12:N:67:LYS:NZ | 2.48 | 0.73 |
| 13:O:90:ARG:HA | 13:O:125:VAL:HG13 | 1.71 | 0.73 |
| 13:O:72:PRO:HA | 13:O:110:TYR:CG | 2.22 | 0.73 |
| 14:P:111:GLU:C | 14:P:113:GLN:N | 2.38 | 0.73 |
| 15:Q:97:VAL:HG22 | 15:Q:114:VAL:HG11 | 1.70 | 0.73 |
| 16:R:9:ARG:NE | 16:R:12:PHE:HE2 | 1.86 | 0.73 |
| 16:R:78:LEU:C | 16:R:78:LEU:HD22 | 2.07 | 0.73 |
| 18:T:12:ARG:HB2 | 18:T:13:LYS:HZ3 | 1.51 | 0.73 |
| 19:U:35:LEU:N | 19:U:61:VAL:HG13 | 2.04 | 0.73 |
| 20:V:6:ILE:HA | 20:V:103:ILE:O | 1.89 | 0.73 |
| 20:V:50:VAL:HG11 | 20:V:103:ILE:HG13 | 1.68 | 0.73 |
| 21:W:66:LEU:HG | 21:W:69:TYR:C | 2.09 | 0.73 |
| 21:W:85:PRO:HG2 | 21:W:87:GLN:NE2 | 2.02 | 0.73 |
| 3:C:87:GLU:HA | 3:C:91:ALA:HB3 | 1.68 | 0.73 |
| 1:A:1579:A:C5 | 1:A:1580:A:H1' | 2.24 | 0.73 |
| 29:5:22:ALA:HB1 | 29:5:39:TYR:CE2 | 2.22 | 0.73 |
| 1:A:464:U:H4' | 30:6:12:ARG:NH2 | 2.02 | 0.73 |
| 31:7:4:MET:HE1 | 31:7:62:LEU:CG | 2.19 | 0.73 |
| 32:8:8:LYS:O | 32:8:9:ARG:O | 2.05 | 0.73 |
| 1:A:1013:C:H2' | 1:A:1014:U:H6 | 1.53 | 0.73 |
| 1:A:1059:G:C6 | 1:A:1060:U:H1' | 2.24 | 0.73 |
| 1:A:1306:C:H2' | 1:A:1307:A:H8 | 1.52 | 0.73 |
| 1:A:1328:G:O2' | 1:A:1329:U:H5'' | 1.89 | 0.73 |
| 1:A:1423:G:N3 | 1:A:1424:G:C8 | 2.57 | 0.73 |
| 1:A:1465:G:HO2' | 1:A:1545(A):A:H2 | 1.37 | 0.73 |
| 1:A:1710:C:H1' | 1:A:2858:C:N4 | 2.03 | 0.73 |
| 1:A:2256:G:N2 | 1:A:2275:C:N4 | 2.37 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2277:G:H5'' | 24:Z:12:ASN:ND2 | 2.04 | 0.73 |
| 1:A:2332:U:C4' | 1:A:2336:A:N6 | 2.46 | 0.73 |
| 1:A:2362:G:O5' | 31:7:29:LYS:HE3 | 1.87 | 0.73 |
| 1:A:2447:G:H2' | 1:A:2499:C:OP2 | 1.87 | 0.73 |
| 1:A:2710:C:H2' | 1:A:2711:A:H5'' | 1.69 | 0.73 |
| 1:A:297:C:H5'' | 22:X:83:THR:OG1 | 1.88 | 0.73 |
| 1:A:522:G:O2' | 1:A:523:C:H5' | 1.87 | 0.73 |
| 1:A:865:C:H42 | 1:A:909:A:H62 | 1.37 | 0.73 |
| 4:D:186:HIS:HB2 | 4:D:188:GLU:OE2 | 1.88 | 0.73 |
| 4:D:196:VAL:HG12 | 4:D:198:ASN:N | 2.03 | 0.73 |
| 5:E:173:VAL:HG22 | 5:E:174:ASP:H | 1.53 | 0.73 |
| 6:F:184:TYR:HD2 | 6:F:184:TYR:N | 1.86 | 0.73 |
| 7:G:81:LYS:O | 7:G:81:LYS:HG2 | 1.88 | 0.73 |
| 11:M:35:ARG:HD3 | 11:M:38:HIS:CB | 2.08 | 0.73 |
| 12:N:2:ILE:CG2 | 12:N:32:TYR:HB3 | 2.18 | 0.73 |
| 1:A:2416:C:OP1 | 13:O:59:LEU:HA | 1.89 | 0.73 |
| 14:P:22:LYS:CD | 14:P:23:GLY:H | 2.02 | 0.73 |
| 1:A:2495:G:H5'' | 14:P:82:ARG:HA | 1.70 | 0.73 |
| 15:Q:73:VAL:O | 15:Q:76:VAL:HB | 1.88 | 0.73 |
| 15:Q:79:LEU:HD23 | 15:Q:80:PHE:HB2 | 1.71 | 0.73 |
| 16:R:97:ARG:HG3 | 16:R:97:ARG:HH21 | 1.54 | 0.73 |
| 20:V:72:LYS:HB2 | 20:V:108:GLY:CA | 2.19 | 0.73 |
| 23:Y:127:LYS:NZ | 23:Y:165:VAL:HB | 2.02 | 0.73 |
| 1:A:2117:A:N6 | 1:A:2171:A:H61 | 1.85 | 0.73 |
| 25:1:45:ILE:HG13 | 25:1:46:ARG:H | 1.53 | 0.72 |
| 27:3:65:ASP:N | 27:3:68:ARG:NH2 | 2.36 | 0.72 |
| 28:4:45:VAL:HG21 | 28:4:57:VAL:HG21 | 1.71 | 0.72 |
| 29:5:50:ARG:CZ | 29:5:52:VAL:HG21 | 2.19 | 0.72 |
| 31:7:26:LYS:HD2 | 31:7:44:LYS:N | 2.04 | 0.72 |
| 31:7:23:VAL:CG2 | 31:7:48:PHE:HB2 | 2.18 | 0.72 |
| 1:A:1241:A:N3 | 1:A:1241:A:C4' | 2.52 | 0.72 |
| 1:A:1716:U:O2 | 1:A:1716:U:C2' | 2.35 | 0.72 |
| 1:A:1884:A:OP2 | 1:A:1884:A:C8 | 2.42 | 0.72 |
| 1:A:1949:G:H2' | 1:A:1950:G:O4' | 1.89 | 0.72 |
| 1:A:1935:G:H3' | 1:A:1962:C:H42 | 1.53 | 0.72 |
| 1:A:2345:G:H4' | 1:A:2346:A:H5' | 1.70 | 0.72 |
| 1:A:2562:U:O2' | 12:N:23:ARG:NH2 | 2.22 | 0.72 |
| 1:A:2648:C:H2' | 1:A:2649:U:C6 | 2.24 | 0.72 |
| 1:A:527:C:O4' | 1:A:2779:U:O4 | 2.07 | 0.72 |
| 1:A:2781:A:H3' | 1:A:2781:A:H8 | 1.54 | 0.72 |
| 1:A:279:C:H2' | 1:A:280:C:C6 | 2.24 | 0.72 |
| 1:A:347:A:H2' | 1:A:347:A:N3 | 2.04 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:635:C:O2' | 1:A:639:U:OP1 | 2.07 | 0.72 |
| 1:A:781:A:H1' | 4:D:222:ARG:NH1 | 2.03 | 0.72 |
| 4:D:202:LYS:H | 4:D:202:LYS:HD2 | 1.54 | 0.72 |
| 4:D:225:ALA:CB | 4:D:231:HIS:CE1 | 2.71 | 0.72 |
| 5:E:54:GLN:HE21 | 5:E:56:PRO:CD | 2.02 | 0.72 |
| 6:F:115:ALA:O | 6:F:119:ARG:HG3 | 1.89 | 0.72 |
| 7:G:32:PRO:CB | 7:G:163:ALA:HA | 2.19 | 0.72 |
| 7:G:59:GLU:OE2 | 7:G:152:LEU:HB3 | 1.88 | 0.72 |
| 10:L:90:LYS:NZ | 10:L:93:ARG:HH22 | 1.85 | 0.72 |
| 11:M:123:TYR:CD2 | 11:M:129:PRO:HB2 | 2.24 | 0.72 |
| 15:Q:79:LEU:HD23 | 15:Q:80:PHE:N | 2.03 | 0.72 |
| 16:R:106:ARG:NH2 | 16:R:110:LEU:HB3 | 2.04 | 0.72 |
| 16:R:3:ARG:HD3 | 16:R:4:LEU:HG | 1.71 | 0.72 |
| 16:R:76:LYS:C | 16:R:80:LEU:HD23 | 2.10 | 0.72 |
| 19:U:91:TYR:O | 19:U:92:THR:HB | 1.88 | 0.72 |
| 21:W:5:TYR:O | 21:W:7:VAL:N | 2.22 | 0.72 |
| 2:B:12:C:C5' | 24:Z:74:ARG:HG2 | 2.19 | 0.72 |
| 29:5:28:ARG:O | 29:5:32:ASN:HA | 1.89 | 0.72 |
| 31:7:22:VAL:HG12 | 31:7:23:VAL:N | 2.04 | 0.72 |
| 1:A:1143:A:O2' | 1:A:1144:G:C5' | 2.37 | 0.72 |
| 1:A:1166:C:H2' | 1:A:1167:U:C6 | 2.24 | 0.72 |
| 1:A:1537:C:H6 | 1:A:1537:C:O5' | 1.71 | 0.72 |
| 1:A:1918:A:H8 | 1:A:1918:A:H5'' | 1.54 | 0.72 |
| 1:A:1927:A:C5 | 1:A:1928:A:C2 | 2.77 | 0.72 |
| 1:A:1835:G:C4 | 1:A:1931:U:N3 | 2.57 | 0.72 |
| 1:A:2393:A:O2' | 1:A:2394:C:H5' | 1.87 | 0.72 |
| 1:A:411:G:C6 | 1:A:2407:G:N7 | 2.56 | 0.72 |
| 1:A:2455:G:C6 | 1:A:2456:C:N4 | 2.57 | 0.72 |
| 1:A:2456:C:H2' | 1:A:2457:U:H5' | 1.69 | 0.72 |
| 1:A:537:C:H2' | 1:A:539:G:C8 | 2.24 | 0.72 |
| 1:A:920:G:O2' | 1:A:921:G:H5' | 1.89 | 0.72 |
| 5:E:114:ALA:HB3 | 5:E:118:LYS:HB2 | 1.72 | 0.72 |
| 5:E:197:ILE:HG22 | 5:E:198:VAL:H | 1.52 | 0.72 |
| 6:F:89:VAL:HG12 | 6:F:90:PHE:H | 1.54 | 0.72 |
| 7:G:110:ALA:CA | 7:G:113:ARG:HD3 | 2.18 | 0.72 |
| 11:M:109:LYS:CE | 11:M:110:GLY:H | 2.02 | 0.72 |
| 11:M:74:ARG:HG3 | 11:M:82:LEU:CD2 | 2.11 | 0.72 |
| 12:N:7:TYR:HB3 | 12:N:18:LYS:CE | 2.19 | 0.72 |
| 13:O:7:ARG:CD | 13:O:8:PRO:HD3 | 2.20 | 0.72 |
| 16:R:42:ASP:OD1 | 16:R:44:LYS:HG2 | 1.88 | 0.72 |
| 18:T:55:ARG:H | 18:T:55:ARG:CD | 2.02 | 0.72 |
| 22:X:2:ARG:HD2 | 22:X:3:VAL:CG2 | 2.17 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:X:2:ARG:HH21 | 22:X:4:LYS:CB | 1.95 | 0.72 |
| 23:Y:70:LEU:HD22 | 23:Y:71:VAL:O | 1.89 | 0.72 |
| 1:A:2152:G:H2' | 1:A:2153:G:C8 | 2.24 | 0.72 |
| 1:A:2097:C:H2' | 1:A:2098:U:H5' | 1.71 | 0.72 |
| 25:1:65:GLN:HE21 | 25:1:65:GLN:N | 1.86 | 0.72 |
| 28:4:51:TYR:CG | 28:4:55:ARG:HD3 | 2.23 | 0.72 |
| 1:A:146:G:C2' | 1:A:147:U:H5'' | 2.19 | 0.72 |
| 1:A:1609:A:N6 | 1:A:1616:A:C2 | 2.56 | 0.72 |
| 1:A:19:C:OP1 | 18:T:23:GLY:HA3 | 1.89 | 0.72 |
| 1:A:2061:G:HO2' | 1:A:2062:A:H5'' | 1.52 | 0.72 |
| 1:A:2075:U:H6 | 1:A:2597:G:N2 | 1.87 | 0.72 |
| 1:A:2282:G:H1 | 1:A:2427:C:N4 | 1.82 | 0.72 |
| 1:A:242:G:H2' | 1:A:243:U:OP2 | 1.88 | 0.72 |
| 1:A:2484:G:N3 | 14:P:124:LYS:HG3 | 2.04 | 0.72 |
| 1:A:2559:C:O2' | 1:A:2560:C:C5' | 2.37 | 0.72 |
| 1:A:2808:U:OP1 | 1:A:2809:A:OP2 | 2.07 | 0.72 |
| 1:A:531:C:H5' | 1:A:532:A:C2 | 2.23 | 0.72 |
| 1:A:61:G:H2' | 1:A:62:C:C6 | 2.23 | 0.72 |
| 4:D:228:PRO:HD3 | 4:D:235:GLY:HA3 | 1.70 | 0.72 |
| 4:D:245:PRO:O | 4:D:252:TRP:CH2 | 2.42 | 0.72 |
| 4:D:38:LYS:HD2 | 4:D:38:LYS:C | 2.08 | 0.72 |
| 1:A:1814:G:P | 4:D:43:ARG:HB3 | 2.30 | 0.72 |
| 4:D:54:ARG:HB3 | 4:D:218:ARG:CB | 2.16 | 0.72 |
| 4:D:9:TYR:O | 4:D:10:THR:CB | 2.37 | 0.72 |
| 5:E:141:ILE:HD12 | 5:E:150:VAL:HG22 | 1.69 | 0.72 |
| 7:G:26:GLN:HB3 | 7:G:31:VAL:HG21 | 1.72 | 0.72 |
| 8:H:121:ILE:HD11 | 8:H:123:PHE:HE1 | 1.54 | 0.72 |
| 8:H:152:ARG:NH2 | 8:H:152:ARG:HG3 | 1.96 | 0.72 |
| 8:H:25:LYS:HG3 | 8:H:32:GLU:HB2 | 1.71 | 0.72 |
| 11:M:118:LYS:O | 11:M:121:LYS:HE3 | 1.89 | 0.72 |
| 6:F:38:ARG:NH1 | 13:O:10:PRO:CA | 2.52 | 0.72 |
| 13:O:123:LEU:CG | 13:O:134:ALA:HB1 | 2.18 | 0.72 |
| 14:P:25:ASP:HB3 | 14:P:102:VAL:N | 2.03 | 0.72 |
| 17:S:19:LEU:O | 17:S:20:PRO:C | 2.28 | 0.72 |
| 19:U:93:GLU:CD | 19:U:95:LEU:HD23 | 2.10 | 0.72 |
| 21:W:63:LYS:H | 21:W:72:LYS:CD | 2.01 | 0.72 |
| 21:W:50:LYS:HE2 | 21:W:88:LYS:HG2 | 1.71 | 0.72 |
| 3:C:71:GLN:CG | 3:C:72:VAL:H | 2.02 | 0.72 |
| 1:A:1366:A:OP1 | 27:3:1:MET:HA | 1.89 | 0.72 |
| 1:A:125:G:H21 | 30:6:13:ALA:HB3 | 1.55 | 0.72 |
| 1:A:1029:A:H2' | 1:A:1030:G:O4' | 1.90 | 0.72 |
| 1:A:1069:A:C8 | 1:A:1074:G:O6 | 2.42 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1449:A:H2' | 1:A:1449(A):G:O5' | 1.88 | 0.72 |
| 1:A:1465:G:N2 | 1:A:1466:G:H1' | 2.03 | 0.72 |
| 1:A:1473:G:H2' | 1:A:1474:C:O4' | 1.88 | 0.72 |
| 1:A:1619:G:O2' | 1:A:1620:G:H5' | 1.89 | 0.72 |
| 1:A:1967:C:H2' | 1:A:1967:C:O2 | 1.88 | 0.72 |
| 1:A:2227:A:C6 | 1:A:2228:G:N7 | 2.57 | 0.72 |
| 1:A:2596:U:H2' | 4:D:242:ARG:NE | 2.05 | 0.72 |
| 1:A:2850:A:H2 | 15:Q:61:HIS:NE2 | 1.86 | 0.72 |
| 1:A:2853:C:O2' | 1:A:2854:G:H5' | 1.88 | 0.72 |
| 1:A:401:A:N6 | 1:A:423:A:C2 | 2.57 | 0.72 |
| 2:B:52:A:C2' | 2:B:53:A:H5' | 2.19 | 0.72 |
| 4:D:206:LEU:CD2 | 4:D:207:GLY:N | 2.51 | 0.72 |
| 4:D:33:LEU:HD13 | 4:D:63:ARG:NH2 | 2.04 | 0.72 |
| 4:D:32:SER:O | 4:D:33:LEU:O | 2.07 | 0.72 |
| 5:E:178:GLU:O | 5:E:180:ASN:N | 2.21 | 0.72 |
| 6:F:135:LYS:HB3 | 6:F:138:GLU:CD | 2.09 | 0.72 |
| 11:M:15:LEU:HD11 | 11:M:137:LYS:CB | 2.19 | 0.72 |
| 11:M:23:LEU:CD2 | 11:M:61:ARG:O | 2.38 | 0.72 |
| 11:M:86:PRO:O | 11:M:89:LYS:CD | 2.37 | 0.72 |
| 1:A:1190:G:OP1 | 13:O:31:ALA:N | 2.22 | 0.72 |
| 14:P:102:VAL:O | 14:P:102:VAL:HG13 | 1.88 | 0.72 |
| 15:Q:55:ALA:CB | 15:Q:79:LEU:HD11 | 2.20 | 0.72 |
| 17:S:62:THR:HG22 | 17:S:79:HIS:HA | 1.70 | 0.72 |
| 19:U:75:PHE:O | 19:U:86:GLY:HA2 | 1.89 | 0.72 |
| 23:Y:165:VAL:HG12 | 23:Y:166:SER:N | 2.03 | 0.72 |
| 9:K:69:LYS:NZ | 9:K:70:LYS:CE | 2.52 | 0.72 |
| 26:2:55:ARG:HB2 | 26:2:55:ARG:CZ | 2.18 | 0.72 |
| 27:3:59:PHE:HD1 | 27:3:60:GLN:HG2 | 1.54 | 0.72 |
| 20:V:19:LEU:CB | 28:4:25:LEU:HD13 | 2.04 | 0.72 |
| 28:4:30:LEU:HB3 | 28:4:39:MET:SD | 2.30 | 0.72 |
| 31:7:25:MET:CE | 31:7:44:LYS:HD3 | 2.18 | 0.72 |
| 1:A:1056:G:H21 | 1:A:1104:C:H42 | 1.35 | 0.72 |
| 1:A:1203:G:C4 | 1:A:1241:A:H8 | 1.97 | 0.72 |
| 1:A:1691:C:HO2' | 1:A:1692:U:H5' | 1.53 | 0.72 |
| 1:A:1988:C:O2' | 1:A:1989:G:H5' | 1.89 | 0.72 |
| 1:A:2020:A:OP2 | 18:T:27:LEU:HD22 | 1.90 | 0.72 |
| 1:A:2387:U:C2 | 24:Z:41:ARG:NH2 | 2.58 | 0.72 |
| 1:A:2405:G:H2' | 1:A:2411:A:N6 | 2.04 | 0.72 |
| 1:A:2748:A:N1 | 1:A:2756:U:O2 | 2.21 | 0.72 |
| 1:A:429:A:H2' | 1:A:430:G:N7 | 2.05 | 0.72 |
| 1:A:640:C:C2' | 1:A:641:C:C5' | 2.67 | 0.72 |
| 1:A:763:G:H5' | 4:D:211:ARG:NH1 | 2.05 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:B:68:C:C2' | 2:B:69:G:H8 | 2.00 | 0.72 |
| 4:D:53:PHE:CD1 | 4:D:53:PHE:N | 2.54 | 0.72 |
| 5:E:8:LYS:HD3 | 5:E:9:VAL:HG13 | 1.71 | 0.72 |
| 1:A:1204:A:C2 | 6:F:188:ARG:HA | 2.25 | 0.72 |
| 7:G:34:LEU:HD22 | 7:G:100:TRP:HE1 | 1.53 | 0.72 |
| 11:M:30:ILE:O | 11:M:34:LEU:HD12 | 1.87 | 0.72 |
| 12:N:77:ILE:O | 17:S:75:ILE:HG13 | 1.90 | 0.72 |
| 13:O:125:VAL:O | 13:O:126:VAL:O | 2.06 | 0.72 |
| 14:P:116:GLU:O | 14:P:119:ARG:HB3 | 1.89 | 0.72 |
| 14:P:34:LEU:CD2 | 14:P:118:LEU:HD22 | 2.20 | 0.72 |
| 16:R:62:LYS:O | 16:R:65:VAL:N | 2.22 | 0.72 |
| 18:T:32:PHE:O | 18:T:36:ARG:HG3 | 1.88 | 0.72 |
| 22:X:12:THR:OG1 | 22:X:72:VAL:N | 2.23 | 0.72 |
| 23:Y:28:MET:HA | 23:Y:28:MET:CE | 2.15 | 0.72 |
| 23:Y:81:ARG:O | 23:Y:82:ARG:HB3 | 1.89 | 0.72 |
| 3:C:74:VAL:O | 3:C:93:TYR:HB2 | 1.89 | 0.72 |
| 1:A:1580:A:H2' | 1:A:1581:G:C4 | 2.24 | 0.72 |
| 25:1:4:GLN:HA | 25:1:7:GLU:OE2 | 1.89 | 0.72 |
| 26:2:10:LYS:NZ | 26:2:12:PRO:CG | 2.52 | 0.72 |
| 26:2:19:GLN:NE2 | 26:2:50:VAL:HA | 2.04 | 0.72 |
| 27:3:29:PRO:HB2 | 27:3:31:ILE:HG23 | 1.69 | 0.72 |
| 28:4:13:LYS:O | 28:4:14:ALA:C | 2.27 | 0.72 |
| 30:6:19:ARG:CB | 30:6:23:ARG:HH21 | 2.01 | 0.72 |
| 1:A:1783:A:H5'' | 1:A:1784:A:OP1 | 1.88 | 0.72 |
| 1:A:1935:G:C3' | 1:A:1962:C:H42 | 2.03 | 0.72 |
| 1:A:261:G:O2' | 1:A:609:A:H4' | 1.90 | 0.72 |
| 1:A:2781:A:C8 | 1:A:2781:A:C3' | 2.69 | 0.72 |
| 1:A:457:A:H1' | 1:A:459:U:C4 | 2.25 | 0.72 |
| 1:A:470:A:H2' | 1:A:471:A:O4' | 1.89 | 0.72 |
| 1:A:845:G:H5'' | 1:A:846:C:OP1 | 1.88 | 0.72 |
| 1:A:954:G:H5'' | 14:P:17:LEU:HD23 | 1.70 | 0.72 |
| 2:B:73:A:O2' | 2:B:74:U:O5' | 2.07 | 0.72 |
| 2:B:88:C:N4 | 2:B:89:G:N2 | 2.33 | 0.72 |
| 5:E:101:ARG:NE | 5:E:169:ASN:HD21 | 1.88 | 0.72 |
| 5:E:120:TRP:CZ2 | 5:E:122:PHE:HB2 | 2.24 | 0.72 |
| 5:E:7:VAL:HG22 | 5:E:8:LYS:N | 2.04 | 0.72 |
| 6:F:122:LYS:HD3 | 6:F:123:LEU:N | 2.04 | 0.72 |
| 6:F:126:VAL:HA | 6:F:195:ASP:O | 1.89 | 0.72 |
| 6:F:181:LEU:N | 6:F:181:LEU:HD13 | 2.05 | 0.72 |
| 6:F:194:MET:HE2 | 6:F:195:ASP:N | 2.04 | 0.72 |
| 8:H:85:LYS:N | 8:H:133:VAL:O | 2.23 | 0.72 |
| 8:H:148:ILE:HG23 | 8:H:149:ARG:H | 1.52 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 8:H:38:SER:H | 8:H:41:MET:HE2 | 1.53 | 0.72 |
| 13:O:135:LEU:H | 13:O:135:LEU:HD13 | 1.52 | 0.72 |
| 13:O:47:ASP:HB3 | 13:O:48:PRO:CD | 2.19 | 0.72 |
| 14:P:69:PHE:CD1 | 14:P:70:PRO:HD2 | 2.24 | 0.72 |
| 16:R:3:ARG:CG | 16:R:4:LEU:N | 2.51 | 0.72 |
| 16:R:94:TYR:CD1 | 16:R:94:TYR:N | 2.56 | 0.72 |
| 16:R:94:TYR:C | 16:R:99:LYS:HB2 | 2.08 | 0.72 |
| 19:U:72:VAL:O | 19:U:89:GLN:CB | 2.37 | 0.72 |
| 19:U:80:GLN:NE2 | 19:U:81:TYR:CE1 | 2.57 | 0.72 |
| 21:W:27:THR:HB | 21:W:80:ILE:CD1 | 2.17 | 0.72 |
| 1:A:2127:G:O2' | 1:A:2128:C:H5' | 1.89 | 0.72 |
| 1:A:154:G:N1 | 1:A:173:G:N1 | 2.38 | 0.72 |
| 1:A:2017:U:H4' | 28:4:8:LYS:NZ | 2.05 | 0.72 |
| 30:6:30:VAL:HG13 | 30:6:33:ARG:NH1 | 2.05 | 0.72 |
| 31:7:23:VAL:HG22 | 31:7:47:LYS:O | 1.88 | 0.72 |
| 32:8:19:ARG:HD3 | 32:8:22:ARG:HB3 | 1.72 | 0.72 |
| 1:A:1252:G:H3' | 1:A:1253:A:O4' | 1.89 | 0.72 |
| 1:A:1664:A:H8 | 1:A:1665:A:C5 | 2.08 | 0.72 |
| 1:A:1697:G:H5' | 1:A:1698:A:H5' | 1.72 | 0.72 |
| 1:A:1819:A:OP2 | 4:D:157:ARG:HA | 1.88 | 0.72 |
| 1:A:205:G:O2' | 1:A:206:U:P | 2.47 | 0.72 |
| 1:A:223:A:H5'' | 1:A:422:A:H1' | 1.72 | 0.72 |
| 1:A:2286:A:C2 | 29:5:27:LYS:HG2 | 2.25 | 0.72 |
| 1:A:2623:G:H21 | 28:4:22:HIS:CE1 | 2.01 | 0.72 |
| 1:A:270(A):A:H62 | 1:A:270(Y):G:H4' | 1.55 | 0.72 |
| 1:A:627:A:H5'' | 13:O:75:ILE:CG1 | 2.19 | 0.72 |
| 1:A:627:A:C2' | 1:A:628:G:O4' | 2.32 | 0.72 |
| 1:A:730:C:H2' | 1:A:731:C:H6 | 1.53 | 0.72 |
| 1:A:60:G:N2 | 1:A:74:A:H4' | 2.00 | 0.72 |
| 1:A:824:A:H5'' | 1:A:825:C:OP2 | 1.89 | 0.72 |
| 1:A:850:C:O2' | 26:2:22:ALA:HB2 | 1.90 | 0.72 |
| 4:D:159:ALA:HA | 4:D:196:VAL:CG1 | 2.19 | 0.72 |
| 4:D:7:LYS:CD | 4:D:25:THR:HB | 2.18 | 0.72 |
| 6:F:142:TRP:C | 6:F:145:GLU:HG2 | 2.10 | 0.72 |
| 7:G:106:LEU:O | 7:G:110:ALA:HB3 | 1.88 | 0.72 |
| 8:H:118:PRO:HG2 | 8:H:121:ILE:HG21 | 1.72 | 0.72 |
| 11:M:96:GLU:HG2 | 11:M:97:ARG:N | 2.03 | 0.72 |
| 1:A:2009:G:H1' | 15:Q:107:ASP:HA | 1.71 | 0.72 |
| 15:Q:37:THR:H | 15:Q:40:LYS:HD2 | 1.53 | 0.72 |
| 1:A:2838:G:O2' | 15:Q:45:ARG:NH1 | 2.22 | 0.72 |
| 15:Q:96:ARG:CG | 15:Q:98:LEU:HD21 | 2.17 | 0.72 |
| 17:S:62:THR:HG22 | 17:S:78:LEU:O | 1.89 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:T:85:LYS:HD3 | 18:T:116:ALA:O | 1.89 | 0.72 |
| 18:T:92:ARG:HA | 18:T:95:LEU:CG | 2.19 | 0.72 |
| 19:U:83:ARG:NH2 | 19:U:85:LYS:HE2 | 2.03 | 0.72 |
| 19:U:64:HIS:HA | 19:U:97:LYS:HD2 | 1.70 | 0.72 |
| 20:V:20:VAL:HG11 | 20:V:47:VAL:HG11 | 1.71 | 0.72 |
| 23:Y:166:SER:OG | 23:Y:167:PRO:HD2 | 1.90 | 0.72 |
| 1:A:2178:C:H5'' | 3:C:46:LYS:HG2 | 1.72 | 0.72 |
| 1:A:1582:C:C3' | 1:A:1583:A:H5'' | 2.05 | 0.72 |
| 27:3:31:ILE:HD13 | 27:3:31:ILE:H | 1.52 | 0.72 |
| 31:7:42:ARG:HB3 | 31:7:43:GLN:HE22 | 1.55 | 0.72 |
| 13:O:45:LEU:HD22 | 31:7:59:LYS:HE3 | 1.71 | 0.72 |
| 1:A:1027:A:N6 | 1:A:1126:A:H1' | 2.04 | 0.72 |
| 1:A:1025:G:H1' | 1:A:1134:G:H4' | 1.70 | 0.72 |
| 1:A:1165:U:H2' | 1:A:1166:C:C6 | 2.25 | 0.72 |
| 1:A:13:A:N7 | 1:A:15:G:O6 | 2.22 | 0.72 |
| 1:A:1518:C:N4 | 1:A:1519:G:C8 | 2.57 | 0.72 |
| 1:A:1448:G:N2 | 1:A:1529:A:H2 | 1.81 | 0.72 |
| 1:A:1779:U:C2' | 1:A:1783:A:N6 | 2.44 | 0.72 |
| 1:A:1953:A:H4' | 1:A:1953:A:OP1 | 1.90 | 0.72 |
| 1:A:2020:A:N7 | 1:A:2022:U:C4 | 2.58 | 0.72 |
| 1:A:2060:A:N7 | 1:A:2502:G:N2 | 2.38 | 0.72 |
| 1:A:2225:A:H5' | 1:A:2226:C:O4' | 1.90 | 0.72 |
| 1:A:2426:A:C3' | 1:A:2427:C:H5' | 2.20 | 0.72 |
| 1:A:247:G:C5 | 1:A:249:C:O2 | 2.43 | 0.72 |
| 1:A:2681:C:O2' | 1:A:2682:U:C5' | 2.31 | 0.72 |
| 1:A:324:A:H2 | 1:A:325:G:N9 | 1.88 | 0.72 |
| 1:A:370:G:N3 | 1:A:370:G:H2' | 2.03 | 0.72 |
| 2:B:13:A:N6 | 2:B:70:C:H5' | 2.04 | 0.72 |
| 4:D:11:PRO:HB2 | 4:D:24:ILE:CG1 | 2.19 | 0.72 |
| 1:A:1818:U:C5 | 4:D:156:ALA:HB3 | 2.25 | 0.72 |
| 1:A:1657:C:H5' | 5:E:133:LYS:HA | 1.71 | 0.72 |
| 6:F:78:ILE:HG12 | 6:F:83:PHE:HZ | 1.55 | 0.72 |
| 7:G:170:ARG:O | 7:G:171:ALA:C | 2.28 | 0.72 |
| 10:L:11:GLN:HE21 | 10:L:73:PRO:HG2 | 1.55 | 0.72 |
| 10:L:40:ALA:HB2 | 10:L:65:PHE:CE1 | 2.24 | 0.72 |
| 12:N:17:ARG:CZ | 12:N:98:VAL:HG23 | 2.19 | 0.72 |
| 13:O:123:LEU:HB2 | 13:O:138:LEU:CB | 2.20 | 0.72 |
| 14:P:22:LYS:HZ1 | 14:P:101:ARG:HE | 1.36 | 0.72 |
| 14:P:35:VAL:O | 14:P:35:VAL:HG22 | 1.88 | 0.72 |
| 16:R:57:LYS:HD3 | 16:R:57:LYS:C | 2.10 | 0.72 |
| 18:T:98:LEU:HB3 | 18:T:105:VAL:CG1 | 2.20 | 0.72 |
| 19:U:68:LYS:O | 19:U:69:LYS:HB2 | 1.88 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 20:V:14:PRO:C | 20:V:16:LYS:NZ | 2.43 | 0.72 |
| 1:A:1266:G:O4' | 20:V:15:ARG:NH2 | 2.22 | 0.72 |
| 22:X:14:LEU:HB2 | 22:X:20:TYR:HA | 1.71 | 0.72 |
| 22:X:5:MET:HG3 | 22:X:8:LYS:HZ2 | 1.54 | 0.72 |
| 23:Y:30:ASN:OD1 | 23:Y:33:LEU:HB2 | 1.89 | 0.72 |
| 1:A:2355:C:H5' | 24:Z:36:ILE:HG22 | 1.72 | 0.72 |
| 24:Z:50:ASN:HA | 24:Z:62:LEU:HD22 | 1.72 | 0.72 |
| 9:K:91:SER:HB3 | 9:K:121:LYS:CD | 2.19 | 0.72 |
| 3:C:43:VAL:HG13 | 3:C:213:TYR:O | 1.90 | 0.72 |
| 3:C:76:ALA:HA | 3:C:114:VAL:HG23 | 1.70 | 0.72 |
| 1:A:718:A:H3' | 1:A:719:C:H6 | 1.54 | 0.72 |
| 1:A:2191:G:N2 | 1:A:2192:G:H1' | 2.05 | 0.72 |
| 1:A:988:A:H5'' | 26:2:10:LYS:HD3 | 1.70 | 0.72 |
| 27:3:40:HIS:HB3 | 27:3:41:PRO:CD | 2.19 | 0.72 |
| 27:3:56:VAL:HB | 27:3:61:ARG:HG2 | 1.70 | 0.72 |
| 1:A:1024:G:H5'' | 1:A:1025:G:C4 | 2.25 | 0.72 |
| 1:A:1155:A:O3' | 18:T:55:ARG:NH2 | 2.22 | 0.72 |
| 1:A:1424:G:H2' | 1:A:1425:G:O5' | 1.90 | 0.72 |
| 1:A:1444:G:H3' | 1:A:1445:C:C5 | 2.25 | 0.72 |
| 1:A:1636:C:H1' | 1:A:1761:C:H1' | 1.70 | 0.72 |
| 1:A:1799:G:C5 | 1:A:1819:A:N7 | 2.57 | 0.72 |
| 1:A:1799:G:H5'' | 4:D:268:ARG:NH1 | 2.05 | 0.72 |
| 1:A:1967:C:H42 | 1:A:1968:G:H22 | 1.37 | 0.72 |
| 1:A:1992:G:C1' | 1:A:1993:U:O4 | 2.37 | 0.72 |
| 1:A:204:A:H4' | 1:A:205:G:H5' | 1.71 | 0.72 |
| 1:A:2062:A:H2' | 1:A:2063:C:OP1 | 1.89 | 0.72 |
| 1:A:2314:C:O2' | 1:A:2315:G:H5' | 1.90 | 0.72 |
| 1:A:2334:G:H5' | 16:R:8:GLU:OE1 | 1.89 | 0.72 |
| 1:A:2346:A:H1' | 1:A:2383:G:N9 | 2.05 | 0.72 |
| 1:A:2594:C:H2' | 1:A:2595:G:C8 | 2.25 | 0.72 |
| 1:A:2764:A:N7 | 1:A:2766:G:C5 | 2.57 | 0.72 |
| 1:A:558:G:C2' | 1:A:559:G:H5'' | 2.18 | 0.72 |
| 1:A:592:G:H1' | 31:7:1:MET:O | 1.90 | 0.72 |
| 1:A:621:A:N6 | 1:A:622:G:N3 | 2.38 | 0.72 |
| 1:A:650:C:OP1 | 31:7:21:LYS:NZ | 2.23 | 0.72 |
| 1:A:728:G:H21 | 1:A:730:C:C5' | 2.03 | 0.72 |
| 1:A:866:A:N6 | 1:A:913:U:O2' | 2.23 | 0.72 |
| 1:A:890:A:H5' | 1:A:892:G:H5'' | 1.70 | 0.72 |
| 4:D:208:LYS:HG2 | 4:D:211:ARG:HG2 | 1.71 | 0.72 |
| 4:D:5:LYS:HG3 | 4:D:82:ILE:N | 1.98 | 0.72 |
| 5:E:119:ARG:NH1 | 5:E:155:LYS:HD2 | 2.04 | 0.72 |
| 5:E:98:PRO:HD3 | 5:E:175:VAL:HG13 | 1.71 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:G:55:LYS:HE3 | 7:G:151:ALA:HB3 | 1.72 | 0.72 |
| 8:H:89:ILE:HG12 | 8:H:94:TYR:CD2 | 2.25 | 0.72 |
| 12:N:8:LEU:HD11 | 12:N:19:ILE:HD11 | 1.71 | 0.72 |
| 14:P:77:LYS:N | 14:P:77:LYS:HD2 | 2.05 | 0.72 |
| 14:P:74:TYR:HH | 14:P:94:VAL:H | 1.37 | 0.72 |
| 14:P:96:VAL:HG12 | 14:P:98:LYS:HZ1 | 1.55 | 0.72 |
| 15:Q:38:VAL:HB | 15:Q:39:PRO:CD | 2.19 | 0.72 |
| 17:S:63:VAL:O | 17:S:64:ARG:NH1 | 2.23 | 0.72 |
| 22:X:2:ARG:HD2 | 22:X:3:VAL:H | 1.55 | 0.72 |
| 2:B:103:U:O2 | 23:Y:72:ARG:CZ | 2.38 | 0.72 |
| 9:K:110:ASP:OD2 | 9:K:112:LYS:HB2 | 1.90 | 0.72 |
| 9:K:115:ALA:HB3 | 9:K:128:LEU:HD12 | 1.70 | 0.72 |
| 9:K:68:LEU:O | 9:K:72:LEU:HG | 1.90 | 0.72 |
| 3:C:225:ASN:C | 3:C:227:HIS:H | 1.93 | 0.72 |
| 27:3:21:VAL:HG12 | 27:3:22:ILE:N | 2.05 | 0.72 |
| 28:4:18:ALA:C | 28:4:21:SER:OG | 2.29 | 0.72 |
| 1:A:2615:U:H1' | 28:4:7:PRO:HB3 | 1.69 | 0.72 |
| 29:5:20:ASN:HD21 | 29:5:43:CYS:CB | 2.02 | 0.72 |
| 30:6:41:ARG:HH11 | 30:6:42:LEU:H | 1.38 | 0.72 |
| 1:A:1102:C:H2' | 1:A:1102:C:O2 | 1.89 | 0.72 |
| 1:A:1166:C:H2' | 1:A:1167:U:H6 | 1.54 | 0.72 |
| 1:A:118:A:O2' | 1:A:178:G:H5' | 1.90 | 0.72 |
| 1:A:1518:C:H2' | 1:A:1519:G:C4' | 2.19 | 0.72 |
| 1:A:1658:C:OP1 | 5:E:134:ILE:CD1 | 2.36 | 0.72 |
| 1:A:1692:U:H1' | 1:A:1696:G:N2 | 2.05 | 0.72 |
| 1:A:2467:C:OP1 | 32:8:8:LYS:HE3 | 1.89 | 0.72 |
| 1:A:2581:G:C6 | 1:A:2610:C:C6 | 2.77 | 0.72 |
| 1:A:662:G:H4' | 13:O:18:ARG:N | 2.05 | 0.72 |
| 1:A:663:G:P | 13:O:18:ARG:HB3 | 2.29 | 0.72 |
| 1:A:807:U:O2 | 1:A:808:G:C8 | 2.43 | 0.72 |
| 4:D:97:TYR:HB2 | 4:D:101:GLU:O | 1.90 | 0.72 |
| 5:E:51:PHE:HB3 | 5:E:76:ARG:HD3 | 1.71 | 0.72 |
| 6:F:125:LEU:CD2 | 6:F:128:ALA:HB2 | 2.18 | 0.72 |
| 1:A:673:C:H5'' | 6:F:81:PRO:HG3 | 1.72 | 0.72 |
| 6:F:8:GLN:HB3 | 6:F:18:ARG:HG2 | 1.70 | 0.72 |
| 7:G:145:THR:OG1 | 7:G:146:TYR:N | 2.22 | 0.72 |
| 8:H:133:VAL:HG22 | 8:H:134:SER:H | 1.55 | 0.72 |
| 11:M:74:ARG:CB | 11:M:82:LEU:HB3 | 2.13 | 0.72 |
| 1:A:1204:A:H62 | 13:O:6:LEU:N | 1.87 | 0.72 |
| 14:P:132:VAL:HG11 | 14:P:133:ARG:HH21 | 1.55 | 0.72 |
| 16:R:17:ARG:O | 16:R:20:ARG:HG2 | 1.90 | 0.72 |
| 18:T:47:TYR:O | 18:T:51:LYS:HG3 | 1.89 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 18:T:57:PHE:HA | 18:T:60:LEU:HB2 | 1.72 | 0.72 |
| 19:U:1:MET:CA | 19:U:44:LYS:HB3 | 2.20 | 0.72 |
| 20:V:27:LYS:H | 20:V:71:VAL:CG1 | 2.02 | 0.72 |
| 21:W:49:VAL:HA | 21:W:88:LYS:HG3 | 1.71 | 0.72 |
| 23:Y:152:ALA:HA | 23:Y:155:LEU:CD1 | 2.20 | 0.72 |
| 9:K:127:VAL:HA | 9:K:140:LEU:O | 1.90 | 0.72 |
| 3:C:149:ILE:CG1 | 3:C:153:ILE:HD11 | 2.19 | 0.72 |
| 3:C:19:ILE:CG2 | 3:C:223:ARG:HG2 | 2.18 | 0.72 |
| 26:2:10:LYS:HG2 | 26:2:12:PRO:CD | 2.20 | 0.71 |
| 27:3:19:GLY:HA2 | 27:3:32:TYR:CZ | 2.25 | 0.71 |
| 29:5:20:ASN:HD21 | 29:5:43:CYS:CA | 2.03 | 0.71 |
| 1:A:1081:U:H2' | 1:A:1082:U:O4' | 1.90 | 0.71 |
| 1:A:1087:G:H2' | 1:A:1089:G:O4' | 1.90 | 0.71 |
| 1:A:120:U:C6 | 1:A:150:C:H5 | 2.08 | 0.71 |
| 1:A:122:G:H2' | 1:A:123:G:H8 | 1.53 | 0.71 |
| 1:A:585:G:N1 | 1:A:1251:C:C5 | 2.57 | 0.71 |
| 1:A:146:G:H2' | 1:A:147:U:H5'' | 1.72 | 0.71 |
| 1:A:1911:U:HO2' | 1:A:1912:A:H5' | 1.50 | 0.71 |
| 1:A:214:G:H2' | 1:A:215:G:O4' | 1.89 | 0.71 |
| 1:A:2210:G:C5 | 4:D:150:LYS:CA | 2.69 | 0.71 |
| 1:A:2459:A:N3 | 1:A:2460:U:C2' | 2.53 | 0.71 |
| 1:A:2618:G:O2' | 1:A:2619:C:H5' | 1.90 | 0.71 |
| 1:A:2637:U:C6 | 1:A:2637:U:OP2 | 2.43 | 0.71 |
| 1:A:418:G:O2' | 1:A:419:C:H5' | 1.90 | 0.71 |
| 1:A:604:G:C6 | 1:A:605:C:N4 | 2.58 | 0.71 |
| 1:A:874:G:N3 | 1:A:874:G:C2' | 2.53 | 0.71 |
| 2:B:114:G:H1' | 16:R:38:GLN:NE2 | 2.05 | 0.71 |
| 2:B:31:C:O2' | 2:B:53:A:N6 | 2.22 | 0.71 |
| 4:D:38:LYS:HD2 | 4:D:39:LYS:N | 2.04 | 0.71 |
| 5:E:100:GLU:O | 5:E:172:VAL:HG22 | 1.90 | 0.71 |
| 5:E:171:GLU:CB | 5:E:185:LYS:HD2 | 2.20 | 0.71 |
| 8:H:103:LEU:HD11 | 8:H:148:ILE:HD13 | 1.71 | 0.71 |
| 8:H:94:TYR:O | 8:H:95:ARG:HD2 | 1.89 | 0.71 |
| 11:M:22:THR:HG22 | 11:M:61:ARG:CZ | 2.20 | 0.71 |
| 13:O:121:LYS:CA | 13:O:137:LYS:HB2 | 2.20 | 0.71 |
| 13:O:121:LYS:O | 13:O:122:PRO:O | 2.07 | 0.71 |
| 1:A:2415:G:H5'' | 13:O:61:ARG:CG | 2.20 | 0.71 |
| 14:P:106:VAL:HG22 | 14:P:107:ALA:H | 1.54 | 0.71 |
| 17:S:30:VAL:CG1 | 17:S:32:TYR:OH | 2.35 | 0.71 |
| 19:U:83:ARG:HG2 | 19:U:84:LYS:N | 2.04 | 0.71 |
| 1:A:519:U:H4' | 20:V:74:ALA:O | 1.90 | 0.71 |
| 21:W:89:ILE:HG23 | 21:W:92:LEU:CD2 | 2.20 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 22:X:28:LYS:CE | 22:X:28:LYS:H | 2.03 | 0.71 |
| 23:Y:4:ARG:HE | 23:Y:44:PHE:HZ | 1.38 | 0.71 |
| 23:Y:95:PRO:HG2 | 23:Y:131:ARG:CG | 2.19 | 0.71 |
| 1:A:2120:G:N2 | 3:C:167:LYS:HD3 | 2.05 | 0.71 |
| 3:C:10:LEU:HD21 | 3:C:220:PRO:CD | 2.17 | 0.71 |
| 3:C:81:GLU:HG3 | 3:C:82:LYS:H | 1.52 | 0.71 |
| 27:3:33:VAL:HG12 | 27:3:35:VAL:HG23 | 1.72 | 0.71 |
| 27:3:7:PRO:HD2 | 27:3:56:VAL:CG1 | 2.15 | 0.71 |
| 29:5:22:ALA:CB | 29:5:39:TYR:HE2 | 2.01 | 0.71 |
| 1:A:1620:G:O4' | 30:6:1:MET:N | 2.23 | 0.71 |
| 1:A:1708:C:H2' | 1:A:1709:U:C5' | 2.19 | 0.71 |
| 1:A:532:A:P | 1:A:2021:C:N4 | 2.63 | 0.71 |
| 1:A:2238:G:C2' | 1:A:2239:G:H5'' | 2.20 | 0.71 |
| 1:A:2287:A:C8 | 1:A:2289:G:N7 | 2.59 | 0.71 |
| 1:A:2440:C:H5'' | 1:A:2587:A:H4' | 1.70 | 0.71 |
| 1:A:2491:U:C5 | 1:A:2492:U:H5' | 2.23 | 0.71 |
| 1:A:2495:G:C5' | 14:P:82:ARG:HA | 2.19 | 0.71 |
| 1:A:2888:C:H2' | 1:A:2889:C:H6 | 1.55 | 0.71 |
| 7:G:74:LYS:O | 7:G:87:PRO:HG2 | 1.90 | 0.71 |
| 10:L:77:LEU:CB | 10:L:111:LYS:HZ2 | 2.03 | 0.71 |
| 11:M:34:LEU:CD2 | 11:M:116:LEU:HD21 | 2.17 | 0.71 |
| 12:N:60:ALA:N | 12:N:86:ILE:HD13 | 2.05 | 0.71 |
| 13:O:98:GLU:O | 13:O:99:LEU:C | 2.28 | 0.71 |
| 14:P:111:GLU:HB2 | 14:P:113:GLN:HE21 | 1.53 | 0.71 |
| 20:V:8:ARG:HD3 | 20:V:102:HIS:CE1 | 2.26 | 0.71 |
| 21:W:8:ILE:C | 21:W:9:LEU:HG | 2.09 | 0.71 |
| 22:X:46:LYS:HZ3 | 22:X:47:LYS:HG3 | 1.54 | 0.71 |
| 3:C:211:SER:HA | 3:C:223:ARG:HH21 | 1.55 | 0.71 |
| 3:C:73:ARG:HH11 | 3:C:93:TYR:HE2 | 1.39 | 0.71 |
| 1:A:715:G:H2' | 1:A:716:A:O5' | 1.90 | 0.71 |
| 1:A:1542:G:C1' | 1:A:1543:A:C6 | 2.72 | 0.71 |
| 1:A:1552:G:H5' | 1:A:1553:A:OP1 | 1.90 | 0.71 |
| 1:A:15:G:H4' | 28:4:21:SER:HB3 | 1.71 | 0.71 |
| 1:A:1718:G:O6 | 1:A:1735:C:N4 | 2.24 | 0.71 |
| 1:A:1818:U:OP1 | 4:D:158:ALA:HB2 | 1.89 | 0.71 |
| 1:A:1981:A:H5'' | 1:A:1982:C:OP2 | 1.91 | 0.71 |
| 1:A:2654:A:C1' | 1:A:2656:U:C5 | 2.73 | 0.71 |
| 1:A:2704:C:H2' | 1:A:2705:A:N9 | 2.04 | 0.71 |
| 1:A:849:A:O2' | 26:2:17:LYS:NZ | 2.24 | 0.71 |
| 1:A:957:A:N6 | 1:A:959:A:C4 | 2.58 | 0.71 |
| 4:D:124:PRO:HD2 | 4:D:129:ASN:ND2 | 2.04 | 0.71 |
| 1:A:1824:G:O2' | 4:D:246:PRO:HB3 | 1.90 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 4:D:244:ARG:HA | 4:D:252:TRP:NE1 | 2.05 | 0.71 |
| 6:F:158:THR:CG2 | 6:F:195:ASP:HB2 | 2.21 | 0.71 |
| 7:G:105:LYS:HZ1 | 7:G:139:LEU:HD13 | 1.54 | 0.71 |
| 7:G:39:ILE:HD12 | 7:G:39:ILE:N | 2.05 | 0.71 |
| 7:G:47:LYS:HZ3 | 7:G:73:ALA:CB | 1.98 | 0.71 |
| 7:G:49:ASP:N | 7:G:53:LEU:HD13 | 2.05 | 0.71 |
| 8:H:7:LEU:N | 8:H:8:PRO:CD | 2.47 | 0.71 |
| 9:K:25:TYR:O | 9:K:30:LEU:HD12 | 1.90 | 0.71 |
| 12:N:108:GLU:HB3 | 12:N:111:PHE:CE2 | 2.25 | 0.71 |
| 12:N:35:VAL:HA | 12:N:61:VAL:CG1 | 2.20 | 0.71 |
| 1:A:1665:A:C5' | 12:N:66:LYS:HB2 | 2.19 | 0.71 |
| 1:A:954:G:OP1 | 14:P:17:LEU:HB3 | 1.89 | 0.71 |
| 16:R:32:LEU:HD12 | 16:R:32:LEU:H | 1.54 | 0.71 |
| 16:R:62:LYS:HB3 | 16:R:65:VAL:N | 2.04 | 0.71 |
| 17:S:113:LYS:HA | 17:S:116:ALA:HB3 | 1.72 | 0.71 |
| 18:T:44:ASN:O | 18:T:47:TYR:CB | 2.37 | 0.71 |
| 21:W:50:LYS:CG | 21:W:84:ALA:HB3 | 2.19 | 0.71 |
| 22:X:13:VAL:HG23 | 22:X:20:TYR:O | 1.90 | 0.71 |
| 22:X:14:LEU:O | 22:X:20:TYR:HA | 1.90 | 0.71 |
| 22:X:7:VAL:HG11 | 22:X:72:VAL:H | 1.53 | 0.71 |
| 9:K:69:LYS:HZ2 | 9:K:70:LYS:HG2 | 1.54 | 0.71 |
| 29:5:37:ARG:O | 29:5:38:LYS:HB2 | 1.91 | 0.71 |
| 1:A:1028:A:OP2 | 1:A:1126:A:N6 | 2.23 | 0.71 |
| 1:A:1300:U:H2' | 1:A:1626:G:N2 | 2.06 | 0.71 |
| 1:A:1364:G:OP1 | 27:3:3:GLU:HB2 | 1.90 | 0.71 |
| 1:A:1453:A:C6 | 1:A:1454:U:H1' | 2.25 | 0.71 |
| 1:A:14:A:N7 | 1:A:15:G:N9 | 2.37 | 0.71 |
| 1:A:1664:A:H8 | 1:A:1665:A:N7 | 1.89 | 0.71 |
| 1:A:2225:A:C5' | 1:A:2226:C:O4' | 2.38 | 0.71 |
| 1:A:234:C:H42 | 1:A:430:G:H22 | 1.36 | 0.71 |
| 1:A:2447:G:O3' | 1:A:2499:C:OP1 | 2.07 | 0.71 |
| 1:A:2458:G:N7 | 1:A:2490:G:C5 | 2.59 | 0.71 |
| 1:A:2576:G:N7 | 1:A:2580:U:O4 | 2.22 | 0.71 |
| 1:A:2627:G:O2' | 1:A:2628:C:H5'' | 1.89 | 0.71 |
| 1:A:744:G:H2' | 1:A:745:G:N7 | 2.05 | 0.71 |
| 1:A:754:C:H4' | 1:A:1618:A:C2 | 2.25 | 0.71 |
| 1:A:974:G:H1' | 1:A:1186:G:C4 | 2.25 | 0.71 |
| 5:E:32:PRO:HG3 | 5:E:88:GLY:CA | 2.21 | 0.71 |
| 6:F:134:GLY:C | 6:F:165:ARG:HH12 | 1.93 | 0.71 |
| 9:K:31:LEU:N | 9:K:32:PRO:CD | 2.53 | 0.71 |
| 10:L:51:ALA:HA | 10:L:80:LYS:HB3 | 1.72 | 0.71 |
| 11:M:39:ARG:HB2 | 11:M:48:MET:CE | 2.20 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 11:M:51:PHE:CD2 | 11:M:119:ARG:HA | 2.26 | 0.71 |
| 13:O:121:LYS:C | 13:O:137:LYS:CB | 2.56 | 0.71 |
| 14:P:68:ILE:HG12 | 14:P:97:VAL:HG13 | 1.73 | 0.71 |
| 16:R:33:LYS:HG2 | 16:R:54:LEU:HD21 | 1.72 | 0.71 |
| 16:R:62:LYS:CD | 16:R:64:GLU:HB3 | 2.21 | 0.71 |
| 17:S:111:ARG:H | 17:S:111:ARG:NH1 | 1.85 | 0.71 |
| 17:S:80:SER:HB3 | 17:S:81:PRO:CD | 2.20 | 0.71 |
| 19:U:28:GLU:C | 19:U:30:GLY:H | 1.93 | 0.71 |
| 19:U:6:LYS:HD3 | 19:U:10:LYS:CB | 2.20 | 0.71 |
| 19:U:78:LYS:HA | 19:U:83:ARG:O | 1.89 | 0.71 |
| 19:U:67:GLY:N | 19:U:94:LEU:HA | 2.06 | 0.71 |
| 22:X:29:GLU:OE1 | 22:X:32:PRO:HG2 | 1.91 | 0.71 |
| 23:Y:82:ARG:HG2 | 23:Y:83:PRO:HD2 | 1.71 | 0.71 |
| 2:B:12:C:C4' | 24:Z:74:ARG:HE | 2.03 | 0.71 |
| 3:C:6:ARG:HD2 | 3:C:6:ARG:O | 1.90 | 0.71 |
| 3:C:73:ARG:HH11 | 3:C:73:ARG:HB2 | 1.54 | 0.71 |
| 1:A:1575:C:N4 | 1:A:1576:U:C4 | 2.58 | 0.71 |
| 1:A:161:U:N3 | 1:A:171:G:N2 | 2.38 | 0.71 |
| 32:8:9:ARG:NH2 | 32:8:16:VAL:HG12 | 2.05 | 0.71 |
| 1:A:1061:U:H4' | 1:A:1070:A:H4' | 1.70 | 0.71 |
| 1:A:1520:U:C6 | 1:A:1520:U:OP2 | 2.44 | 0.71 |
| 1:A:1602:U:C3' | 1:A:1602:U:C6 | 2.69 | 0.71 |
| 1:A:1697:G:O6 | 1:A:1698:A:N6 | 2.24 | 0.71 |
| 1:A:1816:G:O6 | 4:D:38:LYS:HE2 | 1.89 | 0.71 |
| 1:A:2020:A:H2' | 1:A:2021:C:H5'' | 1.71 | 0.71 |
| 1:A:2358:G:OP1 | 1:A:2358:G:H8 | 1.72 | 0.71 |
| 1:A:324:A:C2 | 1:A:325:G:C4 | 2.78 | 0.71 |
| 1:A:329:G:H4' | 1:A:330:A:OP2 | 1.89 | 0.71 |
| 1:A:356:G:H3' | 1:A:357:A:C8 | 2.25 | 0.71 |
| 1:A:566:U:C5' | 19:U:82:ARG:NH1 | 2.51 | 0.71 |
| 1:A:699:A:H1' | 1:A:1634:A:C8 | 2.26 | 0.71 |
| 2:B:16:G:H2' | 2:B:17:C:H6 | 1.56 | 0.71 |
| 2:B:52:A:C6 | 2:B:53:A:H1' | 2.25 | 0.71 |
| 2:B:67:G:H2' | 2:B:68:C:C6 | 2.26 | 0.71 |
| 4:D:132:PRO:HG2 | 4:D:135:PHE:CE1 | 2.25 | 0.71 |
| 4:D:134:ARG:C | 4:D:136:ILE:H | 1.90 | 0.71 |
| 4:D:14:ARG:HA | 4:D:14:ARG:NE | 2.05 | 0.71 |
| 1:A:781:A:H1' | 4:D:222:ARG:NH2 | 2.05 | 0.71 |
| 4:D:261:LYS:C | 4:D:263:ARG:N | 2.35 | 0.71 |
| 5:E:151:TYR:CZ | 5:E:152:LYS:HG3 | 2.25 | 0.71 |
| 1:A:2784:C:H1' | 5:E:41:LYS:HZ2 | 1.56 | 0.71 |
| 6:F:36:VAL:HG11 | 6:F:183:VAL:CG2 | 2.20 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:68:PRO:CB | 7:G:72:ARG:HH12 | 2.02 | 0.71 |
| 8:H:52:VAL:HG22 | 8:H:65:HIS:ND1 | 2.05 | 0.71 |
| 1:A:1665:A:C1' | 12:N:1:MET:HG2 | 2.21 | 0.71 |
| 13:O:114:ILE:HB | 13:O:130:PHE:HA | 1.71 | 0.71 |
| 13:O:16:ARG:HG2 | 13:O:19:VAL:CG2 | 2.21 | 0.71 |
| 14:P:32:TYR:OH | 14:P:108:GLY:HA2 | 1.89 | 0.71 |
| 17:S:50:ILE:CG2 | 17:S:68:TYR:HB2 | 2.19 | 0.71 |
| 14:P:62:GLY:HA2 | 23:Y:177:PRO:HB3 | 1.70 | 0.71 |
| 1:A:2126:A:H1' | 1:A:2162:G:N2 | 2.06 | 0.71 |
| 1:A:2162:G:H2' | 1:A:2163:C:H5' | 1.72 | 0.71 |
| 3:C:71:GLN:HG3 | 3:C:72:VAL:H | 1.52 | 0.71 |
| 24:Z:5:LYS:HG2 | 24:Z:6:GLY:N | 2.06 | 0.71 |
| 29:5:22:ALA:O | 29:5:23:THR:OG1 | 2.08 | 0.71 |
| 29:5:8:LYS:HE2 | 29:5:29:ASN:CA | 2.13 | 0.71 |
| 30:6:25:PRO:CA | 30:6:28:ARG:HH21 | 2.03 | 0.71 |
| 30:6:28:ARG:O | 30:6:31:LEU:HB2 | 1.91 | 0.71 |
| 31:7:6:THR:HG23 | 31:7:6:THR:O | 1.89 | 0.71 |
| 1:A:149:A:H61 | 1:A:176:G:H1 | 1.39 | 0.71 |
| 1:A:1934:C:H5' | 1:A:1974:C:O2' | 1.90 | 0.71 |
| 1:A:2056:G:OP2 | 1:A:2057:A:OP2 | 2.08 | 0.71 |
| 1:A:2467:C:C4' | 14:P:123:HIS:HE2 | 2.03 | 0.71 |
| 1:A:2498:C:OP2 | 1:A:2498:C:H3' | 1.91 | 0.71 |
| 1:A:2587:A:O2' | 1:A:2588:G:H5' | 1.90 | 0.71 |
| 1:A:2636:U:H1' | 1:A:2783:G:H22 | 1.51 | 0.71 |
| 1:A:270(Z):U:H3' | 1:A:271(A):C:H5'' | 1.68 | 0.71 |
| 1:A:2765:A:N3 | 1:A:2765:A:H2' | 2.06 | 0.71 |
| 1:A:2821:A:OP2 | 5:E:110:GLY:O | 2.07 | 0.71 |
| 1:A:2835:A:H1' | 1:A:2836:U:H5 | 1.53 | 0.71 |
| 1:A:450:G:H5' | 6:F:52:LYS:HD3 | 1.72 | 0.71 |
| 1:A:59:U:H6 | 1:A:59:U:O5' | 1.74 | 0.71 |
| 1:A:663:G:P | 13:O:18:ARG:HD2 | 2.30 | 0.71 |
| 1:A:705:A:N6 | 1:A:727:A:C1' | 2.53 | 0.71 |
| 1:A:776:G:O2' | 1:A:777:A:OP2 | 2.07 | 0.71 |
| 1:A:569:U:P | 1:A:945:A:N6 | 2.63 | 0.71 |
| 2:B:103:U:C2' | 2:B:104:A:H5' | 2.21 | 0.71 |
| 4:D:142:VAL:O | 4:D:163:ALA:CB | 2.38 | 0.71 |
| 7:G:77:ILE:O | 7:G:83:ARG:NE | 2.23 | 0.71 |
| 8:H:35:VAL:HG13 | 8:H:75:ALA:HB2 | 1.72 | 0.71 |
| 11:M:24:GLY:O | 11:M:27:ALA:HB3 | 1.90 | 0.71 |
| 11:M:57:ALA:O | 11:M:60:ILE:HG13 | 1.91 | 0.71 |
| 11:M:68:GLU:H | 11:M:70:LYS:HE2 | 1.55 | 0.71 |
| 12:N:5:GLN:HG2 | 12:N:20:MET:SD | 2.30 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:N:70:LYS:HD3 | 12:N:107:ARG:NH2 | 2.04 | 0.71 |
| 13:O:107:LYS:HE2 | 13:O:110:TYR:HB3 | 1.71 | 0.71 |
| 14:P:125:LEU:HB3 | 14:P:126:PRO:HD3 | 1.72 | 0.71 |
| 14:P:22:LYS:HD2 | 14:P:99:PRO:CB | 2.20 | 0.71 |
| 17:S:32:TYR:HB3 | 17:S:88:ILE:HA | 1.71 | 0.71 |
| 19:U:33:VAL:HG12 | 19:U:34:GLU:N | 2.05 | 0.71 |
| 21:W:39:ILE:O | 21:W:43:VAL:HG23 | 1.90 | 0.71 |
| 22:X:42:VAL:H | 22:X:61:ILE:CG2 | 2.03 | 0.71 |
| 23:Y:44:PHE:HD2 | 23:Y:48:PHE:CE1 | 2.09 | 0.71 |
| 23:Y:94:GLU:O | 23:Y:96:VAL:HG23 | 1.91 | 0.71 |
| 9:K:97:ILE:HG22 | 9:K:101:LEU:CD2 | 2.20 | 0.71 |
| 9:K:87:LYS:NZ | 9:K:122:GLU:HG2 | 2.05 | 0.71 |
| 9:K:146:ALA:C | 9:K:148:GLU:N | 2.44 | 0.71 |
| 3:C:7:TYR:CE2 | 3:C:11:LEU:HD13 | 2.25 | 0.71 |
| 3:C:126:LYS:O | 3:C:130:ILE:HD13 | 1.90 | 0.71 |
| 9:K:92:VAL:CB | 9:K:120:ILE:O | 2.34 | 0.71 |
| 30:6:11:LYS:HE3 | 30:6:15:THR:HG21 | 1.71 | 0.71 |
| 31:7:30:ARG:NH2 | 31:7:43:GLN:N | 2.38 | 0.71 |
| 1:A:2393:A:P | 31:7:32:LEU:HD11 | 2.31 | 0.71 |
| 31:7:26:LYS:NZ | 31:7:43:GLN:HA | 2.04 | 0.71 |
| 1:A:1242:A:O4' | 1:A:1242:A:OP1 | 2.09 | 0.71 |
| 1:A:1274:A:O2' | 1:A:1275:A:H5' | 1.90 | 0.71 |
| 1:A:1540:G:H2' | 1:A:1541:U:C5' | 2.18 | 0.71 |
| 1:A:1834:U:H1' | 1:A:1969:A:H2 | 1.50 | 0.71 |
| 1:A:2043:C:C4 | 1:A:2777:G:N3 | 2.59 | 0.71 |
| 1:A:203:C:H3' | 1:A:204:A:C8 | 2.26 | 0.71 |
| 1:A:2772:C:C2 | 1:A:2773:C:C5 | 2.79 | 0.71 |
| 1:A:2875:C:H2' | 1:A:2876:G:O4' | 1.89 | 0.71 |
| 1:A:374:A:C2 | 1:A:375:C:H1' | 2.26 | 0.71 |
| 1:A:380:U:O2' | 1:A:381:G:H5' | 1.91 | 0.71 |
| 1:A:422:A:C2' | 1:A:422:A:N3 | 2.51 | 0.71 |
| 1:A:523:C:C2' | 1:A:524:U:H5' | 2.20 | 0.71 |
| 1:A:916:G:N2 | 1:A:917:A:N6 | 2.38 | 0.71 |
| 4:D:58:HIS:ND1 | 4:D:217:ARG:HA | 2.05 | 0.71 |
| 5:E:33:VAL:HG21 | 5:E:77:ILE:CD1 | 2.17 | 0.71 |
| 5:E:51:PHE:CB | 5:E:76:ARG:HD3 | 2.21 | 0.71 |
| 7:G:123:ASN:HB2 | 7:G:126:ASP:OD1 | 1.90 | 0.71 |
| 7:G:124:SER:O | 7:G:132:ASN:HB3 | 1.91 | 0.71 |
| 7:G:138:GLN:HG2 | 7:G:139:LEU:H | 1.54 | 0.71 |
| 1:A:2749:A:H4' | 8:H:62:LYS:CG | 2.20 | 0.71 |
| 10:L:7:VAL:HG13 | 10:L:60:TYR:CE1 | 2.26 | 0.71 |
| 11:M:37:LYS:HZ2 | 11:M:43:THR:CG2 | 2.03 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 11:M:68:GLU:N | 11:M:70:LYS:HE2 | 2.06 | 0.71 |
| 15:Q:14:SER:HA | 15:Q:17:ARG:NE | 2.04 | 0.71 |
| 16:R:99:LYS:O | 16:R:102:ALA:CB | 2.39 | 0.71 |
| 16:R:62:LYS:CB | 16:R:65:VAL:HB | 2.19 | 0.71 |
| 17:S:110:ILE:O | 17:S:114:LEU:CB | 2.39 | 0.71 |
| 18:T:88:ILE:H | 19:U:52:VAL:HG22 | 1.55 | 0.71 |
| 22:X:72:VAL:HG13 | 22:X:73:ARG:N | 2.05 | 0.71 |
| 1:A:2151:G:O2' | 1:A:2152:G:H5' | 1.91 | 0.71 |
| 9:K:133:HIS:HB3 | 9:K:136:VAL:HG23 | 1.71 | 0.71 |
| 25:1:59:LEU:HD11 | 25:1:63:ARG:HE | 1.54 | 0.71 |
| 27:3:52:THR:HG22 | 27:3:53:GLU:N | 2.05 | 0.71 |
| 1:A:400:G:N1 | 27:3:63:TYR:CE2 | 2.59 | 0.71 |
| 1:A:1184:G:H2' | 1:A:1185:C:H6 | 1.55 | 0.71 |
| 1:A:1338:G:C2' | 1:A:1339:G:H5' | 2.19 | 0.71 |
| 1:A:1592:C:H2' | 1:A:1593:G:C8 | 2.25 | 0.71 |
| 1:A:1695:G:C2' | 1:A:1696:G:H5' | 2.19 | 0.71 |
| 1:A:2215:G:C8 | 1:A:2215:G:O5' | 2.43 | 0.71 |
| 1:A:2311:A:H5'' | 1:A:2312:U:C5 | 2.22 | 0.71 |
| 1:A:2631:G:H22 | 5:E:61:ARG:NH1 | 1.86 | 0.71 |
| 1:A:1050:A:N6 | 1:A:2751:G:N7 | 2.39 | 0.71 |
| 1:A:2825:C:H6 | 1:A:2825:C:O5' | 1.74 | 0.71 |
| 1:A:370:G:N1 | 1:A:424:G:N7 | 2.38 | 0.71 |
| 1:A:511:U:H5 | 1:A:512:G:N3 | 1.89 | 0.71 |
| 1:A:792:G:C5 | 1:A:2440:C:C2 | 2.79 | 0.71 |
| 1:A:838:C:H2' | 1:A:839:U:C6 | 2.26 | 0.71 |
| 1:A:83:G:O6 | 1:A:102:G:N3 | 2.23 | 0.71 |
| 4:D:106:ILE:O | 4:D:107:ALA:HB2 | 1.91 | 0.71 |
| 4:D:119:ALA:HB1 | 4:D:130:ALA:O | 1.90 | 0.71 |
| 4:D:12:SER:HA | 4:D:22:SER:O | 1.91 | 0.71 |
| 4:D:142:VAL:C | 4:D:163:ALA:HB3 | 2.11 | 0.71 |
| 5:E:13:ARG:HG3 | 5:E:22:PRO:CD | 2.11 | 0.71 |
| 6:F:130:ALA:HB2 | 6:F:142:TRP:CE3 | 2.22 | 0.71 |
| 6:F:4:VAL:HA | 6:F:20:LEU:CB | 2.20 | 0.71 |
| 8:H:155:SER:HA | 8:H:157:TYR:CZ | 2.25 | 0.71 |
| 8:H:22:GLY:O | 8:H:37:VAL:HG22 | 1.91 | 0.71 |
| 8:H:38:SER:HB3 | 8:H:41:MET:CG | 2.18 | 0.71 |
| 8:H:94:TYR:CE2 | 8:H:96:ALA:HB2 | 2.25 | 0.71 |
| 10:L:52:ILE:HG21 | 10:L:73:PRO:HD2 | 1.71 | 0.71 |
| 11:M:33:LEU:CD2 | 11:M:50:ASP:HB3 | 2.20 | 0.71 |
| 11:M:37:LYS:HD3 | 11:M:43:THR:CG2 | 2.08 | 0.71 |
| 12:N:122:LEU:HA | 17:S:71:GLY:HA2 | 1.73 | 0.71 |
| 15:Q:51:LEU:CD1 | 15:Q:70:LEU:HD11 | 2.21 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 16:R:40:ILE:HG13 | 16:R:47:THR:HG23 | 1.70 | 0.71 |
| 16:R:94:TYR:HD1 | 16:R:94:TYR:H | 1.38 | 0.71 |
| 17:S:104:ASN:CB | 17:S:108:ARG:HH22 | 2.02 | 0.71 |
| 17:S:50:ILE:HG22 | 17:S:67:SER:C | 2.11 | 0.71 |
| 17:S:68:TYR:CE2 | 17:S:70:VAL:HG22 | 2.26 | 0.71 |
| 21:W:25:LYS:HD3 | 21:W:82:GLN:HB2 | 1.71 | 0.71 |
| 23:Y:118:GLN:CD | 23:Y:174:VAL:HG12 | 2.11 | 0.71 |
| 23:Y:2:GLU:HG2 | 23:Y:60:GLU:HB3 | 1.72 | 0.71 |
| 9:K:113:ARG:HD3 | 9:K:131:LYS:O | 1.89 | 0.71 |
| 3:C:30:LYS:HD2 | 3:C:185:LEU:HD11 | 1.72 | 0.71 |
| 29:5:30:THR:CB | 29:5:31:PRO:HD3 | 2.21 | 0.71 |
| 1:A:1047:G:H22 | 1:A:1110:G:H2' | 1.54 | 0.71 |
| 1:A:1048:A:N1 | 1:A:1113:U:O4' | 2.23 | 0.71 |
| 1:A:112:U:H3' | 1:A:113:G:C5' | 2.20 | 0.71 |
| 1:A:1475:G:N7 | 1:A:1517:G:N1 | 2.38 | 0.71 |
| 1:A:1542:G:N7 | 1:A:1544:C:C4 | 2.59 | 0.71 |
| 1:A:699:A:H1' | 1:A:1634:A:N7 | 2.05 | 0.71 |
| 1:A:1685:C:H2' | 1:A:1686:C:H6 | 1.55 | 0.71 |
| 1:A:1697:G:C3' | 1:A:1698:A:C5' | 2.68 | 0.71 |
| 1:A:1770:G:C6 | 1:A:1771:C:N4 | 2.59 | 0.71 |
| 1:A:1911:U:C2' | 1:A:1912:A:H5' | 2.19 | 0.71 |
| 1:A:1913:A:H1' | 1:A:1918:A:N6 | 2.05 | 0.71 |
| 1:A:1944:U:O2 | 1:A:1955:U:H6 | 1.73 | 0.71 |
| 1:A:201:C:C2' | 1:A:202:U:H5' | 2.21 | 0.71 |
| 1:A:2055:C:H2' | 1:A:2504:U:H5' | 1.72 | 0.71 |
| 1:A:2378:A:N3 | 16:R:20:ARG:NH1 | 2.39 | 0.71 |
| 1:A:2644:G:N1 | 1:A:2645:G:N2 | 2.37 | 0.71 |
| 1:A:288:C:H5'' | 1:A:289:A:OP2 | 1.91 | 0.71 |
| 1:A:533:G:OP1 | 18:T:24:TYR:HB3 | 1.91 | 0.71 |
| 1:A:975:G:N1 | 1:A:976:C:H6 | 1.89 | 0.71 |
| 4:D:206:LEU:N | 4:D:206:LEU:HD13 | 2.02 | 0.71 |
| 4:D:229:VAL:HG22 | 4:D:230:ASP:OD1 | 1.91 | 0.71 |
| 5:E:55:ASN:HA | 5:E:73:GLU:OE1 | 1.90 | 0.71 |
| 6:F:153:SER:HG | 6:F:190:GLU:HB2 | 1.56 | 0.71 |
| 6:F:126:VAL:CG2 | 6:F:197:ASP:HB2 | 2.21 | 0.71 |
| 6:F:45:ARG:NE | 6:F:46:ARG:H | 1.89 | 0.71 |
| 7:G:138:GLN:HE22 | 7:G:152:LEU:HD12 | 1.55 | 0.71 |
| 7:G:174:GLU:O | 7:G:179:PRO:HD3 | 1.91 | 0.71 |
| 7:G:181:ARG:HH21 | 7:G:181:ARG:HB2 | 1.56 | 0.71 |
| 7:G:34:LEU:N | 7:G:34:LEU:HD12 | 2.04 | 0.71 |
| 1:A:2749:A:H4' | 8:H:62:LYS:HB2 | 1.72 | 0.71 |
| 11:M:127:ASP:C | 11:M:129:PRO:HD2 | 2.11 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 11:M:86:PRO:HB2 | 11:M:89:LYS:HZ3 | 1.54 | 0.71 |
| 12:N:63:VAL:HG22 | 12:N:82:ASN:H | 1.56 | 0.71 |
| 13:O:107:LYS:HE2 | 13:O:110:TYR:CD1 | 2.26 | 0.71 |
| 16:R:103:GLU:CD | 16:R:103:GLU:H | 1.93 | 0.71 |
| 17:S:113:LYS:HA | 17:S:116:ALA:CB | 2.20 | 0.71 |
| 17:S:23:ARG:HH21 | 17:S:90:GLN:N | 1.88 | 0.71 |
| 18:T:52:ARG:O | 18:T:55:ARG:HD3 | 1.90 | 0.71 |
| 18:T:89:GLU:HA | 19:U:51:VAL:CG1 | 2.20 | 0.71 |
| 19:U:69:LYS:N | 19:U:92:THR:HB | 2.04 | 0.71 |
| 19:U:69:LYS:CG | 19:U:70:ILE:H | 2.03 | 0.71 |
| 22:X:73:ARG:HB3 | 22:X:77:PRO:CA | 2.18 | 0.71 |
| 3:C:30:LYS:NZ | 3:C:182:PRO:HD3 | 2.06 | 0.71 |
| 27:3:68:ARG:HH11 | 27:3:68:ARG:H | 1.35 | 0.71 |
| 1:A:1047:G:H2' | 1:A:1110:G:N1 | 2.05 | 0.71 |
| 1:A:1069:A:N7 | 1:A:1073:A:C8 | 2.59 | 0.71 |
| 1:A:1084:A:H5' | 1:A:1085:A:OP2 | 1.90 | 0.71 |
| 1:A:1277:G:O2' | 1:A:1278:A:H5' | 1.91 | 0.71 |
| 1:A:1341:U:O2 | 1:A:1341:U:C2' | 2.38 | 0.71 |
| 1:A:137(A):G:N7 | 1:A:139:G:H5'' | 2.06 | 0.71 |
| 1:A:13:A:N3 | 1:A:526:A:N6 | 2.38 | 0.71 |
| 1:A:1471:A:H5'' | 1:A:1472:A:C2 | 2.26 | 0.71 |
| 1:A:1559:G:C6 | 1:A:1560:G:C4' | 2.74 | 0.71 |
| 1:A:1881:C:C6 | 1:A:1881:C:H5'' | 2.26 | 0.71 |
| 1:A:1977:A:H2' | 1:A:1978:A:O5' | 1.91 | 0.71 |
| 1:A:2398:U:H2' | 1:A:2399:G:C8 | 2.25 | 0.71 |
| 1:A:2695:C:H2' | 1:A:2696:U:C5 | 2.26 | 0.71 |
| 1:A:270(X):G:C2 | 1:A:270(Y):G:O2' | 2.44 | 0.71 |
| 1:A:336:C:H2' | 1:A:337:C:C5' | 2.17 | 0.71 |
| 1:A:354:G:OP2 | 1:A:354:G:H3' | 1.90 | 0.71 |
| 1:A:548:A:H61 | 1:A:549:G:N2 | 1.86 | 0.71 |
| 2:B:100:G:C2' | 2:B:101:A:C8 | 2.74 | 0.71 |
| 2:B:40:U:O2' | 2:B:45:A:N6 | 2.24 | 0.71 |
| 4:D:136:ILE:HD11 | 4:D:173:VAL:HG21 | 1.73 | 0.71 |
| 5:E:154:LYS:HZ3 | 5:E:156:MET:CE | 2.04 | 0.71 |
| 6:F:39:TRP:CZ3 | 6:F:43:LYS:HB2 | 2.26 | 0.71 |
| 7:G:20:ILE:HG22 | 7:G:21:ARG:N | 2.04 | 0.71 |
| 8:H:172:LYS:HZ3 | 8:H:172:LYS:HB2 | 1.54 | 0.71 |
| 11:M:133:GLN:HA | 11:M:133:GLN:OE1 | 1.89 | 0.71 |
| 12:N:68:GLU:HG2 | 12:N:76:ALA:C | 2.11 | 0.71 |
| 16:R:3:ARG:HD2 | 16:R:4:LEU:N | 2.06 | 0.71 |
| 19:U:14:VAL:CG1 | 19:U:15:GLU:H | 2.03 | 0.71 |
| 19:U:11:GLN:HE22 | 19:U:24:LYS:CE | 2.04 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 22:X:13:VAL:HG23 | 22:X:14:LEU:N | 2.05 | 0.71 |
| 23:Y:32:HIS:O | 23:Y:33:LEU:HD23 | 1.91 | 0.71 |
| 23:Y:45:ASP:O | 23:Y:46:LYS:C | 2.28 | 0.71 |
| 9:K:69:LYS:CE | 9:K:70:LYS:CG | 2.68 | 0.71 |
| 5:E:126:PRO:O | 5:E:135:HIS:O | 2.09 | 0.71 |
| 25:1:36:ILE:HD13 | 25:1:37:GLY:H | 1.55 | 0.70 |
| 31:7:56:GLU:H | 31:7:56:GLU:CD | 1.94 | 0.70 |
| 1:A:1024:G:C2 | 1:A:1025:G:N7 | 2.58 | 0.70 |
| 1:A:1308:A:C2 | 1:A:1309:G:H1' | 2.26 | 0.70 |
| 1:A:1778:U:C4 | 1:A:1785:A:N1 | 2.58 | 0.70 |
| 1:A:1935:G:O2' | 1:A:1937:A:H2 | 1.74 | 0.70 |
| 1:A:1994:C:H2' | 1:A:1995:U:H5' | 1.72 | 0.70 |
| 1:A:2000:G:H2' | 1:A:2001:A:H8 | 1.56 | 0.70 |
| 1:A:204:A:O2' | 1:A:205:G:P | 2.49 | 0.70 |
| 1:A:224:G:H21 | 1:A:225:A:H1' | 1.55 | 0.70 |
| 1:A:784:A:P | 1:A:2588:G:H5'' | 2.31 | 0.70 |
| 1:A:2830:G:H5' | 5:E:57:LYS:HE3 | 1.72 | 0.70 |
| 1:A:2850:A:H2' | 1:A:2851:A:H8 | 1.56 | 0.70 |
| 1:A:658:C:H2' | 1:A:659:C:C6 | 2.26 | 0.70 |
| 1:A:861:A:N3 | 2:B:79:C:O2' | 2.19 | 0.70 |
| 1:A:878:A:H1' | 1:A:879:G:C8 | 2.26 | 0.70 |
| 6:F:128:ALA:HB1 | 6:F:142:TRP:CZ2 | 2.26 | 0.70 |
| 8:H:33:LEU:CD2 | 8:H:35:VAL:HG13 | 2.21 | 0.70 |
| 1:A:1080:C:O2 | 10:L:126:MET:HG2 | 1.91 | 0.70 |
| 10:L:127:ILE:O | 10:L:131:ALA:CB | 2.39 | 0.70 |
| 11:M:12:ARG:CZ | 11:M:12:ARG:HB3 | 2.21 | 0.70 |
| 1:A:623:G:O5' | 13:O:105:LEU:HD21 | 1.90 | 0.70 |
| 16:R:89:ARG:HG3 | 16:R:90:GLY:N | 2.06 | 0.70 |
| 20:V:11:ARG:O | 20:V:11:ARG:HG2 | 1.89 | 0.70 |
| 20:V:20:VAL:HG13 | 20:V:21:VAL:H | 1.55 | 0.70 |
| 21:W:21:PHE:HA | 21:W:25:LYS:O | 1.89 | 0.70 |
| 23:Y:48:PHE:CZ | 23:Y:86:VAL:HG11 | 2.26 | 0.70 |
| 24:Z:27:GLU:H | 24:Z:69:PHE:HE1 | 1.39 | 0.70 |
| 3:C:102:LYS:HE3 | 3:C:107:TRP:HB3 | 1.73 | 0.70 |
| 3:C:194:ARG:HH11 | 3:C:194:ARG:HG3 | 1.55 | 0.70 |
| 3:C:76:ALA:HB1 | 3:C:149:ILE:HD11 | 1.73 | 0.70 |
| 1:A:2195:C:H2' | 1:A:2196:C:O4' | 1.91 | 0.70 |
| 1:A:2098:U:H2' | 1:A:2099:U:H6 | 1.55 | 0.70 |
| 29:5:31:PRO:C | 29:5:32:ASN:HD22 | 1.94 | 0.70 |
| 1:A:459:U:H3' | 30:6:40:TRP:CZ3 | 2.25 | 0.70 |
| 31:7:22:VAL:CG1 | 31:7:23:VAL:N | 2.54 | 0.70 |
| 31:7:5:LYS:HB2 | 31:7:60:LEU:HA | 1.70 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1113:U:H2' | 1:A:1114:G:C8 | 2.26 | 0.70 |
| 1:A:1475:G:H1 | 1:A:1477:A:N6 | 1.89 | 0.70 |
| 1:A:1523:U:C2 | 1:A:1524:G:C8 | 2.79 | 0.70 |
| 1:A:1342:A:N7 | 1:A:1601:G:O6 | 2.25 | 0.70 |
| 1:A:1675:C:N4 | 5:E:129:HIS:NE2 | 2.39 | 0.70 |
| 1:A:961:C:N4 | 1:A:2031:A:H1' | 2.05 | 0.70 |
| 1:A:2040:C:N3 | 1:A:2041:U:C5 | 2.58 | 0.70 |
| 1:A:2056:G:C6 | 1:A:2577:A:H1' | 2.27 | 0.70 |
| 1:A:2747:G:O6 | 1:A:2755:C:H5' | 1.90 | 0.70 |
| 1:A:2747:G:N2 | 1:A:2748:A:H62 | 1.87 | 0.70 |
| 1:A:324:A:C2 | 1:A:325:G:N9 | 2.58 | 0.70 |
| 1:A:424:G:O2' | 1:A:425:G:H5' | 1.90 | 0.70 |
| 1:A:531:C:C5' | 1:A:532:A:C2 | 2.74 | 0.70 |
| 1:A:705:A:C6 | 1:A:727:A:H1' | 2.25 | 0.70 |
| 1:A:808:G:H2' | 1:A:809:G:C8 | 2.27 | 0.70 |
| 1:A:838:C:H2' | 1:A:839:U:H6 | 1.56 | 0.70 |
| 1:A:7:G:O2' | 1:A:8:A:H5' | 1.91 | 0.70 |
| 1:A:932:G:N2 | 1:A:933:A:C6 | 2.59 | 0.70 |
| 2:B:58:A:N6 | 2:B:59:A:H62 | 1.87 | 0.70 |
| 4:D:121:PRO:O | 4:D:135:PHE:CE2 | 2.44 | 0.70 |
| 4:D:157:ARG:HD2 | 4:D:178:PRO:HD3 | 1.72 | 0.70 |
| 4:D:29:PRO:HB2 | 4:D:83:GLU:HA | 1.73 | 0.70 |
| 5:E:60:ASN:OD1 | 5:E:61:ARG:HD3 | 1.91 | 0.70 |
| 6:F:154:VAL:HG21 | 6:F:193:VAL:HG21 | 1.72 | 0.70 |
| 7:G:118:ARG:NH2 | 7:G:120:LEU:HD11 | 2.05 | 0.70 |
| 7:G:39:ILE:HG13 | 7:G:157:ILE:HG13 | 1.72 | 0.70 |
| 8:H:164:TYR:CE2 | 8:H:167:GLU:HG2 | 2.26 | 0.70 |
| 1:A:2749:A:H5' | 8:H:62:LYS:O | 1.91 | 0.70 |
| 11:M:37:LYS:HG3 | 11:M:42:TRP:HB2 | 1.73 | 0.70 |
| 16:R:11:LYS:C | 16:R:14:VAL:HB | 2.10 | 0.70 |
| 16:R:51:ALA:HB1 | 16:R:73:LEU:CG | 2.20 | 0.70 |
| 17:S:7:ILE:HG13 | 17:S:8:LYS:N | 2.06 | 0.70 |
| 19:U:30:GLY:O | 19:U:31:ALA:O | 2.09 | 0.70 |
| 19:U:6:LYS:HE2 | 19:U:10:LYS:O | 1.91 | 0.70 |
| 20:V:59:VAL:HG21 | 20:V:66:GLU:HG2 | 1.73 | 0.70 |
| 22:X:9:LYS:HG3 | 22:X:28:LYS:NZ | 2.06 | 0.70 |
| 22:X:1:MET:HG2 | 22:X:33:LYS:HD2 | 1.70 | 0.70 |
| 23:Y:143:GLY:O | 23:Y:144:LEU:HD23 | 1.90 | 0.70 |
| 23:Y:150:LEU:O | 23:Y:171:ILE:HG23 | 1.91 | 0.70 |
| 23:Y:116:VAL:HA | 23:Y:177:PRO:HD3 | 1.71 | 0.70 |
| 24:Z:21:LEU:HG | 24:Z:22:GLY:H | 1.56 | 0.70 |
| 3:C:29:VAL:HG21 | 3:C:41:VAL:HG11 | 1.74 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:C:77:ILE:HD12 | 3:C:123:VAL:HG11 | 1.72 | 0.70 |
| 16:R:56:LEU:HD21 | 16:R:59:LYS:HD2 | 1.72 | 0.70 |
| 4:D:276:LYS:HD2 | 4:D:276:LYS:OXT | 1.90 | 0.70 |
| 25:1:38:GLN:O | 25:1:41:GLN:HB2 | 1.91 | 0.70 |
| 1:A:1264:G:C3' | 1:A:1265:A:H5'' | 2.21 | 0.70 |
| 1:A:1750:G:O2' | 1:A:1751:C:H5' | 1.90 | 0.70 |
| 1:A:2076:U:H5' | 1:A:2077:A:OP2 | 1.92 | 0.70 |
| 1:A:2309:A:N3 | 1:A:2309:A:H2' | 2.05 | 0.70 |
| 1:A:2283:C:N3 | 1:A:2325:G:N1 | 2.37 | 0.70 |
| 1:A:2291:U:OP1 | 1:A:2381:C:H5' | 1.91 | 0.70 |
| 1:A:2627:G:H2' | 1:A:2628:C:H5'' | 1.72 | 0.70 |
| 1:A:2865:U:C4 | 1:A:2866:U:C5 | 2.79 | 0.70 |
| 1:A:322:A:O2' | 1:A:340:A:C5 | 2.44 | 0.70 |
| 1:A:638:G:O2' | 1:A:639:U:H5' | 1.90 | 0.70 |
| 1:A:80:G:C1' | 1:A:347:A:N6 | 2.53 | 0.70 |
| 2:B:24:G:C8 | 2:B:24:G:O5' | 2.44 | 0.70 |
| 4:D:268:ARG:O | 4:D:269:PHE:CD1 | 2.44 | 0.70 |
| 6:F:165:ARG:CB | 6:F:165:ARG:NH2 | 2.54 | 0.70 |
| 6:F:36:VAL:CG1 | 6:F:183:VAL:HG21 | 2.22 | 0.70 |
| 7:G:110:ALA:HB2 | 7:G:139:LEU:HD11 | 1.72 | 0.70 |
| 10:L:95:LYS:CB | 10:L:98:ARG:HH21 | 2.04 | 0.70 |
| 14:P:100:GLY:O | 14:P:101:ARG:HD3 | 1.91 | 0.70 |
| 15:Q:11:ASN:CG | 15:Q:12:ARG:N | 2.45 | 0.70 |
| 16:R:9:ARG:HG3 | 16:R:10:ARG:N | 2.06 | 0.70 |
| 17:S:110:ILE:O | 17:S:114:LEU:HB2 | 1.90 | 0.70 |
| 19:U:33:VAL:HG12 | 19:U:34:GLU:H | 1.55 | 0.70 |
| 20:V:10:VAL:HB | 20:V:12:ILE:CD1 | 2.22 | 0.70 |
| 20:V:98:LYS:HZ3 | 20:V:98:LYS:C | 1.94 | 0.70 |
| 22:X:81:LYS:HD3 | 22:X:96:ILE:HG12 | 1.72 | 0.70 |
| 22:X:84:ARG:HG3 | 22:X:92:ASN:O | 1.90 | 0.70 |
| 27:3:5:ILE:HG23 | 27:3:60:GLN:OE1 | 1.91 | 0.70 |
| 29:5:26:ASN:O | 29:5:27:LYS:CB | 2.40 | 0.70 |
| 1:A:469:G:N1 | 30:6:40:TRP:NE1 | 2.39 | 0.70 |
| 1:A:1712:C:H2' | 1:A:1716:U:C6 | 2.26 | 0.70 |
| 1:A:1363:C:O2' | 1:A:1809:A:C8 | 2.43 | 0.70 |
| 1:A:1982:C:N4 | 1:A:1983:C:H41 | 1.89 | 0.70 |
| 1:A:2027:G:H1' | 1:A:2037:G:N2 | 2.06 | 0.70 |
| 1:A:2268:A:H3' | 1:A:2269:A:C5' | 2.20 | 0.70 |
| 1:A:2726:U:O2' | 1:A:2727:G:H5' | 1.91 | 0.70 |
| 1:A:423:A:OP2 | 1:A:423:A:H3' | 1.91 | 0.70 |
| 1:A:64:A:O2' | 21:W:71:GLY:CA | 2.35 | 0.70 |
| 1:A:685:A:C4 | 1:A:774:A:N6 | 2.58 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:757:U:C2 | 1:A:758:C:C6 | 2.79 | 0.70 |
| 1:A:877:U:H6 | 1:A:877:U:O5' | 1.75 | 0.70 |
| 1:A:865:C:N4 | 1:A:909:A:H62 | 1.89 | 0.70 |
| 1:A:957:A:N1 | 1:A:2459:A:H5' | 2.06 | 0.70 |
| 4:D:196:VAL:HG12 | 4:D:197:GLY:H | 1.55 | 0.70 |
| 4:D:244:ARG:N | 4:D:245:PRO:CD | 2.35 | 0.70 |
| 4:D:46:GLN:HG2 | 4:D:52:ARG:HH22 | 1.54 | 0.70 |
| 6:F:123:LEU:O | 6:F:193:VAL:HA | 1.91 | 0.70 |
| 6:F:77:ASP:OD1 | 6:F:80:ALA:HB2 | 1.90 | 0.70 |
| 1:A:673:C:C4' | 6:F:82:ILE:HD12 | 2.21 | 0.70 |
| 7:G:29:TRP:O | 7:G:31:VAL:N | 2.24 | 0.70 |
| 7:G:92:VAL:CG1 | 7:G:94:LEU:HD13 | 2.18 | 0.70 |
| 8:H:95:ARG:O | 8:H:105:LEU:HA | 1.91 | 0.70 |
| 8:H:126:PRO:O | 8:H:127:GLU:HG2 | 1.91 | 0.70 |
| 11:M:99:LEU:C | 11:M:99:LEU:HD12 | 2.12 | 0.70 |
| 12:N:59:LYS:CA | 12:N:86:ILE:HD13 | 2.20 | 0.70 |
| 1:A:2495:G:O3' | 14:P:83:MET:SD | 2.49 | 0.70 |
| 16:R:11:LYS:HZ3 | 16:R:15:ARG:HH22 | 1.36 | 0.70 |
| 18:T:105:VAL:O | 18:T:109:LEU:CG | 2.40 | 0.70 |
| 18:T:59:ARG:CB | 18:T:59:ARG:HH11 | 1.99 | 0.70 |
| 24:Z:28:GLY:O | 24:Z:29:GLN:O | 2.09 | 0.70 |
| 9:K:87:LYS:HD3 | 9:K:122:GLU:N | 2.06 | 0.70 |
| 9:K:69:LYS:HA | 9:K:138:ILE:CD1 | 2.20 | 0.70 |
| 3:C:62:VAL:CG1 | 3:C:195:ALA:HB2 | 2.20 | 0.70 |
| 9:K:57:ARG:HH11 | 9:K:57:ARG:HG3 | 1.56 | 0.70 |
| 1:A:2131:G:H3' | 1:A:2131:G:OP1 | 1.91 | 0.70 |
| 2:B:110:G:H2' | 2:B:111:U:O4' | 1.91 | 0.70 |
| 1:A:1009:A:O4' | 18:T:59:ARG:CZ | 2.39 | 0.70 |
| 1:A:1342:A:C4 | 1:A:1345:C:N4 | 2.59 | 0.70 |
| 1:A:1342:A:C2' | 1:A:1345:C:H41 | 2.04 | 0.70 |
| 1:A:1430:C:H2' | 1:A:1431:U:H6 | 1.56 | 0.70 |
| 1:A:1529:A:H3' | 1:A:1530:G:H8 | 1.57 | 0.70 |
| 1:A:1532:C:O2' | 1:A:1533:C:O4' | 2.08 | 0.70 |
| 1:A:2225:A:H4' | 1:A:2226:C:H6 | 1.56 | 0.70 |
| 1:A:2523:G:H1' | 1:A:2765:A:H62 | 1.56 | 0.70 |
| 1:A:2636:U:C1' | 1:A:2783:G:N2 | 2.47 | 0.70 |
| 1:A:566:U:H2' | 1:A:567:A:H8 | 1.56 | 0.70 |
| 1:A:805:G:C2' | 1:A:806:C:OP1 | 2.39 | 0.70 |
| 1:A:955:C:H2' | 1:A:956:G:H5' | 1.73 | 0.70 |
| 4:D:29:PRO:HB3 | 4:D:82:ILE:O | 1.91 | 0.70 |
| 6:F:162:LEU:HA | 6:F:165:ARG:HH21 | 1.53 | 0.70 |
| 7:G:171:ALA:HA | 7:G:174:GLU:OE1 | 1.91 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 7:G:47:LYS:NZ | 7:G:73:ALA:CB | 2.49 | 0.70 |
| 1:A:2749:A:H5' | 8:H:62:LYS:C | 2.12 | 0.70 |
| 8:H:9:ILE:CD1 | 8:H:73:ALA:HB2 | 2.22 | 0.70 |
| 9:K:27:ARG:HG2 | 9:K:28:ASN:N | 2.07 | 0.70 |
| 11:M:17:ASP:HB3 | 11:M:21:LYS:CE | 2.21 | 0.70 |
| 12:N:52:VAL:HG22 | 12:N:53:LYS:N | 2.07 | 0.70 |
| 17:S:28:VAL:HG13 | 17:S:93:ARG:N | 2.06 | 0.70 |
| 20:V:25:ARG:HA | 20:V:71:VAL:HG11 | 1.73 | 0.70 |
| 21:W:39:ILE:HG21 | 21:W:54:VAL:CG1 | 2.12 | 0.70 |
| 22:X:13:VAL:O | 22:X:70:SER:HB3 | 1.91 | 0.70 |
| 24:Z:52:GLY:HA3 | 24:Z:60:PHE:CE1 | 2.27 | 0.70 |
| 9:K:95:LYS:O | 9:K:98:ALA:HB3 | 1.88 | 0.70 |
| 1:A:2120:G:N2 | 3:C:167:LYS:NZ | 2.38 | 0.70 |
| 1:A:2148:G:H2' | 1:A:2149:G:H8 | 1.52 | 0.70 |
| 3:C:134:ARG:HH11 | 3:C:136:LEU:HG | 1.57 | 0.70 |
| 3:C:19:ILE:HG23 | 3:C:223:ARG:CG | 2.19 | 0.70 |
| 3:C:83:ILE:O | 3:C:87:GLU:CB | 2.39 | 0.70 |
| 2:B:3:C:H2' | 2:B:4:C:C6 | 2.26 | 0.70 |
| 25:1:5:LEU:CD1 | 25:1:9:ARG:HH11 | 2.05 | 0.70 |
| 26:2:7:LYS:HZ3 | 26:2:33:GLN:H | 1.38 | 0.70 |
| 1:A:1142(A):A:H5'' | 1:A:1143:A:OP2 | 1.90 | 0.70 |
| 1:A:1139:G:O2' | 1:A:1143:A:H5'' | 1.91 | 0.70 |
| 1:A:1290:C:H2' | 1:A:1291:C:H6 | 1.55 | 0.70 |
| 1:A:1543:A:N7 | 1:A:1544:C:H1' | 2.07 | 0.70 |
| 1:A:1545(A):A:H8 | 1:A:1545(A):A:OP2 | 1.74 | 0.70 |
| 1:A:1668:A:H61 | 1:A:1993:U:C1' | 2.04 | 0.70 |
| 1:A:2408:U:O2' | 1:A:2409:G:H5' | 1.92 | 0.70 |
| 1:A:2596:U:O4 | 1:A:2597:G:C6 | 2.45 | 0.70 |
| 1:A:2779:U:C6 | 1:A:2779:U:C3' | 2.74 | 0.70 |
| 1:A:2779:U:H5'' | 1:A:2780:G:H3' | 1.71 | 0.70 |
| 1:A:282:A:H3' | 1:A:282:A:C8 | 2.27 | 0.70 |
| 1:A:28:A:H2' | 1:A:29:U:H5' | 1.73 | 0.70 |
| 1:A:324:A:N3 | 1:A:324:A:H2' | 2.06 | 0.70 |
| 1:A:411:G:O4' | 1:A:2406:U:O3' | 2.09 | 0.70 |
| 1:A:470:A:N1 | 1:A:471:A:N3 | 2.38 | 0.70 |
| 1:A:545:G:H1' | 1:A:549:G:H22 | 1.56 | 0.70 |
| 1:A:623:G:H2' | 1:A:624:C:O4' | 1.91 | 0.70 |
| 1:A:748:G:N7 | 20:V:90:ARG:NH1 | 2.39 | 0.70 |
| 1:A:771:G:H2' | 1:A:772:C:H6 | 1.56 | 0.70 |
| 1:A:892:G:H2' | 1:A:893:C:H6 | 1.53 | 0.70 |
| 2:B:53:A:C2 | 2:B:54:G:O4' | 2.45 | 0.70 |
| 4:D:158:ALA:C | 4:D:160:GLY:H | 1.95 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:G:131:TYR:CD1 | 7:G:132:ASN:N | 2.58 | 0.70 |
| 7:G:74:LYS:HD3 | 7:G:87:PRO:CB | 2.16 | 0.70 |
| 7:G:9:ARG:HH11 | 7:G:9:ARG:HG3 | 1.55 | 0.70 |
| 10:L:17:ALA:HB1 | 10:L:38:VAL:CG1 | 2.22 | 0.70 |
| 10:L:12:LEU:HD22 | 10:L:19:PRO:CG | 2.22 | 0.70 |
| 10:L:41:PHE:CZ | 10:L:55:VAL:HB | 2.27 | 0.70 |
| 10:L:9:LYS:HG2 | 10:L:56:GLU:CD | 2.12 | 0.70 |
| 13:O:146:VAL:O | 13:O:147:LEU:HD22 | 1.90 | 0.70 |
| 13:O:96:THR:CB | 13:O:99:LEU:HD12 | 2.22 | 0.70 |
| 14:P:99:PRO:HG2 | 14:P:99:PRO:O | 1.92 | 0.70 |
| 16:R:87:PHE:CG | 16:R:88:ASP:N | 2.59 | 0.70 |
| 16:R:30:ARG:CD | 16:R:91:PRO:HB3 | 2.22 | 0.70 |
| 17:S:103:ARG:O | 17:S:105:LEU:N | 2.25 | 0.70 |
| 17:S:95:ARG:HB3 | 17:S:95:ARG:NH2 | 2.05 | 0.70 |
| 18:T:100:VAL:HG23 | 18:T:101:ARG:H | 1.54 | 0.70 |
| 18:T:97:ASP:O | 18:T:100:VAL:CG2 | 2.39 | 0.70 |
| 20:V:59:VAL:HG21 | 20:V:66:GLU:CG | 2.21 | 0.70 |
| 20:V:27:LYS:H | 20:V:71:VAL:HG13 | 1.56 | 0.70 |
| 24:Z:72:ARG:HB3 | 24:Z:75:LEU:CD1 | 2.17 | 0.70 |
| 1:A:2161:C:O2' | 1:A:2162:G:H5' | 1.91 | 0.70 |
| 3:C:26:ALA:HB2 | 3:C:185:LEU:HB2 | 1.74 | 0.70 |
| 3:C:75:LEU:HB2 | 3:C:110:PHE:CG | 2.26 | 0.70 |
| 3:C:80:GLY:O | 3:C:83:ILE:HB | 1.91 | 0.70 |
| 29:5:17:LYS:CE | 29:5:48:VAL:HG13 | 2.21 | 0.70 |
| 1:A:1127:A:C6 | 1:A:2518:A:H2 | 2.10 | 0.70 |
| 1:A:1341:U:C2' | 1:A:1342:A:OP1 | 2.39 | 0.70 |
| 1:A:1431:U:H2' | 1:A:1432:C:O4' | 1.92 | 0.70 |
| 1:A:144:C:H2' | 1:A:145:G:C5' | 2.21 | 0.70 |
| 1:A:1511:A:C2 | 1:A:1512:G:H1' | 2.25 | 0.70 |
| 1:A:1556:C:H2' | 1:A:1557:C:C6 | 2.26 | 0.70 |
| 1:A:1602:U:H2' | 1:A:1603:A:H5' | 1.74 | 0.70 |
| 1:A:1708:C:H2' | 1:A:1709:U:H5'' | 1.74 | 0.70 |
| 1:A:1957:C:H2' | 1:A:1958:C:C6 | 2.26 | 0.70 |
| 1:A:2009:G:C6 | 1:A:2010:G:N7 | 2.60 | 0.70 |
| 1:A:2553:G:N7 | 1:A:2583:G:H4' | 2.07 | 0.70 |
| 1:A:259:G:H2' | 1:A:260:G:C8 | 2.25 | 0.70 |
| 1:A:2685:G:N3 | 1:A:2685:G:H2' | 2.07 | 0.70 |
| 1:A:371:A:H62 | 1:A:424:G:H4' | 1.57 | 0.70 |
| 1:A:704:G:O2' | 1:A:705:A:OP2 | 2.09 | 0.70 |
| 1:A:768:G:H2' | 1:A:769:G:C8 | 2.25 | 0.70 |
| 1:A:792:G:N2 | 1:A:2072:G:H1' | 2.05 | 0.70 |
| 2:B:76:G:OP2 | 23:Y:11:GLU:N | 2.24 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:133:LEU:HD12 | 4:D:187:GLY:HA2 | 1.73 | 0.70 |
| 1:A:1790:C:H4' | 4:D:213:ARG:NH1 | 2.06 | 0.70 |
| 4:D:217:ARG:CG | 4:D:218:ARG:H | 1.99 | 0.70 |
| 4:D:20:ASP:HB3 | 4:D:21:PHE:CE2 | 2.27 | 0.70 |
| 5:E:84:PHE:C | 5:E:85:ASN:HD22 | 1.95 | 0.70 |
| 6:F:69:HIS:O | 6:F:69:HIS:ND1 | 2.25 | 0.70 |
| 7:G:33:ARG:HH12 | 7:G:35:GLU:HB2 | 1.55 | 0.70 |
| 7:G:71:THR:O | 7:G:88:ILE:HG12 | 1.92 | 0.70 |
| 7:G:91:ARG:NE | 7:G:93:THR:OG1 | 2.25 | 0.70 |
| 8:H:164:TYR:HE2 | 8:H:167:GLU:N | 1.86 | 0.70 |
| 9:K:47:LEU:HD11 | 9:K:51:ILE:HD11 | 1.73 | 0.70 |
| 10:L:17:ALA:HB2 | 10:L:42:ASN:HD21 | 1.57 | 0.70 |
| 10:L:27:LEU:HD22 | 10:L:57:ILE:HD11 | 1.73 | 0.70 |
| 10:L:11:GLN:NE2 | 10:L:73:PRO:HG2 | 2.06 | 0.70 |
| 11:M:123:TYR:CG | 11:M:129:PRO:HB2 | 2.25 | 0.70 |
| 12:N:11:ALA:HB1 | 12:N:97:ARG:CZ | 2.22 | 0.70 |
| 12:N:25:LEU:CD2 | 12:N:38:VAL:HG23 | 2.22 | 0.70 |
| 12:N:41:ALA:N | 12:N:59:LYS:HZ1 | 1.90 | 0.70 |
| 14:P:120:ILE:HG23 | 14:P:123:HIS:CD2 | 2.23 | 0.70 |
| 14:P:54:MET:HE1 | 14:P:118:LEU:HD23 | 1.74 | 0.70 |
| 14:P:8:LYS:HZ2 | 14:P:93:TYR:HD2 | 1.38 | 0.70 |
| 15:Q:58:GLY:HA2 | 15:Q:80:PHE:HE2 | 1.51 | 0.70 |
| 18:T:105:VAL:O | 18:T:108:GLU:CD | 2.30 | 0.70 |
| 1:A:994:C:H3' | 18:T:54:LYS:NZ | 2.04 | 0.70 |
| 19:U:40:LEU:CB | 19:U:51:VAL:HG22 | 2.15 | 0.70 |
| 20:V:10:VAL:CG2 | 20:V:12:ILE:HD11 | 2.21 | 0.70 |
| 23:Y:55:HIS:CD2 | 23:Y:124:ILE:HD13 | 2.27 | 0.70 |
| 24:Z:24:LYS:H | 24:Z:38:VAL:HG12 | 1.56 | 0.70 |
| 24:Z:28:GLY:N | 24:Z:67:VAL:HB | 2.06 | 0.70 |
| 1:A:2139:C:O2' | 1:A:2140:C:H5' | 1.91 | 0.70 |
| 1:A:2150:U:H2' | 1:A:2151:G:C8 | 2.27 | 0.70 |
| 3:C:54:SER:CA | 3:C:57:ASN:HD22 | 2.04 | 0.70 |
| 1:A:1579:A:H62 | 1:A:1581:G:N2 | 1.89 | 0.70 |
| 2:B:116:G:N3 | 2:B:117:G:H1' | 2.07 | 0.70 |
| 25:1:27:LEU:O | 25:1:30:LEU:HG | 1.90 | 0.70 |
| 1:A:1470:G:H21 | 1:A:1522:G:H1 | 0.76 | 0.70 |
| 1:A:1448:G:H5'' | 1:A:1543:A:C2 | 2.26 | 0.70 |
| 1:A:1698:A:N3 | 1:A:1700:A:O4' | 2.23 | 0.70 |
| 1:A:1784:A:C1' | 1:A:1785:A:C8 | 2.74 | 0.70 |
| 1:A:1913:A:N9 | 1:A:1918:A:N6 | 2.40 | 0.70 |
| 1:A:1947:C:H2' | 1:A:1948:G:H5' | 1.73 | 0.70 |
| 1:A:530:G:N1 | 1:A:2022:U:OP1 | 2.25 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2291:U:C2 | 1:A:2292:C:C5 | 2.80 | 0.70 |
| 1:A:2344:U:O2' | 1:A:2345:G:O5' | 2.07 | 0.70 |
| 1:A:252:G:N2 | 1:A:253:C:C2 | 2.59 | 0.70 |
| 1:A:2622:C:O2' | 1:A:2824:C:N4 | 2.25 | 0.70 |
| 1:A:2833:G:N3 | 1:A:2833:G:H2' | 2.05 | 0.70 |
| 1:A:2888:C:H2' | 1:A:2889:C:C6 | 2.27 | 0.70 |
| 1:A:2801:A:C2 | 1:A:2895:U:H1' | 2.27 | 0.70 |
| 1:A:515:A:O5' | 1:A:515:A:C8 | 2.43 | 0.70 |
| 1:A:529:A:O2' | 1:A:530:G:C6 | 2.45 | 0.70 |
| 1:A:557:U:H2' | 1:A:558:G:O4' | 1.91 | 0.70 |
| 1:A:693:C:H2' | 1:A:694:U:H6 | 1.56 | 0.70 |
| 1:A:972:G:C5 | 1:A:973:A:N7 | 2.59 | 0.70 |
| 4:D:176:ARG:N | 4:D:182:LEU:HD23 | 2.07 | 0.70 |
| 4:D:183:ARG:CG | 4:D:268:ARG:HB2 | 2.22 | 0.70 |
| 1:A:1799:G:C3' | 4:D:183:ARG:HH22 | 2.04 | 0.70 |
| 1:A:2086:U:OP2 | 4:D:260:ARG:NH2 | 2.25 | 0.70 |
| 4:D:8:PRO:HD2 | 4:D:26:LYS:N | 2.06 | 0.70 |
| 5:E:49:LEU:HD12 | 5:E:51:PHE:H | 1.57 | 0.70 |
| 6:F:165:ARG:HB3 | 6:F:165:ARG:CZ | 2.20 | 0.70 |
| 1:A:588:U:H1' | 6:F:90:PHE:CD2 | 2.27 | 0.70 |
| 7:G:110:ALA:HA | 7:G:113:ARG:CD | 2.19 | 0.70 |
| 7:G:113:ARG:HE | 7:G:139:LEU:HD21 | 1.55 | 0.70 |
| 7:G:140:ILE:O | 7:G:142:PRO:HD2 | 1.91 | 0.70 |
| 7:G:2:PRO:O | 7:G:5:VAL:HB | 1.92 | 0.70 |
| 8:H:121:ILE:HG13 | 8:H:133:VAL:CG2 | 2.20 | 0.70 |
| 10:L:131:ALA:CA | 10:L:136:VAL:HB | 2.21 | 0.70 |
| 11:M:108:PRO:O | 11:M:113:GLY:HA3 | 1.92 | 0.70 |
| 11:M:103:VAL:HG23 | 11:M:117:PHE:CE2 | 2.27 | 0.70 |
| 14:P:136:ALA:HB1 | 23:Y:76:LEU:CD1 | 2.22 | 0.70 |
| 15:Q:78:LYS:O | 15:Q:82:GLU:HB2 | 1.90 | 0.70 |
| 16:R:73:LEU:O | 16:R:76:LYS:HB3 | 1.91 | 0.70 |
| 17:S:28:VAL:HG22 | 17:S:94:ALA:N | 2.05 | 0.70 |
| 20:V:36:LEU:CG | 20:V:51:LEU:HD21 | 2.22 | 0.70 |
| 20:V:86:LEU:HB3 | 20:V:87:PRO:CD | 2.22 | 0.70 |
| 21:W:82:GLN:HG2 | 21:W:83:VAL:N | 2.05 | 0.70 |
| 23:Y:77:ASP:HA | 23:Y:78:LYS:HE2 | 1.72 | 0.70 |
| 9:K:69:LYS:HZ1 | 9:K:70:LYS:HE2 | 1.56 | 0.70 |
| 3:C:78:ALA:HB1 | 3:C:118:ASP:OD2 | 1.90 | 0.70 |
| 25:1:50:ARG:HB3 | 25:1:54:ARG:HH22 | 1.57 | 0.70 |
| 26:2:35:ARG:HH12 | 26:2:47:VAL:CG1 | 2.03 | 0.70 |
| 27:3:18:CYS:O | 27:3:33:VAL:HG23 | 1.91 | 0.70 |
| 1:A:1130:U:O2' | 1:A:1131:G:OP1 | 2.10 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:152:G:O2' | 1:A:153:C:H5' | 1.91 | 0.70 |
| 1:A:2022:U:H5' | 1:A:2023:G:OP2 | 1.90 | 0.70 |
| 1:A:2055:C:H4' | 1:A:2056:G:H5'' | 1.74 | 0.70 |
| 1:A:2325:G:H2' | 1:A:2326:C:H6 | 1.56 | 0.70 |
| 1:A:2426:A:H3' | 1:A:2427:C:H5' | 1.72 | 0.70 |
| 1:A:2071:A:C2 | 1:A:2441:C:N3 | 2.59 | 0.70 |
| 4:D:208:LYS:HG2 | 4:D:211:ARG:HG3 | 1.74 | 0.70 |
| 1:A:2572:A:C6 | 5:E:144:ARG:HG3 | 2.27 | 0.70 |
| 5:E:37:ARG:O | 5:E:39:PRO:CD | 2.40 | 0.70 |
| 6:F:139:PHE:HZ | 6:F:167:ALA:HB2 | 1.56 | 0.70 |
| 6:F:152:GLU:HG3 | 6:F:153:SER:H | 1.57 | 0.70 |
| 6:F:41:LEU:O | 6:F:44:ARG:CG | 2.37 | 0.70 |
| 8:H:35:VAL:HG12 | 8:H:71:LEU:CG | 2.21 | 0.70 |
| 9:K:24:GLY:O | 9:K:27:ARG:HB3 | 1.91 | 0.70 |
| 11:M:16:ILE:HD11 | 11:M:52:VAL:HG23 | 1.72 | 0.70 |
| 12:N:98:VAL:HG12 | 12:N:122:LEU:CD2 | 2.21 | 0.70 |
| 12:N:39:ILE:CD1 | 12:N:39:ILE:N | 2.53 | 0.70 |
| 14:P:36:ALA:O | 14:P:100:GLY:HA2 | 1.91 | 0.70 |
| 14:P:134:ARG:CD | 14:P:137:TYR:HA | 2.18 | 0.70 |
| 14:P:75:THR:CG2 | 14:P:77:LYS:HA | 2.22 | 0.70 |
| 15:Q:50:HIS:CE1 | 15:Q:54:LEU:HD11 | 2.26 | 0.70 |
| 15:Q:8:ARG:NE | 15:Q:10:LEU:HD11 | 2.07 | 0.70 |
| 5:E:8:LYS:CE | 17:S:3:ARG:HG3 | 2.22 | 0.70 |
| 18:T:112:ARG:HH12 | 19:U:49:THR:CG2 | 2.02 | 0.70 |
| 18:T:52:ARG:HD2 | 18:T:53:ARG:N | 2.07 | 0.70 |
| 1:A:2353:G:H4' | 24:Z:32:ARG:HH22 | 1.57 | 0.70 |
| 1:A:2135:A:O2' | 1:A:2136:C:OP2 | 2.10 | 0.70 |
| 28:4:51:TYR:C | 28:4:51:TYR:CD2 | 2.64 | 0.70 |
| 30:6:21:ARG:NH1 | 30:6:44:PRO:HB3 | 2.07 | 0.70 |
| 1:A:1077:A:N7 | 1:A:1078:U:N3 | 2.40 | 0.70 |
| 1:A:1119:C:O2 | 1:A:1119:C:H2' | 1.90 | 0.70 |
| 1:A:1537:C:C3' | 1:A:1537:C:C6 | 2.74 | 0.70 |
| 1:A:1637:A:C6 | 1:A:1638:C:N4 | 2.60 | 0.70 |
| 1:A:1824:G:OP1 | 4:D:53:PHE:HZ | 1.74 | 0.70 |
| 1:A:1864:U:C2' | 1:A:1869:G:H5' | 2.22 | 0.70 |
| 1:A:2329:G:H8 | 1:A:2329:G:O5' | 1.75 | 0.70 |
| 1:A:2333:A:C1' | 1:A:2335:A:N3 | 2.49 | 0.70 |
| 1:A:2514:U:H2' | 1:A:2515:C:C5 | 2.26 | 0.70 |
| 1:A:2542:A:C5' | 1:A:2543:G:OP1 | 2.39 | 0.70 |
| 1:A:491:G:H2' | 1:A:492:A:O4' | 1.92 | 0.70 |
| 1:A:66:C:H2' | 1:A:67:U:O5' | 1.92 | 0.70 |
| 2:B:12:C:C4 | 24:Z:75:LEU:HA | 2.27 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:B:32:C:C3' | 2:B:33:G:H8 | 2.05 | 0.70 |
| 4:D:217:ARG:HG3 | 4:D:218:ARG:N | 2.06 | 0.70 |
| 4:D:27:THR:HG22 | 4:D:29:PRO:HD3 | 1.72 | 0.70 |
| 6:F:122:LYS:NZ | 6:F:192:LEU:HB3 | 2.06 | 0.70 |
| 6:F:4:VAL:HG12 | 6:F:20:LEU:HD11 | 1.73 | 0.70 |
| 6:F:32:LEU:O | 6:F:35:GLU:HB2 | 1.91 | 0.70 |
| 6:F:38:ARG:NH1 | 13:O:10:PRO:HA | 2.07 | 0.70 |
| 1:A:1257:C:H4' | 6:F:83:PHE:CD1 | 2.25 | 0.70 |
| 7:G:12:TYR:CZ | 7:G:13:GLU:HG3 | 2.27 | 0.70 |
| 7:G:170:ARG:HG3 | 7:G:171:ALA:H | 1.56 | 0.70 |
| 9:K:31:LEU:HD22 | 9:K:36:ALA:N | 2.07 | 0.70 |
| 10:L:115:LEU:HD12 | 10:L:118:THR:H | 1.55 | 0.70 |
| 13:O:72:PRO:HA | 13:O:110:TYR:CD1 | 2.27 | 0.70 |
| 13:O:13:ASN:CG | 13:O:14:LYS:N | 2.43 | 0.70 |
| 13:O:6:LEU:HD23 | 13:O:6:LEU:O | 1.92 | 0.70 |
| 14:P:67:ARG:HD3 | 14:P:103:MET:SD | 2.31 | 0.70 |
| 14:P:109:VAL:CG1 | 14:P:114:ALA:HB2 | 2.22 | 0.70 |
| 15:Q:65:LEU:O | 15:Q:68:ARG:HB3 | 1.92 | 0.70 |
| 18:T:98:LEU:HB3 | 18:T:105:VAL:HG13 | 1.74 | 0.70 |
| 1:A:1252:G:O2' | 18:T:33:ARG:NE | 2.24 | 0.70 |
| 19:U:69:LYS:CA | 19:U:92:THR:HB | 2.22 | 0.70 |
| 20:V:14:PRO:N | 20:V:16:LYS:HZ1 | 1.90 | 0.70 |
| 20:V:33:ARG:CZ | 20:V:33:ARG:O | 2.39 | 0.70 |
| 9:K:109:ILE:HG21 | 9:K:113:ARG:CZ | 2.22 | 0.70 |
| 3:C:97:GLU:O | 3:C:101:GLN:HG2 | 1.92 | 0.70 |
| 3:C:117:PRO:HD3 | 3:C:146:GLY:C | 2.11 | 0.70 |
| 3:C:10:LEU:HD11 | 3:C:32:LEU:HB3 | 1.74 | 0.70 |
| 9:K:105:HIS:HD2 | 9:K:105:HIS:O | 1.75 | 0.70 |
| 1:A:397:G:OP2 | 27:3:41:PRO:HG3 | 1.92 | 0.69 |
| 27:3:65:ASP:O | 27:3:69:LYS:HG3 | 1.92 | 0.69 |
| 1:A:1056:G:C5' | 1:A:1057:A:H5' | 2.17 | 0.69 |
| 1:A:1205:U:O2' | 1:A:1206:G:O6 | 2.10 | 0.69 |
| 1:A:1524:G:C5 | 1:A:1525:G:N7 | 2.60 | 0.69 |
| 1:A:1833:U:C2 | 1:A:1834:U:O2 | 2.45 | 0.69 |
| 1:A:1937:A:N7 | 1:A:1939:U:C4 | 2.60 | 0.69 |
| 1:A:2009:G:H5'' | 20:V:41:LYS:HG2 | 1.74 | 0.69 |
| 1:A:2052:G:C8 | 5:E:150:VAL:HG23 | 2.26 | 0.69 |
| 1:A:2226:C:O2' | 1:A:2227:A:H5' | 1.92 | 0.69 |
| 1:A:2411:A:H2' | 1:A:2412:A:C8 | 2.27 | 0.69 |
| 1:A:247:G:N1 | 31:7:8:LYS:NZ | 2.40 | 0.69 |
| 1:A:2602:A:P | 1:A:2602:A:H3' | 2.32 | 0.69 |
| 1:A:2852:G:H2' | 1:A:2853:C:C6 | 2.27 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:452:G:H3' | 1:A:453:C:C5' | 2.20 | 0.69 |
| 1:A:55:G:H2' | 1:A:56:A:H8 | 1.55 | 0.69 |
| 1:A:720:C:O2' | 1:A:721:C:H5' | 1.92 | 0.69 |
| 4:D:69:ARG:HH11 | 4:D:69:ARG:HG3 | 1.56 | 0.69 |
| 5:E:36:ARG:HH21 | 5:E:41:LYS:HZ1 | 1.40 | 0.69 |
| 5:E:51:PHE:CG | 5:E:76:ARG:HD3 | 2.27 | 0.69 |
| 6:F:56:GLU:O | 6:F:60:SER:OG | 2.10 | 0.69 |
| 1:A:2305:A:N3 | 7:G:156:ASP:HB3 | 2.07 | 0.69 |
| 11:M:30:ILE:HG22 | 11:M:34:LEU:CD1 | 2.22 | 0.69 |
| 12:N:15:GLY:O | 12:N:47:ILE:HA | 1.91 | 0.69 |
| 13:O:23:PRO:HB3 | 13:O:30:THR:CG2 | 2.21 | 0.69 |
| 17:S:88:ILE:N | 17:S:88:ILE:HD12 | 2.07 | 0.69 |
| 19:U:40:LEU:CD2 | 19:U:51:VAL:HG13 | 2.04 | 0.69 |
| 21:W:23:GLU:CD | 21:W:24:GLY:N | 2.45 | 0.69 |
| 1:A:1599:C:P | 21:W:36:LYS:HZ3 | 2.15 | 0.69 |
| 21:W:73:ARG:HG2 | 21:W:74:PRO:CD | 2.21 | 0.69 |
| 23:Y:150:LEU:O | 23:Y:171:ILE:N | 2.14 | 0.69 |
| 23:Y:122:ARG:HG2 | 23:Y:171:ILE:HA | 1.72 | 0.69 |
| 1:A:2161:C:C2 | 1:A:2162:G:C8 | 2.80 | 0.69 |
| 3:C:10:LEU:HA | 3:C:13:LYS:HD2 | 1.74 | 0.69 |
| 3:C:75:LEU:HB2 | 3:C:110:PHE:CD2 | 2.27 | 0.69 |
| 29:5:19:ARG:HG2 | 29:5:19:ARG:NH1 | 2.06 | 0.69 |
| 29:5:39:TYR:O | 29:5:40:CYS:HB3 | 1.92 | 0.69 |
| 30:6:31:LEU:C | 30:6:35:ARG:HD3 | 2.13 | 0.69 |
| 1:A:1101:U:H2' | 1:A:1102:C:C6 | 2.26 | 0.69 |
| 1:A:1359:A:H8 | 1:A:1359:A:O5' | 1.75 | 0.69 |
| 1:A:138:G:N3 | 1:A:138:G:H2' | 2.07 | 0.69 |
| 1:A:135:G:N2 | 1:A:145:G:H1' | 2.07 | 0.69 |
| 1:A:149:A:C8 | 1:A:149:A:H3' | 2.26 | 0.69 |
| 1:A:1620:G:O2' | 1:A:1621:U:H5' | 1.92 | 0.69 |
| 1:A:1633:G:O6 | 1:A:1635:G:N2 | 2.24 | 0.69 |
| 1:A:1717:G:C2 | 1:A:1718:G:N3 | 2.60 | 0.69 |
| 1:A:1832:C:C4 | 1:A:1833:U:C5 | 2.80 | 0.69 |
| 1:A:1980:G:C6 | 1:A:1982:C:N4 | 2.60 | 0.69 |
| 1:A:2306:C:C2 | 7:G:46:ALA:HB2 | 2.26 | 0.69 |
| 1:A:2371:G:N2 | 1:A:2372:G:C6 | 2.59 | 0.69 |
| 1:A:2505:G:N1 | 1:A:2576:G:C4 | 2.60 | 0.69 |
| 1:A:448:U:H2' | 1:A:448:U:O2 | 1.92 | 0.69 |
| 1:A:771:G:H2' | 1:A:772:C:C6 | 2.26 | 0.69 |
| 2:B:115:G:H4' | 16:R:50:SER:HB3 | 1.74 | 0.69 |
| 5:E:113:PHE:N | 5:E:113:PHE:CD1 | 2.59 | 0.69 |
| 6:F:33:LEU:HD12 | 6:F:34:TRP:N | 2.06 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:G:50:ALA:N | 7:G:70:VAL:HG13 | 2.07 | 0.69 |
| 9:K:6:LEU:HD22 | 9:K:7:GLU:OE2 | 1.91 | 0.69 |
| 16:R:6:ALA:C | 16:R:9:ARG:HB3 | 2.13 | 0.69 |
| 19:U:11:GLN:O | 19:U:21:ARG:NE | 2.24 | 0.69 |
| 19:U:5:VAL:HG13 | 19:U:39:LEU:HA | 1.73 | 0.69 |
| 20:V:12:ILE:HG12 | 20:V:101:SER:CB | 2.19 | 0.69 |
| 20:V:13:SER:CB | 20:V:14:PRO:HD2 | 2.19 | 0.69 |
| 23:Y:44:PHE:HD2 | 23:Y:48:PHE:CZ | 2.10 | 0.69 |
| 9:K:91:SER:HB3 | 9:K:121:LYS:HD2 | 1.73 | 0.69 |
| 3:C:113:VAL:HB | 3:C:138:PRO:CG | 2.12 | 0.69 |
| 3:C:49:ILE:HG23 | 3:C:208:PHE:CE1 | 2.27 | 0.69 |
| 1:A:931:G:H21 | 26:2:25:ALA:N | 1.90 | 0.69 |
| 1:A:400:G:N1 | 27:3:63:TYR:HE2 | 1.91 | 0.69 |
| 28:4:10:LYS:O | 28:4:12:SER:N | 2.25 | 0.69 |
| 1:A:1062:G:O6 | 1:A:1077:A:C6 | 2.45 | 0.69 |
| 1:A:1667:G:N2 | 1:A:1991:U:N3 | 2.41 | 0.69 |
| 1:A:1853:A:O2' | 1:A:1854:A:H5' | 1.92 | 0.69 |
| 1:A:2219:G:C2' | 1:A:2224:G:H5' | 2.22 | 0.69 |
| 1:A:2225:A:O2' | 1:A:2226:C:OP2 | 2.10 | 0.69 |
| 1:A:2286:A:H2 | 29:5:27:LYS:HG2 | 1.58 | 0.69 |
| 1:A:245:G:N2 | 1:A:254:G:H1' | 2.06 | 0.69 |
| 1:A:2537:U:H2' | 1:A:2538:C:H6 | 1.53 | 0.69 |
| 1:A:256:A:H2' | 1:A:257:A:C8 | 2.26 | 0.69 |
| 1:A:270(A):A:H61 | 1:A:270(X):G:C2' | 2.02 | 0.69 |
| 1:A:1754:C:N3 | 1:A:2717:G:H5' | 2.07 | 0.69 |
| 1:A:281:G:H2' | 1:A:281:G:N3 | 2.07 | 0.69 |
| 1:A:28:A:H1' | 1:A:513:A:C6 | 2.26 | 0.69 |
| 1:A:399:G:C6 | 1:A:400:G:H1' | 2.27 | 0.69 |
| 1:A:443:A:OP1 | 6:F:46:ARG:HB3 | 1.91 | 0.69 |
| 1:A:792:G:H21 | 1:A:2072:G:C1' | 2.05 | 0.69 |
| 1:A:860:U:C5 | 1:A:861:A:C8 | 2.80 | 0.69 |
| 2:B:38:C:C6 | 2:B:38:C:H3' | 2.28 | 0.69 |
| 4:D:22:SER:HA | 4:D:205:VAL:O | 1.92 | 0.69 |
| 4:D:37:LEU:HD11 | 4:D:62:TYR:O | 1.91 | 0.69 |
| 5:E:22:PRO:CB | 5:E:185:LYS:H | 2.04 | 0.69 |
| 5:E:8:LYS:HD2 | 17:S:3:ARG:CG | 2.22 | 0.69 |
| 7:G:125:PHE:CD1 | 7:G:131:TYR:N | 2.60 | 0.69 |
| 11:M:33:LEU:C | 11:M:35:ARG:H | 1.94 | 0.69 |
| 14:P:137:TYR:O | 14:P:138:ASP:OD1 | 2.10 | 0.69 |
| 14:P:74:TYR:OH | 14:P:94:VAL:N | 2.24 | 0.69 |
| 15:Q:104:ARG:NH2 | 15:Q:107:ASP:OD1 | 2.25 | 0.69 |
| 16:R:69:VAL:HG13 | 16:R:73:LEU:HD21 | 1.74 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:T:108:GLU:O | 18:T:110:VAL:N | 2.25 | 0.69 |
| 19:U:16:PRO:HD3 | 19:U:100:ARG:NH1 | 2.07 | 0.69 |
| 1:A:138:G:N7 | 21:W:40:LYS:HE3 | 2.07 | 0.69 |
| 21:W:52:VAL:O | 21:W:82:GLN:HB3 | 1.92 | 0.69 |
| 24:Z:11:ARG:O | 24:Z:14:ARG:NH2 | 2.25 | 0.69 |
| 9:K:93:THR:O | 9:K:96:ASP:HB2 | 1.92 | 0.69 |
| 1:A:2180:U:H2' | 1:A:2181:G:H8 | 1.58 | 0.69 |
| 1:A:2671:A:OP1 | 5:E:206:LYS:HE3 | 1.92 | 0.69 |
| 27:3:42:PHE:HB2 | 27:3:58:ARG:HH12 | 1.55 | 0.69 |
| 29:5:32:ASN:CG | 29:5:33:LYS:N | 2.43 | 0.69 |
| 1:A:1184:G:H2' | 1:A:1185:C:C6 | 2.27 | 0.69 |
| 1:A:1264:G:H5'' | 1:A:1265:A:C5' | 2.21 | 0.69 |
| 1:A:120:U:H1' | 1:A:149:A:H1' | 1.75 | 0.69 |
| 1:A:1646:C:C5' | 1:A:1647:G:H5' | 2.22 | 0.69 |
| 1:A:1670:C:OP2 | 1:A:1671:U:C5 | 2.43 | 0.69 |
| 1:A:1932:A:C4 | 1:A:1969:A:N6 | 2.60 | 0.69 |
| 1:A:2259:G:C5' | 1:A:2427:C:H2' | 2.22 | 0.69 |
| 1:A:266:G:C2' | 1:A:267:C:O5' | 2.41 | 0.69 |
| 1:A:308:G:N2 | 1:A:309:G:H1' | 2.07 | 0.69 |
| 1:A:383:U:C2 | 1:A:385:C:N4 | 2.59 | 0.69 |
| 1:A:602:G:H4' | 1:A:603:A:O3' | 1.92 | 0.69 |
| 1:A:608:A:H2' | 1:A:609:A:H5' | 1.72 | 0.69 |
| 1:A:618:G:H2' | 1:A:618(A):C:H6 | 1.54 | 0.69 |
| 1:A:796:C:O2' | 1:A:797:C:H5' | 1.93 | 0.69 |
| 4:D:226:MET:HE2 | 4:D:226:MET:HA | 1.73 | 0.69 |
| 4:D:246:PRO:HG3 | 4:D:252:TRP:CE3 | 2.27 | 0.69 |
| 5:E:111:ARG:HB2 | 5:E:160:TYR:O | 1.91 | 0.69 |
| 5:E:176:ILE:CD1 | 5:E:179:GLU:HG2 | 2.21 | 0.69 |
| 1:A:2811:G:OP1 | 5:E:60:ASN:ND2 | 2.24 | 0.69 |
| 6:F:6:VAL:N | 6:F:20:LEU:CD1 | 2.53 | 0.69 |
| 6:F:43:LYS:HG3 | 6:F:99:TYR:N | 2.08 | 0.69 |
| 7:G:120:LEU:HD13 | 7:G:181:ARG:HG2 | 1.73 | 0.69 |
| 8:H:144:VAL:O | 8:H:147:ASN:HB2 | 1.92 | 0.69 |
| 8:H:29:PRO:HD3 | 8:H:79:VAL:O | 1.92 | 0.69 |
| 9:K:22:LYS:HB3 | 9:K:23:PRO:HD2 | 1.74 | 0.69 |
| 11:M:90:MET:HB3 | 11:M:98:VAL:HG22 | 1.74 | 0.69 |
| 15:Q:38:VAL:CB | 15:Q:39:PRO:HD3 | 2.21 | 0.69 |
| 16:R:39:ILE:HD11 | 16:R:49:VAL:HG12 | 1.74 | 0.69 |
| 1:A:1754:C:OP1 | 17:S:98:LYS:HD2 | 1.93 | 0.69 |
| 23:Y:103:ARG:HA | 23:Y:103:ARG:NE | 2.08 | 0.69 |
| 23:Y:4:ARG:HG2 | 23:Y:38:TYR:O | 1.92 | 0.69 |
| 23:Y:78:LYS:HG2 | 23:Y:79:ARG:H | 1.56 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 24:Z:68:GLU:CB | 24:Z:80:HIS:O | 2.39 | 0.69 |
| 9:K:97:ILE:O | 9:K:100:ALA:HB3 | 1.91 | 0.69 |
| 3:C:63:SER:HA | 3:C:160:ARG:NH1 | 2.07 | 0.69 |
| 26:2:36:VAL:HG23 | 26:2:36:VAL:O | 1.92 | 0.69 |
| 25:1:12:SER:O | 25:1:16:LEU:HB3 | 1.93 | 0.69 |
| 30:6:27:GLY:O | 30:6:31:LEU:HG | 1.92 | 0.69 |
| 13:O:56:SER:O | 31:7:13:ARG:NH1 | 2.26 | 0.69 |
| 1:A:107:C:O2' | 1:A:108:U:H5' | 1.93 | 0.69 |
| 1:A:1179:C:H2' | 1:A:1180:C:C6 | 2.26 | 0.69 |
| 1:A:1202:C:C4 | 1:A:1203:G:H1' | 2.27 | 0.69 |
| 1:A:1424:G:C2 | 1:A:1425:G:O4' | 2.46 | 0.69 |
| 1:A:1426:G:N7 | 1:A:1427:A:N7 | 2.40 | 0.69 |
| 1:A:150:C:O2 | 1:A:151:C:C6 | 2.46 | 0.69 |
| 1:A:188:G:O2' | 1:A:189:G:H5' | 1.91 | 0.69 |
| 1:A:2051:A:N6 | 1:A:2614:A:C8 | 2.61 | 0.69 |
| 1:A:2333:A:H1' | 1:A:2335:A:C2 | 2.26 | 0.69 |
| 1:A:2543:G:C2 | 1:A:2765:A:N3 | 2.60 | 0.69 |
| 1:A:262:A:O2' | 1:A:263:C:H5' | 1.92 | 0.69 |
| 1:A:2636:U:H1' | 1:A:2783:G:H21 | 1.54 | 0.69 |
| 1:A:2694:G:C5 | 1:A:2695:C:C5 | 2.81 | 0.69 |
| 1:A:2705:A:N7 | 1:A:2706:G:N7 | 2.40 | 0.69 |
| 1:A:2756:U:C6 | 1:A:2758:A:N6 | 2.59 | 0.69 |
| 1:A:398:G:C2 | 1:A:399:G:H1' | 2.27 | 0.69 |
| 1:A:465:G:N7 | 1:A:466:A:N7 | 2.41 | 0.69 |
| 1:A:559:G:C2' | 1:A:560:C:O5' | 2.40 | 0.69 |
| 1:A:918:A:C2 | 1:A:919:G:N7 | 2.60 | 0.69 |
| 2:B:44:G:N2 | 2:B:48:A:H1' | 2.07 | 0.69 |
| 4:D:137:PRO:HG2 | 4:D:140:THR:HG21 | 1.73 | 0.69 |
| 1:A:1791:A:OP1 | 4:D:213:ARG:HD3 | 1.92 | 0.69 |
| 4:D:73:VAL:HB | 4:D:121:PRO:HD3 | 1.72 | 0.69 |
| 5:E:50:GLY:H | 5:E:76:ARG:HG3 | 1.56 | 0.69 |
| 6:F:184:TYR:O | 6:F:188:ARG:HG2 | 1.93 | 0.69 |
| 12:N:38:VAL:HG12 | 12:N:59:LYS:O | 1.93 | 0.69 |
| 14:P:137:TYR:CD2 | 14:P:138:ASP:N | 2.61 | 0.69 |
| 16:R:29:PHE:HD1 | 16:R:30:ARG:H | 1.40 | 0.69 |
| 16:R:67:ARG:HE | 16:R:71:ARG:HG2 | 1.58 | 0.69 |
| 17:S:111:ARG:HA | 17:S:114:LEU:HB3 | 1.72 | 0.69 |
| 18:T:108:GLU:O | 18:T:109:LEU:C | 2.31 | 0.69 |
| 18:T:52:ARG:O | 18:T:54:LYS:N | 2.25 | 0.69 |
| 1:A:997:G:H5'' | 18:T:92:ARG:NH1 | 2.07 | 0.69 |
| 18:T:93:LYS:CG | 19:U:10:LYS:NZ | 2.56 | 0.69 |
| 19:U:20:LEU:HD23 | 19:U:66:ARG:NH2 | 2.08 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:Y:104:PHE:HZ | 23:Y:120:ILE:HG21 | 1.56 | 0.69 |
| 24:Z:27:GLU:N | 24:Z:69:PHE:HE1 | 1.91 | 0.69 |
| 9:K:110:ASP:OD1 | 9:K:113:ARG:HG3 | 1.93 | 0.69 |
| 9:K:127:VAL:HG13 | 9:K:141:LYS:N | 2.08 | 0.69 |
| 3:C:116:THR:HG22 | 3:C:146:GLY:O | 1.93 | 0.69 |
| 1:A:363(A):A:C2 | 1:A:363(B):G:C8 | 2.80 | 0.69 |
| 26:2:28:LEU:HA | 26:2:33:GLN:OE1 | 1.93 | 0.69 |
| 1:A:1055:G:O5' | 1:A:1055:G:H8 | 1.76 | 0.69 |
| 1:A:1112:G:H2' | 1:A:1113:U:C5 | 2.27 | 0.69 |
| 1:A:1472:A:O2' | 1:A:1473:G:H8 | 1.75 | 0.69 |
| 1:A:1488:G:H2' | 1:A:1489:U:C5' | 2.20 | 0.69 |
| 1:A:1567:A:H5'' | 4:D:59:LYS:HD3 | 1.74 | 0.69 |
| 1:A:1630:G:H2' | 1:A:1630(A):C:H6 | 1.57 | 0.69 |
| 1:A:1813:G:O4' | 4:D:46:GLN:HB3 | 1.92 | 0.69 |
| 1:A:1879:C:H2' | 1:A:1880:C:O4' | 1.91 | 0.69 |
| 1:A:1913:A:H2 | 1:A:1917:U:H5 | 1.34 | 0.69 |
| 1:A:1949:G:N2 | 1:A:1958:C:C2 | 2.60 | 0.69 |
| 1:A:2209:C:O4' | 4:D:150:LYS:HD3 | 1.91 | 0.69 |
| 1:A:2303:G:O2' | 7:G:132:ASN:CG | 2.31 | 0.69 |
| 1:A:2520:C:O2' | 1:A:2521:C:H5' | 1.90 | 0.69 |
| 1:A:2575:C:H5'' | 1:A:2576:G:OP2 | 1.93 | 0.69 |
| 1:A:612:G:O2' | 1:A:615:G:H2' | 1.92 | 0.69 |
| 1:A:71:A:H5'' | 1:A:73:A:C8 | 2.28 | 0.69 |
| 1:A:783:A:C8 | 4:D:227:ASN:OD1 | 2.44 | 0.69 |
| 1:A:830:G:O2' | 1:A:831:G:OP1 | 2.10 | 0.69 |
| 1:A:865:C:H2' | 1:A:865:C:O2 | 1.92 | 0.69 |
| 4:D:233:HIS:CD2 | 4:D:252:TRP:HH2 | 2.10 | 0.69 |
| 1:A:2636:U:OP1 | 5:E:79:ARG:N | 2.26 | 0.69 |
| 6:F:82:ILE:HG12 | 6:F:82:ILE:O | 1.91 | 0.69 |
| 7:G:2:PRO:HA | 7:G:5:VAL:CG2 | 2.21 | 0.69 |
| 7:G:47:LYS:HG2 | 7:G:73:ALA:CB | 2.16 | 0.69 |
| 7:G:96:ARG:O | 7:G:99:MET:CB | 2.35 | 0.69 |
| 10:L:112:MET:O | 10:L:115:LEU:HB2 | 1.93 | 0.69 |
| 11:M:76:SER:C | 11:M:78:TYR:H | 1.95 | 0.69 |
| 14:P:34:LEU:HD21 | 14:P:105:GLU:HB2 | 1.73 | 0.69 |
| 14:P:66:ILE:O | 14:P:67:ARG:HB3 | 1.93 | 0.69 |
| 19:U:68:LYS:O | 19:U:69:LYS:CB | 2.40 | 0.69 |
| 20:V:65:LEU:CB | 20:V:68:ARG:HG2 | 2.21 | 0.69 |
| 23:Y:112:ARG:HH11 | 23:Y:112:ARG:HG3 | 1.57 | 0.69 |
| 2:B:76:G:OP1 | 23:Y:36:LYS:CD | 2.41 | 0.69 |
| 23:Y:43:GLU:N | 23:Y:43:GLU:OE2 | 2.25 | 0.69 |
| 3:C:134:ARG:HD2 | 3:C:136:LEU:HD11 | 1.73 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:273(F):C:O2' | 1:A:363(A):A:C2 | 2.45 | 0.69 |
| 26:2:11:SER:H | 26:2:12:PRO:HD3 | 1.57 | 0.69 |
| 26:2:50:VAL:CG2 | 26:2:53:LEU:HD12 | 2.22 | 0.69 |
| 28:4:55:ARG:O | 28:4:57:VAL:HG22 | 1.93 | 0.69 |
| 1:A:1125:G:H5'' | 32:8:4:ARG:HD3 | 1.74 | 0.69 |
| 1:A:1007:C:O2' | 11:M:108:PRO:HB3 | 1.92 | 0.69 |
| 1:A:1471:A:C6 | 1:A:1473:G:C8 | 2.81 | 0.69 |
| 1:A:1488:G:C6 | 1:A:1489:U:H1' | 2.28 | 0.69 |
| 1:A:1519:G:C3' | 1:A:1520:U:O4' | 2.40 | 0.69 |
| 1:A:1539:G:H2' | 1:A:1540:G:H8 | 1.58 | 0.69 |
| 1:A:1634:A:O3' | 1:A:1635:G:N7 | 2.25 | 0.69 |
| 1:A:752:A:N6 | 1:A:1781:C:H4' | 2.08 | 0.69 |
| 1:A:1891:G:H3' | 1:A:1892:C:C6 | 2.27 | 0.69 |
| 1:A:1918:A:N7 | 1:A:1919:A:N6 | 2.40 | 0.69 |
| 1:A:2014:A:H2' | 1:A:2015:A:N3 | 2.07 | 0.69 |
| 1:A:225:A:N6 | 1:A:419:C:H4' | 2.06 | 0.69 |
| 1:A:2503:A:HO2' | 1:A:2504:U:H5 | 0.76 | 0.69 |
| 1:A:2537:U:C4 | 1:A:2538:C:N4 | 2.61 | 0.69 |
| 1:A:281:G:C1' | 1:A:427:U:O2 | 2.39 | 0.69 |
| 1:A:544:C:C2' | 1:A:545:G:H5' | 2.23 | 0.69 |
| 1:A:586:A:C4' | 6:F:89:VAL:HG21 | 2.22 | 0.69 |
| 1:A:650:C:OP1 | 31:7:17:THR:OG1 | 2.08 | 0.69 |
| 1:A:784:A:OP1 | 1:A:2588:G:H5'' | 1.92 | 0.69 |
| 1:A:805:G:O6 | 1:A:2068:U:P | 2.50 | 0.69 |
| 4:D:119:ALA:HB2 | 4:D:130:ALA:H | 1.57 | 0.69 |
| 5:E:19:ARG:HG2 | 5:E:20:ALA:N | 2.07 | 0.69 |
| 6:F:153:SER:OG | 6:F:190:GLU:HB2 | 1.93 | 0.69 |
| 7:G:96:ARG:N | 7:G:99:MET:HG3 | 2.06 | 0.69 |
| 8:H:83:TYR:HE1 | 8:H:138:LYS:HD3 | 1.58 | 0.69 |
| 10:L:10:LEU:HD12 | 10:L:23:VAL:HG22 | 1.74 | 0.69 |
| 11:M:74:ARG:HG2 | 11:M:74:ARG:HH11 | 1.57 | 0.69 |
| 18:T:33:ARG:CB | 18:T:33:ARG:NH1 | 2.56 | 0.69 |
| 19:U:6:LYS:NZ | 19:U:10:LYS:HD2 | 2.07 | 0.69 |
| 21:W:17:ALA:HB1 | 21:W:21:PHE:CZ | 2.28 | 0.69 |
| 22:X:23:ARG:HH21 | 22:X:39:VAL:HG13 | 1.58 | 0.69 |
| 23:Y:100:VAL:HG23 | 23:Y:137:ILE:CD1 | 2.22 | 0.69 |
| 23:Y:76:LEU:HA | 23:Y:82:ARG:O | 1.93 | 0.69 |
| 3:C:211:SER:HB2 | 3:C:223:ARG:HH21 | 1.57 | 0.69 |
| 1:A:2467:C:OP1 | 32:8:8:LYS:CE | 2.40 | 0.69 |
| 1:A:1212:G:H8 | 1:A:1212:G:H3' | 1.58 | 0.69 |
| 1:A:1268:A:OP2 | 1:A:2006:C:OP2 | 2.11 | 0.69 |
| 1:A:1430:C:H2' | 1:A:1431:U:C6 | 2.27 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1488:G:N1 | 1:A:1489:U:H1' | 2.07 | 0.69 |
| 1:A:1492:G:H2' | 1:A:1493:C:N3 | 2.07 | 0.69 |
| 1:A:1810:A:C2' | 1:A:1811:G:H5' | 2.22 | 0.69 |
| 1:A:1944:U:H3' | 1:A:1944:U:C6 | 2.27 | 0.69 |
| 1:A:2348:U:O4 | 1:A:2382:G:N2 | 2.26 | 0.69 |
| 1:A:2553:G:C2 | 1:A:2554:U:H1' | 2.22 | 0.69 |
| 1:A:293:U:C6 | 1:A:293:U:C3' | 2.75 | 0.69 |
| 1:A:29:U:C2' | 1:A:30:G:C8 | 2.72 | 0.69 |
| 1:A:328:U:H3' | 1:A:328:U:H6 | 1.58 | 0.69 |
| 1:A:270:A:C2 | 1:A:370:G:H1' | 2.28 | 0.69 |
| 1:A:387:U:H4' | 1:A:388:G:H1' | 1.75 | 0.69 |
| 1:A:391:G:O2' | 1:A:392:C:H5' | 1.92 | 0.69 |
| 1:A:479:A:H1' | 1:A:480:A:H8 | 1.55 | 0.69 |
| 1:A:631:A:C8 | 1:A:631:A:H3' | 2.27 | 0.69 |
| 1:A:806:C:C2 | 1:A:807:U:H5 | 2.11 | 0.69 |
| 1:A:814:C:C2 | 1:A:815:C:C5 | 2.81 | 0.69 |
| 1:A:881:G:N2 | 1:A:896:A:H61 | 1.90 | 0.69 |
| 1:A:933:A:H2' | 1:A:934:G:H5' | 1.73 | 0.69 |
| 1:A:974:G:O2' | 1:A:1186:G:H1' | 1.92 | 0.69 |
| 2:B:100:G:H2' | 2:B:101:A:H8 | 1.50 | 0.69 |
| 2:B:75:G:N7 | 2:B:76:G:C2 | 2.61 | 0.69 |
| 4:D:208:LYS:NZ | 4:D:211:ARG:CG | 2.53 | 0.69 |
| 1:A:730:C:P | 4:D:211:ARG:HH22 | 2.15 | 0.69 |
| 4:D:64:ILE:O | 4:D:65:ILE:HD13 | 1.93 | 0.69 |
| 5:E:27:LEU:CD1 | 5:E:30:PRO:HD3 | 2.21 | 0.69 |
| 5:E:59:VAL:HG12 | 5:E:62:PRO:HD2 | 1.74 | 0.69 |
| 5:E:92:THR:O | 5:E:95:ILE:HB | 1.93 | 0.69 |
| 6:F:103:LYS:HB3 | 6:F:107:LYS:HE3 | 1.74 | 0.69 |
| 6:F:119:ARG:HD3 | 6:F:120:GLU:N | 2.07 | 0.69 |
| 6:F:62:ARG:HG2 | 6:F:63:LYS:HE2 | 1.74 | 0.69 |
| 1:A:2311:A:C2 | 7:G:45:GLU:CD | 2.66 | 0.69 |
| 7:G:57:ALA:N | 7:G:68:PRO:HB2 | 2.08 | 0.69 |
| 8:H:105:LEU:C | 8:H:106:THR:HG1 | 1.96 | 0.69 |
| 11:M:48:MET:C | 11:M:50:ASP:N | 2.39 | 0.69 |
| 11:M:89:LYS:HD2 | 11:M:90:MET:H | 1.55 | 0.69 |
| 13:O:99:LEU:HD22 | 13:O:101:VAL:HG22 | 1.75 | 0.69 |
| 14:P:22:LYS:HE3 | 14:P:23:GLY:N | 2.07 | 0.69 |
| 15:Q:107:ASP:OD2 | 15:Q:108:GLY:N | 2.25 | 0.69 |
| 16:R:58:LEU:H | 16:R:65:VAL:HG21 | 1.57 | 0.69 |
| 16:R:92:TYR:O | 16:R:98:VAL:HG21 | 1.92 | 0.69 |
| 19:U:2:PHE:HB3 | 19:U:13:ARG:HH22 | 1.58 | 0.69 |
| 19:U:25:LEU:HA | 19:U:28:GLU:HB2 | 1.74 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:62:LEU:HD11 | 19:U:96:ILE:HD13 | 1.75 | 0.69 |
| 19:U:92:THR:OG1 | 19:U:93:GLU:N | 2.25 | 0.69 |
| 20:V:69:LEU:HG | 20:V:109:GLU:HA | 1.74 | 0.69 |
| 22:X:38:ILE:HG23 | 22:X:60:PHE:CZ | 2.28 | 0.69 |
| 22:X:42:VAL:CG2 | 22:X:61:ILE:HG21 | 2.22 | 0.69 |
| 23:Y:49:ARG:O | 23:Y:50:GLN:C | 2.31 | 0.69 |
| 24:Z:31:VAL:HG13 | 24:Z:65:GLY:O | 1.93 | 0.69 |
| 26:2:10:LYS:HG2 | 26:2:12:PRO:HD2 | 1.74 | 0.69 |
| 27:3:5:ILE:CD1 | 27:3:60:GLN:NE2 | 2.56 | 0.69 |
| 28:4:43:HIS:O | 28:4:43:HIS:CD2 | 2.45 | 0.69 |
| 1:A:1076:C:O2 | 10:L:91:PRO:HD2 | 1.93 | 0.69 |
| 1:A:1241:A:N3 | 1:A:1241:A:P | 2.65 | 0.69 |
| 1:A:1386:C:H2' | 1:A:1387:C:H6 | 1.57 | 0.69 |
| 1:A:1533:C:H2' | 1:A:1533:C:O2 | 1.93 | 0.69 |
| 1:A:1608:A:O2' | 1:A:1609:A:H5' | 1.92 | 0.69 |
| 1:A:1794:U:H2' | 1:A:1795:C:C6 | 2.28 | 0.69 |
| 1:A:1853:A:C4 | 1:A:1854:A:C8 | 2.81 | 0.69 |
| 1:A:1972:A:N3 | 1:A:1973:G:N7 | 2.41 | 0.69 |
| 1:A:2072:G:C4 | 1:A:2073:C:C5 | 2.81 | 0.69 |
| 1:A:231:C:H42 | 1:A:232:G:N2 | 1.90 | 0.69 |
| 1:A:2398:U:H2' | 1:A:2399:G:H8 | 1.58 | 0.69 |
| 1:A:2459:A:C2 | 1:A:2492:U:O4 | 2.46 | 0.69 |
| 1:A:2826:A:N7 | 1:A:2827:C:C5 | 2.60 | 0.69 |
| 1:A:298:G:C8 | 1:A:298:G:O5' | 2.44 | 0.69 |
| 1:A:339:U:H2' | 1:A:340:A:C8 | 2.27 | 0.69 |
| 1:A:456:C:C5 | 21:W:68:ARG:NH1 | 2.59 | 0.69 |
| 1:A:463:G:N2 | 1:A:466:A:OP2 | 2.23 | 0.69 |
| 1:A:556:G:H8 | 1:A:556:G:O5' | 1.76 | 0.69 |
| 1:A:612:G:C4' | 1:A:616:A:N6 | 2.48 | 0.69 |
| 1:A:628:G:C8 | 1:A:628:G:O5' | 2.44 | 0.69 |
| 1:A:864:G:H2' | 1:A:865:C:C6 | 2.28 | 0.69 |
| 1:A:988:A:H62 | 26:2:13:ILE:CG1 | 2.05 | 0.69 |
| 2:B:24:G:N2 | 2:B:27:C:N4 | 2.41 | 0.69 |
| 4:D:142:VAL:HB | 4:D:191:ALA:HB1 | 1.75 | 0.69 |
| 4:D:58:HIS:CE1 | 4:D:217:ARG:HA | 2.27 | 0.69 |
| 4:D:244:ARG:CA | 4:D:252:TRP:CD1 | 2.75 | 0.69 |
| 1:A:691:C:O2' | 4:D:45:ASN:ND2 | 2.26 | 0.69 |
| 4:D:76:PRO:CB | 4:D:118:VAL:HG22 | 2.22 | 0.69 |
| 5:E:104:VAL:CG1 | 5:E:105:THR:N | 2.56 | 0.69 |
| 6:F:201:VAL:HG12 | 6:F:205:ARG:NE | 2.07 | 0.69 |
| 7:G:181:ARG:HB2 | 7:G:181:ARG:NH2 | 2.07 | 0.69 |
| 8:H:125:VAL:CA | 8:H:131:VAL:HG22 | 2.21 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 8:H:94:TYR:N | 8:H:95:ARG:HH21 | 1.90 | 0.69 |
| 1:A:270(P):C:OP2 | 9:K:45:LYS:HD3 | 1.93 | 0.69 |
| 10:L:12:LEU:CD2 | 10:L:23:VAL:HG23 | 2.23 | 0.69 |
| 12:N:69:VAL:N | 12:N:104:ARG:NH2 | 2.40 | 0.69 |
| 12:N:3:GLN:HE22 | 12:N:33:ALA:CB | 2.00 | 0.69 |
| 12:N:63:VAL:HG23 | 12:N:64:ARG:N | 2.06 | 0.69 |
| 13:O:113:LYS:NZ | 13:O:114:ILE:O | 2.22 | 0.69 |
| 1:A:1249:U:O4 | 13:O:21:ARG:CZ | 2.40 | 0.69 |
| 14:P:120:ILE:O | 14:P:121:ALA:C | 2.29 | 0.69 |
| 14:P:39:PRO:HD2 | 14:P:98:LYS:HA | 1.74 | 0.69 |
| 16:R:10:ARG:O | 16:R:14:VAL:HG23 | 1.93 | 0.69 |
| 17:S:53:ARG:HH22 | 17:S:102:ILE:N | 1.86 | 0.69 |
| 17:S:87:ASP:C | 17:S:88:ILE:HD12 | 2.14 | 0.69 |
| 20:V:17:VAL:O | 20:V:20:VAL:CG1 | 2.40 | 0.69 |
| 21:W:35:THR:HG22 | 21:W:37:THR:H | 1.58 | 0.69 |
| 23:Y:95:PRO:CG | 23:Y:131:ARG:N | 2.49 | 0.69 |
| 24:Z:40:GLN:NE2 | 24:Z:42:GLY:O | 2.25 | 0.69 |
| 24:Z:50:ASN:HB3 | 24:Z:63:VAL:HG22 | 1.73 | 0.69 |
| 24:Z:72:ARG:O | 24:Z:73:GLY:O | 2.11 | 0.69 |
| 3:C:99:ILE:HG12 | 3:C:107:TRP:CZ3 | 2.27 | 0.69 |
| 1:A:712:G:C5 | 1:A:713:G:N7 | 2.60 | 0.69 |
| 25:1:60:ASN:O | 25:1:64:ARG:HB2 | 1.93 | 0.69 |
| 26:2:37:LEU:HD23 | 26:2:37:LEU:O | 1.93 | 0.69 |
| 26:2:51:ALA:O | 26:2:53:LEU:N | 2.25 | 0.69 |
| 28:4:39:MET:SD | 28:4:40:LYS:N | 2.66 | 0.69 |
| 28:4:55:ARG:H | 28:4:55:ARG:NE | 1.90 | 0.69 |
| 1:A:1065:U:N3 | 1:A:1069:A:OP2 | 2.21 | 0.69 |
| 1:A:112:U:O2 | 1:A:112:U:H2' | 1.91 | 0.69 |
| 1:A:1024:G:C2 | 1:A:1139:G:N1 | 2.60 | 0.69 |
| 1:A:1142(A):A:H3' | 1:A:1143:A:H5' | 1.75 | 0.69 |
| 1:A:1270:C:C5' | 1:A:1271:G:C5' | 2.69 | 0.69 |
| 1:A:1302:A:O4' | 1:A:1302:A:OP1 | 2.10 | 0.69 |
| 1:A:1314:C:C2 | 1:A:1315:C:C5 | 2.81 | 0.69 |
| 1:A:1421:G:C2 | 1:A:1422:G:N7 | 2.60 | 0.69 |
| 1:A:1438:U:H2' | 1:A:1439:A:C5' | 2.19 | 0.69 |
| 1:A:1451:C:C4 | 1:A:1454:U:OP1 | 2.46 | 0.69 |
| 1:A:1526:G:H5'' | 1:A:1527:G:OP1 | 1.93 | 0.69 |
| 1:A:1606:G:O2' | 1:A:1608:A:C2 | 2.43 | 0.69 |
| 1:A:1794:U:H2' | 1:A:1795:C:H6 | 1.56 | 0.69 |
| 1:A:1856:G:H2' | 1:A:1857:G:C5' | 2.23 | 0.69 |
| 1:A:2213:U:H3' | 1:A:2213:U:O2 | 1.91 | 0.69 |
| 1:A:2439:A:H4' | 1:A:2440:C:C5' | 2.21 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:248:G:N3 | 1:A:2431:U:H4' | 2.07 | 0.69 |
| 1:A:2503:A:H4' | 1:A:2504:U:OP1 | 1.92 | 0.69 |
| 1:A:2517:C:C2' | 1:A:2518:A:H5'' | 2.23 | 0.69 |
| 1:A:297:C:N4 | 1:A:298:G:C2 | 2.61 | 0.69 |
| 1:A:349:G:C3' | 1:A:350:U:H5 | 2.05 | 0.69 |
| 1:A:557:U:O3' | 11:M:112:LEU:CD2 | 2.41 | 0.69 |
| 1:A:822:U:C2 | 1:A:823:G:C8 | 2.81 | 0.69 |
| 1:A:84:A:H5' | 22:X:8:LYS:CE | 2.20 | 0.69 |
| 1:A:87:C:H5'' | 1:A:88:G:C5' | 2.22 | 0.69 |
| 1:A:919:G:N2 | 1:A:920:G:H1' | 2.08 | 0.69 |
| 4:D:232:PRO:HG2 | 4:D:246:PRO:C | 2.13 | 0.69 |
| 5:E:116:VAL:O | 5:E:120:TRP:CD1 | 2.46 | 0.69 |
| 5:E:100:GLU:O | 5:E:172:VAL:CG1 | 2.41 | 0.69 |
| 6:F:62:ARG:CG | 6:F:63:LYS:HE2 | 2.23 | 0.69 |
| 8:H:15:VAL:HG13 | 8:H:17:VAL:HG12 | 1.73 | 0.69 |
| 8:H:44:VAL:CG1 | 8:H:51:ARG:HB3 | 2.23 | 0.69 |
| 9:K:5:LEU:CB | 9:K:8:PRO:HD2 | 2.23 | 0.69 |
| 10:L:23:VAL:HG13 | 10:L:27:LEU:CD1 | 2.23 | 0.69 |
| 10:L:67:PHE:O | 10:L:68:VAL:HG13 | 1.92 | 0.69 |
| 14:P:134:ARG:NH1 | 14:P:137:TYR:H | 1.90 | 0.69 |
| 14:P:58:PHE:C | 14:P:60:ARG:H | 1.96 | 0.69 |
| 18:T:47:TYR:OH | 19:U:77:ALA:N | 2.26 | 0.69 |
| 1:A:1225:C:OP1 | 19:U:88:ARG:CZ | 2.40 | 0.69 |
| 22:X:67:LEU:HD11 | 22:X:71:LYS:HZ1 | 1.58 | 0.69 |
| 23:Y:167:PRO:O | 23:Y:168:GLU:CB | 2.40 | 0.69 |
| 24:Z:23:VAL:HA | 24:Z:38:VAL:CG1 | 2.22 | 0.69 |
| 1:A:713:G:N3 | 1:A:713:G:H2' | 2.08 | 0.69 |
| 8:H:156:ALA:HB1 | 8:H:170:ARG:HB3 | 1.73 | 0.69 |
| 21:W:7:VAL:HG23 | 25:1:28:MET:HB2 | 1.75 | 0.69 |
| 28:4:11:THR:O | 28:4:14:ALA:HB3 | 1.92 | 0.69 |
| 31:7:59:LYS:HA | 31:7:59:LYS:HE2 | 1.73 | 0.69 |
| 1:A:1044:G:O2' | 1:A:1047:G:C2 | 2.46 | 0.69 |
| 1:A:1275:A:H1' | 15:Q:12:ARG:NH2 | 2.07 | 0.69 |
| 1:A:1364:G:N7 | 27:3:2:LYS:HB2 | 2.08 | 0.69 |
| 1:A:1526:G:N2 | 1:A:1545(A):A:H62 | 1.91 | 0.69 |
| 1:A:1789:A:H3' | 1:A:1790:C:C4' | 2.23 | 0.69 |
| 1:A:1824:G:H21 | 4:D:253:GLN:HG2 | 1.55 | 0.69 |
| 1:A:1827:C:H2' | 1:A:1828:G:O4' | 1.92 | 0.69 |
| 1:A:209:C:H5' | 1:A:681:G:H4' | 1.75 | 0.69 |
| 1:A:270(R):G:H2' | 1:A:270(S):G:C8 | 2.27 | 0.69 |
| 1:A:270(W):G:H2' | 1:A:270(X):G:H8 | 1.57 | 0.69 |
| 1:A:28:A:C2' | 1:A:29:U:H5' | 2.22 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:349:G:C8 | 1:A:349:G:OP2 | 2.46 | 0.69 |
| 1:A:349:G:N3 | 1:A:349:G:H2' | 2.08 | 0.69 |
| 1:A:481:G:N2 | 1:A:509:C:N3 | 2.39 | 0.69 |
| 1:A:642:G:H8 | 1:A:642:G:H3' | 1.58 | 0.69 |
| 1:A:696:G:H2' | 1:A:697:C:O5' | 1.93 | 0.69 |
| 1:A:730:C:H3' | 1:A:731:C:H5' | 1.75 | 0.69 |
| 1:A:807:U:H2' | 1:A:807:U:O2 | 1.91 | 0.69 |
| 1:A:915:C:H2' | 1:A:916:G:C8 | 2.28 | 0.69 |
| 1:A:941:A:N1 | 1:A:942:G:N3 | 2.41 | 0.69 |
| 4:D:57:GLY:H | 4:D:217:ARG:CD | 2.06 | 0.69 |
| 4:D:29:PRO:CB | 4:D:82:ILE:HG22 | 2.22 | 0.69 |
| 4:D:75:ILE:HG23 | 4:D:98:VAL:HB | 1.75 | 0.69 |
| 6:F:200:GLU:CD | 6:F:201:VAL:HG23 | 2.13 | 0.69 |
| 8:H:133:VAL:HG22 | 8:H:134:SER:N | 2.07 | 0.69 |
| 8:H:26:VAL:O | 8:H:79:VAL:HG11 | 1.93 | 0.69 |
| 10:L:12:LEU:HB3 | 10:L:13:PRO:HD2 | 1.74 | 0.69 |
| 11:M:33:LEU:HD13 | 11:M:34:LEU:H | 1.57 | 0.69 |
| 11:M:88:GLU:HB2 | 11:M:89:LYS:NZ | 2.08 | 0.69 |
| 1:A:2780:G:N2 | 11:M:97:ARG:CZ | 2.56 | 0.69 |
| 13:O:130:PHE:HE1 | 13:O:145:PRO:HB3 | 1.58 | 0.69 |
| 13:O:124:LYS:HB2 | 13:O:143:GLY:C | 2.13 | 0.69 |
| 17:S:53:ARG:O | 17:S:64:ARG:CB | 2.33 | 0.69 |
| 19:U:4:ILE:HG13 | 19:U:13:ARG:NE | 2.07 | 0.69 |
| 19:U:50:PRO:HG2 | 19:U:53:GLU:OE1 | 1.93 | 0.69 |
| 20:V:3:ALA:HB3 | 20:V:107:LEU:HB3 | 1.74 | 0.69 |
| 22:X:82:PRO:CD | 22:X:97:ARG:N | 2.46 | 0.69 |
| 1:A:2129:C:O2' | 1:A:2130:U:H5' | 1.93 | 0.69 |
| 3:C:151:GLU:O | 3:C:154:ARG:HB3 | 1.93 | 0.69 |
| 25:1:24:LYS:HE2 | 25:1:52:ILE:CG2 | 2.23 | 0.68 |
| 13:O:56:SER:OG | 31:7:13:ARG:NE | 2.26 | 0.68 |
| 31:7:52:LYS:O | 31:7:54:GLU:N | 2.26 | 0.68 |
| 1:A:1024:G:N2 | 1:A:1139:G:N1 | 2.41 | 0.68 |
| 1:A:1056:G:N2 | 1:A:1104:C:N4 | 2.41 | 0.68 |
| 1:A:1153:C:H2' | 1:A:1154:G:C8 | 2.28 | 0.68 |
| 1:A:1492:G:N2 | 1:A:1499:C:C4 | 2.61 | 0.68 |
| 1:A:1470:G:N2 | 1:A:1522:G:N1 | 2.28 | 0.68 |
| 1:A:1313:U:O2' | 1:A:1610:A:N1 | 2.25 | 0.68 |
| 1:A:1685:C:O2' | 1:A:1686:C:C5' | 2.41 | 0.68 |
| 1:A:1805:U:H1' | 4:D:51:VAL:CG1 | 2.16 | 0.68 |
| 1:A:1890:A:N3 | 1:A:1891:G:H1' | 2.08 | 0.68 |
| 1:A:2211:G:N3 | 1:A:2211:G:H3' | 2.07 | 0.68 |
| 1:A:2269:A:O2' | 1:A:2270:G:H5' | 1.94 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2415:G:C6 | 1:A:2416:C:C4 | 2.81 | 0.68 |
| 1:A:2655:G:N3 | 1:A:2655:G:H2' | 2.07 | 0.68 |
| 1:A:2736:G:N2 | 1:A:2769:C:H1' | 2.07 | 0.68 |
| 1:A:422:A:N1 | 1:A:423:A:C4 | 2.61 | 0.68 |
| 1:A:468:G:H2' | 1:A:469:G:O4' | 1.93 | 0.68 |
| 1:A:448:U:O4 | 1:A:582:G:N2 | 2.27 | 0.68 |
| 1:A:727:A:O2' | 1:A:728:G:H5' | 1.93 | 0.68 |
| 1:A:861:A:N6 | 1:A:917:A:C6 | 2.61 | 0.68 |
| 1:A:967:C:H2' | 1:A:968:G:H8 | 1.56 | 0.68 |
| 4:D:76:PRO:HB3 | 4:D:118:VAL:HG22 | 1.74 | 0.68 |
| 4:D:152:GLY:O | 4:D:153:ALA:C | 2.29 | 0.68 |
| 4:D:196:VAL:CG1 | 4:D:197:GLY:N | 2.52 | 0.68 |
| 5:E:12:THR:HG22 | 5:E:21:VAL:HG11 | 1.74 | 0.68 |
| 1:A:2682:U:O2 | 5:E:21:VAL:HG11 | 1.93 | 0.68 |
| 6:F:157:VAL:HA | 6:F:176:LEU:O | 1.93 | 0.68 |
| 10:L:68:VAL:CB | 10:L:70:LYS:HE3 | 2.23 | 0.68 |
| 12:N:96:THR:CG2 | 12:N:97:ARG:N | 2.36 | 0.68 |
| 13:O:76:LYS:HZ3 | 13:O:112:LEU:HD22 | 1.54 | 0.68 |
| 13:O:97:PRO:O | 13:O:98:GLU:C | 2.31 | 0.68 |
| 16:R:73:LEU:N | 16:R:73:LEU:HD13 | 2.08 | 0.68 |
| 12:N:99:PHE:HD1 | 17:S:74:ARG:NH2 | 1.90 | 0.68 |
| 21:W:50:LYS:NZ | 21:W:85:PRO:CD | 2.57 | 0.68 |
| 21:W:83:VAL:HG23 | 21:W:84:ALA:N | 2.08 | 0.68 |
| 24:Z:47:PRO:CG | 24:Z:53:MET:HB2 | 2.19 | 0.68 |
| 24:Z:44:ARG:O | 24:Z:77:ARG:HB2 | 1.92 | 0.68 |
| 1:A:2134:A:H5'' | 1:A:2134:A:N3 | 2.08 | 0.68 |
| 1:A:2187:G:H2' | 1:A:2188:C:H6 | 1.57 | 0.68 |
| 25:1:60:ASN:O | 25:1:64:ARG:HG2 | 1.92 | 0.68 |
| 1:A:1364:G:N7 | 27:3:2:LYS:N | 2.41 | 0.68 |
| 1:A:2370:G:O2' | 29:5:45:LYS:HD3 | 1.92 | 0.68 |
| 1:A:1036:G:OP1 | 8:H:59:ARG:NH2 | 2.26 | 0.68 |
| 1:A:1206:G:H3' | 1:A:1206:G:C8 | 2.28 | 0.68 |
| 1:A:1784:A:C2 | 1:A:1785:A:N1 | 2.61 | 0.68 |
| 1:A:1796:U:H2' | 1:A:1797:C:H6 | 1.57 | 0.68 |
| 1:A:1913:A:N3 | 1:A:1918:A:C6 | 2.61 | 0.68 |
| 1:A:2030:A:O2' | 1:A:2031:A:O5' | 2.11 | 0.68 |
| 1:A:2053:G:C5' | 5:E:144:ARG:HA | 2.23 | 0.68 |
| 1:A:2259:G:H5' | 1:A:2427:C:H3' | 1.75 | 0.68 |
| 1:A:245:G:H22 | 1:A:254:G:H1' | 1.58 | 0.68 |
| 1:A:2553:G:N2 | 1:A:2554:U:O2' | 2.26 | 0.68 |
| 1:A:2567:G:H2' | 1:A:2568:C:C6 | 2.28 | 0.68 |
| 1:A:2572:A:H5' | 1:A:2574:G:C5' | 2.23 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2596:U:O3' | 4:D:242:ARG:NE | 2.27 | 0.68 |
| 1:A:2627:G:H2' | 1:A:2628:C:H5' | 1.74 | 0.68 |
| 1:A:270(L):U:O2 | 1:A:270(L):U:H2' | 1.93 | 0.68 |
| 1:A:270(P):C:O2' | 1:A:270(Q):C:H5' | 1.94 | 0.68 |
| 1:A:270(U):C:H2' | 1:A:270(V):G:O4' | 1.93 | 0.68 |
| 1:A:2720:U:O4 | 1:A:2872:G:C5 | 2.46 | 0.68 |
| 1:A:2795:G:N3 | 1:A:2795:G:H2' | 2.08 | 0.68 |
| 1:A:2846:G:N3 | 1:A:2846:G:H2' | 2.06 | 0.68 |
| 1:A:630:G:C2' | 1:A:631:A:O5' | 2.42 | 0.68 |
| 1:A:800:A:H2 | 1:A:802:A:C8 | 2.09 | 0.68 |
| 4:D:6:PHE:O | 4:D:27:THR:CA | 2.36 | 0.68 |
| 5:E:110:GLY:HA2 | 5:E:161:GLY:C | 2.13 | 0.68 |
| 5:E:80:GLU:HG2 | 5:E:83:ASP:OD2 | 1.93 | 0.68 |
| 6:F:118:ALA:HA | 6:F:122:LYS:NZ | 2.07 | 0.68 |
| 6:F:83:PHE:O | 6:F:84:VAL:O | 2.11 | 0.68 |
| 10:L:131:ALA:HB1 | 10:L:136:VAL:CG1 | 2.22 | 0.68 |
| 12:N:108:GLU:O | 12:N:109:LYS:HE2 | 1.94 | 0.68 |
| 12:N:19:ILE:HD12 | 12:N:20:MET:N | 2.09 | 0.68 |
| 12:N:31:LYS:O | 12:N:32:TYR:CD1 | 2.46 | 0.68 |
| 13:O:121:LYS:HB2 | 13:O:137:LYS:HB2 | 1.76 | 0.68 |
| 15:Q:36:THR:HB | 15:Q:40:LYS:CD | 2.23 | 0.68 |
| 15:Q:56:LYS:O | 15:Q:58:GLY:N | 2.26 | 0.68 |
| 17:S:53:ARG:HA | 17:S:53:ARG:NE | 2.09 | 0.68 |
| 18:T:111:GLU:HA | 18:T:114:LYS:CD | 2.23 | 0.68 |
| 18:T:113:ALA:O | 18:T:116:ALA:HB3 | 1.93 | 0.68 |
| 19:U:3:ALA:HB3 | 19:U:12:TYR:HE2 | 1.57 | 0.68 |
| 22:X:46:LYS:NZ | 22:X:52:SER:HB2 | 2.08 | 0.68 |
| 14:P:85:LYS:NZ | 24:Z:10:THR:CG2 | 2.56 | 0.68 |
| 3:C:104:LEU:HD11 | 3:C:130:ILE:HD11 | 1.74 | 0.68 |
| 3:C:73:ARG:HD3 | 3:C:92:ASP:OD2 | 1.93 | 0.68 |
| 1:A:2097:C:O2' | 1:A:2098:U:H5' | 1.94 | 0.68 |
| 4:D:111:LEU:HD12 | 4:D:115:GLN:OE1 | 1.93 | 0.68 |
| 31:7:60:LEU:C | 31:7:60:LEU:HD23 | 2.13 | 0.68 |
| 1:A:1076:C:H4' | 10:L:93:ARG:HH21 | 1.59 | 0.68 |
| 1:A:1198:U:H2' | 1:A:1199:U:C5 | 2.28 | 0.68 |
| 1:A:1697:G:C3' | 1:A:1698:A:H5' | 2.23 | 0.68 |
| 1:A:1698:A:O2' | 1:A:1699:G:C5' | 2.41 | 0.68 |
| 1:A:1718:G:C8 | 1:A:1725:G:N7 | 2.61 | 0.68 |
| 1:A:1754:C:H5 | 17:S:98:LYS:HD3 | 1.58 | 0.68 |
| 1:A:1769:G:H4' | 1:A:1958:C:H5'' | 1.75 | 0.68 |
| 1:A:1944:U:H6 | 1:A:1944:U:C3' | 2.05 | 0.68 |
| 1:A:2311:A:H5' | 7:G:86:MET:CE | 2.24 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2438:U:O2' | 1:A:2439:A:H5'' | 1.92 | 0.68 |
| 1:A:2519:U:C6 | 1:A:2542:A:C6 | 2.81 | 0.68 |
| 1:A:271(B):G:H5'' | 1:A:271(C):U:C5' | 2.23 | 0.68 |
| 1:A:503:A:H4' | 1:A:504:U:O5' | 1.91 | 0.68 |
| 1:A:528:A:C8 | 1:A:2042:A:C6 | 2.81 | 0.68 |
| 1:A:685:A:OP1 | 1:A:686:G:N2 | 2.26 | 0.68 |
| 1:A:728:G:C6 | 1:A:762:U:C3' | 2.74 | 0.68 |
| 1:A:729:G:H2' | 1:A:730:C:O4' | 1.93 | 0.68 |
| 2:B:61:G:C2 | 2:B:62:C:C4 | 2.81 | 0.68 |
| 2:B:62:C:H2' | 2:B:63:G:H8 | 1.59 | 0.68 |
| 4:D:221:VAL:O | 4:D:222:ARG:HG3 | 1.92 | 0.68 |
| 5:E:131:ALA:HB1 | 5:E:134:ILE:HG13 | 1.75 | 0.68 |
| 5:E:152:LYS:HE3 | 5:E:153:GLY:HA3 | 1.75 | 0.68 |
| 6:F:103:LYS:HA | 6:F:106:ARG:NE | 2.08 | 0.68 |
| 6:F:152:GLU:O | 6:F:153:SER:HB3 | 1.93 | 0.68 |
| 6:F:74:ARG:HH22 | 6:F:76:GLY:H | 1.37 | 0.68 |
| 8:H:69:ARG:HB2 | 8:H:69:ARG:CZ | 2.22 | 0.68 |
| 10:L:57:ILE:CA | 10:L:66:THR:O | 2.35 | 0.68 |
| 10:L:78:ILE:CD1 | 10:L:131:ALA:HB2 | 2.23 | 0.68 |
| 11:M:22:THR:HG22 | 11:M:61:ARG:HH12 | 1.57 | 0.68 |
| 12:N:77:ILE:HG12 | 17:S:75:ILE:CD1 | 2.14 | 0.68 |
| 14:P:44:ALA:HB2 | 14:P:70:PRO:HB3 | 1.75 | 0.68 |
| 17:S:103:ARG:O | 17:S:104:ASN:C | 2.32 | 0.68 |
| 17:S:30:VAL:HG21 | 17:S:90:GLN:HA | 1.73 | 0.68 |
| 1:A:447:A:OP1 | 18:T:5:LYS:NZ | 2.26 | 0.68 |
| 19:U:14:VAL:HG21 | 19:U:19:LYS:HG3 | 1.74 | 0.68 |
| 20:V:64:MET:HG2 | 20:V:109:GLU:HB3 | 1.75 | 0.68 |
| 21:W:21:PHE:HE2 | 21:W:27:THR:H | 1.40 | 0.68 |
| 22:X:37:VAL:HG13 | 22:X:39:VAL:HG23 | 1.75 | 0.68 |
| 22:X:52:SER:HB3 | 22:X:56:PRO:CB | 2.22 | 0.68 |
| 23:Y:4:ARG:HG3 | 23:Y:44:PHE:CE1 | 2.28 | 0.68 |
| 23:Y:78:LYS:CE | 23:Y:78:LYS:H | 2.07 | 0.68 |
| 9:K:78:THR:HG22 | 9:K:143:SER:OG | 1.93 | 0.68 |
| 1:A:2168:G:N2 | 1:A:2171:A:N7 | 2.40 | 0.68 |
| 3:C:131:LEU:HD13 | 3:C:136:LEU:C | 2.14 | 0.68 |
| 30:6:5:TRP:CZ3 | 30:6:12:ARG:NH1 | 2.62 | 0.68 |
| 31:7:31:HIS:N | 31:7:34:TRP:NE1 | 2.36 | 0.68 |
| 1:A:2419:U:OP1 | 31:7:41:ILE:HD12 | 1.93 | 0.68 |
| 32:8:19:ARG:CD | 32:8:22:ARG:CB | 2.71 | 0.68 |
| 1:A:1137:G:O2' | 11:M:105:GLY:HA3 | 1.94 | 0.68 |
| 1:A:1203:G:C6 | 1:A:1241:A:C8 | 2.82 | 0.68 |
| 1:A:1268:A:H62 | 1:A:2012:G:N2 | 1.90 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1403:C:H4' | 1:A:1471:A:H4' | 1.74 | 0.68 |
| 1:A:1476:C:H5 | 1:A:1477:A:C5 | 2.12 | 0.68 |
| 1:A:1664:A:C8 | 1:A:1665:A:N7 | 2.62 | 0.68 |
| 1:A:175:G:N2 | 1:A:176:G:H1' | 2.08 | 0.68 |
| 1:A:1805:U:H5'' | 4:D:248:SER:OG | 1.93 | 0.68 |
| 1:A:196:A:N3 | 1:A:2068:U:H5 | 1.92 | 0.68 |
| 1:A:2059:A:C6 | 1:A:2503:A:N7 | 2.61 | 0.68 |
| 1:A:2283:C:N3 | 1:A:2284:C:H1' | 2.09 | 0.68 |
| 1:A:783:A:C4' | 1:A:2588:G:O3' | 2.35 | 0.68 |
| 1:A:2597:G:H2' | 1:A:2598:A:H8 | 1.58 | 0.68 |
| 1:A:269:U:H2' | 1:A:269:U:O2 | 1.92 | 0.68 |
| 1:A:288:C:O5' | 1:A:288:C:H6 | 1.77 | 0.68 |
| 1:A:586:A:C2 | 1:A:809:G:N2 | 2.60 | 0.68 |
| 1:A:804:A:H62 | 13:O:39:LYS:HZ1 | 1.40 | 0.68 |
| 1:A:918:A:H2' | 2:B:80:U:O2' | 1.92 | 0.68 |
| 1:A:91:A:H2' | 1:A:92:G:O5' | 1.93 | 0.68 |
| 2:B:83:G:N2 | 2:B:84:C:C2 | 2.62 | 0.68 |
| 4:D:9:TYR:O | 4:D:10:THR:HB | 1.93 | 0.68 |
| 4:D:118:VAL:O | 4:D:129:ASN:HA | 1.93 | 0.68 |
| 4:D:84:TYR:CB | 4:D:91:ARG:HG3 | 2.23 | 0.68 |
| 5:E:133:LYS:HZ2 | 5:E:137:HIS:CB | 2.07 | 0.68 |
| 5:E:105:THR:HG22 | 5:E:199:ARG:CZ | 2.22 | 0.68 |
| 6:F:14:PRO:O | 6:F:15:SER:HB2 | 1.92 | 0.68 |
| 6:F:8:GLN:HB3 | 6:F:18:ARG:HA | 1.76 | 0.68 |
| 6:F:20:LEU:CD2 | 6:F:20:LEU:H | 2.07 | 0.68 |
| 7:G:39:ILE:HD13 | 7:G:92:VAL:HG12 | 1.75 | 0.68 |
| 11:M:69:GLN:OE1 | 11:M:87:LEU:HD22 | 1.94 | 0.68 |
| 14:P:19:GLY:O | 14:P:20:ALA:CB | 2.41 | 0.68 |
| 16:R:81:GLY:O | 16:R:83:LYS:N | 2.26 | 0.68 |
| 17:S:10:VAL:HG12 | 17:S:14:TYR:OH | 1.93 | 0.68 |
| 23:Y:100:VAL:O | 23:Y:124:ILE:HG23 | 1.92 | 0.68 |
| 1:A:2120:G:H21 | 3:C:167:LYS:CE | 2.07 | 0.68 |
| 1:A:2134:A:C8 | 1:A:2136:C:N4 | 2.61 | 0.68 |
| 3:C:133:PRO:C | 3:C:135:GLY:H | 1.96 | 0.68 |
| 3:C:76:ALA:CB | 3:C:149:ILE:HD11 | 2.23 | 0.68 |
| 3:C:82:LYS:HD3 | 3:C:85:GLU:OE2 | 1.93 | 0.68 |
| 1:A:1579:A:H2' | 1:A:1580:A:H5' | 1.75 | 0.68 |
| 1:A:2249:U:O4 | 1:A:2253:G:OP2 | 2.11 | 0.68 |
| 25:1:14:VAL:HA | 25:1:17:GLU:OE1 | 1.92 | 0.68 |
| 25:1:58:VAL:HG22 | 25:1:59:LEU:H | 1.57 | 0.68 |
| 28:4:9:LYS:O | 28:4:10:LYS:HB2 | 1.94 | 0.68 |
| 31:7:51:ALA:O | 31:7:54:GLU:OE1 | 2.12 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1077:A:N6 | 1:A:1088:A:O2' | 2.27 | 0.68 |
| 1:A:1278:A:H5' | 15:Q:24:GLN:NE2 | 2.08 | 0.68 |
| 1:A:1321:A:N1 | 1:A:1322:A:H1' | 2.08 | 0.68 |
| 1:A:139:G:C2' | 1:A:140:A:O5' | 2.41 | 0.68 |
| 1:A:1557:C:C2' | 1:A:1558:A:H8 | 1.97 | 0.68 |
| 1:A:1937:A:H2' | 1:A:1938:A:OP1 | 1.94 | 0.68 |
| 1:A:1952:A:C5 | 1:A:1953:A:C2 | 2.82 | 0.68 |
| 1:A:2017:U:H1' | 28:4:8:LYS:O | 1.93 | 0.68 |
| 1:A:2273:A:C3' | 1:A:2274:A:H5' | 2.23 | 0.68 |
| 1:A:2619:C:H5'' | 5:E:152:LYS:CA | 2.23 | 0.68 |
| 1:A:284:U:C6 | 1:A:284:U:OP2 | 2.46 | 0.68 |
| 1:A:2875:C:H5'' | 17:S:3:ARG:HD3 | 1.75 | 0.68 |
| 1:A:2895:U:H2' | 1:A:2896:C:C6 | 2.29 | 0.68 |
| 1:A:29:U:H2' | 1:A:30:G:N7 | 2.08 | 0.68 |
| 1:A:28:A:N3 | 1:A:29:U:O4' | 2.26 | 0.68 |
| 1:A:775:G:C2' | 1:A:794:G:N7 | 2.51 | 0.68 |
| 1:A:919:G:C2 | 1:A:920:G:C8 | 2.81 | 0.68 |
| 1:A:971:C:H2' | 1:A:972:G:O4' | 1.94 | 0.68 |
| 4:D:53:PHE:O | 4:D:54:ARG:O | 2.12 | 0.68 |
| 6:F:108:LYS:O | 6:F:111:ALA:HB3 | 1.94 | 0.68 |
| 8:H:11:VAL:HB | 8:H:50:VAL:CG2 | 2.24 | 0.68 |
| 8:H:60:ARG:HH21 | 8:H:64:LEU:CD1 | 2.03 | 0.68 |
| 11:M:116:LEU:O | 11:M:116:LEU:HG | 1.92 | 0.68 |
| 11:M:37:LYS:NZ | 11:M:43:THR:CG2 | 2.55 | 0.68 |
| 11:M:46:VAL:CG1 | 11:M:119:ARG:NH2 | 2.54 | 0.68 |
| 11:M:23:LEU:HG | 11:M:62:VAL:O | 1.93 | 0.68 |
| 12:N:2:ILE:CD1 | 12:N:32:TYR:HD1 | 2.05 | 0.68 |
| 14:P:104:PHE:O | 14:P:105:GLU:CD | 2.32 | 0.68 |
| 16:R:49:VAL:HG21 | 16:R:80:LEU:HG | 1.75 | 0.68 |
| 17:S:63:VAL:O | 17:S:63:VAL:HG13 | 1.92 | 0.68 |
| 19:U:11:GLN:HE22 | 19:U:24:LYS:NZ | 1.92 | 0.68 |
| 19:U:62:LEU:HD13 | 19:U:98:GLU:HA | 1.75 | 0.68 |
| 20:V:11:ARG:O | 20:V:98:LYS:HE3 | 1.93 | 0.68 |
| 21:W:26:TYR:HE1 | 21:W:83:VAL:CG1 | 2.05 | 0.68 |
| 1:A:2180:U:H2' | 1:A:2181:G:C8 | 2.28 | 0.68 |
| 3:C:34:THR:HG23 | 3:C:38:ASP:HA | 1.74 | 0.68 |
| 27:3:37:SER:OG | 27:3:38:LYS:N | 2.26 | 0.68 |
| 29:5:28:ARG:O | 29:5:29:ASN:O | 2.12 | 0.68 |
| 1:A:1123:C:H2' | 1:A:1124:C:C6 | 2.29 | 0.68 |
| 1:A:1527:G:C3' | 1:A:1527:G:C8 | 2.76 | 0.68 |
| 1:A:151:C:H2' | 1:A:152:G:C8 | 2.29 | 0.68 |
| 1:A:141:A:C6 | 1:A:1596:A:O2' | 2.47 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 1:A:1340:U:O2 | 1:A:1603:A:C8 | 2.47 | 0.68 |
| 1:A:1646:C:C3' | 1:A:1647:G:H5' | 2.23 | 0.68 |
| 1:A:1668:A:N1 | 1:A:1993:U:C1' | 2.50 | 0.68 |
| 1:A:2300:G:O2' | 1:A:2301:C:H5' | 1.93 | 0.68 |
| 1:A:2383:G:OP2 | 31:7:39:LYS:NZ | 2.25 | 0.68 |
| 1:A:2392:A:C2' | 1:A:2393:A:H5' | 2.23 | 0.68 |
| 1:A:2394:C:C2' | 1:A:2394:C:O2 | 2.42 | 0.68 |
| 1:A:106:C:O2' | 1:A:294:A:H5' | 1.94 | 0.68 |
| 1:A:270:A:N1 | 1:A:370:G:H1' | 2.08 | 0.68 |
| 1:A:491:G:H2' | 1:A:492:A:C8 | 2.27 | 0.68 |
| 1:A:627:A:H3' | 13:O:75:ILE:HG13 | 1.76 | 0.68 |
| 1:A:751:A:H62 | 1:A:789:A:H62 | 1.39 | 0.68 |
| 1:A:796:C:H2' | 1:A:797:C:H6 | 1.58 | 0.68 |
| 1:A:832:G:OP2 | 13:O:35:HIS:CG | 2.45 | 0.68 |
| 1:A:854:G:N2 | 1:A:855:G:C4 | 2.61 | 0.68 |
| 1:A:997:G:C8 | 1:A:997:G:OP2 | 2.47 | 0.68 |
| 2:B:24:G:H2' | 2:B:56:G:O6 | 1.94 | 0.68 |
| 5:E:26:ILE:HB | 5:E:181:LEU:CD2 | 2.23 | 0.68 |
| 8:H:53:GLU:N | 8:H:53:GLU:CD | 2.47 | 0.68 |
| 8:H:98:LEU:HG | 8:H:123:PHE:CB | 2.23 | 0.68 |
| 13:O:128:HIS:CA | 13:O:147:LEU:HD21 | 2.24 | 0.68 |
| 20:V:65:LEU:O | 20:V:69:LEU:HD13 | 1.93 | 0.68 |
| 22:X:97:ARG:CG | 22:X:101:LYS:HG2 | 2.24 | 0.68 |
| 22:X:1:MET:HA | 22:X:33:LYS:HG3 | 1.75 | 0.68 |
| 22:X:74:PRO:CG | 22:X:100:ALA:HB3 | 2.24 | 0.68 |
| 3:C:30:LYS:HZ1 | 3:C:182:PRO:CD | 2.02 | 0.68 |
| 9:K:57:ARG:HB3 | 9:K:61:ARG:CZ | 2.22 | 0.68 |
| 1:A:715:G:C8 | 1:A:715:G:H3' | 2.29 | 0.68 |
| 26:2:37:LEU:O | 26:2:37:LEU:CD2 | 2.42 | 0.68 |
| 29:5:20:ASN:ND2 | 29:5:42:TRP:HD1 | 1.91 | 0.68 |
| 1:A:1029:A:C2' | 1:A:1030:G:H5' | 2.23 | 0.68 |
| 1:A:1019:U:C2 | 1:A:1144:G:N2 | 2.62 | 0.68 |
| 1:A:1463:C:O2' | 1:A:1464:C:H5' | 1.94 | 0.68 |
| 1:A:1551:C:H2' | 1:A:1552:G:C8 | 2.29 | 0.68 |
| 1:A:1614:A:N3 | 1:A:1614:A:H3' | 2.09 | 0.68 |
| 1:A:1794:U:C2 | 1:A:1795:C:C5 | 2.82 | 0.68 |
| 1:A:2027:G:H2' | 1:A:2028:U:O4' | 1.93 | 0.68 |
| 1:A:2286:A:C4' | 1:A:2287:A:H1' | 2.14 | 0.68 |
| 1:A:2326:C:N3 | 1:A:2389:G:O6 | 2.27 | 0.68 |
| 1:A:2349:G:C3' | 1:A:2350:C:H5'' | 2.22 | 0.68 |
| 1:A:325:G:H2' | 1:A:326:G:H8 | 1.57 | 0.68 |
| 1:A:675:A:H2' | 1:A:676:A:C2 | 2.28 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:682:G:O2' | 1:A:683:C:H5' | 1.93 | 0.68 |
| 1:A:816:C:H6 | 1:A:816:C:H5' | 1.59 | 0.68 |
| 1:A:90:U:O2' | 1:A:91:A:H8 | 1.70 | 0.68 |
| 4:D:76:PRO:HB3 | 4:D:118:VAL:CG2 | 2.23 | 0.68 |
| 4:D:142:VAL:HG12 | 4:D:193:VAL:HA | 1.76 | 0.68 |
| 4:D:262:ARG:C | 4:D:264:LYS:H | 1.94 | 0.68 |
| 6:F:158:THR:HG21 | 6:F:196:LEU:HB2 | 1.76 | 0.68 |
| 6:F:200:GLU:O | 6:F:204:ASN:OD1 | 2.11 | 0.68 |
| 7:G:57:ALA:CA | 7:G:68:PRO:HD2 | 2.19 | 0.68 |
| 9:K:3:VAL:O | 9:K:18:VAL:HG13 | 1.93 | 0.68 |
| 10:L:78:ILE:HG23 | 10:L:79:ARG:N | 2.06 | 0.68 |
| 11:M:113:GLY:O | 11:M:116:LEU:HB3 | 1.93 | 0.68 |
| 11:M:115:ARG:O | 11:M:118:LYS:HB2 | 1.93 | 0.68 |
| 11:M:43:THR:CB | 11:M:44:PRO:HD2 | 2.24 | 0.68 |
| 11:M:16:ILE:HD13 | 11:M:52:VAL:HG23 | 1.75 | 0.68 |
| 11:M:69:GLN:OE1 | 11:M:87:LEU:HD13 | 1.92 | 0.68 |
| 12:N:97:ARG:NE | 12:N:97:ARG:HA | 2.08 | 0.68 |
| 6:F:38:ARG:HH12 | 13:O:10:PRO:CA | 2.07 | 0.68 |
| 13:O:135:LEU:HA | 13:O:138:LEU:HD12 | 1.74 | 0.68 |
| 1:A:670:A:H2' | 13:O:41:ARG:HH11 | 1.58 | 0.68 |
| 16:R:19:LYS:O | 16:R:20:ARG:C | 2.32 | 0.68 |
| 17:S:46:GLU:OE1 | 17:S:47:GLY:N | 2.25 | 0.68 |
| 17:S:50:ILE:HD12 | 17:S:66:VAL:HB | 1.76 | 0.68 |
| 18:T:92:ARG:C | 18:T:94:ASN:H | 1.96 | 0.68 |
| 19:U:15:GLU:OE1 | 19:U:16:PRO:HD3 | 1.93 | 0.68 |
| 19:U:69:LYS:HE2 | 19:U:70:ILE:HD12 | 1.75 | 0.68 |
| 1:A:2009:G:OP1 | 20:V:41:LYS:HD2 | 1.92 | 0.68 |
| 24:Z:19:LYS:HZ3 | 24:Z:41:ARG:NE | 1.89 | 0.68 |
| 9:K:123:LEU:HD12 | 9:K:124:GLY:H | 1.59 | 0.68 |
| 3:C:26:ALA:HB1 | 3:C:185:LEU:HB2 | 1.75 | 0.68 |
| 3:C:77:ILE:HA | 3:C:95:GLY:O | 1.94 | 0.68 |
| 3:C:6:ARG:C | 3:C:8:ARG:H | 1.97 | 0.68 |
| 1:A:2195:C:H2' | 1:A:2196:C:H6 | 1.58 | 0.68 |
| 26:2:13:ILE:CG2 | 26:2:14:GLY:H | 1.92 | 0.68 |
| 26:2:8:LEU:HA | 26:2:54:VAL:HG23 | 1.76 | 0.68 |
| 30:6:43:THR:HA | 30:6:46:VAL:HB | 1.74 | 0.68 |
| 32:8:25:VAL:CB | 32:8:34:GLN:HB2 | 2.17 | 0.68 |
| 1:A:1026:U:O2 | 1:A:1026:U:C2' | 2.40 | 0.68 |
| 1:A:1299:G:C5' | 1:A:1301:A:H1' | 2.23 | 0.68 |
| 1:A:1476:C:C5 | 1:A:1477:A:C5 | 2.81 | 0.68 |
| 1:A:1513:C:C2 | 1:A:1514:U:O4 | 2.46 | 0.68 |
| 1:A:1551:C:H2' | 1:A:1552:G:H8 | 1.59 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1646:C:H5'' | 1:A:1647:G:H5' | 1.76 | 0.68 |
| 1:A:1918:A:H5'' | 1:A:1919:A:H62 | 1.58 | 0.68 |
| 1:A:2597:G:C1' | 4:D:242:ARG:HH21 | 2.06 | 0.68 |
| 1:A:2710:C:H2' | 1:A:2711:A:O4' | 1.94 | 0.68 |
| 1:A:2748:A:N7 | 1:A:2749:A:N6 | 2.42 | 0.68 |
| 1:A:307:G:H22 | 1:A:310:A:C5' | 2.07 | 0.68 |
| 1:A:590:A:H2' | 1:A:591:C:O4' | 1.94 | 0.68 |
| 1:A:612:G:C4' | 1:A:616:A:H61 | 1.99 | 0.68 |
| 1:A:669:G:N7 | 6:F:54:ARG:NH1 | 2.34 | 0.68 |
| 1:A:676:A:H2' | 1:A:677:A:C5' | 2.22 | 0.68 |
| 1:A:72:U:C2' | 1:A:73:A:OP1 | 2.42 | 0.68 |
| 1:A:945:A:H2' | 1:A:946:G:O5' | 1.94 | 0.68 |
| 1:A:1566:A:C6 | 4:D:215:LEU:HD13 | 2.28 | 0.68 |
| 4:D:46:GLN:HE22 | 4:D:51:VAL:CG2 | 2.06 | 0.68 |
| 4:D:56:GLY:HA3 | 4:D:58:HIS:CE1 | 2.28 | 0.68 |
| 5:E:17:ASP:O | 5:E:18:ASP:O | 2.12 | 0.68 |
| 6:F:135:LYS:HB3 | 6:F:138:GLU:OE1 | 1.94 | 0.68 |
| 6:F:5:ALA:HB1 | 6:F:24:LEU:HG | 1.74 | 0.68 |
| 7:G:55:LYS:HG3 | 7:G:148:MET:HB3 | 1.74 | 0.68 |
| 8:H:88:LEU:HD21 | 8:H:129:THR:HG22 | 1.75 | 0.68 |
| 10:L:20:ALA:HB3 | 10:L:21:PRO:CD | 2.24 | 0.68 |
| 12:N:16:ALA:C | 12:N:18:LYS:H | 1.95 | 0.68 |
| 15:Q:33:ARG:HA | 15:Q:115:GLU:CB | 2.24 | 0.68 |
| 16:R:24:LEU:H | 16:R:86:ALA:CB | 2.07 | 0.68 |
| 16:R:67:ARG:HG2 | 16:R:67:ARG:HH21 | 1.59 | 0.68 |
| 16:R:13:ARG:NH2 | 16:R:92:TYR:N | 2.42 | 0.68 |
| 17:S:50:ILE:HD12 | 17:S:66:VAL:CG2 | 2.23 | 0.68 |
| 19:U:89:GLN:HG2 | 19:U:91:TYR:CD1 | 2.28 | 0.68 |
| 20:V:13:SER:O | 20:V:17:VAL:HG22 | 1.92 | 0.68 |
| 1:A:64:A:C5' | 21:W:73:ARG:HA | 2.24 | 0.68 |
| 21:W:73:ARG:HH12 | 21:W:74:PRO:C | 1.97 | 0.68 |
| 22:X:12:THR:OG1 | 22:X:72:VAL:HA | 1.94 | 0.68 |
| 23:Y:45:ASP:CA | 23:Y:48:PHE:HD1 | 2.06 | 0.68 |
| 24:Z:36:ILE:CD1 | 24:Z:39:ARG:HG3 | 2.22 | 0.68 |
| 1:A:2110:G:H5' | 1:A:2111:C:OP2 | 1.94 | 0.68 |
| 1:A:2286:A:C8 | 29:5:31:PRO:HB2 | 2.28 | 0.68 |
| 1:A:1097:U:H2' | 1:A:1098:A:O4' | 1.94 | 0.68 |
| 1:A:1258:C:H2' | 1:A:1259:G:C8 | 2.28 | 0.68 |
| 1:A:1638:C:O5' | 1:A:1638:C:H6 | 1.75 | 0.68 |
| 1:A:1653:G:H5' | 1:A:1654:A:OP1 | 1.94 | 0.68 |
| 1:A:1675:C:H2' | 1:A:1675:C:O2 | 1.94 | 0.68 |
| 1:A:2392:A:O2' | 1:A:2393:A:H5' | 1.93 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:568:U:N3 | 1:A:571:A:OP2 | 2.26 | 0.68 |
| 1:A:665:C:H2' | 1:A:666:G:H8 | 1.58 | 0.68 |
| 1:A:895:U:O5' | 1:A:895:U:H6 | 1.75 | 0.68 |
| 4:D:208:LYS:HZ1 | 4:D:211:ARG:NE | 1.92 | 0.68 |
| 4:D:33:LEU:CD1 | 4:D:61:LEU:HD11 | 2.12 | 0.68 |
| 6:F:192:LEU:HD22 | 6:F:193:VAL:H | 1.56 | 0.68 |
| 7:G:174:GLU:HA | 7:G:179:PRO:HB3 | 1.74 | 0.68 |
| 8:H:26:VAL:HG13 | 8:H:76:VAL:CG1 | 2.24 | 0.68 |
| 8:H:30:LYS:HD3 | 8:H:31:GLY:N | 2.09 | 0.68 |
| 10:L:45:THR:HB | 10:L:53:VAL:HG11 | 1.74 | 0.68 |
| 10:L:88:ALA:CB | 10:L:135:GLY:HA3 | 2.23 | 0.68 |
| 11:M:17:ASP:O | 11:M:55:VAL:O | 2.12 | 0.68 |
| 11:M:21:LYS:O | 11:M:60:ILE:HG23 | 1.93 | 0.68 |
| 11:M:5:VAL:HB | 11:M:6:PRO:HD2 | 1.75 | 0.68 |
| 13:O:130:PHE:HD2 | 13:O:130:PHE:N | 1.92 | 0.68 |
| 1:A:637:A:OP2 | 13:O:131:SER:HB3 | 1.94 | 0.68 |
| 13:O:135:LEU:O | 13:O:138:LEU:CB | 2.41 | 0.68 |
| 13:O:92:GLU:O | 13:O:96:THR:HG23 | 1.94 | 0.68 |
| 14:P:19:GLY:O | 14:P:20:ALA:HB3 | 1.94 | 0.68 |
| 15:Q:86:ARG:HB3 | 15:Q:86:ARG:NH1 | 2.08 | 0.68 |
| 16:R:44:LYS:HB2 | 16:R:46:VAL:CG1 | 2.22 | 0.68 |
| 17:S:32:TYR:O | 17:S:47:GLY:CA | 2.27 | 0.68 |
| 17:S:34:VAL:HG23 | 17:S:36:GLU:HB2 | 1.76 | 0.68 |
| 17:S:7:ILE:O | 17:S:8:LYS:C | 2.33 | 0.68 |
| 18:T:99:ALA:N | 18:T:106:PHE:CD1 | 2.62 | 0.68 |
| 23:Y:167:PRO:O | 23:Y:168:GLU:HB2 | 1.92 | 0.68 |
| 23:Y:10:ARG:HG3 | 23:Y:38:TYR:OH | 1.94 | 0.68 |
| 3:C:41:VAL:HG12 | 3:C:42:GLU:N | 2.09 | 0.68 |
| 3:C:75:LEU:HD22 | 3:C:110:PHE:CE2 | 2.29 | 0.68 |
| 1:A:712:G:C4 | 1:A:713:G:N7 | 2.62 | 0.68 |
| 26:2:6:VAL:HB | 26:2:35:ARG:CZ | 2.24 | 0.68 |
| 27:3:57:GLU:CA | 27:3:61:ARG:CZ | 2.72 | 0.68 |
| 30:6:33:ARG:HG2 | 30:6:34:ARG:N | 2.08 | 0.68 |
| 1:A:1225:C:H5' | 19:U:87:HIS:ND1 | 2.09 | 0.68 |
| 1:A:1278:A:H5'' | 15:Q:36:THR:HG22 | 1.76 | 0.68 |
| 1:A:1407:C:C6 | 1:A:1407:C:OP2 | 2.47 | 0.68 |
| 1:A:140:A:C2 | 1:A:1408:C:H1' | 2.27 | 0.68 |
| 1:A:145:G:C6 | 1:A:146:G:C6 | 2.81 | 0.68 |
| 1:A:1936:A:H1' | 1:A:1940:U:C4 | 2.28 | 0.68 |
| 1:A:2026:C:O2' | 1:A:2027:G:H5' | 1.94 | 0.68 |
| 1:A:2571:C:O2' | 5:E:146:THR:CA | 2.40 | 0.68 |
| 1:A:2799:A:O2' | 1:A:2802:G:C5 | 2.46 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:2826:A:C5 | 1:A:2827:C:C5 | 2.82 | 0.68 |
| 1:A:2895:U:H2' | 1:A:2896:C:H6 | 1.58 | 0.68 |
| 1:A:298:G:N1 | 1:A:338:G:O2' | 2.27 | 0.68 |
| 1:A:389:G:O6 | 13:O:64:LYS:CG | 2.41 | 0.68 |
| 1:A:765:G:C6 | 1:A:766:C:C4 | 2.82 | 0.68 |
| 1:A:778:G:C6 | 1:A:779:U:N3 | 2.62 | 0.68 |
| 1:A:860:U:C6 | 1:A:860:U:C3' | 2.68 | 0.68 |
| 1:A:848:G:N2 | 1:A:931:G:N7 | 2.42 | 0.68 |
| 1:A:972:G:N7 | 1:A:973:A:C8 | 2.62 | 0.68 |
| 4:D:28:GLU:O | 4:D:30:GLU:HG3 | 1.93 | 0.68 |
| 4:D:63:ARG:HG2 | 4:D:64:ILE:O | 1.94 | 0.68 |
| 8:H:51:ARG:HA | 8:H:51:ARG:NE | 2.08 | 0.68 |
| 9:K:31:LEU:CD1 | 9:K:36:ALA:HB3 | 2.23 | 0.68 |
| 11:M:23:LEU:HD23 | 11:M:60:ILE:CG2 | 2.24 | 0.68 |
| 11:M:99:LEU:O | 11:M:103:VAL:HG13 | 1.93 | 0.68 |
| 1:A:2675:A:OP1 | 12:N:32:TYR:HE2 | 1.75 | 0.68 |
| 13:O:131:SER:OG | 13:O:134:ALA:HB2 | 1.94 | 0.68 |
| 14:P:25:ASP:CB | 14:P:101:ARG:HB3 | 2.24 | 0.68 |
| 15:Q:76:VAL:HG12 | 15:Q:77:ARG:N | 2.07 | 0.68 |
| 2:B:51:G:OP1 | 16:R:61:ASN:HA | 1.94 | 0.68 |
| 17:S:66:VAL:HG23 | 17:S:76:PHE:O | 1.93 | 0.68 |
| 22:X:1:MET:HA | 22:X:33:LYS:HE3 | 1.76 | 0.68 |
| 22:X:19:LYS:HG2 | 22:X:39:VAL:HG12 | 1.76 | 0.68 |
| 23:Y:122:ARG:HG3 | 23:Y:171:ILE:HA | 1.75 | 0.68 |
| 3:C:100:ILE:HD11 | 3:C:123:VAL:CG2 | 2.22 | 0.68 |
| 13:O:148:LEU:HD22 | 13:O:149:GLU:O | 1.94 | 0.68 |
| 27:3:59:PHE:HA | 27:3:62:ARG:CZ | 2.23 | 0.67 |
| 27:3:59:PHE:HD1 | 27:3:60:GLN:H | 1.42 | 0.67 |
| 27:3:57:GLU:O | 27:3:61:ARG:HG3 | 1.94 | 0.67 |
| 27:3:42:PHE:C | 27:3:61:ARG:HH12 | 1.97 | 0.67 |
| 28:4:40:LYS:HZ1 | 28:4:43:HIS:HA | 1.56 | 0.67 |
| 32:8:19:ARG:CD | 32:8:22:ARG:HB3 | 2.23 | 0.67 |
| 1:A:1042:G:N2 | 1:A:1114:G:N3 | 2.42 | 0.67 |
| 1:A:1050:A:H2' | 1:A:1051:G:O4' | 1.93 | 0.67 |
| 1:A:1207:C:OP2 | 1:A:1207:C:H6 | 1.76 | 0.67 |
| 1:A:1238:G:C2' | 1:A:1239:G:H5' | 2.22 | 0.67 |
| 1:A:1255:U:H5'' | 1:A:1256:G:C5' | 2.22 | 0.67 |
| 1:A:1535:U:H2' | 1:A:1536:A:C4' | 2.24 | 0.67 |
| 1:A:1616:A:H5'' | 1:A:1617:C:OP1 | 1.93 | 0.67 |
| 1:A:1792:G:OP1 | 4:D:206:LEU:CD2 | 2.42 | 0.67 |
| 1:A:18:C:OP1 | 18:T:26:GLY:CA | 2.39 | 0.67 |
| 1:A:2012:G:OP1 | 20:V:98:LYS:HG2 | 1.93 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2205:C:H2' | 1:A:2206:C:H5' | 1.75 | 0.67 |
| 1:A:2286:A:N6 | 29:5:28:ARG:O | 2.27 | 0.67 |
| 1:A:2303:G:C6 | 1:A:2304:G:N7 | 2.62 | 0.67 |
| 1:A:2327:A:C2' | 1:A:2328:A:C8 | 2.74 | 0.67 |
| 1:A:2407:G:N2 | 1:A:2408:U:O4' | 2.27 | 0.67 |
| 1:A:1710:C:C1' | 1:A:2858:C:H42 | 2.06 | 0.67 |
| 1:A:458:G:C8 | 30:6:39:ARG:HB2 | 2.29 | 0.67 |
| 1:A:607:U:H2' | 1:A:607:U:O2 | 1.92 | 0.67 |
| 1:A:627:A:H8 | 1:A:636:G:H21 | 1.40 | 0.67 |
| 1:A:72:U:H2' | 1:A:73:A:OP1 | 1.95 | 0.67 |
| 2:B:60:C:H2' | 2:B:61:G:H8 | 1.58 | 0.67 |
| 4:D:146:GLU:CA | 4:D:154:LYS:HG2 | 2.24 | 0.67 |
| 1:A:2209:C:H1' | 4:D:150:LYS:CE | 2.24 | 0.67 |
| 4:D:69:ARG:HH22 | 4:D:130:ALA:HB2 | 1.57 | 0.67 |
| 7:G:22:ARG:HH21 | 7:G:22:ARG:HB3 | 1.58 | 0.67 |
| 7:G:54:GLU:OE1 | 7:G:69:ALA:O | 2.12 | 0.67 |
| 7:G:39:ILE:HD12 | 7:G:92:VAL:O | 1.94 | 0.67 |
| 8:H:111:HIS:O | 8:H:113:VAL:N | 2.27 | 0.67 |
| 8:H:26:VAL:HG11 | 8:H:76:VAL:N | 2.10 | 0.67 |
| 11:M:90:MET:CE | 11:M:98:VAL:HG13 | 2.24 | 0.67 |
| 12:N:3:GLN:HG2 | 12:N:6:THR:OG1 | 1.94 | 0.67 |
| 1:A:2392:A:H1' | 13:O:55:ARG:NH2 | 2.09 | 0.67 |
| 14:P:101:ARG:HH11 | 14:P:101:ARG:CG | 2.07 | 0.67 |
| 15:Q:10:LEU:HD22 | 15:Q:21:TYR:OH | 1.94 | 0.67 |
| 17:S:19:LEU:O | 17:S:21:GLU:N | 2.27 | 0.67 |
| 17:S:63:VAL:O | 17:S:63:VAL:CG1 | 2.42 | 0.67 |
| 17:S:96:ARG:HG2 | 17:S:117:ASP:CB | 2.13 | 0.67 |
| 19:U:6:LYS:HZ2 | 19:U:10:LYS:CD | 2.07 | 0.67 |
| 20:V:72:LYS:HB2 | 20:V:108:GLY:HA3 | 1.77 | 0.67 |
| 22:X:44:ILE:CG2 | 22:X:46:LYS:HG3 | 2.24 | 0.67 |
| 24:Z:17:GLN:CD | 24:Z:18:ALA:H | 1.96 | 0.67 |
| 1:A:2329:G:N2 | 24:Z:41:ARG:HH22 | 1.91 | 0.67 |
| 24:Z:47:PRO:HG2 | 24:Z:53:MET:CB | 2.18 | 0.67 |
| 1:A:2112:G:N2 | 1:A:2113:U:N3 | 2.42 | 0.67 |
| 3:C:209:LEU:HD21 | 3:C:212:VAL:CG2 | 2.24 | 0.67 |
| 1:A:1581:G:C2' | 1:A:1582:C:H5' | 2.24 | 0.67 |
| 25:1:45:ILE:CG1 | 25:1:46:ARG:H | 2.05 | 0.67 |
| 26:2:38:GLU:N | 26:2:38:GLU:OE1 | 2.27 | 0.67 |
| 29:5:33:LYS:HZ2 | 29:5:34:LEU:HD23 | 1.59 | 0.67 |
| 1:A:2371:G:H4' | 29:5:46:HIS:HB3 | 1.76 | 0.67 |
| 32:8:9:ARG:C | 32:8:10:ILE:HG13 | 2.13 | 0.67 |
| 1:A:1085:A:HO2' | 1:A:1086:A:C1' | 2.08 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1166:C:O2 | 1:A:1184:G:N2 | 2.27 | 0.67 |
| 1:A:1223:C:C2 | 1:A:1227:A:N1 | 2.63 | 0.67 |
| 1:A:1545(A):A:OP2 | 1:A:1546:C:C5 | 2.47 | 0.67 |
| 1:A:1847:A:O2' | 1:A:1848:A:C8 | 2.47 | 0.67 |
| 1:A:1914:C:C4 | 1:A:1915:U:C5 | 2.76 | 0.67 |
| 1:A:1926:U:O2 | 1:A:1928:A:H5'' | 1.94 | 0.67 |
| 1:A:1993:U:C6 | 1:A:1993:U:H3' | 2.29 | 0.67 |
| 1:A:2269:A:C2 | 1:A:2270:G:C1' | 2.76 | 0.67 |
| 1:A:2273:A:N7 | 1:A:2274:A:C4 | 2.62 | 0.67 |
| 1:A:2286:A:N6 | 29:5:28:ARG:C | 2.47 | 0.67 |
| 1:A:2476:A:N7 | 1:A:2477:C:C5 | 2.62 | 0.67 |
| 1:A:2481:G:O2' | 1:A:2482:G:H8 | 1.75 | 0.67 |
| 1:A:2497:A:H3' | 1:A:2497:A:H8 | 1.56 | 0.67 |
| 1:A:2573:C:OP1 | 1:A:2574:G:OP1 | 2.12 | 0.67 |
| 1:A:2681:C:H42 | 1:A:2725:A:N6 | 1.91 | 0.67 |
| 1:A:267:C:H2' | 1:A:268:C:O4' | 1.94 | 0.67 |
| 1:A:2695:C:H2' | 1:A:2696:U:C6 | 2.28 | 0.67 |
| 1:A:1033:U:C4 | 1:A:2750:A:N3 | 2.62 | 0.67 |
| 1:A:2812:G:H2' | 1:A:2813:A:H8 | 1.59 | 0.67 |
| 1:A:319:C:H2' | 1:A:320:A:H8 | 1.58 | 0.67 |
| 1:A:360:G:C2' | 1:A:361:G:H5' | 2.24 | 0.67 |
| 1:A:400:G:C6 | 27:3:63:TYR:HE2 | 2.13 | 0.67 |
| 1:A:618:G:OP1 | 6:F:106:ARG:HD2 | 1.94 | 0.67 |
| 1:A:76:C:O5' | 1:A:76:C:C6 | 2.47 | 0.67 |
| 1:A:931:G:H3' | 1:A:932:G:O4' | 1.94 | 0.67 |
| 1:A:946:G:C6 | 1:A:972:G:N2 | 2.61 | 0.67 |
| 1:A:997:G:C2 | 1:A:998:C:C5 | 2.82 | 0.67 |
| 2:B:75:G:O2' | 23:Y:27:VAL:CG2 | 2.41 | 0.67 |
| 4:D:172:TYR:HB3 | 4:D:184:LYS:HB3 | 1.75 | 0.67 |
| 1:A:1658:C:OP1 | 5:E:134:ILE:HB | 1.93 | 0.67 |
| 5:E:54:GLN:HB3 | 5:E:57:LYS:NZ | 2.09 | 0.67 |
| 7:G:26:GLN:HB3 | 7:G:31:VAL:CG2 | 2.24 | 0.67 |
| 1:A:2312:U:O2' | 7:G:40:ASN:OD1 | 2.03 | 0.67 |
| 7:G:47:LYS:HD2 | 7:G:48:GLU:N | 2.09 | 0.67 |
| 10:L:76:TYR:O | 10:L:80:LYS:HD3 | 1.93 | 0.67 |
| 14:P:45:GLN:N | 14:P:45:GLN:OE1 | 2.27 | 0.67 |
| 14:P:74:TYR:CZ | 14:P:94:VAL:HG22 | 2.28 | 0.67 |
| 15:Q:115:GLU:HG2 | 15:Q:116:LEU:O | 1.94 | 0.67 |
| 17:S:64:ARG:CD | 17:S:65:LYS:H | 1.91 | 0.67 |
| 19:U:40:LEU:HD21 | 19:U:55:ALA:CB | 2.18 | 0.67 |
| 20:V:21:VAL:HG11 | 20:V:75:TYR:HA | 1.75 | 0.67 |
| 22:X:14:LEU:HD22 | 22:X:19:LYS:H | 1.58 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:86:C:OP1 | 22:X:30:VAL:HG23 | 1.93 | 0.67 |
| 22:X:40:GLU:O | 22:X:62:GLU:OE2 | 2.13 | 0.67 |
| 23:Y:122:ARG:HG2 | 23:Y:171:ILE:HD12 | 1.75 | 0.67 |
| 23:Y:78:LYS:N | 23:Y:78:LYS:HE2 | 2.08 | 0.67 |
| 3:C:47:LEU:HD23 | 3:C:169:GLY:O | 1.95 | 0.67 |
| 1:A:1575:C:N4 | 1:A:1576:U:N3 | 2.43 | 0.67 |
| 25:1:42:ASN:O | 25:1:45:ILE:HG12 | 1.94 | 0.67 |
| 27:3:42:PHE:C | 27:3:61:ARG:NH1 | 2.48 | 0.67 |
| 27:3:57:GLU:O | 27:3:60:GLN:HG3 | 1.95 | 0.67 |
| 31:7:16:ILE:HG23 | 31:7:22:VAL:CG2 | 2.24 | 0.67 |
| 1:A:1271:G:H1 | 20:V:87:PRO:HG3 | 1.59 | 0.67 |
| 1:A:1548:C:H2' | 1:A:1549:C:C6 | 2.30 | 0.67 |
| 1:A:742:G:C4' | 1:A:1675:C:O2' | 2.41 | 0.67 |
| 1:A:1943:U:C4' | 1:A:1944:U:O5' | 2.43 | 0.67 |
| 1:A:2009:G:H4' | 20:V:40:ASN:HD21 | 1.60 | 0.67 |
| 1:A:578:A:H2' | 1:A:2018:G:H5'' | 1.77 | 0.67 |
| 1:A:216:A:C2 | 1:A:217:G:C5 | 2.83 | 0.67 |
| 1:A:228:A:H8 | 1:A:229:A:H4' | 1.60 | 0.67 |
| 1:A:641:C:O2' | 1:A:2350:C:OP1 | 2.11 | 0.67 |
| 1:A:2359:C:O5' | 1:A:2359:C:H6 | 1.78 | 0.67 |
| 1:A:1127:A:C2 | 1:A:2518:A:N3 | 2.63 | 0.67 |
| 1:A:2582:G:H21 | 1:A:2583:G:H1' | 1.59 | 0.67 |
| 1:A:2592:G:C5 | 1:A:2593:U:C5 | 2.83 | 0.67 |
| 1:A:2626:C:O5' | 1:A:2626:C:H6 | 1.76 | 0.67 |
| 1:A:296:C:O2' | 1:A:297:C:O4' | 2.10 | 0.67 |
| 1:A:704:G:C2' | 1:A:726:G:N2 | 2.52 | 0.67 |
| 2:B:101:A:H2' | 2:B:102:G:C8 | 2.28 | 0.67 |
| 2:B:58:A:N6 | 2:B:59:A:N6 | 2.42 | 0.67 |
| 4:D:217:ARG:NE | 4:D:218:ARG:HD3 | 2.08 | 0.67 |
| 5:E:173:VAL:HG22 | 5:E:183:LEU:O | 1.93 | 0.67 |
| 6:F:197:ASP:HA | 6:F:200:GLU:HG3 | 1.76 | 0.67 |
| 7:G:138:GLN:CG | 7:G:155:MET:HE2 | 2.25 | 0.67 |
| 11:M:108:PRO:O | 11:M:109:LYS:HB3 | 1.93 | 0.67 |
| 17:S:26:ASP:HB3 | 17:S:94:ALA:HA | 1.74 | 0.67 |
| 18:T:12:ARG:HB2 | 18:T:13:LYS:NZ | 2.10 | 0.67 |
| 19:U:15:GLU:HB3 | 19:U:16:PRO:CD | 2.24 | 0.67 |
| 22:X:7:VAL:CG2 | 22:X:71:LYS:HG3 | 2.24 | 0.67 |
| 23:Y:18:LEU:HD13 | 23:Y:23:LYS:HG2 | 1.75 | 0.67 |
| 1:A:2128:C:H2' | 1:A:2129:C:H5' | 1.75 | 0.67 |
| 3:C:29:VAL:HG13 | 3:C:30:LYS:N | 2.09 | 0.67 |
| 3:C:28:LEU:HA | 3:C:31:GLU:OE1 | 1.94 | 0.67 |
| 25:1:8:ALA:O | 25:1:9:ARG:C | 2.32 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 28:4:9:LYS:O | 28:4:10:LYS:CB | 2.42 | 0.67 |
| 29:5:16:CYS:SG | 29:5:20:ASN:HB2 | 2.35 | 0.67 |
| 29:5:48:VAL:HG13 | 29:5:49:HIS:H | 1.59 | 0.67 |
| 1:A:1180:C:C2 | 1:A:1181:C:C5 | 2.83 | 0.67 |
| 1:A:117:G:H5' | 1:A:126:A:N3 | 2.10 | 0.67 |
| 1:A:1322:A:OP2 | 1:A:1322:A:H8 | 1.74 | 0.67 |
| 1:A:1376:C:O2' | 1:A:1377:G:H5' | 1.94 | 0.67 |
| 1:A:145:G:H2' | 1:A:146:G:C8 | 2.30 | 0.67 |
| 1:A:1491:G:C6 | 1:A:1492:G:H1' | 2.29 | 0.67 |
| 1:A:1602:U:N3 | 1:A:1602:U:OP2 | 2.27 | 0.67 |
| 1:A:1728:G:N2 | 1:A:1730:U:H1' | 2.09 | 0.67 |
| 1:A:1770:G:H2' | 1:A:1771:C:H6 | 1.59 | 0.67 |
| 1:A:1784:A:H4' | 1:A:1785:A:O4' | 1.95 | 0.67 |
| 1:A:1930:G:O2' | 1:A:1931:U:OP2 | 2.11 | 0.67 |
| 1:A:2043:C:N4 | 1:A:2777:G:C4 | 2.63 | 0.67 |
| 1:A:2273:A:H2' | 1:A:2274:A:H5' | 1.76 | 0.67 |
| 1:A:2385:C:O2' | 1:A:2386:C:O5' | 2.11 | 0.67 |
| 1:A:2657:A:N7 | 1:A:2658:C:C6 | 2.63 | 0.67 |
| 1:A:2668:G:O2' | 1:A:2669:G:H5' | 1.94 | 0.67 |
| 1:A:450:G:C5' | 6:F:52:LYS:HD3 | 2.23 | 0.67 |
| 1:A:530:G:O2' | 1:A:531:C:P | 2.53 | 0.67 |
| 1:A:61:G:C2 | 1:A:62:C:C2 | 2.82 | 0.67 |
| 1:A:783:A:N1 | 1:A:785:G:O4' | 2.27 | 0.67 |
| 1:A:784:A:C6 | 1:A:792:G:H1' | 2.30 | 0.67 |
| 1:A:85:G:OP2 | 22:X:28:LYS:NZ | 2.25 | 0.67 |
| 1:A:925:C:O2' | 1:A:926:A:H5' | 1.95 | 0.67 |
| 1:A:956:G:O6 | 1:A:958:U:H1' | 1.95 | 0.67 |
| 2:B:88:C:N4 | 2:B:89:G:N3 | 2.42 | 0.67 |
| 4:D:132:PRO:O | 4:D:133:LEU:C | 2.32 | 0.67 |
| 6:F:157:VAL:CG1 | 6:F:176:LEU:HD23 | 2.16 | 0.67 |
| 7:G:105:LYS:HZ3 | 7:G:139:LEU:CD1 | 2.06 | 0.67 |
| 7:G:75:LYS:HG3 | 7:G:87:PRO:HG3 | 1.75 | 0.67 |
| 8:H:69:ARG:HG3 | 8:H:70:THR:H | 1.59 | 0.67 |
| 8:H:9:ILE:HD13 | 8:H:73:ALA:HB2 | 1.77 | 0.67 |
| 8:H:88:LEU:C | 8:H:88:LEU:HD23 | 2.15 | 0.67 |
| 10:L:7:VAL:HG11 | 10:L:67:PHE:CD2 | 2.29 | 0.67 |
| 11:M:23:LEU:HD12 | 11:M:63:THR:CG2 | 2.24 | 0.67 |
| 12:N:72:PRO:HB2 | 17:S:84:GLN:NE2 | 2.07 | 0.67 |
| 15:Q:73:VAL:HA | 15:Q:76:VAL:HB | 1.75 | 0.67 |
| 17:S:27:THR:HA | 17:S:52:ILE:HB | 1.75 | 0.67 |
| 1:A:2018:G:H1' | 18:T:34:LYS:NZ | 2.10 | 0.67 |
| 20:V:76:VAL:HA | 20:V:104:THR:HG22 | 1.76 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1614:A:N6 | 20:V:91:GLY:O | 2.28 | 0.67 |
| 1:A:142:G:H4' | 21:W:37:THR:OG1 | 1.94 | 0.67 |
| 21:W:73:ARG:CG | 21:W:74:PRO:HD2 | 2.23 | 0.67 |
| 23:Y:73:GLN:O | 23:Y:74:VAL:HG23 | 1.94 | 0.67 |
| 1:A:1578:U:H5'' | 1:A:1580:A:C2 | 2.29 | 0.67 |
| 1:A:1579:A:C2' | 1:A:1580:A:H5' | 2.25 | 0.67 |
| 1:A:2104:G:H2' | 1:A:2105:C:O4' | 1.95 | 0.67 |
| 8:H:156:ALA:HB1 | 8:H:170:ARG:CB | 2.25 | 0.67 |
| 28:4:39:MET:HE1 | 28:4:40:LYS:HA | 1.76 | 0.67 |
| 31:7:23:VAL:CG1 | 31:7:24:ALA:N | 2.57 | 0.67 |
| 1:A:1407:C:O2' | 1:A:1408:C:H5' | 1.94 | 0.67 |
| 1:A:1443:G:C2 | 1:A:1444:G:H1' | 2.29 | 0.67 |
| 1:A:1531:C:H2' | 1:A:1532:C:H5 | 1.54 | 0.67 |
| 1:A:754:C:C4' | 1:A:1618:A:H2 | 2.07 | 0.67 |
| 1:A:1762:A:C3' | 1:A:1762:A:C8 | 2.75 | 0.67 |
| 1:A:1833:U:O2' | 1:A:1834:U:OP1 | 2.05 | 0.67 |
| 1:A:1923:U:H2' | 1:A:1924:C:C5 | 2.29 | 0.67 |
| 1:A:2758:A:OP2 | 1:A:2759:G:OP2 | 2.13 | 0.67 |
| 1:A:64:A:H5' | 21:W:73:ARG:HA | 1.77 | 0.67 |
| 2:B:48:A:H2' | 2:B:49:C:C5 | 2.30 | 0.67 |
| 1:A:1820:U:H2' | 4:D:202:LYS:HG3 | 1.74 | 0.67 |
| 4:D:57:GLY:H | 4:D:217:ARG:HD2 | 1.59 | 0.67 |
| 5:E:48:GLN:N | 5:E:48:GLN:CD | 2.48 | 0.67 |
| 7:G:118:ARG:HD3 | 7:G:118:ARG:C | 2.15 | 0.67 |
| 7:G:39:ILE:HG23 | 7:G:157:ILE:HG13 | 1.77 | 0.67 |
| 7:G:60:LEU:CG | 7:G:90:LEU:HD21 | 2.24 | 0.67 |
| 7:G:59:GLU:HG3 | 7:G:60:LEU:H | 1.59 | 0.67 |
| 8:H:120:GLY:N | 8:H:140:LYS:HZ3 | 1.89 | 0.67 |
| 8:H:25:LYS:HD3 | 8:H:27:LYS:HD2 | 1.75 | 0.67 |
| 10:L:68:VAL:HB | 10:L:70:LYS:HE3 | 1.74 | 0.67 |
| 11:M:89:LYS:HD2 | 11:M:90:MET:N | 2.09 | 0.67 |
| 12:N:23:ARG:O | 12:N:40:VAL:HG12 | 1.94 | 0.67 |
| 12:N:6:THR:HG23 | 12:N:7:TYR:N | 2.10 | 0.67 |
| 13:O:107:LYS:HE2 | 13:O:110:TYR:HD1 | 1.58 | 0.67 |
| 13:O:114:ILE:CB | 13:O:129:ALA:O | 2.41 | 0.67 |
| 13:O:32:THR:OG1 | 13:O:33:ARG:N | 2.27 | 0.67 |
| 14:P:12:GLN:HG3 | 14:P:13:GLN:HG2 | 1.74 | 0.67 |
| 15:Q:53:HIS:CD2 | 15:Q:56:LYS:HZ3 | 2.12 | 0.67 |
| 16:R:17:ARG:NH1 | 16:R:27:SER:HA | 2.10 | 0.67 |
| 16:R:48:LEU:CD2 | 16:R:49:VAL:HG12 | 2.20 | 0.67 |
| 17:S:57:PHE:HA | 17:S:61:PHE:HD2 | 1.54 | 0.67 |
| 17:S:58:ASN:O | 17:S:58:ASN:ND2 | 2.23 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:2123:G:H4' | 3:C:172:HIS:CG | 2.29 | 0.67 |
| 1:A:2120:G:H21 | 3:C:167:LYS:CD | 2.07 | 0.67 |
| 8:H:108:GLY:O | 8:H:110:SER:N | 2.22 | 0.67 |
| 26:2:7:LYS:NZ | 26:2:33:GLN:N | 2.42 | 0.67 |
| 26:2:54:VAL:HG13 | 26:2:55:ARG:N | 2.08 | 0.67 |
| 27:3:53:GLU:CG | 27:3:54:GLY:N | 2.57 | 0.67 |
| 27:3:58:ARG:HD3 | 27:3:59:PHE:CE2 | 2.29 | 0.67 |
| 28:4:17:ASP:O | 28:4:19:ARG:N | 2.27 | 0.67 |
| 29:5:41:PRO:HD2 | 29:5:46:HIS:O | 1.94 | 0.67 |
| 30:6:10:ARG:C | 30:6:14:LYS:HG3 | 2.15 | 0.67 |
| 1:A:1020:A:O2' | 1:A:1140:C:N4 | 2.27 | 0.67 |
| 1:A:1186:G:C8 | 1:A:1187:G:C8 | 2.82 | 0.67 |
| 1:A:126:A:N7 | 1:A:127:A:C6 | 2.62 | 0.67 |
| 1:A:141:A:N3 | 1:A:141:A:H2' | 2.10 | 0.67 |
| 1:A:1781:C:O2' | 1:A:2609:U:O4 | 2.13 | 0.67 |
| 1:A:1804:C:O3' | 4:D:250:TRP:CZ2 | 2.48 | 0.67 |
| 1:A:1881:C:H4' | 1:A:1881:C:OP1 | 1.94 | 0.67 |
| 1:A:1914:C:H2' | 1:A:1914:C:O2 | 1.94 | 0.67 |
| 1:A:2081:C:C2' | 1:A:2082:A:H5' | 2.24 | 0.67 |
| 1:A:2216:G:C2 | 1:A:2217:G:C8 | 2.82 | 0.67 |
| 1:A:966:G:O2' | 1:A:2267:A:N6 | 2.28 | 0.67 |
| 1:A:241:A:O4' | 1:A:241:A:OP1 | 2.12 | 0.67 |
| 1:A:2611:U:H6 | 1:A:2611:U:H5' | 1.60 | 0.67 |
| 1:A:2876:G:C5' | 17:S:1:MET:N | 2.57 | 0.67 |
| 1:A:627:A:H2 | 1:A:651:G:H5' | 1.58 | 0.67 |
| 1:A:625:G:H21 | 1:A:653:A:N6 | 1.92 | 0.67 |
| 1:A:832:G:H2' | 1:A:833:U:H5 | 1.59 | 0.67 |
| 1:A:833:U:O4' | 13:O:48:PRO:HD2 | 1.95 | 0.67 |
| 1:A:97:C:O5' | 1:A:97:C:H6 | 1.76 | 0.67 |
| 4:D:217:ARG:CG | 4:D:218:ARG:N | 2.58 | 0.67 |
| 5:E:159:HIS:NE2 | 5:E:162:ALA:HB3 | 2.09 | 0.67 |
| 7:G:43:LEU:HD21 | 7:G:88:ILE:O | 1.95 | 0.67 |
| 2:B:45:A:C1' | 7:G:95:ARG:NH1 | 2.56 | 0.67 |
| 8:H:153:LYS:H | 8:H:154:PRO:HD2 | 1.59 | 0.67 |
| 8:H:71:LEU:O | 8:H:74:ASN:HB3 | 1.95 | 0.67 |
| 10:L:98:ARG:CB | 10:L:139:VAL:HB | 2.22 | 0.67 |
| 11:M:103:VAL:CG2 | 11:M:104:LYS:N | 2.57 | 0.67 |
| 11:M:34:LEU:HD11 | 11:M:120:LEU:HD22 | 1.76 | 0.67 |
| 6:F:34:TRP:CZ3 | 13:O:8:PRO:HD2 | 2.30 | 0.67 |
| 14:P:27:VAL:HG22 | 14:P:28:ALA:N | 2.10 | 0.67 |
| 14:P:6:ARG:NH2 | 14:P:9:TYR:N | 2.43 | 0.67 |
| 15:Q:113:LEU:HD22 | 15:Q:114:VAL:N | 2.10 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 15:Q:18:LEU:O | 15:Q:22:ARG:HG3 | 1.95 | 0.67 |
| 17:S:45:PHE:HE1 | 17:S:86:ILE:CG2 | 2.08 | 0.67 |
| 20:V:43:GLY:O | 20:V:47:VAL:HG22 | 1.95 | 0.67 |
| 23:Y:118:GLN:OE1 | 23:Y:174:VAL:HG12 | 1.94 | 0.67 |
| 23:Y:89:PHE:CD1 | 23:Y:91:LEU:HD11 | 2.30 | 0.67 |
| 1:A:2246:G:C2 | 1:A:2247:A:C6 | 2.82 | 0.67 |
| 27:3:10:VAL:N | 27:3:11:PRO:HD2 | 2.06 | 0.67 |
| 27:3:23:GLU:HA | 27:3:27:THR:O | 1.95 | 0.67 |
| 1:A:1809:A:N6 | 27:3:3:GLU:HG3 | 2.09 | 0.67 |
| 27:3:42:PHE:N | 27:3:58:ARG:HH11 | 1.91 | 0.67 |
| 31:7:49:VAL:O | 31:7:53:PRO:HG3 | 1.95 | 0.67 |
| 1:A:1056:G:H5' | 1:A:1057:A:C5' | 2.19 | 0.67 |
| 1:A:1212:G:H3' | 1:A:1212:G:C8 | 2.30 | 0.67 |
| 1:A:1237:A:HO2' | 1:A:1238:G:C4' | 2.06 | 0.67 |
| 1:A:1202:C:H41 | 1:A:1241:A:H62 | 1.42 | 0.67 |
| 1:A:1375:C:C2 | 1:A:1376:C:C5 | 2.83 | 0.67 |
| 1:A:1487:G:O2' | 1:A:1488:G:H5' | 1.94 | 0.67 |
| 1:A:1632:A:O5' | 1:A:1632:A:H8 | 1.76 | 0.67 |
| 1:A:1799:G:H3' | 4:D:183:ARG:NH2 | 2.04 | 0.67 |
| 1:A:2014:A:H2 | 1:A:2613:U:N3 | 1.91 | 0.67 |
| 1:A:2029:G:C5 | 1:A:2031:A:OP1 | 2.47 | 0.67 |
| 1:A:205:G:HO2' | 1:A:206:U:P | 2.17 | 0.67 |
| 1:A:2091:U:C2' | 1:A:2092:U:H5' | 2.24 | 0.67 |
| 1:A:2607:G:N1 | 1:A:2608:G:C2 | 2.63 | 0.67 |
| 1:A:2711:A:OP2 | 1:A:2712(A):A:OP2 | 2.13 | 0.67 |
| 1:A:271(C):U:O4 | 1:A:421:U:N3 | 2.27 | 0.67 |
| 1:A:458:G:O2' | 30:6:40:TRP:CZ2 | 2.48 | 0.67 |
| 1:A:18:C:O2 | 1:A:553:U:H5'' | 1.95 | 0.67 |
| 1:A:616:A:O3' | 1:A:617:G:O4' | 2.12 | 0.67 |
| 1:A:989:G:HO2' | 1:A:990:A:P | 2.17 | 0.67 |
| 4:D:137:PRO:CG | 4:D:140:THR:HG21 | 2.24 | 0.67 |
| 4:D:159:ALA:HB3 | 4:D:202:LYS:NZ | 2.10 | 0.67 |
| 4:D:56:GLY:HA3 | 4:D:58:HIS:HE1 | 1.59 | 0.67 |
| 5:E:51:PHE:HB3 | 5:E:76:ARG:HH21 | 1.60 | 0.67 |
| 6:F:149:ASP:C | 6:F:172:TRP:NE1 | 2.47 | 0.67 |
| 7:G:102:PHE:CE2 | 7:G:106:LEU:HD21 | 2.29 | 0.67 |
| 9:K:5:LEU:N | 9:K:5:LEU:HD23 | 2.09 | 0.67 |
| 10:L:49:GLY:HA2 | 10:L:53:VAL:CG2 | 2.24 | 0.67 |
| 12:N:6:THR:HG22 | 12:N:8:LEU:HG | 1.76 | 0.67 |
| 13:O:122:PRO:C | 13:O:138:LEU:HA | 2.15 | 0.67 |
| 1:A:2393:A:H5'' | 13:O:56:SER:N | 2.08 | 0.67 |
| 13:O:79:ARG:O | 13:O:83:VAL:HG22 | 1.95 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 14:P:16:ARG:NE | 14:P:73:PRO:HD3 | 2.10 | 0.67 |
| 14:P:75:THR:HG23 | 14:P:91:GLU:OE1 | 1.95 | 0.67 |
| 16:R:3:ARG:HG2 | 16:R:4:LEU:HD23 | 1.77 | 0.67 |
| 16:R:40:ILE:HG22 | 16:R:41:ASP:N | 2.10 | 0.67 |
| 17:S:28:VAL:HG21 | 17:S:90:GLN:HE22 | 1.60 | 0.67 |
| 18:T:24:TYR:N | 18:T:24:TYR:CD1 | 2.60 | 0.67 |
| 20:V:28:SER:H | 20:V:31:GLU:CD | 1.98 | 0.67 |
| 22:X:74:PRO:CB | 22:X:101:LYS:N | 2.58 | 0.67 |
| 24:Z:36:ILE:HG12 | 24:Z:37:LEU:H | 1.57 | 0.67 |
| 24:Z:21:LEU:HD11 | 24:Z:40:GLN:CA | 2.25 | 0.67 |
| 24:Z:44:ARG:HG2 | 24:Z:44:ARG:O | 1.94 | 0.67 |
| 9:K:108:THR:C | 9:K:109:ILE:HD12 | 2.15 | 0.67 |
| 16:R:56:LEU:HD21 | 16:R:59:LYS:NZ | 2.10 | 0.67 |
| 1:A:1024:G:C4 | 1:A:1025:G:C8 | 2.83 | 0.67 |
| 1:A:1044:G:H1 | 1:A:1112:G:HO2' | 1.39 | 0.67 |
| 1:A:1520:U:O2' | 1:A:1521:G:H5'' | 1.95 | 0.67 |
| 1:A:1531:C:C2 | 1:A:1532:C:H5 | 2.13 | 0.67 |
| 1:A:1634:A:O2' | 1:A:1635:G:P | 2.53 | 0.67 |
| 1:A:1789:A:H4' | 4:D:222:ARG:HE | 1.58 | 0.67 |
| 1:A:1817:G:O5' | 4:D:88:ARG:NH2 | 2.27 | 0.67 |
| 1:A:1913:A:C1' | 1:A:1918:A:H61 | 2.05 | 0.67 |
| 1:A:1964:G:O2' | 1:A:1965:C:OP1 | 2.12 | 0.67 |
| 1:A:2209:C:O2' | 1:A:2210:G:H3' | 1.94 | 0.67 |
| 1:A:2392:A:C2 | 1:A:2429:G:C4 | 2.83 | 0.67 |
| 1:A:1127:A:N1 | 1:A:2518:A:N3 | 2.42 | 0.67 |
| 1:A:2555:U:C5 | 1:A:2556:C:O4' | 2.48 | 0.67 |
| 1:A:2573:C:H6 | 1:A:2573:C:O5' | 1.77 | 0.67 |
| 1:A:2626:C:C6 | 1:A:2626:C:C3' | 2.77 | 0.67 |
| 1:A:491:G:N3 | 1:A:492:A:H1' | 2.10 | 0.67 |
| 1:A:675:A:C8 | 1:A:676:A:H2 | 2.12 | 0.67 |
| 1:A:676:A:C2' | 1:A:677:A:H5' | 2.22 | 0.67 |
| 1:A:941:A:N1 | 1:A:942:G:C2 | 2.63 | 0.67 |
| 1:A:569:U:P | 1:A:945:A:H61 | 2.18 | 0.67 |
| 1:A:954:G:H2' | 1:A:955:C:O4' | 1.95 | 0.67 |
| 1:A:964:C:O2' | 1:A:2273:A:C8 | 2.46 | 0.67 |
| 4:D:69:ARG:NH2 | 4:D:130:ALA:CB | 2.58 | 0.67 |
| 4:D:145:VAL:HB | 4:D:155:LEU:HD22 | 1.75 | 0.67 |
| 4:D:161:THR:HG22 | 4:D:196:VAL:CB | 2.22 | 0.67 |
| 1:A:1816:G:P | 4:D:43:ARG:CZ | 2.83 | 0.67 |
| 4:D:89:SER:O | 4:D:159:ALA:HB2 | 1.95 | 0.67 |
| 5:E:124:GLY:HA3 | 5:E:136:ARG:HB2 | 1.77 | 0.67 |
| 5:E:47:VAL:HG22 | 5:E:79:ARG:HD2 | 1.77 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:H:103:LEU:HD22 | 8:H:115:VAL:HB | 1.74 | 0.67 |
| 8:H:74:ASN:HB2 | 8:H:138:LYS:NZ | 2.10 | 0.67 |
| 9:K:7:GLU:N | 9:K:8:PRO:CD | 2.54 | 0.67 |
| 11:M:67:LEU:N | 11:M:87:LEU:HD21 | 2.04 | 0.67 |
| 12:N:79:PHE:HD1 | 17:S:73:GLU:OE2 | 1.78 | 0.67 |
| 13:O:122:PRO:CB | 13:O:141:ALA:HB3 | 2.25 | 0.67 |
| 13:O:15:ARG:NE | 13:O:16:ARG:H | 1.93 | 0.67 |
| 14:P:111:GLU:HB3 | 14:P:113:GLN:H | 1.60 | 0.67 |
| 15:Q:86:ARG:NH2 | 15:Q:87:TYR:CE2 | 2.63 | 0.67 |
| 16:R:100:ALA:O | 16:R:101:LEU:C | 2.32 | 0.67 |
| 18:T:70:ARG:HG2 | 18:T:75:ASN:CA | 2.11 | 0.67 |
| 18:T:77:SER:O | 18:T:81:HIS:HB2 | 1.93 | 0.67 |
| 20:V:36:LEU:HD11 | 20:V:47:VAL:HG23 | 1.77 | 0.67 |
| 21:W:60:ARG:HD2 | 21:W:62:LYS:HG2 | 1.77 | 0.67 |
| 24:Z:82:ARG:HD2 | 24:Z:83:PRO:N | 2.10 | 0.67 |
| 9:K:93:THR:O | 9:K:96:ASP:N | 2.28 | 0.67 |
| 1:A:2120:G:H21 | 3:C:167:LYS:HD3 | 1.60 | 0.67 |
| 32:8:13:LYS:HZ3 | 32:8:13:LYS:HA | 1.58 | 0.67 |
| 1:A:2373:G:C4 | 1:A:2374:C:C5 | 2.82 | 0.67 |
| 30:6:25:PRO:O | 30:6:29:LYS:HD3 | 1.95 | 0.67 |
| 31:7:26:LYS:HG3 | 31:7:45:GLY:C | 2.15 | 0.67 |
| 32:8:1:MET:C | 32:8:35:ARG:HD2 | 2.16 | 0.67 |
| 32:8:1:MET:O | 32:8:33:LYS:O | 2.13 | 0.67 |
| 1:A:1139:G:H8 | 1:A:1139:G:O5' | 1.78 | 0.67 |
| 1:A:1166:C:C2 | 1:A:1184:G:N2 | 2.63 | 0.67 |
| 1:A:1336:A:H2' | 1:A:1337:G:C8 | 2.30 | 0.67 |
| 1:A:1479:G:N2 | 1:A:1515:C:C2 | 2.61 | 0.67 |
| 1:A:1675:C:O2 | 1:A:1676:A:C8 | 2.47 | 0.67 |
| 1:A:1872:A:C2' | 1:A:1878:G:H5' | 2.20 | 0.67 |
| 1:A:1916:A:C2 | 1:A:1917:U:O4 | 2.48 | 0.67 |
| 1:A:1970:A:O2' | 1:A:1971:A:P | 2.53 | 0.67 |
| 1:A:2033:A:HO2' | 1:A:2034:U:P | 2.17 | 0.67 |
| 1:A:2254:C:H2' | 1:A:2255:G:C5' | 2.24 | 0.67 |
| 1:A:2296:U:H5 | 16:R:5:THR:HG23 | 1.59 | 0.67 |
| 1:A:2336:A:O2' | 1:A:2337:G:OP1 | 2.10 | 0.67 |
| 1:A:2077:A:C4 | 1:A:2435:A:N7 | 2.63 | 0.67 |
| 1:A:2569:G:C2 | 1:A:2570:G:C8 | 2.82 | 0.67 |
| 1:A:27:G:N2 | 1:A:512:G:H2' | 2.09 | 0.67 |
| 1:A:279:C:H2' | 1:A:280:C:C5 | 2.30 | 0.67 |
| 1:A:33:U:C5 | 1:A:446:G:N2 | 2.63 | 0.67 |
| 1:A:848:G:N2 | 1:A:933:A:C4 | 2.63 | 0.67 |
| 1:A:935:C:H2' | 1:A:936:C:H6 | 1.58 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 5:E:147:PRO:HB2 | 5:E:149:ARG:HH21 | 1.57 | 0.67 |
| 5:E:4:ILE:HD11 | 5:E:76:ARG:NE | 2.09 | 0.67 |
| 7:G:139:LEU:C | 7:G:142:PRO:HD3 | 2.14 | 0.67 |
| 8:H:98:LEU:CG | 8:H:123:PHE:HB2 | 2.25 | 0.67 |
| 8:H:124:GLU:HB3 | 8:H:132:ARG:NH1 | 2.10 | 0.67 |
| 10:L:23:VAL:HA | 10:L:27:LEU:HG | 1.77 | 0.67 |
| 11:M:103:VAL:HG23 | 11:M:117:PHE:HE2 | 1.59 | 0.67 |
| 11:M:14:VAL:HG23 | 11:M:50:ASP:OD1 | 1.95 | 0.67 |
| 13:O:90:ARG:CA | 13:O:125:VAL:HG13 | 2.25 | 0.67 |
| 14:P:121:ALA:O | 14:P:125:LEU:HG | 1.95 | 0.67 |
| 14:P:134:ARG:NH1 | 14:P:135:ASP:HA | 2.10 | 0.67 |
| 15:Q:17:ARG:HG2 | 15:Q:18:LEU:N | 2.10 | 0.67 |
| 17:S:48:ILE:CG2 | 17:S:50:ILE:HD11 | 2.25 | 0.67 |
| 22:X:53:PRO:O | 22:X:55:TYR:N | 2.28 | 0.67 |
| 3:C:62:VAL:CG1 | 3:C:195:ALA:CB | 2.73 | 0.67 |
| 1:A:2175:C:OP1 | 3:C:5:LYS:HG2 | 1.95 | 0.67 |
| 26:2:40:THR:HG22 | 26:2:42:ALA:N | 2.09 | 0.67 |
| 26:2:50:VAL:CG1 | 26:2:53:LEU:HD12 | 2.23 | 0.67 |
| 1:A:2344:U:H5'' | 29:5:38:LYS:HE2 | 1.76 | 0.67 |
| 1:A:1074:G:H2' | 1:A:1075:C:C5 | 2.30 | 0.67 |
| 1:A:1248:G:O2' | 1:A:1249:U:OP1 | 2.10 | 0.67 |
| 1:A:1475:G:O6 | 1:A:1517:G:C6 | 2.48 | 0.67 |
| 1:A:152:G:H2' | 1:A:153:C:O4' | 1.95 | 0.67 |
| 1:A:1568:G:OP1 | 4:D:61:LEU:CB | 2.42 | 0.67 |
| 1:A:1596:A:N6 | 1:A:1597:A:C6 | 2.63 | 0.67 |
| 1:A:1657:C:H6 | 1:A:1657:C:O5' | 1.78 | 0.67 |
| 1:A:1676:A:C8 | 1:A:1677:A:N7 | 2.63 | 0.67 |
| 1:A:1935:G:C2' | 1:A:1962:C:H42 | 2.07 | 0.67 |
| 1:A:2239:G:C3' | 1:A:2240:C:H5'' | 2.20 | 0.67 |
| 1:A:2681:C:N4 | 1:A:2725:A:H62 | 1.92 | 0.67 |
| 1:A:2821:A:H5'' | 5:E:110:GLY:HA3 | 1.76 | 0.67 |
| 1:A:660:G:H2' | 1:A:661:C:C6 | 2.30 | 0.67 |
| 1:A:730:C:H2' | 1:A:731:C:C6 | 2.29 | 0.67 |
| 1:A:950:G:C2' | 1:A:951:C:C6 | 2.72 | 0.67 |
| 1:A:991:C:H5' | 1:A:1185:C:H2' | 1.77 | 0.67 |
| 5:E:143:ASN:HD22 | 5:E:143:ASN:N | 1.93 | 0.67 |
| 5:E:49:LEU:HD22 | 5:E:76:ARG:O | 1.94 | 0.67 |
| 6:F:103:LYS:O | 6:F:106:ARG:HG2 | 1.95 | 0.67 |
| 6:F:184:TYR:N | 6:F:184:TYR:CD2 | 2.58 | 0.67 |
| 6:F:31:HIS:CB | 13:O:11:GLY:H | 2.08 | 0.67 |
| 1:A:1255:U:C4 | 6:F:72:ARG:O | 2.48 | 0.67 |
| 7:G:139:LEU:O | 7:G:142:PRO:HD3 | 1.94 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 9:K:32:PRO:CD | 9:K:33:ARG:H | 2.07 | 0.67 |
| 10:L:45:THR:HG22 | 10:L:48:MET:HE3 | 1.75 | 0.67 |
| 14:P:22:LYS:CE | 14:P:23:GLY:H | 2.08 | 0.67 |
| 16:R:4:LEU:O | 16:R:8:GLU:HB2 | 1.93 | 0.67 |
| 19:U:43:GLU:O | 19:U:44:LYS:CD | 2.41 | 0.67 |
| 20:V:58:ALA:O | 20:V:63:ASP:N | 2.28 | 0.67 |
| 21:W:85:PRO:CB | 21:W:87:GLN:HE21 | 2.08 | 0.67 |
| 21:W:90:GLU:O | 21:W:93:GLU:HG2 | 1.95 | 0.67 |
| 23:Y:158:PRO:HB2 | 23:Y:159:PRO:CD | 2.16 | 0.67 |
| 23:Y:6:LYS:HA | 23:Y:37:VAL:CG1 | 2.24 | 0.67 |
| 24:Z:46:LYS:CE | 24:Z:77:ARG:H | 2.08 | 0.67 |
| 9:K:101:LEU:HD12 | 9:K:107:VAL:O | 1.95 | 0.67 |
| 1:A:2157:G:H5'' | 1:A:2157:G:N3 | 2.10 | 0.67 |
| 3:C:19:ILE:O | 3:C:224:ILE:HA | 1.94 | 0.67 |
| 9:K:58:LEU:HB3 | 9:K:62:LYS:NZ | 2.10 | 0.67 |
| 27:3:65:ASP:HA | 27:3:68:ARG:NH1 | 2.08 | 0.66 |
| 1:A:330:A:C2 | 1:A:1210:A:H2' | 2.29 | 0.66 |
| 1:A:1422:G:H2' | 1:A:1423:G:C8 | 2.30 | 0.66 |
| 1:A:1516:U:H2' | 1:A:1517:G:H8 | 1.53 | 0.66 |
| 1:A:1530:G:H2' | 1:A:1531:C:N1 | 2.09 | 0.66 |
| 1:A:1545(A):A:H2' | 1:A:1546:C:H5' | 1.77 | 0.66 |
| 1:A:1656:C:H2' | 1:A:1657:C:C5 | 2.29 | 0.66 |
| 1:A:1913:A:C4 | 1:A:1918:A:N6 | 2.63 | 0.66 |
| 1:A:1934:C:O2' | 1:A:1935:G:H5' | 1.94 | 0.66 |
| 1:A:2075:U:O2 | 1:A:2077:A:OP2 | 2.13 | 0.66 |
| 1:A:2431:U:OP2 | 1:A:2432:A:OP2 | 2.12 | 0.66 |
| 1:A:2565:A:H2' | 1:A:2566:A:H1' | 1.76 | 0.66 |
| 1:A:2703:C:O2' | 1:A:2704:C:H5' | 1.95 | 0.66 |
| 1:A:2784:C:H4' | 5:E:41:LYS:HE2 | 1.77 | 0.66 |
| 1:A:2832:U:H2' | 1:A:2879:C:N4 | 2.10 | 0.66 |
| 1:A:40:C:H2' | 1:A:41:C:C6 | 2.29 | 0.66 |
| 1:A:451:C:H5 | 1:A:453:C:H5' | 1.59 | 0.66 |
| 1:A:514:A:C2 | 1:A:515:A:N9 | 2.63 | 0.66 |
| 1:A:625:G:O2' | 1:A:656:G:H4' | 1.94 | 0.66 |
| 2:B:48:A:H5'' | 16:R:92:TYR:CD2 | 2.30 | 0.66 |
| 1:A:1819:A:C8 | 4:D:179:SER:OG | 2.48 | 0.66 |
| 5:E:179:GLU:O | 5:E:181:LEU:HG | 1.94 | 0.66 |
| 5:E:176:ILE:HG23 | 5:E:181:LEU:HB2 | 1.75 | 0.66 |
| 8:H:85:LYS:NZ | 8:H:141:VAL:HG12 | 2.09 | 0.66 |
| 11:M:128:HIS:HA | 11:M:131:GLN:HG3 | 1.76 | 0.66 |
| 11:M:60:ILE:HG22 | 11:M:61:ARG:N | 2.10 | 0.66 |
| 12:N:68:GLU:HG2 | 12:N:76:ALA:CA | 2.25 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 13:O:123:LEU:HB2 | 13:O:138:LEU:CA | 2.26 | 0.66 |
| 13:O:48:PRO:O | 13:O:51:PHE:HB2 | 1.94 | 0.66 |
| 13:O:59:LEU:HD23 | 31:7:25:MET:CE | 2.16 | 0.66 |
| 15:Q:86:ARG:CB | 15:Q:86:ARG:NH1 | 2.57 | 0.66 |
| 16:R:26:LEU:HD11 | 16:R:28:VAL:HB | 1.77 | 0.66 |
| 18:T:88:ILE:N | 18:T:88:ILE:CD1 | 2.54 | 0.66 |
| 20:V:74:ALA:HB3 | 20:V:105:VAL:HG23 | 1.77 | 0.66 |
| 20:V:82:LEU:CD1 | 20:V:84:ARG:HG3 | 2.13 | 0.66 |
| 21:W:36:LYS:O | 21:W:39:ILE:HB | 1.94 | 0.66 |
| 22:X:49:VAL:HG21 | 22:X:51:VAL:HB | 1.76 | 0.66 |
| 22:X:86:ARG:HB3 | 22:X:91:GLU:HB3 | 1.75 | 0.66 |
| 23:Y:118:GLN:CA | 23:Y:118:GLN:NE2 | 2.56 | 0.66 |
| 9:K:93:THR:CG2 | 9:K:95:LYS:HB3 | 2.25 | 0.66 |
| 1:A:2116:G:H5' | 1:A:2117:A:OP2 | 1.95 | 0.66 |
| 3:C:212:VAL:N | 3:C:223:ARG:HE | 1.89 | 0.66 |
| 3:C:49:ILE:HG23 | 3:C:208:PHE:HE1 | 1.60 | 0.66 |
| 17:S:37:GLY:HA3 | 17:S:43:GLN:HA | 1.75 | 0.66 |
| 28:4:40:LYS:NZ | 28:4:44:THR:H | 1.92 | 0.66 |
| 29:5:17:LYS:NZ | 29:5:50:ARG:HB2 | 2.08 | 0.66 |
| 1:A:1183:G:O4' | 1:A:1184:G:C8 | 2.48 | 0.66 |
| 1:A:1283:G:N2 | 1:A:1286:A:O4' | 2.28 | 0.66 |
| 1:A:768:G:H5' | 1:A:1622:G:H4' | 1.78 | 0.66 |
| 1:A:1789:A:C8 | 1:A:1790:C:C6 | 2.83 | 0.66 |
| 1:A:199:A:N1 | 1:A:2433:A:C2' | 2.57 | 0.66 |
| 1:A:2571:C:O2' | 5:E:146:THR:HG23 | 1.94 | 0.66 |
| 1:A:270(X):G:N2 | 1:A:270(Y):G:O2' | 2.28 | 0.66 |
| 1:A:2815:C:O2' | 28:4:42:PRO:CB | 2.43 | 0.66 |
| 1:A:282:A:N7 | 1:A:283:A:H4' | 2.09 | 0.66 |
| 1:A:2847:U:H5' | 1:A:2848:G:OP2 | 1.95 | 0.66 |
| 1:A:2789:C:O2' | 1:A:2893:G:N2 | 2.28 | 0.66 |
| 1:A:371:A:H62 | 1:A:424:G:C4' | 2.08 | 0.66 |
| 1:A:434:U:O2' | 1:A:435:C:O5' | 2.13 | 0.66 |
| 1:A:699:A:N6 | 1:A:734:A:C8 | 2.63 | 0.66 |
| 1:A:819:A:C2 | 1:A:943:U:O2 | 2.48 | 0.66 |
| 2:B:24:G:H21 | 2:B:27:C:N4 | 1.93 | 0.66 |
| 2:B:44:G:H1' | 2:B:47:C:N4 | 2.09 | 0.66 |
| 2:B:67:G:H5' | 2:B:67:G:H8 | 1.60 | 0.66 |
| 2:B:73:A:N7 | 2:B:104:A:C5 | 2.63 | 0.66 |
| 4:D:157:ARG:HH11 | 4:D:178:PRO:CG | 2.08 | 0.66 |
| 4:D:128:GLY:H | 4:D:193:VAL:HB | 1.60 | 0.66 |
| 4:D:53:PHE:C | 4:D:54:ARG:O | 2.30 | 0.66 |
| 4:D:85:ASP:C | 4:D:87:ASN:H | 1.96 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 4:D:92:ILE:CD1 | 4:D:104:TYR:CD1 | 2.73 | 0.66 |
| 5:E:102:VAL:CG2 | 5:E:103:ASP:N | 2.57 | 0.66 |
| 5:E:176:ILE:HG12 | 5:E:178:GLU:OE1 | 1.95 | 0.66 |
| 5:E:23:VAL:CG1 | 5:E:188:VAL:HG22 | 2.25 | 0.66 |
| 5:E:23:VAL:HG11 | 5:E:188:VAL:HG22 | 1.75 | 0.66 |
| 6:F:134:GLY:O | 6:F:166:ALA:HB2 | 1.95 | 0.66 |
| 7:G:144:ILE:HG22 | 7:G:145:THR:N | 2.11 | 0.66 |
| 7:G:61:ALA:HB1 | 7:G:67:LYS:HE2 | 1.77 | 0.66 |
| 8:H:93:GLY:O | 8:H:107:VAL:HB | 1.95 | 0.66 |
| 8:H:43:VAL:HG13 | 8:H:44:VAL:H | 1.60 | 0.66 |
| 9:K:5:LEU:HB3 | 9:K:8:PRO:CG | 2.25 | 0.66 |
| 10:L:79:ARG:NH1 | 10:L:87:GLY:HA2 | 2.10 | 0.66 |
| 11:M:13:TRP:HA | 11:M:51:PHE:O | 1.94 | 0.66 |
| 13:O:124:LYS:HD2 | 13:O:142:GLY:O | 1.94 | 0.66 |
| 14:P:14:ARG:CA | 14:P:14:ARG:NE | 2.53 | 0.66 |
| 15:Q:113:LEU:HD22 | 15:Q:114:VAL:H | 1.59 | 0.66 |
| 15:Q:53:HIS:O | 15:Q:56:LYS:HG3 | 1.96 | 0.66 |
| 16:R:40:ILE:CD1 | 16:R:47:THR:HG23 | 2.25 | 0.66 |
| 20:V:51:LEU:O | 20:V:54:ALA:HB3 | 1.96 | 0.66 |
| 9:K:111:PRO:HG2 | 9:K:112:LYS:H | 1.61 | 0.66 |
| 1:A:2118:U:OP1 | 1:A:2147:G:C2 | 2.48 | 0.66 |
| 3:C:190:ARG:HG3 | 3:C:193:ILE:HD12 | 1.78 | 0.66 |
| 2:B:1:U:O4 | 2:B:2:C:N4 | 2.28 | 0.66 |
| 28:4:40:LYS:HZ3 | 28:4:43:HIS:N | 1.93 | 0.66 |
| 1:A:1009:A:H8 | 18:T:59:ARG:NH2 | 1.92 | 0.66 |
| 1:A:1011:G:C6 | 1:A:1013:C:C5 | 2.84 | 0.66 |
| 1:A:1459:G:O6 | 1:A:1461:G:C4 | 2.49 | 0.66 |
| 1:A:1631:A:C6 | 1:A:1632:A:C2 | 2.83 | 0.66 |
| 1:A:1675:C:H2' | 1:A:1676:A:C5' | 2.24 | 0.66 |
| 1:A:2001:A:H2' | 1:A:2002:G:C8 | 2.30 | 0.66 |
| 1:A:2077:A:H1' | 1:A:2435:A:O4' | 1.95 | 0.66 |
| 1:A:239:U:HO2' | 1:A:240:G:H5' | 1.58 | 0.66 |
| 1:A:2074:U:C2' | 1:A:2597:G:H21 | 2.03 | 0.66 |
| 1:A:282:A:C6 | 1:A:283:A:H4' | 2.30 | 0.66 |
| 1:A:27:G:C2 | 1:A:512:G:C2' | 2.75 | 0.66 |
| 1:A:511:U:O4 | 1:A:512:G:N3 | 2.29 | 0.66 |
| 1:A:563:G:N2 | 1:A:564:C:N3 | 2.42 | 0.66 |
| 1:A:566:U:H3' | 1:A:567:A:H8 | 1.60 | 0.66 |
| 1:A:618:G:C8 | 1:A:618(A):C:C5 | 2.84 | 0.66 |
| 1:A:653:A:N7 | 1:A:655:A:H1' | 2.09 | 0.66 |
| 1:A:700:G:H2' | 1:A:701:G:H8 | 1.61 | 0.66 |
| 1:A:464:U:O2 | 1:A:788:A:N7 | 2.29 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:989:G:P | 26:2:10:LYS:HZ1 | 2.17 | 0.66 |
| 1:A:996:A:C2 | 1:A:997:G:C5 | 2.84 | 0.66 |
| 2:B:15:A:H1' | 2:B:109:G:C5 | 2.29 | 0.66 |
| 4:D:157:ARG:CB | 4:D:160:GLY:HA3 | 2.24 | 0.66 |
| 4:D:175:LEU:HD13 | 4:D:176:ARG:C | 2.14 | 0.66 |
| 4:D:68:LYS:HB3 | 4:D:70:TRP:NE1 | 2.10 | 0.66 |
| 8:H:71:LEU:HD23 | 8:H:72:ILE:CD1 | 2.25 | 0.66 |
| 10:L:27:LEU:HA | 10:L:32:ALA:HB3 | 1.77 | 0.66 |
| 11:M:78:TYR:O | 11:M:79:PRO:C | 2.31 | 0.66 |
| 12:N:23:ARG:H | 12:N:40:VAL:CG1 | 2.08 | 0.66 |
| 1:A:2685:G:C5' | 12:N:67:LYS:HZ2 | 2.08 | 0.66 |
| 13:O:72:PRO:C | 13:O:111:ARG:HB3 | 2.16 | 0.66 |
| 13:O:114:ILE:HG12 | 13:O:123:LEU:HD11 | 1.76 | 0.66 |
| 13:O:88:LEU:HD21 | 13:O:124:LYS:HZ2 | 1.59 | 0.66 |
| 13:O:130:PHE:CD2 | 13:O:130:PHE:N | 2.62 | 0.66 |
| 13:O:92:GLU:OE1 | 13:O:126:VAL:HG13 | 1.94 | 0.66 |
| 14:P:122:GLY:HA2 | 14:P:125:LEU:HD12 | 1.77 | 0.66 |
| 14:P:43:THR:CG2 | 14:P:46:GLN:HE21 | 1.96 | 0.66 |
| 15:Q:27:SER:O | 15:Q:30:THR:HB | 1.95 | 0.66 |
| 2:B:114:G:O4' | 16:R:47:THR:HG21 | 1.94 | 0.66 |
| 17:S:23:ARG:NH2 | 17:S:89:VAL:C | 2.49 | 0.66 |
| 17:S:73:GLU:OE2 | 17:S:106:SER:CB | 2.43 | 0.66 |
| 19:U:5:VAL:HG23 | 19:U:12:TYR:CD2 | 2.29 | 0.66 |
| 22:X:6:HIS:HB3 | 22:X:71:LYS:HG2 | 1.77 | 0.66 |
| 23:Y:104:PHE:HZ | 23:Y:120:ILE:CG2 | 2.08 | 0.66 |
| 3:C:74:VAL:HG13 | 3:C:112:ALA:O | 1.96 | 0.66 |
| 3:C:89:ALA:HB1 | 3:C:154:ARG:CG | 2.24 | 0.66 |
| 1:A:716:A:C2' | 1:A:717:G:H5' | 2.25 | 0.66 |
| 26:2:52:HIS:NE2 | 26:2:53:LEU:HD21 | 2.10 | 0.66 |
| 31:7:23:VAL:CG1 | 31:7:46:ARG:HB2 | 2.26 | 0.66 |
| 1:A:1007:C:H4' | 11:M:108:PRO:CD | 2.25 | 0.66 |
| 1:A:1144:G:C2' | 1:A:1145:C:H6 | 2.03 | 0.66 |
| 1:A:1197:G:C6 | 1:A:1198:U:C5 | 2.82 | 0.66 |
| 1:A:1213:A:N1 | 1:A:1237:A:H1' | 2.09 | 0.66 |
| 1:A:1243:G:N2 | 1:A:1244:G:N3 | 2.43 | 0.66 |
| 1:A:1428:C:C4 | 1:A:1569:A:H5'' | 2.30 | 0.66 |
| 1:A:1652:A:N7 | 1:A:1653:G:N3 | 2.43 | 0.66 |
| 1:A:2031:A:O5' | 1:A:2031:A:H8 | 1.79 | 0.66 |
| 1:A:2453:A:O2' | 1:A:2454:G:C5' | 2.44 | 0.66 |
| 1:A:2533:A:H2' | 1:A:2534:A:C8 | 2.30 | 0.66 |
| 1:A:2580:U:C4 | 1:A:2581:G:N7 | 2.64 | 0.66 |
| 1:A:270:A:N6 | 1:A:370:G:C8 | 2.64 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:605:C:O4' | 1:A:658:C:H4' | 1.96 | 0.66 |
| 1:A:783:A:H2' | 1:A:784:A:C5' | 2.25 | 0.66 |
| 1:A:85:G:O5' | 22:X:28:LYS:HE3 | 1.96 | 0.66 |
| 1:A:943:U:P | 13:O:32:THR:HB | 2.35 | 0.66 |
| 4:D:9:TYR:HE2 | 4:D:201:HIS:HB2 | 1.58 | 0.66 |
| 1:A:1814:G:OP1 | 4:D:43:ARG:CB | 2.40 | 0.66 |
| 4:D:46:GLN:HE21 | 4:D:52:ARG:NH2 | 1.94 | 0.66 |
| 5:E:7:VAL:HB | 5:E:196:VAL:HG21 | 1.78 | 0.66 |
| 6:F:74:ARG:NH2 | 6:F:76:GLY:H | 1.92 | 0.66 |
| 7:G:170:ARG:HG2 | 7:G:170:ARG:NH1 | 2.10 | 0.66 |
| 7:G:47:LYS:HB2 | 7:G:72:ARG:O | 1.93 | 0.66 |
| 7:G:91:ARG:CB | 7:G:91:ARG:HH21 | 2.04 | 0.66 |
| 8:H:119:GLU:O | 8:H:121:ILE:N | 2.28 | 0.66 |
| 8:H:76:VAL:HA | 8:H:79:VAL:CG2 | 2.25 | 0.66 |
| 8:H:87:LEU:N | 8:H:132:ARG:HB3 | 2.10 | 0.66 |
| 11:M:104:LYS:CA | 11:M:117:PHE:HZ | 2.01 | 0.66 |
| 11:M:15:LEU:HD21 | 11:M:137:LYS:C | 2.16 | 0.66 |
| 11:M:18:ALA:H | 11:M:21:LYS:HZ2 | 1.43 | 0.66 |
| 1:A:636:G:N2 | 13:O:75:ILE:CG2 | 2.59 | 0.66 |
| 16:R:39:ILE:HD11 | 16:R:49:VAL:CG1 | 2.25 | 0.66 |
| 17:S:14:TYR:CD1 | 17:S:14:TYR:N | 2.63 | 0.66 |
| 21:W:12:VAL:HA | 21:W:29:TRP:NE1 | 2.10 | 0.66 |
| 22:X:84:ARG:HG2 | 22:X:85:VAL:N | 2.10 | 0.66 |
| 23:Y:112:ARG:NH1 | 23:Y:112:ARG:HG3 | 2.10 | 0.66 |
| 3:C:21:THR:N | 3:C:24:GLU:OE1 | 2.28 | 0.66 |
| 25:1:20:VAL:HG23 | 25:1:55:LEU:HD23 | 1.75 | 0.66 |
| 1:A:1366:A:H5' | 27:3:1:MET:N | 2.11 | 0.66 |
| 31:7:8:LYS:N | 31:7:8:LYS:HE2 | 2.10 | 0.66 |
| 1:A:13:A:N6 | 1:A:525:U:N1 | 2.44 | 0.66 |
| 1:A:1691:C:H2' | 1:A:1691:C:O2 | 1.95 | 0.66 |
| 1:A:1790:C:C3' | 1:A:1828:G:H22 | 2.05 | 0.66 |
| 1:A:1823:G:C6 | 1:A:1824:G:N7 | 2.64 | 0.66 |
| 1:A:1882:C:C2 | 1:A:1883:G:H1' | 2.31 | 0.66 |
| 1:A:1996:C:H2' | 1:A:1997:G:H5' | 1.78 | 0.66 |
| 1:A:570:G:H1 | 1:A:2498:C:H4' | 1.60 | 0.66 |
| 1:A:2581:G:C6 | 1:A:2610:C:C5 | 2.83 | 0.66 |
| 1:A:265:A:N6 | 1:A:266:G:N3 | 2.43 | 0.66 |
| 1:A:411:G:N2 | 1:A:2408:U:N3 | 2.44 | 0.66 |
| 1:A:570:G:H22 | 1:A:2498:C:H1' | 1.60 | 0.66 |
| 1:A:670:A:H2' | 13:O:41:ARG:CZ | 2.26 | 0.66 |
| 1:A:730:C:C3' | 1:A:731:C:C5' | 2.73 | 0.66 |
| 1:A:943:U:H3' | 1:A:943:U:H6 | 1.61 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:B:82:G:N3 | 2:B:83:G:C8 | 2.63 | 0.66 |
| 4:D:148:GLU:O | 4:D:149:PRO:O | 2.13 | 0.66 |
| 6:F:122:LYS:CD | 6:F:192:LEU:HD12 | 2.25 | 0.66 |
| 6:F:27:GLU:HG3 | 6:F:116:ASP:CB | 2.24 | 0.66 |
| 8:H:145:ALA:O | 8:H:148:ILE:CG2 | 2.43 | 0.66 |
| 8:H:72:ILE:O | 8:H:76:VAL:HG22 | 1.94 | 0.66 |
| 10:L:95:LYS:HB3 | 10:L:98:ARG:NH2 | 2.09 | 0.66 |
| 11:M:87:LEU:HA | 11:M:90:MET:HB2 | 1.78 | 0.66 |
| 12:N:106:LEU:HD21 | 17:S:38:ASN:HD21 | 1.59 | 0.66 |
| 12:N:11:ALA:HB3 | 12:N:97:ARG:CD | 2.25 | 0.66 |
| 12:N:12:ASP:CA | 12:N:94:ARG:HD2 | 2.25 | 0.66 |
| 14:P:75:THR:HA | 14:P:91:GLU:CD | 2.16 | 0.66 |
| 15:Q:99:LYS:HB2 | 28:4:44:THR:HG22 | 1.78 | 0.66 |
| 17:S:20:PRO:HA | 17:S:22:PHE:CZ | 2.30 | 0.66 |
| 17:S:53:ARG:HG2 | 17:S:65:LYS:O | 1.96 | 0.66 |
| 19:U:5:VAL:H | 19:U:12:TYR:HB3 | 1.60 | 0.66 |
| 21:W:26:TYR:CD2 | 21:W:89:ILE:HG21 | 2.31 | 0.66 |
| 1:A:2114:A:C2 | 1:A:2115:G:H1' | 2.30 | 0.66 |
| 3:C:192:PHE:HE1 | 3:C:196:LEU:HD22 | 1.57 | 0.66 |
| 1:A:315:G:H2' | 1:A:316:C:H1' | 1.76 | 0.66 |
| 27:3:53:GLU:HG2 | 27:3:54:GLY:N | 2.07 | 0.66 |
| 29:5:22:ALA:CB | 29:5:39:TYR:CE2 | 2.79 | 0.66 |
| 30:6:42:LEU:HB3 | 30:6:44:PRO:CG | 2.26 | 0.66 |
| 1:A:1190:G:O2' | 1:A:1191:G:H5' | 1.96 | 0.66 |
| 1:A:122:G:H2' | 1:A:123:G:C8 | 2.29 | 0.66 |
| 1:A:1743:G:H3' | 1:A:1746:G:H8 | 1.60 | 0.66 |
| 1:A:1770:G:H2' | 1:A:1771:C:H5 | 1.55 | 0.66 |
| 1:A:1773:A:H2' | 1:A:1774:C:O4' | 1.96 | 0.66 |
| 1:A:1775:U:C2 | 4:D:208:LYS:NZ | 2.64 | 0.66 |
| 1:A:1802:A:C2 | 1:A:1803:A:C4 | 2.84 | 0.66 |
| 1:A:1838:C:H2' | 1:A:1838:C:O2 | 1.94 | 0.66 |
| 1:A:2020:A:N1 | 1:A:2035:G:C5 | 2.63 | 0.66 |
| 1:A:2049:G:C2' | 1:A:2050:C:O5' | 2.44 | 0.66 |
| 1:A:2233:U:H2' | 1:A:2234:G:H8 | 1.60 | 0.66 |
| 1:A:2306:C:C5 | 1:A:2311:A:N6 | 2.63 | 0.66 |
| 1:A:2318:G:C8 | 1:A:2318:G:OP2 | 2.44 | 0.66 |
| 1:A:2460:U:H2' | 1:A:2461:C:C6 | 2.30 | 0.66 |
| 1:A:2525:G:N2 | 1:A:2539:C:C4 | 2.64 | 0.66 |
| 1:A:2546:U:H4' | 1:A:2565:A:C2 | 2.31 | 0.66 |
| 1:A:2566:A:N6 | 12:N:28:SER:HB3 | 2.10 | 0.66 |
| 1:A:270(O):U:H5'' | 1:A:270(P):C:C4 | 2.30 | 0.66 |
| 1:A:2773:C:C2 | 1:A:2774:C:C5 | 2.83 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:2797:U:H4' | 1:A:2799:A:H5' | 1.78 | 0.66 |
| 1:A:289:A:H2' | 1:A:351:G:H22 | 1.60 | 0.66 |
| 1:A:668:G:N3 | 1:A:670:A:N6 | 2.43 | 0.66 |
| 1:A:747:U:N3 | 1:A:2613:U:C4 | 2.61 | 0.66 |
| 1:A:808:G:H2' | 1:A:809:G:H8 | 1.61 | 0.66 |
| 1:A:79:G:H2' | 1:A:80:G:H8 | 1.60 | 0.66 |
| 2:B:67:G:H2' | 2:B:68:C:H6 | 1.60 | 0.66 |
| 4:D:24:ILE:CG2 | 4:D:25:THR:H | 2.00 | 0.66 |
| 4:D:82:ILE:CD1 | 4:D:92:ILE:O | 2.43 | 0.66 |
| 6:F:65:TRP:CZ2 | 6:F:71:GLY:O | 2.45 | 0.66 |
| 10:L:131:ALA:HB1 | 10:L:136:VAL:HG12 | 1.75 | 0.66 |
| 13:O:92:GLU:HB2 | 13:O:94:GLU:HB3 | 1.76 | 0.66 |
| 15:Q:4:LEU:O | 15:Q:5:LYS:C | 2.33 | 0.66 |
| 17:S:65:LYS:HD3 | 17:S:75:ILE:HG21 | 1.77 | 0.66 |
| 18:T:24:TYR:HD1 | 18:T:24:TYR:H | 1.37 | 0.66 |
| 18:T:40:PHE:HD1 | 18:T:40:PHE:H | 1.43 | 0.66 |
| 18:T:61:TRP:O | 18:T:62:ILE:C | 2.33 | 0.66 |
| 20:V:5:ALA:HB3 | 20:V:105:VAL:O | 1.94 | 0.66 |
| 22:X:8:LYS:C | 22:X:10:GLY:H | 1.96 | 0.66 |
| 23:Y:102:LEU:HD22 | 23:Y:137:ILE:HB | 1.77 | 0.66 |
| 14:P:61:GLY:HA3 | 23:Y:178:GLU:HG3 | 1.77 | 0.66 |
| 23:Y:57:ILE:HG23 | 23:Y:69:THR:C | 2.14 | 0.66 |
| 1:A:2828:C:C2 | 1:A:2829:C:C5 | 2.83 | 0.66 |
| 28:4:4:HIS:NE2 | 28:4:5:PRO:HB3 | 2.10 | 0.66 |
| 1:A:2287:A:H2 | 29:5:37:ARG:HH22 | 1.43 | 0.66 |
| 31:7:50:LEU:HG | 31:7:51:ALA:N | 2.10 | 0.66 |
| 1:A:1449:A:C2' | 1:A:1449(A):G:O5' | 2.44 | 0.66 |
| 1:A:1460:A:N1 | 1:A:1732:A:C6 | 2.64 | 0.66 |
| 1:A:1857:G:H8 | 1:A:1858:G:N7 | 1.94 | 0.66 |
| 1:A:2447:G:C6 | 1:A:2500:U:C4 | 2.84 | 0.66 |
| 1:A:2579:C:H5'' | 1:A:2579:C:C6 | 2.31 | 0.66 |
| 1:A:265:A:C8 | 1:A:265:A:C3' | 2.78 | 0.66 |
| 1:A:2661:G:C2' | 1:A:2662:A:H8 | 1.95 | 0.66 |
| 1:A:2840:C:H5'' | 15:Q:53:HIS:CD2 | 2.31 | 0.66 |
| 1:A:1751:C:O4' | 1:A:2860:A:C2 | 2.48 | 0.66 |
| 1:A:364:C:O5' | 1:A:364:C:H6 | 1.79 | 0.66 |
| 1:A:548:A:N6 | 1:A:549:G:C2 | 2.64 | 0.66 |
| 1:A:755:C:H2' | 1:A:756:C:H6 | 1.61 | 0.66 |
| 2:B:105:G:H4' | 23:Y:32:HIS:ND1 | 2.10 | 0.66 |
| 1:A:728:G:C5' | 4:D:16:MET:SD | 2.83 | 0.66 |
| 6:F:168:ARG:O | 6:F:173:VAL:HG13 | 1.95 | 0.66 |
| 6:F:4:VAL:C | 6:F:20:LEU:HD12 | 2.16 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:G:15:VAL:HG23 | 7:G:16:ARG:N | 2.10 | 0.66 |
| 11:M:123:TYR:HB2 | 11:M:129:PRO:CB | 2.25 | 0.66 |
| 12:N:70:LYS:HG2 | 12:N:107:ARG:HH12 | 1.60 | 0.66 |
| 12:N:68:GLU:CG | 12:N:76:ALA:O | 2.44 | 0.66 |
| 1:A:636:G:C2 | 13:O:75:ILE:HD12 | 2.30 | 0.66 |
| 16:R:71:ARG:HD3 | 16:R:72:ALA:H | 1.59 | 0.66 |
| 17:S:52:ILE:HA | 17:S:66:VAL:HA | 1.76 | 0.66 |
| 1:A:2847:U:P | 17:S:54:ARG:NH2 | 2.69 | 0.66 |
| 18:T:93:LYS:N | 19:U:10:LYS:HE2 | 2.03 | 0.66 |
| 20:V:22:ASP:HA | 20:V:75:TYR:CZ | 2.31 | 0.66 |
| 21:W:42:ALA:O | 21:W:46:ALA:CB | 2.44 | 0.66 |
| 21:W:73:ARG:NH1 | 21:W:74:PRO:O | 2.28 | 0.66 |
| 22:X:86:ARG:C | 22:X:91:GLU:HG2 | 2.16 | 0.66 |
| 23:Y:116:VAL:HG21 | 23:Y:145:GLU:CG | 2.25 | 0.66 |
| 23:Y:151:HIS:HA | 23:Y:170:THR:CA | 2.24 | 0.66 |
| 23:Y:45:ASP:HA | 23:Y:48:PHE:CD1 | 2.28 | 0.66 |
| 3:C:117:PRO:HA | 3:C:120:MET:HB2 | 1.77 | 0.66 |
| 3:C:163:PHE:HZ | 3:C:195:ALA:CB | 2.08 | 0.66 |
| 26:2:4:LEU:HD23 | 26:2:5:LYS:N | 2.10 | 0.66 |
| 29:5:11:LEU:O | 29:5:11:LEU:HD12 | 1.95 | 0.66 |
| 31:7:3:LYS:CG | 31:7:4:MET:H | 2.08 | 0.66 |
| 1:A:242:G:C5' | 31:7:62:LEU:HD11 | 2.26 | 0.66 |
| 32:8:9:ARG:HG2 | 32:8:14:CYS:O | 1.96 | 0.66 |
| 1:A:1024:G:O6 | 1:A:1134:G:N9 | 2.29 | 0.66 |
| 1:A:1089:G:O2' | 1:A:1103:A:H2 | 1.79 | 0.66 |
| 1:A:1326:U:H6 | 1:A:1326:U:OP2 | 1.78 | 0.66 |
| 1:A:1475:G:N3 | 1:A:1475:G:H2' | 2.11 | 0.66 |
| 1:A:1510:A:H3' | 1:A:1511:A:H8 | 1.55 | 0.66 |
| 1:A:1530:G:H22 | 1:A:1541:U:C2' | 2.07 | 0.66 |
| 1:A:1669:A:O2' | 1:A:1670:C:OP1 | 2.13 | 0.66 |
| 1:A:1798:U:N3 | 1:A:1819:A:C2 | 2.64 | 0.66 |
| 1:A:1842:G:H2' | 1:A:1843:C:H6 | 1.60 | 0.66 |
| 1:A:2018:G:C6 | 1:A:2019:A:C2 | 2.84 | 0.66 |
| 1:A:2329:G:N1 | 1:A:2386:C:N4 | 2.21 | 0.66 |
| 1:A:2801:A:H2 | 1:A:2895:U:HO2' | 1.44 | 0.66 |
| 1:A:411:G:C2 | 1:A:2408:U:N3 | 2.63 | 0.66 |
| 1:A:220:G:C6 | 1:A:428:A:OP2 | 2.49 | 0.66 |
| 1:A:617:G:C8 | 1:A:618:G:N7 | 2.64 | 0.66 |
| 1:A:902:C:H2' | 1:A:903:C:C6 | 2.31 | 0.66 |
| 2:B:75:G:H4' | 23:Y:36:LYS:HZ1 | 1.60 | 0.66 |
| 4:D:16:MET:O | 4:D:19:ALA:CB | 2.43 | 0.66 |
| 4:D:7:LYS:HD3 | 4:D:25:THR:HB | 1.77 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 6:F:78:ILE:CD1 | 6:F:79:GLY:N | 2.59 | 0.66 |
| 8:H:126:PRO:HG2 | 8:H:132:ARG:HH22 | 1.59 | 0.66 |
| 8:H:26:VAL:HG13 | 8:H:76:VAL:HG13 | 1.78 | 0.66 |
| 8:H:24:VAL:HG11 | 8:H:72:ILE:HD12 | 1.77 | 0.66 |
| 1:A:558:G:H5'' | 11:M:109:LYS:HD3 | 1.76 | 0.66 |
| 1:A:1952:A:C2 | 12:N:22:ILE:HG23 | 2.30 | 0.66 |
| 12:N:25:LEU:O | 12:N:26:LYS:O | 2.14 | 0.66 |
| 13:O:114:ILE:HG12 | 13:O:123:LEU:CD1 | 2.25 | 0.66 |
| 14:P:46:GLN:O | 14:P:49:ALA:CB | 2.43 | 0.66 |
| 14:P:77:LYS:CB | 14:P:78:PRO:HD3 | 2.26 | 0.66 |
| 15:Q:26:LYS:NZ | 15:Q:70:LEU:HA | 2.10 | 0.66 |
| 15:Q:61:HIS:O | 15:Q:64:ARG:HD2 | 1.96 | 0.66 |
| 16:R:49:VAL:HG21 | 16:R:80:LEU:CG | 2.26 | 0.66 |
| 18:T:32:PHE:CD1 | 18:T:32:PHE:N | 2.63 | 0.66 |
| 19:U:66:ARG:HE | 19:U:95:LEU:HD12 | 1.59 | 0.66 |
| 1:A:1614:A:N6 | 20:V:92:ARG:O | 2.29 | 0.66 |
| 23:Y:50:GLN:HA | 23:Y:50:GLN:NE2 | 2.10 | 0.66 |
| 24:Z:62:LEU:O | 24:Z:62:LEU:HD23 | 1.96 | 0.66 |
| 9:K:93:THR:HG22 | 9:K:96:ASP:H | 1.61 | 0.66 |
| 3:C:214:VAL:HG21 | 3:C:224:ILE:HD13 | 1.77 | 0.66 |
| 3:C:56:GLN:O | 3:C:58:VAL:HG23 | 1.95 | 0.66 |
| 1:A:2175:C:P | 3:C:5:LYS:HG2 | 2.36 | 0.66 |
| 17:S:43:GLN:NE2 | 17:S:43:GLN:O | 2.29 | 0.66 |
| 27:3:42:PHE:O | 27:3:61:ARG:NH2 | 2.28 | 0.66 |
| 27:3:57:GLU:N | 27:3:61:ARG:CZ | 2.58 | 0.66 |
| 1:A:458:G:H2' | 30:6:40:TRP:CD1 | 2.31 | 0.66 |
| 32:8:17:ILE:HD12 | 32:8:26:ILE:HB | 1.78 | 0.66 |
| 1:A:1075:C:H2' | 1:A:1075:C:O2 | 1.95 | 0.66 |
| 1:A:137(A):G:C2 | 1:A:142:G:C2 | 2.84 | 0.66 |
| 1:A:1478:G:N2 | 1:A:1479:G:N3 | 2.44 | 0.66 |
| 1:A:1727:U:C4 | 1:A:1730:U:N3 | 2.64 | 0.66 |
| 1:A:1814:G:C2 | 1:A:1815:A:N6 | 2.64 | 0.66 |
| 1:A:1909:C:O2' | 1:A:1910:G:H5' | 1.94 | 0.66 |
| 1:A:2536:G:C6 | 1:A:2537:U:C4 | 2.84 | 0.66 |
| 1:A:2548:G:C8 | 1:A:2548:G:H5' | 2.29 | 0.66 |
| 1:A:2636:U:H4' | 5:E:79:ARG:CD | 2.25 | 0.66 |
| 1:A:2663:G:H2' | 1:A:2664:G:O4' | 1.95 | 0.66 |
| 1:A:2714:G:H5'' | 1:A:2714:G:H8 | 1.61 | 0.66 |
| 1:A:391:G:H5' | 1:A:412:A:H4' | 1.78 | 0.66 |
| 1:A:693:C:H2' | 1:A:694:U:C6 | 2.31 | 0.66 |
| 1:A:75:G:O3' | 25:1:50:ARG:NH1 | 2.29 | 0.66 |
| 1:A:789:A:OP1 | 1:A:789:A:H3' | 1.96 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:974(A):C:C2 | 1:A:1186:G:N2 | 2.62 | 0.66 |
| 2:B:114:G:H1' | 16:R:47:THR:HG21 | 1.78 | 0.66 |
| 2:B:69:G:H5'' | 2:B:70:C:OP2 | 1.96 | 0.66 |
| 5:E:7:VAL:CG1 | 5:E:196:VAL:HG11 | 2.26 | 0.66 |
| 6:F:132:VAL:HG22 | 6:F:135:LYS:HB2 | 1.77 | 0.66 |
| 6:F:146:ALA:HB1 | 6:F:148:LEU:CD2 | 2.26 | 0.66 |
| 6:F:176:LEU:CG | 6:F:178:PRO:HD2 | 2.25 | 0.66 |
| 6:F:37:VAL:O | 6:F:184:TYR:OH | 2.13 | 0.66 |
| 7:G:128:ARG:CZ | 7:G:130:ASN:ND2 | 2.59 | 0.66 |
| 7:G:55:LYS:HD3 | 7:G:58:GLN:OE1 | 1.94 | 0.66 |
| 10:L:78:ILE:HD13 | 10:L:131:ALA:HB2 | 1.77 | 0.66 |
| 10:L:78:ILE:HD11 | 10:L:99:ILE:HD12 | 1.78 | 0.66 |
| 11:M:37:LYS:HZ2 | 11:M:43:THR:HA | 1.61 | 0.66 |
| 11:M:57:ALA:HA | 11:M:60:ILE:HG13 | 1.76 | 0.66 |
| 13:O:127:ALA:O | 13:O:128:HIS:CG | 2.49 | 0.66 |
| 13:O:85:LEU:HB2 | 13:O:86:LYS:NZ | 2.09 | 0.66 |
| 1:A:1009:A:H8 | 18:T:59:ARG:HH21 | 1.43 | 0.66 |
| 18:T:89:GLU:CB | 19:U:52:VAL:N | 2.53 | 0.66 |
| 20:V:10:VAL:HG23 | 20:V:101:SER:O | 1.95 | 0.66 |
| 22:X:46:LYS:O | 22:X:47:LYS:O | 2.14 | 0.66 |
| 23:Y:109:ALA:C | 23:Y:144:LEU:HB2 | 2.17 | 0.66 |
| 2:B:105:G:H4' | 23:Y:32:HIS:CE1 | 2.31 | 0.66 |
| 1:A:1417:C:N4 | 1:A:1581:G:N1 | 2.19 | 0.66 |
| 25:1:11:LEU:N | 25:1:11:LEU:HD12 | 2.11 | 0.66 |
| 25:1:50:ARG:O | 25:1:53:ALA:HB3 | 1.96 | 0.66 |
| 26:2:24:LYS:HA | 26:2:27:GLY:O | 1.96 | 0.66 |
| 26:2:29:ARG:HB2 | 26:2:30:ARG:NH1 | 2.09 | 0.66 |
| 26:2:6:VAL:HG21 | 26:2:35:ARG:NH1 | 2.11 | 0.66 |
| 29:5:14:THR:O | 29:5:22:ALA:N | 2.29 | 0.66 |
| 1:A:1128:A:N3 | 1:A:1128:A:C2' | 2.59 | 0.66 |
| 1:A:1024:G:N7 | 1:A:1134:G:H1' | 2.11 | 0.66 |
| 1:A:115:C:O2' | 1:A:116:C:H5' | 1.96 | 0.66 |
| 1:A:1179:C:H2' | 1:A:1180:C:H6 | 1.58 | 0.66 |
| 1:A:990:A:N6 | 1:A:1186:G:N3 | 2.44 | 0.66 |
| 1:A:1272:A:C2 | 1:A:1618:A:C2 | 2.84 | 0.66 |
| 1:A:1479:G:N2 | 1:A:1515:C:N3 | 2.44 | 0.66 |
| 1:A:1695:G:N3 | 1:A:1695:G:H3' | 2.11 | 0.66 |
| 1:A:1747:G:O2' | 1:A:1748:G:H5' | 1.95 | 0.66 |
| 1:A:1789:A:H3' | 1:A:1790:C:O4' | 1.96 | 0.66 |
| 1:A:1266:G:C2' | 1:A:2012:G:O6 | 2.44 | 0.66 |
| 1:A:2376:A:H2' | 1:A:2377:A:O4' | 1.96 | 0.66 |
| 1:A:242:G:C2' | 1:A:243:U:OP2 | 2.43 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:234:C:H42 | 1:A:430:G:N2 | 1.94 | 0.66 |
| 1:A:566:U:C6 | 1:A:567:A:N7 | 2.63 | 0.66 |
| 1:A:631:A:N7 | 1:A:632:A:C8 | 2.64 | 0.66 |
| 1:A:696:G:C2' | 1:A:697:C:O5' | 2.43 | 0.66 |
| 1:A:751:A:H8 | 1:A:751:A:O5' | 1.78 | 0.66 |
| 1:A:783:A:H8 | 1:A:783:A:H3' | 1.60 | 0.66 |
| 1:A:862:G:C2 | 1:A:863:A:H1' | 2.31 | 0.66 |
| 1:A:896:A:H3' | 1:A:896:A:N3 | 2.11 | 0.66 |
| 1:A:960:A:H5'' | 1:A:961:C:OP1 | 1.95 | 0.66 |
| 4:D:82:ILE:HG23 | 4:D:83:GLU:N | 2.10 | 0.66 |
| 5:E:143:ASN:ND2 | 5:E:143:ASN:N | 2.43 | 0.66 |
| 6:F:140:LEU:O | 6:F:143:ALA:HB3 | 1.96 | 0.66 |
| 7:G:97:ASP:O | 7:G:98:ARG:C | 2.34 | 0.66 |
| 9:K:4:ILE:C | 9:K:5:LEU:HD23 | 2.16 | 0.66 |
| 11:M:100:GLU:O | 11:M:104:LYS:HG2 | 1.96 | 0.66 |
| 11:M:22:THR:HG23 | 11:M:25:ARG:HD3 | 1.77 | 0.66 |
| 13:O:107:LYS:HE2 | 13:O:110:TYR:CB | 2.25 | 0.66 |
| 1:A:871:U:C5' | 14:P:9:TYR:HE2 | 1.97 | 0.66 |
| 14:P:6:ARG:HH21 | 14:P:9:TYR:N | 1.93 | 0.66 |
| 1:A:2708:G:H1' | 15:Q:71:GLN:NE2 | 2.09 | 0.66 |
| 18:T:106:PHE:O | 18:T:108:GLU:N | 2.29 | 0.66 |
| 18:T:59:ARG:O | 18:T:62:ILE:HB | 1.95 | 0.66 |
| 19:U:62:LEU:HD13 | 19:U:98:GLU:N | 2.11 | 0.66 |
| 20:V:76:VAL:CG2 | 20:V:103:ILE:HA | 2.26 | 0.66 |
| 21:W:72:LYS:O | 21:W:73:ARG:HB2 | 1.95 | 0.66 |
| 22:X:47:LYS:CB | 22:X:49:VAL:HG22 | 2.25 | 0.66 |
| 22:X:45:VAL:HA | 22:X:57:GLN:CD | 2.17 | 0.66 |
| 22:X:82:PRO:HG2 | 22:X:83:THR:H | 1.61 | 0.66 |
| 23:Y:89:PHE:HB3 | 23:Y:91:LEU:HD21 | 1.77 | 0.66 |
| 24:Z:72:ARG:O | 24:Z:73:GLY:C | 2.34 | 0.66 |
| 1:A:2148:G:C2' | 1:A:2149:G:H8 | 2.09 | 0.66 |
| 1:A:2175:C:OP1 | 3:C:5:LYS:HB3 | 1.95 | 0.66 |
| 3:C:75:LEU:HD23 | 3:C:77:ILE:HD13 | 1.78 | 0.66 |
| 3:C:20:TYR:OH | 3:C:222:VAL:HG21 | 1.95 | 0.66 |
| 25:1:30:LEU:O | 25:1:33:GLN:N | 2.29 | 0.65 |
| 25:1:60:ASN:O | 25:1:64:ARG:CG | 2.44 | 0.65 |
| 27:3:57:GLU:N | 27:3:61:ARG:NE | 2.44 | 0.65 |
| 27:3:71:ARG:O | 27:3:71:ARG:HG2 | 1.96 | 0.65 |
| 32:8:9:ARG:CA | 32:8:34:GLN:HE22 | 2.05 | 0.65 |
| 1:A:1203:G:O2' | 1:A:1204:A:OP1 | 2.11 | 0.65 |
| 1:A:1252:G:H22 | 18:T:37:GLU:CG | 2.00 | 0.65 |
| 1:A:1386:C:H2' | 1:A:1387:C:C6 | 2.30 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1517:G:O2' | 1:A:1518:C:H5' | 1.97 | 0.65 |
| 1:A:1657:C:C5' | 5:E:133:LYS:HA | 2.26 | 0.65 |
| 1:A:1665:A:H1' | 12:N:1:MET:CG | 2.26 | 0.65 |
| 1:A:1864:U:H2' | 1:A:1869:G:C5' | 2.22 | 0.65 |
| 1:A:1953:A:H3' | 1:A:1953:A:C8 | 2.30 | 0.65 |
| 1:A:1984:G:O2' | 1:A:1985:G:H5' | 1.97 | 0.65 |
| 1:A:2071:A:H2 | 1:A:2441:C:N3 | 1.93 | 0.65 |
| 1:A:2581:G:H4' | 1:A:2582:G:C8 | 2.31 | 0.65 |
| 1:A:2594:C:O2' | 1:A:2595:G:H5' | 1.96 | 0.65 |
| 1:A:2626:C:C6 | 1:A:2626:C:O5' | 2.49 | 0.65 |
| 1:A:2875:C:H4' | 17:S:3:ARG:HB2 | 1.77 | 0.65 |
| 1:A:411:G:N3 | 1:A:2408:U:N3 | 2.43 | 0.65 |
| 1:A:182:A:H1' | 1:A:433:C:O2' | 1.96 | 0.65 |
| 1:A:71:A:N3 | 1:A:73:A:C6 | 2.64 | 0.65 |
| 1:A:566:U:H1' | 1:A:809:G:OP1 | 1.96 | 0.65 |
| 1:A:861:A:C6 | 1:A:917:A:C5 | 2.84 | 0.65 |
| 1:A:819:A:H2 | 1:A:943:U:O2 | 1.78 | 0.65 |
| 5:E:133:LYS:O | 5:E:137:HIS:ND1 | 2.29 | 0.65 |
| 6:F:154:VAL:CG1 | 6:F:191:ARG:HB3 | 2.21 | 0.65 |
| 6:F:66:PRO:O | 6:F:68:LYS:N | 2.29 | 0.65 |
| 7:G:53:LEU:O | 7:G:68:PRO:HB2 | 1.97 | 0.65 |
| 7:G:71:THR:HG23 | 7:G:88:ILE:HG12 | 1.78 | 0.65 |
| 8:H:7:LEU:CA | 8:H:52:VAL:HG13 | 2.26 | 0.65 |
| 8:H:85:LYS:HZ3 | 8:H:141:VAL:HG12 | 1.60 | 0.65 |
| 12:N:19:ILE:CG2 | 12:N:43:VAL:HA | 2.26 | 0.65 |
| 14:P:6:ARG:HA | 14:P:44:ALA:HB1 | 1.77 | 0.65 |
| 16:R:69:VAL:O | 16:R:72:ALA:HB3 | 1.95 | 0.65 |
| 18:T:108:GLU:O | 18:T:111:GLU:HG2 | 1.96 | 0.65 |
| 18:T:94:ASN:O | 18:T:97:ASP:N | 2.28 | 0.65 |
| 19:U:78:LYS:HZ2 | 19:U:84:LYS:CG | 2.09 | 0.65 |
| 1:A:72:U:H5' | 21:W:5:TYR:HH | 1.61 | 0.65 |
| 22:X:9:LYS:HZ3 | 22:X:9:LYS:HB2 | 1.61 | 0.65 |
| 24:Z:76:GLY:O | 24:Z:78:TYR:HD1 | 1.79 | 0.65 |
| 9:K:82:ARG:O | 9:K:83:ALA:HB2 | 1.95 | 0.65 |
| 25:1:27:LEU:HD21 | 25:1:48:LEU:C | 2.16 | 0.65 |
| 26:2:31:LEU:HD22 | 26:2:32:GLN:OE1 | 1.95 | 0.65 |
| 27:3:64:GLY:O | 27:3:68:ARG:CZ | 2.44 | 0.65 |
| 28:4:17:ASP:OD2 | 28:4:17:ASP:N | 2.25 | 0.65 |
| 30:6:48:LYS:O | 30:6:49:ARG:HB2 | 1.95 | 0.65 |
| 1:A:1045:A:H1' | 1:A:1047:G:C8 | 2.32 | 0.65 |
| 1:A:1406:U:C2 | 1:A:1407:C:C5 | 2.84 | 0.65 |
| 1:A:1476:C:H42 | 1:A:1516:U:C2' | 2.08 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1527:G:H3' | 1:A:1527:G:H8 | 1.60 | 0.65 |
| 1:A:1550:C:H2' | 1:A:1551:C:H6 | 1.60 | 0.65 |
| 1:A:14:A:N6 | 1:A:15:G:C2 | 2.63 | 0.65 |
| 1:A:1630:G:H2' | 1:A:1630(A):C:C6 | 2.30 | 0.65 |
| 1:A:1631:A:N6 | 1:A:1683:C:H5' | 2.12 | 0.65 |
| 1:A:1672:C:C2' | 1:A:1673:U:H5'' | 2.25 | 0.65 |
| 1:A:1785:A:H2' | 1:A:1786:A:N7 | 2.11 | 0.65 |
| 1:A:1832:C:N4 | 1:A:1833:U:C4 | 2.64 | 0.65 |
| 1:A:1941:C:H2' | 1:A:1942:C:O5' | 1.95 | 0.65 |
| 1:A:2320:A:H5' | 1:A:2321:G:C5 | 2.32 | 0.65 |
| 1:A:2393:A:H2' | 1:A:2394:C:C4' | 2.26 | 0.65 |
| 1:A:2499:C:C4 | 1:A:2500:U:C2 | 2.84 | 0.65 |
| 1:A:1457:A:N1 | 1:A:2703:C:N4 | 2.44 | 0.65 |
| 1:A:507:A:H5' | 1:A:509:C:O4' | 1.96 | 0.65 |
| 1:A:908:C:H2' | 1:A:909:A:H5' | 1.78 | 0.65 |
| 2:B:27:C:C4 | 2:B:28:C:H1' | 2.30 | 0.65 |
| 2:B:61:G:C6 | 2:B:62:C:N4 | 2.64 | 0.65 |
| 5:E:175:VAL:HG23 | 5:E:177:PRO:HD3 | 1.77 | 0.65 |
| 5:E:8:LYS:HB3 | 5:E:24:THR:CB | 2.26 | 0.65 |
| 6:F:132:VAL:CG2 | 6:F:135:LYS:HB2 | 2.26 | 0.65 |
| 1:A:2305:A:O2' | 7:G:154:GLY:HA2 | 1.96 | 0.65 |
| 7:G:26:GLN:HE21 | 7:G:31:VAL:HG13 | 1.61 | 0.65 |
| 7:G:8:LYS:HE2 | 7:G:100:TRP:HD1 | 1.59 | 0.65 |
| 8:H:149:ARG:O | 8:H:153:LYS:HB3 | 1.96 | 0.65 |
| 8:H:24:VAL:HG21 | 8:H:72:ILE:HG21 | 1.78 | 0.65 |
| 10:L:107:ILE:O | 10:L:110:GLN:HB3 | 1.97 | 0.65 |
| 10:L:40:ALA:O | 10:L:43:ALA:HB3 | 1.95 | 0.65 |
| 12:N:112:MET:HA | 12:N:115:VAL:HG23 | 1.78 | 0.65 |
| 12:N:9:GLU:HB3 | 12:N:17:ARG:CG | 2.25 | 0.65 |
| 13:O:114:ILE:CG2 | 13:O:123:LEU:HD21 | 2.25 | 0.65 |
| 15:Q:117:VAL:HG13 | 15:Q:117:VAL:O | 1.96 | 0.65 |
| 16:R:10:ARG:HH21 | 16:R:91:PRO:HA | 1.60 | 0.65 |
| 16:R:49:VAL:HG22 | 16:R:50:SER:N | 2.10 | 0.65 |
| 2:B:115:G:H4' | 16:R:50:SER:CB | 2.26 | 0.65 |
| 18:T:108:GLU:C | 18:T:110:VAL:N | 2.46 | 0.65 |
| 18:T:34:LYS:O | 18:T:38:THR:OG1 | 2.14 | 0.65 |
| 18:T:55:ARG:HA | 18:T:58:ARG:NE | 2.11 | 0.65 |
| 22:X:98:VAL:O | 22:X:100:ALA:O | 2.13 | 0.65 |
| 22:X:37:VAL:HG22 | 22:X:39:VAL:CG2 | 2.26 | 0.65 |
| 22:X:37:VAL:HG22 | 22:X:39:VAL:HG23 | 1.77 | 0.65 |
| 23:Y:4:ARG:HD3 | 23:Y:38:TYR:C | 2.15 | 0.65 |
| 23:Y:29:TYR:CD2 | 23:Y:89:PHE:HE2 | 2.14 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 3:C:200:LYS:HG2 | 3:C:200:LYS:O | 1.95 | 0.65 |
| 3:C:64:LEU:CD2 | 3:C:191:ALA:HB1 | 2.25 | 0.65 |
| 25:1:14:VAL:HG13 | 25:1:15:GLU:N | 2.10 | 0.65 |
| 28:4:37:LYS:O | 28:4:38:ALA:O | 2.13 | 0.65 |
| 30:6:43:THR:O | 30:6:46:VAL:HB | 1.96 | 0.65 |
| 31:7:6:THR:C | 31:7:8:LYS:N | 2.44 | 0.65 |
| 1:A:1316:U:H2' | 1:A:1317:A:H8 | 1.58 | 0.65 |
| 1:A:1321:A:C2 | 1:A:1322:A:O4' | 2.50 | 0.65 |
| 1:A:1445:C:C2 | 1:A:1466:G:N2 | 2.64 | 0.65 |
| 1:A:1471:A:C6 | 1:A:1473:G:N7 | 2.64 | 0.65 |
| 1:A:1707:G:H2' | 1:A:1708:C:C6 | 2.31 | 0.65 |
| 1:A:1770:G:C4 | 1:A:1771:C:C5 | 2.85 | 0.65 |
| 1:A:1909:C:C2 | 1:A:1922:G:N2 | 2.65 | 0.65 |
| 1:A:1925:C:O2 | 1:A:1929:G:O6 | 2.14 | 0.65 |
| 1:A:2092:U:H4' | 1:A:2225:A:C2 | 2.31 | 0.65 |
| 1:A:2244:U:H1' | 1:A:2434:A:N7 | 2.10 | 0.65 |
| 1:A:2287:A:O2' | 1:A:2288:A:O5' | 2.11 | 0.65 |
| 1:A:2441:C:O2' | 1:A:2442:C:H5' | 1.95 | 0.65 |
| 1:A:2556:C:O2' | 1:A:2557:G:C5' | 2.43 | 0.65 |
| 1:A:2570:G:C5' | 1:A:2571:C:OP2 | 2.43 | 0.65 |
| 1:A:221:A:C8 | 1:A:266:G:N7 | 2.64 | 0.65 |
| 1:A:374:A:H2' | 1:A:375:C:O4' | 1.97 | 0.65 |
| 1:A:387:U:O2' | 1:A:388:G:C8 | 2.47 | 0.65 |
| 1:A:878:A:N3 | 1:A:879:G:H5'' | 2.11 | 0.65 |
| 1:A:955:C:H2' | 1:A:956:G:C5' | 2.26 | 0.65 |
| 1:A:974:G:N3 | 1:A:1186:G:C5 | 2.65 | 0.65 |
| 5:E:37:ARG:O | 5:E:39:PRO:HD3 | 1.96 | 0.65 |
| 6:F:116:ASP:O | 6:F:119:ARG:CD | 2.44 | 0.65 |
| 6:F:44:ARG:O | 6:F:45:ARG:O | 2.15 | 0.65 |
| 6:F:78:ILE:HG12 | 6:F:79:GLY:H | 1.61 | 0.65 |
| 7:G:43:LEU:HD12 | 7:G:90:LEU:H | 1.61 | 0.65 |
| 10:L:34:ILE:O | 10:L:38:VAL:CB | 2.39 | 0.65 |
| 11:M:107:LEU:HD23 | 11:M:107:LEU:C | 2.17 | 0.65 |
| 11:M:75:TYR:H | 11:M:75:TYR:HD1 | 1.44 | 0.65 |
| 12:N:60:ALA:O | 12:N:83:ALA:CB | 2.43 | 0.65 |
| 12:N:77:ILE:HD11 | 17:S:65:LYS:NZ | 2.12 | 0.65 |
| 12:N:9:GLU:CD | 12:N:9:GLU:N | 2.49 | 0.65 |
| 13:O:76:LYS:HA | 13:O:101:VAL:HG11 | 1.78 | 0.65 |
| 1:A:661:C:H4' | 13:O:15:ARG:HA | 1.78 | 0.65 |
| 14:P:112:GLU:C | 14:P:115:MET:HB3 | 2.17 | 0.65 |
| 14:P:16:ARG:HG2 | 14:P:73:PRO:HD2 | 1.77 | 0.65 |
| 17:S:31:SER:OG | 17:S:91:ARG:HD2 | 1.96 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 22:X:12:THR:HG21 | 22:X:71:LYS:C | 2.16 | 0.65 |
| 22:X:46:LYS:HB3 | 22:X:46:LYS:HZ3 | 1.60 | 0.65 |
| 22:X:56:PRO:O | 22:X:57:GLN:HG2 | 1.96 | 0.65 |
| 23:Y:144:LEU:HA | 23:Y:174:VAL:HG11 | 1.77 | 0.65 |
| 1:A:2132:U:C2 | 1:A:2133:G:H5' | 2.31 | 0.65 |
| 3:C:114:VAL:HG21 | 3:C:153:ILE:HG12 | 1.79 | 0.65 |
| 21:W:8:ILE:N | 25:1:31:ARG:HH12 | 1.94 | 0.65 |
| 25:1:52:ILE:O | 25:1:55:LEU:HB2 | 1.97 | 0.65 |
| 26:2:9:VAL:CG2 | 26:2:10:LYS:N | 2.48 | 0.65 |
| 26:2:50:VAL:HG13 | 26:2:53:LEU:HB2 | 1.77 | 0.65 |
| 31:7:26:LYS:HB2 | 31:7:44:LYS:NZ | 2.11 | 0.65 |
| 1:A:989:G:O5' | 1:A:1157:G:H4' | 1.96 | 0.65 |
| 1:A:1161:C:O4' | 19:U:8:GLY:HA3 | 1.96 | 0.65 |
| 1:A:1222:C:C4 | 1:A:1223:C:C5 | 2.83 | 0.65 |
| 1:A:1258:C:H2' | 1:A:1259:G:H8 | 1.60 | 0.65 |
| 1:A:1342:A:H4' | 1:A:1343:G:OP1 | 1.94 | 0.65 |
| 1:A:1525:G:H2' | 1:A:1526:G:C8 | 2.32 | 0.65 |
| 1:A:1526:G:H2' | 1:A:1527:G:N2 | 2.10 | 0.65 |
| 1:A:1532:C:H2' | 1:A:1533:C:C6 | 2.31 | 0.65 |
| 1:A:1617:C:O2 | 1:A:1617:C:H2' | 1.95 | 0.65 |
| 1:A:1668:A:C8 | 1:A:1674:G:C6 | 2.84 | 0.65 |
| 1:A:1678:G:O2' | 1:A:1679:U:H5' | 1.97 | 0.65 |
| 1:A:1706:U:H2' | 1:A:1706:U:O2 | 1.97 | 0.65 |
| 1:A:1769:G:C2 | 1:A:1984:G:C5 | 2.85 | 0.65 |
| 1:A:1803:A:C3' | 4:D:257:LEU:HD13 | 2.26 | 0.65 |
| 1:A:204:A:OP1 | 1:A:206:U:H1' | 1.97 | 0.65 |
| 1:A:205:G:O2' | 1:A:206:U:OP2 | 2.15 | 0.65 |
| 1:A:2209:C:O3' | 1:A:2210:G:H3' | 1.97 | 0.65 |
| 1:A:2395:C:H4' | 27:3:28:LYS:CD | 2.27 | 0.65 |
| 1:A:2415:G:OP1 | 13:O:61:ARG:CD | 2.43 | 0.65 |
| 1:A:2543:G:O2' | 1:A:2645:G:N7 | 2.28 | 0.65 |
| 1:A:2666:C:H3' | 1:A:2667:C:H5' | 1.76 | 0.65 |
| 1:A:280:C:C2 | 1:A:283:A:N7 | 2.63 | 0.65 |
| 1:A:284:U:H6 | 1:A:284:U:OP2 | 1.79 | 0.65 |
| 1:A:2858:C:H5' | 1:A:2859:G:OP2 | 1.96 | 0.65 |
| 1:A:527:C:H1' | 1:A:528:A:C2 | 2.32 | 0.65 |
| 1:A:585:G:O2' | 1:A:586:A:N7 | 2.24 | 0.65 |
| 1:A:621:A:H8 | 1:A:622:G:H5' | 1.48 | 0.65 |
| 1:A:774:A:H5' | 1:A:778:G:O4' | 1.96 | 0.65 |
| 1:A:95:G:H1' | 25:1:42:ASN:ND2 | 2.11 | 0.65 |
| 2:B:97:G:C5 | 2:B:98:G:C8 | 2.85 | 0.65 |
| 4:D:157:ARG:NH1 | 4:D:178:PRO:HG3 | 2.11 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:183:ARG:NH2 | 4:D:268:ARG:HH11 | 1.94 | 0.65 |
| 4:D:148:GLU:HA | 4:D:186:HIS:HE1 | 1.61 | 0.65 |
| 4:D:246:PRO:CG | 4:D:252:TRP:HA | 2.25 | 0.65 |
| 1:A:1804:C:O3' | 4:D:250:TRP:HZ2 | 1.80 | 0.65 |
| 4:D:29:PRO:HB3 | 4:D:82:ILE:CG2 | 2.26 | 0.65 |
| 5:E:136:ARG:CZ | 5:E:137:HIS:HA | 2.26 | 0.65 |
| 5:E:50:GLY:HA3 | 5:E:76:ARG:NE | 2.11 | 0.65 |
| 5:E:55:ASN:O | 5:E:55:ASN:ND2 | 2.29 | 0.65 |
| 6:F:203:GLN:OE1 | 6:F:203:GLN:N | 2.29 | 0.65 |
| 1:A:38:A:H4' | 6:F:94:PRO:HB3 | 1.79 | 0.65 |
| 8:H:157:TYR:HB3 | 8:H:172:LYS:HB3 | 1.77 | 0.65 |
| 8:H:46:GLU:O | 8:H:49:VAL:HG22 | 1.96 | 0.65 |
| 8:H:40:GLU:C | 8:H:55:PRO:HG3 | 2.16 | 0.65 |
| 10:L:104:VAL:HG13 | 10:L:127:ILE:CD1 | 2.26 | 0.65 |
| 10:L:23:VAL:HG12 | 10:L:34:ILE:HG23 | 1.77 | 0.65 |
| 13:O:28:GLY:O | 13:O:29:LYS:HB3 | 1.94 | 0.65 |
| 15:Q:56:LYS:O | 15:Q:88:ARG:CZ | 2.45 | 0.65 |
| 17:S:53:ARG:NH2 | 17:S:100:TYR:HA | 2.12 | 0.65 |
| 12:N:75:SER:OG | 17:S:77:PRO:HG2 | 1.96 | 0.65 |
| 18:T:105:VAL:HG13 | 18:T:106:PHE:N | 2.10 | 0.65 |
| 18:T:98:LEU:HD12 | 18:T:105:VAL:HG21 | 1.78 | 0.65 |
| 18:T:105:VAL:CA | 18:T:108:GLU:OE1 | 2.43 | 0.65 |
| 18:T:32:PHE:N | 18:T:35:ALA:HB2 | 2.11 | 0.65 |
| 18:T:47:TYR:O | 18:T:50:ARG:NH1 | 2.29 | 0.65 |
| 19:U:21:ARG:HG2 | 19:U:21:ARG:HH11 | 1.59 | 0.65 |
| 21:W:89:ILE:C | 21:W:92:LEU:HD13 | 2.17 | 0.65 |
| 22:X:9:LYS:HA | 22:X:25:GLY:O | 1.95 | 0.65 |
| 23:Y:152:ALA:C | 23:Y:155:LEU:HD13 | 2.17 | 0.65 |
| 23:Y:174:VAL:HG23 | 23:Y:174:VAL:O | 1.96 | 0.65 |
| 23:Y:39:VAL:HG13 | 23:Y:44:PHE:CE2 | 2.31 | 0.65 |
| 24:Z:72:ARG:HB2 | 24:Z:78:TYR:HD1 | 1.62 | 0.65 |
| 9:K:132:PRO:HD3 | 9:K:138:ILE:HG22 | 1.79 | 0.65 |
| 1:A:2162:G:C2' | 1:A:2163:C:H5' | 2.26 | 0.65 |
| 1:A:1498:C:H1' | 1:A:1576:U:C4' | 2.27 | 0.65 |
| 13:O:54:GLY:HA2 | 31:7:12:LYS:HZ2 | 1.61 | 0.65 |
| 1:A:1022:G:C6 | 1:A:1139:G:C5 | 2.84 | 0.65 |
| 1:A:1069:A:C8 | 1:A:1074:G:N7 | 2.65 | 0.65 |
| 1:A:1359:A:N1 | 1:A:1360:A:C4 | 2.64 | 0.65 |
| 1:A:1387:C:H2' | 1:A:1388:G:C8 | 2.29 | 0.65 |
| 1:A:1439:A:H2' | 1:A:1440:G:O4' | 1.95 | 0.65 |
| 1:A:1568:G:H5' | 4:D:61:LEU:N | 2.11 | 0.65 |
| 1:A:1838:C:H2' | 1:A:1898:U:C4 | 2.30 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1936:A:C1' | 1:A:1940:U:N3 | 2.57 | 0.65 |
| 1:A:2020:A:H4' | 1:A:2020:A:OP1 | 1.95 | 0.65 |
| 1:A:2064:C:H1' | 1:A:2450:A:C6 | 2.32 | 0.65 |
| 1:A:2074:U:N3 | 1:A:2075:U:H5 | 1.93 | 0.65 |
| 1:A:2209:C:O2' | 1:A:2210:G:C3' | 2.44 | 0.65 |
| 1:A:2230:G:N2 | 1:A:2231:C:C2 | 2.65 | 0.65 |
| 1:A:2414:G:N3 | 1:A:2414:G:C2' | 2.56 | 0.65 |
| 1:A:2396:G:C6 | 1:A:2421:G:O6 | 2.49 | 0.65 |
| 1:A:2497:A:O2' | 1:A:2498:C:OP2 | 2.15 | 0.65 |
| 1:A:2521:C:C2' | 1:A:2522:U:C5' | 2.55 | 0.65 |
| 1:A:2733:A:H2' | 1:A:2734:A:O5' | 1.95 | 0.65 |
| 1:A:2791:C:C2' | 1:A:2792:G:H8 | 2.07 | 0.65 |
| 1:A:387:U:O3' | 1:A:388:G:O4' | 2.15 | 0.65 |
| 1:A:459:U:H2' | 1:A:460:A:H8 | 1.61 | 0.65 |
| 1:A:642:G:C2 | 1:A:644:A:H2 | 2.14 | 0.65 |
| 1:A:662:G:H2' | 1:A:663:G:C8 | 2.31 | 0.65 |
| 1:A:668:G:C4 | 1:A:670:A:N6 | 2.64 | 0.65 |
| 1:A:684:G:O2' | 1:A:788:A:N6 | 2.29 | 0.65 |
| 1:A:730:C:C2' | 1:A:731:C:H5' | 2.26 | 0.65 |
| 1:A:731:C:C2' | 1:A:732:C:H5' | 2.27 | 0.65 |
| 1:A:747:U:C2' | 1:A:747:U:O2 | 2.45 | 0.65 |
| 1:A:980:A:H2' | 1:A:981:A:O4' | 1.95 | 0.65 |
| 2:B:77:U:H2' | 2:B:78:A:H8 | 1.62 | 0.65 |
| 2:B:84:C:C2 | 2:B:85:G:C8 | 2.85 | 0.65 |
| 2:B:89:G:H2' | 2:B:89(A):A:N7 | 2.12 | 0.65 |
| 1:A:2729:G:O2' | 5:E:185:LYS:HE3 | 1.97 | 0.65 |
| 6:F:33:LEU:O | 6:F:37:VAL:HG23 | 1.95 | 0.65 |
| 6:F:41:LEU:HD12 | 6:F:42:ALA:N | 2.11 | 0.65 |
| 7:G:37:VAL:HB | 7:G:99:MET:SD | 2.37 | 0.65 |
| 8:H:26:VAL:CG1 | 8:H:76:VAL:HG13 | 2.27 | 0.65 |
| 8:H:7:LEU:HG | 8:H:51:ARG:HH21 | 1.61 | 0.65 |
| 11:M:23:LEU:HD23 | 11:M:60:ILE:HG22 | 1.77 | 0.65 |
| 13:O:117:GLU:HG2 | 13:O:118:GLY:N | 2.12 | 0.65 |
| 13:O:78:PRO:HA | 13:O:81:GLN:HB2 | 1.79 | 0.65 |
| 13:O:79:ARG:NE | 13:O:83:VAL:HG11 | 2.09 | 0.65 |
| 14:P:42:ILE:C | 14:P:42:ILE:HD13 | 2.17 | 0.65 |
| 14:P:67:ARG:HB3 | 14:P:104:PHE:H | 1.61 | 0.65 |
| 14:P:75:THR:HA | 14:P:91:GLU:CG | 2.27 | 0.65 |
| 14:P:40:ALA:HA | 14:P:98:LYS:HG3 | 1.77 | 0.65 |
| 1:A:2882:A:OP1 | 15:Q:96:ARG:HG3 | 1.96 | 0.65 |
| 17:S:21:GLU:C | 17:S:23:ARG:HG3 | 2.16 | 0.65 |
| 17:S:52:ILE:HA | 17:S:66:VAL:CG1 | 2.26 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2848:G:OP2 | 17:S:99:LEU:HB2 | 1.96 | 0.65 |
| 18:T:98:LEU:HD22 | 18:T:98:LEU:N | 2.11 | 0.65 |
| 19:U:3:ALA:HB2 | 19:U:44:LYS:HD2 | 1.79 | 0.65 |
| 20:V:59:VAL:CG1 | 20:V:63:ASP:HB3 | 2.26 | 0.65 |
| 20:V:78:GLU:HG3 | 20:V:100:THR:O | 1.96 | 0.65 |
| 23:Y:104:PHE:CZ | 23:Y:120:ILE:HG21 | 2.32 | 0.65 |
| 9:K:66:GLU:HA | 9:K:69:LYS:HG2 | 1.78 | 0.65 |
| 9:K:83:ALA:HB3 | 9:K:88:ILE:HG13 | 1.77 | 0.65 |
| 3:C:97:GLU:HG2 | 3:C:119:VAL:HB | 1.78 | 0.65 |
| 3:C:192:PHE:HE1 | 3:C:196:LEU:CD1 | 2.08 | 0.65 |
| 9:K:60:GLU:OE1 | 9:K:61:ARG:HD3 | 1.97 | 0.65 |
| 28:4:40:LYS:HG2 | 28:4:41:PRO:N | 2.07 | 0.65 |
| 1:A:688:U:P | 30:6:2:LYS:HE3 | 2.36 | 0.65 |
| 31:7:26:LYS:HZ3 | 31:7:43:GLN:HA | 1.60 | 0.65 |
| 32:8:19:ARG:HG3 | 32:8:22:ARG:O | 1.97 | 0.65 |
| 1:A:1006:C:C2 | 11:M:106:MET:HG2 | 2.32 | 0.65 |
| 1:A:1173:G:H1' | 1:A:1177:A:H61 | 1.62 | 0.65 |
| 1:A:1176:G:H5'' | 1:A:1177:A:N7 | 2.12 | 0.65 |
| 1:A:1179:C:O2' | 1:A:1180:C:O5' | 2.15 | 0.65 |
| 1:A:1352:U:O2 | 1:A:1352:U:C2' | 2.45 | 0.65 |
| 1:A:1372:U:H2' | 1:A:1373:A:C5' | 2.27 | 0.65 |
| 1:A:1729:A:C8 | 1:A:1730:U:O4' | 2.48 | 0.65 |
| 1:A:1912:A:N1 | 1:A:1919:A:N9 | 2.44 | 0.65 |
| 1:A:1992:G:H4' | 1:A:1993:U:C4 | 2.32 | 0.65 |
| 1:A:2027:G:N2 | 1:A:2028:U:H1' | 2.11 | 0.65 |
| 1:A:242:G:C3' | 31:7:4:MET:SD | 2.82 | 0.65 |
| 1:A:241:A:H1' | 1:A:243:U:N1 | 2.11 | 0.65 |
| 1:A:197:A:H61 | 1:A:248:G:H22 | 1.24 | 0.65 |
| 1:A:2606:C:C6 | 1:A:2606:C:H5' | 2.23 | 0.65 |
| 1:A:311:A:N1 | 1:A:328:U:O4 | 2.29 | 0.65 |
| 1:A:38:A:H2' | 1:A:39:C:H6 | 1.62 | 0.65 |
| 4:D:5:LYS:HA | 4:D:28:GLU:CA | 2.27 | 0.65 |
| 5:E:120:TRP:C | 5:E:120:TRP:CD1 | 2.68 | 0.65 |
| 6:F:12:LEU:HD22 | 6:F:142:TRP:HH2 | 1.58 | 0.65 |
| 6:F:197:ASP:O | 6:F:198:ALA:C | 2.34 | 0.65 |
| 6:F:6:VAL:HG23 | 6:F:6:VAL:O | 1.95 | 0.65 |
| 7:G:68:PRO:HG3 | 7:G:72:ARG:NH1 | 2.09 | 0.65 |
| 8:H:41:MET:HE1 | 8:H:68:THR:CG2 | 2.26 | 0.65 |
| 10:L:18:THR:CA | 10:L:38:VAL:HG21 | 2.26 | 0.65 |
| 10:L:61:ALA:C | 10:L:63:ARG:N | 2.50 | 0.65 |
| 11:M:112:LEU:O | 11:M:113:GLY:C | 2.31 | 0.65 |
