



Full wwPDB X-ray Structure Validation Report

Feb 28, 2014 – 05:00 PM GMT

PDB ID : 2Y0X
Title : THE CRYSTAL STRUCTURE OF EF-TU AND A9C-TRNA-TRP BOUND
TO A NEAR-COGNATE CODON ON THE 70S RIBOSOME
Authors : Schmeing, T.M.; Voorhees, R.M.; Ramakrishnan, V.
Deposited on : 2010-12-07
Resolution : 3.10 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>

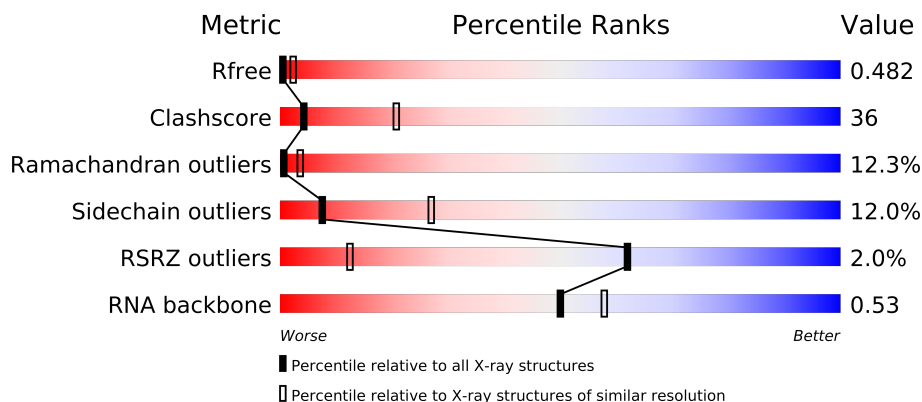
The following versions of software and data (see [references](#)) were used in the production of this report:

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 3.10 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 | 1007 (3.18-3.02) |
| Clashscore | 79885 | 1078 (3.16-3.04) |
| Ramachandran outliers | 78287 | 1044 (3.16-3.04) |
| Sidechain outliers | 78261 | 1044 (3.16-3.04) |
| RSRZ outliers | 66119 | 1008 (3.18-3.02) |
| RNA backbone | 1838 | 1047 (3.60-2.60) |

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 | 0 | 85 | |
| 2 | 1 | 98 | |
| 3 | 2 | 72 | |
| 4 | 3 | 60 | |
| 5 | 4 | 71 | |
| 6 | 5 | 60 | |
| 7 | 6 | 54 | |
| 8 | 7 | 49 | |
| 9 | 8 | 65 | |
| 10 | 9 | 37 | |
| 11 | A | 2915 | |
| 12 | B | 122 | |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 13 | C | 229 | |
| 14 | D | 276 | |
| 15 | E | 206 | |
| 16 | F | 210 | |
| 17 | G | 182 | |
| 18 | H | 180 | |
| 19 | J | 173 | |
| 20 | K | 147 | |
| 21 | N | 140 | |
| 22 | O | 122 | |
| 23 | P | 150 | |
| 24 | Q | 141 | |
| 25 | R | 118 | |
| 26 | S | 112 | |
| 27 | T | 146 | |
| 28 | U | 118 | |
| 29 | V | 101 | |
| 30 | W | 113 | |
| 31 | X | 96 | |
| 32 | Y | 110 | |
| 33 | Z | 206 | |

2 Entry composition

There are 33 unique types of molecules in this entry. The entry contains 93750 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 protein called 50S RIBOSOMAL PROTEIN L27.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 1 | 0 | 84 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 662 | 410 | 140 | 111 | 1 | | | |

- Molecule 2 is a protein called 50S RIBOSOMAL PROTEIN L28.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 2 | 1 | 93 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 731 | 460 | 145 | 125 | 1 | | | |

- Molecule 3 is a protein called 50S RIBOSOMAL PROTEIN L29.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 3 | 2 | 71 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 598 | 370 | 121 | 106 | 1 | | | |

- Molecule 4 is a protein called 50S RIBOSOMAL PROTEIN L30.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 4 | 3 | 59 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 467 | 298 | 90 | 78 | 1 | | | |

- Molecule 5 is a protein called 50S RIBOSOMAL PROTEIN L31.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 5 | 4 | 44 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 340 | 218 | 57 | 61 | 4 | | | |

- Molecule 6 is a protein called 50S RIBOSOMAL PROTEIN L32.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 6 | 5 | 59 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 459 | 288 | 90 | 76 | 5 | | | |

- Molecule 7 is a protein called 50S RIBOSOMAL PROTEIN L33.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 7 | 6 | 50 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 433 | 270 | 88 | 71 | 4 | | | |

- Molecule 8 is a protein called 50S RIBOSOMAL PROTEIN L34.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 8 | 7 | 48 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 418 | 257 | 104 | 55 | 2 | | | |

- Molecule 9 is a protein called 50S RIBOSOMAL PROTEIN L35.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 9 | 8 | 63 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 507 | 326 | 101 | 78 | 2 | | | |

- Molecule 10 is a protein called 50S RIBOSOMAL PROTEIN L36.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 10 | 9 | 37 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 307 | 188 | 68 | 47 | 4 | | | |

- Molecule 11 is a RNA chain called 23S RIBOSOMAL RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|---------|-------|
| 11 | A | 2901 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 62477 | 27807 | 11683 | 20087 | 2900 | | | |

- Molecule 12 is a RNA chain called 5S RIBOSOMAL RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|---------|-------|
| 12 | B | 119 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 2551 | 1136 | 471 | 826 | 118 | | | |

- Molecule 13 is a protein called 50S RIBOSOMAL PROTEIN L1.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 13 | C | 228 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1742 | 1101 | 319 | 319 | 3 | | | |

- Molecule 14 is a protein called 50S RIBOSOMAL PROTEIN L2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 14 | D | 275 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 2145 | 1353 | 428 | 361 | 3 | | | |

- Molecule 15 is a protein called 50S RIBOSOMAL PROTEIN L3.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 15 | E | 204 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1563 | 988 | 299 | 270 | 6 | | | |

- Molecule 16 is a protein called 50S RIBOSOMAL PROTEIN L4.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 16 | F | 207 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1623 | 1035 | 303 | 282 | 3 | | | |

- Molecule 17 is a protein called 50S RIBOSOMAL PROTEIN L5.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 17 | G | 181 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1474 | 942 | 268 | 260 | 4 | | | |

- Molecule 18 is a protein called 50S RIBOSOMAL PROTEIN L6.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 18 | H | 159 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1222 | 773 | 228 | 220 | 1 | | | |

- Molecule 19 is a protein called 50S RIBOSOMAL PROTEIN L10.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 19 | J | 130 | Total | C | N | O | 0 | 0 | 0 |
| | | | 651 | 391 | 130 | 130 | | | |

- Molecule 20 is a protein called 50S RIBOSOMAL PROTEIN L11.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 20 | K | 140 | Total | C | N | O | 0 | 0 | 0 |
| | | | 700 | 420 | 140 | 140 | | | |

- Molecule 21 is a protein called 50S RIBOSOMAL PROTEIN L13.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 21 | N | 138 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1104 | 712 | 206 | 182 | 4 | | | |

- Molecule 22 is a protein called 50S RIBOSOMAL PROTEIN L14.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 22 | O | 122 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 933 | 588 | 171 | 170 | 4 | | | |

- Molecule 23 is a protein called 50S RIBOSOMAL PROTEIN L15.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 23 | P | 146 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1114 | 692 | 227 | 193 | 2 | | | |

- Molecule 24 is a protein called 50S RIBOSOMAL PROTEIN L16.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 24 | Q | 141 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1122 | 715 | 212 | 188 | 7 | | | |

- Molecule 25 is a protein called 50S RIBOSOMAL PROTEIN L17.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 25 | R | 117 | Total | C | N | O | 0 | 0 | 0 |
| | | | 960 | 599 | 202 | 159 | | | |

- Molecule 26 is a protein called 50S RIBOSOMAL PROTEIN L18.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 26 | S | 98 | Total | C | N | O | 0 | 0 | 0 |
| | | | 770 | 486 | 154 | 130 | | | |

- Molecule 27 is a protein called 50S RIBOSOMAL PROTEIN L19.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 27 | T | 137 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1141 | 710 | 234 | 196 | 1 | | | |

- Molecule 28 is a protein called 50S RIBOSOMAL PROTEIN L20.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 28 | U | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 958 | 604 | 202 | 151 | 1 | | | |

- Molecule 29 is a protein called 50S RIBOSOMAL PROTEIN L21.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 29 | V | 101 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 779 | 501 | 142 | 135 | 1 | | | |

- Molecule 30 is a protein called 50S RIBOSOMAL PROTEIN L22.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 30 | W | 113 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 896 | 563 | 176 | 155 | 2 | | | |

- Molecule 31 is a protein called 50S RIBOSOMAL PROTEIN L23.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 31 | X | 92 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 725 | 471 | 131 | 123 | | | | |

- Molecule 32 is a protein called 50S RIBOSOMAL PROTEIN L24.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 32 | Y | 100 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 775 | 500 | 148 | 123 | 4 | | | |

- Molecule 33 is a protein called 50S RIBOSOMAL PROTEIN L25.

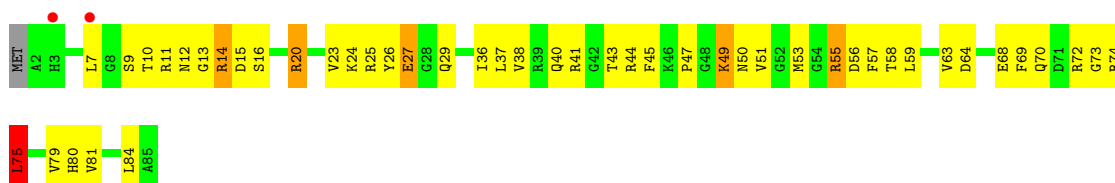
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 33 | Z | 176 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1403 | 897 | 252 | 252 | 2 | | | |

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.

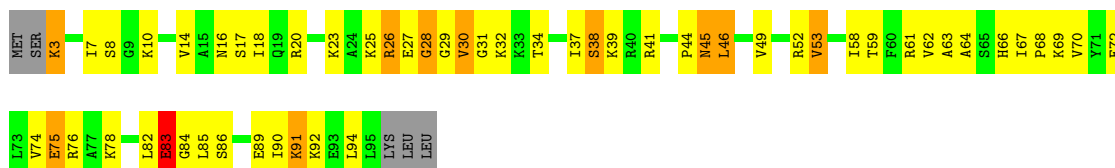
- Molecule 1: 50S RIBOSOMAL PROTEIN L27

Chain 0: 



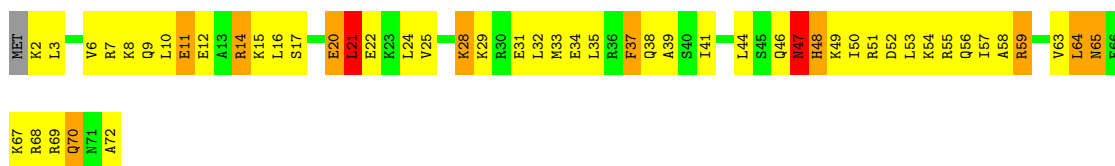
- Molecule 2: 50S RIBOSOMAL PROTEIN L28

Chain 1: 



- Molecule 3: 50S RIBOSOMAL PROTEIN L29

Chain 2: 



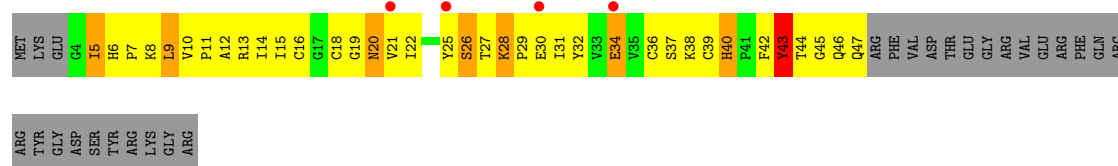
- Molecule 4: 50S RIBOSOMAL PROTEIN L30

Chain 3: 



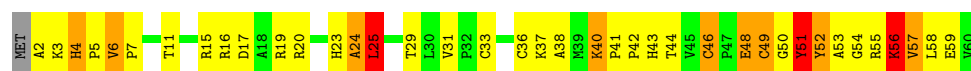
- Molecule 5: 50S RIBOSOMAL PROTEIN L31

Chain 4: 



• Molecule 6: 50S RIBOSOMAL PROTEIN L32

Chain 5:



• Molecule 7: 50S RIBOSOMAL PROTEIN L33

Chain 6:



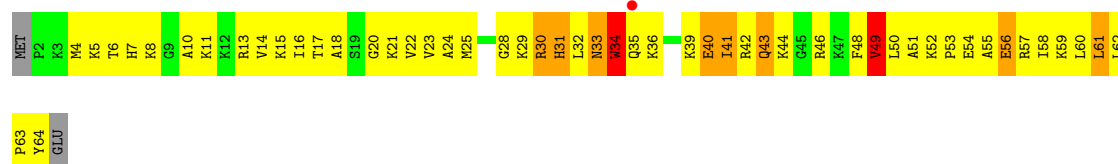
• Molecule 8: 50S RIBOSOMAL PROTEIN L34

Chain 7:



• Molecule 9: 50S RIBOSOMAL PROTEIN L35

Chain 8:



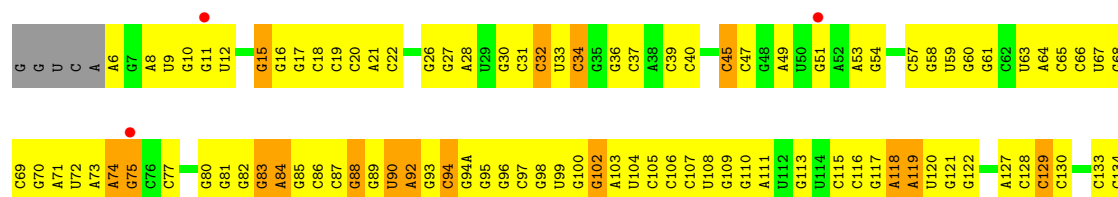
• Molecule 10: 50S RIBOSOMAL PROTEIN L36

Chain 9:



• Molecule 11: 23S RIBOSOMAL RNA

Chain A:



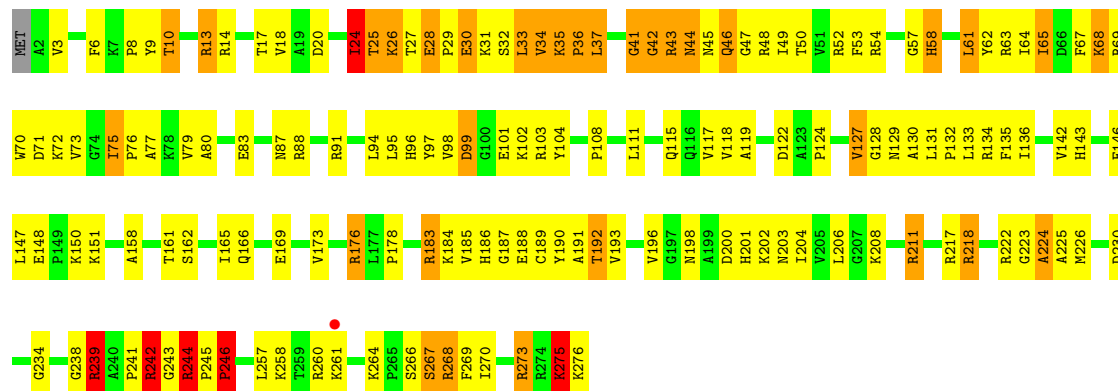
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| A1073 | A1074 | C1075 | C1076 | C1077 | H1078 | C1079 | G1080 | U1081 | A1082 | A1083 | A1084 | A1085 | A1086 | A1087 | A1088 | A1089 | A1090 | A1091 | C1092 | G1093 | U1094 | A1095 | A1096 | A1097 | A1098 | A1099 | C1100 | U1101 | C1102 | A1103 | U1104 | U1105 | C1106 | G1107 | U1108 | C1109 | G1110 | A1111 | U1112 | U1113 | G1114 | G1115 | C1116 | G1120 | C1121 | G1122 | G1123 | U1124 | G1125 | G1126 | G1127 | G1128 | G1129 | G1130 | G1131 | A1132 | U1133 | C1134 | G1135 | G1136 | G1137 | G1138 | G1139 | C1140 | U1141 | U1142 | A1143 | A1144 | A1145 | C1146 | C1147 | A1148 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G135 | G136 | C137 | G138 | G139A | G140 | A141 | A142 | A143 | A144 | A145 | A146 | A147 | A148 | A149 | A150 | A151 | A152 | A153 | A154 | U155 | U156 | U157 | U158 | U159 | U160 | U161 | U162 | U163 | U164 | U165 | U166 | U167 | U168 | U169 | U170 | U171 | U172 | U173 | U174 | U175 | U176 | U177 | U178 | U179 | U180 | U181 | U182 | U183 | U184 | U185 | U186 | U187 | U188 | U189 | U190 | U191 | U192 | U193 | U194 | U195 | U196 | U197 | U198 | U199 | U200 | U201 | U202 | U203 | U204 | U205 | U206 | U207 | U208 | U209 | U210 | U211 | U212 | U213 | U214 | U215 | U216 | U217 | U218 | U219 | U220 | U221 | U222 | U223 | U224 | U225 | U226 | U227 | U228 | U229 | U230 | U231 | U232 | U233 | U234 | U235 | U236 | U237 | U238 | U239 | U240 | U241 | U242 | U243 | U244 | U245 | U246 | U247 | U248 | U249 | U250 | U251 | U252 | U253 | U254 | U255 | U256 | U257 | U258 | U259 | U260 | U261 | U262 | U263 | U264 | U265 | U266 | U267 | U268 | U269 | U270 | U271 | U272 | U273 | U274 | U275 | U276 | U277 | U278 | U279 | U280 | U281 | U282 | U283 | U284 | U285 | U286 | U287 | U288 | U289 | U290 | U291 | U292 | U293 | U294 | U295 | U296 | U297 | U298 | U299 | U300 | U301 | U302 | U303 | U304 | U305 | U306 | U307 | U308 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C271J | U271K | U271L | U271M | U271N | U271O | U271P | U271Q | U271R | U271S | U271T | U271U | U271V | U271W | U271X | U271Y | U271Z | U272A | U272B | U272C | U272D | U272E | U272F | U272G | U272H | U272I | U272J | U272K | U272L | U272M | U272N | U272O | U272P | U272Q | U272R | U272S | U272T | U272U | U272V | U272W | U272X | U272Y | U272Z | U273A | U273B | U273C | U273D | U273E | U273F | U273G | U273H | U273I | U273J | U273K | U273L | U273M | U273N | U273O | U273P | U273Q | U273R | U273S | U273T | U273U | U273V | U273W | U273X | U273Y | U273Z | U274A | U274B | U274C | U274D | U274E | U274F | U274G | U274H | U274I | U274J | U274K | U274L | U274M | U274N | U274O | U274P | U274Q | U274R | U274S | U274T | U274U | U274V | U274W | U274X | U274Y | U274Z | U275A | U275B | U275C | U275D | U275E | U275F | U275G | U275H | U275I | U275J | U275K | U275L | U275M | U275N | U275O | U275P | U275Q | U275R | U275S | U275T | U275U | U275V | U275W | U275X | U275Y | U275Z | U276A | U276B | U276C | U276D | U276E | U276F | U276G | U276H | U276I | U276J | U276K | U276L | U276M | U276N | U276O | U276P | U276Q | U276R | U276S | U276T | U276U | U276V | U276W | U276X | U276Y | U276Z | U277A | U277B | U277C | U277D | U277E | U277F | U277G | U277H | U277I | U277J | U277K | U277L | U277M | U277N | U277O | U277P | U277Q | U277R | U277S | U277T | U277U | U277V | U277W | U277X | U277Y | U277Z | U278A | U278B | U278C | U278D | U278E | U278F | U278G | U278H | U278I | U278J | U278K | U278L | U278M | U278N | U278O | U278P | U278Q | U278R | U278S | U278T | U278U | U278V | U278W | U278X | U278Y | U278Z | U279A | U279B | U279C | U279D | U279E | U279F | U279G | U279H | U279I | U279J | U279K | U279L | U279M | U279N | U279O | U279P | U279Q | U279R | U279S | U279T | U279U | U279V | U279W | U279X | U279Y | U279Z | U280A | U280B | U280C | U280D | U280E | U280F | U280G | U280H | U280I | U280J | U280K | U280L | U280M | U280N | U280O | U280P | U280Q | U280R | U280S | U280T | U280U | U280V | U280W | U280X | U280Y | U280Z | U281A | U281B | U281C | U281D | U281E | U281F | U281G | U281H | U281I | U281J | U281K | U281L | U281M | U281N | U281O | U281P | U281Q | U281R | U281S | U281T | U281U | U281V | U281W | U281X | U281Y | U281Z | U282A | U282B | U282C | U282D | U282E | U282F | U282G | U282H | U282I | U282J | U282K | U282L | U282M | U282N | U282O | U282P | U282Q | U282R | U282S | U282T | U282U | U282V | U282W | U282X | U282Y | U282Z | U283A | U283B | U283C | U283D | U283E | U283F | U283G | U283H | U283I | U283J | U283K | U283L | U283M | U283N | U283O | U283P | U283Q | U283R | U283S | U283T | U283U | U283V | U283W | U283X | U283Y | U283Z | U284A | U284B | U284C | U284D | U284E | U284F | U284G | U284H | U284I | U284J | U284K | U284L | U284M | U284N | U284O | U284P | U284Q | U284R | U284S | U284T | U284U | U284V | U284W | U284X | U284Y | U284Z | U285A | U285B | U285C | U285D | U285E | U285F | U285G | U285H | U285I | U285J | U285K | U285L | U285M | U285N | U285O | U285P | U285Q | U285R | U285S | U285T | U285U | U285V | U285W | U285X | U285Y | U285Z | U286A | U286B | U286C | U286D | U286E | U286F | U286G | U286H | U286I | U286J | U286K | U286L | U286M | U286N | U286O | U286P | U286Q | U286R | U286S | U286T | U286U | U286V | U286W | U286X | U286Y | U286Z | U287A | U287B | U287C | U287D | U287E | U287F | U287G | U287H | U287I | U287J | U287K | U287L | U287M | U287N | U287O | U287P | U287Q | U287R | U287S | U287T | U287U | U287V | U287W | U287X | U287Y | U287Z | U288A | U288B | U288C | U288D | U288E | U288F | U288G | U288H | U288I | U288J | U288K | U288L | U288M | U288N | U288O | U288P | U288Q | U288R | U288S | U288T | U288U | U288V | U288W | U288X | U288Y | U288Z | U289A | U289B | U289C | U289D | U289E | U289F | U289G | U289H | U289I | U289J | U289K | U289L | U289M | U289N | U289O | U289P | U289Q | U289R | U289S | U289T | U289U | U289V | U289W | U289X | U289Y | U289Z | U290A | U290B | U290C | U290D | U290E | U290F | U290G | U290H | U290I | U290J | U290K | U290L | U290M | U290N | U290O | U290P | U290Q | U290R | U290S | U290T | U290U | U290V | U290W | U290X | U290Y | U290Z | U291A | U291B | U291C | U291D | U291E | U291F | U291G | U291H | U291I | U291J | U291K | U291L | U291M | U291N | U291O | U291P | U291Q | U291R | U291S | U291T | U291U | U291V | U291W | U291X | U291Y | U291Z | U292A | U292B | U292C | U292D | U292E | U292F | U292G | U292H | U292I | U292J | U292K | U292L | U292M | U292N | U292O | U292P | U292Q | U292R | U292S | U292T | U292U | U292V | U292W | U292X | U292Y | U292Z | U293A | U293B | U293C | U293D | U293E | U293F | U293G | U293H | U293I | U293J | U293K | U293L | U293M | U293N | U293O | U293P | U293Q | U293R | U293S | U293T | U293U | U293V | U293W | U293X | U293Y | U293Z | U294A | U294B | U294C | U294D | U294E | U294F | U294G | U294H | U294I | U294J | U294K | U294L | U294M | U294N | U294O | U294P | U294Q | U294R | U294S | U294T | U294U | U294V | U294W | U294X | U294Y | U294Z | U295A | U295B | U295C | U295D | U295E | U295F | U295G | U295H | U295I | U295J | U295K | U295L | U295M | U295N | U295O | U295P | U295Q | U295R | U295S | U295T | U295U | U295V | U295W | U295X | U295Y | U295Z | U296A | U296B | U296C | U296D | U296E | U296F | U296G | U296H | U296I | U296J | U296K | U296L | U296M | U296N | U296O | U296P | U296Q | U296R | U296S | U296T | U296U | U296V | U296W | U296X | U296Y | U296Z | U297A | U297B | U297C | U297D | U297E | U297F | U297G | U297H | U297I | U297J | U297K | U297L | U297M | U297N | U297O | U297P | U297Q | U297R | U297S | U297T | U297U | U297V | U297W | U297X | U297Y | U297Z | U298A | U298B | U298C | U298D | U298E | U298F | U298G | U298H | U298I | U298J | U298K | U298L | U298M | U298N | U298O | U298P | U298Q | U298R | U298S | U298T | U298U | U298V | U298W | U298X | U298Y | U298Z | U299A | U299B | U299C | U299D | U299E | U299F | U299G | U299H | U299I | U299J | U299K | U299L | U299M | U299N | U299O | U299P | U299Q | U299R | U299S | U299T | U299U | U299V | U299W | U299X | U299Y | U299Z | U300A | U300B | U300C | U300D | U300E | U300F | U300G | U300H | U300I | U300J | U300K | U300L | U300M | U300N | U300O | U300P | U300Q | U300R | U300S | U300T | U300U | U300V | U300W | U300X | U300Y | U300Z | U301A | U301B | U301C | U301D | U301E | U301F | U301G | U301H | U301I | U301J | U301K | U301L | U301M | U301N | U301O | U301P | U301Q | U301R | U301S | U301T | U301U | U301V | U301W | U301X | U301Y | U301Z | U302A | U302B | U302C | U302D | U302E | U302F | U302G | U302H | U302I | U302J | U302K | U302L | U302M | U302N | U302O | U302P | U302Q | U302R | U302S | U302T | U302U | U302V | U302W | U302X | U302Y | U302Z | U303A | U303B | U303C | U303D | U303E | U303F | U303G | U303H | U303I | U303J | U303K | U303L | U303M | U303N | U303O | U303P | U303Q | U303R | U303S | U303T | U303U | U303V | U303W | U303X | U303Y | U303Z | U304A | U304B | U304C | U304D | U304E | U304F | U304G | U304H | U304I | U304J | U304K | U304L | U304M | U304N | U304O | U304P | U304Q | U304R | U304S | U304T | U304U | U304V | U304W | U304X | U304Y | U304Z | U305A | U305B | U305C | U305D | U305E | U305F | U305G | U305H | U305I | U305J | U305K | U305L | U305M | U305N | U305O | U305P | U305Q | U305R | U305S | U305T | U305U | U305V | U305W | U305X | U305Y | U305Z | U306A | U306B | U306C | U306D | U306E | U306F | U306G | U306H | U306I | U306J | U306K | U306L | U306M | U306N | U306O | U306P | U306Q | U306R | U306S | U306T | U306U | U306V | U306W | U306X | U306Y | U306Z | U307A | U307B | U307C | U307D | U307E | U307F | U307G | U307H | U307I | U307J | U307K | U307L | U307M | U307N | U307O | U307P | U307Q | U307R | U307S | U307T | U307U | U307V | U307W | U307X | U307Y | U307Z | U308A | U308B | U308C | U308D | U308E | U308F | U308G | U308H | U308I | U308J | U308K | U308L | U308M | U308N | U308O | U308P | U308Q | U308R | U308S | U308T | U308U | U308V | U308W | U308X | U308Y | U308Z | U309A | U309B | U309C | U309D | U309E | U309F | U309G | U309H | U309I | U309J | U309K | U309L | U309M | U309N | U309O | U309P | U309Q | U309R | U309S | U309T | U309U | U309V | U309W |

| | | | | | | | | | | | |
|-------|-------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|
| U2197 | G2133 | G1989 | G1811 | G1719 | G1642 | C1498 | U1431 | G1355 | G1285 | G1216 | G1149 |
| A2198 | A2134 | C1990 | A1812 | U1720 | G1643 | C1499 | C1432 | G1359 | A1286 | G1221A | C1150 |
| A2199 | A2135 | C1991 | G1813 | G1721 | G1647 | A1567 | A1433 | A1360 | U1287 | C1222 | G1151 |
| C2200 | C2136 | G1992 | A1722 | A1739 | C1648 | A1568 | A1434 | A1361 | U1288 | G1223 | C1152 |
| C2201 | C2137 | U1993 | G1816 | U1739 | G1648 | A1570 | | C1362 | C1289 | C1224 | G1153 |
| C2138 | C2073 | | G1817 | G1740 | G1651 | A1571 | G1437 | C1362 | C1290 | | G1154 |
| C2139 | U2074 | G1997 | U1818 | G1740 | A1652 | A1572 | | C1363 | C1291 | | A1155 |
| C2140 | U2075 | G1998 | U1819 | G1743 | G1653 | A1573 | G1441 | G1364 | U1292 | G1227 | A1156 |
| | | U1915 | U1820 | C1743 | A1654 | C1574 | G1442 | A1365 | C1293 | G1228 | |
| C2145 | C2078 | A1916 | A1821 | C1745A | | C1577 | A1445 | A1366 | C1297 | G1229 | U1159 |
| C2146 | U2079 | A1917 | G1826 | G1746 | C1657 | A1577 | A1445A | A1367 | C1298 | C1230 | G1160 |
| G2219 | G2080 | A2001 | C1827 | G1747A | C1658 | A1578 | G1446 | G1368 | G1231 | G1231 | C1161 |
| G2220 | A2081 | G2002 | G1828 | G1748 | U1659 | A1580 | G1447 | G1369 | G1232 | | G1162 |
| G2221 | A2082 | | | | C1660 | G1581 | | | | G1236 | G1163 |
| G2222 | | C2007 | G1831 | A1749 | G1661 | G1582 | G1448 | A1378 | U1300 | A1237 | G1164 |
| G2223 | | C2008 | G1835 | G1752 | G1662 | A1584 | G1449 | A1379 | A1302 | A1238 | U1165 |
| A2208 | U2086 | C2009 | U1841 | G1753 | C1663 | U1514 | G1450 | G1380 | G1303 | G1239 | C1166 |
| U2218 | G2087 | G2010 | G1842 | G1754 | A1664 | G1515 | G1451 | A1384 | C1304 | U1240 | U1167 |
| G2224 | G2088 | U2011 | C1843 | G1755 | A1665 | A1587 | G1452 | A1385 | C1305 | A1241 | G1168 |
| A2225 | U2089 | G2012 | U1844 | A1762 | G1666 | C1588 | G1453 | A1386 | C1306 | A1242 | G1169 |
| C2226 | G2090 | A2013 | | G1763 | A1668 | U1590 | G1455 | G1387 | | G1243 | G1170 |
| A2227 | U2091 | A2014 | C1844 | G1764 | A1669 | G1591 | | G1388 | G1311 | G1244 | G1171 |
| G2228 | G2092 | A2015 | | G1765 | C1670 | C1592 | G1459 | U1389 | | G1245 | A1174 |
| C2229 | G2093 | U2016 | A1847 | C1766 | | G1593 | G1460 | U1390 | G1314 | A1246 | U1175 |
| G2230 | | A2019 | A1853 | G1766 | G1674 | G1594 | G1461 | | C1315 | A1247 | G1176 |
| G2231 | | A2020 | A1854 | U1766 | G1675 | G1595 | G1462 | A1395 | U1316 | G1248 | A1177 |
| C2236 | C2097 | C2021 | G1858 | C1771 | A1676 | A1596 | G1463 | U1396 | U1249 | U1249 | C1178 |
| G2237 | U2098 | U2022 | G1859 | G1772 | A1677 | A1597 | G1464 | C1397 | G1318 | G1250 | C1179 |
| C2239 | G2100 | G2023 | G1860 | A1773 | G1678 | C1598 | G1465 | U1398 | G1319 | C1251 | C1180 |
| C2240 | G2101 | G2024 | G1861 | C1774 | | C1599 | G1466 | C1399 | C1320 | G1252 | C1181 |
| A2241 | G2102 | C2025 | G1862 | U1775 | G1681 | C1600 | G1467 | G1400 | A1321 | A1253 | A1182 |
| C2242 | C2103 | C2026 | G1863 | U1776 | G1682 | C1601 | G1468 | C1401 | C1327 | G1256 | G1183 |
| U2243 | G2104 | | U1864 | G1777 | C1683 | G1602 | A1469 | C1402 | G1328 | C1257 | G1184 |
| A2169 | G2105 | A2030 | U1865 | U1778 | C1684 | U1603 | A1471 | C1403 | U1329 | C1258 | C1185 |
| U2170 | G2106 | G2031 | G1866 | U1779 | C1685 | U1534 | A1472 | C1404 | G1330 | G1259 | G1186 |
| U2171 | C2107 | G2032 | C1867 | A1780 | | A1535 | G1473 | U1405 | U1331 | G1260 | G1187 |
| A2172 | C2108 | A2033 | C1868 | A1781 | U1688 | C1607 | G1474 | U1406 | G1332 | C1261 | U1188 |
| C2173 | C2109 | G1954 | C1869 | C1782 | U1689 | A1608 | G1475 | C1407 | U1333 | A1262 | A1189 |
| C2174 | U2109 | U1955 | C1870 | U1783 | A1689 | A1609 | G1476 | C1408 | G1334 | A1263 | G1190 |
| C2175 | | | C1871 | A1784 | U1692 | A1610 | G1477 | C1409 | U1335 | U1263 | G1191 |
| A2176 | C2111 | C1958 | C1872 | A1785 | U1693 | C1611 | G1478 | C1411 | A1336 | G1264 | G1192 |
| C2177 | G2112 | G1959 | C1873 | A1786 | G1694 | G1612 | G1479 | A1412 | G1337 | A1265 | G1193 |
| C2178 | U2113 | G1959 | A1877 | U1787 | G1695 | A1614 | G1480 | G1413 | G1338 | | U1198 |
| C2179 | A2114 | U1963 | C1874 | A1788 | G1696 | C1617 | U1481 | | G1339 | A1268 | U1199 |
| U2180 | G2115 | C1967 | C1875 | A1789 | G1697 | A1618 | G1482 | G1416 | U1340 | A1269 | G1203 |
| G2181 | G2116 | U2041 | C1876 | A1790 | U1698 | A1618 | G1483 | C1417 | U1341 | C1270 | A1204 |
| C2182 | A2117 | G1968 | C1877 | U1796 | G1699 | A1618 | G1484 | G1418 | A1342 | A1272 | U1205 |
| C2183 | U2118 | A1969 | A1884 | U1797 | A1700 | C1625 | G1485 | A1419 | G1343 | U1273 | G1206 |
| G2184 | A2119 | A1970 | C1886 | C1797 | A1701 | G1626 | G1486 | U1420 | G1344 | A1274 | U1207 |
| C2185 | G2120 | G2052 | C1887 | U1798 | | | G1487 | G1421 | G1345 | A1275 | C1208 |
| G2186 | G2121 | C2055 | G1888 | C1799 | C1708 | A1632 | G1488 | G1424 | G1346 | | G1209 |
| C2187 | U2122 | G2056 | A1889 | G1799 | U1709 | G1633 | U1489 | G1425 | G1347 | A1278 | U1210 |
| C2188 | G2123 | G2056 | G1899 | C1800 | C1710 | A1634 | A1490 | G1426 | G1348 | G1279 | A1211 |
| U2189 | G2124 | A2060 | A1901 | G1801 | | | G1493 | A1427 | U1349 | G1280 | G1212 |
| C2190 | G2125 | G2061 | A1902 | G1807 | U1713 | C1638 | A1494 | C1428 | A1352 | G1281 | A1213 |
| G2191 | A2126 | A2062 | C1902 | U1808 | G1714 | U1639 | A1495 | G1429 | G1352 | U1282 | G1214 |
| C2192 | G2127 | G2063 | G1903 | A1809 | G1717 | C1640 | A1496 | | A1354 | G1283 | |
| G2193 | C2128 | | G1906 | A1810 | G1718 | | U1497 | | | A1284 | G1215 |
| C2194 | | | | | | | | | | | |
| C2195 | | | | | | | | | | | |
| C2196 | | | | | | | | | | | |



• Molecule 14: 50S RIBOSOMAL PROTEIN L2

Chain D:



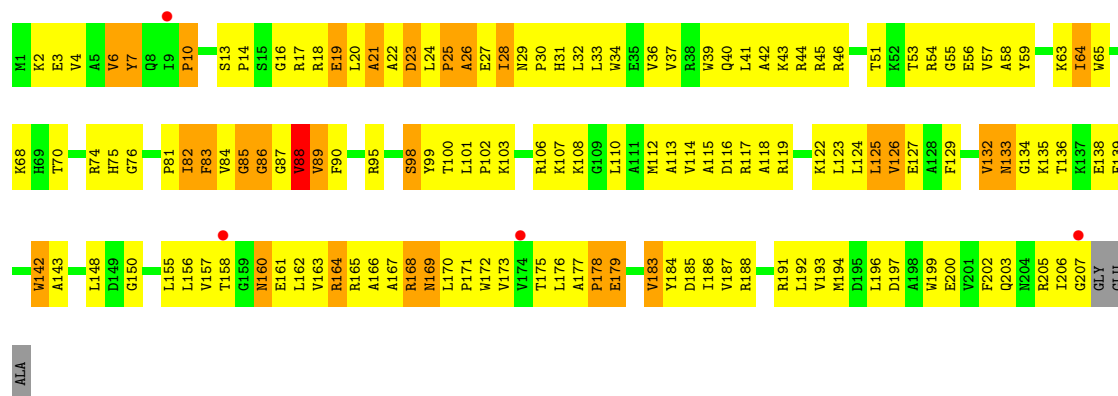
• Molecule 15: 50S RIBOSOMAL PROTEIN L3

Chain E:



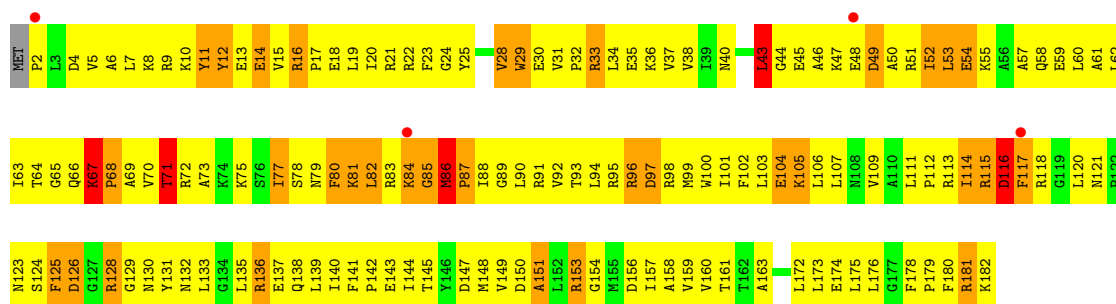
• Molecule 16: 50S RIBOSOMAL PROTEIN L4

Chain F:



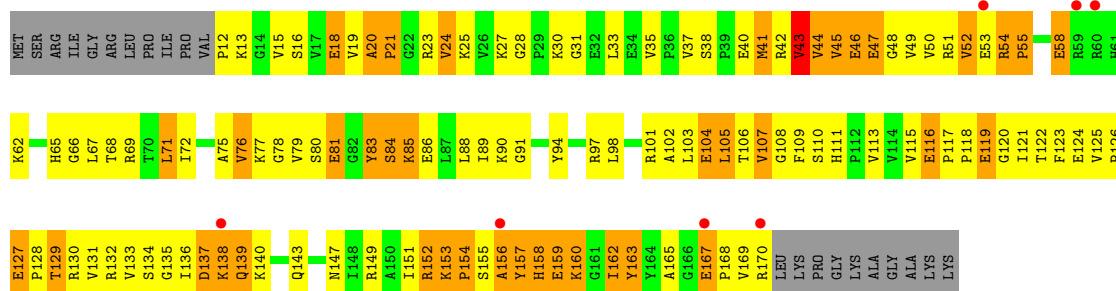
• Molecule 17: 50S RIBOSOMAL PROTEIN L5

Chain G:



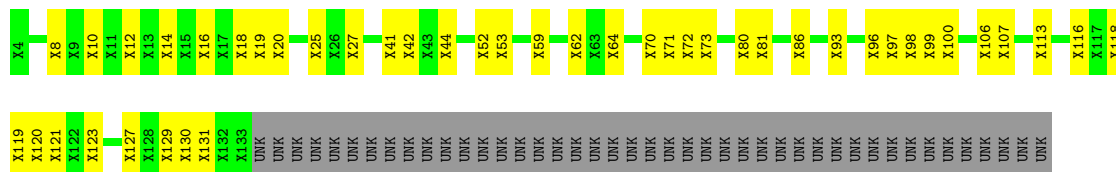
• Molecule 18: 50S RIBOSOMAL PROTEIN L6

Chain H:



• Molecule 19: 50S RIBOSOMAL PROTEIN L10

Chain J:



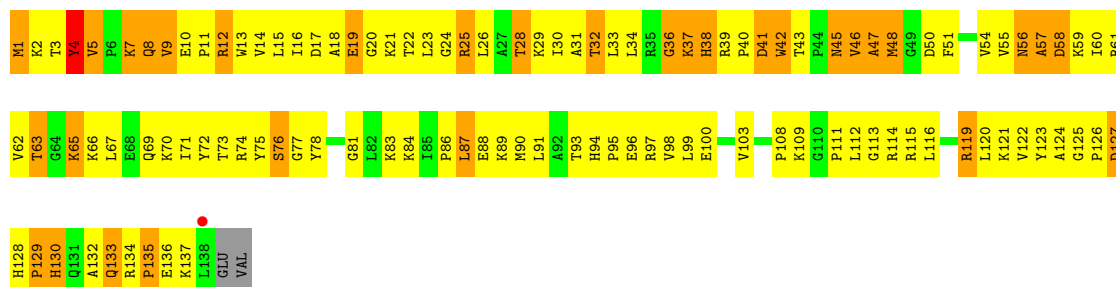
• Molecule 20: 50S RIBOSOMAL PROTEIN L11

Chain K:



• Molecule 21: 50S RIBOSOMAL PROTEIN L13

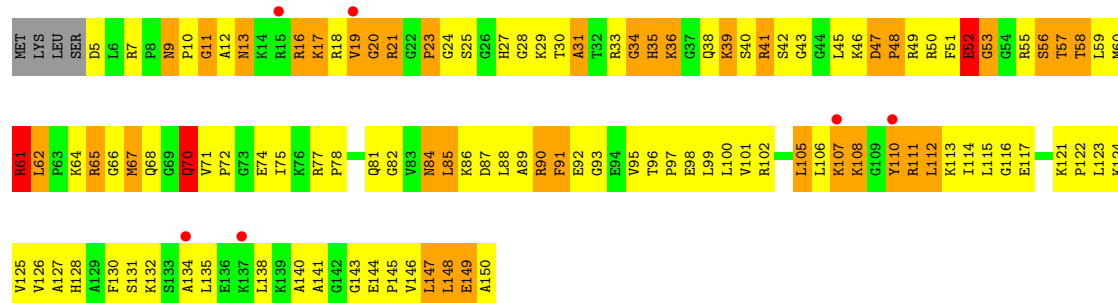
Chain N:



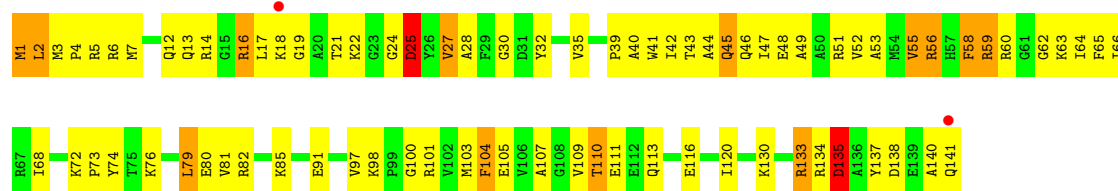
- Molecule 22: 50S RIBOSOMAL PROTEIN L14

Chain O: 

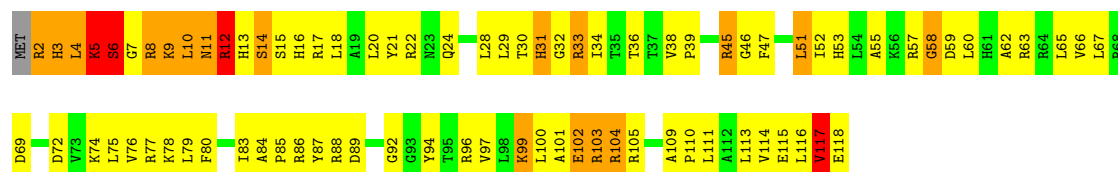
- Molecule 23: 50S RIBOSOMAL PROTEIN L15

Chain P: 

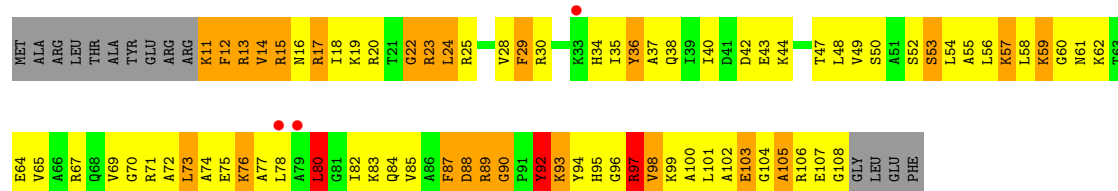
- Molecule 24: 50S RIBOSOMAL PROTEIN L16

Chain Q: 

- Molecule 25: 50S RIBOSOMAL PROTEIN L17

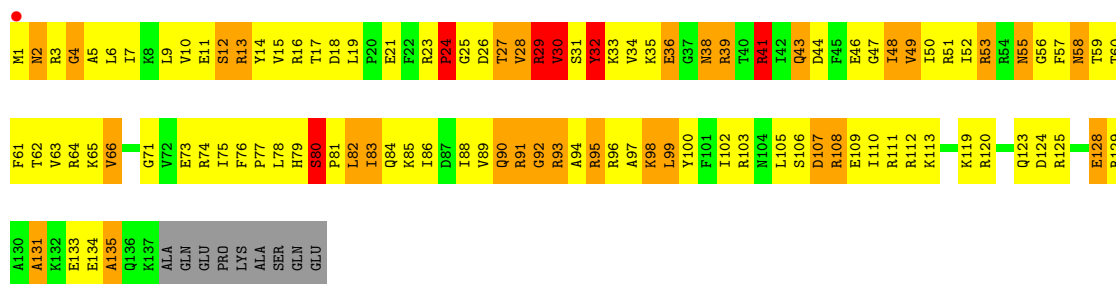
Chain R: 

- Molecule 26: 50S RIBOSOMAL PROTEIN L18

Chain S: 

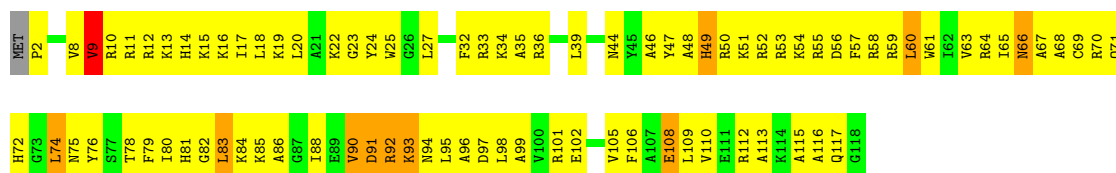
- Molecule 27: 50S RIBOSOMAL PROTEIN L19

Chain T:



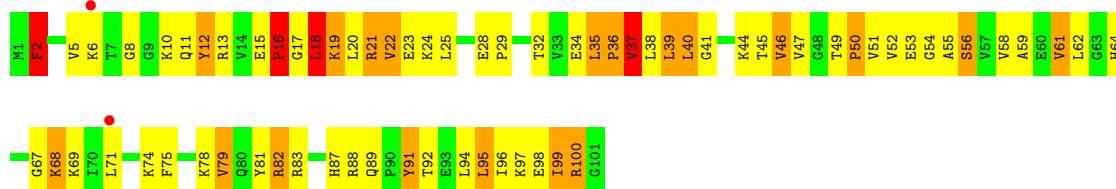
- Molecule 28: 50S RIBOSOMAL PROTEIN L20

Chain U:



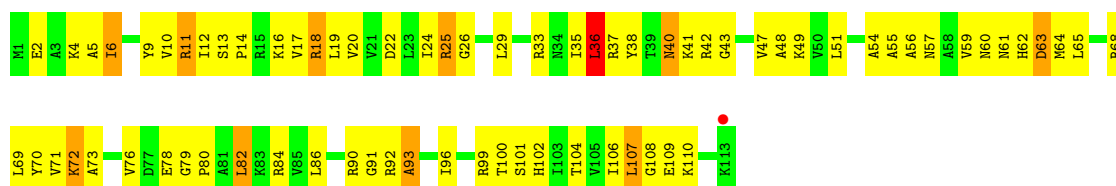
- Molecule 29: 50S RIBOSOMAL PROTEIN L21

Chain V:



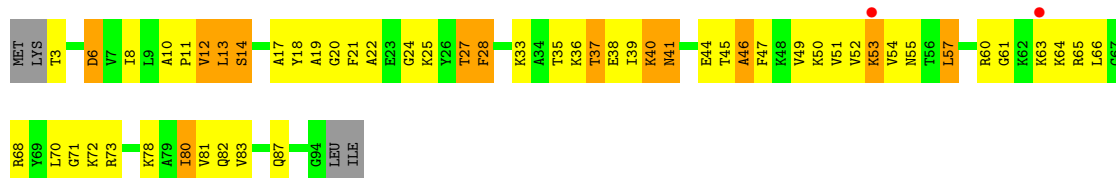
- Molecule 30: 50S RIBOSOMAL PROTEIN L22

Chain W:



- Molecule 31: 50S RIBOSOMAL PROTEIN L23

Chain X:



- Molecule 32: 50S RIBOSOMAL PROTEIN L24

Chain Y: 

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|----|----|----|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| MET | R2 | K3 | Y3 | E64 | A65 | P66 | K6 | H6 | V7 | K8 | K9 | G10 | D11 | T12 | V13 | L14 | V15 | A16 | S17 | G18 | K19 | Y20 | K21 | G22 | R23 | V24 | G25 | K26 | V27 | K28 | E29 | V30 | L31 | P32 | K33 | K34 | Y35 | A36 | V37 | I38 | V39 | E40 | G41 | V42 | N43 | T44 | V45 | K46 | K47 | A48 | V49 | S50 | V51 | P53 | K54 | Y55 | P56 | Q57 | F60 | I61 |
|-----|----|----|----|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| E62 | K63 | E64 | A65 | P66 | K6 | H6 | V7 | K8 | S70 | K71 | V72 | R73 | P74 | I75 | C76 | P77 | A78 | C79 | G80 | K81 | P82 | T83 | G84 | V85 | R86 | K87 | K88 | F89 | L90 | E91 | N92 | G93 | K94 | K95 | Y96 | V97 | V98 | C99 | A100 | K101 | CYS | GLY | GLY | ALA | LEU | ASP | THR | GLU | GLU |
|-----|-----|-----|-----|-----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|

• Molecule 33: 50S RIBOSOMAL PROTEIN L25

Chain Z: 

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| MET | GLU | Y3 | L5 | K6 | A7 | Y8 | Y9 | R10 | E11 | G12 | E13 | K14 | P15 | S16 | A17 | L18 | R19 | R20 | K23 | L24 | P25 | M28 | Y29 | N30 | R31 | N34 | R35 | K36 | V37 | Y38 | V39 | D40 | L41 | V42 | E43 | F44 | F48 | A51 | S52 | I53 | H54 | H55 | V56 | I57 | V58 | L59 | E60 | L61 | P62 | D63 | Q64 | S66 |
|-----|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| L67 | P68 | T69 | L70 | V71 | R72 | Q73 | V74 | N75 | D77 | K78 | R79 | R80 | R81 | V86 | D87 | F88 | F89 | V90 | L91 | P95 | V96 | E97 | M98 | Y99 | V100 | P101 | L102 | R103 | P104 | V105 | P108 | A109 | G110 | V111 | R112 | A113 | G114 | G115 | V116 | E119 | I120 | H121 | R122 | D123 | I124 | L125 | V126 | K127 | V128 | S129 | M132 | I133 | P134 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| E135 | F136 | I137 | E138 | V139 | D140 | V141 | S142 | G143 | L144 | E145 | I146 | G147 | D148 | S149 | L150 | H151 | A152 | L155 | K156 | L157 | P158 | P159 | G160 | V161 | E162 | L163 | A164 | V165 | S166 | P167 | E169 | T170 | I171 | A172 | A173 | P177 | ASP | VAL | GLU | LYS | LEU | ALA | GLU | GLU | ALA | ALA | GLU | VAL | ALA | GLU | PRO | VAL | ILE |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| LYS | LYS | GLY | LYS | GLU | GLU | GLU | GLU |
|-----|-----|-----|-----|-----|-----|-----|-----|

4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | P 1 21 1 | Depositor |
| Cell constants a, b, c, α , β , γ | 289.90Å 268.50Å 403.60Å 90.00° 91.62° 90.00° | Depositor |
| Resolution (Å) | 50.00 – 3.10 49.92 – 2.93 | Depositor EDS |
| % Data completeness (in resolution range) | 98.0 (50.00-3.10) 90.5 (49.92-2.93) | Depositor EDS |
| R_{merge} | 0.02 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 1.38 (at 2.91Å) | Xtriage |
| Refinement program | CNS 1.2 | Depositor |
| R, R_{free} | 0.243 , 0.267 0.477 , 0.482 | Depositor DCC |
| R_{free} test set | 59600 reflections (5.25%) | DCC |
| Wilson B-factor (Å ²) | 59.1 | Xtriage |
| Anisotropy | 0.077 | Xtriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.28 , 59.4 | EDS |
| Estimated twinning fraction | 0.018 for h,-k,-l | Xtriage |
| L-test for twinning | $\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.29$ | Xtriage |
| Outliers | 0 of 1195890 reflections | Xtriage |
| F_o, F_c correlation | 0.52 | EDS |
| Total number of atoms | 93750 | wwPDB-VP |
| Average B, all atoms (Å ²) | 80.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.42% 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 | 0 | 0.41 | 0/671 | 0.70 | 0/892 |
| 2 | 1 | 0.40 | 0/738 | 0.68 | 0/981 |
| 3 | 2 | 0.33 | 0/600 | 0.64 | 1/793 (0.1%) |
| 4 | 3 | 0.35 | 0/472 | 0.61 | 0/634 |
| 5 | 4 | 0.37 | 0/349 | 0.65 | 0/474 |
| 6 | 5 | 0.38 | 0/473 | 0.71 | 0/639 |
| 7 | 6 | 0.54 | 0/440 | 0.80 | 0/586 |
| 8 | 7 | 0.42 | 0/426 | 0.69 | 0/561 |
| 9 | 8 | 0.53 | 0/515 | 0.87 | 1/679 (0.1%) |
| 10 | 9 | 0.41 | 0/310 | 0.65 | 0/407 |
| 11 | A | 0.49 | 2/69976 (0.0%) | 0.72 | 32/109244 (0.0%) |
| 12 | B | 0.46 | 0/2853 | 0.75 | 2/4451 (0.0%) |
| 13 | C | 0.40 | 2/1774 (0.1%) | 0.60 | 0/2391 |
| 14 | D | 0.50 | 0/2195 | 0.80 | 1/2955 (0.0%) |
| 15 | E | 0.43 | 0/1596 | 0.74 | 0/2153 |
| 16 | F | 0.37 | 0/1658 | 0.65 | 0/2244 |
| 17 | G | 0.38 | 0/1499 | 0.68 | 0/2016 |
| 18 | H | 0.32 | 0/1245 | 0.66 | 0/1682 |
| 21 | N | 0.37 | 0/1131 | 0.69 | 0/1525 |
| 22 | O | 0.46 | 0/943 | 0.67 | 0/1269 |
| 23 | P | 0.42 | 0/1131 | 0.91 | 2/1504 (0.1%) |
| 24 | Q | 0.49 | 0/1143 | 0.72 | 0/1527 |
| 25 | R | 0.38 | 0/974 | 0.70 | 1/1302 (0.1%) |
| 26 | S | 0.37 | 0/778 | 0.75 | 0/1036 |
| 27 | T | 0.41 | 0/1155 | 0.76 | 2/1542 (0.1%) |
| 28 | U | 0.43 | 0/975 | 0.68 | 0/1297 |
| 29 | V | 0.39 | 0/790 | 0.68 | 0/1057 |
| 30 | W | 0.36 | 0/907 | 0.67 | 0/1216 |
| 31 | X | 0.40 | 0/739 | 0.65 | 0/993 |
| 32 | Y | 0.36 | 0/788 | 0.73 | 1/1051 (0.1%) |
| 33 | Z | 0.44 | 0/1435 | 0.74 | 0/1949 |
| All | All | 0.47 | 4/100679 (0.0%) | 0.72 | 43/151050 (0.0%) |

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 |
|-----|-------|---------------------|---------------------|
| 11 | A | 2 | 67 |
| 12 | B | 0 | 6 |
| All | All | 2 | 73 |

All (4) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|--------|-------------|----------|
| 11 | A | 761 | A | C5-C6 | -10.14 | 1.31 | 1.41 |
| 11 | A | 2506 | U | N1-C2 | 8.34 | 1.46 | 1.38 |
| 13 | C | 218 | MET | CG-SD | 6.24 | 1.97 | 1.81 |
| 13 | C | 120 | MET | CG-SD | 5.48 | 1.95 | 1.81 |

All (43) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 14 | D | 244 | ARG | C-N-CD | -10.91 | 96.59 | 120.60 |
| 11 | A | 1820 | U | C2'-C3'-O3' | 9.56 | 130.53 | 109.50 |
| 11 | A | 1786 | A | N9-C1'-C2' | 8.61 | 125.20 | 114.00 |
| 11 | A | 1819 | A | C2'-C3'-O3' | 8.49 | 128.18 | 109.50 |
| 11 | A | 1992 | G | C2'-C3'-O3' | 8.28 | 127.73 | 109.50 |
| 23 | P | 53 | GLY | N-CA-C | -8.11 | 92.84 | 113.10 |
| 11 | A | 945 | A | N9-C1'-C2' | 8.02 | 124.42 | 114.00 |
| 11 | A | 1799 | G | C2'-C3'-O3' | 7.29 | 125.53 | 109.50 |
| 23 | P | 52 | GLU | N-CA-C | 7.12 | 130.21 | 111.00 |
| 12 | B | 67 | G | N9-C1'-C2' | -6.94 | 104.36 | 112.00 |
| 11 | A | 527 | C | O4'-C1'-N1 | 6.77 | 113.62 | 108.20 |
| 27 | T | 29 | ARG | N-CA-C | 6.65 | 128.94 | 111.00 |
| 11 | A | 1970 | A | C5'-C4'-O4' | 6.61 | 117.03 | 109.10 |
| 11 | A | 2360 | A | N9-C1'-C2' | -6.51 | 104.83 | 112.00 |
| 12 | B | 16 | G | N9-C1'-C2' | -6.36 | 105.00 | 112.00 |
| 11 | A | 2756 | U | C2'-C3'-O3' | 6.30 | 123.78 | 113.70 |
| 11 | A | 1653 | G | C2'-C3'-O3' | 6.30 | 123.78 | 113.70 |
| 11 | A | 1987 | G | C5'-C4'-C3' | -6.11 | 106.22 | 116.00 |
| 25 | R | 12 | ARG | N-CA-C | -6.11 | 94.51 | 111.00 |
| 11 | A | 856 | C | C2'-C3'-O3' | 6.05 | 123.38 | 113.70 |
| 11 | A | 1970 | A | C1'-O4'-C4' | -6.04 | 105.07 | 109.90 |
| 11 | A | 1948 | G | C5'-C4'-O4' | -5.99 | 101.91 | 109.10 |
| 11 | A | 2654 | A | N9-C1'-C2' | 5.99 | 121.78 | 114.00 |
| 9 | 8 | 49 | VAL | N-CA-C | -5.86 | 95.17 | 111.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 27 | T | 80 | SER | N-CA-C | 5.60 | 126.12 | 111.00 |
| 11 | A | 387 | U | C2'-C3'-O3' | 5.58 | 122.62 | 113.70 |
| 11 | A | 2278 | A | C5'-C4'-C3' | 5.57 | 124.91 | 116.00 |
| 11 | A | 1819 | A | C4'-C3'-O3' | 5.45 | 123.90 | 113.00 |
| 11 | A | 1493 | C | N1-C1'-C2' | 5.45 | 121.08 | 114.00 |
| 11 | A | 242 | G | N9-C1'-C2' | 5.43 | 121.06 | 114.00 |
| 11 | A | 1698 | A | O4'-C1'-N9 | 5.41 | 112.53 | 108.20 |
| 11 | A | 2221 | G | C5'-C4'-C3' | -5.37 | 107.42 | 116.00 |
| 11 | A | 2111 | C | N1-C1'-C2' | 5.34 | 120.95 | 114.00 |
| 11 | A | 1781 | C | N1-C1'-C2' | 5.31 | 120.91 | 114.00 |
| 11 | A | 906 | G | C5'-C4'-C3' | -5.30 | 107.52 | 116.00 |
| 11 | A | 2464 | C | N1-C1'-C2' | -5.29 | 106.19 | 112.00 |
| 11 | A | 2286 | A | N9-C1'-C2' | 5.27 | 120.85 | 114.00 |
| 3 | 2 | 28 | LYS | N-CA-C | -5.27 | 96.78 | 111.00 |
| 32 | Y | 54 | LYS | N-CA-C | -5.24 | 96.84 | 111.00 |
| 11 | A | 1159 | U | C5'-C4'-C3' | -5.09 | 107.86 | 116.00 |
| 11 | A | 1970 | A | C5'-C4'-C3' | 5.02 | 124.03 | 116.00 |
| 11 | A | 2405 | G | N9-C1'-C2' | 5.02 | 120.52 | 114.00 |
| 11 | A | 857 | C | C5'-C4'-C3' | -5.00 | 108.00 | 116.00 |

All (2) chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|-----|-------|------|------|------|
| 11 | A | 1819 | A | C3' |
| 11 | A | 1820 | U | C3' |

All (73) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 11 | A | 1133 | U | Sidechain |
| 11 | A | 1156 | A | Sidechain |
| 11 | A | 1162 | G | Sidechain |
| 11 | A | 1215 | G | Sidechain |
| 11 | A | 1238 | G | Sidechain |
| 11 | A | 1379 | A | Sidechain |
| 11 | A | 140 | G | Sidechain |
| 11 | A | 1416 | G | Sidechain |
| 11 | A | 1427 | A | Sidechain |
| 11 | A | 15 | G | Sidechain |
| 11 | A | 1647 | G | Sidechain |
| 11 | A | 1766 | U | Sidechain |
| 11 | A | 1772 | G | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 11 | A | 1773 | A | Sidechain |
| 11 | A | 1801 | G | Sidechain |
| 11 | A | 1807 | G | Sidechain |
| 11 | A | 1831 | G | Sidechain |
| 11 | A | 1841 | U | Sidechain |
| 11 | A | 1907 | G | Sidechain |
| 11 | A | 1940 | U | Sidechain |
| 11 | A | 1952 | A | Sidechain |
| 11 | A | 1985 | G | Sidechain |
| 11 | A | 2010 | G | Sidechain |
| 11 | A | 2011 | U | Sidechain |
| 11 | A | 202 | U | Sidechain |
| 11 | A | 2031 | A | Sidechain |
| 11 | A | 2073 | C | Sidechain |
| 11 | A | 2074 | U | Sidechain |
| 11 | A | 2176 | A | Sidechain |
| 11 | A | 2266 | A | Sidechain |
| 11 | A | 2320 | A | Sidechain |
| 11 | A | 2344 | U | Sidechain |
| 11 | A | 2360 | A | Sidechain |
| 11 | A | 2413 | G | Sidechain |
| 11 | A | 2422 | A | Sidechain |
| 11 | A | 2438 | U | Sidechain |
| 11 | A | 2464 | C | Sidechain |
| 11 | A | 2491 | U | Sidechain |
| 11 | A | 2504 | U | Sidechain |
| 11 | A | 2506 | U | Sidechain |
| 11 | A | 2508 | G | Sidechain |
| 11 | A | 2542 | A | Sidechain |
| 11 | A | 2564 | A | Sidechain |
| 11 | A | 2569 | G | Sidechain |
| 11 | A | 2581 | G | Sidechain |
| 11 | A | 2582 | G | Sidechain |
| 11 | A | 2595 | G | Sidechain |
| 11 | A | 2726 | U | Sidechain |
| 11 | A | 2746 | U | Sidechain |
| 11 | A | 2758 | A | Sidechain |
| 11 | A | 2779 | U | Sidechain |
| 11 | A | 463 | G | Sidechain |
| 11 | A | 532 | A | Sidechain |
| 11 | A | 555 | U | Sidechain |
| 11 | A | 630 | G | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|-----------|
| 11 | A | 670 | A | Sidechain |
| 11 | A | 675 | A | Sidechain |
| 11 | A | 684 | G | Sidechain |
| 11 | A | 686 | G | Sidechain |
| 11 | A | 700 | G | Sidechain |
| 11 | A | 742 | G | Sidechain |
| 11 | A | 760 | G | Sidechain |
| 11 | A | 792 | G | Sidechain |
| 11 | A | 945 | A | Sidechain |
| 11 | A | 946 | G | Sidechain |
| 11 | A | 958 | U | Sidechain |
| 11 | A | 995 | C | Sidechain |
| 12 | B | 16 | G | Sidechain |
| 12 | B | 24 | G | Sidechain |
| 12 | B | 40 | U | Sidechain |
| 12 | B | 42 | C | Sidechain |
| 12 | B | 66 | A | Sidechain |
| 12 | B | 67 | G | 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 | 0 | 662 | 0 | 688 | 60 | 0 |
| 2 | 1 | 731 | 0 | 808 | 67 | 0 |
| 3 | 2 | 598 | 0 | 653 | 67 | 0 |
| 4 | 3 | 467 | 0 | 523 | 47 | 0 |
| 5 | 4 | 340 | 0 | 339 | 52 | 0 |
| 6 | 5 | 459 | 0 | 480 | 65 | 0 |
| 7 | 6 | 433 | 0 | 461 | 131 | 0 |
| 8 | 7 | 418 | 0 | 467 | 28 | 0 |
| 9 | 8 | 507 | 0 | 576 | 123 | 0 |
| 10 | 9 | 307 | 0 | 338 | 42 | 0 |
| 11 | A | 62477 | 0 | 31497 | 2205 | 0 |
| 12 | B | 2551 | 0 | 1295 | 97 | 0 |
| 13 | C | 1742 | 0 | 1800 | 131 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 14 | D | 2145 | 0 | 2234 | 234 | 0 |
| 15 | E | 1563 | 0 | 1629 | 222 | 0 |
| 16 | F | 1623 | 0 | 1677 | 197 | 0 |
| 17 | G | 1474 | 0 | 1535 | 228 | 0 |
| 18 | H | 1222 | 0 | 1282 | 184 | 0 |
| 19 | J | 651 | 0 | 164 | 31 | 0 |
| 20 | K | 700 | 0 | 173 | 15 | 0 |
| 21 | N | 1104 | 0 | 1180 | 171 | 0 |
| 22 | O | 933 | 0 | 996 | 77 | 0 |
| 23 | P | 1114 | 0 | 1187 | 265 | 0 |
| 24 | Q | 1122 | 0 | 1179 | 106 | 0 |
| 25 | R | 960 | 0 | 1021 | 128 | 0 |
| 26 | S | 770 | 0 | 832 | 150 | 0 |
| 27 | T | 1141 | 0 | 1202 | 217 | 0 |
| 28 | U | 958 | 0 | 1015 | 130 | 0 |
| 29 | V | 779 | 0 | 852 | 120 | 0 |
| 30 | W | 896 | 0 | 953 | 86 | 0 |
| 31 | X | 725 | 0 | 778 | 84 | 0 |
| 32 | Y | 775 | 0 | 870 | 156 | 0 |
| 33 | Z | 1403 | 0 | 1432 | 200 | 0 |
| All | All | 93750 | 0 | 62116 | 5634 | 0 |

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 36.

All (5634) close contacts within the same asymmetric unit are listed below.

| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 13:C:123:VAL:CG2 | 13:C:127:LEU:HD23 | 1.33 | 1.53 |
| 13:C:123:VAL:HG23 | 13:C:127:LEU:CD2 | 1.50 | 1.42 |
| 11:A:1899:G:N2 | 11:A:1902:C:H41 | 1.34 | 1.24 |
| 11:A:2645:G:H3' | 11:A:2646:C:H5' | 1.21 | 1.18 |
| 27:T:33:LYS:HE3 | 27:T:43:GLN:HE21 | 1.06 | 1.16 |
| 16:F:24:LEU:HB3 | 16:F:25:PRO:HD2 | 1.28 | 1.14 |
| 18:H:85:LYS:HE2 | 18:H:133:VAL:N | 1.61 | 1.13 |
| 16:F:167:ALA:HB1 | 16:F:173:VAL:HG11 | 1.30 | 1.13 |
| 27:T:53:ARG:HH11 | 27:T:53:ARG:HB3 | 1.12 | 1.12 |
| 14:D:30:GLU:HB2 | 14:D:35:LYS:HD2 | 1.28 | 1.12 |
| 27:T:55:ASN:H | 27:T:59:THR:HG22 | 1.12 | 1.12 |
| 15:E:47:VAL:HG21 | 15:E:86:PRO:HD2 | 1.32 | 1.12 |
| 11:A:1301:A:O2' | 11:A:1302:A:H2' | 1.50 | 1.11 |
| 11:A:31:C:H2' | 11:A:32:C:H5'' | 1.33 | 1.11 |
| 31:X:12:VAL:HB | 31:X:17:ALA:HB1 | 1.16 | 1.11 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 31:X:12:VAL:HG23 | 31:X:13:LEU:H | 1.16 | 1.10 |
| 31:X:40:LYS:HG2 | 31:X:51:VAL:HB | 1.18 | 1.10 |
| 11:A:1543:C:H3' | 11:A:1544:A:H5'' | 1.32 | 1.10 |
| 21:N:9:VAL:HG12 | 21:N:10:GLU:H | 1.16 | 1.09 |
| 11:A:1887:C:H2' | 11:A:1888:G:H5'' | 1.34 | 1.09 |
| 16:F:37:VAL:HG11 | 23:P:7:ARG:HH12 | 1.16 | 1.09 |
| 16:F:25:PRO:HB3 | 16:F:119:ARG:HB2 | 1.32 | 1.08 |
| 9:8:62:LEU:HD13 | 11:A:242:G:H5'' | 1.33 | 1.08 |
| 7:6:35:GLU:HB3 | 7:6:51:GLU:HB2 | 1.35 | 1.08 |
| 11:A:628:G:H2' | 11:A:629:G:H5'' | 1.31 | 1.08 |
| 11:A:1484:G:H2' | 11:A:1485:G:H5'' | 1.09 | 1.07 |
| 11:A:925:C:H2' | 11:A:926:A:H5'' | 1.36 | 1.07 |
| 33:Z:51:ALA:HB1 | 33:Z:57:ILE:HD11 | 1.35 | 1.07 |
| 18:H:85:LYS:CE | 18:H:133:VAL:H | 1.68 | 1.06 |
| 15:E:57:LYS:HE3 | 15:E:57:LYS:HA | 1.32 | 1.06 |
| 7:6:33:LYS:HE2 | 7:6:33:LYS:HA | 1.31 | 1.06 |
| 14:D:71:ASP:HB2 | 14:D:103:ARG:HH22 | 1.16 | 1.05 |
| 16:F:143:ALA:HB1 | 16:F:148:LEU:HB2 | 1.32 | 1.05 |
| 17:G:63:ILE:HA | 17:G:143:GLU:HG3 | 1.39 | 1.05 |
| 11:A:2187:G:H2' | 11:A:2188:C:H5' | 1.36 | 1.05 |
| 26:S:59:LYS:HG2 | 26:S:60:GLY:H | 1.20 | 1.05 |
| 11:A:271(L):U:H5'' | 11:A:271(M):G:H5' | 1.37 | 1.04 |
| 11:A:1024:G:H3' | 11:A:1025:G:H5'' | 1.38 | 1.04 |
| 16:F:168:ARG:HG3 | 16:F:175:THR:HG21 | 1.35 | 1.04 |
| 6:5:4:HIS:HB3 | 6:5:5:PRO:HD3 | 1.35 | 1.04 |
| 18:H:85:LYS:HZ3 | 18:H:132:ARG:HA | 1.23 | 1.03 |
| 18:H:153:LYS:H | 18:H:153:LYS:HD3 | 1.21 | 1.03 |
| 18:H:16:SER:HB2 | 18:H:27:LYS:HB2 | 1.41 | 1.03 |
| 18:H:85:LYS:HE2 | 18:H:133:VAL:H | 0.88 | 1.03 |
| 11:A:1484:G:C2' | 11:A:1485:G:H5'' | 1.89 | 1.03 |
| 4:3:35:ARG:HH11 | 4:3:35:ARG:HB2 | 1.19 | 1.02 |
| 11:A:2101:G:H2' | 11:A:2102:U:H5'' | 1.37 | 1.02 |
| 11:A:2833:G:H3' | 11:A:2834:G:C5' | 1.88 | 1.02 |
| 1:0:10:THR:HG22 | 1:0:12:ASN:H | 1.18 | 1.02 |
| 11:A:2092:U:H4' | 11:A:2093:G:H5'' | 1.36 | 1.02 |
| 17:G:144:ILE:HD11 | 17:G:149:VAL:HG11 | 1.42 | 1.01 |
| 11:A:628:G:C2' | 11:A:629:G:H5'' | 1.89 | 1.01 |
| 17:G:73:ALA:HB3 | 17:G:87:PRO:HG3 | 1.42 | 1.01 |
| 7:6:18:ARG:HH11 | 7:6:18:ARG:HG2 | 1.25 | 1.01 |
| 27:T:2:ASN:HD22 | 27:T:7:ILE:HD11 | 1.21 | 1.01 |
| 15:E:38:THR:HG22 | 15:E:40:GLU:H | 1.25 | 1.01 |
| 32:Y:76:CYS:SG | 32:Y:77:PRO:HD2 | 2.01 | 1.01 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 11:A:272(H):C:H2' | 11:A:272(I):U:H5'' | 1.42 | 1.01 |
| 25:R:99:LYS:H | 25:R:99:LYS:HD2 | 1.21 | 1.00 |
| 11:A:654(E):G:H22 | 11:A:654(Q):C:H1' | 1.21 | 1.00 |
| 11:A:31:C:C2' | 11:A:32:C:H5'' | 1.91 | 1.00 |
| 29:V:15:GLU:HB3 | 29:V:16:PRO:HD2 | 1.41 | 1.00 |
| 11:A:2310:A:O2' | 11:A:2311:A:H5' | 1.61 | 0.99 |
| 9:8:61:LEU:HD22 | 9:8:62:LEU:HG | 1.45 | 0.99 |
| 2:1:34:THR:HG21 | 2:1:37:ILE:HD11 | 1.45 | 0.99 |
| 9:8:23:VAL:HG12 | 9:8:46:ARG:HH11 | 1.28 | 0.99 |
| 13:C:72:VAL:HG23 | 13:C:111:ASP:HB3 | 1.45 | 0.99 |
| 11:A:612:C:H2' | 11:A:613:G:H5'' | 1.41 | 0.99 |
| 23:P:146:VAL:HG22 | 23:P:147:LEU:H | 1.23 | 0.98 |
| 11:A:1279:G:H4' | 25:R:31:HIS:CD2 | 1.98 | 0.98 |
| 13:C:123:VAL:CG2 | 13:C:127:LEU:CD2 | 2.23 | 0.98 |
| 28:U:85:LYS:HD3 | 28:U:117:GLN:HE22 | 1.29 | 0.97 |
| 11:A:1899:G:H22 | 11:A:1902:C:N4 | 1.61 | 0.97 |
| 11:A:1884:A:H2' | 11:A:1885:A:H5'' | 1.43 | 0.97 |
| 26:S:98:VAL:HG12 | 26:S:100:ALA:H | 1.30 | 0.97 |
| 32:Y:9:LYS:HG2 | 32:Y:10:GLY:H | 1.26 | 0.97 |
| 23:P:126:VAL:HA | 23:P:145:PRO:HB2 | 1.47 | 0.97 |
| 11:A:655:A:H4' | 11:A:656:G:H5' | 1.45 | 0.97 |
| 11:A:1141:U:H2' | 21:N:63:THR:HG21 | 1.43 | 0.96 |
| 11:A:2833:G:H3' | 11:A:2834:G:H5'' | 1.47 | 0.96 |
| 27:T:53:ARG:NH1 | 27:T:53:ARG:HB3 | 1.80 | 0.96 |
| 11:A:1499:C:H5' | 11:A:1499:C:H6 | 1.28 | 0.96 |
| 11:A:2801(A):A:H4' | 11:A:2802:G:H5' | 1.47 | 0.95 |
| 29:V:99:ILE:HD13 | 29:V:99:ILE:H | 1.27 | 0.95 |
| 30:W:5:ALA:HB2 | 30:W:54:ALA:HB2 | 1.46 | 0.95 |
| 12:B:20:C:H2' | 12:B:21:G:H5'' | 1.48 | 0.95 |
| 1:0:49:LYS:H | 1:0:80:HIS:HD1 | 1.04 | 0.95 |
| 26:S:30:ARG:HH22 | 26:S:62:LYS:HD3 | 1.30 | 0.95 |
| 21:N:47:ALA:HB2 | 21:N:112:LEU:HD11 | 1.49 | 0.95 |
| 9:8:13:ARG:HD2 | 23:P:61:ARG:HD2 | 1.46 | 0.95 |
| 16:F:132:VAL:HG22 | 16:F:133:ASN:H | 1.30 | 0.95 |
| 17:G:67:LYS:HD3 | 17:G:67:LYS:N | 1.82 | 0.95 |
| 14:D:44:ASN:HB3 | 14:D:49:ILE:HA | 1.49 | 0.94 |
| 11:A:27:G:H22 | 11:A:512:G:H2' | 1.32 | 0.94 |
| 16:F:6:VAL:HG12 | 16:F:7:TYR:H | 1.30 | 0.94 |
| 11:A:1022:G:H22 | 11:A:1142(A):A:H2 | 1.12 | 0.94 |
| 26:S:83:LYS:HG2 | 26:S:105:ALA:HB3 | 1.50 | 0.94 |
| 11:A:676:A:H8 | 11:A:2069:G:H21 | 1.16 | 0.94 |
| 11:A:1494:A:H2' | 11:A:1495:A:H5'' | 1.49 | 0.94 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 18:H:50:VAL:HG12 | 18:H:51:ARG:H | 1.31 | 0.94 |
| 11:A:880:G:H1 | 11:A:897:C:H42 | 1.14 | 0.94 |
| 23:P:59:LEU:HA | 23:P:61:ARG:NE | 1.82 | 0.94 |
| 11:A:1948:G:H5' | 11:A:1948:G:H8 | 1.31 | 0.93 |
| 23:P:23:PRO:HB2 | 23:P:33:ARG:HG3 | 1.46 | 0.93 |
| 17:G:67:LYS:HD3 | 17:G:67:LYS:H | 1.33 | 0.93 |
| 23:P:41:ARG:HD3 | 23:P:45:LEU:HD23 | 1.50 | 0.93 |
| 11:A:259:G:H21 | 11:A:621:A:H8 | 1.08 | 0.93 |
| 7:6:15:GLU:CD | 7:6:18:ARG:CZ | 2.38 | 0.93 |
| 4:3:9:VAL:HG11 | 4:3:55:ARG:HD3 | 1.49 | 0.93 |
| 31:X:52:VAL:HG12 | 31:X:53:LYS:H | 1.33 | 0.93 |
| 11:A:2756:U:H1' | 11:A:2757:A:H5'' | 1.47 | 0.93 |
| 11:A:2178:C:H2' | 11:A:2179:C:H5' | 1.50 | 0.93 |
| 11:A:2189:U:H2' | 11:A:2190:G:H4' | 1.47 | 0.93 |
| 27:T:28:VAL:HG22 | 27:T:47:GLY:N | 1.84 | 0.93 |
| 9:8:61:LEU:H | 9:8:61:LEU:HD12 | 1.32 | 0.93 |
| 11:A:2317:C:H2' | 11:A:2318:G:H5' | 1.51 | 0.93 |
| 7:6:6:ARG:HB3 | 7:6:6:ARG:HH11 | 1.33 | 0.92 |
| 11:A:1779:U:H5 | 11:A:1784:A:N7 | 1.67 | 0.92 |
| 11:A:2893:G:H5' | 11:A:2894:G:H5' | 1.51 | 0.92 |
| 11:A:1747(A):G:C2' | 11:A:1748:G:H5'' | 1.99 | 0.92 |
| 21:N:67:LEU:O | 21:N:88:GLU:HG3 | 1.70 | 0.92 |
| 11:A:1540:U:H3' | 11:A:1541:G:H3' | 1.51 | 0.92 |
| 16:F:29:ASN:HD22 | 16:F:32:LEU:HB2 | 1.32 | 0.92 |
| 9:8:32:LEU:HG | 9:8:36:LYS:NZ | 1.84 | 0.92 |
| 11:A:2185:C:H2' | 11:A:2186:G:H5' | 1.48 | 0.92 |
| 11:A:1747(A):G:H2' | 11:A:1748:G:H5'' | 1.51 | 0.92 |
| 5:4:14:ILE:HG13 | 5:4:31:ILE:HB | 1.51 | 0.92 |
| 11:A:27:G:N2 | 11:A:512:G:H2' | 1.85 | 0.92 |
| 11:A:266:G:H2' | 11:A:267:C:H5'' | 1.50 | 0.92 |
| 27:T:55:ASN:N | 27:T:59:THR:HG22 | 1.83 | 0.92 |
| 23:P:47:ASP:HB3 | 23:P:48:PRO:HA | 1.51 | 0.92 |
| 26:S:15:ARG:HB2 | 26:S:15:ARG:HH11 | 1.35 | 0.92 |
| 21:N:13:TRP:O | 21:N:135:PRO:HD2 | 1.68 | 0.91 |
| 11:A:1865:G:H5' | 11:A:1866:C:OP2 | 1.68 | 0.91 |
| 17:G:139:LEU:HA | 17:G:144:ILE:HD13 | 1.51 | 0.91 |
| 17:G:52:ILE:HD13 | 17:G:52:ILE:H | 1.33 | 0.91 |
| 11:A:2415:G:O3' | 23:P:66:GLY:HA3 | 1.71 | 0.91 |
| 14:D:147:LEU:HD11 | 14:D:183:ARG:HH12 | 1.34 | 0.91 |
| 11:A:1517:G:H8 | 11:A:1517:G:H5' | 1.36 | 0.91 |
| 11:A:2138:C:H2' | 11:A:2139:C:H6 | 1.36 | 0.90 |
| 26:S:78:LEU:HD11 | 26:S:103:GLU:HG3 | 1.49 | 0.90 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 11:A:612:C:H2' | 11:A:613:G:C5' | 2.01 | 0.90 |
| 11:A:31:C:H2' | 11:A:32:C:C5' | 2.01 | 0.90 |
| 27:T:13:ARG:NH1 | 27:T:13:ARG:HA | 1.86 | 0.90 |
| 11:A:1689:A:H62 | 11:A:1698:A:H2 | 1.19 | 0.90 |
| 18:H:19:VAL:HG12 | 18:H:20:ALA:H | 1.33 | 0.90 |
| 33:Z:73:GLN:HE21 | 33:Z:75:ASN:HD21 | 1.16 | 0.90 |
| 14:D:70:TRP:CH2 | 14:D:150:LYS:HA | 2.07 | 0.90 |
| 13:C:175:VAL:HG12 | 13:C:188:ASN:HB3 | 1.54 | 0.90 |
| 27:T:85:LYS:HB3 | 27:T:85:LYS:NZ | 1.86 | 0.90 |
| 32:Y:10:GLY:HA2 | 32:Y:27:VAL:HG13 | 1.54 | 0.90 |
| 14:D:26:LYS:O | 14:D:27:THR:HG22 | 1.72 | 0.90 |
| 11:A:2287:A:H62 | 11:A:2344:U:H3 | 1.18 | 0.90 |
| 11:A:2036:C:H6 | 11:A:2036:C:H5' | 1.33 | 0.90 |
| 15:E:34:VAL:HG11 | 15:E:78:LEU:HD22 | 1.51 | 0.90 |
| 23:P:81:GLN:OE1 | 23:P:106:LEU:HA | 1.69 | 0.90 |
| 14:D:43:ARG:NH1 | 14:D:44:ASN:HD21 | 1.70 | 0.90 |
| 22:O:65:THR:HG23 | 22:O:67:LYS:H | 1.35 | 0.90 |
| 11:A:2177:C:H4' | 13:C:46:LYS:HD3 | 1.52 | 0.89 |
| 11:A:2183:C:H2' | 11:A:2184:G:C8 | 2.08 | 0.89 |
| 27:T:33:LYS:HE3 | 27:T:43:GLN:NE2 | 1.85 | 0.89 |
| 23:P:47:ASP:HB3 | 23:P:48:PRO:CA | 2.00 | 0.89 |
| 1:O:27:GLU:HB2 | 1:O:68:GLU:HA | 1.54 | 0.89 |
| 11:A:2134:A:N6 | 11:A:2157:G:H1' | 1.87 | 0.89 |
| 26:S:106:ARG:HH12 | 26:S:108:GLY:CA | 1.85 | 0.89 |
| 11:A:1019:U:H3 | 11:A:1142(A):A:H62 | 1.18 | 0.89 |
| 11:A:860:U:H5 | 11:A:917:A:N7 | 1.70 | 0.89 |
| 26:S:106:ARG:HH12 | 26:S:108:GLY:HA3 | 1.35 | 0.89 |
| 25:R:45:ARG:HG3 | 25:R:46:GLY:H | 1.38 | 0.89 |
| 11:A:2068:U:H3 | 11:A:2430:A:H2 | 1.17 | 0.89 |
| 14:D:132:PRO:HG3 | 14:D:190:TYR:CE1 | 2.08 | 0.89 |
| 27:T:3:ARG:HD2 | 27:T:6:LEU:HD12 | 1.55 | 0.89 |
| 16:F:28:ILE:H | 16:F:28:ILE:HD13 | 1.35 | 0.88 |
| 26:S:89:ARG:O | 26:S:92:TYR:HB3 | 1.72 | 0.88 |
| 23:P:23:PRO:HD2 | 23:P:33:ARG:HE | 1.38 | 0.88 |
| 11:A:925:C:C2' | 11:A:926:A:H5'' | 2.02 | 0.88 |
| 17:G:139:LEU:HA | 17:G:144:ILE:HG21 | 1.53 | 0.88 |
| 11:A:650:C:H3' | 11:A:651:G:H5'' | 1.53 | 0.88 |
| 24:Q:135:ASP:H | 24:Q:137:TYR:HD1 | 1.12 | 0.88 |
| 7:6:15:GLU:HB2 | 7:6:20:ASN:HB3 | 1.55 | 0.88 |
| 11:A:673:C:H6 | 11:A:673:C:H5' | 1.33 | 0.88 |
| 11:A:1602:U:H3' | 11:A:1603:A:C5' | 2.03 | 0.88 |
| 8:7:34:ARG:HH11 | 8:7:34:ARG:HG3 | 1.39 | 0.88 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:1049:C:H2' | 11:A:1050:A:H8 | 1.39 | 0.88 |
| 11:A:2317:C:C2' | 11:A:2318:G:H5' | 2.03 | 0.88 |
| 31:X:11:PRO:HA | 31:X:28:PHE:HB3 | 1.56 | 0.88 |
| 32:Y:73:ARG:HH22 | 32:Y:82:PRO:HA | 1.38 | 0.87 |
| 27:T:129:ARG:CZ | 27:T:131:ALA:HB3 | 2.03 | 0.87 |
| 17:G:47:LYS:HE3 | 17:G:81:LYS:HB2 | 1.55 | 0.87 |
| 11:A:2139:C:H2' | 11:A:2140:C:H6 | 1.36 | 0.87 |
| 11:A:1403:C:H5'' | 11:A:1471:A:H1' | 1.56 | 0.87 |
| 17:G:114:ILE:HG23 | 17:G:116:ASP:O | 1.74 | 0.87 |
| 23:P:16:ARG:HB2 | 23:P:16:ARG:NH1 | 1.88 | 0.87 |
| 24:Q:133:ARG:HH11 | 24:Q:133:ARG:HB2 | 1.38 | 0.87 |
| 11:A:2187:G:C2' | 11:A:2188:C:H5' | 2.05 | 0.87 |
| 11:A:2657:A:H2' | 11:A:2658:C:H5' | 1.56 | 0.87 |
| 11:A:657:U:H2' | 11:A:658:C:C6 | 2.10 | 0.87 |
| 10:9:7:VAL:HG13 | 10:9:34:GLN:HG2 | 1.57 | 0.87 |
| 11:A:2864:G:OP1 | 27:T:119:LYS:HD2 | 1.74 | 0.87 |
| 13:C:78:ALA:HA | 13:C:116:THR:H | 1.40 | 0.87 |
| 16:F:3:GLU:HA | 16:F:24:LEU:HG | 1.54 | 0.87 |
| 14:D:35:LYS:HG3 | 14:D:63:ARG:HG2 | 1.57 | 0.87 |
| 11:A:1516:C:C2' | 11:A:1517:G:H5'' | 2.05 | 0.87 |
| 25:R:3:HIS:O | 25:R:5:LYS:N | 2.07 | 0.87 |
| 14:D:30:GLU:HB2 | 14:D:35:LYS:CD | 2.05 | 0.87 |
| 26:S:49:VAL:HG12 | 26:S:50:SER:H | 1.38 | 0.87 |
| 11:A:1899:G:N2 | 11:A:1902:C:N4 | 2.19 | 0.86 |
| 27:T:27:THR:O | 27:T:28:VAL:HB | 1.72 | 0.86 |
| 11:A:2189:U:C2' | 11:A:2190:G:H4' | 2.05 | 0.86 |
| 11:A:654(E):G:N2 | 11:A:654(Q):C:H1' | 1.89 | 0.86 |
| 11:A:2464:C:HO2' | 11:A:2465:C:H6 | 1.22 | 0.86 |
| 32:Y:28:LYS:HG2 | 32:Y:39:VAL:HG22 | 1.55 | 0.86 |
| 13:C:123:VAL:HG23 | 13:C:127:LEU:HD23 | 0.88 | 0.86 |
| 32:Y:96:ILE:HG12 | 32:Y:99:CYS:HB2 | 1.55 | 0.86 |
| 6:5:24:ALA:O | 6:5:25:LEU:HB2 | 1.75 | 0.86 |
| 14:D:76:PRO:HG2 | 14:D:98:VAL:HG21 | 1.57 | 0.86 |
| 32:Y:53:PRO:HB3 | 32:Y:56:PRO:HG3 | 1.57 | 0.86 |
| 29:V:18:LEU:HD23 | 29:V:19:LYS:H | 1.38 | 0.86 |
| 11:A:1494:A:C2' | 11:A:1495:A:H5'' | 2.05 | 0.86 |
| 7:6:16:CYS:SG | 7:6:48:VAL:HG22 | 2.16 | 0.86 |
| 11:A:271(C):C:H2' | 11:A:271(D):G:H8 | 1.40 | 0.86 |
| 16:F:110:LEU:HD12 | 16:F:206:ILE:HD11 | 1.57 | 0.86 |
| 27:T:80:SER:HB3 | 27:T:81:PRO:HD3 | 1.56 | 0.86 |
| 17:G:47:LYS:HD3 | 17:G:81:LYS:HG3 | 1.57 | 0.86 |
| 29:V:24:LYS:HA | 29:V:92:THR:HG23 | 1.57 | 0.86 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:1887:C:C2' | 11:A:1888:G:H5'' | 2.05 | 0.86 |
| 6:5:33:CYS:HB3 | 6:5:36:CYS:O | 1.76 | 0.86 |
| 11:A:1050:A:H2' | 11:A:1051:G:H5' | 1.56 | 0.86 |
| 6:5:41:PRO:HG2 | 6:5:44:THR:OG1 | 1.75 | 0.86 |
| 22:O:111:PHE:HB3 | 22:O:114:ILE:HD13 | 1.58 | 0.86 |
| 14:D:10:THR:HG23 | 14:D:13:ARG:HB2 | 1.57 | 0.86 |
| 31:X:27:THR:HG23 | 31:X:80:ILE:HB | 1.58 | 0.85 |
| 11:A:1190:G:H5' | 23:P:35:HIS:H | 1.41 | 0.85 |
| 28:U:92:ARG:NH1 | 28:U:94:ASN:HD22 | 1.72 | 0.85 |
| 28:U:92:ARG:O | 28:U:94:ASN:N | 2.09 | 0.85 |
| 11:A:244:A:H4' | 23:P:74:GLU:HG3 | 1.58 | 0.85 |
| 18:H:105:LEU:H | 18:H:105:LEU:HD23 | 1.40 | 0.85 |
| 13:C:77:ILE:HD13 | 13:C:95:GLY:HA3 | 1.58 | 0.85 |
| 15:E:61:ARG:HB3 | 15:E:62:PRO:HD3 | 1.58 | 0.85 |
| 26:S:54:LEU:HD13 | 26:S:58:LEU:H | 1.40 | 0.85 |
| 2:1:67:ILE:O | 2:1:70:VAL:HG12 | 1.76 | 0.85 |
| 11:A:2159:G:H2' | 11:A:2160:G:H5'' | 1.58 | 0.85 |
| 15:E:50:GLY:HA2 | 15:E:78:LEU:HB3 | 1.58 | 0.85 |
| 31:X:12:VAL:HG23 | 31:X:13:LEU:N | 1.91 | 0.85 |
| 33:Z:40:ASP:HB3 | 33:Z:43:GLU:HG3 | 1.58 | 0.85 |
| 11:A:1543:C:H3' | 11:A:1544:A:C5' | 2.05 | 0.85 |
| 32:Y:13:VAL:HG21 | 32:Y:72:VAL:HB | 1.56 | 0.85 |
| 11:A:2101:G:C2' | 11:A:2102:U:H5'' | 2.06 | 0.85 |
| 7:6:36:LEU:HD12 | 7:6:50:ARG:CZ | 2.07 | 0.85 |
| 23:P:30:THR:HG22 | 23:P:31:ALA:N | 1.89 | 0.85 |
| 11:A:64:A:H5' | 31:X:64:LYS:HD3 | 1.57 | 0.85 |
| 11:A:654(H):G:H2' | 11:A:654(I):C:H5' | 1.59 | 0.85 |
| 11:A:997:G:OP1 | 28:U:93:LYS:HD3 | 1.77 | 0.85 |
| 4:3:29:ARG:HH11 | 4:3:29:ARG:HB2 | 1.42 | 0.85 |
| 11:A:330:A:H2 | 11:A:1210:A:H2' | 1.40 | 0.85 |
| 16:F:25:PRO:CB | 16:F:119:ARG:HB2 | 2.07 | 0.85 |
| 11:A:1047:G:H2' | 11:A:1110:G:H21 | 1.42 | 0.85 |
| 18:H:103:LEU:HB2 | 18:H:123:PHE:HD2 | 1.40 | 0.85 |
| 27:T:28:VAL:HG13 | 27:T:46:GLU:HA | 1.57 | 0.84 |
| 26:S:13:ARG:HG3 | 26:S:14:VAL:H | 1.42 | 0.84 |
| 13:C:79:LYS:HD3 | 13:C:119:VAL:HB | 1.60 | 0.84 |
| 6:5:49:CYS:O | 6:5:56:LYS:HG3 | 1.77 | 0.84 |
| 31:X:27:THR:CG2 | 31:X:80:ILE:HB | 2.07 | 0.84 |
| 7:6:28:ARG:HA | 7:6:32:ASN:ND2 | 1.93 | 0.84 |
| 6:5:4:HIS:CB | 6:5:5:PRO:HD3 | 2.08 | 0.84 |
| 33:Z:73:GLN:NE2 | 33:Z:75:ASN:HD21 | 1.75 | 0.84 |
| 21:N:51:PHE:CZ | 21:N:119:ARG:HD2 | 2.13 | 0.84 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:1067:A:H3' | 11:A:1068:G:H5'' | 1.58 | 0.84 |
| 17:G:16:ARG:HH22 | 17:G:28:VAL:HG13 | 1.43 | 0.84 |
| 27:T:56:GLY:O | 27:T:59:THR:HG23 | 1.78 | 0.84 |
| 17:G:73:ALA:H | 17:G:87:PRO:HG2 | 1.43 | 0.84 |
| 11:A:2131:G:H1' | 11:A:2133:G:N2 | 1.93 | 0.84 |
| 27:T:90:GLN:O | 27:T:92:GLY:N | 2.10 | 0.84 |
| 11:A:2245:U:H5' | 11:A:2246:G:H5' | 1.60 | 0.84 |
| 11:A:2656:U:H3 | 11:A:2665:A:H2 | 1.24 | 0.84 |
| 3:2:17:SER:OG | 3:2:20:GLU:HG2 | 1.78 | 0.84 |
| 11:A:2572:A:C8 | 15:E:144:ARG:HG2 | 2.11 | 0.84 |
| 15:E:111:ARG:HG3 | 15:E:160:TYR:CD2 | 2.13 | 0.84 |
| 13:C:123:VAL:HG22 | 13:C:127:LEU:HD23 | 1.59 | 0.84 |
| 16:F:24:LEU:HB3 | 16:F:25:PRO:CD | 2.08 | 0.84 |
| 27:T:50:ILE:HD11 | 27:T:102:ILE:HD11 | 1.58 | 0.84 |
| 1:0:49:LYS:HG3 | 1:0:80:HIS:ND1 | 1.93 | 0.84 |
| 11:A:1826:G:H4' | 14:D:242:ARG:HH21 | 1.42 | 0.83 |
| 11:A:1539:G:C2 | 11:A:1540:U:H1' | 2.12 | 0.83 |
| 15:E:38:THR:HB | 15:E:41:LYS:HG2 | 1.58 | 0.83 |
| 7:6:10:LEU:H | 7:6:10:LEU:CD2 | 1.91 | 0.83 |
| 15:E:116:VAL:HG21 | 15:E:122:PHE:CD2 | 2.13 | 0.83 |
| 33:Z:123:ASP:O | 33:Z:124:ILE:HG23 | 1.79 | 0.83 |
| 13:C:100:ILE:HG23 | 13:C:127:LEU:HD13 | 1.60 | 0.83 |
| 31:X:35:THR:HG22 | 31:X:37:THR:H | 1.42 | 0.83 |
| 17:G:38:VAL:HG23 | 17:G:158:ALA:HB3 | 1.60 | 0.83 |
| 33:Z:10:ARG:HE | 33:Z:36:LYS:HD3 | 1.43 | 0.83 |
| 15:E:36:ARG:NH2 | 15:E:88:GLY:HA2 | 1.92 | 0.83 |
| 3:2:51:ARG:HD3 | 3:2:55:ARG:HH12 | 1.42 | 0.83 |
| 33:Z:152:ALA:HB2 | 33:Z:168:GLU:HA | 1.58 | 0.83 |
| 21:N:23:LEU:HB3 | 21:N:60:ILE:HG21 | 1.60 | 0.83 |
| 11:A:2762:G:H5' | 11:A:2762:G:H8 | 1.43 | 0.83 |
| 32:Y:97:ARG:HH21 | 32:Y:98:VAL:HB | 1.43 | 0.83 |
| 11:A:1019:U:HO2' | 11:A:1021:A:H2 | 0.84 | 0.83 |
| 11:A:761:A:H8 | 11:A:761:A:O5' | 1.61 | 0.83 |
| 11:A:2645:G:H3' | 11:A:2646:C:C5' | 2.07 | 0.83 |
| 4:3:35:ARG:NH1 | 4:3:35:ARG:HB2 | 1.94 | 0.83 |
| 11:A:1087:G:H8 | 11:A:1088:A:H4' | 1.44 | 0.83 |
| 11:A:89:G:OP2 | 11:A:90:U:H2' | 1.79 | 0.83 |
| 14:D:32:SER:O | 14:D:36:PRO:HG3 | 1.79 | 0.82 |
| 24:Q:141:GLN:HE21 | 33:Z:72:ARG:HA | 1.44 | 0.82 |
| 18:H:98:LEU:HB2 | 18:H:125:VAL:HG21 | 1.60 | 0.82 |
| 21:N:30:ILE:O | 21:N:34:LEU:HB2 | 1.79 | 0.82 |
| 9:8:8:LYS:HA | 9:8:11:LYS:HD3 | 1.59 | 0.82 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 33:Z:73:GLN:HE21 | 33:Z:75:ASN:ND2 | 1.76 | 0.82 |
| 18:H:137:ASP:O | 18:H:138:LYS:HB2 | 1.78 | 0.82 |
| 32:Y:28:LYS:O | 32:Y:38:ILE:HG22 | 1.79 | 0.82 |
| 26:S:99:LYS:NZ | 26:S:99:LYS:HB3 | 1.94 | 0.82 |
| 11:A:1207:C:H2' | 11:A:1208:C:H6 | 1.44 | 0.82 |
| 11:A:2305:A:H3' | 11:A:2306:C:H5'' | 1.61 | 0.82 |
| 11:A:1516:C:H2' | 11:A:1517:G:H5'' | 1.58 | 0.82 |
| 11:A:2131:G:N3 | 11:A:2133:G:N2 | 2.27 | 0.82 |
| 7:6:44:ARG:O | 7:6:45:LYS:HE3 | 1.78 | 0.82 |
| 11:A:621:A:H2' | 11:A:622:G:H5' | 1.62 | 0.82 |
| 11:A:1058:G:H2' | 11:A:1059:G:H5'' | 1.61 | 0.82 |
| 25:R:38:VAL:HB | 25:R:39:PRO:HD3 | 1.60 | 0.82 |
| 30:W:26:GLY:H | 30:W:71:VAL:HG23 | 1.44 | 0.82 |
| 16:F:192:LEU:HD21 | 16:F:194:MET:HG3 | 1.60 | 0.82 |
| 23:P:125:VAL:O | 23:P:145:PRO:HD2 | 1.79 | 0.82 |
| 33:Z:149:SER:HB3 | 33:Z:173:ALA:HA | 1.61 | 0.82 |
| 21:N:133:GLN:HG2 | 21:N:135:PRO:HD3 | 1.62 | 0.82 |
| 11:A:612:C:C2' | 11:A:613:G:H5'' | 2.08 | 0.82 |
| 23:P:64:LYS:O | 23:P:66:GLY:N | 2.13 | 0.82 |
| 11:A:1378:A:O2' | 11:A:1379:A:H5' | 1.80 | 0.82 |
| 11:A:1899:G:H22 | 11:A:1902:C:H41 | 0.83 | 0.82 |
| 32:Y:8:LYS:N | 32:Y:8:LYS:HD2 | 1.95 | 0.82 |
| 18:H:44:VAL:HG12 | 18:H:45:VAL:H | 1.44 | 0.82 |
| 33:Z:103:ARG:HD3 | 33:Z:138:GLU:HG3 | 1.62 | 0.82 |
| 7:6:15:GLU:HG2 | 7:6:18:ARG:NH1 | 1.94 | 0.81 |
| 32:Y:17:SER:HB2 | 32:Y:71:LYS:HE2 | 1.61 | 0.81 |
| 11:A:272(H):C:C2' | 11:A:272(I):U:H5'' | 2.10 | 0.81 |
| 11:A:2392:A:H2 | 11:A:2424:C:H42 | 1.24 | 0.81 |
| 11:A:2511:U:H4' | 15:E:124:GLY:HA2 | 1.62 | 0.81 |
| 11:A:614(A):U:H4' | 11:A:614(B):G:H5'' | 1.62 | 0.81 |
| 11:A:2645:G:C3' | 11:A:2646:C:H5' | 2.09 | 0.81 |
| 18:H:156:ALA:HB3 | 18:H:159:GLU:HB3 | 1.62 | 0.81 |
| 11:A:2138:C:H2' | 11:A:2139:C:C6 | 2.15 | 0.81 |
| 13:C:123:VAL:HG21 | 13:C:127:LEU:HD23 | 1.61 | 0.81 |
| 11:A:1053:C:H2' | 11:A:1054:A:H8 | 1.44 | 0.81 |
| 11:A:2784:C:H1' | 15:E:37:ARG:HH12 | 1.43 | 0.81 |
| 32:Y:50:ARG:HD2 | 32:Y:53:PRO:HA | 1.61 | 0.81 |
| 7:6:18:ARG:NH1 | 7:6:18:ARG:HG2 | 1.93 | 0.81 |
| 25:R:24:GLN:NE2 | 25:R:36:THR:HG21 | 1.95 | 0.81 |
| 11:A:1019:U:O2' | 11:A:1021:A:H2 | 1.63 | 0.81 |
| 11:A:321:G:N2 | 16:F:165:ARG:HE | 1.78 | 0.81 |
| 11:A:2875:C:H4' | 27:T:5:ALA:HB2 | 1.61 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 30:W:107:LEU:HD12 | 30:W:107:LEU:H | 1.46 | 0.81 |
| 24:Q:56:ARG:HH11 | 24:Q:56:ARG:HG3 | 1.45 | 0.81 |
| 11:A:1543:C:C3' | 11:A:1544:A:H5'' | 2.10 | 0.81 |
| 33:Z:98:MET:HG2 | 33:Z:99:TYR:N | 1.94 | 0.81 |
| 32:Y:49:VAL:O | 32:Y:50:ARG:HB2 | 1.80 | 0.81 |
| 11:A:2524:G:H8 | 11:A:2524:G:H5' | 1.45 | 0.81 |
| 11:A:1434:A:H61 | 11:A:1558:A:H62 | 1.27 | 0.81 |
| 23:P:24:GLY:HA3 | 23:P:33:ARG:NH1 | 1.95 | 0.81 |
| 11:A:271(C):C:H2' | 11:A:271(D):G:C8 | 2.16 | 0.81 |
| 11:A:34:C:H41 | 11:A:447:A:H61 | 1.29 | 0.81 |
| 29:V:36:PRO:O | 29:V:37:VAL:HG13 | 1.80 | 0.81 |
| 11:A:2185:C:C2' | 11:A:2186:G:H5' | 2.10 | 0.81 |
| 18:H:66:GLY:HA2 | 18:H:69:ARG:HB3 | 1.61 | 0.81 |
| 27:T:23:ARG:O | 27:T:25:GLY:N | 2.14 | 0.81 |
| 33:Z:89:PHE:HE2 | 33:Z:96:VAL:HG21 | 1.46 | 0.81 |
| 14:D:43:ARG:HB2 | 14:D:54:ARG:HB2 | 1.61 | 0.81 |
| 23:P:7:ARG:O | 23:P:10:PRO:HD3 | 1.81 | 0.80 |
| 1:O:50:ASN:HD22 | 1:O:63:VAL:HG21 | 1.46 | 0.80 |
| 23:P:64:LYS:C | 23:P:66:GLY:H | 1.84 | 0.80 |
| 18:H:118:PRO:HG2 | 18:H:121:ILE:HD12 | 1.63 | 0.80 |
| 11:A:1697:G:H3' | 11:A:1698:A:H5'' | 1.60 | 0.80 |
| 11:A:1678:G:N2 | 11:A:1989:G:H22 | 1.80 | 0.80 |
| 27:T:39:ARG:H | 27:T:39:ARG:HD2 | 1.44 | 0.80 |
| 21:N:70:LYS:HG2 | 21:N:87:LEU:HD23 | 1.64 | 0.80 |
| 14:D:30:GLU:HG3 | 14:D:63:ARG:NE | 1.97 | 0.80 |
| 17:G:86:MET:O | 17:G:86:MET:HG2 | 1.79 | 0.80 |
| 11:A:1884:A:C2' | 11:A:1885:A:H5'' | 2.10 | 0.80 |
| 24:Q:60:ARG:HB3 | 24:Q:60:ARG:NH1 | 1.96 | 0.80 |
| 11:A:2668:G:O2' | 11:A:2669:G:H5' | 1.82 | 0.80 |
| 31:X:40:LYS:HB2 | 31:X:54:VAL:HG21 | 1.61 | 0.80 |
| 18:H:158:HIS:ND1 | 18:H:168:PRO:HB2 | 1.96 | 0.80 |
| 11:A:2801(A):A:C4' | 11:A:2802:G:H5' | 2.12 | 0.80 |
| 31:X:35:THR:HG22 | 31:X:38:GLU:H | 1.45 | 0.80 |
| 19:J:42:UNK:C | 19:J:44:UNK:H | 1.92 | 0.80 |
| 22:O:35:VAL:HG21 | 22:O:103:ALA:HB3 | 1.61 | 0.80 |
| 11:A:958:U:H5'' | 24:Q:14:ARG:HD2 | 1.63 | 0.80 |
| 2:1:69:LYS:HZ1 | 2:1:76:ARG:HH22 | 1.27 | 0.80 |
| 27:T:55:ASN:H | 27:T:59:THR:CG2 | 1.94 | 0.80 |
| 21:N:9:VAL:HG12 | 21:N:10:GLU:N | 1.96 | 0.80 |
| 9:8:11:LYS:HZ1 | 9:8:63:PRO:HG3 | 1.45 | 0.80 |
| 9:8:61:LEU:CD2 | 9:8:62:LEU:HG | 2.10 | 0.80 |
| 25:R:24:GLN:HE22 | 25:R:36:THR:HG21 | 1.47 | 0.80 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 5:4:12:ALA:CB | 5:4:29:PRO:HA | 2.10 | 0.80 |
| 2:1:86:SER:O | 2:1:90:ILE:HG12 | 1.80 | 0.80 |
| 22:O:104:ARG:HE | 27:T:33:LYS:NZ | 1.80 | 0.80 |
| 17:G:51:ARG:HD3 | 17:G:53:LEU:HD21 | 1.64 | 0.80 |
| 11:A:2092:U:C4' | 11:A:2093:G:H5'' | 2.10 | 0.80 |
| 24:Q:141:GLN:NE2 | 33:Z:72:ARG:HA | 1.97 | 0.80 |
| 11:A:2099:U:H2' | 11:A:2100:G:C8 | 2.17 | 0.80 |
| 11:A:89:G:H3' | 11:A:90:U:H5' | 1.62 | 0.80 |
| 30:W:82:LEU:HD12 | 30:W:82:LEU:H | 1.47 | 0.80 |
| 28:U:59:ARG:HG2 | 28:U:59:ARG:HH11 | 1.47 | 0.80 |
| 11:A:910:A:H62 | 24:Q:12:GLN:HA | 1.47 | 0.79 |
| 32:Y:26:LYS:HG2 | 32:Y:27:VAL:H | 1.45 | 0.79 |
| 12:B:80:U:H2' | 12:B:81:G:H21 | 1.47 | 0.79 |
| 24:Q:141:GLN:HB3 | 33:Z:99:TYR:CE1 | 2.18 | 0.79 |
| 11:A:2287:A:H2 | 11:A:2346:A:N1 | 1.80 | 0.79 |
| 11:A:1948:G:H5' | 11:A:1948:G:C8 | 2.17 | 0.79 |
| 14:D:147:LEU:HD11 | 14:D:183:ARG:NH1 | 1.97 | 0.79 |
| 24:Q:134:ARG:HD2 | 33:Z:122:ARG:NH2 | 1.97 | 0.79 |
| 21:N:22:THR:HG22 | 21:N:61:ARG:HB2 | 1.63 | 0.79 |
| 17:G:131:TYR:HB3 | 17:G:159:VAL:CG1 | 2.12 | 0.79 |
| 11:A:302:C:H2' | 11:A:303:U:C6 | 2.18 | 0.79 |
| 9:8:61:LEU:CD1 | 9:8:61:LEU:H | 1.94 | 0.79 |
| 7:6:14:THR:O | 7:6:49:HIS:HA | 1.82 | 0.79 |
| 32:Y:95:LYS:HG3 | 32:Y:100:ALA:HA | 1.62 | 0.79 |
| 23:P:105:LEU:HD12 | 23:P:105:LEU:H | 1.47 | 0.79 |
| 12:B:8:U:H6 | 12:B:8:U:H5' | 1.46 | 0.79 |
| 15:E:36:ARG:HH21 | 15:E:88:GLY:HA2 | 1.45 | 0.79 |
| 16:F:160:ASN:ND2 | 16:F:162:LEU:H | 1.81 | 0.79 |
| 23:P:30:THR:CG2 | 23:P:31:ALA:H | 1.95 | 0.79 |
| 33:Z:7:ALA:HB3 | 33:Z:61:LEU:HD23 | 1.64 | 0.79 |
| 11:A:2502:G:H5'' | 11:A:2503:A:H5'' | 1.65 | 0.79 |
| 18:H:156:ALA:C | 18:H:158:HIS:H | 1.86 | 0.79 |
| 16:F:10:PRO:HD2 | 16:F:13:SER:O | 1.82 | 0.79 |
| 11:A:605:C:H5 | 11:A:623:G:H1 | 1.31 | 0.79 |
| 23:P:101:VAL:HA | 23:P:105:LEU:O | 1.83 | 0.78 |
| 21:N:62:VAL:CG2 | 21:N:66:LYS:HD2 | 2.12 | 0.78 |
| 1:0:50:ASN:HD22 | 1:0:63:VAL:CG2 | 1.96 | 0.78 |
| 11:A:2298:A:H62 | 11:A:2318:G:H8 | 1.31 | 0.78 |
| 30:W:22:ASP:HA | 30:W:25:ARG:HH12 | 1.48 | 0.78 |
| 26:S:52:SER:HB3 | 26:S:55:ALA:HB3 | 1.65 | 0.78 |
| 4:3:43:ILE:O | 4:3:47:VAL:HG23 | 1.84 | 0.78 |
| 31:X:35:THR:O | 31:X:39:ILE:HG12 | 1.84 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 33:Z:24:LEU:HD12 | 33:Z:41:LEU:HG | 1.65 | 0.78 |
| 11:A:1227:G:OP1 | 28:U:13:LYS:HD2 | 1.83 | 0.78 |
| 11:A:654(A):G:H2' | 11:A:654(B):C:H5' | 1.64 | 0.78 |
| 14:D:76:PRO:HG2 | 14:D:98:VAL:CG2 | 2.13 | 0.78 |
| 6:5:2:ALA:HA | 11:A:2015:A:H1' | 1.63 | 0.78 |
| 29:V:19:LYS:NZ | 29:V:20:LEU:H | 1.80 | 0.78 |
| 23:P:47:ASP:HB2 | 23:P:51:PHE:HB2 | 1.65 | 0.78 |
| 11:A:2787:C:H1' | 15:E:61:ARG:HD3 | 1.65 | 0.78 |
| 33:Z:166:SER:HB2 | 33:Z:168:GLU:HG3 | 1.64 | 0.78 |
| 29:V:62:LEU:HD21 | 29:V:95:LEU:HB2 | 1.63 | 0.78 |
| 13:C:123:VAL:HG23 | 13:C:127:LEU:HD22 | 1.60 | 0.78 |
| 31:X:55:ASN:HB2 | 31:X:80:ILE:HG23 | 1.64 | 0.78 |
| 7:6:10:LEU:H | 7:6:10:LEU:HD23 | 1.49 | 0.78 |
| 18:H:42:ARG:O | 18:H:43:VAL:HG13 | 1.82 | 0.78 |
| 1:0:27:GLU:HB3 | 1:0:69:PHE:HD1 | 1.49 | 0.78 |
| 28:U:92:ARG:NH2 | 29:V:10:LYS:HB3 | 1.98 | 0.78 |
| 33:Z:18:LEU:HD12 | 33:Z:18:LEU:H | 1.49 | 0.78 |
| 9:8:32:LEU:HG | 9:8:36:LYS:HZ1 | 1.49 | 0.78 |
| 11:A:654(H):G:C2' | 11:A:654(I):C:H5' | 2.14 | 0.78 |
| 11:A:1210:A:H5'' | 11:A:1212:G:O4' | 1.83 | 0.78 |
| 11:A:145:G:H2' | 11:A:146:G:H5'' | 1.64 | 0.78 |
| 2:1:45:ASN:HD21 | 11:A:2090:G:H21 | 1.32 | 0.78 |
| 11:A:631:A:H5'' | 23:P:65:ARG:HH11 | 1.49 | 0.78 |
| 13:C:43:VAL:HG23 | 13:C:175:VAL:HG21 | 1.63 | 0.78 |
| 33:Z:152:ALA:CB | 33:Z:168:GLU:HA | 2.13 | 0.78 |
| 11:A:733:G:N7 | 11:A:761:A:C6 | 2.52 | 0.78 |
| 11:A:1076:C:H5'' | 33:Z:111:VAL:HG12 | 1.64 | 0.78 |
| 18:H:30:LYS:HB2 | 18:H:79:VAL:HA | 1.66 | 0.78 |
| 18:H:94:TYR:HD1 | 18:H:107:VAL:HA | 1.48 | 0.78 |
| 11:A:657:U:H2' | 11:A:658:C:H6 | 1.49 | 0.78 |
| 14:D:183:ARG:HH11 | 14:D:183:ARG:HG2 | 1.46 | 0.78 |
| 29:V:51:VAL:HG12 | 29:V:52:VAL:H | 1.48 | 0.78 |
| 18:H:54:ARG:HG2 | 18:H:54:ARG:HH11 | 1.49 | 0.77 |
| 26:S:15:ARG:HB2 | 26:S:15:ARG:NH1 | 1.99 | 0.77 |
| 30:W:11:ARG:HG2 | 30:W:11:ARG:HH11 | 1.48 | 0.77 |
| 9:8:11:LYS:NZ | 9:8:63:PRO:HG3 | 1.99 | 0.77 |
| 24:Q:74:TYR:HD2 | 24:Q:91:GLU:HB2 | 1.48 | 0.77 |
| 14:D:24:ILE:O | 14:D:26:LYS:N | 2.14 | 0.77 |
| 15:E:14:ILE:HD11 | 15:E:173:VAL:HG11 | 1.66 | 0.77 |
| 1:0:49:LYS:HG3 | 1:0:80:HIS:HD1 | 1.48 | 0.77 |
| 23:P:30:THR:HG22 | 23:P:31:ALA:H | 1.47 | 0.77 |
| 23:P:23:PRO:O | 23:P:33:ARG:HD2 | 1.83 | 0.77 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:P:39:LYS:HD2 | 23:P:40:SER:H | 1.48 | 0.77 |
| 29:V:19:LYS:HG2 | 29:V:94:LEU:HB2 | 1.67 | 0.77 |
| 9:8:52:LYS:N | 9:8:53:PRO:HD2 | 2.00 | 0.77 |
| 17:G:73:ALA:H | 17:G:87:PRO:CG | 1.97 | 0.77 |
| 33:Z:108:PRO:HD3 | 33:Z:141:VAL:HB | 1.67 | 0.77 |
| 11:A:1348:G:H2' | 11:A:1349:A:H5'' | 1.66 | 0.77 |
| 7:6:15:GLU:CG | 7:6:47:THR:HG21 | 2.15 | 0.77 |
| 11:A:1567:A:H5' | 14:D:58:HIS:CD2 | 2.20 | 0.77 |
| 27:T:60:THR:HG22 | 27:T:77:PRO:HA | 1.67 | 0.77 |
| 15:E:34:VAL:HG11 | 15:E:78:LEU:CD2 | 2.14 | 0.77 |
| 24:Q:56:ARG:HH11 | 24:Q:56:ARG:CG | 1.97 | 0.77 |
| 11:A:280:C:H3' | 11:A:281:G:H8 | 1.49 | 0.77 |
| 11:A:658:C:H2' | 11:A:659:C:C6 | 2.19 | 0.77 |
| 16:F:28:ILE:HG21 | 16:F:116:ASP:HB2 | 1.65 | 0.77 |
| 33:Z:151:HIS:HB2 | 33:Z:170:THR:HA | 1.67 | 0.77 |
| 2:1:76:ARG:HB3 | 11:A:271(R):G:H5'' | 1.66 | 0.77 |
| 16:F:185:ASP:HA | 16:F:188:ARG:HG2 | 1.67 | 0.77 |
| 11:A:2147:G:H2' | 11:A:2148:G:O4' | 1.85 | 0.77 |
| 16:F:164:ARG:HH11 | 16:F:164:ARG:HG2 | 1.50 | 0.77 |
| 15:E:107:THR:O | 15:E:190:GLY:HA2 | 1.84 | 0.77 |
| 14:D:134:ARG:HG3 | 14:D:187:GLY:HA3 | 1.67 | 0.77 |
| 28:U:90:VAL:O | 28:U:92:ARG:N | 2.19 | 0.76 |
| 11:A:1209:G:H21 | 11:A:1210:A:H62 | 1.30 | 0.76 |
| 11:A:1314:C:H5' | 11:A:1314:C:H6 | 1.49 | 0.76 |
| 11:A:1880:C:C3' | 11:A:1881:C:H5'' | 2.16 | 0.76 |
| 11:A:2098:U:H3 | 11:A:2191:G:H1 | 1.31 | 0.76 |
| 7:6:11:LEU:HD12 | 7:6:26:ASN:HB2 | 1.67 | 0.76 |
| 23:P:106:LEU:HD21 | 23:P:112:LEU:HB2 | 1.65 | 0.76 |
| 11:A:654:A:H3' | 11:A:654:A:OP1 | 1.85 | 0.76 |
| 11:A:991:C:H5' | 11:A:991:C:H6 | 1.50 | 0.76 |
| 33:Z:14:LYS:HE2 | 33:Z:17:ALA:HB2 | 1.65 | 0.76 |
| 11:A:214:G:H1' | 11:A:216:A:O2' | 1.85 | 0.76 |
| 18:H:46:GLU:OE1 | 18:H:50:VAL:HG13 | 1.85 | 0.76 |
| 6:5:54:GLY:H | 6:5:56:LYS:NZ | 1.83 | 0.76 |
| 11:A:1087:G:H2' | 11:A:1088:A:H4' | 1.66 | 0.76 |
| 14:D:270:ILE:O | 14:D:270:ILE:HD12 | 1.85 | 0.76 |
| 11:A:811:U:OP2 | 23:P:30:THR:HG23 | 1.85 | 0.76 |
| 11:A:2726:U:O2 | 11:A:2726:U:H5' | 1.85 | 0.76 |
| 32:Y:10:GLY:CA | 32:Y:27:VAL:HG13 | 2.15 | 0.76 |
| 11:A:259:G:N2 | 11:A:621:A:H8 | 1.83 | 0.76 |
| 21:N:55:VAL:HG22 | 21:N:126:PRO:HA | 1.68 | 0.76 |
| 26:S:96:GLY:O | 26:S:98:VAL:N | 2.19 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 16:F:160:ASN:HD21 | 16:F:162:LEU:HD13 | 1.50 | 0.76 |
| 18:H:50:VAL:HG12 | 18:H:51:ARG:N | 2.00 | 0.76 |
| 15:E:4:ILE:HD13 | 15:E:28:ALA:HB1 | 1.68 | 0.76 |
| 11:A:2137:C:H2' | 11:A:2138:C:C6 | 2.20 | 0.76 |
| 8:7:34:ARG:HH11 | 8:7:34:ARG:CG | 1.99 | 0.76 |
| 27:T:85:LYS:HB3 | 27:T:85:LYS:HZ2 | 1.48 | 0.76 |
| 17:G:139:LEU:CA | 17:G:144:ILE:HD13 | 2.16 | 0.76 |
| 9:8:50:LEU:HD12 | 9:8:51:ALA:N | 2.01 | 0.76 |
| 11:A:845:G:OP2 | 11:A:845:G:H8 | 1.69 | 0.76 |
| 11:A:2712:U:H1' | 11:A:2712(A):A:C8 | 2.21 | 0.76 |
| 33:Z:70:LEU:HG | 33:Z:91:LEU:HD11 | 1.68 | 0.76 |
| 14:D:206:LEU:HD22 | 14:D:211:ARG:HG2 | 1.66 | 0.76 |
| 13:C:100:ILE:HG22 | 13:C:104:LEU:HD23 | 1.68 | 0.76 |
| 33:Z:37:VAL:HG23 | 33:Z:38:TYR:N | 2.01 | 0.76 |
| 11:A:2159:G:C2' | 11:A:2160:G:H5'' | 2.15 | 0.76 |
| 11:A:888:C:H2' | 11:A:889:C:H4' | 1.68 | 0.76 |
| 25:R:58:GLY:HA2 | 25:R:80:PHE:HE2 | 1.50 | 0.76 |
| 11:A:363(F):A:HO2' | 11:A:364:C:H5 | 1.34 | 0.76 |
| 2:1:30:VAL:HG23 | 2:1:31:GLY:H | 1.49 | 0.76 |
| 9:8:62:LEU:CD1 | 11:A:242:G:H5'' | 2.12 | 0.75 |
| 7:6:17:LYS:HB3 | 7:6:18:ARG:HH12 | 1.50 | 0.75 |
| 15:E:38:THR:HG22 | 15:E:40:GLU:N | 2.00 | 0.75 |
| 10:9:34:GLN:O | 10:9:35:ARG:HB2 | 1.84 | 0.75 |
| 18:H:167:GLU:HB3 | 18:H:168:PRO:HD2 | 1.68 | 0.75 |
| 11:A:2334:G:H21 | 26:S:18:ILE:HG23 | 1.51 | 0.75 |
| 22:O:114:ILE:HD12 | 22:O:114:ILE:H | 1.50 | 0.75 |
| 11:A:1057:A:O2' | 11:A:1058:G:H5' | 1.87 | 0.75 |
| 33:Z:139:VAL:HG12 | 33:Z:140:ASP:H | 1.51 | 0.75 |
| 16:F:3:GLU:CA | 16:F:24:LEU:HG | 2.15 | 0.75 |
| 26:S:36:TYR:N | 26:S:36:TYR:HD1 | 1.84 | 0.75 |
| 11:A:581:C:H2' | 11:A:582:G:C8 | 2.21 | 0.75 |
| 11:A:1681:G:O2' | 11:A:1762:A:H2' | 1.87 | 0.75 |
| 12:B:17:C:H2' | 12:B:18:G:O4' | 1.85 | 0.75 |
| 11:A:1720:U:H3' | 11:A:1721:G:H5'' | 1.69 | 0.75 |
| 25:R:116:LEU:O | 25:R:117:VAL:HG12 | 1.85 | 0.75 |
| 26:S:42:ASP:O | 26:S:43:GLU:HB3 | 1.85 | 0.75 |
| 11:A:1022:G:N2 | 11:A:1142(A):A:C2 | 2.53 | 0.75 |
| 26:S:101:LEU:O | 26:S:101:LEU:HD12 | 1.86 | 0.75 |
| 11:A:1880:C:H3' | 11:A:1881:C:H5'' | 1.69 | 0.75 |
| 11:A:581:C:H2' | 11:A:582:G:H8 | 1.50 | 0.75 |
| 2:1:67:ILE:HB | 2:1:68:PRO:HD3 | 1.69 | 0.75 |
| 27:T:16:ARG:HD2 | 27:T:18:ASP:OD1 | 1.87 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:2208:A:H1' | 11:A:2219:G:C5 | 2.22 | 0.75 |
| 18:H:18:GLU:HB2 | 18:H:25:LYS:HB2 | 1.67 | 0.75 |
| 11:A:1039:G:H1 | 11:A:1116:C:H42 | 1.35 | 0.75 |
| 27:T:28:VAL:HG11 | 27:T:46:GLU:HG3 | 1.69 | 0.75 |
| 14:D:31:LYS:O | 14:D:35:LYS:HB3 | 1.86 | 0.75 |
| 17:G:43:LEU:HB3 | 17:G:45:GLU:HG2 | 1.67 | 0.75 |
| 11:A:2189:U:C3' | 11:A:2190:G:H4' | 2.15 | 0.75 |
| 29:V:15:GLU:HB3 | 29:V:16:PRO:CD | 2.16 | 0.75 |
| 11:A:1331:A:O2' | 11:A:1332:G:H8 | 1.69 | 0.75 |
| 28:U:16:LYS:O | 28:U:20:LEU:HD23 | 1.86 | 0.75 |
| 23:P:146:VAL:HG22 | 23:P:147:LEU:N | 2.02 | 0.75 |
| 11:A:300:A:H2' | 11:A:334:C:O2' | 1.87 | 0.75 |
| 11:A:543:C:H42 | 11:A:549:G:H1 | 1.34 | 0.75 |
| 23:P:112:LEU:H | 23:P:128:HIS:HD2 | 1.35 | 0.75 |
| 9:8:52:LYS:H | 9:8:53:PRO:HD2 | 1.52 | 0.75 |
| 11:A:2189:U:H2' | 11:A:2190:G:C4' | 2.17 | 0.74 |
| 7:6:36:LEU:HD12 | 7:6:50:ARG:NH1 | 2.01 | 0.74 |
| 11:A:325:G:H2' | 11:A:326:G:H8 | 1.52 | 0.74 |
| 11:A:886:C:C2' | 11:A:887:A:H4' | 2.17 | 0.74 |
| 11:A:1301:A:H4' | 11:A:1302:A:OP1 | 1.86 | 0.74 |
| 9:8:61:LEU:HD13 | 9:8:62:LEU:H | 1.52 | 0.74 |
| 9:8:62:LEU:HD13 | 11:A:242:G:C5' | 2.15 | 0.74 |
| 7:6:15:GLU:HG2 | 7:6:47:THR:HG21 | 1.68 | 0.74 |
| 11:A:1602:U:H3' | 11:A:1603:A:H5' | 1.67 | 0.74 |
| 11:A:886:C:H2' | 11:A:887:A:H4' | 1.66 | 0.74 |
| 4:3:17:LYS:HG2 | 11:A:969:U:OP1 | 1.86 | 0.74 |
| 11:A:28:A:N6 | 11:A:512:G:H1' | 2.00 | 0.74 |
| 11:A:1115:G:H2' | 11:A:1116:C:O4' | 1.85 | 0.74 |
| 11:A:83:G:N2 | 11:A:102:G:H2' | 2.03 | 0.74 |
| 29:V:99:ILE:CD1 | 29:V:99:ILE:H | 2.01 | 0.74 |
| 9:8:32:LEU:HD23 | 9:8:36:LYS:HE2 | 1.68 | 0.74 |
| 33:Z:150:LEU:HD21 | 33:Z:172:ALA:HB3 | 1.68 | 0.74 |
| 11:A:181:A:H5' | 11:A:181:A:H8 | 1.52 | 0.74 |
| 27:T:58:ASN:ND2 | 27:T:58:ASN:H | 1.84 | 0.74 |
| 27:T:28:VAL:HG22 | 27:T:47:GLY:H | 1.51 | 0.74 |
| 14:D:30:GLU:CD | 14:D:63:ARG:HE | 1.91 | 0.74 |
| 11:A:2415:G:H4' | 23:P:66:GLY:C | 2.06 | 0.74 |
| 8:7:34:ARG:HG3 | 8:7:34:ARG:NH1 | 1.98 | 0.74 |
| 11:A:307:G:H21 | 11:A:330:A:H62 | 1.32 | 0.74 |
| 16:F:157:VAL:HG12 | 16:F:176:LEU:HB3 | 1.68 | 0.74 |
| 11:A:482:A:H4' | 32:Y:47:LYS:HG2 | 1.69 | 0.74 |
| 14:D:71:ASP:CB | 14:D:103:ARG:HH22 | 2.00 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:P:61:ARG:O | 23:P:62:LEU:HB3 | 1.88 | 0.74 |
| 26:S:74:ALA:HB1 | 26:S:103:GLU:HG2 | 1.69 | 0.74 |
| 11:A:996:A:H4' | 28:U:92:ARG:NE | 2.02 | 0.74 |
| 18:H:33:LEU:HD21 | 18:H:136:ILE:HG22 | 1.67 | 0.74 |
| 6:5:29:THR:HG21 | 11:A:2814:C:O2' | 1.87 | 0.74 |
| 9:8:54:GLU:O | 9:8:58:ILE:HG12 | 1.86 | 0.74 |
| 1:0:10:THR:HG22 | 1:0:12:ASN:N | 2.00 | 0.74 |
| 11:A:1279:G:H4' | 25:R:31:HIS:HD2 | 1.50 | 0.74 |
| 9:8:49:VAL:HB | 9:8:53:PRO:HD3 | 1.68 | 0.74 |
| 15:E:51:PHE:O | 15:E:74:PRO:HB2 | 1.87 | 0.74 |
| 11:A:1528(A):A:H62 | 11:A:1541:G:N2 | 1.85 | 0.74 |
| 11:A:99:U:H4' | 11:A:102:G:H1' | 1.70 | 0.74 |
| 2:1:34:THR:HG21 | 2:1:37:ILE:CD1 | 2.16 | 0.74 |
| 11:A:607:U:OP1 | 16:F:102:PRO:HA | 1.88 | 0.74 |
| 30:W:20:VAL:HG23 | 30:W:47:VAL:HG21 | 1.69 | 0.74 |
| 22:O:4:PRO:O | 22:O:5:GLN:HB2 | 1.88 | 0.74 |
| 33:Z:29:TYR:HB3 | 33:Z:34:ASN:HB2 | 1.68 | 0.74 |
| 18:H:85:LYS:HZ1 | 18:H:86:GLU:HA | 1.52 | 0.74 |
| 18:H:40:GLU:OE1 | 18:H:55:PRO:HG3 | 1.87 | 0.74 |
| 11:A:2131:G:H1' | 11:A:2133:G:H21 | 1.52 | 0.74 |
| 6:5:36:CYS:O | 6:5:38:ALA:N | 2.21 | 0.74 |
| 16:F:84:VAL:C | 16:F:86:GLY:H | 1.91 | 0.74 |
| 18:H:83:TYR:HB2 | 18:H:134:SER:HA | 1.70 | 0.74 |
| 26:S:19:LYS:HB3 | 26:S:20:ARG:HH22 | 1.53 | 0.74 |
| 11:A:203:C:H3' | 11:A:204:A:H5'' | 1.69 | 0.74 |
| 9:8:4:MET:O | 9:8:62:LEU:HD12 | 1.88 | 0.73 |
| 11:A:1516:C:H2' | 11:A:1517:G:C5' | 2.17 | 0.73 |
| 11:A:2134:A:H62 | 11:A:2157:G:H1' | 1.53 | 0.73 |
| 31:X:35:THR:HG22 | 31:X:37:THR:N | 2.02 | 0.73 |
| 11:A:284:U:H2' | 11:A:285:C:C6 | 2.23 | 0.73 |
| 29:V:29:PRO:HA | 29:V:61:VAL:HG22 | 1.69 | 0.73 |
| 11:A:330:A:O2' | 11:A:331:A:H8 | 1.71 | 0.73 |
| 24:Q:66:ILE:HA | 24:Q:104:PHE:HB3 | 1.69 | 0.73 |
| 11:A:2303:G:O2' | 17:G:132:ASN:HB2 | 1.88 | 0.73 |
| 23:P:23:PRO:HB2 | 23:P:33:ARG:CG | 2.18 | 0.73 |
| 9:8:43:GLN:O | 9:8:44:LYS:HD2 | 1.88 | 0.73 |
| 16:F:185:ASP:HA | 16:F:188:ARG:CG | 2.19 | 0.73 |
| 7:6:11:LEU:CD1 | 7:6:26:ASN:HB2 | 2.18 | 0.73 |
| 32:Y:95:LYS:HE3 | 32:Y:99:CYS:O | 1.87 | 0.73 |
| 11:A:2287:A:C2 | 11:A:2346:A:N1 | 2.57 | 0.73 |
| 9:8:14:VAL:HG23 | 9:8:24:ALA:HB2 | 1.71 | 0.73 |
| 11:A:2491:U:H5' | 11:A:2570:G:H5'' | 1.69 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 15:E:128:SER:OG | 15:E:129:HIS:N | 2.22 | 0.73 |
| 14:D:30:GLU:CG | 14:D:63:ARG:HE | 2.01 | 0.73 |
| 26:S:59:LYS:HG2 | 26:S:60:GLY:N | 2.01 | 0.73 |
| 18:H:91:GLY:HA3 | 18:H:94:TYR:CD2 | 2.23 | 0.73 |
| 23:P:105:LEU:HD12 | 23:P:105:LEU:N | 2.03 | 0.73 |
| 11:A:1747(A):G:H2' | 11:A:1748:G:C5' | 2.19 | 0.73 |
| 33:Z:151:HIS:CB | 33:Z:170:THR:HA | 2.18 | 0.73 |
| 11:A:1434:A:H61 | 11:A:1558:A:N6 | 1.85 | 0.73 |
| 17:G:79:ASN:O | 17:G:80:PHE:HB2 | 1.89 | 0.73 |
| 11:A:1779:U:C5 | 11:A:1784:A:N7 | 2.56 | 0.73 |
| 11:A:1038:C:H2' | 11:A:1039:G:H5'' | 1.68 | 0.73 |
| 11:A:585:G:H2' | 11:A:1251:C:H42 | 1.53 | 0.73 |
| 31:X:44:GLU:HG3 | 31:X:50:LYS:HA | 1.71 | 0.73 |
| 4:3:6:VAL:HG12 | 4:3:56:VAL:HG22 | 1.71 | 0.73 |
| 11:A:1051:G:H2' | 11:A:1052:C:C5 | 2.23 | 0.73 |
| 17:G:84:LYS:H | 17:G:84:LYS:HD2 | 1.53 | 0.73 |
| 28:U:56:ASP:O | 28:U:60:LEU:HG | 1.88 | 0.73 |
| 11:A:1450(A):C:H2' | 11:A:1451:C:C6 | 2.22 | 0.73 |
| 11:A:2853:C:H2' | 11:A:2854:G:C8 | 2.22 | 0.73 |
| 16:F:185:ASP:OD1 | 16:F:188:ARG:HD3 | 1.89 | 0.73 |
| 11:A:654(C):G:H2' | 11:A:654(D):G:H5' | 1.70 | 0.73 |
| 28:U:91:ASP:O | 28:U:95:LEU:HB2 | 1.89 | 0.73 |
| 25:R:2:ARG:HH11 | 25:R:2:ARG:HG3 | 1.53 | 0.73 |
| 11:A:761:A:C8 | 11:A:761:A:O5' | 2.41 | 0.73 |
| 11:A:328:U:H4' | 32:Y:68:HIS:ND1 | 2.04 | 0.73 |
| 32:Y:28:LYS:HB3 | 32:Y:37:VAL:HB | 1.71 | 0.72 |
| 25:R:99:LYS:N | 25:R:99:LYS:HD2 | 2.01 | 0.72 |
| 23:P:112:LEU:H | 23:P:128:HIS:CD2 | 2.07 | 0.72 |
| 23:P:30:THR:CG2 | 23:P:31:ALA:N | 2.51 | 0.72 |
| 17:G:9:ARG:HG3 | 17:G:13:GLU:OE2 | 1.89 | 0.72 |
| 11:A:760:G:C2' | 11:A:761:A:H5' | 2.19 | 0.72 |
| 11:A:1368:G:O2' | 11:A:1369:G:H5' | 1.89 | 0.72 |
| 11:A:89:G:H3' | 11:A:90:U:C5' | 2.18 | 0.72 |
| 21:N:86:PRO:HG2 | 21:N:89:LYS:HG2 | 1.70 | 0.72 |
| 28:U:66:ASN:ND2 | 28:U:76:TYR:H | 1.87 | 0.72 |
| 3:2:8:LYS:HG2 | 3:2:11:GLU:OE2 | 1.89 | 0.72 |
| 11:A:1639:U:C2' | 11:A:1640:C:H5'' | 2.19 | 0.72 |
| 14:D:71:ASP:HB2 | 14:D:103:ARG:NH2 | 2.00 | 0.72 |
| 11:A:84:A:H2' | 32:Y:9:LYS:HZ3 | 1.54 | 0.72 |
| 29:V:19:LYS:HB2 | 29:V:96:ILE:HD11 | 1.72 | 0.72 |
| 11:A:1022:G:N2 | 11:A:1142(A):A:H2 | 1.84 | 0.72 |
| 11:A:1087:G:O2' | 11:A:1089:G:H5' | 1.89 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 14:D:27:THR:CG2 | 14:D:83:GLU:HG2 | 2.19 | 0.72 |
| 7:6:15:GLU:HB2 | 7:6:20:ASN:CB | 2.19 | 0.72 |
| 16:F:132:VAL:HG13 | 16:F:133:ASN:ND2 | 2.05 | 0.72 |
| 11:A:481:G:OP2 | 32:Y:47:LYS:HD3 | 1.90 | 0.72 |
| 28:U:108:GLU:HG3 | 29:V:44:LYS:HD3 | 1.70 | 0.72 |
| 22:O:87:ILE:CG2 | 22:O:91:LEU:HA | 2.19 | 0.72 |
| 31:X:57:LEU:HD22 | 31:X:57:LEU:O | 1.89 | 0.72 |
| 11:A:2126:A:H4' | 11:A:2127:G:O5' | 1.89 | 0.72 |
| 3:2:21:LEU:HB3 | 3:2:64:LEU:HD12 | 1.69 | 0.72 |
| 11:A:2579:C:O2' | 15:E:131:ALA:HB2 | 1.88 | 0.72 |
| 15:E:54:GLN:O | 15:E:75:VAL:HG23 | 1.88 | 0.72 |
| 11:A:1498:C:H2' | 11:A:1499:C:H5'' | 1.71 | 0.72 |
| 25:R:52:ILE:HB | 25:R:94:TYR:HD2 | 1.54 | 0.72 |
| 25:R:117:VAL:O | 25:R:118:GLU:HB2 | 1.89 | 0.72 |
| 11:A:500:G:N2 | 11:A:502:A:H3' | 2.05 | 0.72 |
| 11:A:774:A:H2 | 11:A:787:U:HO2' | 1.37 | 0.72 |
| 13:C:79:LYS:HA | 13:C:97:GLU:OE1 | 1.90 | 0.72 |
| 11:A:1498:C:C2' | 11:A:1499:C:H5'' | 2.18 | 0.72 |
| 11:A:760:G:H2' | 11:A:761:A:H5' | 1.70 | 0.72 |
| 9:8:61:LEU:HD22 | 9:8:62:LEU:H | 1.55 | 0.72 |
| 26:S:17:ARG:HA | 26:S:20:ARG:NH1 | 2.05 | 0.72 |
| 23:P:97:PRO:O | 23:P:98:GLU:HB3 | 1.89 | 0.72 |
| 1:0:27:GLU:HB3 | 1:0:69:PHE:CD1 | 2.25 | 0.72 |
| 24:Q:134:ARG:HD2 | 33:Z:122:ARG:HH22 | 1.52 | 0.72 |
| 11:A:958:U:H5'' | 24:Q:14:ARG:CD | 2.18 | 0.72 |
| 7:6:33:LYS:CE | 7:6:33:LYS:HA | 2.14 | 0.72 |
| 11:A:611:C:H2' | 11:A:612:C:H6 | 1.55 | 0.72 |
| 11:A:969:U:H2' | 11:A:970:C:C6 | 2.25 | 0.72 |
| 11:A:1104:C:H2' | 11:A:1105:U:H6 | 1.52 | 0.72 |
| 21:N:58:ASP:O | 21:N:60:ILE:N | 2.21 | 0.71 |
| 11:A:1378:A:H4' | 11:A:1379:A:OP1 | 1.88 | 0.71 |
| 6:5:2:ALA:N | 11:A:747:U:C4 | 2.58 | 0.71 |
| 15:E:105:THR:HB | 15:E:197:ILE:HG23 | 1.72 | 0.71 |
| 1:0:7:LEU:HD13 | 24:Q:85:LYS:HG3 | 1.71 | 0.71 |
| 27:T:3:ARG:O | 27:T:5:ALA:N | 2.23 | 0.71 |
| 31:X:10:ALA:O | 31:X:28:PHE:HB2 | 1.89 | 0.71 |
| 16:F:4:VAL:HA | 16:F:19:GLU:HB3 | 1.70 | 0.71 |
| 14:D:30:GLU:HG3 | 14:D:63:ARG:HE | 1.53 | 0.71 |
| 17:G:77:ILE:HG12 | 17:G:82:LEU:O | 1.89 | 0.71 |
| 23:P:105:LEU:O | 23:P:106:LEU:HB2 | 1.90 | 0.71 |
| 11:A:143:G:O4' | 31:X:37:THR:HG21 | 1.89 | 0.71 |
| 11:A:1970:A:H5'' | 11:A:1971:A:OP1 | 1.90 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 27:T:2:ASN:ND2 | 27:T:7:ILE:HD11 | 2.03 | 0.71 |
| 32:Y:13:VAL:HG23 | 32:Y:73:ARG:O | 1.91 | 0.71 |
| 27:T:58:ASN:H | 27:T:58:ASN:HD22 | 1.37 | 0.71 |
| 32:Y:42:VAL:HG12 | 32:Y:65:ALA:HB3 | 1.73 | 0.71 |
| 29:V:21:ARG:O | 29:V:22:VAL:HG13 | 1.89 | 0.71 |
| 13:C:79:LYS:HG2 | 13:C:118:ASP:OD2 | 1.90 | 0.71 |
| 18:H:85:LYS:NZ | 18:H:86:GLU:HA | 2.05 | 0.71 |
| 26:S:49:VAL:HG12 | 26:S:50:SER:N | 2.05 | 0.71 |
| 25:R:55:ALA:HB2 | 25:R:79:LEU:HD11 | 1.71 | 0.71 |
| 16:F:84:VAL:O | 16:F:86:GLY:N | 2.23 | 0.71 |
| 11:A:328:U:H4' | 32:Y:68:HIS:CE1 | 2.25 | 0.71 |
| 11:A:1409:C:H2' | 11:A:1410:G:C8 | 2.26 | 0.71 |
| 18:H:85:LYS:HD3 | 18:H:133:VAL:HB | 1.71 | 0.71 |
| 11:A:1210:A:H8 | 11:A:1210:A:H5' | 1.55 | 0.71 |
| 33:Z:152:ALA:O | 33:Z:155:LEU:HD22 | 1.90 | 0.71 |
| 2:1:89:GLU:HA | 2:1:92:LYS:HE2 | 1.70 | 0.71 |
| 14:D:35:LYS:HG2 | 14:D:36:PRO:N | 2.06 | 0.71 |
| 17:G:69:ALA:O | 17:G:71:THR:HG22 | 1.91 | 0.71 |
| 7:6:6:ARG:NH1 | 7:6:6:ARG:HB3 | 2.05 | 0.71 |
| 11:A:2139:C:H2' | 11:A:2140:C:C6 | 2.24 | 0.71 |
| 21:N:58:ASP:C | 21:N:60:ILE:H | 1.93 | 0.71 |
| 15:E:4:ILE:CD1 | 15:E:28:ALA:HB1 | 2.20 | 0.71 |
| 25:R:14:SER:HA | 25:R:17:ARG:HH12 | 1.54 | 0.71 |
| 15:E:7:VAL:HG12 | 15:E:27:LEU:HB3 | 1.71 | 0.71 |
| 11:A:523:C:C2' | 11:A:524:U:H5' | 2.21 | 0.71 |
| 13:C:120:MET:HA | 13:C:123:VAL:HG12 | 1.71 | 0.71 |
| 14:D:30:GLU:H | 14:D:35:LYS:HZ1 | 1.37 | 0.71 |
| 11:A:833:U:H5'' | 23:P:48:PRO:HB3 | 1.73 | 0.71 |
| 11:A:1221(A):C:H2' | 11:A:1222:C:H6 | 1.55 | 0.71 |
| 11:A:2577:A:H5'' | 11:A:2578:G:H5' | 1.73 | 0.71 |
| 6:5:4:HIS:HB3 | 6:5:5:PRO:CD | 2.12 | 0.71 |
| 23:P:147:LEU:HG | 23:P:148:LEU:H | 1.55 | 0.71 |
| 23:P:58:THR:O | 23:P:58:THR:HG22 | 1.91 | 0.71 |
| 18:H:89:ILE:HG13 | 18:H:89:ILE:O | 1.89 | 0.71 |
| 26:S:89:ARG:CG | 26:S:92:TYR:HA | 2.21 | 0.71 |
| 11:A:2145:C:H5'' | 11:A:2146:C:OP2 | 1.91 | 0.71 |
| 25:R:7:GLY:O | 25:R:8:ARG:NE | 2.24 | 0.71 |
| 9:8:6:THR:HB | 9:8:11:LYS:NZ | 2.06 | 0.70 |
| 29:V:19:LYS:HG3 | 29:V:20:LEU:N | 2.05 | 0.70 |
| 26:S:12:PHE:C | 26:S:12:PHE:HD1 | 1.94 | 0.70 |
| 11:A:2136:C:H2' | 11:A:2137:C:C6 | 2.25 | 0.70 |
| 11:A:637:A:OP2 | 23:P:115:LEU:HB2 | 1.91 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:292:C:H2' | 11:A:293:U:C6 | 2.26 | 0.70 |
| 11:A:2779:U:H1' | 11:A:2781:A:C5 | 2.26 | 0.70 |
| 5:4:25:TYR:CE2 | 17:G:2:PRO:HB3 | 2.26 | 0.70 |
| 23:P:84:ASN:N | 23:P:84:ASN:HD22 | 1.88 | 0.70 |
| 32:Y:45:VAL:HG12 | 32:Y:60:PHE:CD1 | 2.26 | 0.70 |
| 11:A:1103:A:H5' | 11:A:1104:C:OP2 | 1.91 | 0.70 |
| 26:S:92:TYR:CG | 26:S:93:LYS:N | 2.58 | 0.70 |
| 5:4:30:GLU:C | 5:4:31:ILE:HD12 | 2.11 | 0.70 |
| 11:A:1517:G:C8 | 11:A:1517:G:H5' | 2.23 | 0.70 |
| 26:S:106:ARG:NH1 | 26:S:108:GLY:HA3 | 2.06 | 0.70 |
| 28:U:34:LYS:HA | 28:U:34:LYS:HE2 | 1.72 | 0.70 |
| 27:T:53:ARG:HH11 | 27:T:53:ARG:CB | 1.99 | 0.70 |
| 21:N:62:VAL:HG22 | 21:N:66:LYS:HD2 | 1.72 | 0.70 |
| 5:4:12:ALA:HB1 | 5:4:29:PRO:HA | 1.73 | 0.70 |
| 11:A:548:A:H2' | 11:A:549:G:H5' | 1.73 | 0.70 |
| 21:N:3:THR:HG22 | 21:N:4:TYR:H | 1.55 | 0.70 |
| 16:F:25:PRO:HB3 | 16:F:119:ARG:CB | 2.17 | 0.70 |
| 23:P:147:LEU:HG | 23:P:148:LEU:N | 2.06 | 0.70 |
| 14:D:24:ILE:HD13 | 14:D:25:THR:H | 1.57 | 0.70 |
| 17:G:28:VAL:O | 17:G:31:VAL:HG12 | 1.91 | 0.70 |
| 26:S:36:TYR:N | 26:S:36:TYR:CD1 | 2.56 | 0.70 |
| 11:A:708:C:H42 | 11:A:723:G:H1 | 1.39 | 0.70 |
| 7:6:28:ARG:HA | 7:6:32:ASN:HD22 | 1.56 | 0.70 |
| 11:A:1141:U:C2' | 21:N:63:THR:HG21 | 2.20 | 0.70 |
| 23:P:16:ARG:O | 23:P:16:ARG:HD3 | 1.92 | 0.70 |
| 6:5:48:GLU:O | 6:5:49:CYS:SG | 2.50 | 0.70 |
| 6:5:54:GLY:H | 6:5:56:LYS:HZ1 | 1.37 | 0.70 |
| 11:A:363(F):A:O2' | 11:A:364:C:H5 | 1.72 | 0.70 |
| 27:T:27:THR:O | 27:T:28:VAL:CB | 2.39 | 0.70 |
| 18:H:121:ILE:HG23 | 18:H:133:VAL:HG13 | 1.73 | 0.70 |
| 5:4:26:SER:HB3 | 17:G:105:LYS:HZ1 | 1.57 | 0.70 |
| 11:A:1223:G:H8 | 11:A:1223:G:H5' | 1.56 | 0.70 |
| 14:D:176:ARG:HH11 | 14:D:176:ARG:HG2 | 1.56 | 0.70 |
| 11:A:1058:G:C2' | 11:A:1059:G:H5'' | 2.22 | 0.70 |
| 11:A:18:C:O3' | 28:U:23:GLY:HA2 | 1.92 | 0.70 |
| 11:A:272(J):C:H2' | 11:A:274:G:H5' | 1.74 | 0.70 |
| 11:A:631:A:H5'' | 23:P:65:ARG:NH1 | 2.07 | 0.70 |
| 29:V:47:VAL:HG12 | 29:V:52:VAL:HB | 1.71 | 0.70 |
| 11:A:1639:U:H2' | 11:A:1640:C:H5'' | 1.73 | 0.70 |
| 15:E:101:ARG:NE | 15:E:171:GLU:HB2 | 2.07 | 0.70 |
| 27:T:28:VAL:HG21 | 27:T:46:GLU:HG3 | 1.74 | 0.69 |
| 32:Y:73:ARG:NH2 | 32:Y:82:PRO:HA | 2.06 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 23:P:126:VAL:HA | 23:P:145:PRO:CB | 2.20 | 0.69 |
| 26:S:85:VAL:HG23 | 26:S:106:ARG:HD3 | 1.72 | 0.69 |
| 1:O:40:GLN:HE22 | 1:O:45:PHE:H | 1.39 | 0.69 |
| 11:A:1169:G:H1 | 11:A:1180:C:H42 | 1.39 | 0.69 |
| 12:B:13:A:O2' | 12:B:14:U:H3' | 1.91 | 0.69 |
| 11:A:310:A:P | 32:Y:18:GLY:HA2 | 2.32 | 0.69 |
| 11:A:1403:C:H5'' | 11:A:1471:A:C1' | 2.22 | 0.69 |
| 11:A:1796:U:H2' | 11:A:1797:C:C6 | 2.27 | 0.69 |
| 11:A:1107:G:H4' | 19:J:81:UNK:CB | 2.22 | 0.69 |
| 12:B:20:C:C2' | 12:B:21:G:H5'' | 2.21 | 0.69 |
| 16:F:39:TRP:CH2 | 16:F:106:ARG:HD3 | 2.28 | 0.69 |
| 11:A:266:G:C2' | 11:A:267:C:H5'' | 2.20 | 0.69 |
| 6:5:36:CYS:C | 6:5:38:ALA:H | 1.95 | 0.69 |
| 31:X:49:VAL:HG12 | 31:X:87:GLN:HE21 | 1.57 | 0.69 |
| 16:F:178:PRO:HG2 | 16:F:179:GLU:OE1 | 1.92 | 0.69 |
| 22:O:65:THR:HG23 | 22:O:67:LYS:N | 2.07 | 0.69 |
| 15:E:116:VAL:HG22 | 15:E:117:MET:N | 2.06 | 0.69 |
| 11:A:2377:A:O2' | 11:A:2378:A:H5' | 1.93 | 0.69 |
| 11:A:935:C:H2' | 11:A:936:C:C6 | 2.28 | 0.69 |
| 17:G:82:LEU:HD13 | 17:G:87:PRO:HB2 | 1.75 | 0.69 |
| 21:N:66:LYS:O | 21:N:70:LYS:HB3 | 1.91 | 0.69 |
| 22:O:114:ILE:HD12 | 22:O:114:ILE:N | 2.07 | 0.69 |
| 26:S:40:ILE:HG22 | 26:S:47:THR:HA | 1.74 | 0.69 |
| 32:Y:9:LYS:HG2 | 32:Y:10:GLY:N | 2.04 | 0.69 |
| 13:C:73:ARG:HE | 13:C:110:PHE:HD1 | 1.40 | 0.69 |
| 26:S:15:ARG:O | 26:S:18:ILE:HG13 | 1.93 | 0.69 |
| 9:8:42:ARG:O | 9:8:44:LYS:N | 2.25 | 0.69 |
| 22:O:86:ILE:HG22 | 22:O:94:ARG:HB2 | 1.75 | 0.69 |
| 11:A:559:G:H22 | 28:U:49:HIS:CD2 | 2.10 | 0.69 |
| 14:D:108:PRO:HG2 | 14:D:111:LEU:HB2 | 1.72 | 0.69 |
| 11:A:1932:A:H2' | 11:A:1933:G:O4' | 1.92 | 0.69 |
| 11:A:1480:G:H2' | 11:A:1481:U:H5' | 1.73 | 0.69 |
| 7:6:30:THR:O | 7:6:31:PRO:C | 2.28 | 0.69 |
| 23:P:56:SER:O | 23:P:58:THR:N | 2.25 | 0.69 |
| 11:A:604:G:H2' | 11:A:605:C:O2 | 1.92 | 0.69 |
| 13:C:5:LYS:HA | 13:C:8:ARG:HE | 1.57 | 0.69 |
| 16:F:37:VAL:HG11 | 23:P:7:ARG:NH1 | 2.00 | 0.69 |
| 11:A:2304:G:H22 | 11:A:2312:U:H3 | 1.39 | 0.69 |
| 17:G:51:ARG:NE | 17:G:51:ARG:HA | 2.07 | 0.69 |
| 18:H:94:TYR:CD1 | 18:H:107:VAL:HA | 2.28 | 0.69 |
| 7:6:42:TRP:CE3 | 7:6:42:TRP:HA | 2.26 | 0.69 |
| 7:6:15:GLU:OE1 | 7:6:18:ARG:NE | 2.25 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 32:Y:8:LYS:HE2 | 32:Y:72:VAL:HG23 | 1.74 | 0.69 |
| 23:P:58:THR:O | 23:P:61:ARG:NE | 2.22 | 0.69 |
| 5:4:12:ALA:HB2 | 5:4:29:PRO:HA | 1.74 | 0.69 |
| 8:7:34:ARG:HD2 | 8:7:39:ARG:HG3 | 1.74 | 0.69 |
| 29:V:25:LEU:H | 29:V:92:THR:HG21 | 1.56 | 0.69 |
| 15:E:111:ARG:HB3 | 25:R:2:ARG:NH1 | 2.08 | 0.69 |
| 11:A:359:A:H2' | 11:A:360:G:O4' | 1.93 | 0.69 |
| 15:E:105:THR:HG21 | 15:E:164:ARG:NH1 | 2.07 | 0.69 |
| 14:D:45:ASN:CG | 14:D:46:GLN:H | 1.95 | 0.69 |
| 14:D:129:ASN:O | 14:D:193:VAL:HG12 | 1.93 | 0.69 |
| 16:F:53:THR:HG23 | 16:F:55:GLY:H | 1.57 | 0.69 |
| 11:A:914:C:H2' | 11:A:915:C:H5' | 1.74 | 0.69 |
| 27:T:38:ASN:O | 27:T:38:ASN:ND2 | 2.26 | 0.69 |
| 11:A:590:A:H2' | 11:A:591:C:C6 | 2.27 | 0.69 |
| 13:C:81:GLU:O | 13:C:84:LYS:HD3 | 1.91 | 0.69 |
| 16:F:32:LEU:O | 16:F:36:VAL:HG23 | 1.93 | 0.69 |
| 15:E:111:ARG:HB3 | 25:R:2:ARG:HH12 | 1.58 | 0.69 |
| 15:E:117:MET:O | 15:E:121:ASN:HA | 1.93 | 0.69 |
| 11:A:999:U:H5'' | 11:A:1154:G:O6 | 1.93 | 0.69 |
| 23:P:96:THR:HG22 | 23:P:126:VAL:HB | 1.74 | 0.69 |
| 23:P:24:GLY:CA | 23:P:33:ARG:NH1 | 2.56 | 0.69 |
| 10:9:25:VAL:HB | 10:9:34:GLN:HB2 | 1.75 | 0.69 |
| 6:5:55:ARG:O | 6:5:56:LYS:HD3 | 1.92 | 0.69 |
| 11:A:2852:G:H2' | 11:A:2853:C:C6 | 2.28 | 0.69 |
| 3:2:10:LEU:HD11 | 3:2:14:ARG:NH2 | 2.08 | 0.69 |
| 11:A:2291:U:H2' | 11:A:2292:C:C6 | 2.27 | 0.69 |
| 25:R:75:LEU:O | 25:R:75:LEU:HD13 | 1.92 | 0.69 |
| 21:N:46:VAL:HG13 | 21:N:48:MET:HG3 | 1.75 | 0.68 |
| 11:A:271(J):C:H2' | 11:A:271(J):C:O2 | 1.92 | 0.68 |
| 11:A:2160:G:H8 | 11:A:2160:G:H5' | 1.57 | 0.68 |
| 2:1:69:LYS:NZ | 2:1:76:ARG:HH22 | 1.91 | 0.68 |
| 9:8:50:LEU:C | 9:8:52:LYS:H | 1.95 | 0.68 |
| 14:D:69:ARG:NH2 | 14:D:128:GLY:O | 2.27 | 0.68 |
| 16:F:36:VAL:O | 16:F:40:GLN:HG3 | 1.93 | 0.68 |
| 2:1:84:GLY:O | 2:1:86:SER:N | 2.22 | 0.68 |
| 11:A:1762:A:H8 | 11:A:1762:A:O5' | 1.74 | 0.68 |
| 25:R:4:LEU:C | 25:R:6:SER:H | 1.96 | 0.68 |
| 11:A:2377:A:H4' | 26:S:107:GLU:O | 1.93 | 0.68 |
| 25:R:100:LEU:HD11 | 25:R:113:LEU:HB2 | 1.75 | 0.68 |
| 15:E:81:ILE:O | 15:E:81:ILE:HG22 | 1.93 | 0.68 |
| 15:E:33:VAL:HG12 | 15:E:89:ASP:O | 1.94 | 0.68 |
| 11:A:1301:A:O2' | 11:A:1302:A:C2' | 2.35 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 30:W:6:ILE:HG12 | 30:W:104:THR:CG2 | 2.23 | 0.68 |
| 18:H:42:ARG:HG2 | 18:H:43:VAL:H | 1.58 | 0.68 |
| 26:S:13:ARG:CG | 26:S:14:VAL:H | 2.06 | 0.68 |
| 11:A:2463:C:O2' | 11:A:2464:C:H5' | 1.92 | 0.68 |
| 18:H:89:ILE:HG12 | 18:H:129:THR:O | 1.92 | 0.68 |
| 11:A:419:C:H2' | 11:A:420:C:H6 | 1.59 | 0.68 |
| 11:A:1396:U:H2' | 11:A:1396:U:O2 | 1.92 | 0.68 |
| 9:8:33:ASN:CG | 9:8:34:TRP:H | 1.97 | 0.68 |
| 11:A:259:G:H1' | 11:A:621:A:O2' | 1.93 | 0.68 |
| 11:A:2305:A:C3' | 11:A:2306:C:H5'' | 2.23 | 0.68 |
| 14:D:134:ARG:HH12 | 14:D:135:PHE:HE1 | 1.41 | 0.68 |
| 12:B:25:A:H2' | 12:B:25:A:N3 | 2.07 | 0.68 |
| 14:D:30:GLU:N | 14:D:35:LYS:NZ | 2.41 | 0.68 |
| 14:D:30:GLU:HB3 | 14:D:83:GLU:OE1 | 1.93 | 0.68 |
| 11:A:271(L):U:H5'' | 11:A:271(M):G:C5' | 2.19 | 0.68 |
| 11:A:296:C:O2' | 11:A:297:C:H5' | 1.93 | 0.68 |
| 11:A:2178:C:H2' | 11:A:2179:C:C5' | 2.23 | 0.68 |
| 9:8:14:VAL:HG21 | 9:8:22:VAL:CG1 | 2.23 | 0.68 |
| 24:Q:51:ARG:O | 24:Q:55:VAL:HG12 | 1.94 | 0.68 |
| 11:A:2455:G:H2' | 11:A:2456:C:C6 | 2.28 | 0.68 |
| 14:D:34:VAL:HG23 | 14:D:35:LYS:H | 1.58 | 0.68 |
| 32:Y:13:VAL:CG2 | 32:Y:72:VAL:HB | 2.23 | 0.68 |
| 25:R:3:HIS:C | 25:R:5:LYS:H | 1.97 | 0.68 |
| 32:Y:46:LYS:HB3 | 32:Y:62:GLU:HG2 | 1.76 | 0.68 |
| 27:T:62:THR:HG22 | 27:T:75:ILE:HG13 | 1.74 | 0.68 |
| 11:A:320:A:C5 | 16:F:136:THR:HG21 | 2.28 | 0.68 |
| 25:R:62:ALA:O | 25:R:66:VAL:HG23 | 1.93 | 0.68 |
| 13:C:75:LEU:HD11 | 13:C:113:VAL:HG13 | 1.76 | 0.68 |
| 14:D:158:ALA:HB3 | 14:D:161:THR:HG21 | 1.75 | 0.68 |
| 11:A:2188:C:H2' | 11:A:2189:U:C5 | 2.29 | 0.68 |
| 11:A:1188:U:O2' | 11:A:1189:A:H5' | 1.93 | 0.68 |
| 11:A:2396:G:O2' | 11:A:2397:G:H5' | 1.93 | 0.68 |
| 22:O:88:ASN:HD21 | 22:O:92:GLU:HB2 | 1.59 | 0.68 |
| 10:9:10:ILE:HG22 | 10:9:10:ILE:O | 1.93 | 0.68 |
| 32:Y:75:ILE:HG23 | 32:Y:76:CYS:N | 2.07 | 0.68 |
| 11:A:1170:G:H1 | 11:A:1179:C:H42 | 1.40 | 0.68 |
| 11:A:191:A:O2' | 11:A:192:C:H5' | 1.94 | 0.68 |
| 11:A:2777:G:H5'' | 11:A:2778:A:H5' | 1.76 | 0.68 |
| 2:1:18:ILE:HD12 | 11:A:380:U:H5' | 1.75 | 0.68 |
| 9:8:61:LEU:CD1 | 9:8:61:LEU:N | 2.56 | 0.68 |
| 21:N:61:ARG:HG3 | 21:N:61:ARG:HH11 | 1.58 | 0.68 |
| 12:B:16:G:HO2' | 12:B:17:C:H6 | 1.42 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 27:T:35:LYS:HZ3 | 27:T:41:ARG:HD2 | 1.59 | 0.68 |
| 24:Q:32:TYR:O | 24:Q:105:GLU:HB2 | 1.94 | 0.68 |
| 2:1:16:ASN:HD22 | 2:1:37:ILE:CG2 | 2.07 | 0.68 |
| 30:W:4:LYS:HG2 | 30:W:5:ALA:N | 2.09 | 0.68 |
| 11:A:2111:C:H1' | 11:A:2118:U:C4' | 2.24 | 0.68 |
| 6:5:16:ARG:HD2 | 6:5:20:ARG:HH12 | 1.58 | 0.68 |
| 33:Z:151:HIS:HA | 33:Z:171:ILE:HG12 | 1.76 | 0.68 |
| 25:R:58:GLY:HA2 | 25:R:80:PHE:CE2 | 2.29 | 0.68 |
| 11:A:2485:G:H5'' | 24:Q:46:GLN:HE21 | 1.59 | 0.68 |
| 11:A:813:U:H2' | 11:A:814:C:C6 | 2.29 | 0.68 |
| 11:A:1589:C:H2' | 11:A:1590:U:C6 | 2.28 | 0.68 |
| 11:A:654(P):C:H2' | 11:A:654(Q):C:O4' | 1.94 | 0.67 |
| 11:A:672:C:O2' | 11:A:673:C:H5'' | 1.93 | 0.67 |
| 11:A:1071:G:H1' | 11:A:1089:G:H2' | 1.75 | 0.67 |
| 11:A:614(A):U:H4' | 11:A:614(B):G:C5' | 2.25 | 0.67 |
| 28:U:66:ASN:O | 28:U:70:ARG:HB2 | 1.93 | 0.67 |
| 14:D:267:SER:C | 14:D:269:PHE:H | 1.94 | 0.67 |
| 11:A:1242:A:H5' | 11:A:1243:G:OP2 | 1.93 | 0.67 |
| 21:N:134:ARG:O | 21:N:136:GLU:N | 2.28 | 0.67 |
| 26:S:89:ARG:HH11 | 26:S:89:ARG:HG2 | 1.57 | 0.67 |
| 11:A:2118:U:H5' | 11:A:2147:G:H21 | 1.60 | 0.67 |
| 9:8:15:LYS:HB2 | 23:P:65:ARG:HH21 | 1.59 | 0.67 |
| 11:A:1314:C:H5' | 11:A:1314:C:C6 | 2.30 | 0.67 |
| 12:B:66:A:H61 | 12:B:108:U:H2' | 1.59 | 0.67 |
| 11:A:476:G:H4' | 11:A:502:A:N1 | 2.09 | 0.67 |
| 11:A:491:G:H2' | 11:A:492:A:H8 | 1.57 | 0.67 |
| 1:0:16:SER:HB2 | 11:A:2262:U:H5 | 1.59 | 0.67 |
| 27:T:28:VAL:HG12 | 27:T:29:ARG:HD3 | 1.75 | 0.67 |
| 11:A:321:G:H21 | 16:F:165:ARG:HE | 1.40 | 0.67 |
| 22:O:1:MET:HG3 | 22:O:67:LYS:HG2 | 1.77 | 0.67 |
| 17:G:16:ARG:HH22 | 17:G:28:VAL:CG1 | 2.07 | 0.67 |
| 13:C:10:LEU:HD12 | 13:C:32:LEU:HA | 1.77 | 0.67 |
| 9:8:61:LEU:HD22 | 9:8:62:LEU:N | 2.09 | 0.67 |
| 11:A:2133:G:H2' | 11:A:2157:G:N2 | 2.09 | 0.67 |
| 33:Z:126:VAL:HA | 33:Z:163:LEU:HA | 1.76 | 0.67 |
| 21:N:74:ARG:HH21 | 21:N:83:LYS:HD2 | 1.59 | 0.67 |
| 11:A:1005:C:H2' | 11:A:1006:C:C6 | 2.30 | 0.67 |
| 5:4:26:SER:HB3 | 17:G:105:LYS:NZ | 2.09 | 0.67 |
| 23:P:64:LYS:C | 23:P:66:GLY:N | 2.48 | 0.67 |
| 11:A:1060:U:C1' | 11:A:1061:U:H5'' | 2.23 | 0.67 |
| 11:A:2853:C:H2' | 11:A:2854:G:H8 | 1.59 | 0.67 |
| 28:U:76:TYR:CE1 | 28:U:80:ILE:HG13 | 2.30 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:A:935:C:H2' | 11:A:936:C:H6 | 1.58 | 0.67 |
| 2:1:75:GLU:O | 2:1:78:LYS:HG2 | 1.93 | 0.67 |
| 11:A:2563:U:H4' | 22:O:28:SER:HA | 1.77 | 0.67 |
| 11:A:1484:G:H2' | 11:A:1485:G:C5' | 2.05 | 0.67 |
| 32:Y:81:LYS:HD2 | 32:Y:96:ILE:HG13 | 1.75 | 0.67 |
| 11:A:2110:G:N1 | 11:A:2178:C:H5 | 1.93 | 0.67 |
| 11:A:860:U:C5 | 11:A:917:A:N7 | 2.60 | 0.67 |
| 26:S:52:SER:CB | 26:S:55:ALA:HB3 | 2.24 | 0.67 |
| 28:U:69:CYS:O | 28:U:74:LEU:HD12 | 1.94 | 0.67 |
| 9:8:4:MET:HE3 | 9:8:61:LEU:HG | 1.75 | 0.67 |
| 27:T:13:ARG:HA | 27:T:13:ARG:CZ | 2.25 | 0.67 |
| 27:T:6:LEU:HD23 | 27:T:9:LEU:HD12 | 1.76 | 0.67 |
| 6:5:25:LEU:HD12 | 30:W:19:LEU:HG | 1.76 | 0.67 |
| 27:T:89:VAL:CG1 | 27:T:91:ARG:HG3 | 2.25 | 0.67 |
| 33:Z:23:LYS:O | 33:Z:24:LEU:HB3 | 1.95 | 0.67 |
| 11:A:796:C:H2' | 11:A:797:C:C6 | 2.29 | 0.67 |
| 18:H:118:PRO:CG | 18:H:121:ILE:HD12 | 2.23 | 0.67 |
| 11:A:1541:G:H1' | 11:A:1542:A:C4 | 2.29 | 0.67 |
| 16:F:29:ASN:ND2 | 16:F:32:LEU:HB2 | 2.07 | 0.67 |
| 6:5:40:LYS:HE2 | 6:5:44:THR:O | 1.94 | 0.67 |
| 17:G:12:TYR:HA | 17:G:16:ARG:HG2 | 1.77 | 0.67 |
| 21:N:126:PRO:O | 21:N:127:ASP:HB2 | 1.93 | 0.67 |
| 33:Z:29:TYR:HB3 | 33:Z:34:ASN:CB | 2.25 | 0.67 |
| 21:N:3:THR:HG22 | 21:N:4:TYR:N | 2.09 | 0.67 |
| 13:C:214:VAL:CG2 | 13:C:224:ILE:HD13 | 2.25 | 0.67 |
| 11:A:197:A:H5' | 11:A:197:A:C8 | 2.30 | 0.67 |
| 16:F:65:TRP:CZ3 | 16:F:75:HIS:HD2 | 2.13 | 0.67 |
| 14:D:27:THR:HG23 | 14:D:83:GLU:HG2 | 1.76 | 0.67 |
| 33:Z:99:TYR:HD2 | 33:Z:123:ASP:HB3 | 1.59 | 0.67 |
| 12:B:7:G:H2' | 12:B:8:U:H5'' | 1.77 | 0.67 |
| 23:P:59:LEU:HA | 23:P:61:ARG:HE | 1.60 | 0.67 |
| 16:F:133:ASN:O | 16:F:135:LYS:N | 2.28 | 0.67 |
| 11:A:1190:G:H5' | 23:P:35:HIS:N | 2.09 | 0.67 |
| 28:U:92:ARG:NH2 | 29:V:11:GLN:H | 1.93 | 0.67 |
| 9:8:50:LEU:HD12 | 9:8:51:ALA:H | 1.60 | 0.67 |
| 2:1:26:ARG:HG2 | 2:1:27:GLU:HG3 | 1.75 | 0.67 |
| 11:A:1331:A:HO2' | 11:A:1332:G:H8 | 1.41 | 0.67 |
| 11:A:628:G:H2' | 11:A:629:G:C5' | 2.18 | 0.66 |
| 12:B:40:U:H3' | 12:B:41:U:H5'' | 1.78 | 0.66 |
| 17:G:51:ARG:HH11 | 17:G:53:LEU:CD2 | 2.08 | 0.66 |
| 32:Y:81:LYS:HD2 | 32:Y:96:ILE:CG1 | 2.24 | 0.66 |
| 29:V:18:LEU:CD2 | 29:V:19:LYS:H | 2.07 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 9:8:33:ASN:CG | 9:8:34:TRP:N | 2.48 | 0.66 |
| 26:S:12:PHE:C | 26:S:12:PHE:CD1 | 2.66 | 0.66 |
| 11:A:862:G:H2' | 11:A:863:A:O4' | 1.95 | 0.66 |
| 15:E:63:LEU:O | 15:E:63:LEU:HD23 | 1.94 | 0.66 |
| 29:V:39:LEU:HD12 | 29:V:47:VAL:HG11 | 1.78 | 0.66 |
| 21:N:3:THR:CG2 | 21:N:5:VAL:HG23 | 2.25 | 0.66 |
| 22:O:24:VAL:HG12 | 22:O:33:ALA:HB2 | 1.77 | 0.66 |
| 15:E:137:HIS:HB3 | 15:E:138:PRO:HD2 | 1.77 | 0.66 |
| 31:X:13:LEU:HA | 31:X:18:TYR:CE1 | 2.30 | 0.66 |
| 2:1:25:LYS:HG3 | 11:A:388:G:OP1 | 1.94 | 0.66 |
| 11:A:271(K):U:H3' | 11:A:271(L):U:H5' | 1.77 | 0.66 |
| 11:A:672:C:C2' | 11:A:673:C:H5'' | 2.25 | 0.66 |
| 18:H:19:VAL:HG12 | 18:H:20:ALA:N | 2.09 | 0.66 |
| 11:A:272(D):G:H1 | 11:A:364:C:H42 | 1.42 | 0.66 |
| 11:A:523:C:H2' | 11:A:524:U:H5' | 1.78 | 0.66 |
| 11:A:2174:C:H1' | 13:C:217:THR:O | 1.94 | 0.66 |
| 32:Y:2:ARG:CD | 32:Y:3:VAL:HG23 | 2.24 | 0.66 |
| 23:P:146:VAL:O | 23:P:148:LEU:HG | 1.96 | 0.66 |
| 11:A:1076:C:H5'' | 33:Z:111:VAL:CG1 | 2.26 | 0.66 |
| 16:F:89:VAL:HG12 | 16:F:90:PHE:N | 2.10 | 0.66 |
| 17:G:51:ARG:HA | 17:G:51:ARG:CZ | 2.26 | 0.66 |
| 26:S:54:LEU:CD1 | 26:S:58:LEU:H | 2.09 | 0.66 |
| 26:S:88:ASP:OD1 | 26:S:89:ARG:N | 2.28 | 0.66 |
| 6:5:16:ARG:HD2 | 6:5:20:ARG:NH1 | 2.10 | 0.66 |
| 11:A:2485:G:H5'' | 24:Q:46:GLN:NE2 | 2.11 | 0.66 |
| 3:2:38:GLN:OE1 | 3:2:44:LEU:HD13 | 1.95 | 0.66 |
| 11:A:709:U:H2' | 11:A:710:G:C8 | 2.31 | 0.66 |
| 11:A:172:C:H2' | 11:A:173:G:O4' | 1.95 | 0.66 |
| 11:A:287:C:H2' | 11:A:288:C:C6 | 2.30 | 0.66 |
| 14:D:62:TYR:HE1 | 14:D:64:ILE:HA | 1.60 | 0.66 |
| 17:G:82:LEU:HD13 | 17:G:87:PRO:CB | 2.25 | 0.66 |
| 11:A:2308:G:O6 | 11:A:2310:A:H2' | 1.96 | 0.66 |
| 16:F:132:VAL:HG22 | 16:F:133:ASN:N | 2.07 | 0.66 |
| 16:F:160:ASN:ND2 | 16:F:162:LEU:HD13 | 2.09 | 0.66 |
| 23:P:66:GLY:O | 23:P:67:MET:HB2 | 1.96 | 0.66 |
| 33:Z:40:ASP:HB3 | 33:Z:43:GLU:CG | 2.24 | 0.66 |
| 18:H:117:PRO:HB3 | 18:H:123:PHE:CE1 | 2.31 | 0.66 |
| 11:A:2472:G:H5' | 11:A:2473:U:H5'' | 1.77 | 0.66 |
| 11:A:212:G:O2' | 11:A:213:A:H5' | 1.96 | 0.66 |
| 13:C:82:LYS:HE2 | 13:C:82:LYS:HA | 1.78 | 0.66 |
| 7:6:19:ARG:HD3 | 7:6:20:ASN:H | 1.59 | 0.66 |
| 16:F:160:ASN:OD1 | 16:F:163:VAL:HG23 | 1.94 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:5:36:CYS:SG | 6:5:48:GLU:O | 2.54 | 0.66 |
| 11:A:1005:C:H2' | 11:A:1006:C:H6 | 1.61 | 0.66 |
| 11:A:106:C:H2' | 11:A:107:C:C6 | 2.30 | 0.66 |
| 32:Y:17:SER:HB2 | 32:Y:71:LYS:CE | 2.25 | 0.66 |
| 14:D:28:GLU:HB2 | 14:D:29:PRO:CD | 2.26 | 0.66 |
| 11:A:74:A:H5'' | 11:A:75:G:O4' | 1.96 | 0.66 |
| 17:G:70:VAL:HG11 | 17:G:72:ARG:HH21 | 1.61 | 0.66 |
| 26:S:99:LYS:HZ2 | 26:S:99:LYS:HB3 | 1.58 | 0.66 |
| 17:G:5:VAL:HB | 17:G:8:LYS:HB2 | 1.76 | 0.66 |
| 11:A:2108:C:O2 | 11:A:2108:C:H2' | 1.94 | 0.66 |
| 11:A:1534:U:H2' | 11:A:1535:A:O4' | 1.96 | 0.66 |
| 11:A:1902:C:H4' | 14:D:244:ARG:HA | 1.78 | 0.66 |
| 27:T:80:SER:CB | 27:T:81:PRO:HD3 | 2.26 | 0.66 |
| 18:H:85:LYS:NZ | 18:H:132:ARG:HA | 2.07 | 0.66 |
| 15:E:57:LYS:CE | 15:E:57:LYS:HA | 2.18 | 0.66 |
| 18:H:12:PRO:O | 18:H:15:VAL:HG22 | 1.96 | 0.66 |
| 26:S:106:ARG:HH11 | 26:S:106:ARG:HG2 | 1.61 | 0.66 |
| 18:H:103:LEU:HB2 | 18:H:123:PHE:CD2 | 2.28 | 0.66 |
| 27:T:23:ARG:HH21 | 27:T:120:ARG:HD3 | 1.61 | 0.66 |
| 11:A:280:C:H3' | 11:A:281:G:C8 | 2.30 | 0.66 |
| 11:A:2219:G:O2' | 11:A:2220:G:H5' | 1.96 | 0.66 |
| 11:A:402:A:O2' | 11:A:403:U:H5' | 1.96 | 0.66 |
| 4:3:19:GLN:HE22 | 4:3:52:HIS:HE1 | 1.44 | 0.66 |
| 5:4:39:CYS:O | 5:4:40:HIS:HB2 | 1.94 | 0.66 |
| 11:A:2206:G:N2 | 11:A:2207:G:H5' | 2.11 | 0.66 |
| 17:G:106:LEU:O | 17:G:111:LEU:HG | 1.96 | 0.66 |
| 24:Q:12:GLN:HG2 | 24:Q:73:PRO:HD2 | 1.77 | 0.65 |
| 11:A:2111:C:H1' | 11:A:2118:U:H4' | 1.77 | 0.65 |
| 33:Z:18:LEU:CD1 | 33:Z:18:LEU:H | 2.08 | 0.65 |
| 11:A:886:C:O2' | 11:A:887:A:H4' | 1.97 | 0.65 |
| 31:X:24:GLY:O | 31:X:82:GLN:HA | 1.96 | 0.65 |
| 16:F:43:LYS:HA | 16:F:98:SER:HB3 | 1.78 | 0.65 |
| 11:A:2672:G:H2' | 11:A:2673:G:H5'' | 1.78 | 0.65 |
| 18:H:158:HIS:HD1 | 18:H:168:PRO:HB2 | 1.61 | 0.65 |
| 33:Z:166:SER:CB | 33:Z:168:GLU:HG3 | 2.26 | 0.65 |
| 11:A:654(A):G:C2' | 11:A:654(B):C:H5' | 2.25 | 0.65 |
| 11:A:195:A:H5'' | 11:A:196:A:OP2 | 1.95 | 0.65 |
| 27:T:82:LEU:N | 27:T:82:LEU:HD12 | 2.12 | 0.65 |
| 16:F:125:LEU:N | 16:F:125:LEU:HD23 | 2.12 | 0.65 |
| 11:A:391:G:O2' | 11:A:392:C:H5' | 1.97 | 0.65 |
| 14:D:24:ILE:C | 14:D:26:LYS:H | 1.99 | 0.65 |
| 11:A:2313:C:H6 | 11:A:2313:C:H5' | 1.60 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 32:Y:14:LEU:HD12 | 32:Y:15:VAL:H | 1.60 | 0.65 |
| 23:P:115:LEU:HA | 23:P:134:ALA:HB3 | 1.76 | 0.65 |
| 28:U:90:VAL:HG12 | 28:U:91:ASP:N | 2.11 | 0.65 |
| 33:Z:40:ASP:OD1 | 33:Z:42:VAL:HG12 | 1.96 | 0.65 |
| 14:D:267:SER:O | 14:D:269:PHE:N | 2.30 | 0.65 |
| 24:Q:19:GLY:HA3 | 33:Z:79:ARG:HH12 | 1.60 | 0.65 |
| 11:A:2201:C:O2' | 11:A:2202:C:H5' | 1.96 | 0.65 |
| 27:T:19:LEU:HD22 | 27:T:85:LYS:HD3 | 1.78 | 0.65 |
| 11:A:1141:U:H2' | 21:N:63:THR:CG2 | 2.21 | 0.65 |
| 6:5:16:ARG:NH1 | 6:5:17:ASP:OD1 | 2.30 | 0.65 |
| 11:A:244:A:H4' | 23:P:74:GLU:CG | 2.24 | 0.65 |
| 11:A:614(B):G:H1' | 16:F:44:ARG:HG3 | 1.79 | 0.65 |
| 29:V:34:GLU:O | 29:V:36:PRO:HD3 | 1.96 | 0.65 |
| 29:V:35:LEU:O | 29:V:37:VAL:N | 2.30 | 0.65 |
| 29:V:39:LEU:HA | 29:V:47:VAL:CG1 | 2.26 | 0.65 |
| 11:A:328:U:H4' | 32:Y:68:HIS:HD1 | 1.61 | 0.65 |
| 15:E:24:THR:HG22 | 15:E:186:GLY:HA2 | 1.79 | 0.65 |
| 11:A:2195:C:O2' | 11:A:2196:C:H5' | 1.96 | 0.65 |
| 11:A:45:C:H2' | 11:A:47:C:C6 | 2.31 | 0.65 |
| 11:A:1592:C:H2' | 11:A:1593:G:H8 | 1.61 | 0.65 |
| 12:B:106:G:H5'' | 33:Z:31:ARG:HG2 | 1.77 | 0.65 |
| 26:S:89:ARG:HG2 | 26:S:92:TYR:HA | 1.78 | 0.65 |
| 15:E:11:MET:HB2 | 15:E:23:VAL:O | 1.97 | 0.65 |
| 3:2:47:ASN:O | 3:2:49:LYS:N | 2.30 | 0.65 |
| 11:A:1352:U:O2' | 11:A:1353:A:H5' | 1.96 | 0.65 |
| 23:P:124:LYS:HD3 | 23:P:143:GLY:HA3 | 1.77 | 0.65 |
| 11:A:2580:U:O3' | 15:E:130:GLY:HA3 | 1.97 | 0.65 |
| 13:C:96:GLY:H | 13:C:99:ILE:CG1 | 2.09 | 0.65 |
| 11:A:1971:A:C4 | 14:D:241:PRO:HD3 | 2.32 | 0.65 |
| 15:E:77:ILE:HG22 | 15:E:78:LEU:H | 1.62 | 0.65 |
| 21:N:132:ALA:O | 21:N:133:GLN:HB3 | 1.96 | 0.65 |
| 11:A:1278:A:OP1 | 25:R:36:THR:HG22 | 1.96 | 0.65 |
| 26:S:24:LEU:HB3 | 26:S:85:VAL:HG12 | 1.77 | 0.65 |
| 11:A:1051:G:H2' | 11:A:1052:C:C6 | 2.32 | 0.65 |
| 25:R:14:SER:HA | 25:R:17:ARG:NH1 | 2.11 | 0.65 |
| 13:C:114:VAL:HG23 | 13:C:149:ILE:HD11 | 1.79 | 0.65 |
| 14:D:24:ILE:HD13 | 14:D:25:THR:N | 2.12 | 0.65 |
| 11:A:644:A:C2 | 11:A:2369:A:H1' | 2.32 | 0.65 |
| 11:A:672:C:H2' | 11:A:673:C:H5' | 1.77 | 0.65 |
| 6:5:40:LYS:HE3 | 6:5:46:CYS:HB3 | 1.78 | 0.65 |
| 29:V:49:THR:HB | 29:V:50:PRO:CD | 2.27 | 0.65 |
| 11:A:106:C:H1' | 32:Y:2:ARG:NH2 | 2.11 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 11:A:234:C:H2' | 11:A:235:U:C6 | 2.31 | 0.65 |
| 14:D:118:VAL:HG22 | 14:D:119:ALA:H | 1.62 | 0.65 |
| 11:A:1771:C:H1' | 11:A:1786:A:C8 | 2.30 | 0.65 |
| 11:A:1301:A:HO2' | 11:A:1302:A:H2' | 1.59 | 0.65 |
| 33:Z:69:THR:HG22 | 33:Z:90:VAL:HA | 1.78 | 0.65 |
| 23:P:114:ILE:HD13 | 23:P:127:ALA:HB2 | 1.78 | 0.65 |
| 31:X:35:THR:CG2 | 31:X:37:THR:H | 2.09 | 0.65 |
| 33:Z:166:SER:H | 33:Z:167:PRO:HA | 1.61 | 0.65 |
| 11:A:479:A:O2' | 11:A:481:G:H5' | 1.96 | 0.65 |
| 11:A:2758:A:C2 | 11:A:2759:G:H1' | 2.32 | 0.65 |
| 10:9:10:ILE:O | 10:9:11:CYS:HB3 | 1.94 | 0.65 |
| 28:U:15:LYS:O | 28:U:19:LYS:HG2 | 1.97 | 0.65 |
| 14:D:35:LYS:HA | 14:D:63:ARG:HA | 1.79 | 0.65 |
| 33:Z:72:ARG:CG | 33:Z:89:PHE:HB2 | 2.26 | 0.65 |
| 23:P:65:ARG:HB3 | 23:P:68:GLN:HE22 | 1.61 | 0.65 |
| 11:A:1348:G:C2' | 11:A:1349:A:H5'' | 2.25 | 0.65 |
| 11:A:1332:G:H21 | 11:A:1610:A:H8 | 1.42 | 0.65 |
| 11:A:1786:A:C2 | 11:A:2606:C:H1' | 2.32 | 0.65 |
| 12:B:3:C:H42 | 12:B:118:G:H1 | 1.45 | 0.65 |
| 14:D:30:GLU:HG3 | 14:D:63:ARG:CZ | 2.27 | 0.65 |
| 28:U:85:LYS:HD3 | 28:U:117:GLN:NE2 | 2.06 | 0.65 |
| 7:6:5:VAL:N | 7:6:8:LYS:HB3 | 2.12 | 0.65 |
| 11:A:1748:G:H8 | 11:A:1748:G:H5' | 1.60 | 0.65 |
| 15:E:59:VAL:HG13 | 15:E:60:ASN:H | 1.62 | 0.65 |
| 11:A:1087:G:H2' | 11:A:1088:A:C4' | 2.26 | 0.65 |
| 11:A:886:C:H2' | 11:A:887:A:C4' | 2.27 | 0.65 |
| 11:A:225:A:O2' | 11:A:257:A:H4' | 1.96 | 0.65 |
| 11:A:1877:A:H5' | 11:A:1878:G:OP2 | 1.97 | 0.65 |
| 11:A:1161:C:H1' | 29:V:8:GLY:O | 1.97 | 0.65 |
| 11:A:1042:G:H1' | 11:A:1114:G:H22 | 1.61 | 0.65 |
| 18:H:16:SER:CB | 18:H:27:LYS:HB2 | 2.23 | 0.64 |
| 1:0:49:LYS:N | 1:0:80:HIS:HD1 | 1.87 | 0.64 |
| 33:Z:81:ARG:NH1 | 33:Z:81:ARG:HB3 | 2.11 | 0.64 |
| 33:Z:157:LEU:HD11 | 33:Z:163:LEU:HD22 | 1.78 | 0.64 |
| 11:A:1221(A):C:H2' | 11:A:1222:C:C6 | 2.31 | 0.64 |
| 11:A:496:G:H1' | 30:W:61:ASN:ND2 | 2.12 | 0.64 |
| 21:N:46:VAL:O | 21:N:47:ALA:HB3 | 1.97 | 0.64 |
| 17:G:46:ALA:HB2 | 17:G:88:ILE:HG13 | 1.79 | 0.64 |
| 32:Y:95:LYS:HE3 | 32:Y:100:ALA:HB2 | 1.78 | 0.64 |
| 5:4:13:ARG:C | 5:4:14:ILE:HD12 | 2.17 | 0.64 |
| 5:4:7:PRO:CG | 17:G:61:ALA:HB1 | 2.27 | 0.64 |
| 11:A:267:C:H2' | 11:A:268:C:H6 | 1.62 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 17:G:114:ILE:O | 17:G:116:ASP:N | 2.30 | 0.64 |
| 11:A:1059:G:H1' | 20:K:126:UNK:O | 1.97 | 0.64 |
| 18:H:98:LEU:HB2 | 18:H:125:VAL:CG2 | 2.26 | 0.64 |
| 22:O:88:ASN:ND2 | 22:O:92:GLU:HB2 | 2.12 | 0.64 |
| 1:O:40:GLN:HE22 | 1:O:44:ARG:N | 1.95 | 0.64 |
| 18:H:120:GLY:O | 18:H:135:GLY:HA2 | 1.97 | 0.64 |
| 31:X:12:VAL:HB | 31:X:17:ALA:CB | 2.10 | 0.64 |
| 26:S:98:VAL:CG1 | 26:S:100:ALA:H | 2.08 | 0.64 |
| 30:W:6:ILE:HG12 | 30:W:104:THR:HG22 | 1.79 | 0.64 |
| 11:A:2758:A:N6 | 18:H:67:LEU:HD11 | 2.12 | 0.64 |
| 22:O:98:VAL:HG12 | 22:O:117:LEU:HB3 | 1.79 | 0.64 |
| 11:A:2113:U:H2' | 11:A:2114:A:H8 | 1.63 | 0.64 |
| 33:Z:124:ILE:HG13 | 33:Z:124:ILE:O | 1.98 | 0.64 |
| 18:H:94:TYR:HE1 | 18:H:108:GLY:N | 1.96 | 0.64 |
| 11:A:654(V):A:OP2 | 11:A:655:A:H3' | 1.97 | 0.64 |
| 11:A:271(Q):G:H1' | 11:A:271(R):G:C8 | 2.32 | 0.64 |
| 26:S:34:HIS:HB3 | 26:S:53:SER:HB3 | 1.78 | 0.64 |
| 15:E:101:ARG:HD2 | 15:E:169:ASN:O | 1.97 | 0.64 |
| 11:A:877:U:O2' | 11:A:878:A:H5'' | 1.97 | 0.64 |
| 11:A:944:G:H5' | 11:A:945:A:O5' | 1.97 | 0.64 |
| 26:S:38:GLN:O | 26:S:40:ILE:HG23 | 1.97 | 0.64 |
| 17:G:181:ARG:O | 17:G:181:ARG:HG2 | 1.97 | 0.64 |
| 11:A:1192:G:N7 | 23:P:29:LYS:NZ | 2.41 | 0.64 |
| 16:F:24:LEU:O | 16:F:26:ALA:N | 2.31 | 0.64 |
| 7:6:17:LYS:HA | 7:6:17:LYS:HE2 | 1.79 | 0.64 |
| 11:A:99:U:C4' | 11:A:102:G:H1' | 2.27 | 0.64 |
| 29:V:19:LYS:HB3 | 29:V:94:LEU:O | 1.96 | 0.64 |
| 11:A:833:U:H5'' | 23:P:48:PRO:CB | 2.27 | 0.64 |
| 5:4:10:VAL:HG23 | 5:4:11:PRO:HD2 | 1.80 | 0.64 |
| 11:A:2523:G:H2' | 11:A:2524:G:H5' | 1.80 | 0.64 |
| 29:V:5:VAL:HG23 | 29:V:37:VAL:O | 1.98 | 0.64 |
| 15:E:202:LYS:N | 15:E:202:LYS:HD2 | 2.12 | 0.64 |
| 14:D:118:VAL:HG22 | 14:D:119:ALA:N | 2.12 | 0.64 |
| 28:U:64:ARG:HH11 | 28:U:64:ARG:HG2 | 1.63 | 0.64 |
| 11:A:1286:A:H2' | 11:A:1288:U:OP2 | 1.97 | 0.64 |
| 11:A:613:G:H8 | 11:A:613:G:H5' | 1.62 | 0.64 |
| 11:A:1058:G:H3' | 11:A:1059:G:C5' | 2.28 | 0.64 |
| 17:G:25:TYR:CE2 | 17:G:32:PRO:HD2 | 2.32 | 0.64 |
| 27:T:94:ALA:O | 27:T:96:ARG:N | 2.30 | 0.64 |
| 2:1:69:LYS:NZ | 2:1:76:ARG:NH2 | 2.46 | 0.64 |
| 11:A:1598:C:H5' | 31:X:36:LYS:HG2 | 1.78 | 0.64 |
| 11:A:1899:G:O2' | 11:A:1900:A:H5'' | 1.97 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 14:D:242:ARG:HH11 | 14:D:242:ARG:CG | 2.11 | 0.64 |
| 17:G:85:GLY:C | 17:G:87:PRO:HD3 | 2.18 | 0.64 |
| 11:A:2308:G:N7 | 11:A:2310:A:H5' | 2.13 | 0.64 |
| 11:A:298:G:H5' | 11:A:299:A:OP1 | 1.98 | 0.64 |
| 16:F:28:ILE:CD1 | 16:F:28:ILE:H | 2.06 | 0.64 |
| 30:W:29:LEU:HG | 30:W:33:ARG:HD2 | 1.80 | 0.64 |
| 9:8:50:LEU:O | 9:8:51:ALA:HB3 | 1.98 | 0.64 |
| 11:A:1264:G:H3' | 11:A:1265:A:H5'' | 1.80 | 0.64 |
| 11:A:2886:G:H2' | 11:A:2887:U:H6 | 1.62 | 0.64 |
| 14:D:30:GLU:CB | 14:D:35:LYS:HD2 | 2.16 | 0.64 |
| 12:B:106:G:C5' | 33:Z:31:ARG:HG2 | 2.28 | 0.64 |
| 11:A:1053:C:H2' | 11:A:1054:A:C8 | 2.31 | 0.64 |
| 33:Z:139:VAL:HG12 | 33:Z:140:ASP:N | 2.13 | 0.64 |
| 11:A:547:A:H2' | 11:A:548:A:C8 | 2.32 | 0.64 |
| 15:E:101:ARG:CZ | 15:E:171:GLU:HB2 | 2.28 | 0.64 |
| 27:T:62:THR:CG2 | 27:T:75:ILE:HG13 | 2.28 | 0.64 |
| 11:A:2443:C:O2' | 11:A:2444:G:H5' | 1.97 | 0.64 |
| 24:Q:109:VAL:HG12 | 24:Q:113:GLN:HB2 | 1.78 | 0.64 |
| 4:3:35:ARG:HD3 | 4:3:37:LEU:HD11 | 1.80 | 0.64 |
| 11:A:2713:A:OP1 | 25:R:14:SER:HB3 | 1.98 | 0.64 |
| 12:B:67:G:HO2' | 12:B:68:C:H6 | 1.45 | 0.64 |
| 21:N:129:PRO:O | 21:N:130:HIS:HB3 | 1.98 | 0.64 |
| 27:T:109:GLU:HG2 | 27:T:112:ARG:NH2 | 2.13 | 0.64 |
| 11:A:2200:C:H42 | 11:A:2223:G:H1 | 1.44 | 0.64 |
| 33:Z:123:ASP:O | 33:Z:124:ILE:HG12 | 1.99 | 0.63 |
| 11:A:1188:U:H4' | 29:V:79:VAL:CG2 | 2.28 | 0.63 |
| 11:A:2110:G:H1 | 11:A:2178:C:H5 | 1.44 | 0.63 |
| 26:S:106:ARG:HG2 | 26:S:106:ARG:O | 1.98 | 0.63 |
| 15:E:101:ARG:HB3 | 15:E:201:THR:HG21 | 1.79 | 0.63 |
| 14:D:161:THR:O | 14:D:196:VAL:HG23 | 1.99 | 0.63 |
| 22:O:104:ARG:HE | 27:T:33:LYS:HZ2 | 1.45 | 0.63 |
| 16:F:6:VAL:HG12 | 16:F:7:TYR:N | 2.09 | 0.63 |
| 17:G:116:ASP:O | 17:G:117:PHE:HB2 | 1.97 | 0.63 |
| 25:R:10:LEU:O | 25:R:11:ASN:HB2 | 1.99 | 0.63 |
| 27:T:75:ILE:HD12 | 27:T:75:ILE:N | 2.12 | 0.63 |
| 21:N:26:LEU:HD12 | 21:N:26:LEU:O | 1.96 | 0.63 |
| 23:P:77:ARG:HD3 | 23:P:78:PRO:HD2 | 1.80 | 0.63 |
| 15:E:77:ILE:HG22 | 15:E:78:LEU:HD12 | 1.80 | 0.63 |
| 11:A:1024:G:C3' | 11:A:1025:G:H5'' | 2.21 | 0.63 |
| 7:6:17:LYS:HB3 | 7:6:18:ARG:NH1 | 2.13 | 0.63 |
| 7:6:43:CYS:O | 7:6:44:ARG:HB2 | 1.98 | 0.63 |
| 11:A:1499:C:H5' | 11:A:1499:C:C6 | 2.21 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:6:25:LYS:HD2 | 11:A:2285:C:H41 | 1.64 | 0.63 |
| 11:A:672:C:H2' | 11:A:673:C:C5' | 2.28 | 0.63 |
| 11:A:1718:G:H2' | 11:A:1719:G:H8 | 1.63 | 0.63 |
| 11:A:1952:A:C6 | 22:O:22:ILE:HD12 | 2.33 | 0.63 |
| 14:D:148:GLU:HB2 | 14:D:151:LYS:HD2 | 1.80 | 0.63 |
| 18:H:91:GLY:HA3 | 18:H:94:TYR:HD2 | 1.64 | 0.63 |
| 4:3:35:ARG:CB | 4:3:35:ARG:HH11 | 2.03 | 0.63 |
| 32:Y:27:VAL:HG12 | 32:Y:29:GLU:OE1 | 1.98 | 0.63 |
| 26:S:20:ARG:HH11 | 26:S:20:ARG:HG2 | 1.63 | 0.63 |
| 7:6:25:LYS:HE2 | 9:8:34:TRP:HE1 | 1.63 | 0.63 |
| 5:4:27:THR:O | 5:4:28:LYS:HB3 | 1.98 | 0.63 |
| 27:T:94:ALA:C | 27:T:96:ARG:H | 2.01 | 0.63 |
| 23:P:102:ARG:HB2 | 23:P:102:ARG:HH11 | 1.64 | 0.63 |
| 1:0:20:ARG:HH11 | 1:0:20:ARG:HG2 | 1.63 | 0.63 |
| 14:D:275:LYS:O | 14:D:276:LYS:HB2 | 1.97 | 0.63 |
| 11:A:221:A:H4' | 11:A:222:A:O5' | 1.97 | 0.63 |
| 11:A:2389:G:H5'' | 11:A:2390:U:H5' | 1.80 | 0.63 |
| 17:G:6:ALA:HB3 | 17:G:104:GLU:OE2 | 1.99 | 0.63 |
| 29:V:5:VAL:HG21 | 29:V:35:LEU:HD23 | 1.81 | 0.63 |
| 12:B:82:G:O2' | 12:B:83:G:H5' | 1.97 | 0.63 |
| 11:A:2502:G:H5'' | 11:A:2503:A:C5' | 2.28 | 0.63 |
| 11:A:278:A:H61 | 11:A:362:U:H3 | 1.47 | 0.63 |
| 11:A:814:C:H2' | 11:A:815:C:H6 | 1.64 | 0.63 |
| 11:A:414:C:H1' | 11:A:1864:U:O2' | 1.99 | 0.63 |
| 24:Q:35:VAL:HG12 | 24:Q:130:LYS:O | 1.99 | 0.63 |
| 11:A:2228:G:OP2 | 14:D:261:LYS:HE3 | 1.99 | 0.63 |
| 22:O:104:ARG:NH2 | 27:T:33:LYS:HD3 | 2.14 | 0.63 |
| 16:F:32:LEU:HD23 | 16:F:32:LEU:O | 1.99 | 0.63 |
| 18:H:153:LYS:N | 18:H:153:LYS:HD3 | 2.02 | 0.63 |
| 11:A:272(I):U:H5' | 11:A:272(I):U:H6 | 1.64 | 0.63 |
| 29:V:17:GLY:C | 29:V:18:LEU:HD13 | 2.18 | 0.63 |
| 30:W:4:LYS:HA | 30:W:106:ILE:HG22 | 1.80 | 0.63 |
| 16:F:156:LEU:HD21 | 16:F:163:VAL:HG12 | 1.79 | 0.63 |
| 23:P:23:PRO:CD | 23:P:33:ARG:HE | 2.10 | 0.63 |
| 11:A:2649:U:H2' | 11:A:2650:U:C6 | 2.33 | 0.63 |
| 21:N:10:GLU:OE2 | 21:N:11:PRO:HD2 | 1.98 | 0.63 |
| 11:A:2100:G:H2' | 11:A:2101:G:C8 | 2.33 | 0.63 |
| 11:A:654(E):G:H2' | 11:A:654(F):C:H5' | 1.81 | 0.63 |
| 23:P:148:LEU:O | 23:P:149:GLU:HB2 | 1.98 | 0.63 |
| 11:A:661:C:O3' | 23:P:18:ARG:HD2 | 1.98 | 0.63 |
| 18:H:76:VAL:C | 18:H:78:GLY:H | 2.02 | 0.63 |
| 11:A:1103:A:H5'' | 11:A:1104:C:H5 | 1.63 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 10:9:29:ASN:H | 10:9:29:ASN:HD22 | 1.46 | 0.63 |
| 29:V:74:LYS:HB2 | 29:V:83:ARG:HB2 | 1.79 | 0.63 |
| 11:A:1398:C:O2' | 11:A:1399:C:H5' | 1.98 | 0.63 |
| 1:0:50:ASN:ND2 | 1:0:63:VAL:HG21 | 2.12 | 0.63 |
| 25:R:45:ARG:HG3 | 25:R:46:GLY:N | 2.12 | 0.63 |
| 24:Q:111:GLU:OE1 | 24:Q:133:ARG:NH2 | 2.32 | 0.63 |
| 17:G:116:ASP:O | 17:G:117:PHE:CB | 2.46 | 0.63 |
| 11:A:2762:G:C8 | 11:A:2762:G:H5' | 2.29 | 0.63 |
| 15:E:4:ILE:HD12 | 15:E:92:THR:O | 1.99 | 0.63 |
| 32:Y:46:LYS:HD3 | 32:Y:47:LYS:H | 1.64 | 0.63 |
| 24:Q:21:THR:O | 24:Q:22:LYS:HB3 | 1.99 | 0.63 |
| 10:9:19:ARG:O | 10:9:20:HIS:HB2 | 1.97 | 0.63 |
| 21:N:43:THR:HB | 21:N:46:VAL:CG1 | 2.29 | 0.63 |
| 11:A:2307:G:H21 | 11:A:2308:G:H5'' | 1.64 | 0.63 |
| 23:P:101:VAL:HG12 | 23:P:106:LEU:CB | 2.29 | 0.63 |
| 18:H:98:LEU:HD12 | 18:H:102:ALA:O | 1.98 | 0.63 |
| 11:A:106:C:H2' | 11:A:107:C:H6 | 1.64 | 0.63 |
| 25:R:103:ARG:HG3 | 30:W:40:ASN:OD1 | 1.99 | 0.63 |
| 12:B:65:C:O2' | 12:B:66:A:H5' | 1.99 | 0.62 |
| 11:A:2036:C:C6 | 11:A:2036:C:H5' | 2.24 | 0.62 |
| 21:N:72:TYR:CD2 | 21:N:90:MET:HG3 | 2.34 | 0.62 |
| 11:A:1409:C:H2' | 11:A:1410:G:H8 | 1.63 | 0.62 |
| 24:Q:43:THR:OG1 | 24:Q:45:GLN:HG2 | 1.99 | 0.62 |
| 11:A:1786:A:H2 | 11:A:2606:C:H1' | 1.64 | 0.62 |
| 24:Q:79:LEU:HD23 | 24:Q:80:GLU:H | 1.64 | 0.62 |
| 28:U:17:ILE:HG23 | 28:U:39:LEU:HD12 | 1.80 | 0.62 |
| 13:C:18:LYS:HD3 | 13:C:20:TYR:CE2 | 2.34 | 0.62 |
| 11:A:1540:U:H3' | 11:A:1541:G:C3' | 2.29 | 0.62 |
| 1:0:12:ASN:O | 1:0:14:ARG:N | 2.31 | 0.62 |
| 13:C:132:GLY:N | 13:C:133:PRO:HD2 | 2.14 | 0.62 |
| 11:A:1187:G:H5'' | 29:V:81:TYR:CE1 | 2.33 | 0.62 |
| 11:A:2790:A:H2' | 11:A:2791:C:H5'' | 1.81 | 0.62 |
| 27:T:78:LEU:O | 27:T:79:HIS:HD2 | 1.81 | 0.62 |
| 9:8:10:ALA:HB3 | 9:8:60:LEU:HD21 | 1.81 | 0.62 |
| 33:Z:72:ARG:HG3 | 33:Z:89:PHE:HB2 | 1.80 | 0.62 |
| 32:Y:28:LYS:CB | 32:Y:37:VAL:HB | 2.29 | 0.62 |
| 24:Q:27:VAL:H | 24:Q:137:TYR:HD2 | 1.46 | 0.62 |
| 11:A:2523:G:H2' | 11:A:2524:G:C5' | 2.29 | 0.62 |
| 11:A:970:C:H2' | 11:A:971:C:H6 | 1.64 | 0.62 |
| 11:A:2852:G:H2' | 11:A:2853:C:H6 | 1.64 | 0.62 |
| 11:A:1579:A:H5' | 11:A:1579:A:H8 | 1.64 | 0.62 |
| 11:A:1810:A:H2' | 11:A:1811:G:O4' | 1.99 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|------------------|-------------|----------|
| 9:8:61:LEU:HD13 | 9:8:62:LEU:N | 2.14 | 0.62 |
| 32:Y:9:LYS:CG | 32:Y:10:GLY:H | 2.04 | 0.62 |
| 32:Y:17:SER:CB | 32:Y:71:LYS:HE2 | 2.29 | 0.62 |
| 23:P:66:GLY:O | 23:P:67:MET:CB | 2.47 | 0.62 |
| 11:A:2068:U:N3 | 11:A:2430:A:H2 | 1.93 | 0.62 |
| 2:1:82:LEU:HD21 | 2:1:90:ILE:HG23 | 1.80 | 0.62 |
| 32:Y:46:LYS:HD3 | 32:Y:47:LYS:N | 2.14 | 0.62 |
| 15:E:201:THR:C | 15:E:202:LYS:HD2 | 2.19 | 0.62 |
| 28:U:101:ARG:HH11 | 28:U:101:ARG:HG3 | 1.64 | 0.62 |
| 11:A:1092:C:H42 | 11:A:1100:C:H42 | 1.47 | 0.62 |
| 11:A:8:A:H2' | 11:A:9:U:C5 | 2.34 | 0.62 |
| 11:A:2184:G:H2' | 11:A:2185:C:C1' | 2.28 | 0.62 |
| 23:P:24:GLY:N | 23:P:33:ARG:CZ | 2.63 | 0.62 |
| 11:A:603:A:H1' | 11:A:604:G:OP1 | 1.99 | 0.62 |
| 28:U:83:LEU:HG | 28:U:88:ILE:CD1 | 2.28 | 0.62 |
| 18:H:44:VAL:HG12 | 18:H:45:VAL:N | 2.14 | 0.62 |
| 27:T:23:ARG:HG2 | 27:T:120:ARG:NH1 | 2.14 | 0.62 |
| 11:A:302:C:H2' | 11:A:303:U:H6 | 1.63 | 0.62 |
| 32:Y:2:ARG:HD3 | 32:Y:3:VAL:HG23 | 1.81 | 0.62 |
| 22:O:47:ILE:O | 22:O:48:PRO:O | 2.18 | 0.62 |
| 13:C:139:ASN:OD1 | 13:C:140:PRO:HD2 | 1.99 | 0.62 |
| 27:T:28:VAL:O | 27:T:29:ARG:CB | 2.47 | 0.62 |
| 7:6:42:TRP:HE3 | 7:6:42:TRP:HA | 1.64 | 0.62 |
| 32:Y:97:ARG:HH21 | 32:Y:98:VAL:CB | 2.12 | 0.62 |
| 25:R:30:THR:HG22 | 25:R:31:HIS:ND1 | 2.14 | 0.62 |
| 18:H:41:MET:HG3 | 18:H:42:ARG:O | 2.00 | 0.62 |
| 11:A:16:G:O2' | 11:A:17:G:H5' | 2.00 | 0.62 |
| 1:0:73:GLY:O | 1:0:75:LEU:N | 2.32 | 0.62 |
| 11:A:2152:G:O2' | 11:A:2153:G:H5' | 1.99 | 0.62 |
| 15:E:33:VAL:HG23 | 15:E:47:VAL:HG13 | 1.82 | 0.62 |
| 17:G:45:GLU:O | 17:G:51:ARG:HG3 | 2.00 | 0.62 |
| 11:A:2801(A):A:H5' | 11:A:2802:G:H8 | 1.64 | 0.62 |
| 18:H:50:VAL:CG1 | 18:H:51:ARG:H | 2.10 | 0.62 |
| 11:A:661:C:H4' | 23:P:16:ARG:NH1 | 2.14 | 0.62 |
| 28:U:88:ILE:C | 28:U:90:VAL:H | 2.02 | 0.62 |
| 11:A:848:G:N3 | 11:A:933:A:H1' | 2.14 | 0.62 |
| 24:Q:109:VAL:HG12 | 24:Q:110:THR:N | 2.15 | 0.62 |
| 11:A:2199:A:H3' | 11:A:2200:C:H6 | 1.65 | 0.62 |
| 11:A:1064:C:H2' | 11:A:1065:U:H5'' | 1.81 | 0.62 |
| 15:E:57:LYS:HE3 | 15:E:57:LYS:CA | 2.19 | 0.62 |
| 14:D:70:TRP:O | 14:D:73:VAL:HG23 | 1.99 | 0.62 |
| 11:A:943:U:OP2 | 23:P:38:GLN:CD | 2.38 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|------------------|-------------|----------|
| 3:2:68:ARG:HG3 | 3:2:72:ALA:HB2 | 1.81 | 0.62 |
| 11:A:582:G:H2' | 11:A:583:G:C8 | 2.35 | 0.62 |
| 2:1:7:ILE:HG22 | 2:1:8:SER:N | 2.14 | 0.62 |
| 11:A:1991:U:H2' | 11:A:1992:G:H5'' | 1.82 | 0.62 |
| 24:Q:68:ILE:HG23 | 24:Q:103:MET:HA | 1.81 | 0.62 |
| 27:T:28:VAL:O | 27:T:29:ARG:CG | 2.48 | 0.62 |
| 31:X:12:VAL:CG2 | 31:X:13:LEU:H | 1.90 | 0.62 |
| 32:Y:81:LYS:HD3 | 32:Y:97:ARG:O | 2.00 | 0.62 |
| 29:V:19:LYS:HZ3 | 29:V:20:LEU:H | 1.46 | 0.62 |
| 11:A:693:C:O2' | 11:A:694:U:H5' | 2.00 | 0.62 |
| 23:P:16:ARG:HB2 | 23:P:16:ARG:HH11 | 1.65 | 0.62 |
| 11:A:2811:G:OP1 | 15:E:60:ASN:HB2 | 1.99 | 0.62 |
| 11:A:1058:G:C3' | 11:A:1059:G:C5' | 2.78 | 0.62 |
| 11:A:1419:A:O2' | 11:A:1420:U:H5'' | 1.99 | 0.62 |
| 11:A:1335:U:H2' | 11:A:1336:A:H8 | 1.65 | 0.62 |
| 31:X:40:LYS:HG2 | 31:X:51:VAL:CB | 2.12 | 0.62 |
| 31:X:40:LYS:O | 31:X:40:LYS:HD2 | 2.00 | 0.62 |
| 16:F:139:PHE:HB2 | 16:F:166:ALA:HB1 | 1.82 | 0.62 |
| 11:A:90:U:O4' | 11:A:92:A:H8 | 1.83 | 0.62 |
| 15:E:37:ARG:HA | 15:E:42:ASP:OD2 | 1.99 | 0.62 |
| 22:O:35:VAL:HG21 | 22:O:103:ALA:CB | 2.28 | 0.62 |
| 9:8:16:ILE:HD12 | 9:8:57:ARG:HG2 | 1.80 | 0.62 |
| 11:A:1771:C:C1' | 11:A:1786:A:H8 | 2.13 | 0.62 |
| 24:Q:109:VAL:HG13 | 24:Q:113:GLN:OE1 | 2.00 | 0.62 |
| 16:F:206:ILE:HG22 | 16:F:207:GLY:H | 1.64 | 0.61 |
| 6:5:40:LYS:HG2 | 6:5:46:CYS:HB2 | 1.81 | 0.61 |
| 15:E:101:ARG:HH11 | 15:E:169:ASN:ND2 | 1.98 | 0.61 |
| 15:E:44:TYR:O | 15:E:45:THR:HB | 1.99 | 0.61 |
| 3:2:69:ARG:HB2 | 3:2:70:GLN:HE22 | 1.64 | 0.61 |
| 28:U:14:HIS:CD2 | 28:U:36:ARG:HH22 | 2.18 | 0.61 |
| 25:R:21:TYR:HB3 | 25:R:47:PHE:CD2 | 2.35 | 0.61 |
| 10:9:30:PRO:HB2 | 11:A:2527:C:H5' | 1.81 | 0.61 |
| 15:E:120:TRP:CE3 | 15:E:155:LYS:HE3 | 2.34 | 0.61 |
| 11:A:2309:A:H2' | 11:A:2310:A:C5' | 2.29 | 0.61 |
| 30:W:5:ALA:O | 30:W:6:ILE:HB | 2.00 | 0.61 |
| 11:A:1747(A):G:O2' | 11:A:1748:G:H5'' | 2.00 | 0.61 |
| 11:A:2009:G:O2' | 11:A:2010:G:H5' | 2.00 | 0.61 |
| 28:U:55:ARG:HA | 28:U:58:ARG:HD2 | 1.82 | 0.61 |
| 11:A:1782:C:H1' | 11:A:2609:U:H5'' | 1.82 | 0.61 |
| 11:A:2422:A:H4' | 11:A:2423:U:OP1 | 1.99 | 0.61 |
| 11:A:1614:A:N1 | 30:W:91:GLY:HA2 | 2.15 | 0.61 |
| 28:U:47:TYR:HA | 28:U:50:ARG:NH1 | 2.15 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 14:D:30:GLU:H | 14:D:35:LYS:NZ | 1.98 | 0.61 |
| 16:F:148:LEU:HD23 | 16:F:191:ARG:NH1 | 2.15 | 0.61 |
| 24:Q:56:ARG:CG | 24:Q:56:ARG:NH1 | 2.62 | 0.61 |
| 22:O:60:ALA:HA | 22:O:87:ILE:HG12 | 1.80 | 0.61 |
| 1:O:40:GLN:NE2 | 1:O:44:ARG:H | 1.98 | 0.61 |
| 10:9:10:ILE:HG23 | 11:A:2477:C:N4 | 2.14 | 0.61 |
| 11:A:2153:G:O2' | 11:A:2154:G:H5' | 2.01 | 0.61 |
| 11:A:1600:C:O2' | 11:A:1601:G:H5' | 1.99 | 0.61 |
| 13:C:40:THR:HG22 | 13:C:177:LYS:HD2 | 1.81 | 0.61 |
| 32:Y:74:PRO:O | 32:Y:75:ILE:HB | 1.99 | 0.61 |
| 11:A:996:A:O3' | 28:U:92:ARG:HG2 | 2.00 | 0.61 |
| 11:A:1061:U:H4' | 11:A:1070:A:O4' | 2.00 | 0.61 |
| 16:F:177:ALA:HB1 | 16:F:178:PRO:HD2 | 1.82 | 0.61 |
| 11:A:1718:G:H2' | 11:A:1719:G:C8 | 2.35 | 0.61 |
| 14:D:99:ASP:C | 14:D:99:ASP:OD1 | 2.37 | 0.61 |
| 26:S:106:ARG:HH12 | 26:S:108:GLY:N | 1.98 | 0.61 |
| 11:A:729:G:OP2 | 14:D:13:ARG:NH1 | 2.33 | 0.61 |
| 27:T:93:ARG:NH2 | 27:T:95:ARG:HD3 | 2.15 | 0.61 |
| 11:A:896:A:N1 | 33:Z:113:ALA:O | 2.34 | 0.61 |
| 12:B:68:C:H2' | 12:B:69:G:O4' | 2.01 | 0.61 |
| 11:A:1720:U:C3' | 11:A:1721:G:H5'' | 2.30 | 0.61 |
| 11:A:1332:G:N2 | 11:A:1609:A:O2' | 2.33 | 0.61 |
| 11:A:2512:C:H2' | 11:A:2513:G:O4' | 2.00 | 0.61 |
| 14:D:94:LEU:HB2 | 14:D:104:TYR:HE1 | 1.65 | 0.61 |
| 27:T:57:PHE:HE1 | 27:T:79:HIS:HD1 | 1.47 | 0.61 |
| 16:F:22:ALA:HB1 | 16:F:26:ALA:HB2 | 1.81 | 0.61 |
| 26:S:54:LEU:HD13 | 26:S:57:LYS:HA | 1.83 | 0.61 |
| 23:P:40:SER:O | 23:P:41:ARG:HD3 | 2.00 | 0.61 |
| 11:A:2533:A:H2' | 11:A:2534:A:O4' | 2.00 | 0.61 |
| 11:A:1598:C:H5' | 31:X:36:LYS:CG | 2.30 | 0.61 |
| 13:C:29:VAL:HG11 | 13:C:214:VAL:HG12 | 1.81 | 0.61 |
| 11:A:1592:C:H2' | 11:A:1593:G:C8 | 2.35 | 0.61 |
| 11:A:855:G:H1 | 11:A:922:U:H3 | 1.48 | 0.61 |
| 11:A:2537:U:H2' | 11:A:2538:C:C6 | 2.36 | 0.61 |
| 16:F:167:ALA:HB1 | 16:F:173:VAL:CG1 | 2.20 | 0.61 |
| 31:X:12:VAL:HG12 | 31:X:27:THR:O | 2.01 | 0.61 |
| 11:A:141:A:H1' | 11:A:1408:C:O2' | 2.00 | 0.61 |
| 11:A:674:G:H1' | 16:F:74:ARG:HD2 | 1.81 | 0.61 |
| 11:A:136:G:H2' | 11:A:137:C:H6 | 1.65 | 0.61 |
| 31:X:63:LYS:HG3 | 31:X:72:LYS:HG2 | 1.82 | 0.61 |
| 11:A:59:U:H3 | 11:A:68:G:H1 | 1.48 | 0.61 |
| 21:N:9:VAL:HG21 | 21:N:48:MET:HB2 | 1.80 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 14:D:102:LYS:O | 14:D:103:ARG:HG2 | 2.01 | 0.61 |
| 21:N:32:THR:HG22 | 21:N:37:LYS:HD3 | 1.82 | 0.61 |
| 25:R:4:LEU:HG | 25:R:4:LEU:O | 2.00 | 0.61 |
| 11:A:1385:G:H4' | 11:A:1386:C:OP1 | 2.00 | 0.61 |
| 11:A:491:G:H2' | 11:A:492:A:C8 | 2.36 | 0.61 |
| 5:4:5:ILE:HG12 | 5:4:5:ILE:O | 1.99 | 0.61 |
| 11:A:2591:C:H2' | 11:A:2592:G:C8 | 2.35 | 0.61 |
| 27:T:30:VAL:CG2 | 27:T:83:ILE:HG12 | 2.31 | 0.61 |
| 14:D:62:TYR:CE1 | 14:D:64:ILE:HA | 2.36 | 0.61 |
| 16:F:187:VAL:HG12 | 23:P:7:ARG:HA | 1.83 | 0.61 |
| 26:S:93:LYS:O | 26:S:95:HIS:N | 2.34 | 0.61 |
| 27:T:35:LYS:NZ | 27:T:41:ARG:HD2 | 2.16 | 0.61 |
| 27:T:82:LEU:H | 27:T:82:LEU:HD12 | 1.66 | 0.61 |
| 24:Q:109:VAL:CG1 | 24:Q:113:GLN:HB2 | 2.30 | 0.61 |
| 11:A:2019:A:H2' | 11:A:2020:A:O5' | 2.00 | 0.61 |
| 11:A:2023:G:H5' | 11:A:2617:C:H4' | 1.82 | 0.61 |
| 21:N:43:THR:HB | 21:N:46:VAL:HG11 | 1.82 | 0.61 |
| 9:8:6:THR:CG2 | 9:8:63:PRO:HD3 | 2.31 | 0.61 |
| 11:A:654(C):G:C2' | 11:A:654(D):G:H5' | 2.31 | 0.61 |
| 11:A:611:C:H2' | 11:A:612:C:C6 | 2.36 | 0.61 |
| 23:P:126:VAL:HG22 | 23:P:145:PRO:HG2 | 1.82 | 0.61 |
| 33:Z:10:ARG:HB3 | 33:Z:36:LYS:HG3 | 1.82 | 0.61 |
| 33:Z:163:LEU:HD12 | 33:Z:165:VAL:HG21 | 1.83 | 0.61 |
| 11:A:496:G:H1' | 30:W:61:ASN:HD22 | 1.66 | 0.61 |
| 30:W:59:VAL:O | 30:W:59:VAL:HG12 | 2.01 | 0.61 |
| 13:C:50:ASP:OD2 | 13:C:53:ARG:HG3 | 2.01 | 0.61 |
| 4:3:39:ASP:OD1 | 4:3:44:ARG:HD2 | 2.01 | 0.61 |
| 11:A:528:A:H2 | 11:A:2043:C:C5' | 2.13 | 0.61 |
| 11:A:1013:C:O2' | 11:A:1014:U:H5' | 2.00 | 0.61 |
| 11:A:1503:U:H2' | 11:A:1504:C:C6 | 2.35 | 0.60 |
| 6:5:4:HIS:CB | 6:5:5:PRO:CD | 2.72 | 0.60 |
| 11:A:26:G:OP1 | 30:W:80:PRO:HB3 | 2.01 | 0.60 |
| 11:A:671:C:H2' | 11:A:672:C:C6 | 2.36 | 0.60 |
| 23:P:23:PRO:CB | 23:P:33:ARG:HG3 | 2.25 | 0.60 |
| 11:A:658:C:H2' | 11:A:659:C:H6 | 1.64 | 0.60 |
| 11:A:1109:C:H2' | 11:A:1110:G:O4' | 2.01 | 0.60 |
| 28:U:88:ILE:HD12 | 28:U:109:LEU:HD22 | 1.83 | 0.60 |
| 15:E:61:ARG:CB | 15:E:62:PRO:HD3 | 2.30 | 0.60 |
| 11:A:2784:C:H1' | 15:E:37:ARG:NH1 | 2.16 | 0.60 |
| 11:A:1077:A:OP2 | 33:Z:111:VAL:HG11 | 2.01 | 0.60 |
| 29:V:39:LEU:HA | 29:V:47:VAL:HG13 | 1.82 | 0.60 |
| 11:A:361:G:N2 | 11:A:362:U:H1' | 2.16 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:495:G:H21 | 30:W:61:ASN:HD21 | 1.47 | 0.60 |
| 29:V:2:PHE:CD1 | 29:V:2:PHE:C | 2.74 | 0.60 |
| 12:B:112:U:H2' | 12:B:113:G:H8 | 1.66 | 0.60 |
| 24:Q:42:ILE:HD13 | 24:Q:97:VAL:CG2 | 2.31 | 0.60 |
| 19:J:118:UNK:O | 19:J:119:UNK:C | 2.48 | 0.60 |
| 26:S:54:LEU:HD13 | 26:S:58:LEU:N | 2.15 | 0.60 |
| 11:A:271(K):U:H3' | 11:A:271(L):U:C5' | 2.30 | 0.60 |
| 23:P:57:THR:OG1 | 23:P:59:LEU:HB3 | 2.02 | 0.60 |
| 6:5:48:GLU:O | 6:5:49:CYS:CB | 2.48 | 0.60 |
| 21:N:32:THR:C | 21:N:34:LEU:H | 2.05 | 0.60 |
| 16:F:164:ARG:NH1 | 16:F:164:ARG:HG2 | 2.15 | 0.60 |
| 11:A:2854:G:H2' | 11:A:2855:C:C6 | 2.36 | 0.60 |
| 14:D:130:ALA:C | 14:D:131:LEU:HD12 | 2.21 | 0.60 |
| 11:A:197:A:H5' | 11:A:197:A:H8 | 1.66 | 0.60 |
| 11:A:1335:U:H2' | 11:A:1336:A:C8 | 2.36 | 0.60 |
| 33:Z:162:GLU:HG3 | 33:Z:162:GLU:O | 1.99 | 0.60 |
| 11:A:2733:A:O2' | 11:A:2734:A:H5' | 2.01 | 0.60 |
| 18:H:83:TYR:CB | 18:H:135:GLY:H | 2.13 | 0.60 |
| 21:N:9:VAL:CG1 | 21:N:10:GLU:H | 2.01 | 0.60 |
| 21:N:133:GLN:CG | 21:N:135:PRO:HD3 | 2.30 | 0.60 |
| 11:A:2101:G:H2' | 11:A:2102:U:C5' | 2.24 | 0.60 |
| 23:P:34:GLY:O | 23:P:35:HIS:HB2 | 2.00 | 0.60 |
| 11:A:650:C:C3' | 11:A:651:G:H5'' | 2.29 | 0.60 |
| 11:A:2208:A:H1' | 11:A:2219:G:C4 | 2.36 | 0.60 |
| 11:A:1332:G:N2 | 11:A:1610:A:C8 | 2.69 | 0.60 |
| 10:9:1:MET:CE | 10:9:31:LYS:HB3 | 2.31 | 0.60 |
| 15:E:52:LEU:HD23 | 15:E:75:VAL:HB | 1.83 | 0.60 |
| 11:A:1448:G:N3 | 11:A:1528(A):A:H2 | 1.99 | 0.60 |
| 7:6:53:LYS:CD | 7:6:54:ILE:H | 2.14 | 0.60 |
| 11:A:654(U):A:H2' | 11:A:654(V):A:C8 | 2.36 | 0.60 |
| 23:P:58:THR:C | 23:P:61:ARG:HE | 2.05 | 0.60 |
| 33:Z:18:LEU:N | 33:Z:18:LEU:HD12 | 2.14 | 0.60 |
| 29:V:40:LEU:HD22 | 29:V:46:VAL:HA | 1.84 | 0.60 |
| 29:V:49:THR:HB | 29:V:50:PRO:HD2 | 1.83 | 0.60 |
| 32:Y:44:ILE:N | 32:Y:44:ILE:HD12 | 2.16 | 0.60 |
| 21:N:72:TYR:HD2 | 21:N:90:MET:HG3 | 1.65 | 0.60 |
| 28:U:66:ASN:HD21 | 28:U:76:TYR:H | 1.48 | 0.60 |
| 1:0:16:SER:HB2 | 11:A:2262:U:C5 | 2.36 | 0.60 |
| 23:P:85:LEU:HA | 23:P:88:LEU:CB | 2.31 | 0.60 |
| 11:A:1363:C:H2' | 11:A:1364:G:H8 | 1.66 | 0.60 |
| 14:D:224:ALA:O | 14:D:226:MET:N | 2.34 | 0.60 |
| 27:T:32:TYR:N | 27:T:32:TYR:CD1 | 2.69 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 16:F:185:ASP:HA | 16:F:188:ARG:HD3 | 1.83 | 0.60 |
| 32:Y:84:ARG:CZ | 32:Y:97:ARG:HB3 | 2.32 | 0.60 |
| 7:6:5:VAL:HB | 11:A:2284:C:OP2 | 2.01 | 0.60 |
| 11:A:271(R):G:O2' | 11:A:271(S):G:H5' | 2.01 | 0.60 |
| 11:A:2061:G:H5'' | 11:A:2503:A:C2 | 2.37 | 0.60 |
| 29:V:55:ALA:O | 29:V:56:SER:HB3 | 2.01 | 0.60 |
| 11:A:970:C:H2' | 11:A:971:C:C6 | 2.36 | 0.60 |
| 33:Z:34:ASN:O | 33:Z:35:ARG:HD2 | 2.01 | 0.60 |
| 9:8:39:LYS:HG3 | 9:8:43:GLN:NE2 | 2.17 | 0.60 |
| 14:D:142:VAL:HG21 | 14:D:191:ALA:HB1 | 1.84 | 0.60 |
| 11:A:898:C:H2' | 11:A:899:A:O4' | 2.02 | 0.60 |
| 13:C:96:GLY:HA3 | 13:C:99:ILE:HD11 | 1.83 | 0.60 |
| 17:G:87:PRO:O | 17:G:88:ILE:HG12 | 2.01 | 0.60 |
| 17:G:57:ALA:HA | 17:G:90:LEU:HD21 | 1.83 | 0.60 |
| 11:A:1499:C:C5' | 11:A:1499:C:H6 | 2.11 | 0.60 |
| 18:H:105:LEU:N | 18:H:105:LEU:HD23 | 2.14 | 0.60 |
| 11:A:2523:G:C2' | 11:A:2524:G:H5'' | 2.32 | 0.60 |
| 26:S:35:ILE:H | 26:S:53:SER:HB2 | 1.67 | 0.60 |
| 24:Q:19:GLY:O | 24:Q:98:LYS:HD3 | 2.02 | 0.60 |
| 14:D:223:GLY:C | 14:D:224:ALA:O | 2.39 | 0.60 |
| 21:N:96:GLU:H | 21:N:96:GLU:CD | 2.05 | 0.60 |
| 19:J:97:UNK:HA | 19:J:131:UNK:O | 2.02 | 0.60 |
| 11:A:2248:C:H2' | 11:A:2249:U:H5' | 1.83 | 0.60 |
| 11:A:1921:G:O2' | 11:A:1922:G:H5' | 2.02 | 0.60 |
| 27:T:23:ARG:HG2 | 27:T:120:ARG:HH12 | 1.65 | 0.60 |
| 33:Z:58:VAL:HA | 33:Z:67:LEU:O | 2.02 | 0.60 |
| 9:8:15:LYS:HB2 | 23:P:65:ARG:NH2 | 2.17 | 0.60 |
| 11:A:1038:C:C2' | 11:A:1039:G:H5'' | 2.31 | 0.60 |
| 31:X:8:ILE:H | 31:X:8:ILE:HD12 | 1.66 | 0.60 |
| 11:A:2681:C:H5 | 11:A:2725:A:H62 | 1.49 | 0.60 |
| 13:C:116:THR:HG22 | 13:C:147:PHE:HA | 1.84 | 0.60 |
| 15:E:33:VAL:HG13 | 15:E:33:VAL:O | 2.02 | 0.60 |
| 11:A:2312:U:H2' | 11:A:2313:C:H5'' | 1.84 | 0.60 |
| 1:0:70:GLN:NE2 | 1:0:80:HIS:NE2 | 2.50 | 0.60 |
| 11:A:848:G:N9 | 11:A:933:A:H8 | 2.00 | 0.60 |
| 28:U:48:ALA:O | 28:U:52:ARG:HG3 | 2.02 | 0.60 |
| 27:T:65:LYS:HG3 | 27:T:66:VAL:N | 2.17 | 0.60 |
| 27:T:29:ARG:CB | 27:T:85:LYS:HA | 2.32 | 0.60 |
| 17:G:54:GLU:OE1 | 17:G:55:LYS:N | 2.35 | 0.60 |
| 17:G:77:ILE:HB | 17:G:80:PHE:O | 2.02 | 0.60 |
| 7:6:15:GLU:OE2 | 7:6:18:ARG:NH2 | 2.35 | 0.60 |
| 11:A:2779:U:H1' | 11:A:2781:A:C6 | 2.37 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 21:N:2:LYS:HZ1 | 29:V:13:ARG:H | 1.50 | 0.60 |
| 11:A:2886:G:H2' | 11:A:2887:U:C6 | 2.37 | 0.60 |
| 2:1:8:SER:OG | 2:1:10:LYS:HG3 | 2.01 | 0.60 |
| 11:A:2099:U:H2' | 11:A:2100:G:H8 | 1.62 | 0.60 |
| 32:Y:27:VAL:HG12 | 32:Y:29:GLU:H | 1.67 | 0.60 |
| 16:F:100:THR:O | 16:F:100:THR:HG22 | 2.00 | 0.60 |
| 16:F:101:LEU:HD12 | 16:F:102:PRO:HD2 | 1.83 | 0.60 |
| 17:G:114:ILE:C | 17:G:116:ASP:H | 2.04 | 0.60 |
| 4:3:29:ARG:HH22 | 11:A:1183:G:H4' | 1.67 | 0.60 |
| 11:A:2572:A:N7 | 15:E:145:LYS:HB2 | 2.16 | 0.60 |
| 11:A:2162:G:O2' | 11:A:2163:C:H5' | 2.01 | 0.60 |
| 27:T:28:VAL:HG22 | 27:T:46:GLU:HA | 1.84 | 0.59 |
| 17:G:77:ILE:HG22 | 17:G:79:ASN:O | 2.02 | 0.59 |
| 29:V:99:ILE:O | 29:V:99:ILE:HG12 | 2.01 | 0.59 |
| 14:D:43:ARG:HB2 | 14:D:54:ARG:CB | 2.32 | 0.59 |
| 27:T:50:ILE:HD13 | 27:T:64:ARG:HB3 | 1.84 | 0.59 |
| 25:R:2:ARG:NH1 | 25:R:2:ARG:HG3 | 2.17 | 0.59 |
| 24:Q:60:ARG:HB3 | 24:Q:60:ARG:HH11 | 1.63 | 0.59 |
| 11:A:325:G:H2' | 11:A:326:G:C8 | 2.35 | 0.59 |
| 11:A:774:A:H2 | 11:A:787:U:O2' | 1.84 | 0.59 |
| 11:A:1642:G:O2' | 11:A:1643:G:H5' | 2.02 | 0.59 |
| 11:A:118:A:N3 | 11:A:178:G:H1' | 2.17 | 0.59 |
| 21:N:12:ARG:HB3 | 21:N:50:ASP:OD1 | 2.02 | 0.59 |
| 16:F:185:ASP:HA | 16:F:188:ARG:CD | 2.31 | 0.59 |
| 11:A:2312:U:H2' | 11:A:2313:C:C5' | 2.32 | 0.59 |
| 32:Y:81:LYS:O | 32:Y:82:PRO:O | 2.20 | 0.59 |
| 11:A:1188:U:H4' | 29:V:79:VAL:HG22 | 1.84 | 0.59 |
| 6:5:56:LYS:O | 6:5:57:VAL:C | 2.39 | 0.59 |
| 25:R:2:ARG:HD2 | 25:R:2:ARG:O | 2.00 | 0.59 |
| 11:A:145:G:C2' | 11:A:146:G:H5'' | 2.30 | 0.59 |
| 6:5:11:THR:OG1 | 11:A:1264:G:H5' | 2.01 | 0.59 |
| 2:1:62:VAL:HG22 | 2:1:63:ALA:O | 2.02 | 0.59 |
| 13:C:128:GLY:HA2 | 13:C:137:LEU:HD23 | 1.84 | 0.59 |
| 11:A:32:C:O2' | 11:A:33:U:H5' | 2.02 | 0.59 |
| 7:6:15:GLU:OE1 | 7:6:18:ARG:CG | 2.50 | 0.59 |
| 32:Y:77:PRO:O | 32:Y:99:CYS:SG | 2.61 | 0.59 |
| 32:Y:81:LYS:HD3 | 32:Y:97:ARG:HG3 | 1.85 | 0.59 |
| 23:P:95:VAL:HG23 | 23:P:125:VAL:HA | 1.83 | 0.59 |
| 11:A:1019:U:H3 | 11:A:1142(A):A:N6 | 1.94 | 0.59 |
| 26:S:30:ARG:NH2 | 26:S:62:LYS:HD3 | 2.11 | 0.59 |
| 11:A:512:G:HO2' | 11:A:513:A:H8 | 1.49 | 0.59 |
| 18:H:54:ARG:HG2 | 18:H:54:ARG:NH1 | 2.17 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 11:A:848:G:H5' | 11:A:848:G:H8 | 1.67 | 0.59 |
| 11:A:2712:U:O2' | 11:A:2713:A:H5' | 2.01 | 0.59 |
| 11:A:2555:U:H2' | 11:A:2556:C:H5' | 1.83 | 0.59 |
| 14:D:24:ILE:HG23 | 14:D:25:THR:H | 1.67 | 0.59 |
| 21:N:45:ASN:H | 21:N:45:ASN:HD22 | 1.50 | 0.59 |
| 11:A:2101:G:C3' | 11:A:2102:U:H5'' | 2.32 | 0.59 |
| 11:A:271(L):U:C5' | 11:A:271(M):G:H5' | 2.21 | 0.59 |
| 7:6:13:CYS:O | 7:6:21:TYR:HA | 2.02 | 0.59 |
| 9:8:32:LEU:HG | 9:8:36:LYS:HZ3 | 1.65 | 0.59 |
| 14:D:183:ARG:NH1 | 14:D:183:ARG:HG2 | 2.17 | 0.59 |
| 11:A:1480:G:H2' | 11:A:1481:U:C5' | 2.30 | 0.59 |
| 11:A:2115:G:N3 | 11:A:2117:A:N7 | 2.50 | 0.59 |
| 11:A:1192:G:O2' | 11:A:1193:G:H5' | 2.02 | 0.59 |
| 13:C:161:ILE:HG21 | 13:C:174:PRO:HG2 | 1.83 | 0.59 |
| 18:H:84:SER:O | 18:H:85:LYS:HB3 | 2.02 | 0.59 |
| 11:A:2148:G:O2' | 11:A:2149:G:H5' | 2.02 | 0.59 |
| 17:G:37:VAL:HG21 | 17:G:103:LEU:HD11 | 1.84 | 0.59 |
| 28:U:92:ARG:HH21 | 29:V:10:LYS:HB3 | 1.65 | 0.59 |
| 11:A:1207:C:H2' | 11:A:1208:C:C6 | 2.33 | 0.59 |
| 11:A:330:A:HO2' | 11:A:331:A:H8 | 1.49 | 0.59 |
| 11:A:34:C:H41 | 11:A:447:A:N6 | 2.00 | 0.59 |
| 30:W:82:LEU:HD12 | 30:W:82:LEU:N | 2.14 | 0.59 |
| 21:N:18:ALA:HB3 | 21:N:56:ASN:O | 2.02 | 0.59 |
| 11:A:1450(A):C:H2' | 11:A:1451:C:C5 | 2.38 | 0.59 |
| 25:R:72:ASP:HB3 | 25:R:75:LEU:HB3 | 1.84 | 0.59 |
| 15:E:44:TYR:O | 15:E:45:THR:CB | 2.51 | 0.59 |
| 11:A:2833:G:H3' | 11:A:2834:G:H5' | 1.82 | 0.59 |
| 11:A:2632:A:O2' | 15:E:61:ARG:NH2 | 2.35 | 0.59 |
| 11:A:2631:G:N2 | 15:E:61:ARG:NH1 | 2.50 | 0.59 |
| 11:A:1058:G:C3' | 11:A:1059:G:H5'' | 2.32 | 0.59 |
| 15:E:117:MET:CE | 15:E:136:ARG:HA | 2.32 | 0.59 |
| 30:W:11:ARG:HG2 | 30:W:11:ARG:NH1 | 2.15 | 0.59 |
| 11:A:139(A):G:N2 | 31:X:44:GLU:OE1 | 2.30 | 0.59 |
| 11:A:2358:G:H22 | 23:P:55:ARG:HH21 | 1.49 | 0.59 |
| 11:A:852:G:O2' | 11:A:853:G:H5' | 2.02 | 0.59 |
| 11:A:925:C:H2' | 11:A:926:A:C5' | 2.24 | 0.59 |
| 23:P:97:PRO:HD3 | 23:P:126:VAL:O | 2.02 | 0.59 |
| 9:8:33:ASN:HD22 | 11:A:2419:U:H5'' | 1.66 | 0.59 |
| 15:E:59:VAL:CG2 | 15:E:63:LEU:HA | 2.33 | 0.59 |
| 17:G:32:PRO:HB2 | 17:G:172:LEU:HD12 | 1.84 | 0.59 |
| 3:2:31:GLU:HB3 | 3:2:53:LEU:HD11 | 1.84 | 0.59 |
| 33:Z:163:LEU:HD12 | 33:Z:165:VAL:CG2 | 2.32 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 23:P:65:ARG:CB | 23:P:68:GLN:HE22 | 2.16 | 0.59 |
| 27:T:58:ASN:HD22 | 27:T:58:ASN:N | 1.96 | 0.59 |
| 13:C:10:LEU:HD11 | 13:C:34:THR:OG1 | 2.02 | 0.59 |
| 23:P:85:LEU:HA | 23:P:88:LEU:HB2 | 1.84 | 0.59 |
| 19:J:120:UNK:O | 19:J:121:UNK:CB | 2.50 | 0.59 |
| 11:A:2840:C:H2' | 11:A:2841:C:C6 | 2.37 | 0.59 |
| 11:A:1902:C:H1' | 14:D:244:ARG:HG3 | 1.84 | 0.59 |
| 11:A:1887:C:C3' | 11:A:1888:G:H5'' | 2.33 | 0.59 |
| 7:6:15:GLU:OE2 | 7:6:41:PRO:HB2 | 2.03 | 0.59 |
| 32:Y:13:VAL:HG11 | 32:Y:28:LYS:HD3 | 1.85 | 0.59 |
| 11:A:272(I):U:H2' | 11:A:272(J):C:H6 | 1.66 | 0.59 |
| 23:P:24:GLY:HA3 | 23:P:33:ARG:HH12 | 1.68 | 0.59 |
| 11:A:832:G:OP1 | 23:P:40:SER:HB3 | 2.01 | 0.59 |
| 27:T:3:ARG:HB2 | 27:T:6:LEU:HB2 | 1.85 | 0.59 |
| 11:A:2464:C:O2' | 11:A:2465:C:H6 | 1.84 | 0.59 |
| 11:A:1060:U:H1' | 11:A:1061:U:OP2 | 2.02 | 0.59 |
| 2:1:82:LEU:HD11 | 2:1:90:ILE:CD1 | 2.33 | 0.59 |
| 11:A:1809:A:H2' | 11:A:1810:A:C8 | 2.38 | 0.59 |
| 14:D:65:ILE:H | 14:D:65:ILE:HD13 | 1.67 | 0.59 |
| 12:B:56:G:H4' | 12:B:57:A:O5' | 2.03 | 0.59 |
| 33:Z:98:MET:O | 33:Z:125:LEU:HA | 2.03 | 0.59 |
| 26:S:89:ARG:HG3 | 26:S:92:TYR:CA | 2.33 | 0.59 |
| 25:R:84:ALA:HB3 | 25:R:85:PRO:HD3 | 1.85 | 0.59 |
| 28:U:70:ARG:HA | 28:U:74:LEU:O | 2.03 | 0.59 |
| 11:A:1510:G:O2' | 11:A:1511:C:H5' | 2.03 | 0.59 |
| 17:G:93:THR:O | 17:G:94:LEU:HD23 | 2.02 | 0.59 |
| 11:A:1208:C:H2' | 11:A:1208:C:O2 | 2.03 | 0.59 |
| 27:T:96:ARG:HB2 | 27:T:96:ARG:CZ | 2.33 | 0.59 |
| 11:A:848:G:O6 | 11:A:928:G:H2' | 2.02 | 0.59 |
| 11:A:528:A:C2 | 11:A:2042:A:H2' | 2.38 | 0.59 |
| 29:V:12:TYR:N | 29:V:12:TYR:CD1 | 2.70 | 0.59 |
| 15:E:9:VAL:HG12 | 15:E:25:VAL:O | 2.02 | 0.59 |
| 16:F:21:ALA:HB3 | 16:F:23:ASP:OD1 | 2.02 | 0.59 |
| 23:P:92:GLU:HG2 | 23:P:121:LYS:NZ | 2.18 | 0.59 |
| 11:A:1095:A:H2' | 11:A:1096:A:H8 | 1.67 | 0.59 |
| 11:A:469:G:C2' | 11:A:470:A:H5'' | 2.32 | 0.59 |
| 16:F:114:VAL:HG21 | 16:F:202:PHE:CE1 | 2.38 | 0.59 |
| 1:0:36:ILE:HD11 | 11:A:2355:C:H4' | 1.84 | 0.59 |
| 27:T:28:VAL:HG13 | 27:T:46:GLU:CA | 2.32 | 0.58 |
| 12:B:7:G:C2' | 12:B:8:U:H5'' | 2.33 | 0.58 |
| 11:A:2753:A:O2' | 11:A:2754:U:H5' | 2.02 | 0.58 |
| 28:U:65:ILE:HG12 | 28:U:96:ALA:HB1 | 1.85 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 28:U:92:ARG:HH21 | 29:V:10:LYS:CB | 2.16 | 0.58 |
| 11:A:1071:G:H2' | 11:A:1072:C:O4' | 2.03 | 0.58 |
| 3:2:51:ARG:HB2 | 3:2:55:ARG:NH1 | 2.17 | 0.58 |
| 25:R:94:TYR:CD1 | 25:R:94:TYR:N | 2.69 | 0.58 |
| 11:A:419:C:H2' | 11:A:420:C:C6 | 2.38 | 0.58 |
| 28:U:44:ASN:ND2 | 29:V:75:PHE:HB3 | 2.18 | 0.58 |
| 11:A:953:A:O2' | 11:A:954:G:H5' | 2.02 | 0.58 |
| 11:A:636:G:OP1 | 23:P:132:LYS:HE2 | 2.03 | 0.58 |
| 11:A:297:C:H2' | 11:A:298:G:O4' | 2.03 | 0.58 |
| 11:A:322:A:OP2 | 16:F:169:ASN:HB2 | 2.03 | 0.58 |
| 11:A:1517:G:H2' | 11:A:1518:U:O4' | 2.02 | 0.58 |
| 11:A:1311:G:N2 | 11:A:1603:A:H62 | 2.01 | 0.58 |
| 21:N:58:ASP:O | 21:N:60:ILE:HG13 | 2.03 | 0.58 |
| 11:A:2524:G:C8 | 11:A:2524:G:H5' | 2.32 | 0.58 |
| 2:1:86:SER:OG | 2:1:89:GLU:HB2 | 2.02 | 0.58 |
| 33:Z:113:ALA:HB1 | 33:Z:146:ILE:HD13 | 1.84 | 0.58 |
| 11:A:2206:G:H21 | 11:A:2207:G:H4' | 1.67 | 0.58 |
| 24:Q:5:ARG:HB2 | 24:Q:5:ARG:CZ | 2.32 | 0.58 |
| 11:A:189:G:H2' | 11:A:205:G:N2 | 2.17 | 0.58 |
| 13:C:118:ASP:C | 13:C:120:MET:H | 2.04 | 0.58 |
| 27:T:78:LEU:C | 27:T:79:HIS:HD2 | 2.07 | 0.58 |
| 9:8:6:THR:HB | 9:8:11:LYS:HZ1 | 1.67 | 0.58 |
| 11:A:2187:G:H2' | 11:A:2188:C:C5' | 2.23 | 0.58 |
| 11:A:2092:U:H4' | 11:A:2093:G:C5' | 2.23 | 0.58 |
| 7:6:53:LYS:HD3 | 7:6:53:LYS:H | 1.69 | 0.58 |
| 11:A:654(E):G:H22 | 11:A:654(Q):C:C1' | 2.07 | 0.58 |
| 23:P:101:VAL:HG12 | 23:P:106:LEU:HB3 | 1.85 | 0.58 |
| 11:A:28:A:H61 | 11:A:512:G:H1' | 1.65 | 0.58 |
| 5:4:9:LEU:HD13 | 5:4:10:VAL:H | 1.67 | 0.58 |
| 6:5:49:CYS:O | 6:5:56:LYS:HE2 | 2.02 | 0.58 |
| 33:Z:166:SER:N | 33:Z:167:PRO:HA | 2.17 | 0.58 |
| 16:F:157:VAL:CG2 | 16:F:194:MET:HG2 | 2.33 | 0.58 |
| 11:A:956:G:OP2 | 24:Q:14:ARG:NH2 | 2.36 | 0.58 |
| 11:A:1720:U:H2' | 11:A:1721:G:C4' | 2.32 | 0.58 |
| 11:A:548:A:C2' | 11:A:549:G:H5' | 2.34 | 0.58 |
| 28:U:108:GLU:CG | 29:V:44:LYS:HD3 | 2.33 | 0.58 |
| 17:G:111:LEU:N | 17:G:112:PRO:HD2 | 2.17 | 0.58 |
| 29:V:68:LYS:HE2 | 29:V:68:LYS:HA | 1.85 | 0.58 |
| 31:X:33:LYS:HA | 31:X:33:LYS:HE2 | 1.85 | 0.58 |
| 27:T:28:VAL:CG1 | 27:T:46:GLU:HG3 | 2.33 | 0.58 |
| 27:T:33:LYS:CE | 27:T:43:GLN:HE21 | 1.98 | 0.58 |
| 27:T:32:TYR:CD2 | 27:T:81:PRO:HB2 | 2.38 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 14:D:61:LEU:O | 14:D:63:ARG:NH1 | 2.36 | 0.58 |
| 11:A:2636:U:H4' | 15:E:80:GLU:OE1 | 2.04 | 0.58 |
| 11:A:2186:G:H2' | 11:A:2187:G:C8 | 2.38 | 0.58 |
| 26:S:20:ARG:HA | 26:S:20:ARG:NE | 2.17 | 0.58 |
| 11:A:2179:C:H1' | 11:A:2180:U:C5 | 2.39 | 0.58 |
| 6:5:54:GLY:N | 6:5:56:LYS:NZ | 2.51 | 0.58 |
| 28:U:95:LEU:O | 28:U:98:LEU:HG | 2.02 | 0.58 |
| 17:G:16:ARG:O | 17:G:20:ILE:HG13 | 2.04 | 0.58 |
| 11:A:335:C:H2' | 11:A:336:C:C6 | 2.38 | 0.58 |
| 18:H:67:LEU:O | 18:H:71:LEU:HB2 | 2.03 | 0.58 |
| 11:A:2115:G:C2 | 11:A:2117:A:N7 | 2.72 | 0.58 |
| 33:Z:109:ALA:CB | 33:Z:145:GLU:OE1 | 2.51 | 0.58 |
| 4:3:31:LEU:HD23 | 4:3:32:GLN:H | 1.68 | 0.58 |
| 11:A:30:G:H2' | 11:A:31:C:C6 | 2.38 | 0.58 |
| 26:S:58:LEU:HG | 26:S:59:LYS:H | 1.67 | 0.58 |
| 7:6:53:LYS:N | 7:6:53:LYS:HD3 | 2.18 | 0.58 |
| 27:T:4:GLY:O | 27:T:7:ILE:HB | 2.04 | 0.58 |
| 11:A:84:A:H5'' | 32:Y:9:LYS:HD2 | 1.85 | 0.58 |
| 26:S:17:ARG:O | 26:S:20:ARG:HG2 | 2.03 | 0.58 |
| 11:A:1141:U:H6 | 21:N:63:THR:HB | 1.69 | 0.58 |
| 16:F:160:ASN:HD21 | 16:F:162:LEU:CD1 | 2.15 | 0.58 |
| 11:A:2314:C:H5' | 17:G:38:VAL:HG21 | 1.85 | 0.58 |
| 17:G:172:LEU:O | 17:G:172:LEU:HD23 | 2.03 | 0.58 |
| 27:T:106:SER:O | 27:T:107:ASP:CB | 2.51 | 0.58 |
| 3:2:29:LYS:HE2 | 3:2:57:ILE:HG21 | 1.84 | 0.58 |
| 11:A:2867:G:C5 | 27:T:23:ARG:NH1 | 2.72 | 0.58 |
| 14:D:136:ILE:HB | 14:D:165:ILE:CD1 | 2.34 | 0.58 |
| 11:A:2777:G:H5'' | 11:A:2778:A:C5' | 2.32 | 0.58 |
| 22:O:10:VAL:HG21 | 22:O:16:ALA:O | 2.04 | 0.58 |
| 11:A:2866:U:C6 | 11:A:2868:A:H1' | 2.38 | 0.58 |
| 33:Z:102:LEU:HD21 | 33:Z:124:ILE:HD13 | 1.85 | 0.58 |
| 11:A:252:G:OP2 | 23:P:50:ARG:NH2 | 2.34 | 0.58 |
| 11:A:323:G:H2' | 16:F:169:ASN:ND2 | 2.19 | 0.58 |
| 11:A:811:U:O2' | 11:A:812:C:H5'' | 2.03 | 0.58 |
| 5:4:7:PRO:HG2 | 17:G:61:ALA:HB1 | 1.85 | 0.58 |
| 26:S:15:ARG:HH12 | 26:S:18:ILE:HD11 | 1.67 | 0.58 |
| 28:U:91:ASP:OD1 | 28:U:96:ALA:HB2 | 2.03 | 0.58 |
| 3:2:53:LEU:O | 3:2:57:ILE:HG12 | 2.03 | 0.58 |
| 27:T:39:ARG:H | 27:T:39:ARG:CD | 2.13 | 0.58 |
| 11:A:1009:A:H1' | 28:U:59:ARG:NH1 | 2.18 | 0.58 |
| 11:A:2712:U:OP1 | 11:A:2714:G:H4' | 2.04 | 0.58 |
| 11:A:590:A:H2' | 11:A:591:C:H6 | 1.69 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 15:E:203:LYS:O | 15:E:203:LYS:HD2 | 2.03 | 0.58 |
| 11:A:2688:U:H1' | 11:A:2721:A:N6 | 2.19 | 0.58 |
| 18:H:149:ARG:HA | 18:H:162:ILE:CD1 | 2.33 | 0.58 |
| 11:A:1683:C:H2' | 11:A:1684:C:H6 | 1.68 | 0.58 |
| 16:F:127:GLU:OE1 | 16:F:196:LEU:HD12 | 2.04 | 0.58 |
| 16:F:126:VAL:HG11 | 16:F:142:TRP:HH2 | 1.69 | 0.58 |
| 11:A:1210:A:C8 | 11:A:1210:A:H5' | 2.37 | 0.58 |
| 11:A:331:A:H1' | 11:A:332:A:OP1 | 2.03 | 0.58 |
| 11:A:1087:G:H2' | 11:A:1088:A:C5' | 2.33 | 0.58 |
| 11:A:140:G:H1' | 11:A:141:A:C2 | 2.39 | 0.58 |
| 25:R:55:ALA:HB2 | 25:R:79:LEU:CD1 | 2.34 | 0.58 |
| 21:N:1:MET:C | 21:N:2:LYS:HD2 | 2.24 | 0.58 |
| 21:N:3:THR:C | 21:N:4:TYR:CG | 2.77 | 0.58 |
| 12:B:61:G:O2' | 12:B:62:C:H5' | 2.03 | 0.58 |
| 11:A:1817:G:H2' | 11:A:1818:U:H5' | 1.85 | 0.58 |
| 11:A:565:C:H4' | 11:A:1253:A:C6 | 2.39 | 0.58 |
| 14:D:8:PRO:HB3 | 14:D:14:ARG:HB3 | 1.85 | 0.58 |
| 4:3:35:ARG:HD3 | 4:3:37:LEU:HD21 | 1.86 | 0.58 |
| 32:Y:29:GLU:N | 32:Y:29:GLU:OE1 | 2.37 | 0.58 |
| 32:Y:8:LYS:N | 32:Y:8:LYS:CD | 2.66 | 0.58 |
| 16:F:101:LEU:HD12 | 16:F:102:PRO:CD | 2.34 | 0.58 |
| 28:U:95:LEU:CD1 | 29:V:11:GLN:HG3 | 2.33 | 0.58 |
| 27:T:106:SER:O | 27:T:107:ASP:CG | 2.42 | 0.58 |
| 11:A:140:G:H1' | 11:A:141:A:H2 | 1.69 | 0.58 |
| 33:Z:163:LEU:H | 33:Z:163:LEU:CD2 | 2.17 | 0.58 |
| 11:A:2303:G:H4' | 17:G:124:SER:O | 2.04 | 0.58 |
| 11:A:2162:G:O2' | 11:A:2173:A:N6 | 2.37 | 0.58 |
| 11:A:2579:C:O2' | 15:E:131:ALA:CB | 2.52 | 0.58 |
| 11:A:110:G:O2' | 11:A:111:A:H5' | 2.03 | 0.58 |
| 28:U:52:ARG:NH1 | 28:U:52:ARG:HB3 | 2.19 | 0.58 |
| 11:A:2248:C:C2' | 11:A:2249:U:H5' | 2.33 | 0.58 |
| 11:A:470:A:OP1 | 16:F:59:TYR:HE1 | 1.87 | 0.58 |
| 17:G:145:THR:HB | 17:G:148:MET:HB2 | 1.84 | 0.58 |
| 11:A:1813:G:H1' | 14:D:50:THR:OG1 | 2.04 | 0.58 |
| 30:W:64:MET:O | 30:W:65:LEU:HB3 | 2.04 | 0.58 |
| 19:J:12:UNK:C | 19:J:14:UNK:N | 2.67 | 0.58 |
| 27:T:28:VAL:CG1 | 27:T:46:GLU:HA | 2.31 | 0.58 |
| 18:H:85:LYS:HE3 | 18:H:85:LYS:O | 2.04 | 0.58 |
| 7:6:53:LYS:O | 7:6:54:ILE:OXT | 2.22 | 0.58 |
| 26:S:89:ARG:HG3 | 26:S:92:TYR:HA | 1.85 | 0.58 |
| 11:A:657:U:C2 | 11:A:658:C:C5 | 2.92 | 0.58 |
| 11:A:1209:G:H21 | 11:A:1210:A:N6 | 2.01 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 28:U:59:ARG:NH1 | 28:U:59:ARG:HG2 | 2.17 | 0.58 |
| 11:A:1056:G:N2 | 11:A:1104:C:H42 | 2.02 | 0.58 |
| 11:A:2884:U:H2' | 11:A:2885:C:H5' | 1.85 | 0.58 |
| 29:V:82:ARG:HD2 | 29:V:82:ARG:N | 2.19 | 0.58 |
| 11:A:2020:A:O2' | 11:A:2021:C:H5' | 2.03 | 0.58 |
| 11:A:1040:C:H2' | 11:A:1041:G:C8 | 2.38 | 0.58 |
| 30:W:37:ARG:HH11 | 30:W:37:ARG:HG3 | 1.69 | 0.58 |
| 30:W:69:LEU:HA | 30:W:108:GLY:O | 2.04 | 0.58 |
| 11:A:1268:A:H2' | 11:A:1269:A:O4' | 2.03 | 0.58 |
| 11:A:2492:U:O2' | 11:A:2493:U:H5' | 2.03 | 0.58 |
| 14:D:30:GLU:N | 14:D:35:LYS:HZ2 | 2.02 | 0.58 |
| 33:Z:98:MET:O | 33:Z:125:LEU:HD12 | 2.03 | 0.58 |
| 11:A:2287:A:N6 | 11:A:2344:U:H3 | 1.94 | 0.58 |
| 11:A:266:G:H2' | 11:A:267:C:C5' | 2.29 | 0.58 |
| 18:H:19:VAL:O | 18:H:20:ALA:HB2 | 2.04 | 0.58 |
| 11:A:1051:G:H2' | 11:A:1052:C:C4 | 2.39 | 0.58 |
| 11:A:271(E):U:H2' | 11:A:271(F):C:C6 | 2.39 | 0.58 |
| 11:A:1060:U:H1' | 11:A:1061:U:H5'' | 1.85 | 0.58 |
| 11:A:2712:U:H5' | 11:A:2712:U:O2 | 2.04 | 0.58 |
| 11:A:1331:A:O2' | 11:A:1332:G:H5'' | 2.04 | 0.58 |
| 11:A:2840:C:H2' | 11:A:2841:C:H6 | 1.67 | 0.58 |
| 21:N:121:LYS:HB3 | 21:N:123:TYR:HE1 | 1.69 | 0.58 |
| 11:A:533:G:H5' | 28:U:24:TYR:CE1 | 2.39 | 0.58 |
| 11:A:1257:C:H2' | 11:A:1258:C:H6 | 1.69 | 0.58 |
| 18:H:58:GLU:O | 18:H:62:LYS:HB2 | 2.02 | 0.58 |
| 18:H:85:LYS:HZ3 | 18:H:132:ARG:CA | 2.08 | 0.57 |
| 11:A:621:A:H2' | 11:A:622:G:C5' | 2.32 | 0.57 |
| 11:A:2111:C:N3 | 11:A:2145:C:H2' | 2.19 | 0.57 |
| 26:S:85:VAL:O | 26:S:106:ARG:HG3 | 2.03 | 0.57 |
| 33:Z:165:VAL:HG12 | 33:Z:166:SER:N | 2.18 | 0.57 |
| 11:A:2327:A:H2' | 11:A:2328:A:C8 | 2.39 | 0.57 |
| 14:D:224:ALA:C | 14:D:226:MET:H | 2.07 | 0.57 |
| 5:4:22:ILE:HD12 | 5:4:22:ILE:N | 2.20 | 0.57 |
| 23:P:71:VAL:HG12 | 23:P:72:PRO:HD3 | 1.86 | 0.57 |
| 22:O:43:VAL:HG21 | 22:O:52:VAL:CG1 | 2.34 | 0.57 |
| 2:1:41:ARG:HH22 | 11:A:1365:A:H5'' | 1.68 | 0.57 |
| 7:6:35:GLU:CB | 7:6:51:GLU:HB2 | 2.20 | 0.57 |
| 14:D:43:ARG:NH1 | 14:D:44:ASN:ND2 | 2.47 | 0.57 |
| 6:5:36:CYS:SG | 6:5:46:CYS:SG | 3.01 | 0.57 |
| 32:Y:2:ARG:N | 32:Y:4:LYS:HE3 | 2.18 | 0.57 |
| 21:N:14:VAL:HG13 | 21:N:137:LYS:HG3 | 1.86 | 0.57 |
| 11:A:2074:U:H2' | 11:A:2075:U:C6 | 2.39 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 32:Y:87:LYS:O | 32:Y:88:LYS:HB2 | 2.03 | 0.57 |
| 27:T:134:GLU:O | 27:T:135:ALA:HB3 | 2.04 | 0.57 |
| 16:F:64:ILE:HG22 | 16:F:76:GLY:O | 2.04 | 0.57 |
| 11:A:752:A:O2' | 11:A:753:C:OP2 | 2.19 | 0.57 |
| 21:N:111:PRO:HA | 21:N:114:ARG:NH1 | 2.19 | 0.57 |
| 23:P:127:ALA:HB3 | 23:P:130:PHE:CZ | 2.39 | 0.57 |
| 9:8:33:ASN:ND2 | 11:A:2419:U:H5'' | 2.19 | 0.57 |
| 27:T:23:ARG:NH2 | 27:T:120:ARG:HD3 | 2.19 | 0.57 |
| 22:O:23:ARG:HG3 | 22:O:24:VAL:N | 2.19 | 0.57 |
| 18:H:83:TYR:HB2 | 18:H:134:SER:CA | 2.33 | 0.57 |
| 17:G:52:ILE:CD1 | 17:G:52:ILE:H | 2.12 | 0.57 |
| 7:6:36:LEU:HD23 | 7:6:36:LEU:C | 2.24 | 0.57 |
| 11:A:612:C:C2' | 11:A:613:G:C5' | 2.77 | 0.57 |
| 29:V:52:VAL:HG13 | 29:V:55:ALA:HB3 | 1.85 | 0.57 |
| 11:A:1762:A:O5' | 11:A:1762:A:C8 | 2.57 | 0.57 |
| 31:X:8:ILE:N | 31:X:8:ILE:HD12 | 2.18 | 0.57 |
| 11:A:2720:U:H2' | 11:A:2720:U:O2 | 2.04 | 0.57 |
| 2:1:44:PRO:HG2 | 2:1:46:LEU:HD23 | 1.86 | 0.57 |
| 11:A:1709:U:H2' | 11:A:1710:C:C6 | 2.39 | 0.57 |
| 18:H:85:LYS:CD | 18:H:133:VAL:HB | 2.34 | 0.57 |
| 9:8:25:MET:HG3 | 23:P:64:LYS:HB2 | 1.86 | 0.57 |
| 17:G:20:ILE:O | 17:G:24:GLY:HA2 | 2.05 | 0.57 |
| 33:Z:105:VAL:O | 33:Z:140:ASP:HA | 2.04 | 0.57 |
| 25:R:55:ALA:HB1 | 25:R:84:ALA:HB2 | 1.86 | 0.57 |
| 11:A:1104:C:H2' | 11:A:1105:U:C6 | 2.36 | 0.57 |
| 11:A:814:C:H2' | 11:A:815:C:C6 | 2.39 | 0.57 |
| 11:A:528:A:H2 | 11:A:2043:C:O5' | 1.87 | 0.57 |
| 15:E:94:GLU:OE2 | 15:E:177:PRO:HB3 | 2.03 | 0.57 |
| 4:3:1:MET:O | 4:3:3:ARG:N | 2.38 | 0.57 |
| 11:A:2691:C:H6 | 11:A:2691:C:H5' | 1.67 | 0.57 |
| 11:A:1750:G:O2' | 11:A:1751:C:H5' | 2.04 | 0.57 |
| 14:D:30:GLU:HG3 | 14:D:63:ARG:NH2 | 2.19 | 0.57 |
| 7:6:52:VAL:HG12 | 7:6:53:LYS:H | 1.69 | 0.57 |
| 18:H:66:GLY:CA | 18:H:69:ARG:HB3 | 2.34 | 0.57 |
| 33:Z:10:ARG:NE | 33:Z:36:LYS:HB2 | 2.19 | 0.57 |
| 33:Z:166:SER:HB2 | 33:Z:168:GLU:N | 2.20 | 0.57 |
| 10:9:10:ILE:N | 10:9:10:ILE:HD12 | 2.19 | 0.57 |
| 15:E:26:ILE:HG23 | 15:E:196:VAL:HG21 | 1.87 | 0.57 |
| 11:A:1523:U:H2' | 11:A:1524:G:C8 | 2.39 | 0.57 |
| 25:R:101:ALA:O | 25:R:102:GLU:HB2 | 2.05 | 0.57 |
| 9:8:6:THR:OG1 | 9:8:11:LYS:HE3 | 2.05 | 0.57 |
| 11:A:2188:C:H2' | 11:A:2189:U:C6 | 2.39 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:1023:U:H6 | 11:A:1023:U:H5' | 1.68 | 0.57 |
| 16:F:168:ARG:CG | 16:F:175:THR:HG21 | 2.23 | 0.57 |
| 9:8:23:VAL:CG1 | 9:8:46:ARG:HB3 | 2.35 | 0.57 |
| 31:X:52:VAL:HG12 | 31:X:53:LYS:N | 2.11 | 0.57 |
| 5:4:7:PRO:HG2 | 17:G:65:GLY:HA2 | 1.87 | 0.57 |
| 32:Y:53:PRO:CB | 32:Y:56:PRO:HG3 | 2.31 | 0.57 |
| 11:A:330:A:C2 | 11:A:1210:A:H2' | 2.32 | 0.57 |
| 11:A:1677:A:H2' | 11:A:1678:G:C8 | 2.40 | 0.57 |
| 22:O:87:ILE:HG21 | 22:O:91:LEU:HA | 1.85 | 0.57 |
| 13:C:214:VAL:HG23 | 13:C:224:ILE:HD13 | 1.86 | 0.57 |
| 8:7:19:ARG:HH11 | 8:7:19:ARG:HG2 | 1.69 | 0.57 |
| 13:C:106:GLY:O | 13:C:107:TRP:HB3 | 2.05 | 0.57 |
| 11:A:2833:G:C3' | 11:A:2834:G:H5'' | 2.31 | 0.57 |
| 27:T:13:ARG:HA | 27:T:13:ARG:HH11 | 1.65 | 0.57 |
| 32:Y:14:LEU:HD13 | 32:Y:24:VAL:HG22 | 1.85 | 0.57 |
| 9:8:13:ARG:HD2 | 23:P:61:ARG:CD | 2.28 | 0.57 |
| 15:E:117:MET:HE1 | 15:E:136:ARG:HA | 1.86 | 0.57 |
| 12:B:91:C:OP1 | 24:Q:16:ARG:HD2 | 2.05 | 0.57 |
| 11:A:1861:G:O2' | 11:A:1862:G:H5' | 2.05 | 0.57 |
| 11:A:1721:G:C6 | 11:A:1739:U:H5' | 2.40 | 0.57 |
| 32:Y:47:LYS:HE3 | 32:Y:60:PHE:HZ | 1.70 | 0.57 |
| 15:E:179:GLU:O | 15:E:180:ASN:HB2 | 2.03 | 0.57 |
| 19:J:106:UNK:O | 19:J:107:UNK:CB | 2.53 | 0.57 |
| 14:D:35:LYS:HG3 | 14:D:63:ARG:CG | 2.33 | 0.57 |
| 27:T:10:VAL:O | 27:T:13:ARG:NE | 2.35 | 0.57 |
| 11:A:1858:G:H1' | 11:A:1884:A:N6 | 2.19 | 0.57 |
| 11:A:2298:A:H2' | 11:A:2299:G:O4' | 2.05 | 0.57 |
| 11:A:93:G:H2' | 11:A:94:C:C6 | 2.40 | 0.57 |
| 33:Z:23:LYS:O | 33:Z:24:LEU:CB | 2.51 | 0.57 |
| 11:A:326:G:H2' | 11:A:327:G:H8 | 1.69 | 0.57 |
| 28:U:32:PHE:CB | 28:U:36:ARG:NH2 | 2.68 | 0.57 |
| 33:Z:77:ASP:HB3 | 33:Z:80:ARG:O | 2.05 | 0.57 |
| 11:A:176:G:O2' | 11:A:177:G:H5' | 2.05 | 0.57 |
| 5:4:42:PHE:O | 5:4:43:TYR:O | 2.22 | 0.57 |
| 9:8:6:THR:HG21 | 9:8:63:PRO:HD3 | 1.86 | 0.57 |
| 17:G:68:PRO:HG3 | 17:G:92:VAL:HB | 1.85 | 0.57 |
| 17:G:131:TYR:HB3 | 17:G:159:VAL:HG13 | 1.84 | 0.57 |
| 24:Q:134:ARG:CD | 33:Z:122:ARG:NH2 | 2.68 | 0.57 |
| 33:Z:142:SER:C | 33:Z:144:LEU:H | 2.06 | 0.57 |
| 15:E:5:LEU:HD12 | 15:E:51:PHE:HB2 | 1.86 | 0.57 |
| 11:A:1722:A:O2' | 11:A:1739:U:C5' | 2.53 | 0.57 |
| 32:Y:31:LEU:HB2 | 32:Y:32:PRO:HA | 1.87 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 26:S:11:LYS:HG2 | 26:S:11:LYS:O | 2.05 | 0.57 |
| 2:1:53:VAL:HG22 | 2:1:74:VAL:HG13 | 1.85 | 0.57 |
| 21:N:99:LEU:O | 21:N:103:VAL:HG23 | 2.04 | 0.57 |
| 30:W:84:ARG:HB2 | 30:W:96:ILE:HG22 | 1.85 | 0.57 |
| 7:6:15:GLU:O | 7:6:17:LYS:N | 2.38 | 0.56 |
| 32:Y:86:ARG:NH2 | 32:Y:95:LYS:HE2 | 2.18 | 0.56 |
| 9:8:30:ARG:HE | 9:8:30:ARG:HA | 1.70 | 0.56 |
| 11:A:2807:G:H3' | 11:A:2808:U:H5'' | 1.86 | 0.56 |
| 15:E:61:ARG:HB3 | 15:E:62:PRO:CD | 2.33 | 0.56 |
| 11:A:769:G:H4' | 11:A:1379:A:N1 | 2.20 | 0.56 |
| 11:A:1106:G:H2' | 11:A:1107:G:O4' | 2.04 | 0.56 |
| 14:D:131:LEU:HB2 | 14:D:136:ILE:HD11 | 1.86 | 0.56 |
| 11:A:530:G:C5 | 11:A:2022:U:H5'' | 2.40 | 0.56 |
| 1:0:56:ASP:OD1 | 1:0:58:THR:OG1 | 2.20 | 0.56 |
| 15:E:87:GLU:OE2 | 15:E:89:ASP:HB3 | 2.05 | 0.56 |
| 32:Y:27:VAL:HA | 32:Y:28:LYS:HE2 | 1.88 | 0.56 |
| 11:A:691:C:O2' | 11:A:692:C:H5' | 2.05 | 0.56 |
| 11:A:672:C:O3' | 16:F:81:PRO:HG3 | 2.05 | 0.56 |
| 11:A:2376:A:H2' | 11:A:2377:A:O4' | 2.05 | 0.56 |
| 21:N:96:GLU:O | 21:N:100:GLU:HG3 | 2.04 | 0.56 |
| 32:Y:90:LEU:HG | 32:Y:91:GLU:H | 1.70 | 0.56 |
| 11:A:1523:U:H2' | 11:A:1524:G:H8 | 1.70 | 0.56 |
| 23:P:135:LEU:HD13 | 23:P:135:LEU:O | 2.05 | 0.56 |
| 22:O:2:ILE:HD12 | 22:O:6:THR:HG21 | 1.87 | 0.56 |
| 8:7:9:ARG:NE | 11:A:1310:G:OP2 | 2.30 | 0.56 |
| 13:C:190:ARG:O | 13:C:194:ARG:HG3 | 2.05 | 0.56 |
| 31:X:3:THR:HA | 31:X:6:ASP:OD1 | 2.04 | 0.56 |
| 11:A:2544:G:O5' | 11:A:2544:G:H8 | 1.88 | 0.56 |
| 14:D:30:GLU:HG2 | 14:D:35:LYS:HZ1 | 1.70 | 0.56 |
| 14:D:31:LYS:HG3 | 14:D:33:LEU:HG | 1.87 | 0.56 |
| 15:E:75:VAL:O | 15:E:77:ILE:N | 2.38 | 0.56 |
| 11:A:31:C:O2' | 11:A:32:C:H5'' | 2.05 | 0.56 |
| 11:A:1464:C:HO2' | 11:A:1528:A:H8 | 1.49 | 0.56 |
| 17:G:51:ARG:NH1 | 17:G:53:LEU:HD22 | 2.21 | 0.56 |
| 7:6:15:GLU:CD | 7:6:18:ARG:NE | 2.58 | 0.56 |
| 32:Y:95:LYS:CE | 32:Y:100:ALA:HB2 | 2.35 | 0.56 |
| 32:Y:81:LYS:HD2 | 32:Y:96:ILE:HD11 | 1.87 | 0.56 |
| 9:8:23:VAL:HG12 | 9:8:46:ARG:NH1 | 2.11 | 0.56 |
| 7:6:9:LEU:HD22 | 7:6:10:LEU:N | 2.20 | 0.56 |
| 11:A:621:A:C2' | 11:A:622:G:H5' | 2.35 | 0.56 |
| 11:A:2297:C:O2' | 11:A:2298:A:H5' | 2.05 | 0.56 |
| 11:A:1112:G:O2' | 11:A:1113:U:H5' | 2.04 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 10:9:35:ARG:O | 10:9:36:GLN:O | 2.22 | 0.56 |
| 22:O:114:ILE:CD1 | 22:O:114:ILE:H | 2.18 | 0.56 |
| 15:E:116:VAL:O | 15:E:117:MET:CB | 2.52 | 0.56 |
| 15:E:116:VAL:CG2 | 15:E:117:MET:N | 2.68 | 0.56 |
| 29:V:59:ALA:HA | 29:V:95:LEU:O | 2.05 | 0.56 |
| 9:8:14:VAL:HG21 | 9:8:22:VAL:HG13 | 1.87 | 0.56 |
| 25:R:79:LEU:HA | 25:R:83:ILE:HG13 | 1.86 | 0.56 |
| 2:1:29:GLY:O | 2:1:31:GLY:N | 2.38 | 0.56 |
| 11:A:549:G:O2' | 11:A:551:G:H5' | 2.05 | 0.56 |
| 28:U:76:TYR:O | 28:U:80:ILE:HG12 | 2.04 | 0.56 |
| 22:O:88:ASN:OD1 | 22:O:90:GLN:N | 2.38 | 0.56 |
| 15:E:101:ARG:NH2 | 15:E:171:GLU:HB2 | 2.20 | 0.56 |
| 13:C:5:LYS:HB3 | 13:C:8:ARG:HH21 | 1.70 | 0.56 |
| 13:C:75:LEU:HD12 | 13:C:75:LEU:C | 2.24 | 0.56 |
| 25:R:103:ARG:NH1 | 25:R:110:PRO:HB3 | 2.20 | 0.56 |
| 11:A:1013:C:H2' | 11:A:1014:U:C6 | 2.41 | 0.56 |
| 27:T:11:GLU:CD | 27:T:11:GLU:H | 2.09 | 0.56 |
| 11:A:1417:C:H2' | 11:A:1418:G:O4' | 2.04 | 0.56 |
| 21:N:94:HIS:N | 21:N:95:PRO:CD | 2.68 | 0.56 |
| 11:A:1184:G:O2' | 11:A:1185:C:H5' | 2.05 | 0.56 |
| 11:A:1827:C:O2' | 11:A:1828:G:H5' | 2.06 | 0.56 |
| 11:A:648:G:H2' | 11:A:649:G:H8 | 1.71 | 0.56 |
| 21:N:71:ILE:HG21 | 21:N:84:LYS:HB3 | 1.87 | 0.56 |
| 10:9:16:VAL:HG11 | 11:A:1032:A:O3' | 2.05 | 0.56 |
| 11:A:1231:G:H2' | 11:A:1232:G:C8 | 2.41 | 0.56 |
| 24:Q:116:GLU:O | 24:Q:120:ILE:HG12 | 2.05 | 0.56 |
| 31:X:18:TYR:O | 31:X:20:GLY:N | 2.38 | 0.56 |
| 11:A:1542:A:C8 | 11:A:1544:A:H5' | 2.40 | 0.56 |
| 17:G:86:MET:N | 17:G:87:PRO:CD | 2.68 | 0.56 |
| 7:6:15:GLU:HG3 | 7:6:47:THR:HG21 | 1.86 | 0.56 |
| 32:Y:51:VAL:O | 32:Y:53:PRO:HD3 | 2.05 | 0.56 |
| 22:O:35:VAL:HG11 | 22:O:69:ILE:HD13 | 1.87 | 0.56 |
| 3:2:46:GLN:HB3 | 3:2:48:HIS:HE1 | 1.71 | 0.56 |
| 11:A:2703:C:O2' | 11:A:2704:C:H5' | 2.05 | 0.56 |
| 11:A:2341:G:H2' | 11:A:2342:C:C6 | 2.39 | 0.56 |
| 11:A:153:C:H2' | 11:A:154:G:C8 | 2.40 | 0.56 |
| 11:A:1166:C:H2' | 11:A:1167:U:C6 | 2.40 | 0.56 |
| 11:A:744:G:OP1 | 15:E:132:HIS:HB3 | 2.06 | 0.56 |
| 27:T:31:SER:OG | 27:T:32:TYR:CE1 | 2.59 | 0.56 |
| 18:H:159:GLU:CD | 18:H:159:GLU:C | 2.63 | 0.56 |
| 11:A:2657:A:O2' | 18:H:160:LYS:HE2 | 2.06 | 0.56 |
| 32:Y:17:SER:OG | 32:Y:18:GLY:N | 2.37 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 28:U:92:ARG:HD3 | 28:U:94:ASN:HB3 | 1.87 | 0.56 |
| 3:2:64:LEU:O | 3:2:68:ARG:HB2 | 2.06 | 0.56 |
| 21:N:25:ARG:HH11 | 21:N:25:ARG:HG2 | 1.71 | 0.56 |
| 31:X:57:LEU:HD13 | 31:X:57:LEU:N | 2.20 | 0.56 |
| 13:C:32:LEU:HD13 | 13:C:220:PRO:HG2 | 1.86 | 0.56 |
| 1:0:43:THR:HG22 | 11:A:2331:G:O2' | 2.05 | 0.56 |
| 11:A:882:G:H2' | 11:A:883:G:H8 | 1.70 | 0.56 |
| 11:A:2836:U:H6 | 11:A:2836:U:O5' | 1.88 | 0.56 |
| 11:A:1572:A:O2' | 11:A:1573:G:H5' | 2.05 | 0.56 |
| 27:T:30:VAL:HG12 | 27:T:44:ASP:CG | 2.26 | 0.56 |
| 26:S:97:ARG:NE | 26:S:97:ARG:C | 2.59 | 0.56 |
| 11:A:2133:G:H2' | 11:A:2157:G:H22 | 1.68 | 0.56 |
| 16:F:206:ILE:HG22 | 16:F:207:GLY:N | 2.19 | 0.56 |
| 25:R:87:TYR:O | 25:R:89:ASP:N | 2.38 | 0.56 |
| 11:A:2206:G:H3' | 11:A:2206:G:N3 | 2.21 | 0.56 |
| 6:5:31:VAL:HG13 | 6:5:42:PRO:HG3 | 1.87 | 0.56 |
| 8:7:43:THR:HG23 | 8:7:44:PRO:HD2 | 1.87 | 0.56 |
| 4:3:26:LEU:HB2 | 4:3:28:LEU:CD2 | 2.36 | 0.56 |
| 11:A:519:U:H2' | 11:A:520:G:H8 | 1.70 | 0.56 |
| 11:A:2310:A:O2' | 11:A:2311:A:C5' | 2.47 | 0.56 |
| 11:A:1498:C:H2' | 11:A:1499:C:C5' | 2.35 | 0.56 |
| 11:A:321:G:N3 | 16:F:165:ARG:HD3 | 2.21 | 0.56 |
| 11:A:1494:A:C3' | 11:A:1495:A:H5'' | 2.36 | 0.56 |
| 11:A:672:C:C2' | 11:A:673:C:C5' | 2.83 | 0.56 |
| 5:4:14:ILE:HG13 | 5:4:31:ILE:CB | 2.31 | 0.56 |
| 23:P:16:ARG:CZ | 23:P:16:ARG:HB2 | 2.35 | 0.56 |
| 10:9:4:ARG:O | 10:9:36:GLN:HA | 2.05 | 0.56 |
| 11:A:2466:C:O2' | 11:A:2467:C:H5' | 2.06 | 0.56 |
| 11:A:1060:U:O4' | 11:A:1061:U:H5'' | 2.04 | 0.56 |
| 33:Z:163:LEU:N | 33:Z:163:LEU:HD23 | 2.21 | 0.56 |
| 15:E:185:LYS:O | 15:E:186:GLY:O | 2.23 | 0.56 |
| 29:V:58:VAL:O | 29:V:97:LYS:HB2 | 2.06 | 0.56 |
| 19:J:41:UNK:O | 19:J:53:UNK:HA | 2.06 | 0.56 |
| 11:A:1328:G:H2' | 11:A:1330:C:C5 | 2.41 | 0.56 |
| 30:W:14:PRO:HG2 | 30:W:78:GLU:HG3 | 1.87 | 0.56 |
| 11:A:1270:C:H5'' | 11:A:1271:G:O5' | 2.06 | 0.56 |
| 7:6:15:GLU:OE1 | 7:6:18:ARG:CD | 2.54 | 0.56 |
| 7:6:53:LYS:CG | 7:6:54:ILE:H | 2.19 | 0.56 |
| 11:A:1858:G:HO2' | 11:A:1859:A:H8 | 1.54 | 0.56 |
| 4:3:29:ARG:NH1 | 4:3:29:ARG:HB2 | 2.18 | 0.56 |
| 27:T:50:ILE:HA | 27:T:99:LEU:CD1 | 2.36 | 0.56 |
| 11:A:137:C:O2 | 11:A:137:C:H2' | 2.04 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:9:1:MET:HE2 | 10:9:31:LYS:HB3 | 1.87 | 0.56 |
| 11:A:1683:C:H2' | 11:A:1684:C:C6 | 2.41 | 0.56 |
| 5:4:20:ASN:HD22 | 5:4:21:VAL:N | 2.03 | 0.56 |
| 8:7:12:ARG:HG2 | 8:7:46:VAL:HG22 | 1.88 | 0.56 |
| 16:F:25:PRO:CG | 16:F:119:ARG:HB2 | 2.36 | 0.56 |
| 11:A:1485:G:H22 | 11:A:1505:C:H5' | 1.71 | 0.56 |
| 33:Z:99:TYR:CE1 | 33:Z:125:LEU:HD13 | 2.41 | 0.56 |
| 7:6:15:GLU:OE1 | 7:6:18:ARG:HG3 | 2.06 | 0.56 |
| 23:P:16:ARG:CB | 23:P:16:ARG:HH11 | 2.18 | 0.56 |
| 10:9:7:VAL:HG22 | 10:9:34:GLN:HG2 | 1.88 | 0.56 |
| 29:V:24:LYS:HA | 29:V:92:THR:CG2 | 2.33 | 0.56 |
| 11:A:1069:A:H1' | 11:A:1070:A:OP1 | 2.06 | 0.56 |
| 11:A:2685:G:HO2' | 11:A:2726:U:H5 | 1.54 | 0.56 |
| 28:U:76:TYR:CZ | 28:U:80:ILE:HG13 | 2.40 | 0.56 |
| 11:A:1169:G:H1 | 11:A:1180:C:N4 | 2.04 | 0.56 |
| 13:C:149:ILE:HG23 | 13:C:150:GLY:N | 2.20 | 0.56 |
| 11:A:2206:G:H21 | 11:A:2207:G:C5' | 2.19 | 0.56 |
| 33:Z:77:ASP:O | 33:Z:78:LYS:HB2 | 2.05 | 0.56 |
| 19:J:8:UNK:C | 19:J:10:UNK:H | 2.18 | 0.56 |
| 11:A:1151:G:H5'' | 28:U:81:HIS:CE1 | 2.41 | 0.56 |
| 31:X:13:LEU:HA | 31:X:18:TYR:CZ | 2.40 | 0.56 |
| 7:6:13:CYS:HA | 7:6:50:ARG:O | 2.06 | 0.56 |
| 11:A:1947:C:C2' | 11:A:1948:G:H5'' | 2.36 | 0.56 |
| 33:Z:10:ARG:CZ | 33:Z:36:LYS:HB2 | 2.36 | 0.56 |
| 28:U:79:PHE:CE1 | 28:U:83:LEU:HD11 | 2.41 | 0.56 |
| 11:A:1678:G:N2 | 11:A:1989:G:N2 | 2.53 | 0.56 |
| 11:A:2776:A:H4' | 11:A:2777:G:H5'' | 1.88 | 0.56 |
| 13:C:40:THR:HG22 | 13:C:177:LYS:CE | 2.36 | 0.56 |
| 11:A:2590:A:H5'' | 14:D:239:ARG:HE | 1.70 | 0.56 |
| 11:A:1311:G:H21 | 11:A:1603:A:H62 | 1.53 | 0.55 |
| 6:5:36:CYS:C | 6:5:38:ALA:N | 2.60 | 0.55 |
| 27:T:96:ARG:NH1 | 27:T:96:ARG:HB2 | 2.21 | 0.55 |
| 11:A:1678:G:H22 | 11:A:1989:G:H22 | 1.52 | 0.55 |
| 1:0:20:ARG:HH11 | 1:0:20:ARG:CG | 2.19 | 0.55 |
| 13:C:40:THR:HG22 | 13:C:177:LYS:CD | 2.35 | 0.55 |
| 11:A:184:C:H2' | 11:A:185:U:C6 | 2.41 | 0.55 |
| 23:P:87:ASP:O | 23:P:90:ARG:HB2 | 2.05 | 0.55 |
| 21:N:24:GLY:O | 21:N:28:THR:HB | 2.06 | 0.55 |
| 14:D:36:PRO:O | 14:D:37:LEU:HB2 | 2.06 | 0.55 |
| 16:F:183:VAL:O | 16:F:187:VAL:HG23 | 2.06 | 0.55 |
| 11:A:84:A:H2' | 32:Y:9:LYS:NZ | 2.19 | 0.55 |
| 12:B:48:A:H4' | 26:S:95:HIS:CD2 | 2.41 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:2756:U:H1' | 11:A:2757:A:C5' | 2.29 | 0.55 |
| 28:U:95:LEU:HD12 | 29:V:11:GLN:HG3 | 1.88 | 0.55 |
| 2:1:29:GLY:HA3 | 11:A:2396:G:O2' | 2.06 | 0.55 |
| 11:A:2822:G:O6 | 25:R:4:LEU:HB3 | 2.05 | 0.55 |
| 25:R:103:ARG:O | 25:R:104:ARG:HB2 | 2.06 | 0.55 |
| 19:J:96:UNK:O | 19:J:100:UNK:N | 2.39 | 0.55 |
| 18:H:126:PRO:O | 18:H:127:GLU:HB2 | 2.07 | 0.55 |
| 25:R:34:ILE:HB | 25:R:114:VAL:CG2 | 2.37 | 0.55 |
| 16:F:37:VAL:CG1 | 23:P:7:ARG:HH12 | 2.03 | 0.55 |
| 17:G:77:ILE:HB | 17:G:81:LYS:O | 2.06 | 0.55 |
| 17:G:88:ILE:HG22 | 17:G:89:GLY:N | 2.22 | 0.55 |
| 12:B:44:G:H1' | 12:B:47:C:N4 | 2.22 | 0.55 |
| 11:A:1494:A:H3' | 11:A:1494:A:N3 | 2.20 | 0.55 |
| 11:A:1060:U:H1' | 11:A:1061:U:C5' | 2.36 | 0.55 |
| 33:Z:65:GLN:HB3 | 33:Z:67:LEU:CD1 | 2.36 | 0.55 |
| 11:A:1567:A:C5' | 14:D:58:HIS:CD2 | 2.89 | 0.55 |
| 11:A:282:A:N6 | 11:A:359:A:H1' | 2.22 | 0.55 |
| 32:Y:88:LYS:O | 32:Y:90:LEU:HD23 | 2.05 | 0.55 |
| 17:G:36:LYS:HD3 | 17:G:95:ARG:HH12 | 1.69 | 0.55 |
| 11:A:1790:C:H5'' | 11:A:1791:A:OP1 | 2.06 | 0.55 |
| 11:A:2870:C:H5'' | 25:R:65:LEU:HD21 | 1.89 | 0.55 |
| 13:C:181:PRO:HB2 | 13:C:183:GLU:OE2 | 2.06 | 0.55 |
| 31:X:27:THR:HG22 | 31:X:80:ILE:HB | 1.88 | 0.55 |
| 9:8:11:LYS:HD2 | 9:8:11:LYS:H | 1.71 | 0.55 |
| 9:8:18:ALA:HB2 | 11:A:628:G:H5'' | 1.88 | 0.55 |
| 32:Y:73:ARG:HH22 | 32:Y:82:PRO:CA | 2.14 | 0.55 |
| 29:V:61:VAL:HG22 | 29:V:61:VAL:O | 2.06 | 0.55 |
| 23:P:147:LEU:O | 23:P:148:LEU:HB2 | 2.07 | 0.55 |
| 9:8:41:ILE:HD12 | 11:A:2419:U:OP1 | 2.07 | 0.55 |
| 11:A:1784:A:H4' | 11:A:1785:A:O5' | 2.06 | 0.55 |
| 23:P:86:LYS:HB2 | 23:P:117:GLU:O | 2.07 | 0.55 |
| 24:Q:133:ARG:CB | 24:Q:133:ARG:HH11 | 2.16 | 0.55 |
| 11:A:2160:G:H5' | 11:A:2160:G:C8 | 2.40 | 0.55 |
| 11:A:363(E):U:H2' | 11:A:363(F):A:H1' | 1.87 | 0.55 |
| 32:Y:47:LYS:HG3 | 32:Y:60:PHE:CZ | 2.41 | 0.55 |
| 28:U:27:LEU:O | 28:U:34:LYS:HB2 | 2.06 | 0.55 |
| 14:D:108:PRO:HB3 | 14:D:143:HIS:CE1 | 2.41 | 0.55 |
| 11:A:134:C:H2' | 11:A:135:G:H8 | 1.71 | 0.55 |
| 13:C:167:LYS:HD2 | 13:C:167:LYS:O | 2.06 | 0.55 |
| 17:G:18:GLU:HG2 | 17:G:175:LEU:HD13 | 1.88 | 0.55 |
| 15:E:65:GLY:O | 15:E:67:PHE:N | 2.38 | 0.55 |
| 12:B:7:G:C3' | 12:B:8:U:H5'' | 2.37 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 27:T:106:SER:C | 27:T:107:ASP:OD1 | 2.44 | 0.55 |
| 29:V:34:GLU:O | 29:V:36:PRO:CD | 2.54 | 0.55 |
| 30:W:22:ASP:HA | 30:W:25:ARG:NH1 | 2.19 | 0.55 |
| 16:F:84:VAL:C | 16:F:86:GLY:N | 2.59 | 0.55 |
| 13:C:75:LEU:HG | 13:C:112:ALA:O | 2.06 | 0.55 |
| 28:U:101:ARG:HG3 | 28:U:101:ARG:NH1 | 2.21 | 0.55 |
| 24:Q:59:ARG:O | 24:Q:59:ARG:HD2 | 2.07 | 0.55 |
| 11:A:2078:C:H2' | 11:A:2079:U:C6 | 2.41 | 0.55 |
| 14:D:218:ARG:HH11 | 14:D:218:ARG:HG3 | 1.71 | 0.55 |
| 11:A:2386:C:H2' | 11:A:2387:U:C6 | 2.42 | 0.55 |
| 13:C:96:GLY:H | 13:C:99:ILE:HG13 | 1.71 | 0.55 |
| 7:6:28:ARG:CA | 7:6:32:ASN:HD22 | 2.19 | 0.55 |
| 32:Y:28:LYS:HB3 | 32:Y:39:VAL:H | 1.70 | 0.55 |
| 11:A:654(T):C:O2' | 11:A:654(U):A:O4' | 2.17 | 0.55 |
| 11:A:1496:A:H8 | 11:A:1577:C:HO2' | 1.55 | 0.55 |
| 9:8:41:ILE:HD12 | 11:A:2419:U:P | 2.46 | 0.55 |
| 23:P:56:SER:HB3 | 23:P:60:MET:HG2 | 1.88 | 0.55 |
| 14:D:44:ASN:N | 14:D:44:ASN:OD1 | 2.38 | 0.55 |
| 31:X:35:THR:HB | 31:X:38:GLU:HB3 | 1.87 | 0.55 |
| 29:V:38:LEU:HD23 | 29:V:39:LEU:N | 2.21 | 0.55 |
| 29:V:47:VAL:HG23 | 29:V:47:VAL:O | 2.07 | 0.55 |
| 33:Z:141:VAL:HA | 33:Z:144:LEU:HD23 | 1.89 | 0.55 |
| 11:A:2096:U:H2' | 11:A:2097:C:C6 | 2.41 | 0.55 |
| 31:X:50:LYS:H | 31:X:87:GLN:HE22 | 1.55 | 0.55 |
| 25:R:28:LEU:CD2 | 25:R:29:LEU:HD12 | 2.37 | 0.55 |
| 11:A:1411:C:H2' | 11:A:1412:A:C8 | 2.41 | 0.55 |
| 11:A:2373:G:H2' | 11:A:2374:C:C6 | 2.42 | 0.55 |
| 12:B:35:U:O2' | 12:B:36:C:H5' | 2.06 | 0.55 |
| 11:A:2408:U:H2' | 11:A:2409:G:C8 | 2.42 | 0.55 |
| 32:Y:81:LYS:HD2 | 32:Y:96:ILE:CD1 | 2.36 | 0.55 |
| 11:A:612:C:H2' | 11:A:613:G:H5' | 1.86 | 0.55 |
| 23:P:144:GLU:N | 23:P:145:PRO:HD3 | 2.22 | 0.55 |
| 16:F:39:TRP:CB | 16:F:101:LEU:HD22 | 2.37 | 0.55 |
| 23:P:16:ARG:CZ | 23:P:18:ARG:HG2 | 2.37 | 0.55 |
| 11:A:483:A:H5'' | 32:Y:49:VAL:HG22 | 1.89 | 0.55 |
| 17:G:6:ALA:O | 17:G:10:LYS:HD3 | 2.07 | 0.55 |
| 9:8:50:LEU:N | 9:8:53:PRO:HD3 | 2.21 | 0.55 |
| 15:E:107:THR:O | 15:E:190:GLY:CA | 2.54 | 0.55 |
| 12:B:67:G:O2' | 12:B:68:C:H6 | 1.89 | 0.55 |
| 22:O:4:PRO:O | 22:O:5:GLN:CB | 2.55 | 0.55 |
| 11:A:1708:C:O2' | 11:A:1709:U:H5' | 2.06 | 0.55 |
| 11:A:1412:A:O2' | 11:A:1413:G:H5' | 2.07 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:1:3:LYS:HB2 | 2:1:3:LYS:NZ | 2.21 | 0.55 |
| 11:A:1400:G:H2' | 11:A:1401:G:C8 | 2.42 | 0.55 |
| 14:D:6:PHE:HE1 | 14:D:18:VAL:HG12 | 1.71 | 0.55 |
| 33:Z:11:GLU:OE1 | 33:Z:12:GLY:N | 2.38 | 0.55 |
| 16:F:4:VAL:HG11 | 16:F:17:ARG:NE | 2.22 | 0.55 |
| 18:H:155:SER:O | 18:H:157:TYR:N | 2.38 | 0.55 |
| 18:H:157:TYR:HD1 | 18:H:157:TYR:O | 1.90 | 0.55 |
| 11:A:676:A:H8 | 11:A:2069:G:N2 | 1.97 | 0.55 |
| 11:A:2414:G:H21 | 23:P:67:MET:CE | 2.20 | 0.55 |
| 9:8:25:MET:CG | 23:P:64:LYS:HB2 | 2.36 | 0.55 |
| 14:D:147:LEU:CD1 | 14:D:183:ARG:HH12 | 2.15 | 0.55 |
| 25:R:96:ARG:NH2 | 25:R:117:VAL:HG23 | 2.22 | 0.55 |
| 11:A:1980:G:O2' | 11:A:1982:C:OP2 | 2.20 | 0.55 |
| 11:A:1198:U:H2' | 11:A:1199:U:C6 | 2.41 | 0.55 |
| 22:O:26:LYS:HB3 | 22:O:30:ALA:HB2 | 1.89 | 0.55 |
| 13:C:120:MET:HA | 13:C:123:VAL:CG1 | 2.37 | 0.55 |
| 11:A:1503:U:C4 | 11:A:1504:C:N4 | 2.75 | 0.55 |
| 7:6:41:PRO:HG2 | 7:6:44:ARG:O | 2.06 | 0.55 |
| 15:E:21:VAL:O | 15:E:21:VAL:HG23 | 2.06 | 0.55 |
| 11:A:272(I):U:O2' | 11:A:272(J):C:H5' | 2.07 | 0.55 |
| 11:A:2893:G:H5' | 11:A:2894:G:C5' | 2.33 | 0.55 |
| 25:R:3:HIS:C | 25:R:3:HIS:HD1 | 2.10 | 0.55 |
| 11:A:2010:G:H5'' | 30:W:42:ARG:HB2 | 1.89 | 0.55 |
| 11:A:2761:G:H2' | 11:A:2762:G:H5'' | 1.88 | 0.55 |
| 1:0:40:GLN:NE2 | 1:0:44:ARG:HB2 | 2.22 | 0.55 |
| 11:A:2125:G:OP1 | 13:C:40:THR:HG21 | 2.06 | 0.55 |
| 11:A:2720:U:H5' | 11:A:2721:A:OP2 | 2.07 | 0.55 |
| 11:A:2240:C:O2' | 11:A:2241:A:H5' | 2.06 | 0.55 |
| 11:A:1820:U:O2 | 14:D:201:HIS:HB3 | 2.06 | 0.55 |
| 13:C:119:VAL:O | 13:C:119:VAL:HG22 | 2.07 | 0.55 |
| 11:A:1528:A:N1 | 11:A:1542:A:H2 | 2.04 | 0.55 |
| 32:Y:79:CYS:SG | 32:Y:80:GLY:N | 2.80 | 0.55 |
| 5:4:12:ALA:HB1 | 5:4:29:PRO:O | 2.07 | 0.55 |
| 23:P:16:ARG:CB | 23:P:16:ARG:NH1 | 2.67 | 0.55 |
| 3:2:31:GLU:CB | 3:2:53:LEU:HD11 | 2.37 | 0.55 |
| 33:Z:150:LEU:CD2 | 33:Z:172:ALA:HB3 | 2.36 | 0.55 |
| 28:U:112:ARG:NH1 | 29:V:46:VAL:HG11 | 2.22 | 0.55 |
| 32:Y:62:GLU:OE1 | 32:Y:62:GLU:N | 2.40 | 0.55 |
| 25:R:59:ASP:O | 25:R:60:LEU:HB3 | 2.07 | 0.55 |
| 11:A:1547:C:O2' | 11:A:1548:C:H5' | 2.07 | 0.55 |
| 33:Z:54:HIS:HB2 | 33:Z:55:HIS:CD2 | 2.42 | 0.55 |
| 26:S:58:LEU:CG | 26:S:59:LYS:H | 2.20 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 26:S:97:ARG:NH2 | 26:S:98:VAL:HA | 2.22 | 0.54 |
| 6:5:57:VAL:O | 6:5:58:LEU:HD12 | 2.07 | 0.54 |
| 18:H:105:LEU:CD2 | 18:H:113:VAL:HB | 2.37 | 0.54 |
| 25:R:2:ARG:HD2 | 25:R:2:ARG:C | 2.28 | 0.54 |
| 11:A:2761:G:C2' | 11:A:2762:G:H5'' | 2.36 | 0.54 |
| 18:H:76:VAL:O | 18:H:79:VAL:HG22 | 2.08 | 0.54 |
| 33:Z:14:LYS:O | 33:Z:14:LYS:HD2 | 2.08 | 0.54 |
| 11:A:583:G:OP2 | 28:U:10:ARG:HD2 | 2.06 | 0.54 |
| 11:A:234:C:H2' | 11:A:235:U:H6 | 1.71 | 0.54 |
| 5:4:5:ILE:HD13 | 5:4:5:ILE:H | 1.72 | 0.54 |
| 14:D:223:GLY:O | 14:D:224:ALA:O | 2.25 | 0.54 |
| 11:A:1411:C:H2' | 11:A:1412:A:H8 | 1.72 | 0.54 |
| 11:A:2319:G:OP1 | 11:A:2319:G:H4' | 2.07 | 0.54 |
| 11:A:270:A:N1 | 11:A:366:C:O2' | 2.36 | 0.54 |
| 17:G:43:LEU:HD21 | 17:G:90:LEU:HB2 | 1.88 | 0.54 |
| 29:V:28:GLU:HB3 | 29:V:29:PRO:HD2 | 1.89 | 0.54 |
| 26:S:42:ASP:C | 26:S:44:LYS:H | 2.11 | 0.54 |
| 9:8:32:LEU:HD13 | 11:A:2392:A:OP1 | 2.07 | 0.54 |
| 16:F:126:VAL:O | 16:F:196:LEU:HG | 2.07 | 0.54 |
| 11:A:2317:C:H2' | 11:A:2318:G:C5' | 2.30 | 0.54 |
| 5:4:11:PRO:HB3 | 5:4:25:TYR:CE2 | 2.42 | 0.54 |
| 27:T:24:PRO:HD3 | 27:T:52:ILE:HD12 | 1.90 | 0.54 |
| 10:9:29:ASN:N | 10:9:29:ASN:HD22 | 2.03 | 0.54 |
| 11:A:470:A:H2' | 11:A:471:A:O4' | 2.07 | 0.54 |
| 11:A:2693:A:H2' | 11:A:2694:G:H8 | 1.72 | 0.54 |
| 11:A:1469:A:H2' | 11:A:1470:G:C8 | 2.42 | 0.54 |
| 14:D:6:PHE:CE1 | 14:D:18:VAL:HG12 | 2.42 | 0.54 |
| 21:N:76:SER:N | 21:N:81:GLY:O | 2.35 | 0.54 |
| 11:A:984:A:H5'' | 11:A:985:C:H5 | 1.71 | 0.54 |
| 19:J:127:UNK:HA | 19:J:130:UNK:CB | 2.38 | 0.54 |
| 11:A:108:U:H2' | 11:A:109:G:C8 | 2.42 | 0.54 |
| 13:C:116:THR:HB | 13:C:147:PHE:CD1 | 2.43 | 0.54 |
| 21:N:46:VAL:CG1 | 21:N:48:MET:HG3 | 2.38 | 0.54 |
| 25:R:99:LYS:H | 25:R:99:LYS:CD | 2.03 | 0.54 |
| 11:A:2392:A:H2 | 11:A:2424:C:N4 | 1.99 | 0.54 |
| 17:G:125:PHE:O | 17:G:126:ASP:O | 2.26 | 0.54 |
| 11:A:267:C:H2' | 11:A:268:C:C6 | 2.42 | 0.54 |
| 26:S:106:ARG:HB3 | 26:S:106:ARG:CZ | 2.37 | 0.54 |
| 33:Z:151:HIS:O | 33:Z:152:ALA:HB3 | 2.08 | 0.54 |
| 12:B:81:G:O6 | 12:B:96:U:O2 | 2.25 | 0.54 |
| 11:A:708:C:N4 | 11:A:723:G:H1 | 2.04 | 0.54 |
| 11:A:559:G:N2 | 28:U:49:HIS:CD2 | 2.75 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:191:A:H2' | 11:A:192:C:C6 | 2.42 | 0.54 |
| 11:A:8:A:H2' | 11:A:9:U:C6 | 2.41 | 0.54 |
| 24:Q:42:ILE:HD13 | 24:Q:97:VAL:HG21 | 1.90 | 0.54 |
| 4:3:4:LEU:O | 4:3:36:VAL:HA | 2.08 | 0.54 |
| 26:S:22:GLY:O | 26:S:23:ARG:O | 2.25 | 0.54 |
| 11:A:2001:A:H4' | 11:A:2689:U:H2' | 1.90 | 0.54 |
| 11:A:39:C:H2' | 11:A:40:C:C6 | 2.42 | 0.54 |
| 23:P:17:LYS:C | 23:P:19:VAL:H | 2.09 | 0.54 |
| 14:D:32:SER:O | 14:D:36:PRO:CG | 2.53 | 0.54 |
| 18:H:94:TYR:HE2 | 18:H:160:LYS:HB3 | 1.73 | 0.54 |
| 7:6:15:GLU:CG | 7:6:18:ARG:CZ | 2.85 | 0.54 |
| 26:S:19:LYS:HB3 | 26:S:20:ARG:NH2 | 2.21 | 0.54 |
| 23:P:112:LEU:HD13 | 23:P:112:LEU:O | 2.07 | 0.54 |
| 18:H:52:VAL:HB | 18:H:69:ARG:HD3 | 1.89 | 0.54 |
| 11:A:1748:G:H5' | 11:A:1748:G:C8 | 2.40 | 0.54 |
| 17:G:38:VAL:CG2 | 17:G:158:ALA:HB3 | 2.36 | 0.54 |
| 26:S:49:VAL:CG1 | 26:S:50:SER:H | 2.16 | 0.54 |
| 11:A:1314:C:C2 | 11:A:1339:G:N2 | 2.76 | 0.54 |
| 14:D:45:ASN:OD1 | 14:D:46:GLN:N | 2.41 | 0.54 |
| 11:A:414:C:O2' | 11:A:415:A:H5' | 2.08 | 0.54 |
| 10:9:1:MET:CG | 11:A:2478:A:OP2 | 2.56 | 0.54 |
| 11:A:2360:A:C2 | 11:A:2361:A:H1' | 2.43 | 0.54 |
| 17:G:173:LEU:O | 17:G:178:PHE:HB2 | 2.07 | 0.54 |
| 11:A:227:A:C2 | 11:A:2407:G:H1' | 2.42 | 0.54 |
| 15:E:2:LYS:HD3 | 15:E:95:ILE:HG22 | 1.88 | 0.54 |
| 16:F:19:GLU:O | 16:F:20:LEU:HG | 2.08 | 0.54 |
| 9:8:61:LEU:C | 9:8:63:PRO:HD2 | 2.28 | 0.54 |
| 11:A:2312:U:OP1 | 17:G:73:ALA:HB1 | 2.08 | 0.54 |
| 11:A:1023:U:H2' | 11:A:1024:G:H5' | 1.89 | 0.54 |
| 32:Y:13:VAL:CG1 | 32:Y:28:LYS:HD3 | 2.37 | 0.54 |
| 23:P:50:ARG:HH11 | 23:P:50:ARG:HG2 | 1.72 | 0.54 |
| 16:F:103:LYS:HG3 | 16:F:106:ARG:HH21 | 1.72 | 0.54 |
| 11:A:332:A:O2' | 11:A:333:G:O5' | 2.25 | 0.54 |
| 17:G:172:LEU:HD23 | 17:G:176:LEU:HD12 | 1.90 | 0.54 |
| 27:T:50:ILE:CD1 | 27:T:64:ARG:HB3 | 2.37 | 0.54 |
| 29:V:38:LEU:O | 29:V:39:LEU:HD13 | 2.08 | 0.54 |
| 6:5:7:PRO:HG2 | 11:A:2016:U:O2 | 2.07 | 0.54 |
| 11:A:1336:A:H2' | 11:A:1337:G:C8 | 2.41 | 0.54 |
| 32:Y:6:HIS:CD2 | 32:Y:6:HIS:N | 2.75 | 0.54 |
| 15:E:52:LEU:HB3 | 15:E:75:VAL:HB | 1.90 | 0.54 |
| 29:V:18:LEU:HD23 | 29:V:19:LYS:N | 2.18 | 0.54 |
| 9:8:23:VAL:HG11 | 9:8:46:ARG:HD3 | 1.90 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 30:W:5:ALA:HB2 | 30:W:54:ALA:CB | 2.29 | 0.54 |
| 11:A:2892:A:H62 | 11:A:2893:G:N2 | 2.05 | 0.54 |
| 11:A:1516:C:O2' | 11:A:1517:G:H5'' | 2.06 | 0.54 |
| 11:A:654(H):G:C3' | 11:A:654(I):C:H5' | 2.37 | 0.54 |
| 15:E:45:THR:O | 15:E:46:ALA:HB2 | 2.08 | 0.54 |
| 11:A:2030:A:H4' | 11:A:2031:A:H8 | 1.72 | 0.54 |
| 14:D:267:SER:C | 14:D:269:PHE:N | 2.60 | 0.54 |
| 11:A:1771:C:C1' | 11:A:1786:A:C8 | 2.90 | 0.54 |
| 11:A:108:U:H2' | 11:A:109:G:H8 | 1.71 | 0.54 |
| 27:T:30:VAL:HG21 | 27:T:83:ILE:HG12 | 1.89 | 0.54 |
| 27:T:32:TYR:HB3 | 27:T:81:PRO:HB3 | 1.88 | 0.54 |
| 33:Z:98:MET:HG2 | 33:Z:99:TYR:H | 1.68 | 0.54 |
| 17:G:83:ARG:HB2 | 17:G:84:LYS:HD2 | 1.90 | 0.54 |
| 7:6:9:LEU:HD13 | 7:6:9:LEU:O | 2.07 | 0.54 |
| 23:P:131:SER:OG | 23:P:134:ALA:HB3 | 2.08 | 0.54 |
| 6:5:54:GLY:C | 6:5:56:LYS:HZ2 | 2.11 | 0.54 |
| 11:A:654(I):C:H5'' | 11:A:654(J):A:OP1 | 2.07 | 0.54 |
| 3:2:8:LYS:HA | 3:2:11:GLU:HG3 | 1.90 | 0.54 |
| 11:A:15:G:O2' | 11:A:16:G:H5' | 2.08 | 0.54 |
| 24:Q:43:THR:OG1 | 24:Q:46:GLN:HG3 | 2.08 | 0.54 |
| 11:A:674:G:N3 | 16:F:74:ARG:NH1 | 2.55 | 0.54 |
| 11:A:2358:G:H22 | 23:P:55:ARG:NH2 | 2.04 | 0.54 |
| 11:A:1163:G:O2' | 11:A:1164:G:H5' | 2.07 | 0.54 |
| 5:4:18:CYS:SG | 5:4:19:GLY:N | 2.81 | 0.54 |
| 24:Q:30:GLY:HA2 | 24:Q:107:ALA:HB2 | 1.90 | 0.54 |
| 11:A:1171:G:N7 | 11:A:1173:G:H1' | 2.22 | 0.54 |
| 13:C:41:VAL:HG21 | 13:C:185:LEU:HD22 | 1.88 | 0.54 |
| 25:R:111:LEU:HD12 | 25:R:111:LEU:N | 2.23 | 0.54 |
| 14:D:27:THR:O | 14:D:27:THR:HG23 | 2.08 | 0.54 |
| 9:8:62:LEU:N | 9:8:63:PRO:HD2 | 2.23 | 0.54 |
| 29:V:19:LYS:HE2 | 29:V:19:LYS:HA | 1.90 | 0.54 |
| 16:F:7:TYR:OH | 16:F:10:PRO:HB3 | 2.08 | 0.54 |
| 23:P:23:PRO:HB2 | 23:P:33:ARG:CD | 2.37 | 0.54 |
| 11:A:2179:C:H1' | 11:A:2180:U:C4 | 2.42 | 0.54 |
| 1:0:56:ASP:OD2 | 11:A:2364:C:H5' | 2.08 | 0.54 |
| 11:A:2025:C:H2' | 11:A:2026:C:H6 | 1.72 | 0.54 |
| 11:A:1826:G:H4' | 14:D:242:ARG:NH2 | 2.19 | 0.54 |
| 27:T:85:LYS:HZ3 | 27:T:85:LYS:HB3 | 1.68 | 0.54 |
| 11:A:910:A:H2' | 11:A:911:A:C8 | 2.42 | 0.54 |
| 17:G:149:VAL:O | 17:G:149:VAL:HG23 | 2.08 | 0.54 |
| 7:6:20:ASN:O | 7:6:21:TYR:CD2 | 2.61 | 0.54 |
| 3:2:35:LEU:O | 3:2:39:ALA:N | 2.41 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 3:2:35:LEU:HB3 | 3:2:50:ILE:HG13 | 1.90 | 0.54 |
| 24:Q:74:TYR:CD2 | 24:Q:91:GLU:HB2 | 2.38 | 0.54 |
| 15:E:107:THR:HA | 15:E:163:GLU:O | 2.08 | 0.54 |
| 11:A:1880:C:H2' | 11:A:1881:C:H5'' | 1.90 | 0.54 |
| 11:A:363(E):U:H2' | 11:A:363(F):A:C1' | 2.38 | 0.54 |
| 16:F:85:GLY:O | 16:F:86:GLY:O | 2.26 | 0.54 |
| 29:V:91:TYR:HD1 | 29:V:91:TYR:H | 1.56 | 0.54 |
| 3:2:69:ARG:HB2 | 3:2:70:GLN:NE2 | 2.23 | 0.54 |
| 4:3:15:TYR:HD2 | 4:3:19:GLN:HE22 | 1.56 | 0.54 |
| 14:D:148:GLU:CB | 14:D:151:LYS:HD2 | 2.38 | 0.54 |
| 11:A:2019:A:C2' | 11:A:2020:A:O5' | 2.55 | 0.54 |
| 21:N:76:SER:HB3 | 21:N:81:GLY:HA3 | 1.90 | 0.54 |
| 23:P:17:LYS:HG2 | 23:P:17:LYS:O | 2.07 | 0.54 |
| 11:A:2682:U:H6 | 11:A:2682:U:H5' | 1.73 | 0.54 |
| 27:T:28:VAL:CG2 | 27:T:46:GLU:HG3 | 2.38 | 0.54 |
| 27:T:27:THR:HG23 | 27:T:28:VAL:H | 1.73 | 0.54 |
| 14:D:68:LYS:HD3 | 14:D:70:TRP:CZ2 | 2.42 | 0.54 |
| 11:A:310:A:OP1 | 32:Y:17:SER:O | 2.26 | 0.54 |
| 11:A:832:G:H21 | 23:P:53:GLY:CA | 2.21 | 0.54 |
| 11:A:2179:C:H4' | 11:A:2180:U:N3 | 2.23 | 0.54 |
| 5:4:28:LYS:O | 5:4:31:ILE:HD11 | 2.07 | 0.54 |
| 28:U:61:TRP:CH2 | 28:U:94:ASN:HB2 | 2.43 | 0.54 |
| 11:A:1059:G:H2' | 11:A:1060:U:H5 | 1.71 | 0.54 |
| 18:H:30:LYS:HE2 | 18:H:30:LYS:HA | 1.90 | 0.54 |
| 11:A:1453:U:H5' | 25:R:63:ARG:NE | 2.23 | 0.54 |
| 11:A:1451:C:N4 | 11:A:1461:G:H1 | 2.05 | 0.54 |
| 18:H:149:ARG:HG3 | 18:H:162:ILE:HG12 | 1.90 | 0.54 |
| 4:3:25:ALA:C | 4:3:27:GLY:H | 2.10 | 0.54 |
| 11:A:1652:A:C2' | 11:A:1653:G:H5' | 2.38 | 0.54 |
| 27:T:29:ARG:HB3 | 27:T:85:LYS:HA | 1.89 | 0.53 |
| 16:F:3:GLU:HA | 16:F:24:LEU:CG | 2.35 | 0.53 |
| 23:P:9:ASN:H | 23:P:10:PRO:CD | 2.22 | 0.53 |
| 12:B:106:G:O2' | 12:B:107:G:H5' | 2.07 | 0.53 |
| 17:G:73:ALA:CB | 17:G:87:PRO:HG3 | 2.28 | 0.53 |
| 26:S:17:ARG:HA | 26:S:20:ARG:HH11 | 1.73 | 0.53 |
| 11:A:2392:A:H1' | 23:P:60:MET:HB3 | 1.90 | 0.53 |
| 5:4:28:LYS:HE3 | 5:4:28:LYS:HA | 1.90 | 0.53 |
| 16:F:28:ILE:N | 16:F:28:ILE:HD13 | 2.13 | 0.53 |
| 11:A:1049:C:H2' | 11:A:1050:A:C8 | 2.29 | 0.53 |
| 30:W:17:VAL:O | 30:W:20:VAL:HG22 | 2.08 | 0.53 |
| 27:T:92:GLY:O | 27:T:93:ARG:C | 2.47 | 0.53 |
| 11:A:142:A:H5'' | 11:A:142(A):C:H5 | 1.72 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 16:F:157:VAL:HG21 | 16:F:194:MET:HG2 | 1.90 | 0.53 |
| 11:A:1880:C:C2' | 11:A:1881:C:H5'' | 2.38 | 0.53 |
| 11:A:335:C:H2' | 11:A:336:C:H6 | 1.74 | 0.53 |
| 11:A:324:A:H2' | 11:A:325:G:O4' | 2.07 | 0.53 |
| 14:D:111:LEU:HD22 | 14:D:115:GLN:OE1 | 2.07 | 0.53 |
| 32:Y:2:ARG:C | 32:Y:4:LYS:H | 2.12 | 0.53 |
| 11:A:1354:A:H2' | 11:A:1355:G:O4' | 2.08 | 0.53 |
| 11:A:222:A:H5'' | 11:A:421:U:OP1 | 2.08 | 0.53 |
| 17:G:118:ARG:HG2 | 17:G:118:ARG:HH11 | 1.73 | 0.53 |
| 11:A:341:G:O2' | 11:A:342:G:H5' | 2.08 | 0.53 |
| 13:C:87:GLU:CG | 13:C:94:VAL:HG11 | 2.38 | 0.53 |
| 11:A:1860:G:H1 | 11:A:1882:C:H42 | 1.54 | 0.53 |
| 15:E:48:GLN:HE21 | 15:E:78:LEU:HD22 | 1.73 | 0.53 |
| 12:B:105:A:H2' | 12:B:106:G:O4' | 2.08 | 0.53 |
| 32:Y:98:VAL:O | 32:Y:99:CYS:SG | 2.66 | 0.53 |
| 18:H:20:ALA:HB1 | 18:H:21:PRO:CD | 2.39 | 0.53 |
| 15:E:59:VAL:HG23 | 15:E:63:LEU:HA | 1.90 | 0.53 |
| 9:8:52:LYS:N | 9:8:53:PRO:CD | 2.70 | 0.53 |
| 11:A:1722:A:O2' | 11:A:1739:U:H5'' | 2.08 | 0.53 |
| 11:A:1331:A:O2' | 11:A:1332:G:C8 | 2.58 | 0.53 |
| 11:A:1493:C:O2 | 11:A:1493:C:H2' | 2.07 | 0.53 |
| 11:A:1013:C:H2' | 11:A:1014:U:H6 | 1.72 | 0.53 |
| 11:A:1586:A:H5'' | 11:A:1587:A:C8 | 2.44 | 0.53 |
| 14:D:91:ARG:HH11 | 14:D:91:ARG:HG2 | 1.73 | 0.53 |
| 24:Q:63:LYS:HB2 | 33:Z:116:VAL:HG11 | 1.90 | 0.53 |
| 11:A:1999:C:H4' | 11:A:2723:C:O2 | 2.08 | 0.53 |
| 25:R:67:LEU:HD13 | 25:R:76:VAL:HG21 | 1.91 | 0.53 |
| 9:8:61:LEU:CD1 | 9:8:62:LEU:H | 2.21 | 0.53 |
| 7:6:14:THR:HG23 | 7:6:16:CYS:H | 1.73 | 0.53 |
| 7:6:20:ASN:C | 7:6:21:TYR:CG | 2.82 | 0.53 |
| 11:A:99:U:C6 | 11:A:102:G:N2 | 2.77 | 0.53 |
| 11:A:2741:A:H2' | 11:A:2742:C:O4' | 2.08 | 0.53 |
| 33:Z:166:SER:HB2 | 33:Z:167:PRO:C | 2.29 | 0.53 |
| 29:V:5:VAL:HG21 | 29:V:35:LEU:CD2 | 2.38 | 0.53 |
| 9:8:15:LYS:HD2 | 9:8:16:ILE:H | 1.73 | 0.53 |
| 11:A:2219:G:C2' | 11:A:2220:G:H5' | 2.39 | 0.53 |
| 11:A:1056:G:H22 | 11:A:1104:C:H42 | 1.54 | 0.53 |
| 13:C:87:GLU:HG3 | 13:C:94:VAL:HG11 | 1.91 | 0.53 |
| 11:A:1506:C:O2 | 11:A:1506:C:H2' | 2.09 | 0.53 |
| 15:E:182:LEU:C | 15:E:183:LEU:HD12 | 2.29 | 0.53 |
| 24:Q:6:ARG:O | 24:Q:7:MET:HG3 | 2.07 | 0.53 |
| 22:O:104:ARG:HE | 27:T:33:LYS:HZ3 | 1.54 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 21:N:48:MET:HE3 | 21:N:48:MET:C | 2.29 | 0.53 |
| 9:8:23:VAL:HG13 | 9:8:46:ARG:HB3 | 1.89 | 0.53 |
| 9:8:33:ASN:OD1 | 9:8:35:GLN:N | 2.41 | 0.53 |
| 33:Z:10:ARG:NH2 | 33:Z:36:LYS:HB2 | 2.23 | 0.53 |
| 11:A:1404:C:O2' | 11:A:1405:U:H5' | 2.08 | 0.53 |
| 11:A:2523:G:O2' | 11:A:2524:G:H5'' | 2.09 | 0.53 |
| 11:A:480:A:H3' | 11:A:481:G:H5'' | 1.90 | 0.53 |
| 11:A:796:C:H2' | 11:A:797:C:H6 | 1.72 | 0.53 |
| 17:G:109:VAL:O | 17:G:112:PRO:HG2 | 2.09 | 0.53 |
| 11:A:2360:A:O2' | 11:A:2361:A:O4' | 2.22 | 0.53 |
| 11:A:2360:A:O2' | 11:A:2361:A:P | 2.67 | 0.53 |
| 11:A:2320:A:N3 | 11:A:2320:A:H2' | 2.22 | 0.53 |
| 18:H:88:LEU:HD13 | 18:H:130:ARG:HG2 | 1.90 | 0.53 |
| 11:A:2545:G:N3 | 11:A:2565:A:H2 | 2.06 | 0.53 |
| 20:K:66:UNK:O | 20:K:67:UNK:C | 2.55 | 0.53 |
| 9:8:61:LEU:CD2 | 9:8:62:LEU:H | 2.21 | 0.53 |
| 32:Y:7:VAL:HB | 32:Y:8:LYS:HZ3 | 1.74 | 0.53 |
| 23:P:23:PRO:C | 23:P:33:ARG:NE | 2.62 | 0.53 |
| 11:A:607:U:H3 | 11:A:621:A:H2 | 1.57 | 0.53 |
| 11:A:622:G:O2' | 11:A:623:G:H5' | 2.09 | 0.53 |
| 11:A:2179:C:H4' | 11:A:2180:U:C2 | 2.44 | 0.53 |
| 11:A:1058:G:H3' | 11:A:1059:G:H5' | 1.91 | 0.53 |
| 33:Z:108:PRO:HB3 | 33:Z:141:VAL:HG12 | 1.90 | 0.53 |
| 21:N:4:TYR:N | 21:N:4:TYR:CD1 | 2.76 | 0.53 |
| 11:A:2777:G:C5' | 11:A:2778:A:H5' | 2.38 | 0.53 |
| 11:A:67:U:H2' | 11:A:68:G:H8 | 1.73 | 0.53 |
| 21:N:12:ARG:O | 21:N:14:VAL:HG23 | 2.09 | 0.53 |
| 11:A:2406:U:N3 | 23:P:72:PRO:HB2 | 2.24 | 0.53 |
| 11:A:49:A:H5'' | 11:A:51:G:O4' | 2.07 | 0.53 |
| 11:A:1528(A):A:H62 | 11:A:1541:G:H21 | 1.57 | 0.53 |
| 18:H:156:ALA:C | 18:H:158:HIS:N | 2.61 | 0.53 |
| 11:A:84:A:H3' | 32:Y:9:LYS:HG3 | 1.91 | 0.53 |
| 26:S:95:HIS:CG | 26:S:96:GLY:N | 2.76 | 0.53 |
| 23:P:57:THR:OG1 | 23:P:59:LEU:CB | 2.56 | 0.53 |
| 3:2:20:GLU:HG3 | 3:2:21:LEU:N | 2.23 | 0.53 |
| 11:A:2523:G:C2' | 11:A:2524:G:C5' | 2.87 | 0.53 |
| 12:B:80:U:H2' | 12:B:81:G:N2 | 2.21 | 0.53 |
| 12:B:96:U:H2' | 12:B:97:G:C8 | 2.44 | 0.53 |
| 11:A:710:G:H2' | 11:A:711:G:C8 | 2.43 | 0.53 |
| 2:1:3:LYS:NZ | 2:1:3:LYS:CB | 2.71 | 0.53 |
| 22:O:97:ARG:HG3 | 22:O:97:ARG:HH11 | 1.74 | 0.53 |
| 16:F:197:ASP:O | 16:F:200:GLU:HB3 | 2.08 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 27:T:85:LYS:CB | 27:T:85:LYS:HZ2 | 2.20 | 0.53 |
| 11:A:31:C:C2' | 11:A:32:C:C5' | 2.72 | 0.53 |
| 11:A:239:U:H1' | 11:A:259:G:N2 | 2.24 | 0.53 |
| 11:A:1210:A:H4' | 11:A:1211:U:O5' | 2.09 | 0.53 |
| 31:X:35:THR:HG22 | 31:X:38:GLU:N | 2.21 | 0.53 |
| 21:N:61:ARG:NH1 | 21:N:61:ARG:HG3 | 2.22 | 0.53 |
| 5:4:5:ILE:HD13 | 5:4:5:ILE:N | 2.23 | 0.53 |
| 28:U:102:GLU:HB2 | 28:U:105:VAL:HB | 1.89 | 0.53 |
| 11:A:1582:C:O2' | 11:A:1586:A:C8 | 2.62 | 0.53 |
| 24:Q:81:VAL:HG22 | 24:Q:82:ARG:N | 2.23 | 0.53 |
| 33:Z:123:ASP:O | 33:Z:124:ILE:CG2 | 2.53 | 0.53 |
| 24:Q:140:ALA:HB1 | 33:Z:99:TYR:CE2 | 2.43 | 0.53 |
| 14:D:72:LYS:HG3 | 14:D:103:ARG:NH2 | 2.24 | 0.53 |
| 17:G:77:ILE:O | 17:G:78:SER:C | 2.46 | 0.53 |
| 32:Y:77:PRO:O | 32:Y:78:ALA:HB2 | 2.07 | 0.53 |
| 11:A:654(N):G:H2' | 11:A:654(O):G:O4' | 2.09 | 0.53 |
| 11:A:1050:A:H2' | 11:A:1051:G:C5' | 2.35 | 0.53 |
| 11:A:2807:G:C3' | 11:A:2808:U:H5'' | 2.38 | 0.53 |
| 31:X:64:LYS:HG2 | 31:X:65:ARG:N | 2.24 | 0.53 |
| 17:G:31:VAL:O | 17:G:33:ARG:HG3 | 2.09 | 0.53 |
| 27:T:106:SER:O | 27:T:107:ASP:OD1 | 2.27 | 0.53 |
| 11:A:142(A):C:O2' | 11:A:143:G:H5' | 2.08 | 0.53 |
| 11:A:2097:C:O2' | 11:A:2098:U:H5' | 2.09 | 0.53 |
| 14:D:142:VAL:HG22 | 14:D:143:HIS:N | 2.24 | 0.53 |
| 29:V:81:TYR:C | 29:V:82:ARG:HD2 | 2.28 | 0.53 |
| 11:A:1573:G:H2' | 11:A:1574:C:H5' | 1.90 | 0.53 |
| 18:H:126:PRO:O | 18:H:127:GLU:CB | 2.56 | 0.53 |
| 25:R:28:LEU:HD12 | 25:R:114:VAL:CG2 | 2.39 | 0.53 |
| 33:Z:11:GLU:CD | 33:Z:11:GLU:H | 2.12 | 0.53 |
| 33:Z:119:GLU:O | 33:Z:121:HIS:N | 2.39 | 0.53 |
| 11:A:2750:A:H4' | 11:A:2751:G:OP1 | 2.08 | 0.53 |
| 1:0:26:TYR:CE2 | 11:A:857:C:H1' | 2.44 | 0.53 |
| 27:T:27:THR:OG1 | 27:T:28:VAL:N | 2.41 | 0.53 |
| 23:P:147:LEU:CG | 23:P:148:LEU:N | 2.70 | 0.53 |
| 17:G:61:ALA:O | 17:G:65:GLY:N | 2.42 | 0.53 |
| 17:G:64:THR:HG23 | 17:G:65:GLY:N | 2.24 | 0.53 |
| 33:Z:155:LEU:H | 33:Z:155:LEU:CD2 | 2.22 | 0.53 |
| 11:A:88:G:H5' | 11:A:89:G:OP2 | 2.09 | 0.53 |
| 33:Z:65:GLN:HB3 | 33:Z:67:LEU:HD11 | 1.90 | 0.53 |
| 21:N:1:MET:C | 21:N:1:MET:SD | 2.87 | 0.53 |
| 14:D:79:VAL:HG21 | 14:D:111:LEU:HD11 | 1.89 | 0.53 |
| 16:F:53:THR:O | 16:F:57:VAL:HG23 | 2.08 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 11:A:2199:A:H3' | 11:A:2200:C:C6 | 2.43 | 0.53 |
| 25:R:103:ARG:HG3 | 30:W:40:ASN:CG | 2.29 | 0.53 |
| 13:C:49:ILE:HB | 13:C:56:GLN:HB3 | 1.91 | 0.53 |
| 15:E:49:LEU:O | 15:E:78:LEU:CB | 2.57 | 0.53 |
| 15:E:52:LEU:HD21 | 27:T:1:MET:HE3 | 1.90 | 0.53 |
| 14:D:77:ALA:HA | 14:D:97:TYR:HA | 1.91 | 0.53 |
| 23:P:33:ARG:O | 23:P:34:GLY:C | 2.47 | 0.53 |
| 11:A:2133:G:C5 | 11:A:2157:G:N1 | 2.77 | 0.53 |
| 11:A:1246:A:OP1 | 23:P:16:ARG:NH2 | 2.41 | 0.53 |
| 30:W:43:GLY:O | 30:W:47:VAL:HG23 | 2.08 | 0.53 |
| 6:5:57:VAL:C | 6:5:58:LEU:HD12 | 2.29 | 0.53 |
| 11:A:888:C:H2' | 11:A:889:C:C4' | 2.36 | 0.53 |
| 3:2:69:ARG:NH2 | 11:A:111:A:H4' | 2.24 | 0.53 |
| 4:3:19:GLN:NE2 | 4:3:52:HIS:HE1 | 2.07 | 0.53 |
| 11:A:2672:G:C2' | 11:A:2673:G:H5'' | 2.38 | 0.53 |
| 12:B:3:C:N4 | 12:B:118:G:H1 | 2.07 | 0.53 |
| 11:A:902:C:H2' | 11:A:903:C:C6 | 2.44 | 0.53 |
| 11:A:2649:U:H2' | 11:A:2650:U:H6 | 1.73 | 0.53 |
| 19:J:96:UNK:C | 19:J:98:UNK:N | 2.70 | 0.53 |
| 12:B:56:G:O2' | 12:B:57:A:OP2 | 2.25 | 0.53 |
| 19:J:18:UNK:O | 19:J:19:UNK:C | 2.57 | 0.53 |
| 22:O:64:ARG:NH1 | 22:O:83:ALA:HB2 | 2.23 | 0.53 |
| 7:6:12:GLU:HA | 7:6:23:THR:HA | 1.91 | 0.53 |
| 27:T:28:VAL:HG22 | 27:T:46:GLU:C | 2.30 | 0.52 |
| 16:F:27:GLU:N | 16:F:27:GLU:OE1 | 2.42 | 0.52 |
| 23:P:9:ASN:H | 23:P:10:PRO:HD3 | 1.74 | 0.52 |
| 11:A:926:A:H5' | 11:A:926:A:H8 | 1.73 | 0.52 |
| 11:A:654(M):C:H2' | 11:A:654(N):G:N7 | 2.24 | 0.52 |
| 21:N:63:THR:O | 21:N:66:LYS:HE3 | 2.09 | 0.52 |
| 11:A:2393:A:H4' | 23:P:61:ARG:O | 2.09 | 0.52 |
| 16:F:129:PHE:O | 16:F:132:VAL:HB | 2.09 | 0.52 |
| 17:G:91:ARG:HD2 | 17:G:92:VAL:N | 2.24 | 0.52 |
| 18:H:50:VAL:CG1 | 18:H:52:VAL:HG23 | 2.39 | 0.52 |
| 11:A:2416:C:H2' | 11:A:2417:C:C6 | 2.44 | 0.52 |
| 28:U:92:ARG:NH1 | 28:U:94:ASN:ND2 | 2.50 | 0.52 |
| 11:A:848:G:C4 | 11:A:933:A:H8 | 2.27 | 0.52 |
| 29:V:39:LEU:CD1 | 29:V:47:VAL:HG11 | 2.39 | 0.52 |
| 21:N:126:PRO:O | 21:N:127:ASP:CB | 2.57 | 0.52 |
| 21:N:55:VAL:HG22 | 21:N:56:ASN:N | 2.24 | 0.52 |
| 21:N:90:MET:CE | 21:N:90:MET:HA | 2.39 | 0.52 |
| 11:A:1341:U:H4' | 31:X:57:LEU:HB3 | 1.90 | 0.52 |
| 25:R:4:LEU:CG | 25:R:4:LEU:O | 2.57 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 12:B:52:A:O2' | 12:B:53:A:C8 | 2.54 | 0.52 |
| 14:D:268:ARG:HB3 | 14:D:268:ARG:NH1 | 2.24 | 0.52 |
| 11:A:1034:G:H2' | 11:A:1035:U:O4' | 2.09 | 0.52 |
| 11:A:1843:C:H2' | 11:A:1844:C:C6 | 2.44 | 0.52 |
| 13:C:120:MET:O | 13:C:124:GLY:N | 2.35 | 0.52 |
| 11:A:1541:G:O3' | 11:A:1541:G:OP2 | 2.28 | 0.52 |
| 17:G:73:ALA:O | 17:G:85:GLY:HA2 | 2.09 | 0.52 |
| 11:A:654(E):G:C2' | 11:A:654(F):C:H5' | 2.38 | 0.52 |
| 11:A:832:G:O2' | 23:P:52:GLU:HB3 | 2.10 | 0.52 |
| 26:S:12:PHE:HD1 | 26:S:13:ARG:N | 2.06 | 0.52 |
| 11:A:523:C:O2' | 11:A:524:U:H5' | 2.08 | 0.52 |
| 14:D:45:ASN:CG | 14:D:46:GLN:N | 2.63 | 0.52 |
| 11:A:2485:G:O2' | 11:A:2486:G:H5' | 2.10 | 0.52 |
| 11:A:814:C:H4' | 11:A:1224:C:O2 | 2.09 | 0.52 |
| 11:A:710:G:H2' | 11:A:711:G:H8 | 1.74 | 0.52 |
| 11:A:1493:C:C4 | 11:A:2206:G:O2' | 2.62 | 0.52 |
| 11:A:221:A:O2' | 11:A:222:A:OP2 | 2.26 | 0.52 |
| 11:A:2060:A:N6 | 16:F:74:ARG:HH21 | 2.07 | 0.52 |
| 12:B:27:C:H5' | 12:B:28:C:OP2 | 2.09 | 0.52 |
| 11:A:1652:A:O2' | 11:A:1653:G:H5' | 2.09 | 0.52 |
| 11:A:199:A:N6 | 11:A:2433:A:H2' | 2.24 | 0.52 |
| 11:A:535:C:O2' | 11:A:536:A:H5' | 2.09 | 0.52 |
| 11:A:2037:G:H2' | 11:A:2038:G:C8 | 2.44 | 0.52 |
| 25:R:74:LYS:CD | 25:R:77:ARG:HH11 | 2.21 | 0.52 |
| 11:A:629:G:H1' | 11:A:639:U:O2' | 2.10 | 0.52 |
| 16:F:160:ASN:HD21 | 16:F:162:LEU:HB2 | 1.74 | 0.52 |
| 11:A:2892:A:H62 | 11:A:2893:G:H21 | 1.56 | 0.52 |
| 11:A:1518:U:H2' | 11:A:1519:G:O4' | 2.09 | 0.52 |
| 16:F:116:ASP:OD2 | 23:P:5:ASP:N | 2.43 | 0.52 |
| 27:T:129:ARG:NE | 27:T:131:ALA:HB3 | 2.23 | 0.52 |
| 32:Y:57:GLN:HA | 32:Y:57:GLN:OE1 | 2.09 | 0.52 |
| 6:5:49:CYS:SG | 6:5:50:GLY:N | 2.82 | 0.52 |
| 12:B:93:G:H2' | 12:B:94:C:H6 | 1.74 | 0.52 |
| 29:V:39:LEU:N | 29:V:39:LEU:HD22 | 2.25 | 0.52 |
| 28:U:102:GLU:HG3 | 29:V:2:PHE:HE2 | 1.74 | 0.52 |
| 19:J:121:UNK:O | 19:J:123:UNK:N | 2.43 | 0.52 |
| 11:A:2840:C:H5'' | 25:R:53:HIS:CD2 | 2.44 | 0.52 |
| 11:A:947:G:H2' | 11:A:948:G:C8 | 2.44 | 0.52 |
| 2:1:61:ARG:HH11 | 2:1:61:ARG:HG2 | 1.74 | 0.52 |
| 33:Z:44:PHE:C | 33:Z:44:PHE:CD1 | 2.83 | 0.52 |
| 14:D:34:VAL:HG23 | 14:D:35:LYS:N | 2.23 | 0.52 |
| 14:D:35:LYS:CB | 14:D:36:PRO:CD | 2.87 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 14:D:70:TRP:CZ3 | 14:D:150:LYS:HA | 2.44 | 0.52 |
| 18:H:158:HIS:CE1 | 18:H:169:VAL:HG12 | 2.44 | 0.52 |
| 7:6:41:PRO:HD2 | 7:6:45:LYS:HA | 1.91 | 0.52 |
| 11:A:643:A:H2' | 11:A:644:A:O4' | 2.08 | 0.52 |
| 33:Z:163:LEU:N | 33:Z:163:LEU:CD2 | 2.73 | 0.52 |
| 30:W:71:VAL:O | 30:W:71:VAL:HG23 | 2.10 | 0.52 |
| 27:T:23:ARG:HA | 27:T:52:ILE:CD1 | 2.39 | 0.52 |
| 32:Y:36:ALA:HB1 | 32:Y:67:LEU:O | 2.09 | 0.52 |
| 32:Y:43:ASN:CB | 32:Y:64:GLU:HA | 2.39 | 0.52 |
| 11:A:901:A:H5' | 11:A:902:C:OP2 | 2.09 | 0.52 |
| 28:U:52:ARG:O | 28:U:55:ARG:N | 2.43 | 0.52 |
| 29:V:58:VAL:HB | 29:V:98:GLU:HG2 | 1.91 | 0.52 |
| 11:A:2000:G:O2' | 11:A:2001:A:H5' | 2.10 | 0.52 |
| 23:P:107:LYS:O | 23:P:107:LYS:HG3 | 2.10 | 0.52 |
| 11:A:484:C:H2' | 11:A:485:C:C6 | 2.45 | 0.52 |
| 15:E:77:ILE:HG22 | 15:E:78:LEU:N | 2.24 | 0.52 |
| 17:G:150:ASP:O | 17:G:151:ALA:HB2 | 2.09 | 0.52 |
| 21:N:87:LEU:CD1 | 21:N:91:LEU:HG | 2.40 | 0.52 |
| 23:P:23:PRO:HD2 | 23:P:33:ARG:NE | 2.16 | 0.52 |
| 22:O:115:VAL:HG13 | 22:O:121:VAL:HG21 | 1.90 | 0.52 |
| 3:2:7:ARG:O | 3:2:10:LEU:HB3 | 2.10 | 0.52 |
| 3:2:33:MET:O | 3:2:37:PHE:HB2 | 2.08 | 0.52 |
| 11:A:2848:G:C8 | 27:T:97:ALA:HB2 | 2.45 | 0.52 |
| 11:A:1389:G:H2' | 11:A:1390:U:C6 | 2.44 | 0.52 |
| 16:F:22:ALA:HB1 | 16:F:26:ALA:CB | 2.39 | 0.52 |
| 7:6:52:VAL:HG12 | 7:6:53:LYS:CD | 2.39 | 0.52 |
| 18:H:41:MET:HG3 | 18:H:42:ARG:N | 2.24 | 0.52 |
| 6:5:54:GLY:N | 6:5:56:LYS:HZ1 | 2.04 | 0.52 |
| 4:3:43:ILE:HD11 | 11:A:927:G:O2' | 2.10 | 0.52 |
| 9:8:22:VAL:HB | 9:8:53:PRO:HB3 | 1.92 | 0.52 |
| 11:A:2822:G:H2' | 11:A:2823:A:H5'' | 1.90 | 0.52 |
| 11:A:588:U:H2' | 11:A:589:C:C6 | 2.45 | 0.52 |
| 3:2:38:GLN:HA | 3:2:41:ILE:HG12 | 1.92 | 0.52 |
| 11:A:1771:C:H1' | 11:A:1786:A:H8 | 1.70 | 0.52 |
| 11:A:2508:G:O3' | 11:A:2555:U:H5' | 2.10 | 0.52 |
| 29:V:58:VAL:HG12 | 29:V:97:LYS:HB2 | 1.90 | 0.52 |
| 11:A:780:G:OP1 | 14:D:218:ARG:NH2 | 2.41 | 0.52 |
| 11:A:1445(A):C:O2' | 11:A:1446:C:H5' | 2.10 | 0.52 |
| 27:T:84:GLN:O | 27:T:85:LYS:HG3 | 2.10 | 0.52 |
| 18:H:90:LYS:O | 18:H:94:TYR:HD2 | 1.92 | 0.52 |
| 23:P:98:GLU:HA | 23:P:101:VAL:HG22 | 1.92 | 0.52 |
| 11:A:1947:C:H2' | 11:A:1948:G:H5'' | 1.91 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:5:57:VAL:HG12 | 6:5:58:LEU:N | 2.25 | 0.52 |
| 11:A:2807:G:H2' | 11:A:2808:U:H5'' | 1.92 | 0.52 |
| 25:R:83:ILE:HG22 | 25:R:87:TYR:HE2 | 1.74 | 0.52 |
| 11:A:1103:A:H5'' | 11:A:1104:C:C5 | 2.43 | 0.52 |
| 32:Y:89:PHE:C | 32:Y:90:LEU:HD23 | 2.30 | 0.52 |
| 14:D:201:HIS:O | 14:D:204:ILE:HG12 | 2.10 | 0.52 |
| 14:D:91:ARG:NH1 | 14:D:91:ARG:HG2 | 2.25 | 0.52 |
| 11:A:2735:G:H2' | 11:A:2736:G:H8 | 1.75 | 0.52 |
| 11:A:1245:G:H5'' | 16:F:34:TRP:HZ2 | 1.74 | 0.52 |
| 17:G:19:LEU:O | 17:G:22:ARG:HB2 | 2.10 | 0.52 |
| 11:A:1902:C:O2' | 14:D:244:ARG:HB2 | 2.09 | 0.52 |
| 27:T:83:ILE:HG13 | 27:T:84:GLN:N | 2.24 | 0.52 |
| 26:S:61:ASN:OD1 | 26:S:64:GLU:HB2 | 2.09 | 0.52 |
| 1:0:11:ARG:O | 1:0:14:ARG:NH2 | 2.42 | 0.52 |
| 32:Y:74:PRO:HG2 | 32:Y:81:LYS:O | 2.10 | 0.52 |
| 23:P:146:VAL:HG13 | 23:P:147:LEU:N | 2.25 | 0.52 |
| 17:G:64:THR:HG23 | 17:G:65:GLY:H | 1.74 | 0.52 |
| 10:9:7:VAL:HG13 | 10:9:34:GLN:CG | 2.34 | 0.52 |
| 11:A:747:U:O2 | 11:A:2014:A:H1' | 2.10 | 0.52 |
| 11:A:361:G:H2' | 11:A:362:U:H4' | 1.91 | 0.52 |
| 11:A:291:C:H2' | 11:A:292:C:C6 | 2.44 | 0.52 |
| 13:C:6:ARG:HH11 | 13:C:34:THR:HB | 1.74 | 0.52 |
| 14:D:275:LYS:HD2 | 14:D:276:LYS:N | 2.25 | 0.52 |
| 5:4:22:ILE:H | 5:4:22:ILE:HD12 | 1.73 | 0.52 |
| 11:A:1751:C:O2' | 11:A:1752:C:H5' | 2.09 | 0.52 |
| 25:R:33:ARG:HG3 | 25:R:115:GLU:HG3 | 1.92 | 0.52 |
| 22:O:31:LYS:HB3 | 22:O:32:TYR:CE1 | 2.45 | 0.52 |
| 11:A:1204:A:N1 | 11:A:1241:A:H2 | 2.08 | 0.52 |
| 26:S:58:LEU:O | 26:S:59:LYS:O | 2.28 | 0.52 |
| 11:A:1139:G:H5'' | 21:N:70:LYS:NZ | 2.25 | 0.52 |
| 11:A:1754:C:OP1 | 27:T:96:ARG:NH1 | 2.42 | 0.52 |
| 33:Z:152:ALA:HB2 | 33:Z:168:GLU:CA | 2.35 | 0.52 |
| 14:D:134:ARG:NH1 | 14:D:135:PHE:CE1 | 2.77 | 0.52 |
| 11:A:1385:G:O2' | 11:A:1396:U:C6 | 2.62 | 0.52 |
| 11:A:2672:G:C3' | 11:A:2673:G:H5'' | 2.40 | 0.52 |
| 11:A:2022:U:O2' | 11:A:2617:C:H5' | 2.10 | 0.52 |
| 11:A:1231:G:H2' | 11:A:1232:G:H8 | 1.75 | 0.52 |
| 11:A:36:G:H2' | 11:A:37:C:H6 | 1.74 | 0.52 |
| 11:A:57:C:H2' | 11:A:58:G:O4' | 2.10 | 0.52 |
| 11:A:575:A:OP2 | 11:A:2499:C:O2' | 2.28 | 0.52 |
| 17:G:59:GLU:HA | 17:G:62:LEU:HD13 | 1.92 | 0.52 |
| 11:A:1539:G:H2' | 11:A:1540:U:O4' | 2.10 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 21:N:10:GLU:CD | 21:N:11:PRO:HD2 | 2.31 | 0.52 |
| 7:6:26:ASN:ND2 | 7:6:32:ASN:OD1 | 2.42 | 0.52 |
| 33:Z:100:VAL:O | 33:Z:124:ILE:HG12 | 2.10 | 0.52 |
| 11:A:1049:C:O2 | 11:A:1113:U:H4' | 2.11 | 0.52 |
| 11:A:2631:G:N2 | 15:E:61:ARG:HH12 | 2.08 | 0.52 |
| 2:1:66:HIS:O | 2:1:67:ILE:C | 2.49 | 0.52 |
| 3:2:68:ARG:HG3 | 3:2:72:ALA:CB | 2.40 | 0.52 |
| 2:1:72:GLU:CG | 2:1:76:ARG:HH21 | 2.23 | 0.52 |
| 11:A:1450(A):C:H2' | 11:A:1451:C:H6 | 1.73 | 0.52 |
| 11:A:320:A:H2' | 16:F:136:THR:OG1 | 2.09 | 0.52 |
| 13:C:40:THR:HA | 13:C:177:LYS:HA | 1.92 | 0.52 |
| 11:A:118:A:H1' | 11:A:178:G:O4' | 2.10 | 0.52 |
| 11:A:2695:C:H2' | 11:A:2696:U:C6 | 2.45 | 0.52 |
| 11:A:1203:G:H3' | 11:A:1204:A:H5'' | 1.91 | 0.52 |
| 23:P:20:GLY:O | 23:P:21:ARG:HB2 | 2.10 | 0.52 |
| 11:A:979:G:H3' | 11:A:980:A:C5' | 2.40 | 0.52 |
| 11:A:1910:G:O2' | 11:A:1911:U:H5' | 2.10 | 0.52 |
| 16:F:3:GLU:HB2 | 16:F:24:LEU:HD23 | 1.91 | 0.51 |
| 18:H:124:GLU:HG3 | 18:H:132:ARG:HG3 | 1.92 | 0.51 |
| 11:A:2092:U:H5 | 11:A:2226:C:OP2 | 1.94 | 0.51 |
| 17:G:144:ILE:HD11 | 17:G:149:VAL:CG1 | 2.29 | 0.51 |
| 11:A:2369:A:O2' | 11:A:2370:G:H5' | 2.10 | 0.51 |
| 23:P:16:ARG:HD3 | 23:P:16:ARG:C | 2.30 | 0.51 |
| 15:E:63:LEU:O | 15:E:64:LYS:C | 2.49 | 0.51 |
| 17:G:172:LEU:O | 17:G:176:LEU:HB2 | 2.10 | 0.51 |
| 33:Z:165:VAL:HG12 | 33:Z:168:GLU:H | 1.76 | 0.51 |
| 33:Z:149:SER:CB | 33:Z:173:ALA:HA | 2.37 | 0.51 |
| 11:A:92:A:H2' | 11:A:92:A:N3 | 2.25 | 0.51 |
| 29:V:6:LYS:O | 29:V:37:VAL:HG21 | 2.10 | 0.51 |
| 32:Y:60:PHE:O | 32:Y:61:ILE:HG13 | 2.10 | 0.51 |
| 1:0:40:GLN:HE21 | 1:0:44:ARG:HB2 | 1.75 | 0.51 |
| 12:B:111:G:O2' | 12:B:112:U:H5' | 2.10 | 0.51 |
| 11:A:389:G:H1 | 23:P:72:PRO:HD3 | 1.75 | 0.51 |
| 2:1:52:ARG:NH2 | 11:A:2218:U:O4' | 2.43 | 0.51 |
| 4:3:28:LEU:H | 4:3:28:LEU:HD23 | 1.75 | 0.51 |
| 11:A:405:U:H3' | 11:A:406:G:H5' | 1.92 | 0.51 |
| 11:A:1638:C:H4' | 11:A:2710:C:O2 | 2.10 | 0.51 |
| 30:W:9:TYR:CD1 | 30:W:9:TYR:N | 2.77 | 0.51 |
| 17:G:71:THR:HG23 | 17:G:89:GLY:C | 2.30 | 0.51 |
| 11:A:910:A:C5 | 24:Q:13:GLN:HG3 | 2.45 | 0.51 |
| 32:Y:7:VAL:HB | 32:Y:8:LYS:NZ | 2.26 | 0.51 |
| 23:P:114:ILE:HD13 | 23:P:127:ALA:CB | 2.39 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 26:S:28:VAL:HG12 | 26:S:29:PHE:N | 2.25 | 0.51 |
| 28:U:90:VAL:HG12 | 28:U:91:ASP:H | 1.74 | 0.51 |
| 11:A:1068:G:H1' | 11:A:1069:A:H5' | 1.91 | 0.51 |
| 21:N:57:ALA:HB3 | 21:N:124:ALA:HA | 1.92 | 0.51 |
| 29:V:38:LEU:C | 29:V:39:LEU:HD13 | 2.30 | 0.51 |
| 2:1:27:GLU:O | 2:1:28:GLY:C | 2.48 | 0.51 |
| 31:X:49:VAL:CG1 | 31:X:87:GLN:HE21 | 2.23 | 0.51 |
| 18:H:88:LEU:CD1 | 18:H:130:ARG:HG2 | 2.40 | 0.51 |
| 25:R:74:LYS:HD2 | 25:R:77:ARG:HD2 | 1.92 | 0.51 |
| 11:A:979:G:H3' | 11:A:980:A:H5'' | 1.92 | 0.51 |
| 11:A:2520:C:C6 | 11:A:2567:G:H1' | 2.46 | 0.51 |
| 11:A:576:U:H2' | 11:A:577:G:C8 | 2.45 | 0.51 |
| 18:H:163:TYR:N | 18:H:163:TYR:CD1 | 2.79 | 0.51 |
| 15:E:38:THR:HB | 15:E:41:LYS:CG | 2.34 | 0.51 |
| 11:A:610:G:N2 | 11:A:619:G:H1' | 2.24 | 0.51 |
| 9:8:36:LYS:HE3 | 9:8:40:GLU:OE2 | 2.10 | 0.51 |
| 11:A:265:A:H1' | 11:A:266:G:O4' | 2.10 | 0.51 |
| 26:S:15:ARG:NH1 | 26:S:18:ILE:HD11 | 2.25 | 0.51 |
