



Full wwPDB/EMDataBank EM Map/Model Validation Report ⓘ

Dec 11, 2019 – 04:57 PM EST

PDB ID : 5T5H
EMDB ID: : EMD-8361
Title : Structure and assembly model for the Trypanosoma cruzi 60S ribosomal subunit
Authors : Liu, Z.; Gutierrez-Vargas, C.; Wei, J.; Grassucci, R.A.; Ramesh, M.; Espina, N.; Sun, M.; Tutuncuoglu, B.; Madison-Antenucci, S.; Woolford Jr., J.L.; Tong, L.; Frank, J.
Deposited on : 2016-08-31
Resolution : 2.54 Å(reported)

This is a Full wwPDB/EMDataBank EM Map/Model Validation Report
for a publicly released PDB/EMDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

MolProbity : 4.02b-467
Mogul : 1.8.0 (224370), CSD as540be (2019)
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : 2.4

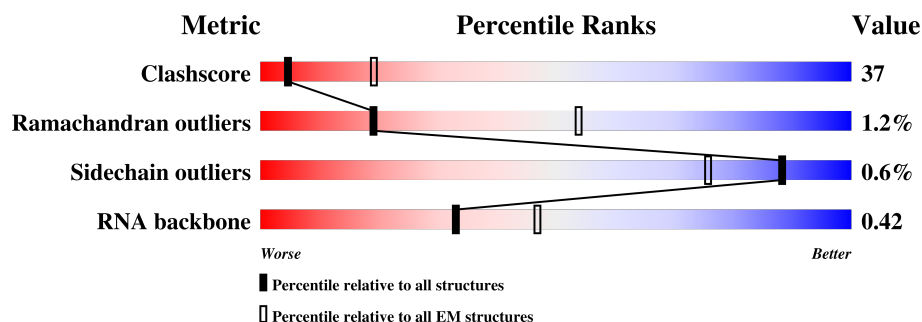
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.54 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.






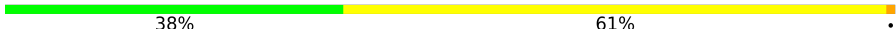
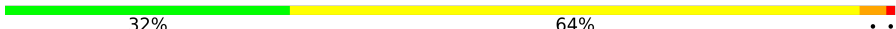
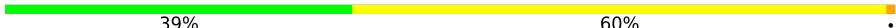
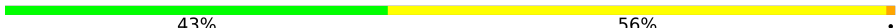


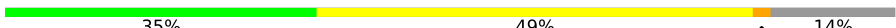
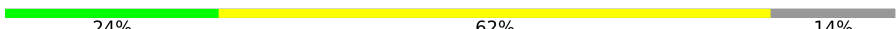
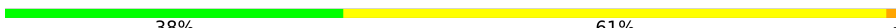




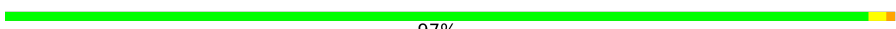
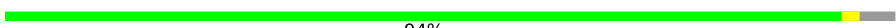
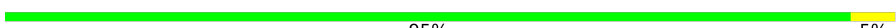
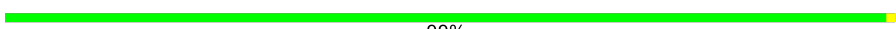
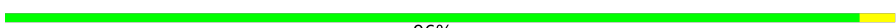




| Metric | Whole archive (#Entries) | EM structures (#Entries) |
|-----------------------|-----------------------------|-----------------------------|
| Clashscore | 136327 | 1886 |
| Ramachandran outliers | 132723 | 1663 |
| Sidechain outliers | 132532 | 1531 |
| RNA backbone | 3747 | 458 |

The table below summarises the geometric issues observed across the polymeric chains. The red, orange, yellow and green segments on the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|-------------------|
| 1 | A | 1278 | 24% 52% 23% . |
| 2 | B | 941 | 23% 55% 22% |
| 3 | C | 169 | 20% 48% 18% . 13% |
| 4 | D | 118 | 20% 61% 15% . |
| 5 | E | 146 | 21% 59% 18% . |
| 6 | F | 46 | 26% 33% 41% |
| 7 | G | 123 | 27% 51% 19% . . |
| 8 | H | 91 | 26% 57% 16% |


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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|---|
| 9 | I | 192 |  53% 46% . |
| 10 | L | 65 |  35% 63% . |
| 11 | N | 205 |  40% 42% . 16% |
| 12 | O | 203 |  38% 61% . |
| 13 | P | 149 |  32% 64% . . |
| 14 | Q | 203 |  39% 60% . |
| 15 | R | 152 |  43% 56% . |
| 16 | S | 177 |  38% 60% . |
| 17 | T | 150 |  53% 46% . |
| 18 | U | 146 |  35% 49% . 14% |
| 19 | V | 99 |  24% 62% 14% |
| 20 | W | 127 |  38% 61% . |
| 21 | X | 116 |  32% 61% . 6% |
| 22 | Y | 61 |  43% 52% 5% |
| 23 | Z | 113 |  38% 61% . |
| 24 | a | 132 |  77% . 20% |
| 25 | b | 144 |  97% . . |
| 26 | c | 125 |  94% . . |
| 27 | d | 63 |  95% 5% |
| 28 | e | 245 |  99% . |
| 29 | f | 397 |  96% . |
| 30 | g | 66 |  95% 5% |
| 31 | h | 169 |  88% . 11% |
| 32 | i | 113 |  99% . |
| 33 | j | 104 |  100% |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 34 | k | 120 |  93% • 6% |
| 35 | l | 136 |  97% • |
| 36 | m | 95 |  97% • |
| 37 | n | 81 |  99% • |
| 38 | o | 85 |  96% • |
| 39 | p | 58 |  88% • 10% |
| 40 | q | 50 |  98% • |
| 41 | r | 337 |  96% • • |
| 42 | t | 93 |  99% • |
| 43 | u | 254 |  75% • 24% |
| 44 | v | 171 |  76% • 23% |
| 45 | w | 215 |  99% • |
| 46 | x | 223 |  93% 7% |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|------|-----------|----------|---------|------------------|
| 1 | OMC | A | 1053 | - | - | X | - |
| 1 | OMC | A | 919 | - | - | X | - |

2 Entry composition

There are 49 unique types of molecules in this entry. The entry contains 105124 atoms, of which 12 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called RNA LARGE SUBUNIT ALPHA.

| Mol | Chain | Residues | Atoms | | | | | | AltConf | Trace |
|-----|-------|----------|-------|-------|----|------|------|------|---------|-------|
| 1 | A | 1278 | Total | C | H | N | O | P | 0 | 0 |
| | | | 27453 | 12272 | 12 | 5035 | 8856 | 1278 | | |

- Molecule 2 is a RNA chain called RNA LARGE SUBUNIT BETA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|-----|---------|-------|
| 2 | B | 941 | Total | C | N | O | P | 0 | 0 |
| | | | 20110 | 9007 | 3606 | 6556 | 941 | | |

- Molecule 3 is a RNA chain called 5.8S rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 3 | C | 147 | Total | C | N | O | P | 0 | 0 |
| | | | 3140 | 1408 | 557 | 1028 | 147 | | |

- Molecule 4 is a RNA chain called 5S rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 4 | D | 114 | Total | C | N | O | P | 0 | 0 |
| | | | 2432 | 1084 | 435 | 799 | 114 | | |

- Molecule 5 is a RNA chain called srRNA1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 5 | E | 146 | Total | C | N | O | P | 0 | 0 |
| | | | 3110 | 1390 | 552 | 1022 | 146 | | |

- Molecule 6 is a RNA chain called srRNA3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 6 | F | 46 | Total | C | N | O | P | 0 | 0 |
| | | | 965 | 433 | 165 | 321 | 46 | | |

- Molecule 7 is a RNA chain called srRNA2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 7 | G | 121 | Total | C | N | O | P | 0 | 0 |
| | | | 2578 | 1150 | 455 | 852 | 121 | | |

- Molecule 8 is a RNA chain called srRNA4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 8 | H | 91 | Total | C | N | O | P | 0 | 0 |
| | | | 1946 | 867 | 354 | 634 | 91 | | |

- Molecule 9 is a protein called 60S ribosomal protein L18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 9 | I | 192 | Total | C | N | O | S | 0 | 0 |
| | | | 1515 | 951 | 308 | 250 | 6 | | |

- Molecule 10 is a protein called 60S ribosomal protein L11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 10 | L | 65 | Total | C | N | O | S | 0 | 0 |
| | | | 535 | 333 | 112 | 85 | 5 | | |

- Molecule 11 is a protein called 60S ribosomal protein L13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 11 | N | 172 | Total | C | N | O | S | 0 | 0 |
| | | | 1413 | 892 | 291 | 224 | 6 | | |

- Molecule 12 is a protein called 60S ribosomal protein L13a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 12 | O | 203 | Total | C | N | O | S | 0 | 1 |
| | | | 1642 | 1046 | 322 | 269 | 5 | | |

- Molecule 13 is a protein called 40S ribosomal protein L14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13 | P | 149 | Total | C | N | O | S | 0 | 0 |
| | | | 1186 | 746 | 235 | 203 | 2 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------|------------|
| P | 72 | LYS | ARG | conflict | UNP Q4DQ35 |

- Molecule 14 is a protein called Ribosomal protein L15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 14 | Q | 203 | Total | C | N | O | S | 1 | 0 |
| | | | 1710 | 1076 | 365 | 263 | 6 | | |

- Molecule 15 is a protein called 60S ribosomal protein L17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 15 | R | 152 | Total | C | N | O | S | 0 | 0 |
| | | | 1226 | 768 | 243 | 205 | 10 | | |

- Molecule 16 is a protein called 60S ribosomal protein L18a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16 | S | 177 | Total | C | N | O | S | 0 | 0 |
| | | | 1449 | 919 | 282 | 242 | 6 | | |

- Molecule 17 is a protein called Ribosomal protein L19-like protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17 | T | 150 | Total | C | N | O | S | 0 | 0 |
| | | | 1273 | 789 | 273 | 205 | 6 | | |

- Molecule 18 is a protein called Ribosomal protein L21E (60S).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18 | U | 126 | Total | C | N | O | S | 0 | 0 |
| | | | 1016 | 642 | 207 | 163 | 4 | | |

- Molecule 19 is a protein called 60S ribosomal protein L22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19 | V | 85 | Total | C | N | O | S | 0 | 0 |
| | | | 730 | 481 | 127 | 120 | 2 | | |

- Molecule 20 is a protein called 60S ribosomal protein L23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20 | W | 127 | Total | C | N | O | S | 0 | 0 |
| | | | 960 | 611 | 180 | 166 | 3 | | |

- Molecule 21 is a protein called 60S ribosomal protein L23a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 21 | X | 109 | Total | C | N | O | S | 0 | 0 |
| | | | 890 | 565 | 164 | 157 | 4 | | |

- Molecule 22 is a protein called Ribosomal protein L24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 22 | Y | 61 | Total | C | N | O | S | 0 | 0 |
| | | | 519 | 340 | 98 | 77 | 4 | | |

- Molecule 23 is a protein called 60S ribosomal protein L26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23 | Z | 113 | Total | C | N | O | S | 0 | 0 |
| | | | 919 | 571 | 195 | 150 | 3 | | |

- Molecule 24 is a protein called Ribosomal protein L27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24 | a | 105 | Total | C | N | O | S | 0 | 0 |
| | | | 877 | 565 | 175 | 135 | 2 | | |

- Molecule 25 is a protein called 60S ribosomal protein L27A/L29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25 | b | 144 | Total | C | N | O | S | 0 | 0 |
| | | | 1135 | 720 | 226 | 185 | 4 | | |

- Molecule 26 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 26 | c | 120 | Total | C | N | O | S | 0 | 0 |
| | | | 935 | 583 | 187 | 161 | 4 | | |

- Molecule 27 is a protein called Ribosomal protein L29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 27 | d | 63 | Total | C | N | O | S | 0 | 0 |
| | | | 518 | 314 | 122 | 81 | 1 | | |

- Molecule 28 is a protein called 60S ribosomal protein L2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 28 | e | 245 | Total | C | N | O | S | 0 | 0 |
| | | | 1874 | 1170 | 379 | 314 | 11 | | |

- Molecule 29 is a protein called Ribosomal protein L13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 29 | f | 397 | Total | C | N | O | S | 0 | 0 |
| | | | 3189 | 2010 | 630 | 537 | 12 | | |

- Molecule 30 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 30 | g | 66 | Total | C | N | O | S | 0 | 0 |
| | | | 523 | 335 | 91 | 93 | 4 | | |

There are 6 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------|------------|
| g | 91 | VAL | ALA | conflict | UNP Q4DIC9 |
| g | 92 | LEU | GLY | conflict | UNP Q4DIC9 |
| g | 93 | SER | ASN | conflict | UNP Q4DIC9 |
| g | 94 | ILE | ASN | conflict | UNP Q4DIC9 |
| g | 95 | THR | LEU | conflict | UNP Q4DIC9 |
| g | 97 | VAL | LEU | conflict | UNP Q4DIC9 |

- Molecule 31 is a protein called 60S ribosomal subunit protein L31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31 | h | 150 | Total | C | N | O | S | 0 | 0 |
| | | | 1064 | 671 | 208 | 183 | 2 | | |

- Molecule 32 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32 | i | 113 | Total | C | N | O | S | 0 | 0 |
| | | | 928 | 585 | 185 | 154 | 4 | | |

- Molecule 33 is a protein called 60S ribosomal protein L34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 33 | j | 104 | Total | C | N | O | S | 0 | 0 |
| | | | 863 | 532 | 191 | 137 | 3 | | |

- Molecule 34 is a protein called 60S ribosomal protein L35.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 34 | k | 113 | Total | C | N | O | S | 0 | 0 |
| | | | 967 | 602 | 212 | 150 | 3 | | |

- Molecule 35 is a protein called Ribosomal protein L35A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35 | l | 136 | Total | C | N | O | S | 0 | 0 |
| | | | 1057 | 662 | 217 | 174 | 4 | | |

- Molecule 36 is a protein called Ribosomal protein L36.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 36 | m | 95 | Total | C | N | O | S | 0 | 0 |
| | | | 757 | 474 | 159 | 121 | 3 | | |

- Molecule 37 is a protein called Ribosomal protein L37.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37 | n | 81 | Total | C | N | O | S | 0 | 0 |
| | | | 679 | 413 | 154 | 106 | 6 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------|------------|
| n | 64 | MET | CYS | conflict | UNP Q4DXW6 |

- Molecule 38 is a protein called 60S ribosomal protein L37a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38 | o | 85 | Total | C | N | O | S | 0 | 0 |
| | | | 669 | 413 | 141 | 108 | 7 | | |

- Molecule 39 is a protein called Ribosomal protein L38.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 39 | p | 52 | Total | C | N | O | S | 0 | 0 |
| | | | 432 | 277 | 82 | 71 | 2 | | |

- Molecule 40 is a protein called Ribosomal protein L39.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 40 | q | 50 | Total | C | N | O | S | 0 | 0 |
| | | | 456 | 297 | 98 | 61 | | | |

- Molecule 41 is a protein called 60S ribosomal protein L4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 41 | r | 325 | Total | C | N | O | S | 0 | 0 |
| | | | 2513 | 1575 | 489 | 434 | 15 | | |

- Molecule 42 is a protein called 60S ribosomal protein L44.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 42 | t | 93 | Total | C | N | O | S | 0 | 0 |
| | | | 763 | 486 | 149 | 123 | 5 | | |

- Molecule 43 is a protein called 60S ribosomal protein L5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43 | u | 193 | Total | C | N | O | S | 0 | 0 |
| | | | 1541 | 982 | 292 | 262 | 5 | | |

- Molecule 44 is a protein called 60S ribosomal protein L6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 44 | v | 132 | Total | C | N | O | S | 0 | 0 |
| | | | 1037 | 661 | 194 | 179 | 3 | | |

- Molecule 45 is a protein called 60S ribosomal protein L7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 45 | w | 215 | Total | C | N | O | S | 0 | 0 |
| | | | 1749 | 1110 | 342 | 288 | 9 | | |

- Molecule 46 is a protein called Ribosomal protein L7a-like protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 46 | x | 208 | Total | C | N | O | S | 0 | 0 |
| | | | 1690 | 1062 | 338 | 284 | 6 | | |

- Molecule 47 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| 47 | G | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |
| 47 | D | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |
| 47 | E | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |
| 47 | H | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |
| 47 | B | 32 | Total | Mg | 0 |
| | | | 32 | 32 | |
| 47 | C | 2 | Total | Mg | 0 |
| | | | 2 | 2 | |
| 47 | A | 66 | Total | Mg | 0 |
| | | | 66 | 66 | |
| 47 | F | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |

- Molecule 48 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| 48 | o | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 48 | t | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 48 | n | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |

- Molecule 49 is water.

| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| 49 | A | 38 | Total | O | 0 |
| | | | 38 | 38 | |
| 49 | B | 26 | Total | O | 0 |
| | | | 26 | 26 | |
| 49 | C | 1 | Total | O | 0 |
| | | | 1 | 1 | |

Continued on next page...

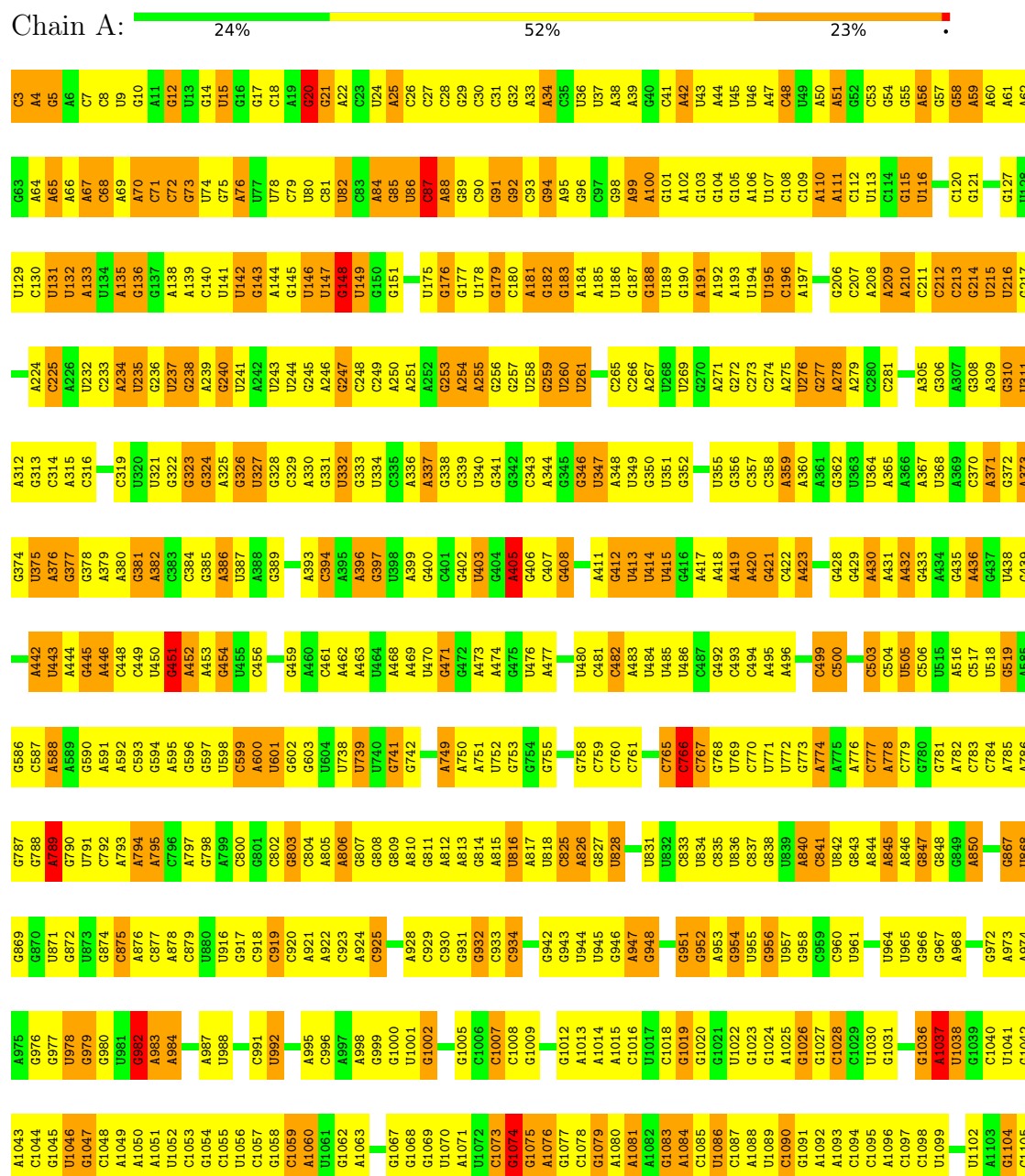
Continued from previous page...