| 11:M:127:ASP:O | 11:M:130:HIS:HB2 | 1.96 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 11:M:17:ASP:HB3 | 11:M:21:LYS:HE3 | 1.79 | 0.65 |
| 12:N:3:GLN:CD | 12:N:33:ALA:HB3 | 2.16 | 0.65 |
| 15:Q:26:LYS:HZ1 | 15:Q:70:LEU:HA | 1.62 | 0.65 |
| 15:Q:49:ASP:O | 15:Q:52:ILE:HG22 | 1.97 | 0.65 |
| 16:R:11:LYS:HZ3 | 16:R:11:LYS:CB | 2.09 | 0.65 |
| 17:S:111:ARG:HA | 17:S:114:LEU:CB | 2.27 | 0.65 |
| 17:S:26:ASP:CG | 17:S:27:THR:N | 2.47 | 0.65 |
| 17:S:56:GLY:O | 17:S:61:PHE:HA | 1.97 | 0.65 |
| 17:S:28:VAL:HA | 17:S:93:ARG:O | 1.96 | 0.65 |
| 22:X:8:LYS:HE3 | 22:X:28:LYS:HD2 | 1.78 | 0.65 |
| 2:B:12:C:C5 | 24:Z:74:ARG:O | 2.50 | 0.65 |
| 9:K:128:LEU:CD1 | 9:K:129:THR:H | 2.09 | 0.65 |
| 1:A:1579:A:N7 | 1:A:1580:A:N3 | 2.45 | 0.65 |
| 21:W:7:VAL:HG22 | 25:1:31:ARG:CZ | 2.26 | 0.65 |
| 25:1:60:ASN:O | 25:1:64:ARG:CB | 2.45 | 0.65 |
| 32:8:11:CYS:N | 32:8:32:HIS:NE2 | 2.44 | 0.65 |
| 1:A:1140:C:H4' | 1:A:1142(A):A:N1 | 2.12 | 0.65 |
| 1:A:119:A:HO2' | 1:A:120:U:P | 2.20 | 0.65 |
| 1:A:142:G:C4' | 21:W:37:THR:OG1 | 2.45 | 0.65 |
| 1:A:1635:G:C8 | 1:A:1635:G:O5' | 2.49 | 0.65 |
| 1:A:1707:G:C4 | 1:A:1756:G:C2 | 2.85 | 0.65 |
| 1:A:2020:A:N7 | 1:A:2022:U:N3 | 2.44 | 0.65 |
| 1:A:2064:C:C1' | 1:A:2450:A:H62 | 2.08 | 0.65 |
| 1:A:2344:U:O2 | 1:A:2344:U:H3' | 1.97 | 0.65 |
| 1:A:2380:C:H2' | 1:A:2381:C:H5' | 1.79 | 0.65 |
| 1:A:2383:G:OP1 | 31:7:39:LYS:HD3 | 1.96 | 0.65 |
| 1:A:2521:C:C2 | 1:A:2522:U:C6 | 2.84 | 0.65 |
| 1:A:2582:G:C8 | 1:A:2582:G:H5' | 2.32 | 0.65 |
| 1:A:1457:A:C2 | 1:A:2703:C:N4 | 2.65 | 0.65 |
| 1:A:270(W):G:C8 | 1:A:270(X):G:N7 | 2.64 | 0.65 |
| 1:A:2725:A:O2' | 1:A:2726:U:H6 | 1.80 | 0.65 |
| 1:A:2748:A:C6 | 1:A:2757:A:N6 | 2.65 | 0.65 |
| 1:A:2824:C:N4 | 1:A:2825:C:O2 | 2.30 | 0.65 |
| 1:A:343:C:H2' | 1:A:344:G:C5' | 2.27 | 0.65 |
| 1:A:613:U:H5 | 1:A:614:U:O2 | 1.80 | 0.65 |
| 1:A:67:U:H6 | 1:A:67:U:O5' | 1.79 | 0.65 |
| 1:A:84:A:H1' | 1:A:103:A:H62 | 1.59 | 0.65 |
| 1:A:873:G:H4' | 14:P:65:PHE:CE2 | 2.31 | 0.65 |
| 1:A:820:A:H2 | 1:A:943:U:C2' | 2.10 | 0.65 |
| 2:B:62:C:C2 | 2:B:63:G:C8 | 2.85 | 0.65 |
| 4:D:132:PRO:HD3 | 4:D:190:TYR:CZ | 2.32 | 0.65 |
| 5:E:171:GLU:O | 5:E:184:VAL:O | 2.13 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 5:E:2:LYS:HG2 | 5:E:83:ASP:OD2 | 1.97 | 0.65 |
| 5:E:98:PRO:HA | 5:E:172:VAL:HG23 | 1.77 | 0.65 |
| 6:F:139:PHE:CZ | 6:F:167:ALA:HB2 | 2.32 | 0.65 |
| 6:F:149:ASP:CA | 6:F:172:TRP:HE1 | 2.10 | 0.65 |
| 6:F:165:ARG:CB | 6:F:165:ARG:CZ | 2.74 | 0.65 |
| 6:F:20:LEU:HD23 | 6:F:20:LEU:N | 2.06 | 0.65 |
| 6:F:50:SER:O | 6:F:92:PRO:HG2 | 1.96 | 0.65 |
| 6:F:70:THR:C | 6:F:72:ARG:N | 2.50 | 0.65 |
| 7:G:47:LYS:HD2 | 7:G:49:ASP:H | 1.62 | 0.65 |
| 7:G:74:LYS:CD | 7:G:87:PRO:HB2 | 2.17 | 0.65 |
| 8:H:69:ARG:HH21 | 8:H:69:ARG:CG | 2.09 | 0.65 |
| 9:K:21:VAL:CG1 | 9:K:30:LEU:HD13 | 2.25 | 0.65 |
| 10:L:18:THR:HG23 | 10:L:38:VAL:HG11 | 1.78 | 0.65 |
| 10:L:52:ILE:HD11 | 10:L:80:LYS:CE | 2.22 | 0.65 |
| 10:L:88:ALA:C | 10:L:90:LYS:H | 1.98 | 0.65 |
| 12:N:10:VAL:HG22 | 12:N:12:ASP:H | 1.62 | 0.65 |
| 12:N:77:ILE:HG12 | 17:S:65:LYS:CE | 2.21 | 0.65 |
| 16:R:105:ALA:O | 16:R:108:GLY:N | 2.30 | 0.65 |
| 1:A:533:G:P | 18:T:25:TRP:HB2 | 2.37 | 0.65 |
| 18:T:58:ARG:HG3 | 18:T:59:ARG:N | 2.11 | 0.65 |
| 18:T:94:ASN:HD21 | 19:U:6:LYS:CE | 2.10 | 0.65 |
| 19:U:23:GLU:HA | 19:U:93:GLU:HB3 | 1.79 | 0.65 |
| 19:U:28:GLU:HB2 | 19:U:29:PRO:HD3 | 1.79 | 0.65 |
| 20:V:7:ALA:O | 20:V:102:HIS:HA | 1.96 | 0.65 |
| 22:X:2:ARG:C | 22:X:4:LYS:H | 1.99 | 0.65 |
| 22:X:5:MET:HG3 | 22:X:8:LYS:NZ | 2.11 | 0.65 |
| 23:Y:10:ARG:CG | 23:Y:36:LYS:HD2 | 2.25 | 0.65 |
| 23:Y:17:ALA:HA | 23:Y:20:ARG:NH2 | 2.11 | 0.65 |
| 3:C:22:ILE:HD13 | 3:C:190:ARG:HD3 | 1.78 | 0.65 |
| 3:C:67:GLY:HA2 | 3:C:158:ALA:O | 1.96 | 0.65 |
| 3:C:83:ILE:HG23 | 3:C:87:GLU:OE1 | 1.95 | 0.65 |
| 25:1:5:LEU:O | 25:1:9:ARG:HG2 | 1.97 | 0.65 |
| 26:2:5:LYS:NZ | 26:2:59:VAL:HG22 | 2.12 | 0.65 |
| 27:3:20:ASN:HB2 | 27:3:30:GLU:CD | 2.17 | 0.65 |
| 1:A:1013:C:H2' | 1:A:1014:U:C6 | 2.30 | 0.65 |
| 1:A:1174:A:H2' | 1:A:1175:U:H5'' | 1.78 | 0.65 |
| 1:A:1263:U:N3 | 1:A:1264:G:N2 | 2.44 | 0.65 |
| 1:A:1368:G:H8 | 1:A:1368:G:H5'' | 1.61 | 0.65 |
| 1:A:1378:A:N1 | 1:A:1380:G:H1' | 2.11 | 0.65 |
| 1:A:1477:A:H4' | 1:A:1478:G:OP2 | 1.96 | 0.65 |
| 1:A:1663:C:O2' | 1:A:1664:A:O4' | 2.12 | 0.65 |
| 1:A:1668:A:N6 | 1:A:1674:G:N2 | 2.45 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1952:A:C6 | 1:A:1953:A:N1 | 2.65 | 0.65 |
| 1:A:2026:C:N3 | 1:A:2027:G:C8 | 2.65 | 0.65 |
| 1:A:2302:G:O2' | 1:A:2303:G:H5' | 1.97 | 0.65 |
| 1:A:2309:A:N6 | 1:A:2310:A:N3 | 2.44 | 0.65 |
| 1:A:2332:U:C5' | 1:A:2336:A:H61 | 2.10 | 0.65 |
| 1:A:2406:U:OP2 | 1:A:2411:A:N6 | 2.29 | 0.65 |
| 1:A:2597:G:H2' | 1:A:2598:A:C8 | 2.32 | 0.65 |
| 1:A:270(Z):U:C2' | 1:A:271(A):C:H5'' | 2.26 | 0.65 |
| 1:A:2821:A:OP2 | 1:A:2822:G:OP2 | 2.15 | 0.65 |
| 1:A:351:G:O2' | 1:A:352:G:OP2 | 2.15 | 0.65 |
| 1:A:427:U:O5' | 1:A:427:U:H6 | 1.80 | 0.65 |
| 1:A:498:G:O5' | 1:A:498:G:C8 | 2.50 | 0.65 |
| 1:A:552:G:O2' | 1:A:553:U:H5' | 1.95 | 0.65 |
| 1:A:621:A:N7 | 1:A:622:G:O4' | 2.30 | 0.65 |
| 1:A:774:A:H5' | 1:A:778:G:H4' | 1.78 | 0.65 |
| 1:A:834:C:H1' | 1:A:2358:G:N2 | 2.12 | 0.65 |
| 1:A:930:U:O2' | 1:A:931:G:P | 2.54 | 0.65 |
| 4:D:132:PRO:HD3 | 4:D:190:TYR:CE1 | 2.31 | 0.65 |
| 4:D:181:GLU:HG2 | 4:D:268:ARG:NH2 | 2.11 | 0.65 |
| 5:E:147:PRO:CD | 5:E:148:GLY:N | 2.59 | 0.65 |
| 1:A:2635:C:O2' | 5:E:79:ARG:HD2 | 1.97 | 0.65 |
| 6:F:118:ALA:C | 6:F:122:LYS:HB2 | 2.16 | 0.65 |
| 6:F:202:PHE:CD2 | 6:F:205:ARG:HD2 | 2.31 | 0.65 |
| 1:A:586:A:H5' | 6:F:89:VAL:CG2 | 2.27 | 0.65 |
| 7:G:120:LEU:HD22 | 7:G:181:ARG:HH21 | 1.61 | 0.65 |
| 1:A:2305:A:C2 | 7:G:40:ASN:O | 2.49 | 0.65 |
| 7:G:36:LYS:HE3 | 7:G:95:ARG:HD3 | 1.77 | 0.65 |
| 9:K:5:LEU:HB3 | 9:K:8:PRO:HD2 | 1.79 | 0.65 |
| 10:L:87:GLY:HA2 | 10:L:134:MET:HE2 | 1.78 | 0.65 |
| 12:N:63:VAL:HA | 12:N:78:ARG:CG | 2.20 | 0.65 |
| 12:N:68:GLU:CG | 12:N:76:ALA:H | 2.10 | 0.65 |
| 13:O:11:GLY:CA | 13:O:14:LYS:HE3 | 2.26 | 0.65 |
| 1:A:811:U:O4 | 13:O:22:GLY:HA3 | 1.96 | 0.65 |
| 13:O:58:THR:HA | 31:7:13:ARG:HG2 | 1.77 | 0.65 |
| 17:S:20:PRO:HA | 17:S:22:PHE:CE2 | 2.32 | 0.65 |
| 17:S:80:SER:CB | 17:S:81:PRO:HD3 | 2.25 | 0.65 |
| 18:T:42:ALA:O | 18:T:45:TYR:N | 2.30 | 0.65 |
| 18:T:89:GLU:O | 18:T:90:VAL:HG23 | 1.96 | 0.65 |
| 19:U:61:VAL:C | 19:U:62:LEU:HD23 | 2.17 | 0.65 |
| 21:W:23:GLU:OE2 | 21:W:24:GLY:N | 2.30 | 0.65 |
| 21:W:57:LEU:HB3 | 21:W:78:LYS:HG2 | 1.78 | 0.65 |
| 23:Y:73:GLN:O | 23:Y:87:ASP:CB | 2.43 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 3:C:160:ARG:O | 3:C:161:ILE:HD13 | 1.97 | 0.65 |
| 3:C:185:LEU:N | 3:C:185:LEU:HD23 | 2.10 | 0.65 |
| 1:A:1583:A:H4' | 1:A:1585:C:C6 | 2.32 | 0.65 |
| 28:4:37:LYS:HD2 | 28:4:37:LYS:H | 1.60 | 0.65 |
| 29:5:27:LYS:HG2 | 29:5:29:ASN:ND2 | 2.05 | 0.65 |
| 29:5:49:HIS:O | 29:5:50:ARG:HB2 | 1.96 | 0.65 |
| 30:6:17:GLY:C | 30:6:21:ARG:HH12 | 2.00 | 0.65 |
| 1:A:1142:U:H6 | 1:A:1142(A):A:C8 | 2.15 | 0.65 |
| 1:A:1910:G:C4 | 1:A:1921:G:C2 | 2.85 | 0.65 |
| 1:A:2026:C:C2 | 1:A:2027:G:C8 | 2.85 | 0.65 |
| 1:A:2458:G:C8 | 1:A:2490:G:O6 | 2.50 | 0.65 |
| 1:A:2573:C:OP1 | 1:A:2574:G:H5'' | 1.97 | 0.65 |
| 1:A:25:U:C2 | 1:A:26:G:C8 | 2.84 | 0.65 |
| 1:A:2657:A:C2 | 1:A:2665:A:C4 | 2.85 | 0.65 |
| 1:A:270(V):G:H2' | 1:A:270(W):G:H8 | 1.61 | 0.65 |
| 1:A:2732:G:H3' | 1:A:2733:A:C5' | 2.27 | 0.65 |
| 1:A:2848:G:O5' | 17:S:99:LEU:HD23 | 1.97 | 0.65 |
| 1:A:336:C:H4' | 22:X:67:LEU:HD23 | 1.79 | 0.65 |
| 1:A:616:A:H1' | 6:F:180:GLY:CA | 2.26 | 0.65 |
| 1:A:60:G:O2' | 1:A:61:G:P | 2.55 | 0.65 |
| 1:A:642:G:C8 | 1:A:642:G:H3' | 2.31 | 0.65 |
| 1:A:684:G:H1' | 1:A:687:C:H41 | 1.61 | 0.65 |
| 1:A:58:G:H2' | 1:A:73:A:H2 | 1.61 | 0.65 |
| 1:A:810:U:OP1 | 1:A:1253:A:N7 | 2.30 | 0.65 |
| 1:A:865:C:HO2' | 1:A:866:A:H8 | 0.74 | 0.65 |
| 2:B:61:G:H2' | 2:B:62:C:C5 | 2.32 | 0.65 |
| 4:D:231:HIS:O | 4:D:233:HIS:N | 2.30 | 0.65 |
| 4:D:36:PRO:O | 4:D:64:ILE:HG21 | 1.96 | 0.65 |
| 4:D:95:LEU:HB2 | 4:D:105:ILE:CG2 | 2.27 | 0.65 |
| 5:E:14:ILE:HD12 | 5:E:14:ILE:N | 2.12 | 0.65 |
| 5:E:196:VAL:C | 5:E:197:ILE:HD12 | 2.16 | 0.65 |
| 6:F:168:ARG:HH21 | 6:F:168:ARG:CB | 2.03 | 0.65 |
| 6:F:41:LEU:O | 6:F:44:ARG:NH2 | 2.29 | 0.65 |
| 7:G:8:LYS:HB2 | 7:G:104:GLU:HB2 | 1.77 | 0.65 |
| 7:G:36:LYS:CG | 7:G:95:ARG:HD3 | 2.27 | 0.65 |
| 7:G:74:LYS:O | 7:G:75:LYS:HB2 | 1.95 | 0.65 |
| 8:H:71:LEU:HD23 | 8:H:72:ILE:HD13 | 1.77 | 0.65 |
| 10:L:115:LEU:HD12 | 10:L:118:THR:HA | 1.78 | 0.65 |
| 11:M:12:ARG:HH12 | 11:M:48:MET:HE3 | 1.62 | 0.65 |
| 12:N:111:PHE:O | 12:N:112:MET:C | 2.33 | 0.65 |
| 12:N:112:MET:HA | 12:N:115:VAL:HG21 | 1.78 | 0.65 |
| 13:O:78:PRO:HG2 | 13:O:117:GLU:CD | 2.17 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 14:P:26:TYR:CD1 | 14:P:27:VAL:N | 2.58 | 0.65 |
| 14:P:6:ARG:HG2 | 14:P:7:MET:N | 2.12 | 0.65 |
| 16:R:17:ARG:CZ | 16:R:25:ARG:HH21 | 2.10 | 0.65 |
| 16:R:49:VAL:HG11 | 16:R:80:LEU:CB | 2.26 | 0.65 |
| 16:R:51:ALA:CB | 16:R:73:LEU:HG | 2.27 | 0.65 |
| 16:R:3:ARG:O | 16:R:7:TYR:CB | 2.44 | 0.65 |
| 12:N:77:ILE:CD1 | 17:S:65:LYS:NZ | 2.60 | 0.65 |
| 12:N:79:PHE:CD2 | 17:S:75:ILE:HD11 | 2.32 | 0.65 |
| 19:U:49:THR:HG22 | 19:U:53:GLU:HG2 | 1.79 | 0.65 |
| 23:Y:100:VAL:O | 23:Y:102:LEU:HD23 | 1.96 | 0.65 |
| 3:C:134:ARG:HH11 | 3:C:136:LEU:CG | 2.09 | 0.65 |
| 1:A:2247:A:O2' | 1:A:2248:C:H5' | 1.97 | 0.65 |
| 1:A:400:G:N2 | 27:3:63:TYR:OH | 2.30 | 0.65 |
| 28:4:36:CYS:H | 28:4:49:CYS:HB3 | 1.61 | 0.65 |
| 28:4:9:LYS:HD2 | 28:4:9:LYS:N | 2.12 | 0.65 |
| 30:6:43:THR:CA | 30:6:46:VAL:HB | 2.27 | 0.65 |
| 1:A:1024:G:C5 | 1:A:1025:G:N7 | 2.65 | 0.65 |
| 1:A:1025:G:H1' | 1:A:1134:G:C4' | 2.25 | 0.65 |
| 1:A:1351:C:H4' | 1:A:1571:A:O2' | 1.97 | 0.65 |
| 1:A:1475:G:H2' | 1:A:1476:C:O5' | 1.97 | 0.65 |
| 1:A:1429:G:C5 | 1:A:1568:G:C6 | 2.85 | 0.65 |
| 1:A:1708:C:C2' | 1:A:1709:U:C5' | 2.76 | 0.65 |
| 1:A:1777:U:HO2' | 1:A:1778:U:H5' | 1.59 | 0.65 |
| 1:A:2208:U:O2' | 1:A:2217:G:N2 | 2.29 | 0.65 |
| 1:A:2468:G:HO2' | 1:A:2469:A:H8 | 0.72 | 0.65 |
| 1:A:2590:A:H2' | 1:A:2591:C:C6 | 2.32 | 0.65 |
| 1:A:273:G:C4 | 1:A:273(A):G:N7 | 2.65 | 0.65 |
| 1:A:80:G:H1' | 1:A:347:A:N6 | 2.12 | 0.65 |
| 1:A:578:A:H2 | 18:T:34:LYS:HZ1 | 1.41 | 0.65 |
| 1:A:804:A:N7 | 13:O:39:LYS:HD2 | 2.11 | 0.65 |
| 1:A:880:G:N1 | 1:A:881:G:H1' | 2.12 | 0.65 |
| 2:B:75:G:O6 | 2:B:102:G:N2 | 2.30 | 0.65 |
| 4:D:156:ALA:O | 4:D:158:ALA:N | 2.29 | 0.65 |
| 4:D:33:LEU:HA | 4:D:83:GLU:OE2 | 1.97 | 0.65 |
| 5:E:169:ASN:HD22 | 5:E:170:LEU:N | 1.85 | 0.65 |
| 7:G:74:LYS:H | 7:G:88:ILE:HD11 | 1.60 | 0.65 |
| 8:H:155:SER:HA | 8:H:157:TYR:OH | 1.97 | 0.65 |
| 8:H:42:ARG:O | 8:H:53:GLU:HB2 | 1.96 | 0.65 |
| 8:H:74:ASN:ND2 | 8:H:75:ALA:N | 2.44 | 0.65 |
| 11:M:17:ASP:HB3 | 11:M:21:LYS:HZ1 | 1.61 | 0.65 |
| 11:M:57:ALA:HB3 | 11:M:124:ALA:HB1 | 1.79 | 0.65 |
| 11:M:88:GLU:CB | 11:M:89:LYS:HZ1 | 2.09 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:N:12:ASP:HA | 12:N:97:ARG:NH2 | 2.12 | 0.65 |
| 1:A:672:C:C6 | 13:O:38:GLN:OE1 | 2.50 | 0.65 |
| 14:P:122:GLY:C | 14:P:124:LYS:N | 2.48 | 0.65 |
| 1:A:956:G:OP1 | 14:P:77:LYS:HG2 | 1.97 | 0.65 |
| 14:P:77:LYS:O | 14:P:78:PRO:O | 2.14 | 0.65 |
| 1:A:2880:C:H1' | 15:Q:91:GLN:O | 1.95 | 0.65 |
| 18:T:15:LYS:NZ | 18:T:18:LEU:HG | 2.12 | 0.65 |
| 18:T:93:LYS:CA | 18:T:93:LYS:NZ | 2.60 | 0.65 |
| 1:A:996:A:O3' | 18:T:93:LYS:HG2 | 1.96 | 0.65 |
| 23:Y:109:ALA:H | 23:Y:144:LEU:HD12 | 1.62 | 0.65 |
| 3:C:59:ARG:CB | 3:C:59:ARG:NH1 | 2.60 | 0.65 |
| 25:1:27:LEU:N | 25:1:27:LEU:HD12 | 2.11 | 0.64 |
| 27:3:68:ARG:HH11 | 27:3:68:ARG:HB2 | 1.60 | 0.64 |
| 28:4:48:GLU:N | 28:4:58:LEU:HG | 2.12 | 0.64 |
| 31:7:31:HIS:O | 31:7:32:LEU:HG | 1.97 | 0.64 |
| 31:7:6:THR:O | 31:7:8:LYS:N | 2.29 | 0.64 |
| 1:A:1263:U:C4 | 1:A:1264:G:N1 | 2.64 | 0.64 |
| 1:A:1341:U:P | 1:A:1397:U:H3 | 2.19 | 0.64 |
| 1:A:1407:C:OP2 | 1:A:1407:C:H6 | 1.80 | 0.64 |
| 1:A:1492:G:C2' | 1:A:1493:C:C4 | 2.67 | 0.64 |
| 1:A:14:A:N7 | 1:A:15:G:C4 | 2.66 | 0.64 |
| 1:A:1517:G:H21 | 1:A:1518:C:H1' | 1.60 | 0.64 |
| 1:A:1769:G:HO2' | 1:A:1770:G:H8 | 1.45 | 0.64 |
| 1:A:2273:A:C2' | 1:A:2274:A:H5' | 2.26 | 0.64 |
| 1:A:231:C:H5'' | 1:A:232:G:OP2 | 1.97 | 0.64 |
| 1:A:2332:U:C5' | 1:A:2336:A:N6 | 2.59 | 0.64 |
| 1:A:2392:A:H2' | 1:A:2393:A:O5' | 1.96 | 0.64 |
| 1:A:2459:A:H2' | 1:A:2460:U:C1' | 2.26 | 0.64 |
| 1:A:2560:C:O2 | 1:A:2560:C:H2' | 1.97 | 0.64 |
| 1:A:2570:G:H2' | 1:A:2570:G:N3 | 2.12 | 0.64 |
| 1:A:2579:C:C6 | 1:A:2579:C:C5' | 2.80 | 0.64 |
| 1:A:2705:A:C8 | 1:A:2706:G:N7 | 2.65 | 0.64 |
| 1:A:2747:G:H21 | 1:A:2748:A:H62 | 1.45 | 0.64 |
| 1:A:2748:A:N6 | 1:A:2756:U:C2 | 2.65 | 0.64 |
| 1:A:448:U:O2' | 1:A:449:A:OP1 | 2.11 | 0.64 |
| 1:A:49:A:N6 | 1:A:176:G:N7 | 2.45 | 0.64 |
| 1:A:573:G:O2' | 1:A:574:C:O5' | 2.13 | 0.64 |
| 1:A:669:G:N2 | 1:A:670:A:C2 | 2.64 | 0.64 |
| 1:A:685:A:O2' | 1:A:686:G:OP2 | 2.12 | 0.64 |
| 1:A:687:C:O2 | 1:A:788:A:P | 2.55 | 0.64 |
| 1:A:780:G:H1' | 1:A:785:G:C6 | 2.32 | 0.64 |
| 1:A:911:A:H8 | 1:A:2264:C:C1' | 2.03 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:941:A:C2 | 1:A:942:G:N3 | 2.65 | 0.64 |
| 1:A:975:G:N1 | 1:A:976:C:C6 | 2.66 | 0.64 |
| 4:D:119:ALA:HA | 4:D:123:ALA:HB2 | 1.79 | 0.64 |
| 5:E:145:LYS:H | 5:E:145:LYS:NZ | 1.95 | 0.64 |
| 5:E:49:LEU:HD13 | 5:E:76:ARG:HG3 | 1.78 | 0.64 |
| 5:E:4:ILE:HD11 | 5:E:50:GLY:HA3 | 1.78 | 0.64 |
| 5:E:66:HIS:CG | 5:E:67:PHE:N | 2.64 | 0.64 |
| 6:F:38:ARG:O | 6:F:41:LEU:HG | 1.96 | 0.64 |
| 7:G:174:GLU:OE2 | 7:G:175:LEU:HG | 1.97 | 0.64 |
| 8:H:118:PRO:CD | 8:H:121:ILE:HG21 | 2.27 | 0.64 |
| 8:H:149:ARG:HD3 | 8:H:164:TYR:CD1 | 2.32 | 0.64 |
| 8:H:38:SER:H | 8:H:41:MET:HE3 | 1.62 | 0.64 |
| 8:H:40:GLU:HG3 | 8:H:61:HIS:NE2 | 2.11 | 0.64 |
| 8:H:9:ILE:HD13 | 8:H:73:ALA:CB | 2.27 | 0.64 |
| 8:H:76:VAL:O | 8:H:77:LYS:C | 2.34 | 0.64 |
| 11:M:42:TRP:O | 11:M:43:THR:OG1 | 2.14 | 0.64 |
| 12:N:106:LEU:O | 12:N:109:LYS:HA | 1.97 | 0.64 |
| 13:O:75:ILE:HD13 | 13:O:75:ILE:N | 2.11 | 0.64 |
| 14:P:106:VAL:O | 14:P:107:ALA:HB2 | 1.96 | 0.64 |
| 14:P:122:GLY:O | 14:P:124:LYS:N | 2.30 | 0.64 |
| 14:P:137:TYR:HD2 | 14:P:138:ASP:H | 1.41 | 0.64 |
| 17:S:29:ARG:CA | 17:S:50:ILE:O | 2.41 | 0.64 |
| 18:T:99:ALA:HA | 18:T:106:PHE:HB2 | 1.79 | 0.64 |
| 19:U:40:LEU:HA | 19:U:51:VAL:HA | 1.77 | 0.64 |
| 19:U:1:MET:HA | 19:U:44:LYS:HB3 | 1.77 | 0.64 |
| 1:A:1322:A:P | 20:V:11:ARG:HH11 | 2.20 | 0.64 |
| 23:Y:127:LYS:NZ | 23:Y:165:VAL:H | 1.95 | 0.64 |
| 23:Y:37:VAL:O | 23:Y:38:TYR:HD2 | 1.80 | 0.64 |
| 9:K:98:ALA:O | 9:K:102:SER:CB | 2.42 | 0.64 |
| 1:A:2161:C:H2' | 1:A:2162:G:C8 | 2.32 | 0.64 |
| 3:C:38:ASP:OD2 | 3:C:178:ALA:HB1 | 1.97 | 0.64 |
| 1:A:1583:A:H5' | 1:A:1585:C:C5' | 2.27 | 0.64 |
| 3:C:20:TYR:CE1 | 3:C:222:VAL:HG21 | 2.32 | 0.64 |
| 25:1:3:LYS:HA | 25:1:6:GLU:HG2 | 1.78 | 0.64 |
| 27:3:18:CYS:SG | 27:3:19:GLY:N | 2.70 | 0.64 |
| 1:A:1358:G:N1 | 1:A:1372:U:OP2 | 2.27 | 0.64 |
| 1:A:1441:G:H4' | 1:A:1628:G:OP1 | 1.97 | 0.64 |
| 1:A:1545(A):A:OP2 | 1:A:1545(A):A:C8 | 2.50 | 0.64 |
| 1:A:1609:A:C6 | 1:A:1616:A:C2 | 2.86 | 0.64 |
| 1:A:1676:A:H2' | 1:A:1677:A:O4' | 1.96 | 0.64 |
| 1:A:1793:C:H42 | 1:A:1825:A:H61 | 1.45 | 0.64 |
| 1:A:1816:G:OP1 | 4:D:43:ARG:CZ | 2.45 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1824:G:H21 | 4:D:253:GLN:HE21 | 1.43 | 0.64 |
| 1:A:1858:G:C6 | 1:A:1883:G:C6 | 2.85 | 0.64 |
| 1:A:1908:C:HO2' | 1:A:1909:C:C5' | 2.10 | 0.64 |
| 1:A:1996:C:H2' | 1:A:1997:G:O5' | 1.96 | 0.64 |
| 1:A:2244:U:H2' | 1:A:2245:U:O5' | 1.97 | 0.64 |
| 1:A:2378:A:H2 | 1:A:2379:G:C1' | 2.10 | 0.64 |
| 1:A:258:G:H8 | 1:A:258:G:O5' | 1.79 | 0.64 |
| 1:A:265:A:C2 | 1:A:281:G:H8 | 2.15 | 0.64 |
| 1:A:2692:C:C2' | 1:A:2847:U:O2' | 2.45 | 0.64 |
| 1:A:2776:A:C4 | 1:A:2778:A:N7 | 2.65 | 0.64 |
| 1:A:236:C:H4' | 1:A:431:U:H1' | 1.78 | 0.64 |
| 1:A:531:C:O4' | 1:A:2035:G:N2 | 2.31 | 0.64 |
| 1:A:541:C:C2 | 1:A:542:C:C5 | 2.84 | 0.64 |
| 1:A:572:A:C6 | 1:A:573:G:C2 | 2.84 | 0.64 |
| 1:A:590:A:C5' | 6:F:95:ARG:HD2 | 2.27 | 0.64 |
| 1:A:611:C:H2' | 1:A:612:G:O4' | 1.98 | 0.64 |
| 1:A:730:C:OP2 | 4:D:211:ARG:NH2 | 2.27 | 0.64 |
| 1:A:933:A:C2' | 1:A:934:G:H5' | 2.26 | 0.64 |
| 1:A:941:A:C2 | 1:A:942:G:C4 | 2.85 | 0.64 |
| 2:B:56:G:O2' | 2:B:57:A:H5' | 1.97 | 0.64 |
| 4:D:161:THR:CG2 | 4:D:196:VAL:HB | 2.25 | 0.64 |
| 4:D:8:PRO:HD2 | 4:D:26:LYS:C | 2.17 | 0.64 |
| 5:E:114:ALA:HB1 | 5:E:118:LYS:HB2 | 1.78 | 0.64 |
| 5:E:148:GLY:O | 5:E:149:ARG:HB3 | 1.98 | 0.64 |
| 5:E:119:ARG:HD3 | 5:E:156:MET:N | 2.12 | 0.64 |
| 6:F:9:ILE:HD11 | 6:F:122:LYS:HG2 | 1.79 | 0.64 |
| 6:F:203:GLN:N | 6:F:203:GLN:CD | 2.50 | 0.64 |
| 7:G:51:ARG:N | 7:G:51:ARG:HH21 | 1.94 | 0.64 |
| 8:H:167:GLU:O | 8:H:169:VAL:HG13 | 1.97 | 0.64 |
| 9:K:31:LEU:HD13 | 9:K:37:VAL:N | 2.13 | 0.64 |
| 10:L:10:LEU:HD11 | 10:L:41:PHE:CE1 | 2.32 | 0.64 |
| 12:N:70:LYS:HG2 | 12:N:107:ARG:NH1 | 2.12 | 0.64 |
| 12:N:85:VAL:O | 12:N:93:PRO:CD | 2.42 | 0.64 |
| 12:N:8:LEU:HD12 | 12:N:8:LEU:N | 2.09 | 0.64 |
| 13:O:78:PRO:HG2 | 13:O:117:GLU:OE2 | 1.98 | 0.64 |
| 13:O:126:VAL:HA | 13:O:146:VAL:N | 2.06 | 0.64 |
| 13:O:91:PHE:CE2 | 13:O:99:LEU:HD12 | 2.32 | 0.64 |
| 14:P:65:PHE:C | 14:P:66:ILE:HD12 | 2.17 | 0.64 |
| 15:Q:39:PRO:O | 15:Q:40:LYS:C | 2.36 | 0.64 |
| 16:R:89:ARG:HG2 | 16:R:89:ARG:NH2 | 2.10 | 0.64 |
| 17:S:11:GLU:O | 17:S:12:SER:C | 2.34 | 0.64 |
| 19:U:96:ILE:O | 19:U:96:ILE:HD12 | 1.98 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 20:V:11:ARG:HA | 20:V:100:THR:HA | 1.79 | 0.64 |
| 20:V:65:LEU:HG | 20:V:68:ARG:CD | 2.27 | 0.64 |
| 20:V:26:GLY:N | 20:V:71:VAL:HG13 | 2.13 | 0.64 |
| 21:W:33:LYS:NZ | 21:W:33:LYS:HB2 | 2.12 | 0.64 |
| 23:Y:122:ARG:CZ | 23:Y:170:THR:O | 2.44 | 0.64 |
| 1:A:2278:A:N7 | 24:Z:14:ARG:HB2 | 2.12 | 0.64 |
| 3:C:225:ASN:HD21 | 3:C:227:HIS:HB2 | 1.62 | 0.64 |
| 3:C:22:ILE:HG23 | 3:C:189:ILE:CG2 | 2.23 | 0.64 |
| 3:C:33:ALA:HB3 | 3:C:39:GLU:OE1 | 1.97 | 0.64 |
| 3:C:62:VAL:CG1 | 3:C:64:LEU:HD21 | 2.27 | 0.64 |
| 9:K:57:ARG:O | 9:K:60:GLU:HB3 | 1.97 | 0.64 |
| 1:A:363(B):G:N2 | 1:A:363(C):G:C4 | 2.65 | 0.64 |
| 1:A:2096:U:H2' | 1:A:2097:C:C6 | 2.31 | 0.64 |
| 13:O:149:GLU:CD | 13:O:150:ALA:H | 2.00 | 0.64 |
| 1:A:2252:G:H2' | 1:A:2253:G:O4' | 1.97 | 0.64 |
| 25:1:16:LEU:HD22 | 25:1:58:VAL:CG2 | 2.27 | 0.64 |
| 26:2:18:ASP:OD1 | 26:2:19:GLN:N | 2.29 | 0.64 |
| 26:2:30:ARG:O | 26:2:32:GLN:N | 2.28 | 0.64 |
| 29:5:20:ASN:OD1 | 29:5:43:CYS:SG | 2.55 | 0.64 |
| 32:8:19:ARG:HD3 | 32:8:22:ARG:HB2 | 1.79 | 0.64 |
| 1:A:1344:G:H4' | 1:A:1384:A:C6 | 2.33 | 0.64 |
| 1:A:1615:C:C5 | 1:A:1617:C:C2 | 2.84 | 0.64 |
| 1:A:1663:C:O3' | 1:A:1664:A:O4' | 2.15 | 0.64 |
| 1:A:185:U:C2 | 1:A:212:G:N2 | 2.65 | 0.64 |
| 1:A:2352:A:N7 | 1:A:2366:A:C6 | 2.65 | 0.64 |
| 1:A:2077:A:C4 | 1:A:2435:A:C8 | 2.84 | 0.64 |
| 1:A:243:U:OP1 | 31:7:5:LYS:HG2 | 1.95 | 0.64 |
| 1:A:2530:A:C2' | 1:A:2531:A:H5'' | 2.26 | 0.64 |
| 1:A:2746:U:H5' | 8:H:139:GLN:HA | 1.80 | 0.64 |
| 1:A:2747:G:N2 | 1:A:2754:U:H3 | 1.95 | 0.64 |
| 1:A:295:G:C2 | 1:A:344:G:H1' | 2.32 | 0.64 |
| 1:A:400:G:C8 | 1:A:400:G:H3' | 2.32 | 0.64 |
| 1:A:450:G:OP1 | 6:F:52:LYS:HD2 | 1.98 | 0.64 |
| 1:A:37:C:H4' | 1:A:451:C:OP1 | 1.96 | 0.64 |
| 1:A:464:U:H6 | 1:A:464:U:O5' | 1.79 | 0.64 |
| 1:A:751:A:N6 | 1:A:789:A:H62 | 1.94 | 0.64 |
| 1:A:675:A:C8 | 1:A:804:A:C2 | 2.84 | 0.64 |
| 1:A:812:C:H1' | 1:A:1250:G:H22 | 1.62 | 0.64 |
| 1:A:83:G:H1 | 1:A:102:G:C2' | 2.09 | 0.64 |
| 1:A:932:G:H4' | 1:A:932:G:OP1 | 1.98 | 0.64 |
| 1:A:957:A:C2 | 1:A:2459:A:C5' | 2.80 | 0.64 |
| 4:D:244:ARG:O | 4:D:252:TRP:CD1 | 2.50 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:46:GLN:O | 4:D:47:GLY:C | 2.34 | 0.64 |
| 6:F:155:LEU:HA | 6:F:174:VAL:HG21 | 1.75 | 0.64 |
| 6:F:169:ASN:HD21 | 6:F:171:PRO:HG2 | 1.62 | 0.64 |
| 6:F:205:ARG:O | 6:F:208:GLY:N | 2.30 | 0.64 |
| 6:F:84:VAL:O | 6:F:86:GLY:N | 2.30 | 0.64 |
| 8:H:40:GLU:O | 8:H:55:PRO:HG3 | 1.98 | 0.64 |
| 1:A:1005:C:C6 | 11:M:28:THR:HG21 | 2.32 | 0.64 |
| 11:M:54:VAL:HG23 | 11:M:55:VAL:N | 2.11 | 0.64 |
| 12:N:11:ALA:HB3 | 12:N:97:ARG:NE | 2.12 | 0.64 |
| 1:A:636:G:H1 | 13:O:75:ILE:HD12 | 1.61 | 0.64 |
| 14:P:128:LYS:O | 14:P:129:THR:HG23 | 1.97 | 0.64 |
| 14:P:32:TYR:CE2 | 14:P:108:GLY:N | 2.65 | 0.64 |
| 17:S:11:GLU:CD | 17:S:11:GLU:H | 2.00 | 0.64 |
| 18:T:19:LYS:HZ3 | 18:T:19:LYS:HB2 | 1.61 | 0.64 |
| 18:T:48:ALA:O | 18:T:51:LYS:HB2 | 1.96 | 0.64 |
| 18:T:53:ARG:HA | 18:T:56:ASP:OD2 | 1.97 | 0.64 |
| 23:Y:57:ILE:CG2 | 23:Y:58:VAL:H | 2.10 | 0.64 |
| 9:K:87:LYS:CA | 9:K:121:LYS:O | 2.29 | 0.64 |
| 1:A:94:G:O2' | 25:1:39:LEU:HA | 1.97 | 0.64 |
| 27:3:50:VAL:HG12 | 27:3:50:VAL:O | 1.97 | 0.64 |
| 1:A:2285:C:OP2 | 29:5:9:LEU:HD21 | 1.98 | 0.64 |
| 31:7:17:THR:C | 31:7:19:SER:H | 2.00 | 0.64 |
| 1:A:1023:U:O2 | 1:A:1023:U:H2' | 1.97 | 0.64 |
| 1:A:1065:U:C4 | 1:A:1066:U:H1' | 2.32 | 0.64 |
| 1:A:1529:A:H8 | 1:A:1530:G:N9 | 1.96 | 0.64 |
| 1:A:1712:C:C2' | 1:A:1716:U:H6 | 2.10 | 0.64 |
| 1:A:1775:U:C5 | 4:D:208:LYS:CD | 2.77 | 0.64 |
| 1:A:1785:A:H2' | 1:A:1786:A:C5 | 2.33 | 0.64 |
| 1:A:1911:U:O2' | 1:A:1912:A:C5' | 2.26 | 0.64 |
| 1:A:1919:A:O5' | 1:A:1919:A:C8 | 2.51 | 0.64 |
| 1:A:192:C:OP1 | 1:A:2243:U:OP1 | 2.14 | 0.64 |
| 1:A:2503:A:O2' | 1:A:2504:U:C5 | 2.40 | 0.64 |
| 1:A:2520:C:H2' | 1:A:2521:C:C6 | 2.28 | 0.64 |
| 1:A:2648:C:H2' | 1:A:2649:U:H6 | 1.60 | 0.64 |
| 1:A:2653:U:H3' | 1:A:2654:A:C8 | 2.31 | 0.64 |
| 1:A:2771:C:H2' | 1:A:2772:C:H6 | 1.60 | 0.64 |
| 1:A:350:U:O2 | 1:A:350:U:H2' | 1.97 | 0.64 |
| 1:A:181:A:H1' | 1:A:435:C:H5' | 1.79 | 0.64 |
| 1:A:475:U:H3 | 1:A:479:A:H62 | 1.44 | 0.64 |
| 1:A:534:U:H2' | 1:A:535:C:C5 | 2.32 | 0.64 |
| 1:A:742:G:C5' | 1:A:1675:C:O2' | 2.44 | 0.64 |
| 1:A:779:U:C2' | 1:A:780:G:H5' | 2.28 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1567:A:N7 | 4:D:84:TYR:CZ | 2.66 | 0.64 |
| 6:F:181:LEU:O | 6:F:182:ASN:HB3 | 1.97 | 0.64 |
| 1:A:675:A:H5' | 6:F:67:GLN:HE22 | 1.61 | 0.64 |
| 7:G:107:LEU:HD21 | 7:G:177:GLY:O | 1.98 | 0.64 |
| 7:G:170:ARG:CG | 7:G:171:ALA:N | 2.60 | 0.64 |
| 7:G:79:ASN:OD1 | 7:G:82:LEU:HD21 | 1.98 | 0.64 |
| 9:K:32:PRO:HG2 | 9:K:33:ARG:HG2 | 1.77 | 0.64 |
| 10:L:104:VAL:O | 10:L:108:ALA:HB2 | 1.97 | 0.64 |
| 10:L:88:ALA:O | 10:L:90:LYS:N | 2.30 | 0.64 |
| 11:M:133:GLN:CA | 11:M:133:GLN:OE1 | 2.46 | 0.64 |
| 11:M:74:ARG:NH1 | 11:M:76:SER:HB2 | 2.10 | 0.64 |
| 13:O:85:LEU:HD12 | 13:O:85:LEU:N | 2.13 | 0.64 |
| 14:P:34:LEU:CD1 | 14:P:67:ARG:NH1 | 2.51 | 0.64 |
| 17:S:111:ARG:HB2 | 17:S:111:ARG:HH11 | 1.62 | 0.64 |
| 21:W:73:ARG:NH1 | 21:W:74:PRO:C | 2.50 | 0.64 |
| 22:X:11:ASP:OD1 | 22:X:24:VAL:HA | 1.98 | 0.64 |
| 22:X:50:ARG:HG3 | 22:X:54:LYS:HD2 | 1.79 | 0.64 |
| 23:Y:43:GLU:O | 23:Y:44:PHE:C | 2.34 | 0.64 |
| 1:A:2178:C:H2' | 1:A:2179:C:H6 | 1.61 | 0.64 |
| 3:C:99:ILE:HG12 | 3:C:107:TRP:HZ3 | 1.63 | 0.64 |
| 30:6:42:LEU:O | 30:6:45:ALA:HB3 | 1.98 | 0.64 |
| 31:7:30:ARG:HH21 | 31:7:43:GLN:CA | 2.11 | 0.64 |
| 1:A:1083:U:O2' | 1:A:1084:A:H5'' | 1.97 | 0.64 |
| 1:A:1204:A:C1' | 1:A:1204:A:OP2 | 2.46 | 0.64 |
| 1:A:1331:A:O2' | 1:A:1332:G:C8 | 2.51 | 0.64 |
| 1:A:1473:G:O2' | 1:A:1474:C:H5' | 1.96 | 0.64 |
| 1:A:1530:G:N2 | 1:A:1541:U:O2' | 2.30 | 0.64 |
| 1:A:1709:U:H6 | 1:A:1709:U:H5' | 1.62 | 0.64 |
| 1:A:1803:A:N6 | 1:A:1814:G:O2' | 2.26 | 0.64 |
| 1:A:1815:A:H1' | 1:A:1817:G:C4 | 2.31 | 0.64 |
| 1:A:192:C:O2 | 1:A:192:C:C2' | 2.45 | 0.64 |
| 1:A:1944:U:H1' | 1:A:1955:U:C6 | 2.33 | 0.64 |
| 1:A:1961:C:C2' | 1:A:1962:C:H5' | 2.27 | 0.64 |
| 1:A:2320:A:H5' | 1:A:2321:G:N7 | 2.12 | 0.64 |
| 1:A:411:G:H21 | 1:A:2408:U:H3 | 1.45 | 0.64 |
| 1:A:2409:G:H21 | 1:A:2410:G:H1' | 1.60 | 0.64 |
| 1:A:2476:A:C8 | 1:A:2477:C:C5 | 2.86 | 0.64 |
| 1:A:2031:A:N6 | 1:A:2498:C:O2 | 2.30 | 0.64 |
| 1:A:2554:U:C5 | 1:A:2556:C:N3 | 2.63 | 0.64 |
| 1:A:390:A:C5' | 1:A:391:G:OP1 | 2.45 | 0.64 |
| 1:A:59:U:C3' | 1:A:60:G:H5'' | 2.26 | 0.64 |
| 1:A:606:U:O5' | 1:A:606:U:H6 | 1.80 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:675:A:C8 | 1:A:804:A:H2 | 2.15 | 0.64 |
| 1:A:935:C:C2 | 1:A:936:C:C5 | 2.85 | 0.64 |
| 4:D:96:HIS:NE2 | 4:D:102:LYS:HE2 | 2.12 | 0.64 |
| 5:E:3:GLY:O | 5:E:197:ILE:HG22 | 1.97 | 0.64 |
| 5:E:49:LEU:HD13 | 5:E:50:GLY:N | 2.06 | 0.64 |
| 7:G:55:LYS:O | 7:G:59:GLU:HG2 | 1.96 | 0.64 |
| 8:H:44:VAL:HG12 | 8:H:51:ARG:HB3 | 1.80 | 0.64 |
| 12:N:64:ARG:O | 12:N:65:THR:HB | 1.98 | 0.64 |
| 2:B:51:G:H5' | 16:R:60:GLY:HA2 | 1.79 | 0.64 |
| 17:S:111:ARG:CA | 17:S:114:LEU:HB3 | 2.28 | 0.64 |
| 18:T:99:ALA:HB2 | 18:T:106:PHE:CG | 2.32 | 0.64 |
| 20:V:77:ASP:O | 20:V:102:HIS:O | 2.15 | 0.64 |
| 23:Y:106:GLY:O | 23:Y:107:THR:C | 2.36 | 0.64 |
| 23:Y:17:ALA:HA | 23:Y:20:ARG:HH21 | 1.62 | 0.64 |
| 23:Y:55:HIS:CB | 23:Y:101:PRO:HD3 | 2.27 | 0.64 |
| 24:Z:17:GLN:CD | 24:Z:18:ALA:N | 2.51 | 0.64 |
| 3:C:134:ARG:HH11 | 3:C:134:ARG:HB3 | 1.60 | 0.64 |
| 3:C:77:ILE:HD12 | 3:C:138:PRO:HG2 | 1.80 | 0.64 |
| 3:C:25:ALA:O | 3:C:26:ALA:C | 2.36 | 0.64 |
| 1:A:2285:C:C5 | 29:5:27:LYS:HE2 | 2.33 | 0.64 |
| 31:7:23:VAL:HG11 | 31:7:46:ARG:HB2 | 1.78 | 0.64 |
| 1:A:1022:G:O2' | 1:A:1023:U:OP2 | 2.15 | 0.64 |
| 1:A:1079:C:N4 | 1:A:1088:A:H5' | 2.08 | 0.64 |
| 1:A:1131:G:N2 | 11:M:72:TYR:CZ | 2.65 | 0.64 |
| 1:A:1250:G:O2' | 1:A:1251:C:P | 2.56 | 0.64 |
| 1:A:1352:U:H1' | 1:A:1570:A:C2 | 2.32 | 0.64 |
| 1:A:1378:A:C2 | 1:A:1380:G:C1' | 2.81 | 0.64 |
| 1:A:1405:U:C2 | 1:A:1406:U:C5 | 2.86 | 0.64 |
| 1:A:1542:G:C2' | 1:A:1543:A:C5 | 2.81 | 0.64 |
| 1:A:1710:C:C2 | 1:A:1711:C:C5 | 2.85 | 0.64 |
| 1:A:1792:G:O2' | 1:A:1793:C:H5' | 1.96 | 0.64 |
| 1:A:1797:C:H2' | 1:A:1798:U:C5 | 2.32 | 0.64 |
| 1:A:1802:A:N3 | 1:A:1802:A:H2' | 2.12 | 0.64 |
| 1:A:1824:G:C2 | 1:A:1825:A:H1' | 2.33 | 0.64 |
| 1:A:1859:A:C8 | 1:A:1860:G:C8 | 2.86 | 0.64 |
| 1:A:200:U:H5 | 1:A:201:C:C2 | 2.15 | 0.64 |
| 1:A:2331:G:N2 | 1:A:2385:C:C4 | 2.65 | 0.64 |
| 1:A:2455:G:H2' | 1:A:2456:C:H6 | 1.60 | 0.64 |
| 1:A:2059:A:N1 | 1:A:2503:A:C6 | 2.66 | 0.64 |
| 1:A:2543:G:H2' | 1:A:2544:G:C8 | 2.32 | 0.64 |
| 1:A:2653:U:N3 | 1:A:2654:A:N6 | 2.45 | 0.64 |
| 1:A:2761:G:O2' | 1:A:2762:G:H5' | 1.98 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2847:U:C5 | 1:A:2848:G:N7 | 2.65 | 0.64 |
| 1:A:600:G:H5' | 6:F:32:LEU:CD1 | 2.26 | 0.64 |
| 1:A:466:A:C2 | 1:A:796:C:O4' | 2.51 | 0.64 |
| 1:A:806:C:H6 | 1:A:806:C:O5' | 1.80 | 0.64 |
| 1:A:811:U:H3' | 1:A:811:U:H6 | 1.62 | 0.64 |
| 1:A:919:G:O2' | 1:A:920:G:H5' | 1.97 | 0.64 |
| 2:B:37:C:N4 | 2:B:44:G:H1 | 1.96 | 0.64 |
| 4:D:208:LYS:CE | 4:D:211:ARG:HG3 | 2.28 | 0.64 |
| 4:D:84:TYR:HA | 4:D:92:ILE:HG22 | 1.80 | 0.64 |
| 6:F:36:VAL:CG2 | 6:F:183:VAL:HG21 | 2.28 | 0.64 |
| 6:F:200:GLU:OE1 | 6:F:201:VAL:N | 2.30 | 0.64 |
| 6:F:66:PRO:O | 6:F:67:GLN:C | 2.34 | 0.64 |
| 7:G:144:ILE:CG2 | 7:G:145:THR:N | 2.60 | 0.64 |
| 11:M:23:LEU:HG | 11:M:61:ARG:O | 1.98 | 0.64 |
| 13:O:40:SER:O | 13:O:40:SER:OG | 2.15 | 0.64 |
| 14:P:44:ALA:HA | 14:P:47:ILE:CD1 | 2.20 | 0.64 |
| 15:Q:97:VAL:HA | 15:Q:114:VAL:CG2 | 2.24 | 0.64 |
| 12:N:79:PHE:HZ | 17:S:103:ARG:HD2 | 1.62 | 0.64 |
| 12:N:122:LEU:CD1 | 17:S:71:GLY:HA2 | 2.22 | 0.64 |
| 20:V:88:ARG:HB2 | 20:V:94:ASP:CG | 2.18 | 0.64 |
| 22:X:19:LYS:HZ3 | 22:X:39:VAL:HG12 | 1.62 | 0.64 |
| 22:X:67:LEU:HG | 22:X:67:LEU:O | 1.97 | 0.64 |
| 23:Y:1:MET:HA | 23:Y:58:VAL:HB | 1.79 | 0.64 |
| 23:Y:44:PHE:CD2 | 23:Y:48:PHE:CZ | 2.86 | 0.64 |
| 23:Y:60:GLU:O | 23:Y:62:PRO:HD3 | 1.97 | 0.64 |
| 23:Y:6:LYS:HA | 23:Y:37:VAL:HG13 | 1.78 | 0.64 |
| 23:Y:77:ASP:HB2 | 23:Y:84:GLU:HG2 | 1.80 | 0.64 |
| 24:Z:12:ASN:HA | 24:Z:14:ARG:CZ | 2.28 | 0.64 |
| 1:A:2133:G:OP2 | 1:A:2156:G:H1' | 1.97 | 0.64 |
| 1:A:2173:A:H2' | 1:A:2174:C:C6 | 2.33 | 0.64 |
| 3:C:190:ARG:HA | 3:C:193:ILE:HD12 | 1.79 | 0.64 |
| 1:A:1498:C:H1' | 1:A:1576:U:H4' | 1.78 | 0.64 |
| 1:A:2186:G:N2 | 1:A:2187:G:C5 | 2.66 | 0.64 |
| 9:K:116:LEU:HD21 | 9:K:119:PRO:HA | 1.80 | 0.64 |
| 25:1:25:ARG:HE | 25:1:28:MET:CE | 2.10 | 0.64 |
| 25:1:27:LEU:HD11 | 25:1:52:ILE:HD11 | 1.80 | 0.64 |
| 26:2:5:LYS:HZ3 | 26:2:57:GLU:HB3 | 1.63 | 0.64 |
| 29:5:48:VAL:HG13 | 29:5:49:HIS:N | 2.13 | 0.64 |
| 1:A:1022:G:C5 | 1:A:1139:G:C6 | 2.86 | 0.64 |
| 1:A:1229:G:C6 | 1:A:1230:C:C2 | 2.85 | 0.64 |
| 1:A:1428:C:O2' | 1:A:1429:G:OP1 | 2.13 | 0.64 |
| 1:A:1732:A:OP1 | 1:A:1733:G:C5 | 2.51 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1707:G:C2 | 1:A:1756:G:N2 | 2.66 | 0.64 |
| 1:A:1790:C:O2' | 4:D:213:ARG:NH2 | 2.31 | 0.64 |
| 1:A:2307:G:H4' | 1:A:2311:A:C6 | 2.33 | 0.64 |
| 1:A:2393:A:C5' | 13:O:56:SER:N | 2.58 | 0.64 |
| 1:A:2574:G:H2' | 1:A:2575:C:O4' | 1.97 | 0.64 |
| 1:A:2811:G:H2' | 1:A:2812:G:O4' | 1.97 | 0.64 |
| 1:A:2791:C:C5 | 1:A:2893:G:N7 | 2.66 | 0.64 |
| 1:A:364:C:C2 | 1:A:365:C:C5 | 2.86 | 0.64 |
| 1:A:481:G:O2' | 1:A:482:A:C8 | 2.51 | 0.64 |
| 1:A:576:U:C2' | 1:A:577:G:H8 | 2.05 | 0.64 |
| 1:A:636:G:H1 | 13:O:75:ILE:CD1 | 2.10 | 0.64 |
| 1:A:637:A:H4' | 1:A:638:G:C4' | 2.27 | 0.64 |
| 1:A:663:G:H3' | 1:A:664:C:H6 | 1.61 | 0.64 |
| 1:A:829:A:H5'' | 1:A:830:G:H5'' | 1.80 | 0.64 |
| 1:A:847:U:OP1 | 1:A:929:G:O6 | 2.15 | 0.64 |
| 2:B:80:U:H2' | 2:B:81:G:H8 | 1.60 | 0.64 |
| 4:D:10:THR:O | 4:D:11:PRO:C | 2.33 | 0.64 |
| 1:A:2210:G:C6 | 4:D:150:LYS:N | 2.64 | 0.64 |
| 5:E:4:ILE:N | 5:E:27:LEU:CD2 | 2.53 | 0.64 |
| 5:E:36:ARG:HG3 | 5:E:79:ARG:HH11 | 1.62 | 0.64 |
| 8:H:103:LEU:CD2 | 8:H:113:VAL:HG12 | 2.27 | 0.64 |
| 8:H:127:GLU:HB2 | 8:H:130:ARG:O | 1.98 | 0.64 |
| 8:H:13:LYS:CE | 8:H:80:SER:HA | 2.27 | 0.64 |
| 8:H:155:SER:OG | 8:H:159:GLU:CG | 2.44 | 0.64 |
| 9:K:2:LYS:HZ2 | 9:K:44:LEU:CD1 | 2.11 | 0.64 |
| 9:K:31:LEU:HD13 | 9:K:36:ALA:C | 2.18 | 0.64 |
| 11:M:120:LEU:HD12 | 11:M:121:LYS:H | 1.59 | 0.64 |
| 14:P:75:THR:HA | 14:P:91:GLU:HG2 | 1.80 | 0.64 |
| 14:P:77:LYS:HG3 | 14:P:87:LYS:HA | 1.80 | 0.64 |
| 2:B:51:G:C5' | 16:R:60:GLY:HA2 | 2.28 | 0.64 |
| 18:T:15:LYS:O | 18:T:18:LEU:CB | 2.38 | 0.64 |
| 19:U:51:VAL:O | 19:U:52:VAL:O | 2.16 | 0.64 |
| 21:W:84:ALA:HB3 | 21:W:85:PRO:CD | 2.25 | 0.64 |
| 24:Z:46:LYS:HE2 | 24:Z:77:ARG:N | 2.12 | 0.64 |
| 3:C:8:ARG:NE | 3:C:12:GLU:HG2 | 2.13 | 0.64 |
| 1:A:172:C:H2' | 1:A:173:G:H8 | 1.63 | 0.64 |
| 28:4:60:VAL:O | 28:4:60:VAL:HG13 | 1.98 | 0.64 |
| 26:2:11:SER:H | 26:2:12:PRO:CD | 2.11 | 0.64 |
| 26:2:9:VAL:HG13 | 26:2:54:VAL:CA | 2.21 | 0.64 |
| 27:3:58:ARG:HH11 | 27:3:58:ARG:CG | 2.10 | 0.64 |
| 28:4:57:VAL:O | 28:4:58:LEU:HB2 | 1.97 | 0.64 |
| 31:7:16:ILE:N | 31:7:22:VAL:HG22 | 2.11 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 31:7:6:THR:O | 31:7:7:HIS:C | 2.35 | 0.64 |
| 1:A:1007:C:C2 | 1:A:1008:C:N4 | 2.66 | 0.64 |
| 1:A:1060:U:H5'' | 1:A:1061:U:N3 | 2.12 | 0.64 |
| 1:A:1182:A:N3 | 1:A:1182:A:H2' | 2.12 | 0.64 |
| 1:A:1257:C:O2' | 6:F:84:VAL:HG22 | 1.97 | 0.64 |
| 1:A:1453:A:OP2 | 1:A:1453:A:C4' | 2.45 | 0.64 |
| 1:A:1505:C:O2 | 1:A:1505:C:H2' | 1.97 | 0.64 |
| 1:A:1351:C:O2' | 1:A:1571:A:H1' | 1.98 | 0.64 |
| 1:A:1703:G:H2' | 1:A:1704:G:C5' | 2.27 | 0.64 |
| 1:A:1785:A:OP1 | 1:A:1982:C:H5' | 1.98 | 0.64 |
| 1:A:1826:G:O2' | 1:A:1971:A:C4' | 2.44 | 0.64 |
| 1:A:2499:C:N4 | 1:A:2500:U:C2 | 2.66 | 0.64 |
| 1:A:2682:U:O2' | 5:E:12:THR:HG23 | 1.98 | 0.64 |
| 1:A:2767:C:C2 | 1:A:2768:C:H5 | 2.12 | 0.64 |
| 1:A:281:G:H22 | 1:A:283:A:H5'' | 1.63 | 0.64 |
| 1:A:2807:G:N2 | 1:A:2892:A:H62 | 1.92 | 0.64 |
| 1:A:781:A:H2 | 1:A:1776:G:N2 | 1.96 | 0.64 |
| 1:A:917:A:C2 | 1:A:918:A:C2 | 2.86 | 0.64 |
| 1:A:989:G:O2' | 1:A:990:A:P | 2.56 | 0.64 |
| 2:B:58:A:C6 | 2:B:59:A:N7 | 2.65 | 0.64 |
| 5:E:117:MET:SD | 5:E:136:ARG:HD2 | 2.37 | 0.64 |
| 5:E:121:ASN:HB3 | 5:E:122:PHE:HD1 | 1.62 | 0.64 |
| 5:E:129:HIS:N | 5:E:129:HIS:CD2 | 2.65 | 0.64 |
| 6:F:133:ASN:O | 6:F:162:LEU:HB3 | 1.98 | 0.64 |
| 6:F:156:LEU:O | 6:F:176:LEU:O | 2.15 | 0.64 |
| 7:G:21:ARG:NH1 | 7:G:27:ASN:HA | 2.13 | 0.64 |
| 7:G:31:VAL:N | 7:G:32:PRO:CA | 2.61 | 0.64 |
| 8:H:9:ILE:C | 8:H:50:VAL:HG23 | 2.18 | 0.64 |
| 10:L:81:ALA:HB1 | 10:L:107:ILE:HD13 | 1.78 | 0.64 |
| 10:L:88:ALA:N | 10:L:134:MET:SD | 2.71 | 0.64 |
| 11:M:97:ARG:O | 11:M:100:GLU:N | 2.31 | 0.64 |
| 11:M:27:ALA:O | 11:M:29:LYS:N | 2.31 | 0.64 |
| 1:A:670:A:H2' | 13:O:41:ARG:NE | 2.13 | 0.64 |
| 14:P:67:ARG:CZ | 14:P:103:MET:HB3 | 2.27 | 0.64 |
| 1:A:995:C:O2' | 18:T:57:PHE:CD2 | 2.49 | 0.64 |
| 18:T:88:ILE:HB | 19:U:52:VAL:CA | 2.28 | 0.64 |
| 20:V:11:ARG:HB2 | 20:V:98:LYS:CE | 2.28 | 0.64 |
| 23:Y:142:SER:O | 23:Y:144:LEU:HG | 1.98 | 0.64 |
| 23:Y:1:MET:N | 23:Y:58:VAL:HG11 | 2.13 | 0.64 |
| 23:Y:29:TYR:CB | 23:Y:34:ASN:HD22 | 2.10 | 0.64 |
| 1:A:2271:G:H5' | 24:Z:20:ARG:HH12 | 1.63 | 0.64 |
| 9:K:87:LYS:HD2 | 9:K:121:LYS:HE2 | 1.80 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 3:C:190:ARG:CG | 3:C:193:ILE:HD12 | 2.28 | 0.64 |
| 3:C:6:ARG:C | 3:C:8:ARG:N | 2.48 | 0.64 |
| 3:C:96:GLY:O | 3:C:100:ILE:HG13 | 1.97 | 0.64 |
| 1:A:1579:A:N6 | 1:A:1581:G:H21 | 1.95 | 0.64 |
| 2:B:21:G:H2' | 2:B:22:U:O4' | 1.97 | 0.64 |
| 26:2:52:HIS:CE1 | 26:2:53:LEU:HD21 | 2.32 | 0.64 |
| 1:A:974:G:C4' | 1:A:1187:G:H1' | 2.28 | 0.64 |
| 1:A:942:G:O2' | 1:A:1189:A:C2 | 2.48 | 0.64 |
| 1:A:1269:A:H8 | 1:A:1269:A:O5' | 1.80 | 0.64 |
| 1:A:1277:G:H2' | 1:A:1278:A:H8 | 1.62 | 0.64 |
| 1:A:1515:C:OP1 | 1:A:1515:C:C6 | 2.51 | 0.64 |
| 1:A:1471:A:N7 | 1:A:1519:G:C6 | 2.66 | 0.64 |
| 1:A:1637:A:H2' | 1:A:1638:C:C6 | 2.32 | 0.64 |
| 1:A:1693:U:O2 | 1:A:1693:U:H2' | 1.96 | 0.64 |
| 1:A:1778:U:O4 | 1:A:1785:A:C6 | 2.50 | 0.64 |
| 1:A:1839:G:N7 | 1:A:1927:A:N3 | 2.46 | 0.64 |
| 1:A:2033:A:O2' | 1:A:2034:U:OP1 | 2.14 | 0.64 |
| 1:A:2263:C:H4' | 1:A:2329:G:H4' | 1.80 | 0.64 |
| 1:A:2371:G:C2 | 1:A:2372:G:C5 | 2.86 | 0.64 |
| 1:A:2520:C:C5 | 1:A:2567:G:C4 | 2.85 | 0.64 |
| 1:A:2567:G:H2' | 1:A:2568:C:H6 | 1.63 | 0.64 |
| 1:A:2522:U:O2' | 1:A:2647:U:OP1 | 2.11 | 0.64 |
| 1:A:2714:G:C6 | 1:A:2715:C:C5 | 2.86 | 0.64 |
| 1:A:2856:C:C2' | 1:A:2857:G:H5' | 2.28 | 0.64 |
| 1:A:349:G:C2 | 1:A:350:U:C4 | 2.86 | 0.64 |
| 1:A:477:A:H62 | 1:A:502:A:H61 | 1.46 | 0.64 |
| 1:A:482:A:C2' | 1:A:482:A:N3 | 2.52 | 0.64 |
| 1:A:812:C:H1' | 1:A:1250:G:N2 | 2.12 | 0.64 |
| 2:B:14:U:H1' | 2:B:107:U:H1' | 1.80 | 0.64 |
| 2:B:32:C:C2 | 2:B:33:G:N7 | 2.66 | 0.64 |
| 2:B:64:C:O2' | 2:B:65:C:H5' | 1.97 | 0.64 |
| 4:D:157:ARG:HB3 | 4:D:160:GLY:O | 1.97 | 0.64 |
| 6:F:182:ASN:O | 6:F:182:ASN:OD1 | 2.16 | 0.64 |
| 8:H:74:ASN:ND2 | 8:H:75:ALA:H | 1.95 | 0.64 |
| 10:L:39:LYS:HA | 10:L:42:ASN:HD22 | 1.61 | 0.64 |
| 11:M:22:THR:CG2 | 11:M:25:ARG:HD3 | 2.28 | 0.64 |
| 11:M:57:ALA:CB | 11:M:99:LEU:HD23 | 2.27 | 0.64 |
| 12:N:15:GLY:N | 12:N:52:VAL:HG21 | 2.12 | 0.64 |
| 13:O:93:GLY:N | 13:O:112:LEU:HD11 | 2.04 | 0.64 |
| 14:P:34:LEU:CD2 | 14:P:34:LEU:N | 2.51 | 0.64 |
| 16:R:32:LEU:O | 16:R:35:ILE:HG22 | 1.96 | 0.64 |
| 17:S:3:ARG:O | 17:S:6:LEU:HD22 | 1.98 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 19:U:49:THR:CG2 | 19:U:50:PRO:HD2 | 2.28 | 0.64 |
| 19:U:65:GLY:H | 19:U:97:LYS:HE3 | 1.60 | 0.64 |
| 19:U:81:TYR:O | 19:U:82:ARG:CB | 2.44 | 0.64 |
| 23:Y:141:VAL:CB | 23:Y:150:LEU:HD11 | 2.28 | 0.64 |
| 23:Y:150:LEU:O | 23:Y:171:ILE:CG2 | 2.46 | 0.64 |
| 23:Y:37:VAL:O | 23:Y:38:TYR:CD2 | 2.51 | 0.64 |
| 23:Y:1:MET:HE1 | 23:Y:61:LEU:HG | 1.79 | 0.64 |
| 23:Y:57:ILE:CG2 | 23:Y:69:THR:O | 2.42 | 0.64 |
| 1:A:2134:A:N1 | 1:A:2135:A:H2 | 1.96 | 0.64 |
| 2:B:4:C:C2 | 2:B:117:G:N2 | 2.66 | 0.64 |
| 26:2:17:LYS:CA | 26:2:20:LYS:HD3 | 2.28 | 0.64 |
| 26:2:29:ARG:O | 26:2:31:LEU:N | 2.31 | 0.64 |
| 31:7:39:LYS:NZ | 31:7:39:LYS:HB3 | 2.13 | 0.64 |
| 31:7:54:GLU:HA | 31:7:57:ARG:HB3 | 1.78 | 0.64 |
| 1:A:1352:U:H1' | 1:A:1570:A:H2 | 1.61 | 0.64 |
| 1:A:1511:A:C2' | 1:A:1512:G:O5' | 2.46 | 0.64 |
| 1:A:1624:G:C6 | 1:A:1625:C:N4 | 2.66 | 0.64 |
| 1:A:1837:C:N4 | 1:A:1899:G:N7 | 2.45 | 0.64 |
| 1:A:1953:A:H3' | 1:A:1953:A:H8 | 1.63 | 0.64 |
| 1:A:2225:A:H5'' | 1:A:2226:C:C5' | 2.27 | 0.64 |
| 1:A:2277:G:C6 | 1:A:2278:A:N7 | 2.65 | 0.64 |
| 1:A:2307:G:OP2 | 1:A:2308:G:O6 | 2.15 | 0.64 |
| 1:A:2350:C:C2' | 1:A:2351:G:O5' | 2.46 | 0.64 |
| 1:A:2491:U:C5 | 1:A:2492:U:C5' | 2.80 | 0.64 |
| 1:A:2447:G:C4 | 1:A:2500:U:C4 | 2.86 | 0.64 |
| 1:A:2538:C:H2' | 1:A:2539:C:C6 | 2.33 | 0.64 |
| 1:A:2589:A:C2' | 1:A:2590:A:H5' | 2.27 | 0.64 |
| 1:A:2690:C:N4 | 15:Q:14:SER:OG | 2.31 | 0.64 |
| 1:A:2747:G:N2 | 1:A:2748:A:N6 | 2.46 | 0.64 |
| 1:A:625:G:N2 | 1:A:653:A:N6 | 2.44 | 0.64 |
| 1:A:725:G:N1 | 1:A:726:G:N2 | 2.46 | 0.64 |
| 1:A:72:U:C4 | 1:A:112:U:H1' | 2.31 | 0.64 |
| 1:A:74:A:H8 | 1:A:87:C:O2' | 1.81 | 0.64 |
| 1:A:903:C:H2' | 1:A:904:C:C6 | 2.32 | 0.64 |
| 1:A:973:A:O4' | 1:A:1188:U:O4 | 2.16 | 0.64 |
| 1:A:979:G:H2' | 1:A:982:C:N4 | 2.13 | 0.64 |
| 4:D:132:PRO:HG2 | 4:D:135:PHE:CD1 | 2.33 | 0.64 |
| 6:F:125:LEU:O | 6:F:127:GLU:N | 2.31 | 0.64 |
| 7:G:35:GLU:OE1 | 7:G:36:LYS:HB3 | 1.97 | 0.64 |
| 11:M:107:LEU:HD12 | 11:M:116:LEU:HD23 | 1.79 | 0.64 |
| 1:A:603:A:N6 | 13:O:103:ALA:O | 2.30 | 0.64 |
| 14:P:56:ARG:O | 14:P:58:PHE:O | 2.16 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:Q:78:LYS:O | 15:Q:82:GLU:HB3 | 1.98 | 0.64 |
| 15:Q:97:VAL:HG22 | 15:Q:114:VAL:CG1 | 2.27 | 0.64 |
| 2:B:75:G:H5' | 23:Y:11:GLU:CG | 2.27 | 0.64 |
| 1:A:2115:G:H2' | 1:A:2117:A:N7 | 2.13 | 0.64 |
| 1:A:2140:C:H2' | 1:A:2141:G:H8 | 1.62 | 0.64 |
| 3:C:71:GLN:OE1 | 3:C:72:VAL:HG23 | 1.97 | 0.64 |
| 27:3:65:ASP:O | 27:3:69:LYS:CG | 2.46 | 0.63 |
| 1:A:1021:A:C5 | 1:A:1023:U:H6 | 2.16 | 0.63 |
| 1:A:1267:U:C2' | 1:A:1268:A:C5' | 2.72 | 0.63 |
| 1:A:1322:A:N7 | 1:A:1323:U:C5 | 2.66 | 0.63 |
| 1:A:1332:G:C6 | 1:A:1609:A:C6 | 2.87 | 0.63 |
| 1:A:1341:U:O4 | 1:A:1395:A:H2 | 1.81 | 0.63 |
| 1:A:1471:A:P | 1:A:1472:A:H2 | 2.21 | 0.63 |
| 1:A:149:A:C6 | 1:A:150:C:N3 | 2.66 | 0.63 |
| 1:A:1332:G:C5 | 1:A:1609:A:N1 | 2.66 | 0.63 |
| 1:A:1730:U:H6 | 1:A:1730:U:O5' | 1.81 | 0.63 |
| 1:A:2035:G:O2' | 1:A:2036:C:P | 2.56 | 0.63 |
| 1:A:2042:A:H2' | 1:A:2043:C:H5' | 1.80 | 0.63 |
| 1:A:2580:U:C5 | 1:A:2581:G:N7 | 2.66 | 0.63 |
| 1:A:2710:C:C2' | 1:A:2711:A:H5'' | 2.27 | 0.63 |
| 1:A:2792:G:C2 | 1:A:2793:G:C5 | 2.86 | 0.63 |
| 1:A:283:A:C2' | 1:A:284:U:H5' | 2.28 | 0.63 |
| 1:A:295:G:O2' | 1:A:296:C:H5' | 1.97 | 0.63 |
| 1:A:452:G:H5'' | 1:A:453:C:OP2 | 1.96 | 0.63 |
| 1:A:733:G:C8 | 1:A:733:G:OP2 | 2.51 | 0.63 |
| 1:A:975:G:C5 | 1:A:990:A:N6 | 2.66 | 0.63 |
| 2:B:100:G:C2' | 2:B:101:A:H8 | 2.10 | 0.63 |
| 2:B:73:A:HO2' | 2:B:74:U:C5' | 2.10 | 0.63 |
| 2:B:80:U:O2 | 2:B:81:G:N7 | 2.31 | 0.63 |
| 4:D:133:LEU:O | 4:D:136:ILE:N | 2.30 | 0.63 |
| 1:A:2596:U:C2' | 4:D:242:ARG:NE | 2.62 | 0.63 |
| 4:D:85:ASP:CB | 4:D:87:ASN:ND2 | 2.57 | 0.63 |
| 5:E:100:GLU:N | 5:E:172:VAL:HG21 | 2.04 | 0.63 |
| 5:E:199:ARG:C | 5:E:200:GLU:CD | 2.56 | 0.63 |
| 6:F:126:VAL:CB | 6:F:197:ASP:HB2 | 2.28 | 0.63 |
| 6:F:50:SER:O | 6:F:92:PRO:O | 2.16 | 0.63 |
| 7:G:165:THR:O | 7:G:168:GLU:HB2 | 1.98 | 0.63 |
| 8:H:162:ILE:C | 8:H:163:TYR:CD1 | 2.71 | 0.63 |
| 11:M:33:LEU:HD21 | 11:M:50:ASP:HB3 | 1.79 | 0.63 |
| 11:M:55:VAL:HG11 | 11:M:127:ASP:HA | 1.79 | 0.63 |
| 11:M:86:PRO:O | 11:M:89:LYS:NZ | 2.29 | 0.63 |
| 12:N:112:MET:O | 12:N:115:VAL:N | 2.31 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 13:O:111:ARG:HH21 | 13:O:113:LYS:HB2 | 1.63 | 0.63 |
| 13:O:122:PRO:O | 13:O:123:LEU:CD2 | 2.43 | 0.63 |
| 12:N:76:ALA:HA | 17:S:77:PRO:CD | 2.25 | 0.63 |
| 19:U:25:LEU:HD23 | 19:U:28:GLU:CB | 2.28 | 0.63 |
| 19:U:69:LYS:HA | 19:U:92:THR:HB | 1.79 | 0.63 |
| 20:V:24:ILE:HD13 | 20:V:36:LEU:CD2 | 2.28 | 0.63 |
| 21:W:50:LYS:HG3 | 21:W:84:ALA:CB | 2.23 | 0.63 |
| 21:W:9:LEU:CB | 21:W:30:VAL:HG12 | 2.27 | 0.63 |
| 22:X:75:ILE:HG22 | 22:X:100:ALA:HB1 | 1.80 | 0.63 |
| 23:Y:105:VAL:O | 23:Y:140:ASP:CG | 2.36 | 0.63 |
| 24:Z:51:VAL:CG2 | 24:Z:79:VAL:O | 2.31 | 0.63 |
| 1:A:2135:A:H4' | 1:A:2136:C:C6 | 2.33 | 0.63 |
| 1:A:2152:G:H2' | 1:A:2153:G:H8 | 1.62 | 0.63 |
| 3:C:190:ARG:HB2 | 3:C:190:ARG:NH1 | 2.13 | 0.63 |
| 1:A:1579:A:N7 | 1:A:1580:A:H1' | 2.12 | 0.63 |
| 23:Y:63:ASP:CG | 23:Y:63:ASP:O | 2.36 | 0.63 |
| 26:2:22:ALA:HB1 | 26:2:46:ASN:OD1 | 1.98 | 0.63 |
| 27:3:6:HIS:NE2 | 27:3:55:ARG:CD | 2.55 | 0.63 |
| 1:A:1292:U:H2' | 1:A:1293:C:C6 | 2.33 | 0.63 |
| 1:A:1342:A:H2' | 1:A:1345:C:N4 | 2.11 | 0.63 |
| 1:A:1372:U:H2' | 1:A:1373:A:H5' | 1.79 | 0.63 |
| 1:A:1449:A:H4' | 1:A:1542:G:H21 | 1.63 | 0.63 |
| 1:A:1534:G:N2 | 1:A:1538:G:C8 | 2.66 | 0.63 |
| 1:A:1816:G:OP1 | 4:D:43:ARG:NE | 2.32 | 0.63 |
| 1:A:1847:A:O2' | 1:A:1848:A:H8 | 1.81 | 0.63 |
| 1:A:212:G:H2' | 1:A:213:A:H8 | 1.64 | 0.63 |
| 1:A:2286:A:H5' | 1:A:2287:A:H4' | 1.80 | 0.63 |
| 1:A:2323:G:C4 | 1:A:2324:C:C5 | 2.85 | 0.63 |
| 1:A:2577:A:O4' | 1:A:2612:C:N4 | 2.32 | 0.63 |
| 1:A:2644:G:C2 | 1:A:2645:G:N3 | 2.67 | 0.63 |
| 1:A:270(O):U:H5'' | 1:A:270(P):C:N4 | 2.12 | 0.63 |
| 1:A:2742:C:O2' | 1:A:2743:C:H5' | 1.98 | 0.63 |
| 1:A:2856:C:O2' | 1:A:2857:G:H5' | 1.98 | 0.63 |
| 1:A:14:A:N1 | 1:A:526:A:N6 | 2.46 | 0.63 |
| 1:A:881:G:H22 | 1:A:896:A:H61 | 1.44 | 0.63 |
| 1:A:1971:A:C2 | 4:D:239:ARG:HG3 | 2.32 | 0.63 |
| 4:D:258:LYS:HB2 | 4:D:264:LYS:NZ | 2.12 | 0.63 |
| 4:D:51:VAL:O | 4:D:52:ARG:HD3 | 1.98 | 0.63 |
| 4:D:37:LEU:HD13 | 4:D:64:ILE:HG22 | 1.80 | 0.63 |
| 4:D:68:LYS:HG2 | 4:D:70:TRP:HZ2 | 1.63 | 0.63 |
| 5:E:1:MET:HG2 | 5:E:1:MET:O | 1.98 | 0.63 |
| 5:E:36:ARG:CD | 5:E:41:LYS:HZ1 | 2.04 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 5:E:46:ALA:HB3 | 5:E:80:GLU:OE2 | 1.98 | 0.63 |
| 6:F:34:TRP:O | 6:F:37:VAL:CB | 2.46 | 0.63 |
| 6:F:80:ALA:HB1 | 6:F:81:PRO:HD2 | 1.80 | 0.63 |
| 9:K:7:GLU:HA | 9:K:14:ASP:OD2 | 1.98 | 0.63 |
| 10:L:112:MET:HE1 | 10:L:119:ASP:H | 1.63 | 0.63 |
| 10:L:11:GLN:C | 10:L:12:LEU:HD23 | 2.17 | 0.63 |
| 10:L:14:ALA:CB | 10:L:53:VAL:HG21 | 2.27 | 0.63 |
| 11:M:107:LEU:HD22 | 11:M:117:PHE:CE1 | 2.33 | 0.63 |
| 12:N:50:GLY:O | 12:N:51:ALA:CB | 2.47 | 0.63 |
| 12:N:66:LYS:C | 12:N:67:LYS:HG2 | 2.19 | 0.63 |
| 13:O:123:LEU:O | 13:O:138:LEU:CG | 2.44 | 0.63 |
| 6:F:31:HIS:ND1 | 13:O:14:LYS:NZ | 2.45 | 0.63 |
| 14:P:37:LEU:HA | 14:P:100:GLY:HA2 | 1.80 | 0.63 |
| 14:P:27:VAL:HG13 | 14:P:104:PHE:HE2 | 1.61 | 0.63 |
| 14:P:137:TYR:O | 14:P:138:ASP:CB | 2.46 | 0.63 |
| 1:A:1287:A:H8 | 15:Q:104:ARG:HH11 | 1.46 | 0.63 |
| 19:U:12:TYR:CE1 | 19:U:14:VAL:CB | 2.78 | 0.63 |
| 19:U:73:SER:OG | 19:U:75:PHE:CZ | 2.51 | 0.63 |
| 20:V:74:ALA:HB2 | 20:V:105:VAL:HA | 1.79 | 0.63 |
| 21:W:21:PHE:HD2 | 21:W:26:TYR:HA | 1.64 | 0.63 |
| 22:X:84:ARG:NE | 22:X:84:ARG:C | 2.52 | 0.63 |
| 23:Y:140:ASP:O | 23:Y:141:VAL:HG23 | 1.97 | 0.63 |
| 26:2:4:LEU:C | 26:2:37:LEU:HB3 | 2.12 | 0.63 |
| 30:6:25:PRO:HA | 30:6:28:ARG:NH2 | 2.12 | 0.63 |
| 1:A:629:G:OP1 | 31:7:17:THR:HG22 | 1.98 | 0.63 |
| 29:5:25:LYS:HE2 | 31:7:35:GLN:HB3 | 1.80 | 0.63 |
| 1:A:1011:G:H2' | 1:A:1013:C:H5'' | 1.79 | 0.63 |
| 1:A:1317:A:H2' | 1:A:1318:C:C6 | 2.32 | 0.63 |
| 1:A:1468:C:H2' | 1:A:1469:A:C8 | 2.33 | 0.63 |
| 1:A:1506:C:N3 | 1:A:1507:A:H1' | 2.13 | 0.63 |
| 1:A:1520:U:H6 | 1:A:1520:U:H3' | 1.63 | 0.63 |
| 1:A:1773:A:C2 | 1:A:1977:A:N6 | 2.66 | 0.63 |
| 1:A:1860:G:H5'' | 3:C:206:GLY:HA2 | 1.76 | 0.63 |
| 1:A:1967:C:H2' | 1:A:1968:G:H5' | 1.79 | 0.63 |
| 1:A:1996:C:C2' | 1:A:1997:G:H4' | 2.28 | 0.63 |
| 1:A:2024:G:H2' | 1:A:2025:C:O4' | 1.99 | 0.63 |
| 1:A:2027:G:H2' | 1:A:2028:U:C6 | 2.32 | 0.63 |
| 1:A:2376:A:H2' | 1:A:2377:A:C8 | 2.33 | 0.63 |
| 1:A:413:C:H42 | 1:A:2410:G:H1 | 1.46 | 0.63 |
| 1:A:2439:A:C4' | 1:A:2440:C:O5' | 2.41 | 0.63 |
| 1:A:2514:U:C2 | 1:A:2515:C:C5 | 2.87 | 0.63 |
| 1:A:2597:G:C4' | 4:D:242:ARG:NE | 2.61 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:2657:A:H62 | 1:A:2664:G:N2 | 1.87 | 0.63 |
| 1:A:270:A:N7 | 1:A:270(A):A:C8 | 2.66 | 0.63 |
| 1:A:270(W):G:N7 | 1:A:270(X):G:N7 | 2.46 | 0.63 |
| 1:A:300:A:C1' | 1:A:318:C:O2' | 2.47 | 0.63 |
| 1:A:328:U:H3' | 1:A:328:U:C6 | 2.33 | 0.63 |
| 1:A:408:G:H2' | 1:A:409:C:H6 | 1.61 | 0.63 |
| 1:A:650:C:N3 | 1:A:651:G:C2 | 2.67 | 0.63 |
| 1:A:786:C:O2' | 1:A:787:U:C5' | 2.38 | 0.63 |
| 1:A:943:U:H5'' | 1:A:944:G:O6 | 1.98 | 0.63 |
| 1:A:950:G:C6 | 1:A:951:C:N4 | 2.65 | 0.63 |
| 1:A:965:C:O2' | 1:A:2272:U:C6 | 2.51 | 0.63 |
| 1:A:981:A:OP2 | 1:A:982:C:N4 | 2.29 | 0.63 |
| 4:D:147:LEU:HA | 4:D:185:VAL:CG1 | 2.27 | 0.63 |
| 1:A:1792:G:OP1 | 4:D:206:LEU:HD21 | 1.99 | 0.63 |
| 1:A:1789:A:H4' | 4:D:222:ARG:NH2 | 2.12 | 0.63 |
| 6:F:154:VAL:HB | 6:F:193:VAL:HG23 | 1.79 | 0.63 |
| 1:A:1204:A:H61 | 6:F:187:VAL:HG23 | 1.63 | 0.63 |
| 7:G:55:LYS:HG3 | 7:G:148:MET:CB | 2.27 | 0.63 |
| 10:L:112:MET:HE1 | 10:L:118:THR:HA | 1.80 | 0.63 |
| 10:L:18:THR:CB | 10:L:34:ILE:HG22 | 2.28 | 0.63 |
| 11:M:15:LEU:N | 11:M:15:LEU:HD23 | 2.13 | 0.63 |
| 12:N:117:LEU:HD23 | 12:N:118:ALA:H | 1.63 | 0.63 |
| 1:A:598:G:O4' | 13:O:13:ASN:ND2 | 2.31 | 0.63 |
| 13:O:130:PHE:HE1 | 13:O:145:PRO:CB | 2.11 | 0.63 |
| 17:S:28:VAL:HG21 | 17:S:90:GLN:NE2 | 2.14 | 0.63 |
| 18:T:19:LYS:HZ2 | 18:T:19:LYS:HB2 | 1.60 | 0.63 |
| 18:T:63:VAL:HG12 | 18:T:64:ARG:N | 2.11 | 0.63 |
| 18:T:74:LEU:HB3 | 18:T:78:THR:OG1 | 1.97 | 0.63 |
| 18:T:88:ILE:O | 19:U:52:VAL:HA | 1.98 | 0.63 |
| 18:T:97:ASP:C | 18:T:100:VAL:HG22 | 2.18 | 0.63 |
| 19:U:70:ILE:HG23 | 19:U:89:GLN:O | 1.98 | 0.63 |
| 22:X:74:PRO:HB3 | 22:X:101:LYS:CA | 2.28 | 0.63 |
| 1:A:2121:G:H1' | 3:C:167:LYS:CD | 2.26 | 0.63 |
| 5:E:127:ASP:OD2 | 5:E:135:HIS:N | 2.28 | 0.63 |
| 26:2:5:LYS:NZ | 26:2:57:GLU:HB2 | 2.13 | 0.63 |
| 26:2:7:LYS:O | 26:2:54:VAL:CG2 | 2.41 | 0.63 |
| 1:A:49:A:H2 | 1:A:120:U:N3 | 1.95 | 0.63 |
| 1:A:1210:A:C1' | 1:A:1212:G:H21 | 2.06 | 0.63 |
| 1:A:1260:G:C2' | 1:A:1261:C:H5' | 2.29 | 0.63 |
| 1:A:1267:U:H5 | 1:A:2012:G:N2 | 1.92 | 0.63 |
| 1:A:1492:G:H2' | 1:A:1493:C:C5 | 2.33 | 0.63 |
| 1:A:1681:G:C2' | 1:A:1682:G:OP1 | 2.47 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1764:G:H2' | 1:A:1765:C:H6 | 1.64 | 0.63 |
| 1:A:1784:A:HO2' | 1:A:1785:A:P | 2.18 | 0.63 |
| 1:A:1809:A:H2' | 1:A:1810:A:H5' | 1.79 | 0.63 |
| 1:A:1268:A:C4 | 1:A:2013:A:N6 | 2.66 | 0.63 |
| 1:A:2062:A:C2' | 1:A:2063:C:OP1 | 2.45 | 0.63 |
| 1:A:46:C:N4 | 1:A:214:G:N7 | 2.47 | 0.63 |
| 1:A:2619:C:H2' | 1:A:2620:C:O5' | 1.99 | 0.63 |
| 1:A:2745:C:H2' | 1:A:2746:U:H6 | 1.63 | 0.63 |
| 1:A:2749:A:H4' | 8:H:62:LYS:CB | 2.28 | 0.63 |
| 1:A:2761:G:H2' | 1:A:2762:G:H5' | 1.79 | 0.63 |
| 1:A:467:G:OP1 | 30:6:33:ARG:HD2 | 1.97 | 0.63 |
| 1:A:477:A:H62 | 1:A:502:A:N6 | 1.96 | 0.63 |
| 1:A:484:C:C2 | 1:A:485:C:C5 | 2.86 | 0.63 |
| 1:A:532:A:N7 | 18:T:45:TYR:CE2 | 2.64 | 0.63 |
| 1:A:565:C:O3' | 1:A:1253:A:C2 | 2.50 | 0.63 |
| 1:A:607:U:C2 | 1:A:608:A:C8 | 2.86 | 0.63 |
| 1:A:620:G:H5' | 1:A:621:A:OP1 | 1.98 | 0.63 |
| 1:A:736:C:C4 | 1:A:737:C:C5 | 2.86 | 0.63 |
| 1:A:788:A:O2' | 1:A:789:A:OP2 | 2.16 | 0.63 |
| 1:A:919:G:C4 | 1:A:920:G:C8 | 2.87 | 0.63 |
| 2:B:9:G:C5 | 2:B:112:G:C6 | 2.87 | 0.63 |
| 4:D:135:PHE:O | 4:D:137:PRO:HD3 | 1.97 | 0.63 |
| 4:D:140:THR:O | 4:D:165:ILE:HD13 | 1.99 | 0.63 |
| 4:D:51:VAL:CG1 | 4:D:52:ARG:CD | 2.74 | 0.63 |
| 5:E:133:LYS:O | 5:E:137:HIS:CE1 | 2.51 | 0.63 |
| 5:E:104:VAL:CG2 | 5:E:198:VAL:HA | 2.22 | 0.63 |
| 5:E:48:GLN:HE22 | 5:E:79:ARG:HA | 1.63 | 0.63 |
| 5:E:58:ARG:NH2 | 5:E:58:ARG:HB2 | 2.12 | 0.63 |
| 14:P:39:PRO:HB3 | 14:P:127:ILE:HG12 | 1.80 | 0.63 |
| 14:P:46:GLN:OE1 | 14:P:126:PRO:HB3 | 1.98 | 0.63 |
| 1:A:1653:G:O6 | 15:Q:11:ASN:HA | 1.99 | 0.63 |
| 17:S:72:VAL:CG1 | 17:S:73:GLU:H | 2.02 | 0.63 |
| 17:S:76:PHE:CE2 | 17:S:78:LEU:HD11 | 2.31 | 0.63 |
| 18:T:65:ILE:CG2 | 18:T:76:TYR:HE1 | 2.10 | 0.63 |
| 18:T:77:SER:OG | 18:T:78:THR:N | 2.28 | 0.63 |
| 18:T:98:LEU:HD12 | 18:T:105:VAL:HG11 | 1.80 | 0.63 |
| 19:U:72:VAL:O | 19:U:89:GLN:HB2 | 1.98 | 0.63 |
| 21:W:12:VAL:CB | 21:W:27:THR:O | 2.39 | 0.63 |
| 23:Y:157:LEU:HD11 | 23:Y:163:LEU:HD21 | 1.80 | 0.63 |
| 24:Z:70:GLN:HB3 | 24:Z:78:TYR:O | 1.99 | 0.63 |
| 25:1:58:VAL:HG23 | 25:1:59:LEU:N | 2.12 | 0.63 |
| 27:3:59:PHE:CD1 | 27:3:60:GLN:HG2 | 2.32 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1205:U:O3' | 1:A:1206:G:N7 | 2.32 | 0.63 |
| 1:A:1280:G:O2' | 1:A:1281:G:H5' | 1.98 | 0.63 |
| 1:A:1405:U:H2' | 1:A:1406:U:H6 | 1.56 | 0.63 |
| 1:A:1698:A:HO2' | 1:A:1699:G:C3' | 2.12 | 0.63 |
| 1:A:1829:A:H3' | 1:A:1830:C:H6 | 1.63 | 0.63 |
| 1:A:1841:U:C2' | 1:A:1842:G:H8 | 2.04 | 0.63 |
| 1:A:1944:U:H3' | 1:A:1944:U:H6 | 1.62 | 0.63 |
| 1:A:1982:C:C2 | 1:A:1983:C:C5 | 2.86 | 0.63 |
| 1:A:2015:A:OP2 | 1:A:2015:A:O4' | 2.16 | 0.63 |
| 1:A:579:G:H1' | 1:A:2017:U:C4 | 2.33 | 0.63 |
| 1:A:2298:A:O2' | 1:A:2299:G:H5' | 1.98 | 0.63 |
| 1:A:2327:A:C6 | 1:A:2388:A:C2 | 2.85 | 0.63 |
| 1:A:2346:A:N3 | 1:A:2383:G:C5 | 2.67 | 0.63 |
| 1:A:25:U:H4' | 20:V:79:GLY:HA2 | 1.80 | 0.63 |
| 1:A:270:A:H2' | 1:A:270(A):A:O5' | 1.97 | 0.63 |
| 1:A:359:A:O2' | 1:A:360:G:N7 | 2.28 | 0.63 |
| 1:A:28:A:H1' | 1:A:513:A:C2 | 2.32 | 0.63 |
| 1:A:565:C:O2 | 1:A:565:C:C2' | 2.46 | 0.63 |
| 1:A:657:U:O2' | 1:A:658:C:H5' | 1.97 | 0.63 |
| 1:A:763:G:C3' | 1:A:764:A:H5'' | 2.29 | 0.63 |
| 1:A:193:U:H4' | 1:A:803:U:C4' | 2.29 | 0.63 |
| 1:A:835:A:C4' | 1:A:2358:G:H1' | 2.28 | 0.63 |
| 1:A:890:A:OP2 | 1:A:890:A:O4' | 2.15 | 0.63 |
| 4:D:133:LEU:CB | 4:D:136:ILE:HD11 | 2.27 | 0.63 |
| 4:D:8:PRO:HG2 | 4:D:26:LYS:N | 2.12 | 0.63 |
| 5:E:111:ARG:N | 5:E:161:GLY:HA2 | 2.14 | 0.63 |
| 7:G:16:ARG:O | 7:G:20:ILE:CG1 | 2.46 | 0.63 |
| 7:G:57:ALA:C | 7:G:67:LYS:HB2 | 2.19 | 0.63 |
| 11:M:45:ASN:O | 11:M:46:VAL:HG23 | 1.99 | 0.63 |
| 11:M:89:LYS:HA | 11:M:92:ALA:CB | 2.22 | 0.63 |
| 13:O:121:LYS:HB2 | 13:O:137:LYS:CB | 2.28 | 0.63 |
| 15:Q:96:ARG:HG2 | 15:Q:98:LEU:CD2 | 2.23 | 0.63 |
| 18:T:100:VAL:CG2 | 18:T:101:ARG:N | 2.62 | 0.63 |
| 20:V:18:ARG:O | 20:V:21:VAL:HG12 | 1.98 | 0.63 |
| 20:V:25:ARG:HD2 | 20:V:73:ALA:C | 2.19 | 0.63 |
| 23:Y:53:ILE:HD13 | 23:Y:58:VAL:HG21 | 1.80 | 0.63 |
| 24:Z:12:ASN:HA | 24:Z:14:ARG:NE | 2.13 | 0.63 |
| 24:Z:24:LYS:O | 24:Z:25:ARG:CG | 2.47 | 0.63 |
| 1:A:2352:A:H2 | 24:Z:33:ALA:O | 1.81 | 0.63 |
| 24:Z:21:LEU:CG | 24:Z:39:ARG:O | 2.44 | 0.63 |
| 1:A:2125:G:N2 | 1:A:2173:A:N6 | 2.42 | 0.63 |
| 1:A:2148:G:N3 | 1:A:2149:G:C8 | 2.67 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 3:C:6:ARG:O | 3:C:8:ARG:N | 2.32 | 0.63 |
| 9:K:60:GLU:OE1 | 9:K:61:ARG:N | 2.30 | 0.63 |
| 29:5:9:LEU:HD11 | 29:5:27:LYS:HD2 | 1.79 | 0.63 |
| 31:7:34:TRP:O | 31:7:36:LYS:N | 2.32 | 0.63 |
| 29:5:23:THR:HG21 | 31:7:37:SER:O | 1.99 | 0.63 |
| 1:A:1180:C:C2' | 1:A:1181:C:C6 | 2.82 | 0.63 |
| 1:A:1407:C:C2 | 1:A:1408:C:C5 | 2.86 | 0.63 |
| 1:A:1488:G:C2 | 1:A:1489:U:H1' | 2.33 | 0.63 |
| 1:A:2016:U:C2' | 1:A:2017:U:O4' | 2.46 | 0.63 |
| 1:A:2035:G:O2' | 1:A:2036:C:OP1 | 2.17 | 0.63 |
| 1:A:223:A:OP2 | 1:A:223:A:H4' | 1.97 | 0.63 |
| 1:A:2325:G:H2' | 1:A:2326:C:C6 | 2.34 | 0.63 |
| 1:A:826:U:OP1 | 1:A:2429:G:OP1 | 2.17 | 0.63 |
| 1:A:2505:G:N2 | 1:A:2576:G:C6 | 2.66 | 0.63 |
| 1:A:2553:G:C8 | 1:A:2583:G:C4' | 2.82 | 0.63 |
| 1:A:2602:A:H1' | 24:Z:1:MET:O | 1.99 | 0.63 |
| 1:A:2627:G:C2' | 1:A:2628:C:C5' | 2.73 | 0.63 |
| 1:A:2626:C:O2' | 1:A:2627:G:O4' | 2.14 | 0.63 |
| 1:A:2653:U:H3 | 1:A:2654:A:H62 | 1.43 | 0.63 |
| 1:A:2714:G:O2' | 1:A:2715:C:H5' | 1.99 | 0.63 |
| 1:A:361:G:H2' | 1:A:362:U:H6 | 1.64 | 0.63 |
| 1:A:482:A:N7 | 1:A:506:G:N1 | 2.47 | 0.63 |
| 1:A:558:G:C5' | 11:M:112:LEU:HG | 2.25 | 0.63 |
| 1:A:634:C:H2' | 1:A:635:C:C6 | 2.34 | 0.63 |
| 1:A:731:C:O2' | 1:A:732:C:H5' | 1.99 | 0.63 |
| 1:A:783:A:O2' | 1:A:2588:G:H4' | 1.99 | 0.63 |
| 1:A:994:C:H5" | 1:A:995:C:OP1 | 1.99 | 0.63 |
| 4:D:62:TYR:CZ | 4:D:86:PRO:HB2 | 2.34 | 0.63 |
| 5:E:167:VAL:CG2 | 5:E:189:PRO:HB3 | 2.26 | 0.63 |
| 5:E:51:PHE:CG | 5:E:52:LEU:N | 2.65 | 0.63 |
| 1:A:2787:C:O2 | 5:E:61:ARG:CZ | 2.46 | 0.63 |
| 6:F:103:LYS:C | 6:F:106:ARG:HG2 | 2.19 | 0.63 |
| 7:G:107:LEU:O | 7:G:111:LEU:HB2 | 1.98 | 0.63 |
| 7:G:16:ARG:HB3 | 7:G:16:ARG:CZ | 2.29 | 0.63 |
| 7:G:53:LEU:HD23 | 7:G:71:THR:H | 1.63 | 0.63 |
| 7:G:8:LYS:HZ3 | 7:G:103:LEU:CD2 | 2.12 | 0.63 |
| 8:H:24:VAL:HG12 | 8:H:37:VAL:HG12 | 1.81 | 0.63 |
| 10:L:54:PRO:HG3 | 10:L:72:PRO:HA | 1.80 | 0.63 |
| 11:M:7:LYS:HD2 | 11:M:8:GLN:N | 2.12 | 0.63 |
| 11:M:7:LYS:HD2 | 11:M:8:GLN:O | 1.99 | 0.63 |
| 13:O:78:PRO:C | 13:O:81:GLN:HB2 | 2.18 | 0.63 |
| 13:O:7:ARG:HD2 | 13:O:8:PRO:HD3 | 1.80 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 14:P:28:ALA:CB | 14:P:134:ARG:HB3 | 2.18 | 0.63 |
| 16:R:31:SER:HB3 | 16:R:34:HIS:CG | 2.33 | 0.63 |
| 17:S:95:ARG:NH2 | 17:S:117:ASP:OD2 | 2.31 | 0.63 |
| 17:S:50:ILE:HG23 | 17:S:68:TYR:CB | 2.29 | 0.63 |
| 19:U:57:VAL:HG12 | 19:U:58:VAL:N | 2.13 | 0.63 |
| 20:V:64:MET:O | 20:V:66:GLU:N | 2.31 | 0.63 |
| 21:W:31:HIS:CE1 | 21:W:33:LYS:HB3 | 2.34 | 0.63 |
| 21:W:31:HIS:NE2 | 21:W:33:LYS:HB3 | 2.13 | 0.63 |
| 21:W:29:TRP:CE3 | 21:W:76:ARG:HG3 | 2.33 | 0.63 |
| 23:Y:6:LYS:CD | 23:Y:35:ARG:HD3 | 2.26 | 0.63 |
| 9:K:69:LYS:HE3 | 9:K:70:LYS:CG | 2.24 | 0.63 |
| 3:C:131:LEU:CD2 | 3:C:136:LEU:HD12 | 2.28 | 0.63 |
| 3:C:27:HIS:HD2 | 3:C:30:LYS:NZ | 1.97 | 0.63 |
| 3:C:77:ILE:HG22 | 3:C:96:GLY:CA | 2.27 | 0.63 |
| 1:A:1417:C:H3' | 1:A:1418:G:C8 | 2.34 | 0.63 |
| 1:A:1587:A:H2' | 1:A:1588:C:H6 | 1.60 | 0.63 |
| 1:A:738:G:N7 | 1:A:739:G:C2 | 2.67 | 0.63 |
| 26:2:17:LYS:O | 26:2:20:LYS:N | 2.32 | 0.63 |
| 27:3:5:ILE:HD11 | 27:3:10:VAL:HG23 | 1.80 | 0.63 |
| 27:3:20:ASN:HB2 | 27:3:30:GLU:OE2 | 1.98 | 0.63 |
| 27:3:48:ARG:H | 27:3:52:THR:HG1 | 1.45 | 0.63 |
| 28:4:40:LYS:NZ | 28:4:43:HIS:CA | 2.62 | 0.63 |
| 30:6:2:LYS:O | 30:6:4:THR:N | 2.30 | 0.63 |
| 1:A:1028:A:C2 | 1:A:1029:A:C5 | 2.87 | 0.63 |
| 1:A:1044:G:C4' | 1:A:1047:G:H1' | 2.28 | 0.63 |
| 1:A:1069:A:C4' | 1:A:1070:A:O5' | 2.46 | 0.63 |
| 1:A:1081:U:H3' | 1:A:1082:U:C6 | 2.34 | 0.63 |
| 1:A:1326:U:C3' | 1:A:1327:C:H5' | 2.27 | 0.63 |
| 1:A:1366:A:C8 | 1:A:1366:A:OP2 | 2.51 | 0.63 |
| 1:A:1567:A:N6 | 4:D:85:ASP:C | 2.51 | 0.63 |
| 1:A:1266:G:HO2' | 1:A:2012:G:H1 | 1.46 | 0.63 |
| 1:A:2015:A:N1 | 1:A:2613:U:O4 | 2.32 | 0.63 |
| 1:A:2075:U:H3 | 1:A:2238:G:H22 | 1.44 | 0.63 |
| 1:A:241:A:N3 | 1:A:241:A:H2' | 2.11 | 0.63 |
| 1:A:2880:C:O3' | 15:Q:90:ARG:NH1 | 2.31 | 0.63 |
| 1:A:60:G:C8 | 1:A:63:U:C4 | 2.87 | 0.63 |
| 1:A:894:C:H2' | 1:A:895:U:C5 | 2.33 | 0.63 |
| 1:A:917:A:HO2' | 1:A:918:A:P | 2.21 | 0.63 |
| 1:A:970:C:C2 | 1:A:971:C:C5 | 2.87 | 0.63 |
| 2:B:10:C:O2' | 2:B:11:C:H5' | 1.98 | 0.63 |
| 2:B:37:C:N3 | 2:B:48:A:O2' | 2.30 | 0.63 |
| 2:B:97:G:H2' | 2:B:98:G:H5' | 1.81 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:164:GLN:O | 4:D:175:LEU:HD22 | 1.98 | 0.63 |
| 6:F:29:ASN:HD22 | 6:F:30:PRO:N | 1.97 | 0.63 |
| 8:H:118:PRO:CG | 8:H:121:ILE:HG21 | 2.29 | 0.63 |
| 10:L:78:ILE:CG2 | 10:L:79:ARG:N | 2.61 | 0.63 |
| 11:M:103:VAL:HG23 | 11:M:104:LYS:N | 2.13 | 0.63 |
| 12:N:68:GLU:HG2 | 12:N:76:ALA:N | 2.14 | 0.63 |
| 14:P:34:LEU:HD22 | 14:P:118:LEU:HD22 | 1.79 | 0.63 |
| 1:A:1287:A:C8 | 15:Q:104:ARG:NH1 | 2.66 | 0.63 |
| 16:R:29:PHE:CE1 | 16:R:34:HIS:NE2 | 2.67 | 0.63 |
| 16:R:42:ASP:CG | 16:R:44:LYS:HG2 | 2.19 | 0.63 |
| 16:R:73:LEU:CD1 | 16:R:73:LEU:H | 2.11 | 0.63 |
| 21:W:50:LYS:HZ2 | 21:W:85:PRO:CD | 2.04 | 0.63 |
| 22:X:21:LYS:HB2 | 22:X:23:ARG:HH12 | 1.62 | 0.63 |
| 23:Y:95:PRO:CD | 23:Y:130:PRO:HA | 2.28 | 0.63 |
| 24:Z:17:GLN:HA | 24:Z:17:GLN:HE21 | 1.63 | 0.63 |
| 9:K:132:PRO:CD | 9:K:138:ILE:N | 2.60 | 0.63 |
| 3:C:211:SER:CA | 3:C:223:ARG:HH21 | 2.10 | 0.63 |
| 28:4:15:ARG:O | 28:4:17:ASP:N | 2.31 | 0.63 |
| 32:8:32:HIS:O | 32:8:34:GLN:N | 2.32 | 0.63 |
| 1:A:1023:U:H3 | 1:A:1024:G:HO2' | 1.45 | 0.63 |
| 1:A:1068:G:H1' | 1:A:1069:A:C6 | 2.34 | 0.63 |
| 1:A:331:A:N6 | 1:A:1209:G:H2' | 2.14 | 0.63 |
| 1:A:1243:G:C2 | 1:A:1244:G:C4 | 2.87 | 0.63 |
| 1:A:1275:A:N6 | 1:A:1296:G:O4' | 2.31 | 0.63 |
| 1:A:1528:A:N7 | 1:A:1529:A:N1 | 2.47 | 0.63 |
| 1:A:1825:A:H5'' | 1:A:1826:G:OP2 | 1.97 | 0.63 |
| 1:A:1854:A:H2' | 1:A:1855:G:O4' | 1.99 | 0.63 |
| 1:A:1912:A:N6 | 1:A:1919:A:C8 | 2.66 | 0.63 |
| 1:A:1935:G:C2 | 1:A:1962:C:H2' | 2.34 | 0.63 |
| 1:A:1996:C:C4' | 1:A:1996:C:C6 | 2.81 | 0.63 |
| 1:A:2041:U:O2' | 1:A:2042:A:H5' | 1.99 | 0.63 |
| 1:A:2224:G:H4' | 4:D:262:ARG:NH1 | 2.13 | 0.63 |
| 1:A:2265:U:C4 | 1:A:2266:A:N7 | 2.67 | 0.63 |
| 1:A:859:G:O2' | 1:A:2268:A:C2 | 2.47 | 0.63 |
| 1:A:2413:G:N1 | 1:A:2414:G:H1' | 2.13 | 0.63 |
| 1:A:2517:C:C5 | 1:A:2542:A:C8 | 2.86 | 0.63 |
| 1:A:2692:C:HO2' | 1:A:2847:U:C2' | 2.11 | 0.63 |
| 1:A:423:A:C8 | 1:A:423:A:H3' | 2.33 | 0.63 |
| 1:A:431:U:H2' | 1:A:432:A:H5' | 1.80 | 0.63 |
| 1:A:648:G:N3 | 1:A:649:G:C8 | 2.66 | 0.63 |
| 1:A:749:C:H3' | 1:A:749:C:C6 | 2.34 | 0.63 |
| 4:D:259:THR:OG1 | 4:D:261:LYS:HE3 | 1.99 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:60:ARG:HA | 4:D:62:TYR:CE2 | 2.34 | 0.63 |
| 5:E:80:GLU:OE2 | 5:E:83:ASP:HB2 | 1.99 | 0.63 |
| 6:F:62:ARG:HG3 | 6:F:63:LYS:HG2 | 1.80 | 0.63 |
| 1:A:587:C:H5' | 6:F:90:PHE:CZ | 2.34 | 0.63 |
| 7:G:55:LYS:HE3 | 7:G:152:LEU:CD2 | 2.23 | 0.63 |
| 10:L:33:ASN:N | 10:L:37:PHE:HD1 | 1.97 | 0.63 |
| 10:L:10:LEU:CD2 | 10:L:57:ILE:HG12 | 2.20 | 0.63 |
| 15:Q:41:ALA:HB1 | 15:Q:114:VAL:HG21 | 1.80 | 0.63 |
| 15:Q:57:ARG:NH2 | 15:Q:59:ASP:OD1 | 2.32 | 0.63 |
| 15:Q:57:ARG:HH21 | 15:Q:62:ALA:H | 1.46 | 0.63 |
| 16:R:95:HIS:CE1 | 16:R:96:GLY:H | 2.16 | 0.63 |
| 17:S:30:VAL:CG2 | 17:S:89:VAL:O | 2.47 | 0.63 |
| 17:S:99:LEU:CD2 | 17:S:99:LEU:N | 2.60 | 0.63 |
| 19:U:69:LYS:HG2 | 19:U:70:ILE:N | 2.14 | 0.63 |
| 21:W:89:ILE:O | 21:W:92:LEU:HD13 | 1.99 | 0.63 |
| 23:Y:40:ASP:O | 23:Y:44:PHE:HB2 | 1.98 | 0.63 |
| 9:K:87:LYS:HD2 | 9:K:121:LYS:HG3 | 1.81 | 0.63 |
| 1:A:2132:U:C5 | 1:A:2132:U:OP2 | 2.52 | 0.63 |
| 1:A:2124:G:O2' | 3:C:217:THR:OG1 | 2.10 | 0.63 |
| 3:C:64:LEU:HD22 | 3:C:191:ALA:HB3 | 1.78 | 0.63 |
| 1:A:714:U:C5 | 1:A:716:A:OP2 | 2.51 | 0.63 |
| 1:A:2101:G:O2' | 1:A:2102:U:H5' | 1.98 | 0.63 |
| 28:4:8:LYS:O | 28:4:9:LYS:HG3 | 1.97 | 0.63 |
| 29:5:30:THR:CG2 | 29:5:31:PRO:HD3 | 2.29 | 0.63 |
| 1:A:1267:U:C5 | 1:A:2012:G:N2 | 2.55 | 0.63 |
| 1:A:1388:G:H2' | 1:A:1389:G:H8 | 1.64 | 0.63 |
| 1:A:13:A:C2 | 1:A:526:A:N6 | 2.66 | 0.63 |
| 1:A:1646:C:H3' | 1:A:1647:G:C5' | 2.28 | 0.63 |
| 1:A:1667:G:H2' | 1:A:1667:G:N3 | 2.14 | 0.63 |
| 1:A:1771:C:C3' | 1:A:1772:G:H5'' | 2.29 | 0.63 |
| 1:A:1784:A:C2 | 1:A:1785:A:C6 | 2.87 | 0.63 |
| 1:A:1977:A:C2 | 1:A:1978:A:N9 | 2.67 | 0.63 |
| 1:A:2060:A:N7 | 1:A:2502:G:C2 | 2.66 | 0.63 |
| 1:A:2226:C:C2' | 1:A:2227:A:O4' | 2.40 | 0.63 |
| 1:A:2423:U:O2' | 1:A:2424:C:OP2 | 2.12 | 0.63 |
| 1:A:2447:G:N1 | 1:A:2500:U:C4 | 2.67 | 0.63 |
| 1:A:2455:G:H21 | 1:A:2498:C:N4 | 1.97 | 0.63 |
| 1:A:2448:A:OP1 | 1:A:2498:C:C5' | 2.47 | 0.63 |
| 1:A:14:A:C2 | 1:A:2625:G:O2' | 2.52 | 0.63 |
| 1:A:270(G):C:C2 | 1:A:270(H):C:C5 | 2.87 | 0.63 |
| 1:A:2744:G:C2' | 1:A:2745:C:H5' | 2.29 | 0.63 |
| 1:A:341:G:OP2 | 1:A:342:G:P | 2.56 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:503:A:O5' | 1:A:503:A:C8 | 2.50 | 0.63 |
| 1:A:554:U:O2' | 1:A:556:G:C8 | 2.48 | 0.63 |
| 1:A:613:U:C5' | 1:A:614:U:C5 | 2.80 | 0.63 |
| 1:A:623:G:C2' | 1:A:624:C:H5'' | 2.27 | 0.63 |
| 1:A:681:G:C6 | 1:A:682:G:C6 | 2.86 | 0.63 |
| 1:A:70:G:H4' | 1:A:71:A:C5' | 2.29 | 0.63 |
| 1:A:695:G:C6 | 1:A:768:G:C6 | 2.87 | 0.63 |
| 1:A:860:U:H3' | 1:A:860:U:C6 | 2.33 | 0.63 |
| 1:A:902:C:H2' | 1:A:903:C:H6 | 1.63 | 0.63 |
| 1:A:971:C:O2 | 1:A:972:G:H1' | 1.99 | 0.63 |
| 2:B:28:C:H2' | 2:B:29:A:H8 | 1.61 | 0.63 |
| 4:D:131:LEU:CD1 | 4:D:132:PRO:HD2 | 2.28 | 0.63 |
| 4:D:27:THR:C | 4:D:29:PRO:HD2 | 2.19 | 0.63 |
| 5:E:145:LYS:HZ3 | 5:E:145:LYS:H | 1.45 | 0.63 |
| 5:E:187:ALA:O | 5:E:189:PRO:N | 2.32 | 0.63 |
| 5:E:27:LEU:HD11 | 5:E:30:PRO:CD | 2.29 | 0.63 |
| 5:E:71:GLY:C | 5:E:72:VAL:HG22 | 2.18 | 0.63 |
| 1:A:586:A:H4' | 6:F:89:VAL:HG21 | 1.79 | 0.63 |
| 8:H:87:LEU:N | 8:H:132:ARG:CB | 2.59 | 0.63 |
| 8:H:23:ARG:HH22 | 8:H:36:PRO:HD3 | 1.64 | 0.63 |
| 10:L:23:VAL:O | 10:L:34:ILE:HG23 | 1.98 | 0.63 |
| 14:P:56:ARG:HD2 | 14:P:56:ARG:C | 2.20 | 0.63 |
| 14:P:74:TYR:CE1 | 14:P:94:VAL:HG13 | 2.34 | 0.63 |
| 14:P:8:LYS:HZ3 | 14:P:11:LYS:CE | 2.12 | 0.63 |
| 16:R:71:ARG:HB3 | 16:R:107:GLU:HG2 | 1.81 | 0.63 |
| 16:R:15:ARG:HH21 | 16:R:15:ARG:CG | 2.05 | 0.63 |
| 17:S:10:VAL:O | 17:S:14:TYR:CE1 | 2.51 | 0.63 |
| 17:S:5:ALA:HB3 | 17:S:6:LEU:HD13 | 1.80 | 0.63 |
| 17:S:23:ARG:NH1 | 17:S:88:ILE:HG22 | 2.12 | 0.63 |
| 17:S:93:ARG:HG2 | 17:S:95:ARG:HB2 | 1.81 | 0.63 |
| 19:U:20:LEU:HB3 | 19:U:95:LEU:HD22 | 1.79 | 0.63 |
| 22:X:8:LYS:HE3 | 22:X:28:LYS:CD | 2.28 | 0.63 |
| 23:Y:18:LEU:HD11 | 23:Y:38:TYR:HB3 | 1.81 | 0.63 |
| 24:Z:40:GLN:OE1 | 24:Z:43:THR:HA | 1.99 | 0.63 |
| 3:C:85:GLU:HG2 | 3:C:86:ALA:N | 2.13 | 0.63 |
| 1:A:1583:A:H5' | 1:A:1585:C:OP1 | 1.98 | 0.63 |
| 1:A:2096:U:H2' | 1:A:2097:C:H5 | 1.63 | 0.63 |
| 26:2:28:LEU:CA | 26:2:33:GLN:HE22 | 2.11 | 0.62 |
| 26:2:55:ARG:CB | 26:2:55:ARG:CZ | 2.77 | 0.62 |
| 26:2:5:LYS:HZ3 | 26:2:57:GLU:CB | 2.11 | 0.62 |
| 1:A:458:G:C8 | 30:6:38:GLY:O | 2.52 | 0.62 |
| 31:7:26:LYS:HD2 | 31:7:43:GLN:C | 2.18 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 32:8:11:CYS:HB3 | 32:8:32:HIS:CE1 | 2.34 | 0.62 |
| 1:A:1321:A:C2 | 1:A:1322:A:H1' | 2.34 | 0.62 |
| 1:A:1608:A:C5 | 1:A:1611:C:C4 | 2.87 | 0.62 |
| 1:A:1935:G:C2' | 1:A:1937:A:H2 | 2.12 | 0.62 |
| 1:A:2085:C:C2' | 1:A:2086:U:H5' | 2.29 | 0.62 |
| 1:A:2209:C:H4' | 4:D:150:LYS:CB | 2.27 | 0.62 |
| 1:A:2243:U:O2 | 1:A:2244:U:C6 | 2.51 | 0.62 |
| 1:A:2263:C:C2' | 1:A:2264:C:H5' | 2.30 | 0.62 |
| 1:A:227:A:N6 | 1:A:2407:G:H8 | 1.97 | 0.62 |
| 1:A:2311:A:H3' | 1:A:2312:U:C6 | 2.34 | 0.62 |
| 1:A:2473:U:C2' | 1:A:2473:U:O2 | 2.46 | 0.62 |
| 1:A:2666:C:H3' | 1:A:2667:C:C5' | 2.29 | 0.62 |
| 1:A:2683:C:C5 | 1:A:2684:U:C5 | 2.87 | 0.62 |
| 1:A:496:G:OP1 | 20:V:4:LYS:NZ | 2.30 | 0.62 |
| 1:A:543:C:H2' | 1:A:544:C:C5 | 2.33 | 0.62 |
| 1:A:679:C:O2 | 1:A:679:C:H2' | 1.98 | 0.62 |
| 1:A:85:G:H1' | 1:A:103:A:C2 | 2.33 | 0.62 |
| 4:D:145:VAL:HA | 4:D:190:TYR:O | 1.99 | 0.62 |
| 4:D:196:VAL:CG1 | 4:D:198:ASN:H | 2.11 | 0.62 |
| 4:D:20:ASP:HB3 | 4:D:21:PHE:CD2 | 2.33 | 0.62 |
| 4:D:21:PHE:N | 4:D:21:PHE:CD2 | 2.65 | 0.62 |
| 5:E:101:ARG:HD2 | 5:E:169:ASN:ND2 | 2.12 | 0.62 |
| 5:E:4:ILE:HA | 5:E:197:ILE:HG23 | 1.79 | 0.62 |
| 5:E:54:GLN:HB3 | 5:E:57:LYS:HZ2 | 1.63 | 0.62 |
| 6:F:125:LEU:C | 6:F:127:GLU:N | 2.52 | 0.62 |
| 7:G:169:ALA:C | 7:G:172:LEU:HB3 | 2.19 | 0.62 |
| 8:H:7:LEU:HD13 | 8:H:65:HIS:NE2 | 2.14 | 0.62 |
| 9:K:7:GLU:H | 9:K:8:PRO:HD3 | 1.64 | 0.62 |
| 10:L:23:VAL:HG13 | 10:L:34:ILE:HA | 1.81 | 0.62 |
| 10:L:89:HIS:O | 10:L:90:LYS:HG3 | 1.98 | 0.62 |
| 12:N:11:ALA:H | 12:N:17:ARG:HG3 | 1.63 | 0.62 |
| 12:N:59:LYS:C | 12:N:86:ILE:HD13 | 2.20 | 0.62 |
| 14:P:50:ALA:O | 14:P:54:MET:HG2 | 1.98 | 0.62 |
| 16:R:18:ILE:H | 16:R:18:ILE:CD1 | 2.11 | 0.62 |
| 17:S:111:ARG:C | 17:S:114:LEU:HB3 | 2.19 | 0.62 |
| 17:S:23:ARG:HH22 | 17:S:89:VAL:C | 2.02 | 0.62 |
| 18:T:88:ILE:CB | 19:U:52:VAL:HA | 2.29 | 0.62 |
| 19:U:21:ARG:O | 19:U:93:GLU:OE1 | 2.17 | 0.62 |
| 22:X:75:ILE:HG23 | 22:X:100:ALA:HB2 | 1.81 | 0.62 |
| 23:Y:103:ARG:HH21 | 23:Y:104:PHE:HE2 | 1.46 | 0.62 |
| 23:Y:128:VAL:HG12 | 23:Y:129:SER:N | 2.14 | 0.62 |
| 23:Y:179:ASP:CG | 23:Y:180:VAL:N | 2.52 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:Y:176:PRO:HB2 | 23:Y:179:ASP:H | 1.64 | 0.62 |
| 23:Y:10:ARG:HG2 | 23:Y:36:LYS:CD | 2.27 | 0.62 |
| 23:Y:75:ASN:HB3 | 23:Y:84:GLU:HB2 | 1.80 | 0.62 |
| 1:A:2112:G:C2 | 1:A:2113:U:N3 | 2.67 | 0.62 |
| 3:C:30:LYS:NZ | 3:C:182:PRO:HB3 | 2.09 | 0.62 |
| 26:2:28:LEU:HA | 26:2:33:GLN:CD | 2.19 | 0.62 |
| 27:3:57:GLU:H | 27:3:61:ARG:CG | 2.13 | 0.62 |
| 32:8:19:ARG:HG3 | 32:8:22:ARG:HB2 | 1.80 | 0.62 |
| 1:A:1024:G:C5' | 1:A:1025:G:H3' | 2.28 | 0.62 |
| 1:A:1156:A:C5' | 1:A:1157:G:N7 | 2.56 | 0.62 |
| 1:A:1338:G:N2 | 1:A:1339:G:H1' | 2.14 | 0.62 |
| 1:A:188:G:O4' | 1:A:1365:A:C2 | 2.52 | 0.62 |
| 1:A:1353:A:C2 | 1:A:1378:A:C2 | 2.88 | 0.62 |
| 1:A:1538:G:N1 | 1:A:1539:G:C2 | 2.67 | 0.62 |
| 1:A:1791:A:C4' | 4:D:206:LEU:HD21 | 2.28 | 0.62 |
| 1:A:1797:C:C4 | 1:A:1798:U:O4 | 2.52 | 0.62 |
| 1:A:2289:G:O2' | 1:A:2383:G:H1' | 1.99 | 0.62 |
| 1:A:2457:U:C4 | 1:A:2458:G:C2 | 2.88 | 0.62 |
| 1:A:2720:U:O2 | 1:A:2720:U:H2' | 1.98 | 0.62 |
| 1:A:295:G:H3' | 1:A:338:G:N1 | 2.12 | 0.62 |
| 1:A:323:G:OP2 | 1:A:340:A:N1 | 2.32 | 0.62 |
| 1:A:336:C:O2' | 1:A:337:C:H5' | 1.97 | 0.62 |
| 1:A:56:A:H2' | 1:A:57:C:C6 | 2.33 | 0.62 |
| 1:A:621:A:N7 | 1:A:622:G:C4' | 2.62 | 0.62 |
| 1:A:675:A:H4' | 6:F:67:GLN:CD | 2.19 | 0.62 |
| 1:A:749:C:C4 | 1:A:750:A:N7 | 2.67 | 0.62 |
| 1:A:99:U:H5' | 1:A:101:G:C5' | 2.29 | 0.62 |
| 2:B:69:G:C2 | 2:B:70:C:C6 | 2.87 | 0.62 |
| 4:D:147:LEU:H | 4:D:154:LYS:CD | 2.12 | 0.62 |
| 4:D:155:LEU:O | 4:D:155:LEU:HG | 2.00 | 0.62 |
| 1:A:2820:A:N6 | 5:E:191:PRO:HB3 | 2.14 | 0.62 |
| 5:E:64:LYS:C | 5:E:66:HIS:N | 2.49 | 0.62 |
| 5:E:98:PRO:HB2 | 5:E:173:VAL:O | 1.98 | 0.62 |
| 6:F:41:LEU:O | 6:F:44:ARG:CZ | 2.47 | 0.62 |
| 7:G:130:ASN:O | 7:G:159:VAL:O | 2.17 | 0.62 |
| 7:G:43:LEU:CD1 | 7:G:90:LEU:H | 2.12 | 0.62 |
| 10:L:7:VAL:HA | 10:L:58:THR:HB | 1.81 | 0.62 |
| 10:L:9:LYS:HE2 | 10:L:56:GLU:OE2 | 1.98 | 0.62 |
| 13:O:81:GLN:OE1 | 13:O:86:LYS:HE3 | 1.99 | 0.62 |
| 16:R:13:ARG:NH1 | 16:R:94:TYR:OH | 2.32 | 0.62 |
| 18:T:5:LYS:O | 18:T:7:GLY:N | 2.33 | 0.62 |
| 1:A:1151:G:H5'' | 18:T:81:HIS:CE1 | 2.33 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:100:ARG:N | 19:U:100:ARG:HE | 1.97 | 0.62 |
| 19:U:12:TYR:CG | 19:U:13:ARG:N | 2.65 | 0.62 |
| 20:V:64:MET:HB3 | 20:V:109:GLU:HB3 | 1.80 | 0.62 |
| 21:W:26:TYR:HE1 | 21:W:83:VAL:HG12 | 1.64 | 0.62 |
| 23:Y:168:GLU:O | 23:Y:169:GLU:HB3 | 1.98 | 0.62 |
| 23:Y:2:GLU:OE2 | 23:Y:58:VAL:HB | 1.99 | 0.62 |
| 25:1:24:LYS:HZ3 | 25:1:56:LEU:HD21 | 1.63 | 0.62 |
| 26:2:5:LYS:NZ | 26:2:59:VAL:CG2 | 2.62 | 0.62 |
| 1:A:1138:G:C2' | 1:A:1139:G:H5' | 2.28 | 0.62 |
| 1:A:1183:G:P | 1:A:1183:G:C3' | 2.87 | 0.62 |
| 1:A:1424:G:C2' | 1:A:1425:G:O5' | 2.47 | 0.62 |
| 1:A:143:C:H2' | 1:A:144:C:H6 | 1.63 | 0.62 |
| 1:A:1467:C:C4 | 1:A:1468:C:N4 | 2.68 | 0.62 |
| 1:A:118:A:H1' | 1:A:178:G:C4' | 2.29 | 0.62 |
| 1:A:1825:A:H2' | 1:A:1825:A:N3 | 2.13 | 0.62 |
| 1:A:1936:A:H5'' | 1:A:1937:A:O4' | 1.98 | 0.62 |
| 1:A:2045:C:O2 | 28:4:22:HIS:CE1 | 2.53 | 0.62 |
| 1:A:2227:A:O5' | 1:A:2227:A:H8 | 1.82 | 0.62 |
| 1:A:2259:G:C6 | 1:A:2282:G:O6 | 2.52 | 0.62 |
| 1:A:2423:U:C1' | 1:A:2425:A:N7 | 2.63 | 0.62 |
| 1:A:2683:C:C4' | 5:E:19:ARG:NH1 | 2.53 | 0.62 |
| 1:A:270(B):A:H1' | 1:A:270(C):C:C5 | 2.34 | 0.62 |
| 1:A:270(S):G:C2 | 1:A:270(T):G:C8 | 2.88 | 0.62 |
| 1:A:2733:A:N3 | 5:E:204:ALA:HB3 | 2.13 | 0.62 |
| 1:A:2749:A:H2 | 1:A:2757:A:N1 | 1.92 | 0.62 |
| 1:A:2777:G:H4' | 1:A:2778:A:C5' | 2.28 | 0.62 |
| 1:A:2870:C:O2 | 1:A:2871:C:H1' | 2.00 | 0.62 |
| 1:A:297:C:C3' | 1:A:298:G:C8 | 2.81 | 0.62 |
| 1:A:404:C:H4' | 1:A:406:G:C8 | 2.34 | 0.62 |
| 1:A:507:A:O5' | 1:A:507:A:H8 | 1.82 | 0.62 |
| 1:A:558:G:H2' | 1:A:559:G:C5' | 2.29 | 0.62 |
| 1:A:60:G:C8 | 1:A:63:U:O4 | 2.52 | 0.62 |
| 1:A:618(A):C:N4 | 1:A:619:G:N2 | 2.47 | 0.62 |
| 1:A:885:C:H42 | 1:A:889:C:C1' | 2.12 | 0.62 |
| 1:A:920:G:H2' | 1:A:921:G:H8 | 1.63 | 0.62 |
| 4:D:148:GLU:CD | 4:D:154:LYS:HZ2 | 2.02 | 0.62 |
| 4:D:61:LEU:CD2 | 4:D:62:TYR:N | 2.62 | 0.62 |
| 5:E:147:PRO:HD2 | 5:E:148:GLY:H | 1.64 | 0.62 |
| 5:E:51:PHE:CD1 | 5:E:76:ARG:HG2 | 2.34 | 0.62 |
| 7:G:33:ARG:HH21 | 7:G:34:LEU:N | 1.96 | 0.62 |
| 8:H:117:PRO:HB3 | 8:H:121:ILE:HG12 | 1.81 | 0.62 |
| 9:K:31:LEU:HD11 | 9:K:36:ALA:HB3 | 1.81 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:L:104:VAL:CG2 | 10:L:127:ILE:HG21 | 2.28 | 0.62 |
| 11:M:26:LEU:O | 11:M:30:ILE:CD1 | 2.44 | 0.62 |
| 12:N:97:ARG:NH2 | 12:N:97:ARG:HA | 2.10 | 0.62 |
| 1:A:2484:G:O2' | 14:P:124:LYS:HE3 | 1.99 | 0.62 |
| 14:P:124:LYS:HE2 | 14:P:125:LEU:HA | 1.81 | 0.62 |
| 14:P:122:GLY:HA2 | 14:P:125:LEU:HB2 | 1.81 | 0.62 |
| 15:Q:73:VAL:O | 15:Q:74:LYS:C | 2.37 | 0.62 |
| 16:R:12:PHE:CG | 16:R:13:ARG:N | 2.67 | 0.62 |
| 17:S:50:ILE:CD1 | 17:S:66:VAL:HB | 2.28 | 0.62 |
| 18:T:105:VAL:HA | 18:T:108:GLU:CD | 2.19 | 0.62 |
| 18:T:57:PHE:HA | 18:T:60:LEU:HD22 | 1.81 | 0.62 |
| 19:U:3:ALA:HB3 | 19:U:12:TYR:CE2 | 2.34 | 0.62 |
| 20:V:35:ILE:HD12 | 28:4:27:PRO:HB3 | 1.81 | 0.62 |
| 22:X:95:LYS:HG3 | 22:X:103:GLY:HA3 | 1.80 | 0.62 |
| 22:X:1:MET:CG | 22:X:67:LEU:HD22 | 2.29 | 0.62 |
| 22:X:84:ARG:CZ | 22:X:84:ARG:O | 2.47 | 0.62 |
| 23:Y:136:PHE:HB3 | 23:Y:138:GLU:CD | 2.19 | 0.62 |
| 23:Y:79:ARG:O | 23:Y:80:ARG:HG3 | 1.98 | 0.62 |
| 24:Z:44:ARG:HA | 24:Z:46:LYS:NZ | 2.14 | 0.62 |
| 1:A:2178:C:H2' | 1:A:2179:C:C6 | 2.34 | 0.62 |
| 3:C:29:VAL:CG1 | 3:C:30:LYS:N | 2.61 | 0.62 |
| 3:C:77:ILE:CG2 | 3:C:96:GLY:HA2 | 2.24 | 0.62 |
| 4:D:78:LYS:HE2 | 4:D:114:GLY:O | 1.99 | 0.62 |
| 1:A:986:C:O5' | 1:A:986:C:H6 | 1.80 | 0.62 |
| 1:A:928:G:H2' | 26:2:43:ILE:HD11 | 1.81 | 0.62 |
| 26:2:4:LEU:CD2 | 26:2:56:VAL:HG22 | 2.26 | 0.62 |
| 26:2:6:VAL:HG13 | 26:2:55:ARG:C | 2.19 | 0.62 |
| 27:3:56:VAL:O | 27:3:61:ARG:NH2 | 2.33 | 0.62 |
| 28:4:40:LYS:HZ3 | 28:4:43:HIS:HA | 1.64 | 0.62 |
| 31:7:50:LEU:CG | 31:7:51:ALA:N | 2.61 | 0.62 |
| 1:A:1000:A:N7 | 1:A:1001:A:C6 | 2.68 | 0.62 |
| 1:A:1069:A:C5' | 1:A:1070:A:O5' | 2.47 | 0.62 |
| 1:A:1071:G:O4' | 1:A:1089:G:N7 | 2.33 | 0.62 |
| 1:A:1100:C:H2' | 1:A:1101:U:C6 | 2.34 | 0.62 |
| 1:A:1223:C:C4 | 1:A:1227:A:N6 | 2.65 | 0.62 |
| 1:A:1254:A:H5' | 1:A:1255:U:C5' | 2.23 | 0.62 |
| 1:A:150:C:O2 | 1:A:150:C:H2' | 1.98 | 0.62 |
| 1:A:1561:G:H8 | 1:A:1561:G:O5' | 1.83 | 0.62 |
| 1:A:1571:A:OP2 | 1:A:1571:A:C8 | 2.52 | 0.62 |
| 1:A:1619:G:C2 | 1:A:1620:G:C4 | 2.88 | 0.62 |
| 1:A:1735:C:N3 | 1:A:1741:C:N4 | 2.46 | 0.62 |
| 1:A:1753:G:O6 | 1:A:1756:G:C6 | 2.52 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1947:C:C2' | 1:A:1948:G:H5' | 2.29 | 0.62 |
| 1:A:2055:C:H4' | 1:A:2056:G:C5' | 2.29 | 0.62 |
| 1:A:2075:U:C2' | 1:A:2076:U:H5' | 2.25 | 0.62 |
| 1:A:2311:A:H2 | 7:G:45:GLU:CD | 2.02 | 0.62 |
| 1:A:2572:A:H4' | 1:A:2573:C:H5'' | 1.80 | 0.62 |
| 1:A:2051:A:C5 | 1:A:2614:A:N7 | 2.66 | 0.62 |
| 1:A:1456:G:H1 | 1:A:2703:C:H42 | 1.46 | 0.62 |
| 1:A:511:U:C4 | 1:A:512:G:N3 | 2.67 | 0.62 |
| 1:A:530:G:O2' | 1:A:531:C:OP1 | 2.16 | 0.62 |
| 1:A:545:G:O2' | 1:A:548:A:N6 | 2.32 | 0.62 |
| 1:A:672:C:OP2 | 13:O:38:GLN:CD | 2.38 | 0.62 |
| 1:A:727:A:H2 | 4:D:16:MET:HG3 | 1.64 | 0.62 |
| 1:A:834:C:H1' | 1:A:2358:G:C2 | 2.35 | 0.62 |
| 1:A:869:G:N1 | 1:A:909:A:N6 | 2.46 | 0.62 |
| 1:A:90:U:H4' | 1:A:91:A:O5' | 1.98 | 0.62 |
| 4:D:157:ARG:HB3 | 4:D:160:GLY:CA | 2.29 | 0.62 |
| 1:A:1791:A:P | 4:D:213:ARG:HD3 | 2.39 | 0.62 |
| 4:D:8:PRO:C | 4:D:25:THR:HA | 2.18 | 0.62 |
| 4:D:75:ILE:HG22 | 4:D:98:VAL:HB | 1.80 | 0.62 |
| 5:E:146:THR:CB | 5:E:147:PRO:HD3 | 2.26 | 0.62 |
| 6:F:89:VAL:HG12 | 6:F:90:PHE:N | 2.14 | 0.62 |
| 7:G:138:GLN:HG3 | 7:G:155:MET:HE2 | 1.80 | 0.62 |
| 8:H:78:GLY:O | 8:H:81:GLU:N | 2.33 | 0.62 |
| 10:L:115:LEU:HD11 | 10:L:122:ALA:HB1 | 1.81 | 0.62 |
| 13:O:16:ARG:C | 13:O:16:ARG:HD2 | 2.19 | 0.62 |
| 1:A:671:C:H3' | 13:O:38:GLN:OE1 | 1.99 | 0.62 |
| 16:R:103:GLU:HA | 16:R:106:ARG:HB2 | 1.82 | 0.62 |
| 16:R:9:ARG:NE | 16:R:12:PHE:CE2 | 2.65 | 0.62 |
| 16:R:28:VAL:CG2 | 16:R:101:LEU:HG | 2.29 | 0.62 |
| 17:S:58:ASN:N | 17:S:61:PHE:CE2 | 2.68 | 0.62 |
| 18:T:95:LEU:O | 18:T:106:PHE:CE1 | 2.53 | 0.62 |
| 18:T:47:TYR:HE2 | 19:U:75:PHE:CB | 2.12 | 0.62 |
| 19:U:3:ALA:HA | 19:U:44:LYS:CE | 2.29 | 0.62 |
| 19:U:64:HIS:HB3 | 19:U:96:ILE:HA | 1.80 | 0.62 |
| 20:V:10:VAL:HG23 | 20:V:12:ILE:HD11 | 1.80 | 0.62 |
| 20:V:88:ARG:HA | 20:V:88:ARG:HE | 1.62 | 0.62 |
| 21:W:40:LYS:O | 21:W:51:VAL:HG21 | 1.99 | 0.62 |
| 23:Y:104:PHE:CZ | 23:Y:120:ILE:CG2 | 2.82 | 0.62 |
| 24:Z:44:ARG:HE | 24:Z:77:ARG:NE | 1.98 | 0.62 |
| 1:A:2126:A:H4' | 1:A:2127:G:O5' | 1.97 | 0.62 |
| 3:C:161:ILE:HG21 | 3:C:174:PRO:O | 1.99 | 0.62 |
| 3:C:4:GLY:O | 3:C:5:LYS:HG3 | 1.99 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 3:C:74:VAL:HG13 | 3:C:112:ALA:C | 2.19 | 0.62 |
| 1:A:1416:G:H1' | 1:A:1583:A:N6 | 2.15 | 0.62 |
| 3:C:20:TYR:HE1 | 3:C:222:VAL:CG1 | 2.12 | 0.62 |
| 26:2:16:PRO:HG2 | 26:2:19:GLN:CB | 2.29 | 0.62 |
| 1:A:2230:G:C4 | 27:3:58:ARG:NH2 | 2.68 | 0.62 |
| 1:A:1074:G:O5' | 1:A:1074:G:H8 | 1.82 | 0.62 |
| 1:A:119:A:H4' | 1:A:120:U:H5' | 1.80 | 0.62 |
| 1:A:1204:A:P | 1:A:1204:A:O4' | 2.58 | 0.62 |
| 1:A:1216:G:H2' | 1:A:1217:C:H6 | 1.63 | 0.62 |
| 1:A:1321:A:C2 | 1:A:1322:A:C1' | 2.82 | 0.62 |
| 1:A:1344:G:C2' | 1:A:1345:C:OP1 | 2.47 | 0.62 |
| 1:A:1420:U:H1' | 1:A:1421:G:N7 | 2.13 | 0.62 |
| 1:A:1439:A:H2' | 1:A:1440:G:H5' | 1.81 | 0.62 |
| 1:A:1477:A:C3' | 1:A:1478:G:O4' | 2.47 | 0.62 |
| 1:A:1272:A:N1 | 1:A:1618:A:C2 | 2.67 | 0.62 |
| 1:A:1684:C:C2 | 1:A:1685:C:C5 | 2.88 | 0.62 |
| 1:A:752:A:N6 | 1:A:1781:C:C4' | 2.63 | 0.62 |
| 1:A:1835:G:N3 | 1:A:1931:U:N3 | 2.48 | 0.62 |
| 1:A:2307:G:C5 | 1:A:2308:G:N3 | 2.67 | 0.62 |
| 1:A:245:G:H1 | 1:A:253:C:H42 | 1.48 | 0.62 |
| 1:A:2468:G:H3' | 1:A:2476:A:N1 | 2.14 | 0.62 |
| 1:A:2516:G:C4 | 1:A:2569:G:N2 | 2.67 | 0.62 |
| 1:A:2531:A:H2' | 1:A:2532:G:O5' | 2.00 | 0.62 |
| 1:A:2577:A:H5'' | 1:A:2578:G:H5' | 1.80 | 0.62 |
| 1:A:2616:C:H2' | 1:A:2617:C:H6 | 1.65 | 0.62 |
| 1:A:2624:G:H2' | 1:A:2625:G:H5'' | 1.81 | 0.62 |
| 1:A:2710:C:C3' | 1:A:2711:A:H5'' | 2.29 | 0.62 |
| 1:A:2733:A:C2' | 1:A:2734:A:O4' | 2.44 | 0.62 |
| 1:A:2752:C:H2' | 1:A:2753:A:H5' | 1.79 | 0.62 |
| 1:A:389:G:C6 | 13:O:64:LYS:HG2 | 2.33 | 0.62 |
| 1:A:499:U:H5 | 1:A:500:G:N3 | 1.97 | 0.62 |
| 1:A:51:G:H2' | 1:A:119:A:C2 | 2.34 | 0.62 |
| 2:B:12:C:H3' | 24:Z:74:ARG:HG2 | 1.81 | 0.62 |
| 2:B:18:G:H1' | 2:B:67:G:H22 | 1.64 | 0.62 |
| 2:B:53:A:C6 | 2:B:54:G:C8 | 2.88 | 0.62 |
| 4:D:181:GLU:OE2 | 4:D:270:ILE:CG2 | 2.44 | 0.62 |
| 5:E:22:PRO:CA | 5:E:185:LYS:H | 2.11 | 0.62 |
| 5:E:54:GLN:HG3 | 5:E:56:PRO:HD2 | 1.80 | 0.62 |
| 6:F:118:ALA:HB2 | 6:F:122:LYS:HE2 | 1.81 | 0.62 |
| 7:G:57:ALA:HB2 | 7:G:68:PRO:O | 2.00 | 0.62 |
| 8:H:101:ARG:NE | 8:H:101:ARG:HA | 2.15 | 0.62 |
| 8:H:127:GLU:HG3 | 8:H:130:ARG:N | 2.13 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:H:58:GLU:OE1 | 8:H:60:ARG:HB3 | 2.00 | 0.62 |
| 11:M:51:PHE:HA | 11:M:119:ARG:O | 2.00 | 0.62 |
| 12:N:58:VAL:HG21 | 12:N:88:ASN:CA | 2.26 | 0.62 |
| 13:O:114:ILE:N | 13:O:129:ALA:O | 2.28 | 0.62 |
| 13:O:79:ARG:O | 13:O:83:VAL:HG13 | 1.99 | 0.62 |
| 14:P:22:LYS:NZ | 14:P:101:ARG:HE | 1.97 | 0.62 |
| 14:P:22:LYS:CG | 14:P:23:GLY:N | 2.58 | 0.62 |
| 14:P:6:ARG:CB | 14:P:44:ALA:CB | 2.75 | 0.62 |
| 16:R:24:LEU:HD11 | 16:R:39:ILE:HB | 1.82 | 0.62 |
| 17:S:111:ARG:HA | 17:S:114:LEU:CG | 2.29 | 0.62 |
| 17:S:17:THR:CG2 | 17:S:20:PRO:HG3 | 2.24 | 0.62 |
| 19:U:15:GLU:CD | 19:U:16:PRO:HD3 | 2.19 | 0.62 |
| 20:V:33:ARG:C | 20:V:33:ARG:NH2 | 2.52 | 0.62 |
| 21:W:47:PHE:HB3 | 21:W:49:VAL:CG1 | 2.29 | 0.62 |
| 21:W:54:VAL:HG22 | 21:W:81:VAL:CB | 2.29 | 0.62 |
| 21:W:24:GLY:O | 21:W:83:VAL:HG13 | 1.99 | 0.62 |
| 22:X:76:CYS:HB3 | 22:X:100:ALA:CB | 2.27 | 0.62 |
| 3:C:182:PRO:HG2 | 3:C:183:GLU:CD | 2.20 | 0.62 |
| 3:C:173:ALA:HB3 | 3:C:192:PHE:HE2 | 1.64 | 0.62 |
| 1:A:2462:U:C4 | 1:A:2463:C:N4 | 2.68 | 0.62 |
| 27:3:6:HIS:CE1 | 27:3:55:ARG:HD3 | 2.33 | 0.62 |
| 31:7:34:TRP:CE3 | 31:7:36:LYS:HD3 | 2.34 | 0.62 |
| 31:7:40:GLU:O | 31:7:43:GLN:OE1 | 2.17 | 0.62 |
| 1:A:1632:A:N3 | 1:A:1633:G:N2 | 2.48 | 0.62 |
| 1:A:1675:C:C2' | 1:A:1675:C:O2 | 2.46 | 0.62 |
| 1:A:1716:U:H1' | 1:A:1746:G:N2 | 2.14 | 0.62 |
| 1:A:1815:A:O4' | 1:A:1817:G:H1' | 1.99 | 0.62 |
| 1:A:1858:G:O2' | 1:A:1859:A:O5' | 2.16 | 0.62 |
| 1:A:2016:U:C5' | 1:A:2058:A:OP1 | 2.48 | 0.62 |
| 1:A:231:C:C4 | 1:A:232:G:C2 | 2.86 | 0.62 |
| 1:A:2333:A:H4' | 1:A:2335:A:O4' | 2.00 | 0.62 |
| 1:A:2492:U:O2' | 1:A:2493:U:OP1 | 2.17 | 0.62 |
| 1:A:2553:G:N2 | 1:A:2554:U:C2' | 2.63 | 0.62 |
| 1:A:1782:C:O2 | 1:A:2609:U:C6 | 2.53 | 0.62 |
| 1:A:265:A:C8 | 1:A:266:G:C1' | 2.82 | 0.62 |
| 1:A:2675:A:O2' | 1:A:2676:C:H5' | 2.00 | 0.62 |
| 1:A:270(E):G:C8 | 1:A:270(E):G:OP2 | 2.53 | 0.62 |
| 1:A:2739:U:O2 | 1:A:2740:A:C8 | 2.53 | 0.62 |
| 1:A:312:G:P | 1:A:312:G:O4' | 2.58 | 0.62 |
| 1:A:389:G:OP2 | 27:3:24:THR:OG1 | 2.09 | 0.62 |
| 1:A:494:G:C2 | 1:A:495:G:C8 | 2.88 | 0.62 |
| 1:A:596:G:C2 | 1:A:597:U:C2 | 2.87 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:627:A:OP2 | 1:A:627:A:C4' | 2.48 | 0.62 |
| 1:A:816:C:C6 | 1:A:816:C:H5' | 2.35 | 0.62 |
| 4:D:146:GLU:OE2 | 4:D:150:LYS:N | 2.32 | 0.62 |
| 1:A:1789:A:O2' | 4:D:222:ARG:NH2 | 2.33 | 0.62 |
| 5:E:55:ASN:HD22 | 5:E:58:ARG:HH21 | 1.46 | 0.62 |
| 5:E:59:VAL:CG1 | 5:E:62:PRO:HD2 | 2.29 | 0.62 |
| 7:G:63:ILE:HG13 | 7:G:102:PHE:HZ | 1.65 | 0.62 |
| 7:G:71:THR:HG23 | 7:G:71:THR:O | 1.98 | 0.62 |
| 8:H:40:GLU:OE2 | 8:H:41:MET:HG2 | 1.98 | 0.62 |
| 9:K:2:LYS:C | 9:K:38:LEU:HD22 | 2.20 | 0.62 |
| 10:L:81:ALA:CB | 10:L:107:ILE:HD13 | 2.29 | 0.62 |
| 10:L:115:LEU:HD21 | 10:L:126:MET:SD | 2.39 | 0.62 |
| 10:L:98:ARG:HD3 | 10:L:139:VAL:HB | 1.82 | 0.62 |
| 11:M:13:TRP:CD1 | 11:M:51:PHE:HB3 | 2.35 | 0.62 |
| 11:M:99:LEU:HD12 | 11:M:100:GLU:N | 2.14 | 0.62 |
| 12:N:90:GLN:O | 12:N:91:LEU:C | 2.37 | 0.62 |
| 16:R:96:GLY:O | 16:R:97:ARG:C | 2.38 | 0.62 |
| 16:R:95:HIS:CA | 16:R:99:LYS:HB2 | 2.29 | 0.62 |
| 17:S:110:ILE:HD13 | 17:S:113:LYS:HZ2 | 1.64 | 0.62 |
| 17:S:64:ARG:CZ | 17:S:77:PRO:CB | 2.78 | 0.62 |
| 12:N:77:ILE:CG1 | 17:S:65:LYS:HE2 | 2.26 | 0.62 |
| 19:U:17:GLY:HA3 | 19:U:19:LYS:HZ3 | 1.63 | 0.62 |
| 19:U:62:LEU:HD22 | 19:U:99:ILE:N | 2.10 | 0.62 |
| 19:U:72:VAL:O | 19:U:89:GLN:HB3 | 1.99 | 0.62 |
| 20:V:76:VAL:HG22 | 20:V:77:ASP:N | 2.12 | 0.62 |
| 23:Y:10:ARG:NH1 | 23:Y:36:LYS:H | 1.98 | 0.62 |
| 23:Y:47:VAL:HG12 | 23:Y:53:ILE:HG21 | 1.82 | 0.62 |
| 23:Y:55:HIS:HB2 | 23:Y:101:PRO:HD3 | 1.81 | 0.62 |
| 24:Z:68:GLU:CD | 24:Z:82:ARG:HB2 | 2.20 | 0.62 |
| 24:Z:44:ARG:CG | 24:Z:77:ARG:HG3 | 2.27 | 0.62 |
| 3:C:134:ARG:NH1 | 3:C:136:LEU:CD1 | 2.63 | 0.62 |
| 3:C:90:GLY:O | 3:C:153:ILE:HG22 | 2.00 | 0.62 |
| 3:C:177:LYS:HE2 | 3:C:178:ALA:H | 1.63 | 0.62 |
| 3:C:210:ARG:HG2 | 3:C:210:ARG:HH11 | 1.64 | 0.62 |
| 3:C:216:THR:HG1 | 3:C:219:GLY:HA3 | 1.65 | 0.62 |
| 3:C:47:LEU:N | 3:C:47:LEU:HD23 | 2.04 | 0.62 |
| 4:D:111:LEU:HB3 | 4:D:115:GLN:NE2 | 2.15 | 0.62 |
| 29:5:19:ARG:CG | 29:5:19:ARG:O | 2.47 | 0.62 |
| 1:A:1009:A:O2' | 18:T:62:ILE:HG21 | 1.99 | 0.62 |
| 1:A:1198:U:C2 | 1:A:1199:U:C5 | 2.88 | 0.62 |
| 1:A:1238:G:C2 | 1:A:1239:G:C4 | 2.87 | 0.62 |
| 1:A:1437:C:HO2' | 1:A:1516:U:HO2' | 1.46 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1380:G:O2' | 1:A:1569:A:N6 | 2.33 | 0.62 |
| 1:A:1618:A:O2' | 1:A:1619:G:OP1 | 2.10 | 0.62 |
| 1:A:1799:G:H2' | 1:A:1800:C:O5' | 1.97 | 0.62 |
| 1:A:2047:U:O2' | 1:A:2048:G:C5' | 2.47 | 0.62 |
| 1:A:2243:U:H2' | 1:A:2244:U:O4' | 1.98 | 0.62 |
| 1:A:2263:C:O2' | 1:A:2264:C:H5' | 1.99 | 0.62 |
| 1:A:966:G:C1' | 1:A:2267:A:N6 | 2.62 | 0.62 |
| 1:A:2285:C:H4' | 1:A:2288:A:C6 | 2.35 | 0.62 |
| 1:A:2358:G:N3 | 1:A:2358:G:H2' | 2.15 | 0.62 |
| 1:A:2378:A:C5' | 1:A:2379:G:OP2 | 2.47 | 0.62 |
| 1:A:631:A:C2 | 1:A:2416:C:O4' | 2.52 | 0.62 |
| 1:A:2461:C:H1' | 1:A:2492:U:C4 | 2.31 | 0.62 |
| 1:A:2832:U:C2' | 1:A:2879:C:N4 | 2.62 | 0.62 |
| 1:A:292:C:C3' | 1:A:293:U:C4 | 2.74 | 0.62 |
| 1:A:298:G:P | 1:A:298:G:H8 | 2.22 | 0.62 |
| 1:A:407:G:H2' | 1:A:408:G:N7 | 2.15 | 0.62 |
| 1:A:411:G:C5' | 1:A:2407:G:OP1 | 2.48 | 0.62 |
| 1:A:446:G:H8 | 1:A:446:G:OP2 | 1.82 | 0.62 |
| 1:A:730:C:H5'' | 1:A:763:G:OP1 | 1.99 | 0.62 |
| 1:A:801:G:O2' | 1:A:802:A:OP1 | 2.14 | 0.62 |
| 1:A:85:G:OP1 | 22:X:8:LYS:HE2 | 2.00 | 0.62 |
| 1:A:989:G:P | 26:2:10:LYS:CE | 2.88 | 0.62 |
| 2:B:99:A:N1 | 2:B:100:G:C4 | 2.67 | 0.62 |
| 4:D:228:PRO:HG3 | 4:D:235:GLY:N | 2.14 | 0.62 |
| 4:D:59:LYS:HD2 | 4:D:60:ARG:N | 2.14 | 0.62 |
| 5:E:5:LEU:HD23 | 5:E:26:ILE:H | 1.63 | 0.62 |
| 5:E:30:PRO:CG | 5:E:90:THR:HG22 | 2.27 | 0.62 |
| 6:F:133:ASN:C | 6:F:162:LEU:HB3 | 2.19 | 0.62 |
| 7:G:37:VAL:HG13 | 7:G:158:ALA:O | 2.00 | 0.62 |
| 7:G:38:VAL:HG12 | 7:G:93:THR:HA | 1.82 | 0.62 |
| 7:G:45:GLU:C | 7:G:47:LYS:N | 2.48 | 0.62 |
| 8:H:27:LYS:HG2 | 8:H:32:GLU:CB | 2.29 | 0.62 |
| 10:L:103:GLN:HA | 10:L:106:GLU:OE2 | 1.99 | 0.62 |
| 11:M:109:LYS:CG | 11:M:112:LEU:HB2 | 2.15 | 0.62 |
| 12:N:25:LEU:HD13 | 12:N:38:VAL:HB | 1.82 | 0.62 |
| 12:N:68:GLU:O | 12:N:68:GLU:CG | 2.43 | 0.62 |
| 13:O:123:LEU:CB | 13:O:138:LEU:HB2 | 2.28 | 0.62 |
| 14:P:27:VAL:HA | 14:P:138:ASP:OD2 | 2.00 | 0.62 |
| 14:P:34:LEU:CD1 | 14:P:67:ARG:HH22 | 2.13 | 0.62 |
| 14:P:94:VAL:HG23 | 14:P:95:ALA:O | 2.00 | 0.62 |
| 15:Q:62:ALA:HB3 | 15:Q:80:PHE:HZ | 1.64 | 0.62 |
| 15:Q:79:LEU:HD23 | 15:Q:80:PHE:CB | 2.30 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:2334:G:H21 | 16:R:11:LYS:HE3 | 1.64 | 0.62 |
| 16:R:13:ARG:NH1 | 16:R:94:TYR:CE1 | 2.68 | 0.62 |
| 16:R:3:ARG:CD | 16:R:4:LEU:N | 2.63 | 0.62 |
| 19:U:5:VAL:N | 19:U:12:TYR:HD2 | 1.96 | 0.62 |
| 21:W:62:LYS:O | 21:W:63:LYS:HB2 | 1.98 | 0.62 |
| 21:W:82:GLN:CG | 21:W:83:VAL:N | 2.61 | 0.62 |
| 3:C:176:GLY:HA3 | 3:C:185:LEU:HA | 1.82 | 0.62 |
| 3:C:183:GLU:O | 3:C:186:ALA:HB3 | 1.99 | 0.62 |
| 27:3:51:ASP:O | 27:3:52:THR:OG1 | 2.15 | 0.62 |
| 27:3:57:GLU:H | 27:3:61:ARG:HG3 | 1.65 | 0.62 |
| 1:A:1270:C:C4' | 1:A:1271:G:H5' | 2.29 | 0.62 |
| 1:A:1313:U:C5 | 1:A:1313:U:OP2 | 2.53 | 0.62 |
| 1:A:1372:U:C2' | 1:A:1373:A:H5' | 2.29 | 0.62 |
| 1:A:1524:G:C4 | 1:A:1525:G:C8 | 2.88 | 0.62 |
| 1:A:1644:C:C2' | 1:A:1645:G:O5' | 2.48 | 0.62 |
| 1:A:1795:C:HO2' | 1:A:1796:U:H5' | 1.65 | 0.62 |
| 1:A:1995:U:C6 | 1:A:1996:C:H5 | 2.18 | 0.62 |
| 1:A:219:G:C2' | 1:A:220:G:H5' | 2.29 | 0.62 |
| 1:A:2228:G:N7 | 1:A:2229:C:C6 | 2.67 | 0.62 |
| 1:A:2369:A:H2' | 1:A:2370:G:C8 | 2.35 | 0.62 |
| 1:A:2416:C:O5' | 1:A:2416:C:H6 | 1.83 | 0.62 |
| 1:A:2562:U:H1' | 12:N:23:ARG:NH2 | 2.12 | 0.62 |
| 1:A:286:C:H2' | 1:A:287:C:H6 | 1.63 | 0.62 |
| 1:A:319:C:N4 | 1:A:320:A:N6 | 2.48 | 0.62 |
| 1:A:349:G:H2' | 1:A:350:U:C5 | 2.34 | 0.62 |
| 1:A:443:A:H4' | 1:A:1201:C:H5' | 1.80 | 0.62 |
| 1:A:684:G:C4 | 1:A:775:G:O6 | 2.52 | 0.62 |
| 1:A:783:A:H2' | 1:A:784:A:H5' | 1.81 | 0.62 |
| 1:A:823:G:H5' | 1:A:824:A:OP2 | 2.00 | 0.62 |
| 1:A:664:C:H1' | 1:A:940:G:OP1 | 2.00 | 0.62 |
| 4:D:63:ARG:HH11 | 4:D:63:ARG:CG | 2.13 | 0.62 |
| 5:E:104:VAL:HG13 | 5:E:105:THR:N | 2.14 | 0.62 |
| 5:E:142:GLY:C | 5:E:143:ASN:ND2 | 2.53 | 0.62 |
| 5:E:148:GLY:O | 5:E:149:ARG:CB | 2.47 | 0.62 |
| 5:E:176:ILE:HG21 | 5:E:181:LEU:HB2 | 1.80 | 0.62 |
| 5:E:44:TYR:CD2 | 5:E:45:THR:N | 2.68 | 0.62 |
| 5:E:88:GLY:O | 5:E:89:ASP:HB2 | 1.99 | 0.62 |
| 6:F:201:VAL:HG11 | 6:F:205:ARG:NH2 | 2.08 | 0.62 |
| 7:G:9:ARG:HA | 7:G:12:TYR:CE2 | 2.34 | 0.62 |
| 8:H:33:LEU:HD21 | 8:H:35:VAL:HG13 | 1.82 | 0.62 |
| 10:L:112:MET:SD | 10:L:115:LEU:HG | 2.40 | 0.62 |
| 10:L:52:ILE:CG1 | 10:L:80:LYS:HG2 | 2.30 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:13:TRP:O | 11:M:138:LEU:HB2 | 2.00 | 0.62 |
| 11:M:36:GLY:HA2 | 11:M:47:ALA:O | 1.98 | 0.62 |
| 13:O:76:LYS:NZ | 13:O:93:GLY:HA2 | 2.13 | 0.62 |
| 13:O:77:ARG:HB2 | 13:O:115:LEU:HD22 | 1.80 | 0.62 |
| 14:P:134:ARG:HD3 | 14:P:137:TYR:N | 2.15 | 0.62 |
| 16:R:14:VAL:HG12 | 16:R:15:ARG:N | 2.15 | 0.62 |
| 21:W:12:VAL:HA | 21:W:29:TRP:HE1 | 1.65 | 0.62 |
| 21:W:89:ILE:CG2 | 21:W:92:LEU:HD22 | 2.23 | 0.62 |
| 23:Y:47:VAL:O | 23:Y:48:PHE:C | 2.38 | 0.62 |
| 24:Z:82:ARG:NH1 | 24:Z:83:PRO:HB2 | 2.14 | 0.62 |
| 3:C:131:LEU:HB3 | 3:C:136:LEU:CB | 2.19 | 0.62 |
| 1:A:274:G:N3 | 1:A:274:G:O5' | 2.33 | 0.62 |
| 4:D:78:LYS:HG2 | 4:D:114:GLY:O | 1.99 | 0.62 |
| 1:A:1116:C:H2' | 1:A:1116:C:O2 | 1.99 | 0.62 |
| 1:A:1380:G:H2' | 1:A:1381:G:H5' | 1.82 | 0.62 |
| 1:A:140:A:H2' | 1:A:141:A:H8 | 1.65 | 0.62 |
| 1:A:1493:C:O2 | 1:A:1493:C:H2' | 1.99 | 0.62 |
| 1:A:1518:C:C2' | 1:A:1519:G:H4' | 2.25 | 0.62 |
| 1:A:1539:G:H2' | 1:A:1540:G:C8 | 2.35 | 0.62 |
| 1:A:1558:A:H4' | 1:A:1559:G:OP1 | 1.99 | 0.62 |
| 1:A:1747:G:C2 | 1:A:1748:G:C8 | 2.88 | 0.62 |
| 1:A:1791:A:H2 | 1:A:1829:A:HO2' | 1.44 | 0.62 |
| 1:A:184:C:O2' | 1:A:217:G:N2 | 2.32 | 0.62 |
| 1:A:1914:C:O2 | 1:A:1914:C:C2' | 2.47 | 0.62 |
| 1:A:1928:A:C2' | 1:A:1929:G:H5' | 2.30 | 0.62 |
| 1:A:2092:U:H5 | 1:A:2227:A:N6 | 1.94 | 0.62 |
| 1:A:185:U:H4' | 1:A:218:A:H4' | 1.81 | 0.62 |
| 1:A:252:G:N3 | 1:A:253:C:C6 | 2.68 | 0.62 |
| 1:A:2531:A:N3 | 1:A:2532:G:C8 | 2.67 | 0.62 |
| 1:A:259:G:O2' | 1:A:621:A:H1' | 2.00 | 0.62 |
| 1:A:2690:C:H41 | 15:Q:14:SER:CB | 2.13 | 0.62 |
| 1:A:2638:G:N7 | 1:A:2775:A:C6 | 2.67 | 0.62 |
| 1:A:2805:G:H2' | 1:A:2807:G:O4' | 1.99 | 0.62 |
| 1:A:378:C:C2 | 1:A:397:G:N2 | 2.67 | 0.62 |
| 1:A:588:U:H1' | 6:F:90:PHE:CG | 2.34 | 0.62 |
| 1:A:609:A:C8 | 1:A:609(A):G:N7 | 2.68 | 0.62 |
| 1:A:945:A:HO2' | 1:A:946:G:P | 2.22 | 0.62 |
| 4:D:28:GLU:N | 4:D:29:PRO:HD2 | 2.15 | 0.62 |
| 5:E:13:ARG:HH12 | 5:E:20:ALA:HB3 | 1.63 | 0.62 |
| 5:E:49:LEU:CD1 | 5:E:51:PHE:H | 2.12 | 0.62 |
| 1:A:2787:C:C5' | 5:E:64:LYS:HD2 | 2.30 | 0.62 |
| 6:F:181:LEU:H | 6:F:181:LEU:HD13 | 1.65 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:F:82:ILE:N | 6:F:82:ILE:HD13 | 2.15 | 0.62 |
| 7:G:12:TYR:CD1 | 7:G:13:GLU:N | 2.68 | 0.62 |
| 7:G:65:GLY:O | 7:G:66:GLN:HB2 | 1.98 | 0.62 |
| 7:G:75:LYS:HD3 | 7:G:84:LYS:HB2 | 1.81 | 0.62 |
| 8:H:135:GLY:HA3 | 8:H:141:VAL:HG22 | 1.81 | 0.62 |
| 1:A:2745:C:O2' | 8:H:143:GLN:HG3 | 2.00 | 0.62 |
| 11:M:16:ILE:CD1 | 11:M:16:ILE:N | 2.63 | 0.62 |
| 11:M:25:ARG:HA | 11:M:28:THR:CG2 | 2.30 | 0.62 |
| 13:O:126:VAL:N | 13:O:145:PRO:HA | 2.11 | 0.62 |
| 14:P:34:LEU:CG | 14:P:67:ARG:HH22 | 2.13 | 0.62 |
| 16:R:28:VAL:CB | 16:R:101:LEU:HG | 2.29 | 0.62 |
| 17:S:29:ARG:HA | 17:S:50:ILE:C | 2.21 | 0.62 |
| 17:S:67:SER:HB3 | 17:S:105:LEU:HD11 | 1.80 | 0.62 |
| 17:S:18:ASP:OD1 | 17:S:81:PRO:HG3 | 1.99 | 0.62 |
| 18:T:114:LYS:CG | 18:T:115:ALA:N | 2.63 | 0.62 |
| 23:Y:102:LEU:HB2 | 23:Y:123:ASP:C | 2.19 | 0.62 |
| 23:Y:157:LEU:HD22 | 23:Y:161:VAL:HG13 | 1.81 | 0.62 |
| 23:Y:48:PHE:HB3 | 23:Y:54:HIS:CE1 | 2.34 | 0.62 |
| 23:Y:99:TYR:CB | 23:Y:126:VAL:HG13 | 2.30 | 0.62 |
| 24:Z:37:LEU:HD21 | 24:Z:61:ALA:H | 1.61 | 0.62 |
| 9:K:81:VAL:HG21 | 9:K:144:VAL:HG13 | 1.82 | 0.62 |
| 1:A:2132:U:O2 | 1:A:2132:U:H3' | 2.00 | 0.62 |
| 1:A:2166:G:N2 | 1:A:2172:U:C4 | 2.68 | 0.62 |
| 3:C:148:ASN:HB2 | 3:C:151:GLU:HB2 | 1.80 | 0.62 |
| 3:C:91:ALA:CB | 3:C:153:ILE:HG21 | 2.30 | 0.62 |
| 3:C:190:ARG:HD3 | 3:C:193:ILE:HD12 | 1.81 | 0.62 |
| 1:A:1497:U:O4 | 1:A:1577:C:O5' | 2.18 | 0.62 |
| 1:A:1582:C:C4 | 1:A:1583:A:C8 | 2.88 | 0.62 |
| 1:A:2195:C:C2' | 1:A:2196:C:H5' | 2.29 | 0.62 |
| 1:A:61:G:H5' | 25:1:45:ILE:HD12 | 1.80 | 0.62 |
| 26:2:4:LEU:CB | 26:2:37:LEU:HD22 | 2.20 | 0.62 |
| 27:3:22:ILE:CB | 27:3:27:THR:HB | 2.30 | 0.62 |
| 20:V:35:ILE:HD12 | 28:4:27:PRO:CB | 2.30 | 0.62 |
| 13:O:59:LEU:CD2 | 31:7:25:MET:HE2 | 2.18 | 0.62 |
| 31:7:58:ILE:HA | 31:7:61:LEU:HB2 | 1.82 | 0.62 |
| 32:8:19:ARG:CZ | 32:8:19:ARG:HB2 | 2.29 | 0.62 |
| 1:A:1290:C:C2 | 1:A:1291:C:C5 | 2.87 | 0.62 |
| 1:A:1361:G:C4 | 1:A:1362:C:C5 | 2.87 | 0.62 |
| 1:A:1372:U:O2' | 1:A:1373:A:H5' | 1.99 | 0.62 |
| 1:A:1431:U:O2' | 1:A:1432:C:H5' | 1.99 | 0.62 |
| 1:A:1532:C:H2' | 1:A:1533:C:H6 | 1.64 | 0.62 |
| 1:A:1542:G:N7 | 1:A:1544:C:C5 | 2.67 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1566:A:C6 | 4:D:215:LEU:HD22 | 2.35 | 0.62 |
| 1:A:1606:G:H4' | 1:A:1608:A:N3 | 2.14 | 0.62 |
| 1:A:1913:A:N3 | 1:A:1918:A:N1 | 2.47 | 0.62 |
| 1:A:2541:A:H2 | 1:A:2765:A:H61 | 1.47 | 0.62 |
| 1:A:2597:G:C5' | 4:D:242:ARG:HE | 2.12 | 0.62 |
| 1:A:2740:A:H2' | 1:A:2741:A:H8 | 1.63 | 0.62 |
| 1:A:2762:G:H2' | 1:A:2763:G:O4' | 1.99 | 0.62 |
| 1:A:2805:G:H3' | 1:A:2807:G:C5' | 2.21 | 0.62 |
| 1:A:464:U:N3 | 1:A:465:G:C6 | 2.68 | 0.62 |
| 1:A:470:A:OP1 | 1:A:470:A:H4' | 2.00 | 0.62 |
| 1:A:600:G:N2 | 1:A:604:G:H4' | 2.15 | 0.62 |
| 1:A:605:C:OP2 | 1:A:605:C:H6 | 1.83 | 0.62 |
| 1:A:895:U:O2 | 1:A:896:A:C6 | 2.53 | 0.62 |
| 1:A:916:G:H21 | 1:A:917:A:N6 | 1.95 | 0.62 |
| 1:A:943:U:O4' | 1:A:943:U:P | 2.57 | 0.62 |
| 1:A:990:A:O2' | 1:A:992:C:OP2 | 2.17 | 0.62 |
| 2:B:16:G:H2' | 2:B:17:C:C6 | 2.35 | 0.62 |
| 4:D:146:GLU:HA | 4:D:154:LYS:CG | 2.27 | 0.62 |
| 6:F:186:ILE:HG22 | 6:F:187:VAL:N | 2.15 | 0.62 |
| 6:F:65:TRP:CD2 | 6:F:66:PRO:HD2 | 2.34 | 0.62 |
| 7:G:111:LEU:CD2 | 7:G:178:PHE:CD2 | 2.81 | 0.62 |
| 10:L:109:LYS:HA | 10:L:112:MET:CG | 2.30 | 0.62 |
| 11:M:128:HIS:N | 11:M:129:PRO:CD | 2.60 | 0.62 |
| 11:M:33:LEU:C | 11:M:35:ARG:N | 2.52 | 0.62 |
| 11:M:36:GLY:N | 11:M:49:GLY:N | 2.48 | 0.62 |
| 11:M:48:MET:HG2 | 11:M:50:ASP:H | 1.65 | 0.62 |
| 11:M:54:VAL:CG2 | 11:M:55:VAL:N | 2.63 | 0.62 |
| 12:N:31:LYS:CB | 12:N:32:TYR:CZ | 2.83 | 0.62 |
| 13:O:123:LEU:CD2 | 13:O:134:ALA:HA | 2.30 | 0.62 |
| 13:O:18:ARG:O | 13:O:19:VAL:C | 2.37 | 0.62 |
| 13:O:23:PRO:CB | 13:O:30:THR:H | 2.13 | 0.62 |
| 15:Q:79:LEU:CD2 | 15:Q:80:PHE:N | 2.63 | 0.62 |
| 17:S:65:LYS:CE | 17:S:75:ILE:HD12 | 2.30 | 0.62 |
| 18:T:12:ARG:O | 18:T:14:HIS:N | 2.32 | 0.62 |
| 19:U:76:LYS:CA | 19:U:85:LYS:O | 2.44 | 0.62 |
| 1:A:1266:G:C1' | 20:V:15:ARG:HH22 | 2.12 | 0.62 |
| 23:Y:43:GLU:N | 23:Y:43:GLU:CD | 2.42 | 0.62 |
| 1:A:2278:A:H62 | 24:Z:14:ARG:HB2 | 1.65 | 0.62 |
| 9:K:69:LYS:HZ1 | 9:K:70:LYS:CE | 2.13 | 0.62 |
| 26:2:50:VAL:HG13 | 26:2:53:LEU:CB | 2.30 | 0.61 |
| 26:2:9:VAL:H | 26:2:54:VAL:HG23 | 1.65 | 0.61 |
| 26:2:9:VAL:HG22 | 26:2:54:VAL:N | 2.14 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 26:2:5:LYS:HZ1 | 26:2:59:VAL:CG2 | 2.13 | 0.61 |
| 29:5:19:ARG:O | 29:5:20:ASN:CG | 2.38 | 0.61 |
| 1:A:469:G:N1 | 30:6:40:TRP:CZ2 | 2.67 | 0.61 |
| 30:6:43:THR:O | 30:6:46:VAL:N | 2.33 | 0.61 |
| 31:7:10:ALA:CB | 31:7:60:LEU:HD12 | 2.30 | 0.61 |
| 32:8:9:ARG:O | 32:8:10:ILE:HG13 | 2.00 | 0.61 |
| 1:A:1090:U:O4 | 1:A:1103:A:C6 | 2.53 | 0.61 |
| 1:A:1135:C:O2 | 1:A:2038:G:H4' | 2.00 | 0.61 |
| 1:A:1174:A:N3 | 1:A:1174:A:H2' | 2.14 | 0.61 |
| 1:A:1264:G:H3' | 1:A:1265:A:C5' | 2.29 | 0.61 |
| 1:A:1323:U:O2' | 1:A:1324:G:OP1 | 2.15 | 0.61 |
| 1:A:1451:C:OP2 | 1:A:1451:C:O4' | 2.18 | 0.61 |
| 1:A:1475:G:N2 | 1:A:1476:C:C6 | 2.68 | 0.61 |
| 1:A:1479:G:C8 | 1:A:1480:G:N7 | 2.68 | 0.61 |
| 1:A:1644:C:H2' | 1:A:1645:G:O5' | 2.00 | 0.61 |
| 1:A:1783:A:C8 | 1:A:1783:A:OP2 | 2.53 | 0.61 |
| 1:A:1800:C:N3 | 1:A:1818:U:H1' | 2.15 | 0.61 |
| 1:A:1817:G:P | 4:D:88:ARG:HH22 | 2.23 | 0.61 |
| 1:A:1857:G:N3 | 1:A:1884:A:N1 | 2.47 | 0.61 |
| 1:A:1953:A:N7 | 1:A:2550:G:H1' | 2.14 | 0.61 |
| 1:A:1955:U:H5' | 1:A:1956:U:C4 | 2.34 | 0.61 |
| 1:A:196:A:N3 | 1:A:2068:U:C5 | 2.68 | 0.61 |
| 1:A:2453:A:C2 | 1:A:2504:U:O2 | 2.52 | 0.61 |
| 1:A:2527:C:O2' | 1:A:2528:U:H5' | 2.00 | 0.61 |
| 1:A:372:G:H1' | 27:3:63:TYR:CE1 | 2.35 | 0.61 |
| 1:A:424:G:N3 | 1:A:425:G:C8 | 2.67 | 0.61 |
| 1:A:514:A:H2 | 1:A:515:A:C1' | 2.13 | 0.61 |
| 1:A:614:U:C3' | 1:A:615:G:H4' | 2.10 | 0.61 |
| 1:A:623:G:H2' | 1:A:624:C:C5' | 2.30 | 0.61 |
| 1:A:649:G:C2 | 1:A:650:C:H1' | 2.35 | 0.61 |
| 1:A:727:A:O2' | 1:A:728:G:C5' | 2.48 | 0.61 |
| 1:A:728:G:H21 | 1:A:730:C:H5'' | 1.64 | 0.61 |
| 1:A:757:U:C4 | 1:A:758:C:C5 | 2.88 | 0.61 |
| 1:A:815:C:O2' | 1:A:816:C:H5'' | 2.00 | 0.61 |
| 1:A:861:A:N6 | 1:A:916:G:H21 | 1.95 | 0.61 |
| 4:D:260:ARG:HG3 | 4:D:260:ARG:NH1 | 2.14 | 0.61 |
| 4:D:72:LYS:CG | 4:D:75:ILE:HD12 | 2.24 | 0.61 |
| 5:E:120:TRP:CG | 5:E:121:ASN:N | 2.65 | 0.61 |
| 5:E:54:GLN:CB | 5:E:57:LYS:HZ2 | 2.13 | 0.61 |
| 1:A:2786:U:O4' | 5:E:65:GLY:HA2 | 2.00 | 0.61 |
| 6:F:146:ALA:HB1 | 6:F:148:LEU:HD23 | 1.82 | 0.61 |
| 7:G:167:GLU:C | 7:G:170:ARG:HB3 | 2.20 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 8:H:127:GLU:HB3 | 8:H:129:THR:H | 1.64 | 0.61 |
| 10:L:10:LEU:HD13 | 10:L:57:ILE:HD11 | 1.81 | 0.61 |
| 11:M:37:LYS:HA | 11:M:42:TRP:CB | 2.30 | 0.61 |
| 11:M:18:ALA:HB2 | 11:M:54:VAL:CG2 | 2.29 | 0.61 |
| 11:M:69:GLN:O | 11:M:70:LYS:HD3 | 1.99 | 0.61 |
| 12:N:106:LEU:HD22 | 17:S:39:ARG:CZ | 2.31 | 0.61 |
| 12:N:103:ALA:CA | 12:N:106:LEU:HD23 | 2.26 | 0.61 |
| 12:N:92:GLU:OE1 | 12:N:113:LYS:HB3 | 2.00 | 0.61 |
| 12:N:18:LYS:CG | 12:N:19:ILE:N | 2.62 | 0.61 |
| 1:A:2674:G:H4' | 12:N:26:LYS:NZ | 2.15 | 0.61 |
| 12:N:31:LYS:C | 12:N:32:TYR:CG | 2.73 | 0.61 |
| 13:O:113:LYS:HZ2 | 13:O:114:ILE:C | 2.04 | 0.61 |
| 14:P:111:GLU:HG3 | 14:P:113:GLN:HE21 | 1.64 | 0.61 |
| 18:T:12:ARG:O | 18:T:13:LYS:C | 2.38 | 0.61 |
| 18:T:79:PHE:CZ | 18:T:83:LEU:HD22 | 2.35 | 0.61 |
| 19:U:6:LYS:HD3 | 19:U:10:LYS:CA | 2.30 | 0.61 |
| 1:A:1322:A:H5' | 20:V:11:ARG:NH1 | 2.15 | 0.61 |
| 21:W:85:PRO:CG | 21:W:87:GLN:HG2 | 2.30 | 0.61 |
| 1:A:2365:G:OP1 | 24:Z:55:ARG:N | 2.33 | 0.61 |
| 24:Z:51:VAL:HG12 | 24:Z:59:LEU:HD22 | 1.82 | 0.61 |
| 1:A:2133:G:OP2 | 1:A:2156:G:C1' | 2.48 | 0.61 |
| 3:C:111:ASP:HA | 3:C:136:LEU:CD2 | 2.17 | 0.61 |
| 3:C:111:ASP:O | 3:C:135:GLY:O | 2.18 | 0.61 |
| 3:C:120:MET:SD | 3:C:145:VAL:HG13 | 2.40 | 0.61 |
| 9:K:54:GLN:OE1 | 9:K:57:ARG:NE | 2.33 | 0.61 |
| 1:A:163:U:H5'' | 1:A:164:U:OP2 | 2.00 | 0.61 |
| 1:A:1040:C:C6 | 1:A:1040:C:OP2 | 2.53 | 0.61 |
| 25:1:20:VAL:HG23 | 25:1:55:LEU:CD2 | 2.30 | 0.61 |
| 29:5:16:CYS:HB2 | 29:5:49:HIS:O | 2.00 | 0.61 |
| 1:A:458:G:H8 | 30:6:39:ARG:HB2 | 1.64 | 0.61 |
| 1:A:1021:A:C5 | 1:A:1023:U:C6 | 2.88 | 0.61 |
| 1:A:1027:A:C6 | 1:A:1126:A:N3 | 2.68 | 0.61 |
| 1:A:1047:G:N2 | 1:A:1110:G:H2' | 2.14 | 0.61 |
| 1:A:1225:C:P | 19:U:88:ARG:NH1 | 2.74 | 0.61 |
| 1:A:1312:U:H2' | 1:A:1313:U:C1' | 2.28 | 0.61 |
| 1:A:1314:C:P | 1:A:1332:G:H5' | 2.40 | 0.61 |
| 1:A:1339:G:H5' | 21:W:16:LYS:HD3 | 1.81 | 0.61 |
| 1:A:1427:A:O2' | 1:A:1428:C:OP2 | 2.17 | 0.61 |
| 1:A:1448:G:O3' | 1:A:1543:A:N1 | 2.34 | 0.61 |
| 1:A:1510:A:OP1 | 1:A:1510:A:H4' | 1.99 | 0.61 |
| 1:A:1565:C:C2 | 1:A:1567:A:H1' | 2.34 | 0.61 |
| 1:A:1790:C:H5'' | 1:A:1828:G:C2 | 2.35 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2028:U:H2' | 1:A:2029:G:C8 | 2.35 | 0.61 |
| 1:A:2029:G:H2' | 1:A:2030:A:O3' | 2.00 | 0.61 |
| 1:A:209:C:C2' | 1:A:210:C:H5' | 2.30 | 0.61 |
| 1:A:222:A:N6 | 1:A:224:G:C2 | 2.68 | 0.61 |
| 1:A:224:G:C2 | 1:A:225:A:C8 | 2.88 | 0.61 |
| 1:A:2530:A:H3' | 1:A:2531:A:C5' | 2.30 | 0.61 |
| 1:A:2561:A:H2' | 1:A:2562:U:O5' | 2.00 | 0.61 |
| 1:A:2582:G:H2' | 1:A:2583:G:O4' | 1.99 | 0.61 |
| 1:A:2588:G:C5 | 1:A:2589:A:N7 | 2.68 | 0.61 |
| 1:A:2599:G:H2' | 1:A:2600:A:H8 | 1.64 | 0.61 |
| 1:A:2791:C:H5 | 1:A:2893:G:N7 | 1.98 | 0.61 |
| 1:A:307:G:H22 | 1:A:310:A:H5'' | 1.65 | 0.61 |
| 1:A:377:C:H2' | 1:A:378:C:C6 | 2.36 | 0.61 |
| 1:A:38:A:H2' | 1:A:39:C:C6 | 2.35 | 0.61 |
| 1:A:417:C:H2' | 1:A:418:G:O4' | 2.00 | 0.61 |
| 1:A:495:G:H2' | 1:A:496:G:O5' | 2.00 | 0.61 |
| 1:A:543:C:H2' | 1:A:544:C:C6 | 2.35 | 0.61 |
| 1:A:544:C:H2' | 1:A:545:G:C5' | 2.30 | 0.61 |
| 1:A:603:A:H5'' | 13:O:98:GLU:OE2 | 2.01 | 0.61 |
| 1:A:887:A:H5'' | 1:A:889:C:H5'' | 1.81 | 0.61 |
| 1:A:975:G:C6 | 1:A:976:C:C6 | 2.89 | 0.61 |
| 2:B:104:A:C2' | 2:B:105:G:O4' | 2.39 | 0.61 |
| 2:B:59:A:H2' | 2:B:59:A:N3 | 2.14 | 0.61 |
| 2:B:88:C:H2' | 2:B:89:G:C5' | 2.30 | 0.61 |
| 4:D:88:ARG:HE | 4:D:88:ARG:HA | 1.64 | 0.61 |
| 5:E:111:ARG:H | 5:E:161:GLY:HA2 | 1.65 | 0.61 |
| 6:F:158:THR:CG2 | 6:F:196:LEU:HB2 | 2.30 | 0.61 |
| 6:F:155:LEU:CA | 6:F:174:VAL:HG22 | 2.20 | 0.61 |
| 6:F:164:ARG:CB | 6:F:177:ALA:CB | 2.68 | 0.61 |
| 7:G:41:GLN:HG3 | 7:G:155:MET:CB | 2.31 | 0.61 |
| 7:G:36:LYS:CB | 7:G:95:ARG:HG3 | 2.30 | 0.61 |
| 8:H:103:LEU:HB2 | 8:H:115:VAL:CG1 | 2.29 | 0.61 |
| 11:M:74:ARG:HB2 | 11:M:82:LEU:CA | 2.30 | 0.61 |
| 12:N:106:LEU:O | 12:N:109:LYS:CA | 2.47 | 0.61 |
| 12:N:39:ILE:O | 12:N:59:LYS:HE2 | 2.00 | 0.61 |
| 15:Q:52:ILE:C | 15:Q:52:ILE:HD13 | 2.20 | 0.61 |
| 15:Q:54:LEU:CD2 | 15:Q:65:LEU:HD13 | 2.30 | 0.61 |
| 15:Q:79:LEU:HG | 15:Q:80:PHE:N | 2.14 | 0.61 |
| 16:R:99:LYS:HG2 | 16:R:103:GLU:OE1 | 2.00 | 0.61 |
| 17:S:52:ILE:C | 17:S:53:ARG:HD2 | 2.21 | 0.61 |
| 17:S:30:VAL:HB | 17:S:90:GLN:OE1 | 1.99 | 0.61 |
| 21:W:43:VAL:HG12 | 21:W:49:VAL:CG2 | 2.29 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 9:K:87:LYS:HD2 | 9:K:121:LYS:CE | 2.30 | 0.61 |
| 3:C:181:PRO:HD2 | 3:C:184:LYS:HD2 | 1.82 | 0.61 |
| 1:A:61:G:H5' | 25:1:45:ILE:HD13 | 1.81 | 0.61 |
| 25:1:5:LEU:HD11 | 25:1:9:ARG:NH1 | 2.14 | 0.61 |
| 27:3:6:HIS:CB | 27:3:7:PRO:CD | 2.79 | 0.61 |
| 28:4:33:CYS:C | 28:4:35:GLU:H | 2.03 | 0.61 |
| 29:5:24:GLU:O | 29:5:25:LYS:CB | 2.48 | 0.61 |
| 29:5:27:LYS:CG | 29:5:29:ASN:HD21 | 2.07 | 0.61 |
| 29:5:20:ASN:ND2 | 29:5:43:CYS:N | 2.38 | 0.61 |
| 32:8:6:SER:O | 32:8:8:LYS:HG3 | 2.00 | 0.61 |
| 1:A:819:A:OP2 | 1:A:1187:G:N2 | 2.29 | 0.61 |
| 1:A:1311:G:H3' | 1:A:1311:G:H8 | 1.65 | 0.61 |
| 1:A:1438:U:N3 | 1:A:1553:A:N6 | 2.47 | 0.61 |
| 1:A:1471:A:H5'' | 1:A:1472:A:N3 | 2.15 | 0.61 |
| 1:A:1446:C:O2' | 1:A:1545(A):A:H4' | 1.99 | 0.61 |
| 1:A:1570:A:N1 | 1:A:1571:A:N7 | 2.47 | 0.61 |
| 1:A:1742:C:C4 | 1:A:1743:G:C8 | 2.89 | 0.61 |
| 1:A:1777:U:C2' | 1:A:1778:U:C5' | 2.79 | 0.61 |
| 1:A:1829:A:C2 | 1:A:1830:C:H1' | 2.36 | 0.61 |
| 1:A:1829:A:H5'' | 1:A:1830:C:C5 | 2.33 | 0.61 |
| 1:A:1919:A:C2' | 1:A:1920:C:H5' | 2.30 | 0.61 |
| 1:A:1942:C:OP2 | 1:A:1943:U:H3' | 1.99 | 0.61 |
| 1:A:532:A:OP2 | 1:A:2021:C:N4 | 2.33 | 0.61 |
| 1:A:2212:A:C2' | 1:A:2212:A:N3 | 2.63 | 0.61 |
| 1:A:2393:A:H2' | 1:A:2394:C:C5' | 2.30 | 0.61 |
| 1:A:2595:G:C2 | 1:A:2597:G:O5' | 2.53 | 0.61 |
| 1:A:2665:A:C8 | 1:A:2665:A:C5' | 2.83 | 0.61 |
| 1:A:2805:G:C3' | 1:A:2807:G:C5' | 2.75 | 0.61 |
| 1:A:2805:G:H2' | 1:A:2807:G:H4' | 1.80 | 0.61 |
| 1:A:294:A:C2 | 1:A:346:A:C2 | 2.87 | 0.61 |
| 1:A:317:G:O2' | 1:A:318:C:H5' | 2.00 | 0.61 |
| 1:A:37:C:O2' | 6:F:50:SER:HB2 | 1.99 | 0.61 |
| 1:A:464:U:H1' | 1:A:788:A:N6 | 2.15 | 0.61 |
| 1:A:483:A:C2 | 1:A:484:C:C1' | 2.83 | 0.61 |
| 1:A:898:C:H5' | 1:A:899:A:OP2 | 2.00 | 0.61 |
| 1:A:9:U:H2' | 1:A:9:U:O2 | 1.99 | 0.61 |
| 2:B:114:G:O4' | 16:R:47:THR:CB | 2.48 | 0.61 |
| 2:B:60:C:H2' | 2:B:61:G:C8 | 2.36 | 0.61 |
| 4:D:47:GLY:O | 4:D:49:ILE:HG13 | 2.00 | 0.61 |
| 4:D:63:ARG:CZ | 4:D:85:ASP:HA | 2.31 | 0.61 |
| 5:E:8:LYS:NZ | 5:E:192:ASN:HD22 | 1.98 | 0.61 |
| 5:E:103:ASP:HB2 | 5:E:199:ARG:O | 2.01 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:44:TYR:HB3 | 5:E:82:ARG:NH1 | 2.15 | 0.61 |
| 5:E:50:GLY:O | 5:E:76:ARG:CZ | 2.48 | 0.61 |
| 6:F:11:VAL:HG13 | 6:F:127:GLU:HB2 | 1.82 | 0.61 |
| 7:G:114:ILE:HB | 7:G:140:ILE:HG13 | 1.80 | 0.61 |
| 7:G:130:ASN:CA | 7:G:161:THR:HG23 | 2.28 | 0.61 |
| 7:G:174:GLU:OE2 | 7:G:175:LEU:N | 2.34 | 0.61 |
| 7:G:59:GLU:HB3 | 7:G:152:LEU:HD22 | 1.82 | 0.61 |
| 8:H:117:PRO:HD3 | 8:H:123:PHE:CE2 | 2.34 | 0.61 |
| 11:M:57:ALA:HB1 | 11:M:60:ILE:HD11 | 1.81 | 0.61 |
| 1:A:832:G:P | 13:O:35:HIS:CB | 2.87 | 0.61 |
| 18:T:96:ALA:O | 18:T:100:VAL:HG22 | 1.99 | 0.61 |
| 1:A:1161:C:C1' | 19:U:22:VAL:HG11 | 2.27 | 0.61 |
| 19:U:26:ASP:C | 19:U:29:PRO:HD2 | 2.21 | 0.61 |
| 20:V:49:LYS:HE2 | 20:V:49:LYS:HA | 1.82 | 0.61 |
| 21:W:56:THR:HG22 | 21:W:79:ALA:HB2 | 1.82 | 0.61 |
| 22:X:47:LYS:HB3 | 22:X:49:VAL:HG22 | 1.82 | 0.61 |
| 22:X:12:THR:HA | 22:X:73:ARG:NH1 | 2.15 | 0.61 |
| 9:K:103:ARG:NH1 | 9:K:104:GLN:NE2 | 2.35 | 0.61 |
| 3:C:107:TRP:O | 3:C:108:MET:HB2 | 1.99 | 0.61 |
| 3:C:93:TYR:CE1 | 3:C:109:ASP:CB | 2.79 | 0.61 |
| 27:3:5:ILE:HD13 | 27:3:57:GLU:HG3 | 1.83 | 0.61 |
| 29:5:19:ARG:H | 29:5:19:ARG:HD3 | 1.66 | 0.61 |
| 29:5:35:GLU:O | 29:5:36:LEU:O | 2.19 | 0.61 |
| 30:6:41:ARG:O | 30:6:42:LEU:HG | 1.98 | 0.61 |
| 1:A:1061:U:OP2 | 1:A:1062:G:O5' | 2.18 | 0.61 |
| 1:A:143:C:C2 | 1:A:144:C:C5 | 2.88 | 0.61 |
| 1:A:1473:G:H2' | 1:A:1474:C:H6 | 1.65 | 0.61 |
| 1:A:1563:G:O2' | 1:A:1564:C:H5' | 2.00 | 0.61 |
| 1:A:1667:G:P | 12:N:7:TYR:CD1 | 2.93 | 0.61 |
| 1:A:1970:A:O2' | 1:A:1971:A:C5' | 2.49 | 0.61 |
| 1:A:1993:U:H2' | 1:A:1994:C:O4' | 2.00 | 0.61 |
| 1:A:204:A:O2' | 1:A:205:G:O5' | 2.19 | 0.61 |
| 1:A:2230:G:H2' | 1:A:2231:C:C6 | 2.36 | 0.61 |
| 1:A:2623:G:H22 | 28:4:22:HIS:CE1 | 2.16 | 0.61 |
| 1:A:2781:A:N1 | 1:A:2782:G:C2 | 2.68 | 0.61 |
| 1:A:2799:A:O2' | 1:A:2802:G:C6 | 2.53 | 0.61 |
| 1:A:2845:G:O2' | 1:A:2846:G:O5' | 2.08 | 0.61 |
| 1:A:2881:C:H5' | 15:Q:90:ARG:NH2 | 2.16 | 0.61 |
| 1:A:401:A:C4 | 1:A:402:A:H8 | 2.19 | 0.61 |
| 1:A:49:A:N6 | 1:A:177:G:C4 | 2.69 | 0.61 |
| 1:A:752:A:H62 | 1:A:1781:C:H1' | 1.65 | 0.61 |
| 1:A:988:A:H3' | 26:2:10:LYS:NZ | 2.16 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 5:E:112:GLY:C | 5:E:113:PHE:CD1 | 2.74 | 0.61 |
| 5:E:136:ARG:HH11 | 5:E:137:HIS:HA | 1.60 | 0.61 |
| 5:E:197:ILE:HG22 | 5:E:198:VAL:N | 2.15 | 0.61 |
| 5:E:200:GLU:CB | 5:E:202:LYS:HZ3 | 2.12 | 0.61 |
| 5:E:5:LEU:HD23 | 5:E:26:ILE:N | 2.15 | 0.61 |
| 1:A:2811:G:H5' | 5:E:60:ASN:HD21 | 1.64 | 0.61 |
| 6:F:106:ARG:HG3 | 6:F:107:LYS:HG3 | 1.82 | 0.61 |
| 6:F:160:ASN:O | 6:F:163:VAL:N | 2.33 | 0.61 |
| 6:F:192:LEU:C | 6:F:192:LEU:HD13 | 2.20 | 0.61 |
| 7:G:47:LYS:CB | 7:G:72:ARG:O | 2.48 | 0.61 |
| 10:L:115:LEU:HB3 | 10:L:118:THR:CG2 | 2.26 | 0.61 |
| 11:M:41:ASP:HA | 18:T:64:ARG:HH21 | 1.65 | 0.61 |
| 11:M:16:ILE:HD13 | 11:M:52:VAL:CG2 | 2.31 | 0.61 |
| 11:M:7:LYS:CG | 11:M:10:GLU:OE1 | 2.48 | 0.61 |
| 1:A:2780:G:N2 | 11:M:97:ARG:NH1 | 2.48 | 0.61 |
| 14:P:65:PHE:O | 14:P:66:ILE:CG1 | 2.48 | 0.61 |
| 15:Q:26:LYS:HE2 | 15:Q:70:LEU:HA | 1.83 | 0.61 |
| 16:R:12:PHE:O | 16:R:13:ARG:C | 2.36 | 0.61 |
| 17:S:6:LEU:O | 17:S:9:LEU:HB2 | 2.00 | 0.61 |
| 19:U:67:GLY:O | 19:U:68:LYS:CB | 2.49 | 0.61 |
| 9:K:93:THR:HG23 | 9:K:95:LYS:HB3 | 1.81 | 0.61 |
| 3:C:131:LEU:HD22 | 3:C:136:LEU:CB | 2.30 | 0.61 |
| 3:C:39:GLU:CD | 3:C:216:THR:HB | 2.21 | 0.61 |
| 3:C:68:LEU:HD23 | 3:C:69:GLY:H | 1.62 | 0.61 |
| 1:A:1418:G:OP1 | 1:A:1588:C:H4' | 2.00 | 0.61 |
| 9:K:58:LEU:HB3 | 9:K:62:LYS:HZ2 | 1.65 | 0.61 |
| 25:1:41:GLN:O | 25:1:43:HIS:N | 2.33 | 0.61 |
| 27:3:5:ILE:CD1 | 27:3:57:GLU:HG3 | 2.30 | 0.61 |
| 27:3:5:ILE:HD11 | 27:3:10:VAL:CB | 2.30 | 0.61 |
| 27:3:68:ARG:HH11 | 27:3:68:ARG:CB | 2.13 | 0.61 |
| 20:V:19:LEU:CD2 | 28:4:25:LEU:HD22 | 2.30 | 0.61 |
| 1:A:2286:A:N6 | 29:5:32:ASN:N | 2.46 | 0.61 |
| 29:5:6:ARG:C | 29:5:7:ILE:O | 2.38 | 0.61 |
| 31:7:34:TRP:HE3 | 31:7:36:LYS:HD3 | 1.64 | 0.61 |
| 1:A:1044:G:N3 | 1:A:1111:A:H1' | 2.16 | 0.61 |
| 1:A:1071:G:H21 | 1:A:1089:G:H2' | 1.66 | 0.61 |
| 1:A:1142(A):A:H3' | 1:A:1143:A:H5'' | 1.80 | 0.61 |
| 1:A:120:U:H1' | 1:A:149:A:N3 | 2.15 | 0.61 |
| 1:A:120:U:H2' | 1:A:121:G:OP2 | 1.99 | 0.61 |
| 1:A:1265:A:H1' | 1:A:1267:U:C4 | 2.35 | 0.61 |
| 1:A:1359:A:C4' | 1:A:1359:A:C8 | 2.83 | 0.61 |
| 1:A:16:G:O2' | 1:A:17:G:H5' | 2.00 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1935:G:N2 | 1:A:1962:C:H2' | 2.14 | 0.61 |
| 1:A:1995:U:C6 | 1:A:1996:C:C5 | 2.89 | 0.61 |
| 1:A:2013:A:O2' | 1:A:2014:A:H5' | 2.00 | 0.61 |
| 1:A:2072:G:C5 | 1:A:2073:C:C5 | 2.89 | 0.61 |
| 1:A:186:G:N2 | 1:A:211:A:C4 | 2.68 | 0.61 |
| 1:A:215:G:O2' | 1:A:216:A:OP2 | 2.19 | 0.61 |
| 1:A:2259:G:H5' | 1:A:2427:C:H2' | 1.83 | 0.61 |
| 1:A:2263:C:H5' | 1:A:2329:G:O4' | 2.01 | 0.61 |
| 1:A:2407:G:N2 | 1:A:2408:U:C1' | 2.64 | 0.61 |
| 1:A:262:A:C4 | 1:A:263:C:H6 | 2.18 | 0.61 |
| 1:A:2766:G:N3 | 1:A:2766:G:H2' | 2.15 | 0.61 |
| 1:A:2819:G:H2' | 1:A:2821:A:H62 | 1.65 | 0.61 |
| 1:A:556:G:H2' | 1:A:557:U:O5' | 2.00 | 0.61 |
| 1:A:594:U:H2' | 1:A:595:C:C5 | 2.35 | 0.61 |
| 1:A:612:G:H4' | 1:A:616:A:N1 | 2.16 | 0.61 |
| 1:A:677:A:O2' | 1:A:678:C:H5' | 2.00 | 0.61 |
| 1:A:685:A:C4 | 1:A:774:A:C6 | 2.89 | 0.61 |
| 1:A:820:A:OP2 | 1:A:973:A:N6 | 2.32 | 0.61 |
| 1:A:878:A:N1 | 1:A:880:G:N7 | 2.48 | 0.61 |
| 1:A:89:G:C4 | 1:A:90:U:H5 | 2.18 | 0.61 |
| 2:B:11:C:P | 24:Z:74:ARG:HH12 | 2.23 | 0.61 |
| 2:B:23:G:N2 | 2:B:61:G:C5 | 2.68 | 0.61 |
| 2:B:38:C:H6 | 2:B:38:C:H3' | 1.65 | 0.61 |
| 2:B:87:G:OP2 | 2:B:87:G:C8 | 2.40 | 0.61 |
| 2:B:89:G:C8 | 2:B:89(A):A:N7 | 2.68 | 0.61 |
| 4:D:133:LEU:HD11 | 4:D:185:VAL:CG1 | 2.28 | 0.61 |
| 4:D:206:LEU:H | 4:D:206:LEU:CD1 | 2.06 | 0.61 |
| 4:D:29:PRO:CB | 4:D:82:ILE:O | 2.48 | 0.61 |
| 4:D:33:LEU:HD13 | 4:D:63:ARG:CZ | 2.31 | 0.61 |
| 5:E:22:PRO:CB | 5:E:185:LYS:N | 2.63 | 0.61 |
| 6:F:36:VAL:HG11 | 6:F:183:VAL:CB | 2.30 | 0.61 |
| 7:G:130:ASN:HA | 7:G:161:THR:CG2 | 2.27 | 0.61 |
| 8:H:87:LEU:O | 8:H:132:ARG:HB3 | 2.00 | 0.61 |
| 8:H:172:LYS:HG3 | 8:H:172:LYS:O | 2.00 | 0.61 |
| 1:A:2749:A:C4' | 8:H:62:LYS:HG3 | 2.29 | 0.61 |
| 10:L:116:ASN:HD21 | 10:L:126:MET:CE | 2.14 | 0.61 |
| 10:L:9:LYS:CA | 10:L:56:GLU:HG2 | 2.29 | 0.61 |
| 10:L:10:LEU:HD13 | 10:L:57:ILE:CD1 | 2.29 | 0.61 |
| 10:L:76:TYR:O | 10:L:80:LYS:HB2 | 2.01 | 0.61 |
| 11:M:55:VAL:HG13 | 11:M:125:GLY:O | 2.00 | 0.61 |
| 13:O:125:VAL:CG1 | 13:O:125:VAL:O | 2.44 | 0.61 |
| 13:O:137:LYS:HD3 | 13:O:140:ALA:CB | 2.30 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 20:V:11:ARG:NH2 | 20:V:11:ARG:HB3 | 2.14 | 0.61 |
| 20:V:25:ARG:HG2 | 20:V:71:VAL:CG2 | 2.29 | 0.61 |
| 20:V:39:THR:OG1 | 28:4:28:PRO:HD3 | 2.01 | 0.61 |
| 21:W:8:ILE:HD11 | 21:W:42:ALA:HB1 | 1.82 | 0.61 |
| 21:W:92:LEU:O | 21:W:96:ILE:O | 2.19 | 0.61 |
| 23:Y:22:GLY:C | 23:Y:41:LEU:HD12 | 2.20 | 0.61 |
| 3:C:7:TYR:CE1 | 3:C:10:LEU:HB3 | 2.34 | 0.61 |
| 3:C:209:LEU:O | 3:C:209:LEU:HD23 | 2.00 | 0.61 |
| 3:C:209:LEU:HD21 | 3:C:212:VAL:HG21 | 1.83 | 0.61 |
| 1:A:2097:C:H2' | 1:A:2098:U:C5' | 2.30 | 0.61 |
| 29:5:9:LEU:CD1 | 29:5:27:LYS:HD2 | 2.31 | 0.61 |
| 29:5:33:LYS:O | 29:5:34:LEU:C | 2.39 | 0.61 |
| 30:6:26:GLY:O | 30:6:30:VAL:HG23 | 2.01 | 0.61 |
| 31:7:55:ALA:O | 31:7:58:ILE:HD12 | 2.00 | 0.61 |
| 1:A:1024:G:C3' | 1:A:1025:G:H5'' | 2.30 | 0.61 |
| 1:A:118:A:H1' | 1:A:178:G:H4' | 1.82 | 0.61 |
| 1:A:1250:G:O2' | 1:A:1251:C:OP2 | 2.18 | 0.61 |
| 1:A:1329:U:H5' | 1:A:1330:C:C5 | 2.33 | 0.61 |
| 1:A:1338:G:H4' | 21:W:16:LYS:NZ | 2.15 | 0.61 |
| 1:A:143:C:O4' | 21:W:38:GLU:OE1 | 2.18 | 0.61 |
| 1:A:1519:G:O5' | 1:A:1520:U:OP2 | 2.19 | 0.61 |
| 1:A:1637:A:H4' | 1:A:2711:A:HO2' | 1.62 | 0.61 |
| 1:A:1759:A:O5' | 1:A:1759:A:H8 | 1.84 | 0.61 |
| 1:A:1869:G:N3 | 1:A:1878:G:O6 | 2.34 | 0.61 |
| 1:A:216:A:H2' | 1:A:217:G:H8 | 1.58 | 0.61 |
| 1:A:2207:C:C2 | 1:A:2208:U:O4' | 2.53 | 0.61 |
| 1:A:2227:A:N1 | 1:A:2228:G:C5 | 2.68 | 0.61 |
| 1:A:2346:A:N3 | 1:A:2383:G:C4 | 2.68 | 0.61 |
| 1:A:2384:G:H3' | 1:A:2385:C:O3' | 2.00 | 0.61 |
| 1:A:2432:A:C8 | 1:A:2433:A:N7 | 2.68 | 0.61 |
| 1:A:2447:G:C5 | 1:A:2500:U:C4 | 2.89 | 0.61 |
| 1:A:2523:G:C2' | 1:A:2524:G:H5' | 2.31 | 0.61 |
| 1:A:2665:A:O2' | 1:A:2666:C:O4' | 2.19 | 0.61 |
| 1:A:2686:G:H2' | 1:A:2687:U:H6 | 1.65 | 0.61 |
| 1:A:269:U:O2 | 1:A:270:A:N7 | 2.33 | 0.61 |
| 1:A:2781:A:O3' | 1:A:2782:G:H4' | 2.00 | 0.61 |
| 1:A:2825:C:O5' | 1:A:2825:C:C6 | 2.53 | 0.61 |
| 1:A:311:A:C3' | 1:A:312:G:C8 | 2.81 | 0.61 |
| 1:A:289:A:C2' | 1:A:351:G:N2 | 2.64 | 0.61 |
| 1:A:360:G:O5' | 1:A:360:G:H8 | 1.83 | 0.61 |
| 1:A:400:G:H8 | 1:A:400:G:H3' | 1.65 | 0.61 |
| 1:A:50:U:H3' | 1:A:50:U:C6 | 2.36 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:740:U:O5' | 1:A:1784:A:N7 | 2.33 | 0.61 |
| 1:A:793:A:N3 | 1:A:793:A:H2' | 2.16 | 0.61 |
| 1:A:808:G:O2' | 1:A:809:G:H5' | 2.01 | 0.61 |
| 4:D:133:LEU:H | 4:D:133:LEU:HD23 | 1.66 | 0.61 |
| 4:D:243:GLY:O | 4:D:244:ARG:CG | 2.48 | 0.61 |
| 5:E:3:GLY:O | 5:E:197:ILE:CG2 | 2.48 | 0.61 |
| 6:F:132:VAL:HG23 | 6:F:132:VAL:O | 1.99 | 0.61 |
| 7:G:30:GLU:CB | 7:G:162:THR:HG21 | 2.31 | 0.61 |
| 7:G:57:ALA:HA | 7:G:67:LYS:C | 2.21 | 0.61 |
| 11:M:58:ASP:OD1 | 11:M:124:ALA:O | 2.19 | 0.61 |
| 11:M:22:THR:CG2 | 11:M:61:ARG:HH12 | 2.13 | 0.61 |
| 11:M:71:ILE:HD11 | 11:M:90:MET:CE | 2.17 | 0.61 |
| 13:O:89:ALA:CA | 13:O:125:VAL:HG22 | 2.29 | 0.61 |
| 13:O:131:SER:N | 13:O:134:ALA:CB | 2.63 | 0.61 |
| 13:O:17:LYS:CE | 13:O:17:LYS:HA | 2.23 | 0.61 |
| 15:Q:64:ARG:CZ | 15:Q:65:LEU:HB2 | 2.31 | 0.61 |
| 16:R:9:ARG:HA | 16:R:12:PHE:HD2 | 1.65 | 0.61 |
| 16:R:52:SER:OG | 16:R:73:LEU:HD11 | 2.00 | 0.61 |
| 17:S:27:THR:O | 17:S:28:VAL:C | 2.36 | 0.61 |
| 12:N:75:SER:O | 17:S:77:PRO:HD2 | 2.00 | 0.61 |
| 18:T:94:ASN:O | 18:T:95:LEU:C | 2.37 | 0.61 |
| 22:X:14:LEU:HD13 | 22:X:20:TYR:CA | 2.30 | 0.61 |
| 23:Y:110:GLY:O | 23:Y:113:ALA:N | 2.34 | 0.61 |
| 23:Y:94:GLU:O | 23:Y:94:GLU:HG3 | 2.01 | 0.61 |
| 3:C:131:LEU:HD22 | 3:C:136:LEU:CD1 | 2.31 | 0.61 |
| 1:A:316:C:H6 | 1:A:316:C:OP2 | 1.84 | 0.61 |
| 3:C:1:PRO:C | 3:C:2:LYS:HG3 | 2.21 | 0.61 |
| 28:4:35:GLU:HB3 | 28:4:49:CYS:CB | 2.31 | 0.61 |
| 1:A:126:A:C6 | 30:6:18:PHE:CE2 | 2.88 | 0.61 |
| 30:6:20:ALA:HB3 | 30:6:21:ARG:NH2 | 2.16 | 0.61 |
| 1:A:1022:G:C6 | 1:A:1139:G:C6 | 2.89 | 0.61 |
| 1:A:1237:A:O2' | 1:A:1238:G:P | 2.58 | 0.61 |
| 1:A:128:C:C4 | 1:A:129:C:N4 | 2.69 | 0.61 |
| 1:A:141(A):C:H2' | 1:A:142:G:C5' | 2.31 | 0.61 |
| 1:A:1538:G:H22 | 1:A:1539:G:N2 | 1.99 | 0.61 |
| 1:A:1665:A:C2 | 1:A:1666:G:C4 | 2.89 | 0.61 |
| 1:A:1774:C:C5 | 1:A:1775:U:O4 | 2.54 | 0.61 |
| 1:A:1800:C:O2' | 1:A:1802:A:O4' | 2.17 | 0.61 |
| 1:A:1856:G:C2' | 1:A:1857:G:H5' | 2.28 | 0.61 |
| 1:A:1935:G:O2' | 1:A:1936:A:OP2 | 2.18 | 0.61 |
| 1:A:2414:G:C2 | 1:A:2415:G:C8 | 2.89 | 0.61 |
| 1:A:2416:C:C2 | 1:A:2417:C:C5 | 2.88 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2508:G:C2' | 1:A:2509:G:H5' | 2.31 | 0.61 |
| 1:A:2697:G:O2' | 1:A:2698:U:H5' | 2.01 | 0.61 |
| 1:A:2814:C:H2' | 1:A:2815:C:H6 | 1.66 | 0.61 |
| 1:A:280:C:H5 | 1:A:283:A:H62 | 1.38 | 0.61 |
| 1:A:429:A:C2' | 1:A:430:G:C8 | 2.83 | 0.61 |
| 1:A:498:G:O5' | 1:A:498:G:H8 | 1.84 | 0.61 |
| 1:A:579:G:C2 | 1:A:1262:A:C6 | 2.89 | 0.61 |
| 1:A:64:A:H2' | 1:A:65:C:O4' | 2.01 | 0.61 |
| 1:A:691:C:O2' | 1:A:692:C:H5' | 2.01 | 0.61 |
| 1:A:864:G:H2' | 1:A:865:C:H1' | 1.83 | 0.61 |
| 1:A:995:C:O2 | 18:T:57:PHE:CE2 | 2.53 | 0.61 |
| 2:B:47:C:O2' | 16:R:92:TYR:CD1 | 2.53 | 0.61 |
| 4:D:107:ALA:N | 4:D:108:PRO:HD3 | 1.98 | 0.61 |
| 4:D:157:ARG:CB | 4:D:160:GLY:O | 2.49 | 0.61 |
| 5:E:201:THR:C | 5:E:202:LYS:HD3 | 2.20 | 0.61 |
| 6:F:162:LEU:CA | 6:F:165:ARG:NH2 | 2.58 | 0.61 |
| 6:F:8:GLN:C | 6:F:9:ILE:HD12 | 2.21 | 0.61 |
| 7:G:95:ARG:O | 7:G:95:ARG:HG3 | 2.01 | 0.61 |
| 8:H:148:ILE:HG23 | 8:H:149:ARG:N | 2.14 | 0.61 |
| 8:H:153:LYS:HG2 | 8:H:154:PRO:N | 2.14 | 0.61 |
| 10:L:12:LEU:HD21 | 10:L:23:VAL:HG23 | 1.81 | 0.61 |
| 1:A:1952:A:H2 | 12:N:22:ILE:HG23 | 1.64 | 0.61 |
| 1:A:2394:C:OP1 | 13:O:57:THR:HG23 | 2.00 | 0.61 |
| 14:P:32:TYR:HE2 | 14:P:109:VAL:H | 1.48 | 0.61 |
| 16:R:10:ARG:NH2 | 16:R:91:PRO:CA | 2.63 | 0.61 |
| 17:S:27:THR:HG23 | 17:S:52:ILE:C | 2.20 | 0.61 |
| 18:T:100:VAL:CG2 | 18:T:101:ARG:H | 2.13 | 0.61 |
| 19:U:28:GLU:O | 19:U:30:GLY:N | 2.34 | 0.61 |
| 19:U:69:LYS:HA | 19:U:92:THR:CB | 2.31 | 0.61 |
| 20:V:28:SER:HA | 20:V:70:TYR:HA | 1.82 | 0.61 |
| 21:W:29:TRP:HA | 21:W:77:LYS:O | 2.00 | 0.61 |
| 23:Y:74:VAL:HG13 | 23:Y:85:HIS:O | 2.00 | 0.61 |
| 3:C:131:LEU:HD13 | 3:C:136:LEU:O | 1.99 | 0.61 |
| 1:A:1418:G:OP1 | 1:A:1588:C:C4' | 2.48 | 0.61 |
| 9:K:67:ARG:O | 9:K:71:ILE:HG13 | 2.00 | 0.61 |
| 2:B:25:A:O2' | 2:B:26:A:H5' | 1.99 | 0.61 |
| 25:1:30:LEU:O | 25:1:33:GLN:CB | 2.48 | 0.61 |
| 31:7:43:GLN:CD | 31:7:43:GLN:N | 2.54 | 0.61 |
| 1:A:1186:G:H8 | 1:A:1187:G:C8 | 2.18 | 0.61 |
| 1:A:1240:U:H2' | 1:A:1240:U:O2 | 2.01 | 0.61 |
| 1:A:1395:A:P | 1:A:1603:A:OP1 | 2.58 | 0.61 |
| 1:A:1472:A:H1' | 1:A:1473:G:C8 | 2.36 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1539:G:N7 | 1:A:1540:G:N7 | 2.48 | 0.61 |
| 1:A:1559:G:O6 | 1:A:1560:G:O4' | 2.19 | 0.61 |
| 1:A:1656:C:OP1 | 5:E:117:MET:HB2 | 2.01 | 0.61 |
| 1:A:1890:A:H3' | 1:A:1891:G:H8 | 1.66 | 0.61 |
| 1:A:1918:A:N7 | 1:A:1919:A:C6 | 2.69 | 0.61 |
| 1:A:2324:C:O2 | 1:A:2385:C:H5 | 1.84 | 0.61 |
| 1:A:2393:A:H5'' | 13:O:56:SER:CA | 2.30 | 0.61 |
| 1:A:2407:G:H5'' | 1:A:2408:U:O4 | 2.01 | 0.61 |
| 1:A:2531:A:C2' | 1:A:2532:G:O5' | 2.49 | 0.61 |
| 1:A:2572:A:OP2 | 1:A:2572:A:C8 | 2.53 | 0.61 |
| 1:A:2791:C:C4 | 1:A:2807:G:N7 | 2.69 | 0.61 |
| 1:A:321:G:OP2 | 6:F:135:LYS:HG2 | 2.01 | 0.61 |
| 1:A:386:G:H4' | 1:A:387:U:H6 | 1.63 | 0.61 |
| 1:A:471:A:N7 | 1:A:472:A:N7 | 2.49 | 0.61 |
| 1:A:875:G:H2' | 1:A:875:G:N3 | 2.14 | 0.61 |
| 4:D:244:ARG:HA | 4:D:252:TRP:CD1 | 2.36 | 0.61 |
| 4:D:37:LEU:CD2 | 4:D:63:ARG:HA | 2.30 | 0.61 |
| 4:D:76:PRO:HG2 | 4:D:98:VAL:CG2 | 2.31 | 0.61 |
| 5:E:104:VAL:HG22 | 5:E:198:VAL:CA | 2.24 | 0.61 |
| 5:E:164:ARG:O | 5:E:165:VAL:CG2 | 2.48 | 0.61 |
| 5:E:50:GLY:H | 5:E:76:ARG:CG | 2.14 | 0.61 |
| 6:F:194:MET:CE | 6:F:200:GLU:HB3 | 2.31 | 0.61 |
| 7:G:44:GLY:HA2 | 7:G:72:ARG:HG3 | 1.83 | 0.61 |
| 1:A:2312:U:P | 7:G:86:MET:HG2 | 2.41 | 0.61 |
| 1:A:2748:A:N3 | 8:H:67:LEU:CD1 | 2.62 | 0.61 |
| 12:N:104:ARG:CA | 12:N:107:ARG:HD2 | 2.28 | 0.61 |
| 1:A:2334:G:N2 | 16:R:11:LYS:HE3 | 2.15 | 0.61 |
| 17:S:64:ARG:CZ | 17:S:77:PRO:CA | 2.79 | 0.61 |
| 19:U:79:VAL:CG1 | 19:U:81:TYR:HD1 | 2.05 | 0.61 |
| 20:V:33:ARG:O | 20:V:33:ARG:NH1 | 2.33 | 0.61 |
| 23:Y:163:LEU:CD1 | 23:Y:163:LEU:H | 2.09 | 0.61 |
| 1:A:1414:G:C6 | 1:A:1415:U:C4 | 2.88 | 0.61 |
| 1:A:96:G:H4' | 25:1:43:HIS:CE1 | 2.35 | 0.61 |
| 27:3:28:LYS:CB | 27:3:29:PRO:CD | 2.78 | 0.61 |
| 27:3:59:PHE:C | 27:3:61:ARG:N | 2.48 | 0.61 |
| 27:3:59:PHE:HB3 | 27:3:62:ARG:NH2 | 2.15 | 0.61 |
| 28:4:13:LYS:O | 28:4:17:ASP:CG | 2.40 | 0.61 |
| 1:A:1085:A:H4' | 1:A:1086:A:O5' | 2.01 | 0.61 |
| 1:A:1231:G:H2' | 1:A:1232:G:H8 | 1.66 | 0.61 |
| 1:A:1323:U:OP2 | 20:V:84:ARG:NH1 | 2.33 | 0.61 |
| 1:A:1512:G:H5' | 1:A:1513:C:OP2 | 2.00 | 0.61 |
| 1:A:1572:A:O4' | 1:A:1572:A:OP1 | 2.17 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 1:A:1797:C:H2' | 1:A:1798:U:H6 | 1.66 | 0.61 |
| 1:A:2049:G:H2' | 1:A:2050:C:O5' | 2.01 | 0.61 |
| 1:A:2208:U:H2' | 1:A:2209:C:C5' | 2.24 | 0.61 |
| 1:A:2226:C:O2 | 1:A:2227:A:H1' | 2.01 | 0.61 |
| 1:A:225:A:O2' | 1:A:257:A:H4' | 2.01 | 0.61 |
| 1:A:2284:C:H5'' | 29:5:9:LEU:CG | 2.31 | 0.61 |
| 1:A:2308:G:H8 | 1:A:2308:G:O5' | 1.84 | 0.61 |
| 1:A:2312:U:OP2 | 7:G:86:MET:SD | 2.59 | 0.61 |
| 1:A:2335:A:C2' | 1:A:2337:G:N7 | 2.63 | 0.61 |
| 1:A:2377:A:N3 | 1:A:2378:A:N7 | 2.48 | 0.61 |
| 1:A:2449:U:O2' | 1:A:2450:A:H5' | 2.00 | 0.61 |
| 1:A:2479:G:C2 | 1:A:2480:C:H1' | 2.35 | 0.61 |
| 1:A:2517:C:C6 | 1:A:2542:A:N7 | 2.69 | 0.61 |
| 1:A:2602:A:O2' | 1:A:2603:G:P | 2.57 | 0.61 |
| 1:A:2704:C:H2' | 1:A:2705:A:C1' | 2.30 | 0.61 |
| 1:A:2748:A:C2 | 1:A:2757:A:N6 | 2.63 | 0.61 |
| 1:A:2808:U:H5'' | 1:A:2809:A:OP2 | 2.01 | 0.61 |
| 1:A:2865:U:H6 | 1:A:2865:U:O5' | 1.83 | 0.61 |
| 1:A:559:G:O2' | 1:A:560:C:O5' | 2.19 | 0.61 |
| 1:A:515:A:H5' | 1:A:581:C:H4' | 1.81 | 0.61 |
| 1:A:61:G:C5 | 1:A:62:C:C4 | 2.89 | 0.61 |
| 1:A:685:A:H5'' | 1:A:686:G:H21 | 1.66 | 0.61 |
| 1:A:691:C:C2 | 1:A:692:C:C5 | 2.88 | 0.61 |
| 1:A:830:G:C4 | 1:A:2448:A:N7 | 2.69 | 0.61 |
| 1:A:2226:C:H1' | 4:D:262:ARG:CZ | 2.31 | 0.61 |
| 4:D:76:PRO:HG2 | 4:D:98:VAL:HG21 | 1.82 | 0.61 |
| 5:E:45:THR:OG1 | 5:E:46:ALA:N | 2.32 | 0.61 |
| 6:F:160:ASN:HB2 | 6:F:163:VAL:HB | 1.83 | 0.61 |
| 7:G:34:LEU:HB2 | 7:G:100:TRP:HZ2 | 1.65 | 0.61 |
| 7:G:36:LYS:HG2 | 7:G:95:ARG:HD3 | 1.82 | 0.61 |
| 1:A:2309:A:N7 | 7:G:80:PHE:CE2 | 2.69 | 0.61 |
| 8:H:40:GLU:HG2 | 8:H:55:PRO:CG | 2.30 | 0.61 |
| 11:M:115:ARG:HA | 11:M:118:LYS:CD | 2.31 | 0.61 |
| 11:M:15:LEU:CG | 11:M:138:LEU:O | 2.44 | 0.61 |
| 11:M:37:LYS:HZ1 | 11:M:43:THR:HG22 | 1.66 | 0.61 |
| 12:N:18:LYS:HZ1 | 12:N:44:LYS:NZ | 1.97 | 0.61 |
| 12:N:96:THR:HA | 12:N:117:LEU:HD11 | 1.83 | 0.61 |
| 14:P:20:ALA:HB1 | 14:P:98:LYS:CD | 2.30 | 0.61 |
| 14:P:22:LYS:HG3 | 14:P:23:GLY:N | 2.16 | 0.61 |
| 14:P:9:TYR:N | 14:P:9:TYR:CD2 | 2.66 | 0.61 |
| 17:S:34:VAL:O | 17:S:44:ASP:O | 2.19 | 0.61 |
| 17:S:57:PHE:C | 17:S:61:PHE:CE2 | 2.74 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:T:55:ARG:HA | 18:T:58:ARG:HE | 1.65 | 0.61 |
| 18:T:97:ASP:O | 18:T:101:ARG:CG | 2.44 | 0.61 |
| 19:U:3:ALA:O | 19:U:12:TYR:CE2 | 2.53 | 0.61 |
| 19:U:20:LEU:CD2 | 19:U:95:LEU:HD13 | 2.31 | 0.61 |
| 20:V:23:LEU:HD11 | 28:4:25:LEU:HG | 1.83 | 0.61 |
| 22:X:24:VAL:HG23 | 22:X:38:ILE:HB | 1.83 | 0.61 |
| 2:B:11:C:OP1 | 24:Z:72:ARG:NH1 | 2.34 | 0.61 |
| 9:K:127:VAL:HG13 | 9:K:141:LYS:CA | 2.31 | 0.61 |
| 9:K:77:LEU:HD12 | 9:K:142:VAL:CG1 | 2.30 | 0.61 |
| 1:A:2111:C:C4 | 1:A:2118:U:N3 | 2.69 | 0.61 |
| 3:C:211:SER:CB | 3:C:223:ARG:HH21 | 2.12 | 0.61 |
| 1:A:2104:G:C2 | 1:A:2105:C:C2 | 2.89 | 0.61 |
| 3:C:1:PRO:O | 3:C:2:LYS:HG3 | 2.01 | 0.61 |
| 26:2:28:LEU:HA | 26:2:33:GLN:NE2 | 2.15 | 0.61 |
| 27:3:57:GLU:HA | 27:3:57:GLU:OE2 | 2.00 | 0.61 |
| 30:6:30:VAL:HA | 30:6:33:ARG:CZ | 2.31 | 0.61 |
| 31:7:15:LYS:O | 31:7:22:VAL:CA | 2.47 | 0.61 |
| 31:7:55:ALA:O | 31:7:56:GLU:C | 2.38 | 0.61 |
| 1:A:120:U:C2' | 1:A:121:G:OP2 | 2.48 | 0.61 |
| 1:A:1338:G:N2 | 1:A:1393:A:H2 | 1.97 | 0.61 |
| 1:A:1402:C:O2 | 1:A:1402:C:H2' | 2.00 | 0.61 |
| 1:A:151:C:N3 | 1:A:176:G:N2 | 2.49 | 0.61 |
| 1:A:1703:G:C2' | 1:A:1704:G:H5' | 2.31 | 0.61 |
| 1:A:2052:G:C4 | 1:A:2053:G:C8 | 2.89 | 0.61 |
| 1:A:574:C:C5 | 1:A:2054:A:O3' | 2.49 | 0.61 |
| 1:A:2271:G:O5' | 1:A:2271:G:H8 | 1.83 | 0.61 |
| 1:A:2385:C:C2' | 1:A:2386:C:O5' | 2.49 | 0.61 |
| 1:A:2423:U:C1' | 1:A:2425:A:C8 | 2.83 | 0.61 |
| 1:A:2524:G:H2' | 1:A:2525:G:O4' | 2.01 | 0.61 |
| 1:A:2698:U:H2' | 1:A:2699:C:H5 | 1.64 | 0.61 |
| 1:A:2703:C:H2' | 1:A:2703:C:O2 | 2.01 | 0.61 |
| 1:A:356:G:C3' | 1:A:357:A:C8 | 2.84 | 0.61 |
| 1:A:364:C:C2' | 1:A:365:C:C6 | 2.76 | 0.61 |
| 1:A:387:U:O2 | 1:A:387:U:C2' | 2.49 | 0.61 |
| 1:A:423:A:H3' | 1:A:423:A:H8 | 1.66 | 0.61 |
| 1:A:511:U:H5 | 1:A:512:G:C2 | 2.19 | 0.61 |
| 1:A:513:A:C6 | 1:A:514:A:N7 | 2.69 | 0.61 |
| 1:A:571:A:O2' | 1:A:573:G:C8 | 2.42 | 0.61 |
| 1:A:582:G:H2' | 1:A:583:G:H8 | 1.66 | 0.61 |
| 1:A:608:A:C2' | 1:A:609:A:H5' | 2.31 | 0.61 |
| 1:A:666:G:O2' | 1:A:667:U:H5' | 2.01 | 0.61 |
| 1:A:6:A:O2' | 1:A:7:G:H5' | 2.01 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:785:G:H2' | 1:A:786:C:H6 | 1.62 | 0.61 |
| 1:A:915:C:H2' | 1:A:916:G:H8 | 1.64 | 0.61 |
| 1:A:961:C:C4 | 1:A:2031:A:N3 | 2.68 | 0.61 |
| 1:A:973:A:H3' | 1:A:973:A:C8 | 2.36 | 0.61 |
| 2:B:65:C:H2' | 2:B:66:A:H5' | 1.82 | 0.61 |
| 4:D:40:THR:HG21 | 4:D:43:ARG:HH21 | 1.65 | 0.61 |
| 1:A:2821:A:P | 5:E:110:GLY:HA3 | 2.40 | 0.61 |
| 5:E:101:ARG:O | 5:E:202:LYS:NZ | 2.32 | 0.61 |
| 6:F:123:LEU:HG | 6:F:191:ARG:CG | 2.30 | 0.61 |
| 6:F:182:ASN:HD21 | 6:F:185:ASP:CG | 2.03 | 0.61 |
| 6:F:30:PRO:HG2 | 6:F:31:HIS:H | 1.66 | 0.61 |
| 7:G:81:LYS:O | 7:G:81:LYS:CG | 2.49 | 0.61 |
| 8:H:106:THR:HB | 8:H:111:HIS:CE1 | 2.36 | 0.61 |
| 9:K:52:ARG:O | 9:K:55:ALA:HB3 | 2.00 | 0.61 |
| 11:M:12:ARG:CG | 11:M:12:ARG:NH1 | 2.57 | 0.61 |
| 1:A:1131:G:O4' | 11:M:82:LEU:HD11 | 1.99 | 0.61 |
| 12:N:106:LEU:HD13 | 17:S:39:ARG:NH2 | 2.16 | 0.61 |
| 14:P:68:ILE:HG23 | 14:P:95:ALA:CB | 2.30 | 0.61 |
| 15:Q:113:LEU:HD13 | 15:Q:114:VAL:N | 2.15 | 0.61 |
| 17:S:103:ARG:C | 17:S:105:LEU:N | 2.52 | 0.61 |
| 17:S:2:ASN:CG | 17:S:3:ARG:H | 1.90 | 0.61 |
| 17:S:55:ASN:ND2 | 17:S:57:PHE:CZ | 2.68 | 0.61 |
| 17:S:63:VAL:HG12 | 17:S:78:LEU:HB2 | 1.82 | 0.61 |
| 18:T:10:ARG:O | 18:T:11:ARG:C | 2.39 | 0.61 |
| 18:T:33:ARG:CB | 18:T:33:ARG:HH11 | 2.14 | 0.61 |
| 1:A:445:C:OP1 | 18:T:3:ARG:HG3 | 2.00 | 0.61 |
| 18:T:5:LYS:C | 18:T:7:GLY:H | 2.02 | 0.61 |
| 20:V:73:ALA:O | 20:V:74:ALA:HB2 | 2.00 | 0.61 |
| 23:Y:45:ASP:N | 23:Y:45:ASP:OD1 | 2.31 | 0.61 |
| 24:Z:21:LEU:HD21 | 24:Z:40:GLN:HA | 1.83 | 0.61 |
| 9:K:130:TYR:O | 9:K:138:ILE:HG22 | 2.00 | 0.61 |
| 1:A:2158:A:O2' | 1:A:2159:G:P | 2.59 | 0.61 |
| 1:A:2194:G:N3 | 1:A:2194:G:H2' | 2.15 | 0.61 |
| 1:A:171:G:H2' | 1:A:172:C:C5 | 2.36 | 0.61 |
| 27:3:27:THR:CG2 | 27:3:28:LYS:H | 2.12 | 0.60 |
| 27:3:1:MET:O | 27:3:2:LYS:HD2 | 2.01 | 0.60 |
| 29:5:25:LYS:O | 29:5:26:ASN:ND2 | 2.33 | 0.60 |
| 29:5:48:VAL:O | 29:5:49:HIS:HB3 | 2.00 | 0.60 |
| 1:A:1206:G:C8 | 1:A:1206:G:O5' | 2.54 | 0.60 |
| 1:A:1292:U:H2' | 1:A:1293:C:H6 | 1.66 | 0.60 |
| 1:A:1343:G:C3' | 1:A:1344:G:H5'' | 2.31 | 0.60 |
| 1:A:1675:C:C2' | 1:A:1676:A:C5' | 2.78 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1903:G:H2' | 1:A:1904:G:C8 | 2.34 | 0.60 |
| 1:A:197:A:C5 | 1:A:2430:A:N7 | 2.68 | 0.60 |
| 1:A:1987:G:H2' | 1:A:1988:C:C6 | 2.36 | 0.60 |
| 1:A:1999:C:C2 | 1:A:2000:G:C8 | 2.89 | 0.60 |
| 1:A:2056:G:P | 1:A:2057:A:OP2 | 2.58 | 0.60 |
| 1:A:2436:G:C5 | 1:A:2437:U:C5 | 2.89 | 0.60 |
| 1:A:2504:U:C6 | 1:A:2504:U:H3' | 2.35 | 0.60 |
| 1:A:2562:U:C2' | 12:N:23:ARG:HH21 | 2.14 | 0.60 |
| 1:A:2023:G:H5'' | 1:A:2617:C:O2' | 2.01 | 0.60 |
| 1:A:2649:U:H2' | 1:A:2650:U:C5 | 2.35 | 0.60 |
| 1:A:2712(A):A:C5' | 1:A:2713:A:H5'' | 2.31 | 0.60 |
| 1:A:2712:U:C2' | 1:A:2712(A):A:O5' | 2.49 | 0.60 |
| 1:A:2753:A:N3 | 1:A:2753:A:H2' | 2.16 | 0.60 |
| 1:A:320:A:H2' | 6:F:136:THR:CG2 | 2.25 | 0.60 |
| 1:A:34:C:H5'' | 1:A:35:G:OP2 | 2.01 | 0.60 |
| 1:A:41:C:H2' | 1:A:43:G:H8 | 1.65 | 0.60 |
| 4:D:169:GLU:HG2 | 4:D:184:LYS:HZ1 | 1.66 | 0.60 |
| 4:D:224:ALA:H | 4:D:233:HIS:CE1 | 2.18 | 0.60 |
| 4:D:261:LYS:O | 4:D:263:ARG:N | 2.33 | 0.60 |
| 4:D:64:ILE:HD13 | 4:D:64:ILE:C | 2.21 | 0.60 |
| 6:F:66:PRO:C | 6:F:68:LYS:N | 2.52 | 0.60 |
| 7:G:4:ASP:HB3 | 7:G:104:GLU:HG3 | 1.81 | 0.60 |
| 8:H:163:TYR:O | 8:H:164:TYR:O | 2.19 | 0.60 |
| 8:H:35:VAL:HG21 | 8:H:72:ILE:CG2 | 2.27 | 0.60 |
| 10:L:103:GLN:HA | 10:L:106:GLU:CD | 2.21 | 0.60 |
| 12:N:106:LEU:HD11 | 17:S:38:ASN:HD22 | 1.66 | 0.60 |
| 12:N:96:THR:HA | 12:N:117:LEU:CD1 | 2.30 | 0.60 |
| 13:O:15:ARG:NH2 | 13:O:15:ARG:HG3 | 2.14 | 0.60 |
| 1:A:662:G:C5' | 13:O:17:LYS:H | 2.07 | 0.60 |
| 13:O:76:LYS:HE3 | 13:O:99:LEU:CD1 | 2.30 | 0.60 |
| 13:O:97:PRO:N | 13:O:102:ARG:CZ | 2.64 | 0.60 |
| 15:Q:67:LEU:CD2 | 15:Q:71:GLN:HA | 2.31 | 0.60 |
| 17:S:52:ILE:HG12 | 17:S:66:VAL:HG13 | 1.82 | 0.60 |
| 17:S:6:LEU:HD23 | 17:S:7:ILE:HG23 | 1.82 | 0.60 |
| 17:S:73:GLU:O | 17:S:74:ARG:HG3 | 2.01 | 0.60 |
| 18:T:53:ARG:HA | 18:T:56:ASP:CG | 2.21 | 0.60 |
| 18:T:47:TYR:CZ | 19:U:76:LYS:C | 2.74 | 0.60 |
| 23:Y:145:GLU:C | 23:Y:147:GLY:H | 2.04 | 0.60 |
| 9:K:123:LEU:HD11 | 9:K:145:VAL:CA | 2.27 | 0.60 |
| 9:K:69:LYS:HZ2 | 9:K:70:LYS:HE2 | 1.66 | 0.60 |
| 9:K:93:THR:H | 9:K:96:ASP:CG | 2.05 | 0.60 |
| 22:X:104:GLY:O | 22:X:105:ALA:O | 2.19 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 25:1:38:GLN:H | 25:1:41:GLN:CD | 2.04 | 0.60 |
| 25:1:24:LYS:NZ | 25:1:56:LEU:HD21 | 2.16 | 0.60 |
| 28:4:43:HIS:O | 28:4:44:THR:HG23 | 2.01 | 0.60 |
| 29:5:16:CYS:CB | 29:5:49:HIS:CA | 2.76 | 0.60 |
| 1:A:1022:G:O6 | 11:M:65:LYS:NZ | 2.25 | 0.60 |
| 1:A:1100:C:O2' | 1:A:1101:U:OP1 | 2.16 | 0.60 |
| 1:A:1128:A:N6 | 1:A:2518:A:H61 | 1.99 | 0.60 |
| 1:A:1200:C:C2 | 1:A:1246:A:C2 | 2.89 | 0.60 |
| 1:A:1343:G:H1' | 1:A:1597:A:N1 | 2.15 | 0.60 |
| 1:A:1361:G:H2' | 1:A:1362:C:C6 | 2.32 | 0.60 |
| 1:A:1406:U:O2' | 1:A:1407:C:O5' | 2.10 | 0.60 |
| 1:A:14:A:H8 | 1:A:15:G:O4' | 1.83 | 0.60 |
| 1:A:1394:U:C5' | 1:A:1603:A:O3' | 2.37 | 0.60 |
| 1:A:1609:A:C6 | 1:A:1616:A:H2 | 2.19 | 0.60 |
| 1:A:1363:C:H1' | 1:A:1810:A:H1' | 1.83 | 0.60 |
| 1:A:185:U:H5' | 1:A:217:G:H21 | 1.65 | 0.60 |
| 1:A:1924:C:C2 | 1:A:1925:C:C5 | 2.90 | 0.60 |
| 1:A:2234:G:C2 | 1:A:2235:G:C4 | 2.89 | 0.60 |
| 1:A:2436:G:C6 | 1:A:2437:U:C4 | 2.89 | 0.60 |
| 1:A:2056:G:C5 | 1:A:2577:A:N3 | 2.69 | 0.60 |
| 1:A:2075:U:O4' | 1:A:2597:G:N2 | 2.34 | 0.60 |
| 1:A:2645:G:OP2 | 1:A:2645:G:O4' | 2.18 | 0.60 |
| 1:A:2662:A:H2' | 1:A:2663:G:C5' | 2.27 | 0.60 |
| 1:A:2751:G:H2' | 1:A:2751:G:N3 | 2.15 | 0.60 |
| 1:A:2818:G:H4' | 1:A:2837:G:H4' | 1.82 | 0.60 |
| 1:A:2889:C:C2 | 1:A:2891:G:C8 | 2.89 | 0.60 |
| 1:A:427:U:O2 | 1:A:428:A:C8 | 2.48 | 0.60 |
| 1:A:672:C:C2 | 1:A:673:C:C5 | 2.89 | 0.60 |
| 2:B:28:C:O5' | 2:B:28:C:C6 | 2.51 | 0.60 |
| 4:D:188:GLU:N | 4:D:188:GLU:CD | 2.48 | 0.60 |
| 1:A:2597:G:C1' | 4:D:242:ARG:NH2 | 2.64 | 0.60 |
| 4:D:232:PRO:CG | 4:D:247:ALA:CA | 2.68 | 0.60 |
| 5:E:188:VAL:O | 5:E:190:GLY:N | 2.34 | 0.60 |
| 5:E:203:LYS:HD3 | 5:E:203:LYS:O | 2.01 | 0.60 |
| 7:G:19:LEU:O | 7:G:20:ILE:C | 2.40 | 0.60 |
| 7:G:22:ARG:HD2 | 7:G:23:PHE:CD2 | 2.36 | 0.60 |
| 10:L:10:LEU:HD11 | 10:L:41:PHE:HE1 | 1.66 | 0.60 |
| 10:L:79:ARG:HH21 | 10:L:80:LYS:HE2 | 1.64 | 0.60 |
| 11:M:130:HIS:O | 11:M:133:GLN:HB2 | 2.00 | 0.60 |
| 11:M:48:MET:O | 11:M:49:GLY:C | 2.39 | 0.60 |
| 11:M:55:VAL:O | 11:M:56:ASN:HB2 | 2.00 | 0.60 |
| 1:A:1022:G:N7 | 11:M:65:LYS:HE3 | 2.15 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 12:N:103:ALA:O | 12:N:106:LEU:N | 2.34 | 0.60 |
| 13:O:122:PRO:HA | 13:O:137:LYS:C | 2.19 | 0.60 |
| 16:R:29:PHE:HD1 | 16:R:30:ARG:N | 1.98 | 0.60 |
| 17:S:50:ILE:CG2 | 17:S:68:TYR:CB | 2.79 | 0.60 |
| 20:V:37:ARG:HG3 | 20:V:38:TYR:HD1 | 1.66 | 0.60 |
| 21:W:36:LYS:HD2 | 21:W:54:VAL:O | 2.00 | 0.60 |
| 22:X:39:VAL:O | 22:X:40:GLU:HB3 | 2.01 | 0.60 |
| 24:Z:28:GLY:O | 24:Z:67:VAL:N | 2.34 | 0.60 |
| 24:Z:46:LYS:CE | 24:Z:77:ARG:N | 2.64 | 0.60 |
| 9:K:87:LYS:NZ | 9:K:121:LYS:N | 2.36 | 0.60 |
| 1:A:2133:G:O6 | 1:A:2157:G:C8 | 2.54 | 0.60 |
| 2:B:1:U:H6 | 2:B:1:U:H5' | 1.66 | 0.60 |
| 2:B:1:U:C4 | 2:B:2:C:N4 | 2.69 | 0.60 |
| 1:A:363(D):G:C2 | 1:A:363(E):U:H1' | 2.35 | 0.60 |
| 25:1:4:GLN:HA | 25:1:7:GLU:CD | 2.21 | 0.60 |
| 27:3:58:ARG:N | 27:3:61:ARG:NH1 | 2.38 | 0.60 |
| 27:3:64:GLY:O | 27:3:68:ARG:NH1 | 2.35 | 0.60 |
| 28:4:18:ALA:O | 28:4:21:SER:OG | 2.19 | 0.60 |
| 1:A:1203:G:C4 | 1:A:1241:A:N7 | 2.69 | 0.60 |
| 1:A:1242:A:N3 | 1:A:1242:A:H2' | 2.16 | 0.60 |
| 1:A:1317:A:C5 | 1:A:1318:C:C5 | 2.89 | 0.60 |
| 1:A:1444(A):A:H2' | 1:A:1460:A:O2' | 2.01 | 0.60 |
| 1:A:1624:G:N1 | 1:A:1625:C:N4 | 2.48 | 0.60 |
| 1:A:1657:C:O2' | 1:A:1658:C:H5' | 2.00 | 0.60 |
| 1:A:1682:G:C4 | 1:A:1757:U:H1' | 2.37 | 0.60 |
| 1:A:1804:C:H5' | 4:D:250:TRP:HH2 | 1.67 | 0.60 |
| 1:A:1809:A:H61 | 27:3:3:GLU:HG3 | 1.67 | 0.60 |
| 1:A:1944:U:H2' | 1:A:1945:G:OP1 | 2.01 | 0.60 |
| 1:A:1900:A:C2 | 1:A:1970:A:C6 | 2.89 | 0.60 |
| 1:A:231:C:N4 | 1:A:232:G:C2 | 2.68 | 0.60 |
| 1:A:2573:C:P | 1:A:2574:G:OP1 | 2.60 | 0.60 |
| 1:A:2603:G:H2' | 1:A:2604:U:O5' | 2.00 | 0.60 |
| 1:A:263:C:O2 | 1:A:263:C:C2' | 2.43 | 0.60 |
| 1:A:262:A:C2' | 1:A:263:C:O5' | 2.48 | 0.60 |
| 1:A:270(A):A:C6 | 1:A:270(X):G:N3 | 2.69 | 0.60 |
| 1:A:270(M):U:H1' | 1:A:270(N):G:O2' | 2.01 | 0.60 |
| 1:A:2745:C:H2' | 1:A:2746:U:C6 | 2.36 | 0.60 |
| 1:A:2781:A:H2' | 1:A:2782:G:C2' | 2.31 | 0.60 |
| 1:A:457:A:O4' | 1:A:459:U:C2 | 2.54 | 0.60 |
| 1:A:510:C:OP1 | 1:A:512:G:N1 | 2.27 | 0.60 |
| 1:A:550:G:H2' | 1:A:1220:A:C2 | 2.37 | 0.60 |
| 1:A:564:C:H2' | 1:A:565:C:O4' | 2.01 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:575:A:C2' | 1:A:576:U:H5' | 2.30 | 0.60 |
| 1:A:656:G:H2' | 1:A:657:U:H6 | 1.66 | 0.60 |
| 1:A:69:C:O2' | 1:A:73:A:H4' | 2.00 | 0.60 |
| 1:A:77:C:OP2 | 1:A:77:C:C6 | 2.54 | 0.60 |
| 1:A:92:G:H2' | 1:A:93:C:H6 | 1.65 | 0.60 |
| 1:A:962:G:H21 | 1:A:2250:G:H22 | 1.47 | 0.60 |
| 1:A:1801:G:H2' | 4:D:263:ARG:NH2 | 2.17 | 0.60 |
| 4:D:58:HIS:O | 4:D:59:LYS:NZ | 2.29 | 0.60 |
| 4:D:63:ARG:CD | 4:D:85:ASP:HB3 | 2.31 | 0.60 |
| 6:F:176:LEU:C | 6:F:178:PRO:HD2 | 2.21 | 0.60 |
| 6:F:7:TYR:O | 6:F:18:ARG:HG2 | 2.02 | 0.60 |
| 7:G:118:ARG:HH21 | 7:G:120:LEU:HD11 | 1.65 | 0.60 |
| 7:G:55:LYS:HB3 | 7:G:151:ALA:CB | 2.29 | 0.60 |
| 11:M:106:MET:O | 11:M:108:PRO:HD3 | 2.01 | 0.60 |
| 11:M:36:GLY:O | 11:M:47:ALA:CB | 2.31 | 0.60 |
| 11:M:74:ARG:HG2 | 11:M:74:ARG:NH1 | 2.14 | 0.60 |
| 12:N:40:VAL:O | 12:N:41:ALA:HB2 | 1.99 | 0.60 |
| 12:N:66:LYS:O | 12:N:67:LYS:HG2 | 2.01 | 0.60 |
| 1:A:626:U:O2 | 13:O:101:VAL:HG12 | 2.00 | 0.60 |
| 13:O:112:LEU:N | 13:O:128:HIS:CE1 | 2.61 | 0.60 |
| 13:O:72:PRO:HB2 | 13:O:111:ARG:CB | 2.31 | 0.60 |
| 14:P:67:ARG:HG3 | 14:P:68:ILE:N | 2.16 | 0.60 |
| 14:P:6:ARG:HG3 | 14:P:93:TYR:HB2 | 1.84 | 0.60 |
| 15:Q:20:LEU:C | 15:Q:20:LEU:CD1 | 2.65 | 0.60 |
| 15:Q:77:ARG:O | 15:Q:78:LYS:C | 2.39 | 0.60 |
| 17:S:111:ARG:CZ | 17:S:111:ARG:HB2 | 2.31 | 0.60 |
| 18:T:55:ARG:HA | 18:T:58:ARG:HG2 | 1.81 | 0.60 |
| 18:T:67:ALA:HB1 | 18:T:71:GLN:NE2 | 2.13 | 0.60 |
| 18:T:61:TRP:CZ3 | 18:T:93:LYS:C | 2.74 | 0.60 |
| 19:U:69:LYS:CG | 19:U:70:ILE:N | 2.64 | 0.60 |
| 20:V:5:ALA:HB3 | 20:V:105:VAL:CG1 | 2.32 | 0.60 |
| 20:V:82:LEU:HD12 | 20:V:84:ARG:CG | 2.15 | 0.60 |
| 21:W:15:GLU:HG3 | 21:W:16:LYS:N | 2.14 | 0.60 |
| 21:W:66:LEU:HG | 21:W:70:LEU:HA | 1.82 | 0.60 |
| 22:X:86:ARG:O | 22:X:87:LYS:HB2 | 1.99 | 0.60 |
| 23:Y:120:ILE:HA | 23:Y:172:ALA:HB2 | 1.83 | 0.60 |
| 23:Y:122:ARG:HD3 | 23:Y:122:ARG:N | 2.14 | 0.60 |
| 23:Y:151:HIS:N | 23:Y:151:HIS:ND1 | 2.49 | 0.60 |
| 23:Y:4:ARG:C | 23:Y:5:LEU:HD23 | 2.21 | 0.60 |
| 23:Y:96:VAL:HG13 | 23:Y:128:VAL:HG22 | 1.82 | 0.60 |
| 24:Z:74:ARG:HD3 | 24:Z:75:LEU:N | 2.16 | 0.60 |
| 1:A:2111:C:C4 | 1:A:2145:C:C4 | 2.89 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|------------------|-------------|----------|
| 1:A:2126:A:H1' | 1:A:2162:G:H21 | 1.65 | 0.60 |
| 1:A:2178:C:H5' | 3:C:46:LYS:CG | 2.24 | 0.60 |
| 3:C:113:VAL:CG1 | 3:C:136:LEU:O | 2.48 | 0.60 |
| 3:C:190:ARG:HA | 3:C:193:ILE:CG1 | 2.32 | 0.60 |
| 9:K:59:ALA:N | 9:K:62:LYS:HZ2 | 1.98 | 0.60 |
| 1:A:1117:G:H2' | 1:A:1118:C:C6 | 2.36 | 0.60 |
| 26:2:50:VAL:CG1 | 26:2:53:LEU:HB2 | 2.32 | 0.60 |
| 27:3:9:LEU:HD13 | 27:3:11:PRO:HG2 | 1.83 | 0.60 |
| 1:A:1142(A):A:C6 | 1:A:1143:A:C8 | 2.90 | 0.60 |
| 1:A:1265:A:OP2 | 1:A:2615:U:P | 2.59 | 0.60 |
| 1:A:1344:G:H2' | 1:A:1345:C:OP1 | 2.01 | 0.60 |
| 1:A:1352:U:O2 | 1:A:1352:U:H2' | 2.00 | 0.60 |
| 1:A:1444(A):A:H5'' | 1:A:1445:C:OP1 | 2.01 | 0.60 |
| 1:A:1670:C:O2' | 1:A:1671:U:H5' | 2.01 | 0.60 |
| 1:A:1857:G:N7 | 1:A:1858:G:O6 | 2.33 | 0.60 |
| 1:A:204:A:OP1 | 1:A:204:A:C8 | 2.54 | 0.60 |
| 1:A:2213:U:H5'' | 1:A:2213:U:C2 | 2.37 | 0.60 |
| 1:A:2274:A:N7 | 1:A:2276:G:C8 | 2.70 | 0.60 |
| 1:A:2358:G:C8 | 1:A:2358:G:OP1 | 2.54 | 0.60 |
| 1:A:2327:A:C5 | 1:A:2388:A:N1 | 2.70 | 0.60 |
| 1:A:2399:G:N2 | 1:A:2400:G:H1' | 2.15 | 0.60 |
| 1:A:2450:A:O2' | 1:A:2451:A:H5' | 2.00 | 0.60 |
| 1:A:2578:G:N2 | 1:A:2579:C:C2 | 2.69 | 0.60 |
| 1:A:2839:G:H2' | 1:A:2840:C:C6 | 2.36 | 0.60 |
| 1:A:308:G:N1 | 1:A:309:G:C4 | 2.70 | 0.60 |
| 1:A:372:G:H1' | 27:3:63:TYR:CD1 | 2.36 | 0.60 |
| 1:A:372:G:O4' | 1:A:372:G:N3 | 2.34 | 0.60 |
| 1:A:501:A:O5' | 1:A:501:A:C8 | 2.55 | 0.60 |
| 1:A:605:C:O2' | 1:A:606:U:H5' | 2.01 | 0.60 |
| 1:A:616:A:O2' | 1:A:617:G:H1' | 2.01 | 0.60 |
| 1:A:658:C:H2' | 1:A:659:C:C5 | 2.35 | 0.60 |
| 1:A:870:A:H5' | 1:A:871:U:OP2 | 2.01 | 0.60 |
| 1:A:914:C:C3' | 1:A:914:C:C6 | 2.79 | 0.60 |
| 1:A:987:G:C5 | 1:A:988:A:N7 | 2.69 | 0.60 |
| 4:D:151:LYS:CB | 4:D:154:LYS:HZ3 | 2.11 | 0.60 |
| 4:D:183:ARG:HA | 4:D:268:ARG:CA | 2.31 | 0.60 |
| 1:A:729:G:O5' | 4:D:19:ALA:HB2 | 2.01 | 0.60 |
| 4:D:57:GLY:C | 4:D:58:HIS:ND1 | 2.55 | 0.60 |
| 4:D:5:LYS:O | 4:D:29:PRO:HD3 | 2.02 | 0.60 |
| 5:E:107:THR:O | 5:E:190:GLY:HA3 | 2.01 | 0.60 |
| 5:E:25:VAL:O | 5:E:181:LEU:HD23 | 2.01 | 0.60 |
| 1:A:2786:U:O2 | 5:E:61:ARG:CG | 2.47 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:30:PRO:HD2 | 5:E:90:THR:O | 2.02 | 0.60 |
| 6:F:126:VAL:HB | 6:F:197:ASP:HB2 | 1.83 | 0.60 |
| 6:F:52:LYS:C | 6:F:53:THR:HG23 | 2.21 | 0.60 |
| 7:G:114:ILE:HD12 | 7:G:115:ARG:N | 2.15 | 0.60 |
| 7:G:139:LEU:HD22 | 7:G:142:PRO:HA | 1.84 | 0.60 |
| 7:G:55:LYS:HE2 | 7:G:147:ASP:O | 2.01 | 0.60 |
| 9:K:7:GLU:HG3 | 9:K:14:ASP:OD2 | 2.00 | 0.60 |
| 11:M:42:TRP:C | 11:M:43:THR:OG1 | 2.40 | 0.60 |
| 11:M:86:PRO:HD2 | 11:M:89:LYS:HE2 | 1.84 | 0.60 |
| 11:M:66:LYS:HA | 11:M:87:LEU:CD1 | 2.29 | 0.60 |
| 12:N:112:MET:O | 12:N:113:LYS:C | 2.39 | 0.60 |
| 13:O:127:ALA:O | 13:O:147:LEU:CD2 | 2.49 | 0.60 |
| 14:P:64:ILE:HG23 | 14:P:107:ALA:HB2 | 1.83 | 0.60 |
| 14:P:6:ARG:NH2 | 14:P:9:TYR:H | 1.99 | 0.60 |
| 15:Q:116:LEU:N | 15:Q:116:LEU:HD12 | 2.17 | 0.60 |
| 15:Q:73:VAL:HG23 | 15:Q:74:LYS:HZ2 | 1.64 | 0.60 |
| 15:Q:96:ARG:O | 15:Q:114:VAL:HA | 2.01 | 0.60 |
| 16:R:105:ALA:O | 16:R:106:ARG:C | 2.39 | 0.60 |
| 16:R:62:LYS:HB3 | 16:R:65:VAL:CB | 2.30 | 0.60 |
| 16:R:93:LYS:HE2 | 16:R:95:HIS:HB3 | 1.82 | 0.60 |
| 17:S:62:THR:HG22 | 17:S:78:LEU:C | 2.22 | 0.60 |
| 22:X:14:LEU:CD2 | 22:X:20:TYR:H | 2.12 | 0.60 |
| 22:X:35:TYR:CE1 | 22:X:65:ALA:O | 2.54 | 0.60 |
| 23:Y:104:PHE:H | 23:Y:104:PHE:HD2 | 1.46 | 0.60 |
| 23:Y:60:GLU:O | 23:Y:60:GLU:OE1 | 2.19 | 0.60 |
| 23:Y:24:LEU:HD13 | 23:Y:83:PRO:HG2 | 1.83 | 0.60 |
| 9:K:95:LYS:O | 9:K:98:ALA:N | 2.33 | 0.60 |
| 3:C:73:ARG:O | 3:C:112:ALA:HB3 | 2.02 | 0.60 |
| 3:C:142:ALA:HB3 | 3:C:144:THR:OG1 | 2.02 | 0.60 |
| 3:C:60:GLY:O | 3:C:162:GLU:HG3 | 2.00 | 0.60 |
| 9:K:105:HIS:O | 9:K:105:HIS:CD2 | 2.53 | 0.60 |
| 1:A:2671:A:OP1 | 5:E:206:LYS:CE | 2.50 | 0.60 |
| 26:2:23:LEU:CA | 26:2:28:LEU:HD12 | 2.31 | 0.60 |
| 26:2:7:LYS:NZ | 26:2:33:GLN:H | 1.97 | 0.60 |
| 29:5:19:ARG:O | 29:5:19:ARG:NH1 | 2.31 | 0.60 |
| 31:7:30:ARG:CZ | 31:7:44:LYS:CB | 2.74 | 0.60 |
| 32:8:16:VAL:O | 32:8:16:VAL:CG1 | 2.45 | 0.60 |
| 1:A:1007:C:O3' | 11:M:108:PRO:HG3 | 2.01 | 0.60 |
| 1:A:1051:G:H4' | 1:A:2752:C:C1' | 2.21 | 0.60 |
| 1:A:1059:G:H1' | 10:L:126:MET:HE2 | 1.83 | 0.60 |
| 1:A:1059:G:H5' | 1:A:1059:G:H8 | 1.67 | 0.60 |
| 1:A:1076:C:N4 | 1:A:1077:A:N7 | 2.48 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1047:G:H2' | 1:A:1110:G:H1 | 1.67 | 0.60 |
| 1:A:1164:G:C5 | 1:A:1165:U:C5 | 2.89 | 0.60 |
| 1:A:1178:C:H2' | 1:A:1179:C:C5 | 2.36 | 0.60 |
| 1:A:1182:A:C3' | 1:A:1183:G:H3' | 2.31 | 0.60 |
| 1:A:840:C:H4' | 1:A:1192:G:O2' | 2.00 | 0.60 |
| 1:A:1343:G:H2' | 1:A:1344:G:H5'' | 1.83 | 0.60 |
| 1:A:1378:A:H2' | 1:A:1380:G:N7 | 2.15 | 0.60 |
| 1:A:1448:G:H2' | 1:A:1449:A:C8 | 2.36 | 0.60 |
| 1:A:1592:C:O2' | 1:A:1593:G:H5' | 2.01 | 0.60 |
| 1:A:14:A:C8 | 1:A:15:G:O4' | 2.54 | 0.60 |
| 1:A:1613:G:H3' | 1:A:1617:C:N4 | 2.16 | 0.60 |
| 1:A:1834:U:H4' | 1:A:1834:U:OP1 | 2.01 | 0.60 |
| 1:A:2043:C:O2' | 1:A:2044:C:O5' | 2.18 | 0.60 |
| 1:A:2309:A:P | 1:A:2310:A:H62 | 2.22 | 0.60 |
| 1:A:2325:G:N3 | 1:A:2326:C:C6 | 2.70 | 0.60 |
| 1:A:2346:A:H2 | 1:A:2383:G:N1 | 2.00 | 0.60 |
| 1:A:2360:A:C8 | 1:A:2360:A:OP2 | 2.53 | 0.60 |
| 1:A:2063:C:C1' | 1:A:2451:A:H2 | 1.98 | 0.60 |
| 1:A:2572:A:C2 | 5:E:144:ARG:CZ | 2.85 | 0.60 |
| 1:A:292:C:H6 | 1:A:293:U:O4 | 1.81 | 0.60 |
| 1:A:371:A:N7 | 1:A:424:G:O5' | 2.34 | 0.60 |
| 1:A:479:A:C1' | 1:A:480:A:C8 | 2.83 | 0.60 |
| 1:A:511:U:O4 | 1:A:512:G:H1' | 2.00 | 0.60 |
| 1:A:522:G:H2' | 1:A:523:C:H6 | 1.67 | 0.60 |
| 1:A:895:U:O2 | 1:A:896:A:N6 | 2.35 | 0.60 |
| 2:B:114:G:C4' | 16:R:47:THR:HB | 2.31 | 0.60 |
| 2:B:38:C:C6 | 2:B:38:C:C3' | 2.83 | 0.60 |
| 4:D:105:ILE:HG13 | 4:D:106:ILE:HG12 | 1.84 | 0.60 |
| 4:D:193:VAL:HG12 | 4:D:194:GLY:N | 2.16 | 0.60 |
| 5:E:118:LYS:O | 5:E:120:TRP:O | 2.19 | 0.60 |
| 7:G:134:GLY:O | 7:G:135:LEU:O | 2.19 | 0.60 |
| 8:H:10:PRO:O | 8:H:12:PRO:HD2 | 2.02 | 0.60 |
| 8:H:20:ALA:CB | 8:H:21:PRO:CD | 2.79 | 0.60 |
| 8:H:61:HIS:O | 8:H:64:LEU:HB2 | 2.02 | 0.60 |
| 8:H:89:ILE:HG12 | 8:H:94:TYR:CE2 | 2.36 | 0.60 |
| 9:K:11:ASN:O | 9:K:13:GLY:N | 2.34 | 0.60 |
| 1:A:1058:G:N3 | 10:L:116:ASN:ND2 | 2.49 | 0.60 |
| 10:L:27:LEU:HD22 | 10:L:32:ALA:CB | 2.32 | 0.60 |
| 12:N:79:PHE:CZ | 17:S:103:ARG:HD2 | 2.36 | 0.60 |
| 15:Q:28:LEU:HD21 | 15:Q:32:GLY:O | 2.01 | 0.60 |
| 15:Q:73:VAL:HG23 | 15:Q:74:LYS:N | 2.14 | 0.60 |
| 15:Q:73:VAL:HG23 | 15:Q:74:LYS:NZ | 2.16 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 16:R:40:ILE:CG1 | 16:R:47:THR:HG23 | 2.31 | 0.60 |
| 17:S:50:ILE:C | 17:S:66:VAL:HG12 | 2.22 | 0.60 |
| 17:S:90:GLN:OE1 | 17:S:91:ARG:N | 2.35 | 0.60 |
| 18:T:110:VAL:HG12 | 18:T:114:LYS:CE | 2.31 | 0.60 |
| 20:V:59:VAL:HG13 | 20:V:63:ASP:CB | 2.31 | 0.60 |
| 21:W:17:ALA:HB1 | 21:W:27:THR:OG1 | 2.00 | 0.60 |
| 22:X:97:ARG:O | 22:X:98:VAL:HG23 | 2.01 | 0.60 |
| 23:Y:102:LEU:HB2 | 23:Y:124:ILE:HA | 1.83 | 0.60 |
| 23:Y:29:TYR:HD2 | 23:Y:89:PHE:HE2 | 1.47 | 0.60 |
| 3:C:165:ASN:HA | 3:C:170:ALA:O | 2.02 | 0.60 |
| 3:C:192:PHE:HE1 | 3:C:196:LEU:CD2 | 2.15 | 0.60 |
| 3:C:42:GLU:O | 3:C:215:THR:O | 2.19 | 0.60 |
| 3:C:81:GLU:CG | 3:C:82:LYS:N | 2.64 | 0.60 |
| 1:A:2185:C:H2' | 1:A:2186:G:C8 | 2.25 | 0.60 |
| 1:A:2246:G:N2 | 1:A:2247:A:C6 | 2.68 | 0.60 |
| 4:D:112:GLN:N | 4:D:115:GLN:HE21 | 1.99 | 0.60 |
| 1:A:397:G:OP1 | 27:3:41:PRO:HG3 | 2.02 | 0.60 |
| 27:3:56:VAL:C | 27:3:61:ARG:NH2 | 2.54 | 0.60 |
| 29:5:19:ARG:CG | 29:5:43:CYS:SG | 2.87 | 0.60 |
| 1:A:1004:C:O4' | 1:A:1010:A:C2 | 2.54 | 0.60 |
| 1:A:1035:U:H2' | 1:A:1036:G:C8 | 2.37 | 0.60 |
| 1:A:1176:G:H3' | 1:A:1177:A:H8 | 1.65 | 0.60 |
| 1:A:141(A):C:C2' | 1:A:142:G:H5' | 2.32 | 0.60 |
| 1:A:1518:C:H3' | 1:A:1519:G:C5' | 2.29 | 0.60 |
| 1:A:1537:C:H6 | 1:A:1537:C:H3' | 1.63 | 0.60 |
| 1:A:1549:C:O2' | 1:A:1550:C:H5' | 2.02 | 0.60 |
| 1:A:1567:A:H5'' | 4:D:59:LYS:CE | 2.29 | 0.60 |
| 1:A:1630:G:C8 | 1:A:1630(A):C:H5 | 2.18 | 0.60 |
| 1:A:1642:G:O2' | 1:A:1643:G:H5' | 2.01 | 0.60 |
| 1:A:1935:G:O2' | 1:A:1937:A:C2 | 2.55 | 0.60 |
| 1:A:1935:G:C4 | 1:A:1962:C:C4 | 2.90 | 0.60 |
| 1:A:197:A:O4' | 1:A:2068:U:C2 | 2.55 | 0.60 |
| 1:A:226:G:O2' | 1:A:228:A:C2 | 2.54 | 0.60 |
| 1:A:2735:G:H4' | 5:E:203:LYS:HE3 | 1.83 | 0.60 |
| 1:A:2628:C:O2 | 1:A:2782:G:OP1 | 2.20 | 0.60 |
| 1:A:2813:A:H2' | 1:A:2814:C:C6 | 2.36 | 0.60 |
| 1:A:296:C:O2' | 1:A:297:C:H5' | 2.01 | 0.60 |
| 1:A:355:G:H2' | 1:A:356:G:N9 | 2.16 | 0.60 |
| 1:A:379:G:C2 | 1:A:396:G:C4 | 2.90 | 0.60 |
| 1:A:511:U:C5 | 1:A:512:G:C4 | 2.90 | 0.60 |
| 1:A:532:A:O2' | 18:T:28:ARG:HD3 | 2.02 | 0.60 |
| 1:A:54:G:H4' | 30:6:36:GLN:NE2 | 2.16 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:749:C:C5 | 1:A:750:A:N7 | 2.70 | 0.60 |
| 1:A:690:G:O2' | 1:A:780:G:OP1 | 2.19 | 0.60 |
| 1:A:783:A:C3' | 1:A:783:A:C8 | 2.85 | 0.60 |
| 1:A:850:C:H5'' | 26:2:18:ASP:HB2 | 1.84 | 0.60 |
| 2:B:28:C:H2' | 2:B:29:A:C8 | 2.37 | 0.60 |
| 1:A:1818:U:O4 | 4:D:67:PHE:CE1 | 2.54 | 0.60 |
| 4:D:70:TRP:CZ3 | 4:D:190:TYR:HB2 | 2.32 | 0.60 |
| 7:G:119:GLY:C | 7:G:120:LEU:HD23 | 2.22 | 0.60 |
| 1:A:2306:C:O2 | 7:G:46:ALA:HB2 | 2.01 | 0.60 |
| 11:M:2:LYS:CB | 11:M:2:LYS:NZ | 2.64 | 0.60 |
| 12:N:10:VAL:O | 12:N:11:ALA:CB | 2.49 | 0.60 |
| 12:N:34:THR:O | 12:N:37:ASP:HB2 | 2.01 | 0.60 |
| 13:O:117:GLU:CD | 13:O:117:GLU:H | 2.05 | 0.60 |
| 13:O:23:PRO:HB3 | 13:O:30:THR:H | 1.65 | 0.60 |
| 13:O:92:GLU:OE2 | 13:O:126:VAL:HG13 | 2.02 | 0.60 |
| 14:P:22:LYS:HE3 | 14:P:23:GLY:C | 2.21 | 0.60 |
| 14:P:26:TYR:N | 14:P:26:TYR:CD1 | 2.69 | 0.60 |
| 14:P:54:MET:HB3 | 14:P:58:PHE:CE2 | 2.36 | 0.60 |
| 14:P:59:ARG:C | 14:P:59:ARG:HD2 | 2.21 | 0.60 |
| 15:Q:61:HIS:C | 15:Q:64:ARG:HD2 | 2.21 | 0.60 |
| 16:R:14:VAL:C | 16:R:18:ILE:HD13 | 2.22 | 0.60 |
| 18:T:111:GLU:HA | 18:T:114:LYS:HD2 | 1.83 | 0.60 |
| 19:U:60:GLU:OE1 | 19:U:100:ARG:O | 2.20 | 0.60 |
| 21:W:16:LYS:H | 21:W:16:LYS:CE | 2.13 | 0.60 |
| 21:W:23:GLU:C | 21:W:23:GLU:CD | 2.60 | 0.60 |
| 21:W:85:PRO:HB2 | 21:W:87:GLN:HE21 | 1.67 | 0.60 |
| 22:X:97:ARG:HG2 | 22:X:101:LYS:HG2 | 1.83 | 0.60 |
| 23:Y:122:ARG:HG2 | 23:Y:171:ILE:CA | 2.31 | 0.60 |
| 23:Y:41:LEU:C | 23:Y:45:ASP:OD2 | 2.40 | 0.60 |
| 23:Y:57:ILE:HG12 | 23:Y:70:LEU:CA | 2.31 | 0.60 |
| 23:Y:9:TYR:HB2 | 23:Y:14:LYS:HG2 | 1.83 | 0.60 |
| 24:Z:23:VAL:CA | 24:Z:38:VAL:HG12 | 2.31 | 0.60 |
| 24:Z:32:ARG:HG2 | 24:Z:64:ASP:OD1 | 2.01 | 0.60 |
| 24:Z:82:ARG:HH11 | 24:Z:83:PRO:HB2 | 1.67 | 0.60 |
| 9:K:66:GLU:O | 9:K:70:LYS:HG3 | 2.01 | 0.60 |
| 1:A:2135:A:N7 | 1:A:2160:G:C1' | 2.58 | 0.60 |
| 3:C:8:ARG:HE | 3:C:12:GLU:HG2 | 1.66 | 0.60 |
| 1:A:2187:G:H2' | 1:A:2188:C:C6 | 2.37 | 0.60 |
| 9:K:19:VAL:HG12 | 9:K:20:ASP:N | 2.15 | 0.60 |
| 27:3:68:ARG:H | 27:3:68:ARG:CD | 2.08 | 0.60 |
| 1:A:1049:C:C2 | 1:A:1050:A:N7 | 2.70 | 0.60 |
| 1:A:1197:G:C5 | 1:A:1198:U:C5 | 2.90 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1250:G:OP1 | 1:A:1251:C:O2 | 2.19 | 0.60 |
| 1:A:1515:C:H5'' | 1:A:1515:C:H6 | 1.65 | 0.60 |
| 1:A:1341:U:OP1 | 1:A:1602:U:H1' | 2.02 | 0.60 |
| 1:A:1631:A:N1 | 1:A:1632:A:C2 | 2.70 | 0.60 |
| 1:A:1665:A:H1' | 12:N:1:MET:HG2 | 1.82 | 0.60 |
| 1:A:1673:U:O2 | 1:A:1673:U:H2' | 2.00 | 0.60 |
| 1:A:1689:A:C2 | 1:A:1690:A:N7 | 2.69 | 0.60 |
| 1:A:1709:U:C1' | 1:A:2860:A:H1' | 2.32 | 0.60 |
| 1:A:1769:G:H2' | 1:A:1770:G:C8 | 2.36 | 0.60 |
| 1:A:1779:U:C6 | 1:A:1779:U:H3' | 2.37 | 0.60 |
| 1:A:1827:C:O2 | 1:A:1828:G:H1' | 2.01 | 0.60 |
| 1:A:1843:C:H5'' | 4:D:255:LYS:HE3 | 1.82 | 0.60 |
| 1:A:2216:G:C2' | 1:A:2217:G:H5' | 2.30 | 0.60 |
| 1:A:2287:A:C2' | 1:A:2288:A:O5' | 2.49 | 0.60 |
| 1:A:2331:G:C2' | 1:A:2332:U:O4' | 2.44 | 0.60 |
| 1:A:2615:U:O4' | 28:4:7:PRO:HG3 | 2.01 | 0.60 |
| 1:A:270(A):A:N6 | 1:A:270(X):G:N3 | 2.50 | 0.60 |
| 1:A:2725:A:C2' | 1:A:2726:U:H3' | 2.32 | 0.60 |
| 1:A:285:C:H2' | 1:A:286:C:H6 | 1.66 | 0.60 |
| 1:A:2870:C:H2' | 1:A:2871:C:O4' | 2.02 | 0.60 |
| 1:A:388:G:O2' | 1:A:390:A:N7 | 2.35 | 0.60 |
| 1:A:449:A:C2' | 1:A:450:G:H5' | 2.32 | 0.60 |
| 1:A:625:G:N3 | 1:A:625:G:H2' | 2.16 | 0.60 |
| 1:A:823:G:C6 | 1:A:824:A:N6 | 2.70 | 0.60 |
| 1:A:909:A:H8 | 1:A:909:A:C5' | 2.14 | 0.60 |
| 4:D:24:ILE:O | 4:D:25:THR:CG2 | 2.48 | 0.60 |
| 4:D:33:LEU:HD22 | 4:D:63:ARG:HH21 | 1.66 | 0.60 |
| 5:E:119:ARG:HD3 | 5:E:156:MET:H | 1.66 | 0.60 |
| 5:E:91:VAL:HG22 | 5:E:93:VAL:HG13 | 1.83 | 0.60 |
| 5:E:92:THR:H | 5:E:95:ILE:HD13 | 1.66 | 0.60 |
| 6:F:148:LEU:HG | 6:F:152:GLU:HG2 | 1.84 | 0.60 |
| 6:F:156:LEU:HD21 | 6:F:173:VAL:HG23 | 1.84 | 0.60 |
| 7:G:135:LEU:CD1 | 7:G:136:ARG:H | 2.08 | 0.60 |
| 7:G:19:LEU:HB3 | 7:G:22:ARG:HH12 | 1.67 | 0.60 |
| 7:G:53:LEU:HD12 | 7:G:53:LEU:N | 2.16 | 0.60 |
| 7:G:68:PRO:HB3 | 7:G:72:ARG:HH12 | 1.65 | 0.60 |
| 10:L:52:ILE:CG2 | 10:L:73:PRO:HD2 | 2.31 | 0.60 |
| 11:M:33:LEU:CD1 | 11:M:34:LEU:HG | 2.32 | 0.60 |
| 11:M:74:ARG:CG | 11:M:76:SER:OG | 2.50 | 0.60 |
| 14:P:102:VAL:CG1 | 14:P:104:PHE:CE1 | 2.85 | 0.60 |
| 16:R:35:ILE:HG23 | 16:R:35:ILE:O | 2.01 | 0.60 |
| 17:S:113:LYS:O | 17:S:116:ALA:N | 2.34 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:S:18:ASP:OD2 | 17:S:81:PRO:HG3 | 1.99 | 0.60 |
| 17:S:15:VAL:HG21 | 17:S:59:THR:HG23 | 1.82 | 0.60 |
| 19:U:88:ARG:HB3 | 19:U:88:ARG:HH11 | 1.67 | 0.60 |
| 23:Y:168:GLU:HG2 | 23:Y:169:GLU:H | 1.65 | 0.60 |
| 23:Y:59:LEU:HD11 | 23:Y:66:SER:OG | 2.00 | 0.60 |
| 1:A:2603:G:OP2 | 24:Z:1:MET:O | 2.19 | 0.60 |
| 24:Z:50:ASN:C | 24:Z:62:LEU:HB3 | 2.22 | 0.60 |
| 9:K:94:ALA:HA | 9:K:97:ILE:HG13 | 1.83 | 0.60 |
| 1:A:2115:G:N3 | 1:A:2117:A:N7 | 2.49 | 0.60 |
| 3:C:91:ALA:HB2 | 3:C:153:ILE:HG21 | 1.81 | 0.60 |
| 1:A:1579:A:H2' | 1:A:1580:A:C4' | 2.32 | 0.60 |
| 11:M:139:GLU:O | 11:M:140:VAL:HG23 | 2.01 | 0.60 |
| 25:1:20:VAL:CG2 | 25:1:55:LEU:HD23 | 2.31 | 0.60 |
| 15:Q:99:LYS:C | 28:4:44:THR:HG22 | 2.21 | 0.60 |
| 30:6:41:ARG:CZ | 30:6:41:ARG:HB2 | 2.28 | 0.60 |
| 31:7:4:MET:HA | 31:7:4:MET:CE | 2.30 | 0.60 |
| 1:A:1059:G:H2' | 10:L:74:ALA:CB | 2.29 | 0.60 |
| 1:A:1061:U:C4' | 1:A:1070:A:O2' | 2.50 | 0.60 |
| 1:A:1077:A:OP1 | 10:L:93:ARG:HB2 | 2.00 | 0.60 |
| 1:A:1143:A:O2' | 1:A:1144:G:O4' | 2.20 | 0.60 |
| 1:A:1144:G:C2' | 1:A:1145:C:C6 | 2.74 | 0.60 |
| 1:A:1262:A:O2' | 1:A:1263:U:H5' | 2.01 | 0.60 |
| 1:A:1267:U:H2' | 1:A:1268:A:H5'' | 1.78 | 0.60 |
| 1:A:1288:U:C5' | 1:A:1289:C:OP2 | 2.50 | 0.60 |
| 1:A:1401:G:C6 | 1:A:1402:C:C4 | 2.90 | 0.60 |
| 1:A:1453:A:C5 | 1:A:1454:U:H1' | 2.37 | 0.60 |
| 1:A:1750:G:N3 | 1:A:2860:A:C2 | 2.69 | 0.60 |
| 1:A:1790:C:H2' | 1:A:1791:A:C8 | 2.37 | 0.60 |
| 1:A:1947:C:N3 | 1:A:1948:G:C8 | 2.70 | 0.60 |
| 1:A:1977:A:C2' | 1:A:1978:A:O5' | 2.50 | 0.60 |
| 1:A:1769:G:N1 | 1:A:1984:G:C5 | 2.69 | 0.60 |
| 1:A:2085:C:O2 | 1:A:2086:U:O4' | 2.20 | 0.60 |
| 1:A:2346:A:C2 | 1:A:2383:G:N1 | 2.69 | 0.60 |
| 1:A:2356:C:O3' | 24:Z:20:ARG:NH2 | 2.34 | 0.60 |
| 1:A:2457:U:O2' | 1:A:2458:G:H5' | 2.02 | 0.60 |
| 1:A:2447:G:N3 | 1:A:2500:U:O4 | 2.35 | 0.60 |
| 1:A:270:A:OP2 | 1:A:270(Y):G:O2' | 2.18 | 0.60 |
| 1:A:270(D):C:H2' | 1:A:270(E):G:H8 | 1.62 | 0.60 |
| 1:A:2774:C:C2 | 1:A:2775:A:N7 | 2.70 | 0.60 |
| 1:A:294:A:N1 | 1:A:346:A:N1 | 2.49 | 0.60 |
| 1:A:498:G:H3' | 1:A:498:G:C8 | 2.37 | 0.60 |
| 1:A:675:A:N6 | 1:A:804:A:H1' | 2.17 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:7:G:N2 | 1:A:8:A:C4 | 2.70 | 0.60 |
| 4:D:134:ARG:HA | 4:D:168:ARG:HH11 | 1.66 | 0.60 |
| 4:D:247:ALA:C | 4:D:248:SER:O | 2.36 | 0.60 |
| 6:F:30:PRO:HA | 6:F:33:LEU:CD2 | 2.26 | 0.60 |
| 6:F:39:TRP:O | 6:F:42:ALA:HB3 | 2.02 | 0.60 |
| 6:F:65:TRP:CG | 6:F:66:PRO:HD2 | 2.36 | 0.60 |
| 7:G:113:ARG:NE | 7:G:139:LEU:CD2 | 2.41 | 0.60 |
| 7:G:163:ALA:HB3 | 7:G:169:ALA:HB2 | 1.83 | 0.60 |
| 8:H:38:SER:N | 8:H:41:MET:HE2 | 2.16 | 0.60 |
| 8:H:8:PRO:CA | 8:H:51:ARG:CZ | 2.79 | 0.60 |
| 8:H:69:ARG:HG3 | 8:H:70:THR:N | 2.17 | 0.60 |
| 9:K:21:VAL:O | 9:K:26:ALA:HB2 | 2.02 | 0.60 |
| 11:M:123:TYR:HB2 | 11:M:129:PRO:CG | 2.31 | 0.60 |
| 11:M:30:ILE:HG22 | 11:M:34:LEU:HD11 | 1.83 | 0.60 |
| 14:P:25:ASP:HB2 | 14:P:101:ARG:CD | 2.32 | 0.60 |
| 1:A:2708:G:C1' | 15:Q:71:GLN:HE22 | 2.11 | 0.60 |
| 1:A:2708:G:C1' | 15:Q:71:GLN:NE2 | 2.65 | 0.60 |
| 16:R:24:LEU:HD21 | 16:R:39:ILE:CG2 | 2.31 | 0.60 |
| 16:R:39:ILE:HD12 | 16:R:48:LEU:HD13 | 1.84 | 0.60 |
| 17:S:104:ASN:CB | 17:S:108:ARG:NH2 | 2.64 | 0.60 |
| 17:S:17:THR:HG21 | 17:S:22:PHE:CZ | 2.36 | 0.60 |
| 17:S:73:GLU:C | 17:S:74:ARG:HG3 | 2.21 | 0.60 |
| 19:U:27:ALA:HB2 | 19:U:35:LEU:CD1 | 2.31 | 0.60 |
| 19:U:58:VAL:HG12 | 19:U:59:ALA:N | 2.17 | 0.60 |
| 19:U:36:PRO:HB3 | 19:U:61:VAL:CG2 | 2.32 | 0.60 |
| 21:W:50:LYS:CE | 21:W:87:GLN:HB2 | 2.30 | 0.60 |
| 1:A:2331:G:H4' | 24:Z:43:THR:N | 2.17 | 0.60 |
| 24:Z:50:ASN:ND2 | 24:Z:81:VAL:O | 2.35 | 0.60 |
| 3:C:81:GLU:OE2 | 3:C:82:LYS:HD3 | 2.01 | 0.60 |
| 3:C:75:LEU:HD13 | 3:C:99:ILE:HG21 | 1.84 | 0.60 |
| 1:A:1580:A:H2' | 1:A:1581:G:C1' | 2.31 | 0.60 |
| 26:2:4:LEU:HD13 | 26:2:37:LEU:CD1 | 2.29 | 0.60 |
| 26:2:50:VAL:HG22 | 26:2:53:LEU:CD1 | 2.30 | 0.60 |
| 28:4:26:THR:HB | 28:4:27:PRO:HD2 | 1.84 | 0.60 |
| 29:5:20:ASN:ND2 | 29:5:43:CYS:HB2 | 2.16 | 0.60 |
| 32:8:17:ILE:HD12 | 32:8:26:ILE:CD1 | 2.29 | 0.60 |
| 1:A:112:U:OP2 | 1:A:112:U:C6 | 2.55 | 0.60 |
| 1:A:1206:G:C3' | 1:A:1206:G:C8 | 2.85 | 0.60 |
| 1:A:1227:A:H8 | 1:A:1228:G:C5' | 2.04 | 0.60 |
| 1:A:1327:C:H2' | 1:A:1327:C:O2 | 2.00 | 0.60 |
| 1:A:1530:G:C3' | 1:A:1531:C:C6 | 2.84 | 0.60 |
| 1:A:179:G:OP1 | 30:6:32:LYS:NZ | 2.33 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1859:A:H3' | 1:A:1860:G:H8 | 1.67 | 0.60 |
| 1:A:1972:A:C2' | 1:A:1973:G:H8 | 2.12 | 0.60 |
| 1:A:579:G:H1' | 1:A:2017:U:N3 | 2.16 | 0.60 |
| 1:A:2048:G:C2 | 1:A:2049:G:C4 | 2.90 | 0.60 |
| 1:A:2348:U:H3' | 31:7:42:ARG:HH22 | 1.67 | 0.60 |
| 1:A:2457:U:O4 | 1:A:2458:G:N2 | 2.35 | 0.60 |
| 1:A:2459:A:H3' | 1:A:2460:U:O4' | 2.02 | 0.60 |
| 1:A:2666:C:H5 | 1:A:2667:C:O2 | 1.85 | 0.60 |
| 1:A:2043:C:N4 | 1:A:2777:G:N3 | 2.50 | 0.60 |
| 1:A:280:C:C4 | 1:A:283:A:N7 | 2.69 | 0.60 |
| 1:A:548:A:H61 | 1:A:549:G:H21 | 1.48 | 0.60 |
| 1:A:581:C:H2' | 1:A:582:G:C8 | 2.37 | 0.60 |
| 1:A:610:C:H2' | 1:A:611:C:C6 | 2.36 | 0.60 |
| 1:A:623:G:N7 | 13:O:105:LEU:HD13 | 2.16 | 0.60 |
| 1:A:685:A:C2' | 1:A:686:G:OP2 | 2.50 | 0.60 |
| 1:A:724:U:C2' | 1:A:725:G:H5' | 2.32 | 0.60 |
| 1:A:725:G:C2 | 1:A:726:G:C2 | 2.89 | 0.60 |
| 2:B:82:G:C2 | 2:B:83:G:N7 | 2.70 | 0.60 |
| 4:D:234:GLY:N | 4:D:241:PRO:CG | 2.60 | 0.60 |
| 4:D:6:PHE:O | 4:D:27:THR:HG23 | 2.01 | 0.60 |
| 6:F:36:VAL:HG11 | 6:F:183:VAL:CG1 | 2.32 | 0.60 |
| 7:G:87:PRO:O | 7:G:88:ILE:HG13 | 2.01 | 0.60 |
| 10:L:111:LYS:O | 10:L:113:PRO:HD2 | 2.01 | 0.60 |
| 10:L:68:VAL:CG1 | 10:L:70:LYS:HE3 | 2.32 | 0.60 |
| 11:M:127:ASP:O | 11:M:130:HIS:N | 2.35 | 0.60 |
| 1:A:627:A:C5' | 13:O:75:ILE:HB | 2.26 | 0.60 |
| 14:P:96:VAL:HG12 | 14:P:98:LYS:HZ3 | 1.63 | 0.60 |
| 16:R:62:LYS:C | 16:R:64:GLU:N | 2.48 | 0.60 |
| 19:U:3:ALA:CB | 19:U:12:TYR:HE2 | 2.15 | 0.60 |
| 20:V:59:VAL:HG21 | 20:V:66:GLU:CB | 2.32 | 0.60 |
| 20:V:70:TYR:CE1 | 20:V:71:VAL:O | 2.55 | 0.60 |
| 20:V:8:ARG:HA | 20:V:102:HIS:CG | 2.37 | 0.60 |
| 20:V:11:ARG:HB2 | 20:V:98:LYS:HZ1 | 1.67 | 0.60 |
| 22:X:44:ILE:O | 22:X:46:LYS:N | 2.34 | 0.60 |
| 23:Y:39:VAL:HG12 | 23:Y:41:LEU:HD23 | 1.82 | 0.60 |
| 1:A:2353:G:O2' | 24:Z:35:ASN:ND2 | 2.35 | 0.60 |
| 1:A:2171:A:O2' | 1:A:2172:U:P | 2.60 | 0.60 |
| 3:C:216:THR:O | 3:C:217:THR:C | 2.40 | 0.60 |
| 1:A:363(D):G:O2' | 1:A:363(E):U:H5' | 2.02 | 0.60 |
| 25:1:19:LEU:CD1 | 25:1:20:VAL:N | 2.59 | 0.60 |
| 1:A:2046:G:OP1 | 28:4:18:ALA:CB | 2.50 | 0.60 |
| 30:6:26:GLY:O | 30:6:29:LYS:HB2 | 2.02 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 30:6:33:ARG:O | 30:6:37:LYS:CB | 2.49 | 0.60 |
| 31:7:30:ARG:C | 31:7:34:TRP:HE1 | 2.04 | 0.60 |
| 1:A:1085:A:H5'' | 1:A:1104:C:O2' | 2.01 | 0.60 |
| 1:A:1322:A:H61 | 1:A:1333:C:H1' | 1.66 | 0.60 |
| 1:A:1360:A:N7 | 1:A:1361:G:N7 | 2.49 | 0.60 |
| 1:A:1731:G:N3 | 1:A:1731:G:H3' | 2.17 | 0.60 |
| 1:A:1809:A:H61 | 27:3:3:GLU:CG | 2.14 | 0.60 |
| 1:A:1930:G:C2' | 1:A:1931:U:OP2 | 2.50 | 0.60 |
| 1:A:1958:C:O2' | 1:A:1959:G:H5' | 2.01 | 0.60 |
| 1:A:1964:G:H4' | 1:A:1965:C:OP2 | 2.00 | 0.60 |
| 1:A:572:A:C2 | 1:A:2033:A:C2 | 2.86 | 0.60 |
| 1:A:2061:G:N2 | 1:A:2063:C:O4' | 2.34 | 0.60 |
| 1:A:216:A:N7 | 1:A:432:A:C6 | 2.70 | 0.60 |
| 1:A:2232:U:N3 | 1:A:2233:U:C5 | 2.70 | 0.60 |
| 1:A:2306:C:H42 | 7:G:45:GLU:CB | 2.00 | 0.60 |
| 1:A:2311:A:H2 | 7:G:45:GLU:OE2 | 1.85 | 0.60 |
| 1:A:2345:G:O2' | 1:A:2346:A:OP2 | 2.19 | 0.60 |
| 1:A:2363:C:O2' | 1:A:2364:C:H5' | 2.01 | 0.60 |
| 1:A:2416:C:N3 | 1:A:2417:C:C5 | 2.70 | 0.60 |
| 1:A:830:G:C6 | 1:A:2448:A:H8 | 2.19 | 0.60 |
| 1:A:2661:G:O2' | 1:A:2662:A:H5' | 2.01 | 0.60 |
| 1:A:2690:C:H2' | 1:A:2691:C:OP2 | 2.02 | 0.60 |
| 1:A:220:G:N1 | 1:A:427:U:C5 | 2.70 | 0.60 |
| 1:A:457:A:C2 | 1:A:470:A:H5'' | 2.37 | 0.60 |
| 1:A:497:A:N1 | 1:A:498:G:C2 | 2.70 | 0.60 |
| 1:A:533:G:C2' | 1:A:534:U:O4' | 2.35 | 0.60 |
| 1:A:784:A:OP1 | 1:A:2587:A:O2' | 2.20 | 0.60 |
| 1:A:91:A:H3' | 1:A:92:G:C8 | 2.37 | 0.60 |
| 4:D:200:ASP:O | 4:D:203:ASN:N | 2.35 | 0.60 |
| 4:D:246:PRO:O | 4:D:247:ALA:O | 2.19 | 0.60 |
| 4:D:45:ASN:OD1 | 4:D:50:THR:HG23 | 2.00 | 0.60 |
| 4:D:63:ARG:HB3 | 4:D:65:ILE:HD11 | 1.83 | 0.60 |
| 5:E:17:ASP:OD2 | 5:E:17:ASP:N | 2.33 | 0.60 |
| 5:E:49:LEU:CG | 5:E:74:PRO:CG | 2.80 | 0.60 |
| 5:E:49:LEU:HG | 5:E:74:PRO:HG3 | 1.80 | 0.60 |
| 7:G:170:ARG:O | 7:G:172:LEU:N | 2.35 | 0.60 |
| 8:H:105:LEU:HD12 | 8:H:105:LEU:N | 2.16 | 0.60 |
| 11:M:35:ARG:NH1 | 11:M:48:MET:SD | 2.75 | 0.60 |
| 11:M:39:ARG:HB2 | 11:M:48:MET:HE1 | 1.83 | 0.60 |
| 11:M:70:LYS:HD2 | 11:M:86:PRO:CB | 2.32 | 0.60 |
| 12:N:111:PHE:HB2 | 12:N:114:ILE:HG13 | 1.82 | 0.60 |
| 12:N:9:GLU:CB | 12:N:17:ARG:HG2 | 2.30 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 16:R:39:ILE:O | 16:R:47:THR:HG23 | 2.01 | 0.60 |
| 18:T:62:ILE:HG22 | 18:T:63:VAL:N | 2.15 | 0.60 |
| 20:V:44:ALA:O | 20:V:47:VAL:HG22 | 2.02 | 0.60 |
| 1:A:2014:A:H4' | 20:V:92:ARG:HH11 | 1.66 | 0.60 |
| 21:W:42:ALA:O | 21:W:46:ALA:HB3 | 2.01 | 0.60 |
| 22:X:67:LEU:CD1 | 22:X:71:LYS:NZ | 2.63 | 0.60 |
| 22:X:88:LYS:O | 22:X:91:GLU:HB2 | 2.01 | 0.60 |
| 23:Y:39:VAL:HG13 | 23:Y:44:PHE:CG | 2.35 | 0.60 |
| 1:A:2353:G:H4' | 24:Z:32:ARG:NH1 | 2.17 | 0.60 |
| 1:A:2158:A:O2' | 1:A:2159:G:OP2 | 2.20 | 0.60 |
| 3:C:100:ILE:HA | 3:C:103:ILE:HD12 | 1.83 | 0.60 |
| 2:B:35:U:H2' | 2:B:36:C:C6 | 2.35 | 0.60 |
| 25:1:22:GLU:O | 25:1:25:ARG:HB2 | 2.01 | 0.59 |
| 25:1:36:ILE:HG23 | 25:1:41:GLN:HE22 | 1.65 | 0.59 |
| 26:2:7:LYS:HZ1 | 26:2:32:GLN:CA | 2.14 | 0.59 |
| 28:4:20:ARG:C | 28:4:23:HIS:HB2 | 2.23 | 0.59 |
| 30:6:22:MET:HA | 30:6:28:ARG:CG | 2.30 | 0.59 |
| 1:A:242:G:N7 | 31:7:2:PRO:HG2 | 2.17 | 0.59 |
| 1:A:1053:C:N4 | 1:A:1105:U:H3 | 2.00 | 0.59 |
| 1:A:1115:G:N3 | 1:A:1115:G:H2' | 2.16 | 0.59 |
| 1:A:1137:G:C8 | 1:A:1138:G:C8 | 2.90 | 0.59 |
| 1:A:1366:A:H5' | 27:3:1:MET:H3 | 1.64 | 0.59 |
| 1:A:150:C:H2' | 1:A:151:C:H6 | 1.67 | 0.59 |
| 1:A:1529:A:H3' | 1:A:1530:G:C8 | 2.37 | 0.59 |
| 1:A:1554:A:HO2' | 1:A:1555:G:P | 2.25 | 0.59 |
| 1:A:1711:C:H2' | 1:A:1712:C:C5 | 2.36 | 0.59 |
| 1:A:1791:A:C5' | 4:D:213:ARG:HG2 | 2.31 | 0.59 |
| 1:A:1798:U:C5' | 4:D:257:LEU:HD12 | 2.30 | 0.59 |
| 1:A:1955:U:C3' | 1:A:1956:U:H5 | 2.15 | 0.59 |
| 1:A:2208:U:C2' | 1:A:2209:C:C5' | 2.76 | 0.59 |
| 1:A:2092:U:H4' | 1:A:2225:A:H2 | 1.67 | 0.59 |
| 1:A:2230:G:H2' | 1:A:2231:C:H6 | 1.67 | 0.59 |
| 1:A:859:G:H1' | 1:A:2268:A:C2 | 2.37 | 0.59 |
| 1:A:2320:A:N6 | 16:R:4:LEU:CD2 | 2.64 | 0.59 |
| 1:A:2284:C:O2 | 1:A:2325:G:O6 | 2.19 | 0.59 |
| 1:A:270(Z):U:H2' | 1:A:271(A):C:H5'' | 1.84 | 0.59 |
| 1:A:2731:G:O2' | 1:A:2732:G:H5' | 2.02 | 0.59 |
| 1:A:2732:G:H3' | 1:A:2733:A:H5' | 1.84 | 0.59 |
| 1:A:2774:C:H3' | 1:A:2775:A:H8 | 1.67 | 0.59 |
| 1:A:2797:U:OP1 | 1:A:2797:U:O4' | 2.19 | 0.59 |
| 1:A:2886:G:H21 | 1:A:2887:U:H1' | 1.67 | 0.59 |
| 1:A:417:C:O2' | 1:A:418:G:H5' | 2.02 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:464:U:C2 | 1:A:788:A:N7 | 2.70 | 0.59 |
| 1:A:465:G:N3 | 1:A:683:C:O2' | 2.29 | 0.59 |
| 1:A:469:G:OP2 | 6:F:59:TYR:OH | 2.16 | 0.59 |
| 1:A:568:U:C2' | 1:A:570:G:N7 | 2.64 | 0.59 |
| 1:A:598:G:C2 | 1:A:599:G:H1' | 2.37 | 0.59 |
| 1:A:653:A:C8 | 1:A:655:A:OP1 | 2.55 | 0.59 |
| 1:A:775:G:N2 | 1:A:788:A:OP2 | 2.34 | 0.59 |
| 1:A:918:A:H2 | 1:A:919:G:C6 | 2.20 | 0.59 |
| 1:A:996:A:H5' | 18:T:93:LYS:CD | 2.32 | 0.59 |
| 1:A:729:G:P | 4:D:13:ARG:HH22 | 2.25 | 0.59 |
| 4:D:148:GLU:HA | 4:D:186:HIS:CE1 | 2.37 | 0.59 |
| 4:D:176:ARG:HG3 | 4:D:176:ARG:HH11 | 1.67 | 0.59 |
| 4:D:232:PRO:HG3 | 4:D:248:SER:O | 2.02 | 0.59 |
| 4:D:5:LYS:CA | 4:D:28:GLU:HB2 | 2.32 | 0.59 |
| 4:D:7:LYS:HD2 | 4:D:9:TYR:CZ | 2.37 | 0.59 |
| 4:D:9:TYR:CE2 | 4:D:201:HIS:HB2 | 2.36 | 0.59 |
| 5:E:157:ALA:O | 5:E:160:TYR:HE1 | 1.85 | 0.59 |
| 5:E:197:ILE:N | 5:E:197:ILE:CD1 | 2.61 | 0.59 |
| 5:E:60:ASN:O | 5:E:61:ARG:C | 2.40 | 0.59 |
| 6:F:5:ALA:HB2 | 6:F:24:LEU:HG | 1.84 | 0.59 |
| 6:F:30:PRO:O | 6:F:33:LEU:CD1 | 2.49 | 0.59 |
| 6:F:93:LYS:O | 6:F:94:PRO:C | 2.39 | 0.59 |
| 7:G:8:LYS:HE3 | 7:G:12:TYR:CB | 2.31 | 0.59 |
| 7:G:4:ASP:HA | 7:G:7:LEU:CG | 2.32 | 0.59 |
| 8:H:125:VAL:O | 8:H:127:GLU:N | 2.34 | 0.59 |
| 8:H:145:ALA:O | 8:H:148:ILE:HG23 | 2.01 | 0.59 |
| 8:H:7:LEU:N | 8:H:7:LEU:HD23 | 2.17 | 0.59 |
| 8:H:95:ARG:HD2 | 8:H:95:ARG:N | 2.12 | 0.59 |
| 11:M:21:LYS:HB2 | 11:M:26:LEU:HD22 | 1.83 | 0.59 |
| 11:M:25:ARG:HE | 11:M:26:LEU:N | 2.00 | 0.59 |
| 11:M:34:LEU:HB3 | 11:M:116:LEU:CD1 | 2.25 | 0.59 |
| 12:N:53:LYS:HG3 | 12:N:54:GLU:N | 2.17 | 0.59 |
| 12:N:92:GLU:OE2 | 12:N:114:ILE:HG13 | 2.02 | 0.59 |
| 1:A:598:G:C4' | 13:O:13:ASN:ND2 | 2.65 | 0.59 |
| 13:O:99:LEU:HD13 | 13:O:101:VAL:HG21 | 1.84 | 0.59 |
| 14:P:82:ARG:HG2 | 14:P:83:MET:H | 1.67 | 0.59 |
| 16:R:30:ARG:C | 16:R:34:HIS:HD2 | 2.05 | 0.59 |
| 17:S:65:LYS:CE | 17:S:75:ILE:CD1 | 2.80 | 0.59 |
| 18:T:104:GLN:O | 18:T:108:GLU:OE2 | 2.20 | 0.59 |
| 18:T:59:ARG:O | 18:T:60:LEU:C | 2.40 | 0.59 |
| 18:T:93:LYS:CG | 19:U:10:LYS:HZ3 | 2.15 | 0.59 |
| 19:U:11:GLN:NE2 | 19:U:24:LYS:NZ | 2.49 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 20:V:16:LYS:N | 20:V:16:LYS:NZ | 2.43 | 0.59 |
| 20:V:25:ARG:HD3 | 20:V:75:TYR:CD2 | 2.36 | 0.59 |
| 23:Y:9:TYR:CD1 | 23:Y:14:LYS:HG2 | 2.37 | 0.59 |
| 23:Y:1:MET:CE | 23:Y:59:LEU:HD22 | 2.32 | 0.59 |
| 24:Z:26:TYR:CE1 | 24:Z:29:GLN:OE1 | 2.54 | 0.59 |
| 3:C:110:PHE:CD1 | 3:C:110:PHE:O | 2.54 | 0.59 |
| 3:C:20:TYR:HE1 | 3:C:222:VAL:HG11 | 1.65 | 0.59 |
| 9:K:117:GLU:H | 9:K:117:GLU:CD | 2.05 | 0.59 |
| 1:A:61:G:C5' | 25:1:45:ILE:HD13 | 2.32 | 0.59 |
| 26:2:35:ARG:NH2 | 26:2:54:VAL:HG11 | 2.17 | 0.59 |
| 29:5:49:HIS:O | 29:5:50:ARG:CB | 2.50 | 0.59 |
| 1:A:1062:G:N2 | 1:A:1063:G:H1' | 2.17 | 0.59 |
| 1:A:1163:G:C2 | 1:A:1164:G:C8 | 2.90 | 0.59 |
| 1:A:1205:U:O2' | 1:A:1206:G:C6 | 2.54 | 0.59 |
| 1:A:1459:G:O6 | 1:A:1461:G:C2 | 2.55 | 0.59 |
| 1:A:1789:A:OP1 | 4:D:222:ARG:HB3 | 2.01 | 0.59 |
| 1:A:1668:A:N1 | 1:A:1993:U:O2 | 2.35 | 0.59 |
| 1:A:1998:G:C6 | 1:A:1999:C:C4 | 2.90 | 0.59 |
| 1:A:1268:A:P | 1:A:2006:C:OP2 | 2.60 | 0.59 |
| 1:A:2063:C:O2 | 1:A:2451:A:N1 | 2.35 | 0.59 |
| 1:A:2574:G:O2' | 5:E:143:ASN:HB3 | 2.02 | 0.59 |
| 1:A:366:C:H5'' | 1:A:403:U:H3 | 1.67 | 0.59 |
| 1:A:578:A:C2 | 1:A:2018:G:O4' | 2.55 | 0.59 |
| 1:A:591:C:C4 | 1:A:592:G:N7 | 2.70 | 0.59 |
| 1:A:783:A:C8 | 1:A:783:A:H3' | 2.36 | 0.59 |
| 1:A:833:U:H2' | 1:A:834:C:C6 | 2.37 | 0.59 |
| 1:A:935:C:O2' | 1:A:936:C:O5' | 2.19 | 0.59 |
| 1:A:819:A:C5 | 1:A:973:A:C2 | 2.90 | 0.59 |
| 2:B:45:A:N3 | 2:B:45:A:H2' | 2.16 | 0.59 |
| 4:D:193:VAL:CG1 | 4:D:194:GLY:N | 2.65 | 0.59 |
| 4:D:214:TRP:NE1 | 4:D:219:PRO:HB2 | 2.16 | 0.59 |
| 1:A:1569:A:H4' | 4:D:39:LYS:HE2 | 1.83 | 0.59 |
| 4:D:46:GLN:CD | 4:D:52:ARG:HH12 | 2.05 | 0.59 |
| 4:D:73:VAL:HB | 4:D:121:PRO:HD2 | 1.84 | 0.59 |
| 5:E:133:LYS:NZ | 5:E:137:HIS:HB3 | 2.16 | 0.59 |
| 5:E:7:VAL:CG2 | 5:E:8:LYS:N | 2.65 | 0.59 |
| 6:F:161:GLU:O | 6:F:165:ARG:CB | 2.49 | 0.59 |
| 6:F:53:THR:O | 6:F:56:GLU:OE1 | 2.19 | 0.59 |
| 7:G:172:LEU:O | 7:G:176:LEU:HB2 | 2.02 | 0.59 |
| 7:G:22:ARG:CB | 7:G:22:ARG:NH2 | 2.59 | 0.59 |
| 7:G:43:LEU:HD23 | 7:G:44:GLY:N | 2.17 | 0.59 |
| 8:H:15:VAL:HG21 | 8:H:76:VAL:HG12 | 1.83 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:L:18:THR:HG22 | 10:L:34:ILE:C | 2.22 | 0.59 |
| 13:O:107:LYS:NZ | 13:O:110:TYR:HB3 | 2.16 | 0.59 |
| 13:O:121:LYS:HB2 | 13:O:137:LYS:HG2 | 1.84 | 0.59 |
| 13:O:124:LYS:NZ | 13:O:141:ALA:HB1 | 2.17 | 0.59 |
| 1:A:1246:A:P | 13:O:15:ARG:HD3 | 2.42 | 0.59 |
| 13:O:91:PHE:HE2 | 13:O:99:LEU:CD1 | 2.15 | 0.59 |
| 14:P:22:LYS:HB2 | 23:Y:79:ARG:HH22 | 1.62 | 0.59 |
| 15:Q:5:LYS:HZ3 | 15:Q:5:LYS:C | 2.05 | 0.59 |
| 15:Q:5:LYS:NZ | 15:Q:6:SER:N | 2.49 | 0.59 |
| 15:Q:72:ASP:O | 15:Q:76:VAL:HG23 | 2.01 | 0.59 |
| 16:R:106:ARG:HD3 | 16:R:106:ARG:C | 2.23 | 0.59 |
| 16:R:24:LEU:O | 16:R:86:ALA:HB1 | 2.01 | 0.59 |
| 16:R:49:VAL:HG21 | 16:R:80:LEU:HD12 | 1.82 | 0.59 |
| 1:A:2376:A:N6 | 16:R:94:TYR:CD1 | 2.70 | 0.59 |
| 17:S:82:LEU:O | 17:S:84:GLN:N | 2.35 | 0.59 |
| 18:T:63:VAL:O | 18:T:65:ILE:N | 2.34 | 0.59 |
| 18:T:88:ILE:CB | 19:U:52:VAL:HG22 | 2.31 | 0.59 |
| 19:U:63:GLY:O | 19:U:97:LYS:HB2 | 2.02 | 0.59 |
| 19:U:67:GLY:C | 19:U:93:GLU:O | 2.39 | 0.59 |
| 21:W:12:VAL:HG23 | 21:W:28:PHE:C | 2.22 | 0.59 |
| 22:X:1:MET:HA | 22:X:33:LYS:CG | 2.32 | 0.59 |
| 22:X:19:LYS:HG3 | 22:X:21:LYS:HE2 | 1.83 | 0.59 |
| 23:Y:176:PRO:HB2 | 23:Y:179:ASP:N | 2.17 | 0.59 |
| 23:Y:41:LEU:O | 23:Y:44:PHE:HB2 | 2.02 | 0.59 |
| 9:K:77:LEU:CD1 | 9:K:142:VAL:HG22 | 2.32 | 0.59 |
| 9:K:68:LEU:HD22 | 9:K:72:LEU:HD11 | 1.83 | 0.59 |
| 9:K:77:LEU:O | 9:K:142:VAL:HA | 2.02 | 0.59 |
| 1:A:2126:A:C4' | 1:A:2127:G:O5' | 2.48 | 0.59 |
| 3:C:177:LYS:HE2 | 3:C:178:ALA:N | 2.17 | 0.59 |
| 3:C:68:LEU:CD2 | 3:C:69:GLY:N | 2.63 | 0.59 |
| 1:A:1497:U:O4 | 1:A:1577:C:O4' | 2.20 | 0.59 |
| 3:C:140:PRO:O | 3:C:141:LYS:HB2 | 2.00 | 0.59 |
| 25:1:18:LYS:O | 25:1:21:ARG:HB2 | 2.03 | 0.59 |
| 25:1:20:VAL:HA | 25:1:55:LEU:CD2 | 2.23 | 0.59 |
| 1:A:1184:G:OP1 | 26:2:30:ARG:NH1 | 2.35 | 0.59 |
| 29:5:19:ARG:O | 29:5:20:ASN:CB | 2.51 | 0.59 |
| 1:A:1069:A:H8 | 1:A:1074:G:N7 | 2.00 | 0.59 |
| 1:A:51:G:H1' | 1:A:118:A:N6 | 2.16 | 0.59 |
| 1:A:1234:U:O2' | 1:A:1235:G:H5' | 2.02 | 0.59 |
| 1:A:1312:U:C6 | 1:A:1313:U:C5 | 2.90 | 0.59 |
| 1:A:1419:A:H3' | 1:A:1420:U:C2 | 2.37 | 0.59 |
| 1:A:1439:A:H2' | 1:A:1440:G:C5' | 2.32 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1477:A:O3' | 1:A:1478:G:O4' | 2.19 | 0.59 |
| 1:A:1504:C:H6 | 1:A:1504:C:O5' | 1.86 | 0.59 |
| 1:A:1662:C:C4 | 1:A:1663:C:N4 | 2.70 | 0.59 |
| 1:A:1667:G:C2 | 1:A:1991:U:C4 | 2.89 | 0.59 |
| 1:A:1681:G:C2 | 1:A:1762:A:C8 | 2.90 | 0.59 |
| 1:A:1780:A:OP1 | 1:A:1782:C:OP1 | 2.20 | 0.59 |
| 1:A:1812:A:O2' | 4:D:47:GLY:N | 2.35 | 0.59 |
| 1:A:1826:G:O5' | 1:A:1826:G:C8 | 2.49 | 0.59 |
| 1:A:1791:A:H2 | 1:A:1829:A:O2' | 1.85 | 0.59 |
| 1:A:1834:U:OP1 | 1:A:1834:U:C4' | 2.50 | 0.59 |
| 1:A:197:A:C2 | 1:A:198:C:H1' | 2.37 | 0.59 |
| 1:A:2020:A:C8 | 1:A:2022:U:C4 | 2.90 | 0.59 |
| 1:A:2277:G:H5'' | 1:A:2278:A:OP2 | 2.01 | 0.59 |
| 1:A:2497:A:C8 | 1:A:2497:A:H3' | 2.35 | 0.59 |
| 1:A:2546:U:C4' | 1:A:2565:A:C2 | 2.85 | 0.59 |
| 1:A:2591:C:O2' | 1:A:2592:G:H5' | 2.01 | 0.59 |
| 1:A:2776:A:C4 | 1:A:2778:A:C8 | 2.91 | 0.59 |
| 1:A:2782:G:OP2 | 1:A:2782:G:O4' | 2.20 | 0.59 |
| 1:A:324:A:C2 | 1:A:325:G:C1' | 2.82 | 0.59 |
| 1:A:460:A:H2' | 1:A:461:C:H6 | 1.67 | 0.59 |
| 1:A:460:A:H2' | 1:A:461:C:C6 | 2.37 | 0.59 |
| 1:A:527:C:H2' | 11:M:114:ARG:NH1 | 2.16 | 0.59 |
| 1:A:586:A:H5' | 6:F:89:VAL:HG21 | 1.84 | 0.59 |
| 1:A:661:C:O2' | 1:A:662:G:H5' | 2.02 | 0.59 |
| 2:B:12:C:C2' | 2:B:13:A:H5'' | 2.32 | 0.59 |
| 2:B:71:C:O2 | 2:B:71:C:H2' | 2.01 | 0.59 |
| 1:A:2209:C:C4' | 4:D:150:LYS:HB3 | 2.31 | 0.59 |
| 4:D:130:ALA:HB2 | 4:D:192:THR:HA | 1.84 | 0.59 |
| 4:D:208:LYS:CG | 4:D:211:ARG:HG3 | 2.32 | 0.59 |
| 4:D:267:SER:O | 4:D:268:ARG:O | 2.20 | 0.59 |
| 5:E:125:GLY:N | 5:E:136:ARG:HB2 | 2.18 | 0.59 |
| 5:E:173:VAL:HG13 | 5:E:183:LEU:O | 2.01 | 0.59 |
| 5:E:22:PRO:HA | 5:E:185:LYS:N | 2.15 | 0.59 |
| 5:E:91:VAL:HG21 | 5:E:93:VAL:HG13 | 1.83 | 0.59 |
| 9:K:31:LEU:N | 9:K:32:PRO:HD2 | 2.17 | 0.59 |
| 10:L:112:MET:CE | 10:L:119:ASP:H | 2.15 | 0.59 |
| 11:M:112:LEU:CD2 | 11:M:115:ARG:HH21 | 2.15 | 0.59 |
| 12:N:57:VAL:HG23 | 12:N:59:LYS:CD | 2.32 | 0.59 |
| 12:N:59:LYS:HD3 | 12:N:59:LYS:N | 2.16 | 0.59 |
| 13:O:124:LYS:NZ | 13:O:141:ALA:CB | 2.64 | 0.59 |
| 13:O:47:ASP:CG | 13:O:48:PRO:HD3 | 2.23 | 0.59 |
| 13:O:73:GLY:N | 13:O:107:LYS:HE3 | 2.16 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:636:G:N1 | 13:O:75:ILE:HD12 | 2.17 | 0.59 |
| 13:O:79:ARG:NE | 13:O:83:VAL:CG1 | 2.61 | 0.59 |
| 14:P:111:GLU:HB3 | 14:P:113:GLN:CG | 2.24 | 0.59 |
| 15:Q:102:GLU:CD | 15:Q:103:ARG:N | 2.56 | 0.59 |
| 15:Q:74:LYS:N | 15:Q:74:LYS:HZ2 | 1.95 | 0.59 |
| 16:R:28:VAL:HG21 | 16:R:101:LEU:HB2 | 1.82 | 0.59 |
| 16:R:106:ARG:CZ | 16:R:110:LEU:HB3 | 2.32 | 0.59 |
| 16:R:78:LEU:HG | 16:R:111:GLU:OE1 | 2.00 | 0.59 |
| 17:S:28:VAL:O | 17:S:52:ILE:HG13 | 2.01 | 0.59 |
| 17:S:56:GLY:O | 17:S:61:PHE:HB3 | 2.02 | 0.59 |
| 19:U:5:VAL:CG1 | 19:U:37:VAL:HG22 | 2.31 | 0.59 |
| 21:W:35:THR:HB | 21:W:38:GLU:HB2 | 1.84 | 0.59 |
| 21:W:49:VAL:HG12 | 21:W:88:LYS:HB3 | 1.83 | 0.59 |
| 22:X:97:ARG:CZ | 22:X:101:LYS:CG | 2.78 | 0.59 |
| 22:X:97:ARG:HG2 | 22:X:101:LYS:HB3 | 1.84 | 0.59 |
| 23:Y:153:SER:OG | 23:Y:154:ASP:N | 2.31 | 0.59 |
| 23:Y:20:ARG:HB2 | 23:Y:20:ARG:CZ | 2.30 | 0.59 |
| 23:Y:55:HIS:N | 23:Y:55:HIS:ND1 | 2.48 | 0.59 |
| 9:K:82:ARG:HG2 | 9:K:147:GLN:HE22 | 1.67 | 0.59 |
| 1:A:2130:U:O2' | 1:A:2133:G:O3' | 2.16 | 0.59 |
| 3:C:120:MET:SD | 3:C:145:VAL:HG22 | 2.42 | 0.59 |
| 3:C:41:VAL:HG22 | 3:C:216:THR:HG22 | 1.83 | 0.59 |
| 1:A:1585:C:H4' | 1:A:1586:A:O5' | 2.00 | 0.59 |
| 9:K:135:GLU:OE1 | 9:K:136:VAL:HG13 | 2.03 | 0.59 |
| 28:4:6:VAL:HG13 | 28:4:6:VAL:O | 2.01 | 0.59 |
| 29:5:26:ASN:O | 29:5:27:LYS:HD3 | 2.01 | 0.59 |
| 29:5:27:LYS:O | 29:5:28:ARG:HB3 | 2.02 | 0.59 |
| 31:7:4:MET:HE1 | 31:7:62:LEU:CD1 | 2.32 | 0.59 |
| 32:8:11:CYS:HB3 | 32:8:32:HIS:CD2 | 2.38 | 0.59 |
| 1:A:1050:A:N6 | 1:A:2751:G:C5 | 2.70 | 0.59 |
| 1:A:1061:U:H4' | 1:A:1070:A:C3' | 2.31 | 0.59 |
| 1:A:1246:A:OP2 | 13:O:15:ARG:CD | 2.49 | 0.59 |
| 1:A:1268:A:C2 | 1:A:1269:A:H1' | 2.37 | 0.59 |
| 1:A:1445:C:H2' | 1:A:1446:C:C6 | 2.38 | 0.59 |
| 1:A:1459:G:O6 | 1:A:1461:G:C5 | 2.56 | 0.59 |
| 1:A:1470:G:N3 | 1:A:1522:G:N2 | 2.50 | 0.59 |
| 1:A:1492:G:H2' | 1:A:1493:C:N4 | 2.16 | 0.59 |
| 1:A:1567:A:N3 | 1:A:1567:A:C3' | 2.65 | 0.59 |
| 1:A:1605:C:H2' | 1:A:1606:G:O4' | 2.02 | 0.59 |
| 1:A:1612:C:C2 | 1:A:1620:G:N2 | 2.70 | 0.59 |
| 1:A:16:G:H2' | 1:A:17:G:H8 | 1.68 | 0.59 |
| 1:A:414:C:H1' | 1:A:1864:U:O2' | 2.02 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2077:A:N6 | 1:A:2078:C:N4 | 2.49 | 0.59 |
| 1:A:2615:U:N1 | 28:4:7:PRO:HA | 2.17 | 0.59 |
| 1:A:298:G:H1 | 1:A:338:G:H4' | 1.67 | 0.59 |
| 1:A:533:G:N3 | 1:A:534:U:H1' | 2.17 | 0.59 |
| 1:A:695:G:C2 | 1:A:696:G:C8 | 2.90 | 0.59 |
| 1:A:706:A:O2' | 1:A:707:G:H5' | 2.02 | 0.59 |
| 1:A:757:U:N3 | 1:A:758:C:C5 | 2.70 | 0.59 |
| 1:A:763:G:N3 | 1:A:765:G:H1' | 2.17 | 0.59 |
| 1:A:811:U:O2' | 1:A:812:C:OP1 | 2.16 | 0.59 |
| 1:A:82:G:N2 | 1:A:103:A:OP2 | 2.34 | 0.59 |
| 1:A:950:G:C4 | 1:A:951:C:C5 | 2.91 | 0.59 |
| 1:A:979:G:N7 | 1:A:981:A:OP1 | 2.34 | 0.59 |
| 1:A:1566:A:C2 | 4:D:215:LEU:HD13 | 2.34 | 0.59 |
| 4:D:56:GLY:C | 4:D:217:ARG:NH1 | 2.55 | 0.59 |
| 5:E:44:TYR:HD2 | 5:E:45:THR:H | 1.48 | 0.59 |
| 5:E:4:ILE:HG13 | 5:E:4:ILE:O | 2.03 | 0.59 |
| 6:F:138:GLU:H | 6:F:138:GLU:CD | 2.05 | 0.59 |
| 6:F:6:VAL:HG12 | 6:F:18:ARG:NH1 | 2.17 | 0.59 |
| 7:G:103:LEU:HD21 | 7:G:176:LEU:CD1 | 2.31 | 0.59 |
| 7:G:40:ASN:ND2 | 7:G:41:GLN:H | 2.00 | 0.59 |
| 10:L:37:PHE:CG | 10:L:57:ILE:HD12 | 2.38 | 0.59 |
| 10:L:98:ARG:HD3 | 10:L:139:VAL:CB | 2.32 | 0.59 |
| 12:N:10:VAL:HG12 | 12:N:17:ARG:HA | 1.84 | 0.59 |
| 12:N:18:LYS:HG2 | 12:N:19:ILE:N | 2.16 | 0.59 |
| 12:N:64:ARG:NH1 | 12:N:67:LYS:C | 2.49 | 0.59 |
| 13:O:76:LYS:HG3 | 13:O:101:VAL:CG1 | 2.32 | 0.59 |
| 13:O:95:VAL:C | 13:O:97:PRO:HD2 | 2.23 | 0.59 |
| 1:A:2881:C:H5' | 15:Q:90:ARG:HH22 | 1.66 | 0.59 |
| 1:A:2334:G:N2 | 16:R:11:LYS:CE | 2.64 | 0.59 |
| 17:S:3:ARG:O | 17:S:4:GLY:C | 2.41 | 0.59 |
| 18:T:46:ALA:O | 18:T:49:HIS:HB2 | 2.02 | 0.59 |
| 19:U:35:LEU:H | 19:U:61:VAL:CG1 | 2.15 | 0.59 |
| 19:U:62:LEU:HB2 | 19:U:64:HIS:ND1 | 2.17 | 0.59 |
| 19:U:69:LYS:HG2 | 19:U:70:ILE:HG13 | 1.84 | 0.59 |
| 22:X:8:LYS:C | 22:X:10:GLY:N | 2.54 | 0.59 |
| 1:A:2128:C:H2' | 1:A:2129:C:C5' | 2.32 | 0.59 |
| 3:C:7:TYR:HE2 | 3:C:11:LEU:HD13 | 1.64 | 0.59 |
| 3:C:32:LEU:HD13 | 3:C:220:PRO:CG | 2.32 | 0.59 |
| 3:C:60:GLY:H | 3:C:163:PHE:HB2 | 1.67 | 0.59 |
| 1:A:1418:G:H1' | 1:A:1579:A:H61 | 1.66 | 0.59 |
| 1:A:2196:C:O2 | 1:A:2196:C:H2' | 2.00 | 0.59 |
| 1:A:2106:G:H2' | 1:A:2107:C:O4' | 2.02 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:171:G:C2 | 1:A:172:C:N3 | 2.70 | 0.59 |
| 30:6:17:GLY:N | 30:6:21:ARG:NH2 | 2.31 | 0.59 |
| 13:O:56:SER:CB | 31:7:13:ARG:CZ | 2.78 | 0.59 |
| 1:A:1005:C:N3 | 1:A:1143:A:OP1 | 2.36 | 0.59 |
| 1:A:1065:U:H3' | 1:A:1066:U:C5' | 2.30 | 0.59 |
| 1:A:1205:U:O2 | 1:A:1240:U:C4 | 2.55 | 0.59 |
| 1:A:1283:G:O2' | 1:A:1285:G:O6 | 2.20 | 0.59 |
| 1:A:1294:U:H2' | 1:A:1294:U:O2 | 2.02 | 0.59 |
| 1:A:1451:C:H5' | 1:A:1453:A:OP2 | 2.01 | 0.59 |
| 1:A:1492:G:N2 | 1:A:1499:C:C5 | 2.70 | 0.59 |
| 1:A:1591:G:C6 | 1:A:1592:C:N4 | 2.70 | 0.59 |
| 1:A:1691:C:C2' | 1:A:1692:U:H5' | 2.31 | 0.59 |
| 1:A:1693:U:O2 | 1:A:1693:U:C2' | 2.49 | 0.59 |
| 1:A:1928:A:H2' | 1:A:1929:G:H5' | 1.84 | 0.59 |
| 1:A:2212:A:N3 | 1:A:2213:U:C4 | 2.70 | 0.59 |
| 1:A:2219:G:O2' | 1:A:2224:G:H5' | 2.01 | 0.59 |
| 1:A:2224:G:H5' | 4:D:262:ARG:NH2 | 2.17 | 0.59 |
| 1:A:2250:G:C8 | 14:P:83:MET:HE3 | 2.37 | 0.59 |
| 1:A:2387:U:H1' | 24:Z:41:ARG:HH21 | 1.67 | 0.59 |
| 1:A:1128:A:C5 | 1:A:2518:A:N6 | 2.70 | 0.59 |
| 1:A:2657:A:O2' | 8:H:160:LYS:NZ | 2.29 | 0.59 |
| 1:A:2698:U:H2' | 1:A:2699:C:H6 | 1.65 | 0.59 |
| 1:A:272:G:C2' | 1:A:273:G:H5' | 2.31 | 0.59 |
| 1:A:273:G:C5 | 1:A:273(A):G:N7 | 2.70 | 0.59 |
| 1:A:2780:G:H21 | 11:M:97:ARG:NH1 | 1.99 | 0.59 |
| 1:A:2834:G:N1 | 1:A:2879:C:N3 | 2.49 | 0.59 |
| 1:A:361:G:H2' | 1:A:362:U:C6 | 2.38 | 0.59 |
| 1:A:382:G:H2' | 1:A:383:U:H5' | 1.84 | 0.59 |
| 1:A:627:A:OP2 | 1:A:627:A:H4' | 2.01 | 0.59 |
| 1:A:640:C:N4 | 1:A:647:G:N1 | 2.44 | 0.59 |
| 1:A:650:C:C4 | 1:A:651:G:C2 | 2.90 | 0.59 |
| 1:A:659:C:C4' | 6:F:102:PRO:HD3 | 2.33 | 0.59 |
| 1:A:784:A:N7 | 1:A:792:G:C5 | 2.70 | 0.59 |
| 1:A:838:C:O2' | 1:A:839:U:H5' | 2.02 | 0.59 |
| 1:A:907:U:H5' | 14:P:26:TYR:OH | 2.02 | 0.59 |
| 2:B:24:G:N2 | 2:B:27:C:H42 | 1.99 | 0.59 |
| 2:B:43:C:H6 | 2:B:43:C:O5' | 1.84 | 0.59 |
| 2:B:69:G:N3 | 2:B:69:G:H2' | 2.17 | 0.59 |
| 2:B:82:G:H2' | 2:B:83:G:H8 | 1.68 | 0.59 |
| 4:D:205:VAL:O | 4:D:205:VAL:HG22 | 2.01 | 0.59 |
| 4:D:246:PRO:HD2 | 4:D:250:TRP:CA | 2.32 | 0.59 |
| 5:E:94:GLU:O | 5:E:95:ILE:C | 2.40 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:F:111:ALA:O | 6:F:114:VAL:HB | 2.02 | 0.59 |
| 6:F:45:ARG:HE | 6:F:46:ARG:H | 1.50 | 0.59 |
| 7:G:131:TYR:CZ | 7:G:132:ASN:HA | 2.37 | 0.59 |
| 1:A:2305:A:H2' | 7:G:154:GLY:HA3 | 1.82 | 0.59 |
| 10:L:103:GLN:HE22 | 10:L:107:ILE:HG13 | 1.67 | 0.59 |
| 11:M:109:LYS:HE3 | 11:M:110:GLY:H | 1.66 | 0.59 |
| 1:A:2641:G:P | 11:M:83:LYS:HD2 | 2.42 | 0.59 |
| 12:N:96:THR:CA | 12:N:117:LEU:HD11 | 2.32 | 0.59 |
| 6:F:31:HIS:HB2 | 13:O:11:GLY:H | 1.67 | 0.59 |
| 13:O:16:ARG:HG2 | 13:O:19:VAL:HG21 | 1.85 | 0.59 |
| 14:P:45:GLN:O | 14:P:46:GLN:C | 2.40 | 0.59 |
| 14:P:43:THR:HG1 | 14:P:46:GLN:N | 2.00 | 0.59 |
| 14:P:6:ARG:NH2 | 14:P:8:LYS:H | 1.99 | 0.59 |
| 15:Q:6:SER:OG | 15:Q:9:LYS:NZ | 2.28 | 0.59 |
| 16:R:11:LYS:HZ1 | 16:R:15:ARG:HH12 | 1.49 | 0.59 |
| 17:S:50:ILE:HD12 | 17:S:66:VAL:CB | 2.33 | 0.59 |
| 17:S:62:THR:HG22 | 17:S:79:HIS:CA | 2.33 | 0.59 |
| 18:T:89:GLU:CD | 19:U:52:VAL:HB | 2.22 | 0.59 |
| 18:T:94:ASN:O | 18:T:97:ASP:HB2 | 2.03 | 0.59 |
| 19:U:89:GLN:HG2 | 19:U:91:TYR:HD1 | 1.67 | 0.59 |
| 1:A:904:C:O4' | 23:Y:169:GLU:OE2 | 2.20 | 0.59 |
| 23:Y:44:PHE:CD2 | 23:Y:48:PHE:CE1 | 2.91 | 0.59 |
| 3:C:190:ARG:HA | 3:C:193:ILE:CD1 | 2.32 | 0.59 |
| 1:A:161:U:C2 | 1:A:171:G:N2 | 2.70 | 0.59 |
| 1:A:2185:C:C2 | 1:A:2186:G:C8 | 2.91 | 0.59 |
| 26:2:55:ARG:NH2 | 26:2:55:ARG:CA | 2.64 | 0.59 |
| 28:4:4:HIS:HD2 | 28:4:4:HIS:O | 1.86 | 0.59 |
| 1:A:2286:A:H61 | 29:5:29:ASN:C | 2.04 | 0.59 |
| 29:5:45:LYS:HE2 | 29:5:45:LYS:HA | 1.83 | 0.59 |
| 1:A:1044:G:O2' | 1:A:1047:G:N2 | 2.36 | 0.59 |
| 1:A:1168:G:H2' | 1:A:1169:G:O4' | 2.02 | 0.59 |
| 1:A:1252:G:C8 | 1:A:1253:A:H1' | 2.38 | 0.59 |
| 1:A:1353:A:O2' | 1:A:1354:A:O4' | 2.15 | 0.59 |
| 1:A:1477:A:H8 | 1:A:1477:A:O5' | 1.85 | 0.59 |
| 1:A:147:U:C2 | 1:A:148:C:C5 | 2.91 | 0.59 |
| 1:A:1696:G:H2' | 1:A:1697:G:O4' | 2.02 | 0.59 |