| 9:8:48:PHE:O | 9:8:49:VAL:HG22 | 2.10 | 0.51 |
| 9:8:50:LEU:C | 9:8:52:LYS:N | 2.63 | 0.51 |
| 11:A:1639:U:O2' | 11:A:1640:C:H5'' | 2.08 | 0.51 |
| 2:1:75:GLU:OE1 | 2:1:75:GLU:HA | 2.10 | 0.51 |
| 11:A:2472:G:H5' | 11:A:2473:U:C5' | 2.38 | 0.51 |
| 16:F:125:LEU:HD23 | 16:F:125:LEU:H | 1.75 | 0.51 |
| 15:E:23:VAL:HA | 15:E:186:GLY:H | 1.76 | 0.51 |
| 11:A:1265:A:OP2 | 11:A:2615:U:OP1 | 2.29 | 0.51 |
| 24:Q:110:THR:HG23 | 24:Q:113:GLN:HG3 | 1.92 | 0.51 |
| 25:R:103:ARG:HH11 | 25:R:110:PRO:HB3 | 1.75 | 0.51 |
| 14:D:65:ILE:HD11 | 14:D:67:PHE:CE2 | 2.45 | 0.51 |
| 21:N:121:LYS:HB3 | 21:N:123:TYR:CE1 | 2.46 | 0.51 |
| 11:A:465:G:H2' | 11:A:466:A:C8 | 2.45 | 0.51 |
| 30:W:9:TYR:HD1 | 30:W:9:TYR:N | 2.08 | 0.51 |
| 28:U:110:VAL:O | 28:U:113:ALA:HB3 | 2.10 | 0.51 |
| 11:A:2087:G:O2' | 11:A:2088:G:H5' | 2.10 | 0.51 |
| 11:A:433:C:O2' | 11:A:434:U:H5' | 2.09 | 0.51 |
| 13:C:99:ILE:O | 13:C:99:ILE:HG22 | 2.11 | 0.51 |
| 14:D:30:GLU:HG3 | 14:D:35:LYS:HE3 | 1.93 | 0.51 |
| 32:Y:85:VAL:HG12 | 32:Y:86:ARG:N | 2.25 | 0.51 |
| 30:W:73:ALA:HB3 | 30:W:106:ILE:HD11 | 1.92 | 0.51 |
| 23:P:59:LEU:CA | 23:P:61:ARG:HE | 2.23 | 0.51 |
| 11:A:266:G:C3' | 11:A:267:C:H5'' | 2.40 | 0.51 |
| 11:A:2811:G:H4' | 15:E:61:ARG:HH21 | 1.75 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 11:A:142:A:H1' | 11:A:1408:C:H1' | 1.93 | 0.51 |
| 33:Z:114:GLY:HA3 | 33:Z:146:ILE:HG21 | 1.91 | 0.51 |
| 25:R:79:LEU:HA | 25:R:83:ILE:CG1 | 2.41 | 0.51 |
| 11:A:523:C:H5'' | 11:A:540:C:O2' | 2.10 | 0.51 |
| 11:A:2031:A:O2' | 11:A:2455:G:H4' | 2.11 | 0.51 |
| 11:A:469:G:H2' | 11:A:470:A:H5'' | 1.92 | 0.51 |
| 4:3:31:LEU:HD12 | 11:A:989:G:P | 2.51 | 0.51 |
| 15:E:104:VAL:HG11 | 15:E:188:VAL:HG21 | 1.91 | 0.51 |
| 11:A:1361:G:O2' | 11:A:1362:C:H5' | 2.10 | 0.51 |
| 11:A:675:A:OP1 | 16:F:63:LYS:HE2 | 2.10 | 0.51 |
| 16:F:188:ARG:HA | 23:P:7:ARG:HB2 | 1.93 | 0.51 |
| 26:S:20:ARG:NH1 | 26:S:20:ARG:HG2 | 2.23 | 0.51 |
| 9:8:13:ARG:CD | 23:P:61:ARG:HD2 | 2.31 | 0.51 |
| 18:H:51:ARG:HG3 | 18:H:52:VAL:H | 1.75 | 0.51 |
| 5:4:31:ILE:N | 5:4:31:ILE:HD12 | 2.26 | 0.51 |
| 6:5:24:ALA:O | 6:5:25:LEU:CB | 2.54 | 0.51 |
| 11:A:2811:G:C4' | 15:E:61:ARG:HH21 | 2.24 | 0.51 |
| 11:A:1068:G:H1' | 11:A:1069:A:C5' | 2.40 | 0.51 |
| 16:F:178:PRO:HG2 | 16:F:179:GLU:H | 1.75 | 0.51 |
| 24:Q:110:THR:HG23 | 24:Q:113:GLN:OE1 | 2.10 | 0.51 |
| 10:9:1:MET:HG3 | 11:A:2478:A:OP2 | 2.11 | 0.51 |
| 11:A:1120:G:H2' | 11:A:1121:C:C6 | 2.45 | 0.51 |
| 11:A:1292:U:H2' | 11:A:1293:C:C6 | 2.45 | 0.51 |
| 11:A:2052:G:H4' | 15:E:143:ASN:O | 2.09 | 0.51 |
| 18:H:85:LYS:NZ | 18:H:86:GLU:CA | 2.73 | 0.51 |
| 21:N:10:GLU:CG | 21:N:11:PRO:HD2 | 2.41 | 0.51 |
| 9:8:10:ALA:CB | 9:8:60:LEU:HD21 | 2.40 | 0.51 |
| 7:6:28:ARG:CA | 7:6:32:ASN:ND2 | 2.71 | 0.51 |
| 17:G:52:ILE:HB | 17:G:54:GLU:HG3 | 1.92 | 0.51 |
| 17:G:83:ARG:O | 17:G:85:GLY:N | 2.43 | 0.51 |
| 7:6:16:CYS:SG | 7:6:49:HIS:N | 2.84 | 0.51 |
| 26:S:92:TYR:O | 26:S:93:LYS:CB | 2.59 | 0.51 |
| 11:A:1142(A):A:H5' | 11:A:1142(A):A:H8 | 1.75 | 0.51 |
| 24:Q:133:ARG:HG2 | 24:Q:134:ARG:N | 2.26 | 0.51 |
| 11:A:2159:G:H2' | 11:A:2160:G:C5' | 2.36 | 0.51 |
| 1:0:40:GLN:HE22 | 1:0:45:PHE:N | 2.08 | 0.51 |
| 11:A:2116:G:N7 | 11:A:2117:A:C2 | 2.78 | 0.51 |
| 23:P:102:ARG:NH1 | 23:P:102:ARG:CB | 2.74 | 0.51 |
| 11:A:2649:U:O2' | 11:A:2650:U:H5' | 2.10 | 0.51 |
| 11:A:1260:G:H2' | 11:A:1261:C:C6 | 2.45 | 0.51 |
| 25:R:28:LEU:HD23 | 25:R:28:LEU:C | 2.30 | 0.51 |
| 17:G:136:ARG:HH11 | 17:G:136:ARG:HB3 | 1.74 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:A:230:U:H2' | 11:A:231:C:H6 | 1.74 | 0.51 |
| 27:T:2:ASN:HB2 | 27:T:7:ILE:HD11 | 1.92 | 0.51 |
| 7:6:10:LEU:HD12 | 9:8:34:TRP:HB2 | 1.93 | 0.51 |
| 16:F:139:PHE:O | 16:F:142:TRP:HB3 | 2.11 | 0.51 |
| 17:G:130:ASN:OD1 | 17:G:160:VAL:HA | 2.10 | 0.51 |
| 23:P:16:ARG:HD3 | 23:P:18:ARG:H | 1.75 | 0.51 |
| 33:Z:114:GLY:HA3 | 33:Z:146:ILE:CG2 | 2.41 | 0.51 |
| 11:A:1682:G:H5' | 11:A:1762:A:O2' | 2.10 | 0.51 |
| 28:U:69:CYS:HB2 | 28:U:74:LEU:HD11 | 1.93 | 0.51 |
| 6:5:43:HIS:HD2 | 11:A:2815:C:O2' | 1.93 | 0.51 |
| 11:A:2200:C:N4 | 11:A:2223:G:H1 | 2.08 | 0.51 |
| 11:A:838:C:O2' | 11:A:839:U:H5' | 2.10 | 0.51 |
| 18:H:122:THR:HB | 18:H:134:SER:HB2 | 1.93 | 0.51 |
| 16:F:185:ASP:CA | 16:F:188:ARG:HG2 | 2.39 | 0.51 |
| 9:8:62:LEU:N | 9:8:63:PRO:CD | 2.73 | 0.51 |
| 11:A:2107:C:C1' | 11:A:2182:G:H22 | 2.24 | 0.51 |
| 6:5:3:LYS:O | 6:5:4:HIS:C | 2.48 | 0.51 |
| 6:5:4:HIS:O | 11:A:2056:G:N2 | 2.43 | 0.51 |
| 23:P:62:LEU:N | 23:P:62:LEU:HD23 | 2.26 | 0.51 |
| 11:A:2754:U:H2' | 11:A:2756:U:OP1 | 2.11 | 0.51 |
| 27:T:26:ASP:HB3 | 27:T:89:VAL:O | 2.11 | 0.51 |
| 11:A:88:G:N3 | 11:A:88:G:H2' | 2.25 | 0.51 |
| 11:A:2469:A:H2 | 11:A:2481:G:H21 | 1.58 | 0.51 |
| 25:R:4:LEU:C | 25:R:6:SER:N | 2.63 | 0.51 |
| 11:A:171:G:O2' | 11:A:172:C:H5' | 2.11 | 0.51 |
| 5:4:15:ILE:HD13 | 5:4:21:VAL:HG13 | 1.93 | 0.51 |
| 24:Q:81:VAL:HG22 | 24:Q:82:ARG:H | 1.76 | 0.51 |
| 11:A:518:G:H4' | 30:W:18:ARG:NH1 | 2.25 | 0.51 |
| 11:A:2461:C:H2' | 11:A:2462:U:C6 | 2.46 | 0.51 |
| 8:7:5:TRP:CZ3 | 11:A:464:U:H4' | 2.45 | 0.51 |
| 16:F:113:ALA:HB1 | 16:F:186:ILE:HG21 | 1.93 | 0.51 |
| 15:E:52:LEU:HD23 | 15:E:75:VAL:CB | 2.41 | 0.51 |
| 7:6:30:THR:CG2 | 7:6:31:PRO:HD2 | 2.41 | 0.51 |
| 7:6:18:ARG:HH11 | 7:6:18:ARG:CG | 2.06 | 0.51 |
| 32:Y:86:ARG:HH22 | 32:Y:95:LYS:HE2 | 1.75 | 0.51 |
| 23:P:147:LEU:O | 23:P:148:LEU:CB | 2.57 | 0.51 |
| 1:0:49:LYS:O | 1:0:50:ASN:HB2 | 2.09 | 0.51 |
| 23:P:47:ASP:OD2 | 23:P:50:ARG:HG2 | 2.10 | 0.51 |
| 5:4:6:HIS:HB3 | 17:G:67:LYS:NZ | 2.26 | 0.51 |
| 11:A:673:C:H6 | 11:A:673:C:C5' | 2.16 | 0.51 |
| 11:A:996:A:H4' | 28:U:92:ARG:CD | 2.40 | 0.51 |
| 11:A:332:A:H4' | 11:A:333:G:OP1 | 2.11 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:1087:G:C8 | 11:A:1088:A:H4' | 2.35 | 0.51 |
| 11:A:1059:G:H22 | 20:K:130:UNK:CB | 2.24 | 0.51 |
| 2:1:82:LEU:HD11 | 2:1:90:ILE:HD12 | 1.92 | 0.51 |
| 25:R:9:LYS:C | 25:R:10:LEU:HG | 2.30 | 0.51 |
| 2:1:27:GLU:O | 2:1:29:GLY:N | 2.44 | 0.51 |
| 11:A:1344:G:H4' | 11:A:1384:A:C5 | 2.46 | 0.51 |
| 32:Y:3:VAL:C | 32:Y:5:MET:H | 2.14 | 0.51 |
| 3:2:44:LEU:O | 3:2:44:LEU:HD23 | 2.10 | 0.51 |
| 11:A:1064:C:H4' | 20:K:87:UNK:CB | 2.41 | 0.51 |
| 30:W:69:LEU:HD23 | 30:W:108:GLY:O | 2.11 | 0.51 |
| 11:A:2880:C:H1' | 25:R:92:GLY:O | 2.10 | 0.51 |
| 18:H:152:ARG:HH11 | 18:H:152:ARG:HG3 | 1.76 | 0.51 |
| 27:T:28:VAL:O | 27:T:29:ARG:HB2 | 2.10 | 0.51 |
| 18:H:121:ILE:HG23 | 18:H:133:VAL:CG1 | 2.40 | 0.51 |
| 16:F:167:ALA:HA | 16:F:170:LEU:HD23 | 1.92 | 0.51 |
| 17:G:141:PHE:HB3 | 17:G:142:PRO:HD2 | 1.93 | 0.51 |
| 7:6:45:LYS:HG3 | 11:A:2371:G:H4' | 1.91 | 0.51 |
| 28:U:85:LYS:CD | 28:U:117:GLN:HE22 | 2.14 | 0.51 |
| 21:N:91:LEU:CD2 | 21:N:98:VAL:HG21 | 2.41 | 0.51 |
| 11:A:2111:C:H1' | 11:A:2118:U:O4' | 2.11 | 0.51 |
| 17:G:125:PHE:CB | 17:G:130:ASN:O | 2.59 | 0.51 |
| 11:A:467:G:O2' | 11:A:468:G:H5' | 2.11 | 0.51 |
| 6:5:36:CYS:SG | 6:5:48:GLU:HB2 | 2.51 | 0.51 |
| 11:A:2632:A:C2 | 15:E:61:ARG:HD2 | 2.46 | 0.51 |
| 15:E:35:GLN:HG2 | 15:E:36:ARG:N | 2.26 | 0.51 |
| 14:D:124:PRO:HG2 | 14:D:129:ASN:ND2 | 2.26 | 0.51 |
| 14:D:130:ALA:HA | 14:D:192:THR:HA | 1.92 | 0.51 |
| 15:E:81:ILE:O | 15:E:82:ARG:O | 2.28 | 0.51 |
| 14:D:267:SER:O | 14:D:269:PHE:HD1 | 1.93 | 0.51 |
| 11:A:2790:A:H2' | 11:A:2791:C:C5' | 2.41 | 0.51 |
| 11:A:118:A:OP2 | 11:A:119:A:H5'' | 2.11 | 0.51 |
| 30:W:86:LEU:HD22 | 30:W:96:ILE:HD12 | 1.93 | 0.51 |
| 22:O:63:VAL:HG23 | 22:O:64:ARG:HG3 | 1.92 | 0.51 |
| 29:V:69:LYS:HA | 29:V:87:HIS:O | 2.11 | 0.51 |
| 11:A:11:G:H2' | 11:A:12:U:C6 | 2.45 | 0.51 |
| 14:D:72:LYS:HZ2 | 14:D:75:ILE:HG13 | 1.76 | 0.50 |
| 17:G:87:PRO:C | 17:G:88:ILE:HG12 | 2.32 | 0.50 |
| 11:A:84:A:H61 | 11:A:102:G:C2' | 2.23 | 0.50 |
| 11:A:2307:G:N2 | 11:A:2308:G:H5'' | 2.26 | 0.50 |
| 14:D:43:ARG:HH11 | 14:D:44:ASN:HD21 | 1.55 | 0.50 |
| 11:A:832:G:H21 | 23:P:53:GLY:HA2 | 1.76 | 0.50 |
| 12:B:75:G:O3' | 33:Z:10:ARG:NH2 | 2.43 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 30:W:29:LEU:CG | 30:W:33:ARG:HD2 | 2.41 | 0.50 |
| 33:Z:18:LEU:O | 33:Z:23:LYS:HB2 | 2.11 | 0.50 |
| 29:V:39:LEU:CD1 | 29:V:51:VAL:HA | 2.41 | 0.50 |
| 11:A:1664:A:H1' | 11:A:2726:U:C5 | 2.46 | 0.50 |
| 13:C:18:LYS:HD3 | 13:C:20:TYR:CZ | 2.46 | 0.50 |
| 33:Z:145:GLU:HA | 33:Z:145:GLU:OE1 | 2.10 | 0.50 |
| 15:E:26:ILE:CG2 | 15:E:196:VAL:HG21 | 2.41 | 0.50 |
| 33:Z:95:PRO:HA | 33:Z:129:SER:HA | 1.93 | 0.50 |
| 11:A:1997:G:OP1 | 15:E:123:ALA:HB1 | 2.10 | 0.50 |
| 11:A:2659:G:H2' | 11:A:2660:A:H5'' | 1.93 | 0.50 |
| 11:A:383:U:H2' | 11:A:385:C:H5 | 1.76 | 0.50 |
| 27:T:27:THR:HG23 | 27:T:28:VAL:N | 2.26 | 0.50 |
| 15:E:47:VAL:HG12 | 15:E:49:LEU:HD22 | 1.92 | 0.50 |
| 11:A:1888:G:H5' | 11:A:1888:G:N3 | 2.26 | 0.50 |
| 24:Q:141:GLN:OXT | 33:Z:53:ILE:HD12 | 2.11 | 0.50 |
| 23:P:112:LEU:HD22 | 23:P:113:LYS:N | 2.26 | 0.50 |
| 7:6:25:LYS:HD2 | 11:A:2285:C:N4 | 2.25 | 0.50 |
| 11:A:260:G:H1' | 11:A:621:A:H1' | 1.93 | 0.50 |
| 23:P:75:ILE:N | 23:P:75:ILE:HD12 | 2.25 | 0.50 |
| 15:E:59:VAL:O | 15:E:60:ASN:CG | 2.50 | 0.50 |
| 4:3:29:ARG:NH2 | 11:A:1183:G:H4' | 2.26 | 0.50 |
| 16:F:155:LEU:HD23 | 16:F:192:LEU:HD12 | 1.92 | 0.50 |
| 29:V:5:VAL:HG22 | 29:V:6:LYS:N | 2.26 | 0.50 |
| 29:V:62:LEU:CD2 | 29:V:95:LEU:HB2 | 2.39 | 0.50 |
| 9:8:15:LYS:CG | 23:P:65:ARG:NH2 | 2.74 | 0.50 |
| 11:A:2206:G:N2 | 11:A:2207:G:H4' | 2.27 | 0.50 |
| 11:A:45:C:H2' | 11:A:47:C:H6 | 1.72 | 0.50 |
| 27:T:109:GLU:O | 27:T:112:ARG:HG2 | 2.12 | 0.50 |
| 10:9:29:ASN:HD21 | 10:9:32:HIS:CG | 2.28 | 0.50 |
| 33:Z:128:VAL:HG22 | 33:Z:129:SER:N | 2.25 | 0.50 |
| 17:G:30:GLU:O | 17:G:30:GLU:HG2 | 2.11 | 0.50 |
| 11:A:782:A:H5' | 11:A:783:A:C2 | 2.46 | 0.50 |
| 11:A:1799:G:H5' | 11:A:1819:A:N6 | 2.26 | 0.50 |
| 11:A:1430:C:H2' | 11:A:1431:U:C6 | 2.46 | 0.50 |
| 32:Y:23:ARG:HH11 | 32:Y:23:ARG:HG2 | 1.76 | 0.50 |
| 17:G:49:ASP:CG | 17:G:50:ALA:H | 2.13 | 0.50 |
| 11:A:1479:G:H5'' | 11:A:1560:G:H4' | 1.94 | 0.50 |
| 27:T:28:VAL:HG11 | 27:T:88:ILE:HD11 | 1.94 | 0.50 |
| 14:D:62:TYR:HA | 14:D:87:ASN:HD21 | 1.76 | 0.50 |
| 17:G:47:LYS:HD3 | 17:G:81:LYS:CG | 2.37 | 0.50 |
| 17:G:51:ARG:NH1 | 17:G:53:LEU:CD2 | 2.75 | 0.50 |
| 7:6:15:GLU:HG2 | 7:6:18:ARG:CZ | 2.40 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 7:6:15:GLU:CD | 7:6:18:ARG:NH2 | 2.64 | 0.50 |
| 7:6:53:LYS:CG | 7:6:54:ILE:N | 2.75 | 0.50 |
| 12:B:48:A:H2' | 12:B:49:C:C6 | 2.45 | 0.50 |
| 7:6:10:LEU:N | 7:6:10:LEU:CD2 | 2.67 | 0.50 |
| 9:8:33:ASN:HB2 | 9:8:36:LYS:HD2 | 1.93 | 0.50 |
| 16:F:160:ASN:C | 16:F:160:ASN:ND2 | 2.65 | 0.50 |
| 23:P:39:LYS:CD | 23:P:40:SER:H | 2.21 | 0.50 |
| 5:4:8:LYS:O | 5:4:9:LEU:CB | 2.59 | 0.50 |
| 11:A:729:G:C5 | 14:D:208:LYS:HB2 | 2.46 | 0.50 |
| 21:N:29:LYS:C | 21:N:31:ALA:N | 2.65 | 0.50 |
| 11:A:1378:A:C4' | 11:A:1379:A:OP1 | 2.57 | 0.50 |
| 32:Y:44:ILE:HG22 | 32:Y:45:VAL:N | 2.26 | 0.50 |
| 15:E:101:ARG:HE | 15:E:171:GLU:HB2 | 1.74 | 0.50 |
| 14:D:69:ARG:HG3 | 14:D:130:ALA:CB | 2.42 | 0.50 |
| 11:A:1243:G:H2' | 11:A:1244:G:O4' | 2.11 | 0.50 |
| 11:A:2475:C:H42 | 11:A:2529:G:H22 | 1.59 | 0.50 |
| 11:A:2837:G:H2' | 11:A:2838:G:H8 | 1.76 | 0.50 |
| 11:A:1270:C:H5'' | 11:A:1271:G:C5' | 2.41 | 0.50 |
| 15:E:188:VAL:HG23 | 15:E:189:PRO:HD2 | 1.92 | 0.50 |
| 11:A:151:C:H2' | 11:A:152:G:C8 | 2.46 | 0.50 |
| 11:A:826:U:H2' | 11:A:828:U:O4' | 2.11 | 0.50 |
| 17:G:40:ASN:HB3 | 17:G:156:ASP:HB2 | 1.92 | 0.50 |
| 11:A:2402:C:H2' | 11:A:2403:C:H5' | 1.94 | 0.50 |
| 13:C:96:GLY:H | 13:C:99:ILE:HG12 | 1.76 | 0.50 |
| 15:E:52:LEU:HD11 | 27:T:1:MET:HE2 | 1.94 | 0.50 |
| 11:A:628:G:C3' | 11:A:629:G:H5'' | 2.41 | 0.50 |
| 33:Z:89:PHE:CE2 | 33:Z:96:VAL:HG21 | 2.36 | 0.50 |
| 26:S:90:GLY:C | 26:S:92:TYR:H | 2.14 | 0.50 |
| 12:B:75:G:H22 | 33:Z:73:GLN:NE2 | 2.09 | 0.50 |
| 28:U:83:LEU:HG | 28:U:88:ILE:HD11 | 1.92 | 0.50 |
| 11:A:990:A:OP2 | 11:A:991:C:OP2 | 2.29 | 0.50 |
| 12:B:68:C:O2' | 12:B:69:G:H5' | 2.12 | 0.50 |
| 18:H:24:VAL:HG12 | 18:H:24:VAL:O | 2.12 | 0.50 |
| 9:8:39:LYS:HG3 | 9:8:43:GLN:HE21 | 1.76 | 0.50 |
| 22:O:12:ASP:C | 22:O:14:THR:H | 2.13 | 0.50 |
| 11:A:564:C:O2' | 11:A:565:C:H5' | 2.12 | 0.50 |
| 11:A:1466:G:H2' | 11:A:1547:C:N4 | 2.27 | 0.50 |
| 33:Z:54:HIS:HB3 | 33:Z:101:PRO:HD3 | 1.93 | 0.50 |
| 24:Q:101:ARG:HH11 | 24:Q:101:ARG:HG3 | 1.77 | 0.50 |
| 21:N:65:LYS:NZ | 21:N:65:LYS:HB3 | 2.27 | 0.50 |
| 13:C:103:ILE:O | 13:C:104:LEU:C | 2.49 | 0.50 |
| 14:D:35:LYS:O | 14:D:62:TYR:O | 2.30 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 7:6:15:GLU:OE2 | 7:6:41:PRO:CB | 2.58 | 0.50 |
| 11:A:1885:A:H8 | 11:A:1885:A:H5' | 1.75 | 0.50 |
| 14:D:43:ARG:HG2 | 14:D:43:ARG:O | 2.12 | 0.50 |
| 18:H:41:MET:O | 18:H:42:ARG:HB3 | 2.12 | 0.50 |
| 23:P:45:LEU:CD1 | 23:P:46:LYS:H | 2.24 | 0.50 |
| 24:Q:134:ARG:HA | 24:Q:137:TYR:CD1 | 2.46 | 0.50 |
| 11:A:1051:G:C4 | 11:A:1052:C:N4 | 2.80 | 0.50 |
| 11:A:2096:U:H2' | 11:A:2097:C:H6 | 1.77 | 0.50 |
| 11:A:363(E):U:H3' | 11:A:363(F):A:O4' | 2.12 | 0.50 |
| 24:Q:43:THR:HB | 24:Q:45:GLN:HE21 | 1.76 | 0.50 |
| 1:0:43:THR:HG23 | 1:0:43:THR:O | 2.12 | 0.50 |
| 4:3:26:LEU:HB2 | 4:3:28:LEU:HD22 | 1.94 | 0.50 |
| 11:A:1171:G:C8 | 11:A:1173:G:H1' | 2.47 | 0.50 |
| 11:A:686:G:N2 | 11:A:788:A:H61 | 2.10 | 0.50 |
| 14:D:133:LEU:HB3 | 14:D:173:VAL:HG11 | 1.93 | 0.50 |
| 13:C:189:ILE:O | 13:C:193:ILE:HG13 | 2.10 | 0.50 |
| 8:7:10:ARG:NH1 | 11:A:771:G:OP1 | 2.44 | 0.50 |
| 11:A:1274:A:N3 | 11:A:1297:C:H1' | 2.26 | 0.50 |
| 27:T:100:TYR:O | 27:T:103:ARG:HG3 | 2.11 | 0.50 |
| 27:T:31:SER:HG | 27:T:32:TYR:HE1 | 1.56 | 0.50 |
| 14:D:75:ILE:HG21 | 14:D:99:ASP:HB3 | 1.92 | 0.50 |
| 32:Y:13:VAL:HG22 | 32:Y:14:LEU:N | 2.27 | 0.50 |
| 11:A:654(O):G:H2' | 11:A:654(P):C:C5 | 2.47 | 0.50 |
| 11:A:1021:A:H3' | 11:A:1021:A:C8 | 2.47 | 0.50 |
| 11:A:1948:G:O2' | 11:A:1949:G:H5' | 2.11 | 0.50 |
| 23:P:23:PRO:C | 23:P:33:ARG:CZ | 2.80 | 0.50 |
| 27:T:129:ARG:O | 27:T:129:ARG:HG3 | 2.12 | 0.50 |
| 15:E:144:ARG:CG | 15:E:145:LYS:H | 2.25 | 0.50 |
| 24:Q:16:ARG:HG3 | 24:Q:17:LEU:N | 2.26 | 0.50 |
| 21:N:56:ASN:H | 21:N:125:GLY:HA3 | 1.77 | 0.50 |
| 11:A:547:A:H2' | 11:A:548:A:H8 | 1.75 | 0.50 |
| 3:2:14:ARG:O | 3:2:14:ARG:HG2 | 2.12 | 0.50 |
| 1:0:15:ASP:OD1 | 1:0:16:SER:N | 2.42 | 0.50 |
| 21:N:129:PRO:O | 21:N:130:HIS:CB | 2.60 | 0.50 |
| 8:7:19:ARG:HG2 | 8:7:19:ARG:NH1 | 2.26 | 0.50 |
| 11:A:1012:U:C5 | 21:N:28:THR:HG21 | 2.47 | 0.50 |
| 11:A:1360:A:H5' | 11:A:1361:G:OP2 | 2.11 | 0.50 |
| 11:A:696:G:O2' | 11:A:697:C:H5' | 2.12 | 0.50 |
| 11:A:2032:G:OP2 | 11:A:2454:G:O2' | 2.22 | 0.50 |
| 11:A:801:G:O4' | 16:F:54:ARG:HD3 | 2.11 | 0.50 |
| 22:O:11:ALA:HB1 | 22:O:99:PHE:O | 2.12 | 0.50 |
| 11:A:2771:C:H2' | 11:A:2772:C:C6 | 2.47 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 15:E:48:GLN:NE2 | 15:E:78:LEU:HD22 | 2.27 | 0.50 |
| 12:B:65:C:C2' | 12:B:66:A:H5' | 2.42 | 0.50 |
| 16:F:126:VAL:HG21 | 16:F:129:PHE:CZ | 2.47 | 0.50 |
| 18:H:52:VAL:HB | 18:H:69:ARG:CD | 2.41 | 0.50 |
| 5:4:7:PRO:O | 5:4:8:LYS:HB3 | 2.12 | 0.50 |
| 5:4:9:LEU:HD13 | 5:4:10:VAL:N | 2.26 | 0.50 |
| 11:A:2414:G:H21 | 23:P:67:MET:HE1 | 1.76 | 0.50 |
| 11:A:2131:G:H1' | 11:A:2133:G:C2 | 2.47 | 0.50 |
| 27:T:3:ARG:CB | 27:T:6:LEU:HB2 | 2.42 | 0.50 |
| 12:B:91:C:H5' | 24:Q:17:LEU:O | 2.10 | 0.50 |
| 2:1:69:LYS:O | 2:1:69:LYS:HD3 | 2.11 | 0.50 |
| 11:A:2881:C:H2' | 11:A:2882:A:H8 | 1.77 | 0.50 |
| 11:A:2882:A:H5' | 25:R:96:ARG:HG3 | 1.94 | 0.50 |
| 11:A:2854:G:H1 | 11:A:2863:C:H42 | 1.58 | 0.50 |
| 11:A:1168:G:H2' | 11:A:1169:G:C8 | 2.46 | 0.50 |
| 10:9:10:ILE:H | 10:9:10:ILE:HD12 | 1.74 | 0.50 |
| 11:A:1363:C:H2' | 11:A:1364:G:C8 | 2.45 | 0.50 |
| 32:Y:87:LYS:HG3 | 32:Y:88:LYS:H | 1.77 | 0.50 |
| 11:A:2869:G:H2' | 11:A:2870:C:H6 | 1.76 | 0.50 |
| 11:A:57:C:O2' | 11:A:58:G:H5' | 2.11 | 0.50 |
| 11:A:2052:G:C8 | 15:E:141:ILE:HD11 | 2.47 | 0.50 |
| 11:A:1029:A:H2' | 11:A:1030:G:O4' | 2.11 | 0.50 |
| 11:A:2081:C:H2' | 11:A:2082:A:H8 | 1.76 | 0.50 |
| 11:A:1427:A:O2' | 11:A:1428:C:OP2 | 2.25 | 0.50 |
| 11:A:1688:U:H1' | 11:A:1701:A:C6 | 2.47 | 0.50 |
| 27:T:61:PHE:CE1 | 27:T:76:PHE:HB2 | 2.47 | 0.50 |
| 11:A:1908:C:H2' | 11:A:1909:C:H6 | 1.77 | 0.50 |
| 31:X:70:LEU:HD23 | 31:X:71:GLY:N | 2.27 | 0.50 |
| 12:B:42:C:O2' | 12:B:43:C:P | 2.69 | 0.50 |
| 11:A:2314:C:O2' | 11:A:2315:G:H5' | 2.11 | 0.50 |
| 30:W:29:LEU:CD1 | 30:W:33:ARG:HD2 | 2.42 | 0.50 |
| 11:A:271(F):C:O2' | 11:A:271(G):C:H5' | 2.10 | 0.50 |
| 25:R:55:ALA:HA | 25:R:80:PHE:CE2 | 2.46 | 0.50 |
| 11:A:1459:G:N7 | 11:A:1461:G:N3 | 2.60 | 0.50 |
| 11:A:2562:U:H1' | 22:O:23:ARG:HH11 | 1.76 | 0.50 |
| 21:N:12:ARG:O | 21:N:50:ASP:HB3 | 2.12 | 0.50 |
| 19:J:14:UNK:C | 19:J:16:UNK:N | 2.75 | 0.50 |
| 11:A:648:G:H2' | 11:A:649:G:C8 | 2.46 | 0.50 |
| 11:A:2659:G:C3' | 11:A:2660:A:H5'' | 2.42 | 0.50 |
| 13:C:127:LEU:O | 13:C:129:ARG:N | 2.44 | 0.50 |
| 18:H:83:TYR:CB | 18:H:135:GLY:N | 2.75 | 0.50 |
| 11:A:558:G:OP2 | 21:N:111:PRO:HD2 | 2.12 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:1853:A:H2' | 11:A:1854:A:C8 | 2.47 | 0.50 |
| 17:G:82:LEU:HD22 | 17:G:87:PRO:HA | 1.94 | 0.50 |
| 26:S:65:VAL:O | 26:S:69:VAL:HG12 | 2.12 | 0.50 |
| 7:6:52:VAL:HG12 | 7:6:53:LYS:N | 2.27 | 0.50 |
| 18:H:42:ARG:HG2 | 18:H:43:VAL:N | 2.26 | 0.50 |
| 31:X:52:VAL:O | 31:X:53:LYS:C | 2.50 | 0.50 |
| 28:U:90:VAL:CG1 | 28:U:91:ASP:H | 2.23 | 0.50 |
| 21:N:57:ALA:O | 21:N:58:ASP:C | 2.50 | 0.50 |
| 2:1:72:GLU:HG3 | 2:1:76:ARG:HH21 | 1.76 | 0.50 |
| 11:A:1608:A:H1' | 11:A:1610:A:OP2 | 2.12 | 0.50 |
| 11:A:481:G:H1' | 11:A:506:G:H21 | 1.77 | 0.50 |
| 14:D:142:VAL:CG2 | 14:D:191:ALA:HB1 | 2.42 | 0.50 |
| 27:T:62:THR:HG22 | 27:T:75:ILE:HG23 | 1.94 | 0.50 |
| 11:A:2887:U:O2' | 11:A:2888:C:H5' | 2.12 | 0.50 |
| 11:A:2247:A:O2' | 11:A:2248:C:H5' | 2.12 | 0.50 |
| 11:A:2722:G:H2' | 11:A:2723:C:C6 | 2.46 | 0.50 |
| 17:G:137:GLU:O | 17:G:140:ILE:HG23 | 2.11 | 0.50 |
| 11:A:271(U):G:O2' | 11:A:271(V):G:H5' | 2.11 | 0.50 |
| 11:A:1536:C:H2' | 11:A:1537:G:H4' | 1.94 | 0.49 |
| 21:N:46:VAL:O | 21:N:47:ALA:CB | 2.60 | 0.49 |
| 11:A:2286:A:H4' | 11:A:2287:A:O4' | 2.12 | 0.49 |
| 11:A:2415:G:H2' | 11:A:2416:C:C6 | 2.47 | 0.49 |
| 11:A:863:A:O2' | 11:A:864:G:H5' | 2.11 | 0.49 |
| 18:H:103:LEU:CB | 18:H:123:PHE:HD2 | 2.19 | 0.49 |
| 17:G:15:VAL:C | 17:G:17:PRO:HD2 | 2.33 | 0.49 |
| 27:T:89:VAL:HG12 | 27:T:91:ARG:HG3 | 1.93 | 0.49 |
| 11:A:2685:G:N2 | 11:A:2724:C:O2 | 2.44 | 0.49 |
| 11:A:2690:C:H5 | 25:R:14:SER:HG | 1.59 | 0.49 |
| 11:A:2791:C:H4' | 11:A:2792:G:O5' | 2.12 | 0.49 |
| 30:W:37:ARG:NH1 | 30:W:37:ARG:HG3 | 2.27 | 0.49 |
| 11:A:1999:C:H5'' | 11:A:2723:C:O2' | 2.11 | 0.49 |
| 11:A:405:U:H3' | 11:A:406:G:C5' | 2.42 | 0.49 |
| 31:X:41:ASN:O | 31:X:45:THR:HG23 | 2.12 | 0.49 |
| 25:R:18:LEU:HD11 | 25:R:22:ARG:CZ | 2.42 | 0.49 |
| 11:A:122:G:H1 | 11:A:129:C:H42 | 1.60 | 0.49 |
| 33:Z:5:LEU:O | 33:Z:59:LEU:HA | 2.12 | 0.49 |
| 18:H:85:LYS:HG2 | 18:H:86:GLU:N | 2.26 | 0.49 |
| 14:D:34:VAL:CG2 | 14:D:35:LYS:H | 2.21 | 0.49 |
| 17:G:46:ALA:O | 17:G:82:LEU:HD11 | 2.12 | 0.49 |
| 17:G:79:ASN:O | 17:G:80:PHE:CB | 2.59 | 0.49 |
| 24:Q:12:GLN:CG | 24:Q:73:PRO:HD2 | 2.42 | 0.49 |
| 11:A:673:C:C6 | 11:A:673:C:H5' | 2.26 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 16:F:107:LYS:O | 16:F:110:LEU:N | 2.44 | 0.49 |
| 11:A:994:C:O2' | 11:A:996:A:OP1 | 2.30 | 0.49 |
| 11:A:654(H):G:H2' | 11:A:654(I):C:C5' | 2.38 | 0.49 |
| 33:Z:167:PRO:O | 33:Z:168:GLU:HB3 | 2.11 | 0.49 |
| 11:A:2668:G:HO2' | 11:A:2669:G:H5' | 1.77 | 0.49 |
| 12:B:78:A:H2' | 12:B:79:C:O4' | 2.12 | 0.49 |
| 11:A:1222:C:H2' | 11:A:1223:G:C5' | 2.42 | 0.49 |
| 11:A:2475:C:H5' | 11:A:2476:A:OP2 | 2.11 | 0.49 |
| 10:9:19:ARG:O | 10:9:20:HIS:CB | 2.60 | 0.49 |
| 30:W:65:LEU:HD23 | 30:W:68:ARG:NE | 2.27 | 0.49 |
| 11:A:533:G:H5' | 28:U:24:TYR:CD1 | 2.47 | 0.49 |
| 14:D:238:GLY:O | 14:D:239:ARG:O | 2.30 | 0.49 |
| 33:Z:54:HIS:HB2 | 33:Z:55:HIS:HD2 | 1.76 | 0.49 |
| 11:A:2360:A:O2' | 11:A:2361:A:C5' | 2.60 | 0.49 |
| 12:B:54:G:H21 | 17:G:29:TRP:HE1 | 1.61 | 0.49 |
| 23:P:122:PRO:HB3 | 23:P:141:ALA:CB | 2.42 | 0.49 |
| 13:C:63:SER:HA | 13:C:160:ARG:HA | 1.94 | 0.49 |
| 11:A:1773:A:C2' | 11:A:1774:C:H5' | 2.42 | 0.49 |
| 27:T:30:VAL:O | 27:T:31:SER:HB3 | 2.12 | 0.49 |
| 17:G:138:GLN:HE21 | 17:G:144:ILE:HD12 | 1.76 | 0.49 |
| 7:6:48:VAL:O | 7:6:49:HIS:O | 2.30 | 0.49 |
| 26:S:98:VAL:HG12 | 26:S:99:LYS:N | 2.27 | 0.49 |
| 16:F:7:TYR:HD2 | 16:F:16:GLY:HA3 | 1.76 | 0.49 |
| 23:P:34:GLY:O | 23:P:35:HIS:CB | 2.60 | 0.49 |
| 5:4:9:LEU:HD13 | 5:4:26:SER:O | 2.13 | 0.49 |
| 11:A:1515:G:H2' | 11:A:1516:C:C6 | 2.47 | 0.49 |
| 11:A:2134:A:H61 | 11:A:2157:G:H1' | 1.74 | 0.49 |
| 6:5:40:LYS:HG2 | 6:5:46:CYS:CB | 2.41 | 0.49 |
| 11:A:2787:C:H1' | 15:E:61:ARG:CD | 2.38 | 0.49 |
| 17:G:101:ILE:O | 17:G:104:GLU:HB3 | 2.12 | 0.49 |
| 21:N:34:LEU:HD13 | 21:N:34:LEU:C | 2.32 | 0.49 |
| 29:V:52:VAL:HG22 | 29:V:52:VAL:O | 2.11 | 0.49 |
| 18:H:35:VAL:HG13 | 18:H:71:LEU:HD22 | 1.93 | 0.49 |
| 32:Y:41:GLY:O | 32:Y:42:VAL:O | 2.30 | 0.49 |
| 14:D:176:ARG:NH1 | 14:D:176:ARG:HG2 | 2.26 | 0.49 |
| 11:A:2199:A:H5' | 11:A:2200:C:OP2 | 2.13 | 0.49 |
| 30:W:68:ARG:O | 30:W:109:GLU:HA | 2.12 | 0.49 |
| 11:A:1651:G:H2' | 11:A:1652:A:O4' | 2.12 | 0.49 |
| 23:P:122:PRO:HA | 23:P:141:ALA:O | 2.12 | 0.49 |
| 8:7:32:LYS:O | 8:7:36:GLN:HB2 | 2.12 | 0.49 |
| 11:A:1316:U:O2' | 11:A:1317:A:H5' | 2.13 | 0.49 |
| 11:A:1149:G:H2' | 11:A:1150:C:C6 | 2.46 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:977:G:C6 | 11:A:987:G:C6 | 3.01 | 0.49 |
| 3:2:9:GLN:HG2 | 3:2:56:GLN:NE2 | 2.27 | 0.49 |
| 11:A:1713:U:O2' | 11:A:1714:G:H5' | 2.13 | 0.49 |
| 11:A:2033:A:O2' | 11:A:2034:U:P | 2.70 | 0.49 |
| 14:D:30:GLU:CA | 14:D:35:LYS:HZ2 | 2.25 | 0.49 |
| 31:X:40:LYS:HB2 | 31:X:54:VAL:CG2 | 2.38 | 0.49 |
| 23:P:10:PRO:O | 23:P:11:GLY:O | 2.31 | 0.49 |
| 14:D:70:TRP:HZ3 | 14:D:146:GLU:OE2 | 1.95 | 0.49 |
| 30:W:6:ILE:HG12 | 30:W:104:THR:HB | 1.93 | 0.49 |
| 26:S:34:HIS:HB2 | 26:S:36:TYR:HE1 | 1.76 | 0.49 |
| 33:Z:9:TYR:OH | 33:Z:35:ARG:HG3 | 2.13 | 0.49 |
| 32:Y:64:GLU:O | 32:Y:65:ALA:HB2 | 2.12 | 0.49 |
| 21:N:1:MET:HE1 | 21:N:2:LYS:C | 2.32 | 0.49 |
| 11:A:753:C:H2' | 11:A:754:C:H6 | 1.78 | 0.49 |
| 1:0:47:PRO:HG3 | 1:0:53:MET:HB2 | 1.94 | 0.49 |
| 11:A:2330:G:O2' | 11:A:2331:G:H5' | 2.12 | 0.49 |
| 33:Z:54:HIS:CG | 33:Z:101:PRO:HD3 | 2.48 | 0.49 |
| 11:A:2001:A:H2' | 11:A:2002:G:C8 | 2.47 | 0.49 |
| 18:H:152:ARG:HG3 | 18:H:152:ARG:NH1 | 2.26 | 0.49 |
| 11:A:271(V):G:H2' | 11:A:271(W):G:O4' | 2.13 | 0.49 |
| 11:A:633:A:H2' | 11:A:634:C:H5' | 1.94 | 0.49 |
| 11:A:2175:C:N3 | 11:A:2176:A:N1 | 2.61 | 0.49 |
| 11:A:473:G:P | 11:A:508:G:H22 | 2.36 | 0.49 |
| 11:A:755:C:H2' | 11:A:756:C:C6 | 2.48 | 0.49 |
| 27:T:27:THR:HG22 | 27:T:49:VAL:HB | 1.93 | 0.49 |
| 18:H:85:LYS:HE3 | 18:H:85:LYS:C | 2.32 | 0.49 |
| 7:6:29:ASN:O | 7:6:30:THR:C | 2.50 | 0.49 |
| 7:6:52:VAL:HG12 | 7:6:53:LYS:HD3 | 1.94 | 0.49 |
| 11:A:323:G:H2' | 16:F:169:ASN:HD21 | 1.78 | 0.49 |
| 26:S:74:ALA:CB | 26:S:103:GLU:HG2 | 2.40 | 0.49 |
| 22:O:111:PHE:O | 22:O:115:VAL:HG23 | 2.12 | 0.49 |
| 3:2:52:ASP:O | 3:2:55:ARG:N | 2.45 | 0.49 |
| 26:S:53:SER:C | 26:S:55:ALA:H | 2.14 | 0.49 |
| 29:V:38:LEU:C | 29:V:38:LEU:HD23 | 2.33 | 0.49 |
| 33:Z:17:ALA:O | 33:Z:20:ARG:HG2 | 2.11 | 0.49 |
| 11:A:2822:G:O6 | 25:R:4:LEU:HD23 | 2.11 | 0.49 |
| 16:F:53:THR:HG22 | 16:F:56:GLU:HG3 | 1.95 | 0.49 |
| 27:T:62:THR:HA | 27:T:74:ARG:O | 2.12 | 0.49 |
| 11:A:2777:G:C4' | 11:A:2778:A:H5' | 2.43 | 0.49 |
| 11:A:68:G:H2' | 11:A:69:C:C6 | 2.47 | 0.49 |
| 21:N:14:VAL:CG1 | 21:N:137:LYS:HG3 | 2.43 | 0.49 |
| 31:X:33:LYS:CA | 31:X:33:LYS:HE2 | 2.42 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 11:A:2687:U:C4 | 11:A:2688:U:C5 | 3.00 | 0.49 |
| 11:A:536:A:H2' | 11:A:537:C:C6 | 2.47 | 0.49 |
| 11:A:1290:C:H2' | 11:A:1291:C:C6 | 2.48 | 0.49 |
| 24:Q:1:MET:O | 24:Q:2:LEU:CB | 2.60 | 0.49 |
| 31:X:12:VAL:CG2 | 31:X:13:LEU:N | 2.61 | 0.49 |
| 17:G:52:ILE:HG12 | 17:G:53:LEU:N | 2.26 | 0.49 |
| 11:A:272(H):C:C3' | 11:A:272(I):U:H5'' | 2.43 | 0.49 |
| 11:A:1499:C:C2' | 11:A:1500:G:H5' | 2.41 | 0.49 |
| 17:G:125:PHE:HB2 | 17:G:130:ASN:O | 2.13 | 0.49 |
| 26:S:74:ALA:HB2 | 26:S:101:LEU:HD13 | 1.95 | 0.49 |
| 24:Q:133:ARG:NH1 | 24:Q:133:ARG:HB2 | 2.17 | 0.49 |
| 11:A:2464:C:O2' | 11:A:2465:C:O5' | 2.31 | 0.49 |
| 30:W:17:VAL:O | 30:W:19:LEU:N | 2.45 | 0.49 |
| 27:T:106:SER:HA | 27:T:110:ILE:HG12 | 1.93 | 0.49 |
| 11:A:733:G:C8 | 11:A:761:A:N1 | 2.80 | 0.49 |
| 29:V:5:VAL:CG2 | 29:V:35:LEU:HD23 | 2.43 | 0.49 |
| 11:A:848:G:C8 | 11:A:848:G:H5' | 2.46 | 0.49 |
| 29:V:38:LEU:O | 29:V:52:VAL:HG12 | 2.12 | 0.49 |
| 11:A:1862:G:O2' | 11:A:1863:G:H5' | 2.12 | 0.49 |
| 11:A:1039:G:H1 | 11:A:1116:C:N4 | 2.04 | 0.49 |
| 15:E:9:VAL:HG13 | 15:E:25:VAL:HB | 1.94 | 0.49 |
| 33:Z:11:GLU:OE1 | 33:Z:13:GLU:N | 2.41 | 0.49 |
| 11:A:39:C:O2' | 11:A:40:C:H5' | 2.13 | 0.49 |
| 22:O:9:GLU:O | 22:O:83:ALA:HA | 2.12 | 0.49 |
| 8:7:4:THR:CG2 | 11:A:788:A:H1' | 2.43 | 0.49 |
| 33:Z:156:LYS:O | 33:Z:156:LYS:HG2 | 2.11 | 0.49 |
| 11:A:315:G:H2' | 11:A:316:C:C6 | 2.48 | 0.49 |
| 16:F:82:ILE:O | 16:F:83:PHE:HB2 | 2.13 | 0.49 |
| 15:E:87:GLU:OE1 | 15:E:89:ASP:N | 2.46 | 0.49 |
| 26:S:54:LEU:HD21 | 26:S:58:LEU:O | 2.13 | 0.49 |
| 11:A:610:G:H2' | 11:A:611:C:C6 | 2.48 | 0.49 |
| 18:H:19:VAL:CG1 | 18:H:20:ALA:H | 2.15 | 0.49 |
| 23:P:84:ASN:N | 23:P:84:ASN:ND2 | 2.59 | 0.49 |
| 24:Q:27:VAL:HG21 | 24:Q:134:ARG:HG3 | 1.94 | 0.49 |
| 17:G:114:ILE:O | 17:G:114:ILE:HG12 | 2.13 | 0.49 |
| 23:P:16:ARG:NE | 23:P:18:ARG:HG2 | 2.28 | 0.49 |
| 10:9:7:VAL:CG1 | 10:9:34:GLN:HG2 | 2.37 | 0.49 |
| 10:9:7:VAL:HG21 | 10:9:36:GLN:H | 1.78 | 0.49 |
| 21:N:51:PHE:CE1 | 21:N:119:ARG:HD2 | 2.47 | 0.49 |
| 9:8:15:LYS:CB | 23:P:65:ARG:HH21 | 2.24 | 0.49 |
| 33:Z:141:VAL:CG1 | 33:Z:144:LEU:HG | 2.43 | 0.49 |
| 18:H:65:HIS:O | 18:H:67:LEU:N | 2.42 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:2491:U:H4' | 11:A:2570:G:OP1 | 2.12 | 0.49 |
| 3:2:47:ASN:ND2 | 11:A:94(A):G:H21 | 2.11 | 0.49 |
| 15:E:132:HIS:O | 15:E:132:HIS:ND1 | 2.45 | 0.49 |
| 11:A:1290:C:H2' | 11:A:1291:C:H6 | 1.77 | 0.49 |
| 14:D:264:LYS:HG2 | 14:D:266:SER:HB3 | 1.92 | 0.49 |
| 11:A:253:C:H2' | 11:A:254:G:O4' | 2.12 | 0.49 |
| 17:G:53:LEU:HD22 | 17:G:53:LEU:N | 2.27 | 0.49 |
| 11:A:1884:A:C3' | 11:A:1885:A:H5'' | 2.41 | 0.49 |
| 12:B:49:C:H2' | 12:B:50:G:C8 | 2.48 | 0.49 |
| 23:P:45:LEU:HD12 | 23:P:46:LYS:H | 1.78 | 0.49 |
| 11:A:2747:G:C2 | 11:A:2756:U:C5 | 3.00 | 0.49 |
| 11:A:1403:C:C2' | 11:A:1404:C:O5' | 2.61 | 0.49 |
| 28:U:83:LEU:CD1 | 28:U:83:LEU:H | 2.26 | 0.49 |
| 11:A:301:G:H1' | 11:A:302:C:C6 | 2.48 | 0.49 |
| 33:Z:139:VAL:O | 33:Z:140:ASP:HB3 | 2.13 | 0.49 |
| 29:V:82:ARG:HG2 | 29:V:82:ARG:HH11 | 1.78 | 0.49 |
| 11:A:2023:G:H4' | 11:A:2617:C:O3' | 2.12 | 0.49 |
| 11:A:824:A:H1' | 11:A:2358:G:N7 | 2.28 | 0.49 |
| 11:A:753:C:O2' | 11:A:754:C:H5' | 2.13 | 0.49 |
| 4:3:3:ARG:HG2 | 4:3:38:GLU:OE2 | 2.12 | 0.49 |
| 11:A:2383:G:O2' | 11:A:2384:G:H5' | 2.13 | 0.49 |
| 24:Q:64:ILE:HG22 | 24:Q:65:PHE:N | 2.28 | 0.49 |
| 20:K:59:UNK:HA | 20:K:64:UNK:O | 2.13 | 0.49 |
| 16:F:199:TRP:HZ3 | 16:F:203:GLN:OE1 | 1.96 | 0.49 |
| 18:H:37:VAL:HG12 | 18:H:38:SER:N | 2.26 | 0.49 |
| 11:A:573:G:O2' | 11:A:574:C:H3' | 2.12 | 0.49 |
| 11:A:572:A:H5'' | 11:A:573:G:OP2 | 2.13 | 0.49 |
| 21:N:11:PRO:O | 21:N:13:TRP:N | 2.45 | 0.49 |
| 24:Q:141:GLN:NE2 | 33:Z:72:ARG:HD3 | 2.28 | 0.49 |
| 33:Z:48:PHE:CE1 | 33:Z:52:SER:HA | 2.48 | 0.49 |
| 11:A:2182:G:O2' | 11:A:2183:C:H5' | 2.13 | 0.49 |
| 23:P:101:VAL:HG12 | 23:P:106:LEU:HB2 | 1.95 | 0.49 |
| 9:8:32:LEU:CG | 9:8:36:LYS:NZ | 2.67 | 0.49 |
| 18:H:50:VAL:HG12 | 18:H:52:VAL:HG23 | 1.95 | 0.49 |
| 26:S:49:VAL:CG1 | 26:S:50:SER:N | 2.76 | 0.49 |
| 1:0:23:VAL:HG11 | 1:0:69:PHE:HZ | 1.78 | 0.49 |
| 11:A:1602:U:H3' | 11:A:1603:A:H5'' | 1.90 | 0.49 |
| 11:A:1052:C:H2' | 11:A:1053:C:C6 | 2.48 | 0.49 |
| 30:W:12:ILE:HB | 30:W:42:ARG:HH12 | 1.77 | 0.49 |
| 11:A:2533:A:OP1 | 11:A:2665:A:H1' | 2.12 | 0.49 |
| 33:Z:108:PRO:C | 33:Z:110:GLY:H | 2.15 | 0.49 |
| 25:R:96:ARG:CZ | 25:R:117:VAL:HG23 | 2.43 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|------------------|-------------|----------|
| 11:A:1771:C:O2' | 11:A:1786:A:H8 | 1.95 | 0.49 |
| 24:Q:42:ILE:HD13 | 24:Q:97:VAL:HG22 | 1.94 | 0.49 |
| 28:U:86:ALA:HB2 | 28:U:116:ALA:HB2 | 1.93 | 0.49 |
| 31:X:61:GLY:HA3 | 31:X:73:ARG:O | 2.13 | 0.49 |
| 8:7:21:ARG:HB3 | 8:7:27:GLY:O | 2.12 | 0.49 |
| 15:E:54:GLN:O | 15:E:55:ASN:HB2 | 2.12 | 0.49 |
| 18:H:16:SER:HB2 | 18:H:27:LYS:CB | 2.27 | 0.49 |
| 11:A:1499:C:O2' | 11:A:1500:G:H5' | 2.12 | 0.49 |
| 14:D:48:ARG:HG3 | 14:D:48:ARG:HH11 | 1.78 | 0.49 |
| 11:A:1747(A):G:C2' | 11:A:1748:G:C5' | 2.81 | 0.49 |
| 3:2:35:LEU:HB3 | 3:2:50:ILE:CD1 | 2.43 | 0.49 |
| 33:Z:165:VAL:HG12 | 33:Z:167:PRO:HA | 1.95 | 0.49 |
| 25:R:38:VAL:HB | 25:R:39:PRO:CD | 2.39 | 0.49 |
| 32:Y:62:GLU:N | 32:Y:62:GLU:CD | 2.67 | 0.49 |
| 32:Y:31:LEU:N | 32:Y:31:LEU:HD22 | 2.28 | 0.49 |
| 2:1:41:ARG:NH2 | 11:A:1365:A:H5'' | 2.26 | 0.49 |
| 11:A:1827:C:C2' | 11:A:1828:G:H5' | 2.43 | 0.49 |
| 33:Z:128:VAL:HG21 | 33:Z:132:ASN:O | 2.13 | 0.49 |
| 11:A:158:U:H3' | 11:A:158:U:O2 | 2.13 | 0.49 |
| 6:5:52:TYR:N | 6:5:52:TYR:CD1 | 2.80 | 0.49 |
| 11:A:2230:G:H2' | 11:A:2231:C:H6 | 1.77 | 0.49 |
| 11:A:2543:G:H2' | 11:A:2544:G:C8 | 2.48 | 0.48 |
| 27:T:27:THR:H | 27:T:49:VAL:HG12 | 1.78 | 0.48 |
| 27:T:78:LEU:HD23 | 27:T:78:LEU:O | 2.13 | 0.48 |
| 16:F:119:ARG:HH11 | 16:F:119:ARG:HG2 | 1.77 | 0.48 |
| 11:A:1504:C:O2' | 11:A:1505:C:C5' | 2.61 | 0.48 |
| 14:D:70:TRP:O | 14:D:71:ASP:C | 2.49 | 0.48 |
| 26:S:89:ARG:CG | 26:S:92:TYR:CA | 2.89 | 0.48 |
| 26:S:97:ARG:NH1 | 26:S:98:VAL:O | 2.46 | 0.48 |
| 30:W:6:ILE:HG12 | 30:W:104:THR:CB | 2.43 | 0.48 |
| 18:H:41:MET:SD | 18:H:53:GLU:O | 2.70 | 0.48 |
| 26:S:16:ASN:O | 26:S:18:ILE:N | 2.46 | 0.48 |
| 11:A:860:U:O2 | 11:A:860:U:O4' | 2.31 | 0.48 |
| 28:U:95:LEU:C | 28:U:97:ASP:H | 2.17 | 0.48 |
| 3:2:68:ARG:CZ | 3:2:72:ALA:HB1 | 2.42 | 0.48 |
| 11:A:142:A:H8 | 11:A:1595:G:H21 | 1.59 | 0.48 |
| 11:A:1038:C:C3' | 11:A:1039:G:H5'' | 2.43 | 0.48 |
| 21:N:89:LYS:O | 21:N:93:THR:HG22 | 2.13 | 0.48 |
| 28:U:47:TYR:O | 28:U:51:LYS:HG2 | 2.12 | 0.48 |
| 11:A:1651:G:C2 | 11:A:2007:C:N3 | 2.81 | 0.48 |
| 19:J:27:UNK:CB | 19:J:113:UNK:HA | 2.42 | 0.48 |
| 16:F:150:GLY:HA2 | 16:F:172:TRP:CE3 | 2.48 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 18:H:147:ASN:HD22 | 18:H:147:ASN:N | 2.11 | 0.48 |
| 24:Q:3:MET:HB2 | 24:Q:4:PRO:HD2 | 1.95 | 0.48 |
| 11:A:438:G:H2' | 11:A:440:G:H8 | 1.78 | 0.48 |
| 11:A:2842:G:O2' | 11:A:2843:G:H5' | 2.13 | 0.48 |
| 20:K:13:UNK:O | 20:K:52:UNK:HA | 2.14 | 0.48 |
| 27:T:78:LEU:C | 27:T:79:HIS:CD2 | 2.86 | 0.48 |
| 7:6:7:ILE:HG21 | 7:6:29:ASN:HD22 | 1.78 | 0.48 |
| 11:A:643:A:O2' | 11:A:644:A:H5' | 2.13 | 0.48 |
| 32:Y:39:VAL:HG12 | 32:Y:40:GLU:N | 2.29 | 0.48 |
| 26:S:87:PHE:CG | 26:S:88:ASP:N | 2.81 | 0.48 |
| 30:W:5:ALA:O | 30:W:6:ILE:CB | 2.61 | 0.48 |
| 11:A:690:G:H2' | 11:A:691:C:C6 | 2.48 | 0.48 |
| 5:4:10:VAL:CG2 | 5:4:11:PRO:HD2 | 2.42 | 0.48 |
| 13:C:175:VAL:HG12 | 13:C:188:ASN:CB | 2.37 | 0.48 |
| 26:S:48:LEU:HD23 | 26:S:82:ILE:HD11 | 1.94 | 0.48 |
| 11:A:652:C:O2' | 11:A:653:A:O5' | 2.31 | 0.48 |
| 21:N:55:VAL:HG22 | 21:N:56:ASN:H | 1.78 | 0.48 |
| 11:A:380:U:H2' | 11:A:381:G:H8 | 1.78 | 0.48 |
| 11:A:2206:G:N2 | 11:A:2207:G:C5' | 2.76 | 0.48 |
| 13:C:132:GLY:N | 13:C:133:PRO:CD | 2.75 | 0.48 |
| 23:P:92:GLU:HG2 | 23:P:121:LYS:HZ3 | 1.78 | 0.48 |
| 11:A:519:U:H2' | 11:A:520:G:C8 | 2.48 | 0.48 |
| 11:A:1638:C:H5'' | 11:A:2710:C:O2' | 2.13 | 0.48 |
| 11:A:152:G:H1 | 11:A:174:C:H42 | 1.60 | 0.48 |
| 21:N:128:HIS:CG | 21:N:128:HIS:O | 2.66 | 0.48 |
| 14:D:241:PRO:O | 14:D:243:GLY:N | 2.46 | 0.48 |
| 27:T:28:VAL:HB | 27:T:88:ILE:HG12 | 1.94 | 0.48 |
| 15:E:75:VAL:HG12 | 15:E:76:ARG:N | 2.29 | 0.48 |
| 11:A:1542:A:H5' | 11:A:1543:C:OP2 | 2.13 | 0.48 |
| 9:8:4:MET:HE2 | 9:8:61:LEU:HD23 | 1.95 | 0.48 |
| 17:G:85:GLY:C | 17:G:87:PRO:CD | 2.81 | 0.48 |
| 27:T:13:ARG:HH12 | 27:T:15:VAL:CG1 | 2.26 | 0.48 |
| 11:A:2746:U:O2' | 11:A:2747:G:H5' | 2.13 | 0.48 |
| 26:S:12:PHE:CD1 | 26:S:13:ARG:N | 2.81 | 0.48 |
| 3:2:35:LEU:HB3 | 3:2:50:ILE:HD11 | 1.95 | 0.48 |
| 22:O:35:VAL:CG1 | 22:O:69:ILE:HD13 | 2.44 | 0.48 |
| 2:1:72:GLU:OE1 | 2:1:72:GLU:HA | 2.13 | 0.48 |
| 33:Z:24:LEU:C | 33:Z:24:LEU:HD23 | 2.33 | 0.48 |
| 25:R:13:HIS:HE1 | 25:R:15:SER:OG | 1.96 | 0.48 |
| 11:A:580:C:H2' | 11:A:581:C:H6 | 1.78 | 0.48 |
| 11:A:1331:A:C2' | 11:A:1332:G:H5'' | 2.43 | 0.48 |
| 18:H:35:VAL:HG21 | 18:H:75:ALA:HB2 | 1.94 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 11:A:17:G:H2' | 11:A:18:C:C6 | 2.47 | 0.48 |
| 11:A:2870:C:H2' | 11:A:2871:C:O4' | 2.13 | 0.48 |
| 2:1:3:LYS:HB2 | 2:1:3:LYS:HZ2 | 1.77 | 0.48 |
| 11:A:1131:G:HO2' | 11:A:1132:A:H8 | 1.62 | 0.48 |
| 16:F:150:GLY:HA2 | 16:F:172:TRP:CD2 | 2.49 | 0.48 |
| 22:O:53:LYS:O | 22:O:56:ASP:HB2 | 2.13 | 0.48 |
| 18:H:80:SER:O | 18:H:81:GLU:HB2 | 2.13 | 0.48 |
| 9:8:30:ARG:NH2 | 11:A:2419:U:O4 | 2.46 | 0.48 |
| 23:P:38:GLN:HG3 | 23:P:39:LYS:H | 1.78 | 0.48 |
| 5:4:25:TYR:O | 5:4:26:SER:HB3 | 2.12 | 0.48 |
| 11:A:2416:C:H2' | 11:A:2417:C:H6 | 1.78 | 0.48 |
| 26:S:106:ARG:HH11 | 26:S:106:ARG:CG | 2.23 | 0.48 |
| 23:P:84:ASN:C | 23:P:86:LYS:N | 2.67 | 0.48 |
| 10:9:35:ARG:HG2 | 10:9:35:ARG:O | 2.13 | 0.48 |
| 28:U:92:ARG:HB2 | 29:V:11:GLN:NE2 | 2.28 | 0.48 |
| 15:E:116:VAL:CG2 | 15:E:122:PHE:CG | 2.97 | 0.48 |
| 1:0:72:ARG:HD3 | 1:0:75:LEU:HD13 | 1.95 | 0.48 |
| 8:7:12:ARG:NH2 | 11:A:465:G:OP1 | 2.45 | 0.48 |
| 17:G:48:GLU:O | 17:G:49:ASP:HB3 | 2.13 | 0.48 |
| 11:A:2123:G:O2' | 11:A:2124:G:H5' | 2.12 | 0.48 |
| 11:A:1675:C:H2' | 11:A:1676:A:O4' | 2.13 | 0.48 |
| 11:A:86:C:H2' | 11:A:87:C:C6 | 2.48 | 0.48 |
| 11:A:616:G:H2' | 11:A:618:C:O4' | 2.12 | 0.48 |
| 29:V:19:LYS:HB2 | 29:V:96:ILE:CD1 | 2.42 | 0.48 |
| 23:P:97:PRO:O | 23:P:98:GLU:CB | 2.54 | 0.48 |
| 14:D:44:ASN:HB2 | 14:D:48:ARG:O | 2.13 | 0.48 |
| 11:A:811:U:O2' | 11:A:812:C:C5' | 2.61 | 0.48 |
| 11:A:605:C:H1' | 11:A:657:U:O2' | 2.14 | 0.48 |
| 8:7:34:ARG:HD3 | 11:A:467:G:OP2 | 2.12 | 0.48 |
| 31:X:38:GLU:O | 31:X:38:GLU:HG2 | 2.12 | 0.48 |
| 33:Z:151:HIS:HB2 | 33:Z:170:THR:CA | 2.42 | 0.48 |
| 16:F:44:ARG:HG2 | 16:F:44:ARG:O | 2.13 | 0.48 |
| 12:B:93:G:H2' | 12:B:94:C:C6 | 2.48 | 0.48 |
| 11:A:17:G:H4' | 28:U:25:TRP:CH2 | 2.48 | 0.48 |
| 11:A:2472:G:C5' | 11:A:2473:U:H5'' | 2.42 | 0.48 |
| 11:A:2201:C:H2' | 11:A:2202:C:C6 | 2.49 | 0.48 |
| 5:4:19:GLY:O | 5:4:21:VAL:HG23 | 2.14 | 0.48 |
| 11:A:1773:A:H2' | 11:A:1774:C:H5' | 1.95 | 0.48 |
| 23:P:105:LEU:H | 23:P:105:LEU:CD1 | 2.24 | 0.48 |
| 7:6:25:LYS:HE3 | 9:8:35:GLN:OE1 | 2.14 | 0.48 |
| 11:A:664:C:O4' | 11:A:940:G:H5'' | 2.14 | 0.48 |
| 11:A:623:G:H2' | 11:A:624:C:C6 | 2.49 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 17:G:38:VAL:HG12 | 17:G:93:THR:HA | 1.96 | 0.48 |
| 15:E:144:ARG:HG3 | 15:E:145:LYS:N | 2.29 | 0.48 |
| 11:A:92:A:H3' | 11:A:93:G:H8 | 1.79 | 0.48 |
| 24:Q:60:ARG:CZ | 24:Q:60:ARG:HB3 | 2.43 | 0.48 |
| 9:8:50:LEU:C | 9:8:53:PRO:HD2 | 2.34 | 0.48 |
| 15:E:3:GLY:O | 15:E:4:ILE:HB | 2.13 | 0.48 |
| 11:A:481:G:P | 32:Y:47:LYS:HD3 | 2.52 | 0.48 |
| 15:E:81:ILE:O | 15:E:81:ILE:CG2 | 2.61 | 0.48 |
| 11:A:492:A:H2' | 11:A:493:G:O4' | 2.14 | 0.48 |
| 22:O:24:VAL:CG1 | 22:O:33:ALA:HB2 | 2.43 | 0.48 |
| 23:P:102:ARG:NH1 | 23:P:102:ARG:HB2 | 2.28 | 0.48 |
| 11:A:2692:C:H1' | 11:A:2847:U:O2' | 2.13 | 0.48 |
| 11:A:2257:U:O2' | 11:A:2258:C:H5' | 2.14 | 0.48 |
| 7:6:22:ALA:HB2 | 7:6:39:TYR:CZ | 2.49 | 0.48 |
| 21:N:134:ARG:N | 21:N:135:PRO:HD3 | 2.28 | 0.48 |
| 21:N:15:LEU:O | 21:N:136:GLU:HA | 2.14 | 0.48 |
| 12:B:73:A:C4 | 12:B:105:A:C2 | 3.01 | 0.48 |
| 11:A:2312:U:C2' | 11:A:2313:C:H5'' | 2.42 | 0.48 |
| 32:Y:28:LYS:N | 32:Y:28:LYS:CE | 2.76 | 0.48 |
| 23:P:114:ILE:HB | 23:P:130:PHE:CD2 | 2.48 | 0.48 |
| 25:R:86:ARG:HB3 | 25:R:118:GLU:OE2 | 2.14 | 0.48 |
| 11:A:1342:A:H2 | 11:A:1396:U:HO2' | 1.61 | 0.48 |
| 13:C:74:VAL:HG11 | 13:C:153:ILE:HG23 | 1.94 | 0.48 |
| 22:O:25:LEU:HB2 | 22:O:38:VAL:HG23 | 1.96 | 0.48 |
| 14:D:222:ARG:O | 14:D:224:ALA:O | 2.32 | 0.48 |
| 11:A:189:G:H2' | 11:A:205:G:H22 | 1.77 | 0.48 |
| 17:G:145:THR:HB | 17:G:148:MET:CB | 2.44 | 0.48 |
| 11:A:1750:G:H2' | 11:A:1751:C:C6 | 2.48 | 0.48 |
| 27:T:28:VAL:HG22 | 27:T:46:GLU:CA | 2.43 | 0.48 |
| 27:T:77:PRO:C | 27:T:79:HIS:H | 2.17 | 0.48 |
| 11:A:2105:C:N3 | 11:A:2184:G:N2 | 2.61 | 0.48 |
| 27:T:13:ARG:HH12 | 27:T:15:VAL:HG12 | 1.79 | 0.48 |
| 30:W:4:LYS:HG2 | 30:W:5:ALA:H | 1.78 | 0.48 |
| 26:S:74:ALA:O | 26:S:76:LYS:N | 2.46 | 0.48 |
| 23:P:16:ARG:O | 23:P:18:ARG:N | 2.47 | 0.48 |
| 30:W:36:LEU:HD11 | 30:W:47:VAL:HG12 | 1.96 | 0.48 |
| 11:A:64:A:O2' | 11:A:65:C:H5' | 2.14 | 0.48 |
| 4:3:29:ARG:HH11 | 4:3:29:ARG:CB | 2.19 | 0.48 |
| 21:N:34:LEU:HD13 | 21:N:34:LEU:O | 2.13 | 0.48 |
| 2:1:90:ILE:O | 2:1:94:LEU:HD13 | 2.14 | 0.48 |
| 11:A:845:G:C8 | 11:A:845:G:OP2 | 2.59 | 0.48 |
| 11:A:326:G:H2' | 11:A:327:G:C8 | 2.47 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:A:500:G:H22 | 11:A:502:A:H3' | 1.79 | 0.48 |
| 11:A:723:G:H2' | 11:A:724:U:C6 | 2.49 | 0.48 |
| 10:9:29:ASN:ND2 | 10:9:29:ASN:O | 2.46 | 0.48 |
| 14:D:226:MET:HB3 | 14:D:230:ASP:HB2 | 1.94 | 0.48 |
| 11:A:1259:G:O2' | 11:A:1260:G:H5' | 2.14 | 0.48 |
| 11:A:1652:A:H2' | 11:A:1653:G:H5' | 1.95 | 0.48 |
| 4:3:11:SER:HB3 | 11:A:988:A:P | 2.53 | 0.48 |
| 11:A:20:C:O2' | 11:A:21:A:H5' | 2.14 | 0.48 |
| 17:G:34:LEU:HA | 17:G:161:THR:HA | 1.95 | 0.48 |
| 11:A:630:G:H4' | 11:A:640:C:H4' | 1.94 | 0.48 |
| 11:A:645:C:H5' | 11:A:646:A:OP2 | 2.14 | 0.48 |
| 11:A:566:U:O4 | 29:V:78:LYS:HE2 | 2.13 | 0.48 |
| 11:A:1899:G:C2' | 11:A:1900:A:OP2 | 2.61 | 0.48 |
| 15:E:33:VAL:HG12 | 15:E:69:LYS:HD2 | 1.95 | 0.48 |
| 11:A:558:G:P | 21:N:111:PRO:HD2 | 2.53 | 0.48 |
| 33:Z:123:ASP:C | 33:Z:124:ILE:HG12 | 2.34 | 0.48 |
| 17:G:51:ARG:HH11 | 17:G:53:LEU:HD21 | 1.79 | 0.48 |
| 17:G:46:ALA:HB2 | 17:G:88:ILE:CG1 | 2.42 | 0.48 |
| 11:A:102:G:OP1 | 11:A:102:G:H4' | 2.14 | 0.48 |
| 32:Y:73:ARG:O | 32:Y:74:PRO:O | 2.31 | 0.48 |
| 23:P:98:GLU:H | 23:P:101:VAL:HG13 | 1.79 | 0.48 |
| 30:W:4:LYS:CG | 30:W:5:ALA:N | 2.77 | 0.48 |
| 7:6:5:VAL:O | 7:6:6:ARG:CB | 2.61 | 0.48 |
| 17:G:128:ARG:O | 17:G:130:ASN:N | 2.47 | 0.48 |
| 11:A:90:U:O4' | 11:A:92:A:C8 | 2.67 | 0.48 |
| 2:1:58:ILE:HD12 | 2:1:59:THR:H | 1.79 | 0.48 |
| 9:8:50:LEU:O | 9:8:51:ALA:CB | 2.62 | 0.48 |
| 11:A:278:A:N6 | 11:A:362:U:H3 | 2.09 | 0.48 |
| 11:A:1607:C:H4' | 11:A:1608:A:O5' | 2.14 | 0.48 |
| 17:G:181:ARG:O | 17:G:182:LYS:OXT | 2.32 | 0.48 |
| 11:A:2248:C:H2' | 11:A:2249:U:C5' | 2.44 | 0.48 |
| 11:A:2555:U:C2' | 11:A:2556:C:H5' | 2.44 | 0.48 |
| 15:E:30:PRO:HD3 | 15:E:180:ASN:ND2 | 2.29 | 0.48 |
| 32:Y:6:HIS:CD2 | 32:Y:6:HIS:H | 2.32 | 0.48 |
| 18:H:109:PHE:CZ | 18:H:152:ARG:NH1 | 2.82 | 0.48 |
| 11:A:1315:C:O2' | 11:A:1316:U:H5' | 2.13 | 0.48 |
| 11:A:2175:C:N3 | 11:A:2176:A:C2 | 2.82 | 0.48 |
| 11:A:438:G:O2' | 11:A:440:G:H5' | 2.13 | 0.48 |
| 11:A:1902:C:C5' | 14:D:246:PRO:HD3 | 2.44 | 0.48 |
| 26:S:99:LYS:CB | 26:S:99:LYS:NZ | 2.72 | 0.48 |
| 11:A:1498:C:O4' | 11:A:1577:C:H4' | 2.14 | 0.48 |
| 23:P:46:LYS:HG2 | 23:P:52:GLU:OE2 | 2.14 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 28:U:88:ILE:C | 28:U:90:VAL:N | 2.67 | 0.48 |
| 11:A:1061:U:H4' | 11:A:1070:A:C1' | 2.43 | 0.48 |
| 17:G:32:PRO:HB3 | 17:G:163:ALA:HA | 1.96 | 0.48 |
| 17:G:8:LYS:O | 17:G:11:TYR:HB3 | 2.13 | 0.48 |
| 31:X:24:GLY:O | 31:X:83:VAL:N | 2.47 | 0.48 |
| 29:V:21:ARG:HB3 | 29:V:91:TYR:HB2 | 1.96 | 0.48 |
| 11:A:288:C:H2' | 11:A:289:A:H8 | 1.79 | 0.48 |
| 10:9:31:LYS:HE2 | 11:A:2478:A:H5' | 1.95 | 0.48 |
| 11:A:2839:G:H2' | 11:A:2840:C:C6 | 2.48 | 0.48 |
| 23:P:17:LYS:C | 23:P:19:VAL:N | 2.66 | 0.48 |
| 11:A:1842:G:H2' | 11:A:1843:C:C6 | 2.48 | 0.48 |
| 32:Y:94:LYS:O | 32:Y:94:LYS:HG3 | 2.14 | 0.48 |
| 2:1:20:ARG:HB2 | 2:1:32:LYS:HG3 | 1.96 | 0.48 |
| 11:A:2309:A:H2' | 11:A:2310:A:H5' | 1.96 | 0.47 |
| 11:A:605:C:H5 | 11:A:623:G:N1 | 2.08 | 0.47 |
| 11:A:2133:G:H4' | 11:A:2133:G:OP1 | 2.13 | 0.47 |
| 2:1:82:LEU:HD12 | 2:1:83:GLU:H | 1.78 | 0.47 |
| 25:R:7:GLY:O | 25:R:8:ARG:CZ | 2.62 | 0.47 |
| 5:4:5:ILE:CG1 | 5:4:5:ILE:O | 2.62 | 0.47 |
| 11:A:2818:G:H4' | 11:A:2837:G:O4' | 2.14 | 0.47 |
| 11:A:2121:G:H2' | 11:A:2122:U:C6 | 2.49 | 0.47 |
| 11:A:669:G:H2' | 11:A:669:G:N3 | 2.29 | 0.47 |
| 3:2:16:LEU:N | 3:2:67:LYS:NZ | 2.62 | 0.47 |
| 11:A:431:U:O2' | 11:A:432:A:H5' | 2.14 | 0.47 |
| 11:A:1097:U:H2' | 11:A:1098:A:C8 | 2.48 | 0.47 |
| 11:A:1472:A:C2' | 11:A:1473:G:H5' | 2.44 | 0.47 |
| 11:A:745:G:OP1 | 15:E:133:LYS:HE3 | 2.13 | 0.47 |
| 11:A:1537:G:H2' | 11:A:1538:G:H8 | 1.79 | 0.47 |
| 11:A:1485:G:O6 | 11:A:1504:C:N3 | 2.47 | 0.47 |
| 18:H:94:TYR:CE1 | 18:H:108:GLY:N | 2.79 | 0.47 |
| 7:6:15:GLU:CG | 7:6:18:ARG:NH1 | 2.71 | 0.47 |
| 11:A:654(N):G:N7 | 11:A:654(O):G:C4 | 2.82 | 0.47 |
| 11:A:609:A:H2' | 11:A:610:G:O4' | 2.15 | 0.47 |
| 9:8:30:ARG:NE | 9:8:30:ARG:HA | 2.27 | 0.47 |
| 11:A:2282:G:H5'' | 11:A:2283:C:O4' | 2.12 | 0.47 |
| 24:Q:135:ASP:N | 24:Q:137:TYR:CD1 | 2.78 | 0.47 |
| 11:A:2742:C:O2' | 11:A:2743:C:H5' | 2.14 | 0.47 |
| 11:A:2632:A:H2 | 15:E:61:ARG:HD2 | 1.79 | 0.47 |
| 11:A:2762:G:H2' | 11:A:2763:G:H5' | 1.96 | 0.47 |
| 11:A:2208:A:O2' | 11:A:2219:G:C8 | 2.63 | 0.47 |
| 15:E:105:THR:HG21 | 15:E:164:ARG:HH12 | 1.78 | 0.47 |
| 11:A:2060:A:H62 | 16:F:74:ARG:HH21 | 1.62 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 12:B:112:U:H2' | 12:B:113:G:C8 | 2.47 | 0.47 |
| 22:O:49:ARG:H | 22:O:49:ARG:CD | 2.27 | 0.47 |
| 11:A:2700:C:O2' | 11:A:2701:C:H5' | 2.13 | 0.47 |
| 5:4:45:GLY:O | 5:4:46:GLN:HB2 | 2.13 | 0.47 |
| 16:F:31:HIS:ND1 | 23:P:13:ASN:HB2 | 2.29 | 0.47 |
| 15:E:68:ALA:C | 15:E:70:ALA:H | 2.16 | 0.47 |
| 21:N:132:ALA:O | 21:N:133:GLN:CB | 2.62 | 0.47 |
| 33:Z:51:ALA:HB1 | 33:Z:57:ILE:CD1 | 2.26 | 0.47 |
| 14:D:72:LYS:NZ | 14:D:75:ILE:HG13 | 2.29 | 0.47 |
| 17:G:88:ILE:CG2 | 17:G:89:GLY:N | 2.77 | 0.47 |
| 11:A:83:G:H22 | 11:A:102:G:H2' | 1.79 | 0.47 |
| 32:Y:73:ARG:HA | 32:Y:73:ARG:HE | 1.79 | 0.47 |
| 13:C:72:VAL:HG23 | 13:C:111:ASP:CB | 2.31 | 0.47 |
| 17:G:91:ARG:C | 17:G:91:ARG:HD2 | 2.35 | 0.47 |
| 11:A:512:G:O2' | 11:A:513:A:H8 | 1.98 | 0.47 |
| 18:H:40:GLU:O | 18:H:41:MET:HB3 | 2.13 | 0.47 |
| 6:5:56:LYS:NZ | 6:5:59:GLU:OE2 | 2.48 | 0.47 |
| 14:D:10:THR:HG23 | 14:D:13:ARG:CB | 2.39 | 0.47 |
| 15:E:144:ARG:HG3 | 15:E:145:LYS:H | 1.80 | 0.47 |
| 3:2:32:LEU:HA | 3:2:53:LEU:HD13 | 1.95 | 0.47 |
| 28:U:59:ARG:CG | 28:U:59:ARG:HH11 | 2.21 | 0.47 |
| 21:N:22:THR:O | 21:N:25:ARG:HB2 | 2.14 | 0.47 |
| 9:8:15:LYS:CG | 23:P:65:ARG:HH21 | 2.28 | 0.47 |
| 11:A:359:A:C2 | 11:A:360:G:H1' | 2.48 | 0.47 |
| 18:H:136:ILE:HD12 | 18:H:136:ILE:N | 2.29 | 0.47 |
| 32:Y:2:ARG:HG2 | 32:Y:2:ARG:HH11 | 1.79 | 0.47 |
| 17:G:180:PHE:C | 17:G:182:LYS:H | 2.18 | 0.47 |
| 11:A:752:A:H4' | 11:A:753:C:O5' | 2.14 | 0.47 |
| 17:G:18:GLU:CG | 17:G:175:LEU:HD13 | 2.44 | 0.47 |
| 11:A:2241:A:H2' | 11:A:2242:G:C8 | 2.50 | 0.47 |
| 17:G:107:LEU:HD21 | 17:G:178:PHE:CD1 | 2.49 | 0.47 |
| 11:A:2025:C:H2' | 11:A:2026:C:C6 | 2.48 | 0.47 |
| 11:A:1907:G:O2' | 11:A:1908:C:H5' | 2.14 | 0.47 |
| 17:G:34:LEU:HD11 | 17:G:99:MET:HE3 | 1.96 | 0.47 |
| 11:A:907:U:OP1 | 24:Q:24:GLY:N | 2.46 | 0.47 |
| 13:C:122:ALA:O | 13:C:126:LYS:HB2 | 2.14 | 0.47 |
| 11:A:904:C:H2' | 11:A:905:U:C6 | 2.49 | 0.47 |
| 11:A:1925:C:O2' | 11:A:1926:U:H5' | 2.15 | 0.47 |
| 11:A:1529:G:C2 | 11:A:1541:G:N2 | 2.82 | 0.47 |
| 9:8:59:LYS:HB2 | 9:8:59:LYS:HE3 | 1.67 | 0.47 |
| 15:E:14:ILE:HD11 | 15:E:173:VAL:CG1 | 2.41 | 0.47 |
| 11:A:2334:G:H5' | 26:S:13:ARG:HD3 | 1.97 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 11:A:652:C:HO2' | 11:A:653:A:P | 2.36 | 0.47 |
| 24:Q:134:ARG:HA | 24:Q:137:TYR:CE1 | 2.49 | 0.47 |
| 28:U:92:ARG:NH1 | 29:V:11:GLN:O | 2.48 | 0.47 |
| 18:H:104:GLU:HA | 18:H:113:VAL:O | 2.14 | 0.47 |
| 27:T:93:ARG:HD2 | 27:T:93:ARG:HA | 1.63 | 0.47 |
| 18:H:98:LEU:CB | 18:H:125:VAL:HG21 | 2.40 | 0.47 |
| 11:A:272(D):G:H1 | 11:A:364:C:N4 | 2.11 | 0.47 |
| 11:A:1720:U:H2' | 11:A:1721:G:O4' | 2.13 | 0.47 |
| 11:A:2262:U:O2' | 11:A:2263:C:H5' | 2.13 | 0.47 |
| 11:A:793:A:OP2 | 11:A:2072:G:H5' | 2.14 | 0.47 |
| 21:N:39:ARG:C | 21:N:41:ASP:H | 2.17 | 0.47 |
| 16:F:108:LYS:HB3 | 16:F:112:MET:HE3 | 1.95 | 0.47 |
| 11:A:1668:A:N3 | 11:A:1670:C:C4 | 2.82 | 0.47 |
| 27:T:78:LEU:O | 27:T:79:HIS:CD2 | 2.65 | 0.47 |
| 16:F:118:ALA:HA | 16:F:123:LEU:HB3 | 1.96 | 0.47 |
| 14:D:24:ILE:C | 14:D:26:LYS:N | 2.66 | 0.47 |
| 14:D:35:LYS:HB3 | 14:D:36:PRO:CD | 2.45 | 0.47 |
| 7:6:11:LEU:HD11 | 7:6:26:ASN:HB2 | 1.97 | 0.47 |
| 33:Z:57:ILE:N | 33:Z:69:THR:O | 2.41 | 0.47 |
| 11:A:2833:G:C3' | 11:A:2834:G:C5' | 2.78 | 0.47 |
| 7:6:20:ASN:OD1 | 7:6:21:TYR:N | 2.48 | 0.47 |
| 23:P:95:VAL:CG2 | 23:P:125:VAL:HA | 2.45 | 0.47 |
| 11:A:2801(A):A:H5' | 11:A:2802:G:C8 | 2.49 | 0.47 |
| 11:A:1747:G:H2' | 11:A:1747(A):G:C8 | 2.50 | 0.47 |
| 11:A:2131:G:O4' | 11:A:2133:G:N3 | 2.47 | 0.47 |
| 26:S:85:VAL:C | 26:S:106:ARG:HG3 | 2.34 | 0.47 |
| 11:A:142:A:H1' | 11:A:1408:C:C1' | 2.45 | 0.47 |
| 22:O:35:VAL:CG2 | 22:O:103:ALA:HB3 | 2.40 | 0.47 |
| 33:Z:108:PRO:C | 33:Z:110:GLY:N | 2.67 | 0.47 |
| 11:A:1681:G:O2' | 11:A:1762:A:C2' | 2.59 | 0.47 |
| 11:A:1288:U:C2 | 11:A:1327:C:O2 | 2.67 | 0.47 |
| 10:9:19:ARG:HG3 | 10:9:20:HIS:ND1 | 2.30 | 0.47 |
| 12:B:28:C:O2' | 12:B:29:A:H5' | 2.15 | 0.47 |
| 4:3:7:LYS:HE2 | 4:3:32:GLN:OE1 | 2.14 | 0.47 |
| 15:E:98:PRO:HG3 | 15:E:175:VAL:HG12 | 1.96 | 0.47 |
| 9:8:17:THR:OG1 | 9:8:21:LYS:HB2 | 2.14 | 0.47 |
| 15:E:108:SER:O | 15:E:162:ALA:HA | 2.14 | 0.47 |
| 11:A:425:G:O2' | 11:A:426:C:H5' | 2.14 | 0.47 |
| 28:U:99:ALA:HB2 | 28:U:106:PHE:CE1 | 2.49 | 0.47 |
| 14:D:61:LEU:HD12 | 14:D:61:LEU:HA | 1.74 | 0.47 |
| 11:A:2636:U:O5' | 15:E:80:GLU:HG3 | 2.14 | 0.47 |
| 15:E:48:GLN:HA | 15:E:80:GLU:HA | 1.96 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 9:8:7:HIS:N | 9:8:11:LYS:HE2 | 2.29 | 0.47 |
| 33:Z:72:ARG:HG2 | 33:Z:89:PHE:HB2 | 1.95 | 0.47 |
| 15:E:14:ILE:HB | 27:T:14:TYR:CZ | 2.50 | 0.47 |
| 9:8:28:GLY:C | 9:8:32:LEU:HD22 | 2.35 | 0.47 |
| 23:P:61:ARG:HG3 | 23:P:61:ARG:H | 1.46 | 0.47 |
| 11:A:1517:G:O2' | 11:A:1518:U:H5' | 2.14 | 0.47 |
| 26:S:75:GLU:O | 26:S:76:LYS:HB2 | 2.15 | 0.47 |
| 11:A:1108:U:H3' | 11:A:1109:C:H6 | 1.80 | 0.47 |
| 11:A:331:A:C1' | 11:A:332:A:OP1 | 2.63 | 0.47 |
| 11:A:958:U:H5'' | 24:Q:14:ARG:HD3 | 1.94 | 0.47 |
| 11:A:2126:A:O2' | 11:A:2127:G:OP2 | 2.30 | 0.47 |
| 11:A:2292:C:H2' | 11:A:2293:C:H6 | 1.78 | 0.47 |
| 11:A:2292:C:H2' | 11:A:2293:C:C6 | 2.49 | 0.47 |
| 32:Y:2:ARG:HD2 | 32:Y:3:VAL:HG23 | 1.97 | 0.47 |
| 11:A:1257:C:H2' | 11:A:1258:C:C6 | 2.47 | 0.47 |
| 4:3:1:MET:CE | 4:3:40:THR:HG22 | 2.44 | 0.47 |
| 7:6:22:ALA:HB2 | 7:6:39:TYR:CE2 | 2.50 | 0.47 |
| 11:A:236:C:H2' | 11:A:237:C:C6 | 2.49 | 0.47 |
| 11:A:2352:A:C4 | 11:A:2366:A:C2 | 3.02 | 0.47 |
| 13:C:195:ALA:O | 13:C:198:ALA:HB3 | 2.15 | 0.47 |
| 14:D:169:GLU:OE1 | 14:D:184:LYS:HD3 | 2.14 | 0.47 |
| 27:T:33:LYS:HD2 | 27:T:43:GLN:CB | 2.45 | 0.47 |
| 15:E:49:LEU:HD11 | 15:E:91:VAL:HG21 | 1.97 | 0.47 |
| 15:E:65:GLY:HA2 | 15:E:70:ALA:CB | 2.44 | 0.47 |
| 11:A:32:C:H5' | 11:A:32:C:H6 | 1.78 | 0.47 |
| 31:X:13:LEU:HD23 | 31:X:18:TYR:HE1 | 1.79 | 0.47 |
| 11:A:1543:C:C3' | 11:A:1544:A:C5' | 2.81 | 0.47 |
| 11:A:2186:G:H2' | 11:A:2187:G:N9 | 2.29 | 0.47 |
| 26:S:99:LYS:HZ3 | 26:S:99:LYS:HB3 | 1.77 | 0.47 |
| 21:N:62:VAL:HG13 | 21:N:62:VAL:O | 2.15 | 0.47 |
| 11:A:1142(A):A:H5' | 11:A:1142(A):A:C8 | 2.50 | 0.47 |
| 21:N:62:VAL:HG23 | 21:N:66:LYS:HD2 | 1.93 | 0.47 |
| 16:F:132:VAL:HG13 | 16:F:133:ASN:N | 2.30 | 0.47 |
| 14:D:48:ARG:HG3 | 14:D:48:ARG:NH1 | 2.29 | 0.47 |
| 11:A:27:G:N2 | 11:A:512:G:C2' | 2.69 | 0.47 |
| 11:A:664:C:O2' | 11:A:665:C:H5' | 2.15 | 0.47 |
| 5:4:25:TYR:HE2 | 17:G:2:PRO:HB3 | 1.79 | 0.47 |
| 22:O:66:LYS:H | 22:O:82:ASN:ND2 | 2.13 | 0.47 |
| 6:5:41:PRO:O | 6:5:44:THR:OG1 | 2.29 | 0.47 |
| 18:H:104:GLU:OE1 | 18:H:106:THR:HG23 | 2.15 | 0.47 |
| 18:H:101:ARG:O | 18:H:117:PRO:HG3 | 2.14 | 0.47 |
| 33:Z:150:LEU:O | 33:Z:151:HIS:HB3 | 2.15 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 11:A:2762:G:H2' | 11:A:2763:G:C5' | 2.45 | 0.47 |
| 11:A:2762:G:C2' | 11:A:2763:G:H5' | 2.44 | 0.47 |
| 11:A:2651:C:O2' | 11:A:2652:C:H5' | 2.15 | 0.47 |
| 29:V:49:THR:CB | 29:V:50:PRO:CD | 2.92 | 0.47 |
| 25:R:17:ARG:O | 25:R:20:LEU:HB3 | 2.14 | 0.47 |
| 11:A:580:C:H2' | 11:A:581:C:C6 | 2.50 | 0.47 |
| 25:R:118:GLU:HA | 25:R:118:GLU:OE1 | 2.15 | 0.47 |
| 11:A:480:A:H1' | 32:Y:44:ILE:HG21 | 1.97 | 0.47 |
| 33:Z:29:TYR:CB | 33:Z:34:ASN:CB | 2.92 | 0.47 |
| 21:N:3:THR:CG2 | 21:N:4:TYR:N | 2.78 | 0.47 |
| 14:D:130:ALA:HB2 | 14:D:192:THR:HB | 1.97 | 0.47 |
| 11:A:2887:U:H2' | 11:A:2888:C:C6 | 2.49 | 0.47 |
| 14:D:275:LYS:HD2 | 14:D:275:LYS:C | 2.34 | 0.47 |
| 11:A:2554:U:H2' | 11:A:2555:U:C6 | 2.50 | 0.47 |
| 23:P:71:VAL:CG1 | 23:P:72:PRO:HD3 | 2.44 | 0.47 |
| 11:A:2364:C:H2' | 11:A:2365:G:O4' | 2.15 | 0.47 |
| 11:A:1658:C:H2' | 11:A:1659:U:C6 | 2.50 | 0.47 |
| 11:A:2818:G:O2' | 11:A:2837:G:H5' | 2.15 | 0.47 |
| 25:R:28:LEU:HD12 | 25:R:114:VAL:HG21 | 1.95 | 0.47 |
| 11:A:21:A:O2' | 11:A:22:C:H5' | 2.14 | 0.47 |
| 8:7:1:MET:H3 | 8:7:1:MET:HE3 | 1.79 | 0.47 |
| 29:V:100:ARG:HG3 | 29:V:100:ARG:O | 2.15 | 0.47 |
| 30:W:62:HIS:O | 30:W:63:ASP:C | 2.53 | 0.47 |
| 27:T:48:ILE:HD12 | 27:T:48:ILE:C | 2.34 | 0.47 |
| 11:A:80:G:O2' | 11:A:81:G:H5' | 2.14 | 0.47 |
| 17:G:133:LEU:CD2 | 17:G:157:ILE:HB | 2.44 | 0.47 |
| 11:A:1632:A:C5 | 11:A:1633:G:C6 | 3.03 | 0.47 |
| 11:A:208:C:H2' | 11:A:209:C:C6 | 2.50 | 0.47 |
| 11:A:2543:G:H8 | 11:A:2543:G:H5' | 1.80 | 0.47 |
| 11:A:1485:G:H1' | 11:A:1505:C:N4 | 2.30 | 0.47 |
| 11:A:2100:G:H1 | 11:A:2189:U:H3 | 1.62 | 0.47 |
| 26:S:54:LEU:HD11 | 26:S:58:LEU:O | 2.15 | 0.47 |
| 12:B:22:U:H2' | 12:B:23:G:C8 | 2.50 | 0.47 |
| 16:F:162:LEU:HA | 16:F:165:ARG:NH1 | 2.30 | 0.47 |
| 11:A:603:A:N3 | 11:A:604:G:H1' | 2.29 | 0.47 |
| 28:U:93:LYS:O | 28:U:96:ALA:HB3 | 2.15 | 0.47 |
| 21:N:19:GLU:O | 21:N:59:LYS:HB3 | 2.14 | 0.47 |
| 33:Z:66:SER:C | 33:Z:67:LEU:HD12 | 2.35 | 0.47 |
| 11:A:391:G:C2' | 11:A:392:C:H5' | 2.45 | 0.47 |
| 6:5:43:HIS:CD2 | 11:A:2815:C:O2' | 2.68 | 0.47 |
| 23:P:108:LYS:HD2 | 23:P:108:LYS:N | 2.30 | 0.47 |
| 11:A:978:G:C2 | 11:A:986:C:N3 | 2.83 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:1097:U:H2' | 11:A:1098:A:H8 | 1.80 | 0.47 |
| 1:0:55:ARG:HE | 1:0:55:ARG:HB3 | 1.34 | 0.47 |
| 11:A:1902:C:H5' | 14:D:246:PRO:HD3 | 1.97 | 0.47 |
| 27:T:28:VAL:HG11 | 27:T:46:GLU:CG | 2.39 | 0.47 |
| 12:B:105:A:H4' | 33:Z:89:PHE:CE1 | 2.49 | 0.47 |
| 11:A:2392:A:H2' | 11:A:2393:A:O4' | 2.15 | 0.47 |
| 23:P:61:ARG:C | 23:P:62:LEU:CD2 | 2.83 | 0.47 |
| 16:F:127:GLU:HB2 | 16:F:196:LEU:HD12 | 1.96 | 0.47 |
| 26:S:13:ARG:CG | 26:S:14:VAL:N | 2.77 | 0.47 |
| 11:A:2131:G:H4' | 11:A:2132:U:OP2 | 2.15 | 0.47 |
| 27:T:125:ARG:O | 27:T:128:GLU:HG3 | 2.15 | 0.47 |
| 15:E:116:VAL:HG22 | 15:E:117:MET:H | 1.79 | 0.47 |
| 21:N:29:LYS:C | 21:N:31:ALA:H | 2.19 | 0.47 |
| 18:H:137:ASP:OD2 | 18:H:140:LYS:HE3 | 2.15 | 0.47 |
| 2:1:84:GLY:O | 2:1:90:ILE:HD11 | 2.14 | 0.47 |
| 11:A:130:C:O3' | 11:A:1349:A:H1' | 2.15 | 0.47 |
| 11:A:1722:A:O2' | 11:A:1739:U:H5' | 2.15 | 0.47 |
| 4:3:6:VAL:HB | 4:3:54:VAL:HG11 | 1.97 | 0.47 |
| 11:A:2477:C:H6 | 11:A:2477:C:O5' | 1.98 | 0.47 |
| 30:W:40:ASN:O | 30:W:41:LYS:HG2 | 2.15 | 0.47 |
| 11:A:1843:C:H2' | 11:A:1844:C:H6 | 1.80 | 0.47 |
| 11:A:11:G:H2' | 11:A:12:U:H6 | 1.80 | 0.47 |
| 10:9:15:LYS:NZ | 10:9:15:LYS:HB3 | 2.30 | 0.47 |
| 10:9:27:CYS:SG | 10:9:28:GLU:N | 2.88 | 0.47 |
| 11:A:2666:C:H5' | 11:A:2667:C:OP2 | 2.14 | 0.47 |
| 11:A:1036:G:O2' | 11:A:1037:G:H5' | 2.15 | 0.47 |
| 15:E:13:ARG:O | 27:T:57:PHE:HE2 | 1.98 | 0.47 |
| 16:F:4:VAL:HA | 16:F:19:GLU:CB | 2.43 | 0.47 |
| 18:H:169:VAL:HG22 | 18:H:170:ARG:N | 2.30 | 0.47 |
| 29:V:16:PRO:O | 29:V:96:ILE:O | 2.33 | 0.47 |
| 9:8:23:VAL:CG1 | 9:8:46:ARG:HD3 | 2.44 | 0.47 |
| 18:H:105:LEU:N | 18:H:105:LEU:CD2 | 2.78 | 0.47 |
| 11:A:2808:U:O2' | 11:A:2809:A:H5' | 2.15 | 0.47 |
| 11:A:143:G:H2' | 11:A:143(A):C:H6 | 1.80 | 0.47 |
| 11:A:143:G:H4' | 31:X:35:THR:HG21 | 1.97 | 0.47 |
| 24:Q:52:VAL:O | 24:Q:56:ARG:HB2 | 2.15 | 0.47 |
| 11:A:747:U:C5 | 11:A:2613:U:C5 | 3.03 | 0.47 |
| 33:Z:110:GLY:HA2 | 33:Z:114:GLY:O | 2.14 | 0.47 |
| 24:Q:66:ILE:HD12 | 24:Q:66:ILE:C | 2.36 | 0.47 |
| 14:D:142:VAL:HG21 | 14:D:191:ALA:CB | 2.43 | 0.47 |
| 11:A:914:C:C2' | 11:A:915:C:H5' | 2.43 | 0.47 |
| 11:A:2262:U:H4' | 11:A:2328:A:C2 | 2.50 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 4:3:44:ARG:O | 4:3:48:GLU:HG2 | 2.15 | 0.47 |
| 11:A:2836:U:H2' | 11:A:2837:G:C8 | 2.50 | 0.47 |
| 14:D:238:GLY:O | 14:D:239:ARG:C | 2.52 | 0.47 |
| 5:4:37:SER:O | 5:4:38:LYS:CB | 2.63 | 0.47 |
| 11:A:2064:C:H2' | 11:A:2065:C:C6 | 2.50 | 0.47 |
| 14:D:242:ARG:HH11 | 14:D:242:ARG:HG3 | 1.78 | 0.46 |
| 27:T:28:VAL:O | 27:T:28:VAL:HG12 | 2.15 | 0.46 |
| 11:A:2184:G:H2' | 11:A:2185:C:O4' | 2.14 | 0.46 |
| 11:A:2657:A:N3 | 11:A:2657:A:H5' | 2.31 | 0.46 |
| 7:6:9:LEU:C | 7:6:9:LEU:HD13 | 2.35 | 0.46 |
| 27:T:3:ARG:CD | 27:T:6:LEU:HD12 | 2.36 | 0.46 |
| 23:P:84:ASN:HA | 23:P:115:LEU:O | 2.14 | 0.46 |
| 30:W:12:ILE:HD13 | 30:W:17:VAL:HG22 | 1.96 | 0.46 |
| 27:T:102:ILE:HB | 27:T:110:ILE:CD1 | 2.45 | 0.46 |
| 3:2:64:LEU:HD23 | 3:2:64:LEU:O | 2.15 | 0.46 |
| 11:A:2481:G:O2' | 11:A:2482:G:P | 2.73 | 0.46 |
| 28:U:112:ARG:HH11 | 29:V:46:VAL:HG11 | 1.80 | 0.46 |
| 25:R:117:VAL:HG22 | 25:R:118:GLU:H | 1.80 | 0.46 |
| 11:A:2872:G:C2 | 11:A:2873:A:N6 | 2.84 | 0.46 |
| 1:0:40:GLN:NE2 | 1:0:44:ARG:N | 2.57 | 0.46 |
| 26:S:40:ILE:HG22 | 26:S:47:THR:HG23 | 1.96 | 0.46 |
| 11:A:534:U:O2' | 28:U:49:HIS:CD2 | 2.68 | 0.46 |
| 11:A:2537:U:H2' | 11:A:2538:C:H6 | 1.80 | 0.46 |
| 16:F:114:VAL:HG21 | 16:F:202:PHE:HE1 | 1.79 | 0.46 |
| 11:A:1563:G:H2' | 11:A:1564:C:O4' | 2.15 | 0.46 |
| 14:D:62:TYR:HA | 14:D:87:ASN:ND2 | 2.30 | 0.46 |
| 15:E:49:LEU:HD22 | 15:E:49:LEU:N | 2.31 | 0.46 |
| 15:E:52:LEU:HD21 | 27:T:1:MET:CE | 2.45 | 0.46 |
| 17:G:52:ILE:HD13 | 17:G:52:ILE:N | 2.15 | 0.46 |
| 7:6:53:LYS:HG2 | 7:6:54:ILE:N | 2.31 | 0.46 |
| 11:A:1279:G:H4' | 25:R:31:HIS:NE2 | 2.26 | 0.46 |
| 11:A:605:C:H2' | 11:A:606:U:H6 | 1.79 | 0.46 |
| 11:A:2149:G:O2' | 11:A:2150:U:H5' | 2.16 | 0.46 |
| 11:A:2109:U:O2 | 11:A:2180:U:H5 | 1.97 | 0.46 |
| 11:A:2334:G:H21 | 26:S:18:ILE:CG2 | 2.22 | 0.46 |
| 11:A:1403:C:H2' | 11:A:1404:C:O5' | 2.15 | 0.46 |
| 31:X:65:ARG:HG2 | 31:X:65:ARG:HH11 | 1.79 | 0.46 |
| 17:G:16:ARG:N | 17:G:17:PRO:HD2 | 2.30 | 0.46 |
| 27:T:94:ALA:C | 27:T:96:ARG:N | 2.68 | 0.46 |
| 21:N:22:THR:HG22 | 21:N:61:ARG:CB | 2.38 | 0.46 |
| 33:Z:140:ASP:C | 33:Z:141:VAL:HG22 | 2.36 | 0.46 |
| 11:A:990:A:C6 | 11:A:1186:G:H1' | 2.50 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 33:Z:29:TYR:CB | 33:Z:34:ASN:HB3 | 2.45 | 0.46 |
| 1:0:7:LEU:HD13 | 24:Q:85:LYS:CG | 2.42 | 0.46 |
| 14:D:131:LEU:HB2 | 14:D:136:ILE:CD1 | 2.45 | 0.46 |
| 13:C:114:VAL:CG2 | 13:C:149:ILE:HD11 | 2.44 | 0.46 |
| 11:A:2777:G:H4' | 11:A:2778:A:H5' | 1.97 | 0.46 |
| 11:A:2473:U:H5 | 11:A:2474:C:C5 | 2.33 | 0.46 |
| 11:A:2860:A:C8 | 11:A:2861:G:H1' | 2.50 | 0.46 |
| 11:A:2122:U:H2' | 11:A:2123:G:C8 | 2.50 | 0.46 |
| 11:A:1472:A:O2' | 11:A:1473:G:H5' | 2.15 | 0.46 |
| 21:N:42:TRP:CD1 | 28:U:63:VAL:HG11 | 2.50 | 0.46 |
| 11:A:2265:U:H3' | 11:A:2266:A:H5'' | 1.97 | 0.46 |
| 33:Z:178:GLU:N | 33:Z:178:GLU:OE1 | 2.48 | 0.46 |
| 13:C:72:VAL:HG11 | 13:C:156:ILE:O | 2.16 | 0.46 |
| 11:A:2131:G:H5' | 11:A:2133:G:O4' | 2.15 | 0.46 |
| 10:9:35:ARG:HD3 | 11:A:2742:C:OP1 | 2.16 | 0.46 |
| 30:W:24:ILE:HG21 | 30:W:36:LEU:HD21 | 1.96 | 0.46 |
| 11:A:2811:G:C2' | 11:A:2812:G:H5' | 2.44 | 0.46 |
| 11:A:332:A:O2' | 11:A:333:G:P | 2.73 | 0.46 |
| 11:A:143:G:H2' | 11:A:143(A):C:C6 | 2.50 | 0.46 |
| 9:8:15:LYS:HD3 | 23:P:65:ARG:HH21 | 1.81 | 0.46 |
| 11:A:523:C:H2' | 11:A:524:U:C5' | 2.42 | 0.46 |
| 11:A:1480:G:C2' | 11:A:1481:U:C5' | 2.93 | 0.46 |
| 11:A:195:A:C8 | 11:A:197:A:OP1 | 2.69 | 0.46 |
| 11:A:876:C:H2' | 11:A:877:U:O4' | 2.15 | 0.46 |
| 6:5:43:HIS:HE1 | 11:A:2884:U:OP2 | 1.98 | 0.46 |
| 11:A:2733:A:H2' | 11:A:2734:A:O4' | 2.15 | 0.46 |
| 11:A:1658:C:OP1 | 15:E:132:HIS:CE1 | 2.69 | 0.46 |
| 17:G:35:GLU:HG2 | 17:G:36:LYS:N | 2.30 | 0.46 |
| 21:N:75:TYR:O | 21:N:76:SER:O | 2.33 | 0.46 |
| 11:A:1889:A:O2' | 11:A:2087:G:H5' | 2.16 | 0.46 |
| 33:Z:132:ASN:O | 33:Z:133:ILE:HD13 | 2.14 | 0.46 |
| 11:A:755:C:H2' | 11:A:756:C:H6 | 1.81 | 0.46 |
| 13:C:2:LYS:HG2 | 13:C:2:LYS:O | 2.16 | 0.46 |
| 23:P:99:LEU:HD23 | 23:P:99:LEU:C | 2.36 | 0.46 |
| 23:P:99:LEU:HD23 | 23:P:99:LEU:O | 2.15 | 0.46 |
| 11:A:2457:U:C2' | 11:A:2458:G:H5' | 2.46 | 0.46 |
| 3:2:3:LEU:HB3 | 11:A:98:G:OP1 | 2.15 | 0.46 |
| 4:3:23:LEU:CD2 | 4:3:50:VAL:HG11 | 2.45 | 0.46 |
| 1:0:37:LEU:N | 1:0:59:LEU:O | 2.35 | 0.46 |
| 11:A:869:G:C2' | 11:A:870:A:H5' | 2.45 | 0.46 |
| 13:C:78:ALA:HA | 13:C:116:THR:N | 2.21 | 0.46 |
| 16:F:3:GLU:O | 16:F:19:GLU:HG3 | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 16:F:24:LEU:HD12 | 16:F:118:ALA:HB1 | 1.97 | 0.46 |
| 18:H:83:TYR:HB3 | 18:H:135:GLY:N | 2.29 | 0.46 |
| 9:8:11:LYS:HZ3 | 9:8:60:LEU:HA | 1.81 | 0.46 |
| 12:B:66:A:H61 | 12:B:108:U:C2' | 2.27 | 0.46 |
| 11:A:2102:U:C5 | 11:A:2103:C:N3 | 2.83 | 0.46 |
| 26:S:56:LEU:O | 26:S:57:LYS:O | 2.34 | 0.46 |
| 13:C:73:ARG:H | 13:C:111:ASP:CG | 2.19 | 0.46 |
| 26:S:29:PHE:HD1 | 26:S:30:ARG:N | 2.13 | 0.46 |
| 17:G:66:GLN:HB3 | 17:G:92:VAL:HG21 | 1.97 | 0.46 |
| 26:S:24:LEU:HD11 | 26:S:48:LEU:HD22 | 1.97 | 0.46 |
| 27:T:128:GLU:O | 27:T:129:ARG:C | 2.54 | 0.46 |
| 11:A:996:A:H4' | 28:U:92:ARG:HE | 1.79 | 0.46 |
| 17:G:7:LEU:HD22 | 17:G:176:LEU:CD2 | 2.45 | 0.46 |
| 27:T:94:ALA:HB1 | 27:T:99:LEU:HD23 | 1.98 | 0.46 |
| 33:Z:120:ILE:HG13 | 33:Z:170:THR:HG22 | 1.97 | 0.46 |
| 11:A:304:G:O2' | 11:A:305:U:H5' | 2.14 | 0.46 |
| 25:R:11:ASN:OD1 | 25:R:11:ASN:O | 2.32 | 0.46 |
| 11:A:181:A:C8 | 11:A:181:A:H5' | 2.41 | 0.46 |
| 11:A:1107:G:OP1 | 19:J:59:UNK:N | 2.49 | 0.46 |
| 13:C:10:LEU:CD1 | 13:C:32:LEU:HA | 2.45 | 0.46 |
| 11:A:855:G:H2' | 11:A:856:C:C6 | 2.49 | 0.46 |
| 10:9:1:MET:HB2 | 10:9:31:LYS:O | 2.15 | 0.46 |
| 11:A:118:A:H5' | 11:A:119:A:H8 | 1.80 | 0.46 |
| 11:A:1684:C:O2' | 11:A:1685:C:H5' | 2.15 | 0.46 |
| 11:A:1166:C:H2' | 11:A:1167:U:H6 | 1.80 | 0.46 |
| 30:W:14:PRO:HG2 | 30:W:78:GLU:CG | 2.45 | 0.46 |
| 11:A:1389:G:H2' | 11:A:1390:U:H6 | 1.79 | 0.46 |
| 8:7:5:TRP:O | 11:A:1612:C:H4' | 2.15 | 0.46 |
| 8:7:4:THR:HG21 | 11:A:788:A:H1' | 1.97 | 0.46 |
| 1:0:51:VAL:HG21 | 1:0:79:VAL:O | 2.16 | 0.46 |
| 11:A:2557:G:H2' | 11:A:2558:C:C6 | 2.51 | 0.46 |
| 20:K:78:UNK:C | 20:K:80:UNK:N | 2.77 | 0.46 |
| 11:A:1281:G:H2' | 11:A:1282:U:H6 | 1.81 | 0.46 |
| 11:A:1010:A:H1' | 11:A:1153:C:H1' | 1.96 | 0.46 |
| 11:A:1902:C:OP1 | 14:D:242:ARG:NH1 | 2.49 | 0.46 |
| 15:E:70:ALA:O | 15:E:71:GLY:C | 2.54 | 0.46 |
| 21:N:45:ASN:O | 21:N:45:ASN:CG | 2.53 | 0.46 |
| 7:6:53:LYS:HD3 | 7:6:54:ILE:H | 1.80 | 0.46 |
| 9:8:15:LYS:HG2 | 23:P:65:ARG:NH2 | 2.31 | 0.46 |
| 9:8:22:VAL:HB | 9:8:53:PRO:CB | 2.46 | 0.46 |
| 25:R:78:LYS:O | 25:R:83:ILE:HG12 | 2.15 | 0.46 |
| 11:A:16:G:H2' | 11:A:17:G:H8 | 1.80 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 25:R:97:VAL:HA | 25:R:113:LEU:O | 2.16 | 0.46 |
| 28:U:14:HIS:CD2 | 28:U:36:ARG:NH2 | 2.84 | 0.46 |
| 15:E:132:HIS:HA | 15:E:135:HIS:CE1 | 2.51 | 0.46 |
| 11:A:894:C:O2' | 11:A:895:U:H5' | 2.15 | 0.46 |
| 30:W:13:SER:HA | 30:W:99:ARG:HB2 | 1.97 | 0.46 |
| 15:E:183:LEU:HD12 | 15:E:183:LEU:N | 2.30 | 0.46 |
| 18:H:147:ASN:O | 18:H:151:ILE:HG12 | 2.16 | 0.46 |
| 4:3:11:SER:HB3 | 11:A:988:A:OP2 | 2.16 | 0.46 |
| 21:N:41:ASP:O | 21:N:42:TRP:C | 2.54 | 0.46 |
| 33:Z:177:PRO:O | 33:Z:178:GLU:HB3 | 2.16 | 0.46 |
| 13:C:118:ASP:C | 13:C:120:MET:N | 2.69 | 0.46 |
| 16:F:24:LEU:O | 16:F:115:ALA:HB1 | 2.15 | 0.46 |
| 16:F:4:VAL:HG13 | 16:F:19:GLU:OE1 | 2.16 | 0.46 |
| 23:P:126:VAL:HG22 | 23:P:145:PRO:CG | 2.46 | 0.46 |
| 16:F:160:ASN:HD22 | 16:F:161:GLU:N | 2.14 | 0.46 |
| 16:F:129:PHE:CD2 | 16:F:163:VAL:HG21 | 2.51 | 0.46 |
| 11:A:673:C:P | 16:F:81:PRO:HG3 | 2.56 | 0.46 |
| 11:A:832:G:P | 23:P:40:SER:HB3 | 2.56 | 0.46 |
| 16:F:103:LYS:CG | 16:F:106:ARG:HH21 | 2.28 | 0.46 |
| 11:A:2178:C:O4' | 11:A:2178:C:O2 | 2.34 | 0.46 |
| 17:G:125:PHE:HD1 | 17:G:126:ASP:N | 2.13 | 0.46 |
| 22:O:65:THR:HA | 22:O:82:ASN:HD22 | 1.79 | 0.46 |
| 30:W:17:VAL:C | 30:W:19:LEU:N | 2.67 | 0.46 |
| 11:A:2809:A:H2' | 11:A:2810:A:C8 | 2.49 | 0.46 |
| 15:E:35:GLN:CG | 15:E:36:ARG:N | 2.79 | 0.46 |
| 11:A:2469:A:H2' | 11:A:2470:G:H5' | 1.98 | 0.46 |
| 11:A:958:U:OP2 | 24:Q:14:ARG:HD3 | 2.16 | 0.46 |
| 21:N:21:LYS:HD3 | 21:N:22:THR:H | 1.80 | 0.46 |
| 9:8:15:LYS:HD2 | 9:8:16:ILE:N | 2.31 | 0.46 |
| 11:A:2031:A:N3 | 11:A:2455:G:O2' | 2.44 | 0.46 |
| 11:A:852:G:H2' | 11:A:853:G:C8 | 2.51 | 0.46 |
| 11:A:2405:G:HO2' | 11:A:2406:U:P | 2.39 | 0.46 |
| 21:N:16:ILE:CG2 | 21:N:54:VAL:HG22 | 2.46 | 0.46 |
| 15:E:1:MET:O | 15:E:2:LYS:O | 2.34 | 0.46 |
| 11:A:1427:A:H4' | 11:A:1428:C:O5' | 2.16 | 0.46 |
| 24:Q:39:PRO:O | 24:Q:40:ALA:HB2 | 2.16 | 0.46 |
| 30:W:55:ALA:C | 30:W:57:ASN:H | 2.18 | 0.46 |
| 11:A:201:C:C2' | 11:A:202:U:H5' | 2.46 | 0.46 |
| 13:C:83:ILE:HD11 | 13:C:97:GLU:CG | 2.45 | 0.46 |
| 14:D:31:LYS:HZ1 | 14:D:33:LEU:HD11 | 1.80 | 0.46 |
| 7:6:32:ASN:O | 7:6:33:LYS:HB2 | 2.16 | 0.46 |
| 17:G:44:GLY:C | 17:G:47:LYS:HZ3 | 2.19 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 27:T:12:SER:C | 27:T:13:ARG:CZ | 2.84 | 0.46 |
| 26:S:89:ARG:NH1 | 26:S:89:ARG:HG2 | 2.27 | 0.46 |
| 23:P:40:SER:O | 23:P:41:ARG:CD | 2.63 | 0.46 |
| 5:4:26:SER:OG | 5:4:27:THR:N | 2.48 | 0.46 |
| 28:U:88:ILE:CD1 | 28:U:109:LEU:HD22 | 2.46 | 0.46 |
| 2:1:67:ILE:N | 2:1:68:PRO:CD | 2.78 | 0.46 |
| 27:T:26:ASP:C | 27:T:26:ASP:OD1 | 2.53 | 0.46 |
| 11:A:90:U:O3' | 11:A:92:A:O4' | 2.33 | 0.46 |
| 33:Z:113:ALA:HB1 | 33:Z:146:ILE:CD1 | 2.45 | 0.46 |
| 11:A:360:G:O2' | 11:A:361:G:H5' | 2.16 | 0.46 |
| 11:A:581:C:OP1 | 28:U:33:ARG:HG3 | 2.15 | 0.46 |
| 18:H:23:ARG:O | 18:H:24:VAL:HG23 | 2.16 | 0.46 |
| 32:Y:30:VAL:HG12 | 32:Y:31:LEU:N | 2.30 | 0.46 |
| 22:O:86:ILE:O | 22:O:87:ILE:HD13 | 2.15 | 0.46 |
| 11:A:1222:C:C2' | 11:A:1223:G:H5'' | 2.45 | 0.46 |
| 6:5:42:PRO:O | 6:5:43:HIS:HB2 | 2.16 | 0.46 |
| 11:A:1164:G:H2' | 11:A:1165:U:C6 | 2.51 | 0.46 |
| 17:G:29:TRP:CE3 | 17:G:29:TRP:HA | 2.51 | 0.46 |
| 5:4:37:SER:O | 5:4:38:LYS:HB3 | 2.15 | 0.46 |
| 29:V:71:LEU:HA | 29:V:71:LEU:HD23 | 1.75 | 0.46 |
| 12:B:58:A:H2' | 12:B:59:A:O4' | 2.15 | 0.46 |
| 21:N:120:LEU:HD13 | 21:N:120:LEU:C | 2.36 | 0.46 |
| 30:W:10:VAL:HG23 | 30:W:101:SER:O | 2.16 | 0.46 |
| 13:C:103:ILE:O | 13:C:106:GLY:N | 2.48 | 0.46 |
| 27:T:28:VAL:HG23 | 27:T:47:GLY:O | 2.16 | 0.46 |
| 11:A:1542:A:H2' | 11:A:1544:A:C4' | 2.46 | 0.46 |
| 21:N:9:VAL:HG21 | 21:N:48:MET:CB | 2.45 | 0.46 |
| 6:5:3:LYS:O | 6:5:4:HIS:O | 2.34 | 0.46 |
| 18:H:159:GLU:HG3 | 18:H:160:LYS:HG3 | 1.98 | 0.46 |
| 23:P:105:LEU:CD1 | 23:P:105:LEU:N | 2.75 | 0.46 |
| 23:P:61:ARG:O | 23:P:62:LEU:CB | 2.57 | 0.46 |
| 11:A:26:G:C6 | 11:A:27:G:N1 | 2.84 | 0.46 |
| 11:A:605:C:C4 | 11:A:606:U:C5 | 3.04 | 0.46 |
| 11:A:2756:U:C1' | 11:A:2757:A:H5'' | 2.34 | 0.46 |
| 11:A:2715:C:O2' | 11:A:2716:U:H5' | 2.16 | 0.46 |
| 33:Z:172:ALA:O | 33:Z:173:ALA:HB2 | 2.16 | 0.46 |
| 11:A:2652:C:H42 | 11:A:2668:G:H1 | 1.64 | 0.46 |
| 30:W:82:LEU:CD1 | 30:W:82:LEU:H | 2.23 | 0.46 |
| 33:Z:62:PRO:C | 33:Z:64:GLY:N | 2.69 | 0.46 |
| 31:X:49:VAL:HG12 | 31:X:87:GLN:HB3 | 1.98 | 0.46 |
| 25:R:4:LEU:O | 25:R:6:SER:N | 2.49 | 0.46 |
| 15:E:101:ARG:CB | 15:E:201:THR:HG21 | 2.45 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:589:C:H2' | 11:A:590:A:C8 | 2.50 | 0.46 |
| 11:A:2196:C:H2' | 11:A:2197:U:C6 | 2.50 | 0.46 |
| 28:U:19:LYS:O | 28:U:22:LYS:HG2 | 2.15 | 0.46 |
| 11:A:1286:A:OP1 | 25:R:105:ARG:NH1 | 2.48 | 0.46 |
| 6:5:6:VAL:HG13 | 11:A:2016:U:H1' | 1.98 | 0.46 |
| 11:A:963:U:H2' | 11:A:964:C:C6 | 2.51 | 0.46 |
| 18:H:130:ARG:O | 18:H:131:VAL:HG23 | 2.15 | 0.46 |
| 23:P:140:ALA:O | 23:P:141:ALA:HB3 | 2.16 | 0.46 |
| 11:A:634:C:H2' | 11:A:635:C:C6 | 2.51 | 0.46 |
| 10:9:3:VAL:HG21 | 11:A:2539:C:H4' | 1.98 | 0.46 |
| 11:A:1902:C:H2' | 11:A:1903:G:O5' | 2.16 | 0.46 |
| 14:D:243:GLY:O | 14:D:244:ARG:HB3 | 2.15 | 0.46 |
| 16:F:171:PRO:C | 16:F:173:VAL:H | 2.20 | 0.46 |
| 15:E:34:VAL:CG1 | 15:E:48:GLN:HE21 | 2.28 | 0.46 |
| 33:Z:98:MET:CG | 33:Z:99:TYR:N | 2.69 | 0.46 |
| 17:G:87:PRO:O | 17:G:88:ILE:CG1 | 2.63 | 0.46 |
| 26:S:61:ASN:O | 26:S:65:VAL:HG23 | 2.16 | 0.46 |
| 18:H:157:TYR:O | 18:H:158:HIS:CG | 2.68 | 0.46 |
| 11:A:2110:G:H5'' | 11:A:2145:C:N4 | 2.31 | 0.46 |
| 11:A:761:A:C8 | 11:A:761:A:C3' | 2.99 | 0.46 |
| 11:A:761:A:C8 | 11:A:761:A:H3' | 2.51 | 0.46 |
| 18:H:45:VAL:C | 18:H:47:GLU:H | 2.19 | 0.46 |
| 28:U:59:ARG:NH1 | 28:U:59:ARG:CG | 2.79 | 0.46 |
| 33:Z:23:LYS:O | 33:Z:39:VAL:O | 2.34 | 0.46 |
| 33:Z:29:TYR:O | 33:Z:30:ASN:HB3 | 2.15 | 0.46 |
| 11:A:1222:C:H2' | 11:A:1223:G:H5' | 1.98 | 0.46 |
| 14:D:131:LEU:HD12 | 14:D:131:LEU:N | 2.30 | 0.46 |
| 15:E:46:ALA:HB2 | 15:E:82:ARG:HA | 1.96 | 0.46 |
| 11:A:815:C:H41 | 23:P:27:HIS:CE1 | 2.33 | 0.46 |
| 15:E:120:TRP:HB3 | 15:E:155:LYS:HD3 | 1.98 | 0.46 |
| 11:A:1658:C:OP1 | 15:E:132:HIS:ND1 | 2.49 | 0.46 |
| 11:A:1889:A:H1' | 11:A:2087:G:O4' | 2.16 | 0.46 |
| 11:A:687:C:H2' | 11:A:688:U:O4' | 2.15 | 0.46 |
| 11:A:2819:G:H2' | 11:A:2821:A:N7 | 2.30 | 0.46 |
| 11:A:1215:G:O2' | 11:A:1216:G:H5' | 2.15 | 0.46 |
| 13:C:196:LEU:O | 13:C:199:HIS:N | 2.49 | 0.46 |
| 11:A:1484:G:C3' | 11:A:1485:G:H5'' | 2.43 | 0.46 |
| 11:A:644:A:N1 | 11:A:2369:A:H1' | 2.30 | 0.46 |
| 26:S:25:ARG:HD2 | 26:S:88:ASP:OD2 | 2.16 | 0.46 |
| 11:A:2036:C:H6 | 11:A:2036:C:C5' | 2.15 | 0.46 |
| 3:2:53:LEU:O | 3:2:53:LEU:HD23 | 2.16 | 0.46 |
| 9:8:20:GLY:O | 9:8:57:ARG:HD3 | 2.16 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:334:C:P | 11:A:335:C:H41 | 2.38 | 0.46 |
| 32:Y:47:LYS:HE3 | 32:Y:60:PHE:CZ | 2.51 | 0.46 |
| 15:E:197:ILE:HG12 | 15:E:197:ILE:O | 2.15 | 0.46 |
| 27:T:35:LYS:HZ1 | 27:T:41:ARG:HE | 1.63 | 0.46 |
| 11:A:1782:C:H1' | 11:A:2609:U:C5' | 2.45 | 0.46 |
| 28:U:51:LYS:HA | 28:U:54:LYS:HE2 | 1.97 | 0.46 |
| 11:A:176:G:C2' | 11:A:177:G:H5' | 2.46 | 0.46 |
| 21:N:65:LYS:HD3 | 21:N:69:GLN:NE2 | 2.30 | 0.46 |
| 18:H:80:SER:O | 18:H:81:GLU:CB | 2.63 | 0.46 |
| 12:B:76:G:O3' | 33:Z:19:ARG:NH2 | 2.49 | 0.46 |
| 11:A:444:C:H2' | 11:A:445:C:C6 | 2.50 | 0.46 |
| 11:A:736:C:O2' | 11:A:737:C:H5' | 2.16 | 0.46 |
| 31:X:14:SER:H | 31:X:17:ALA:HB3 | 1.81 | 0.45 |
| 33:Z:51:ALA:CB | 33:Z:57:ILE:HD11 | 2.26 | 0.45 |
| 11:A:1059:G:H2' | 11:A:1060:U:C5 | 2.50 | 0.45 |
| 22:O:87:ILE:HG22 | 22:O:88:ASN:O | 2.16 | 0.45 |
| 13:C:149:ILE:CG2 | 13:C:150:GLY:N | 2.80 | 0.45 |
| 11:A:1952:A:C5 | 22:O:22:ILE:HD12 | 2.51 | 0.45 |
| 11:A:2154:G:C2 | 11:A:2155:G:C4 | 3.04 | 0.45 |
| 14:D:94:LEU:HB2 | 14:D:104:TYR:CE1 | 2.49 | 0.45 |
| 4:3:48:GLU:HG2 | 4:3:48:GLU:H | 1.54 | 0.45 |
| 15:E:9:VAL:CG1 | 15:E:25:VAL:O | 2.64 | 0.45 |
| 11:A:1659:U:C4 | 11:A:1660:C:C5 | 3.04 | 0.45 |
| 8:7:47:ARG:NH2 | 31:X:60:ARG:NH1 | 2.64 | 0.45 |
| 11:A:2408:U:H2' | 11:A:2409:G:H8 | 1.81 | 0.45 |
| 25:R:18:LEU:HD13 | 25:R:18:LEU:C | 2.37 | 0.45 |
| 11:A:2348:U:O2' | 11:A:2349:G:H5' | 2.16 | 0.45 |
| 24:Q:25:ASP:HA | 24:Q:100:GLY:O | 2.16 | 0.45 |
| 16:F:124:LEU:O | 16:F:193:VAL:HA | 2.16 | 0.45 |
| 7:6:18:ARG:HE | 7:6:43:CYS:HB3 | 1.81 | 0.45 |
| 32:Y:75:ILE:HG13 | 32:Y:76:CYS:H | 1.81 | 0.45 |
| 26:S:25:ARG:NH1 | 26:S:42:ASP:OD2 | 2.49 | 0.45 |
| 11:A:606:U:H4' | 11:A:658:C:H4' | 1.98 | 0.45 |
| 11:A:1697:G:C3' | 11:A:1698:A:H5'' | 2.38 | 0.45 |
| 32:Y:50:ARG:O | 32:Y:53:PRO:HG3 | 2.16 | 0.45 |
| 33:Z:155:LEU:H | 33:Z:155:LEU:HD23 | 1.80 | 0.45 |
| 18:H:139:GLN:HE21 | 18:H:140:LYS:HA | 1.81 | 0.45 |
| 11:A:580:C:O2' | 11:A:581:C:H5' | 2.16 | 0.45 |
| 11:A:2127:G:H2' | 11:A:2128:C:C6 | 2.51 | 0.45 |
| 11:A:1106:G:C2' | 11:A:1107:G:H5' | 2.46 | 0.45 |
| 22:O:98:VAL:HG11 | 22:O:118:ALA:N | 2.31 | 0.45 |
| 11:A:6:A:O2' | 21:N:130:HIS:HB2 | 2.16 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 11:A:2692:C:H2' | 11:A:2693:A:H8 | 1.80 | 0.45 |
| 23:P:138:LEU:N | 23:P:138:LEU:HD12 | 2.31 | 0.45 |
| 11:A:773:U:H4' | 14:D:47:GLY:HA3 | 1.98 | 0.45 |
| 14:D:162:SER:O | 14:D:178:PRO:HG3 | 2.16 | 0.45 |
| 20:K:5:UNK:O | 20:K:6:UNK:C | 2.64 | 0.45 |
| 20:K:8:UNK:O | 20:K:9:UNK:C | 2.63 | 0.45 |
| 11:A:127:A:H5'' | 11:A:128:C:O4' | 2.16 | 0.45 |
| 11:A:667:U:H2' | 11:A:668:G:O4' | 2.15 | 0.45 |
| 27:T:19:LEU:HD22 | 27:T:85:LYS:CD | 2.46 | 0.45 |
| 11:A:1528:A:O2' | 11:A:1528(A):A:H5' | 2.17 | 0.45 |
| 11:A:1541:G:O2' | 11:A:1542:A:H5'' | 2.17 | 0.45 |
| 21:N:112:LEU:O | 21:N:115:ARG:N | 2.49 | 0.45 |
| 32:Y:10:GLY:C | 32:Y:27:VAL:HG22 | 2.37 | 0.45 |
| 11:A:2392:A:H5' | 11:A:2392:A:N3 | 2.31 | 0.45 |
| 23:P:38:GLN:CG | 23:P:39:LYS:H | 2.30 | 0.45 |
| 11:A:659:C:H4' | 16:F:100:THR:O | 2.16 | 0.45 |
| 26:S:49:VAL:HG22 | 26:S:80:LEU:HD13 | 1.99 | 0.45 |
| 17:G:5:VAL:HG12 | 17:G:7:LEU:H | 1.81 | 0.45 |
| 22:O:34:THR:O | 22:O:35:VAL:C | 2.54 | 0.45 |
| 11:A:271(Q):G:H1' | 11:A:271(R):G:H8 | 1.81 | 0.45 |
| 13:C:113:VAL:O | 13:C:138:PRO:HG3 | 2.17 | 0.45 |
| 11:A:2552:U:C2 | 11:A:2554:U:H5' | 2.51 | 0.45 |
| 11:A:742:G:O2' | 11:A:743:G:H5' | 2.15 | 0.45 |
| 13:C:41:VAL:HG21 | 13:C:185:LEU:CD2 | 2.47 | 0.45 |
| 17:G:34:LEU:HD12 | 17:G:34:LEU:O | 2.17 | 0.45 |
| 30:W:62:HIS:O | 30:W:63:ASP:O | 2.33 | 0.45 |
| 11:A:2585:U:H5' | 11:A:2585:U:O2 | 2.16 | 0.45 |
| 28:U:82:GLY:O | 28:U:84:LYS:N | 2.50 | 0.45 |
| 16:F:42:ALA:O | 16:F:45:ARG:HB2 | 2.16 | 0.45 |
| 11:A:1916:A:H2' | 11:A:1917:U:O4' | 2.17 | 0.45 |
| 11:A:1463:C:H2' | 11:A:1464:C:H6 | 1.81 | 0.45 |
| 9:8:61:LEU:N | 9:8:63:PRO:HD2 | 2.31 | 0.45 |
| 18:H:163:TYR:CE2 | 18:H:168:PRO:HD3 | 2.52 | 0.45 |
| 24:Q:12:GLN:NE2 | 24:Q:72:LYS:HG3 | 2.31 | 0.45 |
| 11:A:2110:G:C2 | 11:A:2178:C:H5 | 2.32 | 0.45 |
| 11:A:1666:G:C2' | 11:A:1667:G:H5' | 2.46 | 0.45 |
| 24:Q:135:ASP:O | 24:Q:138:ASP:OD2 | 2.34 | 0.45 |
| 17:G:172:LEU:C | 17:G:172:LEU:HD23 | 2.36 | 0.45 |
| 3:2:35:LEU:HB3 | 3:2:50:ILE:CG1 | 2.46 | 0.45 |
| 33:Z:169:GLU:O | 33:Z:171:ILE:HG23 | 2.17 | 0.45 |
| 11:A:301:G:C6 | 11:A:317:G:C6 | 3.05 | 0.45 |
| 11:A:847:U:OP2 | 11:A:928:G:O6 | 2.35 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 32:Y:35:TYR:HD2 | 32:Y:68:HIS:NE2 | 2.14 | 0.45 |
| 21:N:3:THR:HG22 | 21:N:5:VAL:H | 1.81 | 0.45 |
| 11:A:1107:G:H4' | 19:J:81:UNK:CA | 2.45 | 0.45 |
| 24:Q:109:VAL:CG1 | 24:Q:110:THR:N | 2.79 | 0.45 |
| 28:U:57:PHE:O | 28:U:58:ARG:C | 2.53 | 0.45 |
| 11:A:2553:G:H3' | 11:A:2554:U:H5'' | 1.98 | 0.45 |
| 11:A:1710:C:H1' | 11:A:2859:G:N2 | 2.31 | 0.45 |
| 11:A:39:C:H2' | 11:A:40:C:H6 | 1.80 | 0.45 |
| 33:Z:137:ILE:HD12 | 33:Z:158:PRO:CD | 2.47 | 0.45 |
| 11:A:1213:A:N3 | 11:A:1238:G:H1' | 2.31 | 0.45 |
| 11:A:2488:A:O2' | 11:A:2489:G:H5' | 2.16 | 0.45 |
| 11:A:825:C:H4' | 11:A:2428:G:N7 | 2.32 | 0.45 |
| 16:F:170:LEU:HB2 | 16:F:173:VAL:HB | 1.99 | 0.45 |
| 14:D:24:ILE:CG1 | 14:D:25:THR:N | 2.78 | 0.45 |
| 14:D:30:GLU:C | 14:D:35:LYS:HD2 | 2.37 | 0.45 |
| 7:6:35:GLU:HB3 | 7:6:51:GLU:CB | 2.26 | 0.45 |
| 11:A:2056:G:H2' | 11:A:2056:G:N3 | 2.30 | 0.45 |
| 18:H:13:LYS:C | 18:H:15:VAL:H | 2.19 | 0.45 |
| 32:Y:27:VAL:HG12 | 32:Y:28:LYS:N | 2.32 | 0.45 |
| 11:A:1858:G:H2' | 11:A:1883:G:H22 | 1.82 | 0.45 |
| 11:A:1665:A:H2' | 11:A:1666:G:O4' | 2.16 | 0.45 |
| 11:A:662:G:P | 23:P:18:ARG:HD2 | 2.57 | 0.45 |
| 10:9:24:TYR:CE2 | 10:9:35:ARG:HG3 | 2.52 | 0.45 |
| 18:H:105:LEU:HD21 | 18:H:113:VAL:HB | 1.99 | 0.45 |
| 27:T:50:ILE:HG22 | 27:T:51:ARG:N | 2.31 | 0.45 |
| 15:E:4:ILE:HG12 | 15:E:5:LEU:O | 2.17 | 0.45 |
| 18:H:65:HIS:C | 18:H:67:LEU:H | 2.19 | 0.45 |
| 26:S:37:ALA:O | 26:S:38:GLN:HG3 | 2.17 | 0.45 |
| 11:A:1344:G:O2' | 11:A:1385:G:H2' | 2.17 | 0.45 |
| 11:A:134:C:H2' | 11:A:135:G:C8 | 2.50 | 0.45 |
| 11:A:1817:G:OP1 | 14:D:88:ARG:NH2 | 2.46 | 0.45 |
| 23:P:90:ARG:HB3 | 23:P:91:PHE:CD1 | 2.52 | 0.45 |
| 1:0:38:VAL:HB | 1:0:59:LEU:HD12 | 1.97 | 0.45 |
| 11:A:825:C:H4' | 11:A:2428:G:C5 | 2.52 | 0.45 |
| 21:N:108:PRO:O | 21:N:113:GLY:HA3 | 2.16 | 0.45 |
| 1:0:24:LYS:HD3 | 1:0:24:LYS:HA | 1.84 | 0.45 |
| 11:A:2506:U:C6 | 11:A:2506:U:H5' | 2.52 | 0.45 |
| 11:A:2639:A:H2' | 11:A:2640:G:O4' | 2.16 | 0.45 |
| 27:T:28:VAL:C | 27:T:29:ARG:HD3 | 2.37 | 0.45 |
| 11:A:1536:C:H2' | 11:A:1537:G:C4' | 2.47 | 0.45 |
| 21:N:9:VAL:O | 21:N:10:GLU:OE1 | 2.34 | 0.45 |
| 11:A:925:C:C3' | 11:A:926:A:H5'' | 2.46 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 33:Z:57:ILE:HD12 | 33:Z:57:ILE:N | 2.30 | 0.45 |
| 23:P:149:GLU:O | 23:P:150:ALA:HB2 | 2.17 | 0.45 |
| 17:G:125:PHE:CD2 | 17:G:131:TYR:HD1 | 2.34 | 0.45 |
| 17:G:7:LEU:HB3 | 17:G:100:TRP:CE3 | 2.51 | 0.45 |
| 3:2:51:ARG:HD3 | 3:2:55:ARG:NH1 | 2.22 | 0.45 |
| 24:Q:14:ARG:HG2 | 24:Q:41:TRP:HH2 | 1.80 | 0.45 |
| 28:U:8:VAL:O | 28:U:9:VAL:C | 2.54 | 0.45 |
| 17:G:121:ASN:HB3 | 17:G:124:SER:OG | 2.16 | 0.45 |
| 11:A:2261:C:O2' | 11:A:2262:U:H5' | 2.17 | 0.45 |
| 11:A:1204:A:N1 | 11:A:1241:A:C2 | 2.85 | 0.45 |
| 11:A:2567:G:H2' | 11:A:2568:C:C6 | 2.51 | 0.45 |
| 23:P:12:ALA:O | 23:P:13:ASN:O | 2.35 | 0.45 |
| 11:A:2347:C:H2' | 11:A:2348:U:C6 | 2.51 | 0.45 |
| 14:D:186:HIS:CD2 | 14:D:188:GLU:HB2 | 2.52 | 0.45 |
| 11:A:2824:C:H2' | 11:A:2825:C:O4' | 2.16 | 0.45 |
| 13:C:117:PRO:HG3 | 13:C:145:VAL:HG12 | 1.99 | 0.45 |
| 27:T:28:VAL:O | 27:T:29:ARG:HG2 | 2.17 | 0.45 |
| 18:H:83:TYR:HB3 | 18:H:135:GLY:O | 2.17 | 0.45 |
| 9:8:59:LYS:O | 9:8:61:LEU:HD12 | 2.17 | 0.45 |
| 7:6:30:THR:O | 7:6:32:ASN:N | 2.50 | 0.45 |
| 11:A:638:G:C6 | 11:A:639:U:N3 | 2.85 | 0.45 |
| 24:Q:140:ALA:O | 24:Q:141:GLN:HB2 | 2.17 | 0.45 |
| 17:G:45:GLU:HA | 17:G:45:GLU:OE1 | 2.16 | 0.45 |
| 7:6:17:LYS:O | 7:6:18:ARG:HB3 | 2.17 | 0.45 |
| 15:E:14:ILE:HG12 | 15:E:21:VAL:HG23 | 1.98 | 0.45 |
| 32:Y:80:GLY:O | 32:Y:81:LYS:O | 2.35 | 0.45 |
| 11:A:654(C):G:C3' | 11:A:654(D):G:H5' | 2.47 | 0.45 |
| 11:A:1278:A:O2' | 11:A:1279:G:H5' | 2.17 | 0.45 |
| 26:S:19:LYS:HG2 | 26:S:19:LYS:O | 2.16 | 0.45 |
| 11:A:2801(A):A:C3' | 11:A:2802:G:H5' | 2.47 | 0.45 |
| 12:B:7:G:H4' | 26:S:29:PHE:CD2 | 2.52 | 0.45 |
| 16:F:160:ASN:C | 16:F:160:ASN:HD22 | 2.19 | 0.45 |
| 11:A:1188:U:C2' | 11:A:1189:A:H5' | 2.47 | 0.45 |
| 11:A:604:G:C6 | 11:A:605:C:N4 | 2.85 | 0.45 |
| 11:A:994:C:OP1 | 28:U:53:ARG:NH2 | 2.49 | 0.45 |
| 15:E:59:VAL:HG13 | 15:E:60:ASN:N | 2.30 | 0.45 |
| 15:E:116:VAL:CG2 | 15:E:117:MET:H | 2.29 | 0.45 |
| 30:W:107:LEU:HD12 | 30:W:107:LEU:N | 2.23 | 0.45 |
| 12:B:91:C:O2' | 12:B:92:C:H5' | 2.17 | 0.45 |
| 11:A:1349:A:N6 | 11:A:1598:C:N4 | 2.64 | 0.45 |
| 2:1:30:VAL:HG23 | 2:1:31:GLY:N | 2.23 | 0.45 |
| 22:O:107:ARG:NH1 | 27:T:36:GLU:HG2 | 2.32 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 14:D:158:ALA:HB3 | 14:D:161:THR:CG2 | 2.45 | 0.45 |
| 22:O:24:VAL:HG23 | 22:O:24:VAL:O | 2.17 | 0.45 |
| 11:A:1289:C:O2 | 11:A:1289:C:H2' | 2.16 | 0.45 |
| 11:A:1288:U:C2 | 11:A:1327:C:C2 | 3.04 | 0.45 |
| 11:A:528:A:H2 | 11:A:2043:C:H5' | 1.80 | 0.45 |
| 11:A:1165:U:H2' | 11:A:1166:C:C6 | 2.52 | 0.45 |
| 11:A:2869:G:H2' | 11:A:2870:C:C6 | 2.51 | 0.45 |
| 30:W:9:TYR:H | 30:W:102:HIS:HD2 | 1.65 | 0.45 |
| 11:A:736:C:H2' | 11:A:737:C:H6 | 1.81 | 0.45 |
| 33:Z:28:MET:HB3 | 33:Z:88:PHE:HB2 | 1.98 | 0.45 |
| 11:A:2626:C:H2' | 11:A:2627:G:O4' | 2.16 | 0.45 |
| 11:A:2514:U:H2' | 11:A:2515:C:C6 | 2.51 | 0.45 |
| 16:F:2:LYS:O | 16:F:25:PRO:HG2 | 2.17 | 0.45 |
| 11:A:1540:U:C3' | 11:A:1541:G:H3' | 2.35 | 0.45 |
| 14:D:68:LYS:O | 14:D:68:LYS:HG3 | 2.17 | 0.45 |
| 26:S:57:LYS:HD2 | 26:S:57:LYS:C | 2.37 | 0.45 |
| 7:6:37:ARG:HA | 7:6:37:ARG:HD3 | 1.78 | 0.45 |
| 32:Y:17:SER:HA | 32:Y:71:LYS:HD2 | 1.97 | 0.45 |
| 23:P:98:GLU:O | 23:P:101:VAL:HG22 | 2.16 | 0.45 |
| 11:A:1141:U:OP2 | 21:N:63:THR:OG1 | 2.31 | 0.45 |
| 23:P:50:ARG:HG2 | 23:P:50:ARG:NH1 | 2.32 | 0.45 |
| 23:P:31:ALA:C | 23:P:33:ARG:N | 2.70 | 0.45 |
| 23:P:84:ASN:C | 23:P:86:LYS:H | 2.20 | 0.45 |
| 25:R:3:HIS:C | 25:R:5:LYS:N | 2.63 | 0.45 |
| 11:A:330:A:O2' | 11:A:331:A:C8 | 2.61 | 0.45 |
| 17:G:4:ASP:HA | 17:G:8:LYS:HD3 | 1.98 | 0.45 |
| 27:T:107:ASP:CG | 27:T:108:ARG:H | 2.20 | 0.45 |
| 11:A:142:A:N6 | 11:A:1596:A:H5' | 2.31 | 0.45 |
| 21:N:34:LEU:CD1 | 21:N:116:LEU:HB3 | 2.47 | 0.45 |
| 12:B:16:G:O2' | 12:B:17:C:H6 | 1.99 | 0.45 |
| 11:A:2863:C:H2' | 11:A:2863:C:O2 | 2.16 | 0.45 |
| 27:T:38:ASN:C | 27:T:38:ASN:HD22 | 2.16 | 0.45 |
| 14:D:117:VAL:HG21 | 14:D:128:GLY:O | 2.17 | 0.45 |
| 25:R:51:LEU:HG | 25:R:66:VAL:HG13 | 1.97 | 0.45 |
| 14:D:224:ALA:C | 14:D:226:MET:N | 2.70 | 0.45 |
| 21:N:96:GLU:N | 21:N:96:GLU:OE1 | 2.46 | 0.45 |
| 21:N:14:VAL:HG21 | 21:N:137:LYS:HE3 | 1.98 | 0.45 |
| 15:E:30:PRO:HD3 | 15:E:180:ASN:CG | 2.37 | 0.45 |
| 11:A:1248:G:OP1 | 28:U:2:PRO:HD2 | 2.16 | 0.45 |
| 14:D:241:PRO:C | 14:D:242:ARG:HG2 | 2.36 | 0.45 |
| 14:D:146:GLU:HB2 | 14:D:189:CYS:HB3 | 1.98 | 0.45 |
| 15:E:38:THR:HG23 | 15:E:39:PRO:HD2 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 11:A:654(N):G:H2' | 11:A:654(O):G:H5' | 1.98 | 0.45 |
| 23:P:112:LEU:C | 23:P:112:LEU:HD22 | 2.38 | 0.45 |
| 11:A:1142:U:H5' | 11:A:1142(A):A:C8 | 2.52 | 0.45 |
| 11:A:1142(A):A:H3' | 11:A:1142(A):A:OP1 | 2.17 | 0.45 |
| 11:A:806:C:OP2 | 23:P:39:LYS:HD2 | 2.16 | 0.45 |
| 11:A:1069:A:H1' | 11:A:1070:A:P | 2.56 | 0.45 |
| 15:E:116:VAL:CG2 | 15:E:122:PHE:CD2 | 2.94 | 0.45 |
| 33:Z:163:LEU:HB2 | 33:Z:165:VAL:HG23 | 1.98 | 0.45 |
| 16:F:157:VAL:O | 16:F:157:VAL:HG23 | 2.17 | 0.45 |
| 2:1:49:VAL:O | 2:1:59:THR:HA | 2.16 | 0.45 |
| 28:U:46:ALA:O | 28:U:50:ARG:HG3 | 2.17 | 0.45 |
| 2:1:62:VAL:HG22 | 2:1:63:ALA:N | 2.32 | 0.45 |
| 12:B:30:C:H1' | 12:B:57:A:H61 | 1.82 | 0.45 |
| 11:A:2692:C:H2' | 11:A:2693:A:C8 | 2.52 | 0.45 |
| 13:C:22:ILE:HD13 | 13:C:190:ARG:HG2 | 1.98 | 0.45 |
| 11:A:648:G:O4' | 11:A:2351:G:H5'' | 2.16 | 0.45 |
| 11:A:2340:G:H2' | 11:A:2341:G:H8 | 1.82 | 0.45 |
| 15:E:132:HIS:CG | 15:E:135:HIS:CE1 | 3.05 | 0.45 |
| 18:H:126:PRO:O | 18:H:127:GLU:HG3 | 2.17 | 0.45 |
| 25:R:74:LYS:CD | 25:R:77:ARG:NH1 | 2.80 | 0.45 |
| 3:2:16:LEU:H | 3:2:67:LYS:NZ | 2.15 | 0.45 |
| 27:T:29:ARG:HG2 | 27:T:86:ILE:O | 2.17 | 0.45 |
| 17:G:83:ARG:CB | 17:G:84:LYS:HD2 | 2.47 | 0.45 |
| 11:A:2181:G:N2 | 11:A:2182:G:C2 | 2.85 | 0.45 |
| 32:Y:28:LYS:C | 32:Y:38:ILE:HG22 | 2.37 | 0.45 |
| 23:P:112:LEU:HD11 | 23:P:114:ILE:CD1 | 2.46 | 0.45 |
| 23:P:46:LYS:HB3 | 23:P:52:GLU:HG2 | 1.98 | 0.45 |
| 11:A:2747:G:C2 | 11:A:2756:U:H5 | 2.35 | 0.45 |
| 11:A:2875:C:O2' | 27:T:5:ALA:HB3 | 2.17 | 0.45 |
| 11:A:662:G:OP1 | 23:P:18:ARG:HD2 | 2.17 | 0.45 |
| 16:F:107:LYS:HE3 | 16:F:205:ARG:HG2 | 1.99 | 0.45 |
| 28:U:92:ARG:CZ | 29:V:11:GLN:H | 2.29 | 0.45 |
| 11:A:2717:G:O2' | 27:T:96:ARG:HD3 | 2.17 | 0.45 |
| 11:A:1654:A:OP1 | 25:R:2:ARG:HA | 2.17 | 0.45 |
| 11:A:61:G:H8 | 11:A:61:G:O5' | 1.99 | 0.45 |
| 11:A:732:C:O2' | 11:A:733:G:H5' | 2.17 | 0.45 |
| 27:T:23:ARG:HA | 27:T:52:ILE:HD12 | 1.98 | 0.45 |
| 6:5:29:THR:CG2 | 11:A:2814:C:O2' | 2.63 | 0.45 |
| 11:A:203:C:C3' | 11:A:204:A:H5'' | 2.44 | 0.45 |
| 11:A:1223:G:H5' | 11:A:1223:G:C8 | 2.45 | 0.45 |
| 15:E:184:VAL:O | 15:E:186:GLY:N | 2.50 | 0.45 |
| 11:A:2732:G:O2' | 11:A:2733:A:H5' | 2.17 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:382:G:C2' | 11:A:383:U:H5' | 2.47 | 0.45 |
| 8:7:10:ARG:O | 8:7:14:LYS:HG2 | 2.17 | 0.45 |
| 11:A:2770:G:H5'' | 11:A:2771:C:OP2 | 2.16 | 0.45 |
| 1:0:51:VAL:CG2 | 1:0:81:VAL:HG23 | 2.47 | 0.45 |
| 12:B:5:C:O2' | 12:B:6:C:H5' | 2.16 | 0.45 |
| 11:A:363(D):G:H2' | 11:A:363(D):G:N3 | 2.31 | 0.45 |
| 30:W:48:ALA:O | 30:W:49:LYS:C | 2.55 | 0.45 |
| 11:A:714:U:H2' | 11:A:716:A:OP2 | 2.17 | 0.45 |
| 11:A:918:A:H5'' | 12:B:98:G:O2' | 2.17 | 0.45 |
| 27:T:83:ILE:CG1 | 27:T:84:GLN:N | 2.80 | 0.44 |
| 15:E:47:VAL:HG21 | 15:E:86:PRO:CD | 2.24 | 0.44 |
| 21:N:43:THR:HG22 | 21:N:45:ASN:HD22 | 1.82 | 0.44 |
| 14:D:101:GLU:OE2 | 14:D:103:ARG:HD3 | 2.18 | 0.44 |
| 33:Z:10:ARG:HD3 | 33:Z:37:VAL:O | 2.18 | 0.44 |
| 11:A:1596:A:O2' | 11:A:1597:A:H5' | 2.17 | 0.44 |
| 3:2:34:GLU:OE1 | 3:2:34:GLU:HA | 2.17 | 0.44 |
| 11:A:769:G:O2' | 11:A:770:G:H5' | 2.17 | 0.44 |
| 18:H:28:GLY:HA3 | 18:H:79:VAL:HB | 1.99 | 0.44 |
| 11:A:1367:A:H2' | 11:A:1368:G:H5' | 1.99 | 0.44 |
| 21:N:4:TYR:O | 21:N:5:VAL:C | 2.55 | 0.44 |
| 14:D:127:VAL:HA | 14:D:193:VAL:HG13 | 1.99 | 0.44 |
| 16:F:89:VAL:HG12 | 16:F:90:PHE:H | 1.80 | 0.44 |
| 17:G:102:PHE:CE2 | 17:G:106:LEU:HD22 | 2.51 | 0.44 |
| 11:A:1419:A:H2' | 11:A:1421:G:N7 | 2.32 | 0.44 |
| 11:A:1337:G:H2' | 11:A:1338:G:C8 | 2.52 | 0.44 |
| 11:A:2617:C:O2' | 11:A:2618:G:H5' | 2.16 | 0.44 |
| 28:U:102:GLU:HG3 | 29:V:2:PHE:CE2 | 2.52 | 0.44 |
| 11:A:1469:A:H2' | 11:A:1470:G:H8 | 1.82 | 0.44 |
| 15:E:132:HIS:ND1 | 15:E:135:HIS:HE1 | 2.16 | 0.44 |
| 11:A:2869:G:H2' | 11:A:2870:C:O4' | 2.17 | 0.44 |
| 11:A:2039:C:O2' | 11:A:2040:C:H5' | 2.17 | 0.44 |
| 11:A:1240:U:O2' | 11:A:1241:A:H5' | 2.17 | 0.44 |
| 11:A:1688:U:O2 | 11:A:1700:A:H5'' | 2.17 | 0.44 |
| 16:F:108:LYS:HB3 | 16:F:112:MET:CE | 2.47 | 0.44 |
| 3:2:24:LEU:C | 3:2:24:LEU:HD23 | 2.38 | 0.44 |
| 11:A:220:G:H2' | 11:A:427:U:O4 | 2.17 | 0.44 |
| 19:J:62:UNK:C | 19:J:64:UNK:N | 2.78 | 0.44 |
| 3:2:2:LYS:O | 3:2:6:VAL:HG23 | 2.18 | 0.44 |
| 5:4:34:GLU:HB2 | 17:G:113:ARG:HD2 | 1.99 | 0.44 |
| 13:C:78:ALA:O | 13:C:79:LYS:HB2 | 2.17 | 0.44 |
| 13:C:99:ILE:HG22 | 13:C:102:LYS:HB2 | 1.99 | 0.44 |
| 15:E:50:GLY:CA | 15:E:78:LEU:HB3 | 2.37 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 21:N:133:GLN:HG2 | 21:N:135:PRO:CD | 2.40 | 0.44 |
| 18:H:157:TYR:O | 18:H:158:HIS:CD2 | 2.71 | 0.44 |
| 1:O:10:THR:CG2 | 1:O:12:ASN:HB2 | 2.47 | 0.44 |
| 7:6:19:ARG:CD | 7:6:20:ASN:H | 2.27 | 0.44 |
| 32:Y:11:ASP:H | 32:Y:28:LYS:NZ | 2.15 | 0.44 |
| 11:A:654(L):G:H2' | 11:A:654(M):C:H4' | 1.98 | 0.44 |
| 11:A:2307:G:H3' | 11:A:2307:G:N3 | 2.32 | 0.44 |
| 23:P:58:THR:O | 23:P:58:THR:CG2 | 2.63 | 0.44 |
| 23:P:24:GLY:CA | 23:P:33:ARG:CZ | 2.95 | 0.44 |
| 11:A:658:C:C2 | 11:A:659:C:C5 | 3.04 | 0.44 |
| 11:A:2315:G:O2' | 17:G:128:ARG:HD2 | 2.17 | 0.44 |
| 33:Z:81:ARG:CZ | 33:Z:81:ARG:HB3 | 2.47 | 0.44 |
| 25:R:5:LYS:N | 25:R:5:LYS:HD2 | 2.32 | 0.44 |
| 27:T:91:ARG:O | 27:T:92:GLY:C | 2.54 | 0.44 |
| 11:A:2206:G:H21 | 11:A:2207:G:C4' | 2.28 | 0.44 |
| 11:A:2199:A:N3 | 11:A:2199:A:H2' | 2.33 | 0.44 |
| 11:A:1952:A:C2 | 22:O:22:ILE:HG23 | 2.52 | 0.44 |
| 12:B:111:G:C2' | 12:B:112:U:H5' | 2.47 | 0.44 |
| 8:7:43:THR:HG23 | 8:7:44:PRO:CD | 2.47 | 0.44 |
| 33:Z:101:PRO:HG2 | 33:Z:135:GLU:O | 2.17 | 0.44 |
| 22:O:32:TYR:N | 22:O:32:TYR:CD1 | 2.85 | 0.44 |
| 11:A:36:G:C5 | 11:A:37:C:C5 | 3.05 | 0.44 |
| 11:A:438:G:H2' | 11:A:440:G:C8 | 2.52 | 0.44 |
| 11:A:236:C:H2' | 11:A:237:C:H6 | 1.82 | 0.44 |
| 11:A:1213:A:H1' | 11:A:1238:G:N3 | 2.32 | 0.44 |
| 19:J:72:UNK:O | 19:J:73:UNK:CB | 2.64 | 0.44 |
| 11:A:2066:C:O2' | 11:A:2067:G:H5' | 2.18 | 0.44 |
| 11:A:1755:A:P | 27:T:113:LYS:HZ1 | 2.40 | 0.44 |
| 11:A:1570:A:H2' | 11:A:1571:A:C8 | 2.53 | 0.44 |
| 27:T:32:TYR:O | 27:T:33:LYS:HB2 | 2.17 | 0.44 |
| 11:A:1485:G:O2' | 11:A:1486:A:H5' | 2.17 | 0.44 |
| 18:H:154:PRO:HB2 | 18:H:155:SER:H | 1.64 | 0.44 |
| 18:H:159:GLU:CG | 18:H:160:LYS:N | 2.77 | 0.44 |
| 17:G:144:ILE:CD1 | 17:G:149:VAL:HG11 | 2.31 | 0.44 |
| 7:6:54:ILE:HD13 | 11:A:2398:U:O2 | 2.16 | 0.44 |
| 26:S:17:ARG:NH2 | 26:S:90:GLY:H | 2.15 | 0.44 |
| 11:A:664:C:H4' | 11:A:941:A:OP1 | 2.18 | 0.44 |
| 9:8:14:VAL:CG2 | 9:8:22:VAL:HG13 | 2.47 | 0.44 |
| 11:A:524:U:H4' | 11:A:555:U:H4' | 2.00 | 0.44 |
| 14:D:79:VAL:CG2 | 14:D:111:LEU:HD11 | 2.47 | 0.44 |
| 16:F:53:THR:HG22 | 16:F:56:GLU:CG | 2.47 | 0.44 |
| 25:R:75:LEU:HD13 | 25:R:75:LEU:C | 2.37 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:877:U:C2' | 11:A:878:A:H5'' | 2.48 | 0.44 |
| 19:J:93:UNK:HA | 19:J:96:UNK:CB | 2.47 | 0.44 |
| 23:P:123:LEU:N | 23:P:123:LEU:HD23 | 2.32 | 0.44 |
| 19:J:18:UNK:O | 19:J:20:UNK:N | 2.50 | 0.44 |
| 11:A:1573:G:C2' | 11:A:1574:C:H5' | 2.46 | 0.44 |
| 11:A:1270:C:H5'' | 11:A:1271:G:H5' | 1.99 | 0.44 |
| 11:A:1790:C:H2' | 11:A:1791:A:C5 | 2.53 | 0.44 |
| 2:1:61:ARG:NH1 | 2:1:61:ARG:HG2 | 2.32 | 0.44 |
| 11:A:2772:C:H2' | 11:A:2773:C:H6 | 1.83 | 0.44 |
| 11:A:237:C:H2' | 11:A:238:C:H6 | 1.82 | 0.44 |
| 1:0:51:VAL:HG22 | 1:0:81:VAL:HG23 | 1.99 | 0.44 |
| 15:E:152:LYS:HG2 | 21:N:78:TYR:CE1 | 2.52 | 0.44 |
| 20:K:23:UNK:C | 20:K:25:UNK:N | 2.80 | 0.44 |
| 11:A:703:U:C2' | 11:A:704:G:H5' | 2.47 | 0.44 |
| 19:J:25:UNK:HA | 19:J:116:UNK:CB | 2.47 | 0.44 |
| 30:W:70:TYR:OH | 30:W:72:LYS:HG2 | 2.18 | 0.44 |
| 18:H:83:TYR:HB3 | 18:H:135:GLY:H | 1.83 | 0.44 |
| 15:E:77:ILE:CG2 | 15:E:78:LEU:H | 2.25 | 0.44 |
| 7:6:27:LYS:O | 7:6:29:ASN:N | 2.50 | 0.44 |
| 11:A:2312:U:OP1 | 17:G:73:ALA:CB | 2.65 | 0.44 |
| 17:G:52:ILE:O | 17:G:54:GLU:N | 2.50 | 0.44 |
| 11:A:2184:G:H2' | 11:A:2185:C:C6 | 2.53 | 0.44 |
| 7:6:36:LEU:HD23 | 7:6:37:ARG:N | 2.32 | 0.44 |
| 23:P:59:LEU:CA | 23:P:61:ARG:NE | 2.68 | 0.44 |
| 23:P:23:PRO:O | 23:P:33:ARG:CD | 2.61 | 0.44 |
| 17:G:123:ASN:O | 17:G:126:ASP:HB2 | 2.18 | 0.44 |
| 17:G:125:PHE:HB3 | 17:G:131:TYR:HD1 | 1.83 | 0.44 |
| 11:A:1514:U:H2' | 11:A:1515:G:C8 | 2.53 | 0.44 |
| 26:S:106:ARG:NH1 | 26:S:106:ARG:CG | 2.80 | 0.44 |
| 6:5:50:GLY:O | 6:5:51:TYR:C | 2.56 | 0.44 |
| 11:A:2653:U:H3' | 11:A:2654:A:C8 | 2.53 | 0.44 |
| 15:E:111:ARG:HG2 | 15:E:160:TYR:O | 2.17 | 0.44 |
| 11:A:2469:A:O2' | 24:Q:56:ARG:HD2 | 2.17 | 0.44 |
| 33:Z:142:SER:OG | 33:Z:143:GLY:N | 2.50 | 0.44 |
| 18:H:23:ARG:O | 18:H:24:VAL:CG2 | 2.66 | 0.44 |
| 28:U:68:ALA:C | 28:U:70:ARG:H | 2.20 | 0.44 |
| 28:U:52:ARG:HH11 | 28:U:52:ARG:HB3 | 1.83 | 0.44 |
| 4:3:38:GLU:HB3 | 4:3:40:THR:HG23 | 1.99 | 0.44 |
| 11:A:2330:G:C2' | 11:A:2331:G:H5' | 2.47 | 0.44 |
| 25:R:28:LEU:HD23 | 25:R:29:LEU:HD12 | 1.98 | 0.44 |
| 14:D:173:VAL:HG12 | 14:D:185:VAL:O | 2.16 | 0.44 |
| 8:7:10:ARG:HH11 | 8:7:10:ARG:HG2 | 1.82 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:1275:A:C8 | 25:R:16:HIS:CD2 | 3.06 | 0.44 |
| 11:A:748:G:O6 | 11:A:751:A:H4' | 2.16 | 0.44 |
| 13:C:83:ILE:HD11 | 13:C:97:GLU:HG2 | 1.99 | 0.44 |
| 16:F:17:ARG:HG3 | 16:F:17:ARG:HH11 | 1.82 | 0.44 |
| 18:H:85:LYS:C | 18:H:85:LYS:CE | 2.86 | 0.44 |
| 17:G:139:LEU:HA | 17:G:144:ILE:CG2 | 2.37 | 0.44 |
| 11:A:274:G:H3' | 11:A:274:G:OP1 | 2.18 | 0.44 |
| 17:G:130:ASN:OD1 | 17:G:160:VAL:HG13 | 2.18 | 0.44 |
| 13:C:43:VAL:HG23 | 13:C:175:VAL:CG2 | 2.40 | 0.44 |
| 11:A:303:U:H2' | 11:A:304:G:C8 | 2.53 | 0.44 |
| 29:V:32:THR:HG23 | 29:V:59:ALA:O | 2.18 | 0.44 |
| 9:8:50:LEU:N | 9:8:53:PRO:CD | 2.81 | 0.44 |
| 29:V:49:THR:O | 29:V:50:PRO:C | 2.55 | 0.44 |
| 14:D:142:VAL:HG22 | 14:D:143:HIS:H | 1.82 | 0.44 |
| 14:D:28:GLU:HB2 | 14:D:29:PRO:HD3 | 1.99 | 0.44 |
| 11:A:2389:G:C5' | 11:A:2390:U:H5' | 2.45 | 0.44 |
| 11:A:1336:A:H2' | 11:A:1337:G:H8 | 1.80 | 0.44 |
| 11:A:852:G:H2' | 11:A:853:G:H8 | 1.82 | 0.44 |
| 11:A:1658:C:H2' | 11:A:1659:U:H6 | 1.81 | 0.44 |
| 8:7:46:VAL:HG12 | 8:7:47:ARG:H | 1.81 | 0.44 |
| 15:E:93:VAL:C | 15:E:95:ILE:H | 2.19 | 0.44 |
| 10:9:26:ILE:HG22 | 10:9:27:CYS:N | 2.33 | 0.44 |
| 11:A:116:C:H2' | 11:A:117:G:C8 | 2.52 | 0.44 |
| 1:0:25:ARG:HH11 | 1:0:25:ARG:HG2 | 1.83 | 0.44 |
| 11:A:514:A:O2' | 11:A:515:A:H5' | 2.18 | 0.44 |
| 12:B:24:G:H1' | 12:B:26:A:H62 | 1.83 | 0.44 |
| 11:A:1283:G:N2 | 11:A:1285:G:H3' | 2.32 | 0.44 |
| 14:D:35:LYS:CG | 14:D:63:ARG:HG2 | 2.38 | 0.44 |
| 31:X:25:LYS:HD3 | 31:X:80:ILE:HD11 | 1.99 | 0.44 |
| 9:8:11:LYS:CD | 9:8:11:LYS:H | 2.30 | 0.44 |
| 17:G:52:ILE:HB | 17:G:54:GLU:CG | 2.47 | 0.44 |
| 11:A:2107:C:H1' | 11:A:2182:G:N2 | 2.32 | 0.44 |
| 7:6:14:THR:C | 7:6:16:CYS:H | 2.20 | 0.44 |
| 7:6:36:LEU:O | 7:6:37:ARG:NE | 2.51 | 0.44 |
| 26:S:17:ARG:C | 26:S:19:LYS:H | 2.21 | 0.44 |
| 26:S:67:ARG:O | 26:S:71:ARG:HG3 | 2.18 | 0.44 |
| 11:A:833:U:H2' | 11:A:834:C:C6 | 2.53 | 0.44 |
| 12:B:43:C:H3' | 12:B:44:G:C5' | 2.47 | 0.44 |
| 26:S:84:GLN:HB3 | 26:S:105:ALA:O | 2.18 | 0.44 |
| 11:A:671:C:C5 | 23:P:36:LYS:NZ | 2.85 | 0.44 |
| 11:A:2317:C:O2' | 11:A:2318:G:H5' | 2.17 | 0.44 |
| 17:G:64:THR:OG1 | 17:G:94:LEU:HD11 | 2.16 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:562:U:C4 | 11:A:2036:C:O4' | 2.70 | 0.44 |
| 28:U:79:PHE:O | 28:U:83:LEU:HD13 | 2.17 | 0.44 |
| 33:Z:24:LEU:HA | 33:Z:25:PRO:HD2 | 1.73 | 0.44 |
| 11:A:548:A:H2' | 11:A:549:G:C5' | 2.43 | 0.44 |
| 11:A:2128:C:P | 13:C:36:LYS:HB2 | 2.58 | 0.44 |
| 13:C:75:LEU:HD21 | 13:C:113:VAL:HG22 | 1.99 | 0.44 |
| 13:C:151:GLU:HA | 13:C:154:ARG:HH11 | 1.82 | 0.44 |
| 27:T:105:LEU:HD22 | 27:T:109:GLU:OE2 | 2.18 | 0.44 |
| 28:U:17:ILE:HG23 | 28:U:39:LEU:CD1 | 2.47 | 0.44 |
| 11:A:922:U:H2' | 11:A:923:C:C6 | 2.52 | 0.44 |
| 1:O:36:ILE:HD11 | 11:A:2355:C:C4' | 2.46 | 0.44 |
| 19:J:16:UNK:C | 19:J:18:UNK:H | 2.29 | 0.44 |
| 11:A:2360:A:O2' | 11:A:2361:A:O5' | 2.36 | 0.44 |
| 15:E:174:ASP:OD1 | 15:E:175:VAL:N | 2.51 | 0.44 |
| 11:A:1473:G:H2' | 11:A:1474:C:O4' | 2.18 | 0.44 |
| 11:A:751:A:H5' | 30:W:90:ARG:HA | 1.98 | 0.44 |
| 13:C:33:ALA:HA | 13:C:39:GLU:OE2 | 2.17 | 0.44 |
| 11:A:992:C:H2' | 11:A:993:G:H8 | 1.83 | 0.44 |
| 11:A:1914:C:H2' | 11:A:1915:U:O4' | 2.17 | 0.44 |
| 13:C:100:ILE:O | 13:C:104:LEU:HB2 | 2.18 | 0.44 |
| 11:A:926:A:H5' | 11:A:926:A:C8 | 2.52 | 0.44 |
| 17:G:63:ILE:HG21 | 17:G:141:PHE:CD2 | 2.53 | 0.44 |
| 18:H:94:TYR:CD1 | 18:H:107:VAL:CA | 2.99 | 0.44 |
| 17:G:151:ALA:HB3 | 17:G:153:ARG:NH1 | 2.32 | 0.44 |
| 27:T:12:SER:C | 27:T:14:TYR:H | 2.21 | 0.44 |
| 17:G:67:LYS:O | 17:G:68:PRO:O | 2.36 | 0.44 |
| 11:A:1495:A:N3 | 11:A:1495:A:H2' | 2.33 | 0.44 |
| 11:A:1206:G:C6 | 11:A:1207:C:C4 | 3.05 | 0.44 |
| 11:A:2716:U:O2' | 11:A:2717:G:H5' | 2.17 | 0.44 |
| 33:Z:140:ASP:C | 33:Z:141:VAL:CG2 | 2.85 | 0.44 |
| 32:Y:47:LYS:HD2 | 32:Y:60:PHE:HE1 | 1.83 | 0.44 |
| 15:E:7:VAL:CG1 | 15:E:27:LEU:HB3 | 2.44 | 0.44 |
| 27:T:35:LYS:O | 27:T:38:ASN:ND2 | 2.51 | 0.44 |
| 11:A:492:A:C2 | 11:A:493:G:H1' | 2.53 | 0.44 |
| 11:A:878:A:H2' | 11:A:879:G:O4' | 2.17 | 0.44 |
| 14:D:275:LYS:CD | 14:D:276:LYS:N | 2.81 | 0.44 |
| 23:P:121:LYS:O | 23:P:123:LEU:HD23 | 2.17 | 0.44 |
| 11:A:185:U:H2' | 11:A:186:G:C8 | 2.53 | 0.44 |
| 11:A:2319:G:OP1 | 11:A:2319:G:C4' | 2.65 | 0.44 |
| 11:A:1131:G:O6 | 11:A:2040:C:H1' | 2.18 | 0.44 |
| 25:R:74:LYS:HE3 | 25:R:77:ARG:HH11 | 1.83 | 0.44 |
| 25:R:22:ARG:NE | 25:R:69:ASP:HA | 2.33 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 29:V:41:GLY:HA3 | 29:V:45:THR:OG1 | 2.18 | 0.44 |
| 8:7:31:LEU:O | 8:7:35:ARG:HB2 | 2.18 | 0.44 |
| 26:S:70:GLY:C | 26:S:72:ALA:N | 2.71 | 0.44 |
| 27:T:53:ARG:O | 27:T:59:THR:HB | 2.18 | 0.44 |
| 17:G:47:LYS:CE | 17:G:81:LYS:HB2 | 2.37 | 0.44 |
| 11:A:2189:U:H3' | 11:A:2190:G:H4' | 1.99 | 0.44 |
| 11:A:910:A:N1 | 11:A:2277:G:H1' | 2.33 | 0.44 |
| 12:B:21:G:H2' | 12:B:22:U:H5' | 1.99 | 0.44 |
| 11:A:321:G:O2' | 11:A:340:A:N3 | 2.46 | 0.44 |
| 17:G:66:GLN:O | 17:G:92:VAL:HG21 | 2.18 | 0.44 |
| 26:S:103:GLU:OE1 | 26:S:103:GLU:N | 2.39 | 0.44 |
| 25:R:3:HIS:ND1 | 25:R:3:HIS:C | 2.69 | 0.44 |
| 14:D:9:TYR:CD1 | 14:D:10:THR:HG22 | 2.52 | 0.44 |
| 27:T:95:ARG:HB3 | 27:T:95:ARG:NH1 | 2.32 | 0.44 |
| 11:A:2572:A:N7 | 15:E:144:ARG:HG2 | 2.31 | 0.44 |
| 2:1:91:LYS:O | 2:1:92:LYS:C | 2.55 | 0.44 |
| 11:A:2724:C:OP1 | 15:E:118:LYS:NZ | 2.51 | 0.44 |
| 11:A:1299:G:H3' | 11:A:1639:U:O4 | 2.18 | 0.44 |
| 11:A:104:U:H2' | 11:A:105:C:H5' | 2.00 | 0.44 |
| 11:A:2206:G:C2 | 11:A:2207:G:H5' | 2.52 | 0.44 |
| 23:P:85:LEU:HA | 23:P:88:LEU:HB3 | 2.00 | 0.44 |
| 11:A:1012:U:C4 | 21:N:28:THR:HG21 | 2.53 | 0.44 |
| 1:0:26:TYR:CD2 | 11:A:857:C:H1' | 2.53 | 0.44 |
| 25:R:74:LYS:HD2 | 25:R:77:ARG:HH11 | 1.82 | 0.44 |
| 11:A:1291:C:H2' | 11:A:1292:U:C6 | 2.53 | 0.44 |
| 33:Z:132:ASN:ND2 | 33:Z:159:PRO:O | 2.51 | 0.44 |
| 11:A:2770:G:C5' | 11:A:2771:C:OP2 | 2.65 | 0.44 |
| 12:B:77:U:P | 33:Z:19:ARG:HH21 | 2.40 | 0.44 |
| 16:F:99:TYR:CD1 | 16:F:99:TYR:N | 2.85 | 0.44 |
| 18:H:110:SER:O | 18:H:111:HIS:HB2 | 2.18 | 0.44 |
| 11:A:843:G:O2' | 11:A:844:C:H5' | 2.17 | 0.44 |
| 13:C:82:LYS:HG3 | 13:C:116:THR:HG21 | 2.00 | 0.44 |
| 14:D:243:GLY:O | 14:D:244:ARG:CB | 2.65 | 0.44 |
| 15:E:47:VAL:HG23 | 15:E:84:PHE:O | 2.18 | 0.44 |
| 17:G:72:ARG:HB2 | 17:G:87:PRO:HD2 | 2.00 | 0.44 |
| 11:A:2101:G:H1 | 11:A:2189:U:H3 | 1.60 | 0.44 |
| 11:A:1885:A:C8 | 11:A:1885:A:H5' | 2.52 | 0.44 |
| 11:A:833:U:H5'' | 23:P:48:PRO:HB2 | 2.00 | 0.44 |
| 18:H:43:VAL:HG11 | 18:H:46:GLU:OE2 | 2.17 | 0.44 |
| 23:P:41:ARG:CD | 23:P:45:LEU:HD23 | 2.36 | 0.44 |
| 11:A:265:A:H4' | 11:A:266:G:O5' | 2.18 | 0.44 |
| 11:A:1665:A:H4' | 22:O:67:LYS:HB2 | 1.99 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 15:E:115:GLY:C | 15:E:116:VAL:O | 2.53 | 0.44 |
| 33:Z:142:SER:C | 33:Z:144:LEU:N | 2.71 | 0.44 |
| 31:X:49:VAL:HG12 | 31:X:87:GLN:NE2 | 2.28 | 0.44 |
| 21:N:3:THR:CG2 | 21:N:4:TYR:H | 2.26 | 0.44 |
| 11:A:9:U:O4 | 11:A:2629:A:N7 | 2.51 | 0.44 |
| 12:B:55:U:H2' | 12:B:56:G:C8 | 2.52 | 0.44 |
| 11:A:150:C:O2' | 11:A:151:C:H5' | 2.18 | 0.44 |
| 11:A:85:G:N3 | 11:A:103:A:C2 | 2.85 | 0.44 |
| 11:A:2295:C:O2' | 11:A:2296:U:H5' | 2.17 | 0.44 |
| 11:A:1929:G:H4' | 11:A:1930:G:OP1 | 2.16 | 0.44 |
| 22:O:104:ARG:HH21 | 27:T:33:LYS:HD3 | 1.81 | 0.43 |
| 16:F:24:LEU:CD1 | 16:F:118:ALA:HB1 | 2.48 | 0.43 |
| 15:E:47:VAL:HG12 | 15:E:49:LEU:CD2 | 2.48 | 0.43 |
| 15:E:69:LYS:HD3 | 15:E:89:ASP:C | 2.37 | 0.43 |
| 21:N:10:GLU:HG3 | 21:N:11:PRO:HD2 | 1.99 | 0.43 |
| 7:6:53:LYS:HG2 | 7:6:54:ILE:H | 1.82 | 0.43 |
| 7:6:25:LYS:O | 11:A:2286:A:N1 | 2.51 | 0.43 |
| 11:A:2150:U:H2' | 11:A:2151:G:C8 | 2.53 | 0.43 |
| 11:A:1866:C:H6 | 11:A:1866:C:O5' | 2.00 | 0.43 |
| 16:F:107:LYS:HE3 | 16:F:205:ARG:CG | 2.48 | 0.43 |
| 23:P:74:GLU:C | 23:P:75:ILE:HD12 | 2.38 | 0.43 |
| 6:5:2:ALA:N | 11:A:2015:A:N3 | 2.66 | 0.43 |
| 25:R:100:LEU:CD1 | 25:R:100:LEU:N | 2.81 | 0.43 |
| 4:3:26:LEU:O | 4:3:28:LEU:HD22 | 2.18 | 0.43 |
| 11:A:1651:G:C2 | 11:A:2007:C:C2 | 3.06 | 0.43 |
| 17:G:23:PHE:CD1 | 17:G:23:PHE:N | 2.86 | 0.43 |
| 11:A:1120:G:H2' | 11:A:1121:C:H6 | 1.80 | 0.43 |
| 11:A:2659:G:C2' | 11:A:2660:A:H5'' | 2.48 | 0.43 |
| 21:N:38:HIS:C | 28:U:67:ALA:HB1 | 2.37 | 0.43 |
| 2:1:14:VAL:HG11 | 2:1:39:LYS:CE | 2.48 | 0.43 |
| 13:C:117:PRO:O | 13:C:118:ASP:HB3 | 2.16 | 0.43 |
| 14:D:242:ARG:CG | 14:D:242:ARG:NH1 | 2.72 | 0.43 |
| 27:T:29:ARG:HB2 | 27:T:85:LYS:HA | 1.98 | 0.43 |
| 15:E:76:ARG:HG2 | 15:E:76:ARG:HH11 | 1.83 | 0.43 |
| 11:A:1300:U:H4' | 11:A:1301:A:O5' | 2.18 | 0.43 |
| 11:A:600:G:H5' | 16:F:32:LEU:HD12 | 2.01 | 0.43 |
| 7:6:16:CYS:SG | 7:6:48:VAL:CG2 | 3.00 | 0.43 |
| 11:A:941:A:H4' | 23:P:35:HIS:CE1 | 2.53 | 0.43 |
| 24:Q:137:TYR:CE2 | 33:Z:81:ARG:CZ | 3.01 | 0.43 |
| 30:W:24:ILE:HG21 | 30:W:36:LEU:CD2 | 2.48 | 0.43 |
| 11:A:1208:C:C2 | 11:A:1209:G:C8 | 3.06 | 0.43 |
| 18:H:76:VAL:C | 18:H:78:GLY:N | 2.68 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 12:B:13:A:H5' | 12:B:13:A:H8 | 1.82 | 0.43 |
| 11:A:813:U:H2' | 11:A:814:C:H6 | 1.81 | 0.43 |
| 3:2:47:ASN:O | 3:2:48:HIS:C | 2.56 | 0.43 |
| 16:F:21:ALA:C | 16:F:23:ASP:H | 2.20 | 0.43 |
| 11:A:1817:G:C2' | 11:A:1818:U:H5' | 2.48 | 0.43 |
| 11:A:2360:A:HO2' | 11:A:2361:A:H8 | 1.65 | 0.43 |
| 30:W:9:TYR:HE1 | 30:W:102:HIS:HE2 | 1.63 | 0.43 |
| 17:G:136:ARG:CB | 17:G:136:ARG:HH11 | 2.31 | 0.43 |
| 11:A:1963:U:O2 | 11:A:1963:U:H2' | 2.18 | 0.43 |
| 15:E:87:GLU:O | 15:E:87:GLU:OE1 | 2.36 | 0.43 |
| 7:6:32:ASN:O | 7:6:33:LYS:CB | 2.66 | 0.43 |
| 32:Y:85:VAL:HG12 | 32:Y:86:ARG:H | 1.83 | 0.43 |
| 11:A:655:A:C4' | 11:A:656:G:H5' | 2.32 | 0.43 |
| 23:P:62:LEU:O | 23:P:62:LEU:HG | 2.17 | 0.43 |
| 11:A:692:C:H2' | 11:A:693:C:C6 | 2.53 | 0.43 |
| 5:4:7:PRO:HG3 | 17:G:61:ALA:HB1 | 1.99 | 0.43 |
| 11:A:2414:G:C2 | 11:A:2415:G:C8 | 3.07 | 0.43 |
| 11:A:2463:C:C2' | 11:A:2464:C:H5' | 2.48 | 0.43 |
| 6:5:20:ARG:HA | 6:5:23:HIS:ND1 | 2.33 | 0.43 |
| 11:A:271(D):G:O2' | 11:A:271(E):U:H5' | 2.17 | 0.43 |
| 27:T:50:ILE:HA | 27:T:99:LEU:HD12 | 1.99 | 0.43 |
| 3:2:20:GLU:C | 3:2:22:GLU:N | 2.72 | 0.43 |
| 11:A:2481:G:C2' | 11:A:2482:G:OP2 | 2.66 | 0.43 |
| 20:K:88:UNK:O | 20:K:89:UNK:C | 2.66 | 0.43 |
| 18:H:31:GLY:O | 18:H:79:VAL:HG12 | 2.18 | 0.43 |
| 29:V:39:LEU:HD12 | 29:V:50:PRO:O | 2.19 | 0.43 |
| 21:N:17:ASP:OD1 | 21:N:56:ASN:HB3 | 2.18 | 0.43 |
| 31:X:44:GLU:OE2 | 31:X:50:LYS:HG3 | 2.18 | 0.43 |
| 15:E:101:ARG:HD3 | 15:E:170:LEU:O | 2.17 | 0.43 |
| 13:C:74:VAL:HG12 | 13:C:75:LEU:N | 2.33 | 0.43 |
| 11:A:391:G:H1' | 11:A:411:G:O4' | 2.18 | 0.43 |
| 11:A:2114:A:C2' | 11:A:2115:G:H5' | 2.48 | 0.43 |
| 1:0:43:THR:CG2 | 11:A:2336:A:H61 | 2.31 | 0.43 |
| 11:A:2545:G:O2' | 11:A:2546:U:H5' | 2.18 | 0.43 |
| 17:G:22:ARG:HB3 | 17:G:23:PHE:CD1 | 2.53 | 0.43 |
| 11:A:688:U:H5' | 11:A:1780:A:C2 | 2.53 | 0.43 |
| 11:A:2166:G:H2' | 11:A:2167:U:C6 | 2.53 | 0.43 |
| 11:A:1229:G:H3' | 11:A:1230:C:C6 | 2.54 | 0.43 |
| 11:A:309:G:N3 | 11:A:329:G:O2' | 2.51 | 0.43 |
| 11:A:2661:G:H2' | 11:A:2662:A:C8 | 2.52 | 0.43 |
| 15:E:76:ARG:O | 15:E:77:ILE:C | 2.57 | 0.43 |
| 11:A:1544:A:O2' | 11:A:1545:A:H5' | 2.17 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 14:D:70:TRP:CH2 | 14:D:150:LYS:CA | 2.92 | 0.43 |
| 7:6:15:GLU:OE1 | 7:6:18:ARG:CZ | 2.64 | 0.43 |
| 11:A:654(E):G:N2 | 11:A:654(Q):C:O2' | 2.52 | 0.43 |
| 14:D:49:ILE:O | 14:D:49:ILE:HG13 | 2.19 | 0.43 |
| 18:H:54:ARG:HB2 | 18:H:55:PRO:HD2 | 1.99 | 0.43 |
| 18:H:66:GLY:HA2 | 18:H:69:ARG:CB | 2.40 | 0.43 |
| 11:A:1052:C:O2' | 11:A:1053:C:P | 2.76 | 0.43 |
| 10:9:35:ARG:CD | 11:A:2742:C:OP1 | 2.66 | 0.43 |
| 29:V:64:HIS:ND1 | 29:V:92:THR:HG22 | 2.33 | 0.43 |
| 11:A:2572:A:O2' | 15:E:144:ARG:NH1 | 2.50 | 0.43 |
| 16:F:164:ARG:HD2 | 16:F:176:LEU:O | 2.19 | 0.43 |
| 21:N:56:ASN:HD22 | 21:N:56:ASN:HA | 1.57 | 0.43 |
| 18:H:72:ILE:O | 18:H:75:ALA:N | 2.52 | 0.43 |
| 11:A:2491:U:C5' | 11:A:2570:G:H5'' | 2.45 | 0.43 |
| 31:X:57:LEU:N | 31:X:57:LEU:CD1 | 2.80 | 0.43 |
| 21:N:3:THR:O | 21:N:4:TYR:CD2 | 2.71 | 0.43 |
| 27:T:35:LYS:O | 27:T:36:GLU:HB2 | 2.18 | 0.43 |
| 21:N:73:THR:HA | 21:N:83:LYS:O | 2.18 | 0.43 |
| 11:A:709:U:H2' | 11:A:710:G:H8 | 1.80 | 0.43 |
| 11:A:2444:G:OP2 | 16:F:68:LYS:NZ | 2.48 | 0.43 |
| 11:A:1337:G:H2' | 11:A:1338:G:H8 | 1.84 | 0.43 |
| 12:B:29:A:C2 | 12:B:56:G:C2 | 3.07 | 0.43 |
| 30:W:37:ARG:HG2 | 30:W:38:TYR:CD2 | 2.53 | 0.43 |
| 2:1:53:VAL:CG2 | 2:1:74:VAL:HG13 | 2.48 | 0.43 |
| 1:0:43:THR:CG2 | 11:A:2332:U:H5' | 2.48 | 0.43 |
| 11:A:2330:G:H2' | 11:A:2331:G:O4' | 2.17 | 0.43 |
| 30:W:78:GLU:OE2 | 30:W:99:ARG:HD2 | 2.17 | 0.43 |
| 11:A:2122:U:H2' | 11:A:2123:G:H8 | 1.81 | 0.43 |
| 11:A:116:C:H2' | 11:A:117:G:O4' | 2.18 | 0.43 |
| 3:2:59:ARG:HH21 | 11:A:77:C:P | 2.41 | 0.43 |
| 11:A:1787:A:O4' | 11:A:2589:A:H4' | 2.18 | 0.43 |
| 15:E:68:ALA:O | 15:E:70:ALA:N | 2.51 | 0.43 |
| 11:A:31:C:H2' | 11:A:32:C:H5' | 1.95 | 0.43 |
| 11:A:1528:A:N1 | 11:A:1542:A:C2 | 2.85 | 0.43 |
| 17:G:60:LEU:HD22 | 17:G:63:ILE:HD12 | 2.00 | 0.43 |
| 11:A:1885:A:C5' | 11:A:1885:A:H8 | 2.32 | 0.43 |
| 23:P:110:TYR:O | 23:P:111:ARG:C | 2.57 | 0.43 |
| 9:8:34:TRP:HA | 11:A:2420:C:OP1 | 2.19 | 0.43 |
| 11:A:2892:A:N6 | 11:A:2893:G:H21 | 2.16 | 0.43 |
| 17:G:125:PHE:O | 17:G:126:ASP:C | 2.57 | 0.43 |
| 11:A:1517:G:C2' | 11:A:1518:U:H5' | 2.48 | 0.43 |
| 28:U:95:LEU:HD11 | 29:V:11:GLN:O | 2.17 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 15:E:60:ASN:OD1 | 15:E:61:ARG:N | 2.52 | 0.43 |
| 15:E:61:ARG:CB | 15:E:62:PRO:CD | 2.95 | 0.43 |
| 31:X:35:THR:HG21 | 31:X:37:THR:HG22 | 2.01 | 0.43 |
| 11:A:338:G:N2 | 11:A:339:U:H1' | 2.33 | 0.43 |
| 11:A:448:U:H1' | 16:F:84:VAL:HG13 | 1.99 | 0.43 |
| 3:2:8:LYS:O | 3:2:11:GLU:HB2 | 2.18 | 0.43 |
| 12:B:13:A:O2' | 12:B:15:A:H5' | 2.19 | 0.43 |
| 19:J:96:UNK:HA | 19:J:99:UNK:CB | 2.49 | 0.43 |
| 11:A:1469:A:O2' | 11:A:1470:G:H5' | 2.19 | 0.43 |
| 11:A:151:C:H2' | 11:A:152:G:H8 | 1.83 | 0.43 |
| 11:A:1441:G:O2' | 11:A:1442:G:H5' | 2.19 | 0.43 |
| 20:K:56:UNK:O | 20:K:68:UNK:C | 2.66 | 0.43 |
| 11:A:60:G:C4 | 11:A:63:U:C4 | 3.05 | 0.43 |
| 13:C:98:GLU:O | 13:C:98:GLU:HG3 | 2.18 | 0.43 |
| 15:E:33:VAL:CG1 | 15:E:69:LYS:HE3 | 2.48 | 0.43 |
| 23:P:9:ASN:N | 23:P:10:PRO:CD | 2.80 | 0.43 |
| 11:A:2312:U:H2' | 11:A:2313:C:H5' | 1.99 | 0.43 |
| 7:6:17:LYS:O | 7:6:17:LYS:HD3 | 2.19 | 0.43 |
| 32:Y:76:CYS:O | 32:Y:99:CYS:SG | 2.77 | 0.43 |
| 11:A:2110:G:N2 | 11:A:2178:C:C5 | 2.86 | 0.43 |
| 5:4:14:ILE:HD12 | 5:4:14:ILE:N | 2.33 | 0.43 |
| 5:4:28:LYS:HE2 | 5:4:29:PRO:HD2 | 1.99 | 0.43 |
| 26:S:14:VAL:HG12 | 26:S:15:ARG:N | 2.34 | 0.43 |
| 11:A:1053:C:H42 | 11:A:1108:U:H3 | 1.65 | 0.43 |
| 11:A:2010:G:H2' | 11:A:2011:U:H6 | 1.83 | 0.43 |
| 11:A:2807:G:C2' | 11:A:2808:U:H5'' | 2.48 | 0.43 |
| 17:G:12:TYR:HA | 17:G:16:ARG:CG | 2.48 | 0.43 |
| 33:Z:168:GLU:CD | 33:Z:168:GLU:O | 2.57 | 0.43 |
| 2:1:69:LYS:HZ1 | 2:1:76:ARG:NH2 | 2.01 | 0.43 |
| 9:8:48:PHE:CD1 | 9:8:48:PHE:N | 2.85 | 0.43 |
| 9:8:53:PRO:HA | 9:8:56:GLU:HB2 | 2.01 | 0.43 |
| 25:R:10:LEU:HB3 | 25:R:17:ARG:HE | 1.83 | 0.43 |
| 11:A:995:C:N3 | 21:N:1:MET:HE2 | 2.34 | 0.43 |
| 3:2:47:ASN:ND2 | 11:A:95:G:H1' | 2.34 | 0.43 |
| 11:A:2060:A:N6 | 16:F:74:ARG:NH2 | 2.66 | 0.43 |
| 11:A:1510:G:C2' | 11:A:1511:C:H5' | 2.48 | 0.43 |
| 17:G:145:THR:HG22 | 17:G:147:ASP:H | 1.82 | 0.43 |
| 11:A:2012:G:OP2 | 30:W:16:LYS:HE3 | 2.18 | 0.43 |
| 32:Y:20:TYR:C | 32:Y:22:GLY:H | 2.21 | 0.43 |
| 32:Y:22:GLY:O | 32:Y:23:ARG:C | 2.57 | 0.43 |
| 11:A:986:C:C2' | 11:A:987:G:H5' | 2.48 | 0.43 |
| 18:H:116:GLU:HA | 18:H:116:GLU:OE1 | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 11:A:614:U:O4' | 11:A:614:U:O2 | 2.35 | 0.43 |
| 11:A:1530:C:H2' | 11:A:1531:C:C6 | 2.54 | 0.43 |
| 13:C:79:LYS:HA | 13:C:97:GLU:CD | 2.39 | 0.43 |
| 16:F:3:GLU:O | 16:F:3:GLU:HG3 | 2.18 | 0.43 |
| 11:A:1540:U:H3' | 11:A:1541:G:O3' | 2.18 | 0.43 |
| 7:6:33:LYS:O | 7:6:34:LEU:HB2 | 2.18 | 0.43 |
| 33:Z:99:TYR:CD2 | 33:Z:123:ASP:HB3 | 2.46 | 0.43 |
| 11:A:654(U):A:C6 | 11:A:654(V):A:N6 | 2.87 | 0.43 |
| 9:8:13:ARG:NH2 | 11:A:250:G:OP2 | 2.52 | 0.43 |
| 11:A:251:A:H4' | 23:P:51:PHE:HZ | 1.84 | 0.43 |
| 11:A:1946:U:H2' | 11:A:1947:C:C6 | 2.53 | 0.43 |
| 11:A:2315:G:N3 | 17:G:128:ARG:HG3 | 2.33 | 0.43 |
| 26:S:77:ALA:O | 26:S:78:LEU:C | 2.57 | 0.43 |
| 24:Q:27:VAL:O | 24:Q:28:ALA:HB3 | 2.17 | 0.43 |
| 14:D:134:ARG:HG3 | 14:D:187:GLY:CA | 2.44 | 0.43 |
| 25:R:13:HIS:O | 25:R:14:SER:C | 2.57 | 0.43 |
| 11:A:318:C:H2' | 11:A:319:C:H6 | 1.83 | 0.43 |
| 11:A:2262:U:H2' | 11:A:2263:C:H6 | 1.83 | 0.43 |
| 11:A:225:A:C2' | 11:A:226:G:H5' | 2.48 | 0.43 |
| 11:A:1286:A:OP1 | 25:R:105:ARG:CZ | 2.67 | 0.43 |
| 11:A:1991:U:C2' | 11:A:1992:G:H5'' | 2.48 | 0.43 |
| 11:A:67:U:H2' | 11:A:68:G:C8 | 2.52 | 0.43 |
| 11:A:2081:C:H2' | 11:A:2082:A:C8 | 2.54 | 0.43 |
| 13:C:62:VAL:O | 13:C:160:ARG:HA | 2.17 | 0.43 |
| 11:A:2842:G:C2 | 11:A:2876:G:C2 | 3.07 | 0.43 |
| 11:A:516:C:O2' | 11:A:517:C:H5' | 2.18 | 0.43 |
| 24:Q:58:PHE:O | 24:Q:58:PHE:HD1 | 2.02 | 0.43 |
| 15:E:79:ARG:HH11 | 15:E:79:ARG:HG2 | 1.83 | 0.43 |
| 11:A:53:A:H2' | 11:A:54:G:H5' | 2.01 | 0.43 |
| 27:T:63:VAL:O | 27:T:73:GLU:HA | 2.18 | 0.43 |
| 11:A:299:A:N1 | 11:A:322:A:O2' | 2.37 | 0.43 |
| 16:F:132:VAL:O | 16:F:138:GLU:OE1 | 2.37 | 0.43 |
| 12:B:42:C:O2 | 17:G:66:GLN:NE2 | 2.52 | 0.43 |
| 18:H:51:ARG:HG3 | 18:H:52:VAL:N | 2.34 | 0.43 |
| 23:P:46:LYS:HG2 | 23:P:52:GLU:HG2 | 2.01 | 0.43 |
| 11:A:2137:C:H2' | 11:A:2138:C:H6 | 1.80 | 0.43 |
| 22:O:66:LYS:H | 22:O:82:ASN:HD21 | 1.67 | 0.43 |
| 30:W:29:LEU:CD1 | 30:W:51:LEU:HD11 | 2.48 | 0.43 |
| 15:E:60:ASN:O | 15:E:61:ARG:C | 2.56 | 0.43 |
| 21:N:23:LEU:HB3 | 21:N:60:ILE:CG2 | 2.39 | 0.43 |
| 11:A:34:C:N4 | 11:A:447:A:H61 | 2.05 | 0.43 |
| 12:B:67:G:O2' | 12:B:68:C:O5' | 2.37 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 27:T:18:ASP:OD1 | 27:T:18:ASP:N | 2.51 | 0.43 |
| 11:A:285:C:H2' | 11:A:286:C:C6 | 2.54 | 0.43 |
| 23:P:124:LYS:HD3 | 23:P:124:LYS:HA | 1.84 | 0.43 |
| 14:D:118:VAL:CG2 | 14:D:119:ALA:N | 2.82 | 0.43 |
| 11:A:900:A:H3' | 11:A:901:A:H8 | 1.84 | 0.43 |
| 11:A:2693:A:H2' | 11:A:2694:G:C8 | 2.51 | 0.43 |
| 11:A:1094:U:HO2' | 11:A:1097:U:H5 | 1.65 | 0.43 |
| 11:A:1097:U:O2' | 11:A:1098:A:H5' | 2.19 | 0.43 |
| 11:A:1530:C:H2' | 11:A:1531:C:H6 | 1.84 | 0.43 |
| 13:C:3:HIS:HB3 | 13:C:7:TYR:HD2 | 1.84 | 0.43 |
| 3:2:54:LYS:HE2 | 11:A:73:A:P | 2.59 | 0.43 |
| 11:A:248:G:H5'' | 11:A:386:G:N2 | 2.33 | 0.43 |
| 4:3:5:LYS:HE3 | 4:3:34:GLU:OE1 | 2.19 | 0.43 |
| 22:O:7:TYR:CE1 | 22:O:20:MET:HB2 | 2.54 | 0.43 |
| 14:D:242:ARG:HB2 | 14:D:243:GLY:H | 1.38 | 0.43 |
| 11:A:636:G:H4' | 11:A:638:G:O3' | 2.19 | 0.43 |
| 18:H:153:LYS:HB2 | 18:H:154:PRO:HD2 | 1.99 | 0.43 |
| 23:P:147:LEU:CG | 23:P:148:LEU:H | 2.20 | 0.43 |
| 26:S:89:ARG:HB3 | 26:S:92:TYR:HB3 | 2.00 | 0.43 |
| 23:P:33:ARG:O | 23:P:34:GLY:O | 2.37 | 0.43 |
| 17:G:37:VAL:O | 17:G:94:LEU:HB2 | 2.19 | 0.43 |
| 26:S:18:ILE:H | 26:S:18:ILE:HG13 | 1.52 | 0.43 |
| 21:N:58:ASP:OD2 | 21:N:59:LYS:HG2 | 2.18 | 0.43 |
| 11:A:747:U:C4 | 11:A:2613:U:C5 | 3.07 | 0.43 |
| 24:Q:76:LYS:HB3 | 24:Q:91:GLU:CG | 2.49 | 0.43 |
| 11:A:1332:G:N2 | 11:A:1610:A:H8 | 2.11 | 0.43 |
| 11:A:2262:U:H2' | 11:A:2263:C:C6 | 2.53 | 0.43 |
| 4:3:15:TYR:CD2 | 4:3:19:GLN:NE2 | 2.85 | 0.43 |
| 11:A:66:C:H2' | 11:A:67:U:H6 | 1.84 | 0.43 |
| 27:T:134:GLU:O | 27:T:135:ALA:CB | 2.67 | 0.43 |
| 11:A:20:C:H2' | 11:A:21:A:C8 | 2.53 | 0.43 |
| 17:G:98:ARG:HG2 | 17:G:98:ARG:H | 1.62 | 0.43 |
| 16:F:46:ARG:HD2 | 16:F:46:ARG:HA | 1.73 | 0.43 |
| 11:A:343:C:C2' | 11:A:344:G:H5' | 2.49 | 0.43 |
| 11:A:1775:U:H2' | 11:A:1776:G:H5' | 2.01 | 0.43 |
| 11:A:2413:G:N3 | 23:P:70:GLN:NE2 | 2.66 | 0.43 |
| 27:T:33:LYS:HD2 | 27:T:43:GLN:HB3 | 2.01 | 0.43 |
| 14:D:62:TYR:CD1 | 14:D:62:TYR:C | 2.92 | 0.43 |
| 7:6:32:ASN:CG | 7:6:33:LYS:N | 2.71 | 0.43 |
| 27:T:13:ARG:CZ | 27:T:13:ARG:CA | 2.97 | 0.43 |
| 25:R:30:THR:HG22 | 25:R:31:HIS:CE1 | 2.54 | 0.43 |
| 11:A:1021:A:C3' | 11:A:1021:A:C8 | 3.02 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:P:48:PRO:O | 23:P:49:ARG:C | 2.57 | 0.43 |
| 11:A:322:A:O4' | 11:A:340:A:H1' | 2.19 | 0.43 |
| 11:A:2314:C:C5' | 17:G:38:VAL:HG21 | 2.48 | 0.43 |
| 11:A:2136:C:H2' | 11:A:2137:C:H6 | 1.80 | 0.43 |
| 23:P:115:LEU:N | 23:P:115:LEU:HD23 | 2.34 | 0.43 |
| 14:D:13:ARG:HH11 | 14:D:13:ARG:HG3 | 1.84 | 0.43 |
| 28:U:83:LEU:HA | 28:U:88:ILE:CG1 | 2.48 | 0.43 |
| 11:A:1059:G:H3' | 11:A:1060:U:H6 | 1.83 | 0.43 |
| 17:G:4:ASP:OD2 | 17:G:9:ARG:NH2 | 2.52 | 0.43 |
| 30:W:25:ARG:NH1 | 30:W:25:ARG:HB2 | 2.33 | 0.43 |
| 11:A:278:A:N1 | 11:A:362:U:C4 | 2.87 | 0.43 |
| 33:Z:70:LEU:HD11 | 33:Z:91:LEU:HD21 | 1.99 | 0.43 |
| 25:R:52:ILE:O | 25:R:55:ALA:HB3 | 2.19 | 0.43 |
| 32:Y:60:PHE:O | 32:Y:61:ILE:CG1 | 2.67 | 0.43 |
| 6:5:7:PRO:HA | 11:A:2615:U:C2 | 2.54 | 0.43 |
| 11:A:2358:G:N2 | 23:P:55:ARG:NH2 | 2.66 | 0.43 |
| 11:A:1709:U:H1' | 11:A:2860:A:N3 | 2.33 | 0.43 |
| 11:A:2848:G:H8 | 27:T:97:ALA:HB2 | 1.82 | 0.43 |
| 11:A:1431:U:H2' | 11:A:1432:C:O4' | 2.19 | 0.43 |
| 13:C:155:GLU:OE1 | 13:C:160:ARG:HD3 | 2.19 | 0.43 |
| 11:A:1625:C:H2' | 11:A:1626:G:H5' | 2.01 | 0.43 |
| 17:G:120:LEU:HB2 | 17:G:179:PRO:O | 2.19 | 0.43 |
| 11:A:1958:C:O2' | 11:A:1959:G:H5' | 2.19 | 0.43 |
| 13:C:96:GLY:C | 13:C:98:GLU:H | 2.21 | 0.42 |
| 13:C:83:ILE:HD11 | 13:C:97:GLU:CD | 2.39 | 0.42 |
| 11:A:2645:G:H4' | 11:A:2646:C:OP2 | 2.19 | 0.42 |
| 15:E:49:LEU:O | 15:E:78:LEU:HB2 | 2.19 | 0.42 |
| 31:X:12:VAL:O | 31:X:13:LEU:HB2 | 2.19 | 0.42 |
| 17:G:149:VAL:C | 17:G:151:ALA:H | 2.22 | 0.42 |
| 7:6:17:LYS:O | 7:6:18:ARG:CB | 2.67 | 0.42 |
| 26:S:89:ARG:HG3 | 26:S:92:TYR:N | 2.34 | 0.42 |
| 11:A:1021:A:H3' | 11:A:1021:A:H8 | 1.84 | 0.42 |
| 16:F:160:ASN:HD21 | 16:F:162:LEU:CB | 2.32 | 0.42 |
| 23:P:35:HIS:C | 23:P:36:LYS:HG3 | 2.39 | 0.42 |
| 27:T:106:SER:O | 27:T:107:ASP:HB3 | 2.18 | 0.42 |
| 11:A:2654:A:H1' | 11:A:2656:U:C6 | 2.54 | 0.42 |
| 11:A:848:G:C4 | 11:A:933:A:C8 | 3.07 | 0.42 |
| 18:H:76:VAL:O | 18:H:78:GLY:N | 2.52 | 0.42 |
| 29:V:39:LEU:HA | 29:V:47:VAL:HG11 | 2.00 | 0.42 |
| 11:A:1446:C:H42 | 11:A:1465:G:H1 | 1.67 | 0.42 |
| 11:A:1305:C:O2' | 11:A:1306:C:H5' | 2.19 | 0.42 |
| 11:A:2542:A:O2' | 11:A:2543:G:H5' | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|---------------------|-------------|----------|
| 15:E:77:ILE:HG22 | 15:E:78:LEU:CD1 | 2.48 | 0.42 |
| 31:X:51:VAL:HG13 | 31:X:81:VAL:HB | 2.00 | 0.42 |
| 24:Q:12:GLN:HE21 | 24:Q:72:LYS:HG3 | 1.85 | 0.42 |
| 11:A:2224:G:H4' | 11:A:2226:C:C2 | 2.54 | 0.42 |
| 7:6:42:TRP:CH2 | 11:A:643:A:N7 | 2.88 | 0.42 |
| 27:T:14:TYR:N | 27:T:14:TYR:CD1 | 2.86 | 0.42 |
| 32:Y:26:LYS:CG | 32:Y:27:VAL:H | 2.24 | 0.42 |
| 11:A:1142:U:H5'' | 11:A:1142(A):A:H5'' | 2.01 | 0.42 |
| 16:F:162:LEU:HD12 | 16:F:162:LEU:N | 2.34 | 0.42 |
| 11:A:607:U:N3 | 11:A:621:A:C2 | 2.87 | 0.42 |
| 26:S:13:ARG:O | 26:S:15:ARG:HG3 | 2.19 | 0.42 |
| 23:P:84:ASN:OD1 | 23:P:116:GLY:HA2 | 2.18 | 0.42 |
| 27:T:128:GLU:CD | 27:T:129:ARG:N | 2.72 | 0.42 |
| 30:W:20:VAL:CG2 | 30:W:47:VAL:HG21 | 2.45 | 0.42 |
| 17:G:11:TYR:OH | 17:G:33:ARG:HB3 | 2.19 | 0.42 |
| 15:E:117:MET:HE3 | 15:E:136:ARG:HA | 2.00 | 0.42 |
| 11:A:358:U:C2' | 11:A:359:A:H5' | 2.49 | 0.42 |
| 25:R:4:LEU:CD1 | 25:R:7:GLY:HA3 | 2.48 | 0.42 |
| 11:A:2199:A:C2 | 11:A:2200:C:H1' | 2.53 | 0.42 |
| 11:A:1952:A:C6 | 11:A:1953:A:N1 | 2.87 | 0.42 |
| 22:O:14:THR:HG23 | 22:O:16:ALA:H | 1.84 | 0.42 |
| 17:G:18:GLU:OE2 | 17:G:21:ARG:NH2 | 2.52 | 0.42 |
| 14:D:201:HIS:C | 14:D:203:ASN:H | 2.21 | 0.42 |
| 16:F:87:GLY:O | 16:F:88:VAL:O | 2.37 | 0.42 |
| 16:F:26:ALA:HB1 | 16:F:27:GLU:OE1 | 2.20 | 0.42 |
| 15:E:47:VAL:CG2 | 15:E:84:PHE:O | 2.67 | 0.42 |
| 7:6:11:LEU:HD13 | 7:6:11:LEU:H | 1.85 | 0.42 |
| 16:F:122:LYS:HB3 | 16:F:191:ARG:HG3 | 2.00 | 0.42 |
| 26:S:58:LEU:HG | 26:S:59:LYS:N | 2.33 | 0.42 |
| 27:T:10:VAL:C | 27:T:12:SER:N | 2.73 | 0.42 |
| 26:S:92:TYR:O | 26:S:93:LYS:HB3 | 2.19 | 0.42 |
| 6:5:57:VAL:HG12 | 6:5:58:LEU:H | 1.85 | 0.42 |
| 3:2:31:GLU:O | 3:2:35:LEU:HD23 | 2.20 | 0.42 |
| 21:N:36:GLY:O | 21:N:37:LYS:HB2 | 2.19 | 0.42 |
| 18:H:139:GLN:HG3 | 18:H:140:LYS:N | 2.34 | 0.42 |
| 18:H:44:VAL:CG1 | 18:H:45:VAL:H | 2.17 | 0.42 |
| 22:O:35:VAL:O | 22:O:35:VAL:CG1 | 2.67 | 0.42 |
| 11:A:2881:C:H2' | 11:A:2882:A:C8 | 2.54 | 0.42 |
| 11:A:190:A:H3' | 11:A:204:A:H61 | 1.84 | 0.42 |
| 11:A:1170:G:N2 | 11:A:1180:C:C2 | 2.87 | 0.42 |
| 11:A:318:C:O2' | 11:A:319:C:H5' | 2.19 | 0.42 |
| 11:A:194:G:H2' | 11:A:195:A:O4' | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 14:D:28:GLU:CB | 14:D:29:PRO:CD | 2.94 | 0.42 |
| 28:U:32:PHE:CB | 28:U:36:ARG:HH22 | 2.31 | 0.42 |
| 31:X:63:LYS:HE3 | 31:X:63:LYS:HB2 | 1.91 | 0.42 |
| 22:O:10:VAL:HG21 | 22:O:16:ALA:C | 2.40 | 0.42 |
| 11:A:1040:C:O5' | 11:A:1040:C:H6 | 2.02 | 0.42 |
| 11:A:1304:C:O2' | 11:A:1305:C:H5' | 2.19 | 0.42 |
| 11:A:133:C:H6 | 11:A:133:C:O5' | 2.02 | 0.42 |
| 8:7:37:LYS:O | 11:A:458:G:H8 | 2.02 | 0.42 |
| 14:D:41:GLY:O | 14:D:42:GLY:O | 2.37 | 0.42 |
| 11:A:1146:C:O2' | 11:A:1147:C:H5' | 2.19 | 0.42 |
| 12:B:10:C:O2' | 12:B:11:C:H5' | 2.19 | 0.42 |
| 14:D:24:ILE:CD1 | 14:D:25:THR:N | 2.81 | 0.42 |
| 15:E:54:GLN:O | 15:E:75:VAL:CG2 | 2.62 | 0.42 |
| 11:A:1448:G:N3 | 11:A:1528(A):A:C2 | 2.84 | 0.42 |
| 12:B:106:G:H5' | 33:Z:31:ARG:HG2 | 1.98 | 0.42 |
| 33:Z:48:PHE:O | 33:Z:52:SER:N | 2.48 | 0.42 |
| 18:H:15:VAL:HG23 | 18:H:16:SER:N | 2.34 | 0.42 |
| 7:6:45:LYS:CB | 11:A:2371:G:H4' | 2.49 | 0.42 |
| 32:Y:81:LYS:CD | 32:Y:97:ARG:O | 2.67 | 0.42 |
| 11:A:611:C:H6 | 11:A:611:C:O5' | 2.01 | 0.42 |
| 16:F:160:ASN:ND2 | 16:F:162:LEU:N | 2.59 | 0.42 |
| 23:P:38:GLN:HG3 | 23:P:39:LYS:N | 2.35 | 0.42 |
| 11:A:2282:G:H4' | 11:A:2283:C:O5' | 2.19 | 0.42 |
| 5:4:25:TYR:N | 5:4:25:TYR:CD1 | 2.88 | 0.42 |
| 25:R:45:ARG:CG | 25:R:46:GLY:H | 2.13 | 0.42 |
| 11:A:2464:C:O2' | 11:A:2465:C:P | 2.78 | 0.42 |
| 11:A:1068:G:H1' | 11:A:1069:A:O5' | 2.19 | 0.42 |
| 11:A:1070:A:H5' | 11:A:1072:C:OP2 | 2.20 | 0.42 |
| 11:A:1090:U:H2' | 11:A:1091:G:O4' | 2.19 | 0.42 |
| 25:R:2:ARG:C | 25:R:2:ARG:CD | 2.87 | 0.42 |
| 11:A:733:G:N7 | 11:A:761:A:C5 | 2.86 | 0.42 |
| 12:B:81:G:H2' | 12:B:82:G:H5' | 2.02 | 0.42 |
| 29:V:39:LEU:O | 29:V:40:LEU:HB2 | 2.20 | 0.42 |
| 32:Y:61:ILE:HG22 | 32:Y:62:GLU:N | 2.34 | 0.42 |
| 11:A:998:C:H2' | 11:A:999:U:O5' | 2.19 | 0.42 |
| 11:A:2196:C:O2' | 11:A:2197:U:H5' | 2.19 | 0.42 |
| 28:U:15:LYS:HA | 28:U:18:LEU:HD23 | 2.00 | 0.42 |
| 11:A:856:C:H5'' | 11:A:856:C:H6 | 1.83 | 0.42 |
| 11:A:1509(A):A:H2' | 11:A:1509(B):A:C8 | 2.53 | 0.42 |
| 11:A:2073:C:O2' | 11:A:2074:U:H5' | 2.19 | 0.42 |
| 4:3:28:LEU:N | 4:3:28:LEU:HD23 | 2.33 | 0.42 |
| 17:G:178:PHE:HD1 | 17:G:178:PHE:H | 1.67 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:199:A:H61 | 11:A:2433:A:H2' | 1.84 | 0.42 |
| 31:X:45:THR:OG1 | 31:X:46:ALA:N | 2.53 | 0.42 |
| 3:2:63:VAL:O | 3:2:65:ASN:N | 2.52 | 0.42 |
| 19:J:52:UNK:HA | 19:J:86:UNK:O | 2.20 | 0.42 |
| 11:A:740:U:H2' | 11:A:741:G:C8 | 2.55 | 0.42 |
| 11:A:1387:C:C2 | 11:A:1388:G:C8 | 3.06 | 0.42 |
| 21:N:115:ARG:HH11 | 21:N:115:ARG:HG3 | 1.84 | 0.42 |
| 11:A:1854:A:H62 | 11:A:1888:G:H8 | 1.66 | 0.42 |
| 33:Z:69:THR:HG22 | 33:Z:89:PHE:O | 2.19 | 0.42 |
| 14:D:70:TRP:CZ3 | 14:D:146:GLU:OE2 | 2.72 | 0.42 |
| 17:G:57:ALA:O | 17:G:60:LEU:HB3 | 2.19 | 0.42 |
| 7:6:53:LYS:N | 7:6:53:LYS:CD | 2.82 | 0.42 |
| 32:Y:15:VAL:HG12 | 32:Y:17:SER:H | 1.85 | 0.42 |
| 23:P:98:GLU:CA | 23:P:101:VAL:HG22 | 2.48 | 0.42 |
| 23:P:126:VAL:HA | 23:P:145:PRO:CG | 2.49 | 0.42 |
| 11:A:1499:C:H2' | 11:A:1500:G:H5' | 2.01 | 0.42 |
| 12:B:7:G:C3' | 12:B:8:U:C5' | 2.98 | 0.42 |
| 11:A:2419:U:O2' | 11:A:2420:C:H5' | 2.18 | 0.42 |
| 16:F:158:THR:HG21 | 16:F:163:VAL:HB | 2.01 | 0.42 |
| 11:A:671:C:H2' | 11:A:672:C:H6 | 1.84 | 0.42 |
| 16:F:30:PRO:O | 16:F:33:LEU:HB2 | 2.20 | 0.42 |
| 8:7:34:ARG:HD2 | 8:7:34:ARG:HA | 1.77 | 0.42 |
| 23:P:16:ARG:CA | 23:P:16:ARG:HH11 | 2.32 | 0.42 |
| 11:A:1721:G:C2 | 11:A:1739:U:OP2 | 2.73 | 0.42 |
| 11:A:481:G:C2' | 11:A:482:A:OP2 | 2.67 | 0.42 |
| 11:A:586:A:N1 | 11:A:809:G:O2' | 2.47 | 0.42 |
| 15:E:11:MET:HB3 | 15:E:24:THR:HA | 2.02 | 0.42 |
| 24:Q:110:THR:HG23 | 24:Q:113:GLN:CG | 2.49 | 0.42 |
| 11:A:2390:U:O2' | 11:A:2391:G:H5' | 2.20 | 0.42 |
| 11:A:67:U:O2' | 11:A:68:G:H5' | 2.19 | 0.42 |
| 21:N:54:VAL:HG11 | 21:N:99:LEU:CD2 | 2.49 | 0.42 |
| 25:R:12:ARG:HE | 25:R:16:HIS:CE1 | 2.36 | 0.42 |
| 11:A:2169:A:O2' | 11:A:2170:A:H5' | 2.18 | 0.42 |
| 11:A:121:G:H4' | 11:A:149:A:H5' | 2.00 | 0.42 |
| 11:A:1777:U:O2' | 11:A:1778:U:H5' | 2.19 | 0.42 |
| 13:C:79:LYS:HD2 | 13:C:97:GLU:OE1 | 2.19 | 0.42 |
| 11:A:2544:G:H1' | 11:A:2646:C:H4' | 2.02 | 0.42 |
| 9:8:5:LYS:HG2 | 11:A:242:G:C8 | 2.55 | 0.42 |
| 12:B:107:G:O2' | 12:B:108:U:H5' | 2.19 | 0.42 |
| 33:Z:53:ILE:HG22 | 33:Z:71:VAL:O | 2.20 | 0.42 |
| 17:G:54:GLU:O | 17:G:58:GLN:HG2 | 2.20 | 0.42 |
| 11:A:973:A:O4' | 11:A:1188:U:C6 | 2.72 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:659:C:O2' | 11:A:660:G:H5' | 2.19 | 0.42 |
| 11:A:2740:A:H2' | 11:A:2741:A:C8 | 2.54 | 0.42 |
| 12:B:94:C:O2' | 12:B:95:C:H5' | 2.20 | 0.42 |
| 9:8:52:LYS:O | 9:8:55:ALA:HB3 | 2.19 | 0.42 |
| 11:A:2126:A:OP2 | 11:A:2126:A:H8 | 2.03 | 0.42 |
| 28:U:14:HIS:O | 28:U:18:LEU:HD23 | 2.20 | 0.42 |
| 11:A:2389:G:H5'' | 11:A:2390:U:O4' | 2.19 | 0.42 |
| 11:A:856:C:H5'' | 11:A:856:C:C6 | 2.53 | 0.42 |
| 11:A:135:G:O2' | 11:A:136:G:H5' | 2.20 | 0.42 |
| 11:A:135:G:H2' | 11:A:136:G:H8 | 1.85 | 0.42 |
| 25:R:53:HIS:ND1 | 25:R:53:HIS:O | 2.52 | 0.42 |
| 11:A:237:C:O2' | 11:A:238:C:H5' | 2.20 | 0.42 |
| 13:C:99:ILE:C | 13:C:101:GLN:N | 2.72 | 0.42 |
| 18:H:83:TYR:O | 18:H:84:SER:O | 2.37 | 0.42 |
| 14:D:30:GLU:CG | 14:D:63:ARG:HH21 | 2.32 | 0.42 |
| 11:A:1486:A:H61 | 11:A:1504:C:H42 | 1.68 | 0.42 |
| 26:S:98:VAL:C | 26:S:100:ALA:N | 2.73 | 0.42 |
| 11:A:2177:C:H2' | 11:A:2178:C:O2 | 2.20 | 0.42 |
| 26:S:74:ALA:HB1 | 26:S:103:GLU:CG | 2.47 | 0.42 |
| 11:A:2740:A:C6 | 11:A:2741:A:C6 | 3.08 | 0.42 |
| 27:T:96:ARG:NH1 | 27:T:96:ARG:CB | 2.83 | 0.42 |
| 27:T:23:ARG:HB2 | 27:T:24:PRO:HD2 | 2.01 | 0.42 |
| 33:Z:61:LEU:HB2 | 33:Z:65:GLN:O | 2.20 | 0.42 |
| 11:A:848:G:H2' | 11:A:849:A:C8 | 2.54 | 0.42 |
| 11:A:927:G:H3' | 11:A:928:G:H8 | 1.84 | 0.42 |
| 11:A:478:A:C6 | 11:A:480:A:C6 | 3.07 | 0.42 |
| 22:O:28:SER:O | 22:O:29:ASN:HB3 | 2.19 | 0.42 |
| 11:A:2529:G:H5'' | 11:A:2530:A:H5'' | 2.02 | 0.42 |
| 24:Q:109:VAL:HG12 | 24:Q:110:THR:H | 1.84 | 0.42 |
| 15:E:120:TRP:HA | 15:E:120:TRP:CE3 | 2.54 | 0.42 |
| 11:A:528:A:C2 | 11:A:2043:C:O5' | 2.70 | 0.42 |
| 31:X:8:ILE:H | 31:X:8:ILE:CD1 | 2.30 | 0.42 |
| 25:R:109:ALA:O | 25:R:111:LEU:HD12 | 2.20 | 0.42 |
| 11:A:736:C:H2' | 11:A:737:C:C6 | 2.54 | 0.42 |
| 13:C:15:ASP:C | 13:C:15:ASP:OD1 | 2.57 | 0.42 |
| 11:A:1526:G:O2' | 11:A:1527:G:H5' | 2.20 | 0.42 |
| 11:A:1449:A:N7 | 11:A:1450:G:C8 | 2.88 | 0.42 |
| 11:A:594:U:H3 | 11:A:663:G:H1 | 1.68 | 0.42 |
| 11:A:569:U:C4 | 11:A:570:G:C6 | 3.08 | 0.42 |
| 14:D:258:LYS:HD3 | 14:D:273:ARG:NH2 | 2.33 | 0.42 |
| 14:D:242:ARG:NH1 | 14:D:242:ARG:HG2 | 2.34 | 0.42 |
| 18:H:122:THR:O | 18:H:133:VAL:HA | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 14:D:27:THR:O | 14:D:27:THR:CG2 | 2.68 | 0.42 |
| 14:D:30:GLU:CG | 14:D:35:LYS:HZ1 | 2.32 | 0.42 |
| 16:F:40:GLN:NE2 | 16:F:184:TYR:HB2 | 2.34 | 0.42 |
| 11:A:2187:G:C3' | 11:A:2188:C:H5' | 2.49 | 0.42 |
| 32:Y:39:VAL:HG12 | 32:Y:40:GLU:H | 1.85 | 0.42 |
| 28:U:115:ALA:C | 28:U:117:GLN:N | 2.73 | 0.42 |
| 9:8:28:GLY:CA | 9:8:32:LEU:HD22 | 2.49 | 0.42 |
| 23:P:61:ARG:C | 23:P:62:LEU:HD23 | 2.40 | 0.42 |
| 23:P:39:LYS:HD2 | 23:P:40:SER:N | 2.27 | 0.42 |
| 11:A:2109:U:O2 | 11:A:2180:U:C5 | 2.73 | 0.42 |
| 11:A:2283:C:H2' | 11:A:2284:C:O4' | 2.20 | 0.42 |
| 17:G:128:ARG:HA | 17:G:128:ARG:HD3 | 1.88 | 0.42 |
| 11:A:651:G:H2' | 11:A:652:C:H5' | 2.02 | 0.42 |
| 17:G:114:ILE:C | 17:G:116:ASP:N | 2.73 | 0.42 |
| 15:E:116:VAL:HG21 | 15:E:122:PHE:CG | 2.54 | 0.42 |
| 11:A:141:A:C8 | 11:A:1408:C:O2' | 2.70 | 0.42 |
| 18:H:139:GLN:NE2 | 18:H:140:LYS:HA | 2.35 | 0.42 |
| 11:A:2524:G:H2' | 11:A:2525:G:O4' | 2.19 | 0.42 |
| 11:A:990:A:N6 | 11:A:1186:G:H1' | 2.33 | 0.42 |
| 11:A:1011:G:OP1 | 28:U:75:ASN:HB2 | 2.20 | 0.42 |
| 11:A:2562:U:H4' | 22:O:25:LEU:HD21 | 2.00 | 0.42 |
| 11:A:2475:C:N4 | 11:A:2529:G:H22 | 2.17 | 0.42 |
| 23:P:28:GLY:C | 23:P:29:LYS:HD2 | 2.39 | 0.42 |
| 24:Q:79:LEU:CD2 | 24:Q:80:GLU:H | 2.30 | 0.42 |
| 11:A:2695:C:H2' | 11:A:2696:U:H6 | 1.84 | 0.42 |
| 1:0:53:MET:CG | 1:0:57:PHE:HA | 2.49 | 0.42 |
| 11:A:2086:U:H2' | 11:A:2087:G:C8 | 2.55 | 0.42 |
| 16:F:113:ALA:HB1 | 16:F:186:ILE:CG2 | 2.49 | 0.42 |
| 15:E:110:GLY:HA3 | 15:E:162:ALA:HB2 | 2.01 | 0.42 |
| 15:E:152:LYS:HG2 | 21:N:78:TYR:CZ | 2.55 | 0.42 |
| 11:A:70:G:H2' | 11:A:113:G:O2' | 2.19 | 0.42 |
| 14:D:52:ARG:HB3 | 14:D:53:PHE:CE2 | 2.55 | 0.42 |
| 31:X:13:LEU:HA | 31:X:18:TYR:OH | 2.20 | 0.42 |
| 9:8:8:LYS:CA | 9:8:11:LYS:HD3 | 2.41 | 0.42 |
| 17:G:45:GLU:O | 17:G:47:LYS:N | 2.51 | 0.42 |
| 17:G:82:LEU:HB3 | 17:G:87:PRO:HB3 | 2.01 | 0.42 |
| 17:G:81:LYS:HB3 | 17:G:82:LEU:H | 1.68 | 0.42 |
| 7:6:13:CYS:HB3 | 7:6:49:HIS:HB3 | 2.02 | 0.42 |
| 2:1:16:ASN:HD22 | 2:1:37:ILE:HG22 | 1.82 | 0.42 |
| 12:B:48:A:OP1 | 26:S:93:LYS:HB3 | 2.20 | 0.42 |
| 12:B:43:C:H5' | 12:B:44:G:OP2 | 2.20 | 0.42 |
| 14:D:44:ASN:CB | 14:D:48:ARG:O | 2.68 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:265:A:C8 | 11:A:266:G:H1' | 2.55 | 0.42 |
| 11:A:1477:A:C2 | 11:A:1515:G:C2 | 3.08 | 0.42 |
| 11:A:1666:G:H1' | 22:O:3:GLN:HE21 | 1.84 | 0.42 |
| 11:A:1405:U:H2' | 11:A:1406:U:C6 | 2.55 | 0.42 |
| 27:T:119:LYS:O | 27:T:123:GLN:HG2 | 2.20 | 0.42 |
| 27:T:92:GLY:O | 27:T:94:ALA:N | 2.53 | 0.42 |
| 21:N:57:ALA:O | 21:N:58:ASP:O | 2.37 | 0.42 |
| 28:U:13:LYS:N | 28:U:13:LYS:HD3 | 2.34 | 0.42 |
| 29:V:52:VAL:O | 29:V:52:VAL:HG13 | 2.19 | 0.42 |
| 33:Z:108:PRO:O | 33:Z:110:GLY:N | 2.52 | 0.42 |
| 21:N:18:ALA:O | 21:N:20:GLY:N | 2.53 | 0.42 |
| 32:Y:47:LYS:HG3 | 32:Y:60:PHE:CE1 | 2.54 | 0.42 |
| 11:A:1450(A):C:C2 | 11:A:1451:C:C5 | 3.08 | 0.42 |
| 18:H:89:ILE:HG12 | 18:H:129:THR:HA | 2.01 | 0.42 |
| 12:B:13:A:HO2' | 12:B:14:U:H3' | 1.83 | 0.42 |
| 11:A:1107:G:H4' | 19:J:81:UNK:HA | 2.02 | 0.42 |
| 11:A:1579:A:H2' | 11:A:1580:A:O4' | 2.20 | 0.42 |
| 30:W:2:GLU:HA | 30:W:64:MET:HE1 | 2.02 | 0.42 |
| 1:O:53:MET:HA | 1:O:58:THR:O | 2.20 | 0.42 |
| 11:A:1982:C:C5' | 11:A:1983:C:OP2 | 2.67 | 0.42 |
| 11:A:2735:G:H2' | 11:A:2736:G:C8 | 2.55 | 0.42 |
| 25:R:32:GLY:O | 25:R:115:GLU:HA | 2.20 | 0.42 |
| 11:A:1432:C:H2' | 11:A:1433:U:O4' | 2.20 | 0.42 |
| 3:2:12:GLU:HA | 3:2:15:LYS:HE2 | 2.01 | 0.42 |
| 17:G:133:LEU:N | 17:G:133:LEU:HD23 | 2.34 | 0.42 |
| 11:A:1906:G:C8 | 11:A:1929:G:H2' | 2.55 | 0.42 |
| 11:A:625:G:O2' | 11:A:626:U:H5' | 2.20 | 0.42 |
| 13:C:117:PRO:HD2 | 13:C:147:PHE:CD2 | 2.55 | 0.42 |
| 21:N:43:THR:HB | 21:N:46:VAL:HG12 | 2.00 | 0.42 |
| 11:A:2308:G:N7 | 11:A:2310:A:C5' | 2.81 | 0.42 |
| 11:A:1499:C:H2' | 11:A:1500:G:C5' | 2.50 | 0.42 |
| 23:P:35:HIS:O | 23:P:36:LYS:HB2 | 2.20 | 0.42 |
| 14:D:147:LEU:HA | 14:D:147:LEU:HD12 | 1.74 | 0.42 |
| 33:Z:10:ARG:HE | 33:Z:36:LYS:HB2 | 1.85 | 0.42 |
| 23:P:82:GLY:HA3 | 23:P:115:LEU:HD21 | 2.01 | 0.42 |
| 11:A:271(I):G:H2' | 11:A:271(J):C:O4' | 2.20 | 0.42 |
| 6:5:50:GLY:HA3 | 6:5:56:LYS:HD2 | 2.01 | 0.42 |
| 21:N:32:THR:C | 21:N:34:LEU:N | 2.72 | 0.42 |
| 18:H:45:VAL:O | 18:H:47:GLU:N | 2.53 | 0.42 |
| 25:R:58:GLY:CA | 25:R:80:PHE:HE2 | 2.28 | 0.42 |
| 16:F:125:LEU:N | 16:F:125:LEU:CD2 | 2.83 | 0.42 |
| 27:T:66:VAL:HA | 27:T:71:GLY:HA2 | 2.00 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 11:A:1657:C:H2' | 11:A:1658:C:C6 | 2.54 | 0.42 |
| 21:N:39:ARG:O | 21:N:41:ASP:N | 2.53 | 0.42 |
| 4:3:23:LEU:HD21 | 4:3:50:VAL:HG11 | 2.02 | 0.42 |
| 11:A:1847:A:N3 | 11:A:1847:A:H2' | 2.35 | 0.42 |
| 11:A:596:G:H2' | 11:A:597:U:O4' | 2.19 | 0.42 |
| 20:K:99:UNK:O | 20:K:100:UNK:C | 2.67 | 0.42 |
| 22:O:104:ARG:N | 22:O:122:LEU:OXT | 2.49 | 0.41 |
| 16:F:37:VAL:HG12 | 16:F:41:LEU:HD12 | 2.02 | 0.41 |
| 12:B:41:U:N3 | 17:G:70:VAL:HB | 2.35 | 0.41 |
| 17:G:43:LEU:HD22 | 17:G:43:LEU:N | 2.35 | 0.41 |
| 7:6:10:LEU:H | 7:6:10:LEU:HD22 | 1.78 | 0.41 |
| 11:A:250:G:H2' | 11:A:251:A:C8 | 2.55 | 0.41 |
| 11:A:1516:C:C2' | 11:A:1517:G:C5' | 2.82 | 0.41 |
| 16:F:28:ILE:O | 16:F:30:PRO:HD3 | 2.20 | 0.41 |
| 11:A:2008:C:H2' | 11:A:2009:G:H8 | 1.85 | 0.41 |
| 15:E:64:LYS:C | 15:E:66:HIS:H | 2.21 | 0.41 |
| 11:A:142:A:H5'' | 11:A:142(A):C:C5 | 2.54 | 0.41 |
| 11:A:761:A:H8 | 11:A:761:A:H3' | 1.86 | 0.41 |
| 18:H:139:GLN:HE21 | 18:H:140:LYS:CA | 2.33 | 0.41 |
| 11:A:1076:C:O2 | 20:K:89:UNK:HA | 2.20 | 0.41 |
| 29:V:51:VAL:HG12 | 29:V:52:VAL:N | 2.24 | 0.41 |
| 31:X:57:LEU:HD13 | 31:X:78:LYS:O | 2.20 | 0.41 |
| 11:A:105:C:O2' | 32:Y:2:ARG:HG3 | 2.20 | 0.41 |
| 11:A:211:A:O2' | 11:A:212:G:H5' | 2.20 | 0.41 |
| 3:2:47:ASN:HD22 | 11:A:95:G:H1' | 1.85 | 0.41 |
| 11:A:1470:G:N2 | 11:A:1523:U:C4 | 2.88 | 0.41 |
| 29:V:97:LYS:HA | 29:V:97:LYS:HD3 | 1.84 | 0.41 |
| 23:P:107:LYS:O | 23:P:108:LYS:HB2 | 2.20 | 0.41 |
| 11:A:229:A:OP1 | 11:A:229:A:H8 | 2.03 | 0.41 |
| 13:C:57:ASN:HA | 13:C:57:ASN:HD22 | 1.66 | 0.41 |
| 11:A:1986:A:H2' | 11:A:1986:A:N3 | 2.35 | 0.41 |
| 31:X:51:VAL:CG1 | 31:X:81:VAL:HB | 2.50 | 0.41 |
| 33:Z:125:LEU:O | 33:Z:164:ALA:HB3 | 2.19 | 0.41 |
| 11:A:1858:G:H8 | 11:A:1858:G:OP2 | 2.04 | 0.41 |
| 12:B:48:A:H4' | 26:S:95:HIS:HD2 | 1.85 | 0.41 |
| 23:P:111:ARG:HA | 23:P:128:HIS:CD2 | 2.54 | 0.41 |
| 23:P:59:LEU:HA | 23:P:61:ARG:CD | 2.50 | 0.41 |
| 11:A:26:G:P | 30:W:80:PRO:HB3 | 2.61 | 0.41 |
| 11:A:260:G:C6 | 11:A:261:G:N7 | 2.88 | 0.41 |
| 32:Y:56:PRO:O | 32:Y:57:GLN:O | 2.38 | 0.41 |
| 11:A:1091:G:H22 | 11:A:1101:U:H1' | 1.85 | 0.41 |
| 3:2:52:ASP:O | 3:2:53:LEU:C | 2.57 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 3:2:50:ILE:HG21 | 11:A:61:G:H5' | 2.02 | 0.41 |
| 11:A:733:G:C8 | 11:A:761:A:C6 | 3.08 | 0.41 |
| 2:1:23:LYS:CE | 2:1:28:GLY:HA3 | 2.51 | 0.41 |
| 11:A:815:C:H2' | 11:A:816:C:C6 | 2.55 | 0.41 |
| 11:A:1588:C:H2' | 11:A:1589:C:C6 | 2.54 | 0.41 |
| 11:A:2108:C:O2 | 11:A:2108:C:C2' | 2.63 | 0.41 |
| 11:A:1534:U:C2' | 11:A:1535:A:H5' | 2.50 | 0.41 |
| 11:A:877:U:O2' | 11:A:900:A:N6 | 2.54 | 0.41 |
| 10:9:29:ASN:ND2 | 10:9:29:ASN:H | 2.17 | 0.41 |
| 10:9:1:MET:HE3 | 10:9:31:LYS:HB3 | 2.01 | 0.41 |
| 23:P:17:LYS:O | 23:P:19:VAL:N | 2.53 | 0.41 |
| 24:Q:1:MET:HE1 | 24:Q:44:ALA:C | 2.40 | 0.41 |
| 30:W:55:ALA:C | 30:W:57:ASN:N | 2.73 | 0.41 |
| 13:C:28:LEU:O | 13:C:28:LEU:HD23 | 2.20 | 0.41 |
| 11:A:1424:G:H2' | 11:A:1425:G:O4' | 2.20 | 0.41 |
| 11:A:2335:A:C8 | 11:A:2337:G:C5 | 3.08 | 0.41 |
| 11:A:930:U:H4' | 11:A:931:G:O5' | 2.20 | 0.41 |
| 11:A:2236:C:H2' | 11:A:2237:G:O4' | 2.20 | 0.41 |
| 14:D:35:LYS:CG | 14:D:36:PRO:N | 2.77 | 0.41 |
| 31:X:14:SER:N | 31:X:17:ALA:HB3 | 2.34 | 0.41 |
| 11:A:1537:G:H2' | 11:A:1538:G:C8 | 2.56 | 0.41 |
| 7:6:27:LYS:HE3 | 7:6:30:THR:OG1 | 2.20 | 0.41 |
| 7:6:11:LEU:HG | 7:6:51:GLU:HG3 | 2.02 | 0.41 |
| 14:D:97:TYR:C | 14:D:99:ASP:N | 2.74 | 0.41 |
| 7:6:45:LYS:CG | 11:A:2371:G:H4' | 2.50 | 0.41 |
| 32:Y:75:ILE:O | 32:Y:96:ILE:HD13 | 2.20 | 0.41 |
| 29:V:18:LEU:CD2 | 29:V:19:LYS:N | 2.78 | 0.41 |
| 29:V:61:VAL:HA | 29:V:94:LEU:HD23 | 2.01 | 0.41 |
| 26:S:17:ARG:C | 26:S:19:LYS:N | 2.73 | 0.41 |
| 21:N:87:LEU:O | 21:N:88:GLU:C | 2.58 | 0.41 |
| 11:A:2289:G:H1' | 11:A:2346:A:H2 | 1.85 | 0.41 |
| 11:A:1947:C:C3' | 11:A:1948:G:H5'' | 2.49 | 0.41 |
| 11:A:1190:G:H5' | 23:P:35:HIS:CA | 2.50 | 0.41 |
| 11:A:604:G:C6 | 11:A:605:C:C4 | 3.08 | 0.41 |
| 13:C:43:VAL:CG2 | 13:C:175:VAL:HG21 | 2.43 | 0.41 |
| 28:U:95:LEU:HD11 | 29:V:11:GLN:HG3 | 2.00 | 0.41 |
| 11:A:2810:A:H2' | 15:E:61:ARG:NH2 | 2.34 | 0.41 |
| 27:T:89:VAL:HG11 | 27:T:91:ARG:HG3 | 1.98 | 0.41 |
| 3:2:20:GLU:O | 3:2:22:GLU:N | 2.53 | 0.41 |
| 3:2:31:GLU:HA | 3:2:34:GLU:HB2 | 2.01 | 0.41 |
| 21:N:58:ASP:C | 21:N:60:ILE:N | 2.61 | 0.41 |
| 11:A:2668:G:C2' | 11:A:2669:G:H5' | 2.49 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 22:O:34:THR:OG1 | 22:O:35:VAL:N | 2.54 | 0.41 |
| 9:8:56:GLU:O | 9:8:57:ARG:C | 2.58 | 0.41 |
| 33:Z:111:VAL:HB | 33:Z:112:ARG:H | 1.73 | 0.41 |
| 25:R:63:ARG:HA | 25:R:80:PHE:CZ | 2.56 | 0.41 |
| 31:X:82:GLN:O | 31:X:82:GLN:HG3 | 2.20 | 0.41 |
| 11:A:586:A:H5' | 16:F:89:VAL:HG21 | 2.01 | 0.41 |
| 11:A:2885:C:H2' | 11:A:2886:G:O5' | 2.21 | 0.41 |
| 24:Q:5:ARG:CB | 24:Q:5:ARG:CZ | 2.98 | 0.41 |
| 11:A:752:A:HO2' | 11:A:753:C:P | 2.41 | 0.41 |
| 11:A:753:C:H6 | 11:A:753:C:O5' | 2.04 | 0.41 |
| 3:2:2:LYS:HB2 | 11:A:97:C:H5'' | 2.01 | 0.41 |
| 11:A:1467:C:O2' | 11:A:1468:C:H5' | 2.20 | 0.41 |
| 11:A:1540:U:C4 | 11:A:1541:G:N7 | 2.88 | 0.41 |
| 21:N:112:LEU:O | 21:N:115:ARG:HB3 | 2.21 | 0.41 |
| 11:A:833:U:H2' | 11:A:834:C:H6 | 1.84 | 0.41 |
| 16:F:169:ASN:ND2 | 16:F:169:ASN:O | 2.52 | 0.41 |
| 11:A:811:U:HO2' | 11:A:812:C:H5'' | 1.86 | 0.41 |
| 11:A:1689:A:N6 | 11:A:1698:A:H2 | 2.01 | 0.41 |
| 11:A:2133:G:C2' | 11:A:2157:G:H22 | 2.33 | 0.41 |
| 17:G:25:TYR:CD2 | 17:G:31:VAL:HG23 | 2.55 | 0.41 |
| 27:T:50:ILE:HA | 27:T:99:LEU:HD11 | 2.01 | 0.41 |
| 21:N:58:ASP:O | 21:N:59:LYS:HB2 | 2.20 | 0.41 |
| 29:V:38:LEU:HD22 | 29:V:52:VAL:HG11 | 2.02 | 0.41 |
| 11:A:582:G:H2' | 11:A:583:G:H8 | 1.83 | 0.41 |
| 28:U:8:VAL:HG12 | 28:U:12:ARG:HG3 | 2.03 | 0.41 |
| 12:B:16:G:C6 | 12:B:69:G:C2 | 3.08 | 0.41 |
| 11:A:2873:A:H1' | 25:R:6:SER:OG | 2.20 | 0.41 |
| 11:A:1192:G:C2' | 11:A:1193:G:H5' | 2.51 | 0.41 |
| 21:N:14:VAL:CG2 | 21:N:137:LYS:HE3 | 2.51 | 0.41 |
| 23:P:89:ALA:HB1 | 23:P:121:LYS:HD3 | 2.01 | 0.41 |
| 33:Z:109:ALA:HB3 | 33:Z:145:GLU:OE1 | 2.19 | 0.41 |
| 4:3:31:LEU:O | 4:3:32:GLN:HB2 | 2.20 | 0.41 |
| 32:Y:87:LYS:O | 32:Y:88:LYS:CB | 2.65 | 0.41 |
| 27:T:97:ALA:O | 27:T:98:LYS:HB2 | 2.21 | 0.41 |
| 11:A:230:U:H2' | 11:A:231:C:C6 | 2.55 | 0.41 |
| 11:A:1625:C:C2' | 11:A:1626:G:H5' | 2.50 | 0.41 |
| 11:A:489:G:N2 | 11:A:1321:A:OP1 | 2.48 | 0.41 |
| 11:A:2642:G:O2' | 11:A:2643:G:H5' | 2.20 | 0.41 |
| 11:A:1487:G:O2' | 11:A:1488:G:H5' | 2.20 | 0.41 |
| 14:D:63:ARG:HH11 | 14:D:63:ARG:HG3 | 1.86 | 0.41 |
| 11:A:1538:G:H2' | 11:A:1539:G:H8 | 1.85 | 0.41 |
| 11:A:2186:G:H2' | 11:A:2187:G:C4 | 2.55 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:P:146:VAL:CG2 | 23:P:147:LEU:N | 2.71 | 0.41 |
| 11:A:2111:C:C2 | 11:A:2147:G:N2 | 2.82 | 0.41 |
| 11:A:2149:G:H2' | 11:A:2150:U:O4' | 2.20 | 0.41 |
| 11:A:2762:G:H2' | 11:A:2763:G:O4' | 2.21 | 0.41 |
| 21:N:31:ALA:O | 21:N:34:LEU:HB3 | 2.21 | 0.41 |
| 15:E:4:ILE:HD11 | 15:E:28:ALA:O | 2.20 | 0.41 |
| 18:H:33:LEU:HD12 | 18:H:75:ALA:O | 2.20 | 0.41 |
| 11:A:2854:G:H2' | 11:A:2855:C:H6 | 1.82 | 0.41 |
| 32:Y:31:LEU:HD23 | 32:Y:36:ALA:O | 2.20 | 0.41 |
| 11:A:2774:C:P | 15:E:164:ARG:HD3 | 2.60 | 0.41 |
| 11:A:1771:C:HO2' | 11:A:1786:A:H8 | 1.64 | 0.41 |
| 11:A:1259:G:H2' | 11:A:1260:G:C8 | 2.55 | 0.41 |
| 8:7:43:THR:CG2 | 8:7:44:PRO:N | 2.82 | 0.41 |
| 14:D:200:ASP:O | 14:D:203:ASN:HB2 | 2.20 | 0.41 |
| 11:A:2000:G:HO2' | 11:A:2001:A:H5' | 1.85 | 0.41 |
| 11:A:1173:G:H5' | 11:A:1174:A:OP1 | 2.20 | 0.41 |
| 32:Y:22:GLY:O | 32:Y:23:ARG:O | 2.37 | 0.41 |
| 31:X:46:ALA:C | 31:X:47:PHE:CD1 | 2.93 | 0.41 |
| 11:A:986:C:O2' | 11:A:987:G:H5' | 2.21 | 0.41 |
| 11:A:86:C:H2' | 11:A:87:C:H6 | 1.84 | 0.41 |
| 31:X:21:PHE:O | 31:X:22:ALA:C | 2.59 | 0.41 |
| 11:A:1532:C:H2' | 11:A:1533:G:O4' | 2.19 | 0.41 |
| 14:D:80:ALA:HB2 | 14:D:96:HIS:CD2 | 2.55 | 0.41 |
| 30:W:92:ARG:O | 30:W:93:ALA:HB3 | 2.19 | 0.41 |
| 11:A:1205:U:C5 | 16:F:171:PRO:HA | 2.55 | 0.41 |
| 14:D:34:VAL:O | 14:D:35:LYS:C | 2.58 | 0.41 |
| 15:E:69:LYS:C | 15:E:71:GLY:N | 2.74 | 0.41 |
| 15:E:89:ASP:CG | 15:E:90:THR:H | 2.24 | 0.41 |
| 31:X:18:TYR:C | 31:X:20:GLY:N | 2.74 | 0.41 |
| 11:A:599:G:C6 | 11:A:600:G:N7 | 2.88 | 0.41 |
| 16:F:184:TYR:O | 16:F:188:ARG:HG2 | 2.20 | 0.41 |
| 11:A:1486:A:N6 | 11:A:1504:C:H42 | 2.18 | 0.41 |
| 14:D:102:LYS:C | 14:D:103:ARG:HG2 | 2.41 | 0.41 |
| 6:5:3:LYS:HD2 | 6:5:3:LYS:N | 2.36 | 0.41 |
| 4:3:35:ARG:HG2 | 4:3:37:LEU:HG | 2.01 | 0.41 |
| 26:S:67:ARG:NE | 26:S:98:VAL:HG11 | 2.35 | 0.41 |
| 9:8:32:LEU:CD2 | 9:8:36:LYS:HE2 | 2.43 | 0.41 |
| 26:S:78:LEU:O | 26:S:80:LEU:N | 2.48 | 0.41 |
| 13:C:77:ILE:CD1 | 13:C:95:GLY:HA3 | 2.40 | 0.41 |
| 21:N:119:ARG:CB | 21:N:119:ARG:HH11 | 2.34 | 0.41 |
| 17:G:176:LEU:HD23 | 17:G:176:LEU:O | 2.21 | 0.41 |
| 3:2:32:LEU:HD23 | 3:2:32:LEU:O | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:1:59:THR:O | 2:1:91:LYS:HE2 | 2.20 | 0.41 |
| 12:B:96:U:H2' | 12:B:97:G:H8 | 1.85 | 0.41 |
| 11:A:480:A:H2 | 11:A:499:U:O2 | 2.04 | 0.41 |
| 32:Y:36:ALA:HA | 32:Y:69:ALA:H | 1.85 | 0.41 |
| 21:N:90:MET:O | 21:N:93:THR:O | 2.37 | 0.41 |
| 14:D:124:PRO:HG2 | 14:D:129:ASN:HD21 | 1.86 | 0.41 |
| 11:A:233:A:C2' | 11:A:234:C:H5' | 2.50 | 0.41 |
| 28:U:51:LYS:HG2 | 28:U:51:LYS:H | 1.67 | 0.41 |
| 22:O:10:VAL:HG23 | 22:O:10:VAL:O | 2.20 | 0.41 |
| 11:A:1258:C:C2 | 11:A:1259:G:C8 | 3.08 | 0.41 |
| 11:A:2691:C:H2' | 11:A:2692:C:H6 | 1.86 | 0.41 |
| 13:C:87:GLU:CG | 13:C:94:VAL:HG21 | 2.50 | 0.41 |
| 11:A:2120:G:O2' | 11:A:2121:G:H5' | 2.20 | 0.41 |
| 11:A:19:C:O2' | 11:A:20:C:H5' | 2.20 | 0.41 |
| 11:A:2701:C:H2' | 11:A:2702:U:H2' | 2.03 | 0.41 |
| 11:A:201:C:O2' | 11:A:202:U:H5' | 2.21 | 0.41 |
| 11:A:445:C:OP1 | 28:U:2:PRO:HA | 2.20 | 0.41 |
| 3:2:65:ASN:HA | 3:2:65:ASN:HD22 | 1.59 | 0.41 |
| 17:G:96:ARG:O | 17:G:97:ASP:C | 2.58 | 0.41 |
| 11:A:428:A:H3' | 11:A:429:A:H8 | 1.85 | 0.41 |
| 24:Q:48:GLU:O | 24:Q:49:ALA:C | 2.59 | 0.41 |
| 11:A:1345:C:O2' | 11:A:1346:G:H5' | 2.20 | 0.41 |
| 30:W:79:GLY:CA | 30:W:100:THR:HG23 | 2.51 | 0.41 |
| 11:A:2856:C:O2' | 11:A:2857:G:H5' | 2.20 | 0.41 |
| 27:T:28:VAL:HG12 | 27:T:29:ARG:CD | 2.45 | 0.41 |
| 11:A:558:G:H1' | 21:N:45:ASN:HB3 | 2.02 | 0.41 |
| 9:8:4:MET:O | 9:8:62:LEU:CD1 | 2.62 | 0.41 |
| 14:D:70:TRP:HZ3 | 14:D:146:GLU:CD | 2.24 | 0.41 |
| 26:S:58:LEU:HD23 | 26:S:65:VAL:HG13 | 2.02 | 0.41 |
| 11:A:1024:G:H3' | 11:A:1025:G:C5' | 2.29 | 0.41 |
| 18:H:163:TYR:N | 18:H:163:TYR:HD1 | 2.17 | 0.41 |
| 16:F:6:VAL:O | 16:F:7:TYR:HB2 | 2.20 | 0.41 |
| 11:A:940:G:H2' | 11:A:941:A:C4' | 2.50 | 0.41 |
| 27:T:6:LEU:HA | 27:T:9:LEU:HD12 | 2.03 | 0.41 |
| 11:A:2631:G:H21 | 15:E:61:ARG:HH12 | 1.68 | 0.41 |
| 11:A:2785:C:H1' | 15:E:64:LYS:NZ | 2.36 | 0.41 |
| 17:G:16:ARG:CZ | 17:G:31:VAL:HG11 | 2.51 | 0.41 |
| 18:H:125:VAL:HG12 | 18:H:125:VAL:O | 2.20 | 0.41 |
| 9:8:48:PHE:O | 9:8:49:VAL:CG2 | 2.69 | 0.41 |
| 11:A:2758:A:C2 | 11:A:2759:G:C1' | 3.02 | 0.41 |
| 11:A:2030:A:H5'' | 11:A:2031:A:OP1 | 2.20 | 0.41 |
| 11:A:319:C:O2' | 11:A:320:A:H5' | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 14:D:158:ALA:O | 14:D:196:VAL:HG11 | 2.20 | 0.41 |
| 11:A:797:C:H2' | 11:A:798:G:H8 | 1.86 | 0.41 |
| 11:A:402:A:C2' | 11:A:403:U:H5' | 2.50 | 0.41 |
| 1:0:20:ARG:CG | 1:0:20:ARG:NH1 | 2.79 | 0.41 |
| 11:A:742:G:H2' | 11:A:743:G:H8 | 1.86 | 0.41 |
| 17:G:18:GLU:HA | 17:G:18:GLU:OE1 | 2.21 | 0.41 |
| 11:A:2409:G:H2' | 11:A:2410:G:O4' | 2.20 | 0.41 |
| 15:E:93:VAL:O | 15:E:93:VAL:HG12 | 2.20 | 0.41 |
| 11:A:1171:G:H3' | 11:A:1173:G:O4' | 2.21 | 0.41 |
| 11:A:988:A:H4' | 11:A:1155:A:N1 | 2.36 | 0.41 |
| 12:B:98:G:C2' | 12:B:99:G:H5' | 2.51 | 0.41 |
| 11:A:2698:U:H2' | 11:A:2699:C:C6 | 2.56 | 0.41 |
| 21:N:7:LYS:O | 21:N:8:GLN:C | 2.59 | 0.41 |
| 27:T:32:TYR:HB2 | 27:T:33:LYS:H | 1.47 | 0.41 |
| 27:T:56:GLY:O | 27:T:57:PHE:C | 2.58 | 0.41 |
| 27:T:80:SER:HB3 | 27:T:81:PRO:CD | 2.39 | 0.41 |
| 18:H:154:PRO:O | 18:H:155:SER:HB2 | 2.20 | 0.41 |
| 7:6:36:LEU:CD2 | 7:6:36:LEU:C | 2.89 | 0.41 |
| 23:P:35:HIS:O | 23:P:36:LYS:CB | 2.68 | 0.41 |
| 23:P:46:LYS:HG2 | 23:P:52:GLU:CG | 2.50 | 0.41 |
| 11:A:2147:G:H2' | 11:A:2148:G:C4' | 2.51 | 0.41 |
| 11:A:2068:U:N3 | 11:A:2430:A:C2 | 2.66 | 0.41 |
| 11:A:271(G):C:O2' | 11:A:271(H):G:H5' | 2.21 | 0.41 |
| 11:A:142(A):C:C2' | 11:A:143:G:H5' | 2.51 | 0.41 |
| 21:N:30:ILE:O | 21:N:30:ILE:HG22 | 2.21 | 0.41 |
| 21:N:29:LYS:O | 21:N:31:ALA:N | 2.53 | 0.41 |
| 11:A:958:U:O4 | 24:Q:17:LEU:HG | 2.21 | 0.41 |
| 9:8:15:LYS:CB | 23:P:65:ARG:NH2 | 2.84 | 0.41 |
| 11:A:1076:C:H5 | 11:A:1077:A:C4 | 2.39 | 0.41 |
| 11:A:280:C:N4 | 11:A:360:G:H1 | 2.19 | 0.41 |
| 28:U:9:VAL:O | 28:U:12:ARG:HB2 | 2.20 | 0.41 |
| 25:R:7:GLY:O | 25:R:8:ARG:HB2 | 2.20 | 0.41 |
| 19:J:80:UNK:O | 19:J:81:UNK:C | 2.69 | 0.41 |
| 14:D:196:VAL:HG12 | 14:D:196:VAL:O | 2.21 | 0.41 |
| 11:A:380:U:H2' | 11:A:381:G:C8 | 2.55 | 0.41 |
| 17:G:106:LEU:O | 17:G:106:LEU:HG | 2.19 | 0.41 |
| 33:Z:145:GLU:O | 33:Z:147:GLY:N | 2.53 | 0.41 |
| 11:A:2319:G:O4' | 11:A:2319:G:P | 2.78 | 0.41 |
| 11:A:1997:G:O2' | 11:A:1998:G:H5' | 2.21 | 0.41 |
| 23:P:122:PRO:HB3 | 23:P:141:ALA:HB1 | 2.03 | 0.41 |
| 11:A:1472:A:H2' | 11:A:1473:G:H5' | 2.02 | 0.41 |
| 21:N:120:LEU:CD1 | 21:N:122:VAL:HG23 | 2.50 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|------------------|-------------|----------|
| 26:S:73:LEU:O | 26:S:73:LEU:HD23 | 2.21 | 0.41 |
| 2:1:17:SER:HB2 | 2:1:38:SER:HB2 | 2.03 | 0.41 |
| 11:A:394:A:C2' | 11:A:395:U:H5' | 2.50 | 0.41 |
| 13:C:97:GLU:O | 13:C:98:GLU:HB3 | 2.21 | 0.41 |
| 27:T:28:VAL:CG2 | 27:T:46:GLU:HA | 2.49 | 0.41 |
| 33:Z:48:PHE:CE1 | 33:Z:71:VAL:HG21 | 2.55 | 0.41 |
| 12:B:104:U:O3' | 33:Z:72:ARG:NH1 | 2.54 | 0.41 |
| 17:G:84:LYS:HD2 | 17:G:84:LYS:N | 2.29 | 0.41 |
| 11:A:2186:G:P | 11:A:2187:G:OP1 | 2.79 | 0.41 |
| 18:H:167:GLU:HB3 | 18:H:168:PRO:CD | 2.45 | 0.41 |
| 7:6:17:LYS:HA | 7:6:17:LYS:CE | 2.45 | 0.41 |
| 7:6:19:ARG:O | 7:6:20:ASN:O | 2.39 | 0.41 |
| 27:T:12:SER:O | 27:T:13:ARG:NH2 | 2.54 | 0.41 |
| 27:T:12:SER:O | 27:T:13:ARG:CZ | 2.69 | 0.41 |
| 32:Y:28:LYS:N | 32:Y:28:LYS:HE2 | 2.36 | 0.41 |
| 32:Y:76:CYS:CB | 32:Y:77:PRO:HD2 | 2.50 | 0.41 |
| 11:A:654(D):G:N1 | 11:A:654(O):G:N1 | 2.69 | 0.41 |
| 29:V:18:LEU:HD22 | 29:V:96:ILE:HG13 | 2.02 | 0.41 |
| 28:U:115:ALA:C | 28:U:117:GLN:H | 2.24 | 0.41 |
| 29:V:99:ILE:N | 29:V:99:ILE:CD1 | 2.73 | 0.41 |
| 26:S:30:ARG:NH2 | 26:S:62:LYS:HB3 | 2.34 | 0.41 |
| 11:A:593:G:C2 | 11:A:665:C:C2 | 3.09 | 0.41 |
| 11:A:1189:A:H2' | 11:A:1190:G:O4' | 2.21 | 0.41 |
| 11:A:664:C:H4' | 11:A:940:G:O3' | 2.21 | 0.41 |
| 11:A:806:C:C5 | 23:P:39:LYS:HE2 | 2.56 | 0.41 |
| 11:A:2282:G:OP1 | 11:A:2283:C:H1' | 2.20 | 0.41 |
| 17:G:125:PHE:HA | 17:G:131:TYR:HA | 2.03 | 0.41 |
| 26:S:15:ARG:O | 26:S:18:ILE:CG1 | 2.67 | 0.41 |
| 11:A:2415:G:H2' | 11:A:2416:C:H6 | 1.86 | 0.41 |
| 11:A:2157:G:O2' | 11:A:2158:A:H8 | 2.04 | 0.41 |
| 23:P:84:ASN:CG | 23:P:116:GLY:HA2 | 2.41 | 0.41 |
| 11:A:2465:C:O2' | 11:A:2466:C:H5' | 2.21 | 0.41 |
| 6:5:20:ARG:O | 6:5:23:HIS:HB2 | 2.21 | 0.41 |
| 28:U:92:ARG:CB | 29:V:11:GLN:NE2 | 2.84 | 0.41 |
| 13:C:77:ILE:HB | 13:C:115:ALA:HB2 | 2.02 | 0.41 |
| 11:A:1101:U:O2' | 11:A:1102:C:H5' | 2.21 | 0.41 |
| 24:Q:52:VAL:O | 24:Q:53:ALA:C | 2.59 | 0.41 |
| 12:B:95:C:C4 | 12:B:96:U:C5 | 3.09 | 0.41 |
| 9:8:48:PHE:C | 9:8:49:VAL:CG2 | 2.88 | 0.41 |
| 18:H:28:GLY:HA3 | 18:H:79:VAL:CG2 | 2.50 | 0.41 |
| 14:D:17:THR:O | 14:D:211:ARG:NH2 | 2.54 | 0.41 |
| 28:U:10:ARG:C | 28:U:12:ARG:N | 2.74 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 11:A:1332:G:H4' | 11:A:1333:C:OP2 | 2.21 | 0.41 |
| 28:U:68:ALA:O | 28:U:71:GLN:HG2 | 2.21 | 0.41 |
| 11:A:2823:A:OP1 | 15:E:113:PHE:HB2 | 2.21 | 0.41 |
| 11:A:289:A:H2' | 11:A:290:G:C8 | 2.55 | 0.41 |
| 3:2:38:GLN:HE21 | 3:2:41:ILE:CD1 | 2.34 | 0.41 |
| 11:A:1286:A:N6 | 11:A:1289:C:C2 | 2.89 | 0.41 |
| 11:A:1263:U:C4 | 11:A:1264:G:C6 | 3.09 | 0.41 |
| 27:T:109:GLU:HG2 | 27:T:112:ARG:CZ | 2.51 | 0.41 |
| 22:O:22:ILE:HD13 | 22:O:22:ILE:HA | 1.79 | 0.41 |
| 10:9:1:MET:HE2 | 11:A:2478:A:OP2 | 2.20 | 0.41 |
| 19:J:93:UNK:O | 19:J:97:UNK:N | 2.53 | 0.41 |
| 11:A:118:A:C8 | 11:A:119:A:C8 | 3.08 | 0.41 |
| 11:A:1509(B):A:H2' | 11:A:1510:G:O4' | 2.21 | 0.41 |
| 23:P:93:GLY:O | 23:P:123:LEU:HD12 | 2.21 | 0.41 |
| 11:A:953:A:N1 | 11:A:964:C:O2 | 2.54 | 0.41 |
| 11:A:2492:U:H2' | 11:A:2493:U:C6 | 2.56 | 0.41 |
| 11:A:2012:G:H4' | 30:W:96:ILE:HD11 | 2.03 | 0.41 |
| 11:A:1416:G:HO2' | 11:A:1417:C:H5 | 1.66 | 0.41 |
| 17:G:136:ARG:CG | 17:G:136:ARG:HH11 | 2.34 | 0.41 |
| 17:G:115:ARG:HH22 | 17:G:136:ARG:HB2 | 1.86 | 0.41 |
| 11:A:2033:A:H4' | 11:A:2034:U:OP1 | 2.20 | 0.41 |
| 11:A:918:A:H4' | 12:B:98:G:N3 | 2.36 | 0.41 |
| 11:A:343:C:O2' | 11:A:344:G:H5' | 2.21 | 0.41 |
| 11:A:1526:G:C6 | 11:A:1527:G:C2 | 3.09 | 0.41 |
| 11:A:2192:G:H2' | 11:A:2192:G:N3 | 2.35 | 0.41 |
| 11:A:313:C:O2' | 11:A:314:A:H5' | 2.21 | 0.41 |
| 11:A:738:G:C6 | 11:A:739:G:C2 | 3.08 | 0.41 |
| 11:A:2766:G:N3 | 11:A:2766:G:H2' | 2.36 | 0.41 |
| 13:C:200:LYS:HE3 | 13:C:208:PHE:HB2 | 2.03 | 0.41 |
| 11:A:346:A:H2' | 11:A:347:A:H5' | 2.03 | 0.41 |
| 11:A:272:G:H1 | 11:A:404:C:H42 | 1.69 | 0.41 |
| 11:A:2796:U:OP1 | 11:A:2799:C:H5 | 2.04 | 0.41 |
| 14:D:35:LYS:O | 14:D:36:PRO:C | 2.59 | 0.41 |
| 17:G:90:LEU:HA | 17:G:90:LEU:HD12 | 1.86 | 0.41 |
| 26:S:58:LEU:CG | 26:S:59:LYS:N | 2.84 | 0.41 |
| 7:6:14:THR:HB | 7:6:52:VAL:HG21 | 2.02 | 0.41 |
| 26:S:67:ARG:HE | 26:S:98:VAL:HG11 | 1.86 | 0.41 |
| 23:P:110:TYR:O | 23:P:111:ARG:O | 2.38 | 0.41 |
| 23:P:96:THR:HG22 | 23:P:126:VAL:CB | 2.48 | 0.41 |
| 11:A:654(S):G:N7 | 11:A:654(T):C:O2 | 2.54 | 0.41 |
| 11:A:691:C:H1' | 14:D:43:ARG:NH1 | 2.35 | 0.41 |
| 11:A:806:C:O2' | 11:A:2445:G:H4' | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 25:R:45:ARG:CG | 25:R:46:GLY:N | 2.80 | 0.41 |
| 31:X:10:ALA:O | 31:X:28:PHE:CB | 2.63 | 0.41 |
| 17:G:25:TYR:CE2 | 17:G:31:VAL:HG23 | 2.55 | 0.41 |
| 17:G:5:VAL:HG12 | 17:G:6:ALA:N | 2.36 | 0.41 |
| 11:A:2533:A:C2' | 11:A:2534:A:H5' | 2.51 | 0.41 |
| 11:A:1558:A:O2' | 11:A:1559:G:OP2 | 2.34 | 0.41 |
| 33:Z:62:PRO:C | 33:Z:64:GLY:H | 2.23 | 0.41 |
| 26:S:34:HIS:HB2 | 26:S:36:TYR:CE1 | 2.54 | 0.41 |
| 33:Z:140:ASP:O | 33:Z:141:VAL:HG22 | 2.20 | 0.41 |
| 25:R:117:VAL:HG22 | 25:R:118:GLU:N | 2.36 | 0.41 |
| 11:A:284:U:H2' | 11:A:285:C:H6 | 1.81 | 0.41 |
| 11:A:1409:C:O2' | 11:A:1410:G:H5' | 2.21 | 0.41 |
| 12:B:115:G:O4' | 26:S:47:THR:HB | 2.21 | 0.41 |
| 13:C:149:ILE:O | 13:C:153:ILE:HG13 | 2.21 | 0.41 |
| 11:A:1534:U:O2' | 11:A:1535:A:H5' | 2.21 | 0.41 |
| 4:3:16:PRO:HB2 | 4:3:19:GLN:HG3 | 2.02 | 0.41 |
| 11:A:2206:G:H21 | 11:A:2207:G:H5' | 1.77 | 0.41 |
| 10:9:32:HIS:O | 10:9:33:LYS:C | 2.59 | 0.41 |
| 11:A:2154:G:N2 | 11:A:2155:G:H1' | 2.36 | 0.41 |
| 19:J:129:UNK:C | 19:J:131:UNK:H | 2.34 | 0.41 |
| 33:Z:109:ALA:HB1 | 33:Z:145:GLU:OE1 | 2.19 | 0.41 |
| 11:A:2750:A:H5'' | 11:A:2751:G:OP2 | 2.22 | 0.41 |
| 29:V:67:GLY:O | 29:V:88:ARG:HD2 | 2.21 | 0.41 |
| 3:2:12:GLU:O | 3:2:16:LEU:HG | 2.20 | 0.41 |
| 11:A:869:G:O2' | 11:A:870:A:H5' | 2.21 | 0.41 |
| 11:A:82:G:H8 | 11:A:82:G:OP2 | 2.04 | 0.41 |
| 11:A:269:U:H2' | 11:A:269:U:O2 | 2.20 | 0.41 |
| 13:C:78:ALA:CB | 13:C:116:THR:HG23 | 2.51 | 0.40 |
| 27:T:19:LEU:HD13 | 27:T:78:LEU:HD23 | 2.02 | 0.40 |
| 7:6:11:LEU:HD13 | 7:6:24:GLU:O | 2.21 | 0.40 |
| 33:Z:98:MET:CG | 33:Z:99:TYR:H | 2.33 | 0.40 |
| 1:0:10:THR:HG21 | 11:A:2277:G:OP2 | 2.21 | 0.40 |
| 32:Y:26:LYS:HG2 | 32:Y:27:VAL:N | 2.25 | 0.40 |
| 32:Y:81:LYS:HD3 | 32:Y:97:ARG:NE | 2.35 | 0.40 |
| 29:V:15:GLU:O | 29:V:16:PRO:C | 2.60 | 0.40 |
| 29:V:19:LYS:CE | 29:V:20:LEU:H | 2.34 | 0.40 |
| 11:A:2309:A:C2' | 11:A:2310:A:H5'' | 2.51 | 0.40 |
| 11:A:2309:A:C2' | 11:A:2310:A:C5' | 2.98 | 0.40 |
| 21:N:97:ARG:O | 21:N:98:VAL:C | 2.59 | 0.40 |
| 1:0:50:ASN:HD22 | 1:0:63:VAL:HG22 | 1.82 | 0.40 |
| 11:A:259:G:H1' | 11:A:621:A:HO2' | 1.84 | 0.40 |
| 11:A:637:A:C6 | 11:A:652:C:H4' | 2.56 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 14:D:76:PRO:HG2 | 14:D:98:VAL:HG23 | 2.00 | 0.40 |
| 27:T:26:ASP:O | 27:T:26:ASP:OD1 | 2.39 | 0.40 |
| 33:Z:126:VAL:HB | 33:Z:161:VAL:HG13 | 2.03 | 0.40 |
| 21:N:57:ALA:C | 21:N:58:ASP:O | 2.59 | 0.40 |
| 25:R:57:ARG:O | 25:R:58:GLY:C | 2.58 | 0.40 |
| 31:X:83:VAL:HG12 | 31:X:87:GLN:HB2 | 2.03 | 0.40 |
| 28:U:70:ARG:NH2 | 28:U:75:ASN:HB2 | 2.36 | 0.40 |
| 11:A:2873:A:O4' | 25:R:8:ARG:NH2 | 2.54 | 0.40 |
| 21:N:1:MET:HE1 | 21:N:3:THR:OG1 | 2.21 | 0.40 |
| 27:T:35:LYS:NZ | 27:T:41:ARG:CD | 2.83 | 0.40 |
| 11:A:191:A:H2' | 11:A:192:C:H6 | 1.83 | 0.40 |
| 4:3:52:HIS:H | 4:3:52:HIS:CD2 | 2.38 | 0.40 |
| 15:E:24:THR:HG23 | 15:E:184:VAL:HG22 | 2.02 | 0.40 |
| 24:Q:21:THR:O | 24:Q:22:LYS:CB | 2.66 | 0.40 |
| 20:K:86:UNK:O | 20:K:87:UNK:CB | 2.69 | 0.40 |
| 11:A:2692:C:O2 | 11:A:2847:U:O2' | 2.39 | 0.40 |
| 11:A:1131:G:N7 | 21:N:75:TYR:CD2 | 2.90 | 0.40 |
| 29:V:69:LYS:HB2 | 29:V:88:ARG:HD3 | 2.03 | 0.40 |
| 24:Q:64:ILE:CG2 | 24:Q:65:PHE:N | 2.84 | 0.40 |
| 11:A:751:A:C6 | 11:A:789:A:C5 | 3.09 | 0.40 |
| 17:G:135:LEU:O | 17:G:154:GLY:HA3 | 2.21 | 0.40 |
| 13:C:119:VAL:HG13 | 13:C:120:MET:CE | 2.51 | 0.40 |
| 16:F:18:ARG:HG2 | 16:F:19:GLU:N | 2.36 | 0.40 |
| 17:G:46:ALA:CB | 17:G:88:ILE:CG1 | 2.98 | 0.40 |
| 11:A:2107:C:H1' | 11:A:2182:G:H22 | 1.86 | 0.40 |
| 7:6:15:GLU:HG2 | 7:6:15:GLU:O | 2.21 | 0.40 |
| 11:A:1142:U:H5'' | 11:A:1142(A):A:C5' | 2.51 | 0.40 |
| 9:8:32:LEU:CG | 9:8:36:LYS:HZ3 | 2.32 | 0.40 |
| 16:F:196:LEU:HD23 | 16:F:196:LEU:HA | 1.90 | 0.40 |
| 11:A:605:C:O4' | 11:A:605:C:O2 | 2.38 | 0.40 |
| 26:S:16:ASN:C | 26:S:18:ILE:N | 2.75 | 0.40 |
| 11:A:860:U:O2' | 11:A:861:A:H5' | 2.21 | 0.40 |
| 11:A:861:A:H2' | 11:A:862:G:O4' | 2.21 | 0.40 |
| 6:5:16:ARG:O | 6:5:19:ARG:HB3 | 2.22 | 0.40 |
| 11:A:271(H):G:O2' | 11:A:271(I):G:H8 | 2.05 | 0.40 |
| 2:1:64:ALA:HA | 2:1:67:ILE:HG13 | 2.02 | 0.40 |
| 17:G:10:LYS:O | 17:G:14:GLU:HB2 | 2.21 | 0.40 |
| 11:A:271(Q):G:N3 | 11:A:271(R):G:N7 | 2.69 | 0.40 |
| 2:1:58:ILE:HG13 | 2:1:59:THR:N | 2.35 | 0.40 |
| 12:B:79:C:H2' | 12:B:80:U:O4' | 2.22 | 0.40 |
| 29:V:38:LEU:H | 29:V:51:VAL:HG13 | 1.86 | 0.40 |
| 29:V:47:VAL:HG12 | 29:V:52:VAL:CB | 2.47 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 11:A:2685:G:O2' | 11:A:2726:U:H5 | 2.03 | 0.40 |
| 18:H:89:ILE:HD11 | 18:H:128:PRO:O | 2.20 | 0.40 |
| 11:A:723:G:C6 | 11:A:724:U:C4 | 3.09 | 0.40 |
| 11:A:1169:G:N2 | 11:A:1181:C:C2 | 2.89 | 0.40 |
| 12:B:13:A:H2' | 12:B:14:U:H5'' | 2.02 | 0.40 |
| 11:A:1480:G:C2' | 11:A:1481:U:H5' | 2.46 | 0.40 |
| 11:A:2206:G:N2 | 11:A:2207:G:C4' | 2.83 | 0.40 |
| 5:4:5:ILE:N | 5:4:5:ILE:CD1 | 2.83 | 0.40 |
| 11:A:2453:A:O2' | 11:A:2454:G:H5' | 2.21 | 0.40 |
| 11:A:346:A:C2' | 11:A:347:A:H5' | 2.52 | 0.40 |
| 11:A:1692:U:H2' | 11:A:1694:C:C5 | 2.56 | 0.40 |
| 11:A:2345:G:N3 | 11:A:2381:C:H2' | 2.36 | 0.40 |
| 5:4:16:CYS:SG | 5:4:36:CYS:SG | 3.13 | 0.40 |
| 13:C:125:SER:C | 13:C:127:LEU:H | 2.25 | 0.40 |
| 15:E:76:ARG:O | 15:E:77:ILE:O | 2.39 | 0.40 |
| 31:X:27:THR:HG23 | 31:X:80:ILE:CB | 2.39 | 0.40 |
| 7:6:30:THR:HG22 | 7:6:31:PRO:HD2 | 2.04 | 0.40 |
| 11:A:654(L):G:H3' | 11:A:654(L):G:N3 | 2.37 | 0.40 |
| 18:H:46:GLU:O | 18:H:48:GLY:N | 2.54 | 0.40 |
| 11:A:653:A:N3 | 11:A:653:A:H2' | 2.37 | 0.40 |
| 24:Q:27:VAL:HG23 | 24:Q:137:TYR:CE2 | 2.56 | 0.40 |
| 10:9:34:GLN:HB3 | 10:9:35:ARG:H | 1.71 | 0.40 |
| 18:H:115:VAL:O | 18:H:117:PRO:HD3 | 2.22 | 0.40 |
| 11:A:2533:A:O2' | 11:A:2534:A:H5' | 2.22 | 0.40 |
| 27:T:34:VAL:HG22 | 27:T:39:ARG:HA | 2.03 | 0.40 |
| 11:A:896:A:C8 | 33:Z:146:ILE:HD12 | 2.56 | 0.40 |
| 14:D:57:GLY:O | 14:D:58:HIS:C | 2.59 | 0.40 |
| 11:A:2712:U:C1' | 11:A:2712(A):A:C8 | 3.01 | 0.40 |
| 28:U:8:VAL:CG1 | 28:U:12:ARG:HE | 2.34 | 0.40 |
| 11:A:1639:U:H2' | 11:A:1640:C:C5' | 2.47 | 0.40 |
| 11:A:2127:G:H4' | 13:C:37:PHE:CD1 | 2.56 | 0.40 |
| 11:A:1222:C:H2' | 11:A:1223:G:H5'' | 2.03 | 0.40 |
| 12:B:15:A:H1' | 12:B:110:G:C5 | 2.56 | 0.40 |
| 11:A:1006:C:C2 | 11:A:1138:G:N2 | 2.90 | 0.40 |
| 28:U:35:ALA:O | 28:U:36:ARG:C | 2.60 | 0.40 |
| 24:Q:42:ILE:HG22 | 24:Q:47:ILE:HG13 | 2.03 | 0.40 |
| 11:A:1131:G:O2' | 11:A:1132:A:H8 | 2.03 | 0.40 |
| 4:3:46:ASN:O | 4:3:50:VAL:HG22 | 2.20 | 0.40 |
| 30:W:55:ALA:O | 30:W:57:ASN:N | 2.54 | 0.40 |
| 11:A:115:C:O2' | 11:A:116:C:H5' | 2.22 | 0.40 |
| 11:A:1319:G:C6 | 11:A:1320:C:N4 | 2.89 | 0.40 |
| 11:A:2243:U:H2' | 11:A:2244:U:C6 | 2.56 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 19:J:70:UNK:O | 19:J:71:UNK:C | 2.69 | 0.40 |
| 16:F:183:VAL:HG23 | 16:F:183:VAL:O | 2.22 | 0.40 |
| 27:T:7:ILE:O | 27:T:10:VAL:HB | 2.21 | 0.40 |
| 32:Y:28:LYS:H | 32:Y:28:LYS:HE3 | 1.86 | 0.40 |
| 16:F:28:ILE:HG12 | 16:F:28:ILE:O | 2.22 | 0.40 |
| 30:W:47:VAL:O | 30:W:51:LEU:HB2 | 2.22 | 0.40 |
| 28:U:109:LEU:HA | 28:U:109:LEU:HD23 | 1.84 | 0.40 |
| 28:U:83:LEU:HD12 | 28:U:83:LEU:N | 2.37 | 0.40 |
| 11:A:2245:U:C5' | 11:A:2246:G:H5' | 2.43 | 0.40 |
| 3:2:68:ARG:NH1 | 3:2:68:ARG:HG3 | 2.36 | 0.40 |
| 11:A:140:G:C1' | 11:A:141:A:H2 | 2.33 | 0.40 |
| 33:Z:166:SER:H | 33:Z:167:PRO:CA | 2.32 | 0.40 |
| 12:B:80:U:O2' | 12:B:81:G:H5'' | 2.22 | 0.40 |
| 33:Z:61:LEU:HA | 33:Z:62:PRO:HD3 | 1.90 | 0.40 |
| 11:A:1599:C:OP2 | 31:X:36:LYS:HD2 | 2.20 | 0.40 |
| 11:A:2758:A:O2' | 11:A:2759:G:P | 2.79 | 0.40 |
| 32:Y:67:LEU:HD23 | 32:Y:68:HIS:N | 2.36 | 0.40 |
| 11:A:2291:U:H2' | 11:A:2292:C:H6 | 1.80 | 0.40 |
| 11:A:2472:G:H2' | 11:A:2475:C:H42 | 1.86 | 0.40 |
| 25:R:105:ARG:HE | 25:R:105:ARG:H | 1.69 | 0.40 |
| 21:N:26:LEU:C | 21:N:26:LEU:HD12 | 2.41 | 0.40 |
| 1:0:72:ARG:O | 1:0:73:GLY:C | 2.59 | 0.40 |
| 15:E:120:TRP:CG | 15:E:155:LYS:HB3 | 2.57 | 0.40 |
| 11:A:529:A:H4' | 11:A:530:G:O5' | 2.21 | 0.40 |
| 24:Q:5:ARG:CB | 24:Q:5:ARG:NH1 | 2.84 | 0.40 |
| 11:A:2688:U:H2' | 11:A:2719:G:N2 | 2.35 | 0.40 |
| 11:A:2694:G:O2' | 11:A:2695:C:H5' | 2.22 | 0.40 |
| 2:1:52:ARG:NH2 | 11:A:2218:U:C4' | 2.85 | 0.40 |
| 11:A:2364:C:O2' | 11:A:2365:G:H5' | 2.21 | 0.40 |
| 11:A:743:G:O2' | 11:A:744:G:H5' | 2.21 | 0.40 |
| 15:E:93:VAL:HG12 | 15:E:175:VAL:CG2 | 2.52 | 0.40 |
| 11:A:2461:C:H2' | 11:A:2462:U:H6 | 1.85 | 0.40 |
| 3:2:56:GLN:C | 3:2:58:ALA:N | 2.75 | 0.40 |
| 18:H:37:VAL:HG11 | 18:H:68:THR:HG21 | 2.03 | 0.40 |
| 11:A:1668:A:H4' | 11:A:1669:A:O5' | 2.21 | 0.40 |
| 2:1:14:VAL:HG11 | 2:1:39:LYS:HE2 | 2.02 | 0.40 |
| 27:T:133:GLU:O | 27:T:133:GLU:HG2 | 2.21 | 0.40 |
| 11:A:1661:G:H2' | 11:A:1662:C:H6 | 1.86 | 0.40 |
| 16:F:37:VAL:CG1 | 16:F:41:LEU:HD12 | 2.51 | 0.40 |
| 17:G:82:LEU:HD22 | 17:G:87:PRO:CA | 2.52 | 0.40 |
| 11:A:2370:G:C6 | 11:A:2371:G:C6 | 3.09 | 0.40 |
| 11:A:1140:C:H5'' | 21:N:66:LYS:NZ | 2.37 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 16:F:160:ASN:HD21 | 16:F:162:LEU:H | 1.61 | 0.40 |
| 18:H:19:VAL:O | 18:H:20:ALA:CB | 2.70 | 0.40 |
| 33:Z:81:ARG:HH11 | 33:Z:81:ARG:HB3 | 1.85 | 0.40 |
| 11:A:1108:U:H5' | 11:A:1109:C:OP2 | 2.22 | 0.40 |
| 6:5:23:HIS:O | 6:5:24:ALA:C | 2.60 | 0.40 |
| 18:H:97:ARG:NH2 | 18:H:104:GLU:OE2 | 2.54 | 0.40 |
| 15:E:59:VAL:HG21 | 15:E:63:LEU:HA | 2.01 | 0.40 |
| 11:A:1058:G:C8 | 11:A:1059:G:H5' | 2.57 | 0.40 |
| 27:T:93:ARG:HH22 | 27:T:95:ARG:HD3 | 1.82 | 0.40 |
| 14:D:270:ILE:HG13 | 14:D:270:ILE:H | 1.79 | 0.40 |
| 18:H:24:VAL:HG11 | 18:H:72:ILE:HD12 | 2.03 | 0.40 |
| 11:A:2126:A:HO2' | 11:A:2127:G:P | 2.44 | 0.40 |
| 13:C:150:GLY:C | 13:C:154:ARG:NH1 | 2.74 | 0.40 |
| 11:A:1353:A:H2' | 11:A:1354:A:C8 | 2.56 | 0.40 |
| 13:C:40:THR:HG22 | 13:C:177:LYS:NZ | 2.36 | 0.40 |
| 11:A:954:G:N3 | 11:A:2274:A:C2 | 2.89 | 0.40 |
| 11:A:1258:C:O2' | 11:A:1259:G:H5' | 2.22 | 0.40 |
| 2:1:52:ARG:O | 2:1:53:VAL:O | 2.40 | 0.40 |
| 22:O:2:ILE:HG13 | 22:O:8:LEU:HD21 | 2.04 | 0.40 |
| 11:A:648:G:O2' | 11:A:649:G:H5' | 2.20 | 0.40 |
| 15:E:98:PRO:HD3 | 15:E:175:VAL:CG1 | 2.52 | 0.40 |
| 1:0:26:TYR:O | 1:0:29:GLN:HG3 | 2.21 | 0.40 |
| 22:O:31:LYS:HB3 | 22:O:32:TYR:CD1 | 2.56 | 0.40 |
| 11:A:1429:G:H2' | 11:A:1430:C:C6 | 2.56 | 0.40 |
| 22:O:49:ARG:H | 22:O:49:ARG:HD3 | 1.86 | 0.40 |
| 25:R:12:ARG:HH11 | 25:R:12:ARG:CG | 2.34 | 0.40 |
| 11:A:515:A:C8 | 11:A:516:C:C5 | 3.10 | 0.40 |
| 18:H:119:GLU:N | 18:H:119:GLU:OE1 | 2.53 | 0.40 |
| 3:2:25:VAL:O | 3:2:28:LYS:HB2 | 2.21 | 0.40 |
| 11:A:350:U:N3 | 11:A:351:G:C2 | 2.89 | 0.40 |
| 11:A:350:U:O2' | 11:A:351:G:H5' | 2.21 | 0.40 |
| 11:A:556:G:H2' | 11:A:557:U:C6 | 2.57 | 0.40 |
| 11:A:531:C:N3 | 11:A:563:G:C8 | 2.90 | 0.40 |