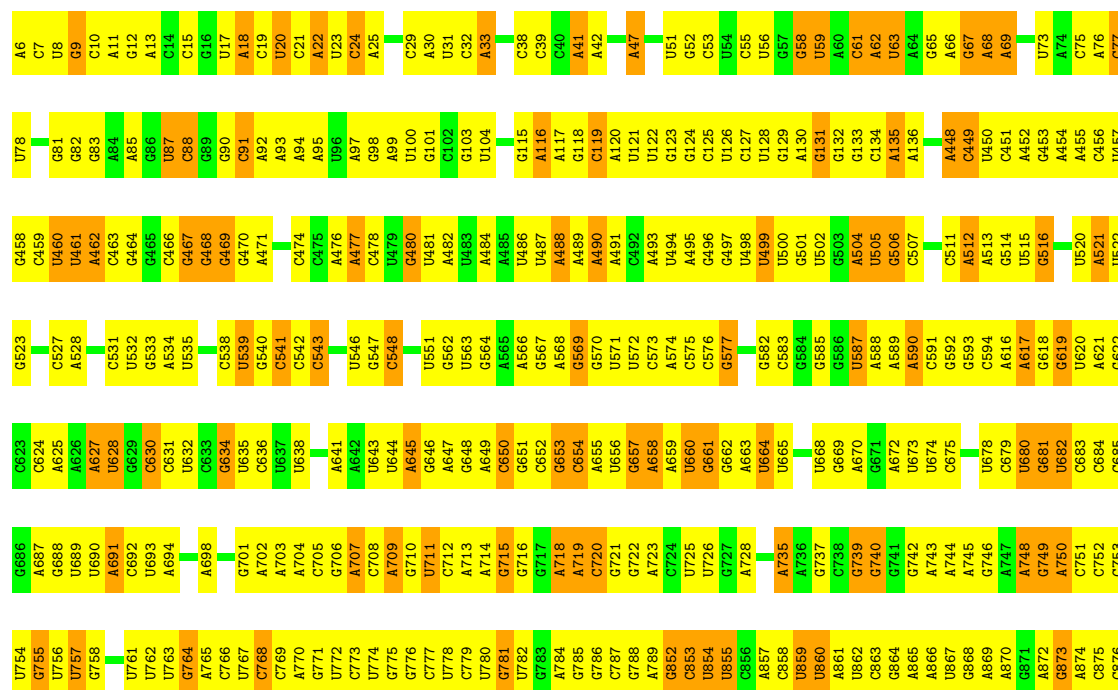
| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|------------|--------|---------|
| 49 | E | 1 | Total 1 | O 1 | 0 |
| 49 | G | 3 | Total 3 | O 3 | 0 |
| 49 | H | 2 | Total 2 | O 2 | 0 |
| 49 | I | 1 | Total 1 | O 1 | 0 |
| 49 | R | 1 | Total 1 | O 1 | 0 |
| 49 | a | 1 | Total 1 | O 1 | 0 |
| 49 | b | 1 | Total 1 | O 1 | 0 |
| 49 | e | 2 | Total 2 | O 2 | 0 |
| 49 | f | 1 | Total 1 | O 1 | 0 |
| 49 | j | 1 | Total 1 | O 1 | 0 |
| 49 | k | 1 | Total 1 | O 1 | 0 |
| 49 | n | 1 | Total 1 | O 1 | 0 |
| 49 | w | 1 | Total 1 | O 1 | 0 |
| 49 | x | 1 | Total 1 | O 1 | 0 |

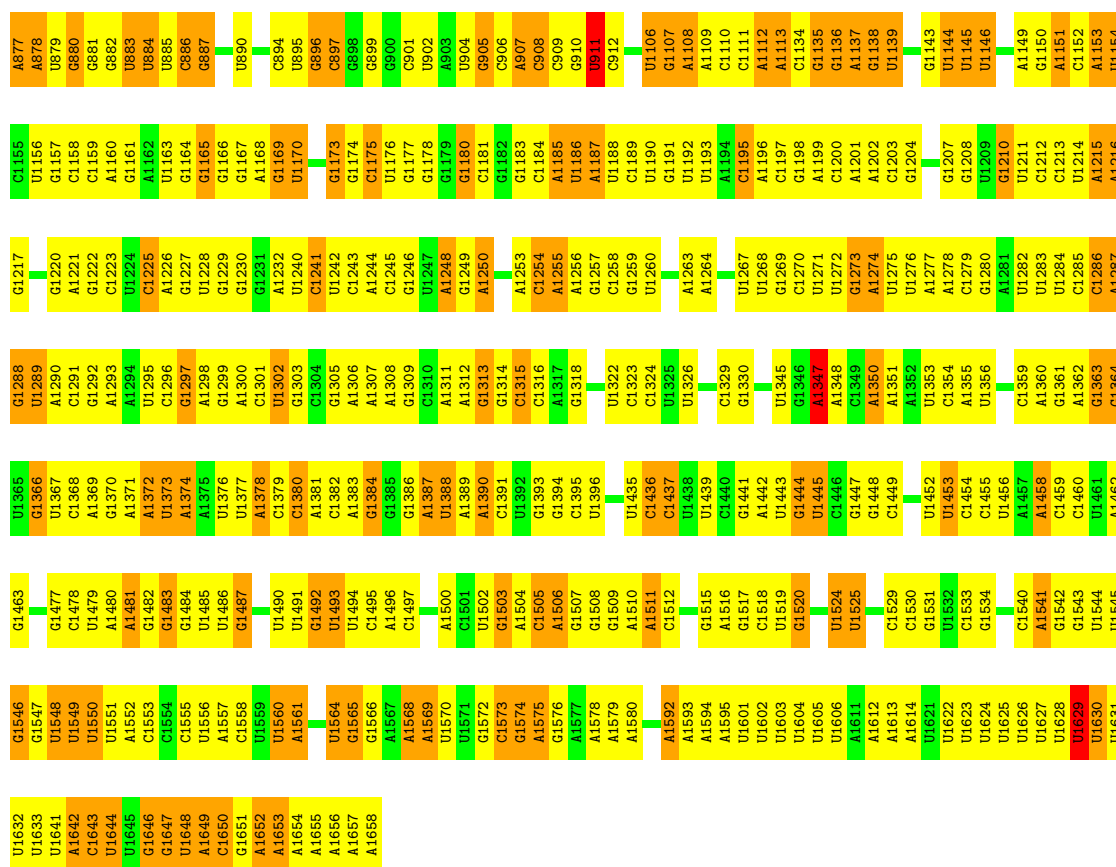
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. 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. 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: RNA LARGE SUBUNIT ALPHA

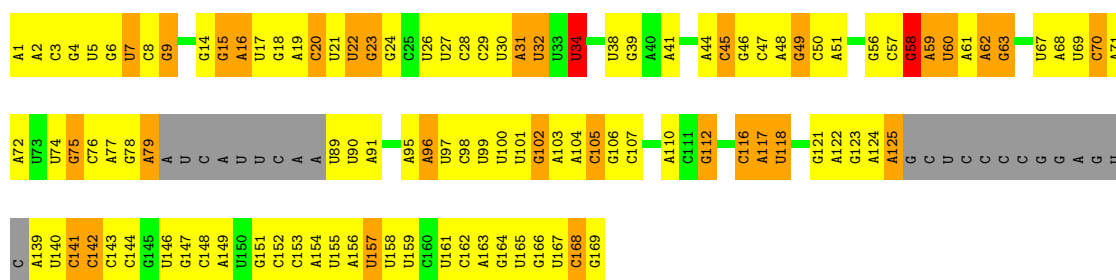






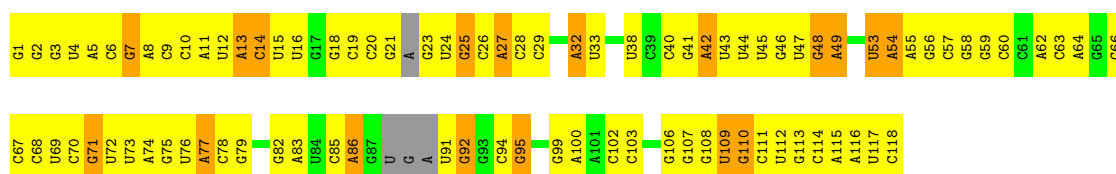
• Molecule 3: 5.8S rRNA

Chain C: 20% 48% 18% 13%



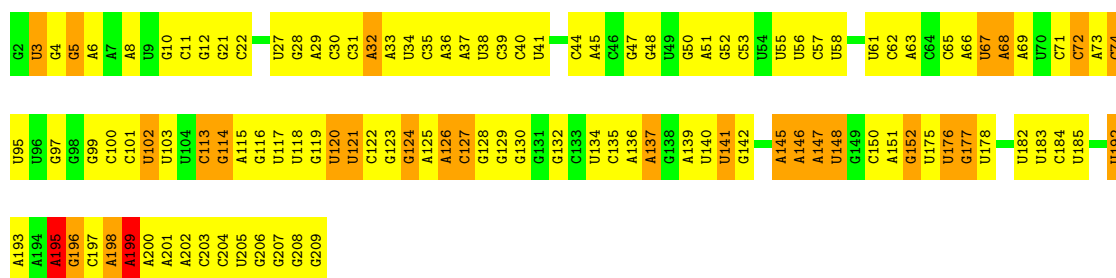
• Molecule 4: 5S rRNA

Chain D: 20% 61% 15%



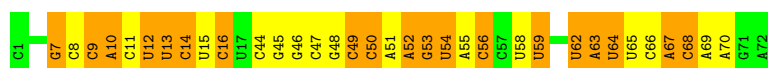
• Molecule 5: srRNA1

Chain E: 21% 59% 18%



• Molecule 6: srRNA3

Chain F: 26% 33% 41%



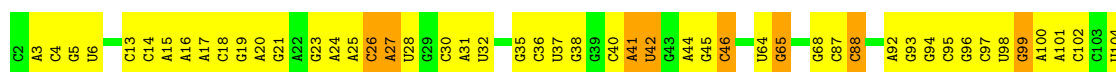
• Molecule 7: srRNA2

Chain G: 27% 51% 19% . .



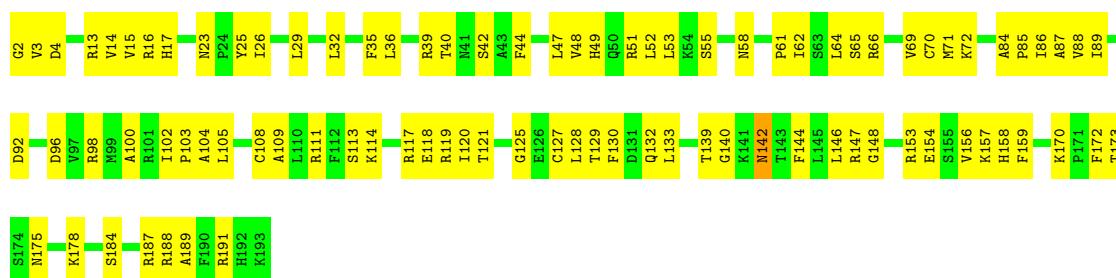
• Molecule 8: srRNA4

Chain H: 26% 57% 16%



• Molecule 9: 60S ribosomal protein L18

Chain I: 53% 46% .



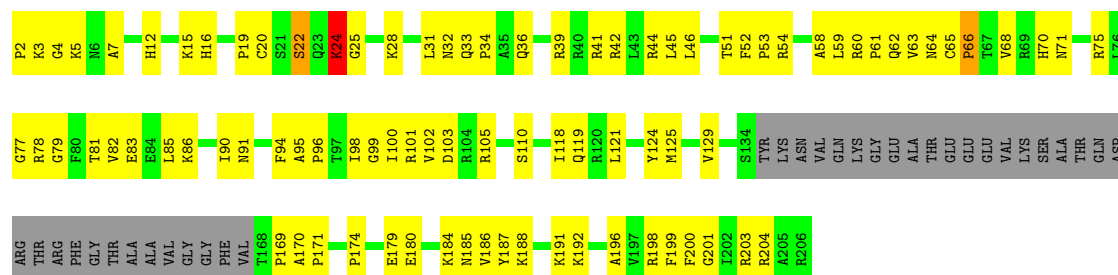
• Molecule 10: 60S ribosomal protein L11

Chain L: 35% 63% .



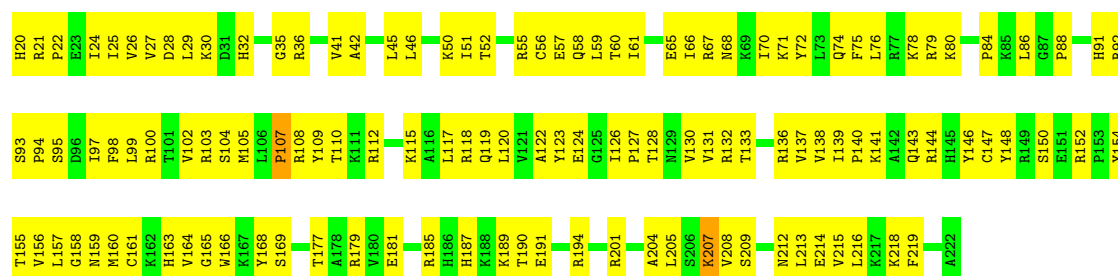
• Molecule 11: 60S ribosomal protein L13

Chain N: 40% 42% 16%



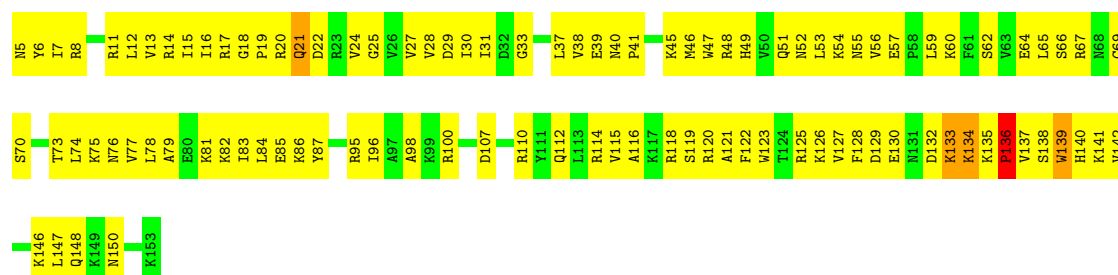
• Molecule 12: 60S ribosomal protein L13a

Chain O: 38% 61%



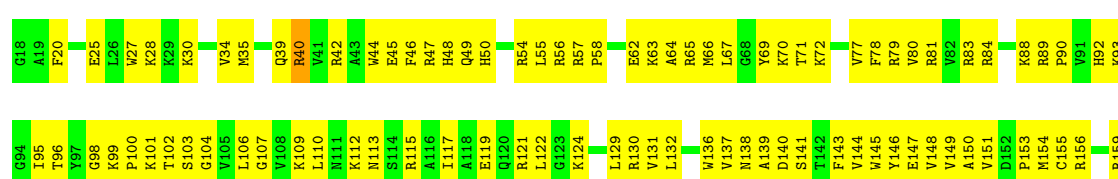
• Molecule 13: 40S ribosomal protein L14

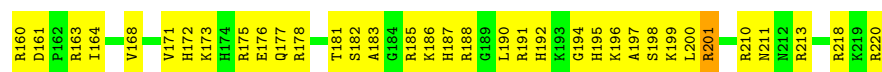
Chain P: 32% 64%



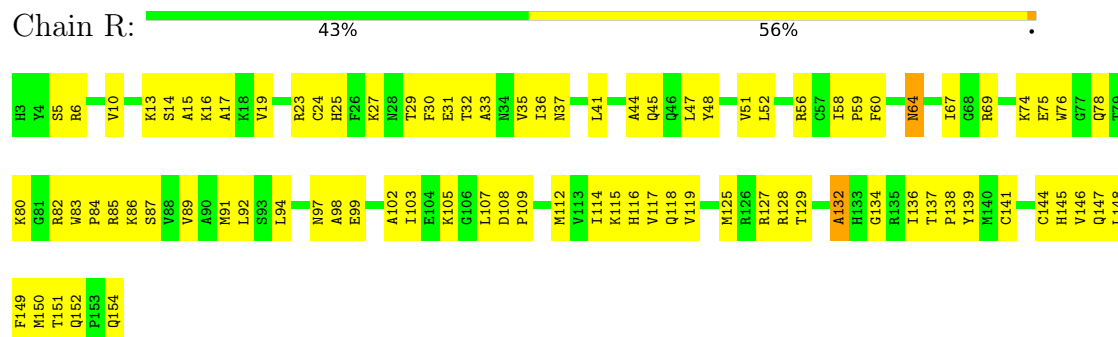
• Molecule 14: Ribosomal protein L15

Chain Q: 39% 60%

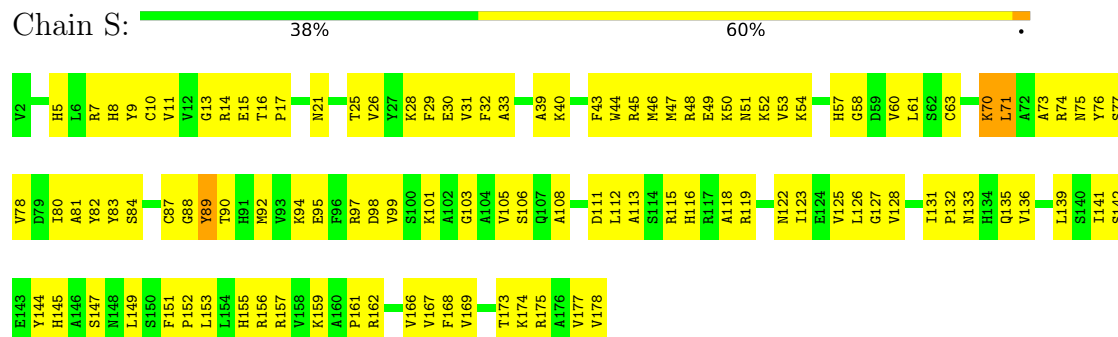




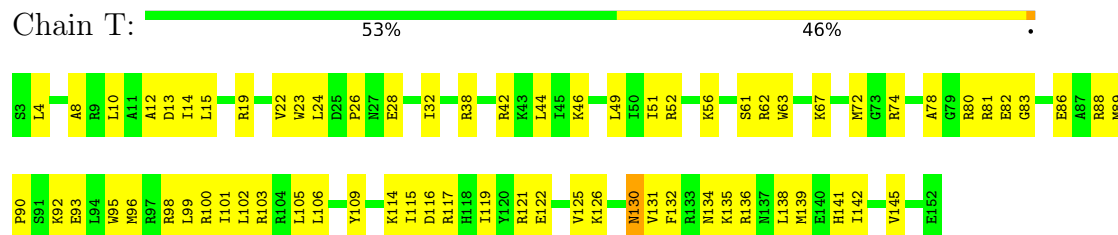
• Molecule 15: 60S ribosomal protein L17



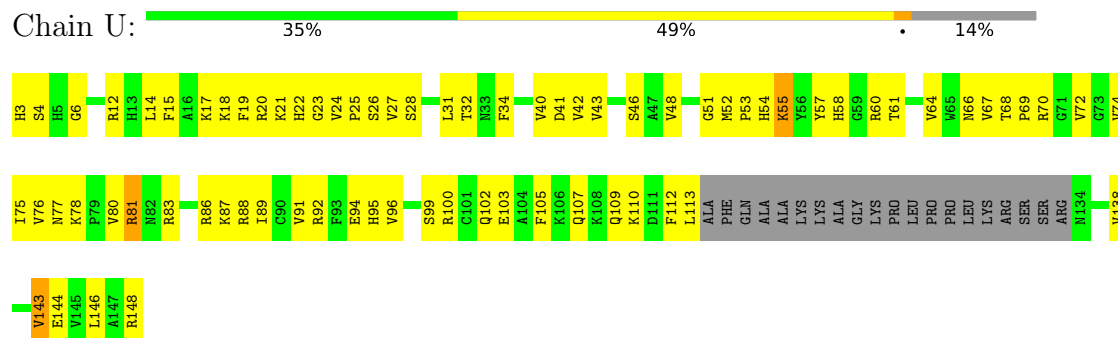
• Molecule 16: 60S ribosomal protein L18a



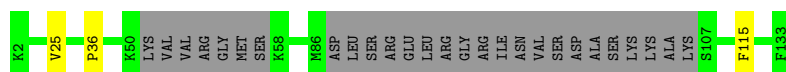
• Molecule 17: Ribosomal protein L19-like protein



• Molecule 18: Ribosomal protein L21E (60S)



Chain a: 77% 20%



- Molecule 25: 60S ribosomal protein L27A/L29

Chain b: 97% ..