| 1:A:176:G:H2' | 1:A:177:G:C8 | 2.38 | 0.59 |
| 1:A:676:A:H8 | 1:A:2070:G:H1' | 1.66 | 0.59 |
| 1:A:2206:C:C2 | 1:A:2207:C:C6 | 2.90 | 0.59 |
| 1:A:2210:G:N7 | 4:D:150:LYS:CA | 2.64 | 0.59 |
| 1:A:2234:G:N2 | 1:A:2235:G:H1' | 2.17 | 0.59 |
| 1:A:2314:C:H2' | 1:A:2315:G:H8 | 1.68 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2481:G:HO2' | 1:A:2482:G:H8 | 1.49 | 0.59 |
| 1:A:2543:G:C2 | 1:A:2765:A:C2 | 2.89 | 0.59 |
| 1:A:2572:A:H3' | 5:E:144:ARG:HH21 | 1.68 | 0.59 |
| 1:A:2577:A:O5' | 1:A:2577:A:H8 | 1.85 | 0.59 |
| 1:A:2595:G:N2 | 1:A:2597:G:H3' | 2.17 | 0.59 |
| 1:A:268:C:N3 | 1:A:269:U:C5 | 2.70 | 0.59 |
| 1:A:2749:A:N1 | 1:A:2750:A:N6 | 2.48 | 0.59 |
| 1:A:2633:G:H4' | 1:A:2812:G:OP1 | 2.02 | 0.59 |
| 1:A:2838:G:C5 | 1:A:2839:G:N7 | 2.71 | 0.59 |
| 1:A:360:G:O2' | 1:A:361:G:H5' | 2.02 | 0.59 |
| 1:A:417:C:O5' | 1:A:417:C:H6 | 1.86 | 0.59 |
| 1:A:526:A:C5' | 1:A:527:C:OP2 | 2.51 | 0.59 |
| 1:A:543:C:C2 | 1:A:544:C:C5 | 2.90 | 0.59 |
| 1:A:588:U:O4 | 1:A:670:A:H1' | 2.02 | 0.59 |
| 1:A:791:C:C2 | 1:A:794:G:O4' | 2.55 | 0.59 |
| 1:A:834:C:O5' | 1:A:834:C:H6 | 1.84 | 0.59 |
| 1:A:845:G:C8 | 1:A:845:G:O5' | 2.52 | 0.59 |
| 1:A:859:G:O2' | 1:A:860:U:C5' | 2.47 | 0.59 |
| 1:A:878:A:N3 | 1:A:879:G:C8 | 2.71 | 0.59 |
| 1:A:904:C:C2 | 1:A:905:U:C5 | 2.91 | 0.59 |
| 1:A:987:G:C5 | 1:A:988:A:C8 | 2.91 | 0.59 |
| 4:D:76:PRO:CA | 4:D:118:VAL:HG13 | 2.32 | 0.59 |
| 4:D:141:VAL:HA | 4:D:163:ALA:O | 2.03 | 0.59 |
| 4:D:183:ARG:HG2 | 4:D:184:LYS:H | 1.66 | 0.59 |
| 1:A:1844:C:OP1 | 4:D:255:LYS:HA | 2.02 | 0.59 |
| 1:A:2224:G:H5'' | 4:D:262:ARG:NH1 | 2.18 | 0.59 |
| 5:E:14:ILE:H | 5:E:14:ILE:CD1 | 2.12 | 0.59 |
| 5:E:80:GLU:OE1 | 5:E:80:GLU:N | 2.35 | 0.59 |
| 7:G:118:ARG:NH1 | 7:G:118:ARG:HB2 | 2.13 | 0.59 |
| 7:G:51:ARG:CD | 7:G:51:ARG:H | 2.11 | 0.59 |
| 8:H:119:GLU:C | 8:H:121:ILE:N | 2.56 | 0.59 |
| 10:L:42:ASN:O | 10:L:46:ALA:CB | 2.50 | 0.59 |
| 10:L:41:PHE:HE2 | 10:L:55:VAL:HG11 | 1.68 | 0.59 |
| 10:L:56:GLU:HB3 | 10:L:67:PHE:CD2 | 2.38 | 0.59 |
| 10:L:66:THR:O | 10:L:67:PHE:CB | 2.50 | 0.59 |
| 11:M:128:HIS:O | 11:M:131:GLN:N | 2.35 | 0.59 |
| 12:N:10:VAL:H | 12:N:17:ARG:HG3 | 1.64 | 0.59 |
| 14:P:22:LYS:CD | 14:P:23:GLY:N | 2.66 | 0.59 |
| 15:Q:13:HIS:ND1 | 15:Q:14:SER:N | 2.51 | 0.59 |
| 15:Q:50:HIS:NE2 | 15:Q:54:LEU:HD11 | 2.17 | 0.59 |
| 2:B:50:G:H5'' | 16:R:61:ASN:OD1 | 2.02 | 0.59 |
| 16:R:89:ARG:HH21 | 16:R:89:ARG:CG | 2.14 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:R:92:TYR:CZ | 16:R:93:LYS:HB3 | 2.36 | 0.59 |
| 17:S:91:ARG:O | 17:S:93:ARG:NH2 | 2.36 | 0.59 |
| 21:W:15:GLU:HB3 | 21:W:16:LYS:NZ | 2.18 | 0.59 |
| 22:X:86:ARG:NH2 | 22:X:86:ARG:CB | 2.63 | 0.59 |
| 23:Y:169:GLU:HG3 | 23:Y:169:GLU:O | 2.03 | 0.59 |
| 23:Y:45:ASP:O | 23:Y:49:ARG:HD2 | 2.02 | 0.59 |
| 23:Y:4:ARG:HH11 | 23:Y:37:VAL:CB | 2.08 | 0.59 |
| 24:Z:52:GLY:HA3 | 24:Z:60:PHE:CZ | 2.36 | 0.59 |
| 9:K:94:ALA:HB1 | 9:K:114:LEU:CD1 | 2.23 | 0.59 |
| 3:C:194:ARG:O | 3:C:195:ALA:C | 2.40 | 0.59 |
| 9:K:59:ALA:HA | 9:K:62:LYS:CD | 2.20 | 0.59 |
| 1:A:2131:G:OP1 | 1:A:2131:G:C8 | 2.56 | 0.59 |
| 1:A:2284:C:OP2 | 29:5:7:ILE:HD12 | 2.02 | 0.59 |
| 1:A:686:G:C5 | 30:6:12:ARG:HD2 | 2.37 | 0.59 |
| 1:A:459:U:OP2 | 30:6:40:TRP:CD2 | 2.55 | 0.59 |
| 30:6:18:PHE:CZ | 30:6:45:ALA:HB2 | 2.37 | 0.59 |
| 32:8:19:ARG:CG | 32:8:22:ARG:HB2 | 2.32 | 0.59 |
| 32:8:10:ILE:HD12 | 32:8:34:GLN:NE2 | 2.17 | 0.59 |
| 1:A:1131:G:OP2 | 1:A:2515:C:H4' | 2.03 | 0.59 |
| 1:A:1241:A:O2' | 1:A:1242:A:OP1 | 2.16 | 0.59 |
| 1:A:1425:G:H2' | 1:A:1426:G:N9 | 2.16 | 0.59 |
| 1:A:1521:G:O5' | 1:A:1522:G:OP2 | 2.20 | 0.59 |
| 1:A:1528:A:N7 | 1:A:1529:A:C2 | 2.70 | 0.59 |
| 1:A:1609:A:C8 | 1:A:1616:A:H1' | 2.37 | 0.59 |
| 1:A:1652:A:N7 | 1:A:1653:G:C2 | 2.71 | 0.59 |
| 1:A:1742:C:H2' | 1:A:1743:G:C4' | 2.32 | 0.59 |
| 1:A:1889:A:C2 | 1:A:2234:G:H1' | 2.37 | 0.59 |
| 1:A:1838:C:O2 | 1:A:1898:U:C4 | 2.56 | 0.59 |
| 1:A:1908:C:N4 | 1:A:1923:U:H3 | 2.00 | 0.59 |
| 1:A:1936:A:H1' | 1:A:1940:U:C2 | 2.37 | 0.59 |
| 1:A:1944:U:H1' | 1:A:1955:U:O4' | 2.03 | 0.59 |
| 1:A:2287:A:C8 | 1:A:2289:G:C5 | 2.90 | 0.59 |
| 1:A:2306:C:H5 | 1:A:2311:A:N6 | 2.00 | 0.59 |
| 1:A:2354:G:O2' | 24:Z:36:ILE:HG22 | 2.03 | 0.59 |
| 1:A:246:C:N4 | 1:A:247:G:O6 | 2.36 | 0.59 |
| 1:A:2597:G:H5' | 4:D:242:ARG:HD3 | 1.82 | 0.59 |
| 1:A:2691:C:C4 | 1:A:2719:G:N2 | 2.70 | 0.59 |
| 1:A:2717:G:C4 | 1:A:2718:G:C8 | 2.91 | 0.59 |
| 1:A:2749:A:OP2 | 1:A:2749:A:H8 | 1.85 | 0.59 |
| 1:A:366:C:C5' | 1:A:403:U:N3 | 2.65 | 0.59 |
| 1:A:614:U:H5'' | 1:A:615:G:OP2 | 2.03 | 0.59 |
| 1:A:649:G:N2 | 1:A:650:C:H1' | 2.17 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:733:G:HB | 1:A:733:G:OP2 | 1.86 | 0.59 |
| 1:A:889:C:H2' | 1:A:890:A:O4' | 2.02 | 0.59 |
| 1:A:861:A:C6 | 1:A:917:A:C6 | 2.91 | 0.59 |
| 4:D:148:GLU:CA | 4:D:186:HIS:HE1 | 2.15 | 0.59 |
| 1:A:2227:A:H5'' | 4:D:260:ARG:CB | 2.33 | 0.59 |
| 4:D:5:LYS:HB3 | 4:D:29:PRO:HD3 | 1.84 | 0.59 |
| 1:A:2823:A:OP2 | 5:E:113:PHE:CE1 | 2.56 | 0.59 |
| 5:E:111:ARG:N | 5:E:161:GLY:CA | 2.66 | 0.59 |
| 5:E:4:ILE:HG21 | 5:E:48:GLN:HG3 | 1.84 | 0.59 |
| 1:A:2811:G:C5' | 5:E:60:ASN:ND2 | 2.66 | 0.59 |
| 6:F:18:ARG:O | 6:F:19:GLU:HG2 | 2.02 | 0.59 |
| 6:F:4:VAL:CB | 6:F:20:LEU:HG | 2.33 | 0.59 |
| 6:F:78:ILE:CG1 | 6:F:79:GLY:N | 2.65 | 0.59 |
| 7:G:6:ALA:HA | 7:G:9:ARG:NH1 | 2.18 | 0.59 |
| 8:H:43:VAL:HG12 | 8:H:44:VAL:N | 2.16 | 0.59 |
| 1:A:1058:G:N2 | 10:L:116:ASN:ND2 | 2.49 | 0.59 |
| 10:L:79:ARG:HG2 | 10:L:136:VAL:HG21 | 1.83 | 0.59 |
| 11:M:109:LYS:CB | 11:M:113:GLY:H | 2.15 | 0.59 |
| 12:N:47:ILE:HD11 | 12:N:51:ALA:H | 1.67 | 0.59 |
| 12:N:47:ILE:O | 12:N:48:PRO:C | 2.36 | 0.59 |
| 12:N:7:TYR:HA | 12:N:18:LYS:CE | 2.15 | 0.59 |
| 12:N:94:ARG:HG3 | 12:N:95:GLY:H | 1.64 | 0.59 |
| 13:O:129:ALA:C | 13:O:130:PHE:HD2 | 2.06 | 0.59 |
| 13:O:135:LEU:N | 13:O:135:LEU:CD1 | 2.64 | 0.59 |
| 14:P:122:GLY:HA2 | 14:P:125:LEU:CG | 2.33 | 0.59 |
| 14:P:58:PHE:O | 14:P:60:ARG:N | 2.35 | 0.59 |
| 1:A:2820:A:O2' | 15:Q:4:LEU:HB3 | 2.03 | 0.59 |
| 16:R:3:ARG:HG2 | 16:R:4:LEU:CD2 | 2.31 | 0.59 |
| 1:A:996:A:O3' | 19:U:10:LYS:NZ | 2.35 | 0.59 |
| 19:U:36:PRO:HA | 19:U:61:VAL:HG22 | 1.82 | 0.59 |
| 19:U:78:LYS:NZ | 19:U:84:LYS:CG | 2.65 | 0.59 |
| 19:U:62:LEU:CD2 | 19:U:98:GLU:HA | 2.31 | 0.59 |
| 20:V:8:ARG:C | 20:V:102:HIS:CD2 | 2.76 | 0.59 |
| 20:V:31:GLU:N | 20:V:31:GLU:OE1 | 2.36 | 0.59 |
| 21:W:25:LYS:CD | 21:W:82:GLN:HB2 | 2.32 | 0.59 |
| 22:X:88:LYS:CG | 22:X:89:PHE:N | 2.63 | 0.59 |
| 23:Y:139:VAL:HG12 | 23:Y:140:ASP:N | 2.17 | 0.59 |
| 23:Y:179:ASP:OD2 | 23:Y:180:VAL:N | 2.32 | 0.59 |
| 24:Z:72:ARG:HB2 | 24:Z:78:TYR:CD1 | 2.37 | 0.59 |
| 9:K:132:PRO:HD2 | 9:K:137:PRO:CA | 2.29 | 0.59 |
| 3:C:102:LYS:CB | 3:C:107:TRP:HE3 | 2.16 | 0.59 |
| 3:C:47:LEU:HG | 3:C:49:ILE:CG1 | 2.32 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 3:C:62:VAL:HG13 | 3:C:64:LEU:CD2 | 2.32 | 0.59 |
| 3:C:65:PRO:O | 3:C:66:HIS:HB2 | 2.02 | 0.59 |
| 25:1:14:VAL:O | 25:1:18:LYS:HG2 | 2.03 | 0.59 |
| 1:A:988:A:N6 | 26:2:13:ILE:HG13 | 2.17 | 0.59 |
| 28:4:35:GLU:HB3 | 28:4:49:CYS:HB3 | 1.84 | 0.59 |
| 29:5:33:LYS:CE | 29:5:34:LEU:N | 2.65 | 0.59 |
| 1:A:1031:G:C2' | 1:A:1032:A:O5' | 2.51 | 0.59 |
| 1:A:988:A:H4' | 1:A:1155:A:H2 | 1.67 | 0.59 |
| 1:A:1283:G:H22 | 1:A:1286:A:C5' | 2.16 | 0.59 |
| 1:A:1309:G:H5'' | 30:6:9:ARG:N | 2.15 | 0.59 |
| 1:A:1458:C:H4' | 1:A:1459:G:C5 | 2.38 | 0.59 |
| 1:A:1476:C:H3' | 1:A:1477:A:C8 | 2.38 | 0.59 |
| 1:A:1604:C:O2 | 1:A:1605:C:C5 | 2.56 | 0.59 |
| 1:A:1664:A:O5' | 1:A:1665:A:OP2 | 2.21 | 0.59 |
| 1:A:1667:G:OP1 | 12:N:7:TYR:HD1 | 1.84 | 0.59 |
| 1:A:1696:G:H2' | 1:A:1697:G:C8 | 2.37 | 0.59 |
| 1:A:1754:C:O2 | 1:A:1755:A:H1' | 2.03 | 0.59 |
| 1:A:1791:A:O2' | 1:A:1792:G:OP1 | 2.21 | 0.59 |
| 1:A:1267:U:C4 | 1:A:2012:G:N2 | 2.71 | 0.59 |
| 1:A:2022:U:O2' | 1:A:2034:U:C2 | 2.56 | 0.59 |
| 1:A:2466:C:H5' | 32:8:5:ALA:CB | 2.33 | 0.59 |
| 1:A:2519:U:C5' | 1:A:2520:C:OP1 | 2.47 | 0.59 |
| 1:A:2682:U:H2' | 1:A:2683:C:O5' | 2.03 | 0.59 |
| 1:A:2690:C:H6 | 1:A:2690:C:O5' | 1.86 | 0.59 |
| 1:A:278:A:H2' | 1:A:279:C:C6 | 2.38 | 0.59 |
| 1:A:2839:G:C4 | 1:A:2840:C:C6 | 2.91 | 0.59 |
| 1:A:292:C:C6 | 1:A:293:U:C4 | 2.91 | 0.59 |
| 1:A:412:A:C2 | 1:A:413:C:C1' | 2.84 | 0.59 |
| 1:A:447:A:O2' | 1:A:449:A:N6 | 2.36 | 0.59 |
| 1:A:35:G:C4 | 1:A:454:A:C2 | 2.91 | 0.59 |
| 1:A:600:G:HO2' | 6:F:104:LYS:HG2 | 1.68 | 0.59 |
| 1:A:624:C:C3' | 1:A:624:C:H6 | 2.11 | 0.59 |
| 1:A:653:A:H5' | 1:A:654:A:O2' | 2.02 | 0.59 |
| 1:A:729:G:OP1 | 4:D:19:ALA:HB1 | 2.03 | 0.59 |
| 1:A:71:A:O2' | 1:A:72:U:P | 2.61 | 0.59 |
| 1:A:742:G:H4' | 1:A:1675:C:O2' | 2.03 | 0.59 |
| 1:A:784:A:N7 | 1:A:792:G:C4 | 2.70 | 0.59 |
| 1:A:818:G:C2' | 1:A:819:A:H5'' | 2.32 | 0.59 |
| 1:A:74:A:C8 | 1:A:87:C:O2' | 2.56 | 0.59 |
| 1:A:917:A:H2 | 1:A:918:A:N1 | 2.00 | 0.59 |
| 1:A:997:G:H8 | 1:A:997:G:OP2 | 1.84 | 0.59 |
| 2:B:62:C:O2 | 2:B:63:G:C8 | 2.55 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 4:D:169:GLU:HG2 | 4:D:184:LYS:NZ | 2.17 | 0.59 |
| 4:D:9:TYR:CE1 | 4:D:200:ASP:OD2 | 2.55 | 0.59 |
| 5:E:179:GLU:O | 5:E:181:LEU:N | 2.35 | 0.59 |
| 5:E:198:VAL:HG12 | 5:E:200:GLU:CD | 2.22 | 0.59 |
| 5:E:20:ALA:C | 5:E:21:VAL:HG12 | 2.23 | 0.59 |
| 5:E:49:LEU:CD1 | 5:E:74:PRO:CB | 2.73 | 0.59 |
| 7:G:181:ARG:CG | 7:G:182:LYS:H | 2.06 | 0.59 |
| 7:G:96:ARG:O | 7:G:100:TRP:CE3 | 2.56 | 0.59 |
| 8:H:66:GLY:O | 8:H:69:ARG:HG3 | 2.03 | 0.59 |
| 10:L:112:MET:HE1 | 10:L:115:LEU:HG | 1.84 | 0.59 |
| 10:L:70:LYS:O | 10:L:71:THR:O | 2.21 | 0.59 |
| 11:M:17:ASP:O | 11:M:18:ALA:HB3 | 2.03 | 0.59 |
| 12:N:47:ILE:HD12 | 12:N:53:LYS:H | 1.67 | 0.59 |
| 14:P:122:GLY:O | 14:P:123:HIS:C | 2.40 | 0.59 |
| 15:Q:61:HIS:O | 15:Q:62:ALA:C | 2.41 | 0.59 |
| 16:R:20:ARG:CZ | 16:R:20:ARG:HA | 2.32 | 0.59 |
| 16:R:16:ASN:OD1 | 16:R:20:ARG:HD3 | 2.03 | 0.59 |
| 16:R:77:ALA:O | 16:R:78:LEU:C | 2.39 | 0.59 |
| 17:S:11:GLU:HB3 | 17:S:59:THR:CG2 | 2.32 | 0.59 |
| 17:S:18:ASP:O | 17:S:19:LEU:C | 2.41 | 0.59 |
| 18:T:94:ASN:OD1 | 19:U:13:ARG:CG | 2.51 | 0.59 |
| 1:A:2009:G:H4' | 20:V:40:ASN:ND2 | 2.17 | 0.59 |
| 21:W:53:LYS:O | 21:W:81:VAL:HA | 2.03 | 0.59 |
| 21:W:25:LYS:HE2 | 21:W:82:GLN:NE2 | 2.17 | 0.59 |
| 22:X:33:LYS:CB | 22:X:35:TYR:CE2 | 2.82 | 0.59 |
| 22:X:44:ILE:HG22 | 22:X:44:ILE:O | 2.03 | 0.59 |
| 9:K:115:ALA:CB | 9:K:128:LEU:HD12 | 2.31 | 0.59 |
| 9:K:78:THR:C | 9:K:79:ILE:HD12 | 2.22 | 0.59 |
| 9:K:96:ASP:HA | 9:K:99:GLU:OE2 | 2.03 | 0.59 |
| 1:A:2141:G:C6 | 1:A:2151:G:C6 | 2.91 | 0.59 |
| 3:C:103:ILE:HG12 | 3:C:108:MET:HB2 | 1.84 | 0.59 |
| 2:B:25:A:H2' | 2:B:26:A:C8 | 2.36 | 0.59 |
| 20:V:45:TYR:H | 20:V:45:TYR:HD2 | 1.50 | 0.59 |
| 25:1:26:GLU:O | 25:1:29:GLU:HB2 | 2.03 | 0.59 |
| 30:6:11:LYS:HA | 30:6:14:LYS:HB2 | 1.85 | 0.59 |
| 30:6:21:ARG:NH1 | 30:6:44:PRO:CB | 2.66 | 0.59 |
| 31:7:60:LEU:O | 31:7:62:LEU:N | 2.36 | 0.59 |
| 1:A:1023:U:N3 | 1:A:1024:G:O2' | 2.33 | 0.59 |
| 1:A:1123:C:H2' | 1:A:1124:C:H6 | 1.67 | 0.59 |
| 1:A:112:U:OP2 | 1:A:112:U:H6 | 1.86 | 0.59 |
| 1:A:1188:U:C2 | 1:A:1189:A:C8 | 2.91 | 0.59 |
| 1:A:1231:G:H2' | 1:A:1232:G:C8 | 2.38 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1315:C:H2' | 1:A:1316:U:H6 | 1.67 | 0.59 |
| 1:A:1321:A:N3 | 1:A:1321:A:C2' | 2.64 | 0.59 |
| 1:A:1471:A:N6 | 1:A:1473:G:C8 | 2.70 | 0.59 |
| 1:A:1521:G:C3' | 1:A:1522:G:H5' | 2.29 | 0.59 |
| 1:A:1568:G:H5'' | 4:D:61:LEU:CA | 2.33 | 0.59 |
| 1:A:1668:A:C8 | 1:A:1674:G:C5 | 2.90 | 0.59 |
| 1:A:1691:C:H2' | 1:A:1692:U:O5' | 2.03 | 0.59 |
| 1:A:1772:G:N3 | 1:A:1980:G:N2 | 2.50 | 0.59 |
| 1:A:1676:A:H2 | 1:A:1993:U:C5' | 2.14 | 0.59 |
| 1:A:2285:C:O4' | 1:A:2288:A:N6 | 2.36 | 0.59 |
| 1:A:251:A:H2' | 1:A:252:G:O5' | 2.01 | 0.59 |
| 1:A:2687:U:C2' | 1:A:2687:U:O2 | 2.48 | 0.59 |
| 1:A:281:G:C2' | 1:A:281:G:N3 | 2.66 | 0.59 |
| 1:A:2840:C:O2' | 1:A:2841:C:H5' | 2.02 | 0.59 |
| 1:A:415:A:C2 | 1:A:416:C:H1' | 2.38 | 0.59 |
| 1:A:630:G:H2' | 1:A:632:A:OP2 | 2.03 | 0.59 |
| 1:A:740:U:O2' | 1:A:741:G:P | 2.61 | 0.59 |
| 1:A:95:G:O5' | 25:1:39:LEU:HB3 | 2.03 | 0.59 |
| 1:A:96:G:C4' | 25:1:43:HIS:CE1 | 2.86 | 0.59 |
| 1:A:569:U:O2' | 1:A:983:A:N1 | 2.34 | 0.59 |
| 2:B:112:G:H3' | 2:B:113:C:H6 | 1.66 | 0.59 |
| 2:B:63:G:H2' | 2:B:64:C:C5 | 2.38 | 0.59 |
| 4:D:246:PRO:HG2 | 4:D:250:TRP:HB2 | 1.83 | 0.59 |
| 4:D:181:GLU:HA | 4:D:270:ILE:CG2 | 2.32 | 0.59 |
| 4:D:46:GLN:CD | 4:D:52:ARG:NH1 | 2.56 | 0.59 |
| 4:D:37:LEU:HD21 | 4:D:63:ARG:HA | 1.85 | 0.59 |
| 1:A:1567:A:N1 | 4:D:86:PRO:HG3 | 2.18 | 0.59 |
| 5:E:4:ILE:O | 5:E:27:LEU:CD1 | 2.46 | 0.59 |
| 6:F:110:LEU:C | 6:F:110:LEU:HD23 | 2.24 | 0.59 |
| 6:F:133:ASN:HD22 | 6:F:162:LEU:HD22 | 1.67 | 0.59 |
| 6:F:138:GLU:HG2 | 6:F:139:PHE:H | 1.68 | 0.59 |
| 6:F:149:ASP:OD1 | 6:F:151:SER:HB3 | 2.02 | 0.59 |
| 6:F:163:VAL:O | 6:F:167:ALA:CB | 2.51 | 0.59 |
| 6:F:24:LEU:N | 6:F:25:PRO:HD2 | 2.18 | 0.59 |
| 1:A:660:G:H4' | 6:F:99:TYR:OH | 2.02 | 0.59 |
| 8:H:149:ARG:N | 8:H:162:ILE:HD13 | 2.18 | 0.59 |
| 10:L:54:PRO:CD | 10:L:72:PRO:HA | 2.33 | 0.59 |
| 12:N:32:TYR:CD2 | 12:N:32:TYR:N | 2.71 | 0.59 |
| 12:N:63:VAL:CG1 | 12:N:99:PHE:CE1 | 2.75 | 0.59 |
| 13:O:96:THR:C | 13:O:102:ARG:HD3 | 2.22 | 0.59 |
| 13:O:114:ILE:HD13 | 13:O:129:ALA:O | 2.02 | 0.59 |
| 14:P:109:VAL:HG11 | 14:P:114:ALA:HB2 | 1.84 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 15:Q:103:ARG:HA | 15:Q:109:ALA:O | 2.03 | 0.59 |
| 15:Q:41:ALA:O | 15:Q:42:LYS:C | 2.37 | 0.59 |
| 16:R:53:SER:O | 16:R:55:ALA:N | 2.35 | 0.59 |
| 17:S:29:ARG:CG | 17:S:51:ARG:HG2 | 2.24 | 0.59 |
| 18:T:104:GLN:O | 18:T:107:ALA:HB3 | 2.03 | 0.59 |
| 18:T:65:ILE:O | 18:T:66:ASN:C | 2.41 | 0.59 |
| 19:U:33:VAL:O | 19:U:63:GLY:HA2 | 2.02 | 0.59 |
| 19:U:78:LYS:NZ | 19:U:84:LYS:HG3 | 2.18 | 0.59 |
| 19:U:78:LYS:HZ2 | 19:U:84:LYS:HG3 | 1.67 | 0.59 |
| 20:V:28:SER:O | 20:V:29:LEU:C | 2.40 | 0.59 |
| 24:Z:29:GLN:O | 24:Z:67:VAL:HG23 | 2.03 | 0.59 |
| 24:Z:76:GLY:O | 24:Z:78:TYR:CD1 | 2.55 | 0.59 |
| 9:K:77:LEU:CD1 | 9:K:140:LEU:HB3 | 2.30 | 0.59 |
| 1:A:2169:A:H2' | 1:A:2169:A:N3 | 2.17 | 0.59 |
| 3:C:97:GLU:HB3 | 3:C:126:LYS:HZ2 | 1.68 | 0.59 |
| 1:A:2105:C:H2' | 1:A:2106:G:C8 | 2.38 | 0.59 |
| 1:A:2373:G:HO2' | 1:A:2374:C:C5' | 2.15 | 0.59 |
| 27:3:5:ILE:HG12 | 27:3:57:GLU:HG3 | 1.83 | 0.59 |
| 30:6:18:PHE:HZ | 30:6:45:ALA:HB2 | 1.68 | 0.59 |
| 30:6:25:PRO:CA | 30:6:28:ARG:NH2 | 2.66 | 0.59 |
| 31:7:56:GLU:O | 31:7:59:LYS:HB2 | 2.02 | 0.59 |
| 1:A:1134:G:C5 | 1:A:1136:G:OP2 | 2.55 | 0.59 |
| 1:A:819:A:C8 | 1:A:1189:A:N6 | 2.71 | 0.59 |
| 1:A:1422:G:N3 | 1:A:1423:G:C8 | 2.71 | 0.59 |
| 1:A:1467:C:N4 | 1:A:1524:G:O6 | 2.35 | 0.59 |
| 1:A:1533:C:N3 | 1:A:1539:G:N2 | 2.50 | 0.59 |
| 1:A:1571:A:N3 | 1:A:1571:A:H2' | 2.17 | 0.59 |
| 1:A:1639:U:H2' | 1:A:1640:C:H5' | 1.84 | 0.59 |
| 1:A:1676:A:C2 | 1:A:1993:U:H5' | 2.34 | 0.59 |
| 1:A:2052:G:O2' | 1:A:2053:G:H5' | 2.03 | 0.59 |
| 1:A:805:G:C5 | 1:A:2068:U:OP1 | 2.55 | 0.59 |
| 1:A:2085:C:H2' | 1:A:2086:U:C5' | 2.32 | 0.59 |
| 1:A:2230:G:N9 | 27:3:58:ARG:NH2 | 2.51 | 0.59 |
| 1:A:2256:G:N2 | 1:A:2275:C:H41 | 1.99 | 0.59 |
| 1:A:2415:G:C6 | 1:A:2416:C:N4 | 2.71 | 0.59 |
| 1:A:2432:A:N7 | 1:A:2433:A:C5 | 2.71 | 0.59 |
| 1:A:2063:C:C2 | 1:A:2450:A:N6 | 2.70 | 0.59 |
| 1:A:2448:A:OP1 | 1:A:2498:C:O5' | 2.21 | 0.59 |
| 1:A:253:C:H2' | 1:A:254:G:C5' | 2.33 | 0.59 |
| 1:A:2644:G:H1 | 1:A:2645:G:N2 | 1.98 | 0.59 |
| 1:A:2748:A:N7 | 1:A:2749:A:C6 | 2.70 | 0.59 |
| 1:A:332:A:C4 | 1:A:335:C:C5 | 2.91 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:411:G:H8 | 1:A:411:G:O5' | 1.86 | 0.59 |
| 1:A:604:G:C2' | 1:A:605:C:O5' | 2.49 | 0.59 |
| 1:A:660:G:H5'' | 6:F:99:TYR:CZ | 2.37 | 0.59 |
| 1:A:665:C:H2' | 1:A:666:G:C8 | 2.37 | 0.59 |
| 1:A:675:A:N9 | 1:A:676:A:C2 | 2.66 | 0.59 |
| 1:A:881:G:C4 | 1:A:882:G:C8 | 2.91 | 0.59 |
| 1:A:956:G:C8 | 1:A:956:G:H3' | 2.37 | 0.59 |
| 2:B:44:G:H21 | 2:B:48:A:H1' | 1.68 | 0.59 |
| 2:B:66:A:H2 | 2:B:108:C:C6 | 2.20 | 0.59 |
| 4:D:122:ASP:O | 4:D:123:ALA:O | 2.20 | 0.59 |
| 5:E:200:GLU:CB | 5:E:202:LYS:NZ | 2.66 | 0.59 |
| 5:E:4:ILE:C | 5:E:4:ILE:HD12 | 2.23 | 0.59 |
| 5:E:50:GLY:CA | 5:E:76:ARG:NE | 2.66 | 0.59 |
| 7:G:34:LEU:H | 7:G:34:LEU:CD1 | 2.03 | 0.59 |
| 7:G:47:LYS:HE3 | 7:G:49:ASP:CG | 2.24 | 0.59 |
| 8:H:98:LEU:HD22 | 8:H:100:GLY:H | 1.68 | 0.59 |
| 8:H:77:LYS:O | 8:H:80:SER:OG | 2.15 | 0.59 |
| 9:K:25:TYR:O | 9:K:29:TYR:CB | 2.50 | 0.59 |
| 12:N:8:LEU:HD11 | 12:N:19:ILE:HD12 | 1.82 | 0.59 |
| 12:N:86:ILE:HG23 | 12:N:90:GLN:C | 2.22 | 0.59 |
| 13:O:112:LEU:H | 13:O:128:HIS:HE1 | 1.45 | 0.59 |
| 13:O:114:ILE:HG21 | 13:O:123:LEU:CD2 | 2.31 | 0.59 |
| 13:O:112:LEU:CB | 13:O:128:HIS:HE1 | 2.15 | 0.59 |
| 13:O:57:THR:O | 13:O:58:THR:OG1 | 2.14 | 0.59 |
| 15:Q:116:LEU:O | 15:Q:116:LEU:CD1 | 2.51 | 0.59 |
| 16:R:11:LYS:HZ1 | 16:R:15:ARG:NH1 | 2.00 | 0.59 |
| 1:A:2378:A:H2' | 16:R:20:ARG:HH12 | 1.65 | 0.59 |
| 16:R:58:LEU:HD23 | 16:R:62:LYS:HG3 | 1.84 | 0.59 |
| 17:S:35:LYS:HG3 | 17:S:84:GLN:O | 2.03 | 0.59 |
| 18:T:8:VAL:HA | 18:T:11:ARG:CZ | 2.32 | 0.59 |
| 22:X:37:VAL:O | 22:X:39:VAL:HG23 | 2.02 | 0.59 |
| 23:Y:116:VAL:HG22 | 23:Y:180:VAL:O | 2.02 | 0.59 |
| 23:Y:99:TYR:HB2 | 23:Y:126:VAL:HG13 | 1.84 | 0.59 |
| 23:Y:39:VAL:HG22 | 23:Y:44:PHE:CZ | 2.38 | 0.59 |
| 3:C:216:THR:O | 3:C:217:THR:O | 2.21 | 0.59 |
| 1:A:2193:G:C4 | 1:A:2194:G:C8 | 2.91 | 0.59 |
| 25:1:59:LEU:HD11 | 25:1:63:ARG:CD | 2.33 | 0.58 |
| 27:3:65:ASP:HA | 27:3:68:ARG:HH22 | 1.68 | 0.58 |
| 29:5:25:LYS:O | 29:5:26:ASN:HB2 | 2.03 | 0.58 |
| 31:7:62:LEU:C | 31:7:62:LEU:HD13 | 2.23 | 0.58 |
| 1:A:1185:C:H5'' | 1:A:1186:G:OP1 | 2.03 | 0.58 |
| 1:A:125:G:O3' | 30:6:47:ARG:NH1 | 2.36 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1287:A:H2' | 1:A:1287:A:N3 | 2.18 | 0.58 |
| 1:A:1296:G:H2' | 1:A:1297:C:H6 | 1.67 | 0.58 |
| 1:A:141:A:N1 | 1:A:141(A):C:O4' | 2.36 | 0.58 |
| 1:A:1458:C:H4' | 1:A:1459:G:C4 | 2.38 | 0.58 |
| 1:A:1528:A:C2 | 1:A:1545:A:N6 | 2.70 | 0.58 |
| 1:A:2312:U:HO2' | 7:G:40:ASN:CG | 2.02 | 0.58 |
| 1:A:2333:A:N3 | 1:A:2333:A:H2' | 2.17 | 0.58 |
| 1:A:2654:A:O4' | 1:A:2656:U:C5 | 2.55 | 0.58 |
| 1:A:270:A:N7 | 1:A:270(A):A:H8 | 2.01 | 0.58 |
| 1:A:270(P):C:H6 | 1:A:270(P):C:O5' | 1.85 | 0.58 |
| 1:A:2768:C:O2' | 1:A:2769:C:H5' | 2.02 | 0.58 |
| 1:A:2851:A:H1' | 15:Q:61:HIS:CD2 | 2.37 | 0.58 |
| 1:A:404:C:H5'' | 1:A:406:G:O4' | 2.01 | 0.58 |
| 1:A:479:A:N3 | 1:A:480:A:N7 | 2.51 | 0.58 |
| 1:A:609(A):G:C8 | 1:A:610:C:C5 | 2.91 | 0.58 |
| 1:A:616:A:O2' | 1:A:617:G:C1' | 2.51 | 0.58 |
| 1:A:76:C:O2' | 25:1:54:ARG:HA | 2.03 | 0.58 |
| 1:A:881:G:C2 | 1:A:882:G:H1' | 2.38 | 0.58 |
| 4:D:128:GLY:H | 4:D:193:VAL:CG1 | 2.16 | 0.58 |
| 4:D:31:LYS:HD3 | 4:D:83:GLU:HB3 | 1.85 | 0.58 |
| 7:G:110:ALA:HB1 | 7:G:139:LEU:HG | 1.85 | 0.58 |
| 7:G:78:SER:CB | 7:G:82:LEU:HG | 2.17 | 0.58 |
| 7:G:44:GLY:CA | 7:G:88:ILE:HG21 | 2.33 | 0.58 |
| 8:H:7:LEU:HB3 | 8:H:65:HIS:CE1 | 2.38 | 0.58 |
| 9:K:33:ARG:HB2 | 9:K:35:LEU:CD2 | 2.32 | 0.58 |
| 10:L:105:LEU:HG | 10:L:124:ALA:HB2 | 1.85 | 0.58 |
| 11:M:12:ARG:HH12 | 11:M:48:MET:HE2 | 1.67 | 0.58 |
| 11:M:12:ARG:NH1 | 11:M:48:MET:HG3 | 2.18 | 0.58 |
| 11:M:12:ARG:NH1 | 11:M:48:MET:HE3 | 2.18 | 0.58 |
| 11:M:70:LYS:CD | 11:M:86:PRO:HA | 2.28 | 0.58 |
| 12:N:105:GLU:C | 12:N:111:PHE:CZ | 2.71 | 0.58 |
| 12:N:6:THR:CG2 | 12:N:7:TYR:N | 2.66 | 0.58 |
| 13:O:96:THR:HG1 | 13:O:102:ARG:HD3 | 1.68 | 0.58 |
| 13:O:123:LEU:CA | 13:O:138:LEU:HA | 2.33 | 0.58 |
| 14:P:108:GLY:HA3 | 23:Y:117:LEU:HD22 | 1.84 | 0.58 |
| 14:P:34:LEU:HD11 | 14:P:67:ARG:HH22 | 1.67 | 0.58 |
| 14:P:45:GLN:CA | 14:P:48:GLU:HG2 | 2.30 | 0.58 |
| 15:Q:79:LEU:HD23 | 15:Q:80:PHE:CA | 2.32 | 0.58 |
| 16:R:11:LYS:NZ | 16:R:11:LYS:CB | 2.64 | 0.58 |
| 17:S:65:LYS:HD3 | 17:S:75:ILE:HD13 | 1.85 | 0.58 |
| 17:S:28:VAL:HG13 | 17:S:92:GLY:CA | 2.33 | 0.58 |
| 18:T:115:ALA:O | 18:T:118:GLY:N | 2.35 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 18:T:20:LEU:HB3 | 18:T:39:LEU:CD1 | 2.33 | 0.58 |
| 19:U:14:VAL:HG11 | 19:U:19:LYS:HG2 | 1.85 | 0.58 |
| 20:V:20:VAL:CG1 | 20:V:47:VAL:HG11 | 2.33 | 0.58 |
| 21:W:27:THR:CG2 | 21:W:80:ILE:HD12 | 2.33 | 0.58 |
| 22:X:75:ILE:HG23 | 22:X:75:ILE:O | 2.03 | 0.58 |
| 22:X:97:ARG:HG2 | 22:X:101:LYS:CG | 2.33 | 0.58 |
| 14:P:62:GLY:N | 23:Y:177:PRO:HB2 | 2.17 | 0.58 |
| 24:Z:46:LYS:HE2 | 24:Z:77:ARG:H | 1.66 | 0.58 |
| 1:A:2155:G:H2' | 1:A:2155:G:N3 | 2.17 | 0.58 |
| 3:C:32:LEU:HD22 | 3:C:220:PRO:CG | 2.32 | 0.58 |
| 1:A:988:A:H62 | 26:2:13:ILE:HD12 | 1.68 | 0.58 |
| 1:A:851:U:O2' | 26:2:46:ASN:N | 2.36 | 0.58 |
| 29:5:8:LYS:HG2 | 29:5:29:ASN:CA | 2.33 | 0.58 |
| 31:7:21:LYS:HG2 | 31:7:48:PHE:CE1 | 2.39 | 0.58 |
| 1:A:1029:A:H2' | 1:A:1030:G:H5' | 1.85 | 0.58 |
| 1:A:1055:G:N3 | 1:A:1084:A:N3 | 2.52 | 0.58 |
| 1:A:1326:U:H2' | 1:A:1327:C:O4' | 2.02 | 0.58 |
| 1:A:1471:A:OP2 | 1:A:1472:A:C2 | 2.55 | 0.58 |
| 1:A:1529:A:H8 | 1:A:1530:G:C8 | 2.21 | 0.58 |
| 1:A:1602:U:H6 | 1:A:1603:A:O5' | 1.86 | 0.58 |
| 1:A:1681:G:H2' | 1:A:1682:G:OP1 | 2.03 | 0.58 |
| 1:A:1685:C:C2' | 1:A:1686:C:O5' | 2.51 | 0.58 |
| 1:A:1804:C:H2' | 1:A:1805:U:C6 | 2.38 | 0.58 |
| 1:A:1904:G:H2' | 1:A:1905:C:O5' | 2.03 | 0.58 |
| 1:A:1943:U:H4' | 1:A:1944:U:H5' | 1.84 | 0.58 |
| 1:A:2032:G:OP1 | 1:A:2454:G:N2 | 2.35 | 0.58 |
| 1:A:2043:C:C2' | 1:A:2044:C:O5' | 2.51 | 0.58 |
| 1:A:2266:A:H1' | 1:A:2272:U:C5 | 2.36 | 0.58 |
| 1:A:270(J):G:C6 | 1:A:270(K):C:C4 | 2.91 | 0.58 |
| 1:A:2856:C:H2' | 1:A:2857:G:C5' | 2.32 | 0.58 |
| 1:A:477:A:C2' | 1:A:478:A:C8 | 2.83 | 0.58 |
| 1:A:52:A:C4 | 1:A:53:A:N7 | 2.71 | 0.58 |
| 1:A:48:G:H4' | 1:A:52:A:H1' | 1.84 | 0.58 |
| 1:A:191:A:HO2' | 1:A:678:C:HO2' | 1.44 | 0.58 |
| 1:A:885:C:N4 | 1:A:889:C:H1' | 2.17 | 0.58 |
| 1:A:965:C:H2' | 1:A:966:G:O4' | 2.02 | 0.58 |
| 1:A:96:G:H4' | 25:1:43:HIS:NE2 | 2.17 | 0.58 |
| 1:A:989:G:H2' | 1:A:990:A:OP2 | 2.04 | 0.58 |
| 2:B:32:C:H3' | 2:B:33:G:C8 | 2.35 | 0.58 |
| 2:B:52:A:N3 | 2:B:53:A:O4' | 2.36 | 0.58 |
| 1:A:861:A:H2 | 2:B:79:C:H1' | 1.68 | 0.58 |
| 1:A:1803:A:H5'' | 4:D:257:LEU:HB3 | 1.85 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:5:LYS:HB2 | 4:D:82:ILE:HB | 1.85 | 0.58 |
| 6:F:158:THR:CB | 6:F:196:LEU:H | 2.16 | 0.58 |
| 6:F:33:LEU:HD12 | 6:F:34:TRP:H | 1.67 | 0.58 |
| 7:G:131:TYR:HB2 | 7:G:159:VAL:CG2 | 2.30 | 0.58 |
| 7:G:47:LYS:HD2 | 7:G:49:ASP:N | 2.17 | 0.58 |
| 7:G:61:ALA:HB2 | 7:G:67:LYS:HE2 | 1.84 | 0.58 |
| 8:H:87:LEU:CD1 | 8:H:162:ILE:HD11 | 2.32 | 0.58 |
| 8:H:45:VAL:HG22 | 8:H:50:VAL:CG1 | 2.25 | 0.58 |
| 11:M:27:ALA:O | 11:M:28:THR:C | 2.41 | 0.58 |
| 11:M:33:LEU:CD1 | 11:M:52:VAL:HG11 | 2.32 | 0.58 |
| 12:N:111:PHE:C | 12:N:111:PHE:CD1 | 2.76 | 0.58 |
| 12:N:40:VAL:HG13 | 12:N:40:VAL:O | 2.02 | 0.58 |
| 12:N:15:GLY:CA | 12:N:52:VAL:HG11 | 2.32 | 0.58 |
| 16:R:41:ASP:CG | 16:R:42:ASP:H | 2.04 | 0.58 |
| 17:S:48:ILE:HG21 | 17:S:50:ILE:HD11 | 1.85 | 0.58 |
| 17:S:67:SER:CB | 17:S:105:LEU:HD11 | 2.33 | 0.58 |
| 18:T:111:GLU:HA | 18:T:114:LYS:HE3 | 1.85 | 0.58 |
| 19:U:43:GLU:H | 19:U:44:LYS:NZ | 2.00 | 0.58 |
| 18:T:112:ARG:HH22 | 19:U:49:THR:HG23 | 1.68 | 0.58 |
| 20:V:104:THR:HG23 | 20:V:104:THR:O | 2.02 | 0.58 |
| 20:V:20:VAL:HG21 | 20:V:47:VAL:HG11 | 1.85 | 0.58 |
| 20:V:74:ALA:CB | 20:V:105:VAL:CG2 | 2.79 | 0.58 |
| 21:W:8:ILE:C | 21:W:9:LEU:CG | 2.72 | 0.58 |
| 22:X:88:LYS:HB3 | 22:X:91:GLU:OE2 | 2.02 | 0.58 |
| 22:X:97:ARG:NE | 22:X:101:LYS:HG2 | 2.17 | 0.58 |
| 23:Y:102:LEU:CD2 | 23:Y:137:ILE:HB | 2.33 | 0.58 |
| 23:Y:153:SER:O | 23:Y:155:LEU:N | 2.36 | 0.58 |
| 23:Y:51:ALA:C | 23:Y:53:ILE:H | 2.00 | 0.58 |
| 2:B:12:C:OP2 | 24:Z:74:ARG:HD2 | 2.03 | 0.58 |
| 9:K:115:ALA:CB | 9:K:129:THR:O | 2.51 | 0.58 |
| 1:A:2171:A:C2 | 1:A:2172:U:O2 | 2.56 | 0.58 |
| 3:C:62:VAL:HG13 | 3:C:64:LEU:HD21 | 1.85 | 0.58 |
| 21:W:19:ALA:O | 21:W:22:ALA:HB3 | 2.03 | 0.58 |
| 26:2:37:LEU:HD23 | 26:2:37:LEU:C | 2.23 | 0.58 |
| 27:3:5:ILE:HD11 | 27:3:10:VAL:HB | 1.84 | 0.58 |
| 27:3:5:ILE:CG1 | 27:3:57:GLU:HG3 | 2.33 | 0.58 |
| 27:3:58:ARG:C | 27:3:61:ARG:HB2 | 2.23 | 0.58 |
| 27:3:64:GLY:C | 27:3:68:ARG:NH2 | 2.56 | 0.58 |
| 1:A:16:G:H5'' | 28:4:17:ASP:HB3 | 1.84 | 0.58 |
| 1:A:1013:C:H2' | 1:A:1014:U:O4' | 2.03 | 0.58 |
| 1:A:1055:G:C8 | 1:A:1055:G:H3' | 2.38 | 0.58 |
| 1:A:1100:C:C2 | 1:A:1101:U:C5 | 2.91 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1107:G:C2' | 1:A:1108:U:H5' | 2.33 | 0.58 |
| 1:A:1181:C:N4 | 1:A:1182:A:N6 | 2.51 | 0.58 |
| 1:A:1202:C:H41 | 1:A:1241:A:N6 | 2.01 | 0.58 |
| 1:A:126:A:C5' | 30:6:47:ARG:HH12 | 2.15 | 0.58 |
| 1:A:126:A:OP1 | 30:6:18:PHE:HD1 | 1.85 | 0.58 |
| 1:A:1373:A:C8 | 1:A:1374:G:N7 | 2.71 | 0.58 |
| 1:A:1539:G:C8 | 1:A:1540:G:N7 | 2.71 | 0.58 |
| 1:A:1550:C:C2 | 1:A:1551:C:C5 | 2.90 | 0.58 |
| 1:A:1608:A:C4 | 1:A:1611:C:C5 | 2.91 | 0.58 |
| 1:A:1613:G:H3' | 1:A:1617:C:H41 | 1.69 | 0.58 |
| 1:A:1650:G:O2' | 1:A:1651:G:P | 2.60 | 0.58 |
| 1:A:2307:G:H2' | 1:A:2308:G:O4' | 2.03 | 0.58 |
| 1:A:2650:U:H2' | 1:A:2651:C:H6 | 1.69 | 0.58 |
| 1:A:2691:C:O4' | 1:A:2872:G:C5 | 2.56 | 0.58 |
| 1:A:2815:C:H2' | 1:A:2816:C:C6 | 2.38 | 0.58 |
| 1:A:323:G:C2 | 1:A:333:G:C1' | 2.83 | 0.58 |
| 1:A:216:A:N6 | 1:A:432:A:C4 | 2.72 | 0.58 |
| 1:A:531:C:H5' | 1:A:532:A:N3 | 2.17 | 0.58 |
| 1:A:524:U:H4' | 1:A:554:U:H4' | 1.85 | 0.58 |
| 1:A:605:C:C6 | 1:A:605:C:OP2 | 2.56 | 0.58 |
| 1:A:763:G:O2' | 1:A:764:A:H5'' | 2.03 | 0.58 |
| 1:A:928:G:C2' | 1:A:929:G:H5' | 2.31 | 0.58 |
| 1:A:974:G:C8 | 1:A:974(A):C:C5 | 2.91 | 0.58 |
| 4:D:122:ASP:CA | 4:D:131:LEU:HD21 | 2.33 | 0.58 |
| 4:D:122:ASP:HA | 4:D:135:PHE:CD2 | 2.39 | 0.58 |
| 4:D:204:ILE:HG13 | 4:D:205:VAL:N | 2.09 | 0.58 |
| 5:E:149:ARG:CD | 5:E:149:ARG:C | 2.68 | 0.58 |
| 6:F:78:ILE:HG12 | 6:F:83:PHE:CZ | 2.37 | 0.58 |
| 6:F:9:ILE:HG21 | 6:F:124:LEU:CB | 2.34 | 0.58 |
| 7:G:163:ALA:HB1 | 7:G:169:ALA:N | 2.18 | 0.58 |
| 8:H:7:LEU:O | 8:H:51:ARG:CZ | 2.51 | 0.58 |
| 9:K:21:VAL:CB | 9:K:26:ALA:HB2 | 2.29 | 0.58 |
| 9:K:4:ILE:HG12 | 9:K:38:LEU:HA | 1.83 | 0.58 |
| 10:L:101:TRP:O | 10:L:104:VAL:HB | 2.02 | 0.58 |
| 10:L:17:ALA:CB | 10:L:38:VAL:HG13 | 2.31 | 0.58 |
| 10:L:45:THR:HG22 | 10:L:48:MET:CE | 2.33 | 0.58 |
| 11:M:107:LEU:HD21 | 11:M:113:GLY:CA | 2.33 | 0.58 |
| 11:M:58:ASP:N | 11:M:124:ALA:HB1 | 2.18 | 0.58 |
| 11:M:69:GLN:N | 11:M:69:GLN:HE21 | 2.00 | 0.58 |
| 11:M:7:LYS:C | 11:M:7:LYS:HE3 | 2.23 | 0.58 |
| 12:N:2:ILE:O | 12:N:3:GLN:CG | 2.51 | 0.58 |
| 13:O:127:ALA:C | 13:O:128:HIS:ND1 | 2.56 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 13:O:136:GLU:HB3 | 13:O:137:LYS:HE3 | 1.85 | 0.58 |
| 13:O:7:ARG:HD2 | 13:O:8:PRO:CD | 2.32 | 0.58 |
| 15:Q:14:SER:O | 15:Q:17:ARG:HG2 | 2.03 | 0.58 |
| 16:R:73:LEU:N | 16:R:73:LEU:CD1 | 2.66 | 0.58 |
| 1:A:2875:C:H4' | 17:S:4:GLY:H | 1.66 | 0.58 |
| 17:S:55:ASN:HD22 | 17:S:57:PHE:HE2 | 1.48 | 0.58 |
| 18:T:61:TRP:O | 18:T:63:VAL:N | 2.35 | 0.58 |
| 18:T:84:LYS:C | 18:T:86:ALA:N | 2.54 | 0.58 |
| 19:U:30:GLY:O | 19:U:33:VAL:HG23 | 2.03 | 0.58 |
| 20:V:64:MET:HG2 | 20:V:109:GLU:CB | 2.32 | 0.58 |
| 20:V:88:ARG:HB2 | 20:V:94:ASP:OD2 | 2.03 | 0.58 |
| 23:Y:151:HIS:CB | 23:Y:170:THR:HA | 2.32 | 0.58 |
| 23:Y:86:VAL:HG12 | 23:Y:88:PHE:CE2 | 2.38 | 0.58 |
| 23:Y:98:MET:HE2 | 23:Y:99:TYR:H | 1.67 | 0.58 |
| 1:A:2171:A:HO2' | 1:A:2172:U:P | 2.26 | 0.58 |
| 3:C:104:LEU:CD2 | 3:C:127:LEU:HD23 | 2.32 | 0.58 |
| 1:A:2123:G:O2' | 3:C:172:HIS:HB2 | 2.03 | 0.58 |
| 2:B:119:A:C8 | 2:B:119:A:H3' | 2.39 | 0.58 |
| 26:2:26:LEU:HD11 | 26:2:46:ASN:HB3 | 1.85 | 0.58 |
| 29:5:19:ARG:NH1 | 29:5:43:CYS:SG | 2.76 | 0.58 |
| 29:5:30:THR:CB | 29:5:31:PRO:CD | 2.81 | 0.58 |
| 32:8:2:LYS:HG2 | 32:8:35:ARG:HD3 | 1.85 | 0.58 |
| 32:8:11:CYS:N | 32:8:32:HIS:CD2 | 2.72 | 0.58 |
| 1:A:1135:C:H2' | 1:A:1136:G:H8 | 1.68 | 0.58 |
| 1:A:118:A:O2' | 1:A:178:G:C5' | 2.52 | 0.58 |
| 1:A:1252:G:N7 | 1:A:1253:A:N3 | 2.52 | 0.58 |
| 1:A:1306:C:H2' | 1:A:1307:A:C8 | 2.36 | 0.58 |
| 1:A:1320:C:O2' | 1:A:1321:A:H5'' | 2.03 | 0.58 |
| 1:A:1336:A:H2' | 1:A:1337:G:H8 | 1.67 | 0.58 |
| 1:A:1350:C:N4 | 1:A:1382:G:N2 | 2.52 | 0.58 |
| 1:A:1399:C:O2' | 1:A:1400:G:H5' | 2.04 | 0.58 |
| 1:A:150:C:O2' | 1:A:151:C:H5' | 2.03 | 0.58 |
| 1:A:1672:C:N4 | 1:A:1673:U:H5 | 2.00 | 0.58 |
| 1:A:1799:G:N2 | 1:A:1818:U:O2' | 2.36 | 0.58 |
| 1:A:1857:G:C2 | 1:A:1884:A:N1 | 2.71 | 0.58 |
| 1:A:1970:A:C6 | 1:A:1972:A:N7 | 2.72 | 0.58 |
| 1:A:2046:G:H1' | 28:4:22:HIS:HD1 | 1.68 | 0.58 |
| 1:A:224:G:N2 | 1:A:225:A:C1' | 2.63 | 0.58 |
| 1:A:2307:G:H3' | 1:A:2308:G:N9 | 2.17 | 0.58 |
| 1:A:2352:A:C2 | 1:A:2353:G:H1' | 2.39 | 0.58 |
| 1:A:2445:G:H2' | 1:A:2446:G:H8 | 1.62 | 0.58 |
| 1:A:2055:C:C2' | 1:A:2504:U:H5' | 2.33 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:2519:U:C1' | 1:A:2542:A:N1 | 2.66 | 0.58 |
| 1:A:250:G:C2 | 1:A:251:A:C5 | 2.91 | 0.58 |
| 1:A:2582:G:O2' | 1:A:2583:G:H5' | 2.03 | 0.58 |
| 1:A:270(A):A:H61 | 1:A:270(Y):G:H4' | 1.66 | 0.58 |
| 1:A:2748:A:C6 | 1:A:2756:U:C2 | 2.92 | 0.58 |
| 1:A:2772:C:H2' | 1:A:2772:C:O2 | 2.04 | 0.58 |
| 1:A:2791:C:C2 | 1:A:2792:G:C8 | 2.92 | 0.58 |
| 1:A:2850:A:H2 | 15:Q:61:HIS:CE1 | 2.22 | 0.58 |
| 1:A:449:A:C2' | 1:A:450:G:C5' | 2.81 | 0.58 |
| 1:A:470:A:O2' | 1:A:471:A:P | 2.62 | 0.58 |
| 1:A:308:G:N7 | 1:A:501:A:C4 | 2.70 | 0.58 |
| 1:A:569:U:H1' | 1:A:947:G:C1' | 2.33 | 0.58 |
| 1:A:599:G:H4' | 6:F:31:HIS:HE2 | 1.68 | 0.58 |
| 1:A:67:U:C6 | 1:A:67:U:O5' | 2.56 | 0.58 |
| 1:A:912:C:O2' | 1:A:913:U:H5' | 2.03 | 0.58 |
| 1:A:960:A:C4 | 1:A:962:G:C8 | 2.91 | 0.58 |
| 4:D:168:ARG:HG3 | 4:D:173:VAL:HG22 | 1.86 | 0.58 |
| 4:D:201:HIS:O | 4:D:204:ILE:HB | 2.03 | 0.58 |
| 4:D:208:LYS:HZ1 | 4:D:211:ARG:HE | 1.49 | 0.58 |
| 4:D:247:ALA:O | 4:D:248:SER:C | 2.42 | 0.58 |
| 4:D:8:PRO:CD | 4:D:26:LYS:C | 2.72 | 0.58 |
| 7:G:127:GLY:O | 7:G:128:ARG:CB | 2.51 | 0.58 |
| 7:G:163:ALA:HB1 | 7:G:169:ALA:CA | 2.33 | 0.58 |
| 8:H:56:SER:HB3 | 8:H:61:HIS:ND1 | 2.19 | 0.58 |
| 11:M:88:GLU:O | 11:M:91:LEU:HG | 2.03 | 0.58 |
| 13:O:96:THR:O | 13:O:102:ARG:CD | 2.50 | 0.58 |
| 13:O:114:ILE:HD13 | 13:O:129:ALA:C | 2.24 | 0.58 |
| 13:O:47:ASP:CB | 13:O:48:PRO:CD | 2.79 | 0.58 |
| 13:O:55:ARG:O | 13:O:56:SER:CB | 2.52 | 0.58 |
| 14:P:116:GLU:OE1 | 14:P:119:ARG:HD3 | 2.02 | 0.58 |
| 15:Q:58:GLY:HA2 | 15:Q:80:PHE:CZ | 2.37 | 0.58 |
| 16:R:58:LEU:N | 16:R:65:VAL:CG2 | 2.66 | 0.58 |
| 17:S:34:VAL:HG21 | 17:S:36:GLU:CD | 2.24 | 0.58 |
| 18:T:66:ASN:HA | 18:T:69:CYS:SG | 2.43 | 0.58 |
| 18:T:8:VAL:O | 18:T:12:ARG:HG3 | 2.04 | 0.58 |
| 19:U:69:LYS:HA | 19:U:92:THR:CG2 | 2.32 | 0.58 |
| 20:V:33:ARG:NH1 | 20:V:37:ARG:HB3 | 2.18 | 0.58 |
| 20:V:5:ALA:O | 20:V:105:VAL:HG12 | 2.03 | 0.58 |
| 22:X:46:LYS:HB2 | 22:X:58:GLY:H | 1.68 | 0.58 |
| 22:X:67:LEU:HD12 | 22:X:71:LYS:HZ1 | 1.67 | 0.58 |
| 23:Y:111:VAL:HG21 | 23:Y:117:LEU:HD23 | 1.85 | 0.58 |
| 23:Y:2:GLU:OE1 | 23:Y:69:THR:HG22 | 2.04 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:Y:96:VAL:HG13 | 23:Y:128:VAL:CG2 | 2.33 | 0.58 |
| 3:C:134:ARG:CZ | 3:C:134:ARG:HB3 | 2.33 | 0.58 |
| 3:C:111:ASP:OD1 | 3:C:136:LEU:CD2 | 2.52 | 0.58 |
| 3:C:138:PRO:HB3 | 3:C:144:THR:O | 2.03 | 0.58 |
| 3:C:30:LYS:HD2 | 3:C:185:LEU:CD1 | 2.33 | 0.58 |
| 1:A:1580:A:H5'' | 1:A:1581:G:OP2 | 2.03 | 0.58 |
| 1:A:714:U:H6 | 1:A:714:U:H5'' | 1.67 | 0.58 |
| 1:A:458:G:OP1 | 30:6:39:ARG:NH2 | 2.36 | 0.58 |
| 1:A:1059:G:H3' | 1:A:1059:G:C8 | 2.39 | 0.58 |
| 1:A:1102:C:H3' | 1:A:1104:C:H5 | 1.69 | 0.58 |
| 1:A:1154:G:O3' | 18:T:58:ARG:NH1 | 2.36 | 0.58 |
| 1:A:1202:C:N4 | 1:A:1241:A:N7 | 2.52 | 0.58 |
| 1:A:138:G:N3 | 1:A:138:G:C2' | 2.66 | 0.58 |
| 1:A:1608:A:C4' | 1:A:1609:A:OP1 | 2.48 | 0.58 |
| 1:A:1967:C:O2 | 1:A:1967:C:C2' | 2.48 | 0.58 |
| 1:A:1981:A:C5' | 1:A:1982:C:OP2 | 2.51 | 0.58 |
| 1:A:1996:C:O2 | 1:A:1997:G:H4' | 2.03 | 0.58 |
| 1:A:980:A:C2 | 1:A:2038:G:O4' | 2.44 | 0.58 |
| 1:A:203:C:H3' | 1:A:204:A:H8 | 1.66 | 0.58 |
| 1:A:244:A:C4 | 1:A:245:G:H1' | 2.39 | 0.58 |
| 1:A:2469:A:H5' | 1:A:2470:G:OP2 | 2.02 | 0.58 |
| 1:A:2497:A:C8 | 1:A:2497:A:C3' | 2.86 | 0.58 |
| 1:A:1128:A:O2' | 1:A:2516:G:H4' | 2.04 | 0.58 |
| 1:A:2886:G:N2 | 1:A:2887:U:H1' | 2.19 | 0.58 |
| 1:A:52:A:H2' | 1:A:53:A:H8 | 1.68 | 0.58 |
| 1:A:630:G:HO2' | 1:A:631:A:P | 2.26 | 0.58 |
| 1:A:652:C:H6 | 1:A:652:C:O5' | 1.86 | 0.58 |
| 1:A:685:A:C2 | 1:A:689:A:C6 | 2.91 | 0.58 |
| 1:A:84:A:C5' | 22:X:8:LYS:HG3 | 2.31 | 0.58 |
| 2:B:61:G:N2 | 2:B:62:C:C2 | 2.72 | 0.58 |
| 4:D:64:ILE:HD12 | 4:D:104:TYR:HD2 | 1.68 | 0.58 |
| 4:D:143:HIS:NE2 | 4:D:192:THR:HB | 2.19 | 0.58 |
| 4:D:5:LYS:N | 4:D:28:GLU:HB2 | 2.18 | 0.58 |
| 5:E:131:ALA:HB1 | 5:E:134:ILE:CG1 | 2.32 | 0.58 |
| 6:F:131:GLY:C | 6:F:133:ASN:N | 2.57 | 0.58 |
| 6:F:162:LEU:CA | 6:F:165:ARG:HH21 | 2.16 | 0.58 |
| 7:G:59:GLU:CD | 7:G:152:LEU:HD22 | 2.24 | 0.58 |
| 7:G:59:GLU:OE2 | 7:G:152:LEU:HD22 | 2.04 | 0.58 |
| 7:G:57:ALA:O | 7:G:61:ALA:HB2 | 2.03 | 0.58 |
| 8:H:102:ALA:HA | 8:H:115:VAL:O | 2.03 | 0.58 |
| 8:H:11:VAL:HB | 8:H:50:VAL:HG13 | 1.84 | 0.58 |
| 11:M:51:PHE:CZ | 11:M:119:ARG:HG2 | 2.38 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:57:ALA:CA | 11:M:60:ILE:HG13 | 2.34 | 0.58 |
| 12:N:112:MET:O | 12:N:115:VAL:HB | 2.02 | 0.58 |
| 13:O:99:LEU:O | 13:O:101:VAL:N | 2.33 | 0.58 |
| 1:A:636:G:O6 | 13:O:111:ARG:NH2 | 2.35 | 0.58 |
| 15:Q:75:LEU:O | 15:Q:76:VAL:C | 2.42 | 0.58 |
| 16:R:30:ARG:HH21 | 16:R:91:PRO:CB | 1.93 | 0.58 |
| 17:S:111:ARG:HA | 17:S:114:LEU:HD12 | 1.85 | 0.58 |
| 17:S:24:PRO:HD2 | 17:S:25:GLY:H | 1.69 | 0.58 |
| 18:T:3:ARG:O | 18:T:4:ALA:HB2 | 2.03 | 0.58 |
| 18:T:54:LYS:HE2 | 18:T:54:LYS:N | 2.18 | 0.58 |
| 18:T:88:ILE:N | 19:U:52:VAL:HG22 | 2.17 | 0.58 |
| 21:W:91:ALA:HB3 | 21:W:92:LEU:HD12 | 1.86 | 0.58 |
| 22:X:82:PRO:HG3 | 22:X:97:ARG:N | 2.19 | 0.58 |
| 23:Y:111:VAL:CG2 | 23:Y:117:LEU:HG | 2.33 | 0.58 |
| 23:Y:15:PRO:O | 23:Y:18:LEU:CB | 2.47 | 0.58 |
| 23:Y:48:PHE:HD2 | 23:Y:54:HIS:HE2 | 1.50 | 0.58 |
| 9:K:101:LEU:CG | 9:K:102:SER:N | 2.65 | 0.58 |
| 1:A:2118:U:H5'' | 1:A:2119:A:OP2 | 2.03 | 0.58 |
| 3:C:47:LEU:HD11 | 3:C:49:ILE:HD13 | 1.85 | 0.58 |
| 1:A:95:G:P | 25:1:39:LEU:HB3 | 2.43 | 0.58 |
| 26:2:35:ARG:NH1 | 26:2:47:VAL:HG11 | 2.14 | 0.58 |
| 13:O:54:GLY:HA2 | 31:7:12:LYS:NZ | 2.19 | 0.58 |
| 32:8:9:ARG:HG2 | 32:8:14:CYS:C | 2.24 | 0.58 |
| 1:A:974:G:N3 | 1:A:1186:G:N7 | 2.52 | 0.58 |
| 1:A:1364:G:C8 | 1:A:1366:A:OP1 | 2.56 | 0.58 |
| 1:A:1503:U:H2' | 1:A:1504:C:C5 | 2.37 | 0.58 |
| 1:A:1525:G:C2' | 1:A:1526:G:O5' | 2.51 | 0.58 |
| 1:A:1670:C:C2' | 1:A:1671:U:H5' | 2.34 | 0.58 |
| 1:A:1672:C:H2' | 1:A:1673:U:H5'' | 1.86 | 0.58 |
| 1:A:1746:G:H3' | 1:A:1746:G:P | 2.44 | 0.58 |
| 1:A:175:G:N1 | 1:A:176:G:N3 | 2.52 | 0.58 |
| 1:A:1954:G:OP2 | 1:A:1954:G:H3' | 2.03 | 0.58 |
| 1:A:1955:U:OP2 | 1:A:1956:U:O4 | 2.22 | 0.58 |
| 1:A:1957:C:H2' | 1:A:1958:C:H6 | 1.69 | 0.58 |
| 1:A:1973:G:H2' | 1:A:1974:C:C6 | 2.38 | 0.58 |
| 1:A:185:U:N3 | 1:A:212:G:N2 | 2.52 | 0.58 |
| 1:A:2228:G:C8 | 1:A:2229:C:C6 | 2.91 | 0.58 |
| 1:A:2309:A:N6 | 7:G:80:PHE:CD1 | 2.71 | 0.58 |
| 1:A:2334:G:N2 | 16:R:11:LYS:NZ | 2.51 | 0.58 |
| 1:A:2376:A:OP1 | 1:A:2376:A:H8 | 1.87 | 0.58 |
| 1:A:2392:A:C2' | 1:A:2393:A:C5' | 2.78 | 0.58 |
| 1:A:2419:U:O4 | 31:7:31:HIS:HE1 | 1.87 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2493:U:C3' | 1:A:2493:U:C6 | 2.87 | 0.58 |
| 1:A:2508:G:H2' | 1:A:2509:G:C5' | 2.33 | 0.58 |
| 1:A:251:A:C2' | 1:A:252:G:O5' | 2.51 | 0.58 |
| 1:A:270(Q):C:O2' | 1:A:270(R):G:H5' | 2.04 | 0.58 |
| 1:A:2821:A:OP2 | 5:E:110:GLY:HA3 | 2.02 | 0.58 |
| 1:A:223:A:C5 | 1:A:408:G:H1' | 2.39 | 0.58 |
| 1:A:499:U:C5 | 1:A:500:G:C4 | 2.92 | 0.58 |
| 1:A:566:U:C5 | 1:A:567:A:N7 | 2.72 | 0.58 |
| 1:A:669:G:N3 | 1:A:669:G:C2' | 2.65 | 0.58 |
| 1:A:723:G:H2' | 1:A:724:U:H6 | 1.69 | 0.58 |
| 1:A:979:G:C8 | 1:A:981:A:P | 2.97 | 0.58 |
| 2:B:61:G:H2' | 2:B:62:C:C6 | 2.37 | 0.58 |
| 4:D:147:LEU:O | 4:D:148:GLU:C | 2.41 | 0.58 |
| 4:D:158:ALA:C | 4:D:160:GLY:N | 2.56 | 0.58 |
| 5:E:104:VAL:HG23 | 5:E:198:VAL:HG13 | 1.83 | 0.58 |
| 5:E:144:ARG:O | 5:E:146:THR:N | 2.36 | 0.58 |
| 6:F:126:VAL:O | 6:F:126:VAL:HG22 | 2.03 | 0.58 |
| 7:G:105:LYS:NZ | 7:G:139:LEU:CD1 | 2.60 | 0.58 |
| 7:G:113:ARG:CZ | 7:G:139:LEU:HD23 | 2.33 | 0.58 |
| 7:G:14:GLU:CD | 7:G:15:VAL:N | 2.57 | 0.58 |
| 7:G:1:MET:C | 7:G:3:LEU:N | 2.55 | 0.58 |
| 7:G:68:PRO:HB3 | 7:G:72:ARG:NH1 | 2.19 | 0.58 |
| 7:G:36:LYS:HB2 | 7:G:95:ARG:HG3 | 1.85 | 0.58 |
| 8:H:122:THR:O | 8:H:133:VAL:HG23 | 2.03 | 0.58 |
| 9:K:28:ASN:HA | 9:K:32:PRO:CB | 2.32 | 0.58 |
| 10:L:131:ALA:C | 10:L:136:VAL:HB | 2.24 | 0.58 |
| 11:M:73:THR:HG22 | 11:M:75:TYR:HE1 | 1.69 | 0.58 |
| 12:N:95:GLY:O | 12:N:117:LEU:CD1 | 2.51 | 0.58 |
| 13:O:93:GLY:CA | 13:O:112:LEU:CD2 | 2.81 | 0.58 |
| 14:P:24:GLY:N | 14:P:101:ARG:NH2 | 2.51 | 0.58 |
| 15:Q:56:LYS:O | 15:Q:57:ARG:C | 2.42 | 0.58 |
| 15:Q:83:ILE:HG23 | 15:Q:86:ARG:NH2 | 2.19 | 0.58 |
| 2:B:28:C:OP2 | 16:R:33:LYS:HB3 | 2.04 | 0.58 |
| 16:R:29:PHE:HB3 | 16:R:36:TYR:H | 1.68 | 0.58 |
| 16:R:70:GLY:CA | 16:R:73:LEU:HD22 | 2.32 | 0.58 |
| 17:S:64:ARG:NH1 | 17:S:77:PRO:HA | 2.19 | 0.58 |
| 18:T:46:ALA:HA | 18:T:49:HIS:CD2 | 2.38 | 0.58 |
| 19:U:11:GLN:NE2 | 19:U:22:VAL:HB | 2.19 | 0.58 |
| 19:U:52:VAL:HG12 | 19:U:53:GLU:N | 2.17 | 0.58 |
| 19:U:35:LEU:C | 19:U:61:VAL:HG22 | 2.23 | 0.58 |
| 19:U:66:ARG:O | 19:U:94:LEU:HD23 | 2.02 | 0.58 |
| 19:U:67:GLY:HA2 | 19:U:94:LEU:HA | 1.85 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 20:V:64:MET:CB | 20:V:109:GLU:HB3 | 2.34 | 0.58 |
| 22:X:1:MET:N | 22:X:33:LYS:NZ | 2.52 | 0.58 |
| 23:Y:111:VAL:HG21 | 23:Y:117:LEU:CD2 | 2.34 | 0.58 |
| 23:Y:153:SER:O | 23:Y:154:ASP:C | 2.41 | 0.58 |
| 23:Y:4:ARG:CG | 23:Y:38:TYR:O | 2.50 | 0.58 |
| 24:Z:37:LEU:HD23 | 24:Z:37:LEU:N | 2.18 | 0.58 |
| 1:A:2331:G:O3' | 24:Z:43:THR:HB | 2.03 | 0.58 |
| 1:A:2132:U:O2 | 1:A:2132:U:C2' | 2.49 | 0.58 |
| 3:C:97:GLU:CG | 3:C:119:VAL:HB | 2.34 | 0.58 |
| 3:C:216:THR:OG1 | 3:C:219:GLY:CA | 2.51 | 0.58 |
| 3:C:59:ARG:HG3 | 3:C:60:GLY:N | 2.18 | 0.58 |
| 1:A:1497:U:C4 | 1:A:1577:C:O5' | 2.56 | 0.58 |
| 1:A:1581:G:H2' | 1:A:1582:C:C5' | 2.33 | 0.58 |
| 26:2:19:GLN:O | 26:2:23:LEU:HD13 | 2.03 | 0.58 |
| 27:3:56:VAL:C | 27:3:61:ARG:CZ | 2.72 | 0.58 |
| 28:4:40:LYS:HZ3 | 28:4:43:HIS:CA | 2.17 | 0.58 |
| 30:6:35:ARG:HB3 | 30:6:36:GLN:OE1 | 2.04 | 0.58 |
| 31:7:54:GLU:C | 31:7:57:ARG:HB3 | 2.24 | 0.58 |
| 31:7:5:LYS:O | 31:7:7:HIS:N | 2.37 | 0.58 |
| 1:A:120:U:OP1 | 1:A:124:G:O6 | 2.22 | 0.58 |
| 1:A:1422:G:C2 | 1:A:1423:G:C8 | 2.91 | 0.58 |
| 1:A:1458:C:H5' | 1:A:1459:G:C8 | 2.39 | 0.58 |
| 1:A:1814:G:N1 | 1:A:1815:A:N6 | 2.51 | 0.58 |
| 1:A:1815:A:H1' | 1:A:1817:G:C1' | 2.34 | 0.58 |
| 1:A:182:A:C2 | 1:A:183:C:C2 | 2.92 | 0.58 |
| 1:A:1891:G:H2' | 1:A:1891:G:N3 | 2.18 | 0.58 |
| 1:A:243:U:N3 | 1:A:244:A:C8 | 2.71 | 0.58 |
| 1:A:2501:C:C4' | 1:A:2503:A:H1' | 2.28 | 0.58 |
| 1:A:2505:G:N2 | 1:A:2576:G:C5 | 2.71 | 0.58 |
| 1:A:2619:C:C2' | 1:A:2620:C:O5' | 2.51 | 0.58 |
| 1:A:2714:G:C6 | 1:A:2715:C:C4 | 2.91 | 0.58 |
| 1:A:2823:A:O5' | 1:A:2824:C:OP2 | 2.22 | 0.58 |
| 1:A:2834:G:C6 | 1:A:2879:C:C4 | 2.92 | 0.58 |
| 1:A:307:G:N2 | 1:A:310:A:O5' | 2.36 | 0.58 |
| 1:A:298:G:H1 | 1:A:338:G:HO2' | 1.50 | 0.58 |
| 1:A:364:C:O2' | 1:A:365:C:H5' | 2.04 | 0.58 |
| 1:A:449:A:C2 | 1:A:450:G:C8 | 2.92 | 0.58 |
| 1:A:457:A:C1' | 1:A:459:U:N3 | 2.66 | 0.58 |
| 1:A:459:U:H2' | 1:A:460:A:C8 | 2.39 | 0.58 |
| 1:A:481:G:O2' | 1:A:482:A:H8 | 1.85 | 0.58 |
| 1:A:565:C:N4 | 1:A:566:U:O4 | 2.36 | 0.58 |
| 1:A:577:G:N1 | 1:A:578:A:C5 | 2.71 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:640:C:C2' | 1:A:641:C:H5'' | 2.34 | 0.58 |
| 1:A:676:A:C8 | 1:A:2070:G:H1' | 2.38 | 0.58 |
| 1:A:802:A:C8 | 1:A:803:U:C5 | 2.91 | 0.58 |
| 1:A:954:G:C2' | 1:A:955:C:H5' | 2.34 | 0.58 |
| 2:B:23:G:N2 | 2:B:61:G:C4 | 2.72 | 0.58 |
| 2:B:74:U:H2' | 2:B:75:G:H1' | 1.85 | 0.58 |
| 4:D:174:ILE:CD1 | 4:D:174:ILE:N | 2.65 | 0.58 |
| 4:D:258:LYS:HG2 | 4:D:259:THR:N | 2.17 | 0.58 |
| 5:E:34:VAL:HG11 | 5:E:36:ARG:NH2 | 2.16 | 0.58 |
| 5:E:98:PRO:HA | 5:E:172:VAL:HG21 | 1.82 | 0.58 |
| 7:G:68:PRO:HB3 | 7:G:72:ARG:CZ | 2.32 | 0.58 |
| 10:L:115:LEU:HD12 | 10:L:118:THR:N | 2.18 | 0.58 |
| 10:L:68:VAL:HG11 | 10:L:70:LYS:HE3 | 1.85 | 0.58 |
| 11:M:55:VAL:CG2 | 11:M:123:TYR:H | 2.16 | 0.58 |
| 11:M:73:THR:HG22 | 11:M:75:TYR:CE1 | 2.38 | 0.58 |
| 12:N:108:GLU:O | 12:N:109:LYS:HB2 | 2.04 | 0.58 |
| 12:N:16:ALA:C | 12:N:18:LYS:N | 2.57 | 0.58 |
| 12:N:35:VAL:CG2 | 12:N:64:ARG:HD3 | 2.34 | 0.58 |
| 13:O:45:LEU:HB3 | 31:7:59:LYS:HD2 | 1.86 | 0.58 |
| 14:P:8:LYS:NZ | 14:P:11:LYS:CE | 2.67 | 0.58 |
| 16:R:11:LYS:HZ1 | 16:R:15:ARG:CZ | 2.16 | 0.58 |
| 17:S:98:LYS:O | 17:S:98:LYS:CG | 2.52 | 0.58 |
| 19:U:20:LEU:HB3 | 19:U:95:LEU:CD1 | 2.27 | 0.58 |
| 20:V:2:GLU:HG2 | 20:V:72:LYS:NZ | 2.19 | 0.58 |
| 20:V:90:ARG:HH21 | 20:V:90:ARG:CA | 2.15 | 0.58 |
| 21:W:21:PHE:CD2 | 21:W:26:TYR:HA | 2.39 | 0.58 |
| 23:Y:104:PHE:CB | 23:Y:139:VAL:O | 2.51 | 0.58 |
| 23:Y:157:LEU:HD21 | 23:Y:163:LEU:CD1 | 2.32 | 0.58 |
| 1:A:2174:C:H2' | 1:A:2175:C:H6 | 1.68 | 0.58 |
| 3:C:113:VAL:HG23 | 3:C:144:THR:HG22 | 1.85 | 0.58 |
| 3:C:119:VAL:HG23 | 3:C:119:VAL:O | 2.03 | 0.58 |
| 3:C:56:GLN:HA | 3:C:201:PRO:HG3 | 1.86 | 0.58 |
| 20:V:45:TYR:N | 20:V:45:TYR:CD2 | 2.70 | 0.58 |
| 31:7:13:ARG:HD2 | 31:7:24:ALA:HB1 | 1.85 | 0.58 |
| 31:7:3:LYS:HG2 | 31:7:4:MET:H | 1.67 | 0.58 |
| 31:7:50:LEU:CD2 | 31:7:51:ALA:H | 2.16 | 0.58 |
| 32:8:9:ARG:HA | 32:8:34:GLN:NE2 | 2.06 | 0.58 |
| 1:A:1024:G:O6 | 1:A:1134:G:C4 | 2.57 | 0.58 |
| 1:A:1212:G:C3' | 1:A:1212:G:C8 | 2.87 | 0.58 |
| 1:A:1422:G:H4' | 1:A:1493:C:O2' | 2.03 | 0.58 |
| 1:A:1508:A:H3' | 1:A:1510:A:C8 | 2.35 | 0.58 |
| 1:A:1537:C:H2' | 1:A:1538:G:H5' | 1.85 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1596:A:C6 | 1:A:1597:A:C5 | 2.91 | 0.58 |
| 1:A:1608:A:C8 | 1:A:1611:C:N4 | 2.72 | 0.58 |
| 1:A:1692:U:C1' | 1:A:1696:G:N2 | 2.66 | 0.58 |
| 1:A:1717:G:H1 | 1:A:1718:G:N2 | 2.01 | 0.58 |
| 1:A:1785:A:C2' | 1:A:1786:A:C8 | 2.86 | 0.58 |
| 1:A:1912:A:C8 | 1:A:1913:A:H1' | 2.39 | 0.58 |
| 1:A:1913:A:H2' | 1:A:1916:A:N1 | 2.19 | 0.58 |
| 1:A:1993:U:C2' | 1:A:1994:C:H5' | 2.33 | 0.58 |
| 1:A:2030:A:O2' | 1:A:2031:A:P | 2.61 | 0.58 |
| 1:A:2083:G:H2' | 1:A:2084:C:H6 | 1.68 | 0.58 |
| 1:A:2219:G:H2' | 1:A:2224:G:H5' | 1.84 | 0.58 |
| 1:A:2393:A:C2' | 1:A:2394:C:H5' | 2.33 | 0.58 |
| 1:A:2393:A:C2' | 1:A:2394:C:C5' | 2.82 | 0.58 |
| 1:A:2078:C:H1' | 1:A:2434:A:N3 | 2.18 | 0.58 |
| 1:A:2752:C:H2' | 1:A:2753:A:C5' | 2.33 | 0.58 |
| 1:A:2523:G:H1' | 1:A:2765:A:C5 | 2.39 | 0.58 |
| 1:A:2805:G:C2' | 1:A:2807:G:H5'' | 2.34 | 0.58 |
| 1:A:654:A:N3 | 1:A:654:A:C2' | 2.66 | 0.58 |
| 1:A:662:G:C2 | 1:A:663:G:N7 | 2.72 | 0.58 |
| 1:A:878:A:C1' | 1:A:879:G:N7 | 2.67 | 0.58 |
| 1:A:2209:C:C1' | 4:D:150:LYS:HZ3 | 2.16 | 0.58 |
| 4:D:244:ARG:HA | 4:D:252:TRP:HE1 | 1.67 | 0.58 |
| 4:D:181:GLU:CG | 4:D:268:ARG:HH21 | 2.15 | 0.58 |
| 4:D:46:GLN:HE22 | 4:D:51:VAL:HG23 | 1.68 | 0.58 |
| 5:E:51:PHE:CE1 | 5:E:53:PRO:HD3 | 2.38 | 0.58 |
| 5:E:59:VAL:HB | 5:E:62:PRO:CD | 2.33 | 0.58 |
| 5:E:5:LEU:HD13 | 5:E:196:VAL:O | 2.04 | 0.58 |
| 5:E:64:LYS:HA | 5:E:67:PHE:HB2 | 1.86 | 0.58 |
| 6:F:38:ARG:HA | 6:F:41:LEU:HD21 | 1.85 | 0.58 |
| 7:G:9:ARG:HA | 7:G:12:TYR:HE2 | 1.67 | 0.58 |
| 7:G:59:GLU:CG | 7:G:152:LEU:HD22 | 2.33 | 0.58 |
| 7:G:53:LEU:CB | 7:G:69:ALA:O | 2.47 | 0.58 |
| 7:G:96:ARG:HA | 7:G:100:TRP:HZ3 | 1.69 | 0.58 |
| 8:H:127:GLU:HA | 8:H:127:GLU:OE1 | 2.04 | 0.58 |
| 8:H:66:GLY:O | 8:H:69:ARG:CG | 2.52 | 0.58 |
| 8:H:24:VAL:CG1 | 8:H:72:ILE:HD12 | 2.33 | 0.58 |
| 9:K:4:ILE:CD1 | 9:K:39:ALA:N | 2.67 | 0.58 |
| 10:L:77:LEU:HG | 10:L:111:LYS:HD2 | 1.85 | 0.58 |
| 11:M:23:LEU:CD1 | 11:M:63:THR:HG23 | 2.32 | 0.58 |
| 1:A:1012:U:H3 | 11:M:28:THR:HG21 | 1.67 | 0.58 |
| 11:M:69:GLN:H | 11:M:69:GLN:HE21 | 1.51 | 0.58 |
| 13:O:113:LYS:CA | 13:O:129:ALA:HB3 | 2.28 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 14:P:119:ARG:HD3 | 14:P:120:ILE:HG13 | 1.85 | 0.58 |
| 14:P:42:ILE:HG23 | 14:P:42:ILE:O | 2.03 | 0.58 |
| 16:R:103:GLU:N | 16:R:103:GLU:OE2 | 2.36 | 0.58 |
| 16:R:6:ALA:HA | 16:R:9:ARG:HB2 | 1.86 | 0.58 |
| 17:S:28:VAL:HG22 | 17:S:93:ARG:O | 2.04 | 0.58 |
| 20:V:32:ALA:O | 20:V:36:LEU:HB2 | 2.03 | 0.58 |
| 1:A:494:G:H5' | 20:V:7:ALA:HA | 1.86 | 0.58 |
| 21:W:50:LYS:HG3 | 21:W:85:PRO:HD3 | 1.85 | 0.58 |
| 21:W:8:ILE:HG13 | 21:W:9:LEU:HG | 1.86 | 0.58 |
| 22:X:2:ARG:HB3 | 22:X:2:ARG:CZ | 2.33 | 0.58 |
| 23:Y:10:ARG:CG | 23:Y:38:TYR:OH | 2.52 | 0.58 |
| 1:A:2173:A:C2 | 1:A:2174:C:C2 | 2.91 | 0.58 |
| 3:C:131:LEU:HD22 | 3:C:136:LEU:HD12 | 1.86 | 0.58 |
| 3:C:138:PRO:HA | 3:C:144:THR:HB | 1.85 | 0.58 |
| 3:C:29:VAL:HG21 | 3:C:41:VAL:CG1 | 2.33 | 0.58 |
| 1:A:2193:G:H2' | 1:A:2194:G:H8 | 1.68 | 0.58 |
| 1:A:1886:C:C2 | 1:A:1887:C:C5 | 2.92 | 0.58 |
| 25:1:1:MET:HE3 | 25:1:3:LYS:CB | 2.34 | 0.58 |
| 1:A:1364:G:O6 | 27:3:2:LYS:HD3 | 2.03 | 0.58 |
| 31:7:26:LYS:HE3 | 31:7:45:GLY:H | 1.68 | 0.58 |
| 1:A:1230:C:O2' | 1:A:1231:G:H5' | 2.03 | 0.58 |
| 1:A:1263:U:C4 | 1:A:1264:G:C2 | 2.92 | 0.58 |
| 1:A:1464:C:H2' | 1:A:1465:G:C8 | 2.35 | 0.58 |
| 1:A:1472:A:C1' | 1:A:1473:G:N7 | 2.61 | 0.58 |
| 1:A:1663:C:H2' | 1:A:1664:A:C4 | 2.36 | 0.58 |
| 1:A:1761:C:H3' | 1:A:1761:C:H6 | 1.68 | 0.58 |
| 1:A:1784:A:O2' | 1:A:1785:A:N7 | 2.36 | 0.58 |
| 1:A:2206:C:H5' | 1:A:2206:C:H6 | 1.68 | 0.58 |
| 1:A:220:G:HO2' | 1:A:233:A:H2 | 1.52 | 0.58 |
| 1:A:2352:A:N3 | 1:A:2352:A:H2' | 2.18 | 0.58 |
| 1:A:1864:U:C5' | 1:A:2410:G:O2' | 2.52 | 0.58 |
| 1:A:2592:G:C6 | 1:A:2593:U:C4 | 2.92 | 0.58 |
| 1:A:261:G:HO2' | 1:A:262:A:H5' | 1.69 | 0.58 |
| 1:A:289:A:H2' | 1:A:351:G:N2 | 2.18 | 0.58 |
| 1:A:388:G:N3 | 1:A:390:A:C6 | 2.72 | 0.58 |
| 1:A:623:G:OP2 | 13:O:105:LEU:HD21 | 2.03 | 0.58 |
| 1:A:945:A:N7 | 1:A:2448:A:C2 | 2.71 | 0.58 |
| 1:A:969:U:H2' | 1:A:970:C:H6 | 1.69 | 0.58 |
| 2:B:40:U:C2 | 2:B:43:C:OP2 | 2.56 | 0.58 |
| 2:B:52:A:H2' | 2:B:53:A:C5' | 2.34 | 0.58 |
| 2:B:66:A:C2 | 2:B:108:C:C6 | 2.91 | 0.58 |
| 4:D:17:THR:C | 4:D:19:ALA:N | 2.54 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2224:G:C4' | 4:D:262:ARG:HH12 | 2.17 | 0.58 |
| 4:D:72:LYS:O | 4:D:74:GLY:N | 2.37 | 0.58 |
| 5:E:133:LYS:CD | 5:E:137:HIS:HB3 | 2.34 | 0.58 |
| 5:E:117:MET:HG2 | 5:E:136:ARG:CD | 2.33 | 0.58 |
| 6:F:123:LEU:HG | 6:F:191:ARG:HG2 | 1.85 | 0.58 |
| 6:F:67:GLN:O | 6:F:68:LYS:O | 2.22 | 0.58 |
| 6:F:7:TYR:OH | 6:F:24:LEU:HD23 | 2.03 | 0.58 |
| 7:G:99:MET:O | 7:G:102:PHE:N | 2.37 | 0.58 |
| 7:G:49:ASP:O | 7:G:53:LEU:HD13 | 2.04 | 0.58 |
| 9:K:14:ASP:O | 9:K:16:GLY:N | 2.37 | 0.58 |
| 10:L:13:PRO:HG2 | 10:L:16:LYS:HB2 | 1.85 | 0.58 |
| 11:M:126:PRO:C | 11:M:127:ASP:CG | 2.59 | 0.58 |
| 11:M:13:TRP:HB2 | 11:M:136:GLU:OE1 | 2.04 | 0.58 |
| 12:N:18:LYS:NZ | 12:N:44:LYS:CD | 2.67 | 0.58 |
| 13:O:16:ARG:HD3 | 13:O:18:ARG:O | 2.04 | 0.58 |
| 13:O:23:PRO:CB | 13:O:30:THR:HG23 | 2.30 | 0.58 |
| 13:O:64:LYS:O | 13:O:65:ARG:HG3 | 2.03 | 0.58 |
| 14:P:111:GLU:OE1 | 14:P:111:GLU:HA | 2.04 | 0.58 |
| 15:Q:53:HIS:CE1 | 15:Q:56:LYS:HZ3 | 2.22 | 0.58 |
| 18:T:112:ARG:NH1 | 19:U:53:GLU:OE2 | 2.37 | 0.58 |
| 19:U:11:GLN:NE2 | 19:U:24:LYS:HZ3 | 2.01 | 0.58 |
| 23:Y:95:PRO:HD2 | 23:Y:130:PRO:HA | 1.85 | 0.58 |
| 23:Y:6:LYS:CG | 23:Y:37:VAL:HG13 | 2.33 | 0.58 |
| 24:Z:38:VAL:HG23 | 24:Z:59:LEU:HB2 | 1.86 | 0.58 |
| 1:A:2124:G:C4' | 3:C:42:GLU:HG3 | 2.32 | 0.58 |
| 3:C:155:GLU:HA | 3:C:158:ALA:HB3 | 1.86 | 0.58 |
| 1:A:171:G:H2' | 1:A:172:C:C6 | 2.37 | 0.58 |
| 3:C:20:TYR:CE1 | 3:C:222:VAL:HG11 | 2.39 | 0.58 |
| 25:1:27:LEU:HD22 | 25:1:52:ILE:HG13 | 1.86 | 0.58 |
| 25:1:63:ARG:CA | 25:1:66:ASN:HB3 | 2.32 | 0.58 |
| 28:4:48:GLU:O | 28:4:50:GLY:N | 2.35 | 0.58 |
| 29:5:50:ARG:O | 29:5:51:GLU:CB | 2.51 | 0.58 |
| 30:6:42:LEU:C | 30:6:44:PRO:CD | 2.70 | 0.58 |
| 31:7:30:ARG:CD | 31:7:44:LYS:HB2 | 2.33 | 0.58 |
| 1:A:1021:A:H2' | 1:A:1022:G:OP1 | 2.04 | 0.58 |
| 1:A:1825:A:N1 | 1:A:1826:G:C6 | 2.72 | 0.58 |
| 1:A:2015:A:H3' | 1:A:2016:U:H5 | 1.68 | 0.58 |
| 1:A:2209:C:C4' | 4:D:150:LYS:HD3 | 2.34 | 0.58 |
| 1:A:2457:U:C2' | 1:A:2458:G:H5' | 2.34 | 0.58 |
| 1:A:2704:C:H2' | 1:A:2705:A:C8 | 2.39 | 0.58 |
| 1:A:2731:G:N2 | 1:A:2732:G:C2 | 2.72 | 0.58 |
| 1:A:2780:G:O2' | 1:A:2781:A:H5'' | 2.04 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:306:U:O4 | 1:A:310:A:N7 | 2.37 | 0.58 |
| 1:A:332:A:C2' | 1:A:335:C:N4 | 2.59 | 0.58 |
| 1:A:514:A:C2 | 1:A:515:A:C4 | 2.92 | 0.58 |
| 1:A:13:A:N6 | 1:A:525:U:C2 | 2.71 | 0.58 |
| 1:A:637:A:H4' | 1:A:638:G:O4' | 2.04 | 0.58 |
| 1:A:648:G:C4 | 1:A:649:G:C8 | 2.92 | 0.58 |
| 1:A:749:C:C2 | 1:A:1618:A:C5 | 2.92 | 0.58 |
| 1:A:749:C:C6 | 1:A:749:C:C3' | 2.87 | 0.58 |
| 2:B:53:A:C5 | 2:B:54:G:C8 | 2.91 | 0.58 |
| 4:D:226:MET:SD | 4:D:236:GLY:N | 2.77 | 0.58 |
| 1:A:1804:C:P | 4:D:257:LEU:HD22 | 2.44 | 0.58 |
| 4:D:34:VAL:O | 4:D:36:PRO:CD | 2.47 | 0.58 |
| 5:E:49:LEU:CA | 5:E:76:ARG:O | 2.51 | 0.58 |
| 1:A:600:G:H4' | 6:F:105:VAL:CG1 | 2.33 | 0.58 |
| 6:F:113:ALA:HB3 | 6:F:186:ILE:CD1 | 2.34 | 0.58 |
| 6:F:35:GLU:CA | 6:F:38:ARG:HD2 | 2.28 | 0.58 |
| 6:F:4:VAL:HA | 6:F:20:LEU:HG | 1.86 | 0.58 |
| 6:F:82:ILE:H | 6:F:82:ILE:CD1 | 2.14 | 0.58 |
| 6:F:88:VAL:O | 6:F:89:VAL:O | 2.21 | 0.58 |
| 7:G:44:GLY:O | 7:G:47:LYS:N | 2.37 | 0.58 |
| 1:A:2748:A:C2 | 8:H:67:LEU:HD11 | 2.39 | 0.58 |
| 10:L:57:ILE:HG22 | 10:L:66:THR:HA | 1.85 | 0.58 |
| 11:M:111:PRO:O | 11:M:114:ARG:HB3 | 2.04 | 0.58 |
| 11:M:15:LEU:HD21 | 11:M:137:LYS:CB | 2.32 | 0.58 |
| 11:M:74:ARG:CZ | 11:M:76:SER:HB2 | 2.34 | 0.58 |
| 12:N:16:ALA:HB1 | 12:N:45:GLU:HB3 | 1.82 | 0.58 |
| 13:O:114:ILE:O | 13:O:116:GLY:N | 2.31 | 0.58 |
| 13:O:56:SER:CB | 31:7:13:ARG:NE | 2.66 | 0.58 |
| 14:P:22:LYS:HE3 | 14:P:23:GLY:CA | 2.34 | 0.58 |
| 14:P:85:LYS:HZ2 | 24:Z:10:THR:CG2 | 2.16 | 0.58 |
| 15:Q:116:LEU:HD13 | 15:Q:116:LEU:O | 2.03 | 0.58 |
| 16:R:11:LYS:HA | 16:R:14:VAL:CG2 | 2.34 | 0.58 |
| 18:T:69:CYS:HG | 18:T:70:ARG:HG3 | 1.69 | 0.58 |
| 18:T:83:LEU:O | 18:T:86:ALA:CB | 2.32 | 0.58 |
| 19:U:38:LEU:HD12 | 19:U:40:LEU:HD11 | 1.85 | 0.58 |
| 20:V:13:SER:O | 20:V:17:VAL:CG1 | 2.51 | 0.58 |
| 21:W:7:VAL:CG2 | 25:1:28:MET:HB2 | 2.34 | 0.58 |
| 22:X:14:LEU:HD22 | 22:X:20:TYR:N | 2.15 | 0.58 |
| 22:X:28:LYS:HE2 | 22:X:28:LYS:N | 2.12 | 0.58 |
| 22:X:86:ARG:NH2 | 22:X:88:LYS:O | 2.37 | 0.58 |
| 23:Y:168:GLU:HG2 | 23:Y:169:GLU:N | 2.19 | 0.58 |
| 24:Z:27:GLU:CD | 24:Z:69:PHE:HD1 | 2.06 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:164:U:H2' | 1:A:164:U:O2 | 2.02 | 0.58 |
| 2:B:3:C:C2 | 2:B:118:G:C2 | 2.92 | 0.58 |
| 1:A:75:G:H4' | 25:1:50:ARG:HH12 | 1.68 | 0.57 |
| 26:2:6:VAL:HG21 | 26:2:56:VAL:HG23 | 1.86 | 0.57 |
| 26:2:8:LEU:HA | 26:2:54:VAL:CG2 | 2.34 | 0.57 |
| 29:5:11:LEU:HD22 | 31:7:35:GLN:NE2 | 2.09 | 0.57 |
| 32:8:10:ILE:CD1 | 32:8:34:GLN:NE2 | 2.67 | 0.57 |
| 1:A:1022:G:C2' | 1:A:1025:G:O6 | 2.49 | 0.57 |
| 1:A:1029:A:H2' | 1:A:1030:G:C5' | 2.33 | 0.57 |
| 1:A:1012:U:O2' | 1:A:1142(A):A:H5' | 2.04 | 0.57 |
| 1:A:1249:U:O5' | 1:A:1249:U:H6 | 1.87 | 0.57 |
| 1:A:126:A:OP1 | 30:6:18:PHE:CD1 | 2.57 | 0.57 |
| 1:A:1476:C:N4 | 1:A:1516:U:H2' | 2.15 | 0.57 |
| 1:A:1593:G:H2' | 1:A:1594:G:C8 | 2.39 | 0.57 |
| 1:A:1672:C:H6 | 1:A:1673:U:H5'' | 1.69 | 0.57 |
| 1:A:1683:C:C2 | 1:A:1684:C:C5 | 2.91 | 0.57 |
| 1:A:118:A:C5 | 1:A:177:G:N2 | 2.71 | 0.57 |
| 1:A:1819:A:OP2 | 4:D:157:ARG:CA | 2.51 | 0.57 |
| 1:A:1861:G:N2 | 1:A:1862:G:N9 | 2.51 | 0.57 |
| 1:A:1786:A:C5' | 1:A:1938:A:H61 | 2.17 | 0.57 |
| 1:A:1954:G:O2' | 1:A:1955:U:H5' | 2.04 | 0.57 |
| 1:A:2034:U:C3' | 1:A:2035:G:H5' | 2.34 | 0.57 |
| 1:A:222:A:N7 | 1:A:224:G:C5 | 2.72 | 0.57 |
| 1:A:2307:G:N7 | 1:A:2308:G:N3 | 2.52 | 0.57 |
| 1:A:2325:G:N2 | 1:A:2326:C:C2 | 2.72 | 0.57 |
| 1:A:242:G:O2' | 1:A:243:U:C6 | 2.57 | 0.57 |
| 1:A:243:U:O2 | 1:A:243:U:H2' | 2.03 | 0.57 |
| 1:A:2448:A:P | 1:A:2499:C:OP2 | 2.62 | 0.57 |
| 1:A:2512:C:OP1 | 5:E:122:PHE:CB | 2.52 | 0.57 |
| 1:A:2850:A:C2 | 15:Q:61:HIS:NE2 | 2.71 | 0.57 |
| 1:A:306:U:C5 | 1:A:307:G:C4 | 2.91 | 0.57 |
| 1:A:445:C:O2' | 1:A:449:A:C8 | 2.56 | 0.57 |
| 1:A:532:A:OP1 | 1:A:2021:C:N4 | 2.27 | 0.57 |
| 1:A:616:A:H2' | 1:A:617:G:N3 | 2.19 | 0.57 |
| 1:A:76:C:O2' | 1:A:77:C:H5' | 2.04 | 0.57 |
| 1:A:881:G:H2' | 1:A:882:G:O4' | 2.04 | 0.57 |
| 2:B:12:C:C5' | 24:Z:74:ARG:NE | 2.67 | 0.57 |
| 2:B:75:G:N2 | 23:Y:87:ASP:OD1 | 2.36 | 0.57 |
| 2:B:82:G:C4 | 2:B:83:G:N7 | 2.72 | 0.57 |
| 4:D:206:LEU:HD22 | 4:D:207:GLY:N | 2.19 | 0.57 |
| 5:E:199:ARG:N | 5:E:200:GLU:OE2 | 2.37 | 0.57 |
| 6:F:185:ASP:HA | 6:F:188:ARG:CG | 2.34 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:F:56:GLU:O | 6:F:59:TYR:N | 2.37 | 0.57 |
| 7:G:15:VAL:CG2 | 7:G:16:ARG:N | 2.67 | 0.57 |
| 7:G:22:ARG:HH21 | 7:G:22:ARG:C | 2.07 | 0.57 |
| 8:H:106:THR:OG1 | 8:H:113:VAL:HG21 | 2.03 | 0.57 |
| 8:H:11:VAL:O | 8:H:11:VAL:HG22 | 2.04 | 0.57 |
| 12:N:17:ARG:CZ | 12:N:98:VAL:CG2 | 2.81 | 0.57 |
| 13:O:122:PRO:HB3 | 13:O:124:LYS:HZ3 | 1.67 | 0.57 |
| 13:O:32:THR:OG1 | 13:O:35:HIS:CE1 | 2.57 | 0.57 |
| 13:O:81:GLN:HA | 13:O:81:GLN:OE1 | 2.03 | 0.57 |
| 15:Q:105:ARG:C | 15:Q:107:ASP:H | 2.07 | 0.57 |
| 16:R:24:LEU:HD23 | 16:R:25:ARG:N | 2.18 | 0.57 |
| 17:S:67:SER:HA | 17:S:75:ILE:CG2 | 2.34 | 0.57 |
| 20:V:50:VAL:HG11 | 20:V:103:ILE:CG1 | 2.34 | 0.57 |
| 1:A:750:A:OP1 | 20:V:88:ARG:NH1 | 2.38 | 0.57 |
| 21:W:73:ARG:HG2 | 21:W:74:PRO:N | 2.19 | 0.57 |
| 21:W:8:ILE:H | 21:W:9:LEU:HD12 | 1.69 | 0.57 |
| 22:X:75:ILE:H | 22:X:100:ALA:HB1 | 1.69 | 0.57 |
| 22:X:32:PRO:CB | 22:X:34:LYS:HG3 | 2.32 | 0.57 |
| 23:Y:23:LYS:HA | 23:Y:39:VAL:O | 2.03 | 0.57 |
| 23:Y:82:ARG:HG2 | 23:Y:83:PRO:N | 2.19 | 0.57 |
| 23:Y:29:TYR:CD2 | 23:Y:89:PHE:CE2 | 2.92 | 0.57 |
| 3:C:46:LYS:HE2 | 3:C:210:ARG:HD3 | 1.86 | 0.57 |
| 26:2:17:LYS:HD3 | 26:2:18:ASP:N | 2.19 | 0.57 |
| 27:3:1:MET:HE1 | 27:3:9:LEU:HD11 | 1.85 | 0.57 |
| 13:O:45:LEU:CB | 31:7:59:LYS:HD2 | 2.33 | 0.57 |
| 1:A:1011:G:C2' | 1:A:1013:C:H5'' | 2.34 | 0.57 |
| 1:A:1021:A:H3' | 1:A:1021:A:H8 | 1.69 | 0.57 |
| 1:A:1048:A:H2' | 1:A:1048:A:N3 | 2.18 | 0.57 |
| 1:A:1054:A:O5' | 1:A:1054:A:H8 | 1.87 | 0.57 |
| 1:A:1093:G:N2 | 1:A:1098:A:H62 | 2.00 | 0.57 |
| 1:A:1119:C:H2' | 1:A:1120:G:C8 | 2.39 | 0.57 |
| 1:A:1139:G:O2' | 1:A:1142(A):A:C2 | 2.54 | 0.57 |
| 1:A:1142(A):A:N6 | 1:A:1143:A:C8 | 2.71 | 0.57 |
| 1:A:1198:U:N3 | 1:A:1199:U:O4 | 2.37 | 0.57 |
| 1:A:1311:G:H3' | 1:A:1311:G:C8 | 2.39 | 0.57 |
| 1:A:1475:G:N1 | 1:A:1477:A:N6 | 2.52 | 0.57 |
| 1:A:1483:G:C1' | 1:A:1507:A:C2 | 2.87 | 0.57 |
| 1:A:1552:G:O2' | 1:A:1553:A:C5' | 2.49 | 0.57 |
| 1:A:1655:A:H2' | 1:A:1656:C:H6 | 1.68 | 0.57 |
| 1:A:1788:C:H3' | 1:A:1788:C:C6 | 2.39 | 0.57 |
| 1:A:182:A:H2' | 1:A:183:C:C6 | 2.39 | 0.57 |
| 1:A:191:A:O2' | 1:A:678:C:O2' | 2.16 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1993:U:C6 | 1:A:1993:U:C3' | 2.86 | 0.57 |
| 1:A:2000:G:N1 | 1:A:2001:A:C5 | 2.72 | 0.57 |
| 1:A:962:G:N2 | 1:A:2250:G:H22 | 2.01 | 0.57 |
| 1:A:2355:C:H4' | 24:Z:36:ILE:HG21 | 1.85 | 0.57 |
| 1:A:2459:A:C3' | 1:A:2460:U:O4' | 2.52 | 0.57 |
| 1:A:2488:A:O2' | 1:A:2489:G:H5' | 2.04 | 0.57 |
| 1:A:2526:G:H2' | 1:A:2527:C:H5' | 1.85 | 0.57 |
| 1:A:2583:G:N1 | 1:A:2585:U:O4 | 2.37 | 0.57 |
| 1:A:2747:G:N2 | 1:A:2754:U:C2 | 2.71 | 0.57 |
| 1:A:2842:G:H2' | 1:A:2843:G:O4' | 2.05 | 0.57 |
| 1:A:2881:C:H2' | 1:A:2882:A:C8 | 2.40 | 0.57 |
| 1:A:308:G:N1 | 1:A:309:G:N3 | 2.52 | 0.57 |
| 1:A:411:G:N2 | 1:A:2408:U:C2 | 2.72 | 0.57 |
| 1:A:531:C:N4 | 18:T:38:THR:HA | 2.18 | 0.57 |
| 1:A:621:A:H62 | 1:A:622:G:H1' | 1.69 | 0.57 |
| 1:A:652:C:C5 | 1:A:654:A:OP2 | 2.57 | 0.57 |
| 1:A:663:G:H5' | 1:A:664:C:OP2 | 2.04 | 0.57 |
| 1:A:6:A:N3 | 1:A:7:G:C8 | 2.72 | 0.57 |
| 1:A:954:G:O2' | 1:A:955:C:H5' | 2.04 | 0.57 |
| 2:B:7:G:H4' | 16:R:29:PHE:CZ | 2.37 | 0.57 |
| 4:D:106:ILE:O | 4:D:107:ALA:CB | 2.52 | 0.57 |
| 4:D:156:ALA:O | 4:D:157:ARG:C | 2.42 | 0.57 |
| 4:D:157:ARG:HH11 | 4:D:178:PRO:CD | 2.17 | 0.57 |
| 4:D:210:GLY:O | 4:D:211:ARG:C | 2.42 | 0.57 |
| 1:A:1803:A:O3' | 4:D:257:LEU:HD13 | 2.04 | 0.57 |
| 4:D:64:ILE:HD13 | 4:D:65:ILE:N | 2.19 | 0.57 |
| 6:F:169:ASN:ND2 | 6:F:171:PRO:HG2 | 2.19 | 0.57 |
| 6:F:199:TRP:O | 6:F:203:GLN:OE1 | 2.22 | 0.57 |
| 7:G:101:ILE:HD13 | 7:G:101:ILE:C | 2.24 | 0.57 |
| 7:G:39:ILE:HD13 | 7:G:92:VAL:CG1 | 2.34 | 0.57 |
| 8:H:148:ILE:O | 8:H:151:ILE:HG23 | 2.04 | 0.57 |
| 8:H:6:ARG:H | 8:H:7:LEU:HD23 | 1.70 | 0.57 |
| 11:M:21:LYS:CB | 11:M:26:LEU:HD22 | 2.34 | 0.57 |
| 12:N:10:VAL:HG12 | 12:N:17:ARG:C | 2.24 | 0.57 |
| 12:N:10:VAL:HG13 | 12:N:17:ARG:HA | 1.86 | 0.57 |
| 1:A:1664:A:O2' | 12:N:66:LYS:HE2 | 2.04 | 0.57 |
| 16:R:68:GLN:O | 16:R:69:VAL:C | 2.43 | 0.57 |
| 1:A:2876:G:P | 17:S:2:ASN:HB3 | 2.44 | 0.57 |
| 17:S:30:VAL:C | 17:S:32:TYR:OH | 2.42 | 0.57 |
| 17:S:7:ILE:O | 17:S:10:VAL:HG23 | 2.03 | 0.57 |
| 17:S:18:ASP:HB3 | 17:S:81:PRO:HA | 1.86 | 0.57 |
| 19:U:23:GLU:CA | 19:U:93:GLU:HB3 | 2.34 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:25:LEU:HD23 | 19:U:28:GLU:HB3 | 1.86 | 0.57 |
| 19:U:64:HIS:CB | 19:U:96:ILE:HG22 | 2.33 | 0.57 |
| 21:W:49:VAL:HG12 | 21:W:88:LYS:CG | 2.34 | 0.57 |
| 3:C:142:ALA:O | 3:C:144:THR:HG23 | 2.04 | 0.57 |
| 1:A:1416:G:H2' | 1:A:1417:C:C6 | 2.39 | 0.57 |
| 1:A:1578:U:H5'' | 1:A:1580:A:H2 | 1.69 | 0.57 |
| 1:A:1582:C:C2 | 1:A:1583:A:N7 | 2.72 | 0.57 |
| 25:1:27:LEU:HA | 25:1:30:LEU:CD1 | 2.34 | 0.57 |
| 26:2:5:LYS:CE | 26:2:57:GLU:HB2 | 2.34 | 0.57 |
| 1:A:397:G:OP1 | 27:3:40:HIS:C | 2.41 | 0.57 |
| 27:3:44:THR:CG2 | 27:3:45:GLY:N | 2.68 | 0.57 |
| 27:3:65:ASP:CA | 27:3:68:ARG:HH12 | 2.16 | 0.57 |
| 31:7:26:LYS:HB2 | 31:7:44:LYS:HZ2 | 1.69 | 0.57 |
| 1:A:1022:G:O2' | 1:A:1023:U:P | 2.62 | 0.57 |
| 1:A:1071:G:O2' | 1:A:1072:C:H5' | 2.03 | 0.57 |
| 1:A:1260:G:H2' | 1:A:1261:C:H5' | 1.86 | 0.57 |
| 1:A:1510:A:H5' | 1:A:1511:A:OP2 | 2.04 | 0.57 |
| 1:A:1556:C:C2 | 1:A:1557:C:C5 | 2.92 | 0.57 |
| 1:A:1613:G:C3' | 1:A:1614:A:C5' | 2.78 | 0.57 |
| 1:A:1703:G:H2' | 1:A:1704:G:H5' | 1.85 | 0.57 |
| 1:A:1966:A:O2' | 1:A:1967:C:P | 2.62 | 0.57 |
| 1:A:196:A:H3' | 1:A:197:A:C5' | 2.31 | 0.57 |
| 1:A:2074:U:C2 | 1:A:2075:U:H5 | 2.23 | 0.57 |
| 1:A:2345:G:C2' | 1:A:2346:A:OP2 | 2.52 | 0.57 |
| 1:A:2371:G:H2' | 1:A:2372:G:H8 | 1.69 | 0.57 |
| 1:A:2397:G:O2' | 1:A:2398:U:H5' | 2.04 | 0.57 |
| 1:A:1953:A:H1' | 1:A:2560:C:O4' | 2.04 | 0.57 |
| 1:A:2569:G:N3 | 1:A:2570:G:C8 | 2.71 | 0.57 |
| 1:A:270(B):A:O4' | 1:A:270(B):A:OP2 | 2.21 | 0.57 |
| 1:A:271:G:C2 | 1:A:272:G:C8 | 2.92 | 0.57 |
| 1:A:2839:G:C6 | 1:A:2840:C:C4 | 2.93 | 0.57 |
| 1:A:349:G:O4' | 1:A:349:G:OP2 | 2.21 | 0.57 |
| 1:A:402:A:N3 | 1:A:402:A:C2' | 2.66 | 0.57 |
| 1:A:407:G:N2 | 1:A:421:U:O2 | 2.38 | 0.57 |
| 1:A:416:C:C5 | 1:A:417:C:C4 | 2.92 | 0.57 |
| 1:A:428:A:H2' | 1:A:428:A:N3 | 2.19 | 0.57 |
| 1:A:536:A:H2' | 1:A:537:C:O4' | 2.04 | 0.57 |
| 1:A:775:G:C8 | 1:A:794:G:C5 | 2.92 | 0.57 |
| 1:A:803:U:O2' | 1:A:804:A:H5' | 2.03 | 0.57 |
| 1:A:94:G:H21 | 25:1:42:ASN:CG | 2.07 | 0.57 |
| 1:A:953:A:H2' | 1:A:954:G:C5' | 2.19 | 0.57 |
| 1:A:979:G:H2' | 1:A:982:C:H42 | 1.69 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:B:32:C:H2' | 2:B:33:G:C8 | 2.40 | 0.57 |
| 2:B:7:G:OP1 | 16:R:29:PHE:CZ | 2.58 | 0.57 |
| 4:D:147:LEU:H | 4:D:154:LYS:HD2 | 1.70 | 0.57 |
| 4:D:134:ARG:C | 4:D:168:ARG:HH12 | 2.06 | 0.57 |
| 4:D:52:ARG:O | 4:D:218:ARG:NH2 | 2.38 | 0.57 |
| 4:D:37:LEU:HD12 | 4:D:38:LYS:N | 2.19 | 0.57 |
| 5:E:173:VAL:HG11 | 5:E:184:VAL:C | 2.25 | 0.57 |
| 5:E:109:LYS:N | 5:E:191:PRO:HD3 | 2.18 | 0.57 |
| 6:F:121:GLY:HA2 | 6:F:191:ARG:HH11 | 1.69 | 0.57 |
| 7:G:12:TYR:CE1 | 7:G:13:GLU:HG3 | 2.38 | 0.57 |
| 7:G:14:GLU:C | 7:G:14:GLU:CD | 2.63 | 0.57 |
| 7:G:79:ASN:O | 7:G:81:LYS:N | 2.36 | 0.57 |
| 8:H:113:VAL:O | 8:H:113:VAL:HG12 | 2.04 | 0.57 |
| 8:H:69:ARG:O | 8:H:73:ALA:HB2 | 2.03 | 0.57 |
| 10:L:52:ILE:O | 10:L:72:PRO:HB3 | 2.03 | 0.57 |
| 10:L:51:ALA:CA | 10:L:80:LYS:HB3 | 2.34 | 0.57 |
| 11:M:17:ASP:C | 11:M:17:ASP:OD1 | 2.42 | 0.57 |
| 11:M:34:LEU:HD21 | 11:M:120:LEU:CB | 2.29 | 0.57 |
| 11:M:45:ASN:O | 11:M:46:VAL:CB | 2.51 | 0.57 |
| 13:O:137:LYS:HA | 13:O:140:ALA:HB3 | 1.86 | 0.57 |
| 13:O:76:LYS:HG3 | 13:O:101:VAL:HG21 | 1.86 | 0.57 |
| 14:P:34:LEU:HD21 | 14:P:118:LEU:HD22 | 1.86 | 0.57 |
| 1:A:2708:G:OP1 | 15:Q:68:ARG:HG3 | 2.03 | 0.57 |
| 16:R:53:SER:O | 16:R:54:LEU:C | 2.43 | 0.57 |
| 16:R:58:LEU:H | 16:R:65:VAL:CG2 | 2.15 | 0.57 |
| 16:R:89:ARG:CG | 16:R:89:ARG:NH2 | 2.68 | 0.57 |
| 17:S:30:VAL:HG23 | 17:S:90:GLN:CA | 2.27 | 0.57 |
| 12:N:76:ALA:HB2 | 17:S:76:PHE:HD1 | 1.69 | 0.57 |
| 17:S:23:ARG:CZ | 17:S:88:ILE:O | 2.52 | 0.57 |
| 22:X:99:CYS:O | 22:X:101:LYS:HD2 | 2.04 | 0.57 |
| 22:X:69:ALA:HB3 | 22:X:71:LYS:HZ3 | 1.68 | 0.57 |
| 23:Y:49:ARG:O | 23:Y:51:ALA:N | 2.36 | 0.57 |
| 9:K:97:ILE:O | 9:K:101:LEU:HD23 | 2.04 | 0.57 |
| 9:K:76:THR:HA | 9:K:141:LYS:CE | 2.30 | 0.57 |
| 3:C:160:ARG:CD | 3:C:161:ILE:H | 1.99 | 0.57 |
| 3:C:163:PHE:HZ | 3:C:195:ALA:HB3 | 1.67 | 0.57 |
| 3:C:32:LEU:CD2 | 3:C:220:PRO:HG2 | 2.33 | 0.57 |
| 3:C:77:ILE:HG21 | 3:C:123:VAL:CG1 | 2.34 | 0.57 |
| 4:D:79:VAL:CG2 | 4:D:115:GLN:HG3 | 2.33 | 0.57 |
| 17:S:43:GLN:CD | 17:S:43:GLN:H | 2.06 | 0.57 |
| 27:3:65:ASP:CA | 27:3:68:ARG:HH22 | 2.17 | 0.57 |
| 28:4:12:SER:OG | 28:4:13:LYS:N | 2.36 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 29:5:25:LYS:O | 29:5:26:ASN:CB | 2.53 | 0.57 |
| 29:5:33:LYS:HE3 | 29:5:34:LEU:CA | 2.33 | 0.57 |
| 30:6:20:ALA:N | 30:6:23:ARG:NH2 | 2.53 | 0.57 |
| 30:6:30:VAL:HG22 | 30:6:33:ARG:NH1 | 2.19 | 0.57 |
| 1:A:469:G:O6 | 30:6:40:TRP:NE1 | 2.33 | 0.57 |
| 31:7:36:LYS:O | 31:7:37:SER:CB | 2.51 | 0.57 |
| 1:A:1131:G:H4' | 1:A:1132:A:OP1 | 2.03 | 0.57 |
| 1:A:1164:G:C6 | 1:A:1165:U:C4 | 2.92 | 0.57 |
| 1:A:1196:C:H4' | 1:A:1226:G:C6 | 2.39 | 0.57 |
| 1:A:1225:C:P | 19:U:88:ARG:HH12 | 2.26 | 0.57 |
| 1:A:1272:A:H5' | 1:A:1646:C:C5 | 2.38 | 0.57 |
| 1:A:1302:A:H3' | 1:A:1303:G:H5' | 1.86 | 0.57 |
| 1:A:1359:A:N6 | 1:A:1360:A:C8 | 2.73 | 0.57 |
| 1:A:1378:A:O2' | 1:A:1379:A:OP1 | 2.19 | 0.57 |
| 1:A:1685:C:H2' | 1:A:1686:C:C6 | 2.37 | 0.57 |
| 1:A:1728:G:H2' | 1:A:1728:G:N3 | 2.20 | 0.57 |
| 1:A:1857:G:H2' | 1:A:1858:G:C8 | 2.39 | 0.57 |
| 1:A:1904:G:C2' | 1:A:1905:C:O5' | 2.52 | 0.57 |
| 1:A:2023:G:N2 | 1:A:2041:U:C2 | 2.72 | 0.57 |
| 1:A:2287:A:N1 | 1:A:2346:A:C6 | 2.72 | 0.57 |
| 1:A:2436:G:C6 | 1:A:2437:U:N3 | 2.73 | 0.57 |
| 1:A:2572:A:H2' | 1:A:2572:A:N3 | 2.19 | 0.57 |
| 1:A:2766:G:C2 | 1:A:2767:C:C6 | 2.91 | 0.57 |
| 1:A:2857:G:H1' | 1:A:2861:G:N2 | 2.20 | 0.57 |
| 1:A:2893:G:C1' | 1:A:2894:G:H8 | 2.15 | 0.57 |
| 1:A:470:A:N3 | 1:A:471:A:H1' | 2.19 | 0.57 |
| 1:A:497:A:H8 | 1:A:497:A:O5' | 1.87 | 0.57 |
| 1:A:650:C:P | 31:7:21:LYS:NZ | 2.78 | 0.57 |
| 1:A:727:A:C2 | 1:A:729:G:C5 | 2.92 | 0.57 |
| 1:A:783:A:C6 | 1:A:785:G:O4' | 2.57 | 0.57 |
| 1:A:827:U:O5' | 1:A:828:U:N3 | 2.37 | 0.57 |
| 1:A:919:G:C2 | 1:A:920:G:N9 | 2.72 | 0.57 |
| 1:A:945:A:C6 | 1:A:2448:A:C2 | 2.92 | 0.57 |
| 2:B:75:G:C6 | 2:B:102:G:N2 | 2.73 | 0.57 |
| 4:D:106:ILE:CB | 4:D:108:PRO:HD3 | 2.33 | 0.57 |
| 4:D:141:VAL:O | 4:D:194:GLY:N | 2.36 | 0.57 |
| 4:D:175:LEU:HD13 | 4:D:176:ARG:N | 2.19 | 0.57 |
| 4:D:181:GLU:HA | 4:D:270:ILE:CB | 2.34 | 0.57 |
| 1:A:781:A:O2' | 4:D:222:ARG:NH2 | 2.38 | 0.57 |
| 1:A:2596:U:O3' | 4:D:242:ARG:HD3 | 2.04 | 0.57 |
| 4:D:42:GLY:HA3 | 4:D:60:ARG:HH22 | 1.69 | 0.57 |
| 1:A:1567:A:C2 | 4:D:61:LEU:CD1 | 2.78 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:36:ARG:HH21 | 5:E:41:LYS:NZ | 2.01 | 0.57 |
| 5:E:49:LEU:HD11 | 5:E:76:ARG:HG2 | 1.86 | 0.57 |
| 6:F:53:THR:O | 6:F:56:GLU:HG3 | 2.04 | 0.57 |
| 7:G:15:VAL:O | 7:G:18:GLU:HB3 | 2.04 | 0.57 |
| 7:G:30:GLU:HB3 | 7:G:162:THR:HG21 | 1.86 | 0.57 |
| 8:H:121:ILE:HD11 | 8:H:123:PHE:CE1 | 2.38 | 0.57 |
| 12:N:63:VAL:O | 12:N:64:ARG:CB | 2.43 | 0.57 |
| 12:N:70:LYS:HE2 | 12:N:102:VAL:HG13 | 1.85 | 0.57 |
| 13:O:16:ARG:HD2 | 13:O:16:ARG:O | 2.04 | 0.57 |
| 13:O:72:PRO:CB | 13:O:111:ARG:CB | 2.81 | 0.57 |
| 13:O:92:GLU:O | 13:O:93:GLY:C | 2.42 | 0.57 |
| 14:P:137:TYR:OH | 23:Y:99:TYR:CZ | 2.53 | 0.57 |
| 16:R:97:ARG:O | 16:R:100:ALA:CB | 2.41 | 0.57 |
| 17:S:53:ARG:HH21 | 17:S:100:TYR:HA | 1.67 | 0.57 |
| 17:S:58:ASN:HA | 17:S:61:PHE:CZ | 2.39 | 0.57 |
| 18:T:65:ILE:HG21 | 18:T:76:TYR:HE1 | 1.68 | 0.57 |
| 18:T:70:ARG:HD2 | 18:T:75:ASN:CG | 2.24 | 0.57 |
| 19:U:40:LEU:CA | 19:U:54:GLY:HA3 | 2.31 | 0.57 |
| 20:V:23:LEU:HD21 | 28:4:26:THR:HA | 1.87 | 0.57 |
| 21:W:40:LYS:HG3 | 21:W:51:VAL:HB | 1.85 | 0.57 |
| 24:Z:40:GLN:NE2 | 24:Z:57:PHE:HD2 | 2.02 | 0.57 |
| 24:Z:53:MET:SD | 24:Z:59:LEU:CD2 | 2.92 | 0.57 |
| 3:C:183:GLU:CD | 3:C:183:GLU:N | 2.55 | 0.57 |
| 3:C:39:GLU:HG3 | 3:C:41:VAL:H | 1.69 | 0.57 |
| 3:C:18:LYS:HE3 | 3:C:20:TYR:HA | 1.86 | 0.57 |
| 26:2:45:GLY:HA2 | 26:2:48:GLU:CG | 2.34 | 0.57 |
| 28:4:40:LYS:CG | 28:4:41:PRO:HD2 | 2.34 | 0.57 |
| 1:A:2286:A:N6 | 29:5:29:ASN:O | 2.38 | 0.57 |
| 1:A:1138:G:O2' | 1:A:1139:G:H5' | 2.04 | 0.57 |
| 1:A:1359:A:C3' | 1:A:1359:A:C8 | 2.87 | 0.57 |
| 1:A:1401:G:C5 | 1:A:1402:C:C5 | 2.93 | 0.57 |
| 1:A:1538:G:H22 | 1:A:1539:G:H21 | 1.53 | 0.57 |
| 1:A:1668:A:N7 | 1:A:1674:G:C2 | 2.72 | 0.57 |
| 1:A:1735:C:C2 | 1:A:1741:C:C5 | 2.93 | 0.57 |
| 1:A:1809:A:H8 | 1:A:1810:A:O4' | 1.87 | 0.57 |
| 1:A:2017:U:H4' | 28:4:8:LYS:HZ2 | 1.68 | 0.57 |
| 1:A:2344:U:HO2' | 1:A:2345:G:P | 2.26 | 0.57 |
| 1:A:2358:G:C6 | 1:A:2359:C:C4 | 2.92 | 0.57 |
| 1:A:2392:A:C2' | 1:A:2393:A:O5' | 2.51 | 0.57 |
| 1:A:2553:G:H5'' | 1:A:2554:U:OP2 | 2.05 | 0.57 |
| 1:A:2056:G:C4 | 1:A:2577:A:N3 | 2.73 | 0.57 |
| 1:A:270(B):A:H5' | 1:A:270(C):C:OP1 | 2.05 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:404:C:H5' | 1:A:406:G:C1' | 2.35 | 0.57 |
| 1:A:591:C:O2' | 31:7:1:MET:HB3 | 2.04 | 0.57 |
| 1:A:596:G:N2 | 1:A:597:U:H1' | 2.20 | 0.57 |
| 1:A:729:G:N7 | 1:A:730:C:C6 | 2.71 | 0.57 |
| 1:A:861:A:H2' | 1:A:862:G:C4' | 2.33 | 0.57 |
| 1:A:866:A:N3 | 1:A:866:A:C2' | 2.64 | 0.57 |
| 1:A:989:G:C2' | 1:A:990:A:OP2 | 2.53 | 0.57 |
| 1:A:996:A:H4' | 18:T:93:LYS:CG | 2.24 | 0.57 |
| 1:A:996:A:C2 | 1:A:997:G:N7 | 2.72 | 0.57 |
| 4:D:117:VAL:HG13 | 4:D:129:ASN:OD1 | 2.05 | 0.57 |
| 5:E:20:ALA:O | 5:E:21:VAL:HG12 | 2.05 | 0.57 |
| 6:F:41:LEU:HD13 | 6:F:44:ARG:NH1 | 2.18 | 0.57 |
| 7:G:141:PHE:CD2 | 7:G:145:THR:HG22 | 2.39 | 0.57 |
| 7:G:166:ASP:O | 7:G:168:GLU:N | 2.38 | 0.57 |
| 7:G:1:MET:HB3 | 7:G:2:PRO:CD | 2.35 | 0.57 |
| 7:G:45:GLU:O | 7:G:47:LYS:N | 2.32 | 0.57 |
| 7:G:53:LEU:HD23 | 7:G:71:THR:N | 2.19 | 0.57 |
| 8:H:106:THR:OG1 | 8:H:113:VAL:CG2 | 2.53 | 0.57 |
| 9:K:22:LYS:O | 9:K:23:PRO:O | 2.23 | 0.57 |
| 9:K:38:LEU:HD13 | 9:K:39:ALA:CB | 2.34 | 0.57 |
| 10:L:12:LEU:CD1 | 10:L:23:VAL:HG21 | 2.34 | 0.57 |
| 10:L:18:THR:CG2 | 10:L:34:ILE:HG22 | 2.33 | 0.57 |
| 11:M:3:THR:O | 11:M:4:TYR:HB2 | 2.05 | 0.57 |
| 11:M:72:TYR:O | 11:M:72:TYR:CD2 | 2.57 | 0.57 |
| 12:N:79:PHE:CE2 | 17:S:75:ILE:HD11 | 2.40 | 0.57 |
| 14:P:120:ILE:HA | 14:P:123:HIS:HB3 | 1.87 | 0.57 |
| 14:P:83:MET:CE | 14:P:83:MET:O | 2.53 | 0.57 |
| 14:P:77:LYS:CG | 14:P:87:LYS:HA | 2.35 | 0.57 |
| 15:Q:63:ARG:HH22 | 15:Q:77:ARG:HA | 1.70 | 0.57 |
| 16:R:40:ILE:HG13 | 16:R:47:THR:HA | 1.86 | 0.57 |
| 18:T:93:LYS:N | 18:T:93:LYS:NZ | 2.52 | 0.57 |
| 19:U:14:VAL:HG11 | 19:U:19:LYS:CG | 2.34 | 0.57 |
| 19:U:23:GLU:HA | 19:U:93:GLU:CB | 2.34 | 0.57 |
| 20:V:20:VAL:HG11 | 20:V:47:VAL:CG1 | 2.33 | 0.57 |
| 21:W:93:GLU:HG3 | 21:W:94:GLY:N | 2.19 | 0.57 |
| 23:Y:168:GLU:CG | 23:Y:169:GLU:N | 2.67 | 0.57 |
| 23:Y:10:ARG:CB | 23:Y:36:LYS:HD2 | 2.34 | 0.57 |
| 24:Z:76:GLY:CA | 24:Z:78:TYR:HE1 | 2.17 | 0.57 |
| 3:C:108:MET:HG3 | 3:C:110:PHE:CE2 | 2.39 | 0.57 |
| 9:K:135:GLU:N | 9:K:135:GLU:OE1 | 2.32 | 0.57 |
| 22:X:108:THR:HG22 | 22:X:109:GLU:CD | 2.24 | 0.57 |
| 25:1:59:LEU:HD12 | 25:1:59:LEU:O | 2.03 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 27:3:59:PHE:CA | 27:3:62:ARG:NH2 | 2.68 | 0.57 |
| 27:3:68:ARG:NH1 | 27:3:68:ARG:H | 2.01 | 0.57 |
| 29:5:28:ARG:HG3 | 29:5:29:ASN:N | 2.19 | 0.57 |
| 31:7:5:LYS:O | 31:7:7:HIS:CD2 | 2.57 | 0.57 |
| 1:A:1024:G:N3 | 1:A:1025:G:N7 | 2.51 | 0.57 |
| 1:A:1119:C:H2' | 1:A:1120:G:H8 | 1.70 | 0.57 |
| 1:A:1156:A:P | 18:T:55:ARG:HE | 2.26 | 0.57 |
| 1:A:1308:A:H2' | 1:A:1309:G:H8 | 1.66 | 0.57 |
| 1:A:1467:C:N4 | 1:A:1468:C:N4 | 2.52 | 0.57 |
| 1:A:1592:C:O2' | 1:A:1593:G:O4' | 2.19 | 0.57 |
| 1:A:1626:G:H22 | 1:A:1634:A:H1' | 1.64 | 0.57 |
| 1:A:1725:G:C4 | 1:A:1741:C:N4 | 2.73 | 0.57 |
| 1:A:1775:U:N1 | 4:D:208:LYS:NZ | 2.53 | 0.57 |
| 1:A:1966:A:N3 | 1:A:2593:U:C5' | 2.67 | 0.57 |
| 1:A:2021:C:H5'' | 1:A:2021:C:H6 | 1.70 | 0.57 |
| 1:A:2033:A:O2' | 1:A:2034:U:P | 2.60 | 0.57 |
| 1:A:2208:U:C3' | 1:A:2209:C:H5' | 2.35 | 0.57 |
| 1:A:224:G:C2 | 1:A:225:A:N9 | 2.72 | 0.57 |
| 1:A:917:A:N1 | 1:A:2268:A:N1 | 2.51 | 0.57 |
| 1:A:2245:U:O2 | 1:A:2435:A:C8 | 2.57 | 0.57 |
| 1:A:2631:G:N2 | 1:A:2788:C:C2 | 2.72 | 0.57 |
| 1:A:2848:G:N2 | 1:A:2867:G:O2' | 2.38 | 0.57 |
| 1:A:30:G:OP1 | 18:T:8:VAL:HG22 | 2.04 | 0.57 |
| 1:A:321:G:H4' | 6:F:165:ARG:O | 2.05 | 0.57 |
| 1:A:391:G:H2' | 1:A:392:C:C5 | 2.39 | 0.57 |
| 1:A:566:U:C6 | 1:A:567:A:C8 | 2.92 | 0.57 |
| 1:A:627:A:H5'' | 13:O:75:ILE:CG2 | 2.34 | 0.57 |
| 1:A:6:A:C2 | 1:A:7:G:C8 | 2.92 | 0.57 |
| 1:A:762:U:H2' | 1:A:762:U:O2 | 2.03 | 0.57 |
| 1:A:76:C:C2' | 1:A:77:C:H5' | 2.35 | 0.57 |
| 2:B:112:G:H3' | 2:B:113:C:C6 | 2.40 | 0.57 |
| 4:D:134:ARG:CA | 4:D:168:ARG:NH1 | 2.67 | 0.57 |
| 4:D:226:MET:HE1 | 4:D:237:GLU:H | 1.70 | 0.57 |
| 4:D:230:ASP:O | 4:D:231:HIS:C | 2.43 | 0.57 |
| 5:E:51:PHE:CZ | 5:E:75:VAL:HG22 | 2.40 | 0.57 |
| 6:F:12:LEU:O | 6:F:14:PRO:CD | 2.49 | 0.57 |
| 6:F:36:VAL:HG21 | 6:F:183:VAL:CG2 | 2.32 | 0.57 |
| 6:F:200:GLU:HG3 | 6:F:201:VAL:H | 1.69 | 0.57 |
| 7:G:74:LYS:N | 7:G:88:ILE:HD11 | 2.20 | 0.57 |
| 8:H:120:GLY:C | 8:H:135:GLY:HA2 | 2.25 | 0.57 |
| 8:H:45:VAL:HG13 | 8:H:50:VAL:CG1 | 2.32 | 0.57 |
| 9:K:32:PRO:O | 9:K:33:ARG:C | 2.41 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:L:16:LYS:O | 10:L:17:ALA:HB2 | 2.05 | 0.57 |
| 10:L:51:ALA:O | 10:L:52:ILE:HG12 | 2.04 | 0.57 |
| 11:M:107:LEU:HB3 | 11:M:117:PHE:CZ | 2.40 | 0.57 |
| 11:M:33:LEU:HD11 | 11:M:52:VAL:CB | 2.34 | 0.57 |
| 12:N:6:THR:HA | 12:N:7:TYR:CE1 | 2.39 | 0.57 |
| 14:P:77:LYS:HB3 | 14:P:78:PRO:HD3 | 1.84 | 0.57 |
| 15:Q:34:ILE:O | 15:Q:113:LEU:HD22 | 2.03 | 0.57 |
| 15:Q:96:ARG:CG | 15:Q:98:LEU:HD11 | 2.35 | 0.57 |
| 17:S:104:ASN:O | 17:S:107:ASP:HB2 | 2.03 | 0.57 |
| 17:S:45:PHE:HE1 | 17:S:86:ILE:HG22 | 1.70 | 0.57 |
| 17:S:33:LYS:HB2 | 17:S:87:ASP:HB3 | 1.86 | 0.57 |
| 18:T:17:ILE:CD1 | 18:T:20:LEU:HD11 | 2.32 | 0.57 |
| 18:T:37:GLU:O | 18:T:38:THR:C | 2.41 | 0.57 |
| 19:U:18:LEU:HB2 | 19:U:66:ARG:HH22 | 1.69 | 0.57 |
| 21:W:30:VAL:O | 21:W:77:LYS:HB3 | 2.04 | 0.57 |
| 21:W:57:LEU:HD23 | 21:W:57:LEU:C | 2.24 | 0.57 |
| 21:W:29:TRP:CH2 | 21:W:78:LYS:HE3 | 2.39 | 0.57 |
| 22:X:19:LYS:NZ | 22:X:39:VAL:HB | 2.20 | 0.57 |
| 22:X:31:LEU:O | 22:X:33:LYS:N | 2.38 | 0.57 |
| 23:Y:102:LEU:HD13 | 23:Y:137:ILE:HB | 1.87 | 0.57 |
| 23:Y:141:VAL:HB | 23:Y:150:LEU:HD11 | 1.86 | 0.57 |
| 23:Y:19:ARG:N | 23:Y:23:LYS:O | 2.38 | 0.57 |
| 3:C:197:GLU:O | 3:C:200:LYS:HB3 | 2.04 | 0.57 |
| 3:C:60:GLY:O | 3:C:61:THR:HB | 2.04 | 0.57 |
| 1:A:2195:C:C2' | 1:A:2196:C:O4' | 2.52 | 0.57 |
| 1:A:2246:G:N3 | 1:A:2247:A:C8 | 2.71 | 0.57 |
| 26:2:10:LYS:HD2 | 26:2:31:LEU:HD21 | 1.86 | 0.57 |
| 27:3:52:THR:CG2 | 27:3:53:GLU:N | 2.67 | 0.57 |
| 29:5:19:ARG:HG2 | 29:5:19:ARG:O | 2.05 | 0.57 |
| 31:7:53:PRO:C | 31:7:56:GLU:OE2 | 2.42 | 0.57 |
| 1:A:1009:A:C2 | 1:A:1010:A:C2 | 2.92 | 0.57 |
| 1:A:9:U:H2' | 1:A:10:G:O5' | 2.05 | 0.57 |
| 1:A:1210:A:H5'' | 1:A:1211:U:O5' | 2.04 | 0.57 |
| 1:A:551:G:O4' | 1:A:1220:A:N1 | 2.38 | 0.57 |
| 1:A:1266:G:P | 28:4:19:ARG:HH11 | 2.28 | 0.57 |
| 1:A:1300:U:O2' | 1:A:1301:A:P | 2.63 | 0.57 |
| 1:A:1302:A:H3' | 1:A:1303:G:C5' | 2.35 | 0.57 |
| 1:A:1341:U:OP2 | 1:A:1397:U:N3 | 2.34 | 0.57 |
| 1:A:1341:U:H3 | 1:A:1398:C:H5' | 1.69 | 0.57 |
| 1:A:1428:C:N4 | 1:A:1569:A:H3' | 2.20 | 0.57 |
| 1:A:1510:A:C4' | 1:A:1510:A:OP1 | 2.53 | 0.57 |
| 1:A:1775:U:H2' | 1:A:1776:G:H8 | 1.70 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2014:A:C2 | 1:A:2613:U:C4 | 2.93 | 0.57 |
| 1:A:2075:U:H2' | 1:A:2077:A:OP2 | 2.04 | 0.57 |
| 1:A:215:G:HO2' | 1:A:216:A:P | 2.28 | 0.57 |
| 1:A:2259:G:O4' | 1:A:2427:C:C6 | 2.57 | 0.57 |
| 1:A:2356:C:N3 | 1:A:2357:U:C5 | 2.73 | 0.57 |
| 1:A:2378:A:C2 | 1:A:2379:G:H1' | 2.34 | 0.57 |
| 1:A:2447:G:C6 | 1:A:2500:U:C2 | 2.92 | 0.57 |
| 1:A:2496:C:H2' | 1:A:2496:C:O2 | 2.03 | 0.57 |
| 1:A:2503:A:O2' | 1:A:2504:U:OP1 | 2.22 | 0.57 |
| 1:A:251:A:H3' | 1:A:251:A:P | 2.45 | 0.57 |
| 1:A:2532:G:O5' | 1:A:2532:G:H8 | 1.86 | 0.57 |
| 1:A:2583:G:C4 | 1:A:2584:U:O2 | 2.57 | 0.57 |
| 1:A:2589:A:C2 | 1:A:2590:A:C8 | 2.93 | 0.57 |
| 1:A:2776:A:C1' | 1:A:2778:A:C8 | 2.88 | 0.57 |
| 1:A:295:G:H2' | 1:A:296:C:C5' | 2.33 | 0.57 |
| 1:A:665:C:O2 | 1:A:666:G:C8 | 2.58 | 0.57 |
| 2:B:12:C:H5'' | 24:Z:74:ARG:HG3 | 1.85 | 0.57 |
| 2:B:46:A:O2' | 2:B:47:C:O4' | 2.19 | 0.57 |
| 2:B:63:G:H2' | 2:B:64:C:C6 | 2.39 | 0.57 |
| 2:B:99:A:C2 | 2:B:100:G:N9 | 2.73 | 0.57 |
| 1:A:1813:G:C2' | 4:D:46:GLN:HG2 | 2.34 | 0.57 |
| 5:E:116:VAL:O | 5:E:117:MET:O | 2.22 | 0.57 |
| 5:E:119:ARG:HG3 | 5:E:156:MET:O | 2.04 | 0.57 |
| 6:F:20:LEU:HD23 | 6:F:20:LEU:H | 1.69 | 0.57 |
| 7:G:141:PHE:C | 7:G:143:GLU:N | 2.56 | 0.57 |
| 7:G:1:MET:C | 7:G:3:LEU:H | 2.08 | 0.57 |
| 7:G:78:SER:CB | 7:G:83:ARG:HD2 | 2.30 | 0.57 |
| 8:H:132:ARG:N | 8:H:132:ARG:CD | 2.66 | 0.57 |
| 8:H:26:VAL:HG11 | 8:H:76:VAL:CA | 2.35 | 0.57 |
| 8:H:90:LYS:HD2 | 8:H:90:LYS:O | 2.05 | 0.57 |
| 10:L:112:MET:HE1 | 10:L:118:THR:CA | 2.34 | 0.57 |
| 1:A:1076:C:O4' | 10:L:90:LYS:HE2 | 2.05 | 0.57 |
| 11:M:62:VAL:O | 11:M:63:THR:HG23 | 2.03 | 0.57 |
| 1:A:1667:G:O5' | 12:N:7:TYR:CE1 | 2.58 | 0.57 |
| 13:O:130:PHE:CB | 13:O:135:LEU:HD12 | 2.35 | 0.57 |
| 13:O:46:LYS:CB | 13:O:49:ARG:CB | 2.83 | 0.57 |
| 13:O:69:GLY:O | 13:O:70:GLN:HB3 | 2.03 | 0.57 |
| 14:P:35:VAL:HG12 | 14:P:131:ILE:HA | 1.86 | 0.57 |
| 14:P:22:LYS:HA | 14:P:99:PRO:CG | 2.34 | 0.57 |
| 14:P:34:LEU:HG | 14:P:67:ARG:NH2 | 2.19 | 0.57 |
| 1:A:1649:G:C2 | 15:Q:107:ASP:HB2 | 2.40 | 0.57 |
| 15:Q:26:LYS:CE | 15:Q:70:LEU:HA | 2.35 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 15:Q:74:LYS:NZ | 15:Q:74:LYS:HB2 | 2.19 | 0.57 |
| 15:Q:86:ARG:HB2 | 15:Q:86:ARG:CZ | 2.34 | 0.57 |
| 15:Q:96:ARG:C | 15:Q:114:VAL:HG13 | 2.24 | 0.57 |
| 17:S:54:ARG:C | 17:S:55:ASN:OD1 | 2.42 | 0.57 |
| 21:W:89:ILE:HA | 21:W:92:LEU:HD22 | 1.87 | 0.57 |
| 22:X:46:LYS:HB2 | 22:X:58:GLY:N | 2.20 | 0.57 |
| 22:X:88:LYS:HE3 | 22:X:89:PHE:O | 2.04 | 0.57 |
| 22:X:9:LYS:HB2 | 22:X:9:LYS:HZ2 | 1.65 | 0.57 |
| 23:Y:111:VAL:N | 23:Y:116:VAL:O | 2.38 | 0.57 |
| 24:Z:50:ASN:HB2 | 24:Z:81:VAL:HB | 1.86 | 0.57 |
| 1:A:2113:U:H5 | 1:A:2114:A:H62 | 1.51 | 0.57 |
| 1:A:2137:C:H2' | 1:A:2138:C:H6 | 1.69 | 0.57 |
| 1:A:2168:G:H2' | 1:A:2170:A:OP2 | 2.05 | 0.57 |
| 3:C:59:ARG:NH1 | 3:C:59:ARG:HB3 | 2.20 | 0.57 |
| 1:A:2094:G:C2 | 1:A:2196:C:C2 | 2.93 | 0.57 |
| 25:1:27:LEU:C | 25:1:30:LEU:HG | 2.24 | 0.57 |
| 25:1:41:GLN:O | 25:1:42:ASN:C | 2.41 | 0.57 |
| 1:A:1029:A:H2' | 1:A:1030:G:C4' | 2.35 | 0.57 |
| 1:A:1061:U:OP1 | 1:A:1062:G:H8 | 1.88 | 0.57 |
| 1:A:1135:C:H1' | 1:A:2038:G:H4' | 1.85 | 0.57 |
| 1:A:1197:G:N3 | 1:A:1197:G:H2' | 2.20 | 0.57 |
| 1:A:1274:A:H2 | 1:A:1297:C:O2 | 1.88 | 0.57 |
| 1:A:1296:G:C2' | 1:A:1297:C:O5' | 2.53 | 0.57 |
| 1:A:1451:C:H5'' | 1:A:1453:A:O2' | 2.04 | 0.57 |
| 1:A:1475:G:N7 | 1:A:1517:G:C2 | 2.73 | 0.57 |
| 1:A:1447:G:O4' | 1:A:1545(A):A:H5' | 2.04 | 0.57 |
| 1:A:1324:G:O2' | 1:A:1616:A:C5 | 2.53 | 0.57 |
| 1:A:1647:G:P | 1:A:1647:G:H3' | 2.45 | 0.57 |
| 1:A:1655:A:C2' | 1:A:1656:C:C6 | 2.87 | 0.57 |
| 1:A:1832:C:C2' | 1:A:1833:U:H5' | 2.35 | 0.57 |
| 1:A:1930:G:O2' | 1:A:1931:U:P | 2.62 | 0.57 |
| 1:A:1952:A:C5 | 1:A:1953:A:N1 | 2.72 | 0.57 |
| 1:A:981:A:N3 | 1:A:2037:G:H1' | 2.19 | 0.57 |
| 1:A:2355:C:C5 | 1:A:2356:C:C5 | 2.93 | 0.57 |
| 1:A:2408:U:C3' | 1:A:2408:U:C6 | 2.88 | 0.57 |
| 1:A:2493:U:H3' | 1:A:2493:U:C6 | 2.40 | 0.57 |
| 1:A:2528:U:OP1 | 32:8:30:PRO:CG | 2.53 | 0.57 |
| 1:A:259:G:HO2' | 1:A:621:A:H1' | 1.69 | 0.57 |
| 1:A:270(G):C:H2' | 1:A:270(H):C:H6 | 1.65 | 0.57 |
| 1:A:289:A:C8 | 1:A:290:G:O6 | 2.57 | 0.57 |
| 1:A:389:G:OP1 | 1:A:389:G:C8 | 2.58 | 0.57 |
| 1:A:449:A:H2' | 1:A:450:G:C5' | 2.35 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:534:U:HO2' | 18:T:49:HIS:CD2 | 2.22 | 0.57 |
| 1:A:804:A:H62 | 13:O:39:LYS:HZ2 | 1.51 | 0.57 |
| 1:A:846:C:H1' | 1:A:847:U:C5 | 2.40 | 0.57 |
| 1:A:871:U:H2' | 1:A:872:A:H8 | 1.69 | 0.57 |
| 1:A:964:C:O2' | 1:A:965:C:O5' | 2.23 | 0.57 |
| 1:A:974(A):C:C5' | 1:A:975:G:OP1 | 2.50 | 0.57 |
| 2:B:23:G:H2' | 2:B:24:G:C8 | 2.40 | 0.57 |
| 4:D:134:ARG:HA | 4:D:168:ARG:HH12 | 1.70 | 0.57 |
| 4:D:14:ARG:HD3 | 4:D:15:PHE:H | 1.70 | 0.57 |
| 4:D:134:ARG:O | 4:D:168:ARG:NH1 | 2.37 | 0.57 |
| 4:D:183:ARG:CG | 4:D:184:LYS:H | 2.18 | 0.57 |
| 4:D:220:HIS:O | 4:D:221:VAL:HB | 2.04 | 0.57 |
| 1:A:1565:C:OP1 | 4:D:24:ILE:HG23 | 2.05 | 0.57 |
| 1:A:1843:C:C5' | 4:D:255:LYS:HE3 | 2.34 | 0.57 |
| 4:D:68:LYS:HB3 | 4:D:70:TRP:HE1 | 1.70 | 0.57 |
| 5:E:167:VAL:HG11 | 5:E:170:LEU:CD1 | 2.19 | 0.57 |
| 6:F:158:THR:CG2 | 6:F:159:GLY:N | 2.67 | 0.57 |
| 6:F:114:VAL:N | 6:F:186:ILE:HD13 | 2.20 | 0.57 |
| 7:G:18:GLU:OE2 | 7:G:18:GLU:C | 2.43 | 0.57 |
| 7:G:26:GLN:CD | 7:G:31:VAL:HG22 | 2.25 | 0.57 |
| 8:H:104:GLU:CB | 8:H:105:LEU:HD12 | 2.34 | 0.57 |
| 8:H:127:GLU:HG3 | 8:H:130:ARG:HG3 | 1.86 | 0.57 |
| 8:H:149:ARG:NH2 | 8:H:164:TYR:CD1 | 2.67 | 0.57 |
| 8:H:157:TYR:HB3 | 8:H:172:LYS:CG | 2.35 | 0.57 |
| 8:H:98:LEU:HD23 | 8:H:98:LEU:O | 2.05 | 0.57 |
| 9:K:39:ALA:HA | 9:K:44:LEU:HD21 | 1.87 | 0.57 |
| 10:L:18:THR:N | 10:L:38:VAL:CG2 | 2.67 | 0.57 |
| 11:M:96:GLU:N | 11:M:96:GLU:OE2 | 2.38 | 0.57 |
| 13:O:10:PRO:O | 13:O:11:GLY:O | 2.22 | 0.57 |
| 13:O:15:ARG:O | 13:O:16:ARG:C | 2.42 | 0.57 |
| 14:P:121:ALA:O | 14:P:124:LYS:CE | 2.52 | 0.57 |
| 14:P:16:ARG:O | 14:P:17:LEU:HG | 2.05 | 0.57 |
| 15:Q:113:LEU:CD1 | 15:Q:113:LEU:C | 2.71 | 0.57 |
| 16:R:26:LEU:CD1 | 16:R:28:VAL:HB | 2.34 | 0.57 |
| 16:R:49:VAL:CG2 | 16:R:50:SER:N | 2.68 | 0.57 |
| 17:S:31:SER:C | 17:S:32:TYR:CG | 2.75 | 0.57 |
| 17:S:19:LEU:HD12 | 17:S:85:LYS:NZ | 2.20 | 0.57 |
| 18:T:113:ALA:HA | 18:T:116:ALA:HB2 | 1.87 | 0.57 |
| 18:T:52:ARG:HB2 | 18:T:55:ARG:HD3 | 1.86 | 0.57 |
| 18:T:52:ARG:O | 18:T:55:ARG:N | 2.38 | 0.57 |
| 19:U:16:PRO:HD3 | 19:U:100:ARG:HH12 | 1.69 | 0.57 |
| 19:U:5:VAL:H | 19:U:12:TYR:HD2 | 1.52 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:62:LEU:O | 19:U:64:HIS:CE1 | 2.57 | 0.57 |
| 21:W:49:VAL:CA | 21:W:88:LYS:HG3 | 2.35 | 0.57 |
| 22:X:99:CYS:SG | 22:X:100:ALA:N | 2.78 | 0.57 |
| 23:Y:23:LYS:HE3 | 23:Y:38:TYR:CB | 2.32 | 0.57 |
| 23:Y:67:LEU:HB3 | 23:Y:90:VAL:HG11 | 1.86 | 0.57 |
| 1:A:2135:A:C5' | 1:A:2136:C:H5 | 2.17 | 0.57 |
| 3:C:102:LYS:O | 3:C:105:ASP:HB2 | 2.05 | 0.57 |
| 3:C:160:ARG:HG2 | 3:C:160:ARG:NH1 | 2.20 | 0.57 |
| 3:C:161:ILE:HG23 | 3:C:174:PRO:HG2 | 1.86 | 0.57 |
| 3:C:74:VAL:HG21 | 3:C:156:ILE:CD1 | 2.34 | 0.57 |
| 25:1:63:ARG:HH21 | 25:1:63:ARG:HB3 | 1.70 | 0.57 |
| 27:3:43:TYR:HA | 27:3:61:ARG:CZ | 2.34 | 0.57 |
| 29:5:25:LYS:C | 29:5:26:ASN:ND2 | 2.59 | 0.57 |
| 29:5:46:HIS:O | 29:5:47:THR:O | 2.22 | 0.57 |
| 1:A:1056:G:N2 | 1:A:1102:C:OP2 | 2.34 | 0.57 |
| 1:A:1089:G:O2' | 1:A:1103:A:C2 | 2.57 | 0.57 |
| 1:A:1225:C:OP1 | 19:U:88:ARG:HB2 | 2.04 | 0.57 |
| 1:A:1430:C:C2' | 1:A:1431:U:H5' | 2.35 | 0.57 |
| 1:A:1604:C:C2' | 1:A:1604:C:O2 | 2.52 | 0.57 |
| 1:A:1614:A:H5'' | 1:A:1617:C:H41 | 1.70 | 0.57 |
| 1:A:1717:G:N1 | 1:A:1718:G:N3 | 2.53 | 0.57 |
| 1:A:1778:U:C3' | 1:A:1779:U:C5 | 2.88 | 0.57 |
| 1:A:1784:A:O2' | 1:A:1785:A:P | 2.63 | 0.57 |
| 1:A:1783:A:C5' | 1:A:1784:A:OP1 | 2.53 | 0.57 |
| 1:A:1869:G:N3 | 1:A:1878:G:C6 | 2.73 | 0.57 |
| 1:A:1925:C:C2 | 1:A:1929:G:O6 | 2.58 | 0.57 |
| 1:A:1940:U:H4' | 1:A:1941:C:C6 | 2.40 | 0.57 |
| 1:A:1969:A:H4' | 1:A:1970:A:C5' | 2.27 | 0.57 |
| 1:A:2031:A:H8 | 1:A:2031:A:C5' | 2.18 | 0.57 |
| 1:A:2348:U:O2' | 1:A:2349:G:H5' | 2.05 | 0.57 |
| 1:A:2431:U:O2' | 1:A:2432:A:C8 | 2.58 | 0.57 |
| 1:A:2448:A:OP1 | 1:A:2498:C:H5'' | 2.05 | 0.57 |
| 1:A:2507:C:C2 | 1:A:2583:G:C2 | 2.93 | 0.57 |
| 1:A:2519:U:C6 | 1:A:2542:A:N6 | 2.73 | 0.57 |
| 1:A:2523:G:H2' | 1:A:2524:G:C5' | 2.33 | 0.57 |
| 1:A:2667:C:C5 | 1:A:2668:G:C8 | 2.92 | 0.57 |
| 1:A:2740:A:C6 | 1:A:2764:A:C4 | 2.92 | 0.57 |
| 1:A:2523:G:H1' | 1:A:2765:A:N6 | 2.19 | 0.57 |
| 1:A:2784:C:H4' | 5:E:40:GLU:OE2 | 2.05 | 0.57 |
| 1:A:2815:C:O2 | 1:A:2816:C:C6 | 2.58 | 0.57 |
| 1:A:2858:C:H3' | 1:A:2859:G:H8 | 1.70 | 0.57 |
| 1:A:2881:C:H2' | 1:A:2882:A:H8 | 1.70 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:289:A:C2 | 1:A:351:G:O6 | 2.57 | 0.57 |
| 1:A:419:C:N4 | 1:A:420:C:N4 | 2.53 | 0.57 |
| 1:A:456:C:N4 | 21:W:68:ARG:HB3 | 2.19 | 0.57 |
| 1:A:527:C:C5 | 11:M:114:ARG:HD2 | 2.38 | 0.57 |
| 1:A:621:A:H62 | 1:A:622:G:C1' | 2.18 | 0.57 |
| 1:A:648:G:C4 | 1:A:649:G:N7 | 2.73 | 0.57 |
| 1:A:669:G:N3 | 1:A:669:G:H2' | 2.20 | 0.57 |
| 1:A:775:G:C2 | 1:A:787:U:H2' | 2.36 | 0.57 |
| 1:A:820:A:H2' | 1:A:821:A:C5' | 2.31 | 0.57 |
| 1:A:963:U:H2' | 1:A:964:C:O5' | 2.05 | 0.57 |
| 1:A:975:G:N2 | 1:A:976:C:O4' | 2.38 | 0.57 |
| 4:D:117:VAL:HG13 | 4:D:129:ASN:N | 2.20 | 0.57 |
| 4:D:131:LEU:HG | 4:D:132:PRO:CD | 2.20 | 0.57 |
| 1:A:1789:A:N3 | 4:D:213:ARG:NH2 | 2.52 | 0.57 |
| 4:D:256:GLY:O | 4:D:257:LEU:CG | 2.49 | 0.57 |
| 4:D:9:TYR:CD2 | 4:D:25:THR:HG22 | 2.40 | 0.57 |
| 1:A:773:U:H5' | 4:D:48:ARG:HG2 | 1.85 | 0.57 |
| 1:A:2053:G:H5'' | 5:E:144:ARG:HA | 1.87 | 0.57 |
| 5:E:185:LYS:HG2 | 5:E:185:LYS:O | 2.04 | 0.57 |
| 6:F:123:LEU:CG | 6:F:191:ARG:HD3 | 2.34 | 0.57 |
| 7:G:17:PRO:O | 7:G:20:ILE:HB | 2.05 | 0.57 |
| 8:H:71:LEU:CD2 | 8:H:72:ILE:HD13 | 2.35 | 0.57 |
| 9:K:27:ARG:O | 9:K:32:PRO:CD | 2.49 | 0.57 |
| 9:K:9:LEU:CB | 9:K:13:GLY:HA3 | 2.34 | 0.57 |
| 12:N:113:LYS:NZ | 12:N:116:SER:HB3 | 2.20 | 0.57 |
| 12:N:99:PHE:CD1 | 17:S:74:ARG:CZ | 2.87 | 0.57 |
| 13:O:100:LEU:HD23 | 13:O:100:LEU:H | 1.69 | 0.57 |
| 13:O:121:LYS:CB | 13:O:137:LYS:HB2 | 2.34 | 0.57 |
| 15:Q:20:LEU:O | 15:Q:21:TYR:C | 2.42 | 0.57 |
| 15:Q:40:LYS:O | 15:Q:44:LEU:HB2 | 2.05 | 0.57 |
| 15:Q:5:LYS:HZ1 | 15:Q:6:SER:CA | 2.18 | 0.57 |
| 15:Q:85:PRO:O | 15:Q:86:ARG:C | 2.41 | 0.57 |
| 2:B:114:G:O4' | 16:R:47:THR:CG2 | 2.52 | 0.57 |
| 16:R:96:GLY:O | 16:R:98:VAL:N | 2.37 | 0.57 |
| 17:S:21:GLU:OE1 | 17:S:23:ARG:HD3 | 2.05 | 0.57 |
| 19:U:25:LEU:HG | 19:U:28:GLU:OE1 | 2.04 | 0.57 |
| 19:U:80:GLN:HE21 | 19:U:81:TYR:HE1 | 1.51 | 0.57 |
| 19:U:80:GLN:O | 19:U:82:ARG:N | 2.38 | 0.57 |
| 22:X:71:LYS:O | 22:X:72:VAL:O | 2.22 | 0.57 |
| 22:X:88:LYS:HD3 | 22:X:91:GLU:OE1 | 2.05 | 0.57 |
| 23:Y:120:ILE:HA | 23:Y:172:ALA:CB | 2.34 | 0.57 |
| 23:Y:4:ARG:HD3 | 23:Y:38:TYR:N | 2.20 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 24:Z:48:GLY:HA3 | 24:Z:80:HIS:CD2 | 2.40 | 0.57 |
| 9:K:77:LEU:HB2 | 9:K:142:VAL:HG13 | 1.85 | 0.57 |
| 1:A:2177:C:C4 | 1:A:2178:C:C5 | 2.93 | 0.57 |
| 3:C:103:ILE:CG2 | 3:C:130:ILE:HG21 | 2.34 | 0.57 |
| 3:C:129:ARG:HG2 | 3:C:130:ILE:HD12 | 1.86 | 0.57 |
| 3:C:166:ASP:OD2 | 3:C:167:LYS:HG2 | 2.05 | 0.57 |
| 1:A:1417:C:H42 | 1:A:1581:G:H1 | 0.64 | 0.57 |
| 1:A:274:G:C2' | 1:A:275:G:H5' | 2.35 | 0.57 |
| 25:1:2:ARG:O | 25:1:5:LEU:CB | 2.52 | 0.57 |
| 25:1:29:GLU:O | 25:1:30:LEU:C | 2.44 | 0.57 |
| 27:3:21:VAL:HG12 | 27:3:22:ILE:H | 1.69 | 0.57 |
| 27:3:29:PRO:O | 27:3:30:GLU:HB2 | 2.05 | 0.57 |
| 27:3:33:VAL:HG12 | 27:3:35:VAL:CG2 | 2.35 | 0.57 |
| 29:5:17:LYS:HE2 | 29:5:48:VAL:HG13 | 1.86 | 0.57 |
| 32:8:30:PRO:HA | 32:8:33:LYS:HE2 | 1.86 | 0.57 |
| 1:A:1021:A:C2' | 1:A:1022:G:OP1 | 2.52 | 0.57 |
| 1:A:1155:A:O2' | 1:A:1156:A:H5'' | 2.04 | 0.57 |
| 1:A:1345:C:H4' | 1:A:1396:U:O4 | 2.05 | 0.57 |
| 1:A:1455:G:C2' | 1:A:1456:G:H5' | 2.35 | 0.57 |
| 1:A:1511:A:H2' | 1:A:1512:G:O5' | 2.05 | 0.57 |
| 1:A:1515:C:C2' | 1:A:1516:U:OP1 | 2.52 | 0.57 |
| 1:A:1619:G:N2 | 1:A:1620:G:N3 | 2.52 | 0.57 |
| 1:A:1710:C:O2' | 1:A:1711:C:H5' | 2.05 | 0.57 |
| 1:A:1907:G:C5 | 1:A:1908:C:C5 | 2.92 | 0.57 |
| 1:A:2060:A:C8 | 1:A:2502:G:N3 | 2.73 | 0.57 |
| 1:A:219:G:H2' | 1:A:220:G:H5' | 1.87 | 0.57 |
| 1:A:2265:U:N3 | 1:A:2266:A:N7 | 2.52 | 0.57 |
| 1:A:2352:A:O2' | 1:A:2353:G:H5' | 2.05 | 0.57 |
| 1:A:2376:A:N6 | 16:R:94:TYR:CG | 2.73 | 0.57 |
| 1:A:2466:C:N3 | 1:A:2467:C:C5 | 2.73 | 0.57 |
| 1:A:2528:U:H2' | 1:A:2530:A:O5' | 2.05 | 0.57 |
| 1:A:2562:U:H2' | 1:A:2562:U:O2 | 2.05 | 0.57 |
| 1:A:2584:U:C6 | 1:A:2584:U:H3' | 2.40 | 0.57 |
| 1:A:273:G:H2' | 1:A:273(A):G:C8 | 2.31 | 0.57 |
| 1:A:2785:C:C2 | 1:A:2786:U:C5 | 2.92 | 0.57 |
| 1:A:2811:G:N2 | 1:A:2891:G:H1' | 2.20 | 0.57 |
| 1:A:227:A:N6 | 1:A:410:G:H1' | 2.20 | 0.57 |
| 1:A:52:A:H2' | 1:A:53:A:C8 | 2.39 | 0.57 |
| 1:A:687:C:H5'' | 30:6:4:THR:HB | 1.85 | 0.57 |
| 1:A:814:C:C4' | 1:A:1224:G:N2 | 2.65 | 0.57 |
| 1:A:987:G:C6 | 1:A:988:A:C5 | 2.93 | 0.57 |
| 2:B:14:U:H1' | 2:B:107:U:C1' | 2.34 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 2:B:83:G:O2' | 2:B:84:C:C5' | 2.51 | 0.57 |
| 4:D:64:ILE:HD12 | 4:D:104:TYR:CD2 | 2.40 | 0.57 |
| 1:A:2596:U:C3' | 4:D:242:ARG:NE | 2.68 | 0.57 |
| 4:D:257:LEU:O | 4:D:261:LYS:NZ | 2.38 | 0.57 |
| 4:D:33:LEU:CD1 | 4:D:63:ARG:NH2 | 2.67 | 0.57 |
| 5:E:100:GLU:CB | 5:E:172:VAL:HG11 | 2.33 | 0.57 |
| 5:E:128:SER:OG | 5:E:129:HIS:CD2 | 2.58 | 0.57 |
| 5:E:58:ARG:HG2 | 5:E:63:LEU:CD2 | 2.35 | 0.57 |
| 6:F:4:VAL:C | 6:F:6:VAL:H | 2.09 | 0.57 |
| 6:F:74:ARG:O | 6:F:75:HIS:HB2 | 2.05 | 0.57 |
| 7:G:19:LEU:CB | 7:G:22:ARG:HH12 | 2.18 | 0.57 |
| 7:G:51:ARG:CA | 7:G:51:ARG:HH21 | 2.17 | 0.57 |
| 8:H:83:TYR:CE1 | 8:H:138:LYS:HD3 | 2.39 | 0.57 |
| 8:H:74:ASN:O | 8:H:75:ALA:C | 2.43 | 0.57 |
| 12:N:108:GLU:O | 12:N:109:LYS:CB | 2.53 | 0.57 |
| 12:N:121:VAL:O | 17:S:70:VAL:O | 2.23 | 0.57 |
| 12:N:68:GLU:CG | 12:N:76:ALA:N | 2.68 | 0.57 |
| 13:O:72:PRO:HB3 | 13:O:111:ARG:N | 2.20 | 0.57 |
| 13:O:122:PRO:O | 13:O:138:LEU:N | 2.38 | 0.57 |
| 13:O:72:PRO:HB3 | 13:O:110:TYR:O | 2.04 | 0.57 |
| 14:P:106:VAL:O | 14:P:107:ALA:CB | 2.52 | 0.57 |
| 14:P:118:LEU:O | 14:P:121:ALA:N | 2.38 | 0.57 |
| 16:R:39:ILE:HG13 | 16:R:49:VAL:H | 1.69 | 0.57 |
| 18:T:17:ILE:C | 18:T:20:LEU:HG | 2.25 | 0.57 |
| 18:T:31:SER:HB2 | 18:T:35:ALA:N | 2.20 | 0.57 |
| 23:Y:133:ILE:O | 23:Y:133:ILE:HD12 | 2.05 | 0.57 |
| 23:Y:29:TYR:CD1 | 23:Y:72:ARG:NH2 | 2.73 | 0.57 |
| 23:Y:1:MET:HE2 | 23:Y:59:LEU:HD22 | 1.86 | 0.57 |
| 24:Z:37:LEU:HD11 | 24:Z:60:PHE:C | 2.25 | 0.57 |
| 24:Z:50:ASN:HB3 | 24:Z:63:VAL:CG2 | 2.34 | 0.57 |
| 9:K:81:VAL:HG12 | 9:K:88:ILE:CG1 | 2.25 | 0.57 |
| 1:A:2175:C:H1' | 3:C:218:MET:HA | 1.86 | 0.57 |
| 1:A:2103:C:H2' | 1:A:2104:G:C8 | 2.36 | 0.57 |
| 1:A:2294:C:O2' | 1:A:2295:C:H5' | 2.05 | 0.57 |
| 27:3:43:TYR:HE2 | 27:3:55:ARG:HG2 | 1.69 | 0.56 |
| 1:A:1140:C:H4' | 1:A:1142(A):A:H2 | 1.68 | 0.56 |
| 1:A:149:A:C6 | 1:A:150:C:C4 | 2.93 | 0.56 |
| 1:A:1542:G:C8 | 1:A:1543:A:N6 | 2.73 | 0.56 |
| 1:A:1545(A):A:C8 | 1:A:1545(A):A:H3' | 2.40 | 0.56 |
| 1:A:1921:G:O2' | 1:A:1922:G:H5' | 2.03 | 0.56 |
| 1:A:1940:U:C4' | 1:A:1941:C:H5' | 2.35 | 0.56 |
| 1:A:1954:G:H3' | 1:A:1954:G:P | 2.45 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1999:C:N3 | 1:A:2000:G:C8 | 2.73 | 0.56 |
| 1:A:2024:G:C5 | 1:A:2025:C:C5 | 2.93 | 0.56 |
| 1:A:2311:A:H5' | 7:G:86:MET:HE2 | 1.85 | 0.56 |
| 1:A:2508:G:H2' | 1:A:2509:G:H5' | 1.85 | 0.56 |
| 1:A:2526:G:H2' | 1:A:2527:C:C5' | 2.35 | 0.56 |
| 1:A:2650:U:H2' | 1:A:2651:C:C6 | 2.40 | 0.56 |
| 1:A:2786:U:H2' | 1:A:2787:C:H6 | 1.70 | 0.56 |
| 1:A:2814:C:H2' | 1:A:2815:C:C6 | 2.39 | 0.56 |
| 1:A:29:U:C2 | 1:A:30:G:N7 | 2.73 | 0.56 |
| 1:A:355:G:C2' | 1:A:356:G:C8 | 2.80 | 0.56 |
| 1:A:451:C:C5 | 1:A:453:C:H5' | 2.39 | 0.56 |
| 1:A:588:U:O2' | 1:A:589:C:H5' | 2.04 | 0.56 |
| 1:A:603:A:N6 | 1:A:625:G:N7 | 2.54 | 0.56 |
| 1:A:945:A:H3' | 1:A:946:G:H5'' | 1.87 | 0.56 |
| 2:B:81:G:O6 | 2:B:96:G:C6 | 2.58 | 0.56 |
| 4:D:145:VAL:O | 4:D:154:LYS:O | 2.23 | 0.56 |
| 4:D:13:ARG:O | 4:D:14:ARG:NH2 | 2.38 | 0.56 |
| 4:D:205:VAL:O | 4:D:205:VAL:HG13 | 2.03 | 0.56 |
| 1:A:1798:U:H5' | 4:D:257:LEU:HB2 | 1.87 | 0.56 |
| 5:E:4:ILE:HD11 | 5:E:76:ARG:HH11 | 1.70 | 0.56 |
| 6:F:154:VAL:C | 6:F:174:VAL:HG13 | 2.24 | 0.56 |
| 6:F:194:MET:HE1 | 6:F:200:GLU:HB3 | 1.85 | 0.56 |
| 6:F:35:GLU:O | 6:F:36:VAL:C | 2.43 | 0.56 |
| 7:G:103:LEU:O | 7:G:107:LEU:CB | 2.49 | 0.56 |
| 7:G:117:PHE:CZ | 7:G:137:GLU:HB3 | 2.39 | 0.56 |
| 7:G:128:ARG:NH2 | 7:G:130:ASN:ND2 | 2.53 | 0.56 |
| 8:H:116:GLU:CD | 8:H:116:GLU:N | 2.58 | 0.56 |
| 9:K:43:ASN:HD22 | 9:K:43:ASN:N | 2.02 | 0.56 |
| 10:L:18:THR:HA | 10:L:38:VAL:HG21 | 1.86 | 0.56 |
| 10:L:41:PHE:CE2 | 10:L:55:VAL:HG11 | 2.39 | 0.56 |
| 14:P:61:GLY:CA | 23:Y:178:GLU:HG3 | 2.34 | 0.56 |
| 15:Q:105:ARG:NH2 | 15:Q:105:ARG:HA | 2.18 | 0.56 |
| 15:Q:96:ARG:HD2 | 15:Q:98:LEU:HD11 | 1.86 | 0.56 |
| 17:S:33:LYS:HB3 | 17:S:45:PHE:C | 2.24 | 0.56 |
| 17:S:56:GLY:O | 17:S:61:PHE:CA | 2.53 | 0.56 |
| 17:S:92:GLY:C | 17:S:93:ARG:NH2 | 2.57 | 0.56 |
| 18:T:55:ARG:HD2 | 18:T:55:ARG:N | 2.18 | 0.56 |
| 21:W:61:GLY:CA | 21:W:73:ARG:HB3 | 2.34 | 0.56 |
| 21:W:87:GLN:N | 21:W:87:GLN:CD | 2.58 | 0.56 |
| 1:A:2112:G:N2 | 1:A:2113:U:C2 | 2.73 | 0.56 |
| 1:A:2133:G:OP2 | 1:A:2156:G:C4 | 2.58 | 0.56 |
| 1:A:2157:G:OP2 | 1:A:2157:G:N3 | 2.38 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 1:A:2168:G:C2' | 1:A:2169:A:O5' | 2.53 | 0.56 |
| 3:C:73:ARG:CB | 3:C:73:ARG:HH11 | 2.18 | 0.56 |
| 1:A:2106:G:N1 | 1:A:2184:G:C6 | 2.73 | 0.56 |
| 1:A:172:C:H2' | 1:A:173:G:C8 | 2.39 | 0.56 |
| 1:A:173:G:N2 | 1:A:174:C:C6 | 2.73 | 0.56 |
| 28:4:36:CYS:H | 28:4:49:CYS:CB | 2.18 | 0.56 |
| 31:7:33:ASN:O | 31:7:34:TRP:CB | 2.52 | 0.56 |
| 1:A:1127:A:C8 | 1:A:1127:A:H3' | 2.40 | 0.56 |
| 1:A:1203:G:C6 | 1:A:1240:U:C4 | 2.91 | 0.56 |
| 1:A:1238:G:H2' | 1:A:1239:G:O4' | 2.05 | 0.56 |
| 1:A:13:A:C8 | 1:A:15:G:O6 | 2.58 | 0.56 |
| 1:A:1409:C:H2' | 1:A:1410:G:O4' | 2.04 | 0.56 |
| 1:A:1424:G:OP2 | 1:A:1424:G:C8 | 2.57 | 0.56 |
| 1:A:1451:C:H2' | 1:A:1457:A:N6 | 2.20 | 0.56 |
| 1:A:1512:G:H5' | 1:A:1513:C:P | 2.45 | 0.56 |
| 1:A:1465:G:N2 | 1:A:1545(A):A:H1' | 2.20 | 0.56 |
| 1:A:1615:C:H5 | 1:A:1617:C:C2 | 2.22 | 0.56 |
| 1:A:1623:G:C5' | 1:A:1623:G:H8 | 2.17 | 0.56 |
| 1:A:1769:G:N2 | 1:A:1984:G:C4 | 2.73 | 0.56 |
| 1:A:1775:U:C4 | 4:D:208:LYS:HG3 | 2.40 | 0.56 |
| 1:A:1831:G:C6 | 1:A:1975:G:C6 | 2.92 | 0.56 |
| 1:A:1954:G:N2 | 1:A:1956:U:O2 | 2.38 | 0.56 |
| 1:A:1957:C:C2 | 1:A:1958:C:C5 | 2.93 | 0.56 |
| 1:A:1975:G:H2' | 1:A:1976:U:O4' | 2.05 | 0.56 |
| 1:A:2245:U:H1' | 1:A:2435:A:H3' | 1.87 | 0.56 |
| 1:A:2262:U:C4' | 1:A:2328:A:C2 | 2.87 | 0.56 |
| 1:A:411:G:O4' | 1:A:2407:G:P | 2.63 | 0.56 |
| 1:A:957:A:H2 | 1:A:2459:A:OP1 | 1.88 | 0.56 |
| 1:A:2582:G:C2 | 1:A:2583:G:H1' | 2.39 | 0.56 |
| 1:A:270(T):G:N3 | 1:A:270(T):G:H2' | 2.19 | 0.56 |
| 1:A:2754:U:H6 | 1:A:2754:U:O5' | 1.88 | 0.56 |
| 1:A:295:G:C2' | 1:A:338:G:H22 | 2.17 | 0.56 |
| 1:A:360:G:H2' | 1:A:361:G:O4' | 2.04 | 0.56 |
| 1:A:662:G:N3 | 1:A:663:G:N7 | 2.53 | 0.56 |
| 1:A:846:C:H4' | 1:A:847:U:O5' | 2.05 | 0.56 |
| 1:A:942:G:N1 | 1:A:943:U:O4 | 2.38 | 0.56 |
| 1:A:996:A:N6 | 1:A:1160:G:C6 | 2.73 | 0.56 |
| 4:D:177:LEU:O | 4:D:178:PRO:O | 2.23 | 0.56 |
| 4:D:214:TRP:O | 4:D:215:LEU:C | 2.44 | 0.56 |
| 4:D:37:LEU:HB2 | 4:D:64:ILE:HG22 | 1.87 | 0.56 |
| 1:A:2787:C:H5' | 5:E:64:LYS:HB2 | 1.87 | 0.56 |
| 5:E:84:PHE:CD1 | 5:E:85:ASN:N | 2.69 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:F:135:LYS:O | 6:F:139:PHE:HB2 | 2.05 | 0.56 |
| 6:F:40:GLN:CB | 6:F:184:TYR:OH | 2.53 | 0.56 |
| 7:G:166:ASP:O | 7:G:167:GLU:C | 2.43 | 0.56 |
| 7:G:181:ARG:HG3 | 7:G:182:LYS:N | 2.19 | 0.56 |
| 7:G:9:ARG:NH1 | 7:G:9:ARG:HG3 | 2.19 | 0.56 |
| 8:H:87:LEU:HD23 | 8:H:88:LEU:H | 1.70 | 0.56 |
| 10:L:13:PRO:HG2 | 10:L:16:LYS:CB | 2.35 | 0.56 |
| 10:L:42:ASN:O | 10:L:46:ALA:HB2 | 2.05 | 0.56 |
| 12:N:25:LEU:HD23 | 12:N:26:LYS:N | 2.16 | 0.56 |
| 12:N:31:LYS:HB2 | 12:N:32:TYR:CE2 | 2.40 | 0.56 |
| 12:N:7:TYR:HD2 | 12:N:44:LYS:HZ2 | 1.52 | 0.56 |
| 13:O:91:PHE:HE2 | 13:O:99:LEU:HD12 | 1.69 | 0.56 |
| 14:P:8:LYS:CD | 14:P:11:LYS:HZ2 | 2.16 | 0.56 |
| 15:Q:20:LEU:CD1 | 15:Q:44:LEU:HD21 | 2.35 | 0.56 |
| 16:R:106:ARG:HH22 | 16:R:110:LEU:HD22 | 1.70 | 0.56 |
| 16:R:6:ALA:HA | 16:R:9:ARG:CB | 2.35 | 0.56 |
| 12:N:75:SER:C | 17:S:77:PRO:HG2 | 2.26 | 0.56 |
| 11:M:4:TYR:CE1 | 18:T:101:ARG:NH2 | 2.73 | 0.56 |
| 18:T:46:ALA:C | 18:T:50:ARG:HD3 | 2.26 | 0.56 |
| 18:T:52:ARG:HH11 | 18:T:53:ARG:N | 2.03 | 0.56 |
| 18:T:9:VAL:HG12 | 18:T:13:LYS:HE2 | 1.87 | 0.56 |
| 19:U:62:LEU:HA | 19:U:99:ILE:HG13 | 1.87 | 0.56 |
| 20:V:33:ARG:NH2 | 20:V:33:ARG:O | 2.38 | 0.56 |
| 1:A:2013:A:H4' | 20:V:96:ILE:HG22 | 1.86 | 0.56 |
| 21:W:85:PRO:HG3 | 21:W:87:GLN:HG2 | 1.86 | 0.56 |
| 21:W:9:LEU:N | 21:W:9:LEU:CD1 | 2.63 | 0.56 |
| 22:X:86:ARG:HH21 | 22:X:91:GLU:HB3 | 1.70 | 0.56 |
| 23:Y:122:ARG:NH2 | 23:Y:170:THR:O | 2.38 | 0.56 |
| 23:Y:140:ASP:OD2 | 23:Y:141:VAL:N | 2.39 | 0.56 |
| 24:Z:65:GLY:HA3 | 24:Z:82:ARG:O | 2.05 | 0.56 |
| 9:K:77:LEU:HD12 | 9:K:142:VAL:HG22 | 1.87 | 0.56 |
| 3:C:82:LYS:HD2 | 3:C:149:ILE:HG22 | 1.86 | 0.56 |
| 3:C:74:VAL:HG12 | 3:C:75:LEU:N | 2.20 | 0.56 |
| 1:A:1579:A:H61 | 1:A:1581:G:H21 | 1.49 | 0.56 |
| 1:A:715:G:C2' | 1:A:716:A:O5' | 2.53 | 0.56 |
| 1:A:162:U:OP2 | 1:A:171:G:N1 | 2.39 | 0.56 |
| 25:1:53:ALA:HA | 25:1:56:LEU:HD23 | 1.86 | 0.56 |
| 27:3:64:GLY:O | 27:3:67:TYR:N | 2.38 | 0.56 |
| 28:4:23:HIS:O | 28:4:24:ALA:HB3 | 2.04 | 0.56 |
| 29:5:23:THR:CG2 | 29:5:24:GLU:H | 2.17 | 0.56 |
| 29:5:8:LYS:CD | 29:5:29:ASN:HA | 2.34 | 0.56 |
| 30:6:10:ARG:O | 30:6:14:LYS:HG3 | 2.04 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 31:7:31:HIS:O | 31:7:32:LEU:HD23 | 2.05 | 0.56 |
| 31:7:42:ARG:HB3 | 31:7:43:GLN:NE2 | 2.20 | 0.56 |
| 1:A:1127:A:H8 | 1:A:1127:A:H3' | 1.70 | 0.56 |
| 1:A:1237:A:O2' | 1:A:1238:G:OP1 | 2.22 | 0.56 |
| 1:A:1306:C:C2 | 1:A:1307:A:C8 | 2.92 | 0.56 |
| 1:A:14:A:N1 | 1:A:526:A:N1 | 2.53 | 0.56 |
| 1:A:1544:C:O2' | 1:A:1545:A:H1' | 2.05 | 0.56 |
| 1:A:1569:A:C2 | 1:A:1570:A:C6 | 2.94 | 0.56 |
| 1:A:1609:A:C5 | 1:A:1616:A:N3 | 2.74 | 0.56 |
| 1:A:1669:A:H2' | 1:A:1670:C:H5' | 1.86 | 0.56 |
| 1:A:1691:C:H2' | 1:A:1692:U:C5' | 2.35 | 0.56 |
| 1:A:1735:C:O2 | 1:A:1741:C:H5 | 1.88 | 0.56 |
| 1:A:1797:C:HO2' | 4:D:257:LEU:HD12 | 1.71 | 0.56 |
| 1:A:1806:C:C2' | 1:A:1807:G:H5' | 2.35 | 0.56 |
| 1:A:1862:G:C2' | 1:A:1863:G:H8 | 2.18 | 0.56 |
| 1:A:2014:A:N3 | 1:A:2015:A:N1 | 2.53 | 0.56 |
| 1:A:2346:A:C2 | 1:A:2383:G:C6 | 2.93 | 0.56 |
| 1:A:2498:C:C3' | 1:A:2499:C:H5'' | 2.32 | 0.56 |
| 1:A:2543:G:C8 | 1:A:2544:G:N7 | 2.73 | 0.56 |
| 1:A:269:U:C4 | 1:A:424:G:N1 | 2.73 | 0.56 |
| 1:A:270(I):G:N3 | 1:A:270(J):G:H1' | 2.19 | 0.56 |
| 1:A:2714:G:C5 | 1:A:2715:C:C5 | 2.93 | 0.56 |
| 1:A:2808:U:O5' | 1:A:2808:U:H6 | 1.88 | 0.56 |
| 1:A:2810:A:O2' | 5:E:61:ARG:NH2 | 2.38 | 0.56 |
| 1:A:354:G:O2' | 1:A:355:G:O4' | 2.17 | 0.56 |
| 1:A:51:G:C5' | 1:A:52:A:OP1 | 2.52 | 0.56 |
| 1:A:623:G:H3' | 13:O:105:LEU:HD23 | 1.84 | 0.56 |
| 1:A:700:G:H2' | 1:A:701:G:C8 | 2.39 | 0.56 |
| 1:A:723:G:O2' | 1:A:724:U:H5' | 2.05 | 0.56 |
| 1:A:762:U:H1' | 1:A:763:G:C5 | 2.40 | 0.56 |
| 1:A:823:G:H3' | 1:A:824:A:H8 | 1.70 | 0.56 |
| 1:A:861:A:C6 | 1:A:917:A:N7 | 2.73 | 0.56 |
| 1:A:820:A:C2 | 1:A:943:U:C2' | 2.88 | 0.56 |
| 1:A:820:A:H2 | 1:A:943:U:H2' | 1.70 | 0.56 |
| 1:A:973:A:H2' | 1:A:974:G:O5' | 2.05 | 0.56 |
| 4:D:105:ILE:HD11 | 4:D:106:ILE:HD11 | 1.86 | 0.56 |
| 4:D:137:PRO:HG2 | 4:D:140:THR:CG2 | 2.35 | 0.56 |
| 4:D:155:LEU:O | 4:D:155:LEU:CG | 2.53 | 0.56 |
| 4:D:50:THR:O | 4:D:51:VAL:HG22 | 2.05 | 0.56 |
| 5:E:114:ALA:HB3 | 5:E:118:LYS:CB | 2.34 | 0.56 |
| 5:E:164:ARG:C | 5:E:165:VAL:CG2 | 2.73 | 0.56 |
| 5:E:183:LEU:HD22 | 5:E:183:LEU:N | 2.20 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:F:149:ASP:C | 6:F:151:SER:H | 2.09 | 0.56 |
| 6:F:44:ARG:HG3 | 6:F:45:ARG:N | 2.19 | 0.56 |
| 6:F:62:ARG:HG3 | 6:F:63:LYS:CD | 2.35 | 0.56 |
| 8:H:117:PRO:CB | 8:H:121:ILE:HG12 | 2.34 | 0.56 |
| 9:K:24:GLY:HA2 | 9:K:27:ARG:HB3 | 1.86 | 0.56 |
| 9:K:32:PRO:CG | 9:K:33:ARG:N | 2.41 | 0.56 |
| 9:K:3:VAL:C | 9:K:18:VAL:HG13 | 2.24 | 0.56 |
| 11:M:12:ARG:NH1 | 11:M:48:MET:CE | 2.67 | 0.56 |
| 11:M:13:TRP:C | 11:M:138:LEU:HD12 | 2.24 | 0.56 |
| 11:M:67:LEU:HA | 11:M:70:LYS:HZ1 | 1.70 | 0.56 |
| 15:Q:97:VAL:CA | 15:Q:114:VAL:HG22 | 2.25 | 0.56 |
| 15:Q:33:ARG:HA | 15:Q:115:GLU:HB3 | 1.86 | 0.56 |
| 15:Q:26:LYS:HE2 | 15:Q:70:LEU:HB3 | 1.86 | 0.56 |
| 16:R:14:VAL:HG13 | 16:R:18:ILE:HD11 | 1.88 | 0.56 |
| 16:R:44:LYS:HB2 | 16:R:46:VAL:HG22 | 1.86 | 0.56 |
| 16:R:57:LYS:HB3 | 16:R:65:VAL:HG23 | 1.87 | 0.56 |
| 17:S:29:ARG:HG2 | 17:S:51:ARG:CG | 2.25 | 0.56 |
| 17:S:53:ARG:C | 17:S:64:ARG:HB3 | 2.22 | 0.56 |
| 18:T:31:SER:C | 18:T:32:PHE:HD1 | 2.09 | 0.56 |
| 19:U:35:LEU:O | 19:U:61:VAL:HA | 2.05 | 0.56 |
| 20:V:72:LYS:HB3 | 20:V:106:ILE:HG23 | 1.86 | 0.56 |
| 20:V:14:PRO:HG2 | 20:V:16:LYS:HE3 | 1.86 | 0.56 |
| 20:V:95:ILE:H | 20:V:95:ILE:CD1 | 1.87 | 0.56 |
| 21:W:6:ASP:O | 21:W:8:ILE:HG12 | 2.04 | 0.56 |
| 21:W:65:ARG:HA | 21:W:70:LEU:CG | 2.33 | 0.56 |
| 22:X:81:LYS:HZ3 | 22:X:96:ILE:HG12 | 1.70 | 0.56 |
| 23:Y:152:ALA:HB3 | 23:Y:168:GLU:O | 2.05 | 0.56 |
| 23:Y:75:ASN:CB | 23:Y:84:GLU:HB2 | 2.35 | 0.56 |
| 25:1:29:GLU:O | 25:1:33:GLN:OE1 | 2.24 | 0.56 |
| 29:5:19:ARG:NH2 | 29:5:47:THR:OG1 | 2.38 | 0.56 |
| 30:6:22:MET:HG3 | 30:6:28:ARG:HG2 | 1.87 | 0.56 |
| 1:A:242:G:H5'' | 31:7:4:MET:HE3 | 1.88 | 0.56 |
| 1:A:1005:C:O2' | 1:A:1006:C:H5' | 2.04 | 0.56 |
| 1:A:1023:U:OP1 | 1:A:1025:G:N2 | 2.37 | 0.56 |
| 1:A:1024:G:C5 | 1:A:1134:G:H1' | 2.40 | 0.56 |
| 1:A:1071:G:C4 | 1:A:1089:G:C5 | 2.93 | 0.56 |
| 1:A:1151:G:H2' | 1:A:1152:C:C5 | 2.38 | 0.56 |
| 1:A:1189:A:C5' | 13:O:29:LYS:HD3 | 2.35 | 0.56 |
| 1:A:1303:G:C6 | 1:A:1304:C:C4 | 2.94 | 0.56 |
| 1:A:1525:G:H2' | 1:A:1526:G:H8 | 1.71 | 0.56 |
| 1:A:1557:C:H3' | 1:A:1558:A:H5'' | 1.86 | 0.56 |
| 1:A:1631:A:N1 | 1:A:1632:A:N3 | 2.53 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1663:C:C3' | 1:A:1664:A:N3 | 2.67 | 0.56 |
| 1:A:1728:G:OP1 | 1:A:1728:G:H3' | 2.05 | 0.56 |
| 1:A:1731:G:H22 | 1:A:1733:G:H22 | 1.54 | 0.56 |
| 1:A:176:G:O2' | 1:A:177:G:H5' | 2.05 | 0.56 |
| 1:A:1789:A:OP1 | 4:D:222:ARG:CB | 2.54 | 0.56 |
| 1:A:182:A:C2 | 1:A:183:C:N3 | 2.74 | 0.56 |
| 1:A:1915:U:O2 | 1:A:1916:A:C8 | 2.58 | 0.56 |
| 1:A:228:A:C8 | 1:A:229:A:O2' | 2.59 | 0.56 |
| 1:A:2824:C:N3 | 1:A:2825:C:H1' | 2.20 | 0.56 |
| 1:A:416:C:H41 | 1:A:417:C:N4 | 2.02 | 0.56 |
| 1:A:541:C:H2' | 1:A:542:C:H6 | 1.69 | 0.56 |
| 1:A:55:G:N3 | 1:A:56:A:C8 | 2.73 | 0.56 |
| 1:A:60:G:N2 | 1:A:68:G:N2 | 2.53 | 0.56 |
| 1:A:783:A:H3' | 4:D:227:ASN:CG | 2.25 | 0.56 |
| 1:A:800:A:O2' | 1:A:801:G:C5' | 2.53 | 0.56 |
| 1:A:880:G:C6 | 1:A:881:G:H1' | 2.39 | 0.56 |
| 1:A:943:U:C6 | 1:A:944:G:N7 | 2.73 | 0.56 |
| 2:B:13:A:C2' | 2:B:14:U:H5'' | 2.35 | 0.56 |
| 4:D:143:HIS:O | 4:D:144:ALA:HB3 | 2.05 | 0.56 |
| 1:A:2216:G:N2 | 4:D:150:LYS:NZ | 2.53 | 0.56 |
| 4:D:134:ARG:CA | 4:D:168:ARG:HH12 | 2.19 | 0.56 |
| 5:E:118:LYS:O | 5:E:119:ARG:C | 2.44 | 0.56 |
| 6:F:155:LEU:HD11 | 6:F:185:ASP:HB3 | 1.86 | 0.56 |
| 7:G:57:ALA:HB1 | 7:G:67:LYS:HB2 | 1.87 | 0.56 |
| 8:H:33:LEU:C | 8:H:33:LEU:HD23 | 2.26 | 0.56 |
| 8:H:83:TYR:CD1 | 8:H:138:LYS:HA | 2.41 | 0.56 |
| 9:K:6:LEU:HD13 | 9:K:7:GLU:OE2 | 2.04 | 0.56 |
| 11:M:80:GLY:O | 11:M:81:GLY:O | 2.23 | 0.56 |
| 13:O:68:GLN:N | 13:O:68:GLN:HE21 | 2.03 | 0.56 |
| 13:O:96:THR:HB | 13:O:99:LEU:CB | 2.34 | 0.56 |
| 15:Q:107:ASP:CG | 15:Q:109:ALA:H | 2.08 | 0.56 |
| 15:Q:9:LYS:O | 15:Q:10:LEU:HD23 | 2.06 | 0.56 |
| 1:A:1754:C:O4' | 17:S:104:ASN:ND2 | 2.38 | 0.56 |
| 17:S:1:MET:CG | 17:S:2:ASN:H | 2.17 | 0.56 |
| 18:T:58:ARG:O | 18:T:62:ILE:HG13 | 2.05 | 0.56 |
| 20:V:41:LYS:NZ | 20:V:41:LYS:CB | 2.63 | 0.56 |
| 20:V:88:ARG:CA | 20:V:88:ARG:NE | 2.61 | 0.56 |
| 1:A:64:A:H1' | 21:W:66:LEU:HD23 | 1.86 | 0.56 |
| 22:X:16:ALA:HB3 | 22:X:68:HIS:ND1 | 2.19 | 0.56 |
| 9:K:114:LEU:CB | 9:K:130:TYR:HB3 | 2.36 | 0.56 |
| 9:K:111:PRO:HG2 | 9:K:112:LYS:HG2 | 1.87 | 0.56 |
| 1:A:2148:G:N3 | 1:A:2149:G:N7 | 2.54 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2176:A:H2' | 1:A:2177:C:C6 | 2.40 | 0.56 |
| 3:C:113:VAL:HG23 | 3:C:144:THR:CG2 | 2.36 | 0.56 |
| 3:C:190:ARG:HD3 | 3:C:193:ILE:CD1 | 2.35 | 0.56 |
| 3:C:39:GLU:HG2 | 3:C:41:VAL:CG2 | 2.35 | 0.56 |
| 1:A:2132:U:H3' | 1:A:2133:G:H5'' | 1.78 | 0.56 |
| 3:C:26:ALA:HB1 | 3:C:185:LEU:HD12 | 1.87 | 0.56 |
| 1:A:713:G:O2' | 1:A:714:U:P | 2.63 | 0.56 |
| 1:A:155:C:O2 | 1:A:171:G:N2 | 2.38 | 0.56 |
| 3:C:36:LYS:O | 3:C:37:PHE:HB3 | 2.04 | 0.56 |
| 1:A:95:G:H4' | 25:1:39:LEU:O | 2.04 | 0.56 |
| 26:2:5:LYS:HD2 | 26:2:5:LYS:C | 2.26 | 0.56 |
| 29:5:17:LYS:HG2 | 29:5:19:ARG:HE | 1.71 | 0.56 |
| 30:6:8:ASN:HD21 | 30:6:10:ARG:CB | 2.05 | 0.56 |
| 31:7:52:LYS:HG2 | 31:7:56:GLU:OE1 | 2.05 | 0.56 |
| 1:A:1007:C:H2' | 1:A:1008:C:C5 | 2.40 | 0.56 |
| 1:A:1027:A:C6 | 1:A:1126:A:H1' | 2.41 | 0.56 |
| 1:A:1188:U:N3 | 1:A:1189:A:C8 | 2.73 | 0.56 |
| 1:A:1264:G:H3' | 1:A:1265:A:H5'' | 1.84 | 0.56 |
| 1:A:1316:U:O2' | 1:A:1317:A:H5' | 2.04 | 0.56 |
| 1:A:1354:A:C8 | 1:A:1355:G:C8 | 2.93 | 0.56 |
| 1:A:138:G:H21 | 1:A:139:G:H8 | 1.51 | 0.56 |
| 1:A:1520:U:O2' | 1:A:1521:G:O4' | 2.23 | 0.56 |
| 1:A:1531:C:C2 | 1:A:1532:C:C5 | 2.93 | 0.56 |
| 1:A:1613:G:N2 | 1:A:1619:G:C8 | 2.72 | 0.56 |
| 1:A:1672:C:H3' | 1:A:1673:U:C5' | 2.29 | 0.56 |
| 1:A:1708:C:H2' | 1:A:1709:U:H5' | 1.86 | 0.56 |
| 1:A:176:G:H2' | 1:A:177:G:H8 | 1.71 | 0.56 |
| 1:A:1800:C:H1' | 1:A:1802:A:C8 | 2.40 | 0.56 |
| 1:A:1832:C:H2' | 1:A:1833:U:H5' | 1.86 | 0.56 |
| 1:A:2572:A:H4' | 1:A:2573:C:H5' | 1.83 | 0.56 |
| 1:A:2619:C:O2' | 1:A:2620:C:C5' | 2.53 | 0.56 |
| 1:A:2674:G:H4' | 12:N:26:LYS:HZ2 | 1.69 | 0.56 |
| 1:A:2625:G:H1 | 1:A:2777:G:N2 | 2.04 | 0.56 |
| 1:A:2824:C:C4 | 1:A:2825:C:H1' | 2.40 | 0.56 |
| 1:A:2858:C:H3' | 1:A:2859:G:C8 | 2.41 | 0.56 |
| 1:A:2880:C:O4' | 15:Q:91:GLN:HB3 | 2.05 | 0.56 |
| 1:A:449:A:O2' | 1:A:450:G:C5' | 2.48 | 0.56 |
| 1:A:532:A:O3' | 18:T:28:ARG:HD2 | 2.05 | 0.56 |
| 1:A:563:G:N2 | 1:A:564:C:C2 | 2.74 | 0.56 |
| 1:A:598:G:H2' | 1:A:599:G:O4' | 2.06 | 0.56 |
| 1:A:703:U:H3' | 1:A:704:G:C8 | 2.40 | 0.56 |
| 1:A:809:G:N7 | 1:A:810:U:C5 | 2.74 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:871:U:H4' | 14:P:69:PHE:CE2 | 2.39 | 0.56 |
| 1:A:94:G:N2 | 1:A:95:G:H1' | 2.20 | 0.56 |
| 2:B:13:A:N1 | 2:B:69:G:H2' | 2.21 | 0.56 |
| 4:D:133:LEU:HG | 4:D:187:GLY:O | 2.04 | 0.56 |
| 4:D:134:ARG:HG3 | 4:D:187:GLY:C | 2.25 | 0.56 |
| 4:D:133:LEU:HB3 | 4:D:136:ILE:HD11 | 1.86 | 0.56 |
| 4:D:173:VAL:C | 4:D:174:ILE:HD12 | 2.26 | 0.56 |
| 4:D:208:LYS:HZ2 | 4:D:211:ARG:HG3 | 1.65 | 0.56 |
| 4:D:217:ARG:HG3 | 4:D:218:ARG:HG2 | 1.88 | 0.56 |
| 1:A:1824:G:H21 | 4:D:253:GLN:NE2 | 2.02 | 0.56 |
| 4:D:264:LYS:HB2 | 4:D:265:PRO:CD | 2.36 | 0.56 |
| 4:D:6:PHE:N | 4:D:28:GLU:OE1 | 2.38 | 0.56 |
| 4:D:46:GLN:NE2 | 4:D:52:ARG:CZ | 2.67 | 0.56 |
| 4:D:87:ASN:ND2 | 4:D:87:ASN:N | 2.52 | 0.56 |
| 5:E:101:ARG:HE | 5:E:169:ASN:HD21 | 1.54 | 0.56 |
| 5:E:100:GLU:C | 5:E:172:VAL:HG13 | 2.25 | 0.56 |
| 5:E:63:LEU:O | 5:E:66:HIS:ND1 | 2.38 | 0.56 |
| 5:E:71:GLY:O | 5:E:72:VAL:HG22 | 2.05 | 0.56 |
| 8:H:20:ALA:CB | 8:H:21:PRO:HD2 | 2.34 | 0.56 |
| 8:H:89:ILE:CD1 | 8:H:90:LYS:N | 2.62 | 0.56 |
| 11:M:34:LEU:CD1 | 11:M:120:LEU:HD22 | 2.35 | 0.56 |
| 11:M:2:LYS:HB3 | 11:M:2:LYS:NZ | 2.21 | 0.56 |
| 12:N:64:ARG:CA | 12:N:81:ASP:OD2 | 2.52 | 0.56 |
| 13:O:137:LYS:HD3 | 13:O:140:ALA:HB2 | 1.88 | 0.56 |
| 14:P:109:VAL:HG11 | 14:P:114:ALA:CB | 2.35 | 0.56 |
| 15:Q:103:ARG:HB2 | 15:Q:108:GLY:C | 2.25 | 0.56 |
| 16:R:24:LEU:HA | 16:R:41:ASP:CB | 2.36 | 0.56 |
| 16:R:69:VAL:O | 16:R:73:LEU:CD1 | 2.52 | 0.56 |
| 17:S:17:THR:CG2 | 17:S:22:PHE:CZ | 2.88 | 0.56 |
| 17:S:33:LYS:CG | 17:S:87:ASP:HB3 | 2.34 | 0.56 |
| 18:T:57:PHE:HD2 | 18:T:61:TRP:NE1 | 2.03 | 0.56 |
| 18:T:66:ASN:O | 18:T:70:ARG:HG3 | 2.05 | 0.56 |
| 1:A:996:A:C5' | 18:T:93:LYS:HG3 | 2.36 | 0.56 |
| 21:W:47:PHE:HB3 | 21:W:49:VAL:HG13 | 1.87 | 0.56 |
| 22:X:2:ARG:O | 22:X:30:VAL:O | 2.24 | 0.56 |
| 1:A:2353:G:C4' | 24:Z:32:ARG:HH12 | 2.16 | 0.56 |
| 9:K:147:GLN:O | 9:K:148:GLU:OXT | 2.23 | 0.56 |
| 9:K:86:THR:O | 9:K:88:ILE:HD12 | 2.05 | 0.56 |
| 9:K:93:THR:HG23 | 9:K:96:ASP:H | 1.69 | 0.56 |
| 3:C:78:ALA:HB1 | 3:C:118:ASP:CG | 2.25 | 0.56 |
| 9:K:118:LYS:O | 9:K:119:PRO:C | 2.42 | 0.56 |
| 25:1:16:LEU:HD12 | 25:1:16:LEU:O | 2.05 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 28:4:17:ASP:O | 28:4:18:ALA:C | 2.43 | 0.56 |
| 29:5:19:ARG:HD3 | 29:5:19:ARG:O | 2.05 | 0.56 |
| 31:7:1:MET:H2 | 31:7:2:PRO:HD2 | 1.68 | 0.56 |
| 1:A:1000:A:C6 | 1:A:1155:A:C8 | 2.92 | 0.56 |
| 1:A:1045:A:O2' | 1:A:1047:G:O4' | 2.23 | 0.56 |
| 1:A:10:G:C2 | 1:A:2629:A:C2 | 2.94 | 0.56 |
| 1:A:1203:G:N1 | 1:A:1241:A:C8 | 2.73 | 0.56 |
| 1:A:1326:U:H2' | 1:A:1327:C:C4' | 2.35 | 0.56 |
| 1:A:1419:A:H3' | 1:A:1420:U:O4' | 2.06 | 0.56 |
| 1:A:1688:U:O4' | 1:A:1701:A:N6 | 2.38 | 0.56 |
| 1:A:1743:G:OP1 | 1:A:1743:G:H4' | 2.04 | 0.56 |
| 1:A:1782:C:H5' | 1:A:2609:U:C4 | 2.40 | 0.56 |
| 1:A:1820:U:C2 | 4:D:202:LYS:CG | 2.86 | 0.56 |
| 1:A:200:U:H3' | 1:A:201:C:C5' | 2.35 | 0.56 |
| 1:A:2052:G:O2' | 5:E:143:ASN:O | 2.22 | 0.56 |
| 1:A:2216:G:O5' | 1:A:2216:G:C8 | 2.59 | 0.56 |
| 1:A:2269:A:H2' | 1:A:2270:G:C5' | 2.35 | 0.56 |
| 1:A:2066:C:C2 | 1:A:2445:G:N2 | 2.74 | 0.56 |
| 1:A:2468:G:C8 | 1:A:2476:A:C2 | 2.94 | 0.56 |
| 1:A:2547:U:C3' | 1:A:2548:G:C5' | 2.84 | 0.56 |
| 1:A:2690:C:H5 | 15:Q:14:SER:CB | 2.14 | 0.56 |
| 1:A:2703:C:O2 | 1:A:2704:C:C6 | 2.57 | 0.56 |
| 1:A:2748:A:O2' | 8:H:66:GLY:CA | 2.52 | 0.56 |
| 1:A:2831:G:HO2' | 1:A:2883:A:H2' | 1.69 | 0.56 |
| 1:A:479:A:H4' | 1:A:480:A:H5' | 1.87 | 0.56 |
| 1:A:481:G:HO2' | 1:A:482:A:H8 | 1.51 | 0.56 |
| 1:A:573:G:H2' | 1:A:574:C:H5'' | 1.86 | 0.56 |
| 2:B:29:A:N3 | 2:B:56:G:N2 | 2.53 | 0.56 |
| 2:B:6:C:H4' | 2:B:28:C:H5' | 1.87 | 0.56 |
| 4:D:130:ALA:HB1 | 4:D:191:ALA:O | 2.05 | 0.56 |
| 1:A:1819:A:C5' | 4:D:178:PRO:HG3 | 2.29 | 0.56 |
| 4:D:22:SER:OG | 4:D:206:LEU:O | 2.13 | 0.56 |
| 4:D:54:ARG:CA | 4:D:220:HIS:H | 2.10 | 0.56 |
| 1:A:1797:C:O2' | 4:D:257:LEU:HD12 | 2.06 | 0.56 |
| 4:D:88:ARG:HG3 | 4:D:90:ALA:H | 1.70 | 0.56 |
| 4:D:7:LYS:HZ3 | 4:D:91:ARG:NH1 | 2.01 | 0.56 |
| 1:A:2683:C:C5' | 5:E:19:ARG:HH12 | 2.18 | 0.56 |
| 1:A:600:G:H4' | 6:F:105:VAL:HG13 | 1.87 | 0.56 |
| 1:A:320:A:P | 6:F:135:LYS:HE2 | 2.45 | 0.56 |
| 6:F:155:LEU:O | 6:F:193:VAL:O | 2.23 | 0.56 |
| 6:F:157:VAL:HG23 | 6:F:157:VAL:O | 2.05 | 0.56 |
| 7:G:8:LYS:CE | 7:G:100:TRP:HD1 | 2.18 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:G:30:GLU:HB3 | 7:G:162:THR:HB | 1.87 | 0.56 |
| 7:G:56:ALA:CB | 7:G:68:PRO:HG2 | 2.36 | 0.56 |
| 8:H:137:ASP:O | 8:H:138:LYS:C | 2.44 | 0.56 |
| 8:H:157:TYR:CD1 | 8:H:158:HIS:N | 2.74 | 0.56 |
| 10:L:132:ARG:NH1 | 10:L:132:ARG:HG3 | 2.21 | 0.56 |
| 11:M:136:GLU:C | 11:M:137:LYS:CG | 2.74 | 0.56 |
| 11:M:40:PRO:HA | 11:M:42:TRP:CD2 | 2.41 | 0.56 |
| 12:N:108:GLU:HB3 | 12:N:111:PHE:HE2 | 1.69 | 0.56 |
| 12:N:14:THR:OG1 | 12:N:16:ALA:C | 2.43 | 0.56 |
| 12:N:22:ILE:HD12 | 12:N:40:VAL:CG2 | 2.35 | 0.56 |
| 13:O:128:HIS:ND1 | 13:O:128:HIS:N | 2.53 | 0.56 |
| 15:Q:10:LEU:HB3 | 15:Q:17:ARG:NH1 | 2.20 | 0.56 |
| 15:Q:54:LEU:H | 15:Q:54:LEU:CD1 | 2.15 | 0.56 |
| 2:B:114:G:O4' | 16:R:47:THR:HB | 2.05 | 0.56 |
| 17:S:103:ARG:NH2 | 17:S:103:ARG:HG3 | 2.11 | 0.56 |
| 17:S:27:THR:O | 17:S:27:THR:CG2 | 2.54 | 0.56 |
| 18:T:54:LYS:H | 18:T:54:LYS:HD2 | 1.71 | 0.56 |
| 19:U:73:SER:OG | 19:U:75:PHE:HZ | 1.88 | 0.56 |
| 1:A:1225:C:H5' | 19:U:87:HIS:HA | 1.88 | 0.56 |
| 19:U:68:LYS:HZ3 | 19:U:95:LEU:HD11 | 1.70 | 0.56 |
| 21:W:49:VAL:HG12 | 21:W:88:LYS:HG3 | 1.87 | 0.56 |
| 22:X:65:ALA:HB3 | 22:X:66:PRO:CD | 2.35 | 0.56 |
| 23:Y:141:VAL:HB | 23:Y:150:LEU:CD1 | 2.36 | 0.56 |
| 23:Y:127:LYS:CA | 23:Y:164:ALA:HB3 | 2.17 | 0.56 |
| 2:B:75:G:H4' | 23:Y:36:LYS:NZ | 2.20 | 0.56 |
| 23:Y:60:GLU:OE2 | 23:Y:67:LEU:O | 2.22 | 0.56 |
| 14:P:85:LYS:HE3 | 24:Z:10:THR:OG1 | 2.06 | 0.56 |
| 24:Z:17:GLN:OE1 | 24:Z:18:ALA:HB3 | 2.06 | 0.56 |
| 9:K:113:ARG:O | 9:K:114:LEU:CG | 2.53 | 0.56 |
| 9:K:77:LEU:CD1 | 9:K:142:VAL:HG13 | 2.32 | 0.56 |
| 1:A:2115:G:C2 | 1:A:2117:A:N7 | 2.74 | 0.56 |
| 1:A:2195:C:H2' | 1:A:2196:C:C6 | 2.38 | 0.56 |
| 1:A:2191:G:H2' | 1:A:2192:G:O4' | 2.05 | 0.56 |
| 1:A:1494:A:H8 | 1:A:1494:A:OP1 | 1.89 | 0.56 |
| 25:1:58:VAL:O | 25:1:59:LEU:C | 2.43 | 0.56 |
| 26:2:15:TYR:CD1 | 26:2:20:LYS:HE3 | 2.40 | 0.56 |
| 28:4:4:HIS:CG | 28:4:5:PRO:HD3 | 2.40 | 0.56 |
| 30:6:8:ASN:OD1 | 30:6:11:LYS:N | 2.39 | 0.56 |
| 1:A:1028:A:C2 | 1:A:1029:A:C6 | 2.94 | 0.56 |
| 1:A:1434:A:C2 | 1:A:1435:G:N9 | 2.74 | 0.56 |
| 1:A:1572:A:P | 1:A:1572:A:O4' | 2.64 | 0.56 |
| 1:A:1572:A:H8 | 1:A:1572:A:OP1 | 1.88 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1708:C:O2' | 1:A:1709:U:H5'' | 2.05 | 0.56 |
| 1:A:1718:G:H2' | 1:A:1725:G:C8 | 2.38 | 0.56 |
| 1:A:1728:G:N2 | 1:A:1729:A:N7 | 2.54 | 0.56 |
| 1:A:1925:C:H2' | 1:A:1926:U:O5' | 2.05 | 0.56 |
| 1:A:1980:G:C5 | 1:A:1982:C:C4 | 2.94 | 0.56 |
| 1:A:2082:A:C4 | 1:A:2083:G:C8 | 2.93 | 0.56 |
| 1:A:2408:U:H3' | 1:A:2408:U:C6 | 2.41 | 0.56 |
| 1:A:2460:U:H6 | 1:A:2460:U:H5'' | 1.70 | 0.56 |
| 1:A:2440:C:C5' | 1:A:2587:A:H4' | 2.36 | 0.56 |
| 1:A:2849:U:H1' | 1:A:2868:A:C4 | 2.41 | 0.56 |
| 1:A:295:G:N7 | 1:A:344:G:N2 | 2.54 | 0.56 |
| 1:A:415:A:N1 | 1:A:416:C:C2 | 2.73 | 0.56 |
| 1:A:269:U:C4 | 1:A:424:G:C6 | 2.94 | 0.56 |
| 1:A:41:C:O2' | 1:A:43:G:H5' | 2.05 | 0.56 |
| 1:A:481:G:C2' | 1:A:507:A:H61 | 2.19 | 0.56 |
| 1:A:549:G:H2' | 1:A:550:G:C8 | 2.41 | 0.56 |
| 1:A:58:G:H1' | 1:A:70:G:H22 | 1.67 | 0.56 |
| 1:A:602:G:H2' | 1:A:655:A:N1 | 2.21 | 0.56 |
| 1:A:684:G:OP1 | 30:6:16:HIS:NE2 | 2.39 | 0.56 |
| 1:A:776:G:C1' | 1:A:793:A:N1 | 2.63 | 0.56 |
| 1:A:860:U:H5 | 1:A:861:A:C8 | 2.21 | 0.56 |
| 1:A:878:A:C1' | 1:A:879:G:C8 | 2.88 | 0.56 |
| 1:A:881:G:H1 | 1:A:896:A:H61 | 1.54 | 0.56 |
| 1:A:905:U:C4 | 1:A:906:G:C8 | 2.94 | 0.56 |
| 2:B:88:C:O2 | 2:B:88:C:H2' | 2.04 | 0.56 |
| 4:D:14:ARG:HD3 | 4:D:15:PHE:CD1 | 2.40 | 0.56 |
| 4:D:54:ARG:HB2 | 4:D:218:ARG:HB3 | 1.87 | 0.56 |
| 4:D:6:PHE:O | 4:D:28:GLU:OE1 | 2.24 | 0.56 |
| 1:A:1567:A:H5'' | 4:D:59:LYS:CD | 2.35 | 0.56 |
| 4:D:88:ARG:NE | 4:D:88:ARG:HA | 2.19 | 0.56 |
| 5:E:50:GLY:N | 5:E:76:ARG:HG3 | 2.20 | 0.56 |
| 6:F:140:LEU:HD23 | 6:F:141:ALA:N | 2.20 | 0.56 |
| 6:F:176:LEU:C | 6:F:178:PRO:CD | 2.74 | 0.56 |
| 6:F:182:ASN:OD1 | 6:F:185:ASP:N | 2.36 | 0.56 |
| 7:G:107:LEU:HG | 7:G:177:GLY:CA | 2.35 | 0.56 |
| 7:G:87:PRO:C | 7:G:88:ILE:HG13 | 2.25 | 0.56 |
| 7:G:8:LYS:CE | 7:G:12:TYR:HB3 | 2.33 | 0.56 |
| 8:H:163:TYR:HE2 | 8:H:169:VAL:HG11 | 1.70 | 0.56 |
| 8:H:7:LEU:HA | 8:H:52:VAL:CG1 | 2.35 | 0.56 |
| 10:L:27:LEU:CA | 10:L:32:ALA:HB3 | 2.36 | 0.56 |
| 10:L:95:LYS:HG2 | 10:L:137:GLU:OE2 | 2.06 | 0.56 |
| 1:A:2640:G:H4' | 11:M:75:TYR:OH | 2.05 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:N:41:ALA:CA | 12:N:59:LYS:HZ1 | 2.18 | 0.56 |
| 13:O:127:ALA:C | 13:O:128:HIS:CG | 2.79 | 0.56 |
| 13:O:136:GLU:C | 13:O:137:LYS:HE3 | 2.26 | 0.56 |
| 13:O:60:MET:SD | 13:O:60:MET:C | 2.84 | 0.56 |
| 13:O:85:LEU:HD13 | 13:O:86:LYS:CE | 2.36 | 0.56 |
| 14:P:41:TRP:HA | 14:P:96:VAL:HA | 1.86 | 0.56 |
| 15:Q:3:HIS:CG | 15:Q:4:LEU:N | 2.74 | 0.56 |
| 15:Q:9:LYS:C | 15:Q:10:LEU:HD23 | 2.25 | 0.56 |
| 16:R:71:ARG:HA | 16:R:104:GLY:C | 2.26 | 0.56 |
| 16:R:75:GLU:HA | 16:R:111:GLU:OE2 | 2.05 | 0.56 |
| 21:W:31:HIS:O | 21:W:33:LYS:N | 2.38 | 0.56 |
| 21:W:62:LYS:O | 21:W:63:LYS:CB | 2.52 | 0.56 |
| 22:X:14:LEU:HD13 | 22:X:20:TYR:C | 2.26 | 0.56 |
| 22:X:72:VAL:CG1 | 22:X:73:ARG:N | 2.68 | 0.56 |
| 23:Y:157:LEU:CB | 23:Y:161:VAL:HG13 | 2.36 | 0.56 |
| 1:A:1589:C:O2' | 1:A:1590:U:H5' | 2.06 | 0.56 |
| 4:D:125:ILE:O | 4:D:125:ILE:HG22 | 2.05 | 0.56 |
| 28:4:4:HIS:CD2 | 28:4:4:HIS:O | 2.58 | 0.56 |
| 31:7:5:LYS:CB | 31:7:60:LEU:HA | 2.34 | 0.56 |
| 1:A:1248:G:OP1 | 18:T:2:PRO:N | 2.39 | 0.56 |
| 1:A:1615:C:N3 | 20:V:87:PRO:HG3 | 2.21 | 0.56 |
| 1:A:1703:G:H2' | 1:A:1704:G:O4' | 2.05 | 0.56 |
| 1:A:1771:C:C2 | 1:A:1772:G:C8 | 2.93 | 0.56 |
| 1:A:184:C:H2' | 1:A:185:U:C6 | 2.41 | 0.56 |
| 1:A:1935:G:N2 | 1:A:1962:C:C2' | 2.69 | 0.56 |
| 1:A:1785:A:OP1 | 1:A:1982:C:H4' | 2.06 | 0.56 |
| 1:A:2243:U:C2 | 1:A:2244:U:C6 | 2.94 | 0.56 |
| 1:A:2281:C:O2' | 1:A:2282:G:H5' | 2.06 | 0.56 |
| 1:A:2380:C:C2' | 1:A:2381:C:H5' | 2.36 | 0.56 |
| 1:A:243:U:H2' | 1:A:244:A:O5' | 2.05 | 0.56 |
| 1:A:2450:A:H2' | 1:A:2451:A:C5' | 2.34 | 0.56 |
| 1:A:2544:G:H2' | 1:A:2545:G:H8 | 1.71 | 0.56 |
| 1:A:2544:G:H2' | 1:A:2545:G:O4' | 2.05 | 0.56 |
| 1:A:2624:G:C3' | 1:A:2625:G:H5'' | 2.35 | 0.56 |
| 1:A:2682:U:O2 | 5:E:12:THR:CG2 | 2.53 | 0.56 |
| 1:A:2745:C:O2' | 8:H:143:GLN:CG | 2.53 | 0.56 |
| 1:A:404:C:OP2 | 1:A:405:U:OP1 | 2.24 | 0.56 |
| 1:A:40:C:H2' | 1:A:41:C:H6 | 1.70 | 0.56 |
| 1:A:583:G:O2' | 1:A:584:C:H5' | 2.05 | 0.56 |
| 1:A:755:C:H2' | 1:A:756:C:C6 | 2.40 | 0.56 |
| 1:A:775:G:N2 | 1:A:787:U:O2' | 2.39 | 0.56 |
| 1:A:687:C:C5 | 1:A:788:A:C8 | 2.94 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:814:C:H2' | 1:A:815:C:H6 | 1.70 | 0.56 |
| 1:A:819:A:C2 | 1:A:820:A:C5 | 2.94 | 0.56 |
| 1:A:993:G:H1' | 19:U:91:TYR:HE2 | 1.70 | 0.56 |
| 4:D:137:PRO:HG2 | 4:D:140:THR:OG1 | 2.06 | 0.56 |
| 4:D:89:SER:HG | 4:D:159:ALA:N | 2.03 | 0.56 |
| 4:D:252:TRP:C | 4:D:253:GLN:HG3 | 2.26 | 0.56 |
| 4:D:270:ILE:O | 4:D:271:ILE:O | 2.23 | 0.56 |
| 4:D:76:PRO:HD2 | 4:D:98:VAL:HG21 | 1.87 | 0.56 |
| 5:E:69:LYS:O | 5:E:70:ALA:O | 2.23 | 0.56 |
| 6:F:15:SER:OG | 6:F:16:GLY:N | 2.35 | 0.56 |
| 6:F:201:VAL:CG1 | 6:F:205:ARG:NH2 | 2.68 | 0.56 |
| 7:G:131:TYR:CE2 | 7:G:132:ASN:HA | 2.41 | 0.56 |
| 7:G:36:LYS:HB2 | 7:G:95:ARG:CG | 2.36 | 0.56 |
| 9:K:9:LEU:HB2 | 9:K:13:GLY:C | 2.25 | 0.56 |
| 11:M:13:TRP:NE1 | 11:M:51:PHE:CB | 2.67 | 0.56 |
| 11:M:2:LYS:HZ3 | 11:M:2:LYS:HB3 | 1.71 | 0.56 |
| 12:N:122:LEU:HA | 17:S:71:GLY:CA | 2.36 | 0.56 |
| 12:N:15:GLY:O | 12:N:47:ILE:CA | 2.53 | 0.56 |
| 13:O:76:LYS:C | 13:O:115:LEU:HD13 | 2.26 | 0.56 |
| 13:O:123:LEU:CD1 | 13:O:130:PHE:CG | 2.87 | 0.56 |
| 13:O:56:SER:HB3 | 31:7:13:ARG:NE | 2.19 | 0.56 |
| 1:A:627:A:H5'' | 13:O:75:ILE:HG13 | 1.85 | 0.56 |
| 14:P:12:GLN:NE2 | 14:P:12:GLN:O | 2.38 | 0.56 |
| 1:A:1287:A:O4' | 15:Q:104:ARG:HD2 | 2.05 | 0.56 |
| 15:Q:28:LEU:O | 15:Q:29:LEU:C | 2.44 | 0.56 |
| 16:R:24:LEU:HB2 | 16:R:41:ASP:HB3 | 1.88 | 0.56 |
| 16:R:67:ARG:NE | 16:R:71:ARG:HG2 | 2.20 | 0.56 |
| 17:S:30:VAL:C | 17:S:32:TYR:CZ | 2.79 | 0.56 |
| 17:S:34:VAL:CG2 | 17:S:36:GLU:HB2 | 2.36 | 0.56 |
| 19:U:19:LYS:O | 19:U:21:ARG:HG2 | 2.05 | 0.56 |
| 19:U:38:LEU:H | 19:U:38:LEU:CD2 | 2.12 | 0.56 |
| 20:V:64:MET:CG | 20:V:109:GLU:HB3 | 2.35 | 0.56 |
| 21:W:30:VAL:O | 21:W:77:LYS:HD3 | 2.05 | 0.56 |
| 22:X:100:ALA:C | 22:X:101:LYS:HD2 | 2.26 | 0.56 |
| 22:X:19:LYS:NZ | 22:X:39:VAL:O | 2.38 | 0.56 |
| 23:Y:155:LEU:O | 23:Y:156:LYS:CB | 2.49 | 0.56 |
| 23:Y:3:TYR:HB3 | 23:Y:61:LEU:H | 1.71 | 0.56 |
| 1:A:2278:A:N6 | 24:Z:14:ARG:HB2 | 2.21 | 0.56 |
| 24:Z:26:TYR:CD1 | 24:Z:29:GLN:OE1 | 2.59 | 0.56 |
| 24:Z:68:GLU:HB2 | 24:Z:80:HIS:C | 2.24 | 0.56 |
| 3:C:123:VAL:CG1 | 3:C:127:LEU:HD12 | 2.36 | 0.56 |
| 1:A:718:A:C5' | 1:A:719:C:OP2 | 2.54 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 13:O:148:LEU:HD23 | 13:O:149:GLU:N | 2.20 | 0.56 |
| 25:1:66:ASN:CG | 25:1:67:ALA:N | 2.59 | 0.56 |
| 27:3:14:ILE:HG22 | 27:3:37:SER:C | 2.25 | 0.56 |
| 27:3:56:VAL:O | 27:3:57:GLU:HG2 | 2.06 | 0.56 |
| 27:3:5:ILE:O | 27:3:6:HIS:HB2 | 2.06 | 0.56 |
| 27:3:9:LEU:HD22 | 27:3:11:PRO:HD2 | 1.87 | 0.56 |
| 15:Q:99:LYS:O | 28:4:44:THR:HG22 | 2.05 | 0.56 |
| 28:4:47:PRO:C | 28:4:58:LEU:HG | 2.27 | 0.56 |
| 1:A:2016:U:H1' | 28:4:6:VAL:HG11 | 1.87 | 0.56 |
| 29:5:16:CYS:HB2 | 29:5:49:HIS:C | 2.26 | 0.56 |
| 31:7:7:HIS:C | 31:7:11:LYS:HE3 | 2.26 | 0.56 |
| 13:O:58:THR:HA | 31:7:13:ARG:CG | 2.36 | 0.56 |
| 29:5:25:LYS:HG3 | 31:7:35:GLN:HG3 | 1.86 | 0.56 |
| 31:7:6:THR:HG1 | 31:7:8:LYS:HB2 | 1.70 | 0.56 |
| 32:8:11:CYS:CA | 32:8:32:HIS:NE2 | 2.69 | 0.56 |
| 1:A:1127:A:N6 | 1:A:2518:A:H2 | 2.04 | 0.56 |
| 1:A:1158:C:O2' | 26:2:32:GLN:NE2 | 2.39 | 0.56 |
| 1:A:1181:C:H2' | 1:A:1182:A:C8 | 2.41 | 0.56 |
| 1:A:1199:U:C2 | 1:A:1200:C:C6 | 2.94 | 0.56 |
| 1:A:142:G:H2' | 1:A:143:C:H6 | 1.67 | 0.56 |
| 1:A:1601:G:N3 | 1:A:1601:G:H2' | 2.19 | 0.56 |
| 1:A:1669:A:H2' | 1:A:1670:C:C5' | 2.35 | 0.56 |
| 1:A:1842:G:H2' | 1:A:1843:C:C6 | 2.41 | 0.56 |
| 1:A:1935:G:C3' | 1:A:1937:A:H2 | 2.18 | 0.56 |
| 1:A:1969:A:C4' | 1:A:1970:A:H5' | 2.26 | 0.56 |
| 1:A:570:G:C5 | 1:A:2030:A:N1 | 2.74 | 0.56 |
| 1:A:2093:G:O4' | 9:K:29:TYR:CD2 | 2.58 | 0.56 |
| 1:A:218:A:H2' | 1:A:219:G:C8 | 2.41 | 0.56 |
| 1:A:2282:G:N2 | 1:A:2427:C:N3 | 2.53 | 0.56 |
| 1:A:2350:C:O2' | 1:A:2351:G:O5' | 2.23 | 0.56 |
| 1:A:746:A:C8 | 1:A:2611:U:O3' | 2.59 | 0.56 |
| 1:A:2748:A:N1 | 1:A:2757:A:N6 | 2.54 | 0.56 |
| 1:A:36:G:H4' | 1:A:451:C:C2 | 2.40 | 0.56 |
| 1:A:541:C:C2' | 1:A:542:C:C6 | 2.87 | 0.56 |
| 1:A:574:C:H4' | 1:A:575:A:O5' | 2.05 | 0.56 |
| 1:A:604:G:N1 | 1:A:605:C:N4 | 2.53 | 0.56 |
| 1:A:616:A:H5' | 6:F:182:ASN:HD22 | 1.71 | 0.56 |
| 1:A:61:G:C5' | 25:1:45:ILE:CD1 | 2.84 | 0.56 |
| 1:A:60:G:O2' | 1:A:61:G:OP1 | 2.23 | 0.56 |
| 1:A:627:A:C5 | 1:A:637:A:C4 | 2.94 | 0.56 |
| 1:A:587:C:C4 | 1:A:671:C:C6 | 2.94 | 0.56 |
| 1:A:699:A:C2' | 1:A:700:G:H5' | 2.29 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:943:U:C5' | 1:A:944:G:O6 | 2.54 | 0.56 |
| 1:A:970:C:H2' | 1:A:971:C:C6 | 2.41 | 0.56 |
| 5:E:119:ARG:HH11 | 5:E:120:TRP:CB | 2.19 | 0.56 |
| 6:F:103:LYS:HB3 | 6:F:107:LYS:CE | 2.35 | 0.56 |
| 6:F:41:LEU:HA | 6:F:44:ARG:NE | 2.21 | 0.56 |
| 6:F:69:HIS:HD1 | 6:F:69:HIS:C | 2.08 | 0.56 |
| 8:H:104:GLU:C | 8:H:105:LEU:HD12 | 2.26 | 0.56 |
| 8:H:11:VAL:N | 8:H:50:VAL:HG22 | 2.21 | 0.56 |
| 8:H:28:GLY:HA3 | 8:H:79:VAL:CB | 2.25 | 0.56 |
| 10:L:131:ALA:CB | 10:L:136:VAL:O | 2.54 | 0.56 |
| 10:L:40:ALA:HB2 | 10:L:65:PHE:CZ | 2.40 | 0.56 |
| 10:L:55:VAL:HG13 | 10:L:68:VAL:O | 2.06 | 0.56 |
| 11:M:69:GLN:HE22 | 11:M:87:LEU:CD2 | 2.14 | 0.56 |
| 12:N:6:THR:CA | 12:N:7:TYR:CD1 | 2.89 | 0.56 |
| 12:N:97:ARG:NE | 12:N:97:ARG:CA | 2.69 | 0.56 |
| 13:O:73:GLY:H | 13:O:107:LYS:CE | 2.18 | 0.56 |
| 13:O:14:LYS:O | 13:O:17:LYS:HD2 | 2.05 | 0.56 |
| 14:P:22:LYS:HZ1 | 14:P:101:ARG:NE | 2.03 | 0.56 |
| 15:Q:17:ARG:HB3 | 15:Q:17:ARG:CZ | 2.35 | 0.56 |
| 15:Q:57:ARG:HE | 15:Q:62:ALA:CB | 2.19 | 0.56 |
| 15:Q:96:ARG:CD | 15:Q:98:LEU:HD11 | 2.35 | 0.56 |
| 16:R:71:ARG:HB3 | 16:R:104:GLY:HA2 | 1.88 | 0.56 |
| 16:R:78:LEU:HD13 | 16:R:79:ALA:CA | 2.34 | 0.56 |
| 18:T:93:LYS:HB2 | 19:U:10:LYS:CD | 2.31 | 0.56 |
| 20:V:27:LYS:HG2 | 20:V:31:GLU:HB2 | 1.88 | 0.56 |
| 20:V:43:GLY:HA2 | 20:V:46:PHE:CD1 | 2.41 | 0.56 |
| 22:X:19:LYS:HB3 | 22:X:21:LYS:HG2 | 1.88 | 0.56 |
| 1:A:332:A:H61 | 22:X:68:HIS:CE1 | 2.23 | 0.56 |
| 22:X:74:PRO:C | 22:X:76:CYS:H | 2.07 | 0.56 |
| 9:K:109:ILE:CG2 | 9:K:113:ARG:CZ | 2.82 | 0.56 |
| 9:K:93:THR:O | 9:K:96:ASP:CB | 2.53 | 0.56 |
| 3:C:103:ILE:CG2 | 3:C:108:MET:SD | 2.94 | 0.56 |
| 3:C:126:LYS:O | 3:C:130:ILE:CD1 | 2.53 | 0.56 |
| 3:C:166:ASP:N | 3:C:170:ALA:O | 2.33 | 0.56 |
| 3:C:22:ILE:HG23 | 3:C:189:ILE:CD1 | 2.36 | 0.56 |
| 3:C:39:GLU:HG2 | 3:C:41:VAL:HG22 | 1.88 | 0.56 |
| 1:A:1581:G:H2' | 1:A:1582:C:C4' | 2.36 | 0.56 |
| 4:D:273:ARG:HE | 4:D:274:ARG:HA | 1.69 | 0.56 |
| 22:X:105:ALA:O | 22:X:107:ASP:N | 2.38 | 0.56 |
| 1:A:387:U:O3' | 27:3:23:GLU:OE2 | 2.24 | 0.56 |
| 30:6:43:THR:HG23 | 30:6:46:VAL:CB | 2.35 | 0.56 |
| 29:5:25:LYS:CE | 31:7:35:GLN:HG3 | 2.29 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1130:U:HO2' | 11:M:79:PRO:HD3 | 1.70 | 0.56 |
| 1:A:1151:G:H4' | 18:T:81:HIS:NE2 | 2.21 | 0.56 |
| 1:A:1152:C:C2' | 1:A:1153:C:H5' | 2.35 | 0.56 |
| 1:A:1213:A:O2' | 1:A:1239:G:O4' | 2.20 | 0.56 |
| 1:A:1276:A:O2' | 1:A:1277:G:H5' | 2.06 | 0.56 |
| 1:A:1305:C:O2' | 1:A:1306:C:H5' | 2.06 | 0.56 |
| 1:A:1408:C:C2 | 1:A:1409:C:C5 | 2.94 | 0.56 |
| 1:A:1419:A:C3' | 1:A:1420:U:O4' | 2.54 | 0.56 |
| 1:A:1478:G:N2 | 1:A:1557:C:O2' | 2.39 | 0.56 |
| 1:A:1491:G:C5 | 1:A:1492:G:H1' | 2.40 | 0.56 |
| 1:A:1476:C:N4 | 1:A:1516:U:C2' | 2.68 | 0.56 |
| 1:A:1550:C:H2' | 1:A:1551:C:C6 | 2.41 | 0.56 |
| 1:A:1562:A:H2' | 1:A:1563:G:H8 | 1.71 | 0.56 |
| 1:A:1636:C:C1' | 1:A:1761:C:H1' | 2.35 | 0.56 |
| 1:A:1822:G:C2 | 1:A:1823:G:C8 | 2.94 | 0.56 |
| 1:A:1978:A:H2' | 1:A:1979:C:C6 | 2.41 | 0.56 |
| 1:A:1980:G:C6 | 1:A:1982:C:C4 | 2.94 | 0.56 |
| 1:A:204:A:H4' | 1:A:205:G:C5' | 2.35 | 0.56 |
| 1:A:2078:C:H5' | 1:A:2434:A:H4' | 1.86 | 0.56 |
| 1:A:2450:A:H2' | 1:A:2451:A:O5' | 2.05 | 0.56 |
| 1:A:2455:G:H21 | 1:A:2498:C:H42 | 1.53 | 0.56 |
| 1:A:2447:G:N2 | 1:A:2500:U:O4 | 2.38 | 0.56 |
| 1:A:2504:U:H3' | 1:A:2504:U:H6 | 1.70 | 0.56 |
| 1:A:2519:U:N1 | 1:A:2542:A:N1 | 2.53 | 0.56 |
| 1:A:260:G:C6 | 1:A:261:G:N7 | 2.74 | 0.56 |
| 1:A:2716:U:C2' | 1:A:2717:G:O5' | 2.54 | 0.56 |
| 1:A:2721:A:H2' | 1:A:2722:G:C8 | 2.41 | 0.56 |
| 1:A:2721:A:O2' | 1:A:2874:C:H5' | 2.06 | 0.56 |
| 1:A:2811:G:C6 | 1:A:2891:G:N2 | 2.74 | 0.56 |
| 1:A:292:C:H2' | 1:A:293:U:O2 | 2.04 | 0.56 |
| 1:A:364:C:C6 | 1:A:364:C:OP2 | 2.58 | 0.56 |
| 1:A:480:A:H3' | 1:A:481:G:H5'' | 1.88 | 0.56 |
| 1:A:485:C:C2 | 1:A:496:G:N2 | 2.74 | 0.56 |
| 1:A:556:G:C4 | 1:A:557:U:C5 | 2.94 | 0.56 |
| 1:A:573:G:H2' | 1:A:574:C:C5' | 2.36 | 0.56 |
| 1:A:574:C:HO2' | 1:A:575:A:P | 2.22 | 0.56 |
| 1:A:734:A:C2 | 1:A:735:A:C4 | 2.94 | 0.56 |
| 1:A:896:A:N1 | 1:A:897:C:C5 | 2.74 | 0.56 |
| 1:A:933:A:C4 | 1:A:934:G:C8 | 2.94 | 0.56 |
| 1:A:945:A:C2' | 1:A:946:G:O5' | 2.53 | 0.56 |
| 2:B:77:U:H2' | 2:B:78:A:C8 | 2.40 | 0.56 |
| 4:D:117:VAL:HG11 | 4:D:128:GLY:C | 2.26 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:727:A:C2 | 4:D:16:MET:HG3 | 2.41 | 0.56 |
| 4:D:262:ARG:C | 4:D:264:LYS:N | 2.59 | 0.56 |
| 4:D:40:THR:HG21 | 4:D:43:ARG:NH2 | 2.21 | 0.56 |
| 5:E:154:LYS:NZ | 5:E:156:MET:CE | 2.68 | 0.56 |
| 5:E:185:LYS:C | 5:E:185:LYS:HD3 | 2.26 | 0.56 |
| 5:E:8:LYS:CA | 5:E:8:LYS:CE | 2.77 | 0.56 |
| 6:F:40:GLN:N | 6:F:184:TYR:OH | 2.39 | 0.56 |
| 7:G:30:GLU:HB3 | 7:G:162:THR:CG2 | 2.36 | 0.56 |
| 8:H:25:LYS:CD | 8:H:27:LYS:HD2 | 2.35 | 0.56 |
| 8:H:35:VAL:CB | 8:H:72:ILE:HD13 | 2.19 | 0.56 |
| 9:K:5:LEU:HB3 | 9:K:8:PRO:CD | 2.35 | 0.56 |
| 1:A:557:U:H4' | 11:M:112:LEU:HD21 | 1.88 | 0.56 |
| 12:N:52:VAL:O | 12:N:53:LYS:CG | 2.41 | 0.56 |
| 12:N:62:VAL:O | 12:N:82:ASN:O | 2.24 | 0.56 |
| 13:O:76:LYS:O | 13:O:113:LYS:O | 2.24 | 0.56 |
| 12:N:79:PHE:HZ | 17:S:103:ARG:CD | 2.19 | 0.56 |
| 17:S:27:THR:O | 17:S:28:VAL:O | 2.23 | 0.56 |
| 17:S:64:ARG:NH2 | 17:S:77:PRO:HB2 | 2.20 | 0.56 |
| 18:T:108:GLU:CA | 18:T:111:GLU:HG2 | 2.36 | 0.56 |
| 18:T:108:GLU:HG2 | 18:T:109:LEU:H | 1.67 | 0.56 |
| 19:U:31:ALA:O | 19:U:33:VAL:HG23 | 2.06 | 0.56 |
| 20:V:75:TYR:O | 20:V:104:THR:CG2 | 2.53 | 0.56 |
| 21:W:23:GLU:OE2 | 21:W:25:LYS:N | 2.39 | 0.56 |
| 21:W:36:LYS:HD2 | 21:W:54:VAL:HG12 | 1.87 | 0.56 |
| 21:W:89:ILE:O | 21:W:93:GLU:HG2 | 2.06 | 0.56 |
| 22:X:49:VAL:CG2 | 22:X:51:VAL:HB | 2.36 | 0.56 |
| 23:Y:29:TYR:HD2 | 23:Y:89:PHE:CE2 | 2.23 | 0.56 |
| 24:Z:21:LEU:HA | 24:Z:39:ARG:HB2 | 1.88 | 0.56 |
| 9:K:100:ALA:HA | 9:K:104:GLN:OE1 | 2.06 | 0.56 |
| 9:K:113:ARG:O | 9:K:114:LEU:CB | 2.54 | 0.56 |
| 3:C:22:ILE:HD11 | 3:C:193:ILE:HD11 | 1.86 | 0.56 |
| 3:C:41:VAL:HG12 | 3:C:42:GLU:H | 1.69 | 0.56 |
| 1:A:1495:A:H2' | 1:A:1496:A:C8 | 2.41 | 0.56 |
| 25:1:42:ASN:O | 25:1:45:ILE:HG23 | 2.06 | 0.56 |
| 26:2:26:LEU:HG | 26:2:47:VAL:HG22 | 1.88 | 0.56 |
| 27:3:59:PHE:CB | 27:3:62:ARG:NH2 | 2.68 | 0.56 |
| 28:4:12:SER:OG | 28:4:13:LYS:HG2 | 2.05 | 0.56 |
| 1:A:1003:G:N3 | 1:A:1010:A:H2 | 2.04 | 0.56 |
| 1:A:1014:U:C2' | 1:A:1015:G:C5' | 2.81 | 0.56 |
| 1:A:1024:G:N2 | 1:A:1139:G:C6 | 2.74 | 0.56 |
| 1:A:1023:U:OP2 | 1:A:1025:G:C6 | 2.59 | 0.56 |
| 1:A:1072:C:C4 | 1:A:1092:C:N4 | 2.74 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1081:U:H3' | 1:A:1082:U:C5 | 2.40 | 0.56 |
| 1:A:1030:G:C5 | 1:A:1125:G:N2 | 2.74 | 0.56 |
| 1:A:1177:A:C2 | 1:A:1178:C:N3 | 2.74 | 0.56 |
| 1:A:1174:A:N6 | 1:A:1177:A:N3 | 2.51 | 0.56 |
| 1:A:1203:G:C5 | 1:A:1241:A:N7 | 2.73 | 0.56 |
| 1:A:331:A:C5 | 1:A:1209:G:C2 | 2.94 | 0.56 |
| 1:A:1230:C:C2' | 1:A:1231:G:H5' | 2.36 | 0.56 |
| 1:A:1449(A):G:H2' | 1:A:1450:C:H6 | 1.71 | 0.56 |
| 1:A:1500:G:O2' | 1:A:1501:C:H5' | 2.06 | 0.56 |
| 1:A:1503:U:H2' | 1:A:1504:C:H6 | 1.67 | 0.56 |
| 1:A:1818:U:C5 | 4:D:156:ALA:CB | 2.89 | 0.56 |
| 1:A:1917:U:H5 | 1:A:1918:A:C4 | 2.24 | 0.56 |
| 1:A:1926:U:HO2' | 1:A:1927:A:H8 | 1.52 | 0.56 |
| 1:A:2014:A:H2 | 1:A:2613:U:C4 | 2.24 | 0.56 |
| 1:A:2024:G:C4 | 1:A:2025:C:C6 | 2.94 | 0.56 |
| 1:A:219:G:C5 | 1:A:220:G:C8 | 2.94 | 0.56 |
| 1:A:2236:C:H6 | 1:A:2236:C:C5' | 2.19 | 0.56 |
| 1:A:2380:C:H2' | 1:A:2381:C:C5' | 2.35 | 0.56 |
| 1:A:2493:U:C5 | 1:A:2494:G:C8 | 2.93 | 0.56 |
| 1:A:2565:A:H5'' | 1:A:2566:A:OP2 | 2.06 | 0.56 |
| 1:A:2576:G:C5' | 1:A:2577:A:OP1 | 2.54 | 0.56 |
| 1:A:2626:C:H3' | 1:A:2626:C:H6 | 1.67 | 0.56 |
| 1:A:2758:A:H2' | 1:A:2759:G:C8 | 2.41 | 0.56 |
| 1:A:2887:U:N3 | 1:A:2888:C:C5 | 2.74 | 0.56 |
| 1:A:302:C:C2 | 1:A:303:U:C5 | 2.94 | 0.56 |
| 1:A:80:G:H1' | 1:A:347:A:H61 | 1.70 | 0.56 |
| 1:A:587:C:C5 | 1:A:671:C:H1' | 2.41 | 0.56 |
| 1:A:596:G:H1' | 1:A:662:G:H21 | 1.70 | 0.56 |
| 1:A:631:A:H8 | 1:A:631:A:H3' | 1.70 | 0.56 |
| 1:A:64:A:C2 | 1:A:65:C:C6 | 2.93 | 0.56 |
| 1:A:672:C:H6 | 13:O:38:GLN:OE1 | 1.87 | 0.56 |
| 1:A:684:G:H3' | 1:A:684:G:C8 | 2.41 | 0.56 |
| 1:A:705:A:C6 | 1:A:727:A:C1' | 2.88 | 0.56 |
| 1:A:851:U:H2' | 1:A:852:G:H8 | 1.71 | 0.56 |
| 2:B:82:G:C2 | 2:B:83:G:C8 | 2.94 | 0.56 |
| 2:B:88:C:N4 | 2:B:89:G:C2 | 2.74 | 0.56 |
| 4:D:105:ILE:O | 4:D:105:ILE:HG23 | 2.06 | 0.56 |
| 4:D:107:ALA:N | 4:D:108:PRO:CD | 2.55 | 0.56 |
| 4:D:142:VAL:CB | 4:D:191:ALA:HB1 | 2.36 | 0.56 |
| 5:E:175:VAL:O | 5:E:175:VAL:HG23 | 2.06 | 0.56 |
| 5:E:86:PRO:O | 5:E:87:GLU:HG2 | 2.06 | 0.56 |
| 1:A:323:G:C2' | 6:F:170:LEU:HB2 | 2.19 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:G:131:TYR:CD1 | 7:G:158:ALA:HA | 2.41 | 0.56 |
| 8:H:117:PRO:HA | 8:H:121:ILE:CD1 | 2.32 | 0.56 |
| 11:M:109:LYS:HE2 | 11:M:111:PRO:HG2 | 1.88 | 0.56 |
| 1:A:598:G:H4' | 13:O:12:ALA:HB3 | 1.88 | 0.56 |
| 1:A:1244:G:H4' | 13:O:9:ASN:CB | 2.36 | 0.56 |
| 14:P:42:ILE:CG2 | 14:P:95:ALA:HB3 | 2.36 | 0.56 |
| 1:A:1287:A:N7 | 15:Q:105:ARG:O | 2.40 | 0.56 |
| 15:Q:17:ARG:CZ | 15:Q:17:ARG:CB | 2.83 | 0.56 |
| 15:Q:51:LEU:HD11 | 15:Q:70:LEU:CD1 | 2.32 | 0.56 |
| 16:R:15:ARG:HA | 16:R:18:ILE:HB | 1.87 | 0.56 |
| 17:S:112:ARG:O | 17:S:115:ARG:HB2 | 2.05 | 0.56 |
| 19:U:69:LYS:HA | 19:U:92:THR:HG21 | 1.86 | 0.56 |
| 1:A:1322:A:H5' | 20:V:11:ARG:HH11 | 1.70 | 0.56 |
| 20:V:59:VAL:CG2 | 20:V:66:GLU:HA | 2.35 | 0.56 |
| 23:Y:18:LEU:O | 23:Y:19:ARG:C | 2.43 | 0.56 |
| 23:Y:53:ILE:O | 23:Y:54:HIS:CG | 2.59 | 0.56 |
| 23:Y:53:ILE:CD1 | 23:Y:58:VAL:HG21 | 2.36 | 0.56 |
| 9:K:87:LYS:HD2 | 9:K:121:LYS:CG | 2.36 | 0.56 |
| 1:A:2168:G:N2 | 1:A:2171:A:C8 | 2.70 | 0.56 |
| 3:C:29:VAL:HA | 3:C:32:LEU:HD12 | 1.88 | 0.56 |
| 3:C:6:ARG:CZ | 3:C:7:TYR:HA | 2.36 | 0.56 |
| 28:4:48:GLU:HA | 28:4:58:LEU:CD1 | 2.36 | 0.55 |
| 1:A:2615:U:C2 | 28:4:7:PRO:HA | 2.41 | 0.55 |
| 31:7:56:GLU:N | 31:7:56:GLU:CD | 2.59 | 0.55 |
| 1:A:1049:C:H5'' | 1:A:1049:C:H6 | 1.71 | 0.55 |
| 1:A:107:C:O2' | 1:A:108:U:C5' | 2.53 | 0.55 |
| 1:A:814:C:C2' | 1:A:1224:G:H22 | 2.19 | 0.55 |
| 1:A:1338:G:H2' | 1:A:1339:G:H5' | 1.88 | 0.55 |
| 1:A:1348:G:C6 | 1:A:1349:A:C6 | 2.93 | 0.55 |
| 1:A:1531:C:H2' | 1:A:1532:C:C6 | 2.41 | 0.55 |
| 1:A:1542:G:H5' | 1:A:1542:G:C4 | 2.41 | 0.55 |
| 1:A:1572:A:O2' | 1:A:1573:G:OP1 | 2.23 | 0.55 |
| 1:A:1926:U:H2' | 1:A:1928:A:OP2 | 2.05 | 0.55 |
| 1:A:1964:G:N1 | 1:A:1967:C:N4 | 2.53 | 0.55 |
| 1:A:2019:A:N1 | 1:A:2020:A:C4 | 2.74 | 0.55 |
| 1:A:570:G:C6 | 1:A:2030:A:C2 | 2.93 | 0.55 |
| 1:A:2083:G:C2 | 1:A:2084:C:C2 | 2.93 | 0.55 |
| 1:A:2469:A:N6 | 1:A:2481:G:H1' | 2.21 | 0.55 |
| 1:A:2515:C:C6 | 1:A:2515:C:OP2 | 2.60 | 0.55 |
| 1:A:271(C):U:O2' | 1:A:271:G:H1' | 2.06 | 0.55 |
| 1:A:2792:G:C2 | 1:A:2793:G:N7 | 2.75 | 0.55 |
| 1:A:298:G:H1 | 1:A:338:G:C4' | 2.19 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:330:A:O2' | 1:A:1210:A:N6 | 2.39 | 0.55 |
| 1:A:402:A:N1 | 1:A:403:U:C5 | 2.74 | 0.55 |
| 1:A:475:U:H3 | 1:A:479:A:N6 | 2.04 | 0.55 |
| 1:A:534:U:O2' | 18:T:49:HIS:CD2 | 2.59 | 0.55 |
| 1:A:593:G:C6 | 1:A:594:U:C4 | 2.95 | 0.55 |
| 1:A:603:A:H2' | 1:A:604:G:C8 | 2.42 | 0.55 |
| 1:A:625:G:C6 | 1:A:626:U:C1' | 2.90 | 0.55 |
| 1:A:818:G:H2' | 1:A:819:A:H5'' | 1.87 | 0.55 |
| 1:A:965:C:H1' | 1:A:2273:A:C2 | 2.41 | 0.55 |
| 1:A:972:G:C6 | 1:A:973:A:N7 | 2.74 | 0.55 |
| 4:D:118:VAL:H | 4:D:129:ASN:CG | 2.09 | 0.55 |
| 1:A:2210:G:C4 | 4:D:150:LYS:HA | 2.39 | 0.55 |
| 4:D:233:HIS:HD2 | 4:D:252:TRP:HH2 | 1.53 | 0.55 |
| 4:D:66:ASP:HB2 | 4:D:103:ARG:HD3 | 1.88 | 0.55 |
| 5:E:104:VAL:HG13 | 5:E:197:ILE:O | 2.04 | 0.55 |
| 5:E:36:ARG:CD | 5:E:79:ARG:HH11 | 2.18 | 0.55 |
| 6:F:109:GLY:O | 6:F:110:LEU:C | 2.43 | 0.55 |
| 6:F:185:ASP:HA | 6:F:188:ARG:CD | 2.36 | 0.55 |
| 6:F:74:ARG:O | 6:F:75:HIS:CD2 | 2.59 | 0.55 |
| 7:G:79:ASN:ND2 | 7:G:82:LEU:HD21 | 2.20 | 0.55 |
| 10:L:54:PRO:CG | 10:L:72:PRO:HA | 2.36 | 0.55 |
| 10:L:72:PRO:HG2 | 10:L:77:LEU:HB2 | 1.86 | 0.55 |
| 1:A:1138:G:O3' | 11:M:24:GLY:HA3 | 2.05 | 0.55 |
| 11:M:35:ARG:N | 11:M:49:GLY:HA2 | 2.20 | 0.55 |
| 11:M:45:ASN:O | 11:M:46:VAL:HB | 2.06 | 0.55 |
| 11:M:87:LEU:HA | 11:M:90:MET:CG | 2.36 | 0.55 |
| 12:N:108:GLU:O | 12:N:108:GLU:OE1 | 2.24 | 0.55 |
| 1:A:636:G:O6 | 13:O:111:ARG:NH1 | 2.39 | 0.55 |
| 13:O:45:LEU:C | 13:O:46:LYS:HD2 | 2.26 | 0.55 |
| 13:O:74:GLU:N | 13:O:107:LYS:HE3 | 2.21 | 0.55 |
| 13:O:93:GLY:N | 13:O:112:LEU:CD1 | 2.65 | 0.55 |
| 14:P:74:TYR:OH | 14:P:94:VAL:CG2 | 2.46 | 0.55 |
| 15:Q:105:ARG:HG3 | 15:Q:106:GLY:N | 2.20 | 0.55 |
| 15:Q:55:ALA:CB | 15:Q:79:LEU:HD21 | 2.36 | 0.55 |
| 16:R:3:ARG:HA | 16:R:7:TYR:CD1 | 2.39 | 0.55 |
| 22:X:47:LYS:CB | 22:X:56:PRO:HB2 | 2.36 | 0.55 |
| 22:X:82:PRO:CG | 22:X:97:ARG:N | 2.69 | 0.55 |
| 23:Y:18:LEU:O | 23:Y:21:ALA:N | 2.40 | 0.55 |
| 23:Y:39:VAL:O | 23:Y:39:VAL:HG12 | 2.05 | 0.55 |
| 24:Z:76:GLY:CA | 24:Z:78:TYR:CE1 | 2.89 | 0.55 |
| 24:Z:65:GLY:CA | 24:Z:82:ARG:O | 2.53 | 0.55 |
| 9:K:79:ILE:N | 9:K:79:ILE:CD1 | 2.66 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2125:G:C2 | 1:A:2173:A:N6 | 2.73 | 0.55 |
| 3:C:156:ILE:HA | 3:C:160:ARG:CG | 2.34 | 0.55 |
| 1:A:2184:G:H2' | 1:A:2184:G:N3 | 2.20 | 0.55 |
| 1:A:274:G:N3 | 1:A:274:G:C3' | 2.68 | 0.55 |
| 25:1:25:ARG:HG3 | 25:1:25:ARG:NH2 | 2.19 | 0.55 |
| 1:A:989:G:P | 26:2:10:LYS:HE3 | 2.47 | 0.55 |
| 26:2:6:VAL:CG1 | 26:2:7:LYS:N | 2.69 | 0.55 |
| 31:7:29:LYS:C | 31:7:34:TRP:CZ2 | 2.80 | 0.55 |
| 31:7:5:LYS:CG | 31:7:7:HIS:HD2 | 2.15 | 0.55 |
| 32:8:11:CYS:H | 32:8:32:HIS:CD2 | 2.24 | 0.55 |
| 1:A:1008:C:O2' | 1:A:1009:A:O5' | 2.24 | 0.55 |
| 1:A:1186:G:C8 | 1:A:1187:G:N7 | 2.74 | 0.55 |
| 1:A:125:G:C2' | 30:6:47:ARG:NH1 | 2.69 | 0.55 |
| 1:A:1264:G:OP1 | 28:4:10:LYS:NZ | 2.37 | 0.55 |
| 1:A:1299:G:O4' | 1:A:1301:A:N3 | 2.40 | 0.55 |
| 1:A:1309:G:C2' | 1:A:1310:G:C5' | 2.78 | 0.55 |
| 1:A:1313:U:O2 | 1:A:1314:C:C5 | 2.59 | 0.55 |
| 1:A:1472:A:N7 | 1:A:1474:C:C5 | 2.74 | 0.55 |
| 1:A:184:C:O2' | 1:A:185:U:H5' | 2.06 | 0.55 |
| 1:A:1860:G:H2' | 1:A:1861:G:H8 | 1.71 | 0.55 |
| 1:A:18:C:C4 | 1:A:19:C:C5 | 2.95 | 0.55 |
| 1:A:2010:G:H2' | 1:A:2011:U:C5' | 2.29 | 0.55 |
| 1:A:2091:U:C3' | 1:A:2092:U:H5' | 2.37 | 0.55 |
| 1:A:2260:C:O2' | 1:A:2261:C:H5' | 2.06 | 0.55 |
| 1:A:2424:C:C5' | 1:A:2425:A:H5' | 2.36 | 0.55 |
| 1:A:1782:C:H41 | 1:A:2587:A:N6 | 1.96 | 0.55 |
| 1:A:2633:G:C5' | 1:A:2812:G:H5' | 2.35 | 0.55 |
| 1:A:2815:C:O2' | 1:A:2816:C:C5' | 2.53 | 0.55 |
| 1:A:533:G:C2 | 1:A:534:U:H1' | 2.41 | 0.55 |
| 1:A:637:A:C2 | 1:A:651:G:H5'' | 2.40 | 0.55 |
| 1:A:705:A:N6 | 1:A:727:A:O4' | 2.38 | 0.55 |
| 1:A:86:C:P | 22:X:30:VAL:HG23 | 2.45 | 0.55 |
| 1:A:880:G:C4 | 1:A:881:G:H1' | 2.41 | 0.55 |
| 1:A:945:A:O2' | 1:A:946:G:P | 2.64 | 0.55 |
| 1:A:948:G:C6 | 1:A:949:C:C4 | 2.94 | 0.55 |
| 1:A:962:G:C3' | 1:A:963:U:H6 | 2.20 | 0.55 |
| 2:B:6:C:C5' | 2:B:27:C:O2 | 2.54 | 0.55 |
| 2:B:61:G:C2 | 2:B:62:C:N3 | 2.74 | 0.55 |
| 4:D:177:LEU:HD12 | 4:D:177:LEU:C | 2.25 | 0.55 |
| 4:D:134:ARG:HG3 | 4:D:187:GLY:O | 2.06 | 0.55 |
| 4:D:188:GLU:N | 4:D:188:GLU:OE2 | 2.38 | 0.55 |
| 1:A:1825:A:OP1 | 4:D:247:ALA:HB2 | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:29:PRO:CB | 4:D:83:GLU:HA | 2.35 | 0.55 |
| 4:D:9:TYR:N | 4:D:9:TYR:CD1 | 2.73 | 0.55 |
| 1:A:2572:A:H62 | 5:E:145:LYS:HG2 | 1.69 | 0.55 |
| 6:F:32:LEU:HA | 6:F:35:GLU:OE1 | 2.06 | 0.55 |
| 7:G:16:ARG:HG3 | 7:G:16:ARG:HH21 | 1.71 | 0.55 |
| 8:H:107:VAL:HG22 | 8:H:152:ARG:CD | 2.31 | 0.55 |
| 8:H:7:LEU:H | 8:H:8:PRO:HD3 | 1.68 | 0.55 |
| 9:K:38:LEU:CD1 | 9:K:39:ALA:HB3 | 2.36 | 0.55 |
| 10:L:115:LEU:CB | 10:L:118:THR:HG22 | 2.28 | 0.55 |
| 11:M:109:LYS:CG | 11:M:112:LEU:H | 2.20 | 0.55 |
| 11:M:109:LYS:HG2 | 11:M:112:LEU:H | 1.71 | 0.55 |
| 11:M:48:MET:HG2 | 11:M:50:ASP:HB2 | 1.87 | 0.55 |
| 11:M:51:PHE:CD2 | 11:M:119:ARG:HG2 | 2.40 | 0.55 |
| 11:M:74:ARG:HG2 | 11:M:76:SER:CB | 2.37 | 0.55 |
| 12:N:37:ASP:N | 12:N:61:VAL:HB | 2.21 | 0.55 |
| 12:N:59:LYS:N | 12:N:59:LYS:CD | 2.68 | 0.55 |
| 12:N:68:GLU:HG3 | 12:N:76:ALA:H | 1.71 | 0.55 |
| 12:N:99:PHE:HE2 | 12:N:105:GLU:CD | 2.09 | 0.55 |
| 13:O:49:ARG:HG3 | 31:7:52:LYS:HD3 | 1.89 | 0.55 |
| 14:P:56:ARG:O | 14:P:57:HIS:C | 2.44 | 0.55 |
| 14:P:75:THR:C | 14:P:77:LYS:HD2 | 2.27 | 0.55 |
| 15:Q:5:LYS:NZ | 15:Q:5:LYS:C | 2.59 | 0.55 |
| 16:R:18:ILE:H | 16:R:18:ILE:HD13 | 1.69 | 0.55 |
| 17:S:55:ASN:CA | 17:S:62:THR:O | 2.52 | 0.55 |
| 18:T:55:ARG:C | 18:T:58:ARG:HG2 | 2.26 | 0.55 |
| 19:U:15:GLU:C | 19:U:100:ARG:HH22 | 2.09 | 0.55 |
| 19:U:16:PRO:CD | 19:U:100:ARG:NH1 | 2.70 | 0.55 |
| 21:W:65:ARG:HB3 | 21:W:70:LEU:HD21 | 1.87 | 0.55 |
| 1:A:896:A:OP1 | 23:Y:146:ILE:HG23 | 2.07 | 0.55 |
| 23:Y:4:ARG:HG3 | 23:Y:44:PHE:HE1 | 1.68 | 0.55 |
| 23:Y:2:GLU:C | 23:Y:60:GLU:HA | 2.26 | 0.55 |
| 9:K:69:LYS:HZ2 | 9:K:70:LYS:CG | 2.20 | 0.55 |
| 9:K:77:LEU:H | 9:K:77:LEU:HD23 | 1.68 | 0.55 |
| 1:A:2121:G:OP2 | 1:A:2121:G:H8 | 1.88 | 0.55 |
| 1:A:2128:C:C2' | 1:A:2129:C:H5' | 2.36 | 0.55 |
| 3:C:103:ILE:HG21 | 3:C:108:MET:SD | 2.47 | 0.55 |
| 3:C:75:LEU:HG | 3:C:77:ILE:HG12 | 1.88 | 0.55 |
| 4:D:111:LEU:HD12 | 4:D:115:GLN:NE2 | 2.22 | 0.55 |
| 25:1:4:GLN:HA | 25:1:7:GLU:OE1 | 2.06 | 0.55 |
| 26:2:39:ASP:O | 26:2:44:ARG:NH1 | 2.40 | 0.55 |
| 26:2:40:THR:CG2 | 26:2:42:ALA:HB3 | 2.36 | 0.55 |
| 29:5:17:LYS:HZ2 | 29:5:50:ARG:CB | 2.19 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 29:5:29:ASN:O | 29:5:30:THR:O | 2.24 | 0.55 |
| 30:6:43:THR:C | 30:6:45:ALA:N | 2.59 | 0.55 |
| 32:8:19:ARG:CD | 32:8:22:ARG:HB2 | 2.34 | 0.55 |
| 1:A:1184:G:O2' | 1:A:1185:C:H5' | 2.06 | 0.55 |
| 1:A:1189:A:H2' | 1:A:1190:G:H5' | 1.88 | 0.55 |
| 1:A:817:C:C2 | 1:A:1191:G:N2 | 2.74 | 0.55 |
| 1:A:443:A:O4' | 1:A:1201:C:C4' | 2.54 | 0.55 |
| 1:A:1270:C:H5'' | 1:A:1271:G:OP1 | 2.07 | 0.55 |
| 1:A:1343:G:N2 | 1:A:1405:U:N1 | 2.55 | 0.55 |
| 1:A:1567:A:O2' | 1:A:1568:G:C6 | 2.57 | 0.55 |
| 1:A:1568:G:OP2 | 4:D:61:LEU:CD1 | 2.40 | 0.55 |
| 1:A:49:A:C6 | 1:A:177:G:C2 | 2.95 | 0.55 |
| 1:A:1799:G:HO2' | 1:A:1800:C:C4' | 2.20 | 0.55 |
| 1:A:1820:U:H5 | 4:D:159:ALA:O | 1.89 | 0.55 |
| 1:A:1862:G:N2 | 1:A:1881:C:H1' | 2.21 | 0.55 |
| 1:A:1953:A:C3' | 1:A:1953:A:C8 | 2.87 | 0.55 |
| 1:A:2000:G:C2 | 1:A:2001:A:C8 | 2.94 | 0.55 |
| 1:A:2056:G:C2 | 28:4:4:HIS:CD2 | 2.94 | 0.55 |
| 1:A:2412:A:C8 | 1:A:2413:G:C8 | 2.95 | 0.55 |
| 1:A:2431:U:HO2' | 1:A:2432:A:H8 | 1.54 | 0.55 |
| 1:A:2563:U:H2' | 1:A:2565:A:OP2 | 2.05 | 0.55 |
| 1:A:2595:G:N3 | 1:A:2599:G:N1 | 2.53 | 0.55 |
| 1:A:2647:U:O2' | 1:A:2648:C:H5' | 2.06 | 0.55 |
| 1:A:2648:C:C2 | 1:A:2649:U:C5 | 2.95 | 0.55 |
| 1:A:2666:C:C3' | 1:A:2667:C:C5' | 2.85 | 0.55 |
| 1:A:2723:C:C4 | 1:A:2724:C:C5 | 2.94 | 0.55 |
| 1:A:430:G:H5'' | 1:A:431:U:OP2 | 2.05 | 0.55 |
| 1:A:445:C:H3' | 18:T:3:ARG:HE | 1.71 | 0.55 |
| 1:A:531:C:H42 | 18:T:38:THR:HA | 1.72 | 0.55 |
| 1:A:552:G:C5 | 1:A:553:U:C5 | 2.95 | 0.55 |
| 1:A:262:A:H5'' | 1:A:609(A):G:H5' | 1.89 | 0.55 |
| 1:A:731:C:OP2 | 1:A:761:A:OP1 | 2.24 | 0.55 |
| 1:A:786:C:HO2' | 1:A:787:U:H5' | 1.65 | 0.55 |
| 4:D:108:PRO:C | 4:D:196:VAL:O | 2.44 | 0.55 |
| 4:D:120:GLY:N | 4:D:131:LEU:CD1 | 2.69 | 0.55 |
| 4:D:176:ARG:CZ | 4:D:176:ARG:HB2 | 2.35 | 0.55 |
| 4:D:5:LYS:HA | 4:D:28:GLU:HB2 | 1.89 | 0.55 |
| 5:E:118:LYS:HZ2 | 5:E:118:LYS:HB3 | 1.71 | 0.55 |
| 6:F:122:LYS:HA | 6:F:122:LYS:HZ3 | 1.67 | 0.55 |
| 6:F:4:VAL:HA | 6:F:20:LEU:CG | 2.36 | 0.55 |
| 7:G:66:GLN:OE1 | 7:G:92:VAL:HG22 | 2.06 | 0.55 |
| 7:G:93:THR:HG22 | 7:G:93:THR:O | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 8:H:25:LYS:HD3 | 8:H:27:LYS:CD | 2.36 | 0.55 |
| 11:M:107:LEU:HD11 | 11:M:113:GLY:O | 2.06 | 0.55 |
| 12:N:23:ARG:CD | 12:N:40:VAL:HG11 | 2.36 | 0.55 |
| 12:N:80:ASP:CG | 12:N:82:ASN:HD21 | 2.10 | 0.55 |
| 14:P:134:ARG:HH11 | 14:P:136:ALA:H | 1.54 | 0.55 |
| 14:P:66:ILE:O | 14:P:67:ARG:CB | 2.52 | 0.55 |
| 15:Q:94:TYR:C | 15:Q:117:VAL:HG12 | 2.26 | 0.55 |
| 15:Q:38:VAL:CG1 | 15:Q:39:PRO:HD3 | 2.36 | 0.55 |
| 16:R:15:ARG:CG | 16:R:15:ARG:NH2 | 2.65 | 0.55 |
| 17:S:64:ARG:O | 17:S:65:LYS:C | 2.43 | 0.55 |
| 17:S:76:PHE:CE2 | 17:S:78:LEU:HG | 2.42 | 0.55 |
| 17:S:63:VAL:CG1 | 17:S:78:LEU:HB2 | 2.37 | 0.55 |
| 18:T:11:ARG:CG | 18:T:12:ARG:N | 2.68 | 0.55 |
| 11:M:38:HIS:O | 18:T:71:GLN:NE2 | 2.40 | 0.55 |
| 1:A:1152:C:O2' | 18:T:80:ILE:HD12 | 2.06 | 0.55 |
| 20:V:10:VAL:O | 20:V:12:ILE:HD13 | 2.07 | 0.55 |
| 20:V:33:ARG:NH1 | 20:V:36:LEU:HB3 | 2.21 | 0.55 |
| 21:W:66:LEU:HD11 | 21:W:69:TYR:HB2 | 1.88 | 0.55 |
| 22:X:11:ASP:O | 22:X:12:THR:OG1 | 2.22 | 0.55 |
| 22:X:12:THR:HG1 | 22:X:72:VAL:HA | 1.71 | 0.55 |
| 22:X:19:LYS:NZ | 22:X:39:VAL:HG12 | 2.21 | 0.55 |
| 22:X:50:ARG:CB | 22:X:50:ARG:HH21 | 2.16 | 0.55 |
| 14:P:136:ALA:CB | 23:Y:76:LEU:HD13 | 2.33 | 0.55 |
| 24:Z:44:ARG:HD3 | 24:Z:45:PHE:CE2 | 2.40 | 0.55 |
| 24:Z:46:LYS:HG3 | 24:Z:78:TYR:CZ | 2.41 | 0.55 |
| 9:K:93:THR:N | 9:K:96:ASP:OD2 | 2.23 | 0.55 |
| 3:C:142:ALA:C | 3:C:144:THR:N | 2.57 | 0.55 |
| 3:C:81:GLU:HG3 | 3:C:82:LYS:HG2 | 1.88 | 0.55 |
| 3:C:73:ARG:NH1 | 3:C:93:TYR:OH | 2.39 | 0.55 |
| 1:A:1497:U:N3 | 1:A:1577:C:O5' | 2.39 | 0.55 |
| 25:1:65:GLN:HE21 | 25:1:65:GLN:H | 1.51 | 0.55 |
| 1:A:94:G:N2 | 25:1:42:ASN:ND2 | 2.46 | 0.55 |
| 1:A:74:A:N1 | 25:1:45:ILE:HD11 | 2.21 | 0.55 |
| 1:A:469:G:C2 | 30:6:40:TRP:CZ2 | 2.91 | 0.55 |
| 31:7:26:LYS:O | 31:7:27:THR:CG2 | 2.55 | 0.55 |
| 13:O:49:ARG:NH2 | 31:7:55:ALA:CB | 2.70 | 0.55 |
| 32:8:20:HIS:C | 32:8:22:ARG:N | 2.57 | 0.55 |
| 1:A:1186:G:H8 | 1:A:1187:G:N7 | 2.04 | 0.55 |
| 1:A:1268:A:H2' | 1:A:1269:A:O4' | 2.07 | 0.55 |
| 1:A:1380:G:C6 | 1:A:1381:G:N7 | 2.74 | 0.55 |
| 1:A:1472:A:N7 | 1:A:1474:C:N4 | 2.54 | 0.55 |
| 1:A:150:C:O2 | 1:A:151:C:C5 | 2.59 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1682:G:OP2 | 1:A:1699:G:N2 | 2.36 | 0.55 |
| 1:A:1684:C:H2' | 1:A:1685:C:C5 | 2.39 | 0.55 |
| 1:A:1823:G:N1 | 1:A:1824:G:C8 | 2.75 | 0.55 |
| 1:A:1982:C:C4 | 1:A:1983:C:N4 | 2.75 | 0.55 |
| 1:A:2018:G:OP2 | 1:A:2018:G:H8 | 1.90 | 0.55 |
| 1:A:2024:G:H2' | 1:A:2025:C:H6 | 1.70 | 0.55 |
| 1:A:2093:G:H1' | 1:A:2198:A:C2 | 2.40 | 0.55 |
| 1:A:225:A:C6 | 1:A:226:G:C5 | 2.95 | 0.55 |
| 1:A:2322:A:C5 | 1:A:2323:G:C8 | 2.95 | 0.55 |
| 1:A:2397:G:H2' | 1:A:2398:U:O4' | 2.06 | 0.55 |
| 1:A:2419:U:O4 | 31:7:31:HIS:CE1 | 2.59 | 0.55 |
| 1:A:2423:U:O4' | 1:A:2425:A:N7 | 2.40 | 0.55 |
| 1:A:2455:G:N2 | 1:A:2498:C:H42 | 2.04 | 0.55 |
| 1:A:2524:G:C6 | 1:A:2525:G:C4 | 2.95 | 0.55 |
| 1:A:255:A:C8 | 1:A:256:A:N7 | 2.75 | 0.55 |
| 1:A:2579:C:H3' | 1:A:2580:U:H6 | 1.70 | 0.55 |
| 1:A:260:G:O4' | 1:A:621:A:H1' | 2.06 | 0.55 |
| 1:A:2742:C:H5'' | 32:8:35:ARG:CZ | 2.37 | 0.55 |
| 1:A:2839:G:C5 | 1:A:2840:C:C5 | 2.95 | 0.55 |
| 1:A:300:A:C1' | 1:A:318:C:HO2' | 2.20 | 0.55 |
| 1:A:365:C:O5' | 1:A:365:C:H6 | 1.88 | 0.55 |
| 1:A:234:C:N4 | 1:A:430:G:H22 | 2.02 | 0.55 |
| 1:A:482:A:C2' | 1:A:483:A:OP2 | 2.54 | 0.55 |
| 1:A:575:A:H2' | 1:A:576:U:O4' | 2.05 | 0.55 |
| 1:A:633:A:H3' | 1:A:634:C:O4' | 2.06 | 0.55 |
| 1:A:924:C:H2' | 1:A:925:C:H6 | 1.70 | 0.55 |
| 1:A:930:U:O2' | 1:A:931:G:O5' | 2.24 | 0.55 |
| 1:A:958:U:C2' | 1:A:959:A:OP2 | 2.54 | 0.55 |
| 1:A:1820:U:C5 | 4:D:159:ALA:C | 2.69 | 0.55 |
| 4:D:18:VAL:HG12 | 4:D:18:VAL:O | 2.05 | 0.55 |
| 4:D:212:SER:O | 4:D:214:TRP:N | 2.39 | 0.55 |
| 5:E:102:VAL:HG23 | 5:E:103:ASP:N | 2.21 | 0.55 |
| 5:E:131:ALA:HB1 | 5:E:134:ILE:HD11 | 1.88 | 0.55 |
| 5:E:7:VAL:O | 5:E:193:GLY:N | 2.40 | 0.55 |
| 5:E:47:VAL:HG22 | 5:E:79:ARG:CB | 2.35 | 0.55 |
| 6:F:146:ALA:C | 6:F:148:LEU:HD22 | 2.27 | 0.55 |
| 7:G:148:MET:CG | 7:G:151:ALA:HB2 | 2.36 | 0.55 |
| 8:H:167:GLU:O | 8:H:169:VAL:N | 2.39 | 0.55 |
| 8:H:35:VAL:CB | 8:H:72:ILE:HG23 | 2.36 | 0.55 |
| 1:A:2748:A:O2' | 8:H:63:SER:O | 2.24 | 0.55 |
| 1:A:2093:G:C1' | 9:K:29:TYR:HD2 | 2.19 | 0.55 |
| 11:M:12:ARG:CB | 11:M:12:ARG:NH1 | 2.70 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 12:N:70:LYS:CG | 12:N:107:ARG:HH12 | 2.19 | 0.55 |
| 12:N:68:GLU:HG2 | 12:N:76:ALA:H | 1.71 | 0.55 |
| 12:N:87:ILE:HG22 | 12:N:89:ASN:HD21 | 1.71 | 0.55 |
| 1:A:587:C:N4 | 13:O:30:THR:OG1 | 2.40 | 0.55 |
| 1:A:2415:G:H5'' | 13:O:61:ARG:HD2 | 1.88 | 0.55 |
| 13:O:81:GLN:OE1 | 13:O:86:LYS:HG3 | 2.05 | 0.55 |
| 14:P:134:ARG:O | 14:P:135:ASP:CG | 2.45 | 0.55 |
| 14:P:44:ALA:CB | 14:P:70:PRO:HB3 | 2.36 | 0.55 |
| 15:Q:34:ILE:O | 15:Q:113:LEU:CD2 | 2.54 | 0.55 |
| 17:S:23:ARG:NH2 | 17:S:89:VAL:CA | 2.70 | 0.55 |
| 12:N:76:ALA:CA | 17:S:77:PRO:HD2 | 2.32 | 0.55 |
| 18:T:14:HIS:CG | 18:T:36:ARG:HH22 | 2.24 | 0.55 |
| 18:T:79:PHE:CE1 | 18:T:83:LEU:HD13 | 2.41 | 0.55 |
| 19:U:74:LYS:O | 19:U:75:PHE:CD2 | 2.59 | 0.55 |
| 19:U:83:ARG:C | 19:U:83:ARG:HD3 | 2.27 | 0.55 |
| 20:V:33:ARG:HH12 | 20:V:37:ARG:CB | 2.19 | 0.55 |
| 20:V:74:ALA:HB1 | 20:V:105:VAL:CA | 2.26 | 0.55 |
| 21:W:63:LYS:HE2 | 21:W:65:ARG:NH1 | 2.22 | 0.55 |
| 22:X:75:ILE:CG2 | 22:X:100:ALA:HB1 | 2.36 | 0.55 |
| 23:Y:98:MET:CE | 23:Y:100:VAL:HG13 | 2.36 | 0.55 |
| 24:Z:44:ARG:HH21 | 24:Z:77:ARG:CZ | 2.19 | 0.55 |
| 3:C:108:MET:SD | 3:C:131:LEU:HD21 | 2.46 | 0.55 |
| 3:C:190:ARG:HA | 3:C:193:ILE:HG13 | 1.89 | 0.55 |
| 1:A:248:G:OP1 | 27:3:28:LYS:CE | 2.54 | 0.55 |
| 27:3:47:GLN:HA | 27:3:52:THR:HB | 1.86 | 0.55 |
| 27:3:5:ILE:HG22 | 27:3:6:HIS:N | 2.22 | 0.55 |
| 1:A:770:G:H5' | 30:6:10:ARG:HH11 | 1.72 | 0.55 |
| 1:A:2466:C:C5' | 32:8:5:ALA:HB3 | 2.36 | 0.55 |
| 1:A:1021:A:H3' | 1:A:1021:A:C8 | 2.41 | 0.55 |
| 1:A:111:A:H4' | 25:1:60:ASN:ND2 | 2.21 | 0.55 |
| 1:A:1155:A:C2 | 1:A:1157:G:H1' | 2.41 | 0.55 |
| 1:A:974:G:C4 | 1:A:1186:G:C6 | 2.95 | 0.55 |
| 1:A:118:A:C8 | 1:A:119:A:C8 | 2.94 | 0.55 |
| 1:A:1203:G:N3 | 1:A:1241:A:C8 | 2.58 | 0.55 |
| 1:A:1203:G:O6 | 1:A:1240:U:C2' | 2.54 | 0.55 |
| 1:A:1284:A:C6 | 1:A:1285:G:C2 | 2.94 | 0.55 |
| 1:A:1317:A:C6 | 1:A:1318:C:C4 | 2.95 | 0.55 |
| 1:A:1555:G:C4 | 1:A:1556:C:C5 | 2.95 | 0.55 |
| 1:A:1662:C:C2 | 1:A:1663:C:C4 | 2.95 | 0.55 |
| 1:A:1771:C:H2' | 1:A:1772:G:C5' | 2.22 | 0.55 |
| 1:A:1954:G:H21 | 1:A:1956:U:H1' | 1.71 | 0.55 |
| 1:A:1935:G:C2' | 1:A:1962:C:N4 | 2.69 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1970:A:O2' | 1:A:1971:A:OP2 | 2.24 | 0.55 |
| 1:A:1996:C:C4' | 1:A:1996:C:H6 | 2.15 | 0.55 |
| 1:A:2014:A:C2 | 1:A:2613:U:N3 | 2.73 | 0.55 |
| 1:A:2072:G:C6 | 1:A:2073:C:C4 | 2.94 | 0.55 |
| 1:A:213:A:C2' | 1:A:214:G:H5' | 2.37 | 0.55 |
| 1:A:216:A:C2 | 1:A:217:G:C6 | 2.95 | 0.55 |
| 1:A:228:A:H2' | 1:A:229:A:C5' | 2.35 | 0.55 |
| 1:A:2321:G:H21 | 1:A:2322:A:C1' | 2.20 | 0.55 |
| 1:A:2345:G:C2 | 1:A:2381:C:H2' | 2.42 | 0.55 |
| 1:A:239:U:H2' | 1:A:240:G:O4' | 2.06 | 0.55 |
| 1:A:2566:A:H61 | 12:N:28:SER:HB3 | 1.72 | 0.55 |
| 1:A:2635:C:H2' | 1:A:2636:U:O5' | 2.06 | 0.55 |
| 1:A:2544:G:H1' | 1:A:2646:C:H4' | 1.89 | 0.55 |
| 1:A:270(G):C:C4 | 1:A:270(H):C:N4 | 2.73 | 0.55 |
| 1:A:270(A):A:N6 | 1:A:270(X):G:H2' | 2.08 | 0.55 |
| 1:A:2747:G:C2 | 1:A:2754:U:N3 | 2.74 | 0.55 |
| 1:A:2798:C:C4 | 1:A:2801:A:N6 | 2.70 | 0.55 |
| 1:A:280:C:O4' | 1:A:280:C:OP2 | 2.24 | 0.55 |
| 1:A:2839:G:C2 | 1:A:2840:C:C2 | 2.94 | 0.55 |
| 1:A:299:A:O2' | 1:A:319:C:C4' | 2.49 | 0.55 |
| 1:A:360:G:C2' | 1:A:361:G:C5' | 2.80 | 0.55 |
| 1:A:449:A:C2 | 1:A:450:G:N7 | 2.74 | 0.55 |
| 1:A:590:A:C2 | 1:A:591:C:C2 | 2.94 | 0.55 |
| 1:A:606:U:O2 | 1:A:620:G:N2 | 2.39 | 0.55 |
| 1:A:656:G:C2 | 1:A:657:U:C2 | 2.94 | 0.55 |
| 1:A:687:C:P | 1:A:688:U:OP2 | 2.65 | 0.55 |
| 1:A:735:A:H8 | 1:A:735:A:O5' | 1.89 | 0.55 |
| 1:A:756:C:H2' | 1:A:757:U:C5' | 2.36 | 0.55 |
| 1:A:92:G:H2' | 1:A:93:C:C6 | 2.40 | 0.55 |
| 1:A:955:C:C2' | 1:A:956:G:H5' | 2.37 | 0.55 |
| 1:A:988:A:H62 | 26:2:13:ILE:CD1 | 2.18 | 0.55 |
| 2:B:99:A:C2' | 2:B:100:G:H5' | 2.36 | 0.55 |
| 4:D:128:GLY:H | 4:D:193:VAL:CB | 2.20 | 0.55 |
| 5:E:111:ARG:O | 15:Q:4:LEU:HD21 | 2.07 | 0.55 |
| 5:E:190:GLY:O | 5:E:191:PRO:O | 2.25 | 0.55 |
| 5:E:91:VAL:H | 5:E:95:ILE:HD11 | 1.72 | 0.55 |
| 5:E:93:VAL:C | 5:E:95:ILE:H | 2.05 | 0.55 |
| 6:F:46:ARG:HH11 | 6:F:47:GLY:H | 1.55 | 0.55 |
| 6:F:56:GLU:C | 6:F:58:ALA:N | 2.58 | 0.55 |
| 7:G:59:GLU:CB | 7:G:152:LEU:HD22 | 2.36 | 0.55 |
| 7:G:163:ALA:CB | 7:G:169:ALA:HA | 2.36 | 0.55 |
| 7:G:173:LEU:O | 7:G:173:LEU:HG | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:33:ARG:O | 7:G:33:ARG:NH2 | 2.40 | 0.55 |
| 7:G:38:VAL:HG12 | 7:G:93:THR:HG23 | 1.88 | 0.55 |
| 8:H:104:GLU:O | 8:H:113:VAL:CG1 | 2.55 | 0.55 |
| 8:H:11:VAL:CG2 | 8:H:17:VAL:HG11 | 2.34 | 0.55 |
| 9:K:35:LEU:O | 9:K:36:ALA:HB2 | 2.06 | 0.55 |
| 5:E:152:LYS:HG2 | 11:M:78:TYR:HB2 | 1.88 | 0.55 |
| 12:N:2:ILE:CB | 12:N:32:TYR:HB3 | 2.36 | 0.55 |
| 12:N:90:GLN:O | 12:N:91:LEU:O | 2.25 | 0.55 |
| 14:P:42:ILE:HD11 | 14:P:46:GLN:CD | 2.26 | 0.55 |
| 16:R:9:ARG:HH11 | 16:R:9:ARG:CB | 2.16 | 0.55 |
| 17:S:53:ARG:NH2 | 17:S:102:ILE:H | 1.88 | 0.55 |
| 17:S:28:VAL:HG12 | 17:S:29:ARG:C | 2.27 | 0.55 |
| 17:S:30:VAL:CG2 | 17:S:32:TYR:HE2 | 2.19 | 0.55 |
| 21:W:61:GLY:O | 21:W:72:LYS:C | 2.44 | 0.55 |
| 22:X:76:CYS:CB | 22:X:100:ALA:HB3 | 2.30 | 0.55 |
| 23:Y:151:HIS:CE1 | 23:Y:170:THR:HG23 | 2.41 | 0.55 |
| 23:Y:28:MET:CE | 23:Y:88:PHE:HB2 | 2.36 | 0.55 |
| 1:A:2353:G:O2' | 24:Z:33:ALA:O | 2.24 | 0.55 |
| 9:K:125:GLU:C | 9:K:125:GLU:CD | 2.65 | 0.55 |
| 9:K:69:LYS:HD2 | 9:K:70:LYS:CG | 2.37 | 0.55 |
| 1:A:1579:A:H2' | 1:A:1580:A:C5' | 2.37 | 0.55 |
| 1:A:713:G:C2' | 1:A:714:U:OP1 | 2.54 | 0.55 |
| 25:1:50:ARG:O | 25:1:54:ARG:HG3 | 2.06 | 0.55 |
| 25:1:16:LEU:HD22 | 25:1:58:VAL:HG23 | 1.89 | 0.55 |
| 26:2:26:LEU:HB2 | 26:2:28:LEU:HD21 | 1.89 | 0.55 |
| 27:3:42:PHE:CB | 27:3:58:ARG:NH1 | 2.70 | 0.55 |
| 27:3:5:ILE:HD13 | 27:3:60:GLN:NE2 | 2.21 | 0.55 |
| 28:4:33:CYS:SG | 28:4:34:PRO:HD2 | 2.47 | 0.55 |
| 28:4:40:LYS:HE3 | 28:4:44:THR:C | 2.27 | 0.55 |
| 29:5:11:LEU:CD2 | 31:7:35:GLN:NE2 | 2.68 | 0.55 |
| 29:5:51:GLU:CD | 29:5:52:VAL:N | 2.60 | 0.55 |
| 1:A:458:G:C3' | 30:6:39:ARG:HD2 | 2.36 | 0.55 |
| 1:A:2419:U:P | 31:7:41:ILE:HD12 | 2.46 | 0.55 |
| 1:A:1062:G:N2 | 10:L:91:PRO:HG3 | 2.22 | 0.55 |
| 1:A:1180:C:OP2 | 1:A:1180:C:H3' | 2.06 | 0.55 |
| 1:A:1448:G:H2' | 1:A:1449:A:H8 | 1.71 | 0.55 |
| 1:A:120:U:C2 | 1:A:149:A:C2 | 2.95 | 0.55 |
| 1:A:1514:U:O2' | 1:A:1515:C:OP2 | 2.21 | 0.55 |
| 1:A:1625:C:C4 | 1:A:1626:G:H8 | 2.25 | 0.55 |
| 1:A:1657:C:P | 5:E:136:ARG:HH22 | 2.29 | 0.55 |
| 1:A:1691:C:O2 | 1:A:1691:C:C2' | 2.53 | 0.55 |
| 1:A:1725:G:N2 | 1:A:1726:G:C8 | 2.75 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1731:G:N2 | 1:A:1733:G:N2 | 2.54 | 0.55 |
| 1:A:176:G:C2' | 1:A:177:G:O4' | 2.48 | 0.55 |
| 1:A:1784:A:C2' | 1:A:1785:A:C8 | 2.89 | 0.55 |
| 1:A:1838:C:H2' | 1:A:1898:U:O4 | 2.05 | 0.55 |
| 1:A:1982:C:H5'' | 1:A:1983:C:OP2 | 2.06 | 0.55 |
| 1:A:1991:U:H2' | 1:A:1992:G:OP2 | 2.07 | 0.55 |
| 1:A:2015:A:H3' | 1:A:2016:U:C5 | 2.42 | 0.55 |
| 1:A:2040:C:C2 | 1:A:2041:U:C6 | 2.95 | 0.55 |
| 1:A:210:C:O2' | 1:A:211:A:H5' | 2.07 | 0.55 |
| 1:A:2207:C:C3' | 1:A:2208:U:H5'' | 2.33 | 0.55 |
| 1:A:2212:A:H2' | 1:A:2213:U:C5 | 2.42 | 0.55 |
| 1:A:2224:G:C5' | 4:D:262:ARG:NH2 | 2.70 | 0.55 |
| 1:A:2298:A:C2 | 1:A:2299:G:H1' | 2.41 | 0.55 |
| 1:A:2353:G:C5 | 1:A:2365:G:N2 | 2.74 | 0.55 |
| 1:A:2393:A:OP2 | 31:7:32:LEU:HD11 | 2.07 | 0.55 |
| 1:A:2506:U:HO2' | 1:A:2507:C:H5' | 1.70 | 0.55 |
| 1:A:2525:G:N3 | 1:A:2525:G:H2' | 2.20 | 0.55 |
| 1:A:2659:G:H1' | 1:A:2663:G:H1 | 1.70 | 0.55 |
| 1:A:2681:C:OP2 | 5:E:109:LYS:NZ | 2.33 | 0.55 |
| 1:A:2698:U:C4 | 1:A:2699:C:N4 | 2.73 | 0.55 |
| 1:A:365:C:O5' | 1:A:365:C:C6 | 2.60 | 0.55 |
| 1:A:488:G:H1' | 1:A:492:A:H62 | 1.70 | 0.55 |
| 1:A:672:C:H2' | 1:A:673:C:C5 | 2.40 | 0.55 |
| 1:A:692:C:O3' | 4:D:60:ARG:NH2 | 2.40 | 0.55 |
| 4:D:142:VAL:HG23 | 4:D:163:ALA:CB | 2.36 | 0.55 |
| 4:D:205:VAL:O | 4:D:206:LEU:O | 2.24 | 0.55 |
| 4:D:212:SER:O | 4:D:213:ARG:C | 2.43 | 0.55 |
| 4:D:258:LYS:HE2 | 4:D:264:LYS:HB2 | 1.89 | 0.55 |
| 4:D:35:LYS:HB2 | 4:D:36:PRO:CD | 2.36 | 0.55 |
| 6:F:18:ARG:HH11 | 6:F:20:LEU:CD1 | 2.20 | 0.55 |
| 7:G:37:VAL:O | 7:G:99:MET:SD | 2.65 | 0.55 |
| 8:H:128:PRO:HA | 8:H:131:VAL:CG2 | 2.36 | 0.55 |
| 8:H:107:VAL:CG1 | 8:H:152:ARG:HG2 | 2.34 | 0.55 |
| 11:M:136:GLU:O | 11:M:137:LYS:CG | 2.51 | 0.55 |
| 12:N:12:ASP:N | 12:N:12:ASP:OD1 | 2.39 | 0.55 |
| 13:O:112:LEU:O | 13:O:114:ILE:HD12 | 2.07 | 0.55 |
| 13:O:121:LYS:HD3 | 13:O:133:SER:OG | 2.06 | 0.55 |
| 16:R:103:GLU:HA | 16:R:106:ARG:CB | 2.35 | 0.55 |
| 16:R:49:VAL:CG1 | 16:R:76:LYS:NZ | 2.65 | 0.55 |
| 17:S:27:THR:CG2 | 17:S:52:ILE:O | 2.54 | 0.55 |
| 18:T:84:LYS:NZ | 18:T:90:VAL:HG11 | 2.22 | 0.55 |
| 19:U:19:LYS:CG | 19:U:21:ARG:HH12 | 2.19 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:78:LYS:C | 19:U:78:LYS:HD3 | 2.25 | 0.55 |
| 19:U:62:LEU:HD13 | 19:U:98:GLU:CA | 2.37 | 0.55 |
| 20:V:21:VAL:HA | 20:V:24:ILE:HG13 | 1.88 | 0.55 |
| 20:V:65:LEU:O | 20:V:66:GLU:C | 2.44 | 0.55 |
| 1:A:1598:C:C5' | 21:W:36:LYS:HB3 | 2.22 | 0.55 |
| 22:X:75:ILE:O | 22:X:100:ALA:HB2 | 2.06 | 0.55 |
| 23:Y:39:VAL:HG12 | 23:Y:41:LEU:CD2 | 2.37 | 0.55 |
| 23:Y:48:PHE:HZ | 23:Y:86:VAL:HG11 | 1.69 | 0.55 |
| 1:A:2129:C:O2' | 1:A:2130:U:C5' | 2.54 | 0.55 |
| 3:C:133:PRO:C | 3:C:135:GLY:N | 2.59 | 0.55 |
| 3:C:223:ARG:NH1 | 3:C:223:ARG:HB2 | 2.21 | 0.55 |
| 3:C:89:ALA:HB1 | 3:C:154:ARG:CB | 2.37 | 0.55 |
| 1:A:1497:U:O4 | 1:A:1498:C:H5 | 1.90 | 0.55 |
| 1:A:715:G:C3' | 1:A:715:G:C8 | 2.82 | 0.55 |
| 26:2:6:VAL:CB | 26:2:35:ARG:NE | 2.61 | 0.55 |
| 31:7:54:GLU:CA | 31:7:57:ARG:HB3 | 2.37 | 0.55 |
| 32:8:17:ILE:HD12 | 32:8:26:ILE:CG1 | 2.37 | 0.55 |
| 1:A:2526:G:O2' | 32:8:33:LYS:HG3 | 2.06 | 0.55 |
| 1:A:1015:G:O2' | 1:A:1016:G:H5' | 2.07 | 0.55 |
| 1:A:1044:G:N1 | 1:A:1112:G:O2' | 2.36 | 0.55 |
| 1:A:1222:C:N4 | 1:A:1227:A:H62 | 1.88 | 0.55 |
| 1:A:1205:U:O2 | 1:A:1240:U:O4 | 2.24 | 0.55 |
| 1:A:1423:G:C2 | 1:A:1424:G:C8 | 2.95 | 0.55 |
| 1:A:1515:C:H2' | 1:A:1516:U:OP1 | 2.07 | 0.55 |
| 1:A:1562:A:O2' | 1:A:1563:G:H5' | 2.06 | 0.55 |
| 1:A:1748:G:C2 | 1:A:1749:A:C4 | 2.94 | 0.55 |
| 1:A:752:A:N7 | 1:A:1781:C:O4' | 2.40 | 0.55 |
| 1:A:1778:U:C4 | 1:A:1785:A:C6 | 2.95 | 0.55 |
| 1:A:190:A:N7 | 1:A:207:A:C6 | 2.75 | 0.55 |
| 1:A:1917:U:C5 | 1:A:1918:A:C4 | 2.94 | 0.55 |
| 1:A:1978:A:H2' | 1:A:1979:C:O4' | 2.07 | 0.55 |
| 1:A:2072:G:O6 | 1:A:2438:U:C4 | 2.60 | 0.55 |
| 1:A:2360:A:C8 | 1:A:2361:A:C8 | 2.94 | 0.55 |
| 1:A:2404:C:C6 | 1:A:2414:G:N2 | 2.74 | 0.55 |
| 1:A:2422:A:C5' | 1:A:2423:U:OP1 | 2.54 | 0.55 |
| 1:A:945:A:C6 | 1:A:2448:A:H2 | 2.24 | 0.55 |
| 1:A:2532:G:O2' | 1:A:2533:A:H5' | 2.07 | 0.55 |
| 1:A:2639:A:C4 | 1:A:2778:A:N1 | 2.74 | 0.55 |
| 1:A:107:C:H4' | 1:A:293:U:O2 | 2.06 | 0.55 |
| 1:A:294:A:N1 | 1:A:346:A:C2 | 2.75 | 0.55 |
| 1:A:424:G:H2' | 1:A:425:G:H8 | 1.72 | 0.55 |
| 1:A:627:A:OP2 | 1:A:637:A:N6 | 2.40 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:66:C:C4 | 1:A:89:G:N1 | 2.75 | 0.55 |
| 1:A:681:G:C2 | 1:A:682:G:C4 | 2.94 | 0.55 |
| 1:A:71:A:C3' | 1:A:72:U:H5'' | 2.37 | 0.55 |
| 1:A:829:A:H5' | 1:A:831:G:C8 | 2.42 | 0.55 |
| 1:A:89:G:H3' | 1:A:90:U:H5'' | 1.89 | 0.55 |
| 1:A:957:A:N1 | 1:A:2459:A:C5' | 2.70 | 0.55 |
| 1:A:974:G:HO2' | 1:A:1186:G:H1' | 1.70 | 0.55 |
| 2:B:49:C:C2 | 2:B:50:G:C8 | 2.94 | 0.55 |
| 2:B:87:G:N2 | 2:B:89:G:C8 | 2.75 | 0.55 |
| 4:D:10:THR:HB | 4:D:11:PRO:CD | 2.36 | 0.55 |
| 4:D:181:GLU:HG3 | 4:D:270:ILE:HB | 1.88 | 0.55 |
| 5:E:4:ILE:CD1 | 5:E:76:ARG:HE | 2.14 | 0.55 |
| 6:F:9:ILE:HG21 | 6:F:124:LEU:HB2 | 1.89 | 0.55 |
| 6:F:8:GLN:HB3 | 6:F:18:ARG:CG | 2.36 | 0.55 |
| 6:F:4:VAL:CA | 6:F:20:LEU:HG | 2.37 | 0.55 |
| 7:G:12:TYR:C | 7:G:12:TYR:CD1 | 2.80 | 0.55 |
| 7:G:54:GLU:O | 7:G:57:ALA:CB | 2.43 | 0.55 |
| 10:L:128:ALA:HB1 | 10:L:132:ARG:NH2 | 2.21 | 0.55 |
| 10:L:27:LEU:CD1 | 10:L:57:ILE:HD11 | 2.36 | 0.55 |
| 11:M:96:GLU:CG | 11:M:97:ARG:N | 2.70 | 0.55 |
| 12:N:63:VAL:HG23 | 12:N:81:ASP:HA | 1.88 | 0.55 |
| 12:N:3:GLN:HG2 | 12:N:6:THR:CB | 2.37 | 0.55 |
| 13:O:123:LEU:HG | 13:O:134:ALA:CB | 2.36 | 0.55 |
| 13:O:23:PRO:HG2 | 13:O:29:LYS:HA | 1.89 | 0.55 |
| 14:P:99:PRO:CG | 14:P:99:PRO:O | 2.54 | 0.55 |
| 15:Q:105:ARG:CA | 15:Q:105:ARG:NE | 2.65 | 0.55 |
| 16:R:97:ARG:HG3 | 16:R:97:ARG:NH2 | 2.22 | 0.55 |
| 17:S:28:VAL:HB | 17:S:30:VAL:HG12 | 1.87 | 0.55 |
| 1:A:1152:C:O4' | 18:T:77:SER:HA | 2.07 | 0.55 |
| 19:U:66:ARG:C | 19:U:94:LEU:HD23 | 2.26 | 0.55 |
| 20:V:33:ARG:HH12 | 20:V:37:ARG:N | 2.05 | 0.55 |
| 20:V:86:LEU:CD2 | 20:V:87:PRO:HD2 | 2.37 | 0.55 |
| 22:X:82:PRO:HG3 | 22:X:97:ARG:HB2 | 1.89 | 0.55 |
| 9:K:77:LEU:CG | 9:K:141:LYS:O | 2.50 | 0.55 |
| 1:A:2110:G:H2' | 1:A:2120:G:O5' | 2.06 | 0.55 |
| 1:A:2175:C:H2' | 1:A:2175:C:O2 | 2.06 | 0.55 |
| 3:C:22:ILE:HD13 | 3:C:190:ARG:CZ | 2.36 | 0.55 |
| 9:K:58:LEU:HB3 | 9:K:62:LYS:CE | 2.36 | 0.55 |
| 1:A:2186:G:C2 | 1:A:2187:G:N7 | 2.74 | 0.55 |
| 16:R:56:LEU:HD21 | 16:R:59:LYS:CD | 2.35 | 0.55 |
| 27:3:56:VAL:CB | 27:3:61:ARG:HG2 | 2.37 | 0.55 |
| 31:7:52:LYS:HB2 | 31:7:52:LYS:NZ | 2.22 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 32:8:17:ILE:HD12 | 32:8:26:ILE:CB | 2.36 | 0.55 |
| 32:8:29:ASN:HB3 | 32:8:32:HIS:ND1 | 2.21 | 0.55 |
| 32:8:9:ARG:C | 32:8:10:ILE:CG1 | 2.74 | 0.55 |
| 1:A:1203:G:O6 | 1:A:1240:U:C6 | 2.60 | 0.55 |
| 1:A:1455:G:OP2 | 1:A:1456:G:OP2 | 2.25 | 0.55 |
| 1:A:1593:G:H2' | 1:A:1594:G:H8 | 1.70 | 0.55 |
| 1:A:1595:G:N2 | 1:A:1596:A:H1' | 2.21 | 0.55 |
| 1:A:1791:A:C5' | 4:D:209:ALA:HA | 2.36 | 0.55 |
| 1:A:1815:A:C8 | 1:A:1817:G:N3 | 2.75 | 0.55 |
| 1:A:1980:G:O6 | 1:A:1982:C:N4 | 2.40 | 0.55 |
| 1:A:2018:G:C2' | 1:A:2019:A:O4' | 2.54 | 0.55 |
| 1:A:2051:A:H4' | 5:E:141:ILE:CG2 | 2.36 | 0.55 |
| 1:A:2469:A:C5 | 1:A:2470:G:C8 | 2.94 | 0.55 |
| 1:A:2485:G:C2' | 1:A:2486:G:H5' | 2.36 | 0.55 |
| 1:A:270(Q):C:C2 | 1:A:270(R):G:C8 | 2.95 | 0.55 |
| 1:A:2882:A:OP1 | 15:Q:96:ARG:NE | 2.40 | 0.55 |
| 1:A:29:U:OP1 | 1:A:583:G:C4' | 2.31 | 0.55 |
| 1:A:324:A:N7 | 1:A:340:A:H1' | 2.22 | 0.55 |
| 1:A:376:C:H2' | 1:A:377:C:C6 | 2.42 | 0.55 |
| 1:A:470:A:O2' | 1:A:471:A:O5' | 2.25 | 0.55 |
| 1:A:563:G:C2 | 1:A:564:C:C4 | 2.95 | 0.55 |
| 1:A:566:U:H3' | 1:A:567:A:C8 | 2.40 | 0.55 |
| 1:A:66:C:H5' | 1:A:456:C:O2' | 2.07 | 0.55 |
| 1:A:796:C:H2' | 1:A:797:C:C6 | 2.42 | 0.55 |
| 1:A:802:A:H2' | 1:A:803:U:O5' | 2.06 | 0.55 |
| 1:A:819:A:H2' | 1:A:820:A:H8 | 1.67 | 0.55 |
| 1:A:918:A:O2' | 2:B:97:G:C2 | 2.59 | 0.55 |
| 1:A:942:G:O3' | 13:O:32:THR:HB | 2.07 | 0.55 |
| 1:A:987:G:C4 | 1:A:988:A:C8 | 2.94 | 0.55 |
| 4:D:236:GLY:O | 4:D:237:GLU:CG | 2.51 | 0.55 |
| 5:E:20:ALA:C | 5:E:21:VAL:CG1 | 2.75 | 0.55 |
| 5:E:10:GLY:HA2 | 5:E:23:VAL:HA | 1.88 | 0.55 |
| 5:E:7:VAL:CG2 | 5:E:24:THR:O | 2.54 | 0.55 |
| 6:F:155:LEU:HD23 | 6:F:174:VAL:CG2 | 2.37 | 0.55 |
| 1:A:2306:C:O4' | 7:G:154:GLY:HA3 | 2.07 | 0.55 |
| 7:G:32:PRO:CG | 7:G:172:LEU:HD22 | 2.36 | 0.55 |
| 7:G:32:PRO:O | 7:G:33:ARG:CB | 2.51 | 0.55 |
| 7:G:96:ARG:HD3 | 7:G:97:ASP:OD1 | 2.06 | 0.55 |
| 8:H:74:ASN:HB2 | 8:H:138:LYS:CE | 2.37 | 0.55 |
| 10:L:128:ALA:HB1 | 10:L:132:ARG:HH22 | 1.71 | 0.55 |
| 11:M:107:LEU:HD13 | 11:M:117:PHE:CE1 | 2.41 | 0.55 |
| 11:M:89:LYS:O | 11:M:90:MET:C | 2.45 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 13:O:67:MET:SD | 13:O:68:GLN:O | 2.65 | 0.55 |
| 15:Q:11:ASN:O | 15:Q:12:ARG:HB2 | 2.07 | 0.55 |
| 15:Q:34:ILE:HG22 | 15:Q:35:THR:N | 2.22 | 0.55 |
| 15:Q:44:LEU:CD1 | 15:Q:48:VAL:CG2 | 2.84 | 0.55 |
| 15:Q:83:ILE:HG23 | 15:Q:86:ARG:CZ | 2.36 | 0.55 |
| 15:Q:83:ILE:HG23 | 15:Q:86:ARG:HH21 | 1.72 | 0.55 |
| 16:R:17:ARG:HH12 | 16:R:27:SER:HA | 1.71 | 0.55 |
| 12:N:75:SER:O | 17:S:76:PHE:CD1 | 2.60 | 0.55 |
| 1:A:2848:G:C8 | 17:S:99:LEU:HG | 2.42 | 0.55 |
| 19:U:34:GLU:O | 19:U:35:LEU:HD12 | 2.07 | 0.55 |
| 19:U:1:MET:O | 19:U:3:ALA:N | 2.40 | 0.55 |
| 20:V:28:SER:C | 20:V:30:GLU:N | 2.58 | 0.55 |
| 1:A:85:G:O3' | 22:X:30:VAL:HG23 | 2.07 | 0.55 |
| 22:X:82:PRO:HB3 | 22:X:97:ARG:O | 2.05 | 0.55 |
| 3:C:39:GLU:HG3 | 3:C:40:THR:N | 2.22 | 0.55 |
| 3:C:39:GLU:HG3 | 3:C:41:VAL:N | 2.21 | 0.55 |
| 3:C:75:LEU:CD1 | 3:C:99:ILE:HG21 | 2.37 | 0.55 |
| 1:A:2191:G:H21 | 1:A:2192:G:H1' | 1.72 | 0.55 |
| 25:1:20:VAL:HB | 25:1:55:LEU:HB3 | 1.88 | 0.55 |
| 1:A:988:A:H3' | 26:2:10:LYS:HZ2 | 1.72 | 0.55 |
| 26:2:40:THR:O | 26:2:44:ARG:HB3 | 2.07 | 0.55 |
| 28:4:4:HIS:CD2 | 28:4:5:PRO:N | 2.74 | 0.55 |
| 29:5:40:CYS:HA | 29:5:46:HIS:O | 2.07 | 0.55 |
| 29:5:9:LEU:HD22 | 29:5:27:LYS:CG | 2.26 | 0.55 |
| 1:A:2359:C:C4' | 31:7:52:LYS:HZ3 | 2.20 | 0.55 |
| 1:A:1024:G:C5 | 1:A:1025:G:H8 | 2.18 | 0.55 |
| 1:A:1058:G:N3 | 1:A:1058:G:H2' | 2.22 | 0.55 |
| 1:A:1101:U:H2' | 1:A:1102:C:O4' | 2.06 | 0.55 |
| 1:A:1221:C:H2' | 1:A:1221:C:O2 | 2.06 | 0.55 |
| 1:A:813:U:O2' | 1:A:1225:C:H1' | 2.06 | 0.55 |
| 1:A:1266:G:OP1 | 28:4:19:ARG:NH1 | 2.40 | 0.55 |
| 1:A:1448:G:C4' | 1:A:1543:A:N1 | 2.70 | 0.55 |
| 1:A:1471:A:H2' | 1:A:1471:A:N3 | 2.21 | 0.55 |
| 1:A:1646:C:H3' | 1:A:1647:G:H5' | 1.86 | 0.55 |
| 1:A:1780:A:O2' | 1:A:1781:C:OP1 | 2.23 | 0.55 |
| 1:A:1814:G:OP2 | 4:D:43:ARG:HD2 | 2.06 | 0.55 |
| 1:A:1910:G:C4 | 1:A:1921:G:N2 | 2.75 | 0.55 |
| 1:A:195:A:H5'' | 1:A:196:A:OP2 | 2.07 | 0.55 |
| 1:A:1935:G:C1' | 1:A:1964:G:N2 | 2.70 | 0.55 |
| 1:A:1967:C:O2' | 1:A:1968:G:OP1 | 2.24 | 0.55 |
| 1:A:1980:G:H3' | 1:A:1981:A:H5'' | 1.88 | 0.55 |
| 1:A:1988:C:H2' | 1:A:1989:G:O5' | 2.07 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1993:U:C6 | 1:A:1993:U:O5' | 2.60 | 0.55 |
| 1:A:2020:A:OP2 | 18:T:27:LEU:CD1 | 2.52 | 0.55 |
| 1:A:2091:U:O4 | 1:A:2092:U:C4 | 2.59 | 0.55 |
| 1:A:2228:G:N7 | 1:A:2229:C:C5 | 2.75 | 0.55 |
| 1:A:2334:G:H21 | 16:R:11:LYS:NZ | 2.02 | 0.55 |
| 1:A:2423:U:O2' | 1:A:2425:A:H3' | 2.07 | 0.55 |
| 1:A:241:A:C2' | 1:A:242:G:H4' | 2.35 | 0.55 |
| 1:A:252:G:O6 | 31:7:8:LYS:NZ | 2.40 | 0.55 |
| 1:A:270(B):A:C4' | 1:A:270(C):C:C6 | 2.88 | 0.55 |
| 1:A:2717:G:O2' | 1:A:2718:G:O5' | 2.19 | 0.55 |
| 1:A:2733:A:C8 | 1:A:2734:A:C8 | 2.95 | 0.55 |
| 1:A:2749:A:C4 | 1:A:2750:A:N7 | 2.75 | 0.55 |
| 1:A:2522:U:O2 | 1:A:2765:A:N6 | 2.39 | 0.55 |
| 1:A:331:A:O2' | 1:A:332:A:OP1 | 2.24 | 0.55 |
| 1:A:499:U:C5 | 1:A:500:G:N3 | 2.75 | 0.55 |
| 1:A:527:C:OP1 | 1:A:527:C:C4' | 2.51 | 0.55 |
| 1:A:563:G:C2 | 1:A:578:A:N1 | 2.74 | 0.55 |
| 1:A:605:C:H2' | 1:A:606:U:C6 | 2.41 | 0.55 |
| 1:A:670:A:H2' | 13:O:41:ARG:HE | 1.71 | 0.55 |
| 1:A:776:G:C4 | 1:A:793:A:C6 | 2.94 | 0.55 |
| 1:A:846:C:O2 | 1:A:847:U:O4 | 2.24 | 0.55 |
| 1:A:880:G:H2' | 1:A:881:G:C4' | 2.33 | 0.55 |
| 1:A:928:G:O2' | 26:2:40:THR:HG21 | 2.07 | 0.55 |
| 1:A:93:C:H2' | 1:A:94:G:O4' | 2.07 | 0.55 |
| 2:B:40:U:O2' | 2:B:43:C:N4 | 2.38 | 0.55 |
| 2:B:74:U:H2' | 2:B:75:G:C1' | 2.37 | 0.55 |
| 4:D:134:ARG:C | 4:D:136:ILE:N | 2.57 | 0.55 |
| 4:D:177:LEU:O | 4:D:178:PRO:C | 2.42 | 0.55 |
| 4:D:214:TRP:O | 4:D:216:GLY:N | 2.40 | 0.55 |
| 4:D:89:SER:CB | 4:D:158:ALA:HB1 | 2.37 | 0.55 |
| 5:E:154:LYS:C | 5:E:154:LYS:CD | 2.76 | 0.55 |
| 5:E:195:LEU:C | 5:E:196:VAL:HG13 | 2.27 | 0.55 |
| 6:F:152:GLU:O | 6:F:153:SER:CB | 2.55 | 0.55 |
| 6:F:155:LEU:HG | 6:F:174:VAL:HG21 | 1.88 | 0.55 |
| 1:A:673:C:OP1 | 6:F:81:PRO:HG3 | 2.06 | 0.55 |
| 10:L:128:ALA:O | 10:L:132:ARG:HG3 | 2.06 | 0.55 |
| 1:A:558:G:H5' | 11:M:112:LEU:HD12 | 1.88 | 0.55 |
| 11:M:29:LYS:O | 11:M:30:ILE:C | 2.45 | 0.55 |
| 11:M:65:LYS:O | 11:M:66:LYS:O | 2.25 | 0.55 |
| 12:N:57:VAL:HG21 | 12:N:85:VAL:HG13 | 1.89 | 0.55 |
| 14:P:99:PRO:HG2 | 14:P:101:ARG:NE | 2.22 | 0.55 |
| 15:Q:58:GLY:O | 15:Q:59:ASP:HB3 | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:Q:8:ARG:CZ | 15:Q:10:LEU:HD11 | 2.36 | 0.55 |
| 15:Q:93:GLY:C | 15:Q:95:THR:H | 2.09 | 0.55 |
| 16:R:74:ALA:CB | 16:R:108:GLY:CA | 2.68 | 0.55 |
| 16:R:64:GLU:O | 16:R:65:VAL:C | 2.45 | 0.55 |
| 17:S:48:ILE:HG23 | 17:S:50:ILE:HD11 | 1.88 | 0.55 |
| 18:T:55:ARG:CG | 18:T:55:ARG:NH1 | 2.60 | 0.55 |
| 18:T:88:ILE:H | 19:U:52:VAL:CG2 | 2.20 | 0.55 |
| 20:V:8:ARG:NE | 20:V:102:HIS:ND1 | 2.54 | 0.55 |
| 22:X:33:LYS:O | 22:X:34:LYS:C | 2.44 | 0.55 |
| 23:Y:127:LYS:HZ3 | 23:Y:165:VAL:CB | 2.10 | 0.55 |
| 23:Y:67:LEU:HB3 | 23:Y:90:VAL:CG1 | 2.36 | 0.55 |
| 24:Z:43:THR:O | 24:Z:43:THR:HG22 | 2.06 | 0.55 |
| 9:K:68:LEU:HD13 | 9:K:109:ILE:HD11 | 1.87 | 0.55 |
| 25:1:11:LEU:HD23 | 25:1:15:GLU:HB3 | 1.88 | 0.55 |
| 25:1:63:ARG:CB | 25:1:63:ARG:NH2 | 2.70 | 0.55 |
| 27:3:68:ARG:N | 27:3:68:ARG:CD | 2.60 | 0.55 |
| 28:4:9:LYS:CD | 28:4:9:LYS:N | 2.69 | 0.55 |
| 31:7:25:MET:O | 31:7:27:THR:CG2 | 2.38 | 0.55 |
| 31:7:36:LYS:HB3 | 31:7:41:ILE:CD1 | 2.37 | 0.55 |
| 32:8:14:CYS:SG | 32:8:32:HIS:CD2 | 3.00 | 0.55 |
| 1:A:1087:G:C4 | 1:A:1103:A:C2 | 2.95 | 0.55 |
| 1:A:1090:U:O4 | 1:A:1091:G:C5 | 2.59 | 0.55 |
| 1:A:1143:A:C2 | 1:A:1144:G:C4 | 2.95 | 0.55 |
| 1:A:1237:A:O2' | 1:A:1238:G:O4' | 2.24 | 0.55 |
| 1:A:1257:C:C4 | 1:A:1258:C:N4 | 2.75 | 0.55 |
| 1:A:1379:A:H3' | 1:A:1379:A:N3 | 2.21 | 0.55 |
| 1:A:1403:C:H2' | 1:A:1404:C:O5' | 2.07 | 0.55 |
| 1:A:1405:U:C2' | 1:A:1406:U:C6 | 2.81 | 0.55 |
| 1:A:1473:G:C2' | 1:A:1474:C:O4' | 2.53 | 0.55 |
| 1:A:1448:G:C5' | 1:A:1543:A:N1 | 2.69 | 0.55 |
| 1:A:1558:A:H2 | 1:A:1560:G:N9 | 2.05 | 0.55 |
| 1:A:1619:G:N1 | 1:A:1620:G:C5 | 2.75 | 0.55 |
| 1:A:1707:G:N3 | 1:A:1756:G:N2 | 2.54 | 0.55 |
| 1:A:1726:G:C2 | 1:A:1727:U:C4 | 2.95 | 0.55 |
| 1:A:1777:U:O5' | 1:A:1777:U:H6 | 1.90 | 0.55 |
| 1:A:1814:G:H2' | 1:A:1815:A:N7 | 2.21 | 0.55 |
| 1:A:1918:A:H5'' | 1:A:1919:A:N6 | 2.22 | 0.55 |
| 1:A:1937:A:O2' | 1:A:1938:A:OP1 | 2.24 | 0.55 |
| 1:A:2004:G:H2' | 1:A:2005:A:C8 | 2.42 | 0.55 |
| 1:A:2074:U:C2 | 1:A:2075:U:C5 | 2.95 | 0.55 |
| 1:A:2296:U:H3' | 1:A:2296:U:H6 | 1.72 | 0.55 |
| 1:A:2334:G:N2 | 16:R:15:ARG:HH12 | 2.05 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:2353:G:O2' | 24:Z:34:GLY:HA3 | 2.07 | 0.55 |
| 1:A:2478:A:N7 | 1:A:2479:G:N7 | 2.54 | 0.55 |
| 1:A:247:G:C2 | 1:A:249:C:O2' | 2.58 | 0.55 |
| 1:A:2538:C:C2 | 1:A:2539:C:C5 | 2.95 | 0.55 |
| 1:A:2574:G:H2' | 1:A:2575:C:C6 | 2.42 | 0.55 |
| 1:A:2051:A:N3 | 1:A:2614:A:N6 | 2.54 | 0.55 |
| 1:A:2691:C:O2' | 1:A:2692:C:H5' | 2.07 | 0.55 |
| 1:A:270(P):C:O2' | 1:A:270(Q):C:C5' | 2.55 | 0.55 |
| 1:A:2733:A:C2' | 1:A:2734:A:O5' | 2.53 | 0.55 |
| 1:A:2832:U:H1' | 1:A:2834:G:N3 | 2.22 | 0.55 |
| 1:A:2836:U:H2' | 1:A:2837:G:C8 | 2.41 | 0.55 |
| 1:A:2858:C:C5 | 1:A:2859:G:C5 | 2.95 | 0.55 |
| 1:A:458:G:N3 | 1:A:469:G:C6 | 2.75 | 0.55 |
| 1:A:457:A:C2 | 1:A:470:A:C5' | 2.89 | 0.55 |
| 1:A:570:G:N1 | 1:A:2498:C:H4' | 2.22 | 0.55 |
| 1:A:662:G:H4' | 13:O:18:ARG:H | 1.69 | 0.55 |
| 1:A:729:G:O6 | 1:A:730:C:C4 | 2.60 | 0.55 |
| 1:A:734:A:H2' | 1:A:734:A:N3 | 2.22 | 0.55 |
| 1:A:873:G:H2' | 1:A:874:G:O4' | 2.07 | 0.55 |
| 1:A:900:A:H2' | 1:A:901:A:O4' | 2.07 | 0.55 |
| 2:B:77:U:H3' | 2:B:77:U:H6 | 1.72 | 0.55 |
| 4:D:155:LEU:HB2 | 4:D:157:ARG:NH2 | 2.22 | 0.55 |
| 4:D:54:ARG:HG3 | 4:D:221:VAL:HG23 | 1.88 | 0.55 |
| 4:D:233:HIS:N | 4:D:233:HIS:ND1 | 2.54 | 0.55 |
| 4:D:72:LYS:HZ2 | 4:D:75:ILE:HD13 | 1.72 | 0.55 |
| 5:E:176:ILE:HD12 | 5:E:181:LEU:HB2 | 1.89 | 0.55 |
| 1:A:2729:G:N3 | 5:E:187:ALA:HB2 | 2.22 | 0.55 |
| 5:E:203:LYS:O | 5:E:203:LYS:CD | 2.55 | 0.55 |
| 1:A:2733:A:N3 | 5:E:204:ALA:CB | 2.70 | 0.55 |
| 5:E:36:ARG:NH2 | 5:E:41:LYS:NZ | 2.54 | 0.55 |
| 6:F:103:LYS:O | 6:F:104:LYS:C | 2.45 | 0.55 |
| 7:G:35:GLU:O | 7:G:36:LYS:O | 2.25 | 0.55 |
| 7:G:38:VAL:CG1 | 7:G:93:THR:HG23 | 2.37 | 0.55 |
| 7:G:43:LEU:CD1 | 7:G:88:ILE:O | 2.53 | 0.55 |
| 7:G:8:LYS:O | 7:G:8:LYS:HD3 | 2.07 | 0.55 |
| 8:H:85:LYS:HZ3 | 8:H:141:VAL:C | 2.10 | 0.55 |
| 9:K:38:LEU:HD13 | 9:K:39:ALA:HB3 | 1.87 | 0.55 |
| 9:K:3:VAL:O | 9:K:5:LEU:HD21 | 2.07 | 0.55 |
| 10:L:12:LEU:O | 10:L:53:VAL:HB | 2.06 | 0.55 |
| 10:L:77:LEU:HD13 | 10:L:77:LEU:O | 2.07 | 0.55 |
| 11:M:100:GLU:HB3 | 11:M:104:LYS:HE2 | 1.88 | 0.55 |
| 11:M:112:LEU:HD22 | 11:M:115:ARG:HH21 | 1.72 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 11:M:120:LEU:HD12 | 11:M:120:LEU:C | 2.27 | 0.55 |
| 11:M:97:ARG:HA | 11:M:100:GLU:HG3 | 1.88 | 0.55 |
| 1:A:1665:A:O4' | 12:N:1:MET:HG2 | 2.07 | 0.55 |
| 1:A:1952:A:H2 | 12:N:22:ILE:CG2 | 2.20 | 0.55 |
| 12:N:99:PHE:HD1 | 17:S:74:ARG:CZ | 2.20 | 0.55 |
| 13:O:72:PRO:HB3 | 13:O:111:ARG:HB3 | 1.87 | 0.55 |
| 1:A:943:U:O5' | 13:O:32:THR:HB | 2.07 | 0.55 |
| 14:P:43:THR:HG1 | 14:P:46:GLN:HB3 | 1.70 | 0.55 |
| 14:P:8:LYS:HD3 | 14:P:11:LYS:NZ | 2.20 | 0.55 |
| 14:P:90:VAL:O | 14:P:90:VAL:HG23 | 2.06 | 0.55 |
| 17:S:15:VAL:HG21 | 17:S:59:THR:CG2 | 2.35 | 0.55 |
| 12:N:106:LEU:HD11 | 17:S:38:ASN:ND2 | 2.21 | 0.55 |
| 17:S:73:GLU:OE2 | 17:S:106:SER:HB3 | 2.06 | 0.55 |
| 18:T:88:ILE:C | 19:U:52:VAL:CA | 2.69 | 0.55 |
| 19:U:20:LEU:CB | 19:U:95:LEU:HD13 | 2.31 | 0.55 |
| 20:V:36:LEU:CD2 | 20:V:51:LEU:HD21 | 2.36 | 0.55 |
| 20:V:66:GLU:OE1 | 20:V:67:ASP:N | 2.39 | 0.55 |
| 22:X:43:ASN:HA | 22:X:61:ILE:HD13 | 1.89 | 0.55 |
| 22:X:53:PRO:C | 22:X:55:TYR:N | 2.59 | 0.55 |
| 23:Y:163:LEU:HD12 | 23:Y:163:LEU:N | 2.17 | 0.55 |
| 23:Y:16:SER:OG | 23:Y:17:ALA:N | 2.40 | 0.55 |
| 24:Z:69:PHE:HB3 | 24:Z:71:ASP:OD1 | 2.06 | 0.55 |
| 9:K:81:VAL:HG23 | 9:K:145:VAL:O | 2.06 | 0.55 |
| 1:A:2112:G:N3 | 1:A:2112:G:H2' | 2.21 | 0.55 |
| 1:A:2148:G:C2 | 1:A:2149:G:C5 | 2.95 | 0.55 |
| 3:C:134:ARG:HH11 | 3:C:136:LEU:CD1 | 2.20 | 0.55 |
| 3:C:181:PRO:HB2 | 3:C:184:LYS:HD2 | 1.88 | 0.55 |
| 1:A:1496:A:N3 | 1:A:1498:C:N4 | 2.44 | 0.55 |
| 9:K:57:ARG:HG3 | 9:K:57:ARG:NH1 | 2.20 | 0.55 |
| 1:A:714:U:OP1 | 1:A:714:U:O4' | 2.25 | 0.55 |
| 2:B:117:G:N2 | 2:B:118:G:C1' | 2.69 | 0.55 |
| 1:A:2803:C:OP2 | 1:A:2803:C:C6 | 2.51 | 0.55 |
| 25:1:15:GLU:O | 25:1:16:LEU:C | 2.45 | 0.54 |
| 26:2:29:ARG:HB3 | 26:2:30:ARG:HE | 1.72 | 0.54 |
| 27:3:6:HIS:CE1 | 27:3:55:ARG:HB3 | 2.42 | 0.54 |
| 28:4:20:ARG:HA | 28:4:23:HIS:ND1 | 2.21 | 0.54 |
| 15:Q:33:ARG:NH2 | 28:4:56:LYS:CB | 2.65 | 0.54 |
| 29:5:27:LYS:O | 29:5:28:ARG:CB | 2.55 | 0.54 |
| 30:6:8:ASN:O | 30:6:9:ARG:C | 2.44 | 0.54 |
| 1:A:112:U:O4 | 1:A:113:G:N3 | 2.41 | 0.54 |
| 1:A:1181:C:H2' | 1:A:1182:A:C1' | 2.38 | 0.54 |
| 1:A:818:G:N2 | 1:A:1190:G:C6 | 2.75 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1199:U:O2 | 1:A:1200:C:C6 | 2.60 | 0.54 |
| 1:A:117:G:C2 | 1:A:119:A:N6 | 2.74 | 0.54 |
| 1:A:1250:G:H2' | 1:A:1250:G:N3 | 2.22 | 0.54 |
| 1:A:1286:A:C2 | 1:A:1329:U:C2 | 2.95 | 0.54 |
| 1:A:140:A:H2 | 1:A:1408:C:O2 | 1.90 | 0.54 |
| 1:A:1472:A:C2' | 1:A:1473:G:C8 | 2.90 | 0.54 |
| 1:A:1504:C:C2 | 1:A:1505:C:C5 | 2.95 | 0.54 |
| 1:A:1537:C:C3' | 1:A:1538:G:H5' | 2.37 | 0.54 |
| 1:A:1605:C:HO2' | 1:A:1610:A:H8 | 1.51 | 0.54 |
| 1:A:1613:G:H2' | 1:A:1617:C:N4 | 2.22 | 0.54 |
| 1:A:1750:G:N3 | 1:A:2860:A:H2 | 2.04 | 0.54 |
| 1:A:1791:A:C2 | 1:A:1829:A:O2' | 2.58 | 0.54 |
| 1:A:1918:A:N9 | 1:A:1918:A:OP2 | 2.40 | 0.54 |
| 1:A:1785:A:H5'' | 1:A:1982:C:C1' | 2.37 | 0.54 |
| 1:A:1785:A:H5' | 1:A:1982:C:C4' | 2.35 | 0.54 |
| 1:A:2019:A:N6 | 1:A:2020:A:C5 | 2.74 | 0.54 |
| 1:A:2232:U:O2' | 1:A:2233:U:C5' | 2.54 | 0.54 |
| 1:A:2274:A:C5 | 1:A:2276:G:C8 | 2.95 | 0.54 |
| 1:A:2353:G:C6 | 1:A:2365:G:N2 | 2.74 | 0.54 |
| 1:A:2446:G:O5' | 1:A:2446:G:H8 | 1.90 | 0.54 |
| 1:A:2519:U:O4' | 1:A:2542:A:N6 | 2.35 | 0.54 |
| 1:A:2453:A:C4' | 1:A:2572:A:O2' | 2.40 | 0.54 |
| 1:A:2690:C:C2' | 1:A:2691:C:OP2 | 2.55 | 0.54 |
| 1:A:2720:U:C2' | 1:A:2721:A:H8 | 2.20 | 0.54 |
| 1:A:278:A:H2' | 1:A:279:C:N1 | 2.22 | 0.54 |
| 1:A:278:A:H2' | 1:A:279:C:C2 | 2.42 | 0.54 |
| 1:A:2811:G:H5' | 5:E:60:ASN:ND2 | 2.21 | 0.54 |
| 1:A:289:A:HO2' | 1:A:290:G:P | 2.31 | 0.54 |
| 1:A:360:G:C6 | 1:A:361:G:C4 | 2.95 | 0.54 |
| 1:A:270(C):C:OP2 | 1:A:365:C:O2' | 2.24 | 0.54 |
| 1:A:424:G:C2 | 1:A:425:G:C8 | 2.94 | 0.54 |
| 1:A:449:A:H4' | 1:A:1248:G:H22 | 1.72 | 0.54 |
| 1:A:523:C:H2' | 1:A:524:U:C5' | 2.37 | 0.54 |