There are no symmetry-related clashes.

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 | |
|-----|-------|-----------------|------------|-----------|-----------|-------------|----|
| 1 | 0 | 82/85 (96%) | 69 (84%) | 10 (12%) | 3 (4%) | 5 | 31 |
| 2 | 1 | 91/98 (93%) | 71 (78%) | 14 (15%) | 6 (7%) | 2 | 15 |
| 3 | 2 | 69/72 (96%) | 44 (64%) | 18 (26%) | 7 (10%) | 1 | 6 |
| 4 | 3 | 57/60 (95%) | 47 (82%) | 5 (9%) | 5 (9%) | 1 | 8 |
| 5 | 4 | 42/71 (59%) | 20 (48%) | 17 (40%) | 5 (12%) | 1 | 4 |
| 6 | 5 | 57/60 (95%) | 39 (68%) | 8 (14%) | 10 (18%) | 0 | 0 |
| 7 | 6 | 48/54 (89%) | 24 (50%) | 8 (17%) | 16 (33%) | 0 | 0 |
| 8 | 7 | 46/49 (94%) | 42 (91%) | 3 (6%) | 1 (2%) | 10 | 46 |
| 9 | 8 | 61/65 (94%) | 34 (56%) | 21 (34%) | 6 (10%) | 1 | 6 |
| 10 | 9 | 35/37 (95%) | 24 (69%) | 8 (23%) | 3 (9%) | 1 | 9 |
| 13 | C | 226/229 (99%) | 171 (76%) | 43 (19%) | 12 (5%) | 3 | 21 |
| 14 | D | 273/276 (99%) | 217 (80%) | 31 (11%) | 25 (9%) | 1 | 7 |
| 15 | E | 202/206 (98%) | 134 (66%) | 39 (19%) | 29 (14%) | 0 | 2 |
| 16 | F | 205/210 (98%) | 149 (73%) | 34 (17%) | 22 (11%) | 1 | 5 |
| 17 | G | 179/182 (98%) | 119 (66%) | 31 (17%) | 29 (16%) | 0 | 0 |
| 18 | H | 157/180 (87%) | 94 (60%) | 33 (21%) | 30 (19%) | 0 | 0 |
| 21 | N | 136/140 (97%) | 93 (68%) | 20 (15%) | 23 (17%) | 0 | 0 |
| 22 | O | 120/122 (98%) | 106 (88%) | 8 (7%) | 6 (5%) | 3 | 22 |
| 23 | P | 144/150 (96%) | 77 (54%) | 37 (26%) | 30 (21%) | 0 | 0 |
| 24 | Q | 139/141 (99%) | 114 (82%) | 20 (14%) | 5 (4%) | 5 | 31 |
| 25 | R | 115/118 (98%) | 83 (72%) | 17 (15%) | 15 (13%) | 0 | 3 |
| 26 | S | 96/112 (86%) | 49 (51%) | 23 (24%) | 24 (25%) | 0 | 0 |
| 27 | T | 135/146 (92%) | 82 (61%) | 30 (22%) | 23 (17%) | 0 | 0 |
| 28 | U | 115/118 (98%) | 83 (72%) | 25 (22%) | 7 (6%) | 2 | 16 |
| 29 | V | 99/101 (98%) | 62 (63%) | 22 (22%) | 15 (15%) | 0 | 1 |
| 30 | W | 111/113 (98%) | 85 (77%) | 14 (13%) | 12 (11%) | 1 | 5 |
| 31 | X | 90/96 (94%) | 65 (72%) | 19 (21%) | 6 (7%) | 2 | 14 |
| 32 | Y | 98/110 (89%) | 43 (44%) | 29 (30%) | 26 (26%) | 0 | 0 |
| 33 | Z | 174/206 (84%) | 109 (63%) | 47 (27%) | 18 (10%) | 1 | 6 |
| All | All | 3402/3607 (94%) | 2349 (69%) | 634 (19%) | 419 (12%) | 1 | 3 |