- Molecule 26: 60S ribosomal protein L28

Chain c: 94% . .



- Molecule 27: Ribosomal protein L29

Chain d: 95% 5%



- Molecule 28: 60S ribosomal protein L2

Chain e: 99% .



- Molecule 29: Ribosomal protein L13

Chain f: 96% .



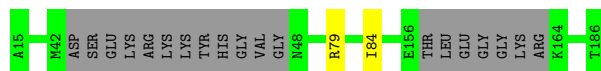
- Molecule 30: 60S ribosomal protein L30

Chain g: 95% 5%



- Molecule 31: 60S ribosomal subunit protein L31

Chain h: 88% . 11%



- Molecule 32: 60S ribosomal protein L32

Chain i:  99%



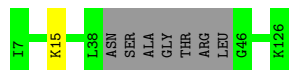
- Molecule 33: 60S ribosomal protein L34

Chain j:  100%

There are no outlier residues recorded for this chain.

- Molecule 34: 60S ribosomal protein L35

Chain k:  93% • 6%



- Molecule 35: Ribosomal protein L35A

Chain l:  97%



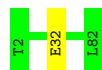
- Molecule 36: Ribosomal protein L36

Chain m:  97%



- Molecule 37: Ribosomal protein L37

Chain n:  99%




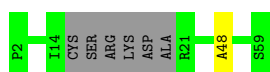
- Molecule 38: 60S ribosomal protein L37a

Chain o:  96%



- Molecule 39: Ribosomal protein L38

Chain p:  88% • 10%



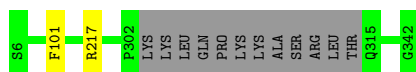
- Molecule 40: Ribosomal protein L39

Chain q: 98%



- Molecule 41: 60S ribosomal protein L4

Chain r: 96%



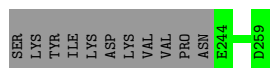
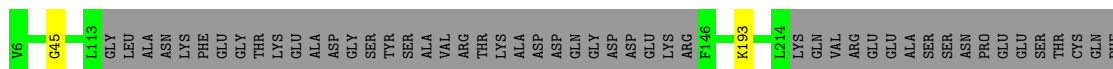
- Molecule 42: 60S ribosomal protein L44

Chain t: 99%



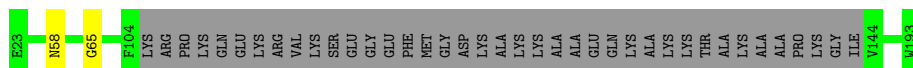
- Molecule 43: 60S ribosomal protein L5

Chain u: 75%



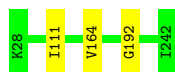
- Molecule 44: 60S ribosomal protein L6

Chain v: 76%



- Molecule 45: 60S ribosomal protein L7

Chain w: 99%



- Molecule 46: Ribosomal protein L7a-like protein

Chain x: 93%

| | | | | | | | | | | | | | | | | | | | |
|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| R88 | D169 | VAL | ALA | THR | GLU | LYS | LYS | LYS | ASN | PRO | GLU | ALA | ALA | SER | LYS | LYS | A185 | P216 | N310 |
|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|

4 Experimental information

| Property | Value | Source |
|--------------------------------------|---|-----------|
| Reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | Depositor |
| Number of particles used | 235000 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | FEI TITAN KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/\text{\AA}^2$) | 27 | Depositor |
| Minimum defocus (nm) | Not provided | Depositor |
| Maximum defocus (nm) | Not provided | Depositor |
| Magnification | Not provided | Depositor |
| Image detector | FEI FALCON II (4k x 4k) | Depositor |

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: OMC, ZN, OMG, OMU, MG, 5MC, 7MG, A2M

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 | $\# Z > 2$ | RMSZ | $\# Z > 2$ |
| 1 | A | 1.31 | 11/29897 (0.0%) | 1.06 | 45/46554 (0.1%) |
| 10 | L | 0.38 | 0/542 | 0.52 | 0/718 |
| 11 | N | 0.66 | 0/1442 | 0.65 | 1/1926 (0.1%) |
| 12 | O | 0.67 | 0/1673 | 0.62 | 0/2244 |
| 13 | P | 0.51 | 0/1204 | 0.60 | 1/1618 (0.1%) |
| 14 | Q | 0.82 | 0/1752 | 0.80 | 7/2341 (0.3%) |
| 15 | R | 0.74 | 0/1251 | 0.67 | 0/1678 |
| 16 | S | 0.62 | 0/1484 | 0.60 | 0/1997 |
| 17 | T | 0.57 | 0/1292 | 0.58 | 0/1711 |
| 18 | U | 0.67 | 0/1037 | 0.62 | 0/1389 |
| 19 | V | 0.49 | 0/742 | 0.57 | 0/986 |
| 2 | B | 1.14 | 4/21699 (0.0%) | 1.00 | 16/33776 (0.0%) |
| 20 | W | 0.64 | 0/977 | 0.61 | 0/1318 |
| 21 | X | 0.65 | 0/905 | 0.65 | 0/1215 |
| 22 | Y | 0.69 | 0/539 | 0.66 | 0/728 |
| 23 | Z | 0.56 | 0/934 | 0.59 | 0/1249 |
| 24 | a | 0.45 | 0/895 | 0.55 | 0/1190 |
| 25 | b | 0.73 | 0/1164 | 0.69 | 2/1558 (0.1%) |
| 26 | c | 0.55 | 0/946 | 0.58 | 0/1263 |
| 27 | d | 0.57 | 0/527 | 0.67 | 0/703 |
| 28 | e | 0.72 | 0/1915 | 0.66 | 0/2576 |
| 29 | f | 0.72 | 0/3257 | 0.69 | 3/4376 (0.1%) |
| 3 | C | 1.23 | 0/3306 | 1.04 | 3/5144 (0.1%) |
| 30 | g | 0.43 | 0/530 | 0.55 | 0/712 |
| 31 | h | 0.61 | 0/1076 | 0.60 | 0/1450 |
| 32 | i | 0.74 | 0/948 | 0.67 | 0/1265 |
| 33 | j | 0.62 | 0/879 | 0.62 | 0/1174 |
| 34 | k | 0.53 | 0/972 | 0.61 | 0/1283 |
| 35 | l | 0.77 | 0/1079 | 0.66 | 0/1451 |
| 36 | m | 0.53 | 0/767 | 0.62 | 0/1017 |
| 37 | n | 0.85 | 0/692 | 0.75 | 0/921 |
| 38 | o | 0.74 | 0/681 | 0.67 | 0/905 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|------------------|-------------|------------------|
| | | RMSZ | # Z >2 | RMSZ | # Z >2 |
| 39 | p | 0.45 | 0/437 | 0.56 | 0/579 |
| 4 | D | 0.83 | 0/2715 | 0.90 | 0/4226 |
| 40 | q | 0.66 | 0/470 | 0.65 | 0/626 |
| 41 | r | 0.70 | 0/2560 | 0.63 | 0/3444 |
| 42 | t | 0.62 | 0/777 | 0.65 | 0/1030 |
| 43 | u | 0.52 | 0/1568 | 0.56 | 0/2104 |
| 44 | v | 0.51 | 0/1055 | 0.57 | 0/1420 |
| 45 | w | 0.68 | 0/1780 | 0.62 | 0/2384 |
| 46 | x | 0.60 | 0/1715 | 0.64 | 0/2306 |
| 5 | E | 0.95 | 2/3472 (0.1%) | 0.92 | 1/5396 (0.0%) |
| 6 | F | 0.88 | 0/1074 | 0.98 | 3/1665 (0.2%) |
| 7 | G | 1.25 | 1/2849 (0.0%) | 1.06 | 5/4431 (0.1%) |
| 8 | H | 1.16 | 0/2171 | 1.01 | 1/3374 (0.0%) |
| 9 | I | 0.67 | 0/1540 | 0.67 | 0/2058 |
| All | All | 1.02 | 18/111187 (0.0%) | 0.90 | 88/163479 (0.1%) |

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 |
|-----|-------|---------------------|---------------------|
| 14 | Q | 0 | 1 |
| 24 | a | 0 | 1 |
| All | All | 0 | 2 |

All (18) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 1 | A | 1610 | A | N9-C4 | -6.70 | 1.33 | 1.37 |
| 1 | A | 1079 | G | N9-C4 | -6.39 | 1.32 | 1.38 |
| 2 | B | 1347 | A | N9-C4 | -6.00 | 1.34 | 1.37 |
| 1 | A | 20 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 1 | A | 405 | A | N9-C4 | -5.83 | 1.34 | 1.37 |
| 2 | B | 18 | A | N9-C4 | -5.81 | 1.34 | 1.37 |
| 1 | A | 789 | A | N9-C4 | -5.81 | 1.34 | 1.37 |
| 5 | E | 199 | A | N9-C4 | -5.76 | 1.34 | 1.37 |
| 1 | A | 1120 | G | N9-C4 | -5.51 | 1.33 | 1.38 |
| 2 | B | 1592 | A | O3'-P | -5.47 | 1.54 | 1.61 |
| 1 | A | 1074 | G | C5-C4 | -5.46 | 1.34 | 1.38 |
| 7 | G | 164 | A | N9-C4 | -5.44 | 1.34 | 1.37 |
| 1 | A | 1628 | G | N9-C4 | -5.32 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 1 | A | 982 | G | C5-C4 | -5.27 | 1.34 | 1.38 |
| 1 | A | 1060 | A | N9-C4 | -5.26 | 1.34 | 1.37 |
| 2 | B | 716 | G | C5-C4 | -5.22 | 1.34 | 1.38 |
| 5 | E | 195 | A | N9-C4 | -5.14 | 1.34 | 1.37 |
| 1 | A | 1110 | U | C2-N3 | -5.08 | 1.34 | 1.37 |

All (88) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-------|------|------------|--------|-------------|----------|
| 1 | A | 1578 | U | OP2-P-O3' | -10.15 | 82.87 | 105.20 |
| 1 | A | 1578 | U | OP1-P-O3' | -9.94 | 83.34 | 105.20 |
| 14 | Q | 40[A] | ARG | CA-C-O | 9.91 | 140.91 | 120.10 |
| 14 | Q | 40[B] | ARG | CA-C-O | 9.91 | 140.91 | 120.10 |
| 1 | A | 20 | G | N3-C4-C5 | 9.68 | 133.44 | 128.60 |
| 2 | B | 1629 | U | O5'-P-OP2 | 9.65 | 122.28 | 110.70 |
| 1 | A | 1646 | A | N1-C6-N6 | 8.05 | 123.43 | 118.60 |
| 1 | A | 1579 | A | OP1-P-OP2 | 7.81 | 131.32 | 119.60 |
| 1 | A | 20 | G | C4-C5-N7 | 7.72 | 113.89 | 110.80 |
| 1 | A | 1610 | A | C2-N3-C4 | -7.17 | 107.02 | 110.60 |
| 14 | Q | 40[A] | ARG | CA-C-N | -6.91 | 102.00 | 117.20 |
| 14 | Q | 40[B] | ARG | CA-C-N | -6.91 | 102.00 | 117.20 |
| 11 | N | 24 | LYS | N-CA-C | -6.80 | 92.64 | 111.00 |
| 1 | A | 1089 | U | C2-N1-C1' | 6.49 | 125.49 | 117.70 |
| 2 | B | 1629 | U | O5'-P-OP1 | -6.41 | 99.94 | 105.70 |
| 2 | B | 1286 | C | C6-N1-C2 | -6.38 | 117.75 | 120.30 |
| 1 | A | 1735 | U | C5-C6-N1 | -6.34 | 119.53 | 122.70 |
| 1 | A | 825 | C | C2-N1-C1' | 6.26 | 125.69 | 118.80 |
| 1 | A | 1646 | A | N9-C4-C5 | -6.22 | 103.31 | 105.80 |
| 2 | B | 469 | G | N3-C4-C5 | 6.19 | 131.69 | 128.60 |
| 1 | A | 20 | G | N3-C4-N9 | -6.18 | 122.29 | 126.00 |
| 1 | A | 1622 | G | C4-N9-C1' | -6.14 | 118.52 | 126.50 |
| 2 | B | 1286 | C | N3-C2-O2 | -6.02 | 117.69 | 121.90 |
| 1 | A | 148 | G | P-O3'-C3' | 6.00 | 126.90 | 119.70 |
| 1 | A | 1933 | C | N1-C2-O2 | -6.00 | 115.30 | 118.90 |
| 6 | F | 49 | C | C2-N1-C1' | 6.00 | 125.39 | 118.80 |
| 1 | A | 1610 | A | N3-C4-N9 | -5.95 | 122.64 | 127.40 |
| 7 | G | 159 | G | C4-C5-N7 | 5.90 | 113.16 | 110.80 |
| 1 | A | 1037 | A | P-O3'-C3' | 5.89 | 126.77 | 119.70 |
| 1 | A | 20 | G | C5-N7-C8 | -5.85 | 101.38 | 104.30 |
| 2 | B | 1520 | G | O4'-C1'-N9 | 5.83 | 112.87 | 108.20 |
| 1 | A | 788 | G | N3-C4-N9 | 5.83 | 129.50 | 126.00 |
| 7 | G | 159 | G | C6-C5-N7 | -5.83 | 126.90 | 130.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-------|------|------------|-------|-------------|----------|
| 1 | A | 1364 | C | N1-C2-O2 | 5.73 | 122.34 | 118.90 |
| 1 | A | 20 | G | C4-N9-C1' | -5.72 | 119.06 | 126.50 |
| 1 | A | 1120 | G | N3-C4-N9 | -5.71 | 122.57 | 126.00 |
| 1 | A | 451 | G | O4'-C1'-N9 | 5.71 | 112.77 | 108.20 |
| 29 | f | 203 | LEU | CA-CB-CG | 5.70 | 128.41 | 115.30 |
| 25 | b | 17 | CYS | CA-CB-SG | -5.69 | 103.75 | 114.00 |
| 2 | B | 678 | U | C2-N1-C1' | 5.66 | 124.49 | 117.70 |
| 1 | A | 1646 | A | C5-C6-N6 | -5.66 | 119.17 | 123.70 |
| 1 | A | 1364 | C | C2-N1-C1' | 5.57 | 124.92 | 118.80 |
| 1 | A | 979 | G | C4-C5-N7 | 5.54 | 113.02 | 110.80 |
| 2 | B | 585 | G | N3-C4-N9 | -5.52 | 122.69 | 126.00 |
| 1 | A | 1622 | G | N3-C4-N9 | -5.51 | 122.69 | 126.00 |
| 29 | f | 363 | LEU | CB-CG-CD2 | -5.50 | 101.66 | 111.00 |
| 8 | H | 104 | U | C5-C6-N1 | -5.49 | 119.96 | 122.70 |
| 25 | b | 16 | PHE | N-CA-C | -5.48 | 96.21 | 111.00 |
| 3 | C | 102 | G | N3-C4-C5 | 5.48 | 131.34 | 128.60 |
| 1 | A | 1943 | U | N1-C2-O2 | 5.47 | 126.63 | 122.80 |
| 1 | A | 980 | G | N9-C4-C5 | -5.47 | 103.21 | 105.40 |
| 1 | A | 1368 | U | C2-N1-C1' | 5.46 | 124.26 | 117.70 |
| 1 | A | 1107 | G | N3-C4-N9 | -5.46 | 122.72 | 126.00 |
| 1 | A | 1079 | G | N3-C4-C5 | 5.46 | 131.33 | 128.60 |
| 1 | A | 1943 | U | N3-C2-O2 | -5.44 | 118.39 | 122.20 |
| 1 | A | 1120 | G | C4-N9-C1' | -5.43 | 119.45 | 126.50 |
| 1 | A | 1107 | G | N3-C4-C5 | 5.39 | 131.30 | 128.60 |
| 7 | G | 72 | C | N3-C2-O2 | -5.36 | 118.15 | 121.90 |
| 1 | A | 1622 | G | C8-N9-C1' | 5.36 | 133.96 | 127.00 |
| 1 | A | 1135 | G | N9-C4-C5 | -5.31 | 103.28 | 105.40 |
| 3 | C | 58 | G | N9-C4-C5 | -5.31 | 103.28 | 105.40 |
| 2 | B | 718 | A | C8-N9-C4 | 5.29 | 107.92 | 105.80 |
| 1 | A | 87 | C | OP2-P-O3' | 5.29 | 116.84 | 105.20 |
| 1 | A | 1120 | G | N3-C4-C5 | 5.28 | 131.24 | 128.60 |
| 14 | Q | 201 | ARG | C-N-CD | 5.28 | 139.49 | 128.40 |
| 1 | A | 20 | G | C8-N9-C1' | 5.27 | 133.85 | 127.00 |
| 14 | Q | 40[A] | ARG | N-CA-C | 5.26 | 125.20 | 111.00 |
| 14 | Q | 40[B] | ARG | N-CA-C | 5.26 | 125.20 | 111.00 |
| 3 | C | 34 | U | C5-C6-N1 | -5.25 | 120.08 | 122.70 |
| 1 | A | 766 | C | N1-C2-O2 | -5.22 | 115.77 | 118.90 |
| 2 | B | 911 | U | C2-N1-C1' | 5.20 | 123.94 | 117.70 |
| 1 | A | 1135 | G | N3-C4-N9 | 5.19 | 129.12 | 126.00 |
| 1 | A | 1768 | G | N3-C4-C5 | 5.19 | 131.20 | 128.60 |
| 2 | B | 1195 | C | C2-N1-C1' | 5.19 | 124.51 | 118.80 |
| 2 | B | 587 | U | C5-C4-O4 | 5.18 | 129.01 | 125.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 5 | E | 192 | U | N1-C2-O2 | -5.17 | 119.18 | 122.80 |
| 2 | B | 87 | U | C2-N1-C1' | 5.16 | 123.89 | 117.70 |
| 7 | G | 84 | G | C6-C5-N7 | 5.14 | 133.48 | 130.40 |
| 1 | A | 454 | G | C6-C5-N7 | -5.13 | 127.32 | 130.40 |
| 6 | F | 49 | C | N1-C2-O2 | 5.12 | 121.97 | 118.90 |
| 6 | F | 49 | C | N3-C2-O2 | -5.11 | 118.32 | 121.90 |
| 7 | G | 82 | U | N1-C2-O2 | 5.10 | 126.37 | 122.80 |
| 29 | f | 8 | HIS | C-N-CD | 5.10 | 139.10 | 128.40 |
| 1 | A | 1622 | G | N3-C4-C5 | 5.05 | 131.13 | 128.60 |
| 2 | B | 737 | G | N9-C4-C5 | -5.05 | 103.38 | 105.40 |
| 13 | P | 136 | PRO | CA-N-CD | -5.05 | 104.43 | 111.50 |
| 2 | B | 20 | U | N3-C4-C5 | 5.02 | 117.61 | 114.60 |
| 2 | B | 715 | G | N3-C4-N9 | -5.01 | 122.99 | 126.00 |

There are no chirality outliers.