| 1:A:614:U:H3' | 1:A:615:G:C5' | 2.36 | 0.54 |
| 1:A:663:G:O5' | 13:O:18:ARG:HD2 | 2.07 | 0.54 |
| 1:A:587:C:C6 | 1:A:671:C:H1' | 2.42 | 0.54 |
| 1:A:678:C:C2 | 1:A:679:C:C6 | 2.94 | 0.54 |
| 1:A:728:G:O2' | 1:A:729:G:H5'' | 2.07 | 0.54 |
| 1:A:734:A:C2 | 1:A:735:A:N9 | 2.75 | 0.54 |
| 1:A:887:A:O3' | 1:A:889:C:H5' | 2.06 | 0.54 |
| 2:B:114:G:H1' | 16:R:38:GLN:HE22 | 1.71 | 0.54 |
| 2:B:81:G:O6 | 2:B:96:G:O6 | 2.25 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2596:U:O3' | 4:D:242:ARG:CD | 2.55 | 0.54 |
| 4:D:243:GLY:O | 4:D:244:ARG:CB | 2.55 | 0.54 |
| 1:A:2227:A:H5'' | 4:D:260:ARG:HB2 | 1.88 | 0.54 |
| 4:D:63:ARG:CB | 4:D:63:ARG:NH1 | 2.55 | 0.54 |
| 6:F:176:LEU:CD1 | 6:F:178:PRO:HD2 | 2.38 | 0.54 |
| 6:F:39:TRP:CG | 6:F:40:GLN:N | 2.75 | 0.54 |
| 7:G:22:ARG:HH21 | 7:G:23:PHE:N | 2.04 | 0.54 |
| 7:G:6:ALA:O | 7:G:9:ARG:HB2 | 2.06 | 0.54 |
| 7:G:83:ARG:HD2 | 7:G:83:ARG:H | 1.71 | 0.54 |
| 7:G:8:LYS:HA | 7:G:11:TYR:HD2 | 1.71 | 0.54 |
| 8:H:126:PRO:CG | 8:H:132:ARG:HH12 | 2.21 | 0.54 |
| 9:K:28:ASN:C | 9:K:29:TYR:HD1 | 2.10 | 0.54 |
| 10:L:131:ALA:HB1 | 10:L:136:VAL:O | 2.06 | 0.54 |
| 10:L:41:PHE:HZ | 10:L:55:VAL:HB | 1.72 | 0.54 |
| 11:M:123:TYR:HB2 | 11:M:129:PRO:HG3 | 1.87 | 0.54 |
| 11:M:60:ILE:CG2 | 11:M:61:ARG:N | 2.70 | 0.54 |
| 12:N:86:ILE:CG2 | 12:N:87:ILE:N | 2.70 | 0.54 |
| 1:A:603:A:C8 | 13:O:100:LEU:HD22 | 2.42 | 0.54 |
| 13:O:46:LYS:HG2 | 13:O:50:ARG:H | 1.71 | 0.54 |
| 14:P:11:LYS:HE2 | 14:P:73:PRO:HB3 | 1.89 | 0.54 |
| 1:A:2484:G:H1' | 14:P:124:LYS:HD2 | 1.89 | 0.54 |
| 14:P:27:VAL:HG13 | 14:P:28:ALA:N | 2.21 | 0.54 |
| 14:P:99:PRO:O | 14:P:100:GLY:C | 2.45 | 0.54 |
| 15:Q:37:THR:HG22 | 15:Q:111:LEU:HD22 | 1.88 | 0.54 |
| 15:Q:53:HIS:O | 15:Q:56:LYS:HE2 | 2.06 | 0.54 |
| 2:B:115:G:H4' | 16:R:36:TYR:OH | 2.06 | 0.54 |
| 16:R:3:ARG:CD | 16:R:4:LEU:HG | 2.36 | 0.54 |
| 16:R:26:LEU:H | 16:R:88:ASP:CB | 2.20 | 0.54 |
| 1:A:1754:C:H5 | 17:S:98:LYS:CD | 2.19 | 0.54 |
| 18:T:106:PHE:HA | 18:T:109:LEU:HD12 | 1.90 | 0.54 |
| 18:T:31:SER:O | 18:T:32:PHE:C | 2.43 | 0.54 |
| 19:U:5:VAL:HG22 | 19:U:39:LEU:HD22 | 1.88 | 0.54 |
| 19:U:61:VAL:O | 19:U:99:ILE:HB | 2.07 | 0.54 |
| 20:V:4:LYS:HA | 20:V:106:ILE:HD11 | 1.88 | 0.54 |
| 20:V:92:ARG:HG3 | 20:V:93:ALA:N | 2.22 | 0.54 |
| 22:X:49:VAL:H | 22:X:56:PRO:HG3 | 1.72 | 0.54 |
| 23:Y:151:HIS:CD2 | 23:Y:170:THR:OG1 | 2.60 | 0.54 |
| 24:Z:27:GLU:HA | 24:Z:67:VAL:CG1 | 2.37 | 0.54 |
| 3:C:223:ARG:CG | 3:C:224:ILE:N | 2.70 | 0.54 |
| 3:C:20:TYR:CZ | 3:C:222:VAL:HG21 | 2.42 | 0.54 |
| 4:D:79:VAL:HG21 | 4:D:115:GLN:CG | 2.37 | 0.54 |
| 1:A:112:U:P | 25:1:64:ARG:HH11 | 2.30 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 28:4:44:THR:N | 28:4:52:TYR:OH | 2.40 | 0.54 |
| 31:7:29:LYS:O | 31:7:30:ARG:O | 2.25 | 0.54 |
| 31:7:54:GLU:HA | 31:7:57:ARG:CB | 2.38 | 0.54 |
| 1:A:1047:G:C6 | 1:A:1110:G:N7 | 2.75 | 0.54 |
| 1:A:1188:U:C2' | 1:A:1188:U:O2 | 2.53 | 0.54 |
| 1:A:1196:C:H4' | 1:A:1226:G:C5 | 2.42 | 0.54 |
| 1:A:1274:A:O2' | 1:A:1275:A:C5' | 2.55 | 0.54 |
| 1:A:1397:U:O2' | 1:A:1398:C:OP1 | 2.19 | 0.54 |
| 1:A:1447:G:C4' | 1:A:1545(A):A:H5' | 2.38 | 0.54 |
| 1:A:1470:G:H3' | 1:A:1470:G:C8 | 2.42 | 0.54 |
| 1:A:1388:G:HO2' | 1:A:1525:G:H5' | 1.71 | 0.54 |
| 1:A:1526:G:N2 | 1:A:1546:C:C4 | 2.75 | 0.54 |
| 1:A:1667:G:O6 | 1:A:1992:G:P | 2.65 | 0.54 |
| 1:A:1784:A:C2' | 1:A:1785:A:OP2 | 2.55 | 0.54 |
| 1:A:178:G:H3' | 1:A:178:G:C8 | 2.42 | 0.54 |
| 1:A:184:C:HO2' | 1:A:217:G:N2 | 2.05 | 0.54 |
| 1:A:1945:G:O2' | 1:A:1946:U:H5' | 2.06 | 0.54 |
| 1:A:2016:U:O2' | 1:A:2017:U:H5' | 2.07 | 0.54 |
| 1:A:2224:G:H4' | 4:D:262:ARG:HH22 | 1.72 | 0.54 |
| 1:A:2298:A:O4' | 1:A:2322:A:O2' | 2.25 | 0.54 |
| 1:A:2345:G:N2 | 1:A:2381:C:H3' | 2.22 | 0.54 |
| 1:A:2350:C:H2' | 1:A:2351:G:H8 | 1.71 | 0.54 |
| 1:A:411:G:N3 | 1:A:2408:U:O4 | 2.40 | 0.54 |
| 1:A:2491:U:H6 | 1:A:2492:U:P | 2.30 | 0.54 |
| 1:A:2538:C:H2' | 1:A:2539:C:H6 | 1.71 | 0.54 |
| 1:A:259:G:O2' | 1:A:621:A:O2' | 2.06 | 0.54 |
| 1:A:2624:G:C2' | 1:A:2625:G:H5'' | 2.37 | 0.54 |
| 1:A:270(P):C:C2 | 1:A:270(Q):C:C5 | 2.96 | 0.54 |
| 1:A:2767:C:N3 | 1:A:2768:C:C5 | 2.76 | 0.54 |
| 1:A:2886:G:C2 | 1:A:2887:U:C6 | 2.95 | 0.54 |
| 1:A:422:A:N1 | 1:A:423:A:C5 | 2.75 | 0.54 |
| 1:A:566:U:C2' | 1:A:567:A:H8 | 2.19 | 0.54 |
| 1:A:64:A:N3 | 21:W:66:LEU:CB | 2.70 | 0.54 |
| 1:A:684:G:C3' | 1:A:684:G:C8 | 2.88 | 0.54 |
| 1:A:695:G:O2' | 1:A:696:G:H5' | 2.07 | 0.54 |
| 1:A:709:U:O5' | 1:A:709:U:H6 | 1.90 | 0.54 |
| 1:A:869:G:N1 | 1:A:909:A:C6 | 2.76 | 0.54 |
| 1:A:892:G:H2' | 1:A:893:C:C5 | 2.42 | 0.54 |
| 1:A:917:A:N3 | 1:A:918:A:C2 | 2.76 | 0.54 |
| 1:A:936:C:O2' | 1:A:937:U:O5' | 2.26 | 0.54 |
| 2:B:17:C:C2' | 2:B:18:G:O4' | 2.50 | 0.54 |
| 2:B:76:G:O2' | 23:Y:75:ASN:ND2 | 2.40 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 2:B:78:A:C6 | 2:B:99:A:N6 | 2.74 | 0.54 |
| 4:D:169:GLU:O | 4:D:172:TYR:O | 2.24 | 0.54 |
| 4:D:256:GLY:C | 4:D:257:LEU:HG | 2.28 | 0.54 |
| 1:A:1568:G:OP2 | 4:D:61:LEU:HB2 | 2.06 | 0.54 |
| 5:E:101:ARG:HE | 5:E:169:ASN:ND2 | 2.06 | 0.54 |
| 1:A:2620:C:C1' | 5:E:156:MET:HG2 | 2.37 | 0.54 |
| 5:E:36:ARG:HD2 | 5:E:79:ARG:HH11 | 1.72 | 0.54 |
| 5:E:51:PHE:HE1 | 5:E:76:ARG:H | 1.55 | 0.54 |
| 6:F:156:LEU:HD12 | 6:F:163:VAL:HG13 | 1.88 | 0.54 |
| 6:F:162:LEU:HD23 | 6:F:162:LEU:N | 2.23 | 0.54 |
| 6:F:4:VAL:HG13 | 6:F:20:LEU:CD2 | 2.35 | 0.54 |
| 7:G:112:PRO:HA | 7:G:117:PHE:HB3 | 1.88 | 0.54 |
| 8:H:22:GLY:O | 8:H:37:VAL:HG13 | 2.07 | 0.54 |
| 8:H:8:PRO:N | 8:H:51:ARG:NH2 | 2.55 | 0.54 |
| 10:L:72:PRO:HD2 | 10:L:111:LYS:HE3 | 1.90 | 0.54 |
| 10:L:116:ASN:HD21 | 10:L:126:MET:HE3 | 1.70 | 0.54 |
| 11:M:109:LYS:HE2 | 11:M:111:PRO:CD | 2.36 | 0.54 |
| 12:N:106:LEU:O | 12:N:109:LYS:N | 2.40 | 0.54 |
| 15:Q:26:LYS:HE2 | 15:Q:70:LEU:CB | 2.37 | 0.54 |
| 1:A:1225:C:P | 19:U:88:ARG:NH2 | 2.80 | 0.54 |
| 20:V:16:LYS:H | 20:V:16:LYS:CE | 2.20 | 0.54 |
| 20:V:41:LYS:O | 20:V:42:ARG:O | 2.25 | 0.54 |
| 21:W:14:SER:CB | 21:W:16:LYS:HE3 | 2.34 | 0.54 |
| 21:W:27:THR:CG2 | 21:W:80:ILE:HG23 | 2.33 | 0.54 |
| 22:X:88:LYS:HG2 | 22:X:89:PHE:H | 1.68 | 0.54 |
| 23:Y:118:GLN:HE22 | 23:Y:174:VAL:CA | 2.06 | 0.54 |
| 23:Y:158:PRO:CB | 23:Y:159:PRO:CD | 2.80 | 0.54 |
| 23:Y:161:VAL:O | 23:Y:162:GLU:HB2 | 2.05 | 0.54 |
| 9:K:111:PRO:HG2 | 9:K:112:LYS:N | 2.21 | 0.54 |
| 9:K:66:GLU:HA | 9:K:69:LYS:HG3 | 1.86 | 0.54 |
| 1:A:2171:A:H2 | 1:A:2172:U:O2 | 1.90 | 0.54 |
| 3:C:8:ARG:NH2 | 3:C:12:GLU:HG2 | 2.22 | 0.54 |
| 3:C:171:ILE:CD1 | 3:C:192:PHE:HZ | 2.20 | 0.54 |
| 1:A:713:G:HO2' | 1:A:714:U:P | 2.30 | 0.54 |
| 1:A:2338:G:C2 | 1:A:2339:G:C8 | 2.95 | 0.54 |
| 13:O:87:ASP:OD1 | 13:O:87:ASP:O | 2.25 | 0.54 |
| 26:2:10:LYS:HG2 | 26:2:12:PRO:HD3 | 1.86 | 0.54 |
| 1:A:248:G:OP1 | 27:3:28:LYS:NZ | 2.40 | 0.54 |
| 28:4:18:ALA:CA | 28:4:21:SER:OG | 2.55 | 0.54 |
| 29:5:19:ARG:H | 29:5:19:ARG:CD | 2.20 | 0.54 |
| 31:7:1:MET:HB2 | 31:7:2:PRO:CD | 2.37 | 0.54 |
| 31:7:37:SER:H | 31:7:41:ILE:HD11 | 1.73 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1099:G:C2 | 1:A:1100:C:C6 | 2.95 | 0.54 |
| 1:A:1324:G:O2' | 1:A:1616:A:C6 | 2.60 | 0.54 |
| 1:A:1364:G:H8 | 1:A:1364:G:OP1 | 1.90 | 0.54 |
| 1:A:1448:G:H4' | 1:A:1543:A:N1 | 2.23 | 0.54 |
| 1:A:149:A:C8 | 1:A:149:A:C3' | 2.85 | 0.54 |
| 1:A:1530:G:H2' | 1:A:1531:C:C5 | 2.39 | 0.54 |
| 1:A:1534:G:O5' | 1:A:1534:G:H8 | 1.91 | 0.54 |
| 1:A:1545(A):A:H8 | 1:A:1545(A):A:H3' | 1.71 | 0.54 |
| 1:A:1559:G:C4 | 1:A:1559:G:H3' | 2.41 | 0.54 |
| 1:A:1669:A:N3 | 1:A:1669:A:C2' | 2.66 | 0.54 |
| 1:A:1703:G:N1 | 1:A:1704:G:C4 | 2.76 | 0.54 |
| 1:A:2072:G:H2' | 1:A:2073:C:H6 | 1.73 | 0.54 |
| 1:A:216:A:O2' | 1:A:217:G:O4' | 2.24 | 0.54 |
| 1:A:2215:G:H2' | 1:A:2216:G:H8 | 1.72 | 0.54 |
| 1:A:222:A:O4' | 1:A:271(B):G:N2 | 2.40 | 0.54 |
| 1:A:245:G:OP1 | 13:O:65:ARG:CZ | 2.55 | 0.54 |
| 1:A:2607:G:C6 | 1:A:2608:G:C2 | 2.95 | 0.54 |
| 1:A:2705:A:O5' | 1:A:2705:A:H8 | 1.91 | 0.54 |
| 1:A:270:A:OP2 | 1:A:270(X):G:N2 | 2.41 | 0.54 |
| 1:A:2711:A:OP1 | 1:A:2712(A):A:OP1 | 2.25 | 0.54 |
| 1:A:2883:A:C3' | 1:A:2884:U:H5' | 2.37 | 0.54 |
| 1:A:292:C:C1' | 1:A:293:U:H3 | 2.20 | 0.54 |
| 1:A:335:C:N3 | 1:A:336:C:C5 | 2.76 | 0.54 |
| 1:A:388:G:O2' | 1:A:390:A:N6 | 2.34 | 0.54 |
| 1:A:420:C:H2' | 1:A:421:U:O4' | 2.06 | 0.54 |
| 1:A:499:U:H5 | 1:A:500:G:C4 | 2.26 | 0.54 |
| 1:A:618(A):C:C4 | 1:A:619:G:N2 | 2.76 | 0.54 |
| 1:A:628:G:C6 | 1:A:629:G:C6 | 2.94 | 0.54 |
| 1:A:678:C:H2' | 1:A:679:C:H6 | 1.71 | 0.54 |
| 1:A:943:U:H6 | 1:A:944:G:N7 | 2.05 | 0.54 |
| 1:A:977:G:C5 | 1:A:987:G:C2 | 2.96 | 0.54 |
| 2:B:14:U:O2 | 2:B:107:U:O4' | 2.25 | 0.54 |
| 2:B:31:C:C2 | 2:B:32:C:C5 | 2.96 | 0.54 |
| 4:D:127:VAL:HA | 4:D:193:VAL:HG12 | 1.88 | 0.54 |
| 4:D:186:HIS:HB2 | 4:D:188:GLU:CD | 2.26 | 0.54 |
| 4:D:240:ALA:O | 4:D:241:PRO:O | 2.24 | 0.54 |
| 4:D:258:LYS:HE2 | 4:D:264:LYS:CB | 2.38 | 0.54 |
| 4:D:87:ASN:N | 4:D:87:ASN:HD22 | 2.05 | 0.54 |
| 5:E:154:LYS:HD2 | 5:E:155:LYS:O | 2.06 | 0.54 |
| 5:E:173:VAL:CG1 | 5:E:184:VAL:HA | 2.37 | 0.54 |
| 5:E:98:PRO:CB | 5:E:174:ASP:HA | 2.25 | 0.54 |
| 5:E:17:ASP:O | 5:E:18:ASP:C | 2.45 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 5:E:45:THR:CG2 | 5:E:79:ARG:CZ | 2.84 | 0.54 |
| 5:E:45:THR:OG1 | 5:E:80:GLU:O | 2.23 | 0.54 |
| 6:F:200:GLU:CG | 6:F:201:VAL:H | 2.21 | 0.54 |
| 7:G:4:ASP:CB | 7:G:104:GLU:HG2 | 2.30 | 0.54 |
| 7:G:8:LYS:HD2 | 7:G:12:TYR:HD2 | 1.72 | 0.54 |
| 8:H:40:GLU:HG2 | 8:H:55:PRO:HG3 | 1.89 | 0.54 |
| 10:L:77:LEU:HG | 10:L:111:LYS:CD | 2.38 | 0.54 |
| 11:M:109:LYS:CD | 11:M:110:GLY:H | 2.19 | 0.54 |
| 11:M:74:ARG:CD | 11:M:82:LEU:HD22 | 2.38 | 0.54 |
| 12:N:64:ARG:HH21 | 12:N:65:THR:N | 2.06 | 0.54 |
| 12:N:75:SER:CB | 17:S:77:PRO:HG2 | 2.37 | 0.54 |
| 13:O:45:LEU:HB2 | 13:O:46:LYS:NZ | 2.22 | 0.54 |
| 13:O:65:ARG:NH2 | 13:O:66:GLY:N | 2.55 | 0.54 |
| 13:O:70:GLN:CB | 13:O:110:TYR:OH | 2.50 | 0.54 |
| 14:P:42:ILE:CD1 | 14:P:46:GLN:NE2 | 2.69 | 0.54 |
| 14:P:77:LYS:CB | 14:P:78:PRO:CD | 2.85 | 0.54 |
| 15:Q:24:GLN:O | 15:Q:25:ALA:C | 2.45 | 0.54 |
| 15:Q:76:VAL:HG12 | 15:Q:77:ARG:HG2 | 1.90 | 0.54 |
| 17:S:35:LYS:HD2 | 17:S:83:ILE:O | 2.06 | 0.54 |
| 18:T:110:VAL:HG12 | 18:T:114:LYS:NZ | 2.22 | 0.54 |
| 19:U:61:VAL:CG1 | 19:U:62:LEU:H | 2.20 | 0.54 |
| 19:U:88:ARG:O | 19:U:90:PRO:HD3 | 2.07 | 0.54 |
| 23:Y:18:LEU:CD1 | 23:Y:23:LYS:HG2 | 2.38 | 0.54 |
| 23:Y:2:GLU:C | 23:Y:3:TYR:CG | 2.80 | 0.54 |
| 24:Z:50:ASN:OD1 | 24:Z:63:VAL:HG11 | 2.07 | 0.54 |
| 1:A:2150:U:C2' | 1:A:2151:G:H8 | 2.18 | 0.54 |
| 1:A:2174:C:H2' | 1:A:2175:C:C6 | 2.42 | 0.54 |
| 3:C:22:ILE:CG2 | 3:C:189:ILE:HG21 | 2.27 | 0.54 |
| 1:A:2195:C:C2 | 1:A:2196:C:H6 | 2.25 | 0.54 |
| 1:A:2100:G:H1' | 1:A:2190:G:H22 | 1.67 | 0.54 |
| 1:A:112:U:O5' | 25:1:64:ARG:NH1 | 2.41 | 0.54 |
| 26:2:7:LYS:HZ1 | 26:2:33:GLN:N | 2.04 | 0.54 |
| 27:3:28:LYS:CE | 27:3:29:PRO:HD2 | 2.37 | 0.54 |
| 27:3:57:GLU:CA | 27:3:61:ARG:NH1 | 2.63 | 0.54 |
| 28:4:51:TYR:HB3 | 28:4:55:ARG:N | 2.21 | 0.54 |
| 28:4:9:LYS:O | 28:4:10:LYS:CG | 2.56 | 0.54 |
| 29:5:25:LYS:CE | 31:7:35:GLN:O | 2.55 | 0.54 |
| 29:5:20:ASN:ND2 | 29:5:42:TRP:CD1 | 2.74 | 0.54 |
| 31:7:23:VAL:HG12 | 31:7:24:ALA:N | 2.21 | 0.54 |
| 1:A:1303:G:C5 | 1:A:1304:C:C5 | 2.96 | 0.54 |
| 1:A:1327:C:H3' | 1:A:1328:G:C8 | 2.43 | 0.54 |
| 1:A:1363:C:O2 | 1:A:1363:C:H2' | 2.07 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1424:G:OP2 | 1:A:1424:G:O4' | 2.25 | 0.54 |
| 1:A:1476:C:H6 | 1:A:1477:A:C8 | 2.24 | 0.54 |
| 1:A:1506:C:O2 | 1:A:1507:A:O2' | 2.23 | 0.54 |
| 1:A:1552:G:C4' | 1:A:1553:A:OP1 | 2.55 | 0.54 |
| 1:A:1569:A:C2 | 1:A:1570:A:C4 | 2.95 | 0.54 |
| 1:A:15:G:O2' | 1:A:16:G:C5' | 2.49 | 0.54 |
| 1:A:781:A:H2 | 1:A:1776:G:C2 | 2.24 | 0.54 |
| 1:A:1853:A:C2 | 1:A:1854:A:C4 | 2.95 | 0.54 |
| 1:A:2001:A:H2' | 1:A:2002:G:H8 | 1.69 | 0.54 |
| 1:A:2016:U:C2 | 28:4:6:VAL:HG21 | 2.42 | 0.54 |
| 1:A:2399:G:C2 | 1:A:2400:G:H1' | 2.42 | 0.54 |
| 1:A:241:A:O2' | 1:A:242:G:C4' | 2.40 | 0.54 |
| 1:A:2437:U:H5' | 1:A:2598:A:N1 | 2.23 | 0.54 |
| 1:A:2595:G:C1' | 1:A:2599:G:H22 | 2.15 | 0.54 |
| 1:A:2849:U:C6 | 1:A:2849:U:H3' | 2.42 | 0.54 |
| 1:A:2850:A:C5 | 1:A:2869:G:H5' | 2.42 | 0.54 |
| 1:A:303:U:O2' | 1:A:304:G:H5' | 2.07 | 0.54 |
| 1:A:343:C:C2' | 1:A:344:G:C5' | 2.84 | 0.54 |
| 1:A:401:A:C4 | 1:A:402:A:C8 | 2.95 | 0.54 |
| 1:A:411:G:N3 | 1:A:2408:U:C4 | 2.76 | 0.54 |
| 1:A:465:G:C5 | 1:A:466:A:N7 | 2.76 | 0.54 |
| 1:A:482:A:N6 | 1:A:506:G:C6 | 2.75 | 0.54 |
| 1:A:50:U:C6 | 1:A:50:U:C3' | 2.89 | 0.54 |
| 1:A:527:C:C4' | 1:A:2779:U:O4 | 2.55 | 0.54 |
| 1:A:659:C:C2 | 1:A:660:G:C8 | 2.95 | 0.54 |
| 1:A:666:G:C2 | 1:A:667:U:C2 | 2.95 | 0.54 |
| 1:A:878:A:C4 | 1:A:879:G:N7 | 2.75 | 0.54 |
| 2:B:100:G:C8 | 2:B:101:A:N7 | 2.76 | 0.54 |
| 2:B:96:G:OP2 | 2:B:96:G:H8 | 1.89 | 0.54 |
| 4:D:106:ILE:CG1 | 4:D:108:PRO:HD3 | 2.36 | 0.54 |
| 4:D:245:PRO:O | 4:D:252:TRP:CZ3 | 2.60 | 0.54 |
| 5:E:116:VAL:HG23 | 5:E:117:MET:H | 1.73 | 0.54 |
| 1:A:2572:A:C2 | 5:E:144:ARG:NE | 2.75 | 0.54 |
| 5:E:197:ILE:CD1 | 5:E:199:ARG:HH22 | 2.17 | 0.54 |
| 5:E:42:ASP:C | 5:E:44:TYR:H | 2.10 | 0.54 |
| 5:E:51:PHE:CD1 | 5:E:52:LEU:N | 2.76 | 0.54 |
| 5:E:60:ASN:O | 5:E:63:LEU:HB2 | 2.08 | 0.54 |
| 7:G:12:TYR:O | 7:G:15:VAL:HG22 | 2.08 | 0.54 |
| 10:L:90:LYS:O | 10:L:94:GLU:HB2 | 2.06 | 0.54 |
| 11:M:23:LEU:HD21 | 11:M:61:ARG:O | 2.07 | 0.54 |
| 1:A:2640:G:O3' | 11:M:75:TYR:CZ | 2.59 | 0.54 |
| 11:M:80:GLY:O | 11:M:81:GLY:C | 2.45 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 14:P:55:VAL:HG22 | 14:P:64:ILE:HD11 | 1.88 | 0.54 |
| 15:Q:28:LEU:HA | 15:Q:34:ILE:CG1 | 2.37 | 0.54 |
| 15:Q:33:ARG:HH22 | 28:4:56:LYS:CB | 2.09 | 0.54 |
| 16:R:102:ALA:O | 16:R:105:ALA:N | 2.40 | 0.54 |
| 16:R:10:ARG:NH2 | 16:R:30:ARG:HD3 | 2.22 | 0.54 |
| 16:R:58:LEU:N | 16:R:65:VAL:HG21 | 2.22 | 0.54 |
| 17:S:54:ARG:HG3 | 17:S:101:PHE:HD2 | 1.72 | 0.54 |
| 17:S:102:ILE:O | 17:S:103:ARG:C | 2.45 | 0.54 |
| 17:S:53:ARG:HD3 | 17:S:105:LEU:HD21 | 1.89 | 0.54 |
| 17:S:44:ASP:C | 17:S:46:GLU:N | 2.61 | 0.54 |
| 17:S:7:ILE:HG13 | 17:S:8:LYS:H | 1.71 | 0.54 |
| 1:A:534:U:OP1 | 18:T:24:TYR:HE2 | 1.90 | 0.54 |
| 18:T:33:ARG:O | 18:T:35:ALA:N | 2.40 | 0.54 |
| 18:T:37:GLU:O | 18:T:39:LEU:N | 2.40 | 0.54 |
| 18:T:59:ARG:HA | 18:T:62:ILE:HB | 1.89 | 0.54 |
| 19:U:35:LEU:N | 19:U:61:VAL:CG1 | 2.70 | 0.54 |
| 19:U:82:ARG:O | 19:U:82:ARG:CG | 2.52 | 0.54 |
| 1:A:751:A:C5' | 20:V:90:ARG:CZ | 2.81 | 0.54 |
| 22:X:74:PRO:C | 22:X:76:CYS:N | 2.61 | 0.54 |
| 23:Y:132:ASN:O | 23:Y:133:ILE:HG23 | 2.08 | 0.54 |
| 23:Y:74:VAL:HG22 | 23:Y:87:ASP:N | 2.11 | 0.54 |
| 23:Y:7:ALA:HB3 | 23:Y:36:LYS:C | 2.26 | 0.54 |
| 24:Z:9:SER:O | 24:Z:10:THR:O | 2.25 | 0.54 |
| 24:Z:40:GLN:HE21 | 24:Z:57:PHE:HB3 | 1.72 | 0.54 |
| 9:K:93:THR:HG23 | 9:K:95:LYS:N | 2.23 | 0.54 |
| 1:A:2175:C:H2' | 1:A:2176:A:O5' | 2.08 | 0.54 |
| 3:C:93:TYR:CE2 | 3:C:109:ASP:O | 2.60 | 0.54 |
| 1:A:714:U:C2' | 1:A:715:G:N7 | 2.59 | 0.54 |
| 1:A:132:G:N3 | 1:A:132:G:H2' | 2.20 | 0.54 |
| 1:A:400:G:C2 | 27:3:63:TYR:OH | 2.61 | 0.54 |
| 29:5:7:ILE:C | 29:5:9:LEU:N | 2.59 | 0.54 |
| 1:A:1309:G:C5' | 30:6:9:ARG:H | 2.12 | 0.54 |
| 1:A:1005:C:H6 | 1:A:1012:U:H3 | 1.55 | 0.54 |
| 1:A:1188:U:H2' | 1:A:1189:A:C4' | 2.36 | 0.54 |
| 1:A:1236:G:O2' | 1:A:1237:A:O5' | 2.25 | 0.54 |
| 1:A:1271:G:OP2 | 1:A:1272:A:OP1 | 2.25 | 0.54 |
| 1:A:116:C:H1' | 1:A:127:A:H1' | 1.88 | 0.54 |
| 1:A:1423:G:C2 | 1:A:1424:G:N7 | 2.75 | 0.54 |
| 1:A:1548:C:H2' | 1:A:1549:C:H6 | 1.70 | 0.54 |
| 1:A:1774:C:C5 | 1:A:1775:U:C5 | 2.95 | 0.54 |
| 1:A:1778:U:H3' | 1:A:1778:U:C6 | 2.43 | 0.54 |
| 1:A:1839:G:N3 | 1:A:1839:G:C2' | 2.59 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2549:G:O2' | 1:A:2550:G:H5' | 2.07 | 0.54 |
| 1:A:2617:C:N3 | 1:A:2618:G:C8 | 2.76 | 0.54 |
| 1:A:270(W):G:C5 | 1:A:270(X):G:N7 | 2.75 | 0.54 |
| 1:A:2779:U:C6 | 1:A:2779:U:O5' | 2.55 | 0.54 |
| 1:A:2808:U:H3' | 1:A:2809:A:C5' | 2.22 | 0.54 |
| 1:A:2810:A:H2' | 1:A:2811:G:C5' | 2.38 | 0.54 |
| 1:A:2877:G:C2 | 1:A:2878:U:C2 | 2.96 | 0.54 |
| 1:A:378:C:O2' | 1:A:379:G:H5' | 2.07 | 0.54 |
| 1:A:577:G:C2 | 1:A:578:A:C5 | 2.96 | 0.54 |
| 1:A:585:G:C2' | 1:A:586:A:C8 | 2.90 | 0.54 |
| 1:A:669:G:N2 | 1:A:670:A:N3 | 2.56 | 0.54 |
| 1:A:695:G:C4 | 1:A:696:G:C8 | 2.95 | 0.54 |
| 1:A:820:A:H2' | 1:A:820:A:N3 | 2.23 | 0.54 |
| 1:A:966:G:C6 | 1:A:967:C:N4 | 2.76 | 0.54 |
| 4:D:142:VAL:HG12 | 4:D:192:THR:O | 2.07 | 0.54 |
| 1:A:763:G:C5' | 4:D:211:ARG:NH1 | 2.70 | 0.54 |
| 4:D:260:ARG:HH11 | 4:D:260:ARG:HG3 | 1.72 | 0.54 |
| 5:E:137:HIS:CB | 5:E:138:PRO:CD | 2.78 | 0.54 |
| 5:E:58:ARG:HD2 | 5:E:73:GLU:OE2 | 2.07 | 0.54 |
| 5:E:93:VAL:CG1 | 5:E:180:ASN:ND2 | 2.71 | 0.54 |
| 6:F:105:VAL:HA | 6:F:108:LYS:HB3 | 1.90 | 0.54 |
| 6:F:4:VAL:O | 6:F:6:VAL:N | 2.39 | 0.54 |
| 6:F:78:ILE:C | 6:F:80:ALA:H | 2.03 | 0.54 |
| 7:G:131:TYR:OH | 7:G:157:ILE:O | 2.26 | 0.54 |
| 7:G:131:TYR:CE1 | 7:G:157:ILE:O | 2.60 | 0.54 |
| 7:G:57:ALA:CA | 7:G:68:PRO:CD | 2.76 | 0.54 |
| 7:G:75:LYS:NZ | 7:G:85:GLY:HA3 | 2.23 | 0.54 |
| 8:H:27:LYS:HG2 | 8:H:32:GLU:HB3 | 1.88 | 0.54 |
| 8:H:33:LEU:HD22 | 8:H:75:ALA:HB2 | 1.88 | 0.54 |
| 10:L:52:ILE:HB | 10:L:72:PRO:CB | 2.38 | 0.54 |
| 10:L:8:VAL:HG13 | 10:L:30:HIS:CD2 | 2.42 | 0.54 |
| 11:M:8:GLN:O | 11:M:9:VAL:C | 2.46 | 0.54 |
| 12:N:113:LYS:HZ3 | 12:N:116:SER:HB3 | 1.72 | 0.54 |
| 12:N:13:ASN:N | 12:N:94:ARG:HB2 | 2.22 | 0.54 |
| 13:O:10:PRO:HB2 | 13:O:14:LYS:HD3 | 1.89 | 0.54 |
| 13:O:126:VAL:HG23 | 13:O:146:VAL:C | 2.27 | 0.54 |
| 1:A:2416:C:OP1 | 13:O:59:LEU:CA | 2.56 | 0.54 |
| 14:P:42:ILE:C | 14:P:42:ILE:CD1 | 2.76 | 0.54 |
| 15:Q:63:ARG:HH21 | 15:Q:76:VAL:HG12 | 1.71 | 0.54 |
| 17:S:35:LYS:O | 17:S:36:GLU:O | 2.26 | 0.54 |
| 17:S:63:VAL:C | 17:S:64:ARG:NH1 | 2.61 | 0.54 |
| 18:T:110:VAL:HG12 | 18:T:114:LYS:HE3 | 1.89 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:18:LEU:N | 19:U:18:LEU:HD23 | 2.21 | 0.54 |
| 21:W:57:LEU:HD23 | 21:W:58:HIS:N | 2.22 | 0.54 |
| 22:X:38:ILE:CA | 22:X:60:PHE:HZ | 2.16 | 0.54 |
| 1:A:2257:U:OP1 | 24:Z:11:ARG:NH2 | 2.40 | 0.54 |
| 3:C:160:ARG:C | 3:C:161:ILE:HG12 | 2.27 | 0.54 |
| 1:A:1416:G:N2 | 1:A:1582:C:C2 | 2.75 | 0.54 |
| 1:A:718:A:H5'' | 1:A:719:C:H6 | 1.69 | 0.54 |
| 1:A:2462:U:N3 | 1:A:2463:C:C4 | 2.76 | 0.54 |
| 25:1:27:LEU:H | 25:1:27:LEU:CD1 | 2.20 | 0.54 |
| 25:1:63:ARG:HB3 | 25:1:63:ARG:NH2 | 2.23 | 0.54 |
| 26:2:50:VAL:O | 26:2:52:HIS:ND1 | 2.40 | 0.54 |
| 28:4:13:LYS:HD2 | 28:4:16:ARG:HH12 | 1.73 | 0.54 |
| 1:A:1097:U:O2' | 1:A:1098:A:H5' | 2.08 | 0.54 |
| 1:A:1000:A:N6 | 1:A:1155:A:C8 | 2.76 | 0.54 |
| 1:A:1222:C:N3 | 1:A:1223:C:C5 | 2.76 | 0.54 |
| 1:A:1212:G:N7 | 1:A:1235:G:O6 | 2.40 | 0.54 |
| 1:A:1270:C:C2 | 1:A:1325:G:N7 | 2.76 | 0.54 |
| 1:A:13:A:H61 | 1:A:525:U:H2' | 1.73 | 0.54 |
| 1:A:13:A:O2' | 1:A:14:A:O5' | 2.22 | 0.54 |
| 1:A:1435:G:C2 | 1:A:1558:A:N6 | 2.76 | 0.54 |
| 1:A:1602:U:H6 | 1:A:1602:U:H3' | 1.69 | 0.54 |
| 1:A:1774:C:H5 | 1:A:1775:U:O4 | 1.90 | 0.54 |
| 1:A:18:C:O5' | 1:A:18:C:H6 | 1.91 | 0.54 |
| 1:A:1983:C:O2' | 1:A:1984:G:C5' | 2.54 | 0.54 |
| 1:A:1992:G:O2' | 1:A:1993:U:H5 | 1.91 | 0.54 |
| 1:A:2046:G:C1' | 28:4:22:HIS:HD1 | 2.20 | 0.54 |
| 1:A:2057:A:C5 | 1:A:2058:A:N7 | 2.76 | 0.54 |
| 1:A:228:A:C8 | 1:A:229:A:H4' | 2.42 | 0.54 |
| 1:A:2387:U:H6 | 1:A:2387:U:O5' | 1.90 | 0.54 |
| 1:A:2447:G:N1 | 1:A:2500:U:N3 | 2.56 | 0.54 |
| 1:A:2572:A:H5' | 1:A:2573:C:OP1 | 2.07 | 0.54 |
| 1:A:2597:G:O4' | 4:D:242:ARG:NE | 2.37 | 0.54 |
| 1:A:1782:C:H5' | 1:A:2609:U:O4 | 2.08 | 0.54 |
| 1:A:2698:U:C2 | 1:A:2699:C:C5 | 2.96 | 0.54 |
| 1:A:342:G:H2' | 1:A:343:C:H6 | 1.72 | 0.54 |
| 1:A:347:A:C2' | 1:A:347:A:N3 | 2.70 | 0.54 |
| 1:A:411:G:P | 1:A:412:A:OP2 | 2.65 | 0.54 |
| 1:A:514:A:C2 | 1:A:515:A:C1' | 2.91 | 0.54 |
| 1:A:530:G:H1' | 1:A:532:A:OP2 | 2.08 | 0.54 |
| 1:A:532:A:H61 | 1:A:562:U:H4' | 1.72 | 0.54 |
| 1:A:608:A:H2' | 1:A:609:A:C5' | 2.38 | 0.54 |
| 1:A:64:A:C2 | 21:W:66:LEU:HB2 | 2.41 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:675:A:N7 | 1:A:804:A:N3 | 2.56 | 0.54 |
| 1:A:842:G:N2 | 1:A:937:U:C2 | 2.75 | 0.54 |
| 1:A:861:A:H3' | 1:A:861:A:C8 | 2.42 | 0.54 |
| 1:A:95:G:C2' | 25:1:43:HIS:CE1 | 2.89 | 0.54 |
| 1:A:979:G:N2 | 1:A:985:C:C4 | 2.75 | 0.54 |
| 1:A:979:G:C3' | 1:A:980:A:H5'' | 2.20 | 0.54 |
| 2:B:106:G:C6 | 2:B:107:U:C5 | 2.95 | 0.54 |
| 4:D:118:VAL:O | 4:D:119:ALA:HB2 | 2.08 | 0.54 |
| 4:D:137:PRO:HG2 | 4:D:140:THR:CB | 2.37 | 0.54 |
| 4:D:176:ARG:HH12 | 4:D:182:LEU:CD1 | 2.14 | 0.54 |
| 4:D:181:GLU:HA | 4:D:270:ILE:HD12 | 1.88 | 0.54 |
| 4:D:5:LYS:HA | 4:D:29:PRO:N | 2.22 | 0.54 |
| 5:E:48:GLN:CD | 5:E:48:GLN:H | 2.11 | 0.54 |
| 5:E:53:PRO:HD2 | 5:E:74:PRO:CA | 2.35 | 0.54 |
| 5:E:66:HIS:O | 5:E:67:PHE:C | 2.43 | 0.54 |
| 1:A:600:G:O2' | 6:F:104:LYS:HG2 | 2.08 | 0.54 |
| 7:G:116:ASP:OD2 | 7:G:116:ASP:N | 2.40 | 0.54 |
| 1:A:2306:C:HO2' | 7:G:153:ARG:HD3 | 1.72 | 0.54 |
| 7:G:41:GLN:OE1 | 7:G:155:MET:HG3 | 2.07 | 0.54 |
| 7:G:75:LYS:CD | 7:G:84:LYS:HB2 | 2.38 | 0.54 |
| 8:H:76:VAL:CA | 8:H:79:VAL:HG22 | 2.34 | 0.54 |
| 8:H:88:LEU:HD23 | 8:H:89:ILE:C | 2.27 | 0.54 |
| 1:A:1096:A:N6 | 10:L:30:HIS:CD2 | 2.76 | 0.54 |
| 10:L:14:ALA:HB2 | 10:L:53:VAL:HG21 | 1.88 | 0.54 |
| 11:M:124:ALA:C | 11:M:125:GLY:O | 2.43 | 0.54 |
| 11:M:6:PRO:CA | 11:M:41:ASP:HB3 | 2.30 | 0.54 |
| 11:M:7:LYS:CD | 11:M:10:GLU:OE1 | 2.56 | 0.54 |
| 12:N:18:LYS:HB3 | 12:N:45:GLU:OE2 | 2.07 | 0.54 |
| 12:N:63:VAL:CG2 | 12:N:82:ASN:H | 2.20 | 0.54 |
| 13:O:46:LYS:HG2 | 13:O:50:ARG:N | 2.23 | 0.54 |
| 13:O:76:LYS:CE | 13:O:96:THR:HG21 | 2.37 | 0.54 |
| 14:P:16:ARG:N | 14:P:16:ARG:HD3 | 2.21 | 0.54 |
| 14:P:54:MET:HB3 | 14:P:58:PHE:HE2 | 1.72 | 0.54 |
| 15:Q:13:HIS:HB3 | 15:Q:16:HIS:NE2 | 2.22 | 0.54 |
| 16:R:69:VAL:O | 16:R:73:LEU:HD22 | 2.08 | 0.54 |
| 16:R:95:HIS:ND1 | 16:R:96:GLY:N | 2.45 | 0.54 |
| 17:S:103:ARG:HB2 | 17:S:103:ARG:NH2 | 2.22 | 0.54 |
| 17:S:19:LEU:HD12 | 17:S:85:LYS:HZ3 | 1.72 | 0.54 |
| 19:U:93:GLU:CG | 19:U:95:LEU:HD23 | 2.38 | 0.54 |
| 20:V:59:VAL:CA | 20:V:63:ASP:HA | 2.18 | 0.54 |
| 22:X:46:LYS:NZ | 22:X:47:LYS:HG3 | 2.22 | 0.54 |
| 22:X:84:ARG:CG | 22:X:85:VAL:N | 2.70 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 9:K:88:ILE:HG22 | 9:K:90:GLY:N | 2.21 | 0.54 |
| 1:A:2121:G:H2' | 1:A:2122:U:C6 | 2.43 | 0.54 |
| 3:C:163:PHE:CZ | 3:C:195:ALA:HB1 | 2.42 | 0.54 |
| 3:C:48:GLY:N | 3:C:210:ARG:HG3 | 2.23 | 0.54 |
| 2:B:110:G:H2' | 2:B:111:U:O5' | 2.08 | 0.54 |
| 8:H:114:VAL:O | 8:H:114:VAL:HG13 | 2.06 | 0.54 |
| 27:3:39:CYS:O | 27:3:40:HIS:CG | 2.61 | 0.54 |
| 31:7:50:LEU:O | 31:7:53:PRO:HD2 | 2.07 | 0.54 |
| 32:8:20:HIS:O | 32:8:22:ARG:N | 2.41 | 0.54 |
| 1:A:1025:G:N3 | 1:A:1026:U:OP1 | 2.41 | 0.54 |
| 1:A:1179:C:C2' | 1:A:1180:C:H6 | 2.20 | 0.54 |
| 1:A:1249:U:O5' | 1:A:1249:U:C6 | 2.61 | 0.54 |
| 1:A:1394:U:H5'' | 1:A:1604:C:OP1 | 2.06 | 0.54 |
| 1:A:1560:G:H3' | 1:A:1561:G:N7 | 2.22 | 0.54 |
| 1:A:1603:A:N1 | 1:A:1604:C:C4 | 2.76 | 0.54 |
| 1:A:1656:C:O2 | 1:A:1656:C:H2' | 2.06 | 0.54 |
| 1:A:1669:A:C5' | 1:A:2550:G:OP1 | 2.56 | 0.54 |
| 1:A:1799:G:C6 | 1:A:1819:A:C8 | 2.95 | 0.54 |
| 1:A:197:A:H3' | 1:A:198:C:H5 | 1.65 | 0.54 |
| 1:A:1995:U:H3' | 1:A:1995:U:C6 | 2.43 | 0.54 |
| 1:A:2329:G:H21 | 24:Z:41:ARG:NH2 | 2.03 | 0.54 |
| 1:A:2626:C:C2' | 1:A:2627:G:H8 | 2.08 | 0.54 |
| 1:A:2639:A:N3 | 1:A:2639:A:C2' | 2.68 | 0.54 |
| 1:A:2745:C:C2 | 1:A:2746:U:C5 | 2.96 | 0.54 |
| 1:A:2832:U:O2 | 1:A:2832:U:C2' | 2.50 | 0.54 |
| 1:A:333:G:C2 | 1:A:334:C:C5 | 2.95 | 0.54 |
| 1:A:427:U:H2' | 1:A:428:A:O4' | 2.08 | 0.54 |
| 1:A:491:G:N2 | 1:A:492:A:H1' | 2.22 | 0.54 |
| 1:A:52:A:C8 | 1:A:117:G:N2 | 2.76 | 0.54 |
| 1:A:616:A:O2' | 1:A:617:G:O4' | 2.26 | 0.54 |
| 1:A:650:C:N4 | 1:A:651:G:N2 | 2.56 | 0.54 |
| 1:A:914:C:H5 | 1:A:915:C:C5 | 2.26 | 0.54 |
| 2:B:66:A:C5 | 2:B:107:U:C4 | 2.95 | 0.54 |
| 2:B:85:G:C4 | 2:B:92:G:C2 | 2.96 | 0.54 |
| 4:D:121:PRO:O | 4:D:122:ASP:HB3 | 2.06 | 0.54 |
| 4:D:33:LEU:CD2 | 4:D:33:LEU:H | 2.06 | 0.54 |
| 5:E:22:PRO:HA | 5:E:185:LYS:H | 1.71 | 0.54 |
| 5:E:1:MET:N | 5:E:2:LYS:HE3 | 2.23 | 0.54 |
| 5:E:37:ARG:O | 5:E:38:THR:CB | 2.56 | 0.54 |
| 6:F:129:PHE:HE1 | 6:F:162:LEU:HD13 | 1.73 | 0.54 |
| 6:F:82:ILE:N | 6:F:82:ILE:CD1 | 2.71 | 0.54 |
| 7:G:128:ARG:NH2 | 7:G:130:ASN:HD21 | 2.06 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:39:ILE:HG13 | 7:G:157:ILE:CG1 | 2.37 | 0.54 |
| 7:G:49:ASP:C | 7:G:70:VAL:HG13 | 2.28 | 0.54 |
| 7:G:74:LYS:O | 7:G:75:LYS:CB | 2.55 | 0.54 |
| 8:H:139:GLN:O | 8:H:142:GLY:N | 2.41 | 0.54 |
| 8:H:61:HIS:O | 8:H:64:LEU:N | 2.41 | 0.54 |
| 8:H:67:LEU:O | 8:H:68:THR:C | 2.45 | 0.54 |
| 8:H:87:LEU:HD13 | 8:H:162:ILE:HD11 | 1.90 | 0.54 |
| 8:H:87:LEU:HD23 | 8:H:88:LEU:N | 2.22 | 0.54 |
| 10:L:14:ALA:H | 10:L:53:VAL:HG21 | 1.73 | 0.54 |
| 1:A:2025:C:H5' | 11:M:78:TYR:OH | 2.06 | 0.54 |
| 13:O:80:TYR:CE2 | 13:O:85:LEU:HD11 | 2.43 | 0.54 |
| 13:O:91:PHE:O | 13:O:95:VAL:HB | 2.08 | 0.54 |
| 13:O:99:LEU:HD13 | 13:O:101:VAL:CG2 | 2.37 | 0.54 |
| 14:P:26:TYR:H | 14:P:102:VAL:CB | 2.19 | 0.54 |
| 15:Q:75:LEU:O | 15:Q:78:LYS:N | 2.40 | 0.54 |
| 15:Q:84:ALA:HB3 | 15:Q:85:PRO:CD | 2.33 | 0.54 |
| 17:S:49:VAL:O | 17:S:50:ILE:HG23 | 2.08 | 0.54 |
| 19:U:69:LYS:HG2 | 19:U:70:ILE:H | 1.72 | 0.54 |
| 20:V:105:VAL:O | 20:V:105:VAL:HG13 | 2.08 | 0.54 |
| 22:X:46:LYS:HZ1 | 22:X:52:SER:HB2 | 1.72 | 0.54 |
| 23:Y:116:VAL:CG2 | 23:Y:180:VAL:O | 2.55 | 0.54 |
| 1:A:2134:A:N3 | 1:A:2134:A:OP2 | 2.40 | 0.54 |
| 1:A:2146:C:H2' | 1:A:2147:G:H5' | 1.90 | 0.54 |
| 1:A:2148:G:H2' | 1:A:2149:G:N7 | 2.23 | 0.54 |
| 3:C:108:MET:CE | 3:C:131:LEU:HD23 | 2.37 | 0.54 |
| 1:A:1581:G:C2' | 1:A:1582:C:C5' | 2.85 | 0.54 |
| 9:K:57:ARG:HD2 | 9:K:61:ARG:NH2 | 2.19 | 0.54 |
| 1:A:2094:G:C5 | 1:A:2095:C:C5 | 2.95 | 0.54 |
| 1:A:711:G:N2 | 1:A:712:G:H1' | 2.21 | 0.54 |
| 1:A:2341:G:C2' | 1:A:2342:C:C6 | 2.91 | 0.54 |
| 20:V:45:TYR:N | 20:V:45:TYR:HD2 | 2.06 | 0.54 |
| 25:1:25:ARG:HE | 25:1:28:MET:HE1 | 1.73 | 0.54 |
| 25:1:27:LEU:CD2 | 25:1:48:LEU:HB3 | 2.37 | 0.54 |
| 1:A:988:A:N6 | 26:2:13:ILE:CG1 | 2.71 | 0.54 |
| 27:3:29:PRO:O | 27:3:30:GLU:CB | 2.55 | 0.54 |
| 30:6:34:ARG:O | 30:6:35:ARG:C | 2.45 | 0.54 |
| 1:A:650:C:OP1 | 31:7:19:SER:OG | 2.26 | 0.54 |
| 31:7:21:LYS:HG2 | 31:7:48:PHE:HE1 | 1.72 | 0.54 |
| 31:7:23:VAL:HG22 | 31:7:48:PHE:HB2 | 1.87 | 0.54 |
| 31:7:25:MET:O | 31:7:26:LYS:C | 2.45 | 0.54 |
| 31:7:60:LEU:HD11 | 31:7:64:TYR:HB3 | 1.89 | 0.54 |
| 1:A:1011:G:H5' | 18:T:75:ASN:ND2 | 2.23 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1196:C:C2 | 1:A:1197:G:C8 | 2.96 | 0.54 |
| 1:A:1298:C:O4' | 1:A:1302:A:N6 | 2.37 | 0.54 |
| 1:A:1368:G:H2' | 1:A:1369:G:H8 | 1.73 | 0.54 |
| 1:A:1542:G:H2' | 1:A:1543:A:C4 | 2.42 | 0.54 |
| 1:A:1552:G:H4' | 1:A:1553:A:OP1 | 2.08 | 0.54 |
| 1:A:1668:A:N3 | 1:A:1669:A:N1 | 2.56 | 0.54 |
| 1:A:1824:G:N3 | 1:A:1825:A:H1' | 2.22 | 0.54 |
| 1:A:1831:G:H2' | 1:A:1832:C:C6 | 2.43 | 0.54 |
| 1:A:1904:G:O2' | 1:A:1905:C:C5' | 2.53 | 0.54 |
| 1:A:1919:A:OP1 | 1:A:1920:C:OP2 | 2.26 | 0.54 |
| 1:A:1934:C:C4' | 1:A:1974:C:H4' | 2.38 | 0.54 |
| 1:A:2016:U:H6 | 1:A:2016:U:O5' | 1.90 | 0.54 |
| 1:A:2216:G:N2 | 4:D:150:LYS:HZ3 | 2.06 | 0.54 |
| 1:A:2226:C:O2 | 1:A:2227:A:C1' | 2.55 | 0.54 |
| 1:A:234:C:O2' | 1:A:235:U:H5' | 2.07 | 0.54 |
| 1:A:2536:G:C5 | 1:A:2537:U:C5 | 2.96 | 0.54 |
| 1:A:257:A:O5' | 1:A:257:A:C8 | 2.61 | 0.54 |
| 1:A:2639:A:C6 | 1:A:2640:G:H1' | 2.43 | 0.54 |
| 1:A:2685:G:C2 | 1:A:2686:G:C8 | 2.96 | 0.54 |
| 1:A:2714:G:C2' | 1:A:2715:C:H5' | 2.38 | 0.54 |
| 1:A:271(C):U:C5 | 1:A:421:U:C4 | 2.96 | 0.54 |
| 1:A:2778:A:H5'' | 1:A:2779:U:OP2 | 2.08 | 0.54 |
| 1:A:298:G:P | 1:A:298:G:C8 | 3.01 | 0.54 |
| 1:A:467:G:H2' | 1:A:468:G:C5' | 2.37 | 0.54 |
| 1:A:459:U:C5 | 1:A:469:G:N2 | 2.76 | 0.54 |
| 1:A:495:G:C2' | 1:A:496:G:O5' | 2.56 | 0.54 |
| 1:A:541:C:H5'' | 1:A:542:C:OP2 | 2.08 | 0.54 |
| 1:A:650:C:P | 31:7:21:LYS:HZ1 | 2.30 | 0.54 |
| 1:A:71:A:C2 | 1:A:73:A:C6 | 2.96 | 0.54 |
| 1:A:78:A:OP1 | 25:1:5:LEU:HD11 | 2.08 | 0.54 |
| 1:A:800:A:O2' | 1:A:801:G:H5'' | 2.08 | 0.54 |
| 1:A:806:C:O2' | 1:A:2445:G:O4' | 2.26 | 0.54 |
| 1:A:83:G:N1 | 1:A:102:G:O2' | 2.30 | 0.54 |
| 2:B:9:G:N3 | 2:B:9:G:H2' | 2.23 | 0.54 |
| 4:D:147:LEU:HD23 | 4:D:147:LEU:H | 1.73 | 0.54 |
| 4:D:70:TRP:O | 4:D:73:VAL:HG13 | 2.08 | 0.54 |
| 5:E:178:GLU:N | 5:E:178:GLU:CD | 2.60 | 0.54 |
| 1:A:618:G:OP1 | 6:F:106:ARG:CD | 2.56 | 0.54 |
| 6:F:152:GLU:OE1 | 6:F:191:ARG:HD2 | 2.07 | 0.54 |
| 6:F:8:GLN:CB | 6:F:18:ARG:HG2 | 2.37 | 0.54 |
| 7:G:55:LYS:NZ | 7:G:152:LEU:HD21 | 2.23 | 0.54 |
| 7:G:83:ARG:CD | 7:G:83:ARG:H | 2.20 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 8:H:119:GLU:HA | 8:H:119:GLU:OE2 | 2.07 | 0.54 |
| 8:H:119:GLU:C | 8:H:121:ILE:H | 2.10 | 0.54 |
| 8:H:89:ILE:CG2 | 8:H:128:PRO:O | 2.56 | 0.54 |
| 8:H:74:ASN:OD1 | 8:H:138:LYS:HE2 | 2.08 | 0.54 |
| 8:H:95:ARG:HB2 | 8:H:111:HIS:CE1 | 2.42 | 0.54 |
| 8:H:98:LEU:HD22 | 8:H:100:GLY:N | 2.23 | 0.54 |
| 11:M:53:VAL:HG22 | 11:M:121:LYS:HB2 | 1.90 | 0.54 |
| 11:M:27:ALA:HA | 11:M:30:ILE:HD13 | 1.90 | 0.54 |
| 11:M:49:GLY:O | 11:M:50:ASP:C | 2.46 | 0.54 |
| 11:M:66:LYS:O | 11:M:67:LEU:HB2 | 2.06 | 0.54 |
| 11:M:84:LYS:C | 11:M:85:ILE:HD12 | 2.27 | 0.54 |
| 12:N:47:ILE:CG1 | 12:N:50:GLY:HA3 | 2.38 | 0.54 |
| 12:N:72:PRO:HG2 | 17:S:84:GLN:HE22 | 1.72 | 0.54 |
| 14:P:25:ASP:CA | 14:P:102:VAL:HG12 | 2.38 | 0.54 |
| 14:P:68:ILE:CG2 | 14:P:95:ALA:HB1 | 2.33 | 0.54 |
| 15:Q:97:VAL:HG13 | 15:Q:114:VAL:CG2 | 2.38 | 0.54 |
| 15:Q:37:THR:HA | 15:Q:111:LEU:HD22 | 1.89 | 0.54 |
| 15:Q:61:HIS:ND1 | 15:Q:64:ARG:CZ | 2.71 | 0.54 |
| 15:Q:67:LEU:HD22 | 15:Q:71:GLN:HA | 1.88 | 0.54 |
| 16:R:79:ALA:O | 16:R:82:ILE:N | 2.41 | 0.54 |
| 16:R:13:ARG:NH1 | 16:R:94:TYR:CZ | 2.75 | 0.54 |
| 17:S:11:GLU:HB3 | 17:S:59:THR:HG23 | 1.89 | 0.54 |
| 17:S:33:LYS:CB | 17:S:87:ASP:HB3 | 2.38 | 0.54 |
| 18:T:98:LEU:CD1 | 18:T:105:VAL:HG21 | 2.38 | 0.54 |
| 18:T:105:VAL:CG1 | 18:T:106:PHE:N | 2.69 | 0.54 |
| 1:A:535:C:O2' | 18:T:53:ARG:HD2 | 2.07 | 0.54 |
| 20:V:8:ARG:CZ | 20:V:102:HIS:ND1 | 2.71 | 0.54 |
| 20:V:90:ARG:NH2 | 20:V:90:ARG:N | 2.33 | 0.54 |
| 22:X:1:MET:H2 | 22:X:33:LYS:HZ1 | 1.54 | 0.54 |
| 22:X:67:LEU:HD12 | 22:X:71:LYS:NZ | 2.23 | 0.54 |
| 23:Y:30:ASN:OD1 | 23:Y:33:LEU:CB | 2.56 | 0.54 |
| 23:Y:41:LEU:O | 23:Y:44:PHE:N | 2.41 | 0.54 |
| 9:K:128:LEU:HD13 | 9:K:129:THR:HG22 | 1.90 | 0.54 |
| 9:K:123:LEU:CD1 | 9:K:145:VAL:HA | 2.32 | 0.54 |
| 3:C:100:ILE:HG21 | 3:C:126:LYS:HB2 | 1.90 | 0.54 |
| 3:C:64:LEU:HB2 | 3:C:188:ASN:HD21 | 1.72 | 0.54 |
| 1:A:2124:G:C2' | 3:C:217:THR:HG23 | 2.23 | 0.54 |
| 25:1:13:PRO:O | 25:1:17:GLU:HG3 | 2.08 | 0.54 |
| 27:3:35:VAL:HG12 | 27:3:36:CYS:N | 2.23 | 0.54 |
| 27:3:6:HIS:ND1 | 27:3:56:VAL:HA | 2.22 | 0.54 |
| 29:5:15:GLU:CA | 29:5:21:TYR:HA | 2.19 | 0.54 |
| 1:A:2286:A:N1 | 29:5:29:ASN:CG | 2.61 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1061:U:O2 | 1:A:1061:U:H2' | 2.07 | 0.54 |
| 1:A:1155:A:C8 | 1:A:1155:A:OP2 | 2.54 | 0.54 |
| 1:A:1223:C:C2 | 1:A:1227:A:C2 | 2.96 | 0.54 |
| 1:A:1311:G:C3' | 1:A:1311:G:C8 | 2.91 | 0.54 |
| 1:A:1340:U:H2' | 1:A:1341:U:OP1 | 2.08 | 0.54 |
| 1:A:1343:G:N2 | 1:A:1405:U:C6 | 2.76 | 0.54 |
| 1:A:1380:G:C2' | 1:A:1381:G:H5' | 2.38 | 0.54 |
| 1:A:1403:C:C2' | 1:A:1404:C:O5' | 2.56 | 0.54 |
| 1:A:1476:C:H6 | 1:A:1477:A:N7 | 2.06 | 0.54 |
| 1:A:1480:G:H2' | 1:A:1480:G:N3 | 2.22 | 0.54 |
| 1:A:1517:G:N2 | 1:A:1518:C:O2 | 2.41 | 0.54 |
| 1:A:1542:G:C2' | 1:A:1543:A:C6 | 2.91 | 0.54 |
| 1:A:1620:G:C2' | 1:A:1621:U:O5' | 2.55 | 0.54 |
| 1:A:1697:G:C4' | 1:A:1698:A:H5' | 2.35 | 0.54 |
| 1:A:1815:A:OP1 | 1:A:1822:G:H4' | 2.07 | 0.54 |
| 1:A:1952:A:C4 | 1:A:1953:A:C2 | 2.96 | 0.54 |
| 1:A:1935:G:N1 | 1:A:1962:C:H2' | 2.23 | 0.54 |
| 1:A:1900:A:C2 | 1:A:1970:A:N6 | 2.75 | 0.54 |
| 1:A:2053:G:H2' | 1:A:2054:A:O5' | 2.08 | 0.54 |
| 1:A:2058:A:C2 | 1:A:2059:A:C5 | 2.96 | 0.54 |
| 1:A:215:G:H4' | 1:A:216:A:H4' | 1.89 | 0.54 |
| 1:A:2305:A:H2' | 7:G:154:GLY:CA | 2.37 | 0.54 |
| 1:A:2353:G:H4' | 24:Z:32:ARG:NH2 | 2.23 | 0.54 |
| 1:A:2531:A:C2 | 1:A:2532:G:C8 | 2.95 | 0.54 |
| 1:A:2559:C:H2' | 1:A:2560:C:H6 | 1.73 | 0.54 |
| 1:A:270(B):A:C1' | 1:A:270(C):C:C5 | 2.91 | 0.54 |
| 1:A:2717:G:H3' | 1:A:2717:G:P | 2.48 | 0.54 |
| 1:A:2731:G:H4' | 5:E:168:MET:SD | 2.48 | 0.54 |
| 1:A:2833:G:OP1 | 1:A:2833:G:O4' | 2.25 | 0.54 |
| 1:A:404:C:C5' | 1:A:406:G:O4' | 2.56 | 0.54 |
| 1:A:543:C:C4 | 1:A:551:G:N1 | 2.76 | 0.54 |
| 1:A:611:C:O2 | 1:A:612:G:H1' | 2.08 | 0.54 |
| 1:A:771:G:C4 | 1:A:772:C:C5 | 2.96 | 0.54 |
| 1:A:893:C:C2 | 1:A:894:C:C5 | 2.96 | 0.54 |
| 1:A:975:G:C6 | 1:A:976:C:H6 | 2.23 | 0.54 |
| 1:A:975:G:O6 | 1:A:976:C:C5 | 2.60 | 0.54 |
| 4:D:101:GLU:HG2 | 4:D:102:LYS:H | 1.72 | 0.54 |
| 4:D:118:VAL:N | 4:D:129:ASN:ND2 | 2.54 | 0.54 |
| 4:D:168:ARG:HG3 | 4:D:173:VAL:CG1 | 2.31 | 0.54 |
| 1:A:2224:G:C5' | 4:D:262:ARG:CZ | 2.86 | 0.54 |
| 5:E:58:ARG:HH21 | 5:E:58:ARG:HB2 | 1.72 | 0.54 |
| 6:F:131:GLY:CA | 6:F:138:GLU:HB2 | 2.28 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:103:LEU:HD12 | 7:G:103:LEU:O | 2.07 | 0.54 |
| 7:G:12:TYR:HA | 7:G:15:VAL:HG22 | 1.89 | 0.54 |
| 8:H:167:GLU:O | 8:H:169:VAL:HG22 | 2.07 | 0.54 |
| 10:L:23:VAL:HG12 | 10:L:34:ILE:CG2 | 2.38 | 0.54 |
| 10:L:72:PRO:CG | 10:L:77:LEU:HB2 | 2.38 | 0.54 |
| 11:M:115:ARG:HG2 | 11:M:118:LYS:HD2 | 1.90 | 0.54 |
| 11:M:55:VAL:HG12 | 11:M:56:ASN:ND2 | 2.22 | 0.54 |
| 12:N:12:ASP:O | 12:N:94:ARG:NH2 | 2.40 | 0.54 |
| 12:N:39:ILE:HD13 | 12:N:59:LYS:O | 2.07 | 0.54 |
| 12:N:97:ARG:O | 12:N:118:ALA:CB | 2.56 | 0.54 |
| 1:A:834:C:H5' | 13:O:49:ARG:CD | 2.38 | 0.54 |
| 13:O:95:VAL:HG12 | 13:O:95:VAL:O | 2.07 | 0.54 |
| 15:Q:110:PRO:C | 15:Q:111:LEU:HD23 | 2.28 | 0.54 |
| 15:Q:13:HIS:HD1 | 15:Q:14:SER:N | 2.05 | 0.54 |
| 15:Q:5:LYS:HZ1 | 15:Q:6:SER:N | 2.04 | 0.54 |
| 15:Q:96:ARG:CZ | 15:Q:117:VAL:HG23 | 2.37 | 0.54 |
| 17:S:80:SER:CB | 17:S:81:PRO:CD | 2.85 | 0.54 |
| 18:T:9:VAL:O | 18:T:13:LYS:HG2 | 2.08 | 0.54 |
| 18:T:33:ARG:C | 18:T:35:ALA:N | 2.59 | 0.54 |
| 19:U:67:GLY:CA | 19:U:94:LEU:HA | 2.38 | 0.54 |
| 20:V:11:ARG:NH2 | 20:V:11:ARG:H | 1.98 | 0.54 |
| 20:V:46:PHE:O | 20:V:50:VAL:HG23 | 2.08 | 0.54 |
| 14:P:61:GLY:C | 23:Y:177:PRO:HB2 | 2.27 | 0.54 |
| 23:Y:30:ASN:O | 23:Y:31:ARG:C | 2.46 | 0.54 |
| 23:Y:73:GLN:O | 23:Y:74:VAL:CG2 | 2.56 | 0.54 |
| 23:Y:95:PRO:HD2 | 23:Y:130:PRO:CA | 2.37 | 0.54 |
| 9:K:114:LEU:HD22 | 9:K:130:TYR:CB | 2.38 | 0.54 |
| 1:A:2127:G:N2 | 1:A:2128:C:C2 | 2.76 | 0.54 |
| 1:A:2133:G:P | 1:A:2156:G:H1' | 2.48 | 0.54 |
| 3:C:68:LEU:CD1 | 3:C:160:ARG:H | 2.10 | 0.54 |
| 3:C:171:ILE:HD13 | 3:C:192:PHE:HZ | 1.73 | 0.54 |
| 3:C:186:ALA:O | 3:C:189:ILE:HB | 2.08 | 0.54 |
| 3:C:58:VAL:CG2 | 3:C:201:PRO:HD3 | 2.36 | 0.54 |
| 3:C:47:LEU:N | 3:C:47:LEU:CD2 | 2.71 | 0.54 |
| 1:A:2186:G:C2 | 1:A:2187:G:C5 | 2.96 | 0.54 |
| 31:7:17:THR:O | 31:7:19:SER:N | 2.32 | 0.54 |
| 31:7:49:VAL:O | 31:7:53:PRO:CD | 2.55 | 0.54 |
| 1:A:104:U:OP2 | 1:A:105:C:C5 | 2.61 | 0.54 |
| 1:A:1068:G:H5' | 1:A:1096:A:O2' | 2.08 | 0.54 |
| 1:A:1113:U:O5' | 1:A:1113:U:C6 | 2.58 | 0.54 |
| 1:A:996:A:C6 | 1:A:1160:G:N1 | 2.75 | 0.54 |
| 1:A:1182:A:C6 | 1:A:1183:G:O6 | 2.61 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1203:G:H5' | 1:A:1205:U:OP2 | 2.07 | 0.54 |
| 1:A:1270:C:C6 | 1:A:1270:C:OP2 | 2.56 | 0.54 |
| 1:A:1351:C:C4 | 1:A:1381:G:N1 | 2.76 | 0.54 |
| 1:A:1433:U:H3' | 1:A:1433:U:H6 | 1.72 | 0.54 |
| 1:A:1449(A):G:C6 | 1:A:1450:C:N4 | 2.76 | 0.54 |
| 1:A:1453:A:OP2 | 1:A:1453:A:O4' | 2.26 | 0.54 |
| 1:A:145:G:C2 | 1:A:146:G:C4 | 2.95 | 0.54 |
| 1:A:140:A:N6 | 1:A:1596:A:H4' | 2.18 | 0.54 |
| 1:A:1809:A:O4' | 1:A:1810:A:C2 | 2.61 | 0.54 |
| 1:A:1908:C:H42 | 1:A:1923:U:H3 | 1.56 | 0.54 |
| 1:A:1934:C:H5' | 1:A:1974:C:H4' | 1.90 | 0.54 |
| 1:A:917:A:C2 | 1:A:2268:A:C6 | 2.96 | 0.54 |
| 1:A:2275:C:H4' | 1:A:2276:G:OP2 | 2.00 | 0.54 |
| 1:A:2314:C:H2' | 1:A:2315:G:C8 | 2.42 | 0.54 |
| 1:A:2332:U:H5' | 1:A:2336:A:H61 | 1.72 | 0.54 |
| 1:A:239:U:O2' | 1:A:240:G:C5' | 2.51 | 0.54 |
| 1:A:1864:U:H4' | 1:A:2409:G:H22 | 1.73 | 0.54 |
| 1:A:2509:G:O2' | 1:A:2510:C:O4' | 2.24 | 0.54 |
| 1:A:2543:G:C5 | 1:A:2544:G:C6 | 2.96 | 0.54 |
| 1:A:2584:U:H1' | 1:A:2585:U:C5 | 2.43 | 0.54 |
| 1:A:2595:G:C8 | 1:A:2595:G:H3' | 2.43 | 0.54 |
| 1:A:2819:G:H3' | 1:A:2821:A:N6 | 2.23 | 0.54 |
| 1:A:295:G:H2' | 1:A:338:G:H22 | 1.73 | 0.54 |
| 1:A:297:C:C4 | 1:A:298:G:N3 | 2.76 | 0.54 |
| 1:A:306:U:H5 | 1:A:307:G:C4 | 2.26 | 0.54 |
| 1:A:324:A:N6 | 1:A:339:U:O2 | 2.41 | 0.54 |
| 1:A:327:G:N3 | 1:A:327:G:H2' | 2.23 | 0.54 |
| 1:A:484:C:OP1 | 22:X:48:ALA:HB1 | 2.08 | 0.54 |
| 1:A:50:U:H2' | 1:A:51:G:OP1 | 2.07 | 0.54 |
| 1:A:573:G:C2' | 1:A:574:C:O5' | 2.56 | 0.54 |
| 1:A:580:C:H2' | 1:A:581:C:C6 | 2.43 | 0.54 |
| 1:A:650:C:N3 | 1:A:651:G:N3 | 2.56 | 0.54 |
| 1:A:60:G:N2 | 1:A:68:G:C2 | 2.76 | 0.54 |
| 1:A:725:G:N1 | 1:A:726:G:C2 | 2.76 | 0.54 |
| 1:A:815:C:O2' | 1:A:816:C:C5' | 2.56 | 0.54 |
| 1:A:830:G:N3 | 1:A:2448:A:N7 | 2.55 | 0.54 |
| 1:A:979:G:C3' | 1:A:980:A:C5' | 2.82 | 0.54 |
| 4:D:138:VAL:HA | 4:D:165:ILE:CG2 | 2.33 | 0.54 |
| 4:D:147:LEU:HB2 | 4:D:148:GLU:OE2 | 2.08 | 0.54 |
| 4:D:208:LYS:HE3 | 4:D:211:ARG:HG3 | 1.90 | 0.54 |
| 4:D:9:TYR:H | 4:D:9:TYR:HD1 | 1.53 | 0.54 |
| 6:F:22:ALA:HB1 | 6:F:115:ALA:HB2 | 1.90 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:138:GLN:HG2 | 7:G:139:LEU:N | 2.21 | 0.54 |
| 7:G:21:ARG:O | 7:G:23:PHE:N | 2.41 | 0.54 |
| 7:G:19:LEU:HA | 7:G:22:ARG:NH2 | 2.23 | 0.54 |
| 7:G:40:ASN:ND2 | 7:G:41:GLN:N | 2.56 | 0.54 |
| 7:G:51:ARG:NH2 | 7:G:51:ARG:N | 2.56 | 0.54 |
| 8:H:159:GLU:HG2 | 8:H:160:LYS:N | 2.23 | 0.54 |
| 8:H:44:VAL:HG22 | 8:H:45:VAL:N | 2.23 | 0.54 |
| 8:H:76:VAL:O | 8:H:78:GLY:N | 2.41 | 0.54 |
| 10:L:79:ARG:HH11 | 10:L:134:MET:HG3 | 1.73 | 0.54 |
| 1:A:1012:U:O4 | 11:M:28:THR:HG23 | 2.07 | 0.54 |
| 11:M:42:TRP:O | 11:M:43:THR:CB | 2.56 | 0.54 |
| 12:N:111:PHE:C | 12:N:111:PHE:HD1 | 2.10 | 0.54 |
| 12:N:10:VAL:N | 12:N:17:ARG:CG | 2.58 | 0.54 |
| 1:A:1190:G:OP1 | 13:O:31:ALA:O | 2.26 | 0.54 |
| 13:O:49:ARG:NH2 | 13:O:49:ARG:CG | 2.64 | 0.54 |
| 14:P:104:PHE:O | 14:P:105:GLU:OE2 | 2.26 | 0.54 |
| 14:P:37:LEU:CB | 14:P:129:THR:HA | 2.36 | 0.54 |
| 15:Q:52:ILE:O | 15:Q:55:ALA:HB3 | 2.08 | 0.54 |
| 15:Q:55:ALA:HA | 15:Q:80:PHE:CE1 | 2.42 | 0.54 |
| 1:A:2839:G:H21 | 15:Q:91:GLN:HG3 | 1.73 | 0.54 |
| 15:Q:96:ARG:HB2 | 15:Q:117:VAL:HG23 | 1.89 | 0.54 |
| 16:R:11:LYS:HA | 16:R:14:VAL:HG21 | 1.88 | 0.54 |
| 1:A:2377:A:H2 | 16:R:87:PHE:CZ | 2.26 | 0.54 |
| 12:N:77:ILE:HD11 | 17:S:65:LYS:HZ3 | 1.73 | 0.54 |
| 18:T:97:ASP:OD2 | 18:T:101:ARG:NH2 | 2.41 | 0.54 |
| 18:T:14:HIS:O | 18:T:17:ILE:N | 2.41 | 0.54 |
| 18:T:35:ALA:O | 18:T:36:ARG:C | 2.46 | 0.54 |
| 18:T:40:PHE:CD1 | 18:T:40:PHE:N | 2.76 | 0.54 |
| 19:U:80:GLN:C | 19:U:82:ARG:H | 2.11 | 0.54 |
| 21:W:26:TYR:CD1 | 21:W:26:TYR:N | 2.76 | 0.54 |
| 21:W:39:ILE:HG22 | 21:W:54:VAL:HG21 | 1.88 | 0.54 |
| 21:W:40:LYS:HZ1 | 21:W:44:GLU:CD | 2.11 | 0.54 |
| 22:X:6:HIS:CD2 | 22:X:71:LYS:HE2 | 2.43 | 0.54 |
| 23:Y:19:ARG:CG | 23:Y:24:LEU:HG | 2.34 | 0.54 |
| 24:Z:17:GLN:NE2 | 24:Z:18:ALA:N | 2.47 | 0.54 |
| 24:Z:47:PRO:HB3 | 24:Z:51:VAL:O | 2.08 | 0.54 |
| 9:K:88:ILE:HD11 | 9:K:123:LEU:HB2 | 1.86 | 0.54 |
| 1:A:2124:G:H4' | 3:C:42:GLU:CG | 2.36 | 0.54 |
| 1:A:2171:A:O2' | 1:A:2172:U:OP1 | 2.22 | 0.54 |
| 3:C:100:ILE:HG12 | 3:C:123:VAL:HG13 | 1.89 | 0.54 |
| 3:C:100:ILE:HG23 | 3:C:127:LEU:CG | 2.29 | 0.54 |
| 3:C:103:ILE:HD13 | 3:C:108:MET:SD | 2.47 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 3:C:73:ARG:HD2 | 3:C:93:TYR:HE2 | 1.72 | 0.54 |
| 3:C:82:LYS:HD2 | 3:C:149:ILE:CG2 | 2.38 | 0.54 |
| 1:A:1575:C:C4 | 1:A:1576:U:C4 | 2.96 | 0.54 |
| 26:2:6:VAL:CG1 | 26:2:55:ARG:O | 2.46 | 0.53 |
| 28:4:15:ARG:C | 28:4:17:ASP:N | 2.58 | 0.53 |
| 1:A:2615:U:O4' | 28:4:7:PRO:CG | 2.56 | 0.53 |
| 30:6:5:TRP:CG | 30:6:6:GLN:N | 2.73 | 0.53 |
| 32:8:33:LYS:HB3 | 32:8:35:ARG:NE | 2.20 | 0.53 |
| 1:A:1007:C:H4' | 11:M:108:PRO:CG | 2.38 | 0.53 |
| 1:A:1062:G:OP2 | 1:A:1070:A:N3 | 2.41 | 0.53 |
| 1:A:1127:A:C6 | 1:A:2518:A:N3 | 2.76 | 0.53 |
| 1:A:980:A:C6 | 1:A:1135:C:H4' | 2.42 | 0.53 |
| 1:A:1364:G:C2 | 1:A:1368:G:C5 | 2.96 | 0.53 |
| 1:A:1378:A:O2' | 1:A:1379:A:P | 2.67 | 0.53 |
| 1:A:141:A:N1 | 1:A:1596:A:O2' | 2.25 | 0.53 |
| 1:A:1491:G:OP1 | 1:A:1492:G:OP2 | 2.25 | 0.53 |
| 1:A:1605:C:C1' | 1:A:1610:A:C8 | 2.88 | 0.53 |
| 1:A:1625:C:N4 | 1:A:1626:G:H8 | 2.06 | 0.53 |
| 1:A:1669:A:HO2' | 1:A:1670:C:P | 2.31 | 0.53 |
| 1:A:1717:G:N1 | 1:A:1718:G:C2 | 2.76 | 0.53 |
| 1:A:781:A:C2 | 1:A:1776:G:N2 | 2.74 | 0.53 |
| 1:A:1784:A:O2' | 1:A:1785:A:H8 | 1.90 | 0.53 |
| 1:A:1861:G:N3 | 1:A:1861:G:H2' | 2.22 | 0.53 |
| 1:A:2013:A:H2' | 1:A:2014:A:C8 | 2.43 | 0.53 |
| 1:A:2075:U:H3 | 1:A:2238:G:N2 | 2.06 | 0.53 |
| 1:A:2205:C:C2' | 1:A:2206:C:H5' | 2.37 | 0.53 |
| 1:A:2207:C:H2' | 1:A:2208:U:C5' | 2.39 | 0.53 |
| 1:A:2285:C:C4' | 1:A:2288:A:C6 | 2.91 | 0.53 |
| 1:A:2399:G:C2 | 29:5:21:TYR:OH | 2.61 | 0.53 |
| 1:A:415:A:N6 | 1:A:2409:G:O6 | 2.41 | 0.53 |
| 1:A:2452:C:O2' | 1:A:2453:A:H5' | 2.08 | 0.53 |
| 1:A:2543:G:N7 | 1:A:2544:G:C5 | 2.76 | 0.53 |
| 1:A:2571:C:O2' | 5:E:146:THR:CB | 2.56 | 0.53 |
| 1:A:2777:G:H8 | 1:A:2777:G:O5' | 1.91 | 0.53 |
| 1:A:2862:G:C4 | 1:A:2863:C:C5 | 2.96 | 0.53 |
| 1:A:2879:C:H5' | 1:A:2880:C:OP1 | 2.08 | 0.53 |
| 1:A:312:G:C4 | 1:A:313:C:C5 | 2.96 | 0.53 |
| 1:A:462:C:N3 | 1:A:468:G:C2 | 2.76 | 0.53 |
| 1:A:479:A:O2' | 1:A:480:A:H5' | 2.08 | 0.53 |
| 1:A:547:A:N7 | 1:A:548:A:C5 | 2.76 | 0.53 |
| 1:A:55:G:N2 | 1:A:116:C:C2 | 2.76 | 0.53 |
| 1:A:616:A:C4' | 1:A:617:G:OP1 | 2.53 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:695:G:C6 | 1:A:696:G:N7 | 2.76 | 0.53 |
| 1:A:861:A:C3' | 1:A:862:G:H5' | 2.38 | 0.53 |
| 2:B:81:G:C6 | 2:B:96:G:C6 | 2.95 | 0.53 |
| 4:D:143:HIS:C | 4:D:145:VAL:H | 2.11 | 0.53 |
| 4:D:175:LEU:HD13 | 4:D:175:LEU:C | 2.29 | 0.53 |
| 1:A:2589:A:OP1 | 4:D:226:MET:HG3 | 2.08 | 0.53 |
| 4:D:229:VAL:HG22 | 4:D:230:ASP:CG | 2.28 | 0.53 |
| 4:D:239:ARG:N | 4:D:239:ARG:CD | 2.71 | 0.53 |
| 6:F:103:LYS:HA | 6:F:106:ARG:CD | 2.37 | 0.53 |
| 6:F:154:VAL:O | 6:F:174:VAL:CG1 | 2.48 | 0.53 |
| 6:F:155:LEU:HB3 | 6:F:157:VAL:HG13 | 1.88 | 0.53 |
| 7:G:22:ARG:HH21 | 7:G:22:ARG:CB | 2.19 | 0.53 |
| 7:G:30:GLU:OE1 | 7:G:33:ARG:HG3 | 2.09 | 0.53 |
| 8:H:154:PRO:O | 8:H:155:SER:CB | 2.55 | 0.53 |
| 8:H:161:GLY:HA3 | 8:H:163:TYR:HE1 | 1.73 | 0.53 |
| 8:H:29:PRO:HD3 | 8:H:79:VAL:C | 2.28 | 0.53 |
| 9:K:43:ASN:N | 9:K:43:ASN:ND2 | 2.56 | 0.53 |
| 10:L:103:GLN:HA | 10:L:106:GLU:CG | 2.38 | 0.53 |
| 1:A:1070:A:C2 | 10:L:11:GLN:OE1 | 2.61 | 0.53 |
| 10:L:77:LEU:HD13 | 10:L:77:LEU:C | 2.28 | 0.53 |
| 12:N:5:GLN:CG | 12:N:20:MET:SD | 2.95 | 0.53 |
| 12:N:63:VAL:CG2 | 12:N:81:ASP:HA | 2.38 | 0.53 |
| 12:N:11:ALA:HB1 | 12:N:98:VAL:HG22 | 1.90 | 0.53 |
| 14:P:10:ARG:O | 14:P:11:LYS:O | 2.25 | 0.53 |
| 14:P:58:PHE:CE1 | 14:P:114:ALA:HA | 2.39 | 0.53 |
| 14:P:79:LEU:O | 14:P:80:GLU:HG3 | 2.07 | 0.53 |
| 16:R:76:LYS:HG2 | 16:R:77:ALA:N | 2.22 | 0.53 |
| 18:T:88:ILE:HG12 | 19:U:52:VAL:HG13 | 1.89 | 0.53 |
| 18:T:94:ASN:ND2 | 19:U:6:LYS:NZ | 2.56 | 0.53 |
| 19:U:73:SER:HG | 19:U:75:PHE:HZ | 1.51 | 0.53 |
| 22:X:75:ILE:HG23 | 22:X:100:ALA:CB | 2.38 | 0.53 |
| 23:Y:16:SER:O | 23:Y:17:ALA:C | 2.46 | 0.53 |
| 3:C:40:THR:O | 3:C:41:VAL:O | 2.25 | 0.53 |
| 3:C:68:LEU:HD13 | 3:C:160:ARG:N | 2.11 | 0.53 |
| 1:A:712:G:C2' | 1:A:713:G:H8 | 2.09 | 0.53 |
| 4:D:273:ARG:NE | 4:D:274:ARG:N | 2.56 | 0.53 |
| 2:B:0:A:H5'' | 2:B:0:A:N3 | 2.23 | 0.53 |
| 31:7:24:ALA:O | 31:7:25:MET:C | 2.47 | 0.53 |
| 31:7:31:HIS:O | 31:7:32:LEU:CD2 | 2.56 | 0.53 |
| 31:7:31:HIS:O | 31:7:32:LEU:CG | 2.55 | 0.53 |
| 31:7:7:HIS:O | 31:7:8:LYS:O | 2.25 | 0.53 |
| 32:8:20:HIS:N | 32:8:20:HIS:ND1 | 2.56 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|----------------|-------------|----------|
| 1:A:1075:C:P | 1:A:1075:C:H3' | 2.48 | 0.53 |
| 1:A:839:U:H1' | 1:A:1191:G:H1' | 1.90 | 0.53 |
| 1:A:10:G:H2' | 1:A:11:G:H8 | 1.72 | 0.53 |
| 1:A:1203:G:O6 | 1:A:1240:U:H2' | 2.08 | 0.53 |
| 1:A:122:G:C2 | 1:A:130:C:C2 | 2.95 | 0.53 |
| 1:A:585:G:N1 | 1:A:1251:C:H5 | 2.04 | 0.53 |
| 1:A:1376:C:H2' | 1:A:1377:G:O4' | 2.09 | 0.53 |
| 1:A:1388:G:C6 | 1:A:1400:G:N1 | 2.76 | 0.53 |
| 1:A:1454:U:C2' | 1:A:1454:U:O2 | 2.51 | 0.53 |
| 1:A:149:A:C5 | 1:A:150:C:C2 | 2.96 | 0.53 |
| 1:A:1483:G:C4 | 1:A:1507:A:C2 | 2.97 | 0.53 |
| 1:A:1429:G:H1' | 1:A:1568:G:N3 | 2.24 | 0.53 |
| 1:A:1569:A:H2' | 1:A:1570:A:C8 | 2.43 | 0.53 |
| 1:A:1693:U:H5'' | 1:A:1694:C:OP2 | 2.08 | 0.53 |
| 1:A:1698:A:O2' | 1:A:1699:G:O5' | 2.25 | 0.53 |
| 1:A:1703:G:C2 | 1:A:1704:G:H1' | 2.43 | 0.53 |
| 1:A:1769:G:O2' | 1:A:1770:G:H8 | 1.90 | 0.53 |
| 1:A:1838:C:C6 | 1:A:1899:G:C6 | 2.96 | 0.53 |
| 1:A:1964:G:N3 | 1:A:1967:C:H5 | 2.04 | 0.53 |
| 1:A:563:G:C5 | 1:A:2018:G:N1 | 2.76 | 0.53 |
| 1:A:46:C:C6 | 1:A:215:G:H8 | 2.26 | 0.53 |
| 1:A:2281:C:H6 | 1:A:2281:C:OP2 | 1.88 | 0.53 |
| 1:A:2335:A:C6 | 1:A:2337:G:C2 | 2.96 | 0.53 |
| 1:A:2450:A:C2' | 1:A:2451:A:O5' | 2.56 | 0.53 |
| 1:A:2459:A:OP2 | 1:A:2460:U:O4 | 2.25 | 0.53 |
| 1:A:2516:G:H2' | 1:A:2517:C:C6 | 2.43 | 0.53 |
| 1:A:2627:G:C6 | 1:A:2777:G:O6 | 2.61 | 0.53 |
| 1:A:270:A:N1 | 1:A:370:G:C1' | 2.71 | 0.53 |
| 1:A:2756:U:N3 | 1:A:2758:A:C5 | 2.75 | 0.53 |
| 1:A:2764:A:N7 | 1:A:2766:G:C6 | 2.77 | 0.53 |
| 1:A:2787:C:O2' | 5:E:61:ARG:NH2 | 2.41 | 0.53 |
| 1:A:2789:C:H1' | 1:A:2893:G:N2 | 2.23 | 0.53 |
| 1:A:2850:A:N3 | 1:A:2851:A:C8 | 2.76 | 0.53 |
| 1:A:373:U:C2 | 1:A:400:G:N2 | 2.76 | 0.53 |
| 1:A:448:U:O2 | 1:A:448:U:C2' | 2.56 | 0.53 |
| 1:A:507:A:O4' | 1:A:509:C:C2 | 2.62 | 0.53 |
| 1:A:523:C:H2' | 1:A:524:U:H5' | 1.90 | 0.53 |
| 1:A:640:C:H42 | 1:A:647:G:H1 | 1.51 | 0.53 |
| 1:A:650:C:O2 | 1:A:651:G:O4' | 2.25 | 0.53 |
| 1:A:696:G:O2' | 1:A:697:C:H5' | 2.08 | 0.53 |
| 1:A:702:G:C2' | 1:A:703:U:H5' | 2.37 | 0.53 |
| 1:A:685:A:C2 | 1:A:774:A:N1 | 2.76 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:817:C:H2' | 1:A:818:G:C8 | 2.44 | 0.53 |
| 1:A:849:A:C6 | 1:A:931:G:N1 | 2.75 | 0.53 |
| 1:A:915:C:H2' | 1:A:916:G:O4' | 2.08 | 0.53 |
| 1:A:99:U:H5' | 1:A:101:G:H5'' | 1.88 | 0.53 |
| 2:B:45:A:H1' | 7:G:95:ARG:HH12 | 1.68 | 0.53 |
| 1:A:1819:A:P | 4:D:157:ARG:HA | 2.49 | 0.53 |
| 4:D:53:PHE:HB2 | 4:D:221:VAL:HG22 | 1.90 | 0.53 |
| 4:D:181:GLU:CA | 4:D:270:ILE:HD12 | 2.38 | 0.53 |
| 5:E:111:ARG:HB2 | 5:E:161:GLY:HA2 | 1.90 | 0.53 |
| 7:G:74:LYS:HG2 | 7:G:87:PRO:CG | 2.38 | 0.53 |
| 7:G:4:ASP:HA | 7:G:7:LEU:HD12 | 1.91 | 0.53 |
| 8:H:105:LEU:O | 8:H:113:VAL:CG2 | 2.50 | 0.53 |
| 8:H:124:GLU:HB3 | 8:H:132:ARG:CZ | 2.37 | 0.53 |
| 8:H:85:LYS:HB2 | 8:H:141:VAL:HG12 | 1.90 | 0.53 |
| 10:L:54:PRO:CG | 10:L:73:PRO:HD3 | 2.33 | 0.53 |
| 10:L:37:PHE:CD1 | 10:L:57:ILE:HD12 | 2.42 | 0.53 |
| 11:M:33:LEU:O | 11:M:35:ARG:N | 2.32 | 0.53 |
| 11:M:62:VAL:HG11 | 11:M:66:LYS:HG3 | 1.89 | 0.53 |
| 12:N:64:ARG:CG | 12:N:64:ARG:HH21 | 2.08 | 0.53 |
| 1:A:666:G:OP1 | 13:O:44:GLY:HA2 | 2.08 | 0.53 |
| 1:A:2393:A:O3' | 13:O:57:THR:HA | 2.07 | 0.53 |
| 13:O:92:GLU:C | 13:O:94:GLU:N | 2.56 | 0.53 |
| 14:P:62:GLY:HA2 | 23:Y:177:PRO:HB2 | 1.90 | 0.53 |
| 14:P:75:THR:O | 14:P:77:LYS:NZ | 2.36 | 0.53 |
| 14:P:9:TYR:N | 14:P:9:TYR:HD2 | 2.05 | 0.53 |
| 15:Q:104:ARG:HB3 | 15:Q:104:ARG:CZ | 2.38 | 0.53 |
| 15:Q:32:GLY:CA | 15:Q:116:LEU:HG | 2.36 | 0.53 |
| 15:Q:73:VAL:O | 15:Q:76:VAL:N | 2.41 | 0.53 |
| 15:Q:63:ARG:HH12 | 15:Q:80:PHE:HB3 | 1.73 | 0.53 |
| 16:R:42:ASP:OD1 | 16:R:44:LYS:HE2 | 2.07 | 0.53 |
| 17:S:110:ILE:O | 17:S:114:LEU:HB3 | 2.08 | 0.53 |
| 18:T:108:GLU:HB2 | 18:T:111:GLU:OE1 | 2.09 | 0.53 |
| 1:A:515:A:C5' | 18:T:32:PHE:HZ | 2.21 | 0.53 |
| 19:U:20:LEU:HD22 | 19:U:95:LEU:CD1 | 2.37 | 0.53 |
| 19:U:5:VAL:CG1 | 19:U:38:LEU:O | 2.55 | 0.53 |
| 19:U:69:LYS:CE | 19:U:70:ILE:HD12 | 2.38 | 0.53 |
| 20:V:33:ARG:HH12 | 20:V:37:ARG:HB3 | 1.73 | 0.53 |
| 20:V:84:ARG:O | 20:V:96:ILE:HD13 | 2.09 | 0.53 |
| 21:W:7:VAL:CG1 | 21:W:7:VAL:O | 2.56 | 0.53 |
| 23:Y:157:LEU:HD22 | 23:Y:161:VAL:HG12 | 1.89 | 0.53 |
| 23:Y:177:PRO:CD | 23:Y:178:GLU:H | 2.20 | 0.53 |
| 9:K:113:ARG:HA | 9:K:131:LYS:NZ | 2.23 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 9:K:69:LYS:CD | 9:K:70:LYS:HG3 | 2.38 | 0.53 |
| 3:C:111:ASP:O | 3:C:136:LEU:HA | 2.08 | 0.53 |
| 3:C:129:ARG:CG | 3:C:129:ARG:HH11 | 2.21 | 0.53 |
| 1:A:1587:A:C4 | 1:A:1588:C:C5 | 2.96 | 0.53 |
| 1:A:2101:G:H2' | 1:A:2102:U:O4' | 2.08 | 0.53 |
| 1:A:2182:G:N2 | 1:A:2183:C:C2 | 2.77 | 0.53 |
| 1:A:173:G:N2 | 1:A:174:C:C2 | 2.76 | 0.53 |
| 1:A:276:A:OP2 | 1:A:276:A:O4' | 2.26 | 0.53 |
| 25:1:12:SER:HB3 | 25:1:13:PRO:CD | 2.38 | 0.53 |
| 26:2:7:LYS:HZ1 | 26:2:32:GLN:C | 2.12 | 0.53 |
| 26:2:4:LEU:HB3 | 26:2:37:LEU:HD13 | 1.89 | 0.53 |
| 20:V:23:LEU:HD21 | 28:4:25:LEU:O | 2.07 | 0.53 |
| 29:5:24:GLU:O | 29:5:25:LYS:HB3 | 2.08 | 0.53 |
| 30:6:19:ARG:HB3 | 30:6:23:ARG:CZ | 2.38 | 0.53 |
| 30:6:42:LEU:CB | 30:6:44:PRO:HG2 | 2.36 | 0.53 |
| 31:7:40:GLU:C | 31:7:42:ARG:H | 2.11 | 0.53 |
| 31:7:58:ILE:HD12 | 31:7:59:LYS:N | 2.23 | 0.53 |
| 32:8:11:CYS:HB3 | 32:8:32:HIS:CG | 2.44 | 0.53 |
| 1:A:1013:C:O2' | 1:A:1014:U:H5' | 2.08 | 0.53 |
| 1:A:1102:C:C2' | 1:A:1102:C:O2 | 2.57 | 0.53 |
| 1:A:1144:G:C4 | 1:A:1145:C:C5 | 2.96 | 0.53 |
| 1:A:128:C:H2' | 1:A:129:C:H6 | 1.70 | 0.53 |
| 1:A:1307:A:O2' | 1:A:1308:A:H5' | 2.09 | 0.53 |
| 1:A:1312:U:C2 | 1:A:1313:U:H1' | 2.43 | 0.53 |
| 1:A:1511:A:N1 | 1:A:1512:G:N3 | 2.56 | 0.53 |
| 1:A:1674:G:H21 | 1:A:1676:A:H61 | 1.56 | 0.53 |
| 1:A:1726:G:C6 | 1:A:1727:U:O4 | 2.61 | 0.53 |
| 1:A:186:G:C4 | 1:A:187:G:C8 | 2.97 | 0.53 |
| 1:A:1907:G:C4 | 1:A:1908:C:C5 | 2.96 | 0.53 |
| 1:A:1919:A:P | 1:A:1920:C:OP2 | 2.65 | 0.53 |
| 1:A:2035:G:OP2 | 1:A:2036:C:N4 | 2.39 | 0.53 |
| 1:A:216:A:C2 | 1:A:217:G:C4 | 2.97 | 0.53 |
| 1:A:2213:U:C3' | 1:A:2213:U:O2 | 2.56 | 0.53 |
| 1:A:2287:A:C2 | 29:5:37:ARG:NH2 | 2.73 | 0.53 |
| 1:A:2308:G:C2' | 1:A:2309:A:OP2 | 2.56 | 0.53 |
| 1:A:237:C:C2 | 1:A:238:C:C5 | 2.96 | 0.53 |
| 1:A:2432:A:C8 | 1:A:2433:A:C8 | 2.96 | 0.53 |
| 1:A:242:G:H2' | 1:A:254:G:O6 | 2.08 | 0.53 |
| 1:A:2620:C:H1' | 5:E:156:MET:HG2 | 1.90 | 0.53 |
| 1:A:2643:G:H2' | 1:A:2644:G:C8 | 2.42 | 0.53 |
| 1:A:265:A:H2' | 1:A:266:G:H4' | 1.89 | 0.53 |
| 1:A:2795:G:HO2' | 1:A:2797:U:H5 | 1.56 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:280:C:H3' | 1:A:283:A:OP2 | 2.08 | 0.53 |
| 1:A:2838:G:C6 | 1:A:2839:G:C5 | 2.97 | 0.53 |
| 1:A:2849:U:H3 | 1:A:2867:G:H1' | 1.73 | 0.53 |
| 1:A:352:G:C2 | 1:A:353:G:O4' | 2.62 | 0.53 |
| 1:A:40:C:C2 | 1:A:41:C:C5 | 2.96 | 0.53 |
| 1:A:433:C:H3' | 1:A:434:U:C6 | 2.43 | 0.53 |
| 1:A:65:C:C2 | 1:A:66:C:C5 | 2.96 | 0.53 |
| 1:A:748:G:O6 | 20:V:90:ARG:NH1 | 2.41 | 0.53 |
| 1:A:852:G:C6 | 1:A:853:G:N7 | 2.77 | 0.53 |
| 1:A:957:A:N7 | 1:A:959:A:C5 | 2.76 | 0.53 |
| 4:D:186:HIS:O | 4:D:189:CYS:SG | 2.66 | 0.53 |
| 1:A:1824:G:N2 | 4:D:253:GLN:HG2 | 2.22 | 0.53 |
| 4:D:8:PRO:O | 4:D:25:THR:N | 2.41 | 0.53 |
| 1:A:1491:G:C4' | 4:D:99:ASP:HB2 | 2.38 | 0.53 |
| 5:E:101:ARG:HH22 | 5:E:171:GLU:CG | 2.16 | 0.53 |
| 5:E:118:LYS:CA | 5:E:118:LYS:NZ | 2.71 | 0.53 |
| 5:E:172:VAL:O | 5:E:174:ASP:N | 2.42 | 0.53 |
| 5:E:32:PRO:HB2 | 5:E:35:GLN:HE22 | 1.74 | 0.53 |
| 5:E:5:LEU:HD22 | 5:E:6:GLY:C | 2.28 | 0.53 |
| 5:E:59:VAL:O | 5:E:63:LEU:HG | 2.07 | 0.53 |
| 5:E:8:LYS:HZ3 | 5:E:192:ASN:HD22 | 1.55 | 0.53 |
| 6:F:118:ALA:CA | 6:F:122:LYS:HB2 | 2.37 | 0.53 |
| 6:F:149:ASP:O | 6:F:151:SER:N | 2.41 | 0.53 |
| 7:G:107:LEU:CD1 | 7:G:107:LEU:C | 2.76 | 0.53 |
| 7:G:30:GLU:HB3 | 7:G:162:THR:CB | 2.38 | 0.53 |
| 7:G:32:PRO:HG3 | 7:G:163:ALA:HB2 | 1.90 | 0.53 |
| 7:G:17:PRO:HA | 7:G:20:ILE:HB | 1.89 | 0.53 |
| 7:G:181:ARG:H | 7:G:181:ARG:NH2 | 2.06 | 0.53 |
| 7:G:94:LEU:HG | 7:G:98:ARG:NH1 | 2.24 | 0.53 |
| 10:L:38:VAL:O | 10:L:41:PHE:HB2 | 2.08 | 0.53 |
| 11:M:107:LEU:HD13 | 11:M:117:PHE:CD1 | 2.43 | 0.53 |
| 11:M:120:LEU:O | 11:M:121:LYS:HG3 | 2.08 | 0.53 |
| 11:M:67:LEU:C | 11:M:70:LYS:HZ3 | 2.11 | 0.53 |
| 11:M:88:GLU:N | 11:M:89:LYS:NZ | 2.55 | 0.53 |
| 12:N:122:LEU:HD12 | 17:S:71:GLY:CA | 2.31 | 0.53 |
| 1:A:1664:A:O3' | 12:N:66:LYS:HD3 | 2.09 | 0.53 |
| 13:O:111:ARG:NH2 | 13:O:113:LYS:HB2 | 2.23 | 0.53 |
| 13:O:123:LEU:HB2 | 13:O:138:LEU:HA | 1.89 | 0.53 |
| 1:A:2393:A:H4' | 13:O:56:SER:H | 1.73 | 0.53 |
| 13:O:6:LEU:C | 13:O:7:ARG:HG3 | 2.29 | 0.53 |
| 13:O:76:LYS:NZ | 13:O:112:LEU:CD2 | 2.70 | 0.53 |
| 13:O:94:GLU:C | 13:O:94:GLU:CD | 2.66 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 14:P:25:ASP:HB2 | 14:P:101:ARG:HB3 | 1.89 | 0.53 |
| 1:A:2250:G:N7 | 14:P:83:MET:O | 2.42 | 0.53 |
| 16:R:49:VAL:HG11 | 16:R:80:LEU:HG | 1.89 | 0.53 |
| 17:S:6:LEU:HD22 | 17:S:6:LEU:N | 2.23 | 0.53 |
| 19:U:22:VAL:HB | 19:U:24:LYS:HE2 | 1.91 | 0.53 |
| 1:A:2010:G:P | 20:V:41:LYS:HZ3 | 2.30 | 0.53 |
| 20:V:66:GLU:O | 20:V:69:LEU:HD13 | 2.08 | 0.53 |
| 21:W:12:VAL:CG1 | 21:W:27:THR:OG1 | 2.56 | 0.53 |
| 23:Y:26:GLY:O | 23:Y:36:LYS:CG | 2.57 | 0.53 |
| 24:Z:24:LYS:N | 24:Z:38:VAL:HG12 | 2.22 | 0.53 |
| 3:C:120:MET:HE1 | 3:C:145:VAL:HG21 | 1.90 | 0.53 |
| 3:C:181:PRO:HB2 | 3:C:184:LYS:CG | 2.39 | 0.53 |
| 1:A:1580:A:O3' | 1:A:1581:G:O4' | 2.25 | 0.53 |
| 9:K:58:LEU:CB | 9:K:62:LYS:HZ2 | 2.21 | 0.53 |
| 1:A:132:G:C5' | 1:A:133:C:OP2 | 2.56 | 0.53 |
| 27:3:39:CYS:C | 27:3:40:HIS:ND1 | 2.62 | 0.53 |
| 27:3:59:PHE:O | 27:3:60:GLN:C | 2.47 | 0.53 |
| 1:A:16:G:C5' | 28:4:17:ASP:HB3 | 2.39 | 0.53 |
| 29:5:23:THR:HG22 | 29:5:24:GLU:H | 1.73 | 0.53 |
| 30:6:31:LEU:O | 30:6:35:ARG:HG3 | 2.08 | 0.53 |
| 1:A:1093:G:H2' | 1:A:1094:U:C6 | 2.43 | 0.53 |
| 1:A:1171:G:H2' | 1:A:1173:G:H4' | 1.91 | 0.53 |
| 1:A:808:G:H1' | 1:A:1254:A:O2' | 2.08 | 0.53 |
| 1:A:1358:G:N7 | 1:A:1371:G:C6 | 2.77 | 0.53 |
| 1:A:1565:C:C5 | 1:A:1567:A:C8 | 2.96 | 0.53 |
| 1:A:701:G:H5' | 1:A:1632:A:O2' | 2.07 | 0.53 |
| 1:A:1669:A:N3 | 1:A:1670:C:H5' | 2.23 | 0.53 |
| 1:A:1701:A:O2' | 1:A:1702:G:H5' | 2.08 | 0.53 |
| 1:A:1777:U:H2' | 1:A:1778:U:C5' | 2.38 | 0.53 |
| 1:A:178:G:C6 | 1:A:179:G:N7 | 2.76 | 0.53 |
| 1:A:1793:C:N4 | 1:A:1825:A:N6 | 2.52 | 0.53 |
| 1:A:1856:G:C6 | 1:A:1857:G:H1' | 2.43 | 0.53 |
| 1:A:1919:A:OP2 | 1:A:1920:C:H5 | 1.92 | 0.53 |
| 1:A:191:A:H2' | 1:A:192:C:O4' | 2.08 | 0.53 |
| 1:A:1988:C:H2' | 1:A:1989:G:C5' | 2.38 | 0.53 |
| 1:A:2004:G:C5 | 1:A:2005:A:C5 | 2.96 | 0.53 |
| 1:A:2349:G:C2' | 1:A:2350:C:H5'' | 2.38 | 0.53 |
| 1:A:2422:A:HO2' | 1:A:2424:C:H5 | 1.52 | 0.53 |
| 1:A:2423:U:HO2' | 1:A:2425:A:H3' | 1.74 | 0.53 |
| 1:A:2436:G:O2' | 1:A:2598:A:N1 | 2.42 | 0.53 |
| 1:A:2447:G:O2' | 1:A:2448:A:P | 2.65 | 0.53 |
| 1:A:2543:G:C5 | 1:A:2544:G:C5 | 2.96 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2546:U:H4' | 1:A:2565:A:N1 | 2.24 | 0.53 |
| 1:A:2592:G:N7 | 1:A:2593:U:C5 | 2.77 | 0.53 |
| 1:A:2610:C:O2 | 1:A:2610:C:O4' | 2.21 | 0.53 |
| 1:A:2615:U:H2' | 1:A:2616:C:H6 | 1.74 | 0.53 |
| 1:A:2666:C:C2' | 1:A:2667:C:H5' | 2.39 | 0.53 |
| 1:A:272:G:C6 | 1:A:273:G:C5 | 2.95 | 0.53 |
| 1:A:2848:G:H22 | 1:A:2867:G:C1' | 2.22 | 0.53 |
| 1:A:2873:A:O2' | 1:A:2874:C:OP1 | 2.26 | 0.53 |
| 1:A:108:U:H5'' | 1:A:348:G:N2 | 2.23 | 0.53 |
| 1:A:370:G:C2 | 1:A:424:G:C8 | 2.96 | 0.53 |
| 1:A:544:C:H2' | 1:A:545:G:H5' | 1.88 | 0.53 |
| 1:A:578:A:C2 | 1:A:2018:G:C1' | 2.91 | 0.53 |
| 1:A:604:G:O2' | 1:A:605:C:O5' | 2.26 | 0.53 |
| 1:A:684:G:C1' | 1:A:687:C:N4 | 2.67 | 0.53 |
| 1:A:693:C:O2' | 1:A:694:U:C5' | 2.56 | 0.53 |
| 1:A:731:C:H2' | 1:A:732:C:H5' | 1.90 | 0.53 |
| 1:A:804:A:H5'' | 1:A:805:G:OP1 | 2.07 | 0.53 |
| 1:A:586:A:N1 | 1:A:810:U:H5' | 2.24 | 0.53 |
| 1:A:815:C:C2' | 1:A:816:C:H5' | 2.39 | 0.53 |
| 1:A:87:C:C5' | 1:A:88:G:H5'' | 2.33 | 0.53 |
| 1:A:974:G:N7 | 1:A:974(A):C:N4 | 2.57 | 0.53 |
| 1:A:994:C:C5' | 1:A:995:C:OP1 | 2.57 | 0.53 |
| 2:B:100:G:C5 | 2:B:101:A:N7 | 2.77 | 0.53 |
| 2:B:27:C:H3' | 2:B:28:C:H6 | 1.68 | 0.53 |
| 4:D:133:LEU:HD12 | 4:D:187:GLY:CA | 2.38 | 0.53 |
| 5:E:144:ARG:O | 5:E:144:ARG:HG2 | 2.08 | 0.53 |
| 1:A:2571:C:C2' | 5:E:146:THR:HG23 | 2.38 | 0.53 |
| 6:F:128:ALA:O | 6:F:129:PHE:CB | 2.49 | 0.53 |
| 1:A:586:A:OP1 | 6:F:89:VAL:HG23 | 2.08 | 0.53 |
| 7:G:29:TRP:O | 7:G:31:VAL:HG23 | 2.07 | 0.53 |
| 7:G:50:ALA:HA | 7:G:70:VAL:HG22 | 1.90 | 0.53 |
| 7:G:78:SER:OG | 7:G:83:ARG:N | 2.40 | 0.53 |
| 7:G:8:LYS:O | 7:G:9:ARG:C | 2.45 | 0.53 |
| 8:H:145:ALA:O | 8:H:148:ILE:HG22 | 2.07 | 0.53 |
| 8:H:77:LYS:NZ | 8:H:77:LYS:O | 2.41 | 0.53 |
| 8:H:88:LEU:HD23 | 8:H:89:ILE:O | 2.08 | 0.53 |
| 1:A:1096:A:N6 | 10:L:30:HIS:HD2 | 2.06 | 0.53 |
| 11:M:13:TRP:HB2 | 11:M:136:GLU:CD | 2.28 | 0.53 |
| 11:M:26:LEU:CG | 11:M:30:ILE:HD11 | 2.31 | 0.53 |
| 11:M:68:GLU:H | 11:M:70:LYS:CE | 2.19 | 0.53 |
| 11:M:95:PRO:HA | 11:M:98:VAL:HG23 | 1.90 | 0.53 |
| 12:N:13:ASN:OD1 | 12:N:52:VAL:CG1 | 2.56 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:N:57:VAL:HG23 | 12:N:59:LYS:HD2 | 1.90 | 0.53 |
| 12:N:66:LYS:CG | 12:N:67:LYS:HE2 | 2.34 | 0.53 |
| 13:O:97:PRO:HA | 13:O:102:ARG:NH1 | 2.22 | 0.53 |
| 13:O:60:MET:SD | 13:O:60:MET:O | 2.67 | 0.53 |
| 14:P:110:THR:O | 14:P:111:GLU:CG | 2.52 | 0.53 |
| 14:P:22:LYS:CE | 14:P:23:GLY:N | 2.70 | 0.53 |
| 14:P:27:VAL:HG13 | 14:P:104:PHE:CE2 | 2.43 | 0.53 |
| 14:P:83:MET:HE3 | 14:P:83:MET:O | 2.07 | 0.53 |
| 15:Q:62:ALA:O | 15:Q:66:VAL:HG23 | 2.08 | 0.53 |
| 18:T:5:LYS:C | 18:T:7:GLY:N | 2.62 | 0.53 |
| 19:U:100:ARG:H | 19:U:100:ARG:HE | 1.54 | 0.53 |
| 1:A:1162:G:C5' | 19:U:23:GLU:O | 2.56 | 0.53 |
| 1:A:483:A:H1' | 22:X:45:VAL:O | 2.07 | 0.53 |
| 22:X:53:PRO:O | 22:X:54:LYS:C | 2.47 | 0.53 |
| 23:Y:151:HIS:CG | 23:Y:170:THR:HA | 2.43 | 0.53 |
| 23:Y:90:VAL:C | 23:Y:91:LEU:HD22 | 2.28 | 0.53 |
| 24:Z:37:LEU:HG | 24:Z:59:LEU:C | 2.27 | 0.53 |
| 2:B:12:C:C3' | 24:Z:74:ARG:HG2 | 2.37 | 0.53 |
| 1:A:2171:A:N3 | 1:A:2172:U:H1' | 2.24 | 0.53 |
| 3:C:93:TYR:CD1 | 3:C:109:ASP:HB2 | 2.44 | 0.53 |
| 3:C:160:ARG:HG2 | 3:C:160:ARG:HH11 | 1.73 | 0.53 |
| 3:C:64:LEU:O | 3:C:65:PRO:O | 2.25 | 0.53 |
| 3:C:91:ALA:HB2 | 3:C:153:ILE:CD1 | 2.39 | 0.53 |
| 1:A:2105:C:N4 | 1:A:2106:G:O6 | 2.41 | 0.53 |
| 2:B:117:G:N3 | 2:B:118:G:C8 | 2.76 | 0.53 |
| 25:1:47:ASP:O | 25:1:50:ARG:N | 2.42 | 0.53 |
| 27:3:44:THR:HG22 | 27:3:45:GLY:N | 2.24 | 0.53 |
| 1:A:770:G:H5' | 30:6:10:ARG:NH1 | 2.23 | 0.53 |
| 31:7:4:MET:HE1 | 31:7:62:LEU:HD12 | 1.90 | 0.53 |
| 32:8:2:LYS:CG | 32:8:35:ARG:HD3 | 2.39 | 0.53 |
| 1:A:1024:G:N2 | 1:A:1139:G:O6 | 2.42 | 0.53 |
| 1:A:1057:A:O4' | 1:A:1084:A:N6 | 2.42 | 0.53 |
| 1:A:1161:C:HO2' | 1:A:1162:G:H5' | 1.73 | 0.53 |
| 1:A:117:G:N3 | 1:A:119:A:N6 | 2.55 | 0.53 |
| 1:A:1667:G:O5' | 12:N:7:TYR:CD1 | 2.62 | 0.53 |
| 1:A:1691:C:O2 | 1:A:1692:U:O4' | 2.26 | 0.53 |
| 1:A:1703:G:O2' | 1:A:1704:G:H5' | 2.09 | 0.53 |
| 1:A:1712:C:C3' | 1:A:1716:U:H6 | 2.20 | 0.53 |
| 1:A:1756:G:H2' | 1:A:1757:U:OP2 | 2.08 | 0.53 |
| 1:A:185:U:H5' | 1:A:217:G:N2 | 2.24 | 0.53 |
| 1:A:204:A:O2' | 1:A:205:G:OP2 | 2.25 | 0.53 |
| 1:A:2198:A:H2 | 1:A:2225:A:N6 | 2.06 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2360:A:N7 | 1:A:2361:A:C8 | 2.77 | 0.53 |
| 1:A:2371:G:C2 | 1:A:2372:G:C6 | 2.95 | 0.53 |
| 1:A:2345:G:N2 | 1:A:2381:C:C3' | 2.71 | 0.53 |
| 1:A:241:A:C2' | 1:A:241:A:N3 | 2.71 | 0.53 |
| 1:A:2694:G:C6 | 1:A:2695:C:C4 | 2.96 | 0.53 |
| 1:A:2864:G:C2 | 1:A:2865:U:C2 | 2.96 | 0.53 |
| 1:A:300:A:H1' | 1:A:318:C:O2' | 2.08 | 0.53 |
| 1:A:312:G:N3 | 1:A:313:C:C5 | 2.77 | 0.53 |
| 1:A:359:A:O3' | 1:A:360:G:C8 | 2.62 | 0.53 |
| 1:A:35:G:O4' | 1:A:454:A:C1' | 2.55 | 0.53 |
| 1:A:551:G:O4' | 1:A:1220:A:C2 | 2.62 | 0.53 |
| 1:A:599:G:C2 | 1:A:600:G:C8 | 2.97 | 0.53 |
| 1:A:662:G:H2' | 1:A:663:G:H8 | 1.73 | 0.53 |
| 1:A:662:G:N1 | 1:A:663:G:O6 | 2.42 | 0.53 |
| 1:A:729:G:OP1 | 4:D:13:ARG:NH2 | 2.40 | 0.53 |
| 1:A:791:C:N3 | 1:A:794:G:O4' | 2.41 | 0.53 |
| 1:A:824:A:H2' | 1:A:825:C:C5 | 2.44 | 0.53 |
| 1:A:827:U:H4' | 1:A:828:U:C2 | 2.44 | 0.53 |
| 1:A:883:G:C2 | 1:A:894:C:C2 | 2.96 | 0.53 |
| 1:A:957:A:N6 | 1:A:959:A:C5 | 2.76 | 0.53 |
| 2:B:73:A:N6 | 2:B:104:A:H1' | 2.24 | 0.53 |
| 2:B:9:G:C2 | 2:B:10:C:C5 | 2.96 | 0.53 |
| 4:D:119:ALA:CB | 4:D:130:ALA:O | 2.56 | 0.53 |
| 4:D:145:VAL:O | 4:D:154:LYS:HG2 | 2.09 | 0.53 |
| 4:D:134:ARG:HD2 | 4:D:188:GLU:HA | 1.89 | 0.53 |
| 4:D:7:LYS:CB | 4:D:27:THR:OG1 | 2.54 | 0.53 |
| 4:D:60:ARG:HA | 4:D:62:TYR:CD2 | 2.44 | 0.53 |
| 5:E:37:ARG:HA | 5:E:44:TYR:CD2 | 2.43 | 0.53 |
| 6:F:126:VAL:HB | 6:F:197:ASP:OD1 | 2.08 | 0.53 |
| 7:G:107:LEU:HD12 | 7:G:108:ASN:CG | 2.29 | 0.53 |
| 8:H:37:VAL:O | 8:H:37:VAL:CG2 | 2.54 | 0.53 |
| 8:H:96:ALA:HA | 8:H:105:LEU:CG | 2.26 | 0.53 |
| 9:K:35:LEU:N | 9:K:35:LEU:HD22 | 2.22 | 0.53 |
| 10:L:138:VAL:O | 10:L:139:VAL:CG2 | 2.53 | 0.53 |
| 10:L:17:ALA:CB | 10:L:42:ASN:HD21 | 2.21 | 0.53 |
| 10:L:52:ILE:CG1 | 10:L:76:TYR:HB3 | 2.17 | 0.53 |
| 11:M:123:TYR:C | 11:M:125:GLY:N | 2.62 | 0.53 |
| 11:M:57:ALA:HB1 | 11:M:99:LEU:HD23 | 1.91 | 0.53 |
| 12:N:23:ARG:HD2 | 12:N:40:VAL:HG11 | 1.90 | 0.53 |
| 12:N:97:ARG:HE | 12:N:98:VAL:CG2 | 2.21 | 0.53 |
| 14:P:8:LYS:NZ | 14:P:11:LYS:HE3 | 2.19 | 0.53 |
| 14:P:131:ILE:C | 14:P:132:VAL:HG22 | 2.28 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:Q:8:ARG:CG | 15:Q:10:LEU:HD21 | 2.29 | 0.53 |
| 17:S:49:VAL:C | 17:S:50:ILE:HG12 | 2.29 | 0.53 |
| 18:T:14:HIS:O | 18:T:15:LYS:C | 2.46 | 0.53 |
| 19:U:37:VAL:HG13 | 19:U:37:VAL:O | 2.07 | 0.53 |
| 20:V:11:ARG:HB3 | 20:V:11:ARG:HH21 | 1.74 | 0.53 |
| 20:V:31:GLU:O | 20:V:35:ILE:HG22 | 2.09 | 0.53 |
| 20:V:40:ASN:O | 20:V:41:LYS:CB | 2.55 | 0.53 |
| 22:X:12:THR:OG1 | 22:X:72:VAL:CA | 2.57 | 0.53 |
| 22:X:83:THR:HB | 22:X:84:ARG:HH11 | 1.71 | 0.53 |
| 23:Y:105:VAL:O | 23:Y:140:ASP:OD1 | 2.26 | 0.53 |
| 23:Y:6:LYS:HD2 | 23:Y:7:ALA:H | 1.73 | 0.53 |
| 24:Z:71:ASP:C | 24:Z:73:GLY:H | 2.11 | 0.53 |
| 9:K:127:VAL:HG13 | 9:K:141:LYS:HA | 1.89 | 0.53 |
| 3:C:89:ALA:HB2 | 3:C:154:ARG:NH1 | 2.24 | 0.53 |
| 9:K:58:LEU:HB3 | 9:K:62:LYS:HE3 | 1.90 | 0.53 |
| 1:A:155:C:N3 | 1:A:171:G:N1 | 2.56 | 0.53 |
| 4:D:79:VAL:HG23 | 4:D:115:GLN:O | 2.08 | 0.53 |
| 26:2:28:LEU:O | 26:2:29:ARG:HB2 | 2.08 | 0.53 |
| 26:2:54:VAL:HG22 | 26:2:55:ARG:H | 1.73 | 0.53 |
| 27:3:9:LEU:HD13 | 27:3:11:PRO:CG | 2.39 | 0.53 |
| 27:3:59:PHE:O | 27:3:61:ARG:N | 2.41 | 0.53 |
| 30:6:30:VAL:HG22 | 30:6:33:ARG:CZ | 2.38 | 0.53 |
| 31:7:15:LYS:H | 31:7:22:VAL:HG13 | 1.71 | 0.53 |
| 1:A:1057:A:H2' | 1:A:1058:G:H8 | 1.74 | 0.53 |
| 1:A:1063:G:N7 | 1:A:1064:C:N4 | 2.57 | 0.53 |
| 1:A:1203:G:C2 | 1:A:1206:G:O6 | 2.62 | 0.53 |
| 1:A:1344:G:N2 | 1:A:1404:C:H1' | 2.23 | 0.53 |
| 1:A:137:C:O2' | 1:A:137(A):G:H5' | 2.08 | 0.53 |
| 1:A:141:A:C2 | 1:A:1596:A:O2' | 2.60 | 0.53 |
| 1:A:1437:C:O2' | 1:A:1516:U:O2' | 2.25 | 0.53 |
| 1:A:1773:A:H62 | 1:A:1829:A:H1' | 1.69 | 0.53 |
| 1:A:1861:G:C2 | 1:A:1862:G:C8 | 2.97 | 0.53 |
| 1:A:1949:G:C5 | 1:A:1950:G:N7 | 2.76 | 0.53 |
| 1:A:2091:U:H5'' | 1:A:2093:G:OP1 | 2.08 | 0.53 |
| 1:A:20:C:H2' | 1:A:21:A:H8 | 1.74 | 0.53 |
| 1:A:2210:G:O2' | 1:A:2211:G:P | 2.66 | 0.53 |
| 1:A:2320:A:C2 | 1:A:2333:A:C2 | 2.96 | 0.53 |
| 1:A:265:A:C2 | 1:A:281:G:C8 | 2.96 | 0.53 |
| 1:A:2703:C:C2 | 1:A:2704:C:C5 | 2.97 | 0.53 |
| 1:A:270(J):G:C2 | 1:A:270(K):C:C2 | 2.97 | 0.53 |
| 1:A:2719:G:H8 | 1:A:2719:G:O5' | 1.92 | 0.53 |
| 1:A:1455:G:H1' | 1:A:2853:C:OP1 | 2.07 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:283:A:N1 | 1:A:359:A:H5' | 2.24 | 0.53 |
| 1:A:393:C:O2' | 1:A:394:A:H5' | 2.09 | 0.53 |
| 1:A:510:C:H2' | 1:A:511:U:O4' | 2.08 | 0.53 |
| 1:A:28:A:C1' | 1:A:513:A:C6 | 2.92 | 0.53 |
| 1:A:546:C:H2' | 1:A:547:A:O4' | 2.08 | 0.53 |
| 1:A:905:U:OP1 | 14:P:141:GLN:HG3 | 2.09 | 0.53 |
| 1:A:943:U:H2' | 1:A:944:G:OP1 | 2.08 | 0.53 |
| 1:A:94:G:N2 | 1:A:95:G:N3 | 2.57 | 0.53 |
| 1:A:988:A:O3' | 26:2:10:LYS:HE3 | 2.09 | 0.53 |
| 4:D:96:HIS:CD2 | 4:D:102:LYS:HE2 | 2.43 | 0.53 |
| 4:D:124:PRO:C | 4:D:126:GLN:N | 2.60 | 0.53 |
| 1:A:1790:C:O3' | 4:D:213:ARG:NE | 2.42 | 0.53 |
| 4:D:232:PRO:CD | 4:D:247:ALA:HA | 2.39 | 0.53 |
| 5:E:104:VAL:O | 5:E:105:THR:HB | 2.07 | 0.53 |
| 5:E:81:ILE:HG23 | 5:E:82:ARG:HG2 | 1.91 | 0.53 |
| 6:F:168:ARG:O | 6:F:173:VAL:CG1 | 2.56 | 0.53 |
| 6:F:45:ARG:HD3 | 6:F:97:TYR:HD1 | 1.63 | 0.53 |
| 6:F:62:ARG:HG3 | 6:F:63:LYS:HE2 | 1.91 | 0.53 |
| 7:G:36:LYS:HE3 | 7:G:95:ARG:CD | 2.38 | 0.53 |
| 7:G:39:ILE:CG1 | 7:G:157:ILE:HG13 | 2.38 | 0.53 |
| 7:G:75:LYS:HG3 | 7:G:87:PRO:CG | 2.39 | 0.53 |
| 7:G:90:LEU:CD1 | 7:G:90:LEU:O | 2.54 | 0.53 |
| 8:H:51:ARG:CA | 8:H:51:ARG:NE | 2.53 | 0.53 |
| 11:M:107:LEU:HD11 | 11:M:116:LEU:HB3 | 1.89 | 0.53 |
| 11:M:16:ILE:HB | 11:M:54:VAL:CB | 2.25 | 0.53 |
| 11:M:33:LEU:HD13 | 11:M:34:LEU:HG | 1.90 | 0.53 |
| 1:A:556:G:H21 | 11:M:45:ASN:ND2 | 2.07 | 0.53 |
| 12:N:10:VAL:CG1 | 12:N:11:ALA:H | 2.01 | 0.53 |
| 13:O:130:PHE:HB2 | 13:O:135:LEU:CD1 | 2.39 | 0.53 |
| 13:O:130:PHE:HB3 | 13:O:135:LEU:HD12 | 1.90 | 0.53 |
| 1:A:518:G:H4' | 20:V:18:ARG:NH1 | 2.24 | 0.53 |
| 22:X:31:LEU:HB3 | 22:X:32:PRO:HD3 | 1.90 | 0.53 |
| 22:X:52:SER:O | 22:X:53:PRO:O | 2.27 | 0.53 |
| 22:X:72:VAL:C | 22:X:73:ARG:HG3 | 2.29 | 0.53 |
| 23:Y:122:ARG:HB2 | 23:Y:171:ILE:HD13 | 1.91 | 0.53 |
| 23:Y:77:ASP:HB2 | 23:Y:84:GLU:CG | 2.38 | 0.53 |
| 23:Y:80:ARG:O | 23:Y:81:ARG:HB2 | 2.08 | 0.53 |
| 3:C:111:ASP:OD1 | 3:C:136:LEU:HD21 | 2.08 | 0.53 |
| 1:A:1498:C:C1' | 1:A:1576:U:H4' | 2.38 | 0.53 |
| 1:A:718:A:H3' | 1:A:719:C:C6 | 2.39 | 0.53 |
| 26:2:28:LEU:HD23 | 26:2:28:LEU:N | 2.24 | 0.53 |
| 26:2:26:LEU:HG | 26:2:47:VAL:CG2 | 2.39 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 27:3:58:ARG:CD | 27:3:59:PHE:CE2 | 2.91 | 0.53 |
| 28:4:11:THR:OG1 | 28:4:14:ALA:HB3 | 2.08 | 0.53 |
| 30:6:8:ASN:C | 30:6:8:ASN:ND2 | 2.62 | 0.53 |
| 31:7:30:ARG:HH21 | 31:7:43:GLN:N | 2.04 | 0.53 |
| 1:A:1077:A:H1' | 10:L:91:PRO:HG2 | 1.90 | 0.53 |
| 1:A:1131:G:H2' | 1:A:2026:C:OP1 | 2.08 | 0.53 |
| 1:A:1154:G:H8 | 1:A:1154:G:O5' | 1.92 | 0.53 |
| 1:A:1161:C:O2' | 19:U:22:VAL:CG1 | 2.57 | 0.53 |
| 1:A:1170:G:N3 | 1:A:1170:G:H2' | 2.23 | 0.53 |
| 1:A:551:G:O5' | 1:A:1220:A:H2 | 1.90 | 0.53 |
| 1:A:1250:G:HO2' | 1:A:1251:C:P | 2.31 | 0.53 |
| 1:A:1288:U:C4' | 1:A:1289:C:OP2 | 2.56 | 0.53 |
| 1:A:1554:A:O2' | 1:A:1555:G:OP1 | 2.25 | 0.53 |
| 1:A:1605:C:H1' | 1:A:1610:A:N7 | 2.22 | 0.53 |
| 1:A:1965:C:H3' | 1:A:1966:A:N7 | 2.22 | 0.53 |
| 1:A:570:G:C2 | 1:A:2030:A:C2 | 2.97 | 0.53 |
| 1:A:184:C:HO2' | 1:A:217:G:H21 | 1.54 | 0.53 |
| 1:A:2408:U:O2' | 1:A:2409:G:C5' | 2.56 | 0.53 |
| 1:A:2392:A:N1 | 1:A:2429:G:C4 | 2.77 | 0.53 |
| 1:A:242:G:O2' | 1:A:243:U:H6 | 1.92 | 0.53 |
| 1:A:2535:G:H2' | 1:A:2535:G:N3 | 2.23 | 0.53 |
| 1:A:2567:G:C6 | 1:A:2568:C:N4 | 2.77 | 0.53 |
| 1:A:270(H):C:O2' | 1:A:270(I):G:H5' | 2.07 | 0.53 |
| 1:A:2712:U:C2' | 1:A:2712(A):A:C5' | 2.86 | 0.53 |
| 1:A:2776:A:C8 | 1:A:2781:A:N7 | 2.76 | 0.53 |
| 1:A:2880:C:C2 | 1:A:2881:C:C5 | 2.97 | 0.53 |
| 1:A:2830:G:H21 | 1:A:2883:A:H2 | 1.49 | 0.53 |
| 1:A:417:C:C2' | 1:A:418:G:H5' | 2.39 | 0.53 |
| 1:A:573:G:O6 | 1:A:2030:A:H2' | 2.09 | 0.53 |
| 1:A:619:G:N7 | 1:A:620:G:C2 | 2.77 | 0.53 |
| 1:A:650:C:H42 | 1:A:651:G:N2 | 2.06 | 0.53 |
| 1:A:687:C:H3' | 1:A:688:U:C6 | 2.43 | 0.53 |
| 1:A:885:C:N4 | 1:A:889:C:C1' | 2.72 | 0.53 |
| 1:A:903:C:C2 | 1:A:904:C:C5 | 2.97 | 0.53 |
| 1:A:943:U:H3' | 1:A:943:U:C6 | 2.44 | 0.53 |
| 1:A:978:G:O6 | 1:A:979:G:N1 | 2.42 | 0.53 |
| 4:D:135:PHE:N | 4:D:135:PHE:CD1 | 2.77 | 0.53 |
| 4:D:148:GLU:HB2 | 4:D:151:LYS:HD2 | 1.91 | 0.53 |
| 4:D:8:PRO:HD2 | 4:D:25:THR:C | 2.29 | 0.53 |
| 5:E:103:ASP:O | 5:E:104:VAL:CG2 | 2.55 | 0.53 |
| 5:E:15:PHE:CG | 5:E:16:ARG:N | 2.76 | 0.53 |
| 5:E:100:GLU:O | 5:E:172:VAL:CG2 | 2.54 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2787:C:H1' | 5:E:61:ARG:NE | 2.24 | 0.53 |
| 6:F:167:ALA:O | 6:F:175:THR:HB | 2.08 | 0.53 |
| 1:A:674:G:O3' | 6:F:74:ARG:CZ | 2.57 | 0.53 |
| 7:G:97:ASP:O | 7:G:100:TRP:N | 2.42 | 0.53 |
| 7:G:125:PHE:HE2 | 7:G:127:GLY:O | 1.91 | 0.53 |
| 7:G:107:LEU:CD1 | 7:G:177:GLY:O | 2.47 | 0.53 |
| 7:G:57:ALA:CA | 7:G:68:PRO:N | 2.70 | 0.53 |
| 8:H:106:THR:HG22 | 8:H:107:VAL:N | 2.23 | 0.53 |
| 8:H:126:PRO:HD2 | 8:H:132:ARG:NH2 | 2.24 | 0.53 |
| 8:H:52:VAL:HG22 | 8:H:65:HIS:HD1 | 1.73 | 0.53 |
| 8:H:85:LYS:CD | 8:H:145:ALA:CB | 2.75 | 0.53 |
| 10:L:78:ILE:HD12 | 10:L:127:ILE:HG23 | 1.88 | 0.53 |
| 10:L:12:LEU:HD22 | 10:L:23:VAL:HG23 | 1.91 | 0.53 |
| 10:L:10:LEU:CD1 | 10:L:27:LEU:HD21 | 2.36 | 0.53 |
| 10:L:48:MET:HG3 | 10:L:48:MET:O | 2.09 | 0.53 |
| 12:N:85:VAL:CG1 | 12:N:93:PRO:HG3 | 2.31 | 0.53 |
| 13:O:46:LYS:CB | 13:O:49:ARG:HB3 | 2.39 | 0.53 |
| 1:A:2278:A:OP1 | 14:P:14:ARG:CG | 2.57 | 0.53 |
| 15:Q:17:ARG:CG | 15:Q:18:LEU:HD22 | 2.39 | 0.53 |
| 17:S:68:TYR:CD1 | 17:S:69:GLY:N | 2.77 | 0.53 |
| 18:T:92:ARG:C | 18:T:93:LYS:NZ | 2.60 | 0.53 |
| 19:U:25:LEU:HD23 | 19:U:28:GLU:HB2 | 1.90 | 0.53 |
| 18:T:47:TYR:CE2 | 19:U:76:LYS:N | 2.77 | 0.53 |
| 19:U:93:GLU:HG3 | 19:U:95:LEU:HD23 | 1.90 | 0.53 |
| 21:W:50:LYS:HE2 | 21:W:87:GLN:HB2 | 1.90 | 0.53 |
| 1:A:456:C:H41 | 21:W:68:ARG:HB3 | 1.74 | 0.53 |
| 21:W:73:ARG:HH21 | 21:W:76:ARG:HB2 | 1.72 | 0.53 |
| 21:W:92:LEU:CD1 | 21:W:92:LEU:N | 2.46 | 0.53 |
| 23:Y:109:ALA:O | 23:Y:145:GLU:HG3 | 2.09 | 0.53 |
| 23:Y:50:GLN:CB | 23:Y:53:ILE:HB | 2.35 | 0.53 |
| 24:Z:36:ILE:C | 24:Z:37:LEU:HD23 | 2.29 | 0.53 |
| 24:Z:53:MET:SD | 24:Z:59:LEU:HD23 | 2.48 | 0.53 |
| 1:A:2255:G:O4' | 24:Z:7:LEU:HD21 | 2.09 | 0.53 |
| 1:A:2174:C:C2 | 1:A:2175:C:C6 | 2.95 | 0.53 |
| 3:C:175:VAL:HA | 3:C:188:ASN:OD1 | 2.08 | 0.53 |
| 1:A:163:U:C5 | 1:A:163:U:OP2 | 2.62 | 0.53 |
| 1:A:171:G:N2 | 1:A:172:C:N3 | 2.56 | 0.53 |
| 1:A:173:G:N2 | 1:A:174:C:N1 | 2.56 | 0.53 |
| 32:8:13:LYS:HA | 32:8:13:LYS:HZ2 | 1.74 | 0.53 |
| 1:A:1766:U:O2' | 1:A:1767:C:H5' | 2.08 | 0.53 |
| 26:2:5:LYS:NZ | 26:2:57:GLU:CB | 2.72 | 0.53 |
| 30:6:24:THR:HG23 | 30:6:27:GLY:CA | 2.36 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 31:7:23:VAL:HG23 | 31:7:48:PHE:HB2 | 1.89 | 0.53 |
| 1:A:592:G:O2' | 31:7:2:PRO:C | 2.47 | 0.53 |
| 1:A:1035:U:H2' | 1:A:1036:G:H8 | 1.73 | 0.53 |
| 1:A:1100:C:H2' | 1:A:1101:U:H6 | 1.72 | 0.53 |
| 1:A:1105:U:H2' | 1:A:1106:G:C8 | 2.44 | 0.53 |
| 1:A:1143:A:O2' | 1:A:1144:G:H8 | 1.90 | 0.53 |
| 1:A:1188:U:C2 | 1:A:1189:A:H8 | 2.26 | 0.53 |
| 1:A:1212:G:H1' | 1:A:1237:A:H61 | 1.71 | 0.53 |
| 1:A:1243:G:N1 | 1:A:1244:G:C4 | 2.77 | 0.53 |
| 1:A:1275:A:HO2' | 1:A:1276:A:P | 2.30 | 0.53 |
| 1:A:1270:C:O2 | 1:A:1325:G:N7 | 2.41 | 0.53 |
| 1:A:1288:U:O2 | 1:A:1327:C:C4 | 2.62 | 0.53 |
| 1:A:1672:C:O2 | 1:A:2582:G:O4' | 2.26 | 0.53 |
| 1:A:1764:G:O2' | 1:A:1765:C:O5' | 2.26 | 0.53 |
| 1:A:1775:U:C6 | 4:D:208:LYS:NZ | 2.77 | 0.53 |
| 1:A:414:C:H1' | 1:A:1864:U:C1' | 2.34 | 0.53 |
| 1:A:1918:A:OP2 | 1:A:1918:A:O4' | 2.26 | 0.53 |
| 1:A:1944:U:C1' | 1:A:1955:U:C6 | 2.92 | 0.53 |
| 1:A:1954:G:O2' | 1:A:1955:U:C5' | 2.57 | 0.53 |
| 1:A:2212:A:HO2' | 1:A:2213:U:H5 | 1.57 | 0.53 |
| 1:A:2306:C:C5 | 1:A:2311:A:C6 | 2.97 | 0.53 |
| 1:A:2403:C:N4 | 1:A:2415:G:N1 | 2.57 | 0.53 |
| 1:A:2067:G:N2 | 1:A:2444:G:C4 | 2.77 | 0.53 |
| 1:A:2493:U:C5' | 1:A:2493:U:C6 | 2.87 | 0.53 |
| 1:A:2605:U:H2' | 1:A:2606:C:H5' | 1.91 | 0.53 |
| 1:A:2690:C:O5' | 1:A:2690:C:C6 | 2.62 | 0.53 |
| 1:A:271(C):U:H5 | 1:A:421:U:C4 | 2.26 | 0.53 |
| 1:A:2623:G:C5' | 1:A:2826:A:H1' | 2.38 | 0.53 |
| 1:A:309:G:H3' | 1:A:310:A:O4' | 2.08 | 0.53 |
| 1:A:49:A:C5 | 1:A:177:G:C6 | 2.97 | 0.53 |
| 1:A:476:G:O4' | 1:A:505:A:C2 | 2.62 | 0.53 |
| 1:A:532:A:C8 | 18:T:45:TYR:HE2 | 2.26 | 0.53 |
| 1:A:541:C:C3' | 1:A:542:C:H6 | 2.22 | 0.53 |
| 1:A:556:G:OP2 | 1:A:556:G:C8 | 2.62 | 0.53 |
| 1:A:568:U:C4 | 1:A:571:A:OP2 | 2.62 | 0.53 |
| 1:A:853:G:C2' | 1:A:854:G:H8 | 2.12 | 0.53 |
| 1:A:894:C:H2' | 1:A:895:U:H6 | 1.68 | 0.53 |
| 1:A:934:G:C6 | 1:A:935:C:C5 | 2.97 | 0.53 |
| 4:D:248:SER:HB3 | 4:D:249:PRO:CD | 2.38 | 0.53 |
| 4:D:42:GLY:HA3 | 4:D:60:ARG:NH2 | 2.23 | 0.53 |
| 4:D:33:LEU:CD1 | 4:D:61:LEU:HD21 | 2.38 | 0.53 |
| 4:D:63:ARG:CG | 4:D:64:ILE:H | 2.21 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:1657:C:OP2 | 5:E:136:ARG:NH2 | 2.41 | 0.53 |
| 6:F:160:ASN:C | 6:F:162:LEU:N | 2.61 | 0.53 |
| 6:F:154:VAL:CA | 6:F:191:ARG:O | 2.57 | 0.53 |
| 6:F:21:ALA:O | 6:F:22:ALA:HB3 | 2.08 | 0.53 |
| 6:F:39:TRP:CG | 6:F:101:LEU:HB3 | 2.44 | 0.53 |
| 10:L:55:VAL:HG13 | 10:L:69:THR:HA | 1.91 | 0.53 |
| 11:M:127:ASP:C | 11:M:129:PRO:CD | 2.76 | 0.53 |
| 11:M:74:ARG:HG2 | 11:M:76:SER:HB2 | 1.91 | 0.53 |
| 12:N:13:ASN:C | 12:N:13:ASN:OD1 | 2.47 | 0.53 |
| 13:O:112:LEU:C | 13:O:129:ALA:HB3 | 2.29 | 0.53 |
| 13:O:14:LYS:O | 13:O:15:ARG:O | 2.27 | 0.53 |
| 14:P:54:MET:HE2 | 14:P:118:LEU:HD23 | 1.90 | 0.53 |
| 16:R:106:ARG:CD | 16:R:107:GLU:OE2 | 2.54 | 0.53 |
| 16:R:19:LYS:O | 16:R:20:ARG:O | 2.27 | 0.53 |
| 16:R:68:GLN:HA | 16:R:71:ARG:HD2 | 1.90 | 0.53 |
| 17:S:102:ILE:HG22 | 17:S:104:ASN:ND2 | 2.24 | 0.53 |
| 1:A:533:G:OP1 | 18:T:25:TRP:HB2 | 2.08 | 0.53 |
| 1:A:1154:G:H5'' | 18:T:58:ARG:HD2 | 1.90 | 0.53 |
| 19:U:28:GLU:N | 19:U:29:PRO:CD | 2.71 | 0.53 |
| 19:U:6:LYS:CE | 19:U:10:LYS:O | 2.57 | 0.53 |
| 20:V:18:ARG:NH2 | 20:V:76:VAL:HG12 | 2.24 | 0.53 |
| 20:V:82:LEU:HD13 | 20:V:83:LYS:N | 2.24 | 0.53 |
| 21:W:25:LYS:C | 21:W:26:TYR:CD1 | 2.82 | 0.53 |
| 22:X:32:PRO:O | 22:X:34:LYS:N | 2.42 | 0.53 |
| 22:X:82:PRO:HG2 | 22:X:83:THR:N | 2.23 | 0.53 |
| 24:Z:36:ILE:CG1 | 24:Z:37:LEU:N | 2.64 | 0.53 |
| 24:Z:46:LYS:HG3 | 24:Z:78:TYR:CE1 | 2.43 | 0.53 |
| 24:Z:72:ARG:NH1 | 24:Z:75:LEU:HD11 | 2.24 | 0.53 |
| 3:C:62:VAL:HG13 | 3:C:64:LEU:HG | 1.91 | 0.53 |
| 4:D:79:VAL:HG23 | 4:D:115:GLN:HG3 | 1.90 | 0.53 |
| 28:4:35:GLU:CG | 28:4:49:CYS:HB3 | 2.39 | 0.53 |
| 30:6:41:ARG:CZ | 30:6:41:ARG:CB | 2.87 | 0.53 |
| 1:A:1025:G:C2 | 1:A:1026:U:OP1 | 2.61 | 0.53 |
| 1:A:1174:A:N6 | 1:A:1177:A:C2 | 2.77 | 0.53 |
| 1:A:1199:U:C2 | 1:A:1200:C:C5 | 2.97 | 0.53 |
| 1:A:1275:A:N7 | 1:A:1296:G:H1' | 2.24 | 0.53 |
| 1:A:140:A:H61 | 1:A:1596:A:C4' | 2.20 | 0.53 |
| 1:A:1457:A:O2' | 1:A:1458:C:H5' | 2.09 | 0.53 |
| 1:A:1471:A:C8 | 1:A:1519:G:O6 | 2.62 | 0.53 |
| 1:A:1516:U:H2' | 1:A:1517:G:N7 | 2.23 | 0.53 |
| 1:A:1558:A:C1' | 1:A:1559:G:N7 | 2.67 | 0.53 |
| 1:A:1773:A:C4 | 1:A:1774:C:O2 | 2.62 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:191:A:C2 | 1:A:192:C:C6 | 2.96 | 0.53 |
| 1:A:1995:U:C4 | 1:A:1996:C:N4 | 2.77 | 0.53 |
| 1:A:2000:G:OP2 | 15:Q:2:ARG:CG | 2.52 | 0.53 |
| 1:A:2244:U:C2' | 1:A:2245:U:O5' | 2.57 | 0.53 |
| 1:A:2268:A:C3' | 1:A:2269:A:C5' | 2.78 | 0.53 |
| 1:A:2311:A:H3' | 1:A:2312:U:H6 | 1.73 | 0.53 |
| 1:A:2392:A:C8 | 1:A:2393:A:O4' | 2.62 | 0.53 |
| 1:A:240:G:OP1 | 1:A:623:G:H5' | 2.09 | 0.53 |
| 1:A:2431:U:O2' | 1:A:2432:A:H8 | 1.91 | 0.53 |
| 1:A:2467:C:O2' | 1:A:2468:G:H5' | 2.09 | 0.53 |
| 1:A:2596:U:O2' | 4:D:242:ARG:HD2 | 2.08 | 0.53 |
| 1:A:2655:G:N3 | 1:A:2655:G:C2' | 2.72 | 0.53 |
| 1:A:2687:U:C2 | 1:A:2688:U:C6 | 2.97 | 0.53 |
| 1:A:270:A:C2' | 1:A:270(A):A:O5' | 2.55 | 0.53 |
| 1:A:280:C:C5 | 1:A:283:A:N7 | 2.76 | 0.53 |
| 1:A:2824:C:C4 | 1:A:2825:C:C2 | 2.97 | 0.53 |
| 1:A:2881:C:C2 | 1:A:2882:A:C8 | 2.97 | 0.53 |
| 1:A:293:U:H2' | 1:A:294:A:C8 | 2.44 | 0.53 |
| 1:A:336:C:C2' | 1:A:337:C:C5' | 2.76 | 0.53 |
| 1:A:411:G:N2 | 1:A:415:A:H61 | 2.07 | 0.53 |
| 1:A:489:G:C2 | 1:A:491:G:C4 | 2.97 | 0.53 |
| 1:A:13:A:N7 | 1:A:525:U:O4 | 2.41 | 0.53 |
| 1:A:565:C:N3 | 1:A:566:U:N3 | 2.57 | 0.53 |
| 1:A:639:U:O4 | 1:A:648:G:O6 | 2.27 | 0.53 |
| 1:A:760:G:C2 | 1:A:761:A:H1' | 2.44 | 0.53 |
| 1:A:779:U:O2' | 1:A:780:G:H5' | 2.07 | 0.53 |
| 1:A:793:A:C2' | 1:A:794:G:OP2 | 2.56 | 0.53 |
| 1:A:193:U:H4' | 1:A:803:U:O4' | 2.08 | 0.53 |
| 1:A:805:G:H1' | 1:A:831:G:O2' | 2.09 | 0.53 |
| 1:A:930:U:H6 | 1:A:930:U:H3' | 1.74 | 0.53 |
| 2:B:12:C:O5' | 24:Z:74:ARG:CZ | 2.57 | 0.53 |
| 2:B:32:C:H2' | 2:B:32:C:O2 | 2.09 | 0.53 |
| 4:D:161:THR:O | 4:D:162:SER:HB3 | 2.09 | 0.53 |
| 4:D:176:ARG:HA | 4:D:181:GLU:O | 2.08 | 0.53 |
| 4:D:7:LYS:CE | 4:D:91:ARG:HD2 | 2.37 | 0.53 |
| 5:E:107:THR:HG22 | 5:E:108:SER:N | 2.24 | 0.53 |
| 5:E:151:TYR:CD2 | 5:E:152:LYS:N | 2.77 | 0.53 |
| 6:F:56:GLU:O | 6:F:58:ALA:C | 2.47 | 0.53 |
| 6:F:64:ILE:HD13 | 6:F:64:ILE:H | 1.72 | 0.53 |
| 7:G:41:GLN:HG3 | 7:G:155:MET:HA | 1.91 | 0.53 |
| 7:G:57:ALA:O | 7:G:61:ALA:CB | 2.57 | 0.53 |
| 7:G:2:PRO:HA | 7:G:5:VAL:HB | 1.91 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 8:H:51:ARG:HD3 | 8:H:52:VAL:N | 2.23 | 0.53 |
| 11:M:100:GLU:OE2 | 11:M:100:GLU:CA | 2.49 | 0.53 |
| 12:N:113:LYS:HZ1 | 12:N:117:LEU:HB2 | 1.73 | 0.53 |
| 12:N:47:ILE:HD11 | 12:N:51:ALA:N | 2.24 | 0.53 |
| 12:N:35:VAL:CA | 12:N:61:VAL:HG11 | 2.37 | 0.53 |
| 12:N:64:ARG:HG3 | 12:N:65:THR:N | 2.24 | 0.53 |
| 13:O:76:LYS:HZ2 | 13:O:112:LEU:HD22 | 1.70 | 0.53 |
| 13:O:78:PRO:CA | 13:O:81:GLN:HB2 | 2.39 | 0.53 |
| 14:P:124:LYS:CE | 14:P:125:LEU:HA | 2.38 | 0.53 |
| 14:P:127:ILE:HD13 | 14:P:129:THR:CG2 | 2.34 | 0.53 |
| 14:P:35:VAL:CG1 | 14:P:131:ILE:HA | 2.39 | 0.53 |
| 14:P:51:ARG:CG | 14:P:52:VAL:N | 2.68 | 0.53 |
| 15:Q:86:ARG:NH2 | 15:Q:118:GLU:OE1 | 2.42 | 0.53 |
| 15:Q:28:LEU:O | 15:Q:28:LEU:HD22 | 2.09 | 0.53 |
| 15:Q:58:GLY:O | 15:Q:59:ASP:CB | 2.57 | 0.53 |
| 16:R:101:LEU:C | 16:R:101:LEU:HD13 | 2.29 | 0.53 |
| 16:R:25:ARG:NH1 | 16:R:43:GLU:OE2 | 2.42 | 0.53 |
| 1:A:2376:A:N6 | 16:R:94:TYR:CE1 | 2.76 | 0.53 |
| 19:U:5:VAL:HG12 | 19:U:37:VAL:CG2 | 2.36 | 0.53 |
| 1:A:1322:A:C5' | 20:V:11:ARG:NH1 | 2.72 | 0.53 |
| 20:V:28:SER:OG | 20:V:29:LEU:N | 2.42 | 0.53 |
| 22:X:12:THR:O | 22:X:22:GLY:CA | 2.57 | 0.53 |
| 22:X:42:VAL:O | 22:X:61:ILE:HD13 | 2.09 | 0.53 |
| 23:Y:141:VAL:HG11 | 23:Y:150:LEU:HD11 | 1.91 | 0.53 |
| 3:C:161:ILE:CG2 | 3:C:174:PRO:HG2 | 2.39 | 0.53 |
| 3:C:21:THR:HB | 3:C:228:SER:O | 2.08 | 0.53 |
| 3:C:10:LEU:HD11 | 3:C:220:PRO:CG | 2.39 | 0.53 |
| 1:A:718:A:H3' | 1:A:719:C:O4' | 2.08 | 0.53 |
| 25:1:44:LYS:O | 25:1:48:LEU:CB | 2.45 | 0.53 |
| 1:A:2615:U:C6 | 28:4:7:PRO:HA | 2.44 | 0.53 |
| 29:5:33:LYS:O | 29:5:33:LYS:HG2 | 2.08 | 0.53 |
| 31:7:13:ARG:C | 31:7:14:VAL:HG23 | 2.29 | 0.53 |
| 31:7:44:LYS:O | 31:7:45:GLY:O | 2.28 | 0.53 |
| 31:7:26:LYS:O | 31:7:47:LYS:HE3 | 2.09 | 0.53 |
| 1:A:107:C:C2' | 1:A:108:U:O5' | 2.57 | 0.53 |
| 1:A:1090:U:O4 | 1:A:1103:A:N6 | 2.41 | 0.53 |
| 1:A:1183:G:O4' | 1:A:1183:G:N3 | 2.41 | 0.53 |
| 1:A:1204:A:N1 | 6:F:188:ARG:HA | 2.22 | 0.53 |
| 1:A:1274:A:C2' | 1:A:1275:A:H5' | 2.38 | 0.53 |
| 1:A:1340:U:H6 | 21:W:57:LEU:HD11 | 1.74 | 0.53 |
| 1:A:1343:G:C2' | 1:A:1344:G:H5'' | 2.39 | 0.53 |
| 1:A:141(A):C:H2' | 1:A:142:G:O5' | 2.09 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1522:G:O2' | 1:A:1523:U:H5' | 2.09 | 0.53 |
| 1:A:1558:A:C2 | 1:A:1560:G:H1' | 2.44 | 0.53 |
| 1:A:1429:G:C4 | 1:A:1568:G:N1 | 2.77 | 0.53 |
| 1:A:1604:C:HO2' | 1:A:1605:C:H5' | 1.72 | 0.53 |
| 1:A:1638:C:O5' | 1:A:1638:C:C6 | 2.61 | 0.53 |
| 1:A:1668:A:H2' | 1:A:1669:A:OP2 | 2.09 | 0.53 |
| 1:A:1709:U:H5' | 1:A:1709:U:C6 | 2.44 | 0.53 |
| 1:A:1770:G:N3 | 1:A:1771:C:C5 | 2.77 | 0.53 |
| 1:A:1771:C:O2 | 1:A:1772:G:C8 | 2.61 | 0.53 |
| 1:A:1824:G:N3 | 4:D:253:GLN:HG2 | 2.24 | 0.53 |
| 1:A:1881:C:H6 | 1:A:1881:C:C5' | 2.18 | 0.53 |
| 1:A:1943:U:C1' | 1:A:1945:G:H5' | 2.39 | 0.53 |
| 1:A:1961:C:H2' | 1:A:1962:C:O4' | 2.08 | 0.53 |
| 1:A:1973:G:H2' | 1:A:1974:C:H6 | 1.73 | 0.53 |
| 1:A:1977:A:C2 | 1:A:1978:A:C1' | 2.92 | 0.53 |
| 1:A:2016:U:H2' | 1:A:2017:U:H6 | 1.74 | 0.53 |
| 1:A:2281:C:O2' | 1:A:2282:G:C5' | 2.57 | 0.53 |
| 1:A:2287:A:N1 | 1:A:2346:A:N6 | 2.57 | 0.53 |
| 1:A:2331:G:H4' | 24:Z:42:GLY:CA | 2.39 | 0.53 |
| 1:A:1864:U:H5' | 1:A:2410:G:O2' | 2.09 | 0.53 |
| 1:A:2421:G:C2' | 1:A:2422:A:H8 | 2.17 | 0.53 |
| 1:A:2466:C:C4 | 1:A:2485:G:N1 | 2.77 | 0.53 |
| 1:A:2508:G:O2' | 1:A:2509:G:H5' | 2.08 | 0.53 |
| 1:A:262:A:C4 | 1:A:263:C:C6 | 2.97 | 0.53 |
| 1:A:2685:G:N1 | 1:A:2686:G:N7 | 2.57 | 0.53 |
| 1:A:270(B):A:H4' | 1:A:270(C):C:C5 | 2.44 | 0.53 |
| 1:A:270(L):U:C6 | 1:A:270(L):U:OP2 | 2.62 | 0.53 |
| 1:A:1665:A:N7 | 1:A:2726:U:C4 | 2.77 | 0.53 |
| 1:A:2756:U:O4 | 1:A:2758:A:N1 | 2.42 | 0.53 |
| 1:A:388:G:H2' | 1:A:390:A:C8 | 2.37 | 0.53 |
| 1:A:484:C:O2' | 1:A:485:C:H5' | 2.09 | 0.53 |
| 1:A:531:C:C6 | 1:A:532:A:N3 | 2.77 | 0.53 |
| 1:A:532:A:H3' | 1:A:533:G:O4' | 2.10 | 0.53 |
| 1:A:611:C:N3 | 1:A:612:G:N3 | 2.57 | 0.53 |
| 1:A:720:C:C2 | 1:A:721:C:C6 | 2.97 | 0.53 |
| 1:A:747:U:O2' | 20:V:88:ARG:CG | 2.40 | 0.53 |
| 1:A:761:A:C2' | 1:A:761:A:N3 | 2.70 | 0.53 |
| 1:A:792:G:H21 | 1:A:2072:G:C2' | 2.22 | 0.53 |
| 1:A:865:C:O2' | 1:A:866:A:C8 | 2.41 | 0.53 |
| 1:A:969:U:O2' | 1:A:970:C:H5' | 2.09 | 0.53 |
| 1:A:97:C:H2' | 1:A:98:G:O4' | 2.09 | 0.53 |
| 2:B:62:C:C2 | 2:B:63:G:N7 | 2.77 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:93:ALA:O | 4:D:105:ILE:HG22 | 2.09 | 0.53 |
| 4:D:202:LYS:CD | 4:D:202:LYS:H | 2.22 | 0.53 |
| 4:D:227:ASN:ND2 | 4:D:227:ASN:N | 2.53 | 0.53 |
| 4:D:262:ARG:O | 4:D:266:SER:OG | 2.22 | 0.53 |
| 4:D:8:PRO:HG3 | 4:D:26:LYS:HB2 | 1.90 | 0.53 |
| 4:D:59:LYS:C | 4:D:59:LYS:NZ | 2.60 | 0.53 |
| 5:E:149:ARG:NE | 5:E:150:VAL:O | 2.37 | 0.53 |
| 5:E:195:LEU:HD13 | 5:E:195:LEU:C | 2.29 | 0.53 |
| 5:E:47:VAL:HG22 | 5:E:79:ARG:CD | 2.38 | 0.53 |
| 6:F:194:MET:HE1 | 6:F:200:GLU:HG2 | 1.91 | 0.53 |
| 6:F:78:ILE:CG1 | 6:F:79:GLY:H | 2.22 | 0.53 |
| 10:L:10:LEU:HD21 | 10:L:57:ILE:HG23 | 1.91 | 0.53 |
| 11:M:30:ILE:HG22 | 11:M:34:LEU:HD12 | 1.89 | 0.53 |
| 12:N:96:THR:C | 12:N:117:LEU:HD11 | 2.29 | 0.53 |
| 13:O:100:LEU:O | 13:O:101:VAL:HG13 | 2.09 | 0.53 |
| 13:O:18:ARG:HD3 | 13:O:20:GLY:N | 2.15 | 0.53 |
| 1:A:1242:A:N1 | 13:O:6:LEU:HD11 | 2.24 | 0.53 |
| 13:O:98:GLU:O | 13:O:99:LEU:O | 2.27 | 0.53 |
| 14:P:16:ARG:HB2 | 14:P:72:LYS:NZ | 2.24 | 0.53 |
| 16:R:50:SER:O | 16:R:76:LYS:HD2 | 2.09 | 0.53 |
| 17:S:100:TYR:C | 17:S:102:ILE:HG13 | 2.28 | 0.53 |
| 18:T:110:VAL:O | 18:T:111:GLU:C | 2.48 | 0.53 |
| 18:T:42:ALA:O | 18:T:45:TYR:CB | 2.55 | 0.53 |
| 19:U:1:MET:H2 | 19:U:44:LYS:HB3 | 1.72 | 0.53 |
| 19:U:48:GLY:O | 19:U:49:THR:OG1 | 2.26 | 0.53 |
| 20:V:42:ARG:HH21 | 20:V:42:ARG:CB | 2.16 | 0.53 |
| 20:V:42:ARG:C | 20:V:44:ALA:H | 2.11 | 0.53 |
| 21:W:57:LEU:HD22 | 21:W:78:LYS:CD | 2.37 | 0.53 |
| 23:Y:141:VAL:O | 23:Y:141:VAL:HG12 | 2.09 | 0.53 |
| 23:Y:4:ARG:HD3 | 23:Y:38:TYR:CA | 2.37 | 0.53 |
| 23:Y:70:LEU:C | 23:Y:70:LEU:HD13 | 2.29 | 0.53 |
| 9:K:73:GLU:HG3 | 9:K:138:ILE:CD1 | 2.39 | 0.53 |
| 1:A:2138:C:N3 | 1:A:2154:G:C2 | 2.77 | 0.53 |
| 1:A:2148:G:C2' | 1:A:2149:G:C8 | 2.83 | 0.53 |
| 3:C:114:VAL:O | 3:C:114:VAL:HG23 | 2.08 | 0.53 |
| 3:C:223:ARG:HG2 | 3:C:224:ILE:N | 2.23 | 0.53 |
| 3:C:4:GLY:C | 3:C:5:LYS:HD2 | 2.30 | 0.53 |
| 3:C:61:THR:O | 3:C:62:VAL:HB | 2.07 | 0.53 |
| 2:B:117:G:N2 | 2:B:118:G:N9 | 2.57 | 0.53 |
| 3:C:18:LYS:HD3 | 3:C:20:TYR:HD2 | 1.74 | 0.53 |
| 1:A:2671:A:C2 | 1:A:2672:G:C4 | 2.97 | 0.53 |
| 1:A:94:G:N2 | 25:1:42:ASN:HD21 | 2.03 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 27:3:28:LYS:HZ2 | 27:3:29:PRO:HD3 | 1.73 | 0.52 |
| 29:5:14:THR:HA | 29:5:51:GLU:OE1 | 2.09 | 0.52 |
| 29:5:19:ARG:O | 29:5:19:ARG:CD | 2.57 | 0.52 |
| 31:7:59:LYS:HA | 31:7:59:LYS:CE | 2.40 | 0.52 |
| 1:A:1062:G:C6 | 1:A:1077:A:C6 | 2.96 | 0.52 |
| 1:A:1072:C:N3 | 1:A:1092:C:N4 | 2.57 | 0.52 |
| 1:A:1096:A:H62 | 10:L:30:HIS:CB | 2.21 | 0.52 |
| 1:A:1326:U:C4 | 1:A:1327:C:C6 | 2.97 | 0.52 |
| 1:A:1419:A:O4' | 1:A:1419:A:P | 2.67 | 0.52 |
| 1:A:141(A):C:H2' | 1:A:142:G:H5' | 1.91 | 0.52 |
| 1:A:1453:A:C8 | 1:A:1454:U:C6 | 2.97 | 0.52 |
| 1:A:1471:A:C2' | 1:A:1472:A:H5' | 2.39 | 0.52 |
| 1:A:1615:C:C4 | 1:A:1617:C:H1' | 2.44 | 0.52 |
| 1:A:1789:A:C5 | 1:A:1790:C:H1' | 2.44 | 0.52 |
| 1:A:179:G:C5 | 1:A:180:G:C5 | 2.97 | 0.52 |
| 1:A:1882:C:C2' | 1:A:1883:G:O4' | 2.53 | 0.52 |
| 1:A:1984:G:C6 | 1:A:1985:G:N7 | 2.77 | 0.52 |
| 1:A:2034:U:H3' | 1:A:2035:G:H5' | 1.91 | 0.52 |
| 1:A:2278:A:OP1 | 14:P:14:ARG:HD3 | 2.09 | 0.52 |
| 1:A:249:C:OP2 | 1:A:2394:C:O2' | 2.20 | 0.52 |
| 1:A:23:G:O2' | 1:A:24:G:H5' | 2.09 | 0.52 |
| 1:A:252:G:H2' | 1:A:253:C:H6 | 1.74 | 0.52 |
| 1:A:2540:C:C2 | 1:A:2541:A:C8 | 2.97 | 0.52 |
| 1:A:2563:U:H4' | 12:N:28:SER:CB | 2.39 | 0.52 |
| 1:A:257:A:C2 | 1:A:258:G:H1' | 2.44 | 0.52 |
| 1:A:270(X):G:N2 | 1:A:270(Y):G:HO2' | 2.05 | 0.52 |
| 1:A:327:G:C6 | 1:A:336:C:C4 | 2.98 | 0.52 |
| 1:A:388:G:C2 | 1:A:390:A:C2 | 2.96 | 0.52 |
| 1:A:488:G:C8 | 1:A:488:G:H3' | 2.43 | 0.52 |
| 1:A:535:C:H5' | 18:T:49:HIS:HB3 | 1.90 | 0.52 |
| 1:A:574:C:H1' | 1:A:2055:C:H5 | 1.74 | 0.52 |
| 1:A:721:C:H2' | 1:A:722:A:H8 | 1.75 | 0.52 |
| 1:A:728:G:HO2' | 1:A:729:G:H8 | 1.57 | 0.52 |
| 1:A:71:A:O2' | 1:A:72:U:OP2 | 2.23 | 0.52 |
| 1:A:793:A:H2' | 1:A:794:G:OP2 | 2.08 | 0.52 |
| 1:A:820:A:N7 | 1:A:973:A:N1 | 2.56 | 0.52 |
| 1:A:873:G:C5 | 1:A:874:G:C8 | 2.97 | 0.52 |
| 1:A:918:A:H2 | 1:A:919:G:C5 | 2.22 | 0.52 |
| 2:B:52:A:N1 | 2:B:53:A:H1' | 2.24 | 0.52 |
| 4:D:155:LEU:CA | 4:D:157:ARG:NH2 | 2.70 | 0.52 |
| 1:A:1816:G:OP1 | 4:D:43:ARG:NH2 | 2.42 | 0.52 |
| 4:D:50:THR:C | 4:D:51:VAL:CG2 | 2.77 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 5:E:59:VAL:CB | 5:E:62:PRO:HD2 | 2.39 | 0.52 |
| 1:A:600:G:O2' | 6:F:105:VAL:HG22 | 2.07 | 0.52 |
| 6:F:138:GLU:HG2 | 6:F:139:PHE:N | 2.24 | 0.52 |
| 6:F:160:ASN:O | 6:F:163:VAL:HB | 2.09 | 0.52 |
| 7:G:12:TYR:O | 7:G:16:ARG:HG2 | 2.08 | 0.52 |
| 7:G:16:ARG:O | 7:G:20:ILE:HG12 | 2.09 | 0.52 |
| 7:G:43:LEU:HD11 | 7:G:89:GLY:CA | 2.38 | 0.52 |
| 8:H:66:GLY:C | 8:H:69:ARG:HG2 | 2.29 | 0.52 |
| 8:H:35:VAL:CG1 | 8:H:71:LEU:HG | 2.36 | 0.52 |
| 10:L:87:GLY:C | 10:L:89:HIS:H | 2.12 | 0.52 |
| 11:M:67:LEU:H | 11:M:87:LEU:HD22 | 1.70 | 0.52 |
| 11:M:74:ARG:HG2 | 11:M:76:SER:OG | 2.09 | 0.52 |
| 11:M:87:LEU:C | 11:M:90:MET:HB2 | 2.29 | 0.52 |
| 14:P:102:VAL:CG2 | 14:P:104:PHE:CE2 | 2.93 | 0.52 |
| 14:P:102:VAL:HG21 | 14:P:104:PHE:CE2 | 2.44 | 0.52 |
| 14:P:34:LEU:HG | 14:P:67:ARG:HH22 | 1.74 | 0.52 |
| 15:Q:22:ARG:NH1 | 15:Q:69:ASP:O | 2.42 | 0.52 |
| 16:R:26:LEU:HD21 | 16:R:37:ALA:CB | 2.33 | 0.52 |
| 2:B:51:G:O6 | 16:R:32:LEU:HD22 | 2.10 | 0.52 |
| 17:S:28:VAL:HG12 | 17:S:29:ARG:O | 2.10 | 0.52 |
| 17:S:65:LYS:HZ3 | 17:S:75:ILE:CD1 | 2.20 | 0.52 |
| 18:T:86:ALA:O | 18:T:90:VAL:HG23 | 2.08 | 0.52 |
| 19:U:15:GLU:CD | 19:U:16:PRO:CD | 2.77 | 0.52 |
| 21:W:31:HIS:C | 21:W:31:HIS:CD2 | 2.82 | 0.52 |
| 22:X:52:SER:HB3 | 22:X:56:PRO:CA | 2.39 | 0.52 |
| 23:Y:100:VAL:C | 23:Y:124:ILE:HG23 | 2.29 | 0.52 |
| 23:Y:28:MET:HE3 | 23:Y:88:PHE:HD1 | 1.75 | 0.52 |
| 24:Z:44:ARG:O | 24:Z:45:PHE:CD2 | 2.62 | 0.52 |
| 24:Z:33:ALA:CA | 24:Z:61:ALA:O | 2.45 | 0.52 |
| 9:K:76:THR:HG22 | 9:K:141:LYS:CE | 2.39 | 0.52 |
| 9:K:83:ALA:HA | 9:K:89:TYR:CE1 | 2.44 | 0.52 |
| 1:A:2138:C:C2' | 1:A:2139:C:C6 | 2.91 | 0.52 |
| 1:A:2146:C:O5' | 1:A:2147:G:OP2 | 2.27 | 0.52 |
| 3:C:76:ALA:HB2 | 3:C:153:ILE:CD1 | 2.40 | 0.52 |
| 25:1:2:ARG:O | 25:1:6:GLU:OE2 | 2.27 | 0.52 |
| 1:A:179:G:P | 30:6:32:LYS:HZ1 | 2.32 | 0.52 |
| 31:7:62:LEU:HD22 | 31:7:62:LEU:O | 2.09 | 0.52 |
| 1:A:1069:A:H4' | 1:A:1070:A:H3' | 1.91 | 0.52 |
| 1:A:1083:U:O2 | 1:A:1085:A:H8 | 1.92 | 0.52 |
| 1:A:1193:G:C2 | 1:A:1194:A:C4 | 2.98 | 0.52 |
| 1:A:1249:U:O4 | 13:O:21:ARG:NH2 | 2.40 | 0.52 |
| 1:A:126:A:C2' | 1:A:127:A:H5' | 2.40 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1291:C:HO2' | 1:A:1292:U:H5' | 1.73 | 0.52 |
| 1:A:1426:G:C8 | 1:A:1427:A:C8 | 2.97 | 0.52 |
| 1:A:1446:C:O5' | 1:A:1446:C:H6 | 1.91 | 0.52 |
| 1:A:136:G:N2 | 1:A:144:C:C4 | 2.77 | 0.52 |
| 1:A:1697:G:O6 | 1:A:1698:A:C6 | 2.63 | 0.52 |
| 1:A:1758:G:H5' | 1:A:1759:A:N7 | 2.23 | 0.52 |
| 1:A:1788:C:C6 | 1:A:1788:C:C3' | 2.93 | 0.52 |
| 1:A:1967:C:H2' | 1:A:1968:G:C5' | 2.39 | 0.52 |
| 1:A:1977:A:N3 | 1:A:1977:A:H2' | 2.24 | 0.52 |
| 1:A:2000:G:C2 | 1:A:2001:A:N7 | 2.77 | 0.52 |
| 1:A:917:A:C2 | 1:A:2268:A:N6 | 2.77 | 0.52 |
| 1:A:2344:U:C3' | 29:5:38:LYS:HG3 | 2.37 | 0.52 |
| 1:A:2325:G:H22 | 1:A:2389:G:H22 | 1.56 | 0.52 |
| 1:A:2405:G:H8 | 1:A:2405:G:O5' | 1.92 | 0.52 |
| 1:A:2444:G:N2 | 1:A:2445:G:N3 | 2.56 | 0.52 |
| 1:A:2478:A:H2' | 1:A:2479:G:O5' | 2.08 | 0.52 |
| 1:A:2517:C:C4 | 1:A:2542:A:N7 | 2.77 | 0.52 |
| 1:A:255:A:H2' | 1:A:256:A:C8 | 2.44 | 0.52 |
| 1:A:783:A:C5' | 1:A:2589:A:OP1 | 2.43 | 0.52 |
| 1:A:2638:G:O2' | 1:A:2639:A:H8 | 1.80 | 0.52 |
| 1:A:527:C:H5'' | 1:A:2779:U:N3 | 2.24 | 0.52 |
| 1:A:2781:A:C8 | 1:A:2782:G:H1' | 2.43 | 0.52 |
| 1:A:2813:A:C2 | 1:A:2888:C:C2 | 2.98 | 0.52 |
| 1:A:38:A:O2' | 1:A:39:C:H5' | 2.09 | 0.52 |
| 1:A:223:A:C4 | 1:A:422:A:N7 | 2.77 | 0.52 |
| 1:A:458:G:OP1 | 30:6:39:ARG:CZ | 2.57 | 0.52 |
| 1:A:489:G:N2 | 1:A:491:G:H1' | 2.24 | 0.52 |
| 1:A:562:U:O2' | 1:A:563:G:H5' | 2.09 | 0.52 |
| 1:A:600:G:H22 | 1:A:604:G:H4' | 1.73 | 0.52 |
| 1:A:626:U:O2 | 13:O:100:LEU:O | 2.27 | 0.52 |
| 1:A:631:A:C8 | 1:A:631:A:C3' | 2.92 | 0.52 |
| 1:A:727:A:O2' | 1:A:728:G:P | 2.67 | 0.52 |
| 1:A:751:A:H4' | 20:V:90:ARG:NE | 2.23 | 0.52 |
| 1:A:843:G:H2' | 1:A:843:G:N3 | 2.23 | 0.52 |
| 1:A:85:G:P | 22:X:28:LYS:HE3 | 2.50 | 0.52 |
| 1:A:905:U:C4 | 1:A:906:G:H8 | 2.27 | 0.52 |
| 1:A:981:A:H1' | 1:A:2037:G:O4' | 2.10 | 0.52 |
| 1:A:995:C:H1' | 18:T:57:PHE:CD1 | 2.43 | 0.52 |
| 2:B:49:C:H6 | 2:B:49:C:O5' | 1.93 | 0.52 |
| 2:B:57:A:O2' | 7:G:26:GLN:OE1 | 2.27 | 0.52 |
| 4:D:14:ARG:NH1 | 4:D:20:ASP:OD1 | 2.38 | 0.52 |
| 4:D:8:PRO:CG | 4:D:26:LYS:N | 2.72 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:94:GLU:C | 5:E:96:PHE:N | 2.60 | 0.52 |
| 6:F:113:ALA:HB3 | 6:F:186:ILE:HD13 | 1.92 | 0.52 |
| 7:G:27:ASN:HB3 | 7:G:29:TRP:CZ3 | 2.45 | 0.52 |
| 7:G:56:ALA:HB3 | 7:G:68:PRO:CB | 2.38 | 0.52 |
| 8:H:74:ASN:CG | 8:H:75:ALA:N | 2.62 | 0.52 |
| 8:H:87:LEU:CA | 8:H:132:ARG:HB3 | 2.38 | 0.52 |
| 10:L:17:ALA:O | 10:L:18:THR:CG2 | 2.56 | 0.52 |
| 1:A:1076:C:O2' | 10:L:90:LYS:HB3 | 2.09 | 0.52 |
| 11:M:16:ILE:CD1 | 11:M:52:VAL:CG2 | 2.82 | 0.52 |
| 5:E:152:LYS:HZ1 | 11:M:77:GLY:HA3 | 1.74 | 0.52 |
| 11:M:67:LEU:N | 11:M:87:LEU:CD2 | 2.60 | 0.52 |
| 12:N:10:VAL:HG12 | 12:N:17:ARG:CA | 2.40 | 0.52 |
| 14:P:75:THR:HG22 | 14:P:77:LYS:HD2 | 1.92 | 0.52 |
| 16:R:24:LEU:H | 16:R:86:ALA:HB2 | 1.73 | 0.52 |
| 17:S:53:ARG:HG3 | 17:S:53:ARG:HH11 | 1.73 | 0.52 |
| 17:S:56:GLY:O | 17:S:61:PHE:CB | 2.57 | 0.52 |
| 17:S:7:ILE:O | 17:S:11:GLU:CD | 2.47 | 0.52 |
| 19:U:49:THR:HG22 | 19:U:53:GLU:OE2 | 2.09 | 0.52 |
| 19:U:68:LYS:HG2 | 19:U:95:LEU:CD2 | 2.26 | 0.52 |
| 21:W:66:LEU:HD12 | 21:W:66:LEU:O | 2.09 | 0.52 |
| 21:W:93:GLU:HG3 | 21:W:94:GLY:H | 1.74 | 0.52 |
| 23:Y:102:LEU:CD1 | 23:Y:125:LEU:HD12 | 2.36 | 0.52 |
| 1:A:2125:G:N2 | 1:A:2172:U:OP1 | 2.41 | 0.52 |
| 3:C:78:ALA:CB | 3:C:116:THR:OG1 | 2.57 | 0.52 |
| 3:C:134:ARG:NH1 | 3:C:136:LEU:HD11 | 2.24 | 0.52 |
| 3:C:190:ARG:NH1 | 3:C:190:ARG:N | 2.57 | 0.52 |
| 3:C:26:ALA:O | 3:C:30:LYS:HD3 | 2.08 | 0.52 |
| 3:C:34:THR:CG2 | 3:C:34:THR:O | 2.54 | 0.52 |
| 9:K:85:GLU:CD | 9:K:85:GLU:N | 2.62 | 0.52 |
| 25:1:54:ARG:O | 25:1:55:LEU:C | 2.47 | 0.52 |
| 26:2:10:LYS:NZ | 26:2:12:PRO:HG3 | 2.25 | 0.52 |
| 27:3:58:ARG:NH1 | 27:3:58:ARG:CG | 2.72 | 0.52 |
| 1:A:469:G:N1 | 30:6:40:TRP:CE2 | 2.78 | 0.52 |
| 1:A:469:G:N1 | 30:6:40:TRP:HZ2 | 2.07 | 0.52 |
| 31:7:62:LEU:HD13 | 31:7:62:LEU:O | 2.09 | 0.52 |
| 1:A:1142(A):A:C8 | 1:A:1142(A):A:O5' | 2.62 | 0.52 |
| 1:A:1317:A:H2' | 1:A:1318:C:H6 | 1.73 | 0.52 |
| 1:A:1379:A:O5' | 1:A:1379:A:N3 | 2.43 | 0.52 |
| 1:A:1613:G:C3' | 1:A:1617:C:N4 | 2.73 | 0.52 |
| 1:A:1624:G:N3 | 1:A:1624:G:H2' | 2.24 | 0.52 |
| 1:A:1698:A:O2' | 1:A:1699:G:H5' | 2.08 | 0.52 |
| 1:A:1717:G:N2 | 1:A:1718:G:H1' | 2.24 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1725:G:N2 | 1:A:1726:G:C1' | 2.72 | 0.52 |
| 1:A:1788:C:N4 | 1:A:1789:A:H8 | 2.00 | 0.52 |
| 1:A:1791:A:O2' | 4:D:206:LEU:HD21 | 2.10 | 0.52 |
| 1:A:1800:C:HO2' | 1:A:1802:A:H8 | 1.53 | 0.52 |
| 1:A:181:A:C8 | 1:A:181:A:H5' | 2.44 | 0.52 |
| 1:A:1897:G:H2' | 1:A:1898:U:O4' | 2.08 | 0.52 |
| 1:A:1978:A:H2' | 1:A:1979:C:H6 | 1.74 | 0.52 |
| 1:A:2045:C:H2' | 1:A:2046:G:O4' | 2.08 | 0.52 |
| 1:A:2225:A:C4' | 1:A:2226:C:H6 | 2.20 | 0.52 |
| 1:A:2313:C:H2' | 1:A:2314:C:H6 | 1.74 | 0.52 |
| 1:A:2323:G:O2' | 1:A:2324:C:H5' | 2.08 | 0.52 |
| 1:A:2400:G:N2 | 1:A:2417:C:C2 | 2.78 | 0.52 |
| 1:A:2418:A:C2 | 1:A:2419:U:C2 | 2.97 | 0.52 |
| 1:A:2468:G:C8 | 1:A:2476:A:N1 | 2.78 | 0.52 |
| 1:A:2514:U:C2' | 1:A:2515:C:H6 | 2.11 | 0.52 |
| 1:A:2505:G:C2 | 1:A:2576:G:C4 | 2.97 | 0.52 |
| 1:A:2587:A:HO2' | 1:A:2588:G:H5' | 1.75 | 0.52 |
| 1:A:2653:U:C6 | 1:A:2654:A:N7 | 2.77 | 0.52 |
| 1:A:2788:C:H4' | 1:A:2810:A:H5' | 1.90 | 0.52 |
| 1:A:2819:G:H2' | 1:A:2821:A:N6 | 2.24 | 0.52 |
| 1:A:280:C:N3 | 1:A:283:A:N7 | 2.57 | 0.52 |
| 1:A:2848:G:N2 | 1:A:2867:G:H1' | 2.24 | 0.52 |
| 1:A:284:U:O4' | 1:A:284:U:OP2 | 2.27 | 0.52 |
| 1:A:2851:A:C2 | 1:A:2852:G:C1' | 2.93 | 0.52 |
| 1:A:2691:C:O4' | 1:A:2872:G:N7 | 2.42 | 0.52 |
| 1:A:336:C:O3' | 22:X:6:HIS:NE2 | 2.42 | 0.52 |
| 1:A:668:G:C2 | 1:A:670:A:N6 | 2.77 | 0.52 |
| 1:A:887:A:O2' | 1:A:889:C:C6 | 2.61 | 0.52 |
| 1:A:892:G:C2 | 1:A:893:C:C4 | 2.97 | 0.52 |
| 1:A:943:U:C5 | 1:A:944:G:C8 | 2.98 | 0.52 |
| 1:A:976:C:O2 | 1:A:977:G:C8 | 2.62 | 0.52 |
| 4:D:137:PRO:HB2 | 4:D:140:THR:HG21 | 1.90 | 0.52 |
| 4:D:53:PHE:HB2 | 4:D:221:VAL:CG2 | 2.38 | 0.52 |
| 4:D:82:ILE:CG2 | 4:D:83:GLU:N | 2.73 | 0.52 |
| 5:E:13:ARG:O | 5:E:13:ARG:CD | 2.50 | 0.52 |
| 5:E:176:ILE:CG2 | 5:E:181:LEU:CB | 2.85 | 0.52 |
| 5:E:7:VAL:HG11 | 5:E:196:VAL:HG11 | 1.91 | 0.52 |
| 5:E:95:ILE:HG22 | 5:E:96:PHE:N | 2.23 | 0.52 |
| 6:F:135:LYS:O | 6:F:138:GLU:HG2 | 2.09 | 0.52 |
| 6:F:197:ASP:CA | 6:F:200:GLU:HG3 | 2.39 | 0.52 |
| 6:F:29:ASN:ND2 | 6:F:29:ASN:C | 2.63 | 0.52 |
| 6:F:39:TRP:HZ3 | 6:F:43:LYS:CD | 2.17 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:163:ALA:CB | 7:G:169:ALA:CA | 2.87 | 0.52 |
| 8:H:157:TYR:HB3 | 8:H:172:LYS:CB | 2.40 | 0.52 |
| 8:H:40:GLU:HG2 | 8:H:55:PRO:HG2 | 1.90 | 0.52 |
| 9:K:4:ILE:O | 9:K:36:ALA:CB | 2.38 | 0.52 |
| 10:L:124:ALA:O | 10:L:127:ILE:HB | 2.09 | 0.52 |
| 14:P:12:GLN:HE21 | 14:P:13:GLN:NE2 | 2.07 | 0.52 |
| 1:A:2876:G:C4' | 17:S:1:MET:H2 | 2.20 | 0.52 |
| 18:T:84:LYS:O | 18:T:85:LYS:C | 2.44 | 0.52 |
| 20:V:7:ALA:O | 20:V:102:HIS:CA | 2.57 | 0.52 |
| 22:X:2:ARG:CG | 22:X:3:VAL:H | 2.20 | 0.52 |
| 23:Y:102:LEU:CB | 23:Y:123:ASP:O | 2.55 | 0.52 |
| 23:Y:136:PHE:C | 23:Y:138:GLU:HG3 | 2.28 | 0.52 |
| 23:Y:152:ALA:O | 23:Y:155:LEU:HD13 | 2.09 | 0.52 |
| 1:A:2278:A:C5 | 24:Z:14:ARG:HB2 | 2.44 | 0.52 |
| 1:A:2271:G:H5' | 24:Z:20:ARG:NH1 | 2.23 | 0.52 |
| 1:A:2177:C:O5' | 1:A:2177:C:H6 | 1.93 | 0.52 |
| 3:C:167:LYS:HG3 | 3:C:168:THR:N | 2.25 | 0.52 |
| 3:C:180:PHE:CD1 | 3:C:181:PRO:HD2 | 2.43 | 0.52 |
| 3:C:30:LYS:HZ2 | 3:C:182:PRO:CB | 2.10 | 0.52 |
| 3:C:80:GLY:HA2 | 3:C:83:ILE:HD12 | 1.90 | 0.52 |
| 11:M:139:GLU:O | 11:M:140:VAL:CG2 | 2.57 | 0.52 |
| 25:1:19:LEU:CD2 | 25:1:19:LEU:C | 2.76 | 0.52 |
| 26:2:7:LYS:NZ | 26:2:32:GLN:HA | 2.24 | 0.52 |
| 27:3:5:ILE:CD1 | 27:3:10:VAL:HG23 | 2.40 | 0.52 |
| 27:3:61:ARG:O | 27:3:62:ARG:C | 2.47 | 0.52 |
| 28:4:48:GLU:O | 28:4:58:LEU:HD12 | 2.09 | 0.52 |
| 29:5:6:ARG:HA | 29:5:10:LEU:HD21 | 1.90 | 0.52 |
| 1:A:458:G:H5' | 30:6:39:ARG:CZ | 2.40 | 0.52 |
| 30:6:5:TRP:CH2 | 30:6:7:PRO:HB3 | 2.45 | 0.52 |
| 1:A:1067:A:C5 | 1:A:1068:G:O6 | 2.63 | 0.52 |
| 1:A:1096:A:H62 | 10:L:30:HIS:CD2 | 2.27 | 0.52 |
| 1:A:1161:C:O2' | 1:A:1162:G:H5' | 2.09 | 0.52 |
| 1:A:1382:G:H2' | 1:A:1383:C:H6 | 1.73 | 0.52 |
| 1:A:1426:G:C3' | 1:A:1427:A:H5'' | 2.40 | 0.52 |
| 1:A:1429:G:H2' | 1:A:1430:C:O4' | 2.09 | 0.52 |
| 1:A:1464:C:C2 | 1:A:1465:G:C8 | 2.97 | 0.52 |
| 1:A:1707:G:C4 | 1:A:1708:C:C5 | 2.98 | 0.52 |
| 1:A:1730:U:O2' | 1:A:1731:G:C2 | 2.62 | 0.52 |
| 1:A:175:G:HO2' | 1:A:176:G:H5' | 1.75 | 0.52 |
| 1:A:1819:A:O2' | 1:A:1820:U:O5' | 2.27 | 0.52 |
| 1:A:1941:C:C2' | 1:A:1942:C:O5' | 2.57 | 0.52 |
| 1:A:1769:G:C2 | 1:A:1984:G:C4 | 2.97 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1988:C:C2' | 1:A:1989:G:H5' | 2.39 | 0.52 |
| 1:A:2051:A:H4' | 5:E:141:ILE:HG23 | 1.91 | 0.52 |
| 1:A:2259:G:H2' | 1:A:2260:C:H6 | 1.75 | 0.52 |
| 1:A:2281:C:O2' | 1:A:2282:G:O5' | 2.28 | 0.52 |
| 1:A:2405:G:C2' | 1:A:2411:A:H61 | 2.22 | 0.52 |
| 1:A:2456:C:H2' | 1:A:2457:U:C5' | 2.39 | 0.52 |
| 1:A:2453:A:H2 | 1:A:2504:U:O2 | 1.92 | 0.52 |
| 1:A:250:G:H2' | 1:A:250:G:N3 | 2.23 | 0.52 |
| 1:A:2543:G:N7 | 1:A:2544:G:C6 | 2.78 | 0.52 |
| 1:A:2584:U:C2' | 1:A:2585:U:C5 | 2.92 | 0.52 |
| 1:A:2694:G:C6 | 1:A:2695:C:C5 | 2.97 | 0.52 |
| 1:A:271(C):U:H2' | 1:A:271(C):U:O2 | 2.08 | 0.52 |
| 1:A:2747:G:C4 | 1:A:2756:U:O4 | 2.61 | 0.52 |
| 1:A:395:U:OP2 | 1:A:395:U:H6 | 1.92 | 0.52 |
| 1:A:447:A:C2 | 1:A:473:G:C8 | 2.97 | 0.52 |
| 1:A:449:A:C2 | 1:A:450:G:C5 | 2.98 | 0.52 |
| 1:A:534:U:P | 18:T:24:TYR:HE2 | 2.32 | 0.52 |
| 1:A:552:G:C6 | 1:A:553:U:C4 | 2.98 | 0.52 |
| 1:A:580:C:N4 | 1:A:581:C:N4 | 2.57 | 0.52 |
| 1:A:603:A:N1 | 1:A:625:G:C8 | 2.77 | 0.52 |
| 1:A:642:G:C8 | 1:A:642:G:C3' | 2.92 | 0.52 |
| 1:A:673:C:H5'' | 6:F:81:PRO:CB | 2.39 | 0.52 |
| 1:A:674:G:O6 | 1:A:804:A:H2' | 2.10 | 0.52 |
| 1:A:686:G:OP1 | 30:6:11:LYS:HE2 | 2.08 | 0.52 |
| 1:A:764:A:OP1 | 4:D:211:ARG:HD2 | 2.09 | 0.52 |
| 1:A:778:G:C6 | 1:A:779:U:C4 | 2.98 | 0.52 |
| 1:A:774:A:H2 | 1:A:787:U:H1' | 1.73 | 0.52 |
| 1:A:793:A:O2' | 1:A:794:G:P | 2.68 | 0.52 |
| 1:A:878:A:H2' | 1:A:879:G:C5' | 2.40 | 0.52 |
| 1:A:89:G:C5 | 1:A:90:U:C5 | 2.97 | 0.52 |
| 1:A:972:G:OP2 | 1:A:972:G:C8 | 2.62 | 0.52 |
| 1:A:980:A:N3 | 1:A:2037:G:O2' | 2.36 | 0.52 |
| 2:B:12:C:C4' | 24:Z:74:ARG:HG2 | 2.38 | 0.52 |
| 2:B:52:A:C2 | 2:B:53:A:C1' | 2.93 | 0.52 |
| 1:A:2209:C:C5' | 4:D:150:LYS:HB3 | 2.40 | 0.52 |
| 4:D:165:ILE:HD12 | 4:D:165:ILE:N | 2.24 | 0.52 |
| 4:D:263:ARG:O | 4:D:264:LYS:HE3 | 2.10 | 0.52 |
| 4:D:38:LYS:NZ | 4:D:63:ARG:O | 2.42 | 0.52 |
| 4:D:53:PHE:HD1 | 4:D:53:PHE:H | 1.47 | 0.52 |
| 5:E:103:ASP:OD2 | 5:E:201:THR:N | 2.42 | 0.52 |
| 5:E:33:VAL:CG2 | 5:E:47:VAL:HG12 | 2.40 | 0.52 |
| 5:E:53:PRO:CG | 5:E:75:VAL:HG13 | 2.39 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 6:F:119:ARG:CZ | 6:F:120:GLU:OE1 | 2.57 | 0.52 |
| 6:F:163:VAL:HG12 | 6:F:164:ARG:N | 2.24 | 0.52 |
| 7:G:27:ASN:HB3 | 7:G:29:TRP:CE3 | 2.44 | 0.52 |
| 1:A:1036:G:P | 8:H:59:ARG:HD3 | 2.48 | 0.52 |
| 1:A:1096:A:H62 | 10:L:30:HIS:HB2 | 1.74 | 0.52 |
| 10:L:78:ILE:HD13 | 10:L:131:ALA:CB | 2.38 | 0.52 |
| 10:L:78:ILE:CG2 | 10:L:79:ARG:H | 2.23 | 0.52 |
| 11:M:63:THR:CB | 11:M:65:LYS:HD3 | 2.38 | 0.52 |
| 12:N:90:GLN:OE1 | 12:N:110:GLY:O | 2.27 | 0.52 |
| 12:N:52:VAL:CG2 | 12:N:53:LYS:N | 2.70 | 0.52 |
| 12:N:66:LYS:CE | 12:N:67:LYS:HZ3 | 2.16 | 0.52 |
| 12:N:99:PHE:CE2 | 12:N:105:GLU:CD | 2.83 | 0.52 |
| 13:O:63:PRO:CB | 13:O:64:LYS:HE2 | 2.30 | 0.52 |
| 14:P:122:GLY:HA2 | 14:P:125:LEU:CB | 2.39 | 0.52 |
| 14:P:42:ILE:HD11 | 14:P:46:GLN:CG | 2.40 | 0.52 |
| 14:P:85:LYS:HZ2 | 24:Z:10:THR:HG23 | 1.74 | 0.52 |
| 15:Q:83:ILE:O | 15:Q:84:ALA:C | 2.47 | 0.52 |
| 16:R:51:ALA:CA | 16:R:73:LEU:HG | 2.39 | 0.52 |
| 16:R:62:LYS:O | 16:R:65:VAL:CG1 | 2.49 | 0.52 |
| 16:R:89:ARG:CZ | 16:R:90:GLY:O | 2.58 | 0.52 |
| 16:R:10:ARG:NH1 | 16:R:89:ARG:NH2 | 2.58 | 0.52 |
| 16:R:13:ARG:HH22 | 16:R:92:TYR:N | 2.06 | 0.52 |
| 5:E:14:ILE:HD11 | 17:S:14:TYR:HB2 | 1.90 | 0.52 |
| 12:N:73:ASP:C | 17:S:79:HIS:CE1 | 2.82 | 0.52 |
| 17:S:9:LEU:O | 17:S:10:VAL:C | 2.48 | 0.52 |
| 17:S:9:LEU:O | 17:S:12:SER:HB2 | 2.10 | 0.52 |
| 18:T:13:LYS:HZ3 | 18:T:13:LYS:H | 1.58 | 0.52 |
| 19:U:57:VAL:HG12 | 19:U:58:VAL:H | 1.74 | 0.52 |
| 19:U:66:ARG:HE | 19:U:95:LEU:HB2 | 1.75 | 0.52 |
| 19:U:18:LEU:HD12 | 19:U:66:ARG:HH12 | 1.75 | 0.52 |
| 21:W:12:VAL:HG22 | 21:W:29:TRP:NE1 | 2.24 | 0.52 |
| 1:A:1341:U:H2' | 21:W:55:ASN:HB3 | 1.91 | 0.52 |
| 21:W:60:ARG:CD | 21:W:62:LYS:HG2 | 2.38 | 0.52 |
| 21:W:89:ILE:O | 21:W:89:ILE:HG22 | 2.08 | 0.52 |
| 22:X:52:SER:HB3 | 22:X:56:PRO:HB3 | 1.92 | 0.52 |
| 2:B:76:G:P | 23:Y:11:GLU:H | 2.32 | 0.52 |
| 23:Y:45:ASP:O | 23:Y:48:PHE:HB2 | 2.10 | 0.52 |
| 2:B:75:G:H21 | 23:Y:85:HIS:CE1 | 2.28 | 0.52 |
| 24:Z:27:GLU:HA | 24:Z:27:GLU:OE1 | 2.09 | 0.52 |
| 24:Z:48:GLY:O | 24:Z:51:VAL:HB | 2.10 | 0.52 |
| 1:A:2147:G:C2 | 1:A:2148:G:H4' | 2.45 | 0.52 |
| 1:A:2117:A:O3' | 1:A:2147:G:N2 | 2.42 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 3:C:116:THR:C | 3:C:120:MET:HG2 | 2.29 | 0.52 |
| 3:C:131:LEU:HD22 | 3:C:136:LEU:HB3 | 1.91 | 0.52 |
| 1:A:2108:C:O2' | 1:A:2109:U:H5' | 2.08 | 0.52 |
| 1:A:161:U:H3 | 1:A:171:G:H21 | 1.54 | 0.52 |
| 1:A:2188:C:C4 | 1:A:2189:U:C4 | 2.98 | 0.52 |
| 25:1:12:SER:CB | 25:1:13:PRO:CD | 2.87 | 0.52 |
| 28:4:55:ARG:CD | 28:4:55:ARG:H | 2.23 | 0.52 |
| 1:A:1205:U:O2' | 1:A:1206:G:C5 | 2.59 | 0.52 |
| 1:A:1225:C:OP1 | 19:U:88:ARG:CB | 2.58 | 0.52 |
| 1:A:1265:A:H1' | 1:A:1267:U:N3 | 2.24 | 0.52 |
| 1:A:126:A:O2' | 1:A:127:A:H5' | 2.09 | 0.52 |
| 1:A:1349:A:H5' | 1:A:1350:C:C5' | 2.39 | 0.52 |
| 1:A:1434:A:C2 | 1:A:1435:G:C1' | 2.92 | 0.52 |
| 1:A:1471:A:C4 | 1:A:1521:G:N2 | 2.77 | 0.52 |
| 1:A:1542:G:H1' | 1:A:1543:A:N1 | 2.24 | 0.52 |
| 1:A:1778:U:H3' | 1:A:1779:U:C5 | 2.45 | 0.52 |
| 1:A:1854:A:H2 | 1:A:2088:G:O4' | 1.92 | 0.52 |
| 1:A:1855:G:C6 | 1:A:1856:G:N7 | 2.77 | 0.52 |
| 1:A:1993:U:C3' | 1:A:1993:U:H6 | 2.18 | 0.52 |
| 1:A:2051:A:H1' | 5:E:141:ILE:CD1 | 2.34 | 0.52 |
| 1:A:2325:G:O2' | 1:A:2326:C:H5' | 2.10 | 0.52 |
| 1:A:2405:G:H2' | 1:A:2411:A:H61 | 1.74 | 0.52 |
| 1:A:2412:A:H3' | 1:A:2413:G:H8 | 1.75 | 0.52 |
| 1:A:2423:U:H1' | 1:A:2425:A:N7 | 2.25 | 0.52 |
| 1:A:827:U:OP1 | 1:A:2429:G:OP2 | 2.26 | 0.52 |
| 1:A:2457:U:H2' | 1:A:2458:G:C4' | 2.40 | 0.52 |
| 1:A:2539:C:C2' | 1:A:2540:C:H5' | 2.40 | 0.52 |
| 1:A:2522:U:C2 | 1:A:2543:G:O6 | 2.63 | 0.52 |
| 1:A:2605:U:H2' | 1:A:2606:C:C6 | 2.44 | 0.52 |
| 1:A:2637:U:OP2 | 1:A:2637:U:H6 | 1.93 | 0.52 |
| 1:A:2690:C:O2' | 1:A:2691:C:C5' | 2.56 | 0.52 |
| 1:A:2757:A:H2' | 1:A:2758:A:H5' | 1.92 | 0.52 |
| 1:A:2816:C:H2' | 1:A:2817:G:O5' | 2.10 | 0.52 |
| 1:A:448:U:C4 | 1:A:583:G:H1' | 2.44 | 0.52 |
| 1:A:455:C:C4' | 1:A:456:C:OP1 | 2.56 | 0.52 |
| 1:A:603:A:OP2 | 1:A:655:A:C2 | 2.63 | 0.52 |
| 1:A:695:G:C5 | 1:A:768:G:C6 | 2.98 | 0.52 |
| 1:A:809:G:H1' | 1:A:1254:A:C2 | 2.44 | 0.52 |
| 1:A:85:G:HO2' | 1:A:103:A:H2 | 1.57 | 0.52 |
| 1:A:878:A:C4 | 1:A:879:G:C5 | 2.97 | 0.52 |
| 1:A:896:A:C2 | 1:A:897:C:C5 | 2.98 | 0.52 |
| 1:A:860:U:O4 | 1:A:917:A:N1 | 2.43 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:919:G:O2' | 1:A:920:G:C5' | 2.58 | 0.52 |
| 1:A:963:U:H2' | 1:A:963:U:O2 | 2.08 | 0.52 |
| 2:B:15:A:C5' | 2:B:16:G:OP2 | 2.56 | 0.52 |
| 2:B:66:A:H2 | 2:B:108:C:N1 | 2.08 | 0.52 |
| 4:D:122:ASP:HA | 4:D:131:LEU:HD21 | 1.90 | 0.52 |
| 4:D:175:LEU:O | 4:D:182:LEU:CA | 2.44 | 0.52 |
| 4:D:219:PRO:HG2 | 4:D:220:HIS:CE1 | 2.44 | 0.52 |
| 4:D:94:LEU:C | 4:D:94:LEU:HD13 | 2.29 | 0.52 |
| 5:E:156:MET:O | 5:E:157:ALA:O | 2.27 | 0.52 |
| 5:E:173:VAL:CG1 | 5:E:184:VAL:C | 2.78 | 0.52 |
| 5:E:180:ASN:ND2 | 5:E:180:ASN:H | 2.07 | 0.52 |
| 5:E:18:ASP:HB3 | 12:N:72:PRO:CA | 2.18 | 0.52 |
| 7:G:125:PHE:CE2 | 7:G:127:GLY:O | 2.63 | 0.52 |
| 7:G:32:PRO:HG2 | 7:G:33:ARG:N | 2.24 | 0.52 |
| 2:B:43:C:N3 | 7:G:95:ARG:NH2 | 2.57 | 0.52 |
| 8:H:12:PRO:O | 8:H:13:LYS:HG3 | 2.08 | 0.52 |
| 8:H:76:VAL:O | 8:H:79:VAL:HG22 | 2.09 | 0.52 |
| 9:K:16:GLY:O | 9:K:17:GLN:HG3 | 2.09 | 0.52 |
| 10:L:52:ILE:HB | 10:L:72:PRO:HB2 | 1.90 | 0.52 |
| 12:N:11:ALA:HB2 | 12:N:17:ARG:CZ | 2.39 | 0.52 |
| 12:N:94:ARG:CG | 12:N:95:GLY:H | 2.18 | 0.52 |
| 17:S:82:LEU:C | 17:S:84:GLN:N | 2.63 | 0.52 |
| 20:V:40:ASN:C | 20:V:41:LYS:HG3 | 2.30 | 0.52 |
| 21:W:12:VAL:HA | 21:W:29:TRP:CD1 | 2.45 | 0.52 |
| 21:W:33:LYS:HZ2 | 21:W:33:LYS:HB2 | 1.75 | 0.52 |
| 23:Y:118:GLN:NE2 | 23:Y:174:VAL:HG12 | 2.23 | 0.52 |
| 9:K:127:VAL:CG2 | 9:K:141:LYS:HA | 2.35 | 0.52 |
| 3:C:161:ILE:HG22 | 3:C:174:PRO:HD2 | 1.91 | 0.52 |
| 3:C:32:LEU:CD1 | 3:C:220:PRO:HG2 | 2.37 | 0.52 |
| 9:K:58:LEU:HD22 | 9:K:61:ARG:HH21 | 1.75 | 0.52 |
| 1:A:2101:G:C6 | 1:A:2102:U:C4 | 2.97 | 0.52 |
| 1:A:2106:G:C6 | 1:A:2184:G:C6 | 2.97 | 0.52 |
| 1:A:155:C:O2' | 1:A:161:U:C5 | 2.52 | 0.52 |
| 9:K:50:ARG:O | 9:K:53:ALA:HB3 | 2.09 | 0.52 |
| 25:1:37:GLY:CA | 25:1:41:GLN:NE2 | 2.70 | 0.52 |
| 1:A:112:U:P | 25:1:64:ARG:NH1 | 2.83 | 0.52 |
| 26:2:52:HIS:O | 26:2:54:VAL:N | 2.42 | 0.52 |
| 29:5:35:GLU:HB2 | 29:5:52:VAL:HG22 | 1.92 | 0.52 |
| 31:7:5:LYS:NZ | 31:7:64:TYR:CG | 2.76 | 0.52 |
| 1:A:1034:G:C6 | 1:A:1122:G:C6 | 2.98 | 0.52 |
| 1:A:1025:G:C8 | 1:A:1134:G:O4' | 2.63 | 0.52 |
| 1:A:1186:G:H2' | 1:A:1187:G:O4' | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:443:A:O4' | 1:A:1201:C:H4' | 2.10 | 0.52 |
| 1:A:1263:U:C5 | 1:A:1264:G:N1 | 2.77 | 0.52 |
| 1:A:1296:G:C4 | 1:A:1297:C:C5 | 2.98 | 0.52 |
| 1:A:1471:A:H2' | 1:A:1472:A:H5' | 1.91 | 0.52 |
| 1:A:1537:C:C2' | 1:A:1538:G:H5' | 2.40 | 0.52 |
| 1:A:1567:A:N3 | 1:A:1567:A:C2' | 2.72 | 0.52 |
| 1:A:1803:A:O3' | 4:D:257:LEU:HD22 | 2.09 | 0.52 |
| 1:A:1879:C:C4 | 1:A:1880:C:C4 | 2.98 | 0.52 |
| 1:A:1912:A:C5 | 1:A:1918:A:N6 | 2.78 | 0.52 |
| 1:A:2037:G:C6 | 1:A:2038:G:O6 | 2.63 | 0.52 |
| 1:A:2051:A:N6 | 1:A:2614:A:C5 | 2.77 | 0.52 |
| 1:A:2234:G:H21 | 1:A:2235:G:H1' | 1.73 | 0.52 |
| 1:A:2405:G:N2 | 1:A:2411:A:N7 | 2.57 | 0.52 |
| 1:A:262:A:O2' | 1:A:263:C:C5' | 2.56 | 0.52 |
| 1:A:270(C):C:C2' | 1:A:270(D):C:C6 | 2.77 | 0.52 |
| 1:A:270(L):U:O2 | 1:A:270(L):U:C2' | 2.58 | 0.52 |
| 1:A:271(C):U:H5 | 1:A:421:U:C5 | 2.27 | 0.52 |
| 1:A:2856:C:H2' | 1:A:2857:G:H5' | 1.90 | 0.52 |
| 1:A:2886:G:N2 | 1:A:2887:U:C1' | 2.72 | 0.52 |
| 1:A:2894:G:H2' | 1:A:2894:G:N3 | 2.25 | 0.52 |
| 1:A:307:G:C2 | 1:A:309:G:H5'' | 2.45 | 0.52 |
| 1:A:349:G:H3' | 1:A:350:U:C5 | 2.33 | 0.52 |
| 1:A:376:C:H2' | 1:A:377:C:H6 | 1.73 | 0.52 |
| 1:A:414:C:C2' | 1:A:415:A:H8 | 2.06 | 0.52 |
| 1:A:423:A:C8 | 1:A:423:A:C3' | 2.88 | 0.52 |
| 1:A:511:U:C4 | 1:A:512:G:H1' | 2.45 | 0.52 |
| 1:A:548:A:N6 | 1:A:549:G:H21 | 2.00 | 0.52 |
| 1:A:554:U:O2' | 1:A:556:G:N7 | 2.33 | 0.52 |
| 1:A:610:C:H2' | 1:A:611:C:C5 | 2.45 | 0.52 |
| 1:A:623:G:O5' | 13:O:105:LEU:CD2 | 2.56 | 0.52 |
| 1:A:693:C:O4' | 1:A:1354:A:H1' | 2.10 | 0.52 |
| 1:A:705:A:H61 | 1:A:727:A:C1' | 2.22 | 0.52 |
| 1:A:728:G:C2 | 1:A:763:G:OP1 | 2.63 | 0.52 |
| 1:A:727:A:O2' | 1:A:728:G:O5' | 2.28 | 0.52 |
| 1:A:728:G:C6 | 1:A:762:U:C2' | 2.93 | 0.52 |
| 1:A:77:C:H6 | 1:A:77:C:OP2 | 1.92 | 0.52 |
| 1:A:88:G:O2' | 1:A:89:G:H5' | 2.10 | 0.52 |
| 4:D:145:VAL:CB | 4:D:155:LEU:HD22 | 2.40 | 0.52 |
| 1:A:2209:C:C1' | 4:D:150:LYS:NZ | 2.65 | 0.52 |
| 5:E:51:PHE:O | 5:E:52:LEU:CD2 | 2.58 | 0.52 |
| 5:E:91:VAL:HG11 | 5:E:93:VAL:CG2 | 2.38 | 0.52 |
| 7:G:115:ARG:C | 7:G:117:PHE:H | 2.10 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 8:H:122:THR:O | 8:H:133:VAL:CG2 | 2.58 | 0.52 |
| 8:H:139:GLN:O | 8:H:140:LYS:C | 2.48 | 0.52 |
| 8:H:159:GLU:OE2 | 8:H:161:GLY:N | 2.34 | 0.52 |
| 8:H:148:ILE:HG13 | 8:H:162:ILE:HD12 | 1.92 | 0.52 |
| 8:H:18:GLU:OE2 | 8:H:25:LYS:CB | 2.43 | 0.52 |
| 10:L:103:GLN:O | 10:L:106:GLU:CD | 2.48 | 0.52 |
| 13:O:63:PRO:O | 13:O:65:ARG:CD | 2.56 | 0.52 |
| 13:O:67:MET:SD | 13:O:68:GLN:N | 2.82 | 0.52 |
| 13:O:80:TYR:CD2 | 13:O:85:LEU:HD11 | 2.45 | 0.52 |
| 14:P:112:GLU:CA | 14:P:115:MET:HB3 | 2.39 | 0.52 |
| 16:R:28:VAL:HG21 | 16:R:101:LEU:CB | 2.40 | 0.52 |
| 20:V:19:LEU:HD23 | 28:4:25:LEU:HD22 | 1.90 | 0.52 |
| 20:V:82:LEU:O | 20:V:97:LYS:HA | 2.09 | 0.52 |
| 21:W:40:LYS:NZ | 21:W:44:GLU:CD | 2.63 | 0.52 |
| 21:W:40:LYS:NZ | 21:W:44:GLU:OE1 | 2.42 | 0.52 |
| 21:W:50:LYS:CG | 21:W:84:ALA:CB | 2.86 | 0.52 |
| 22:X:14:LEU:HB2 | 22:X:20:TYR:CA | 2.39 | 0.52 |
| 23:Y:10:ARG:HB3 | 23:Y:36:LYS:HD2 | 1.92 | 0.52 |
| 23:Y:57:ILE:O | 23:Y:58:VAL:HG22 | 2.10 | 0.52 |
| 24:Z:76:GLY:HA3 | 24:Z:78:TYR:CE1 | 2.45 | 0.52 |
| 1:A:2122:U:H1' | 3:C:166:ASP:OD2 | 2.10 | 0.52 |
| 3:C:190:ARG:H | 3:C:190:ARG:NH1 | 2.08 | 0.52 |
| 3:C:8:ARG:HE | 3:C:12:GLU:CG | 2.23 | 0.52 |
| 1:A:713:G:H2' | 1:A:714:U:OP1 | 2.10 | 0.52 |
| 1:A:155:C:HO2' | 1:A:161:U:H5 | 1.43 | 0.52 |
| 21:W:7:VAL:HG13 | 25:1:31:ARG:HH22 | 1.75 | 0.52 |
| 25:1:63:ARG:O | 25:1:66:ASN:HB3 | 2.10 | 0.52 |
| 27:3:65:ASP:O | 27:3:66:SER:C | 2.47 | 0.52 |
| 29:5:16:CYS:SG | 29:5:41:PRO:HB3 | 2.50 | 0.52 |
| 29:5:19:ARG:HG3 | 29:5:44:ARG:HH11 | 1.71 | 0.52 |
| 30:6:33:ARG:HA | 30:6:37:LYS:CD | 2.40 | 0.52 |
| 1:A:1028:A:N1 | 1:A:1029:A:C6 | 2.78 | 0.52 |
| 1:A:1068:G:N2 | 1:A:1073:A:C2 | 2.77 | 0.52 |
| 1:A:1119:C:C2' | 1:A:1119:C:O2 | 2.56 | 0.52 |
| 1:A:976:C:H5'' | 1:A:1156:A:H62 | 1.71 | 0.52 |
| 1:A:1168:G:C6 | 1:A:1182:A:N1 | 2.78 | 0.52 |
| 1:A:1215:G:O5' | 1:A:1215:G:H8 | 1.92 | 0.52 |
| 1:A:1444(A):A:H8 | 1:A:1460:A:O2' | 1.91 | 0.52 |
| 1:A:1557:C:H5'' | 1:A:1558:A:OP2 | 2.09 | 0.52 |
| 1:A:1650:G:H5' | 15:Q:104:ARG:HH21 | 1.74 | 0.52 |
| 1:A:1675:C:N4 | 5:E:129:HIS:CD2 | 2.77 | 0.52 |
| 1:A:1675:C:H2' | 1:A:1676:A:O4' | 2.10 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|------------------|-------------|----------|
| 1:A:1769:G:H2' | 1:A:1770:G:H8 | 1.75 | 0.52 |
| 1:A:790:C:H4' | 1:A:1781:C:N4 | 2.25 | 0.52 |
| 1:A:189:G:H2' | 1:A:205:G:H22 | 1.74 | 0.52 |
| 1:A:1904:G:C2 | 1:A:1905:C:C6 | 2.97 | 0.52 |
| 1:A:1907:G:C6 | 1:A:1908:C:C4 | 2.98 | 0.52 |
| 1:A:1959:G:C4 | 1:A:1960:A:C8 | 2.98 | 0.52 |
| 1:A:1964:G:H8 | 1:A:1964:G:OP1 | 1.93 | 0.52 |
| 1:A:2014:A:C4 | 1:A:2015:A:N1 | 2.78 | 0.52 |
| 1:A:2028:U:H2' | 1:A:2029:G:N7 | 2.25 | 0.52 |
| 1:A:2216:G:H8 | 1:A:2216:G:O5' | 1.92 | 0.52 |
| 1:A:2270:G:O6 | 1:A:2271:G:C2 | 2.63 | 0.52 |
| 1:A:2287:A:N7 | 1:A:2289:G:N7 | 2.58 | 0.52 |
| 1:A:2346:A:HO2' | 1:A:2383:G:H8 | 1.56 | 0.52 |
| 1:A:2407:G:H5'' | 1:A:2408:U:C4 | 2.45 | 0.52 |
| 1:A:2417:C:C2 | 1:A:2418:A:N7 | 2.78 | 0.52 |
| 1:A:2485:G:HO2' | 1:A:2486:G:H5' | 1.74 | 0.52 |
| 1:A:2074:U:O2' | 1:A:2598:A:H1' | 2.09 | 0.52 |
| 1:A:2599:G:O2' | 1:A:2600:A:C5' | 2.54 | 0.52 |
| 1:A:2712(A):A:H5'' | 1:A:2713:A:H5'' | 1.90 | 0.52 |
| 1:A:2781:A:C2' | 1:A:2782:G:O2' | 2.52 | 0.52 |
| 1:A:282:A:C8 | 1:A:282:A:C3' | 2.92 | 0.52 |
| 1:A:2848:G:C1' | 17:S:99:LEU:HD21 | 2.39 | 0.52 |
| 1:A:311:A:O2' | 1:A:312:G:OP2 | 2.26 | 0.52 |
| 1:A:323:G:P | 1:A:340:A:N1 | 2.83 | 0.52 |
| 1:A:346:A:O2' | 1:A:347:A:N7 | 2.42 | 0.52 |
| 1:A:460:A:H3' | 1:A:461:C:C6 | 2.45 | 0.52 |
| 1:A:532:A:OP1 | 18:T:28:ARG:NH1 | 2.42 | 0.52 |
| 1:A:541:C:H3' | 1:A:542:C:H6 | 1.73 | 0.52 |
| 1:A:578:A:H2 | 18:T:34:LYS:NZ | 2.08 | 0.52 |
| 1:A:627:A:C2 | 1:A:651:G:H5' | 2.43 | 0.52 |
| 1:A:602:G:N2 | 1:A:655:A:H2' | 2.20 | 0.52 |
| 1:A:919:G:C2' | 1:A:920:G:O5' | 2.58 | 0.52 |
| 1:A:928:G:C6 | 1:A:929:G:H1' | 2.45 | 0.52 |
| 1:A:967:C:H2' | 1:A:968:G:C8 | 2.43 | 0.52 |
| 4:D:54:ARG:O | 4:D:218:ARG:NH1 | 2.42 | 0.52 |
| 4:D:89:SER:OG | 4:D:158:ALA:CB | 2.58 | 0.52 |
| 5:E:85:ASN:C | 5:E:87:GLU:H | 2.11 | 0.52 |
| 6:F:158:THR:HG23 | 6:F:159:GLY:N | 2.24 | 0.52 |
| 6:F:194:MET:CE | 6:F:195:ASP:N | 2.72 | 0.52 |
| 6:F:89:VAL:C | 6:F:91:GLY:H | 2.03 | 0.52 |
| 7:G:55:LYS:CB | 7:G:151:ALA:HB1 | 2.32 | 0.52 |
| 7:G:174:GLU:OE2 | 7:G:175:LEU:CB | 2.58 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 8:H:89:ILE:HG22 | 8:H:131:VAL:HB | 1.91 | 0.52 |
| 8:H:168:PRO:O | 8:H:169:VAL:O | 2.28 | 0.52 |
| 8:H:41:MET:HE1 | 8:H:68:THR:HG21 | 1.91 | 0.52 |
| 8:H:7:LEU:C | 8:H:51:ARG:NH2 | 2.63 | 0.52 |
| 9:K:6:LEU:O | 9:K:15:VAL:N | 2.33 | 0.52 |
| 10:L:103:GLN:O | 10:L:106:GLU:HG3 | 2.10 | 0.52 |
| 10:L:38:VAL:HG12 | 10:L:39:LYS:N | 2.25 | 0.52 |
| 11:M:55:VAL:HG22 | 11:M:124:ALA:N | 2.24 | 0.52 |
| 11:M:70:LYS:HD3 | 11:M:70:LYS:N | 2.24 | 0.52 |
| 11:M:74:ARG:O | 11:M:74:ARG:HG2 | 2.08 | 0.52 |
| 15:Q:45:ARG:O | 15:Q:46:GLY:C | 2.48 | 0.52 |
| 16:R:106:ARG:HH22 | 16:R:110:LEU:CB | 2.19 | 0.52 |
| 16:R:75:GLU:N | 16:R:108:GLY:HA2 | 2.25 | 0.52 |
| 1:A:2376:A:N6 | 16:R:94:TYR:CD2 | 2.78 | 0.52 |
| 17:S:113:LYS:CA | 17:S:116:ALA:HB3 | 2.37 | 0.52 |
| 19:U:67:GLY:HA2 | 19:U:94:LEU:CA | 2.40 | 0.52 |
| 20:V:72:LYS:O | 20:V:106:ILE:CG2 | 2.52 | 0.52 |
| 1:A:1312:U:H5' | 21:W:72:LYS:HZ1 | 1.74 | 0.52 |
| 1:A:64:A:H5'' | 21:W:73:ARG:HA | 1.90 | 0.52 |
| 22:X:84:ARG:HG2 | 22:X:85:VAL:H | 1.73 | 0.52 |
| 22:X:96:ILE:O | 22:X:102:CYS:O | 2.28 | 0.52 |
| 23:Y:114:GLY:C | 23:Y:116:VAL:H | 2.12 | 0.52 |
| 23:Y:87:ASP:C | 23:Y:88:PHE:CD2 | 2.83 | 0.52 |
| 24:Z:46:LYS:HG2 | 24:Z:77:ARG:C | 2.29 | 0.52 |
| 1:A:2147:G:C2 | 1:A:2148:G:C4' | 2.92 | 0.52 |
| 3:C:190:ARG:CD | 3:C:193:ILE:HD12 | 2.38 | 0.52 |
| 3:C:194:ARG:NH1 | 3:C:194:ARG:HG3 | 2.23 | 0.52 |
| 3:C:225:ASN:O | 3:C:227:HIS:N | 2.42 | 0.52 |
| 1:A:715:G:C6 | 1:A:716:A:N6 | 2.77 | 0.52 |
| 1:A:2142:C:H2' | 1:A:2143:C:C6 | 2.45 | 0.52 |
| 25:1:14:VAL:HA | 25:1:17:GLU:CD | 2.29 | 0.52 |
| 25:1:29:GLU:HA | 25:1:32:PHE:CD1 | 2.45 | 0.52 |
| 25:1:51:GLN:HA | 25:1:54:ARG:HG3 | 1.92 | 0.52 |
| 26:2:28:LEU:CA | 26:2:33:GLN:NE2 | 2.72 | 0.52 |
| 27:3:59:PHE:N | 27:3:62:ARG:HH21 | 2.08 | 0.52 |
| 27:3:65:ASP:CA | 27:3:68:ARG:NH1 | 2.72 | 0.52 |
| 28:4:31:VAL:O | 28:4:39:MET:CB | 2.57 | 0.52 |
| 28:4:55:ARG:C | 28:4:56:LYS:HG2 | 2.29 | 0.52 |
| 1:A:2399:G:N2 | 29:5:21:TYR:OH | 2.43 | 0.52 |
| 1:A:1142(A):A:P | 1:A:1143:A:H5' | 2.49 | 0.52 |
| 1:A:1141:U:O2' | 1:A:1142:U:OP2 | 2.16 | 0.52 |
| 1:A:1206:G:C8 | 1:A:1206:G:P | 3.03 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1285:G:C6 | 1:A:1329:U:C6 | 2.98 | 0.52 |
| 1:A:137(A):G:C8 | 1:A:139:G:H5'' | 2.45 | 0.52 |
| 1:A:1411:C:N4 | 1:A:1412:A:H62 | 2.08 | 0.52 |
| 1:A:1444(A):A:C8 | 1:A:1460:A:C2' | 2.77 | 0.52 |
| 1:A:1352:U:O2' | 1:A:1570:A:N3 | 2.37 | 0.52 |
| 1:A:1549:C:HO2' | 1:A:1733:G:HO2' | 1.50 | 0.52 |
| 1:A:1761:C:H5' | 1:A:1762:A:OP2 | 2.09 | 0.52 |
| 1:A:1839:G:C6 | 1:A:1840:G:C8 | 2.97 | 0.52 |
| 1:A:195:A:N6 | 1:A:198:C:OP2 | 2.42 | 0.52 |
| 1:A:2020:A:OP1 | 18:T:27:LEU:HD13 | 2.08 | 0.52 |
| 1:A:2021:C:H2' | 1:A:2022:U:OP1 | 2.10 | 0.52 |
| 1:A:2034:U:O2 | 1:A:2034:U:C2' | 2.56 | 0.52 |
| 1:A:2254:C:C2' | 1:A:2255:G:C5' | 2.80 | 0.52 |
| 1:A:2286:A:N7 | 29:5:31:PRO:CB | 2.70 | 0.52 |
| 1:A:2289:G:H5' | 1:A:2384:G:O2' | 2.10 | 0.52 |
| 1:A:2321:G:N2 | 1:A:2322:A:H1' | 2.24 | 0.52 |
| 1:A:410:G:N2 | 1:A:2407:G:N7 | 2.57 | 0.52 |
| 1:A:2416:C:O2 | 1:A:2417:C:C6 | 2.63 | 0.52 |
| 1:A:945:A:C5 | 1:A:2448:A:C2 | 2.97 | 0.52 |
| 1:A:2060:A:C8 | 1:A:2502:G:C2 | 2.97 | 0.52 |
| 1:A:2504:U:C3' | 1:A:2504:U:C6 | 2.93 | 0.52 |
| 1:A:2580:U:OP2 | 1:A:2581:G:O6 | 2.28 | 0.52 |
| 1:A:2597:G:H5' | 4:D:242:ARG:NE | 2.24 | 0.52 |
| 1:A:2634:G:H2' | 1:A:2635:C:H6 | 1.75 | 0.52 |
| 1:A:2781:A:H2' | 1:A:2782:G:H4' | 1.92 | 0.52 |
| 1:A:2830:G:H5' | 5:E:57:LYS:HE2 | 1.90 | 0.52 |
| 1:A:2850:A:C2 | 15:Q:61:HIS:CE1 | 2.98 | 0.52 |
| 1:A:374:A:C4 | 1:A:375:C:C6 | 2.98 | 0.52 |
| 1:A:223:A:C5 | 1:A:408:G:C1' | 2.92 | 0.52 |
| 1:A:422:A:H2' | 1:A:423:A:O5' | 2.10 | 0.52 |
| 1:A:455:C:O2' | 1:A:456:C:C5' | 2.57 | 0.52 |
| 1:A:596:G:H1' | 1:A:662:G:N2 | 2.24 | 0.52 |
| 1:A:613:U:C5 | 1:A:614:U:O2 | 2.60 | 0.52 |
| 1:A:730:C:C5' | 1:A:761:A:OP1 | 2.55 | 0.52 |
| 1:A:911:A:C2 | 14:P:13:GLN:OE1 | 2.62 | 0.52 |
| 1:A:919:G:N2 | 1:A:920:G:C1' | 2.72 | 0.52 |
| 1:A:944:G:H5'' | 1:A:945:A:O5' | 2.10 | 0.52 |
| 1:A:958:U:H2' | 1:A:959:A:OP2 | 2.10 | 0.52 |
| 2:B:91:C:H2' | 2:B:92:G:O4' | 2.10 | 0.52 |
| 4:D:117:VAL:HG13 | 4:D:129:ASN:CA | 2.40 | 0.52 |
| 4:D:124:PRO:O | 4:D:126:GLN:N | 2.41 | 0.52 |
| 4:D:141:VAL:HG12 | 4:D:194:GLY:O | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:51:VAL:HG12 | 4:D:52:ARG:N | 2.24 | 0.52 |
| 5:E:118:LYS:CE | 5:E:118:LYS:HA | 2.40 | 0.52 |
| 6:F:110:LEU:CA | 6:F:183:VAL:HG22 | 2.38 | 0.52 |
| 7:G:130:ASN:CG | 7:G:161:THR:H | 2.11 | 0.52 |
| 8:H:24:VAL:O | 8:H:24:VAL:HG22 | 2.08 | 0.52 |
| 8:H:25:LYS:HD3 | 8:H:27:LYS:HZ3 | 1.74 | 0.52 |
| 8:H:17:VAL:CG1 | 8:H:45:VAL:HG11 | 2.39 | 0.52 |
| 8:H:72:ILE:O | 8:H:75:ALA:HB3 | 2.09 | 0.52 |
| 9:K:26:ALA:HA | 9:K:30:LEU:HD13 | 1.92 | 0.52 |
| 9:K:4:ILE:CG1 | 9:K:39:ALA:N | 2.73 | 0.52 |
| 11:M:48:MET:O | 11:M:50:ASP:N | 2.43 | 0.52 |
| 11:M:57:ALA:HA | 11:M:60:ILE:CG1 | 2.40 | 0.52 |
| 11:M:7:LYS:N | 11:M:7:LYS:HE3 | 2.25 | 0.52 |
| 12:N:13:ASN:OD1 | 12:N:52:VAL:HB | 2.09 | 0.52 |
| 13:O:128:HIS:HA | 13:O:147:LEU:CD2 | 2.40 | 0.52 |
| 13:O:127:ALA:C | 13:O:147:LEU:HD21 | 2.28 | 0.52 |
| 13:O:37:GLY:C | 13:O:40:SER:HB3 | 2.30 | 0.52 |
| 14:P:54:MET:HE1 | 14:P:118:LEU:N | 2.25 | 0.52 |
| 15:Q:103:ARG:CB | 15:Q:108:GLY:HA2 | 2.32 | 0.52 |
| 15:Q:50:HIS:O | 15:Q:54:LEU:HD12 | 2.09 | 0.52 |
| 1:A:2881:C:C5' | 15:Q:90:ARG:HH22 | 2.22 | 0.52 |
| 16:R:23:ARG:NH1 | 16:R:42:ASP:HB3 | 2.23 | 0.52 |
| 17:S:7:ILE:CG1 | 17:S:8:LYS:N | 2.72 | 0.52 |
| 1:A:1248:G:C8 | 18:T:2:PRO:O | 2.62 | 0.52 |
| 19:U:22:VAL:HG12 | 19:U:23:GLU:N | 2.24 | 0.52 |
| 19:U:35:LEU:CA | 19:U:61:VAL:HG13 | 2.39 | 0.52 |
| 21:W:43:VAL:HG12 | 21:W:51:VAL:HG22 | 1.92 | 0.52 |
| 22:X:14:LEU:HD23 | 22:X:17:SER:OG | 2.09 | 0.52 |
| 22:X:83:THR:O | 22:X:94:LYS:HA | 2.09 | 0.52 |
| 22:X:81:LYS:CD | 22:X:96:ILE:HG12 | 2.40 | 0.52 |
| 23:Y:126:VAL:O | 23:Y:165:VAL:CG2 | 2.56 | 0.52 |
| 23:Y:76:LEU:CA | 23:Y:82:ARG:O | 2.58 | 0.52 |
| 9:K:66:GLU:C | 9:K:69:LYS:HG3 | 2.30 | 0.52 |
| 3:C:134:ARG:CZ | 3:C:134:ARG:CB | 2.88 | 0.52 |
| 1:A:162:U:OP2 | 1:A:171:G:C6 | 2.63 | 0.52 |
| 5:E:206:LYS:HB3 | 5:E:206:LYS:NZ | 2.25 | 0.52 |
| 25:1:25:ARG:O | 25:1:28:MET:CB | 2.54 | 0.52 |
| 26:2:23:LEU:CB | 26:2:28:LEU:HD12 | 2.40 | 0.52 |
| 30:6:24:THR:CG2 | 30:6:27:GLY:HA3 | 2.38 | 0.52 |
| 31:7:33:ASN:O | 31:7:34:TRP:HB2 | 2.10 | 0.52 |
| 31:7:22:VAL:N | 31:7:48:PHE:CE1 | 2.70 | 0.52 |
| 32:8:10:ILE:N | 32:8:10:ILE:HD12 | 2.24 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1120:G:C2 | 1:A:1121:C:C6 | 2.98 | 0.52 |
| 1:A:1128:A:C6 | 1:A:2518:A:N6 | 2.77 | 0.52 |
| 1:A:1138:G:N2 | 1:A:1139:G:H1' | 2.23 | 0.52 |
| 1:A:1155:A:C3' | 1:A:1156:A:H5'' | 2.35 | 0.52 |
| 1:A:1226:G:H8 | 1:A:1226:G:H3' | 1.75 | 0.52 |
| 1:A:1239:G:H2' | 1:A:1240:U:C4' | 2.40 | 0.52 |
| 1:A:565:C:O2' | 1:A:1253:A:C2 | 2.62 | 0.52 |
| 1:A:1349:A:H5' | 1:A:1350:C:H5'' | 1.90 | 0.52 |
| 1:A:1405:U:H2' | 1:A:1406:U:H5 | 1.67 | 0.52 |
| 1:A:1444(A):A:N6 | 1:A:1462:C:OP1 | 2.43 | 0.52 |
| 1:A:1476:C:H5 | 1:A:1477:A:C4 | 2.27 | 0.52 |
| 1:A:1534:G:C2' | 1:A:1536:A:N7 | 2.73 | 0.52 |
| 1:A:1541:U:O2 | 1:A:1541:U:C2' | 2.57 | 0.52 |
| 1:A:1526:G:N2 | 1:A:1546:C:N3 | 2.58 | 0.52 |
| 1:A:1552:G:C5' | 1:A:1553:A:OP1 | 2.56 | 0.52 |
| 1:A:1605:C:C1' | 1:A:1610:A:N7 | 2.73 | 0.52 |
| 1:A:1683:C:C2 | 1:A:1684:C:H5 | 2.28 | 0.52 |
| 1:A:1743:G:H5'' | 1:A:1743:G:H8 | 1.74 | 0.52 |
| 1:A:1755:A:H5' | 1:A:1756:G:OP2 | 2.08 | 0.52 |
| 1:A:1785:A:OP1 | 1:A:1982:C:C4' | 2.58 | 0.52 |
| 1:A:1790:C:C2 | 1:A:1791:A:N6 | 2.77 | 0.52 |
| 1:A:1800:C:HO2' | 1:A:1802:A:C1' | 2.22 | 0.52 |
| 1:A:183:C:H1' | 1:A:433:C:C1' | 2.35 | 0.52 |
| 1:A:1893:C:C2 | 1:A:1894:C:C6 | 2.98 | 0.52 |
| 1:A:1908:C:O2' | 1:A:1909:C:O5' | 2.27 | 0.52 |
| 1:A:2027:G:C2 | 1:A:2028:U:C1' | 2.91 | 0.52 |
| 1:A:2077:A:C6 | 1:A:2078:C:N4 | 2.78 | 0.52 |
| 1:A:2259:G:C2 | 1:A:2282:G:C6 | 2.98 | 0.52 |
| 1:A:2304:G:C4' | 7:G:132:ASN:ND2 | 2.58 | 0.52 |
| 1:A:2323:G:C2 | 1:A:2324:C:C4 | 2.98 | 0.52 |
| 1:A:2401:U:H2' | 1:A:2402:C:O4' | 2.10 | 0.52 |
| 1:A:2539:C:HO2' | 1:A:2540:C:H5' | 1.73 | 0.52 |
| 1:A:2553:G:H2' | 1:A:2553:G:N3 | 2.25 | 0.52 |
| 1:A:2555:U:H6 | 1:A:2555:U:C3' | 1.99 | 0.52 |
| 1:A:2569:G:C2 | 1:A:2570:G:N7 | 2.77 | 0.52 |
| 1:A:2600:A:C2 | 1:A:2601:C:C5 | 2.97 | 0.52 |
| 1:A:270(M):U:H4' | 1:A:270(N):G:C5' | 2.40 | 0.52 |
| 1:A:2712:U:H5'' | 1:A:2714:G:H4' | 1.91 | 0.52 |
| 1:A:291:C:N4 | 1:A:292:C:N4 | 2.58 | 0.52 |
| 1:A:307:G:N2 | 1:A:310:A:C5' | 2.73 | 0.52 |
| 1:A:356:G:C3' | 1:A:357:A:H8 | 2.22 | 0.52 |
| 1:A:371:A:HO2' | 1:A:372:G:P | 2.27 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:404:C:H2' | 1:A:404:C:O2 | 2.10 | 0.52 |
| 1:A:497:A:N1 | 1:A:498:G:N2 | 2.57 | 0.52 |
| 1:A:508:G:O2' | 1:A:509:C:H5'' | 2.10 | 0.52 |
| 1:A:721:C:H2' | 1:A:722:A:C8 | 2.45 | 0.52 |
| 1:A:85:G:H2' | 1:A:86:C:C6 | 2.44 | 0.52 |
| 1:A:879:G:N7 | 1:A:899:A:C2 | 2.77 | 0.52 |
| 2:B:7:G:C6 | 2:B:8:U:N3 | 2.78 | 0.52 |
| 4:D:105:ILE:O | 4:D:106:ILE:C | 2.48 | 0.52 |
| 4:D:123:ALA:HB1 | 4:D:124:PRO:HD2 | 1.91 | 0.52 |
| 1:A:2210:G:C8 | 4:D:150:LYS:HA | 2.44 | 0.52 |
| 1:A:1820:U:C5 | 4:D:159:ALA:O | 2.63 | 0.52 |
| 4:D:127:VAL:CA | 4:D:193:VAL:HG11 | 2.29 | 0.52 |
| 5:E:38:THR:HA | 5:E:42:ASP:HA | 1.90 | 0.52 |
| 5:E:98:PRO:HD3 | 5:E:175:VAL:CG1 | 2.39 | 0.52 |
| 6:F:139:PHE:CD2 | 6:F:166:ALA:CB | 2.80 | 0.52 |
| 6:F:121:GLY:CA | 6:F:191:ARG:HH11 | 2.23 | 0.52 |
| 7:G:134:GLY:HA3 | 7:G:156:ASP:CG | 2.30 | 0.52 |
| 7:G:13:GLU:O | 7:G:17:PRO:HD2 | 2.10 | 0.52 |
| 7:G:49:ASP:CA | 7:G:53:LEU:HD13 | 2.40 | 0.52 |
| 8:H:115:VAL:CG1 | 8:H:116:GLU:N | 2.73 | 0.52 |
| 9:K:21:VAL:O | 9:K:26:ALA:N | 2.38 | 0.52 |
| 9:K:5:LEU:HB3 | 9:K:8:PRO:HB2 | 1.91 | 0.52 |
| 10:L:10:LEU:HD21 | 10:L:41:PHE:CZ | 2.44 | 0.52 |
| 11:M:103:VAL:CG2 | 11:M:104:LYS:HE2 | 2.40 | 0.52 |
| 11:M:87:LEU:HD21 | 11:M:88:GLU:OE1 | 2.10 | 0.52 |
| 12:N:41:ALA:O | 12:N:56:ASP:HA | 2.08 | 0.52 |
| 13:O:11:GLY:N | 13:O:14:LYS:HE3 | 2.25 | 0.52 |
| 13:O:131:SER:N | 13:O:134:ALA:HB3 | 2.23 | 0.52 |
| 13:O:55:ARG:O | 13:O:56:SER:HB2 | 2.10 | 0.52 |
| 13:O:80:TYR:CZ | 13:O:85:LEU:HD21 | 2.44 | 0.52 |
| 13:O:97:PRO:HD3 | 13:O:102:ARG:NH2 | 2.25 | 0.52 |
| 14:P:8:LYS:HZ1 | 14:P:72:LYS:C | 2.13 | 0.52 |
| 1:A:2881:C:H4' | 15:Q:117:VAL:HG21 | 1.92 | 0.52 |
| 15:Q:28:LEU:HD13 | 15:Q:28:LEU:C | 2.28 | 0.52 |
| 15:Q:54:LEU:HD21 | 15:Q:65:LEU:HD13 | 1.92 | 0.52 |
| 16:R:30:ARG:HB2 | 16:R:34:HIS:CD2 | 2.45 | 0.52 |
| 17:S:111:ARG:CB | 17:S:111:ARG:HH11 | 2.22 | 0.52 |
| 17:S:45:PHE:CZ | 17:S:87:ASP:CB | 2.84 | 0.52 |
| 17:S:28:VAL:CG2 | 17:S:93:ARG:C | 2.62 | 0.52 |
| 18:T:55:ARG:CA | 18:T:58:ARG:HG2 | 2.39 | 0.52 |
| 18:T:70:ARG:HD2 | 18:T:75:ASN:ND2 | 2.24 | 0.52 |
| 19:U:11:GLN:HB3 | 19:U:21:ARG:HD2 | 1.92 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:U:68:LYS:NZ | 19:U:95:LEU:HD11 | 2.25 | 0.52 |
| 19:U:65:GLY:CA | 19:U:97:LYS:HE3 | 2.39 | 0.52 |
| 20:V:38:TYR:CD2 | 28:4:39:MET:HE2 | 2.44 | 0.52 |
| 23:Y:138:GLU:O | 23:Y:139:VAL:HG22 | 2.10 | 0.52 |
| 23:Y:14:LYS:O | 23:Y:15:PRO:C | 2.48 | 0.52 |
| 24:Z:12:ASN:O | 24:Z:14:ARG:HG2 | 2.10 | 0.52 |
| 24:Z:1:MET:O | 24:Z:2:ALA:HB2 | 2.10 | 0.52 |
| 24:Z:72:ARG:O | 24:Z:75:LEU:CD1 | 2.52 | 0.52 |
| 3:C:119:VAL:HG23 | 3:C:123:VAL:CG2 | 2.40 | 0.52 |
| 3:C:5:LYS:O | 3:C:7:TYR:N | 2.43 | 0.52 |
| 3:C:8:ARG:CZ | 3:C:12:GLU:HG2 | 2.39 | 0.52 |
| 1:A:714:U:C4 | 1:A:716:A:OP2 | 2.63 | 0.52 |
| 2:B:3:C:O2' | 2:B:4:C:H5' | 2.10 | 0.52 |
| 25:1:11:LEU:H | 25:1:11:LEU:HD12 | 1.73 | 0.52 |
| 25:1:38:GLN:N | 25:1:41:GLN:NE2 | 2.55 | 0.52 |
| 20:V:23:LEU:HD11 | 28:4:26:THR:O | 2.09 | 0.52 |
| 31:7:15:LYS:O | 31:7:22:VAL:HG13 | 2.10 | 0.52 |
| 31:7:44:LYS:O | 31:7:44:LYS:CG | 2.51 | 0.52 |
| 1:A:1027:A:N1 | 1:A:1126:A:H1' | 2.25 | 0.52 |
| 1:A:1143:A:O2' | 1:A:1144:G:C8 | 2.63 | 0.52 |
| 1:A:1204:A:N6 | 13:O:7:ARG:NH1 | 2.40 | 0.52 |
| 1:A:1453:A:OP2 | 1:A:1453:A:H4' | 2.10 | 0.52 |
| 1:A:1623:G:C8 | 1:A:1623:G:C5' | 2.92 | 0.52 |
| 1:A:1623:G:H2' | 1:A:1624:G:H5' | 1.92 | 0.52 |
| 1:A:1670:C:C5 | 1:A:1671:U:N3 | 2.79 | 0.52 |
| 1:A:1710:C:O5' | 1:A:1710:C:H6 | 1.93 | 0.52 |
| 1:A:1754:C:H2' | 1:A:1755:A:O4' | 2.10 | 0.52 |
| 1:A:1779:U:H2' | 1:A:1783:A:H62 | 1.65 | 0.52 |
| 1:A:1791:A:O2' | 4:D:206:LEU:CD2 | 2.58 | 0.52 |
| 1:A:1833:U:O2 | 1:A:1834:U:O2 | 2.29 | 0.52 |
| 1:A:1935:G:O3' | 1:A:1937:A:C2 | 2.63 | 0.52 |
| 1:A:1995:U:H6 | 1:A:1995:U:H3' | 1.74 | 0.52 |
| 1:A:2055:C:O2 | 1:A:2055:C:H2' | 2.10 | 0.52 |
| 1:A:2080:G:OP2 | 1:A:2080:G:H8 | 1.93 | 0.52 |
| 1:A:2093:G:C2 | 1:A:2197:U:O2 | 2.62 | 0.52 |
| 1:A:2244:U:H2' | 1:A:2244:U:O2 | 2.10 | 0.52 |
| 1:A:2319:G:O2' | 1:A:2320:A:OP1 | 2.25 | 0.52 |
| 1:A:2385:C:C2 | 1:A:2386:C:C6 | 2.98 | 0.52 |
| 1:A:2422:A:N3 | 1:A:2424:C:C5 | 2.77 | 0.52 |
| 1:A:2436:G:O2' | 1:A:2437:U:C5' | 2.57 | 0.52 |
| 1:A:2470:G:O6 | 1:A:2481:G:C2 | 2.62 | 0.52 |
| 1:A:2491:U:C4 | 1:A:2492:U:H3' | 2.45 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2455:G:N2 | 1:A:2498:C:N4 | 2.57 | 0.52 |
| 1:A:2051:A:N1 | 1:A:2614:A:N6 | 2.58 | 0.52 |
| 1:A:2666:C:H2' | 1:A:2667:C:H5' | 1.92 | 0.52 |
| 1:A:2714:G:H2' | 1:A:2715:C:H5' | 1.92 | 0.52 |
| 1:A:559:G:H8 | 1:A:559:G:C5' | 2.16 | 0.52 |
| 1:A:640:C:O2' | 1:A:641:C:H5'' | 2.10 | 0.52 |
| 1:A:656:G:OP2 | 1:A:656:G:C8 | 2.63 | 0.52 |
| 1:A:673:C:O2' | 1:A:674:G:H5' | 2.09 | 0.52 |
| 1:A:687:C:H3' | 1:A:688:U:C5 | 2.45 | 0.52 |
| 1:A:748:G:C5' | 20:V:88:ARG:NH1 | 2.73 | 0.52 |
| 1:A:933:A:H2' | 1:A:934:G:C5' | 2.40 | 0.52 |
| 1:A:957:A:N6 | 1:A:959:A:C2 | 2.77 | 0.52 |
| 1:A:979:G:N2 | 1:A:985:C:H42 | 2.05 | 0.52 |
| 2:B:43:C:O2 | 7:G:95:ARG:HB3 | 2.10 | 0.52 |
| 2:B:44:G:H2' | 2:B:48:A:C6 | 2.45 | 0.52 |
| 4:D:226:MET:HE2 | 4:D:235:GLY:HA2 | 1.92 | 0.52 |
| 4:D:61:LEU:CD2 | 4:D:63:ARG:HH12 | 2.22 | 0.52 |
| 4:D:89:SER:OG | 4:D:158:ALA:HB1 | 2.10 | 0.52 |
| 5:E:117:MET:CG | 5:E:136:ARG:HD2 | 2.39 | 0.52 |
| 5:E:22:PRO:HG3 | 5:E:183:LEU:HB3 | 1.91 | 0.52 |
| 1:A:321:G:P | 6:F:135:LYS:HE3 | 2.50 | 0.52 |
| 6:F:4:VAL:CG1 | 6:F:20:LEU:HD11 | 2.37 | 0.52 |
| 7:G:26:GLN:O | 7:G:27:ASN:HB2 | 2.10 | 0.52 |
| 7:G:36:LYS:HZ2 | 7:G:160:VAL:HG21 | 1.75 | 0.52 |
| 8:H:93:GLY:O | 8:H:107:VAL:CB | 2.58 | 0.52 |
| 10:L:61:ALA:O | 10:L:62:ASP:HB2 | 2.10 | 0.52 |
| 11:M:123:TYR:CB | 11:M:129:PRO:HB2 | 2.40 | 0.52 |
| 12:N:60:ALA:N | 12:N:86:ILE:CD1 | 2.71 | 0.52 |
| 13:O:45:LEU:CD2 | 31:7:59:LYS:HD2 | 2.37 | 0.52 |
| 13:O:76:LYS:HZ3 | 13:O:96:THR:HG21 | 1.70 | 0.52 |
| 15:Q:11:ASN:ND2 | 15:Q:12:ARG:H | 2.08 | 0.52 |
| 15:Q:28:LEU:C | 15:Q:28:LEU:HD22 | 2.31 | 0.52 |
| 15:Q:8:ARG:HH21 | 15:Q:21:TYR:HE1 | 1.58 | 0.52 |
| 16:R:99:LYS:O | 16:R:102:ALA:N | 2.43 | 0.52 |
| 17:S:64:ARG:CZ | 17:S:77:PRO:HA | 2.40 | 0.52 |
| 17:S:92:GLY:CA | 17:S:93:ARG:NH2 | 2.73 | 0.52 |
| 17:S:92:GLY:HA2 | 17:S:93:ARG:NH2 | 2.24 | 0.52 |
| 19:U:57:VAL:HG12 | 19:U:58:VAL:HG23 | 1.92 | 0.52 |
| 19:U:19:LYS:O | 19:U:96:ILE:HD11 | 2.10 | 0.52 |
| 20:V:14:PRO:CA | 20:V:16:LYS:HZ1 | 2.23 | 0.52 |
| 21:W:20:GLY:O | 21:W:21:PHE:C | 2.48 | 0.52 |
| 21:W:44:GLU:HG3 | 21:W:51:VAL:CG2 | 2.25 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:W:48:LYS:O | 21:W:88:LYS:HE2 | 2.10 | 0.52 |
| 22:X:29:GLU:HB3 | 22:X:32:PRO:O | 2.10 | 0.52 |
| 22:X:47:LYS:HZ2 | 22:X:51:VAL:CG1 | 2.20 | 0.52 |
| 22:X:46:LYS:HB2 | 22:X:57:GLN:HA | 1.92 | 0.52 |
| 23:Y:47:VAL:O | 23:Y:50:GLN:N | 2.43 | 0.52 |
| 23:Y:74:VAL:HG13 | 23:Y:86:VAL:HA | 1.91 | 0.52 |
| 2:B:12:C:O5' | 24:Z:74:ARG:NE | 2.42 | 0.52 |
| 24:Z:49:LYS:N | 24:Z:80:HIS:ND1 | 2.58 | 0.52 |
| 9:K:68:LEU:CD2 | 9:K:107:VAL:HG21 | 2.29 | 0.52 |
| 3:C:127:LEU:O | 3:C:128:GLY:C | 2.47 | 0.52 |
| 1:A:1886:C:H2' | 1:A:1887:C:H6 | 1.74 | 0.52 |
| 27:3:47:GLN:CG | 27:3:50:VAL:H | 2.22 | 0.51 |
| 28:4:51:TYR:HD2 | 28:4:51:TYR:C | 2.14 | 0.51 |
| 31:7:8:LYS:HE2 | 31:7:11:LYS:HZ1 | 1.75 | 0.51 |
| 31:7:53:PRO:HA | 31:7:56:GLU:CD | 2.30 | 0.51 |
| 32:8:5:ALA:O | 32:8:6:SER:CB | 2.56 | 0.51 |
| 1:A:1022:G:C2 | 1:A:1139:G:C2 | 2.98 | 0.51 |
| 1:A:1036:G:C2 | 1:A:1120:G:C6 | 2.98 | 0.51 |
| 1:A:1044:G:O4' | 1:A:1047:G:H1' | 2.10 | 0.51 |
| 1:A:1061:U:O3' | 1:A:1070:A:O4' | 2.28 | 0.51 |
| 1:A:1076:C:H1' | 10:L:90:LYS:HG2 | 1.92 | 0.51 |
| 1:A:1114:G:N2 | 1:A:1115:G:C1' | 2.68 | 0.51 |
| 1:A:1139:G:C8 | 1:A:1139:G:H3' | 2.45 | 0.51 |
| 1:A:1312:U:C5 | 1:A:1313:U:C4 | 2.97 | 0.51 |
| 1:A:143:C:O2 | 1:A:144:C:C5 | 2.64 | 0.51 |
| 1:A:1536:A:H2' | 1:A:1537:C:C5 | 2.44 | 0.51 |
| 1:A:175:G:N2 | 1:A:176:G:C1' | 2.72 | 0.51 |
| 1:A:1784:A:C1' | 1:A:1785:A:C5 | 2.90 | 0.51 |
| 1:A:1990:C:N3 | 1:A:1991:U:N3 | 2.57 | 0.51 |
| 1:A:2046:G:H2' | 1:A:2047:U:C5 | 2.45 | 0.51 |
| 1:A:2075:U:C6 | 1:A:2597:G:N2 | 2.70 | 0.51 |
| 1:A:46:C:N4 | 1:A:214:G:C8 | 2.78 | 0.51 |
| 1:A:2208:U:H1' | 1:A:2217:G:C2 | 2.44 | 0.51 |
| 1:A:2262:U:H2' | 1:A:2263:C:H6 | 1.76 | 0.51 |
| 1:A:227:A:HO2' | 1:A:228:A:P | 2.33 | 0.51 |
| 1:A:2073:C:H42 | 1:A:2437:U:H3 | 1.57 | 0.51 |
| 1:A:2620:C:O4' | 5:E:156:MET:HG2 | 2.09 | 0.51 |
| 1:A:2631:G:H4' | 1:A:2892:A:C4' | 2.40 | 0.51 |
| 1:A:2685:G:C2 | 1:A:2686:G:N7 | 2.78 | 0.51 |
| 1:A:2702:U:H3' | 1:A:2702:U:C6 | 2.44 | 0.51 |
| 1:A:2720:U:C3' | 1:A:2721:A:C8 | 2.82 | 0.51 |
| 1:A:2787:C:C2 | 5:E:61:ARG:CZ | 2.93 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2791:C:N4 | 1:A:2807:G:N7 | 2.58 | 0.51 |
| 1:A:322:A:OP2 | 1:A:322:A:O4' | 2.28 | 0.51 |
| 1:A:506:G:H2' | 1:A:507:A:OP2 | 2.10 | 0.51 |
| 1:A:686:G:H5' | 1:A:687:C:OP2 | 2.09 | 0.51 |
| 1:A:728:G:C2' | 1:A:729:G:H8 | 2.23 | 0.51 |
| 1:A:792:G:C6 | 1:A:2440:C:N1 | 2.78 | 0.51 |
| 1:A:776:G:N3 | 1:A:793:A:C6 | 2.78 | 0.51 |
| 1:A:852:G:H5' | 26:2:45:GLY:HA3 | 1.91 | 0.51 |
| 1:A:909:A:H5' | 1:A:909:A:C8 | 2.45 | 0.51 |
| 1:A:928:G:C5 | 1:A:929:G:O4' | 2.63 | 0.51 |
| 1:A:996:A:N3 | 1:A:997:G:C8 | 2.78 | 0.51 |
| 2:B:9:G:O2' | 16:R:43:GLU:HB3 | 2.10 | 0.51 |
| 4:D:57:GLY:N | 4:D:217:ARG:CD | 2.73 | 0.51 |
| 4:D:66:ASP:CG | 4:D:103:ARG:HD3 | 2.30 | 0.51 |
| 5:E:36:ARG:NH2 | 5:E:41:LYS:HZ1 | 2.08 | 0.51 |
| 5:E:51:PHE:O | 5:E:52:LEU:HD22 | 2.10 | 0.51 |
| 6:F:101:LEU:C | 6:F:101:LEU:HD13 | 2.30 | 0.51 |
| 6:F:106:ARG:CG | 6:F:107:LYS:N | 2.66 | 0.51 |
| 7:G:162:THR:O | 7:G:164:GLU:N | 2.33 | 0.51 |
| 7:G:57:ALA:HA | 7:G:67:LYS:CA | 2.40 | 0.51 |
| 8:H:103:LEU:CA | 8:H:115:VAL:HG12 | 2.40 | 0.51 |
| 8:H:155:SER:O | 8:H:157:TYR:N | 2.40 | 0.51 |
| 8:H:167:GLU:N | 8:H:167:GLU:OE1 | 2.42 | 0.51 |
| 8:H:6:ARG:HG3 | 8:H:65:HIS:HB3 | 1.93 | 0.51 |
| 9:K:23:PRO:O | 9:K:24:GLY:C | 2.49 | 0.51 |
| 10:L:19:PRO:O | 10:L:20:ALA:C | 2.48 | 0.51 |
| 11:M:99:LEU:HD12 | 11:M:103:VAL:CG1 | 2.40 | 0.51 |
| 11:M:103:VAL:CG2 | 11:M:104:LYS:H | 2.21 | 0.51 |
| 11:M:109:LYS:HG2 | 11:M:112:LEU:N | 2.25 | 0.51 |
| 11:M:124:ALA:O | 11:M:125:GLY:O | 2.28 | 0.51 |
| 11:M:56:ASN:ND2 | 11:M:126:PRO:O | 2.43 | 0.51 |
| 13:O:131:SER:N | 13:O:134:ALA:HB2 | 2.25 | 0.51 |
| 13:O:122:PRO:C | 13:O:138:LEU:CA | 2.79 | 0.51 |
| 13:O:80:TYR:OH | 13:O:98:GLU:OE2 | 2.22 | 0.51 |
| 14:P:137:TYR:CG | 14:P:138:ASP:N | 2.79 | 0.51 |
| 1:A:1275:A:C2 | 15:Q:16:HIS:ND1 | 2.78 | 0.51 |
| 15:Q:77:ARG:O | 15:Q:79:LEU:N | 2.43 | 0.51 |
| 16:R:103:GLU:N | 16:R:103:GLU:CD | 2.63 | 0.51 |
| 16:R:98:VAL:O | 16:R:99:LYS:C | 2.47 | 0.51 |
| 17:S:11:GLU:HG2 | 17:S:59:THR:OG1 | 2.10 | 0.51 |
| 1:A:1225:C:C5' | 19:U:87:HIS:ND1 | 2.72 | 0.51 |
| 1:A:1266:G:N9 | 20:V:15:ARG:NH2 | 2.58 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:519:U:C5' | 20:V:75:TYR:HB2 | 2.30 | 0.51 |
| 22:X:1:MET:N | 22:X:33:LYS:HZ1 | 2.06 | 0.51 |
| 23:Y:109:ALA:HB3 | 23:Y:144:LEU:HG | 1.91 | 0.51 |
| 14:P:62:GLY:CA | 23:Y:177:PRO:HB2 | 2.40 | 0.51 |
| 24:Z:46:LYS:N | 24:Z:46:LYS:HD3 | 2.25 | 0.51 |
| 9:K:139:GLN:O | 9:K:140:LEU:HG | 2.09 | 0.51 |
| 1:A:2148:G:O2' | 1:A:2149:G:H8 | 1.92 | 0.51 |
| 3:C:212:VAL:O | 3:C:223:ARG:CG | 2.46 | 0.51 |
| 1:A:1582:C:C4 | 1:A:1583:A:H8 | 2.29 | 0.51 |
| 25:1:43:HIS:O | 25:1:44:LYS:C | 2.49 | 0.51 |
| 27:3:63:TYR:O | 27:3:66:SER:HB2 | 2.10 | 0.51 |
| 27:3:65:ASP:CA | 27:3:68:ARG:NH2 | 2.72 | 0.51 |
| 28:4:6:VAL:O | 28:4:7:PRO:O | 2.28 | 0.51 |
| 29:5:40:CYS:HA | 29:5:47:THR:O | 2.10 | 0.51 |
| 30:6:25:PRO:N | 30:6:28:ARG:HH21 | 2.06 | 0.51 |
| 31:7:23:VAL:HG13 | 31:7:47:LYS:H | 1.74 | 0.51 |
| 31:7:49:VAL:O | 31:7:53:PRO:CG | 2.58 | 0.51 |
| 1:A:1044:G:H2' | 1:A:1111:A:N3 | 2.25 | 0.51 |
| 1:A:1071:G:C1' | 1:A:1089:G:N7 | 2.73 | 0.51 |
| 1:A:1216:G:H2' | 1:A:1217:C:C6 | 2.45 | 0.51 |
| 1:A:1228:G:C6 | 1:A:1229:G:C5 | 2.98 | 0.51 |
| 1:A:1264:G:C3' | 1:A:1265:A:C5' | 2.86 | 0.51 |
| 1:A:1364:G:N1 | 1:A:1367:A:OP2 | 2.44 | 0.51 |
| 1:A:1430:C:C2 | 1:A:1431:U:C5 | 2.99 | 0.51 |
| 1:A:1855:G:C5 | 1:A:1856:G:C8 | 2.98 | 0.51 |
| 1:A:1894:C:H2' | 1:A:1895:C:C6 | 2.46 | 0.51 |
| 1:A:1903:G:C2 | 1:A:1904:G:C8 | 2.99 | 0.51 |
| 1:A:1906:G:C6 | 1:A:1907:G:N7 | 2.77 | 0.51 |
| 1:A:1933:G:N2 | 1:A:1934:C:H1' | 2.24 | 0.51 |
| 1:A:1966:A:C2' | 1:A:1967:C:OP2 | 2.58 | 0.51 |
| 1:A:1992:G:H1' | 1:A:1993:U:O4 | 2.10 | 0.51 |
| 1:A:2019:A:C3' | 1:A:2020:A:H5'' | 2.15 | 0.51 |
| 1:A:2085:C:H2' | 1:A:2086:U:H5' | 1.92 | 0.51 |
| 1:A:21:A:O2' | 1:A:22:C:H5' | 2.11 | 0.51 |
| 1:A:2209:C:OP2 | 1:A:2210:G:P | 2.69 | 0.51 |
| 1:A:2244:U:H1' | 1:A:2434:A:C6 | 2.45 | 0.51 |
| 1:A:253:C:H2' | 1:A:254:G:H5' | 1.91 | 0.51 |
| 1:A:2584:U:C2' | 1:A:2585:U:C6 | 2.92 | 0.51 |
| 1:A:2636:U:C5' | 5:E:79:ARG:HD3 | 2.40 | 0.51 |
| 1:A:2711:A:OP2 | 1:A:2714:G:OP1 | 2.27 | 0.51 |
| 1:A:2739:U:H2' | 1:A:2739:U:O2 | 2.10 | 0.51 |
| 1:A:2750:A:H5'' | 1:A:2751:G:OP1 | 2.11 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2858:C:H5'' | 1:A:2859:G:C8 | 2.45 | 0.51 |
| 1:A:2865:U:O4 | 1:A:2866:U:H5 | 1.92 | 0.51 |
| 1:A:312:G:C2' | 1:A:312:G:N3 | 2.72 | 0.51 |
| 1:A:558:G:OP1 | 11:M:111:PRO:HG2 | 2.10 | 0.51 |
| 1:A:630:G:N1 | 1:A:634:C:N4 | 2.56 | 0.51 |
| 1:A:83:G:O2' | 1:A:84:A:O5' | 2.28 | 0.51 |
| 1:A:930:U:O2 | 1:A:932:G:N2 | 2.43 | 0.51 |
| 1:A:969:U:C2 | 1:A:970:C:C6 | 2.98 | 0.51 |
| 1:A:996:A:H5' | 18:T:93:LYS:HG3 | 1.93 | 0.51 |
| 2:B:24:G:C4 | 2:B:56:G:C5 | 2.99 | 0.51 |
| 4:D:118:VAL:HG12 | 4:D:119:ALA:N | 2.21 | 0.51 |
| 4:D:208:LYS:O | 4:D:211:ARG:HB2 | 2.10 | 0.51 |
| 1:A:1566:A:C4 | 4:D:215:LEU:HD22 | 2.44 | 0.51 |
| 1:A:1789:A:OP1 | 4:D:222:ARG:HG2 | 2.09 | 0.51 |
| 5:E:117:MET:HG2 | 5:E:136:ARG:HD2 | 1.93 | 0.51 |
| 1:A:2572:A:C2 | 5:E:144:ARG:NH1 | 2.78 | 0.51 |
| 5:E:28:ALA:O | 5:E:180:ASN:OD1 | 2.27 | 0.51 |
| 5:E:64:LYS:O | 5:E:65:GLY:C | 2.49 | 0.51 |
| 1:A:586:A:C5' | 6:F:89:VAL:HG21 | 2.39 | 0.51 |
| 7:G:128:ARG:O | 7:G:128:ARG:NE | 2.43 | 0.51 |
| 7:G:153:ARG:HG2 | 7:G:154:GLY:N | 2.24 | 0.51 |
| 7:G:174:GLU:OE2 | 7:G:175:LEU:HB2 | 2.10 | 0.51 |
| 7:G:27:ASN:HB3 | 7:G:29:TRP:CD2 | 2.45 | 0.51 |
| 2:B:57:A:H1' | 7:G:29:TRP:CE3 | 2.46 | 0.51 |
| 7:G:49:ASP:H | 7:G:53:LEU:HD13 | 1.75 | 0.51 |
| 7:G:49:ASP:HB3 | 7:G:70:VAL:HG13 | 1.93 | 0.51 |
| 2:B:42:C:C4 | 7:G:93:THR:HB | 2.44 | 0.51 |
| 1:A:2531:A:H62 | 8:H:175:LYS:CE | 2.23 | 0.51 |
| 8:H:26:VAL:CG1 | 8:H:76:VAL:HA | 2.40 | 0.51 |
| 10:L:105:LEU:CD2 | 10:L:124:ALA:HB2 | 2.40 | 0.51 |
| 11:M:127:ASP:O | 11:M:130:HIS:CB | 2.58 | 0.51 |
| 11:M:88:GLU:CA | 11:M:89:LYS:HZ1 | 2.24 | 0.51 |
| 12:N:15:GLY:HA3 | 12:N:52:VAL:HG21 | 1.92 | 0.51 |
| 1:A:603:A:N6 | 13:O:104:GLY:CA | 2.70 | 0.51 |
| 14:P:14:ARG:N | 14:P:14:ARG:NE | 2.58 | 0.51 |
| 15:Q:20:LEU:HD13 | 15:Q:21:TYR:N | 2.24 | 0.51 |
| 18:T:108:GLU:HG2 | 18:T:109:LEU:HD23 | 1.91 | 0.51 |
| 18:T:44:ASN:HD21 | 19:U:78:LYS:N | 2.04 | 0.51 |
| 18:T:79:PHE:C | 18:T:79:PHE:CD1 | 2.82 | 0.51 |
| 20:V:98:LYS:NZ | 20:V:98:LYS:HB3 | 2.25 | 0.51 |
| 21:W:15:GLU:O | 21:W:18:TYR:HB2 | 2.10 | 0.51 |
| 22:X:19:LYS:CE | 22:X:40:GLU:HB2 | 2.40 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2153:G:O5' | 1:A:2153:G:H8 | 1.92 | 0.51 |
| 1:A:2175:C:OP1 | 3:C:5:LYS:CG | 2.58 | 0.51 |
| 3:C:213:TYR:CE1 | 3:C:223:ARG:NH2 | 2.78 | 0.51 |
| 1:A:2102:U:H2' | 1:A:2103:C:C6 | 2.46 | 0.51 |
| 1:A:1886:C:N3 | 1:A:1887:C:C5 | 2.79 | 0.51 |
| 1:A:132:G:C2 | 1:A:133:C:C6 | 2.98 | 0.51 |
| 4:D:111:LEU:HD12 | 4:D:115:GLN:CD | 2.29 | 0.51 |
| 25:1:56:LEU:H | 25:1:56:LEU:HD22 | 1.75 | 0.51 |
| 27:3:21:VAL:C | 27:3:22:ILE:HG13 | 2.31 | 0.51 |
| 27:3:42:PHE:CE2 | 27:3:43:TYR:O | 2.63 | 0.51 |
| 27:3:44:THR:O | 27:3:54:GLY:HA3 | 2.11 | 0.51 |
| 28:4:21:SER:O | 28:4:22:HIS:C | 2.46 | 0.51 |
| 31:7:33:ASN:O | 31:7:34:TRP:CG | 2.64 | 0.51 |
| 31:7:26:LYS:CE | 31:7:45:GLY:H | 2.23 | 0.51 |
| 1:A:1025:G:H8 | 1:A:1134:G:H1' | 1.74 | 0.51 |
| 1:A:1059:G:C3' | 1:A:1059:G:C8 | 2.94 | 0.51 |
| 1:A:1095:A:C2' | 1:A:1096:A:O4' | 2.55 | 0.51 |
| 1:A:1139:G:C2' | 1:A:1142(A):A:C2 | 2.93 | 0.51 |
| 1:A:1177:A:C2' | 1:A:1178:C:C6 | 2.84 | 0.51 |
| 1:A:1454:U:C5' | 1:A:1455:G:OP2 | 2.47 | 0.51 |
| 1:A:1403:C:OP1 | 1:A:1521:G:N1 | 2.43 | 0.51 |
| 1:A:1691:C:N3 | 1:A:1692:U:C5 | 2.78 | 0.51 |
| 1:A:1770:G:C5 | 1:A:1771:C:N4 | 2.78 | 0.51 |
| 1:A:1799:G:O2' | 1:A:1800:C:O4' | 2.18 | 0.51 |
| 1:A:1819:A:H5'' | 4:D:178:PRO:HB2 | 1.91 | 0.51 |
| 1:A:1989:G:C2' | 1:A:1990:C:H5' | 2.40 | 0.51 |
| 1:A:1268:A:C5 | 1:A:2013:A:N6 | 2.79 | 0.51 |
| 1:A:2060:A:O2' | 1:A:2061:G:P | 2.68 | 0.51 |
| 1:A:2077:A:H1' | 1:A:2435:A:N9 | 2.25 | 0.51 |
| 1:A:229:A:C2' | 1:A:230:U:O5' | 2.58 | 0.51 |
| 1:A:2345:G:N2 | 1:A:2382:G:OP2 | 2.42 | 0.51 |
| 1:A:2349:G:C4 | 1:A:2369:A:C2 | 2.98 | 0.51 |
| 1:A:2588:G:O6 | 1:A:2589:A:N6 | 2.43 | 0.51 |
| 1:A:311:A:HO2' | 1:A:312:G:P | 2.32 | 0.51 |
| 1:A:328:U:C6 | 1:A:328:U:C3' | 2.91 | 0.51 |
| 1:A:389:G:OP1 | 1:A:389:G:H8 | 1.94 | 0.51 |
| 1:A:416:C:C5 | 1:A:417:C:C5 | 2.98 | 0.51 |
| 1:A:589:C:N4 | 1:A:590:A:H62 | 2.08 | 0.51 |
| 1:A:609:A:N7 | 1:A:609(A):G:N7 | 2.58 | 0.51 |
| 1:A:259:G:O2' | 1:A:621:A:C1' | 2.58 | 0.51 |
| 1:A:729:G:C6 | 1:A:730:C:C2 | 2.98 | 0.51 |
| 1:A:943:U:C3' | 1:A:943:U:C6 | 2.93 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:996:A:N3 | 1:A:997:G:N7 | 2.57 | 0.51 |
| 2:B:53:A:N6 | 2:B:54:G:C5 | 2.79 | 0.51 |
| 4:D:7:LYS:HD3 | 4:D:25:THR:CG2 | 2.41 | 0.51 |
| 1:A:2620:C:H4' | 5:E:156:MET:HB2 | 1.88 | 0.51 |
| 5:E:176:ILE:HG23 | 5:E:181:LEU:CB | 2.40 | 0.51 |
| 6:F:160:ASN:HB2 | 6:F:163:VAL:CB | 2.40 | 0.51 |
| 6:F:200:GLU:CG | 6:F:201:VAL:N | 2.72 | 0.51 |
| 7:G:116:ASP:O | 7:G:118:ARG:N | 2.43 | 0.51 |
| 7:G:170:ARG:C | 7:G:170:ARG:HD3 | 2.31 | 0.51 |
| 8:H:155:SER:HB2 | 8:H:158:HIS:O | 2.10 | 0.51 |
| 9:K:38:LEU:O | 9:K:43:ASN:OD1 | 2.29 | 0.51 |
| 12:N:11:ALA:O | 12:N:97:ARG:CZ | 2.59 | 0.51 |
| 12:N:121:VAL:HG12 | 12:N:121:VAL:O | 2.10 | 0.51 |
| 14:P:106:VAL:HG13 | 14:P:107:ALA:N | 2.24 | 0.51 |
| 14:P:56:ARG:HD2 | 14:P:57:HIS:N | 2.26 | 0.51 |
| 15:Q:38:VAL:CB | 15:Q:39:PRO:CD | 2.84 | 0.51 |
| 15:Q:63:ARG:HH21 | 15:Q:76:VAL:CG1 | 2.23 | 0.51 |
| 17:S:10:VAL:O | 17:S:11:GLU:C | 2.48 | 0.51 |
| 17:S:50:ILE:HD12 | 17:S:66:VAL:HG23 | 1.91 | 0.51 |
| 18:T:69:CYS:SG | 18:T:70:ARG:HG3 | 2.50 | 0.51 |
| 18:T:89:GLU:O | 18:T:90:VAL:CG2 | 2.57 | 0.51 |
| 20:V:40:ASN:O | 20:V:41:LYS:HB2 | 2.10 | 0.51 |
| 1:A:1338:G:H4' | 21:W:16:LYS:HZ1 | 1.74 | 0.51 |
| 22:X:54:LYS:CE | 22:X:54:LYS:HA | 2.25 | 0.51 |
| 22:X:84:ARG:CA | 22:X:84:ARG:NE | 2.72 | 0.51 |
| 23:Y:121:HIS:C | 23:Y:122:ARG:HD3 | 2.31 | 0.51 |
| 23:Y:27:VAL:HB | 23:Y:87:ASP:OD1 | 2.11 | 0.51 |
| 3:C:142:ALA:O | 3:C:143:GLY:C | 2.49 | 0.51 |
| 3:C:211:SER:HA | 3:C:223:ARG:NH2 | 2.23 | 0.51 |
| 1:A:2464:C:H2' | 1:A:2465:C:H6 | 1.74 | 0.51 |
| 25:1:33:GLN:HB3 | 25:1:41:GLN:OE1 | 2.10 | 0.51 |
| 26:2:50:VAL:CB | 26:2:53:LEU:HD12 | 2.40 | 0.51 |
| 26:2:6:VAL:CB | 26:2:35:ARG:CZ | 2.88 | 0.51 |
| 27:3:20:ASN:O | 27:3:30:GLU:HB2 | 2.11 | 0.51 |
| 27:3:65:ASP:HA | 27:3:68:ARG:NH2 | 2.26 | 0.51 |
| 31:7:13:ARG:HH11 | 31:7:13:ARG:HG3 | 1.76 | 0.51 |
| 31:7:22:VAL:O | 31:7:23:VAL:HG23 | 2.10 | 0.51 |
| 31:7:30:ARG:NH2 | 31:7:43:GLN:CA | 2.72 | 0.51 |
| 31:7:44:LYS:CE | 31:7:44:LYS:HA | 2.41 | 0.51 |
| 1:A:2750:A:N1 | 32:8:18:ARG:NH1 | 2.59 | 0.51 |
| 32:8:15:LYS:C | 32:8:25:VAL:HG13 | 2.30 | 0.51 |
| 1:A:104:U:O2' | 1:A:105:C:H5' | 2.10 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1094:U:N3 | 1:A:1096:A:O5' | 2.44 | 0.51 |
| 1:A:70:G:H2' | 1:A:114:U:C5 | 2.44 | 0.51 |
| 1:A:1268:A:C4 | 1:A:2013:A:C6 | 2.98 | 0.51 |
| 1:A:1426:G:H3' | 1:A:1427:A:H5'' | 1.92 | 0.51 |
| 1:A:1459:G:O6 | 1:A:1461:G:C6 | 2.64 | 0.51 |
| 1:A:1476:C:N4 | 1:A:1517:G:C8 | 2.76 | 0.51 |
| 1:A:1523:U:N3 | 1:A:1524:G:N7 | 2.59 | 0.51 |
| 1:A:1568:G:C5' | 4:D:61:LEU:CA | 2.89 | 0.51 |
| 1:A:1608:A:C2 | 1:A:1611:C:C6 | 2.98 | 0.51 |
| 1:A:1651:G:C2 | 1:A:1652:A:C5 | 2.97 | 0.51 |
| 1:A:1668:A:N7 | 1:A:1674:G:C4 | 2.79 | 0.51 |
| 1:A:1691:C:C2 | 1:A:1692:U:C6 | 2.97 | 0.51 |
| 1:A:1791:A:O4' | 4:D:209:ALA:CA | 2.55 | 0.51 |
| 1:A:1862:G:C2' | 1:A:1863:G:C8 | 2.90 | 0.51 |
| 1:A:1921:G:C2' | 1:A:1922:G:H5' | 2.40 | 0.51 |
| 1:A:1928:A:H3' | 1:A:1929:G:H5' | 1.91 | 0.51 |
| 1:A:1935:G:H2' | 1:A:1962:C:N4 | 2.24 | 0.51 |
| 1:A:1785:A:OP1 | 1:A:1982:C:C5' | 2.59 | 0.51 |
| 1:A:1990:C:C4 | 1:A:1991:U:O4 | 2.63 | 0.51 |
| 1:A:1993:U:O2' | 1:A:1994:C:H5' | 2.10 | 0.51 |
| 1:A:2003:G:C2' | 1:A:2004:G:O5' | 2.59 | 0.51 |
| 1:A:578:A:C2' | 1:A:2018:G:C5' | 2.87 | 0.51 |
| 1:A:2067:G:H5'' | 1:A:2068:U:OP2 | 2.10 | 0.51 |
| 1:A:2080:G:O2' | 1:A:2081:C:H5' | 2.10 | 0.51 |
| 1:A:2219:G:H2' | 1:A:2224:G:C5' | 2.39 | 0.51 |
| 1:A:2292:C:H2' | 1:A:2293:C:C6 | 2.45 | 0.51 |
| 1:A:2345:G:C5 | 1:A:2371:G:N2 | 2.79 | 0.51 |
| 1:A:2258:C:N4 | 1:A:2426:A:O4' | 2.43 | 0.51 |
| 1:A:2747:G:H21 | 1:A:2748:A:N6 | 2.06 | 0.51 |
| 1:A:2792:G:N2 | 1:A:2793:G:C4 | 2.79 | 0.51 |
| 1:A:2847:U:OP2 | 17:S:54:ARG:NH2 | 2.43 | 0.51 |
| 1:A:297:C:N4 | 1:A:298:G:N2 | 2.58 | 0.51 |
| 1:A:319:C:N4 | 1:A:320:A:C6 | 2.78 | 0.51 |
| 1:A:573:G:H2' | 1:A:574:C:H3' | 1.92 | 0.51 |
| 1:A:622:G:C6 | 1:A:623:G:N2 | 2.77 | 0.51 |
| 1:A:656:G:H8 | 1:A:656:G:OP2 | 1.93 | 0.51 |
| 1:A:659:C:H4' | 6:F:102:PRO:HD3 | 1.93 | 0.51 |
| 1:A:733:G:N1 | 1:A:761:A:C5 | 2.78 | 0.51 |
| 1:A:762:U:H1' | 1:A:763:G:C6 | 2.46 | 0.51 |
| 1:A:788:A:C4' | 1:A:789:A:O5' | 2.56 | 0.51 |
| 1:A:849:A:N3 | 26:2:21:ALA:HB1 | 2.26 | 0.51 |
| 1:A:909:A:C8 | 1:A:909:A:C5' | 2.92 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:938:G:C2 | 1:A:939:G:C5 | 2.98 | 0.51 |
| 1:A:974:G:C5 | 1:A:974(A):C:N4 | 2.78 | 0.51 |
| 2:B:102:G:H2' | 2:B:103:U:C5 | 2.46 | 0.51 |
| 2:B:65:C:C5 | 2:B:108:C:C5 | 2.98 | 0.51 |
| 2:B:75:G:C6 | 2:B:76:G:N3 | 2.78 | 0.51 |
| 1:A:2216:G:C2 | 4:D:150:LYS:NZ | 2.78 | 0.51 |
| 4:D:204:ILE:O | 4:D:205:VAL:HB | 2.11 | 0.51 |
| 1:A:1901:A:H1' | 4:D:244:ARG:NH1 | 2.26 | 0.51 |
| 4:D:72:LYS:NZ | 4:D:75:ILE:CD1 | 2.73 | 0.51 |
| 1:A:2679:A:O2' | 5:E:189:PRO:HA | 2.10 | 0.51 |
| 5:E:5:LEU:HD22 | 5:E:196:VAL:CG2 | 2.40 | 0.51 |
| 5:E:30:PRO:HD2 | 5:E:91:VAL:HA | 1.93 | 0.51 |
| 1:A:2784:C:C1' | 5:E:41:LYS:NZ | 2.72 | 0.51 |
| 5:E:60:ASN:OD1 | 5:E:61:ARG:N | 2.43 | 0.51 |
| 6:F:36:VAL:HG13 | 6:F:37:VAL:N | 2.24 | 0.51 |
| 6:F:47:GLY:O | 6:F:95:ARG:O | 2.27 | 0.51 |
| 7:G:131:TYR:HB2 | 7:G:159:VAL:H | 1.75 | 0.51 |
| 7:G:147:ASP:O | 7:G:148:MET:HB3 | 2.09 | 0.51 |
| 7:G:47:LYS:HB2 | 7:G:72:ARG:C | 2.31 | 0.51 |
| 8:H:7:LEU:HB3 | 8:H:65:HIS:NE2 | 2.24 | 0.51 |
| 11:M:43:THR:O | 11:M:44:PRO:C | 2.49 | 0.51 |
| 12:N:47:ILE:HG12 | 12:N:47:ILE:O | 2.09 | 0.51 |
| 12:N:78:ARG:CZ | 12:N:78:ARG:N | 2.74 | 0.51 |
| 13:O:130:PHE:C | 13:O:134:ALA:HB3 | 2.31 | 0.51 |
| 15:Q:67:LEU:CD2 | 15:Q:72:ASP:H | 2.22 | 0.51 |
| 16:R:67:ARG:NH2 | 16:R:67:ARG:HG2 | 2.25 | 0.51 |
| 17:S:98:LYS:O | 17:S:98:LYS:HG3 | 2.10 | 0.51 |
| 1:A:1010:A:H5'' | 18:T:66:ASN:OD1 | 2.10 | 0.51 |
| 19:U:3:ALA:C | 19:U:12:TYR:CE2 | 2.84 | 0.51 |
| 19:U:64:HIS:CG | 19:U:96:ILE:HG22 | 2.45 | 0.51 |
| 19:U:67:GLY:HA2 | 19:U:93:GLU:C | 2.30 | 0.51 |
| 21:W:15:GLU:O | 21:W:16:LYS:C | 2.48 | 0.51 |
| 1:A:72:U:OP2 | 21:W:3:THR:N | 2.44 | 0.51 |
| 22:X:18:GLY:C | 22:X:19:LYS:HD3 | 2.31 | 0.51 |
| 22:X:33:LYS:CB | 22:X:35:TYR:HE2 | 2.21 | 0.51 |
| 23:Y:99:TYR:CA | 23:Y:126:VAL:HG13 | 2.41 | 0.51 |
| 23:Y:107:THR:O | 23:Y:142:SER:HA | 2.10 | 0.51 |
| 24:Z:44:ARG:HA | 24:Z:46:LYS:HZ3 | 1.74 | 0.51 |
| 9:K:95:LYS:O | 9:K:98:ALA:CB | 2.58 | 0.51 |
| 3:C:176:GLY:C | 3:C:185:LEU:HD22 | 2.31 | 0.51 |
| 3:C:19:ILE:HD12 | 3:C:223:ARG:HH11 | 1.75 | 0.51 |
| 3:C:47:LEU:HD21 | 3:C:49:ILE:HD11 | 1.91 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 3:C:18:LYS:HB3 | 3:C:20:TYR:CE2 | 2.46 | 0.51 |
| 1:A:1413:G:C6 | 1:A:1414:G:N7 | 2.78 | 0.51 |
| 1:A:1767:C:C4 | 1:A:1768:U:C5 | 2.99 | 0.51 |
| 1:A:2464:C:O2' | 1:A:2465:C:H5' | 2.10 | 0.51 |
| 27:3:56:VAL:CG1 | 27:3:61:ARG:HG2 | 2.40 | 0.51 |
| 28:4:8:LYS:C | 28:4:9:LYS:HG3 | 2.31 | 0.51 |
| 32:8:25:VAL:HB | 32:8:34:GLN:CB | 2.21 | 0.51 |
| 32:8:2:LYS:CG | 32:8:35:ARG:HB2 | 2.23 | 0.51 |
| 1:A:1131:G:C4 | 11:M:82:LEU:HD11 | 2.46 | 0.51 |
| 1:A:1174:A:N3 | 1:A:1175:U:H6 | 2.08 | 0.51 |
| 1:A:331:A:C4 | 1:A:1209:G:N1 | 2.78 | 0.51 |
| 1:A:1300:U:O2' | 1:A:1301:A:OP2 | 2.28 | 0.51 |
| 1:A:1288:U:C2 | 1:A:1327:C:C2 | 2.98 | 0.51 |
| 1:A:1493:C:C2' | 1:A:1493:C:O2 | 2.58 | 0.51 |
| 1:A:1532:C:C2' | 1:A:1533:C:O4' | 2.58 | 0.51 |
| 1:A:1754:C:H2' | 1:A:1754:C:O2 | 2.11 | 0.51 |
| 1:A:1762:A:H8 | 1:A:1762:A:H3' | 1.73 | 0.51 |
| 1:A:1858:G:O6 | 1:A:1883:G:C6 | 2.63 | 0.51 |
| 1:A:1980:G:C5 | 1:A:1982:C:N4 | 2.79 | 0.51 |
| 1:A:2017:U:H4' | 28:4:8:LYS:HZ1 | 1.74 | 0.51 |
| 1:A:200:U:C5 | 1:A:201:C:C2 | 2.97 | 0.51 |
| 1:A:226:G:O2' | 1:A:228:A:H2 | 1.93 | 0.51 |
| 1:A:2331:G:H4' | 24:Z:42:GLY:HA3 | 1.93 | 0.51 |
| 1:A:2491:U:C6 | 1:A:2492:U:P | 3.03 | 0.51 |
| 1:A:2498:C:H2' | 1:A:2499:C:C5' | 2.35 | 0.51 |
| 1:A:195:A:H4' | 1:A:251:A:C4' | 2.40 | 0.51 |
| 1:A:2542:A:C4' | 1:A:2543:G:OP1 | 2.59 | 0.51 |
| 1:A:2583:G:C2' | 1:A:2584:U:O2 | 2.46 | 0.51 |
| 1:A:2644:G:C8 | 1:A:2644:G:O5' | 2.63 | 0.51 |
| 1:A:2665:A:C2' | 1:A:2666:C:O4' | 2.59 | 0.51 |
| 1:A:1638:C:H1' | 1:A:2698:U:O2' | 2.09 | 0.51 |
| 1:A:2700:C:C3' | 1:A:2701:C:H5'' | 2.36 | 0.51 |
| 1:A:2720:U:O2 | 1:A:2720:U:C2' | 2.58 | 0.51 |
| 1:A:2722:G:H2' | 1:A:2723:C:C6 | 2.45 | 0.51 |
| 1:A:2746:U:C4 | 1:A:2747:G:N7 | 2.78 | 0.51 |
| 1:A:2754:U:C6 | 1:A:2754:U:H3' | 2.46 | 0.51 |
| 1:A:2523:G:O4' | 1:A:2765:A:N7 | 2.44 | 0.51 |
| 1:A:2785:C:H2' | 1:A:2786:U:C6 | 2.44 | 0.51 |
| 1:A:2824:C:N4 | 1:A:2825:C:C2 | 2.78 | 0.51 |
| 1:A:319:C:H2' | 1:A:320:A:O4' | 2.10 | 0.51 |
| 1:A:366:C:C5' | 1:A:403:U:H3 | 2.21 | 0.51 |
| 1:A:708:C:H2' | 1:A:709:U:C6 | 2.45 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:705:A:N6 | 1:A:727:A:H1' | 2.22 | 0.51 |
| 1:A:729:G:H2' | 1:A:730:C:H1' | 1.88 | 0.51 |
| 1:A:749:C:O2' | 1:A:1617:C:C2' | 2.59 | 0.51 |
| 1:A:813:U:C2 | 1:A:814:C:C5 | 2.99 | 0.51 |
| 1:A:826:U:H5' | 1:A:2428:G:C3' | 2.40 | 0.51 |
| 1:A:833:U:H2' | 1:A:834:C:H6 | 1.74 | 0.51 |
| 1:A:879:G:N7 | 1:A:899:A:N1 | 2.58 | 0.51 |
| 1:A:917:A:H4' | 1:A:918:A:OP1 | 2.10 | 0.51 |
| 2:B:53:A:H2' | 2:B:53:A:N3 | 2.26 | 0.51 |
| 2:B:73:A:C8 | 2:B:104:A:C6 | 2.98 | 0.51 |
| 4:D:155:LEU:HG | 4:D:157:ARG:NE | 2.25 | 0.51 |
| 4:D:208:LYS:HZ2 | 4:D:211:ARG:CD | 2.21 | 0.51 |
| 4:D:63:ARG:HG2 | 4:D:64:ILE:H | 1.74 | 0.51 |
| 4:D:88:ARG:CD | 4:D:89:SER:H | 2.20 | 0.51 |
| 6:F:9:ILE:HG12 | 6:F:124:LEU:HD13 | 1.91 | 0.51 |
| 6:F:197:ASP:OD2 | 6:F:201:VAL:HG23 | 2.10 | 0.51 |
| 6:F:31:HIS:CE1 | 13:O:14:LYS:NZ | 2.79 | 0.51 |
| 6:F:51:THR:O | 6:F:52:LYS:CB | 2.58 | 0.51 |
| 8:H:29:PRO:CD | 8:H:30:LYS:H | 2.23 | 0.51 |
| 8:H:91:GLY:C | 8:H:93:GLY:N | 2.62 | 0.51 |
| 10:L:10:LEU:HD22 | 10:L:57:ILE:CG1 | 2.22 | 0.51 |
| 10:L:112:MET:HE1 | 10:L:119:ASP:N | 2.26 | 0.51 |
| 10:L:78:ILE:HD11 | 10:L:99:ILE:CD1 | 2.40 | 0.51 |
| 10:L:7:VAL:HG21 | 10:L:67:PHE:CE2 | 2.45 | 0.51 |
| 11:M:36:GLY:CA | 11:M:49:GLY:N | 2.73 | 0.51 |
| 1:A:2641:G:H5' | 11:M:75:TYR:CD2 | 2.46 | 0.51 |
| 12:N:15:GLY:N | 12:N:52:VAL:HG11 | 2.25 | 0.51 |
| 12:N:57:VAL:C | 12:N:59:LYS:NZ | 2.64 | 0.51 |
| 15:Q:75:LEU:O | 15:Q:77:ARG:N | 2.44 | 0.51 |
| 16:R:100:ALA:O | 16:R:103:GLU:OE2 | 2.29 | 0.51 |
| 17:S:22:PHE:C | 17:S:24:PRO:HD3 | 2.27 | 0.51 |
| 17:S:64:ARG:HH12 | 17:S:78:LEU:H | 1.57 | 0.51 |
| 18:T:114:LYS:HG2 | 18:T:115:ALA:H | 1.76 | 0.51 |
| 18:T:98:LEU:HB3 | 18:T:105:VAL:HG11 | 1.92 | 0.51 |
| 19:U:38:LEU:HD23 | 19:U:38:LEU:N | 2.15 | 0.51 |
| 22:X:49:VAL:HG23 | 22:X:51:VAL:H | 1.75 | 0.51 |
| 23:Y:19:ARG:HE | 23:Y:24:LEU:HD21 | 1.75 | 0.51 |
| 2:B:105:G:OP1 | 23:Y:31:ARG:HA | 2.10 | 0.51 |
| 1:A:2365:G:H4' | 24:Z:60:PHE:CE2 | 2.45 | 0.51 |
| 24:Z:72:ARG:C | 24:Z:73:GLY:O | 2.47 | 0.51 |
| 1:A:2178:C:H5'' | 3:C:46:LYS:NZ | 2.24 | 0.51 |
| 3:C:175:VAL:C | 3:C:188:ASN:HB3 | 2.30 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 3:C:62:VAL:CB | 3:C:195:ALA:HB2 | 2.40 | 0.51 |
| 25:1:50:ARG:HB3 | 25:1:54:ARG:NH2 | 2.24 | 0.51 |
| 31:7:54:GLU:N | 31:7:54:GLU:CD | 2.64 | 0.51 |
| 1:A:1055:G:H2' | 1:A:1084:A:C2 | 2.45 | 0.51 |
| 1:A:443:A:H1' | 1:A:1201:C:O4' | 2.10 | 0.51 |
| 1:A:1241:A:C2 | 1:A:1241:A:C5' | 2.62 | 0.51 |
| 1:A:1274:A:C2 | 1:A:1297:C:O2 | 2.63 | 0.51 |
| 1:A:149:A:H62 | 1:A:151:C:N4 | 2.09 | 0.51 |
| 1:A:1531:C:N3 | 1:A:1532:C:N4 | 2.43 | 0.51 |
| 1:A:1309:G:H21 | 1:A:1611:C:H5' | 1.76 | 0.51 |
| 1:A:1672:C:C3' | 1:A:1673:U:C5' | 2.84 | 0.51 |
| 1:A:1682:G:H3' | 1:A:1683:C:C6 | 2.45 | 0.51 |
| 1:A:1725:G:H2' | 1:A:1725:G:N3 | 2.25 | 0.51 |
| 1:A:1728:G:H1 | 1:A:1731:G:H22 | 1.59 | 0.51 |
| 1:A:1838:C:O2 | 1:A:1838:C:C2' | 2.56 | 0.51 |
| 1:A:1894:C:O2 | 1:A:1895:C:C6 | 2.64 | 0.51 |
| 1:A:1912:A:C8 | 1:A:1918:A:N6 | 2.72 | 0.51 |
| 1:A:1965:C:C6 | 1:A:1966:A:N7 | 2.79 | 0.51 |
| 1:A:2070:G:C6 | 1:A:2442:C:C4 | 2.99 | 0.51 |
| 1:A:2093:G:H4' | 9:K:25:TYR:CA | 2.33 | 0.51 |
| 1:A:2199:A:C4 | 1:A:2225:A:C2 | 2.99 | 0.51 |
| 1:A:2231:C:C2 | 1:A:2232:U:C5 | 2.98 | 0.51 |
| 1:A:2395:C:C4 | 1:A:2396:G:N7 | 2.79 | 0.51 |
| 1:A:2405:G:C2' | 1:A:2411:A:N6 | 2.72 | 0.51 |
| 1:A:2436:G:C2' | 1:A:2437:U:O5' | 2.59 | 0.51 |
| 1:A:2458:G:H2' | 1:A:2460:U:N3 | 2.25 | 0.51 |
| 1:A:2483:C:H2' | 1:A:2484:G:O5' | 2.10 | 0.51 |
| 1:A:2511:U:C4 | 1:A:2512:C:C4 | 2.97 | 0.51 |
| 1:A:2581:G:C4' | 1:A:2582:G:N7 | 2.67 | 0.51 |
| 1:A:2642:G:N1 | 1:A:2643:G:C5 | 2.79 | 0.51 |
| 1:A:2685:G:N3 | 1:A:2685:G:C2' | 2.67 | 0.51 |
| 1:A:269:U:N3 | 1:A:270:A:N6 | 2.51 | 0.51 |
| 1:A:2739:U:O2 | 1:A:2740:A:H8 | 1.94 | 0.51 |
| 1:A:2767:C:O2 | 1:A:2768:C:C5 | 2.63 | 0.51 |
| 1:A:2805:G:H2' | 1:A:2807:G:C5' | 2.41 | 0.51 |
| 1:A:2838:G:C4 | 1:A:2839:G:C8 | 2.99 | 0.51 |
| 1:A:2849:U:C6 | 1:A:2849:U:C3' | 2.94 | 0.51 |
| 1:A:458:G:N3 | 1:A:469:G:O6 | 2.43 | 0.51 |
| 1:A:514:A:O2' | 1:A:515:A:H5' | 2.10 | 0.51 |
| 1:A:669:G:N2 | 1:A:670:A:C4 | 2.79 | 0.51 |
| 1:A:685:A:C2 | 1:A:689:A:N1 | 2.79 | 0.51 |
| 1:A:721:C:N4 | 1:A:722:A:H62 | 2.08 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:723:G:H2' | 1:A:724:U:C6 | 2.45 | 0.51 |
| 1:A:740:U:O2' | 1:A:741:G:O5' | 2.26 | 0.51 |
| 1:A:781:A:N3 | 1:A:781:A:H2' | 2.26 | 0.51 |
| 2:B:85:G:C4 | 2:B:92:G:N2 | 2.79 | 0.51 |
| 4:D:148:GLU:C | 4:D:149:PRO:O | 2.49 | 0.51 |
| 4:D:181:GLU:OE2 | 4:D:272:ALA:CA | 2.42 | 0.51 |
| 4:D:206:LEU:HB2 | 4:D:212:SER:OG | 2.10 | 0.51 |
| 4:D:51:VAL:HB | 4:D:52:ARG:NE | 2.26 | 0.51 |
| 4:D:85:ASP:C | 4:D:87:ASN:N | 2.64 | 0.51 |
| 5:E:148:GLY:O | 5:E:149:ARG:HG3 | 2.10 | 0.51 |
| 5:E:4:ILE:CD1 | 5:E:76:ARG:HH11 | 2.23 | 0.51 |
| 5:E:8:LYS:HB3 | 5:E:24:THR:CG2 | 2.40 | 0.51 |
| 6:F:24:LEU:H | 6:F:25:PRO:HD2 | 1.75 | 0.51 |
| 6:F:29:ASN:HD22 | 6:F:30:PRO:CD | 2.24 | 0.51 |
| 1:A:443:A:N7 | 6:F:45:ARG:NH2 | 2.58 | 0.51 |
| 7:G:76:SER:O | 7:G:83:ARG:CG | 2.53 | 0.51 |
| 8:H:24:VAL:HG21 | 8:H:72:ILE:CG2 | 2.41 | 0.51 |
| 10:L:20:ALA:HB3 | 10:L:21:PRO:HD3 | 1.92 | 0.51 |
| 10:L:94:GLU:HB3 | 10:L:96:VAL:HG13 | 1.93 | 0.51 |
| 11:M:45:ASN:O | 11:M:46:VAL:CG2 | 2.58 | 0.51 |
| 11:M:33:LEU:HD11 | 11:M:52:VAL:HB | 1.93 | 0.51 |
| 13:O:23:PRO:HG2 | 13:O:29:LYS:N | 2.26 | 0.51 |
| 14:P:132:VAL:HG12 | 14:P:133:ARG:HH21 | 1.72 | 0.51 |
| 14:P:45:GLN:O | 14:P:47:ILE:N | 2.43 | 0.51 |
| 14:P:54:MET:SD | 14:P:118:LEU:HA | 2.50 | 0.51 |
| 14:P:56:ARG:CD | 14:P:57:HIS:N | 2.74 | 0.51 |
| 14:P:90:VAL:C | 14:P:93:TYR:OH | 2.49 | 0.51 |
| 15:Q:33:ARG:CB | 15:Q:115:GLU:HB3 | 2.40 | 0.51 |
| 16:R:9:ARG:CD | 16:R:12:PHE:HE2 | 2.24 | 0.51 |
| 17:S:103:ARG:HH21 | 17:S:103:ARG:CB | 2.23 | 0.51 |
| 17:S:82:LEU:HD23 | 17:S:83:ILE:N | 2.25 | 0.51 |
| 17:S:93:ARG:CG | 17:S:95:ARG:HB2 | 2.41 | 0.51 |
| 18:T:17:ILE:HD13 | 18:T:20:LEU:HD21 | 1.92 | 0.51 |
| 19:U:42:GLY:O | 19:U:49:THR:O | 2.27 | 0.51 |
| 19:U:5:VAL:N | 19:U:12:TYR:CD2 | 2.77 | 0.51 |
| 20:V:2:GLU:OE2 | 20:V:2:GLU:HA | 2.10 | 0.51 |
| 20:V:47:VAL:HG23 | 20:V:48:ALA:N | 2.25 | 0.51 |
| 21:W:72:LYS:O | 21:W:73:ARG:CB | 2.58 | 0.51 |
| 22:X:74:PRO:CB | 22:X:101:LYS:C | 2.70 | 0.51 |
| 22:X:42:VAL:HG23 | 22:X:61:ILE:HG12 | 1.93 | 0.51 |
| 22:X:81:LYS:CD | 22:X:96:ILE:HG23 | 2.41 | 0.51 |
| 23:Y:116:VAL:HA | 23:Y:177:PRO:CD | 2.41 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:Y:28:MET:HB2 | 23:Y:37:VAL:HG23 | 1.93 | 0.51 |
| 23:Y:41:LEU:O | 23:Y:42:VAL:C | 2.49 | 0.51 |
| 23:Y:6:LYS:NZ | 23:Y:10:ARG:HH22 | 2.08 | 0.51 |
| 23:Y:98:MET:HG3 | 23:Y:100:VAL:CG2 | 2.32 | 0.51 |
| 24:Z:21:LEU:H | 24:Z:24:LYS:HZ1 | 1.58 | 0.51 |
| 24:Z:79:VAL:C | 24:Z:80:HIS:CD2 | 2.83 | 0.51 |
| 9:K:113:ARG:HA | 9:K:131:LYS:HZ2 | 1.75 | 0.51 |
| 3:C:13:LYS:HB3 | 3:C:32:LEU:HD23 | 1.93 | 0.51 |
| 3:C:93:TYR:CD2 | 3:C:109:ASP:O | 2.64 | 0.51 |
| 1:A:363(C):G:O2' | 1:A:363(D):G:H5' | 2.10 | 0.51 |
| 25:1:18:LYS:O | 25:1:22:GLU:OE2 | 2.29 | 0.51 |
| 30:6:48:LYS:CG | 30:6:49:ARG:H | 2.24 | 0.51 |
| 31:7:29:LYS:O | 31:7:34:TRP:HZ2 | 1.93 | 0.51 |
| 32:8:17:ILE:HD13 | 32:8:26:ILE:HD12 | 1.92 | 0.51 |
| 1:A:109:G:C6 | 1:A:110:G:C8 | 2.97 | 0.51 |
| 1:A:1161:C:O2' | 19:U:22:VAL:HG12 | 2.09 | 0.51 |
| 1:A:1343:G:H2' | 1:A:1384:A:C2 | 2.46 | 0.51 |
| 1:A:1345:C:O2' | 1:A:1346:G:H5' | 2.10 | 0.51 |
| 1:A:1541:U:O2 | 1:A:1542:G:O6 | 2.29 | 0.51 |
| 1:A:1559:G:O6 | 1:A:1560:G:C1' | 2.59 | 0.51 |
| 1:A:1617:C:C5' | 1:A:1618:A:OP2 | 2.51 | 0.51 |
| 1:A:1827:C:O2 | 1:A:1828:G:C1' | 2.58 | 0.51 |
| 1:A:1838:C:O2 | 1:A:1898:U:N3 | 2.44 | 0.51 |
| 1:A:1940:U:H4' | 1:A:1941:C:H6 | 1.75 | 0.51 |
| 1:A:1975:G:C2' | 1:A:1976:U:H5' | 2.40 | 0.51 |
| 1:A:2092:U:P | 9:K:29:TYR:OH | 2.69 | 0.51 |
| 1:A:208:C:C2 | 1:A:209:C:C5 | 2.99 | 0.51 |
| 1:A:954:G:H1' | 1:A:2274:A:C2 | 2.45 | 0.51 |
| 1:A:2344:U:C2' | 1:A:2344:U:O2 | 2.59 | 0.51 |
| 1:A:2354:G:O2' | 1:A:2355:C:H5' | 2.11 | 0.51 |
| 1:A:2403:C:N4 | 1:A:2415:G:C6 | 2.79 | 0.51 |
| 1:A:2426:A:C3' | 1:A:2427:C:C5' | 2.84 | 0.51 |
| 1:A:2466:C:O2' | 1:A:2467:C:H5' | 2.10 | 0.51 |
| 1:A:2470:G:O6 | 1:A:2481:G:N2 | 2.44 | 0.51 |
| 1:A:2584:U:H1' | 1:A:2585:U:C4 | 2.45 | 0.51 |
| 1:A:2629:A:N6 | 1:A:2895:U:C2 | 2.79 | 0.51 |
| 1:A:2657:A:C8 | 1:A:2657:A:H3' | 2.45 | 0.51 |
| 1:A:2776:A:N7 | 1:A:2781:A:C5 | 2.78 | 0.51 |
| 1:A:2821:A:H3' | 1:A:2821:A:OP2 | 2.10 | 0.51 |
| 1:A:2844:G:H2' | 1:A:2844:G:N3 | 2.25 | 0.51 |
| 1:A:2854:G:C6 | 1:A:2855:C:C4 | 2.98 | 0.51 |
| 1:A:2880:C:H2' | 1:A:2881:C:H6 | 1.75 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2886:G:O2' | 28:4:31:VAL:CB | 2.49 | 0.51 |
| 1:A:371:A:N6 | 1:A:424:G:H4' | 2.24 | 0.51 |
| 1:A:427:U:O2' | 1:A:428:A:C4' | 2.59 | 0.51 |
| 1:A:479:A:C4 | 1:A:480:A:N7 | 2.78 | 0.51 |
| 1:A:488:G:H1' | 1:A:492:A:N6 | 2.25 | 0.51 |
| 1:A:514:A:H2 | 1:A:515:A:H1' | 1.74 | 0.51 |
| 1:A:574:C:H1' | 1:A:2055:C:C5 | 2.45 | 0.51 |
| 1:A:61:G:O2' | 1:A:62:C:H5' | 2.11 | 0.51 |
| 1:A:630:G:O2' | 1:A:631:A:C8 | 2.63 | 0.51 |
| 1:A:689:A:H2' | 1:A:690:G:H5'' | 1.93 | 0.51 |
| 1:A:728:G:C6 | 1:A:762:U:H2' | 2.45 | 0.51 |
| 1:A:823:G:O6 | 1:A:824:A:N6 | 2.44 | 0.51 |
| 1:A:910:A:O2' | 1:A:911:A:H5' | 2.11 | 0.51 |
| 1:A:919:G:N2 | 1:A:920:G:C4 | 2.79 | 0.51 |
| 1:A:930:U:O2' | 1:A:932:G:C8 | 2.58 | 0.51 |
| 1:A:973:A:O4' | 1:A:1188:U:C4 | 2.64 | 0.51 |
| 2:B:103:U:C3' | 2:B:104:A:H5' | 2.41 | 0.51 |
| 4:D:106:ILE:HG13 | 4:D:192:THR:HG21 | 1.92 | 0.51 |
| 1:A:2209:C:H1' | 4:D:150:LYS:HE2 | 1.93 | 0.51 |
| 1:A:1789:A:O3' | 4:D:222:ARG:CZ | 2.58 | 0.51 |
| 4:D:91:ARG:H | 4:D:91:ARG:HD3 | 1.76 | 0.51 |
| 5:E:170:LEU:CD2 | 5:E:170:LEU:N | 2.74 | 0.51 |
| 5:E:36:ARG:HD2 | 5:E:79:ARG:NH1 | 2.26 | 0.51 |
| 6:F:122:LYS:CE | 6:F:192:LEU:HB3 | 2.41 | 0.51 |
| 6:F:134:GLY:O | 6:F:165:ARG:NH1 | 2.43 | 0.51 |
| 1:A:320:A:C2' | 6:F:136:THR:HG21 | 2.29 | 0.51 |
| 6:F:174:VAL:CG2 | 6:F:174:VAL:O | 2.58 | 0.51 |
| 6:F:194:MET:SD | 6:F:197:ASP:HA | 2.49 | 0.51 |
| 6:F:51:THR:O | 6:F:52:LYS:HB2 | 2.10 | 0.51 |
| 7:G:138:GLN:HB2 | 7:G:155:MET:CE | 2.40 | 0.51 |
| 7:G:86:MET:N | 7:G:87:PRO:CD | 2.64 | 0.51 |
| 7:G:39:ILE:CD1 | 7:G:92:VAL:HG12 | 2.39 | 0.51 |
| 8:H:175:LYS:HG2 | 8:H:176:ALA:N | 2.26 | 0.51 |
| 8:H:11:VAL:HB | 8:H:50:VAL:HG22 | 1.93 | 0.51 |
| 9:K:38:LEU:HD13 | 9:K:38:LEU:C | 2.31 | 0.51 |
| 9:K:45:LYS:O | 9:K:48:GLU:N | 2.44 | 0.51 |
| 10:L:131:ALA:HB1 | 10:L:136:VAL:HB | 1.93 | 0.51 |
| 11:M:134:ARG:N | 11:M:135:PRO:CD | 2.74 | 0.51 |
| 11:M:136:GLU:C | 11:M:137:LYS:HG2 | 2.31 | 0.51 |
| 12:N:19:ILE:CD1 | 12:N:20:MET:N | 2.73 | 0.51 |
| 12:N:16:ALA:CB | 12:N:45:GLU:C | 2.79 | 0.51 |
| 13:O:73:GLY:HA2 | 13:O:111:ARG:CZ | 2.40 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 13:O:46:LYS:CB | 13:O:49:ARG:HB2 | 2.40 | 0.51 |
| 13:O:49:ARG:HG3 | 31:7:52:LYS:CD | 2.40 | 0.51 |
| 1:A:2393:A:C4' | 13:O:56:SER:H | 2.24 | 0.51 |
| 14:P:122:GLY:HA2 | 14:P:125:LEU:CD1 | 2.39 | 0.51 |
| 14:P:42:ILE:CD1 | 14:P:43:THR:O | 2.59 | 0.51 |
| 14:P:96:VAL:HG12 | 14:P:98:LYS:CE | 2.39 | 0.51 |
| 16:R:13:ARG:NH2 | 16:R:90:GLY:C | 2.64 | 0.51 |
| 17:S:50:ILE:CD1 | 17:S:76:PHE:HB3 | 2.40 | 0.51 |
| 11:M:4:TYR:HE1 | 18:T:101:ARG:NH2 | 2.08 | 0.51 |
| 18:T:12:ARG:C | 18:T:14:HIS:N | 2.61 | 0.51 |
| 19:U:58:VAL:HG11 | 19:U:101:GLY:O | 2.10 | 0.51 |
| 19:U:78:LYS:NZ | 19:U:84:LYS:HG2 | 2.25 | 0.51 |
| 21:W:39:ILE:CG2 | 21:W:54:VAL:HG21 | 2.40 | 0.51 |
| 23:Y:102:LEU:CD1 | 23:Y:137:ILE:HB | 2.41 | 0.51 |
| 24:Z:70:GLN:O | 24:Z:72:ARG:N | 2.43 | 0.51 |
| 1:A:2132:U:H2' | 1:A:2134:A:N7 | 2.26 | 0.51 |
| 1:A:2134:A:C2 | 1:A:2135:A:N1 | 2.79 | 0.51 |
| 3:C:134:ARG:NH1 | 3:C:136:LEU:HG | 2.25 | 0.51 |
| 3:C:181:PRO:HB2 | 3:C:184:LYS:CD | 2.41 | 0.51 |
| 1:A:1583:A:H5' | 1:A:1585:C:P | 2.49 | 0.51 |
| 1:A:273(F):C:H1' | 1:A:363(A):A:N1 | 2.26 | 0.51 |
| 1:A:1484:G:C6 | 1:A:1485:G:C5 | 2.99 | 0.51 |
| 1:A:884:C:O5' | 1:A:884:C:H6 | 1.94 | 0.51 |
| 1:A:1007:C:OP2 | 1:A:1008:C:H3' | 2.11 | 0.51 |
| 1:A:1086:A:C3' | 1:A:1087:G:H5' | 2.36 | 0.51 |
| 1:A:1124:C:N4 | 1:A:1125:G:C6 | 2.79 | 0.51 |
| 1:A:1143:A:C2' | 1:A:1144:G:H8 | 2.24 | 0.51 |
| 1:A:1168:G:C6 | 1:A:1169:G:C5 | 2.99 | 0.51 |
| 1:A:809:G:C1' | 1:A:1254:A:N3 | 2.64 | 0.51 |
| 1:A:1312:U:C5 | 21:W:62:LYS:CD | 2.85 | 0.51 |
| 1:A:1351:C:N4 | 1:A:1381:G:C6 | 2.79 | 0.51 |
| 1:A:1439:A:C2' | 1:A:1440:G:H5' | 2.39 | 0.51 |
| 1:A:1447:G:N3 | 1:A:1545:A:H2 | 2.08 | 0.51 |
| 1:A:1523:U:N3 | 1:A:1524:G:C5 | 2.79 | 0.51 |
| 1:A:1592:C:O2' | 1:A:1593:G:C5' | 2.58 | 0.51 |
| 1:A:1676:A:N7 | 1:A:1677:A:C5 | 2.78 | 0.51 |
| 1:A:1696:G:C2' | 1:A:1697:G:O4' | 2.59 | 0.51 |
| 1:A:1716:U:H1' | 1:A:1746:G:H21 | 1.73 | 0.51 |
| 1:A:2052:G:C5' | 5:E:141:ILE:HG13 | 2.41 | 0.51 |
| 1:A:2225:A:H4' | 1:A:2226:C:O5' | 2.11 | 0.51 |
| 1:A:2286:A:N6 | 29:5:29:ASN:C | 2.64 | 0.51 |
| 1:A:2307:G:H4' | 1:A:2311:A:N6 | 2.25 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:2353:G:C4 | 1:A:2365:G:N2 | 2.78 | 0.51 |
| 1:A:2377:A:H2 | 16:R:87:PHE:CE2 | 2.29 | 0.51 |
| 1:A:2409:G:N2 | 1:A:2410:G:C1' | 2.63 | 0.51 |
| 1:A:2466:C:C5' | 32:8:5:ALA:CB | 2.89 | 0.51 |
| 1:A:2538:C:O2 | 1:A:2539:C:C5 | 2.64 | 0.51 |
| 1:A:2569:G:C6 | 1:A:2570:G:N7 | 2.78 | 0.51 |
| 1:A:270(C):C:OP1 | 1:A:365:C:H2' | 2.11 | 0.51 |
| 1:A:2543:G:N2 | 1:A:2765:A:C4 | 2.79 | 0.51 |
| 1:A:2826:A:C5 | 1:A:2827:C:C6 | 2.98 | 0.51 |
| 1:A:2856:C:O5' | 1:A:2856:C:H6 | 1.92 | 0.51 |
| 1:A:2881:C:C2 | 1:A:2882:A:N7 | 2.79 | 0.51 |
| 1:A:322:A:O4' | 1:A:341:G:H5' | 2.11 | 0.51 |
| 1:A:513:A:C2 | 1:A:514:A:C8 | 2.99 | 0.51 |
| 1:A:570:G:H5'' | 1:A:571:A:OP2 | 2.11 | 0.51 |
| 1:A:627:A:C2 | 1:A:651:G:C5' | 2.94 | 0.51 |
| 1:A:64:A:HO2' | 1:A:65:C:H5' | 1.73 | 0.51 |
| 1:A:662:G:C5' | 13:O:18:ARG:H | 2.24 | 0.51 |
| 1:A:756:C:H2' | 1:A:757:U:H5' | 1.92 | 0.51 |
| 1:A:784:A:C5 | 1:A:792:G:C4 | 2.99 | 0.51 |
| 1:A:861:A:C3' | 1:A:861:A:C8 | 2.94 | 0.51 |
| 1:A:875:G:C6 | 1:A:876:C:N4 | 2.78 | 0.51 |
| 1:A:879:G:O6 | 1:A:899:A:C5 | 2.64 | 0.51 |
| 1:A:906:G:C2' | 1:A:906:G:N3 | 2.69 | 0.51 |
| 1:A:951:C:O2' | 1:A:952:G:C5' | 2.54 | 0.51 |
| 1:A:958:U:O2' | 1:A:959:A:P | 2.68 | 0.51 |
| 1:A:960:A:H2 | 1:A:2496:C:H1' | 1.76 | 0.51 |
| 1:A:961:C:H42 | 1:A:2031:A:C1' | 2.18 | 0.51 |
| 2:B:31:C:H2' | 2:B:32:C:H6 | 1.75 | 0.51 |
| 2:B:68:C:C2 | 2:B:69:G:C8 | 2.99 | 0.51 |
| 4:D:260:ARG:HH11 | 4:D:260:ARG:CG | 2.24 | 0.51 |
| 4:D:5:LYS:HB3 | 4:D:82:ILE:CG2 | 2.37 | 0.51 |
| 5:E:62:PRO:O | 5:E:63:LEU:C | 2.48 | 0.51 |
| 5:E:51:PHE:CD1 | 5:E:76:ARG:CG | 2.93 | 0.51 |
| 7:G:96:ARG:O | 7:G:100:TRP:HE3 | 1.93 | 0.51 |
| 7:G:12:TYR:HA | 7:G:15:VAL:CG2 | 2.40 | 0.51 |
| 7:G:19:LEU:HA | 7:G:22:ARG:CZ | 2.41 | 0.51 |
| 7:G:40:ASN:O | 7:G:156:ASP:O | 2.29 | 0.51 |
| 7:G:44:GLY:O | 7:G:46:ALA:N | 2.43 | 0.51 |
| 7:G:85:GLY:O | 7:G:86:MET:HB2 | 2.10 | 0.51 |
| 7:G:72:ARG:C | 7:G:88:ILE:HD13 | 2.31 | 0.51 |
| 8:H:33:LEU:HD22 | 8:H:75:ALA:HB1 | 1.92 | 0.51 |
| 8:H:43:VAL:HG13 | 8:H:44:VAL:N | 2.17 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:H:9:ILE:HG13 | 8:H:69:ARG:NH1 | 2.25 | 0.51 |
| 10:L:41:PHE:O | 10:L:44:ALA:N | 2.44 | 0.51 |
| 10:L:79:ARG:HH11 | 10:L:87:GLY:HA2 | 1.74 | 0.51 |
| 11:M:114:ARG:O | 11:M:115:ARG:C | 2.48 | 0.51 |
| 11:M:113:GLY:O | 11:M:116:LEU:N | 2.44 | 0.51 |
| 11:M:15:LEU:C | 11:M:16:ILE:HD12 | 2.29 | 0.51 |
| 11:M:36:GLY:HA2 | 11:M:47:ALA:C | 2.31 | 0.51 |
| 12:N:15:GLY:CA | 12:N:52:VAL:HG21 | 2.40 | 0.51 |
| 12:N:63:VAL:HB | 12:N:78:ARG:CB | 2.41 | 0.51 |
| 6:F:31:HIS:CE1 | 13:O:14:LYS:HZ1 | 2.27 | 0.51 |
| 1:A:804:A:C8 | 13:O:39:LYS:HD2 | 2.45 | 0.51 |
| 14:P:102:VAL:CG1 | 14:P:102:VAL:O | 2.57 | 0.51 |
| 14:P:59:ARG:NH2 | 14:P:61:GLY:HA3 | 2.26 | 0.51 |
| 14:P:16:ARG:NE | 14:P:73:PRO:CD | 2.73 | 0.51 |
| 16:R:30:ARG:O | 16:R:31:SER:O | 2.28 | 0.51 |
| 16:R:60:GLY:O | 16:R:62:LYS:N | 2.43 | 0.51 |
| 17:S:102:ILE:CG2 | 17:S:104:ASN:ND2 | 2.73 | 0.51 |
| 21:W:56:THR:HG22 | 21:W:79:ALA:CB | 2.40 | 0.51 |
| 21:W:88:LYS:O | 21:W:93:GLU:OE2 | 2.29 | 0.51 |
| 23:Y:14:LYS:HB2 | 23:Y:15:PRO:HD3 | 1.93 | 0.51 |
| 1:A:2114:A:N3 | 1:A:2167:U:O2' | 2.44 | 0.51 |
| 1:A:2177:C:H5'' | 3:C:213:TYR:CG | 2.46 | 0.51 |
| 1:A:2178:C:C2 | 1:A:2179:C:C5 | 2.98 | 0.51 |
| 3:C:8:ARG:HA | 3:C:11:LEU:HB3 | 1.93 | 0.51 |
| 3:C:76:ALA:HB2 | 3:C:153:ILE:HD13 | 1.91 | 0.51 |
| 3:C:27:HIS:HD2 | 3:C:30:LYS:HZ3 | 1.59 | 0.51 |
| 3:C:46:LYS:O | 3:C:46:LYS:HD3 | 2.10 | 0.51 |
| 1:A:2194:G:N1 | 1:A:2195:C:N4 | 2.58 | 0.51 |
| 1:A:1040:C:O2 | 1:A:1040:C:H2' | 2.10 | 0.51 |
| 28:4:36:CYS:SG | 28:4:49:CYS:N | 2.83 | 0.51 |
| 28:4:41:PRO:O | 28:4:43:HIS:N | 2.44 | 0.51 |
| 28:4:51:TYR:CG | 28:4:52:TYR:N | 2.76 | 0.51 |
| 29:5:19:ARG:HH22 | 29:5:41:PRO:CD | 2.23 | 0.51 |
| 32:8:10:ILE:HD12 | 32:8:32:HIS:HD2 | 1.76 | 0.51 |
| 1:A:1011:G:O2' | 1:A:1013:C:H5'' | 2.11 | 0.51 |
| 1:A:1069:A:N1 | 1:A:1096:A:OP1 | 2.44 | 0.51 |
| 1:A:1048:A:P | 1:A:1110:G:H22 | 2.34 | 0.51 |
| 1:A:1204:A:N1 | 6:F:187:VAL:O | 2.43 | 0.51 |
| 1:A:1257:C:H2' | 1:A:1258:C:C6 | 2.46 | 0.51 |
| 1:A:1439:A:N7 | 1:A:1440:G:C4 | 2.79 | 0.51 |
| 1:A:1565:C:C4 | 1:A:1567:A:C1' | 2.87 | 0.51 |
| 1:A:1635:G:H2' | 1:A:1636:C:H6 | 1.75 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1678:G:O5' | 1:A:1678:G:H8 | 1.94 | 0.51 |
| 1:A:1695:G:N2 | 1:A:1696:G:N9 | 2.58 | 0.51 |
| 1:A:1809:A:H5'' | 1:A:1810:A:N1 | 2.25 | 0.51 |
| 1:A:1265:A:H62 | 1:A:2013:A:H5'' | 1.74 | 0.51 |
| 1:A:2049:G:O2' | 1:A:2050:C:O5' | 2.28 | 0.51 |
| 1:A:2063:C:C5 | 1:A:2064:C:C5 | 2.99 | 0.51 |
| 1:A:218:A:O2' | 1:A:219:G:H5' | 2.11 | 0.51 |
| 1:A:2265:U:H3' | 1:A:2265:U:H6 | 1.74 | 0.51 |
| 1:A:2283:C:C5 | 1:A:2389:G:N3 | 2.79 | 0.51 |
| 1:A:2307:G:C8 | 1:A:2308:G:C2 | 2.99 | 0.51 |
| 1:A:2313:C:H2' | 1:A:2314:C:C6 | 2.45 | 0.51 |
| 1:A:248:G:N2 | 1:A:2431:U:C4' | 2.70 | 0.51 |
| 1:A:2544:G:H2' | 1:A:2545:G:C8 | 2.45 | 0.51 |
| 1:A:2667:C:H5 | 1:A:2668:G:C8 | 2.29 | 0.51 |
| 1:A:265:A:N7 | 1:A:266:G:C1' | 2.71 | 0.51 |
| 1:A:280:C:O2' | 1:A:281:G:OP1 | 2.29 | 0.51 |
| 1:A:2863:C:O2' | 1:A:2864:G:H5' | 2.10 | 0.51 |
| 1:A:30:G:H2' | 1:A:31:C:O4' | 2.11 | 0.51 |
| 1:A:323:G:N2 | 1:A:333:G:C1' | 2.70 | 0.51 |
| 1:A:344:G:H2' | 1:A:345:A:N9 | 2.26 | 0.51 |
| 1:A:527:C:H5'' | 1:A:2779:U:C4 | 2.46 | 0.51 |
| 1:A:53:A:C2 | 1:A:54:G:O4' | 2.64 | 0.51 |
| 1:A:567:A:N1 | 1:A:568:U:O2 | 2.44 | 0.51 |
| 1:A:578:A:C2' | 1:A:2018:G:H5'' | 2.40 | 0.51 |
| 1:A:578:A:OP1 | 1:A:1255:U:O2' | 2.23 | 0.51 |
| 1:A:627:A:C4 | 1:A:637:A:C4 | 2.99 | 0.51 |
| 1:A:827:U:C4' | 1:A:828:U:O2 | 2.58 | 0.51 |
| 1:A:881:G:C2 | 1:A:897:C:C4 | 2.99 | 0.51 |
| 1:A:950:G:C2' | 1:A:951:C:H6 | 2.16 | 0.51 |
| 2:B:52:A:C4 | 2:B:53:A:O4' | 2.63 | 0.51 |
| 4:D:183:ARG:CB | 4:D:268:ARG:HB2 | 2.41 | 0.51 |
| 5:E:165:VAL:CG1 | 5:E:166:THR:H | 2.00 | 0.51 |
| 5:E:184:VAL:O | 5:E:185:LYS:HB3 | 2.11 | 0.51 |
| 1:A:443:A:OP1 | 6:F:46:ARG:O | 2.29 | 0.51 |
| 6:F:70:THR:O | 6:F:72:ARG:N | 2.40 | 0.51 |
| 6:F:74:ARG:CZ | 6:F:75:HIS:CA | 2.83 | 0.51 |
| 7:G:163:ALA:CB | 7:G:169:ALA:HB2 | 2.41 | 0.51 |
| 7:G:174:GLU:CG | 7:G:175:LEU:N | 2.74 | 0.51 |
| 7:G:75:LYS:CG | 7:G:84:LYS:HB2 | 2.41 | 0.51 |
| 9:K:30:LEU:O | 9:K:35:LEU:HD23 | 2.11 | 0.51 |
| 10:L:132:ARG:HH11 | 10:L:132:ARG:HG3 | 1.73 | 0.51 |
| 12:N:12:ASP:HB3 | 12:N:94:ARG:HB3 | 1.93 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 12:N:32:TYR:O | 12:N:34:THR:N | 2.44 | 0.51 |
| 13:O:123:LEU:HD23 | 13:O:134:ALA:HA | 1.92 | 0.51 |
| 13:O:6:LEU:C | 13:O:7:ARG:CG | 2.79 | 0.51 |
| 13:O:73:GLY:HA2 | 13:O:111:ARG:CG | 2.20 | 0.51 |
| 14:P:111:GLU:O | 14:P:113:GLN:N | 2.43 | 0.51 |
| 14:P:54:MET:HA | 14:P:54:MET:HE3 | 1.93 | 0.51 |
| 15:Q:10:LEU:HD13 | 15:Q:17:ARG:HD3 | 1.92 | 0.51 |
| 15:Q:26:LYS:HE2 | 15:Q:70:LEU:CA | 2.40 | 0.51 |
| 19:U:49:THR:HG22 | 19:U:53:GLU:CG | 2.41 | 0.51 |
| 18:T:112:ARG:NH2 | 19:U:49:THR:HG23 | 2.25 | 0.51 |
| 20:V:25:ARG:CD | 20:V:74:ALA:HB3 | 2.41 | 0.51 |
| 21:W:17:ALA:CB | 21:W:21:PHE:CZ | 2.93 | 0.51 |
| 22:X:97:ARG:CB | 22:X:101:LYS:HG2 | 2.40 | 0.51 |
| 22:X:19:LYS:NZ | 22:X:39:VAL:CG1 | 2.74 | 0.51 |
| 22:X:86:ARG:CG | 22:X:91:GLU:O | 2.53 | 0.51 |
| 23:Y:41:LEU:O | 23:Y:45:ASP:CG | 2.48 | 0.51 |
| 23:Y:4:ARG:HG3 | 23:Y:44:PHE:CZ | 2.46 | 0.51 |
| 23:Y:6:LYS:HZ2 | 23:Y:10:ARG:HH22 | 1.59 | 0.51 |
| 24:Z:11:ARG:NH1 | 24:Z:11:ARG:CB | 2.67 | 0.51 |
| 1:A:2112:G:C6 | 1:A:2169:A:N6 | 2.79 | 0.51 |
| 1:A:2135:A:H61 | 1:A:2159:G:N2 | 2.09 | 0.51 |
| 3:C:61:THR:HG21 | 3:C:160:ARG:HH21 | 1.76 | 0.51 |
| 3:C:64:LEU:CB | 3:C:188:ASN:ND2 | 2.74 | 0.51 |
| 1:A:2129:C:O3' | 3:C:6:ARG:HB3 | 2.11 | 0.51 |
| 3:C:82:LYS:HD2 | 3:C:116:THR:HG21 | 1.91 | 0.51 |
| 1:A:1579:A:C8 | 1:A:1580:A:N3 | 2.79 | 0.51 |
| 1:A:2246:G:N3 | 1:A:2247:A:C5 | 2.77 | 0.51 |
| 25:1:1:MET:HE3 | 25:1:3:LYS:HB2 | 1.92 | 0.51 |
| 25:1:51:GLN:HG3 | 25:1:54:ARG:HH11 | 1.76 | 0.51 |
| 25:1:16:LEU:CD2 | 25:1:59:LEU:CB | 2.82 | 0.51 |
| 1:A:989:G:P | 26:2:10:LYS:NZ | 2.83 | 0.51 |
| 26:2:45:GLY:C | 26:2:48:GLU:HG2 | 2.26 | 0.51 |
| 1:A:388:G:C5' | 27:3:23:GLU:HB3 | 2.41 | 0.51 |
| 28:4:31:VAL:HB | 28:4:32:PRO:CD | 2.29 | 0.51 |
| 1:A:2815:C:O2' | 28:4:42:PRO:HB2 | 2.10 | 0.51 |
| 29:5:35:GLU:OE2 | 29:5:52:VAL:HG13 | 2.10 | 0.51 |
| 1:A:126:A:C5 | 30:6:18:PHE:CE2 | 2.99 | 0.51 |
| 30:6:27:GLY:O | 30:6:28:ARG:C | 2.50 | 0.51 |
| 31:7:58:ILE:HA | 31:7:61:LEU:CB | 2.40 | 0.51 |
| 1:A:1050:A:H2' | 1:A:1051:G:H8 | 1.76 | 0.51 |
| 1:A:1036:G:C6 | 1:A:1120:G:O6 | 2.63 | 0.51 |
| 1:A:1124:C:H6 | 1:A:1124:C:O5' | 1.94 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1281:G:C4 | 1:A:1282:U:C5 | 2.98 | 0.51 |
| 1:A:1356:G:N2 | 1:A:1357:U:H1' | 2.25 | 0.51 |
| 1:A:1364:G:N1 | 1:A:1368:G:C6 | 2.79 | 0.51 |
| 1:A:1410:G:C2 | 1:A:1593:G:C2 | 2.99 | 0.51 |
| 1:A:1471:A:N9 | 1:A:1521:G:N2 | 2.59 | 0.51 |
| 1:A:1670:C:H2' | 1:A:1671:U:O4' | 2.11 | 0.51 |
| 1:A:1797:C:C2 | 1:A:1798:U:C5 | 2.99 | 0.51 |
| 1:A:1820:U:C5 | 4:D:159:ALA:HB3 | 2.46 | 0.51 |
| 1:A:1843:C:C2 | 1:A:1844:C:C5 | 2.99 | 0.51 |
| 1:A:1851:U:C4 | 1:A:1852:C:N4 | 2.78 | 0.51 |
| 1:A:1854:A:C2 | 1:A:1855:G:H1' | 2.46 | 0.51 |
| 1:A:1902:C:H5' | 4:D:244:ARG:CZ | 2.41 | 0.51 |
| 1:A:529:A:N7 | 1:A:2023:G:C5 | 2.79 | 0.51 |
| 1:A:2346:A:N3 | 1:A:2383:G:C6 | 2.79 | 0.51 |
| 1:A:2348:U:H2' | 1:A:2349:G:C5' | 2.41 | 0.51 |
| 1:A:2355:C:C5 | 1:A:2356:C:C4 | 2.99 | 0.51 |
| 1:A:2345:G:N2 | 1:A:2381:C:H2' | 2.26 | 0.51 |
| 1:A:2417:C:H2' | 1:A:2418:A:C8 | 2.46 | 0.51 |
| 1:A:826:U:H5'' | 1:A:2429:G:P | 2.50 | 0.51 |
| 1:A:2431:U:O2 | 1:A:2433:A:H8 | 1.94 | 0.51 |
| 1:A:2051:A:N1 | 1:A:2614:A:C6 | 2.79 | 0.51 |
| 1:A:2636:U:H5'' | 1:A:2636:U:C6 | 2.46 | 0.51 |
| 1:A:2642:G:H2' | 1:A:2643:G:H8 | 1.76 | 0.51 |
| 1:A:2657:A:N6 | 1:A:2664:G:H21 | 1.88 | 0.51 |
| 1:A:2726:U:H4' | 1:A:2727:G:OP1 | 2.10 | 0.51 |
| 1:A:2807:G:N3 | 1:A:2807:G:C2' | 2.64 | 0.51 |
| 1:A:2824:C:C4 | 1:A:2825:C:C1' | 2.94 | 0.51 |
| 1:A:290:G:N1 | 1:A:351:G:C2 | 2.78 | 0.51 |
| 1:A:107:C:C5' | 1:A:293:U:O4' | 2.54 | 0.51 |
| 1:A:318:C:O2' | 1:A:319:C:H5' | 2.11 | 0.51 |
| 1:A:481:G:H2' | 1:A:507:A:H61 | 1.73 | 0.51 |
| 1:A:522:G:H2' | 1:A:523:C:C6 | 2.46 | 0.51 |
| 1:A:527:C:O2' | 1:A:528:A:C4 | 2.64 | 0.51 |
| 1:A:587:C:O2' | 1:A:588:U:P | 2.69 | 0.51 |
| 1:A:642:G:C2 | 1:A:644:A:C2 | 2.99 | 0.51 |
| 1:A:674:G:O3' | 6:F:74:ARG:NH2 | 2.44 | 0.51 |
| 1:A:675:A:C8 | 1:A:676:A:C2 | 2.97 | 0.51 |
| 1:A:677:A:H2' | 1:A:678:C:H6 | 1.75 | 0.51 |
| 1:A:692:C:H5'' | 4:D:60:ARG:NH2 | 2.26 | 0.51 |