All (419) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 0 | 75 | LEU |
| 2 | 1 | 30 | VAL |
| 2 | 1 | 83 | GLU |
| 2 | 1 | 85 | LEU |
| 3 | 2 | 11 | GLU |
| 3 | 2 | 47 | ASN |
| 3 | 2 | 48 | HIS |
| 3 | 2 | 70 | GLN |
| 5 | 4 | 26 | SER |
| 5 | 4 | 43 | TYR |
| 6 | 5 | 4 | HIS |
| 6 | 5 | 24 | ALA |
| 6 | 5 | 25 | LEU |
| 6 | 5 | 37 | LYS |
| 6 | 5 | 49 | CYS |
| 6 | 5 | 52 | TYR |
| 6 | 5 | 57 | VAL |
| 7 | 6 | 6 | ARG |
| 7 | 6 | 16 | CYS |
| 7 | 6 | 18 | ARG |
| 7 | 6 | 20 | ASN |
| 7 | 6 | 23 | THR |
| 7 | 6 | 28 | ARG |
| 7 | 6 | 31 | PRO |
| 7 | 6 | 33 | LYS |
| 7 | 6 | 49 | HIS |
| 9 | 8 | 29 | LYS |
| 9 | 8 | 34 | TRP |
| 9 | 8 | 43 | GLN |
| 9 | 8 | 49 | VAL |
| 10 | 9 | 35 | ARG |
| 10 | 9 | 36 | GLN |
| 13 | C | 98 | GLU |
| 14 | D | 25 | THR |
| 14 | D | 34 | VAL |
| 14 | D | 35 | LYS |
| 14 | D | 224 | ALA |
| 14 | D | 239 | ARG |
| 14 | D | 245 | PRO |
| 14 | D | 246 | PRO |
| 14 | D | 273 | ARG |
| 14 | D | 275 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 15 | E | 2 | LYS |
| 15 | E | 4 | ILE |
| 15 | E | 66 | HIS |
| 15 | E | 69 | LYS |
| 15 | E | 75 | VAL |
| 15 | E | 76 | ARG |
| 15 | E | 82 | ARG |
| 15 | E | 185 | LYS |
| 15 | E | 186 | GLY |
| 15 | E | 189 | PRO |
| 16 | F | 10 | PRO |
| 16 | F | 14 | PRO |
| 16 | F | 21 | ALA |
| 16 | F | 26 | ALA |
| 16 | F | 86 | GLY |
| 16 | F | 88 | VAL |
| 16 | F | 89 | VAL |
| 16 | F | 134 | GLY |
| 17 | G | 11 | TYR |
| 17 | G | 28 | VAL |
| 17 | G | 68 | PRO |
| 17 | G | 81 | LYS |
| 17 | G | 82 | LEU |
| 17 | G | 84 | LYS |
| 17 | G | 86 | MET |
| 17 | G | 114 | ILE |
| 17 | G | 115 | ARG |
| 17 | G | 117 | PHE |
| 17 | G | 126 | ASP |
| 17 | G | 129 | GLY |
| 18 | H | 24 | VAL |
| 18 | H | 46 | GLU |
| 18 | H | 55 | PRO |
| 18 | H | 81 | GLU |
| 18 | H | 84 | SER |
| 18 | H | 127 | GLU |
| 18 | H | 137 | ASP |
| 18 | H | 138 | LYS |
| 18 | H | 158 | HIS |
| 18 | H | 165 | ALA |
| 21 | N | 19 | GLU |
| 21 | N | 76 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21 | N | 130 | HIS |
| 22 | O | 29 | ASN |
| 22 | O | 48 | PRO |
| 22 | O | 68 | GLU |
| 23 | P | 11 | GLY |
| 23 | P | 13 | ASN |
| 23 | P | 17 | LYS |
| 23 | P | 21 | ARG |
| 23 | P | 47 | ASP |
| 23 | P | 57 | THR |
| 23 | P | 58 | THR |
| 23 | P | 61 | ARG |
| 23 | P | 67 | MET |
| 23 | P | 110 | TYR |
| 23 | P | 111 | ARG |
| 23 | P | 147 | LEU |
| 24 | Q | 25 | ASP |
| 25 | R | 4 | LEU |
| 25 | R | 8 | ARG |
| 25 | R | 9 | LYS |
| 25 | R | 11 | ASN |
| 25 | R | 45 | ARG |
| 25 | R | 88 | ARG |
| 25 | R | 103 | ARG |
| 25 | R | 104 | ARG |
| 25 | R | 117 | VAL |
| 26 | S | 23 | ARG |
| 26 | S | 57 | LYS |
| 26 | S | 59 | LYS |
| 26 | S | 76 | LYS |
| 26 | S | 92 | TYR |
| 26 | S | 93 | LYS |
| 26 | S | 94 | TYR |
| 26 | S | 97 | ARG |
| 26 | S | 98 | VAL |
| 26 | S | 103 | GLU |
| 27 | T | 2 | ASN |
| 27 | T | 24 | PRO |
| 27 | T | 27 | THR |
| 27 | T | 28 | VAL |
| 27 | T | 30 | VAL |
| 27 | T | 32 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27 | T | 80 | SER |
| 27 | T | 91 | ARG |
| 27 | T | 95 | ARG |
| 27 | T | 107 | ASP |
| 28 | U | 91 | ASP |
| 28 | U | 93 | LYS |
| 29 | V | 16 | PRO |
| 29 | V | 22 | VAL |
| 29 | V | 46 | VAL |
| 29 | V | 79 | VAL |
| 30 | W | 6 | ILE |
| 30 | W | 63 | ASP |
| 30 | W | 110 | LYS |
| 31 | X | 12 | VAL |
| 31 | X | 41 | ASN |
| 32 | Y | 23 | ARG |
| 32 | Y | 42 | VAL |
| 32 | Y | 50 | ARG |
| 32 | Y | 56 | PRO |
| 32 | Y | 57 | GLN |
| 32 | Y | 61 | ILE |
| 32 | Y | 63 | LYS |
| 32 | Y | 74 | PRO |
| 32 | Y | 75 | ILE |
| 32 | Y | 77 | PRO |
| 32 | Y | 78 | ALA |
| 32 | Y | 82 | PRO |
| 32 | Y | 90 | LEU |
| 33 | Z | 14 | LYS |
| 33 | Z | 124 | ILE |
| 33 | Z | 163 | LEU |
| 33 | Z | 168 | GLU |
| 1 | 0 | 13 | GLY |
| 1 | 0 | 74 | ARG |
| 2 | 1 | 28 | GLY |
| 2 | 1 | 53 | VAL |
| 2 | 1 | 91 | LYS |
| 4 | 3 | 30 | ARG |
| 5 | 4 | 44 | THR |
| 6 | 5 | 51 | TYR |
| 7 | 6 | 9 | LEU |
| 7 | 6 | 17 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | 6 | 44 | ARG |
| 8 | 7 | 17 | GLY |
| 9 | 8 | 31 | HIS |
| 9 | 8 | 33 | ASN |
| 10 | 9 | 11 | CYS |
| 13 | C | 67 | GLY |
| 13 | C | 118 | ASP |
| 13 | C | 128 | GLY |
| 13 | C | 160 | ARG |
| 14 | D | 37 | LEU |
| 14 | D | 41 | GLY |
| 14 | D | 42 | GLY |
| 14 | D | 58 | HIS |
| 14 | D | 127 | VAL |
| 14 | D | 267 | SER |
| 14 | D | 268 | ARG |
| 15 | E | 29 | GLY |
| 15 | E | 45 | THR |
| 15 | E | 46 | ALA |
| 15 | E | 56 | PRO |
| 15 | E | 71 | GLY |
| 15 | E | 77 | ILE |
| 15 | E | 124 | GLY |
| 15 | E | 190 | GLY |
| 15 | E | 197 | ILE |
| 16 | F | 7 | TYR |
| 16 | F | 85 | GLY |
| 16 | F | 117 | ARG |
| 16 | F | 126 | VAL |
| 16 | F | 132 | VAL |
| 17 | G | 14 | GLU |
| 17 | G | 29 | TRP |
| 17 | G | 53 | LEU |
| 17 | G | 75 | LYS |
| 17 | G | 80 | PHE |
| 17 | G | 87 | PRO |
| 17 | G | 96 | ARG |
| 17 | G | 97 | ASP |
| 18 | H | 18 | GLU |
| 18 | H | 43 | VAL |
| 18 | H | 47 | GLU |
| 18 | H | 49 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18 | H | 52 | VAL |
| 18 | H | 160 | LYS |
| 21 | N | 8 | GLN |
| 21 | N | 9 | VAL |
| 21 | N | 36 | GLY |
| 21 | N | 37 | LYS |
| 21 | N | 57 | ALA |
| 21 | N | 58 | ASP |
| 22 | O | 5 | GLN |
| 22 | O | 49 | ARG |
| 23 | P | 9 | ASN |
| 23 | P | 20 | GLY |
| 23 | P | 25 | SER |
| 23 | P | 31 | ALA |
| 23 | P | 34 | GLY |
| 23 | P | 56 | SER |
| 23 | P | 62 | LEU |
| 23 | P | 65 | ARG |
| 23 | P | 70 | GLN |
| 24 | Q | 2 | LEU |
| 24 | Q | 62 | GLY |
| 24 | Q | 135 | ASP |
| 25 | R | 5 | LYS |
| 25 | R | 6 | SER |
| 25 | R | 14 | SER |
| 25 | R | 58 | GLY |
| 26 | S | 17 | ARG |
| 26 | S | 80 | LEU |
| 26 | S | 88 | ASP |
| 26 | S | 102 | ALA |
| 27 | T | 4 | GLY |
| 27 | T | 17 | THR |
| 27 | T | 41 | ARG |
| 27 | T | 55 | ASN |
| 27 | T | 92 | GLY |
| 27 | T | 93 | ARG |
| 27 | T | 135 | ALA |
| 28 | U | 9 | VAL |
| 28 | U | 90 | VAL |
| 29 | V | 18 | LEU |
| 29 | V | 53 | GLU |
| 31 | X | 13 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | X | 19 | ALA |
| 31 | X | 53 | LYS |
| 32 | Y | 3 | VAL |
| 32 | Y | 69 | ALA |
| 32 | Y | 81 | LYS |
| 33 | Z | 152 | ALA |
| 33 | Z | 166 | SER |
| 33 | Z | 177 | PRO |
| 4 | 3 | 3 | ARG |
| 13 | C | 79 | LYS |
| 13 | C | 82 | LYS |
| 13 | C | 117 | PRO |
| 13 | C | 127 | LEU |
| 14 | D | 24 | ILE |
| 14 | D | 202 | LYS |
| 14 | D | 225 | ALA |
| 15 | E | 62 | PRO |
| 15 | E | 72 | VAL |
| 15 | E | 169 | ASN |
| 16 | F | 25 | PRO |
| 16 | F | 82 | ILE |
| 16 | F | 83 | PHE |
| 16 | F | 133 | ASN |
| 16 | F | 142 | TRP |
| 16 | F | 178 | PRO |
| 17 | G | 49 | ASP |
| 17 | G | 116 | ASP |
| 17 | G | 151 | ALA |
| 18 | H | 20 | ALA |
| 18 | H | 76 | VAL |
| 18 | H | 77 | LYS |
| 18 | H | 129 | THR |
| 18 | H | 154 | PRO |
| 18 | H | 156 | ALA |
| 18 | H | 167 | GLU |
| 21 | N | 7 | LYS |
| 21 | N | 42 | TRP |
| 21 | N | 47 | ALA |
| 21 | N | 135 | PRO |
| 23 | P | 35 | HIS |
| 23 | P | 36 | LYS |
| 23 | P | 52 | GLU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | P | 107 | LYS |
| 23 | P | 149 | GLU |
| 25 | R | 3 | HIS |
| 26 | S | 13 | ARG |
| 26 | S | 14 | VAL |
| 26 | S | 22 | GLY |
| 26 | S | 53 | SER |
| 27 | T | 12 | SER |
| 27 | T | 29 | ARG |
| 27 | T | 111 | ARG |
| 28 | U | 83 | LEU |
| 29 | V | 2 | PHE |
| 29 | V | 36 | PRO |
| 29 | V | 50 | PRO |
| 29 | V | 56 | SER |
| 29 | V | 100 | ARG |
| 30 | W | 18 | ARG |
| 30 | W | 25 | ARG |
| 30 | W | 36 | LEU |
| 30 | W | 40 | ASN |
| 30 | W | 60 | ASN |
| 32 | Y | 27 | VAL |
| 32 | Y | 66 | PRO |
| 32 | Y | 92 | ASN |
| 33 | Z | 112 | ARG |
| 3 | 2 | 14 | ARG |
| 3 | 2 | 21 | LEU |
| 4 | 3 | 29 | ARG |
| 5 | 4 | 28 | LYS |
| 5 | 4 | 40 | HIS |
| 6 | 5 | 53 | ALA |
| 6 | 5 | 56 | LYS |
| 7 | 6 | 52 | VAL |
| 13 | C | 104 | LEU |
| 14 | D | 3 | VAL |
| 14 | D | 36 | PRO |
| 14 | D | 244 | ARG |
| 15 | E | 116 | VAL |
| 16 | F | 6 | VAL |
| 16 | F | 168 | ARG |
| 17 | G | 43 | LEU |
| 17 | G | 128 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 17 | G | 181 | ARG |
| 18 | H | 41 | MET |
| 18 | H | 152 | ARG |
| 21 | N | 4 | TYR |
| 21 | N | 33 | LEU |
| 21 | N | 40 | PRO |
| 21 | N | 77 | GLY |
| 21 | N | 127 | ASP |
| 21 | N | 129 | PRO |
| 22 | O | 13 | ASN |
| 23 | P | 43 | GLY |
| 23 | P | 148 | LEU |
| 25 | R | 102 | GLU |
| 26 | S | 104 | GLY |
| 27 | T | 36 | GLU |
| 27 | T | 98 | LYS |
| 27 | T | 131 | ALA |
| 30 | W | 56 | ALA |
| 30 | W | 72 | LYS |
| 32 | Y | 39 | VAL |
| 32 | Y | 64 | GLU |
| 33 | Z | 16 | SER |
| 33 | Z | 24 | LEU |
| 33 | Z | 61 | LEU |
| 33 | Z | 151 | HIS |
| 3 | 2 | 64 | LEU |
| 4 | 3 | 2 | PRO |
| 7 | 6 | 15 | GLU |
| 7 | 6 | 27 | LYS |
| 13 | C | 37 | PHE |
| 14 | D | 242 | ARG |
| 15 | E | 55 | ASN |
| 15 | E | 61 | ARG |
| 15 | E | 119 | ARG |
| 18 | H | 58 | GLU |
| 21 | N | 12 | ARG |
| 21 | N | 133 | GLN |
| 23 | P | 23 | PRO |
| 26 | S | 24 | LEU |
| 26 | S | 87 | PHE |
| 26 | S | 89 | ARG |
| 26 | S | 90 | GLY |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 26 | S | 105 | ALA |
| 28 | U | 60 | LEU |
| 30 | W | 35 | ILE |
| 30 | W | 93 | ALA |
| 31 | X | 46 | ALA |
| 32 | Y | 53 | PRO |
| 32 | Y | 65 | ALA |
| 33 | Z | 30 | ASN |
| 33 | Z | 139 | VAL |
| 14 | D | 28 | GLU |
| 16 | F | 58 | ALA |
| 17 | G | 67 | LYS |
| 17 | G | 71 | THR |
| 18 | H | 44 | VAL |
| 21 | N | 5 | VAL |
| 28 | U | 11 | ARG |
| 29 | V | 23 | GLU |
| 29 | V | 37 | VAL |
| 32 | Y | 26 | LYS |
| 14 | D | 234 | GLY |
| 15 | E | 98 | PRO |
| 18 | H | 21 | PRO |
| 18 | H | 107 | VAL |
| 24 | Q | 27 | VAL |
| 32 | Y | 31 | LEU |
| 33 | Z | 146 | ILE |
| 4 | 3 | 27 | GLY |
| 21 | N | 46 | VAL |
| 23 | P | 19 | VAL |
| 29 | V | 54 | GLY |
| 33 | Z | 111 | VAL |
| 15 | E | 53 | PRO |
| 17 | G | 85 | GLY |
| 18 | H | 45 | VAL |
| 29 | V | 35 | LEU |
| 32 | Y | 76 | CYS |
| 33 | Z | 12 | GLY |
| 33 | Z | 141 | VAL |
| 7 | 6 | 41 | PRO |
| 13 | C | 119 | VAL |
| 15 | E | 130 | GLY |