All (2) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 14 | Q | 200 | LEU | Peptide |
| 24 | a | 115 | PHE | Peptide |

5.2 Too-close contacts [i](#)

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 hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | A | 27441 | 12 | 13883 | 1171 | 0 |
| 2 | B | 20110 | 0 | 10205 | 827 | 0 |
| 3 | C | 3140 | 0 | 1600 | 143 | 0 |
| 4 | D | 2432 | 0 | 1234 | 113 | 0 |
| 5 | E | 3110 | 0 | 1574 | 131 | 0 |
| 6 | F | 965 | 0 | 497 | 59 | 0 |
| 7 | G | 2578 | 0 | 1309 | 98 | 0 |
| 8 | H | 1946 | 0 | 991 | 76 | 0 |
| 9 | I | 1515 | 0 | 1619 | 116 | 0 |
| 10 | L | 535 | 0 | 547 | 51 | 0 |
| 11 | N | 1413 | 0 | 1518 | 98 | 0 |
| 12 | O | 1642 | 0 | 1763 | 155 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 13 | P | 1186 | 0 | 1212 | 140 | 0 |
| 14 | Q | 1710 | 0 | 1798 | 155 | 0 |
| 15 | R | 1226 | 0 | 1276 | 125 | 0 |
| 16 | S | 1449 | 0 | 1489 | 162 | 0 |
| 17 | T | 1273 | 0 | 1361 | 118 | 0 |
| 18 | U | 1016 | 0 | 1056 | 98 | 0 |
| 19 | V | 730 | 0 | 781 | 74 | 0 |
| 20 | W | 960 | 0 | 1017 | 102 | 0 |
| 21 | X | 890 | 0 | 932 | 78 | 0 |
| 22 | Y | 519 | 0 | 519 | 57 | 0 |
| 23 | Z | 919 | 0 | 981 | 96 | 0 |
| 24 | a | 877 | 0 | 933 | 0 | 0 |
| 25 | b | 1135 | 0 | 1175 | 0 | 0 |
| 26 | c | 935 | 0 | 1003 | 0 | 0 |
| 27 | d | 518 | 0 | 541 | 0 | 0 |
| 28 | e | 1874 | 0 | 1938 | 0 | 0 |
| 29 | f | 3189 | 0 | 3322 | 0 | 0 |
| 30 | g | 523 | 0 | 565 | 0 | 0 |
| 31 | h | 1064 | 0 | 1012 | 0 | 0 |
| 32 | i | 928 | 0 | 971 | 0 | 0 |
| 33 | j | 863 | 0 | 912 | 0 | 0 |
| 34 | k | 967 | 0 | 1092 | 0 | 0 |
| 35 | l | 1057 | 0 | 1072 | 0 | 0 |
| 36 | m | 757 | 0 | 834 | 0 | 0 |
| 37 | n | 679 | 0 | 694 | 0 | 0 |
| 38 | o | 669 | 0 | 690 | 0 | 0 |
| 39 | p | 432 | 0 | 473 | 0 | 0 |
| 40 | q | 456 | 0 | 495 | 0 | 0 |
| 41 | r | 2513 | 0 | 2582 | 0 | 0 |
| 42 | t | 763 | 0 | 821 | 0 | 0 |
| 43 | u | 1541 | 0 | 1596 | 0 | 0 |
| 44 | v | 1037 | 0 | 1106 | 0 | 0 |
| 45 | w | 1749 | 0 | 1845 | 0 | 0 |
| 46 | x | 1690 | 0 | 1805 | 0 | 0 |
| 47 | A | 66 | 0 | 0 | 0 | 0 |
| 47 | B | 32 | 0 | 0 | 0 | 0 |
| 47 | C | 2 | 0 | 0 | 0 | 0 |
| 47 | D | 1 | 0 | 0 | 0 | 0 |
| 47 | E | 1 | 0 | 0 | 0 | 0 |
| 47 | F | 1 | 0 | 0 | 0 | 0 |
| 47 | G | 1 | 0 | 0 | 0 | 0 |
| 47 | H | 1 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 48 | n | 1 | 0 | 0 | 0 | 0 |
| 48 | o | 1 | 0 | 0 | 0 | 0 |
| 48 | t | 1 | 0 | 0 | 0 | 0 |
| 49 | A | 38 | 0 | 0 | 1 | 0 |
| 49 | B | 26 | 0 | 0 | 1 | 0 |
| 49 | C | 1 | 0 | 0 | 0 | 0 |
| 49 | E | 1 | 0 | 0 | 0 | 0 |
| 49 | G | 3 | 0 | 0 | 0 | 0 |
| 49 | H | 2 | 0 | 0 | 0 | 0 |
| 49 | I | 1 | 0 | 0 | 0 | 0 |
| 49 | R | 1 | 0 | 0 | 0 | 0 |
| 49 | a | 1 | 0 | 0 | 0 | 0 |
| 49 | b | 1 | 0 | 0 | 0 | 0 |
| 49 | e | 2 | 0 | 0 | 0 | 0 |
| 49 | f | 1 | 0 | 0 | 0 | 0 |
| 49 | j | 1 | 0 | 0 | 0 | 0 |
| 49 | k | 1 | 0 | 0 | 0 | 0 |
| 49 | n | 1 | 0 | 0 | 0 | 0 |
| 49 | w | 1 | 0 | 0 | 0 | 0 |
| 49 | x | 1 | 0 | 0 | 0 | 0 |
| All | All | 105112 | 12 | 76639 | 3680 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 37.