| 1:A:783:A:N1 | 1:A:785:G:C1' | 2.74 | 0.51 |
| 1:A:807:U:OP1 | 1:A:830:G:N2 | 2.43 | 0.51 |
| 1:A:905:U:OP1 | 14:P:141:GLN:O | 2.28 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:864:G:H1' | 1:A:914:C:H42 | 1.76 | 0.51 |
| 2:B:10:C:H2' | 2:B:11:C:O5' | 2.11 | 0.51 |
| 2:B:37:C:O2 | 16:R:95:HIS:NE2 | 2.44 | 0.51 |
| 1:A:1789:A:C4' | 4:D:222:ARG:NH2 | 2.73 | 0.51 |
| 1:A:1799:G:H4' | 4:D:264:LYS:HE2 | 1.92 | 0.51 |
| 5:E:154:LYS:NZ | 5:E:156:MET:HE2 | 2.25 | 0.51 |
| 5:E:14:ILE:CA | 5:E:19:ARG:HB2 | 2.29 | 0.51 |
| 5:E:51:PHE:HE1 | 5:E:75:VAL:N | 2.03 | 0.51 |
| 5:E:53:PRO:O | 5:E:54:GLN:O | 2.29 | 0.51 |
| 6:F:122:LYS:HD2 | 6:F:192:LEU:HD12 | 1.92 | 0.51 |
| 6:F:4:VAL:HG12 | 6:F:4:VAL:O | 2.11 | 0.51 |
| 7:G:33:ARG:HD2 | 7:G:34:LEU:N | 2.25 | 0.51 |
| 7:G:49:ASP:H | 7:G:53:LEU:CD1 | 2.24 | 0.51 |
| 7:G:63:ILE:HG23 | 7:G:64:THR:N | 2.25 | 0.51 |
| 8:H:41:MET:O | 8:H:53:GLU:HB2 | 2.11 | 0.51 |
| 9:K:5:LEU:HB3 | 9:K:8:PRO:CB | 2.41 | 0.51 |
| 10:L:32:ALA:HA | 10:L:37:PHE:HE1 | 1.76 | 0.51 |
| 10:L:23:VAL:HG12 | 10:L:34:ILE:HA | 1.93 | 0.51 |
| 10:L:33:ASN:N | 10:L:37:PHE:CD1 | 2.77 | 0.51 |
| 10:L:88:ALA:O | 10:L:94:GLU:OE1 | 2.29 | 0.51 |
| 1:A:1064:C:P | 10:L:89:HIS:HA | 2.51 | 0.51 |
| 1:A:1076:C:H5' | 10:L:93:ARG:HH21 | 1.75 | 0.51 |
| 12:N:12:ASP:HA | 12:N:97:ARG:HH22 | 1.76 | 0.51 |
| 13:O:64:LYS:C | 13:O:65:ARG:CG | 2.72 | 0.51 |
| 13:O:92:GLU:N | 13:O:92:GLU:OE2 | 2.44 | 0.51 |
| 17:S:33:LYS:HB3 | 17:S:45:PHE:CA | 2.41 | 0.51 |
| 18:T:37:GLU:C | 18:T:39:LEU:N | 2.62 | 0.51 |
| 1:A:1198:U:H4' | 18:T:9:VAL:HG22 | 1.93 | 0.51 |
| 19:U:5:VAL:HG22 | 19:U:39:LEU:CD2 | 2.40 | 0.51 |
| 20:V:25:ARG:NH2 | 20:V:74:ALA:O | 2.44 | 0.51 |
| 22:X:5:MET:HA | 22:X:33:LYS:HE2 | 1.93 | 0.51 |
| 23:Y:110:GLY:N | 23:Y:144:LEU:HD12 | 2.25 | 0.51 |
| 23:Y:161:VAL:O | 23:Y:162:GLU:CB | 2.59 | 0.51 |
| 23:Y:59:LEU:HD21 | 23:Y:66:SER:OG | 2.11 | 0.51 |
| 9:K:109:ILE:CG2 | 9:K:113:ARG:NH2 | 2.74 | 0.51 |
| 9:K:73:GLU:HG3 | 9:K:138:ILE:HD11 | 1.91 | 0.51 |
| 9:K:95:LYS:O | 9:K:96:ASP:C | 2.49 | 0.51 |
| 1:A:2677:G:C2' | 1:A:2678:C:H5' | 2.41 | 0.51 |
| 1:A:363(B):G:C2 | 1:A:363(C):G:C5 | 2.99 | 0.51 |
| 1:A:1484:G:C2' | 1:A:1485:G:O5' | 2.58 | 0.51 |
| 26:2:16:PRO:O | 26:2:19:GLN:HB3 | 2.10 | 0.50 |
| 26:2:23:LEU:O | 26:2:28:LEU:HG | 2.11 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 26:2:4:LEU:HD23 | 26:2:5:LYS:O | 2.10 | 0.50 |
| 27:3:14:ILE:HG22 | 27:3:37:SER:O | 2.12 | 0.50 |
| 27:3:32:TYR:C | 27:3:32:TYR:CD1 | 2.84 | 0.50 |
| 1:A:1025:G:C2' | 1:A:1025:G:N3 | 2.74 | 0.50 |
| 1:A:1059:G:C5 | 1:A:1060:U:H1' | 2.46 | 0.50 |
| 1:A:1196:C:N3 | 1:A:1250:G:O6 | 2.43 | 0.50 |
| 1:A:1269:A:C8 | 1:A:1269:A:O5' | 2.62 | 0.50 |
| 1:A:1364:G:P | 1:A:1809:A:C6 | 3.05 | 0.50 |
| 1:A:1426:G:O6 | 1:A:1427:A:N6 | 2.43 | 0.50 |
| 1:A:1503:U:C2 | 1:A:1504:C:C5 | 2.99 | 0.50 |
| 1:A:1560:G:C2' | 1:A:1561:G:C8 | 2.92 | 0.50 |
| 1:A:15:G:H2' | 1:A:16:G:H8 | 1.76 | 0.50 |
| 1:A:1656:C:H4' | 5:E:136:ARG:HH12 | 1.75 | 0.50 |
| 1:A:1704:G:H2' | 1:A:1705:G:O5' | 2.11 | 0.50 |
| 1:A:1728:G:H1 | 1:A:1733:G:H22 | 1.57 | 0.50 |
| 1:A:1699:G:O6 | 1:A:1763:G:O4' | 2.29 | 0.50 |
| 1:A:1936:A:C1' | 1:A:1940:U:C4 | 2.94 | 0.50 |
| 1:A:195:A:OP2 | 1:A:196:A:O3' | 2.29 | 0.50 |
| 1:A:1961:C:O2' | 1:A:1962:C:H5' | 2.11 | 0.50 |
| 1:A:2212:A:O4' | 1:A:2212:A:P | 2.69 | 0.50 |
| 1:A:2198:A:C2 | 1:A:2225:A:N6 | 2.80 | 0.50 |
| 1:A:2243:U:C2' | 1:A:2244:U:O4' | 2.59 | 0.50 |
| 1:A:2424:C:H5'' | 1:A:2425:A:H5' | 1.93 | 0.50 |
| 1:A:250:G:C2 | 1:A:251:A:N7 | 2.79 | 0.50 |
| 1:A:2530:A:H2' | 1:A:2531:A:H5'' | 1.92 | 0.50 |
| 1:A:2540:C:H2' | 1:A:2541:A:O4' | 2.10 | 0.50 |
| 1:A:262:A:H2' | 1:A:263:C:O5' | 2.09 | 0.50 |
| 1:A:2652:C:C2' | 1:A:2653:U:C6 | 2.89 | 0.50 |
| 1:A:270(E):G:C4 | 1:A:270(V):G:N2 | 2.80 | 0.50 |
| 1:A:2719:G:C8 | 1:A:2719:G:O5' | 2.64 | 0.50 |
| 1:A:2815:C:C2 | 1:A:2816:C:C6 | 3.00 | 0.50 |
| 1:A:356:G:H3' | 1:A:357:A:H8 | 1.75 | 0.50 |
| 1:A:373:U:H4' | 1:A:374:A:N7 | 2.26 | 0.50 |
| 1:A:385:C:O5' | 1:A:385:C:C6 | 2.64 | 0.50 |
| 1:A:386:G:C4' | 1:A:387:U:C6 | 2.81 | 0.50 |
| 1:A:443:A:H61 | 6:F:41:LEU:CD1 | 2.24 | 0.50 |
| 1:A:527:C:O4' | 1:A:2779:U:C4 | 2.65 | 0.50 |
| 1:A:544:C:C2' | 1:A:545:G:C5' | 2.89 | 0.50 |
| 1:A:546:C:H2' | 1:A:547:A:H8 | 1.72 | 0.50 |
| 1:A:684:G:C2' | 1:A:687:C:H41 | 2.24 | 0.50 |
| 1:A:733:G:C6 | 1:A:761:A:N7 | 2.79 | 0.50 |
| 1:A:814:C:H2' | 1:A:815:C:C6 | 2.45 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:827:U:O3' | 1:A:828:U:O2 | 2.29 | 0.50 |
| 1:A:872:A:N1 | 1:A:873:G:C6 | 2.79 | 0.50 |
| 1:A:873:G:H5' | 14:P:66:ILE:HD11 | 1.91 | 0.50 |
| 1:A:917:A:O2' | 1:A:918:A:O5' | 2.25 | 0.50 |
| 1:A:969:U:H2' | 1:A:970:C:O4' | 2.11 | 0.50 |
| 2:B:6:C:H5" | 2:B:27:C:O2 | 2.12 | 0.50 |
| 1:A:2209:C:H4' | 4:D:150:LYS:CG | 2.41 | 0.50 |
| 4:D:155:LEU:CA | 4:D:157:ARG:HH21 | 2.20 | 0.50 |
| 4:D:219:PRO:HG2 | 4:D:220:HIS:NE2 | 2.26 | 0.50 |
| 4:D:263:ARG:C | 4:D:264:LYS:HG2 | 2.30 | 0.50 |
| 5:E:170:LEU:HD23 | 5:E:170:LEU:N | 2.26 | 0.50 |
| 5:E:176:ILE:HD11 | 5:E:179:GLU:CG | 2.36 | 0.50 |
| 6:F:110:LEU:O | 6:F:110:LEU:HD23 | 2.11 | 0.50 |
| 6:F:9:ILE:CG2 | 6:F:124:LEU:HB2 | 2.40 | 0.50 |
| 1:A:798:G:N7 | 6:F:62:ARG:NH2 | 2.59 | 0.50 |
| 7:G:32:PRO:CB | 7:G:163:ALA:CA | 2.88 | 0.50 |
| 7:G:91:ARG:HD3 | 7:G:91:ARG:C | 2.31 | 0.50 |
| 8:H:94:TYR:OH | 8:H:128:PRO:HB2 | 2.11 | 0.50 |
| 8:H:15:VAL:HG13 | 8:H:17:VAL:CG1 | 2.41 | 0.50 |
| 8:H:160:LYS:HG2 | 8:H:160:LYS:O | 2.09 | 0.50 |
| 8:H:88:LEU:C | 8:H:88:LEU:CD2 | 2.79 | 0.50 |
| 9:K:8:PRO:HD3 | 9:K:35:LEU:O | 2.11 | 0.50 |
| 1:A:1096:A:N1 | 10:L:26:ALA:HB1 | 2.25 | 0.50 |
| 10:L:35:MET:O | 10:L:38:VAL:HG12 | 2.11 | 0.50 |
| 10:L:66:THR:HG22 | 10:L:67:PHE:N | 2.26 | 0.50 |
| 11:M:37:LYS:HZ2 | 11:M:43:THR:HG23 | 1.75 | 0.50 |
| 11:M:49:GLY:O | 11:M:50:ASP:O | 2.29 | 0.50 |
| 11:M:23:LEU:CG | 11:M:61:ARG:O | 2.58 | 0.50 |
| 11:M:76:SER:C | 11:M:78:TYR:N | 2.65 | 0.50 |
| 11:M:91:LEU:CG | 11:M:92:ALA:N | 2.74 | 0.50 |
| 12:N:63:VAL:C | 12:N:78:ARG:HG3 | 2.32 | 0.50 |
| 12:N:75:SER:O | 17:S:77:PRO:CD | 2.58 | 0.50 |
| 12:N:17:ARG:NH2 | 12:N:98:VAL:O | 2.44 | 0.50 |
| 13:O:45:LEU:HB3 | 13:O:46:LYS:HE3 | 1.92 | 0.50 |
| 13:O:49:ARG:HG3 | 31:7:52:LYS:HG3 | 1.94 | 0.50 |
| 1:A:244:A:C2' | 13:O:65:ARG:HH22 | 2.25 | 0.50 |
| 13:O:6:LEU:O | 13:O:6:LEU:CG | 2.59 | 0.50 |
| 14:P:75:THR:HB | 14:P:77:LYS:NZ | 2.25 | 0.50 |
| 15:Q:39:PRO:C | 15:Q:41:ALA:N | 2.63 | 0.50 |
| 15:Q:54:LEU:HD23 | 15:Q:65:LEU:HD13 | 1.93 | 0.50 |
| 1:A:2334:G:N2 | 16:R:11:LYS:HZ2 | 2.09 | 0.50 |
| 16:R:17:ARG:O | 16:R:20:ARG:N | 2.44 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 16:R:39:ILE:O | 16:R:47:THR:CG2 | 2.58 | 0.50 |
| 18:T:111:GLU:HA | 18:T:114:LYS:NZ | 2.26 | 0.50 |
| 21:W:15:GLU:HB3 | 21:W:16:LYS:HZ3 | 1.74 | 0.50 |
| 22:X:29:GLU:OE1 | 22:X:34:LYS:HD2 | 2.11 | 0.50 |
| 22:X:44:ILE:HB | 22:X:46:LYS:HG3 | 1.93 | 0.50 |
| 23:Y:118:GLN:NE2 | 23:Y:174:VAL:CA | 2.62 | 0.50 |
| 1:A:2171:A:C2 | 1:A:2172:U:C2 | 2.99 | 0.50 |
| 3:C:103:ILE:HG12 | 3:C:108:MET:SD | 2.51 | 0.50 |
| 3:C:54:SER:C | 3:C:56:GLN:H | 2.14 | 0.50 |
| 1:A:273(F):C:H1' | 1:A:363(A):A:C6 | 2.45 | 0.50 |
| 26:2:2:PRO:HA | 26:2:60:GLU:OE2 | 2.11 | 0.50 |
| 25:1:27:LEU:HG | 25:1:48:LEU:CD2 | 2.34 | 0.50 |
| 26:2:8:LEU:CB | 26:2:33:GLN:HB3 | 2.35 | 0.50 |
| 26:2:39:ASP:C | 26:2:44:ARG:HH11 | 2.15 | 0.50 |
| 26:2:50:VAL:HG12 | 26:2:51:ALA:N | 2.26 | 0.50 |
| 27:3:11:PRO:HA | 27:3:40:HIS:CD2 | 2.46 | 0.50 |
| 27:3:5:ILE:HG13 | 27:3:10:VAL:N | 2.26 | 0.50 |
| 28:4:15:ARG:O | 28:4:16:ARG:C | 2.50 | 0.50 |
| 1:A:2362:G:P | 31:7:29:LYS:HE3 | 2.51 | 0.50 |
| 1:A:1071:G:N2 | 1:A:1089:G:H2' | 2.26 | 0.50 |
| 1:A:1114:G:N1 | 1:A:1115:G:C8 | 2.79 | 0.50 |
| 1:A:1161:C:C6 | 1:A:1161:C:O5' | 2.64 | 0.50 |
| 1:A:1223:C:OP2 | 19:U:69:LYS:NZ | 2.42 | 0.50 |
| 1:A:1223:C:O2 | 1:A:1225:C:OP2 | 2.29 | 0.50 |
| 1:A:1239:G:H2' | 1:A:1240:U:O4' | 2.11 | 0.50 |
| 1:A:1338:G:H2' | 1:A:1339:G:C5' | 2.42 | 0.50 |
| 1:A:1426:G:C8 | 1:A:1427:A:N7 | 2.80 | 0.50 |
| 1:A:1478:G:C2 | 1:A:1479:G:C4 | 2.99 | 0.50 |
| 1:A:1472:A:N1 | 1:A:1518:C:N4 | 2.59 | 0.50 |
| 1:A:1469:A:C6 | 1:A:1522:G:N2 | 2.80 | 0.50 |
| 1:A:1530:G:N2 | 1:A:1541:U:C2' | 2.73 | 0.50 |
| 1:A:1726:G:N1 | 1:A:1727:U:O4 | 2.44 | 0.50 |
| 1:A:1754:C:N3 | 1:A:1755:A:C5 | 2.79 | 0.50 |
| 1:A:1790:C:O2 | 1:A:1790:C:H2' | 2.10 | 0.50 |
| 1:A:1901:A:O2' | 4:D:244:ARG:CZ | 2.58 | 0.50 |
| 1:A:2243:U:C2 | 1:A:2244:U:C5 | 3.00 | 0.50 |
| 1:A:2320:A:C5' | 1:A:2321:G:C5 | 2.94 | 0.50 |
| 1:A:2323:G:C6 | 1:A:2324:C:N4 | 2.79 | 0.50 |
| 1:A:2356:C:H5'' | 1:A:2356:C:C6 | 2.46 | 0.50 |
| 1:A:2346:A:C1' | 1:A:2383:G:C8 | 2.82 | 0.50 |
| 1:A:2442:C:H2' | 1:A:2443:C:H6 | 1.76 | 0.50 |
| 1:A:746:A:C8 | 1:A:2612:C:P | 3.04 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2642:G:C4 | 1:A:2643:G:C8 | 3.00 | 0.50 |
| 1:A:2694:G:N2 | 1:A:2716:U:C2 | 2.79 | 0.50 |
| 1:A:307:G:C2 | 1:A:309:G:C5' | 2.95 | 0.50 |
| 1:A:349:G:C3' | 1:A:350:U:C5 | 2.90 | 0.50 |
| 1:A:247:G:H4' | 1:A:386:G:C2 | 2.46 | 0.50 |
| 1:A:43:G:H2' | 1:A:44:A:H5' | 1.92 | 0.50 |
| 1:A:459:U:O2' | 1:A:460:A:O5' | 2.28 | 0.50 |
| 1:A:501:A:C6 | 1:A:502:A:N1 | 2.79 | 0.50 |
| 1:A:531:C:O2 | 18:T:28:ARG:CZ | 2.58 | 0.50 |
| 1:A:602:G:C8 | 1:A:602:G:O5' | 2.58 | 0.50 |
| 1:A:635:C:C2' | 1:A:636:G:H5' | 2.41 | 0.50 |
| 1:A:637:A:N3 | 1:A:651:G:H4' | 2.25 | 0.50 |
| 1:A:918:A:C2 | 1:A:919:G:C6 | 2.97 | 0.50 |
| 1:A:91:A:C2' | 1:A:92:G:O5' | 2.56 | 0.50 |
| 1:A:950:G:C6 | 1:A:968:G:C6 | 2.99 | 0.50 |
| 1:A:969:U:C2 | 1:A:970:C:C5 | 2.99 | 0.50 |
| 5:E:25:VAL:CG2 | 5:E:182:LEU:O | 2.58 | 0.50 |
| 1:A:2636:U:C4' | 5:E:79:ARG:NH2 | 2.72 | 0.50 |
| 6:F:103:LYS:O | 6:F:106:ARG:CG | 2.59 | 0.50 |
| 6:F:41:LEU:HA | 6:F:44:ARG:HG2 | 1.92 | 0.50 |
| 7:G:49:ASP:C | 7:G:53:LEU:HD22 | 2.31 | 0.50 |
| 8:H:155:SER:HG | 8:H:159:GLU:HG3 | 1.75 | 0.50 |
| 8:H:20:ALA:HB3 | 8:H:23:ARG:O | 2.11 | 0.50 |
| 8:H:25:LYS:CG | 8:H:32:GLU:HB2 | 2.41 | 0.50 |
| 9:K:21:VAL:C | 9:K:26:ALA:HB2 | 2.31 | 0.50 |
| 9:K:40:THR:HG22 | 9:K:42:SER:H | 1.77 | 0.50 |
| 9:K:5:LEU:HG | 9:K:17:GLN:C | 2.32 | 0.50 |
| 11:M:70:LYS:HD2 | 11:M:86:PRO:CG | 2.42 | 0.50 |
| 1:A:2641:G:OP1 | 11:M:75:TYR:CD1 | 2.64 | 0.50 |
| 12:N:17:ARG:HH22 | 12:N:98:VAL:HG23 | 1.68 | 0.50 |
| 13:O:80:TYR:CE2 | 13:O:85:LEU:HD21 | 2.46 | 0.50 |
| 14:P:115:MET:SD | 14:P:115:MET:C | 2.89 | 0.50 |
| 14:P:122:GLY:O | 14:P:125:LEU:N | 2.44 | 0.50 |
| 14:P:65:PHE:N | 14:P:106:VAL:HG12 | 2.26 | 0.50 |
| 16:R:3:ARG:O | 16:R:4:LEU:C | 2.50 | 0.50 |
| 19:U:69:LYS:H | 19:U:92:THR:HB | 1.74 | 0.50 |
| 20:V:38:TYR:CE2 | 28:4:39:MET:HE1 | 2.47 | 0.50 |
| 20:V:43:GLY:HA2 | 20:V:46:PHE:HD1 | 1.76 | 0.50 |
| 1:A:1340:U:H5'' | 21:W:57:LEU:CD1 | 2.41 | 0.50 |
| 22:X:72:VAL:HG12 | 22:X:79:CYS:SG | 2.51 | 0.50 |
| 23:Y:100:VAL:O | 23:Y:124:ILE:CG2 | 2.58 | 0.50 |
| 23:Y:9:TYR:CG | 23:Y:14:LYS:HG2 | 2.46 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 23:Y:39:VAL:CG1 | 23:Y:41:LEU:HD23 | 2.40 | 0.50 |
| 24:Z:20:ARG:HB3 | 24:Z:24:LYS:NZ | 2.26 | 0.50 |
| 3:C:60:GLY:HA3 | 3:C:199:HIS:NE2 | 2.26 | 0.50 |
| 1:A:1575:C:N4 | 1:A:1576:U:H3 | 2.08 | 0.50 |
| 2:B:35:U:C2 | 2:B:36:C:C6 | 2.99 | 0.50 |
| 25:1:65:GLN:CA | 25:1:65:GLN:NE2 | 2.75 | 0.50 |
| 25:1:1:MET:C | 25:1:3:LYS:N | 2.64 | 0.50 |
| 26:2:40:THR:HB | 26:2:43:ILE:HB | 1.92 | 0.50 |
| 26:2:6:VAL:HG11 | 26:2:54:VAL:HG13 | 1.92 | 0.50 |
| 27:3:10:VAL:HG11 | 27:3:41:PRO:CG | 2.41 | 0.50 |
| 27:3:29:PRO:HB2 | 27:3:31:ILE:HD12 | 1.92 | 0.50 |
| 27:3:57:GLU:N | 27:3:61:ARG:HG3 | 2.26 | 0.50 |
| 27:3:5:ILE:CG2 | 27:3:60:GLN:OE1 | 2.57 | 0.50 |
| 27:3:6:HIS:NE2 | 27:3:55:ARG:HB3 | 2.27 | 0.50 |
| 28:4:21:SER:C | 28:4:23:HIS:N | 2.62 | 0.50 |
| 29:5:35:GLU:HG3 | 29:5:52:VAL:HG22 | 1.93 | 0.50 |
| 1:A:1033:U:C5' | 32:8:16:VAL:HG21 | 2.41 | 0.50 |
| 1:A:1180:C:C2' | 1:A:1181:C:H6 | 2.17 | 0.50 |
| 1:A:819:A:C5 | 1:A:1189:A:N6 | 2.79 | 0.50 |
| 1:A:1349:A:H4' | 1:A:1350:C:OP2 | 2.09 | 0.50 |
| 1:A:149:A:C4 | 1:A:150:C:C5 | 3.00 | 0.50 |
| 1:A:1525:G:C4 | 1:A:1526:G:N7 | 2.79 | 0.50 |
| 1:A:699:A:C1' | 1:A:1634:A:N7 | 2.73 | 0.50 |
| 1:A:1815:A:N7 | 1:A:1817:G:C2 | 2.80 | 0.50 |
| 1:A:1854:A:C2' | 1:A:1855:G:H5' | 2.42 | 0.50 |
| 1:A:195:A:N7 | 1:A:197:A:OP1 | 2.44 | 0.50 |
| 1:A:1660:C:N4 | 1:A:2001:A:N6 | 2.59 | 0.50 |
| 1:A:2053:G:H5' | 5:E:144:ARG:HA | 1.92 | 0.50 |
| 1:A:2197:U:H2' | 1:A:2224:G:H1 | 1.76 | 0.50 |
| 1:A:2320:A:C8 | 1:A:2320:A:P | 3.05 | 0.50 |
| 1:A:2345:G:OP1 | 29:5:39:TYR:HA | 2.11 | 0.50 |
| 1:A:2356:C:N3 | 1:A:2357:U:C4 | 2.79 | 0.50 |
| 1:A:2384:G:H3' | 1:A:2386:C:P | 2.51 | 0.50 |
| 1:A:2415:G:H5'' | 13:O:61:ARG:CD | 2.41 | 0.50 |
| 1:A:2032:G:C6 | 1:A:2454:G:H1' | 2.46 | 0.50 |
| 1:A:245:G:H5' | 13:O:63:PRO:O | 2.12 | 0.50 |
| 1:A:2525:G:C2 | 1:A:2539:C:C4 | 2.99 | 0.50 |
| 1:A:2616:C:C2 | 1:A:2617:C:C5 | 3.00 | 0.50 |
| 1:A:2647:U:H2' | 1:A:2648:C:C6 | 2.46 | 0.50 |
| 1:A:265:A:C2 | 1:A:428:A:N7 | 2.79 | 0.50 |
| 1:A:1637:A:C4' | 1:A:2711:A:O2' | 2.42 | 0.50 |
| 1:A:2712(A):A:H5' | 1:A:2713:A:H5'' | 1.92 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2714:G:O6 | 1:A:2715:C:N4 | 2.45 | 0.50 |
| 1:A:273:G:C4 | 1:A:273(A):G:C8 | 3.00 | 0.50 |
| 1:A:2789:C:N3 | 1:A:2790:A:H2 | 2.09 | 0.50 |
| 1:A:295:G:C6 | 1:A:296:C:C4 | 3.00 | 0.50 |
| 1:A:303:U:H2' | 1:A:304:G:O4' | 2.11 | 0.50 |
| 1:A:295:G:N2 | 1:A:344:G:H1' | 2.27 | 0.50 |
| 1:A:530:G:O2' | 1:A:532:A:P | 2.70 | 0.50 |
| 1:A:535:C:O2' | 1:A:536:A:H5' | 2.11 | 0.50 |
| 1:A:603:A:N1 | 1:A:625:G:N9 | 2.60 | 0.50 |
| 1:A:612:G:O2' | 1:A:617:G:N2 | 2.44 | 0.50 |
| 1:A:660:G:H2' | 1:A:661:C:C5 | 2.46 | 0.50 |
| 1:A:665:C:C2 | 1:A:666:G:N7 | 2.80 | 0.50 |
| 1:A:894:C:C2 | 1:A:895:U:C5 | 2.99 | 0.50 |
| 1:A:908:C:H2' | 1:A:909:A:C5' | 2.41 | 0.50 |
| 1:A:910:A:H2' | 1:A:911:A:O5' | 2.12 | 0.50 |
| 1:A:860:U:O4 | 1:A:917:A:C6 | 2.64 | 0.50 |
| 1:A:975:G:N2 | 1:A:976:C:H5' | 2.27 | 0.50 |
| 1:A:988:A:H62 | 26:2:13:ILE:HG13 | 1.77 | 0.50 |
| 2:B:9:G:C6 | 2:B:112:G:C6 | 3.00 | 0.50 |
| 2:B:45:A:C5 | 2:B:46:A:C5 | 2.99 | 0.50 |
| 2:B:76:G:C8 | 2:B:76:G:H3' | 2.46 | 0.50 |
| 4:D:98:VAL:HG12 | 4:D:99:ASP:N | 2.26 | 0.50 |
| 5:E:51:PHE:CD1 | 5:E:76:ARG:HD3 | 2.47 | 0.50 |
| 6:F:171:PRO:HB2 | 6:F:172:TRP:CE3 | 2.44 | 0.50 |
| 7:G:8:LYS:CD | 7:G:12:TYR:HD2 | 2.23 | 0.50 |
| 7:G:50:ALA:CB | 7:G:51:ARG:CZ | 2.90 | 0.50 |
| 7:G:51:ARG:NH2 | 7:G:51:ARG:HG3 | 2.26 | 0.50 |
| 8:H:149:ARG:O | 8:H:153:LYS:CB | 2.59 | 0.50 |
| 8:H:37:VAL:O | 8:H:37:VAL:HG22 | 2.11 | 0.50 |
| 8:H:26:VAL:HG11 | 8:H:76:VAL:HA | 1.92 | 0.50 |
| 8:H:85:LYS:HE2 | 8:H:142:GLY:HA2 | 1.93 | 0.50 |
| 12:N:9:GLU:O | 12:N:82:ASN:CB | 2.59 | 0.50 |
| 13:O:111:ARG:HD2 | 13:O:129:ALA:CB | 2.31 | 0.50 |
| 13:O:111:ARG:HG3 | 13:O:111:ARG:O | 2.11 | 0.50 |
| 13:O:7:ARG:CB | 13:O:8:PRO:HD3 | 2.41 | 0.50 |
| 14:P:16:ARG:NH2 | 14:P:72:LYS:HA | 2.26 | 0.50 |
| 16:R:40:ILE:HG13 | 16:R:47:THR:CG2 | 2.40 | 0.50 |
| 16:R:69:VAL:HG12 | 16:R:70:GLY:N | 2.26 | 0.50 |
| 17:S:111:ARG:CA | 17:S:114:LEU:HD12 | 2.41 | 0.50 |
| 17:S:15:VAL:O | 17:S:16:ARG:O | 2.29 | 0.50 |
| 18:T:105:VAL:O | 18:T:108:GLU:OE1 | 2.29 | 0.50 |
| 18:T:47:TYR:OH | 19:U:76:LYS:C | 2.50 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 18:T:52:ARG:NH1 | 18:T:56:ASP:OD2 | 2.44 | 0.50 |
| 18:T:94:ASN:HA | 18:T:97:ASP:OD1 | 2.11 | 0.50 |
| 19:U:28:GLU:C | 19:U:30:GLY:N | 2.62 | 0.50 |
| 22:X:42:VAL:N | 22:X:61:ILE:CG2 | 2.73 | 0.50 |
| 23:Y:102:LEU:HD21 | 23:Y:137:ILE:CD1 | 2.25 | 0.50 |
| 23:Y:29:TYR:CA | 23:Y:34:ASN:HD22 | 2.23 | 0.50 |
| 23:Y:26:GLY:O | 23:Y:36:LYS:HG3 | 2.11 | 0.50 |
| 1:A:162:U:H6 | 1:A:162:U:OP1 | 1.94 | 0.50 |
| 25:1:65:GLN:NE2 | 25:1:65:GLN:N | 2.55 | 0.50 |
| 26:2:40:THR:O | 26:2:41:PRO:C | 2.47 | 0.50 |
| 27:3:25:TYR:O | 27:3:26:SER:CB | 2.59 | 0.50 |
| 28:4:43:HIS:O | 28:4:44:THR:CG2 | 2.60 | 0.50 |
| 29:5:16:CYS:O | 29:5:17:LYS:C | 2.50 | 0.50 |
| 1:A:1128:A:C4 | 1:A:1129:A:C2 | 2.99 | 0.50 |
| 1:A:112:U:N3 | 1:A:113:G:H1' | 2.26 | 0.50 |
| 1:A:1263:U:O2' | 28:4:10:LYS:CG | 2.59 | 0.50 |
| 1:A:1339:G:H5'' | 21:W:16:LYS:CD | 2.39 | 0.50 |
| 1:A:1450:C:H2' | 1:A:1451:C:OP2 | 2.11 | 0.50 |
| 1:A:1635:G:C8 | 1:A:1635:G:C5' | 2.94 | 0.50 |
| 1:A:1673:U:O2 | 1:A:1673:U:C2' | 2.58 | 0.50 |
| 1:A:1730:U:C6 | 1:A:1730:U:O5' | 2.62 | 0.50 |
| 1:A:1764:G:H2' | 1:A:1765:C:C6 | 2.46 | 0.50 |
| 1:A:1820:U:N1 | 4:D:202:LYS:CG | 2.72 | 0.50 |
| 1:A:1860:G:C2 | 1:A:1861:G:C8 | 2.99 | 0.50 |
| 1:A:1944:U:O2' | 1:A:1955:U:H1' | 2.12 | 0.50 |
| 1:A:1655:A:N7 | 1:A:2005:A:H2 | 2.09 | 0.50 |
| 1:A:2010:G:C5 | 1:A:2011:U:C6 | 2.99 | 0.50 |
| 1:A:2037:G:C6 | 1:A:2038:G:C6 | 2.99 | 0.50 |
| 1:A:2052:G:H5' | 5:E:141:ILE:HG13 | 1.94 | 0.50 |
| 1:A:2082:A:C2' | 1:A:2083:G:H8 | 2.19 | 0.50 |
| 1:A:2209:C:HO2' | 1:A:2211:G:P | 2.35 | 0.50 |
| 1:A:2320:A:N3 | 1:A:2333:A:C2 | 2.79 | 0.50 |
| 1:A:2259:G:H5' | 1:A:2427:C:C2' | 2.40 | 0.50 |
| 1:A:199:A:C2 | 1:A:2434:A:C2 | 2.99 | 0.50 |
| 1:A:247:G:N7 | 1:A:249:C:O2 | 2.45 | 0.50 |
| 1:A:256:A:H2' | 1:A:257:A:H8 | 1.74 | 0.50 |
| 1:A:2679:A:O2' | 1:A:2680:C:H5' | 2.11 | 0.50 |
| 1:A:2700:C:C2 | 1:A:2708:G:N2 | 2.79 | 0.50 |
| 1:A:2701:C:C3' | 1:A:2702:U:H5'' | 2.16 | 0.50 |
| 1:A:270(C):C:C3' | 1:A:270(D):C:H6 | 2.23 | 0.50 |
| 1:A:2742:C:N4 | 1:A:2763:G:N2 | 2.60 | 0.50 |
| 1:A:2820:A:C2 | 5:E:109:LYS:HE2 | 2.47 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:2846:G:H5' | 1:A:2847:U:P | 2.52 | 0.50 |
| 1:A:2848:G:H22 | 1:A:2867:G:H1' | 1.77 | 0.50 |
| 1:A:83:G:OP1 | 1:A:296:C:OP1 | 2.29 | 0.50 |
| 1:A:365:C:C4 | 1:A:366:C:C4 | 2.99 | 0.50 |
| 1:A:391:G:C4 | 1:A:392:C:C5 | 2.99 | 0.50 |
| 1:A:416:C:N4 | 1:A:417:C:N4 | 2.59 | 0.50 |
| 1:A:506:G:C2' | 1:A:507:A:OP2 | 2.59 | 0.50 |
| 1:A:511:U:OP2 | 1:A:512:G:C5 | 2.65 | 0.50 |
| 1:A:547:A:C8 | 1:A:548:A:N7 | 2.80 | 0.50 |
| 1:A:650:C:H2' | 1:A:651:G:C5' | 2.41 | 0.50 |
| 1:A:66:C:C2' | 1:A:67:U:O5' | 2.59 | 0.50 |
| 1:A:784:A:OP1 | 1:A:2588:G:C5' | 2.59 | 0.50 |
| 1:A:892:G:C4 | 1:A:893:C:C5 | 2.99 | 0.50 |
| 2:B:49:C:OP1 | 16:R:97:ARG:HB2 | 2.12 | 0.50 |
| 2:B:96:G:N3 | 2:B:97:G:C8 | 2.79 | 0.50 |
| 1:A:1801:G:C4 | 4:D:263:ARG:NH2 | 2.79 | 0.50 |
| 4:D:258:LYS:HB2 | 4:D:264:LYS:HZ2 | 1.76 | 0.50 |
| 4:D:69:ARG:C | 4:D:71:ASP:H | 2.14 | 0.50 |
| 5:E:4:ILE:CG2 | 5:E:30:PRO:HB3 | 2.39 | 0.50 |
| 5:E:44:TYR:HD2 | 5:E:45:THR:N | 2.04 | 0.50 |
| 5:E:33:VAL:HG11 | 5:E:77:ILE:HD12 | 1.92 | 0.50 |
| 6:F:131:GLY:CA | 6:F:138:GLU:CG | 2.73 | 0.50 |
| 6:F:99:TYR:O | 6:F:100:THR:C | 2.50 | 0.50 |
| 7:G:128:ARG:O | 7:G:129:GLY:C | 2.50 | 0.50 |
| 7:G:130:ASN:O | 7:G:159:VAL:CG2 | 2.54 | 0.50 |
| 7:G:139:LEU:CG | 7:G:142:PRO:HB3 | 2.41 | 0.50 |
| 7:G:167:GLU:O | 7:G:170:ARG:CB | 2.58 | 0.50 |
| 7:G:57:ALA:O | 7:G:58:GLN:C | 2.49 | 0.50 |
| 8:H:121:ILE:CD1 | 8:H:123:PHE:HE1 | 2.22 | 0.50 |
| 8:H:126:PRO:CG | 8:H:132:ARG:HH22 | 2.25 | 0.50 |
| 8:H:42:ARG:CA | 8:H:42:ARG:NE | 2.65 | 0.50 |
| 11:M:36:GLY:HA2 | 11:M:49:GLY:N | 2.27 | 0.50 |
| 11:M:70:LYS:HD2 | 11:M:86:PRO:HG3 | 1.92 | 0.50 |
| 12:N:2:ILE:C | 12:N:3:GLN:NE2 | 2.65 | 0.50 |
| 13:O:15:ARG:NH1 | 13:O:16:ARG:H | 2.07 | 0.50 |
| 14:P:45:GLN:HA | 14:P:48:GLU:CG | 2.37 | 0.50 |
| 14:P:69:PHE:CE1 | 14:P:70:PRO:HD2 | 2.45 | 0.50 |
| 15:Q:14:SER:HA | 15:Q:17:ARG:HE | 1.72 | 0.50 |
| 15:Q:96:ARG:HG2 | 15:Q:98:LEU:HD11 | 1.92 | 0.50 |
| 17:S:76:PHE:CE2 | 17:S:78:LEU:CD1 | 2.93 | 0.50 |
| 18:T:17:ILE:HA | 18:T:20:LEU:CD2 | 2.41 | 0.50 |
| 19:U:51:VAL:O | 19:U:52:VAL:C | 2.48 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 20:V:43:GLY:O | 20:V:44:ALA:C | 2.50 | 0.50 |
| 20:V:87:PRO:HG2 | 20:V:87:PRO:O | 2.11 | 0.50 |
| 22:X:15:VAL:HG12 | 22:X:16:ALA:H | 1.77 | 0.50 |
| 22:X:19:LYS:HB3 | 22:X:21:LYS:CG | 2.42 | 0.50 |
| 22:X:2:ARG:C | 22:X:4:LYS:N | 2.63 | 0.50 |
| 23:Y:120:ILE:N | 23:Y:120:ILE:HD12 | 2.22 | 0.50 |
| 23:Y:55:HIS:NE2 | 23:Y:124:ILE:HD13 | 2.26 | 0.50 |
| 23:Y:95:PRO:HB2 | 23:Y:131:ARG:N | 2.27 | 0.50 |
| 24:Z:21:LEU:HD11 | 24:Z:40:GLN:N | 2.27 | 0.50 |
| 9:K:81:VAL:HG23 | 9:K:145:VAL:N | 2.27 | 0.50 |
| 9:K:86:THR:O | 9:K:87:LYS:C | 2.50 | 0.50 |
| 1:A:2137:C:H2' | 1:A:2138:C:C6 | 2.46 | 0.50 |
| 3:C:173:ALA:HB3 | 3:C:192:PHE:CE2 | 2.46 | 0.50 |
| 3:C:47:LEU:HD12 | 3:C:208:PHE:CZ | 2.46 | 0.50 |
| 3:C:22:ILE:CD1 | 3:C:190:ARG:HD3 | 2.40 | 0.50 |
| 1:A:2106:G:C2' | 1:A:2107:C:H5' | 2.41 | 0.50 |
| 1:A:2340:G:C2 | 1:A:2341:G:C8 | 2.98 | 0.50 |
| 3:C:20:TYR:CE1 | 3:C:222:VAL:CG2 | 2.95 | 0.50 |
| 25:1:57:THR:O | 25:1:60:ASN:HB3 | 2.11 | 0.50 |
| 27:3:45:GLY:HA2 | 27:3:54:GLY:HA3 | 1.94 | 0.50 |
| 28:4:11:THR:OG1 | 28:4:15:ARG:N | 2.44 | 0.50 |
| 29:5:29:ASN:H | 29:5:29:ASN:HD22 | 1.59 | 0.50 |
| 30:6:5:TRP:CZ2 | 30:6:7:PRO:HB3 | 2.47 | 0.50 |
| 31:7:51:ALA:C | 31:7:53:PRO:HD2 | 2.32 | 0.50 |
| 31:7:55:ALA:N | 31:7:56:GLU:OE2 | 2.44 | 0.50 |
| 32:8:11:CYS:N | 32:8:14:CYS:SG | 2.81 | 0.50 |
| 32:8:19:ARG:HD2 | 32:8:24:TYR:HB2 | 1.91 | 0.50 |
| 1:A:1009:A:N3 | 1:A:1153:C:O2' | 2.39 | 0.50 |
| 1:A:1135:C:O2' | 1:A:1136:G:H5' | 2.11 | 0.50 |
| 1:A:1014:U:C2 | 1:A:1149:G:N2 | 2.80 | 0.50 |
| 1:A:1201:C:H42 | 1:A:1241:A:N6 | 2.01 | 0.50 |
| 1:A:1263:U:O2' | 28:4:10:LYS:HG2 | 2.11 | 0.50 |
| 1:A:1305:C:O2' | 1:A:1306:C:C5' | 2.59 | 0.50 |
| 1:A:1381:G:C5 | 1:A:1382:G:C5 | 2.99 | 0.50 |
| 1:A:1633:G:C8 | 1:A:1635:G:O6 | 2.64 | 0.50 |
| 1:A:1743:G:H3' | 1:A:1746:G:C8 | 2.43 | 0.50 |
| 1:A:1779:U:C6 | 1:A:1779:U:C3' | 2.94 | 0.50 |
| 1:A:1853:A:C5 | 1:A:1854:A:N7 | 2.80 | 0.50 |
| 1:A:1917:U:H3' | 1:A:1917:U:H6 | 1.69 | 0.50 |
| 1:A:1834:U:C1' | 1:A:1969:A:C2 | 2.87 | 0.50 |
| 1:A:1975:G:H2' | 1:A:1976:U:C5' | 2.42 | 0.50 |
| 1:A:2224:G:H5'' | 4:D:262:ARG:CZ | 2.42 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2297:C:H2' | 1:A:2298:A:H8 | 1.77 | 0.50 |
| 1:A:2306:C:H5 | 1:A:2311:A:C6 | 2.29 | 0.50 |
| 1:A:2321:G:N2 | 1:A:2322:A:C1' | 2.74 | 0.50 |
| 1:A:2349:G:H2' | 1:A:2350:C:H5'' | 1.93 | 0.50 |
| 1:A:2356:C:H2' | 1:A:2357:U:O5' | 2.12 | 0.50 |
| 1:A:2474:C:H2' | 1:A:2475:C:O5' | 2.11 | 0.50 |
| 1:A:2712(A):A:H3' | 1:A:2712(A):A:H8 | 1.77 | 0.50 |
| 1:A:2885:C:N3 | 1:A:2886:G:H1' | 2.25 | 0.50 |
| 1:A:331:A:C8 | 1:A:1209:G:N2 | 2.79 | 0.50 |
| 1:A:270:A:N1 | 1:A:370:G:C4 | 2.80 | 0.50 |
| 1:A:386:G:H4' | 1:A:387:U:H5 | 1.64 | 0.50 |
| 1:A:397:G:O2' | 1:A:2231:C:H1' | 2.10 | 0.50 |
| 1:A:422:A:C2 | 1:A:423:A:C4 | 3.00 | 0.50 |
| 1:A:479:A:O2' | 1:A:480:A:P | 2.70 | 0.50 |
| 1:A:523:C:C2' | 1:A:524:U:C5' | 2.89 | 0.50 |
| 1:A:14:A:N1 | 1:A:526:A:C6 | 2.79 | 0.50 |
| 1:A:572:A:C6 | 1:A:573:G:N2 | 2.79 | 0.50 |
| 1:A:725:G:C2 | 1:A:726:G:N2 | 2.80 | 0.50 |
| 1:A:75:G:C6 | 1:A:76:C:N4 | 2.80 | 0.50 |
| 1:A:962:G:N3 | 1:A:963:U:C6 | 2.80 | 0.50 |
| 1:A:988:A:OP1 | 26:2:10:LYS:HG2 | 2.11 | 0.50 |
| 4:D:152:GLY:O | 4:D:153:ALA:O | 2.28 | 0.50 |
| 4:D:201:HIS:HD2 | 4:D:202:LYS:HE2 | 1.76 | 0.50 |
| 4:D:7:LYS:CG | 4:D:25:THR:HB | 2.41 | 0.50 |
| 4:D:45:ASN:C | 4:D:46:GLN:HG3 | 2.31 | 0.50 |
| 4:D:92:ILE:HD11 | 4:D:94:LEU:HD23 | 1.93 | 0.50 |
| 5:E:179:GLU:O | 5:E:181:LEU:CG | 2.60 | 0.50 |
| 5:E:104:VAL:HG21 | 5:E:198:VAL:HG13 | 1.93 | 0.50 |
| 5:E:5:LEU:HD22 | 5:E:196:VAL:HG23 | 1.94 | 0.50 |
| 5:E:91:VAL:CG2 | 5:E:93:VAL:HG22 | 2.41 | 0.50 |
| 6:F:160:ASN:HB2 | 6:F:163:VAL:CG2 | 2.42 | 0.50 |
| 6:F:184:TYR:O | 6:F:185:ASP:C | 2.49 | 0.50 |
| 6:F:155:LEU:HD12 | 6:F:189:THR:OG1 | 2.12 | 0.50 |
| 6:F:121:GLY:CA | 6:F:191:ARG:HE | 2.25 | 0.50 |
| 6:F:51:THR:OG1 | 6:F:52:LYS:N | 2.44 | 0.50 |
| 6:F:64:ILE:HD13 | 6:F:64:ILE:O | 2.11 | 0.50 |
| 6:F:8:GLN:O | 6:F:9:ILE:HD12 | 2.11 | 0.50 |
| 7:G:107:LEU:HD13 | 7:G:111:LEU:HD13 | 1.93 | 0.50 |
| 7:G:16:ARG:O | 7:G:20:ILE:CB | 2.60 | 0.50 |
| 7:G:74:LYS:HG2 | 7:G:87:PRO:HG3 | 1.94 | 0.50 |
| 8:H:90:LYS:NZ | 8:H:90:LYS:CB | 2.71 | 0.50 |
| 9:K:27:ARG:HG2 | 9:K:28:ASN:ND2 | 2.26 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:K:4:ILE:HD11 | 9:K:39:ALA:CA | 2.42 | 0.50 |
| 10:L:23:VAL:O | 10:L:34:ILE:HG12 | 2.11 | 0.50 |
| 11:M:13:TRP:N | 11:M:138:LEU:CD1 | 2.73 | 0.50 |
| 13:O:112:LEU:O | 13:O:114:ILE:CD1 | 2.59 | 0.50 |
| 13:O:123:LEU:CB | 13:O:138:LEU:CB | 2.89 | 0.50 |
| 14:P:6:ARG:CG | 14:P:7:MET:N | 2.74 | 0.50 |
| 15:Q:39:PRO:O | 15:Q:42:LYS:N | 2.45 | 0.50 |
| 17:S:55:ASN:ND2 | 17:S:55:ASN:N | 2.56 | 0.50 |
| 12:N:122:LEU:CA | 17:S:71:GLY:HA2 | 2.41 | 0.50 |
| 18:T:31:SER:CB | 18:T:35:ALA:N | 2.74 | 0.50 |
| 18:T:48:ALA:C | 18:T:51:LYS:HB2 | 2.32 | 0.50 |
| 18:T:65:ILE:CG2 | 18:T:76:TYR:CE1 | 2.93 | 0.50 |
| 19:U:1:MET:H2 | 19:U:44:LYS:CA | 2.23 | 0.50 |
| 19:U:6:LYS:HD3 | 19:U:10:LYS:HB3 | 1.93 | 0.50 |
| 18:T:94:ASN:HD21 | 19:U:6:LYS:HE3 | 1.76 | 0.50 |
| 19:U:83:ARG:CG | 19:U:84:LYS:N | 2.71 | 0.50 |
| 21:W:15:GLU:O | 21:W:18:TYR:N | 2.41 | 0.50 |
| 23:Y:117:LEU:O | 23:Y:118:GLN:NE2 | 2.44 | 0.50 |
| 23:Y:150:LEU:O | 23:Y:170:THR:HG22 | 2.11 | 0.50 |
| 23:Y:153:SER:C | 23:Y:155:LEU:N | 2.65 | 0.50 |
| 23:Y:16:SER:HA | 23:Y:19:ARG:HH11 | 1.77 | 0.50 |
| 1:A:2353:G:H1' | 24:Z:34:GLY:HA3 | 1.93 | 0.50 |
| 1:A:2127:G:C8 | 1:A:2162:G:C2 | 2.99 | 0.50 |
| 1:A:2168:G:H2' | 1:A:2169:A:O5' | 2.11 | 0.50 |
| 3:C:50:ASP:CG | 3:C:51:PRO:HD2 | 2.32 | 0.50 |
| 3:C:56:GLN:HA | 3:C:201:PRO:CB | 2.41 | 0.50 |
| 3:C:68:LEU:HD23 | 3:C:69:GLY:CA | 2.41 | 0.50 |
| 3:C:96:GLY:O | 3:C:100:ILE:CG1 | 2.59 | 0.50 |
| 1:A:131:G:C2 | 1:A:132:G:N7 | 2.79 | 0.50 |
| 1:A:2247:A:H8 | 1:A:2247:A:O5' | 1.94 | 0.50 |
| 27:3:66:SER:CA | 27:3:69:LYS:HD2 | 2.36 | 0.50 |
| 28:4:19:ARG:O | 28:4:21:SER:N | 2.44 | 0.50 |
| 29:5:15:GLU:HB2 | 29:5:21:TYR:HB2 | 1.93 | 0.50 |
| 1:A:770:G:C5' | 30:6:10:ARG:HH11 | 2.25 | 0.50 |
| 30:6:21:ARG:HB3 | 30:6:31:LEU:CD1 | 2.29 | 0.50 |
| 32:8:36:GLN:HG3 | 32:8:36:GLN:O | 2.11 | 0.50 |
| 1:A:1142:U:C3' | 1:A:1142(A):A:C8 | 2.89 | 0.50 |
| 1:A:1344:G:C2 | 1:A:1404:C:C2 | 2.99 | 0.50 |
| 1:A:1471:A:N6 | 1:A:1519:G:N2 | 2.50 | 0.50 |
| 1:A:1537:C:N4 | 1:A:1538:G:H1' | 2.27 | 0.50 |
| 1:A:1613:G:H1' | 30:6:3:ARG:NH2 | 2.25 | 0.50 |
| 1:A:1691:C:C2' | 1:A:1692:U:C5' | 2.89 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:181:A:C2 | 1:A:182:A:C4 | 3.00 | 0.50 |
| 1:A:1851:U:H2' | 1:A:1852:C:C5 | 2.45 | 0.50 |
| 1:A:1861:G:N2 | 1:A:1862:G:C4 | 2.80 | 0.50 |
| 1:A:193:U:O4 | 1:A:202:U:O2 | 2.29 | 0.50 |
| 1:A:1970:A:C5 | 1:A:1972:A:C5 | 3.00 | 0.50 |
| 1:A:2077:A:N3 | 1:A:2435:A:C8 | 2.80 | 0.50 |
| 1:A:214:G:C2' | 1:A:215:G:O4' | 2.60 | 0.50 |
| 1:A:2238:G:O2' | 1:A:2239:G:C5' | 2.52 | 0.50 |
| 1:A:2290:G:H5' | 1:A:2290:G:H8 | 1.76 | 0.50 |
| 1:A:2305:A:H3' | 1:A:2306:C:C5' | 2.31 | 0.50 |
| 1:A:2319:G:O2' | 1:A:2320:A:P | 2.70 | 0.50 |
| 1:A:2431:U:C3' | 1:A:2432:A:H5'' | 2.40 | 0.50 |
| 1:A:2470:G:O2' | 1:A:2471:C:H5' | 2.12 | 0.50 |
| 1:A:2531:A:H2' | 1:A:2531:A:N3 | 2.25 | 0.50 |
| 1:A:2541:A:H2 | 1:A:2765:A:N6 | 2.10 | 0.50 |
| 1:A:222:A:OP2 | 1:A:271(B):G:C6 | 2.65 | 0.50 |
| 1:A:270(Z):U:O4 | 1:A:271(C):U:H1' | 2.11 | 0.50 |
| 1:A:2774:C:H5' | 1:A:2775:A:OP2 | 2.11 | 0.50 |
| 1:A:279:C:OP2 | 1:A:279:C:C6 | 2.65 | 0.50 |
| 1:A:280:C:C6 | 1:A:283:A:N7 | 2.79 | 0.50 |
| 1:A:362:U:C5' | 1:A:363:G:OP2 | 2.60 | 0.50 |
| 1:A:461:C:N4 | 1:A:469:G:N2 | 2.59 | 0.50 |
| 1:A:808:G:C2' | 1:A:809:G:O4' | 2.58 | 0.50 |
| 1:A:819:A:N7 | 1:A:1189:A:N6 | 2.59 | 0.50 |
| 1:A:861:A:C2 | 2:B:79:C:O2' | 2.59 | 0.50 |
| 1:A:60:G:O6 | 1:A:88:G:O6 | 2.28 | 0.50 |
| 1:A:972:G:OP1 | 1:A:974(A):C:H6 | 1.95 | 0.50 |
| 2:B:73:A:N7 | 2:B:104:A:C6 | 2.79 | 0.50 |
| 2:B:46:A:H3' | 2:B:46:A:OP2 | 2.12 | 0.50 |
| 2:B:50:G:N3 | 2:B:50:G:C2' | 2.72 | 0.50 |
| 4:D:161:THR:O | 4:D:161:THR:OG1 | 2.24 | 0.50 |
| 4:D:5:LYS:O | 4:D:27:THR:HG23 | 2.11 | 0.50 |
| 5:E:200:GLU:HB3 | 5:E:202:LYS:HZ1 | 1.75 | 0.50 |
| 6:F:156:LEU:O | 6:F:176:LEU:C | 2.50 | 0.50 |
| 6:F:74:ARG:NH2 | 6:F:76:GLY:N | 2.60 | 0.50 |
| 7:G:115:ARG:HH21 | 7:G:115:ARG:HG3 | 1.76 | 0.50 |
| 7:G:4:ASP:HA | 7:G:7:LEU:HB2 | 1.93 | 0.50 |
| 7:G:79:ASN:H | 7:G:82:LEU:HG | 1.76 | 0.50 |
| 8:H:102:ALA:C | 8:H:123:PHE:HE2 | 2.15 | 0.50 |
| 8:H:128:PRO:HA | 8:H:131:VAL:HG21 | 1.93 | 0.50 |
| 9:K:42:SER:OG | 9:K:43:ASN:ND2 | 2.45 | 0.50 |
| 10:L:131:ALA:C | 10:L:136:VAL:O | 2.49 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 11:M:34:LEU:CA | 11:M:49:GLY:HA2 | 2.41 | 0.50 |
| 12:N:66:LYS:C | 12:N:67:LYS:CG | 2.79 | 0.50 |
| 14:P:69:PHE:CD1 | 14:P:70:PRO:CD | 2.94 | 0.50 |
| 14:P:72:LYS:O | 14:P:93:TYR:HA | 2.11 | 0.50 |
| 15:Q:26:LYS:HG2 | 15:Q:70:LEU:HD13 | 1.94 | 0.50 |
| 15:Q:37:THR:O | 15:Q:40:LYS:HB2 | 2.11 | 0.50 |
| 1:A:2723:C:H5' | 15:Q:4:LEU:HB2 | 1.94 | 0.50 |
| 5:E:111:ARG:O | 15:Q:4:LEU:HD11 | 2.11 | 0.50 |
| 16:R:52:SER:HG | 16:R:73:LEU:HD11 | 1.76 | 0.50 |
| 17:S:26:ASP:OD2 | 17:S:27:THR:N | 2.45 | 0.50 |
| 17:S:4:GLY:HA2 | 17:S:8:LYS:HE3 | 1.93 | 0.50 |
| 18:T:110:VAL:HG12 | 18:T:111:GLU:N | 2.27 | 0.50 |
| 1:A:515:A:H5'' | 18:T:32:PHE:HZ | 1.75 | 0.50 |
| 1:A:995:C:H1' | 18:T:57:PHE:CE2 | 2.47 | 0.50 |
| 1:A:1162:G:H5'' | 19:U:23:GLU:O | 2.12 | 0.50 |
| 19:U:79:VAL:CG1 | 19:U:81:TYR:CD1 | 2.89 | 0.50 |
| 19:U:75:PHE:O | 19:U:86:GLY:CA | 2.60 | 0.50 |
| 1:A:993:G:C1' | 19:U:91:TYR:CE2 | 2.92 | 0.50 |
| 19:U:20:LEU:C | 19:U:93:GLU:OE2 | 2.49 | 0.50 |
| 1:A:1599:C:P | 21:W:36:LYS:NZ | 2.85 | 0.50 |
| 21:W:48:LYS:O | 21:W:88:LYS:HG3 | 2.11 | 0.50 |
| 22:X:46:LYS:HZ3 | 22:X:47:LYS:CG | 2.23 | 0.50 |
| 23:Y:44:PHE:C | 23:Y:48:PHE:CD1 | 2.85 | 0.50 |
| 1:A:2124:G:H21 | 3:C:217:THR:C | 2.14 | 0.50 |
| 1:A:2134:A:H8 | 1:A:2155:G:O6 | 1.95 | 0.50 |
| 3:C:103:ILE:HG22 | 3:C:130:ILE:HG21 | 1.93 | 0.50 |
| 3:C:103:ILE:HD11 | 3:C:110:PHE:HE2 | 1.76 | 0.50 |
| 3:C:86:ALA:HB1 | 3:C:153:ILE:HD11 | 1.93 | 0.50 |
| 1:A:715:G:H2' | 1:A:716:A:C5' | 2.42 | 0.50 |
| 4:D:273:ARG:CZ | 4:D:273:ARG:C | 2.80 | 0.50 |
| 22:X:108:THR:O | 22:X:109:GLU:CD | 2.50 | 0.50 |
| 2:B:110:G:C2' | 2:B:111:U:O5' | 2.59 | 0.50 |
| 1:A:276:A:OP2 | 1:A:276:A:C4' | 2.60 | 0.50 |
| 1:A:1484:G:H2' | 1:A:1485:G:O4' | 2.12 | 0.50 |
| 26:2:6:VAL:HG12 | 26:2:7:LYS:N | 2.27 | 0.50 |
| 27:3:7:PRO:CD | 27:3:56:VAL:CG1 | 2.80 | 0.50 |
| 28:4:35:GLU:HG2 | 28:4:49:CYS:HB3 | 1.94 | 0.50 |
| 29:5:6:ARG:HA | 29:5:10:LEU:CD2 | 2.42 | 0.50 |
| 30:6:20:ALA:HA | 30:6:23:ARG:CZ | 2.41 | 0.50 |
| 31:7:51:ALA:O | 31:7:54:GLU:CD | 2.49 | 0.50 |
| 1:A:1028:A:N6 | 1:A:1126:A:C8 | 2.79 | 0.50 |
| 1:A:83:G:C6 | 1:A:102:G:H1' | 2.47 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|-----------------|-------------|----------|
| 1:A:1174:A:N3 | 1:A:1175:U:C6 | 2.80 | 0.50 |
| 1:A:1257:C:N4 | 1:A:1258:C:N4 | 2.59 | 0.50 |
| 1:A:1297:C:O2' | 1:A:1302:A:N6 | 2.45 | 0.50 |
| 1:A:1343:G:C6 | 1:A:1344:G:N7 | 2.80 | 0.50 |
| 1:A:1419:A:O4' | 1:A:1419:A:OP2 | 2.29 | 0.50 |
| 1:A:1428:C:O2' | 1:A:1429:G:P | 2.69 | 0.50 |
| 1:A:1453:A:C8 | 1:A:1454:U:H6 | 2.30 | 0.50 |
| 1:A:1473:G:H2' | 1:A:1474:C:C6 | 2.45 | 0.50 |
| 1:A:1516:U:C2' | 1:A:1517:G:H8 | 2.24 | 0.50 |
| 1:A:1570:A:C2 | 1:A:1571:A:C8 | 3.00 | 0.50 |
| 1:A:1591:G:C6 | 1:A:1592:C:C4 | 3.00 | 0.50 |
| 1:A:1623:G:C8 | 1:A:1623:G:H5'' | 2.47 | 0.50 |
| 1:A:1725:G:N2 | 1:A:1726:G:N9 | 2.60 | 0.50 |
| 1:A:752:A:N6 | 1:A:1781:C:H1' | 2.25 | 0.50 |
| 1:A:1871:A:O2' | 1:A:1872:A:H5' | 2.12 | 0.50 |
| 1:A:1935:G:C3' | 1:A:1937:A:C2 | 2.95 | 0.50 |
| 1:A:2048:G:C2' | 1:A:2049:G:O5' | 2.60 | 0.50 |
| 1:A:219:G:O2' | 1:A:220:G:H5' | 2.10 | 0.50 |
| 1:A:226:G:N2 | 1:A:228:A:N6 | 2.60 | 0.50 |
| 1:A:2366:A:OP1 | 24:Z:55:ARG:NH2 | 2.45 | 0.50 |
| 1:A:2416:C:C2 | 1:A:2417:C:C6 | 3.00 | 0.50 |
| 1:A:2416:C:O2' | 1:A:2417:C:O5' | 2.27 | 0.50 |
| 1:A:2488:A:N6 | 1:A:2489:G:O6 | 2.44 | 0.50 |
| 1:A:2495:G:C6 | 1:A:2496:C:C4 | 2.99 | 0.50 |
| 1:A:251:A:H2' | 1:A:252:G:C4' | 2.41 | 0.50 |
| 1:A:2646:C:H2' | 1:A:2647:U:O5' | 2.12 | 0.50 |
| 1:A:2833:G:C2' | 1:A:2833:G:N3 | 2.74 | 0.50 |
| 1:A:2849:U:N3 | 1:A:2867:G:H1' | 2.26 | 0.50 |
| 1:A:106:C:H1' | 1:A:294:A:H4' | 1.93 | 0.50 |
| 1:A:296:C:C2' | 1:A:297:C:C6 | 2.82 | 0.50 |
| 1:A:329:G:C4' | 1:A:330:A:OP2 | 2.58 | 0.50 |
| 1:A:388:G:HO2' | 1:A:390:A:H62 | 1.55 | 0.50 |
| 1:A:508:G:C5' | 1:A:509:C:OP1 | 2.60 | 0.50 |
| 1:A:541:C:C2' | 1:A:542:C:H6 | 2.23 | 0.50 |
| 1:A:55:G:C4 | 1:A:56:A:N7 | 2.80 | 0.50 |
| 1:A:668:G:C5 | 1:A:670:A:N7 | 2.79 | 0.50 |
| 1:A:673:C:C2' | 1:A:674:G:C5' | 2.82 | 0.50 |
| 1:A:691:C:H2' | 1:A:692:C:H6 | 1.77 | 0.50 |
| 1:A:879:G:N2 | 1:A:880:G:C5 | 2.80 | 0.50 |
| 2:B:75:G:C5 | 2:B:76:G:N3 | 2.80 | 0.50 |
| 2:B:87:G:N2 | 2:B:90:C:N3 | 2.58 | 0.50 |
| 5:E:52:LEU:HB2 | 5:E:73:GLU:HB3 | 1.92 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:G:105:LYS:O | 7:G:109:VAL:CG2 | 2.55 | 0.50 |
| 7:G:137:GLU:CG | 7:G:138:GLN:N | 2.75 | 0.50 |
| 7:G:92:VAL:CG1 | 7:G:94:LEU:CD2 | 2.88 | 0.50 |
| 8:H:126:PRO:HG3 | 8:H:132:ARG:HH12 | 1.77 | 0.50 |
| 8:H:9:ILE:CG1 | 8:H:69:ARG:HH12 | 2.25 | 0.50 |
| 10:L:44:ALA:O | 10:L:46:ALA:N | 2.44 | 0.50 |
| 10:L:55:VAL:HG13 | 10:L:68:VAL:C | 2.32 | 0.50 |
| 11:M:127:ASP:O | 11:M:128:HIS:C | 2.49 | 0.50 |
| 11:M:37:LYS:HA | 11:M:42:TRP:HB3 | 1.94 | 0.50 |
| 11:M:35:ARG:NE | 11:M:48:MET:SD | 2.85 | 0.50 |
| 12:N:104:ARG:H | 12:N:107:ARG:NH1 | 2.09 | 0.50 |
| 12:N:68:GLU:CB | 12:N:76:ALA:O | 2.59 | 0.50 |
| 13:O:10:PRO:CB | 13:O:14:LYS:HD3 | 2.42 | 0.50 |
| 13:O:128:HIS:HB3 | 13:O:147:LEU:CD2 | 2.35 | 0.50 |
| 14:P:122:GLY:O | 14:P:124:LYS:C | 2.50 | 0.50 |
| 14:P:6:ARG:HG2 | 14:P:7:MET:H | 1.77 | 0.50 |
| 15:Q:67:LEU:O | 15:Q:68:ARG:C | 2.49 | 0.50 |
| 15:Q:79:LEU:CD2 | 15:Q:80:PHE:H | 2.22 | 0.50 |
| 1:A:2881:C:O2' | 15:Q:95:THR:O | 2.27 | 0.50 |
| 17:S:104:ASN:O | 17:S:105:LEU:O | 2.29 | 0.50 |
| 17:S:49:VAL:O | 17:S:50:ILE:HG12 | 2.12 | 0.50 |
| 17:S:36:GLU:OE2 | 17:S:76:PHE:HZ | 1.95 | 0.50 |
| 17:S:76:PHE:CE2 | 17:S:78:LEU:CG | 2.95 | 0.50 |
| 19:U:21:ARG:O | 19:U:93:GLU:CD | 2.50 | 0.50 |
| 18:T:88:ILE:O | 19:U:55:ALA:HB3 | 2.11 | 0.50 |
| 21:W:43:VAL:CG1 | 21:W:51:VAL:HG22 | 2.41 | 0.50 |
| 22:X:19:LYS:CG | 22:X:21:LYS:HE2 | 2.42 | 0.50 |
| 22:X:49:VAL:HG21 | 22:X:51:VAL:CB | 2.40 | 0.50 |
| 23:Y:107:THR:OG1 | 23:Y:142:SER:N | 2.45 | 0.50 |
| 23:Y:128:VAL:HB | 23:Y:162:GLU:HG3 | 1.94 | 0.50 |
| 23:Y:166:SER:OG | 23:Y:167:PRO:CD | 2.59 | 0.50 |
| 3:C:211:SER:HB2 | 3:C:223:ARG:NH2 | 2.26 | 0.50 |
| 3:C:211:SER:CB | 3:C:213:TYR:CE1 | 2.74 | 0.50 |
| 1:A:1495:A:H8 | 1:A:1495:A:O5' | 1.95 | 0.50 |
| 9:K:60:GLU:O | 9:K:63:ALA:N | 2.45 | 0.50 |
| 1:A:2671:A:P | 5:E:206:LYS:HZ1 | 2.34 | 0.50 |
| 26:2:36:VAL:O | 26:2:36:VAL:CG2 | 2.60 | 0.50 |
| 1:A:2464:C:C2 | 1:A:2465:C:C6 | 3.00 | 0.50 |
| 1:A:388:G:O5' | 27:3:23:GLU:HB3 | 2.12 | 0.50 |
| 27:3:54:GLY:O | 27:3:55:ARG:HB2 | 2.12 | 0.50 |
| 28:4:10:LYS:CD | 28:4:15:ARG:NH2 | 2.58 | 0.50 |
| 30:6:9:ARG:O | 30:6:10:ARG:O | 2.30 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1044:G:H1' | 1:A:1047:G:H21 | 1.77 | 0.50 |
| 1:A:1096:A:N7 | 1:A:1097:U:C2 | 2.80 | 0.50 |
| 1:A:1102:C:O2 | 1:A:1103:A:C8 | 2.65 | 0.50 |
| 1:A:1223:C:C4 | 1:A:1227:A:C6 | 3.00 | 0.50 |
| 1:A:1226:G:C8 | 1:A:1226:G:H3' | 2.46 | 0.50 |
| 1:A:1227:A:C8 | 1:A:1228:G:C5' | 2.83 | 0.50 |
| 1:A:1353:A:N1 | 1:A:1378:A:C4 | 2.79 | 0.50 |
| 1:A:1449:A:C4' | 1:A:1542:G:H21 | 2.24 | 0.50 |
| 1:A:1492:G:C2 | 1:A:1499:C:C4 | 3.00 | 0.50 |
| 1:A:1570:A:N6 | 1:A:1571:A:N6 | 2.52 | 0.50 |
| 1:A:1634:A:O3' | 1:A:1635:G:C8 | 2.65 | 0.50 |
| 1:A:1749:A:O2' | 1:A:1750:G:H5' | 2.12 | 0.50 |
| 1:A:1805:U:C5' | 4:D:248:SER:OG | 2.59 | 0.50 |
| 1:A:1913:A:C1' | 1:A:1918:A:N6 | 2.68 | 0.50 |
| 1:A:2069:G:C2 | 1:A:2070:G:C8 | 3.00 | 0.50 |
| 1:A:2074:U:C3' | 1:A:2075:U:H5'' | 2.41 | 0.50 |
| 1:A:2392:A:H8 | 1:A:2393:A:O4' | 1.95 | 0.50 |
| 1:A:2555:U:H5 | 1:A:2556:C:N1 | 2.09 | 0.50 |
| 1:A:1952:A:H1' | 1:A:2560:C:O2' | 2.12 | 0.50 |
| 1:A:2570:G:C2' | 1:A:2570:G:N3 | 2.75 | 0.50 |
| 1:A:2627:G:N3 | 1:A:2627:G:H2' | 2.26 | 0.50 |
| 1:A:2635:C:C2' | 1:A:2636:U:O5' | 2.60 | 0.50 |
| 1:A:2659:G:O2' | 1:A:2661:G:N7 | 2.45 | 0.50 |
| 1:A:2661:G:C4 | 1:A:2662:A:N7 | 2.80 | 0.50 |
| 1:A:2808:U:H1' | 1:A:2892:A:H61 | 1.76 | 0.50 |
| 1:A:2816:C:O2' | 1:A:2817:G:H5' | 2.12 | 0.50 |
| 1:A:2863:C:O2 | 1:A:2864:G:C8 | 2.65 | 0.50 |
| 1:A:2866:U:H4' | 1:A:2867:G:O5' | 2.12 | 0.50 |
| 1:A:288:C:H3' | 1:A:289:A:H4' | 1.93 | 0.50 |
| 1:A:352:G:C2' | 1:A:353:G:H5' | 2.38 | 0.50 |
| 1:A:364:C:C2 | 1:A:365:C:C4 | 3.00 | 0.50 |
| 1:A:385:C:H2' | 1:A:385:C:O2 | 2.11 | 0.50 |
| 1:A:49:A:C2 | 1:A:51:G:N2 | 2.79 | 0.50 |
| 1:A:580:C:H2' | 1:A:581:C:H6 | 1.76 | 0.50 |
| 1:A:834:C:H5' | 13:O:49:ARG:HD3 | 1.94 | 0.50 |
| 1:A:998:C:P | 18:T:92:ARG:HH22 | 2.34 | 0.50 |
| 2:B:65:C:C4 | 2:B:108:C:C5 | 2.99 | 0.50 |
| 2:B:76:G:H3' | 2:B:76:G:H8 | 1.76 | 0.50 |
| 4:D:118:VAL:CG1 | 4:D:119:ALA:H | 2.09 | 0.50 |
| 5:E:37:ARG:O | 5:E:39:PRO:HD2 | 2.09 | 0.50 |
| 5:E:50:GLY:HA3 | 5:E:76:ARG:HE | 1.75 | 0.50 |
| 6:F:132:VAL:HG22 | 6:F:135:LYS:CB | 2.39 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:F:176:LEU:HD12 | 6:F:178:PRO:HD2 | 1.94 | 0.50 |
| 6:F:40:GLN:O | 6:F:44:ARG:HG2 | 2.12 | 0.50 |
| 7:G:107:LEU:HD11 | 7:G:177:GLY:C | 2.30 | 0.50 |
| 7:G:14:GLU:O | 7:G:17:PRO:HD2 | 2.11 | 0.50 |
| 7:G:36:LYS:HB3 | 7:G:95:ARG:HG3 | 1.93 | 0.50 |
| 8:H:127:GLU:HB2 | 8:H:131:VAL:HG23 | 1.93 | 0.50 |
| 9:K:5:LEU:HA | 9:K:36:ALA:HB1 | 1.94 | 0.50 |
| 10:L:88:ALA:C | 10:L:90:LYS:N | 2.66 | 0.50 |
| 1:A:527:C:C6 | 11:M:114:ARG:HD2 | 2.47 | 0.50 |
| 11:M:26:LEU:CD1 | 11:M:30:ILE:HD11 | 2.42 | 0.50 |
| 12:N:18:LYS:CE | 12:N:44:LYS:CD | 2.71 | 0.50 |
| 12:N:71:ARG:N | 12:N:72:PRO:HD2 | 2.27 | 0.50 |
| 13:O:117:GLU:HG2 | 13:O:118:GLY:H | 1.77 | 0.50 |
| 14:P:114:ALA:O | 14:P:115:MET:C | 2.50 | 0.50 |
| 14:P:24:GLY:O | 14:P:26:TYR:CE2 | 2.65 | 0.50 |
| 14:P:51:ARG:NH2 | 14:P:55:VAL:CG2 | 2.69 | 0.50 |
| 15:Q:85:PRO:O | 15:Q:88:ARG:N | 2.45 | 0.50 |
| 16:R:52:SER:OG | 16:R:69:VAL:HG22 | 2.12 | 0.50 |
| 12:N:106:LEU:CD2 | 17:S:39:ARG:NH2 | 2.68 | 0.50 |
| 17:S:55:ASN:ND2 | 17:S:57:PHE:HZ | 2.09 | 0.50 |
| 17:S:50:ILE:O | 17:S:66:VAL:HG12 | 2.12 | 0.50 |
| 18:T:57:PHE:CG | 18:T:60:LEU:HD22 | 2.47 | 0.50 |
| 19:U:15:GLU:OE1 | 19:U:100:ARG:NH1 | 2.45 | 0.50 |
| 19:U:4:ILE:O | 19:U:40:LEU:O | 2.30 | 0.50 |
| 20:V:69:LEU:HB3 | 20:V:107:LEU:HD11 | 1.92 | 0.50 |
| 22:X:28:LYS:HB3 | 22:X:35:TYR:HB3 | 1.93 | 0.50 |
| 22:X:23:ARG:CD | 22:X:39:VAL:HG22 | 2.34 | 0.50 |
| 3:C:8:ARG:HA | 3:C:11:LEU:CB | 2.42 | 0.50 |
| 3:C:10:LEU:HD12 | 3:C:13:LYS:HD2 | 1.94 | 0.50 |
| 3:C:162:GLU:CG | 3:C:163:PHE:N | 2.75 | 0.50 |
| 3:C:91:ALA:HB2 | 3:C:153:ILE:HD12 | 1.93 | 0.50 |
| 13:O:148:LEU:CD2 | 13:O:149:GLU:H | 2.23 | 0.50 |
| 1:A:2828:C:H2' | 1:A:2829:C:H6 | 1.77 | 0.50 |
| 22:X:105:ALA:C | 22:X:107:ASP:H | 2.14 | 0.50 |
| 8:H:57:ASP:CG | 8:H:57:ASP:O | 2.49 | 0.50 |
| 26:2:9:VAL:HG21 | 26:2:52:HIS:O | 2.12 | 0.50 |
| 27:3:51:ASP:C | 27:3:52:THR:HG1 | 2.07 | 0.50 |
| 28:4:6:VAL:CG1 | 28:4:6:VAL:O | 2.59 | 0.50 |
| 31:7:23:VAL:HG13 | 31:7:24:ALA:H | 1.77 | 0.50 |
| 31:7:51:ALA:O | 31:7:52:LYS:C | 2.51 | 0.50 |
| 31:7:9:GLY:HA2 | 31:7:12:LYS:HB3 | 1.94 | 0.50 |
| 1:A:1062:G:N2 | 1:A:1063:G:C1' | 2.74 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|-----------------|-------------|----------|
| 1:A:1093:G:C2 | 1:A:1099:G:O6 | 2.65 | 0.50 |
| 1:A:1179:C:O2' | 1:A:1180:C:P | 2.69 | 0.50 |
| 1:A:1252:G:C8 | 1:A:1253:A:C4 | 3.00 | 0.50 |
| 1:A:1306:C:O2' | 1:A:1307:A:H5' | 2.11 | 0.50 |
| 1:A:1311:G:N7 | 30:6:48:LYS:NZ | 2.45 | 0.50 |
| 1:A:1363:C:N3 | 1:A:1369:G:C6 | 2.80 | 0.50 |
| 1:A:1689:A:O2' | 1:A:1690:A:H5' | 2.11 | 0.50 |
| 1:A:1789:A:C4 | 1:A:1790:C:H1' | 2.47 | 0.50 |
| 1:A:1860:G:H2' | 1:A:1861:G:C8 | 2.46 | 0.50 |
| 1:A:415:A:O4' | 1:A:1869:G:H5'' | 2.11 | 0.50 |
| 1:A:1936:A:N3 | 1:A:1940:U:O2 | 2.44 | 0.50 |
| 1:A:1952:A:H3' | 1:A:1952:A:H8 | 1.76 | 0.50 |
| 1:A:1994:C:O2' | 1:A:1995:U:H5' | 2.12 | 0.50 |
| 1:A:2346:A:C2 | 1:A:2383:G:C2 | 2.99 | 0.50 |
| 1:A:2376:A:C2' | 1:A:2377:A:O4' | 2.59 | 0.50 |
| 1:A:2394:C:OP1 | 13:O:57:THR:CA | 2.55 | 0.50 |
| 1:A:2402:C:OP2 | 1:A:2402:C:C6 | 2.64 | 0.50 |
| 1:A:2445:G:H2' | 1:A:2446:G:N7 | 2.25 | 0.50 |
| 1:A:2474:C:H2' | 1:A:2475:C:C5' | 2.42 | 0.50 |
| 1:A:2495:G:C6 | 1:A:2496:C:N4 | 2.80 | 0.50 |
| 1:A:2509:G:C2' | 1:A:2510:C:O5' | 2.59 | 0.50 |
| 1:A:2519:U:C2 | 1:A:2542:A:C2 | 2.99 | 0.50 |
| 1:A:251:A:HO2' | 1:A:252:G:P | 2.35 | 0.50 |
| 1:A:2595:G:C6 | 1:A:2597:G:OP1 | 2.65 | 0.50 |
| 1:A:2809:A:O4' | 1:A:2809:A:N3 | 2.45 | 0.50 |
| 1:A:2816:C:H5' | 28:4:42:PRO:HB2 | 1.94 | 0.50 |
| 1:A:2834:G:C8 | 1:A:2834:G:H3' | 2.47 | 0.50 |
| 1:A:285:C:C2 | 1:A:286:C:C5 | 2.99 | 0.50 |
| 1:A:2889:C:C2' | 1:A:2891:G:C8 | 2.77 | 0.50 |
| 1:A:295:G:C6 | 1:A:296:C:C5 | 3.00 | 0.50 |
| 1:A:326:G:C4 | 1:A:327:G:C8 | 2.99 | 0.50 |
| 1:A:410:G:C2 | 1:A:2407:G:N7 | 2.80 | 0.50 |
| 1:A:220:G:N1 | 1:A:427:U:C6 | 2.80 | 0.50 |
| 1:A:447:A:C8 | 1:A:454:A:N6 | 2.80 | 0.50 |
| 1:A:476:G:N2 | 1:A:478:A:C3' | 2.58 | 0.50 |
| 1:A:13:A:N6 | 1:A:525:U:C5 | 2.76 | 0.50 |
| 1:A:559:G:H5' | 1:A:559:G:C8 | 2.28 | 0.50 |
| 1:A:66:C:N4 | 1:A:67:U:O4 | 2.45 | 0.50 |
| 1:A:692:C:H2' | 1:A:693:C:O5' | 2.12 | 0.50 |
| 1:A:724:U:H2' | 1:A:725:G:O4' | 2.12 | 0.50 |
| 1:A:760:G:C5 | 1:A:761:A:C8 | 3.00 | 0.50 |
| 1:A:783:A:C6 | 1:A:785:G:C8 | 2.99 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:7:G:O2' | 1:A:8:A:C5' | 2.60 | 0.50 |
| 1:A:803:U:H2' | 1:A:804:A:C5' | 2.37 | 0.50 |
| 1:A:809:G:C8 | 1:A:810:U:H5 | 2.30 | 0.50 |
| 1:A:84:A:N6 | 1:A:99:U:O2 | 2.45 | 0.50 |
| 1:A:980:A:N6 | 1:A:1135:C:H5'' | 2.27 | 0.50 |
| 1:A:997:G:N3 | 1:A:998:C:C5 | 2.80 | 0.50 |
| 1:A:99:U:H5' | 1:A:101:G:H5' | 1.93 | 0.50 |
| 2:B:56:G:O2' | 2:B:57:A:C5' | 2.59 | 0.50 |
| 2:B:71:C:O2 | 2:B:72:G:C4' | 2.60 | 0.50 |
| 2:B:75:G:O6 | 2:B:76:G:N2 | 2.43 | 0.50 |
| 4:D:151:LYS:O | 4:D:152:GLY:O | 2.29 | 0.50 |
| 4:D:70:TRP:HZ3 | 4:D:190:TYR:CB | 2.21 | 0.50 |
| 4:D:7:LYS:HD2 | 4:D:9:TYR:CE2 | 2.46 | 0.50 |
| 5:E:22:PRO:CA | 5:E:185:LYS:N | 2.73 | 0.50 |
| 5:E:5:LEU:CD1 | 5:E:196:VAL:HG23 | 2.40 | 0.50 |
| 5:E:51:PHE:O | 5:E:74:PRO:HB3 | 2.11 | 0.50 |
| 6:F:129:PHE:O | 6:F:142:TRP:CZ3 | 2.64 | 0.50 |
| 6:F:64:ILE:HG12 | 6:F:65:TRP:N | 2.26 | 0.50 |
| 7:G:127:GLY:O | 7:G:128:ARG:HB2 | 2.11 | 0.50 |
| 7:G:12:TYR:CG | 7:G:13:GLU:N | 2.79 | 0.50 |
| 7:G:21:ARG:O | 7:G:22:ARG:C | 2.49 | 0.50 |
| 7:G:30:GLU:CG | 7:G:162:THR:HG21 | 2.42 | 0.50 |
| 7:G:63:ILE:CG2 | 7:G:64:THR:N | 2.75 | 0.50 |
| 8:H:7:LEU:CA | 8:H:52:VAL:CG1 | 2.90 | 0.50 |
| 8:H:69:ARG:NH2 | 8:H:69:ARG:CG | 2.68 | 0.50 |
| 8:H:78:GLY:O | 8:H:80:SER:N | 2.45 | 0.50 |
| 9:K:9:LEU:O | 9:K:10:GLU:HB2 | 2.12 | 0.50 |
| 10:L:102:GLU:O | 10:L:103:GLN:C | 2.49 | 0.50 |
| 10:L:18:THR:HG22 | 10:L:34:ILE:HG22 | 1.93 | 0.50 |
| 11:M:17:ASP:OD1 | 11:M:18:ALA:N | 2.45 | 0.50 |
| 11:M:2:LYS:N | 18:T:61:TRP:CH2 | 2.79 | 0.50 |
| 13:O:73:GLY:C | 13:O:107:LYS:HE3 | 2.31 | 0.50 |
| 13:O:124:LYS:HD2 | 13:O:142:GLY:C | 2.31 | 0.50 |
| 14:P:126:PRO:O | 14:P:127:ILE:CG2 | 2.56 | 0.50 |
| 20:V:67:ASP:C | 20:V:67:ASP:OD1 | 2.50 | 0.50 |
| 22:X:42:VAL:O | 22:X:61:ILE:HB | 2.12 | 0.50 |
| 22:X:65:ALA:O | 22:X:66:PRO:O | 2.30 | 0.50 |
| 22:X:74:PRO:CB | 22:X:101:LYS:CA | 2.90 | 0.50 |
| 22:X:97:ARG:NH2 | 22:X:101:LYS:CE | 2.75 | 0.50 |
| 23:Y:39:VAL:HG21 | 23:Y:86:VAL:HG21 | 1.90 | 0.50 |
| 24:Z:45:PHE:O | 24:Z:47:PRO:HD3 | 2.12 | 0.50 |
| 24:Z:56:ASP:O | 24:Z:57:PHE:HB2 | 2.11 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 9:K:103:ARG:HH12 | 9:K:104:GLN:HE22 | 1.53 | 0.50 |
| 1:A:2132:U:O2 | 1:A:2132:U:H2' | 2.10 | 0.50 |
| 1:A:2139:C:O2' | 1:A:2140:C:C5' | 2.58 | 0.50 |
| 3:C:127:LEU:CA | 3:C:130:ILE:HD13 | 2.41 | 0.50 |
| 3:C:95:GLY:N | 3:C:99:ILE:HD12 | 2.26 | 0.50 |
| 1:A:2194:G:C2 | 1:A:2195:C:C4 | 3.00 | 0.50 |
| 1:A:2101:G:C2 | 1:A:2102:U:C2 | 2.99 | 0.50 |
| 1:A:2187:G:H2' | 1:A:2188:C:O4' | 2.11 | 0.50 |
| 28:4:29:THR:C | 28:4:30:LEU:HG | 2.32 | 0.49 |
| 30:6:41:ARG:NH1 | 30:6:41:ARG:CB | 2.56 | 0.49 |
| 30:6:43:THR:CG2 | 30:6:46:VAL:HB | 2.41 | 0.49 |
| 31:7:53:PRO:O | 31:7:57:ARG:HB2 | 2.11 | 0.49 |
| 31:7:58:ILE:HD12 | 31:7:59:LYS:H | 1.77 | 0.49 |
| 1:A:1025:G:H2' | 1:A:1025:G:N3 | 2.27 | 0.49 |
| 1:A:84:A:O2' | 1:A:103:A:N6 | 2.45 | 0.49 |
| 1:A:1140:C:H2' | 1:A:1141:U:OP2 | 2.12 | 0.49 |
| 1:A:974:G:N3 | 1:A:1186:G:C6 | 2.80 | 0.49 |
| 1:A:1264:G:P | 28:4:10:LYS:HZ3 | 2.34 | 0.49 |
| 1:A:126:A:N7 | 1:A:127:A:C4 | 2.79 | 0.49 |
| 1:A:146:G:C5 | 1:A:147:U:C6 | 2.99 | 0.49 |
| 1:A:1620:G:H2' | 1:A:1621:U:O5' | 2.12 | 0.49 |
| 1:A:1672:C:H41 | 1:A:1673:U:H5 | 1.60 | 0.49 |
| 1:A:1779:U:H3' | 1:A:1779:U:H6 | 1.74 | 0.49 |
| 1:A:1857:G:C8 | 1:A:1858:G:C5 | 3.00 | 0.49 |
| 1:A:1862:G:O2' | 1:A:1863:G:O5' | 2.29 | 0.49 |
| 1:A:190:A:H2' | 1:A:191:A:H8 | 1.70 | 0.49 |
| 1:A:1826:G:O2' | 1:A:1971:A:O5' | 2.27 | 0.49 |
| 1:A:2029:G:O5' | 1:A:2029:G:H8 | 1.95 | 0.49 |
| 1:A:223:A:HO2' | 1:A:224:G:P | 2.34 | 0.49 |
| 1:A:2304:G:N2 | 1:A:2305:A:C2 | 2.79 | 0.49 |
| 1:A:2308:G:H5'' | 1:A:2310:A:C6 | 2.47 | 0.49 |
| 1:A:244:A:C5 | 1:A:245:G:H1' | 2.47 | 0.49 |
| 1:A:2488:A:C6 | 1:A:2489:G:C5 | 3.00 | 0.49 |
| 1:A:2521:C:C3' | 1:A:2522:U:C5' | 2.90 | 0.49 |
| 1:A:2603:G:C2' | 1:A:2604:U:O5' | 2.59 | 0.49 |
| 1:A:2633:G:C5 | 1:A:2634:G:N7 | 2.79 | 0.49 |
| 1:A:2852:G:O6 | 1:A:2866:U:O4 | 2.30 | 0.49 |
| 1:A:246:C:O2' | 1:A:385:C:C4' | 2.60 | 0.49 |
| 1:A:400:G:C3' | 1:A:400:G:C8 | 2.92 | 0.49 |
| 1:A:452:G:N7 | 1:A:453:C:C5 | 2.80 | 0.49 |
| 1:A:533:G:C5' | 18:T:24:TYR:HD2 | 2.24 | 0.49 |
| 1:A:546:C:O2' | 1:A:547:A:O4' | 2.27 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:572:A:C6 | 1:A:573:G:N1 | 2.80 | 0.49 |
| 1:A:775:G:O4' | 1:A:777:A:C2 | 2.65 | 0.49 |
| 1:A:77:C:H2' | 1:A:78:A:H8 | 1.77 | 0.49 |
| 1:A:818:G:O2' | 1:A:819:A:H5'' | 2.11 | 0.49 |
| 1:A:93:C:H2' | 1:A:94:G:C8 | 2.47 | 0.49 |
| 1:A:943:U:C6 | 1:A:944:G:C8 | 2.99 | 0.49 |
| 2:B:76:G:H5'' | 23:Y:11:GLU:O | 2.11 | 0.49 |
| 2:B:87:G:N2 | 2:B:90:C:C2 | 2.80 | 0.49 |
| 4:D:147:LEU:N | 4:D:147:LEU:HD23 | 2.26 | 0.49 |
| 4:D:136:ILE:HG21 | 4:D:165:ILE:HG21 | 1.94 | 0.49 |
| 4:D:108:PRO:HA | 4:D:195:ALA:O | 2.11 | 0.49 |
| 4:D:214:TRP:CD1 | 4:D:219:PRO:HB3 | 2.46 | 0.49 |
| 1:A:1824:G:OP1 | 4:D:53:PHE:CE1 | 2.63 | 0.49 |
| 5:E:13:ARG:NH2 | 5:E:20:ALA:CB | 2.71 | 0.49 |
| 5:E:174:ASP:CG | 5:E:175:VAL:N | 2.65 | 0.49 |
| 5:E:201:THR:O | 5:E:202:LYS:HD3 | 2.12 | 0.49 |
| 5:E:27:LEU:HD12 | 5:E:27:LEU:C | 2.32 | 0.49 |
| 5:E:51:PHE:HB3 | 5:E:76:ARG:NH2 | 2.24 | 0.49 |
| 5:E:44:TYR:HB3 | 5:E:82:ARG:HH11 | 1.77 | 0.49 |
| 6:F:37:VAL:O | 6:F:184:TYR:CZ | 2.65 | 0.49 |
| 6:F:58:ALA:C | 6:F:60:SER:H | 2.15 | 0.49 |
| 7:G:55:LYS:HG3 | 7:G:148:MET:SD | 2.52 | 0.49 |
| 7:G:55:LYS:HD2 | 7:G:58:GLN:HB2 | 1.94 | 0.49 |
| 10:L:134:MET:SD | 10:L:134:MET:C | 2.90 | 0.49 |
| 10:L:131:ALA:HA | 10:L:136:VAL:HB | 1.94 | 0.49 |
| 10:L:52:ILE:CD1 | 10:L:80:LYS:HG2 | 2.42 | 0.49 |
| 11:M:113:GLY:O | 11:M:116:LEU:CB | 2.60 | 0.49 |
| 12:N:112:MET:CA | 12:N:115:VAL:HG23 | 2.42 | 0.49 |
| 13:O:97:PRO:CA | 13:O:102:ARG:NH1 | 2.75 | 0.49 |
| 13:O:74:GLU:HA | 13:O:107:LYS:HD3 | 1.94 | 0.49 |
| 14:P:127:ILE:N | 14:P:127:ILE:HD12 | 2.28 | 0.49 |
| 14:P:35:VAL:O | 14:P:35:VAL:CG2 | 2.59 | 0.49 |
| 1:A:2496:C:P | 14:P:83:MET:SD | 3.09 | 0.49 |
| 16:R:30:ARG:C | 16:R:34:HIS:CD2 | 2.84 | 0.49 |
| 16:R:66:ALA:O | 16:R:67:ARG:C | 2.51 | 0.49 |
| 17:S:103:ARG:CG | 17:S:103:ARG:NH2 | 2.59 | 0.49 |
| 17:S:103:ARG:HB3 | 17:S:107:ASP:OD1 | 2.11 | 0.49 |
| 17:S:10:VAL:CG1 | 17:S:14:TYR:OH | 2.59 | 0.49 |
| 17:S:53:ARG:HD2 | 17:S:53:ARG:N | 2.27 | 0.49 |
| 17:S:64:ARG:HH11 | 17:S:64:ARG:HA | 0.59 | 0.49 |
| 17:S:98:LYS:O | 17:S:99:LEU:HB2 | 2.12 | 0.49 |
| 18:T:55:ARG:HG3 | 18:T:58:ARG:NE | 2.26 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:U:41:GLY:H | 19:U:50:PRO:C | 2.16 | 0.49 |
| 19:U:60:GLU:HA | 19:U:60:GLU:OE1 | 2.07 | 0.49 |
| 1:A:1225:C:P | 19:U:88:ARG:HH22 | 2.35 | 0.49 |
| 20:V:75:TYR:O | 20:V:104:THR:HG23 | 2.12 | 0.49 |
| 22:X:47:LYS:HD3 | 22:X:49:VAL:CG2 | 2.41 | 0.49 |
| 23:Y:145:GLU:CA | 23:Y:174:VAL:HG21 | 2.42 | 0.49 |
| 1:A:2139:C:H2' | 1:A:2140:C:H6 | 1.77 | 0.49 |
| 1:A:2157:G:O2' | 1:A:2158:A:OP1 | 2.26 | 0.49 |
| 1:A:2126:A:C5 | 1:A:2163:C:H4' | 2.46 | 0.49 |
| 3:C:20:TYR:HE1 | 3:C:222:VAL:CG2 | 2.25 | 0.49 |
| 1:A:276:A:N3 | 1:A:276:A:H2' | 2.26 | 0.49 |
| 25:1:14:VAL:HG13 | 25:1:15:GLU:H | 1.77 | 0.49 |
| 1:A:931:G:N2 | 26:2:25:ALA:N | 2.58 | 0.49 |
| 27:3:38:LYS:O | 27:3:39:CYS:CB | 2.60 | 0.49 |
| 27:3:64:GLY:O | 27:3:67:TYR:HB2 | 2.10 | 0.49 |
| 29:5:20:ASN:CG | 29:5:42:TRP:CD1 | 2.85 | 0.49 |
| 29:5:44:ARG:HD3 | 29:5:47:THR:HG21 | 1.93 | 0.49 |
| 30:6:1:MET:HA | 30:6:1:MET:CE | 2.37 | 0.49 |
| 30:6:43:THR:HG23 | 30:6:46:VAL:HB | 1.93 | 0.49 |
| 32:8:19:ARG:HD2 | 32:8:24:TYR:CB | 2.42 | 0.49 |
| 1:A:1025:G:H3' | 1:A:1025:G:N3 | 2.27 | 0.49 |
| 1:A:1047:G:O2' | 1:A:1048:A:O5' | 2.28 | 0.49 |
| 1:A:1069:A:C4' | 1:A:1070:A:H3' | 2.42 | 0.49 |
| 1:A:1455:G:H2' | 1:A:1456:G:O4' | 2.12 | 0.49 |
| 1:A:1527:G:O6 | 1:A:1541:U:C4 | 2.65 | 0.49 |
| 1:A:1532:C:N4 | 1:A:1540:G:N1 | 2.60 | 0.49 |
| 1:A:1428:C:C5 | 1:A:1569:A:H5'' | 2.47 | 0.49 |
| 1:A:1600:C:O2 | 1:A:1601:G:H1' | 2.12 | 0.49 |
| 1:A:1394:U:C4' | 1:A:1603:A:H4' | 2.08 | 0.49 |
| 1:A:1626:G:C5' | 1:A:1627:G:OP1 | 2.57 | 0.49 |
| 1:A:1640:C:H2' | 1:A:1641:A:O4' | 2.11 | 0.49 |
| 1:A:1710:C:O2' | 1:A:2858:C:N4 | 2.45 | 0.49 |
| 1:A:1742:C:C2 | 1:A:1743:G:O4' | 2.65 | 0.49 |
| 1:A:1790:C:C3' | 1:A:1828:G:N2 | 2.65 | 0.49 |
| 1:A:1907:G:H2' | 1:A:1908:C:H6 | 1.75 | 0.49 |
| 1:A:1936:A:C2 | 1:A:1945:G:C8 | 3.00 | 0.49 |
| 1:A:2206:C:N3 | 1:A:2207:C:C5 | 2.80 | 0.49 |
| 1:A:2227:A:C2 | 1:A:2228:G:C5 | 2.99 | 0.49 |
| 1:A:2280:G:H2' | 1:A:2281:C:C6 | 2.47 | 0.49 |
| 1:A:2378:A:N3 | 1:A:2378:A:H3' | 2.27 | 0.49 |
| 1:A:248:G:N3 | 1:A:2431:U:C4' | 2.76 | 0.49 |
| 1:A:2565:A:H2' | 1:A:2566:A:C1' | 2.42 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:2049:G:N2 | 1:A:2620:C:C2 | 2.80 | 0.49 |
| 1:A:2642:G:C2 | 1:A:2643:G:C8 | 3.00 | 0.49 |
| 1:A:265:A:H2' | 1:A:266:G:C4' | 2.42 | 0.49 |
| 1:A:2694:G:O5' | 1:A:2694:G:H8 | 1.95 | 0.49 |
| 1:A:2741:A:OP1 | 32:8:22:ARG:NH2 | 2.44 | 0.49 |
| 1:A:2781:A:C6 | 1:A:2782:G:N3 | 2.81 | 0.49 |
| 1:A:1710:C:HO2' | 1:A:2858:C:N4 | 2.10 | 0.49 |
| 1:A:300:A:H8 | 1:A:300:A:O5' | 1.95 | 0.49 |
| 1:A:301:G:C8 | 1:A:317:G:N2 | 2.79 | 0.49 |
| 1:A:223:A:OP2 | 1:A:420:C:O2' | 2.30 | 0.49 |
| 1:A:472:A:C2' | 1:A:473:G:C5' | 2.86 | 0.49 |
| 1:A:482:A:O2' | 1:A:483:A:OP2 | 2.29 | 0.49 |
| 1:A:482:A:N7 | 1:A:506:G:C2 | 2.80 | 0.49 |
| 1:A:636:G:C4' | 1:A:638:G:O2' | 2.52 | 0.49 |
| 1:A:646:A:C2 | 1:A:647:G:C5 | 3.00 | 0.49 |
| 1:A:658:C:C2 | 1:A:659:C:C5 | 3.00 | 0.49 |
| 1:A:721:C:N3 | 1:A:722:A:N7 | 2.60 | 0.49 |
| 1:A:815:C:H2' | 1:A:816:C:H5' | 1.94 | 0.49 |
| 1:A:926:A:C5 | 1:A:929:G:N2 | 2.80 | 0.49 |
| 1:A:954:G:N3 | 1:A:2274:A:H2 | 2.10 | 0.49 |
| 1:A:957:A:C5 | 1:A:959:A:C8 | 3.00 | 0.49 |
| 2:B:45:A:C1' | 7:G:95:ARG:HH12 | 2.23 | 0.49 |
| 2:B:83:G:N2 | 2:B:84:C:N1 | 2.59 | 0.49 |
| 4:D:176:ARG:HB2 | 4:D:182:LEU:HD21 | 1.93 | 0.49 |
| 4:D:133:LEU:HB2 | 4:D:187:GLY:HA2 | 1.95 | 0.49 |
| 5:E:100:GLU:C | 5:E:172:VAL:CG1 | 2.81 | 0.49 |
| 1:A:659:C:H5' | 6:F:102:PRO:HD3 | 1.93 | 0.49 |
| 6:F:171:PRO:O | 6:F:173:VAL:HG12 | 2.11 | 0.49 |
| 6:F:5:ALA:HB1 | 6:F:24:LEU:CG | 2.40 | 0.49 |
| 1:A:449:A:OP2 | 6:F:85:GLY:HA2 | 2.12 | 0.49 |
| 7:G:8:LYS:CE | 7:G:100:TRP:CD1 | 2.94 | 0.49 |
| 7:G:105:LYS:HA | 7:G:109:VAL:CG1 | 2.42 | 0.49 |
| 7:G:16:ARG:CB | 7:G:17:PRO:CD | 2.90 | 0.49 |
| 7:G:47:LYS:CE | 7:G:49:ASP:CG | 2.81 | 0.49 |
| 7:G:4:ASP:HA | 7:G:7:LEU:HG | 1.95 | 0.49 |
| 7:G:4:ASP:O | 7:G:7:LEU:HB2 | 2.11 | 0.49 |
| 7:G:50:ALA:HB3 | 7:G:51:ARG:CZ | 2.42 | 0.49 |
| 8:H:13:LYS:HZ2 | 8:H:28:GLY:HA2 | 1.77 | 0.49 |
| 9:K:27:ARG:CG | 9:K:28:ASN:N | 2.69 | 0.49 |
| 10:L:18:THR:CG2 | 10:L:38:VAL:HG21 | 2.42 | 0.49 |
| 1:A:1076:C:C4' | 10:L:93:ARG:HH21 | 2.25 | 0.49 |
| 11:M:104:LYS:CA | 11:M:117:PHE:CZ | 2.81 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:123:TYR:CB | 11:M:129:PRO:CB | 2.89 | 0.49 |
| 11:M:12:ARG:CB | 11:M:12:ARG:CZ | 2.87 | 0.49 |
| 11:M:25:ARG:O | 11:M:29:LYS:HG3 | 2.12 | 0.49 |
| 13:O:89:ALA:O | 13:O:125:VAL:HG22 | 2.11 | 0.49 |
| 13:O:137:LYS:HA | 13:O:140:ALA:CB | 2.42 | 0.49 |
| 13:O:96:THR:CG2 | 13:O:99:LEU:HD12 | 2.41 | 0.49 |
| 14:P:64:ILE:CG2 | 14:P:107:ALA:HB2 | 2.42 | 0.49 |
| 14:P:6:ARG:O | 14:P:7:MET:HG2 | 2.11 | 0.49 |
| 15:Q:13:HIS:CD2 | 15:Q:15:SER:HG | 2.30 | 0.49 |
| 15:Q:44:LEU:HD13 | 15:Q:48:VAL:HG23 | 1.93 | 0.49 |
| 15:Q:52:ILE:O | 15:Q:56:LYS:HG2 | 2.12 | 0.49 |
| 16:R:24:LEU:CB | 16:R:41:ASP:HB3 | 2.42 | 0.49 |
| 16:R:27:SER:O | 16:R:28:VAL:C | 2.49 | 0.49 |
| 2:B:29:A:OP1 | 16:R:34:HIS:CE1 | 2.65 | 0.49 |
| 16:R:67:ARG:O | 16:R:67:ARG:HD2 | 2.12 | 0.49 |
| 17:S:17:THR:HG21 | 17:S:22:PHE:HZ | 1.74 | 0.49 |
| 18:T:52:ARG:NH1 | 18:T:53:ARG:CA | 2.72 | 0.49 |
| 18:T:80:ILE:O | 18:T:81:HIS:C | 2.49 | 0.49 |
| 20:V:12:ILE:CG1 | 20:V:101:SER:HB2 | 2.26 | 0.49 |
| 20:V:18:ARG:NE | 20:V:76:VAL:HG12 | 2.27 | 0.49 |
| 21:W:65:ARG:CA | 21:W:70:LEU:HG | 2.37 | 0.49 |
| 22:X:39:VAL:O | 22:X:40:GLU:CB | 2.59 | 0.49 |
| 22:X:82:PRO:HG3 | 22:X:97:ARG:H | 1.74 | 0.49 |
| 24:Z:26:TYR:C | 24:Z:67:VAL:HG11 | 2.32 | 0.49 |
| 9:K:93:THR:HG23 | 9:K:95:LYS:H | 1.77 | 0.49 |
| 1:A:2174:C:C2 | 1:A:2175:C:C5 | 2.99 | 0.49 |
| 3:C:181:PRO:HB2 | 3:C:184:LYS:HG3 | 1.94 | 0.49 |
| 4:D:111:LEU:HD12 | 4:D:115:GLN:HE22 | 1.77 | 0.49 |
| 25:1:51:GLN:CA | 25:1:54:ARG:HG3 | 2.43 | 0.49 |
| 26:2:10:LYS:O | 26:2:11:SER:HB2 | 2.13 | 0.49 |
| 27:3:17:GLY:HA3 | 27:3:33:VAL:O | 2.12 | 0.49 |
| 31:7:1:MET:N | 31:7:2:PRO:CD | 2.71 | 0.49 |
| 1:A:1053:C:C5 | 1:A:1054:A:C5 | 3.00 | 0.49 |
| 1:A:1058:G:H2' | 1:A:1059:G:H5'' | 1.94 | 0.49 |
| 1:A:1082:U:H6 | 1:A:1082:U:O5' | 1.94 | 0.49 |
| 1:A:1107:G:O2' | 1:A:1108:U:H5' | 2.12 | 0.49 |
| 1:A:1042:G:N2 | 1:A:1114:G:C2 | 2.80 | 0.49 |
| 1:A:1020:A:N3 | 1:A:1140:C:C2 | 2.80 | 0.49 |
| 1:A:1188:U:C2' | 1:A:1189:A:C5' | 2.87 | 0.49 |
| 1:A:1196:C:H2' | 1:A:1197:G:C8 | 2.48 | 0.49 |
| 1:A:1210:A:H4' | 1:A:1211:U:C5' | 2.42 | 0.49 |
| 1:A:1315:C:C2 | 1:A:1316:U:C5 | 3.00 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1324:G:H3' | 1:A:1325:G:H4' | 1.94 | 0.49 |
| 1:A:1335:U:O2' | 1:A:1336:A:H5' | 2.11 | 0.49 |
| 1:A:145:G:N2 | 1:A:146:G:N3 | 2.61 | 0.49 |
| 1:A:1542:G:H8 | 1:A:1543:A:N7 | 2.11 | 0.49 |
| 1:A:1650:G:HO2' | 1:A:1651:G:P | 2.34 | 0.49 |
| 1:A:1672:C:H2' | 1:A:1673:U:C5' | 2.42 | 0.49 |
| 1:A:1699:G:C8 | 1:A:1763:G:C2 | 3.00 | 0.49 |
| 1:A:1817:G:P | 4:D:88:ARG:NH2 | 2.85 | 0.49 |
| 1:A:1841:U:C2' | 1:A:1842:G:C8 | 2.78 | 0.49 |
| 1:A:1903:G:N3 | 1:A:1904:G:C8 | 2.80 | 0.49 |
| 1:A:1937:A:O2' | 1:A:1938:A:P | 2.69 | 0.49 |
| 1:A:1969:A:O2' | 1:A:1970:A:O4' | 2.20 | 0.49 |
| 1:A:2031:A:C8 | 1:A:2031:A:C5' | 2.95 | 0.49 |
| 1:A:528:A:N7 | 1:A:2042:A:C6 | 2.80 | 0.49 |
| 1:A:2047:U:C2' | 1:A:2048:G:O5' | 2.60 | 0.49 |
| 1:A:2331:G:H2' | 1:A:2332:U:C1' | 2.40 | 0.49 |
| 1:A:2355:C:C4' | 24:Z:36:ILE:HG21 | 2.41 | 0.49 |
| 1:A:2392:A:C2 | 1:A:2429:G:C5 | 3.00 | 0.49 |
| 1:A:263:C:H1' | 1:A:430:G:N3 | 2.27 | 0.49 |
| 1:A:2826:A:O2' | 1:A:2827:C:H5' | 2.11 | 0.49 |
| 1:A:2847:U:C4 | 1:A:2848:G:N7 | 2.81 | 0.49 |
| 1:A:2863:C:H2' | 1:A:2864:G:H8 | 1.77 | 0.49 |
| 1:A:326:G:H2' | 1:A:327:G:O4' | 2.11 | 0.49 |
| 1:A:300:A:C4 | 1:A:334:C:H1' | 2.47 | 0.49 |
| 1:A:341:G:OP2 | 1:A:342:G:OP1 | 2.31 | 0.49 |
| 1:A:373:U:C2' | 1:A:374:A:OP2 | 2.59 | 0.49 |
| 1:A:564:C:N4 | 1:A:578:A:N6 | 2.57 | 0.49 |
| 1:A:699:A:H3' | 1:A:699:A:C8 | 2.48 | 0.49 |
| 1:A:780:G:C2 | 1:A:782:A:N1 | 2.80 | 0.49 |
| 1:A:80:G:O4' | 1:A:347:A:N6 | 2.45 | 0.49 |
| 1:A:898:C:C5' | 1:A:899:A:OP2 | 2.60 | 0.49 |
| 1:A:7:G:H2' | 1:A:8:A:H8 | 1.77 | 0.49 |
| 1:A:930:U:C2' | 1:A:931:G:OP2 | 2.60 | 0.49 |
| 1:A:954:G:N3 | 1:A:2274:A:C2 | 2.79 | 0.49 |
| 1:A:960:A:H2' | 1:A:962:G:H8 | 1.77 | 0.49 |
| 1:A:974:G:C6 | 1:A:974(A):C:N4 | 2.80 | 0.49 |
| 2:B:45:A:H2' | 2:B:46:A:O5' | 2.12 | 0.49 |
| 2:B:51:G:OP1 | 16:R:61:ASN:CA | 2.61 | 0.49 |
| 2:B:58:A:C5 | 2:B:59:A:N7 | 2.80 | 0.49 |
| 1:A:1819:A:H3' | 4:D:178:PRO:HB2 | 1.94 | 0.49 |
| 5:E:119:ARG:NH1 | 5:E:120:TRP:HB3 | 2.26 | 0.49 |
| 5:E:128:SER:HG | 5:E:129:HIS:CD2 | 2.30 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 5:E:40:GLU:O | 5:E:41:LYS:HD3 | 2.13 | 0.49 |
| 5:E:51:PHE:CZ | 5:E:53:PRO:HD3 | 2.47 | 0.49 |
| 5:E:59:VAL:HG12 | 5:E:60:ASN:N | 2.27 | 0.49 |
| 5:E:58:ARG:NH2 | 5:E:73:GLU:OE1 | 2.45 | 0.49 |
| 6:F:19:GLU:HA | 6:F:20:LEU:HD22 | 1.92 | 0.49 |
| 6:F:34:TRP:CD2 | 13:O:8:PRO:HB2 | 2.47 | 0.49 |
| 7:G:53:LEU:HD23 | 7:G:70:VAL:CA | 2.36 | 0.49 |
| 7:G:53:LEU:CD1 | 7:G:53:LEU:N | 2.74 | 0.49 |
| 7:G:77:ILE:O | 7:G:78:SER:O | 2.30 | 0.49 |
| 8:H:15:VAL:HG21 | 8:H:76:VAL:CG1 | 2.41 | 0.49 |
| 8:H:17:VAL:HG11 | 8:H:45:VAL:HG11 | 1.94 | 0.49 |
| 8:H:61:HIS:O | 8:H:62:LYS:C | 2.50 | 0.49 |
| 8:H:35:VAL:HB | 8:H:72:ILE:HG23 | 1.94 | 0.49 |
| 11:M:54:VAL:C | 11:M:122:VAL:HG23 | 2.31 | 0.49 |
| 12:N:103:ALA:HB3 | 12:N:107:ARG:CZ | 2.41 | 0.49 |
| 12:N:23:ARG:HH11 | 12:N:23:ARG:CG | 2.24 | 0.49 |
| 12:N:63:VAL:CB | 12:N:78:ARG:HG3 | 2.42 | 0.49 |
| 12:N:9:GLU:C | 12:N:82:ASN:HB3 | 2.33 | 0.49 |
| 13:O:58:THR:HG22 | 13:O:60:MET:H | 1.77 | 0.49 |
| 6:F:34:TRP:CE3 | 13:O:8:PRO:HB2 | 2.47 | 0.49 |
| 14:P:130:LYS:HG2 | 14:P:131:ILE:N | 2.23 | 0.49 |
| 14:P:6:ARG:HH21 | 14:P:9:TYR:H | 1.54 | 0.49 |
| 1:A:2708:G:O4' | 15:Q:71:GLN:NE2 | 2.46 | 0.49 |
| 15:Q:83:ILE:HD13 | 15:Q:86:ARG:HE | 1.76 | 0.49 |
| 16:R:23:ARG:NH1 | 16:R:42:ASP:CB | 2.75 | 0.49 |
| 16:R:38:GLN:O | 16:R:38:GLN:HG3 | 2.11 | 0.49 |
| 16:R:58:LEU:HD23 | 16:R:62:LYS:CG | 2.42 | 0.49 |
| 17:S:65:LYS:NZ | 17:S:75:ILE:HD13 | 2.27 | 0.49 |
| 19:U:27:ALA:CB | 19:U:33:VAL:HG11 | 2.34 | 0.49 |
| 19:U:62:LEU:HD13 | 19:U:97:LYS:O | 2.12 | 0.49 |
| 20:V:85:VAL:HG12 | 20:V:95:ILE:HA | 1.93 | 0.49 |
| 1:A:2013:A:OP1 | 20:V:96:ILE:CB | 2.60 | 0.49 |
| 21:W:3:THR:N | 21:W:5:TYR:CE2 | 2.81 | 0.49 |
| 21:W:73:ARG:HG2 | 21:W:73:ARG:NH1 | 2.27 | 0.49 |
| 22:X:75:ILE:CG2 | 22:X:100:ALA:CB | 2.89 | 0.49 |
| 23:Y:111:VAL:HG22 | 23:Y:117:LEU:HA | 1.93 | 0.49 |
| 23:Y:122:ARG:HG2 | 23:Y:171:ILE:O | 2.11 | 0.49 |
| 23:Y:2:GLU:C | 23:Y:3:TYR:CD2 | 2.85 | 0.49 |
| 1:A:2602:A:O2' | 24:Z:2:ALA:CB | 2.54 | 0.49 |
| 9:K:69:LYS:NZ | 9:K:70:LYS:HG2 | 2.26 | 0.49 |
| 9:K:87:LYS:HE2 | 9:K:122:GLU:CG | 2.39 | 0.49 |
| 3:C:111:ASP:CA | 3:C:136:LEU:HD22 | 2.20 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 3:C:142:ALA:O | 3:C:144:THR:N | 2.46 | 0.49 |
| 3:C:41:VAL:HG13 | 3:C:215:THR:O | 2.13 | 0.49 |
| 1:A:2129:C:P | 3:C:6:ARG:HG3 | 2.52 | 0.49 |
| 3:C:73:ARG:HB3 | 3:C:93:TYR:HE2 | 1.76 | 0.49 |
| 1:A:1498:C:C6 | 1:A:1576:U:C4' | 2.75 | 0.49 |
| 4:D:273:ARG:NE | 4:D:273:ARG:C | 2.66 | 0.49 |
| 25:1:1:MET:HE3 | 25:1:3:LYS:HB3 | 1.94 | 0.49 |
| 25:1:56:LEU:O | 25:1:57:THR:C | 2.50 | 0.49 |
| 1:A:111:A:H4' | 25:1:60:ASN:HD21 | 1.77 | 0.49 |
| 31:7:1:MET:HB2 | 31:7:2:PRO:HD3 | 1.94 | 0.49 |
| 31:7:3:LYS:O | 31:7:4:MET:CB | 2.53 | 0.49 |
| 13:O:50:ARG:NH2 | 31:7:8:LYS:HG3 | 2.27 | 0.49 |
| 1:A:1034:G:C6 | 1:A:1035:U:C4 | 3.00 | 0.49 |
| 1:A:1128:A:N7 | 1:A:2518:A:C6 | 2.80 | 0.49 |
| 1:A:1138:G:H2' | 1:A:1139:G:H5' | 1.94 | 0.49 |
| 1:A:1143:A:C2' | 1:A:1144:G:C8 | 2.95 | 0.49 |
| 1:A:1188:U:O2 | 1:A:1189:A:C8 | 2.66 | 0.49 |
| 1:A:1341:U:O4 | 1:A:1395:A:C2 | 2.64 | 0.49 |
| 1:A:1360:A:N7 | 1:A:1361:G:C5 | 2.80 | 0.49 |
| 1:A:1451:C:C4' | 1:A:1451:C:OP2 | 2.60 | 0.49 |
| 1:A:1468:C:O2' | 1:A:1469:A:O4' | 2.22 | 0.49 |
| 1:A:1662:C:H2' | 1:A:1663:C:C5 | 2.45 | 0.49 |
| 1:A:1711:C:C2 | 1:A:1712:C:C5 | 3.00 | 0.49 |
| 1:A:1850:G:H2' | 1:A:1851:U:O4' | 2.12 | 0.49 |
| 1:A:1969:A:H5' | 1:A:1970:A:OP1 | 2.12 | 0.49 |
| 1:A:1975:G:C2' | 1:A:1976:U:C5' | 2.91 | 0.49 |
| 1:A:1995:U:C3' | 1:A:1995:U:C6 | 2.96 | 0.49 |
| 1:A:578:A:N3 | 1:A:2018:G:O4' | 2.45 | 0.49 |
| 1:A:2031:A:H61 | 1:A:2498:C:H1' | 1.76 | 0.49 |
| 1:A:2209:C:OP1 | 4:D:151:LYS:HG2 | 2.13 | 0.49 |
| 1:A:2215:G:H2' | 1:A:2216:G:C8 | 2.46 | 0.49 |
| 1:A:2232:U:N3 | 1:A:2233:U:H5 | 2.08 | 0.49 |
| 1:A:2259:G:H5' | 1:A:2427:C:C3' | 2.41 | 0.49 |
| 1:A:1864:U:H5'' | 1:A:2410:G:O2' | 2.13 | 0.49 |
| 1:A:248:G:N2 | 1:A:2431:U:H5' | 2.27 | 0.49 |
| 1:A:2468:G:H3' | 1:A:2476:A:C2 | 2.47 | 0.49 |
| 1:A:2521:C:C4 | 1:A:2522:U:C5 | 2.99 | 0.49 |
| 1:A:2539:C:O4' | 32:8:2:LYS:HD2 | 2.12 | 0.49 |
| 1:A:2561:A:C2' | 1:A:2562:U:O5' | 2.60 | 0.49 |
| 1:A:2581:G:N2 | 1:A:2610:C:C2 | 2.81 | 0.49 |
| 1:A:2631:G:H4' | 1:A:2892:A:O4' | 2.12 | 0.49 |
| 1:A:2642:G:N3 | 1:A:2643:G:C8 | 2.80 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2657:A:N1 | 1:A:2665:A:C8 | 2.81 | 0.49 |
| 1:A:2712:U:O2' | 1:A:2712(A):A:O5' | 2.29 | 0.49 |
| 1:A:297:C:C2 | 1:A:298:G:H1' | 2.47 | 0.49 |
| 1:A:303:U:C2 | 1:A:304:G:C8 | 3.00 | 0.49 |
| 1:A:364:C:H2' | 1:A:365:C:H5 | 1.68 | 0.49 |
| 1:A:508:G:H4' | 1:A:509:C:O5' | 2.13 | 0.49 |
| 1:A:650:C:H2' | 1:A:651:G:H5' | 1.94 | 0.49 |
| 1:A:586:A:H2 | 1:A:809:G:N2 | 2.10 | 0.49 |
| 1:A:866:A:N6 | 1:A:913:U:O3' | 2.35 | 0.49 |
| 2:B:101:A:O2' | 2:B:102:G:H5' | 2.12 | 0.49 |
| 4:D:143:HIS:HE1 | 4:D:193:VAL:O | 1.96 | 0.49 |
| 4:D:5:LYS:NZ | 4:D:31:LYS:NZ | 2.61 | 0.49 |
| 5:E:151:TYR:CE2 | 5:E:152:LYS:HG3 | 2.47 | 0.49 |
| 5:E:42:ASP:O | 5:E:44:TYR:N | 2.35 | 0.49 |
| 5:E:47:VAL:HG22 | 5:E:79:ARG:HB2 | 1.95 | 0.49 |
| 6:F:64:ILE:CD1 | 6:F:64:ILE:N | 2.76 | 0.49 |
| 7:G:36:LYS:NZ | 7:G:160:VAL:HG21 | 2.27 | 0.49 |
| 7:G:30:GLU:OE1 | 7:G:33:ARG:CG | 2.60 | 0.49 |
| 7:G:33:ARG:HH12 | 7:G:35:GLU:CB | 2.24 | 0.49 |
| 8:H:25:LYS:HG2 | 8:H:27:LYS:HG3 | 1.93 | 0.49 |
| 1:A:2093:G:C4' | 9:K:29:TYR:CD2 | 2.96 | 0.49 |
| 10:L:109:LYS:HA | 10:L:112:MET:HG3 | 1.94 | 0.49 |
| 1:A:557:U:O3' | 11:M:112:LEU:HG | 2.11 | 0.49 |
| 11:M:85:ILE:HG23 | 11:M:89:LYS:CG | 2.42 | 0.49 |
| 12:N:86:ILE:HG22 | 12:N:87:ILE:N | 2.26 | 0.49 |
| 14:P:104:PHE:O | 14:P:105:GLU:OE1 | 2.29 | 0.49 |
| 14:P:65:PHE:CA | 14:P:105:GLU:OE2 | 2.60 | 0.49 |
| 14:P:16:ARG:O | 14:P:17:LEU:CG | 2.59 | 0.49 |
| 14:P:22:LYS:CA | 14:P:99:PRO:HG3 | 2.42 | 0.49 |
| 15:Q:39:PRO:O | 15:Q:41:ALA:N | 2.45 | 0.49 |
| 15:Q:67:LEU:C | 15:Q:69:ASP:N | 2.61 | 0.49 |
| 16:R:106:ARG:NH2 | 16:R:112:PHE:CD1 | 2.80 | 0.49 |
| 16:R:42:ASP:O | 16:R:46:VAL:CG2 | 2.61 | 0.49 |
| 16:R:58:LEU:N | 16:R:65:VAL:HG23 | 2.27 | 0.49 |
| 17:S:67:SER:HA | 17:S:75:ILE:HG23 | 1.94 | 0.49 |
| 18:T:25:TRP:O | 18:T:26:GLY:C | 2.49 | 0.49 |
| 19:U:88:ARG:CB | 19:U:88:ARG:CZ | 2.90 | 0.49 |
| 20:V:36:LEU:CD1 | 20:V:47:VAL:HG23 | 2.41 | 0.49 |
| 20:V:33:ARG:HH12 | 20:V:37:ARG:H | 1.61 | 0.49 |
| 1:A:494:G:C4' | 20:V:6:ILE:O | 2.47 | 0.49 |
| 21:W:96:ILE:OXT | 21:W:96:ILE:HG12 | 2.13 | 0.49 |
| 22:X:1:MET:HG3 | 22:X:67:LEU:HD22 | 1.93 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 22:X:38:ILE:O | 22:X:39:VAL:HG22 | 2.13 | 0.49 |
| 23:Y:95:PRO:HB2 | 23:Y:131:ARG:H | 1.77 | 0.49 |
| 23:Y:141:VAL:CG1 | 23:Y:150:LEU:HD11 | 2.43 | 0.49 |
| 23:Y:95:PRO:HG2 | 23:Y:131:ARG:CA | 2.42 | 0.49 |
| 24:Z:50:ASN:CB | 24:Z:81:VAL:HB | 2.41 | 0.49 |
| 1:A:2148:G:O2' | 1:A:2149:G:O5' | 2.31 | 0.49 |
| 3:C:76:ALA:HB1 | 3:C:149:ILE:CD1 | 2.40 | 0.49 |
| 3:C:58:VAL:HG12 | 3:C:59:ARG:H | 1.77 | 0.49 |
| 3:C:61:THR:OG1 | 3:C:62:VAL:N | 2.37 | 0.49 |
| 1:A:2107:C:H2' | 1:A:2108:C:O4' | 2.13 | 0.49 |
| 1:A:2462:U:N3 | 1:A:2463:C:C5 | 2.80 | 0.49 |
| 27:3:58:ARG:HB2 | 27:3:59:PHE:CZ | 2.47 | 0.49 |
| 1:A:1025:G:H8 | 1:A:1134:G:C1' | 2.25 | 0.49 |
| 1:A:1152:C:H4' | 18:T:80:ILE:HD12 | 1.94 | 0.49 |
| 1:A:1277:G:O2' | 15:Q:24:GLN:HG2 | 2.13 | 0.49 |
| 1:A:1280:G:C2' | 1:A:1281:G:H5' | 2.41 | 0.49 |
| 1:A:1332:G:C6 | 1:A:1609:A:N6 | 2.81 | 0.49 |
| 1:A:1407:C:H2' | 1:A:1408:C:H6 | 1.78 | 0.49 |
| 1:A:1410:G:C6 | 1:A:1411:C:C4 | 3.00 | 0.49 |
| 1:A:1457:A:O2' | 1:A:1459:G:H8 | 1.94 | 0.49 |
| 1:A:1560:G:C2' | 1:A:1561:G:O5' | 2.61 | 0.49 |
| 1:A:1628:G:H2' | 1:A:1629:U:C6 | 2.47 | 0.49 |
| 1:A:1727:U:H2' | 1:A:1728:G:OP1 | 2.12 | 0.49 |
| 1:A:1869:G:H2' | 1:A:1871:A:OP2 | 2.11 | 0.49 |
| 1:A:1884:A:O4' | 1:A:1884:A:OP2 | 2.31 | 0.49 |
| 1:A:1946:U:H2' | 1:A:1947:C:H6 | 1.76 | 0.49 |
| 1:A:1996:C:C3' | 1:A:1996:C:C6 | 2.95 | 0.49 |
| 1:A:2209:C:H1' | 4:D:150:LYS:HZ1 | 1.75 | 0.49 |
| 1:A:2414:G:C6 | 1:A:2415:G:N7 | 2.80 | 0.49 |
| 1:A:2416:C:C2' | 1:A:2417:C:O5' | 2.61 | 0.49 |
| 1:A:2259:G:O4' | 1:A:2427:C:C5 | 2.65 | 0.49 |
| 1:A:197:A:C6 | 1:A:2430:A:N7 | 2.80 | 0.49 |
| 1:A:2466:C:H5' | 32:8:5:ALA:HB3 | 1.93 | 0.49 |
| 1:A:248:G:N3 | 1:A:2431:U:C5' | 2.75 | 0.49 |
| 1:A:2495:G:C5 | 1:A:2496:C:C5 | 3.00 | 0.49 |
| 1:A:2521:C:C3' | 1:A:2522:U:H5'' | 2.39 | 0.49 |
| 1:A:2627:G:C5 | 1:A:2777:G:O6 | 2.65 | 0.49 |
| 1:A:2636:U:C1' | 1:A:2783:G:H22 | 2.16 | 0.49 |
| 1:A:2636:U:H6 | 1:A:2636:U:C5' | 2.25 | 0.49 |
| 1:A:2757:A:H2' | 1:A:2758:A:C5' | 2.43 | 0.49 |
| 1:A:2781:A:C2' | 1:A:2782:G:H4' | 2.43 | 0.49 |
| 1:A:2821:A:H4' | 5:E:162:ALA:CB | 2.41 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2811:G:C6 | 1:A:2891:G:C2 | 3.00 | 0.49 |
| 1:A:311:A:H1' | 1:A:332:A:C4 | 2.47 | 0.49 |
| 1:A:247:G:H4' | 1:A:386:G:N3 | 2.27 | 0.49 |
| 1:A:413:C:N4 | 1:A:2410:G:H1 | 2.09 | 0.49 |
| 1:A:445:C:H5'' | 18:T:3:ARG:CG | 2.43 | 0.49 |
| 1:A:564:C:C2' | 1:A:565:C:O5' | 2.60 | 0.49 |
| 1:A:596:G:H2' | 1:A:596:G:N3 | 2.28 | 0.49 |
| 1:A:724:U:H2' | 1:A:725:G:C5' | 2.42 | 0.49 |
| 1:A:751:A:C8 | 1:A:751:A:H3' | 2.48 | 0.49 |
| 1:A:816:C:H2' | 1:A:817:C:H5' | 1.89 | 0.49 |
| 1:A:900:A:H8 | 1:A:901:A:C8 | 2.27 | 0.49 |
| 1:A:917:A:C2 | 1:A:918:A:N1 | 2.80 | 0.49 |
| 1:A:924:C:N4 | 1:A:925:C:H41 | 2.11 | 0.49 |
| 1:A:973:A:C3' | 1:A:973:A:C8 | 2.93 | 0.49 |
| 2:B:47:C:C2' | 2:B:48:A:H5' | 2.31 | 0.49 |
| 2:B:6:C:H2' | 2:B:7:G:O4' | 2.12 | 0.49 |
| 4:D:146:GLU:HG2 | 4:D:154:LYS:CE | 2.36 | 0.49 |
| 4:D:148:GLU:H | 4:D:186:HIS:CE1 | 2.30 | 0.49 |
| 4:D:80:ALA:O | 4:D:81:ALA:HB2 | 2.12 | 0.49 |
| 4:D:84:TYR:CG | 4:D:91:ARG:HG3 | 2.48 | 0.49 |
| 6:F:205:ARG:O | 6:F:206:ILE:C | 2.51 | 0.49 |
| 6:F:41:LEU:HD12 | 6:F:41:LEU:C | 2.33 | 0.49 |
| 7:G:144:ILE:CG2 | 7:G:145:THR:H | 2.24 | 0.49 |
| 7:G:26:GLN:HB3 | 7:G:31:VAL:HG11 | 1.93 | 0.49 |
| 7:G:49:ASP:HB3 | 7:G:70:VAL:CG1 | 2.43 | 0.49 |
| 7:G:56:ALA:HA | 7:G:59:GLU:CD | 2.32 | 0.49 |
| 7:G:68:PRO:CG | 7:G:72:ARG:NH1 | 2.61 | 0.49 |
| 8:H:45:VAL:CG2 | 8:H:50:VAL:HG12 | 2.27 | 0.49 |
| 8:H:66:GLY:O | 8:H:70:THR:HG23 | 2.12 | 0.49 |
| 8:H:29:PRO:CD | 8:H:79:VAL:O | 2.58 | 0.49 |
| 8:H:83:TYR:CE1 | 8:H:138:LYS:HA | 2.47 | 0.49 |
| 9:K:21:VAL:HB | 9:K:26:ALA:CA | 2.42 | 0.49 |
| 10:L:103:GLN:NE2 | 10:L:107:ILE:HG13 | 2.27 | 0.49 |
| 10:L:19:PRO:HD2 | 10:L:23:VAL:HB | 1.94 | 0.49 |
| 11:M:87:LEU:CA | 11:M:90:MET:HB2 | 2.42 | 0.49 |
| 12:N:25:LEU:CD2 | 12:N:26:LYS:H | 2.17 | 0.49 |
| 13:O:78:PRO:CG | 13:O:117:GLU:OE1 | 2.59 | 0.49 |
| 14:P:82:ARG:HG2 | 14:P:83:MET:CE | 2.42 | 0.49 |
| 1:A:2839:G:H4' | 15:Q:49:ASP:HB3 | 1.94 | 0.49 |
| 16:R:18:ILE:N | 16:R:18:ILE:CD1 | 2.73 | 0.49 |
| 16:R:36:TYR:OH | 16:R:50:SER:CB | 2.55 | 0.49 |
| 16:R:65:VAL:CG1 | 16:R:66:ALA:N | 2.76 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:B:48:A:O3' | 16:R:95:HIS:CE1 | 2.66 | 0.49 |
| 17:S:53:ARG:CA | 17:S:53:ARG:NE | 2.66 | 0.49 |
| 17:S:64:ARG:NE | 17:S:77:PRO:CB | 2.76 | 0.49 |
| 19:U:61:VAL:O | 19:U:62:LEU:HD23 | 2.12 | 0.49 |
| 21:W:43:VAL:CG1 | 21:W:49:VAL:HG21 | 2.39 | 0.49 |
| 21:W:26:TYR:CE1 | 21:W:89:ILE:HD12 | 2.47 | 0.49 |
| 22:X:49:VAL:HG23 | 22:X:51:VAL:N | 2.27 | 0.49 |
| 22:X:81:LYS:CE | 22:X:96:ILE:HG12 | 2.42 | 0.49 |
| 23:Y:24:LEU:CG | 23:Y:25:PRO:HD2 | 2.42 | 0.49 |
| 23:Y:39:VAL:CA | 23:Y:44:PHE:CZ | 2.87 | 0.49 |
| 9:K:68:LEU:HD22 | 9:K:72:LEU:CG | 2.42 | 0.49 |
| 1:A:2128:C:H5'' | 3:C:218:MET:CE | 2.42 | 0.49 |
| 1:A:2132:U:O2 | 1:A:2132:U:C3' | 2.60 | 0.49 |
| 1:A:2111:C:C2 | 1:A:2145:C:N3 | 2.80 | 0.49 |
| 3:C:78:ALA:HB1 | 3:C:118:ASP:OD1 | 2.12 | 0.49 |
| 3:C:149:ILE:HG23 | 3:C:150:GLY:N | 2.28 | 0.49 |
| 3:C:225:ASN:C | 3:C:227:HIS:N | 2.63 | 0.49 |
| 3:C:64:LEU:HB2 | 3:C:188:ASN:ND2 | 2.27 | 0.49 |
| 1:A:1418:G:OP1 | 1:A:1588:C:O4' | 2.30 | 0.49 |
| 1:A:714:U:O2 | 1:A:715:G:C8 | 2.65 | 0.49 |
| 1:A:363(C):G:H2' | 1:A:363(D):G:O5' | 2.13 | 0.49 |
| 25:1:12:SER:O | 25:1:13:PRO:O | 2.30 | 0.49 |
| 25:1:13:PRO:C | 25:1:17:GLU:OE2 | 2.51 | 0.49 |
| 26:2:48:GLU:CG | 26:2:49:LYS:N | 2.76 | 0.49 |
| 27:3:64:GLY:O | 27:3:65:ASP:C | 2.49 | 0.49 |
| 31:7:40:GLU:C | 31:7:42:ARG:N | 2.66 | 0.49 |
| 31:7:26:LYS:HD2 | 31:7:44:LYS:CA | 2.43 | 0.49 |
| 1:A:1044:G:C6 | 1:A:1048:A:C5 | 3.00 | 0.49 |
| 1:A:1050:A:C2 | 1:A:2751:G:H5' | 2.48 | 0.49 |
| 1:A:1072:C:N4 | 1:A:1100:C:H41 | 2.09 | 0.49 |
| 1:A:1156:A:P | 18:T:55:ARG:NH2 | 2.83 | 0.49 |
| 1:A:1204:A:H4' | 1:A:1205:U:OP2 | 2.12 | 0.49 |
| 1:A:126:A:P | 30:6:17:GLY:HA3 | 2.52 | 0.49 |
| 1:A:1359:A:C8 | 1:A:1359:A:H3' | 2.48 | 0.49 |
| 1:A:1470:G:C3' | 1:A:1470:G:C8 | 2.95 | 0.49 |
| 1:A:1515:C:H3' | 1:A:1515:C:C6 | 2.47 | 0.49 |
| 1:A:1521:G:P | 1:A:1522:G:OP2 | 2.71 | 0.49 |
| 1:A:1682:G:OP2 | 1:A:1683:C:OP2 | 2.30 | 0.49 |
| 1:A:1712:C:H3' | 1:A:1716:U:C6 | 2.48 | 0.49 |
| 1:A:1853:A:H1' | 1:A:2234:G:H5' | 1.95 | 0.49 |
| 1:A:1940:U:H6 | 1:A:1940:U:OP1 | 1.95 | 0.49 |
| 1:A:1941:C:O2 | 1:A:1941:C:H2' | 2.12 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:2075:U:C2 | 1:A:2077:A:OP2 | 2.65 | 0.49 |
| 1:A:2336:A:HO2' | 1:A:2337:G:P | 2.32 | 0.49 |
| 1:A:2344:U:C3' | 1:A:2344:U:O2 | 2.60 | 0.49 |
| 1:A:2361:A:H2' | 1:A:2361:A:N3 | 2.26 | 0.49 |
| 1:A:2450:A:HO2' | 1:A:2451:A:P | 2.35 | 0.49 |
| 1:A:2031:A:N6 | 1:A:2498:C:C1' | 2.70 | 0.49 |
| 1:A:2512:C:H6 | 1:A:2512:C:O5' | 1.95 | 0.49 |
| 1:A:2581:G:N1 | 1:A:2610:C:C5 | 2.80 | 0.49 |
| 1:A:2617:C:C4 | 1:A:2618:G:N7 | 2.81 | 0.49 |
| 1:A:2655:G:H2' | 1:A:2656:U:OP2 | 2.11 | 0.49 |
| 1:A:2773:C:N3 | 1:A:2774:C:C5 | 2.80 | 0.49 |
| 1:A:296:C:O2' | 1:A:297:C:C5' | 2.61 | 0.49 |
| 1:A:345:A:H4' | 1:A:345:A:OP1 | 2.12 | 0.49 |
| 1:A:423:A:P | 1:A:423:A:H3' | 2.53 | 0.49 |
| 1:A:531:C:N3 | 1:A:532:A:H1' | 2.28 | 0.49 |
| 1:A:573:G:O2' | 1:A:574:C:P | 2.69 | 0.49 |
| 1:A:603:A:OP2 | 1:A:655:A:N1 | 2.46 | 0.49 |
| 1:A:627:A:P | 1:A:637:A:N6 | 2.85 | 0.49 |
| 1:A:640:C:C3' | 1:A:641:C:H5' | 2.41 | 0.49 |
| 1:A:749:C:H3' | 1:A:749:C:H6 | 1.77 | 0.49 |
| 1:A:768:G:O2' | 1:A:769:G:H5' | 2.13 | 0.49 |
| 1:A:771:G:C6 | 1:A:772:C:N4 | 2.80 | 0.49 |
| 1:A:848:G:H21 | 1:A:933:A:C1' | 2.25 | 0.49 |
| 2:B:40:U:C4 | 2:B:43:C:OP1 | 2.66 | 0.49 |
| 2:B:6:C:H5' | 2:B:27:C:O2 | 2.12 | 0.49 |
| 2:B:80:U:C2 | 2:B:81:G:N7 | 2.80 | 0.49 |
| 4:D:220:HIS:O | 4:D:221:VAL:CB | 2.61 | 0.49 |
| 4:D:226:MET:CE | 4:D:226:MET:HA | 2.42 | 0.49 |
| 4:D:246:PRO:HB2 | 4:D:250:TRP:HD1 | 1.76 | 0.49 |
| 4:D:258:LYS:HB2 | 4:D:264:LYS:HZ3 | 1.76 | 0.49 |
| 4:D:35:LYS:HB2 | 4:D:36:PRO:HD3 | 1.94 | 0.49 |
| 1:A:2052:G:C4 | 5:E:150:VAL:CG2 | 2.93 | 0.49 |
| 6:F:177:ALA:N | 6:F:178:PRO:CD | 2.76 | 0.49 |
| 6:F:184:TYR:C | 6:F:186:ILE:N | 2.64 | 0.49 |
| 6:F:5:ALA:O | 6:F:6:VAL:HG22 | 2.11 | 0.49 |
| 7:G:148:MET:O | 7:G:150:ASP:N | 2.46 | 0.49 |
| 7:G:41:GLN:HG3 | 7:G:155:MET:CA | 2.41 | 0.49 |
| 8:H:42:ARG:CZ | 8:H:42:ARG:HA | 2.43 | 0.49 |
| 9:K:22:LYS:HB3 | 9:K:23:PRO:CD | 2.40 | 0.49 |
| 9:K:32:PRO:CG | 9:K:33:ARG:HG2 | 2.43 | 0.49 |
| 10:L:112:MET:CE | 10:L:118:THR:HB | 2.42 | 0.49 |
| 10:L:132:ARG:HH21 | 10:L:138:VAL:HG21 | 1.76 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:4:TYR:CE2 | 18:T:100:VAL:HG23 | 2.47 | 0.49 |
| 12:N:16:ALA:HB2 | 12:N:45:GLU:O | 2.12 | 0.49 |
| 12:N:79:PHE:HD1 | 17:S:73:GLU:CD | 2.15 | 0.49 |
| 13:O:108:LYS:HZ2 | 13:O:109:GLY:HA3 | 1.77 | 0.49 |
| 13:O:114:ILE:N | 13:O:114:ILE:HD12 | 2.28 | 0.49 |
| 13:O:29:LYS:NZ | 13:O:29:LYS:HB3 | 2.28 | 0.49 |
| 1:A:2406:U:O4 | 13:O:65:ARG:HB3 | 2.08 | 0.49 |
| 14:P:130:LYS:HE3 | 14:P:131:ILE:O | 2.13 | 0.49 |
| 14:P:88:GLY:O | 14:P:89:ASN:HB2 | 2.12 | 0.49 |
| 17:S:34:VAL:HG11 | 17:S:36:GLU:OE2 | 2.12 | 0.49 |
| 18:T:52:ARG:NH1 | 18:T:53:ARG:HA | 2.23 | 0.49 |
| 18:T:92:ARG:HA | 18:T:95:LEU:CD1 | 2.41 | 0.49 |
| 19:U:89:GLN:HG2 | 19:U:91:TYR:CE1 | 2.48 | 0.49 |
| 20:V:58:ALA:O | 20:V:62:HIS:C | 2.51 | 0.49 |
| 21:W:12:VAL:HG11 | 21:W:17:ALA:CB | 2.43 | 0.49 |
| 21:W:49:VAL:HA | 21:W:88:LYS:CG | 2.41 | 0.49 |
| 22:X:8:LYS:HZ2 | 22:X:28:LYS:HG2 | 1.77 | 0.49 |
| 22:X:37:VAL:HG22 | 22:X:37:VAL:O | 2.13 | 0.49 |
| 22:X:97:ARG:NH1 | 22:X:101:LYS:CG | 2.76 | 0.49 |
| 23:Y:57:ILE:C | 23:Y:58:VAL:HG22 | 2.32 | 0.49 |
| 23:Y:7:ALA:O | 23:Y:8:TYR:CD1 | 2.65 | 0.49 |
| 3:C:6:ARG:C | 3:C:6:ARG:CD | 2.69 | 0.49 |
| 3:C:77:ILE:HG21 | 3:C:123:VAL:HG11 | 1.94 | 0.49 |
| 1:A:714:U:H5'' | 1:A:714:U:C6 | 2.46 | 0.49 |
| 2:B:-1:A:N7 | 2:B:0:A:C8 | 2.81 | 0.49 |
| 21:W:4:ALA:O | 25:1:21:ARG:NH2 | 2.46 | 0.49 |
| 26:2:7:LYS:NZ | 26:2:32:GLN:CA | 2.76 | 0.49 |
| 26:2:9:VAL:HG22 | 26:2:54:VAL:HA | 1.94 | 0.49 |
| 27:3:41:PRO:HD2 | 27:3:57:GLU:OE1 | 2.13 | 0.49 |
| 30:6:5:TRP:CE3 | 30:6:5:TRP:C | 2.86 | 0.49 |
| 1:A:1091:G:N1 | 1:A:1101:U:C4 | 2.70 | 0.49 |
| 1:A:1166:C:O2' | 1:A:1167:U:H5' | 2.13 | 0.49 |
| 1:A:1366:A:H2' | 1:A:1366:A:N3 | 2.28 | 0.49 |
| 1:A:1488:G:C3' | 1:A:1489:U:H5' | 2.42 | 0.49 |
| 1:A:1544:C:H2' | 1:A:1544:C:O2 | 2.11 | 0.49 |
| 1:A:1775:U:C2' | 1:A:1776:G:O4' | 2.57 | 0.49 |
| 1:A:1790:C:N3 | 1:A:1791:A:N6 | 2.60 | 0.49 |
| 1:A:1842:G:H5' | 1:A:2076:U:O4 | 2.12 | 0.49 |
| 1:A:1892:C:H2' | 1:A:1893:C:H6 | 1.78 | 0.49 |
| 1:A:1988:C:C2 | 1:A:1989:G:C8 | 3.01 | 0.49 |
| 1:A:961:C:N4 | 1:A:2031:A:C4 | 2.79 | 0.49 |
| 1:A:2269:A:H8 | 1:A:2269:A:O5' | 1.95 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2250:G:OP2 | 1:A:2275:C:H2' | 2.13 | 0.49 |
| 1:A:2385:C:N3 | 1:A:2386:C:C6 | 2.81 | 0.49 |
| 1:A:2437:U:H2' | 1:A:2438:U:H6 | 1.74 | 0.49 |
| 1:A:2470:G:N2 | 1:A:2471:C:C2 | 2.81 | 0.49 |
| 1:A:2618:G:C2 | 1:A:2619:C:C6 | 3.01 | 0.49 |
| 1:A:2655:G:C2' | 1:A:2656:U:OP2 | 2.60 | 0.49 |
| 1:A:26:G:H8 | 1:A:26:G:O5' | 1.96 | 0.49 |
| 1:A:270(A):A:H3' | 1:A:270(A):A:N3 | 2.28 | 0.49 |
| 1:A:270(G):C:N3 | 1:A:270(H):C:N4 | 2.60 | 0.49 |
| 1:A:2756:U:C4 | 1:A:2758:A:N1 | 2.80 | 0.49 |
| 1:A:2765:A:O2' | 1:A:2766:G:OP1 | 2.21 | 0.49 |
| 1:A:2789:C:O2' | 1:A:2790:A:O5' | 2.25 | 0.49 |
| 1:A:2832:U:O2' | 1:A:2879:C:N4 | 2.45 | 0.49 |
| 1:A:2850:A:H2' | 1:A:2851:A:C8 | 2.42 | 0.49 |
| 1:A:295:G:C8 | 1:A:344:G:N2 | 2.76 | 0.49 |
| 1:A:337:C:N4 | 1:A:339:U:H3 | 2.10 | 0.49 |
| 1:A:339:U:C6 | 1:A:340:A:N7 | 2.80 | 0.49 |
| 1:A:353:G:H2' | 1:A:354:G:C8 | 2.47 | 0.49 |
| 1:A:223:A:C6 | 1:A:408:G:O4' | 2.65 | 0.49 |
| 1:A:412:A:H3' | 1:A:413:C:H6 | 1.78 | 0.49 |
| 1:A:49:A:N3 | 1:A:51:G:N2 | 2.61 | 0.49 |
| 1:A:684:G:N9 | 1:A:687:C:N4 | 2.61 | 0.49 |
| 1:A:721:C:C2 | 1:A:722:A:C8 | 3.01 | 0.49 |
| 1:A:802:A:C5 | 1:A:803:U:C5 | 3.01 | 0.49 |
| 1:A:811:U:OP2 | 13:O:28:GLY:HA3 | 2.13 | 0.49 |
| 1:A:814:C:N3 | 1:A:815:C:C5 | 2.81 | 0.49 |
| 1:A:872:A:O2' | 14:P:66:ILE:CD1 | 2.57 | 0.49 |
| 1:A:890:A:H4' | 1:A:892:G:H5' | 1.93 | 0.49 |
| 2:B:8:U:O2' | 2:B:9:G:O4' | 2.25 | 0.49 |
| 4:D:137:PRO:CB | 4:D:140:THR:HG21 | 2.43 | 0.49 |
| 4:D:198:ASN:HD21 | 4:D:201:HIS:CB | 2.25 | 0.49 |
| 1:A:1824:G:N2 | 4:D:253:GLN:HE21 | 2.08 | 0.49 |
| 4:D:59:LYS:HD2 | 4:D:59:LYS:C | 2.33 | 0.49 |
| 4:D:68:LYS:O | 4:D:69:ARG:HG2 | 2.12 | 0.49 |
| 5:E:105:THR:OG1 | 5:E:166:THR:CA | 2.59 | 0.49 |
| 5:E:113:PHE:HA | 5:E:158:GLY:C | 2.32 | 0.49 |
| 5:E:151:TYR:OH | 5:E:152:LYS:HG3 | 2.13 | 0.49 |
| 5:E:30:PRO:HA | 5:E:49:LEU:O | 2.12 | 0.49 |
| 5:E:55:ASN:ND2 | 5:E:73:GLU:OE2 | 2.46 | 0.49 |
| 6:F:141:ALA:C | 6:F:145:GLU:OE2 | 2.51 | 0.49 |
| 6:F:41:LEU:HB2 | 6:F:44:ARG:CZ | 2.40 | 0.49 |
| 6:F:62:ARG:HG3 | 6:F:63:LYS:CG | 2.43 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:F:62:ARG:CZ | 6:F:63:LYS:HZ3 | 2.25 | 0.49 |
| 7:G:118:ARG:O | 7:G:119:GLY:O | 2.30 | 0.49 |
| 7:G:121:ASN:HD22 | 7:G:124:SER:HA | 1.78 | 0.49 |
| 7:G:124:SER:O | 7:G:125:PHE:O | 2.30 | 0.49 |
| 7:G:63:ILE:HA | 7:G:143:GLU:OE1 | 2.12 | 0.49 |
| 10:L:105:LEU:C | 10:L:108:ALA:HB3 | 2.33 | 0.49 |
| 11:M:18:ALA:CB | 11:M:55:VAL:O | 2.37 | 0.49 |
| 12:N:103:ALA:C | 12:N:105:GLU:N | 2.66 | 0.49 |
| 12:N:9:GLU:O | 12:N:82:ASN:HB3 | 2.12 | 0.49 |
| 13:O:114:ILE:CG1 | 13:O:123:LEU:HD11 | 2.40 | 0.49 |
| 14:P:121:ALA:O | 14:P:124:LYS:NZ | 2.44 | 0.49 |
| 14:P:47:ILE:O | 14:P:48:GLU:C | 2.50 | 0.49 |
| 16:R:24:LEU:HG | 16:R:25:ARG:H | 1.76 | 0.49 |
| 16:R:49:VAL:CG2 | 16:R:80:LEU:HD12 | 2.41 | 0.49 |
| 19:U:49:THR:HG23 | 19:U:50:PRO:HD2 | 1.94 | 0.49 |
| 20:V:14:PRO:O | 20:V:15:ARG:C | 2.51 | 0.49 |
| 1:A:1340:U:C6 | 21:W:57:LEU:HD11 | 2.47 | 0.49 |
| 21:W:34:ALA:HB3 | 21:W:77:LYS:NZ | 2.27 | 0.49 |
| 1:A:337:C:P | 22:X:6:HIS:CE1 | 3.06 | 0.49 |
| 22:X:97:ARG:CZ | 22:X:101:LYS:CD | 2.90 | 0.49 |
| 23:Y:157:LEU:CD2 | 23:Y:161:VAL:HG13 | 2.42 | 0.49 |
| 23:Y:7:ALA:CB | 23:Y:36:LYS:O | 2.48 | 0.49 |
| 23:Y:4:ARG:NH2 | 23:Y:88:PHE:CE1 | 2.80 | 0.49 |
| 24:Z:27:GLU:N | 24:Z:67:VAL:HG11 | 2.28 | 0.49 |
| 9:K:68:LEU:CD1 | 9:K:107:VAL:HG13 | 2.40 | 0.49 |
| 9:K:144:VAL:O | 9:K:144:VAL:CG1 | 2.61 | 0.49 |
| 1:A:2132:U:C2 | 1:A:2132:U:H3' | 2.47 | 0.49 |
| 3:C:128:GLY:HA2 | 3:C:137:LEU:CD1 | 2.41 | 0.49 |
| 3:C:192:PHE:HD1 | 3:C:192:PHE:O | 1.96 | 0.49 |
| 3:C:41:VAL:CG1 | 3:C:42:GLU:N | 2.75 | 0.49 |
| 1:A:164:U:C2' | 1:A:164:U:O2 | 2.61 | 0.49 |
| 1:A:988:A:C5' | 26:2:10:LYS:HZ2 | 2.24 | 0.49 |
| 26:2:10:LYS:CG | 26:2:12:PRO:HD3 | 2.42 | 0.49 |
| 27:3:17:GLY:HA3 | 27:3:33:VAL:HB | 1.95 | 0.49 |
| 28:4:10:LYS:HD2 | 28:4:15:ARG:CZ | 2.39 | 0.49 |
| 1:A:126:A:H5' | 30:6:47:ARG:HH12 | 1.76 | 0.49 |
| 1:A:1049:C:C6 | 1:A:1049:C:H3' | 2.47 | 0.49 |
| 1:A:119:A:C4' | 1:A:120:U:H5' | 2.42 | 0.49 |
| 1:A:1276:A:P | 1:A:1645:G:O2' | 2.71 | 0.49 |
| 1:A:1434:A:H2' | 1:A:1435:G:H5' | 1.93 | 0.49 |
| 1:A:1439:A:C8 | 1:A:1440:G:C8 | 3.01 | 0.49 |
| 1:A:1449:A:N1 | 1:A:1449(A):G:C4 | 2.80 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1475:G:C2' | 1:A:1476:C:O5' | 2.60 | 0.49 |
| 1:A:1505:C:C2 | 1:A:1506:C:C5 | 3.01 | 0.49 |
| 1:A:1656:C:H5' | 5:E:136:ARG:NH1 | 2.27 | 0.49 |
| 1:A:1675:C:O2 | 1:A:1676:A:C1' | 2.61 | 0.49 |
| 1:A:1759:A:H5'' | 1:A:2715:C:O4' | 2.12 | 0.49 |
| 1:A:188:G:C2' | 1:A:189:G:H5' | 2.43 | 0.49 |
| 1:A:1835:G:N3 | 1:A:1931:U:C2 | 2.80 | 0.49 |
| 1:A:1955:U:O2' | 1:A:1956:U:OP1 | 2.30 | 0.49 |
| 1:A:1980:G:H3' | 1:A:1982:C:OP2 | 2.13 | 0.49 |
| 1:A:2025:C:C2 | 1:A:2026:C:C5 | 3.01 | 0.49 |
| 1:A:2234:G:C2 | 1:A:2235:G:N9 | 2.80 | 0.49 |
| 1:A:228:A:N6 | 1:A:230:U:N3 | 2.61 | 0.49 |
| 1:A:2420:C:OP2 | 31:7:33:ASN:O | 2.30 | 0.49 |
| 1:A:2427:C:C2' | 1:A:2428:G:OP2 | 2.60 | 0.49 |
| 1:A:199:A:N1 | 1:A:2434:A:C2 | 2.80 | 0.49 |
| 1:A:2450:A:H2' | 1:A:2451:A:O4' | 2.13 | 0.49 |
| 1:A:2467:C:C4' | 14:P:123:HIS:NE2 | 2.74 | 0.49 |
| 1:A:2472:G:H2' | 1:A:2529:G:N2 | 2.27 | 0.49 |
| 1:A:248:G:OP1 | 27:3:28:LYS:HE2 | 2.11 | 0.49 |
| 1:A:2546:U:C1' | 1:A:2565:A:H2 | 2.26 | 0.49 |
| 1:A:2588:G:O5' | 1:A:2588:G:H8 | 1.95 | 0.49 |
| 1:A:2634:G:C4 | 1:A:2635:C:C5 | 3.01 | 0.49 |
| 1:A:2647:U:H2' | 1:A:2648:C:H6 | 1.78 | 0.49 |
| 1:A:269:U:C5 | 1:A:424:G:N1 | 2.79 | 0.49 |
| 1:A:26:G:N1 | 1:A:27:G:C2 | 2.79 | 0.49 |
| 1:A:2820:A:H2' | 1:A:2821:A:OP1 | 2.12 | 0.49 |
| 1:A:2807:G:N2 | 1:A:2892:A:N6 | 2.58 | 0.49 |
| 1:A:449:A:C4' | 1:A:1248:G:H22 | 2.26 | 0.49 |
| 1:A:533:G:H2' | 1:A:534:U:C4' | 2.40 | 0.49 |
| 1:A:553:U:O4 | 1:A:554:U:O4 | 2.31 | 0.49 |
| 1:A:55:G:C2 | 1:A:56:A:C8 | 3.01 | 0.49 |
| 1:A:619:G:C8 | 1:A:619:G:H3' | 2.48 | 0.49 |
| 1:A:625:G:C6 | 1:A:626:U:H1' | 2.47 | 0.49 |
| 1:A:664:C:O2 | 1:A:664:C:H2' | 2.13 | 0.49 |
| 1:A:886:C:H4' | 1:A:887:A:N9 | 2.28 | 0.49 |
| 1:A:896:A:C2 | 1:A:897:C:H5 | 2.31 | 0.49 |
| 1:A:94:G:C2 | 1:A:95:G:H1' | 2.48 | 0.49 |
| 1:A:974:G:H5' | 1:A:1187:G:O2' | 2.13 | 0.49 |
| 2:B:38:C:C2 | 2:B:39:A:N7 | 2.81 | 0.49 |
| 4:D:53:PHE:CB | 4:D:221:VAL:HG22 | 2.43 | 0.49 |
| 4:D:51:VAL:HB | 4:D:52:ARG:NH1 | 2.28 | 0.49 |
| 4:D:76:PRO:O | 4:D:98:VAL:CG2 | 2.60 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:34:VAL:O | 5:E:35:GLN:OE1 | 2.30 | 0.49 |
| 5:E:45:THR:CB | 5:E:80:GLU:O | 2.60 | 0.49 |
| 5:E:91:VAL:HG23 | 5:E:180:ASN:CG | 2.32 | 0.49 |
| 6:F:48:THR:O | 6:F:49:ALA:HB2 | 2.13 | 0.49 |
| 7:G:114:ILE:O | 7:G:117:PHE:CD1 | 2.66 | 0.49 |
| 7:G:123:ASN:HB2 | 7:G:126:ASP:CG | 2.33 | 0.49 |
| 7:G:177:GLY:O | 7:G:178:PHE:CB | 2.60 | 0.49 |
| 7:G:91:ARG:HD3 | 7:G:92:VAL:N | 2.28 | 0.49 |
| 8:H:127:GLU:HB3 | 8:H:128:PRO:C | 2.32 | 0.49 |
| 8:H:26:VAL:HG11 | 8:H:75:ALA:C | 2.32 | 0.49 |
| 11:M:109:LYS:HE2 | 11:M:111:PRO:HD2 | 1.95 | 0.49 |
| 11:M:74:ARG:O | 11:M:74:ARG:CG | 2.60 | 0.49 |
| 12:N:70:LYS:CG | 12:N:107:ARG:NH1 | 2.76 | 0.49 |
| 12:N:27:GLY:O | 12:N:28:SER:C | 2.51 | 0.49 |
| 12:N:88:ASN:HD22 | 12:N:89:ASN:N | 2.10 | 0.49 |
| 13:O:121:LYS:N | 13:O:122:PRO:HD2 | 2.26 | 0.49 |
| 13:O:6:LEU:O | 13:O:6:LEU:CD2 | 2.59 | 0.49 |
| 15:Q:33:ARG:CB | 15:Q:113:LEU:HD21 | 2.31 | 0.49 |
| 16:R:51:ALA:HA | 16:R:76:LYS:HE2 | 1.94 | 0.49 |
| 16:R:30:ARG:HD3 | 16:R:91:PRO:HB3 | 1.95 | 0.49 |
| 17:S:17:THR:CB | 17:S:20:PRO:HD3 | 2.39 | 0.49 |
| 1:A:1151:G:C5' | 18:T:81:HIS:CE1 | 2.96 | 0.49 |
| 19:U:16:PRO:CD | 19:U:100:ARG:HH12 | 2.26 | 0.49 |
| 20:V:13:SER:N | 20:V:101:SER:OG | 2.46 | 0.49 |
| 20:V:6:ILE:CD1 | 20:V:104:THR:HA | 2.43 | 0.49 |
| 20:V:16:LYS:H | 20:V:16:LYS:HZ2 | 1.49 | 0.49 |
| 21:W:12:VAL:HB | 21:W:27:THR:C | 2.27 | 0.49 |
| 22:X:44:ILE:HG22 | 22:X:46:LYS:HG3 | 1.93 | 0.49 |
| 23:Y:156:LYS:O | 23:Y:158:PRO:HD3 | 2.12 | 0.49 |
| 23:Y:49:ARG:C | 23:Y:51:ALA:N | 2.64 | 0.49 |
| 24:Z:45:PHE:HB3 | 24:Z:59:LEU:HD12 | 1.92 | 0.49 |
| 9:K:86:THR:HG22 | 9:K:87:LYS:N | 2.20 | 0.49 |
| 1:A:2159:G:H2' | 1:A:2160:G:H8 | 1.77 | 0.49 |
| 1:A:2168:G:C4 | 1:A:2170:A:OP2 | 2.66 | 0.49 |
| 1:A:2175:C:O2 | 1:A:2175:C:C2' | 2.57 | 0.49 |
| 3:C:155:GLU:O | 3:C:156:ILE:C | 2.50 | 0.49 |
| 3:C:62:VAL:HG13 | 3:C:64:LEU:CG | 2.43 | 0.49 |
| 2:B:2:C:C2' | 2:B:3:C:O5' | 2.61 | 0.49 |
| 25:1:4:GLN:CA | 25:1:7:GLU:OE2 | 2.60 | 0.49 |
| 1:A:988:A:OP1 | 26:2:12:PRO:HD2 | 2.12 | 0.49 |
| 27:3:43:TYR:CE2 | 27:3:55:ARG:HG2 | 2.47 | 0.49 |
| 27:3:68:ARG:O | 27:3:71:ARG:HA | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:125:G:C3' | 30:6:47:ARG:NH1 | 2.76 | 0.49 |
| 31:7:39:LYS:NZ | 31:7:39:LYS:CB | 2.76 | 0.49 |
| 31:7:40:GLU:O | 31:7:42:ARG:N | 2.46 | 0.49 |
| 31:7:7:HIS:O | 31:7:11:LYS:HG3 | 2.13 | 0.49 |
| 1:A:1014:U:H2' | 1:A:1015:G:O5' | 2.12 | 0.49 |
| 1:A:1030:G:C2' | 1:A:1031:G:O5' | 2.61 | 0.49 |
| 1:A:1055:G:C3' | 1:A:1055:G:C8 | 2.95 | 0.49 |
| 1:A:1107:G:C2 | 1:A:1108:U:H1' | 2.47 | 0.49 |
| 1:A:1142:U:C6 | 1:A:1142(A):A:H8 | 2.23 | 0.49 |
| 1:A:120:U:H1' | 1:A:149:A:C1' | 2.42 | 0.49 |
| 1:A:1265:A:N3 | 1:A:1265:A:C2' | 2.74 | 0.49 |
| 1:A:1300:U:O5' | 1:A:1300:U:C6 | 2.66 | 0.49 |
| 1:A:1312:U:H5' | 21:W:72:LYS:NZ | 2.27 | 0.49 |
| 1:A:1322:A:C5' | 20:V:11:ARG:HH11 | 2.25 | 0.49 |
| 1:A:1419:A:H3' | 1:A:1420:U:O2 | 2.13 | 0.49 |
| 1:A:1442:G:N2 | 1:A:1443:G:C4 | 2.81 | 0.49 |
| 1:A:147:U:C4 | 1:A:148:C:N4 | 2.81 | 0.49 |
| 1:A:1545(A):A:H2' | 1:A:1546:C:C5' | 2.43 | 0.49 |
| 1:A:1700:A:C5' | 1:A:1701:A:OP2 | 2.60 | 0.49 |
| 1:A:1753:G:H3' | 1:A:1753:G:C8 | 2.47 | 0.49 |
| 1:A:1778:U:C3' | 1:A:1778:U:C6 | 2.95 | 0.49 |
| 1:A:1791:A:C3' | 4:D:206:LEU:HD21 | 2.43 | 0.49 |
| 1:A:1806:C:H2' | 1:A:1807:G:H5' | 1.94 | 0.49 |
| 1:A:1853:A:N1 | 1:A:2087:G:H1' | 2.28 | 0.49 |
| 1:A:1861:G:N2 | 1:A:1862:G:C1' | 2.76 | 0.49 |
| 1:A:1935:G:N2 | 1:A:1962:C:O2' | 2.46 | 0.49 |
| 1:A:1993:U:O5' | 1:A:1993:U:H6 | 1.96 | 0.49 |
| 1:A:2019:A:C6 | 1:A:2020:A:C4 | 3.01 | 0.49 |
| 1:A:2042:A:O2' | 1:A:2043:C:C5' | 2.61 | 0.49 |
| 1:A:220:G:O2' | 1:A:233:A:C2 | 2.66 | 0.49 |
| 1:A:2304:G:O6 | 1:A:2313:C:N4 | 2.46 | 0.49 |
| 1:A:2526:G:H2' | 1:A:2527:C:O5' | 2.13 | 0.49 |
| 1:A:2530:A:C3' | 1:A:2531:A:C5' | 2.80 | 0.49 |
| 1:A:14:A:H2 | 1:A:2625:G:O2' | 1.95 | 0.49 |
| 1:A:2690:C:C5 | 15:Q:14:SER:CB | 2.91 | 0.49 |
| 1:A:2690:C:C3' | 1:A:2690:C:C6 | 2.96 | 0.49 |
| 1:A:269:U:O4 | 1:A:270(Z):U:C5' | 2.60 | 0.49 |
| 1:A:2876:G:H4' | 17:S:1:MET:N | 2.24 | 0.49 |
| 1:A:27:G:H2' | 1:A:28:A:C8 | 2.48 | 0.49 |
| 1:A:464:U:H1' | 1:A:788:A:C6 | 2.48 | 0.49 |
| 1:A:498:G:C8 | 1:A:498:G:C3' | 2.95 | 0.49 |
| 1:A:76:C:O2 | 1:A:76:C:H2' | 2.12 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:772:C:H5' | 1:A:1355:G:O3' | 2.13 | 0.49 |
| 1:A:80:G:C6 | 1:A:81:G:N7 | 2.81 | 0.49 |
| 1:A:869:G:C2 | 1:A:909:A:C6 | 3.00 | 0.49 |
| 4:D:63:ARG:NH1 | 4:D:63:ARG:CG | 2.75 | 0.49 |
| 5:E:116:VAL:O | 5:E:120:TRP:NE1 | 2.46 | 0.49 |
| 5:E:133:LYS:NZ | 5:E:138:PRO:HD2 | 2.28 | 0.49 |
| 5:E:133:LYS:CB | 5:E:137:HIS:CD2 | 2.95 | 0.49 |
| 5:E:197:ILE:HB | 5:E:199:ARG:CZ | 2.43 | 0.49 |
| 5:E:7:VAL:HG12 | 5:E:196:VAL:HG11 | 1.95 | 0.49 |
| 6:F:163:VAL:O | 6:F:167:ALA:HB2 | 2.13 | 0.49 |
| 6:F:174:VAL:HG22 | 6:F:174:VAL:O | 2.13 | 0.49 |
| 7:G:110:ALA:CB | 7:G:139:LEU:HG | 2.43 | 0.49 |
| 8:H:25:LYS:NZ | 8:H:32:GLU:OE1 | 2.34 | 0.49 |
| 11:M:54:VAL:HG23 | 11:M:55:VAL:H | 1.78 | 0.49 |
| 12:N:19:ILE:CD1 | 12:N:19:ILE:C | 2.71 | 0.49 |
| 13:O:76:LYS:HE3 | 13:O:101:VAL:CG2 | 2.39 | 0.49 |
| 13:O:85:LEU:C | 13:O:86:LYS:HD3 | 2.33 | 0.49 |
| 14:P:111:GLU:CB | 14:P:113:GLN:CG | 2.86 | 0.49 |
| 14:P:12:GLN:C | 14:P:13:GLN:HG2 | 2.33 | 0.49 |
| 14:P:48:GLU:O | 14:P:51:ARG:HG2 | 2.08 | 0.49 |
| 14:P:74:TYR:HE1 | 14:P:94:VAL:HG13 | 1.76 | 0.49 |
| 15:Q:20:LEU:O | 15:Q:20:LEU:HD13 | 2.12 | 0.49 |
| 15:Q:93:GLY:O | 15:Q:95:THR:N | 2.45 | 0.49 |
| 15:Q:41:ALA:HB1 | 15:Q:97:VAL:HG13 | 1.94 | 0.49 |
| 16:R:32:LEU:C | 16:R:34:HIS:N | 2.67 | 0.49 |
| 16:R:42:ASP:OD1 | 16:R:44:LYS:CG | 2.61 | 0.49 |
| 16:R:93:LYS:O | 16:R:98:VAL:HG11 | 2.13 | 0.49 |
| 17:S:54:ARG:HG3 | 17:S:101:PHE:CD2 | 2.48 | 0.49 |
| 17:S:52:ILE:CG1 | 17:S:66:VAL:HG13 | 2.43 | 0.49 |
| 18:T:55:ARG:O | 18:T:56:ASP:C | 2.49 | 0.49 |
| 18:T:74:LEU:HD12 | 18:T:78:THR:CG2 | 2.41 | 0.49 |
| 18:T:84:LYS:HE2 | 18:T:90:VAL:HG11 | 1.95 | 0.49 |
| 18:T:92:ARG:C | 18:T:94:ASN:N | 2.66 | 0.49 |
| 19:U:62:LEU:CD1 | 19:U:98:GLU:HA | 2.42 | 0.49 |
| 20:V:58:ALA:HB1 | 20:V:69:LEU:HD23 | 1.94 | 0.49 |
| 20:V:94:ASP:OD2 | 20:V:94:ASP:N | 2.46 | 0.49 |
| 1:A:2014:A:H5'' | 20:V:95:ILE:CD1 | 2.43 | 0.49 |
| 22:X:97:ARG:HG2 | 22:X:101:LYS:CB | 2.42 | 0.49 |
| 22:X:9:LYS:HB2 | 22:X:110:GLU:OE1 | 2.12 | 0.49 |
| 22:X:74:PRO:HD2 | 22:X:76:CYS:O | 2.12 | 0.49 |
| 1:A:857:C:O2' | 24:Z:23:VAL:HG11 | 2.13 | 0.49 |
| 3:C:22:ILE:HG23 | 3:C:189:ILE:HD13 | 1.94 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 3:C:49:ILE:HG22 | 3:C:56:GLN:NE2 | 2.28 | 0.49 |
| 1:A:1498:C:H6 | 1:A:1576:U:C4' | 2.11 | 0.49 |
| 9:K:57:ARG:CD | 9:K:61:ARG:HH22 | 2.21 | 0.49 |
| 2:B:117:G:N2 | 2:B:118:G:H1' | 2.27 | 0.49 |
| 1:A:273(F):C:O2 | 1:A:363(A):A:N6 | 2.46 | 0.49 |
| 26:2:17:LYS:HD3 | 26:2:17:LYS:C | 2.33 | 0.49 |
| 27:3:23:GLU:C | 27:3:25:TYR:H | 2.16 | 0.49 |
| 31:7:63:PRO:HG2 | 31:7:64:TYR:H | 1.78 | 0.49 |
| 1:A:1009:A:O2' | 18:T:62:ILE:CG2 | 2.61 | 0.49 |
| 1:A:116:C:H2' | 1:A:117:G:O5' | 2.13 | 0.49 |
| 1:A:1287:A:C5 | 1:A:1288:U:C4 | 3.01 | 0.49 |
| 1:A:1343:G:H2' | 1:A:1384:A:H2 | 1.78 | 0.49 |
| 1:A:1524:G:C4 | 1:A:1525:G:N7 | 2.81 | 0.49 |
| 1:A:1615:C:C5 | 1:A:1617:C:N1 | 2.80 | 0.49 |
| 1:A:1647:G:C5' | 1:A:1648:C:OP1 | 2.61 | 0.49 |
| 1:A:1859:A:C2' | 1:A:1860:G:H5' | 2.42 | 0.49 |
| 1:A:1942:C:P | 1:A:1943:U:H3' | 2.51 | 0.49 |
| 1:A:2277:G:OP2 | 24:Z:12:ASN:ND2 | 2.42 | 0.49 |
| 1:A:2329:G:C8 | 1:A:2329:G:H3' | 2.48 | 0.49 |
| 1:A:2479:G:H5'' | 1:A:2537:U:C4' | 2.43 | 0.49 |
| 1:A:2488:A:C6 | 1:A:2489:G:C6 | 3.01 | 0.49 |
| 1:A:2031:A:C6 | 1:A:2498:C:C2 | 3.00 | 0.49 |
| 1:A:2514:U:H2' | 1:A:2515:C:OP2 | 2.13 | 0.49 |
| 1:A:25:U:H2' | 1:A:26:G:H8 | 1.78 | 0.49 |
| 1:A:2015:A:C2 | 1:A:2613:U:O4 | 2.66 | 0.49 |
| 1:A:2658:C:C2' | 1:A:2659:G:C5' | 2.66 | 0.49 |
| 1:A:2674:G:C2' | 1:A:2675:A:C8 | 2.91 | 0.49 |
| 1:A:2731:G:C2 | 1:A:2732:G:C2 | 3.01 | 0.49 |
| 1:A:2857:G:H1' | 1:A:2861:G:H22 | 1.76 | 0.49 |
| 1:A:513:A:C2 | 1:A:514:A:H8 | 2.31 | 0.49 |
| 1:A:529:A:N6 | 1:A:2023:G:C4 | 2.81 | 0.49 |
| 1:A:587:C:HO2' | 1:A:588:U:P | 2.36 | 0.49 |
| 1:A:621:A:H2' | 1:A:622:G:H5' | 1.94 | 0.49 |
| 1:A:633:A:C5 | 1:A:634:C:H1' | 2.48 | 0.49 |
| 1:A:637:A:C2 | 1:A:651:G:O3' | 2.66 | 0.49 |
| 1:A:66:C:N3 | 1:A:67:U:C5 | 2.81 | 0.49 |
| 1:A:728:G:O6 | 1:A:762:U:C2 | 2.66 | 0.49 |
| 1:A:803:U:H6 | 1:A:803:U:O5' | 1.96 | 0.49 |
| 1:A:806:C:O2' | 1:A:2445:G:C4' | 2.60 | 0.49 |
| 1:A:932:G:C2' | 1:A:933:A:C8 | 2.87 | 0.49 |
| 1:A:962:G:C2 | 1:A:963:U:C2 | 3.01 | 0.49 |
| 4:D:214:TRP:O | 4:D:217:ARG:N | 2.46 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:76:PRO:CD | 4:D:98:VAL:HG21 | 2.43 | 0.49 |
| 6:F:43:LYS:HE3 | 6:F:100:THR:H | 1.78 | 0.49 |
| 6:F:119:ARG:NH2 | 6:F:120:GLU:OE1 | 2.46 | 0.49 |
| 6:F:132:VAL:H | 6:F:138:GLU:HG3 | 1.78 | 0.49 |
| 6:F:158:THR:HG22 | 6:F:160:ASN:OD1 | 2.13 | 0.49 |
| 6:F:43:LYS:NZ | 6:F:100:THR:CG2 | 2.75 | 0.49 |
| 6:F:74:ARG:O | 6:F:75:HIS:CB | 2.60 | 0.49 |
| 7:G:120:LEU:CB | 7:G:181:ARG:HB3 | 2.41 | 0.49 |
| 7:G:26:GLN:HB3 | 7:G:31:VAL:CG1 | 2.43 | 0.49 |
| 7:G:32:PRO:HG2 | 7:G:33:ARG:H | 1.77 | 0.49 |
| 8:H:103:LEU:H | 8:H:115:VAL:HG12 | 1.77 | 0.49 |
| 8:H:11:VAL:HG13 | 8:H:11:VAL:O | 2.12 | 0.49 |
| 8:H:172:LYS:CB | 8:H:172:LYS:NZ | 2.71 | 0.49 |
| 9:K:16:GLY:C | 9:K:17:GLN:HG3 | 2.33 | 0.49 |
| 9:K:24:GLY:O | 9:K:27:ARG:N | 2.46 | 0.49 |
| 9:K:8:PRO:N | 9:K:14:ASP:HA | 2.27 | 0.49 |
| 10:L:42:ASN:O | 10:L:43:ALA:C | 2.51 | 0.49 |
| 11:M:109:LYS:HE3 | 11:M:110:GLY:N | 2.28 | 0.49 |
| 11:M:34:LEU:O | 11:M:35:ARG:O | 2.30 | 0.49 |
| 11:M:85:ILE:N | 11:M:85:ILE:HD12 | 2.27 | 0.49 |
| 11:M:95:PRO:HA | 11:M:98:VAL:CG2 | 2.42 | 0.49 |
| 12:N:14:THR:O | 12:N:14:THR:HG23 | 2.12 | 0.49 |
| 12:N:38:VAL:C | 12:N:39:ILE:HG23 | 2.32 | 0.49 |
| 14:P:22:LYS:HB2 | 23:Y:79:ARG:HH21 | 1.73 | 0.49 |
| 15:Q:56:LYS:C | 15:Q:58:GLY:N | 2.65 | 0.49 |
| 15:Q:86:ARG:CB | 15:Q:86:ARG:CZ | 2.89 | 0.49 |
| 16:R:17:ARG:NH2 | 16:R:89:ARG:HD2 | 2.28 | 0.49 |
| 16:R:20:ARG:O | 16:R:21:THR:HG23 | 2.12 | 0.49 |
| 16:R:17:ARG:NH1 | 16:R:89:ARG:HB2 | 2.27 | 0.49 |
| 17:S:64:ARG:O | 17:S:66:VAL:HG22 | 2.13 | 0.49 |
| 17:S:7:ILE:CG1 | 17:S:8:LYS:H | 2.26 | 0.49 |
| 19:U:33:VAL:CG1 | 19:U:34:GLU:N | 2.76 | 0.49 |
| 20:V:27:LYS:HG3 | 20:V:31:GLU:OE2 | 2.13 | 0.49 |
| 20:V:33:ARG:HH21 | 20:V:33:ARG:HB3 | 1.77 | 0.49 |
| 20:V:7:ALA:O | 20:V:102:HIS:HB3 | 2.11 | 0.49 |
| 22:X:84:ARG:HE | 22:X:84:ARG:N | 2.10 | 0.49 |
| 23:Y:148:ASP:O | 23:Y:174:VAL:HG22 | 2.12 | 0.49 |
| 24:Z:44:ARG:O | 24:Z:45:PHE:HD2 | 1.96 | 0.49 |
| 3:C:181:PRO:CD | 3:C:184:LYS:HD2 | 2.42 | 0.49 |
| 3:C:200:LYS:NZ | 3:C:204:ALA:HB3 | 2.28 | 0.49 |
| 1:A:2339:G:N2 | 1:A:2340:G:C4 | 2.81 | 0.49 |
| 2:B:25:A:H2' | 2:B:26:A:O4' | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 28:4:14:ALA:O | 28:4:17:ASP:HB2 | 2.13 | 0.48 |
| 1:A:1266:G:OP1 | 28:4:19:ARG:CZ | 2.61 | 0.48 |
| 1:A:1372:U:O5' | 1:A:1372:U:H6 | 1.95 | 0.48 |
| 1:A:1433:U:C3' | 1:A:1433:U:C6 | 2.96 | 0.48 |
| 1:A:143:C:H2' | 1:A:144:C:C5 | 2.47 | 0.48 |
| 1:A:1525:G:C2 | 1:A:1526:G:C4 | 3.01 | 0.48 |
| 1:A:742:G:O2' | 1:A:1676:A:H4' | 2.13 | 0.48 |
| 1:A:1815:A:C5 | 1:A:1817:G:C2 | 3.01 | 0.48 |
| 1:A:1792:G:O2' | 1:A:1830:C:OP1 | 2.28 | 0.48 |
| 1:A:1832:C:C4 | 1:A:1833:U:C4 | 3.00 | 0.48 |
| 1:A:1842:G:N3 | 1:A:1843:C:C6 | 2.80 | 0.48 |
| 1:A:1850:G:N1 | 1:A:1851:U:C2 | 2.81 | 0.48 |
| 1:A:1951:U:O2' | 1:A:1953:A:H5'' | 2.12 | 0.48 |
| 1:A:2000:G:C6 | 1:A:2001:A:N7 | 2.81 | 0.48 |
| 1:A:2052:G:P | 5:E:141:ILE:HG12 | 2.52 | 0.48 |
| 1:A:217:G:H2' | 1:A:218:A:H5' | 1.95 | 0.48 |
| 1:A:2345:G:O2' | 1:A:2346:A:P | 2.71 | 0.48 |
| 1:A:416:C:N3 | 1:A:2407:G:O6 | 2.45 | 0.48 |
| 1:A:2579:C:C6 | 1:A:2579:C:C4' | 2.96 | 0.48 |
| 1:A:2599:G:H2' | 1:A:2600:A:C8 | 2.48 | 0.48 |
| 1:A:1782:C:C2 | 1:A:2609:U:C5 | 3.01 | 0.48 |
| 1:A:2712(A):A:H3' | 1:A:2712(A):A:C8 | 2.48 | 0.48 |
| 1:A:2688:U:H3 | 1:A:2719:G:H2' | 1.78 | 0.48 |
| 1:A:2524:G:H5' | 1:A:2764:A:O2' | 2.12 | 0.48 |
| 1:A:2770:G:O5' | 1:A:2770:G:H8 | 1.96 | 0.48 |
| 1:A:2777:G:H5'' | 1:A:2778:A:OP1 | 2.12 | 0.48 |
| 1:A:2831:G:H5'' | 1:A:2834:G:O2' | 2.13 | 0.48 |
| 1:A:506:G:OP2 | 1:A:506:G:O4' | 2.31 | 0.48 |
| 1:A:527:C:H5'' | 1:A:2779:U:H3 | 1.78 | 0.48 |
| 1:A:611:C:O2 | 1:A:616:A:C2 | 2.66 | 0.48 |
| 1:A:611:C:C4 | 1:A:612:G:C2 | 3.01 | 0.48 |
| 1:A:626:U:H4' | 1:A:653:A:N1 | 2.27 | 0.48 |
| 1:A:697:C:C2 | 1:A:698:C:C5 | 3.00 | 0.48 |
| 1:A:775:G:N3 | 1:A:791:C:C4 | 2.81 | 0.48 |
| 1:A:849:A:N3 | 1:A:850:C:C6 | 2.81 | 0.48 |
| 1:A:871:U:H4' | 14:P:69:PHE:CE1 | 2.47 | 0.48 |
| 1:A:88:G:H8 | 1:A:88:G:H5' | 1.78 | 0.48 |
| 1:A:889:C:O2' | 1:A:890:A:O5' | 2.29 | 0.48 |
| 1:A:977:G:C6 | 1:A:987:G:C6 | 3.01 | 0.48 |
| 2:B:45:A:C6 | 2:B:46:A:C4 | 3.01 | 0.48 |
| 2:B:45:A:C6 | 2:B:46:A:C5 | 3.01 | 0.48 |
| 2:B:57:A:H1' | 7:G:29:TRP:CD2 | 2.48 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 4:D:132:PRO:O | 4:D:133:LEU:O | 2.31 | 0.48 |
| 4:D:5:LYS:HB3 | 4:D:29:PRO:CD | 2.43 | 0.48 |
| 4:D:8:PRO:CD | 4:D:26:LYS:N | 2.73 | 0.48 |
| 1:A:2571:C:O2' | 5:E:146:THR:CG2 | 2.60 | 0.48 |
| 5:E:49:LEU:HD21 | 5:E:75:VAL:N | 2.27 | 0.48 |
| 7:G:112:PRO:O | 7:G:112:PRO:HG2 | 2.13 | 0.48 |
| 7:G:139:LEU:HB3 | 7:G:142:PRO:HB3 | 1.94 | 0.48 |
| 7:G:39:ILE:HD11 | 7:G:99:MET:HE1 | 1.95 | 0.48 |
| 8:H:103:LEU:CD2 | 8:H:115:VAL:HB | 2.41 | 0.48 |
| 8:H:7:LEU:HD12 | 8:H:52:VAL:O | 2.12 | 0.48 |
| 8:H:98:LEU:CD2 | 8:H:100:GLY:O | 2.61 | 0.48 |
| 9:K:43:ASN:O | 9:K:44:LEU:C | 2.51 | 0.48 |
| 10:L:131:ALA:HB1 | 10:L:136:VAL:CB | 2.43 | 0.48 |
| 10:L:12:LEU:HD13 | 10:L:23:VAL:HG21 | 1.95 | 0.48 |
| 12:N:9:GLU:OE1 | 12:N:18:LYS:HB2 | 2.12 | 0.48 |
| 1:A:2675:A:C5' | 12:N:29:ASN:HB3 | 2.34 | 0.48 |
| 12:N:50:GLY:O | 12:N:51:ALA:HB2 | 2.13 | 0.48 |
| 12:N:7:TYR:CA | 12:N:18:LYS:CE | 2.84 | 0.48 |
| 13:O:113:LYS:CD | 13:O:113:LYS:C | 2.79 | 0.48 |
| 13:O:29:LYS:HB3 | 13:O:29:LYS:HZ3 | 1.78 | 0.48 |
| 14:P:134:ARG:NH1 | 14:P:137:TYR:N | 2.59 | 0.48 |
| 14:P:41:TRP:CD2 | 14:P:41:TRP:N | 2.81 | 0.48 |
| 1:A:2495:G:H5' | 14:P:81:VAL:O | 2.13 | 0.48 |
| 15:Q:100:LEU:HD13 | 15:Q:101:ALA:C | 2.33 | 0.48 |
| 17:S:64:ARG:NH2 | 17:S:77:PRO:C | 2.67 | 0.48 |
| 17:S:28:VAL:CG2 | 17:S:90:GLN:HE22 | 2.24 | 0.48 |
| 17:S:92:GLY:O | 17:S:93:ARG:NH2 | 2.44 | 0.48 |
| 17:S:26:ASP:H | 17:S:94:ALA:HB1 | 1.78 | 0.48 |
| 20:V:28:SER:N | 20:V:31:GLU:OE2 | 2.46 | 0.48 |
| 20:V:33:ARG:CZ | 20:V:33:ARG:C | 2.81 | 0.48 |
| 21:W:34:ALA:HB3 | 21:W:77:LYS:HZ1 | 1.78 | 0.48 |
| 22:X:43:ASN:ND2 | 22:X:57:GLN:OE1 | 2.46 | 0.48 |
| 22:X:44:ILE:C | 22:X:46:LYS:N | 2.66 | 0.48 |
| 23:Y:130:PRO:O | 23:Y:131:ARG:C | 2.51 | 0.48 |
| 23:Y:51:ALA:O | 23:Y:54:HIS:HB2 | 2.12 | 0.48 |
| 23:Y:68:PRO:HD2 | 23:Y:90:VAL:HG12 | 1.94 | 0.48 |
| 2:B:103:U:O2 | 23:Y:72:ARG:NH2 | 2.46 | 0.48 |
| 24:Z:46:LYS:HE2 | 24:Z:77:ARG:HB2 | 1.94 | 0.48 |
| 9:K:113:ARG:HH12 | 9:K:138:ILE:HG21 | 1.78 | 0.48 |
| 9:K:138:ILE:O | 9:K:138:ILE:HG23 | 2.14 | 0.48 |
| 3:C:7:TYR:HE1 | 3:C:10:LEU:HG | 1.78 | 0.48 |
| 3:C:77:ILE:CD1 | 3:C:138:PRO:HG2 | 2.41 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:C:114:VAL:HG11 | 3:C:152:ILE:HG22 | 1.95 | 0.48 |
| 3:C:193:ILE:HG22 | 3:C:197:GLU:OE1 | 2.13 | 0.48 |
| 1:A:1582:C:N3 | 1:A:1583:A:N7 | 2.61 | 0.48 |
| 1:A:363(A):A:C2' | 1:A:363(B):G:O5' | 2.61 | 0.48 |
| 1:A:2097:C:C2' | 1:A:2098:U:C5' | 2.87 | 0.48 |
| 26:2:31:LEU:HD13 | 26:2:32:GLN:OE1 | 2.13 | 0.48 |
| 26:2:6:VAL:HG11 | 26:2:35:ARG:CZ | 2.43 | 0.48 |
| 27:3:68:ARG:HH11 | 27:3:68:ARG:CA | 2.26 | 0.48 |
| 28:4:9:LYS:O | 28:4:10:LYS:HG2 | 2.13 | 0.48 |
| 29:5:16:CYS:O | 29:5:18:ARG:N | 2.46 | 0.48 |
| 29:5:9:LEU:HD13 | 29:5:27:LYS:CD | 2.43 | 0.48 |
| 30:6:21:ARG:CB | 30:6:31:LEU:HD21 | 2.44 | 0.48 |
| 31:7:10:ALA:O | 31:7:15:LYS:HE3 | 2.13 | 0.48 |
| 1:A:1065:U:H2' | 1:A:1066:U:C4' | 2.30 | 0.48 |
| 1:A:1096:A:C8 | 1:A:1097:U:C2 | 3.01 | 0.48 |
| 1:A:1127:A:C3' | 1:A:1127:A:C8 | 2.95 | 0.48 |
| 1:A:1020:A:N1 | 1:A:1141:U:OP2 | 2.46 | 0.48 |
| 1:A:1161:C:C2' | 1:A:1162:G:H5' | 2.43 | 0.48 |
| 1:A:1180:C:P | 1:A:1180:C:H3' | 2.54 | 0.48 |
| 1:A:1225:C:OP1 | 19:U:88:ARG:NH1 | 2.46 | 0.48 |
| 1:A:1242:A:H3' | 1:A:1243:G:C8 | 2.39 | 0.48 |
| 1:A:1322:A:OP2 | 1:A:1322:A:C8 | 2.62 | 0.48 |
| 1:A:1342:A:O5' | 1:A:1342:A:C8 | 2.54 | 0.48 |
| 1:A:1359:A:H8 | 1:A:1359:A:C5' | 2.25 | 0.48 |
| 1:A:1419:A:H2' | 1:A:1420:U:O4' | 2.12 | 0.48 |
| 1:A:1473:G:N2 | 1:A:1474:C:C2 | 2.81 | 0.48 |
| 1:A:1491:G:P | 1:A:1492:G:OP2 | 2.71 | 0.48 |
| 1:A:1479:G:N2 | 1:A:1515:C:C4 | 2.81 | 0.48 |
| 1:A:1469:A:N6 | 1:A:1522:G:H22 | 2.11 | 0.48 |
| 1:A:1591:G:C4 | 1:A:1592:C:C5 | 3.01 | 0.48 |
| 1:A:1656:C:H2' | 1:A:1657:C:C6 | 2.48 | 0.48 |
| 1:A:1705:G:C5 | 1:A:1706:U:C5 | 3.02 | 0.48 |
| 1:A:1796:U:C2 | 1:A:1797:C:C5 | 3.01 | 0.48 |
| 1:A:1901:A:O2' | 1:A:1902:C:H5' | 2.13 | 0.48 |
| 1:A:1985:G:H2' | 1:A:1986:A:O5' | 2.13 | 0.48 |
| 1:A:1990:C:H2' | 1:A:1991:U:C6 | 2.48 | 0.48 |
| 1:A:2029:G:C4 | 1:A:2031:A:OP1 | 2.66 | 0.48 |
| 1:A:221:A:C8 | 1:A:266:G:C5 | 3.01 | 0.48 |
| 1:A:2274:A:N6 | 1:A:2276:G:C4 | 2.81 | 0.48 |
| 1:A:2286:A:C2 | 29:5:29:ASN:ND2 | 2.81 | 0.48 |
| 1:A:2347:C:P | 29:5:24:GLU:OE2 | 2.70 | 0.48 |
| 1:A:2447:G:C8 | 1:A:2501:C:C6 | 3.00 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:2064:C:O2' | 1:A:2450:A:N7 | 2.43 | 0.48 |
| 1:A:2606:C:H6 | 1:A:2606:C:C5' | 2.16 | 0.48 |
| 1:A:270(K):C:C4 | 1:A:270(L):U:H1' | 2.48 | 0.48 |
| 1:A:2723:C:H2' | 1:A:2724:C:H5' | 1.93 | 0.48 |
| 1:A:2831:G:OP1 | 1:A:2834:G:O2' | 2.31 | 0.48 |
| 1:A:2630:G:C4 | 1:A:2894:G:C6 | 3.01 | 0.48 |
| 1:A:330:A:H2 | 1:A:1210:A:H2' | 1.73 | 0.48 |
| 1:A:470:A:C2 | 1:A:471:A:C1' | 2.82 | 0.48 |
| 1:A:48:G:C4' | 1:A:52:A:H1' | 2.43 | 0.48 |
| 1:A:645:C:H4' | 1:A:646:A:C8 | 2.48 | 0.48 |
| 1:A:691:C:C1' | 4:D:45:ASN:HD21 | 2.26 | 0.48 |
| 1:A:721:C:C2 | 1:A:722:A:N7 | 2.81 | 0.48 |
| 1:A:807:U:H2' | 1:A:808:G:O5' | 2.12 | 0.48 |
| 1:A:916:G:O2' | 2:B:99:A:H1' | 2.13 | 0.48 |
| 1:A:936:C:C2' | 1:A:937:U:O5' | 2.60 | 0.48 |
| 1:A:943:U:H5'' | 1:A:944:G:C5 | 2.47 | 0.48 |
| 2:B:6:C:H5' | 2:B:27:C:C2' | 2.43 | 0.48 |
| 2:B:82:G:C2 | 2:B:83:G:C5 | 3.01 | 0.48 |
| 1:A:2226:C:C1' | 4:D:262:ARG:NH1 | 2.67 | 0.48 |
| 1:A:2052:G:C1' | 5:E:150:VAL:HG23 | 2.42 | 0.48 |
| 5:E:154:LYS:CE | 5:E:154:LYS:O | 2.60 | 0.48 |
| 5:E:102:VAL:HG13 | 5:E:170:LEU:O | 2.13 | 0.48 |
| 5:E:172:VAL:C | 5:E:173:VAL:HG13 | 2.34 | 0.48 |
| 6:F:160:ASN:OD1 | 6:F:160:ASN:N | 2.41 | 0.48 |
| 1:A:1258:C:H5' | 6:F:84:VAL:CG2 | 2.43 | 0.48 |
| 7:G:151:ALA:O | 7:G:152:LEU:HD23 | 2.12 | 0.48 |
| 8:H:126:PRO:O | 8:H:127:GLU:CG | 2.60 | 0.48 |
| 9:K:27:ARG:HB2 | 9:K:27:ARG:NH1 | 2.28 | 0.48 |
| 10:L:132:ARG:NH2 | 10:L:138:VAL:HG11 | 2.28 | 0.48 |
| 1:A:1066:U:O4 | 10:L:86:LYS:NZ | 2.46 | 0.48 |
| 11:M:30:ILE:O | 11:M:33:LEU:HD12 | 2.13 | 0.48 |
| 11:M:37:LYS:HB2 | 11:M:42:TRP:C | 2.33 | 0.48 |
| 11:M:44:PRO:O | 11:M:46:VAL:N | 2.45 | 0.48 |
| 11:M:23:LEU:HD11 | 11:M:62:VAL:C | 2.33 | 0.48 |
| 12:N:71:ARG:CG | 12:N:72:PRO:HD3 | 2.21 | 0.48 |
| 13:O:91:PHE:N | 13:O:125:VAL:CG1 | 2.76 | 0.48 |
| 13:O:127:ALA:HB3 | 13:O:130:PHE:HE2 | 1.78 | 0.48 |
| 14:P:8:LYS:CD | 14:P:11:LYS:NZ | 2.76 | 0.48 |
| 16:R:71:ARG:N | 16:R:104:GLY:CA | 2.76 | 0.48 |
| 16:R:30:ARG:CD | 16:R:91:PRO:CB | 2.85 | 0.48 |
| 17:S:23:ARG:NH2 | 17:S:89:VAL:HA | 2.28 | 0.48 |
| 18:T:114:LYS:CG | 18:T:115:ALA:H | 2.25 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 19:U:21:ARG:CG | 19:U:21:ARG:HH11 | 2.22 | 0.48 |
| 19:U:11:GLN:HE22 | 19:U:22:VAL:HB | 1.76 | 0.48 |
| 19:U:62:LEU:HD11 | 19:U:98:GLU:CG | 2.41 | 0.48 |
| 20:V:40:ASN:O | 20:V:41:LYS:HG3 | 2.13 | 0.48 |
| 21:W:44:GLU:HA | 21:W:49:VAL:HG22 | 1.95 | 0.48 |
| 21:W:7:VAL:HG13 | 25:1:31:ARG:NH2 | 2.28 | 0.48 |
| 22:X:16:ALA:O | 22:X:17:SER:HB3 | 2.13 | 0.48 |
| 22:X:20:TYR:N | 22:X:20:TYR:CD2 | 2.81 | 0.48 |
| 22:X:23:ARG:HH21 | 22:X:39:VAL:CG1 | 2.25 | 0.48 |
| 22:X:74:PRO:HB2 | 22:X:101:LYS:H | 1.78 | 0.48 |
| 22:X:73:ARG:HB3 | 22:X:77:PRO:O | 2.13 | 0.48 |
| 23:Y:102:LEU:HD23 | 23:Y:125:LEU:N | 2.28 | 0.48 |
| 23:Y:39:VAL:CG2 | 23:Y:44:PHE:CE2 | 2.87 | 0.48 |
| 3:C:68:LEU:CD2 | 3:C:156:ILE:O | 2.60 | 0.48 |
| 3:C:46:LYS:HD3 | 3:C:210:ARG:CB | 2.38 | 0.48 |
| 3:C:78:ALA:CB | 3:C:82:LYS:HG3 | 2.43 | 0.48 |
| 1:A:1887:C:O2' | 1:A:2190:G:O2' | 2.31 | 0.48 |
| 1:A:718:A:H5'' | 1:A:719:C:H5 | 1.73 | 0.48 |
| 24:Z:5:LYS:HG2 | 24:Z:6:GLY:H | 1.76 | 0.48 |
| 25:1:63:ARG:O | 25:1:66:ASN:ND2 | 2.46 | 0.48 |
| 27:3:65:ASP:CB | 27:3:69:LYS:HE3 | 2.39 | 0.48 |
| 1:A:1023:U:H5' | 1:A:1123:C:OP1 | 2.14 | 0.48 |
| 1:A:1024:G:H5' | 1:A:1025:G:H3' | 1.94 | 0.48 |
| 1:A:1058:G:C6 | 1:A:1081:U:N3 | 2.81 | 0.48 |
| 1:A:1114:G:C6 | 1:A:1115:G:C8 | 3.02 | 0.48 |
| 1:A:1171:G:N2 | 1:A:1179:C:N3 | 2.60 | 0.48 |
| 1:A:11:G:O2' | 1:A:12:U:H5' | 2.13 | 0.48 |
| 1:A:330:A:H4' | 1:A:1210:A:N1 | 2.29 | 0.48 |
| 1:A:1224:G:O6 | 1:A:1225:C:N3 | 2.46 | 0.48 |
| 1:A:1225:C:OP1 | 19:U:88:ARG:NH2 | 2.45 | 0.48 |
| 1:A:1360:A:H2' | 1:A:1361:G:O5' | 2.13 | 0.48 |
| 1:A:1487:G:N2 | 1:A:1503:U:C2 | 2.81 | 0.48 |
| 1:A:149:A:N7 | 1:A:150:C:C2 | 2.81 | 0.48 |
| 1:A:1591:G:N1 | 1:A:1592:C:C4 | 2.81 | 0.48 |
| 1:A:1639:U:O2' | 1:A:2699:C:H4' | 2.13 | 0.48 |
| 1:A:1699:G:C5 | 1:A:1763:G:N3 | 2.82 | 0.48 |
| 1:A:1772:G:C2 | 1:A:1980:G:C2 | 3.01 | 0.48 |
| 1:A:1789:A:P | 4:D:222:ARG:CG | 2.93 | 0.48 |
| 1:A:189:G:C2 | 1:A:205:G:N2 | 2.81 | 0.48 |
| 1:A:1944:U:O2 | 1:A:1955:U:C6 | 2.61 | 0.48 |
| 1:A:2058:A:C2 | 1:A:2059:A:N6 | 2.80 | 0.48 |
| 1:A:217:G:C6 | 1:A:218:A:C4 | 3.01 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:2349:G:C6 | 1:A:2369:A:C6 | 3.02 | 0.48 |
| 1:A:245:G:C6 | 1:A:246:C:C5 | 3.02 | 0.48 |
| 1:A:2491:U:N1 | 1:A:2492:U:H5' | 2.20 | 0.48 |
| 1:A:2513:G:C5 | 1:A:2514:U:C4 | 3.02 | 0.48 |
| 1:A:2543:G:O6 | 1:A:2544:G:N1 | 2.46 | 0.48 |
| 1:A:2557:G:H2' | 1:A:2558:C:C5 | 2.47 | 0.48 |
| 1:A:2564:A:C6 | 1:A:2565:A:N6 | 2.81 | 0.48 |
| 1:A:2584:U:C6 | 1:A:2584:U:C3' | 2.92 | 0.48 |
| 1:A:2603:G:OP2 | 24:Z:1:MET:CB | 2.60 | 0.48 |
| 1:A:2646:C:C2' | 1:A:2647:U:O5' | 2.60 | 0.48 |
| 1:A:2706:G:N1 | 1:A:2707:G:C5 | 2.81 | 0.48 |
| 1:A:2713:A:C3' | 1:A:2714:G:H5' | 2.43 | 0.48 |
| 1:A:2864:G:C2 | 1:A:2865:U:N3 | 2.82 | 0.48 |
| 1:A:294:A:C3' | 1:A:295:G:H5' | 2.41 | 0.48 |
| 1:A:295:G:H1' | 1:A:345:A:C2 | 2.49 | 0.48 |
| 1:A:416:C:C6 | 1:A:416:C:H3' | 2.48 | 0.48 |
| 1:A:433:C:C3' | 1:A:434:U:C6 | 2.96 | 0.48 |
| 1:A:46:C:OP2 | 1:A:215:G:H2' | 2.12 | 0.48 |
| 1:A:51:G:H2' | 1:A:119:A:H2 | 1.76 | 0.48 |
| 1:A:523:C:H5'' | 1:A:541:C:O2' | 2.13 | 0.48 |
| 1:A:566:U:C3' | 1:A:567:A:H8 | 2.24 | 0.48 |
| 1:A:573:G:C2' | 1:A:574:C:C5' | 2.91 | 0.48 |
| 1:A:584:C:OP2 | 18:T:10:ARG:NH2 | 2.40 | 0.48 |
| 1:A:602:G:H21 | 1:A:655:A:C2' | 2.20 | 0.48 |
| 1:A:624:C:H2' | 1:A:657:U:OP1 | 2.13 | 0.48 |
| 1:A:802:A:C5 | 1:A:803:U:C4 | 3.01 | 0.48 |
| 1:A:811:U:C3' | 1:A:811:U:C6 | 2.96 | 0.48 |
| 1:A:85:G:OP1 | 22:X:8:LYS:CE | 2.60 | 0.48 |
| 1:A:89:G:C2 | 1:A:90:U:O4 | 2.66 | 0.48 |
| 1:A:907:U:O2 | 1:A:908:C:C6 | 2.66 | 0.48 |
| 2:B:14:U:HO2' | 2:B:15:A:P | 2.36 | 0.48 |
| 4:D:64:ILE:HG23 | 4:D:104:TYR:CD2 | 2.47 | 0.48 |
| 5:E:4:ILE:CG1 | 5:E:4:ILE:O | 2.61 | 0.48 |
| 6:F:109:GLY:O | 6:F:112:MET:N | 2.46 | 0.48 |
| 6:F:8:GLN:HB3 | 6:F:18:ARG:CA | 2.43 | 0.48 |
| 7:G:105:LYS:O | 7:G:109:VAL:HG13 | 2.13 | 0.48 |
| 7:G:120:LEU:O | 7:G:121:ASN:C | 2.51 | 0.48 |
| 7:G:55:LYS:CE | 7:G:151:ALA:HB3 | 2.42 | 0.48 |
| 7:G:27:ASN:HB3 | 7:G:29:TRP:CE2 | 2.48 | 0.48 |
| 7:G:56:ALA:C | 7:G:68:PRO:HG2 | 2.34 | 0.48 |
| 8:H:163:TYR:N | 8:H:163:TYR:CD1 | 2.80 | 0.48 |
| 10:L:21:PRO:CG | 10:L:22:PRO:CD | 2.90 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:L:24:GLY:HA2 | 10:L:34:ILE:CG2 | 2.43 | 0.48 |
| 11:M:109:LYS:HG2 | 11:M:112:LEU:CA | 2.43 | 0.48 |
| 12:N:17:ARG:HG2 | 12:N:17:ARG:O | 2.14 | 0.48 |
| 12:N:7:TYR:CB | 12:N:18:LYS:CE | 2.90 | 0.48 |
| 12:N:41:ALA:O | 12:N:56:ASP:CA | 2.61 | 0.48 |
| 13:O:76:LYS:CE | 13:O:101:VAL:HG21 | 2.40 | 0.48 |
| 13:O:112:LEU:HD12 | 13:O:127:ALA:HB1 | 1.93 | 0.48 |
| 1:A:2415:G:P | 13:O:61:ARG:HH21 | 2.36 | 0.48 |
| 14:P:77:LYS:HE3 | 14:P:87:LYS:CG | 2.41 | 0.48 |
| 14:P:93:TYR:N | 14:P:93:TYR:CD1 | 2.81 | 0.48 |
| 15:Q:86:ARG:HB2 | 15:Q:86:ARG:NH1 | 2.27 | 0.48 |
| 1:A:2845:G:C5' | 17:S:57:PHE:O | 2.61 | 0.48 |
| 17:S:67:SER:CB | 17:S:75:ILE:HG23 | 2.43 | 0.48 |
| 17:S:67:SER:OG | 17:S:75:ILE:HG23 | 2.13 | 0.48 |
| 17:S:62:THR:HG23 | 17:S:79:HIS:HA | 1.93 | 0.48 |
| 18:T:106:PHE:O | 18:T:110:VAL:HG23 | 2.13 | 0.48 |
| 20:V:36:LEU:CD1 | 20:V:48:ALA:HB2 | 2.43 | 0.48 |
| 21:W:49:VAL:HG12 | 21:W:88:LYS:HB2 | 1.93 | 0.48 |
| 23:Y:140:ASP:C | 23:Y:140:ASP:OD2 | 2.51 | 0.48 |
| 23:Y:18:LEU:C | 23:Y:23:LYS:O | 2.52 | 0.48 |
| 9:K:87:LYS:HZ3 | 9:K:122:GLU:N | 2.12 | 0.48 |
| 1:A:2166:G:O5' | 1:A:2166:G:H8 | 1.96 | 0.48 |
| 3:C:28:LEU:O | 3:C:32:LEU:HG | 2.14 | 0.48 |
| 3:C:79:LYS:HG3 | 3:C:118:ASP:OD1 | 2.12 | 0.48 |
| 1:A:154:G:C2 | 1:A:155:C:C2 | 3.02 | 0.48 |
| 1:A:2246:G:O2' | 1:A:2247:A:H5' | 2.11 | 0.48 |
| 1:A:1414:G:N1 | 1:A:1415:U:C4 | 2.81 | 0.48 |
| 29:5:54:ILE:OXT | 29:5:54:ILE:HG23 | 2.13 | 0.48 |
| 26:2:52:HIS:C | 26:2:54:VAL:H | 2.15 | 0.48 |
| 1:A:2046:G:OP1 | 28:4:18:ALA:HB3 | 2.13 | 0.48 |
| 28:4:21:SER:H | 28:4:21:SER:HG | 1.33 | 0.48 |
| 31:7:52:LYS:O | 31:7:56:GLU:OE1 | 2.31 | 0.48 |
| 1:A:1006:C:H4' | 11:M:32:THR:OG1 | 2.14 | 0.48 |
| 1:A:1099:G:N3 | 1:A:1099:G:H2' | 2.27 | 0.48 |
| 1:A:1154:G:OP1 | 18:T:62:ILE:CD1 | 2.53 | 0.48 |
| 1:A:1155:A:H2' | 1:A:1156:A:C5' | 2.35 | 0.48 |
| 1:A:996:A:C6 | 1:A:1160:G:C2 | 3.01 | 0.48 |
| 1:A:1186:G:H3' | 1:A:1187:G:C8 | 2.48 | 0.48 |
| 1:A:1208:C:N4 | 1:A:1209:G:O6 | 2.46 | 0.48 |
| 1:A:1243:G:N1 | 1:A:1244:G:C5 | 2.82 | 0.48 |
| 1:A:1270:C:H1' | 1:A:1325:G:C5 | 2.48 | 0.48 |
| 1:A:1308:A:N3 | 1:A:1309:G:H1' | 2.28 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1286:A:C2 | 1:A:1329:U:C4 | 3.01 | 0.48 |
| 1:A:1511:A:C2 | 1:A:1512:G:C1' | 2.95 | 0.48 |
| 1:A:1527:G:C2' | 1:A:1528:A:N3 | 2.76 | 0.48 |
| 1:A:1543:A:H3' | 1:A:1544:C:H4' | 1.96 | 0.48 |
| 1:A:1568:G:O2' | 1:A:1569:A:OP2 | 2.23 | 0.48 |
| 1:A:1657:C:OP1 | 5:E:136:ARG:O | 2.32 | 0.48 |
| 1:A:1672:C:H2' | 1:A:1673:U:C4' | 2.43 | 0.48 |
| 1:A:1799:G:O2' | 1:A:1800:C:C4' | 2.61 | 0.48 |
| 1:A:1842:G:C4 | 1:A:1843:C:C5 | 3.01 | 0.48 |
| 1:A:1951:U:O2 | 1:A:1953:A:OP2 | 2.31 | 0.48 |
| 1:A:2072:G:H2' | 1:A:2073:C:C6 | 2.48 | 0.48 |
| 1:A:2230:G:H1' | 27:3:58:ARG:NH2 | 2.28 | 0.48 |
| 1:A:2286:A:N1 | 29:5:29:ASN:ND2 | 2.61 | 0.48 |
| 1:A:2327:A:C4 | 1:A:2328:A:N7 | 2.82 | 0.48 |
| 1:A:224:G:O6 | 1:A:232:G:N2 | 2.47 | 0.48 |
| 1:A:2360:A:H2' | 1:A:2361:A:O4' | 2.12 | 0.48 |
| 1:A:2401:U:OP2 | 1:A:2402:C:N4 | 2.47 | 0.48 |
| 1:A:2404:C:C4 | 1:A:2414:G:C2 | 3.01 | 0.48 |
| 1:A:827:U:C6 | 1:A:2430:A:C2 | 3.01 | 0.48 |
| 1:A:245:G:C5 | 1:A:246:C:C5 | 3.01 | 0.48 |
| 1:A:2543:G:C6 | 1:A:2544:G:C6 | 3.01 | 0.48 |
| 1:A:2615:U:O4' | 28:4:7:PRO:HB3 | 2.12 | 0.48 |
| 1:A:265:A:H2 | 1:A:281:G:C8 | 2.30 | 0.48 |
| 1:A:2694:G:H2' | 1:A:2695:C:C5' | 2.43 | 0.48 |
| 1:A:270(C):C:N4 | 1:A:270(D):C:N4 | 2.62 | 0.48 |
| 1:A:270(X):G:H2' | 1:A:270(Y):G:H4' | 1.95 | 0.48 |
| 1:A:1049:C:N3 | 1:A:2751:G:O6 | 2.47 | 0.48 |
| 1:A:2819:G:C3' | 1:A:2821:A:H62 | 2.27 | 0.48 |
| 1:A:285:C:H2' | 1:A:286:C:C5 | 2.47 | 0.48 |
| 1:A:351:G:C2' | 1:A:352:G:OP2 | 2.61 | 0.48 |
| 1:A:391:G:C8 | 1:A:392:C:H5 | 2.31 | 0.48 |
| 1:A:403:U:O2 | 1:A:403:U:C2' | 2.48 | 0.48 |
| 1:A:447:A:C5 | 1:A:473:G:C4 | 3.02 | 0.48 |
| 1:A:470:A:C2' | 1:A:471:A:O5' | 2.61 | 0.48 |
| 1:A:527:C:H2' | 11:M:114:ARG:CZ | 2.44 | 0.48 |
| 1:A:569:U:O4' | 1:A:946:G:O2' | 2.22 | 0.48 |
| 1:A:570:G:N1 | 1:A:2030:A:C2 | 2.81 | 0.48 |
| 1:A:677:A:C4 | 1:A:678:C:C5 | 3.01 | 0.48 |
| 1:A:72:U:O4 | 1:A:112:U:C1' | 2.54 | 0.48 |
| 1:A:918:A:H3' | 1:A:919:G:H8 | 1.77 | 0.48 |
| 1:A:922:U:HO2' | 24:Z:26:TYR:HD2 | 1.53 | 0.48 |
| 1:A:922:U:H2' | 1:A:922:U:O2 | 2.14 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:948:G:H1' | 1:A:984:A:C5 | 2.48 | 0.48 |
| 2:B:37:C:C2 | 2:B:49:C:O4' | 2.66 | 0.48 |
| 2:B:87:G:H1 | 2:B:90:C:N4 | 2.11 | 0.48 |
| 4:D:12:SER:O | 4:D:13:ARG:C | 2.52 | 0.48 |
| 1:A:1791:A:O3' | 4:D:206:LEU:HD21 | 2.13 | 0.48 |
| 4:D:6:PHE:O | 4:D:27:THR:CG2 | 2.62 | 0.48 |
| 5:E:104:VAL:HG13 | 5:E:105:THR:H | 1.77 | 0.48 |
| 5:E:196:VAL:C | 5:E:197:ILE:CD1 | 2.82 | 0.48 |
| 5:E:196:VAL:O | 5:E:197:ILE:HG13 | 2.12 | 0.48 |
| 5:E:60:ASN:O | 5:E:63:LEU:N | 2.47 | 0.48 |
| 6:F:197:ASP:O | 6:F:200:GLU:N | 2.46 | 0.48 |
| 6:F:83:PHE:O | 6:F:84:VAL:C | 2.51 | 0.48 |
| 7:G:138:GLN:NE2 | 7:G:152:LEU:HD12 | 2.24 | 0.48 |
| 1:A:2306:C:N3 | 7:G:46:ALA:HB2 | 2.28 | 0.48 |
| 8:H:103:LEU:O | 8:H:104:GLU:CB | 2.49 | 0.48 |
| 8:H:52:VAL:HG11 | 8:H:69:ARG:CB | 2.28 | 0.48 |
| 8:H:63:SER:O | 8:H:67:LEU:HD23 | 2.12 | 0.48 |
| 8:H:26:VAL:CG1 | 8:H:76:VAL:CG1 | 2.89 | 0.48 |
| 1:A:1062:G:HO2' | 10:L:134:MET:HB2 | 1.76 | 0.48 |
| 12:N:35:VAL:HG22 | 12:N:64:ARG:HD3 | 1.93 | 0.48 |
| 13:O:89:ALA:O | 13:O:125:VAL:HA | 2.14 | 0.48 |
| 13:O:23:PRO:CB | 13:O:29:LYS:N | 2.74 | 0.48 |
| 13:O:78:PRO:HD2 | 13:O:115:LEU:O | 2.14 | 0.48 |
| 14:P:41:TRP:HB2 | 14:P:94:VAL:HG21 | 1.90 | 0.48 |
| 1:A:1278:A:O3' | 15:Q:34:ILE:HG23 | 2.12 | 0.48 |
| 15:Q:44:LEU:HD12 | 15:Q:48:VAL:HG21 | 1.94 | 0.48 |
| 16:R:102:ALA:O | 16:R:103:GLU:C | 2.52 | 0.48 |
| 16:R:12:PHE:C | 16:R:12:PHE:CD1 | 2.87 | 0.48 |
| 16:R:17:ARG:O | 16:R:20:ARG:CG | 2.59 | 0.48 |
| 17:S:64:ARG:CZ | 17:S:77:PRO:HB2 | 2.43 | 0.48 |
| 1:A:446:G:N7 | 18:T:3:ARG:NH2 | 2.62 | 0.48 |
| 18:T:59:ARG:O | 18:T:62:ILE:N | 2.46 | 0.48 |
| 19:U:57:VAL:CG1 | 19:U:58:VAL:H | 2.27 | 0.48 |
| 19:U:62:LEU:HD22 | 19:U:98:GLU:CA | 2.39 | 0.48 |
| 20:V:59:VAL:HG12 | 20:V:59:VAL:O | 2.13 | 0.48 |
| 20:V:21:VAL:HG13 | 20:V:75:TYR:CD2 | 2.48 | 0.48 |
| 20:V:96:ILE:HD13 | 20:V:96:ILE:N | 2.28 | 0.48 |
| 21:W:8:ILE:HG13 | 21:W:9:LEU:CG | 2.43 | 0.48 |
| 22:X:31:LEU:HB3 | 22:X:32:PRO:HD2 | 1.91 | 0.48 |
| 22:X:32:PRO:CB | 22:X:34:LYS:HE3 | 2.43 | 0.48 |
| 22:X:86:ARG:CZ | 22:X:86:ARG:CB | 2.91 | 0.48 |
| 23:Y:102:LEU:HB2 | 23:Y:124:ILE:CA | 2.43 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:Y:105:VAL:CB | 23:Y:140:ASP:OD1 | 2.59 | 0.48 |
| 1:A:858:U:OP2 | 24:Z:44:ARG:NH2 | 2.46 | 0.48 |
| 24:Z:70:GLN:OE1 | 24:Z:80:HIS:NE2 | 2.46 | 0.48 |
| 9:K:81:VAL:HG21 | 9:K:123:LEU:CD1 | 2.43 | 0.48 |
| 1:A:2121:G:O2' | 3:C:167:LYS:HB3 | 2.13 | 0.48 |
| 3:C:103:ILE:O | 3:C:104:LEU:C | 2.50 | 0.48 |
| 3:C:123:VAL:HG12 | 3:C:127:LEU:HD12 | 1.93 | 0.48 |
| 1:A:715:G:C5 | 1:A:716:A:C6 | 3.01 | 0.48 |
| 1:A:276:A:N3 | 1:A:276:A:C2' | 2.76 | 0.48 |
| 25:1:28:MET:O | 25:1:31:ARG:HB2 | 2.13 | 0.48 |
| 25:1:37:GLY:O | 25:1:38:GLN:HB2 | 2.13 | 0.48 |
| 25:1:47:ASP:O | 25:1:48:LEU:C | 2.52 | 0.48 |
| 26:2:17:LYS:O | 26:2:18:ASP:C | 2.51 | 0.48 |
| 1:A:850:C:HO2' | 26:2:22:ALA:HB2 | 1.78 | 0.48 |
| 26:2:4:LEU:CB | 26:2:37:LEU:HD13 | 2.44 | 0.48 |
| 28:4:44:THR:N | 28:4:52:TYR:HH | 2.12 | 0.48 |
| 30:6:30:VAL:HG22 | 30:6:33:ARG:NH2 | 2.27 | 0.48 |
| 31:7:16:ILE:CA | 31:7:22:VAL:HG22 | 2.43 | 0.48 |
| 1:A:1044:G:C2 | 1:A:1111:A:H1' | 2.49 | 0.48 |
| 1:A:1048:A:N1 | 1:A:1049:C:H1' | 2.27 | 0.48 |
| 1:A:1122:G:N2 | 1:A:1123:C:C2 | 2.82 | 0.48 |
| 1:A:1182:A:C6 | 1:A:1183:G:C6 | 3.01 | 0.48 |
| 1:A:1199:U:OP2 | 1:A:1199:U:H6 | 1.96 | 0.48 |
| 1:A:118:A:OP2 | 1:A:119:A:C8 | 2.67 | 0.48 |
| 1:A:331:A:C2 | 1:A:1209:G:C6 | 3.02 | 0.48 |
| 1:A:1223:C:C5 | 1:A:1227:A:N6 | 2.81 | 0.48 |
| 1:A:126:A:N6 | 1:A:127:A:C2 | 2.81 | 0.48 |
| 1:A:146:G:H2' | 1:A:147:U:C5' | 2.41 | 0.48 |
| 1:A:1483:G:N3 | 1:A:1483:G:C2' | 2.74 | 0.48 |
| 1:A:1633:G:C5 | 1:A:1635:G:N1 | 2.82 | 0.48 |
| 1:A:1729:A:C8 | 1:A:1731:G:O6 | 2.65 | 0.48 |
| 1:A:1753:G:C3' | 1:A:1753:G:C8 | 2.96 | 0.48 |
| 1:A:1916:A:O4' | 1:A:1916:A:OP2 | 2.32 | 0.48 |
| 1:A:2013:A:OP1 | 20:V:96:ILE:HG22 | 2.13 | 0.48 |
| 1:A:2046:G:OP1 | 28:4:18:ALA:HB1 | 2.12 | 0.48 |
| 1:A:204:A:OP1 | 1:A:204:A:H8 | 1.97 | 0.48 |
| 1:A:2053:G:C2' | 1:A:2054:A:O5' | 2.61 | 0.48 |
| 1:A:2277:G:C5' | 1:A:2278:A:OP2 | 2.62 | 0.48 |
| 1:A:227:A:C2' | 1:A:228:A:OP2 | 2.61 | 0.48 |
| 1:A:2280:G:C2 | 1:A:2281:C:C5 | 3.01 | 0.48 |
| 1:A:2355:C:O3' | 24:Z:24:LYS:HD3 | 2.13 | 0.48 |
| 1:A:2408:U:C2 | 1:A:2409:G:N7 | 2.82 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2468:G:H2' | 1:A:2476:A:H2 | 1.78 | 0.48 |
| 1:A:2504:U:H2' | 1:A:2505:G:H5' | 1.95 | 0.48 |
| 1:A:1128:A:N6 | 1:A:2518:A:N6 | 2.62 | 0.48 |
| 1:A:2555:U:C5 | 1:A:2556:C:C6 | 2.86 | 0.48 |
| 1:A:2556:C:C2' | 1:A:2557:G:C5' | 2.91 | 0.48 |
| 1:A:262:A:HO2' | 1:A:263:C:P | 2.36 | 0.48 |
| 1:A:2666:C:H6 | 1:A:2667:C:O4' | 1.97 | 0.48 |
| 1:A:221:A:N9 | 1:A:266:G:N7 | 2.62 | 0.48 |
| 1:A:2793:G:H2' | 1:A:2794:C:C6 | 2.48 | 0.48 |
| 1:A:2801:A:OP1 | 1:A:2802:G:O5' | 2.32 | 0.48 |
| 1:A:2816:C:H1' | 1:A:2831:G:N2 | 2.28 | 0.48 |
| 1:A:300:A:O4' | 1:A:318:C:O2' | 2.30 | 0.48 |
| 1:A:379:G:C6 | 1:A:396:G:C6 | 3.01 | 0.48 |
| 1:A:623:G:C3' | 1:A:624:C:H5'' | 2.42 | 0.48 |
| 1:A:653:A:N6 | 1:A:655:A:C2 | 2.78 | 0.48 |
| 1:A:744:G:OP1 | 5:E:131:ALA:O | 2.31 | 0.48 |
| 1:A:846:C:C4' | 1:A:847:U:C6 | 2.92 | 0.48 |
| 1:A:848:G:H5'' | 1:A:848:G:C8 | 2.48 | 0.48 |
| 2:B:96:G:H2' | 2:B:97:G:H8 | 1.78 | 0.48 |
| 4:D:132:PRO:HB2 | 4:D:134:ARG:HD3 | 1.95 | 0.48 |
| 5:E:109:LYS:HG3 | 5:E:191:PRO:HG3 | 1.93 | 0.48 |
| 5:E:197:ILE:CB | 5:E:199:ARG:NH2 | 2.76 | 0.48 |
| 5:E:91:VAL:HG21 | 5:E:93:VAL:CG1 | 2.44 | 0.48 |
| 5:E:92:THR:HA | 5:E:95:ILE:HG21 | 1.94 | 0.48 |
| 6:F:155:LEU:CG | 6:F:174:VAL:HG21 | 2.43 | 0.48 |
| 6:F:45:ARG:HG2 | 6:F:97:TYR:CB | 2.39 | 0.48 |
| 6:F:56:GLU:C | 6:F:60:SER:OG | 2.52 | 0.48 |
| 7:G:118:ARG:CZ | 7:G:120:LEU:CD2 | 2.72 | 0.48 |
| 7:G:141:PHE:HE2 | 7:G:145:THR:HB | 1.77 | 0.48 |
| 1:A:2305:A:N3 | 7:G:156:ASP:N | 2.61 | 0.48 |
| 7:G:30:GLU:HG3 | 7:G:162:THR:HG21 | 1.95 | 0.48 |
| 7:G:169:ALA:O | 7:G:172:LEU:CB | 2.54 | 0.48 |
| 7:G:78:SER:OG | 7:G:83:ARG:HA | 2.13 | 0.48 |
| 7:G:93:THR:HG22 | 7:G:95:ARG:HH21 | 1.79 | 0.48 |
| 7:G:36:LYS:HE3 | 7:G:95:ARG:NE | 2.28 | 0.48 |
| 7:G:6:ALA:HA | 7:G:9:ARG:CZ | 2.41 | 0.48 |
| 8:H:125:VAL:HA | 8:H:131:VAL:CG2 | 2.30 | 0.48 |
| 8:H:44:VAL:CG2 | 8:H:46:GLU:HG2 | 2.44 | 0.48 |
| 8:H:51:ARG:O | 8:H:53:GLU:OE2 | 2.31 | 0.48 |
| 11:M:100:GLU:O | 11:M:101:HIS:C | 2.52 | 0.48 |
| 11:M:107:LEU:HD23 | 11:M:107:LEU:O | 2.13 | 0.48 |
| 11:M:35:ARG:HG3 | 11:M:35:ARG:H | 1.42 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 11:M:75:TYR:CD1 | 11:M:75:TYR:N | 2.81 | 0.48 |
| 11:M:75:TYR:O | 11:M:76:SER:O | 2.31 | 0.48 |
| 12:N:112:MET:O | 12:N:115:VAL:CB | 2.61 | 0.48 |
| 12:N:97:ARG:CB | 12:N:118:ALA:HB2 | 2.40 | 0.48 |
| 14:P:27:VAL:CG1 | 14:P:104:PHE:HE2 | 2.24 | 0.48 |
| 14:P:46:GLN:O | 14:P:49:ALA:N | 2.46 | 0.48 |
| 1:A:2275:C:O2' | 14:P:84:GLY:O | 2.29 | 0.48 |
| 15:Q:105:ARG:O | 15:Q:107:ASP:N | 2.47 | 0.48 |
| 15:Q:20:LEU:HD11 | 15:Q:24:GLN:OE1 | 2.12 | 0.48 |
| 18:T:19:LYS:O | 18:T:20:LEU:C | 2.52 | 0.48 |
| 1:A:581:C:H5'' | 18:T:32:PHE:CZ | 2.48 | 0.48 |
| 21:W:50:LYS:CE | 21:W:88:LYS:HG2 | 2.43 | 0.48 |
| 9:K:114:LEU:HA | 9:K:130:TYR:CA | 2.44 | 0.48 |
| 3:C:45:ALA:CB | 3:C:211:SER:O | 2.52 | 0.48 |
| 3:C:215:THR:HB | 3:C:221:SER:CB | 2.43 | 0.48 |
| 1:A:172:C:H6 | 1:A:172:C:O5' | 1.96 | 0.48 |
| 27:3:57:GLU:HB2 | 27:3:60:GLN:OE1 | 2.12 | 0.48 |
| 28:4:8:LYS:C | 28:4:9:LYS:CG | 2.79 | 0.48 |
| 29:5:6:ARG:HG2 | 29:5:10:LEU:HD21 | 1.95 | 0.48 |
| 30:6:33:ARG:O | 30:6:37:LYS:CG | 2.62 | 0.48 |
| 1:A:1033:U:H5' | 32:8:16:VAL:HG11 | 1.93 | 0.48 |
| 1:A:78:A:C2 | 1:A:109:G:C2 | 3.02 | 0.48 |
| 1:A:1131:G:OP1 | 11:M:79:PRO:CD | 2.58 | 0.48 |
| 1:A:1144:G:O2' | 1:A:1145:C:H5' | 2.13 | 0.48 |
| 1:A:1151:G:H4' | 18:T:81:HIS:CE1 | 2.48 | 0.48 |
| 1:A:1168:G:O6 | 1:A:1169:G:C6 | 2.67 | 0.48 |
| 1:A:1184:G:C8 | 1:A:1185:C:H5 | 2.32 | 0.48 |
| 1:A:1198:U:C2 | 1:A:1199:U:C4 | 3.02 | 0.48 |
| 1:A:1307:A:C2 | 1:A:1308:A:C8 | 3.01 | 0.48 |
| 1:A:1326:U:C6 | 1:A:2010:G:N2 | 2.81 | 0.48 |
| 1:A:1326:U:H6 | 1:A:1326:U:P | 2.36 | 0.48 |
| 1:A:146:G:H3' | 1:A:147:U:C5' | 2.38 | 0.48 |
| 1:A:1477:A:H3' | 1:A:1478:G:O4' | 2.13 | 0.48 |
| 1:A:1538:G:C2 | 1:A:1539:G:N3 | 2.81 | 0.48 |
| 1:A:1670:C:C5 | 1:A:1671:U:C4 | 3.01 | 0.48 |
| 1:A:1735:C:C2 | 1:A:1741:C:H5 | 2.30 | 0.48 |
| 1:A:1790:C:O2 | 1:A:1791:A:N7 | 2.46 | 0.48 |
| 1:A:1915:U:C3' | 1:A:1915:U:OP2 | 2.57 | 0.48 |
| 1:A:1949:G:C5 | 1:A:1950:G:C8 | 3.02 | 0.48 |
| 1:A:1970:A:H1' | 1:A:1972:A:O4' | 2.14 | 0.48 |
| 1:A:2085:C:C2' | 1:A:2086:U:C5' | 2.91 | 0.48 |
| 1:A:213:A:N1 | 1:A:214:G:N3 | 2.61 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:20:C:HO2' | 1:A:21:A:H5' | 1.73 | 0.48 |
| 1:A:2427:C:O2' | 1:A:2428:G:OP2 | 2.30 | 0.48 |
| 1:A:2603:G:O5' | 24:Z:1:MET:SD | 2.71 | 0.48 |
| 1:A:2663:G:C2' | 1:A:2664:G:O4' | 2.60 | 0.48 |
| 1:A:2683:C:H4' | 5:E:19:ARG:NH1 | 2.09 | 0.48 |
| 1:A:269:U:C4 | 1:A:424:G:O6 | 2.67 | 0.48 |
| 1:A:271:G:N2 | 1:A:272:G:C8 | 2.82 | 0.48 |
| 1:A:2826:A:N7 | 1:A:2827:C:H5 | 2.12 | 0.48 |
| 1:A:295:G:H1' | 1:A:345:A:H2 | 1.79 | 0.48 |
| 1:A:326:G:N2 | 1:A:337:C:H1' | 2.28 | 0.48 |
| 1:A:377:C:H2' | 1:A:378:C:H6 | 1.79 | 0.48 |
| 1:A:510:C:OP1 | 1:A:512:G:N2 | 2.44 | 0.48 |
| 1:A:559:G:H2' | 1:A:560:C:O5' | 2.14 | 0.48 |
| 1:A:574:C:O2 | 1:A:574:C:C2' | 2.61 | 0.48 |
| 1:A:606:U:OP1 | 6:F:102:PRO:HA | 2.13 | 0.48 |
| 1:A:629:G:OP1 | 1:A:649:G:O2' | 2.19 | 0.48 |
| 1:A:71:A:HO2' | 1:A:72:U:P | 2.32 | 0.48 |
| 1:A:71:A:N3 | 1:A:73:A:C5 | 2.82 | 0.48 |
| 1:A:805:G:C6 | 1:A:2068:U:OP1 | 2.67 | 0.48 |
| 1:A:809:G:C8 | 1:A:810:U:C5 | 3.02 | 0.48 |
| 1:A:92:G:O2' | 1:A:93:C:C5' | 2.60 | 0.48 |
| 2:B:30:C:C4 | 2:B:31:C:C6 | 3.02 | 0.48 |
| 2:B:32:C:C5' | 2:B:33:G:OP2 | 2.62 | 0.48 |
| 2:B:58:A:H61 | 2:B:59:A:N6 | 2.09 | 0.48 |
| 2:B:89:G:H2' | 2:B:89(A):A:C5 | 2.48 | 0.48 |
| 4:D:148:GLU:O | 4:D:149:PRO:C | 2.50 | 0.48 |
| 4:D:5:LYS:HA | 4:D:28:GLU:CB | 2.43 | 0.48 |
| 4:D:60:ARG:HA | 4:D:62:TYR:HE2 | 1.79 | 0.48 |
| 5:E:176:ILE:HD11 | 5:E:179:GLU:OE2 | 2.13 | 0.48 |
| 5:E:30:PRO:HG2 | 5:E:90:THR:O | 2.14 | 0.48 |
| 5:E:60:ASN:OD1 | 5:E:61:ARG:CD | 2.60 | 0.48 |
| 7:G:102:PHE:HE2 | 7:G:106:LEU:HD21 | 1.73 | 0.48 |
| 7:G:15:VAL:CG2 | 7:G:16:ARG:H | 2.26 | 0.48 |
| 8:H:121:ILE:HD12 | 8:H:144:VAL:HG11 | 1.95 | 0.48 |
| 8:H:74:ASN:HB2 | 8:H:138:LYS:HE2 | 1.95 | 0.48 |
| 9:K:6:LEU:H | 9:K:36:ALA:HB2 | 1.78 | 0.48 |
| 10:L:128:ALA:C | 10:L:132:ARG:NH1 | 2.67 | 0.48 |
| 11:M:11:PRO:O | 11:M:12:ARG:NE | 2.46 | 0.48 |
| 14:P:109:VAL:O | 14:P:110:THR:C | 2.51 | 0.48 |
| 14:P:74:TYR:N | 14:P:74:TYR:CD2 | 2.77 | 0.48 |
| 15:Q:105:ARG:CA | 15:Q:105:ARG:NH1 | 2.76 | 0.48 |
| 16:R:17:ARG:O | 16:R:20:ARG:CB | 2.62 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:B:8:U:OP1 | 16:R:27:SER:OG | 2.32 | 0.48 |
| 16:R:44:LYS:HB2 | 16:R:46:VAL:CG2 | 2.44 | 0.48 |
| 17:S:15:VAL:HG12 | 17:S:16:ARG:O | 2.13 | 0.48 |
| 17:S:38:ASN:ND2 | 17:S:39:ARG:HG2 | 2.29 | 0.48 |
| 17:S:65:LYS:CD | 17:S:75:ILE:HB | 2.44 | 0.48 |
| 11:M:4:TYR:CZ | 18:T:101:ARG:HB3 | 2.49 | 0.48 |
| 18:T:31:SER:OG | 18:T:35:ALA:CA | 2.62 | 0.48 |
| 18:T:112:ARG:CZ | 19:U:49:THR:HG23 | 2.44 | 0.48 |
| 21:W:50:LYS:N | 21:W:50:LYS:HD3 | 2.28 | 0.48 |
| 22:X:31:LEU:O | 22:X:32:PRO:C | 2.47 | 0.48 |
| 23:Y:144:LEU:C | 23:Y:145:GLU:HG3 | 2.33 | 0.48 |
| 24:Z:79:VAL:C | 24:Z:80:HIS:HD2 | 2.17 | 0.48 |
| 9:K:114:LEU:HD22 | 9:K:130:TYR:HB3 | 1.96 | 0.48 |
| 9:K:68:LEU:HD11 | 9:K:107:VAL:CG1 | 2.42 | 0.48 |
| 1:A:2110:G:H2' | 1:A:2120:G:C5' | 2.42 | 0.48 |
| 1:A:2154:G:N2 | 1:A:2155:G:H1' | 2.28 | 0.48 |
| 1:A:2168:G:C2 | 1:A:2170:A:H3' | 2.48 | 0.48 |
| 1:A:2117:A:N6 | 1:A:2171:A:N6 | 2.52 | 0.48 |
| 3:C:180:PHE:CZ | 3:C:184:LYS:HD3 | 2.47 | 0.48 |
| 3:C:64:LEU:CD1 | 3:C:192:PHE:HB2 | 2.44 | 0.48 |
| 1:A:1497:U:O4 | 1:A:1576:U:O3' | 2.31 | 0.48 |
| 1:A:2103:C:C2 | 1:A:2104:G:N7 | 2.81 | 0.48 |
| 2:B:25:A:H2' | 2:B:26:A:H8 | 1.77 | 0.48 |
| 2:B:25:A:C2 | 2:B:26:A:H1' | 2.47 | 0.48 |
| 1:A:273(C):C:H2' | 1:A:273(D):C:C6 | 2.48 | 0.48 |
| 25:1:63:ARG:C | 25:1:66:ASN:HB3 | 2.33 | 0.48 |
| 28:4:13:LYS:C | 28:4:17:ASP:OD1 | 2.52 | 0.48 |
| 29:5:20:ASN:CG | 29:5:43:CYS:HG | 2.11 | 0.48 |
| 31:7:50:LEU:HD23 | 31:7:51:ALA:H | 1.78 | 0.48 |
| 1:A:242:G:C5' | 31:7:62:LEU:CD1 | 2.90 | 0.48 |
| 1:A:1131:G:N2 | 1:A:1132:A:C6 | 2.82 | 0.48 |
| 1:A:1171:G:O4' | 1:A:1171:G:P | 2.70 | 0.48 |
| 1:A:1184:G:C8 | 1:A:1185:C:C5 | 3.01 | 0.48 |
| 1:A:1199:U:N3 | 1:A:1200:C:C5 | 2.82 | 0.48 |
| 1:A:1258:C:O2' | 1:A:1259:G:H5' | 2.13 | 0.48 |
| 1:A:128:C:C2 | 1:A:129:C:C5 | 3.02 | 0.48 |
| 1:A:1388:G:C2 | 1:A:1400:G:C2 | 3.01 | 0.48 |
| 1:A:1429:G:H3' | 1:A:1430:C:H6 | 1.78 | 0.48 |
| 1:A:1515:C:C3' | 1:A:1515:C:C6 | 2.97 | 0.48 |
| 1:A:1519:G:N3 | 1:A:1519:G:H2' | 2.29 | 0.48 |
| 1:A:1532:C:H2' | 1:A:1533:C:O4' | 2.13 | 0.48 |
| 1:A:1613:G:H1' | 30:6:3:ARG:CZ | 2.43 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|------------------|-------------|----------|
| 1:A:1672:C:O2' | 1:A:1673:U:OP1 | 2.27 | 0.48 |
| 1:A:1742:C:N3 | 1:A:1743:G:C8 | 2.81 | 0.48 |
| 1:A:1820:U:O2' | 1:A:1821:A:P | 2.71 | 0.48 |
| 1:A:182:A:H8 | 1:A:182:A:O5' | 1.97 | 0.48 |
| 1:A:1853:A:C4 | 1:A:1854:A:N7 | 2.81 | 0.48 |
| 1:A:1857:G:O2' | 1:A:1885:A:N6 | 2.46 | 0.48 |
| 1:A:1912:A:C2 | 1:A:1919:A:C4 | 2.98 | 0.48 |
| 1:A:2000:G:O6 | 1:A:2001:A:N6 | 2.47 | 0.48 |
| 1:A:2018:G:P | 1:A:2018:G:H3' | 2.53 | 0.48 |
| 1:A:201:C:C5 | 1:A:202:U:C6 | 3.02 | 0.48 |
| 1:A:197:A:H5'' | 1:A:2068:U:C4 | 2.49 | 0.48 |
| 1:A:2236:C:C4 | 1:A:2237:G:C4 | 3.01 | 0.48 |
| 1:A:226:G:C2 | 1:A:227:A:N3 | 2.82 | 0.48 |
| 1:A:2344:U:O2' | 1:A:2345:G:C5' | 2.62 | 0.48 |
| 1:A:2417:C:N4 | 1:A:2418:A:N6 | 2.62 | 0.48 |
| 1:A:2437:U:H2' | 1:A:2438:U:H5 | 1.76 | 0.48 |
| 1:A:2472:G:C2 | 1:A:2475:C:C2 | 3.02 | 0.48 |
| 1:A:2597:G:N9 | 4:D:242:ARG:NH2 | 2.61 | 0.48 |
| 1:A:2602:A:C3' | 1:A:2602:A:OP1 | 2.55 | 0.48 |
| 1:A:2051:A:C6 | 1:A:2614:A:C6 | 3.01 | 0.48 |
| 1:A:2616:C:C2' | 1:A:2617:C:H6 | 2.26 | 0.48 |
| 1:A:2713:A:C3' | 1:A:2714:G:C5' | 2.92 | 0.48 |
| 1:A:2749:A:O4' | 8:H:63:SER:CA | 2.62 | 0.48 |
| 1:A:2838:G:C6 | 1:A:2839:G:N7 | 2.81 | 0.48 |
| 1:A:2848:G:O2' | 1:A:2849:U:P | 2.71 | 0.48 |
| 1:A:2849:U:C6 | 1:A:2866:U:O2' | 2.64 | 0.48 |
| 1:A:299:A:H5'' | 1:A:300:A:OP2 | 2.14 | 0.48 |
| 1:A:344:G:OP1 | 1:A:345:A:OP2 | 2.31 | 0.48 |
| 1:A:356:G:H2' | 1:A:357:A:C8 | 2.49 | 0.48 |
| 1:A:390:A:O2' | 1:A:391:G:N7 | 2.46 | 0.48 |
| 1:A:393:C:C2 | 1:A:394:A:C8 | 3.02 | 0.48 |
| 1:A:476:G:O4' | 1:A:505:A:H2 | 1.97 | 0.48 |
| 1:A:604:G:H2' | 1:A:605:C:O5' | 2.13 | 0.48 |
| 1:A:64:A:N3 | 21:W:66:LEU:CD2 | 2.73 | 0.48 |
| 1:A:692:C:C4 | 1:A:771:G:N1 | 2.81 | 0.48 |
| 1:A:751:A:C6 | 1:A:789:A:N7 | 2.81 | 0.48 |
| 1:A:775:G:H4' | 1:A:777:A:C4 | 2.49 | 0.48 |
| 1:A:783:A:C8 | 1:A:784:A:H4' | 2.49 | 0.48 |
| 1:A:879:G:N2 | 1:A:880:G:N9 | 2.61 | 0.48 |
| 1:A:66:C:N4 | 1:A:89:G:C6 | 2.82 | 0.48 |
| 1:A:957:A:N7 | 1:A:959:A:C8 | 2.80 | 0.48 |
| 4:D:93:ALA:CB | 4:D:105:ILE:HG23 | 2.39 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:135:PHE:HD1 | 4:D:135:PHE:H | 1.60 | 0.48 |
| 4:D:161:THR:O | 4:D:162:SER:CB | 2.59 | 0.48 |
| 4:D:181:GLU:CB | 4:D:268:ARG:HH21 | 2.27 | 0.48 |
| 4:D:143:HIS:HD1 | 4:D:195:ALA:HA | 1.78 | 0.48 |
| 5:E:57:LYS:O | 5:E:58:ARG:NH2 | 2.46 | 0.48 |
| 1:A:1204:A:C2 | 6:F:188:ARG:O | 2.66 | 0.48 |
| 6:F:33:LEU:O | 6:F:34:TRP:C | 2.51 | 0.48 |
| 6:F:36:VAL:CG1 | 6:F:37:VAL:N | 2.75 | 0.48 |
| 8:H:107:VAL:HG21 | 8:H:152:ARG:HH21 | 1.79 | 0.48 |
| 8:H:35:VAL:HG11 | 8:H:72:ILE:CA | 2.26 | 0.48 |
| 8:H:52:VAL:CG2 | 8:H:65:HIS:HD1 | 2.27 | 0.48 |
| 11:M:76:SER:HB3 | 11:M:80:GLY:O | 2.13 | 0.48 |
| 13:O:75:ILE:HG22 | 13:O:115:LEU:HD21 | 1.95 | 0.48 |
| 13:O:74:GLU:OE1 | 13:O:101:VAL:O | 2.32 | 0.48 |
| 13:O:83:VAL:HG23 | 13:O:84:ASN:CG | 2.34 | 0.48 |
| 14:P:39:PRO:HD2 | 14:P:98:LYS:CA | 2.43 | 0.48 |
| 16:R:79:ALA:O | 16:R:82:ILE:HA | 2.13 | 0.48 |
| 18:T:58:ARG:CG | 18:T:59:ARG:N | 2.75 | 0.48 |
| 18:T:93:LYS:H | 19:U:10:LYS:CE | 2.10 | 0.48 |
| 19:U:22:VAL:CG1 | 19:U:23:GLU:N | 2.76 | 0.48 |
| 19:U:5:VAL:O | 19:U:6:LYS:CB | 2.60 | 0.48 |
| 19:U:66:ARG:O | 19:U:94:LEU:CD2 | 2.61 | 0.48 |
| 18:T:94:ASN:ND2 | 19:U:6:LYS:CE | 2.75 | 0.48 |
| 20:V:27:LYS:O | 20:V:71:VAL:N | 2.46 | 0.48 |
| 21:W:50:LYS:N | 21:W:50:LYS:CD | 2.76 | 0.48 |
| 22:X:47:LYS:NZ | 22:X:51:VAL:CG2 | 2.74 | 0.48 |
| 1:A:336:C:H4' | 22:X:67:LEU:CD2 | 2.43 | 0.48 |
| 23:Y:53:ILE:HG12 | 23:Y:58:VAL:HG22 | 1.96 | 0.48 |
| 9:K:91:SER:HA | 9:K:121:LYS:HB3 | 1.94 | 0.48 |
| 1:A:2177:C:H5'' | 3:C:213:TYR:CZ | 2.48 | 0.48 |
| 3:C:73:ARG:NH1 | 3:C:93:TYR:CE2 | 2.82 | 0.48 |
| 1:A:163:U:OP2 | 1:A:163:U:H5 | 1.96 | 0.48 |
| 1:A:2373:G:O2' | 1:A:2374:C:O5' | 2.24 | 0.48 |
| 1:A:2462:U:C4 | 1:A:2463:C:C4 | 3.02 | 0.48 |
| 3:C:187:ASP:OD2 | 3:C:187:ASP:C | 2.52 | 0.48 |
| 25:1:48:LEU:CD1 | 25:1:51:GLN:HE22 | 2.25 | 0.48 |
| 27:3:5:ILE:O | 27:3:6:HIS:CB | 2.61 | 0.48 |
| 28:4:17:ASP:C | 28:4:21:SER:OG | 2.52 | 0.48 |
| 29:5:16:CYS:SG | 29:5:19:ARG:NE | 2.85 | 0.48 |
| 30:6:43:THR:C | 30:6:45:ALA:H | 2.16 | 0.48 |
| 31:7:51:ALA:O | 31:7:54:GLU:OE2 | 2.31 | 0.48 |
| 1:A:1120:G:O2' | 1:A:1121:C:H5' | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1125:G:H4' | 32:8:4:ARG:CB | 2.37 | 0.48 |
| 1:A:1205:U:H1' | 1:A:1240:U:O4 | 2.14 | 0.48 |
| 1:A:1203:G:N1 | 1:A:1240:U:N3 | 2.50 | 0.48 |
| 1:A:1520:U:C6 | 1:A:1520:U:H3' | 2.46 | 0.48 |
| 1:A:1611:C:H2' | 1:A:1611:C:O2 | 2.14 | 0.48 |
| 1:A:1613:G:H3' | 1:A:1614:A:H5'' | 1.91 | 0.48 |
| 1:A:1685:C:H2' | 1:A:1686:C:O5' | 2.13 | 0.48 |
| 1:A:1686:C:O2 | 1:A:1686:C:H2' | 2.14 | 0.48 |
| 1:A:1697:G:C8 | 1:A:1698:A:H5'' | 2.49 | 0.48 |
| 1:A:764:A:C6 | 1:A:1789:A:C2 | 3.01 | 0.48 |
| 1:A:1794:U:H5' | 1:A:1900:A:N6 | 2.29 | 0.48 |
| 1:A:2000:G:C2 | 1:A:2001:A:C5 | 3.01 | 0.48 |
| 1:A:201:C:H2' | 1:A:202:U:C5' | 2.33 | 0.48 |
| 1:A:203:C:C6 | 1:A:204:A:N7 | 2.81 | 0.48 |
| 1:A:2236:C:H6 | 1:A:2236:C:H5'' | 1.77 | 0.48 |
| 1:A:2238:G:H2' | 1:A:2239:G:H5'' | 1.94 | 0.48 |
| 1:A:2319:G:C4' | 1:A:2320:A:OP1 | 2.51 | 0.48 |
| 1:A:2350:C:O2' | 1:A:2351:G:P | 2.71 | 0.48 |
| 1:A:2393:A:C5 | 1:A:2394:C:C6 | 3.02 | 0.48 |
| 1:A:411:G:N1 | 1:A:2407:G:C6 | 2.82 | 0.48 |
| 1:A:2422:A:C2' | 1:A:2424:C:H5 | 2.27 | 0.48 |
| 1:A:2422:A:O2' | 1:A:2424:C:C5 | 2.64 | 0.48 |
| 1:A:2431:U:C2 | 1:A:2433:A:OP2 | 2.67 | 0.48 |
| 1:A:2493:U:H5'' | 1:A:2493:U:C6 | 2.30 | 0.48 |
| 1:A:2493:U:O4 | 1:A:2494:G:C8 | 2.67 | 0.48 |
| 1:A:252:G:C2 | 1:A:253:C:C6 | 3.02 | 0.48 |
| 1:A:2604:U:C2' | 1:A:2605:U:H5' | 2.44 | 0.48 |
| 1:A:2713:A:H3' | 1:A:2714:G:H5' | 1.95 | 0.48 |
| 1:A:2764:A:N7 | 1:A:2766:G:N7 | 2.62 | 0.48 |
| 1:A:284:U:C2 | 1:A:285:C:C5 | 3.01 | 0.48 |
| 1:A:2876:G:H2' | 1:A:2876:G:N3 | 2.29 | 0.48 |
| 1:A:324:A:H2' | 1:A:325:G:O5' | 2.14 | 0.48 |
| 1:A:389:G:N3 | 1:A:389:G:H2' | 2.29 | 0.48 |
| 1:A:445:C:O3' | 18:T:3:ARG:HG2 | 2.14 | 0.48 |
| 1:A:471:A:C8 | 1:A:472:A:C8 | 3.01 | 0.48 |
| 1:A:550:G:C2' | 1:A:1220:A:C2 | 2.96 | 0.48 |
| 1:A:581:C:H5'' | 18:T:32:PHE:CE1 | 2.49 | 0.48 |
| 1:A:629:G:N2 | 1:A:635:C:C2 | 2.82 | 0.48 |
| 1:A:730:C:C2 | 1:A:731:C:C5 | 3.01 | 0.48 |
| 1:A:747:U:O2' | 1:A:748:G:P | 2.72 | 0.48 |
| 1:A:785:G:O2' | 1:A:786:C:OP1 | 2.19 | 0.48 |
| 1:A:807:U:C2' | 1:A:808:G:O5' | 2.61 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:811:U:C6 | 1:A:811:U:H3' | 2.45 | 0.48 |
| 1:A:914:C:C5 | 1:A:915:C:C6 | 3.02 | 0.48 |
| 1:A:914:C:H5 | 1:A:915:C:C6 | 2.32 | 0.48 |
| 1:A:848:G:C2 | 1:A:933:A:N3 | 2.81 | 0.48 |
| 1:A:988:A:H4' | 1:A:1155:A:C2 | 2.47 | 0.48 |
| 2:B:112:G:N3 | 2:B:112:G:C2' | 2.75 | 0.48 |
| 2:B:46:A:C5 | 2:B:47:C:C4 | 3.02 | 0.48 |
| 2:B:78:A:C2' | 2:B:79:C:H5' | 2.40 | 0.48 |
| 1:A:764:A:OP1 | 4:D:211:ARG:CD | 2.62 | 0.48 |
| 1:A:1789:A:C4' | 4:D:222:ARG:CZ | 2.86 | 0.48 |
| 1:A:2597:G:C5' | 4:D:242:ARG:NE | 2.77 | 0.48 |
| 4:D:246:PRO:HG2 | 4:D:250:TRP:CB | 2.43 | 0.48 |
| 4:D:91:ARG:NH2 | 4:D:198:ASN:HB2 | 2.28 | 0.48 |
| 5:E:118:LYS:HE2 | 5:E:118:LYS:HA | 1.94 | 0.48 |
| 5:E:142:GLY:C | 5:E:143:ASN:CG | 2.72 | 0.48 |
| 5:E:45:THR:CG2 | 5:E:79:ARG:NH1 | 2.77 | 0.48 |
| 6:F:129:PHE:CZ | 6:F:133:ASN:HA | 2.49 | 0.48 |
| 6:F:148:LEU:HB3 | 6:F:152:GLU:HG2 | 1.96 | 0.48 |
| 6:F:169:ASN:HD22 | 6:F:173:VAL:CG1 | 2.20 | 0.48 |
| 6:F:6:VAL:HG12 | 6:F:18:ARG:CZ | 2.44 | 0.48 |
| 6:F:82:ILE:H | 6:F:82:ILE:HD13 | 1.77 | 0.48 |
| 7:G:63:ILE:O | 7:G:102:PHE:CE1 | 2.66 | 0.48 |
| 7:G:121:ASN:ND2 | 7:G:124:SER:HA | 2.29 | 0.48 |
| 7:G:138:GLN:HB2 | 7:G:155:MET:HE1 | 1.96 | 0.48 |
| 7:G:152:LEU:C | 7:G:155:MET:HE3 | 2.33 | 0.48 |
| 7:G:78:SER:OG | 7:G:83:ARG:CA | 2.61 | 0.48 |
| 1:A:2309:A:N6 | 7:G:80:PHE:O | 2.44 | 0.48 |
| 8:H:116:GLU:O | 8:H:117:PRO:C | 2.52 | 0.48 |
| 8:H:127:GLU:HG3 | 8:H:130:ARG:CB | 2.43 | 0.48 |
| 8:H:133:VAL:CG2 | 8:H:134:SER:N | 2.77 | 0.48 |
| 8:H:43:VAL:CG1 | 8:H:51:ARG:O | 2.49 | 0.48 |
| 8:H:85:LYS:HB2 | 8:H:141:VAL:CG1 | 2.43 | 0.48 |
| 10:L:103:GLN:C | 10:L:106:GLU:HG3 | 2.34 | 0.48 |
| 10:L:7:VAL:HG13 | 10:L:60:TYR:CD1 | 2.49 | 0.48 |
| 11:M:53:VAL:C | 11:M:54:VAL:HG12 | 2.33 | 0.48 |
| 11:M:69:GLN:NE2 | 11:M:69:GLN:N | 2.61 | 0.48 |
| 12:N:16:ALA:HB2 | 12:N:45:GLU:C | 2.34 | 0.48 |
| 16:R:26:LEU:HD13 | 16:R:28:VAL:N | 2.25 | 0.48 |
| 16:R:70:GLY:O | 16:R:71:ARG:C | 2.52 | 0.48 |
| 16:R:89:ARG:HG3 | 16:R:90:GLY:H | 1.56 | 0.48 |
| 18:T:32:PHE:N | 18:T:35:ALA:CB | 2.77 | 0.48 |
| 18:T:9:VAL:CG1 | 18:T:13:LYS:HE2 | 2.44 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:3:ALA:CB | 19:U:44:LYS:HE3 | 2.44 | 0.48 |
| 19:U:53:GLU:O | 19:U:57:VAL:HG23 | 2.13 | 0.48 |
| 19:U:40:LEU:CG | 19:U:55:ALA:N | 2.72 | 0.48 |
| 20:V:69:LEU:HD12 | 20:V:109:GLU:O | 2.14 | 0.48 |
| 21:W:12:VAL:HG22 | 21:W:29:TRP:CE2 | 2.49 | 0.48 |
| 21:W:6:ASP:OD1 | 21:W:7:VAL:N | 2.46 | 0.48 |
| 21:W:25:LYS:HB3 | 21:W:82:GLN:HA | 1.94 | 0.48 |
| 23:Y:138:GLU:C | 23:Y:139:VAL:CG2 | 2.82 | 0.48 |
| 23:Y:6:LYS:HD3 | 23:Y:35:ARG:HH11 | 1.78 | 0.48 |
| 24:Z:35:ASN:ND2 | 24:Z:35:ASN:N | 2.61 | 0.48 |
| 9:K:87:LYS:HZ1 | 9:K:122:GLU:HG2 | 1.77 | 0.48 |
| 9:K:87:LYS:HB3 | 9:K:121:LYS:HE3 | 1.96 | 0.48 |
| 1:A:2119:A:N7 | 1:A:2170:A:N1 | 2.61 | 0.48 |
| 3:C:74:VAL:HG11 | 3:C:114:VAL:HG13 | 1.96 | 0.48 |
| 3:C:22:ILE:HG21 | 3:C:190:ARG:NH2 | 2.29 | 0.48 |
| 3:C:19:ILE:O | 3:C:19:ILE:HG22 | 2.11 | 0.48 |
| 3:C:39:GLU:O | 3:C:178:ALA:CB | 2.56 | 0.48 |
| 3:C:63:SER:O | 3:C:64:LEU:O | 2.31 | 0.48 |
| 1:A:154:G:C2 | 1:A:155:C:N3 | 2.81 | 0.48 |
| 1:A:738:G:C2 | 1:A:759:G:C6 | 3.01 | 0.48 |
| 26:2:12:PRO:HA | 26:2:15:TYR:CD2 | 2.49 | 0.48 |
| 27:3:10:VAL:HG12 | 27:3:40:HIS:CD2 | 2.49 | 0.48 |
| 27:3:47:GLN:CD | 27:3:50:VAL:H | 2.17 | 0.48 |
| 28:4:40:LYS:HG2 | 28:4:41:PRO:CG | 2.43 | 0.48 |
| 1:A:1029:A:O5' | 1:A:1029:A:C8 | 2.55 | 0.48 |
| 1:A:1062:G:H22 | 1:A:1063:G:H1' | 1.79 | 0.48 |
| 1:A:1169:G:H2' | 1:A:1170:G:O4' | 2.14 | 0.48 |
| 1:A:1199:U:OP2 | 1:A:1199:U:C6 | 2.66 | 0.48 |
| 1:A:1210:A:H4' | 1:A:1211:U:H5'' | 1.94 | 0.48 |
| 1:A:1242:A:H5' | 1:A:1243:G:OP2 | 2.14 | 0.48 |
| 1:A:1270:C:O2 | 1:A:1325:G:C8 | 2.66 | 0.48 |
| 1:A:141(A):C:C2' | 1:A:142:G:C5' | 2.90 | 0.48 |
| 1:A:149:A:N6 | 1:A:151:C:N4 | 2.62 | 0.48 |
| 1:A:1539:G:H2' | 1:A:1540:G:O5' | 2.14 | 0.48 |
| 1:A:1558:A:C2 | 1:A:1560:G:C1' | 2.97 | 0.48 |
| 1:A:1614:A:P | 1:A:1617:C:H42 | 2.37 | 0.48 |
| 1:A:1626:G:C5' | 1:A:1627:G:P | 3.02 | 0.48 |
| 1:A:1679:U:O2 | 1:A:1989:G:N2 | 2.47 | 0.48 |
| 1:A:1796:U:H2' | 1:A:1797:C:C5 | 2.47 | 0.48 |
| 1:A:1919:A:C2 | 1:A:1920:C:N1 | 2.82 | 0.48 |
| 1:A:1927:A:C5 | 1:A:1928:A:N1 | 2.82 | 0.48 |
| 1:A:1934:C:O2' | 1:A:1935:G:C5' | 2.60 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1958:C:C2' | 1:A:1959:G:O5' | 2.62 | 0.48 |
| 1:A:189:G:N3 | 1:A:205:G:N2 | 2.61 | 0.48 |
| 1:A:2063:C:C2' | 1:A:2064:C:H5'' | 2.44 | 0.48 |
| 1:A:2349:G:N3 | 1:A:2369:A:C2 | 2.82 | 0.48 |
| 1:A:2348:U:O4 | 1:A:2382:G:C2 | 2.67 | 0.48 |
| 1:A:242:G:H8 | 31:7:4:MET:CE | 2.26 | 0.48 |
| 1:A:1953:A:H62 | 1:A:2550:G:H4' | 1.78 | 0.48 |
| 1:A:2572:A:N6 | 5:E:145:LYS:HG2 | 2.29 | 0.48 |
| 1:A:257:A:H2' | 1:A:258:G:O4' | 2.14 | 0.48 |
| 1:A:2617:C:C4 | 1:A:2618:G:C8 | 3.02 | 0.48 |
| 1:A:2665:A:H2' | 1:A:2666:C:O4' | 2.14 | 0.48 |
| 1:A:282:A:OP1 | 1:A:283:A:OP2 | 2.31 | 0.48 |
| 1:A:2845:G:HO2' | 1:A:2846:G:P | 2.35 | 0.48 |
| 1:A:383:U:H2' | 1:A:385:C:N4 | 2.28 | 0.48 |
| 1:A:408:G:N3 | 1:A:409:C:C6 | 2.82 | 0.48 |
| 1:A:459:U:O2' | 1:A:460:A:C5' | 2.62 | 0.48 |
| 1:A:684:G:N2 | 1:A:794:G:N1 | 2.62 | 0.48 |
| 1:A:709:U:H2' | 1:A:710:G:O4' | 2.14 | 0.48 |
| 1:A:730:C:H2' | 1:A:731:C:H5' | 1.96 | 0.48 |
| 1:A:800:A:O2' | 1:A:801:G:O5' | 2.32 | 0.48 |
| 1:A:89:G:P | 1:A:90:U:H5' | 2.54 | 0.48 |
| 1:A:919:G:C2 | 1:A:920:G:C4 | 3.01 | 0.48 |
| 1:A:959:A:H2' | 1:A:960:A:H8 | 1.79 | 0.48 |
| 1:A:977:G:N2 | 1:A:978:G:H1' | 2.29 | 0.48 |
| 2:B:65:C:C2' | 2:B:66:A:H5' | 2.42 | 0.48 |
| 2:B:75:G:N2 | 23:Y:85:HIS:ND1 | 2.61 | 0.48 |
| 2:B:82:G:H2' | 2:B:83:G:C8 | 2.49 | 0.48 |
| 4:D:118:VAL:O | 4:D:129:ASN:CA | 2.61 | 0.48 |
| 1:A:1813:G:HO2' | 4:D:46:GLN:HG2 | 1.71 | 0.48 |
| 5:E:105:THR:HG21 | 5:E:166:THR:HB | 1.96 | 0.48 |
| 5:E:36:ARG:O | 5:E:44:TYR:CA | 2.46 | 0.48 |
| 6:F:11:VAL:CG1 | 6:F:127:GLU:HB2 | 2.43 | 0.48 |
| 6:F:128:ALA:CB | 6:F:142:TRP:CZ2 | 2.94 | 0.48 |
| 6:F:161:GLU:O | 6:F:165:ARG:CG | 2.61 | 0.48 |
| 6:F:62:ARG:C | 6:F:63:LYS:HG2 | 2.30 | 0.48 |
| 6:F:64:ILE:HD13 | 6:F:64:ILE:N | 2.28 | 0.48 |
| 6:F:78:ILE:HD13 | 6:F:79:GLY:CA | 2.44 | 0.48 |
| 7:G:110:ALA:HB2 | 7:G:139:LEU:CD1 | 2.41 | 0.48 |
| 7:G:16:ARG:O | 7:G:20:ILE:HB | 2.13 | 0.48 |
| 8:H:74:ASN:O | 8:H:76:VAL:N | 2.47 | 0.48 |
| 8:H:35:VAL:HG21 | 8:H:75:ALA:CB | 2.44 | 0.48 |
| 9:K:31:LEU:O | 9:K:32:PRO:C | 2.47 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:L:105:LEU:CG | 10:L:124:ALA:HB2 | 2.44 | 0.48 |
| 10:L:101:TRP:CZ3 | 10:L:105:LEU:HG | 2.37 | 0.48 |
| 10:L:131:ALA:O | 10:L:136:VAL:HB | 2.13 | 0.48 |
| 11:M:18:ALA:O | 11:M:21:LYS:HB2 | 2.13 | 0.48 |
| 13:O:85:LEU:CD1 | 13:O:86:LYS:HE2 | 2.42 | 0.48 |
| 14:P:120:ILE:C | 14:P:122:GLY:N | 2.65 | 0.48 |
| 15:Q:3:HIS:O | 15:Q:4:LEU:CG | 2.44 | 0.48 |
| 16:R:10:ARG:HH22 | 16:R:91:PRO:CA | 2.27 | 0.48 |
| 16:R:30:ARG:O | 16:R:34:HIS:HB3 | 2.14 | 0.48 |
| 16:R:40:ILE:CG2 | 16:R:41:ASP:N | 2.75 | 0.48 |
| 18:T:31:SER:OG | 18:T:35:ALA:HA | 2.14 | 0.48 |
| 18:T:31:SER:C | 18:T:35:ALA:HB2 | 2.35 | 0.48 |
| 1:A:1152:C:O3' | 18:T:80:ILE:HD12 | 2.14 | 0.48 |
| 18:T:91:ASP:CG | 19:U:10:LYS:HD3 | 2.28 | 0.48 |
| 20:V:48:ALA:O | 20:V:51:LEU:HB2 | 2.13 | 0.48 |
| 20:V:27:LYS:O | 20:V:70:TYR:CB | 2.58 | 0.48 |
| 21:W:85:PRO:HG2 | 21:W:87:GLN:HG2 | 1.95 | 0.48 |
| 21:W:90:GLU:O | 21:W:93:GLU:CG | 2.62 | 0.48 |
| 22:X:12:THR:CA | 22:X:73:ARG:NH1 | 2.76 | 0.48 |
| 23:Y:151:HIS:C | 23:Y:153:SER:H | 2.18 | 0.48 |
| 23:Y:48:PHE:C | 23:Y:54:HIS:CE1 | 2.87 | 0.48 |
| 23:Y:60:GLU:CD | 23:Y:67:LEU:O | 2.52 | 0.48 |
| 9:K:66:GLU:CA | 9:K:69:LYS:HG3 | 2.44 | 0.48 |
| 1:A:2133:G:N7 | 1:A:2157:G:H8 | 2.12 | 0.48 |
| 1:A:2163:C:OP1 | 1:A:2172:U:C6 | 2.67 | 0.48 |
| 1:A:2164:C:H2' | 1:A:2165:G:C1' | 2.44 | 0.48 |
| 3:C:77:ILE:HD12 | 3:C:115:ALA:HB2 | 1.96 | 0.48 |
| 3:C:134:ARG:CD | 3:C:136:LEU:HD21 | 2.40 | 0.48 |
| 3:C:23:ASP:OD2 | 3:C:186:ALA:HB1 | 2.13 | 0.48 |
| 3:C:29:VAL:O | 3:C:32:LEU:HB2 | 2.13 | 0.48 |
| 1:A:2104:G:N2 | 1:A:2105:C:O2 | 2.47 | 0.48 |
| 1:A:273(F):C:O2' | 1:A:363(A):A:N1 | 2.45 | 0.48 |
| 5:E:206:LYS:HZ2 | 5:E:206:LYS:HB3 | 1.79 | 0.48 |
| 22:X:26:LYS:NZ | 22:X:36:ALA:HB1 | 2.28 | 0.48 |
| 25:1:36:ILE:CD1 | 25:1:37:GLY:H | 2.24 | 0.48 |
| 26:2:29:ARG:CB | 26:2:30:ARG:NH1 | 2.68 | 0.48 |
| 26:2:6:VAL:CG2 | 26:2:56:VAL:HG23 | 2.43 | 0.48 |
| 27:3:53:GLU:OE1 | 27:3:54:GLY:N | 2.47 | 0.48 |
| 27:3:62:ARG:O | 27:3:65:ASP:OD1 | 2.32 | 0.48 |
| 29:5:19:ARG:HD3 | 29:5:19:ARG:C | 2.33 | 0.48 |
| 30:6:11:LYS:HE3 | 30:6:15:THR:CG2 | 2.43 | 0.48 |
| 1:A:459:U:OP2 | 30:6:40:TRP:CG | 2.67 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1138:G:N2 | 1:A:1139:G:C1' | 2.77 | 0.48 |
| 1:A:1218:C:O2' | 1:A:1219:G:H5' | 2.14 | 0.48 |
| 1:A:1313:U:C2 | 1:A:1314:C:C5 | 3.02 | 0.48 |
| 1:A:1392:A:C6 | 1:A:1393:A:C6 | 3.01 | 0.48 |
| 1:A:1451:C:H2' | 1:A:1451:C:O2 | 2.14 | 0.48 |
| 1:A:1487:G:H2' | 1:A:1488:G:C8 | 2.40 | 0.48 |
| 1:A:1499:C:H3' | 1:A:1500:G:C8 | 2.49 | 0.48 |
| 1:A:1510:A:C3' | 1:A:1511:A:H8 | 2.20 | 0.48 |
| 1:A:1545(A):A:C2' | 1:A:1546:C:H5' | 2.43 | 0.48 |
| 1:A:1571:A:H2 | 1:A:1572:A:C8 | 2.31 | 0.48 |
| 1:A:1662:C:N3 | 1:A:1663:C:N4 | 2.61 | 0.48 |
| 1:A:1668:A:C5 | 1:A:1674:G:C2 | 3.01 | 0.48 |
| 1:A:1775:U:H2' | 1:A:1776:G:C8 | 2.48 | 0.48 |
| 1:A:1779:U:HO2' | 1:A:1783:A:H62 | 1.54 | 0.48 |
| 1:A:1815:A:C1' | 1:A:1817:G:H1' | 2.42 | 0.48 |
| 1:A:1906:G:H2' | 1:A:1907:G:H8 | 1.79 | 0.48 |
| 1:A:1955:U:O3' | 1:A:1956:U:H5 | 1.96 | 0.48 |
| 1:A:1900:A:H2 | 1:A:1970:A:C6 | 2.32 | 0.48 |
| 1:A:2023:G:N1 | 1:A:2041:U:C4 | 2.82 | 0.48 |
| 1:A:2226:C:N4 | 1:A:2227:A:C2 | 2.82 | 0.48 |
| 1:A:2307:G:N7 | 1:A:2308:G:N2 | 2.62 | 0.48 |
| 1:A:2309:A:N3 | 1:A:2309:A:C2' | 2.75 | 0.48 |
| 1:A:2521:C:H2' | 1:A:2522:U:H5' | 1.83 | 0.48 |
| 1:A:2528:U:P | 32:8:30:PRO:HB2 | 2.53 | 0.48 |
| 1:A:2591:C:H2' | 1:A:2592:G:H8 | 1.73 | 0.48 |
| 1:A:2627:G:N2 | 1:A:2628:C:N1 | 2.62 | 0.48 |
| 1:A:2684:U:O2' | 12:N:67:LYS:HD2 | 2.14 | 0.48 |
| 1:A:270(E):G:H8 | 1:A:270(E):G:OP2 | 1.97 | 0.48 |
| 1:A:270(V):G:C5 | 1:A:270(W):G:N7 | 2.82 | 0.48 |
| 1:A:2779:U:H4' | 1:A:2781:A:OP1 | 2.14 | 0.48 |
| 1:A:2819:G:H3' | 1:A:2821:A:H62 | 1.77 | 0.48 |
| 1:A:2845:G:OP1 | 17:S:57:PHE:O | 2.31 | 0.48 |
| 1:A:52:A:C5 | 1:A:53:A:N7 | 2.82 | 0.48 |
| 1:A:667:U:C4 | 1:A:668:G:N7 | 2.82 | 0.48 |
| 1:A:728:G:N2 | 1:A:763:G:OP1 | 2.47 | 0.48 |
| 1:A:728:G:O2' | 1:A:729:G:C5' | 2.61 | 0.48 |
| 1:A:868:U:C4 | 1:A:869:G:N7 | 2.82 | 0.48 |
| 1:A:874:G:C2 | 1:A:875:G:C8 | 3.01 | 0.48 |
| 1:A:988:A:C2 | 1:A:989:G:N2 | 2.81 | 0.48 |
| 2:B:100:G:C6 | 2:B:101:A:N6 | 2.82 | 0.48 |
| 2:B:60:C:O2 | 2:B:61:G:C8 | 2.67 | 0.48 |
| 4:D:149:PRO:HD3 | 4:D:189:CYS:SG | 2.54 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 4:D:206:LEU:HD23 | 4:D:207:GLY:N | 2.14 | 0.48 |
| 4:D:208:LYS:HZ2 | 4:D:211:ARG:NE | 2.04 | 0.48 |
| 4:D:53:PHE:HD1 | 4:D:53:PHE:N | 2.06 | 0.48 |
| 5:E:105:THR:O | 5:E:197:ILE:HD12 | 2.13 | 0.48 |
| 5:E:119:ARG:HH11 | 5:E:120:TRP:HB3 | 1.77 | 0.48 |
| 5:E:13:ARG:C | 5:E:13:ARG:HD2 | 2.33 | 0.48 |
| 5:E:158:GLY:O | 5:E:160:TYR:HD1 | 1.96 | 0.48 |
| 5:E:187:ALA:C | 5:E:189:PRO:CD | 2.81 | 0.48 |
| 5:E:48:GLN:N | 5:E:48:GLN:OE1 | 2.47 | 0.48 |
| 6:F:144:LYS:HE3 | 6:F:144:LYS:HB2 | 1.62 | 0.48 |
| 6:F:200:GLU:OE2 | 6:F:201:VAL:HG23 | 2.13 | 0.48 |
| 6:F:56:GLU:C | 6:F:58:ALA:H | 2.14 | 0.48 |
| 7:G:131:TYR:CD2 | 7:G:132:ASN:N | 2.71 | 0.48 |
| 7:G:141:PHE:CD2 | 7:G:145:THR:HA | 2.49 | 0.48 |
| 8:H:149:ARG:CZ | 8:H:164:TYR:HB3 | 2.44 | 0.48 |
| 8:H:152:ARG:NH2 | 8:H:152:ARG:CG | 2.69 | 0.48 |
| 11:M:123:TYR:HB2 | 11:M:129:PRO:HB2 | 1.95 | 0.48 |
| 11:M:135:PRO:O | 11:M:136:GLU:O | 2.32 | 0.48 |
| 11:M:87:LEU:HA | 11:M:90:MET:CB | 2.42 | 0.48 |
| 12:N:107:ARG:O | 12:N:108:GLU:C | 2.49 | 0.48 |
| 12:N:18:LYS:N | 12:N:45:GLU:OE2 | 2.46 | 0.48 |
| 13:O:123:LEU:CD2 | 13:O:134:ALA:CA | 2.91 | 0.48 |
| 14:P:54:MET:HE1 | 14:P:118:LEU:CD2 | 2.43 | 0.48 |
| 14:P:54:MET:HA | 14:P:117:ALA:HB1 | 1.96 | 0.48 |
| 14:P:98:LYS:H | 14:P:99:PRO:CD | 2.27 | 0.48 |
| 15:Q:11:ASN:CG | 15:Q:12:ARG:H | 2.16 | 0.48 |
| 15:Q:28:LEU:HA | 15:Q:34:ILE:HG13 | 1.96 | 0.48 |
| 16:R:10:ARG:NH2 | 16:R:89:ARG:HH22 | 2.11 | 0.48 |
| 18:T:46:ALA:HA | 18:T:49:HIS:HD2 | 1.77 | 0.48 |
| 18:T:65:ILE:CD1 | 18:T:95:LEU:HB2 | 2.44 | 0.48 |
| 1:A:1249:U:H1' | 18:T:6:THR:HG23 | 1.95 | 0.48 |
| 19:U:35:LEU:O | 19:U:61:VAL:CG1 | 2.53 | 0.48 |
| 19:U:3:ALA:CB | 19:U:44:LYS:CE | 2.91 | 0.48 |
| 19:U:43:GLU:CB | 19:U:48:GLY:HA2 | 2.33 | 0.48 |
| 19:U:4:ILE:N | 19:U:44:LYS:HZ2 | 2.12 | 0.48 |
| 20:V:2:GLU:HG2 | 20:V:72:LYS:HZ3 | 1.79 | 0.48 |
| 21:W:17:ALA:HB1 | 21:W:21:PHE:CE2 | 2.49 | 0.48 |
| 21:W:60:ARG:HA | 21:W:75:ASP:OD1 | 2.14 | 0.48 |
| 1:A:338:G:N7 | 22:X:4:LYS:HG2 | 2.29 | 0.48 |
| 23:Y:151:HIS:C | 23:Y:153:SER:N | 2.67 | 0.48 |
| 23:Y:60:GLU:H | 23:Y:60:GLU:CD | 2.16 | 0.48 |
| 1:A:2277:G:C3' | 24:Z:12:ASN:HD21 | 2.22 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2353:G:C4' | 24:Z:32:ARG:HH22 | 2.26 | 0.48 |
| 24:Z:82:ARG:CZ | 24:Z:83:PRO:O | 2.62 | 0.48 |
| 3:C:200:LYS:HZ1 | 3:C:204:ALA:HB3 | 1.79 | 0.48 |
| 3:C:22:ILE:HD13 | 3:C:190:ARG:HH11 | 1.77 | 0.48 |
| 1:A:1497:U:O4 | 1:A:1577:C:C4' | 2.61 | 0.48 |
| 1:A:712:G:C4 | 1:A:713:G:C8 | 3.02 | 0.48 |
| 1:A:363(D):G:C2 | 1:A:363(E):U:C1' | 2.97 | 0.48 |
| 3:C:71:GLN:CD | 3:C:72:VAL:H | 2.18 | 0.48 |
| 26:2:4:LEU:HB3 | 26:2:37:LEU:CD1 | 2.43 | 0.47 |
| 27:3:31:ILE:N | 27:3:31:ILE:CD1 | 2.65 | 0.47 |
| 28:4:30:LEU:HD13 | 28:4:39:MET:SD | 2.54 | 0.47 |
| 29:5:8:LYS:HG2 | 29:5:29:ASN:HA | 1.96 | 0.47 |
| 29:5:30:THR:HG22 | 29:5:31:PRO:HD3 | 1.95 | 0.47 |
| 30:6:42:LEU:CA | 30:6:44:PRO:HD2 | 2.43 | 0.47 |
| 30:6:48:LYS:O | 30:6:49:ARG:CB | 2.62 | 0.47 |
| 1:A:2349:G:H8 | 31:7:42:ARG:NH2 | 2.12 | 0.47 |
| 1:A:1069:A:C8 | 1:A:1074:G:C6 | 3.01 | 0.47 |
| 1:A:1077:A:C8 | 1:A:1078:U:C4 | 3.02 | 0.47 |
| 1:A:1222:C:O2' | 1:A:1223:C:H5' | 2.14 | 0.47 |
| 1:A:1242:A:OP1 | 1:A:1242:A:C8 | 2.67 | 0.47 |
| 1:A:1249:U:O2 | 1:A:1250:G:H1' | 2.14 | 0.47 |
| 1:A:1313:U:P | 1:A:1313:U:C6 | 3.07 | 0.47 |
| 1:A:1353:A:C2' | 1:A:1354:A:O4' | 2.62 | 0.47 |
| 1:A:1365:A:C5 | 1:A:1366:A:N7 | 2.82 | 0.47 |
| 1:A:137(A):G:N2 | 1:A:142:G:C2 | 2.82 | 0.47 |
| 1:A:1448:G:O6 | 1:A:1464:C:N4 | 2.47 | 0.47 |
| 1:A:1468:C:H2' | 1:A:1469:A:H8 | 1.76 | 0.47 |
| 1:A:1472:A:C8 | 1:A:1474:C:C5 | 3.02 | 0.47 |
| 1:A:1491:G:C2 | 1:A:1492:G:O2' | 2.64 | 0.47 |
| 1:A:1559:G:C8 | 1:A:1559:G:C5' | 2.95 | 0.47 |
| 1:A:1565:C:C4 | 1:A:1567:A:C8 | 3.02 | 0.47 |
| 1:A:1655:A:H4' | 5:E:113:PHE:O | 2.14 | 0.47 |
| 1:A:1663:C:C2' | 1:A:1664:A:O4' | 2.61 | 0.47 |
| 1:A:1707:G:N2 | 1:A:1708:C:C2 | 2.82 | 0.47 |
| 1:A:1754:C:N4 | 1:A:1755:A:N6 | 2.62 | 0.47 |
| 1:A:149:A:N6 | 1:A:176:G:H1 | 2.09 | 0.47 |
| 1:A:1826:G:C5 | 1:A:1827:C:C5 | 3.02 | 0.47 |
| 1:A:1897:G:C2 | 1:A:1898:U:H1' | 2.49 | 0.47 |
| 1:A:1918:A:C8 | 1:A:1918:A:H3' | 2.49 | 0.47 |
| 1:A:1935:G:N9 | 1:A:1962:C:N4 | 2.62 | 0.47 |
| 1:A:2016:U:H2' | 1:A:2017:U:C6 | 2.48 | 0.47 |
| 1:A:529:A:N6 | 1:A:2023:G:N9 | 2.62 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:46:C:C6 | 1:A:215:G:C8 | 3.02 | 0.47 |
| 1:A:2226:C:N3 | 1:A:2227:A:N3 | 2.62 | 0.47 |
| 1:A:2250:G:N7 | 14:P:83:MET:HE3 | 2.29 | 0.47 |
| 1:A:2259:G:H2' | 1:A:2260:C:C6 | 2.49 | 0.47 |
| 1:A:2387:U:H1' | 24:Z:41:ARG:NH2 | 2.28 | 0.47 |
| 1:A:2422:A:H2' | 1:A:2424:C:H5 | 1.79 | 0.47 |
| 1:A:2481:G:O2' | 1:A:2482:G:H5' | 2.14 | 0.47 |
| 1:A:2529:G:OP2 | 1:A:2530:A:H8 | 1.97 | 0.47 |
| 1:A:2550:G:H2' | 1:A:2551:C:C6 | 2.49 | 0.47 |
| 1:A:2653:U:C2 | 1:A:2654:A:N7 | 2.82 | 0.47 |
| 1:A:2657:A:N7 | 1:A:2658:C:C5 | 2.81 | 0.47 |
| 1:A:2815:C:C2 | 1:A:2816:C:C5 | 3.02 | 0.47 |
| 1:A:2850:A:C4 | 1:A:2869:G:H4' | 2.49 | 0.47 |
| 1:A:2834:G:N2 | 1:A:2883:A:N7 | 2.62 | 0.47 |
| 1:A:337:C:H3' | 1:A:338:G:C5' | 2.44 | 0.47 |
| 1:A:342:G:C4 | 1:A:343:C:C6 | 3.02 | 0.47 |
| 1:A:427:U:O2' | 1:A:428:A:H4' | 2.14 | 0.47 |
| 1:A:457:A:OP2 | 21:W:69:TYR:OH | 2.16 | 0.47 |
| 1:A:558:G:OP1 | 11:M:112:LEU:CG | 2.61 | 0.47 |
| 1:A:611:C:N4 | 1:A:612:G:N2 | 2.62 | 0.47 |
| 1:A:653:A:N7 | 1:A:655:A:C1' | 2.77 | 0.47 |
| 1:A:672:C:N3 | 1:A:809:G:C2 | 2.82 | 0.47 |
| 1:A:729:G:N9 | 1:A:730:C:H1' | 2.27 | 0.47 |
| 1:A:765:G:C5 | 1:A:766:C:C5 | 3.02 | 0.47 |
| 1:A:822:U:O2 | 1:A:823:G:C8 | 2.66 | 0.47 |
| 1:A:863:A:H2' | 1:A:864:G:C8 | 2.49 | 0.47 |
| 1:A:996:A:N6 | 1:A:1160:G:N1 | 2.62 | 0.47 |
| 2:B:100:G:C4 | 2:B:101:A:N7 | 2.82 | 0.47 |
| 4:D:119:ALA:HB2 | 4:D:130:ALA:N | 2.28 | 0.47 |
| 4:D:159:ALA:CB | 4:D:198:ASN:HB3 | 2.44 | 0.47 |
| 4:D:269:PHE:O | 4:D:270:ILE:HG13 | 2.14 | 0.47 |
| 4:D:7:LYS:HG3 | 4:D:25:THR:HB | 1.96 | 0.47 |
| 5:E:117:MET:HG2 | 5:E:136:ARG:CZ | 2.44 | 0.47 |
| 5:E:22:PRO:HB2 | 5:E:185:LYS:H | 1.79 | 0.47 |
| 6:F:39:TRP:CD2 | 6:F:101:LEU:HB3 | 2.49 | 0.47 |
| 6:F:158:THR:C | 6:F:177:ALA:O | 2.51 | 0.47 |
| 8:H:69:ARG:HH21 | 8:H:70:THR:N | 2.12 | 0.47 |
| 9:K:9:LEU:HB3 | 9:K:13:GLY:HA3 | 1.95 | 0.47 |
| 9:K:5:LEU:HB3 | 9:K:8:PRO:HG2 | 1.95 | 0.47 |
| 10:L:14:ALA:HB2 | 10:L:53:VAL:HG11 | 1.95 | 0.47 |
| 11:M:63:THR:HG1 | 11:M:65:LYS:HD3 | 1.77 | 0.47 |
| 12:N:31:LYS:CB | 12:N:32:TYR:CE2 | 2.96 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 13:O:65:ARG:NH2 | 13:O:65:ARG:C | 2.67 | 0.47 |
| 14:P:64:ILE:C | 14:P:106:VAL:HG12 | 2.35 | 0.47 |
| 14:P:75:THR:HB | 14:P:77:LYS:CD | 2.43 | 0.47 |
| 15:Q:32:GLY:O | 15:Q:115:GLU:CB | 2.54 | 0.47 |
| 16:R:13:ARG:HH22 | 16:R:92:TYR:H | 1.61 | 0.47 |
| 16:R:30:ARG:CA | 16:R:34:HIS:HD2 | 2.27 | 0.47 |
| 16:R:68:GLN:O | 16:R:71:ARG:HD3 | 2.14 | 0.47 |
| 16:R:7:TYR:O | 16:R:11:LYS:HG3 | 2.12 | 0.47 |
| 16:R:94:TYR:C | 16:R:99:LYS:CB | 2.82 | 0.47 |
| 17:S:109:GLU:O | 17:S:110:ILE:CD1 | 2.58 | 0.47 |
| 17:S:68:TYR:CE1 | 17:S:69:GLY:O | 2.67 | 0.47 |
| 17:S:83:ILE:O | 17:S:84:GLN:C | 2.50 | 0.47 |
| 19:U:5:VAL:O | 19:U:6:LYS:HB2 | 2.14 | 0.47 |
| 19:U:23:GLU:N | 19:U:93:GLU:HB3 | 2.29 | 0.47 |
| 20:V:19:LEU:O | 28:4:25:LEU:HD21 | 2.14 | 0.47 |
| 20:V:76:VAL:HG13 | 20:V:77:ASP:N | 2.28 | 0.47 |
| 22:X:2:ARG:NH2 | 22:X:4:LYS:CB | 2.68 | 0.47 |
| 23:Y:15:PRO:HG3 | 23:Y:38:TYR:CZ | 2.48 | 0.47 |
| 23:Y:2:GLU:OE2 | 23:Y:58:VAL:CB | 2.62 | 0.47 |
| 24:Z:62:LEU:HD22 | 24:Z:63:VAL:HG13 | 1.95 | 0.47 |
| 9:K:109:ILE:HG21 | 9:K:113:ARG:NH2 | 2.29 | 0.47 |
| 9:K:76:THR:N | 9:K:141:LYS:HE2 | 2.28 | 0.47 |
| 9:K:81:VAL:O | 9:K:147:GLN:CD | 2.52 | 0.47 |
| 3:C:100:ILE:HG21 | 3:C:126:LYS:CB | 2.43 | 0.47 |
| 3:C:186:ALA:HB1 | 3:C:190:ARG:NH2 | 2.29 | 0.47 |
| 1:A:162:U:H5'' | 1:A:163:U:OP2 | 2.13 | 0.47 |
| 1:A:273(F):C:C4 | 1:A:274:G:C8 | 3.02 | 0.47 |
| 25:1:21:ARG:HB2 | 25:1:22:GLU:OE2 | 2.15 | 0.47 |
| 25:1:36:ILE:O | 25:1:38:GLN:CD | 2.52 | 0.47 |
| 25:1:56:LEU:O | 25:1:58:VAL:N | 2.47 | 0.47 |
| 26:2:13:ILE:CG2 | 26:2:14:GLY:N | 2.60 | 0.47 |
| 28:4:58:LEU:C | 28:4:58:LEU:CD2 | 2.82 | 0.47 |
| 1:A:2017:U:O2 | 28:4:9:LYS:HB3 | 2.15 | 0.47 |
| 29:5:17:LYS:CE | 29:5:48:VAL:CG1 | 2.91 | 0.47 |
| 29:5:45:LYS:O | 29:5:46:HIS:HB3 | 2.13 | 0.47 |
| 1:A:1075:C:C2' | 1:A:1075:C:O2 | 2.62 | 0.47 |
| 1:A:1023:U:H4' | 1:A:1123:C:OP1 | 2.14 | 0.47 |
| 1:A:1134:G:C4 | 1:A:1136:G:OP2 | 2.67 | 0.47 |
| 1:A:1165:U:C2 | 1:A:1166:C:C5 | 3.03 | 0.47 |
| 1:A:1196:C:N3 | 1:A:1197:G:N7 | 2.62 | 0.47 |
| 1:A:1225:C:O4' | 19:U:87:HIS:CE1 | 2.67 | 0.47 |
| 1:A:1284:A:O2' | 1:A:1285:G:H5' | 2.14 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1308:A:C2 | 1:A:1309:G:C4 | 3.02 | 0.47 |
| 1:A:1353:A:H2' | 1:A:1354:A:O4' | 2.15 | 0.47 |
| 1:A:1364:G:N2 | 1:A:1368:G:C4 | 2.82 | 0.47 |
| 1:A:1462:C:H4' | 1:A:2703:C:H5' | 1.96 | 0.47 |
| 1:A:1561:G:O2' | 1:A:1562:A:H5' | 2.13 | 0.47 |
| 1:A:1613:G:C2' | 1:A:1617:C:N4 | 2.77 | 0.47 |
| 1:A:1750:G:O2' | 1:A:1751:C:C5' | 2.60 | 0.47 |
| 1:A:1776:G:N2 | 1:A:1777:U:C2 | 2.83 | 0.47 |
| 1:A:1789:A:OP1 | 4:D:222:ARG:CG | 2.63 | 0.47 |
| 1:A:1813:G:N3 | 4:D:52:ARG:NH2 | 2.61 | 0.47 |
| 1:A:1893:C:O2' | 1:A:1894:C:H5' | 2.13 | 0.47 |
| 1:A:1894:C:C2 | 1:A:1895:C:C5 | 3.02 | 0.47 |
| 1:A:1919:A:H2' | 1:A:1920:C:H5' | 1.95 | 0.47 |
| 1:A:2037:G:H2' | 1:A:2038:G:H8 | 1.72 | 0.47 |
| 1:A:2061:G:C2' | 1:A:2062:A:H5'' | 2.43 | 0.47 |
| 1:A:2075:U:H3 | 1:A:2238:G:H1 | 1.62 | 0.47 |
| 1:A:46:C:C5 | 1:A:215:G:C8 | 3.02 | 0.47 |
| 1:A:46:C:OP2 | 1:A:215:G:H3' | 2.14 | 0.47 |
| 1:A:2286:A:H5' | 1:A:2287:A:OP1 | 2.14 | 0.47 |
| 1:A:2310:A:H8 | 1:A:2310:A:O5' | 1.96 | 0.47 |
| 1:A:2352:A:C8 | 1:A:2366:A:N6 | 2.83 | 0.47 |
| 1:A:2397:G:C2 | 1:A:2420:C:C2 | 3.02 | 0.47 |
| 1:A:2493:U:C4' | 1:A:2493:U:C6 | 2.96 | 0.47 |
| 1:A:2517:C:C2 | 1:A:2542:A:N6 | 2.82 | 0.47 |
| 1:A:2479:G:H5'' | 1:A:2537:U:H4' | 1.96 | 0.47 |
| 1:A:746:A:N7 | 1:A:2611:U:O3' | 2.47 | 0.47 |
| 1:A:2610:C:H4' | 1:A:2611:U:O5' | 2.14 | 0.47 |
| 1:A:2675:A:N1 | 1:A:2732:G:N2 | 2.62 | 0.47 |
| 1:A:2758:A:N6 | 1:A:2759:G:O6 | 2.47 | 0.47 |
| 1:A:2692:C:H2' | 1:A:2847:U:O2' | 2.14 | 0.47 |
| 1:A:2834:G:C6 | 1:A:2879:C:C2 | 3.02 | 0.47 |
| 1:A:344:G:H2' | 1:A:345:A:O4' | 2.13 | 0.47 |
| 1:A:450:G:N2 | 1:A:454:A:C6 | 2.81 | 0.47 |
| 1:A:454:A:O2' | 1:A:455:C:N3 | 2.47 | 0.47 |
| 1:A:627:A:H2 | 1:A:651:G:C5' | 2.26 | 0.47 |
| 1:A:62:C:H6 | 1:A:62:C:O5' | 1.96 | 0.47 |
| 1:A:655:A:O3' | 1:A:656:G:O4' | 2.31 | 0.47 |
| 1:A:675:A:N6 | 1:A:804:A:C1' | 2.77 | 0.47 |
| 1:A:779:U:H2' | 1:A:780:G:H5' | 1.95 | 0.47 |
| 1:A:854:G:C2' | 1:A:855:G:O5' | 2.62 | 0.47 |
| 1:A:864:G:C2' | 1:A:865:C:H1' | 2.43 | 0.47 |
| 1:A:875:G:C6 | 1:A:876:C:C4 | 3.01 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:888:C:C2' | 1:A:889:C:OP2 | 2.62 | 0.47 |
| 1:A:95:G:H4' | 25:1:39:LEU:C | 2.34 | 0.47 |
| 1:A:969:U:H2' | 1:A:970:C:C6 | 2.49 | 0.47 |
| 1:A:968:G:H2' | 1:A:969:U:O4' | 2.15 | 0.47 |
| 1:A:1792:G:P | 4:D:206:LEU:HD11 | 2.54 | 0.47 |
| 4:D:7:LYS:HA | 4:D:27:THR:HA | 1.95 | 0.47 |
| 5:E:116:VAL:HG21 | 5:E:137:HIS:O | 2.13 | 0.47 |
| 5:E:118:LYS:C | 5:E:118:LYS:HZ3 | 2.17 | 0.47 |
| 5:E:119:ARG:HE | 5:E:120:TRP:N | 2.11 | 0.47 |
| 1:A:2052:G:H4' | 5:E:143:ASN:N | 2.29 | 0.47 |
| 5:E:34:VAL:CG1 | 5:E:36:ARG:NH2 | 2.77 | 0.47 |
| 5:E:50:GLY:C | 5:E:76:ARG:NE | 2.68 | 0.47 |
| 1:A:616:A:H5' | 6:F:182:ASN:ND2 | 2.29 | 0.47 |
| 7:G:37:VAL:HG12 | 7:G:157:ILE:HG12 | 1.96 | 0.47 |
| 7:G:2:PRO:HA | 7:G:5:VAL:HG21 | 1.94 | 0.47 |
| 8:H:15:VAL:HG22 | 8:H:17:VAL:N | 2.29 | 0.47 |
| 8:H:33:LEU:CD1 | 8:H:75:ALA:HA | 2.31 | 0.47 |
| 1:A:2093:G:O4' | 9:K:29:TYR:CE2 | 2.67 | 0.47 |
| 10:L:103:GLN:HE22 | 10:L:107:ILE:CG1 | 2.27 | 0.47 |
| 10:L:77:LEU:HB2 | 10:L:111:LYS:HZ2 | 1.79 | 0.47 |
| 10:L:128:ALA:HB1 | 10:L:132:ARG:NH1 | 2.29 | 0.47 |
| 11:M:118:LYS:C | 11:M:120:LEU:H | 2.17 | 0.47 |
| 1:A:1665:A:C4' | 12:N:1:MET:HG2 | 2.45 | 0.47 |
| 12:N:28:SER:O | 12:N:29:ASN:CB | 2.62 | 0.47 |
| 12:N:82:ASN:N | 12:N:82:ASN:ND2 | 2.61 | 0.47 |
| 13:O:136:GLU:HB3 | 13:O:137:LYS:CE | 2.45 | 0.47 |
| 1:A:662:G:H5'' | 13:O:18:ARG:H | 1.78 | 0.47 |
| 13:O:85:LEU:HB2 | 13:O:86:LYS:CE | 2.44 | 0.47 |
| 14:P:43:THR:O | 14:P:47:ILE:HG13 | 2.14 | 0.47 |
| 14:P:23:GLY:N | 14:P:99:PRO:HG3 | 2.28 | 0.47 |
| 15:Q:100:LEU:HD13 | 15:Q:101:ALA:N | 2.29 | 0.47 |
| 15:Q:33:ARG:HA | 15:Q:115:GLU:HB2 | 1.96 | 0.47 |
| 15:Q:86:ARG:HH22 | 15:Q:87:TYR:HE2 | 1.54 | 0.47 |
| 16:R:16:ASN:O | 16:R:20:ARG:HG2 | 2.14 | 0.47 |
| 1:A:2320:A:H61 | 16:R:4:LEU:HD21 | 1.72 | 0.47 |
| 17:S:111:ARG:HA | 17:S:114:LEU:CD1 | 2.44 | 0.47 |
| 1:A:1754:C:C5 | 17:S:98:LYS:HD3 | 2.45 | 0.47 |
| 18:T:114:LYS:HG3 | 18:T:115:ALA:N | 2.29 | 0.47 |
| 1:A:17:G:H4' | 18:T:25:TRP:CH2 | 2.49 | 0.47 |
| 1:A:535:C:O2' | 18:T:53:ARG:CD | 2.62 | 0.47 |
| 19:U:74:LYS:C | 19:U:75:PHE:CG | 2.87 | 0.47 |
| 20:V:14:PRO:O | 20:V:16:LYS:NZ | 2.46 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 23:Y:16:SER:HA | 23:Y:19:ARG:CD | 2.34 | 0.47 |
| 23:Y:95:PRO:O | 23:Y:128:VAL:HG13 | 2.14 | 0.47 |
| 9:K:130:TYR:HE1 | 9:K:140:LEU:H | 1.63 | 0.47 |
| 9:K:68:LEU:HD22 | 9:K:72:LEU:CD1 | 2.43 | 0.47 |
| 3:C:45:ALA:O | 3:C:170:ALA:HA | 2.14 | 0.47 |
| 3:C:30:LYS:CD | 3:C:185:LEU:HD11 | 2.42 | 0.47 |
| 3:C:190:ARG:NH1 | 3:C:190:ARG:CB | 2.77 | 0.47 |
| 13:O:148:LEU:CD2 | 13:O:149:GLU:N | 2.77 | 0.47 |
| 1:A:2828:C:H2' | 1:A:2829:C:C6 | 2.49 | 0.47 |
| 8:H:54:ARG:HH12 | 8:H:57:ASP:HB2 | 1.78 | 0.47 |
| 25:1:19:LEU:HD13 | 25:1:20:VAL:CA | 2.43 | 0.47 |
| 25:1:3:LYS:CA | 25:1:6:GLU:HG2 | 2.43 | 0.47 |
| 28:4:55:ARG:HE | 28:4:55:ARG:N | 2.08 | 0.47 |
| 29:5:38:LYS:NZ | 29:5:48:VAL:HG23 | 2.29 | 0.47 |
| 31:7:14:VAL:HA | 31:7:23:VAL:O | 2.14 | 0.47 |
| 1:A:1029:A:O2' | 1:A:1030:G:H5' | 2.14 | 0.47 |
| 1:A:1061:U:OP1 | 1:A:1062:G:C8 | 2.67 | 0.47 |
| 1:A:1216:G:P | 18:T:12:ARG:HH21 | 2.37 | 0.47 |
| 1:A:1247:A:C6 | 13:O:21:ARG:NH2 | 2.74 | 0.47 |
| 1:A:1399:C:H2' | 1:A:1400:G:C8 | 2.49 | 0.47 |
| 1:A:1473:G:H21 | 1:A:1474:C:H1' | 1.79 | 0.47 |
| 1:A:1472:A:C8 | 1:A:1474:C:H5 | 2.31 | 0.47 |
| 1:A:120:U:O2 | 1:A:149:A:C2 | 2.67 | 0.47 |
| 1:A:149:A:C8 | 1:A:150:C:C6 | 3.02 | 0.47 |
| 1:A:1657:C:H2' | 1:A:1658:C:C6 | 2.35 | 0.47 |
| 1:A:1689:A:C2 | 1:A:1690:A:C8 | 3.03 | 0.47 |
| 1:A:1718:G:C8 | 1:A:1718:G:H3' | 2.50 | 0.47 |
| 1:A:1759:A:H2' | 1:A:1760:A:O4' | 2.14 | 0.47 |
| 1:A:1819:A:H1' | 1:A:1821:A:C4 | 2.49 | 0.47 |
| 1:A:1909:C:C2 | 1:A:1922:G:C2 | 3.02 | 0.47 |
| 1:A:1917:U:OP2 | 1:A:1917:U:C4 | 2.67 | 0.47 |
| 1:A:194:G:H2' | 1:A:195:A:C8 | 2.49 | 0.47 |
| 1:A:1764:G:C6 | 1:A:1989:G:C2 | 3.02 | 0.47 |
| 1:A:570:G:C6 | 1:A:2030:A:H2 | 2.31 | 0.47 |
| 1:A:2199:A:O5' | 1:A:2199:A:C8 | 2.68 | 0.47 |
| 1:A:2269:A:C8 | 1:A:2269:A:O5' | 2.67 | 0.47 |
| 1:A:2305:A:C2' | 1:A:2306:C:H5'' | 2.44 | 0.47 |
| 1:A:2335:A:O2' | 1:A:2336:A:H8 | 1.97 | 0.47 |
| 1:A:2258:C:C5 | 1:A:2426:A:H4' | 2.49 | 0.47 |
| 1:A:2468:G:H8 | 1:A:2476:A:N1 | 2.10 | 0.47 |
| 1:A:2537:U:C2 | 1:A:2538:C:C5 | 3.02 | 0.47 |
| 1:A:2577:A:H5'' | 1:A:2578:G:C5' | 2.45 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2607:G:H1 | 1:A:2608:G:N2 | 2.11 | 0.47 |
| 1:A:2606:C:C2 | 1:A:2607:G:N7 | 2.82 | 0.47 |
| 1:A:2644:G:HB8 | 1:A:2644:G:O5' | 1.97 | 0.47 |
| 1:A:2651:C:H2' | 1:A:2652:C:C6 | 2.49 | 0.47 |
| 1:A:2690:C:H3' | 1:A:2690:C:C6 | 2.49 | 0.47 |
| 1:A:270(B):A:C1' | 1:A:270(C):C:H5 | 2.27 | 0.47 |
| 1:A:270(L):U:O2 | 1:A:270(M):U:C6 | 2.68 | 0.47 |
| 1:A:2741:A:H3' | 1:A:2742:C:H6 | 1.80 | 0.47 |
| 1:A:2773:C:O2' | 1:A:2774:C:O5' | 2.31 | 0.47 |
| 1:A:389:G:O6 | 13:O:64:LYS:CB | 2.62 | 0.47 |
| 1:A:39:C:C2 | 1:A:40:C:C5 | 3.02 | 0.47 |
| 1:A:503:A:C4' | 1:A:504:U:H5'' | 2.25 | 0.47 |
| 1:A:530:G:C6 | 1:A:2022:U:OP1 | 2.67 | 0.47 |
| 1:A:611:C:H42 | 1:A:612:G:N2 | 2.13 | 0.47 |
| 1:A:61:G:C6 | 1:A:62:C:N3 | 2.83 | 0.47 |
| 1:A:637:A:H5' | 1:A:638:G:O5' | 2.14 | 0.47 |
| 1:A:66:C:H2' | 1:A:66:C:O2 | 2.14 | 0.47 |
| 1:A:678:C:N3 | 1:A:679:C:C5 | 2.81 | 0.47 |
| 1:A:678:C:C2 | 1:A:679:C:C5 | 3.02 | 0.47 |
| 1:A:209:C:C5' | 1:A:681:G:H4' | 2.43 | 0.47 |
| 1:A:746:A:HO2' | 1:A:747:U:P | 2.37 | 0.47 |
| 1:A:196:A:C6 | 1:A:828:U:H5'' | 2.49 | 0.47 |
| 1:A:886:C:O5' | 1:A:886:C:C6 | 2.52 | 0.47 |
| 2:B:54:G:H2' | 2:B:55:U:C6 | 2.50 | 0.47 |
| 2:B:71:C:C2' | 2:B:72:G:C5' | 2.68 | 0.47 |
| 2:B:78:A:N7 | 2:B:99:A:N6 | 2.62 | 0.47 |
| 1:A:1860:G:H4' | 3:C:205:LYS:O | 2.14 | 0.47 |
| 4:D:131:LEU:CG | 4:D:132:PRO:CD | 2.85 | 0.47 |
| 4:D:223:GLY:C | 4:D:225:ALA:N | 2.68 | 0.47 |
| 4:D:259:THR:N | 4:D:261:LYS:HE3 | 2.29 | 0.47 |
| 4:D:262:ARG:HB3 | 4:D:266:SER:HB3 | 1.96 | 0.47 |
| 5:E:116:VAL:HG23 | 5:E:117:MET:N | 2.29 | 0.47 |
| 5:E:133:LYS:HB3 | 5:E:137:HIS:CG | 2.49 | 0.47 |
| 5:E:22:PRO:CA | 5:E:185:LYS:CA | 2.85 | 0.47 |
| 5:E:185:LYS:CG | 5:E:185:LYS:O | 2.61 | 0.47 |
| 5:E:43:GLY:O | 5:E:44:TYR:C | 2.52 | 0.47 |
| 5:E:33:VAL:HG21 | 5:E:47:VAL:HG12 | 1.96 | 0.47 |
| 5:E:93:VAL:C | 5:E:95:ILE:N | 2.66 | 0.47 |
| 6:F:167:ALA:HB1 | 6:F:173:VAL:HG21 | 1.96 | 0.47 |
| 6:F:182:ASN:OD1 | 6:F:185:ASP:OD1 | 2.32 | 0.47 |
| 6:F:90:PHE:O | 6:F:91:GLY:O | 2.31 | 0.47 |
| 7:G:101:ILE:HG23 | 7:G:102:PHE:N | 2.30 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:G:174:GLU:OE2 | 7:G:175:LEU:CG | 2.63 | 0.47 |
| 7:G:61:ALA:HB1 | 7:G:67:LYS:CE | 2.44 | 0.47 |
| 8:H:104:GLU:O | 8:H:113:VAL:HB | 2.14 | 0.47 |
| 8:H:118:PRO:HD2 | 8:H:121:ILE:CD1 | 2.31 | 0.47 |
| 8:H:15:VAL:CG2 | 8:H:17:VAL:HB | 2.44 | 0.47 |
| 8:H:7:LEU:HD13 | 8:H:65:HIS:CE1 | 2.48 | 0.47 |
| 8:H:6:ARG:O | 8:H:6:ARG:HG3 | 2.14 | 0.47 |
| 11:M:56:ASN:HA | 11:M:124:ALA:O | 2.14 | 0.47 |
| 11:M:33:LEU:C | 11:M:33:LEU:CD2 | 2.72 | 0.47 |
| 11:M:42:TRP:CZ3 | 18:T:71:GLN:NE2 | 2.81 | 0.47 |
| 11:M:38:HIS:C | 11:M:42:TRP:HE3 | 2.17 | 0.47 |
| 12:N:24:VAL:HG21 | 12:N:26:LYS:CE | 2.35 | 0.47 |
| 1:A:1667:G:P | 12:N:7:TYR:CE1 | 3.06 | 0.47 |
| 12:N:8:LEU:O | 12:N:8:LEU:HD12 | 2.14 | 0.47 |
| 13:O:120:ALA:O | 13:O:122:PRO:HD2 | 2.12 | 0.47 |
| 13:O:93:GLY:HA2 | 13:O:96:THR:HG23 | 1.95 | 0.47 |
| 14:P:24:GLY:N | 14:P:101:ARG:HH21 | 2.10 | 0.47 |
| 14:P:32:TYR:CB | 14:P:105:GLU:O | 2.49 | 0.47 |
| 14:P:118:LEU:HD13 | 14:P:131:ILE:HD13 | 1.97 | 0.47 |
| 14:P:16:ARG:NH1 | 14:P:72:LYS:HG2 | 2.30 | 0.47 |
| 14:P:6:ARG:HE | 14:P:8:LYS:HG2 | 1.79 | 0.47 |
| 14:P:90:VAL:HG23 | 14:P:93:TYR:OH | 2.14 | 0.47 |
| 15:Q:53:HIS:HA | 15:Q:56:LYS:CD | 2.36 | 0.47 |
| 16:R:3:ARG:N | 16:R:3:ARG:CD | 2.77 | 0.47 |
| 17:S:55:ASN:ND2 | 17:S:57:PHE:CE2 | 2.79 | 0.47 |
| 18:T:15:LYS:HA | 18:T:18:LEU:HB2 | 1.95 | 0.47 |
| 19:U:14:VAL:CG1 | 19:U:19:LYS:HE2 | 2.44 | 0.47 |
| 19:U:62:LEU:CD1 | 19:U:96:ILE:HD13 | 2.44 | 0.47 |
| 20:V:35:ILE:HG23 | 20:V:36:LEU:N | 2.29 | 0.47 |
| 1:A:142:G:O4' | 21:W:37:THR:OG1 | 2.32 | 0.47 |
| 22:X:8:LYS:O | 22:X:10:GLY:N | 2.47 | 0.47 |
| 23:Y:165:VAL:HG12 | 23:Y:166:SER:H | 1.76 | 0.47 |
| 24:Z:70:GLN:O | 24:Z:78:TYR:O | 2.32 | 0.47 |
| 9:K:75:LEU:O | 9:K:141:LYS:NZ | 2.48 | 0.47 |
| 1:A:2111:C:N3 | 1:A:2118:U:C4 | 2.82 | 0.47 |
| 1:A:2146:C:C4 | 1:A:2147:G:C8 | 3.02 | 0.47 |
| 1:A:2168:G:N9 | 1:A:2170:A:OP2 | 2.47 | 0.47 |
| 3:C:116:THR:CG2 | 3:C:147:PHE:O | 2.61 | 0.47 |
| 3:C:51:PRO:HG2 | 3:C:52:ARG:H | 1.79 | 0.47 |
| 1:A:2094:G:C6 | 1:A:2095:C:C4 | 3.02 | 0.47 |
| 25:1:27:LEU:O | 25:1:28:MET:C | 2.52 | 0.47 |
| 27:3:1:MET:SD | 27:3:11:PRO:HG3 | 2.54 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 27:3:21:VAL:C | 27:3:23:GLU:H | 2.16 | 0.47 |
| 30:6:31:LEU:HB3 | 30:6:35:ARG:HD2 | 1.96 | 0.47 |
| 1:A:1008:C:H2' | 1:A:1008:C:O2 | 2.13 | 0.47 |
| 1:A:1035:U:O3' | 8:H:59:ARG:CZ | 2.63 | 0.47 |
| 1:A:1061:U:O3' | 1:A:1070:A:C4' | 2.62 | 0.47 |
| 1:A:1173:G:N2 | 1:A:1175:U:OP2 | 2.44 | 0.47 |
| 1:A:1173:G:N2 | 1:A:1175:U:P | 2.77 | 0.47 |
| 1:A:1368:G:C2' | 1:A:1369:G:H5' | 2.43 | 0.47 |
| 1:A:1420:U:OP2 | 1:A:1420:U:O4' | 2.32 | 0.47 |
| 1:A:1427:A:O2' | 1:A:1428:C:P | 2.72 | 0.47 |
| 1:A:150:C:O2 | 1:A:150:C:C2' | 2.62 | 0.47 |
| 1:A:1532:C:C6 | 1:A:1532:C:OP2 | 2.66 | 0.47 |
| 1:A:1639:U:H2' | 1:A:1639:U:O2 | 2.15 | 0.47 |
| 1:A:1662:C:C2' | 1:A:1663:C:C6 | 2.92 | 0.47 |
| 1:A:1700:A:C8 | 1:A:1701:A:C1' | 2.97 | 0.47 |
| 1:A:184:C:N3 | 1:A:213:A:N6 | 2.62 | 0.47 |
| 1:A:1858:G:C6 | 1:A:1883:G:N1 | 2.82 | 0.47 |
| 1:A:1918:A:C8 | 1:A:1918:A:C3' | 2.98 | 0.47 |
| 1:A:1935:G:C8 | 1:A:1962:C:N4 | 2.82 | 0.47 |
| 1:A:1132:A:N6 | 1:A:2025:C:O2 | 2.48 | 0.47 |
| 1:A:219:G:H2' | 1:A:220:G:C5' | 2.44 | 0.47 |
| 1:A:2226:C:C2 | 1:A:2227:A:H1' | 2.49 | 0.47 |
| 1:A:2256:G:C8 | 1:A:2256:G:H5'' | 2.49 | 0.47 |
| 1:A:2349:G:H2' | 1:A:2350:C:C5' | 2.44 | 0.47 |
| 1:A:2435:A:C2' | 1:A:2436:G:O5' | 2.62 | 0.47 |
| 1:A:2736:G:C2 | 1:A:2769:C:C2 | 3.02 | 0.47 |
| 1:A:352:G:N2 | 1:A:353:G:O4' | 2.48 | 0.47 |
| 1:A:398:G:OP2 | 27:3:59:PHE:HE2 | 1.98 | 0.47 |
| 1:A:417:C:C4 | 1:A:418:G:N7 | 2.82 | 0.47 |
| 1:A:481:G:O2' | 1:A:507:A:N6 | 2.48 | 0.47 |
| 1:A:560:C:H6 | 1:A:560:C:H5'' | 1.79 | 0.47 |
| 1:A:564:C:H2' | 1:A:565:C:O5' | 2.14 | 0.47 |
| 1:A:685:A:N6 | 1:A:773:U:C2 | 2.83 | 0.47 |
| 1:A:727:A:HO2' | 1:A:728:G:P | 2.36 | 0.47 |
| 1:A:76:C:H2' | 1:A:77:C:H5' | 1.96 | 0.47 |
| 1:A:786:C:H2' | 1:A:787:U:H5' | 1.82 | 0.47 |
| 1:A:805:G:O6 | 1:A:2068:U:C5' | 2.62 | 0.47 |
| 1:A:935:C:H2' | 1:A:936:C:C5 | 2.49 | 0.47 |
| 1:A:957:A:C6 | 1:A:959:A:C4 | 3.02 | 0.47 |
| 1:A:991:C:OP2 | 1:A:1186:G:OP2 | 2.33 | 0.47 |
| 2:B:76:G:P | 23:Y:10:ARG:HB3 | 2.54 | 0.47 |
| 4:D:224:ALA:O | 4:D:225:ALA:O | 2.33 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:73:VAL:O | 4:D:73:VAL:HG23 | 2.15 | 0.47 |
| 4:D:95:LEU:HD13 | 4:D:103:ARG:HB2 | 1.96 | 0.47 |
| 4:D:76:PRO:CG | 4:D:98:VAL:HG21 | 2.43 | 0.47 |
| 5:E:178:GLU:O | 5:E:180:ASN:ND2 | 2.44 | 0.47 |
| 5:E:2:LYS:H | 5:E:2:LYS:HD2 | 1.80 | 0.47 |
| 5:E:2:LYS:N | 5:E:2:LYS:HD2 | 2.30 | 0.47 |
| 5:E:90:THR:OG1 | 5:E:95:ILE:HD11 | 2.15 | 0.47 |
| 6:F:22:ALA:O | 6:F:23:ASP:O | 2.33 | 0.47 |
| 6:F:29:ASN:ND2 | 6:F:30:PRO:N | 2.61 | 0.47 |
| 1:A:2312:U:OP2 | 7:G:86:MET:CE | 2.62 | 0.47 |
| 8:H:41:MET:HE1 | 8:H:68:THR:HG23 | 1.95 | 0.47 |
| 9:K:6:LEU:HD23 | 9:K:6:LEU:C | 2.35 | 0.47 |
| 9:K:7:GLU:CA | 9:K:14:ASP:HA | 2.44 | 0.47 |
| 10:L:112:MET:O | 10:L:113:PRO:C | 2.52 | 0.47 |
| 10:L:131:ALA:O | 10:L:136:VAL:N | 2.44 | 0.47 |
| 10:L:24:GLY:O | 10:L:34:ILE:HG12 | 2.14 | 0.47 |
| 11:M:99:LEU:CD1 | 11:M:103:VAL:HG11 | 2.43 | 0.47 |
| 12:N:70:LYS:CD | 12:N:107:ARG:HH12 | 2.26 | 0.47 |
| 12:N:86:ILE:HG21 | 12:N:90:GLN:HA | 1.96 | 0.47 |
| 12:N:12:ASP:C | 12:N:94:ARG:HD2 | 2.34 | 0.47 |
| 13:O:45:LEU:C | 13:O:46:LYS:CD | 2.83 | 0.47 |
| 13:O:96:THR:OG1 | 13:O:102:ARG:CD | 2.56 | 0.47 |
| 1:A:2278:A:OP1 | 14:P:14:ARG:CD | 2.63 | 0.47 |
| 14:P:45:GLN:O | 14:P:48:GLU:HG2 | 2.14 | 0.47 |
| 14:P:18:LYS:NZ | 14:P:87:LYS:HZ3 | 2.13 | 0.47 |
| 15:Q:61:HIS:C | 15:Q:64:ARG:HH11 | 2.18 | 0.47 |
| 16:R:3:ARG:HG2 | 16:R:4:LEU:N | 2.18 | 0.47 |
| 16:R:63:THR:O | 16:R:66:ALA:CB | 2.53 | 0.47 |
| 2:B:38:C:O3' | 16:R:93:LYS:NZ | 2.46 | 0.47 |
| 17:S:102:ILE:HG22 | 17:S:104:ASN:CG | 2.35 | 0.47 |
| 17:S:57:PHE:CA | 17:S:61:PHE:CD2 | 2.87 | 0.47 |
| 17:S:7:ILE:O | 17:S:9:LEU:N | 2.46 | 0.47 |
| 17:S:95:ARG:HB3 | 17:S:95:ARG:HH21 | 1.76 | 0.47 |
| 18:T:101:ARG:HD2 | 19:U:13:ARG:HH11 | 1.74 | 0.47 |
| 20:V:11:ARG:N | 20:V:11:ARG:HH21 | 1.99 | 0.47 |
| 20:V:72:LYS:HG2 | 20:V:72:LYS:O | 2.14 | 0.47 |
| 20:V:86:LEU:CB | 20:V:87:PRO:HD2 | 2.36 | 0.47 |
| 21:W:42:ALA:O | 21:W:46:ALA:HB2 | 2.14 | 0.47 |
| 22:X:38:ILE:HG12 | 22:X:60:PHE:CE1 | 2.49 | 0.47 |
| 22:X:47:LYS:HB2 | 22:X:56:PRO:CG | 2.43 | 0.47 |
| 22:X:95:LYS:HG2 | 22:X:96:ILE:N | 2.29 | 0.47 |
| 22:X:81:LYS:HE2 | 22:X:96:ILE:CG2 | 2.44 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:Y:128:VAL:HG12 | 23:Y:129:SER:H | 1.80 | 0.47 |
| 23:Y:50:GLN:O | 23:Y:51:ALA:HB3 | 2.14 | 0.47 |
| 23:Y:7:ALA:C | 23:Y:8:TYR:CD1 | 2.88 | 0.47 |
| 25:1:19:LEU:O | 25:1:19:LEU:HD22 | 2.14 | 0.47 |
| 26:2:4:LEU:CG | 26:2:37:LEU:HD13 | 2.43 | 0.47 |
| 26:2:40:THR:HG22 | 26:2:42:ALA:HB3 | 1.97 | 0.47 |
| 28:4:35:GLU:CB | 28:4:49:CYS:HB3 | 2.44 | 0.47 |
| 28:4:4:HIS:CG | 28:4:5:PRO:CD | 2.97 | 0.47 |
| 1:A:686:G:O2' | 30:6:5:TRP:O | 2.27 | 0.47 |
| 31:7:26:LYS:O | 31:7:47:LYS:HD2 | 2.15 | 0.47 |
| 31:7:30:ARG:NH1 | 31:7:44:LYS:HB2 | 2.23 | 0.47 |
| 32:8:9:ARG:NH2 | 32:8:16:VAL:CG1 | 2.75 | 0.47 |
| 1:A:1065:U:O2 | 1:A:1068:G:C8 | 2.68 | 0.47 |
| 1:A:1061:U:H4' | 1:A:1070:A:C1' | 2.44 | 0.47 |
| 1:A:1112:G:OP1 | 8:H:4:ILE:HD13 | 2.15 | 0.47 |
| 1:A:1024:G:C6 | 1:A:1134:G:H1' | 2.48 | 0.47 |
| 1:A:1020:A:N3 | 1:A:1140:C:N3 | 2.62 | 0.47 |
| 1:A:1224:G:H2' | 19:U:87:HIS:ND1 | 2.27 | 0.47 |
| 1:A:1238:G:C2' | 1:A:1239:G:C5' | 2.92 | 0.47 |
| 1:A:124:G:C6 | 30:6:19:ARG:NH2 | 2.78 | 0.47 |
| 1:A:1255:U:O4 | 6:F:72:ARG:O | 2.31 | 0.47 |
| 1:A:1315:C:H2' | 1:A:1316:U:C5 | 2.49 | 0.47 |
| 1:A:1332:G:C5 | 1:A:1609:A:N6 | 2.83 | 0.47 |
| 1:A:1352:U:O2 | 1:A:1352:U:H3' | 2.14 | 0.47 |
| 1:A:1355:G:H2' | 1:A:1356:G:H8 | 1.79 | 0.47 |
| 1:A:1405:U:C2 | 1:A:1406:U:C4 | 3.03 | 0.47 |
| 1:A:1425:G:C5 | 1:A:1426:G:O6 | 2.68 | 0.47 |
| 1:A:137(A):G:N2 | 1:A:142:G:N3 | 2.63 | 0.47 |
| 1:A:1444(A):A:O4' | 1:A:1444(A):A:OP2 | 2.32 | 0.47 |
| 1:A:1467:C:C5 | 1:A:1468:C:N4 | 2.83 | 0.47 |
| 1:A:149:A:C8 | 1:A:150:C:O4' | 2.67 | 0.47 |
| 1:A:1672:C:O2 | 1:A:2582:G:C1' | 2.63 | 0.47 |
| 1:A:688:U:C5' | 1:A:1780:A:N1 | 2.76 | 0.47 |
| 1:A:179:G:H5' | 30:6:32:LYS:CE | 2.41 | 0.47 |
| 1:A:1827:C:H2' | 1:A:1828:G:C4' | 2.44 | 0.47 |
| 1:A:1869:G:N2 | 1:A:1878:G:N7 | 2.57 | 0.47 |
| 1:A:1878:G:O2' | 1:A:1879:C:H5' | 2.14 | 0.47 |
| 1:A:1894:C:O2 | 1:A:1895:C:C5 | 2.68 | 0.47 |
| 1:A:1955:U:H5' | 1:A:1956:U:C5 | 2.49 | 0.47 |
| 1:A:2215:G:C2 | 1:A:2216:G:C5 | 3.03 | 0.47 |
| 1:A:2226:C:C4 | 1:A:2227:A:N3 | 2.83 | 0.47 |
| 1:A:2234:G:O2' | 1:A:2235:G:H5' | 2.13 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2265:U:H3' | 1:A:2265:U:C6 | 2.49 | 0.47 |
| 1:A:2296:U:H3' | 1:A:2296:U:C6 | 2.50 | 0.47 |
| 1:A:22:C:H2' | 1:A:23:G:O5' | 2.15 | 0.47 |
| 1:A:2619:C:H5' | 5:E:151:TYR:O | 2.15 | 0.47 |
| 1:A:2632:A:H2 | 5:E:61:ARG:HG2 | 1.79 | 0.47 |
| 1:A:2635:C:O3' | 5:E:78:LEU:HA | 2.14 | 0.47 |
| 1:A:2660:A:N6 | 1:A:2661:G:C2 | 2.82 | 0.47 |
| 1:A:2736:G:N2 | 1:A:2769:C:C2 | 2.82 | 0.47 |
| 1:A:2781:A:C2 | 1:A:2782:G:N2 | 2.82 | 0.47 |
| 1:A:2808:U:O2' | 1:A:2810:A:OP1 | 2.29 | 0.47 |
| 1:A:2819:G:C2' | 1:A:2821:A:H62 | 2.26 | 0.47 |
| 1:A:2847:U:OP1 | 17:S:54:ARG:NH2 | 2.47 | 0.47 |
| 1:A:2848:G:C2' | 1:A:2849:U:OP2 | 2.62 | 0.47 |
| 1:A:292:C:H3' | 1:A:293:U:O4 | 2.09 | 0.47 |
| 1:A:29:U:O2 | 1:A:30:G:N7 | 2.47 | 0.47 |
| 1:A:360:G:H2' | 1:A:361:G:C4' | 2.43 | 0.47 |
| 1:A:364:C:C2' | 1:A:365:C:H6 | 2.20 | 0.47 |
| 1:A:35:G:C4 | 1:A:36:G:C8 | 3.02 | 0.47 |
| 1:A:412:A:N3 | 1:A:413:C:C1' | 2.77 | 0.47 |
| 1:A:609:A:C5 | 1:A:609(A):G:O6 | 2.67 | 0.47 |
| 1:A:689:A:C3' | 1:A:690:G:H5'' | 2.45 | 0.47 |
| 1:A:684:G:HO2' | 1:A:788:A:H62 | 1.59 | 0.47 |
| 1:A:917:A:H2' | 1:A:918:A:C4' | 2.44 | 0.47 |
| 1:A:918:A:N3 | 1:A:919:G:N7 | 2.62 | 0.47 |
| 2:B:100:G:H2' | 2:B:101:A:O4' | 2.15 | 0.47 |
| 2:B:32:C:C2' | 2:B:33:G:H8 | 2.27 | 0.47 |
| 4:D:10:THR:H | 4:D:23:GLU:CG | 2.27 | 0.47 |
| 4:D:124:PRO:HD2 | 4:D:129:ASN:HD22 | 1.78 | 0.47 |
| 4:D:147:LEU:HD22 | 4:D:185:VAL:CG2 | 2.44 | 0.47 |
| 4:D:142:VAL:CB | 4:D:192:THR:O | 2.62 | 0.47 |
| 4:D:232:PRO:CG | 4:D:246:PRO:C | 2.81 | 0.47 |
| 4:D:61:LEU:HD23 | 4:D:62:TYR:N | 2.29 | 0.47 |
| 4:D:63:ARG:NH2 | 4:D:84:TYR:O | 2.47 | 0.47 |
| 4:D:65:ILE:HG22 | 4:D:66:ASP:H | 1.80 | 0.47 |
| 4:D:86:PRO:HD2 | 4:D:87:ASN:HD22 | 1.78 | 0.47 |
| 6:F:157:VAL:O | 6:F:158:THR:HB | 2.14 | 0.47 |
| 6:F:62:ARG:CZ | 6:F:63:LYS:NZ | 2.78 | 0.47 |
| 7:G:110:ALA:O | 7:G:111:LEU:C | 2.52 | 0.47 |
| 7:G:10:LYS:O | 7:G:11:TYR:C | 2.51 | 0.47 |
| 7:G:163:ALA:O | 7:G:164:GLU:C | 2.52 | 0.47 |
| 7:G:56:ALA:HA | 7:G:59:GLU:CG | 2.45 | 0.47 |
| 8:H:6:ARG:CZ | 8:H:6:ARG:CA | 2.80 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 9:K:48:GLU:OE1 | 9:K:48:GLU:HA | 2.15 | 0.47 |
| 10:L:104:VAL:HG13 | 10:L:127:ILE:HG21 | 1.97 | 0.47 |
| 10:L:74:ALA:HB1 | 10:L:130:SER:OG | 2.15 | 0.47 |
| 11:M:69:GLN:OE1 | 11:M:87:LEU:CD1 | 2.62 | 0.47 |
| 11:M:75:TYR:N | 11:M:75:TYR:HD1 | 2.11 | 0.47 |
| 1:A:1131:G:N9 | 11:M:82:LEU:HD11 | 2.29 | 0.47 |
| 11:M:96:GLU:O | 11:M:99:LEU:HG | 2.15 | 0.47 |
| 12:N:77:ILE:CD1 | 17:S:65:LYS:HZ1 | 2.27 | 0.47 |
| 1:A:1244:G:H4' | 13:O:9:ASN:HB2 | 1.96 | 0.47 |
| 14:P:121:ALA:O | 14:P:124:LYS:HE2 | 2.12 | 0.47 |
| 14:P:16:ARG:HB2 | 14:P:72:LYS:HZ1 | 1.79 | 0.47 |
| 15:Q:104:ARG:NH2 | 15:Q:109:ALA:HB2 | 2.29 | 0.47 |
| 16:R:26:LEU:HD22 | 16:R:26:LEU:C | 2.35 | 0.47 |
| 17:S:113:LYS:HA | 17:S:116:ALA:HB2 | 1.95 | 0.47 |
| 17:S:65:LYS:HD3 | 17:S:75:ILE:CG2 | 2.42 | 0.47 |
| 18:T:31:SER:C | 18:T:32:PHE:CD1 | 2.88 | 0.47 |
| 19:U:51:VAL:CG1 | 19:U:51:VAL:O | 2.62 | 0.47 |
| 19:U:91:TYR:O | 19:U:92:THR:CB | 2.53 | 0.47 |
| 20:V:20:VAL:CG2 | 20:V:47:VAL:HG11 | 2.44 | 0.47 |
| 20:V:59:VAL:HG21 | 20:V:66:GLU:HA | 1.95 | 0.47 |
| 21:W:18:TYR:HA | 21:W:21:PHE:CE1 | 2.48 | 0.47 |
| 22:X:49:VAL:HG21 | 22:X:51:VAL:CG2 | 2.44 | 0.47 |
| 23:Y:120:ILE:HG22 | 23:Y:171:ILE:HD11 | 1.96 | 0.47 |
| 23:Y:41:LEU:HG | 23:Y:41:LEU:H | 1.27 | 0.47 |
| 24:Z:21:LEU:HD12 | 24:Z:39:ARG:HB3 | 1.95 | 0.47 |
| 9:K:96:ASP:O | 9:K:99:GLU:OE1 | 2.32 | 0.47 |
| 1:A:2176:A:O2' | 1:A:2177:C:H5' | 2.14 | 0.47 |
| 1:A:2177:C:H2' | 1:A:2178:C:O4' | 2.15 | 0.47 |
| 3:C:166:ASP:CG | 3:C:167:LYS:N | 2.67 | 0.47 |
| 3:C:211:SER:HA | 3:C:223:ARG:HE | 1.79 | 0.47 |
| 3:C:75:LEU:CD1 | 3:C:99:ILE:HD12 | 2.45 | 0.47 |
| 9:K:63:ALA:CA | 9:K:67:ARG:HH21 | 2.27 | 0.47 |
| 21:W:11:PRO:O | 21:W:13:LEU:CD2 | 2.63 | 0.47 |
| 1:A:398:G:OP2 | 27:3:59:PHE:CE2 | 2.67 | 0.47 |
| 27:3:66:SER:C | 27:3:69:LYS:HB2 | 2.31 | 0.47 |
| 1:A:1264:G:P | 28:4:10:LYS:NZ | 2.88 | 0.47 |
| 1:A:2016:U:H1' | 28:4:6:VAL:CG1 | 2.44 | 0.47 |
| 29:5:50:ARG:O | 29:5:51:GLU:HB2 | 2.14 | 0.47 |
| 30:6:34:ARG:NH1 | 30:6:41:ARG:O | 2.46 | 0.47 |
| 31:7:51:ALA:O | 31:7:53:PRO:CD | 2.62 | 0.47 |
| 31:7:52:LYS:HZ1 | 31:7:52:LYS:HB2 | 1.78 | 0.47 |
| 1:A:1053:C:N4 | 1:A:1105:U:C4 | 2.82 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|-----------------|-------------|----------|
| 1:A:1103:A:C2' | 1:A:1104:C:OP1 | 2.63 | 0.47 |
| 1:A:1166:C:H1' | 1:A:1184:G:N2 | 2.30 | 0.47 |
| 1:A:1186:G:H3' | 1:A:1187:G:H8 | 1.80 | 0.47 |
| 1:A:1190:G:OP1 | 13:O:31:ALA:CA | 2.62 | 0.47 |