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 | |
|-----|-------|----------------|-----------|----------|-------------|----|
| 1 | 0 | 66/67 (98%) | 56 (85%) | 10 (15%) | 4 | 16 |
| 2 | 1 | 78/83 (94%) | 71 (91%) | 7 (9%) | 14 | 47 |
| 3 | 2 | 66/67 (98%) | 60 (91%) | 6 (9%) | 14 | 45 |
| 4 | 3 | 51/52 (98%) | 44 (86%) | 7 (14%) | 5 | 21 |
| 5 | 4 | 39/63 (62%) | 32 (82%) | 7 (18%) | 2 | 10 |
| 6 | 5 | 51/52 (98%) | 43 (84%) | 8 (16%) | 4 | 14 |
| 7 | 6 | 49/52 (94%) | 37 (76%) | 12 (24%) | 1 | 4 |
| 8 | 7 | 41/42 (98%) | 35 (85%) | 6 (15%) | 5 | 18 |
| 9 | 8 | 53/55 (96%) | 45 (85%) | 8 (15%) | 4 | 16 |
| 10 | 9 | 34/34 (100%) | 31 (91%) | 3 (9%) | 14 | 49 |
| 13 | C | 180/181 (99%) | 171 (95%) | 9 (5%) | 34 | 75 |
| 14 | D | 217/218 (100%) | 186 (86%) | 31 (14%) | 5 | 19 |
| 15 | E | 165/166 (99%) | 148 (90%) | 17 (10%) | 10 | 36 |
| 16 | F | 165/166 (99%) | 150 (91%) | 15 (9%) | 14 | 45 |
| 17 | G | 155/156 (99%) | 138 (89%) | 17 (11%) | 9 | 34 |
| 18 | H | 132/148 (89%) | 116 (88%) | 16 (12%) | 7 | 27 |
| 21 | N | 117/119 (98%) | 102 (87%) | 15 (13%) | 6 | 24 |
| 22 | O | 100/100 (100%) | 95 (95%) | 5 (5%) | 34 | 75 |
| 23 | P | 112/116 (97%) | 97 (87%) | 15 (13%) | 6 | 22 |
| 24 | Q | 111/111 (100%) | 97 (87%) | 14 (13%) | 7 | 24 |
| 25 | R | 100/101 (99%) | 90 (90%) | 10 (10%) | 11 | 38 |
| 26 | S | 77/88 (88%) | 68 (88%) | 9 (12%) | 8 | 29 |
| 27 | T | 120/127 (94%) | 98 (82%) | 22 (18%) | 2 | 10 |
| 28 | U | 92/94 (98%) | 84 (91%) | 8 (9%) | 15 | 49 |
| 29 | V | 82/82 (100%) | 66 (80%) | 16 (20%) | 2 | 8 |
| 30 | W | 91/92 (99%) | 86 (94%) | 5 (6%) | 30 | 71 |
| 31 | X | 74/78 (95%) | 64 (86%) | 10 (14%) | 6 | 22 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|-------------|----|
| 32 | Y | 84/91 (92%) | 70 (83%) | 14 (17%) | 3 | 11 |
| 33 | Z | 155/179 (87%) | 135 (87%) | 20 (13%) | 6 | 24 |
| All | All | 2857/2980 (96%) | 2515 (88%) | 342 (12%) | 7 | 27 |