All (3680) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:1516:A2M:H5'' | 2:B:1517:G:H5' | 1.28 | 1.12 |
| 13:P:123:TRP:O | 13:P:127:VAL:HG23 | 1.50 | 1.11 |
| 6:F:50:C:H5' | 13:P:118:ARG:HH12 | 1.19 | 1.07 |
| 17:T:115:ILE:HB | 17:T:119:ILE:HD11 | 1.13 | 1.07 |
| 2:B:62:A:H3' | 2:B:63:U:H5' | 1.30 | 1.06 |
| 13:P:132:ASP:OD1 | 13:P:139:TRP:NE1 | 1.89 | 1.06 |
| 1:A:20:G:N2 | 3:C:149:A:N1 | 2.04 | 1.05 |
| 2:B:1380:OMC:HM22 | 2:B:1381:A:H5' | 1.37 | 1.05 |
| 14:Q:137:VAL:HG21 | 14:Q:147:GLU:HG3 | 1.34 | 1.05 |
| 6:F:9:C:O2' | 6:F:10:A:H5'' | 1.55 | 1.05 |
| 15:R:19:VAL:HG23 | 15:R:94:LEU:HD13 | 1.37 | 1.03 |
| 1:A:1679:A:H2' | 2:B:62:A:H61 | 1.24 | 1.02 |
| 13:P:126:LYS:O | 13:P:130:GLU:HG3 | 1.60 | 1.01 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:P:12:LEU:HD23 | 13:P:59:LEU:HD12 | 1.42 | 1.01 |
| 1:A:442:A:H4' | 1:A:443:U:H5' | 1.43 | 1.01 |
| 2:B:755:OMG:HM21 | 2:B:757:U:H5'' | 1.42 | 1.01 |
| 16:S:173:THR:HG22 | 16:S:175:ARG:H | 1.26 | 1.00 |
| 15:R:30:PHE:HA | 15:R:119:VAL:HG11 | 1.41 | 1.00 |
| 17:T:136:ARG:HA | 17:T:139:MET:HB3 | 1.44 | 1.00 |
| 5:E:21:G:N7 | 5:E:208:G:N2 | 2.11 | 0.98 |
| 20:W:19:LEU:HD13 | 20:W:25:VAL:HG11 | 1.39 | 0.98 |
| 1:A:371:A:C8 | 11:N:25:GLY:O | 2.17 | 0.98 |
| 2:B:1356:U:H5'' | 17:T:38:ARG:HB2 | 112.45 | 0.97 |
| 2:B:718:A:H3' | 2:B:719:A:H5' | 1.46 | 0.97 |
| 1:A:20:G:H1 | 3:C:149:A:H61 | 0.97 | 0.97 |
| 1:A:1670:G:N2 | 2:B:704:A:N7 | 2.13 | 0.97 |
| 1:A:1024:G:O6 | 49:A:2101:HOH:O | 1.81 | 0.96 |
| 2:B:1601:U:OP1 | 12:O:189:LYS:HE2 | 1.64 | 0.96 |
| 2:B:1601:U:OP1 | 12:O:189:LYS:CE | 2.14 | 0.95 |
| 1:A:10:G:H21 | 1:A:1801:G:H1 | 1.02 | 0.95 |
| 1:A:442:A:H4' | 1:A:443:U:C5' | 1.96 | 0.95 |
| 4:D:3:G:H22 | 4:D:116:A:H2 | 1.15 | 0.95 |
| 2:B:566:A:N1 | 2:B:571:U:N3 | 2.15 | 0.95 |
| 12:O:80:LYS:HD2 | 12:O:86:LEU:HD11 | 1.49 | 0.94 |
| 22:Y:51:ARG:HH11 | 22:Y:51:ARG:HB2 | 1.28 | 0.94 |
| 1:A:755:G:HO2' | 1:A:1623:A:HO2' | 1.12 | 0.94 |
| 1:A:1043:A2M:HM'2 | 1:A:1044:C:H5' | 1.46 | 0.94 |
| 22:Y:50:PRO:HB2 | 22:Y:58:THR:HG21 | 1.49 | 0.94 |
| 4:D:59:G:H2' | 4:D:60:C:H6 | 1.32 | 0.93 |
| 13:P:134:LYS:HD2 | 13:P:135:LYS:N | 1.84 | 0.93 |
| 2:B:882:G:H1 | 2:B:907:A:H61 | 0.97 | 0.93 |
| 8:H:26:C:H42 | 8:H:125:U:H2' | 1.34 | 0.93 |
| 23:Z:28:MET:HG2 | 23:Z:98:PRO:HG3 | 1.48 | 0.93 |
| 18:U:80:VAL:HG11 | 18:U:83:ARG:HE | 1.29 | 0.92 |
| 1:A:800:C:O2 | 1:A:958:OMG:N2 | 2.02 | 0.92 |
| 8:H:20:A:H2' | 8:H:21:G:H5' | 1.46 | 0.92 |
| 1:A:1042:G:H1 | 1:A:1053:OMC:H5 | 1.14 | 0.92 |
| 20:W:19:LEU:HD21 | 20:W:100:ASN:ND2 | 1.84 | 0.92 |
| 15:R:23:ARG:NH1 | 15:R:125:MET:SD | 2.43 | 0.91 |
| 1:A:120:C:H2' | 1:A:121:G:H5' | 1.51 | 0.91 |
| 1:A:486:U:H4' | 1:A:492:G:H1' | 1.52 | 0.91 |
| 5:E:74:C:N3 | 5:E:139:A:N6 | 2.19 | 0.91 |
| 4:D:73:U:O2 | 4:D:102:C:N4 | 2.03 | 0.91 |
| 1:A:7:C:O2 | 3:C:166:OMG:N2 | 2.04 | 0.90 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:413:U:H4' | 1:A:414:U:H5'' | 1.52 | 0.90 |
| 1:A:1673:U:H2' | 1:A:1674:A2M:H8 | 1.54 | 0.90 |
| 5:E:124:G:H5'' | 5:E:126:A:H5' | 1.54 | 0.90 |
| 1:A:310:G:H5'' | 14:Q:30:LYS:HE2 | 1.54 | 0.90 |
| 5:E:39:C:H42 | 5:E:182:U:H3 | 1.17 | 0.89 |
| 7:G:70:OMG:N2 | 7:G:119:C:O2 | 2.05 | 0.89 |
| 16:S:31:VAL:HG21 | 16:S:39:ALA:HB1 | 1.55 | 0.89 |
| 2:B:786:G:O6 | 2:B:853:C:N4 | 2.05 | 0.89 |
| 5:E:68:A:OP2 | 5:E:145:A:N6 | 2.04 | 0.89 |
| 16:S:77:SER:HB2 | 16:S:131:ILE:HD11 | 1.53 | 0.89 |
| 15:R:129:THR:HA | 15:R:139:TYR:CE2 | 2.07 | 0.89 |
| 2:B:1149:A:H2' | 2:B:1150:G:H5' | 1.54 | 0.89 |
| 2:B:1210:OMG:N2 | 2:B:1368:C:O2 | 2.06 | 0.89 |
| 1:A:1804:A2M:H62 | 21:X:89:THR:H | 1.17 | 0.89 |
| 2:B:461:U:H4' | 2:B:462:A:H5'' | 1.53 | 0.88 |
| 16:S:77:SER:HB2 | 16:S:131:ILE:CD1 | 2.03 | 0.88 |
| 1:A:253:G:H4' | 1:A:254:A:H3' | 1.56 | 0.88 |
| 15:R:67:ILE:HG12 | 15:R:82:ARG:NH2 | 1.88 | 0.88 |
| 16:S:14:ARG:HH12 | 16:S:17:PRO:HG3 | 1.37 | 0.88 |
| 17:T:115:ILE:CB | 17:T:119:ILE:HD11 | 2.01 | 0.87 |
| 16:S:142:SER:HA | 16:S:145:HIS:CD2 | 2.09 | 0.87 |
| 1:A:1308:C:O2 | 1:A:1316:OMG:N2 | 2.08 | 0.87 |
| 20:W:122:LYS:N | 20:W:139:VAL:OXT | 2.07 | 0.87 |
| 2:B:1134:C:H2' | 2:B:1135:G:O4' | 1.74 | 0.87 |
| 4:D:7:G:H1 | 4:D:112:U:H3 | 1.14 | 0.87 |
| 2:B:101:G:H1 | 2:B:119:C:H42 | 1.23 | 0.86 |
| 17:T:32:ILE:HA | 17:T:44:LEU:HD21 | 1.57 | 0.86 |
| 18:U:15:PHE:O | 18:U:46:SER:OG | 1.91 | 0.86 |
| 1:A:1800:A:OP2 | 14:Q:50:HIS:NE2 | 2.08 | 0.86 |
| 15:R:33:ALA:HB1 | 15:R:117:VAL:HG11 | 1.58 | 0.86 |
| 15:R:129:THR:HG22 | 15:R:139:TYR:CZ | 2.11 | 0.86 |
| 2:B:1183:G:H2' | 2:B:1184:C:O4' | 1.76 | 0.86 |
| 7:G:123:G:O2' | 7:G:124:U:O5' | 1.93 | 0.86 |
| 23:Z:49:LYS:NZ | 23:Z:68:THR:O | 2.08 | 0.86 |
| 16:S:167:VAL:H | 16:S:178:VAL:HG22 | 1.41 | 0.86 |
| 3:C:28:C:H5'' | 11:N:32:ASN:HB3 | 1.58 | 0.85 |
| 10:L:27:ILE:HG12 | 10:L:131:MET:HA | 1.57 | 0.85 |
| 1:A:30:C:H4' | 14:Q:112:LYS:HE3 | 1.56 | 0.85 |
| 1:A:1680:G:H1' | 7:G:102:G:C2 | 2.11 | 0.85 |
| 11:N:179:GLU:HG3 | 11:N:180:GLU:H | 1.41 | 0.85 |
| 16:S:136:VAL:HG11 | 16:S:141:ILE:HD11 | 1.56 | 0.85 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 19:V:55:VAL:HG13 | 19:V:64:LEU:HD21 | 1.56 | 0.85 |
| 1:A:182:G:H3' | 1:A:183:G:H5'' | 1.57 | 0.85 |
| 2:B:1652:A:O2' | 2:B:1653:A:C8 | 2.29 | 0.85 |
| 6:F:9:C:O2' | 6:F:10:A:C5' | 2.24 | 0.85 |
| 17:T:4:LEU:HD13 | 17:T:24:LEU:CD2 | 2.06 | 0.85 |
| 2:B:131:G:N1 | 2:B:449:C:N3 | 2.25 | 0.85 |
| 10:L:156:CYS:SG | 10:L:161:ARG:NH2 | 2.50 | 0.85 |
| 1:A:267:A:OP2 | 23:Z:43:ARG:NH2 | 2.10 | 0.85 |
| 1:A:1689:G:O2' | 1:A:1691:A:N7 | 2.09 | 0.85 |
| 15:R:36:ILE:HD12 | 15:R:44:ALA:HB1 | 1.58 | 0.85 |
| 16:S:92:MET:HE2 | 16:S:94:LYS:HD2 | 1.59 | 0.85 |
| 15:R:48:TYR:HA | 15:R:51:VAL:HG12 | 1.59 | 0.84 |
| 2:B:460:U:OP1 | 22:Y:48:LYS:NZ | 2.10 | 0.84 |
| 1:A:407:C:C2' | 1:A:408:G:H5' | 2.08 | 0.84 |
| 17:T:126:LYS:HB3 | 17:T:131:VAL:HG11 | 1.57 | 0.84 |
| 1:A:1002:G:O2' | 1:A:1024:G:N2 | 2.10 | 0.84 |
| 1:A:428:G:N2 | 1:A:431:A:OP2 | 2.11 | 0.84 |
| 3:C:124:A:H2' | 3:C:125:A:C8 | 2.13 | 0.84 |
| 17:T:132:PHE:CD2 | 17:T:138:LEU:HD12 | 2.13 | 0.84 |
| 9:I:154:GLU:HA | 9:I:157:LYS:HE2 | 1.60 | 0.84 |
| 12:O:76:LEU:HD11 | 12:O:92:ARG:HH21 | 1.43 | 0.83 |
| 15:R:119:VAL:HG23 | 15:R:144:CYS:HB2 | 1.60 | 0.83 |
| 1:A:208:A:H5'' | 1:A:209:A:H5' | 1.60 | 0.83 |
| 1:A:213:C:H2' | 1:A:214:G:N2 | 1.93 | 0.83 |
| 1:A:516:A:H61 | 1:A:587:C:H42 | 1.21 | 0.83 |
| 1:A:421:G:O2' | 1:A:445:G:N2 | 2.11 | 0.83 |
| 2:B:718:A:H5'' | 2:B:719:A:H8 | 1.43 | 0.83 |
| 1:A:1687:C:O2 | 1:A:1710:OMG:N2 | 2.10 | 0.83 |
| 1:A:468:A:N1 | 2:B:708:C:O2' | 2.10 | 0.83 |
| 2:B:1223:C:OP2 | 10:L:148:ARG:NH2 | 2.11 | 0.83 |
| 3:C:123:G:H2' | 3:C:124:A:C8 | 2.14 | 0.83 |
| 1:A:1785:U:O2 | 1:A:1789:A:N6 | 2.12 | 0.83 |
| 9:I:71:MET:CE | 9:I:87:ALA:HB2 | 2.09 | 0.83 |
| 1:A:1953:A:H3' | 1:A:1954:G:H5'' | 1.61 | 0.82 |
| 1:A:413:U:H4' | 1:A:414:U:C5' | 2.09 | 0.82 |
| 1:A:1326:A:H5' | 1:A:1592:U:H1' | 1.61 | 0.82 |
| 1:A:452:A:OP2 | 3:C:15:G:N2 | 2.12 | 0.82 |
| 2:B:904:U:H2' | 2:B:905:G:C8 | 2.15 | 0.82 |
| 9:I:42:SER:HB2 | 9:I:139:THR:HG23 | 1.60 | 0.82 |
| 1:A:810:A:N6 | 1:A:834:U:O2 | 2.11 | 0.82 |
| 1:A:1073:5MC:O2' | 1:A:1076:A:N3 | 2.11 | 0.82 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 20:W:27:CYS:SG | 20:W:36:LEU:HG | 2.19 | 0.82 |
| 1:A:407:C:H2' | 1:A:408:G:H5' | 1.60 | 0.82 |
| 2:B:886:C:H3' | 2:B:887:G:H5' | 1.58 | 0.82 |
| 1:A:1019:G:H2' | 1:A:1020:G:H5' | 1.60 | 0.82 |
| 1:A:1245:C:H2' | 1:A:1246:U:C6 | 2.14 | 0.82 |
| 6:F:53:G:H1' | 6:F:55:A:N6 | 1.95 | 0.82 |
| 5:E:6:A:N1 | 5:E:102:U:O2' | 2.12 | 0.81 |
| 9:I:175:ASN:HD22 | 9:I:178:LYS:HB2 | 1.44 | 0.81 |
| 10:L:20:VAL:HA | 10:L:137:LEU:HG | 1.61 | 0.81 |
| 7:G:122:G:O2' | 7:G:123:G:N2 | 2.13 | 0.81 |
| 7:G:72:C:H5 | 7:G:115:A:H62 | 1.24 | 0.81 |
| 13:P:16:ILE:O | 13:P:21:GLN:NE2 | 2.13 | 0.81 |
| 2:B:1305:G:N2 | 2:B:1308:A:OP2 | 2.12 | 0.81 |
| 5:E:5:G:N2 | 5:E:8:A:OP2 | 2.10 | 0.81 |
| 8:H:20:A:C2' | 8:H:21:G:H5' | 2.10 | 0.81 |
| 23:Z:97:HIS:HB3 | 23:Z:100:ASN:HD22 | 1.46 | 0.81 |
| 2:B:1568:A:O2' | 2:B:1569:A:OP1 | 1.98 | 0.81 |
| 1:A:20:G:H1 | 3:C:149:A:N6 | 1.78 | 0.81 |
| 2:B:720:C:H5 | 2:B:1393:G:H4' | 1.46 | 0.81 |
| 4:D:59:G:H2' | 4:D:60:C:C6 | 2.16 | 0.81 |
| 13:P:37:LEU:HD23 | 13:P:48:ARG:HD3 | 1.63 | 0.80 |
| 20:W:47:ARG:HG2 | 20:W:48:LEU:H | 1.46 | 0.80 |
| 21:X:144:LYS:HE3 | 21:X:163:ASN:HA | 1.63 | 0.80 |
| 2:B:634:OMG:N2 | 2:B:650:C:O2 | 2.13 | 0.80 |
| 12:O:102:VAL:HG11 | 12:O:120:LEU:CD2 | 2.10 | 0.80 |
| 1:A:1679:A:H2' | 2:B:62:A:N6 | 1.97 | 0.80 |
| 15:R:125:MET:HB2 | 15:R:141:CYS:SG | 2.21 | 0.80 |
| 23:Z:47:VAL:HG11 | 23:Z:77:ILE:CD1 | 2.11 | 0.80 |
| 2:B:98:G:N2 | 17:T:78:ALA:O | 2.12 | 0.80 |
| 3:C:29:C:OP1 | 11:N:36:GLN:NE2 | 2.15 | 0.80 |
| 16:S:153:LEU:HB3 | 16:S:156:ARG:HD3 | 1.64 | 0.80 |
| 22:Y:20:ARG:HB3 | 22:Y:32:VAL:CG2 | 2.11 | 0.80 |
| 1:A:1163:C:C2' | 1:A:1164:G:H5' | 2.12 | 0.80 |
| 14:Q:137:VAL:HG21 | 14:Q:147:GLU:CG | 2.11 | 0.80 |
| 2:B:29:C:N4 | 15:R:134:GLY:O | 2.11 | 0.80 |
| 22:Y:54:PRO:HA | 22:Y:59:TYR:CD2 | 2.16 | 0.80 |
| 1:A:277:G:H2' | 1:A:278:A:H8 | 1.46 | 0.80 |
| 14:Q:110:LEU:CD2 | 14:Q:117:ILE:HD11 | 2.12 | 0.80 |
| 1:A:148:G:O2' | 1:A:149:U:OP2 | 1.98 | 0.80 |
| 5:E:6:A:C2 | 5:E:102:U:H4' | 2.16 | 0.80 |
| 9:I:64:LEU:HD11 | 9:I:120:ILE:HD13 | 1.61 | 0.80 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:P:135:LYS:HG3 | 13:P:141:LYS:CB | 2.12 | 0.80 |
| 9:I:154:GLU:HG2 | 9:I:157:LYS:CE | 2.13 | 0.79 |
| 8:H:41:A:H1' | 8:H:100:A:N6 | 1.97 | 0.79 |
| 16:S:131:ILE:HG22 | 16:S:132:PRO:O | 1.82 | 0.79 |
| 16:S:126:LEU:CD2 | 18:U:148:ARG:HB2 | 2.12 | 0.79 |
| 20:W:56:LEU:HD21 | 20:W:121:ALA:HB1 | 1.65 | 0.79 |
| 4:D:5:A:H61 | 4:D:114:C:H42 | 1.29 | 0.79 |
| 6:F:66:C:H2' | 6:F:67:A:O4' | 1.82 | 0.79 |
| 12:O:67:ARG:HG2 | 12:O:71:LYS:HE3 | 1.63 | 0.79 |
| 20:W:83:GLN:HA | 20:W:100:ASN:HB3 | 1.65 | 0.79 |
| 1:A:1076:A:OP1 | 14:Q:93:LYS:NZ | 2.12 | 0.79 |
| 2:B:882:G:N2 | 2:B:886:C:OP1 | 2.15 | 0.79 |
| 1:A:493:C:O2 | 1:A:742:G:N2 | 2.12 | 0.79 |
| 2:B:860:U:OP1 | 2:B:1144:U:N3 | 2.16 | 0.79 |
| 8:H:41:A:O2' | 8:H:42:U:O5' | 2.01 | 0.79 |
| 2:B:1435:U:C2' | 2:B:1436:C:H5' | 2.13 | 0.79 |
| 1:A:323:G:O2' | 1:A:324:G:OP2 | 2.02 | 0.78 |
| 6:F:55:A:H2' | 6:F:56:C:H5' | 1.64 | 0.78 |
| 16:S:95:GLU:OE1 | 16:S:141:ILE:HG12 | 1.83 | 0.78 |
| 20:W:38:ILE:HG13 | 20:W:60:VAL:HG11 | 1.65 | 0.78 |
| 1:A:1042:G:N1 | 1:A:1053:OMC:H5 | 1.80 | 0.78 |
| 2:B:1356:U:C5' | 17:T:38:ARG:HB2 | 113.08 | 0.78 |
| 1:A:1942:A:OP1 | 17:T:38:ARG:NH1 | 2.17 | 0.78 |
| 14:Q:93:LYS:HB2 | 14:Q:95:ILE:HD12 | 1.65 | 0.78 |
| 2:B:755:OMG:N2 | 2:B:1382:C:O2 | 2.12 | 0.78 |
| 22:Y:51:ARG:HH11 | 22:Y:51:ARG:CB | 1.96 | 0.78 |
| 5:E:34:U:H2' | 5:E:35:C:C6 | 2.18 | 0.78 |
| 2:B:1324:C:O2 | 2:B:1363:OMG:N2 | 2.17 | 0.78 |
| 12:O:94:PRO:HG3 | 12:O:161:CYS:SG | 2.24 | 0.78 |
| 2:B:97:A:O2' | 2:B:466:C:O2 | 2.02 | 0.78 |
| 3:C:154:A:P | 14:Q:54:ARG:HH22 | 2.06 | 0.77 |
| 4:D:53:U:H5'' | 4:D:54:A:OP1 | 1.85 | 0.77 |
| 5:E:129:G:H2' | 5:E:130:G:H8 | 1.49 | 0.77 |
| 1:A:112:C:O2 | 1:A:362:G:N2 | 2.17 | 0.77 |
| 15:R:32:THR:HG22 | 15:R:91:MET:HG3 | 1.64 | 0.77 |
| 17:T:126:LYS:HB3 | 17:T:131:VAL:CG1 | 2.14 | 0.77 |
| 1:A:1370:G:N2 | 1:A:1509:C:O2 | 2.16 | 0.77 |
| 2:B:883:U:H5' | 2:B:886:C:H1' | 1.64 | 0.77 |
| 1:A:18:C:H4' | 14:Q:154:MET:SD | 2.23 | 0.77 |
| 2:B:1648:U:H2' | 2:B:1649:A:H5'' | 1.66 | 0.77 |
| 4:D:41:G:O2' | 4:D:44:U:O4 | 2.02 | 0.77 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:35:C:N4 | 5:E:185:U:O4 | 2.17 | 0.77 |
| 1:A:1688:G:H1 | 1:A:1709:C:H42 | 1.32 | 0.77 |
| 2:B:1195:C:N4 | 2:B:1200:C:O2 | 2.15 | 0.77 |
| 11:N:85:LEU:HD11 | 11:N:102:VAL:HG22 | 1.65 | 0.77 |
| 1:A:972:OMG:N2 | 1:A:1105:C:O2 | 2.16 | 0.77 |
| 1:A:1791:C:O2' | 1:A:1792:G:H5' | 1.85 | 0.77 |
| 5:E:116:G:O6 | 17:T:121:ARG:NH2 | 2.18 | 0.77 |