| 1:A:1222:C:C4 | 1:A:1227:A:N6 | 2.82 | 0.47 |
| 1:A:1352:U:O2 | 1:A:1352:U:C3' | 2.62 | 0.47 |
| 1:A:1392:A:C5 | 1:A:1393:A:C6 | 3.02 | 0.47 |
| 1:A:1489:U:O2 | 1:A:1489:U:C2' | 2.59 | 0.47 |
| 1:A:1492:G:H5' | 1:A:1493:C:OP2 | 2.14 | 0.47 |
| 1:A:120:U:C1' | 1:A:149:A:H1' | 2.43 | 0.47 |
| 1:A:1507:A:OP1 | 1:A:1508:A:H2 | 1.98 | 0.47 |
| 1:A:1604:C:O2 | 1:A:1605:C:C6 | 2.67 | 0.47 |
| 1:A:1609:A:H3' | 1:A:1609:A:N3 | 2.29 | 0.47 |
| 1:A:1663:C:H6 | 1:A:1663:C:O5' | 1.97 | 0.47 |
| 1:A:1664:A:O2' | 12:N:66:LYS:NZ | 2.43 | 0.47 |
| 1:A:1729:A:N7 | 1:A:1731:G:C6 | 2.82 | 0.47 |
| 1:A:1756:G:C2' | 1:A:1757:U:OP2 | 2.62 | 0.47 |
| 1:A:1879:C:N4 | 1:A:1880:C:N4 | 2.63 | 0.47 |
| 1:A:1910:G:C6 | 1:A:1911:U:C4 | 3.03 | 0.47 |
| 1:A:1917:U:C5 | 1:A:1918:A:C2 | 3.02 | 0.47 |
| 1:A:1966:A:O2' | 1:A:1967:C:O5' | 2.32 | 0.47 |
| 1:A:1930:G:C4 | 1:A:1968:G:N7 | 2.82 | 0.47 |
| 1:A:1988:C:C2' | 1:A:1989:G:O5' | 2.62 | 0.47 |
| 1:A:211:A:O2' | 1:A:212:G:H5' | 2.14 | 0.47 |
| 1:A:2232:U:C2' | 1:A:2233:U:O5' | 2.62 | 0.47 |
| 1:A:2320:A:C5' | 1:A:2321:G:N7 | 2.78 | 0.47 |
| 1:A:2322:A:N7 | 1:A:2323:G:N7 | 2.61 | 0.47 |
| 1:A:2063:C:O2 | 1:A:2451:A:C2 | 2.68 | 0.47 |
| 1:A:2553:G:N7 | 1:A:2583:G:C4' | 2.77 | 0.47 |
| 1:A:2682:U:C2' | 1:A:2683:C:O5' | 2.62 | 0.47 |
| 1:A:2696:U:H2' | 1:A:2697:G:H8 | 1.79 | 0.47 |
| 1:A:2752:C:C4 | 1:A:2753:A:C8 | 3.03 | 0.47 |
| 1:A:2797:U:O2' | 1:A:2798:C:O3' | 2.31 | 0.47 |
| 1:A:2824:C:C4 | 1:A:2825:C:N1 | 2.83 | 0.47 |
| 1:A:2849:U:H6 | 1:A:2849:U:H3' | 1.78 | 0.47 |
| 1:A:319:C:C4 | 1:A:320:A:C6 | 3.02 | 0.47 |
| 1:A:333:G:H2' | 1:A:333:G:N3 | 2.28 | 0.47 |
| 1:A:410:G:H8 | 1:A:410:G:O5' | 1.97 | 0.47 |
| 1:A:459:U:OP2 | 30:6:40:TRP:CE3 | 2.68 | 0.47 |
| 1:A:465:G:O6 | 1:A:466:A:N6 | 2.48 | 0.47 |
| 1:A:483:A:C2 | 1:A:484:C:H1' | 2.50 | 0.47 |
| 1:A:493:G:C2 | 1:A:494:G:C4 | 3.03 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:593:G:C5 | 1:A:594:U:C5 | 3.03 | 0.47 |
| 1:A:627:A:C8 | 1:A:637:A:N7 | 2.82 | 0.47 |
| 1:A:66:C:C2 | 1:A:67:U:C5 | 3.03 | 0.47 |
| 1:A:696:G:O2' | 1:A:697:C:C5' | 2.63 | 0.47 |
| 1:A:783:A:O2' | 1:A:784:A:OP1 | 2.27 | 0.47 |
| 1:A:77:C:H2' | 1:A:78:A:C8 | 2.48 | 0.47 |
| 1:A:827:U:C4 | 1:A:2430:A:C6 | 3.02 | 0.47 |
| 1:A:838:C:C4 | 1:A:839:U:C4 | 3.02 | 0.47 |
| 1:A:864:G:C2' | 1:A:865:C:C1' | 2.89 | 0.47 |
| 1:A:933:A:C2 | 1:A:934:G:C8 | 3.03 | 0.47 |
| 1:A:946:G:O6 | 1:A:972:G:N2 | 2.47 | 0.47 |
| 1:A:959:A:C4 | 1:A:960:A:N7 | 2.83 | 0.47 |
| 2:B:82:G:C2' | 2:B:83:G:H8 | 2.27 | 0.47 |
| 4:D:14:ARG:NH1 | 4:D:15:PHE:H | 2.08 | 0.47 |
| 4:D:171:ASP:O | 4:D:186:HIS:CA | 2.53 | 0.47 |
| 4:D:60:ARG:C | 4:D:62:TYR:HD2 | 2.18 | 0.47 |
| 5:E:118:LYS:CA | 5:E:118:LYS:HZ3 | 2.28 | 0.47 |
| 5:E:180:ASN:HD22 | 5:E:180:ASN:H | 1.61 | 0.47 |
| 5:E:4:ILE:H | 5:E:27:LEU:HD21 | 1.75 | 0.47 |
| 5:E:67:PHE:O | 5:E:70:ALA:N | 2.42 | 0.47 |
| 6:F:110:LEU:CD1 | 6:F:181:LEU:HD23 | 2.45 | 0.47 |
| 7:G:121:ASN:CB | 7:G:133:LEU:HG | 2.44 | 0.47 |
| 7:G:36:LYS:HD3 | 7:G:37:VAL:N | 2.29 | 0.47 |
| 7:G:59:GLU:HG3 | 7:G:60:LEU:N | 2.25 | 0.47 |
| 7:G:75:LYS:HD2 | 7:G:85:GLY:H | 1.73 | 0.47 |
| 8:H:119:GLU:N | 8:H:121:ILE:HG22 | 2.29 | 0.47 |
| 8:H:76:VAL:C | 8:H:78:GLY:N | 2.66 | 0.47 |
| 8:H:91:GLY:C | 8:H:93:GLY:H | 2.16 | 0.47 |
| 11:M:103:VAL:HG22 | 11:M:104:LYS:H | 1.80 | 0.47 |
| 11:M:56:ASN:OD1 | 11:M:126:PRO:O | 2.33 | 0.47 |
| 12:N:24:VAL:HG21 | 12:N:26:LYS:HG2 | 1.93 | 0.47 |
| 12:N:59:LYS:HA | 12:N:86:ILE:CD1 | 2.36 | 0.47 |
| 12:N:73:ASP:HB3 | 17:S:79:HIS:NE2 | 2.30 | 0.47 |
| 13:O:97:PRO:N | 13:O:102:ARG:NH2 | 2.63 | 0.47 |
| 13:O:121:LYS:N | 13:O:122:PRO:CD | 2.77 | 0.47 |
| 13:O:121:LYS:CB | 13:O:137:LYS:CG | 2.88 | 0.47 |
| 13:O:49:ARG:NH2 | 13:O:49:ARG:HG2 | 2.09 | 0.47 |
| 14:P:120:ILE:O | 14:P:122:GLY:N | 2.47 | 0.47 |
| 14:P:50:ALA:HB2 | 14:P:125:LEU:HD11 | 1.96 | 0.47 |
| 14:P:32:TYR:OH | 14:P:108:GLY:CA | 2.62 | 0.47 |
| 1:A:1275:A:N3 | 15:Q:16:HIS:ND1 | 2.63 | 0.47 |
| 15:Q:33:ARG:CA | 15:Q:115:GLU:CB | 2.91 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:Q:52:ILE:CD1 | 15:Q:56:LYS:HG2 | 2.42 | 0.47 |
| 15:Q:63:ARG:NH2 | 15:Q:76:VAL:HG12 | 2.29 | 0.47 |
| 1:A:2882:A:H5' | 15:Q:96:ARG:HG3 | 1.96 | 0.47 |
| 16:R:100:ALA:O | 16:R:102:ALA:N | 2.46 | 0.47 |
| 16:R:37:ALA:HB3 | 16:R:51:ALA:CB | 2.44 | 0.47 |
| 16:R:72:ALA:HB3 | 16:R:73:LEU:HD13 | 1.95 | 0.47 |
| 17:S:2:ASN:O | 17:S:3:ARG:C | 2.52 | 0.47 |
| 17:S:48:ILE:HG12 | 17:S:49:VAL:O | 2.14 | 0.47 |
| 17:S:50:ILE:HG22 | 17:S:67:SER:O | 2.14 | 0.47 |
| 18:T:115:ALA:O | 18:T:116:ALA:C | 2.53 | 0.47 |
| 18:T:34:LYS:CE | 18:T:37:GLU:OE2 | 2.62 | 0.47 |
| 18:T:57:PHE:O | 18:T:58:ARG:C | 2.52 | 0.47 |
| 19:U:77:ALA:O | 19:U:84:LYS:CA | 2.54 | 0.47 |
| 22:X:28:LYS:CD | 22:X:28:LYS:N | 2.78 | 0.47 |
| 22:X:32:PRO:C | 22:X:34:LYS:N | 2.67 | 0.47 |
| 22:X:2:ARG:NE | 22:X:3:VAL:H | 2.12 | 0.47 |
| 22:X:97:ARG:HB3 | 22:X:101:LYS:HG2 | 1.96 | 0.47 |
| 23:Y:111:VAL:HA | 23:Y:115:GLY:C | 2.34 | 0.47 |
| 23:Y:26:GLY:H | 23:Y:38:TYR:HD2 | 1.59 | 0.47 |
| 9:K:88:ILE:HD11 | 9:K:123:LEU:CD2 | 2.38 | 0.47 |
| 1:A:2118:U:C6 | 1:A:2147:G:O6 | 2.67 | 0.47 |
| 3:C:129:ARG:NH1 | 3:C:129:ARG:HG3 | 2.25 | 0.47 |
| 1:A:1416:G:H2' | 1:A:1417:C:H6 | 1.80 | 0.47 |
| 1:A:2104:G:N2 | 1:A:2105:C:C2 | 2.83 | 0.47 |
| 1:A:718:A:H5' | 1:A:719:C:OP2 | 2.14 | 0.47 |
| 1:A:738:G:N1 | 1:A:759:G:C6 | 2.82 | 0.47 |
| 2:B:0:A:C5' | 2:B:0:A:N3 | 2.77 | 0.47 |
| 25:1:1:MET:O | 25:1:2:ARG:C | 2.52 | 0.47 |
| 26:2:37:LEU:HD23 | 26:2:38:GLU:C | 2.35 | 0.47 |
| 27:3:57:GLU:C | 27:3:61:ARG:CG | 2.76 | 0.47 |
| 29:5:33:LYS:HE3 | 29:5:34:LEU:HA | 1.97 | 0.47 |
| 1:A:1620:G:C1' | 30:6:1:MET:N | 2.77 | 0.47 |
| 30:6:30:VAL:HG13 | 30:6:33:ARG:HH11 | 1.77 | 0.47 |
| 31:7:52:LYS:C | 31:7:56:GLU:OE1 | 2.53 | 0.47 |
| 1:A:1178:C:C2' | 1:A:1179:C:C6 | 2.80 | 0.47 |
| 1:A:1212:G:N7 | 1:A:1235:G:C6 | 2.82 | 0.47 |
| 1:A:1351:C:C4 | 1:A:1381:G:C6 | 3.03 | 0.47 |
| 1:A:1398:C:C2 | 1:A:1399:C:C5 | 3.02 | 0.47 |
| 1:A:1449(A):G:C5 | 1:A:1450:C:C5 | 3.02 | 0.47 |
| 1:A:1499:C:O2 | 1:A:1499:C:H2' | 2.14 | 0.47 |
| 1:A:1519:G:H3' | 1:A:1520:U:C1' | 2.43 | 0.47 |
| 1:A:1620:G:O2' | 1:A:1621:U:C5' | 2.61 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1785:A:H5'' | 1:A:1982:C:O4' | 2.15 | 0.47 |
| 1:A:1857:G:C5 | 1:A:1858:G:O6 | 2.67 | 0.47 |
| 1:A:1927:A:C6 | 1:A:1928:A:C2 | 3.03 | 0.47 |
| 1:A:1949:G:C6 | 1:A:1950:G:C5 | 3.02 | 0.47 |
| 1:A:1954:G:N2 | 1:A:1956:U:C2 | 2.83 | 0.47 |
| 1:A:1965:C:H5' | 1:A:1966:A:H3' | 1.95 | 0.47 |
| 1:A:1988:C:C2' | 1:A:1989:G:C5' | 2.93 | 0.47 |
| 1:A:2025:C:C4 | 1:A:2026:C:N4 | 2.83 | 0.47 |
| 1:A:184:C:C4 | 1:A:213:A:N6 | 2.83 | 0.47 |
| 1:A:2224:G:C5' | 4:D:262:ARG:NH1 | 2.78 | 0.47 |
| 1:A:2321:G:H2' | 1:A:2321:G:N3 | 2.28 | 0.47 |
| 1:A:2282:G:N2 | 1:A:2425:A:N9 | 2.63 | 0.47 |
| 1:A:2446:G:O2' | 1:A:2448:A:H5'' | 2.14 | 0.47 |
| 1:A:2514:U:O5' | 1:A:2514:U:H6 | 1.96 | 0.47 |
| 1:A:250:G:C6 | 1:A:251:A:N6 | 2.82 | 0.47 |
| 1:A:2634:G:H2' | 1:A:2635:C:C6 | 2.49 | 0.47 |
| 1:A:2698:U:C2 | 1:A:2699:C:N4 | 2.83 | 0.47 |
| 1:A:2710:C:H3' | 1:A:2711:A:H5'' | 1.97 | 0.47 |
| 1:A:2729:G:C5 | 1:A:2730:C:C5 | 3.02 | 0.47 |
| 1:A:2740:A:N6 | 1:A:2764:A:N9 | 2.62 | 0.47 |
| 1:A:2841:C:C2 | 1:A:2842:G:N7 | 2.83 | 0.47 |
| 1:A:2848:G:H22 | 1:A:2867:G:C2' | 2.27 | 0.47 |
| 1:A:320:A:OP1 | 6:F:135:LYS:HE2 | 2.14 | 0.47 |
| 1:A:326:G:O2' | 1:A:327:G:H5' | 2.14 | 0.47 |
| 1:A:427:U:C6 | 1:A:427:U:O5' | 2.66 | 0.47 |
| 1:A:460:A:C2' | 1:A:461:C:H6 | 2.27 | 0.47 |
| 1:A:545:G:C8 | 1:A:545:G:O5' | 2.68 | 0.47 |
| 1:A:556:G:P | 1:A:556:G:H8 | 2.37 | 0.47 |
| 1:A:604:G:C2 | 1:A:605:C:C4 | 3.03 | 0.47 |
| 1:A:641:C:H5 | 1:A:642:G:N3 | 2.12 | 0.47 |
| 1:A:691:C:N3 | 1:A:692:C:C5 | 2.82 | 0.47 |
| 1:A:7:G:C2 | 1:A:8:A:C4 | 3.02 | 0.47 |
| 1:A:823:G:C4 | 1:A:824:A:N7 | 2.83 | 0.47 |
| 1:A:842:G:H5'' | 1:A:843:G:OP2 | 2.14 | 0.47 |
| 1:A:861:A:C5 | 1:A:917:A:N6 | 2.82 | 0.47 |
| 1:A:899:A:N1 | 1:A:900:A:C5 | 2.83 | 0.47 |
| 2:B:5:C:C2 | 2:B:6:C:C5 | 3.03 | 0.47 |
| 1:A:2209:C:O2 | 4:D:150:LYS:NZ | 2.44 | 0.47 |
| 5:E:121:ASN:O | 5:E:122:PHE:C | 2.53 | 0.47 |
| 5:E:93:VAL:HG13 | 5:E:180:ASN:ND2 | 2.30 | 0.47 |
| 6:F:136:THR:O | 6:F:137:LYS:C | 2.52 | 0.47 |
| 6:F:14:PRO:O | 6:F:15:SER:CB | 2.60 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:323:G:O2' | 6:F:170:LEU:HG | 2.14 | 0.47 |
| 6:F:126:VAL:HB | 6:F:197:ASP:CB | 2.45 | 0.47 |
| 6:F:62:ARG:NH2 | 6:F:63:LYS:HZ1 | 2.13 | 0.47 |
| 10:L:108:ALA:CB | 10:L:123:ALA:HB1 | 2.32 | 0.47 |
| 1:A:1098:A:O2' | 10:L:30:HIS:HE1 | 1.98 | 0.47 |
| 11:M:27:ALA:HB1 | 11:M:106:MET:HE3 | 1.96 | 0.47 |
| 12:N:19:ILE:HG22 | 12:N:43:VAL:CA | 2.37 | 0.47 |
| 12:N:63:VAL:HG21 | 12:N:82:ASN:HD21 | 1.74 | 0.47 |
| 12:N:3:GLN:HG2 | 12:N:6:THR:HG21 | 1.96 | 0.47 |
| 12:N:97:ARG:N | 12:N:117:LEU:HD21 | 2.30 | 0.47 |
| 13:O:114:ILE:O | 13:O:114:ILE:CG2 | 2.47 | 0.47 |
| 13:O:115:LEU:O | 13:O:116:GLY:C | 2.51 | 0.47 |
| 13:O:122:PRO:O | 13:O:123:LEU:HB2 | 2.13 | 0.47 |
| 13:O:111:ARG:CD | 13:O:129:ALA:HB2 | 2.33 | 0.47 |
| 13:O:13:ASN:ND2 | 13:O:14:LYS:HG3 | 2.29 | 0.47 |
| 13:O:7:ARG:CD | 13:O:7:ARG:N | 2.68 | 0.47 |
| 14:P:64:ILE:HA | 14:P:106:VAL:O | 2.15 | 0.47 |
| 14:P:24:GLY:C | 14:P:26:TYR:CE2 | 2.88 | 0.47 |
| 14:P:75:THR:C | 14:P:77:LYS:H | 2.10 | 0.47 |
| 15:Q:115:GLU:O | 15:Q:116:LEU:C | 2.52 | 0.47 |
| 15:Q:20:LEU:HD21 | 15:Q:24:GLN:CD | 2.35 | 0.47 |
| 15:Q:52:ILE:O | 15:Q:56:LYS:CG | 2.63 | 0.47 |
| 15:Q:67:LEU:HD13 | 15:Q:67:LEU:C | 2.35 | 0.47 |
| 16:R:33:LYS:CG | 16:R:54:LEU:HD21 | 2.44 | 0.47 |
| 17:S:17:THR:CG2 | 17:S:22:PHE:CE2 | 2.98 | 0.47 |
| 17:S:19:LEU:CD1 | 17:S:85:LYS:NZ | 2.78 | 0.47 |
| 18:T:45:TYR:O | 18:T:46:ALA:C | 2.53 | 0.47 |
| 18:T:49:HIS:HA | 18:T:52:ARG:NH2 | 2.30 | 0.47 |
| 18:T:55:ARG:HA | 18:T:58:ARG:CG | 2.45 | 0.47 |
| 19:U:15:GLU:CB | 19:U:16:PRO:CD | 2.92 | 0.47 |
| 20:V:15:ARG:HB2 | 20:V:16:LYS:CD | 2.36 | 0.47 |
| 20:V:33:ARG:NH2 | 20:V:33:ARG:HB3 | 2.30 | 0.47 |
| 22:X:81:LYS:NZ | 22:X:96:ILE:HG12 | 2.29 | 0.47 |
| 24:Z:21:LEU:CD1 | 24:Z:41:ARG:HG2 | 2.39 | 0.47 |
| 24:Z:48:GLY:HA3 | 24:Z:80:HIS:CE1 | 2.49 | 0.47 |
| 26:2:9:VAL:N | 26:2:54:VAL:HG23 | 2.30 | 0.47 |
| 29:5:12:GLU:HG3 | 29:5:53:LYS:O | 2.15 | 0.47 |
| 31:7:26:LYS:HB2 | 31:7:44:LYS:CE | 2.45 | 0.47 |
| 31:7:29:LYS:C | 31:7:34:TRP:HZ2 | 2.18 | 0.47 |
| 31:7:31:HIS:CA | 31:7:34:TRP:HE1 | 2.25 | 0.47 |
| 32:8:19:ARG:CZ | 32:8:19:ARG:CB | 2.93 | 0.47 |
| 1:A:1031:G:H2' | 1:A:1032:A:O5' | 2.14 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1063:G:O6 | 1:A:1069:A:H2' | 2.14 | 0.47 |
| 1:A:1072:C:N3 | 1:A:1092:C:C4 | 2.83 | 0.47 |
| 1:A:110:G:C6 | 1:A:111:A:C5 | 3.02 | 0.47 |
| 1:A:1288:U:O2 | 1:A:1327:C:N3 | 2.48 | 0.47 |
| 1:A:1342:A:N9 | 1:A:1345:C:N4 | 2.63 | 0.47 |
| 1:A:136:G:N2 | 1:A:144:C:N3 | 2.63 | 0.47 |
| 1:A:1529:A:H2' | 1:A:1530:G:O4' | 2.15 | 0.47 |
| 1:A:15:G:H2' | 1:A:16:G:C8 | 2.50 | 0.47 |
| 1:A:1652:A:H3' | 1:A:1653:G:O4' | 2.14 | 0.47 |
| 1:A:1678:G:O5' | 1:A:1678:G:C8 | 2.68 | 0.47 |
| 1:A:1695:G:C2 | 1:A:1696:G:O4' | 2.68 | 0.47 |
| 1:A:1712:C:H3' | 1:A:1716:U:C5 | 2.49 | 0.47 |
| 1:A:1728:G:H22 | 1:A:1730:U:H1' | 1.79 | 0.47 |
| 1:A:1818:U:OP1 | 4:D:88:ARG:CD | 2.62 | 0.47 |
| 1:A:1871:A:O2' | 1:A:1872:A:C5' | 2.63 | 0.47 |
| 1:A:2041:U:O2' | 1:A:2042:A:C5' | 2.63 | 0.47 |
| 1:A:2215:G:C2 | 1:A:2216:G:N7 | 2.83 | 0.47 |
| 1:A:2390:U:O2' | 1:A:2391:G:C5' | 2.54 | 0.47 |
| 1:A:2425:A:O2' | 1:A:2426:A:P | 2.72 | 0.47 |
| 1:A:2459:A:H2 | 1:A:2492:U:O4 | 1.95 | 0.47 |
| 1:A:2561:A:H2' | 1:A:2562:U:O4' | 2.15 | 0.47 |
| 1:A:2074:U:C2' | 1:A:2597:G:N2 | 2.66 | 0.47 |
| 1:A:2618:G:H21 | 5:E:150:VAL:HG11 | 1.80 | 0.47 |
| 1:A:2708:G:H2' | 1:A:2709:G:C8 | 2.49 | 0.47 |
| 1:A:270(J):G:C5 | 1:A:270(K):C:C4 | 3.03 | 0.47 |
| 1:A:2773:C:OP1 | 5:E:164:ARG:NH2 | 2.48 | 0.47 |
| 1:A:2781:A:N1 | 1:A:2782:G:N2 | 2.62 | 0.47 |
| 1:A:2816:C:C2' | 1:A:2817:G:O5' | 2.63 | 0.47 |
| 1:A:2825:C:N3 | 1:A:2826:A:C5 | 2.83 | 0.47 |
| 1:A:312:G:H2' | 1:A:313:C:C6 | 2.50 | 0.47 |
| 1:A:531:C:C2 | 1:A:532:A:H1' | 2.50 | 0.47 |
| 1:A:609:A:N6 | 1:A:609(A):G:O6 | 2.48 | 0.47 |
| 1:A:627:A:N7 | 1:A:637:A:C8 | 2.83 | 0.47 |
| 1:A:637:A:H2 | 1:A:651:G:C5' | 2.27 | 0.47 |
| 1:A:684:G:H1' | 1:A:687:C:N4 | 2.30 | 0.47 |
| 1:A:800:A:O2' | 1:A:801:G:P | 2.72 | 0.47 |
| 1:A:838:C:O2' | 1:A:839:U:C5' | 2.62 | 0.47 |
| 1:A:880:G:C5 | 1:A:881:G:H1' | 2.50 | 0.47 |
| 1:A:89:G:C5 | 1:A:90:U:H5 | 2.33 | 0.47 |
| 1:A:942:G:C6 | 1:A:943:U:O4 | 2.68 | 0.47 |
| 2:B:37:C:N3 | 2:B:49:C:O4' | 2.48 | 0.47 |
| 2:B:71:C:C2 | 2:B:72:G:O4' | 2.68 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 4:D:97:TYR:CB | 4:D:101:GLU:O | 2.63 | 0.47 |
| 4:D:139:GLY:H | 4:D:165:ILE:CB | 2.22 | 0.47 |
| 4:D:136:ILE:CG2 | 4:D:165:ILE:HG21 | 2.44 | 0.47 |
| 4:D:177:LEU:HD12 | 4:D:180:GLY:H | 1.80 | 0.47 |
| 4:D:224:ALA:HB2 | 4:D:233:HIS:CD2 | 2.50 | 0.47 |
| 4:D:37:LEU:HD12 | 4:D:38:LYS:H | 1.77 | 0.47 |
| 1:A:2620:C:C4' | 5:E:156:MET:HB3 | 2.42 | 0.47 |
| 5:E:15:PHE:C | 5:E:17:ASP:N | 2.68 | 0.47 |
| 6:F:9:ILE:HA | 6:F:10:PRO:HD3 | 1.49 | 0.47 |
| 6:F:130:ALA:CB | 6:F:142:TRP:CE3 | 2.95 | 0.47 |
| 1:A:450:G:H5'' | 6:F:52:LYS:HD3 | 1.95 | 0.47 |
| 6:F:64:ILE:HD13 | 6:F:64:ILE:C | 2.33 | 0.47 |
| 7:G:146:TYR:C | 7:G:147:ASP:OD2 | 2.53 | 0.47 |
| 7:G:148:MET:SD | 7:G:151:ALA:CB | 2.93 | 0.47 |
| 7:G:2:PRO:HA | 7:G:5:VAL:CB | 2.44 | 0.47 |
| 7:G:63:ILE:HG13 | 7:G:102:PHE:CZ | 2.47 | 0.47 |
| 8:H:118:PRO:N | 8:H:121:ILE:HG21 | 2.30 | 0.47 |
| 8:H:148:ILE:O | 8:H:151:ILE:CG2 | 2.63 | 0.47 |
| 8:H:7:LEU:HB2 | 8:H:51:ARG:HD3 | 1.97 | 0.47 |
| 8:H:87:LEU:O | 8:H:131:VAL:C | 2.52 | 0.47 |
| 9:K:7:GLU:CA | 9:K:14:ASP:CG | 2.68 | 0.47 |
| 12:N:22:ILE:CG1 | 12:N:40:VAL:HG13 | 2.45 | 0.47 |
| 12:N:24:VAL:HG22 | 12:N:30:ALA:HA | 1.97 | 0.47 |
| 12:N:7:TYR:N | 12:N:7:TYR:HD1 | 1.85 | 0.47 |
| 13:O:114:ILE:HG12 | 13:O:130:PHE:CD2 | 2.49 | 0.47 |
| 13:O:137:LYS:CA | 13:O:140:ALA:HB3 | 2.44 | 0.47 |
| 13:O:45:LEU:O | 13:O:46:LYS:HE3 | 2.15 | 0.47 |
| 14:P:122:GLY:O | 14:P:125:LEU:HB2 | 2.14 | 0.47 |
| 14:P:27:VAL:HG22 | 14:P:28:ALA:H | 1.80 | 0.47 |
| 15:Q:16:HIS:O | 15:Q:19:ALA:CB | 2.57 | 0.47 |
| 15:Q:3:HIS:C | 15:Q:4:LEU:HG | 2.24 | 0.47 |
| 16:R:15:ARG:O | 16:R:18:ILE:HB | 2.14 | 0.47 |
| 16:R:17:ARG:CA | 16:R:20:ARG:HG2 | 2.44 | 0.47 |
| 16:R:41:ASP:OD2 | 16:R:46:VAL:HG23 | 2.15 | 0.47 |
| 16:R:6:ALA:CA | 16:R:9:ARG:HB3 | 2.45 | 0.47 |
| 16:R:71:ARG:CB | 16:R:104:GLY:HA2 | 2.44 | 0.47 |
| 18:T:54:LYS:O | 18:T:55:ARG:C | 2.53 | 0.47 |
| 18:T:94:ASN:OD1 | 19:U:13:ARG:HG2 | 2.14 | 0.47 |
| 19:U:15:GLU:O | 19:U:100:ARG:NH2 | 2.37 | 0.47 |
| 19:U:36:PRO:CB | 19:U:61:VAL:HG22 | 2.43 | 0.47 |
| 20:V:105:VAL:O | 20:V:105:VAL:CG1 | 2.62 | 0.47 |
| 20:V:13:SER:O | 20:V:17:VAL:CG2 | 2.61 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:W:61:GLY:CA | 21:W:73:ARG:HD3 | 2.36 | 0.47 |
| 22:X:46:LYS:HD3 | 22:X:58:GLY:N | 2.29 | 0.47 |
| 22:X:84:ARG:CA | 22:X:84:ARG:HE | 2.26 | 0.47 |
| 24:Z:29:GLN:HG2 | 24:Z:30:VAL:N | 2.28 | 0.47 |
| 24:Z:59:LEU:HD23 | 24:Z:59:LEU:HA | 1.62 | 0.47 |
| 9:K:114:LEU:CD2 | 9:K:130:TYR:HB3 | 2.44 | 0.47 |
| 9:K:130:TYR:O | 9:K:138:ILE:O | 2.32 | 0.47 |
| 1:A:2116:G:OP2 | 1:A:2116:G:O4' | 2.33 | 0.47 |
| 1:A:2149:G:O2' | 1:A:2150:U:H5' | 2.15 | 0.47 |
| 1:A:2123:G:C6 | 1:A:2176:A:C6 | 3.03 | 0.47 |
| 3:C:63:SER:HG | 3:C:155:GLU:HG2 | 1.79 | 0.47 |
| 3:C:22:ILE:HA | 3:C:224:ILE:HD12 | 1.97 | 0.47 |
| 1:A:2136:C:H2' | 1:A:2137:C:O4' | 2.15 | 0.47 |
| 1:A:2149:G:H2' | 1:A:2150:U:O5' | 2.14 | 0.47 |
| 3:C:163:PHE:CZ | 3:C:195:ALA:CB | 2.92 | 0.47 |
| 1:A:1575:C:C4 | 1:A:1576:U:N3 | 2.82 | 0.47 |
| 1:A:1416:G:N2 | 1:A:1582:C:N3 | 2.61 | 0.47 |
| 9:K:59:ALA:N | 9:K:62:LYS:NZ | 2.63 | 0.47 |
| 8:H:110:SER:O | 8:H:112:PRO:CD | 2.60 | 0.47 |
| 1:A:1589:C:C2 | 1:A:1590:U:C6 | 3.02 | 0.47 |
| 1:A:1040:C:C5 | 1:A:1040:C:OP2 | 2.66 | 0.47 |
| 28:4:40:LYS:HE3 | 28:4:44:THR:CA | 2.44 | 0.47 |
| 29:5:17:LYS:N | 29:5:17:LYS:HD3 | 2.22 | 0.47 |
| 30:6:35:ARG:CB | 30:6:36:GLN:OE1 | 2.63 | 0.47 |
| 31:7:55:ALA:O | 31:7:57:ARG:N | 2.47 | 0.47 |
| 31:7:5:LYS:HE3 | 31:7:7:HIS:HA | 1.97 | 0.47 |
| 1:A:1007:C:O3' | 11:M:108:PRO:CB | 2.62 | 0.47 |
| 1:A:1009:A:N3 | 1:A:1009:A:H2' | 2.29 | 0.47 |
| 1:A:1011:G:C5 | 1:A:1013:C:C5 | 3.03 | 0.47 |
| 1:A:1000:A:C2 | 1:A:1155:A:C4 | 3.03 | 0.47 |
| 1:A:1155:A:P | 18:T:58:ARG:NH1 | 2.85 | 0.47 |
| 1:A:839:U:H4' | 1:A:1191:G:H21 | 1.79 | 0.47 |
| 1:A:1227:A:H2' | 1:A:1228:G:C5' | 2.45 | 0.47 |
| 1:A:564:C:O2' | 1:A:1252:G:O6 | 2.27 | 0.47 |
| 1:A:1376:C:H2' | 1:A:1377:G:C8 | 2.50 | 0.47 |
| 1:A:1476:C:C6 | 1:A:1477:A:N7 | 2.82 | 0.47 |
| 1:A:1529:A:C8 | 1:A:1530:G:C4 | 3.02 | 0.47 |
| 1:A:1546:C:H4' | 1:A:1547:C:C5 | 2.36 | 0.47 |
| 1:A:1793:C:H42 | 1:A:1825:A:N6 | 2.10 | 0.47 |
| 1:A:1908:C:O2' | 1:A:1909:C:C5' | 2.63 | 0.47 |
| 1:A:1916:A:N3 | 1:A:1916:A:C3' | 2.65 | 0.47 |
| 1:A:2052:G:C5 | 1:A:2053:G:N7 | 2.82 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:2199:A:OP2 | 1:A:2205:C:H5 | 1.97 | 0.47 |
| 1:A:222:A:C8 | 1:A:224:G:C8 | 3.03 | 0.47 |
| 1:A:2230:G:O2' | 1:A:2231:C:H5' | 2.14 | 0.47 |
| 1:A:2284:C:OP2 | 29:5:7:ILE:HG21 | 2.14 | 0.47 |
| 1:A:2310:A:C8 | 1:A:2310:A:O5' | 2.68 | 0.47 |
| 1:A:792:G:C6 | 1:A:2440:C:C6 | 3.03 | 0.47 |
| 1:A:2472:G:C4 | 1:A:2475:C:N3 | 2.83 | 0.47 |
| 1:A:2683:C:C6 | 1:A:2684:U:C5 | 3.02 | 0.47 |
| 1:A:2696:U:O2' | 1:A:2697:G:H5' | 2.14 | 0.47 |
| 1:A:267:C:H5'' | 1:A:271(A):C:N4 | 2.30 | 0.47 |
| 1:A:2749:A:OP1 | 8:H:6:ARG:NE | 2.48 | 0.47 |
| 1:A:2641:G:N1 | 1:A:2774:C:C4 | 2.82 | 0.47 |
| 1:A:2876:G:C2 | 1:A:2877:G:N7 | 2.83 | 0.47 |
| 1:A:2899:G:C2' | 1:A:2900:A:O5' | 2.63 | 0.47 |
| 1:A:306:U:H3' | 1:A:306:U:H6 | 1.79 | 0.47 |
| 1:A:270(C):C:OP1 | 1:A:365:C:C2' | 2.63 | 0.47 |
| 1:A:382:G:C2' | 1:A:383:U:H5' | 2.44 | 0.47 |
| 1:A:435:C:HO2' | 1:A:436:C:P | 2.37 | 0.47 |
| 1:A:472:A:C2' | 1:A:473:G:H5' | 2.34 | 0.47 |
| 1:A:475:U:H1' | 1:A:509:C:C2 | 2.50 | 0.47 |
| 1:A:487:C:H3' | 1:A:487:C:C6 | 2.49 | 0.47 |
| 1:A:563:G:H2' | 1:A:563:G:N3 | 2.30 | 0.47 |
| 1:A:574:C:O2' | 1:A:575:A:P | 2.71 | 0.47 |
| 1:A:5:A:O2' | 1:A:6:A:H5' | 2.15 | 0.47 |
| 1:A:703:U:C3' | 1:A:704:G:O4' | 2.62 | 0.47 |
| 1:A:703:U:H5'' | 1:A:704:G:OP2 | 2.15 | 0.47 |
| 1:A:728:G:O2' | 1:A:729:G:H8 | 1.97 | 0.47 |
| 1:A:728:G:O2' | 1:A:729:G:O4' | 2.33 | 0.47 |
| 1:A:732:C:H3' | 1:A:733:G:C8 | 2.49 | 0.47 |
| 1:A:87:C:N4 | 1:A:96:G:C6 | 2.83 | 0.47 |
| 1:A:930:U:O2' | 1:A:931:G:OP2 | 2.33 | 0.47 |
| 2:B:28:C:O2 | 2:B:29:A:N7 | 2.48 | 0.47 |
| 2:B:73:A:C2 | 2:B:74:U:C6 | 3.03 | 0.47 |
| 4:D:117:VAL:CG1 | 4:D:129:ASN:N | 2.77 | 0.47 |
| 4:D:183:ARG:HG2 | 4:D:184:LYS:N | 2.27 | 0.47 |
| 4:D:208:LYS:NZ | 4:D:211:ARG:HE | 2.06 | 0.47 |
| 4:D:24:ILE:HG21 | 4:D:26:LYS:HG2 | 1.95 | 0.47 |
| 5:E:148:GLY:C | 5:E:149:ARG:HG3 | 2.35 | 0.47 |
| 5:E:169:ASN:C | 5:E:169:ASN:ND2 | 2.68 | 0.47 |
| 5:E:51:PHE:C | 5:E:52:LEU:HD23 | 2.35 | 0.47 |
| 5:E:51:PHE:O | 5:E:52:LEU:HB3 | 2.15 | 0.47 |
| 7:G:99:MET:O | 7:G:100:TRP:C | 2.53 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:104:GLU:O | 7:G:109:VAL:HG13 | 2.15 | 0.47 |
| 7:G:128:ARG:HH12 | 7:G:161:THR:C | 2.18 | 0.47 |
| 7:G:29:TRP:C | 7:G:31:VAL:HG23 | 2.35 | 0.47 |
| 7:G:53:LEU:CD2 | 7:G:71:THR:N | 2.77 | 0.47 |
| 8:H:148:ILE:HG13 | 8:H:162:ILE:CD1 | 2.44 | 0.47 |
| 8:H:23:ARG:HA | 8:H:37:VAL:CG1 | 2.39 | 0.47 |
| 8:H:77:LYS:HZ3 | 8:H:81:GLU:CD | 2.18 | 0.47 |
| 9:K:7:GLU:O | 9:K:14:ASP:N | 2.47 | 0.47 |
| 11:M:17:ASP:O | 11:M:18:ALA:CB | 2.62 | 0.47 |
| 12:N:78:ARG:NH1 | 12:N:78:ARG:N | 2.63 | 0.47 |
| 12:N:79:PHE:HB2 | 17:S:73:GLU:CG | 2.30 | 0.47 |
| 12:N:85:VAL:HG13 | 12:N:86:ILE:O | 2.15 | 0.47 |
| 13:O:122:PRO:HD3 | 13:O:141:ALA:HB2 | 1.97 | 0.47 |
| 13:O:123:LEU:HG | 13:O:134:ALA:C | 2.34 | 0.47 |
| 13:O:76:LYS:HZ2 | 13:O:112:LEU:CD2 | 2.27 | 0.47 |
| 13:O:6:LEU:HD23 | 13:O:7:ARG:HG3 | 1.97 | 0.47 |
| 13:O:78:PRO:HA | 13:O:81:GLN:CG | 2.44 | 0.47 |
| 14:P:128:LYS:C | 14:P:129:THR:HG23 | 2.35 | 0.47 |
| 16:R:106:ARG:NH2 | 16:R:112:PHE:HD1 | 2.13 | 0.47 |
| 2:B:51:G:OP1 | 16:R:60:GLY:C | 2.53 | 0.47 |
| 2:B:50:G:C5' | 16:R:61:ASN:OD1 | 2.62 | 0.47 |
| 16:R:95:HIS:CD2 | 16:R:96:GLY:N | 2.81 | 0.47 |
| 19:U:67:GLY:CA | 19:U:94:LEU:HD23 | 2.44 | 0.47 |
| 1:A:748:G:OP2 | 20:V:89:ALA:HB2 | 2.14 | 0.47 |
| 22:X:19:LYS:NZ | 22:X:40:GLU:HB2 | 2.30 | 0.47 |
| 23:Y:152:ALA:HB3 | 23:Y:168:GLU:CA | 2.44 | 0.47 |
| 2:B:12:C:C5' | 24:Z:74:ARG:CG | 2.80 | 0.47 |
| 9:K:77:LEU:N | 9:K:77:LEU:CD2 | 2.72 | 0.47 |
| 9:K:79:ILE:HD12 | 9:K:143:SER:O | 2.15 | 0.47 |
| 3:C:57:ASN:HA | 3:C:165:ASN:HD21 | 1.80 | 0.47 |
| 3:C:56:GLN:O | 3:C:58:VAL:CG2 | 2.63 | 0.47 |
| 3:C:75:LEU:HD21 | 3:C:77:ILE:CG2 | 2.39 | 0.47 |
| 1:A:2183:C:C2 | 1:A:2184:G:C8 | 3.02 | 0.47 |
| 1:A:154:G:N2 | 1:A:155:C:C2 | 2.82 | 0.47 |
| 3:C:18:LYS:HG2 | 3:C:20:TYR:N | 2.18 | 0.47 |
| 25:1:20:VAL:O | 25:1:24:LYS:HG3 | 2.15 | 0.47 |
| 28:4:27:PRO:HB2 | 28:4:28:PRO:HD2 | 1.97 | 0.47 |
| 28:4:43:HIS:O | 28:4:43:HIS:CG | 2.68 | 0.47 |
| 31:7:3:LYS:CG | 31:7:4:MET:N | 2.76 | 0.47 |
| 1:A:1021:A:C3' | 1:A:1021:A:C8 | 2.98 | 0.47 |
| 1:A:1088:A:C2' | 1:A:1089:G:OP1 | 2.62 | 0.47 |
| 1:A:1179:C:HO2' | 1:A:1180:C:P | 2.38 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1327:C:O2 | 1:A:1327:C:C2' | 2.63 | 0.47 |
| 1:A:1505:C:N3 | 1:A:1506:C:C5 | 2.83 | 0.47 |
| 1:A:1518:C:C4 | 1:A:1519:G:C8 | 3.02 | 0.47 |
| 1:A:1636:C:C2' | 1:A:1636:C:O2 | 2.52 | 0.47 |
| 1:A:1731:G:H22 | 1:A:1733:G:N2 | 2.13 | 0.47 |
| 1:A:1769:G:C4' | 1:A:1958:C:H5'' | 2.42 | 0.47 |
| 1:A:1784:A:N3 | 1:A:1785:A:N1 | 2.58 | 0.47 |
| 1:A:1791:A:H8 | 1:A:1791:A:O5' | 1.98 | 0.47 |
| 1:A:1790:C:H5'' | 1:A:1828:G:H22 | 1.80 | 0.47 |
| 1:A:1870:C:N4 | 1:A:1871:A:C5 | 2.82 | 0.47 |
| 1:A:1890:A:H3' | 1:A:1891:G:C8 | 2.49 | 0.47 |
| 1:A:1913:A:C2 | 1:A:1918:A:C5 | 3.03 | 0.47 |
| 1:A:1944:U:C2' | 1:A:1955:U:H1' | 2.45 | 0.47 |
| 1:A:216:A:N6 | 1:A:432:A:N9 | 2.63 | 0.47 |
| 1:A:2289:G:C2 | 1:A:2290:G:C8 | 3.03 | 0.47 |
| 1:A:2311:A:OP2 | 1:A:2311:A:O4' | 2.32 | 0.47 |
| 1:A:2356:C:N4 | 1:A:2357:U:C4 | 2.83 | 0.47 |
| 1:A:236:C:N3 | 1:A:237:C:C5 | 2.83 | 0.47 |
| 1:A:2417:C:H2' | 1:A:2418:A:H8 | 1.80 | 0.47 |
| 1:A:2442:C:O2' | 1:A:2443:C:H5' | 2.15 | 0.47 |
| 1:A:2492:U:H2' | 1:A:2493:U:O5' | 2.15 | 0.47 |
| 1:A:2509:G:H2' | 1:A:2510:C:O5' | 2.14 | 0.47 |
| 1:A:2624:G:H3' | 1:A:2625:G:H5'' | 1.97 | 0.47 |
| 1:A:2747:G:O2' | 1:A:2748:A:O4' | 2.28 | 0.47 |
| 1:A:2808:U:O2' | 1:A:2810:A:P | 2.72 | 0.47 |
| 1:A:2810:A:H2' | 1:A:2811:G:H5' | 1.97 | 0.47 |
| 1:A:2838:G:N2 | 1:A:2881:C:C2 | 2.83 | 0.47 |
| 1:A:2889:C:C2' | 1:A:2891:G:H8 | 2.02 | 0.47 |
| 1:A:323:G:H5' | 1:A:324:A:P | 2.54 | 0.47 |
| 1:A:364:C:C2' | 1:A:365:C:C5 | 2.87 | 0.47 |
| 1:A:270(C):C:P | 1:A:365:C:O2' | 2.73 | 0.47 |
| 1:A:387:U:H5'' | 1:A:388:G:OP1 | 2.15 | 0.47 |
| 1:A:493:G:C2 | 1:A:494:G:C8 | 3.03 | 0.47 |
| 1:A:563:G:C4 | 1:A:2018:G:C2 | 3.03 | 0.47 |
| 1:A:627:A:O4' | 1:A:637:A:N6 | 2.48 | 0.47 |
| 1:A:678:C:C4 | 1:A:679:C:C5 | 3.03 | 0.47 |
| 1:A:696:G:C2 | 1:A:697:C:C6 | 3.03 | 0.47 |
| 1:A:805:G:O2' | 1:A:831:G:H4' | 2.15 | 0.47 |
| 1:A:859:G:O2' | 1:A:2268:A:H2 | 1.94 | 0.47 |
| 1:A:951:C:C2' | 1:A:952:G:O5' | 2.62 | 0.47 |
| 1:A:95:G:C6 | 1:A:96:G:C8 | 3.02 | 0.47 |
| 1:A:969:U:N3 | 1:A:970:C:C5 | 2.83 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 4:D:155:LEU:O | 4:D:155:LEU:HD23 | 2.15 | 0.47 |
| 4:D:219:PRO:O | 4:D:220:HIS:ND1 | 2.47 | 0.47 |
| 4:D:24:ILE:HG21 | 4:D:26:LYS:CG | 2.45 | 0.47 |
| 1:A:1843:C:H4' | 4:D:255:LYS:HE3 | 1.97 | 0.47 |
| 4:D:61:LEU:C | 4:D:61:LEU:HD23 | 2.35 | 0.47 |
| 5:E:99:GLY:N | 5:E:172:VAL:CG2 | 2.78 | 0.47 |
| 5:E:66:HIS:ND1 | 5:E:67:PHE:CA | 2.77 | 0.47 |
| 6:F:108:LYS:HB2 | 6:F:108:LYS:HE3 | 1.78 | 0.47 |
| 7:G:36:LYS:HB2 | 7:G:95:ARG:CA | 2.44 | 0.47 |
| 7:G:5:VAL:O | 7:G:9:ARG:HG3 | 2.14 | 0.47 |
| 8:H:23:ARG:CA | 8:H:37:VAL:HG13 | 2.42 | 0.47 |
| 8:H:40:GLU:O | 8:H:41:MET:C | 2.52 | 0.47 |
| 8:H:80:SER:OG | 8:H:81:GLU:N | 2.47 | 0.47 |
| 10:L:104:VAL:HG13 | 10:L:127:ILE:CB | 2.45 | 0.47 |
| 11:M:48:MET:C | 11:M:50:ASP:H | 2.16 | 0.47 |
| 11:M:57:ALA:C | 11:M:60:ILE:HG13 | 2.35 | 0.47 |
| 11:M:57:ALA:C | 11:M:59:LYS:H | 2.18 | 0.47 |
| 12:N:13:ASN:O | 12:N:14:THR:C | 2.52 | 0.47 |
| 13:O:130:PHE:CE1 | 13:O:145:PRO:CB | 2.95 | 0.47 |
| 14:P:54:MET:HB2 | 14:P:64:ILE:HD13 | 1.97 | 0.47 |
| 14:P:6:ARG:O | 14:P:7:MET:CE | 2.63 | 0.47 |
| 14:P:77:LYS:HB2 | 14:P:78:PRO:HD3 | 1.95 | 0.47 |
| 15:Q:20:LEU:HD22 | 15:Q:24:GLN:HG3 | 1.91 | 0.47 |
| 16:R:52:SER:HG | 16:R:69:VAL:HG22 | 1.80 | 0.47 |
| 16:R:72:ALA:O | 16:R:73:LEU:C | 2.53 | 0.47 |
| 17:S:53:ARG:HH12 | 17:S:103:ARG:N | 2.13 | 0.47 |
| 17:S:82:LEU:HD22 | 17:S:84:GLN:N | 2.23 | 0.47 |
| 18:T:54:LYS:H | 18:T:54:LYS:CD | 2.28 | 0.47 |
| 18:T:89:GLU:OE1 | 19:U:53:GLU:OE1 | 2.32 | 0.47 |
| 19:U:80:GLN:C | 19:U:82:ARG:N | 2.68 | 0.47 |
| 1:A:1266:G:C1' | 20:V:15:ARG:NH2 | 2.76 | 0.47 |
| 21:W:66:LEU:HD23 | 21:W:71:GLY:N | 2.29 | 0.47 |
| 21:W:84:ALA:CB | 21:W:85:PRO:HD3 | 2.34 | 0.47 |
| 23:Y:56:VAL:HG11 | 23:Y:134:PRO:O | 2.15 | 0.47 |
| 24:Z:17:GLN:CA | 24:Z:17:GLN:HE21 | 2.23 | 0.47 |
| 9:K:69:LYS:O | 9:K:73:GLU:OE1 | 2.33 | 0.47 |
| 1:A:2126:A:O2' | 1:A:2127:G:O5' | 2.29 | 0.47 |
| 26:2:31:LEU:C | 26:2:31:LEU:CD2 | 2.83 | 0.47 |
| 27:3:13:ARG:O | 27:3:14:ILE:CB | 2.59 | 0.47 |
| 27:3:31:ILE:C | 27:3:32:TYR:CD2 | 2.88 | 0.47 |
| 29:5:31:PRO:O | 29:5:32:ASN:ND2 | 2.33 | 0.47 |
| 1:A:2345:G:P | 29:5:39:TYR:HA | 2.55 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 29:5:17:LYS:NZ | 29:5:50:ARG:CB | 2.76 | 0.47 |
| 29:5:35:GLU:CB | 29:5:52:VAL:HG22 | 2.45 | 0.47 |
| 30:6:14:LYS:O | 30:6:15:THR:C | 2.51 | 0.47 |
| 31:7:11:LYS:O | 31:7:13:ARG:N | 2.48 | 0.47 |
| 31:7:54:GLU:N | 31:7:56:GLU:OE2 | 2.48 | 0.47 |
| 1:A:1050:A:C2' | 1:A:1051:G:H5' | 2.43 | 0.47 |
| 1:A:1064:C:H2' | 1:A:1065:U:O5' | 2.15 | 0.47 |
| 1:A:1111:A:O2' | 1:A:1112:G:C1' | 2.52 | 0.47 |
| 1:A:1142(A):A:OP2 | 1:A:1143:A:H8 | 1.98 | 0.47 |
| 1:A:1196:C:H5' | 1:A:1226:G:N1 | 2.29 | 0.47 |
| 1:A:1236:G:H2' | 1:A:1237:A:H8 | 1.79 | 0.47 |
| 1:A:1281:G:C5 | 1:A:1282:U:C5 | 3.03 | 0.47 |
| 1:A:1296:G:O2' | 1:A:1297:C:O5' | 2.33 | 0.47 |
| 1:A:1470:G:H8 | 1:A:1470:G:H3' | 1.80 | 0.47 |
| 1:A:1523:U:H2' | 1:A:1524:G:O4' | 2.15 | 0.47 |
| 1:A:1545(A):A:C8 | 1:A:1545(A):A:C3' | 2.98 | 0.47 |
| 1:A:14:A:N7 | 1:A:15:G:C8 | 2.82 | 0.47 |
| 1:A:1657:C:C6 | 1:A:1657:C:O5' | 2.63 | 0.47 |
| 1:A:1663:C:O2' | 1:A:2686:G:H5'' | 2.15 | 0.47 |
| 1:A:1732:A:OP1 | 1:A:1733:G:C4 | 2.68 | 0.47 |
| 1:A:1820:U:HO2' | 1:A:1821:A:P | 2.38 | 0.47 |
| 1:A:1907:G:C6 | 1:A:1908:C:C5 | 3.03 | 0.47 |
| 1:A:1912:A:H3' | 1:A:1913:A:C5' | 2.44 | 0.47 |
| 1:A:1964:G:OP1 | 1:A:1964:G:C8 | 2.67 | 0.47 |
| 1:A:199:A:C2 | 1:A:2433:A:C4 | 3.03 | 0.47 |
| 1:A:200:U:H3' | 1:A:201:C:H5' | 1.96 | 0.47 |
| 1:A:2020:A:OP2 | 18:T:27:LEU:CD2 | 2.62 | 0.47 |
| 1:A:188:G:N1 | 1:A:209:C:N4 | 2.63 | 0.47 |
| 1:A:2210:G:O2' | 1:A:2211:G:OP2 | 2.33 | 0.47 |
| 1:A:953:A:H2 | 1:A:2273:A:N6 | 2.13 | 0.47 |
| 1:A:2415:G:C5' | 13:O:61:ARG:HD2 | 2.45 | 0.47 |
| 1:A:270(J):G:H2' | 1:A:270(J):G:N3 | 2.29 | 0.47 |
| 1:A:2710:C:H2' | 1:A:2711:A:C5' | 2.43 | 0.47 |
| 1:A:272:G:O6 | 1:A:273:G:C6 | 2.68 | 0.47 |
| 1:A:2742:C:OP1 | 32:8:35:ARG:NH1 | 2.48 | 0.47 |
| 1:A:2754:U:C6 | 1:A:2754:U:C3' | 2.98 | 0.47 |
| 1:A:2804:C:N3 | 1:A:2805:G:N1 | 2.63 | 0.47 |
| 1:A:2869:G:H2' | 1:A:2870:C:O5' | 2.15 | 0.47 |
| 1:A:330:A:O2' | 1:A:1210:A:C6 | 2.67 | 0.47 |
| 1:A:323:G:N3 | 1:A:333:G:H1' | 2.29 | 0.47 |
| 1:A:379:G:N2 | 1:A:396:G:C4 | 2.83 | 0.47 |
| 1:A:510:C:O5' | 1:A:512:G:N1 | 2.48 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:539:G:H8 | 1:A:539:G:O5' | 1.97 | 0.47 |
| 1:A:576:U:O2 | 1:A:577:G:N7 | 2.46 | 0.47 |
| 1:A:76:C:H4' | 25:1:54:ARG:HH21 | 1.80 | 0.47 |
| 1:A:80:G:H4' | 1:A:347:A:N7 | 2.30 | 0.47 |
| 1:A:878:A:H2' | 1:A:879:G:H5'' | 1.97 | 0.47 |
| 1:A:882:G:H2' | 1:A:883:G:H8 | 1.81 | 0.47 |
| 1:A:88:G:C2' | 1:A:89:G:H5' | 2.44 | 0.47 |
| 1:A:848:G:O6 | 1:A:929:G:H2' | 2.15 | 0.47 |
| 2:B:104:A:H1' | 23:Y:29:TYR:CZ | 2.49 | 0.47 |
| 2:B:87:G:N1 | 2:B:90:C:N4 | 2.62 | 0.47 |
| 4:D:9:TYR:CG | 4:D:25:THR:HG22 | 2.50 | 0.47 |
| 4:D:42:GLY:CA | 4:D:60:ARG:NH2 | 2.78 | 0.47 |
| 5:E:28:ALA:HB3 | 5:E:50:GLY:O | 2.15 | 0.47 |
| 5:E:2:LYS:NZ | 5:E:83:ASP:HB3 | 2.29 | 0.47 |
| 6:F:112:MET:O | 6:F:115:ALA:HB3 | 2.15 | 0.47 |
| 6:F:41:LEU:CD1 | 6:F:44:ARG:NH1 | 2.78 | 0.47 |
| 7:G:107:LEU:HG | 7:G:177:GLY:HA3 | 1.97 | 0.47 |
| 7:G:181:ARG:CA | 7:G:181:ARG:CZ | 2.93 | 0.47 |
| 8:H:23:ARG:HH21 | 8:H:36:PRO:HA | 1.80 | 0.47 |
| 9:K:27:ARG:HG2 | 9:K:28:ASN:HD22 | 1.79 | 0.47 |
| 9:K:6:LEU:N | 9:K:8:PRO:CD | 2.78 | 0.47 |
| 10:L:19:PRO:CD | 10:L:23:VAL:HB | 2.45 | 0.47 |
| 11:M:108:PRO:O | 11:M:109:LYS:CB | 2.62 | 0.47 |
| 11:M:112:LEU:N | 11:M:112:LEU:HD23 | 2.29 | 0.47 |
| 11:M:55:VAL:CG2 | 11:M:123:TYR:C | 2.75 | 0.47 |
| 12:N:43:VAL:CG2 | 12:N:44:LYS:N | 2.77 | 0.47 |
| 14:P:137:TYR:C | 14:P:138:ASP:CG | 2.70 | 0.47 |
| 14:P:59:ARG:CZ | 14:P:61:GLY:HA3 | 2.45 | 0.47 |
| 14:P:65:PHE:O | 14:P:66:ILE:CD1 | 2.63 | 0.47 |
| 15:Q:32:GLY:C | 15:Q:115:GLU:HB2 | 2.34 | 0.47 |
| 17:S:103:ARG:NH2 | 17:S:103:ARG:CB | 2.78 | 0.47 |
| 17:S:52:ILE:N | 17:S:66:VAL:CG1 | 2.77 | 0.47 |
| 17:S:45:PHE:HE1 | 17:S:86:ILE:HG21 | 1.80 | 0.47 |
| 18:T:34:LYS:HE2 | 18:T:37:GLU:CD | 2.35 | 0.47 |
| 22:X:32:PRO:HB2 | 22:X:34:LYS:HE3 | 1.95 | 0.47 |
| 1:A:857:C:H5' | 24:Z:44:ARG:HH22 | 1.81 | 0.47 |
| 1:A:2114:A:H2' | 1:A:2115:G:C5' | 2.44 | 0.47 |
| 1:A:2140:C:C2 | 1:A:2152:G:N2 | 2.83 | 0.47 |
| 1:A:2177:C:H4' | 3:C:213:TYR:CD1 | 2.50 | 0.47 |
| 3:C:186:ALA:HB1 | 3:C:190:ARG:HH22 | 1.80 | 0.47 |
| 1:A:2177:C:O3' | 3:C:213:TYR:CE1 | 2.68 | 0.47 |
| 4:D:273:ARG:CG | 4:D:273:ARG:NH1 | 2.71 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 17:S:41:ARG:HE | 17:S:41:ARG:H | 1.61 | 0.47 |
| 10:L:5:VAL:O | 10:L:5:VAL:HG12 | 2.15 | 0.47 |
| 25:1:21:ARG:O | 25:1:22:GLU:C | 2.53 | 0.46 |
| 25:1:47:ASP:N | 25:1:47:ASP:OD2 | 2.47 | 0.46 |
| 27:3:5:ILE:HG13 | 27:3:9:LEU:C | 2.35 | 0.46 |
| 27:3:56:VAL:HB | 27:3:61:ARG:HE | 1.79 | 0.46 |
| 28:4:39:MET:SD | 28:4:40:LYS:CA | 3.03 | 0.46 |
| 1:A:1613:G:P | 30:6:5:TRP:HD1 | 2.36 | 0.46 |
| 1:A:1011:G:C5 | 1:A:1013:C:C6 | 3.03 | 0.46 |
| 1:A:1064:C:N3 | 1:A:1075:C:N4 | 2.62 | 0.46 |
| 1:A:1109:C:N3 | 1:A:1110:G:N2 | 2.63 | 0.46 |
| 1:A:814:C:C1' | 1:A:1224:G:H22 | 2.27 | 0.46 |
| 1:A:1302:A:OP1 | 1:A:1302:A:C4' | 2.63 | 0.46 |
| 1:A:1313:U:H2' | 1:A:1314:C:C6 | 2.50 | 0.46 |
| 1:A:1364:G:C6 | 1:A:1368:G:C6 | 3.03 | 0.46 |
| 1:A:1342:A:C4 | 1:A:1397:U:H1' | 2.50 | 0.46 |
| 1:A:1467:C:C2' | 1:A:1468:C:O5' | 2.64 | 0.46 |
| 1:A:1507:A:OP1 | 1:A:1508:A:C2 | 2.68 | 0.46 |
| 1:A:1553:A:HO2' | 1:A:1554:A:P | 2.38 | 0.46 |
| 1:A:1434:A:C5 | 1:A:1560:G:N2 | 2.83 | 0.46 |
| 1:A:1427:A:C2 | 1:A:1570:A:OP1 | 2.68 | 0.46 |
| 1:A:1663:C:H3' | 1:A:1664:A:N3 | 2.30 | 0.46 |
| 1:A:1704:G:C2' | 1:A:1705:G:O5' | 2.63 | 0.46 |
| 1:A:1791:A:C2' | 1:A:1792:G:O5' | 2.63 | 0.46 |
| 1:A:1363:C:C4' | 1:A:1809:A:N7 | 2.71 | 0.46 |
| 1:A:1947:C:C2 | 1:A:1948:G:C8 | 3.03 | 0.46 |
| 1:A:1987:G:C2 | 1:A:1988:C:C4 | 3.03 | 0.46 |
| 1:A:961:C:N4 | 1:A:2031:A:C1' | 2.77 | 0.46 |
| 1:A:2080:G:C2' | 1:A:2081:C:O5' | 2.64 | 0.46 |
| 1:A:2086:U:OP2 | 4:D:260:ARG:CZ | 2.63 | 0.46 |
| 1:A:2236:C:H5'' | 1:A:2236:C:C6 | 2.51 | 0.46 |
| 1:A:2265:U:C6 | 1:A:2265:U:C3' | 2.97 | 0.46 |
| 1:A:2305:A:C2' | 7:G:154:GLY:CA | 2.93 | 0.46 |
| 1:A:228:A:N6 | 1:A:230:U:C2 | 2.83 | 0.46 |
| 1:A:2402:C:H5'' | 1:A:2403:C:OP1 | 2.14 | 0.46 |
| 1:A:1953:A:C2 | 1:A:2560:C:H1' | 2.50 | 0.46 |
| 1:A:2626:C:C2 | 1:A:2627:G:C8 | 3.03 | 0.46 |
| 1:A:2694:G:H2' | 1:A:2695:C:O5' | 2.14 | 0.46 |
| 1:A:2740:A:C2 | 1:A:2741:A:C4 | 3.04 | 0.46 |
| 1:A:2692:C:O2' | 1:A:2847:U:O2' | 2.31 | 0.46 |
| 1:A:324:A:H2 | 1:A:325:G:C4 | 2.28 | 0.46 |
| 1:A:289:A:O2' | 1:A:351:G:N2 | 2.48 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:360:G:H2' | 1:A:361:G:O5' | 2.14 | 0.46 |
| 1:A:35:G:N1 | 1:A:36:G:C5 | 2.83 | 0.46 |
| 1:A:370:G:N2 | 1:A:423:A:OP2 | 2.48 | 0.46 |
| 1:A:479:A:O2' | 1:A:480:A:C5' | 2.63 | 0.46 |
| 1:A:592:G:H3' | 1:A:593:G:O4' | 2.16 | 0.46 |
| 1:A:599:G:C2 | 1:A:600:G:N7 | 2.83 | 0.46 |
| 1:A:607:U:C2 | 1:A:608:A:H8 | 2.33 | 0.46 |
| 1:A:64:A:C2' | 1:A:65:C:C5' | 2.91 | 0.46 |
| 1:A:656:G:C5 | 1:A:657:U:C4 | 3.03 | 0.46 |
| 1:A:668:G:C6 | 1:A:670:A:C5 | 3.03 | 0.46 |
| 1:A:66:C:C4 | 1:A:67:U:O4 | 2.68 | 0.46 |
| 1:A:699:A:H2' | 1:A:700:G:C5' | 2.34 | 0.46 |
| 1:A:722:A:N3 | 1:A:723:G:C8 | 2.82 | 0.46 |
| 1:A:733:G:H8 | 1:A:733:G:P | 2.38 | 0.46 |
| 1:A:825:C:H2' | 1:A:826:U:C6 | 2.51 | 0.46 |
| 1:A:833:U:O2 | 13:O:48:PRO:HG2 | 2.16 | 0.46 |
| 1:A:88:G:H2' | 1:A:89:G:H5' | 1.97 | 0.46 |
| 1:A:922:U:O2' | 24:Z:26:TYR:HD2 | 1.97 | 0.46 |
| 1:A:934:G:C6 | 1:A:935:C:C4 | 3.03 | 0.46 |
| 1:A:954:G:OP1 | 14:P:17:LEU:CB | 2.59 | 0.46 |
| 1:A:975:G:H21 | 1:A:976:C:H5' | 1.79 | 0.46 |
| 2:B:43:C:N3 | 2:B:45:A:C8 | 2.83 | 0.46 |
| 2:B:37:C:N4 | 2:B:44:G:C2 | 2.82 | 0.46 |
| 2:B:49:C:N3 | 2:B:50:G:C8 | 2.83 | 0.46 |
| 2:B:59:A:N7 | 2:B:60:C:C6 | 2.83 | 0.46 |
| 4:D:148:GLU:N | 4:D:186:HIS:HE1 | 2.13 | 0.46 |
| 4:D:269:PHE:O | 4:D:270:ILE:CG1 | 2.63 | 0.46 |
| 4:D:61:LEU:CD1 | 4:D:63:ARG:HH22 | 2.28 | 0.46 |
| 4:D:69:ARG:HG3 | 4:D:69:ARG:NH1 | 2.27 | 0.46 |
| 5:E:131:ALA:CB | 5:E:134:ILE:CG1 | 2.85 | 0.46 |
| 1:A:2683:C:H5' | 5:E:19:ARG:NH1 | 2.30 | 0.46 |
| 1:A:2811:G:C5' | 5:E:60:ASN:HD21 | 2.25 | 0.46 |
| 5:E:30:PRO:CG | 5:E:90:THR:CG2 | 2.90 | 0.46 |
| 5:E:91:VAL:HG13 | 5:E:93:VAL:HG22 | 1.94 | 0.46 |
| 6:F:140:LEU:HD23 | 6:F:140:LEU:C | 2.35 | 0.46 |
| 6:F:174:VAL:HG21 | 6:F:189:THR:HG21 | 1.97 | 0.46 |
| 7:G:100:TRP:O | 7:G:101:ILE:C | 2.51 | 0.46 |
| 7:G:39:ILE:HG13 | 7:G:157:ILE:CD1 | 2.45 | 0.46 |
| 7:G:163:ALA:HB2 | 7:G:172:LEU:CD2 | 2.45 | 0.46 |
| 7:G:47:LYS:CG | 7:G:73:ALA:HB2 | 2.19 | 0.46 |
| 7:G:85:GLY:O | 7:G:86:MET:CB | 2.62 | 0.46 |
| 8:H:87:LEU:HD23 | 8:H:163:TYR:O | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 9:K:15:VAL:O | 9:K:15:VAL:HG12 | 2.15 | 0.46 |
| 10:L:10:LEU:HB2 | 10:L:12:LEU:HD21 | 1.97 | 0.46 |
| 10:L:131:ALA:CB | 10:L:136:VAL:HB | 2.45 | 0.46 |
| 10:L:51:ALA:O | 10:L:52:ILE:CB | 2.63 | 0.46 |
| 1:A:1076:C:C5' | 10:L:93:ARG:HH21 | 2.27 | 0.46 |
| 11:M:90:MET:HB3 | 11:M:98:VAL:CG2 | 2.42 | 0.46 |
| 12:N:120:GLU:C | 12:N:122:LEU:H | 2.17 | 0.46 |
| 13:O:145:PRO:O | 13:O:146:VAL:HG22 | 2.15 | 0.46 |
| 13:O:74:GLU:CA | 13:O:107:LYS:HD3 | 2.46 | 0.46 |
| 13:O:97:PRO:HB3 | 13:O:102:ARG:NH1 | 2.29 | 0.46 |
| 14:P:100:GLY:O | 14:P:101:ARG:CD | 2.62 | 0.46 |
| 14:P:124:LYS:O | 14:P:125:LEU:O | 2.33 | 0.46 |
| 14:P:15:GLY:HA2 | 14:P:73:PRO:HG2 | 1.97 | 0.46 |
| 14:P:66:ILE:CG2 | 14:P:67:ARG:N | 2.48 | 0.46 |
| 15:Q:61:HIS:ND1 | 15:Q:64:ARG:NH2 | 2.63 | 0.46 |
| 1:A:2839:G:O2' | 15:Q:92:GLY:HA3 | 2.14 | 0.46 |
| 16:R:31:SER:CB | 16:R:34:HIS:HB2 | 2.36 | 0.46 |
| 17:S:7:ILE:C | 17:S:9:LEU:N | 2.67 | 0.46 |
| 18:T:58:ARG:CG | 18:T:59:ARG:HG2 | 2.41 | 0.46 |
| 18:T:65:ILE:HG22 | 18:T:76:TYR:CE1 | 2.50 | 0.46 |
| 18:T:86:ALA:O | 18:T:90:VAL:CG2 | 2.63 | 0.46 |
| 18:T:98:LEU:CB | 18:T:105:VAL:HG11 | 2.45 | 0.46 |
| 1:A:1266:G:N7 | 20:V:16:LYS:HD2 | 2.31 | 0.46 |
| 20:V:37:ARG:HG3 | 20:V:38:TYR:CD1 | 2.49 | 0.46 |
| 20:V:3:ALA:HB3 | 20:V:107:LEU:CB | 2.44 | 0.46 |
| 21:W:20:GLY:HA2 | 21:W:23:GLU:HG3 | 1.96 | 0.46 |
| 22:X:44:ILE:CB | 22:X:46:LYS:HG3 | 2.44 | 0.46 |
| 22:X:43:ASN:HD21 | 22:X:57:GLN:HB3 | 1.80 | 0.46 |
| 22:X:5:MET:SD | 22:X:33:LYS:HE2 | 2.55 | 0.46 |
| 23:Y:171:ILE:HD12 | 23:Y:171:ILE:C | 2.33 | 0.46 |
| 14:P:134:ARG:HA | 23:Y:81:ARG:HH12 | 1.80 | 0.46 |
| 24:Z:20:ARG:HB3 | 24:Z:24:LYS:HZ3 | 1.80 | 0.46 |
| 9:K:107:VAL:HG12 | 9:K:109:ILE:HD13 | 1.96 | 0.46 |
| 3:C:26:ALA:HB1 | 3:C:185:LEU:CB | 2.43 | 0.46 |
| 3:C:73:ARG:HB3 | 3:C:93:TYR:CE2 | 2.50 | 0.46 |
| 1:A:1495:A:H2' | 1:A:1496:A:N7 | 2.29 | 0.46 |
| 1:A:1574:C:H2' | 1:A:1575:C:O4' | 2.15 | 0.46 |
| 8:H:54:ARG:NH1 | 8:H:57:ASP:HB2 | 2.30 | 0.46 |
| 1:A:387:U:O5' | 27:3:29:PRO:HB3 | 2.15 | 0.46 |
| 28:4:40:LYS:HZ1 | 28:4:44:THR:H | 1.62 | 0.46 |
| 29:5:25:LYS:CG | 31:7:35:GLN:HG3 | 2.46 | 0.46 |
| 29:5:32:ASN:ND2 | 29:5:33:LYS:N | 2.63 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 31:7:2:PRO:O | 31:7:3:LYS:C | 2.53 | 0.46 |
| 31:7:33:ASN:C | 31:7:34:TRP:CG | 2.85 | 0.46 |
| 31:7:26:LYS:HZ2 | 31:7:43:GLN:HA | 1.79 | 0.46 |
| 1:A:1029:A:H62 | 1:A:1125:G:N2 | 2.13 | 0.46 |
| 1:A:1060:U:H5'' | 1:A:1061:U:C4 | 2.49 | 0.46 |
| 1:A:1072:C:C2 | 1:A:1092:C:C5 | 3.03 | 0.46 |
| 1:A:1053:C:H42 | 1:A:1105:U:H3 | 1.62 | 0.46 |
| 1:A:974:G:H1' | 1:A:1186:G:C5 | 2.50 | 0.46 |
| 1:A:974:G:C2 | 1:A:1186:G:O6 | 2.69 | 0.46 |
| 1:A:118:A:C4 | 1:A:177:G:N2 | 2.83 | 0.46 |
| 1:A:1263:U:C4 | 1:A:1264:G:N2 | 2.84 | 0.46 |
| 1:A:1357:U:O4 | 1:A:1358:G:N1 | 2.49 | 0.46 |
| 1:A:1359:A:C6 | 1:A:1360:A:C4 | 3.02 | 0.46 |
| 1:A:1520:U:N1 | 1:A:1520:U:OP2 | 2.47 | 0.46 |
| 1:A:1612:C:H1' | 30:6:6:GLN:HE22 | 1.80 | 0.46 |
| 1:A:1637:A:C6 | 1:A:1638:C:C4 | 3.04 | 0.46 |
| 1:A:1653:G:C5' | 1:A:1654:A:OP1 | 2.62 | 0.46 |
| 1:A:1681:G:N1 | 1:A:1762:A:N7 | 2.63 | 0.46 |
| 1:A:1858:G:HO2' | 1:A:1859:A:C5' | 2.26 | 0.46 |
| 1:A:1912:A:C8 | 1:A:1913:A:C1' | 2.98 | 0.46 |
| 1:A:1948:G:O2' | 1:A:1949:G:H5' | 2.15 | 0.46 |
| 1:A:197:A:H3' | 1:A:198:C:H6 | 1.75 | 0.46 |
| 1:A:2027:G:O2' | 1:A:2028:U:C5' | 2.57 | 0.46 |
| 1:A:2213:U:C2' | 1:A:2213:U:O2 | 2.63 | 0.46 |
| 1:A:2481:G:O2' | 1:A:2482:G:C8 | 2.61 | 0.46 |
| 1:A:255:A:H3' | 1:A:256:A:H8 | 1.81 | 0.46 |
| 1:A:2571:C:H2' | 5:E:146:THR:OG1 | 2.15 | 0.46 |
| 1:A:264:C:O2' | 1:A:265:A:C5' | 2.63 | 0.46 |
| 1:A:2698:U:C2 | 1:A:2699:C:C4 | 3.03 | 0.46 |
| 1:A:2782:G:P | 1:A:2782:G:O4' | 2.73 | 0.46 |
| 1:A:2786:U:H2' | 1:A:2787:C:C6 | 2.48 | 0.46 |
| 1:A:2631:G:O2' | 1:A:2810:A:N1 | 2.41 | 0.46 |
| 1:A:2863:C:C2 | 1:A:2864:G:C8 | 3.04 | 0.46 |
| 1:A:2886:G:N2 | 1:A:2887:U:N1 | 2.64 | 0.46 |
| 1:A:319:C:C2 | 1:A:333:G:N2 | 2.84 | 0.46 |
| 1:A:383:U:H2' | 1:A:385:C:H41 | 1.80 | 0.46 |
| 1:A:463:G:C2 | 1:A:467:G:C6 | 3.04 | 0.46 |
| 1:A:464:U:C4' | 30:6:12:ARG:NH2 | 2.69 | 0.46 |
| 1:A:464:U:C4 | 1:A:465:G:O6 | 2.69 | 0.46 |
| 1:A:49:A:P | 1:A:50:U:H5 | 2.38 | 0.46 |
| 1:A:515:A:C8 | 1:A:515:A:C4' | 2.98 | 0.46 |
| 1:A:611:C:N4 | 1:A:618:G:H1 | 2.13 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:60:G:C2 | 1:A:68:G:C2 | 3.03 | 0.46 |
| 1:A:70:G:OP1 | 1:A:112:U:O4 | 2.33 | 0.46 |
| 1:A:722:A:C2 | 1:A:723:G:C4 | 3.03 | 0.46 |
| 1:A:746:A:H2' | 1:A:2611:U:HO2' | 1.80 | 0.46 |
| 1:A:728:G:C4 | 1:A:763:G:OP2 | 2.68 | 0.46 |
| 1:A:684:G:HO2' | 1:A:788:A:N6 | 2.11 | 0.46 |
| 1:A:888:C:H4' | 1:A:889:C:O2 | 2.15 | 0.46 |
| 1:A:905:U:N3 | 1:A:906:G:C8 | 2.83 | 0.46 |
| 1:A:97:C:C2 | 1:A:98:G:C8 | 3.03 | 0.46 |
| 2:B:40:U:H1' | 2:B:45:A:H62 | 1.79 | 0.46 |
| 4:D:93:ALA:HB2 | 4:D:107:ALA:HA | 1.96 | 0.46 |
| 4:D:116:GLN:O | 4:D:117:VAL:HG23 | 2.15 | 0.46 |
| 4:D:183:ARG:CG | 4:D:184:LYS:N | 2.78 | 0.46 |
| 4:D:186:HIS:HB2 | 4:D:188:GLU:OE1 | 2.16 | 0.46 |
| 4:D:209:ALA:O | 4:D:213:ARG:HG2 | 2.15 | 0.46 |
| 4:D:226:MET:CE | 4:D:235:GLY:HA2 | 2.45 | 0.46 |
| 5:E:14:ILE:HA | 5:E:19:ARG:CB | 2.30 | 0.46 |
| 5:E:152:LYS:HD2 | 5:E:152:LYS:O | 2.15 | 0.46 |
| 5:E:175:VAL:CG2 | 5:E:175:VAL:O | 2.63 | 0.46 |
| 5:E:92:THR:O | 5:E:93:VAL:C | 2.53 | 0.46 |
| 6:F:110:LEU:HD11 | 6:F:181:LEU:HD23 | 1.96 | 0.46 |
| 6:F:121:GLY:HA3 | 6:F:191:ARG:HE | 1.80 | 0.46 |
| 6:F:197:ASP:C | 6:F:200:GLU:HG3 | 2.35 | 0.46 |
| 1:A:37:C:O2' | 6:F:50:SER:HA | 2.16 | 0.46 |
| 6:F:97:TYR:N | 6:F:97:TYR:CD2 | 2.81 | 0.46 |
| 7:G:9:ARG:HB3 | 7:G:13:GLU:OE2 | 2.15 | 0.46 |
| 7:G:27:ASN:HB3 | 7:G:29:TRP:CH2 | 2.50 | 0.46 |
| 7:G:75:LYS:HE3 | 7:G:87:PRO:HG3 | 1.96 | 0.46 |
| 1:A:2309:A:N7 | 7:G:80:PHE:CZ | 2.83 | 0.46 |
| 7:G:74:LYS:HB3 | 7:G:87:PRO:HG2 | 1.96 | 0.46 |
| 8:H:135:GLY:HA3 | 8:H:141:VAL:CG2 | 2.46 | 0.46 |
| 8:H:119:GLU:HB2 | 8:H:140:LYS:HZ1 | 1.79 | 0.46 |
| 9:K:13:GLY:O | 9:K:14:ASP:O | 2.33 | 0.46 |
| 10:L:130:SER:HA | 10:L:133:SER:HB2 | 1.97 | 0.46 |
| 10:L:55:VAL:HG21 | 10:L:69:THR:HG22 | 1.96 | 0.46 |
| 11:M:4:TYR:CE1 | 18:T:101:ARG:CZ | 2.98 | 0.46 |
| 11:M:88:GLU:N | 11:M:89:LYS:HZ2 | 2.14 | 0.46 |
| 12:N:70:LYS:HE2 | 12:N:102:VAL:CG1 | 2.45 | 0.46 |
| 13:O:6:LEU:N | 13:O:7:ARG:HE | 2.13 | 0.46 |
| 16:R:28:VAL:HA | 16:R:37:ALA:HA | 1.97 | 0.46 |
| 16:R:70:GLY:O | 16:R:72:ALA:N | 2.48 | 0.46 |
| 16:R:30:ARG:HD2 | 16:R:91:PRO:HB2 | 1.93 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 17:S:28:VAL:HG11 | 17:S:90:GLN:CD | 2.35 | 0.46 |
| 12:N:106:LEU:CD2 | 17:S:38:ASN:HD21 | 2.26 | 0.46 |
| 17:S:52:ILE:HG12 | 17:S:66:VAL:CG1 | 2.43 | 0.46 |
| 17:S:28:VAL:CA | 17:S:93:ARG:O | 2.61 | 0.46 |
| 17:S:99:LEU:C | 17:S:102:ILE:HD11 | 2.36 | 0.46 |
| 18:T:92:ARG:CA | 18:T:95:LEU:HG | 2.34 | 0.46 |
| 19:U:4:ILE:HA | 19:U:12:TYR:HD2 | 1.80 | 0.46 |
| 19:U:21:ARG:NH1 | 19:U:21:ARG:CG | 2.74 | 0.46 |
| 19:U:40:LEU:HG | 19:U:55:ALA:H | 1.75 | 0.46 |
| 19:U:20:LEU:CB | 19:U:95:LEU:HD22 | 2.45 | 0.46 |
| 20:V:89:ALA:O | 20:V:90:ARG:C | 2.54 | 0.46 |
| 22:X:32:PRO:HB2 | 22:X:34:LYS:CG | 2.39 | 0.46 |
| 22:X:85:VAL:HG11 | 22:X:87:LYS:NZ | 2.31 | 0.46 |
| 23:Y:157:LEU:HD23 | 23:Y:162:GLU:H | 1.80 | 0.46 |
| 1:A:2122:U:O2' | 3:C:172:HIS:CE1 | 2.68 | 0.46 |
| 1:A:2164:C:O3' | 1:A:2165:G:O4' | 2.34 | 0.46 |
| 3:C:167:LYS:HG3 | 3:C:168:THR:H | 1.80 | 0.46 |
| 3:C:63:SER:HA | 3:C:160:ARG:HH12 | 1.80 | 0.46 |
| 1:A:1886:C:O2' | 1:A:1887:C:H5' | 2.15 | 0.46 |
| 2:B:118:G:O6 | 2:B:119:A:N6 | 2.48 | 0.46 |
| 1:A:96:G:OP1 | 25:1:43:HIS:NE2 | 2.49 | 0.46 |
| 26:2:19:GLN:OE1 | 26:2:50:VAL:HG23 | 2.15 | 0.46 |
| 30:6:20:ALA:O | 30:6:21:ARG:C | 2.52 | 0.46 |
| 1:A:458:G:C5' | 30:6:39:ARG:HD2 | 2.46 | 0.46 |
| 30:6:39:ARG:HB3 | 30:6:40:TRP:H | 1.20 | 0.46 |
| 31:7:26:LYS:C | 31:7:27:THR:HG22 | 2.36 | 0.46 |
| 13:O:49:ARG:HH22 | 31:7:55:ALA:CB | 2.29 | 0.46 |
| 1:A:1054:A:C6 | 1:A:1055:G:C6 | 3.04 | 0.46 |
| 1:A:1135:C:H2' | 1:A:1136:G:C8 | 2.49 | 0.46 |
| 1:A:1202:C:C5 | 1:A:1203:G:C1' | 2.93 | 0.46 |
| 1:A:1455:G:N2 | 1:A:1456:G:H1' | 2.30 | 0.46 |
| 1:A:1459:G:C6 | 1:A:1461:G:C4 | 3.03 | 0.46 |
| 1:A:1460:A:N1 | 1:A:1732:A:C2 | 2.82 | 0.46 |
| 1:A:1520:U:C5 | 1:A:1520:U:OP2 | 2.68 | 0.46 |
| 1:A:1538:G:H1 | 1:A:1539:G:N2 | 2.13 | 0.46 |
| 1:A:1542:G:H1' | 1:A:1543:A:N6 | 2.30 | 0.46 |
| 1:A:1623:G:C2' | 1:A:1624:G:H5' | 2.45 | 0.46 |
| 1:A:1625:C:O5' | 1:A:1625:C:C6 | 2.60 | 0.46 |
| 1:A:1691:C:C2' | 1:A:1692:U:O5' | 2.63 | 0.46 |
| 1:A:1769:G:C2' | 1:A:1770:G:H8 | 2.28 | 0.46 |
| 1:A:1858:G:O2' | 1:A:1859:A:C5' | 2.63 | 0.46 |
| 1:A:1958:C:H2' | 1:A:1959:G:O5' | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:195:A:C2 | 1:A:201:C:N3 | 2.83 | 0.46 |
| 1:A:2024:G:C6 | 1:A:2025:C:C5 | 3.04 | 0.46 |
| 1:A:219:G:H8 | 1:A:219:G:O5' | 1.97 | 0.46 |
| 1:A:2238:G:H1' | 1:A:2240:C:H5 | 1.80 | 0.46 |
| 1:A:2269:A:C2' | 1:A:2270:G:H5' | 2.45 | 0.46 |
| 1:A:2289:G:N3 | 1:A:2289:G:H2' | 2.30 | 0.46 |
| 1:A:2305:A:C8 | 7:G:154:GLY:O | 2.68 | 0.46 |
| 1:A:2305:A:N3 | 7:G:156:ASP:HB2 | 2.30 | 0.46 |
| 1:A:2356:C:H4' | 24:Z:20:ARG:NE | 2.30 | 0.46 |
| 1:A:2404:C:H2' | 1:A:2405:G:C8 | 2.51 | 0.46 |
| 1:A:2429:G:OP2 | 1:A:2430:A:OP2 | 2.33 | 0.46 |
| 1:A:2441:C:C2' | 1:A:2442:C:H5' | 2.46 | 0.46 |
| 1:A:2479:G:H2' | 1:A:2480:C:O5' | 2.15 | 0.46 |
| 1:A:1127:A:C5 | 1:A:2518:A:C2 | 3.03 | 0.46 |
| 1:A:2616:C:C2' | 1:A:2617:C:C6 | 2.95 | 0.46 |
| 1:A:266:G:N1 | 1:A:267:C:C2 | 2.84 | 0.46 |
| 1:A:2628:C:H42 | 1:A:2782:G:H8 | 1.62 | 0.46 |
| 1:A:2812:G:H2' | 1:A:2813:A:C8 | 2.46 | 0.46 |
| 1:A:385:C:O2' | 1:A:386:G:C5' | 2.54 | 0.46 |
| 1:A:447:A:C5 | 1:A:473:G:C5 | 3.04 | 0.46 |
| 1:A:542:C:C2 | 1:A:543:C:C5 | 3.03 | 0.46 |
| 1:A:546:C:N4 | 1:A:547:A:N6 | 2.63 | 0.46 |
| 1:A:599:G:N1 | 1:A:600:G:N7 | 2.63 | 0.46 |
| 1:A:684:G:C2 | 1:A:775:G:O6 | 2.68 | 0.46 |
| 1:A:684:G:C6 | 1:A:774:A:C8 | 3.03 | 0.46 |
| 1:A:777:A:O2' | 1:A:778:G:H5' | 2.15 | 0.46 |
| 1:A:674:G:C6 | 1:A:807:U:O4 | 2.69 | 0.46 |
| 1:A:846:C:C1' | 1:A:847:U:C5 | 2.98 | 0.46 |
| 1:A:917:A:H2 | 1:A:918:A:C2 | 2.30 | 0.46 |
| 1:A:848:G:C2 | 1:A:931:G:N7 | 2.82 | 0.46 |
| 1:A:945:A:C3' | 1:A:946:G:H5'' | 2.45 | 0.46 |
| 1:A:960:A:C2 | 1:A:962:G:H1' | 2.51 | 0.46 |
| 1:A:988:A:O5' | 26:2:10:LYS:NZ | 2.29 | 0.46 |
| 1:A:97:C:C2' | 1:A:98:G:O5' | 2.63 | 0.46 |
| 2:B:16:G:O2' | 2:B:17:C:H5' | 2.15 | 0.46 |
| 2:B:16:G:C5 | 2:B:17:C:C5 | 3.03 | 0.46 |
| 2:B:41:U:C5' | 2:B:42:C:H5' | 2.42 | 0.46 |
| 4:D:262:ARG:O | 4:D:266:SER:CB | 2.64 | 0.46 |
| 4:D:61:LEU:HD22 | 4:D:62:TYR:N | 2.31 | 0.46 |
| 4:D:88:ARG:CG | 4:D:89:SER:N | 2.77 | 0.46 |
| 5:E:30:PRO:CD | 5:E:90:THR:O | 2.64 | 0.46 |
| 6:F:149:ASP:HA | 6:F:172:TRP:HE1 | 1.79 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:F:153:SER:OG | 6:F:190:GLU:N | 2.43 | 0.46 |
| 1:A:2306:C:P | 7:G:136:ARG:CZ | 3.04 | 0.46 |
| 7:G:140:ILE:C | 7:G:142:PRO:CD | 2.84 | 0.46 |
| 7:G:41:GLN:HG3 | 7:G:155:MET:HB3 | 1.98 | 0.46 |
| 7:G:47:LYS:CA | 7:G:72:ARG:HB3 | 2.44 | 0.46 |
| 8:H:106:THR:HG21 | 8:H:111:HIS:HA | 1.97 | 0.46 |
| 8:H:67:LEU:O | 8:H:69:ARG:N | 2.49 | 0.46 |
| 10:L:115:LEU:HD12 | 10:L:118:THR:CA | 2.43 | 0.46 |
| 10:L:115:LEU:CD1 | 10:L:118:THR:HA | 2.44 | 0.46 |
| 10:L:132:ARG:N | 10:L:136:VAL:O | 2.49 | 0.46 |
| 10:L:79:ARG:HH12 | 10:L:87:GLY:N | 2.13 | 0.46 |
| 10:L:7:VAL:CG1 | 10:L:67:PHE:CD2 | 2.97 | 0.46 |
| 1:A:1664:A:O2' | 12:N:66:LYS:CE | 2.63 | 0.46 |
| 1:A:623:G:C8 | 13:O:105:LEU:HD22 | 2.49 | 0.46 |
| 13:O:112:LEU:HB2 | 13:O:127:ALA:HB1 | 1.96 | 0.46 |
| 13:O:130:PHE:HB2 | 13:O:135:LEU:HD12 | 1.97 | 0.46 |
| 13:O:137:LYS:HE3 | 13:O:137:LYS:N | 2.30 | 0.46 |
| 14:P:51:ARG:NH2 | 14:P:55:VAL:HG21 | 2.20 | 0.46 |
| 16:R:32:LEU:C | 16:R:34:HIS:H | 2.19 | 0.46 |
| 16:R:42:ASP:OD2 | 16:R:42:ASP:C | 2.53 | 0.46 |
| 17:S:111:ARG:HG3 | 17:S:114:LEU:CD1 | 2.45 | 0.46 |
| 17:S:115:ARG:O | 17:S:116:ALA:C | 2.52 | 0.46 |
| 17:S:52:ILE:N | 17:S:66:VAL:HG12 | 2.30 | 0.46 |
| 17:S:6:LEU:HD13 | 17:S:6:LEU:N | 2.19 | 0.46 |
| 19:U:14:VAL:HG21 | 19:U:21:ARG:HH22 | 1.80 | 0.46 |
| 20:V:72:LYS:CB | 20:V:108:GLY:N | 2.73 | 0.46 |
| 20:V:29:LEU:HG | 20:V:33:ARG:HG3 | 1.96 | 0.46 |
| 20:V:59:VAL:HG22 | 20:V:63:ASP:O | 2.15 | 0.46 |
| 21:W:29:TRP:C | 21:W:30:VAL:HG13 | 2.36 | 0.46 |
| 21:W:32:PRO:HG3 | 21:W:77:LYS:HB2 | 1.97 | 0.46 |
| 22:X:47:LYS:HB2 | 22:X:49:VAL:HG22 | 1.97 | 0.46 |
| 22:X:65:ALA:O | 22:X:66:PRO:C | 2.53 | 0.46 |
| 23:Y:103:ARG:HB2 | 23:Y:138:GLU:OE1 | 2.14 | 0.46 |
| 14:P:61:GLY:O | 23:Y:177:PRO:O | 2.33 | 0.46 |
| 24:Z:37:LEU:HG | 24:Z:60:PHE:HA | 1.97 | 0.46 |
| 9:K:79:ILE:HA | 9:K:80:PRO:HD3 | 1.68 | 0.46 |
| 1:A:2118:U:H5'' | 1:A:2119:A:P | 2.55 | 0.46 |
| 1:A:2132:U:H5'' | 1:A:2133:G:H5' | 1.96 | 0.46 |
| 3:C:113:VAL:HG21 | 3:C:138:PRO:N | 2.30 | 0.46 |
| 3:C:180:PHE:O | 3:C:185:LEU:HD21 | 2.15 | 0.46 |
| 3:C:210:ARG:O | 3:C:212:VAL:HG23 | 2.15 | 0.46 |
| 3:C:22:ILE:HD12 | 3:C:227:HIS:O | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 4:D:111:LEU:CB | 4:D:115:GLN:NE2 | 2.78 | 0.46 |
| 1:A:1040:C:H6 | 1:A:1040:C:OP2 | 1.97 | 0.46 |
| 25:1:8:ALA:O | 25:1:10:LYS:N | 2.48 | 0.46 |
| 25:1:14:VAL:O | 25:1:17:GLU:HB2 | 2.15 | 0.46 |
| 25:1:51:GLN:HG3 | 25:1:54:ARG:NH1 | 2.30 | 0.46 |
| 29:5:43:CYS:HB3 | 29:5:44:ARG:HD2 | 1.96 | 0.46 |
| 1:A:2284:C:P | 29:5:7:ILE:HG21 | 2.55 | 0.46 |
| 1:A:2383:G:P | 31:7:39:LYS:HZ2 | 2.38 | 0.46 |
| 1:A:1010:A:C8 | 1:A:1010:A:OP2 | 2.68 | 0.46 |
| 1:A:1035:U:C2 | 1:A:1036:G:C8 | 3.04 | 0.46 |
| 1:A:1047:G:C4 | 1:A:1110:G:C6 | 3.04 | 0.46 |
| 1:A:114:U:H2' | 1:A:115:C:C6 | 2.50 | 0.46 |
| 1:A:1290:C:H2' | 1:A:1291:C:C5 | 2.48 | 0.46 |
| 1:A:1356:G:OP1 | 4:D:48:ARG:NE | 2.48 | 0.46 |
| 1:A:1451:C:H2' | 1:A:1457:A:H61 | 1.80 | 0.46 |
| 1:A:1529:A:H8 | 1:A:1530:G:C4 | 2.33 | 0.46 |
| 1:A:1542:G:N9 | 1:A:1543:A:N6 | 2.63 | 0.46 |
| 1:A:1272:A:H5' | 1:A:1646:C:C4 | 2.50 | 0.46 |
| 1:A:1671:U:H2' | 1:A:1673:U:H5' | 1.97 | 0.46 |
| 1:A:1679:U:C4 | 1:A:1764:G:H5'' | 2.50 | 0.46 |
| 1:A:1741:C:O2' | 1:A:1742:C:O4' | 2.28 | 0.46 |
| 1:A:1825:A:C6 | 1:A:1826:G:C6 | 3.03 | 0.46 |
| 1:A:1831:G:C4 | 1:A:1975:G:C2 | 3.03 | 0.46 |
| 1:A:1871:A:C2 | 1:A:1872:A:N7 | 2.83 | 0.46 |
| 1:A:1935:G:H1' | 1:A:1964:G:N2 | 2.30 | 0.46 |
| 1:A:1992:G:C4' | 1:A:1993:U:C4 | 2.98 | 0.46 |
| 1:A:2048:G:H2' | 1:A:2049:G:O5' | 2.15 | 0.46 |
| 1:A:1889:A:C1' | 1:A:2087:G:O4' | 2.63 | 0.46 |
| 1:A:2212:A:N3 | 1:A:2213:U:O4 | 2.48 | 0.46 |
| 1:A:2239:G:C2 | 1:A:2240:C:C6 | 3.03 | 0.46 |
| 1:A:2242:G:C6 | 1:A:2243:U:O4 | 2.68 | 0.46 |
| 1:A:2312:U:H5' | 7:G:43:LEU:CD2 | 2.18 | 0.46 |
| 1:A:2330:G:H2' | 1:A:2331:G:O4' | 2.15 | 0.46 |
| 1:A:633:A:H4' | 1:A:2404:C:OP1 | 2.15 | 0.46 |
| 1:A:245:G:C5 | 1:A:246:C:H5 | 2.33 | 0.46 |
| 1:A:257:A:O5' | 1:A:257:A:H8 | 1.98 | 0.46 |
| 1:A:2623:G:H2' | 1:A:2623:G:N3 | 2.30 | 0.46 |
| 1:A:2754:U:C2' | 1:A:2755:C:C5' | 2.88 | 0.46 |
| 1:A:2756:U:N3 | 1:A:2758:A:N6 | 2.55 | 0.46 |
| 1:A:2774:C:H2' | 1:A:2775:A:C8 | 2.50 | 0.46 |
| 1:A:2845:G:H5'' | 17:S:57:PHE:O | 2.14 | 0.46 |
| 1:A:308:G:C8 | 1:A:501:A:C4 | 3.04 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:339:U:C2' | 1:A:340:A:C8 | 2.96 | 0.46 |
| 1:A:360:G:O6 | 1:A:361:G:C2 | 2.69 | 0.46 |
| 1:A:455:C:P | 1:A:472:A:N1 | 2.89 | 0.46 |
| 1:A:514:A:N3 | 1:A:514:A:H2' | 2.29 | 0.46 |
| 1:A:582:G:H2' | 1:A:583:G:C8 | 2.48 | 0.46 |
| 1:A:67:U:H6 | 1:A:67:U:C5' | 2.28 | 0.46 |
| 1:A:729:G:H2' | 1:A:730:C:C2' | 2.45 | 0.46 |
| 1:A:728:G:C5 | 1:A:762:U:H3' | 2.50 | 0.46 |
| 1:A:846:C:H1' | 1:A:847:U:H5 | 1.80 | 0.46 |
| 1:A:885:C:H41 | 1:A:889:C:H6 | 1.63 | 0.46 |
| 1:A:952:G:C6 | 1:A:966:G:C6 | 3.03 | 0.46 |
| 4:D:147:LEU:H | 4:D:154:LYS:CG | 2.27 | 0.46 |
| 4:D:14:ARG:CA | 4:D:14:ARG:NE | 2.70 | 0.46 |
| 4:D:203:ASN:O | 4:D:204:ILE:HG22 | 2.16 | 0.46 |
| 4:D:54:ARG:HG2 | 4:D:220:HIS:O | 2.15 | 0.46 |
| 4:D:27:THR:CG2 | 4:D:29:PRO:HD2 | 2.36 | 0.46 |
| 4:D:66:ASP:CB | 4:D:103:ARG:HD3 | 2.44 | 0.46 |
| 5:E:101:ARG:HB3 | 5:E:202:LYS:HE3 | 1.96 | 0.46 |
| 5:E:167:VAL:O | 5:E:168:MET:O | 2.34 | 0.46 |
| 1:A:2734:A:O2' | 5:E:204:ALA:HA | 2.16 | 0.46 |
| 5:E:46:ALA:CB | 5:E:85:ASN:HD21 | 2.14 | 0.46 |
| 6:F:18:ARG:C | 6:F:19:GLU:CG | 2.83 | 0.46 |
| 6:F:69:HIS:C | 6:F:69:HIS:ND1 | 2.68 | 0.46 |
| 7:G:57:ALA:CB | 7:G:67:LYS:C | 2.84 | 0.46 |
| 8:H:122:THR:O | 8:H:124:GLU:OE1 | 2.33 | 0.46 |
| 8:H:40:GLU:HG3 | 8:H:61:HIS:CE1 | 2.49 | 0.46 |
| 8:H:52:VAL:CG2 | 8:H:65:HIS:ND1 | 2.78 | 0.46 |
| 9:K:32:PRO:CD | 9:K:33:ARG:N | 2.73 | 0.46 |
| 10:L:112:MET:SD | 10:L:115:LEU:CG | 3.03 | 0.46 |
| 11:M:14:VAL:CA | 11:M:138:LEU:HB2 | 2.34 | 0.46 |
| 12:N:68:GLU:CA | 12:N:104:ARG:CZ | 2.91 | 0.46 |
| 15:Q:115:GLU:N | 15:Q:115:GLU:OE2 | 2.48 | 0.46 |
| 16:R:71:ARG:NH2 | 16:R:72:ALA:HA | 2.29 | 0.46 |
| 17:S:111:ARG:O | 17:S:115:ARG:HG3 | 2.16 | 0.46 |
| 17:S:70:VAL:HB | 17:S:71:GLY:H | 1.23 | 0.46 |
| 1:A:1227:A:OP1 | 18:T:16:LYS:CE | 2.64 | 0.46 |
| 18:T:50:ARG:CA | 18:T:53:ARG:NH1 | 2.73 | 0.46 |
| 18:T:53:ARG:HB3 | 18:T:53:ARG:NH1 | 2.26 | 0.46 |
| 19:U:4:ILE:HG13 | 19:U:13:ARG:HE | 1.79 | 0.46 |
| 19:U:80:GLN:HG3 | 19:U:81:TYR:CD1 | 2.50 | 0.46 |
| 1:A:1223:C:C4 | 19:U:88:ARG:NH2 | 2.81 | 0.46 |
| 20:V:91:GLY:O | 20:V:92:ARG:O | 2.33 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 21:W:73:ARG:HH11 | 21:W:73:ARG:HG2 | 1.81 | 0.46 |
| 22:X:19:LYS:CG | 22:X:21:LYS:CE | 2.94 | 0.46 |
| 22:X:46:LYS:HD3 | 22:X:58:GLY:HA3 | 1.93 | 0.46 |
| 1:A:2110:G:C4 | 1:A:2120:G:C8 | 3.03 | 0.46 |
| 1:A:2153:G:O2' | 1:A:2154:G:H5' | 2.15 | 0.46 |
| 3:C:116:THR:HG22 | 3:C:147:PHE:O | 2.15 | 0.46 |
| 1:A:1583:A:OP1 | 1:A:1586:A:O2' | 2.27 | 0.46 |
| 2:B:118:G:C2 | 2:B:119:A:N7 | 2.84 | 0.46 |
| 3:C:139:ASN:O | 3:C:141:LYS:N | 2.48 | 0.46 |
| 2:B:-1:A:C5 | 2:B:0:A:C8 | 3.03 | 0.46 |
| 26:2:23:LEU:HA | 26:2:28:LEU:CD1 | 2.46 | 0.46 |
| 26:2:52:HIS:C | 26:2:54:VAL:N | 2.69 | 0.46 |
| 27:3:3:GLU:OE2 | 27:3:3:GLU:O | 2.33 | 0.46 |
| 31:7:23:VAL:CG1 | 31:7:24:ALA:H | 2.29 | 0.46 |
| 1:A:1049:C:C6 | 1:A:1049:C:C3' | 2.99 | 0.46 |
| 1:A:1044:G:N7 | 1:A:1112:G:N2 | 2.63 | 0.46 |
| 1:A:1139:G:OP1 | 11:M:63:THR:HG21 | 2.16 | 0.46 |
| 1:A:10:G:H2' | 1:A:11:G:C8 | 2.51 | 0.46 |
| 1:A:1260:G:C2 | 1:A:1261:C:C6 | 3.04 | 0.46 |
| 1:A:1354:A:H2' | 1:A:1355:G:H5' | 1.97 | 0.46 |
| 1:A:1542:G:C1' | 1:A:1543:A:N6 | 2.79 | 0.46 |
| 1:A:1664:A:H2' | 1:A:1665:A:H8 | 1.62 | 0.46 |
| 1:A:1672:C:N4 | 1:A:1673:U:C5 | 2.83 | 0.46 |
| 1:A:1699:G:N7 | 1:A:1763:G:N3 | 2.64 | 0.46 |
| 1:A:1803:A:H2' | 1:A:1804:C:O4' | 2.16 | 0.46 |
| 1:A:1818:U:C6 | 4:D:156:ALA:HB3 | 2.49 | 0.46 |
| 1:A:1952:A:H3' | 1:A:1952:A:C8 | 2.51 | 0.46 |
| 1:A:2031:A:C8 | 1:A:2031:A:C4' | 2.98 | 0.46 |
| 1:A:2298:A:N3 | 1:A:2299:G:H1' | 2.31 | 0.46 |
| 1:A:2472:G:C5 | 1:A:2475:C:C4 | 3.03 | 0.46 |
| 1:A:2513:G:H2' | 1:A:2514:U:C6 | 2.51 | 0.46 |
| 1:A:2522:U:C5' | 1:A:2522:U:H6 | 2.22 | 0.46 |
| 1:A:2534:A:H2' | 1:A:2535:G:O4' | 2.16 | 0.46 |
| 1:A:2522:U:H1' | 1:A:2543:G:H1 | 1.81 | 0.46 |
| 1:A:2639:A:C2' | 1:A:2640:G:H5' | 2.45 | 0.46 |
| 1:A:2643:G:H2' | 1:A:2644:G:H8 | 1.79 | 0.46 |
| 1:A:2703:C:O2 | 1:A:2703:C:C2' | 2.63 | 0.46 |
| 1:A:270(H):C:H2' | 1:A:270(I):G:H8 | 1.80 | 0.46 |
| 1:A:270(Z):U:O2 | 1:A:271(A):C:H5'' | 2.15 | 0.46 |
| 1:A:2714:G:H5'' | 1:A:2714:G:C8 | 2.46 | 0.46 |
| 1:A:2714:G:H2' | 1:A:2715:C:C5' | 2.46 | 0.46 |
| 1:A:271(C):U:O2 | 1:A:404:C:N3 | 2.48 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:2767:C:H2' | 1:A:2768:C:H6 | 1.80 | 0.46 |
| 1:A:2826:A:H2' | 1:A:2827:C:C5' | 2.45 | 0.46 |
| 1:A:282:A:C2 | 1:A:284:U:O5' | 2.68 | 0.46 |
| 1:A:2851:A:N1 | 1:A:2852:G:C4 | 2.84 | 0.46 |
| 1:A:319:C:O2' | 1:A:320:A:O4' | 2.34 | 0.46 |
| 1:A:347:A:C2 | 1:A:348:G:C8 | 3.03 | 0.46 |
| 1:A:388:G:H1' | 1:A:390:A:N6 | 2.30 | 0.46 |
| 1:A:498:G:C2' | 1:A:499:U:H5' | 2.45 | 0.46 |
| 1:A:3:U:H2' | 1:A:4:C:H6 | 1.81 | 0.46 |
| 1:A:681:G:C6 | 1:A:682:G:C5 | 3.03 | 0.46 |
| 1:A:775:G:N2 | 1:A:787:U:C3' | 2.78 | 0.46 |
| 1:A:684:G:C6 | 1:A:775:G:N7 | 2.84 | 0.46 |
| 1:A:823:G:H2' | 1:A:823:G:N3 | 2.29 | 0.46 |
| 1:A:839:U:H2' | 1:A:840:C:H6 | 1.77 | 0.46 |
| 1:A:865:C:C2' | 1:A:865:C:O2 | 2.61 | 0.46 |
| 1:A:876:C:H2' | 1:A:877:U:C6 | 2.51 | 0.46 |
| 1:A:928:G:O2' | 26:2:43:ILE:CG1 | 2.53 | 0.46 |
| 1:A:945:A:H2' | 1:A:946:G:C5' | 2.45 | 0.46 |
| 1:A:956:G:C8 | 1:A:956:G:C3' | 2.99 | 0.46 |
| 1:A:84:A:N1 | 1:A:99:U:H1' | 2.28 | 0.46 |
| 2:B:62:C:O2' | 2:B:63:G:H5' | 2.15 | 0.46 |
| 4:D:214:TRP:NE1 | 4:D:219:PRO:CB | 2.77 | 0.46 |
| 4:D:70:TRP:HA | 4:D:73:VAL:CG1 | 2.46 | 0.46 |
| 5:E:101:ARG:CD | 5:E:170:LEU:O | 2.64 | 0.46 |
| 1:A:2683:C:C5' | 5:E:19:ARG:NH1 | 2.79 | 0.46 |
| 6:F:134:GLY:O | 6:F:166:ALA:CB | 2.63 | 0.46 |
| 6:F:161:GLU:OE1 | 6:F:161:GLU:HA | 2.14 | 0.46 |
| 6:F:170:LEU:N | 6:F:171:PRO:HD2 | 2.30 | 0.46 |
| 6:F:123:LEU:HG | 6:F:191:ARG:HD3 | 1.97 | 0.46 |
| 6:F:95:ARG:NE | 6:F:96:ASP:H | 2.13 | 0.46 |
| 7:G:113:ARG:H | 7:G:117:PHE:HD2 | 1.62 | 0.46 |
| 7:G:12:TYR:O | 7:G:16:ARG:CG | 2.64 | 0.46 |
| 7:G:18:GLU:CB | 7:G:19:LEU:HD12 | 2.40 | 0.46 |
| 7:G:27:ASN:C | 7:G:29:TRP:H | 2.18 | 0.46 |
| 7:G:97:ASP:C | 7:G:99:MET:N | 2.63 | 0.46 |
| 8:H:7:LEU:HB2 | 8:H:52:VAL:O | 2.15 | 0.46 |
| 8:H:35:VAL:CG2 | 8:H:75:ALA:CB | 2.93 | 0.46 |
| 9:K:30:LEU:C | 9:K:32:PRO:HD2 | 2.35 | 0.46 |
| 10:L:51:ALA:O | 10:L:52:ILE:HB | 2.16 | 0.46 |
| 10:L:88:ALA:HB1 | 10:L:96:VAL:CG2 | 2.46 | 0.46 |
| 10:L:91:PRO:HB3 | 10:L:134:MET:C | 2.35 | 0.46 |
| 11:M:27:ALA:C | 11:M:29:LYS:N | 2.64 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 12:N:105:GLU:O | 12:N:108:GLU:N | 2.49 | 0.46 |
| 13:O:112:LEU:CG | 13:O:128:HIS:CE1 | 2.83 | 0.46 |
| 13:O:34:GLY:O | 13:O:37:GLY:N | 2.49 | 0.46 |
| 1:A:2393:A:H5' | 13:O:56:SER:H | 1.72 | 0.46 |
| 14:P:14:ARG:CD | 14:P:14:ARG:N | 2.78 | 0.46 |
| 14:P:77:LYS:N | 14:P:77:LYS:CD | 2.77 | 0.46 |
| 15:Q:13:HIS:NE2 | 15:Q:15:SER:HB3 | 2.31 | 0.46 |
| 15:Q:17:ARG:HG3 | 15:Q:18:LEU:N | 2.26 | 0.46 |
| 15:Q:33:ARG:HH21 | 28:4:56:LYS:HG3 | 1.80 | 0.46 |
| 15:Q:44:LEU:HD12 | 15:Q:48:VAL:CG2 | 2.46 | 0.46 |
| 15:Q:61:HIS:CE1 | 15:Q:64:ARG:NH2 | 2.84 | 0.46 |
| 17:S:105:LEU:O | 17:S:106:SER:C | 2.53 | 0.46 |
| 17:S:23:ARG:NH1 | 17:S:88:ILE:O | 2.48 | 0.46 |
| 17:S:32:TYR:HB3 | 17:S:87:ASP:O | 2.15 | 0.46 |
| 18:T:33:ARG:HB3 | 18:T:34:LYS:H | 1.62 | 0.46 |
| 18:T:55:ARG:CA | 18:T:58:ARG:HE | 2.27 | 0.46 |
| 18:T:76:TYR:CD2 | 18:T:80:ILE:CD1 | 2.90 | 0.46 |
| 18:T:84:LYS:CE | 18:T:90:VAL:HG11 | 2.45 | 0.46 |
| 1:A:64:A:C2' | 21:W:71:GLY:HA3 | 2.43 | 0.46 |
| 21:W:26:TYR:CG | 21:W:89:ILE:HD12 | 2.50 | 0.46 |
| 22:X:13:VAL:HG22 | 22:X:70:SER:HB3 | 1.96 | 0.46 |
| 22:X:68:HIS:O | 22:X:69:ALA:C | 2.53 | 0.46 |
| 23:Y:18:LEU:HD11 | 23:Y:23:LYS:HE3 | 1.98 | 0.46 |
| 23:Y:24:LEU:HD13 | 23:Y:83:PRO:HD2 | 1.98 | 0.46 |
| 24:Z:51:VAL:CG1 | 24:Z:59:LEU:HD22 | 2.45 | 0.46 |
| 9:K:115:ALA:H | 9:K:130:TYR:HD2 | 1.62 | 0.46 |
| 9:K:113:ARG:HH12 | 9:K:138:ILE:CG2 | 2.29 | 0.46 |
| 9:K:69:LYS:NZ | 9:K:70:LYS:CG | 2.78 | 0.46 |
| 3:C:22:ILE:CG2 | 3:C:190:ARG:HH12 | 2.18 | 0.46 |
| 3:C:32:LEU:HB3 | 3:C:220:PRO:HG2 | 1.98 | 0.46 |
| 1:A:363(B):G:H2' | 1:A:363(C):G:C8 | 2.50 | 0.46 |
| 18:T:30:LYS:N | 18:T:30:LYS:HD2 | 2.30 | 0.46 |
| 25:1:24:LYS:CE | 25:1:56:LEU:HD21 | 2.45 | 0.46 |
| 29:5:41:PRO:CG | 29:5:43:CYS:HB2 | 2.45 | 0.46 |
| 30:6:25:PRO:HA | 30:6:28:ARG:HH21 | 1.72 | 0.46 |
| 31:7:47:LYS:HE2 | 31:7:47:LYS:HB3 | 1.36 | 0.46 |
| 13:O:52:GLU:OE1 | 31:7:52:LYS:HE2 | 2.16 | 0.46 |
| 1:A:1174:A:H2 | 1:A:1176:G:O5' | 1.99 | 0.46 |
| 1:A:1275:A:H2' | 1:A:1276:A:O4' | 2.15 | 0.46 |
| 1:A:1436:G:H1' | 1:A:1477:A:O2' | 2.15 | 0.46 |
| 1:A:1449(A):G:H2' | 1:A:1450:C:C6 | 2.51 | 0.46 |
| 1:A:1449(A):G:C2' | 1:A:1450:C:O5' | 2.63 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1471:A:H62 | 1:A:1519:G:H22 | 1.60 | 0.46 |
| 1:A:1510:A:H2' | 1:A:1510:A:N3 | 2.30 | 0.46 |
| 1:A:1626:G:H4' | 1:A:1627:G:OP1 | 2.15 | 0.46 |
| 1:A:1644:C:O2 | 1:A:1644:C:H2' | 2.16 | 0.46 |
| 1:A:1657:C:H2' | 1:A:1658:C:O4' | 2.15 | 0.46 |
| 1:A:1687:G:C6 | 1:A:1688:U:C5 | 3.03 | 0.46 |
| 1:A:1689:A:C6 | 1:A:1700:A:N3 | 2.83 | 0.46 |
| 1:A:1725:G:N2 | 1:A:1726:G:H1' | 2.31 | 0.46 |
| 1:A:1759:A:C5' | 1:A:2715:C:O4' | 2.62 | 0.46 |
| 1:A:1903:G:C4 | 1:A:1904:G:C8 | 3.04 | 0.46 |
| 1:A:1944:U:C2' | 1:A:1945:G:OP1 | 2.64 | 0.46 |
| 1:A:1951:U:O2' | 1:A:1953:A:C5' | 2.63 | 0.46 |
| 1:A:1977:A:C2 | 1:A:1978:A:O4' | 2.69 | 0.46 |
| 1:A:2072:G:C6 | 1:A:2073:C:N4 | 2.83 | 0.46 |
| 1:A:2296:U:C3' | 1:A:2296:U:C6 | 2.99 | 0.46 |
| 1:A:2302:G:O2' | 1:A:2303:G:C5' | 2.64 | 0.46 |
| 1:A:230:U:O2' | 1:A:231:C:H5' | 2.16 | 0.46 |
| 1:A:2311:A:H8 | 1:A:2312:U:C5 | 2.32 | 0.46 |
| 1:A:2288:A:N6 | 1:A:2325:G:N7 | 2.64 | 0.46 |
| 1:A:2409:G:C2 | 1:A:2410:G:C1' | 2.99 | 0.46 |
| 1:A:2409:G:C2 | 1:A:2410:G:N9 | 2.83 | 0.46 |
| 1:A:242:G:HO2' | 1:A:243:U:H5 | 1.60 | 0.46 |
| 1:A:2494:G:C6 | 1:A:2495:G:N7 | 2.84 | 0.46 |
| 1:A:2581:G:O6 | 1:A:2610:C:C6 | 2.68 | 0.46 |
| 1:A:262:A:C5 | 1:A:263:C:C6 | 3.03 | 0.46 |
| 1:A:2707:G:H8 | 1:A:2707:G:H5'' | 1.81 | 0.46 |
| 1:A:270(W):G:H2' | 1:A:270(X):G:C8 | 2.45 | 0.46 |
| 1:A:2741:A:H3' | 1:A:2742:C:C6 | 2.50 | 0.46 |
| 1:A:2749:A:O4' | 8:H:63:SER:HA | 2.16 | 0.46 |
| 1:A:2754:U:H6 | 1:A:2754:U:H3' | 1.80 | 0.46 |
| 1:A:2843:G:H2' | 1:A:2844:G:H8 | 1.81 | 0.46 |
| 1:A:291:C:C5 | 1:A:292:C:C5 | 3.04 | 0.46 |
| 1:A:304:G:H2' | 1:A:305:U:C6 | 2.51 | 0.46 |
| 1:A:543:C:O2 | 1:A:544:C:C5 | 2.69 | 0.46 |
| 1:A:64:A:O5' | 1:A:64:A:C8 | 2.69 | 0.46 |
| 1:A:665:C:C2' | 1:A:666:G:O5' | 2.64 | 0.46 |
| 1:A:763:G:O2' | 1:A:765:G:H5' | 2.15 | 0.46 |
| 1:A:802:A:C2' | 1:A:803:U:O5' | 2.63 | 0.46 |
| 1:A:803:U:H2' | 1:A:804:A:O4' | 2.16 | 0.46 |
| 1:A:980:A:N1 | 1:A:1135:C:H4' | 2.31 | 0.46 |
| 2:B:87:G:C2 | 2:B:90:C:N3 | 2.83 | 0.46 |
| 4:D:168:ARG:CG | 4:D:173:VAL:HG13 | 2.35 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 4:D:37:LEU:HB2 | 4:D:64:ILE:CG2 | 2.46 | 0.46 |
| 4:D:7:LYS:HD3 | 4:D:25:THR:CB | 2.45 | 0.46 |
| 4:D:88:ARG:HG3 | 4:D:89:SER:N | 2.31 | 0.46 |
| 4:D:8:PRO:O | 4:D:8:PRO:HG2 | 2.15 | 0.46 |
| 1:A:2620:C:C4' | 5:E:156:MET:CB | 2.91 | 0.46 |
| 5:E:102:VAL:O | 5:E:170:LEU:HD23 | 2.15 | 0.46 |
| 6:F:40:GLN:HB3 | 6:F:184:TYR:CZ | 2.51 | 0.46 |
| 6:F:205:ARG:C | 6:F:207:GLY:N | 2.68 | 0.46 |
| 6:F:64:ILE:HG13 | 6:F:78:ILE:CG2 | 2.46 | 0.46 |
| 7:G:1:MET:O | 7:G:3:LEU:N | 2.49 | 0.46 |
| 7:G:43:LEU:HD21 | 7:G:88:ILE:HG22 | 1.97 | 0.46 |
| 7:G:44:GLY:HA2 | 7:G:88:ILE:HG21 | 1.97 | 0.46 |
| 9:K:9:LEU:HB2 | 9:K:13:GLY:HA3 | 1.97 | 0.46 |
| 10:L:67:PHE:CG | 10:L:68:VAL:HG22 | 2.51 | 0.46 |
| 1:A:1077:A:P | 10:L:93:ARG:HB2 | 2.55 | 0.46 |
| 11:M:109:LYS:HB3 | 11:M:113:GLY:N | 2.21 | 0.46 |
| 11:M:10:GLU:HG2 | 11:M:10:GLU:O | 2.15 | 0.46 |
| 11:M:69:GLN:OE1 | 11:M:87:LEU:CD2 | 2.62 | 0.46 |
| 12:N:106:LEU:HA | 12:N:111:PHE:CE1 | 2.51 | 0.46 |
| 12:N:7:TYR:CB | 12:N:18:LYS:NZ | 2.49 | 0.46 |
| 13:O:137:LYS:HB3 | 13:O:140:ALA:HB3 | 1.97 | 0.46 |
| 13:O:28:GLY:C | 13:O:29:LYS:HD2 | 2.35 | 0.46 |
| 13:O:46:LYS:HB2 | 13:O:49:ARG:HB3 | 1.92 | 0.46 |
| 13:O:99:LEU:HD23 | 13:O:99:LEU:HA | 1.73 | 0.46 |
| 15:Q:28:LEU:C | 15:Q:30:THR:N | 2.69 | 0.46 |
| 15:Q:56:LYS:HD2 | 15:Q:94:TYR:HE1 | 1.81 | 0.46 |
| 16:R:99:LYS:O | 16:R:102:ALA:CA | 2.64 | 0.46 |
| 17:S:38:ASN:O | 17:S:39:ARG:C | 2.54 | 0.46 |
| 18:T:18:LEU:C | 18:T:18:LEU:CD1 | 2.84 | 0.46 |
| 1:A:495:G:H21 | 20:V:61:ASN:HD21 | 1.63 | 0.46 |
| 21:W:7:VAL:HG23 | 25:1:28:MET:SD | 2.55 | 0.46 |
| 22:X:33:LYS:HB3 | 22:X:35:TYR:CD2 | 2.49 | 0.46 |
| 22:X:47:LYS:C | 22:X:56:PRO:HG2 | 2.36 | 0.46 |
| 22:X:69:ALA:HB3 | 22:X:71:LYS:NZ | 2.30 | 0.46 |
| 22:X:72:VAL:O | 22:X:79:CYS:SG | 2.72 | 0.46 |
| 23:Y:109:ALA:C | 23:Y:113:ALA:CB | 2.84 | 0.46 |
| 23:Y:122:ARG:C | 23:Y:124:ILE:N | 2.55 | 0.46 |
| 24:Z:19:LYS:HZ1 | 24:Z:41:ARG:NE | 2.03 | 0.46 |
| 24:Z:40:GLN:HG3 | 24:Z:57:PHE:HB3 | 1.98 | 0.46 |
| 9:K:91:SER:CB | 9:K:121:LYS:HD2 | 2.44 | 0.46 |
| 9:K:123:LEU:HD12 | 9:K:124:GLY:N | 2.29 | 0.46 |
| 1:A:2133:G:H2' | 1:A:2133:G:N3 | 2.31 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:C:103:ILE:HG21 | 3:C:127:LEU:HD22 | 1.97 | 0.46 |
| 1:A:1579:A:N6 | 1:A:1581:G:C2 | 2.83 | 0.46 |
| 9:K:54:GLN:N | 9:K:57:ARG:NH2 | 2.62 | 0.46 |
| 1:A:275:G:O5' | 1:A:275:G:H8 | 1.98 | 0.46 |
| 2:B:110:G:C2' | 2:B:111:U:O4' | 2.62 | 0.46 |
| 25:1:41:GLN:O | 25:1:44:LYS:N | 2.49 | 0.46 |
| 26:2:17:LYS:CD | 26:2:18:ASP:N | 2.79 | 0.46 |
| 27:3:47:GLN:HA | 27:3:52:THR:CG2 | 2.46 | 0.46 |
| 28:4:35:GLU:HB3 | 28:4:49:CYS:HB2 | 1.97 | 0.46 |
| 1:A:2815:C:O2' | 28:4:42:PRO:HB3 | 2.14 | 0.46 |
| 29:5:25:LYS:C | 29:5:26:ASN:CG | 2.72 | 0.46 |
| 31:7:5:LYS:HB3 | 31:7:63:PRO:CD | 2.46 | 0.46 |
| 32:8:11:CYS:CB | 32:8:32:HIS:CE1 | 2.98 | 0.46 |
| 1:A:1030:G:N2 | 1:A:1031:G:C4 | 2.84 | 0.46 |
| 1:A:1107:G:H2' | 1:A:1108:U:O4' | 2.16 | 0.46 |
| 1:A:112:U:C4 | 1:A:113:G:H1' | 2.51 | 0.46 |
| 1:A:1169:G:N2 | 1:A:1181:C:N3 | 2.64 | 0.46 |
| 1:A:991:C:C5 | 1:A:1185:C:C4 | 3.04 | 0.46 |
| 1:A:1195:G:C2 | 1:A:1196:C:C6 | 3.04 | 0.46 |
| 1:A:1284:A:C6 | 1:A:1285:G:N2 | 2.84 | 0.46 |
| 1:A:1313:U:OP1 | 21:W:63:LYS:NZ | 2.47 | 0.46 |
| 1:A:1364:G:C6 | 1:A:1368:G:O6 | 2.68 | 0.46 |
| 1:A:1427:A:HO2' | 1:A:1428:C:P | 2.38 | 0.46 |
| 1:A:1332:G:C6 | 1:A:1609:A:N1 | 2.83 | 0.46 |
| 1:A:1707:G:C2 | 1:A:1708:C:C2 | 3.04 | 0.46 |
| 1:A:1712:C:C3' | 1:A:1716:U:C6 | 2.99 | 0.46 |
| 1:A:1791:A:C8 | 4:D:209:ALA:HB2 | 2.51 | 0.46 |
| 1:A:1832:C:C5 | 1:A:1833:U:C5 | 3.03 | 0.46 |
| 1:A:1850:G:C2 | 1:A:1851:U:C2 | 3.04 | 0.46 |
| 1:A:1853:A:O2' | 1:A:1854:A:C5' | 2.61 | 0.46 |
| 1:A:1890:A:H2' | 1:A:1891:G:O4' | 2.16 | 0.46 |
| 1:A:1927:A:H2' | 1:A:1928:A:O4' | 2.15 | 0.46 |
| 1:A:1977:A:C2 | 1:A:1978:A:C8 | 3.04 | 0.46 |
| 1:A:201:C:H5 | 1:A:202:U:C5 | 2.34 | 0.46 |
| 1:A:531:C:C1' | 1:A:2035:G:N2 | 2.79 | 0.46 |
| 1:A:2064:C:O4' | 1:A:2450:A:N6 | 2.34 | 0.46 |
| 1:A:2211:G:C3' | 1:A:2211:G:N3 | 2.78 | 0.46 |
| 1:A:2266:A:N1 | 1:A:2273:A:OP2 | 2.48 | 0.46 |
| 1:A:2305:A:C2 | 7:G:156:ASP:HB3 | 2.51 | 0.46 |
| 1:A:2348:U:H3' | 31:7:42:ARG:HH12 | 1.81 | 0.46 |
| 1:A:2352:A:N3 | 1:A:2352:A:C2' | 2.79 | 0.46 |
| 1:A:2355:C:C4 | 1:A:2356:C:C4 | 3.04 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2415:G:C2 | 1:A:2416:C:C2 | 3.04 | 0.46 |
| 1:A:2466:C:O2' | 14:P:123:HIS:HE1 | 1.99 | 0.46 |
| 1:A:253:C:C2' | 1:A:254:G:H5' | 2.46 | 0.46 |
| 1:A:2564:A:C8 | 1:A:2648:C:H5' | 2.50 | 0.46 |
| 1:A:221:A:H2' | 1:A:266:G:N7 | 2.31 | 0.46 |
| 1:A:2708:G:OP1 | 15:Q:68:ARG:NE | 2.49 | 0.46 |
| 1:A:222:A:C5' | 1:A:271(B):G:N2 | 2.79 | 0.46 |
| 1:A:2777:G:C8 | 1:A:2777:G:O5' | 2.68 | 0.46 |
| 1:A:2779:U:H4' | 1:A:2781:A:P | 2.56 | 0.46 |
| 1:A:278:A:C8 | 1:A:279:C:C4 | 3.03 | 0.46 |
| 1:A:2820:A:H61 | 5:E:192:ASN:H | 1.62 | 0.46 |
| 1:A:435:C:O2' | 1:A:436:C:OP1 | 2.33 | 0.46 |
| 1:A:489:G:H21 | 1:A:491:G:H1' | 1.81 | 0.46 |
| 1:A:553:U:C4 | 1:A:554:U:C4 | 3.03 | 0.46 |
| 1:A:602:G:O2' | 1:A:603:A:OP2 | 2.31 | 0.46 |
| 1:A:635:C:H2' | 1:A:636:G:C5' | 2.45 | 0.46 |
| 1:A:638:G:C2' | 1:A:639:U:C5' | 2.77 | 0.46 |
| 1:A:762:U:H1' | 1:A:763:G:C4 | 2.51 | 0.46 |
| 1:A:792:G:C8 | 1:A:2440:C:O2 | 2.69 | 0.46 |
| 1:A:859:G:H8 | 1:A:859:G:H3' | 1.80 | 0.46 |
| 1:A:924:C:H2' | 1:A:925:C:C6 | 2.50 | 0.46 |
| 4:D:9:TYR:OH | 4:D:198:ASN:OD1 | 2.31 | 0.46 |
| 4:D:13:ARG:CD | 4:D:22:SER:HB2 | 2.46 | 0.46 |
| 1:A:2227:A:OP1 | 4:D:260:ARG:HD3 | 2.15 | 0.46 |
| 4:D:72:LYS:O | 4:D:73:VAL:C | 2.54 | 0.46 |
| 4:D:74:GLY:O | 4:D:76:PRO:HD3 | 2.15 | 0.46 |
| 5:E:120:TRP:CZ3 | 5:E:122:PHE:HB2 | 2.48 | 0.46 |
| 5:E:13:ARG:NH1 | 5:E:20:ALA:CB | 2.64 | 0.46 |
| 5:E:182:LEU:HD23 | 5:E:184:VAL:HG12 | 1.98 | 0.46 |
| 5:E:199:ARG:HD2 | 5:E:199:ARG:N | 2.31 | 0.46 |
| 5:E:59:VAL:CG1 | 5:E:62:PRO:CD | 2.93 | 0.46 |
| 5:E:91:VAL:HG22 | 5:E:92:THR:N | 2.31 | 0.46 |
| 6:F:118:ALA:O | 6:F:122:LYS:CB | 2.60 | 0.46 |
| 6:F:156:LEU:CD2 | 6:F:173:VAL:HG23 | 2.45 | 0.46 |
| 1:A:2060:A:OP1 | 6:F:69:HIS:C | 2.53 | 0.46 |
| 7:G:103:LEU:CD1 | 7:G:107:LEU:HD23 | 2.45 | 0.46 |
| 8:H:119:GLU:O | 8:H:120:GLY:C | 2.54 | 0.46 |
| 9:K:2:LYS:NZ | 9:K:39:ALA:HB1 | 2.31 | 0.46 |
| 9:K:8:PRO:HA | 9:K:13:GLY:H | 1.80 | 0.46 |
| 10:L:112:MET:CE | 10:L:115:LEU:HG | 2.45 | 0.46 |
| 10:L:51:ALA:C | 10:L:52:ILE:HG12 | 2.35 | 0.46 |
| 10:L:55:VAL:HG13 | 10:L:69:THR:CA | 2.46 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:L:27:LEU:HD13 | 10:L:57:ILE:HD11 | 1.97 | 0.46 |
| 11:M:100:GLU:O | 11:M:103:VAL:N | 2.49 | 0.46 |
| 11:M:27:ALA:HB1 | 11:M:106:MET:CE | 2.46 | 0.46 |
| 11:M:86:PRO:HB2 | 11:M:89:LYS:NZ | 2.26 | 0.46 |
| 1:A:1665:A:O2' | 12:N:1:MET:HG3 | 2.15 | 0.46 |
| 1:A:1665:A:H5' | 12:N:66:LYS:HD3 | 1.97 | 0.46 |
| 13:O:75:ILE:H | 13:O:75:ILE:HD13 | 1.78 | 0.46 |
| 14:P:124:LYS:HG2 | 14:P:125:LEU:N | 2.31 | 0.46 |
| 15:Q:83:ILE:CG2 | 15:Q:86:ARG:HH21 | 2.29 | 0.46 |
| 16:R:17:ARG:CZ | 16:R:89:ARG:CB | 2.83 | 0.46 |
| 16:R:17:ARG:O | 16:R:18:ILE:C | 2.53 | 0.46 |
| 17:S:38:ASN:O | 17:S:39:ARG:O | 2.34 | 0.46 |
| 17:S:58:ASN:CA | 17:S:61:PHE:CZ | 2.97 | 0.46 |
| 18:T:50:ARG:O | 18:T:53:ARG:NH1 | 2.49 | 0.46 |
| 19:U:6:LYS:HD3 | 19:U:10:LYS:CG | 2.45 | 0.46 |
| 21:W:50:LYS:HZ3 | 21:W:85:PRO:CG | 2.29 | 0.46 |
| 1:A:1341:U:O2 | 21:W:55:ASN:OD1 | 2.34 | 0.46 |
| 21:W:61:GLY:O | 21:W:72:LYS:HB3 | 2.15 | 0.46 |
| 22:X:74:PRO:HB2 | 22:X:100:ALA:CB | 2.46 | 0.46 |
| 22:X:35:TYR:CD1 | 22:X:64:GLU:O | 2.68 | 0.46 |
| 1:A:297:C:H5'' | 22:X:83:THR:CG2 | 2.45 | 0.46 |
| 22:X:86:ARG:HA | 22:X:91:GLU:CG | 2.45 | 0.46 |
| 1:A:2173:A:H3' | 1:A:2174:C:C6 | 2.51 | 0.46 |
| 3:C:104:LEU:HD22 | 3:C:127:LEU:HD23 | 1.96 | 0.46 |
| 3:C:62:VAL:O | 3:C:62:VAL:CG1 | 2.57 | 0.46 |
| 3:C:89:ALA:HB2 | 3:C:154:ARG:HH11 | 1.81 | 0.46 |
| 3:C:74:VAL:O | 3:C:93:TYR:HD2 | 1.98 | 0.46 |
| 1:A:274:G:H2' | 1:A:275:G:H5' | 1.97 | 0.46 |
| 25:1:43:HIS:N | 25:1:43:HIS:ND1 | 2.63 | 0.46 |
| 1:A:76:C:P | 25:1:50:ARG:HH11 | 2.39 | 0.46 |
| 26:2:15:TYR:CE1 | 26:2:20:LYS:HE3 | 2.51 | 0.46 |
| 26:2:39:ASP:HB3 | 26:2:44:ARG:NH1 | 2.31 | 0.46 |
| 1:A:2814:C:O2' | 28:4:29:THR:HG21 | 2.15 | 0.46 |
| 29:5:6:ARG:O | 29:5:7:ILE:O | 2.34 | 0.46 |
| 30:6:43:THR:HG23 | 30:6:46:VAL:HG21 | 1.98 | 0.46 |
| 31:7:30:ARG:CZ | 31:7:41:ILE:O | 2.62 | 0.46 |
| 31:7:44:LYS:C | 31:7:45:GLY:O | 2.53 | 0.46 |
| 31:7:62:LEU:CB | 31:7:63:PRO:HD3 | 2.29 | 0.46 |
| 1:A:1013:C:N4 | 1:A:1150:C:N4 | 2.63 | 0.46 |
| 1:A:1051:G:C5' | 1:A:1052:C:OP2 | 2.58 | 0.46 |
| 1:A:105:C:H2' | 1:A:106:C:C6 | 2.51 | 0.46 |
| 1:A:1081:U:O4 | 1:A:1086:A:H2 | 1.99 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:120:U:O2 | 1:A:120:U:C2' | 2.53 | 0.46 |
| 1:A:1222:C:N4 | 1:A:1227:A:H61 | 2.09 | 0.46 |
| 1:A:1236:G:O2' | 1:A:1237:A:O4' | 2.20 | 0.46 |
| 1:A:1304:C:C4 | 1:A:1305:C:C5 | 3.04 | 0.46 |
| 1:A:1305:C:H2' | 1:A:1306:C:H6 | 1.81 | 0.46 |
| 1:A:1357:U:O4 | 1:A:1358:G:C2 | 2.69 | 0.46 |
| 1:A:144:C:N3 | 1:A:145:G:C8 | 2.83 | 0.46 |
| 1:A:1451:C:N3 | 1:A:1454:U:OP1 | 2.49 | 0.46 |
| 1:A:1559:G:N3 | 1:A:1560:G:OP1 | 2.49 | 0.46 |
| 1:A:1661:G:H2' | 1:A:1662:C:H6 | 1.81 | 0.46 |
| 1:A:1682:G:H2' | 1:A:1683:C:C6 | 2.51 | 0.46 |
| 1:A:1764:G:N1 | 1:A:1989:G:C4 | 2.84 | 0.46 |
| 1:A:1808:U:O4 | 1:A:1810:A:N1 | 2.46 | 0.46 |
| 1:A:1879:C:C4 | 1:A:1880:C:C5 | 3.03 | 0.46 |
| 1:A:1985:G:C2' | 1:A:1986:A:O5' | 2.64 | 0.46 |
| 1:A:2069:G:C6 | 1:A:2070:G:N7 | 2.84 | 0.46 |
| 1:A:213:A:O2' | 1:A:214:G:H5' | 2.15 | 0.46 |
| 1:A:222:A:C5 | 1:A:224:G:C4 | 3.03 | 0.46 |
| 1:A:2307:G:C4' | 1:A:2311:A:N6 | 2.79 | 0.46 |
| 1:A:2311:A:C5' | 1:A:2312:U:H5 | 2.16 | 0.46 |
| 1:A:2392:A:C2 | 1:A:2429:G:C2 | 3.04 | 0.46 |
| 1:A:2511:U:O4 | 1:A:2512:C:N4 | 2.49 | 0.46 |
| 1:A:2623:G:N2 | 1:A:2624:G:C4 | 2.84 | 0.46 |
| 1:A:270(O):U:C5' | 1:A:270(P):C:H41 | 2.29 | 0.46 |
| 1:A:2839:G:H1' | 15:Q:93:GLY:H | 1.81 | 0.46 |
| 1:A:327:G:N2 | 1:A:328:U:C2 | 2.84 | 0.46 |
| 1:A:323:G:OP2 | 1:A:340:A:C6 | 2.69 | 0.46 |
| 1:A:378:C:O2 | 1:A:397:G:N2 | 2.49 | 0.46 |
| 1:A:460:A:H2' | 1:A:461:C:O4' | 2.16 | 0.46 |
| 1:A:49:A:N7 | 1:A:177:G:C6 | 2.83 | 0.46 |
| 1:A:528:A:C8 | 1:A:528:A:H3' | 2.51 | 0.46 |
| 1:A:628:G:N1 | 1:A:629:G:C6 | 2.84 | 0.46 |
| 1:A:641:C:C2' | 1:A:2350:C:OP1 | 2.63 | 0.46 |
| 1:A:641:C:C6 | 1:A:642:G:O4' | 2.68 | 0.46 |
| 1:A:64:A:C2 | 1:A:65:C:N1 | 2.83 | 0.46 |
| 1:A:898:C:C4 | 1:A:899:A:C8 | 3.04 | 0.46 |
| 1:A:956:G:H8 | 1:A:956:G:H3' | 1.80 | 0.46 |
| 1:A:977:G:HO2' | 1:A:978:G:H5' | 1.76 | 0.46 |
| 1:A:970:C:O2' | 1:A:984:A:O2' | 2.20 | 0.46 |
| 4:D:165:ILE:CD1 | 4:D:165:ILE:H | 2.28 | 0.46 |
| 4:D:248:SER:HB3 | 4:D:249:PRO:HD2 | 1.96 | 0.46 |
| 4:D:46:GLN:CG | 4:D:52:ARG:HH12 | 2.28 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:66:ASP:HB3 | 4:D:104:TYR:O | 2.16 | 0.46 |
| 5:E:152:LYS:NZ | 11:M:77:GLY:CA | 2.78 | 0.46 |
| 5:E:105:THR:HB | 5:E:166:THR:OG1 | 2.15 | 0.46 |
| 6:F:201:VAL:HA | 6:F:204:ASN:CG | 2.37 | 0.46 |
| 6:F:18:ARG:HH11 | 6:F:20:LEU:HD13 | 1.81 | 0.46 |
| 7:G:8:LYS:CE | 7:G:103:LEU:HD23 | 2.42 | 0.46 |
| 8:H:25:LYS:HE2 | 8:H:32:GLU:CG | 2.41 | 0.46 |
| 8:H:53:GLU:N | 8:H:53:GLU:OE1 | 2.49 | 0.46 |
| 10:L:128:ALA:HB1 | 10:L:132:ARG:HH12 | 1.81 | 0.46 |
| 11:M:35:ARG:HD2 | 11:M:48:MET:SD | 2.56 | 0.46 |
| 12:N:63:VAL:HG23 | 12:N:80:ASP:O | 2.16 | 0.46 |
| 1:A:672:C:O5' | 13:O:38:GLN:OE1 | 2.34 | 0.46 |
| 14:P:124:LYS:CG | 14:P:125:LEU:N | 2.78 | 0.46 |
| 14:P:72:LYS:HG3 | 14:P:96:VAL:CG2 | 2.46 | 0.46 |
| 14:P:91:GLU:N | 14:P:91:GLU:OE2 | 2.48 | 0.46 |
| 15:Q:98:LEU:C | 15:Q:112:ALA:HB1 | 2.35 | 0.46 |
| 16:R:93:LYS:O | 16:R:98:VAL:CG1 | 2.63 | 0.46 |
| 17:S:104:ASN:HA | 17:S:107:ASP:OD2 | 2.16 | 0.46 |
| 17:S:53:ARG:CD | 17:S:53:ARG:N | 2.77 | 0.46 |
| 17:S:62:THR:HA | 17:S:78:LEU:O | 2.15 | 0.46 |
| 1:A:2848:G:C2' | 17:S:99:LEU:HD21 | 2.46 | 0.46 |
| 20:V:20:VAL:CG1 | 20:V:21:VAL:H | 2.26 | 0.46 |
| 21:W:7:VAL:O | 21:W:8:ILE:HG23 | 2.16 | 0.46 |
| 21:W:90:GLU:O | 21:W:91:ALA:C | 2.53 | 0.46 |
| 22:X:46:LYS:N | 22:X:57:GLN:HA | 2.31 | 0.46 |
| 22:X:12:THR:HG21 | 22:X:71:LYS:O | 2.15 | 0.46 |
| 23:Y:24:LEU:O | 23:Y:39:VAL:CG2 | 2.62 | 0.46 |
| 24:Z:28:GLY:O | 24:Z:67:VAL:HG23 | 2.16 | 0.46 |
| 1:A:2387:U:O2 | 24:Z:41:ARG:NH2 | 2.48 | 0.46 |
| 24:Z:48:GLY:O | 24:Z:51:VAL:HG23 | 2.16 | 0.46 |
| 24:Z:75:LEU:HD12 | 24:Z:75:LEU:H | 1.80 | 0.46 |
| 9:K:111:PRO:CG | 9:K:112:LYS:N | 2.78 | 0.46 |
| 3:C:8:ARG:HH21 | 3:C:12:GLU:HG2 | 1.79 | 0.46 |
| 3:C:75:LEU:CB | 3:C:110:PHE:CG | 2.97 | 0.46 |
| 1:A:714:U:O2 | 1:A:715:G:N7 | 2.49 | 0.46 |
| 1:A:163:U:C6 | 1:A:163:U:O5' | 2.59 | 0.46 |
| 2:B:119:A:C8 | 2:B:119:A:C3' | 2.99 | 0.46 |
| 4:D:79:VAL:HG21 | 4:D:115:GLN:HG2 | 1.97 | 0.46 |
| 1:A:2373:G:O2' | 1:A:2374:C:H6 | 1.98 | 0.46 |
| 1:A:2462:U:C2 | 1:A:2463:C:C5 | 3.03 | 0.46 |
| 1:A:273(D):C:H2' | 1:A:273(E):U:H6 | 1.81 | 0.46 |
| 25:1:32:PHE:HD1 | 25:1:32:PHE:H | 1.64 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 25:1:1:MET:O | 25:1:4:GLN:N | 2.48 | 0.46 |
| 1:A:78:A:P | 25:1:5:LEU:HD11 | 2.56 | 0.46 |
| 1:A:1366:A:C5' | 27:3:1:MET:N | 2.79 | 0.46 |
| 30:6:17:GLY:O | 30:6:21:ARG:NH2 | 2.49 | 0.46 |
| 30:6:48:LYS:HG3 | 30:6:49:ARG:N | 2.31 | 0.46 |
| 1:A:1005:C:C2 | 1:A:1006:C:C5 | 3.02 | 0.46 |
| 1:A:1009:A:C2 | 1:A:1010:A:C4 | 3.04 | 0.46 |
| 1:A:1053:C:N4 | 1:A:1105:U:N3 | 2.63 | 0.46 |
| 1:A:1023:U:C4' | 1:A:1123:C:OP1 | 2.64 | 0.46 |
| 1:A:120:U:O4 | 1:A:177:G:N2 | 2.49 | 0.46 |
| 1:A:1213:A:C5 | 1:A:1214:A:C8 | 3.04 | 0.46 |
| 1:A:1314:C:C2 | 1:A:1339:G:C2 | 3.04 | 0.46 |
| 1:A:772:C:H5' | 1:A:1356:G:OP1 | 2.15 | 0.46 |
| 1:A:149:A:H2' | 1:A:150:C:H5' | 1.97 | 0.46 |
| 1:A:1559:G:C6 | 1:A:1560:G:O4' | 2.69 | 0.46 |
| 1:A:1708:C:C2 | 1:A:1709:U:C5 | 3.04 | 0.46 |
| 1:A:1759:A:H8 | 1:A:1759:A:P | 2.39 | 0.46 |
| 1:A:175:G:C2' | 1:A:176:G:H5' | 2.45 | 0.46 |
| 1:A:1770:G:C2 | 1:A:1771:C:C4 | 3.04 | 0.46 |
| 1:A:1809:A:H5'' | 1:A:1810:A:C2 | 2.50 | 0.46 |
| 1:A:183:C:H5'' | 1:A:184:C:OP2 | 2.16 | 0.46 |
| 1:A:1890:A:C4 | 1:A:1891:G:C8 | 3.04 | 0.46 |
| 1:A:1933:G:H21 | 1:A:1974:C:H5' | 1.79 | 0.46 |
| 1:A:194:G:O5' | 1:A:194:G:H8 | 1.98 | 0.46 |
| 1:A:1992:G:H1' | 1:A:1993:U:C5 | 2.51 | 0.46 |
| 1:A:2054:A:OP1 | 1:A:2055:C:H1' | 2.16 | 0.46 |
| 1:A:2262:U:C4 | 24:Z:16:SER:HB3 | 2.51 | 0.46 |
| 1:A:2536:G:C6 | 1:A:2537:U:C5 | 3.04 | 0.46 |
| 1:A:2599:G:C4 | 1:A:2600:A:C8 | 3.04 | 0.46 |
| 1:A:2606:C:N3 | 1:A:2607:G:N7 | 2.64 | 0.46 |
| 1:A:260:G:N1 | 1:A:261:G:C5 | 2.84 | 0.46 |
| 1:A:2644:G:C6 | 1:A:2645:G:N2 | 2.83 | 0.46 |
| 1:A:2749:A:H2 | 1:A:2757:A:C2 | 2.34 | 0.46 |
| 1:A:2850:A:C2 | 1:A:2851:A:C8 | 3.04 | 0.46 |
| 1:A:2850:A:C6 | 1:A:2869:G:H5' | 2.50 | 0.46 |
| 1:A:1710:C:H4' | 1:A:2858:C:N3 | 2.30 | 0.46 |
| 1:A:2882:A:H2' | 1:A:2883:A:O5' | 2.16 | 0.46 |
| 1:A:288:C:C6 | 1:A:288:C:O5' | 2.63 | 0.46 |
| 1:A:302:C:N3 | 1:A:303:U:C5 | 2.84 | 0.46 |
| 1:A:321:G:OP1 | 6:F:135:LYS:HE3 | 2.16 | 0.46 |
| 1:A:41:C:C2 | 1:A:43:G:C8 | 3.03 | 0.46 |
| 1:A:457:A:C4' | 1:A:459:U:C2 | 2.99 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:510:C:C2 | 1:A:511:U:C6 | 3.04 | 0.46 |
| 1:A:545:G:H1' | 1:A:549:G:N2 | 2.28 | 0.46 |
| 1:A:600:G:C1' | 6:F:105:VAL:HG21 | 2.45 | 0.46 |
| 1:A:685:A:N9 | 1:A:774:A:N6 | 2.63 | 0.46 |
| 1:A:728:G:N1 | 1:A:762:U:C3' | 2.65 | 0.46 |
| 1:A:763:G:H1' | 1:A:765:G:O4' | 2.16 | 0.46 |
| 1:A:799:G:H8 | 1:A:799:G:OP2 | 1.98 | 0.46 |
| 1:A:809:G:H2' | 1:A:810:U:O5' | 2.15 | 0.46 |
| 1:A:909:A:H8 | 1:A:909:A:H5' | 1.78 | 0.46 |
| 1:A:925:C:C2 | 1:A:926:A:C8 | 3.04 | 0.46 |
| 1:A:947:G:C2 | 1:A:948:G:C8 | 3.04 | 0.46 |
| 1:A:973:A:C2' | 1:A:974:G:O5' | 2.63 | 0.46 |
| 2:B:12:C:H2' | 2:B:13:A:H5'' | 1.98 | 0.46 |
| 2:B:49:C:C2 | 2:B:50:G:H8 | 2.34 | 0.46 |
| 4:D:94:LEU:CD2 | 4:D:104:TYR:CD1 | 2.99 | 0.46 |
| 4:D:122:ASP:HA | 4:D:135:PHE:CE2 | 2.51 | 0.46 |
| 4:D:129:ASN:O | 4:D:193:VAL:CB | 2.64 | 0.46 |
| 4:D:154:LYS:O | 4:D:154:LYS:HG3 | 2.16 | 0.46 |
| 4:D:245:PRO:HA | 4:D:246:PRO:HD3 | 1.75 | 0.46 |
| 5:E:59:VAL:HB | 5:E:62:PRO:HD2 | 1.96 | 0.46 |
| 6:F:181:LEU:N | 6:F:181:LEU:CD1 | 2.74 | 0.46 |
| 6:F:62:ARG:HH21 | 6:F:62:ARG:HG2 | 1.81 | 0.46 |
| 7:G:141:PHE:CE2 | 7:G:145:THR:HA | 2.51 | 0.46 |
| 7:G:148:MET:CG | 7:G:150:ASP:O | 2.58 | 0.46 |
| 7:G:181:ARG:CG | 7:G:182:LYS:N | 2.78 | 0.46 |
| 7:G:36:LYS:C | 7:G:37:VAL:HG23 | 2.36 | 0.46 |
| 7:G:49:ASP:O | 7:G:50:ALA:C | 2.55 | 0.46 |
| 7:G:64:THR:HB | 7:G:102:PHE:CE1 | 2.50 | 0.46 |
| 8:H:95:ARG:O | 8:H:105:LEU:HG | 2.16 | 0.46 |
| 8:H:125:VAL:N | 8:H:126:PRO:CD | 2.78 | 0.46 |
| 9:K:45:LYS:O | 9:K:46:ALA:C | 2.53 | 0.46 |
| 10:L:111:LYS:O | 10:L:113:PRO:CD | 2.64 | 0.46 |
| 10:L:12:LEU:CB | 10:L:13:PRO:HD2 | 2.45 | 0.46 |
| 10:L:8:VAL:HG22 | 10:L:30:HIS:CG | 2.50 | 0.46 |
| 11:M:130:HIS:O | 11:M:133:GLN:O | 2.34 | 0.46 |
| 11:M:11:PRO:HB2 | 11:M:13:TRP:CZ3 | 2.50 | 0.46 |
| 11:M:36:GLY:H | 11:M:49:GLY:H | 1.60 | 0.46 |
| 11:M:99:LEU:O | 11:M:100:GLU:C | 2.52 | 0.46 |
| 12:N:10:VAL:HG22 | 12:N:11:ALA:N | 2.28 | 0.46 |
| 12:N:58:VAL:O | 12:N:86:ILE:HB | 2.16 | 0.46 |
| 12:N:13:ASN:HA | 12:N:94:ARG:NH1 | 2.30 | 0.46 |
| 13:O:112:LEU:HD12 | 13:O:127:ALA:CB | 2.45 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 13:O:81:GLN:C | 13:O:86:LYS:CG | 2.80 | 0.46 |
| 13:O:81:GLN:NE2 | 13:O:86:LYS:HG3 | 2.31 | 0.46 |
| 14:P:111:GLU:CB | 14:P:113:GLN:NE2 | 2.61 | 0.46 |
| 14:P:29:PHE:O | 14:P:29:PHE:HD1 | 1.98 | 0.46 |
| 14:P:86:GLY:O | 14:P:87:LYS:HB3 | 2.16 | 0.46 |
| 15:Q:28:LEU:O | 15:Q:30:THR:N | 2.49 | 0.46 |
| 16:R:9:ARG:HD3 | 16:R:12:PHE:CE2 | 2.51 | 0.46 |
| 16:R:17:ARG:CZ | 16:R:25:ARG:NH2 | 2.79 | 0.46 |
| 16:R:40:ILE:HG13 | 16:R:47:THR:CB | 2.46 | 0.46 |
| 17:S:49:VAL:HG22 | 17:S:91:ARG:HH11 | 1.81 | 0.46 |
| 18:T:39:LEU:HD23 | 18:T:42:ALA:HB3 | 1.98 | 0.46 |
| 19:U:62:LEU:C | 19:U:64:HIS:CE1 | 2.90 | 0.46 |
| 21:W:12:VAL:C | 21:W:14:SER:H | 2.19 | 0.46 |
| 21:W:85:PRO:HG2 | 21:W:87:GLN:CG | 2.46 | 0.46 |
| 21:W:88:LYS:C | 21:W:90:GLU:H | 2.19 | 0.46 |
| 22:X:41:GLY:HA3 | 22:X:61:ILE:HG22 | 1.98 | 0.46 |
| 23:Y:102:LEU:HD23 | 23:Y:125:LEU:H | 1.81 | 0.46 |
| 23:Y:30:ASN:OD1 | 23:Y:33:LEU:HD12 | 2.16 | 0.46 |
| 23:Y:48:PHE:CA | 23:Y:54:HIS:NE2 | 2.79 | 0.46 |
| 24:Z:10:THR:HB | 24:Z:11:ARG:H | 1.61 | 0.46 |
| 24:Z:37:LEU:CD2 | 24:Z:37:LEU:N | 2.74 | 0.46 |
| 9:K:68:LEU:CD1 | 9:K:107:VAL:CG1 | 2.94 | 0.46 |
| 9:K:87:LYS:HZ3 | 9:K:122:GLU:H | 1.64 | 0.46 |
| 9:K:69:LYS:CD | 9:K:70:LYS:CG | 2.94 | 0.46 |
| 1:A:2230:G:O2' | 27:3:40:HIS:O | 2.20 | 0.46 |
| 29:5:38:LYS:HB3 | 29:5:39:TYR:H | 1.34 | 0.46 |
| 31:7:49:VAL:O | 31:7:53:PRO:HD3 | 2.15 | 0.46 |
| 1:A:1057:A:N7 | 1:A:1085:A:C2 | 2.84 | 0.46 |
| 1:A:9:U:C2' | 1:A:10:G:O5' | 2.64 | 0.46 |
| 1:A:1148:A:N1 | 1:A:1149:G:C6 | 2.84 | 0.46 |
| 1:A:1159:U:H2' | 1:A:1160:G:C8 | 2.50 | 0.46 |
| 1:A:119:A:O2' | 1:A:120:U:O5' | 2.34 | 0.46 |
| 1:A:1324:G:O2' | 1:A:1325:G:OP1 | 2.34 | 0.46 |
| 1:A:1326:U:C2' | 1:A:1327:C:C5' | 2.69 | 0.46 |
| 1:A:1286:A:C4 | 1:A:1329:U:C4 | 3.04 | 0.46 |
| 1:A:1433:U:O2 | 1:A:1561:G:C2 | 2.68 | 0.46 |
| 1:A:1349:A:C2 | 1:A:1598:C:N3 | 2.84 | 0.46 |
| 1:A:1617:C:O2 | 1:A:1617:C:C2' | 2.61 | 0.46 |
| 1:A:1655:A:C2 | 1:A:1656:C:H1' | 2.51 | 0.46 |
| 1:A:1699:G:N9 | 1:A:1763:G:N2 | 2.64 | 0.46 |
| 1:A:1784:A:N3 | 1:A:1785:A:C5 | 2.84 | 0.46 |
| 1:A:1835:G:H2' | 1:A:1836:C:H5' | 1.97 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1839:G:O6 | 1:A:1927:A:N1 | 2.48 | 0.46 |
| 1:A:1993:U:C5 | 1:A:1994:C:C5 | 3.04 | 0.46 |
| 1:A:1998:G:C5 | 1:A:1999:C:C5 | 3.04 | 0.46 |
| 1:A:2022:U:C5' | 1:A:2023:G:OP2 | 2.64 | 0.46 |
| 1:A:2070:G:C2 | 1:A:2442:C:C2 | 3.04 | 0.46 |
| 1:A:220:G:H21 | 1:A:221:A:N6 | 2.14 | 0.46 |
| 1:A:2227:A:N1 | 1:A:2228:G:C6 | 2.84 | 0.46 |
| 1:A:220:G:O2' | 1:A:233:A:H2 | 1.98 | 0.46 |
| 1:A:2384:G:O2' | 1:A:2385:C:OP1 | 2.31 | 0.46 |
| 1:A:2405:G:O5' | 1:A:2405:G:C8 | 2.69 | 0.46 |
| 1:A:2533:A:H2' | 1:A:2534:A:H8 | 1.78 | 0.46 |
| 1:A:258:G:C8 | 1:A:258:G:O5' | 2.65 | 0.46 |
| 1:A:262:A:O2' | 1:A:263:C:P | 2.74 | 0.46 |
| 1:A:2634:G:C2 | 1:A:2635:C:C5 | 3.04 | 0.46 |
| 1:A:2658:C:N3 | 1:A:2664:G:N2 | 2.64 | 0.46 |
| 1:A:2711:A:H3' | 1:A:2714:G:O4' | 2.16 | 0.46 |
| 1:A:2752:C:C2' | 1:A:2753:A:H5' | 2.46 | 0.46 |
| 1:A:402:A:C2 | 1:A:403:U:C6 | 3.04 | 0.46 |
| 1:A:427:U:C2' | 1:A:428:A:O4' | 2.64 | 0.46 |
| 1:A:457:A:O4' | 1:A:459:U:O2 | 2.33 | 0.46 |
| 1:A:488:G:C8 | 1:A:488:G:C3' | 2.99 | 0.46 |
| 1:A:572:A:H2' | 1:A:573:G:H1' | 1.97 | 0.46 |
| 1:A:612:G:H21 | 1:A:617:G:H1 | 1.64 | 0.46 |
| 1:A:733:G:C6 | 1:A:761:A:C5 | 3.04 | 0.46 |
| 1:A:762:U:O4' | 1:A:763:G:C2 | 2.68 | 0.46 |
| 1:A:768:G:C4 | 1:A:769:G:C8 | 3.04 | 0.46 |
| 1:A:826:U:C4 | 1:A:828:U:H6 | 2.34 | 0.46 |
| 1:A:832:G:OP2 | 13:O:35:HIS:CD2 | 2.69 | 0.46 |
| 1:A:878:A:H2' | 1:A:879:G:O5' | 2.16 | 0.46 |
| 1:A:936:C:H2' | 1:A:937:U:H6 | 1.81 | 0.46 |
| 1:A:943:U:C2' | 1:A:944:G:OP1 | 2.64 | 0.46 |
| 1:A:99:U:H3 | 22:X:106:LEU:CD2 | 2.16 | 0.46 |
| 2:B:113:C:C1' | 16:R:45:GLY:O | 2.64 | 0.46 |
| 2:B:27:C:N4 | 2:B:56:G:C2 | 2.83 | 0.46 |
| 4:D:12:SER:HB2 | 4:D:14:ARG:NH2 | 2.31 | 0.46 |
| 4:D:244:ARG:CA | 4:D:252:TRP:NE1 | 2.73 | 0.46 |
| 7:G:172:LEU:O | 7:G:176:LEU:CB | 2.64 | 0.46 |
| 7:G:23:PHE:O | 7:G:24:GLY:C | 2.54 | 0.46 |
| 7:G:77:ILE:O | 7:G:77:ILE:HG13 | 2.15 | 0.46 |
| 8:H:103:LEU:CB | 8:H:115:VAL:H | 2.29 | 0.46 |
| 8:H:88:LEU:HD21 | 8:H:129:THR:CG2 | 2.44 | 0.46 |
| 9:K:28:ASN:HB2 | 9:K:29:TYR:CE1 | 2.51 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 10:L:108:ALA:C | 10:L:112:MET:HG2 | 2.36 | 0.46 |
| 10:L:121:GLU:O | 10:L:125:ARG:HB2 | 2.16 | 0.46 |
| 10:L:30:HIS:O | 10:L:30:HIS:ND1 | 2.40 | 0.46 |
| 1:A:1012:U:N3 | 11:M:28:THR:HG21 | 2.30 | 0.46 |
| 11:M:52:VAL:O | 11:M:52:VAL:HG13 | 2.15 | 0.46 |
| 1:A:2780:G:N2 | 11:M:97:ARG:NH2 | 2.64 | 0.46 |
| 12:N:113:LYS:HA | 12:N:113:LYS:HD2 | 1.71 | 0.46 |
| 12:N:1:MET:HB3 | 12:N:66:LYS:HB3 | 1.96 | 0.46 |
| 13:O:88:LEU:CG | 13:O:124:LYS:CE | 2.81 | 0.46 |
| 14:P:124:LYS:HZ3 | 14:P:125:LEU:HG | 1.80 | 0.46 |
| 14:P:48:GLU:C | 14:P:51:ARG:HG2 | 2.37 | 0.46 |
| 1:A:1277:G:H21 | 15:Q:23:ASN:HD21 | 1.64 | 0.46 |
| 15:Q:44:LEU:HD13 | 15:Q:48:VAL:CG2 | 2.46 | 0.46 |
| 1:A:2840:C:O2' | 15:Q:91:GLN:NE2 | 2.49 | 0.46 |
| 17:S:34:VAL:HB | 17:S:36:GLU:HG3 | 1.98 | 0.46 |
| 17:S:68:TYR:CD2 | 17:S:70:VAL:HG22 | 2.51 | 0.46 |
| 17:S:34:VAL:HA | 17:S:85:LYS:HA | 1.98 | 0.46 |
| 18:T:63:VAL:HA | 18:T:66:ASN:HB2 | 1.98 | 0.46 |
| 20:V:27:LYS:CG | 20:V:31:GLU:OE2 | 2.64 | 0.46 |
| 20:V:43:GLY:CA | 20:V:46:PHE:HD1 | 2.29 | 0.46 |
| 22:X:88:LYS:C | 22:X:91:GLU:HB2 | 2.36 | 0.46 |
| 24:Z:28:GLY:C | 24:Z:66:VAL:HG22 | 2.36 | 0.46 |
| 24:Z:83:PRO:O | 24:Z:84:LEU:C | 2.53 | 0.46 |
| 9:K:82:ARG:O | 9:K:83:ALA:CB | 2.61 | 0.46 |
| 1:A:2112:G:C5' | 1:A:2113:U:OP2 | 2.51 | 0.46 |
| 3:C:113:VAL:CG1 | 3:C:138:PRO:HG3 | 2.46 | 0.46 |
| 3:C:56:GLN:O | 3:C:58:VAL:N | 2.46 | 0.46 |
| 3:C:68:LEU:CD2 | 3:C:69:GLY:H | 2.26 | 0.46 |
| 3:C:75:LEU:HD11 | 3:C:99:ILE:HD12 | 1.98 | 0.46 |
| 3:C:36:LYS:O | 3:C:37:PHE:CB | 2.64 | 0.46 |
| 25:1:23:LYS:HB3 | 25:1:52:ILE:HD12 | 1.98 | 0.45 |
| 26:2:5:LYS:O | 26:2:5:LYS:HD2 | 2.16 | 0.45 |
| 30:6:12:ARG:O | 30:6:13:ALA:C | 2.54 | 0.45 |
| 30:6:1:MET:HE2 | 30:6:1:MET:HA | 1.97 | 0.45 |
| 31:7:30:ARG:HH22 | 31:7:43:GLN:N | 2.14 | 0.45 |
| 1:A:1020:A:H5'' | 1:A:1021:A:OP1 | 2.16 | 0.45 |
| 1:A:1110:G:C3' | 1:A:1111:A:C8 | 3.00 | 0.45 |
| 1:A:1115:G:N3 | 1:A:1115:G:C2' | 2.79 | 0.45 |
| 1:A:1186:G:H3' | 1:A:1186:G:H8 | 1.81 | 0.45 |
| 1:A:1241:A:OP2 | 1:A:1241:A:N9 | 2.44 | 0.45 |
| 1:A:1314:C:P | 1:A:1332:G:C5' | 3.04 | 0.45 |
| 1:A:1451:C:C5' | 1:A:1453:A:OP2 | 2.64 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1475:G:C8 | 1:A:1517:G:N2 | 2.84 | 0.45 |
| 1:A:1520:U:C6 | 1:A:1520:U:C3' | 2.99 | 0.45 |
| 1:A:1525:G:N3 | 1:A:1526:G:C8 | 2.83 | 0.45 |
| 1:A:1560:G:H2' | 1:A:1561:G:O5' | 2.16 | 0.45 |
| 1:A:1618:A:C2' | 1:A:1619:G:OP1 | 2.63 | 0.45 |
| 1:A:1646:C:H5'' | 1:A:1647:G:C5' | 2.45 | 0.45 |
| 1:A:1728:G:C2 | 1:A:1729:A:C5 | 3.04 | 0.45 |
| 1:A:1754:C:H3' | 1:A:1755:A:H8 | 1.81 | 0.45 |
| 1:A:1756:G:H3' | 1:A:1756:G:OP1 | 2.16 | 0.45 |
| 1:A:1776:G:C2 | 1:A:1777:U:C4 | 3.04 | 0.45 |
| 1:A:1787:A:H8 | 1:A:1787:A:O5' | 1.99 | 0.45 |
| 1:A:1790:C:O2 | 1:A:1791:A:C5 | 2.69 | 0.45 |
| 1:A:1821:A:N6 | 1:A:1822:G:O6 | 2.48 | 0.45 |
| 1:A:1927:A:C6 | 1:A:1928:A:N1 | 2.84 | 0.45 |
| 1:A:1932:A:C5 | 1:A:1933:G:N7 | 2.84 | 0.45 |
| 1:A:1936:A:C2 | 1:A:1945:G:C5 | 3.04 | 0.45 |
| 1:A:2074:U:N3 | 1:A:2075:U:C5 | 2.79 | 0.45 |
| 1:A:228:A:H8 | 1:A:229:A:C4' | 2.27 | 0.45 |
| 1:A:2329:G:C8 | 1:A:2329:G:C3' | 2.99 | 0.45 |
| 1:A:2335:A:C8 | 1:A:2337:G:C6 | 3.04 | 0.45 |
| 1:A:2588:G:N1 | 1:A:2607:G:C6 | 2.84 | 0.45 |
| 1:A:2680:C:H5'' | 5:E:190:GLY:H | 1.81 | 0.45 |
| 1:A:2749:A:N3 | 1:A:2757:A:N1 | 2.63 | 0.45 |
| 1:A:2849:U:C2' | 1:A:2850:A:OP2 | 2.64 | 0.45 |
| 1:A:2876:G:C2 | 1:A:2877:G:C5 | 3.05 | 0.45 |
| 1:A:2896:C:H2' | 1:A:2897:U:O5' | 2.16 | 0.45 |
| 1:A:308:G:N7 | 1:A:501:A:N3 | 2.64 | 0.45 |
| 1:A:362:U:H5'' | 1:A:363:G:OP2 | 2.16 | 0.45 |
| 1:A:270(A):A:H2' | 1:A:366:C:O2' | 2.16 | 0.45 |
| 1:A:35:G:C6 | 1:A:36:G:N7 | 2.84 | 0.45 |
| 1:A:491:G:N3 | 1:A:492:A:C1' | 2.79 | 0.45 |
| 1:A:49:A:N6 | 1:A:176:G:C6 | 2.83 | 0.45 |
| 1:A:4:C:H2' | 1:A:5:A:H8 | 1.81 | 0.45 |
| 1:A:534:U:O3' | 18:T:49:HIS:HD2 | 1.99 | 0.45 |
| 1:A:566:U:C2' | 1:A:567:A:C8 | 2.96 | 0.45 |
| 1:A:601:C:O2' | 1:A:604:G:H5'' | 2.16 | 0.45 |
| 1:A:636:G:O6 | 13:O:111:ARG:CZ | 2.64 | 0.45 |
| 1:A:689:A:C4 | 1:A:690:G:C8 | 3.04 | 0.45 |
| 1:A:695:G:N3 | 1:A:696:G:C8 | 2.84 | 0.45 |
| 1:A:96:G:P | 25:1:43:HIS:NE2 | 2.89 | 0.45 |
| 2:B:75:G:C5 | 2:B:76:G:C2 | 3.05 | 0.45 |
| 4:D:159:ALA:HB1 | 4:D:198:ASN:C | 2.35 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:242:ARG:O | 4:D:244:ARG:N | 2.49 | 0.45 |
| 4:D:40:THR:HG21 | 4:D:43:ARG:HE | 1.80 | 0.45 |
| 4:D:76:PRO:HB3 | 4:D:118:VAL:HG21 | 1.98 | 0.45 |
| 4:D:7:LYS:HZ2 | 4:D:91:ARG:CZ | 2.28 | 0.45 |
| 5:E:64:LYS:HA | 5:E:67:PHE:CB | 2.45 | 0.45 |
| 5:E:92:THR:HG22 | 5:E:93:VAL:N | 2.30 | 0.45 |
| 6:F:26:ALA:C | 6:F:112:MET:HG3 | 2.36 | 0.45 |
| 6:F:155:LEU:HB3 | 6:F:157:VAL:CG1 | 2.45 | 0.45 |
| 7:G:120:LEU:CD2 | 7:G:181:ARG:HH21 | 2.26 | 0.45 |
| 7:G:27:ASN:CG | 7:G:29:TRP:CZ2 | 2.90 | 0.45 |
| 7:G:36:LYS:HB2 | 7:G:95:ARG:HA | 1.99 | 0.45 |
| 8:H:12:PRO:O | 8:H:15:VAL:HG12 | 2.16 | 0.45 |
| 8:H:8:PRO:CA | 8:H:51:ARG:NH2 | 2.79 | 0.45 |
| 9:K:6:LEU:N | 9:K:8:PRO:HD2 | 2.31 | 0.45 |
| 10:L:81:ALA:HB1 | 10:L:107:ILE:CD1 | 2.44 | 0.45 |
| 10:L:52:ILE:HG22 | 10:L:54:PRO:HD3 | 1.98 | 0.45 |
| 10:L:56:GLU:HB3 | 10:L:67:PHE:HD2 | 1.78 | 0.45 |
| 11:M:15:LEU:HD21 | 11:M:137:LYS:HB3 | 1.97 | 0.45 |
| 12:N:11:ALA:CB | 12:N:97:ARG:CZ | 2.88 | 0.45 |
| 12:N:13:ASN:OD1 | 12:N:52:VAL:HG12 | 2.15 | 0.45 |
| 12:N:5:GLN:O | 12:N:7:TYR:CE1 | 2.69 | 0.45 |
| 1:A:811:U:H5 | 13:O:24:GLY:HA3 | 1.81 | 0.45 |
| 1:A:587:C:N4 | 13:O:30:THR:HG1 | 2.15 | 0.45 |
| 13:O:63:PRO:HB2 | 13:O:64:LYS:CE | 2.35 | 0.45 |
| 13:O:97:PRO:O | 13:O:98:GLU:O | 2.34 | 0.45 |
| 14:P:119:ARG:CD | 14:P:120:ILE:HG13 | 2.46 | 0.45 |
| 15:Q:34:ILE:N | 15:Q:113:LEU:CD2 | 2.79 | 0.45 |
| 16:R:95:HIS:CE1 | 16:R:96:GLY:N | 2.85 | 0.45 |
| 17:S:65:LYS:CE | 17:S:75:ILE:HD13 | 2.46 | 0.45 |
| 18:T:67:ALA:C | 18:T:71:GLN:NE2 | 2.70 | 0.45 |
| 19:U:4:ILE:HA | 19:U:12:TYR:CD2 | 2.51 | 0.45 |
| 19:U:56:SER:O | 19:U:57:VAL:HG22 | 2.16 | 0.45 |
| 20:V:10:VAL:O | 20:V:12:ILE:CD1 | 2.64 | 0.45 |
| 23:Y:42:VAL:N | 23:Y:45:ASP:OD2 | 2.49 | 0.45 |
| 23:Y:92:SER:OG | 23:Y:93:ASP:N | 2.40 | 0.45 |
| 9:K:75:LEU:C | 9:K:141:LYS:HE2 | 2.36 | 0.45 |
| 1:A:2132:U:C2 | 1:A:2134:A:C6 | 3.04 | 0.45 |
| 1:A:2152:G:C6 | 1:A:2153:G:O6 | 2.69 | 0.45 |
| 3:C:41:VAL:CG1 | 3:C:42:GLU:H | 2.29 | 0.45 |
| 3:C:62:VAL:HG22 | 3:C:64:LEU:HD23 | 1.97 | 0.45 |
| 3:C:97:GLU:OE1 | 3:C:122:ALA:HB2 | 2.15 | 0.45 |
| 2:B:117:G:C2 | 2:B:118:G:N9 | 2.85 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:S:40:THR:O | 17:S:41:ARG:C | 2.54 | 0.45 |
| 2:B:20:C:O2' | 2:B:21:G:H5' | 2.16 | 0.45 |
| 10:L:2:LYS:O | 10:L:3:LYS:HB2 | 2.13 | 0.45 |
| 25:1:19:LEU:O | 25:1:23:LYS:HG3 | 2.16 | 0.45 |
| 26:2:9:VAL:CG2 | 26:2:53:LEU:C | 2.69 | 0.45 |
| 29:5:17:LYS:HD3 | 29:5:49:HIS:O | 2.16 | 0.45 |
| 1:A:2286:A:N3 | 29:5:27:LYS:HE3 | 2.31 | 0.45 |
| 1:A:459:U:P | 30:6:40:TRP:HA | 2.46 | 0.45 |
| 32:8:15:LYS:HB2 | 32:8:26:ILE:O | 2.16 | 0.45 |
| 1:A:1100:C:O2' | 1:A:1101:U:P | 2.74 | 0.45 |
| 1:A:1139:G:C8 | 1:A:1139:G:C3' | 2.99 | 0.45 |
| 1:A:1273:U:O2' | 1:A:1275:A:OP1 | 2.30 | 0.45 |
| 1:A:1279:G:H4' | 15:Q:31:HIS:CD2 | 2.51 | 0.45 |
| 1:A:1309:G:O5' | 30:6:9:ARG:HG3 | 2.16 | 0.45 |
| 1:A:1360:A:H2' | 1:A:1361:G:C5' | 2.47 | 0.45 |
| 1:A:1392:A:C5 | 1:A:1393:A:N6 | 2.84 | 0.45 |
| 1:A:141:A:C2 | 1:A:141(A):C:O4' | 2.69 | 0.45 |
| 1:A:1471:A:N6 | 1:A:1473:G:N7 | 2.64 | 0.45 |
| 1:A:1530:G:H3' | 1:A:1531:C:C6 | 2.51 | 0.45 |
| 1:A:1439:A:C2 | 1:A:1553:A:C6 | 3.04 | 0.45 |
| 1:A:1807:G:C1' | 1:A:1811:G:N2 | 2.46 | 0.45 |
| 1:A:1901:A:H4' | 4:D:244:ARG:HH12 | 1.80 | 0.45 |
| 1:A:2008:C:O2' | 1:A:2009:G:H5' | 2.16 | 0.45 |
| 1:A:2209:C:O2' | 4:D:150:LYS:HE2 | 2.17 | 0.45 |
| 1:A:2283:C:C5 | 1:A:2389:G:C4 | 3.04 | 0.45 |
| 1:A:2309:A:C5 | 7:G:80:PHE:CZ | 3.04 | 0.45 |
| 1:A:2376:A:H2' | 1:A:2377:A:C1' | 2.46 | 0.45 |
| 1:A:411:G:C1' | 1:A:2408:U:O4 | 2.56 | 0.45 |
| 1:A:2521:C:N3 | 1:A:2522:U:C6 | 2.83 | 0.45 |
| 1:A:2528:U:O2 | 1:A:2530:A:OP1 | 2.34 | 0.45 |
| 1:A:2593:U:O2' | 1:A:2594:C:H5' | 2.15 | 0.45 |
| 1:A:2612:C:H2' | 28:4:4:HIS:ND1 | 2.31 | 0.45 |
| 1:A:2644:G:N1 | 1:A:2645:G:C2 | 2.85 | 0.45 |
| 1:A:270(L):U:O2' | 1:A:270(M):U:P | 2.74 | 0.45 |
| 1:A:2740:A:C2' | 1:A:2741:A:C8 | 2.92 | 0.45 |
| 1:A:2756:U:HO2' | 1:A:2757:A:H5'' | 1.74 | 0.45 |
| 1:A:2757:A:N6 | 8:H:63:SER:OG | 2.49 | 0.45 |
| 1:A:2628:C:C2 | 1:A:2782:G:P | 3.09 | 0.45 |
| 1:A:285:C:N3 | 1:A:357:A:N1 | 2.64 | 0.45 |
| 1:A:311:A:C6 | 1:A:328:U:C4 | 3.04 | 0.45 |
| 1:A:357:A:H2' | 1:A:358:U:C6 | 2.52 | 0.45 |
| 1:A:372:G:OP2 | 1:A:373:U:OP2 | 2.34 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:396:G:C2' | 1:A:397:G:O5' | 2.64 | 0.45 |
| 1:A:445:C:H3' | 18:T:3:ARG:NE | 2.31 | 0.45 |
| 1:A:462:C:C2 | 1:A:468:G:C2 | 3.04 | 0.45 |
| 1:A:462:C:N1 | 1:A:468:G:N2 | 2.64 | 0.45 |
| 1:A:499:U:H6 | 1:A:500:G:O4' | 1.99 | 0.45 |
| 1:A:724:U:C2' | 1:A:725:G:C5' | 2.94 | 0.45 |
| 1:A:813:U:C2 | 1:A:814:C:C6 | 3.05 | 0.45 |
| 1:A:824:A:H3' | 1:A:825:C:C5 | 2.51 | 0.45 |
| 1:A:861:A:OP2 | 1:A:862:G:OP2 | 2.34 | 0.45 |
| 1:A:863:A:H2' | 1:A:864:G:H8 | 1.80 | 0.45 |
| 1:A:923:C:O5' | 1:A:923:C:H6 | 1.99 | 0.45 |
| 1:A:91:A:C8 | 1:A:92:G:N7 | 2.84 | 0.45 |
| 1:A:953:A:N1 | 1:A:964:C:O2 | 2.50 | 0.45 |
| 2:B:101:A:C2' | 2:B:102:G:H8 | 2.25 | 0.45 |
| 2:B:42:C:O2 | 2:B:42:C:H2' | 2.15 | 0.45 |
| 2:B:96:G:C2 | 2:B:97:G:C8 | 3.04 | 0.45 |
| 4:D:92:ILE:HD12 | 4:D:104:TYR:HB3 | 1.98 | 0.45 |
| 4:D:107:ALA:O | 4:D:108:PRO:O | 2.34 | 0.45 |
| 4:D:208:LYS:HB3 | 4:D:211:ARG:CB | 2.43 | 0.45 |
| 4:D:21:PHE:O | 4:D:205:VAL:HG22 | 2.17 | 0.45 |
| 4:D:224:ALA:HA | 4:D:233:HIS:CG | 2.51 | 0.45 |
| 4:D:69:ARG:C | 4:D:71:ASP:N | 2.69 | 0.45 |
| 4:D:97:TYR:O | 4:D:98:VAL:C | 2.54 | 0.45 |
| 5:E:171:GLU:H | 5:E:185:LYS:CD | 2.29 | 0.45 |
| 6:F:199:TRP:CD1 | 6:F:199:TRP:N | 2.84 | 0.45 |
| 1:A:801:G:N7 | 6:F:54:ARG:HG2 | 2.31 | 0.45 |
| 1:A:675:A:H4' | 6:F:67:GLN:NE2 | 2.31 | 0.45 |
| 7:G:105:LYS:HA | 7:G:109:VAL:HG11 | 1.99 | 0.45 |
| 7:G:4:ASP:HA | 7:G:7:LEU:CD1 | 2.46 | 0.45 |
| 7:G:59:GLU:O | 7:G:60:LEU:C | 2.53 | 0.45 |
| 7:G:36:LYS:HE3 | 7:G:95:ARG:HE | 1.82 | 0.45 |
| 8:H:117:PRO:HA | 8:H:118:PRO:HD2 | 1.90 | 0.45 |
| 8:H:36:PRO:HD2 | 8:H:71:LEU:HD21 | 1.98 | 0.45 |
| 8:H:38:SER:OG | 8:H:39:PRO:HD2 | 2.16 | 0.45 |
| 10:L:112:MET:CE | 10:L:119:ASP:N | 2.78 | 0.45 |
| 11:M:53:VAL:CG1 | 11:M:123:TYR:HE2 | 2.28 | 0.45 |
| 12:N:10:VAL:CG2 | 12:N:12:ASP:OD1 | 2.64 | 0.45 |
| 13:O:108:LYS:HG2 | 13:O:109:GLY:N | 2.31 | 0.45 |
| 13:O:91:PHE:CD2 | 13:O:96:THR:HG22 | 2.51 | 0.45 |
| 16:R:49:VAL:HG11 | 16:R:80:LEU:CG | 2.45 | 0.45 |
| 16:R:72:ALA:O | 16:R:75:GLU:HG2 | 2.15 | 0.45 |
| 17:S:112:ARG:HB3 | 17:S:113:LYS:H | 1.52 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 17:S:51:ARG:O | 17:S:66:VAL:HA | 2.17 | 0.45 |
| 17:S:57:PHE:C | 17:S:61:PHE:CD2 | 2.90 | 0.45 |
| 17:S:7:ILE:C | 17:S:11:GLU:OE1 | 2.55 | 0.45 |
| 12:N:72:PRO:CB | 17:S:84:GLN:NE2 | 2.77 | 0.45 |
| 17:S:19:LEU:HG | 17:S:85:LYS:HZ1 | 1.82 | 0.45 |
| 1:A:2848:G:C8 | 17:S:99:LEU:CG | 2.99 | 0.45 |
| 18:T:82:GLY:CA | 18:T:117:GLN:CD | 2.81 | 0.45 |
| 18:T:11:ARG:HE | 18:T:11:ARG:HB3 | 1.40 | 0.45 |
| 18:T:13:LYS:N | 18:T:13:LYS:NZ | 2.64 | 0.45 |
| 18:T:57:PHE:CD2 | 18:T:61:TRP:NE1 | 2.83 | 0.45 |
| 19:U:11:GLN:HE22 | 19:U:24:LYS:HZ3 | 1.56 | 0.45 |
| 21:W:87:GLN:OE1 | 21:W:87:GLN:HA | 2.16 | 0.45 |
| 2:B:75:G:C5' | 23:Y:11:GLU:HG2 | 2.41 | 0.45 |
| 23:Y:29:TYR:CB | 23:Y:34:ASN:ND2 | 2.79 | 0.45 |
| 9:K:113:ARG:NH2 | 9:K:132:PRO:HB3 | 2.31 | 0.45 |
| 3:C:56:GLN:HA | 3:C:201:PRO:CG | 2.46 | 0.45 |
| 3:C:32:LEU:HD13 | 3:C:220:PRO:HB2 | 1.97 | 0.45 |
| 29:5:37:ARG:O | 29:5:38:LYS:CB | 2.61 | 0.45 |
| 31:7:36:LYS:HB3 | 31:7:37:SER:H | 1.52 | 0.45 |
| 1:A:1109:C:C4 | 1:A:1110:G:N1 | 2.85 | 0.45 |
| 1:A:117:G:C6 | 1:A:119:A:N1 | 2.85 | 0.45 |
| 1:A:1227:A:H2' | 1:A:1228:G:H5'' | 1.97 | 0.45 |
| 1:A:1234:U:O2' | 1:A:1235:G:C5' | 2.64 | 0.45 |
| 1:A:1277:G:C4 | 1:A:1278:A:C8 | 3.04 | 0.45 |
| 1:A:1299:G:C5' | 1:A:1301:A:C1' | 2.92 | 0.45 |
| 1:A:1327:C:N4 | 1:A:1647:G:N2 | 2.64 | 0.45 |
| 1:A:1328:G:H2' | 1:A:1330:C:N4 | 2.31 | 0.45 |
| 1:A:1447:G:C6 | 1:A:1448:G:N7 | 2.84 | 0.45 |
| 1:A:1537:C:C5 | 1:A:1538:G:O4' | 2.68 | 0.45 |
| 1:A:1351:C:O2' | 1:A:1571:A:C8 | 2.68 | 0.45 |
| 1:A:1595:G:H2' | 1:A:1596:A:O5' | 2.16 | 0.45 |
| 1:A:1614:A:N3 | 1:A:1614:A:C3' | 2.79 | 0.45 |
| 1:A:1626:G:C2 | 1:A:1634:A:N3 | 2.84 | 0.45 |
| 1:A:1773:A:C5 | 1:A:1774:C:N3 | 2.85 | 0.45 |
| 1:A:1799:G:O2' | 1:A:1800:C:O5' | 2.33 | 0.45 |
| 1:A:1987:G:H2' | 1:A:1988:C:H6 | 1.79 | 0.45 |
| 1:A:1990:C:C4 | 1:A:1991:U:C4 | 3.05 | 0.45 |
| 1:A:2020:A:C2 | 1:A:2035:G:C6 | 3.05 | 0.45 |
| 1:A:215:G:O2' | 1:A:216:A:P | 2.73 | 0.45 |
| 1:A:225:A:N6 | 1:A:226:G:C6 | 2.84 | 0.45 |
| 1:A:2282:G:N2 | 1:A:2425:A:C4 | 2.84 | 0.45 |
| 1:A:2283:C:C2 | 1:A:2389:G:N2 | 2.84 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:2308:G:P | 1:A:2308:G:H8 | 2.39 | 0.45 |
| 1:A:2357:U:H2' | 1:A:2358:G:O5' | 2.15 | 0.45 |
| 1:A:242:G:O2' | 1:A:243:U:C5 | 2.70 | 0.45 |
| 1:A:241:A:C8 | 1:A:243:U:N3 | 2.84 | 0.45 |
| 1:A:2459:A:C2 | 1:A:2460:U:O2 | 2.68 | 0.45 |
| 1:A:2466:C:C4 | 1:A:2485:G:C2 | 3.04 | 0.45 |
| 1:A:2501:C:H5'' | 1:A:2503:A:C1' | 2.46 | 0.45 |
| 1:A:2521:C:H2' | 1:A:2521:C:O2 | 2.15 | 0.45 |
| 1:A:2589:A:OP1 | 4:D:226:MET:CG | 2.65 | 0.45 |
| 1:A:2641:G:C2 | 1:A:2774:C:C2 | 3.04 | 0.45 |
| 1:A:1665:A:N7 | 1:A:2726:U:O4 | 2.49 | 0.45 |
| 1:A:2792:G:N2 | 1:A:2793:G:C5 | 2.84 | 0.45 |
| 1:A:2801:A:H2 | 1:A:2895:U:C1' | 2.25 | 0.45 |
| 1:A:2846:G:H3' | 1:A:2847:U:C6 | 2.52 | 0.45 |
| 1:A:291:C:C4 | 1:A:292:C:C5 | 3.05 | 0.45 |
| 1:A:293:U:C3' | 1:A:293:U:H6 | 2.15 | 0.45 |
| 1:A:323:G:C5' | 1:A:324:A:OP1 | 2.50 | 0.45 |
| 1:A:327:G:N2 | 1:A:328:U:O2 | 2.50 | 0.45 |
| 1:A:378:C:C2' | 1:A:379:G:O5' | 2.65 | 0.45 |
| 1:A:476:G:N1 | 1:A:479:A:OP2 | 2.48 | 0.45 |
| 1:A:487:C:N4 | 1:A:488:G:C2 | 2.84 | 0.45 |
| 1:A:510:C:P | 1:A:512:G:N1 | 2.76 | 0.45 |
| 1:A:531:C:O2 | 1:A:531:C:C2' | 2.44 | 0.45 |
| 1:A:578:A:C3' | 1:A:579:G:H5'' | 2.46 | 0.45 |
| 1:A:684:G:O6 | 1:A:774:A:N9 | 2.49 | 0.45 |
| 1:A:687:C:O2 | 1:A:787:U:C3' | 2.63 | 0.45 |
| 1:A:763:G:C2 | 1:A:765:G:N3 | 2.84 | 0.45 |
| 1:A:798:G:OP1 | 6:F:58:ALA:O | 2.34 | 0.45 |
| 1:A:830:G:O6 | 1:A:2446:G:H1' | 2.16 | 0.45 |
| 1:A:910:A:H1' | 1:A:2265:U:H5' | 1.97 | 0.45 |
| 1:A:938:G:N2 | 1:A:939:G:C5 | 2.84 | 0.45 |
| 1:A:940:G:H2' | 1:A:941:A:C5' | 2.47 | 0.45 |
| 1:A:977:G:C2' | 1:A:978:G:H5' | 2.45 | 0.45 |
| 2:B:6:C:C4 | 2:B:115:G:N2 | 2.85 | 0.45 |
| 2:B:73:A:C2 | 2:B:74:U:N1 | 2.84 | 0.45 |
| 4:D:15:PHE:C | 4:D:17:THR:N | 2.70 | 0.45 |
| 4:D:57:GLY:H | 4:D:217:ARG:HD3 | 1.77 | 0.45 |
| 4:D:57:GLY:N | 4:D:217:ARG:HD3 | 2.31 | 0.45 |
| 5:E:7:VAL:O | 5:E:193:GLY:CA | 2.65 | 0.45 |
| 5:E:196:VAL:C | 5:E:197:ILE:CG1 | 2.85 | 0.45 |
| 5:E:6:GLY:O | 5:E:26:ILE:HG22 | 2.17 | 0.45 |
| 5:E:47:VAL:HA | 5:E:79:ARG:CB | 2.41 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 5:E:49:LEU:CD1 | 5:E:76:ARG:O | 2.59 | 0.45 |
| 5:E:91:VAL:H | 5:E:95:ILE:CD1 | 2.29 | 0.45 |
| 6:F:110:LEU:HD23 | 6:F:114:VAL:HG23 | 1.99 | 0.45 |
| 6:F:122:LYS:HA | 6:F:122:LYS:HZ2 | 1.76 | 0.45 |
| 6:F:9:ILE:CG1 | 6:F:122:LYS:HG3 | 2.46 | 0.45 |
| 7:G:125:PHE:CA | 7:G:131:TYR:O | 2.64 | 0.45 |
| 7:G:56:ALA:O | 7:G:59:GLU:CG | 2.61 | 0.45 |
| 7:G:57:ALA:CA | 7:G:67:LYS:HB2 | 2.47 | 0.45 |
| 8:H:11:VAL:HB | 8:H:50:VAL:HG11 | 1.95 | 0.45 |
| 8:H:65:HIS:O | 8:H:69:ARG:CG | 2.52 | 0.45 |
| 9:K:25:TYR:HD2 | 9:K:25:TYR:H | 1.64 | 0.45 |
| 9:K:2:LYS:NZ | 9:K:44:LEU:CD1 | 2.76 | 0.45 |
| 10:L:72:PRO:HG2 | 10:L:111:LYS:CE | 2.47 | 0.45 |
| 11:M:55:VAL:HG11 | 11:M:127:ASP:CA | 2.43 | 0.45 |
| 1:A:6:A:C4' | 11:M:132:ALA:O | 2.58 | 0.45 |
| 11:M:23:LEU:HD23 | 11:M:60:ILE:HG21 | 1.96 | 0.45 |
| 12:N:106:LEU:HD13 | 17:S:39:ARG:HH21 | 1.82 | 0.45 |
| 12:N:79:PHE:CB | 17:S:73:GLU:CG | 2.91 | 0.45 |
| 12:N:94:ARG:HG2 | 12:N:96:THR:O | 2.16 | 0.45 |
| 13:O:78:PRO:HA | 13:O:81:GLN:CB | 2.46 | 0.45 |
| 13:O:80:TYR:CZ | 13:O:85:LEU:HD11 | 2.51 | 0.45 |
| 14:P:131:ILE:CG2 | 14:P:132:VAL:N | 2.79 | 0.45 |
| 14:P:32:TYR:CD1 | 14:P:106:VAL:HA | 2.52 | 0.45 |
| 14:P:78:PRO:O | 14:P:79:LEU:CD2 | 2.58 | 0.45 |
| 15:Q:8:ARG:CD | 15:Q:10:LEU:HD11 | 2.46 | 0.45 |
| 16:R:8:GLU:HA | 16:R:11:LYS:HB2 | 1.98 | 0.45 |
| 16:R:74:ALA:HB1 | 16:R:108:GLY:N | 2.30 | 0.45 |
| 16:R:75:GLU:H | 16:R:75:GLU:HG2 | 1.58 | 0.45 |
| 16:R:78:LEU:HD13 | 16:R:78:LEU:C | 2.34 | 0.45 |
| 17:S:109:GLU:O | 17:S:110:ILE:CB | 2.63 | 0.45 |
| 17:S:21:GLU:O | 17:S:23:ARG:N | 2.49 | 0.45 |
| 17:S:50:ILE:HG22 | 17:S:68:TYR:N | 2.31 | 0.45 |
| 18:T:63:VAL:C | 18:T:65:ILE:N | 2.68 | 0.45 |
| 19:U:60:GLU:OE2 | 19:U:101:GLY:HA3 | 2.16 | 0.45 |
| 19:U:83:ARG:O | 19:U:83:ARG:HD3 | 2.15 | 0.45 |
| 19:U:88:ARG:NH1 | 19:U:88:ARG:CB | 2.77 | 0.45 |
| 20:V:86:LEU:CB | 20:V:87:PRO:CD | 2.89 | 0.45 |
| 21:W:21:PHE:CA | 21:W:25:LYS:O | 2.61 | 0.45 |
| 22:X:46:LYS:HB2 | 22:X:57:GLN:CA | 2.46 | 0.45 |
| 23:Y:7:ALA:C | 23:Y:10:ARG:HH21 | 2.19 | 0.45 |
| 23:Y:94:GLU:O | 23:Y:95:PRO:C | 2.54 | 0.45 |
| 1:A:2355:C:OP1 | 24:Z:25:ARG:NH2 | 2.50 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 9:K:97:ILE:C | 9:K:101:LEU:HD23 | 2.36 | 0.45 |
| 1:A:2124:G:C6 | 1:A:2173:A:N6 | 2.84 | 0.45 |
| 1:A:2147:G:C6 | 1:A:2148:G:H1' | 2.50 | 0.45 |
| 1:A:2165:G:H3' | 1:A:2166:G:C8 | 2.51 | 0.45 |
| 3:C:104:LEU:HA | 3:C:104:LEU:HD13 | 1.76 | 0.45 |
| 3:C:117:PRO:HA | 3:C:120:MET:CG | 2.47 | 0.45 |
| 3:C:119:VAL:O | 3:C:122:ALA:HB3 | 2.16 | 0.45 |
| 3:C:5:LYS:C | 3:C:7:TYR:N | 2.69 | 0.45 |
| 1:A:738:G:C5 | 1:A:739:G:C2 | 3.05 | 0.45 |
| 27:3:17:GLY:CA | 27:3:33:VAL:HB | 2.46 | 0.45 |
| 27:3:19:GLY:HA2 | 27:3:32:TYR:OH | 2.15 | 0.45 |
| 27:3:40:HIS:CB | 27:3:41:PRO:CD | 2.88 | 0.45 |
| 1:A:2046:G:P | 28:4:18:ALA:HB1 | 2.56 | 0.45 |
| 28:4:19:ARG:C | 28:4:21:SER:N | 2.68 | 0.45 |
| 28:4:35:GLU:CD | 28:4:51:TYR:CE2 | 2.90 | 0.45 |
| 28:4:4:HIS:CD2 | 28:4:5:PRO:HB3 | 2.52 | 0.45 |
| 31:7:39:LYS:HZ3 | 31:7:39:LYS:HB3 | 1.82 | 0.45 |
| 1:A:1068:G:N3 | 1:A:1069:A:N6 | 2.63 | 0.45 |
| 1:A:1072:C:H2' | 1:A:1093:G:C6 | 2.46 | 0.45 |
| 1:A:108:U:HO2' | 1:A:109:G:C4' | 2.28 | 0.45 |
| 1:A:1044:G:N2 | 1:A:1111:A:C1' | 2.79 | 0.45 |
| 1:A:1213:A:C5 | 1:A:1214:A:N7 | 2.85 | 0.45 |
| 1:A:1248:G:O2' | 1:A:1249:U:P | 2.75 | 0.45 |
| 1:A:1264:G:C4' | 1:A:1265:A:H5'' | 2.45 | 0.45 |
| 1:A:1312:U:C4 | 1:A:1603:A:N6 | 2.84 | 0.45 |
| 1:A:1381:G:O6 | 1:A:1382:G:C6 | 2.69 | 0.45 |
| 1:A:1389:G:C2 | 1:A:1390:U:C4 | 3.05 | 0.45 |
| 1:A:1411:C:N4 | 1:A:1412:A:N6 | 2.64 | 0.45 |
| 1:A:1491:G:N1 | 1:A:1492:G:H1' | 2.32 | 0.45 |
| 1:A:1528:A:OP1 | 1:A:1528:A:H4' | 2.16 | 0.45 |
| 1:A:1532:C:H3' | 1:A:1532:C:P | 2.57 | 0.45 |
| 1:A:1534:G:N1 | 1:A:1538:G:C5 | 2.84 | 0.45 |
| 1:A:1798:U:H5' | 4:D:257:LEU:CB | 2.47 | 0.45 |
| 1:A:1829:A:H3' | 1:A:1830:C:C6 | 2.49 | 0.45 |
| 1:A:1919:A:C2 | 1:A:1920:C:C2 | 3.04 | 0.45 |
| 1:A:1955:U:C2' | 1:A:1956:U:OP1 | 2.65 | 0.45 |
| 1:A:1660:C:N4 | 1:A:2001:A:H61 | 2.14 | 0.45 |
| 1:A:2206:C:H2' | 1:A:2207:C:H6 | 1.81 | 0.45 |
| 1:A:2239:G:H5' | 1:A:2240:C:P | 2.54 | 0.45 |
| 1:A:2242:G:C6 | 1:A:2243:U:C4 | 3.04 | 0.45 |
| 1:A:2305:A:O2' | 7:G:136:ARG:CA | 2.52 | 0.45 |
| 1:A:2361:A:C4 | 1:A:2362:G:C8 | 3.04 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2413:G:C6 | 1:A:2414:G:H1' | 2.50 | 0.45 |
| 1:A:2415:G:N1 | 1:A:2416:C:C4 | 2.84 | 0.45 |
| 1:A:2424:C:H5' | 1:A:2425:A:H5' | 1.97 | 0.45 |
| 1:A:2457:U:C4 | 1:A:2458:G:N2 | 2.83 | 0.45 |
| 1:A:2471:C:H2' | 1:A:2472:G:O5' | 2.17 | 0.45 |
| 1:A:2491:U:H3' | 1:A:2492:U:C5' | 2.46 | 0.45 |
| 1:A:2498:C:O2' | 1:A:2499:C:C5' | 2.56 | 0.45 |
| 1:A:270(V):G:C4 | 1:A:270(W):G:N7 | 2.84 | 0.45 |
| 1:A:270(Y):G:OP1 | 1:A:270(Z):U:O2' | 2.35 | 0.45 |
| 1:A:272:G:N1 | 1:A:273:G:C4 | 2.85 | 0.45 |
| 1:A:2772:C:N3 | 1:A:2773:C:C5 | 2.85 | 0.45 |
| 1:A:457:A:N1 | 1:A:470:A:H5' | 2.31 | 0.45 |
| 1:A:556:G:C2' | 1:A:557:U:O5' | 2.63 | 0.45 |
| 1:A:564:C:N4 | 1:A:578:A:H61 | 2.14 | 0.45 |
| 1:A:573:G:C2' | 1:A:574:C:H5'' | 2.46 | 0.45 |
| 1:A:586:A:OP1 | 6:F:88:VAL:HG13 | 2.17 | 0.45 |
| 1:A:209:C:C4' | 1:A:681:G:H4' | 2.47 | 0.45 |
| 1:A:685:A:C3' | 1:A:686:G:H21 | 2.28 | 0.45 |
| 1:A:735:A:N7 | 1:A:736:C:C5 | 2.84 | 0.45 |
| 1:A:774:A:O2' | 1:A:775:G:O5' | 2.31 | 0.45 |
| 1:A:784:A:N7 | 1:A:792:G:C6 | 2.85 | 0.45 |
| 1:A:824:A:H2' | 1:A:825:C:C6 | 2.52 | 0.45 |
| 1:A:947:G:N3 | 1:A:948:G:C8 | 2.85 | 0.45 |
| 2:B:58:A:H8 | 2:B:58:A:O5' | 2.00 | 0.45 |
| 4:D:142:VAL:H | 4:D:163:ALA:HB3 | 1.81 | 0.45 |
| 4:D:200:ASP:O | 4:D:203:ASN:HB2 | 2.17 | 0.45 |
| 4:D:208:LYS:CE | 4:D:211:ARG:CZ | 2.94 | 0.45 |
| 4:D:28:GLU:N | 4:D:29:PRO:CD | 2.78 | 0.45 |
| 4:D:72:LYS:NZ | 4:D:75:ILE:HD13 | 2.32 | 0.45 |
| 4:D:87:ASN:ND2 | 4:D:87:ASN:H | 2.13 | 0.45 |
| 5:E:154:LYS:HD2 | 5:E:154:LYS:O | 2.16 | 0.45 |
| 5:E:7:VAL:HG22 | 5:E:8:LYS:O | 2.15 | 0.45 |
| 5:E:97:LYS:O | 5:E:100:GLU:HG3 | 2.16 | 0.45 |
| 1:A:659:C:C4' | 6:F:102:PRO:CD | 2.94 | 0.45 |
| 6:F:27:GLU:OE2 | 6:F:115:ALA:HB1 | 2.15 | 0.45 |
| 6:F:141:ALA:O | 6:F:142:TRP:C | 2.55 | 0.45 |
| 7:G:55:LYS:HZ2 | 7:G:152:LEU:HD21 | 1.80 | 0.45 |
| 8:H:107:VAL:HB | 8:H:160:LYS:CD | 2.43 | 0.45 |
| 8:H:101:ARG:HH22 | 8:H:122:THR:HA | 1.82 | 0.45 |
| 8:H:74:ASN:HD22 | 8:H:75:ALA:H | 1.64 | 0.45 |
| 9:K:46:ALA:O | 9:K:49:ALA:HB3 | 2.15 | 0.45 |
| 10:L:115:LEU:CG | 10:L:118:THR:HA | 2.45 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:L:23:VAL:HG11 | 10:L:38:VAL:HG23 | 1.97 | 0.45 |
| 1:A:557:U:O3' | 11:M:112:LEU:CG | 2.64 | 0.45 |
| 11:M:93:THR:O | 11:M:94:HIS:CD2 | 2.56 | 0.45 |
| 13:O:76:LYS:HG3 | 13:O:101:VAL:CB | 2.46 | 0.45 |
| 13:O:29:LYS:CG | 13:O:29:LYS:O | 2.58 | 0.45 |
| 13:O:49:ARG:HG3 | 31:7:52:LYS:HG2 | 1.96 | 0.45 |
| 14:P:78:PRO:HB3 | 14:P:81:VAL:HG23 | 1.97 | 0.45 |
| 16:R:19:LYS:HD3 | 16:R:20:ARG:N | 2.31 | 0.45 |
| 16:R:23:ARG:O | 16:R:41:ASP:HB2 | 2.17 | 0.45 |
| 16:R:42:ASP:O | 16:R:46:VAL:HG22 | 2.17 | 0.45 |
| 16:R:94:TYR:HD1 | 16:R:94:TYR:N | 1.98 | 0.45 |
| 17:S:111:ARG:O | 17:S:114:LEU:HB3 | 2.16 | 0.45 |
| 18:T:93:LYS:HB2 | 19:U:10:LYS:CE | 2.47 | 0.45 |
| 20:V:23:LEU:CD1 | 28:4:26:THR:O | 2.64 | 0.45 |
| 22:X:75:ILE:N | 22:X:100:ALA:HB1 | 2.32 | 0.45 |
| 22:X:15:VAL:HG12 | 22:X:16:ALA:N | 2.31 | 0.45 |
| 22:X:47:LYS:CD | 22:X:51:VAL:HB | 2.40 | 0.45 |
| 23:Y:157:LEU:HB3 | 23:Y:161:VAL:HG13 | 1.97 | 0.45 |
| 23:Y:44:PHE:O | 23:Y:48:PHE:CD1 | 2.69 | 0.45 |
| 23:Y:80:ARG:HD3 | 23:Y:82:ARG:HH22 | 1.81 | 0.45 |
| 24:Z:46:LYS:HE3 | 24:Z:77:ARG:N | 2.30 | 0.45 |
| 1:A:2133:G:OP2 | 1:A:2156:G:N3 | 2.49 | 0.45 |
| 1:A:2160:G:C2 | 1:A:2161:C:C2 | 3.05 | 0.45 |
| 3:C:32:LEU:CG | 3:C:220:PRO:HG2 | 2.47 | 0.45 |
| 3:C:46:LYS:C | 3:C:46:LYS:HD3 | 2.37 | 0.45 |
| 3:C:82:LYS:O | 3:C:83:ILE:C | 2.53 | 0.45 |
| 5:E:127:ASP:CB | 5:E:135:HIS:CA | 2.83 | 0.45 |
| 2:B:2:C:C2 | 2:B:3:C:C5 | 3.04 | 0.45 |
| 1:A:273(F):C:HI1' | 1:A:363(A):A:N6 | 2.31 | 0.45 |
| 25:1:24:LYS:HZ1 | 25:1:56:LEU:HD11 | 1.81 | 0.45 |
| 25:1:24:LYS:CG | 25:1:52:ILE:HG21 | 2.35 | 0.45 |
| 26:2:9:VAL:CG2 | 26:2:54:VAL:HA | 2.47 | 0.45 |
| 27:3:40:HIS:CB | 27:3:41:PRO:HD3 | 2.47 | 0.45 |
| 27:3:47:GLN:C | 27:3:52:THR:OG1 | 2.54 | 0.45 |
| 27:3:65:ASP:N | 27:3:68:ARG:HH22 | 2.12 | 0.45 |
| 28:4:31:VAL:CB | 28:4:32:PRO:HD2 | 2.30 | 0.45 |
| 28:4:8:LYS:O | 28:4:9:LYS:CG | 2.64 | 0.45 |
| 29:5:19:ARG:HD3 | 29:5:19:ARG:N | 2.31 | 0.45 |
| 29:5:28:ARG:HD3 | 29:5:28:ARG:O | 2.16 | 0.45 |
| 1:A:2286:A:C5 | 29:5:31:PRO:HD2 | 2.52 | 0.45 |
| 1:A:126:A:C5' | 30:6:47:ARG:NH1 | 2.80 | 0.45 |
| 31:7:4:MET:HG3 | 31:7:7:HIS:NE2 | 2.30 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 13:O:52:GLU:HG3 | 31:7:52:LYS:HD2 | 1.97 | 0.45 |
| 32:8:15:LYS:O | 32:8:25:VAL:CG1 | 2.60 | 0.45 |
| 1:A:1044:G:H21 | 1:A:1111:A:C1' | 2.29 | 0.45 |
| 1:A:1071:G:C5 | 1:A:1089:G:C6 | 3.04 | 0.45 |
| 1:A:1124:C:C6 | 1:A:1124:C:O5' | 2.70 | 0.45 |
| 1:A:1128:A:H1' | 1:A:2516:G:O2' | 2.17 | 0.45 |
| 1:A:71:A:OP1 | 1:A:112:U:O2 | 2.33 | 0.45 |
| 1:A:1200:C:N3 | 1:A:1246:A:C2 | 2.84 | 0.45 |
| 1:A:1356:G:HO2' | 1:A:1357:U:H5' | 1.78 | 0.45 |
| 1:A:1436:G:N2 | 1:A:1437:C:C2 | 2.84 | 0.45 |
| 1:A:1602:U:C2 | 1:A:1602:U:O5' | 2.69 | 0.45 |
| 1:A:1633:G:N7 | 1:A:1635:G:N1 | 2.64 | 0.45 |
| 1:A:1654:A:N3 | 1:A:1654:A:H2' | 2.30 | 0.45 |
| 1:A:1731:G:C2' | 1:A:1731:G:N3 | 2.79 | 0.45 |
| 1:A:49:A:C5 | 1:A:177:G:N1 | 2.85 | 0.45 |
| 1:A:1853:A:C2 | 1:A:1854:A:C5 | 3.04 | 0.45 |
| 1:A:1855:G:C6 | 1:A:1856:G:C8 | 3.05 | 0.45 |
| 1:A:1903:G:C2 | 1:A:1904:G:N7 | 2.85 | 0.45 |
| 1:A:1952:A:C8 | 1:A:1952:A:C3' | 3.00 | 0.45 |
| 1:A:1964:G:O2' | 1:A:1965:C:P | 2.75 | 0.45 |
| 1:A:1985:G:N2 | 1:A:1986:A:H1' | 2.31 | 0.45 |
| 1:A:2041:U:O2 | 1:A:2042:A:C1' | 2.65 | 0.45 |
| 1:A:2051:A:H3' | 1:A:2578:G:H5'' | 1.98 | 0.45 |
| 1:A:2032:G:N2 | 1:A:2055:C:H42 | 2.14 | 0.45 |
| 1:A:2063:C:C4 | 1:A:2064:C:C5 | 3.04 | 0.45 |
| 1:A:2212:A:C4' | 1:A:2212:A:OP2 | 2.64 | 0.45 |
| 1:A:2307:G:C5 | 1:A:2308:G:C2 | 3.05 | 0.45 |
| 1:A:2345:G:H21 | 1:A:2382:G:P | 2.40 | 0.45 |
| 1:A:2346:A:OP2 | 1:A:2381:C:O2' | 2.20 | 0.45 |
| 1:A:2394:C:N3 | 1:A:2395:C:C2 | 2.85 | 0.45 |
| 1:A:2483:C:C2' | 1:A:2484:G:O5' | 2.65 | 0.45 |
| 1:A:195:A:H4' | 1:A:251:A:H4' | 1.99 | 0.45 |
| 1:A:2702:U:C6 | 1:A:2702:U:C3' | 2.98 | 0.45 |
| 1:A:267:C:C5' | 1:A:271(A):C:N4 | 2.80 | 0.45 |
| 1:A:283:A:H3' | 1:A:283:A:OP1 | 2.16 | 0.45 |
| 1:A:1710:C:HO2' | 1:A:2858:C:H42 | 1.64 | 0.45 |
| 1:A:298:G:C2 | 1:A:338:G:O2' | 2.69 | 0.45 |
| 1:A:349:G:C2' | 1:A:350:U:C5 | 2.99 | 0.45 |
| 1:A:496:G:C6 | 1:A:497:A:C5 | 3.05 | 0.45 |
| 1:A:625:G:N2 | 1:A:653:A:N1 | 2.65 | 0.45 |
| 1:A:650:C:H2' | 1:A:651:G:O5' | 2.17 | 0.45 |
| 1:A:660:G:C5' | 6:F:99:TYR:CZ | 3.00 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:731:C:H6 | 1:A:731:C:H5' | 1.82 | 0.45 |
| 1:A:87:C:N4 | 1:A:96:G:N1 | 2.64 | 0.45 |
| 1:A:926:A:N7 | 1:A:929:G:N2 | 2.64 | 0.45 |
| 2:B:32:C:C2' | 2:B:33:G:C8 | 2.99 | 0.45 |
| 2:B:70:C:C2 | 2:B:71:C:C6 | 3.05 | 0.45 |
| 2:B:82:G:HO2' | 2:B:83:G:H8 | 1.65 | 0.45 |
| 2:B:88:C:C2 | 2:B:89:G:O4' | 2.70 | 0.45 |
| 1:A:1971:A:H1' | 4:D:240:ALA:H | 1.81 | 0.45 |
| 4:D:260:ARG:O | 4:D:261:LYS:O | 2.33 | 0.45 |
| 4:D:59:LYS:HB3 | 4:D:59:LYS:HE3 | 1.51 | 0.45 |
| 4:D:77:ALA:O | 4:D:116:GLN:HA | 2.16 | 0.45 |
| 1:A:2051:A:C1' | 5:E:141:ILE:HD13 | 2.38 | 0.45 |
| 5:E:14:ILE:HD11 | 17:S:14:TYR:CB | 2.47 | 0.45 |
| 5:E:22:PRO:HB2 | 5:E:184:VAL:N | 2.32 | 0.45 |
| 5:E:38:THR:HB | 5:E:39:PRO:CD | 2.43 | 0.45 |
| 5:E:5:LEU:HD13 | 5:E:196:VAL:C | 2.37 | 0.45 |
| 7:G:13:GLU:O | 7:G:17:PRO:CD | 2.65 | 0.45 |
| 7:G:21:ARG:HH11 | 7:G:27:ASN:HA | 1.81 | 0.45 |
| 1:A:2311:A:N3 | 7:G:45:GLU:CD | 2.70 | 0.45 |
| 7:G:5:VAL:CG1 | 7:G:9:ARG:NH1 | 2.70 | 0.45 |
| 8:H:164:TYR:CD2 | 8:H:164:TYR:N | 2.81 | 0.45 |
| 8:H:26:VAL:HG13 | 8:H:76:VAL:HG12 | 1.96 | 0.45 |
| 8:H:69:ARG:NH2 | 8:H:70:THR:N | 2.65 | 0.45 |
| 10:L:104:VAL:HG12 | 10:L:124:ALA:HA | 1.98 | 0.45 |
| 10:L:13:PRO:CG | 10:L:16:LYS:HG2 | 2.47 | 0.45 |
| 11:M:126:PRO:O | 11:M:127:ASP:OD2 | 2.35 | 0.45 |
| 11:M:37:LYS:HZ2 | 11:M:43:THR:CA | 2.28 | 0.45 |
| 12:N:24:VAL:HG22 | 12:N:30:ALA:CB | 2.47 | 0.45 |
| 12:N:2:ILE:HA | 12:N:33:ALA:O | 2.16 | 0.45 |
| 12:N:57:VAL:HG21 | 12:N:85:VAL:HG22 | 1.98 | 0.45 |
| 1:A:1666:G:OP1 | 12:N:81:ASP:OD1 | 2.34 | 0.45 |
| 13:O:122:PRO:HB3 | 13:O:124:LYS:NZ | 2.31 | 0.45 |
| 13:O:56:SER:OG | 31:7:27:THR:HG21 | 2.17 | 0.45 |
| 13:O:93:GLY:HA2 | 13:O:96:THR:CG2 | 2.46 | 0.45 |
| 1:A:2466:C:O2' | 14:P:123:HIS:CE1 | 2.69 | 0.45 |
| 14:P:35:VAL:HG11 | 14:P:130:LYS:CE | 2.46 | 0.45 |
| 14:P:45:GLN:C | 14:P:47:ILE:N | 2.68 | 0.45 |
| 1:A:872:A:O2' | 14:P:66:ILE:HB | 2.16 | 0.45 |
| 14:P:22:LYS:HA | 14:P:99:PRO:HG3 | 1.98 | 0.45 |
| 16:R:3:ARG:N | 16:R:3:ARG:HD2 | 2.32 | 0.45 |
| 18:T:13:LYS:H | 18:T:13:LYS:NZ | 2.13 | 0.45 |
| 18:T:33:ARG:O | 18:T:36:ARG:N | 2.49 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 18:T:63:VAL:CG1 | 18:T:64:ARG:N | 2.77 | 0.45 |
| 18:T:93:LYS:HB2 | 19:U:10:LYS:HZ3 | 1.82 | 0.45 |
| 19:U:32:THR:O | 19:U:32:THR:HG22 | 2.16 | 0.45 |
| 18:T:44:ASN:ND2 | 19:U:78:LYS:H | 2.09 | 0.45 |
| 20:V:43:GLY:O | 20:V:44:ALA:O | 2.34 | 0.45 |
| 20:V:4:LYS:HD3 | 20:V:4:LYS:H | 1.78 | 0.45 |
| 21:W:48:LYS:N | 21:W:48:LYS:HD2 | 2.31 | 0.45 |
| 22:X:19:LYS:HG3 | 22:X:21:LYS:CE | 2.47 | 0.45 |
| 22:X:28:LYS:CE | 22:X:28:LYS:N | 2.76 | 0.45 |
| 22:X:50:ARG:HA | 22:X:54:LYS:HA | 1.97 | 0.45 |
| 22:X:50:ARG:CG | 22:X:54:LYS:HD2 | 2.46 | 0.45 |
| 22:X:82:PRO:HD2 | 22:X:96:ILE:HA | 1.97 | 0.45 |
| 23:Y:112:ARG:O | 23:Y:112:ARG:HD2 | 2.16 | 0.45 |
| 23:Y:109:ALA:O | 23:Y:113:ALA:HB3 | 2.16 | 0.45 |
| 23:Y:122:ARG:HG2 | 23:Y:171:ILE:CD1 | 2.45 | 0.45 |
| 23:Y:107:THR:HG23 | 23:Y:140:ASP:OD1 | 2.17 | 0.45 |
| 23:Y:2:GLU:HG2 | 23:Y:60:GLU:CB | 2.41 | 0.45 |
| 23:Y:1:MET:SD | 23:Y:59:LEU:O | 2.75 | 0.45 |
| 23:Y:57:ILE:CD1 | 23:Y:70:LEU:HB3 | 2.40 | 0.45 |
| 23:Y:57:ILE:HG13 | 23:Y:70:LEU:HB3 | 1.85 | 0.45 |
| 9:K:110:ASP:OD1 | 9:K:113:ARG:CG | 2.61 | 0.45 |
| 9:K:73:GLU:CA | 9:K:140:LEU:HD21 | 2.41 | 0.45 |
| 9:K:69:LYS:HB2 | 9:K:73:GLU:OE1 | 2.16 | 0.45 |
| 1:A:2132:U:O2 | 1:A:2133:G:C5' | 2.59 | 0.45 |
| 1:A:2147:G:N3 | 1:A:2147:G:H2' | 2.30 | 0.45 |
| 1:A:2119:A:H2 | 1:A:2171:A:C5 | 2.35 | 0.45 |
| 3:C:21:THR:HG1 | 3:C:24:GLU:CD | 2.19 | 0.45 |
| 1:A:2125:G:OP1 | 3:C:40:THR:HG21 | 2.17 | 0.45 |
| 3:C:54:SER:CB | 3:C:57:ASN:HD22 | 2.30 | 0.45 |
| 3:C:7:TYR:HE1 | 3:C:10:LEU:CG | 2.29 | 0.45 |
| 3:C:97:GLU:OE2 | 3:C:119:VAL:HG12 | 2.17 | 0.45 |
| 25:1:37:GLY:N | 25:1:41:GLN:NE2 | 2.65 | 0.45 |
| 26:2:32:GLN:OE1 | 26:2:32:GLN:N | 2.50 | 0.45 |
| 27:3:52:THR:O | 27:3:53:GLU:HB2 | 2.16 | 0.45 |
| 30:6:25:PRO:HA | 30:6:28:ARG:CZ | 2.46 | 0.45 |
| 1:A:1612:C:H4' | 30:6:5:TRP:CD1 | 2.52 | 0.45 |
| 1:A:1025:G:C3' | 1:A:1025:G:N3 | 2.80 | 0.45 |
| 1:A:1286:A:C2 | 1:A:1329:U:N3 | 2.85 | 0.45 |
| 1:A:1359:A:C4 | 1:A:1373:A:C2 | 3.05 | 0.45 |
| 1:A:1444:G:C2 | 1:A:1548:C:C4 | 3.05 | 0.45 |
| 1:A:1500:G:C2 | 1:A:1501:C:C5 | 3.05 | 0.45 |
| 1:A:1538:G:N2 | 1:A:1539:G:C2 | 2.82 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1544:C:O2' | 1:A:1545:A:C1' | 2.64 | 0.45 |
| 1:A:1444:G:N2 | 1:A:1548:C:C6 | 2.85 | 0.45 |
| 1:A:1621:U:H3' | 1:A:1621:U:H6 | 1.81 | 0.45 |
| 1:A:1636:C:O2' | 1:A:1760:A:H2' | 2.17 | 0.45 |
| 1:A:197:A:C4 | 1:A:198:C:C6 | 3.04 | 0.45 |
| 1:A:1661:G:C6 | 1:A:2000:G:C6 | 3.05 | 0.45 |
| 1:A:2007:C:H2' | 1:A:2008:C:C5' | 2.47 | 0.45 |
| 1:A:2447:G:C4 | 1:A:2501:C:C4 | 3.04 | 0.45 |
| 1:A:2456:C:C2' | 1:A:2457:U:C5' | 2.88 | 0.45 |
| 1:A:2508:G:C2' | 1:A:2509:G:C5' | 2.94 | 0.45 |
| 1:A:251:A:O2' | 1:A:252:G:P | 2.75 | 0.45 |
| 1:A:2607:G:N1 | 1:A:2608:G:N3 | 2.63 | 0.45 |
| 1:A:2655:G:H2' | 1:A:2664:G:O6 | 2.17 | 0.45 |
| 1:A:2776:A:C4 | 1:A:2778:A:C5 | 3.05 | 0.45 |
| 1:A:2821:A:C2' | 1:A:2822:G:O4' | 2.60 | 0.45 |
| 1:A:282:A:H8 | 1:A:282:A:H5' | 1.82 | 0.45 |
| 1:A:2861:G:C5 | 1:A:2862:G:N7 | 2.84 | 0.45 |
| 1:A:295:G:C2' | 1:A:296:C:C5' | 2.90 | 0.45 |
| 1:A:296:C:C2' | 1:A:297:C:O4' | 2.65 | 0.45 |
| 1:A:328:U:H2' | 1:A:329:G:OP1 | 2.16 | 0.45 |
| 1:A:420:C:H2' | 1:A:421:U:C6 | 2.50 | 0.45 |
| 1:A:443:A:C1' | 1:A:1201:C:O4' | 2.65 | 0.45 |
| 1:A:511:U:H5 | 1:A:512:G:C4 | 2.32 | 0.45 |
| 1:A:533:G:O2' | 1:A:534:U:H5' | 2.16 | 0.45 |
| 1:A:539:G:H2' | 1:A:540:G:H8 | 1.81 | 0.45 |
| 1:A:546:C:C2' | 1:A:547:A:O4' | 2.64 | 0.45 |
| 1:A:565:C:O4' | 1:A:1252:G:O6 | 2.34 | 0.45 |
| 1:A:588:U:O2' | 1:A:589:C:C5' | 2.65 | 0.45 |
| 1:A:668:G:C2 | 1:A:670:A:C6 | 3.04 | 0.45 |
| 1:A:783:A:H2' | 1:A:784:A:C4' | 2.47 | 0.45 |
| 1:A:675:A:C5 | 1:A:804:A:N3 | 2.85 | 0.45 |
| 1:A:809:G:C4 | 1:A:810:U:C5 | 3.05 | 0.45 |
| 1:A:898:C:H3' | 1:A:899:A:C5' | 2.44 | 0.45 |
| 1:A:924:C:N4 | 1:A:925:C:N4 | 2.65 | 0.45 |
| 1:A:822:U:OP2 | 1:A:945:A:H5' | 2.16 | 0.45 |
| 1:A:970:C:H2' | 1:A:971:C:H6 | 1.80 | 0.45 |
| 1:A:973:A:H2' | 1:A:974:G:C5' | 2.46 | 0.45 |
| 2:B:106:G:C5 | 2:B:107:U:H5 | 2.35 | 0.45 |
| 2:B:55:U:H2' | 2:B:56:G:C4' | 2.45 | 0.45 |
| 2:B:76:G:C5' | 23:Y:11:GLU:O | 2.64 | 0.45 |
| 4:D:101:GLU:C | 4:D:102:LYS:HG3 | 2.37 | 0.45 |
| 4:D:117:VAL:CG1 | 4:D:129:ASN:HA | 2.46 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 4:D:10:THR:H | 4:D:23:GLU:HG2 | 1.79 | 0.45 |
| 4:D:252:TRP:N | 4:D:255:LYS:HZ2 | 2.15 | 0.45 |
| 4:D:63:ARG:HB2 | 4:D:87:ASN:HD21 | 1.81 | 0.45 |
| 5:E:11:MET:O | 5:E:21:VAL:HB | 2.17 | 0.45 |
| 5:E:124:GLY:CA | 5:E:136:ARG:HB2 | 2.47 | 0.45 |
| 5:E:179:GLU:CD | 5:E:179:GLU:N | 2.62 | 0.45 |
| 5:E:187:ALA:O | 5:E:188:VAL:C | 2.55 | 0.45 |
| 5:E:105:THR:CG2 | 5:E:199:ARG:CZ | 2.93 | 0.45 |
| 6:F:123:LEU:HG | 6:F:191:ARG:CD | 2.46 | 0.45 |
| 6:F:182:ASN:OD1 | 6:F:185:ASP:CB | 2.64 | 0.45 |
| 6:F:97:TYR:C | 6:F:98:SER:O | 2.53 | 0.45 |
| 7:G:173:LEU:CA | 7:G:176:LEU:HB3 | 2.23 | 0.45 |
| 7:G:32:PRO:CG | 7:G:33:ARG:N | 2.79 | 0.45 |
| 7:G:36:LYS:CB | 7:G:95:ARG:HD3 | 2.47 | 0.45 |
| 8:H:59:ARG:O | 8:H:62:LYS:CG | 2.56 | 0.45 |
| 9:K:2:LYS:HD2 | 9:K:39:ALA:CA | 2.46 | 0.45 |
| 10:L:87:GLY:HA2 | 10:L:134:MET:CE | 2.46 | 0.45 |
| 11:M:109:LYS:HE2 | 11:M:111:PRO:CG | 2.46 | 0.45 |
| 1:A:1131:G:H1' | 11:M:82:LEU:HD11 | 1.93 | 0.45 |
| 12:N:22:ILE:HD12 | 12:N:40:VAL:CG1 | 2.47 | 0.45 |
| 12:N:38:VAL:HA | 12:N:59:LYS:O | 2.17 | 0.45 |
| 12:N:68:GLU:HB3 | 12:N:76:ALA:O | 2.17 | 0.45 |
| 1:A:627:A:C3' | 13:O:75:ILE:HG13 | 2.46 | 0.45 |
| 14:P:50:ALA:HA | 14:P:121:ALA:HB1 | 1.98 | 0.45 |
| 14:P:42:ILE:HG12 | 14:P:46:GLN:NE2 | 2.32 | 0.45 |
| 15:Q:67:LEU:HD21 | 15:Q:71:GLN:HA | 1.97 | 0.45 |
| 16:R:41:ASP:OD2 | 16:R:41:ASP:N | 2.49 | 0.45 |
| 16:R:64:GLU:OE2 | 16:R:67:ARG:CG | 2.64 | 0.45 |
| 16:R:10:ARG:HH22 | 16:R:89:ARG:HH22 | 1.64 | 0.45 |
| 20:V:36:LEU:HD11 | 20:V:48:ALA:N | 2.31 | 0.45 |
| 20:V:64:MET:SD | 20:V:65:LEU:CD2 | 3.05 | 0.45 |
| 22:X:97:ARG:NH1 | 22:X:101:LYS:HG2 | 2.31 | 0.45 |
| 22:X:50:ARG:CB | 22:X:54:LYS:CE | 2.89 | 0.45 |
| 22:X:45:VAL:HA | 22:X:57:GLN:NE2 | 2.31 | 0.45 |
| 22:X:82:PRO:CG | 22:X:83:THR:H | 2.24 | 0.45 |
| 22:X:83:THR:CG2 | 22:X:84:ARG:HH11 | 2.29 | 0.45 |
| 23:Y:55:HIS:HB3 | 23:Y:100:VAL:HA | 1.97 | 0.45 |
| 23:Y:1:MET:H2 | 23:Y:58:VAL:HG11 | 1.82 | 0.45 |
| 1:A:2119:A:C5 | 1:A:2170:A:N1 | 2.84 | 0.45 |
| 1:A:2134:A:C5' | 1:A:2134:A:N3 | 2.79 | 0.45 |
| 1:A:2152:G:C2' | 1:A:2153:G:O5' | 2.65 | 0.45 |
| 1:A:2159:G:O2' | 1:A:2160:G:C5' | 2.65 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 3:C:129:ARG:H | 3:C:129:ARG:HD2 | 1.82 | 0.45 |
| 3:C:175:VAL:O | 3:C:188:ASN:HB3 | 2.16 | 0.45 |
| 1:A:713:G:N2 | 1:A:714:U:C2 | 2.85 | 0.45 |
| 1:A:2246:G:C2' | 1:A:2247:A:O5' | 2.64 | 0.45 |
| 1:A:2252:G:N7 | 1:A:2253:G:N7 | 2.64 | 0.45 |
| 2:B:20:C:H2' | 2:B:21:G:O4' | 2.16 | 0.45 |
| 1:A:738:G:C6 | 1:A:739:G:C6 | 3.05 | 0.45 |
| 1:A:844:C:C6 | 1:A:844:C:OP2 | 2.70 | 0.45 |
| 15:Q:60:LEU:HD23 | 15:Q:60:LEU:N | 2.32 | 0.45 |
| 25:1:1:MET:CE | 25:1:3:LYS:HB2 | 2.47 | 0.45 |
| 25:1:1:MET:O | 25:1:4:GLN:HB2 | 2.16 | 0.45 |
| 26:2:13:ILE:HG12 | 26:2:14:GLY:N | 2.32 | 0.45 |
| 1:A:2230:G:C1' | 27:3:58:ARG:NH2 | 2.80 | 0.45 |
| 27:3:57:GLU:N | 27:3:61:ARG:CG | 2.79 | 0.45 |
| 28:4:55:ARG:C | 28:4:57:VAL:H | 2.20 | 0.45 |
| 29:5:50:ARG:CZ | 29:5:52:VAL:CG2 | 2.93 | 0.45 |
| 30:6:18:PHE:O | 30:6:22:MET:HE3 | 2.16 | 0.45 |
| 1:A:1072:C:O2 | 1:A:1092:C:H5 | 2.00 | 0.45 |
| 1:A:1057:A:C8 | 1:A:1085:A:C2 | 3.05 | 0.45 |
| 1:A:1091:G:N2 | 1:A:1101:U:C2 | 2.85 | 0.45 |
| 1:A:1124:C:H3' | 1:A:1125:G:C8 | 2.52 | 0.45 |
| 1:A:1202:C:H2' | 1:A:1203:G:H4' | 1.98 | 0.45 |
| 1:A:1266:G:C2' | 1:A:1267:U:OP2 | 2.64 | 0.45 |
| 1:A:1366:A:H8 | 1:A:1366:A:OP2 | 1.96 | 0.45 |
| 1:A:1465:G:O2' | 1:A:1466:G:H5' | 2.17 | 0.45 |
| 1:A:1634:A:C2' | 1:A:1635:G:OP1 | 2.64 | 0.45 |
| 1:A:1698:A:O2' | 1:A:1699:G:C3' | 2.63 | 0.45 |
| 1:A:184:C:H2' | 1:A:185:U:H6 | 1.81 | 0.45 |
| 1:A:1889:A:N6 | 1:A:1890:A:N6 | 2.65 | 0.45 |
| 1:A:194:G:O6 | 1:A:201:C:N4 | 2.50 | 0.45 |
| 1:A:1967:C:N3 | 1:A:1968:G:C2 | 2.85 | 0.45 |
| 1:A:215:G:C4' | 1:A:216:A:H4' | 2.47 | 0.45 |
| 1:A:2227:A:C5 | 1:A:2228:G:C8 | 3.05 | 0.45 |
| 1:A:224:G:C2 | 1:A:225:A:C1' | 3.00 | 0.45 |
| 1:A:2333:A:C4' | 1:A:2335:A:O4' | 2.63 | 0.45 |
| 1:A:233:A:C6 | 1:A:234:C:C5 | 3.05 | 0.45 |
| 1:A:2346:A:H2 | 1:A:2383:G:C2 | 2.35 | 0.45 |
| 1:A:2412:A:O5' | 1:A:2412:A:H8 | 1.99 | 0.45 |
| 1:A:2427:C:H5'' | 1:A:2429:G:H5' | 1.99 | 0.45 |
| 1:A:2466:C:H6 | 1:A:2466:C:O5' | 1.99 | 0.45 |
| 1:A:2521:C:O2' | 1:A:2522:U:H5'' | 2.14 | 0.45 |
| 1:A:2572:A:C5' | 1:A:2573:C:OP1 | 2.64 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:2582:G:C2' | 1:A:2583:G:H5' | 2.47 | 0.45 |
| 1:A:1265:A:P | 1:A:2615:U:OP1 | 2.73 | 0.45 |
| 1:A:2657:A:C8 | 1:A:2657:A:C3' | 3.00 | 0.45 |
| 1:A:2658:C:N4 | 1:A:2664:G:H1 | 2.14 | 0.45 |
| 1:A:2666:C:H5 | 1:A:2667:C:C2 | 2.35 | 0.45 |
| 1:A:2781:A:C3' | 1:A:2782:G:H4' | 2.47 | 0.45 |
| 1:A:27:G:H3' | 1:A:27:G:C8 | 2.51 | 0.45 |
| 1:A:2895:U:O2' | 1:A:2896:C:H5' | 2.16 | 0.45 |
| 1:A:300:A:O2' | 1:A:318:C:C1' | 2.57 | 0.45 |
| 1:A:302:C:H2' | 1:A:303:U:O5' | 2.17 | 0.45 |
| 1:A:421:U:O2 | 1:A:421:U:H2' | 2.17 | 0.45 |
| 1:A:458:G:O2' | 1:A:459:U:H6 | 1.99 | 0.45 |
| 1:A:465:G:C8 | 1:A:466:A:C8 | 3.04 | 0.45 |
| 1:A:479:A:HO2' | 1:A:480:A:P | 2.40 | 0.45 |
| 1:A:55:G:C4 | 1:A:56:A:C8 | 3.05 | 0.45 |
| 1:A:648:G:C2 | 1:A:649:G:C8 | 3.05 | 0.45 |
| 1:A:663:G:P | 13:O:19:VAL:H | 2.40 | 0.45 |
| 1:A:757:U:N3 | 1:A:758:C:C6 | 2.84 | 0.45 |
| 1:A:80:G:O2' | 1:A:346:A:N3 | 2.49 | 0.45 |
| 1:A:826:U:H3' | 1:A:828:U:C4 | 2.51 | 0.45 |
| 1:A:836:G:C5 | 1:A:837:C:C5 | 3.05 | 0.45 |
| 1:A:85:G:P | 22:X:28:LYS:NZ | 2.90 | 0.45 |
| 1:A:959:A:N6 | 1:A:960:A:H62 | 2.04 | 0.45 |
| 1:A:988:A:H2 | 1:A:989:G:H21 | 1.64 | 0.45 |
| 1:A:997:G:C2 | 1:A:998:C:C6 | 3.05 | 0.45 |
| 2:B:5:C:H2' | 2:B:6:C:C6 | 2.51 | 0.45 |
| 4:D:226:MET:CE | 4:D:237:GLU:H | 2.29 | 0.45 |
| 5:E:13:ARG:O | 5:E:19:ARG:HB2 | 2.16 | 0.45 |
| 5:E:7:VAL:CB | 5:E:196:VAL:HG21 | 2.44 | 0.45 |
| 6:F:9:ILE:HG21 | 6:F:124:LEU:HB3 | 1.97 | 0.45 |
| 6:F:160:ASN:HB2 | 6:F:163:VAL:HG23 | 1.98 | 0.45 |
| 6:F:200:GLU:CD | 6:F:201:VAL:N | 2.70 | 0.45 |
| 7:G:32:PRO:CG | 7:G:163:ALA:HB2 | 2.47 | 0.45 |
| 9:K:2:LYS:CE | 9:K:39:ALA:HB2 | 2.47 | 0.45 |
| 10:L:115:LEU:HD13 | 10:L:116:ASN:OD1 | 2.16 | 0.45 |
| 11:M:82:LEU:O | 11:M:83:LYS:O | 2.35 | 0.45 |
| 12:N:57:VAL:HG23 | 12:N:59:LYS:HD3 | 1.99 | 0.45 |
| 14:P:112:GLU:HA | 14:P:115:MET:CB | 2.47 | 0.45 |
| 14:P:43:THR:HG23 | 14:P:46:GLN:HB3 | 1.99 | 0.45 |
| 14:P:75:THR:O | 14:P:77:LYS:CD | 2.65 | 0.45 |
| 1:A:2009:G:H1' | 15:Q:107:ASP:O | 2.17 | 0.45 |
| 15:Q:55:ALA:HB1 | 15:Q:79:LEU:CG | 2.46 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 16:R:26:LEU:HD22 | 16:R:27:SER:H | 1.76 | 0.45 |
| 17:S:30:VAL:CG2 | 17:S:31:SER:N | 2.80 | 0.45 |
| 17:S:26:ASP:H | 17:S:94:ALA:CB | 2.30 | 0.45 |
| 18:T:109:LEU:HD23 | 18:T:109:LEU:N | 2.31 | 0.45 |
| 18:T:111:GLU:O | 18:T:114:LYS:CG | 2.44 | 0.45 |
| 18:T:88:ILE:O | 19:U:52:VAL:CA | 2.64 | 0.45 |
| 19:U:4:ILE:H | 19:U:44:LYS:HZ2 | 1.65 | 0.45 |
| 22:X:24:VAL:CG2 | 22:X:38:ILE:HB | 2.46 | 0.45 |
| 22:X:8:LYS:HA | 22:X:28:LYS:HD2 | 1.99 | 0.45 |
| 23:Y:128:VAL:CG1 | 23:Y:129:SER:N | 2.80 | 0.45 |
| 23:Y:169:GLU:O | 23:Y:170:THR:CB | 2.63 | 0.45 |
| 2:B:75:G:N2 | 23:Y:87:ASP:CG | 2.70 | 0.45 |
| 24:Z:17:GLN:O | 24:Z:18:ALA:O | 2.35 | 0.45 |
| 2:B:12:C:N4 | 24:Z:75:LEU:HA | 2.31 | 0.45 |
| 9:K:146:ALA:O | 9:K:148:GLU:OE2 | 2.33 | 0.45 |
| 3:C:8:ARG:CD | 3:C:11:LEU:HD23 | 2.42 | 0.45 |
| 3:C:115:ALA:HB2 | 3:C:138:PRO:HG2 | 1.97 | 0.45 |
| 3:C:29:VAL:CG1 | 3:C:30:LYS:H | 2.28 | 0.45 |
| 3:C:59:ARG:NH1 | 3:C:164:ARG:CD | 2.74 | 0.45 |
| 1:A:2194:G:H3' | 1:A:2195:C:H5 | 1.81 | 0.45 |
| 3:C:71:GLN:CG | 3:C:72:VAL:N | 2.60 | 0.45 |
| 25:1:16:LEU:CA | 25:1:19:LEU:HD12 | 2.39 | 0.45 |
| 26:2:23:LEU:HA | 26:2:28:LEU:HD12 | 1.98 | 0.45 |
| 1:A:2231:C:OP1 | 27:3:39:CYS:HA | 2.15 | 0.45 |
| 32:8:10:ILE:HD13 | 32:8:32:HIS:CD2 | 2.52 | 0.45 |
| 1:A:51:G:O2' | 1:A:119:A:N1 | 2.41 | 0.45 |
| 1:A:120:U:C6 | 1:A:150:C:C5 | 2.99 | 0.45 |
| 1:A:1270:C:O3' | 1:A:1648:C:OP2 | 2.35 | 0.45 |
| 1:A:1410:G:H2' | 1:A:1411:C:O4' | 2.16 | 0.45 |
| 1:A:1447:G:O4' | 1:A:1545(A):A:O4' | 2.35 | 0.45 |
| 1:A:1453:A:H2' | 1:A:1453:A:N3 | 2.31 | 0.45 |
| 1:A:1628:G:C6 | 1:A:1629:U:C4 | 3.05 | 0.45 |
| 1:A:1669:A:H5'' | 1:A:2550:G:OP1 | 2.17 | 0.45 |
| 1:A:1769:G:C6 | 1:A:1984:G:C6 | 3.05 | 0.45 |
| 1:A:783:A:H2 | 1:A:1779:U:O4' | 1.99 | 0.45 |
| 1:A:1799:G:H5'' | 4:D:268:ARG:HH12 | 1.78 | 0.45 |
| 1:A:1838:C:C5 | 1:A:1899:G:C6 | 3.04 | 0.45 |
| 1:A:1908:C:O2' | 1:A:1909:C:H6 | 2.00 | 0.45 |
| 1:A:1953:A:OP1 | 1:A:1953:A:C4' | 2.62 | 0.45 |
| 1:A:1987:G:H2' | 1:A:1988:C:C5 | 2.51 | 0.45 |
| 1:A:2009:G:H5'' | 20:V:41:LYS:CG | 2.45 | 0.45 |
| 1:A:2020:A:N6 | 1:A:2022:U:O2 | 2.50 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:2073:C:O2' | 1:A:2074:U:H5' | 2.16 | 0.45 |
| 1:A:2074:U:H3 | 1:A:2075:U:H5 | 1.60 | 0.45 |
| 1:A:2213:U:C3' | 1:A:2215:G:N7 | 2.80 | 0.45 |
| 1:A:2227:A:C6 | 1:A:2228:G:C5 | 3.04 | 0.45 |
| 1:A:2444:G:C2 | 1:A:2445:G:C4 | 3.05 | 0.45 |
| 1:A:2450:A:C2' | 1:A:2451:A:C5' | 2.94 | 0.45 |
| 1:A:2573:C:O5' | 1:A:2573:C:C6 | 2.65 | 0.45 |
| 1:A:2597:G:H5' | 4:D:242:ARG:CG | 2.46 | 0.45 |
| 1:A:2657:A:C5 | 1:A:2665:A:C6 | 3.04 | 0.45 |
| 1:A:2685:G:C5' | 12:N:67:LYS:NZ | 2.76 | 0.45 |
| 1:A:2794:C:O2 | 1:A:2794:C:H2' | 2.17 | 0.45 |
| 1:A:2826:A:H2' | 1:A:2827:C:H5' | 1.99 | 0.45 |
| 1:A:374:A:H3' | 1:A:375:C:H6 | 1.81 | 0.45 |
| 1:A:399:G:H2' | 1:A:400:G:H5' | 1.97 | 0.45 |
| 1:A:470:A:C6 | 1:A:471:A:N3 | 2.85 | 0.45 |
| 1:A:479:A:C4' | 1:A:480:A:H5' | 2.46 | 0.45 |
| 1:A:503:A:N1 | 1:A:505:A:N6 | 2.51 | 0.45 |
| 1:A:515:A:H2' | 1:A:516:C:O4' | 2.17 | 0.45 |
| 1:A:602:G:N2 | 1:A:655:A:H3' | 2.31 | 0.45 |
| 1:A:622:G:C5 | 1:A:623:G:C2 | 3.05 | 0.45 |
| 1:A:685:A:H1' | 1:A:688:U:C4 | 2.51 | 0.45 |
| 1:A:728:G:C4' | 1:A:729:G:C8 | 2.99 | 0.45 |
| 1:A:728:G:H2' | 1:A:763:G:OP2 | 2.17 | 0.45 |
| 1:A:774:A:C5' | 1:A:778:G:O4' | 2.64 | 0.45 |
| 1:A:804:A:OP2 | 13:O:39:LYS:HB3 | 2.16 | 0.45 |
| 1:A:889:C:O2 | 1:A:889:C:C2' | 2.64 | 0.45 |
| 1:A:880:G:C2 | 1:A:898:C:O2 | 2.69 | 0.45 |
| 1:A:923:C:H5' | 24:Z:26:TYR:CZ | 2.51 | 0.45 |
| 1:A:952:G:O6 | 1:A:966:G:C6 | 2.70 | 0.45 |
| 1:A:954:G:C6 | 1:A:964:C:C4 | 3.05 | 0.45 |
| 1:A:955:C:H2' | 1:A:956:G:O5' | 2.17 | 0.45 |
| 1:A:972:G:H5'' | 1:A:974:G:P | 2.56 | 0.45 |
| 1:A:973:A:C1' | 1:A:1188:U:C4 | 2.96 | 0.45 |
| 2:B:31:C:H2' | 2:B:32:C:C6 | 2.52 | 0.45 |
| 2:B:44:G:C2 | 2:B:48:A:N3 | 2.85 | 0.45 |
| 4:D:101:GLU:HG2 | 4:D:102:LYS:N | 2.31 | 0.45 |
| 4:D:244:ARG:O | 4:D:252:TRP:CG | 2.69 | 0.45 |
| 1:A:1804:C:H4' | 4:D:250:TRP:CZ2 | 2.51 | 0.45 |
| 5:E:172:VAL:HG23 | 5:E:173:VAL:N | 2.32 | 0.45 |
| 7:G:179:PRO:O | 7:G:180:PHE:O | 2.34 | 0.45 |
| 7:G:34:LEU:HD21 | 7:G:176:LEU:CD2 | 2.39 | 0.45 |
| 7:G:63:ILE:O | 7:G:102:PHE:CZ | 2.69 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 8:H:101:ARG:CZ | 8:H:117:PRO:HG3 | 2.47 | 0.45 |
| 8:H:104:GLU:OE2 | 8:H:105:LEU:N | 2.50 | 0.45 |
| 8:H:127:GLU:CB | 8:H:128:PRO:CA | 2.94 | 0.45 |
| 1:A:2746:U:C1' | 8:H:139:GLN:HB3 | 2.47 | 0.45 |
| 9:K:10:GLU:OE1 | 9:K:10:GLU:HA | 2.17 | 0.45 |
| 10:L:17:ALA:HB2 | 10:L:42:ASN:ND2 | 2.27 | 0.45 |
| 10:L:21:PRO:HG2 | 10:L:22:PRO:HD3 | 1.96 | 0.45 |
| 12:N:63:VAL:HA | 12:N:78:ARG:CD | 2.46 | 0.45 |
| 13:O:76:LYS:HA | 13:O:101:VAL:CG1 | 2.46 | 0.45 |
| 13:O:83:VAL:O | 13:O:84:ASN:ND2 | 2.50 | 0.45 |
| 1:A:1654:A:P | 15:Q:3:HIS:CG | 3.10 | 0.45 |
| 15:Q:63:ARG:NH1 | 15:Q:80:PHE:HD2 | 2.09 | 0.45 |
| 16:R:31:SER:OG | 16:R:32:LEU:N | 2.48 | 0.45 |
| 16:R:42:ASP:O | 16:R:44:LYS:N | 2.40 | 0.45 |
| 17:S:33:LYS:HD2 | 17:S:45:PHE:O | 2.17 | 0.45 |
| 17:S:4:GLY:O | 17:S:8:LYS:HB2 | 2.17 | 0.45 |
| 17:S:75:ILE:HG13 | 17:S:75:ILE:H | 1.39 | 0.45 |
| 18:T:88:ILE:O | 19:U:51:VAL:O | 2.34 | 0.45 |
| 1:A:1225:C:P | 19:U:88:ARG:CZ | 3.05 | 0.45 |
| 20:V:13:SER:HA | 20:V:101:SER:OG | 2.17 | 0.45 |
| 20:V:21:VAL:HG22 | 20:V:25:ARG:HG3 | 1.98 | 0.45 |
| 20:V:58:ALA:O | 20:V:63:ASP:HA | 2.17 | 0.45 |
| 21:W:29:TRP:CZ3 | 21:W:78:LYS:HB2 | 2.52 | 0.45 |
| 21:W:8:ILE:O | 21:W:9:LEU:HG | 2.17 | 0.45 |
| 22:X:97:ARG:NH2 | 22:X:101:LYS:HD3 | 2.31 | 0.45 |
| 23:Y:10:ARG:HH12 | 23:Y:36:LYS:H | 1.63 | 0.45 |
| 23:Y:155:LEU:HB3 | 23:Y:156:LYS:H | 1.58 | 0.45 |
| 24:Z:49:LYS:O | 24:Z:51:VAL:HG23 | 2.17 | 0.45 |
| 9:K:68:LEU:O | 9:K:72:LEU:CG | 2.62 | 0.45 |
| 1:A:2137:C:C2 | 1:A:2138:C:C5 | 3.05 | 0.45 |
| 3:C:7:TYR:HD1 | 3:C:10:LEU:HB3 | 1.79 | 0.45 |
| 3:C:32:LEU:HD13 | 3:C:220:PRO:CB | 2.47 | 0.45 |
| 1:A:1579:A:C3' | 1:A:1580:A:H5' | 2.45 | 0.45 |
| 1:A:2183:C:N3 | 1:A:2184:G:N7 | 2.64 | 0.45 |
| 4:D:273:ARG:HE | 4:D:274:ARG:CA | 2.29 | 0.45 |
| 26:2:6:VAL:CG2 | 26:2:35:ARG:NH1 | 2.79 | 0.45 |
| 27:3:16:CYS:SG | 27:3:37:SER:HB3 | 2.57 | 0.45 |
| 27:3:21:VAL:CG1 | 27:3:22:ILE:H | 2.29 | 0.45 |
| 28:4:22:HIS:O | 28:4:23:HIS:O | 2.34 | 0.45 |
| 28:4:4:HIS:CG | 28:4:5:PRO:N | 2.81 | 0.45 |
| 30:6:17:GLY:CA | 30:6:21:ARG:HH22 | 2.27 | 0.45 |
| 30:6:1:MET:O | 30:6:3:ARG:N | 2.49 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1044:G:C5 | 1:A:1048:A:C8 | 3.05 | 0.45 |
| 1:A:1060:U:H5'' | 1:A:1061:U:C2 | 2.52 | 0.45 |
| 1:A:1083:U:C2' | 1:A:1084:A:H5'' | 2.47 | 0.45 |
| 1:A:1085:A:C4' | 1:A:1086:A:O5' | 2.63 | 0.45 |
| 1:A:1181:C:C4 | 1:A:1182:A:N7 | 2.84 | 0.45 |
| 1:A:1183:G:C1' | 1:A:1184:G:C8 | 3.00 | 0.45 |
| 1:A:49:A:H2 | 1:A:120:U:C4 | 2.34 | 0.45 |
| 1:A:1277:G:H2' | 1:A:1278:A:C8 | 2.48 | 0.45 |
| 1:A:1310:G:N7 | 1:A:1311:G:N2 | 2.65 | 0.45 |
| 1:A:1381:G:C6 | 1:A:1382:G:C5 | 3.05 | 0.45 |
| 1:A:1382:G:H2' | 1:A:1383:C:C6 | 2.52 | 0.45 |
| 1:A:1291:C:C5' | 1:A:1535:U:O2' | 2.58 | 0.45 |
| 1:A:1526:G:H1 | 1:A:1546:C:H42 | 1.65 | 0.45 |
| 1:A:1795:C:O2' | 1:A:1796:U:C5' | 2.56 | 0.45 |
| 1:A:1860:G:N3 | 1:A:1861:G:C8 | 2.85 | 0.45 |
| 1:A:414:C:O2 | 1:A:1864:U:H4' | 2.17 | 0.45 |
| 1:A:1931:U:H5 | 1:A:1932:A:N7 | 2.15 | 0.45 |
| 1:A:2219:G:C5 | 1:A:2224:G:C8 | 3.04 | 0.45 |
| 1:A:227:A:H2' | 1:A:228:A:OP2 | 2.17 | 0.45 |
| 1:A:2305:A:C3' | 1:A:2306:C:C5' | 2.87 | 0.45 |
| 1:A:2333:A:N3 | 1:A:2333:A:C2' | 2.79 | 0.45 |
| 1:A:2472:G:H2' | 1:A:2475:C:N4 | 2.17 | 0.45 |
| 1:A:2572:A:N3 | 5:E:144:ARG:CZ | 2.80 | 0.45 |
| 1:A:2584:U:C1' | 1:A:2585:U:C5 | 3.00 | 0.45 |
| 1:A:25:U:O2 | 1:A:25:U:H2' | 2.16 | 0.45 |
| 1:A:270(D):C:H2' | 1:A:270(D):C:O2 | 2.15 | 0.45 |
| 1:A:2849:U:H2' | 1:A:2850:A:OP2 | 2.17 | 0.45 |
| 1:A:295:G:C2 | 1:A:296:C:C2 | 3.05 | 0.45 |
| 1:A:306:U:O4 | 1:A:307:G:N3 | 2.50 | 0.45 |
| 1:A:324:A:C2' | 1:A:325:G:O5' | 2.65 | 0.45 |
| 1:A:325:G:C6 | 1:A:326:G:O6 | 2.69 | 0.45 |
| 1:A:392:C:OP1 | 1:A:409:C:OP1 | 2.35 | 0.45 |
| 1:A:36:G:N2 | 1:A:450:G:HO2' | 2.15 | 0.45 |
| 1:A:477:A:C2 | 1:A:478:A:C6 | 3.05 | 0.45 |
| 1:A:478:A:N6 | 1:A:480:A:C6 | 2.85 | 0.45 |
| 1:A:523:C:H2' | 1:A:524:U:O4' | 2.17 | 0.45 |
| 1:A:581:C:H2' | 1:A:582:G:H8 | 1.82 | 0.45 |
| 1:A:609(A):G:H2' | 1:A:610:C:C6 | 2.52 | 0.45 |
| 1:A:628:G:P | 1:A:628:G:H8 | 2.40 | 0.45 |
| 1:A:723:G:O2' | 1:A:724:U:C5' | 2.64 | 0.45 |
| 1:A:754:C:N3 | 1:A:755:C:C5 | 2.85 | 0.45 |
| 1:A:79:G:H2' | 1:A:80:G:C8 | 2.47 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:809:G:C4 | 1:A:810:U:C6 | 3.05 | 0.45 |
| 4:D:142:VAL:HG23 | 4:D:163:ALA:HB1 | 1.99 | 0.45 |
| 4:D:11:PRO:HB2 | 4:D:24:ILE:CD1 | 2.46 | 0.45 |
| 4:D:65:ILE:HG22 | 4:D:66:ASP:N | 2.32 | 0.45 |
| 4:D:63:ARG:HB2 | 4:D:85:ASP:HB2 | 1.99 | 0.45 |
| 1:A:2572:A:H62 | 5:E:145:LYS:CG | 2.29 | 0.45 |
| 6:F:157:VAL:HG22 | 6:F:194:MET:CA | 2.38 | 0.45 |
| 6:F:158:THR:O | 6:F:160:ASN:OD1 | 2.34 | 0.45 |
| 7:G:163:ALA:HB2 | 7:G:172:LEU:HD23 | 1.99 | 0.45 |
| 10:L:27:LEU:CB | 10:L:32:ALA:HB3 | 2.47 | 0.45 |
| 11:M:14:VAL:HG22 | 11:M:138:LEU:HD13 | 1.99 | 0.45 |
| 11:M:23:LEU:HB2 | 11:M:24:GLY:H | 1.46 | 0.45 |
| 11:M:35:ARG:HB2 | 11:M:36:GLY:H | 1.51 | 0.45 |
| 11:M:98:VAL:O | 11:M:99:LEU:C | 2.53 | 0.45 |
| 12:N:12:ASP:HB2 | 12:N:13:ASN:H | 1.51 | 0.45 |
| 13:O:24:GLY:O | 13:O:25:SER:C | 2.56 | 0.45 |
| 13:O:97:PRO:CD | 13:O:102:ARG:NH2 | 2.80 | 0.45 |
| 14:P:64:ILE:CG2 | 14:P:106:VAL:O | 2.59 | 0.45 |
| 14:P:128:LYS:O | 14:P:129:THR:CG2 | 2.64 | 0.45 |
| 14:P:16:ARG:O | 14:P:17:LEU:HD12 | 2.17 | 0.45 |
| 14:P:67:ARG:CG | 14:P:68:ILE:N | 2.72 | 0.45 |
| 15:Q:33:ARG:CA | 15:Q:115:GLU:HB2 | 2.47 | 0.45 |
| 15:Q:62:ALA:CB | 15:Q:80:PHE:HZ | 2.30 | 0.45 |
| 16:R:64:GLU:C | 16:R:66:ALA:N | 2.68 | 0.45 |
| 16:R:68:GLN:O | 16:R:70:GLY:N | 2.50 | 0.45 |
| 18:T:14:HIS:CD2 | 18:T:36:ARG:HH22 | 2.34 | 0.45 |
| 18:T:56:ASP:O | 18:T:60:LEU:CD1 | 2.39 | 0.45 |
| 18:T:55:ARG:CG | 18:T:58:ARG:NH2 | 2.46 | 0.45 |
| 18:T:60:LEU:H | 18:T:60:LEU:CD1 | 2.30 | 0.45 |
| 19:U:33:VAL:CG1 | 19:U:34:GLU:H | 2.26 | 0.45 |
| 19:U:60:GLU:OE2 | 19:U:101:GLY:CA | 2.65 | 0.45 |
| 22:X:50:ARG:C | 22:X:52:SER:O | 2.55 | 0.45 |
| 23:Y:109:ALA:HB3 | 23:Y:142:SER:O | 2.17 | 0.45 |
| 23:Y:50:GLN:CG | 23:Y:53:ILE:HB | 2.47 | 0.45 |
| 24:Z:35:ASN:HD22 | 24:Z:35:ASN:N | 2.15 | 0.45 |
| 24:Z:56:ASP:OD1 | 24:Z:58:THR:HB | 2.15 | 0.45 |
| 9:K:139:GLN:H | 9:K:139:GLN:CD | 2.20 | 0.45 |
| 1:A:2145:C:C6 | 1:A:2145:C:OP1 | 2.69 | 0.45 |
| 3:C:131:LEU:HD23 | 3:C:136:LEU:HD12 | 1.98 | 0.45 |
| 3:C:215:THR:HB | 3:C:221:SER:HA | 1.99 | 0.45 |
| 3:C:51:PRO:O | 3:C:52:ARG:C | 2.55 | 0.45 |
| 3:C:73:ARG:CB | 3:C:93:TYR:HE2 | 2.29 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:C:73:ARG:CD | 3:C:92:ASP:CG | 2.80 | 0.45 |
| 1:A:75:G:C4' | 25:1:50:ARG:HH12 | 2.30 | 0.45 |
| 25:1:61:GLU:C | 25:1:64:ARG:HB2 | 2.36 | 0.45 |
| 26:2:53:LEU:HG | 26:2:53:LEU:H | 1.33 | 0.45 |
| 30:6:43:THR:HA | 30:6:46:VAL:CB | 2.45 | 0.45 |
| 13:O:62:LEU:HD22 | 31:7:64:TYR:OH | 2.16 | 0.45 |
| 32:8:9:ARG:HH21 | 32:8:16:VAL:HG12 | 1.78 | 0.45 |
| 1:A:1079:C:N3 | 1:A:1080:C:C5 | 2.85 | 0.45 |
| 1:A:1137:G:H4' | 11:M:105:GLY:CA | 2.47 | 0.45 |
| 1:A:1187:G:H2' | 1:A:1188:U:OP2 | 2.17 | 0.45 |
| 1:A:1195:G:C2' | 1:A:1226:G:H22 | 2.30 | 0.45 |
| 1:A:126:A:OP2 | 30:6:19:ARG:N | 2.48 | 0.45 |
| 1:A:1299:G:N2 | 1:A:1642:G:C6 | 2.85 | 0.45 |
| 1:A:128:C:H2' | 1:A:129:C:C5 | 2.49 | 0.45 |
| 1:A:1306:C:C2 | 1:A:1623:G:N2 | 2.85 | 0.45 |
| 1:A:1340:U:C2' | 1:A:1341:U:OP1 | 2.65 | 0.45 |
| 1:A:1389:G:C2 | 1:A:1390:U:C5 | 3.06 | 0.45 |
| 1:A:1433:U:H3' | 1:A:1433:U:C6 | 2.51 | 0.45 |
| 1:A:1444:G:C8 | 1:A:1445:C:N4 | 2.85 | 0.45 |
| 1:A:1453:A:N7 | 1:A:1454:U:C6 | 2.85 | 0.45 |
| 1:A:1324:G:O2' | 1:A:1616:A:N6 | 2.50 | 0.45 |
| 1:A:1667:G:C2 | 1:A:1991:U:C5 | 3.05 | 0.45 |
| 1:A:1667:G:N3 | 1:A:1667:G:C2' | 2.80 | 0.45 |
| 1:A:1780:A:OP2 | 1:A:1781:C:H3' | 2.17 | 0.45 |
| 1:A:1790:C:H5'' | 1:A:1828:G:N2 | 2.31 | 0.45 |
| 1:A:1790:C:OP2 | 4:D:222:ARG:CD | 2.62 | 0.45 |
| 1:A:1851:U:C2' | 1:A:1852:C:C6 | 2.96 | 0.45 |
| 1:A:1932:A:N7 | 1:A:1933:G:N7 | 2.64 | 0.45 |
| 1:A:1953:A:O2' | 1:A:2559:C:O2' | 2.23 | 0.45 |
| 1:A:1990:C:N3 | 1:A:1991:U:C4 | 2.85 | 0.45 |
| 1:A:1992:G:O4' | 1:A:1993:U:O4 | 2.34 | 0.45 |
| 1:A:2010:G:C6 | 1:A:2011:U:C6 | 3.05 | 0.45 |
| 1:A:2056:G:C4 | 1:A:2577:A:C2 | 3.05 | 0.45 |
| 1:A:2082:A:H2' | 1:A:2083:G:O4' | 2.17 | 0.45 |
| 1:A:2091:U:H3' | 1:A:2092:U:H3' | 1.98 | 0.45 |
| 1:A:2213:U:H5' | 1:A:2215:G:O6 | 2.16 | 0.45 |
| 1:A:2444:G:N2 | 1:A:2445:G:C2 | 2.85 | 0.45 |
| 1:A:2573:C:OP1 | 1:A:2575:C:OP2 | 2.34 | 0.45 |
| 1:A:1782:C:C2 | 1:A:2609:U:C6 | 3.05 | 0.45 |
| 1:A:2625:G:N1 | 1:A:2777:G:N2 | 2.65 | 0.45 |
| 1:A:2629:A:O2' | 1:A:2630:G:O5' | 2.30 | 0.45 |
| 1:A:2643:G:C4 | 1:A:2644:G:N7 | 2.84 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2702:U:OP1 | 1:A:2702:U:O4' | 2.35 | 0.45 |
| 1:A:2759:G:C2 | 1:A:2760:C:C6 | 3.04 | 0.45 |
| 1:A:2872:G:C2 | 1:A:2873:A:C6 | 3.05 | 0.45 |
| 1:A:301:G:H2' | 1:A:302:C:C5 | 2.51 | 0.45 |
| 1:A:353:G:O2' | 1:A:354:G:O5' | 2.17 | 0.45 |
| 1:A:36:G:N2 | 1:A:450:G:O2' | 2.50 | 0.45 |
| 1:A:465:G:C8 | 1:A:466:A:N7 | 2.85 | 0.45 |
| 1:A:515:A:C3' | 1:A:515:A:C8 | 3.00 | 0.45 |
| 1:A:528:A:N7 | 1:A:2042:A:C5 | 2.85 | 0.45 |
| 1:A:571:A:H1' | 1:A:573:G:N7 | 2.32 | 0.45 |
| 1:A:28:A:O3' | 1:A:583:G:H5' | 2.17 | 0.45 |
| 1:A:669:G:C6 | 1:A:801:G:C6 | 3.05 | 0.45 |
| 1:A:67:U:C4' | 1:A:67:U:C6 | 3.00 | 0.45 |
| 1:A:785:G:C2' | 1:A:786:C:H6 | 2.28 | 0.45 |
| 1:A:826:U:C5' | 1:A:2428:G:O3' | 2.65 | 0.45 |
| 1:A:83:G:O2' | 1:A:84:A:P | 2.75 | 0.45 |
| 1:A:848:G:O2' | 1:A:934:G:H4' | 2.17 | 0.45 |
| 1:A:863:A:C2 | 1:A:864:G:C5 | 3.05 | 0.45 |
| 1:A:889:C:O2 | 1:A:889:C:H2' | 2.15 | 0.45 |
| 1:A:906:G:C2 | 1:A:907:U:C5 | 3.05 | 0.45 |
| 1:A:919:G:N2 | 1:A:920:G:N9 | 2.64 | 0.45 |
| 1:A:569:U:OP2 | 1:A:945:A:N6 | 2.50 | 0.45 |
| 2:B:78:A:H2' | 2:B:79:C:C5' | 2.44 | 0.45 |
| 4:D:147:LEU:HD22 | 4:D:185:VAL:HG21 | 1.98 | 0.45 |
| 4:D:50:THR:O | 4:D:51:VAL:CG2 | 2.65 | 0.45 |
| 4:D:64:ILE:CD1 | 4:D:104:TYR:HD2 | 2.29 | 0.45 |
| 4:D:96:HIS:HA | 4:D:102:LYS:CG | 2.35 | 0.45 |
| 5:E:58:ARG:HG2 | 5:E:63:LEU:HD23 | 1.99 | 0.45 |
| 5:E:83:ASP:O | 5:E:85:ASN:ND2 | 2.50 | 0.45 |
| 6:F:163:VAL:O | 6:F:167:ALA:HB3 | 2.16 | 0.45 |
| 6:F:117:ARG:NE | 6:F:190:GLU:O | 2.50 | 0.45 |
| 7:G:111:LEU:HB3 | 7:G:112:PRO:HD2 | 1.90 | 0.45 |
| 7:G:174:GLU:HG2 | 7:G:175:LEU:N | 2.31 | 0.45 |
| 7:G:43:LEU:C | 7:G:43:LEU:HD23 | 2.37 | 0.45 |
| 7:G:57:ALA:O | 7:G:67:LYS:CB | 2.65 | 0.45 |
| 8:H:41:MET:SD | 8:H:68:THR:OG1 | 2.74 | 0.45 |
| 8:H:59:ARG:C | 8:H:62:LYS:HG2 | 2.35 | 0.45 |
| 9:K:6:LEU:CD2 | 9:K:6:LEU:C | 2.85 | 0.45 |
| 10:L:10:LEU:HB3 | 10:L:27:LEU:HD21 | 1.99 | 0.45 |
| 10:L:10:LEU:HD13 | 10:L:27:LEU:CD2 | 2.39 | 0.45 |
| 10:L:18:THR:CG2 | 10:L:35:MET:HA | 2.47 | 0.45 |
| 10:L:34:ILE:HB | 10:L:35:MET:H | 1.72 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:114:ARG:C | 11:M:116:LEU:N | 2.67 | 0.45 |
| 11:M:52:VAL:CG1 | 11:M:120:LEU:HD13 | 2.40 | 0.45 |
| 11:M:82:LEU:HD23 | 11:M:82:LEU:N | 2.31 | 0.45 |
| 12:N:110:GLY:O | 12:N:111:PHE:HB3 | 2.17 | 0.45 |
| 12:N:70:LYS:C | 12:N:72:PRO:HD2 | 2.38 | 0.45 |
| 12:N:86:ILE:HG23 | 12:N:90:GLN:CA | 2.47 | 0.45 |
| 13:O:114:ILE:CD1 | 13:O:129:ALA:O | 2.65 | 0.45 |
| 1:A:637:A:P | 13:O:131:SER:HB3 | 2.57 | 0.45 |
| 14:P:11:LYS:HG2 | 14:P:12:GLN:N | 2.32 | 0.45 |
| 14:P:134:ARG:C | 14:P:134:ARG:CD | 2.77 | 0.45 |
| 15:Q:73:VAL:CA | 15:Q:76:VAL:HB | 2.44 | 0.45 |
| 16:R:32:LEU:HD12 | 16:R:32:LEU:N | 2.25 | 0.45 |
| 16:R:10:ARG:CZ | 16:R:89:ARG:NH1 | 2.80 | 0.45 |
| 17:S:82:LEU:O | 17:S:85:LYS:HD3 | 2.16 | 0.45 |
| 1:A:532:A:O2' | 18:T:38:THR:HG22 | 2.17 | 0.45 |
| 18:T:44:ASN:CA | 18:T:47:TYR:HB2 | 2.47 | 0.45 |
| 18:T:52:ARG:C | 18:T:54:LYS:N | 2.69 | 0.45 |
| 18:T:65:ILE:HG21 | 18:T:76:TYR:CE1 | 2.49 | 0.45 |
| 19:U:3:ALA:O | 19:U:12:TYR:CD2 | 2.70 | 0.45 |
| 21:W:26:TYR:CB | 21:W:28:PHE:CZ | 2.97 | 0.45 |
| 22:X:12:THR:HG22 | 22:X:13:VAL:HG12 | 1.99 | 0.45 |
| 22:X:38:ILE:O | 22:X:38:ILE:HG22 | 2.16 | 0.45 |
| 22:X:49:VAL:CG2 | 22:X:51:VAL:H | 2.30 | 0.45 |
| 1:A:83:G:H5' | 22:X:4:LYS:NZ | 2.32 | 0.45 |
| 22:X:38:ILE:HG12 | 22:X:60:PHE:CZ | 2.52 | 0.45 |
| 23:Y:1:MET:H1 | 23:Y:58:VAL:HG11 | 1.79 | 0.45 |
| 23:Y:57:ILE:HG23 | 23:Y:58:VAL:H | 1.81 | 0.45 |
| 24:Z:56:ASP:C | 24:Z:57:PHE:HD1 | 2.20 | 0.45 |
| 9:K:69:LYS:HA | 9:K:138:ILE:HD12 | 1.97 | 0.45 |
| 3:C:119:VAL:HG23 | 3:C:123:VAL:HG23 | 1.99 | 0.45 |
| 3:C:75:LEU:HD23 | 3:C:77:ILE:CD1 | 2.44 | 0.45 |
| 1:A:1497:U:C4 | 1:A:1498:C:H5 | 2.35 | 0.45 |
| 1:A:2185:C:N3 | 1:A:2186:G:N7 | 2.64 | 0.45 |
| 1:A:315:G:H2' | 1:A:316:C:O4' | 2.17 | 0.45 |
| 23:Y:63:ASP:O | 23:Y:63:ASP:OD1 | 2.35 | 0.45 |
| 1:A:1116:C:OP2 | 1:A:1116:C:H6 | 2.00 | 0.45 |
| 26:2:6:VAL:CG1 | 26:2:35:ARG:CZ | 2.95 | 0.44 |
| 27:3:53:GLU:OE1 | 27:3:54:GLY:C | 2.56 | 0.44 |
| 29:5:17:LYS:CE | 29:5:49:HIS:O | 2.65 | 0.44 |
| 1:A:2392:A:P | 31:7:33:ASN:HD21 | 2.40 | 0.44 |
| 31:7:5:LYS:HD3 | 31:7:63:PRO:HG2 | 1.98 | 0.44 |
| 1:A:1059:G:N7 | 1:A:1060:U:O4' | 2.50 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1153:C:C2' | 1:A:1154:G:C8 | 3.00 | 0.44 |
| 1:A:1309:G:N1 | 1:A:1310:G:C5 | 2.84 | 0.44 |
| 1:A:1348:G:O6 | 1:A:1349:A:N6 | 2.50 | 0.44 |
| 1:A:1361:G:C5 | 1:A:1362:C:C5 | 3.06 | 0.44 |
| 1:A:1368:G:HO2' | 1:A:1369:G:H5' | 1.81 | 0.44 |
| 1:A:1387:C:C2 | 1:A:1388:G:N7 | 2.84 | 0.44 |
| 1:A:1469:A:N6 | 1:A:1470:G:N2 | 2.64 | 0.44 |
| 1:A:1543:A:C8 | 1:A:1544:C:O2' | 2.70 | 0.44 |
| 1:A:1650:G:O2' | 1:A:1651:G:OP1 | 2.30 | 0.44 |
| 1:A:1746:G:O2' | 1:A:1747:G:O4' | 2.25 | 0.44 |
| 1:A:1815:A:N7 | 1:A:1817:G:N2 | 2.64 | 0.44 |
| 1:A:1818:U:H2' | 4:D:157:ARG:NH2 | 2.32 | 0.44 |
| 1:A:1835:G:N3 | 1:A:1931:U:O2 | 2.50 | 0.44 |
| 1:A:1869:G:C4 | 1:A:1878:G:O6 | 2.71 | 0.44 |
| 1:A:2004:G:N7 | 1:A:2005:A:C5 | 2.85 | 0.44 |
| 1:A:2020:A:H2' | 1:A:2021:C:O5' | 2.16 | 0.44 |
| 1:A:529:A:C2 | 1:A:2023:G:OP2 | 2.70 | 0.44 |
| 1:A:2053:G:C2 | 1:A:2054:A:C8 | 3.05 | 0.44 |
| 1:A:2056:G:N2 | 1:A:2057:A:C4 | 2.85 | 0.44 |
| 1:A:2063:C:H2' | 1:A:2064:C:C4' | 2.47 | 0.44 |
| 1:A:2216:G:H2' | 1:A:2217:G:H5' | 1.98 | 0.44 |
| 1:A:2255:G:O4' | 24:Z:7:LEU:CD2 | 2.65 | 0.44 |
| 1:A:2286:A:H62 | 29:5:31:PRO:C | 2.19 | 0.44 |
| 1:A:2366:A:H2' | 1:A:2367:G:O4' | 2.17 | 0.44 |
| 1:A:2468:G:O2' | 1:A:2469:A:O5' | 2.35 | 0.44 |
| 1:A:2474:C:H2' | 1:A:2475:C:H5' | 1.97 | 0.44 |
| 1:A:2486:G:N2 | 1:A:2487:G:C4 | 2.85 | 0.44 |
| 1:A:2626:C:H6 | 1:A:2626:C:C3' | 2.26 | 0.44 |
| 1:A:2680:C:OP1 | 5:E:109:LYS:HB2 | 2.17 | 0.44 |
| 1:A:2715:C:N3 | 1:A:2716:U:C5 | 2.85 | 0.44 |
| 1:A:2744:G:C6 | 1:A:2761:G:C6 | 3.06 | 0.44 |
| 1:A:2869:G:C2' | 1:A:2870:C:O5' | 2.66 | 0.44 |
| 1:A:2893:G:C8 | 1:A:2893:G:OP2 | 2.71 | 0.44 |
| 1:A:320:A:OP2 | 6:F:137:LYS:HG2 | 2.17 | 0.44 |
| 1:A:301:G:C5' | 1:A:334:C:HO2' | 2.30 | 0.44 |
| 1:A:295:G:H3' | 1:A:338:G:H22 | 1.81 | 0.44 |
| 1:A:350:U:C5 | 1:A:350:U:OP2 | 2.70 | 0.44 |
| 1:A:396:G:H2' | 1:A:397:G:O5' | 2.17 | 0.44 |
| 1:A:487:C:C3' | 1:A:487:C:C6 | 3.00 | 0.44 |
| 1:A:49:A:H5' | 1:A:50:U:OP1 | 2.17 | 0.44 |
| 1:A:500:G:H2' | 1:A:501:A:H5'' | 1.98 | 0.44 |
| 1:A:531:C:O4' | 1:A:532:A:C2 | 2.69 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:675:A:H1' | 1:A:2443:C:O2' | 2.17 | 0.44 |
| 1:A:729:G:C2' | 1:A:730:C:H1' | 2.47 | 0.44 |
| 1:A:72:U:OP2 | 21:W:3:THR:OG1 | 2.34 | 0.44 |
| 1:A:751:A:C3' | 1:A:751:A:C8 | 3.00 | 0.44 |
| 1:A:766:C:H2' | 1:A:767:U:O4' | 2.17 | 0.44 |
| 1:A:780:G:H1' | 1:A:785:G:N1 | 2.32 | 0.44 |
| 1:A:83:G:C6 | 1:A:102:G:N3 | 2.85 | 0.44 |
| 1:A:870:A:H5' | 1:A:871:U:P | 2.56 | 0.44 |
| 1:A:991:C:H2' | 1:A:992:C:H6 | 1.82 | 0.44 |
| 2:B:99:A:C2 | 2:B:100:G:C1' | 3.00 | 0.44 |
| 2:B:113:C:H1' | 16:R:45:GLY:O | 2.17 | 0.44 |
| 2:B:17:C:H2' | 2:B:18:G:C8 | 2.52 | 0.44 |
| 2:B:31:C:C4 | 2:B:32:C:N4 | 2.84 | 0.44 |
| 2:B:37:C:O2 | 16:R:95:HIS:CD2 | 2.70 | 0.44 |
| 4:D:122:ASP:HA | 4:D:135:PHE:HD2 | 1.82 | 0.44 |
| 4:D:133:LEU:HD21 | 4:D:189:CYS:HB2 | 1.99 | 0.44 |
| 1:A:1820:U:C1' | 4:D:202:LYS:HG3 | 2.46 | 0.44 |
| 4:D:225:ALA:HB3 | 4:D:231:HIS:CD2 | 2.50 | 0.44 |
| 4:D:86:PRO:HD2 | 4:D:87:ASN:ND2 | 2.31 | 0.44 |
| 5:E:115:GLY:O | 5:E:118:LYS:N | 2.50 | 0.44 |
| 5:E:128:SER:C | 5:E:129:HIS:HD2 | 2.20 | 0.44 |
| 5:E:100:GLU:N | 5:E:172:VAL:CG2 | 2.70 | 0.44 |
| 5:E:76:ARG:HG3 | 5:E:76:ARG:O | 2.17 | 0.44 |
| 6:F:130:ALA:O | 6:F:138:GLU:C | 2.56 | 0.44 |
| 6:F:178:PRO:C | 6:F:180:GLY:H | 2.21 | 0.44 |
| 7:G:16:ARG:CG | 7:G:16:ARG:HH21 | 2.30 | 0.44 |
| 8:H:149:ARG:NH2 | 8:H:164:TYR:HB3 | 2.31 | 0.44 |
| 8:H:13:LYS:CD | 8:H:15:VAL:HA | 2.37 | 0.44 |
| 8:H:67:LEU:HD22 | 8:H:67:LEU:N | 2.32 | 0.44 |
| 8:H:94:TYR:OH | 8:H:128:PRO:C | 2.55 | 0.44 |
| 10:L:139:VAL:O | 10:L:139:VAL:HG12 | 2.15 | 0.44 |
| 11:M:30:ILE:O | 11:M:33:LEU:CD1 | 2.65 | 0.44 |
| 12:N:108:GLU:O | 12:N:109:LYS:CE | 2.64 | 0.44 |
| 1:A:2566:A:H61 | 12:N:28:SER:CB | 2.30 | 0.44 |
| 13:O:73:GLY:N | 13:O:111:ARG:HG2 | 2.32 | 0.44 |
| 13:O:130:PHE:CB | 13:O:135:LEU:CD1 | 2.95 | 0.44 |
| 14:P:39:PRO:HB2 | 14:P:40:ALA:H | 1.46 | 0.44 |
| 14:P:52:VAL:O | 14:P:53:ALA:C | 2.54 | 0.44 |
| 15:Q:110:PRO:O | 15:Q:111:LEU:HD23 | 2.17 | 0.44 |
| 15:Q:75:LEU:HA | 15:Q:75:LEU:HD23 | 1.51 | 0.44 |
| 16:R:23:ARG:HB3 | 16:R:86:ALA:HB2 | 1.99 | 0.44 |
| 16:R:91:PRO:CD | 16:R:92:TYR:H | 2.30 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2376:A:N6 | 16:R:94:TYR:CE2 | 2.82 | 0.44 |
| 17:S:30:VAL:CB | 17:S:32:TYR:OH | 2.65 | 0.44 |
| 18:T:113:ALA:O | 18:T:116:ALA:N | 2.51 | 0.44 |
| 1:A:445:C:H5'' | 18:T:3:ARG:HG2 | 1.98 | 0.44 |
| 18:T:68:ALA:CB | 18:T:99:ALA:HB1 | 2.47 | 0.44 |
| 18:T:88:ILE:N | 19:U:52:VAL:CG2 | 2.80 | 0.44 |
| 19:U:93:GLU:OE1 | 19:U:95:LEU:HA | 2.17 | 0.44 |
| 20:V:58:ALA:HB2 | 20:V:107:LEU:CD2 | 2.47 | 0.44 |
| 20:V:44:ALA:O | 20:V:47:VAL:CG2 | 2.65 | 0.44 |
| 1:A:751:A:H4' | 20:V:90:ARG:CZ | 2.47 | 0.44 |
| 22:X:12:THR:HA | 22:X:73:ARG:HE | 1.75 | 0.44 |
| 22:X:81:LYS:NZ | 22:X:96:ILE:CD1 | 2.80 | 0.44 |
| 22:X:97:ARG:NH1 | 22:X:101:LYS:CB | 2.80 | 0.44 |
| 23:Y:77:ASP:O | 23:Y:78:LYS:C | 2.55 | 0.44 |
| 24:Z:10:THR:O | 24:Z:11:ARG:HB3 | 2.16 | 0.44 |
| 24:Z:74:ARG:HD3 | 24:Z:75:LEU:H | 1.82 | 0.44 |
| 9:K:141:LYS:HG3 | 9:K:141:LYS:O | 2.17 | 0.44 |
| 1:A:2132:U:C2 | 1:A:2132:U:C3' | 3.00 | 0.44 |
| 3:C:129:ARG:NH1 | 3:C:129:ARG:CG | 2.77 | 0.44 |
| 3:C:196:LEU:O | 3:C:198:ALA:N | 2.50 | 0.44 |
| 3:C:49:ILE:HB | 3:C:50:ASP:H | 1.47 | 0.44 |
| 1:A:154:G:C4 | 1:A:155:C:C5 | 3.05 | 0.44 |
| 1:A:989:G:OP1 | 26:2:10:LYS:CE | 2.64 | 0.44 |
| 27:3:9:LEU:O | 27:3:10:VAL:HG23 | 2.17 | 0.44 |
| 27:3:18:CYS:N | 27:3:33:VAL:CG2 | 2.77 | 0.44 |
| 20:V:38:TYR:CE2 | 28:4:39:MET:CE | 3.01 | 0.44 |
| 15:Q:100:LEU:O | 28:4:44:THR:HG21 | 2.16 | 0.44 |
| 28:4:51:TYR:HD1 | 28:4:54:GLY:CA | 2.29 | 0.44 |
| 28:4:51:TYR:CD2 | 28:4:52:TYR:N | 2.85 | 0.44 |
| 1:A:2285:C:H6 | 29:5:27:LYS:HZ3 | 1.64 | 0.44 |
| 30:6:33:ARG:O | 30:6:37:LYS:HG3 | 2.18 | 0.44 |
| 30:6:46:VAL:O | 30:6:47:ARG:C | 2.55 | 0.44 |
| 31:7:21:LYS:NZ | 31:7:21:LYS:CB | 2.70 | 0.44 |
| 1:A:1063:G:C8 | 1:A:1064:C:C5 | 3.05 | 0.44 |
| 1:A:1056:G:C2 | 1:A:1102:C:C5 | 3.05 | 0.44 |
| 1:A:1143:A:C4 | 1:A:1144:G:N7 | 2.85 | 0.44 |
| 1:A:116:C:C2' | 1:A:117:G:O5' | 2.65 | 0.44 |
| 1:A:1308:A:N3 | 1:A:1309:G:C1' | 2.80 | 0.44 |
| 1:A:1332:G:C4 | 1:A:1609:A:N1 | 2.86 | 0.44 |
| 1:A:1401:G:C4 | 1:A:1402:C:C6 | 3.05 | 0.44 |
| 1:A:1449(A):G:C4 | 1:A:1450:C:C5 | 3.05 | 0.44 |
| 1:A:146:G:C3' | 1:A:147:U:C5' | 2.86 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1472:A:C1' | 1:A:1473:G:C8 | 3.00 | 0.44 |
| 1:A:1499:C:H2' | 1:A:1500:G:H8 | 1.82 | 0.44 |
| 1:A:1547:C:C2' | 1:A:1548:C:H5' | 2.47 | 0.44 |
| 1:A:1613:G:OP1 | 30:6:5:TRP:CD1 | 2.71 | 0.44 |
| 1:A:1725:G:O6 | 1:A:1734:C:N4 | 2.50 | 0.44 |
| 1:A:178:G:C3' | 1:A:178:G:C8 | 3.00 | 0.44 |
| 1:A:1833:U:C2' | 1:A:1834:U:OP1 | 2.65 | 0.44 |
| 1:A:1889:A:H1' | 1:A:2087:G:O4' | 2.17 | 0.44 |
| 1:A:1954:G:HO2' | 1:A:1955:U:H5' | 1.83 | 0.44 |
| 1:A:1941:C:C6 | 1:A:1965:C:C4 | 3.04 | 0.44 |
| 1:A:2007:C:O2' | 1:A:2008:C:H5' | 2.17 | 0.44 |
| 1:A:2080:G:C2 | 1:A:2081:C:C6 | 3.05 | 0.44 |
| 1:A:2091:U:H3' | 1:A:2092:U:H5' | 1.98 | 0.44 |
| 1:A:2260:C:H2' | 1:A:2261:C:H6 | 1.82 | 0.44 |
| 1:A:2277:G:C5 | 1:A:2278:A:C8 | 3.05 | 0.44 |
| 1:A:2360:A:OP2 | 1:A:2360:A:H8 | 2.01 | 0.44 |
| 1:A:2416:C:C6 | 1:A:2416:C:O5' | 2.66 | 0.44 |
| 1:A:1129:A:O2' | 1:A:2515:C:H1' | 2.16 | 0.44 |
| 1:A:2524:G:C5 | 1:A:2525:G:C8 | 3.05 | 0.44 |
| 1:A:2548:G:H2' | 1:A:2549:G:O5' | 2.17 | 0.44 |
| 1:A:2659:G:H2' | 1:A:2660:A:H3' | 1.98 | 0.44 |
| 1:A:270(B):A:C4' | 1:A:270(C):C:C5 | 2.99 | 0.44 |
| 1:A:270(S):G:N2 | 1:A:270(T):G:C8 | 2.86 | 0.44 |
| 1:A:1297:C:OP1 | 1:A:2710:C:O3' | 2.35 | 0.44 |
| 1:A:2717:G:C2' | 1:A:2718:G:O5' | 2.65 | 0.44 |
| 1:A:2748:A:C5 | 1:A:2757:A:N6 | 2.85 | 0.44 |
| 1:A:2639:A:C4 | 1:A:2778:A:C2 | 3.04 | 0.44 |
| 1:A:2793:G:C2 | 1:A:2794:C:C4 | 3.06 | 0.44 |
| 1:A:2844:G:C6 | 1:A:2845:G:C6 | 3.05 | 0.44 |
| 1:A:30:G:C2' | 1:A:31:C:C6 | 2.80 | 0.44 |
| 1:A:299:A:N1 | 1:A:322:A:H2' | 2.32 | 0.44 |
| 1:A:433:C:C3' | 1:A:434:U:H6 | 2.30 | 0.44 |
| 1:A:561:G:H5'' | 1:A:561:G:H8 | 1.81 | 0.44 |
| 1:A:690:G:C6 | 1:A:691:C:N4 | 2.85 | 0.44 |
| 1:A:692:C:C2' | 1:A:693:C:O5' | 2.65 | 0.44 |
| 1:A:729:G:C5 | 1:A:730:C:N1 | 2.85 | 0.44 |
| 1:A:804:A:C5' | 1:A:805:G:OP1 | 2.64 | 0.44 |
| 1:A:820:A:O2' | 1:A:836:G:N2 | 2.47 | 0.44 |
| 1:A:849:A:C4 | 1:A:850:C:C5 | 3.06 | 0.44 |
| 1:A:878:A:N3 | 1:A:878:A:H2' | 2.31 | 0.44 |
| 1:A:92:G:H8 | 1:A:92:G:O5' | 1.99 | 0.44 |
| 1:A:847:U:O4 | 1:A:933:A:C2 | 2.70 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:942:G:N2 | 1:A:943:U:H3 | 2.12 | 0.44 |
| 1:A:990:A:OP1 | 1:A:991:C:OP1 | 2.36 | 0.44 |
| 4:D:135:PHE:HD1 | 4:D:135:PHE:N | 2.13 | 0.44 |
| 4:D:109:ASP:N | 4:D:196:VAL:O | 2.51 | 0.44 |
| 1:A:729:G:OP1 | 4:D:19:ALA:CB | 2.65 | 0.44 |
| 5:E:122:PHE:HD1 | 5:E:122:PHE:H | 1.65 | 0.44 |
| 5:E:122:PHE:O | 5:E:124:GLY:N | 2.51 | 0.44 |
| 1:A:1658:C:OP2 | 5:E:134:ILE:CG2 | 2.64 | 0.44 |
| 5:E:13:ARG:O | 5:E:19:ARG:CB | 2.65 | 0.44 |
| 5:E:179:GLU:O | 5:E:180:ASN:C | 2.55 | 0.44 |
| 5:E:33:VAL:HG23 | 5:E:34:VAL:N | 2.31 | 0.44 |
| 5:E:37:ARG:HG2 | 5:E:40:GLU:HB2 | 1.99 | 0.44 |
| 5:E:51:PHE:HZ | 5:E:75:VAL:HG22 | 1.81 | 0.44 |
| 5:E:46:ALA:O | 5:E:80:GLU:OE1 | 2.35 | 0.44 |
| 6:F:116:ASP:HA | 6:F:119:ARG:HD2 | 1.99 | 0.44 |
| 6:F:162:LEU:N | 6:F:162:LEU:CD2 | 2.76 | 0.44 |
| 6:F:167:ALA:O | 6:F:173:VAL:CG2 | 2.65 | 0.44 |
| 6:F:26:ALA:O | 6:F:112:MET:SD | 2.75 | 0.44 |
| 6:F:80:ALA:CB | 6:F:81:PRO:HD2 | 2.43 | 0.44 |
| 7:G:135:LEU:HD22 | 7:G:135:LEU:HA | 1.85 | 0.44 |
| 7:G:173:LEU:HA | 7:G:176:LEU:CB | 2.24 | 0.44 |
| 7:G:51:ARG:CG | 7:G:51:ARG:HH21 | 2.29 | 0.44 |
| 7:G:60:LEU:CD2 | 7:G:90:LEU:HD21 | 2.46 | 0.44 |
| 1:A:1058:G:C2 | 10:L:116:ASN:ND2 | 2.85 | 0.44 |
| 11:M:13:TRP:CD1 | 11:M:51:PHE:CB | 3.01 | 0.44 |
| 13:O:77:ARG:HG2 | 13:O:117:GLU:OE1 | 2.17 | 0.44 |
| 13:O:123:LEU:HD12 | 13:O:130:PHE:CE1 | 2.48 | 0.44 |
| 13:O:128:HIS:HA | 13:O:147:LEU:HD21 | 1.99 | 0.44 |
| 13:O:49:ARG:HA | 31:7:52:LYS:HD3 | 2.00 | 0.44 |
| 13:O:54:GLY:CA | 31:7:12:LYS:NZ | 2.79 | 0.44 |
| 1:A:631:A:OP2 | 13:O:59:LEU:HD11 | 2.16 | 0.44 |
| 13:O:77:ARG:C | 13:O:79:ARG:N | 2.69 | 0.44 |
| 14:P:42:ILE:HG22 | 14:P:95:ALA:HB3 | 1.98 | 0.44 |
| 16:R:100:ALA:C | 16:R:102:ALA:N | 2.69 | 0.44 |
| 16:R:24:LEU:CG | 16:R:25:ARG:N | 2.80 | 0.44 |
| 16:R:25:ARG:O | 16:R:40:ILE:O | 2.35 | 0.44 |
| 16:R:9:ARG:HH11 | 16:R:9:ARG:CG | 2.29 | 0.44 |
| 5:E:8:LYS:HE3 | 17:S:3:ARG:HG3 | 1.97 | 0.44 |
| 17:S:79:HIS:N | 17:S:79:HIS:ND1 | 2.65 | 0.44 |
| 18:T:108:GLU:C | 18:T:110:VAL:H | 2.20 | 0.44 |
| 18:T:111:GLU:CA | 18:T:114:LYS:HE3 | 2.45 | 0.44 |
| 18:T:65:ILE:HG12 | 18:T:95:LEU:HB2 | 1.98 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:62:LEU:CD2 | 19:U:99:ILE:H | 2.19 | 0.44 |
| 1:A:2013:A:OP1 | 20:V:96:ILE:HB | 2.17 | 0.44 |
| 21:W:65:ARG:HB3 | 21:W:70:LEU:CD2 | 2.48 | 0.44 |
| 1:A:85:G:C5' | 22:X:28:LYS:HE3 | 2.47 | 0.44 |
| 23:Y:53:ILE:HG12 | 23:Y:58:VAL:CG2 | 2.47 | 0.44 |
| 24:Z:31:VAL:HG22 | 24:Z:31:VAL:O | 2.16 | 0.44 |
| 24:Z:53:MET:HE1 | 24:Z:57:PHE:HA | 1.94 | 0.44 |
| 1:A:363(A):A:H2' | 1:A:363(B):G:O5' | 2.17 | 0.44 |
| 25:1:36:ILE:CD1 | 25:1:37:GLY:N | 2.78 | 0.44 |
| 29:5:41:PRO:HD2 | 29:5:47:THR:O | 2.18 | 0.44 |
| 30:6:21:ARG:O | 30:6:28:ARG:N | 2.50 | 0.44 |
| 31:7:1:MET:H3 | 31:7:2:PRO:HD2 | 1.79 | 0.44 |
| 31:7:5:LYS:NZ | 31:7:64:TYR:CD1 | 2.81 | 0.44 |
| 32:8:11:CYS:HB3 | 32:8:32:HIS:NE2 | 2.31 | 0.44 |
| 1:A:1054:A:C8 | 1:A:1054:A:H3' | 2.52 | 0.44 |
| 1:A:1110:G:C3' | 1:A:1111:A:H8 | 2.30 | 0.44 |
| 1:A:1186:G:C8 | 1:A:1186:G:H3' | 2.53 | 0.44 |
| 1:A:1208:C:O5' | 1:A:1208:C:H6 | 2.00 | 0.44 |
| 1:A:1225:C:O2' | 1:A:1226:G:C5' | 2.57 | 0.44 |
| 1:A:1264:G:O6 | 1:A:1265:A:C6 | 2.69 | 0.44 |
| 1:A:1280:G:H2' | 1:A:1281:G:C5' | 2.47 | 0.44 |
| 1:A:1332:G:C5 | 1:A:1609:A:C6 | 3.05 | 0.44 |
| 1:A:1354:A:N7 | 1:A:1355:G:N9 | 2.66 | 0.44 |
| 1:A:1407:C:N3 | 1:A:1408:C:C5 | 2.85 | 0.44 |
| 1:A:1429:G:C4 | 1:A:1568:G:C6 | 3.05 | 0.44 |
| 1:A:1488:G:C6 | 1:A:1489:U:N1 | 2.85 | 0.44 |
| 1:A:1542:G:H5' | 1:A:1542:G:N3 | 2.33 | 0.44 |
| 1:A:175:G:N1 | 1:A:176:G:C2 | 2.84 | 0.44 |
| 1:A:1779:U:HO2' | 1:A:1783:A:N6 | 2.11 | 0.44 |
| 1:A:1818:U:H2' | 4:D:157:ARG:HH21 | 1.83 | 0.44 |
| 1:A:1802:A:H61 | 1:A:1822:G:H1' | 1.83 | 0.44 |
| 1:A:1842:G:N1 | 1:A:1901:A:C6 | 2.85 | 0.44 |
| 1:A:1939:U:H1' | 1:A:2592:G:C4' | 2.46 | 0.44 |
| 1:A:2004:G:H2' | 1:A:2005:A:H8 | 1.82 | 0.44 |
| 1:A:2084:C:C2 | 1:A:2085:C:C5 | 3.05 | 0.44 |
| 1:A:2298:A:C4' | 1:A:2322:A:O2' | 2.66 | 0.44 |
| 1:A:2299:G:C6 | 1:A:2318:G:N2 | 2.86 | 0.44 |
| 1:A:2327:A:C6 | 1:A:2388:A:N1 | 2.86 | 0.44 |
| 1:A:243:U:C2 | 1:A:244:A:H8 | 2.35 | 0.44 |
| 1:A:2512:C:H2' | 1:A:2513:G:H4' | 1.99 | 0.44 |
| 1:A:2579:C:H6 | 1:A:2579:C:C5' | 2.28 | 0.44 |
| 1:A:2620:C:C2' | 1:A:2621:A:O5' | 2.65 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2694:G:H2' | 1:A:2695:C:H5' | 1.99 | 0.44 |
| 1:A:2705:A:H2' | 1:A:2706:G:O5' | 2.17 | 0.44 |
| 1:A:1754:C:C4 | 1:A:2717:G:H5' | 2.52 | 0.44 |
| 1:A:2723:C:H2' | 1:A:2724:C:C5' | 2.47 | 0.44 |
| 1:A:2799:A:O2' | 1:A:2802:G:C4 | 2.70 | 0.44 |
| 1:A:2804:C:C4 | 1:A:2805:G:C6 | 3.05 | 0.44 |
| 1:A:282:A:C4 | 1:A:283:A:O3' | 2.70 | 0.44 |
| 1:A:293:U:O2' | 1:A:294:A:O4' | 2.28 | 0.44 |
| 1:A:308:G:N3 | 1:A:309:G:H1' | 2.32 | 0.44 |
| 1:A:351:G:O2' | 1:A:352:G:P | 2.75 | 0.44 |
| 1:A:450:G:C5' | 6:F:52:LYS:CD | 2.95 | 0.44 |
| 1:A:529:A:N7 | 1:A:2023:G:C6 | 2.85 | 0.44 |
| 1:A:582:G:C4 | 1:A:583:G:N7 | 2.86 | 0.44 |
| 1:A:630:G:HO2' | 1:A:631:A:H8 | 1.57 | 0.44 |
| 1:A:701:G:N1 | 1:A:732:C:C4 | 2.85 | 0.44 |
| 1:A:783:A:C2 | 1:A:785:G:O4' | 2.70 | 0.44 |
| 1:A:82:G:H8 | 1:A:82:G:OP2 | 2.00 | 0.44 |
| 1:A:975:G:O6 | 1:A:976:C:H5 | 1.99 | 0.44 |
| 2:B:15:A:H1' | 2:B:109:G:N7 | 2.33 | 0.44 |
| 2:B:33:G:C2' | 2:B:34:U:H6 | 2.27 | 0.44 |
| 2:B:43:C:N4 | 2:B:45:A:C6 | 2.86 | 0.44 |
| 2:B:48:A:H2' | 2:B:49:C:H6 | 1.70 | 0.44 |
| 2:B:66:A:C2 | 2:B:107:U:C2 | 3.05 | 0.44 |
| 2:B:76:G:H2' | 2:B:77:U:C2 | 2.52 | 0.44 |
| 4:D:148:GLU:H | 4:D:186:HIS:HE1 | 1.65 | 0.44 |
| 4:D:5:LYS:NZ | 4:D:31:LYS:HZ1 | 2.14 | 0.44 |
| 1:A:1816:G:C6 | 4:D:38:LYS:HE2 | 2.53 | 0.44 |
| 4:D:38:LYS:C | 4:D:39:LYS:HD2 | 2.38 | 0.44 |
| 1:A:1806:C:O2' | 4:D:49:ILE:HG21 | 2.17 | 0.44 |
| 4:D:50:THR:C | 4:D:51:VAL:HG23 | 2.36 | 0.44 |
| 4:D:70:TRP:C | 4:D:73:VAL:HG13 | 2.37 | 0.44 |
| 5:E:108:SER:CB | 5:E:163:GLU:O | 2.65 | 0.44 |
| 5:E:120:TRP:CH2 | 5:E:122:PHE:CB | 2.83 | 0.44 |
| 5:E:171:GLU:H | 5:E:185:LYS:HE2 | 1.82 | 0.44 |
| 5:E:176:ILE:HG23 | 5:E:181:LEU:O | 2.18 | 0.44 |
| 5:E:23:VAL:CG2 | 5:E:184:VAL:HG22 | 2.29 | 0.44 |
| 5:E:36:ARG:HD3 | 5:E:41:LYS:HZ2 | 1.72 | 0.44 |
| 5:E:27:LEU:HA | 5:E:76:ARG:HH12 | 1.82 | 0.44 |
| 6:F:136:THR:O | 6:F:139:PHE:N | 2.50 | 0.44 |
| 6:F:156:LEU:HB3 | 6:F:163:VAL:CG1 | 2.47 | 0.44 |
| 6:F:157:VAL:O | 6:F:158:THR:CB | 2.65 | 0.44 |
| 6:F:53:THR:O | 6:F:56:GLU:CD | 2.56 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 7:G:39:ILE:HD12 | 7:G:39:ILE:H | 1.78 | 0.44 |
| 8:H:149:ARG:HG2 | 8:H:153:LYS:CG | 2.47 | 0.44 |
| 8:H:66:GLY:O | 8:H:69:ARG:HG2 | 2.17 | 0.44 |
| 8:H:72:ILE:H | 8:H:72:ILE:HG12 | 1.58 | 0.44 |
| 8:H:89:ILE:HG23 | 8:H:128:PRO:O | 2.17 | 0.44 |
| 9:K:2:LYS:HD2 | 9:K:44:LEU:HD21 | 1.99 | 0.44 |
| 10:L:103:GLN:NE2 | 10:L:106:GLU:OE1 | 2.50 | 0.44 |
| 10:L:17:ALA:O | 10:L:18:THR:CB | 2.65 | 0.44 |
| 11:M:37:LYS:NZ | 11:M:43:THR:HG23 | 2.29 | 0.44 |
| 11:M:6:PRO:O | 11:M:7:LYS:O | 2.35 | 0.44 |
| 12:N:106:LEU:O | 12:N:109:LYS:CG | 2.66 | 0.44 |
| 12:N:10:VAL:CG1 | 12:N:14:THR:HB | 2.47 | 0.44 |
| 12:N:1:MET:HG3 | 12:N:2:ILE:N | 2.33 | 0.44 |
| 12:N:21:CYS:SG | 12:N:40:VAL:O | 2.66 | 0.44 |
| 12:N:88:ASN:ND2 | 12:N:89:ASN:N | 2.66 | 0.44 |
| 13:O:106:LEU:O | 13:O:107:LYS:HB3 | 2.17 | 0.44 |
| 13:O:134:ALA:O | 13:O:135:LEU:C | 2.56 | 0.44 |
| 13:O:70:GLN:HB2 | 13:O:110:TYR:CZ | 2.51 | 0.44 |
| 13:O:7:ARG:HD2 | 13:O:7:ARG:H | 1.81 | 0.44 |
| 1:A:2839:G:O2' | 15:Q:92:GLY:CA | 2.65 | 0.44 |
| 16:R:106:ARG:CD | 16:R:107:GLU:CD | 2.85 | 0.44 |
| 16:R:62:LYS:C | 16:R:64:GLU:H | 2.20 | 0.44 |
| 17:S:24:PRO:C | 17:S:25:GLY:O | 2.54 | 0.44 |
| 17:S:2:ASN:HA | 17:S:6:LEU:HD11 | 1.99 | 0.44 |
| 17:S:50:ILE:HB | 17:S:66:VAL:CA | 2.47 | 0.44 |
| 17:S:95:ARG:HB3 | 17:S:95:ARG:CZ | 2.47 | 0.44 |
| 18:T:26:GLY:O | 18:T:27:LEU:HB2 | 2.17 | 0.44 |
| 18:T:88:ILE:CA | 19:U:52:VAL:HG22 | 2.48 | 0.44 |
| 19:U:61:VAL:O | 19:U:99:ILE:O | 2.34 | 0.44 |
| 20:V:23:LEU:CD1 | 28:4:25:LEU:HG | 2.47 | 0.44 |
| 20:V:23:LEU:HG | 28:4:25:LEU:HD21 | 1.99 | 0.44 |
| 1:A:2013:A:C4' | 20:V:96:ILE:HG22 | 2.46 | 0.44 |
| 22:X:48:ALA:N | 22:X:56:PRO:HG3 | 2.30 | 0.44 |
| 23:Y:10:ARG:HG2 | 23:Y:36:LYS:CB | 2.47 | 0.44 |
| 23:Y:114:GLY:N | 23:Y:145:GLU:OE2 | 2.50 | 0.44 |
| 23:Y:7:ALA:HB2 | 23:Y:38:TYR:CD2 | 2.53 | 0.44 |
| 9:K:69:LYS:HD2 | 9:K:70:LYS:HG3 | 2.00 | 0.44 |
| 1:A:2110:G:C5 | 1:A:2120:G:C8 | 3.06 | 0.44 |
| 1:A:2148:G:N2 | 1:A:2149:G:C4 | 2.84 | 0.44 |
| 1:A:2165:G:C8 | 1:A:2166:G:C8 | 3.06 | 0.44 |
| 1:A:2175:C:OP1 | 3:C:5:LYS:CB | 2.63 | 0.44 |
| 1:A:1585:C:H4' | 1:A:1586:A:OP1 | 2.13 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 9:K:136:VAL:O | 9:K:136:VAL:CG2 | 2.60 | 0.44 |
| 1:A:273(C):C:O5' | 1:A:273(C):C:H6 | 1.99 | 0.44 |
| 1:A:363(F):A:N3 | 1:A:363(F):A:H2' | 2.32 | 0.44 |
| 1:A:2285:C:C5 | 29:5:27:LYS:CE | 2.98 | 0.44 |
| 29:5:17:LYS:HZ3 | 29:5:50:ARG:CA | 2.29 | 0.44 |
| 31:7:9:GLY:O | 31:7:13:ARG:O | 2.35 | 0.44 |
| 1:A:1084:A:C5' | 1:A:1085:A:OP2 | 2.64 | 0.44 |
| 1:A:1202:C:N4 | 1:A:1241:A:N6 | 2.65 | 0.44 |
| 1:A:1326:U:N3 | 1:A:1327:C:C6 | 2.85 | 0.44 |
| 1:A:1336:A:O2' | 1:A:1337:G:H5' | 2.17 | 0.44 |
| 1:A:1420:U:N1 | 1:A:1420:U:OP2 | 2.50 | 0.44 |
| 1:A:1441:G:C2 | 1:A:1442:G:C8 | 3.05 | 0.44 |
| 1:A:1470:G:H2' | 1:A:1471:A:OP2 | 2.16 | 0.44 |
| 1:A:149:A:N7 | 1:A:150:C:N1 | 2.66 | 0.44 |
| 1:A:1505:C:C6 | 1:A:1505:C:OP2 | 2.70 | 0.44 |
| 1:A:1630:G:C4' | 1:A:2698:U:OP1 | 2.66 | 0.44 |
| 1:A:1716:U:C1' | 1:A:1746:G:N2 | 2.80 | 0.44 |
| 1:A:1729:A:H3' | 1:A:1730:U:O4' | 2.17 | 0.44 |
| 1:A:1748:G:O2' | 1:A:1749:A:H5' | 2.17 | 0.44 |
| 1:A:1751:C:O2' | 1:A:1752:C:H5' | 2.17 | 0.44 |
| 1:A:1823:G:N1 | 1:A:1824:G:N7 | 2.65 | 0.44 |
| 1:A:1907:G:H2' | 1:A:1908:C:C6 | 2.51 | 0.44 |
| 1:A:1969:A:C5' | 1:A:1970:A:OP1 | 2.65 | 0.44 |
| 1:A:2042:A:H2' | 1:A:2043:C:C5' | 2.44 | 0.44 |
| 1:A:2078:C:C2 | 1:A:2079:U:C5 | 3.05 | 0.44 |
| 1:A:208:C:H2' | 1:A:209:C:C6 | 2.53 | 0.44 |
| 1:A:2232:U:H2' | 1:A:2233:U:O5' | 2.17 | 0.44 |
| 1:A:2241:A:H2' | 1:A:2242:G:C8 | 2.51 | 0.44 |
| 1:A:2424:C:O2 | 1:A:2424:C:H2' | 2.17 | 0.44 |
| 1:A:2436:G:C4 | 1:A:2437:U:C6 | 3.06 | 0.44 |
| 1:A:2061:G:C5 | 1:A:2503:A:C2 | 3.06 | 0.44 |
| 1:A:251:A:C8 | 1:A:251:A:OP2 | 2.70 | 0.44 |
| 1:A:256:A:C2 | 1:A:257:A:C5 | 3.06 | 0.44 |
| 1:A:270(T):G:C2 | 1:A:270(U):C:C2 | 3.05 | 0.44 |
| 1:A:2715:C:C2 | 1:A:2716:U:C6 | 3.05 | 0.44 |
| 1:A:2728:U:H2' | 1:A:2729:G:C8 | 2.52 | 0.44 |
| 1:A:2523:G:C4 | 1:A:2765:A:N6 | 2.86 | 0.44 |
| 1:A:280:C:C4 | 1:A:283:A:N6 | 2.80 | 0.44 |
| 1:A:2821:A:OP2 | 1:A:2822:G:P | 2.76 | 0.44 |
| 1:A:366:C:H5'' | 1:A:403:U:C4 | 2.52 | 0.44 |
| 1:A:373:U:H3 | 1:A:400:G:N2 | 2.16 | 0.44 |
| 1:A:422:A:H2 | 1:A:423:A:O4' | 2.01 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:447:A:C6 | 1:A:473:G:C4 | 3.05 | 0.44 |
| 1:A:470:A:N3 | 1:A:471:A:C1' | 2.80 | 0.44 |
| 1:A:479:A:C1' | 1:A:480:A:H8 | 2.24 | 0.44 |
| 1:A:543:C:N3 | 1:A:551:G:C2 | 2.86 | 0.44 |
| 1:A:585:G:C2' | 1:A:586:A:N7 | 2.81 | 0.44 |
| 1:A:754:C:C4' | 1:A:1618:A:C2 | 2.93 | 0.44 |
| 1:A:760:G:C4 | 1:A:761:A:C8 | 3.06 | 0.44 |
| 1:A:811:U:HO2' | 1:A:812:C:P | 2.39 | 0.44 |
| 1:A:811:U:O4 | 13:O:23:PRO:CD | 2.65 | 0.44 |
| 1:A:852:G:C5 | 1:A:853:G:N7 | 2.86 | 0.44 |
| 1:A:870:A:C5' | 1:A:871:U:OP2 | 2.64 | 0.44 |
| 1:A:955:C:O2' | 1:A:956:G:H5' | 2.17 | 0.44 |
| 4:D:140:THR:C | 4:D:165:ILE:HD13 | 2.37 | 0.44 |
| 4:D:173:VAL:O | 4:D:184:LYS:HA | 2.18 | 0.44 |
| 4:D:130:ALA:CB | 4:D:192:THR:HA | 2.48 | 0.44 |
| 4:D:63:ARG:NH2 | 4:D:85:ASP:HA | 2.32 | 0.44 |
| 5:E:176:ILE:CG2 | 5:E:181:LEU:O | 2.65 | 0.44 |
| 5:E:11:MET:C | 5:E:21:VAL:HB | 2.38 | 0.44 |
| 5:E:66:HIS:O | 5:E:68:ALA:N | 2.51 | 0.44 |
| 1:A:600:G:O4' | 6:F:105:VAL:HG21 | 2.18 | 0.44 |
| 6:F:11:VAL:HG13 | 6:F:127:GLU:CB | 2.46 | 0.44 |
| 6:F:6:VAL:CG2 | 6:F:6:VAL:O | 2.65 | 0.44 |
| 7:G:105:LYS:HZ3 | 7:G:106:LEU:HD23 | 1.82 | 0.44 |
| 7:G:131:TYR:CG | 7:G:158:ALA:HA | 2.52 | 0.44 |
| 7:G:170:ARG:NH1 | 7:G:170:ARG:CG | 2.74 | 0.44 |
| 10:L:106:GLU:OE1 | 10:L:107:ILE:N | 2.50 | 0.44 |
| 10:L:55:VAL:CG2 | 10:L:69:THR:HA | 2.40 | 0.44 |
| 11:M:122:VAL:HG22 | 11:M:124:ALA:H | 1.83 | 0.44 |
| 11:M:68:GLU:N | 11:M:70:LYS:HZ3 | 2.15 | 0.44 |
| 11:M:6:PRO:HA | 11:M:41:ASP:CG | 2.37 | 0.44 |
| 11:M:71:ILE:CD1 | 11:M:90:MET:HE3 | 2.21 | 0.44 |
| 12:N:11:ALA:HB3 | 12:N:97:ARG:HD3 | 1.99 | 0.44 |
| 12:N:3:GLN:OE1 | 12:N:33:ALA:HB3 | 2.18 | 0.44 |
| 12:N:15:GLY:O | 12:N:46:ALA:O | 2.36 | 0.44 |
| 12:N:79:PHE:CE1 | 17:S:106:SER:HB3 | 2.53 | 0.44 |
| 13:O:15:ARG:CG | 13:O:15:ARG:HH21 | 2.23 | 0.44 |
| 13:O:92:GLU:CD | 13:O:92:GLU:N | 2.69 | 0.44 |
| 14:P:11:LYS:HG2 | 14:P:12:GLN:H | 1.82 | 0.44 |
| 14:P:26:TYR:N | 14:P:102:VAL:CB | 2.65 | 0.44 |
| 14:P:49:ALA:O | 14:P:50:ALA:C | 2.55 | 0.44 |
| 15:Q:118:GLU:CA | 15:Q:118:GLU:OE2 | 2.56 | 0.44 |
| 15:Q:26:LYS:HA | 15:Q:29:LEU:HD12 | 1.99 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 15:Q:61:HIS:O | 15:Q:63:ARG:N | 2.51 | 0.44 |
| 16:R:40:ILE:HD11 | 16:R:47:THR:HG23 | 1.98 | 0.44 |
| 16:R:71:ARG:HB3 | 16:R:107:GLU:CG | 2.47 | 0.44 |
| 17:S:54:ARG:O | 17:S:64:ARG:CB | 2.46 | 0.44 |
| 17:S:58:ASN:N | 17:S:61:PHE:CD2 | 2.85 | 0.44 |
| 20:V:60:ASN:ND2 | 20:V:61:ASN:ND2 | 2.65 | 0.44 |
| 1:A:1615:C:C2 | 20:V:87:PRO:HG3 | 2.53 | 0.44 |
| 23:Y:113:ALA:HB1 | 23:Y:145:GLU:CD | 2.38 | 0.44 |
| 23:Y:2:GLU:HB3 | 23:Y:47:VAL:HG11 | 1.97 | 0.44 |
| 2:B:12:C:C4' | 24:Z:74:ARG:NE | 2.72 | 0.44 |
| 3:C:131:LEU:HD12 | 3:C:137:LEU:HA | 2.00 | 0.44 |
| 3:C:59:ARG:HG3 | 3:C:163:PHE:O | 2.18 | 0.44 |
| 3:C:223:ARG:NH1 | 3:C:223:ARG:CB | 2.80 | 0.44 |
| 3:C:223:ARG:CZ | 3:C:223:ARG:HB2 | 2.48 | 0.44 |
| 1:A:2195:C:C2' | 1:A:2196:C:C5' | 2.93 | 0.44 |
| 2:B:2:C:H2' | 2:B:3:C:O5' | 2.17 | 0.44 |
| 3:C:37:PHE:CG | 3:C:37:PHE:O | 2.70 | 0.44 |
| 26:2:27:GLY:C | 26:2:28:LEU:HG | 2.36 | 0.44 |
| 26:2:29:ARG:C | 26:2:31:LEU:N | 2.70 | 0.44 |
| 26:2:3:ARG:HH11 | 26:2:3:ARG:CB | 2.22 | 0.44 |
| 31:7:34:TRP:HE3 | 31:7:34:TRP:HA | 1.82 | 0.44 |
| 31:7:63:PRO:O | 31:7:64:TYR:O | 2.36 | 0.44 |
| 1:A:1010:A:P | 1:A:1010:A:H8 | 2.40 | 0.44 |
| 1:A:1077:A:N7 | 1:A:1078:U:C2 | 2.86 | 0.44 |
| 1:A:1085:A:O2' | 1:A:1086:A:C4' | 2.63 | 0.44 |
| 1:A:1128:A:O2' | 1:A:1129:A:O4' | 2.30 | 0.44 |
| 1:A:1266:G:O2' | 1:A:2012:G:N1 | 2.45 | 0.44 |
| 1:A:1388:G:C4 | 1:A:1400:G:N2 | 2.86 | 0.44 |
| 1:A:150:C:O2' | 1:A:151:C:C5' | 2.65 | 0.44 |
| 1:A:1533:C:O2 | 1:A:1533:C:C2' | 2.52 | 0.44 |
| 1:A:1534:G:N2 | 1:A:1537:C:C5 | 2.84 | 0.44 |
| 1:A:1542:G:H3' | 1:A:1542:G:C8 | 2.52 | 0.44 |
| 1:A:1603:A:C6 | 1:A:1604:C:N4 | 2.86 | 0.44 |
| 1:A:1655:A:H3' | 1:A:1656:C:C6 | 2.52 | 0.44 |
| 1:A:1691:C:N3 | 1:A:1692:U:C6 | 2.85 | 0.44 |
| 1:A:179:G:OP1 | 30:6:32:LYS:CE | 2.66 | 0.44 |
| 1:A:1949:G:C2' | 1:A:1950:G:H5' | 2.46 | 0.44 |
| 1:A:2308:G:H2' | 1:A:2309:A:OP2 | 2.17 | 0.44 |
| 1:A:233:A:C5 | 1:A:234:C:C5 | 3.05 | 0.44 |
| 1:A:2359:C:N4 | 1:A:2360:A:C6 | 2.86 | 0.44 |
| 1:A:2371:G:N2 | 1:A:2372:G:C5 | 2.86 | 0.44 |
| 1:A:2377:A:C2 | 16:R:87:PHE:CZ | 3.04 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:2419:U:OP1 | 31:7:41:ILE:CD1 | 2.64 | 0.44 |
| 1:A:2519:U:C2 | 1:A:2542:A:N1 | 2.85 | 0.44 |
| 1:A:2519:U:H1' | 1:A:2542:A:N1 | 2.32 | 0.44 |
| 1:A:2056:G:C5 | 1:A:2577:A:C4 | 3.05 | 0.44 |
| 1:A:2595:G:N2 | 1:A:2599:G:C6 | 2.85 | 0.44 |
| 1:A:2639:A:H2' | 1:A:2640:G:H5' | 2.00 | 0.44 |
| 1:A:2659:G:H2' | 1:A:2660:A:C3' | 2.48 | 0.44 |
| 1:A:2772:C:OP2 | 1:A:2772:C:C6 | 2.70 | 0.44 |
| 1:A:2785:C:C4 | 1:A:2786:U:C4 | 3.05 | 0.44 |
| 1:A:2795:G:C2' | 1:A:2795:G:N3 | 2.79 | 0.44 |
| 1:A:2859:G:C4 | 1:A:2860:A:N7 | 2.85 | 0.44 |
| 1:A:361:G:C6 | 1:A:362:U:O4 | 2.70 | 0.44 |
| 1:A:374:A:C2 | 1:A:375:C:C1' | 2.97 | 0.44 |
| 1:A:419:C:C4 | 1:A:420:C:C4 | 3.05 | 0.44 |
| 1:A:434:U:H2' | 1:A:435:C:OP2 | 2.18 | 0.44 |
| 1:A:470:A:O2' | 1:A:471:A:OP1 | 2.36 | 0.44 |
| 1:A:483:A:H3' | 1:A:484:C:C6 | 2.53 | 0.44 |
| 1:A:550:G:H2' | 1:A:1220:A:H2 | 1.83 | 0.44 |
| 1:A:777:A:N1 | 1:A:791:C:N4 | 2.64 | 0.44 |
| 1:A:785:G:C2' | 1:A:786:C:C6 | 2.91 | 0.44 |
| 1:A:848:G:N2 | 1:A:932:G:N3 | 2.65 | 0.44 |
| 1:A:854:G:N2 | 1:A:855:G:N9 | 2.65 | 0.44 |
| 1:A:872:A:N1 | 1:A:873:G:C5 | 2.86 | 0.44 |
| 1:A:886:C:H4' | 1:A:887:A:C8 | 2.52 | 0.44 |
| 1:A:919:G:H2' | 1:A:920:G:H8 | 1.82 | 0.44 |
| 2:B:75:G:N3 | 2:B:75:G:H2' | 2.32 | 0.44 |
| 4:D:208:LYS:NZ | 4:D:211:ARG:HG3 | 2.26 | 0.44 |
| 4:D:216:GLY:O | 4:D:217:ARG:HB2 | 2.18 | 0.44 |
| 4:D:13:ARG:HD2 | 4:D:22:SER:HB2 | 1.99 | 0.44 |
| 4:D:229:VAL:CG1 | 4:D:230:ASP:OD2 | 2.56 | 0.44 |
| 4:D:246:PRO:CG | 4:D:252:TRP:CE3 | 2.97 | 0.44 |
| 4:D:24:ILE:C | 4:D:25:THR:HG23 | 2.35 | 0.44 |
| 4:D:259:THR:CB | 4:D:261:LYS:HE3 | 2.47 | 0.44 |
| 4:D:29:PRO:HB3 | 4:D:83:GLU:N | 2.31 | 0.44 |
| 4:D:56:GLY:H | 4:D:217:ARG:NH1 | 2.16 | 0.44 |
| 4:D:96:HIS:CE1 | 4:D:102:LYS:CE | 3.00 | 0.44 |
| 5:E:119:ARG:HH11 | 5:E:120:TRP:CA | 2.31 | 0.44 |
| 5:E:133:LYS:CE | 5:E:137:HIS:HB3 | 2.48 | 0.44 |
| 5:E:119:ARG:CZ | 5:E:155:LYS:HD2 | 2.48 | 0.44 |
| 5:E:53:PRO:HD2 | 5:E:74:PRO:C | 2.38 | 0.44 |
| 6:F:4:VAL:O | 6:F:6:VAL:HG13 | 2.17 | 0.44 |
| 7:G:165:THR:HB | 7:G:168:GLU:OE1 | 2.17 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:16:ARG:HB2 | 7:G:17:PRO:CD | 2.47 | 0.44 |
| 2:B:57:A:N3 | 7:G:29:TRP:CG | 2.85 | 0.44 |
| 8:H:119:GLU:C | 8:H:140:LYS:HZ1 | 2.19 | 0.44 |
| 8:H:52:VAL:C | 8:H:53:GLU:OE1 | 2.56 | 0.44 |
| 8:H:72:ILE:O | 8:H:73:ALA:C | 2.56 | 0.44 |
| 10:L:19:PRO:CG | 10:L:22:PRO:HG2 | 2.47 | 0.44 |
| 10:L:98:ARG:HA | 10:L:137:GLU:O | 2.17 | 0.44 |
| 11:M:44:PRO:HG2 | 11:M:45:ASN:H | 1.82 | 0.44 |
| 11:M:57:ALA:HB1 | 11:M:60:ILE:CD1 | 2.45 | 0.44 |
| 11:M:87:LEU:CD2 | 11:M:88:GLU:OE2 | 2.57 | 0.44 |
| 12:N:77:ILE:CG1 | 17:S:75:ILE:CD1 | 2.87 | 0.44 |
| 13:O:7:ARG:HB2 | 13:O:8:PRO:HD3 | 1.99 | 0.44 |
| 14:P:102:VAL:CG2 | 14:P:104:PHE:CZ | 3.00 | 0.44 |
| 14:P:16:ARG:NH1 | 14:P:72:LYS:CA | 2.74 | 0.44 |
| 14:P:65:PHE:HD2 | 14:P:65:PHE:HA | 1.67 | 0.44 |
| 15:Q:37:THR:CA | 15:Q:111:LEU:HD22 | 2.46 | 0.44 |
| 12:N:79:PHE:CE1 | 17:S:106:SER:CB | 3.01 | 0.44 |
| 17:S:30:VAL:CA | 17:S:32:TYR:OH | 2.66 | 0.44 |
| 17:S:4:GLY:O | 17:S:8:LYS:CG | 2.65 | 0.44 |
| 17:S:67:SER:HA | 17:S:75:ILE:HG22 | 1.99 | 0.44 |
| 1:A:563:G:N2 | 18:T:34:LYS:HZ1 | 2.15 | 0.44 |
| 18:T:50:ARG:HH12 | 18:T:51:LYS:HG3 | 1.82 | 0.44 |
| 18:T:76:TYR:O | 18:T:77:SER:C | 2.55 | 0.44 |
| 18:T:91:ASP:O | 18:T:95:LEU:CD2 | 2.63 | 0.44 |
| 19:U:58:VAL:CG1 | 19:U:59:ALA:N | 2.81 | 0.44 |
| 20:V:68:ARG:HG3 | 20:V:110:LYS:O | 2.17 | 0.44 |
| 20:V:26:GLY:O | 20:V:27:LYS:HD2 | 2.18 | 0.44 |
| 22:X:9:LYS:O | 22:X:110:GLU:OE2 | 2.36 | 0.44 |
| 22:X:1:MET:CA | 22:X:33:LYS:HE3 | 2.47 | 0.44 |
| 22:X:23:ARG:NH2 | 22:X:39:VAL:HG13 | 2.27 | 0.44 |
| 22:X:44:ILE:O | 22:X:45:VAL:C | 2.56 | 0.44 |
| 23:Y:151:HIS:HB3 | 23:Y:168:GLU:HG2 | 1.99 | 0.44 |
| 23:Y:24:LEU:HD13 | 23:Y:83:PRO:CD | 2.47 | 0.44 |
| 23:Y:99:TYR:HD2 | 23:Y:124:ILE:CG2 | 2.31 | 0.44 |
| 9:K:66:GLU:HA | 9:K:69:LYS:CE | 2.48 | 0.44 |
| 1:A:2132:U:O2 | 1:A:2134:A:C4 | 2.71 | 0.44 |
| 1:A:2132:U:O2 | 1:A:2134:A:C5 | 2.71 | 0.44 |
| 3:C:100:ILE:O | 3:C:103:ILE:HB | 2.17 | 0.44 |
| 3:C:160:ARG:HA | 3:C:160:ARG:HH11 | 1.82 | 0.44 |
| 3:C:200:LYS:HG3 | 3:C:208:PHE:HE2 | 1.77 | 0.44 |
| 16:R:56:LEU:HD21 | 16:R:59:LYS:HZ3 | 1.81 | 0.44 |
| 1:A:2249:U:C4 | 1:A:2253:G:OP2 | 2.71 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:2343:C:H4' | 1:A:2373:G:O3' | 2.17 | 0.44 |
| 25:1:36:ILE:CG2 | 25:1:37:GLY:N | 2.66 | 0.44 |
| 27:3:14:ILE:O | 27:3:14:ILE:CG2 | 2.64 | 0.44 |
| 31:7:5:LYS:HB3 | 31:7:63:PRO:HD2 | 1.99 | 0.44 |
| 1:A:1044:G:H2' | 1:A:1111:A:C2 | 2.52 | 0.44 |
| 1:A:1102:C:C2 | 1:A:1103:A:C8 | 3.06 | 0.44 |
| 1:A:1199:U:OP2 | 1:A:1199:U:O4' | 2.35 | 0.44 |
| 1:A:1222:C:C2 | 1:A:1228:G:N3 | 2.86 | 0.44 |
| 1:A:1313:U:O5' | 1:A:1313:U:C6 | 2.70 | 0.44 |
| 1:A:1384:A:H1' | 1:A:1405:U:C1' | 2.48 | 0.44 |
| 1:A:1385:G:C6 | 1:A:1386:C:N4 | 2.86 | 0.44 |
| 1:A:1402:C:O2 | 1:A:1402:C:C2' | 2.63 | 0.44 |
| 1:A:1420:U:P | 1:A:1420:U:O4' | 2.76 | 0.44 |
| 1:A:1458:C:H4' | 1:A:1459:G:C8 | 2.52 | 0.44 |
| 1:A:1631:A:N6 | 1:A:1632:A:C2 | 2.85 | 0.44 |
| 1:A:1641:A:N6 | 1:A:1642:G:C2 | 2.86 | 0.44 |
| 1:A:1672:C:N3 | 1:A:2582:G:O4' | 2.51 | 0.44 |
| 1:A:1703:G:C6 | 1:A:1704:G:C5 | 3.06 | 0.44 |
| 1:A:1820:U:C2' | 4:D:202:LYS:CG | 2.84 | 0.44 |
| 1:A:1835:G:C2' | 1:A:1836:C:H5' | 2.48 | 0.44 |
| 1:A:1891:G:C6 | 1:A:1892:C:C4 | 3.06 | 0.44 |
| 1:A:1926:U:O2' | 1:A:1927:A:H8 | 2.00 | 0.44 |
| 1:A:1945:G:C4 | 1:A:1946:U:C5 | 3.06 | 0.44 |
| 1:A:1967:C:O2' | 1:A:1968:G:P | 2.75 | 0.44 |
| 1:A:2000:G:N3 | 1:A:2001:A:C8 | 2.84 | 0.44 |
| 1:A:2007:C:C2' | 1:A:2008:C:H5' | 2.48 | 0.44 |
| 1:A:2039:C:H2' | 1:A:2040:C:C6 | 2.52 | 0.44 |
| 1:A:2039:C:C2 | 1:A:2040:C:C5 | 3.05 | 0.44 |
| 1:A:2390:U:C6 | 1:A:2390:U:OP2 | 2.71 | 0.44 |
| 1:A:2404:C:C4 | 1:A:2405:G:C6 | 3.05 | 0.44 |
| 1:A:2447:G:C3' | 1:A:2499:C:OP1 | 2.65 | 0.44 |
| 1:A:2592:G:C5 | 1:A:2593:U:C6 | 3.06 | 0.44 |
| 1:A:2630:G:C5 | 1:A:2894:G:C6 | 3.05 | 0.44 |
| 1:A:263:C:O2 | 1:A:264:C:O4' | 2.35 | 0.44 |
| 1:A:2639:A:N1 | 1:A:2640:G:H1' | 2.32 | 0.44 |
| 1:A:2718:G:C4 | 1:A:2719:G:C8 | 3.06 | 0.44 |
| 1:A:2808:U:C2 | 1:A:2892:A:N6 | 2.86 | 0.44 |
| 1:A:366:C:O5' | 1:A:366:C:H6 | 2.01 | 0.44 |
| 1:A:372:G:H5' | 1:A:372:G:N3 | 2.32 | 0.44 |
| 1:A:379:G:N1 | 1:A:396:G:C5 | 2.86 | 0.44 |
| 1:A:41:C:H2' | 1:A:43:G:C8 | 2.50 | 0.44 |
| 1:A:268:C:N3 | 1:A:425:G:C6 | 2.86 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:460:A:H3' | 1:A:461:C:H6 | 1.83 | 0.44 |
| 1:A:49:A:H1' | 1:A:118:A:N6 | 2.32 | 0.44 |
| 1:A:527:C:O2' | 1:A:528:A:C2 | 2.70 | 0.44 |
| 1:A:571:A:O2' | 1:A:573:G:N7 | 2.40 | 0.44 |
| 1:A:646:A:O2' | 1:A:647:G:C8 | 2.66 | 0.44 |
| 1:A:699:A:C8 | 1:A:699:A:C3' | 3.01 | 0.44 |
| 1:A:764:A:OP1 | 4:D:211:ARG:HA | 2.17 | 0.44 |
| 1:A:819:A:C5 | 1:A:1189:A:C6 | 3.06 | 0.44 |
| 1:A:819:A:O2' | 1:A:837:C:O2 | 2.36 | 0.44 |
| 1:A:864:G:C2' | 1:A:865:C:O4' | 2.65 | 0.44 |
| 1:A:975:G:N3 | 1:A:975:G:H2' | 2.33 | 0.44 |
| 1:A:983:A:C5 | 1:A:984:A:C6 | 3.06 | 0.44 |
| 1:A:998:C:H2' | 1:A:999:U:O4' | 2.18 | 0.44 |
| 2:B:54:G:N2 | 2:B:55:U:C2 | 2.86 | 0.44 |
| 4:D:168:ARG:CG | 4:D:173:VAL:HG22 | 2.48 | 0.44 |
| 1:A:2053:G:C3' | 5:E:145:LYS:HZ1 | 2.31 | 0.44 |
| 5:E:4:ILE:O | 5:E:5:LEU:HB3 | 2.17 | 0.44 |
| 6:F:140:LEU:O | 6:F:141:ALA:C | 2.56 | 0.44 |
| 6:F:38:ARG:NH1 | 13:O:10:PRO:CD | 2.80 | 0.44 |
| 6:F:62:ARG:HG3 | 6:F:63:LYS:CE | 2.47 | 0.44 |
| 6:F:78:ILE:C | 6:F:78:ILE:HD13 | 2.38 | 0.44 |
| 7:G:170:ARG:C | 7:G:172:LEU:N | 2.68 | 0.44 |
| 7:G:26:GLN:OE1 | 7:G:29:TRP:HE3 | 2.01 | 0.44 |