All (342) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 0 | 9 | SER |
| 1 | 0 | 14 | ARG |
| 1 | 0 | 20 | ARG |
| 1 | 0 | 27 | GLU |
| 1 | 0 | 41 | ARG |
| 1 | 0 | 49 | LYS |
| 1 | 0 | 55 | ARG |
| 1 | 0 | 64 | ASP |
| 1 | 0 | 75 | LEU |
| 1 | 0 | 84 | LEU |
| 2 | 1 | 3 | LYS |
| 2 | 1 | 26 | ARG |
| 2 | 1 | 38 | SER |
| 2 | 1 | 45 | ASN |
| 2 | 1 | 46 | LEU |
| 2 | 1 | 75 | GLU |
| 2 | 1 | 83 | GLU |
| 3 | 2 | 20 | GLU |
| 3 | 2 | 21 | LEU |
| 3 | 2 | 37 | PHE |
| 3 | 2 | 47 | ASN |
| 3 | 2 | 59 | ARG |
| 3 | 2 | 65 | ASN |
| 4 | 3 | 29 | ARG |
| 4 | 3 | 31 | LEU |
| 4 | 3 | 35 | ARG |
| 4 | 3 | 38 | GLU |
| 4 | 3 | 46 | ASN |
| 4 | 3 | 48 | GLU |
| 4 | 3 | 50 | VAL |
| 5 | 4 | 5 | ILE |
| 5 | 4 | 9 | LEU |
| 5 | 4 | 20 | ASN |
| 5 | 4 | 32 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5 | 4 | 34 | GLU |
| 5 | 4 | 43 | TYR |
| 5 | 4 | 47 | GLN |
| 6 | 5 | 6 | VAL |
| 6 | 5 | 15 | ARG |
| 6 | 5 | 25 | LEU |
| 6 | 5 | 40 | LYS |
| 6 | 5 | 46 | CYS |
| 6 | 5 | 48 | GLU |
| 6 | 5 | 51 | TYR |
| 6 | 5 | 56 | LYS |
| 7 | 6 | 6 | ARG |
| 7 | 6 | 10 | LEU |
| 7 | 6 | 11 | LEU |
| 7 | 6 | 18 | ARG |
| 7 | 6 | 19 | ARG |
| 7 | 6 | 21 | TYR |
| 7 | 6 | 31 | PRO |
| 7 | 6 | 33 | LYS |
| 7 | 6 | 36 | LEU |
| 7 | 6 | 41 | PRO |
| 7 | 6 | 42 | TRP |
| 7 | 6 | 53 | LYS |
| 8 | 7 | 1 | MET |
| 8 | 7 | 4 | THR |
| 8 | 7 | 12 | ARG |
| 8 | 7 | 24 | THR |
| 8 | 7 | 34 | ARG |
| 8 | 7 | 37 | LYS |
| 9 | 8 | 30 | ARG |
| 9 | 8 | 31 | HIS |
| 9 | 8 | 34 | TRP |
| 9 | 8 | 40 | GLU |
| 9 | 8 | 41 | ILE |
| 9 | 8 | 56 | GLU |
| 9 | 8 | 61 | LEU |
| 9 | 8 | 64 | TYR |
| 10 | 9 | 1 | MET |
| 10 | 9 | 29 | ASN |
| 10 | 9 | 34 | GLN |
| 13 | C | 28 | LEU |
| 13 | C | 36 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13 | C | 55 | ASP |
| 13 | C | 57 | ASN |
| 13 | C | 71 | GLN |
| 13 | C | 104 | LEU |
| 13 | C | 105 | ASP |
| 13 | C | 167 | LYS |
| 13 | C | 175 | VAL |
| 14 | D | 10 | THR |
| 14 | D | 13 | ARG |
| 14 | D | 20 | ASP |
| 14 | D | 24 | ILE |
| 14 | D | 26 | LYS |
| 14 | D | 30 | GLU |
| 14 | D | 33 | LEU |
| 14 | D | 43 | ARG |
| 14 | D | 44 | ASN |
| 14 | D | 46 | GLN |
| 14 | D | 61 | LEU |
| 14 | D | 65 | ILE |
| 14 | D | 68 | LYS |
| 14 | D | 75 | ILE |
| 14 | D | 95 | LEU |
| 14 | D | 99 | ASP |
| 14 | D | 122 | ASP |
| 14 | D | 166 | GLN |
| 14 | D | 176 | ARG |
| 14 | D | 183 | ARG |
| 14 | D | 192 | THR |
| 14 | D | 198 | ASN |
| 14 | D | 211 | ARG |
| 14 | D | 217 | ARG |
| 14 | D | 218 | ARG |
| 14 | D | 239 | ARG |
| 14 | D | 242 | ARG |
| 14 | D | 246 | PRO |
| 14 | D | 257 | LEU |
| 14 | D | 260 | ARG |
| 14 | D | 275 | LYS |
| 15 | E | 18 | ASP |
| 15 | E | 34 | VAL |
| 15 | E | 55 | ASN |
| 15 | E | 57 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 15 | E | 62 | PRO |
| 15 | E | 67 | PHE |
| 15 | E | 73 | GLU |
| 15 | E | 76 | ARG |
| 15 | E | 78 | LEU |
| 15 | E | 82 | ARG |
| 15 | E | 87 | GLU |
| 15 | E | 121 | ASN |
| 15 | E | 128 | SER |
| 15 | E | 181 | LEU |
| 15 | E | 197 | ILE |
| 15 | E | 202 | LYS |
| 15 | E | 203 | LYS |
| 16 | F | 19 | GLU |
| 16 | F | 23 | ASP |
| 16 | F | 28 | ILE |
| 16 | F | 51 | THR |
| 16 | F | 64 | ILE |
| 16 | F | 70 | THR |
| 16 | F | 88 | VAL |
| 16 | F | 95 | ARG |
| 16 | F | 98 | SER |
| 16 | F | 125 | LEU |
| 16 | F | 160 | ASN |
| 16 | F | 164 | ARG |
| 16 | F | 169 | ASN |
| 16 | F | 179 | GLU |
| 16 | F | 183 | VAL |
| 17 | G | 12 | TYR |
| 17 | G | 16 | ARG |
| 17 | G | 33 | ARG |
| 17 | G | 43 | LEU |
| 17 | G | 52 | ILE |
| 17 | G | 54 | GLU |
| 17 | G | 67 | LYS |
| 17 | G | 71 | THR |
| 17 | G | 77 | ILE |
| 17 | G | 86 | MET |
| 17 | G | 104 | GLU |
| 17 | G | 105 | LYS |
| 17 | G | 116 | ASP |
| 17 | G | 125 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 17 | G | 136 | ARG |
| 17 | G | 153 | ARG |
| 17 | G | 174 | GLU |
| 18 | H | 43 | VAL |
| 18 | H | 54 | ARG |
| 18 | H | 71 | LEU |
| 18 | H | 83 | TYR |
| 18 | H | 85 | LYS |
| 18 | H | 104 | GLU |
| 18 | H | 105 | LEU |
| 18 | H | 116 | GLU |
| 18 | H | 119 | GLU |
| 18 | H | 139 | GLN |
| 18 | H | 143 | GLN |
| 18 | H | 153 | LYS |
| 18 | H | 157 | TYR |
| 18 | H | 159 | GLU |
| 18 | H | 162 | ILE |
| 18 | H | 163 | TYR |
| 21 | N | 1 | MET |
| 21 | N | 4 | TYR |
| 21 | N | 25 | ARG |
| 21 | N | 28 | THR |
| 21 | N | 32 | THR |
| 21 | N | 38 | HIS |
| 21 | N | 41 | ASP |
| 21 | N | 45 | ASN |
| 21 | N | 48 | MET |
| 21 | N | 56 | ASN |
| 21 | N | 63 | THR |
| 21 | N | 65 | LYS |
| 21 | N | 87 | LEU |
| 21 | N | 109 | LYS |
| 21 | N | 119 | ARG |
| 22 | O | 23 | ARG |
| 22 | O | 47 | ILE |
| 22 | O | 48 | PRO |
| 22 | O | 49 | ARG |
| 22 | O | 65 | THR |
| 23 | P | 16 | ARG |
| 23 | P | 39 | LYS |
| 23 | P | 41 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | P | 42 | SER |
| 23 | P | 48 | PRO |
| 23 | P | 61 | ARG |
| 23 | P | 70 | GLN |
| 23 | P | 84 | ASN |
| 23 | P | 85 | LEU |
| 23 | P | 90 | ARG |
| 23 | P | 91 | PHE |
| 23 | P | 100 | LEU |
| 23 | P | 105 | LEU |
| 23 | P | 108 | LYS |
| 23 | P | 112 | LEU |
| 24 | Q | 1 | MET |
| 24 | Q | 16 | ARG |
| 24 | Q | 18 | LYS |
| 24 | Q | 25 | ASP |
| 24 | Q | 45 | GLN |
| 24 | Q | 55 | VAL |
| 24 | Q | 56 | ARG |
| 24 | Q | 58 | PHE |
| 24 | Q | 59 | ARG |
| 24 | Q | 79 | LEU |
| 24 | Q | 104 | PHE |
| 24 | Q | 110 | THR |
| 24 | Q | 133 | ARG |
| 24 | Q | 135 | ASP |
| 25 | R | 2 | ARG |
| 25 | R | 5 | LYS |
| 25 | R | 6 | SER |
| 25 | R | 10 | LEU |
| 25 | R | 12 | ARG |
| 25 | R | 31 | HIS |
| 25 | R | 33 | ARG |
| 25 | R | 51 | LEU |
| 25 | R | 99 | LYS |
| 25 | R | 117 | VAL |
| 26 | S | 11 | LYS |
| 26 | S | 12 | PHE |
| 26 | S | 15 | ARG |
| 26 | S | 29 | PHE |
| 26 | S | 36 | TYR |
| 26 | S | 73 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 26 | S | 80 | LEU |
| 26 | S | 92 | TYR |
| 26 | S | 97 | ARG |
| 27 | T | 13 | ARG |
| 27 | T | 21 | GLU |
| 27 | T | 24 | PRO |
| 27 | T | 29 | ARG |
| 27 | T | 30 | VAL |
| 27 | T | 32 | TYR |
| 27 | T | 38 | ASN |
| 27 | T | 39 | ARG |
| 27 | T | 41 | ARG |
| 27 | T | 43 | GLN |
| 27 | T | 48 | ILE |
| 27 | T | 49 | VAL |
| 27 | T | 53 | ARG |
| 27 | T | 58 | ASN |
| 27 | T | 66 | VAL |
| 27 | T | 82 | LEU |
| 27 | T | 83 | ILE |
| 27 | T | 90 | GLN |
| 27 | T | 99 | LEU |
| 27 | T | 108 | ARG |
| 27 | T | 124 | ASP |
| 27 | T | 128 | GLU |
| 28 | U | 9 | VAL |
| 28 | U | 49 | HIS |
| 28 | U | 66 | ASN |
| 28 | U | 72 | HIS |
| 28 | U | 74 | LEU |
| 28 | U | 78 | THR |
| 28 | U | 92 | ARG |
| 28 | U | 108 | GLU |
| 29 | V | 2 | PHE |
| 29 | V | 12 | TYR |
| 29 | V | 16 | PRO |
| 29 | V | 18 | LEU |
| 29 | V | 19 | LYS |
| 29 | V | 21 | ARG |
| 29 | V | 37 | VAL |
| 29 | V | 39 | LEU |
| 29 | V | 40 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29 | V | 61 | VAL |
| 29 | V | 68 | LYS |
| 29 | V | 82 | ARG |
| 29 | V | 89 | GLN |
| 29 | V | 91 | TYR |
| 29 | V | 95 | LEU |
| 29 | V | 99 | ILE |
| 30 | W | 11 | ARG |
| 30 | W | 36 | LEU |
| 30 | W | 76 | VAL |
| 30 | W | 82 | LEU |
| 30 | W | 107 | LEU |
| 31 | X | 6 | ASP |
| 31 | X | 14 | SER |
| 31 | X | 27 | THR |
| 31 | X | 28 | PHE |
| 31 | X | 37 | THR |
| 31 | X | 40 | LYS |
| 31 | X | 57 | LEU |
| 31 | X | 66 | LEU |
| 31 | X | 68 | ARG |
| 31 | X | 80 | ILE |
| 32 | Y | 2 | ARG |
| 32 | Y | 6 | HIS |
| 32 | Y | 28 | LYS |
| 32 | Y | 29 | GLU |
| 32 | Y | 32 | PRO |
| 32 | Y | 50 | ARG |
| 32 | Y | 55 | TYR |
| 32 | Y | 62 | GLU |
| 32 | Y | 73 | ARG |
| 32 | Y | 76 | CYS |
| 32 | Y | 77 | PRO |
| 32 | Y | 90 | LEU |
| 32 | Y | 96 | ILE |
| 32 | Y | 97 | ARG |
| 33 | Z | 6 | LYS |
| 33 | Z | 9 | TYR |
| 33 | Z | 11 | GLU |
| 33 | Z | 14 | LYS |
| 33 | Z | 28 | MET |
| 33 | Z | 38 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 33 | Z | 41 | LEU |
| 33 | Z | 43 | GLU |
| 33 | Z | 70 | LEU |
| 33 | Z | 81 | ARG |
| 33 | Z | 86 | VAL |
| 33 | Z | 87 | ASP |
| 33 | Z | 97 | GLU |
| 33 | Z | 122 | ARG |
| 33 | Z | 138 | GLU |
| 33 | Z | 141 | VAL |
| 33 | Z | 150 | LEU |
| 33 | Z | 155 | LEU |
| 33 | Z | 163 | LEU |
| 33 | Z | 166 | SER |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (85) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 0 | 12 | ASN |
| 1 | 0 | 40 | GLN |
| 1 | 0 | 50 | ASN |
| 1 | 0 | 70 | GLN |
| 2 | 1 | 16 | ASN |
| 2 | 1 | 19 | GLN |
| 2 | 1 | 45 | ASN |
| 3 | 2 | 43 | GLN |
| 3 | 2 | 47 | ASN |
| 3 | 2 | 70 | GLN |
| 4 | 3 | 19 | GLN |
| 4 | 3 | 46 | ASN |
| 4 | 3 | 52 | HIS |
| 5 | 4 | 20 | ASN |
| 5 | 4 | 47 | GLN |
| 6 | 5 | 43 | HIS |
| 7 | 6 | 29 | ASN |
| 7 | 6 | 49 | HIS |
| 10 | 9 | 29 | ASN |
| 13 | C | 57 | ASN |
| 13 | C | 165 | ASN |
| 14 | D | 44 | ASN |
| 14 | D | 96 | HIS |
| 14 | D | 126 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 14 | D | 166 | GLN |
| 14 | D | 186 | HIS |
| 14 | D | 198 | ASN |
| 15 | E | 48 | GLN |
| 15 | E | 54 | GLN |
| 15 | E | 55 | ASN |
| 15 | E | 129 | HIS |
| 15 | E | 135 | HIS |
| 15 | E | 169 | ASN |
| 15 | E | 192 | ASN |
| 16 | F | 29 | ASN |
| 16 | F | 40 | GLN |
| 16 | F | 69 | HIS |
| 16 | F | 75 | HIS |
| 16 | F | 133 | ASN |
| 16 | F | 160 | ASN |
| 16 | F | 169 | ASN |
| 16 | F | 204 | ASN |
| 17 | G | 40 | ASN |
| 18 | H | 139 | GLN |
| 18 | H | 147 | ASN |
| 21 | N | 45 | ASN |
| 21 | N | 56 | ASN |
| 21 | N | 133 | GLN |
| 22 | O | 3 | GLN |
| 22 | O | 82 | ASN |
| 23 | P | 38 | GLN |
| 23 | P | 68 | GLN |
| 23 | P | 84 | ASN |
| 23 | P | 128 | HIS |
| 24 | Q | 12 | GLN |
| 24 | Q | 45 | GLN |
| 24 | Q | 123 | HIS |
| 24 | Q | 141 | GLN |
| 25 | R | 11 | ASN |
| 25 | R | 13 | HIS |
| 25 | R | 16 | HIS |
| 25 | R | 23 | ASN |
| 25 | R | 24 | GLN |
| 25 | R | 71 | GLN |
| 26 | S | 34 | HIS |
| 27 | T | 2 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27 | T | 38 | ASN |
| 27 | T | 43 | GLN |
| 27 | T | 55 | ASN |
| 27 | T | 58 | ASN |
| 27 | T | 90 | GLN |
| 28 | U | 44 | ASN |
| 28 | U | 49 | HIS |
| 28 | U | 66 | ASN |
| 28 | U | 94 | ASN |
| 28 | U | 117 | GLN |
| 29 | V | 11 | GLN |
| 30 | W | 34 | ASN |
| 30 | W | 57 | ASN |
| 30 | W | 61 | ASN |
| 31 | X | 87 | GLN |
| 33 | Z | 55 | HIS |
| 33 | Z | 73 | GLN |
| 33 | Z | 118 | GLN |
| 33 | Z | 132 | ASN |