| 16:S:47:MET:HB3 | 16:S:53:VAL:HG13 | 1.67 | 0.77 |
| 2:B:719:A:O2' | 2:B:720:C:OP2 | 2.01 | 0.77 |
| 8:H:44:A:H2' | 8:H:45:G:O4' | 1.84 | 0.77 |
| 15:R:23:ARG:NH1 | 15:R:141:CYS:SG | 2.57 | 0.77 |
| 5:E:113:C:O2 | 5:E:123:G:N2 | 2.14 | 0.76 |
| 1:A:1374:C:O2' | 12:O:152:ARG:NH1 | 2.15 | 0.76 |
| 13:P:126:LYS:O | 13:P:130:GLU:CG | 2.33 | 0.76 |
| 1:A:930:C:C4 | 1:A:931:7MG:HM73 | 2.19 | 0.76 |
| 2:B:1492:OMG:H5'' | 2:B:1493:U:OP2 | 1.86 | 0.76 |
| 2:B:487:U:O2 | 2:B:1546:G:N2 | 2.17 | 0.76 |
| 15:R:129:THR:HA | 15:R:139:TYR:HE2 | 1.47 | 0.76 |
| 1:A:234:A:O2' | 1:A:235:U:O4' | 2.01 | 0.76 |
| 2:B:62:A:H3' | 2:B:63:U:C5' | 2.14 | 0.76 |
| 17:T:13:ASP:OD2 | 17:T:38:ARG:NH2 | 2.13 | 0.76 |
| 7:G:28:U:C2' | 7:G:29:G:H5' | 2.16 | 0.76 |
| 20:W:89:ARG:NH2 | 20:W:139:VAL:O | 2.18 | 0.76 |
| 1:A:506:C:O2 | 1:A:594:G:N2 | 2.17 | 0.76 |
| 1:A:777:OMC:H6 | 1:A:777:OMC:H5'' | 1.51 | 0.76 |
| 2:B:534:A:N6 | 2:B:665:U:O2 | 2.19 | 0.76 |
| 3:C:20:C:H2' | 3:C:21:U:H5' | 1.67 | 0.76 |
| 1:A:343:OMC:HM22 | 1:A:344:A:H5' | 1.67 | 0.76 |
| 1:A:844:A:C2' | 1:A:845:A:H5' | 2.16 | 0.76 |
| 3:C:102:G:OP2 | 3:C:104:A:O2' | 2.04 | 0.76 |
| 17:T:4:LEU:HD13 | 17:T:24:LEU:HD23 | 1.68 | 0.76 |
| 1:A:14:G:H5'' | 21:X:94:SER:HB2 | 1.67 | 0.76 |
| 1:A:177:G:H2' | 1:A:178:U:O4' | 1.86 | 0.76 |
| 3:C:166:OMG:H2' | 3:C:167:U:H5' | 1.68 | 0.76 |
| 4:D:99:G:N7 | 16:S:54:LYS:NZ | 2.33 | 0.76 |
| 9:I:187:ARG:NH1 | 9:I:189:ALA:HA | 2.01 | 0.76 |
| 13:P:132:ASP:OD1 | 13:P:137:VAL:HG21 | 1.85 | 0.76 |
| 9:I:187:ARG:HH12 | 9:I:189:ALA:HA | 1.50 | 0.75 |
| 5:E:196:G:H4' | 5:E:197:C:O4' | 1.84 | 0.75 |
| 1:A:1327:U:OP1 | 1:A:1591:G:O2' | 2.05 | 0.75 |
| 1:A:216:U:H2' | 1:A:217:G:C8 | 2.21 | 0.75 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:886:C:H3' | 2:B:887:G:C5' | 2.14 | 0.75 |
| 1:A:979:G:N2 | 1:A:1095:C:O2 | 2.17 | 0.75 |
| 14:Q:185:ARG:HG2 | 14:Q:188:ARG:HH11 | 1.50 | 0.75 |
| 1:A:277:G:H2' | 1:A:278:A:C8 | 2.21 | 0.75 |
| 1:A:810:A:H62 | 1:A:834:U:H3 | 1.34 | 0.75 |
| 8:H:93:G:C2' | 8:H:94:G:H5' | 2.16 | 0.75 |
| 11:N:19:PRO:O | 15:R:105:LYS:NZ | 69.44 | 0.75 |
| 16:S:5:HIS:HB3 | 16:S:106:SER:HB2 | 1.67 | 0.75 |
| 20:W:19:LEU:HD13 | 20:W:25:VAL:CG1 | 2.14 | 0.75 |
| 23:Z:45:MET:SD | 23:Z:46:PRO:HD2 | 2.26 | 0.75 |
| 2:B:134:C:H2' | 2:B:135:A:O4' | 1.86 | 0.75 |
| 23:Z:77:ILE:HG23 | 23:Z:96:VAL:HG13 | 1.67 | 0.75 |
| 17:T:115:ILE:HB | 17:T:119:ILE:CD1 | 2.07 | 0.75 |
| 1:A:275:A:O2' | 1:A:276:U:H5' | 1.86 | 0.75 |
| 6:F:14:C:OP2 | 12:O:136:ARG:NH2 | 2.20 | 0.75 |
| 2:B:1215:A:O2' | 2:B:1216:A:H2' | 1.87 | 0.74 |
| 1:A:433:G:H1' | 15:R:97:ASN:HD21 | 1.52 | 0.74 |
| 16:S:44:TRP:CH2 | 16:S:58:GLY:HA3 | 2.22 | 0.74 |
| 1:A:772:U:O2' | 1:A:1336:A:N1 | 2.20 | 0.74 |
| 1:A:1610:A:H2 | 1:A:1646:A:N1 | 1.85 | 0.74 |
| 1:A:185:A:N6 | 1:A:276:U:O4 | 2.19 | 0.74 |
| 1:A:452:A:N6 | 3:C:15:G:H1' | 2.02 | 0.74 |
| 4:D:9:C:H2' | 4:D:10:C:H5' | 1.69 | 0.74 |
| 15:R:60:PHE:CE1 | 15:R:82:ARG:HB3 | 2.22 | 0.74 |
| 1:A:503:C:O2 | 1:A:597:G:N2 | 2.15 | 0.74 |
| 1:A:783:C:O2 | 1:A:1666:G:N2 | 2.20 | 0.74 |
| 2:B:1185:A:H5' | 2:B:1186:U:H5'' | 1.70 | 0.74 |
| 10:L:137:LEU:HD22 | 10:L:168:TRP:CE2 | 2.22 | 0.74 |
| 1:A:1723:G:O2' | 1:A:1725:7MG:OP2 | 2.03 | 0.74 |
| 3:C:1:A:H2' | 3:C:2:A:H5' | 1.69 | 0.74 |
| 10:L:154:VAL:HG23 | 10:L:159:ARG:HG2 | 1.69 | 0.74 |
| 1:A:84:A:H61 | 1:A:99:A:H3' | 1.52 | 0.74 |
| 2:B:754:U:C2' | 2:B:755:OMG:H5' | 2.17 | 0.74 |
| 5:E:141:U:H2' | 5:E:142:G:O4' | 1.87 | 0.74 |
| 1:A:921:A:C2' | 1:A:922:A:H5' | 2.18 | 0.74 |
| 2:B:1324:C:N3 | 2:B:1363:OMG:N1 | 2.27 | 0.74 |
| 2:B:703:A:H4' | 15:R:137:THR:HG21 | 1.69 | 0.74 |
| 1:A:1019:G:C2' | 1:A:1020:G:H5' | 2.17 | 0.74 |
| 1:A:1143:U:O4 | 9:I:13:ARG:NH1 | 2.20 | 0.74 |
| 5:E:3:U:O2 | 5:E:10:G:N1 | 2.17 | 0.74 |
| 13:P:51:GLN:OE1 | 13:P:55:ASN:ND2 | 2.18 | 0.74 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 12:O:68:ASN:ND2 | 12:O:155:THR:OG1 | 2.20 | 0.74 |
| 13:P:70:SER:O | 13:P:73:THR:OG1 | 2.05 | 0.74 |
| 14:Q:20:PHE:CD1 | 14:Q:62:GLU:HB2 | 2.23 | 0.74 |
| 8:H:30:C:O2 | 8:H:123:G:N2 | 2.14 | 0.74 |
| 6:F:53:G:H5'' | 13:P:122:PHE:CZ | 2.23 | 0.74 |
| 17:T:105:LEU:HD22 | 17:T:138:LEU:CD2 | 2.18 | 0.74 |
| 1:A:12:G:H5'' | 21:X:86:ARG:HH11 | 1.53 | 0.73 |
| 1:A:1328:G:N2 | 1:A:1527:U:O2 | 2.19 | 0.73 |
| 1:A:182:G:C3' | 1:A:183:G:H5'' | 2.18 | 0.73 |
| 7:G:59:U:C2' | 7:G:60:C:H5' | 2.18 | 0.73 |
| 16:S:111:ASP:OD1 | 16:S:115:ARG:NH1 | 2.20 | 0.73 |
| 16:S:74:ARG:HD2 | 16:S:76:TYR:OH | 1.87 | 0.73 |
| 1:A:1624:U:H2' | 1:A:1625:G:C8 | 2.21 | 0.73 |
| 1:A:850:A:HO2' | 1:A:929:C:HO2' | 1.30 | 0.73 |
| 1:A:1681:A:N1 | 1:A:1716:U:O2' | 2.21 | 0.73 |
| 1:A:463:A:O2' | 1:A:758:G:H4' | 1.89 | 0.73 |
| 1:A:773:G:H2' | 2:B:718:A:N7 | 2.04 | 0.73 |
| 20:W:47:ARG:HG2 | 20:W:48:LEU:N | 2.02 | 0.73 |
| 3:C:76:C:H2' | 3:C:77:A:O4' | 1.89 | 0.73 |
| 11:N:188:LYS:O | 11:N:192:LYS:HG3 | 1.89 | 0.73 |
| 20:W:38:ILE:CG1 | 20:W:60:VAL:HG11 | 2.18 | 0.73 |
| 1:A:1762:U:OP2 | 21:X:173:LYS:NZ | 2.15 | 0.73 |
| 2:B:1156:U:O2 | 14:Q:141:SER:OG | 2.06 | 0.73 |
| 2:B:1285:C:O2 | 2:B:1290:A:N6 | 2.20 | 0.73 |
| 8:H:68:G:N1 | 8:H:87:C:N3 | 2.28 | 0.73 |
| 13:P:41:PRO:HB2 | 13:P:75:LYS:HD3 | 1.70 | 0.73 |
| 22:Y:50:PRO:HB2 | 22:Y:58:THR:CG2 | 2.18 | 0.73 |
| 1:A:1628:G:N2 | 1:A:1631:A:OP2 | 2.18 | 0.73 |
| 2:B:498:U:HO2' | 2:B:589:A:HO2' | 1.33 | 0.73 |
| 13:P:14:ARG:NH2 | 13:P:57:GLU:OE1 | 2.17 | 0.73 |
| 17:T:72:MET:O | 17:T:74:ARG:NH1 | 2.22 | 0.73 |
| 1:A:370:C:H5'' | 1:A:371:A:H5'' | 1.68 | 0.73 |
| 2:B:1245:C:H2' | 2:B:1246:G:O4' | 1.88 | 0.73 |
| 17:T:15:LEU:HD12 | 17:T:22:VAL:HG12 | 1.70 | 0.73 |
| 18:U:107:GLN:NE2 | 18:U:110:LYS:HD3 | 2.04 | 0.73 |
| 1:A:931:7MG:N1 | 1:A:945:U:O2 | 2.20 | 0.73 |
| 2:B:1259:G:H5'' | 18:U:17:LYS:HG2 | 1.71 | 0.73 |
| 8:H:26:C:N4 | 8:H:125:U:H2' | 2.04 | 0.73 |
| 1:A:1544:G:N2 | 1:A:1581:C:O2 | 2.17 | 0.73 |
| 7:G:59:U:H2' | 7:G:60:C:H5' | 1.71 | 0.73 |
| 1:A:1539:U:H1' | 9:I:15:VAL:HG22 | 1.70 | 0.73 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:Q:131:VAL:O | 14:Q:175:ARG:NH1 | 2.21 | 0.73 |
| 23:Z:47:VAL:HG11 | 23:Z:77:ILE:HD12 | 1.71 | 0.73 |
| 6:F:13:U:H2' | 12:O:132:ARG:HA | 1.69 | 0.72 |
| 11:N:59:LEU:HD22 | 11:N:124:TYR:CG | 2.24 | 0.72 |
| 15:R:129:THR:HG22 | 15:R:139:TYR:CE2 | 2.23 | 0.72 |
| 23:Z:77:ILE:HG22 | 23:Z:96:VAL:O | 1.89 | 0.72 |
| 1:A:1108:G:H5'' | 1:A:1659:OMG:HM21 | 1.71 | 0.72 |
| 2:B:1136:G:H5'' | 2:B:1137:A:H2' | 1.70 | 0.72 |
| 20:W:30:ASN:ND2 | 20:W:114:SER:HB3 | 2.03 | 0.72 |
| 23:Z:51:ASP:HB2 | 23:Z:106:LEU:HA | 1.71 | 0.72 |
| 12:O:65:GLU:OE2 | 12:O:163:HIS:ND1 | 2.22 | 0.72 |
| 16:S:8:HIS:NE2 | 16:S:30:GLU:OE1 | 2.22 | 0.72 |
| 2:B:1215:A:O2' | 2:B:1216:A:O5' | 2.02 | 0.72 |
| 3:C:4:G:C2' | 3:C:5:U:H5' | 2.20 | 0.72 |
| 6:F:12:U:OP1 | 12:O:194:ARG:HD3 | 1.88 | 0.72 |
| 6:F:54:U:C4 | 13:P:115:VAL:HG23 | 2.24 | 0.72 |
| 2:B:496:G:O2' | 2:B:535:U:OP1 | 2.06 | 0.72 |
| 4:D:40:C:O2 | 10:L:78:ARG:NH1 | 2.23 | 0.72 |
| 1:A:14:G:C2' | 1:A:15:U:H5' | 2.20 | 0.72 |
| 1:A:1680:G:OP1 | 2:B:62:A:N6 | 2.23 | 0.72 |
| 12:O:126:ILE:HG23 | 12:O:179:ARG:CD | 2.20 | 0.72 |
| 1:A:233:C:H2' | 1:A:234:A:H5' | 1.72 | 0.72 |
| 15:R:19:VAL:CG2 | 15:R:94:LEU:HD13 | 2.19 | 0.72 |
| 1:A:1002:G:H1' | 1:A:1025:A:N6 | 2.05 | 0.72 |
| 1:A:1343:U:OP1 | 9:I:2:GLY:N | 2.22 | 0.72 |
| 1:A:964:U:C5' | 11:N:2:PRO:HD3 | 2.20 | 0.72 |
| 2:B:894:C:H2' | 2:B:895:U:H6 | 1.54 | 0.72 |
| 7:G:75:U:H4' | 20:W:94:VAL:HG11 | 1.72 | 0.72 |
| 1:A:920:C:O2 | 9:I:147:ARG:NH1 | 2.23 | 0.72 |
| 2:B:1502:U:O2' | 2:B:1504:A:N7 | 2.19 | 0.71 |
| 2:B:454:A:H2' | 2:B:455:A:C8 | 2.24 | 0.71 |
| 8:H:121:A:H2' | 8:H:122:U:C6 | 2.25 | 0.71 |
| 12:O:72:TYR:CD2 | 12:O:164:VAL:HG11 | 2.24 | 0.71 |
| 4:D:67:C:O2 | 4:D:108:G:N2 | 2.16 | 0.71 |
| 5:E:97:G:N2 | 5:E:135:C:O2 | 2.17 | 0.71 |
| 23:Z:45:MET:HE1 | 23:Z:115:ILE:HG21 | 1.72 | 0.71 |
| 3:C:77:A:H2' | 3:C:78:G:O4' | 1.91 | 0.71 |
| 16:S:166:VAL:HG23 | 16:S:178:VAL:HG23 | 1.72 | 0.71 |
| 20:W:98:GLU:OE1 | 22:Y:21:TYR:OH | 2.08 | 0.71 |
| 1:A:195:U:O2' | 23:Z:57:ARG:NH2 | 2.23 | 0.71 |
| 1:A:74:U:O2' | 11:N:75:ARG:NH2 | 2.23 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 13:P:41:PRO:CB | 13:P:75:LYS:HD3 | 2.20 | 0.71 |
| 15:R:116:HIS:HE1 | 15:R:147:GLN:HE21 | 1.39 | 0.71 |
| 2:B:505:U:H2' | 2:B:506:G:H5' | 1.71 | 0.71 |
| 2:B:542:C:O2' | 2:B:616:A:N3 | 2.23 | 0.71 |
| 1:A:951:G:H2' | 1:A:951:G:N3 | 2.05 | 0.71 |
| 2:B:1273:G:H4' | 2:B:1274:A:O5' | 1.90 | 0.71 |
| 2:B:132:G:H4' | 17:T:101:ILE:HD13 | 1.72 | 0.71 |
| 8:H:93:G:H2' | 8:H:94:G:H5' | 1.73 | 0.71 |
| 12:O:95:SER:N | 12:O:124:GLU:OE2 | 2.22 | 0.71 |
| 16:S:29:PHE:CE2 | 16:S:31:VAL:HG12 | 2.25 | 0.71 |
| 2:B:749:G:O6 | 2:B:1390:A:N6 | 2.15 | 0.71 |
| 4:D:20:C:H2' | 4:D:21:G:C8 | 2.26 | 0.71 |
| 1:A:132:U:H3 | 1:A:178:U:H4' | 1.55 | 0.71 |
| 1:A:875:C:OP2 | 1:A:919:OMC:N4 | 2.23 | 0.71 |
| 6:F:10:A:H4' | 6:F:13:U:O4 | 1.90 | 0.71 |
| 1:A:503:C:H2' | 1:A:504:C:C6 | 2.26 | 0.71 |
| 3:C:78:G:H2' | 3:C:79:A:H5' | 1.72 | 0.71 |
| 19:V:29:ASP:HA | 19:V:76:VAL:HG22 | 1.72 | 0.71 |
| 1:A:132:U:N3 | 1:A:178:U:H4' | 2.05 | 0.70 |
| 1:A:145:G:OP1 | 14:Q:56:ARG:NH1 | 2.23 | 0.70 |
| 1:A:1684:U:H2' | 1:A:1685:A:C8 | 2.26 | 0.70 |
| 1:A:766:C:O2 | 1:A:781:G:N2 | 2.17 | 0.70 |
| 2:B:551:U:H3 | 2:B:583:C:H42 | 1.39 | 0.70 |
| 4:D:13:A:OP2 | 4:D:66:G:N2 | 2.18 | 0.70 |
| 5:E:113:C:H2' | 5:E:114:G:C8 | 2.26 | 0.70 |
| 6:F:8:C:C2' | 6:F:9:C:H5' | 2.21 | 0.70 |
| 11:N:51:THR:HG21 | 11:N:54:ARG:NE | 2.06 | 0.70 |
| 1:A:211:C:O2' | 1:A:212:C:H5' | 1.92 | 0.70 |
| 1:A:92:G:OP1 | 17:T:46:LYS:NZ | 113.88 | 0.70 |
| 1:A:1669:G:N2 | 2:B:705:C:O2 | 2.16 | 0.70 |
| 16:S:119:ARG:HG2 | 16:S:122:ASN:ND2 | 2.05 | 0.70 |
| 3:C:122:A:H2' | 3:C:123:G:O4' | 1.91 | 0.70 |
| 15:R:137:THR:HB | 15:R:138:PRO:HD2 | 1.72 | 0.70 |
| 15:R:59:PRO:HB2 | 15:R:78:GLN:HE22 | 1.55 | 0.70 |
| 1:A:1014:A:H2' | 1:A:1015:A:O4' | 1.91 | 0.70 |
| 1:A:266:C:C2' | 1:A:267:A:H5' | 2.21 | 0.70 |
| 1:A:419:A:H4' | 1:A:420:A:H5' | 1.73 | 0.70 |
| 1:A:877:C:O2' | 9:I:142:ASN:HA | 1.90 | 0.70 |
| 13:P:135:LYS:HG3 | 13:P:141:LYS:HA | 1.72 | 0.70 |
| 17:T:136:ARG:HA | 17:T:139:MET:CB | 2.19 | 0.70 |
| 19:V:60:ARG:HD3 | 19:V:63:LYS:NZ | 2.05 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1775:G:O6 | 1:A:1924:A:H2' | 1.90 | 0.70 |
| 1:A:792:OMC:HM22 | 1:A:793:A:O4' | 1.90 | 0.70 |
| 6:F:62:U:H4' | 6:F:63:A:O5' | 1.91 | 0.70 |
| 13:P:135:LYS:HG3 | 13:P:141:LYS:CA | 2.21 | 0.70 |
| 1:A:62:A:OP1 | 14:Q:188:ARG:NH1 | 2.25 | 0.70 |
| 17:T:4:LEU:HD13 | 17:T:24:LEU:HD22 | 1.74 | 0.70 |
| 1:A:115:G:C2' | 1:A:116:U:H5' | 2.22 | 0.70 |
| 1:A:131:U:H3' | 1:A:132:U:C5' | 2.20 | 0.70 |
| 1:A:1364:C:OP2 | 16:S:162:ARG:NH1 | 2.20 | 0.70 |
| 1:A:1764:G:N2 | 1:A:1945:U:O2' | 2.24 | 0.70 |
| 12:O:79:ARG:HH11 | 12:O:84:PRO:HG3 | 1.57 | 0.70 |
| 14:Q:44:TRP:HA | 14:Q:47:ARG:HH21 | 1.56 | 0.70 |
| 19:V:112:ARG:HD2 | 19:V:118:GLN:CD | 2.11 | 0.70 |
| 1:A:266:C:O2' | 1:A:267:A:H5' | 1.92 | 0.70 |
| 2:B:498:U:O2' | 2:B:499:U:H5' | 1.92 | 0.70 |
| 2:B:564:OMG:HN1 | 2:B:573:C:H42 | 1.37 | 0.70 |
| 12:O:144:ARG:HG3 | 12:O:148:TYR:CD2 | 2.26 | 0.70 |
| 16:S:131:ILE:HG23 | 16:S:132:PRO:HD2 | 1.74 | 0.70 |
| 1:A:115:G:H4' | 14:Q:65:ARG:HG2 | 1.74 | 0.70 |
| 1:A:1301:C:O2 | 1:A:1323:G:N2 | 2.14 | 0.70 |
| 1:A:65:A:H5'' | 1:A:358:C:OP1 | 1.92 | 0.70 |
| 1:A:1051:A:OP2 | 11:N:4:GLY:HA3 | 61.13 | 0.70 |
| 20:W:56:LEU:HD21 | 20:W:121:ALA:CB | 2.22 | 0.70 |
| 2:B:1345:OMU:HM21 | 2:B:1347:A:N6 | 2.07 | 0.69 |
| 9:I:117:ARG:O | 9:I:120:ILE:HG22 | 1.92 | 0.69 |
| 17:T:96:MET:CE | 17:T:100:ARG:HH21 | 2.05 | 0.69 |
| 1:A:827:G:C2' | 1:A:828:U:H5' | 2.22 | 0.69 |
| 2:B:461:U:H4' | 2:B:462:A:C5' | 2.22 | 0.69 |
| 1:A:964:U:H5'' | 11:N:2:PRO:HD3 | 1.74 | 0.69 |
| 1:A:1046:U:O2 | 2:B:703:A:O2' | 2.06 | 0.69 |