| 7:G:57:ALA:HA | 7:G:67:LYS:HA | 1.99 | 0.44 |
| 7:G:75:LYS:HD2 | 7:G:87:PRO:CD | 2.48 | 0.44 |
| 8:H:148:ILE:CG1 | 8:H:162:ILE:HD12 | 2.48 | 0.44 |
| 10:L:105:LEU:HD23 | 10:L:124:ALA:HB2 | 2.00 | 0.44 |
| 10:L:79:ARG:NH1 | 10:L:87:GLY:CA | 2.80 | 0.44 |
| 1:A:1007:C:O3' | 11:M:108:PRO:CG | 2.66 | 0.44 |
| 11:M:53:VAL:HG13 | 11:M:123:TYR:CE2 | 2.52 | 0.44 |
| 12:N:104:ARG:N | 12:N:107:ARG:HD2 | 2.33 | 0.44 |
| 13:O:130:PHE:CE1 | 13:O:145:PRO:HB2 | 2.52 | 0.44 |
| 13:O:135:LEU:H | 13:O:135:LEU:HD12 | 1.79 | 0.44 |
| 14:P:111:GLU:OE1 | 14:P:111:GLU:CA | 2.65 | 0.44 |
| 14:P:53:ALA:O | 14:P:56:ARG:HG3 | 2.18 | 0.44 |
| 15:Q:13:HIS:HD1 | 15:Q:14:SER:H | 1.66 | 0.44 |
| 15:Q:33:ARG:NH2 | 28:4:56:LYS:HG3 | 2.33 | 0.44 |
| 12:N:79:PHE:CE2 | 17:S:75:ILE:CD1 | 3.00 | 0.44 |
| 17:S:33:LYS:HG3 | 17:S:87:ASP:HB3 | 1.98 | 0.44 |
| 18:T:47:TYR:CE2 | 19:U:75:PHE:CB | 2.82 | 0.44 |
| 1:A:535:C:H5' | 18:T:49:HIS:CB | 2.47 | 0.44 |
| 1:A:1152:C:O3' | 18:T:80:ILE:CD1 | 2.66 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 19:U:31:ALA:O | 19:U:33:VAL:N | 2.51 | 0.44 |
| 19:U:64:HIS:HB3 | 19:U:96:ILE:CG2 | 2.44 | 0.44 |
| 18:T:47:TYR:HE2 | 19:U:75:PHE:C | 2.21 | 0.44 |
| 19:U:7:THR:HG23 | 19:U:11:GLN:CD | 2.37 | 0.44 |
| 1:A:2009:G:C5' | 20:V:40:ASN:HD21 | 2.30 | 0.44 |
| 20:V:2:GLU:O | 20:V:4:LYS:HE2 | 2.16 | 0.44 |
| 1:A:64:A:C2 | 21:W:66:LEU:HD13 | 2.53 | 0.44 |
| 22:X:14:LEU:CD2 | 22:X:17:SER:OG | 2.66 | 0.44 |
| 22:X:14:LEU:HD22 | 22:X:19:LYS:N | 2.29 | 0.44 |
| 22:X:35:TYR:HE1 | 22:X:65:ALA:O | 1.98 | 0.44 |
| 23:Y:51:ALA:O | 23:Y:54:HIS:N | 2.50 | 0.44 |
| 23:Y:73:GLN:C | 23:Y:87:ASP:HB2 | 2.33 | 0.44 |
| 23:Y:69:THR:OG1 | 23:Y:88:PHE:HB3 | 2.17 | 0.44 |
| 24:Z:72:ARG:HH11 | 24:Z:75:LEU:HD11 | 1.82 | 0.44 |
| 1:A:2161:C:O2' | 1:A:2162:G:C5' | 2.64 | 0.44 |
| 3:C:10:LEU:CG | 3:C:220:PRO:CG | 2.93 | 0.44 |
| 3:C:113:VAL:HG21 | 3:C:136:LEU:O | 2.17 | 0.44 |
| 3:C:120:MET:SD | 3:C:145:VAL:CG1 | 3.04 | 0.44 |
| 1:A:2175:C:OP2 | 3:C:5:LYS:HG2 | 2.17 | 0.44 |
| 1:A:1580:A:C2' | 1:A:1581:G:C1' | 2.95 | 0.44 |
| 1:A:2131:G:H8 | 1:A:2131:G:OP1 | 2.00 | 0.44 |
| 1:A:2373:G:C6 | 1:A:2374:C:N4 | 2.86 | 0.44 |
| 1:A:2465:C:O2 | 1:A:2465:C:H2' | 2.17 | 0.44 |
| 25:1:27:LEU:N | 25:1:27:LEU:CD1 | 2.81 | 0.44 |
| 27:3:59:PHE:CD1 | 27:3:59:PHE:N | 2.78 | 0.44 |
| 27:3:57:GLU:CA | 27:3:61:ARG:HG3 | 2.48 | 0.44 |
| 29:5:15:GLU:CD | 29:5:21:TYR:CB | 2.83 | 0.44 |
| 29:5:16:CYS:HB3 | 29:5:49:HIS:CE1 | 2.53 | 0.44 |
| 1:A:458:G:C2' | 30:6:40:TRP:CE2 | 3.01 | 0.44 |
| 31:7:5:LYS:HA | 31:7:60:LEU:HA | 2.00 | 0.44 |
| 32:8:10:ILE:CD1 | 32:8:32:HIS:CD2 | 3.01 | 0.44 |
| 32:8:1:MET:N | 32:8:33:LYS:CB | 2.62 | 0.44 |
| 32:8:11:CYS:N | 32:8:32:HIS:HE2 | 2.14 | 0.44 |
| 1:A:1004:C:O4' | 1:A:1010:A:C6 | 2.71 | 0.44 |
| 1:A:1024:G:C6 | 1:A:1025:G:N7 | 2.85 | 0.44 |
| 1:A:86:C:O2' | 1:A:104:U:H4' | 2.18 | 0.44 |
| 1:A:1022:G:O6 | 1:A:1139:G:C5 | 2.70 | 0.44 |
| 1:A:1225:C:N3 | 1:A:1226:G:N1 | 2.64 | 0.44 |
| 1:A:1471:A:N1 | 1:A:1473:G:C8 | 2.85 | 0.44 |
| 1:A:1515:C:C4 | 1:A:1516:U:N3 | 2.86 | 0.44 |
| 1:A:1678:G:C2' | 1:A:1679:U:H5' | 2.48 | 0.44 |
| 1:A:1743:G:C2' | 1:A:1746:G:O4' | 2.56 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1792:G:P | 4:D:206:LEU:HD21 | 2.58 | 0.44 |
| 1:A:1793:C:O2' | 1:A:1900:A:N6 | 2.50 | 0.44 |
| 1:A:1901:A:O2' | 1:A:1902:C:C5' | 2.65 | 0.44 |
| 1:A:1907:G:C6 | 1:A:1908:C:N4 | 2.86 | 0.44 |
| 1:A:1925:C:C2' | 1:A:1926:U:O5' | 2.65 | 0.44 |
| 1:A:981:A:H1' | 1:A:2037:G:C1' | 2.48 | 0.44 |
| 1:A:204:A:C4 | 1:A:206:U:C4 | 3.06 | 0.44 |
| 1:A:2081:C:C2' | 1:A:2082:A:C5' | 2.96 | 0.44 |
| 1:A:2081:C:H2' | 1:A:2082:A:C5' | 2.48 | 0.44 |
| 1:A:2081:C:H2' | 1:A:2082:A:H5' | 2.00 | 0.44 |
| 1:A:1853:A:H1' | 1:A:2233:U:O2' | 2.17 | 0.44 |
| 1:A:2305:A:O2' | 7:G:154:GLY:CA | 2.64 | 0.44 |
| 1:A:2307:G:H5'' | 1:A:2308:G:C8 | 2.47 | 0.44 |
| 1:A:2582:G:H8 | 1:A:2582:G:H5' | 1.79 | 0.44 |
| 1:A:2761:G:H2' | 1:A:2762:G:C5' | 2.45 | 0.44 |
| 1:A:291:C:C4 | 1:A:292:C:C4 | 3.06 | 0.44 |
| 1:A:301:G:C2 | 1:A:302:C:N3 | 2.86 | 0.44 |
| 1:A:35:G:N9 | 1:A:454:A:N3 | 2.66 | 0.44 |
| 1:A:463:G:N2 | 1:A:467:G:C5 | 2.86 | 0.44 |
| 1:A:670:A:C8 | 1:A:670:A:OP2 | 2.70 | 0.44 |
| 1:A:728:G:O4' | 1:A:729:G:C8 | 2.71 | 0.44 |
| 1:A:688:U:O2 | 1:A:787:U:H4' | 2.17 | 0.44 |
| 1:A:805:G:O6 | 1:A:2068:U:O5' | 2.36 | 0.44 |
| 1:A:807:U:O2' | 1:A:808:G:H5' | 2.17 | 0.44 |
| 1:A:852:G:N1 | 1:A:853:G:C5 | 2.85 | 0.44 |
| 1:A:860:U:H6 | 1:A:861:A:H5' | 1.83 | 0.44 |
| 2:B:104:A:N6 | 2:B:105:G:N2 | 2.66 | 0.44 |
| 2:B:54:G:O2' | 2:B:55:U:H5' | 2.18 | 0.44 |
| 4:D:131:LEU:HD12 | 4:D:131:LEU:HA | 1.39 | 0.44 |
| 4:D:161:THR:HA | 4:D:195:ALA:HB1 | 1.99 | 0.44 |
| 4:D:23:GLU:CD | 4:D:204:ILE:HD12 | 2.37 | 0.44 |
| 4:D:28:GLU:C | 4:D:30:GLU:HG3 | 2.38 | 0.44 |
| 4:D:7:LYS:HE2 | 4:D:27:THR:OG1 | 2.17 | 0.44 |
| 4:D:29:PRO:HD3 | 4:D:82:ILE:HG22 | 1.99 | 0.44 |
| 1:A:1567:A:N1 | 4:D:86:PRO:CD | 2.81 | 0.44 |
| 4:D:95:LEU:HD23 | 4:D:95:LEU:C | 2.38 | 0.44 |
| 5:E:151:TYR:OH | 5:E:152:LYS:HE2 | 2.18 | 0.44 |
| 5:E:61:ARG:CB | 5:E:62:PRO:HD3 | 2.48 | 0.44 |
| 6:F:194:MET:SD | 6:F:195:ASP:N | 2.90 | 0.44 |
| 7:G:139:LEU:O | 7:G:142:PRO:CD | 2.66 | 0.44 |
| 7:G:171:ALA:O | 7:G:174:GLU:HB3 | 2.17 | 0.44 |
| 7:G:37:VAL:HG12 | 7:G:157:ILE:HD11 | 2.00 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:87:PRO:O | 7:G:88:ILE:CG1 | 2.66 | 0.44 |
| 8:H:98:LEU:HD22 | 8:H:100:GLY:O | 2.18 | 0.44 |
| 8:H:103:LEU:HB3 | 8:H:104:GLU:H | 1.52 | 0.44 |
| 1:A:2746:U:C5' | 8:H:139:GLN:HA | 2.47 | 0.44 |
| 8:H:35:VAL:HG11 | 8:H:75:ALA:CB | 2.35 | 0.44 |
| 9:K:37:VAL:CG1 | 9:K:38:LEU:N | 2.56 | 0.44 |
| 10:L:72:PRO:O | 10:L:73:PRO:C | 2.56 | 0.44 |
| 11:M:25:ARG:HA | 11:M:28:THR:HG23 | 1.98 | 0.44 |
| 11:M:25:ARG:HH21 | 11:M:26:LEU:HB2 | 1.83 | 0.44 |
| 12:N:28:SER:O | 12:N:29:ASN:HB2 | 2.18 | 0.44 |
| 14:P:34:LEU:HB2 | 14:P:103:MET:HB2 | 2.00 | 0.44 |
| 14:P:6:ARG:HB2 | 14:P:45:GLN:OE1 | 2.17 | 0.44 |
| 1:A:1287:A:H5' | 15:Q:104:ARG:HG3 | 2.00 | 0.44 |
| 15:Q:34:ILE:CG2 | 15:Q:35:THR:N | 2.80 | 0.44 |
| 15:Q:5:LYS:HE2 | 15:Q:5:LYS:HA | 1.98 | 0.44 |
| 15:Q:74:LYS:HB2 | 15:Q:74:LYS:HZ3 | 1.83 | 0.44 |
| 18:T:17:ILE:O | 18:T:20:LEU:HG | 2.17 | 0.44 |
| 18:T:52:ARG:CA | 18:T:55:ARG:HD3 | 2.47 | 0.44 |
| 19:U:14:VAL:HG13 | 19:U:19:LYS:HE2 | 1.99 | 0.44 |
| 19:U:43:GLU:H | 19:U:44:LYS:CE | 2.30 | 0.44 |
| 19:U:43:GLU:HA | 19:U:47:VAL:O | 2.18 | 0.44 |
| 19:U:93:GLU:CD | 19:U:95:LEU:CD2 | 2.85 | 0.44 |
| 20:V:51:LEU:HD13 | 20:V:51:LEU:H | 1.82 | 0.44 |
| 20:V:25:ARG:HA | 20:V:71:VAL:HG21 | 1.99 | 0.44 |
| 20:V:75:TYR:O | 20:V:104:THR:HG22 | 2.17 | 0.44 |
| 1:A:26:G:OP1 | 20:V:80:PRO:HG3 | 2.17 | 0.44 |
| 23:Y:110:GLY:C | 23:Y:112:ARG:H | 2.21 | 0.44 |
| 23:Y:6:LYS:CA | 23:Y:37:VAL:HG13 | 2.44 | 0.44 |
| 24:Z:46:LYS:HE3 | 24:Z:77:ARG:H | 1.82 | 0.44 |
| 9:K:79:ILE:O | 9:K:144:VAL:HA | 2.18 | 0.44 |
| 3:C:212:VAL:HG11 | 3:C:226:PRO:HD3 | 1.99 | 0.44 |
| 3:C:23:ASP:O | 3:C:24:GLU:C | 2.55 | 0.44 |
| 3:C:59:ARG:CG | 3:C:60:GLY:N | 2.80 | 0.44 |
| 1:A:2193:G:N3 | 1:A:2194:G:C8 | 2.86 | 0.44 |
| 25:1:20:VAL:HG13 | 25:1:21:ARG:N | 2.32 | 0.44 |
| 25:1:51:GLN:HA | 25:1:54:ARG:CD | 2.46 | 0.44 |
| 25:1:50:ARG:CB | 25:1:54:ARG:HH22 | 2.28 | 0.44 |
| 1:A:1158:C:H4' | 26:2:32:GLN:NE2 | 2.33 | 0.44 |
| 27:3:50:VAL:C | 27:3:51:ASP:CG | 2.77 | 0.44 |
| 27:3:65:ASP:O | 27:3:69:LYS:CB | 2.66 | 0.44 |
| 28:4:48:GLU:N | 28:4:48:GLU:OE2 | 2.51 | 0.44 |
| 30:6:8:ASN:ND2 | 30:6:10:ARG:N | 2.64 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|-----------------|-------------|----------|
| 1:A:1000:A:N7 | 1:A:1001:A:C5 | 2.85 | 0.44 |
| 1:A:1029:A:C2' | 1:A:1030:G:C5' | 2.92 | 0.44 |
| 1:A:1062:G:N9 | 10:L:133:SER:OG | 2.51 | 0.44 |
| 1:A:1065:U:C3' | 1:A:1066:U:C5' | 2.95 | 0.44 |
| 1:A:1055:G:N2 | 1:A:1084:A:O2' | 2.51 | 0.44 |
| 1:A:1057:A:H61 | 1:A:1086:A:H2 | 1.66 | 0.44 |
| 1:A:1090:U:O2 | 1:A:1090:U:H2' | 2.18 | 0.44 |
| 1:A:1111:A:O3' | 1:A:1112:G:C4' | 2.66 | 0.44 |
| 1:A:72:U:H5 | 1:A:112:U:O2 | 2.00 | 0.44 |
| 1:A:1204:A:C8 | 13:O:6:LEU:HD12 | 2.52 | 0.44 |
| 1:A:1205:U:O5' | 1:A:1206:G:OP1 | 2.36 | 0.44 |
| 1:A:120:U:C1' | 1:A:149:A:N3 | 2.81 | 0.44 |
| 1:A:1226:G:C8 | 1:A:1226:G:C3' | 3.00 | 0.44 |
| 1:A:1335:U:H2' | 1:A:1336:A:H8 | 1.83 | 0.44 |
| 1:A:1364:G:C2 | 1:A:1368:G:C4 | 3.06 | 0.44 |
| 1:A:1466:G:O5' | 1:A:1466:G:H8 | 2.01 | 0.44 |
| 1:A:1523:U:C4 | 1:A:1524:G:N7 | 2.85 | 0.44 |
| 1:A:1534:G:N2 | 1:A:1537:C:H5 | 2.15 | 0.44 |
| 1:A:1550:C:N3 | 1:A:1551:C:C5 | 2.86 | 0.44 |
| 1:A:1743:G:C6 | 1:A:1746:G:C5 | 3.06 | 0.44 |
| 1:A:1779:U:C1' | 1:A:1783:A:N6 | 2.80 | 0.44 |
| 1:A:1802:A:OP1 | 1:A:1814:G:N1 | 2.48 | 0.44 |
| 1:A:1849:G:C6 | 1:A:1850:G:N7 | 2.86 | 0.44 |
| 1:A:1979:C:O2 | 1:A:1979:C:H2' | 2.17 | 0.44 |
| 1:A:2016:U:C2 | 1:A:2017:U:C6 | 3.06 | 0.44 |
| 1:A:19:C:N3 | 1:A:20:C:C5 | 2.86 | 0.44 |
| 1:A:2213:U:C5' | 1:A:2215:G:C5 | 2.85 | 0.44 |
| 1:A:2280:G:C6 | 1:A:2281:C:N4 | 2.85 | 0.44 |
| 1:A:2348:U:H2' | 1:A:2349:G:O5' | 2.18 | 0.44 |
| 1:A:2361:A:H3' | 1:A:2362:G:H8 | 1.83 | 0.44 |
| 1:A:2376:A:C2 | 1:A:2377:A:N3 | 2.86 | 0.44 |
| 1:A:2436:G:H2' | 1:A:2437:U:O4' | 2.17 | 0.44 |
| 1:A:2483:C:C4 | 1:A:2484:G:C8 | 3.05 | 0.44 |
| 1:A:240:G:N2 | 1:A:256:A:N7 | 2.66 | 0.44 |
| 1:A:2588:G:O6 | 1:A:2607:G:O6 | 2.36 | 0.44 |
| 1:A:265:A:C5 | 1:A:266:G:H1' | 2.51 | 0.44 |
| 1:A:2777:G:C4' | 1:A:2778:A:O5' | 2.63 | 0.44 |
| 1:A:2808:U:O2' | 1:A:2810:A:O5' | 2.35 | 0.44 |
| 1:A:284:U:H2' | 1:A:285:C:C6 | 2.53 | 0.44 |
| 1:A:2861:G:O2' | 1:A:2862:G:H5' | 2.18 | 0.44 |
| 1:A:2848:G:C2 | 1:A:2867:G:N3 | 2.85 | 0.44 |
| 1:A:303:U:C2' | 1:A:304:G:H5' | 2.47 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:329:G:H1' | 1:A:477:A:H1' | 1.99 | 0.44 |
| 1:A:333:G:C6 | 1:A:334:C:N4 | 2.85 | 0.44 |
| 1:A:447:A:C8 | 1:A:473:G:C6 | 3.06 | 0.44 |
| 1:A:43:G:C2' | 1:A:44:A:H5' | 2.47 | 0.44 |
| 1:A:506:G:H4' | 1:A:509:C:H1' | 2.00 | 0.44 |
| 1:A:594:U:H4' | 31:7:58:ILE:HG21 | 1.99 | 0.44 |
| 1:A:603:A:N6 | 1:A:625:G:C8 | 2.86 | 0.44 |
| 1:A:606:U:C2' | 1:A:607:U:OP2 | 2.65 | 0.44 |
| 1:A:618:G:C8 | 1:A:618(A):C:H5 | 2.33 | 0.44 |
| 1:A:704:G:HO2' | 1:A:705:A:P | 2.36 | 0.44 |
| 1:A:789:A:C4' | 1:A:790:C:OP1 | 2.49 | 0.44 |
| 1:A:830:G:H2' | 1:A:830:G:N3 | 2.33 | 0.44 |
| 1:A:930:U:C3' | 1:A:930:U:C6 | 3.01 | 0.44 |
| 2:B:100:G:C3' | 2:B:101:A:H8 | 2.31 | 0.44 |
| 2:B:16:G:C6 | 2:B:17:C:C4 | 3.06 | 0.44 |
| 2:B:73:A:O2' | 2:B:74:U:C5' | 2.65 | 0.44 |
| 2:B:76:G:C8 | 2:B:76:G:C3' | 3.00 | 0.44 |
| 2:B:99:A:H2' | 2:B:100:G:C5' | 2.48 | 0.44 |
| 4:D:16:MET:O | 4:D:17:THR:O | 2.35 | 0.44 |
| 4:D:25:THR:O | 4:D:27:THR:N | 2.49 | 0.44 |
| 4:D:62:TYR:HE1 | 4:D:86:PRO:O | 2.00 | 0.44 |
| 5:E:147:PRO:CG | 5:E:148:GLY:N | 2.80 | 0.44 |
| 5:E:119:ARG:CD | 5:E:156:MET:H | 2.31 | 0.44 |
| 5:E:173:VAL:CG2 | 5:E:183:LEU:O | 2.63 | 0.44 |
| 5:E:6:GLY:HA2 | 5:E:194:GLY:O | 2.17 | 0.44 |
| 5:E:198:VAL:HG12 | 5:E:200:GLU:OE1 | 2.18 | 0.44 |
| 5:E:26:ILE:HG23 | 5:E:26:ILE:O | 2.18 | 0.44 |
| 6:F:116:ASP:HA | 6:F:119:ARG:CG | 2.47 | 0.44 |
| 6:F:120:GLU:OE1 | 6:F:120:GLU:HA | 2.16 | 0.44 |
| 6:F:12:LEU:O | 6:F:12:LEU:HG | 2.18 | 0.44 |
| 6:F:83:PHE:C | 6:F:83:PHE:CD2 | 2.89 | 0.44 |
| 7:G:64:THR:HB | 7:G:102:PHE:CZ | 2.53 | 0.44 |
| 7:G:43:LEU:CD1 | 7:G:89:GLY:HA2 | 2.45 | 0.44 |
| 7:G:37:VAL:N | 7:G:99:MET:SD | 2.91 | 0.44 |
| 8:H:40:GLU:HG3 | 8:H:61:HIS:HE2 | 1.83 | 0.44 |
| 8:H:63:SER:C | 8:H:67:LEU:HD23 | 2.38 | 0.44 |
| 8:H:7:LEU:HD22 | 8:H:65:HIS:NE2 | 2.33 | 0.44 |
| 10:L:113:PRO:O | 10:L:115:LEU:N | 2.51 | 0.44 |
| 12:N:17:ARG:NH2 | 12:N:98:VAL:CG2 | 2.62 | 0.44 |
| 12:N:16:ALA:CB | 12:N:45:GLU:O | 2.66 | 0.44 |
| 12:N:72:PRO:O | 12:N:73:ASP:HB2 | 2.17 | 0.44 |
| 12:N:10:VAL:HA | 12:N:83:ALA:O | 2.18 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 13:O:45:LEU:CB | 13:O:46:LYS:HE3 | 2.47 | 0.44 |
| 13:O:80:TYR:O | 13:O:81:GLN:C | 2.55 | 0.44 |
| 14:P:134:ARG:HD3 | 14:P:137:TYR:H | 1.82 | 0.44 |
| 1:A:2723:C:HO2' | 15:Q:2:ARG:N | 2.16 | 0.44 |
| 15:Q:53:HIS:CE1 | 15:Q:56:LYS:NZ | 2.86 | 0.44 |
| 15:Q:63:ARG:O | 15:Q:64:ARG:C | 2.56 | 0.44 |
| 16:R:17:ARG:HD2 | 16:R:89:ARG:HD2 | 1.99 | 0.44 |
| 2:B:50:G:P | 16:R:63:THR:OG1 | 2.76 | 0.44 |
| 17:S:20:PRO:HB3 | 17:S:22:PHE:CE1 | 2.53 | 0.44 |
| 17:S:65:LYS:HA | 17:S:76:PHE:C | 2.39 | 0.44 |
| 18:T:14:HIS:O | 18:T:17:ILE:HB | 2.18 | 0.44 |
| 1:A:1010:A:C5' | 18:T:66:ASN:OD1 | 2.66 | 0.44 |
| 21:W:51:VAL:HG13 | 21:W:81:VAL:CG2 | 2.36 | 0.44 |
| 21:W:29:TRP:CE3 | 21:W:78:LYS:HB2 | 2.53 | 0.44 |
| 21:W:26:TYR:CE2 | 21:W:89:ILE:HG21 | 2.53 | 0.44 |
| 22:X:83:THR:HG22 | 22:X:84:ARG:N | 2.33 | 0.44 |
| 23:Y:134:PRO:HB2 | 23:Y:135:GLU:H | 1.60 | 0.44 |
| 23:Y:2:GLU:OE1 | 23:Y:58:VAL:O | 2.34 | 0.44 |
| 23:Y:28:MET:O | 23:Y:34:ASN:ND2 | 2.51 | 0.44 |
| 23:Y:10:ARG:CZ | 23:Y:36:LYS:CB | 2.96 | 0.44 |
| 24:Z:82:ARG:NH1 | 24:Z:83:PRO:O | 2.50 | 0.44 |
| 1:A:2123:G:H2' | 1:A:2124:G:C8 | 2.53 | 0.44 |
| 3:C:103:ILE:HD11 | 3:C:110:PHE:CE2 | 2.52 | 0.44 |
| 3:C:74:VAL:CG2 | 3:C:156:ILE:HD13 | 2.43 | 0.44 |
| 3:C:4:GLY:O | 3:C:5:LYS:CG | 2.64 | 0.44 |
| 1:A:2195:C:HO2' | 1:A:2196:C:C4' | 2.31 | 0.44 |
| 1:A:32:C:C2 | 1:A:474:G:N2 | 2.86 | 0.44 |
| 25:1:11:LEU:N | 25:1:11:LEU:CD1 | 2.80 | 0.44 |
| 25:1:28:MET:O | 25:1:31:ARG:N | 2.51 | 0.44 |
| 27:3:17:GLY:HA2 | 27:3:33:VAL:HG11 | 1.99 | 0.44 |
| 1:A:1365:A:O2' | 27:3:1:MET:CE | 2.66 | 0.44 |
| 29:5:33:LYS:NZ | 29:5:34:LEU:CD2 | 2.76 | 0.44 |
| 31:7:5:LYS:CA | 31:7:60:LEU:HA | 2.48 | 0.44 |
| 31:7:4:MET:CE | 31:7:62:LEU:HD12 | 2.48 | 0.44 |
| 32:8:19:ARG:HD2 | 32:8:24:TYR:CD2 | 2.51 | 0.44 |
| 32:8:19:ARG:O | 32:8:22:ARG:CG | 2.65 | 0.44 |
| 1:A:1050:A:H2' | 1:A:1051:G:C8 | 2.53 | 0.44 |
| 1:A:1096:A:C8 | 1:A:1097:U:C6 | 3.06 | 0.44 |
| 1:A:1204:A:H2 | 6:F:188:ARG:O | 2.01 | 0.44 |
| 1:A:1243:G:C6 | 1:A:1244:G:C5 | 3.06 | 0.44 |
| 1:A:489:G:C8 | 1:A:1284:A:C4 | 3.05 | 0.44 |
| 1:A:11:G:H2' | 1:A:12:U:C6 | 2.53 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1305:C:C2 | 1:A:1306:C:C5 | 3.06 | 0.44 |
| 1:A:1378:A:C6 | 1:A:1380:G:N3 | 2.86 | 0.44 |
| 1:A:141(A):C:C2' | 1:A:142:G:O5' | 2.66 | 0.44 |
| 1:A:1446:C:C4 | 1:A:1466:G:N2 | 2.86 | 0.44 |
| 1:A:1530:G:N2 | 1:A:1542:G:N1 | 2.65 | 0.44 |
| 1:A:1542:G:O6 | 1:A:1544:C:N4 | 2.50 | 0.44 |
| 1:A:1668:A:C2' | 1:A:1669:A:OP2 | 2.66 | 0.44 |
| 1:A:1674:G:H21 | 1:A:1676:A:N6 | 2.15 | 0.44 |
| 1:A:15:G:HO2' | 1:A:16:G:H5' | 1.80 | 0.44 |
| 1:A:1769:G:C4 | 1:A:1770:G:N7 | 2.86 | 0.44 |
| 1:A:175:G:N1 | 1:A:176:G:C4 | 2.85 | 0.44 |
| 1:A:1853:A:C6 | 1:A:1854:A:C5 | 3.06 | 0.44 |
| 1:A:1863:G:C2' | 1:A:1864:U:C6 | 2.82 | 0.44 |
| 1:A:1918:A:C8 | 1:A:1919:A:C6 | 3.05 | 0.44 |
| 1:A:1919:A:OP2 | 1:A:1920:C:C5 | 2.70 | 0.44 |
| 1:A:204:A:C2 | 1:A:206:U:O4 | 2.70 | 0.44 |
| 1:A:2213:U:H3' | 1:A:2215:G:C8 | 2.52 | 0.44 |
| 1:A:2228:G:H5' | 1:A:2229:C:OP2 | 2.18 | 0.44 |
| 1:A:2262:U:C2 | 1:A:2263:C:C5 | 3.06 | 0.44 |
| 1:A:2334:G:H21 | 16:R:11:LYS:HZ2 | 1.65 | 0.44 |
| 1:A:2533:A:C8 | 1:A:2534:A:N7 | 2.86 | 0.44 |
| 1:A:2595:G:C8 | 1:A:2595:G:C3' | 3.00 | 0.44 |
| 1:A:2665:A:C8 | 1:A:2665:A:C4' | 2.95 | 0.44 |
| 1:A:266:G:N2 | 1:A:267:C:H1' | 2.33 | 0.44 |
| 1:A:2749:A:O2' | 8:H:62:LYS:HE3 | 2.18 | 0.44 |
| 1:A:2787:C:H1' | 5:E:61:ARG:CZ | 2.48 | 0.44 |
| 1:A:2888:C:C2 | 1:A:2889:C:C5 | 3.06 | 0.44 |
| 1:A:325:G:O2' | 1:A:326:G:H5' | 2.18 | 0.44 |
| 1:A:354:G:C2' | 1:A:355:G:O4' | 2.66 | 0.44 |
| 1:A:376:C:N4 | 1:A:377:C:H41 | 2.15 | 0.44 |
| 1:A:387:U:C4' | 1:A:388:G:O4' | 2.56 | 0.44 |
| 1:A:426:C:H2' | 1:A:427:U:C5 | 2.53 | 0.44 |
| 1:A:434:U:O2' | 1:A:435:C:P | 2.76 | 0.44 |
| 1:A:570:G:H1 | 1:A:2498:C:C4' | 2.30 | 0.44 |
| 1:A:627:A:C4 | 1:A:637:A:C5 | 3.06 | 0.44 |
| 1:A:662:G:C2' | 1:A:663:G:H8 | 2.31 | 0.44 |
| 1:A:698:C:N3 | 1:A:762:U:C5 | 2.86 | 0.44 |
| 1:A:730:C:C2' | 1:A:731:C:C5' | 2.94 | 0.44 |
| 1:A:886:C:H5'' | 1:A:887:A:O4' | 2.18 | 0.44 |
| 1:A:962:G:C2 | 1:A:963:U:N3 | 2.85 | 0.44 |
| 1:A:972:G:C6 | 1:A:973:A:N6 | 2.80 | 0.44 |
| 2:B:9:G:C2 | 2:B:10:C:C4 | 3.06 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:165:ILE:CD1 | 4:D:165:ILE:N | 2.80 | 0.44 |
| 4:D:7:LYS:CE | 4:D:27:THR:OG1 | 2.65 | 0.44 |
| 4:D:5:LYS:HD3 | 4:D:28:GLU:O | 2.17 | 0.44 |
| 4:D:74:GLY:O | 4:D:76:PRO:N | 2.50 | 0.44 |
| 5:E:143:ASN:HB2 | 5:E:146:THR:OG1 | 2.18 | 0.44 |
| 6:F:201:VAL:CA | 6:F:204:ASN:HD21 | 2.15 | 0.44 |
| 7:G:111:LEU:HD21 | 7:G:178:PHE:CG | 2.51 | 0.44 |
| 7:G:17:PRO:O | 7:G:18:GLU:C | 2.54 | 0.44 |
| 8:H:84:SER:CA | 8:H:134:SER:HA | 2.37 | 0.44 |
| 8:H:139:GLN:O | 8:H:141:VAL:N | 2.51 | 0.44 |
| 8:H:88:LEU:HD23 | 8:H:89:ILE:N | 2.33 | 0.44 |
| 8:H:98:LEU:HD22 | 8:H:100:GLY:C | 2.38 | 0.44 |
| 10:L:10:LEU:HD21 | 10:L:41:PHE:HZ | 1.83 | 0.44 |
| 10:L:116:ASN:C | 10:L:118:THR:H | 2.21 | 0.44 |
| 11:M:57:ALA:H | 11:M:124:ALA:CA | 2.25 | 0.44 |
| 5:E:152:LYS:NZ | 11:M:77:GLY:HA3 | 2.33 | 0.44 |
| 11:M:86:PRO:CD | 11:M:89:LYS:HE2 | 2.46 | 0.44 |
| 11:M:88:GLU:CA | 11:M:89:LYS:NZ | 2.81 | 0.44 |
| 13:O:9:ASN:O | 13:O:10:PRO:C | 2.55 | 0.44 |
| 13:O:124:LYS:C | 13:O:125:VAL:HG23 | 2.37 | 0.44 |
| 13:O:60:MET:SD | 13:O:62:LEU:CD1 | 3.02 | 0.44 |
| 14:P:102:VAL:HG21 | 14:P:104:PHE:CZ | 2.53 | 0.44 |
| 14:P:109:VAL:HG13 | 14:P:109:VAL:O | 2.18 | 0.44 |
| 14:P:139:GLU:OE1 | 14:P:140:ALA:O | 2.36 | 0.44 |
| 15:Q:104:ARG:O | 15:Q:105:ARG:NH2 | 2.51 | 0.44 |
| 15:Q:67:LEU:HD21 | 15:Q:72:ASP:N | 2.33 | 0.44 |
| 15:Q:74:LYS:NZ | 15:Q:74:LYS:CB | 2.80 | 0.44 |
| 16:R:106:ARG:HD2 | 16:R:107:GLU:CD | 2.37 | 0.44 |
| 16:R:13:ARG:NH2 | 16:R:92:TYR:H | 2.12 | 0.44 |
| 16:R:70:GLY:O | 16:R:73:LEU:N | 2.51 | 0.44 |
| 1:A:2377:A:C2 | 16:R:87:PHE:CE2 | 3.06 | 0.44 |
| 17:S:23:ARG:HH21 | 17:S:90:GLN:H | 1.60 | 0.44 |
| 22:X:6:HIS:CB | 22:X:71:LYS:HE2 | 2.48 | 0.44 |
| 23:Y:94:GLU:H | 23:Y:95:PRO:HD2 | 1.64 | 0.44 |
| 9:K:139:GLN:CD | 9:K:139:GLN:N | 2.71 | 0.44 |
| 3:C:59:ARG:HD2 | 3:C:162:GLU:OE2 | 2.18 | 0.44 |
| 1:A:1417:C:H3' | 1:A:1418:G:H8 | 1.80 | 0.44 |
| 1:A:2185:C:C4 | 1:A:2186:G:N7 | 2.85 | 0.44 |
| 1:A:2671:A:H2' | 1:A:2672:G:O4' | 2.18 | 0.44 |
| 1:A:1413:G:C6 | 1:A:1414:G:C8 | 3.06 | 0.44 |
| 25:1:28:MET:O | 25:1:29:GLU:C | 2.55 | 0.43 |
| 27:3:70:GLY:O | 27:3:71:ARG:CB | 2.65 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 28:4:10:LYS:HA | 28:4:15:ARG:HH21 | 1.83 | 0.43 |
| 29:5:29:ASN:ND2 | 29:5:29:ASN:H | 2.16 | 0.43 |
| 1:A:2286:A:H1' | 29:5:37:ARG:NH2 | 2.33 | 0.43 |
| 29:5:41:PRO:HB2 | 29:5:43:CYS:H | 1.83 | 0.43 |
| 1:A:126:A:OP2 | 30:6:19:ARG:HB2 | 2.18 | 0.43 |
| 1:A:1004:C:O5' | 1:A:1004:C:H6 | 2.00 | 0.43 |
| 1:A:1183:G:O2' | 1:A:1184:G:OP2 | 2.33 | 0.43 |
| 1:A:1275:A:N7 | 1:A:1296:G:C1' | 2.80 | 0.43 |
| 1:A:1309:G:OP1 | 30:6:9:ARG:HB2 | 2.17 | 0.43 |
| 1:A:1343:G:H3' | 1:A:1344:G:H5'' | 1.99 | 0.43 |
| 1:A:1364:G:C8 | 1:A:1364:G:OP1 | 2.71 | 0.43 |
| 1:A:1409:C:O2' | 1:A:1410:G:H5' | 2.18 | 0.43 |
| 1:A:1438:U:C4 | 1:A:1553:A:N6 | 2.81 | 0.43 |
| 1:A:1499:C:H2' | 1:A:1500:G:C8 | 2.53 | 0.43 |
| 1:A:149:A:C5 | 1:A:150:C:C4 | 3.06 | 0.43 |
| 1:A:1700:A:H5' | 1:A:1701:A:H8 | 1.83 | 0.43 |
| 1:A:1791:A:C2 | 1:A:1829:A:H4' | 2.53 | 0.43 |
| 1:A:1791:A:H2' | 1:A:1792:G:O5' | 2.17 | 0.43 |
| 1:A:1793:C:H2' | 1:A:1794:U:C6 | 2.53 | 0.43 |
| 1:A:1790:C:C5' | 1:A:1828:G:H22 | 2.31 | 0.43 |
| 1:A:1905:C:H2' | 1:A:1930:G:C8 | 2.53 | 0.43 |
| 1:A:194:G:H2' | 1:A:195:A:H8 | 1.83 | 0.43 |
| 1:A:1773:A:H2 | 1:A:1977:A:N6 | 2.14 | 0.43 |
| 1:A:2019:A:O5' | 1:A:2019:A:H8 | 2.00 | 0.43 |
| 1:A:2040:C:C4 | 1:A:2041:U:C5 | 3.05 | 0.43 |
| 1:A:2078:C:H5' | 1:A:2434:A:C4' | 2.48 | 0.43 |
| 1:A:2277:G:C5 | 1:A:2278:A:N7 | 2.85 | 0.43 |
| 1:A:2376:A:C2 | 1:A:2377:A:C4 | 3.05 | 0.43 |
| 1:A:2378:A:N3 | 1:A:2378:A:C2' | 2.81 | 0.43 |
| 1:A:2414:G:N1 | 1:A:2415:G:N7 | 2.65 | 0.43 |
| 1:A:2422:A:N3 | 1:A:2424:C:C4 | 2.86 | 0.43 |
| 1:A:2428:G:H4' | 1:A:2429:G:O5' | 2.18 | 0.43 |
| 1:A:2439:A:H4' | 1:A:2440:C:H5'' | 1.99 | 0.43 |
| 1:A:2441:C:H2' | 1:A:2442:C:H6 | 1.83 | 0.43 |
| 1:A:2525:G:C2 | 1:A:2539:C:N4 | 2.86 | 0.43 |
| 1:A:2531:A:O2' | 1:A:2532:G:H5' | 2.17 | 0.43 |
| 1:A:2560:C:C2' | 1:A:2560:C:O2 | 2.57 | 0.43 |
| 1:A:1966:A:C4 | 1:A:2593:U:H5' | 2.53 | 0.43 |
| 1:A:2674:G:H2' | 1:A:2675:A:H8 | 1.75 | 0.43 |
| 1:A:2779:U:C4' | 1:A:2779:U:C6 | 3.01 | 0.43 |
| 1:A:2784:C:H1' | 5:E:41:LYS:HZ3 | 1.80 | 0.43 |
| 1:A:279:C:N4 | 1:A:359:A:C2 | 2.86 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:11:G:O2' | 1:A:2802:G:OP2 | 2.28 | 0.43 |
| 1:A:2846:G:C2' | 1:A:2846:G:N3 | 2.78 | 0.43 |
| 1:A:285:C:C2 | 1:A:357:A:C2 | 3.06 | 0.43 |
| 1:A:493:G:N2 | 1:A:494:G:C4 | 2.85 | 0.43 |
| 1:A:553:U:H2' | 1:A:554:U:C6 | 2.53 | 0.43 |
| 1:A:596:G:N9 | 1:A:662:G:N2 | 2.66 | 0.43 |
| 1:A:66:C:C2' | 1:A:66:C:O2 | 2.66 | 0.43 |
| 1:A:729:G:N3 | 1:A:730:C:H1' | 2.32 | 0.43 |
| 1:A:702:G:C2 | 1:A:731:C:N3 | 2.86 | 0.43 |
| 1:A:73:A:O5' | 1:A:73:A:H8 | 2.01 | 0.43 |
| 1:A:751:A:OP1 | 1:A:1614:A:OP1 | 2.36 | 0.43 |
| 1:A:797:C:H2' | 1:A:798:G:O5' | 2.17 | 0.43 |
| 1:A:849:A:O2' | 1:A:850:C:H5' | 2.18 | 0.43 |
| 1:A:852:G:C6 | 1:A:926:A:C6 | 3.06 | 0.43 |
| 1:A:853:G:N3 | 1:A:854:G:C8 | 2.86 | 0.43 |
| 1:A:864:G:H2' | 1:A:865:C:O4' | 2.17 | 0.43 |
| 1:A:848:G:C2 | 1:A:933:A:C4 | 3.05 | 0.43 |
| 1:A:942:G:O2' | 1:A:943:U:OP1 | 2.36 | 0.43 |
| 1:A:977:G:C5 | 1:A:987:G:N1 | 2.86 | 0.43 |
| 2:B:39:A:C2 | 2:B:44:G:C4 | 3.06 | 0.43 |
| 2:B:7:G:O2' | 2:B:8:U:OP1 | 2.36 | 0.43 |
| 4:D:147:LEU:H | 4:D:154:LYS:HG2 | 1.83 | 0.43 |
| 4:D:53:PHE:CD2 | 4:D:221:VAL:HG22 | 2.53 | 0.43 |
| 4:D:88:ARG:HD3 | 4:D:89:SER:N | 2.24 | 0.43 |
| 5:E:118:LYS:NZ | 5:E:118:LYS:CB | 2.81 | 0.43 |
| 1:A:659:C:C5' | 6:F:102:PRO:HD3 | 2.48 | 0.43 |
| 6:F:126:VAL:HB | 6:F:197:ASP:CG | 2.38 | 0.43 |
| 6:F:153:SER:HG | 6:F:190:GLU:H | 1.65 | 0.43 |
| 6:F:203:GLN:C | 6:F:205:ARG:N | 2.70 | 0.43 |
| 6:F:39:TRP:CZ3 | 6:F:43:LYS:CB | 2.98 | 0.43 |
| 7:G:102:PHE:CD2 | 7:G:106:LEU:CD1 | 2.89 | 0.43 |
| 7:G:108:ASN:OD1 | 7:G:111:LEU:CD2 | 2.62 | 0.43 |
| 7:G:110:ALA:O | 7:G:113:ARG:HD3 | 2.17 | 0.43 |
| 1:A:2306:C:OP1 | 7:G:136:ARG:HD3 | 2.18 | 0.43 |
| 8:H:45:VAL:HA | 8:H:49:VAL:O | 2.18 | 0.43 |
| 8:H:85:LYS:HD3 | 8:H:145:ALA:HB1 | 1.99 | 0.43 |
| 9:K:22:LYS:HB2 | 9:K:25:TYR:CG | 2.53 | 0.43 |
| 9:K:47:LEU:O | 9:K:48:GLU:C | 2.57 | 0.43 |
| 10:L:39:LYS:O | 10:L:42:ASN:HB2 | 2.18 | 0.43 |
| 11:M:27:ALA:O | 11:M:30:ILE:N | 2.51 | 0.43 |
| 11:M:29:LYS:O | 11:M:31:ALA:N | 2.51 | 0.43 |
| 11:M:3:THR:HG22 | 11:M:4:TYR:N | 2.32 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1140:C:OP2 | 11:M:63:THR:CG2 | 2.65 | 0.43 |
| 11:M:69:GLN:NE2 | 11:M:69:GLN:H | 2.14 | 0.43 |
| 1:A:1130:U:O2' | 11:M:79:PRO:HD3 | 2.17 | 0.43 |
| 12:N:88:ASN:C | 12:N:90:GLN:N | 2.71 | 0.43 |
| 13:O:77:ARG:HB2 | 13:O:115:LEU:CD2 | 2.47 | 0.43 |
| 14:P:127:ILE:HB | 14:P:128:LYS:H | 1.24 | 0.43 |
| 1:A:911:A:H2 | 14:P:13:GLN:HG3 | 1.82 | 0.43 |
| 14:P:33:GLY:CA | 14:P:34:LEU:HD23 | 2.47 | 0.43 |
| 1:A:871:U:O2' | 14:P:69:PHE:CE2 | 2.60 | 0.43 |
| 14:P:69:PHE:O | 14:P:95:ALA:HA | 2.18 | 0.43 |
| 16:R:17:ARG:C | 16:R:20:ARG:HG2 | 2.39 | 0.43 |
| 16:R:40:ILE:HD12 | 16:R:40:ILE:N | 2.33 | 0.43 |
| 16:R:44:LYS:CB | 16:R:46:VAL:HG13 | 2.39 | 0.43 |
| 17:S:73:GLU:OE2 | 17:S:106:SER:OG | 2.34 | 0.43 |
| 17:S:64:ARG:NE | 17:S:77:PRO:HB3 | 2.33 | 0.43 |
| 11:M:4:TYR:CE2 | 18:T:100:VAL:CG2 | 3.00 | 0.43 |
| 18:T:33:ARG:O | 18:T:34:LYS:C | 2.57 | 0.43 |
| 19:U:21:ARG:HG2 | 19:U:21:ARG:NH1 | 2.29 | 0.43 |
| 21:W:73:ARG:HH12 | 21:W:75:ASP:N | 2.15 | 0.43 |
| 21:W:47:PHE:O | 21:W:88:LYS:HE2 | 2.18 | 0.43 |
| 22:X:13:VAL:HG22 | 22:X:14:LEU:N | 2.30 | 0.43 |
| 23:Y:86:VAL:HG12 | 23:Y:88:PHE:HE2 | 1.81 | 0.43 |
| 23:Y:28:MET:HE1 | 23:Y:88:PHE:HB2 | 1.99 | 0.43 |
| 24:Z:51:VAL:HG22 | 24:Z:80:HIS:HA | 1.98 | 0.43 |
| 3:C:113:VAL:O | 3:C:144:THR:CA | 2.59 | 0.43 |
| 3:C:131:LEU:HD22 | 3:C:136:LEU:HB2 | 1.99 | 0.43 |
| 3:C:192:PHE:O | 3:C:193:ILE:C | 2.56 | 0.43 |
| 3:C:79:LYS:O | 3:C:80:GLY:C | 2.54 | 0.43 |
| 25:1:27:LEU:HD21 | 25:1:48:LEU:O | 2.18 | 0.43 |
| 26:2:28:LEU:HD23 | 26:2:33:GLN:OE1 | 2.17 | 0.43 |
| 27:3:19:GLY:CA | 27:3:30:GLU:O | 2.60 | 0.43 |
| 30:6:19:ARG:CB | 30:6:23:ARG:NH2 | 2.68 | 0.43 |
| 31:7:63:PRO:CG | 31:7:64:TYR:H | 2.31 | 0.43 |
| 32:8:10:ILE:CD1 | 32:8:32:HIS:HD2 | 2.30 | 0.43 |
| 1:A:1027:A:N3 | 1:A:1028:A:N7 | 2.66 | 0.43 |
| 1:A:1080:C:H1' | 10:L:126:MET:CA | 2.37 | 0.43 |
| 1:A:1264:G:N7 | 1:A:1265:A:C8 | 2.86 | 0.43 |
| 1:A:1324:G:C2' | 1:A:1325:G:OP1 | 2.65 | 0.43 |
| 1:A:1347:G:N2 | 1:A:1600:C:C2 | 2.86 | 0.43 |
| 1:A:1488:G:C6 | 1:A:1489:U:C1' | 3.00 | 0.43 |
| 1:A:1507:A:N3 | 1:A:1507:A:C2' | 2.73 | 0.43 |
| 1:A:1534:G:H2' | 1:A:1536:A:N7 | 2.33 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|------------------|-------------|----------|
| 1:A:1630:G:C5 | 1:A:1630(A):C:C5 | 3.06 | 0.43 |
| 1:A:1668:A:N7 | 1:A:1674:G:C5 | 2.86 | 0.43 |
| 1:A:1788:C:C2 | 1:A:1789:A:O4' | 2.72 | 0.43 |
| 1:A:1791:A:N1 | 1:A:1829:A:O4' | 2.51 | 0.43 |
| 1:A:1813:G:H4' | 4:D:46:GLN:CG | 2.46 | 0.43 |
| 1:A:1820:U:C1' | 4:D:202:LYS:CG | 2.95 | 0.43 |
| 1:A:1827:C:C2 | 1:A:1828:G:H1' | 2.52 | 0.43 |
| 1:A:1948:G:N2 | 1:A:1949:G:N3 | 2.67 | 0.43 |
| 1:A:196:A:N1 | 1:A:828:U:C5' | 2.72 | 0.43 |
| 1:A:1998:G:O6 | 1:A:1999:C:N4 | 2.51 | 0.43 |
| 1:A:2000:G:H2' | 1:A:2001:A:C8 | 2.44 | 0.43 |
| 1:A:2027:G:C2' | 1:A:2028:U:O4' | 2.65 | 0.43 |
| 1:A:2078:C:O2' | 1:A:2433:A:O2' | 2.29 | 0.43 |
| 1:A:2259:G:C8 | 1:A:2427:C:N4 | 2.85 | 0.43 |
| 1:A:2436:G:H2' | 1:A:2437:U:O5' | 2.18 | 0.43 |
| 1:A:2458:G:O2' | 1:A:2459:A:O5' | 2.29 | 0.43 |
| 1:A:2474:C:O5' | 1:A:2474:C:H6 | 2.01 | 0.43 |
| 1:A:2031:A:N6 | 1:A:2498:C:C2' | 2.81 | 0.43 |
| 1:A:2449:U:H5' | 1:A:2498:C:OP1 | 2.18 | 0.43 |
| 1:A:2447:G:N3 | 1:A:2500:U:C4 | 2.86 | 0.43 |
| 1:A:252:G:C2 | 1:A:253:C:C5 | 3.07 | 0.43 |
| 1:A:2653:U:OP2 | 1:A:2654:A:H3' | 2.17 | 0.43 |
| 1:A:2698:U:C2' | 1:A:2699:C:C6 | 2.87 | 0.43 |
| 1:A:2765:A:N3 | 1:A:2765:A:C2' | 2.80 | 0.43 |
| 1:A:2766:G:N3 | 1:A:2766:G:C2' | 2.81 | 0.43 |
| 1:A:2623:G:H5' | 1:A:2826:A:O2' | 2.19 | 0.43 |
| 1:A:306:U:O4 | 1:A:310:A:C8 | 2.71 | 0.43 |
| 1:A:108:U:C5' | 1:A:348:G:N2 | 2.81 | 0.43 |
| 1:A:387:U:H3 | 27:3:31:ILE:HG22 | 1.83 | 0.43 |
| 1:A:389:G:H5' | 27:3:24:THR:OG1 | 2.18 | 0.43 |
| 1:A:410:G:C6 | 1:A:411:G:O6 | 2.71 | 0.43 |
| 1:A:410:G:O6 | 1:A:418:G:C6 | 2.71 | 0.43 |
| 1:A:281:G:O4' | 1:A:427:U:O2 | 2.36 | 0.43 |
| 1:A:499:U:C2' | 1:A:500:G:H5' | 2.48 | 0.43 |
| 1:A:559:G:C3' | 1:A:559:G:C8 | 3.01 | 0.43 |
| 1:A:584:C:H2' | 1:A:585:G:C5' | 2.48 | 0.43 |
| 1:A:627:A:C1' | 1:A:637:A:C6 | 3.01 | 0.43 |
| 1:A:653:A:O5' | 1:A:654:A:H4' | 2.19 | 0.43 |
| 1:A:605:C:C4' | 1:A:658:C:H4' | 2.49 | 0.43 |
| 1:A:688:U:H2' | 1:A:689:A:C8 | 2.53 | 0.43 |
| 1:A:705:A:C2' | 1:A:706:A:O5' | 2.67 | 0.43 |
| 1:A:701:G:O6 | 1:A:732:C:N4 | 2.51 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:918:A:H5' | 1:A:919:G:P | 2.56 | 0.43 |
| 1:A:942:G:HO2' | 1:A:1189:A:H2 | 1.53 | 0.43 |
| 1:A:959:A:H2' | 1:A:960:A:C8 | 2.53 | 0.43 |
| 2:B:55:U:O2 | 2:B:56:G:H1' | 2.18 | 0.43 |
| 2:B:60:C:O2 | 2:B:60:C:C2' | 2.63 | 0.43 |
| 2:B:6:C:H2' | 2:B:7:G:O5' | 2.18 | 0.43 |
| 4:D:9:TYR:O | 4:D:11:PRO:HD3 | 2.18 | 0.43 |
| 4:D:55:GLY:CA | 4:D:219:PRO:HD2 | 2.43 | 0.43 |
| 4:D:226:MET:HE2 | 4:D:235:GLY:CA | 2.47 | 0.43 |
| 4:D:51:VAL:C | 4:D:52:ARG:CD | 2.60 | 0.43 |
| 5:E:23:VAL:HG12 | 5:E:188:VAL:HG22 | 2.00 | 0.43 |
| 1:A:2734:A:H2 | 5:E:203:LYS:HB3 | 1.83 | 0.43 |
| 5:E:42:ASP:C | 5:E:44:TYR:N | 2.70 | 0.43 |
| 1:A:322:A:OP1 | 6:F:168:ARG:NE | 2.50 | 0.43 |
| 6:F:184:TYR:O | 6:F:186:ILE:N | 2.50 | 0.43 |
| 6:F:122:LYS:CE | 6:F:192:LEU:HD12 | 2.48 | 0.43 |
| 6:F:200:GLU:O | 6:F:203:GLN:HB2 | 2.18 | 0.43 |
| 6:F:62:ARG:NH2 | 6:F:63:LYS:NZ | 2.65 | 0.43 |
| 6:F:9:ILE:HG23 | 6:F:10:PRO:N | 2.33 | 0.43 |
| 1:A:2305:A:H1' | 7:G:155:MET:C | 2.38 | 0.43 |
| 7:G:96:ARG:HG3 | 7:G:97:ASP:H | 1.83 | 0.43 |
| 8:H:61:HIS:HA | 8:H:64:LEU:HB2 | 2.00 | 0.43 |
| 8:H:28:GLY:HA3 | 8:H:79:VAL:O | 2.18 | 0.43 |
| 10:L:14:ALA:H | 10:L:53:VAL:CG2 | 2.32 | 0.43 |
| 10:L:67:PHE:CD1 | 10:L:68:VAL:HG22 | 2.52 | 0.43 |
| 11:M:127:ASP:CA | 11:M:129:PRO:HD2 | 2.47 | 0.43 |
| 11:M:23:LEU:CD1 | 11:M:62:VAL:O | 2.66 | 0.43 |
| 12:N:70:LYS:HG2 | 12:N:104:ARG:HG3 | 2.00 | 0.43 |
| 12:N:122:LEU:HA | 17:S:70:VAL:C | 2.38 | 0.43 |
| 12:N:2:ILE:HB | 12:N:32:TYR:HB3 | 2.00 | 0.43 |
| 12:N:22:ILE:CD1 | 12:N:40:VAL:HG22 | 2.47 | 0.43 |
| 12:N:96:THR:O | 12:N:97:ARG:NH2 | 2.50 | 0.43 |
| 13:O:100:LEU:N | 13:O:100:LEU:HD23 | 2.34 | 0.43 |
| 13:O:114:ILE:C | 13:O:116:GLY:H | 2.20 | 0.43 |
| 13:O:55:ARG:CG | 13:O:55:ARG:HH21 | 2.27 | 0.43 |
| 14:P:128:LYS:HB2 | 14:P:128:LYS:HE3 | 1.65 | 0.43 |
| 16:R:10:ARG:HH12 | 16:R:89:ARG:NH2 | 2.16 | 0.43 |
| 16:R:64:GLU:OE2 | 16:R:67:ARG:HB3 | 2.18 | 0.43 |
| 16:R:49:VAL:HG11 | 16:R:80:LEU:HB2 | 1.97 | 0.43 |
| 17:S:53:ARG:HH11 | 17:S:53:ARG:CG | 2.30 | 0.43 |
| 17:S:50:ILE:HD13 | 17:S:76:PHE:HB3 | 2.00 | 0.43 |
| 17:S:99:LEU:HD13 | 17:S:99:LEU:HA | 1.63 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 18:T:14:HIS:CD2 | 18:T:36:ARG:HH12 | 2.36 | 0.43 |
| 18:T:50:ARG:CZ | 18:T:50:ARG:CB | 2.91 | 0.43 |
| 18:T:59:ARG:CB | 18:T:59:ARG:NH1 | 2.69 | 0.43 |
| 22:X:50:ARG:O | 22:X:51:VAL:C | 2.57 | 0.43 |
| 22:X:65:ALA:CB | 22:X:66:PRO:CD | 2.96 | 0.43 |
| 22:X:8:LYS:NZ | 22:X:28:LYS:HG2 | 2.33 | 0.43 |
| 22:X:91:GLU:O | 22:X:92:ASN:C | 2.56 | 0.43 |
| 2:B:75:G:C5' | 23:Y:11:GLU:HA | 2.47 | 0.43 |
| 23:Y:171:ILE:HG13 | 23:Y:172:ALA:N | 2.33 | 0.43 |
| 23:Y:24:LEU:HD13 | 23:Y:83:PRO:CG | 2.47 | 0.43 |
| 23:Y:36:LYS:HB2 | 23:Y:36:LYS:HE3 | 1.52 | 0.43 |
| 23:Y:10:ARG:HB2 | 23:Y:36:LYS:NZ | 2.31 | 0.43 |
| 24:Z:39:ARG:HH11 | 24:Z:39:ARG:HG2 | 1.83 | 0.43 |
| 9:K:102:SER:OG | 9:K:108:THR:HG23 | 2.18 | 0.43 |
| 9:K:110:ASP:O | 9:K:111:PRO:O | 2.37 | 0.43 |
| 9:K:113:ARG:CZ | 9:K:132:PRO:HA | 2.48 | 0.43 |
| 1:A:2171:A:O2' | 1:A:2172:U:C4' | 2.67 | 0.43 |
| 3:C:97:GLU:HG2 | 3:C:122:ALA:CB | 2.47 | 0.43 |
| 1:A:162:U:H5'' | 1:A:171:G:N7 | 2.33 | 0.43 |
| 17:S:40:THR:HB | 17:S:42:ILE:HG13 | 2.00 | 0.43 |
| 25:1:59:LEU:HD11 | 25:1:63:ARG:HG3 | 2.00 | 0.43 |
| 25:1:59:LEU:HD11 | 25:1:63:ARG:CG | 2.49 | 0.43 |
| 27:3:17:GLY:HA2 | 27:3:33:VAL:CG1 | 2.48 | 0.43 |
| 28:4:40:LYS:CG | 28:4:41:PRO:N | 2.81 | 0.43 |
| 29:5:25:LYS:CD | 31:7:35:GLN:HG3 | 2.49 | 0.43 |
| 29:5:33:LYS:CE | 29:5:34:LEU:HD23 | 2.48 | 0.43 |
| 30:6:1:MET:O | 30:6:2:LYS:C | 2.56 | 0.43 |
| 30:6:20:ALA:N | 30:6:23:ARG:CZ | 2.81 | 0.43 |
| 30:6:22:MET:CA | 30:6:28:ARG:HG3 | 2.40 | 0.43 |
| 30:6:32:LYS:N | 30:6:35:ARG:HD3 | 2.33 | 0.43 |
| 31:7:7:HIS:O | 31:7:11:LYS:HE3 | 2.18 | 0.43 |
| 32:8:15:LYS:O | 32:8:25:VAL:CA | 2.64 | 0.43 |
| 32:8:23:VAL:O | 32:8:24:TYR:HD1 | 2.01 | 0.43 |
| 1:A:1108:U:C6 | 1:A:1109:C:N3 | 2.86 | 0.43 |
| 1:A:1044:G:C6 | 1:A:1112:G:N3 | 2.87 | 0.43 |
| 1:A:1131:G:N2 | 1:A:1132:A:C5 | 2.86 | 0.43 |
| 1:A:10:G:C2 | 1:A:11:G:C5 | 3.06 | 0.43 |
| 1:A:1252:G:H8 | 1:A:1253:A:H1' | 1.82 | 0.43 |
| 1:A:1276:A:OP2 | 1:A:1645:G:O2' | 2.32 | 0.43 |
| 1:A:1300:U:H4' | 1:A:1301:A:O5' | 2.19 | 0.43 |
| 1:A:1326:U:OP2 | 1:A:1326:U:O4' | 2.36 | 0.43 |
| 1:A:1343:G:C6 | 1:A:1404:C:N4 | 2.74 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1392:A:N6 | 1:A:1393:A:N6 | 2.65 | 0.43 |
| 1:A:1434:A:H2' | 1:A:1435:G:C5' | 2.49 | 0.43 |
| 1:A:1441:G:C2' | 1:A:1442:G:H5' | 2.48 | 0.43 |
| 1:A:1528:A:N1 | 1:A:1545:A:N1 | 2.65 | 0.43 |
| 1:A:1528:A:C8 | 1:A:1529:A:C4 | 3.06 | 0.43 |
| 1:A:1546:C:O5' | 1:A:1546:C:H6 | 2.02 | 0.43 |
| 1:A:14:A:N7 | 1:A:15:G:C1' | 2.81 | 0.43 |
| 1:A:1609:A:N3 | 1:A:1609:A:C2' | 2.82 | 0.43 |
| 1:A:1672:C:C5 | 1:A:1673:U:C5 | 3.06 | 0.43 |
| 1:A:1731:G:N3 | 1:A:1731:G:C3' | 2.81 | 0.43 |
| 1:A:1732:A:H3' | 1:A:1733:G:H5' | 2.00 | 0.43 |
| 1:A:1774:C:C5 | 1:A:1775:U:C4 | 3.06 | 0.43 |
| 1:A:1802:A:OP1 | 1:A:1814:G:N2 | 2.48 | 0.43 |
| 1:A:1815:A:C8 | 1:A:1817:G:C2 | 3.06 | 0.43 |
| 1:A:1824:G:H2' | 1:A:1825:A:C1' | 2.48 | 0.43 |
| 1:A:1939:U:O4' | 1:A:1939:U:O2 | 2.36 | 0.43 |
| 1:A:1975:G:H2' | 1:A:1976:U:O5' | 2.17 | 0.43 |
| 1:A:2052:G:C8 | 5:E:141:ILE:HD11 | 2.54 | 0.43 |
| 1:A:2224:G:C4' | 4:D:262:ARG:HH22 | 2.30 | 0.43 |
| 1:A:2227:A:H5'' | 4:D:260:ARG:HB3 | 2.00 | 0.43 |
| 1:A:2308:G:C3' | 1:A:2310:A:N6 | 2.81 | 0.43 |
| 1:A:2366:A:C8 | 1:A:2367:G:C8 | 3.07 | 0.43 |
| 1:A:2484:G:C2' | 1:A:2485:G:H5' | 2.48 | 0.43 |
| 1:A:1028:A:H1' | 1:A:2487:G:OP1 | 2.18 | 0.43 |
| 1:A:2590:A:C6 | 1:A:2591:C:N4 | 2.87 | 0.43 |
| 1:A:1754:C:C2 | 1:A:2717:G:H5' | 2.53 | 0.43 |
| 1:A:272:G:C6 | 1:A:273:G:C4 | 3.07 | 0.43 |
| 1:A:2783:G:C5 | 1:A:2784:C:C5 | 3.06 | 0.43 |
| 1:A:2816:C:N3 | 1:A:2817:G:N7 | 2.66 | 0.43 |
| 1:A:108:U:H4' | 1:A:348:G:N3 | 2.34 | 0.43 |
| 1:A:364:C:O2' | 1:A:365:C:C5' | 2.66 | 0.43 |
| 1:A:379:G:O6 | 1:A:380:U:C4 | 2.71 | 0.43 |
| 1:A:455:C:H6 | 1:A:455:C:H3' | 1.84 | 0.43 |
| 1:A:572:A:N6 | 1:A:573:G:N1 | 2.67 | 0.43 |
| 1:A:702:G:C2 | 1:A:731:C:C2 | 3.07 | 0.43 |
| 1:A:71:A:O2' | 1:A:72:U:C5' | 2.66 | 0.43 |
| 1:A:825:C:H2' | 1:A:826:U:H6 | 1.82 | 0.43 |
| 1:A:944:G:N3 | 1:A:944:G:H2' | 2.33 | 0.43 |
| 1:A:949:C:H2' | 1:A:950:G:C8 | 2.42 | 0.43 |
| 1:A:950:G:C5 | 1:A:951:C:N4 | 2.86 | 0.43 |
| 1:A:972:G:O6 | 1:A:973:A:N6 | 2.38 | 0.43 |
| 1:A:991:C:O2' | 1:A:992:C:H5' | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 4:D:144:ALA:O | 4:D:153:ALA:HB1 | 2.18 | 0.43 |
| 4:D:136:ILE:HD13 | 4:D:173:VAL:HG21 | 1.93 | 0.43 |
| 4:D:23:GLU:C | 4:D:23:GLU:CD | 2.74 | 0.43 |
| 4:D:63:ARG:CG | 4:D:64:ILE:N | 2.81 | 0.43 |
| 5:E:119:ARG:HH12 | 5:E:155:LYS:HD2 | 1.79 | 0.43 |
| 5:E:155:LYS:H | 5:E:155:LYS:HG2 | 1.41 | 0.43 |
| 1:A:2784:C:C4' | 5:E:41:LYS:HE2 | 2.47 | 0.43 |
| 5:E:8:LYS:CD | 5:E:9:VAL:HG13 | 2.44 | 0.43 |
| 7:G:128:ARG:NH2 | 7:G:161:THR:O | 2.47 | 0.43 |
| 7:G:56:ALA:O | 7:G:60:LEU:CD2 | 2.60 | 0.43 |
| 7:G:78:SER:HB2 | 7:G:83:ARG:CD | 2.32 | 0.43 |
| 8:H:119:GLU:HB2 | 8:H:140:LYS:NZ | 2.33 | 0.43 |
| 8:H:150:ALA:HA | 8:H:153:LYS:HD3 | 2.00 | 0.43 |
| 8:H:87:LEU:HD11 | 8:H:162:ILE:HD11 | 2.00 | 0.43 |
| 9:K:5:LEU:C | 9:K:8:PRO:HD2 | 2.38 | 0.43 |
| 10:L:95:LYS:HG2 | 10:L:137:GLU:OE1 | 2.18 | 0.43 |
| 11:M:117:PHE:HA | 11:M:120:LEU:HB3 | 2.00 | 0.43 |
| 11:M:33:LEU:C | 11:M:35:ARG:HG3 | 2.35 | 0.43 |
| 11:M:43:THR:O | 11:M:44:PRO:O | 2.35 | 0.43 |
| 11:M:69:GLN:HE21 | 11:M:69:GLN:CA | 2.31 | 0.43 |
| 11:M:95:PRO:HG2 | 11:M:96:GLU:H | 1.83 | 0.43 |
| 12:N:10:VAL:HG11 | 12:N:14:THR:HB | 2.00 | 0.43 |
| 12:N:10:VAL:N | 12:N:17:ARG:O | 2.51 | 0.43 |
| 14:P:99:PRO:HG2 | 14:P:101:ARG:HE | 1.82 | 0.43 |
| 14:P:134:ARG:CD | 14:P:137:TYR:H | 2.31 | 0.43 |
| 14:P:80:GLU:CD | 14:P:80:GLU:N | 2.71 | 0.43 |
| 15:Q:105:ARG:CG | 15:Q:106:GLY:N | 2.81 | 0.43 |
| 15:Q:13:HIS:NE2 | 15:Q:15:SER:CB | 2.81 | 0.43 |
| 15:Q:76:VAL:CG1 | 15:Q:77:ARG:HG2 | 2.48 | 0.43 |
| 15:Q:83:ILE:CD1 | 15:Q:86:ARG:HE | 2.30 | 0.43 |
| 15:Q:96:ARG:O | 15:Q:114:VAL:CG1 | 2.61 | 0.43 |
| 16:R:66:ALA:O | 16:R:69:VAL:N | 2.51 | 0.43 |
| 17:S:105:LEU:HG | 17:S:106:SER:H | 1.78 | 0.43 |
| 1:A:2846:G:OP1 | 17:S:57:PHE:CD2 | 2.72 | 0.43 |
| 17:S:64:ARG:HH12 | 17:S:78:LEU:N | 2.16 | 0.43 |
| 18:T:111:GLU:HG3 | 18:T:112:ARG:N | 2.33 | 0.43 |
| 18:T:115:ALA:O | 18:T:117:GLN:N | 2.52 | 0.43 |
| 18:T:25:TRP:HE3 | 18:T:26:GLY:O | 2.01 | 0.43 |
| 18:T:49:HIS:O | 18:T:52:ARG:CZ | 2.66 | 0.43 |
| 18:T:97:ASP:O | 18:T:101:ARG:NE | 2.52 | 0.43 |
| 20:V:69:LEU:CG | 20:V:109:GLU:HA | 2.46 | 0.43 |
| 20:V:3:ALA:HB1 | 20:V:54:ALA:O | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:W:34:ALA:O | 21:W:35:THR:C | 2.56 | 0.43 |
| 23:Y:154:ASP:O | 23:Y:155:LEU:C | 2.56 | 0.43 |
| 23:Y:16:SER:CA | 23:Y:19:ARG:HH11 | 2.30 | 0.43 |
| 23:Y:28:MET:HE3 | 23:Y:88:PHE:CD1 | 2.52 | 0.43 |
| 24:Z:27:GLU:OE1 | 24:Z:69:PHE:HD1 | 2.01 | 0.43 |
| 3:C:64:LEU:HA | 3:C:65:PRO:HD2 | 1.69 | 0.43 |
| 2:B:22:U:H6 | 2:B:22:U:OP2 | 2.01 | 0.43 |
| 25:1:14:VAL:CG1 | 25:1:15:GLU:N | 2.77 | 0.43 |
| 26:2:17:LYS:N | 26:2:20:LYS:HZ3 | 2.16 | 0.43 |
| 27:3:27:THR:HG23 | 27:3:28:LYS:H | 1.82 | 0.43 |
| 27:3:61:ARG:O | 27:3:65:ASP:OD1 | 2.37 | 0.43 |
| 30:6:5:TRP:CE3 | 30:6:5:TRP:CA | 3.01 | 0.43 |
| 30:6:5:TRP:HA | 30:6:5:TRP:HE3 | 1.83 | 0.43 |
| 1:A:1063:G:OP1 | 10:L:79:ARG:NH1 | 2.52 | 0.43 |
| 1:A:1121:C:N3 | 1:A:1122:G:N7 | 2.67 | 0.43 |
| 1:A:1140:C:O2' | 1:A:1143:A:C5 | 2.67 | 0.43 |
| 1:A:1251:C:C5' | 18:T:10:ARG:HE | 2.31 | 0.43 |
| 1:A:1346:G:C2' | 1:A:1347:G:O5' | 2.66 | 0.43 |
| 1:A:1364:G:N9 | 1:A:1366:A:OP1 | 2.51 | 0.43 |
| 1:A:1371:G:H2' | 1:A:1372:U:OP2 | 2.18 | 0.43 |
| 1:A:1401:G:H2' | 1:A:1402:C:C6 | 2.53 | 0.43 |
| 1:A:1420:U:O2' | 1:A:1421:G:C8 | 2.64 | 0.43 |
| 1:A:1476:C:C6 | 1:A:1477:A:C8 | 3.06 | 0.43 |
| 1:A:1539:G:C2' | 1:A:1540:G:O5' | 2.66 | 0.43 |
| 1:A:1690:A:C2 | 1:A:1691:C:H1' | 2.53 | 0.43 |
| 1:A:1704:G:O6 | 1:A:1705:G:C5 | 2.72 | 0.43 |
| 1:A:1706:U:O2 | 1:A:1706:U:C2' | 2.66 | 0.43 |
| 1:A:1746:G:C2' | 1:A:1747:G:O4' | 2.67 | 0.43 |
| 1:A:1776:G:N2 | 1:A:1777:U:C4 | 2.86 | 0.43 |
| 1:A:1779:U:H1' | 1:A:1783:A:N6 | 2.32 | 0.43 |
| 1:A:1826:G:C2' | 1:A:1827:C:C5' | 2.84 | 0.43 |
| 1:A:1961:C:C3' | 1:A:1962:C:H5' | 2.49 | 0.43 |
| 1:A:2004:G:C8 | 1:A:2005:A:N7 | 2.87 | 0.43 |
| 1:A:201:C:C5 | 1:A:202:U:C5 | 3.07 | 0.43 |
| 1:A:2031:A:H61 | 1:A:2498:C:C2' | 2.31 | 0.43 |
| 1:A:2083:G:N2 | 1:A:2084:C:C2 | 2.86 | 0.43 |
| 1:A:20:C:HO2' | 1:A:21:A:C5' | 2.29 | 0.43 |
| 1:A:2216:G:H2' | 1:A:2217:G:C5' | 2.48 | 0.43 |
| 1:A:2303:G:C6 | 1:A:2304:G:C8 | 3.07 | 0.43 |
| 1:A:2320:A:C1' | 1:A:2333:A:N6 | 2.72 | 0.43 |
| 1:A:2353:G:C2 | 1:A:2365:G:N2 | 2.86 | 0.43 |
| 1:A:2407:G:H2' | 1:A:2407:G:N3 | 2.33 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:2505:G:C2 | 1:A:2576:G:C5 | 3.06 | 0.43 |
| 1:A:2604:U:C2 | 1:A:2605:U:C6 | 3.07 | 0.43 |
| 1:A:2634:G:N3 | 1:A:2635:C:C6 | 2.86 | 0.43 |
| 1:A:2752:C:C6 | 1:A:2752:C:OP1 | 2.72 | 0.43 |
| 1:A:2774:C:C2 | 1:A:2775:A:C8 | 3.07 | 0.43 |
| 1:A:2839:G:H4' | 15:Q:49:ASP:OD2 | 2.18 | 0.43 |
| 1:A:2858:C:C5' | 1:A:2859:G:OP2 | 2.66 | 0.43 |
| 1:A:324:A:O2' | 1:A:325:G:H5' | 2.18 | 0.43 |
| 1:A:33:U:O2' | 1:A:34:C:C5 | 2.49 | 0.43 |
| 1:A:391:G:N9 | 1:A:392:C:H5 | 2.16 | 0.43 |
| 1:A:373:U:H3 | 1:A:400:G:H22 | 1.66 | 0.43 |
| 1:A:417:C:H2' | 1:A:418:G:C5' | 2.49 | 0.43 |
| 1:A:236:C:C4' | 1:A:431:U:H1' | 2.46 | 0.43 |
| 1:A:463:G:O2' | 1:A:464:U:C5 | 2.70 | 0.43 |
| 1:A:46:C:H2' | 1:A:47:C:C6 | 2.54 | 0.43 |
| 1:A:487:C:O2' | 20:V:52:GLU:HB3 | 2.18 | 0.43 |
| 1:A:491:G:C2' | 1:A:492:A:C8 | 3.00 | 0.43 |
| 1:A:562:U:C2' | 1:A:563:G:OP2 | 2.67 | 0.43 |
| 1:A:632:A:C2' | 1:A:633:A:C8 | 2.64 | 0.43 |
| 1:A:642:G:C5 | 1:A:643:A:C2 | 3.06 | 0.43 |
| 1:A:680:G:H2' | 1:A:681:G:H8 | 1.83 | 0.43 |
| 1:A:684:G:OP1 | 30:6:16:HIS:CE1 | 2.72 | 0.43 |
| 1:A:823:G:C2 | 1:A:824:A:C5 | 3.07 | 0.43 |
| 1:A:853:G:O2' | 1:A:854:G:C5' | 2.66 | 0.43 |
| 1:A:872:A:N6 | 1:A:873:G:O6 | 2.51 | 0.43 |
| 1:A:918:A:C5' | 1:A:919:G:OP2 | 2.54 | 0.43 |
| 2:B:51:G:O2' | 2:B:52:A:H5'' | 2.18 | 0.43 |
| 4:D:146:GLU:HG3 | 4:D:152:GLY:C | 2.38 | 0.43 |
| 1:A:2209:C:C1' | 4:D:150:LYS:CE | 2.94 | 0.43 |
| 4:D:46:GLN:OE1 | 4:D:51:VAL:N | 2.51 | 0.43 |
| 4:D:94:LEU:HD13 | 4:D:95:LEU:N | 2.32 | 0.43 |
| 5:E:15:PHE:C | 5:E:17:ASP:H | 2.20 | 0.43 |
| 5:E:98:PRO:CB | 5:E:173:VAL:O | 2.66 | 0.43 |
| 5:E:9:VAL:HG12 | 5:E:192:ASN:ND2 | 2.32 | 0.43 |
| 6:F:18:ARG:O | 6:F:19:GLU:CG | 2.65 | 0.43 |
| 6:F:38:ARG:O | 6:F:42:ALA:HB2 | 2.18 | 0.43 |
| 1:A:674:G:C4' | 6:F:74:ARG:CZ | 2.94 | 0.43 |
| 8:H:9:ILE:HG23 | 8:H:10:PRO:HD2 | 2.00 | 0.43 |
| 8:H:66:GLY:HA2 | 8:H:69:ARG:CD | 2.48 | 0.43 |
| 1:A:2747:G:O2' | 8:H:67:LEU:HD13 | 2.18 | 0.43 |
| 8:H:94:TYR:CD2 | 8:H:95:ARG:N | 2.86 | 0.43 |
| 8:H:98:LEU:CD2 | 8:H:123:PHE:HB2 | 2.48 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 9:K:38:LEU:C | 9:K:38:LEU:CD1 | 2.87 | 0.43 |
| 10:L:51:ALA:O | 10:L:77:LEU:HD23 | 2.18 | 0.43 |
| 11:M:33:LEU:HD13 | 11:M:34:LEU:CG | 2.48 | 0.43 |
| 11:M:67:LEU:N | 11:M:69:GLN:OE1 | 2.51 | 0.43 |
| 12:N:99:PHE:CE2 | 12:N:105:GLU:OE1 | 2.71 | 0.43 |
| 12:N:47:ILE:CD1 | 12:N:49:ARG:O | 2.66 | 0.43 |
| 13:O:77:ARG:CB | 13:O:115:LEU:HD22 | 2.47 | 0.43 |
| 13:O:92:GLU:OE1 | 13:O:126:VAL:HG22 | 2.17 | 0.43 |
| 16:R:9:ARG:O | 16:R:10:ARG:C | 2.57 | 0.43 |
| 16:R:17:ARG:NE | 16:R:25:ARG:HH21 | 2.15 | 0.43 |
| 16:R:78:LEU:CD2 | 16:R:78:LEU:C | 2.77 | 0.43 |
| 16:R:93:LYS:HE2 | 16:R:95:HIS:CB | 2.48 | 0.43 |
| 17:S:109:GLU:HB3 | 17:S:114:LEU:HD23 | 1.99 | 0.43 |
| 17:S:15:VAL:C | 17:S:16:ARG:O | 2.56 | 0.43 |
| 17:S:32:TYR:HD2 | 17:S:88:ILE:HA | 1.83 | 0.43 |
| 17:S:35:LYS:HG2 | 17:S:86:ILE:HG13 | 1.99 | 0.43 |
| 1:A:2875:C:O2' | 17:S:4:GLY:HA3 | 2.18 | 0.43 |
| 18:T:12:ARG:O | 18:T:15:LYS:N | 2.51 | 0.43 |
| 18:T:79:PHE:CZ | 18:T:83:LEU:HD13 | 2.53 | 0.43 |
| 18:T:89:GLU:C | 18:T:90:VAL:HG23 | 2.37 | 0.43 |
| 18:T:98:LEU:O | 18:T:105:VAL:CG1 | 2.66 | 0.43 |
| 21:W:21:PHE:CD2 | 21:W:21:PHE:N | 2.82 | 0.43 |
| 21:W:27:THR:HG22 | 21:W:80:ILE:HG21 | 1.96 | 0.43 |
| 22:X:1:MET:H1 | 22:X:33:LYS:NZ | 2.15 | 0.43 |
| 22:X:42:VAL:N | 22:X:61:ILE:HB | 2.22 | 0.43 |
| 23:Y:171:ILE:CD1 | 23:Y:171:ILE:C | 2.87 | 0.43 |
| 23:Y:121:HIS:HB3 | 23:Y:171:ILE:O | 2.19 | 0.43 |
| 3:C:103:ILE:HG21 | 3:C:130:ILE:HG21 | 2.01 | 0.43 |
| 3:C:149:ILE:HG12 | 3:C:153:ILE:CD1 | 2.34 | 0.43 |
| 3:C:10:LEU:CD1 | 3:C:32:LEU:O | 2.62 | 0.43 |
| 1:A:2294:C:C2' | 1:A:2295:C:H5' | 2.48 | 0.43 |
| 1:A:2246:G:O2' | 1:A:2247:A:C5' | 2.67 | 0.43 |
| 1:A:2247:A:O2' | 1:A:2248:C:C5' | 2.63 | 0.43 |
| 17:S:41:ARG:H | 17:S:41:ARG:NE | 2.16 | 0.43 |
| 26:2:3:ARG:O | 26:2:59:VAL:HB | 2.18 | 0.43 |
| 26:2:48:GLU:HG3 | 26:2:49:LYS:N | 2.33 | 0.43 |
| 28:4:11:THR:O | 28:4:14:ALA:CB | 2.66 | 0.43 |
| 28:4:13:LYS:O | 28:4:15:ARG:N | 2.51 | 0.43 |
| 28:4:34:PRO:HG3 | 28:4:52:TYR:CE1 | 2.54 | 0.43 |
| 29:5:22:ALA:HB3 | 29:5:39:TYR:CD2 | 2.53 | 0.43 |
| 30:6:46:VAL:HG12 | 30:6:47:ARG:N | 2.34 | 0.43 |
| 1:A:1027:A:N1 | 1:A:1126:A:C4 | 2.86 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:1077:A:C2 | 10:L:133:SER:HA | 2.52 | 0.43 |
| 1:A:1090:U:C5 | 1:A:1103:A:C2 | 3.07 | 0.43 |
| 1:A:1098:A:O2' | 10:L:30:HIS:CE1 | 2.72 | 0.43 |
| 1:A:1091:G:N1 | 1:A:1101:U:N3 | 2.66 | 0.43 |
| 1:A:1225:C:N3 | 1:A:1226:G:C2 | 2.87 | 0.43 |
| 1:A:125:G:C3' | 30:6:47:ARG:HH12 | 2.32 | 0.43 |
| 1:A:1293:C:N3 | 1:A:1294:U:C5 | 2.87 | 0.43 |
| 1:A:1335:U:H2' | 1:A:1336:A:C8 | 2.54 | 0.43 |
| 1:A:1449(A):G:H2' | 1:A:1450:C:O5' | 2.18 | 0.43 |
| 1:A:1448:G:C4' | 1:A:1543:A:H61 | 2.26 | 0.43 |
| 1:A:1626:G:C4' | 1:A:1627:G:OP1 | 2.66 | 0.43 |
| 1:A:1632:A:C4 | 1:A:1633:G:C2 | 3.07 | 0.43 |
| 1:A:1772:G:C2 | 1:A:1980:G:N2 | 2.86 | 0.43 |
| 1:A:1790:C:OP2 | 4:D:221:VAL:O | 2.35 | 0.43 |
| 1:A:1815:A:H1' | 1:A:1817:G:C8 | 2.53 | 0.43 |
| 1:A:1858:G:C2 | 1:A:1883:G:C2 | 3.06 | 0.43 |
| 1:A:190:A:C6 | 1:A:191:A:N6 | 2.86 | 0.43 |
| 1:A:1982:C:N3 | 1:A:1983:C:C5 | 2.86 | 0.43 |
| 1:A:1131:G:N7 | 1:A:2025:C:H4' | 2.34 | 0.43 |
| 1:A:2052:G:H1' | 5:E:149:ARG:O | 2.15 | 0.43 |
| 1:A:2053:G:O4' | 5:E:149:ARG:HA | 2.19 | 0.43 |
| 1:A:2075:U:C2' | 1:A:2075:U:O2 | 2.66 | 0.43 |
| 1:A:184:C:H4' | 1:A:217:G:C2 | 2.53 | 0.43 |
| 1:A:2092:U:C5 | 1:A:2227:A:C6 | 2.90 | 0.43 |
| 1:A:2230:G:N1 | 1:A:2231:C:C4 | 2.87 | 0.43 |
| 1:A:2230:G:N3 | 1:A:2231:C:C6 | 2.87 | 0.43 |
| 1:A:2256:G:C2 | 1:A:2275:C:N4 | 2.87 | 0.43 |
| 1:A:2297:C:C4 | 1:A:2333:A:N6 | 2.87 | 0.43 |
| 1:A:2347:C:OP2 | 29:5:24:GLU:OE2 | 2.36 | 0.43 |
| 1:A:2396:G:O2' | 1:A:2397:G:H5' | 2.18 | 0.43 |
| 1:A:2405:G:O2' | 1:A:2406:U:H5'' | 2.19 | 0.43 |
| 1:A:2416:C:C5' | 13:O:59:LEU:O | 2.67 | 0.43 |
| 1:A:2472:G:H1 | 1:A:2477:C:P | 2.42 | 0.43 |
| 1:A:2481:G:H8 | 1:A:2481:G:H5'' | 1.82 | 0.43 |
| 1:A:251:A:H8 | 1:A:251:A:OP2 | 2.02 | 0.43 |
| 1:A:2519:U:N1 | 1:A:2542:A:C6 | 2.87 | 0.43 |
| 1:A:2569:G:N1 | 1:A:2570:G:N7 | 2.66 | 0.43 |
| 1:A:2569:G:C4 | 1:A:2570:G:C8 | 3.07 | 0.43 |
| 1:A:2636:U:H4' | 5:E:79:ARG:CZ | 2.48 | 0.43 |
| 1:A:2646:C:O2' | 1:A:2647:U:C5' | 2.62 | 0.43 |
| 1:A:2675:A:OP1 | 12:N:32:TYR:CE2 | 2.65 | 0.43 |
| 1:A:2695:C:H2' | 1:A:2696:U:H5 | 1.77 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2816:C:H1' | 1:A:2831:G:H21 | 1.82 | 0.43 |
| 1:A:2848:G:N9 | 17:S:99:LEU:HD21 | 2.33 | 0.43 |
| 1:A:285:C:C4 | 1:A:286:C:N4 | 2.86 | 0.43 |
| 1:A:2867:G:O3' | 1:A:2868:A:H8 | 2.02 | 0.43 |
| 1:A:339:U:C6 | 1:A:340:A:C8 | 3.06 | 0.43 |
| 1:A:37:C:H5' | 1:A:451:C:O4' | 2.18 | 0.43 |
| 1:A:558:G:C3' | 1:A:559:G:H5'' | 2.48 | 0.43 |
| 1:A:573:G:C3' | 1:A:574:C:H5'' | 2.49 | 0.43 |
| 1:A:588:U:C2' | 1:A:589:C:O5' | 2.66 | 0.43 |
| 1:A:613:U:O5' | 1:A:615:G:H1' | 2.18 | 0.43 |
| 1:A:675:A:C5 | 1:A:676:A:N1 | 2.86 | 0.43 |
| 1:A:778:G:C6 | 1:A:779:U:C2 | 3.07 | 0.43 |
| 1:A:782:A:C5' | 1:A:783:A:OP1 | 2.60 | 0.43 |
| 1:A:77:C:C2 | 1:A:78:A:C8 | 3.07 | 0.43 |
| 1:A:880:G:N3 | 1:A:881:G:H1' | 2.33 | 0.43 |
| 2:B:33:G:N2 | 2:B:50:G:H1' | 2.33 | 0.43 |
| 2:B:52:A:H2' | 2:B:53:A:C4' | 2.49 | 0.43 |
| 2:B:88:C:O5' | 2:B:88:C:C6 | 2.72 | 0.43 |
| 4:D:126:GLN:O | 4:D:127:VAL:C | 2.56 | 0.43 |
| 4:D:155:LEU:CB | 4:D:157:ARG:NH2 | 2.82 | 0.43 |
| 4:D:90:ALA:HB2 | 4:D:159:ALA:HA | 2.01 | 0.43 |
| 4:D:160:GLY:O | 4:D:162:SER:OG | 2.36 | 0.43 |
| 4:D:242:ARG:O | 4:D:243:GLY:O | 2.37 | 0.43 |
| 4:D:242:ARG:O | 4:D:244:ARG:HG2 | 2.18 | 0.43 |
| 4:D:31:LYS:HD3 | 4:D:82:ILE:O | 2.19 | 0.43 |
| 4:D:29:PRO:CG | 4:D:82:ILE:HG22 | 2.48 | 0.43 |
| 4:D:91:ARG:NH1 | 4:D:198:ASN:ND2 | 2.67 | 0.43 |
| 5:E:43:GLY:O | 5:E:81:ILE:HG12 | 2.17 | 0.43 |
| 5:E:66:HIS:CE1 | 5:E:67:PHE:HA | 2.53 | 0.43 |
| 5:E:81:ILE:C | 5:E:83:ASP:OD1 | 2.56 | 0.43 |
| 6:F:118:ALA:HA | 6:F:122:LYS:HB2 | 1.99 | 0.43 |
| 6:F:139:PHE:O | 6:F:142:TRP:HB3 | 2.18 | 0.43 |
| 6:F:24:LEU:N | 6:F:25:PRO:CD | 2.80 | 0.43 |
| 7:G:107:LEU:HD13 | 7:G:107:LEU:C | 2.38 | 0.43 |
| 7:G:14:GLU:OE1 | 7:G:15:VAL:N | 2.51 | 0.43 |
| 7:G:120:LEU:CD2 | 7:G:181:ARG:CB | 2.83 | 0.43 |
| 7:G:30:GLU:O | 7:G:32:PRO:HA | 2.17 | 0.43 |
| 7:G:36:LYS:C | 7:G:37:VAL:CG2 | 2.86 | 0.43 |
| 7:G:78:SER:HB3 | 7:G:82:LEU:CB | 2.49 | 0.43 |
| 7:G:79:ASN:OD1 | 7:G:82:LEU:CD1 | 2.62 | 0.43 |
| 7:G:43:LEU:HD21 | 7:G:88:ILE:HB | 2.00 | 0.43 |
| 8:H:23:ARG:HH21 | 8:H:36:PRO:CA | 2.31 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 8:H:53:GLU:OE1 | 8:H:53:GLU:CA | 2.65 | 0.43 |
| 8:H:85:LYS:NZ | 8:H:142:GLY:HA2 | 2.33 | 0.43 |
| 9:K:24:GLY:O | 9:K:29:TYR:CD1 | 2.72 | 0.43 |
| 9:K:45:LYS:HE3 | 9:K:45:LYS:HB2 | 1.84 | 0.43 |
| 10:L:23:VAL:C | 10:L:34:ILE:HG23 | 2.38 | 0.43 |
| 11:M:74:ARG:HB2 | 11:M:82:LEU:HA | 2.00 | 0.43 |
| 12:N:2:ILE:HB | 12:N:32:TYR:HA | 1.98 | 0.43 |
| 12:N:92:GLU:HA | 12:N:93:PRO:HD3 | 1.82 | 0.43 |
| 13:O:123:LEU:CB | 13:O:138:LEU:HA | 2.48 | 0.43 |
| 6:F:34:TRP:CH2 | 13:O:6:LEU:N | 2.72 | 0.43 |
| 15:Q:116:LEU:HD22 | 15:Q:118:GLU:OE1 | 2.18 | 0.43 |
| 15:Q:5:LYS:HE2 | 15:Q:5:LYS:CA | 2.48 | 0.43 |
| 16:R:29:PHE:CD1 | 16:R:30:ARG:N | 2.84 | 0.43 |
| 16:R:89:ARG:HG2 | 16:R:90:GLY:N | 2.09 | 0.43 |
| 17:S:21:GLU:C | 17:S:23:ARG:N | 2.71 | 0.43 |
| 17:S:28:VAL:HB | 17:S:30:VAL:CG1 | 2.47 | 0.43 |
| 17:S:4:GLY:O | 17:S:5:ALA:O | 2.36 | 0.43 |
| 1:A:1154:G:P | 18:T:62:ILE:HD11 | 2.56 | 0.43 |
| 19:U:9:GLY:O | 19:U:11:GLN:N | 2.51 | 0.43 |
| 20:V:76:VAL:CG2 | 20:V:102:HIS:O | 2.58 | 0.43 |
| 20:V:64:MET:SD | 20:V:65:LEU:HD22 | 2.59 | 0.43 |
| 23:Y:34:ASN:OD1 | 23:Y:35:ARG:N | 2.51 | 0.43 |
| 24:Z:17:GLN:CG | 24:Z:18:ALA:N | 2.80 | 0.43 |
| 1:A:856:C:O2' | 24:Z:69:PHE:CZ | 2.72 | 0.43 |
| 1:A:2175:C:C2' | 1:A:2176:A:O5' | 2.67 | 0.43 |
| 3:C:177:LYS:O | 3:C:180:PHE:CB | 2.67 | 0.43 |
| 3:C:47:LEU:HD21 | 3:C:49:ILE:CD1 | 2.49 | 0.43 |
| 25:1:51:GLN:O | 25:1:54:ARG:HG3 | 2.19 | 0.43 |
| 26:2:4:LEU:O | 26:2:37:LEU:CA | 2.66 | 0.43 |
| 27:3:10:VAL:HG11 | 27:3:41:PRO:HD3 | 2.01 | 0.43 |
| 27:3:56:VAL:CG1 | 27:3:57:GLU:N | 2.50 | 0.43 |
| 27:3:41:PRO:HA | 27:3:58:ARG:CZ | 2.49 | 0.43 |
| 28:4:56:LYS:C | 28:4:57:VAL:HG13 | 2.39 | 0.43 |
| 29:5:16:CYS:CB | 29:5:49:HIS:O | 2.66 | 0.43 |
| 30:6:19:ARG:O | 30:6:23:ARG:HG3 | 2.19 | 0.43 |
| 31:7:5:LYS:NZ | 31:7:64:TYR:CD2 | 2.86 | 0.43 |
| 1:A:1005:C:O4' | 1:A:1012:U:O2 | 2.37 | 0.43 |
| 1:A:1079:C:O2' | 1:A:1080:C:H5' | 2.19 | 0.43 |
| 1:A:1134:G:H3' | 1:A:1136:G:OP2 | 2.18 | 0.43 |
| 1:A:1019:U:O2 | 1:A:1144:G:N2 | 2.52 | 0.43 |
| 1:A:1148:A:C6 | 1:A:1149:G:C6 | 3.07 | 0.43 |
| 1:A:1305:C:H2' | 1:A:1306:C:C6 | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-----------------|-------------|----------|
| 1:A:135:G:O6 | 1:A:136:G:C6 | 2.72 | 0.43 |
| 1:A:1380:G:C2 | 1:A:1381:G:C8 | 3.06 | 0.43 |
| 1:A:1535:U:C2 | 1:A:1536:A:H1' | 2.54 | 0.43 |
| 1:A:1545(A):A:OP2 | 1:A:1546:C:H5 | 1.96 | 0.43 |
| 1:A:1570:A:C6 | 1:A:1571:A:N7 | 2.87 | 0.43 |
| 1:A:1607:C:O2' | 1:A:1608:A:OP2 | 2.21 | 0.43 |
| 1:A:1636:C:O2' | 1:A:1760:A:C2' | 2.67 | 0.43 |
| 1:A:1675:C:O2 | 1:A:1676:A:N9 | 2.52 | 0.43 |
| 1:A:1689:A:C2 | 1:A:1700:A:C2 | 3.06 | 0.43 |
| 1:A:1743:G:O6 | 1:A:1746:G:C6 | 2.71 | 0.43 |
| 1:A:1778:U:H2' | 1:A:1779:U:N1 | 2.34 | 0.43 |
| 1:A:1820:U:H2' | 4:D:202:LYS:HZ2 | 1.77 | 0.43 |
| 1:A:1862:G:C4 | 1:A:1863:G:N7 | 2.86 | 0.43 |
| 1:A:186:G:C2 | 1:A:211:A:C2 | 3.07 | 0.43 |
| 1:A:578:A:C2 | 1:A:2018:G:H1' | 2.54 | 0.43 |
| 1:A:2091:U:H3' | 1:A:2092:U:C5' | 2.48 | 0.43 |
| 1:A:210:C:OP1 | 30:6:29:LYS:CE | 2.62 | 0.43 |
| 1:A:2226:C:C4 | 1:A:2227:A:C2 | 3.07 | 0.43 |
| 1:A:2258:C:C4 | 1:A:2426:A:O4' | 2.72 | 0.43 |
| 1:A:2270:G:C6 | 1:A:2271:G:C2 | 3.06 | 0.43 |
| 1:A:2298:A:N3 | 1:A:2299:G:C1' | 2.82 | 0.43 |
| 1:A:2437:U:H5' | 1:A:2598:A:C2 | 2.54 | 0.43 |
| 1:A:2474:C:C2' | 1:A:2475:C:O5' | 2.66 | 0.43 |
| 1:A:2479:G:C2' | 1:A:2480:C:O5' | 2.67 | 0.43 |
| 1:A:2492:U:HO2' | 1:A:2493:U:P | 2.39 | 0.43 |
| 1:A:2577:A:C3' | 1:A:2578:G:H5' | 2.48 | 0.43 |
| 1:A:2655:G:O2' | 1:A:2656:U:C5 | 2.66 | 0.43 |
| 1:A:2692:C:O2 | 1:A:2847:U:O2' | 2.32 | 0.43 |
| 1:A:2736:G:N2 | 1:A:2769:C:C1' | 2.80 | 0.43 |
| 1:A:2856:C:C2' | 1:A:2857:G:C5' | 2.93 | 0.43 |
| 1:A:2862:G:C5 | 1:A:2863:C:C5 | 3.06 | 0.43 |
| 1:A:2893:G:C2' | 1:A:2894:G:OP2 | 2.65 | 0.43 |
| 1:A:395:U:H2' | 1:A:396:G:C8 | 2.53 | 0.43 |
| 1:A:452:G:C5' | 1:A:453:C:OP2 | 2.64 | 0.43 |
| 1:A:494:G:N1 | 1:A:495:G:N7 | 2.67 | 0.43 |
| 1:A:598:G:H2' | 1:A:599:G:O5' | 2.19 | 0.43 |
| 1:A:598:G:N3 | 1:A:599:G:H1' | 2.33 | 0.43 |
| 1:A:637:A:C2 | 1:A:651:G:C5' | 3.01 | 0.43 |
| 1:A:921:G:C2 | 1:A:922:U:H1' | 2.54 | 0.43 |
| 2:B:112:G:N2 | 2:B:113:C:C2 | 2.86 | 0.43 |
| 2:B:63:G:C4 | 2:B:64:C:C5 | 3.07 | 0.43 |
| 2:B:82:G:N3 | 2:B:83:G:N7 | 2.67 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:B:77:U:H5 | 2:B:98:G:H21 | 1.66 | 0.43 |
| 4:D:101:GLU:CG | 4:D:102:LYS:N | 2.82 | 0.43 |
| 4:D:130:ALA:O | 4:D:131:LEU:CD1 | 2.62 | 0.43 |
| 4:D:136:ILE:C | 4:D:138:VAL:H | 2.20 | 0.43 |
| 4:D:146:GLU:OE1 | 4:D:149:PRO:CA | 2.55 | 0.43 |
| 4:D:177:LEU:CD1 | 4:D:181:GLU:H | 2.31 | 0.43 |
| 4:D:186:HIS:O | 4:D:188:GLU:OE2 | 2.36 | 0.43 |
| 4:D:263:ARG:O | 4:D:264:LYS:CD | 2.66 | 0.43 |
| 4:D:40:THR:HG21 | 4:D:43:ARG:NE | 2.34 | 0.43 |
| 5:E:150:VAL:O | 5:E:151:TYR:O | 2.36 | 0.43 |
| 5:E:185:LYS:C | 5:E:185:LYS:CD | 2.87 | 0.43 |
| 5:E:190:GLY:O | 5:E:191:PRO:C | 2.56 | 0.43 |
| 6:F:31:HIS:CG | 13:O:14:LYS:NZ | 2.71 | 0.43 |
| 7:G:152:LEU:HD23 | 7:G:152:LEU:N | 2.34 | 0.43 |
| 7:G:32:PRO:HG3 | 7:G:163:ALA:CB | 2.48 | 0.43 |
| 7:G:37:VAL:HG13 | 7:G:159:VAL:CG1 | 2.41 | 0.43 |
| 8:H:33:LEU:HD23 | 8:H:34:GLU:C | 2.38 | 0.43 |
| 11:M:120:LEU:C | 11:M:121:LYS:HG3 | 2.39 | 0.43 |
| 11:M:35:ARG:CD | 11:M:48:MET:SD | 3.06 | 0.43 |
| 11:M:61:ARG:O | 11:M:62:VAL:O | 2.36 | 0.43 |
| 11:M:74:ARG:HG3 | 11:M:76:SER:OG | 2.17 | 0.43 |
| 1:A:1665:A:H4' | 12:N:1:MET:N | 2.32 | 0.43 |
| 12:N:3:GLN:OE1 | 12:N:33:ALA:CB | 2.66 | 0.43 |
| 12:N:22:ILE:HG13 | 12:N:40:VAL:HG13 | 2.01 | 0.43 |
| 12:N:64:ARG:NH2 | 12:N:65:THR:C | 2.72 | 0.43 |
| 12:N:79:PHE:CD1 | 17:S:73:GLU:CD | 2.92 | 0.43 |
| 13:O:128:HIS:H | 13:O:130:PHE:HE2 | 1.66 | 0.43 |
| 13:O:21:ARG:H | 13:O:21:ARG:HG2 | 1.48 | 0.43 |
| 14:P:133:ARG:NH1 | 14:P:135:ASP:OD2 | 2.51 | 0.43 |
| 14:P:40:ALA:HB1 | 14:P:41:TRP:CE3 | 2.53 | 0.43 |
| 15:Q:55:ALA:HB1 | 15:Q:79:LEU:HG | 2.00 | 0.43 |
| 15:Q:72:ASP:OD2 | 15:Q:74:LYS:HB2 | 2.19 | 0.43 |
| 16:R:62:LYS:O | 16:R:63:THR:C | 2.53 | 0.43 |
| 16:R:76:LYS:HZ2 | 16:R:77:ALA:HB2 | 1.79 | 0.43 |
| 18:T:11:ARG:HG2 | 18:T:12:ARG:CG | 2.48 | 0.43 |
| 18:T:34:LYS:HE3 | 18:T:37:GLU:OE2 | 2.18 | 0.43 |
| 18:T:33:ARG:C | 18:T:35:ALA:H | 2.22 | 0.43 |
| 18:T:44:ASN:HA | 18:T:47:TYR:CG | 2.54 | 0.43 |
| 18:T:47:TYR:O | 18:T:51:LYS:CG | 2.64 | 0.43 |
| 19:U:82:ARG:HA | 19:U:82:ARG:HE | 1.84 | 0.43 |
| 20:V:20:VAL:HG22 | 20:V:24:ILE:HD11 | 2.00 | 0.43 |
| 20:V:23:LEU:HD21 | 28:4:26:THR:CA | 2.48 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 20:V:25:ARG:NH2 | 20:V:74:ALA:N | 2.38 | 0.43 |
| 22:X:13:VAL:HG13 | 22:X:70:SER:HG | 1.83 | 0.43 |
| 22:X:14:LEU:HD23 | 22:X:17:SER:CB | 2.48 | 0.43 |
| 22:X:1:MET:HG2 | 22:X:33:LYS:CD | 2.44 | 0.43 |
| 1:A:483:A:C1' | 22:X:45:VAL:O | 2.67 | 0.43 |
| 22:X:35:TYR:OH | 22:X:67:LEU:HD12 | 2.19 | 0.43 |
| 22:X:76:CYS:CB | 22:X:100:ALA:CB | 2.94 | 0.43 |
| 23:Y:122:ARG:H | 23:Y:171:ILE:HD12 | 1.83 | 0.43 |
| 23:Y:174:VAL:CG2 | 23:Y:174:VAL:O | 2.66 | 0.43 |
| 23:Y:20:ARG:O | 23:Y:21:ALA:C | 2.57 | 0.43 |
| 23:Y:26:GLY:O | 23:Y:36:LYS:HG2 | 2.19 | 0.43 |
| 23:Y:44:PHE:HB3 | 23:Y:48:PHE:CE1 | 2.54 | 0.43 |
| 9:K:127:VAL:HG13 | 9:K:140:LEU:O | 2.17 | 0.43 |
| 9:K:77:LEU:HG | 9:K:142:VAL:HA | 2.00 | 0.43 |
| 9:K:96:ASP:CA | 9:K:99:GLU:OE2 | 2.66 | 0.43 |
| 3:C:100:ILE:CG1 | 3:C:123:VAL:HG13 | 2.49 | 0.43 |
| 3:C:19:ILE:HG23 | 3:C:223:ARG:CB | 2.49 | 0.43 |
| 5:E:127:ASP:CG | 5:E:135:HIS:H | 2.17 | 0.43 |
| 1:A:2294:C:H2' | 1:A:2295:C:O4' | 2.19 | 0.43 |
| 11:M:140:VAL:HG12 | 11:M:140:VAL:OXT | 2.18 | 0.43 |
| 2:B:0:A:H3' | 2:B:0:A:N3 | 2.34 | 0.43 |
| 25:1:39:LEU:N | 25:1:39:LEU:HD23 | 2.34 | 0.43 |
| 25:1:58:VAL:HG22 | 25:1:59:LEU:N | 2.14 | 0.43 |
| 26:2:26:LEU:H | 26:2:26:LEU:HD22 | 1.82 | 0.43 |
| 26:2:29:ARG:C | 26:2:31:LEU:H | 2.21 | 0.43 |
| 27:3:39:CYS:C | 27:3:40:HIS:CG | 2.91 | 0.43 |
| 27:3:65:ASP:HA | 27:3:68:ARG:CZ | 2.48 | 0.43 |
| 28:4:13:LYS:N | 28:4:13:LYS:HD3 | 2.34 | 0.43 |
| 29:5:9:LEU:CD1 | 29:5:27:LYS:CD | 2.97 | 0.43 |
| 30:6:43:THR:C | 30:6:46:VAL:HB | 2.39 | 0.43 |
| 31:7:34:TRP:HA | 31:7:34:TRP:CE3 | 2.54 | 0.43 |
| 1:A:1001:A:N7 | 1:A:1002:G:C4 | 2.86 | 0.43 |
| 1:A:82:G:C8 | 1:A:102:G:C2 | 3.07 | 0.43 |
| 1:A:104:U:C2' | 1:A:105:C:H5' | 2.48 | 0.43 |
| 1:A:112:U:C3' | 1:A:113:G:C5' | 2.95 | 0.43 |
| 1:A:1000:A:N1 | 1:A:1155:A:C4 | 2.86 | 0.43 |
| 1:A:1187:G:C2' | 1:A:1188:U:OP2 | 2.67 | 0.43 |
| 1:A:1221:C:H2' | 1:A:1222:C:O5' | 2.19 | 0.43 |
| 1:A:1327:C:H41 | 1:A:1647:G:N2 | 2.17 | 0.43 |
| 1:A:1435:G:N2 | 1:A:1558:A:H62 | 2.16 | 0.43 |
| 1:A:1447:G:O4' | 1:A:1545(A):A:C5' | 2.67 | 0.43 |
| 1:A:1449:A:H5' | 1:A:1542:G:N3 | 2.34 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:415:A:H1' | 1:A:1869:G:OP1 | 2.18 | 0.43 |
| 1:A:1937:A:N7 | 1:A:1939:U:C5 | 2.86 | 0.43 |
| 1:A:1945:G:H2' | 1:A:1946:U:H6 | 1.84 | 0.43 |
| 1:A:1992:G:O3' | 1:A:1993:U:C5 | 2.71 | 0.43 |
| 1:A:2047:U:O2 | 1:A:2048:G:C8 | 2.72 | 0.43 |
| 1:A:208:C:H2' | 1:A:209:C:C5 | 2.53 | 0.43 |
| 1:A:2262:U:O2' | 1:A:2263:C:H5' | 2.18 | 0.43 |
| 1:A:2409:G:C2 | 1:A:2410:G:H1' | 2.45 | 0.43 |
| 1:A:248:G:N2 | 1:A:2431:U:C5' | 2.81 | 0.43 |
| 1:A:243:U:O2 | 1:A:243:U:C2' | 2.64 | 0.43 |
| 1:A:2491:U:C5 | 1:A:2492:U:O5' | 2.72 | 0.43 |
| 1:A:1953:A:C5 | 1:A:2550:G:H1' | 2.54 | 0.43 |
| 1:A:259:G:C4 | 1:A:260:G:C8 | 3.07 | 0.43 |
| 1:A:2633:G:C4 | 1:A:2634:G:C8 | 3.07 | 0.43 |
| 1:A:2705:A:HO2' | 1:A:2706:G:P | 2.41 | 0.43 |
| 1:A:2834:G:N2 | 1:A:2883:A:C8 | 2.86 | 0.43 |
| 1:A:2876:G:N1 | 1:A:2877:G:C5 | 2.87 | 0.43 |
| 1:A:28:A:H2' | 1:A:29:U:C5' | 2.46 | 0.43 |
| 1:A:349:G:C4 | 1:A:350:U:O4 | 2.72 | 0.43 |
| 1:A:477:A:C3' | 1:A:478:A:C8 | 3.01 | 0.43 |
| 1:A:496:G:O6 | 1:A:497:A:C6 | 2.71 | 0.43 |
| 1:A:18:C:O2' | 1:A:553:U:OP1 | 2.24 | 0.43 |
| 1:A:641:C:O2' | 1:A:642:G:H5' | 2.18 | 0.43 |
| 1:A:733:G:H5'' | 1:A:733:G:C8 | 2.54 | 0.43 |
| 1:A:740:U:HO2' | 1:A:741:G:P | 2.40 | 0.43 |
| 1:A:754:C:O5' | 1:A:754:C:H6 | 2.01 | 0.43 |
| 1:A:771:G:C6 | 1:A:772:C:C4 | 3.07 | 0.43 |
| 1:A:783:A:H2' | 1:A:784:A:H4' | 2.00 | 0.43 |
| 1:A:687:C:O2 | 1:A:787:U:O2' | 2.37 | 0.43 |
| 1:A:776:G:N9 | 1:A:793:A:C2 | 2.87 | 0.43 |
| 1:A:999:U:O2 | 1:A:1157:G:C2 | 2.71 | 0.43 |
| 2:B:15:A:H5'' | 2:B:16:G:P | 2.57 | 0.43 |
| 2:B:50:G:OP2 | 16:R:63:THR:OG1 | 2.28 | 0.43 |
| 1:A:918:A:C8 | 2:B:80:U:H4' | 2.54 | 0.43 |
| 4:D:159:ALA:HB3 | 4:D:202:LYS:HZ2 | 1.82 | 0.43 |
| 4:D:15:PHE:O | 4:D:17:THR:N | 2.46 | 0.43 |
| 4:D:82:ILE:CG1 | 4:D:92:ILE:O | 2.66 | 0.43 |
| 5:E:101:ARG:HD3 | 5:E:170:LEU:O | 2.19 | 0.43 |
| 5:E:203:LYS:O | 5:E:203:LYS:CG | 2.66 | 0.43 |
| 5:E:87:GLU:HB3 | 5:E:89:ASP:H | 1.84 | 0.43 |
| 5:E:91:VAL:CG1 | 5:E:95:ILE:HD13 | 2.41 | 0.43 |
| 6:F:156:LEU:HG | 6:F:167:ALA:HB1 | 2.00 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:F:182:ASN:ND2 | 6:F:185:ASP:CG | 2.71 | 0.43 |
| 6:F:34:TRP:HB3 | 6:F:38:ARG:NH1 | 2.34 | 0.43 |
| 7:G:22:ARG:CD | 7:G:23:PHE:CD2 | 3.01 | 0.43 |
| 7:G:40:ASN:HD22 | 7:G:41:GLN:H | 1.67 | 0.43 |
| 8:H:32:GLU:O | 8:H:33:LEU:C | 2.56 | 0.43 |
| 10:L:27:LEU:HD22 | 10:L:32:ALA:HB3 | 2.00 | 0.43 |
| 11:A:1131:G:N2 | 11:M:72:TYR:CE1 | 2.87 | 0.43 |
| 11:M:89:LYS:N | 11:M:89:LYS:CE | 2.72 | 0.43 |
| 12:N:47:ILE:HD12 | 12:N:52:VAL:CG1 | 2.28 | 0.43 |
| 14:P:126:PRO:C | 14:P:127:ILE:HG13 | 2.38 | 0.43 |
| 14:P:27:VAL:CG1 | 14:P:104:PHE:CE2 | 3.01 | 0.43 |
| 15:Q:67:LEU:HD23 | 15:Q:76:VAL:CG2 | 2.48 | 0.43 |
| 16:R:78:LEU:CD1 | 16:R:79:ALA:N | 2.65 | 0.43 |
| 17:S:16:ARG:O | 17:S:17:THR:C | 2.55 | 0.43 |
| 17:S:70:VAL:HG23 | 17:S:74:ARG:HD2 | 2.01 | 0.43 |
| 17:S:65:LYS:NZ | 17:S:75:ILE:CD1 | 2.80 | 0.43 |
| 19:U:52:VAL:O | 19:U:55:ALA:N | 2.52 | 0.43 |
| 22:X:11:ASP:HB2 | 22:X:73:ARG:HH22 | 1.84 | 0.43 |
| 22:X:19:LYS:NZ | 22:X:39:VAL:CB | 2.81 | 0.43 |
| 22:X:1:MET:HA | 22:X:33:LYS:CE | 2.45 | 0.43 |
| 23:Y:152:ALA:O | 23:Y:155:LEU:CD2 | 2.55 | 0.43 |
| 23:Y:42:VAL:CA | 23:Y:45:ASP:OD2 | 2.67 | 0.43 |
| 23:Y:44:PHE:HB3 | 23:Y:48:PHE:HE1 | 1.84 | 0.43 |
| 24:Z:27:GLU:N | 24:Z:69:PHE:CE1 | 2.80 | 0.43 |
| 24:Z:46:LYS:CB | 24:Z:78:TYR:CD2 | 2.94 | 0.43 |
| 9:K:123:LEU:HD11 | 9:K:145:VAL:C | 2.39 | 0.43 |
| 1:A:2135:A:C2' | 1:A:2136:C:OP2 | 2.67 | 0.43 |
| 3:C:120:MET:SD | 3:C:145:VAL:CG2 | 3.06 | 0.43 |
| 3:C:103:ILE:HB | 3:C:127:LEU:HD21 | 2.00 | 0.43 |
| 1:A:1417:C:N3 | 1:A:1581:G:N2 | 2.66 | 0.43 |
| 1:A:2340:G:N1 | 1:A:2341:G:C5 | 2.87 | 0.43 |
| 26:2:19:GLN:HE22 | 26:2:50:VAL:HA | 1.82 | 0.43 |
| 27:3:22:ILE:CG2 | 27:3:27:THR:HB | 2.48 | 0.43 |
| 29:5:22:ALA:C | 29:5:23:THR:OG1 | 2.56 | 0.43 |
| 1:A:2286:A:C2 | 29:5:29:ASN:OD1 | 2.72 | 0.43 |
| 32:8:6:SER:O | 32:8:7:VAL:C | 2.56 | 0.43 |
| 1:A:1004:C:O4' | 1:A:1010:A:N1 | 2.52 | 0.43 |
| 1:A:1019:U:OP1 | 1:A:1036:G:H1' | 2.18 | 0.43 |
| 1:A:1055:G:O6 | 1:A:1056:G:N2 | 2.52 | 0.43 |
| 1:A:1283:G:N2 | 1:A:1286:A:O5' | 2.49 | 0.43 |
| 1:A:1385:G:C5 | 1:A:1386:C:C5 | 3.07 | 0.43 |
| 1:A:1449(A):G:C6 | 1:A:1450:C:C4 | 3.07 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|----------------|-------------|----------|
| 1:A:1455:G:O2' | 1:A:1456:G:H5' | 2.19 | 0.43 |
| 1:A:1482:U:H5'' | 1:A:1482:U:H6 | 1.83 | 0.43 |
| 1:A:1523:U:H2' | 1:A:1524:G:C8 | 2.53 | 0.43 |
| 1:A:1641:A:OP2 | 1:A:1641:A:H8 | 2.01 | 0.43 |
| 1:A:1710:C:C2 | 1:A:1711:C:C6 | 3.07 | 0.43 |
| 1:A:1824:G:H21 | 4:D:253:GLN:CG | 2.27 | 0.43 |
| 1:A:190:A:C2 | 1:A:191:A:C6 | 3.06 | 0.43 |
| 1:A:196:A:H5' | 1:A:2068:U:O4 | 2.18 | 0.43 |
| 1:A:2047:U:O2' | 1:A:2048:G:O5' | 2.37 | 0.43 |
| 1:A:858:U:H2' | 1:A:2268:A:C8 | 2.54 | 0.43 |
| 1:A:2273:A:H8 | 1:A:2274:A:O4' | 2.01 | 0.43 |
| 1:A:2320:A:H8 | 1:A:2320:A:P | 2.41 | 0.43 |
| 1:A:2351:G:H1' | 1:A:2367:G:N2 | 2.34 | 0.43 |
| 1:A:2345:G:N2 | 1:A:2381:C:C2' | 2.82 | 0.43 |
| 1:A:2476:A:C8 | 1:A:2477:C:C6 | 3.07 | 0.43 |
| 1:A:2476:A:H2 | 1:A:2481:G:H22 | 1.58 | 0.43 |
| 1:A:2543:G:C6 | 1:A:2544:G:N1 | 2.87 | 0.43 |
| 1:A:2546:U:C4' | 1:A:2565:A:N1 | 2.81 | 0.43 |
| 1:A:2023:G:C5' | 1:A:2617:C:O3' | 2.67 | 0.43 |
| 1:A:2653:U:C4 | 1:A:2654:A:N6 | 2.87 | 0.43 |
| 1:A:2695:C:O2 | 1:A:2696:U:C5 | 2.72 | 0.43 |
| 1:A:1296:G:H5'' | 1:A:2709:G:O2' | 2.19 | 0.43 |
| 1:A:2717:G:N3 | 1:A:2718:G:C8 | 2.87 | 0.43 |
| 1:A:2895:U:C2 | 1:A:2896:C:C5 | 3.07 | 0.43 |
| 1:A:298:G:N1 | 1:A:338:G:H4' | 2.34 | 0.43 |
| 1:A:350:U:H6 | 1:A:350:U:O5' | 2.02 | 0.43 |
| 1:A:35:G:H2' | 1:A:36:G:H8 | 1.84 | 0.43 |
| 1:A:460:A:C2' | 1:A:461:C:C6 | 3.02 | 0.43 |
| 1:A:497:A:C6 | 1:A:498:G:N1 | 2.87 | 0.43 |
| 1:A:526:A:H5'' | 1:A:527:C:P | 2.57 | 0.43 |
| 1:A:557:U:C2 | 1:A:558:G:C8 | 3.07 | 0.43 |
| 1:A:56:A:H2' | 1:A:57:C:H6 | 1.83 | 0.43 |
| 1:A:5:A:C6 | 1:A:2899:G:C6 | 3.06 | 0.43 |
| 1:A:664:C:O2 | 1:A:664:C:C2' | 2.62 | 0.43 |
| 1:A:789:A:OP1 | 1:A:789:A:C3' | 2.65 | 0.43 |
| 1:A:824:A:H3' | 1:A:825:C:H5 | 1.82 | 0.43 |
| 1:A:922:U:O2 | 1:A:923:C:C4 | 2.71 | 0.43 |
| 1:A:977:G:C6 | 1:A:987:G:N1 | 2.87 | 0.43 |
| 2:B:56:G:HO2' | 2:B:57:A:H5' | 1.82 | 0.43 |
| 2:B:71:C:O2 | 2:B:71:C:C2' | 2.65 | 0.43 |
| 2:B:75:G:H5' | 23:Y:11:GLU:HA | 2.00 | 0.43 |
| 2:B:81:G:C6 | 2:B:82:G:N7 | 2.87 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 2:B:8:U:C2 | 2:B:9:G:C8 | 3.06 | 0.43 |
| 4:D:155:LEU:HB2 | 4:D:157:ARG:CZ | 2.49 | 0.43 |
| 4:D:18:VAL:C | 4:D:20:ASP:H | 2.21 | 0.43 |
| 1:A:1820:U:C6 | 4:D:202:LYS:HG2 | 2.53 | 0.43 |
| 4:D:226:MET:CE | 4:D:236:GLY:N | 2.82 | 0.43 |
| 4:D:84:TYR:HB2 | 4:D:91:ARG:HA | 2.00 | 0.43 |
| 1:A:1817:G:C5' | 4:D:88:ARG:NH2 | 2.81 | 0.43 |
| 5:E:133:LYS:CD | 5:E:137:HIS:CB | 2.91 | 0.43 |
| 5:E:178:GLU:CD | 5:E:178:GLU:H | 2.19 | 0.43 |
| 5:E:51:PHE:HE1 | 5:E:76:ARG:N | 2.15 | 0.43 |
| 6:F:11:VAL:HG22 | 6:F:126:VAL:CG1 | 2.48 | 0.43 |
| 6:F:128:ALA:HB1 | 6:F:142:TRP:CE2 | 2.53 | 0.43 |
| 6:F:162:LEU:O | 6:F:165:ARG:NH2 | 2.52 | 0.43 |
| 6:F:74:ARG:NH1 | 6:F:75:HIS:ND1 | 2.66 | 0.43 |
| 7:G:168:GLU:C | 7:G:170:ARG:N | 2.72 | 0.43 |
| 7:G:82:LEU:HD23 | 7:G:82:LEU:N | 2.34 | 0.43 |
| 8:H:46:GLU:OE1 | 8:H:46:GLU:HA | 2.19 | 0.43 |
| 9:K:24:GLY:C | 9:K:29:TYR:CE1 | 2.92 | 0.43 |
| 10:L:30:HIS:C | 10:L:30:HIS:HD1 | 2.19 | 0.43 |
| 11:M:86:PRO:C | 11:M:89:LYS:HZ2 | 2.17 | 0.43 |
| 12:N:5:GLN:O | 12:N:7:TYR:HE1 | 2.02 | 0.43 |
| 13:O:88:LEU:HD11 | 13:O:124:LYS:NZ | 2.33 | 0.43 |
| 13:O:63:PRO:HG2 | 13:O:65:ARG:HD2 | 2.01 | 0.43 |
| 15:Q:70:LEU:N | 15:Q:70:LEU:HD23 | 2.34 | 0.43 |
| 16:R:62:LYS:CB | 16:R:65:VAL:H | 2.21 | 0.43 |
| 17:S:115:ARG:C | 17:S:117:ASP:N | 2.72 | 0.43 |
| 18:T:101:ARG:O | 18:T:102:GLU:OE2 | 2.37 | 0.43 |
| 20:V:36:LEU:HD11 | 20:V:48:ALA:HB2 | 2.01 | 0.43 |
| 22:X:24:VAL:HG21 | 22:X:38:ILE:HD12 | 2.00 | 0.43 |
| 22:X:54:LYS:CA | 22:X:54:LYS:HE2 | 2.32 | 0.43 |
| 22:X:86:ARG:CB | 22:X:91:GLU:HB3 | 2.48 | 0.43 |
| 23:Y:28:MET:SD | 23:Y:29:TYR:N | 2.92 | 0.43 |
| 23:Y:2:GLU:O | 23:Y:59:LEU:O | 2.36 | 0.43 |
| 24:Z:48:GLY:O | 24:Z:51:VAL:CG2 | 2.67 | 0.43 |
| 9:K:77:LEU:HD21 | 9:K:140:LEU:HD22 | 2.00 | 0.43 |
| 1:A:2136:C:C2 | 1:A:2137:C:C6 | 3.07 | 0.43 |
| 3:C:148:ASN:HB2 | 3:C:151:GLU:CB | 2.48 | 0.43 |
| 3:C:160:ARG:CG | 3:C:160:ARG:HH11 | 2.32 | 0.43 |
| 3:C:171:ILE:HD13 | 3:C:192:PHE:CZ | 2.54 | 0.43 |
| 3:C:177:LYS:O | 3:C:180:PHE:HB3 | 2.18 | 0.43 |
| 3:C:34:THR:HG23 | 3:C:38:ASP:CA | 2.44 | 0.43 |
| 9:K:120:ILE:HA | 9:K:120:ILE:HD12 | 1.78 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2107:C:C4 | 1:A:2108:C:C5 | 3.06 | 0.43 |
| 24:Z:5:LYS:CG | 24:Z:6:GLY:H | 2.31 | 0.43 |
| 9:K:117:GLU:HB2 | 9:K:118:LYS:H | 1.71 | 0.43 |
| 26:2:15:TYR:CD1 | 26:2:15:TYR:N | 2.86 | 0.43 |
| 26:2:17:LYS:O | 26:2:19:GLN:N | 2.52 | 0.43 |
| 26:2:28:LEU:O | 26:2:29:ARG:CB | 2.67 | 0.43 |
| 26:2:8:LEU:HD13 | 26:2:8:LEU:C | 2.39 | 0.43 |
| 26:2:8:LEU:HD23 | 26:2:28:LEU:HD22 | 2.00 | 0.43 |
| 30:6:30:VAL:HA | 30:6:33:ARG:NE | 2.33 | 0.43 |
| 31:7:23:VAL:HG13 | 31:7:47:LYS:N | 2.33 | 0.43 |
| 1:A:2362:G:OP1 | 31:7:29:LYS:HE3 | 2.18 | 0.43 |
| 31:7:60:LEU:HD21 | 31:7:64:TYR:O | 2.19 | 0.43 |
| 1:A:1024:G:H3' | 1:A:1025:G:H5'' | 2.01 | 0.43 |
| 1:A:1031:G:C6 | 1:A:1032:A:N6 | 2.87 | 0.43 |
| 1:A:1048:A:C2 | 1:A:1049:C:C1' | 2.96 | 0.43 |
| 1:A:1027:A:C6 | 1:A:1126:A:C4 | 3.07 | 0.43 |
| 1:A:1182:A:H3' | 1:A:1183:G:H3' | 2.01 | 0.43 |
| 1:A:1205:U:C2' | 1:A:1206:G:N7 | 2.81 | 0.43 |
| 1:A:1388:G:O2' | 1:A:1389:G:H5' | 2.18 | 0.43 |
| 1:A:1422:G:C2 | 1:A:1423:G:C5 | 3.07 | 0.43 |
| 1:A:1646:C:C3' | 1:A:1647:G:C5' | 2.89 | 0.43 |
| 1:A:1662:C:C2 | 1:A:1663:C:C5 | 3.07 | 0.43 |
| 1:A:1693:U:O4 | 1:A:1977:A:C5 | 2.72 | 0.43 |
| 1:A:1682:G:C6 | 1:A:1757:U:O4' | 2.71 | 0.43 |
| 1:A:740:U:O4' | 1:A:1784:A:C8 | 2.72 | 0.43 |
| 1:A:1790:C:C2' | 1:A:1790:C:O2 | 2.67 | 0.43 |
| 1:A:1842:G:C4 | 1:A:1843:C:C6 | 3.07 | 0.43 |
| 1:A:1864:U:H6 | 1:A:1864:U:O5' | 2.01 | 0.43 |
| 1:A:1264:G:N1 | 1:A:2014:A:OP2 | 2.52 | 0.43 |
| 1:A:2021:C:H5' | 1:A:2022:U:C5 | 2.53 | 0.43 |
| 1:A:529:A:N6 | 1:A:2023:G:C1' | 2.81 | 0.43 |
| 1:A:2034:U:H2' | 1:A:2035:G:H5' | 2.00 | 0.43 |
| 1:A:2053:G:N7 | 1:A:2577:A:N6 | 2.67 | 0.43 |
| 1:A:2234:G:N2 | 1:A:2235:G:C4 | 2.87 | 0.43 |
| 1:A:2278:A:P | 14:P:14:ARG:CG | 3.01 | 0.43 |
| 1:A:2290:G:C2 | 1:A:2291:U:C2 | 3.07 | 0.43 |
| 1:A:2311:A:H3' | 1:A:2312:U:C5 | 2.53 | 0.43 |
| 1:A:2352:A:N7 | 1:A:2366:A:N6 | 2.66 | 0.43 |
| 1:A:2355:C:O2' | 24:Z:24:LYS:NZ | 2.47 | 0.43 |
| 1:A:2357:U:H6 | 1:A:2357:U:O5' | 2.01 | 0.43 |
| 1:A:2424:C:H5' | 1:A:2425:A:C5' | 2.49 | 0.43 |
| 1:A:830:G:N7 | 1:A:2448:A:H2' | 2.34 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2479:G:H8 | 1:A:2479:G:O5' | 2.01 | 0.43 |
| 1:A:248:G:N3 | 1:A:2431:U:H5'' | 2.33 | 0.43 |
| 1:A:2636:U:O5' | 5:E:79:ARG:HD3 | 2.18 | 0.43 |
| 1:A:2524:G:H21 | 1:A:2741:A:H1' | 1.83 | 0.43 |
| 1:A:2752:C:P | 1:A:2752:C:H6 | 2.41 | 0.43 |
| 1:A:2795:G:O2' | 1:A:2797:U:H5 | 2.01 | 0.43 |
| 1:A:2820:A:H5' | 1:A:2821:A:N7 | 2.34 | 0.43 |
| 1:A:2838:G:H4' | 15:Q:45:ARG:HH12 | 1.84 | 0.43 |
| 1:A:2899:G:C6 | 1:A:2900:A:N7 | 2.87 | 0.43 |
| 1:A:344:G:N2 | 1:A:345:A:C6 | 2.86 | 0.43 |
| 1:A:540:G:C5 | 1:A:541:C:C5 | 3.07 | 0.43 |
| 1:A:587:C:N3 | 1:A:671:C:C6 | 2.87 | 0.43 |
| 1:A:643:A:O2' | 1:A:644:A:OP2 | 2.36 | 0.43 |
| 1:A:641:C:C4 | 1:A:646:A:N1 | 2.87 | 0.43 |
| 1:A:650:C:C2' | 1:A:650:C:O2 | 2.55 | 0.43 |
| 1:A:729:G:C4 | 1:A:730:C:N1 | 2.87 | 0.43 |
| 1:A:816:C:C2' | 1:A:817:C:C5' | 2.85 | 0.43 |
| 1:A:831:G:C6 | 1:A:832:G:C5 | 3.07 | 0.43 |
| 1:A:850:C:H1' | 26:2:22:ALA:HA | 2.01 | 0.43 |
| 1:A:937:U:H2' | 1:A:938:G:O4' | 2.18 | 0.43 |
| 1:A:940:G:N3 | 1:A:1191:G:H4' | 2.34 | 0.43 |
| 1:A:962:G:C2 | 1:A:963:U:C4 | 3.07 | 0.43 |
| 1:A:9:U:C2' | 1:A:9:U:O2 | 2.66 | 0.43 |
| 2:B:44:G:C5' | 2:B:45:A:OP1 | 2.62 | 0.43 |
| 4:D:133:LEU:HB2 | 4:D:136:ILE:HD11 | 1.99 | 0.43 |
| 4:D:264:LYS:O | 4:D:265:PRO:C | 2.54 | 0.43 |
| 5:E:119:ARG:CG | 5:E:156:MET:O | 2.67 | 0.43 |
| 5:E:138:PRO:O | 5:E:139:GLY:O | 2.37 | 0.43 |
| 5:E:167:VAL:HG21 | 5:E:189:PRO:HD3 | 2.00 | 0.43 |
| 5:E:195:LEU:HA | 5:E:195:LEU:HD22 | 1.72 | 0.43 |
| 5:E:5:LEU:HD23 | 5:E:6:GLY:O | 2.19 | 0.43 |
| 1:A:2636:U:O3' | 5:E:79:ARG:NH2 | 2.51 | 0.43 |
| 1:A:321:G:P | 6:F:135:LYS:HG2 | 2.59 | 0.43 |
| 6:F:141:ALA:O | 6:F:144:LYS:N | 2.52 | 0.43 |
| 6:F:154:VAL:O | 6:F:174:VAL:HG22 | 2.18 | 0.43 |
| 6:F:168:ARG:NH2 | 6:F:168:ARG:CB | 2.68 | 0.43 |
| 6:F:182:ASN:OD1 | 6:F:185:ASP:HB2 | 2.19 | 0.43 |
| 6:F:41:LEU:HB3 | 6:F:184:TYR:HE1 | 1.82 | 0.43 |
| 6:F:40:GLN:CA | 6:F:184:TYR:OH | 2.67 | 0.43 |
| 7:G:177:GLY:O | 7:G:178:PHE:HB2 | 2.17 | 0.43 |
| 7:G:33:ARG:NH2 | 7:G:34:LEU:C | 2.72 | 0.43 |
| 7:G:43:LEU:HD21 | 7:G:88:ILE:CG2 | 2.49 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 7:G:56:ALA:HB1 | 7:G:68:PRO:HG2 | 2.00 | 0.43 |
| 8:H:11:VAL:N | 8:H:50:VAL:CG2 | 2.82 | 0.43 |
| 8:H:94:TYR:OH | 8:H:128:PRO:HG2 | 2.19 | 0.43 |
| 8:H:157:TYR:HB3 | 8:H:172:LYS:HG2 | 2.01 | 0.43 |
| 8:H:59:ARG:HA | 8:H:62:LYS:CG | 2.49 | 0.43 |
| 8:H:91:GLY:O | 8:H:93:GLY:N | 2.51 | 0.43 |
| 11:M:55:VAL:HG21 | 11:M:129:PRO:CG | 2.49 | 0.43 |
| 13:O:135:LEU:N | 13:O:135:LEU:HD12 | 2.34 | 0.43 |
| 1:A:811:U:OP2 | 13:O:28:GLY:O | 2.37 | 0.43 |
| 1:A:2415:G:OP2 | 13:O:61:ARG:NH2 | 2.52 | 0.43 |
| 13:O:65:ARG:HH11 | 13:O:68:GLN:CD | 2.19 | 0.43 |
| 14:P:34:LEU:CG | 14:P:67:ARG:NH2 | 2.79 | 0.43 |
| 14:P:89:ASN:C | 14:P:91:GLU:OE2 | 2.57 | 0.43 |
| 15:Q:103:ARG:CB | 15:Q:108:GLY:C | 2.87 | 0.43 |
| 15:Q:28:LEU:HB2 | 15:Q:34:ILE:HG13 | 2.01 | 0.43 |
| 16:R:92:TYR:CE2 | 16:R:93:LYS:HB3 | 2.53 | 0.43 |
| 16:R:97:ARG:CG | 16:R:97:ARG:NH2 | 2.80 | 0.43 |
| 17:S:21:GLU:C | 17:S:23:ARG:H | 2.21 | 0.43 |
| 1:A:533:G:H5'' | 18:T:24:TYR:HD2 | 1.83 | 0.43 |
| 19:U:12:TYR:O | 19:U:13:ARG:CG | 2.67 | 0.43 |
| 19:U:3:ALA:C | 19:U:4:ILE:HD12 | 2.38 | 0.43 |
| 22:X:14:LEU:CD2 | 22:X:19:LYS:H | 2.27 | 0.43 |
| 22:X:52:SER:O | 22:X:53:PRO:C | 2.56 | 0.43 |
| 23:Y:30:ASN:O | 23:Y:32:HIS:N | 2.52 | 0.43 |
| 24:Z:40:GLN:NE2 | 24:Z:57:PHE:CD2 | 2.85 | 0.43 |
| 24:Z:40:GLN:OE1 | 24:Z:43:THR:CA | 2.64 | 0.43 |
| 24:Z:29:GLN:O | 24:Z:66:VAL:HG22 | 2.18 | 0.43 |
| 1:A:2149:G:C2' | 1:A:2150:U:O5' | 2.67 | 0.43 |
| 1:A:2164:C:N3 | 1:A:2165:G:C2 | 2.87 | 0.43 |
| 1:A:2182:G:C2 | 1:A:2183:C:C2 | 3.07 | 0.43 |
| 1:A:363(C):G:C2 | 1:A:363(D):G:C8 | 3.07 | 0.43 |
| 25:1:12:SER:HB2 | 25:1:13:PRO:HD2 | 2.01 | 0.43 |
| 25:1:36:ILE:HG23 | 25:1:41:GLN:NE2 | 2.33 | 0.43 |
| 26:2:29:ARG:CG | 26:2:30:ARG:HH11 | 2.32 | 0.43 |
| 26:2:4:LEU:HD23 | 26:2:5:LYS:H | 1.82 | 0.43 |
| 26:2:4:LEU:HD23 | 26:2:57:GLU:O | 2.19 | 0.43 |
| 27:3:52:THR:CG2 | 27:3:53:GLU:H | 2.28 | 0.43 |
| 28:4:55:ARG:C | 28:4:57:VAL:N | 2.72 | 0.43 |
| 31:7:26:LYS:N | 31:7:46:ARG:HA | 2.34 | 0.43 |
| 29:5:25:LYS:CE | 31:7:35:GLN:HB3 | 2.48 | 0.43 |
| 1:A:1077:A:C5 | 1:A:1078:U:C2 | 3.06 | 0.43 |
| 1:A:1048:A:OP2 | 1:A:1109:C:N4 | 2.51 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 1:A:1137:G:H4' | 11:M:105:GLY:HA2 | 1.99 | 0.43 |
| 1:A:1179:C:C2' | 1:A:1180:C:C6 | 2.98 | 0.43 |
| 1:A:1166:C:O2 | 1:A:1184:G:C2 | 2.72 | 0.43 |
| 1:A:1210:A:C1' | 1:A:1212:G:N2 | 2.76 | 0.43 |
| 1:A:1231:G:C5 | 1:A:1232:G:N7 | 2.86 | 0.43 |
| 1:A:1286:A:N7 | 1:A:1289:C:C4 | 2.86 | 0.43 |
| 1:A:1322:A:N1 | 1:A:1333:C:O2' | 2.32 | 0.43 |
| 1:A:1342:A:O3' | 1:A:1344:G:OP2 | 2.36 | 0.43 |
| 1:A:1357:U:H2' | 1:A:1358:G:O4' | 2.19 | 0.43 |
| 1:A:1449:A:C2 | 1:A:1449(A):G:O4' | 2.72 | 0.43 |
| 1:A:1492:G:N2 | 1:A:1499:C:C6 | 2.87 | 0.43 |
| 1:A:1631:A:O2' | 1:A:1632:A:H5' | 2.19 | 0.43 |
| 1:A:1658:C:OP1 | 5:E:134:ILE:CB | 2.65 | 0.43 |
| 1:A:1778:U:HO2' | 1:A:1779:U:P | 2.42 | 0.43 |
| 1:A:1819:A:O2' | 1:A:1820:U:C5' | 2.67 | 0.43 |
| 1:A:1846:G:H3' | 1:A:1847:A:H5'' | 2.01 | 0.43 |
| 1:A:1947:C:N3 | 1:A:1948:G:N7 | 2.67 | 0.43 |
| 1:A:1957:C:O2' | 1:A:1984:G:N2 | 2.52 | 0.43 |
| 1:A:2048:G:N2 | 1:A:2049:G:C4 | 2.86 | 0.43 |
| 1:A:218:A:H2' | 1:A:219:G:O4' | 2.19 | 0.43 |
| 1:A:2355:C:H5' | 24:Z:36:ILE:CG2 | 2.43 | 0.43 |
| 1:A:2356:C:H2' | 1:A:2357:U:C5' | 2.49 | 0.43 |
| 1:A:2369:A:H2' | 1:A:2370:G:H8 | 1.84 | 0.43 |
| 1:A:2391:G:N2 | 1:A:2427:C:O2' | 2.51 | 0.43 |
| 1:A:2459:A:C5 | 1:A:2493:U:C4 | 3.06 | 0.43 |
| 1:A:2461:C:C1' | 1:A:2492:U:C4 | 2.99 | 0.43 |
| 1:A:2499:C:N4 | 1:A:2500:U:O2 | 2.52 | 0.43 |
| 1:A:244:A:H1' | 1:A:255:A:N1 | 2.33 | 0.43 |
| 1:A:2548:G:C6 | 1:A:2561:A:C6 | 3.07 | 0.43 |
| 1:A:2621:A:C2' | 1:A:2622:C:O5' | 2.67 | 0.43 |
| 1:A:2654:A:C1' | 1:A:2656:U:C4 | 2.95 | 0.43 |
| 1:A:2776:A:N9 | 1:A:2778:A:N7 | 2.66 | 0.43 |
| 1:A:2826:A:H2' | 1:A:2827:C:O5' | 2.18 | 0.43 |
| 1:A:2839:G:O2' | 1:A:2840:C:C5' | 2.61 | 0.43 |
| 1:A:2876:G:C2 | 1:A:2877:G:C8 | 3.07 | 0.43 |
| 1:A:270:A:C6 | 1:A:370:G:N9 | 2.87 | 0.43 |
| 1:A:374:A:C2' | 1:A:375:C:H6 | 2.32 | 0.43 |
| 1:A:386:G:C4' | 1:A:387:U:C5 | 2.81 | 0.43 |
| 1:A:452:G:C2 | 1:A:458:G:N2 | 2.87 | 0.43 |
| 1:A:519:U:H5' | 1:A:519:U:H6 | 1.84 | 0.43 |
| 1:A:554:U:C2' | 1:A:556:G:N7 | 2.82 | 0.43 |
| 1:A:566:U:O2' | 1:A:567:A:P | 2.77 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:600:G:N2 | 1:A:604:G:O2' | 2.52 | 0.43 |
| 1:A:607:U:C2' | 1:A:607:U:O2 | 2.59 | 0.43 |
| 1:A:762:U:O2 | 1:A:762:U:C2' | 2.66 | 0.43 |
| 1:A:89:G:C4 | 1:A:90:U:C5 | 3.04 | 0.43 |
| 1:A:910:A:C2' | 1:A:911:A:O5' | 2.67 | 0.43 |
| 1:A:920:G:N3 | 1:A:921:G:C8 | 2.86 | 0.43 |
| 1:A:942:G:C2' | 1:A:943:U:OP1 | 2.67 | 0.43 |
| 1:A:975:G:C2 | 1:A:976:C:O4' | 2.72 | 0.43 |
| 1:A:987:G:O6 | 1:A:988:A:C5 | 2.72 | 0.43 |
| 2:B:16:G:O2' | 2:B:17:C:O4' | 2.31 | 0.43 |
| 2:B:61:G:N1 | 2:B:62:C:C4 | 2.87 | 0.43 |
| 4:D:147:LEU:N | 4:D:154:LYS:HE3 | 2.34 | 0.43 |
| 1:A:1799:G:N7 | 4:D:268:ARG:NH2 | 2.66 | 0.43 |
| 4:D:46:GLN:NE2 | 4:D:52:ARG:HH22 | 2.17 | 0.43 |
| 4:D:72:LYS:HZ2 | 4:D:75:ILE:CD1 | 2.31 | 0.43 |
| 4:D:88:ARG:HG3 | 4:D:90:ALA:N | 2.33 | 0.43 |
| 5:E:113:PHE:N | 5:E:113:PHE:HD1 | 2.14 | 0.43 |
| 5:E:125:GLY:N | 5:E:136:ARG:CB | 2.82 | 0.43 |
| 7:G:102:PHE:CD2 | 7:G:106:LEU:CG | 3.02 | 0.43 |
| 7:G:181:ARG:CZ | 7:G:181:ARG:HA | 2.48 | 0.43 |
| 7:G:15:VAL:O | 7:G:19:LEU:CD1 | 2.67 | 0.43 |
| 8:H:123:PHE:N | 8:H:123:PHE:CD1 | 2.87 | 0.43 |
| 8:H:120:GLY:CA | 8:H:140:LYS:HZ3 | 2.32 | 0.43 |
| 8:H:142:GLY:O | 8:H:145:ALA:HB3 | 2.19 | 0.43 |
| 8:H:29:PRO:HD2 | 8:H:30:LYS:H | 1.84 | 0.43 |
| 8:H:55:PRO:O | 8:H:56:SER:HB2 | 2.18 | 0.43 |
| 9:K:25:TYR:N | 9:K:25:TYR:CD2 | 2.81 | 0.43 |
| 9:K:39:ALA:O | 9:K:40:THR:O | 2.36 | 0.43 |
| 10:L:41:PHE:HD2 | 10:L:41:PHE:HA | 1.70 | 0.43 |
| 11:M:123:TYR:C | 11:M:125:GLY:H | 2.22 | 0.43 |
| 11:M:130:HIS:O | 11:M:133:GLN:N | 2.52 | 0.43 |
| 11:M:68:GLU:N | 11:M:70:LYS:CE | 2.77 | 0.43 |
| 13:O:72:PRO:CA | 13:O:111:ARG:HB3 | 2.47 | 0.43 |
| 13:O:123:LEU:HD21 | 13:O:134:ALA:HA | 1.99 | 0.43 |
| 13:O:56:SER:HB3 | 31:7:13:ARG:HH21 | 1.74 | 0.43 |
| 13:O:56:SER:OG | 31:7:13:ARG:CD | 2.67 | 0.43 |
| 13:O:8:PRO:O | 13:O:9:ASN:O | 2.37 | 0.43 |
| 13:O:99:LEU:HD22 | 13:O:101:VAL:CG2 | 2.46 | 0.43 |
| 14:P:124:LYS:O | 14:P:125:LEU:C | 2.58 | 0.43 |
| 14:P:134:ARG:HH11 | 14:P:135:ASP:HA | 1.84 | 0.43 |
| 14:P:24:GLY:H | 14:P:101:ARG:CZ | 2.30 | 0.43 |
| 14:P:44:ALA:C | 14:P:47:ILE:HB | 2.36 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 14:P:77:LYS:HG3 | 14:P:87:LYS:CA | 2.48 | 0.43 |
| 15:Q:104:ARG:HH11 | 15:Q:104:ARG:HG2 | 1.84 | 0.43 |
| 16:R:15:ARG:HA | 16:R:15:ARG:HD3 | 1.62 | 0.43 |
| 16:R:4:LEU:HD23 | 16:R:4:LEU:N | 2.34 | 0.43 |
| 17:S:82:LEU:HD23 | 17:S:83:ILE:HG22 | 2.01 | 0.43 |
| 18:T:42:ALA:O | 18:T:45:TYR:CA | 2.66 | 0.43 |
| 19:U:74:LYS:H | 19:U:74:LYS:CD | 2.21 | 0.43 |
| 22:X:82:PRO:HG3 | 22:X:97:ARG:CA | 2.47 | 0.43 |
| 22:X:82:PRO:CG | 22:X:83:THR:N | 2.80 | 0.43 |
| 23:Y:135:GLU:C | 23:Y:136:PHE:CD1 | 2.92 | 0.43 |
| 23:Y:169:GLU:O | 23:Y:170:THR:OG1 | 2.34 | 0.43 |
| 23:Y:56:VAL:CG2 | 23:Y:101:PRO:CD | 2.97 | 0.43 |
| 23:Y:74:VAL:HG12 | 23:Y:75:ASN:N | 2.33 | 0.43 |
| 23:Y:78:LYS:HG2 | 23:Y:79:ARG:N | 2.29 | 0.43 |
| 24:Z:26:TYR:HE1 | 24:Z:29:GLN:OE1 | 1.99 | 0.43 |
| 9:K:123:LEU:HD11 | 9:K:146:ALA:N | 2.33 | 0.43 |
| 1:A:2111:C:N3 | 1:A:2145:C:C2 | 2.87 | 0.43 |
| 1:A:2135:A:OP2 | 1:A:2135:A:C5 | 2.72 | 0.43 |
| 1:A:2179:C:C2 | 1:A:2180:U:C5 | 3.07 | 0.43 |
| 3:C:131:LEU:CG | 3:C:136:LEU:HB2 | 2.49 | 0.43 |
| 3:C:22:ILE:CD1 | 3:C:193:ILE:HD11 | 2.49 | 0.43 |
| 3:C:210:ARG:NH1 | 3:C:210:ARG:HG2 | 2.33 | 0.43 |
| 3:C:61:THR:O | 3:C:62:VAL:CB | 2.67 | 0.43 |
| 1:A:2129:C:P | 3:C:6:ARG:HE | 2.41 | 0.43 |
| 5:E:127:ASP:CG | 5:E:135:HIS:N | 2.72 | 0.43 |
| 1:A:155:C:C2 | 1:A:171:G:N1 | 2.86 | 0.43 |
| 1:A:2185:C:C2 | 1:A:2186:G:N7 | 2.87 | 0.43 |
| 21:W:11:PRO:HB2 | 21:W:13:LEU:HD23 | 1.99 | 0.43 |
| 25:1:52:ILE:O | 25:1:56:LEU:CD2 | 2.58 | 0.42 |
| 26:2:45:GLY:HA2 | 26:2:48:GLU:HG2 | 2.01 | 0.42 |
| 27:3:29:PRO:CG | 27:3:31:ILE:HD12 | 2.49 | 0.42 |
| 28:4:50:GLY:HA3 | 28:4:57:VAL:HG23 | 2.01 | 0.42 |
| 29:5:31:PRO:HB3 | 29:5:34:LEU:CD1 | 2.42 | 0.42 |
| 29:5:40:CYS:O | 29:5:40:CYS:SG | 2.75 | 0.42 |
| 29:5:47:THR:O | 29:5:48:VAL:C | 2.57 | 0.42 |
| 30:6:1:MET:HB3 | 30:6:3:ARG:HD3 | 2.01 | 0.42 |
| 31:7:17:THR:C | 31:7:19:SER:N | 2.68 | 0.42 |
| 31:7:8:LYS:H | 31:7:8:LYS:HE2 | 1.80 | 0.42 |
| 32:8:1:MET:H3 | 32:8:35:ARG:HD2 | 1.82 | 0.42 |
| 1:A:1022:G:N1 | 1:A:1139:G:C2 | 2.87 | 0.42 |
| 1:A:1122:G:C2 | 1:A:1123:C:C6 | 3.07 | 0.42 |
| 1:A:1176:G:H3' | 1:A:1177:A:C8 | 2.50 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1245:G:O2' | 1:A:1246:A:H5' | 2.18 | 0.42 |
| 1:A:772:C:H5' | 1:A:1356:G:P | 2.59 | 0.42 |
| 1:A:1364:G:C2 | 1:A:1367:A:OP2 | 2.72 | 0.42 |
| 1:A:1436:G:C6 | 1:A:1437:C:C4 | 3.07 | 0.42 |
| 1:A:1475:G:H21 | 1:A:1476:C:C4' | 2.32 | 0.42 |
| 1:A:1486:A:C2' | 1:A:1487:G:H5' | 2.49 | 0.42 |
| 1:A:1518:C:N3 | 1:A:1519:G:H1' | 2.34 | 0.42 |
| 1:A:1527:G:O2' | 1:A:1528:A:N3 | 2.45 | 0.42 |
| 1:A:1569:A:N1 | 1:A:1570:A:C6 | 2.86 | 0.42 |
| 1:A:1348:G:N1 | 1:A:1599:C:C4 | 2.86 | 0.42 |
| 1:A:1637:A:H2' | 1:A:1638:C:H6 | 1.81 | 0.42 |
| 1:A:1649:G:N3 | 15:Q:107:ASP:HB2 | 2.34 | 0.42 |
| 1:A:1660:C:O2' | 1:A:1661:G:H5' | 2.19 | 0.42 |
| 1:A:1780:A:OP2 | 1:A:1782:C:OP2 | 2.37 | 0.42 |
| 1:A:1789:A:N7 | 1:A:1790:C:C6 | 2.87 | 0.42 |
| 1:A:1791:A:O2' | 1:A:1792:G:P | 2.76 | 0.42 |
| 1:A:1972:A:C4 | 1:A:1973:G:N7 | 2.87 | 0.42 |
| 1:A:2019:A:N1 | 1:A:2020:A:N3 | 2.67 | 0.42 |
| 1:A:2092:U:C4' | 1:A:2225:A:H2 | 2.30 | 0.42 |
| 1:A:2261:C:O4' | 1:A:2388:A:H1' | 2.18 | 0.42 |
| 1:A:2296:U:C5 | 16:R:5:THR:HA | 2.54 | 0.42 |
| 1:A:2305:A:H5' | 1:A:2306:C:OP2 | 2.19 | 0.42 |
| 1:A:2358:G:C2' | 1:A:2358:G:N3 | 2.80 | 0.42 |
| 1:A:2405:G:O2' | 1:A:2406:U:P | 2.77 | 0.42 |
| 1:A:2527:C:H2' | 1:A:2528:U:C6 | 2.54 | 0.42 |
| 1:A:2559:C:C2' | 1:A:2560:C:O5' | 2.66 | 0.42 |
| 1:A:2588:G:H2' | 1:A:2589:A:C8 | 2.54 | 0.42 |
| 1:A:2605:U:H2' | 1:A:2606:C:H6 | 1.82 | 0.42 |
| 1:A:2617:C:C2' | 1:A:2618:G:H5' | 2.49 | 0.42 |
| 1:A:2695:C:O2' | 1:A:2696:U:H6 | 2.02 | 0.42 |
| 1:A:2742:C:H5'' | 32:8:35:ARG:HH22 | 1.83 | 0.42 |
| 1:A:28:A:N1 | 1:A:29:U:H1' | 2.33 | 0.42 |
| 1:A:471:A:C8 | 1:A:472:A:N7 | 2.86 | 0.42 |
| 1:A:498:G:H3' | 1:A:498:G:H8 | 1.82 | 0.42 |
| 1:A:629:G:H5'' | 1:A:649:G:HO2' | 1.80 | 0.42 |
| 1:A:663:G:OP1 | 13:O:19:VAL:N | 2.50 | 0.42 |
| 1:A:816:C:H2' | 1:A:817:C:C5' | 2.48 | 0.42 |
| 1:A:826:U:OP1 | 1:A:2428:G:OP1 | 2.36 | 0.42 |
| 1:A:975:G:C6 | 1:A:976:C:C5 | 3.07 | 0.42 |
| 1:A:996:A:C5 | 1:A:1160:G:C2 | 3.07 | 0.42 |
| 2:B:102:G:N3 | 23:Y:73:GLN:NE2 | 2.47 | 0.42 |
| 2:B:24:G:H21 | 2:B:27:C:H42 | 1.59 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:B:37:C:C4 | 2:B:38:C:O2 | 2.71 | 0.42 |
| 4:D:143:HIS:CE1 | 4:D:193:VAL:O | 2.72 | 0.42 |
| 4:D:83:GLU:O | 4:D:92:ILE:HG23 | 2.19 | 0.42 |
| 5:E:120:TRP:CZ2 | 5:E:122:PHE:O | 2.72 | 0.42 |
| 5:E:13:ARG:CZ | 5:E:20:ALA:CB | 2.77 | 0.42 |
| 5:E:199:ARG:O | 5:E:200:GLU:CD | 2.57 | 0.42 |
| 5:E:4:ILE:O | 5:E:27:LEU:HB2 | 2.19 | 0.42 |
| 5:E:4:ILE:HD11 | 5:E:76:ARG:NH1 | 2.32 | 0.42 |
| 6:F:36:VAL:CG1 | 6:F:183:VAL:HG11 | 2.41 | 0.42 |
| 6:F:199:TRP:O | 6:F:200:GLU:C | 2.56 | 0.42 |
| 6:F:30:PRO:HG2 | 6:F:31:HIS:N | 2.31 | 0.42 |
| 6:F:46:ARG:CA | 6:F:46:ARG:NE | 2.82 | 0.42 |
| 6:F:64:ILE:HG21 | 6:F:78:ILE:HG21 | 2.01 | 0.42 |
| 6:F:43:LYS:HG3 | 6:F:99:TYR:H | 1.79 | 0.42 |
| 7:G:131:TYR:CE1 | 7:G:158:ALA:HA | 2.53 | 0.42 |
| 7:G:40:ASN:ND2 | 7:G:90:LEU:O | 2.52 | 0.42 |
| 7:G:71:THR:O | 7:G:88:ILE:CG1 | 2.63 | 0.42 |
| 8:H:82:GLY:O | 8:H:83:TYR:CB | 2.51 | 0.42 |
| 10:L:115:LEU:HD11 | 10:L:122:ALA:CB | 2.48 | 0.42 |
| 10:L:132:ARG:NH2 | 10:L:138:VAL:CG1 | 2.82 | 0.42 |
| 11:M:126:PRO:O | 11:M:127:ASP:CG | 2.57 | 0.42 |
| 11:M:55:VAL:HG22 | 11:M:123:TYR:O | 2.17 | 0.42 |
| 12:N:28:SER:O | 12:N:29:ASN:ND2 | 2.52 | 0.42 |
| 12:N:79:PHE:HE1 | 17:S:106:SER:CB | 2.32 | 0.42 |
| 12:N:86:ILE:CG2 | 12:N:90:GLN:HA | 2.49 | 0.42 |
| 12:N:86:ILE:HG22 | 12:N:87:ILE:C | 2.39 | 0.42 |
| 13:O:114:ILE:N | 13:O:114:ILE:CD1 | 2.82 | 0.42 |
| 13:O:67:MET:C | 13:O:68:GLN:NE2 | 2.73 | 0.42 |
| 1:A:636:G:H22 | 13:O:75:ILE:HG23 | 1.79 | 0.42 |
| 13:O:76:LYS:NZ | 13:O:96:THR:CG2 | 2.74 | 0.42 |
| 14:P:25:ASP:OD1 | 14:P:101:ARG:NH1 | 2.52 | 0.42 |
| 14:P:116:GLU:OE1 | 14:P:119:ARG:CD | 2.65 | 0.42 |
| 14:P:122:GLY:CA | 14:P:125:LEU:HD12 | 2.47 | 0.42 |
| 14:P:11:LYS:CG | 14:P:12:GLN:H | 2.32 | 0.42 |
| 14:P:42:ILE:HD11 | 14:P:46:GLN:NE2 | 2.33 | 0.42 |
| 14:P:51:ARG:HH22 | 14:P:63:LYS:NZ | 2.17 | 0.42 |
| 14:P:78:PRO:C | 14:P:79:LEU:HG | 2.39 | 0.42 |
| 15:Q:84:ALA:O | 15:Q:85:PRO:C | 2.57 | 0.42 |
| 17:S:6:LEU:CD2 | 17:S:7:ILE:HG23 | 2.48 | 0.42 |
| 18:T:102:GLU:CB | 18:T:105:VAL:CG1 | 2.97 | 0.42 |
| 18:T:39:LEU:O | 18:T:40:PHE:C | 2.56 | 0.42 |
| 19:U:13:ARG:CA | 19:U:13:ARG:HE | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 19:U:52:VAL:HG13 | 19:U:56:SER:OG | 2.19 | 0.42 |
| 19:U:28:GLU:CD | 19:U:94:LEU:HB2 | 2.39 | 0.42 |
| 19:U:19:LYS:O | 19:U:96:ILE:CD1 | 2.67 | 0.42 |
| 20:V:43:GLY:HA2 | 20:V:46:PHE:HB2 | 2.01 | 0.42 |
| 20:V:59:VAL:HA | 20:V:63:ASP:CB | 2.47 | 0.42 |
| 1:A:1323:U:P | 20:V:84:ARG:NH1 | 2.92 | 0.42 |
| 21:W:12:VAL:HG12 | 21:W:21:PHE:HZ | 1.84 | 0.42 |
| 22:X:47:LYS:HB3 | 22:X:47:LYS:HE2 | 1.87 | 0.42 |
| 23:Y:43:GLU:O | 23:Y:46:LYS:N | 2.52 | 0.42 |
| 9:K:102:SER:HA | 9:K:107:VAL:O | 2.19 | 0.42 |
| 9:K:66:GLU:O | 9:K:69:LYS:HE3 | 2.18 | 0.42 |
| 3:C:103:ILE:C | 3:C:105:ASP:N | 2.71 | 0.42 |
| 3:C:26:ALA:HB1 | 3:C:185:LEU:CG | 2.49 | 0.42 |
| 3:C:49:ILE:HD11 | 3:C:169:GLY:HA2 | 2.01 | 0.42 |
| 1:A:2183:C:C2' | 1:A:2184:G:H8 | 2.13 | 0.42 |
| 1:A:363(B):G:H2' | 1:A:363(C):G:H8 | 1.84 | 0.42 |
| 16:R:56:LEU:HD11 | 16:R:59:LYS:CD | 2.46 | 0.42 |
| 4:D:112:GLN:N | 4:D:115:GLN:NE2 | 2.67 | 0.42 |
| 4:D:276:LYS:HE3 | 4:D:276:LYS:HB3 | 1.90 | 0.42 |
| 2:B:-1:A:N7 | 2:B:0:A:H1' | 2.33 | 0.42 |
| 14:P:76:LYS:H | 14:P:76:LYS:HG2 | 1.73 | 0.42 |
| 25:1:56:LEU:C | 25:1:58:VAL:N | 2.72 | 0.42 |
| 28:4:10:LYS:HB3 | 28:4:10:LYS:HE2 | 1.68 | 0.42 |
| 15:Q:33:ARG:NH2 | 28:4:56:LYS:CG | 2.81 | 0.42 |
| 29:5:12:GLU:CG | 29:5:52:VAL:O | 2.67 | 0.42 |
| 30:6:19:ARG:O | 30:6:20:ALA:C | 2.57 | 0.42 |
| 30:6:5:TRP:CE3 | 30:6:5:TRP:HA | 2.54 | 0.42 |
| 1:A:108:U:C2 | 1:A:109:G:C8 | 3.07 | 0.42 |
| 1:A:1188:U:O2 | 1:A:1189:A:H1' | 2.16 | 0.42 |
| 1:A:1189:A:H5'' | 13:O:29:LYS:CD | 2.45 | 0.42 |
| 1:A:119:A:O2' | 1:A:120:U:C5' | 2.66 | 0.42 |
| 1:A:1225:C:OP2 | 19:U:88:ARG:NH2 | 2.46 | 0.42 |
| 1:A:1287:A:H3' | 1:A:1288:U:C6 | 2.54 | 0.42 |
| 1:A:1289:C:C2 | 1:A:1290:C:C5 | 3.07 | 0.42 |
| 1:A:1340:U:O2' | 1:A:1394:U:O2' | 2.32 | 0.42 |
| 1:A:140:A:N3 | 1:A:1408:C:H1' | 2.34 | 0.42 |
| 1:A:1437:C:H5'' | 1:A:1437:C:C6 | 2.54 | 0.42 |
| 1:A:1455:G:C6 | 1:A:1456:G:C8 | 3.07 | 0.42 |
| 1:A:1528:A:C8 | 1:A:1529:A:C2 | 3.08 | 0.42 |
| 1:A:1608:A:N1 | 1:A:1611:C:C6 | 2.88 | 0.42 |
| 1:A:1632:A:C8 | 1:A:1632:A:O5' | 2.63 | 0.42 |
| 1:A:16:G:H5'' | 28:4:17:ASP:CB | 2.48 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1726:G:N2 | 1:A:1733:G:N7 | 2.67 | 0.42 |
| 1:A:1774:C:H5 | 1:A:1775:U:C4 | 2.36 | 0.42 |
| 1:A:1364:G:H5'' | 1:A:1808:U:O2 | 2.20 | 0.42 |
| 1:A:1815:A:C1' | 1:A:1817:G:C1' | 2.97 | 0.42 |
| 1:A:1903:G:N1 | 1:A:1904:G:C5 | 2.87 | 0.42 |
| 1:A:1903:G:C6 | 1:A:1904:G:N7 | 2.87 | 0.42 |
| 1:A:1914:C:N3 | 1:A:1915:U:H5 | 2.13 | 0.42 |
| 1:A:2025:C:C2' | 1:A:2026:C:C6 | 2.98 | 0.42 |
| 1:A:203:C:C5 | 1:A:204:A:C5 | 3.07 | 0.42 |
| 1:A:2052:G:O5' | 5:E:141:ILE:CG1 | 2.66 | 0.42 |
| 1:A:2093:G:O4' | 9:K:29:TYR:HD2 | 1.99 | 0.42 |
| 1:A:2331:G:C4' | 24:Z:42:GLY:HA3 | 2.49 | 0.42 |
| 1:A:2423:U:H1' | 1:A:2425:A:C5 | 2.54 | 0.42 |
| 1:A:806:C:HO2' | 1:A:2445:G:C4' | 2.32 | 0.42 |
| 1:A:2472:G:C8 | 1:A:2475:C:N4 | 2.87 | 0.42 |
| 1:A:2488:A:C5 | 1:A:2489:G:N7 | 2.87 | 0.42 |
| 1:A:2031:A:N6 | 1:A:2498:C:H1' | 2.32 | 0.42 |
| 1:A:2595:G:N2 | 1:A:2597:G:O5' | 2.52 | 0.42 |
| 1:A:2615:U:C1' | 28:4:7:PRO:CB | 2.92 | 0.42 |
| 1:A:261:G:C2' | 1:A:262:A:H5' | 2.47 | 0.42 |
| 1:A:2544:G:C5' | 1:A:2645:G:N7 | 2.56 | 0.42 |
| 1:A:2660:A:OP1 | 8:H:175:LYS:NZ | 2.47 | 0.42 |
| 1:A:270(S):G:C2 | 1:A:270(T):G:N7 | 2.87 | 0.42 |
| 1:A:2754:U:C6 | 1:A:2754:U:O5' | 2.69 | 0.42 |
| 1:A:2834:G:C6 | 1:A:2879:C:N3 | 2.87 | 0.42 |
| 1:A:2839:G:C2 | 1:A:2840:C:N1 | 2.87 | 0.42 |
| 1:A:344:G:H5'' | 1:A:345:A:OP2 | 2.19 | 0.42 |
| 1:A:360:G:N7 | 1:A:361:G:C8 | 2.88 | 0.42 |
| 1:A:270:A:N6 | 1:A:370:G:C4 | 2.87 | 0.42 |
| 1:A:415:A:C2 | 1:A:416:C:C1' | 3.02 | 0.42 |
| 1:A:370:G:C6 | 1:A:424:G:N7 | 2.87 | 0.42 |
| 1:A:483:A:C2 | 1:A:484:C:O4' | 2.73 | 0.42 |
| 1:A:53:A:N3 | 1:A:53:A:H2' | 2.34 | 0.42 |
| 1:A:573:G:H22 | 1:A:2029:G:N2 | 2.16 | 0.42 |
| 1:A:641:C:H6 | 1:A:642:G:O4' | 2.03 | 0.42 |
| 1:A:687:C:OP1 | 30:6:2:LYS:HD2 | 2.18 | 0.42 |
| 1:A:757:U:H2' | 1:A:758:C:O4' | 2.19 | 0.42 |
| 1:A:776:G:C8 | 1:A:793:A:C2 | 3.07 | 0.42 |
| 1:A:799:G:C4 | 1:A:800:A:N7 | 2.87 | 0.42 |
| 1:A:842:G:C6 | 1:A:843:G:C5 | 3.07 | 0.42 |
| 1:A:849:A:C4 | 1:A:850:C:C6 | 3.07 | 0.42 |
| 1:A:911:A:O4' | 1:A:2264:C:H4' | 2.18 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:957:A:N6 | 1:A:959:A:N3 | 2.67 | 0.42 |
| 1:A:819:A:C4 | 1:A:973:A:H2 | 2.36 | 0.42 |
| 2:B:6:C:O2' | 2:B:7:G:OP1 | 2.31 | 0.42 |
| 2:B:87:G:N1 | 2:B:90:C:C4 | 2.88 | 0.42 |
| 4:D:155:LEU:O | 4:D:157:ARG:HG2 | 2.19 | 0.42 |
| 1:A:705:A:H2 | 4:D:16:MET:HE2 | 1.84 | 0.42 |
| 4:D:159:ALA:HB2 | 4:D:198:ASN:HB3 | 2.01 | 0.42 |
| 4:D:28:GLU:O | 4:D:29:PRO:C | 2.55 | 0.42 |
| 5:E:108:SER:O | 5:E:109:LYS:C | 2.57 | 0.42 |
| 5:E:180:ASN:N | 5:E:180:ASN:HD22 | 2.16 | 0.42 |
| 5:E:187:ALA:C | 5:E:189:PRO:HD3 | 2.39 | 0.42 |
| 5:E:53:PRO:HG3 | 5:E:75:VAL:HG21 | 1.94 | 0.42 |
| 1:A:2811:G:H5'' | 5:E:60:ASN:ND2 | 2.34 | 0.42 |
| 5:E:81:ILE:CG2 | 5:E:82:ARG:HG2 | 2.48 | 0.42 |
| 6:F:41:LEU:HD13 | 6:F:44:ARG:HH12 | 1.83 | 0.42 |
| 7:G:51:ARG:HG3 | 7:G:51:ARG:HH21 | 1.83 | 0.42 |
| 1:A:2746:U:H4' | 8:H:138:LYS:HG2 | 2.01 | 0.42 |
| 10:L:102:GLU:O | 10:L:106:GLU:HG3 | 2.19 | 0.42 |
| 1:A:558:G:C5' | 11:M:109:LYS:HD3 | 2.46 | 0.42 |
| 11:M:56:ASN:CG | 11:M:126:PRO:O | 2.57 | 0.42 |
| 5:E:152:LYS:CE | 11:M:77:GLY:O | 2.60 | 0.42 |
| 12:N:110:GLY:O | 12:N:111:PHE:CB | 2.66 | 0.42 |
| 12:N:117:LEU:HD23 | 12:N:118:ALA:CA | 2.45 | 0.42 |
| 12:N:98:VAL:HG12 | 12:N:122:LEU:HD21 | 1.99 | 0.42 |
| 13:O:117:GLU:CD | 13:O:117:GLU:N | 2.72 | 0.42 |
| 1:A:2416:C:OP1 | 13:O:59:LEU:C | 2.57 | 0.42 |
| 13:O:93:GLY:CA | 13:O:96:THR:HG23 | 2.49 | 0.42 |
| 1:A:910:A:N6 | 14:P:15:GLY:O | 2.51 | 0.42 |
| 15:Q:58:GLY:O | 15:Q:59:ASP:OD1 | 2.37 | 0.42 |
| 15:Q:78:LYS:HA | 15:Q:78:LYS:HD2 | 1.53 | 0.42 |
| 15:Q:97:VAL:HG22 | 15:Q:114:VAL:HG21 | 2.02 | 0.42 |
| 2:B:115:G:C4' | 16:R:50:SER:HB3 | 2.45 | 0.42 |
| 17:S:100:TYR:O | 17:S:101:PHE:HB2 | 2.18 | 0.42 |
| 17:S:109:GLU:C | 17:S:110:ILE:O | 2.55 | 0.42 |
| 17:S:4:GLY:O | 17:S:5:ALA:C | 2.57 | 0.42 |
| 17:S:65:LYS:HZ3 | 17:S:75:ILE:HD13 | 1.84 | 0.42 |
| 17:S:76:PHE:CZ | 17:S:78:LEU:HD21 | 2.54 | 0.42 |
| 18:T:35:ALA:O | 18:T:38:THR:OG1 | 2.37 | 0.42 |
| 18:T:49:HIS:CA | 18:T:52:ARG:NH2 | 2.82 | 0.42 |
| 19:U:3:ALA:HA | 19:U:44:LYS:CD | 2.48 | 0.42 |
| 20:V:101:SER:O | 20:V:102:HIS:HD2 | 2.02 | 0.42 |
| 20:V:27:LYS:N | 20:V:71:VAL:CG1 | 2.77 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 22:X:14:LEU:HD21 | 22:X:19:LYS:HB2 | 2.00 | 0.42 |
| 22:X:28:LYS:CB | 22:X:35:TYR:HB3 | 2.49 | 0.42 |
| 22:X:33:LYS:O | 22:X:34:LYS:O | 2.37 | 0.42 |
| 1:A:484:C:OP1 | 22:X:48:ALA:CB | 2.66 | 0.42 |
| 22:X:72:VAL:O | 22:X:73:ARG:HG3 | 2.18 | 0.42 |
| 23:Y:99:TYR:HD2 | 23:Y:124:ILE:HG21 | 1.83 | 0.42 |
| 24:Z:70:GLN:O | 24:Z:72:ARG:HG2 | 2.19 | 0.42 |
| 24:Z:76:GLY:N | 24:Z:78:TYR:HE1 | 2.16 | 0.42 |
| 9:K:132:PRO:CD | 9:K:137:PRO:HA | 2.34 | 0.42 |
| 1:A:2124:G:O6 | 1:A:2125:G:N2 | 2.52 | 0.42 |
| 1:A:2168:G:N2 | 1:A:2170:A:C3' | 2.74 | 0.42 |
| 3:C:104:LEU:HD22 | 3:C:130:ILE:HG12 | 2.01 | 0.42 |
| 3:C:181:PRO:O | 3:C:184:LYS:HB2 | 2.19 | 0.42 |
| 3:C:204:ALA:HB2 | 3:C:208:PHE:CE1 | 2.54 | 0.42 |
| 9:K:57:ARG:CG | 9:K:57:ARG:NH1 | 2.82 | 0.42 |
| 9:K:133:HIS:CE1 | 9:K:134:PRO:HG2 | 2.54 | 0.42 |
| 1:A:715:G:H2' | 1:A:716:A:O4' | 2.19 | 0.42 |
| 8:H:54:ARG:HH21 | 8:H:54:ARG:HB3 | 1.85 | 0.42 |
| 25:1:12:SER:N | 25:1:15:GLU:OE1 | 2.52 | 0.42 |
| 25:1:1:MET:SD | 25:1:2:ARG:NH1 | 2.92 | 0.42 |
| 27:3:5:ILE:HG21 | 27:3:7:PRO:O | 2.18 | 0.42 |
| 30:6:18:PHE:O | 30:6:19:ARG:C | 2.56 | 0.42 |
| 31:7:39:LYS:HB3 | 31:7:39:LYS:HZ2 | 1.84 | 0.42 |
| 32:8:10:ILE:HD11 | 32:8:34:GLN:NE2 | 2.33 | 0.42 |
| 1:A:1190:G:OP2 | 13:O:30:THR:CA | 2.50 | 0.42 |
| 1:A:551:G:C4' | 1:A:1220:A:C2 | 3.01 | 0.42 |
| 1:A:1287:A:C2' | 1:A:1287:A:N3 | 2.82 | 0.42 |
| 1:A:1309:G:H4' | 30:6:7:PRO:HG2 | 2.02 | 0.42 |
| 1:A:1341:U:OP2 | 1:A:1397:U:C4 | 2.72 | 0.42 |
| 1:A:1342:A:C8 | 1:A:1601:G:O6 | 2.72 | 0.42 |
| 1:A:1379:A:C2 | 1:A:1379:A:P | 3.12 | 0.42 |
| 1:A:1392:A:H2' | 1:A:1393:A:N9 | 2.33 | 0.42 |
| 1:A:1419:A:C5 | 1:A:1421:G:C6 | 3.06 | 0.42 |
| 1:A:1451:C:O2 | 1:A:1451:C:C2' | 2.65 | 0.42 |
| 1:A:1472:A:N7 | 1:A:1474:C:C4 | 2.87 | 0.42 |
| 1:A:1473:G:O6 | 1:A:1519:G:C4 | 2.72 | 0.42 |
| 1:A:1652:A:C5 | 1:A:1653:G:N3 | 2.88 | 0.42 |
| 1:A:1673:U:O2' | 1:A:1674:G:OP1 | 2.37 | 0.42 |
| 1:A:1710:C:N3 | 1:A:1711:C:C5 | 2.87 | 0.42 |
| 1:A:1743:G:OP1 | 1:A:1743:G:C4' | 2.68 | 0.42 |
| 1:A:1803:A:H61 | 1:A:1814:G:C2' | 2.31 | 0.42 |
| 1:A:1862:G:HO2' | 1:A:1863:G:H8 | 1.68 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:414:C:O2 | 1:A:1864:U:C4' | 2.68 | 0.42 |
| 1:A:1879:C:H2' | 1:A:1880:C:C6 | 2.54 | 0.42 |
| 1:A:1920:C:C6 | 1:A:1920:C:C3' | 3.02 | 0.42 |
| 1:A:1268:A:C5 | 1:A:2013:A:C6 | 3.07 | 0.42 |
| 1:A:2046:G:H4' | 28:4:22:HIS:HB3 | 2.01 | 0.42 |
| 1:A:2073:C:H2' | 1:A:2074:U:H6 | 1.83 | 0.42 |
| 1:A:2206:C:C2 | 1:A:2207:C:C5 | 3.06 | 0.42 |
| 1:A:2092:U:C4 | 1:A:2227:A:N6 | 2.87 | 0.42 |
| 1:A:2285:C:H3' | 29:5:27:LYS:NZ | 2.34 | 0.42 |
| 1:A:2348:U:C2' | 1:A:2349:G:H5' | 2.48 | 0.42 |
| 1:A:2350:C:HO2' | 1:A:2351:G:C4' | 2.32 | 0.42 |
| 1:A:2366:A:N6 | 1:A:2367:G:N3 | 2.67 | 0.42 |
| 1:A:2377:A:C4 | 1:A:2378:A:N7 | 2.87 | 0.42 |
| 1:A:2415:G:C4 | 1:A:2416:C:C5 | 3.07 | 0.42 |
| 1:A:2482:G:N2 | 1:A:2483:C:H1' | 2.34 | 0.42 |
| 1:A:2504:U:C2' | 1:A:2505:G:H5' | 2.49 | 0.42 |
| 1:A:2547:U:C5 | 1:A:2566:A:C5 | 3.07 | 0.42 |
| 1:A:2592:G:O6 | 1:A:2593:U:C4 | 2.73 | 0.42 |
| 1:A:2628:C:HO2' | 1:A:2779:U:HO2' | 1.67 | 0.42 |
| 1:A:2638:G:H2' | 1:A:2639:A:C8 | 2.55 | 0.42 |
| 1:A:2659:G:H3' | 1:A:2660:A:H5'' | 2.00 | 0.42 |
| 1:A:270(B):A:O4' | 1:A:270(C):C:H5 | 2.02 | 0.42 |
| 1:A:2752:C:OP1 | 1:A:2752:C:C5 | 2.72 | 0.42 |
| 1:A:304:G:C6 | 1:A:314:A:C6 | 3.07 | 0.42 |
| 1:A:371:A:H2' | 1:A:371:A:N3 | 2.32 | 0.42 |
| 1:A:3:U:O2' | 1:A:4:C:H5' | 2.20 | 0.42 |
| 1:A:416:C:C5 | 1:A:417:C:N4 | 2.88 | 0.42 |
| 1:A:429:A:C2 | 1:A:430:G:N1 | 2.88 | 0.42 |
| 1:A:442:G:C4' | 6:F:46:ARG:HD3 | 2.50 | 0.42 |
| 1:A:484:C:O2' | 1:A:485:C:C5' | 2.68 | 0.42 |
| 1:A:493:G:N3 | 1:A:494:G:C8 | 2.87 | 0.42 |
| 1:A:503:A:N3 | 1:A:505:A:N7 | 2.67 | 0.42 |
| 1:A:580:C:N4 | 1:A:581:C:H41 | 2.17 | 0.42 |
| 1:A:58:G:H2' | 1:A:58:G:N3 | 2.34 | 0.42 |
| 1:A:615:G:O2' | 1:A:616:A:N7 | 2.49 | 0.42 |
| 1:A:618(A):C:O2' | 1:A:619:G:H5' | 2.19 | 0.42 |
| 1:A:65:C:C2 | 1:A:66:C:H5 | 2.38 | 0.42 |
| 1:A:668:G:H3' | 1:A:669:G:C5' | 2.49 | 0.42 |
| 1:A:691:C:H6 | 1:A:691:C:O5' | 2.02 | 0.42 |
| 1:A:696:G:C2 | 1:A:697:C:C5 | 3.08 | 0.42 |
| 1:A:706:A:H2' | 1:A:707:G:C8 | 2.35 | 0.42 |
| 1:A:71:A:C2' | 1:A:72:U:OP2 | 2.67 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:750:A:N3 | 1:A:750:A:H2' | 2.32 | 0.42 |
| 1:A:947:G:H8 | 1:A:947:G:O5' | 2.01 | 0.42 |
| 2:B:29:A:H1' | 2:B:56:G:N2 | 2.34 | 0.42 |
| 4:D:124:PRO:CD | 4:D:129:ASN:ND2 | 2.79 | 0.42 |
| 4:D:13:ARG:O | 4:D:14:ARG:CZ | 2.68 | 0.42 |
| 4:D:157:ARG:HB3 | 4:D:160:GLY:C | 2.39 | 0.42 |
| 4:D:201:HIS:HD2 | 4:D:202:LYS:CE | 2.32 | 0.42 |
| 4:D:39:LYS:CD | 4:D:39:LYS:N | 2.65 | 0.42 |
| 4:D:88:ARG:HE | 4:D:88:ARG:CA | 2.29 | 0.42 |
| 5:E:148:GLY:O | 5:E:149:ARG:CG | 2.67 | 0.42 |
| 5:E:51:PHE:O | 5:E:52:LEU:CB | 2.68 | 0.42 |
| 5:E:55:ASN:C | 5:E:55:ASN:ND2 | 2.70 | 0.42 |
| 5:E:54:GLN:NE2 | 5:E:56:PRO:HD2 | 2.24 | 0.42 |
| 1:A:37:C:O2' | 6:F:50:SER:CB | 2.65 | 0.42 |
| 6:F:62:ARG:CG | 6:F:63:LYS:HG2 | 2.49 | 0.42 |
| 6:F:78:ILE:C | 6:F:80:ALA:N | 2.64 | 0.42 |
| 7:G:27:ASN:HB3 | 7:G:29:TRP:CZ2 | 2.54 | 0.42 |
| 7:G:39:ILE:CB | 7:G:157:ILE:HG13 | 2.49 | 0.42 |
| 7:G:48:GLU:O | 7:G:49:ASP:HB2 | 2.19 | 0.42 |
| 8:H:119:GLU:CA | 8:H:140:LYS:HZ1 | 2.33 | 0.42 |
| 8:H:33:LEU:HD23 | 8:H:34:GLU:N | 2.33 | 0.42 |
| 10:L:79:ARG:HA | 10:L:82:ALA:HB3 | 2.01 | 0.42 |
| 11:M:129:PRO:O | 11:M:130:HIS:C | 2.57 | 0.42 |
| 12:N:23:ARG:NH1 | 12:N:23:ARG:CG | 2.81 | 0.42 |
| 13:O:122:PRO:O | 13:O:123:LEU:CB | 2.67 | 0.42 |
| 14:P:109:VAL:HG12 | 14:P:111:GLU:H | 1.84 | 0.42 |
| 14:P:41:TRP:HB3 | 14:P:95:ALA:O | 2.19 | 0.42 |
| 14:P:74:TYR:CE1 | 14:P:92:GLY:C | 2.92 | 0.42 |
| 15:Q:33:ARG:CA | 15:Q:115:GLU:HB3 | 2.48 | 0.42 |
| 15:Q:67:LEU:CD2 | 15:Q:72:ASP:N | 2.82 | 0.42 |
| 15:Q:73:VAL:HA | 15:Q:76:VAL:CB | 2.48 | 0.42 |
| 16:R:49:VAL:CG2 | 16:R:50:SER:H | 2.31 | 0.42 |
| 16:R:62:LYS:HB3 | 16:R:65:VAL:CA | 2.49 | 0.42 |
| 17:S:35:LYS:NZ | 17:S:86:ILE:HD11 | 2.34 | 0.42 |
| 17:S:93:ARG:NE | 17:S:93:ARG:CA | 2.82 | 0.42 |
| 18:T:57:PHE:HD2 | 18:T:61:TRP:CD1 | 2.37 | 0.42 |
| 19:U:16:PRO:HB3 | 19:U:100:ARG:CZ | 2.50 | 0.42 |
| 19:U:69:LYS:N | 19:U:92:THR:CB | 2.79 | 0.42 |
| 20:V:21:VAL:HA | 20:V:24:ILE:CG1 | 2.50 | 0.42 |
| 20:V:55:ALA:O | 20:V:58:ALA:CB | 2.62 | 0.42 |
| 21:W:52:VAL:HB | 21:W:83:VAL:O | 2.19 | 0.42 |
| 21:W:78:LYS:HE3 | 21:W:78:LYS:HB2 | 1.88 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:X:83:THR:HG22 | 22:X:84:ARG:HE | 1.83 | 0.42 |
| 23:Y:56:VAL:HG21 | 23:Y:135:GLU:OE1 | 2.19 | 0.42 |
| 3:C:196:LEU:O | 3:C:197:GLU:C | 2.57 | 0.42 |
| 3:C:5:LYS:O | 3:C:8:ARG:N | 2.49 | 0.42 |
| 3:C:62:VAL:O | 3:C:64:LEU:N | 2.52 | 0.42 |
| 1:A:1418:G:C4 | 1:A:1581:G:N2 | 2.82 | 0.42 |
| 1:A:2194:G:C2 | 1:A:2195:C:N4 | 2.88 | 0.42 |
| 1:A:2195:C:O2' | 1:A:2196:C:C4' | 2.67 | 0.42 |
| 1:A:2100:G:C4 | 1:A:2190:G:C2 | 3.07 | 0.42 |
| 8:H:54:ARG:NH2 | 8:H:54:ARG:CB | 2.82 | 0.42 |
| 27:3:42:PHE:O | 27:3:61:ARG:NH1 | 2.51 | 0.42 |
| 27:3:51:ASP:C | 27:3:52:THR:OG1 | 2.53 | 0.42 |
| 27:3:5:ILE:CG2 | 27:3:8:LYS:O | 2.58 | 0.42 |
| 1:A:2347:C:OP1 | 29:5:24:GLU:OE2 | 2.37 | 0.42 |
| 31:7:14:VAL:O | 31:7:15:LYS:HG3 | 2.18 | 0.42 |
| 31:7:39:LYS:CB | 31:7:39:LYS:HZ2 | 2.32 | 0.42 |
| 1:A:1010:A:OP2 | 1:A:1010:A:H8 | 2.02 | 0.42 |
| 1:A:1000:A:C6 | 1:A:1155:A:N7 | 2.87 | 0.42 |
| 1:A:1180:C:OP2 | 1:A:1180:C:H6 | 2.02 | 0.42 |
| 1:A:1229:G:C6 | 1:A:1230:C:N3 | 2.88 | 0.42 |
| 1:A:1255:U:C3' | 1:A:1256:G:H5'' | 2.50 | 0.42 |
| 1:A:1296:G:H2' | 1:A:1297:C:C6 | 2.51 | 0.42 |
| 1:A:1389:G:O2' | 1:A:1390:U:H5' | 2.20 | 0.42 |
| 1:A:1448:G:C2' | 1:A:1449:A:H8 | 2.32 | 0.42 |
| 1:A:1471:A:C8 | 1:A:1521:G:N2 | 2.86 | 0.42 |
| 1:A:1472:A:H62 | 1:A:1474:C:N4 | 2.18 | 0.42 |
| 1:A:1525:G:C6 | 1:A:1526:G:C6 | 3.08 | 0.42 |
| 1:A:1429:G:C4 | 1:A:1568:G:C2 | 3.07 | 0.42 |
| 1:A:1749:A:C5 | 1:A:1750:G:C8 | 3.08 | 0.42 |
| 1:A:1761:C:C6 | 1:A:1761:C:H3' | 2.50 | 0.42 |
| 1:A:1794:U:O4' | 1:A:1900:A:C5 | 2.73 | 0.42 |
| 1:A:1818:U:OP2 | 4:D:88:ARG:CZ | 2.68 | 0.42 |
| 1:A:1893:C:C2' | 1:A:1894:C:H5' | 2.49 | 0.42 |
| 1:A:1908:C:O2 | 1:A:1909:C:C6 | 2.73 | 0.42 |
| 1:A:1967:C:N3 | 1:A:1968:G:N3 | 2.68 | 0.42 |
| 1:A:2007:C:H2' | 1:A:2008:C:H5' | 2.02 | 0.42 |
| 1:A:2013:A:C6 | 1:A:2014:A:C2 | 3.07 | 0.42 |
| 1:A:2092:U:H2' | 1:A:2092:U:O2 | 2.19 | 0.42 |
| 1:A:2210:G:C2' | 1:A:2211:G:OP2 | 2.67 | 0.42 |
| 1:A:221:A:C2 | 1:A:233:A:C4 | 3.07 | 0.42 |
| 1:A:2199:A:C2 | 1:A:2225:A:C2 | 3.08 | 0.42 |
| 1:A:2226:C:HO2' | 1:A:2227:A:H5' | 1.84 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|-----------------|-------------|----------|
| 1:A:2228:G:C6 | 1:A:2229:C:C2 | 3.08 | 0.42 |
| 1:A:962:G:N2 | 1:A:2250:G:N2 | 2.55 | 0.42 |
| 1:A:2312:U:OP2 | 7:G:86:MET:CG | 2.67 | 0.42 |
| 1:A:2329:G:H2' | 1:A:2330:G:O4' | 2.20 | 0.42 |
| 1:A:2250:G:C2' | 1:A:2496:C:H5' | 2.44 | 0.42 |
| 1:A:250:G:C2' | 1:A:251:A:O5' | 2.67 | 0.42 |
| 1:A:2510:C:C4 | 1:A:2511:U:C4 | 3.07 | 0.42 |
| 1:A:2522:U:C6 | 1:A:2522:U:C5' | 2.98 | 0.42 |
| 1:A:2537:U:O4 | 1:A:2538:C:N4 | 2.52 | 0.42 |
| 1:A:2546:U:O4' | 1:A:2565:A:C2 | 2.72 | 0.42 |
| 1:A:2572:A:C4' | 1:A:2573:C:OP1 | 2.65 | 0.42 |
| 1:A:2595:G:O5' | 1:A:2595:G:H8 | 2.03 | 0.42 |
| 1:A:2612:C:O2' | 28:4:4:HIS:CB | 2.56 | 0.42 |
| 1:A:2716:U:H2' | 1:A:2717:G:O5' | 2.19 | 0.42 |
| 1:A:2778:A:C5' | 1:A:2779:U:OP2 | 2.67 | 0.42 |
| 1:A:278:A:O4' | 1:A:278:A:OP1 | 2.37 | 0.42 |
| 1:A:2824:C:N3 | 1:A:2825:C:C1' | 2.82 | 0.42 |
| 1:A:2864:G:C4 | 1:A:2865:U:C4 | 3.08 | 0.42 |
| 1:A:2872:G:C2 | 1:A:2873:A:N6 | 2.88 | 0.42 |
| 1:A:302:C:C2' | 1:A:303:U:O5' | 2.68 | 0.42 |
| 1:A:29:U:O2 | 1:A:30:G:C5 | 2.73 | 0.42 |
| 1:A:374:A:C3' | 1:A:375:C:H6 | 2.32 | 0.42 |
| 1:A:37:C:H2' | 1:A:38:A:H8 | 1.83 | 0.42 |
| 1:A:416:C:C3' | 1:A:416:C:C6 | 3.01 | 0.42 |
| 1:A:462:C:C4 | 1:A:468:G:C2 | 3.07 | 0.42 |
| 1:A:483:A:C4 | 1:A:484:C:C6 | 3.08 | 0.42 |
| 1:A:482:A:H2' | 1:A:483:A:OP2 | 2.18 | 0.42 |
| 1:A:515:A:H8 | 1:A:515:A:C5' | 2.30 | 0.42 |
| 1:A:50:U:C2' | 1:A:51:G:OP1 | 2.65 | 0.42 |
| 1:A:545:G:H8 | 1:A:545:G:O5' | 2.01 | 0.42 |
| 1:A:556:G:N2 | 11:M:45:ASN:ND2 | 2.67 | 0.42 |
| 1:A:558:G:H2' | 1:A:558:G:N3 | 2.35 | 0.42 |
| 1:A:562:U:O2' | 1:A:563:G:C5' | 2.68 | 0.42 |
| 1:A:57:C:O5' | 1:A:57:C:H6 | 2.03 | 0.42 |
| 1:A:591:C:N4 | 1:A:592:G:C6 | 2.86 | 0.42 |
| 1:A:60:G:H8 | 1:A:63:U:C5 | 2.38 | 0.42 |
| 1:A:648:G:C5 | 1:A:649:G:N7 | 2.88 | 0.42 |
| 1:A:650:C:O2' | 1:A:651:G:H5' | 2.19 | 0.42 |
| 1:A:465:G:N2 | 1:A:684:G:O4' | 2.52 | 0.42 |
| 1:A:724:U:C5 | 1:A:725:G:N7 | 2.87 | 0.42 |
| 1:A:774:A:C5' | 1:A:778:G:C4' | 2.94 | 0.42 |
| 1:A:786:C:C3' | 1:A:787:U:H5' | 2.34 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:794:G:C4 | 1:A:795:C:C5 | 3.07 | 0.42 |
| 1:A:846:C:HO2' | 1:A:847:U:P | 2.30 | 0.42 |
| 1:A:864:G:O2' | 1:A:865:C:H1' | 2.20 | 0.42 |
| 1:A:902:C:C2 | 1:A:903:C:C5 | 3.07 | 0.42 |
| 1:A:942:G:C4' | 1:A:1189:A:H2 | 2.32 | 0.42 |
| 1:A:958:U:O2' | 1:A:959:A:O5' | 2.38 | 0.42 |
| 1:A:962:G:C4 | 1:A:963:U:C5 | 3.06 | 0.42 |
| 2:B:54:G:O2' | 2:B:55:U:C5' | 2.67 | 0.42 |
| 2:B:8:U:C2' | 2:B:9:G:H8 | 2.32 | 0.42 |
| 4:D:177:LEU:HG | 4:D:181:GLU:O | 2.19 | 0.42 |
| 4:D:20:ASP:O | 4:D:21:PHE:CB | 2.67 | 0.42 |
| 4:D:246:PRO:CD | 4:D:250:TRP:CB | 2.69 | 0.42 |
| 4:D:92:ILE:CG1 | 4:D:93:ALA:N | 2.82 | 0.42 |
| 5:E:92:THR:HA | 5:E:95:ILE:CG2 | 2.49 | 0.42 |
| 6:F:135:LYS:HD3 | 6:F:136:THR:N | 2.34 | 0.42 |
| 7:G:39:ILE:CD1 | 7:G:39:ILE:N | 2.70 | 0.42 |
| 8:H:148:ILE:O | 8:H:149:ARG:C | 2.57 | 0.42 |
| 8:H:7:LEU:C | 8:H:51:ARG:CZ | 2.88 | 0.42 |
| 8:H:6:ARG:N | 8:H:7:LEU:HD23 | 2.34 | 0.42 |
| 11:M:86:PRO:C | 11:M:89:LYS:NZ | 2.73 | 0.42 |
| 12:N:120:GLU:HB3 | 12:N:121:VAL:H | 1.42 | 0.42 |
| 12:N:17:ARG:NH1 | 12:N:98:VAL:HG21 | 2.34 | 0.42 |
| 12:N:2:ILE:HB | 12:N:32:TYR:CA | 2.49 | 0.42 |
| 12:N:48:PRO:O | 12:N:49:ARG:C | 2.58 | 0.42 |
| 12:N:63:VAL:HB | 12:N:78:ARG:CG | 2.49 | 0.42 |
| 13:O:72:PRO:O | 13:O:111:ARG:NE | 2.52 | 0.42 |
| 13:O:114:ILE:C | 13:O:116:GLY:N | 2.73 | 0.42 |
| 13:O:16:ARG:HD3 | 13:O:19:VAL:HG23 | 2.02 | 0.42 |
| 13:O:68:GLN:NE2 | 13:O:68:GLN:N | 2.67 | 0.42 |
| 14:P:34:LEU:CD1 | 14:P:67:ARG:NH2 | 2.80 | 0.42 |
| 14:P:72:LYS:C | 14:P:74:TYR:HH | 2.21 | 0.42 |
| 15:Q:97:VAL:CG2 | 15:Q:114:VAL:CG1 | 2.98 | 0.42 |
| 15:Q:17:ARG:HG2 | 15:Q:18:LEU:CD2 | 2.50 | 0.42 |
| 16:R:98:VAL:HG22 | 16:R:99:LYS:N | 2.35 | 0.42 |
| 17:S:21:GLU:OE1 | 17:S:23:ARG:CD | 2.67 | 0.42 |
| 18:T:17:ILE:HG23 | 18:T:20:LEU:CD1 | 2.49 | 0.42 |
| 19:U:40:LEU:CD1 | 19:U:54:GLY:C | 2.88 | 0.42 |
| 18:T:88:ILE:HG12 | 19:U:52:VAL:CG1 | 2.49 | 0.42 |
| 19:U:68:LYS:HD2 | 19:U:68:LYS:HA | 1.66 | 0.42 |
| 20:V:25:ARG:HH21 | 20:V:74:ALA:C | 2.22 | 0.42 |
| 1:A:137(A):G:H1' | 21:W:41:ASN:HD21 | 1.84 | 0.42 |
| 21:W:50:LYS:O | 21:W:52:VAL:HG23 | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 23:Y:125:LEU:HB2 | 23:Y:137:ILE:HD12 | 2.02 | 0.42 |
| 23:Y:51:ALA:O | 23:Y:53:ILE:N | 2.52 | 0.42 |
| 23:Y:1:MET:HE1 | 23:Y:59:LEU:CD2 | 2.49 | 0.42 |
| 24:Z:21:LEU:HG | 24:Z:22:GLY:N | 2.28 | 0.42 |
| 1:A:2387:U:C1' | 24:Z:41:ARG:NH2 | 2.83 | 0.42 |
| 9:K:87:LYS:CD | 9:K:121:LYS:HG3 | 2.49 | 0.42 |
| 9:K:128:LEU:O | 9:K:139:GLN:HA | 2.19 | 0.42 |
| 3:C:151:GLU:HA | 3:C:154:ARG:HD2 | 2.00 | 0.42 |
| 3:C:162:GLU:HG2 | 3:C:163:PHE:N | 2.35 | 0.42 |
| 3:C:30:LYS:NZ | 3:C:182:PRO:CD | 2.75 | 0.42 |
| 3:C:215:THR:HB | 3:C:221:SER:HB2 | 2.00 | 0.42 |
| 1:A:1578:U:C5 | 1:A:1579:A:N7 | 2.86 | 0.42 |
| 1:A:1580:A:H2' | 1:A:1581:G:C8 | 2.54 | 0.42 |
| 10:L:83:GLY:O | 10:L:84:LEU:O | 2.37 | 0.42 |
| 1:A:441:U:O5' | 1:A:441:U:H6 | 2.02 | 0.42 |
| 25:1:27:LEU:CD2 | 25:1:52:ILE:HG13 | 2.49 | 0.42 |
| 27:3:52:THR:O | 27:3:53:GLU:CB | 2.68 | 0.42 |
| 29:5:15:GLU:OE2 | 29:5:20:ASN:O | 2.37 | 0.42 |
| 31:7:15:LYS:HE2 | 31:7:64:TYR:CD2 | 2.55 | 0.42 |
| 32:8:1:MET:N | 32:8:35:ARG:HD2 | 2.35 | 0.42 |
| 32:8:23:VAL:C | 32:8:24:TYR:HD1 | 2.23 | 0.42 |
| 1:A:1009:A:N1 | 1:A:1010:A:C2 | 2.88 | 0.42 |
| 1:A:1033:U:H5' | 32:8:16:VAL:CG1 | 2.50 | 0.42 |
| 1:A:1090:U:H5 | 1:A:1103:A:C2 | 2.38 | 0.42 |
| 1:A:111:A:H2' | 1:A:112:U:H6 | 1.78 | 0.42 |
| 1:A:1140:C:C2' | 1:A:1141:U:OP2 | 2.67 | 0.42 |
| 1:A:115:C:O2' | 1:A:116:C:C5' | 2.65 | 0.42 |
| 1:A:1171:G:H1 | 1:A:1179:C:H42 | 1.60 | 0.42 |
| 1:A:1221:C:C2' | 1:A:1222:C:O5' | 2.68 | 0.42 |
| 1:A:1223:C:O2 | 1:A:1223:C:H2' | 2.19 | 0.42 |
| 1:A:1224:G:C6 | 1:A:1225:C:C4 | 3.07 | 0.42 |
| 1:A:1227:A:C2' | 1:A:1228:G:H5'' | 2.49 | 0.42 |
| 1:A:1308:A:C2 | 1:A:1309:G:C1' | 3.00 | 0.42 |
| 1:A:1425:G:H2' | 1:A:1426:G:C4 | 2.54 | 0.42 |
| 1:A:1435:G:N1 | 1:A:1558:A:N6 | 2.67 | 0.42 |
| 1:A:1517:G:N3 | 1:A:1518:C:H1' | 2.33 | 0.42 |
| 1:A:1605:C:O4' | 1:A:1610:A:N7 | 2.53 | 0.42 |
| 1:A:1652:A:H62 | 1:A:1653:G:H21 | 1.66 | 0.42 |
| 1:A:188:G:HO2' | 1:A:189:G:H5' | 1.84 | 0.42 |
| 1:A:1908:C:HO2' | 1:A:1909:C:H6 | 1.66 | 0.42 |
| 1:A:1933:G:N2 | 1:A:1934:C:C1' | 2.81 | 0.42 |
| 1:A:1935:G:N9 | 1:A:1962:C:C4 | 2.88 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1966:A:H2' | 1:A:1967:C:OP2 | 2.19 | 0.42 |
| 1:A:2020:A:N1 | 1:A:2035:G:C6 | 2.87 | 0.42 |
| 1:A:214:G:O2' | 1:A:215:G:H5' | 2.19 | 0.42 |
| 1:A:2075:U:N3 | 1:A:2238:G:N2 | 2.68 | 0.42 |
| 1:A:2290:G:C5 | 1:A:2291:U:C4 | 3.08 | 0.42 |
| 1:A:2309:A:C6 | 1:A:2310:A:N3 | 2.87 | 0.42 |
| 1:A:2349:G:C5 | 1:A:2369:A:N1 | 2.88 | 0.42 |
| 1:A:238:C:C2' | 1:A:239:U:O5' | 2.68 | 0.42 |
| 1:A:2408:U:C5' | 1:A:2408:U:H6 | 2.31 | 0.42 |
| 1:A:2073:C:N4 | 1:A:2437:U:H3 | 2.16 | 0.42 |
| 1:A:2442:C:C2 | 1:A:2443:C:C5 | 3.08 | 0.42 |
| 1:A:2472:G:H2' | 1:A:2473:U:OP1 | 2.20 | 0.42 |
| 1:A:2570:G:C2 | 1:A:2571:C:C2 | 3.07 | 0.42 |
| 1:A:1457:A:C2 | 1:A:2703:C:C4 | 3.07 | 0.42 |
| 1:A:2717:G:OP2 | 1:A:2717:G:H3' | 2.20 | 0.42 |
| 1:A:270(Z):U:C4 | 1:A:271(C):U:H1' | 2.54 | 0.42 |
| 1:A:2733:A:N7 | 1:A:2734:A:C5 | 2.88 | 0.42 |
| 1:A:2740:A:C2 | 1:A:2741:A:C5 | 3.07 | 0.42 |
| 1:A:2742:C:H5'' | 32:8:35:ARG:NH2 | 2.33 | 0.42 |
| 1:A:2785:C:C4 | 1:A:2786:U:O4 | 2.73 | 0.42 |
| 1:A:2797:U:H6 | 1:A:2797:U:H3' | 1.85 | 0.42 |
| 1:A:283:A:H2' | 1:A:284:U:H5' | 2.01 | 0.42 |
| 1:A:2854:G:C6 | 1:A:2864:G:C6 | 3.07 | 0.42 |
| 1:A:324:A:C2 | 1:A:325:G:O4' | 2.73 | 0.42 |
| 1:A:36:G:H2' | 1:A:37:C:H6 | 1.84 | 0.42 |
| 1:A:423:A:H2' | 1:A:424:G:OP1 | 2.19 | 0.42 |
| 1:A:434:U:P | 1:A:434:U:H6 | 2.42 | 0.42 |
| 1:A:449:A:H2' | 1:A:450:G:C4' | 2.48 | 0.42 |
| 1:A:47:C:C4 | 1:A:179:G:O6 | 2.72 | 0.42 |
| 1:A:49:A:H5' | 1:A:50:U:P | 2.59 | 0.42 |
| 1:A:578:A:OP1 | 1:A:1255:U:C1' | 2.67 | 0.42 |
| 1:A:591:C:C4 | 1:A:592:G:C5 | 3.07 | 0.42 |
| 1:A:594:U:O4 | 1:A:595:C:N4 | 2.50 | 0.42 |
| 1:A:641:C:C2' | 1:A:642:G:C5' | 2.80 | 0.42 |
| 1:A:640:C:C3' | 1:A:641:C:C5' | 2.97 | 0.42 |
| 1:A:684:G:H22 | 1:A:794:G:H1 | 1.68 | 0.42 |
| 1:A:702:G:N2 | 1:A:703:U:H1' | 2.33 | 0.42 |
| 1:A:753:C:H2' | 1:A:754:C:C6 | 2.55 | 0.42 |
| 1:A:780:G:H2' | 1:A:782:A:C5 | 2.52 | 0.42 |
| 1:A:672:C:C4 | 1:A:809:G:N1 | 2.87 | 0.42 |
| 1:A:901:A:C5 | 1:A:902:C:C5 | 3.07 | 0.42 |
| 1:A:979:G:N7 | 1:A:981:A:P | 2.93 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:A:97:C:O2' | 1:A:98:G:O5' | 2.33 | 0.42 |
| 2:B:100:G:O5' | 2:B:100:G:H8 | 2.02 | 0.42 |
| 2:B:65:C:C2 | 2:B:108:C:N4 | 2.87 | 0.42 |
| 4:D:262:ARG:O | 4:D:266:SER:HB3 | 2.19 | 0.42 |
| 4:D:85:ASP:OD1 | 4:D:85:ASP:O | 2.37 | 0.42 |
| 5:E:51:PHE:HD1 | 5:E:76:ARG:HG2 | 1.81 | 0.42 |
| 6:F:137:LYS:HE2 | 6:F:140:LEU:HD13 | 2.01 | 0.42 |
| 7:G:101:ILE:C | 7:G:101:ILE:CD1 | 2.88 | 0.42 |
| 7:G:39:ILE:CG2 | 7:G:157:ILE:HG13 | 2.45 | 0.42 |
| 7:G:59:GLU:HB3 | 7:G:152:LEU:CD2 | 2.49 | 0.42 |
| 8:H:130:ARG:O | 8:H:131:VAL:CG2 | 2.61 | 0.42 |
| 8:H:13:LYS:NZ | 8:H:28:GLY:HA2 | 2.33 | 0.42 |
| 8:H:163:TYR:O | 8:H:164:TYR:C | 2.57 | 0.42 |
| 8:H:35:VAL:HA | 8:H:36:PRO:HD2 | 1.71 | 0.42 |
| 9:K:6:LEU:HD23 | 9:K:6:LEU:O | 2.19 | 0.42 |
| 10:L:106:GLU:OE1 | 10:L:107:ILE:HG13 | 2.19 | 0.42 |
| 10:L:12:LEU:HD11 | 10:L:23:VAL:HG21 | 1.99 | 0.42 |
| 11:M:39:ARG:C | 11:M:42:TRP:CE3 | 2.92 | 0.42 |
| 11:M:89:LYS:CA | 11:M:92:ALA:HB3 | 2.33 | 0.42 |
| 14:P:112:GLU:HA | 14:P:115:MET:HB3 | 2.02 | 0.42 |
| 14:P:48:GLU:O | 14:P:49:ALA:C | 2.55 | 0.42 |
| 15:Q:63:ARG:NH1 | 15:Q:80:PHE:HB3 | 2.35 | 0.42 |
| 15:Q:61:HIS:O | 15:Q:64:ARG:N | 2.52 | 0.42 |
| 16:R:66:ALA:O | 16:R:68:GLN:N | 2.53 | 0.42 |
| 17:S:111:ARG:HG3 | 17:S:114:LEU:HD12 | 2.01 | 0.42 |
| 17:S:24:PRO:O | 17:S:25:GLY:O | 2.37 | 0.42 |
| 12:N:122:LEU:HA | 17:S:70:VAL:O | 2.20 | 0.42 |
| 17:S:93:ARG:HA | 17:S:93:ARG:HE | 1.84 | 0.42 |
| 18:T:102:GLU:CB | 18:T:105:VAL:CB | 2.87 | 0.42 |
| 18:T:113:ALA:O | 18:T:116:ALA:CB | 2.62 | 0.42 |
| 18:T:36:ARG:O | 18:T:40:PHE:CD1 | 2.72 | 0.42 |
| 18:T:92:ARG:O | 18:T:94:ASN:N | 2.47 | 0.42 |
| 19:U:5:VAL:CG1 | 19:U:37:VAL:CG2 | 2.96 | 0.42 |
| 19:U:5:VAL:C | 19:U:6:LYS:HG3 | 2.40 | 0.42 |
| 21:W:60:ARG:HG3 | 21:W:62:LYS:HG3 | 2.01 | 0.42 |
| 23:Y:102:LEU:HD23 | 23:Y:124:ILE:HA | 2.01 | 0.42 |
| 23:Y:127:LYS:CD | 23:Y:165:VAL:HG23 | 2.41 | 0.42 |
| 23:Y:93:ASP:O | 23:Y:94:GLU:HB2 | 2.18 | 0.42 |
| 24:Z:21:LEU:HG | 24:Z:39:ARG:C | 2.34 | 0.42 |
| 24:Z:76:GLY:C | 24:Z:78:TYR:CD1 | 2.93 | 0.42 |
| 24:Z:79:VAL:O | 24:Z:80:HIS:CD2 | 2.72 | 0.42 |
| 1:A:2114:A:O2' | 1:A:2115:G:H5' | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 3:C:137:LEU:HD23 | 3:C:137:LEU:C | 2.40 | 0.42 |
| 1:A:2122:U:H1' | 3:C:166:ASP:CG | 2.40 | 0.42 |
| 3:C:214:VAL:C | 3:C:215:THR:CG2 | 2.88 | 0.42 |
| 3:C:7:TYR:O | 3:C:7:TYR:CD1 | 2.73 | 0.42 |
| 3:C:7:TYR:O | 3:C:9:ALA:N | 2.52 | 0.42 |
| 1:A:1497:U:C5 | 1:A:1498:C:C5 | 3.07 | 0.42 |
| 1:A:1576:U:H2' | 1:A:1577:C:C6 | 2.54 | 0.42 |
| 1:A:2098:U:C2 | 1:A:2099:U:C5 | 3.08 | 0.42 |
| 1:A:2464:C:H2' | 1:A:2465:C:O5' | 2.19 | 0.42 |
| 26:2:45:GLY:O | 26:2:46:ASN:C | 2.58 | 0.42 |
| 26:2:49:LYS:O | 26:2:50:VAL:C | 2.57 | 0.42 |
| 26:2:50:VAL:O | 26:2:52:HIS:CE1 | 2.73 | 0.42 |
| 27:3:11:PRO:CA | 27:3:40:HIS:NE2 | 2.70 | 0.42 |
| 27:3:56:VAL:HB | 27:3:61:ARG:NE | 2.34 | 0.42 |
| 27:3:59:PHE:CA | 27:3:62:ARG:HH21 | 2.32 | 0.42 |
| 27:3:67:TYR:O | 27:3:70:GLY:N | 2.53 | 0.42 |
| 28:4:39:MET:CE | 28:4:40:LYS:HA | 2.48 | 0.42 |
| 28:4:8:LYS:O | 28:4:9:LYS:CB | 2.67 | 0.42 |
| 29:5:51:GLU:CD | 29:5:51:GLU:C | 2.78 | 0.42 |
| 30:6:5:TRP:HZ3 | 30:6:12:ARG:NH1 | 1.97 | 0.42 |
| 31:7:36:LYS:O | 31:7:37:SER:OG | 2.35 | 0.42 |
| 32:8:25:VAL:HG21 | 32:8:34:GLN:OE1 | 2.20 | 0.42 |
| 1:A:1010:A:H5' | 18:T:66:ASN:HD21 | 1.84 | 0.42 |
| 1:A:1049:C:N4 | 1:A:1051:G:C5 | 2.87 | 0.42 |
| 1:A:1106:G:H2' | 1:A:1106:G:N3 | 2.35 | 0.42 |
| 1:A:1143:A:C4 | 1:A:1144:G:C5 | 3.07 | 0.42 |
| 1:A:1196:C:C2 | 1:A:1197:G:N7 | 2.88 | 0.42 |
| 1:A:812:C:C6 | 1:A:1250:G:C6 | 3.08 | 0.42 |
| 1:A:1268:A:C6 | 1:A:2013:A:C5 | 3.07 | 0.42 |
| 1:A:1287:A:C6 | 1:A:1288:U:N3 | 2.87 | 0.42 |
| 1:A:1308:A:H2' | 1:A:1309:G:O4' | 2.20 | 0.42 |
| 1:A:1364:G:C4 | 1:A:1366:A:OP1 | 2.72 | 0.42 |
| 1:A:1379:A:C3' | 1:A:1379:A:N3 | 2.82 | 0.42 |
| 1:A:1567:A:H3' | 1:A:1567:A:C4 | 2.52 | 0.42 |
| 1:A:1272:A:C2 | 1:A:1618:A:N1 | 2.88 | 0.42 |
| 1:A:1631:A:C2 | 1:A:1632:A:N3 | 2.87 | 0.42 |
| 1:A:1670:C:H2' | 1:A:1671:U:H5' | 2.02 | 0.42 |
| 1:A:1703:G:C2 | 1:A:1704:G:C1' | 3.02 | 0.42 |
| 1:A:1754:C:O2 | 1:A:1754:C:C2' | 2.67 | 0.42 |
| 1:A:1825:A:N3 | 1:A:1825:A:C2' | 2.82 | 0.42 |
| 1:A:1835:G:C2 | 1:A:1836:C:C6 | 3.07 | 0.42 |
| 1:A:1913:A:H2' | 1:A:1913:A:N3 | 2.35 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|------------------|-------------|----------|
| 1:A:1947:C:C4 | 1:A:1948:G:N7 | 2.87 | 0.42 |
| 1:A:1975:G:C2 | 1:A:1976:U:H1' | 2.54 | 0.42 |
| 1:A:2041:U:H2' | 1:A:2042:A:O4' | 2.20 | 0.42 |
| 1:A:2286:A:H4' | 1:A:2287:A:N3 | 2.34 | 0.42 |
| 1:A:2331:G:N2 | 1:A:2385:C:N4 | 2.64 | 0.42 |
| 1:A:2350:C:H2' | 1:A:2351:G:C8 | 2.54 | 0.42 |
| 1:A:2453:A:H61 | 1:A:2500:U:H3 | 1.68 | 0.42 |
| 1:A:2527:C:O3' | 32:8:30:PRO:HB2 | 2.19 | 0.42 |
| 1:A:2636:U:H6 | 1:A:2636:U:H5'' | 1.83 | 0.42 |
| 1:A:2682:U:H2' | 1:A:2682:U:O2 | 2.20 | 0.42 |
| 1:A:2705:A:O2' | 1:A:2706:G:OP1 | 2.34 | 0.42 |
| 1:A:2721:A:H3' | 1:A:2722:G:C8 | 2.54 | 0.42 |
| 1:A:271:G:C2 | 1:A:272:G:N7 | 2.88 | 0.42 |
| 1:A:2767:C:H2' | 1:A:2768:C:C6 | 2.54 | 0.42 |
| 1:A:2839:G:C4 | 1:A:2840:C:C5 | 3.07 | 0.42 |
| 1:A:2872:G:N1 | 1:A:2873:A:N6 | 2.67 | 0.42 |
| 1:A:289:A:N7 | 1:A:290:G:O6 | 2.52 | 0.42 |
| 1:A:307:G:C2 | 1:A:309:G:H5' | 2.55 | 0.42 |
| 1:A:307:G:N3 | 1:A:309:G:H5'' | 2.35 | 0.42 |
| 1:A:309:G:C3' | 1:A:310:A:O4' | 2.67 | 0.42 |
| 1:A:447:A:C6 | 1:A:473:G:N9 | 2.88 | 0.42 |
| 1:A:459:U:C2' | 1:A:460:A:H8 | 2.30 | 0.42 |
| 1:A:468:G:O6 | 1:A:469:G:C2 | 2.72 | 0.42 |
| 1:A:507:A:O2' | 1:A:508:G:N2 | 2.53 | 0.42 |
| 1:A:559:G:C4' | 1:A:559:G:C8 | 3.03 | 0.42 |
| 1:A:611:C:N4 | 1:A:612:G:C2 | 2.87 | 0.42 |
| 1:A:625:G:N1 | 1:A:626:U:O4' | 2.52 | 0.42 |
| 1:A:627:A:H5'' | 13:O:75:ILE:HG21 | 2.01 | 0.42 |
| 1:A:669:G:N3 | 1:A:669:G:H3' | 2.34 | 0.42 |
| 1:A:704:G:C2 | 1:A:726:G:N3 | 2.88 | 0.42 |
| 1:A:729:G:C6 | 1:A:730:C:C5 | 3.07 | 0.42 |
| 1:A:701:G:C6 | 1:A:732:C:N4 | 2.87 | 0.42 |
| 1:A:747:U:C2' | 1:A:748:G:OP1 | 2.67 | 0.42 |
| 1:A:780:G:C4 | 1:A:782:A:N6 | 2.88 | 0.42 |
| 1:A:86:C:C2 | 1:A:87:C:H5 | 2.37 | 0.42 |
| 1:A:878:A:C2 | 1:A:879:G:C4 | 3.08 | 0.42 |
| 1:A:943:U:H5 | 1:A:944:G:C8 | 2.37 | 0.42 |
| 1:A:945:A:C3' | 1:A:946:G:C5' | 2.98 | 0.42 |
| 2:B:32:C:H5' | 2:B:33:G:OP2 | 2.19 | 0.42 |
| 2:B:52:A:OP1 | 2:B:52:A:H4' | 2.20 | 0.42 |
| 2:B:99:A:C2' | 2:B:100:G:C5' | 2.97 | 0.42 |
| 1:A:1792:G:OP1 | 4:D:206:LEU:CD1 | 2.67 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1775:U:C4 | 4:D:208:LYS:CG | 3.02 | 0.42 |
| 1:A:1656:C:H5' | 5:E:136:ARG:CZ | 2.50 | 0.42 |
| 5:E:8:LYS:O | 5:E:192:ASN:HB2 | 2.20 | 0.42 |
| 6:F:122:LYS:C | 6:F:122:LYS:HD3 | 2.38 | 0.42 |
| 6:F:168:ARG:H | 6:F:168:ARG:CD | 2.31 | 0.42 |
| 7:G:43:LEU:HD11 | 7:G:88:ILE:C | 2.40 | 0.42 |
| 7:G:71:THR:C | 7:G:73:ALA:H | 2.23 | 0.42 |
| 8:H:103:LEU:HB2 | 8:H:115:VAL:HG12 | 2.02 | 0.42 |
| 8:H:82:GLY:O | 8:H:136:ILE:CA | 2.56 | 0.42 |
| 8:H:94:TYR:OH | 8:H:128:PRO:CB | 2.68 | 0.42 |
| 12:N:48:PRO:O | 12:N:50:GLY:N | 2.53 | 0.42 |
| 13:O:132:LYS:HD2 | 13:O:135:LEU:HD22 | 2.02 | 0.42 |
| 13:O:124:LYS:CD | 13:O:142:GLY:O | 2.66 | 0.42 |
| 13:O:36:LYS:HE3 | 13:O:42:SER:HB2 | 2.01 | 0.42 |
| 13:O:75:ILE:HG22 | 13:O:115:LEU:HD11 | 2.00 | 0.42 |
| 14:P:35:VAL:CG2 | 14:P:37:LEU:HD21 | 2.50 | 0.42 |
| 14:P:75:THR:CB | 14:P:77:LYS:HD2 | 2.49 | 0.42 |
| 14:P:41:TRP:HA | 14:P:95:ALA:O | 2.19 | 0.42 |
| 16:R:29:PHE:HB2 | 16:R:36:TYR:O | 2.19 | 0.42 |
| 16:R:44:LYS:CB | 16:R:46:VAL:HG22 | 2.50 | 0.42 |
| 16:R:83:LYS:O | 16:R:84:GLN:CD | 2.58 | 0.42 |
| 17:S:82:LEU:CD2 | 17:S:83:ILE:HG23 | 2.48 | 0.42 |
| 17:S:82:LEU:HD23 | 17:S:83:ILE:CG2 | 2.50 | 0.42 |
| 18:T:88:ILE:CG1 | 19:U:52:VAL:HG13 | 2.49 | 0.42 |
| 19:U:74:LYS:CB | 19:U:87:HIS:O | 2.68 | 0.42 |
| 19:U:93:GLU:OE2 | 19:U:95:LEU:CD2 | 2.68 | 0.42 |
| 20:V:19:LEU:O | 20:V:22:ASP:HB2 | 2.19 | 0.42 |
| 21:W:68:ARG:HB3 | 21:W:68:ARG:HH11 | 1.85 | 0.42 |
| 22:X:19:LYS:HZ2 | 22:X:39:VAL:HB | 1.84 | 0.42 |
| 22:X:46:LYS:HB3 | 22:X:46:LYS:NZ | 2.31 | 0.42 |
| 22:X:89:PHE:O | 22:X:90:LEU:C | 2.58 | 0.42 |
| 22:X:86:ARG:CA | 22:X:91:GLU:HG2 | 2.49 | 0.42 |
| 23:Y:108:PRO:O | 23:Y:109:ALA:HB2 | 2.18 | 0.42 |
| 23:Y:84:GLU:O | 23:Y:85:HIS:HB2 | 2.20 | 0.42 |
| 24:Z:36:ILE:CG1 | 24:Z:37:LEU:H | 2.29 | 0.42 |
| 9:K:107:VAL:HG12 | 9:K:109:ILE:CD1 | 2.50 | 0.42 |
| 1:A:2128:C:N4 | 1:A:2129:C:C4 | 2.88 | 0.42 |
| 3:C:214:VAL:CG2 | 3:C:224:ILE:HD13 | 2.48 | 0.42 |
| 3:C:48:GLY:H | 3:C:210:ARG:HG3 | 1.85 | 0.42 |
| 3:C:64:LEU:HD13 | 3:C:188:ASN:OD1 | 2.20 | 0.42 |
| 1:A:1887:C:O2' | 1:A:1888:G:H5' | 2.20 | 0.42 |
| 26:2:37:LEU:C | 26:2:37:LEU:CD2 | 2.85 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 26:2:23:LEU:HD12 | 26:2:50:VAL:HG21 | 2.01 | 0.42 |
| 26:2:53:LEU:N | 26:2:53:LEU:HD23 | 2.34 | 0.42 |
| 29:5:29:ASN:O | 29:5:30:THR:C | 2.57 | 0.42 |
| 1:A:1085:A:O2' | 1:A:1086:A:P | 2.77 | 0.42 |
| 1:A:1130:U:H6 | 1:A:1130:U:O5' | 2.03 | 0.42 |
| 1:A:1143:A:O2' | 1:A:1144:G:C4' | 2.68 | 0.42 |
| 1:A:1203:G:C5 | 1:A:1240:U:C4 | 3.07 | 0.42 |
| 1:A:121:G:C2 | 1:A:122:G:C8 | 3.07 | 0.42 |
| 1:A:1241:A:OP2 | 1:A:1241:A:O4' | 2.38 | 0.42 |
| 1:A:1354:A:H8 | 1:A:1355:G:C8 | 2.36 | 0.42 |
| 1:A:1363:C:C2 | 1:A:1369:G:C6 | 3.07 | 0.42 |
| 1:A:1372:U:H2' | 1:A:1373:A:O5' | 2.19 | 0.42 |
| 1:A:1419:A:C4' | 1:A:1419:A:OP2 | 2.67 | 0.42 |
| 1:A:1438:U:O4' | 1:A:1517:G:OP1 | 2.37 | 0.42 |
| 1:A:1455:G:H2' | 1:A:1456:G:H5' | 2.00 | 0.42 |
| 1:A:1486:A:H2' | 1:A:1487:G:O4' | 2.19 | 0.42 |
| 1:A:1487:G:C5 | 1:A:1488:G:N7 | 2.88 | 0.42 |
| 1:A:1526:G:H22 | 1:A:1546:C:N4 | 2.18 | 0.42 |
| 1:A:1530:G:C8 | 1:A:1531:C:C5 | 3.08 | 0.42 |
| 1:A:129:C:H5' | 1:A:1599:C:O2' | 2.20 | 0.42 |
| 1:A:1650:G:O6 | 1:A:2008:C:N4 | 2.52 | 0.42 |
| 1:A:1668:A:H62 | 1:A:1676:A:H61 | 1.68 | 0.42 |
| 1:A:1778:U:O3' | 1:A:1779:U:C5 | 2.72 | 0.42 |
| 1:A:1826:G:O2' | 1:A:1827:C:H5' | 2.20 | 0.42 |
| 1:A:188:G:C5 | 1:A:189:G:C8 | 3.07 | 0.42 |
| 1:A:1918:A:C8 | 1:A:1919:A:N7 | 2.88 | 0.42 |
| 1:A:2038:G:H2' | 1:A:2039:C:O4' | 2.19 | 0.42 |
| 1:A:2070:G:C2 | 1:A:2071:A:C4 | 3.08 | 0.42 |
| 1:A:858:U:HO2' | 1:A:2268:A:H2' | 1.75 | 0.42 |
| 1:A:2357:U:C2' | 1:A:2358:G:O5' | 2.68 | 0.42 |
| 1:A:2380:C:O2' | 1:A:2381:C:H5' | 2.19 | 0.42 |
| 1:A:2460:U:C2' | 1:A:2461:C:C6 | 3.03 | 0.42 |
| 1:A:2466:C:N4 | 1:A:2485:G:C6 | 2.87 | 0.42 |
| 1:A:2509:G:N1 | 1:A:2580:U:C2 | 2.88 | 0.42 |
| 1:A:2512:C:OP1 | 5:E:120:TRP:HH2 | 2.03 | 0.42 |
| 1:A:2516:G:C4 | 1:A:2569:G:C2 | 3.08 | 0.42 |
| 1:A:1128:A:N6 | 1:A:2518:A:C6 | 2.86 | 0.42 |
| 1:A:251:A:O2' | 1:A:252:G:OP1 | 2.38 | 0.42 |
| 1:A:2529:G:OP2 | 1:A:2530:A:C8 | 2.72 | 0.42 |
| 1:A:2547:U:H3' | 1:A:2548:G:C5' | 2.49 | 0.42 |
| 1:A:1672:C:O4' | 1:A:2553:G:H4' | 2.20 | 0.42 |
| 1:A:2776:A:H1' | 1:A:2778:A:C8 | 2.55 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2792:G:C2 | 1:A:2793:G:C8 | 3.08 | 0.42 |
| 1:A:27:G:H3' | 1:A:27:G:H8 | 1.83 | 0.42 |
| 1:A:2839:G:N1 | 1:A:2880:C:N4 | 2.67 | 0.42 |
| 1:A:2899:G:C2 | 1:A:2900:A:C8 | 3.08 | 0.42 |
| 1:A:295:G:C5 | 1:A:344:G:N2 | 2.88 | 0.42 |
| 1:A:372:G:C5' | 1:A:372:G:N3 | 2.83 | 0.42 |
| 1:A:477:A:C3' | 1:A:478:A:H8 | 2.31 | 0.42 |
| 1:A:475:U:O4 | 1:A:481:G:O6 | 2.37 | 0.42 |
| 1:A:485:C:N3 | 1:A:496:G:C2 | 2.88 | 0.42 |
| 1:A:513:A:N1 | 1:A:514:A:C8 | 2.88 | 0.42 |
| 1:A:530:G:O2' | 1:A:531:C:O5' | 2.33 | 0.42 |
| 1:A:558:G:C2' | 1:A:559:G:C5' | 2.93 | 0.42 |
| 1:A:655:A:C4' | 1:A:655:A:OP1 | 2.68 | 0.42 |
| 1:A:684:G:O6 | 1:A:774:A:C2' | 2.68 | 0.42 |
| 1:A:687:C:C5 | 1:A:788:A:N7 | 2.87 | 0.42 |
| 1:A:682:G:N2 | 1:A:796:C:C2 | 2.88 | 0.42 |
| 1:A:90:U:H1' | 1:A:91:A:C8 | 2.53 | 0.42 |
| 1:A:954:G:H5'' | 14:P:17:LEU:HD22 | 2.00 | 0.42 |
| 1:A:963:U:C2' | 1:A:964:C:O5' | 2.68 | 0.42 |
| 2:B:39:A:H2 | 2:B:46:A:H61 | 1.68 | 0.42 |
| 2:B:43:C:H2' | 2:B:44:G:H5' | 2.02 | 0.42 |
| 4:D:101:GLU:O | 4:D:102:LYS:HG3 | 2.20 | 0.42 |
| 4:D:54:ARG:CG | 4:D:221:VAL:HG23 | 2.49 | 0.42 |
| 4:D:51:VAL:CB | 4:D:52:ARG:CD | 2.98 | 0.42 |
| 4:D:69:ARG:O | 4:D:71:ASP:N | 2.53 | 0.42 |
| 1:A:1675:C:C4 | 5:E:129:HIS:CD2 | 3.08 | 0.42 |
| 5:E:13:ARG:HH22 | 5:E:20:ALA:HB3 | 1.82 | 0.42 |
| 5:E:54:GLN:CB | 5:E:57:LYS:NZ | 2.76 | 0.42 |
| 6:F:164:ARG:HD3 | 6:F:164:ARG:O | 2.19 | 0.42 |
| 6:F:122:LYS:HE3 | 6:F:192:LEU:HB3 | 2.01 | 0.42 |
| 7:G:118:ARG:NH2 | 7:G:120:LEU:HD21 | 2.28 | 0.42 |
| 7:G:18:GLU:HB3 | 7:G:19:LEU:CD1 | 2.42 | 0.42 |
| 7:G:36:LYS:O | 7:G:37:VAL:CG2 | 2.68 | 0.42 |
| 7:G:43:LEU:CD2 | 7:G:88:ILE:HG22 | 2.50 | 0.42 |
| 7:G:59:GLU:OE2 | 7:G:152:LEU:CB | 2.64 | 0.42 |
| 7:G:57:ALA:H | 7:G:68:PRO:HB2 | 1.80 | 0.42 |
| 8:H:124:GLU:CB | 8:H:132:ARG:CZ | 2.98 | 0.42 |
| 8:H:94:TYR:OH | 8:H:128:PRO:O | 2.35 | 0.42 |
| 8:H:152:ARG:HH21 | 8:H:152:ARG:CG | 2.13 | 0.42 |
| 9:K:21:VAL:HG11 | 9:K:30:LEU:CD1 | 2.34 | 0.42 |
| 9:K:24:GLY:O | 9:K:25:TYR:C | 2.57 | 0.42 |
| 10:L:116:ASN:O | 10:L:117:THR:OG1 | 2.35 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:M:25:ARG:O | 11:M:26:LEU:C | 2.58 | 0.42 |
| 11:M:22:THR:CG2 | 11:M:61:ARG:NH1 | 2.73 | 0.42 |
| 11:M:66:LYS:HA | 11:M:87:LEU:HD21 | 2.01 | 0.42 |
| 11:M:71:ILE:HD12 | 11:M:101:HIS:ND1 | 2.34 | 0.42 |
| 11:M:97:ARG:O | 11:M:100:GLU:CA | 2.67 | 0.42 |
| 12:N:104:ARG:N | 12:N:107:ARG:NH1 | 2.68 | 0.42 |
| 12:N:58:VAL:HA | 12:N:59:LYS:HE2 | 2.01 | 0.42 |
| 12:N:72:PRO:CG | 17:S:84:GLN:NE2 | 2.83 | 0.42 |
| 12:N:81:ASP:C | 12:N:82:ASN:HD22 | 2.23 | 0.42 |
| 1:A:623:G:H8 | 13:O:105:LEU:HD22 | 1.83 | 0.42 |
| 13:O:114:ILE:HG21 | 13:O:134:ALA:HB1 | 2.00 | 0.42 |
| 15:Q:37:THR:CB | 15:Q:111:LEU:HD22 | 2.50 | 0.42 |
| 15:Q:52:ILE:HG23 | 15:Q:53:HIS:N | 2.35 | 0.42 |
| 16:R:62:LYS:C | 16:R:65:VAL:H | 2.22 | 0.42 |
| 17:S:109:GLU:O | 17:S:110:ILE:CG1 | 2.68 | 0.42 |
| 17:S:63:VAL:HG12 | 17:S:78:LEU:CB | 2.50 | 0.42 |
| 18:T:88:ILE:H | 18:T:88:ILE:CD1 | 2.17 | 0.42 |
| 18:T:68:ALA:CB | 18:T:99:ALA:CB | 2.98 | 0.42 |
| 19:U:11:GLN:O | 19:U:21:ARG:NH2 | 2.53 | 0.42 |
| 19:U:1:MET:H2 | 19:U:44:LYS:HA | 1.84 | 0.42 |
| 20:V:1:MET:O | 20:V:2:GLU:HB2 | 2.19 | 0.42 |
| 1:A:2009:G:C4' | 20:V:40:ASN:HD21 | 2.29 | 0.42 |
| 20:V:75:TYR:O | 20:V:104:THR:O | 2.38 | 0.42 |
| 20:V:18:ARG:CD | 20:V:76:VAL:H | 2.33 | 0.42 |
| 1:A:24:G:H4' | 20:V:77:ASP:OD1 | 2.20 | 0.42 |
| 21:W:48:LYS:O | 21:W:88:LYS:CD | 2.68 | 0.42 |
| 22:X:74:PRO:HB2 | 22:X:100:ALA:HB1 | 2.01 | 0.42 |
| 23:Y:155:LEU:HD12 | 23:Y:155:LEU:HA | 1.81 | 0.42 |
| 23:Y:24:LEU:HB2 | 23:Y:41:LEU:CD2 | 2.32 | 0.42 |
| 23:Y:48:PHE:HA | 23:Y:54:HIS:NE2 | 2.35 | 0.42 |
| 23:Y:4:ARG:HD2 | 23:Y:37:VAL:HB | 2.00 | 0.42 |
| 1:A:2277:G:C5' | 24:Z:12:ASN:ND2 | 2.79 | 0.42 |
| 24:Z:62:LEU:HD23 | 24:Z:62:LEU:C | 2.39 | 0.42 |
| 1:A:2255:G:C1' | 24:Z:7:LEU:HD23 | 2.50 | 0.42 |
| 9:K:93:THR:HG21 | 9:K:95:LYS:HB3 | 2.01 | 0.42 |
| 9:K:96:ASP:O | 9:K:97:ILE:C | 2.58 | 0.42 |
| 3:C:103:ILE:CG1 | 3:C:108:MET:SD | 3.08 | 0.42 |
| 1:A:2189:U:H2' | 1:A:2190:G:H8 | 1.83 | 0.42 |
| 17:S:37:GLY:CA | 17:S:42:ILE:O | 2.67 | 0.42 |
| 3:C:53:ARG:H | 3:C:53:ARG:HD3 | 1.84 | 0.42 |
| 25:1:19:LEU:HD22 | 25:1:23:LYS:HG3 | 2.00 | 0.42 |
| 1:A:396:G:H1' | 27:3:39:CYS:SG | 2.60 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 28:4:33:CYS:C | 28:4:35:GLU:N | 2.73 | 0.42 |
| 29:5:17:LYS:O | 29:5:19:ARG:N | 2.53 | 0.42 |
| 29:5:35:GLU:HB2 | 29:5:52:VAL:HA | 2.00 | 0.42 |
| 30:6:28:ARG:O | 30:6:31:LEU:CB | 2.64 | 0.42 |
| 1:A:1024:G:C6 | 1:A:1025:G:C8 | 3.07 | 0.42 |
| 1:A:1137:G:C4 | 1:A:1138:G:H1' | 2.54 | 0.42 |
| 1:A:1164:G:C4 | 1:A:1165:U:C6 | 3.07 | 0.42 |
| 1:A:1202:C:C6 | 1:A:1203:G:H1' | 2.52 | 0.42 |
| 1:A:1210:A:C8 | 1:A:1237:A:N6 | 2.88 | 0.42 |
| 1:A:1372:U:C2 | 1:A:1373:A:C8 | 3.08 | 0.42 |
| 1:A:1492:G:OP1 | 1:A:1493:C:OP2 | 2.38 | 0.42 |
| 1:A:1537:C:C6 | 1:A:1537:C:O5' | 2.62 | 0.42 |
| 1:A:1595:G:C2' | 1:A:1596:A:O5' | 2.68 | 0.42 |
| 1:A:1642:G:C6 | 1:A:1643:G:N7 | 2.87 | 0.42 |
| 1:A:1672:C:C6 | 1:A:1673:U:H6 | 2.36 | 0.42 |
| 1:A:1718:G:C8 | 1:A:1718:G:C3' | 3.02 | 0.42 |
| 1:A:1778:U:C2' | 1:A:1779:U:C6 | 2.96 | 0.42 |
| 1:A:48:G:C1' | 1:A:178:G:N2 | 2.82 | 0.42 |
| 1:A:1826:G:OP1 | 4:D:233:HIS:CD2 | 2.72 | 0.42 |
| 1:A:1829:A:C2 | 1:A:1830:C:C1' | 3.03 | 0.42 |
| 1:A:1853:A:N3 | 1:A:1854:A:C8 | 2.88 | 0.42 |
| 1:A:1913:A:C2 | 1:A:1918:A:C4 | 3.08 | 0.42 |
| 1:A:1934:C:C5' | 1:A:1974:C:H4' | 2.50 | 0.42 |
| 1:A:2055:C:H4' | 1:A:2056:G:O5' | 2.20 | 0.42 |
| 1:A:2307:G:C8 | 1:A:2308:G:C4 | 3.08 | 0.42 |
| 1:A:2334:G:C2 | 16:R:11:LYS:NZ | 2.86 | 0.42 |
| 1:A:2388:A:C8 | 1:A:2389:G:N7 | 2.88 | 0.42 |
| 1:A:2459:A:C2' | 1:A:2460:U:C4' | 2.90 | 0.42 |
| 1:A:2520:C:N4 | 1:A:2567:G:C5 | 2.88 | 0.42 |
| 1:A:2553:G:H8 | 1:A:2583:G:H4' | 1.77 | 0.42 |
| 1:A:2701:C:C3' | 1:A:2702:U:C5' | 2.82 | 0.42 |
| 1:A:2702:U:OP1 | 1:A:2702:U:C4' | 2.67 | 0.42 |
| 1:A:271:G:N3 | 1:A:271:G:H2' | 2.34 | 0.42 |
| 1:A:2543:G:N2 | 1:A:2765:A:N3 | 2.68 | 0.42 |
| 1:A:2772:C:C2 | 1:A:2773:C:H5 | 2.35 | 0.42 |
| 1:A:2818:G:H4' | 1:A:2837:G:C4' | 2.47 | 0.42 |
| 1:A:350:U:HO2' | 1:A:351:G:P | 2.42 | 0.42 |
| 1:A:374:A:N3 | 1:A:375:C:C1' | 2.83 | 0.42 |
| 1:A:446:G:OP2 | 1:A:446:G:C8 | 2.68 | 0.42 |
| 1:A:447:A:H2' | 1:A:447:A:N3 | 2.35 | 0.42 |
| 1:A:507:A:H1' | 1:A:509:C:C4 | 2.55 | 0.42 |
| 1:A:528:A:O2' | 1:A:529:A:OP1 | 2.34 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:619:G:C8 | 1:A:619:G:C3' | 3.00 | 0.42 |
| 1:A:635:C:C2' | 1:A:636:G:C5' | 2.98 | 0.42 |
| 1:A:655:A:H4' | 1:A:655:A:OP1 | 2.19 | 0.42 |
| 1:A:671:C:H5'' | 13:O:38:GLN:HG3 | 2.00 | 0.42 |
| 1:A:705:A:C6 | 1:A:727:A:N9 | 2.88 | 0.42 |
| 1:A:802:A:N7 | 1:A:803:U:C5 | 2.88 | 0.42 |
| 1:A:87:C:O2 | 25:1:46:ARG:NH2 | 2.52 | 0.42 |
| 1:A:945:A:O2' | 1:A:946:G:OP1 | 2.33 | 0.42 |
| 2:B:75:G:O6 | 2:B:102:G:C2 | 2.72 | 0.42 |
| 2:B:55:U:C2' | 2:B:56:G:O4' | 2.56 | 0.42 |
| 2:B:65:C:C3' | 2:B:66:A:H5' | 2.49 | 0.42 |
| 2:B:13:A:C6 | 2:B:70:C:O4' | 2.73 | 0.42 |
| 2:B:7:G:O3' | 16:R:29:PHE:CE2 | 2.73 | 0.42 |
| 4:D:83:GLU:OE1 | 4:D:104:TYR:CE1 | 2.73 | 0.42 |
| 4:D:21:PHE:O | 4:D:205:VAL:CG2 | 2.68 | 0.42 |
| 5:E:173:VAL:CG1 | 5:E:184:VAL:O | 2.68 | 0.42 |
| 5:E:87:GLU:HB3 | 5:E:89:ASP:O | 2.20 | 0.42 |
| 6:F:118:ALA:HA | 6:F:122:LYS:CE | 2.50 | 0.42 |
| 6:F:198:ALA:O | 6:F:202:PHE:HB2 | 2.20 | 0.42 |
| 6:F:203:GLN:NE2 | 6:F:203:GLN:HA | 2.35 | 0.42 |
| 6:F:74:ARG:CZ | 6:F:75:HIS:N | 2.83 | 0.42 |
| 8:H:137:ASP:O | 8:H:141:VAL:HG23 | 2.19 | 0.42 |
| 8:H:15:VAL:CG2 | 8:H:76:VAL:HG12 | 2.48 | 0.42 |
| 9:K:7:GLU:O | 9:K:12:LEU:HA | 2.19 | 0.42 |
| 9:K:7:GLU:HA | 9:K:14:ASP:OD1 | 2.18 | 0.42 |
| 10:L:104:VAL:O | 10:L:108:ALA:CB | 2.65 | 0.42 |
| 10:L:130:SER:HA | 10:L:133:SER:CB | 2.50 | 0.42 |
| 10:L:68:VAL:HB | 10:L:70:LYS:HG3 | 2.02 | 0.42 |
| 11:M:107:LEU:CD1 | 11:M:116:LEU:HD23 | 2.47 | 0.42 |
| 11:M:10:GLU:HA | 11:M:11:PRO:HD2 | 1.89 | 0.42 |
| 11:M:7:LYS:HD2 | 11:M:8:GLN:H | 1.84 | 0.42 |
| 13:O:72:PRO:CG | 13:O:110:TYR:CD2 | 2.97 | 0.42 |
| 13:O:11:GLY:C | 13:O:14:LYS:HE3 | 2.39 | 0.42 |
| 13:O:128:HIS:HA | 13:O:147:LEU:HD23 | 2.02 | 0.42 |
| 13:O:15:ARG:NE | 13:O:15:ARG:HA | 2.33 | 0.42 |
| 15:Q:99:LYS:HE2 | 28:4:43:HIS:CE1 | 2.54 | 0.42 |
| 16:R:29:PHE:HE1 | 16:R:34:HIS:NE2 | 2.16 | 0.42 |
| 1:A:2876:G:C4' | 17:S:1:MET:N | 2.82 | 0.42 |
| 17:S:39:ARG:O | 17:S:39:ARG:HG3 | 2.20 | 0.42 |
| 1:A:581:C:C5' | 18:T:32:PHE:CZ | 3.03 | 0.42 |
| 18:T:39:LEU:O | 18:T:42:ALA:HB3 | 2.20 | 0.42 |
| 18:T:3:ARG:O | 18:T:4:ALA:CB | 2.67 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 18:T:59:ARG:HA | 18:T:62:ILE:HD12 | 2.02 | 0.42 |
| 19:U:17:GLY:HA3 | 19:U:19:LYS:HZ1 | 1.82 | 0.42 |
| 19:U:18:LEU:O | 19:U:20:LEU:N | 2.53 | 0.42 |
| 19:U:27:ALA:HB1 | 19:U:33:VAL:CB | 2.49 | 0.42 |
| 20:V:7:ALA:N | 20:V:103:ILE:HD13 | 2.35 | 0.42 |
| 20:V:58:ALA:HB2 | 20:V:107:LEU:HD23 | 2.01 | 0.42 |
| 20:V:16:LYS:H | 20:V:16:LYS:NZ | 2.11 | 0.42 |
| 21:W:59:VAL:HG13 | 21:W:76:ARG:HB3 | 2.02 | 0.42 |
| 21:W:83:VAL:HG21 | 21:W:86:GLY:HA2 | 2.01 | 0.42 |
| 22:X:75:ILE:C | 22:X:100:ALA:CB | 2.88 | 0.42 |
| 22:X:21:LYS:CB | 22:X:23:ARG:NH1 | 2.76 | 0.42 |
| 22:X:7:VAL:HG22 | 22:X:71:LYS:CG | 2.38 | 0.42 |
| 23:Y:110:GLY:C | 23:Y:112:ARG:N | 2.72 | 0.42 |
| 23:Y:25:PRO:O | 23:Y:85:HIS:HD2 | 2.03 | 0.42 |
| 1:A:2127:G:N2 | 1:A:2128:C:O2 | 2.53 | 0.42 |
| 3:C:89:ALA:CB | 3:C:154:ARG:HH11 | 2.32 | 0.42 |
| 3:C:68:LEU:C | 3:C:157:LYS:O | 2.58 | 0.42 |
| 3:C:63:SER:O | 3:C:64:LEU:C | 2.58 | 0.42 |
| 3:C:8:ARG:NH1 | 3:C:11:LEU:HG | 2.34 | 0.42 |
| 1:A:171:G:N3 | 1:A:172:C:N3 | 2.68 | 0.42 |
| 4:D:276:LYS:OXT | 4:D:276:LYS:CD | 2.65 | 0.42 |
| 10:L:84:LEU:HB3 | 10:L:85:GLU:H | 1.76 | 0.42 |
| 26:2:12:PRO:O | 26:2:15:TYR:CE1 | 2.72 | 0.42 |
| 30:6:18:PHE:HZ | 30:6:45:ALA:CB | 2.32 | 0.42 |
| 31:7:60:LEU:O | 31:7:63:PRO:CD | 2.62 | 0.42 |
| 1:A:1044:G:C4 | 1:A:1048:A:C8 | 3.08 | 0.42 |
| 1:A:1069:A:C5 | 1:A:1073:A:H5'' | 2.55 | 0.42 |
| 1:A:1142(A):A:OP1 | 1:A:1143:A:H3' | 2.20 | 0.42 |
| 1:A:976:C:H4' | 1:A:1156:A:N7 | 2.34 | 0.42 |
| 1:A:1206:G:C3' | 1:A:1207:C:O4' | 2.67 | 0.42 |
| 1:A:1245:G:OP1 | 13:O:15:ARG:HG2 | 2.20 | 0.42 |
| 1:A:1334:G:C4 | 1:A:1335:U:C5 | 3.07 | 0.42 |
| 1:A:1334:G:C6 | 1:A:1335:U:C4 | 3.08 | 0.42 |
| 1:A:1386:C:C2 | 1:A:1387:C:C5 | 3.08 | 0.42 |
| 1:A:140:A:C5 | 1:A:141:A:N7 | 2.87 | 0.42 |
| 1:A:1526:G:H2' | 1:A:1527:G:C2 | 2.54 | 0.42 |
| 1:A:1603:A:P | 1:A:1603:A:H3' | 2.59 | 0.42 |
| 1:A:1605:C:O2' | 1:A:1610:A:C8 | 2.68 | 0.42 |
| 1:A:1650:G:O2' | 1:A:1651:G:O5' | 2.37 | 0.42 |
| 1:A:1667:G:O3' | 12:N:7:TYR:OH | 2.36 | 0.42 |
| 1:A:1790:C:O3' | 4:D:213:ARG:HD3 | 2.19 | 0.42 |
| 1:A:1816:G:P | 4:D:43:ARG:NE | 2.92 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|-----------------|-------------|----------|
| 1:A:1907:G:N1 | 1:A:1908:C:C4 | 2.88 | 0.42 |
| 1:A:1909:C:C2' | 1:A:1910:G:H5' | 2.48 | 0.42 |
| 1:A:1930:G:C2 | 1:A:1968:G:C8 | 3.07 | 0.42 |
| 1:A:2013:A:OP1 | 20:V:96:ILE:HA | 2.20 | 0.42 |
| 1:A:2014:A:C2 | 1:A:2015:A:N1 | 2.88 | 0.42 |
| 1:A:2047:U:C2 | 1:A:2048:G:N7 | 2.88 | 0.42 |
| 1:A:2063:C:H2' | 1:A:2064:C:O4' | 2.19 | 0.42 |
| 1:A:2077:A:C6 | 1:A:2078:C:C4 | 3.07 | 0.42 |
| 1:A:2077:A:H5' | 1:A:2078:C:OP2 | 2.20 | 0.42 |
| 1:A:2090:G:C2 | 1:A:2091:U:N3 | 2.88 | 0.42 |
| 1:A:2206:C:H2' | 1:A:2207:C:O5' | 2.20 | 0.42 |
| 1:A:219:G:H2' | 1:A:220:G:O4' | 2.20 | 0.42 |
| 1:A:2210:G:C8 | 4:D:150:LYS:O | 2.73 | 0.42 |
| 1:A:2226:C:C2 | 1:A:2227:A:C1' | 3.03 | 0.42 |
| 1:A:2296:U:O5' | 1:A:2296:U:C6 | 2.73 | 0.42 |
| 1:A:2413:G:H2' | 1:A:2414:G:C4' | 2.50 | 0.42 |
| 1:A:2556:C:H2' | 1:A:2557:G:C5' | 2.50 | 0.42 |
| 1:A:2574:G:C5 | 1:A:2575:C:C4 | 3.08 | 0.42 |
| 1:A:1966:A:C1' | 1:A:2593:U:H5' | 2.35 | 0.42 |
| 1:A:2603:G:C5 | 1:A:2604:U:C5 | 3.08 | 0.42 |
| 1:A:2682:U:O2' | 1:A:2683:C:OP1 | 2.37 | 0.42 |
| 1:A:2695:C:H2' | 1:A:2696:U:H6 | 1.79 | 0.42 |
| 1:A:278:A:O2' | 1:A:279:C:C1' | 2.68 | 0.42 |
| 1:A:2817:G:N2 | 1:A:2830:G:H1' | 2.34 | 0.42 |
| 1:A:308:G:C6 | 1:A:309:G:C4 | 3.08 | 0.42 |
| 1:A:322:A:O2' | 1:A:340:A:C4 | 2.72 | 0.42 |
| 1:A:330:A:O4' | 1:A:1210:A:C2 | 2.73 | 0.42 |
| 1:A:246:C:H4' | 1:A:385:C:O4' | 2.20 | 0.42 |
| 1:A:416:C:C2 | 1:A:2407:G:O6 | 2.73 | 0.42 |
| 1:A:281:G:O4' | 1:A:428:A:C8 | 2.73 | 0.42 |
| 1:A:18:C:H1' | 1:A:554:U:OP1 | 2.20 | 0.42 |
| 1:A:620:G:O4' | 1:A:620:G:OP2 | 2.38 | 0.42 |
| 1:A:648:G:O2' | 1:A:649:G:H5' | 2.20 | 0.42 |
| 1:A:766:C:C4 | 1:A:767:U:C5 | 3.08 | 0.42 |
| 1:A:843:G:C2' | 1:A:843:G:N3 | 2.83 | 0.42 |
| 1:A:859:G:H3' | 1:A:859:G:C8 | 2.54 | 0.42 |
| 1:A:878:A:N9 | 1:A:879:G:N7 | 2.67 | 0.42 |
| 1:A:977:G:C2 | 1:A:978:G:N9 | 2.87 | 0.42 |
| 2:B:38:C:C4 | 2:B:39:A:N7 | 2.88 | 0.42 |
| 2:B:83:G:C2 | 2:B:84:C:C6 | 3.08 | 0.42 |
| 4:D:147:LEU:O | 4:D:154:LYS:HE3 | 2.18 | 0.42 |
| 4:D:183:ARG:NE | 4:D:268:ARG:HD2 | 2.35 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:209:ALA:O | 4:D:210:GLY:C | 2.57 | 0.42 |
| 4:D:64:ILE:C | 4:D:65:ILE:HG12 | 2.39 | 0.42 |
| 4:D:7:LYS:HZ3 | 4:D:91:ARG:HH11 | 1.53 | 0.42 |
| 5:E:133:LYS:HZ2 | 5:E:138:PRO:HD2 | 1.84 | 0.42 |
| 5:E:199:ARG:CD | 5:E:199:ARG:N | 2.82 | 0.42 |
| 5:E:201:THR:CG2 | 5:E:202:LYS:N | 2.80 | 0.42 |
| 1:A:2833:G:C2 | 5:E:56:PRO:HB3 | 2.55 | 0.42 |
| 5:E:91:VAL:O | 5:E:92:THR:CB | 2.67 | 0.42 |
| 6:F:194:MET:CE | 6:F:200:GLU:CB | 2.98 | 0.42 |
| 6:F:201:VAL:O | 6:F:202:PHE:C | 2.58 | 0.42 |
| 6:F:43:LYS:O | 6:F:44:ARG:C | 2.58 | 0.42 |
| 6:F:46:ARG:NE | 6:F:46:ARG:HA | 2.35 | 0.42 |
| 7:G:137:GLU:CG | 7:G:138:GLN:H | 2.33 | 0.42 |
| 7:G:33:ARG:C | 7:G:33:ARG:NH2 | 2.58 | 0.42 |
| 7:G:50:ALA:HA | 7:G:70:VAL:CG2 | 2.49 | 0.42 |
| 7:G:75:LYS:HD2 | 7:G:85:GLY:N | 2.35 | 0.42 |
| 7:G:39:ILE:CD1 | 7:G:92:VAL:O | 2.66 | 0.42 |
| 10:L:7:VAL:CG1 | 10:L:58:THR:CG2 | 2.93 | 0.42 |
| 11:M:42:TRP:O | 11:M:43:THR:HG23 | 2.19 | 0.42 |
| 11:M:91:LEU:O | 11:M:93:THR:N | 2.53 | 0.42 |
| 12:N:11:ALA:HB1 | 12:N:97:ARG:HE | 1.81 | 0.42 |
| 12:N:18:LYS:HZ1 | 12:N:44:LYS:HZ2 | 1.67 | 0.42 |
| 12:N:93:PRO:HG2 | 12:N:93:PRO:O | 2.20 | 0.42 |
| 13:O:123:LEU:CD2 | 13:O:134:ALA:HB1 | 2.50 | 0.42 |
| 13:O:77:ARG:NE | 13:O:79:ARG:HB3 | 2.35 | 0.42 |
| 14:P:29:PHE:HB2 | 14:P:104:PHE:CD2 | 2.53 | 0.42 |
| 15:Q:113:LEU:O | 15:Q:113:LEU:HD13 | 2.19 | 0.42 |
| 15:Q:63:ARG:HG2 | 15:Q:80:PHE:CE2 | 2.55 | 0.42 |
| 2:B:51:G:H5' | 16:R:60:GLY:HA2 | 1.99 | 0.42 |
| 16:R:49:VAL:CG1 | 16:R:76:LYS:HZ2 | 2.33 | 0.42 |
| 17:S:54:ARG:N | 17:S:100:TYR:CD2 | 2.66 | 0.42 |
| 17:S:106:SER:O | 17:S:107:ASP:C | 2.58 | 0.42 |
| 17:S:92:GLY:C | 17:S:93:ARG:CZ | 2.87 | 0.42 |
| 18:T:65:ILE:HG12 | 18:T:95:LEU:CB | 2.50 | 0.42 |
| 1:A:1010:A:H5' | 18:T:66:ASN:ND2 | 2.35 | 0.42 |
| 19:U:43:GLU:H | 19:U:44:LYS:HZ1 | 1.66 | 0.42 |
| 18:T:88:ILE:CA | 19:U:52:VAL:HA | 2.46 | 0.42 |
| 18:T:47:TYR:CE1 | 19:U:77:ALA:HA | 2.55 | 0.42 |
| 1:A:1598:C:O2' | 21:W:35:THR:HG23 | 2.20 | 0.42 |
| 22:X:14:LEU:HB2 | 22:X:20:TYR:H | 1.85 | 0.42 |
| 23:Y:10:ARG:NH1 | 23:Y:36:LYS:HB2 | 2.35 | 0.42 |
| 24:Z:40:GLN:NE2 | 24:Z:53:MET:CE | 2.83 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:2111:C:N4 | 1:A:2145:C:C5 | 2.88 | 0.42 |
| 1:A:2159:G:H2' | 1:A:2160:G:C8 | 2.54 | 0.42 |
| 3:C:75:LEU:CD2 | 3:C:110:PHE:CZ | 2.97 | 0.42 |
| 3:C:182:PRO:HG2 | 3:C:183:GLU:OE1 | 2.19 | 0.42 |
| 9:K:58:LEU:O | 9:K:59:ALA:C | 2.57 | 0.42 |
| 9:K:63:ALA:HA | 9:K:67:ARG:HH21 | 1.85 | 0.42 |
| 1:A:2094:G:H2' | 1:A:2095:C:H6 | 1.85 | 0.42 |
| 2:B:118:G:C6 | 2:B:119:A:N7 | 2.88 | 0.42 |
| 1:A:363(D):G:N1 | 1:A:363(E):U:C2 | 2.88 | 0.42 |
| 25:1:12:SER:CB | 25:1:13:PRO:HD2 | 2.49 | 0.42 |
| 1:A:851:U:H5'' | 26:2:49:LYS:HD2 | 2.02 | 0.42 |
| 28:4:35:GLU:OE1 | 28:4:51:TYR:CD2 | 2.73 | 0.42 |
| 28:4:47:PRO:HG2 | 28:4:48:GLU:OE1 | 2.20 | 0.42 |
| 29:5:31:PRO:CB | 29:5:34:LEU:HD12 | 2.42 | 0.42 |
| 1:A:2347:C:H4' | 29:5:39:TYR:HE1 | 1.84 | 0.42 |
| 30:6:48:LYS:HG3 | 30:6:49:ARG:H | 1.85 | 0.42 |
| 31:7:14:VAL:CG1 | 31:7:22:VAL:HG11 | 2.40 | 0.42 |
| 1:A:1009:A:C8 | 18:T:59:ARG:NE | 2.88 | 0.42 |
| 1:A:1049:C:C4 | 1:A:1050:A:N7 | 2.86 | 0.42 |
| 1:A:1094:U:H3 | 1:A:1096:A:C5' | 2.33 | 0.42 |
| 1:A:72:U:C5 | 1:A:112:U:H1' | 2.55 | 0.42 |
| 1:A:1162:G:H8 | 1:A:1162:G:OP2 | 2.03 | 0.42 |
| 1:A:1179:C:H6 | 1:A:1179:C:OP2 | 2.02 | 0.42 |
| 1:A:1256:G:C6 | 1:A:1257:C:C5 | 3.07 | 0.42 |
| 1:A:1288:U:H4' | 1:A:1289:C:OP2 | 2.19 | 0.42 |
| 1:A:1299:G:H4' | 1:A:1301:A:C4 | 2.55 | 0.42 |
| 1:A:1433:U:C3' | 1:A:1433:U:H6 | 2.33 | 0.42 |
| 1:A:1471:A:C8 | 1:A:1521:G:N1 | 2.88 | 0.42 |
| 1:A:1524:G:C6 | 1:A:1525:G:C5 | 3.08 | 0.42 |
| 1:A:1543:A:H8 | 1:A:1544:C:H1' | 1.74 | 0.42 |
| 1:A:1616:A:C5' | 1:A:1617:C:OP1 | 2.63 | 0.42 |
| 1:A:1623:G:C8 | 1:A:1623:G:C4' | 3.03 | 0.42 |
| 1:A:1672:C:C2' | 1:A:1673:U:OP1 | 2.67 | 0.42 |
| 1:A:1743:G:C5 | 1:A:1746:G:C5 | 3.08 | 0.42 |
| 1:A:1769:G:C2' | 1:A:1770:G:C8 | 3.03 | 0.42 |
| 1:A:47:C:N4 | 1:A:179:G:O6 | 2.53 | 0.42 |
| 1:A:1802:A:P | 1:A:1814:G:H22 | 2.43 | 0.42 |
| 1:A:1819:A:C2' | 1:A:1820:U:OP2 | 2.68 | 0.42 |
| 1:A:193:U:O2' | 1:A:194:G:H5' | 2.19 | 0.42 |
| 1:A:1991:U:C2' | 1:A:1992:G:OP2 | 2.65 | 0.42 |
| 1:A:1668:A:N1 | 1:A:1993:U:C2 | 2.88 | 0.42 |
| 1:A:2002:G:C6 | 1:A:2003:G:N7 | 2.87 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:215:G:H4' | 1:A:216:A:C5' | 2.45 | 0.42 |
| 1:A:2210:G:C5 | 4:D:70:TRP:CE2 | 3.08 | 0.42 |
| 1:A:2209:C:OP2 | 1:A:2210:G:OP1 | 2.37 | 0.42 |
| 1:A:2230:G:C2 | 1:A:2231:C:C2 | 3.08 | 0.42 |
| 1:A:2236:C:C6 | 1:A:2236:C:C5' | 3.03 | 0.42 |
| 1:A:2269:A:C2' | 1:A:2270:G:C5' | 2.98 | 0.42 |
| 1:A:2286:A:C5' | 1:A:2287:A:OP1 | 2.67 | 0.42 |
| 1:A:2313:C:C2 | 1:A:2314:C:C5 | 3.07 | 0.42 |
| 1:A:248:G:P | 27:3:28:LYS:HE2 | 2.60 | 0.42 |
| 1:A:2497:A:C2' | 1:A:2498:C:OP2 | 2.66 | 0.42 |
| 1:A:2531:A:N3 | 1:A:2658:C:O2' | 2.53 | 0.42 |
| 1:A:1669:A:O3' | 1:A:2550:G:OP1 | 2.38 | 0.42 |
| 1:A:2636:U:C6 | 1:A:2636:U:C5' | 3.03 | 0.42 |
| 1:A:2661:G:C2' | 1:A:2662:A:C8 | 2.83 | 0.42 |
| 1:A:2729:G:O5' | 1:A:2729:G:H8 | 2.02 | 0.42 |
| 1:A:2777:G:H4' | 1:A:2778:A:H5'' | 2.00 | 0.42 |
| 1:A:2826:A:C2' | 1:A:2827:C:H5' | 2.50 | 0.42 |
| 1:A:280:C:N4 | 1:A:283:A:H62 | 2.18 | 0.42 |
| 1:A:2858:C:H5'' | 1:A:2859:G:N7 | 2.34 | 0.42 |
| 1:A:289:A:C2 | 1:A:351:G:C6 | 3.08 | 0.42 |
| 1:A:312:G:H5'' | 1:A:313:C:OP2 | 2.20 | 0.42 |
| 1:A:319:C:C2' | 1:A:320:A:O4' | 2.68 | 0.42 |
| 1:A:355:G:C6 | 1:A:356:G:C6 | 3.08 | 0.42 |
| 1:A:460:A:C3' | 1:A:461:C:H6 | 2.33 | 0.42 |
| 1:A:463:G:O2' | 1:A:464:U:H5 | 2.03 | 0.42 |
| 1:A:572:A:C8 | 1:A:573:G:C4 | 3.08 | 0.42 |
| 1:A:740:U:C2' | 1:A:741:G:O5' | 2.68 | 0.42 |
| 1:A:763:G:C2 | 1:A:765:G:C4 | 3.08 | 0.42 |
| 1:A:783:A:H4' | 1:A:2588:G:C3' | 2.43 | 0.42 |
| 1:A:870:A:N6 | 1:A:871:U:N3 | 2.68 | 0.42 |
| 1:A:923:C:C6 | 1:A:923:C:C3' | 3.03 | 0.42 |
| 1:A:955:C:OP2 | 14:P:18:LYS:HE2 | 2.19 | 0.42 |
| 1:A:980:A:C6 | 1:A:1135:C:C4' | 3.03 | 0.42 |
| 1:A:988:A:H5'' | 26:2:10:LYS:CD | 2.45 | 0.42 |
| 1:A:996:A:H5' | 18:T:93:LYS:CG | 2.50 | 0.42 |
| 2:B:99:A:HO2' | 2:B:100:G:H5' | 1.84 | 0.42 |
| 2:B:77:U:OP1 | 23:Y:19:ARG:NH2 | 2.51 | 0.42 |
| 2:B:90:C:H2' | 2:B:91:C:C6 | 2.55 | 0.42 |
| 4:D:145:VAL:N | 4:D:155:LEU:CD2 | 2.83 | 0.42 |
| 4:D:132:PRO:CD | 4:D:190:TYR:CE1 | 3.02 | 0.42 |
| 4:D:72:LYS:NZ | 4:D:99:ASP:CG | 2.73 | 0.42 |
| 4:D:9:TYR:O | 4:D:10:THR:OG1 | 2.38 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:119:ARG:HB3 | 5:E:120:TRP:H | 1.60 | 0.42 |
| 5:E:5:LEU:CD2 | 5:E:6:GLY:O | 2.68 | 0.42 |
| 5:E:71:GLY:O | 5:E:72:VAL:CG1 | 2.61 | 0.42 |
| 5:E:49:LEU:CG | 5:E:74:PRO:HG2 | 2.43 | 0.42 |
| 6:F:122:LYS:HE3 | 6:F:192:LEU:HD12 | 2.02 | 0.42 |
| 1:A:2303:G:O2' | 7:G:132:ASN:ND2 | 2.53 | 0.42 |
| 7:G:17:PRO:CA | 7:G:20:ILE:HB | 2.49 | 0.42 |
| 7:G:61:ALA:N | 7:G:66:GLN:O | 2.53 | 0.42 |
| 7:G:77:ILE:O | 7:G:78:SER:C | 2.58 | 0.42 |
| 8:H:127:GLU:HG2 | 8:H:130:ARG:HB2 | 2.02 | 0.42 |
| 8:H:33:LEU:HD22 | 8:H:35:VAL:HG13 | 1.98 | 0.42 |
| 8:H:43:VAL:HG22 | 8:H:51:ARG:O | 2.20 | 0.42 |
| 9:K:9:LEU:HB2 | 9:K:13:GLY:CA | 2.49 | 0.42 |
| 9:K:27:ARG:HG2 | 9:K:28:ASN:H | 1.83 | 0.42 |
| 10:L:71:THR:OG1 | 10:L:114:ASP:OD2 | 2.38 | 0.42 |
| 10:L:55:VAL:HG22 | 10:L:69:THR:CA | 2.40 | 0.42 |
| 11:M:99:LEU:HD12 | 11:M:103:VAL:HG11 | 2.01 | 0.42 |
| 11:M:55:VAL:HG21 | 11:M:129:PRO:HG2 | 2.02 | 0.42 |
| 12:N:7:TYR:CB | 12:N:18:LYS:HE3 | 2.48 | 0.42 |
| 12:N:57:VAL:O | 12:N:59:LYS:CE | 2.67 | 0.42 |
| 6:F:38:ARG:HH11 | 13:O:10:PRO:N | 2.15 | 0.42 |
| 13:O:64:LYS:HD2 | 13:O:65:ARG:HG3 | 2.02 | 0.42 |
| 13:O:84:ASN:O | 13:O:85:LEU:HG | 2.19 | 0.42 |
| 14:P:25:ASP:C | 14:P:26:TYR:CG | 2.87 | 0.42 |
| 14:P:32:TYR:CD1 | 14:P:32:TYR:N | 2.87 | 0.42 |
| 14:P:37:LEU:O | 14:P:38:GLU:OE1 | 2.38 | 0.42 |
| 14:P:59:ARG:O | 14:P:60:ARG:HD2 | 2.20 | 0.42 |
| 1:A:1650:G:C5' | 15:Q:104:ARG:NH2 | 2.78 | 0.42 |
| 15:Q:54:LEU:HA | 15:Q:57:ARG:CB | 2.42 | 0.42 |
| 16:R:17:ARG:NH2 | 16:R:89:ARG:CD | 2.82 | 0.42 |
| 18:T:28:ARG:CB | 18:T:38:THR:HG21 | 2.37 | 0.42 |
| 11:M:37:LYS:CD | 18:T:63:VAL:HG11 | 2.46 | 0.42 |
| 18:T:79:PHE:O | 18:T:82:GLY:N | 2.52 | 0.42 |
| 18:T:92:ARG:O | 18:T:95:LEU:HG | 2.19 | 0.42 |
| 18:T:98:LEU:C | 18:T:100:VAL:N | 2.73 | 0.42 |
| 19:U:15:GLU:C | 19:U:100:ARG:HH12 | 2.24 | 0.42 |
| 19:U:21:ARG:C | 19:U:93:GLU:CD | 2.77 | 0.42 |
| 19:U:6:LYS:CE | 19:U:10:LYS:HB3 | 2.50 | 0.42 |
| 20:V:10:VAL:CB | 20:V:12:ILE:HD11 | 2.49 | 0.42 |
| 20:V:24:ILE:HG21 | 20:V:36:LEU:HD23 | 2.01 | 0.42 |
| 21:W:57:LEU:C | 21:W:58:HIS:HD1 | 2.23 | 0.42 |
| 23:Y:10:ARG:NH2 | 23:Y:36:LYS:O | 2.53 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 23:Y:168:GLU:O | 23:Y:169:GLU:CB | 2.65 | 0.42 |
| 23:Y:53:ILE:O | 23:Y:54:HIS:CD2 | 2.73 | 0.42 |
| 23:Y:57:ILE:HG23 | 23:Y:69:THR:N | 2.34 | 0.42 |
| 23:Y:76:LEU:HD23 | 23:Y:82:ARG:C | 2.41 | 0.42 |
| 23:Y:91:LEU:HD22 | 23:Y:91:LEU:N | 2.35 | 0.42 |
| 24:Z:25:ARG:HD3 | 24:Z:25:ARG:HA | 1.62 | 0.42 |
| 24:Z:38:VAL:CG2 | 24:Z:59:LEU:HD12 | 2.49 | 0.42 |
| 24:Z:27:GLU:HA | 24:Z:67:VAL:HG11 | 2.02 | 0.42 |
| 9:K:128:LEU:O | 9:K:130:TYR:CE1 | 2.73 | 0.42 |
| 9:K:140:LEU:HA | 9:K:140:LEU:HD23 | 1.74 | 0.42 |
| 1:A:2111:C:C2 | 1:A:2145:C:C2 | 3.08 | 0.42 |
| 3:C:117:PRO:HA | 3:C:120:MET:CB | 2.45 | 0.42 |
| 3:C:77:ILE:CB | 3:C:123:VAL:HG21 | 2.44 | 0.42 |
| 3:C:163:PHE:HA | 3:C:171:ILE:HD11 | 2.01 | 0.42 |
| 3:C:8:ARG:O | 3:C:11:LEU:HB3 | 2.20 | 0.42 |
| 21:W:11:PRO:O | 21:W:13:LEU:HD21 | 2.20 | 0.42 |
| 8:H:99:VAL:HG12 | 8:H:99:VAL:O | 2.20 | 0.42 |
| 25:1:35:SER:O | 25:1:38:GLN:OE1 | 2.37 | 0.41 |
| 28:4:15:ARG:HG2 | 28:4:16:ARG:N | 2.34 | 0.41 |
| 28:4:57:VAL:O | 28:4:58:LEU:CB | 2.66 | 0.41 |
| 29:5:8:LYS:HG2 | 29:5:29:ASN:HB3 | 2.01 | 0.41 |
| 1:A:242:G:C3' | 31:7:4:MET:HE3 | 2.41 | 0.41 |
| 1:A:1005:C:C6 | 11:M:28:THR:CG2 | 3.02 | 0.41 |
| 1:A:1012:U:O4 | 11:M:28:THR:CG2 | 2.67 | 0.41 |
| 1:A:1033:U:H5' | 32:8:16:VAL:HG21 | 2.02 | 0.41 |
| 1:A:1077:A:N7 | 1:A:1078:U:C4 | 2.88 | 0.41 |
| 1:A:1090:U:C4 | 1:A:1103:A:C6 | 3.08 | 0.41 |
| 1:A:1094:U:O2 | 1:A:1095:A:C8 | 2.72 | 0.41 |
| 1:A:1128:A:O2' | 1:A:1129:A:C5' | 2.68 | 0.41 |
| 1:A:1165:U:H2' | 1:A:1166:C:H6 | 1.78 | 0.41 |
| 1:A:1227:A:H3' | 1:A:1227:A:C8 | 2.55 | 0.41 |
| 1:A:1274:A:H2' | 1:A:1275:A:H5' | 2.01 | 0.41 |
| 1:A:1275:A:O2' | 1:A:1276:A:O5' | 2.19 | 0.41 |
| 1:A:1294:U:H1' | 15:Q:23:ASN:HD22 | 1.85 | 0.41 |
| 1:A:1365:A:N7 | 1:A:1366:A:N7 | 2.68 | 0.41 |
| 1:A:1363:C:C2 | 1:A:1369:G:N1 | 2.88 | 0.41 |
| 1:A:137(A):G:C4 | 1:A:138:G:N1 | 2.87 | 0.41 |
| 1:A:1434:A:C2' | 1:A:1435:G:H5' | 2.50 | 0.41 |
| 1:A:1435:G:C6 | 1:A:1436:G:N7 | 2.88 | 0.41 |
| 1:A:1444:G:H3' | 1:A:1445:C:H5 | 1.80 | 0.41 |
| 1:A:1471:A:H3' | 1:A:1472:A:O4' | 2.20 | 0.41 |
| 1:A:1478:G:O2' | 1:A:1479:G:C5' | 2.63 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1614:A:H5'' | 1:A:1617:C:N4 | 2.32 | 0.41 |
| 1:A:1668:A:C2 | 1:A:1993:U:O2 | 2.73 | 0.41 |
| 1:A:1751:C:O5' | 1:A:1751:C:H6 | 2.03 | 0.41 |
| 1:A:1805:U:O2' | 4:D:51:VAL:CG1 | 2.68 | 0.41 |
| 1:A:1850:G:C2 | 1:A:1851:U:H1' | 2.55 | 0.41 |
| 1:A:1906:G:C5 | 1:A:1907:G:N7 | 2.87 | 0.41 |
| 1:A:1934:C:HO2' | 1:A:1935:G:H5' | 1.83 | 0.41 |
| 1:A:1943:U:O2' | 1:A:1944:U:P | 2.78 | 0.41 |
| 1:A:2080:G:H2' | 1:A:2081:C:O5' | 2.19 | 0.41 |
| 1:A:2213:U:H5'' | 1:A:2215:G:N7 | 2.31 | 0.41 |
| 1:A:222:A:C6 | 1:A:224:G:C2 | 3.08 | 0.41 |
| 1:A:2307:G:H4' | 1:A:2311:A:N1 | 2.34 | 0.41 |
| 1:A:2348:U:H3' | 31:7:42:ARG:NH2 | 2.32 | 0.41 |
| 1:A:389:G:H1' | 1:A:2413:G:O4' | 2.20 | 0.41 |
| 1:A:2442:C:H2' | 1:A:2443:C:C6 | 2.56 | 0.41 |
| 1:A:244:A:N1 | 1:A:384:U:O2 | 2.53 | 0.41 |
| 1:A:2457:U:C2' | 1:A:2458:G:C5' | 2.97 | 0.41 |
| 1:A:2501:C:C5' | 1:A:2503:A:H1' | 2.50 | 0.41 |
| 1:A:2587:A:C3' | 1:A:2588:G:H5' | 2.42 | 0.41 |
| 1:A:2592:G:N2 | 1:A:2603:G:C4 | 2.88 | 0.41 |
| 1:A:2603:G:C8 | 1:A:2603:G:H3' | 2.55 | 0.41 |
| 1:A:2620:C:H1' | 5:E:156:MET:CG | 2.50 | 0.41 |
| 1:A:2044:C:C6 | 1:A:2625:G:N2 | 2.87 | 0.41 |
| 1:A:2645:G:O3' | 1:A:2732:G:O2' | 2.35 | 0.41 |
| 1:A:264:C:H2' | 1:A:265:A:H5' | 2.02 | 0.41 |
| 1:A:26:G:C8 | 1:A:26:G:O5' | 2.73 | 0.41 |
| 1:A:2743:C:C2 | 1:A:2762:G:C2 | 3.08 | 0.41 |
| 1:A:2774:C:C3' | 1:A:2775:A:H8 | 2.31 | 0.41 |
| 1:A:2776:A:N3 | 1:A:2778:A:C8 | 2.88 | 0.41 |
| 1:A:2784:C:C2 | 1:A:2785:C:C5 | 3.08 | 0.41 |
| 1:A:2893:G:H4' | 1:A:2894:G:C1' | 2.50 | 0.41 |
| 1:A:2:G:H2' | 1:A:3:U:C6 | 2.55 | 0.41 |
| 1:A:306:U:C5 | 1:A:307:G:N9 | 2.88 | 0.41 |
| 1:A:309:G:C5 | 1:A:330:A:C6 | 3.08 | 0.41 |
| 1:A:422:A:N3 | 1:A:423:A:O5' | 2.53 | 0.41 |
| 1:A:449:A:N3 | 1:A:450:G:C8 | 2.88 | 0.41 |
| 1:A:452:G:C2 | 1:A:458:G:C2 | 3.08 | 0.41 |
| 1:A:546:C:C4 | 1:A:547:A:N6 | 2.88 | 0.41 |
| 1:A:548:A:H2' | 1:A:549:G:H4' | 2.02 | 0.41 |
| 1:A:691:C:O2 | 1:A:692:C:C6 | 2.73 | 0.41 |
| 1:A:72:U:C5 | 1:A:112:U:O2 | 2.72 | 0.41 |
| 1:A:736:C:N4 | 1:A:737:C:N4 | 2.68 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:776:G:O6 | 1:A:793:A:H3' | 2.20 | 0.41 |
| 1:A:687:C:C1' | 1:A:788:A:O4' | 2.68 | 0.41 |
| 1:A:805:G:O2' | 1:A:806:C:P | 2.76 | 0.41 |
| 1:A:805:G:H5' | 1:A:806:C:C5 | 2.54 | 0.41 |
| 1:A:996:A:O3' | 18:T:93:LYS:CG | 2.66 | 0.41 |
| 2:B:14:U:C5 | 2:B:15:A:N1 | 2.88 | 0.41 |
| 2:B:82:G:C4 | 2:B:83:G:C8 | 3.08 | 0.41 |
| 4:D:218:ARG:HA | 4:D:218:ARG:HD2 | 1.98 | 0.41 |
| 4:D:38:LYS:O | 4:D:39:LYS:HG3 | 2.19 | 0.41 |
| 4:D:63:ARG:HH11 | 4:D:63:ARG:CA | 2.28 | 0.41 |
| 4:D:82:ILE:CD1 | 4:D:92:ILE:C | 2.88 | 0.41 |
| 4:D:7:LYS:CE | 4:D:91:ARG:NH1 | 2.83 | 0.41 |
| 5:E:199:ARG:CA | 5:E:200:GLU:OE2 | 2.67 | 0.41 |
| 6:F:113:ALA:HB3 | 6:F:186:ILE:HD12 | 2.01 | 0.41 |
| 1:A:323:G:H8 | 6:F:170:LEU:HB2 | 1.85 | 0.41 |
| 6:F:182:ASN:ND2 | 6:F:185:ASP:OD1 | 2.51 | 0.41 |
| 6:F:66:PRO:C | 6:F:68:LYS:H | 2.20 | 0.41 |
| 7:G:102:PHE:O | 7:G:103:LEU:C | 2.58 | 0.41 |
| 7:G:117:PHE:CE1 | 7:G:137:GLU:HB3 | 2.55 | 0.41 |
| 7:G:130:ASN:O | 7:G:131:TYR:CB | 2.68 | 0.41 |
| 7:G:181:ARG:CB | 7:G:181:ARG:NH2 | 2.78 | 0.41 |
| 7:G:51:ARG:O | 7:G:53:LEU:N | 2.53 | 0.41 |
| 11:M:100:GLU:C | 11:M:103:VAL:HG22 | 2.35 | 0.41 |
| 11:M:4:TYR:HE1 | 18:T:101:ARG:CZ | 2.33 | 0.41 |
| 11:M:19:GLU:CB | 11:M:56:ASN:HB3 | 2.37 | 0.41 |
| 11:M:7:LYS:CD | 11:M:8:GLN:N | 2.82 | 0.41 |
| 12:N:104:ARG:HG3 | 12:N:107:ARG:NH1 | 2.35 | 0.41 |
| 1:A:244:A:H2' | 13:O:65:ARG:HH22 | 1.84 | 0.41 |
| 14:P:43:THR:O | 14:P:47:ILE:CG1 | 2.68 | 0.41 |
| 14:P:56:ARG:CG | 14:P:57:HIS:N | 2.83 | 0.41 |
| 1:A:1653:G:H1 | 15:Q:11:ASN:HD22 | 1.68 | 0.41 |
| 15:Q:3:HIS:ND1 | 15:Q:3:HIS:C | 2.70 | 0.41 |
| 16:R:102:ALA:O | 16:R:104:GLY:N | 2.53 | 0.41 |
| 17:S:5:ALA:O | 17:S:8:LYS:HB2 | 2.21 | 0.41 |
| 18:T:52:ARG:HB2 | 18:T:55:ARG:CD | 2.50 | 0.41 |
| 18:T:61:TRP:CE3 | 18:T:96:ALA:HB3 | 2.55 | 0.41 |
| 18:T:61:TRP:C | 18:T:63:VAL:N | 2.72 | 0.41 |
| 18:T:6:THR:O | 18:T:7:GLY:C | 2.58 | 0.41 |
| 18:T:65:ILE:HG22 | 18:T:76:TYR:HE1 | 1.81 | 0.41 |
| 18:T:98:LEU:CD2 | 18:T:98:LEU:N | 2.80 | 0.41 |
| 19:U:60:GLU:OE1 | 19:U:100:ARG:C | 2.59 | 0.41 |
| 19:U:90:PRO:O | 19:U:91:TYR:CG | 2.73 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:X:47:LYS:HZ3 | 22:X:51:VAL:CG2 | 2.23 | 0.41 |
| 22:X:45:VAL:CA | 22:X:57:GLN:NE2 | 2.83 | 0.41 |
| 24:Z:27:GLU:CA | 24:Z:67:VAL:HG11 | 2.50 | 0.41 |
| 24:Z:36:ILE:O | 24:Z:36:ILE:HG23 | 2.20 | 0.41 |
| 24:Z:41:ARG:CB | 24:Z:41:ARG:HH11 | 2.26 | 0.41 |
| 24:Z:46:LYS:HE3 | 24:Z:76:GLY:CA | 2.50 | 0.41 |
| 9:K:77:LEU:HD21 | 9:K:140:LEU:HB3 | 2.02 | 0.41 |
| 1:A:2133:G:H5'' | 1:A:2134:A:OP2 | 2.20 | 0.41 |
| 1:A:2171:A:C2' | 1:A:2172:U:O5' | 2.67 | 0.41 |
| 3:C:99:ILE:O | 3:C:103:ILE:HG13 | 2.19 | 0.41 |
| 3:C:100:ILE:CD1 | 3:C:123:VAL:HA | 2.50 | 0.41 |
| 3:C:13:LYS:HB3 | 3:C:32:LEU:CD2 | 2.49 | 0.41 |
| 3:C:64:LEU:HB3 | 3:C:188:ASN:CG | 2.40 | 0.41 |
| 5:E:126:PRO:C | 5:E:135:HIS:O | 2.57 | 0.41 |
| 1:A:2340:G:N1 | 1:A:2341:G:N7 | 2.67 | 0.41 |
| 3:C:18:LYS:HB3 | 3:C:20:TYR:CD2 | 2.55 | 0.41 |
| 3:C:71:GLN:CD | 3:C:72:VAL:HG23 | 2.40 | 0.41 |
| 1:A:1415:U:H6 | 1:A:1415:U:H5'' | 1.85 | 0.41 |
| 1:A:1680:U:O5' | 1:A:1680:U:H6 | 2.02 | 0.41 |
| 25:1:32:PHE:CD1 | 25:1:32:PHE:N | 2.87 | 0.41 |
| 25:1:27:LEU:HD11 | 25:1:48:LEU:HG | 2.02 | 0.41 |
| 26:2:56:VAL:O | 26:2:56:VAL:CG1 | 2.68 | 0.41 |
| 32:8:9:ARG:CG | 32:8:14:CYS:O | 2.67 | 0.41 |
| 1:A:105:C:C2 | 1:A:106:C:C5 | 3.08 | 0.41 |
| 1:A:10:G:O2' | 1:A:11:G:O5' | 2.38 | 0.41 |
| 1:A:112:U:OP1 | 25:1:64:ARG:NH1 | 2.53 | 0.41 |
| 1:A:1139:G:C2' | 1:A:1142(A):A:H2 | 2.32 | 0.41 |
| 1:A:1227:A:N7 | 1:A:1228:G:C8 | 2.88 | 0.41 |
| 1:A:1258:C:H5' | 6:F:84:VAL:HG21 | 2.02 | 0.41 |
| 1:A:1288:U:C2 | 1:A:1327:C:N3 | 2.88 | 0.41 |
| 1:A:1296:G:H2' | 1:A:1297:C:O5' | 2.20 | 0.41 |
| 1:A:1464:C:H4' | 1:A:1528:A:C2' | 2.43 | 0.41 |
| 1:A:1557:C:H3' | 1:A:1558:A:C5' | 2.50 | 0.41 |
| 1:A:1791:A:H4' | 4:D:206:LEU:HD23 | 1.97 | 0.41 |
| 1:A:1808:U:N3 | 1:A:1810:A:N1 | 2.67 | 0.41 |
| 1:A:1809:A:O2' | 1:A:1810:A:OP1 | 2.36 | 0.41 |
| 1:A:1872:A:C2' | 1:A:1878:G:C5' | 2.88 | 0.41 |
| 1:A:1889:A:C6 | 1:A:1890:A:N6 | 2.89 | 0.41 |
| 1:A:1894:C:O2' | 1:A:1895:C:H5' | 2.20 | 0.41 |
| 1:A:1911:U:C5 | 1:A:1913:A:N6 | 2.71 | 0.41 |
| 1:A:197:A:O4' | 1:A:2068:U:N3 | 2.53 | 0.41 |
| 1:A:1996:C:O2 | 1:A:1997:G:C4' | 2.67 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:200:U:C3' | 1:A:201:C:H5' | 2.50 | 0.41 |
| 1:A:2020:A:C2 | 1:A:2035:G:C5 | 3.07 | 0.41 |
| 1:A:2061:G:N2 | 1:A:2063:C:C1' | 2.84 | 0.41 |
| 1:A:2278:A:C6 | 24:Z:14:ARG:HB2 | 2.55 | 0.41 |
| 1:A:2290:G:C6 | 1:A:2291:U:N3 | 2.89 | 0.41 |
| 1:A:2306:C:OP2 | 7:G:136:ARG:CZ | 2.68 | 0.41 |
| 1:A:2377:A:C2 | 1:A:2378:A:C8 | 3.06 | 0.41 |
| 1:A:2392:A:O2' | 1:A:2393:A:OP1 | 2.38 | 0.41 |
| 1:A:2428:G:C4' | 1:A:2429:G:O5' | 2.68 | 0.41 |
| 1:A:2454:G:O2' | 1:A:2455:G:H5' | 2.20 | 0.41 |
| 1:A:1672:C:C2 | 1:A:2582:G:O4' | 2.72 | 0.41 |
| 1:A:270(D):C:C2' | 1:A:270(D):C:O2 | 2.62 | 0.41 |
| 1:A:270(I):G:N2 | 1:A:270(J):G:H1' | 2.33 | 0.41 |
| 1:A:2734:A:N3 | 5:E:203:LYS:HD3 | 2.35 | 0.41 |
| 1:A:2896:C:C2' | 1:A:2897:U:O5' | 2.68 | 0.41 |
| 1:A:296:C:C4 | 1:A:297:C:C4 | 3.09 | 0.41 |
| 1:A:513:A:C6 | 1:A:514:A:C8 | 3.09 | 0.41 |
| 1:A:55:G:C2 | 1:A:56:A:N7 | 2.88 | 0.41 |
| 1:A:670:A:H4' | 1:A:671:C:O5' | 2.18 | 0.41 |
| 1:A:587:C:N4 | 1:A:671:C:C6 | 2.88 | 0.41 |
| 1:A:67:U:H6 | 1:A:67:U:C4' | 2.33 | 0.41 |
| 1:A:780:G:C5 | 1:A:782:A:N6 | 2.88 | 0.41 |
| 1:A:776:G:N3 | 1:A:793:A:N6 | 2.68 | 0.41 |
| 1:A:870:A:C2 | 1:A:908:C:C2 | 3.08 | 0.41 |
| 1:A:88:G:H2' | 1:A:89:G:C5' | 2.50 | 0.41 |
| 1:A:957:A:C4' | 1:A:958:U:OP1 | 2.56 | 0.41 |
| 2:B:54:G:H2' | 2:B:55:U:H6 | 1.84 | 0.41 |
| 2:B:82:G:O2' | 2:B:83:G:O5' | 2.38 | 0.41 |
| 4:D:259:THR:HG22 | 4:D:260:ARG:N | 2.35 | 0.41 |
| 5:E:101:ARG:NH2 | 5:E:171:GLU:CG | 2.63 | 0.41 |
| 5:E:136:ARG:C | 5:E:136:ARG:NE | 2.74 | 0.41 |
| 5:E:178:GLU:HB2 | 5:E:179:GLU:H | 1.66 | 0.41 |
| 6:F:133:ASN:HD22 | 6:F:162:LEU:CD2 | 2.32 | 0.41 |
| 6:F:37:VAL:O | 6:F:41:LEU:HD23 | 2.20 | 0.41 |
| 7:G:120:LEU:CA | 7:G:180:PHE:HB3 | 2.50 | 0.41 |
| 7:G:122:PRO:O | 7:G:123:ASN:C | 2.58 | 0.41 |
| 2:B:57:A:N3 | 7:G:29:TRP:CD1 | 2.88 | 0.41 |
| 7:G:47:LYS:NZ | 7:G:49:ASP:CG | 2.74 | 0.41 |
| 7:G:2:PRO:C | 7:G:5:VAL:HB | 2.39 | 0.41 |
| 8:H:98:LEU:HD22 | 8:H:100:GLY:CA | 2.50 | 0.41 |
| 8:H:51:ARG:HD3 | 8:H:52:VAL:H | 1.85 | 0.41 |
| 8:H:95:ARG:O | 8:H:105:LEU:CA | 2.66 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 10:L:103:GLN:O | 10:L:106:GLU:CG | 2.67 | 0.41 |
| 1:A:1080:C:C1' | 10:L:126:MET:HA | 2.38 | 0.41 |
| 10:L:60:TYR:O | 10:L:61:ALA:O | 2.38 | 0.41 |
| 10:L:89:HIS:O | 10:L:90:LYS:CG | 2.67 | 0.41 |
| 1:A:1140:C:H5'' | 11:M:65:LYS:NZ | 2.35 | 0.41 |
| 11:M:96:GLU:CG | 11:M:97:ARG:HD3 | 2.41 | 0.41 |
| 12:N:29:ASN:O | 12:N:30:ALA:O | 2.38 | 0.41 |
| 12:N:19:ILE:CB | 12:N:43:VAL:HA | 2.50 | 0.41 |
| 13:O:136:GLU:HB3 | 13:O:137:LYS:NZ | 2.35 | 0.41 |
| 13:O:13:ASN:HB2 | 13:O:17:LYS:HD3 | 2.02 | 0.41 |
| 1:A:811:U:OP2 | 13:O:28:GLY:CA | 2.68 | 0.41 |
| 13:O:78:PRO:O | 13:O:81:GLN:CB | 2.55 | 0.41 |
| 14:P:16:ARG:N | 14:P:16:ARG:CD | 2.80 | 0.41 |
| 15:Q:39:PRO:HA | 15:Q:42:LYS:CG | 2.50 | 0.41 |
| 18:T:110:VAL:HG12 | 18:T:114:LYS:HZ2 | 1.83 | 0.41 |
| 18:T:113:ALA:O | 18:T:114:LYS:C | 2.58 | 0.41 |
| 18:T:10:ARG:C | 18:T:12:ARG:N | 2.70 | 0.41 |
| 19:U:93:GLU:OE2 | 19:U:95:LEU:HD22 | 2.20 | 0.41 |
| 20:V:25:ARG:HA | 20:V:71:VAL:CG1 | 2.47 | 0.41 |
| 20:V:60:ASN:HD22 | 20:V:61:ASN:ND2 | 2.18 | 0.41 |
| 20:V:84:ARG:O | 20:V:96:ILE:CD1 | 2.68 | 0.41 |
| 1:A:65:C:H1' | 21:W:66:LEU:HD13 | 2.01 | 0.41 |
| 21:W:50:LYS:HZ3 | 21:W:85:PRO:CD | 2.32 | 0.41 |
| 22:X:8:LYS:HE3 | 22:X:28:LYS:HE3 | 2.02 | 0.41 |
| 23:Y:122:ARG:N | 23:Y:122:ARG:CD | 2.75 | 0.41 |
| 23:Y:79:ARG:O | 23:Y:80:ARG:CG | 2.67 | 0.41 |
| 23:Y:80:ARG:HD3 | 23:Y:82:ARG:NH2 | 2.35 | 0.41 |
| 2:B:77:U:H4' | 23:Y:84:GLU:CD | 2.40 | 0.41 |
| 24:Z:40:GLN:HB3 | 24:Z:45:PHE:CD1 | 2.55 | 0.41 |
| 24:Z:49:LYS:N | 24:Z:80:HIS:CE1 | 2.79 | 0.41 |
| 24:Z:65:GLY:CA | 24:Z:81:VAL:HG12 | 2.44 | 0.41 |
| 9:K:130:TYR:O | 9:K:138:ILE:CG2 | 2.67 | 0.41 |
| 1:A:2166:G:N2 | 1:A:2172:U:N3 | 2.68 | 0.41 |
| 1:A:2178:C:H5'' | 3:C:46:LYS:HZ3 | 1.85 | 0.41 |
| 3:C:113:VAL:HG11 | 3:C:138:PRO:HD3 | 2.02 | 0.41 |
| 3:C:91:ALA:HA | 3:C:153:ILE:CG2 | 2.49 | 0.41 |
| 3:C:209:LEU:C | 3:C:209:LEU:HD23 | 2.41 | 0.41 |
| 3:C:43:VAL:CG1 | 3:C:213:TYR:O | 2.66 | 0.41 |
| 9:K:61:ARG:O | 9:K:62:LYS:C | 2.58 | 0.41 |
| 1:A:1845:G:C4 | 1:A:1896:G:N2 | 2.88 | 0.41 |
| 25:1:4:GLN:O | 25:1:8:ALA:HB2 | 2.21 | 0.41 |
| 26:2:41:PRO:O | 26:2:44:ARG:HB3 | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 27:3:67:TYR:C | 27:3:69:LYS:N | 2.71 | 0.41 |
| 29:5:24:GLU:HG2 | 31:7:37:SER:CB | 2.51 | 0.41 |
| 29:5:52:VAL:HG12 | 29:5:53:LYS:N | 2.34 | 0.41 |
| 31:7:1:MET:CB | 31:7:2:PRO:CD | 2.98 | 0.41 |
| 31:7:26:LYS:O | 31:7:27:THR:HG23 | 2.20 | 0.41 |
| 32:8:7:VAL:HG13 | 32:8:34:GLN:HB3 | 2.01 | 0.41 |
| 1:A:1071:G:C8 | 1:A:1089:G:C6 | 3.08 | 0.41 |
| 1:A:1088:A:H2' | 1:A:1089:G:OP1 | 2.20 | 0.41 |
| 1:A:108:U:O2' | 1:A:109:G:O5' | 2.35 | 0.41 |
| 1:A:1168:G:C6 | 1:A:1169:G:C6 | 3.09 | 0.41 |
| 1:A:1206:G:C2' | 1:A:1207:C:C4' | 2.94 | 0.41 |
| 1:A:122:G:OP1 | 1:A:149:A:O2' | 2.38 | 0.41 |
| 1:A:1241:A:C2 | 1:A:1241:A:P | 3.12 | 0.41 |
| 1:A:1202:C:C2 | 1:A:1244:G:N2 | 2.88 | 0.41 |
| 1:A:124:G:OP1 | 1:A:1376:C:C1' | 2.68 | 0.41 |
| 1:A:1303:G:C5 | 1:A:1304:C:C4 | 3.07 | 0.41 |
| 1:A:1395:A:C6 | 1:A:1398:C:C2 | 3.08 | 0.41 |
| 1:A:1407:C:O2' | 1:A:1408:C:C5' | 2.65 | 0.41 |
| 1:A:1412:A:C6 | 1:A:1591:G:C6 | 3.07 | 0.41 |
| 1:A:1420:U:O2' | 1:A:1421:G:H5'' | 2.19 | 0.41 |
| 1:A:1426:G:H2' | 1:A:1427:A:OP1 | 2.20 | 0.41 |
| 1:A:1444(A):A:OP2 | 1:A:1444(A):A:C4 | 2.73 | 0.41 |
| 1:A:1525:G:H2' | 1:A:1526:G:O5' | 2.18 | 0.41 |
| 1:A:1593:G:H2' | 1:A:1594:G:O4' | 2.20 | 0.41 |
| 1:A:1682:G:C3' | 1:A:1683:C:C6 | 3.02 | 0.41 |
| 1:A:1782:C:H5' | 1:A:2609:U:N3 | 2.36 | 0.41 |
| 1:A:1792:G:C2' | 1:A:1793:C:H5' | 2.50 | 0.41 |
| 1:A:1911:U:C2' | 1:A:1912:A:C5' | 2.92 | 0.41 |
| 1:A:1916:A:N3 | 1:A:1917:U:OP2 | 2.53 | 0.41 |
| 1:A:1968:G:O2' | 1:A:1969:A:C8 | 2.52 | 0.41 |
| 1:A:197:A:C2 | 1:A:198:C:C1' | 3.02 | 0.41 |
| 1:A:2018:G:H2' | 1:A:2019:A:C1' | 2.51 | 0.41 |
| 1:A:2056:G:H2' | 1:A:2057:A:O4' | 2.20 | 0.41 |
| 1:A:2087:G:C6 | 1:A:2088:G:C5 | 3.08 | 0.41 |
| 1:A:2090:G:H2' | 1:A:2091:U:C6 | 2.54 | 0.41 |
| 1:A:2213:U:C3' | 1:A:2213:U:C2 | 3.03 | 0.41 |
| 1:A:2255:G:H21 | 24:Z:9:SER:CB | 2.33 | 0.41 |
| 1:A:965:C:O5' | 1:A:2273:A:H1' | 2.19 | 0.41 |
| 1:A:2447:G:C8 | 1:A:2501:C:C5 | 3.08 | 0.41 |
| 1:A:2481:G:O2' | 1:A:2482:G:C5' | 2.68 | 0.41 |
| 1:A:2526:G:C2' | 1:A:2527:C:H5' | 2.48 | 0.41 |
| 1:A:2544:G:H5' | 1:A:2645:G:C8 | 2.45 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2553:G:C5' | 1:A:2554:U:OP2 | 2.67 | 0.41 |
| 1:A:2697:G:O2' | 1:A:2698:U:C5' | 2.68 | 0.41 |
| 1:A:2882:A:OP1 | 15:Q:96:ARG:CG | 2.67 | 0.41 |
| 1:A:421:U:H6 | 1:A:421:U:OP2 | 2.03 | 0.41 |
| 1:A:457:A:C1' | 1:A:459:U:C2 | 3.03 | 0.41 |
| 1:A:528:A:C3' | 1:A:528:A:C8 | 3.03 | 0.41 |
| 1:A:57:C:C6 | 1:A:57:C:O5' | 2.73 | 0.41 |
| 1:A:592:G:N2 | 1:A:666:G:C4 | 2.88 | 0.41 |
| 1:A:603:A:C6 | 1:A:625:G:C5 | 3.07 | 0.41 |
| 1:A:607:U:O2 | 1:A:608:A:C8 | 2.73 | 0.41 |
| 1:A:624:C:C6 | 1:A:624:C:C4' | 3.03 | 0.41 |
| 1:A:630:G:O2' | 1:A:631:A:P | 2.72 | 0.41 |
| 1:A:659:C:O2' | 1:A:660:G:C5' | 2.62 | 0.41 |
| 1:A:662:G:O2' | 1:A:663:G:H8 | 2.03 | 0.41 |
| 1:A:686:G:C5' | 1:A:687:C:OP2 | 2.68 | 0.41 |
| 1:A:69:C:O2 | 1:A:69:C:H2' | 2.20 | 0.41 |
| 1:A:71:A:OP2 | 1:A:71:A:O3' | 2.38 | 0.41 |
| 1:A:814:C:C4' | 1:A:1224:G:H22 | 2.33 | 0.41 |
| 1:A:933:A:O2' | 1:A:934:G:H5' | 2.20 | 0.41 |
| 1:A:831:G:H3' | 1:A:944:G:N2 | 2.36 | 0.41 |
| 1:A:965:C:C2' | 1:A:966:G:H5' | 2.50 | 0.41 |
| 1:A:973:A:C2' | 1:A:974:G:C5' | 2.98 | 0.41 |
| 1:A:976:C:N4 | 1:A:988:A:N3 | 2.64 | 0.41 |
| 2:B:112:G:H5'' | 2:B:113:C:OP2 | 2.20 | 0.41 |
| 2:B:88:C:O2 | 2:B:88:C:C2' | 2.67 | 0.41 |
| 4:D:96:HIS:CE1 | 4:D:102:LYS:HE2 | 2.54 | 0.41 |
| 4:D:117:VAL:HG13 | 4:D:129:ASN:CG | 2.40 | 0.41 |
| 4:D:208:LYS:HE3 | 4:D:211:ARG:CZ | 2.50 | 0.41 |
| 1:A:1816:G:OP2 | 4:D:43:ARG:HD2 | 2.21 | 0.41 |
| 5:E:133:LYS:CE | 5:E:137:HIS:CB | 2.98 | 0.41 |
| 1:A:2773:C:P | 5:E:164:ARG:NH2 | 2.93 | 0.41 |
| 5:E:59:VAL:C | 5:E:62:PRO:HD2 | 2.40 | 0.41 |
| 5:E:53:PRO:HD3 | 5:E:74:PRO:HA | 1.99 | 0.41 |
| 6:F:154:VAL:HG12 | 6:F:191:ARG:CB | 2.29 | 0.41 |
| 6:F:167:ALA:O | 6:F:173:VAL:HG22 | 2.21 | 0.41 |
| 1:A:2304:G:C5' | 7:G:132:ASN:HD21 | 2.31 | 0.41 |
| 7:G:37:VAL:HG12 | 7:G:157:ILE:CD1 | 2.50 | 0.41 |
| 1:A:2312:U:OP2 | 7:G:86:MET:HE2 | 2.20 | 0.41 |
| 8:H:116:GLU:HA | 8:H:117:PRO:HD2 | 1.78 | 0.41 |
| 8:H:37:VAL:HA | 8:H:41:MET:CE | 2.49 | 0.41 |
| 9:K:3:VAL:HG21 | 9:K:21:VAL:HG23 | 2.01 | 0.41 |
| 9:K:4:ILE:HG12 | 9:K:38:LEU:CA | 2.49 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:L:104:VAL:CG1 | 10:L:124:ALA:HA | 2.51 | 0.41 |
| 10:L:115:LEU:CD2 | 10:L:126:MET:SD | 3.08 | 0.41 |
| 10:L:20:ALA:CB | 10:L:21:PRO:CD | 2.94 | 0.41 |
| 10:L:7:VAL:HA | 10:L:58:THR:CB | 2.50 | 0.41 |
| 10:L:95:LYS:HG2 | 10:L:137:GLU:CD | 2.40 | 0.41 |
| 11:M:15:LEU:CD2 | 11:M:137:LYS:C | 2.87 | 0.41 |
| 12:N:94:ARG:HG3 | 12:N:95:GLY:C | 2.40 | 0.41 |
| 13:O:64:LYS:HD2 | 13:O:64:LYS:N | 2.36 | 0.41 |
| 13:O:77:ARG:HG2 | 13:O:79:ARG:HB3 | 2.02 | 0.41 |
| 14:P:102:VAL:HG22 | 14:P:104:PHE:CE2 | 2.55 | 0.41 |
| 14:P:124:LYS:HE2 | 14:P:125:LEU:HG | 2.01 | 0.41 |
| 14:P:42:ILE:CG2 | 14:P:42:ILE:O | 2.68 | 0.41 |
| 14:P:6:ARG:NE | 14:P:8:LYS:HG2 | 2.34 | 0.41 |
| 15:Q:20:LEU:CD1 | 15:Q:21:TYR:N | 2.83 | 0.41 |
| 16:R:39:ILE:HG13 | 16:R:48:LEU:HB3 | 2.02 | 0.41 |
| 17:S:28:VAL:HG12 | 17:S:29:ARG:N | 2.34 | 0.41 |
| 17:S:65:LYS:HD3 | 17:S:75:ILE:CB | 2.51 | 0.41 |
| 18:T:49:HIS:C | 18:T:51:LYS:N | 2.73 | 0.41 |
| 18:T:97:ASP:HB2 | 18:T:98:LEU:HD22 | 2.01 | 0.41 |
| 1:A:992:C:C2' | 19:U:91:TYR:OH | 2.69 | 0.41 |
| 20:V:12:ILE:N | 20:V:12:ILE:HD13 | 2.35 | 0.41 |
| 21:W:33:LYS:O | 21:W:34:ALA:C | 2.59 | 0.41 |
| 22:X:61:ILE:O | 22:X:62:GLU:HG2 | 2.20 | 0.41 |
| 22:X:95:LYS:CG | 22:X:96:ILE:N | 2.83 | 0.41 |
| 23:Y:111:VAL:HG22 | 23:Y:116:VAL:O | 2.20 | 0.41 |
| 23:Y:168:GLU:CD | 23:Y:169:GLU:H | 2.22 | 0.41 |
| 23:Y:180:VAL:O | 23:Y:180:VAL:HG12 | 2.20 | 0.41 |
| 2:B:73:A:N6 | 23:Y:29:TYR:OH | 2.54 | 0.41 |
| 23:Y:41:LEU:O | 23:Y:45:ASP:OD1 | 2.38 | 0.41 |
| 24:Z:44:ARG:HA | 24:Z:46:LYS:HZ2 | 1.83 | 0.41 |
| 1:A:2116:G:O6 | 1:A:2162:G:OP1 | 2.38 | 0.41 |
| 1:A:2123:G:C6 | 1:A:2124:G:C6 | 3.09 | 0.41 |
| 3:C:101:GLN:O | 3:C:102:LYS:C | 2.59 | 0.41 |
| 3:C:208:PHE:O | 3:C:210:ARG:HG3 | 2.20 | 0.41 |
| 1:A:1416:G:HO2' | 1:A:1583:A:N6 | 2.19 | 0.41 |
| 1:A:1585:C:O5' | 1:A:1585:C:H6 | 2.02 | 0.41 |
| 3:C:53:ARG:N | 3:C:53:ARG:HD3 | 2.35 | 0.41 |
| 1:A:96:G:O4' | 25:1:43:HIS:CE1 | 2.74 | 0.41 |
| 26:2:5:LYS:HZ2 | 26:2:59:VAL:CG2 | 2.33 | 0.41 |
| 27:3:5:ILE:HD11 | 27:3:10:VAL:HG21 | 1.94 | 0.41 |
| 27:3:68:ARG:NH1 | 27:3:68:ARG:CB | 2.75 | 0.41 |
| 28:4:40:LYS:CD | 28:4:41:PRO:O | 2.68 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|----------------|------------------|-------------|----------|
| 30:6:21:ARG:O | 30:6:24:THR:HG23 | 2.21 | 0.41 |
| 31:7:7:HIS:O | 31:7:10:ALA:HB3 | 2.21 | 0.41 |
| 1:A:1000:A:C6 | 1:A:1155:A:C5 | 3.09 | 0.41 |
| 1:A:105:C:H2' | 1:A:106:C:H6 | 1.85 | 0.41 |
| 1:A:1063:G:C8 | 1:A:1064:C:H5 | 2.39 | 0.41 |
| 1:A:1170:G:C2 | 1:A:1180:C:N3 | 2.88 | 0.41 |
| 1:A:1210:A:C5 | 1:A:1237:A:C6 | 3.08 | 0.41 |
| 1:A:578:A:OP1 | 1:A:1255:U:C4' | 2.67 | 0.41 |
| 1:A:1272:A:H2' | 1:A:1273:U:C5' | 2.50 | 0.41 |
| 1:A:1312:U:O2 | 1:A:1313:U:H1' | 2.19 | 0.41 |
| 1:A:1424:G:O2' | 1:A:1425:G:H5' | 2.20 | 0.41 |
| 1:A:1469:A:H61 | 1:A:1522:G:H1 | 1.68 | 0.41 |
| 1:A:1558:A:O2' | 1:A:1559:G:N7 | 2.29 | 0.41 |
| 1:A:1571:A:N3 | 1:A:1571:A:C2' | 2.84 | 0.41 |
| 1:A:1608:A:C5 | 1:A:1611:C:C5 | 3.08 | 0.41 |
| 1:A:1619:G:C2' | 1:A:1620:G:H5' | 2.50 | 0.41 |
| 1:A:1685:C:C2 | 1:A:1686:C:C5 | 3.08 | 0.41 |
| 1:A:1694:C:C2' | 1:A:1694:C:O2 | 2.69 | 0.41 |
| 1:A:1748:G:N2 | 1:A:1749:A:N3 | 2.68 | 0.41 |
| 1:A:1773:A:C6 | 1:A:1829:A:C1' | 2.97 | 0.41 |
| 1:A:1820:U:C2' | 1:A:1821:A:OP1 | 2.68 | 0.41 |
| 1:A:1831:G:C5 | 1:A:1832:C:C4 | 3.09 | 0.41 |
| 1:A:1830:C:C2 | 1:A:1831:G:C8 | 3.09 | 0.41 |
| 1:A:1931:U:C5 | 1:A:1932:A:N7 | 2.88 | 0.41 |
| 1:A:1932:A:C8 | 1:A:1933:G:N7 | 2.88 | 0.41 |
| 1:A:1987:G:N3 | 1:A:1988:C:C5 | 2.88 | 0.41 |
| 1:A:2051:A:O2' | 5:E:141:ILE:CD1 | 2.56 | 0.41 |
| 1:A:2215:G:H8 | 1:A:2215:G:O5' | 1.99 | 0.41 |
| 1:A:2227:A:C4 | 1:A:2228:G:C8 | 3.09 | 0.41 |
| 1:A:229:A:O2' | 1:A:230:U:O5' | 2.37 | 0.41 |
| 1:A:410:G:N2 | 1:A:2407:G:C8 | 2.88 | 0.41 |
| 1:A:2436:G:O6 | 1:A:2437:U:C4 | 2.74 | 0.41 |
| 1:A:2438:U:O3' | 1:A:2439:A:H3' | 2.21 | 0.41 |
| 1:A:2060:A:O2' | 1:A:2502:G:O4' | 2.37 | 0.41 |
| 1:A:2615:U:H2' | 1:A:2616:C:C6 | 2.54 | 0.41 |
| 1:A:2616:C:H3' | 1:A:2617:C:C6 | 2.55 | 0.41 |
| 1:A:2638:G:N7 | 1:A:2775:A:N1 | 2.69 | 0.41 |
| 1:A:266:G:HO2' | 1:A:267:C:P | 2.43 | 0.41 |
| 1:A:2705:A:N7 | 1:A:2706:G:C5 | 2.89 | 0.41 |
| 1:A:269:U:C6 | 1:A:270(Z):U:OP2 | 2.73 | 0.41 |
| 1:A:2781:A:H2' | 1:A:2782:G:C4' | 2.50 | 0.41 |
| 1:A:2840:C:C2 | 1:A:2841:C:C5 | 3.09 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:284:U:P | 1:A:284:U:H3' | 2.60 | 0.41 |
| 1:A:2852:G:C2' | 1:A:2853:C:O5' | 2.68 | 0.41 |
| 1:A:1710:C:C2' | 1:A:2858:C:H42 | 2.33 | 0.41 |
| 1:A:2856:C:C4 | 1:A:2862:G:N1 | 2.89 | 0.41 |
| 1:A:2863:C:C2 | 1:A:2864:G:N7 | 2.89 | 0.41 |
| 1:A:295:G:C3' | 1:A:338:G:H22 | 2.34 | 0.41 |
| 1:A:398:G:H5'' | 1:A:2090:G:O4' | 2.20 | 0.41 |
| 1:A:459:U:O2' | 1:A:460:A:H5' | 2.19 | 0.41 |
| 1:A:508:G:H4' | 1:A:509:C:C5' | 2.51 | 0.41 |
| 1:A:547:A:C5 | 1:A:548:A:C5 | 3.08 | 0.41 |
| 1:A:596:G:H2' | 1:A:597:U:O4' | 2.21 | 0.41 |
| 1:A:659:C:C2' | 1:A:660:G:O5' | 2.68 | 0.41 |
| 1:A:687:C:C3' | 1:A:688:U:C6 | 3.03 | 0.41 |
| 1:A:731:C:N3 | 1:A:732:C:C5 | 2.88 | 0.41 |
| 1:A:748:G:N7 | 1:A:750:A:C5 | 2.89 | 0.41 |
| 1:A:815:C:H2' | 1:A:816:C:C6 | 2.55 | 0.41 |
| 1:A:849:A:C2' | 1:A:850:C:H5' | 2.51 | 0.41 |
| 1:A:874:G:C2 | 1:A:904:C:N3 | 2.88 | 0.41 |
| 1:A:963:U:N3 | 1:A:964:C:C5 | 2.89 | 0.41 |
| 1:A:948:G:H1' | 1:A:984:A:C4 | 2.56 | 0.41 |
| 2:B:62:C:O2' | 2:B:63:G:C5' | 2.68 | 0.41 |
| 4:D:131:LEU:HD12 | 4:D:132:PRO:CD | 2.50 | 0.41 |
| 4:D:149:PRO:O | 4:D:150:LYS:HB2 | 2.20 | 0.41 |
| 4:D:176:ARG:HG3 | 4:D:176:ARG:NH1 | 2.34 | 0.41 |
| 1:A:2596:U:C3' | 4:D:242:ARG:CZ | 2.97 | 0.41 |
| 4:D:243:GLY:O | 4:D:244:ARG:HG2 | 2.21 | 0.41 |
| 4:D:244:ARG:C | 4:D:252:TRP:NE1 | 2.73 | 0.41 |
| 1:A:1799:G:N7 | 4:D:268:ARG:NH1 | 2.67 | 0.41 |
| 1:A:1818:U:P | 4:D:88:ARG:NH1 | 2.93 | 0.41 |
| 5:E:5:LEU:HD22 | 5:E:6:GLY:N | 2.35 | 0.41 |
| 1:A:2810:A:H1' | 5:E:61:ARG:HH22 | 1.85 | 0.41 |
| 6:F:194:MET:HE3 | 6:F:194:MET:HB2 | 1.77 | 0.41 |
| 6:F:194:MET:HE3 | 6:F:200:GLU:HB3 | 1.99 | 0.41 |
| 7:G:21:ARG:HH11 | 7:G:26:GLN:C | 2.23 | 0.41 |
| 8:H:137:ASP:HB3 | 8:H:140:LYS:HD3 | 2.01 | 0.41 |
| 8:H:154:PRO:O | 8:H:155:SER:HB3 | 2.19 | 0.41 |
| 8:H:15:VAL:HG22 | 8:H:17:VAL:HB | 2.01 | 0.41 |
| 9:K:24:GLY:O | 9:K:27:ARG:CB | 2.66 | 0.41 |
| 10:L:11:GLN:HE21 | 10:L:73:PRO:CG | 2.26 | 0.41 |
| 11:M:11:PRO:C | 11:M:12:ARG:HD2 | 2.41 | 0.41 |
| 11:M:32:THR:O | 11:M:35:ARG:CG | 2.68 | 0.41 |
| 11:M:87:LEU:CD2 | 11:M:88:GLU:CD | 2.89 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:M:94:HIS:O | 11:M:98:VAL:HG23 | 2.20 | 0.41 |
| 12:N:120:GLU:C | 12:N:122:LEU:N | 2.74 | 0.41 |
| 12:N:31:LYS:O | 12:N:32:TYR:CG | 2.73 | 0.41 |
| 12:N:23:ARG:HD3 | 12:N:40:VAL:HG11 | 2.01 | 0.41 |
| 12:N:42:SER:HA | 12:N:55:GLY:O | 2.21 | 0.41 |
| 12:N:53:LYS:HG3 | 12:N:55:GLY:N | 2.35 | 0.41 |
| 12:N:34:THR:O | 12:N:61:VAL:HG21 | 2.20 | 0.41 |
| 12:N:63:VAL:HB | 12:N:78:ARG:HG3 | 2.03 | 0.41 |
| 13:O:112:LEU:CB | 13:O:128:HIS:CE1 | 3.00 | 0.41 |
| 13:O:35:HIS:ND1 | 13:O:36:LYS:HG2 | 2.35 | 0.41 |
| 13:O:79:ARG:CD | 13:O:83:VAL:HG11 | 2.50 | 0.41 |
| 14:P:102:VAL:CG1 | 14:P:104:PHE:CZ | 3.03 | 0.41 |
| 14:P:25:ASP:CG | 14:P:102:VAL:HG12 | 2.40 | 0.41 |
| 14:P:124:LYS:CE | 14:P:125:LEU:HD23 | 2.50 | 0.41 |
| 14:P:36:ALA:HB3 | 14:P:101:ARG:H | 1.85 | 0.41 |
| 14:P:75:THR:CG2 | 14:P:89:ASN:O | 2.67 | 0.41 |
| 16:R:40:ILE:HG22 | 16:R:41:ASP:H | 1.79 | 0.41 |
| 16:R:48:LEU:HD21 | 16:R:81:GLY:CA | 2.51 | 0.41 |
| 18:T:17:ILE:O | 18:T:20:LEU:HB2 | 2.20 | 0.41 |
| 18:T:55:ARG:CB | 18:T:58:ARG:HE | 2.33 | 0.41 |
| 18:T:84:LYS:O | 18:T:86:ALA:N | 2.54 | 0.41 |
| 19:U:56:SER:O | 19:U:57:VAL:CG2 | 2.68 | 0.41 |
| 19:U:83:ARG:CD | 19:U:83:ARG:C | 2.88 | 0.41 |
| 19:U:25:LEU:HD23 | 19:U:94:LEU:HD12 | 2.02 | 0.41 |
| 20:V:14:PRO:HD3 | 20:V:78:GLU:CD | 2.37 | 0.41 |
| 1:A:141(A):C:O2' | 21:W:37:THR:HG21 | 2.21 | 0.41 |
| 21:W:55:ASN:O | 21:W:79:ALA:HB1 | 2.20 | 0.41 |
| 22:X:76:CYS:HA | 22:X:77:PRO:HD2 | 1.96 | 0.41 |
| 22:X:83:THR:CB | 22:X:84:ARG:HH11 | 2.32 | 0.41 |
| 23:Y:48:PHE:CB | 23:Y:54:HIS:HE2 | 2.33 | 0.41 |
| 9:K:145:VAL:HG13 | 9:K:146:ALA:N | 2.35 | 0.41 |
| 1:A:2169:A:C2 | 1:A:2170:A:C5 | 3.09 | 0.41 |
| 3:C:127:LEU:O | 3:C:130:ILE:HB | 2.19 | 0.41 |
| 3:C:185:LEU:CD2 | 3:C:185:LEU:N | 2.78 | 0.41 |
| 3:C:45:ALA:HB2 | 3:C:213:TYR:H | 1.85 | 0.41 |
| 3:C:44:HIS:O | 3:C:45:ALA:HB2 | 2.21 | 0.41 |
| 9:K:134:PRO:HB2 | 9:K:135:GLU:CD | 2.32 | 0.41 |
| 26:2:28:LEU:C | 26:2:33:GLN:HE22 | 2.23 | 0.41 |
| 27:3:10:VAL:O | 27:3:12:ALA:N | 2.53 | 0.41 |
| 27:3:14:ILE:HG22 | 27:3:37:SER:CA | 2.51 | 0.41 |
| 31:7:13:ARG:NH1 | 31:7:13:ARG:HG3 | 2.35 | 0.41 |
| 31:7:26:LYS:O | 31:7:27:THR:HG22 | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1024:G:H5'' | 1:A:1025:G:H3' | 2.01 | 0.41 |
| 1:A:1063:G:N7 | 1:A:1064:C:C5 | 2.88 | 0.41 |
| 1:A:1133:U:O2' | 1:A:1136:G:OP1 | 2.23 | 0.41 |
| 1:A:1179:C:H2' | 1:A:1180:C:C5 | 2.55 | 0.41 |
| 1:A:1189:A:H2' | 1:A:1190:G:C5' | 2.49 | 0.41 |
| 1:A:331:A:C6 | 1:A:1209:G:C4 | 3.09 | 0.41 |
| 1:A:1218:C:H2' | 1:A:1219:G:O5' | 2.21 | 0.41 |
| 1:A:1274:A:C2' | 1:A:1275:A:C5' | 2.98 | 0.41 |
| 1:A:1286:A:H2' | 1:A:1288:U:OP2 | 2.21 | 0.41 |
| 1:A:1366:A:N1 | 1:A:1367:A:C4 | 2.89 | 0.41 |
| 1:A:1384:A:H1' | 1:A:1405:U:H1' | 2.02 | 0.41 |
| 1:A:1477:A:N1 | 1:A:1516:U:N3 | 2.69 | 0.41 |
| 1:A:1554:A:O2' | 1:A:1555:G:P | 2.76 | 0.41 |
| 1:A:1567:A:N3 | 1:A:1567:A:H2' | 2.36 | 0.41 |
| 1:A:1603:A:C6 | 1:A:1604:C:C4 | 3.08 | 0.41 |
| 1:A:1665:A:C2 | 1:A:1666:G:C5 | 3.09 | 0.41 |
| 1:A:1669:A:H4' | 1:A:2550:G:P | 2.60 | 0.41 |
| 1:A:1703:G:C2' | 1:A:1704:G:C5' | 2.94 | 0.41 |
| 1:A:1718:G:H3' | 1:A:1718:G:H8 | 1.86 | 0.41 |
| 1:A:1749:A:C6 | 1:A:1750:G:N7 | 2.88 | 0.41 |
| 1:A:1754:C:C4 | 1:A:1755:A:C5 | 3.09 | 0.41 |
| 1:A:1773:A:N7 | 1:A:1774:C:N3 | 2.69 | 0.41 |
| 1:A:1928:A:H3' | 1:A:1929:G:C5' | 2.51 | 0.41 |
| 1:A:1995:U:C5 | 1:A:1996:C:C4 | 3.09 | 0.41 |
| 1:A:2000:G:OP2 | 15:Q:2:ARG:CA | 2.62 | 0.41 |
| 1:A:2000:G:N1 | 1:A:2001:A:N7 | 2.67 | 0.41 |
| 1:A:2043:C:O2 | 1:A:2044:C:C6 | 2.74 | 0.41 |
| 1:A:2061:G:N7 | 1:A:2501:C:H1' | 2.36 | 0.41 |
| 1:A:2207:C:C3' | 1:A:2208:U:C5' | 2.97 | 0.41 |
| 1:A:2239:G:C6 | 1:A:2240:C:C5 | 3.08 | 0.41 |
| 1:A:2291:U:O5' | 1:A:2291:U:H6 | 2.03 | 0.41 |
| 1:A:2300:G:C5 | 1:A:2301:C:C5 | 3.09 | 0.41 |
| 1:A:2317:C:N4 | 1:A:2318:G:C6 | 2.88 | 0.41 |
| 1:A:2393:A:OP2 | 31:7:32:LEU:CD1 | 2.68 | 0.41 |
| 1:A:2425:A:OP2 | 1:A:2427:C:H5'' | 2.21 | 0.41 |
| 1:A:2451:A:H3' | 1:A:2451:A:C8 | 2.55 | 0.41 |
| 1:A:2454:G:C2' | 1:A:2455:G:H5' | 2.51 | 0.41 |
| 1:A:2454:G:H2' | 1:A:2455:G:H5' | 2.01 | 0.41 |
| 1:A:2479:G:H5'' | 1:A:2537:U:O4' | 2.21 | 0.41 |
| 1:A:2491:U:H3' | 1:A:2492:U:H5' | 2.03 | 0.41 |
| 1:A:2553:G:C6 | 1:A:2583:G:O2' | 2.73 | 0.41 |
| 1:A:244:A:N3 | 1:A:255:A:C2 | 2.89 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:270(F):U:C4 | 1:A:270(G):C:C5 | 3.08 | 0.41 |
| 1:A:2721:A:C2 | 1:A:2873:A:C2 | 3.08 | 0.41 |
| 1:A:27:G:C3' | 1:A:27:G:C8 | 3.03 | 0.41 |
| 1:A:2805:G:H2' | 1:A:2807:G:H5'' | 2.02 | 0.41 |
| 1:A:2838:G:O2' | 1:A:2839:G:H5' | 2.21 | 0.41 |
| 1:A:2893:G:H2' | 1:A:2894:G:OP2 | 2.21 | 0.41 |
| 1:A:344:G:N2 | 1:A:345:A:N1 | 2.68 | 0.41 |
| 1:A:350:U:H2' | 1:A:351:G:OP1 | 2.21 | 0.41 |
| 1:A:412:A:C6 | 1:A:413:C:C2 | 3.08 | 0.41 |
| 1:A:528:A:C8 | 1:A:2042:A:N6 | 2.87 | 0.41 |
| 1:A:587:C:C4' | 1:A:588:U:OP2 | 2.59 | 0.41 |
| 1:A:64:A:H1' | 21:W:66:LEU:CD2 | 2.49 | 0.41 |
| 1:A:64:A:H2 | 21:W:66:LEU:HD13 | 1.86 | 0.41 |
| 1:A:669:G:C3' | 1:A:669:G:N3 | 2.83 | 0.41 |
| 1:A:702:G:H2' | 1:A:703:U:C5' | 2.51 | 0.41 |
| 1:A:703:U:H3' | 1:A:704:G:O4' | 2.20 | 0.41 |
| 1:A:71:A:C2 | 1:A:73:A:N1 | 2.89 | 0.41 |
| 1:A:729:G:C6 | 1:A:730:C:C4 | 3.07 | 0.41 |
| 1:A:777:A:H2' | 1:A:778:G:O5' | 2.19 | 0.41 |
| 1:A:788:A:H5'' | 1:A:789:A:C5' | 2.51 | 0.41 |
| 1:A:6:A:C2 | 1:A:7:G:N7 | 2.88 | 0.41 |
| 1:A:819:A:C2 | 1:A:820:A:C4 | 3.08 | 0.41 |
| 1:A:965:C:H4' | 1:A:2273:A:H1' | 2.01 | 0.41 |
| 2:B:14:U:C6 | 2:B:15:A:N1 | 2.88 | 0.41 |
| 2:B:62:C:N3 | 2:B:63:G:N7 | 2.68 | 0.41 |
| 3:C:205:LYS:HD2 | 3:C:205:LYS:HA | 1.65 | 0.41 |
| 4:D:183:ARG:CZ | 4:D:268:ARG:HD2 | 2.50 | 0.41 |
| 4:D:214:TRP:CD1 | 4:D:219:PRO:CB | 3.04 | 0.41 |
| 1:A:1567:A:H5' | 4:D:59:LYS:HE2 | 1.96 | 0.41 |
| 5:E:171:GLU:H | 5:E:185:LYS:HD2 | 1.84 | 0.41 |
| 5:E:188:VAL:N | 5:E:189:PRO:CD | 2.82 | 0.41 |
| 5:E:8:LYS:HD3 | 5:E:9:VAL:H | 1.80 | 0.41 |
| 6:F:194:MET:SD | 6:F:194:MET:C | 2.99 | 0.41 |
| 6:F:34:TRP:HA | 6:F:34:TRP:CE3 | 2.55 | 0.41 |
| 7:G:105:LYS:CE | 7:G:142:PRO:HB2 | 2.50 | 0.41 |
| 7:G:105:LYS:C | 7:G:109:VAL:HG22 | 2.38 | 0.41 |
| 7:G:125:PHE:HB3 | 7:G:126:ASP:H | 1.66 | 0.41 |
| 7:G:53:LEU:HG | 7:G:72:ARG:HH21 | 1.85 | 0.41 |
| 7:G:55:LYS:HD3 | 7:G:58:GLN:CD | 2.41 | 0.41 |
| 7:G:71:THR:O | 7:G:88:ILE:CD1 | 2.68 | 0.41 |
| 7:G:45:GLU:CD | 7:G:77:ILE:HD13 | 2.41 | 0.41 |
| 7:G:80:PHE:C | 7:G:83:ARG:NH2 | 2.74 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 8:H:102:ALA:C | 8:H:123:PHE:CE2 | 2.93 | 0.41 |
| 8:H:137:ASP:CB | 8:H:140:LYS:HB3 | 2.41 | 0.41 |
| 8:H:66:GLY:HA2 | 8:H:69:ARG:HD3 | 2.02 | 0.41 |
| 10:L:128:ALA:HB1 | 10:L:132:ARG:CZ | 2.50 | 0.41 |
| 10:L:75:SER:HA | 10:L:78:ILE:HG22 | 2.02 | 0.41 |
| 11:M:55:VAL:CB | 11:M:130:HIS:CE1 | 2.95 | 0.41 |
| 11:M:13:TRP:O | 11:M:138:LEU:CB | 2.68 | 0.41 |
| 11:M:26:LEU:O | 11:M:26:LEU:HD12 | 2.21 | 0.41 |
| 11:M:33:LEU:HD11 | 11:M:34:LEU:HG | 2.02 | 0.41 |
| 12:N:11:ALA:O | 12:N:97:ARG:NH1 | 2.54 | 0.41 |
| 12:N:78:ARG:HH21 | 17:S:74:ARG:HB3 | 1.85 | 0.41 |
| 12:N:78:ARG:HD3 | 12:N:99:PHE:HE1 | 1.85 | 0.41 |
| 13:O:75:ILE:O | 13:O:101:VAL:HG12 | 2.19 | 0.41 |
| 13:O:127:ALA:O | 13:O:128:HIS:CB | 2.69 | 0.41 |
| 13:O:23:PRO:C | 13:O:28:GLY:HA2 | 2.40 | 0.41 |
| 14:P:11:LYS:HE2 | 14:P:73:PRO:HG3 | 2.01 | 0.41 |
| 14:P:16:ARG:NH2 | 14:P:71:ASP:O | 2.43 | 0.41 |
| 14:P:75:THR:HB | 14:P:77:LYS:HD2 | 2.01 | 0.41 |
| 15:Q:28:LEU:HD13 | 15:Q:29:LEU:CA | 2.49 | 0.41 |
| 15:Q:97:VAL:HG13 | 15:Q:114:VAL:HG21 | 2.02 | 0.41 |
| 16:R:10:ARG:NH2 | 16:R:91:PRO:CB | 2.83 | 0.41 |
| 18:T:110:VAL:O | 18:T:113:ALA:N | 2.53 | 0.41 |
| 20:V:18:ARG:O | 20:V:19:LEU:C | 2.59 | 0.41 |
| 20:V:95:ILE:CD1 | 20:V:95:ILE:N | 2.60 | 0.41 |
| 21:W:14:SER:O | 21:W:18:TYR:CD1 | 2.73 | 0.41 |
| 21:W:5:TYR:HD1 | 21:W:5:TYR:O | 2.03 | 0.41 |
| 1:A:338:G:OP1 | 22:X:2:ARG:NH2 | 2.54 | 0.41 |
| 22:X:61:ILE:N | 22:X:61:ILE:HD12 | 2.35 | 0.41 |
| 22:X:65:ALA:CB | 22:X:66:PRO:HD3 | 2.42 | 0.41 |
| 22:X:97:ARG:NH2 | 22:X:101:LYS:CD | 2.82 | 0.41 |