5.3.3 RNA ⓘ

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 11 | A | 2900/2915 (99%) | 508 (17%) | 46 (1%) |
| 12 | B | 118/122 (96%) | 25 (21%) | 2 (1%) |
| All | All | 3018/3037 (99%) | 533 (17%) | 48 (1%) |

All (533) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11 | A | 10 | G |
| 11 | A | 32 | C |
| 11 | A | 34 | C |
| 11 | A | 45 | C |
| 11 | A | 71 | A |
| 11 | A | 72 | U |
| 11 | A | 74 | A |
| 11 | A | 75 | G |
| 11 | A | 83 | G |
| 11 | A | 84 | A |
| 11 | A | 88 | G |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 11 | A | 90 | U |
| 11 | A | 92 | A |
| 11 | A | 94 | C |
| 11 | A | 96 | G |
| 11 | A | 100 | G |
| 11 | A | 102 | G |
| 11 | A | 118 | A |
| 11 | A | 119 | A |
| 11 | A | 120 | U |
| 11 | A | 129 | C |
| 11 | A | 139(A) | G |
| 11 | A | 141 | A |
| 11 | A | 146 | G |
| 11 | A | 173 | G |
| 11 | A | 174 | C |
| 11 | A | 181 | A |
| 11 | A | 182 | A |
| 11 | A | 196 | A |
| 11 | A | 197 | A |
| 11 | A | 199 | A |
| 11 | A | 200 | U |
| 11 | A | 204 | A |
| 11 | A | 205 | G |
| 11 | A | 215 | G |
| 11 | A | 216 | A |
| 11 | A | 221 | A |
| 11 | A | 222 | A |
| 11 | A | 229 | A |
| 11 | A | 233 | A |
| 11 | A | 245 | G |
| 11 | A | 248 | G |
| 11 | A | 261 | G |
| 11 | A | 267 | C |
| 11 | A | 271(K) | U |
| 11 | A | 271(L) | U |
| 11 | A | 271(M) | G |
| 11 | A | 271(N) | U |
| 11 | A | 271(O) | C |
| 11 | A | 271(P) | C |
| 11 | A | 271(R) | G |
| 11 | A | 271(Y) | U |
| 11 | A | 272(A) | U |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 11 | A | 272(B) | G |
| 11 | A | 272(I) | U |
| 11 | A | 274 | G |
| 11 | A | 276 | A |
| 11 | A | 278 | A |
| 11 | A | 288 | C |
| 11 | A | 299 | A |
| 11 | A | 310 | A |
| 11 | A | 324 | A |
| 11 | A | 329 | G |
| 11 | A | 330 | A |
| 11 | A | 332 | A |
| 11 | A | 333 | G |
| 11 | A | 352 | G |
| 11 | A | 353 | G |
| 11 | A | 358 | U |
| 11 | A | 362 | U |
| 11 | A | 363 | G |
| 11 | A | 363(E) | U |
| 11 | A | 363(F) | A |
| 11 | A | 372 | G |
| 11 | A | 386 | G |
| 11 | A | 388 | G |
| 11 | A | 396 | G |
| 11 | A | 405 | U |
| 11 | A | 406 | G |
| 11 | A | 411 | G |
| 11 | A | 412 | A |
| 11 | A | 428 | A |
| 11 | A | 444 | C |
| 11 | A | 448 | U |
| 11 | A | 457 | A |
| 11 | A | 470 | A |
| 11 | A | 481 | G |
| 11 | A | 482 | A |
| 11 | A | 494 | G |
| 11 | A | 505 | A |
| 11 | A | 508 | G |
| 11 | A | 509 | C |
| 11 | A | 512 | G |
| 11 | A | 528 | A |
| 11 | A | 529 | A |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 11 | A | 530 | G |
| 11 | A | 531 | C |
| 11 | A | 532 | A |
| 11 | A | 533 | G |
| 11 | A | 537 | C |
| 11 | A | 556 | G |
| 11 | A | 563 | G |
| 11 | A | 573 | G |
| 11 | A | 575 | A |
| 11 | A | 586 | A |
| 11 | A | 588 | U |
| 11 | A | 603 | A |
| 11 | A | 604 | G |
| 11 | A | 607 | U |
| 11 | A | 613 | G |
| 11 | A | 614(B) | G |
| 11 | A | 615 | G |
| 11 | A | 622 | G |
| 11 | A | 627 | A |
| 11 | A | 629 | G |
| 11 | A | 637 | A |
| 11 | A | 645 | C |
| 11 | A | 646 | A |
| 11 | A | 650 | C |
| 11 | A | 651 | G |
| 11 | A | 653 | A |
| 11 | A | 654(I) | C |
| 11 | A | 654(J) | A |
| 11 | A | 654(M) | C |
| 11 | A | 654(T) | C |
| 11 | A | 655 | A |
| 11 | A | 656 | G |
| 11 | A | 673 | C |
| 11 | A | 686 | G |
| 11 | A | 708 | C |
| 11 | A | 717 | G |
| 11 | A | 722 | A |
| 11 | A | 730 | C |
| 11 | A | 753 | C |
| 11 | A | 764 | A |
| 11 | A | 776 | G |
| 11 | A | 782 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 11 | A | 784 | A |
| 11 | A | 785 | G |
| 11 | A | 790 | C |
| 11 | A | 791 | C |
| 11 | A | 792 | G |
| 11 | A | 805 | G |
| 11 | A | 812 | C |
| 11 | A | 819 | A |
| 11 | A | 827 | U |
| 11 | A | 828 | U |
| 11 | A | 830 | G |
| 11 | A | 848 | G |
| 11 | A | 857 | C |
| 11 | A | 859 | G |
| 11 | A | 866 | A |
| 11 | A | 878 | A |
| 11 | A | 886 | C |
| 11 | A | 889 | C |
| 11 | A | 890 | A |
| 11 | A | 896 | A |
| 11 | A | 897 | C |
| 11 | A | 901 | A |
| 11 | A | 910 | A |
| 11 | A | 917 | A |
| 11 | A | 926 | A |
| 11 | A | 932 | G |
| 11 | A | 941 | A |
| 11 | A | 945 | A |
| 11 | A | 946 | G |
| 11 | A | 953 | A |
| 11 | A | 958 | U |
| 11 | A | 959 | A |
| 11 | A | 961 | C |
| 11 | A | 974 | G |
| 11 | A | 975 | C |
| 11 | A | 983 | A |
| 11 | A | 991 | C |
| 11 | A | 996 | A |
| 11 | A | 1011 | G |
| 11 | A | 1012 | U |
| 11 | A | 1013 | C |
| 11 | A | 1022 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 11 | A | 1023 | U |
| 11 | A | 1025 | G |
| 11 | A | 1026 | U |
| 11 | A | 1027 | A |
| 11 | A | 1033 | U |
| 11 | A | 1038 | C |
| 11 | A | 1039 | G |
| 11 | A | 1041 | G |
| 11 | A | 1045 | A |
| 11 | A | 1047 | G |
| 11 | A | 1048 | A |
| 11 | A | 1051 | G |
| 11 | A | 1053 | C |
| 11 | A | 1059 | G |
| 11 | A | 1061 | U |
| 11 | A | 1062 | G |
| 11 | A | 1065 | U |
| 11 | A | 1067 | A |
| 11 | A | 1068 | G |
| 11 | A | 1069 | A |
| 11 | A | 1070 | A |
| 11 | A | 1071 | G |
| 11 | A | 1073 | A |
| 11 | A | 1074 | G |
| 11 | A | 1079 | C |
| 11 | A | 1087 | G |
| 11 | A | 1088 | A |
| 11 | A | 1103 | A |
| 11 | A | 1111 | A |
| 11 | A | 1112 | G |
| 11 | A | 1116 | C |
| 11 | A | 1135 | C |
| 11 | A | 1136 | G |
| 11 | A | 1142 | U |
| 11 | A | 1143 | A |
| 11 | A | 1155 | A |
| 11 | A | 1170 | G |
| 11 | A | 1174 | A |
| 11 | A | 1175 | U |
| 11 | A | 1176 | G |
| 11 | A | 1178 | C |
| 11 | A | 1205 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 11 | A | 1210 | A |
| 11 | A | 1211 | U |
| 11 | A | 1212 | G |
| 11 | A | 1223 | G |
| 11 | A | 1236 | G |
| 11 | A | 1244 | G |
| 11 | A | 1247 | A |
| 11 | A | 1248 | G |
| 11 | A | 1250 | G |
| 11 | A | 1253 | A |
| 11 | A | 1256 | G |
| 11 | A | 1265 | A |
| 11 | A | 1271 | G |
| 11 | A | 1272 | A |
| 11 | A | 1273 | U |
| 11 | A | 1300 | U |
| 11 | A | 1301 | A |
| 11 | A | 1302 | A |
| 11 | A | 1314 | C |
| 11 | A | 1319 | G |
| 11 | A | 1321 | A |
| 11 | A | 1330 | C |
| 11 | A | 1332 | G |
| 11 | A | 1349 | A |
| 11 | A | 1359 | A |
| 11 | A | 1365 | A |
| 11 | A | 1379 | A |
| 11 | A | 1380 | G |
| 11 | A | 1384 | A |
| 11 | A | 1385 | G |
| 11 | A | 1386 | C |
| 11 | A | 1395 | A |
| 11 | A | 1396 | U |
| 11 | A | 1407 | C |
| 11 | A | 1416 | G |
| 11 | A | 1419 | A |
| 11 | A | 1427 | A |
| 11 | A | 1428 | C |
| 11 | A | 1437 | C |
| 11 | A | 1445 | A |
| 11 | A | 1449 | A |
| 11 | A | 1455 | G |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 11 | A | 1460 | A |
| 11 | A | 1461 | G |
| 11 | A | 1467 | C |
| 11 | A | 1471 | A |
| 11 | A | 1474 | C |
| 11 | A | 1475 | G |
| 11 | A | 1478 | G |
| 11 | A | 1481 | U |
| 11 | A | 1482 | G |
| 11 | A | 1485 | G |
| 11 | A | 1490 | A |
| 11 | A | 1493 | C |
| 11 | A | 1494 | A |
| 11 | A | 1495 | A |
| 11 | A | 1497 | U |
| 11 | A | 1499 | C |
| 11 | A | 1502 | C |
| 11 | A | 1505 | C |
| 11 | A | 1509 | C |
| 11 | A | 1509(A) | A |
| 11 | A | 1517 | G |
| 11 | A | 1541 | G |
| 11 | A | 1542 | A |
| 11 | A | 1544 | A |
| 11 | A | 1554 | A |
| 11 | A | 1558 | A |
| 11 | A | 1559 | G |
| 11 | A | 1569 | A |
| 11 | A | 1578 | U |
| 11 | A | 1579 | A |
| 11 | A | 1584 | C |
| 11 | A | 1586 | A |
| 11 | A | 1588 | C |
| 11 | A | 1593 | G |
| 11 | A | 1603 | A |
| 11 | A | 1608 | A |
| 11 | A | 1617 | C |
| 11 | A | 1618 | A |
| 11 | A | 1634 | A |
| 11 | A | 1640 | C |
| 11 | A | 1648 | C |
| 11 | A | 1654 | A |

Continued on next page...

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 11 | A | 1674 | G |
| 11 | A | 1696 | G |
| 11 | A | 1698 | A |
| 11 | A | 1699 | G |
| 11 | A | 1721 | G |
| 11 | A | 1722 | A |
| 11 | A | 1739 | U |
| 11 | A | 1745(A) | C |
| 11 | A | 1746 | G |
| 11 | A | 1748 | G |
| 11 | A | 1763 | G |
| 11 | A | 1764 | G |
| 11 | A | 1773 | A |
| 11 | A | 1791 | A |
| 11 | A | 1799 | G |
| 11 | A | 1800 | C |
| 11 | A | 1801 | G |
| 11 | A | 1816 | G |
| 11 | A | 1820 | U |
| 11 | A | 1821 | A |
| 11 | A | 1835 | G |
| 11 | A | 1847 | A |
| 11 | A | 1858 | G |
| 11 | A | 1865 | G |
| 11 | A | 1878 | G |
| 11 | A | 1881 | C |
| 11 | A | 1885 | A |
| 11 | A | 1888 | G |
| 11 | A | 1889 | A |
| 11 | A | 1900 | A |
| 11 | A | 1906 | G |
| 11 | A | 1929 | G |
| 11 | A | 1930 | G |
| 11 | A | 1936 | A |
| 11 | A | 1937 | A |
| 11 | A | 1938 | A |
| 11 | A | 1948 | G |
| 11 | A | 1955 | U |
| 11 | A | 1963 | U |
| 11 | A | 1967 | C |
| 11 | A | 1969 | A |
| 11 | A | 1970 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 11 | A | 1971 | A |
| 11 | A | 1972 | A |
| 11 | A | 1982 | C |
| 11 | A | 1987 | G |
| 11 | A | 1991 | U |
| 11 | A | 1992 | G |
| 11 | A | 1993 | U |
| 11 | A | 1997 | G |
| 11 | A | 2020 | A |
| 11 | A | 2023 | G |
| 11 | A | 2031 | A |
| 11 | A | 2033 | A |
| 11 | A | 2034 | U |
| 11 | A | 2036 | C |
| 11 | A | 2043 | C |
| 11 | A | 2055 | C |
| 11 | A | 2056 | G |
| 11 | A | 2060 | A |
| 11 | A | 2061 | G |
| 11 | A | 2062 | A |
| 11 | A | 2069 | G |
| 11 | A | 2093 | G |
| 11 | A | 2100 | G |
| 11 | A | 2102 | U |
| 11 | A | 2104 | G |
| 11 | A | 2112 | G |
| 11 | A | 2116 | G |
| 11 | A | 2118 | U |
| 11 | A | 2126 | A |
| 11 | A | 2127 | G |
| 11 | A | 2131 | G |
| 11 | A | 2132 | U |
| 11 | A | 2133 | G |
| 11 | A | 2146 | C |
| 11 | A | 2148 | G |
| 11 | A | 2159 | G |
| 11 | A | 2160 | G |
| 11 | A | 2172 | U |
| 11 | A | 2173 | A |
| 11 | A | 2174 | C |
| 11 | A | 2177 | C |
| 11 | A | 2179 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 11 | A | 2180 | U |
| 11 | A | 2185 | C |
| 11 | A | 2186 | G |
| 11 | A | 2187 | G |
| 11 | A | 2189 | U |
| 11 | A | 2190 | G |
| 11 | A | 2192 | G |
| 11 | A | 2193 | G |
| 11 | A | 2198 | A |
| 11 | A | 2199 | A |
| 11 | A | 2200 | C |
| 11 | A | 2207 | G |
| 11 | A | 2208 | A |
| 11 | A | 2218 | U |
| 11 | A | 2219 | G |
| 11 | A | 2225 | A |
| 11 | A | 2238 | G |
| 11 | A | 2239 | G |
| 11 | A | 2266 | A |
| 11 | A | 2268 | A |
| 11 | A | 2275 | C |
| 11 | A | 2283 | C |
| 11 | A | 2287 | A |
| 11 | A | 2288 | A |
| 11 | A | 2305 | A |
| 11 | A | 2306 | C |
| 11 | A | 2307 | G |
| 11 | A | 2308 | G |
| 11 | A | 2313 | C |
| 11 | A | 2316 | C |
| 11 | A | 2319 | G |
| 11 | A | 2320 | A |
| 11 | A | 2336 | A |
| 11 | A | 2347 | C |
| 11 | A | 2350 | C |
| 11 | A | 2361 | A |
| 11 | A | 2383 | G |
| 11 | A | 2385 | C |
| 11 | A | 2392 | A |
| 11 | A | 2402 | C |
| 11 | A | 2423 | U |
| 11 | A | 2425 | A |

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Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 11 | A | 2429 | G |
| 11 | A | 2430 | A |
| 11 | A | 2431 | U |
| 11 | A | 2434 | A |
| 11 | A | 2439 | A |
| 11 | A | 2441 | C |
| 11 | A | 2448 | A |
| 11 | A | 2465 | C |
| 11 | A | 2469 | A |
| 11 | A | 2475 | C |
| 11 | A | 2476 | A |
| 11 | A | 2482 | G |
| 11 | A | 2491 | U |
| 11 | A | 2502 | G |
| 11 | A | 2505 | G |
| 11 | A | 2518 | A |
| 11 | A | 2524 | G |
| 11 | A | 2529 | G |
| 11 | A | 2543 | G |
| 11 | A | 2554 | U |
| 11 | A | 2566 | A |
| 11 | A | 2567 | G |
| 11 | A | 2573 | C |
| 11 | A | 2582 | G |
| 11 | A | 2602 | A |
| 11 | A | 2612 | C |
| 11 | A | 2630 | G |
| 11 | A | 2646 | C |
| 11 | A | 2654 | A |
| 11 | A | 2655 | G |
| 11 | A | 2657 | A |
| 11 | A | 2658 | C |
| 11 | A | 2660 | A |
| 11 | A | 2673 | G |
| 11 | A | 2682 | U |
| 11 | A | 2690 | C |
| 11 | A | 2691 | C |
| 11 | A | 2702 | U |
| 11 | A | 2703 | C |
| 11 | A | 2712 | U |
| 11 | A | 2712(A) | A |
| 11 | A | 2713 | A |

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Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 11 | A | 2714 | G |
| 11 | A | 2720 | U |
| 11 | A | 2726 | U |
| 11 | A | 2733 | A |
| 11 | A | 2750 | A |
| 11 | A | 2751 | G |
| 11 | A | 2752 | C |
| 11 | A | 2757 | A |
| 11 | A | 2759 | G |
| 11 | A | 2761 | G |
| 11 | A | 2762 | G |
| 11 | A | 2764 | A |
| 11 | A | 2765 | A |
| 11 | A | 2766 | G |
| 11 | A | 2778 | A |
| 11 | A | 2779 | U |
| 11 | A | 2780 | G |
| 11 | A | 2789 | C |
| 11 | A | 2790 | A |
| 11 | A | 2791 | C |
| 11 | A | 2794 | C |
| 11 | A | 2799 | C |
| 11 | A | 2802 | G |
| 11 | A | 2803 | C |
| 11 | A | 2808 | U |
| 11 | A | 2820 | A |
| 11 | A | 2821 | A |
| 11 | A | 2823 | A |
| 11 | A | 2833 | G |
| 11 | A | 2834 | G |
| 11 | A | 2847 | U |
| 11 | A | 2849 | U |
| 11 | A | 2872 | G |
| 11 | A | 2880 | C |
| 11 | A | 2894 | G |
| 12 | B | 8 | U |
| 12 | B | 13 | A |
| 12 | B | 15 | A |
| 12 | B | 16 | G |
| 12 | B | 17 | C |
| 12 | B | 21 | G |
| 12 | B | 25 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12 | B | 27 | C |
| 12 | B | 32 | C |
| 12 | B | 41 | U |
| 12 | B | 42 | C |
| 12 | B | 43 | C |
| 12 | B | 45 | A |
| 12 | B | 53 | A |
| 12 | B | 57 | A |
| 12 | B | 66 | A |
| 12 | B | 67 | G |
| 12 | B | 68 | C |
| 12 | B | 73 | A |
| 12 | B | 81 | G |
| 12 | B | 82 | G |
| 12 | B | 88 | C |
| 12 | B | 89 | G |
| 12 | B | 110 | G |
| 12 | B | 113 | G |

All (48) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 11 | A | 71 | A |
| 11 | A | 181 | A |
| 11 | A | 199 | A |
| 11 | A | 221 | A |
| 11 | A | 331 | A |
| 11 | A | 332 | A |
| 11 | A | 387 | U |
| 11 | A | 481 | G |
| 11 | A | 528 | A |
| 11 | A | 587 | C |
| 11 | A | 603 | A |
| 11 | A | 614(C) | A |
| 11 | A | 752 | A |
| 11 | A | 790 | C |
| 11 | A | 856 | C |
| 11 | A | 958 | U |
| 11 | A | 1052 | C |
| 11 | A | 1060 | U |
| 11 | A | 1068 | G |
| 11 | A | 1069 | A |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 11 | A | 1210 | A |
| 11 | A | 1300 | U |
| 11 | A | 1301 | A |
| 11 | A | 1378 | A |
| 11 | A | 1427 | A |
| 11 | A | 1541 | G |
| 11 | A | 1558 | A |
| 11 | A | 1653 | G |
| 11 | A | 1799 | G |
| 11 | A | 1819 | A |
| 11 | A | 1820 | U |
| 11 | A | 1948 | G |
| 11 | A | 1970 | A |
| 11 | A | 1992 | G |
| 11 | A | 2033 | A |
| 11 | A | 2126 | A |
| 11 | A | 2131 | G |
| 11 | A | 2145 | C |
| 11 | A | 2160 | G |
| 11 | A | 2282 | G |
| 11 | A | 2286 | A |
| 11 | A | 2422 | A |
| 11 | A | 2481 | G |
| 11 | A | 2689 | U |
| 11 | A | 2750 | A |
| 11 | A | 2756 | U |
| 12 | B | 56 | G |
| 12 | B | 66 | A |

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 | 0 | 84/85 (98%) | 0.34 | 2 (2%) 56 9 | 50, 66, 95, 108 | 0 |
| 2 | 1 | 93/98 (94%) | 0.20 | 0 100 100 | 54, 71, 121, 129 | 0 |
| 3 | 2 | 71/72 (98%) | 0.21 | 0 100 100 | 88, 107, 126, 142 | 0 |
| 4 | 3 | 59/60 (98%) | 0.10 | 1 (1%) 67 15 | 51, 72, 91, 116 | 0 |
| 5 | 4 | 44/71 (61%) | 0.89 | 4 (9%) 9 2 | 110, 148, 172, 176 | 0 |
| 6 | 5 | 59/60 (98%) | 0.16 | 0 100 100 | 46, 73, 130, 148 | 0 |
| 7 | 6 | 50/54 (92%) | 0.33 | 2 (4%) 36 5 | 54, 82, 106, 114 | 0 |
| 8 | 7 | 48/49 (97%) | 0.37 | 3 (6%) 19 3 | 47, 55, 89, 110 | 0 |
| 9 | 8 | 63/65 (96%) | 0.21 | 1 (1%) 68 15 | 51, 65, 80, 101 | 0 |
| 10 | 9 | 37/37 (100%) | 0.40 | 1 (2%) 52 8 | 61, 77, 96, 98 | 0 |
| 11 | A | 2901/2915 (99%) | 0.12 | 58 (1%) 62 12 | 26, 67, 173, 200 | 0 |
| 12 | B | 119/122 (97%) | 0.10 | 4 (3%) 43 6 | 55, 82, 104, 123 | 0 |
| 13 | C | 228/229 (99%) | 0.32 | 10 (4%) 33 5 | 51, 80, 152, 167 | 0 |
| 14 | D | 275/276 (99%) | -0.04 | 1 (0%) 90 45 | 29, 46, 71, 96 | 0 |
| 15 | E | 204/206 (99%) | 0.07 | 3 (1%) 70 16 | 41, 65, 114, 124 | 0 |
| 16 | F | 207/210 (98%) | 0.34 | 4 (1%) 64 13 | 45, 97, 152, 159 | 0 |
| 17 | G | 181/182 (99%) | 0.23 | 4 (2%) 59 11 | 78, 100, 124, 135 | 0 |
| 18 | H | 159/180 (88%) | 0.38 | 7 (4%) 33 5 | 83, 119, 144, 151 | 0 |
| 19 | J | 0/173 | - | - | - | - |
| 20 | K | 0/147 | - | - | - | - |
| 21 | N | 138/140 (98%) | 0.07 | 1 (0%) 84 32 | 51, 75, 118, 123 | 0 |
| 22 | O | 122/122 (100%) | -0.20 | 0 100 100 | 35, 50, 62, 65 | 0 |
| 23 | P | 146/150 (97%) | 0.55 | 6 (4%) 35 5 | 49, 95, 118, 139 | 0 |
| 24 | Q | 141/141 (100%) | -0.02 | 2 (1%) 72 17 | 39, 54, 76, 117 | 0 |

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| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|-----------------|--------|----------------|-----------------------|-------|
| 25 | R | 117/118 (99%) | 0.11 | 0 100 100 | 52, 71, 89, 93 | 0 |
| 26 | S | 98/112 (87%) | 0.35 | 3 (3%) 47 7 | 71, 90, 114, 117 | 0 |
| 27 | T | 137/146 (93%) | 0.06 | 1 (0%) 84 32 | 51, 72, 134, 164 | 0 |
| 28 | U | 117/118 (99%) | 0.13 | 0 100 100 | 52, 69, 89, 112 | 0 |
| 29 | V | 101/101 (100%) | 0.23 | 2 (1%) 62 12 | 52, 98, 113, 116 | 0 |
| 30 | W | 113/113 (100%) | 0.27 | 1 (0%) 81 25 | 56, 72, 103, 134 | 0 |
| 31 | X | 92/96 (95%) | 0.29 | 2 (2%) 59 11 | 65, 84, 102, 112 | 0 |
| 32 | Y | 100/110 (90%) | 0.63 | 5 (5%) 28 4 | 93, 114, 151, 160 | 0 |
| 33 | Z | 176/206 (85%) | 0.10 | 1 (0%) 86 36 | 56, 78, 111, 119 | 0 |
| All | All | 6480/6964 (93%) | 0.17 | 129 (1%) 62 12 | 26, 73, 146, 200 | 0 |

All (129) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|--------|------|------|
| 11 | A | 2802 | G | 5.9 |
| 11 | A | 2795 | G | 4.4 |
| 11 | A | 2796 | U | 4.4 |
| 11 | A | 1090 | U | 4.3 |
| 11 | A | 654(E) | G | 4.2 |
| 5 | 4 | 30 | GLU | 4.2 |
| 11 | A | 1584 | C | 4.1 |
| 5 | 4 | 25 | TYR | 4.1 |
| 1 | 0 | 3 | HIS | 4.0 |
| 24 | Q | 141 | GLN | 3.9 |
| 11 | A | 654(S) | G | 3.8 |
| 32 | Y | 2 | ARG | 3.7 |
| 11 | A | 1103 | A | 3.7 |
| 11 | A | 654(K) | C | 3.7 |
| 11 | A | 1534 | U | 3.6 |
| 13 | C | 1 | PRO | 3.6 |
| 23 | P | 15 | ARG | 3.6 |
| 32 | Y | 82 | PRO | 3.6 |
| 16 | F | 207 | GLY | 3.6 |
| 11 | A | 654(Q) | C | 3.5 |
| 11 | A | 654(J) | A | 3.5 |
| 13 | C | 5 | LYS | 3.5 |
| 11 | A | 654(R) | C | 3.5 |
| 11 | A | 362 | U | 3.5 |
| 5 | 4 | 21 | VAL | 3.5 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|--------|------|------|
| 26 | S | 78 | LEU | 3.4 |
| 13 | C | 135 | GLY | 3.3 |
| 11 | A | 389 | G | 3.3 |
| 11 | A | 1074 | G | 3.3 |
| 11 | A | 654(P) | C | 3.3 |
| 11 | A | 1059 | G | 3.3 |
| 23 | P | 110 | TYR | 3.2 |
| 27 | T | 1 | MET | 3.2 |
| 29 | V | 6 | LYS | 3.2 |
| 13 | C | 110 | PHE | 3.2 |
| 11 | A | 1743 | C | 3.2 |
| 11 | A | 2794 | C | 3.2 |
| 11 | A | 1046 | A | 3.1 |
| 11 | A | 1087 | G | 3.1 |
| 11 | A | 645 | C | 3.1 |
| 11 | A | 2799 | C | 3.1 |
| 18 | H | 53 | GLU | 3.1 |
| 11 | A | 2896 | C | 3.1 |
| 26 | S | 33 | LYS | 3.1 |
| 16 | F | 9 | ILE | 3.0 |
| 32 | Y | 34 | LYS | 3.0 |
| 11 | A | 1080 | C | 3.0 |
| 8 | 7 | 48 | LYS | 2.9 |
| 13 | C | 94 | VAL | 2.9 |
| 13 | C | 112 | ALA | 2.9 |
| 13 | C | 130 | ILE | 2.8 |
| 11 | A | 1043 | C | 2.8 |
| 23 | P | 134 | ALA | 2.8 |
| 29 | V | 71 | LEU | 2.8 |
| 11 | A | 271(F) | C | 2.7 |
| 26 | S | 79 | ALA | 2.7 |
| 11 | A | 614(A) | U | 2.7 |
| 18 | H | 60 | ARG | 2.7 |
| 11 | A | 1088 | A | 2.7 |
| 13 | C | 55 | ASP | 2.7 |
| 11 | A | 654(A) | G | 2.6 |
| 9 | 8 | 35 | GLN | 2.6 |
| 13 | C | 100 | ILE | 2.6 |
| 11 | A | 1114 | G | 2.6 |
| 7 | 6 | 24 | GLU | 2.6 |
| 16 | F | 158 | THR | 2.6 |
| 12 | B | 65 | C | 2.6 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|--------|------|------|
| 11 | A | 271(K) | U | 2.6 |
| 10 | 9 | 1 | MET | 2.6 |
| 1 | 0 | 7 | LEU | 2.6 |
| 15 | E | 69 | LYS | 2.6 |
| 32 | Y | 5 | MET | 2.5 |
| 31 | X | 63 | LYS | 2.5 |
| 23 | P | 107 | LYS | 2.5 |
| 17 | G | 48 | GLU | 2.5 |
| 11 | A | 1064 | C | 2.5 |
| 11 | A | 75 | G | 2.5 |
| 11 | A | 279 | C | 2.5 |
| 32 | Y | 69 | ALA | 2.5 |
| 11 | A | 1740 | G | 2.4 |
| 8 | 7 | 47 | ARG | 2.4 |
| 18 | H | 138 | LYS | 2.4 |
| 11 | A | 1068 | G | 2.4 |
| 18 | H | 59 | ARG | 2.4 |
| 11 | A | 1067 | A | 2.4 |
| 4 | 3 | 1 | MET | 2.4 |
| 11 | A | 504 | U | 2.4 |
| 17 | G | 84 | LYS | 2.4 |
| 11 | A | 654(C) | G | 2.4 |
| 11 | A | 1508 | A | 2.4 |
| 5 | 4 | 34 | GLU | 2.4 |
| 11 | A | 2188 | C | 2.4 |
| 31 | X | 53 | LYS | 2.3 |
| 11 | A | 2897 | U | 2.3 |
| 15 | E | 68 | ALA | 2.3 |
| 11 | A | 654(L) | G | 2.3 |
| 11 | A | 330 | A | 2.3 |
| 11 | A | 1328 | G | 2.3 |
| 21 | N | 138 | LEU | 2.3 |
| 15 | E | 66 | HIS | 2.3 |
| 18 | H | 167 | GLU | 2.2 |
| 11 | A | 1026 | U | 2.2 |
| 11 | A | 271(S) | G | 2.2 |
| 11 | A | 1091 | G | 2.2 |
| 7 | 6 | 37 | ARG | 2.2 |
| 11 | A | 1509 | C | 2.2 |
| 8 | 7 | 45 | ALA | 2.2 |
| 11 | A | 1078 | U | 2.2 |
| 11 | A | 654(D) | G | 2.2 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 23 | P | 19 | VAL | 2.2 |
| 12 | B | 110 | G | 2.2 |
| 12 | B | 62 | C | 2.2 |
| 18 | H | 156 | ALA | 2.1 |
| 11 | A | 623 | G | 2.1 |
| 11 | A | 11 | G | 2.1 |
| 11 | A | 51 | G | 2.1 |
| 30 | W | 113 | LYS | 2.1 |
| 16 | F | 174 | VAL | 2.1 |
| 14 | D | 261 | LYS | 2.1 |
| 11 | A | 1762 | A | 2.0 |
| 11 | A | 654 | A | 2.0 |
| 33 | Z | 163 | LEU | 2.0 |
| 23 | P | 137 | LYS | 2.0 |
| 18 | H | 170 | ARG | 2.0 |
| 12 | B | 61 | G | 2.0 |
| 17 | G | 117 | PHE | 2.0 |
| 17 | G | 2 | PRO | 2.0 |
| 24 | Q | 18 | LYS | 2.0 |
| 13 | C | 136 | LEU | 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.