| 1:A:758:G:H2' | 1:A:759:C:C6 | 2.28 | 0.69 |
| 12:O:99:LEU:HA | 12:O:102:VAL:HG12 | 1.74 | 0.69 |
| 7:G:89:U:OP1 | 17:T:80:ARG:NH1 | 2.24 | 0.69 |
| 2:B:1240:U:H2' | 2:B:1241:C:H6 | 1.56 | 0.69 |
| 13:P:24:VAL:O | 13:P:46:MET:HE2 | 1.93 | 0.69 |
| 1:A:338:G:O6 | 14:Q:28:LYS:NZ | 2.22 | 0.69 |
| 1:A:470:U:C2' | 1:A:471:G:H5' | 2.22 | 0.69 |
| 2:B:1439:U:O2' | 2:B:1443:U:OP1 | 2.11 | 0.69 |
| 15:R:102:ALA:HB1 | 15:R:112:MET:CE | 2.22 | 0.69 |
| 17:T:109:TYR:HD2 | 17:T:142:ILE:HD13 | 1.56 | 0.69 |
| 10:L:138:GLY:HA2 | 10:L:160:VAL:HG21 | 1.74 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:312:A:OP1 | 14:Q:186:LYS:HE3 | 1.92 | 0.69 |
| 20:W:125:ALA:HB2 | 20:W:138:ILE:HD12 | 1.75 | 0.69 |
| 2:B:719:A:N6 | 2:B:1437:C:H1' | 2.08 | 0.69 |
| 7:G:123:G:HO2' | 7:G:124:U:P | 2.16 | 0.69 |
| 13:P:6:TYR:CE2 | 16:S:152:PRO:HD3 | 2.26 | 0.69 |
| 2:B:1156:U:H2' | 2:B:1157:G:C8 | 2.28 | 0.69 |
| 1:A:974:A2M:HM'3 | 2:B:758:G:O2' | 1.93 | 0.69 |
| 2:B:77:OMC:HM22 | 2:B:78:U:H5' | 1.75 | 0.69 |
| 5:E:177:G:O2' | 5:E:178:U:H5' | 1.92 | 0.69 |
| 8:H:68:G:N2 | 8:H:87:C:O2 | 2.20 | 0.69 |
| 1:A:1771:U:H3' | 1:A:1772:A:H5'' | 1.75 | 0.69 |
| 2:B:1444:G:HO2' | 2:B:1445:U:C5' | 2.06 | 0.69 |
| 5:E:27:U:H3 | 5:E:202:A:H62 | 1.40 | 0.69 |
| 1:A:80:U:OP1 | 14:Q:213:ARG:NH2 | 2.26 | 0.69 |
| 15:R:56:ARG:NH2 | 15:R:75:GLU:OE2 | 2.20 | 0.69 |
| 2:B:1150:G:H4' | 2:B:1152:C:C2 | 2.28 | 0.69 |
| 2:B:1356:U:H5'' | 17:T:38:ARG:CB | 112.27 | 0.69 |
| 16:S:84:SER:N | 16:S:87:CYS:O | 2.24 | 0.69 |
| 23:Z:56:LYS:HD2 | 23:Z:102:GLU:OE1 | 1.93 | 0.69 |
| 1:A:1085:C:C2' | 1:A:1086:U:H5' | 2.22 | 0.69 |
| 1:A:95:A:C5 | 1:A:96:G:H1' | 2.28 | 0.69 |
| 2:B:1240:U:O2' | 2:B:1241:C:H5' | 1.92 | 0.69 |
| 2:B:1560:U:C2' | 2:B:1561:A:H5' | 2.23 | 0.69 |
| 2:B:720:C:C5 | 2:B:1393:G:H4' | 2.27 | 0.69 |
| 1:A:1358:U:O2' | 12:O:105:MET:O | 2.03 | 0.69 |
| 1:A:1949:A:H2' | 21:X:177:ARG:HH21 | 1.58 | 0.68 |
| 1:A:833:C:H2' | 1:A:834:U:O4' | 1.93 | 0.68 |
| 21:X:117:TYR:CE1 | 21:X:137:ILE:HD13 | 2.28 | 0.68 |
| 1:A:815:A:H2' | 1:A:816:U:O4' | 1.93 | 0.68 |
| 1:A:867:G:P | 9:I:72:LYS:HE2 | 2.33 | 0.68 |
| 5:E:176:U:H2' | 5:E:177:G:O4' | 1.93 | 0.68 |
| 12:O:21:ARG:HE | 12:O:24:ILE:HD12 | 1.57 | 0.68 |
| 1:A:1132:A:OP1 | 11:N:3:LYS:HD2 | 1.92 | 0.68 |
| 2:B:1350:A:H2' | 2:B:1351:A:C8 | 2.28 | 0.68 |
| 23:Z:82:VAL:HG12 | 23:Z:94:VAL:CG1 | 2.23 | 0.68 |
| 1:A:180:C:H5' | 1:A:181:A:OP2 | 1.93 | 0.68 |
| 1:A:375:U:C2' | 1:A:376:A:H5' | 2.24 | 0.68 |
| 1:A:58:G:H4' | 1:A:59:A:OP1 | 1.91 | 0.68 |
| 2:B:576:C:H3' | 2:B:577:G:H5'' | 1.76 | 0.68 |
| 4:D:115:A:H2' | 4:D:116:A:C8 | 2.28 | 0.68 |
| 5:E:124:G:C5' | 5:E:126:A:H5' | 2.23 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:33:A:O2' | 5:E:34:U:H5' | 1.93 | 0.68 |
| 6:F:53:G:O2' | 6:F:54:U:O5' | 2.10 | 0.68 |
| 1:A:1342:U:H5' | 9:I:2:GLY:HA2 | 1.75 | 0.68 |
| 1:A:1791:C:C2' | 1:A:1792:G:H5' | 2.22 | 0.68 |
| 1:A:308:G:H1' | 14:Q:66:MET:HE3 | 1.76 | 0.68 |
| 2:B:88:C:H5'' | 2:B:1493:U:OP1 | 1.93 | 0.68 |
| 3:C:167:U:H2' | 3:C:168:C:O4' | 1.94 | 0.68 |
| 4:D:45:U:H2' | 4:D:46:G:C8 | 2.28 | 0.68 |
| 2:B:701:G:H4' | 15:R:139:TYR:CD1 | 2.29 | 0.68 |
| 16:S:116:HIS:O | 16:S:118:ALA:N | 2.25 | 0.68 |
| 16:S:142:SER:HA | 16:S:145:HIS:HD2 | 1.58 | 0.68 |
| 1:A:1680:G:H5'' | 1:A:1681:A:OP2 | 1.94 | 0.68 |
| 1:A:494:C:N4 | 1:A:741:G:O6 | 2.17 | 0.68 |
| 9:I:64:LEU:HD21 | 9:I:102:ILE:HD13 | 1.74 | 0.68 |
| 10:L:106:GLY:HA3 | 10:L:160:VAL:HG12 | 1.76 | 0.68 |
| 13:P:29:ASP:OD2 | 16:S:73:ALA:HB3 | 1.93 | 0.68 |
| 2:B:1112:A:H4' | 2:B:1113:A:OP1 | 1.92 | 0.68 |
| 2:B:681:G:O4' | 2:B:683:OMC:N4 | 2.24 | 0.68 |
| 4:D:91:U:C2' | 4:D:92:G:H5' | 2.24 | 0.68 |
| 12:O:29:LEU:HD13 | 12:O:59:LEU:HD21 | 1.74 | 0.68 |
| 16:S:14:ARG:NH1 | 16:S:17:PRO:HG3 | 2.08 | 0.68 |
| 1:A:1517:U:O4 | 13:P:45:LYS:HD3 | 1.94 | 0.68 |
| 1:A:818:U:H2' | 1:A:825:C:N3 | 2.09 | 0.68 |
| 5:E:67:U:H1' | 5:E:68:A:OP2 | 1.93 | 0.68 |
| 2:B:1167:G:O2' | 14:Q:95:ILE:HG12 | 1.94 | 0.68 |
| 18:U:25:PRO:HG3 | 18:U:94:GLU:HG2 | 1.76 | 0.68 |
| 23:Z:28:MET:CG | 23:Z:98:PRO:HG3 | 2.23 | 0.68 |
| 2:B:656:U:H2' | 2:B:657:7MG:H82 | 1.75 | 0.68 |
| 8:H:68:G:O6 | 8:H:87:C:N4 | 2.25 | 0.68 |
| 2:B:1243:C:O2' | 2:B:1244:A:H5' | 1.94 | 0.67 |
| 2:B:718:A:H3' | 2:B:719:A:C5' | 2.23 | 0.67 |
| 7:G:177:C:H5' | 7:G:178:A:P | 2.34 | 0.67 |
| 17:T:109:TYR:CD2 | 17:T:142:ILE:HD13 | 2.29 | 0.67 |
| 20:W:122:LYS:NZ | 20:W:126:ASP:OD2 | 2.20 | 0.67 |
| 21:X:178:LEU:HD12 | 21:X:184:ALA:HA | 1.76 | 0.67 |
| 4:D:21:G:H1 | 4:D:57:C:H42 | 1.43 | 0.67 |
| 21:X:131:ASN:O | 21:X:177:ARG:NH1 | 2.27 | 0.67 |
| 23:Z:79:ILE:HG22 | 23:Z:81:LYS:H | 1.58 | 0.67 |
| 1:A:87:C:H5' | 9:I:175:ASN:OD1 | 1.94 | 0.67 |
| 2:B:1506:A:O2' | 2:B:1507:G:H5' | 1.95 | 0.67 |
| 3:C:20:C:C2' | 3:C:21:U:H5' | 2.24 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:8:A:N1 | 5:E:132:G:O2' | 2.24 | 0.67 |
| 13:P:59:LEU:HD13 | 13:P:87:TYR:CE1 | 2.30 | 0.67 |
| 16:S:136:VAL:HG11 | 16:S:141:ILE:CD1 | 2.23 | 0.67 |
| 23:Z:16:HIS:CD2 | 23:Z:27:LEU:HD21 | 2.29 | 0.67 |
| 1:A:92:G:H5' | 1:A:94:G:N7 | 2.09 | 0.67 |
| 2:B:135:A:H2' | 2:B:136:A:H5' | 1.77 | 0.67 |
| 3:C:57:C:C2' | 3:C:58:G:H5' | 2.23 | 0.67 |
| 2:B:1248:A:H2' | 2:B:1248:A:N3 | 2.08 | 0.67 |
| 9:I:188:ARG:HH22 | 9:I:191:ARG:HH11 | 1.42 | 0.67 |
| 14:Q:100:PRO:O | 14:Q:103:SER:OG | 2.10 | 0.67 |
| 15:R:102:ALA:HB1 | 15:R:112:MET:HE3 | 1.75 | 0.67 |
| 16:S:173:THR:HG22 | 16:S:175:ARG:N | 2.07 | 0.67 |
| 18:U:80:VAL:HG11 | 18:U:83:ARG:NE | 2.08 | 0.67 |
| 1:A:12:G:H5'' | 21:X:86:ARG:NH1 | 2.09 | 0.67 |
| 2:B:1322:U:O4 | 2:B:1364:G:N1 | 2.19 | 0.67 |
| 2:B:1444:G:H2' | 2:B:1515:G:O6 | 1.94 | 0.67 |
| 2:B:451:C:O2' | 2:B:452:A:H5' | 1.94 | 0.67 |
| 1:A:1099:U:H3' | 11:N:22:SER:OG | 1.94 | 0.67 |
| 13:P:20:ARG:HD3 | 13:P:46:MET:SD | 2.35 | 0.67 |
| 2:B:482:A2M:H2 | 2:B:489:A:N7 | 2.10 | 0.67 |
| 4:D:102:C:H2' | 4:D:103:C:H5' | 1.76 | 0.67 |
| 10:L:106:GLY:CA | 10:L:160:VAL:HG12 | 2.25 | 0.67 |
| 1:A:815:A:OP2 | 11:N:44:ARG:NH2 | 2.25 | 0.67 |
| 2:B:1460:C:H42 | 2:B:1483:G:H1 | 1.42 | 0.67 |
| 2:B:1496:A:O2' | 2:B:1497:C:H5' | 1.95 | 0.67 |
| 2:B:1560:U:H2' | 2:B:1561:A:H5' | 1.77 | 0.67 |
| 5:E:145:A:OP2 | 5:E:147:A:N6 | 2.28 | 0.67 |
| 9:I:92:ASP:OD2 | 9:I:111:ARG:NH1 | 2.27 | 0.67 |
| 12:O:21:ARG:NH1 | 12:O:133:THR:OG1 | 2.28 | 0.67 |
| 13:P:139:TRP:HD1 | 13:P:140:HIS:N | 1.93 | 0.67 |
| 21:X:160:VAL:CG2 | 21:X:179:SER:HA | 2.24 | 0.67 |
| 1:A:4:A:H2' | 1:A:5:G:O4' | 1.93 | 0.67 |
| 2:B:1568:A:H5'' | 2:B:1575:A:OP2 | 1.94 | 0.67 |
| 2:B:1309:G:H5' | 18:U:70:ARG:HH21 | 1.60 | 0.67 |
| 1:A:1668:U:H2' | 1:A:1669:G:C8 | 2.30 | 0.67 |
| 2:B:1203:C:H5'' | 2:B:1204:G:O5' | 1.94 | 0.67 |
| 1:A:463:A:H61 | 3:C:4:G:H1 | 1.43 | 0.67 |
| 1:A:1367:A:OP2 | 16:S:159:LYS:HE3 | 1.95 | 0.67 |
| 1:A:1301:C:N3 | 1:A:1323:G:N1 | 2.35 | 0.66 |
| 1:A:350:G:H22 | 2:B:1351:A:H2 | 1.40 | 0.66 |
| 2:B:576:C:H2' | 2:B:577:G:H4' | 1.78 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:B:67:G:C2' | 2:B:68:A:H5' | 2.25 | 0.66 |
| 3:C:1:A:H3' | 3:C:2:A:C2 | 2.30 | 0.66 |
| 4:D:94:C:OP1 | 16:S:45:ARG:NH2 | 2.27 | 0.66 |
| 8:H:4:C:H2' | 8:H:5:G:O4' | 1.95 | 0.66 |
| 18:U:28:SER:O | 18:U:32:THR:HG23 | 1.94 | 0.66 |
| 1:A:274:C:H2' | 1:A:275:A:C8 | 2.30 | 0.66 |
| 12:O:156:VAL:HG13 | 12:O:159:ASN:CB | 2.26 | 0.66 |
| 19:V:55:VAL:CG1 | 19:V:64:LEU:HD21 | 2.25 | 0.66 |
| 23:Z:108:LEU:HA | 23:Z:112:ARG:HD2 | 1.77 | 0.66 |
| 1:A:1067:G:H1' | 1:A:1927:A:N6 | 2.09 | 0.66 |
| 1:A:1731:G:N1 | 2:B:20:U:O2 | 2.14 | 0.66 |
| 5:E:208:G:H2' | 5:E:209:G:O4' | 1.95 | 0.66 |
| 1:A:74:U:H5'' | 11:N:63:VAL:HB | 1.77 | 0.66 |
| 2:B:1201:A:H2' | 2:B:1202:A:C8 | 2.31 | 0.66 |
| 15:R:33:ALA:HB1 | 15:R:117:VAL:CG1 | 2.24 | 0.66 |
| 17:T:8:ALA:HB1 | 17:T:19:ARG:NE | 2.10 | 0.66 |
| 16:S:46:MET:HE1 | 18:U:148:ARG:HD3 | 1.77 | 0.66 |
| 2:B:1213:C:O2' | 2:B:1215:A:H1' | 1.95 | 0.66 |
| 17:T:109:TYR:CD1 | 17:T:114:LYS:HD2 | 2.31 | 0.66 |
| 1:A:1374:C:H4' | 1:A:1375:A:H5' | 1.78 | 0.66 |
| 1:A:46:U:OP2 | 1:A:47:A:O2' | 2.04 | 0.66 |
| 2:B:1516:A2M:H5'' | 2:B:1517:G:C5' | 2.18 | 0.66 |
| 15:R:60:PHE:CZ | 15:R:82:ARG:HB3 | 2.31 | 0.66 |
| 16:S:112:LEU:HD23 | 16:S:123:ILE:CD1 | 2.25 | 0.66 |
| 16:S:15:GLU:OE2 | 16:S:21:ASN:ND2 | 2.28 | 0.66 |
| 1:A:275:A:C2' | 1:A:276:U:H5' | 2.26 | 0.66 |
| 2:B:1203:C:H5'' | 2:B:1204:G:C5' | 2.26 | 0.66 |
| 3:C:124:A:H2' | 3:C:125:A:H8 | 1.57 | 0.66 |
| 11:N:170:ALA:HB1 | 11:N:171:PRO:HD2 | 1.77 | 0.66 |
| 16:S:84:SER:OG | 16:S:87:CYS:N | 2.29 | 0.66 |
| 2:B:1289:U:H2' | 2:B:1290:A:O4' | 1.96 | 0.66 |
| 20:W:111:MET:HB3 | 20:W:131:ILE:CD1 | 2.26 | 0.66 |
| 1:A:1113:C:H2' | 1:A:1114:A:H8 | 1.60 | 0.66 |
| 1:A:214:G:H4' | 1:A:215:U:O5' | 1.95 | 0.66 |
| 1:A:438:U:O3' | 23:Z:84:ARG:NH2 | 2.28 | 0.66 |
| 1:A:450:U:C2' | 1:A:451:G:H5' | 2.25 | 0.66 |
| 2:B:1493:U:H2' | 2:B:1494:U:C6 | 2.30 | 0.66 |
| 2:B:531:C:O2' | 2:B:660:U:OP2 | 2.11 | 0.66 |
| 2:B:490:A:H1' | 2:B:627:A2M:N6 | 2.11 | 0.66 |
| 2:B:67:G:H22 | 2:B:694:A:N6 | 1.93 | 0.66 |
| 2:B:901:C:H2' | 2:B:902:U:C6 | 2.31 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:95:U:H3 | 5:E:137:A:H61 | 1.42 | 0.66 |
| 6:F:51:A:O2' | 6:F:52:A:H5'' | 1.96 | 0.66 |
| 10:L:108:PHE:HE1 | 10:L:168:TRP:HZ2 | 1.44 | 0.66 |
| 1:A:588:A:H61 | 16:S:63:CYS:HB2 | 1.60 | 0.66 |
| 2:B:1193:U:H2' | 2:B:1201:A:H61 | 1.61 | 0.66 |
| 12:O:123:TYR:CG | 12:O:127:PRO:HG2 | 2.31 | 0.66 |
| 1:A:1539:U:C1' | 9:I:15:VAL:HG22 | 2.27 | 0.65 |
| 1:A:1953:A:H2' | 1:A:1954:G:O4' | 1.96 | 0.65 |
| 4:D:13:A:O2' | 4:D:14:C:OP1 | 2.12 | 0.65 |
| 14:Q:58:PRO:HG3 | 14:Q:77:VAL:HG21 | 1.78 | 0.65 |
| 1:A:1245:C:H2' | 1:A:1246:U:H6 | 1.61 | 0.65 |
| 1:A:1570:A:O2' | 1:A:1571:G:H5' | 1.96 | 0.65 |
| 2:B:1444:G:O2' | 2:B:1445:U:O5' | 2.09 | 0.65 |
| 2:B:701:G:H4' | 15:R:139:TYR:HD1 | 1.62 | 0.65 |
| 4:D:69:U:H2' | 4:D:70:C:C6 | 2.31 | 0.65 |
| 8:H:45:G:H2' | 8:H:46:C:C1' | 2.26 | 0.65 |
| 18:U:19:PHE:CE2 | 18:U:20:ARG:HD3 | 2.31 | 0.65 |
| 1:A:333:G:OP2 | 14:Q:84:ARG:NH2 | 2.28 | 0.65 |
| 1:A:782:A:H5' | 2:B:707:A:H5'' | 1.78 | 0.65 |
| 2:B:538:C:O2' | 2:B:658:A:N1 | 2.25 | 0.65 |
| 1:A:1037:A:O2' | 1:A:1038:U:OP2 | 2.11 | 0.65 |
| 1:A:1512:A:HO2' | 1:A:1515:A:H2 | 1.43 | 0.65 |
| 1:A:216:U:H2' | 1:A:217:G:H8 | 1.61 | 0.65 |
| 2:B:67:G:O2' | 2:B:68:A:H5' | 1.97 | 0.65 |
| 5:E:140:U:H2' | 5:E:141:U:H5' | 1.78 | 0.65 |
| 1:A:1748:C:OP1 | 15:R:127:ARG:NH1 | 2.26 | 0.65 |
| 1:A:867:G:H2' | 1:A:867:G:N3 | 2.09 | 0.65 |
| 1:A:943:G:H2' | 1:A:944:U:O4' | 1.96 | 0.65 |
| 1:A:1498:G:O2' | 2:B:726:U:O2' | 2.12 | 0.65 |
| 11:N:81:THR:HG22 | 11:N:83:GLU:H | 1.60 | 0.65 |
| 17:T:32:ILE:HA | 17:T:44:LEU:CD2 | 2.27 | 0.65 |
| 19:V:109:ILE:HG13 | 19:V:119:LEU:CD2 | 2.27 | 0.65 |
| 2:B:643:U:O2 | 2:B:1490:U:H5' | 1.97 | 0.65 |
| 2:B:1444:G:H2' | 2:B:1515:G:C6 | 2.32 | 0.65 |
| 12:O:205:LEU:HD23 | 13:P:120:ARG:HD2 | 1.78 | 0.65 |
| 14:Q:110:LEU:HD23 | 14:Q:117:ILE:HD11 | 1.79 | 0.65 |
| 20:W:29:ASP:OD1 | 20:W:113:GLY:HA3 | 1.97 | 0.65 |
| 1:A:816:U:OP2 | 11:N:41:ARG:NH1 | 2.29 | 0.65 |
| 2:B:1288:G:H5'' | 18:U:83:ARG:HH22 | 1.61 | 0.65 |
| 2:B:624:5MC:C2' | 2:B:625:A:H5'' | 2.27 | 0.65 |
| 1:A:1679:A:H5'' | 7:G:102:G:H1 | 1.61 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:147:A:O2' | 5:E:148:U:OP1 | 2.15 | 0.65 |
| 2:B:1232:A:H4' | 10:L:109:GLY:HA3 | 1.79 | 0.65 |
| 3:C:124:A:O2' | 3:C:139:A:N6 | 2.29 | 0.65 |
| 20:W:59:ILE:HD11 | 20:W:128:TRP:CH2 | 2.32 | 0.65 |
| 23:Z:97:HIS:HB3 | 23:Z:100:ASN:ND2 | 2.12 | 0.65 |
| 1:A:120:C:C2' | 1:A:121:G:H5' | 2.25 | 0.65 |
| 1:A:415:U:O2 | 1:A:419:A:N6 | 2.19 | 0.65 |
| 6:F:55:A:C2' | 6:F:56:C:H5' | 2.27 | 0.65 |
| 2:B:100:U:H2' | 2:B:101:G:C8 | 2.32 | 0.64 |
| 11:N:51:THR:HG21 | 11:N:54:ARG:CZ | 2.27 | 0.64 |
| 14:Q:89:ARG:NH2 | 14:Q:104:GLY:O | 2.30 | 0.64 |