| 23:Y:99:TYR:CD1 | 23:Y:126:VAL:HG22 | 2.55 | 0.41 |
| 23:Y:139:VAL:HG11 | 23:Y:155:LEU:O | 2.21 | 0.41 |
| 24:Z:71:ASP:C | 24:Z:73:GLY:N | 2.73 | 0.41 |
| 3:C:210:ARG:O | 3:C:211:SER:C | 2.58 | 0.41 |
| 3:C:64:LEU:HB3 | 3:C:188:ASN:ND2 | 2.36 | 0.41 |
| 3:C:97:GLU:HB3 | 3:C:126:LYS:NZ | 2.35 | 0.41 |
| 1:A:2106:G:C4 | 1:A:2107:C:C6 | 3.08 | 0.41 |
| 1:A:164:U:O2 | 1:A:171:G:O4' | 2.39 | 0.41 |
| 4:D:273:ARG:CZ | 4:D:273:ARG:O | 2.68 | 0.41 |
| 1:A:132:G:C2 | 1:A:133:C:C5 | 3.08 | 0.41 |
| 1:A:986:C:O5' | 1:A:986:C:C6 | 2.69 | 0.41 |
| 27:3:18:CYS:SG | 27:3:33:VAL:HG21 | 2.60 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 28:4:50:GLY:O | 28:4:55:ARG:CA | 2.62 | 0.41 |
| 28:4:55:ARG:HB2 | 28:4:55:ARG:CZ | 2.49 | 0.41 |
| 28:4:47:PRO:O | 28:4:58:LEU:CD2 | 2.68 | 0.41 |
| 1:A:1000:A:H2' | 1:A:1001:A:O4' | 2.21 | 0.41 |
| 1:A:1019:U:O2' | 1:A:1020:A:H5' | 2.20 | 0.41 |
| 1:A:1128:A:C2 | 1:A:1129:A:C6 | 3.09 | 0.41 |
| 1:A:1236:G:C2' | 1:A:1237:A:H8 | 2.33 | 0.41 |
| 1:A:1240:U:C2' | 1:A:1240:U:O2 | 2.61 | 0.41 |
| 1:A:125:G:H2' | 30:6:47:ARG:CZ | 2.49 | 0.41 |
| 1:A:1411:C:H2' | 1:A:1412:A:H8 | 1.86 | 0.41 |
| 1:A:1422:G:C4 | 1:A:1423:G:C8 | 3.09 | 0.41 |
| 1:A:1535:U:C2' | 1:A:1536:A:H5' | 2.51 | 0.41 |
| 1:A:1434:A:C6 | 1:A:1560:G:C2 | 3.09 | 0.41 |
| 1:A:1571:A:OP2 | 1:A:1571:A:O4' | 2.39 | 0.41 |
| 1:A:1771:C:H2' | 1:A:1772:G:O4' | 2.20 | 0.41 |
| 1:A:1795:C:C2' | 1:A:1796:U:H5' | 2.49 | 0.41 |
| 1:A:1949:G:N7 | 1:A:1950:G:N7 | 2.69 | 0.41 |
| 1:A:1972:A:C2 | 1:A:1973:G:N7 | 2.88 | 0.41 |
| 1:A:2021:C:OP2 | 28:4:11:THR:CB | 2.55 | 0.41 |
| 1:A:2057:A:H1' | 28:4:4:HIS:O | 2.21 | 0.41 |
| 1:A:1889:A:O4' | 1:A:2087:G:C4' | 2.69 | 0.41 |
| 1:A:2211:G:N3 | 1:A:2211:G:C2' | 2.84 | 0.41 |
| 1:A:2260:C:H2' | 1:A:2261:C:C6 | 2.55 | 0.41 |
| 1:A:2307:G:H2' | 1:A:2308:G:C1' | 2.50 | 0.41 |
| 1:A:241:A:O4' | 1:A:241:A:P | 2.78 | 0.41 |
| 1:A:250:G:H5' | 31:7:8:LYS:CD | 2.51 | 0.41 |
| 1:A:2558:C:H2' | 1:A:2558:C:O2 | 2.19 | 0.41 |
| 1:A:2567:G:C4 | 1:A:2568:C:C5 | 3.07 | 0.41 |
| 1:A:2605:U:C2' | 1:A:2606:C:H5' | 2.49 | 0.41 |
| 1:A:10:G:N3 | 1:A:2629:A:C2 | 2.89 | 0.41 |
| 1:A:2695:C:C2' | 1:A:2696:U:C6 | 3.01 | 0.41 |
| 1:A:271(C):U:O2' | 1:A:271:G:C1' | 2.69 | 0.41 |
| 1:A:2739:U:O2' | 1:A:2740:A:H5' | 2.20 | 0.41 |
| 1:A:2748:A:N3 | 8:H:67:LEU:CG | 2.83 | 0.41 |
| 1:A:2880:C:O2 | 1:A:2881:C:C6 | 2.74 | 0.41 |
| 1:A:2893:G:H4' | 1:A:2894:G:C4' | 2.50 | 0.41 |
| 1:A:307:G:H2' | 1:A:309:G:OP2 | 2.20 | 0.41 |
| 1:A:354:G:H2' | 1:A:355:G:O4' | 2.21 | 0.41 |
| 1:A:38:A:O2' | 1:A:39:C:C5' | 2.68 | 0.41 |
| 1:A:419:C:C4 | 1:A:420:C:C5 | 3.09 | 0.41 |
| 1:A:433:C:H3' | 1:A:434:U:H6 | 1.86 | 0.41 |
| 1:A:545:G:O3' | 1:A:546:C:C5 | 2.74 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 1:A:548:A:C6 | 1:A:549:G:N3 | 2.88 | 0.41 |
| 1:A:623:G:H2' | 1:A:624:C:C4' | 2.50 | 0.41 |
| 1:A:691:C:H1' | 4:D:45:ASN:HD21 | 1.85 | 0.41 |
| 1:A:750:A:C2' | 1:A:751:A:H5'' | 2.49 | 0.41 |
| 1:A:776:G:H1' | 1:A:793:A:C2 | 2.51 | 0.41 |
| 1:A:819:A:H4' | 1:A:838:C:H5' | 2.03 | 0.41 |
| 1:A:864:G:H2' | 1:A:865:C:H6 | 1.78 | 0.41 |
| 1:A:895:U:O2' | 1:A:896:A:C4 | 2.64 | 0.41 |
| 1:A:942:G:H4' | 1:A:1189:A:H2 | 1.86 | 0.41 |
| 1:A:942:G:H5'' | 13:O:32:THR:HG22 | 2.02 | 0.41 |
| 1:A:943:U:H6 | 1:A:944:G:C8 | 2.38 | 0.41 |
| 2:B:102:G:H2' | 2:B:103:U:C6 | 2.55 | 0.41 |
| 2:B:103:U:C6 | 2:B:103:U:H5'' | 2.56 | 0.41 |
| 2:B:112:G:C5' | 2:B:113:C:OP2 | 2.68 | 0.41 |
| 2:B:59:A:C5 | 2:B:60:C:C6 | 3.09 | 0.41 |
| 2:B:83:G:H21 | 2:B:84:C:H1' | 1.84 | 0.41 |
| 2:B:89:G:H2' | 2:B:89(A):A:N9 | 2.32 | 0.41 |
| 2:B:9:G:N2 | 2:B:10:C:C2 | 2.88 | 0.41 |
| 4:D:198:ASN:HD21 | 4:D:201:HIS:HB3 | 1.85 | 0.41 |
| 5:E:118:LYS:NZ | 5:E:118:LYS:HA | 2.34 | 0.41 |
| 5:E:12:THR:HG22 | 5:E:21:VAL:CG1 | 2.47 | 0.41 |
| 6:F:153:SER:OG | 6:F:190:GLU:CB | 2.65 | 0.41 |
| 6:F:157:VAL:C | 6:F:195:ASP:OD2 | 2.59 | 0.41 |
| 6:F:43:LYS:HE3 | 6:F:99:TYR:H | 1.84 | 0.41 |
| 7:G:121:ASN:HB2 | 7:G:133:LEU:CD2 | 2.50 | 0.41 |
| 7:G:47:LYS:CE | 7:G:49:ASP:OD2 | 2.69 | 0.41 |
| 7:G:75:LYS:HD3 | 7:G:84:LYS:CB | 2.50 | 0.41 |
| 8:H:149:ARG:CA | 8:H:162:ILE:HG21 | 2.42 | 0.41 |
| 8:H:58:GLU:HG2 | 8:H:59:ARG:N | 2.36 | 0.41 |
| 1:A:2749:A:O3' | 8:H:62:LYS:HE3 | 2.19 | 0.41 |
| 8:H:6:ARG:CG | 8:H:6:ARG:O | 2.68 | 0.41 |
| 8:H:29:PRO:CD | 8:H:79:VAL:HA | 2.34 | 0.41 |
| 10:L:14:ALA:CB | 10:L:45:THR:O | 2.61 | 0.41 |
| 11:M:103:VAL:HG22 | 11:M:104:LYS:HE2 | 2.01 | 0.41 |
| 12:N:6:THR:CG2 | 12:N:8:LEU:HG | 2.49 | 0.41 |
| 13:O:109:GLY:O | 13:O:110:TYR:HB2 | 2.20 | 0.41 |
| 14:P:121:ALA:O | 14:P:124:LYS:HB3 | 2.20 | 0.41 |
| 14:P:75:THR:CG2 | 14:P:77:LYS:HD2 | 2.50 | 0.41 |
| 1:A:2882:A:OP1 | 15:Q:96:ARG:CD | 2.69 | 0.41 |
| 16:R:23:ARG:HD2 | 16:R:23:ARG:HA | 1.33 | 0.41 |
| 16:R:39:ILE:HG12 | 16:R:49:VAL:O | 2.21 | 0.41 |
| 16:R:64:GLU:OE2 | 16:R:67:ARG:HG3 | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 16:R:25:ARG:CA | 16:R:87:PHE:O | 2.48 | 0.41 |
| 18:T:102:GLU:HA | 18:T:103:PRO:HD2 | 1.74 | 0.41 |
| 18:T:15:LYS:O | 18:T:16:LYS:C | 2.59 | 0.41 |
| 1:A:534:U:O3' | 18:T:49:HIS:CD2 | 2.74 | 0.41 |
| 18:T:4:ALA:O | 18:T:6:THR:N | 2.49 | 0.41 |
| 18:T:67:ALA:CA | 18:T:71:GLN:NE2 | 2.84 | 0.41 |
| 11:M:42:TRP:HZ3 | 18:T:71:GLN:NE2 | 2.18 | 0.41 |
| 19:U:4:ILE:HG23 | 19:U:13:ARG:HG2 | 2.02 | 0.41 |
| 20:V:10:VAL:HB | 20:V:12:ILE:HD13 | 1.98 | 0.41 |
| 20:V:33:ARG:NH1 | 20:V:37:ARG:N | 2.68 | 0.41 |
| 20:V:25:ARG:CD | 20:V:74:ALA:N | 2.77 | 0.41 |
| 21:W:89:ILE:O | 21:W:90:GLU:C | 2.58 | 0.41 |
| 22:X:19:LYS:O | 22:X:21:LYS:N | 2.44 | 0.41 |
| 22:X:81:LYS:HE2 | 22:X:96:ILE:HG21 | 2.03 | 0.41 |
| 23:Y:102:LEU:HD13 | 23:Y:137:ILE:O | 2.20 | 0.41 |
| 23:Y:98:MET:O | 23:Y:125:LEU:O | 2.39 | 0.41 |
| 23:Y:107:THR:OG1 | 23:Y:142:SER:CA | 2.69 | 0.41 |
| 23:Y:15:PRO:HG3 | 23:Y:38:TYR:HH | 1.84 | 0.41 |
| 23:Y:18:LEU:HD22 | 23:Y:23:LYS:CB | 2.37 | 0.41 |
| 23:Y:4:ARG:HH11 | 23:Y:37:VAL:C | 2.24 | 0.41 |
| 24:Z:33:ALA:HA | 24:Z:61:ALA:C | 2.33 | 0.41 |
| 1:A:2111:C:C6 | 1:A:2111:C:OP2 | 2.55 | 0.41 |
| 1:A:2148:G:C2 | 1:A:2149:G:N7 | 2.89 | 0.41 |
| 1:A:2127:G:C8 | 1:A:2162:G:N2 | 2.89 | 0.41 |
| 3:C:23:ASP:C | 3:C:25:ALA:N | 2.69 | 0.41 |
| 3:C:54:SER:C | 3:C:56:GLN:N | 2.74 | 0.41 |
| 3:C:78:ALA:HA | 3:C:119:VAL:CG1 | 2.50 | 0.41 |
| 1:A:2194:G:C6 | 1:A:2195:C:N4 | 2.88 | 0.41 |
| 1:A:2671:A:H2' | 1:A:2672:G:C8 | 2.55 | 0.41 |
| 1:A:439:G:H2' | 1:A:440:G:C8 | 2.56 | 0.41 |
| 25:1:23:LYS:O | 25:1:26:GLU:N | 2.54 | 0.41 |
| 25:1:1:MET:HE3 | 25:1:4:GLN:OE1 | 2.20 | 0.41 |
| 25:1:50:ARG:CB | 25:1:54:ARG:NH2 | 2.84 | 0.41 |
| 26:2:44:ARG:O | 26:2:45:GLY:C | 2.57 | 0.41 |
| 26:2:43:ILE:O | 26:2:46:ASN:HB3 | 2.20 | 0.41 |
| 28:4:51:TYR:CE1 | 28:4:55:ARG:HD3 | 2.49 | 0.41 |
| 29:5:22:ALA:HB3 | 29:5:39:TYR:CE2 | 2.53 | 0.41 |
| 1:A:1023:U:OP2 | 1:A:1025:G:C2 | 2.73 | 0.41 |
| 1:A:1099:G:C2' | 1:A:1100:C:H5' | 2.51 | 0.41 |
| 1:A:1102:C:H1' | 1:A:1103:A:C8 | 2.56 | 0.41 |
| 1:A:1140:C:O2 | 1:A:1143:A:C2 | 2.74 | 0.41 |
| 1:A:1166:C:C2 | 1:A:1184:G:C2 | 3.08 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:1213:A:O2' | 1:A:1238:G:N3 | 2.52 | 0.41 |
| 1:A:1263:U:N3 | 1:A:1264:G:C2 | 2.89 | 0.41 |
| 1:A:1313:U:H2' | 1:A:1314:C:H6 | 1.85 | 0.41 |
| 1:A:1341:U:OP2 | 1:A:1397:U:O4 | 2.37 | 0.41 |
| 1:A:1357:U:C4 | 1:A:1358:G:C2 | 3.09 | 0.41 |
| 1:A:1359:A:C8 | 1:A:1359:A:C5' | 3.03 | 0.41 |
| 1:A:1359:A:H2' | 1:A:1360:A:H5' | 2.02 | 0.41 |
| 1:A:1446:C:H2' | 1:A:1447:G:H8 | 1.85 | 0.41 |
| 1:A:144:C:O2' | 1:A:145:G:H5' | 2.21 | 0.41 |
| 1:A:1476:C:C6 | 1:A:1477:A:C5 | 3.08 | 0.41 |
| 1:A:1551:C:H2' | 1:A:1551:C:O2 | 2.21 | 0.41 |
| 1:A:1594:G:C2 | 1:A:1595:G:C8 | 3.09 | 0.41 |
| 1:A:1342:A:C5 | 1:A:1601:G:O6 | 2.73 | 0.41 |
| 1:A:749:C:C4 | 1:A:1618:A:C6 | 3.09 | 0.41 |
| 1:A:1628:G:C4 | 1:A:1629:U:C5 | 3.09 | 0.41 |
| 1:A:1675:C:H2' | 1:A:1676:A:C4' | 2.50 | 0.41 |
| 1:A:1707:G:H2' | 1:A:1708:C:H6 | 1.84 | 0.41 |
| 1:A:1774:C:O2' | 1:A:1979:C:O2' | 2.13 | 0.41 |
| 1:A:1792:G:OP1 | 4:D:206:LEU:HD22 | 2.18 | 0.41 |
| 1:A:1809:A:H61 | 27:3:3:GLU:HG2 | 1.83 | 0.41 |
| 1:A:1884:A:N9 | 1:A:1884:A:OP2 | 2.53 | 0.41 |
| 1:A:1954:G:O2' | 1:A:1956:U:O4 | 2.38 | 0.41 |
| 1:A:1982:C:O5' | 1:A:1982:C:H6 | 2.04 | 0.41 |
| 1:A:2225:A:H5'' | 1:A:2226:C:O4' | 2.17 | 0.41 |
| 1:A:954:G:H1' | 1:A:2274:A:N1 | 2.36 | 0.41 |
| 1:A:220:G:C4' | 1:A:234:C:H4' | 2.29 | 0.41 |
| 1:A:2408:U:C4' | 1:A:2408:U:C6 | 3.03 | 0.41 |
| 1:A:2431:U:O2' | 1:A:2432:A:H5'' | 2.17 | 0.41 |
| 1:A:2460:U:H3' | 1:A:2461:C:C5 | 2.55 | 0.41 |
| 1:A:2478:A:C2' | 1:A:2479:G:O5' | 2.69 | 0.41 |
| 1:A:2513:G:C6 | 1:A:2514:U:N3 | 2.89 | 0.41 |
| 1:A:2528:U:O2' | 1:A:2529:G:H8 | 2.04 | 0.41 |
| 1:A:2547:U:C5 | 1:A:2566:A:C4 | 3.09 | 0.41 |
| 1:A:253:C:O2' | 1:A:254:G:H5' | 2.19 | 0.41 |
| 1:A:2507:C:C2 | 1:A:2583:G:N3 | 2.89 | 0.41 |
| 1:A:2595:G:N2 | 1:A:2599:G:O6 | 2.54 | 0.41 |
| 1:A:2615:U:O4' | 28:4:7:PRO:CB | 2.69 | 0.41 |
| 1:A:2625:G:H2' | 1:A:2626:C:C6 | 2.56 | 0.41 |
| 1:A:2661:G:O5' | 1:A:2661:G:H8 | 2.04 | 0.41 |
| 1:A:2820:A:H3' | 1:A:2820:A:C8 | 2.56 | 0.41 |
| 1:A:2848:G:O2' | 1:A:2849:U:OP2 | 2.38 | 0.41 |
| 1:A:296:C:C4 | 1:A:297:C:C5 | 3.08 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:292:C:N4 | 1:A:346:A:N6 | 2.68 | 0.41 |
| 1:A:48:G:N3 | 1:A:178:G:C2 | 2.89 | 0.41 |
| 1:A:511:U:C5 | 1:A:512:G:C2 | 3.01 | 0.41 |
| 1:A:527:C:OP1 | 1:A:527:C:O3' | 2.37 | 0.41 |
| 1:A:557:U:C2' | 1:A:558:G:O4' | 2.65 | 0.41 |
| 1:A:588:U:H2' | 1:A:589:C:O5' | 2.20 | 0.41 |
| 1:A:728:G:H4' | 1:A:729:G:C8 | 2.56 | 0.41 |
| 1:A:744:G:C6 | 1:A:745:G:C6 | 3.08 | 0.41 |
| 1:A:826:U:H5'' | 1:A:2428:G:O3' | 2.21 | 0.41 |
| 1:A:836:G:OP2 | 1:A:836:G:H8 | 2.04 | 0.41 |
| 1:A:862:G:C6 | 1:A:863:A:C4 | 3.08 | 0.41 |
| 1:A:895:U:O5' | 1:A:895:U:C6 | 2.64 | 0.41 |
| 1:A:928:G:N7 | 1:A:929:G:C4 | 2.86 | 0.41 |
| 1:A:974:G:C4' | 1:A:1187:G:C1' | 2.97 | 0.41 |
| 1:A:972:G:P | 1:A:974:G:OP2 | 2.79 | 0.41 |
| 4:D:105:ILE:O | 4:D:106:ILE:O | 2.39 | 0.41 |
| 4:D:224:ALA:O | 4:D:225:ALA:C | 2.58 | 0.41 |
| 4:D:270:ILE:O | 4:D:271:ILE:C | 2.57 | 0.41 |
| 4:D:5:LYS:CE | 4:D:31:LYS:HZ1 | 2.34 | 0.41 |
| 4:D:82:ILE:HD13 | 4:D:92:ILE:C | 2.40 | 0.41 |
| 5:E:156:MET:O | 5:E:160:TYR:CE1 | 2.74 | 0.41 |
| 5:E:176:ILE:HA | 5:E:177:PRO:HD2 | 1.86 | 0.41 |
| 5:E:25:VAL:O | 5:E:181:LEU:HA | 2.21 | 0.41 |
| 5:E:3:GLY:O | 5:E:197:ILE:HG23 | 2.21 | 0.41 |
| 5:E:47:VAL:CA | 5:E:79:ARG:HB2 | 2.42 | 0.41 |
| 5:E:93:VAL:HG11 | 5:E:177:PRO:O | 2.20 | 0.41 |
| 6:F:103:LYS:HB3 | 6:F:107:LYS:NZ | 2.35 | 0.41 |
| 7:G:35:GLU:HA | 7:G:100:TRP:HH2 | 1.84 | 0.41 |
| 7:G:140:ILE:O | 7:G:142:PRO:CD | 2.65 | 0.41 |
| 7:G:50:ALA:HB1 | 7:G:51:ARG:CZ | 2.51 | 0.41 |
| 8:H:11:VAL:HG21 | 8:H:17:VAL:HG21 | 2.03 | 0.41 |
| 8:H:127:GLU:HG3 | 8:H:130:ARG:CG | 2.49 | 0.41 |
| 9:K:51:ILE:O | 9:K:52:ARG:C | 2.59 | 0.41 |
| 10:L:106:GLU:H | 10:L:106:GLU:HG3 | 1.72 | 0.41 |
| 10:L:52:ILE:HB | 10:L:72:PRO:HB3 | 2.03 | 0.41 |
| 11:M:56:ASN:CA | 11:M:124:ALA:O | 2.68 | 0.41 |
| 11:M:37:LYS:CE | 11:M:43:THR:HG23 | 2.50 | 0.41 |
| 11:M:23:LEU:CG | 11:M:62:VAL:O | 2.64 | 0.41 |
| 11:M:70:LYS:CD | 11:M:86:PRO:HG3 | 2.50 | 0.41 |
| 12:N:97:ARG:HE | 12:N:98:VAL:N | 1.93 | 0.41 |
| 13:O:108:LYS:NZ | 13:O:109:GLY:HA3 | 2.35 | 0.41 |
| 13:O:23:PRO:HG2 | 13:O:29:LYS:CA | 2.51 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 14:P:44:ALA:O | 14:P:48:GLU:OE2 | 2.39 | 0.41 |
| 14:P:63:LYS:HD3 | 14:P:64:ILE:N | 2.34 | 0.41 |
| 14:P:78:PRO:HB2 | 14:P:79:LEU:H | 1.61 | 0.41 |
| 1:A:2009:G:O2' | 15:Q:106:GLY:O | 2.22 | 0.41 |
| 15:Q:99:LYS:HB2 | 28:4:44:THR:CG2 | 2.49 | 0.41 |
| 16:R:17:ARG:O | 16:R:20:ARG:HB2 | 2.20 | 0.41 |
| 16:R:73:LEU:C | 16:R:76:LYS:HB3 | 2.41 | 0.41 |
| 17:S:53:ARG:NH2 | 17:S:101:PHE:N | 2.68 | 0.41 |
| 17:S:54:ARG:O | 17:S:55:ASN:OD1 | 2.37 | 0.41 |
| 1:A:532:A:OP1 | 18:T:28:ARG:NH2 | 2.53 | 0.41 |
| 18:T:34:LYS:HE2 | 18:T:37:GLU:OE2 | 2.21 | 0.41 |
| 18:T:68:ALA:HB1 | 18:T:72:HIS:CE1 | 2.56 | 0.41 |
| 19:U:24:LYS:C | 19:U:28:GLU:OE2 | 2.58 | 0.41 |
| 19:U:36:PRO:CB | 19:U:61:VAL:CG2 | 2.99 | 0.41 |
| 21:W:29:TRP:O | 21:W:30:VAL:HG13 | 2.21 | 0.41 |
| 21:W:88:LYS:H | 21:W:88:LYS:HD2 | 1.85 | 0.41 |
| 22:X:35:TYR:CD1 | 22:X:35:TYR:N | 2.86 | 0.41 |
| 23:Y:128:VAL:HB | 23:Y:162:GLU:CG | 2.50 | 0.41 |
| 23:Y:18:LEU:HD13 | 23:Y:23:LYS:CG | 2.47 | 0.41 |
| 23:Y:99:TYR:HA | 23:Y:125:LEU:O | 2.20 | 0.41 |
| 24:Z:46:LYS:HA | 24:Z:47:PRO:HD3 | 1.83 | 0.41 |
| 24:Z:50:ASN:HB2 | 24:Z:81:VAL:CB | 2.49 | 0.41 |
| 1:A:2113:U:C5 | 1:A:2114:A:N6 | 2.89 | 0.41 |
| 3:C:193:ILE:O | 3:C:197:GLU:HG3 | 2.20 | 0.41 |
| 1:A:2124:G:N3 | 3:C:217:THR:HG23 | 2.36 | 0.41 |
| 3:C:217:THR:HB | 3:C:218:MET:H | 1.53 | 0.41 |
| 3:C:212:VAL:HB | 3:C:223:ARG:HG3 | 2.02 | 0.41 |
| 3:C:63:SER:CA | 3:C:160:ARG:HH12 | 2.33 | 0.41 |
| 4:D:273:ARG:NH2 | 4:D:273:ARG:O | 2.54 | 0.41 |
| 13:O:149:GLU:OE1 | 13:O:150:ALA:N | 2.54 | 0.41 |
| 21:W:7:VAL:C | 25:1:31:ARG:HH12 | 2.24 | 0.41 |
| 26:2:39:ASP:HB3 | 26:2:44:ARG:HH11 | 1.86 | 0.41 |
| 27:3:39:CYS:O | 27:3:40:HIS:ND1 | 2.54 | 0.41 |
| 27:3:5:ILE:O | 27:3:6:HIS:ND1 | 2.50 | 0.41 |
| 29:5:16:CYS:HB3 | 29:5:49:HIS:CD2 | 2.52 | 0.41 |
| 31:7:16:ILE:HA | 31:7:22:VAL:HG22 | 2.03 | 0.41 |
| 32:8:10:ILE:H | 32:8:14:CYS:CB | 2.34 | 0.41 |
| 1:A:1006:C:O2 | 1:A:1006:C:H2' | 2.20 | 0.41 |
| 1:A:1009:A:C2 | 1:A:1010:A:N3 | 2.88 | 0.41 |
| 1:A:1012:U:O2 | 1:A:1142(A):A:C4' | 2.59 | 0.41 |
| 1:A:1027:A:H2' | 1:A:1028:A:H8 | 1.85 | 0.41 |
| 1:A:1068:G:O2' | 1:A:1069:A:C4 | 2.72 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1069:A:C1' | 1:A:1071:G:OP2 | 2.69 | 0.41 |
| 1:A:1122:G:N2 | 1:A:1123:C:N1 | 2.68 | 0.41 |
| 1:A:113:G:OP1 | 21:W:3:THR:OG1 | 2.33 | 0.41 |
| 1:A:1166:C:H1' | 1:A:1184:G:H22 | 1.85 | 0.41 |
| 1:A:10:G:O2' | 1:A:11:G:O4' | 2.36 | 0.41 |
| 1:A:331:A:N3 | 1:A:1209:G:C6 | 2.89 | 0.41 |
| 1:A:1210:A:O4' | 1:A:1212:G:N3 | 2.54 | 0.41 |
| 1:A:1245:G:C2' | 1:A:1246:A:H5' | 2.50 | 0.41 |
| 1:A:1263:U:O3' | 28:4:10:LYS:NZ | 2.49 | 0.41 |
| 1:A:1317:A:C4 | 1:A:1318:C:C5 | 3.08 | 0.41 |
| 1:A:1322:A:N6 | 1:A:1323:U:N3 | 2.69 | 0.41 |
| 1:A:1425:G:C4 | 1:A:1426:G:C6 | 3.09 | 0.41 |
| 1:A:1521:G:C3' | 1:A:1522:G:C5' | 2.91 | 0.41 |
| 1:A:1594:G:C2' | 1:A:1595:G:H5' | 2.51 | 0.41 |
| 1:A:1743:G:H5'' | 1:A:1743:G:C8 | 2.55 | 0.41 |
| 1:A:1854:A:O2' | 1:A:1855:G:H5' | 2.20 | 0.41 |
| 1:A:1944:U:H1' | 1:A:1955:U:H6 | 1.82 | 0.41 |
| 1:A:1965:C:H5'' | 1:A:1966:A:C8 | 2.56 | 0.41 |
| 1:A:2018:G:O6 | 1:A:2019:A:N1 | 2.54 | 0.41 |
| 1:A:2019:A:C3' | 1:A:2020:A:C5' | 2.84 | 0.41 |
| 1:A:2023:G:O2' | 1:A:2024:G:H5' | 2.20 | 0.41 |
| 1:A:2208:U:O2 | 1:A:2208:U:H2' | 2.18 | 0.41 |
| 1:A:2231:C:C2 | 1:A:2232:U:C6 | 3.09 | 0.41 |
| 1:A:2234:G:H2' | 1:A:2235:G:O4' | 2.20 | 0.41 |
| 1:A:2331:G:C6 | 1:A:2332:U:C2 | 3.09 | 0.41 |
| 1:A:2359:C:N4 | 1:A:2360:A:N1 | 2.67 | 0.41 |
| 1:A:243:U:C2 | 1:A:244:A:C8 | 3.09 | 0.41 |
| 1:A:2455:G:C4 | 1:A:2456:C:C5 | 3.08 | 0.41 |
| 1:A:2538:C:C2 | 1:A:2539:C:H5 | 2.38 | 0.41 |
| 1:A:2537:U:N3 | 1:A:2538:C:N4 | 2.68 | 0.41 |
| 1:A:255:A:H2' | 1:A:256:A:H8 | 1.84 | 0.41 |
| 1:A:2570:G:N2 | 1:A:2571:C:N1 | 2.68 | 0.41 |
| 1:A:2649:U:O2' | 1:A:2650:U:H5' | 2.20 | 0.41 |
| 1:A:2656:U:O2' | 1:A:2657:A:H5' | 2.21 | 0.41 |
| 1:A:270(V):G:O6 | 1:A:270(W):G:O6 | 2.38 | 0.41 |
| 1:A:2731:G:H22 | 1:A:2732:G:N2 | 2.19 | 0.41 |
| 1:A:2628:C:O2 | 1:A:2782:G:P | 2.78 | 0.41 |
| 1:A:2785:C:N3 | 1:A:2786:U:C4 | 2.89 | 0.41 |
| 1:A:279:C:C2' | 1:A:280:C:C6 | 3.00 | 0.41 |
| 1:A:297:C:C4 | 1:A:298:G:C2 | 3.09 | 0.41 |
| 1:A:493:G:C4 | 1:A:494:G:C8 | 3.09 | 0.41 |
| 1:A:51:G:H1' | 1:A:118:A:H61 | 1.84 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 1:A:543:C:C4 | 1:A:551:G:C2 | 3.09 | 0.41 |
| 1:A:549:G:H2' | 1:A:550:G:O4' | 2.20 | 0.41 |
| 1:A:586:A:H2' | 1:A:586:A:N3 | 2.35 | 0.41 |
| 1:A:587:C:C2 | 1:A:671:C:O4' | 2.74 | 0.41 |
| 1:A:596:G:N1 | 1:A:597:U:C2 | 2.89 | 0.41 |
| 1:A:613:U:C6 | 1:A:614:U:C2 | 3.08 | 0.41 |
| 1:A:669:G:C8 | 1:A:801:G:C4 | 3.09 | 0.41 |
| 1:A:674:G:H4' | 6:F:74:ARG:CD | 2.49 | 0.41 |
| 1:A:728:G:C5 | 1:A:762:U:H2' | 2.55 | 0.41 |
| 1:A:827:U:C2 | 1:A:2430:A:N1 | 2.88 | 0.41 |
| 1:A:852:G:C2 | 1:A:853:G:C8 | 3.09 | 0.41 |
| 1:A:853:G:O2' | 1:A:854:G:H5' | 2.21 | 0.41 |
| 1:A:85:G:C2 | 1:A:98:G:C2 | 3.08 | 0.41 |
| 1:A:919:G:H21 | 1:A:920:G:C1' | 2.20 | 0.41 |
| 1:A:930:U:C6 | 1:A:930:U:H3' | 2.53 | 0.41 |
| 1:A:848:G:C4 | 1:A:931:G:O6 | 2.74 | 0.41 |
| 1:A:980:A:O2' | 1:A:981:A:H5' | 2.21 | 0.41 |
| 2:B:29:A:H1' | 2:B:56:G:H21 | 1.85 | 0.41 |
| 2:B:68:C:O5' | 2:B:68:C:H6 | 2.04 | 0.41 |
| 4:D:134:ARG:HG3 | 4:D:134:ARG:H | 1.74 | 0.41 |
| 4:D:90:ALA:HB2 | 4:D:198:ASN:HB3 | 2.03 | 0.41 |
| 4:D:198:ASN:OD1 | 4:D:199:ALA:N | 2.54 | 0.41 |
| 1:A:1791:A:C4' | 4:D:209:ALA:HA | 2.50 | 0.41 |
| 1:A:781:A:C1' | 4:D:222:ARG:NH2 | 2.81 | 0.41 |
| 4:D:63:ARG:HG2 | 4:D:64:ILE:N | 2.35 | 0.41 |
| 1:A:1567:A:N6 | 4:D:85:ASP:O | 2.50 | 0.41 |
| 1:A:2512:C:C5' | 5:E:120:TRP:HH2 | 2.13 | 0.41 |
| 5:E:15:PHE:CE2 | 5:E:16:ARG:HG3 | 2.56 | 0.41 |
| 5:E:45:THR:HG1 | 5:E:46:ALA:H | 1.68 | 0.41 |
| 5:E:50:GLY:C | 5:E:76:ARG:CZ | 2.89 | 0.41 |
| 5:E:57:LYS:O | 5:E:58:ARG:CZ | 2.69 | 0.41 |
| 6:F:130:ALA:CB | 6:F:142:TRP:HE3 | 2.18 | 0.41 |
| 7:G:101:ILE:CG2 | 7:G:102:PHE:N | 2.83 | 0.41 |
| 7:G:59:GLU:C | 7:G:61:ALA:N | 2.71 | 0.41 |
| 7:G:60:LEU:HB2 | 7:G:66:GLN:O | 2.21 | 0.41 |
| 8:H:127:GLU:CG | 8:H:130:ARG:HB2 | 2.50 | 0.41 |
| 8:H:7:LEU:O | 8:H:51:ARG:NE | 2.53 | 0.41 |
| 8:H:94:TYR:N | 8:H:95:ARG:NH2 | 2.50 | 0.41 |
| 10:L:105:LEU:O | 10:L:109:LYS:HG2 | 2.21 | 0.41 |
| 11:M:108:PRO:O | 11:M:113:GLY:CA | 2.65 | 0.41 |
| 11:M:73:THR:O | 11:M:83:LYS:HB2 | 2.21 | 0.41 |
| 12:N:11:ALA:C | 12:N:97:ARG:CZ | 2.89 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 12:N:58:VAL:HG23 | 12:N:86:ILE:HG22 | 2.01 | 0.41 |
| 13:O:47:ASP:OD1 | 13:O:48:PRO:HD3 | 2.21 | 0.41 |
| 14:P:8:LYS:NZ | 14:P:73:PRO:HB3 | 2.35 | 0.41 |
| 14:P:85:LYS:CE | 24:Z:10:THR:OG1 | 2.68 | 0.41 |
| 16:R:14:VAL:O | 16:R:17:ARG:CB | 2.61 | 0.41 |
| 16:R:29:PHE:CD1 | 16:R:34:HIS:CD2 | 3.09 | 0.41 |
| 16:R:43:GLU:C | 16:R:45:GLY:N | 2.74 | 0.41 |
| 12:N:122:LEU:CG | 17:S:71:GLY:HA2 | 2.51 | 0.41 |
| 17:S:82:LEU:C | 17:S:84:GLN:H | 2.22 | 0.41 |
| 18:T:94:ASN:HD21 | 19:U:6:LYS:HD2 | 1.84 | 0.41 |
| 18:T:98:LEU:O | 18:T:99:ALA:C | 2.58 | 0.41 |
| 19:U:12:TYR:O | 19:U:13:ARG:CB | 2.69 | 0.41 |
| 19:U:1:MET:H2 | 19:U:44:LYS:CB | 2.32 | 0.41 |
| 19:U:58:VAL:HG12 | 19:U:59:ALA:H | 1.84 | 0.41 |
| 20:V:47:VAL:HG23 | 20:V:48:ALA:H | 1.86 | 0.41 |
| 21:W:95:LEU:O | 21:W:96:ILE:HB | 2.20 | 0.41 |
| 21:W:9:LEU:H | 21:W:9:LEU:HD12 | 1.78 | 0.41 |
| 22:X:12:THR:HG22 | 22:X:13:VAL:CG1 | 2.51 | 0.41 |
| 1:A:481:G:OP2 | 22:X:44:ILE:HA | 2.20 | 0.41 |
| 22:X:95:LYS:CG | 22:X:96:ILE:H | 2.34 | 0.41 |
| 23:Y:31:ARG:O | 23:Y:33:LEU:HG | 2.21 | 0.41 |
| 24:Z:44:ARG:CG | 24:Z:44:ARG:O | 2.65 | 0.41 |
| 24:Z:46:LYS:HE3 | 24:Z:76:GLY:HA3 | 2.01 | 0.41 |
| 1:A:2146:C:N3 | 1:A:2147:G:O4' | 2.54 | 0.41 |
| 1:A:2150:U:O2 | 1:A:2151:G:N7 | 2.52 | 0.41 |
| 1:A:2157:G:H4' | 1:A:2158:A:OP1 | 2.21 | 0.41 |
| 3:C:103:ILE:CD1 | 3:C:108:MET:SD | 3.08 | 0.41 |
| 3:C:176:GLY:O | 3:C:177:LYS:O | 2.38 | 0.41 |
| 3:C:10:LEU:CD1 | 3:C:32:LEU:HD22 | 2.51 | 0.41 |
| 1:A:1418:G:C1' | 1:A:1581:G:N2 | 2.76 | 0.41 |
| 8:H:170:ARG:C | 8:H:171:LEU:HG | 2.41 | 0.41 |
| 25:1:34:ALA:O | 25:1:35:SER:CB | 2.69 | 0.41 |
| 26:2:5:LYS:O | 26:2:6:VAL:HG23 | 2.20 | 0.41 |
| 27:3:5:ILE:HG22 | 27:3:7:PRO:N | 2.35 | 0.41 |
| 29:5:19:ARG:NH2 | 29:5:41:PRO:CG | 2.65 | 0.41 |
| 30:6:45:ALA:O | 30:6:46:VAL:C | 2.59 | 0.41 |
| 29:5:25:LYS:HE2 | 31:7:35:GLN:O | 2.21 | 0.41 |
| 1:A:1044:G:H4' | 1:A:1047:G:H1' | 2.02 | 0.41 |
| 1:A:1043:C:O2' | 1:A:1048:A:H1' | 2.21 | 0.41 |
| 1:A:1056:G:OP2 | 1:A:1056:G:O4' | 2.39 | 0.41 |
| 1:A:976:C:H5' | 1:A:1156:A:N6 | 2.35 | 0.41 |
| 1:A:1198:U:C2' | 1:A:1199:U:C5 | 3.00 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:331:A:H61 | 1:A:1209:G:H2' | 1.85 | 0.41 |
| 1:A:1237:A:O2' | 1:A:1238:G:O5' | 2.37 | 0.41 |
| 1:A:1241:A:O2' | 1:A:1242:A:P | 2.78 | 0.41 |
| 1:A:1243:G:N2 | 1:A:1244:G:C4 | 2.88 | 0.41 |
| 1:A:1270:C:C5' | 1:A:1271:G:OP1 | 2.69 | 0.41 |
| 1:A:1374:G:C5 | 1:A:1375:C:C5 | 3.09 | 0.41 |
| 1:A:1344:G:C6 | 1:A:1385:G:C5 | 3.09 | 0.41 |
| 1:A:1406:U:O2 | 1:A:1407:C:C6 | 2.74 | 0.41 |
| 1:A:140:A:C2 | 1:A:1408:C:O2 | 2.71 | 0.41 |
| 1:A:1411:C:H2' | 1:A:1412:A:C8 | 2.55 | 0.41 |
| 1:A:1513:C:C2' | 1:A:1514:U:H5 | 2.07 | 0.41 |
| 1:A:1540:G:C6 | 1:A:1541:U:H1' | 2.56 | 0.41 |
| 1:A:1559:G:C8 | 1:A:1559:G:H3' | 2.49 | 0.41 |
| 1:A:1638:C:O2' | 1:A:2709:G:N2 | 2.54 | 0.41 |
| 1:A:1668:A:N7 | 1:A:1674:G:C6 | 2.88 | 0.41 |
| 1:A:1685:C:HO2' | 1:A:1686:C:H5' | 1.83 | 0.41 |
| 1:A:1851:U:N3 | 1:A:1852:C:N4 | 2.69 | 0.41 |
| 1:A:1861:G:O2' | 1:A:1862:G:H5' | 2.20 | 0.41 |
| 1:A:1878:G:C4 | 1:A:1879:C:C5 | 3.08 | 0.41 |
| 1:A:1937:A:N6 | 1:A:1939:U:O4 | 2.54 | 0.41 |
| 1:A:2018:G:P | 1:A:2018:G:H8 | 2.44 | 0.41 |
| 1:A:2209:C:P | 4:D:151:LYS:HG2 | 2.61 | 0.41 |
| 1:A:2218:G:C6 | 1:A:2219:G:C5 | 3.08 | 0.41 |
| 1:A:2219:G:H2' | 1:A:2224:G:O4' | 2.21 | 0.41 |
| 1:A:2292:C:O2' | 1:A:2293:C:O5' | 2.36 | 0.41 |
| 1:A:2307:G:H5' | 1:A:2308:G:OP2 | 2.21 | 0.41 |
| 1:A:2333:A:C1' | 1:A:2335:A:C4 | 2.82 | 0.41 |
| 1:A:2347:C:C2 | 1:A:2348:U:C5 | 3.08 | 0.41 |
| 1:A:2601:C:O2 | 1:A:2603:G:N7 | 2.54 | 0.41 |
| 1:A:752:A:H61 | 1:A:2609:U:H3 | 1.68 | 0.41 |
| 1:A:2642:G:C2 | 1:A:2643:G:C4 | 3.09 | 0.41 |
| 1:A:2657:A:C6 | 1:A:2665:A:C5 | 3.08 | 0.41 |
| 1:A:2776:A:H5'' | 1:A:2777:G:OP1 | 2.21 | 0.41 |
| 1:A:2850:A:C4 | 1:A:2869:G:C4' | 3.04 | 0.41 |
| 1:A:429:A:C2 | 1:A:430:G:C6 | 3.09 | 0.41 |
| 1:A:493:G:C2 | 1:A:494:G:N9 | 2.88 | 0.41 |
| 1:A:526:A:H4' | 1:A:527:C:OP1 | 2.20 | 0.41 |
| 1:A:533:G:C4 | 1:A:561:G:N2 | 2.89 | 0.41 |
| 1:A:565:C:C4 | 1:A:566:U:C4 | 3.09 | 0.41 |
| 1:A:627:A:H1' | 1:A:637:A:C6 | 2.55 | 0.41 |
| 1:A:665:C:O2 | 1:A:666:G:N7 | 2.54 | 0.41 |
| 1:A:722:A:C4 | 1:A:723:G:C8 | 3.09 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:728:G:H21 | 1:A:730:C:H5' | 1.82 | 0.41 |
| 1:A:734:A:H2 | 1:A:735:A:C1' | 2.33 | 0.41 |
| 1:A:80:G:O2' | 1:A:347:A:N6 | 2.53 | 0.41 |
| 1:A:832:G:H5'' | 1:A:944:G:N2 | 2.35 | 0.41 |
| 1:A:879:G:C6 | 1:A:899:A:C4 | 3.09 | 0.41 |
| 2:B:96:G:OP2 | 2:B:96:G:C8 | 2.71 | 0.41 |
| 4:D:119:ALA:HA | 4:D:123:ALA:CB | 2.50 | 0.41 |
| 4:D:94:LEU:HD22 | 4:D:94:LEU:HA | 1.37 | 0.41 |
| 4:D:95:LEU:CD2 | 4:D:95:LEU:C | 2.89 | 0.41 |
| 5:E:22:PRO:C | 5:E:23:VAL:HG13 | 2.41 | 0.41 |
| 5:E:4:ILE:O | 5:E:27:LEU:HD22 | 2.20 | 0.41 |
| 5:E:45:THR:HG1 | 5:E:46:ALA:N | 2.17 | 0.41 |
| 6:F:195:ASP:O | 6:F:197:ASP:N | 2.54 | 0.41 |
| 6:F:35:GLU:HG3 | 6:F:38:ARG:NH2 | 2.36 | 0.41 |
| 7:G:53:LEU:HD22 | 7:G:70:VAL:HA | 1.96 | 0.41 |
| 7:G:8:LYS:HD2 | 7:G:12:TYR:CD2 | 2.53 | 0.41 |
| 8:H:155:SER:O | 8:H:158:HIS:O | 2.38 | 0.41 |
| 9:K:24:GLY:CA | 9:K:27:ARG:HB3 | 2.50 | 0.41 |
| 10:L:7:VAL:CG1 | 10:L:58:THR:HG21 | 2.51 | 0.41 |
| 10:L:95:LYS:HB3 | 10:L:98:ARG:HE | 1.84 | 0.41 |
| 11:M:53:VAL:CG1 | 11:M:123:TYR:CE2 | 3.04 | 0.41 |
| 11:M:74:ARG:NH1 | 11:M:75:TYR:O | 2.48 | 0.41 |
| 12:N:78:ARG:CZ | 12:N:78:ARG:CA | 2.99 | 0.41 |
| 13:O:107:LYS:HZ1 | 13:O:111:ARG:H | 1.69 | 0.41 |
| 13:O:114:ILE:CB | 13:O:123:LEU:HD11 | 2.50 | 0.41 |
| 13:O:145:PRO:C | 13:O:146:VAL:CG2 | 2.89 | 0.41 |
| 13:O:76:LYS:HZ1 | 13:O:96:THR:CB | 2.34 | 0.41 |
| 14:P:58:PHE:C | 14:P:60:ARG:N | 2.66 | 0.41 |
| 14:P:59:ARG:C | 14:P:60:ARG:HD2 | 2.41 | 0.41 |
| 14:P:65:PHE:O | 14:P:66:ILE:HD12 | 2.21 | 0.41 |
| 16:R:77:ALA:O | 16:R:80:LEU:N | 2.54 | 0.41 |
| 17:S:23:ARG:NH1 | 17:S:88:ILE:CG2 | 2.83 | 0.41 |
| 17:S:64:ARG:O | 17:S:66:VAL:N | 2.54 | 0.41 |
| 17:S:5:ALA:O | 17:S:9:LEU:HG | 2.21 | 0.41 |
| 18:T:50:ARG:HH11 | 18:T:50:ARG:HB2 | 1.81 | 0.41 |
| 18:T:55:ARG:HG3 | 18:T:58:ARG:HE | 1.86 | 0.41 |
| 19:U:20:LEU:HB3 | 19:U:95:LEU:CD2 | 2.48 | 0.41 |
| 20:V:8:ARG:O | 20:V:10:VAL:HG22 | 2.21 | 0.41 |
| 20:V:28:SER:O | 20:V:30:GLU:N | 2.54 | 0.41 |
| 20:V:86:LEU:HD23 | 20:V:87:PRO:CD | 2.51 | 0.41 |
| 21:W:25:LYS:HG2 | 21:W:82:GLN:CB | 2.49 | 0.41 |
| 1:A:1335:U:P | 21:W:65:ARG:HG3 | 2.60 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 21:W:89:ILE:O | 21:W:92:LEU:HB2 | 2.20 | 0.41 |
| 22:X:38:ILE:C | 22:X:39:VAL:CG2 | 2.89 | 0.41 |
| 22:X:85:VAL:HG12 | 22:X:85:VAL:O | 2.21 | 0.41 |
| 23:Y:109:ALA:C | 23:Y:113:ALA:HB3 | 2.41 | 0.41 |
| 2:B:102:G:C2' | 23:Y:73:GLN:NE2 | 2.83 | 0.41 |
| 25:1:24:LYS:HE2 | 25:1:56:LEU:HD21 | 2.03 | 0.41 |
| 1:A:95:G:O2' | 25:1:39:LEU:O | 2.37 | 0.41 |
| 25:1:55:LEU:C | 25:1:58:VAL:HG13 | 2.41 | 0.41 |
| 27:3:17:GLY:CA | 27:3:33:VAL:CG1 | 2.99 | 0.41 |
| 20:V:35:ILE:CD1 | 28:4:27:PRO:HB3 | 2.48 | 0.41 |
| 30:6:19:ARG:HB3 | 30:6:23:ARG:NE | 2.36 | 0.41 |
| 31:7:15:LYS:CA | 31:7:22:VAL:HG13 | 2.51 | 0.41 |
| 31:7:44:LYS:CE | 31:7:44:LYS:CA | 2.99 | 0.41 |
| 1:A:1009:A:H8 | 18:T:59:ARG:CZ | 2.34 | 0.41 |
| 1:A:1026:U:H2' | 1:A:1027:A:O5' | 2.21 | 0.41 |
| 1:A:1096:A:C8 | 1:A:1097:U:N1 | 2.89 | 0.41 |
| 1:A:1186:G:C8 | 1:A:1186:G:C3' | 3.04 | 0.41 |
| 1:A:1286:A:N6 | 1:A:1289:C:C2 | 2.89 | 0.41 |
| 1:A:1321:A:N1 | 1:A:1322:A:C1' | 2.78 | 0.41 |
| 1:A:1344:G:H4' | 1:A:1384:A:N1 | 2.35 | 0.41 |
| 1:A:1345:C:C2 | 1:A:1346:G:C8 | 3.09 | 0.41 |
| 1:A:1372:U:C4 | 1:A:1373:A:N7 | 2.88 | 0.41 |
| 1:A:1477:A:C4' | 1:A:1478:G:OP2 | 2.66 | 0.41 |
| 1:A:150:C:H2' | 1:A:151:C:C5 | 2.53 | 0.41 |
| 1:A:1395:A:OP1 | 1:A:1603:A:OP1 | 2.38 | 0.41 |
| 1:A:1749:A:C6 | 1:A:1750:G:C5 | 3.09 | 0.41 |
| 1:A:1782:C:C2' | 1:A:1783:A:H5' | 2.51 | 0.41 |
| 1:A:1787:A:H2' | 1:A:1788:C:O5' | 2.21 | 0.41 |
| 1:A:1791:A:C2 | 1:A:1829:A:C4' | 3.03 | 0.41 |
| 1:A:1912:A:H8 | 1:A:1913:A:O4' | 2.04 | 0.41 |
| 1:A:1915:U:OP1 | 1:A:1915:U:H3' | 2.20 | 0.41 |
| 1:A:1916:A:C2 | 1:A:1917:U:OP2 | 2.73 | 0.41 |
| 1:A:1930:G:HO2' | 1:A:1931:U:P | 2.39 | 0.41 |
| 1:A:2020:A:C8 | 1:A:2022:U:O4 | 2.74 | 0.41 |
| 1:A:2052:G:H21 | 5:E:149:ARG:HB2 | 1.86 | 0.41 |
| 1:A:2213:U:H3' | 1:A:2215:G:N7 | 2.35 | 0.41 |
| 1:A:2228:G:O6 | 1:A:2229:C:C2 | 2.74 | 0.41 |
| 1:A:2228:G:C8 | 1:A:2229:C:C5 | 3.08 | 0.41 |
| 1:A:2258:C:C2' | 1:A:2259:G:OP1 | 2.69 | 0.41 |
| 1:A:225:A:C4 | 1:A:226:G:C8 | 3.09 | 0.41 |
| 1:A:2259:G:N1 | 1:A:2282:G:O6 | 2.54 | 0.41 |
| 1:A:2309:A:C5 | 1:A:2310:A:C4 | 3.08 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2321:G:C2' | 1:A:2321:G:N3 | 2.84 | 0.41 |
| 1:A:2362:G:H2' | 1:A:2363:C:H6 | 1.85 | 0.41 |
| 1:A:2371:G:HO2' | 1:A:2372:G:C1' | 2.33 | 0.41 |
| 1:A:411:G:H5' | 1:A:2406:U:H3' | 2.03 | 0.41 |
| 1:A:2417:C:N4 | 1:A:2418:A:H62 | 2.19 | 0.41 |
| 1:A:2501:C:C5' | 1:A:2503:A:C1' | 2.98 | 0.41 |
| 1:A:2523:G:H1' | 1:A:2765:A:C6 | 2.56 | 0.41 |
| 1:A:2551:C:H2' | 1:A:2552:U:O4' | 2.21 | 0.41 |
| 1:A:2596:U:C2' | 4:D:242:ARG:CD | 2.98 | 0.41 |
| 1:A:2436:G:O2' | 1:A:2598:A:C2 | 2.72 | 0.41 |
| 1:A:2625:G:C2' | 1:A:2626:C:O5' | 2.69 | 0.41 |
| 1:A:2649:U:C2 | 1:A:2650:U:C5 | 3.09 | 0.41 |
| 1:A:270(P):C:OP2 | 9:K:45:LYS:CD | 2.66 | 0.41 |
| 1:A:270(X):G:C6 | 1:A:270(Y):G:H1' | 2.56 | 0.41 |
| 1:A:2742:C:H2' | 1:A:2742:C:O2 | 2.20 | 0.41 |
| 1:A:388:G:C2' | 1:A:390:A:C5 | 3.02 | 0.41 |
| 1:A:37:C:C2' | 1:A:38:A:O5' | 2.69 | 0.41 |
| 1:A:465:G:H3' | 1:A:465:G:C8 | 2.56 | 0.41 |
| 1:A:47:C:N3 | 1:A:179:G:C6 | 2.89 | 0.41 |
| 1:A:488:G:H8 | 1:A:488:G:H3' | 1.83 | 0.41 |
| 1:A:603:A:H5'' | 13:O:98:GLU:CD | 2.41 | 0.41 |
| 1:A:671:C:C2 | 1:A:672:C:C5 | 3.09 | 0.41 |
| 1:A:67:U:O2' | 1:A:68:G:C5' | 2.69 | 0.41 |
| 1:A:693:C:H2' | 1:A:694:U:O4' | 2.21 | 0.41 |
| 1:A:764:A:N3 | 4:D:214:TRP:NE1 | 2.69 | 0.41 |
| 1:A:692:C:N3 | 1:A:771:G:C2 | 2.89 | 0.41 |
| 1:A:787:U:C6 | 1:A:791:C:C5 | 3.09 | 0.41 |
| 1:A:951:C:H2' | 1:A:952:G:O5' | 2.21 | 0.41 |
| 1:A:966:G:C1' | 1:A:2267:A:H61 | 2.33 | 0.41 |
| 2:B:40:U:N3 | 2:B:43:C:P | 2.94 | 0.41 |
| 2:B:69:G:N3 | 2:B:70:C:C6 | 2.89 | 0.41 |
| 2:B:70:C:O2 | 2:B:71:C:C6 | 2.74 | 0.41 |
| 2:B:77:U:C6 | 2:B:77:U:C3' | 3.03 | 0.41 |
| 4:D:134:ARG:HB2 | 4:D:135:PHE:HD1 | 1.86 | 0.41 |
| 4:D:14:ARG:HH11 | 4:D:14:ARG:HD3 | 1.76 | 0.41 |
| 4:D:224:ALA:HA | 4:D:233:HIS:ND1 | 2.36 | 0.41 |
| 4:D:252:TRP:HB3 | 4:D:253:GLN:OE1 | 2.21 | 0.41 |
| 4:D:89:SER:O | 4:D:198:ASN:ND2 | 2.53 | 0.41 |
| 5:E:102:VAL:HG22 | 5:E:103:ASP:N | 2.34 | 0.41 |
| 5:E:49:LEU:HD12 | 5:E:51:PHE:N | 2.31 | 0.41 |
| 5:E:91:VAL:HG22 | 5:E:93:VAL:N | 2.28 | 0.41 |
| 6:F:10:PRO:C | 6:F:11:VAL:HG23 | 2.41 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 6:F:50:SER:OG | 6:F:51:THR:N | 2.54 | 0.41 |
| 6:F:68:LYS:HB3 | 6:F:69:HIS:H | 1.49 | 0.41 |
| 7:G:138:GLN:CG | 7:G:139:LEU:H | 2.29 | 0.41 |
| 7:G:153:ARG:O | 7:G:155:MET:CE | 2.69 | 0.41 |
| 8:H:116:GLU:HG2 | 8:H:116:GLU:O | 2.20 | 0.41 |
| 8:H:125:VAL:HG12 | 8:H:125:VAL:O | 2.21 | 0.41 |
| 8:H:152:ARG:CZ | 8:H:152:ARG:HA | 2.51 | 0.41 |
| 8:H:163:TYR:CE2 | 8:H:169:VAL:HG11 | 2.52 | 0.41 |
| 8:H:11:VAL:CB | 8:H:50:VAL:HG13 | 2.49 | 0.41 |
| 10:L:19:PRO:HG2 | 10:L:23:VAL:HB | 2.02 | 0.41 |
| 10:L:35:MET:O | 10:L:35:MET:SD | 2.78 | 0.41 |
| 10:L:41:PHE:O | 10:L:42:ASN:C | 2.59 | 0.41 |
| 1:A:1137:G:C1' | 11:M:105:GLY:HA3 | 2.51 | 0.41 |
| 11:M:39:ARG:HG2 | 11:M:40:PRO:CD | 2.35 | 0.41 |
| 11:M:54:VAL:HG13 | 11:M:122:VAL:HB | 2.03 | 0.41 |
| 11:M:91:LEU:HA | 11:M:95:PRO:CA | 2.51 | 0.41 |
| 11:M:96:GLU:HG2 | 11:M:97:ARG:H | 1.80 | 0.41 |
| 13:O:54:GLY:O | 31:7:12:LYS:NZ | 2.42 | 0.41 |
| 13:O:65:ARG:HB2 | 13:O:66:GLY:H | 1.39 | 0.41 |
| 14:P:113:GLN:O | 14:P:116:GLU:HB2 | 2.21 | 0.41 |
| 14:P:57:HIS:HB3 | 14:P:117:ALA:HB2 | 2.03 | 0.41 |
| 14:P:69:PHE:HA | 14:P:70:PRO:HD3 | 1.93 | 0.41 |
| 15:Q:17:ARG:CB | 15:Q:17:ARG:HH11 | 2.16 | 0.41 |
| 15:Q:28:LEU:O | 15:Q:31:HIS:N | 2.54 | 0.41 |
| 15:Q:94:TYR:O | 15:Q:117:VAL:HG12 | 2.20 | 0.41 |
| 16:R:98:VAL:C | 16:R:100:ALA:N | 2.72 | 0.41 |
| 16:R:11:LYS:HA | 16:R:14:VAL:HB | 2.03 | 0.41 |
| 16:R:78:LEU:O | 16:R:82:ILE:O | 2.38 | 0.41 |
| 17:S:76:PHE:HA | 17:S:77:PRO:HD2 | 1.74 | 0.41 |
| 18:T:26:GLY:O | 18:T:27:LEU:CB | 2.69 | 0.41 |
| 20:V:49:LYS:O | 20:V:52:GLU:HB2 | 2.21 | 0.41 |
| 22:X:8:LYS:HE3 | 22:X:28:LYS:CE | 2.50 | 0.41 |
| 22:X:98:VAL:O | 22:X:99:CYS:C | 2.59 | 0.41 |
| 23:Y:177:PRO:CG | 23:Y:178:GLU:N | 2.84 | 0.41 |
| 24:Z:57:PHE:N | 24:Z:57:PHE:CD1 | 2.88 | 0.41 |
| 9:K:68:LEU:HA | 9:K:68:LEU:HD23 | 1.64 | 0.41 |
| 9:K:93:THR:O | 9:K:94:ALA:C | 2.58 | 0.41 |
| 9:K:88:ILE:CG2 | 9:K:90:GLY:H | 2.27 | 0.41 |
| 3:C:100:ILE:CG2 | 3:C:127:LEU:HG | 2.32 | 0.41 |
| 3:C:58:VAL:CG1 | 3:C:199:HIS:HB3 | 2.43 | 0.41 |
| 3:C:10:LEU:CD2 | 3:C:220:PRO:HD3 | 2.26 | 0.41 |
| 3:C:5:LYS:O | 3:C:6:ARG:C | 2.59 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|------------------|-------------|----------|
| 3:C:10:LEU:CD1 | 3:C:220:PRO:CG | 2.98 | 0.41 |
| 1:A:2122:U:C1' | 3:C:166:ASP:OD2 | 2.69 | 0.41 |
| 3:C:185:LEU:H | 3:C:185:LEU:HD23 | 1.84 | 0.41 |
| 3:C:194:ARG:O | 3:C:196:LEU:N | 2.53 | 0.41 |
| 3:C:41:VAL:CG1 | 3:C:215:THR:O | 2.69 | 0.41 |
| 3:C:22:ILE:HD13 | 3:C:190:ARG:CD | 2.48 | 0.41 |
| 3:C:25:ALA:O | 3:C:27:HIS:N | 2.54 | 0.41 |
| 1:A:713:G:N3 | 1:A:713:G:C2' | 2.80 | 0.41 |
| 1:A:2108:C:H2' | 1:A:2109:U:H6 | 1.86 | 0.41 |
| 1:A:2101:G:N1 | 1:A:2102:U:C2 | 2.88 | 0.41 |
| 1:A:171:G:C2 | 1:A:172:C:C4 | 3.09 | 0.41 |
| 1:A:2677:G:HO2' | 1:A:2678:C:H5' | 1.81 | 0.41 |
| 1:A:738:G:C2 | 1:A:759:G:C5 | 3.09 | 0.41 |
| 1:A:2462:U:O4 | 1:A:2463:C:N4 | 2.54 | 0.41 |
| 1:A:32:C:N1 | 1:A:474:G:N2 | 2.69 | 0.41 |
| 1:A:32:C:H1' | 1:A:474:G:H21 | 1.84 | 0.41 |
| 25:1:36:ILE:CG2 | 25:1:37:GLY:H | 2.00 | 0.41 |
| 25:1:55:LEU:CD1 | 25:1:55:LEU:H | 2.34 | 0.41 |
| 1:A:397:G:H5' | 27:3:59:PHE:CE2 | 2.56 | 0.41 |
| 27:3:59:PHE:HA | 27:3:62:ARG:NH2 | 2.35 | 0.41 |
| 1:A:126:A:N7 | 30:6:18:PHE:CZ | 2.89 | 0.41 |
| 31:7:26:LYS:C | 31:7:27:THR:CG2 | 2.90 | 0.41 |
| 31:7:6:THR:CG2 | 31:7:6:THR:O | 2.60 | 0.41 |
| 1:A:85:G:H1' | 1:A:103:A:N1 | 2.35 | 0.41 |
| 1:A:1062:G:C2 | 10:L:133:SER:O | 2.74 | 0.41 |
| 1:A:1029:A:H61 | 1:A:1125:G:H2' | 1.86 | 0.41 |
| 1:A:1182:A:N3 | 1:A:1182:A:C2' | 2.81 | 0.41 |
| 1:A:1194:A:C6 | 1:A:1195:G:C5 | 3.08 | 0.41 |
| 1:A:1210:A:H5'' | 1:A:1211:U:C5' | 2.50 | 0.41 |
| 1:A:1265:A:C1' | 1:A:1267:U:N3 | 2.84 | 0.41 |
| 1:A:1265:A:O5' | 1:A:1267:U:O2 | 2.39 | 0.41 |
| 1:A:1287:A:H3' | 1:A:1288:U:H6 | 1.86 | 0.41 |
| 1:A:1443:G:H2' | 1:A:1444:G:O5' | 2.21 | 0.41 |
| 1:A:1470:G:N2 | 1:A:1520:U:N3 | 2.69 | 0.41 |
| 1:A:1394:U:C5' | 1:A:1604:C:OP1 | 2.69 | 0.41 |
| 1:A:1659:U:H2' | 1:A:1660:C:O4' | 2.20 | 0.41 |
| 1:A:1682:G:C4 | 1:A:1757:U:C1' | 3.03 | 0.41 |
| 1:A:1696:G:O2' | 1:A:1697:G:O4' | 2.28 | 0.41 |
| 1:A:1872:A:H2' | 1:A:1878:G:C4' | 2.48 | 0.41 |
| 1:A:1881:C:C6 | 1:A:1881:C:C5' | 3.00 | 0.41 |
| 1:A:1917:U:H5 | 1:A:1918:A:C2 | 2.38 | 0.41 |
| 1:A:1918:A:H8 | 1:A:1919:A:N6 | 1.85 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-----------------|-------------|----------|
| 1:A:1920:C:H3' | 1:A:1920:C:C6 | 2.56 | 0.41 |
| 1:A:2021:C:H5' | 1:A:2022:U:C6 | 2.55 | 0.41 |
| 1:A:2025:C:H2' | 1:A:2026:C:H6 | 1.77 | 0.41 |
| 1:A:203:C:C6 | 1:A:203:C:O5' | 2.74 | 0.41 |
| 1:A:2052:G:O2' | 5:E:143:ASN:C | 2.60 | 0.41 |
| 1:A:2076:U:H5' | 1:A:2077:A:P | 2.61 | 0.41 |
| 1:A:2269:A:H2' | 1:A:2270:G:O5' | 2.20 | 0.41 |
| 1:A:2298:A:N6 | 1:A:2318:G:H21 | 2.18 | 0.41 |
| 1:A:2298:A:C2' | 1:A:2299:G:H5' | 2.51 | 0.41 |
| 1:A:2303:G:H2' | 1:A:2304:G:O5' | 2.19 | 0.41 |
| 1:A:2383:G:N1 | 1:A:2384:G:C6 | 2.89 | 0.41 |
| 1:A:411:G:H4' | 1:A:2406:U:H5' | 2.03 | 0.41 |
| 1:A:2499:C:O5' | 1:A:2500:U:OP2 | 2.39 | 0.41 |
| 1:A:2633:G:C6 | 1:A:2634:G:C5 | 3.09 | 0.41 |
| 1:A:2674:G:C2' | 1:A:2675:A:H8 | 2.33 | 0.41 |
| 1:A:270(A):A:C2' | 1:A:366:C:O2' | 2.69 | 0.41 |
| 1:A:2750:A:C2 | 32:8:18:ARG:NH1 | 2.88 | 0.41 |
| 1:A:2772:C:H6 | 1:A:2772:C:OP2 | 2.03 | 0.41 |
| 1:A:2816:C:C2 | 1:A:2817:G:C8 | 3.10 | 0.41 |
| 1:A:326:G:H22 | 1:A:337:C:C1' | 2.33 | 0.41 |
| 1:A:337:C:H2' | 1:A:338:G:H5'' | 2.03 | 0.41 |
| 1:A:349:G:N3 | 1:A:350:U:C4 | 2.89 | 0.41 |
| 1:A:364:C:H2' | 1:A:365:C:O5' | 2.21 | 0.41 |
| 1:A:461:C:N4 | 1:A:469:G:H21 | 2.18 | 0.41 |
| 1:A:476:G:N2 | 1:A:478:A:C8 | 2.84 | 0.41 |
| 1:A:574:C:O2 | 1:A:574:C:H2' | 2.21 | 0.41 |
| 1:A:656:G:O2' | 1:A:657:U:O5' | 2.39 | 0.41 |
| 1:A:685:A:O3' | 1:A:686:G:N2 | 2.46 | 0.41 |
| 1:A:736:C:N3 | 1:A:737:C:C5 | 2.89 | 0.41 |
| 1:A:763:G:H2' | 1:A:764:A:C5' | 2.40 | 0.41 |
| 1:A:802:A:N7 | 1:A:803:U:C4 | 2.89 | 0.41 |
| 1:A:803:U:C3' | 1:A:804:A:H5' | 2.51 | 0.41 |
| 1:A:810:U:OP1 | 1:A:1253:A:C5 | 2.74 | 0.41 |
| 1:A:840:C:H6 | 1:A:840:C:O5' | 2.04 | 0.41 |
| 1:A:861:A:O2' | 1:A:862:G:H5' | 2.19 | 0.41 |
| 1:A:876:C:O5' | 1:A:876:C:H6 | 2.04 | 0.41 |
| 1:A:991:C:H5' | 1:A:1185:C:C2' | 2.46 | 0.41 |
| 2:B:14:U:H1' | 2:B:107:U:O4' | 2.21 | 0.41 |
| 2:B:6:C:H5' | 2:B:27:C:O2' | 2.21 | 0.41 |
| 4:D:143:HIS:C | 4:D:145:VAL:N | 2.73 | 0.41 |
| 4:D:58:HIS:NE2 | 4:D:214:TRP:O | 2.53 | 0.41 |
| 1:A:1825:A:H4' | 4:D:252:TRP:CZ3 | 2.56 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:D:264:LYS:O | 4:D:267:SER:O | 2.39 | 0.41 |
| 4:D:70:TRP:HA | 4:D:73:VAL:HG12 | 2.01 | 0.41 |
| 4:D:82:ILE:HG12 | 4:D:93:ALA:HA | 2.03 | 0.41 |
| 4:D:63:ARG:NE | 4:D:85:ASP:HB3 | 2.36 | 0.41 |
| 5:E:167:VAL:HG12 | 5:E:170:LEU:HD22 | 2.02 | 0.41 |
| 6:F:11:VAL:HG12 | 6:F:12:LEU:N | 2.35 | 0.41 |
| 6:F:34:TRP:O | 6:F:37:VAL:N | 2.54 | 0.41 |
| 6:F:51:THR:O | 6:F:92:PRO:HD2 | 2.20 | 0.41 |
| 7:G:125:PHE:N | 7:G:131:TYR:O | 2.54 | 0.41 |
| 7:G:117:PHE:HZ | 7:G:137:GLU:HB3 | 1.85 | 0.41 |
| 7:G:47:LYS:NZ | 7:G:49:ASP:OD2 | 2.54 | 0.41 |
| 7:G:43:LEU:CD2 | 7:G:88:ILE:O | 2.66 | 0.41 |
| 7:G:8:LYS:CD | 7:G:100:TRP:HD1 | 2.33 | 0.41 |
| 8:H:97:ARG:NH2 | 8:H:104:GLU:OE1 | 2.54 | 0.41 |
| 9:K:7:GLU:C | 9:K:14:ASP:CA | 2.83 | 0.41 |
| 10:L:103:GLN:CD | 10:L:103:GLN:C | 2.79 | 0.41 |
| 10:L:113:PRO:O | 10:L:118:THR:CG2 | 2.69 | 0.41 |
| 10:L:22:PRO:O | 10:L:26:ALA:HB3 | 2.21 | 0.41 |
| 10:L:24:GLY:HA2 | 10:L:34:ILE:HG21 | 2.03 | 0.41 |
| 11:M:104:LYS:O | 11:M:106:MET:N | 2.53 | 0.41 |
| 1:A:6:A:O2' | 11:M:135:PRO:CD | 2.69 | 0.41 |
| 11:M:3:THR:O | 18:T:64:ARG:NH1 | 2.54 | 0.41 |
| 12:N:98:VAL:CG1 | 12:N:122:LEU:HD21 | 2.51 | 0.41 |
| 12:N:14:THR:OG1 | 12:N:16:ALA:O | 2.39 | 0.41 |
| 12:N:67:LYS:HD3 | 12:N:67:LYS:N | 2.36 | 0.41 |
| 13:O:78:PRO:HD2 | 13:O:115:LEU:HB2 | 2.03 | 0.41 |
| 13:O:130:PHE:C | 13:O:131:SER:O | 2.58 | 0.41 |
| 13:O:131:SER:O | 13:O:134:ALA:CB | 2.54 | 0.41 |
| 13:O:72:PRO:HA | 13:O:110:TYR:CD2 | 2.56 | 0.41 |
| 14:P:57:HIS:ND1 | 14:P:117:ALA:HB2 | 2.35 | 0.41 |
| 14:P:132:VAL:HB | 14:P:133:ARG:H | 1.32 | 0.41 |
| 14:P:83:MET:CG | 14:P:83:MET:O | 2.69 | 0.41 |
| 14:P:42:ILE:C | 14:P:94:VAL:HB | 2.37 | 0.41 |
| 15:Q:117:VAL:CG1 | 15:Q:117:VAL:O | 2.68 | 0.41 |
| 15:Q:45:ARG:HB2 | 15:Q:97:VAL:HG21 | 2.03 | 0.41 |
| 15:Q:94:TYR:C | 15:Q:95:THR:CG2 | 2.89 | 0.41 |
| 16:R:28:VAL:HG21 | 16:R:101:LEU:HG | 1.99 | 0.41 |
| 16:R:101:LEU:HD22 | 16:R:101:LEU:O | 2.21 | 0.41 |
| 16:R:79:ALA:O | 16:R:82:ILE:CA | 2.69 | 0.41 |
| 17:S:54:ARG:CD | 17:S:100:TYR:HB2 | 2.47 | 0.41 |
| 12:N:106:LEU:CD2 | 17:S:38:ASN:ND2 | 2.80 | 0.41 |
| 17:S:61:PHE:O | 17:S:62:THR:CG2 | 2.63 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-------------------|-------------|----------|
| 18:T:105:VAL:CA | 18:T:108:GLU:CD | 2.88 | 0.41 |
| 18:T:52:ARG:CB | 18:T:55:ARG:HD3 | 2.49 | 0.41 |
| 19:U:80:GLN:CG | 19:U:81:TYR:CD1 | 3.03 | 0.41 |
| 20:V:7:ALA:H | 20:V:103:ILE:HD13 | 1.85 | 0.41 |
| 20:V:42:ARG:C | 20:V:44:ALA:N | 2.72 | 0.41 |
| 20:V:72:LYS:O | 20:V:73:ALA:HB3 | 2.21 | 0.41 |
| 1:A:751:A:O4' | 20:V:90:ARG:HA | 2.21 | 0.41 |
| 21:W:59:VAL:O | 21:W:59:VAL:HG13 | 2.21 | 0.41 |
| 22:X:92:ASN:HB2 | 22:X:93:GLY:H | 1.73 | 0.41 |
| 23:Y:138:GLU:O | 23:Y:139:VAL:CG2 | 2.69 | 0.41 |
| 23:Y:98:MET:CE | 23:Y:99:TYR:H | 2.32 | 0.41 |
| 24:Z:23:VAL:HA | 24:Z:38:VAL:HG11 | 2.01 | 0.41 |
| 9:K:69:LYS:CE | 9:K:70:LYS:HG2 | 2.50 | 0.41 |
| 9:K:78:THR:CA | 9:K:79:ILE:HD12 | 2.51 | 0.41 |
| 3:C:160:ARG:HD3 | 3:C:161:ILE:O | 2.20 | 0.41 |
| 3:C:64:LEU:CD1 | 3:C:188:ASN:OD1 | 2.68 | 0.41 |
| 1:A:1416:G:C2' | 1:A:1583:A:H61 | 2.34 | 0.41 |
| 9:K:54:GLN:HG3 | 9:K:58:LEU:HD23 | 2.03 | 0.41 |
| 1:A:2373:G:O2' | 1:A:2374:C:C5' | 2.69 | 0.41 |
| 1:A:1116:C:C2' | 1:A:1116:C:O2 | 2.59 | 0.41 |
| 6:F:17:ARG:HE | 6:F:17:ARG:N | 2.18 | 0.41 |
| 25:1:63:ARG:CB | 25:1:63:ARG:CZ | 2.99 | 0.40 |
| 26:2:8:LEU:HD21 | 26:2:28:LEU:HB3 | 2.03 | 0.40 |
| 27:3:44:THR:CG2 | 27:3:45:GLY:H | 2.34 | 0.40 |
| 27:3:55:ARG:HB3 | 27:3:56:VAL:H | 1.47 | 0.40 |
| 1:A:2754:U:H5' | 32:8:15:LYS:NZ | 2.36 | 0.40 |
| 1:A:1000:A:C8 | 1:A:1001:A:C5 | 3.09 | 0.40 |
| 1:A:1064:C:O2' | 1:A:1065:U:OP1 | 2.30 | 0.40 |
| 1:A:1176:G:C2' | 1:A:1177:A:H5' | 2.39 | 0.40 |
| 1:A:1224:G:O6 | 1:A:1225:C:C4 | 2.74 | 0.40 |
| 1:A:565:C:C4' | 1:A:1252:G:O6 | 2.69 | 0.40 |
| 1:A:1256:G:C5 | 1:A:1257:C:C5 | 3.09 | 0.40 |
| 1:A:1270:C:C4' | 1:A:1271:G:C5' | 2.97 | 0.40 |
| 1:A:1309:G:O2' | 1:A:1310:G:H5' | 2.21 | 0.40 |
| 1:A:1331:A:HO2' | 1:A:1332:G:H8 | 1.60 | 0.40 |
| 1:A:1379:A:O2' | 1:A:1380:G:OP2 | 2.35 | 0.40 |
| 1:A:1432:C:C2 | 1:A:1433:U:C2 | 3.09 | 0.40 |
| 1:A:1449:A:H1' | 1:A:1529:A:C5 | 2.56 | 0.40 |
| 1:A:145:G:N1 | 1:A:146:G:C6 | 2.89 | 0.40 |
| 1:A:1537:C:H3' | 1:A:1538:G:H5' | 2.02 | 0.40 |
| 1:A:1539:G:C8 | 1:A:1540:G:C8 | 3.08 | 0.40 |
| 1:A:1601:G:C2' | 1:A:1601:G:N3 | 2.84 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 1:A:1603:A:N3 | 1:A:1603:A:H2' | 2.35 | 0.40 |
| 1:A:1631:A:OP1 | 1:A:1631:A:C8 | 2.74 | 0.40 |
| 1:A:1669:A:O2' | 1:A:1670:C:P | 2.76 | 0.40 |
| 1:A:1708:C:C3' | 1:A:1709:U:H5'' | 2.49 | 0.40 |
| 1:A:1776:G:C2 | 1:A:1777:U:C5 | 3.09 | 0.40 |
| 1:A:1778:U:O2' | 1:A:1779:U:P | 2.79 | 0.40 |
| 1:A:1915:U:O2 | 1:A:1916:A:N7 | 2.54 | 0.40 |
| 1:A:1954:G:P | 1:A:1954:G:C3' | 3.09 | 0.40 |
| 1:A:2014:A:H5'' | 20:V:95:ILE:HD13 | 2.02 | 0.40 |
| 1:A:2027:G:C4 | 1:A:2028:U:C6 | 3.09 | 0.40 |
| 1:A:570:G:C5 | 1:A:2030:A:C2 | 3.09 | 0.40 |
| 1:A:2093:G:P | 9:K:25:TYR:CE2 | 3.14 | 0.40 |
| 1:A:2287:A:N7 | 1:A:2289:G:C4 | 2.88 | 0.40 |
| 1:A:2287:A:H2' | 1:A:2288:A:O5' | 2.20 | 0.40 |
| 1:A:227:A:O4' | 1:A:228:A:C2 | 2.74 | 0.40 |
| 1:A:2325:G:C4 | 1:A:2326:C:C5 | 3.09 | 0.40 |
| 1:A:2335:A:C5 | 1:A:2337:G:C2 | 3.09 | 0.40 |
| 1:A:2349:G:C3' | 1:A:2350:C:C5' | 2.95 | 0.40 |
| 1:A:2349:G:H3' | 1:A:2350:C:C5' | 2.45 | 0.40 |
| 1:A:1129:A:H4' | 1:A:2515:C:O2' | 2.21 | 0.40 |
| 1:A:2531:A:C2 | 1:A:2532:G:N9 | 2.89 | 0.40 |
| 1:A:270(C):C:N4 | 1:A:270(D):C:H41 | 2.19 | 0.40 |
| 1:A:2712(A):A:C8 | 1:A:2712(A):A:C3' | 3.04 | 0.40 |
| 1:A:2730:C:H2' | 1:A:2731:G:H8 | 1.86 | 0.40 |
| 1:A:2745:C:H1' | 8:H:143:GLN:HG2 | 2.02 | 0.40 |
| 1:A:2839:G:N2 | 1:A:2840:C:H1' | 2.36 | 0.40 |
| 1:A:326:G:H2' | 1:A:327:G:H8 | 1.85 | 0.40 |
| 1:A:350:U:O2 | 1:A:350:U:C2' | 2.63 | 0.40 |
| 1:A:357:A:H2' | 1:A:358:U:H6 | 1.87 | 0.40 |
| 1:A:270:A:N1 | 1:A:370:G:N9 | 2.68 | 0.40 |
| 1:A:385:C:O2 | 1:A:390:A:H2 | 2.04 | 0.40 |
| 1:A:398:G:C2 | 1:A:399:G:C1' | 3.02 | 0.40 |
| 1:A:485:C:H2' | 1:A:486:C:H6 | 1.87 | 0.40 |
| 1:A:496:G:C5 | 1:A:497:A:C5 | 3.09 | 0.40 |
| 1:A:72:U:P | 21:W:3:THR:N | 2.95 | 0.40 |
| 1:A:735:A:H3' | 1:A:735:A:C8 | 2.57 | 0.40 |
| 1:A:731:C:OP2 | 1:A:761:A:P | 2.80 | 0.40 |
| 1:A:836:G:C5 | 1:A:837:C:C4 | 3.10 | 0.40 |
| 1:A:880:G:C5 | 1:A:881:G:C1' | 3.04 | 0.40 |
| 1:A:882:G:C2 | 1:A:883:G:C8 | 3.09 | 0.40 |
| 1:A:909:A:H8 | 1:A:909:A:O5' | 2.05 | 0.40 |
| 2:B:52:A:H2' | 2:B:53:A:O4' | 2.21 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 4:D:246:PRO:HD2 | 4:D:250:TRP:C | 2.40 | 0.40 |
| 4:D:5:LYS:CB | 4:D:82:ILE:HB | 2.49 | 0.40 |
| 5:E:101:ARG:HA | 5:E:101:ARG:HD3 | 1.81 | 0.40 |
| 5:E:12:THR:HB | 5:E:19:ARG:HE | 1.86 | 0.40 |
| 5:E:152:LYS:O | 5:E:152:LYS:CD | 2.69 | 0.40 |
| 5:E:154:LYS:HZ2 | 5:E:156:MET:HB2 | 1.80 | 0.40 |
| 7:G:173:LEU:HD12 | 7:G:176:LEU:CD1 | 2.20 | 0.40 |
| 7:G:49:ASP:N | 7:G:53:LEU:CD1 | 2.78 | 0.40 |
| 7:G:60:LEU:HD23 | 7:G:68:PRO:HG2 | 2.03 | 0.40 |
| 8:H:85:LYS:CE | 8:H:142:GLY:HA2 | 2.51 | 0.40 |
| 8:H:13:LYS:HG3 | 8:H:15:VAL:HB | 2.04 | 0.40 |
| 8:H:165:ALA:HB3 | 8:H:167:GLU:OE1 | 2.20 | 0.40 |
| 8:H:35:VAL:HG12 | 8:H:71:LEU:CD2 | 2.50 | 0.40 |
| 8:H:52:VAL:O | 8:H:65:HIS:HE1 | 2.03 | 0.40 |
| 10:L:116:ASN:C | 10:L:117:THR:OG1 | 2.59 | 0.40 |
| 10:L:112:MET:HE3 | 10:L:118:THR:HB | 2.02 | 0.40 |
| 10:L:130:SER:O | 10:L:133:SER:CB | 2.59 | 0.40 |
| 10:L:11:GLN:O | 10:L:22:PRO:HG3 | 2.20 | 0.40 |
| 1:A:1006:C:O2' | 11:M:106:MET:HB3 | 2.21 | 0.40 |
| 11:M:10:GLU:CG | 11:M:10:GLU:O | 2.68 | 0.40 |
| 11:M:117:PHE:O | 11:M:120:LEU:O | 2.39 | 0.40 |
| 12:N:64:ARG:NH2 | 12:N:65:THR:N | 2.68 | 0.40 |
| 12:N:87:ILE:O | 12:N:89:ASN:ND2 | 2.54 | 0.40 |
| 12:N:13:ASN:H | 12:N:94:ARG:HB2 | 1.86 | 0.40 |
| 13:O:56:SER:O | 31:7:13:ARG:CZ | 2.69 | 0.40 |
| 14:P:114:ALA:O | 14:P:115:MET:O | 2.39 | 0.40 |
| 14:P:125:LEU:HB3 | 14:P:126:PRO:HD2 | 1.91 | 0.40 |
| 14:P:41:TRP:HB3 | 14:P:94:VAL:HG23 | 1.97 | 0.40 |
| 15:Q:105:ARG:C | 15:Q:107:ASP:N | 2.74 | 0.40 |
| 15:Q:13:HIS:HD2 | 15:Q:16:HIS:CE1 | 2.39 | 0.40 |
| 16:R:16:ASN:O | 16:R:19:LYS:HB3 | 2.21 | 0.40 |
| 16:R:94:TYR:O | 16:R:99:LYS:HD2 | 2.21 | 0.40 |
| 17:S:105:LEU:CG | 17:S:106:SER:N | 2.72 | 0.40 |
| 17:S:104:ASN:CA | 17:S:107:ASP:OD2 | 2.69 | 0.40 |
| 17:S:22:PHE:O | 17:S:24:PRO:CD | 2.47 | 0.40 |
| 17:S:26:ASP:HB3 | 17:S:94:ALA:CA | 2.47 | 0.40 |
| 17:S:26:ASP:CB | 17:S:94:ALA:HA | 2.48 | 0.40 |
| 18:T:98:LEU:CD1 | 18:T:105:VAL:HG11 | 2.50 | 0.40 |
| 18:T:68:ALA:HB1 | 18:T:72:HIS:HE1 | 1.85 | 0.40 |
| 18:T:79:PHE:HE1 | 18:T:83:LEU:HD13 | 1.85 | 0.40 |
| 18:T:92:ARG:CG | 18:T:93:LYS:HZ3 | 2.18 | 0.40 |
| 19:U:11:GLN:HB3 | 19:U:21:ARG:CD | 2.51 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 19:U:35:LEU:O | 19:U:61:VAL:CA | 2.69 | 0.40 |
| 19:U:39:LEU:HA | 19:U:39:LEU:HD23 | 1.78 | 0.40 |
| 19:U:60:GLU:C | 19:U:61:VAL:HG23 | 2.42 | 0.40 |
| 20:V:52:GLU:N | 20:V:52:GLU:OE2 | 2.54 | 0.40 |
| 20:V:81:ALA:HB3 | 20:V:97:LYS:HB3 | 2.03 | 0.40 |
| 21:W:47:PHE:HZ | 21:W:92:LEU:HD11 | 1.77 | 0.40 |
| 22:X:100:ALA:O | 22:X:101:LYS:HD2 | 2.22 | 0.40 |
| 23:Y:104:PHE:CE1 | 23:Y:171:ILE:HD11 | 2.56 | 0.40 |
| 23:Y:10:ARG:HG3 | 23:Y:38:TYR:HH | 1.85 | 0.40 |
| 23:Y:9:TYR:CB | 23:Y:14:LYS:HG2 | 2.49 | 0.40 |
| 23:Y:150:LEU:O | 23:Y:170:THR:CG2 | 2.69 | 0.40 |
| 23:Y:30:ASN:OD1 | 23:Y:33:LEU:CG | 2.69 | 0.40 |
| 23:Y:26:GLY:O | 23:Y:37:VAL:O | 2.40 | 0.40 |
| 23:Y:40:ASP:N | 23:Y:44:PHE:CD1 | 2.89 | 0.40 |
| 1:A:2123:G:H2' | 1:A:2124:G:O4' | 2.21 | 0.40 |
| 3:C:122:ALA:O | 3:C:126:LYS:HB2 | 2.21 | 0.40 |
| 3:C:59:ARG:CZ | 3:C:164:ARG:NE | 2.83 | 0.40 |
| 3:C:181:PRO:HG2 | 3:C:184:LYS:CE | 2.51 | 0.40 |
| 3:C:30:LYS:CG | 3:C:185:LEU:HD11 | 2.51 | 0.40 |
| 3:C:225:ASN:HA | 3:C:226:PRO:HD2 | 1.83 | 0.40 |
| 3:C:38:ASP:OD2 | 3:C:178:ALA:CB | 2.68 | 0.40 |
| 1:A:1418:G:OP2 | 1:A:1418:G:C8 | 2.74 | 0.40 |
| 9:K:58:LEU:HA | 9:K:61:ARG:HE | 1.86 | 0.40 |
| 1:A:274:G:OP2 | 1:A:274:G:N2 | 2.54 | 0.40 |
| 9:K:117:GLU:N | 9:K:117:GLU:CD | 2.73 | 0.40 |
| 25:1:38:GLN:O | 25:1:39:LEU:C | 2.60 | 0.40 |
| 26:2:40:THR:HG21 | 26:2:42:ALA:HB3 | 2.04 | 0.40 |
| 30:6:42:LEU:O | 30:6:45:ALA:N | 2.48 | 0.40 |
| 1:A:1056:G:H4' | 1:A:1084:A:N1 | 2.36 | 0.40 |
| 1:A:1143:A:H2' | 1:A:1144:G:H8 | 1.85 | 0.40 |
| 1:A:1198:U:C2' | 1:A:1199:U:C6 | 2.93 | 0.40 |
| 1:A:1221:C:O2 | 1:A:1221:C:C2' | 2.69 | 0.40 |
| 1:A:1256:G:C6 | 1:A:1257:C:C4 | 3.09 | 0.40 |
| 1:A:1274:A:C2 | 1:A:1302:A:N6 | 2.89 | 0.40 |
| 1:A:1313:U:H2' | 1:A:1314:C:O5' | 2.21 | 0.40 |
| 1:A:1334:G:C2' | 1:A:1335:U:O5' | 2.69 | 0.40 |
| 1:A:136:G:H1 | 1:A:144:C:N4 | 2.19 | 0.40 |
| 1:A:1420:U:OP2 | 1:A:1420:U:C6 | 2.74 | 0.40 |
| 1:A:1528:A:N7 | 1:A:1529:A:C5 | 2.89 | 0.40 |
| 1:A:1535:U:O2' | 1:A:1536:A:H5' | 2.20 | 0.40 |
| 1:A:15:G:C2' | 1:A:16:G:O5' | 2.69 | 0.40 |
| 1:A:1707:G:C4 | 1:A:1756:G:N3 | 2.89 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:1707:G:C1' | 1:A:1756:G:H1' | 2.51 | 0.40 |
| 1:A:1798:U:OP1 | 4:D:257:LEU:N | 2.53 | 0.40 |
| 1:A:1801:G:H2' | 4:D:263:ARG:HH22 | 1.85 | 0.40 |
| 1:A:1808:U:O4 | 1:A:1810:A:C6 | 2.75 | 0.40 |
| 1:A:1880:C:H2' | 1:A:1880:C:O2 | 2.22 | 0.40 |
| 1:A:1974:C:H2' | 1:A:1975:G:C5' | 2.51 | 0.40 |
| 1:A:198:C:O5' | 1:A:198:C:C6 | 2.75 | 0.40 |
| 1:A:1990:C:C2 | 1:A:1991:U:N3 | 2.89 | 0.40 |
| 1:A:1997:G:H2' | 1:A:1998:G:C8 | 2.56 | 0.40 |
| 1:A:2224:G:H4' | 4:D:262:ARG:NH2 | 2.33 | 0.40 |
| 1:A:2233:U:H2' | 1:A:2234:G:C8 | 2.46 | 0.40 |
| 1:A:2265:U:C4 | 1:A:2266:A:C8 | 3.09 | 0.40 |
| 1:A:2428:G:H5'' | 1:A:2429:G:O5' | 2.21 | 0.40 |
| 1:A:2466:C:H5' | 32:8:5:ALA:HB1 | 2.03 | 0.40 |
| 1:A:1783:A:N3 | 1:A:2587:A:C2 | 2.89 | 0.40 |
| 1:A:265:A:C6 | 1:A:266:G:N3 | 2.89 | 0.40 |
| 1:A:270(Z):U:H4' | 1:A:270(Z):U:OP1 | 2.21 | 0.40 |
| 1:A:270(Z):U:C2' | 1:A:271(A):C:OP1 | 2.69 | 0.40 |
| 1:A:280:C:C2 | 1:A:283:A:C8 | 3.09 | 0.40 |
| 1:A:2850:A:C4 | 1:A:2851:A:N7 | 2.89 | 0.40 |
| 1:A:364:C:C2' | 1:A:365:C:O5' | 2.69 | 0.40 |
| 1:A:3:U:H6 | 1:A:3:U:O5' | 2.04 | 0.40 |
| 1:A:431:U:O2 | 1:A:431:U:C2' | 2.52 | 0.40 |
| 1:A:457:A:C4' | 1:A:459:U:O2 | 2.70 | 0.40 |
| 1:A:518:G:H4' | 20:V:18:ARG:HH11 | 1.87 | 0.40 |
| 1:A:534:U:H2' | 1:A:535:C:H5 | 1.84 | 0.40 |
| 1:A:558:G:C3' | 1:A:559:G:C5' | 2.98 | 0.40 |
| 1:A:585:G:C6 | 1:A:1251:C:C6 | 3.09 | 0.40 |
| 1:A:617:G:N7 | 1:A:618:G:N7 | 2.69 | 0.40 |
| 1:A:637:A:H2 | 1:A:651:G:H5'' | 1.83 | 0.40 |
| 1:A:769:G:C2 | 1:A:770:G:C8 | 3.09 | 0.40 |
| 1:A:907:U:P | 14:P:26:TYR:OH | 2.79 | 0.40 |
| 1:A:920:G:O2' | 1:A:921:G:C5' | 2.65 | 0.40 |
| 2:B:74:U:H2' | 2:B:75:G:O4' | 2.21 | 0.40 |
| 4:D:106:ILE:HG13 | 4:D:108:PRO:HD3 | 2.02 | 0.40 |
| 4:D:126:GLN:HB3 | 4:D:126:GLN:HE21 | 1.65 | 0.40 |
| 1:A:1775:U:C6 | 4:D:208:LYS:CE | 3.04 | 0.40 |
| 4:D:208:LYS:O | 4:D:209:ALA:C | 2.59 | 0.40 |
| 4:D:243:GLY:O | 4:D:244:ARG:HB2 | 2.20 | 0.40 |
| 4:D:31:LYS:CD | 4:D:82:ILE:O | 2.70 | 0.40 |
| 4:D:38:LYS:C | 4:D:39:LYS:HG3 | 2.42 | 0.40 |
| 4:D:70:TRP:N | 4:D:70:TRP:CD1 | 2.84 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 5:E:109:LYS:CA | 5:E:191:PRO:HD3 | 2.51 | 0.40 |
| 1:A:2787:C:O4' | 5:E:61:ARG:HD2 | 2.22 | 0.40 |
| 5:E:92:THR:CA | 5:E:95:ILE:CB | 2.95 | 0.40 |
| 6:F:132:VAL:N | 6:F:138:GLU:HG3 | 2.35 | 0.40 |
| 6:F:146:ALA:CB | 6:F:148:LEU:HD23 | 2.50 | 0.40 |
| 6:F:33:LEU:HD23 | 6:F:112:MET:SD | 2.62 | 0.40 |
| 7:G:157:ILE:HG12 | 7:G:158:ALA:N | 2.35 | 0.40 |
| 7:G:176:LEU:HD13 | 7:G:176:LEU:C | 2.42 | 0.40 |
| 1:A:2311:A:N3 | 7:G:45:GLU:OE1 | 2.55 | 0.40 |
| 8:H:124:GLU:HB2 | 8:H:132:ARG:NE | 2.36 | 0.40 |
| 8:H:58:GLU:OE1 | 8:H:61:HIS:N | 2.54 | 0.40 |
| 8:H:60:ARG:HD3 | 8:H:64:LEU:CD1 | 2.51 | 0.40 |
| 9:K:2:LYS:O | 9:K:4:ILE:CD1 | 2.69 | 0.40 |
| 10:L:49:GLY:HA2 | 10:L:53:VAL:HG21 | 1.99 | 0.40 |
| 11:M:46:VAL:O | 11:M:47:ALA:HB3 | 2.21 | 0.40 |
| 11:M:89:LYS:H | 11:M:89:LYS:CD | 2.34 | 0.40 |
| 11:M:97:ARG:O | 11:M:98:VAL:C | 2.59 | 0.40 |
| 12:N:47:ILE:HD11 | 12:N:49:ARG:O | 2.21 | 0.40 |
| 12:N:64:ARG:NH1 | 12:N:67:LYS:CA | 2.84 | 0.40 |
| 12:N:98:VAL:O | 12:N:99:PHE:HB2 | 2.21 | 0.40 |
| 13:O:117:GLU:OE2 | 13:O:117:GLU:N | 2.39 | 0.40 |
| 1:A:603:A:O5' | 13:O:80:TYR:OH | 2.39 | 0.40 |
| 13:O:97:PRO:HD3 | 13:O:102:ARG:HH22 | 1.86 | 0.40 |
| 14:P:34:LEU:HA | 14:P:131:ILE:CG1 | 2.24 | 0.40 |
| 14:P:37:LEU:HA | 14:P:37:LEU:HD23 | 1.78 | 0.40 |
| 14:P:83:MET:HG2 | 14:P:83:MET:O | 2.20 | 0.40 |
| 15:Q:26:LYS:CE | 15:Q:70:LEU:HB3 | 2.51 | 0.40 |
| 15:Q:52:ILE:HG21 | 15:Q:94:TYR:HB2 | 2.03 | 0.40 |
| 16:R:20:ARG:CA | 16:R:20:ARG:HH21 | 2.14 | 0.40 |
| 16:R:65:VAL:HG13 | 16:R:66:ALA:N | 2.36 | 0.40 |
| 17:S:4:GLY:CA | 17:S:8:LYS:HE3 | 2.50 | 0.40 |
| 18:T:28:ARG:HB2 | 18:T:38:THR:CG2 | 2.37 | 0.40 |
| 18:T:70:ARG:NH1 | 18:T:70:ARG:CB | 2.85 | 0.40 |
| 18:T:94:ASN:HD21 | 19:U:6:LYS:CD | 2.34 | 0.40 |
| 20:V:33:ARG:HH22 | 20:V:37:ARG:HG2 | 1.86 | 0.40 |
| 21:W:29:TRP:O | 21:W:30:VAL:CG1 | 2.68 | 0.40 |
| 21:W:35:THR:HG22 | 21:W:37:THR:N | 2.30 | 0.40 |
| 21:W:63:LYS:NZ | 21:W:65:ARG:HH12 | 2.18 | 0.40 |
| 22:X:38:ILE:HG23 | 22:X:60:PHE:HZ | 1.82 | 0.40 |
| 22:X:75:ILE:HG13 | 22:X:75:ILE:O | 2.21 | 0.40 |
| 24:Z:48:GLY:O | 24:Z:51:VAL:CB | 2.68 | 0.40 |
| 9:K:103:ARG:O | 9:K:103:ARG:NE | 2.55 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 9:K:121:LYS:C | 9:K:123:LEU:H | 2.24 | 0.40 |
| 1:A:2138:C:H2' | 1:A:2139:C:C5 | 2.53 | 0.40 |
| 3:C:213:TYR:CZ | 3:C:223:ARG:NH2 | 2.90 | 0.40 |
| 3:C:10:LEU:CD2 | 3:C:33:ALA:HB2 | 2.51 | 0.40 |
| 3:C:39:GLU:CG | 3:C:41:VAL:CG2 | 3.00 | 0.40 |
| 3:C:62:VAL:HG11 | 3:C:64:LEU:HD21 | 1.99 | 0.40 |
| 1:A:154:G:H1 | 1:A:173:G:H1 | 1.60 | 0.40 |
| 22:X:108:THR:O | 22:X:109:GLU:OE2 | 2.38 | 0.40 |
| 2:B:-1:A:C8 | 2:B:0:A:C1' | 3.04 | 0.40 |
| 1:A:1484:G:O2' | 1:A:1485:G:O5' | 2.33 | 0.40 |
| 32:8:31:LYS:HB3 | 32:8:31:LYS:HE3 | 1.93 | 0.40 |
| 25:1:15:GLU:HB2 | 25:1:16:LEU:H | 1.76 | 0.40 |
| 25:1:30:LEU:HD23 | 25:1:30:LEU:H | 1.85 | 0.40 |
| 27:3:25:TYR:O | 27:3:26:SER:OG | 2.31 | 0.40 |
| 28:4:40:LYS:NZ | 28:4:44:THR:N | 2.63 | 0.40 |
| 28:4:41:PRO:HG2 | 28:4:44:THR:OG1 | 2.21 | 0.40 |
| 29:5:20:ASN:OD1 | 29:5:42:TRP:NE1 | 2.53 | 0.40 |
| 30:6:43:THR:HG23 | 30:6:46:VAL:CG2 | 2.52 | 0.40 |
| 31:7:26:LYS:HE3 | 31:7:45:GLY:N | 2.34 | 0.40 |
| 31:7:33:ASN:HB2 | 31:7:34:TRP:H | 1.55 | 0.40 |
| 1:A:1023:U:O4 | 1:A:1024:G:H1' | 2.20 | 0.40 |
| 1:A:1035:U:H2' | 1:A:1036:G:O4' | 2.21 | 0.40 |
| 1:A:1076:C:C4 | 1:A:1077:A:C8 | 3.09 | 0.40 |
| 1:A:1130:U:O2' | 1:A:1131:G:P | 2.79 | 0.40 |
| 1:A:1025:G:C8 | 1:A:1134:G:C1' | 3.05 | 0.40 |
| 1:A:1264:G:H5'' | 1:A:1265:A:H3' | 2.02 | 0.40 |
| 1:A:1277:G:O2' | 1:A:1278:A:C5' | 2.67 | 0.40 |
| 1:A:1347:G:O6 | 1:A:1348:G:O6 | 2.39 | 0.40 |
| 1:A:1400:G:C4 | 1:A:1401:G:N7 | 2.89 | 0.40 |
| 1:A:1434:A:N1 | 1:A:1435:G:C4 | 2.89 | 0.40 |
| 1:A:1436:G:C2 | 1:A:1437:C:C2 | 3.10 | 0.40 |
| 1:A:1438:U:O2' | 1:A:1439:A:H5' | 2.21 | 0.40 |
| 1:A:1527:G:H2' | 1:A:1528:A:N3 | 2.37 | 0.40 |
| 1:A:1553:A:H2' | 1:A:1555:G:N7 | 2.35 | 0.40 |
| 1:A:1598:C:C6 | 1:A:1598:C:O5' | 2.74 | 0.40 |
| 1:A:1682:G:O6 | 1:A:1706:U:O4 | 2.39 | 0.40 |
| 1:A:1712:C:C2' | 1:A:1716:U:C6 | 2.96 | 0.40 |
| 1:A:1784:A:H2' | 1:A:1981:A:C8 | 2.54 | 0.40 |
| 1:A:1871:A:C2' | 1:A:1872:A:O5' | 2.70 | 0.40 |
| 1:A:1939:U:O2 | 1:A:2591:C:O2' | 2.39 | 0.40 |
| 1:A:190:A:C8 | 1:A:207:A:C6 | 3.08 | 0.40 |
| 1:A:2215:G:N2 | 1:A:2216:G:C4 | 2.90 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:2250:G:H3' | 1:A:2250:G:H8 | 1.85 | 0.40 |
| 1:A:2285:C:H1' | 1:A:2288:A:C5 | 2.54 | 0.40 |
| 1:A:2335:A:C6 | 1:A:2337:G:N2 | 2.89 | 0.40 |
| 1:A:247:G:H22 | 31:7:8:LYS:NZ | 2.19 | 0.40 |
| 1:A:2489:G:O2' | 1:A:2490:G:O4' | 2.27 | 0.40 |
| 1:A:2531:A:H2' | 1:A:2532:G:C5' | 2.51 | 0.40 |
| 1:A:2634:G:C2 | 1:A:2635:C:C6 | 3.10 | 0.40 |
| 1:A:2680:C:H4' | 5:E:188:VAL:HB | 2.02 | 0.40 |
| 1:A:2751:G:C2' | 1:A:2751:G:N3 | 2.83 | 0.40 |
| 1:A:2748:A:C6 | 1:A:2756:U:N3 | 2.87 | 0.40 |
| 1:A:2764:A:C8 | 1:A:2766:G:N7 | 2.89 | 0.40 |
| 1:A:2881:C:N3 | 1:A:2882:A:N7 | 2.69 | 0.40 |
| 1:A:296:C:C2 | 1:A:297:C:C5 | 3.10 | 0.40 |
| 1:A:300:A:C2 | 1:A:333:G:N2 | 2.81 | 0.40 |
| 1:A:659:C:H2' | 1:A:660:G:O5' | 2.21 | 0.40 |
| 1:A:751:A:C8 | 1:A:751:A:O5' | 2.67 | 0.40 |
| 1:A:830:G:C2 | 1:A:2448:A:N7 | 2.90 | 0.40 |
| 1:A:89:G:N1 | 1:A:90:U:O4 | 2.55 | 0.40 |
| 1:A:843:G:N2 | 1:A:936:C:C2 | 2.89 | 0.40 |
| 2:B:5:C:O2 | 2:B:6:C:C5 | 2.74 | 0.40 |
| 4:D:137:PRO:O | 4:D:138:VAL:C | 2.60 | 0.40 |
| 4:D:20:ASP:C | 4:D:21:PHE:CD2 | 2.94 | 0.40 |
| 4:D:263:ARG:O | 4:D:264:LYS:HD3 | 2.22 | 0.40 |
| 5:E:34:VAL:CG1 | 5:E:36:ARG:HH22 | 2.23 | 0.40 |
| 6:F:142:TRP:HA | 6:F:145:GLU:OE2 | 2.21 | 0.40 |
| 6:F:148:LEU:CG | 6:F:152:GLU:HG2 | 2.50 | 0.40 |
| 6:F:194:MET:CE | 6:F:200:GLU:CG | 2.94 | 0.40 |
| 6:F:198:ALA:HB3 | 6:F:199:TRP:CD1 | 2.56 | 0.40 |
| 6:F:4:VAL:C | 6:F:6:VAL:N | 2.74 | 0.40 |
| 8:H:46:GLU:O | 8:H:48:GLY:N | 2.55 | 0.40 |
| 10:L:14:ALA:C | 10:L:16:LYS:H | 2.24 | 0.40 |
| 11:M:127:ASP:HA | 11:M:130:HIS:ND1 | 2.36 | 0.40 |
| 11:M:14:VAL:HG22 | 11:M:138:LEU:CB | 2.52 | 0.40 |
| 11:M:29:LYS:C | 11:M:31:ALA:N | 2.74 | 0.40 |
| 1:A:556:G:N2 | 11:M:45:ASN:HD21 | 2.19 | 0.40 |
| 12:N:111:PHE:C | 12:N:113:LYS:N | 2.73 | 0.40 |
| 12:N:111:PHE:O | 12:N:114:ILE:HB | 2.21 | 0.40 |
| 12:N:21:CYS:CA | 12:N:41:ALA:CB | 2.80 | 0.40 |
| 1:A:811:U:C4 | 13:O:22:GLY:HA3 | 2.56 | 0.40 |
| 13:O:57:THR:HG22 | 13:O:58:THR:N | 2.36 | 0.40 |
| 13:O:91:PHE:CZ | 13:O:96:THR:HG22 | 2.54 | 0.40 |
| 14:P:109:VAL:CG1 | 14:P:114:ALA:CB | 2.94 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 14:P:46:GLN:O | 14:P:47:ILE:C | 2.60 | 0.40 |
| 14:P:86:GLY:C | 14:P:88:GLY:N | 2.75 | 0.40 |
| 14:P:8:LYS:O | 14:P:9:TYR:C | 2.59 | 0.40 |
| 15:Q:57:ARG:O | 15:Q:88:ARG:NH2 | 2.55 | 0.40 |
| 2:B:114:G:H5' | 16:R:47:THR:HB | 2.04 | 0.40 |
| 16:R:52:SER:OG | 16:R:69:VAL:CG1 | 2.62 | 0.40 |
| 17:S:10:VAL:O | 17:S:13:ARG:HB2 | 2.21 | 0.40 |
| 17:S:17:THR:CG2 | 17:S:22:PHE:HZ | 2.32 | 0.40 |
| 17:S:2:ASN:HB3 | 17:S:3:ARG:HD2 | 2.03 | 0.40 |
| 17:S:2:ASN:O | 17:S:6:LEU:HD22 | 2.22 | 0.40 |
| 17:S:3:ARG:HB2 | 17:S:4:GLY:H | 1.56 | 0.40 |
| 17:S:59:THR:N | 17:S:61:PHE:CZ | 2.87 | 0.40 |
| 18:T:32:PHE:C | 18:T:35:ALA:HB3 | 2.41 | 0.40 |
| 19:U:4:ILE:CA | 19:U:12:TYR:HD2 | 2.34 | 0.40 |
| 19:U:43:GLU:H | 19:U:44:LYS:HE2 | 1.87 | 0.40 |
| 18:T:40:PHE:HD2 | 19:U:78:LYS:HG2 | 1.86 | 0.40 |
| 20:V:29:LEU:O | 20:V:30:GLU:O | 2.39 | 0.40 |
| 20:V:20:VAL:HG21 | 20:V:47:VAL:HG21 | 2.03 | 0.40 |
| 23:Y:107:THR:O | 23:Y:108:PRO:O | 2.39 | 0.40 |
| 23:Y:28:MET:HA | 23:Y:28:MET:HE2 | 1.99 | 0.40 |
| 23:Y:6:LYS:HA | 23:Y:37:VAL:HG12 | 1.99 | 0.40 |
| 24:Z:70:GLN:HG2 | 24:Z:72:ARG:HG2 | 2.03 | 0.40 |
| 24:Z:78:TYR:CD1 | 24:Z:78:TYR:N | 2.90 | 0.40 |
| 9:K:145:VAL:CG1 | 9:K:146:ALA:N | 2.84 | 0.40 |
| 3:C:108:MET:SD | 3:C:131:LEU:CD2 | 3.10 | 0.40 |
| 3:C:160:ARG:C | 3:C:161:ILE:CG1 | 2.90 | 0.40 |
| 1:A:2094:G:O2' | 1:A:2095:C:H5' | 2.21 | 0.40 |
| 1:A:2340:G:C6 | 1:A:2341:G:N7 | 2.88 | 0.40 |
| 1:A:2096:U:C2' | 1:A:2097:C:C6 | 3.02 | 0.40 |
| 4:D:79:VAL:CG1 | 4:D:113:VAL:HA | 2.51 | 0.40 |
| 25:1:65:GLN:CA | 25:1:65:GLN:HE21 | 2.30 | 0.40 |
| 10:L:47:ASN:O | 10:L:47:ASN:OD1 | 2.40 | 0.40 |
| 25:1:13:PRO:O | 25:1:14:VAL:C | 2.60 | 0.40 |
| 25:1:2:ARG:NE | 25:1:2:ARG:H | 2.18 | 0.40 |
| 28:4:44:THR:C | 28:4:52:TYR:OH | 2.59 | 0.40 |
| 29:5:48:VAL:CG1 | 29:5:49:HIS:N | 2.82 | 0.40 |
| 30:6:17:GLY:O | 30:6:20:ALA:HB3 | 2.21 | 0.40 |
| 31:7:36:LYS:HD2 | 31:7:36:LYS:HA | 1.75 | 0.40 |
| 32:8:10:ILE:H | 32:8:14:CYS:HB2 | 1.86 | 0.40 |
| 1:A:1049:C:N4 | 1:A:1051:G:C6 | 2.85 | 0.40 |
| 1:A:1067:A:C6 | 1:A:1068:G:O6 | 2.75 | 0.40 |
| 1:A:1072:C:OP2 | 1:A:1073:A:OP1 | 2.39 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1106:G:C2 | 1:A:1107:G:C5 | 3.10 | 0.40 |
| 1:A:1179:C:O2' | 1:A:1180:C:H6 | 2.03 | 0.40 |
| 1:A:1244:G:H4' | 13:O:9:ASN:HB3 | 2.04 | 0.40 |
| 1:A:124:G:OP1 | 1:A:1376:C:H1' | 2.20 | 0.40 |
| 1:A:1262:A:C2' | 1:A:1263:U:H5' | 2.51 | 0.40 |
| 1:A:1451:C:C3' | 1:A:1453:A:H4' | 2.42 | 0.40 |
| 1:A:1520:U:C2' | 1:A:1521:G:C5' | 2.76 | 0.40 |
| 1:A:1525:G:O2' | 1:A:1526:G:O5' | 2.39 | 0.40 |
| 1:A:1529:A:H2' | 1:A:1530:G:H5' | 2.03 | 0.40 |
| 1:A:749:C:O2' | 1:A:1617:C:O3' | 2.34 | 0.40 |
| 1:A:1640:C:H2' | 1:A:1641:A:C8 | 2.56 | 0.40 |
| 1:A:1711:C:C2' | 1:A:1712:C:H6 | 2.21 | 0.40 |
| 1:A:1795:C:C2' | 1:A:1796:U:C5' | 3.00 | 0.40 |
| 1:A:1904:G:N2 | 1:A:1905:C:C1' | 2.85 | 0.40 |
| 1:A:1915:U:O2 | 1:A:1915:U:H2' | 2.20 | 0.40 |
| 1:A:1928:A:C3' | 1:A:1929:G:C5' | 2.93 | 0.40 |
| 1:A:1933:G:O6 | 1:A:1968:G:N2 | 2.54 | 0.40 |
| 1:A:2053:G:N1 | 1:A:2054:A:C5 | 2.89 | 0.40 |
| 1:A:2075:U:C3' | 1:A:2076:U:C5' | 2.99 | 0.40 |
| 1:A:2088:G:C6 | 1:A:2089:U:C2 | 3.10 | 0.40 |
| 1:A:2209:C:N4 | 1:A:2213:U:OP1 | 2.55 | 0.40 |
| 1:A:835:A:C1' | 1:A:2358:G:H1' | 2.50 | 0.40 |
| 1:A:2391:G:H22 | 1:A:2427:C:C4' | 2.34 | 0.40 |
| 1:A:2438:U:HO2' | 1:A:2439:A:H5'' | 1.84 | 0.40 |
| 1:A:2472:G:C2' | 1:A:2473:U:OP1 | 2.70 | 0.40 |
| 1:A:2493:U:C4 | 1:A:2494:G:C8 | 3.09 | 0.40 |
| 1:A:2505:G:O6 | 1:A:2576:G:H1' | 2.21 | 0.40 |
| 1:A:2528:U:C2' | 1:A:2529:G:O5' | 2.69 | 0.40 |
| 1:A:2532:G:C2' | 1:A:2533:A:H5' | 2.52 | 0.40 |
| 1:A:2647:U:O2' | 1:A:2648:C:C5' | 2.68 | 0.40 |
| 1:A:2646:C:H2' | 1:A:2647:U:O4' | 2.22 | 0.40 |
| 1:A:2776:A:N7 | 1:A:2781:A:C6 | 2.89 | 0.40 |
| 1:A:287:C:C2' | 1:A:288:C:H5 | 2.01 | 0.40 |
| 1:A:312:G:H3' | 1:A:313:C:C6 | 2.56 | 0.40 |
| 1:A:435:C:C2' | 1:A:436:C:O5' | 2.69 | 0.40 |
| 1:A:499:U:H2' | 1:A:500:G:H5' | 2.03 | 0.40 |
| 1:A:500:G:H2' | 1:A:501:A:H3' | 2.02 | 0.40 |
| 1:A:542:C:C2 | 1:A:552:G:N2 | 2.89 | 0.40 |
| 1:A:603:A:C6 | 1:A:625:G:C8 | 3.10 | 0.40 |
| 1:A:61:G:H2' | 1:A:62:C:H6 | 1.82 | 0.40 |
| 1:A:625:G:C6 | 1:A:626:U:O4' | 2.74 | 0.40 |
| 1:A:641:C:N4 | 1:A:646:A:N6 | 2.69 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:657:U:H2' | 1:A:658:C:H6 | 1.87 | 0.40 |
| 1:A:754:C:C2' | 1:A:755:C:H5' | 2.50 | 0.40 |
| 1:A:680:G:C4 | 1:A:798:G:N2 | 2.90 | 0.40 |
| 1:A:857:C:O2' | 24:Z:23:VAL:CB | 2.70 | 0.40 |
| 1:A:907:U:P | 14:P:26:TYR:HH | 2.44 | 0.40 |
| 1:A:921:G:C2' | 1:A:922:U:H5' | 2.51 | 0.40 |
| 1:A:922:U:O2 | 1:A:922:U:C2' | 2.67 | 0.40 |
| 1:A:92:G:C2 | 1:A:93:C:C4 | 3.10 | 0.40 |
| 4:D:141:VAL:HG13 | 4:D:163:ALA:O | 2.21 | 0.40 |
| 4:D:162:SER:O | 4:D:164:GLN:N | 2.54 | 0.40 |
| 4:D:208:LYS:HG2 | 4:D:208:LYS:HZ2 | 1.76 | 0.40 |
| 4:D:6:PHE:C | 4:D:28:GLU:OE1 | 2.60 | 0.40 |
| 4:D:54:ARG:HG3 | 4:D:221:VAL:CG2 | 2.51 | 0.40 |
| 1:A:2823:A:P | 5:E:113:PHE:CZ | 3.15 | 0.40 |
| 6:F:164:ARG:HB2 | 6:F:177:ALA:HB3 | 1.87 | 0.40 |
| 6:F:64:ILE:O | 6:F:65:TRP:C | 2.58 | 0.40 |
| 7:G:14:GLU:O | 7:G:15:VAL:C | 2.57 | 0.40 |
| 7:G:148:MET:HG2 | 7:G:151:ALA:HB2 | 2.02 | 0.40 |
| 7:G:32:PRO:HB2 | 7:G:163:ALA:CA | 2.52 | 0.40 |
| 8:H:103:LEU:HB2 | 8:H:115:VAL:N | 2.36 | 0.40 |
| 8:H:118:PRO:HG2 | 8:H:121:ILE:CG2 | 2.45 | 0.40 |
| 8:H:160:LYS:CG | 8:H:160:LYS:O | 2.70 | 0.40 |
| 8:H:7:LEU:N | 8:H:7:LEU:CD2 | 2.83 | 0.40 |
| 9:K:3:VAL:O | 9:K:18:VAL:CA | 2.63 | 0.40 |
| 10:L:7:VAL:HG13 | 10:L:60:TYR:CZ | 2.57 | 0.40 |
| 1:A:1137:G:C2' | 11:M:105:GLY:HA3 | 2.51 | 0.40 |
| 11:M:35:ARG:CD | 11:M:38:HIS:CB | 2.85 | 0.40 |
| 12:N:56:ASP:OD2 | 12:N:56:ASP:N | 2.53 | 0.40 |
| 12:N:6:THR:HG23 | 12:N:7:TYR:H | 1.85 | 0.40 |
| 13:O:130:PHE:HB3 | 13:O:134:ALA:HB1 | 2.03 | 0.40 |
| 1:A:662:G:C4' | 13:O:18:ARG:H | 2.33 | 0.40 |
| 13:O:24:GLY:HA2 | 13:O:28:GLY:CA | 2.50 | 0.40 |
| 15:Q:107:ASP:OD1 | 15:Q:109:ALA:CB | 2.56 | 0.40 |
| 2:B:51:G:OP1 | 16:R:60:GLY:O | 2.40 | 0.40 |
| 16:R:70:GLY:HA2 | 16:R:73:LEU:CD2 | 2.44 | 0.40 |
| 1:A:445:C:H5'' | 18:T:3:ARG:HG3 | 2.03 | 0.40 |
| 19:U:13:ARG:O | 19:U:14:VAL:CG2 | 2.70 | 0.40 |
| 19:U:1:MET:CE | 19:U:15:GLU:OE2 | 2.69 | 0.40 |
| 20:V:2:GLU:HG2 | 20:V:72:LYS:HZ2 | 1.87 | 0.40 |
| 20:V:40:ASN:O | 20:V:41:LYS:CG | 2.70 | 0.40 |
| 21:W:26:TYR:CG | 21:W:89:ILE:CD1 | 3.05 | 0.40 |
| 21:W:69:TYR:C | 21:W:70:LEU:HD12 | 2.42 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 21:W:32:PRO:CA | 21:W:77:LYS:HD2 | 2.40 | 0.40 |
| 23:Y:105:VAL:O | 23:Y:140:ASP:CB | 2.69 | 0.40 |
| 23:Y:102:LEU:HD11 | 23:Y:137:ILE:CG2 | 2.51 | 0.40 |
| 24:Z:71:ASP:O | 24:Z:73:GLY:N | 2.52 | 0.40 |
| 1:A:2110:G:C6 | 1:A:2120:G:N7 | 2.89 | 0.40 |
| 1:A:2133:G:OP1 | 1:A:2156:G:O2' | 2.39 | 0.40 |
| 1:A:2157:G:OP2 | 1:A:2157:G:C2 | 2.74 | 0.40 |
| 3:C:10:LEU:HD11 | 3:C:32:LEU:CB | 2.49 | 0.40 |
| 3:C:225:ASN:CG | 3:C:227:HIS:HB2 | 2.42 | 0.40 |
| 1:A:2094:G:C6 | 1:A:2196:C:C4 | 3.10 | 0.40 |
| 1:A:2094:G:N2 | 1:A:2196:C:C1' | 2.79 | 0.40 |
| 1:A:2338:G:C6 | 1:A:2339:G:N7 | 2.90 | 0.40 |
| 2:B:118:G:C2 | 2:B:119:A:C8 | 3.09 | 0.40 |
| 1:A:2191:G:C2 | 1:A:2192:G:H1' | 2.56 | 0.40 |
| 1:A:2252:G:C6 | 1:A:2253:G:C6 | 3.09 | 0.40 |
| 1:A:2343:C:H5' | 1:A:2374:C:OP1 | 2.20 | 0.40 |
| 2:B:20:C:C2' | 2:B:21:G:H5' | 2.52 | 0.40 |
| 1:A:1413:G:C5 | 1:A:1414:G:C8 | 3.09 | 0.40 |
| 31:7:34:TRP:HB3 | 31:7:36:LYS:HB2 | 2.02 | 0.40 |
| 31:7:55:ALA:C | 31:7:57:ARG:N | 2.73 | 0.40 |
| 31:7:4:MET:O | 31:7:5:LYS:C | 2.59 | 0.40 |
| 1:A:1028:A:N3 | 1:A:2486:G:O2' | 2.52 | 0.40 |
| 1:A:1069:A:C8 | 1:A:1074:G:C5 | 3.10 | 0.40 |
| 1:A:1076:C:O2 | 10:L:91:PRO:CD | 2.66 | 0.40 |
| 1:A:1113:U:OP2 | 1:A:1113:U:C5 | 2.75 | 0.40 |
| 1:A:1170:G:N1 | 1:A:1180:C:C4 | 2.90 | 0.40 |
| 1:A:1237:A:O2' | 1:A:1238:G:C4' | 2.66 | 0.40 |
| 1:A:1242:A:C5' | 1:A:1243:G:OP2 | 2.69 | 0.40 |
| 1:A:1314:C:C6 | 1:A:1314:C:O5' | 2.74 | 0.40 |
| 1:A:1343:G:O6 | 1:A:1344:G:N7 | 2.55 | 0.40 |
| 1:A:1370:C:C5 | 1:A:1371:G:N7 | 2.89 | 0.40 |
| 1:A:1395:A:C4 | 1:A:1398:C:C5 | 3.10 | 0.40 |
| 1:A:1477:A:H2 | 1:A:1516:U:O2 | 2.05 | 0.40 |
| 1:A:1552:G:H2' | 1:A:1552:G:N3 | 2.35 | 0.40 |
| 1:A:1559:G:C4 | 1:A:1559:G:C3' | 2.98 | 0.40 |
| 1:A:1562:A:H2' | 1:A:1563:G:C8 | 2.55 | 0.40 |
| 1:A:1655:A:C8 | 1:A:1656:C:C5 | 3.10 | 0.40 |
| 1:A:1689:A:C5 | 1:A:1700:A:C4 | 3.10 | 0.40 |
| 1:A:1779:U:N3 | 1:A:1784:A:H2 | 2.20 | 0.40 |
| 1:A:1787:A:H2' | 1:A:1788:C:C5' | 2.52 | 0.40 |
| 1:A:178:G:C5 | 1:A:179:G:C8 | 3.09 | 0.40 |
| 1:A:1791:A:N1 | 1:A:1829:A:H4' | 2.37 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-----------------|-----------------|-------------|----------|
| 1:A:1819:A:H2' | 1:A:1820:U:OP2 | 2.22 | 0.40 |
| 1:A:1853:A:H2 | 1:A:2087:G:N3 | 2.19 | 0.40 |
| 1:A:188:G:H2' | 1:A:189:G:C5' | 2.52 | 0.40 |
| 1:A:1926:U:C2' | 1:A:1927:A:O5' | 2.69 | 0.40 |
| 1:A:2026:C:C2' | 1:A:2027:G:H5' | 2.51 | 0.40 |
| 1:A:2072:G:C6 | 1:A:2438:U:N3 | 2.90 | 0.40 |
| 1:A:2092:U:OP1 | 1:A:2199:A:O2' | 2.33 | 0.40 |
| 1:A:2239:G:N3 | 1:A:2239:G:H2' | 2.37 | 0.40 |
| 1:A:2277:G:OP1 | 14:P:86:GLY:HA3 | 2.21 | 0.40 |
| 1:A:2281:C:C2' | 1:A:2282:G:O5' | 2.70 | 0.40 |
| 1:A:2325:G:H22 | 1:A:2389:G:N2 | 2.19 | 0.40 |
| 1:A:2325:G:N3 | 1:A:2326:C:C5 | 2.89 | 0.40 |
| 1:A:2392:A:H1' | 13:O:55:ARG:CZ | 2.51 | 0.40 |
| 1:A:2415:G:N2 | 1:A:2416:C:C2 | 2.89 | 0.40 |
| 1:A:2436:G:C5 | 1:A:2437:U:C6 | 3.10 | 0.40 |
| 1:A:2545:G:N1 | 1:A:2546:U:O2 | 2.54 | 0.40 |
| 1:A:2579:C:H3' | 1:A:2580:U:C6 | 2.54 | 0.40 |
| 1:A:2588:G:N7 | 1:A:2589:A:N7 | 2.69 | 0.40 |
| 1:A:260:G:C2 | 1:A:261:G:C8 | 3.09 | 0.40 |
| 1:A:2620:C:C4 | 1:A:2621:A:N7 | 2.90 | 0.40 |
| 1:A:2660:A:N7 | 8:H:175:LYS:NZ | 2.69 | 0.40 |
| 1:A:2711:A:H5' | 1:A:2714:G:O5' | 2.22 | 0.40 |
| 1:A:2711:A:OP1 | 1:A:2712(A):A:P | 2.80 | 0.40 |
| 1:A:2742:C:OP1 | 32:8:2:LYS:CE | 2.69 | 0.40 |
| 1:A:2811:G:H22 | 1:A:2891:G:H1' | 1.84 | 0.40 |
| 1:A:2834:G:C8 | 1:A:2834:G:C3' | 3.04 | 0.40 |
| 1:A:2856:C:HO2' | 1:A:2857:G:H5' | 1.85 | 0.40 |
| 1:A:2877:G:C6 | 1:A:2878:U:C4 | 3.10 | 0.40 |
| 1:A:396:G:C2 | 1:A:397:G:C4 | 3.10 | 0.40 |
| 1:A:404:C:O2 | 1:A:404:C:C2' | 2.67 | 0.40 |
| 1:A:452:G:O6 | 1:A:458:G:C6 | 2.75 | 0.40 |
| 1:A:522:G:O2' | 1:A:523:C:C5' | 2.62 | 0.40 |
| 1:A:570:G:N1 | 1:A:2030:A:H2 | 2.20 | 0.40 |
| 1:A:593:G:H2' | 1:A:593:G:N3 | 2.37 | 0.40 |
| 1:A:638:G:C8 | 1:A:638:G:H3' | 2.57 | 0.40 |
| 1:A:592:G:N2 | 1:A:666:G:C5 | 2.90 | 0.40 |
| 1:A:666:G:H2' | 1:A:667:U:C6 | 2.56 | 0.40 |
| 1:A:674:G:H5'' | 6:F:74:ARG:CZ | 2.48 | 0.40 |
| 1:A:680:G:H2' | 1:A:681:G:O5' | 2.22 | 0.40 |
| 1:A:729:G:C5 | 1:A:730:C:C5 | 3.07 | 0.40 |
| 1:A:772:C:O3' | 4:D:48:ARG:HD3 | 2.20 | 0.40 |
| 1:A:799:G:C8 | 1:A:800:A:C8 | 3.10 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 1:A:805:G:C1' | 1:A:831:G:O2' | 2.69 | 0.40 |
| 1:A:954:G:H2' | 1:A:955:C:C5' | 2.52 | 0.40 |
| 1:A:959:A:C6 | 1:A:960:A:C6 | 3.10 | 0.40 |
| 2:B:18:G:H1' | 2:B:67:G:N2 | 2.35 | 0.40 |
| 2:B:51:G:OP2 | 2:B:51:G:H8 | 2.04 | 0.40 |
| 2:B:52:A:C2 | 2:B:53:A:O4' | 2.73 | 0.40 |
| 2:B:96:G:C2 | 2:B:97:G:C5 | 3.10 | 0.40 |
| 4:D:176:ARG:NH1 | 4:D:182:LEU:CD1 | 2.77 | 0.40 |
| 4:D:214:TRP:C | 4:D:216:GLY:N | 2.75 | 0.40 |
| 4:D:217:ARG:HG3 | 4:D:218:ARG:CG | 2.52 | 0.40 |
| 4:D:61:LEU:HB3 | 4:D:62:TYR:H | 1.61 | 0.40 |
| 4:D:64:ILE:HD13 | 4:D:65:ILE:CA | 2.51 | 0.40 |
| 4:D:66:ASP:OD1 | 4:D:67:PHE:N | 2.54 | 0.40 |
| 5:E:154:LYS:CD | 5:E:154:LYS:O | 2.70 | 0.40 |
| 5:E:154:LYS:NZ | 5:E:156:MET:CB | 2.74 | 0.40 |
| 5:E:12:THR:N | 5:E:21:VAL:HB | 2.36 | 0.40 |
| 6:F:138:GLU:N | 6:F:138:GLU:OE2 | 2.48 | 0.40 |
| 6:F:145:GLU:C | 6:F:147:GLY:N | 2.74 | 0.40 |
| 6:F:155:LEU:HD23 | 6:F:174:VAL:HG21 | 2.04 | 0.40 |
| 6:F:41:LEU:CD1 | 6:F:42:ALA:N | 2.82 | 0.40 |
| 6:F:7:TYR:O | 6:F:18:ARG:CG | 2.68 | 0.40 |
| 7:G:137:GLU:HG2 | 7:G:138:GLN:N | 2.37 | 0.40 |
| 7:G:168:GLU:O | 7:G:169:ALA:C | 2.59 | 0.40 |
| 7:G:55:LYS:C | 7:G:57:ALA:N | 2.74 | 0.40 |
| 7:G:53:LEU:CD2 | 7:G:72:ARG:HD3 | 2.49 | 0.40 |
| 8:H:152:ARG:O | 8:H:162:ILE:HG22 | 2.20 | 0.40 |
| 8:H:172:LYS:HB2 | 8:H:172:LYS:HZ2 | 1.77 | 0.40 |
| 8:H:7:LEU:O | 8:H:52:VAL:HG12 | 2.21 | 0.40 |
| 10:L:101:TRP:HB3 | 10:L:102:GLU:H | 1.69 | 0.40 |
| 10:L:79:ARG:O | 10:L:82:ALA:HB3 | 2.21 | 0.40 |
| 11:A:1012:U:O4 | 11:M:25:ARG:O | 2.38 | 0.40 |
| 11:M:33:LEU:CD1 | 11:M:34:LEU:N | 2.68 | 0.40 |
| 12:N:31:LYS:C | 12:N:32:TYR:CD2 | 2.95 | 0.40 |
| 12:N:43:VAL:CG2 | 12:N:45:GLU:O | 2.69 | 0.40 |
| 12:N:57:VAL:CG2 | 12:N:85:VAL:HG22 | 2.52 | 0.40 |
| 12:N:97:ARG:O | 12:N:118:ALA:HB1 | 2.21 | 0.40 |
| 12:N:97:ARG:NE | 12:N:98:VAL:HG22 | 2.28 | 0.40 |
| 13:O:80:TYR:CG | 13:O:85:LEU:HD11 | 2.57 | 0.40 |
| 14:P:40:ALA:HB1 | 14:P:41:TRP:CZ3 | 2.57 | 0.40 |
| 14:P:46:GLN:OE1 | 14:P:126:PRO:CB | 2.67 | 0.40 |
| 15:Q:105:ARG:NE | 15:Q:106:GLY:H | 2.20 | 0.40 |
| 15:Q:37:THR:O | 15:Q:38:VAL:C | 2.60 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 17:S:2:ASN:O | 17:S:5:ALA:CB | 2.65 | 0.40 |
| 17:S:34:VAL:C | 17:S:36:GLU:N | 2.73 | 0.40 |
| 17:S:66:VAL:H | 17:S:66:VAL:HG23 | 1.38 | 0.40 |
| 17:S:18:ASP:CB | 17:S:81:PRO:HA | 2.51 | 0.40 |
| 17:S:82:LEU:O | 17:S:85:LYS:CD | 2.70 | 0.40 |
| 18:T:88:ILE:HG22 | 19:U:55:ALA:CB | 2.51 | 0.40 |
| 19:U:4:ILE:O | 19:U:39:LEU:O | 2.39 | 0.40 |
| 18:T:112:ARG:NH1 | 19:U:50:PRO:CG | 2.85 | 0.40 |
| 20:V:27:LYS:H | 20:V:71:VAL:HG12 | 1.83 | 0.40 |
| 20:V:59:VAL:HG21 | 20:V:66:GLU:CA | 2.51 | 0.40 |
| 21:W:8:ILE:H | 21:W:9:LEU:CD1 | 2.33 | 0.40 |
| 22:X:2:ARG:NE | 22:X:3:VAL:N | 2.69 | 0.40 |
| 22:X:52:SER:HB3 | 22:X:56:PRO:HA | 2.03 | 0.40 |
| 22:X:6:HIS:HB3 | 22:X:7:VAL:H | 1.58 | 0.40 |
| 1:A:85:G:P | 22:X:8:LYS:HE2 | 2.61 | 0.40 |
| 23:Y:6:LYS:NZ | 23:Y:10:ARG:NH2 | 2.69 | 0.40 |
| 23:Y:14:LYS:O | 23:Y:17:ALA:N | 2.55 | 0.40 |
| 23:Y:2:GLU:OE2 | 23:Y:58:VAL:C | 2.60 | 0.40 |
| 24:Z:46:LYS:HG3 | 24:Z:78:TYR:CE2 | 2.56 | 0.40 |
| 1:A:2132:U:O2 | 1:A:2134:A:OP2 | 2.40 | 0.40 |
| 3:C:10:LEU:CD1 | 3:C:220:PRO:HG3 | 2.51 | 0.40 |
| 9:K:54:GLN:CA | 9:K:57:ARG:NH2 | 2.84 | 0.40 |
| 1:A:2094:G:N7 | 1:A:2095:C:C5 | 2.90 | 0.40 |
| 1:A:2094:G:H22 | 1:A:2196:C:H1' | 1.83 | 0.40 |
| 1:A:2341:G:C3' | 1:A:2342:C:C6 | 3.05 | 0.40 |
| 1:A:274:G:OP2 | 1:A:274:G:C2 | 2.74 | 0.40 |
| 17:S:37:GLY:HA3 | 17:S:42:ILE:O | 2.21 | 0.40 |

All (1) 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:B:-1:A:O2' | 2:B:-1:A:O2'[15_545] | 2.14 | 0.06 |

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 | C | 226/229 (99%) | 110 (49%) | 62 (27%) | 54 (24%) | 0 | 3 |
| 4 | D | 270/276 (98%) | 110 (41%) | 66 (24%) | 94 (35%) | 0 | 0 |
| 5 | E | 204/206 (99%) | 108 (53%) | 40 (20%) | 56 (28%) | 0 | 1 |
| 6 | F | 206/210 (98%) | 106 (52%) | 45 (22%) | 55 (27%) | 0 | 2 |
| 7 | G | 180/182 (99%) | 71 (39%) | 52 (29%) | 57 (32%) | 0 | 0 |
| 8 | H | 172/180 (96%) | 75 (44%) | 50 (29%) | 47 (27%) | 0 | 1 |
| 9 | K | 146/148 (99%) | 85 (58%) | 36 (25%) | 25 (17%) | 0 | 7 |
| 10 | L | 136/147 (92%) | 68 (50%) | 38 (28%) | 30 (22%) | 0 | 3 |
| 11 | M | 137/140 (98%) | 63 (46%) | 28 (20%) | 46 (34%) | 0 | 0 |
| 12 | N | 120/122 (98%) | 60 (50%) | 24 (20%) | 36 (30%) | 0 | 1 |
| 13 | O | 143/150 (95%) | 52 (36%) | 40 (28%) | 51 (36%) | 0 | 0 |
| 14 | P | 134/141 (95%) | 53 (40%) | 36 (27%) | 45 (34%) | 0 | 0 |
| 15 | Q | 115/118 (98%) | 60 (52%) | 37 (32%) | 18 (16%) | 0 | 8 |
| 16 | R | 108/112 (96%) | 43 (40%) | 35 (32%) | 30 (28%) | 0 | 1 |
| 17 | S | 115/146 (79%) | 55 (48%) | 27 (24%) | 33 (29%) | 0 | 1 |
| 18 | T | 115/118 (98%) | 46 (40%) | 40 (35%) | 29 (25%) | 0 | 2 |
| 19 | U | 99/101 (98%) | 53 (54%) | 19 (19%) | 27 (27%) | 0 | 1 |
| 20 | V | 108/113 (96%) | 64 (59%) | 20 (18%) | 24 (22%) | 0 | 3 |
| 21 | W | 92/96 (96%) | 53 (58%) | 18 (20%) | 21 (23%) | 0 | 3 |
| 22 | X | 108/110 (98%) | 39 (36%) | 34 (32%) | 35 (32%) | 0 | 0 |
| 23 | Y | 178/206 (86%) | 85 (48%) | 50 (28%) | 43 (24%) | 0 | 2 |
| 24 | Z | 83/85 (98%) | 48 (58%) | 20 (24%) | 15 (18%) | 0 | 6 |
| 25 | 1 | 65/67 (97%) | 30 (46%) | 20 (31%) | 15 (23%) | 0 | 3 |
| 26 | 2 | 57/60 (95%) | 33 (58%) | 12 (21%) | 12 (21%) | 0 | 4 |
| 27 | 3 | 69/71 (97%) | 20 (29%) | 23 (33%) | 26 (38%) | 0 | 0 |
| 28 | 4 | 55/60 (92%) | 14 (26%) | 22 (40%) | 19 (34%) | 0 | 0 |
| 29 | 5 | 47/54 (87%) | 15 (32%) | 8 (17%) | 24 (51%) | 0 | 0 |
| 30 | 6 | 47/49 (96%) | 18 (38%) | 14 (30%) | 15 (32%) | 0 | 0 |
| 31 | 7 | 62/65 (95%) | 23 (37%) | 18 (29%) | 21 (34%) | 0 | 0 |
| 32 | 8 | 35/37 (95%) | 21 (60%) | 6 (17%) | 8 (23%) | 0 | 3 |
| All | All | 3632/3799 (96%) | 1681 (46%) | 940 (26%) | 1011 (28%) | 0 | 1 |

All (1011) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | C | 22 | ILE |
| 3 | C | 35 | ALA |
| 3 | C | 41 | VAL |
| 3 | C | 52 | ARG |
| 3 | C | 62 | VAL |
| 3 | C | 63 | SER |
| 3 | C | 65 | PRO |
| 3 | C | 71 | GLN |
| 3 | C | 72 | VAL |
| 3 | C | 141 | LYS |
| 3 | C | 164 | ARG |
| 3 | C | 167 | LYS |
| 3 | C | 177 | LYS |
| 3 | C | 178 | ALA |
| 3 | C | 217 | THR |
| 4 | D | 8 | PRO |
| 4 | D | 10 | THR |
| 4 | D | 15 | PHE |
| 4 | D | 17 | THR |
| 4 | D | 18 | VAL |
| 4 | D | 25 | THR |
| 4 | D | 33 | LEU |
| 4 | D | 35 | LYS |
| 4 | D | 53 | PHE |
| 4 | D | 73 | VAL |
| 4 | D | 91 | ARG |
| 4 | D | 106 | ILE |
| 4 | D | 107 | ALA |
| 4 | D | 108 | PRO |
| 4 | D | 121 | PRO |
| 4 | D | 122 | ASP |
| 4 | D | 123 | ALA |
| 4 | D | 133 | LEU |
| 4 | D | 134 | ARG |
| 4 | D | 138 | VAL |
| 4 | D | 152 | GLY |
| 4 | D | 155 | LEU |
| 4 | D | 158 | ALA |
| 4 | D | 162 | SER |
| 4 | D | 178 | PRO |
| 4 | D | 179 | SER |
| 4 | D | 204 | ILE |
| 4 | D | 205 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | D | 206 | LEU |
| 4 | D | 209 | ALA |
| 4 | D | 217 | ARG |
| 4 | D | 232 | PRO |
| 4 | D | 233 | HIS |
| 4 | D | 241 | PRO |
| 4 | D | 244 | ARG |
| 4 | D | 247 | ALA |
| 4 | D | 249 | PRO |
| 4 | D | 252 | TRP |
| 4 | D | 264 | LYS |
| 4 | D | 268 | ARG |
| 4 | D | 270 | ILE |
| 4 | D | 272 | ALA |
| 5 | E | 18 | ASP |
| 5 | E | 22 | PRO |
| 5 | E | 28 | ALA |
| 5 | E | 38 | THR |
| 5 | E | 54 | GLN |
| 5 | E | 70 | ALA |
| 5 | E | 72 | VAL |
| 5 | E | 123 | ALA |
| 5 | E | 128 | SER |
| 5 | E | 133 | LYS |
| 5 | E | 134 | ILE |
| 5 | E | 139 | GLY |
| 5 | E | 145 | LYS |
| 5 | E | 149 | ARG |
| 5 | E | 151 | TYR |
| 5 | E | 157 | ALA |
| 5 | E | 168 | MET |
| 5 | E | 180 | ASN |
| 5 | E | 188 | VAL |
| 5 | E | 189 | PRO |
| 6 | F | 5 | ALA |
| 6 | F | 13 | SER |
| 6 | F | 14 | PRO |
| 6 | F | 15 | SER |
| 6 | F | 23 | ASP |
| 6 | F | 30 | PRO |
| 6 | F | 45 | ARG |
| 6 | F | 57 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6 | F | 65 | TRP |
| 6 | F | 66 | PRO |
| 6 | F | 68 | LYS |
| 6 | F | 72 | ARG |
| 6 | F | 75 | HIS |
| 6 | F | 81 | PRO |
| 6 | F | 84 | VAL |
| 6 | F | 85 | GLY |
| 6 | F | 89 | VAL |
| 6 | F | 90 | PHE |
| 6 | F | 91 | GLY |
| 6 | F | 129 | PHE |
| 6 | F | 153 | SER |
| 6 | F | 158 | THR |
| 6 | F | 172 | TRP |
| 6 | F | 177 | ALA |
| 7 | G | 20 | ILE |
| 7 | G | 27 | ASN |
| 7 | G | 30 | GLU |
| 7 | G | 32 | PRO |
| 7 | G | 33 | ARG |
| 7 | G | 36 | LYS |
| 7 | G | 42 | GLY |
| 7 | G | 43 | LEU |
| 7 | G | 45 | GLU |
| 7 | G | 51 | ARG |
| 7 | G | 61 | ALA |
| 7 | G | 66 | GLN |
| 7 | G | 68 | PRO |
| 7 | G | 75 | LYS |
| 7 | G | 76 | SER |
| 7 | G | 78 | SER |
| 7 | G | 86 | MET |
| 7 | G | 111 | LEU |
| 7 | G | 116 | ASP |
| 7 | G | 117 | PHE |
| 7 | G | 119 | GLY |
| 7 | G | 125 | PHE |
| 7 | G | 128 | ARG |
| 7 | G | 131 | TYR |
| 7 | G | 133 | LEU |
| 7 | G | 135 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | G | 140 | ILE |
| 7 | G | 144 | ILE |
| 7 | G | 170 | ARG |
| 7 | G | 172 | LEU |
| 7 | G | 180 | PHE |
| 7 | G | 181 | ARG |
| 8 | H | 6 | ARG |
| 8 | H | 20 | ALA |
| 8 | H | 83 | TYR |
| 8 | H | 103 | LEU |
| 8 | H | 104 | GLU |
| 8 | H | 109 | PHE |
| 8 | H | 136 | ILE |
| 8 | H | 153 | LYS |
| 8 | H | 155 | SER |
| 8 | H | 156 | ALA |
| 8 | H | 164 | TYR |
| 8 | H | 168 | PRO |
| 8 | H | 169 | VAL |
| 8 | H | 170 | ARG |
| 8 | H | 175 | LYS |
| 9 | K | 10 | GLU |
| 9 | K | 14 | ASP |
| 9 | K | 22 | LYS |
| 9 | K | 23 | PRO |
| 9 | K | 25 | TYR |
| 9 | K | 27 | ARG |
| 9 | K | 39 | ALA |
| 9 | K | 83 | ALA |
| 9 | K | 102 | SER |
| 9 | K | 111 | PRO |
| 9 | K | 112 | LYS |
| 9 | K | 114 | LEU |
| 9 | K | 123 | LEU |
| 9 | K | 132 | PRO |
| 9 | K | 134 | PRO |
| 10 | L | 3 | LYS |
| 10 | L | 17 | ALA |
| 10 | L | 18 | THR |
| 10 | L | 34 | ILE |
| 10 | L | 50 | ASP |
| 10 | L | 52 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 10 | L | 61 | ALA |
| 10 | L | 66 | THR |
| 10 | L | 67 | PHE |
| 10 | L | 71 | THR |
| 10 | L | 74 | ALA |
| 10 | L | 84 | LEU |
| 10 | L | 101 | TRP |
| 10 | L | 113 | PRO |
| 11 | M | 3 | THR |
| 11 | M | 4 | TYR |
| 11 | M | 7 | LYS |
| 11 | M | 23 | LEU |
| 11 | M | 35 | ARG |
| 11 | M | 40 | PRO |
| 11 | M | 43 | THR |
| 11 | M | 44 | PRO |
| 11 | M | 45 | ASN |
| 11 | M | 46 | VAL |
| 11 | M | 48 | MET |
| 11 | M | 50 | ASP |
| 11 | M | 62 | VAL |
| 11 | M | 66 | LYS |
| 11 | M | 76 | SER |
| 11 | M | 79 | PRO |
| 11 | M | 83 | LYS |
| 11 | M | 124 | ALA |
| 11 | M | 126 | PRO |
| 11 | M | 127 | ASP |
| 11 | M | 135 | PRO |
| 11 | M | 136 | GLU |
| 12 | N | 3 | GLN |
| 12 | N | 4 | PRO |
| 12 | N | 12 | ASP |
| 12 | N | 17 | ARG |
| 12 | N | 26 | LYS |
| 12 | N | 29 | ASN |
| 12 | N | 30 | ALA |
| 12 | N | 63 | VAL |
| 12 | N | 88 | ASN |
| 12 | N | 90 | GLN |
| 12 | N | 93 | PRO |
| 12 | N | 94 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12 | N | 101 | PRO |
| 12 | N | 109 | LYS |
| 12 | N | 111 | PHE |
| 12 | N | 119 | PRO |
| 13 | O | 11 | GLY |
| 13 | O | 12 | ALA |
| 13 | O | 15 | ARG |
| 13 | O | 21 | ARG |
| 13 | O | 23 | PRO |
| 13 | O | 29 | LYS |
| 13 | O | 30 | THR |
| 13 | O | 42 | SER |
| 13 | O | 46 | LYS |
| 13 | O | 56 | SER |
| 13 | O | 57 | THR |
| 13 | O | 58 | THR |
| 13 | O | 63 | PRO |
| 13 | O | 72 | PRO |
| 13 | O | 88 | LEU |
| 13 | O | 96 | THR |
| 13 | O | 97 | PRO |
| 13 | O | 102 | ARG |
| 13 | O | 106 | LEU |
| 13 | O | 107 | LYS |
| 13 | O | 110 | TYR |
| 13 | O | 122 | PRO |
| 13 | O | 123 | LEU |
| 13 | O | 126 | VAL |
| 13 | O | 127 | ALA |
| 13 | O | 128 | HIS |
| 14 | P | 11 | LYS |
| 14 | P | 20 | ALA |
| 14 | P | 27 | VAL |
| 14 | P | 29 | PHE |
| 14 | P | 39 | PRO |
| 14 | P | 40 | ALA |
| 14 | P | 66 | ILE |
| 14 | P | 67 | ARG |
| 14 | P | 73 | PRO |
| 14 | P | 77 | LYS |
| 14 | P | 78 | PRO |
| 14 | P | 80 | GLU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 14 | P | 81 | VAL |
| 14 | P | 100 | GLY |
| 14 | P | 125 | LEU |
| 14 | P | 127 | ILE |
| 14 | P | 132 | VAL |
| 14 | P | 138 | ASP |
| 15 | Q | 38 | VAL |
| 15 | Q | 57 | ARG |
| 15 | Q | 59 | ASP |
| 15 | Q | 76 | VAL |
| 15 | Q | 88 | ARG |
| 15 | Q | 89 | ASP |
| 15 | Q | 90 | ARG |
| 16 | R | 5 | THR |
| 16 | R | 9 | ARG |
| 16 | R | 14 | VAL |
| 16 | R | 23 | ARG |
| 16 | R | 31 | SER |
| 16 | R | 32 | LEU |
| 16 | R | 35 | ILE |
| 16 | R | 48 | LEU |
| 16 | R | 54 | LEU |
| 16 | R | 56 | LEU |
| 16 | R | 61 | ASN |
| 16 | R | 82 | ILE |
| 16 | R | 97 | ARG |
| 16 | R | 102 | ALA |
| 17 | S | 2 | ASN |
| 17 | S | 3 | ARG |
| 17 | S | 5 | ALA |
| 17 | S | 20 | PRO |
| 17 | S | 26 | ASP |
| 17 | S | 39 | ARG |
| 17 | S | 80 | SER |
| 17 | S | 100 | TYR |
| 17 | S | 103 | ARG |
| 17 | S | 105 | LEU |
| 17 | S | 112 | ARG |
| 17 | S | 116 | ALA |
| 18 | T | 3 | ARG |
| 18 | T | 4 | ALA |
| 18 | T | 5 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18 | T | 24 | TYR |
| 18 | T | 31 | SER |
| 18 | T | 33 | ARG |
| 18 | T | 53 | ARG |
| 18 | T | 75 | ASN |
| 18 | T | 87 | GLY |
| 19 | U | 10 | LYS |
| 19 | U | 13 | ARG |
| 19 | U | 15 | GLU |
| 19 | U | 19 | LYS |
| 19 | U | 22 | VAL |
| 19 | U | 31 | ALA |
| 19 | U | 50 | PRO |
| 19 | U | 57 | VAL |
| 19 | U | 68 | LYS |
| 19 | U | 69 | LYS |
| 19 | U | 73 | SER |
| 19 | U | 82 | ARG |
| 19 | U | 100 | ARG |
| 20 | V | 9 | TYR |
| 20 | V | 11 | ARG |
| 20 | V | 14 | PRO |
| 20 | V | 30 | GLU |
| 20 | V | 42 | ARG |
| 20 | V | 65 | LEU |
| 20 | V | 66 | GLU |
| 20 | V | 74 | ALA |
| 20 | V | 75 | TYR |
| 20 | V | 92 | ARG |
| 21 | W | 6 | ASP |
| 21 | W | 33 | LYS |
| 21 | W | 51 | VAL |
| 21 | W | 63 | LYS |
| 21 | W | 73 | ARG |
| 21 | W | 83 | VAL |
| 21 | W | 85 | PRO |
| 21 | W | 88 | LYS |
| 21 | W | 90 | GLU |
| 22 | X | 15 | VAL |
| 22 | X | 17 | SER |
| 22 | X | 24 | VAL |
| 22 | X | 31 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22 | X | 34 | LYS |
| 22 | X | 40 | GLU |
| 22 | X | 46 | LYS |
| 22 | X | 47 | LYS |
| 22 | X | 53 | PRO |
| 22 | X | 71 | LYS |
| 22 | X | 72 | VAL |
| 22 | X | 77 | PRO |
| 22 | X | 82 | PRO |
| 22 | X | 83 | THR |
| 22 | X | 98 | VAL |
| 22 | X | 105 | ALA |
| 22 | X | 106 | LEU |
| 23 | Y | 41 | LEU |
| 23 | Y | 42 | VAL |
| 23 | Y | 54 | HIS |
| 23 | Y | 57 | ILE |
| 23 | Y | 62 | PRO |
| 23 | Y | 94 | GLU |
| 23 | Y | 108 | PRO |
| 23 | Y | 109 | ALA |
| 23 | Y | 129 | SER |
| 23 | Y | 134 | PRO |
| 23 | Y | 146 | ILE |
| 23 | Y | 156 | LYS |
| 23 | Y | 159 | PRO |
| 23 | Y | 161 | VAL |
| 23 | Y | 162 | GLU |
| 23 | Y | 168 | GLU |
| 24 | Z | 2 | ALA |
| 24 | Z | 10 | THR |
| 24 | Z | 18 | ALA |
| 24 | Z | 29 | GLN |
| 24 | Z | 55 | ARG |
| 24 | Z | 71 | ASP |
| 24 | Z | 84 | LEU |
| 25 | 1 | 12 | SER |
| 25 | 1 | 13 | PRO |
| 25 | 1 | 34 | ALA |
| 25 | 1 | 35 | SER |
| 25 | 1 | 42 | ASN |
| 26 | 2 | 11 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 26 | 2 | 13 | ILE |
| 26 | 2 | 17 | LYS |
| 26 | 2 | 29 | ARG |
| 26 | 2 | 30 | ARG |
| 26 | 2 | 52 | HIS |
| 27 | 3 | 6 | HIS |
| 27 | 3 | 10 | VAL |
| 27 | 3 | 13 | ARG |
| 27 | 3 | 14 | ILE |
| 27 | 3 | 21 | VAL |
| 27 | 3 | 23 | GLU |
| 27 | 3 | 26 | SER |
| 27 | 3 | 28 | LYS |
| 27 | 3 | 29 | PRO |
| 27 | 3 | 30 | GLU |
| 27 | 3 | 32 | TYR |
| 27 | 3 | 39 | CYS |
| 27 | 3 | 53 | GLU |
| 28 | 4 | 7 | PRO |
| 28 | 4 | 10 | LYS |
| 28 | 4 | 23 | HIS |
| 28 | 4 | 37 | LYS |
| 28 | 4 | 38 | ALA |
| 28 | 4 | 42 | PRO |
| 28 | 4 | 43 | HIS |
| 28 | 4 | 58 | LEU |
| 29 | 5 | 17 | LYS |
| 29 | 5 | 18 | ARG |
| 29 | 5 | 20 | ASN |
| 29 | 5 | 23 | THR |
| 29 | 5 | 24 | GLU |
| 29 | 5 | 25 | LYS |
| 29 | 5 | 26 | ASN |
| 29 | 5 | 27 | LYS |
| 29 | 5 | 29 | ASN |
| 29 | 5 | 30 | THR |
| 29 | 5 | 36 | LEU |
| 29 | 5 | 37 | ARG |
| 29 | 5 | 38 | LYS |
| 29 | 5 | 47 | THR |
| 29 | 5 | 49 | HIS |
| 29 | 5 | 50 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29 | 5 | 51 | GLU |
| 29 | 5 | 52 | VAL |
| 29 | 5 | 53 | LYS |
| 30 | 6 | 2 | LYS |
| 30 | 6 | 10 | ARG |
| 31 | 7 | 4 | MET |
| 31 | 7 | 8 | LYS |
| 31 | 7 | 18 | ALA |
| 31 | 7 | 30 | ARG |
| 31 | 7 | 34 | TRP |
| 31 | 7 | 36 | LYS |
| 31 | 7 | 37 | SER |
| 31 | 7 | 39 | LYS |
| 31 | 7 | 52 | LYS |
| 31 | 7 | 53 | PRO |
| 31 | 7 | 57 | ARG |
| 31 | 7 | 61 | LEU |
| 31 | 7 | 63 | PRO |
| 32 | 8 | 6 | SER |
| 32 | 8 | 7 | VAL |
| 32 | 8 | 9 | ARG |
| 3 | C | 7 | TYR |
| 3 | C | 20 | TYR |
| 3 | C | 25 | ALA |
| 3 | C | 38 | ASP |
| 3 | C | 39 | GLU |
| 3 | C | 54 | SER |
| 3 | C | 61 | THR |
| 3 | C | 67 | GLY |
| 3 | C | 73 | ARG |
| 3 | C | 78 | ALA |
| 3 | C | 119 | VAL |
| 3 | C | 176 | GLY |
| 4 | D | 43 | ARG |
| 4 | D | 54 | ARG |
| 4 | D | 58 | HIS |
| 4 | D | 75 | ILE |
| 4 | D | 81 | ALA |
| 4 | D | 109 | ASP |
| 4 | D | 110 | GLY |
| 4 | D | 111 | LEU |
| 4 | D | 125 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | D | 145 | VAL |
| 4 | D | 149 | PRO |
| 4 | D | 160 | GLY |
| 4 | D | 167 | GLY |
| 4 | D | 208 | LYS |
| 4 | D | 219 | PRO |
| 4 | D | 221 | VAL |
| 4 | D | 225 | ALA |
| 4 | D | 237 | GLU |
| 4 | D | 239 | ARG |
| 4 | D | 243 | GLY |
| 4 | D | 248 | SER |
| 4 | D | 254 | THR |
| 4 | D | 261 | LYS |
| 5 | E | 89 | ASP |
| 5 | E | 92 | THR |
| 5 | E | 109 | LYS |
| 5 | E | 111 | ARG |
| 5 | E | 115 | GLY |
| 5 | E | 119 | ARG |
| 5 | E | 122 | PHE |
| 5 | E | 124 | GLY |
| 5 | E | 126 | PRO |
| 5 | E | 137 | HIS |
| 5 | E | 155 | LYS |
| 5 | E | 173 | VAL |
| 5 | E | 179 | GLU |
| 5 | E | 202 | LYS |
| 6 | F | 6 | VAL |
| 6 | F | 53 | THR |
| 6 | F | 69 | HIS |
| 6 | F | 83 | PHE |
| 6 | F | 86 | GLY |
| 6 | F | 97 | TYR |
| 6 | F | 100 | THR |
| 6 | F | 104 | LYS |
| 6 | F | 126 | VAL |
| 6 | F | 159 | GLY |
| 6 | F | 168 | ARG |
| 6 | F | 169 | ASN |
| 6 | F | 182 | ASN |
| 6 | F | 186 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | G | 7 | LEU |
| 7 | G | 28 | VAL |
| 7 | G | 29 | TRP |
| 7 | G | 44 | GLY |
| 7 | G | 124 | SER |
| 7 | G | 126 | ASP |
| 7 | G | 129 | GLY |
| 7 | G | 149 | VAL |
| 7 | G | 151 | ALA |
| 8 | H | 7 | LEU |
| 8 | H | 29 | PRO |
| 8 | H | 42 | ARG |
| 8 | H | 56 | SER |
| 8 | H | 67 | LEU |
| 8 | H | 99 | VAL |
| 8 | H | 105 | LEU |
| 8 | H | 111 | HIS |
| 8 | H | 118 | PRO |
| 8 | H | 120 | GLY |
| 8 | H | 127 | GLU |
| 8 | H | 151 | ILE |
| 9 | K | 12 | LEU |
| 9 | K | 15 | VAL |
| 9 | K | 36 | ALA |
| 10 | L | 16 | LYS |
| 10 | L | 86 | LYS |
| 11 | M | 12 | ARG |
| 11 | M | 18 | ALA |
| 11 | M | 19 | GLU |
| 11 | M | 31 | ALA |
| 11 | M | 38 | HIS |
| 11 | M | 42 | TRP |
| 11 | M | 47 | ALA |
| 11 | M | 65 | LYS |
| 11 | M | 81 | GLY |
| 11 | M | 92 | ALA |
| 11 | M | 98 | VAL |
| 11 | M | 109 | LYS |
| 12 | N | 14 | THR |
| 12 | N | 28 | SER |
| 12 | N | 33 | ALA |
| 12 | N | 49 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12 | N | 51 | ALA |
| 12 | N | 53 | LYS |
| 12 | N | 64 | ARG |
| 12 | N | 103 | ALA |
| 12 | N | 110 | GLY |
| 13 | O | 7 | ARG |
| 13 | O | 16 | ARG |
| 13 | O | 34 | GLY |
| 13 | O | 44 | GLY |
| 13 | O | 64 | LYS |
| 13 | O | 65 | ARG |
| 13 | O | 81 | GLN |
| 13 | O | 99 | LEU |
| 13 | O | 100 | LEU |
| 13 | O | 101 | VAL |
| 13 | O | 134 | ALA |
| 14 | P | 8 | LYS |
| 14 | P | 9 | TYR |
| 14 | P | 12 | GLN |
| 14 | P | 14 | ARG |
| 14 | P | 26 | TYR |
| 14 | P | 28 | ALA |
| 14 | P | 59 | ARG |
| 14 | P | 88 | GLY |
| 14 | P | 99 | PRO |
| 14 | P | 106 | VAL |
| 14 | P | 107 | ALA |
| 14 | P | 119 | ARG |
| 15 | Q | 12 | ARG |
| 15 | Q | 74 | LYS |
| 15 | Q | 94 | TYR |
| 16 | R | 18 | ILE |
| 16 | R | 30 | ARG |
| 16 | R | 84 | GLN |
| 16 | R | 89 | ARG |
| 17 | S | 16 | ARG |
| 17 | S | 22 | PHE |
| 17 | S | 28 | VAL |
| 17 | S | 45 | PHE |
| 17 | S | 65 | LYS |
| 17 | S | 83 | ILE |
| 17 | S | 104 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 17 | S | 109 | GLU |
| 18 | T | 6 | THR |
| 18 | T | 27 | LEU |
| 18 | T | 32 | PHE |
| 18 | T | 47 | TYR |
| 18 | T | 49 | HIS |
| 18 | T | 62 | ILE |
| 18 | T | 110 | VAL |
| 19 | U | 2 | PHE |
| 19 | U | 6 | LYS |
| 19 | U | 32 | THR |
| 19 | U | 46 | VAL |
| 19 | U | 53 | GLU |
| 19 | U | 72 | VAL |
| 19 | U | 81 | TYR |
| 20 | V | 12 | ILE |
| 20 | V | 15 | ARG |
| 20 | V | 44 | ALA |
| 20 | V | 58 | ALA |
| 20 | V | 64 | MET |
| 20 | V | 67 | ASP |
| 21 | W | 67 | GLY |
| 21 | W | 84 | ALA |
| 21 | W | 89 | ILE |
| 22 | X | 33 | LYS |
| 22 | X | 39 | VAL |
| 22 | X | 42 | VAL |
| 22 | X | 44 | ILE |
| 22 | X | 54 | LYS |
| 22 | X | 66 | PRO |
| 22 | X | 86 | ARG |
| 23 | Y | 79 | ARG |
| 23 | Y | 82 | ARG |
| 23 | Y | 83 | PRO |
| 23 | Y | 92 | SER |
| 24 | Z | 5 | LYS |
| 24 | Z | 25 | ARG |
| 24 | Z | 56 | ASP |
| 24 | Z | 67 | VAL |
| 24 | Z | 73 | GLY |
| 24 | Z | 74 | ARG |
| 25 | 1 | 8 | ALA |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25 | 1 | 15 | GLU |
| 25 | 1 | 39 | LEU |
| 26 | 2 | 9 | VAL |
| 26 | 2 | 53 | LEU |
| 27 | 3 | 3 | GLU |
| 27 | 3 | 9 | LEU |
| 27 | 3 | 41 | PRO |
| 27 | 3 | 50 | VAL |
| 27 | 3 | 52 | THR |
| 27 | 3 | 55 | ARG |
| 27 | 3 | 58 | ARG |
| 28 | 4 | 5 | PRO |
| 28 | 4 | 9 | LYS |
| 28 | 4 | 11 | THR |
| 28 | 4 | 14 | ALA |
| 28 | 4 | 18 | ALA |
| 28 | 4 | 35 | GLU |
| 28 | 4 | 45 | VAL |
| 28 | 4 | 49 | CYS |
| 29 | 5 | 28 | ARG |
| 29 | 5 | 46 | HIS |
| 30 | 6 | 34 | ARG |
| 30 | 6 | 35 | ARG |
| 30 | 6 | 39 | ARG |
| 30 | 6 | 41 | ARG |
| 31 | 7 | 5 | LYS |
| 31 | 7 | 32 | LEU |
| 32 | 8 | 33 | LYS |
| 3 | C | 6 | ARG |
| 3 | C | 8 | ARG |
| 3 | C | 66 | HIS |
| 3 | C | 108 | MET |
| 3 | C | 140 | PRO |
| 3 | C | 180 | PHE |
| 4 | D | 37 | LEU |
| 4 | D | 48 | ARG |
| 4 | D | 61 | LEU |
| 4 | D | 62 | TYR |
| 4 | D | 118 | VAL |
| 4 | D | 157 | ARG |
| 4 | D | 189 | CYS |
| 4 | D | 199 | ALA |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | D | 211 | ARG |
| 4 | D | 262 | ARG |
| 5 | E | 44 | TYR |
| 5 | E | 51 | PHE |
| 5 | E | 67 | PHE |
| 5 | E | 68 | ALA |
| 5 | E | 94 | GLU |
| 5 | E | 125 | GLY |
| 5 | E | 147 | PRO |
| 5 | E | 187 | ALA |
| 5 | E | 191 | PRO |
| 6 | F | 21 | ALA |
| 6 | F | 102 | PRO |
| 6 | F | 132 | VAL |
| 6 | F | 133 | ASN |
| 6 | F | 178 | PRO |
| 6 | F | 198 | ALA |
| 7 | G | 16 | ARG |
| 7 | G | 18 | GLU |
| 7 | G | 72 | ARG |
| 7 | G | 96 | ARG |
| 7 | G | 163 | ALA |
| 7 | G | 164 | GLU |
| 7 | G | 167 | GLU |
| 8 | H | 12 | PRO |
| 8 | H | 47 | GLU |
| 8 | H | 74 | ASN |
| 8 | H | 75 | ALA |
| 8 | H | 79 | VAL |
| 8 | H | 149 | ARG |
| 9 | K | 40 | THR |
| 9 | K | 117 | GLU |
| 10 | L | 26 | ALA |
| 10 | L | 88 | ALA |
| 10 | L | 112 | MET |
| 10 | L | 114 | ASP |
| 10 | L | 118 | THR |
| 11 | M | 27 | ALA |
| 11 | M | 28 | THR |
| 11 | M | 29 | LYS |
| 11 | M | 58 | ASP |
| 11 | M | 63 | THR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11 | M | 114 | ARG |
| 12 | N | 104 | ARG |
| 13 | O | 9 | ASN |
| 13 | O | 39 | LYS |
| 13 | O | 89 | ALA |
| 13 | O | 92 | GLU |
| 14 | P | 22 | LYS |
| 14 | P | 46 | GLN |
| 14 | P | 61 | GLY |
| 14 | P | 84 | GLY |
| 14 | P | 123 | HIS |
| 14 | P | 126 | PRO |
| 15 | Q | 5 | LYS |
| 15 | Q | 102 | GLU |
| 16 | R | 4 | LEU |
| 16 | R | 20 | ARG |
| 16 | R | 34 | HIS |
| 16 | R | 43 | GLU |
| 16 | R | 111 | GLU |
| 17 | S | 24 | PRO |
| 18 | T | 77 | SER |
| 18 | T | 93 | LYS |
| 18 | T | 107 | ALA |
| 19 | U | 29 | PRO |
| 19 | U | 40 | LEU |
| 20 | V | 2 | GLU |
| 20 | V | 41 | LYS |
| 20 | V | 89 | ALA |
| 21 | W | 15 | GLU |
| 21 | W | 74 | PRO |
| 22 | X | 65 | ALA |
| 22 | X | 74 | PRO |
| 22 | X | 100 | ALA |
| 23 | Y | 13 | GLU |
| 23 | Y | 46 | LYS |
| 23 | Y | 50 | GLN |
| 23 | Y | 78 | LYS |
| 23 | Y | 80 | ARG |
| 23 | Y | 95 | PRO |
| 23 | Y | 123 | ASP |
| 23 | Y | 153 | SER |
| 23 | Y | 154 | ASP |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | Y | 155 | LEU |
| 23 | Y | 170 | THR |
| 24 | Z | 83 | PRO |
| 25 | 1 | 17 | GLU |
| 25 | 1 | 38 | GLN |
| 26 | 2 | 31 | LEU |
| 26 | 2 | 39 | ASP |
| 27 | 3 | 56 | VAL |
| 28 | 4 | 15 | ARG |
| 28 | 4 | 17 | ASP |
| 29 | 5 | 32 | ASN |
| 30 | 6 | 3 | ARG |
| 30 | 6 | 14 | LYS |
| 30 | 6 | 31 | LEU |
| 30 | 6 | 48 | LYS |
| 31 | 7 | 7 | HIS |
| 31 | 7 | 45 | GLY |
| 32 | 8 | 10 | ILE |
| 32 | 8 | 11 | CYS |
| 3 | C | 27 | HIS |
| 3 | C | 36 | LYS |
| 3 | C | 69 | GLY |
| 3 | C | 154 | ARG |
| 3 | C | 226 | PRO |
| 4 | D | 24 | ILE |
| 4 | D | 56 | GLY |
| 4 | D | 245 | PRO |
| 4 | D | 246 | PRO |
| 5 | E | 20 | ALA |
| 5 | E | 52 | LEU |
| 5 | E | 75 | VAL |
| 5 | E | 117 | MET |
| 5 | E | 121 | ASN |
| 5 | E | 161 | GLY |
| 6 | F | 67 | GLN |
| 6 | F | 82 | ILE |
| 6 | F | 99 | TYR |
| 6 | F | 136 | THR |
| 6 | F | 150 | GLY |
| 7 | G | 134 | GLY |
| 7 | G | 141 | PHE |
| 7 | G | 178 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8 | H | 36 | PRO |
| 8 | H | 55 | PRO |
| 8 | H | 112 | PRO |
| 8 | H | 138 | LYS |
| 8 | H | 140 | LYS |
| 8 | H | 154 | PRO |
| 9 | K | 33 | ARG |
| 9 | K | 100 | ALA |
| 10 | L | 14 | ALA |
| 10 | L | 89 | HIS |
| 11 | M | 9 | VAL |
| 11 | M | 105 | GLY |
| 11 | M | 125 | GLY |
| 12 | N | 22 | ILE |
| 12 | N | 65 | THR |
| 12 | N | 121 | VAL |
| 13 | O | 8 | PRO |
| 13 | O | 66 | GLY |
| 13 | O | 115 | LEU |
| 13 | O | 116 | GLY |
| 13 | O | 131 | SER |
| 14 | P | 21 | THR |
| 15 | Q | 4 | LEU |
| 15 | Q | 22 | ARG |
| 15 | Q | 91 | GLN |
| 16 | R | 51 | ALA |
| 16 | R | 72 | ALA |
| 16 | R | 74 | ALA |
| 16 | R | 91 | PRO |
| 17 | S | 58 | ASN |
| 17 | S | 99 | LEU |
| 17 | S | 107 | ASP |
| 18 | T | 13 | LYS |
| 18 | T | 23 | GLY |
| 18 | T | 56 | ASP |
| 18 | T | 116 | ALA |
| 20 | V | 63 | ASP |
| 21 | W | 32 | PRO |
| 21 | W | 34 | ALA |
| 22 | X | 92 | ASN |
| 23 | Y | 31 | ARG |
| 23 | Y | 66 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | Y | 81 | ARG |
| 23 | Y | 130 | PRO |
| 23 | Y | 141 | VAL |
| 23 | Y | 157 | LEU |
| 23 | Y | 165 | VAL |
| 25 | 1 | 21 | ARG |
| 25 | 1 | 66 | ASN |
| 27 | 3 | 8 | LYS |
| 27 | 3 | 54 | GLY |
| 29 | 5 | 7 | ILE |
| 29 | 5 | 40 | CYS |
| 30 | 6 | 11 | LYS |
| 30 | 6 | 46 | VAL |
| 3 | C | 16 | PRO |
| 3 | C | 49 | ILE |
| 3 | C | 106 | GLY |
| 3 | C | 159 | GLY |
| 3 | C | 189 | ILE |
| 3 | C | 197 | GLU |
| 4 | D | 70 | TRP |
| 4 | D | 119 | ALA |
| 4 | D | 215 | LEU |
| 4 | D | 231 | HIS |
| 4 | D | 257 | LEU |
| 4 | D | 271 | ILE |
| 5 | E | 32 | PRO |
| 5 | E | 73 | GLU |
| 5 | E | 135 | HIS |
| 6 | F | 50 | SER |
| 7 | G | 50 | ALA |
| 7 | G | 88 | ILE |
| 7 | G | 115 | ARG |
| 8 | H | 21 | PRO |
| 8 | H | 41 | MET |
| 8 | H | 117 | PRO |
| 9 | K | 7 | GLU |
| 9 | K | 65 | ALA |
| 10 | L | 24 | GLY |
| 10 | L | 51 | ALA |
| 11 | M | 138 | LEU |
| 12 | N | 2 | ILE |
| 12 | N | 66 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12 | N | 91 | LEU |
| 12 | N | 99 | PHE |
| 13 | O | 47 | ASP |
| 13 | O | 70 | GLN |
| 13 | O | 125 | VAL |
| 14 | P | 115 | MET |
| 14 | P | 136 | ALA |
| 15 | Q | 8 | ARG |
| 15 | Q | 79 | LEU |
| 17 | S | 4 | GLY |
| 17 | S | 36 | GLU |
| 17 | S | 106 | SER |
| 17 | S | 110 | ILE |
| 18 | T | 26 | GLY |
| 18 | T | 34 | LYS |
| 18 | T | 37 | GLU |
| 18 | T | 54 | LYS |
| 18 | T | 90 | VAL |
| 19 | U | 5 | VAL |
| 20 | V | 52 | GLU |
| 20 | V | 80 | PRO |
| 21 | W | 53 | LYS |
| 21 | W | 92 | LEU |
| 22 | X | 21 | LYS |
| 22 | X | 49 | VAL |
| 22 | X | 69 | ALA |
| 22 | X | 85 | VAL |
| 23 | Y | 107 | THR |
| 25 | 1 | 36 | ILE |
| 27 | 3 | 61 | ARG |
| 28 | 4 | 47 | PRO |
| 30 | 6 | 6 | GLN |
| 30 | 6 | 29 | LYS |
| 30 | 6 | 33 | ARG |
| 31 | 7 | 14 | VAL |
| 31 | 7 | 56 | GLU |
| 3 | C | 26 | ALA |
| 3 | C | 37 | PHE |
| 3 | C | 59 | ARG |
| 3 | C | 64 | LEU |
| 3 | C | 133 | PRO |
| 3 | C | 193 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | D | 28 | GLU |
| 4 | D | 29 | PRO |
| 4 | D | 42 | GLY |
| 4 | D | 127 | VAL |
| 5 | E | 53 | PRO |
| 6 | F | 167 | ALA |
| 7 | G | 121 | ASN |
| 7 | G | 132 | ASN |
| 8 | H | 28 | GLY |
| 9 | K | 37 | VAL |
| 10 | L | 21 | PRO |
| 11 | M | 17 | ASP |
| 12 | N | 102 | VAL |
| 12 | N | 117 | LEU |
| 13 | O | 69 | GLY |
| 13 | O | 85 | LEU |
| 14 | P | 98 | LYS |
| 14 | P | 124 | LYS |
| 16 | R | 41 | ASP |
| 16 | R | 69 | VAL |
| 17 | S | 9 | LEU |
| 17 | S | 25 | GLY |
| 19 | U | 90 | PRO |
| 20 | V | 87 | PRO |
| 21 | W | 8 | ILE |
| 22 | X | 45 | VAL |
| 22 | X | 51 | VAL |
| 23 | Y | 12 | GLY |
| 24 | Z | 21 | LEU |
| 25 | 1 | 14 | VAL |
| 26 | 2 | 18 | ASP |
| 26 | 2 | 54 | VAL |
| 32 | 8 | 29 | ASN |
| 4 | D | 196 | VAL |
| 5 | E | 165 | VAL |
| 6 | F | 4 | VAL |
| 6 | F | 64 | ILE |
| 6 | F | 183 | VAL |
| 8 | H | 82 | GLY |
| 8 | H | 173 | PRO |
| 10 | L | 20 | ALA |
| 10 | L | 31 | GLY |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 10 | L | 135 | GLY |
| 14 | P | 24 | GLY |
| 14 | P | 30 | GLY |
| 17 | S | 72 | VAL |
| 17 | S | 102 | ILE |
| 21 | W | 24 | GLY |
| 25 | 1 | 45 | ILE |
| 31 | 7 | 2 | PRO |
| 3 | C | 181 | PRO |
| 6 | F | 134 | GLY |
| 17 | S | 70 | VAL |
| 19 | U | 16 | PRO |
| 19 | U | 52 | VAL |
| 23 | Y | 158 | PRO |
| 32 | 8 | 21 | GLY |
| 3 | C | 51 | PRO |
| 3 | C | 90 | GLY |
| 3 | C | 130 | ILE |
| 4 | D | 79 | VAL |
| 4 | D | 98 | VAL |
| 5 | E | 56 | PRO |
| 8 | H | 125 | VAL |
| 10 | L | 83 | GLY |
| 11 | M | 55 | VAL |
| 14 | P | 42 | ILE |
| 15 | Q | 106 | GLY |
| 21 | W | 7 | VAL |
| 22 | X | 27 | VAL |
| 4 | D | 76 | PRO |
| 5 | E | 153 | GLY |
| 8 | H | 78 | GLY |
| 14 | P | 62 | GLY |
| 18 | T | 105 | VAL |
| 19 | U | 89 | GLN |
| 23 | Y | 58 | VAL |
| 23 | Y | 139 | VAL |
| 27 | 3 | 4 | GLY |
| 31 | 7 | 41 | ILE |
| 4 | D | 148 | GLU |
| 7 | G | 37 | VAL |
| 12 | N | 57 | VAL |
| 16 | R | 70 | GLY |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20 | V | 86 | LEU |
| 27 | 3 | 5 | ILE |

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 | C | 180/181 (99%) | 145 (81%) | 35 (19%) | 2 | 16 |
| 4 | D | 215/218 (99%) | 146 (68%) | 69 (32%) | 0 | 4 |
| 5 | E | 166/166 (100%) | 95 (57%) | 71 (43%) | 0 | 1 |
| 6 | F | 164/166 (99%) | 106 (65%) | 58 (35%) | 0 | 2 |
| 7 | G | 156/156 (100%) | 113 (72%) | 43 (28%) | 0 | 6 |
| 8 | H | 143/148 (97%) | 91 (64%) | 52 (36%) | 0 | 2 |
| 9 | K | 124/124 (100%) | 88 (71%) | 36 (29%) | 0 | 5 |
| 10 | L | 105/111 (95%) | 86 (82%) | 19 (18%) | 2 | 19 |
| 11 | M | 118/119 (99%) | 82 (70%) | 36 (30%) | 0 | 5 |
| 12 | N | 100/100 (100%) | 60 (60%) | 40 (40%) | 0 | 1 |
| 13 | O | 111/116 (96%) | 66 (60%) | 45 (40%) | 0 | 1 |
| 14 | P | 106/111 (96%) | 68 (64%) | 38 (36%) | 0 | 2 |
| 15 | Q | 100/101 (99%) | 73 (73%) | 27 (27%) | 1 | 6 |
| 16 | R | 87/88 (99%) | 61 (70%) | 26 (30%) | 0 | 5 |
| 17 | S | 105/127 (83%) | 65 (62%) | 40 (38%) | 0 | 1 |
| 18 | T | 93/94 (99%) | 61 (66%) | 32 (34%) | 0 | 3 |
| 19 | U | 82/82 (100%) | 55 (67%) | 27 (33%) | 0 | 3 |
| 20 | V | 90/92 (98%) | 56 (62%) | 34 (38%) | 0 | 1 |
| 21 | W | 76/78 (97%) | 59 (78%) | 17 (22%) | 1 | 11 |
| 22 | X | 91/91 (100%) | 71 (78%) | 20 (22%) | 1 | 11 |
| 23 | Y | 159/179 (89%) | 107 (67%) | 52 (33%) | 0 | 4 |
| 24 | Z | 67/67 (100%) | 49 (73%) | 18 (27%) | 1 | 7 |
| 25 | 1 | 62/62 (100%) | 49 (79%) | 13 (21%) | 1 | 12 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|-------------|---|
| 26 | 2 | 51/52 (98%) | 37 (72%) | 14 (28%) | 0 | 6 |
| 27 | 3 | 63/63 (100%) | 42 (67%) | 21 (33%) | 0 | 3 |
| 28 | 4 | 50/52 (96%) | 33 (66%) | 17 (34%) | 0 | 3 |
| 29 | 5 | 48/52 (92%) | 32 (67%) | 16 (33%) | 0 | 3 |
| 30 | 6 | 42/42 (100%) | 29 (69%) | 13 (31%) | 0 | 4 |
| 31 | 7 | 54/55 (98%) | 39 (72%) | 15 (28%) | 0 | 6 |
| 32 | 8 | 34/34 (100%) | 25 (74%) | 9 (26%) | 1 | 7 |
| All | All | 3042/3127 (97%) | 2089 (69%) | 953 (31%) | 0 | 4 |

All (953) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | C | 6 | ARG |
| 3 | C | 7 | TYR |
| 3 | C | 15 | ASP |
| 3 | C | 20 | TYR |
| 3 | C | 27 | HIS |
| 3 | C | 37 | PHE |
| 3 | C | 46 | LYS |
| 3 | C | 53 | ARG |
| 3 | C | 54 | SER |
| 3 | C | 58 | VAL |
| 3 | C | 59 | ARG |
| 3 | C | 77 | ILE |
| 3 | C | 81 | GLU |
| 3 | C | 85 | GLU |
| 3 | C | 111 | ASP |
| 3 | C | 113 | VAL |
| 3 | C | 123 | VAL |
| 3 | C | 129 | ARG |
| 3 | C | 136 | LEU |
| 3 | C | 147 | PHE |
| 3 | C | 148 | ASN |
| 3 | C | 153 | ILE |
| 3 | C | 160 | ARG |
| 3 | C | 161 | ILE |
| 3 | C | 164 | ARG |
| 3 | C | 166 | ASP |
| 3 | C | 177 | LYS |
| 3 | C | 180 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | C | 181 | PRO |
| 3 | C | 185 | LEU |
| 3 | C | 190 | ARG |
| 3 | C | 192 | PHE |
| 3 | C | 202 | GLU |
| 3 | C | 208 | PHE |
| 3 | C | 215 | THR |
| 4 | D | 9 | TYR |
| 4 | D | 12 | SER |
| 4 | D | 14 | ARG |
| 4 | D | 20 | ASP |
| 4 | D | 21 | PHE |
| 4 | D | 23 | GLU |
| 4 | D | 31 | LYS |
| 4 | D | 33 | LEU |
| 4 | D | 38 | LYS |
| 4 | D | 39 | LYS |
| 4 | D | 46 | GLN |
| 4 | D | 49 | ILE |
| 4 | D | 52 | ARG |
| 4 | D | 53 | PHE |
| 4 | D | 59 | LYS |
| 4 | D | 63 | ARG |
| 4 | D | 64 | ILE |
| 4 | D | 65 | ILE |
| 4 | D | 66 | ASP |
| 4 | D | 70 | TRP |
| 4 | D | 82 | ILE |
| 4 | D | 84 | TYR |
| 4 | D | 87 | ASN |
| 4 | D | 91 | ARG |
| 4 | D | 92 | ILE |
| 4 | D | 94 | LEU |
| 4 | D | 95 | LEU |
| 4 | D | 96 | HIS |
| 4 | D | 97 | TYR |
| 4 | D | 106 | ILE |
| 4 | D | 112 | GLN |
| 4 | D | 113 | VAL |
| 4 | D | 116 | GLN |
| 4 | D | 121 | PRO |
| 4 | D | 126 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | D | 133 | LEU |
| 4 | D | 135 | PHE |
| 4 | D | 140 | THR |
| 4 | D | 146 | GLU |
| 4 | D | 147 | LEU |
| 4 | D | 148 | GLU |
| 4 | D | 155 | LEU |
| 4 | D | 171 | ASP |
| 4 | D | 179 | SER |
| 4 | D | 181 | GLU |
| 4 | D | 186 | HIS |
| 4 | D | 188 | GLU |
| 4 | D | 202 | LYS |
| 4 | D | 203 | ASN |
| 4 | D | 206 | LEU |
| 4 | D | 208 | LYS |
| 4 | D | 212 | SER |
| 4 | D | 218 | ARG |
| 4 | D | 222 | ARG |
| 4 | D | 227 | ASN |
| 4 | D | 228 | PRO |
| 4 | D | 229 | VAL |
| 4 | D | 230 | ASP |
| 4 | D | 232 | PRO |
| 4 | D | 233 | HIS |
| 4 | D | 239 | ARG |
| 4 | D | 249 | PRO |
| 4 | D | 252 | TRP |
| 4 | D | 253 | GLN |
| 4 | D | 254 | THR |
| 4 | D | 258 | LYS |
| 4 | D | 263 | ARG |
| 4 | D | 270 | ILE |
| 4 | D | 273 | ARG |
| 5 | E | 2 | LYS |
| 5 | E | 4 | ILE |
| 5 | E | 5 | LEU |
| 5 | E | 8 | LYS |
| 5 | E | 14 | ILE |
| 5 | E | 17 | ASP |
| 5 | E | 19 | ARG |
| 5 | E | 22 | PRO |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5 | E | 25 | VAL |
| 5 | E | 27 | LEU |
| 5 | E | 31 | CYS |
| 5 | E | 40 | GLU |
| 5 | E | 41 | LYS |
| 5 | E | 45 | THR |
| 5 | E | 49 | LEU |
| 5 | E | 51 | PHE |
| 5 | E | 52 | LEU |
| 5 | E | 53 | PRO |
| 5 | E | 55 | ASN |
| 5 | E | 56 | PRO |
| 5 | E | 57 | LYS |
| 5 | E | 58 | ARG |
| 5 | E | 66 | HIS |
| 5 | E | 67 | PHE |
| 5 | E | 72 | VAL |
| 5 | E | 78 | LEU |
| 5 | E | 79 | ARG |
| 5 | E | 80 | GLU |
| 5 | E | 83 | ASP |
| 5 | E | 90 | THR |
| 5 | E | 91 | VAL |
| 5 | E | 92 | THR |
| 5 | E | 97 | LYS |
| 5 | E | 101 | ARG |
| 5 | E | 102 | VAL |
| 5 | E | 108 | SER |
| 5 | E | 111 | ARG |
| 5 | E | 113 | PHE |
| 5 | E | 116 | VAL |
| 5 | E | 117 | MET |
| 5 | E | 118 | LYS |
| 5 | E | 119 | ARG |
| 5 | E | 120 | TRP |
| 5 | E | 121 | ASN |
| 5 | E | 122 | PHE |
| 5 | E | 126 | PRO |
| 5 | E | 127 | ASP |
| 5 | E | 129 | HIS |
| 5 | E | 134 | ILE |
| 5 | E | 135 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5 | E | 136 | ARG |
| 5 | E | 137 | HIS |
| 5 | E | 143 | ASN |
| 5 | E | 144 | ARG |
| 5 | E | 147 | PRO |
| 5 | E | 149 | ARG |
| 5 | E | 150 | VAL |
| 5 | E | 152 | LYS |
| 5 | E | 154 | LYS |
| 5 | E | 155 | LYS |
| 5 | E | 163 | GLU |
| 5 | E | 170 | LEU |
| 5 | E | 171 | GLU |
| 5 | E | 173 | VAL |
| 5 | E | 176 | ILE |
| 5 | E | 182 | LEU |
| 5 | E | 185 | LYS |
| 5 | E | 197 | ILE |
| 5 | E | 199 | ARG |
| 5 | E | 200 | GLU |
| 5 | E | 202 | LYS |
| 6 | F | 8 | GLN |
| 6 | F | 14 | PRO |
| 6 | F | 17 | ARG |
| 6 | F | 20 | LEU |
| 6 | F | 27 | GLU |
| 6 | F | 29 | ASN |
| 6 | F | 30 | PRO |
| 6 | F | 31 | HIS |
| 6 | F | 33 | LEU |
| 6 | F | 34 | TRP |
| 6 | F | 39 | TRP |
| 6 | F | 40 | GLN |
| 6 | F | 46 | ARG |
| 6 | F | 53 | THR |
| 6 | F | 63 | LYS |
| 6 | F | 64 | ILE |
| 6 | F | 67 | GLN |
| 6 | F | 68 | LYS |
| 6 | F | 69 | HIS |
| 6 | F | 74 | ARG |
| 6 | F | 77 | ASP |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6 | F | 78 | ILE |
| 6 | F | 82 | ILE |
| 6 | F | 83 | PHE |
| 6 | F | 84 | VAL |
| 6 | F | 90 | PHE |
| 6 | F | 95 | ARG |
| 6 | F | 102 | PRO |
| 6 | F | 105 | VAL |
| 6 | F | 106 | ARG |
| 6 | F | 108 | LYS |
| 6 | F | 112 | MET |
| 6 | F | 117 | ARG |
| 6 | F | 119 | ARG |
| 6 | F | 120 | GLU |
| 6 | F | 122 | LYS |
| 6 | F | 127 | GLU |
| 6 | F | 140 | LEU |
| 6 | F | 145 | GLU |
| 6 | F | 156 | LEU |
| 6 | F | 160 | ASN |
| 6 | F | 162 | LEU |
| 6 | F | 168 | ARG |
| 6 | F | 170 | LEU |
| 6 | F | 174 | VAL |
| 6 | F | 175 | THR |
| 6 | F | 178 | PRO |
| 6 | F | 181 | LEU |
| 6 | F | 184 | TYR |
| 6 | F | 187 | VAL |
| 6 | F | 192 | LEU |
| 6 | F | 194 | MET |
| 6 | F | 196 | LEU |
| 6 | F | 197 | ASP |
| 6 | F | 200 | GLU |
| 6 | F | 202 | PHE |
| 6 | F | 203 | GLN |
| 6 | F | 204 | ASN |
| 7 | G | 8 | LYS |
| 7 | G | 9 | ARG |
| 7 | G | 12 | TYR |
| 7 | G | 14 | GLU |
| 7 | G | 18 | GLU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | G | 19 | LEU |
| 7 | G | 20 | ILE |
| 7 | G | 21 | ARG |
| 7 | G | 22 | ARG |
| 7 | G | 25 | TYR |
| 7 | G | 29 | TRP |
| 7 | G | 32 | PRO |
| 7 | G | 33 | ARG |
| 7 | G | 34 | LEU |
| 7 | G | 36 | LYS |
| 7 | G | 39 | ILE |
| 7 | G | 51 | ARG |
| 7 | G | 54 | GLU |
| 7 | G | 55 | LYS |
| 7 | G | 68 | PRO |
| 7 | G | 77 | ILE |
| 7 | G | 79 | ASN |
| 7 | G | 82 | LEU |
| 7 | G | 91 | ARG |
| 7 | G | 94 | LEU |
| 7 | G | 95 | ARG |
| 7 | G | 101 | ILE |
| 7 | G | 102 | PHE |
| 7 | G | 107 | LEU |
| 7 | G | 116 | ASP |
| 7 | G | 118 | ARG |
| 7 | G | 128 | ARG |
| 7 | G | 130 | ASN |
| 7 | G | 133 | LEU |
| 7 | G | 135 | LEU |
| 7 | G | 136 | ARG |
| 7 | G | 147 | ASP |
| 7 | G | 152 | LEU |
| 7 | G | 155 | MET |
| 7 | G | 170 | ARG |
| 7 | G | 174 | GLU |
| 7 | G | 178 | PHE |
| 7 | G | 181 | ARG |
| 8 | H | 6 | ARG |
| 8 | H | 7 | LEU |
| 8 | H | 13 | LYS |
| 8 | H | 18 | GLU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8 | H | 24 | VAL |
| 8 | H | 29 | PRO |
| 8 | H | 32 | GLU |
| 8 | H | 35 | VAL |
| 8 | H | 40 | GLU |
| 8 | H | 50 | VAL |
| 8 | H | 51 | ARG |
| 8 | H | 52 | VAL |
| 8 | H | 53 | GLU |
| 8 | H | 54 | ARG |
| 8 | H | 57 | ASP |
| 8 | H | 60 | ARG |
| 8 | H | 62 | LYS |
| 8 | H | 65 | HIS |
| 8 | H | 68 | THR |
| 8 | H | 69 | ARG |
| 8 | H | 71 | LEU |
| 8 | H | 72 | ILE |
| 8 | H | 74 | ASN |
| 8 | H | 76 | VAL |
| 8 | H | 77 | LYS |
| 8 | H | 81 | GLU |
| 8 | H | 83 | TYR |
| 8 | H | 85 | LYS |
| 8 | H | 87 | LEU |
| 8 | H | 89 | ILE |
| 8 | H | 90 | LYS |
| 8 | H | 94 | TYR |
| 8 | H | 95 | ARG |
| 8 | H | 98 | LEU |
| 8 | H | 104 | GLU |
| 8 | H | 111 | HIS |
| 8 | H | 115 | VAL |
| 8 | H | 116 | GLU |
| 8 | H | 127 | GLU |
| 8 | H | 132 | ARG |
| 8 | H | 136 | ILE |
| 8 | H | 139 | GLN |
| 8 | H | 151 | ILE |
| 8 | H | 152 | ARG |
| 8 | H | 153 | LYS |
| 8 | H | 157 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8 | H | 162 | ILE |
| 8 | H | 164 | TYR |
| 8 | H | 167 | GLU |
| 8 | H | 168 | PRO |
| 8 | H | 170 | ARG |
| 8 | H | 172 | LYS |
| 9 | K | 4 | ILE |
| 9 | K | 5 | LEU |
| 9 | K | 11 | ASN |
| 9 | K | 12 | LEU |
| 9 | K | 17 | GLN |
| 9 | K | 20 | ASP |
| 9 | K | 25 | TYR |
| 9 | K | 29 | TYR |
| 9 | K | 33 | ARG |
| 9 | K | 48 | GLU |
| 9 | K | 60 | GLU |
| 9 | K | 61 | ARG |
| 9 | K | 66 | GLU |
| 9 | K | 67 | ARG |
| 9 | K | 69 | LYS |
| 9 | K | 75 | LEU |
| 9 | K | 77 | LEU |
| 9 | K | 79 | ILE |
| 9 | K | 81 | VAL |
| 9 | K | 82 | ARG |
| 9 | K | 91 | SER |
| 9 | K | 99 | GLU |
| 9 | K | 101 | LEU |
| 9 | K | 103 | ARG |
| 9 | K | 121 | LYS |
| 9 | K | 125 | GLU |
| 9 | K | 128 | LEU |
| 9 | K | 130 | TYR |
| 9 | K | 131 | LYS |
| 9 | K | 135 | GLU |
| 9 | K | 138 | ILE |
| 9 | K | 139 | GLN |
| 9 | K | 142 | VAL |
| 9 | K | 144 | VAL |
| 9 | K | 145 | VAL |
| 9 | K | 147 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 10 | L | 12 | LEU |
| 10 | L | 29 | GLN |
| 10 | L | 30 | HIS |
| 10 | L | 34 | ILE |
| 10 | L | 35 | MET |
| 10 | L | 37 | PHE |
| 10 | L | 41 | PHE |
| 10 | L | 56 | GLU |
| 10 | L | 60 | TYR |
| 10 | L | 62 | ASP |
| 10 | L | 76 | TYR |
| 10 | L | 101 | TRP |
| 10 | L | 106 | GLU |
| 10 | L | 113 | PRO |
| 10 | L | 115 | LEU |
| 10 | L | 116 | ASN |
| 10 | L | 117 | THR |
| 10 | L | 120 | LEU |
| 10 | L | 134 | MET |
| 11 | M | 6 | PRO |
| 11 | M | 7 | LYS |
| 11 | M | 10 | GLU |
| 11 | M | 12 | ARG |
| 11 | M | 15 | LEU |
| 11 | M | 16 | ILE |
| 11 | M | 17 | ASP |
| 11 | M | 22 | THR |
| 11 | M | 25 | ARG |
| 11 | M | 28 | THR |
| 11 | M | 32 | THR |
| 11 | M | 33 | LEU |
| 11 | M | 35 | ARG |
| 11 | M | 42 | TRP |
| 11 | M | 43 | THR |
| 11 | M | 45 | ASN |
| 11 | M | 54 | VAL |
| 11 | M | 55 | VAL |
| 11 | M | 62 | VAL |
| 11 | M | 69 | GLN |
| 11 | M | 72 | TYR |
| 11 | M | 74 | ARG |
| 11 | M | 75 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11 | M | 78 | TYR |
| 11 | M | 82 | LEU |
| 11 | M | 89 | LYS |
| 11 | M | 91 | LEU |
| 11 | M | 93 | THR |
| 11 | M | 101 | HIS |
| 11 | M | 112 | LEU |
| 11 | M | 116 | LEU |
| 11 | M | 123 | TYR |
| 11 | M | 127 | ASP |
| 11 | M | 134 | ARG |
| 11 | M | 136 | GLU |
| 11 | M | 139 | GLU |
| 12 | N | 3 | GLN |
| 12 | N | 6 | THR |
| 12 | N | 7 | TYR |
| 12 | N | 8 | LEU |
| 12 | N | 9 | GLU |
| 12 | N | 12 | ASP |
| 12 | N | 13 | ASN |
| 12 | N | 23 | ARG |
| 12 | N | 24 | VAL |
| 12 | N | 25 | LEU |
| 12 | N | 28 | SER |
| 12 | N | 32 | TYR |
| 12 | N | 34 | THR |
| 12 | N | 35 | VAL |
| 12 | N | 37 | ASP |
| 12 | N | 38 | VAL |
| 12 | N | 39 | ILE |
| 12 | N | 42 | SER |
| 12 | N | 43 | VAL |
| 12 | N | 44 | LYS |
| 12 | N | 47 | ILE |
| 12 | N | 52 | VAL |
| 12 | N | 59 | LYS |
| 12 | N | 62 | VAL |
| 12 | N | 67 | LYS |
| 12 | N | 68 | GLU |
| 12 | N | 77 | ILE |
| 12 | N | 82 | ASN |
| 12 | N | 85 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12 | N | 87 | ILE |
| 12 | N | 88 | ASN |
| 12 | N | 89 | ASN |
| 12 | N | 90 | GLN |
| 12 | N | 92 | GLU |
| 12 | N | 93 | PRO |
| 12 | N | 94 | ARG |
| 12 | N | 97 | ARG |
| 12 | N | 106 | LEU |
| 12 | N | 108 | GLU |
| 12 | N | 111 | PHE |
| 13 | O | 7 | ARG |
| 13 | O | 13 | ASN |
| 13 | O | 14 | LYS |
| 13 | O | 15 | ARG |
| 13 | O | 16 | ARG |
| 13 | O | 17 | LYS |
| 13 | O | 21 | ARG |
| 13 | O | 29 | LYS |
| 13 | O | 32 | THR |
| 13 | O | 33 | ARG |
| 13 | O | 40 | SER |
| 13 | O | 45 | LEU |
| 13 | O | 46 | LYS |
| 13 | O | 49 | ARG |
| 13 | O | 52 | GLU |
| 13 | O | 55 | ARG |
| 13 | O | 59 | LEU |
| 13 | O | 64 | LYS |
| 13 | O | 65 | ARG |
| 13 | O | 68 | GLN |
| 13 | O | 75 | ILE |
| 13 | O | 79 | ARG |
| 13 | O | 81 | GLN |
| 13 | O | 85 | LEU |
| 13 | O | 88 | LEU |
| 13 | O | 94 | GLU |
| 13 | O | 96 | THR |
| 13 | O | 99 | LEU |
| 13 | O | 100 | LEU |
| 13 | O | 105 | LEU |
| 13 | O | 108 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13 | O | 110 | TYR |
| 13 | O | 111 | ARG |
| 13 | O | 117 | GLU |
| 13 | O | 124 | LYS |
| 13 | O | 128 | HIS |
| 13 | O | 130 | PHE |
| 13 | O | 131 | SER |
| 13 | O | 135 | LEU |
| 13 | O | 137 | LYS |
| 13 | O | 138 | LEU |
| 13 | O | 146 | VAL |
| 13 | O | 147 | LEU |
| 13 | O | 148 | LEU |
| 13 | O | 149 | GLU |
| 14 | P | 6 | ARG |
| 14 | P | 9 | TYR |
| 14 | P | 14 | ARG |
| 14 | P | 18 | LYS |
| 14 | P | 25 | ASP |
| 14 | P | 26 | TYR |
| 14 | P | 32 | TYR |
| 14 | P | 34 | LEU |
| 14 | P | 35 | VAL |
| 14 | P | 38 | GLU |
| 14 | P | 41 | TRP |
| 14 | P | 42 | ILE |
| 14 | P | 43 | THR |
| 14 | P | 51 | ARG |
| 14 | P | 56 | ARG |
| 14 | P | 60 | ARG |
| 14 | P | 64 | ILE |
| 14 | P | 65 | PHE |
| 14 | P | 74 | TYR |
| 14 | P | 80 | GLU |
| 14 | P | 83 | MET |
| 14 | P | 91 | GLU |
| 14 | P | 97 | VAL |
| 14 | P | 98 | LYS |
| 14 | P | 99 | PRO |
| 14 | P | 101 | ARG |
| 14 | P | 105 | GLU |
| 14 | P | 109 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 14 | P | 111 | GLU |
| 14 | P | 112 | GLU |
| 14 | P | 116 | GLU |
| 14 | P | 123 | HIS |
| 14 | P | 126 | PRO |
| 14 | P | 127 | ILE |
| 14 | P | 132 | VAL |
| 14 | P | 133 | ARG |
| 14 | P | 134 | ARG |
| 14 | P | 139 | GLU |
| 15 | Q | 5 | LYS |
| 15 | Q | 10 | LEU |
| 15 | Q | 13 | HIS |
| 15 | Q | 17 | ARG |
| 15 | Q | 23 | ASN |
| 15 | Q | 28 | LEU |
| 15 | Q | 44 | LEU |
| 15 | Q | 51 | LEU |
| 15 | Q | 52 | ILE |
| 15 | Q | 54 | LEU |
| 15 | Q | 56 | LYS |
| 15 | Q | 59 | ASP |
| 15 | Q | 60 | LEU |
| 15 | Q | 61 | HIS |
| 15 | Q | 64 | ARG |
| 15 | Q | 69 | ASP |
| 15 | Q | 74 | LYS |
| 15 | Q | 77 | ARG |
| 15 | Q | 79 | LEU |
| 15 | Q | 82 | GLU |
| 15 | Q | 89 | ASP |
| 15 | Q | 98 | LEU |
| 15 | Q | 99 | LYS |
| 15 | Q | 103 | ARG |
| 15 | Q | 105 | ARG |
| 15 | Q | 113 | LEU |
| 15 | Q | 116 | LEU |
| 16 | R | 3 | ARG |
| 16 | R | 7 | TYR |
| 16 | R | 9 | ARG |
| 16 | R | 10 | ARG |
| 16 | R | 11 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16 | R | 12 | PHE |
| 16 | R | 15 | ARG |
| 16 | R | 18 | ILE |
| 16 | R | 21 | THR |
| 16 | R | 26 | LEU |
| 16 | R | 29 | PHE |
| 16 | R | 67 | ARG |
| 16 | R | 68 | GLN |
| 16 | R | 71 | ARG |
| 16 | R | 73 | LEU |
| 16 | R | 78 | LEU |
| 16 | R | 84 | GLN |
| 16 | R | 85 | VAL |
| 16 | R | 88 | ASP |
| 16 | R | 89 | ARG |
| 16 | R | 91 | PRO |
| 16 | R | 94 | TYR |
| 16 | R | 97 | ARG |
| 16 | R | 98 | VAL |
| 16 | R | 103 | GLU |
| 16 | R | 106 | ARG |
| 17 | S | 1 | MET |
| 17 | S | 3 | ARG |
| 17 | S | 6 | LEU |
| 17 | S | 10 | VAL |
| 17 | S | 11 | GLU |
| 17 | S | 13 | ARG |
| 17 | S | 14 | TYR |
| 17 | S | 20 | PRO |
| 17 | S | 29 | ARG |
| 17 | S | 30 | VAL |
| 17 | S | 32 | TYR |
| 17 | S | 34 | VAL |
| 17 | S | 43 | GLN |
| 17 | S | 44 | ASP |
| 17 | S | 45 | PHE |
| 17 | S | 46 | GLU |
| 17 | S | 50 | ILE |
| 17 | S | 53 | ARG |
| 17 | S | 55 | ASN |
| 17 | S | 58 | ASN |
| 17 | S | 62 | THR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 17 | S | 64 | ARG |
| 17 | S | 66 | VAL |
| 17 | S | 70 | VAL |
| 17 | S | 75 | ILE |
| 17 | S | 79 | HIS |
| 17 | S | 82 | LEU |
| 17 | S | 83 | ILE |
| 17 | S | 85 | LYS |
| 17 | S | 90 | GLN |
| 17 | S | 93 | ARG |
| 17 | S | 95 | ARG |
| 17 | S | 101 | PHE |
| 17 | S | 103 | ARG |
| 17 | S | 108 | ARG |
| 17 | S | 109 | GLU |
| 17 | S | 111 | ARG |
| 17 | S | 112 | ARG |
| 17 | S | 113 | LYS |
| 17 | S | 114 | LEU |
| 18 | T | 6 | THR |
| 18 | T | 8 | VAL |
| 18 | T | 11 | ARG |
| 18 | T | 15 | LYS |
| 18 | T | 16 | LYS |
| 18 | T | 18 | LEU |
| 18 | T | 19 | LYS |
| 18 | T | 24 | TYR |
| 18 | T | 25 | TRP |
| 18 | T | 32 | PHE |
| 18 | T | 38 | THR |
| 18 | T | 39 | LEU |
| 18 | T | 40 | PHE |
| 18 | T | 45 | TYR |
| 18 | T | 47 | TYR |
| 18 | T | 50 | ARG |
| 18 | T | 52 | ARG |
| 18 | T | 53 | ARG |
| 18 | T | 54 | LYS |
| 18 | T | 55 | ARG |
| 18 | T | 58 | ARG |
| 18 | T | 59 | ARG |
| 18 | T | 62 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18 | T | 63 | VAL |
| 18 | T | 74 | LEU |
| 18 | T | 76 | TYR |
| 18 | T | 77 | SER |
| 18 | T | 81 | HIS |
| 18 | T | 88 | ILE |
| 18 | T | 93 | LYS |
| 18 | T | 102 | GLU |
| 18 | T | 106 | PHE |
| 19 | U | 4 | ILE |
| 19 | U | 7 | THR |
| 19 | U | 13 | ARG |
| 19 | U | 15 | GLU |
| 19 | U | 18 | LEU |
| 19 | U | 20 | LEU |
| 19 | U | 34 | GLU |
| 19 | U | 35 | LEU |
| 19 | U | 38 | LEU |
| 19 | U | 43 | GLU |
| 19 | U | 45 | THR |
| 19 | U | 47 | VAL |
| 19 | U | 52 | VAL |
| 19 | U | 62 | LEU |
| 19 | U | 64 | HIS |
| 19 | U | 71 | LEU |
| 19 | U | 73 | SER |
| 19 | U | 74 | LYS |
| 19 | U | 78 | LYS |
| 19 | U | 82 | ARG |
| 19 | U | 83 | ARG |
| 19 | U | 84 | LYS |
| 19 | U | 88 | ARG |
| 19 | U | 93 | GLU |
| 19 | U | 95 | LEU |
| 19 | U | 97 | LYS |
| 19 | U | 100 | ARG |
| 20 | V | 1 | MET |
| 20 | V | 4 | LYS |
| 20 | V | 8 | ARG |
| 20 | V | 10 | VAL |
| 20 | V | 11 | ARG |
| 20 | V | 12 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20 | V | 13 | SER |
| 20 | V | 16 | LYS |
| 20 | V | 18 | ARG |
| 20 | V | 25 | ARG |
| 20 | V | 28 | SER |
| 20 | V | 31 | GLU |
| 20 | V | 33 | ARG |
| 20 | V | 36 | LEU |
| 20 | V | 42 | ARG |
| 20 | V | 45 | TYR |
| 20 | V | 51 | LEU |
| 20 | V | 52 | GLU |
| 20 | V | 53 | SER |
| 20 | V | 63 | ASP |
| 20 | V | 67 | ASP |
| 20 | V | 76 | VAL |
| 20 | V | 77 | ASP |
| 20 | V | 78 | GLU |
| 20 | V | 82 | LEU |
| 20 | V | 86 | LEU |
| 20 | V | 88 | ARG |
| 20 | V | 90 | ARG |
| 20 | V | 94 | ASP |
| 20 | V | 95 | ILE |
| 20 | V | 96 | ILE |
| 20 | V | 97 | LYS |
| 20 | V | 98 | LYS |
| 20 | V | 103 | ILE |
| 21 | W | 7 | VAL |
| 21 | W | 9 | LEU |
| 21 | W | 13 | LEU |
| 21 | W | 16 | LYS |
| 21 | W | 23 | GLU |
| 21 | W | 26 | TYR |
| 21 | W | 33 | LYS |
| 21 | W | 36 | LYS |
| 21 | W | 38 | GLU |
| 21 | W | 41 | ASN |
| 21 | W | 50 | LYS |
| 21 | W | 65 | ARG |
| 21 | W | 75 | ASP |
| 21 | W | 78 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21 | W | 87 | GLN |
| 21 | W | 90 | GLU |
| 21 | W | 92 | LEU |
| 22 | X | 2 | ARG |
| 22 | X | 13 | VAL |
| 22 | X | 14 | LEU |
| 22 | X | 19 | LYS |
| 22 | X | 20 | TYR |
| 22 | X | 23 | ARG |
| 22 | X | 27 | VAL |
| 22 | X | 28 | LYS |
| 22 | X | 35 | TYR |
| 22 | X | 54 | LYS |
| 22 | X | 60 | PHE |
| 22 | X | 64 | GLU |
| 22 | X | 72 | VAL |
| 22 | X | 73 | ARG |
| 22 | X | 75 | ILE |
| 22 | X | 82 | PRO |
| 22 | X | 84 | ARG |
| 22 | X | 89 | PHE |
| 22 | X | 102 | CYS |
| 22 | X | 107 | ASP |
| 23 | Y | 1 | MET |
| 23 | Y | 3 | TYR |
| 23 | Y | 9 | TYR |
| 23 | Y | 10 | ARG |
| 23 | Y | 14 | LYS |
| 23 | Y | 18 | LEU |
| 23 | Y | 24 | LEU |
| 23 | Y | 28 | MET |
| 23 | Y | 30 | ASN |
| 23 | Y | 32 | HIS |
| 23 | Y | 35 | ARG |
| 23 | Y | 36 | LYS |
| 23 | Y | 43 | GLU |
| 23 | Y | 44 | PHE |
| 23 | Y | 45 | ASP |
| 23 | Y | 49 | ARG |
| 23 | Y | 55 | HIS |
| 23 | Y | 58 | VAL |
| 23 | Y | 60 | GLU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | Y | 63 | ASP |
| 23 | Y | 70 | LEU |
| 23 | Y | 71 | VAL |
| 23 | Y | 76 | LEU |
| 23 | Y | 78 | LYS |
| 23 | Y | 80 | ARG |
| 23 | Y | 83 | PRO |
| 23 | Y | 86 | VAL |
| 23 | Y | 89 | PHE |
| 23 | Y | 95 | PRO |
| 23 | Y | 100 | VAL |
| 23 | Y | 103 | ARG |
| 23 | Y | 104 | PHE |
| 23 | Y | 107 | THR |
| 23 | Y | 108 | PRO |
| 23 | Y | 112 | ARG |
| 23 | Y | 116 | VAL |
| 23 | Y | 117 | LEU |
| 23 | Y | 118 | GLN |
| 23 | Y | 119 | GLU |
| 23 | Y | 120 | ILE |
| 23 | Y | 126 | VAL |
| 23 | Y | 129 | SER |
| 23 | Y | 130 | PRO |
| 23 | Y | 140 | ASP |
| 23 | Y | 151 | HIS |
| 23 | Y | 156 | LYS |
| 23 | Y | 159 | PRO |
| 23 | Y | 162 | GLU |
| 23 | Y | 163 | LEU |
| 23 | Y | 168 | GLU |
| 23 | Y | 170 | THR |
| 23 | Y | 171 | ILE |
| 24 | Z | 10 | THR |
| 24 | Z | 11 | ARG |
| 24 | Z | 14 | ARG |
| 24 | Z | 17 | GLN |
| 24 | Z | 21 | LEU |
| 24 | Z | 26 | TYR |
| 24 | Z | 31 | VAL |
| 24 | Z | 37 | LEU |
| 24 | Z | 46 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 24 | Z | 55 | ARG |
| 24 | Z | 64 | ASP |
| 24 | Z | 66 | VAL |
| 24 | Z | 68 | GLU |
| 24 | Z | 71 | ASP |
| 24 | Z | 72 | ARG |
| 24 | Z | 74 | ARG |
| 24 | Z | 75 | LEU |
| 24 | Z | 79 | VAL |
| 25 | 1 | 2 | ARG |
| 25 | 1 | 3 | LYS |
| 25 | 1 | 4 | GLN |
| 25 | 1 | 7 | GLU |
| 25 | 1 | 19 | LEU |
| 25 | 1 | 30 | LEU |
| 25 | 1 | 36 | ILE |
| 25 | 1 | 45 | ILE |
| 25 | 1 | 47 | ASP |
| 25 | 1 | 58 | VAL |
| 25 | 1 | 59 | LEU |
| 25 | 1 | 65 | GLN |
| 25 | 1 | 66 | ASN |
| 26 | 2 | 3 | ARG |
| 26 | 2 | 5 | LYS |
| 26 | 2 | 7 | LYS |
| 26 | 2 | 15 | TYR |
| 26 | 2 | 26 | LEU |
| 26 | 2 | 28 | LEU |
| 26 | 2 | 30 | ARG |
| 26 | 2 | 31 | LEU |
| 26 | 2 | 32 | GLN |
| 26 | 2 | 39 | ASP |
| 26 | 2 | 41 | PRO |
| 26 | 2 | 54 | VAL |
| 26 | 2 | 55 | ARG |
| 26 | 2 | 56 | VAL |
| 27 | 3 | 1 | MET |
| 27 | 3 | 3 | GLU |
| 27 | 3 | 5 | ILE |
| 27 | 3 | 9 | LEU |
| 27 | 3 | 14 | ILE |
| 27 | 3 | 16 | CYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27 | 3 | 18 | CYS |
| 27 | 3 | 24 | THR |
| 27 | 3 | 25 | TYR |
| 27 | 3 | 28 | LYS |
| 27 | 3 | 31 | ILE |
| 27 | 3 | 39 | CYS |
| 27 | 3 | 43 | TYR |
| 27 | 3 | 47 | GLN |
| 27 | 3 | 48 | ARG |
| 27 | 3 | 49 | PHE |
| 27 | 3 | 51 | ASP |
| 27 | 3 | 53 | GLU |
| 27 | 3 | 59 | PHE |
| 27 | 3 | 60 | GLN |
| 27 | 3 | 68 | ARG |
| 28 | 4 | 4 | HIS |
| 28 | 4 | 5 | PRO |
| 28 | 4 | 9 | LYS |
| 28 | 4 | 10 | LYS |
| 28 | 4 | 16 | ARG |
| 28 | 4 | 17 | ASP |
| 28 | 4 | 21 | SER |
| 28 | 4 | 25 | LEU |
| 28 | 4 | 27 | PRO |
| 28 | 4 | 33 | CYS |
| 28 | 4 | 39 | MET |
| 28 | 4 | 43 | HIS |
| 28 | 4 | 46 | CYS |
| 28 | 4 | 49 | CYS |
| 28 | 4 | 51 | TYR |
| 28 | 4 | 55 | ARG |
| 28 | 4 | 58 | LEU |
| 29 | 5 | 7 | ILE |
| 29 | 5 | 9 | LEU |
| 29 | 5 | 13 | CYS |
| 29 | 5 | 14 | THR |
| 29 | 5 | 18 | ARG |
| 29 | 5 | 19 | ARG |
| 29 | 5 | 21 | TYR |
| 29 | 5 | 23 | THR |
| 29 | 5 | 27 | LYS |
| 29 | 5 | 29 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29 | 5 | 32 | ASN |
| 29 | 5 | 33 | LYS |
| 29 | 5 | 38 | LYS |
| 29 | 5 | 42 | TRP |
| 29 | 5 | 51 | GLU |
| 29 | 5 | 54 | ILE |
| 30 | 6 | 1 | MET |
| 30 | 6 | 3 | ARG |
| 30 | 6 | 5 | TRP |
| 30 | 6 | 6 | GLN |
| 30 | 6 | 8 | ASN |
| 30 | 6 | 19 | ARG |
| 30 | 6 | 21 | ARG |
| 30 | 6 | 22 | MET |
| 30 | 6 | 24 | THR |
| 30 | 6 | 34 | ARG |
| 30 | 6 | 41 | ARG |
| 30 | 6 | 42 | LEU |
| 30 | 6 | 46 | VAL |
| 31 | 7 | 4 | MET |
| 31 | 7 | 11 | LYS |
| 31 | 7 | 14 | VAL |
| 31 | 7 | 16 | ILE |
| 31 | 7 | 33 | ASN |
| 31 | 7 | 40 | GLU |
| 31 | 7 | 42 | ARG |
| 31 | 7 | 43 | GLN |
| 31 | 7 | 44 | LYS |
| 31 | 7 | 46 | ARG |
| 31 | 7 | 48 | PHE |
| 31 | 7 | 50 | LEU |
| 31 | 7 | 52 | LYS |
| 31 | 7 | 61 | LEU |
| 31 | 7 | 64 | TYR |
| 32 | 8 | 3 | VAL |
| 32 | 8 | 10 | ILE |
| 32 | 8 | 13 | LYS |
| 32 | 8 | 18 | ARG |
| 32 | 8 | 19 | ARG |
| 32 | 8 | 20 | HIS |
| 32 | 8 | 23 | VAL |
| 32 | 8 | 27 | CYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 32 | 8 | 35 | ARG |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (108) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | C | 27 | HIS |
| 3 | C | 44 | HIS |
| 3 | C | 56 | GLN |
| 3 | C | 57 | ASN |
| 3 | C | 172 | HIS |
| 3 | C | 225 | ASN |
| 4 | D | 45 | ASN |
| 4 | D | 87 | ASN |
| 4 | D | 115 | GLN |
| 4 | D | 126 | GLN |
| 4 | D | 129 | ASN |
| 4 | D | 201 | HIS |
| 4 | D | 203 | ASN |
| 5 | E | 48 | GLN |
| 5 | E | 54 | GLN |
| 5 | E | 55 | ASN |
| 5 | E | 85 | ASN |
| 5 | E | 121 | ASN |
| 5 | E | 169 | ASN |
| 5 | E | 180 | ASN |
| 5 | E | 192 | ASN |
| 6 | F | 29 | ASN |
| 6 | F | 67 | GLN |
| 6 | F | 133 | ASN |
| 6 | F | 169 | ASN |
| 7 | G | 26 | GLN |
| 7 | G | 121 | ASN |
| 7 | G | 130 | ASN |
| 7 | G | 132 | ASN |
| 8 | H | 111 | HIS |
| 9 | K | 28 | ASN |
| 9 | K | 43 | ASN |
| 9 | K | 104 | GLN |
| 9 | K | 105 | HIS |
| 9 | K | 133 | HIS |
| 10 | L | 11 | GLN |
| 10 | L | 30 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 10 | L | 42 | ASN |
| 10 | L | 47 | ASN |
| 10 | L | 89 | HIS |
| 10 | L | 103 | GLN |
| 10 | L | 116 | ASN |
| 11 | M | 94 | HIS |
| 12 | N | 5 | GLN |
| 12 | N | 82 | ASN |
| 12 | N | 88 | ASN |
| 12 | N | 89 | ASN |
| 12 | N | 90 | GLN |
| 13 | O | 13 | ASN |
| 13 | O | 68 | GLN |
| 13 | O | 128 | HIS |
| 14 | P | 12 | GLN |
| 14 | P | 13 | GLN |
| 14 | P | 89 | ASN |
| 14 | P | 113 | GLN |
| 15 | Q | 13 | HIS |
| 15 | Q | 31 | HIS |
| 15 | Q | 71 | GLN |
| 15 | Q | 91 | GLN |
| 16 | R | 38 | GLN |
| 17 | S | 38 | ASN |
| 17 | S | 55 | ASN |
| 17 | S | 84 | GLN |
| 17 | S | 104 | ASN |
| 18 | T | 44 | ASN |
| 18 | T | 49 | HIS |
| 18 | T | 71 | GLN |
| 18 | T | 94 | ASN |
| 18 | T | 117 | GLN |
| 19 | U | 11 | GLN |
| 19 | U | 80 | GLN |
| 19 | U | 89 | GLN |
| 20 | V | 34 | ASN |
| 20 | V | 40 | ASN |
| 20 | V | 57 | ASN |
| 20 | V | 60 | ASN |
| 20 | V | 61 | ASN |
| 20 | V | 102 | HIS |
| 21 | W | 31 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21 | W | 41 | ASN |
| 21 | W | 82 | GLN |
| 21 | W | 87 | GLN |
| 23 | Y | 34 | ASN |
| 23 | Y | 75 | ASN |
| 23 | Y | 118 | GLN |
| 23 | Y | 151 | HIS |
| 24 | Z | 12 | ASN |
| 24 | Z | 17 | GLN |
| 24 | Z | 35 | ASN |
| 25 | 1 | 41 | GLN |
| 25 | 1 | 42 | ASN |
| 25 | 1 | 51 | GLN |
| 25 | 1 | 65 | GLN |
| 27 | 3 | 20 | ASN |
| 27 | 3 | 46 | GLN |
| 27 | 3 | 47 | GLN |
| 28 | 4 | 4 | HIS |
| 28 | 4 | 22 | HIS |
| 28 | 4 | 43 | HIS |
| 29 | 5 | 20 | ASN |
| 29 | 5 | 29 | ASN |
| 29 | 5 | 32 | ASN |
| 30 | 6 | 6 | GLN |
| 31 | 7 | 7 | HIS |
| 31 | 7 | 31 | HIS |
| 31 | 7 | 33 | ASN |
| 31 | 7 | 35 | GLN |
| 31 | 7 | 43 | GLN |

5.3.3 RNA ⓘ

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1 | A | 2888/2916 (99%) | 1218 (42%) | 265 (9%) |
| 2 | B | 122/123 (99%) | 49 (40%) | 4 (3%) |
| All | All | 3010/3039 (99%) | 1267 (42%) | 269 (8%) |

All (1267) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 3 | U |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 13 | A |
| 1 | A | 14 | A |
| 1 | A | 15 | G |
| 1 | A | 23 | G |
| 1 | A | 26 | G |
| 1 | A | 27 | G |
| 1 | A | 29 | U |
| 1 | A | 33 | U |
| 1 | A | 34 | C |
| 1 | A | 38 | A |
| 1 | A | 46 | C |
| 1 | A | 49 | A |
| 1 | A | 50 | U |
| 1 | A | 51 | G |
| 1 | A | 52 | A |
| 1 | A | 60 | G |
| 1 | A | 61 | G |
| 1 | A | 63 | U |
| 1 | A | 64 | A |
| 1 | A | 66 | C |
| 1 | A | 68 | G |
| 1 | A | 71 | A |
| 1 | A | 72 | U |
| 1 | A | 73 | A |
| 1 | A | 74 | A |
| 1 | A | 75 | G |
| 1 | A | 77 | C |
| 1 | A | 82 | G |
| 1 | A | 83 | G |
| 1 | A | 84 | A |
| 1 | A | 88 | G |
| 1 | A | 90 | U |
| 1 | A | 91 | A |
| 1 | A | 92 | G |
| 1 | A | 101 | G |
| 1 | A | 102 | G |
| 1 | A | 104 | U |
| 1 | A | 110 | G |
| 1 | A | 112 | U |
| 1 | A | 113 | G |
| 1 | A | 119 | A |
| 1 | A | 120 | U |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 121 | G |
| 1 | A | 125 | G |
| 1 | A | 126 | A |
| 1 | A | 131 | G |
| 1 | A | 132 | G |
| 1 | A | 138 | G |
| 1 | A | 139 | G |
| 1 | A | 140 | A |
| 1 | A | 141 | A |
| 1 | A | 147 | U |
| 1 | A | 149 | A |
| 1 | A | 161 | U |
| 1 | A | 162 | U |
| 1 | A | 163 | U |
| 1 | A | 164 | U |
| 1 | A | 171 | G |
| 1 | A | 172 | C |
| 1 | A | 173 | G |
| 1 | A | 178 | G |
| 1 | A | 180 | G |
| 1 | A | 181 | A |
| 1 | A | 182 | A |
| 1 | A | 183 | C |
| 1 | A | 196 | A |
| 1 | A | 197 | A |
| 1 | A | 200 | U |
| 1 | A | 201 | C |
| 1 | A | 204 | A |
| 1 | A | 205 | G |
| 1 | A | 206 | U |
| 1 | A | 215 | G |
| 1 | A | 216 | A |
| 1 | A | 217 | G |
| 1 | A | 221 | A |
| 1 | A | 222 | A |
| 1 | A | 223 | A |
| 1 | A | 228 | A |
| 1 | A | 229 | A |
| 1 | A | 232 | G |
| 1 | A | 233 | A |
| 1 | A | 239 | U |
| 1 | A | 241 | A |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 1 | A | 242 | G |
| 1 | A | 243 | U |
| 1 | A | 244 | A |
| 1 | A | 245 | G |
| 1 | A | 247 | G |
| 1 | A | 248 | G |
| 1 | A | 249 | C |
| 1 | A | 250 | G |
| 1 | A | 251 | A |
| 1 | A | 252 | G |
| 1 | A | 263 | C |
| 1 | A | 264 | C |
| 1 | A | 265 | A |
| 1 | A | 266 | G |
| 1 | A | 267 | C |
| 1 | A | 270(A) | A |
| 1 | A | 270(B) | A |
| 1 | A | 270(C) | C |
| 1 | A | 270(D) | C |
| 1 | A | 270(E) | G |
| 1 | A | 270(F) | U |
| 1 | A | 270(K) | C |
| 1 | A | 270(M) | U |
| 1 | A | 270(N) | G |
| 1 | A | 270(Y) | G |
| 1 | A | 270(Z) | U |
| 1 | A | 271(A) | C |
| 1 | A | 271(C) | U |
| 1 | A | 271 | G |
| 1 | A | 273 | G |
| 1 | A | 273(F) | C |
| 1 | A | 275 | G |
| 1 | A | 276 | A |
| 1 | A | 277 | C |
| 1 | A | 278 | A |
| 1 | A | 279 | C |
| 1 | A | 280 | C |
| 1 | A | 281 | G |
| 1 | A | 282 | A |
| 1 | A | 283 | A |
| 1 | A | 284 | U |
| 1 | A | 286 | C |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 1 | A | 287 | C |
| 1 | A | 288 | C |
| 1 | A | 289 | A |
| 1 | A | 290 | G |
| 1 | A | 293 | U |
| 1 | A | 295 | G |
| 1 | A | 296 | C |
| 1 | A | 300 | A |
| 1 | A | 302 | C |
| 1 | A | 309 | G |
| 1 | A | 310 | A |
| 1 | A | 311 | A |
| 1 | A | 312 | G |
| 1 | A | 313 | C |
| 1 | A | 316 | C |
| 1 | A | 322 | A |
| 1 | A | 323 | G |
| 1 | A | 324 | A |
| 1 | A | 325 | G |
| 1 | A | 329 | G |
| 1 | A | 330 | A |
| 1 | A | 332 | A |
| 1 | A | 333 | G |
| 1 | A | 339 | U |
| 1 | A | 341 | G |
| 1 | A | 342 | G |
| 1 | A | 345 | A |
| 1 | A | 347 | A |
| 1 | A | 348 | G |
| 1 | A | 349 | G |
| 1 | A | 350 | U |
| 1 | A | 351 | G |
| 1 | A | 352 | G |
| 1 | A | 354 | G |
| 1 | A | 356 | G |
| 1 | A | 359 | A |
| 1 | A | 360 | G |
| 1 | A | 361 | G |
| 1 | A | 362 | U |
| 1 | A | 363(A) | A |
| 1 | A | 363(B) | G |
| 1 | A | 363(C) | G |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 1 | A | 363(F) | A |
| 1 | A | 364 | C |
| 1 | A | 366 | C |
| 1 | A | 370 | G |
| 1 | A | 372 | G |
| 1 | A | 373 | U |
| 1 | A | 374 | A |
| 1 | A | 386 | G |
| 1 | A | 388 | G |
| 1 | A | 390 | A |
| 1 | A | 391 | G |
| 1 | A | 395 | U |
| 1 | A | 396 | G |
| 1 | A | 397 | G |
| 1 | A | 401 | A |
| 1 | A | 404 | C |
| 1 | A | 405 | U |
| 1 | A | 406 | G |
| 1 | A | 411 | G |
| 1 | A | 412 | A |
| 1 | A | 422 | A |
| 1 | A | 423 | A |
| 1 | A | 424 | G |
| 1 | A | 427 | U |
| 1 | A | 428 | A |
| 1 | A | 429 | A |
| 1 | A | 435 | C |
| 1 | A | 436 | C |
| 1 | A | 443 | A |
| 1 | A | 444 | C |
| 1 | A | 445 | C |
| 1 | A | 446 | G |
| 1 | A | 448 | U |
| 1 | A | 449 | A |
| 1 | A | 451 | C |
| 1 | A | 452 | G |
| 1 | A | 453 | C |
| 1 | A | 454 | A |
| 1 | A | 455 | C |
| 1 | A | 456 | C |
| 1 | A | 457 | A |
| 1 | A | 471 | A |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 479 | A |
| 1 | A | 480 | A |
| 1 | A | 481 | G |
| 1 | A | 482 | A |
| 1 | A | 483 | A |
| 1 | A | 484 | C |
| 1 | A | 492 | A |
| 1 | A | 497 | A |
| 1 | A | 503 | A |
| 1 | A | 504 | U |
| 1 | A | 505 | A |
| 1 | A | 506 | G |
| 1 | A | 508 | G |
| 1 | A | 509 | C |
| 1 | A | 513 | A |
| 1 | A | 519 | U |
| 1 | A | 527 | C |
| 1 | A | 528 | A |
| 1 | A | 529 | A |
| 1 | A | 530 | G |
| 1 | A | 531 | C |
| 1 | A | 532 | A |
| 1 | A | 533 | G |
| 1 | A | 541 | C |
| 1 | A | 549 | G |
| 1 | A | 556 | G |
| 1 | A | 559 | G |
| 1 | A | 560 | C |
| 1 | A | 562 | U |
| 1 | A | 563 | G |
| 1 | A | 564 | C |
| 1 | A | 565 | C |
| 1 | A | 566 | U |
| 1 | A | 567 | A |
| 1 | A | 568 | U |
| 1 | A | 569 | U |
| 1 | A | 571 | A |
| 1 | A | 572 | A |
| 1 | A | 573 | G |
| 1 | A | 574 | C |
| 1 | A | 575 | A |
| 1 | A | 579 | G |

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Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 586 | A |
| 1 | A | 588 | U |
| 1 | A | 593 | G |
| 1 | A | 599 | G |
| 1 | A | 603 | A |
| 1 | A | 605 | C |
| 1 | A | 607 | U |
| 1 | A | 613 | U |
| 1 | A | 614 | U |
| 1 | A | 615 | G |
| 1 | A | 616 | A |
| 1 | A | 617 | G |
| 1 | A | 618 | G |
| 1 | A | 620 | G |
| 1 | A | 621 | A |
| 1 | A | 622 | G |
| 1 | A | 624 | C |
| 1 | A | 625 | G |
| 1 | A | 627 | A |
| 1 | A | 629 | G |
| 1 | A | 630 | G |
| 1 | A | 631 | A |
| 1 | A | 634 | C |
| 1 | A | 637 | A |
| 1 | A | 638 | G |
| 1 | A | 640 | C |
| 1 | A | 641 | C |
| 1 | A | 643 | A |
| 1 | A | 644 | A |
| 1 | A | 645 | C |
| 1 | A | 646 | A |
| 1 | A | 650 | C |
| 1 | A | 653 | A |
| 1 | A | 654 | A |
| 1 | A | 655 | A |
| 1 | A | 656 | G |
| 1 | A | 657 | U |
| 1 | A | 661 | C |
| 1 | A | 665 | C |
| 1 | A | 666 | G |
| 1 | A | 668 | G |
| 1 | A | 669 | G |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 670 | A |
| 1 | A | 671 | C |
| 1 | A | 686 | G |
| 1 | A | 687 | C |
| 1 | A | 688 | U |
| 1 | A | 690 | G |
| 1 | A | 697 | C |
| 1 | A | 704 | G |
| 1 | A | 705 | A |
| 1 | A | 706 | A |
| 1 | A | 713 | G |
| 1 | A | 714 | U |
| 1 | A | 715 | G |
| 1 | A | 716 | A |
| 1 | A | 718 | A |
| 1 | A | 728 | G |
| 1 | A | 729 | G |
| 1 | A | 730 | C |
| 1 | A | 731 | C |
| 1 | A | 734 | A |
| 1 | A | 735 | A |
| 1 | A | 739 | G |
| 1 | A | 740 | U |
| 1 | A | 741 | G |
| 1 | A | 746 | A |
| 1 | A | 747 | U |
| 1 | A | 748 | G |
| 1 | A | 749 | C |
| 1 | A | 750 | A |
| 1 | A | 751 | A |
| 1 | A | 752 | A |
| 1 | A | 759 | G |
| 1 | A | 760 | G |
| 1 | A | 762 | U |
| 1 | A | 763 | G |
| 1 | A | 764 | A |
| 1 | A | 772 | C |
| 1 | A | 774 | A |
| 1 | A | 775 | G |
| 1 | A | 776 | G |
| 1 | A | 777 | A |
| 1 | A | 779 | U |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 781 | A |
| 1 | A | 782 | A |
| 1 | A | 783 | A |
| 1 | A | 784 | A |
| 1 | A | 785 | G |
| 1 | A | 786 | C |
| 1 | A | 787 | U |
| 1 | A | 789 | A |
| 1 | A | 790 | C |
| 1 | A | 791 | C |
| 1 | A | 792 | G |
| 1 | A | 793 | A |
| 1 | A | 794 | G |
| 1 | A | 799 | G |
| 1 | A | 800 | A |
| 1 | A | 801 | G |
| 1 | A | 802 | A |
| 1 | A | 805 | G |
| 1 | A | 806 | C |
| 1 | A | 811 | U |
| 1 | A | 812 | C |
| 1 | A | 816 | C |
| 1 | A | 819 | A |
| 1 | A | 821 | A |
| 1 | A | 822 | U |
| 1 | A | 823 | G |
| 1 | A | 824 | A |
| 1 | A | 827 | U |
| 1 | A | 830 | G |
| 1 | A | 831 | G |
| 1 | A | 833 | U |
| 1 | A | 842 | G |
| 1 | A | 844 | C |
| 1 | A | 846 | C |
| 1 | A | 847 | U |
| 1 | A | 858 | U |
| 1 | A | 859 | G |
| 1 | A | 860 | U |
| 1 | A | 861 | A |
| 1 | A | 863 | A |
| 1 | A | 865 | C |
| 1 | A | 866 | A |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 867 | C |
| 1 | A | 881 | G |
| 1 | A | 886 | C |
| 1 | A | 888 | C |
| 1 | A | 889 | C |
| 1 | A | 890 | A |
| 1 | A | 892 | G |
| 1 | A | 896 | A |
| 1 | A | 897 | C |
| 1 | A | 899 | A |
| 1 | A | 902 | C |
| 1 | A | 906 | G |
| 1 | A | 907 | U |
| 1 | A | 909 | A |
| 1 | A | 910 | A |
| 1 | A | 914 | C |
| 1 | A | 918 | A |
| 1 | A | 919 | G |
| 1 | A | 920 | G |
| 1 | A | 929 | G |
| 1 | A | 930 | U |
| 1 | A | 931 | G |
| 1 | A | 932 | G |
| 1 | A | 933 | A |
| 1 | A | 936 | C |
| 1 | A | 937 | U |
| 1 | A | 941 | A |
| 1 | A | 943 | U |
| 1 | A | 944 | G |
| 1 | A | 945 | A |
| 1 | A | 946 | G |
| 1 | A | 957 | A |
| 1 | A | 958 | U |
| 1 | A | 959 | A |
| 1 | A | 961 | C |
| 1 | A | 962 | G |
| 1 | A | 967 | C |
| 1 | A | 969 | U |
| 1 | A | 973 | A |
| 1 | A | 975 | G |
| 1 | A | 976 | C |
| 1 | A | 980 | A |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 982 | C |
| 1 | A | 983 | A |
| 1 | A | 988 | A |
| 1 | A | 989 | G |
| 1 | A | 990 | A |
| 1 | A | 991 | C |
| 1 | A | 995 | C |
| 1 | A | 996 | A |
| 1 | A | 997 | G |
| 1 | A | 1008 | C |
| 1 | A | 1009 | A |
| 1 | A | 1011 | G |
| 1 | A | 1012 | U |
| 1 | A | 1013 | C |
| 1 | A | 1021 | A |
| 1 | A | 1022 | G |
| 1 | A | 1023 | U |
| 1 | A | 1024 | G |
| 1 | A | 1025 | G |
| 1 | A | 1026 | U |
| 1 | A | 1027 | A |
| 1 | A | 1033 | U |
| 1 | A | 1034 | G |
| 1 | A | 1038 | C |
| 1 | A | 1044 | G |
| 1 | A | 1045 | A |
| 1 | A | 1046 | A |
| 1 | A | 1047 | G |
| 1 | A | 1050 | A |
| 1 | A | 1056 | G |
| 1 | A | 1059 | G |
| 1 | A | 1060 | U |
| 1 | A | 1061 | U |
| 1 | A | 1064 | C |
| 1 | A | 1065 | U |
| 1 | A | 1066 | U |
| 1 | A | 1067 | A |
| 1 | A | 1068 | G |
| 1 | A | 1070 | A |
| 1 | A | 1071 | G |
| 1 | A | 1072 | C |
| 1 | A | 1073 | A |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 1 | A | 1075 | C |
| 1 | A | 1077 | A |
| 1 | A | 1079 | C |
| 1 | A | 1083 | U |
| 1 | A | 1084 | A |
| 1 | A | 1085 | A |
| 1 | A | 1086 | A |
| 1 | A | 1087 | G |
| 1 | A | 1088 | A |
| 1 | A | 1090 | U |
| 1 | A | 1093 | G |
| 1 | A | 1097 | U |
| 1 | A | 1099 | G |
| 1 | A | 1101 | U |
| 1 | A | 1104 | C |
| 1 | A | 1106 | G |
| 1 | A | 1109 | C |
| 1 | A | 1110 | G |
| 1 | A | 1111 | A |
| 1 | A | 1112 | G |
| 1 | A | 1113 | U |
| 1 | A | 1116 | C |
| 1 | A | 1119 | C |
| 1 | A | 1126 | A |
| 1 | A | 1128 | A |
| 1 | A | 1130 | U |
| 1 | A | 1131 | G |
| 1 | A | 1132 | A |
| 1 | A | 1134 | G |
| 1 | A | 1135 | C |
| 1 | A | 1140 | C |
| 1 | A | 1141 | U |
| 1 | A | 1142 | U |
| 1 | A | 1142(A) | A |
| 1 | A | 1143 | A |
| 1 | A | 1154 | G |
| 1 | A | 1155 | A |
| 1 | A | 1156 | A |
| 1 | A | 1157 | G |
| 1 | A | 1160 | G |
| 1 | A | 1162 | G |
| 1 | A | 1171 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1173 | G |
| 1 | A | 1174 | A |
| 1 | A | 1175 | U |
| 1 | A | 1176 | G |
| 1 | A | 1177 | A |
| 1 | A | 1179 | C |
| 1 | A | 1180 | C |
| 1 | A | 1182 | A |
| 1 | A | 1183 | G |
| 1 | A | 1184 | G |
| 1 | A | 1190 | G |
| 1 | A | 1197 | G |
| 1 | A | 1199 | U |
| 1 | A | 1201 | C |
| 1 | A | 1203 | G |
| 1 | A | 1204 | A |
| 1 | A | 1205 | U |
| 1 | A | 1206 | G |
| 1 | A | 1207 | C |
| 1 | A | 1211 | U |
| 1 | A | 1212 | G |
| 1 | A | 1216 | G |
| 1 | A | 1220 | A |
| 1 | A | 1221 | C |
| 1 | A | 1222 | C |
| 1 | A | 1228 | G |
| 1 | A | 1236 | G |
| 1 | A | 1238 | G |
| 1 | A | 1240 | U |
| 1 | A | 1241 | A |
| 1 | A | 1242 | A |
| 1 | A | 1244 | G |
| 1 | A | 1247 | A |
| 1 | A | 1248 | G |
| 1 | A | 1249 | U |
| 1 | A | 1251 | C |
| 1 | A | 1252 | G |
| 1 | A | 1253 | A |
| 1 | A | 1254 | A |
| 1 | A | 1256 | G |
| 1 | A | 1260 | G |
| 1 | A | 1261 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1264 | G |
| 1 | A | 1265 | A |
| 1 | A | 1266 | G |
| 1 | A | 1267 | U |
| 1 | A | 1268 | A |
| 1 | A | 1270 | C |
| 1 | A | 1271 | G |
| 1 | A | 1272 | A |
| 1 | A | 1273 | U |
| 1 | A | 1275 | A |
| 1 | A | 1276 | A |
| 1 | A | 1286 | A |
| 1 | A | 1289 | C |
| 1 | A | 1297 | C |
| 1 | A | 1300 | U |
| 1 | A | 1301 | A |
| 1 | A | 1302 | A |
| 1 | A | 1303 | G |
| 1 | A | 1311 | G |
| 1 | A | 1312 | U |
| 1 | A | 1316 | U |
| 1 | A | 1318 | C |
| 1 | A | 1321 | A |
| 1 | A | 1322 | A |
| 1 | A | 1324 | G |
| 1 | A | 1325 | G |
| 1 | A | 1326 | U |
| 1 | A | 1327 | C |
| 1 | A | 1328 | G |
| 1 | A | 1329 | U |
| 1 | A | 1340 | U |
| 1 | A | 1341 | U |
| 1 | A | 1342 | A |
| 1 | A | 1343 | G |
| 1 | A | 1344 | G |
| 1 | A | 1345 | C |
| 1 | A | 1347 | G |
| 1 | A | 1350 | C |
| 1 | A | 1352 | U |
| 1 | A | 1363 | C |
| 1 | A | 1364 | G |
| 1 | A | 1365 | A |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 1 | A | 1366 | A |
| 1 | A | 1368 | G |
| 1 | A | 1379 | A |
| 1 | A | 1385 | G |
| 1 | A | 1394 | U |
| 1 | A | 1395 | A |
| 1 | A | 1397 | U |
| 1 | A | 1398 | C |
| 1 | A | 1402 | C |
| 1 | A | 1404 | C |
| 1 | A | 1407 | C |
| 1 | A | 1416 | G |
| 1 | A | 1417 | C |
| 1 | A | 1418 | G |
| 1 | A | 1419 | A |
| 1 | A | 1420 | U |
| 1 | A | 1421 | G |
| 1 | A | 1424 | G |
| 1 | A | 1425 | G |
| 1 | A | 1427 | A |
| 1 | A | 1428 | C |
| 1 | A | 1429 | G |
| 1 | A | 1431 | U |
| 1 | A | 1444 | G |
| 1 | A | 1444(A) | A |
| 1 | A | 1445 | C |
| 1 | A | 1448 | G |
| 1 | A | 1451 | C |
| 1 | A | 1453 | A |
| 1 | A | 1455 | G |
| 1 | A | 1459 | G |
| 1 | A | 1460 | A |
| 1 | A | 1461 | G |
| 1 | A | 1467 | C |
| 1 | A | 1468 | C |
| 1 | A | 1471 | A |
| 1 | A | 1472 | A |
| 1 | A | 1477 | A |
| 1 | A | 1478 | G |
| 1 | A | 1480 | G |
| 1 | A | 1482 | U |
| 1 | A | 1483 | G |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 1 | A | 1490 | A |
| 1 | A | 1491 | G |
| 1 | A | 1492 | G |
| 1 | A | 1493 | C |
| 1 | A | 1494 | A |
| 1 | A | 1495 | A |
| 1 | A | 1496 | A |
| 1 | A | 1497 | U |
| 1 | A | 1498 | C |
| 1 | A | 1499 | C |
| 1 | A | 1507 | A |
| 1 | A | 1508 | A |
| 1 | A | 1509 | C |
| 1 | A | 1510 | A |
| 1 | A | 1512 | G |
| 1 | A | 1513 | C |
| 1 | A | 1514 | U |
| 1 | A | 1515 | C |
| 1 | A | 1516 | U |
| 1 | A | 1519 | G |
| 1 | A | 1520 | U |
| 1 | A | 1521 | G |
| 1 | A | 1522 | G |
| 1 | A | 1526 | G |
| 1 | A | 1527 | G |
| 1 | A | 1529 | A |
| 1 | A | 1530 | G |
| 1 | A | 1532 | C |
| 1 | A | 1538 | G |
| 1 | A | 1540 | G |
| 1 | A | 1541 | U |
| 1 | A | 1542 | G |
| 1 | A | 1544 | C |
| 1 | A | 1545(A) | A |
| 1 | A | 1553 | A |
| 1 | A | 1554 | A |
| 1 | A | 1555 | G |
| 1 | A | 1558 | A |
| 1 | A | 1559 | G |
| 1 | A | 1560 | G |
| 1 | A | 1561 | G |
| 1 | A | 1566 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1567 | A |
| 1 | A | 1568 | G |
| 1 | A | 1569 | A |
| 1 | A | 1570 | A |
| 1 | A | 1571 | A |
| 1 | A | 1572 | A |
| 1 | A | 1573 | G |
| 1 | A | 1577 | C |
| 1 | A | 1580 | A |
| 1 | A | 1581 | G |
| 1 | A | 1583 | A |
| 1 | A | 1585 | C |
| 1 | A | 1586 | A |
| 1 | A | 1587 | A |
| 1 | A | 1591 | G |
| 1 | A | 1596 | A |
| 1 | A | 1601 | G |
| 1 | A | 1602 | U |
| 1 | A | 1603 | A |
| 1 | A | 1604 | C |
| 1 | A | 1607 | C |
| 1 | A | 1608 | A |
| 1 | A | 1609 | A |
| 1 | A | 1610 | A |
| 1 | A | 1612 | C |
| 1 | A | 1613 | G |
| 1 | A | 1614 | A |
| 1 | A | 1615 | C |
| 1 | A | 1616 | A |
| 1 | A | 1617 | C |
| 1 | A | 1618 | A |
| 1 | A | 1619 | G |
| 1 | A | 1622 | G |
| 1 | A | 1625 | C |
| 1 | A | 1626 | G |
| 1 | A | 1627 | G |
| 1 | A | 1631 | A |
| 1 | A | 1634 | A |
| 1 | A | 1635 | G |
| 1 | A | 1639 | U |
| 1 | A | 1640 | C |
| 1 | A | 1641 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1645 | G |
| 1 | A | 1646 | C |
| 1 | A | 1647 | G |
| 1 | A | 1648 | C |
| 1 | A | 1651 | G |
| 1 | A | 1652 | A |
| 1 | A | 1653 | G |
| 1 | A | 1654 | A |
| 1 | A | 1655 | A |
| 1 | A | 1656 | C |
| 1 | A | 1657 | C |
| 1 | A | 1663 | C |
| 1 | A | 1664 | A |
| 1 | A | 1665 | A |
| 1 | A | 1667 | G |
| 1 | A | 1668 | A |
| 1 | A | 1669 | A |
| 1 | A | 1670 | C |
| 1 | A | 1673 | U |
| 1 | A | 1674 | G |
| 1 | A | 1675 | C |
| 1 | A | 1678 | G |
| 1 | A | 1681 | G |
| 1 | A | 1682 | G |
| 1 | A | 1684 | C |
| 1 | A | 1693 | U |
| 1 | A | 1694 | C |
| 1 | A | 1698 | A |
| 1 | A | 1699 | G |
| 1 | A | 1700 | A |
| 1 | A | 1701 | A |
| 1 | A | 1703 | G |
| 1 | A | 1706 | U |
| 1 | A | 1707 | G |
| 1 | A | 1709 | U |
| 1 | A | 1710 | C |
| 1 | A | 1728 | G |
| 1 | A | 1730 | U |
| 1 | A | 1732 | A |
| 1 | A | 1733 | G |
| 1 | A | 1741 | C |
| 1 | A | 1743 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1746 | G |
| 1 | A | 1747 | G |
| 1 | A | 1755 | A |
| 1 | A | 1757 | U |
| 1 | A | 1758 | G |
| 1 | A | 1759 | A |
| 1 | A | 1762 | A |
| 1 | A | 1763 | G |
| 1 | A | 1764 | G |
| 1 | A | 1772 | G |
| 1 | A | 1773 | A |
| 1 | A | 1775 | U |
| 1 | A | 1779 | U |
| 1 | A | 1780 | A |
| 1 | A | 1781 | C |
| 1 | A | 1782 | C |
| 1 | A | 1783 | A |
| 1 | A | 1784 | A |
| 1 | A | 1785 | A |
| 1 | A | 1789 | A |
| 1 | A | 1790 | C |
| 1 | A | 1791 | A |
| 1 | A | 1792 | G |
| 1 | A | 1798 | U |
| 1 | A | 1800 | C |
| 1 | A | 1801 | G |
| 1 | A | 1802 | A |
| 1 | A | 1803 | A |
| 1 | A | 1809 | A |
| 1 | A | 1810 | A |
| 1 | A | 1813 | G |
| 1 | A | 1814 | G |
| 1 | A | 1815 | A |
| 1 | A | 1816 | G |
| 1 | A | 1818 | U |
| 1 | A | 1819 | A |
| 1 | A | 1820 | U |
| 1 | A | 1825 | A |
| 1 | A | 1826 | G |
| 1 | A | 1828 | G |
| 1 | A | 1829 | A |
| 1 | A | 1834 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1838 | C |
| 1 | A | 1839 | G |
| 1 | A | 1846 | G |
| 1 | A | 1847 | A |
| 1 | A | 1848 | A |
| 1 | A | 1857 | G |
| 1 | A | 1858 | G |
| 1 | A | 1859 | A |
| 1 | A | 1878 | G |
| 1 | A | 1880 | C |
| 1 | A | 1881 | C |
| 1 | A | 1883 | G |
| 1 | A | 1884 | A |
| 1 | A | 1899 | G |
| 1 | A | 1901 | A |
| 1 | A | 1903 | G |
| 1 | A | 1906 | G |
| 1 | A | 1911 | U |
| 1 | A | 1913 | A |
| 1 | A | 1914 | C |
| 1 | A | 1915 | U |
| 1 | A | 1916 | A |
| 1 | A | 1917 | U |
| 1 | A | 1918 | A |
| 1 | A | 1919 | A |
| 1 | A | 1920 | C |
| 1 | A | 1923 | U |
| 1 | A | 1927 | A |
| 1 | A | 1928 | A |
| 1 | A | 1929 | G |
| 1 | A | 1930 | G |
| 1 | A | 1931 | U |
| 1 | A | 1934 | C |
| 1 | A | 1936 | A |
| 1 | A | 1937 | A |
| 1 | A | 1938 | A |
| 1 | A | 1939 | U |
| 1 | A | 1940 | U |
| 1 | A | 1941 | C |
| 1 | A | 1942 | C |
| 1 | A | 1943 | U |
| 1 | A | 1944 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1945 | G |
| 1 | A | 1953 | A |
| 1 | A | 1954 | G |
| 1 | A | 1955 | U |
| 1 | A | 1956 | U |
| 1 | A | 1962 | C |
| 1 | A | 1963 | U |
| 1 | A | 1964 | G |
| 1 | A | 1965 | C |
| 1 | A | 1966 | A |
| 1 | A | 1967 | C |
| 1 | A | 1968 | G |
| 1 | A | 1970 | A |
| 1 | A | 1971 | A |
| 1 | A | 1972 | A |
| 1 | A | 1977 | A |
| 1 | A | 1978 | A |
| 1 | A | 1980 | G |
| 1 | A | 1982 | C |
| 1 | A | 1983 | C |
| 1 | A | 1992 | G |
| 1 | A | 1993 | U |
| 1 | A | 1995 | U |
| 1 | A | 1996 | C |
| 1 | A | 1997 | G |
| 1 | A | 2000 | G |
| 1 | A | 2015 | A |
| 1 | A | 2016 | U |
| 1 | A | 2018 | G |
| 1 | A | 2020 | A |
| 1 | A | 2021 | C |
| 1 | A | 2022 | U |
| 1 | A | 2023 | G |
| 1 | A | 2030 | A |
| 1 | A | 2031 | A |
| 1 | A | 2032 | G |
| 1 | A | 2033 | A |
| 1 | A | 2034 | U |
| 1 | A | 2035 | G |
| 1 | A | 2036 | C |
| 1 | A | 2043 | C |
| 1 | A | 2044 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2048 | G |
| 1 | A | 2049 | G |
| 1 | A | 2050 | C |
| 1 | A | 2051 | A |
| 1 | A | 2052 | G |
| 1 | A | 2055 | C |
| 1 | A | 2056 | G |
| 1 | A | 2060 | A |
| 1 | A | 2061 | G |
| 1 | A | 2062 | A |
| 1 | A | 2063 | C |
| 1 | A | 2064 | C |
| 1 | A | 2065 | C |
| 1 | A | 2068 | U |
| 1 | A | 2069 | G |
| 1 | A | 2073 | C |
| 1 | A | 2075 | U |
| 1 | A | 2076 | U |
| 1 | A | 2077 | A |
| 1 | A | 2080 | G |
| 1 | A | 2087 | G |
| 1 | A | 2092 | U |
| 1 | A | 2093 | G |
| 1 | A | 2103 | C |
| 1 | A | 2110 | G |
| 1 | A | 2111 | C |
| 1 | A | 2112 | G |
| 1 | A | 2113 | U |
| 1 | A | 2114 | A |
| 1 | A | 2116 | G |
| 1 | A | 2117 | A |
| 1 | A | 2119 | A |
| 1 | A | 2121 | G |
| 1 | A | 2123 | G |
| 1 | A | 2126 | A |
| 1 | A | 2127 | G |
| 1 | A | 2131 | G |
| 1 | A | 2132 | U |
| 1 | A | 2133 | G |
| 1 | A | 2134 | A |
| 1 | A | 2135 | A |
| 1 | A | 2136 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2144 | U |
| 1 | A | 2146 | C |
| 1 | A | 2148 | G |
| 1 | A | 2156 | G |
| 1 | A | 2157 | G |
| 1 | A | 2158 | A |
| 1 | A | 2159 | G |
| 1 | A | 2165 | G |
| 1 | A | 2172 | U |
| 1 | A | 2173 | A |
| 1 | A | 2175 | C |
| 1 | A | 2179 | C |
| 1 | A | 2184 | G |
| 1 | A | 2185 | C |
| 1 | A | 2195 | C |
| 1 | A | 2198 | A |
| 1 | A | 2206 | C |
| 1 | A | 2208 | U |
| 1 | A | 2209 | C |
| 1 | A | 2210 | G |
| 1 | A | 2211 | G |
| 1 | A | 2212 | A |
| 1 | A | 2213 | U |
| 1 | A | 2215 | G |
| 1 | A | 2226 | C |
| 1 | A | 2228 | G |
| 1 | A | 2238 | G |
| 1 | A | 2239 | G |
| 1 | A | 2240 | C |
| 1 | A | 2245 | U |
| 1 | A | 2249 | U |
| 1 | A | 2250 | G |
| 1 | A | 2251 | G |
| 1 | A | 2254 | C |
| 1 | A | 2257 | U |
| 1 | A | 2259 | G |
| 1 | A | 2266 | A |
| 1 | A | 2267 | A |
| 1 | A | 2268 | A |
| 1 | A | 2269 | A |
| 1 | A | 2270 | G |
| 1 | A | 2271 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2274 | A |
| 1 | A | 2276 | G |
| 1 | A | 2277 | G |
| 1 | A | 2278 | A |
| 1 | A | 2281 | C |
| 1 | A | 2283 | C |
| 1 | A | 2284 | C |
| 1 | A | 2286 | A |
| 1 | A | 2287 | A |
| 1 | A | 2288 | A |
| 1 | A | 2289 | G |
| 1 | A | 2290 | G |
| 1 | A | 2293 | C |
| 1 | A | 2304 | G |
| 1 | A | 2306 | C |
| 1 | A | 2307 | G |
| 1 | A | 2309 | A |
| 1 | A | 2310 | A |
| 1 | A | 2311 | A |
| 1 | A | 2312 | U |
| 1 | A | 2316 | C |
| 1 | A | 2318 | G |
| 1 | A | 2319 | G |
| 1 | A | 2320 | A |
| 1 | A | 2321 | G |
| 1 | A | 2322 | A |
| 1 | A | 2333 | A |
| 1 | A | 2335 | A |
| 1 | A | 2336 | A |
| 1 | A | 2337 | G |
| 1 | A | 2345 | G |
| 1 | A | 2346 | A |
| 1 | A | 2347 | C |
| 1 | A | 2350 | C |
| 1 | A | 2351 | G |
| 1 | A | 2353 | G |
| 1 | A | 2360 | A |
| 1 | A | 2361 | A |
| 1 | A | 2362 | G |
| 1 | A | 2372 | G |
| 1 | A | 2373 | G |
| 1 | A | 2378 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2382 | G |
| 1 | A | 2383 | G |
| 1 | A | 2384 | G |
| 1 | A | 2385 | C |
| 1 | A | 2387 | U |
| 1 | A | 2389 | G |
| 1 | A | 2390 | U |
| 1 | A | 2393 | A |
| 1 | A | 2402 | C |
| 1 | A | 2403 | C |
| 1 | A | 2405 | G |
| 1 | A | 2406 | U |
| 1 | A | 2407 | G |
| 1 | A | 2408 | U |
| 1 | A | 2414 | G |
| 1 | A | 2423 | U |
| 1 | A | 2424 | C |
| 1 | A | 2425 | A |
| 1 | A | 2426 | A |
| 1 | A | 2427 | C |
| 1 | A | 2428 | G |
| 1 | A | 2429 | G |
| 1 | A | 2430 | A |
| 1 | A | 2431 | U |
| 1 | A | 2432 | A |
| 1 | A | 2433 | A |
| 1 | A | 2434 | A |
| 1 | A | 2435 | A |
| 1 | A | 2437 | U |
| 1 | A | 2439 | A |
| 1 | A | 2440 | C |
| 1 | A | 2441 | C |
| 1 | A | 2442 | C |
| 1 | A | 2445 | G |
| 1 | A | 2447 | G |
| 1 | A | 2448 | A |
| 1 | A | 2449 | U |
| 1 | A | 2451 | A |
| 1 | A | 2460 | U |
| 1 | A | 2469 | A |
| 1 | A | 2475 | C |
| 1 | A | 2476 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2480 | C |
| 1 | A | 2482 | G |
| 1 | A | 2490 | G |
| 1 | A | 2491 | U |
| 1 | A | 2492 | U |
| 1 | A | 2493 | U |
| 1 | A | 2496 | C |
| 1 | A | 2497 | A |
| 1 | A | 2498 | C |
| 1 | A | 2499 | C |
| 1 | A | 2501 | C |
| 1 | A | 2503 | A |
| 1 | A | 2504 | U |
| 1 | A | 2505 | G |
| 1 | A | 2506 | U |
| 1 | A | 2513 | G |
| 1 | A | 2515 | C |
| 1 | A | 2518 | A |
| 1 | A | 2519 | U |
| 1 | A | 2520 | C |
| 1 | A | 2522 | U |
| 1 | A | 2529 | G |
| 1 | A | 2531 | A |
| 1 | A | 2532 | G |
| 1 | A | 2539 | C |
| 1 | A | 2542 | A |
| 1 | A | 2543 | G |
| 1 | A | 2547 | U |
| 1 | A | 2548 | G |
| 1 | A | 2549 | G |
| 1 | A | 2554 | U |
| 1 | A | 2555 | U |
| 1 | A | 2556 | C |
| 1 | A | 2566 | A |
| 1 | A | 2567 | G |
| 1 | A | 2572 | A |
| 1 | A | 2573 | C |
| 1 | A | 2574 | G |
| 1 | A | 2575 | C |
| 1 | A | 2576 | G |
| 1 | A | 2577 | A |
| 1 | A | 2578 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2582 | G |
| 1 | A | 2585 | U |
| 1 | A | 2586 | C |
| 1 | A | 2597 | G |
| 1 | A | 2602 | A |
| 1 | A | 2603 | G |
| 1 | A | 2606 | C |
| 1 | A | 2609 | U |
| 1 | A | 2610 | C |
| 1 | A | 2611 | U |
| 1 | A | 2612 | C |
| 1 | A | 2613 | U |
| 1 | A | 2614 | A |
| 1 | A | 2615 | U |
| 1 | A | 2625 | G |
| 1 | A | 2626 | C |
| 1 | A | 2628 | C |
| 1 | A | 2629 | A |
| 1 | A | 2630 | G |
| 1 | A | 2632 | A |
| 1 | A | 2633 | G |
| 1 | A | 2637 | U |
| 1 | A | 2645 | G |
| 1 | A | 2646 | C |
| 1 | A | 2654 | A |
| 1 | A | 2655 | G |
| 1 | A | 2656 | U |
| 1 | A | 2660 | A |
| 1 | A | 2661 | G |
| 1 | A | 2663 | G |
| 1 | A | 2664 | G |
| 1 | A | 2666 | C |
| 1 | A | 2672 | G |
| 1 | A | 2682 | U |
| 1 | A | 2683 | C |
| 1 | A | 2688 | U |
| 1 | A | 2689 | U |
| 1 | A | 2690 | C |
| 1 | A | 2691 | C |
| 1 | A | 2701 | C |
| 1 | A | 2702 | U |
| 1 | A | 2703 | C |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 1 | A | 2706 | G |
| 1 | A | 2708 | G |
| 1 | A | 2711 | A |
| 1 | A | 2712 | U |
| 1 | A | 2712(A) | A |
| 1 | A | 2713 | A |
| 1 | A | 2714 | G |
| 1 | A | 2717 | G |
| 1 | A | 2719 | G |
| 1 | A | 2720 | U |
| 1 | A | 2725 | A |
| 1 | A | 2727 | G |
| 1 | A | 2733 | A |
| 1 | A | 2734 | A |
| 1 | A | 2746 | U |
| 1 | A | 2748 | A |
| 1 | A | 2749 | A |
| 1 | A | 2750 | A |
| 1 | A | 2751 | G |
| 1 | A | 2752 | C |
| 1 | A | 2755 | C |
| 1 | A | 2756 | U |
| 1 | A | 2757 | A |
| 1 | A | 2758 | A |
| 1 | A | 2764 | A |
| 1 | A | 2765 | A |
| 1 | A | 2766 | G |
| 1 | A | 2772 | C |
| 1 | A | 2776 | A |
| 1 | A | 2777 | G |
| 1 | A | 2778 | A |
| 1 | A | 2779 | U |
| 1 | A | 2780 | G |
| 1 | A | 2781 | A |
| 1 | A | 2782 | G |
| 1 | A | 2783 | G |
| 1 | A | 2787 | C |
| 1 | A | 2789 | C |
| 1 | A | 2794 | C |
| 1 | A | 2795 | G |
| 1 | A | 2797 | U |
| 1 | A | 2798 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2801 | A |
| 1 | A | 2803 | C |
| 1 | A | 2804 | C |
| 1 | A | 2805 | G |
| 1 | A | 2807 | G |
| 1 | A | 2809 | A |
| 1 | A | 2810 | A |
| 1 | A | 2814 | C |
| 1 | A | 2815 | C |
| 1 | A | 2820 | A |
| 1 | A | 2821 | A |
| 1 | A | 2822 | G |
| 1 | A | 2823 | A |
| 1 | A | 2832 | U |
| 1 | A | 2833 | G |
| 1 | A | 2834 | G |
| 1 | A | 2835 | A |
| 1 | A | 2836 | U |
| 1 | A | 2845 | G |
| 1 | A | 2847 | U |
| 1 | A | 2849 | U |
| 1 | A | 2850 | A |
| 1 | A | 2851 | A |
| 1 | A | 2853 | C |
| 1 | A | 2858 | C |
| 1 | A | 2860 | A |
| 1 | A | 2866 | U |
| 1 | A | 2867 | G |
| 1 | A | 2868 | A |
| 1 | A | 2870 | C |
| 1 | A | 2871 | C |
| 1 | A | 2872 | G |
| 1 | A | 2874 | C |
| 1 | A | 2878 | U |
| 1 | A | 2879 | C |
| 1 | A | 2880 | C |
| 1 | A | 2883 | A |
| 1 | A | 2892 | A |
| 1 | A | 2893 | G |
| 1 | A | 2894 | G |
| 1 | A | 2900 | A |
| 2 | B | 0 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | B | 1 | U |
| 2 | B | 2 | C |
| 2 | B | 3 | C |
| 2 | B | 5 | C |
| 2 | B | 6 | C |
| 2 | B | 7 | G |
| 2 | B | 8 | U |
| 2 | B | 10 | C |
| 2 | B | 12 | C |
| 2 | B | 13 | A |
| 2 | B | 15 | A |
| 2 | B | 16 | G |
| 2 | B | 17 | C |
| 2 | B | 25 | A |
| 2 | B | 32 | C |
| 2 | B | 34 | U |
| 2 | B | 41 | U |
| 2 | B | 42 | C |
| 2 | B | 44 | G |
| 2 | B | 45 | A |
| 2 | B | 46 | A |
| 2 | B | 51 | G |
| 2 | B | 52 | A |
| 2 | B | 54 | G |
| 2 | B | 57 | A |
| 2 | B | 62 | C |
| 2 | B | 66 | A |
| 2 | B | 67 | G |
| 2 | B | 69 | G |
| 2 | B | 73 | A |
| 2 | B | 74 | U |
| 2 | B | 75 | G |
| 2 | B | 76 | G |
| 2 | B | 87 | G |
| 2 | B | 88 | C |
| 2 | B | 89 | G |
| 2 | B | 90 | C |
| 2 | B | 96 | G |
| 2 | B | 99 | A |
| 2 | B | 103 | U |
| 2 | B | 104 | A |
| 2 | B | 109 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | B | 111 | U |
| 2 | B | 112 | G |
| 2 | B | 115 | G |
| 2 | B | 116 | G |
| 2 | B | 119 | A |
| 2 | B | 120 | U |

All (269) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 1 | A | 13 | A |
| 1 | A | 60 | G |
| 1 | A | 67 | U |
| 1 | A | 70 | G |
| 1 | A | 71 | A |
| 1 | A | 83 | G |
| 1 | A | 90 | U |
| 1 | A | 119 | A |
| 1 | A | 120 | U |
| 1 | A | 196 | A |
| 1 | A | 199 | A |
| 1 | A | 204 | A |
| 1 | A | 205 | G |
| 1 | A | 215 | G |
| 1 | A | 221 | A |
| 1 | A | 227 | A |
| 1 | A | 251 | A |
| 1 | A | 262 | A |
| 1 | A | 266 | G |
| 1 | A | 270(L) | U |
| 1 | A | 270(M) | U |
| 1 | A | 271(B) | G |
| 1 | A | 280 | C |
| 1 | A | 289 | A |
| 1 | A | 309 | G |
| 1 | A | 311 | A |
| 1 | A | 323 | G |
| 1 | A | 329 | G |
| 1 | A | 331 | A |
| 1 | A | 332 | A |
| 1 | A | 350 | U |
| 1 | A | 351 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 371 | A |
| 1 | A | 403 | U |
| 1 | A | 434 | U |
| 1 | A | 435 | C |
| 1 | A | 442 | G |
| 1 | A | 446 | G |
| 1 | A | 455 | C |
| 1 | A | 470 | A |
| 1 | A | 479 | A |
| 1 | A | 503 | A |
| 1 | A | 504 | U |
| 1 | A | 508 | G |
| 1 | A | 526 | A |
| 1 | A | 530 | G |
| 1 | A | 559 | G |
| 1 | A | 566 | U |
| 1 | A | 573 | G |
| 1 | A | 574 | C |
| 1 | A | 578 | A |
| 1 | A | 587 | C |
| 1 | A | 602 | G |
| 1 | A | 616 | A |
| 1 | A | 620 | G |
| 1 | A | 630 | G |
| 1 | A | 631 | A |
| 1 | A | 637 | A |
| 1 | A | 642 | G |
| 1 | A | 643 | A |
| 1 | A | 645 | C |
| 1 | A | 669 | G |
| 1 | A | 670 | A |
| 1 | A | 685 | A |
| 1 | A | 686 | G |
| 1 | A | 687 | C |
| 1 | A | 713 | G |
| 1 | A | 727 | A |
| 1 | A | 730 | C |
| 1 | A | 733 | G |
| 1 | A | 740 | U |
| 1 | A | 745 | G |
| 1 | A | 746 | A |
| 1 | A | 747 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 750 | A |
| 1 | A | 764 | A |
| 1 | A | 774 | A |
| 1 | A | 776 | G |
| 1 | A | 781 | A |
| 1 | A | 782 | A |
| 1 | A | 785 | G |
| 1 | A | 788 | A |
| 1 | A | 789 | A |
| 1 | A | 800 | A |
| 1 | A | 801 | G |
| 1 | A | 805 | G |
| 1 | A | 811 | U |
| 1 | A | 828 | U |
| 1 | A | 829 | A |
| 1 | A | 830 | G |
| 1 | A | 846 | C |
| 1 | A | 917 | A |
| 1 | A | 930 | U |
| 1 | A | 945 | A |
| 1 | A | 957 | A |
| 1 | A | 958 | U |
| 1 | A | 960 | A |
| 1 | A | 989 | G |
| 1 | A | 1008 | C |
| 1 | A | 1011 | G |
| 1 | A | 1022 | G |
| 1 | A | 1064 | C |
| 1 | A | 1069 | A |
| 1 | A | 1078 | U |
| 1 | A | 1085 | A |
| 1 | A | 1100 | C |
| 1 | A | 1126 | A |
| 1 | A | 1130 | U |
| 1 | A | 1131 | G |
| 1 | A | 1134 | G |
| 1 | A | 1143 | A |
| 1 | A | 1178 | C |
| 1 | A | 1179 | C |
| 1 | A | 1183 | G |
| 1 | A | 1204 | A |
| 1 | A | 1210 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1221 | C |
| 1 | A | 1237 | A |
| 1 | A | 1241 | A |
| 1 | A | 1248 | G |
| 1 | A | 1250 | G |
| 1 | A | 1253 | A |
| 1 | A | 1275 | A |
| 1 | A | 1288 | U |
| 1 | A | 1300 | U |
| 1 | A | 1310 | G |
| 1 | A | 1323 | U |
| 1 | A | 1340 | U |
| 1 | A | 1342 | A |
| 1 | A | 1344 | G |
| 1 | A | 1349 | A |
| 1 | A | 1378 | A |
| 1 | A | 1393 | A |
| 1 | A | 1406 | U |
| 1 | A | 1420 | U |
| 1 | A | 1427 | A |
| 1 | A | 1428 | C |
| 1 | A | 1477 | A |
| 1 | A | 1514 | U |
| 1 | A | 1515 | C |
| 1 | A | 1552 | G |
| 1 | A | 1554 | A |
| 1 | A | 1558 | A |
| 1 | A | 1566 | A |
| 1 | A | 1585 | C |
| 1 | A | 1608 | A |
| 1 | A | 1610 | A |
| 1 | A | 1617 | C |
| 1 | A | 1626 | G |
| 1 | A | 1634 | A |
| 1 | A | 1647 | G |
| 1 | A | 1650 | G |
| 1 | A | 1664 | A |
| 1 | A | 1674 | G |
| 1 | A | 1693 | U |
| 1 | A | 1694 | C |
| 1 | A | 1698 | A |
| 1 | A | 1699 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1772 | G |
| 1 | A | 1778 | U |
| 1 | A | 1780 | A |
| 1 | A | 1784 | A |
| 1 | A | 1791 | A |
| 1 | A | 1800 | C |
| 1 | A | 1819 | A |
| 1 | A | 1828 | G |
| 1 | A | 1833 | U |
| 1 | A | 1838 | C |
| 1 | A | 1858 | G |
| 1 | A | 1908 | C |
| 1 | A | 1929 | G |
| 1 | A | 1930 | G |
| 1 | A | 1936 | A |
| 1 | A | 1937 | A |
| 1 | A | 1938 | A |
| 1 | A | 1943 | U |
| 1 | A | 1964 | G |
| 1 | A | 1965 | C |
| 1 | A | 1966 | A |
| 1 | A | 1967 | C |
| 1 | A | 1980 | G |
| 1 | A | 1992 | G |
| 1 | A | 2021 | C |
| 1 | A | 2022 | U |
| 1 | A | 2030 | A |
| 1 | A | 2032 | G |
| 1 | A | 2033 | A |
| 1 | A | 2035 | G |
| 1 | A | 2047 | U |
| 1 | A | 2051 | A |
| 1 | A | 2060 | A |
| 1 | A | 2061 | G |
| 1 | A | 2075 | U |
| 1 | A | 2076 | U |
| 1 | A | 2110 | G |
| 1 | A | 2111 | C |
| 1 | A | 2118 | U |
| 1 | A | 2126 | A |
| 1 | A | 2135 | A |
| 1 | A | 2157 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2158 | A |
| 1 | A | 2171 | A |
| 1 | A | 2172 | U |
| 1 | A | 2198 | A |
| 1 | A | 2210 | G |
| 1 | A | 2213 | U |
| 1 | A | 2225 | A |
| 1 | A | 2240 | C |
| 1 | A | 2244 | U |
| 1 | A | 2275 | C |
| 1 | A | 2282 | G |
| 1 | A | 2319 | G |
| 1 | A | 2324 | C |
| 1 | A | 2336 | A |
| 1 | A | 2344 | U |
| 1 | A | 2345 | G |
| 1 | A | 2373 | G |
| 1 | A | 2384 | G |
| 1 | A | 2389 | G |
| 1 | A | 2392 | A |
| 1 | A | 2402 | C |
| 1 | A | 2405 | G |
| 1 | A | 2422 | A |
| 1 | A | 2423 | U |
| 1 | A | 2425 | A |
| 1 | A | 2427 | C |
| 1 | A | 2439 | A |
| 1 | A | 2447 | G |
| 1 | A | 2448 | A |
| 1 | A | 2450 | A |
| 1 | A | 2451 | A |
| 1 | A | 2468 | G |
| 1 | A | 2481 | G |
| 1 | A | 2489 | G |
| 1 | A | 2490 | G |
| 1 | A | 2491 | U |
| 1 | A | 2492 | U |
| 1 | A | 2500 | U |
| 1 | A | 2503 | A |
| 1 | A | 2519 | U |
| 1 | A | 2542 | A |
| 1 | A | 2572 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 2581 | G |
| 1 | A | 2597 | G |
| 1 | A | 2602 | A |
| 1 | A | 2609 | U |
| 1 | A | 2610 | C |
| 1 | A | 2614 | A |
| 1 | A | 2655 | G |
| 1 | A | 2682 | U |
| 1 | A | 2689 | U |
| 1 | A | 2690 | C |
| 1 | A | 2705 | A |
| 1 | A | 2707 | G |
| 1 | A | 2726 | U |
| 1 | A | 2756 | U |
| 1 | A | 2776 | A |
| 1 | A | 2778 | A |
| 1 | A | 2799 | A |
| 1 | A | 2835 | A |
| 1 | A | 2848 | G |
| 1 | A | 2849 | U |
| 1 | A | 2866 | U |
| 1 | A | 2873 | A |
| 1 | A | 2893 | G |
| 2 | B | 7 | G |
| 2 | B | 14 | U |
| 2 | B | 15 | A |
| 2 | B | 56 | 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, 95th 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 ²) | Q<0.9 |
|-----|-------|-----------------|--------|----------------|-----------------------|-------|
| 1 | A | 2889/2916 (99%) | -0.18 | 104 (3%) 41 36 | 63, 155, 266, 322 | 0 |
| 2 | B | 123/123 (100%) | -0.09 | 8 (6%) 18 22 | 146, 209, 257, 291 | 0 |
| 3 | C | 228/229 (99%) | -0.31 | 0 100 100 | 220, 256, 308, 312 | 0 |
| 4 | D | 272/276 (98%) | -0.39 | 1 (0%) 90 83 | 80, 125, 153, 198 | 0 |
| 5 | E | 206/206 (100%) | -0.34 | 1 (0%) 88 79 | 69, 117, 172, 224 | 0 |
| 6 | F | 208/210 (99%) | -0.12 | 18 (8%) 10 16 | 111, 179, 215, 231 | 0 |
| 7 | G | 182/182 (100%) | 0.14 | 19 (10%) 7 13 | 160, 198, 226, 240 | 0 |
| 8 | H | 174/180 (96%) | -0.05 | 6 (3%) 43 38 | 146, 186, 216, 238 | 0 |
| 9 | K | 148/148 (100%) | -0.35 | 0 100 100 | 135, 161, 188, 190 | 0 |
| 10 | L | 138/147 (93%) | 0.01 | 6 (4%) 34 31 | 277, 307, 330, 334 | 0 |
| 11 | M | 139/140 (99%) | -0.14 | 2 (1%) 72 59 | 107, 133, 167, 183 | 0 |
| 12 | N | 122/122 (100%) | 0.93 | 25 (20%) 1 4 | 78, 106, 140, 154 | 0 |
| 13 | O | 145/150 (96%) | -0.34 | 1 (0%) 84 74 | 106, 190, 227, 239 | 0 |
| 14 | P | 136/141 (96%) | -0.45 | 0 100 100 | 109, 141, 173, 186 | 0 |
| 15 | Q | 117/118 (99%) | 0.25 | 3 (2%) 53 44 | 91, 124, 157, 173 | 0 |
| 16 | R | 110/112 (98%) | 0.54 | 11 (10%) 8 13 | 152, 183, 210, 248 | 0 |
| 17 | S | 117/146 (80%) | 0.38 | 8 (6%) 17 21 | 83, 127, 165, 184 | 0 |
| 18 | T | 117/118 (99%) | 0.01 | 0 100 100 | 100, 138, 152, 158 | 0 |
| 19 | U | 101/101 (100%) | 0.34 | 4 (3%) 36 33 | 104, 160, 186, 197 | 0 |
| 20 | V | 110/113 (97%) | 1.92 | 45 (40%) 1 3 | 110, 143, 179, 195 | 0 |
| 21 | W | 94/96 (97%) | 1.14 | 24 (25%) 1 4 | 153, 170, 232, 237 | 0 |
| 22 | X | 110/110 (100%) | 0.57 | 10 (9%) 9 15 | 157, 199, 247, 273 | 0 |
| 23 | Y | 180/206 (87%) | -0.46 | 0 100 100 | 142, 190, 211, 226 | 0 |
| 24 | Z | 85/85 (100%) | 0.58 | 10 (11%) 5 11 | 139, 166, 181, 197 | 0 |

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| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | | | OWAB(Å ²) | Q<0.9 |
|-----|-------|-----------------|--------|----------|-----|-----|-----------------------|-------|
| 25 | 1 | 67/67 (100%) | 0.11 | 4 (5%) | 21 | 24 | 172, 186, 199, 209 | 0 |
| 26 | 2 | 59/60 (98%) | 0.53 | 4 (6%) | 17 | 21 | 127, 163, 188, 202 | 0 |
| 27 | 3 | 71/71 (100%) | 0.27 | 3 (4%) | 35 | 32 | 127, 160, 176, 185 | 0 |
| 28 | 4 | 57/60 (95%) | 0.30 | 2 (3%) | 42 | 37 | 96, 147, 217, 241 | 0 |
| 29 | 5 | 49/54 (90%) | -0.01 | 1 (2%) | 62 | 50 | 141, 163, 183, 198 | 0 |
| 30 | 6 | 49/49 (100%) | 0.64 | 2 (4%) | 35 | 33 | 87, 145, 164, 188 | 0 |
| 31 | 7 | 64/65 (98%) | 0.38 | 2 (3%) | 47 | 40 | 113, 131, 153, 165 | 0 |
| 32 | 8 | 37/37 (100%) | -0.51 | 0 | 100 | 100 | 146, 157, 169, 172 | 0 |
| All | All | 6704/6838 (98%) | -0.03 | 324 (4%) | 29 | 28 | 63, 160, 275, 334 | 0 |

All (324) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 1 | A | 1537 | C | 10.6 |
| 1 | A | 1536 | A | 9.8 |
| 1 | A | 1535 | U | 7.8 |
| 7 | G | 79 | ASN | 7.6 |
| 20 | V | 83 | LYS | 7.3 |
| 7 | G | 81 | LYS | 7.0 |
| 1 | A | 276 | A | 6.8 |
| 20 | V | 92 | ARG | 6.5 |
| 1 | A | 1534 | G | 6.3 |
| 21 | W | 68 | ARG | 6.2 |
| 1 | A | 508 | G | 6.2 |
| 22 | X | 1 | MET | 6.2 |
| 20 | V | 93 | ALA | 6.2 |
| 10 | L | 63 | ARG | 6.1 |
| 20 | V | 94 | ASP | 5.9 |
| 24 | Z | 85 | ALA | 5.9 |
| 20 | V | 81 | ALA | 5.9 |
| 26 | 2 | 2 | PRO | 5.9 |
| 16 | R | 48 | LEU | 5.9 |
| 20 | V | 82 | LEU | 5.8 |
| 1 | A | 1914 | C | 5.8 |
| 1 | A | 34 | C | 5.7 |
| 7 | G | 74 | LYS | 5.4 |
| 20 | V | 95 | ILE | 5.4 |
| 1 | A | 1533 | C | 5.3 |
| 7 | G | 82 | LEU | 5.3 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 24 | Z | 3 | HIS | 5.3 |
| 1 | A | 1538 | G | 5.3 |
| 1 | A | 462 | C | 5.3 |
| 20 | V | 97 | LYS | 5.3 |
| 1 | A | 461 | C | 5.2 |
| 20 | V | 84 | ARG | 5.2 |
| 1 | A | 1317 | A | 5.2 |
| 21 | W | 69 | TYR | 5.2 |
| 6 | F | 70 | THR | 5.0 |
| 21 | W | 70 | LEU | 5.0 |
| 10 | L | 62 | ASP | 5.0 |
| 20 | V | 85 | VAL | 5.0 |
| 20 | V | 86 | LEU | 4.9 |
| 1 | A | 91 | A | 4.9 |
| 12 | N | 49 | ARG | 4.9 |
| 20 | V | 1 | MET | 4.8 |
| 6 | F | 71 | GLY | 4.8 |
| 1 | A | 275 | G | 4.8 |
| 21 | W | 96 | ILE | 4.8 |
| 6 | F | 69 | HIS | 4.8 |
| 1 | A | 460 | A | 4.8 |
| 22 | X | 87 | LYS | 4.8 |
| 1 | A | 1915 | U | 4.7 |
| 12 | N | 50 | GLY | 4.7 |
| 2 | B | 120 | U | 4.7 |
| 7 | G | 84 | LYS | 4.7 |
| 22 | X | 31 | LEU | 4.6 |
| 1 | A | 92 | G | 4.5 |
| 12 | N | 51 | ALA | 4.5 |
| 20 | V | 98 | LYS | 4.5 |
| 1 | A | 1258 | C | 4.5 |
| 1 | A | 277 | C | 4.4 |
| 7 | G | 71 | THR | 4.4 |
| 8 | H | 30 | LYS | 4.4 |
| 6 | F | 65 | TRP | 4.3 |
| 21 | W | 67 | GLY | 4.3 |
| 26 | 2 | 60 | GLU | 4.3 |
| 1 | A | 1532 | C | 4.3 |
| 22 | X | 86 | ARG | 4.3 |
| 20 | V | 87 | PRO | 4.2 |
| 6 | F | 68 | LYS | 4.2 |
| 24 | Z | 84 | LEU | 4.2 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 1 | A | 1322 | A | 4.2 |
| 1 | A | 2013 | A | 4.2 |
| 22 | X | 85 | VAL | 4.2 |
| 1 | A | 2012 | G | 4.1 |
| 1 | A | 62 | C | 4.1 |
| 24 | Z | 2 | ALA | 4.0 |
| 1 | A | 2076 | U | 4.0 |
| 7 | G | 80 | PHE | 4.0 |
| 21 | W | 13 | LEU | 4.0 |
| 12 | N | 48 | PRO | 4.0 |
| 2 | B | -1 | A | 4.0 |
| 12 | N | 52 | VAL | 3.9 |
| 1 | A | 790 | C | 3.9 |
| 20 | V | 80 | PRO | 3.9 |
| 1 | A | 1318 | C | 3.9 |
| 7 | G | 149 | VAL | 3.9 |
| 12 | N | 47 | ILE | 3.9 |
| 16 | R | 45 | GLY | 3.8 |
| 20 | V | 96 | ILE | 3.8 |
| 6 | F | 76 | GLY | 3.8 |
| 1 | A | 751 | A | 3.7 |
| 4 | D | 275 | LYS | 3.7 |
| 12 | N | 120 | GLU | 3.7 |
| 1 | A | 1274 | A | 3.6 |
| 17 | S | 39 | ARG | 3.6 |
| 1 | A | 936 | C | 3.6 |
| 12 | N | 53 | LYS | 3.6 |
| 21 | W | 15 | GLU | 3.6 |
| 20 | V | 100 | THR | 3.5 |
| 20 | V | 9 | TYR | 3.5 |
| 7 | G | 83 | ARG | 3.5 |
| 21 | W | 18 | TYR | 3.5 |
| 1 | A | 1614 | A | 3.4 |
| 1 | A | 747 | U | 3.4 |
| 1 | A | 924 | C | 3.4 |
| 1 | A | 1925 | C | 3.4 |
| 20 | V | 99 | ARG | 3.4 |
| 1 | A | 1337 | G | 3.4 |
| 1 | A | 2260 | C | 3.4 |
| 17 | S | 90 | GLN | 3.4 |
| 21 | W | 91 | ALA | 3.3 |
| 1 | A | 1316 | U | 3.3 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 16 | R | 5 | THR | 3.3 |
| 22 | X | 29 | GLU | 3.3 |
| 1 | A | 1336 | A | 3.3 |
| 1 | A | 1531 | C | 3.2 |
| 2 | B | 113 | C | 3.2 |
| 1 | A | 837 | C | 3.2 |
| 20 | V | 11 | ARG | 3.2 |
| 1 | A | 925 | C | 3.2 |
| 1 | A | 937 | U | 3.2 |
| 21 | W | 92 | LEU | 3.2 |
| 25 | 1 | 36 | ILE | 3.1 |
| 1 | A | 2014 | A | 3.1 |
| 16 | R | 47 | THR | 3.1 |
| 1 | A | 1392 | A | 3.1 |
| 16 | R | 7 | TYR | 3.1 |
| 17 | S | 91 | ARG | 3.1 |
| 6 | F | 64 | ILE | 3.1 |
| 20 | V | 24 | ILE | 3.1 |
| 19 | U | 45 | THR | 3.1 |
| 20 | V | 88 | ARG | 3.1 |
| 21 | W | 76 | ARG | 3.1 |
| 1 | A | 1293 | C | 3.1 |
| 1 | A | 1645 | G | 3.1 |
| 24 | Z | 17 | GLN | 3.0 |
| 8 | H | 31 | GLY | 3.0 |
| 21 | W | 11 | PRO | 3.0 |
| 20 | V | 7 | ALA | 3.0 |
| 21 | W | 95 | LEU | 3.0 |
| 11 | M | 6 | PRO | 3.0 |
| 1 | A | 1257 | C | 3.0 |
| 20 | V | 2 | GLU | 3.0 |
| 21 | W | 19 | ALA | 3.0 |
| 22 | X | 34 | LYS | 3.0 |
| 1 | A | 752 | A | 2.9 |
| 1 | A | 2296 | U | 2.9 |
| 16 | R | 46 | VAL | 2.9 |
| 12 | N | 46 | ALA | 2.9 |
| 12 | N | 17 | ARG | 2.9 |
| 21 | W | 60 | ARG | 2.9 |
| 1 | A | 1335 | U | 2.9 |
| 12 | N | 122 | LEU | 2.9 |
| 7 | G | 146 | TYR | 2.9 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 10 | L | 47 | ASN | 2.9 |
| 1 | A | 456 | C | 2.9 |
| 1 | A | 1259 | G | 2.9 |
| 28 | 4 | 23 | HIS | 2.9 |
| 20 | V | 89 | ALA | 2.9 |
| 21 | W | 10 | ALA | 2.9 |
| 1 | A | 886 | C | 2.8 |
| 1 | A | 2798 | C | 2.8 |
| 7 | G | 85 | GLY | 2.8 |
| 8 | H | 101 | ARG | 2.8 |
| 26 | 2 | 3 | ARG | 2.8 |
| 20 | V | 8 | ARG | 2.8 |
| 1 | A | 471 | A | 2.8 |
| 1 | A | 1644 | C | 2.8 |
| 1 | A | 2334 | G | 2.8 |
| 21 | W | 65 | ARG | 2.8 |
| 1 | A | 1913 | A | 2.8 |
| 20 | V | 5 | ALA | 2.8 |
| 10 | L | 61 | ALA | 2.8 |
| 20 | V | 102 | HIS | 2.8 |
| 21 | W | 29 | TRP | 2.8 |
| 1 | A | 1912 | A | 2.7 |
| 12 | N | 94 | ARG | 2.7 |
| 1 | A | 1321 | A | 2.7 |
| 6 | F | 78 | ILE | 2.7 |
| 17 | S | 40 | THR | 2.7 |
| 20 | V | 12 | ILE | 2.7 |
| 27 | 3 | 48 | ARG | 2.7 |
| 1 | A | 789 | A | 2.7 |
| 1 | A | 1735 | C | 2.7 |
| 1 | A | 470 | A | 2.7 |
| 1 | A | 1323 | U | 2.7 |
| 6 | F | 75 | HIS | 2.7 |
| 27 | 3 | 51 | ASP | 2.7 |
| 21 | W | 22 | ALA | 2.6 |
| 12 | N | 13 | ASN | 2.6 |
| 1 | A | 1291 | C | 2.6 |
| 6 | F | 66 | PRO | 2.6 |
| 1 | A | 1292 | U | 2.6 |
| 1 | A | 1391 | U | 2.6 |
| 7 | G | 67 | LYS | 2.6 |
| 26 | 2 | 4 | LEU | 2.6 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 29 | 5 | 6 | ARG | 2.6 |
| 16 | R | 44 | LYS | 2.6 |
| 1 | A | 1325 | G | 2.6 |
| 6 | F | 81 | PRO | 2.6 |
| 16 | R | 49 | VAL | 2.6 |
| 21 | W | 9 | LEU | 2.6 |
| 1 | A | 1273 | U | 2.6 |
| 5 | E | 16 | ARG | 2.6 |
| 1 | A | 2015 | A | 2.6 |
| 1 | A | 93 | C | 2.6 |
| 24 | Z | 29 | GLN | 2.6 |
| 21 | W | 66 | LEU | 2.6 |
| 12 | N | 16 | ALA | 2.6 |
| 1 | A | 1283 | G | 2.5 |
| 2 | B | 114 | G | 2.5 |
| 24 | Z | 4 | LYS | 2.5 |
| 1 | A | 2059 | A | 2.5 |
| 27 | 3 | 52 | THR | 2.5 |
| 1 | A | 1539 | G | 2.5 |
| 7 | G | 75 | LYS | 2.5 |
| 7 | G | 69 | ALA | 2.5 |
| 20 | V | 21 | VAL | 2.5 |
| 1 | A | 1282 | U | 2.5 |
| 12 | N | 112 | MET | 2.5 |
| 20 | V | 79 | GLY | 2.5 |
| 1 | A | 1266 | G | 2.5 |
| 2 | B | 112 | G | 2.5 |
| 16 | R | 22 | GLY | 2.5 |
| 12 | N | 14 | THR | 2.5 |
| 1 | A | 1741 | C | 2.5 |
| 6 | F | 80 | ALA | 2.5 |
| 1 | A | 1294 | U | 2.5 |
| 12 | N | 45 | GLU | 2.5 |
| 1 | A | 2795 | G | 2.5 |
| 20 | V | 45 | TYR | 2.5 |
| 2 | B | 2 | C | 2.5 |
| 16 | R | 39 | ILE | 2.5 |
| 17 | S | 38 | ASN | 2.5 |
| 20 | V | 78 | GLU | 2.4 |
| 22 | X | 32 | PRO | 2.4 |
| 25 | 1 | 37 | GLY | 2.4 |
| 1 | A | 472 | A | 2.4 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 1 | A | 1919 | A | 2.4 |
| 1 | A | 2058 | A | 2.4 |
| 15 | Q | 74 | LYS | 2.4 |
| 6 | F | 79 | GLY | 2.4 |
| 1 | A | 2442 | C | 2.4 |
| 20 | V | 39 | THR | 2.4 |
| 30 | 6 | 21 | ARG | 2.4 |
| 20 | V | 6 | ILE | 2.4 |
| 31 | 7 | 14 | VAL | 2.4 |
| 21 | W | 30 | VAL | 2.4 |
| 1 | A | 836 | G | 2.4 |
| 1 | A | 1924 | C | 2.4 |
| 12 | N | 121 | VAL | 2.4 |
| 1 | A | 371 | A | 2.4 |
| 20 | V | 91 | GLY | 2.4 |
| 20 | V | 10 | VAL | 2.4 |
| 20 | V | 103 | ILE | 2.4 |
| 19 | U | 76 | LYS | 2.4 |
| 7 | G | 86 | MET | 2.3 |
| 25 | 1 | 38 | GLN | 2.3 |
| 1 | A | 2586 | C | 2.3 |
| 1 | A | 1926 | U | 2.3 |
| 20 | V | 23 | LEU | 2.3 |
| 1 | A | 2602 | A | 2.3 |
| 20 | V | 40 | ASN | 2.3 |
| 24 | Z | 83 | PRO | 2.3 |
| 6 | F | 84 | VAL | 2.3 |
| 19 | U | 13 | ARG | 2.3 |
| 20 | V | 3 | ALA | 2.3 |
| 20 | V | 22 | ASP | 2.3 |
| 13 | O | 27 | HIS | 2.3 |
| 22 | X | 60 | PHE | 2.3 |
| 2 | B | 0 | A | 2.3 |
| 8 | H | 114 | VAL | 2.2 |
| 1 | A | 1615 | C | 2.2 |
| 6 | F | 63 | LYS | 2.2 |
| 21 | W | 16 | LYS | 2.2 |
| 6 | F | 73 | ALA | 2.2 |
| 12 | N | 98 | VAL | 2.2 |
| 25 | 1 | 67 | ALA | 2.2 |
| 1 | A | 1646 | C | 2.2 |
| 12 | N | 95 | GLY | 2.2 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 10 | L | 48 | MET | 2.2 |
| 16 | R | 3 | ARG | 2.2 |
| 1 | A | 1269 | A | 2.2 |
| 22 | X | 30 | VAL | 2.2 |
| 1 | A | 2011 | U | 2.2 |
| 1 | A | 676 | A | 2.2 |
| 11 | M | 9 | VAL | 2.2 |
| 15 | Q | 72 | ASP | 2.2 |
| 17 | S | 41 | ARG | 2.2 |
| 20 | V | 105 | VAL | 2.2 |
| 15 | Q | 62 | ALA | 2.2 |
| 7 | G | 78 | SER | 2.1 |
| 21 | W | 73 | ARG | 2.1 |
| 24 | Z | 18 | ALA | 2.1 |
| 6 | F | 77 | ASP | 2.1 |
| 1 | A | 90 | U | 2.1 |
| 8 | H | 29 | PRO | 2.1 |
| 17 | S | 43 | GLN | 2.1 |
| 7 | G | 70 | VAL | 2.1 |
| 24 | Z | 5 | LYS | 2.1 |
| 1 | A | 1920 | C | 2.1 |
| 31 | 7 | 25 | MET | 2.1 |
| 1 | A | 488 | G | 2.1 |
| 1 | A | 2356 | C | 2.1 |
| 17 | S | 31 | SER | 2.1 |
| 20 | V | 77 | ASP | 2.1 |
| 12 | N | 113 | LYS | 2.1 |
| 19 | U | 84 | LYS | 2.1 |
| 7 | G | 87 | PRO | 2.1 |
| 1 | A | 2443 | C | 2.1 |
| 2 | B | 111 | U | 2.1 |
| 8 | H | 81 | GLU | 2.1 |
| 6 | F | 83 | PHE | 2.1 |
| 28 | 4 | 25 | LEU | 2.1 |
| 12 | N | 87 | ILE | 2.1 |
| 10 | L | 84 | LEU | 2.0 |
| 30 | 6 | 17 | GLY | 2.0 |
| 1 | A | 1338 | G | 2.0 |
| 1 | A | 2609 | U | 2.0 |
| 12 | N | 15 | GLY | 2.0 |
| 7 | G | 72 | ARG | 2.0 |
| 12 | N | 96 | THR | 2.0 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 20 | V | 90 | ARG | 2.0 |
| 1 | A | 755 | C | 2.0 |
| 12 | N | 88 | ASN | 2.0 |
| 1 | A | 2297 | C | 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.