| 18:U:40:VAL:HB | 18:U:96:VAL:HG13 | 1.78 | 0.64 |
| 20:W:37:TYR:HB2 | 20:W:65:LYS:CG | 2.27 | 0.64 |
| 1:A:1368:U:C5 | 13:P:18:GLY:HA2 | 2.32 | 0.64 |
| 1:A:421:G:H2' | 1:A:446:A:N6 | 2.12 | 0.64 |
| 17:T:63:TRP:CH2 | 17:T:67:LYS:HD3 | 2.32 | 0.64 |
| 1:A:308:G:H1' | 14:Q:66:MET:CE | 2.26 | 0.64 |
| 1:A:435:G:C2' | 1:A:436:A:H5' | 2.27 | 0.64 |
| 4:D:46:G:O2' | 4:D:47:U:H5' | 1.97 | 0.64 |
| 13:P:134:LYS:C | 13:P:134:LYS:HD2 | 2.18 | 0.64 |
| 1:A:1804:A2M:HM'3 | 21:X:91:ARG:HH11 | 1.61 | 0.64 |
| 2:B:1380:OMC:HM22 | 2:B:1381:A:C5' | 2.22 | 0.64 |
| 6:F:13:U:H5' | 6:F:14:C:C5' | 2.28 | 0.64 |
| 12:O:80:LYS:CD | 12:O:86:LEU:HD11 | 2.24 | 0.64 |
| 15:R:19:VAL:HG23 | 15:R:94:LEU:CD1 | 2.23 | 0.64 |
| 1:A:1798:U:H5' | 1:A:1799:U:OP2 | 1.97 | 0.64 |
| 1:A:224:A:H2' | 1:A:225:C:O4' | 1.98 | 0.64 |
| 2:B:593:G:O2' | 2:B:617:A:N1 | 2.27 | 0.64 |
| 3:C:6:G:H2' | 3:C:7:OMU:H6 | 1.77 | 0.64 |
| 13:P:147:LEU:O | 13:P:150:ASN:N | 2.30 | 0.64 |
| 14:Q:171:VAL:O | 14:Q:178:ARG:NH2 | 2.20 | 0.64 |
| 15:R:36:ILE:HD12 | 15:R:44:ALA:CB | 2.26 | 0.64 |
| 15:R:52:LEU:CD1 | 15:R:85:ARG:HG3 | 2.28 | 0.64 |
| 16:S:7:ARG:HB2 | 16:S:9:TYR:CE2 | 2.32 | 0.64 |
| 17:T:115:ILE:HG21 | 17:T:142:ILE:HG23 | 1.79 | 0.64 |
| 1:A:874:G:H3' | 1:A:919:OMC:N4 | 2.13 | 0.64 |
| 2:B:1149:A:C2' | 2:B:1150:G:H5' | 2.25 | 0.64 |
| 2:B:1286:C:O2' | 2:B:1287:A:H2' | 1.98 | 0.64 |
| 2:B:83:G:O2' | 2:B:680:U:O4 | 2.12 | 0.64 |
| 16:S:75:ASN:HD21 | 16:S:136:VAL:HG21 | 1.62 | 0.64 |
| 2:B:1309:G:H5' | 18:U:70:ARG:NH2 | 2.13 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 20:W:81:ILE:HB | 20:W:120:VAL:HG13 | 1.78 | 0.64 |
| 22:Y:54:PRO:HA | 22:Y:59:TYR:CG | 2.32 | 0.64 |
| 1:A:1163:C:O2' | 1:A:1164:G:H5' | 1.98 | 0.64 |
| 1:A:1622:G:H4' | 1:A:1623:A:OP1 | 1.98 | 0.64 |
| 1:A:442:A:H4' | 1:A:443:U:O5' | 1.98 | 0.64 |
| 2:B:453:G:O2' | 2:B:454:A:H5' | 1.98 | 0.64 |
| 2:B:482:A2M:H8 | 2:B:482:A2M:O5' | 1.97 | 0.64 |
| 2:B:708:C:H2' | 2:B:709:A:O4' | 1.98 | 0.64 |
| 3:C:26:U:O2' | 3:C:27:U:H5' | 1.98 | 0.64 |
| 4:D:102:C:C2' | 4:D:103:C:H5' | 2.28 | 0.64 |
| 9:I:49:HIS:O | 9:I:53:LEU:HD13 | 1.98 | 0.64 |
| 12:O:156:VAL:HG13 | 12:O:159:ASN:HB3 | 1.80 | 0.64 |
| 6:F:50:C:C5' | 13:P:118:ARG:HH12 | 2.04 | 0.64 |
| 15:R:16:LYS:HG2 | 15:R:149:PHE:HB3 | 1.79 | 0.64 |
| 21:X:162:VAL:HG13 | 21:X:176:ILE:HG22 | 1.79 | 0.64 |
| 1:A:257:G:OP1 | 23:Z:13:ARG:NH1 | 2.30 | 0.64 |
| 1:A:473:A:H2' | 1:A:474:A:O4' | 1.98 | 0.64 |
| 3:C:5:U:C2' | 3:C:6:G:H5' | 2.28 | 0.64 |
| 7:G:58:C:C2' | 7:G:59:U:H5' | 2.28 | 0.64 |
| 14:Q:172:HIS:HB3 | 14:Q:175:ARG:HD2 | 1.80 | 0.64 |
| 2:B:698:A:P | 15:R:82:ARG:HD2 | 2.38 | 0.64 |
| 2:B:477:A:H2' | 2:B:478:C:H5' | 1.78 | 0.64 |
| 2:B:564:OMG:N2 | 2:B:573:C:N3 | 2.39 | 0.64 |
| 13:P:123:TRP:CZ3 | 13:P:126:LYS:HG2 | 2.33 | 0.64 |
| 14:Q:115:ARG:HG2 | 14:Q:146:TYR:CD1 | 2.33 | 0.64 |
| 20:W:111:MET:HB3 | 20:W:131:ILE:HD11 | 1.78 | 0.64 |
| 20:W:29:ASP:OD1 | 20:W:30:ASN:N | 2.29 | 0.64 |
| 1:A:1325:G:OP2 | 1:A:1326:A:O2' | 2.09 | 0.63 |
| 6:F:54:U:N3 | 13:P:115:VAL:HG23 | 2.13 | 0.63 |
| 8:H:96:G:H2' | 8:H:97:C:C6 | 2.33 | 0.63 |
| 13:P:69:CYS:SG | 13:P:73:THR:OG1 | 2.55 | 0.63 |
| 1:A:1526:A:H2' | 1:A:1528:U:C5 | 2.33 | 0.63 |
| 1:A:1750:C:H2' | 1:A:1752:C:C5 | 2.33 | 0.63 |
| 2:B:1217:G:C4' | 2:B:1313:G:H21 | 2.11 | 0.63 |
| 4:D:113:G:H2' | 4:D:114:C:C6 | 2.33 | 0.63 |
| 15:R:59:PRO:HB2 | 15:R:78:GLN:NE2 | 2.14 | 0.63 |
| 16:S:92:MET:CE | 16:S:94:LYS:HD2 | 2.27 | 0.63 |
| 1:A:1792:G:H2' | 1:A:1793:U:C6 | 2.32 | 0.63 |
| 2:B:132:G:H4' | 17:T:101:ILE:CD1 | 2.29 | 0.63 |
| 8:H:19:G:H1' | 15:R:69:ARG:HD3 | 1.80 | 0.63 |
| 9:I:89:ILE:HG22 | 9:I:109:ALA:HB2 | 1.78 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 12:O:158:GLY:HA2 | 12:O:161:CYS:SG | 2.38 | 0.63 |
| 12:O:27:VAL:HG23 | 12:O:51:ILE:HG23 | 1.80 | 0.63 |
| 13:P:5:ASN:ND2 | 13:P:60:LYS:HA | 2.13 | 0.63 |
| 16:S:10:CYS:SG | 16:S:28:LYS:HE3 | 2.39 | 0.63 |
| 20:W:18:ALA:CB | 20:W:85:LYS:HB3 | 2.29 | 0.63 |
| 1:A:130:C:H2' | 1:A:131:U:C6 | 2.33 | 0.63 |
| 1:A:80:U:H2' | 1:A:81:C:C6 | 2.33 | 0.63 |
| 1:A:91:G:OP2 | 1:A:93:C:N4 | 2.29 | 0.63 |
| 15:R:41:LEU:O | 15:R:45:GLN:HG2 | 1.98 | 0.63 |
| 1:A:1074:G:H2' | 1:A:1093:A:H62 | 1.63 | 0.63 |
| 1:A:376:A:H2' | 1:A:377:G:O4' | 1.99 | 0.63 |
| 1:A:1941:U:OP2 | 17:T:38:ARG:HG3 | 1.99 | 0.63 |
| 2:B:1240:U:H2' | 2:B:1241:C:O4' | 1.99 | 0.63 |
| 2:B:1263:A:O2' | 2:B:1264:A:H2' | 1.99 | 0.63 |
| 6:F:13:U:O2' | 6:F:14:C:OP2 | 2.11 | 0.63 |
| 1:A:921:A:H1' | 9:I:147:ARG:HD2 | 1.81 | 0.63 |
| 11:N:60:ARG:HD3 | 11:N:101:ARG:HG3 | 1.80 | 0.63 |
| 16:S:75:ASN:ND2 | 16:S:145:HIS:HE1 | 1.97 | 0.63 |
| 2:B:1297:G:OP1 | 18:U:70:ARG:N | 2.32 | 0.63 |
| 1:A:310:G:OP1 | 14:Q:63:LYS:HE2 | 1.98 | 0.63 |
| 2:B:1173:G:N1 | 2:B:1186:U:O2 | 2.20 | 0.63 |
| 2:B:1193:U:H2' | 2:B:1201:A:N6 | 2.13 | 0.63 |
| 4:D:70:C:H2' | 4:D:71:G:H8 | 1.64 | 0.63 |
| 1:A:1014:A:C2 | 1:A:1015:A:H1' | 2.34 | 0.63 |
| 1:A:1646:A:C2' | 1:A:1647:G:H5' | 2.27 | 0.63 |
| 1:A:782:A:H5'' | 2:B:707:A:H4' | 1.81 | 0.63 |
| 2:B:1509:G:C2' | 2:B:1510:A:H5' | 2.29 | 0.63 |
| 4:D:41:G:O2' | 4:D:42:A:OP2 | 2.17 | 0.63 |
| 10:L:154:VAL:CG2 | 10:L:159:ARG:HG2 | 2.28 | 0.63 |
| 1:A:371:A:H8 | 11:N:25:GLY:O | 1.77 | 0.63 |
| 14:Q:84:ARG:HG2 | 14:Q:144:VAL:HG13 | 1.81 | 0.63 |
| 21:X:160:VAL:HG23 | 21:X:179:SER:HA | 1.81 | 0.63 |
| 1:A:1096:A:H2' | 1:A:1097:C:O4' | 1.99 | 0.63 |
| 2:B:1215:A:HO2' | 2:B:1216:A:P | 2.22 | 0.63 |
| 2:B:883:U:H4' | 2:B:884:U:C5' | 2.29 | 0.63 |
| 8:H:101:A:H2' | 8:H:102:C:O4' | 1.98 | 0.63 |
| 19:V:50:TYR:OH | 19:V:96:LYS:NZ | 2.29 | 0.63 |
| 22:Y:7:GLU:CD | 22:Y:33:LEU:HD22 | 2.18 | 0.63 |
| 2:B:572:U:H2' | 2:B:573:C:C6 | 2.34 | 0.62 |
| 11:N:179:GLU:HG3 | 11:N:180:GLU:N | 2.12 | 0.62 |
| 17:T:98:ARG:NH1 | 17:T:130:ASN:HB2 | 2.13 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:1113:C:H2' | 1:A:1114:A:C8 | 2.33 | 0.62 |
| 1:A:81:C:H2' | 1:A:82:U:O4' | 1.98 | 0.62 |
| 1:A:934:C:O2' | 2:B:1278:A:H4' | 1.99 | 0.62 |
| 6:F:50:C:H5' | 13:P:118:ARG:NH1 | 2.04 | 0.62 |
| 6:F:8:C:O2' | 6:F:9:C:H5' | 1.99 | 0.62 |
| 9:I:108:CYS:HB2 | 9:I:128:LEU:HD11 | 1.81 | 0.62 |
| 1:A:103:G:OP1 | 11:N:75:ARG:NE | 2.32 | 0.62 |
| 1:A:92:G:O5' | 1:A:93:C:H5'' | 1.99 | 0.62 |
| 2:B:1330:G:H2' | 2:B:1330:G:N3 | 2.14 | 0.62 |
| 2:B:454:A:H2' | 2:B:455:A:H8 | 1.64 | 0.62 |
| 2:B:775:G:H2' | 2:B:776:G:C8 | 2.34 | 0.62 |
| 1:A:373:A:N1 | 3:C:34:U:H5 | 1.97 | 0.62 |
| 1:A:1083:G:H5' | 1:A:1084:A:OP1 | 1.99 | 0.62 |
| 1:A:272:G:H2' | 1:A:273:C:O4' | 1.99 | 0.62 |
| 2:B:1541:A:N3 | 2:B:1541:A:H3' | 2.15 | 0.62 |
| 1:A:1735:U:H5 | 2:B:18:A:N1 | 1.96 | 0.62 |
| 1:A:1773:C:H4' | 5:E:201:A:H1' | 1.80 | 0.62 |
| 13:P:22:ASP:OD2 | 13:P:100:ARG:HD2 | 1.99 | 0.62 |
| 13:P:30:ILE:HG13 | 16:S:149:LEU:HD11 | 1.80 | 0.62 |
| 17:T:126:LYS:O | 17:T:131:VAL:HG12 | 1.99 | 0.62 |
| 23:Z:92:VAL:HG23 | 23:Z:93:PRO:HD2 | 1.82 | 0.62 |
| 1:A:1368:U:OP1 | 13:P:17:ARG:NH2 | 2.32 | 0.62 |
| 2:B:1138:7MG:O2' | 2:B:1139:U:OP1 | 2.10 | 0.62 |
| 2:B:131:G:O6 | 2:B:449:C:N4 | 2.19 | 0.62 |
| 2:B:1555:C:H2' | 2:B:1556:U:C6 | 2.34 | 0.62 |
| 2:B:663:A:C2' | 2:B:664:U:H5' | 2.30 | 0.62 |
| 2:B:691:A2M:C8 | 2:B:691:A2M:H3' | 2.29 | 0.62 |
| 5:E:182:U:C2' | 5:E:183:U:H5' | 2.29 | 0.62 |
| 5:E:62:C:H2' | 5:E:63:A:C8 | 2.33 | 0.62 |
| 13:P:133:LYS:HD3 | 13:P:134:LYS:N | 2.15 | 0.62 |
| 1:A:1688:G:N2 | 1:A:1709:C:N3 | 2.35 | 0.62 |
| 2:B:672:A:O2' | 2:B:673:U:H5' | 2.00 | 0.62 |
| 2:B:8:U:C2' | 2:B:9:G:H5' | 2.28 | 0.62 |
| 13:P:29:ASP:OD1 | 13:P:67:ARG:HB3 | 1.99 | 0.62 |
| 18:U:109:GLN:O | 18:U:113:LEU:HD13 | 1.99 | 0.62 |
| 18:U:48:VAL:HG21 | 18:U:94:GLU:HG2 | 1.80 | 0.62 |
| 23:Z:92:VAL:CG2 | 23:Z:93:PRO:HD2 | 2.30 | 0.62 |
| 1:A:215:U:O2 | 1:A:215:U:H2' | 1.99 | 0.62 |
| 2:B:1217:G:O6 | 2:B:1271:U:N3 | 2.20 | 0.62 |
| 2:B:1649:A:H2' | 2:B:1650:C:C6 | 2.35 | 0.62 |
| 8:H:24:A:O2' | 8:H:25:A:H5' | 1.99 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 12:O:115:LYS:O | 12:O:118:ARG:HG2 | 1.99 | 0.62 |
| 2:B:770:A:H5' | 14:Q:106:LEU:CD1 | 2.30 | 0.62 |
| 17:T:88:ARG:O | 17:T:89:MET:HG2 | 1.99 | 0.62 |
| 1:A:142:U:C1' | 1:A:143:G:H5'' | 2.30 | 0.62 |
| 10:L:166:MET:O | 10:L:170:GLU:HG3 | 2.00 | 0.62 |
| 12:O:128:THR:HA | 12:O:131:VAL:HG12 | 1.82 | 0.62 |
| 1:A:1571:G:O2' | 1:A:1572:A:H5' | 2.00 | 0.62 |
| 2:B:1486:U:H2' | 2:B:1487:G:C8 | 2.35 | 0.62 |
| 7:G:103:U:H3' | 7:G:104:G:H5'' | 1.82 | 0.62 |
| 20:W:125:ALA:CB | 20:W:138:ILE:HD12 | 2.29 | 0.62 |
| 1:A:208:A:C5' | 1:A:209:A:H5' | 2.30 | 0.62 |
| 1:A:31:C:H2' | 1:A:32:G:O4' | 2.00 | 0.62 |
| 7:G:88:U:H2' | 7:G:89:U:C6 | 2.34 | 0.62 |
| 9:I:42:SER:CB | 9:I:139:THR:HG23 | 2.28 | 0.62 |
| 8:H:20:A:OP1 | 15:R:74:LYS:HE3 | 2.00 | 0.62 |
| 16:S:44:TRP:HH2 | 16:S:58:GLY:HA3 | 1.65 | 0.62 |
| 21:X:115:ILE:HA | 21:X:138:VAL:HG23 | 1.82 | 0.62 |
| 1:A:450:U:H2' | 1:A:451:G:H5' | 1.81 | 0.61 |
| 1:A:463:A:N6 | 3:C:4:G:H1 | 1.98 | 0.61 |
| 2:B:904:U:H2' | 2:B:905:G:H8 | 1.65 | 0.61 |
| 3:C:47:C:H1' | 3:C:61:A:H2' | 1.82 | 0.61 |
| 4:D:75:G:H5'' | 16:S:48:ARG:O | 2.00 | 0.61 |
| 10:L:138:GLY:HA2 | 10:L:160:VAL:CG2 | 2.30 | 0.61 |
| 20:W:117:ALA:O | 20:W:136:PRO:HG3 | 2.00 | 0.61 |
| 23:Z:77:ILE:CG2 | 23:Z:96:VAL:HG13 | 2.28 | 0.61 |
| 1:A:184:A:C2' | 1:A:185:A:H5' | 2.29 | 0.61 |
| 3:C:74:U:O4 | 23:Z:71:TYR:HA | 2.00 | 0.61 |
| 11:N:51:THR:HG22 | 11:N:54:ARG:HB3 | 1.82 | 0.61 |
| 23:Z:114:ALA:O | 23:Z:118:ARG:HG2 | 1.98 | 0.61 |
| 1:A:1070:U:H2' | 1:A:1071:A2M:H8 | 1.82 | 0.61 |
| 1:A:1499:A:H2' | 1:A:1500:C:O4' | 1.99 | 0.61 |
| 1:A:1614:A:N6 | 1:A:1643:A:O2' | 2.32 | 0.61 |
| 1:A:1762:U:OP1 | 21:X:175:TYR:OH | 2.17 | 0.61 |
| 1:A:191:A:OP1 | 23:Z:119:LYS:HG3 | 1.99 | 0.61 |
| 1:A:844:A:H2' | 1:A:845:A:H5' | 1.82 | 0.61 |
| 2:B:1561:A:N3 | 15:R:69:ARG:NH2 | 2.46 | 0.61 |
| 5:E:177:G:C2' | 5:E:178:U:H5' | 2.29 | 0.61 |
| 19:V:72:LEU:HD12 | 19:V:77:LEU:HD23 | 1.82 | 0.61 |
| 20:W:18:ALA:HB2 | 20:W:85:LYS:HB3 | 1.82 | 0.61 |
| 1:A:393:A:H3' | 1:A:394:C:H5'' | 1.82 | 0.61 |
| 2:B:453:G:C2' | 2:B:454:A:H5' | 2.31 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 16:S:78:VAL:HG12 | 16:S:80:ILE:HG13 | 1.83 | 0.61 |
| 21:X:185:LEU:O | 21:X:189:ASN:ND2 | 2.30 | 0.61 |
| 1:A:1015:A:H2' | 1:A:1016:C:H5' | 1.81 | 0.61 |
| 1:A:184:A:O2' | 1:A:185:A:H5' | 2.01 | 0.61 |
| 1:A:461:C:H2' | 1:A:462:A:C8 | 2.35 | 0.61 |
| 1:A:104:G:O2' | 1:A:833:C:O2 | 2.19 | 0.61 |
| 2:B:906:C:H5' | 2:B:907:A:OP2 | 2.00 | 0.61 |
| 3:C:166:OMG:HM22 | 3:C:167:U:H5' | 1.82 | 0.61 |
| 9:I:154:GLU:HG2 | 9:I:157:LYS:HE3 | 1.81 | 0.61 |
| 12:O:139:ILE:HG12 | 16:S:168:PHE:CE1 | 2.35 | 0.61 |
| 2:B:1601:U:OP1 | 12:O:189:LYS:NZ | 2.34 | 0.61 |
| 16:S:157:ARG:O | 16:S:157:ARG:HG3 | 2.00 | 0.61 |
| 23:Z:33:SER:HA | 23:Z:102:GLU:OE2 | 2.01 | 0.61 |
| 23:Z:20:PRO:HD2 | 23:Z:23:VAL:CG2 | 2.31 | 0.61 |
| 1:A:1495:G:H4' | 1:A:1496:A:O5' | 2.01 | 0.61 |
| 2:B:1504:A:H5'' | 2:B:1505:C:OP2 | 1.99 | 0.61 |
| 1:A:1106:U:O2' | 2:B:748:A:N1 | 2.33 | 0.61 |
| 6:F:12:U:HO2' | 6:F:13:U:P | 2.23 | 0.61 |
| 6:F:49:C:OP2 | 13:P:118:ARG:HD3 | 2.00 | 0.61 |
| 16:S:173:THR:HG22 | 16:S:174:LYS:N | 2.16 | 0.61 |
| 1:A:1599:G:H3' | 1:A:1599:G:N3 | 2.15 | 0.61 |
| 1:A:769:U:H2' | 1:A:770:C:C6 | 2.36 | 0.61 |
| 2:B:100:U:O2' | 2:B:101:G:H5' | 2.01 | 0.61 |
| 2:B:1492:OMG:H3' | 2:B:1493:U:H5'' | 1.82 | 0.61 |
| 4:D:28:C:H2' | 4:D:29:C:H5' | 1.82 | 0.61 |
| 4:D:70:C:H2' | 4:D:71:G:C8 | 2.35 | 0.61 |
| 6:F:50:C:OP1 | 13:P:114:ARG:NH1 | 2.28 | 0.61 |
| 13:P:110:ARG:O | 13:P:114:ARG:HG3 | 2.00 | 0.61 |
| 16:S:94:LYS:HE2 | 16:S:111:ASP:OD2 | 2.00 | 0.61 |
| 18:U:17:LYS:HB2 | 18:U:22:HIS:ND1 | 2.14 | 0.61 |
| 20:W:20:PRO:HA | 20:W:53:ALA:HA | 1.83 | 0.61 |
| 2:B:1386:G:H4' | 2:B:1387:A:C5' | 2.30 | 0.61 |
| 2:B:1643:C:H5'' | 2:B:1643:C:H6 | 1.66 | 0.61 |
| 2:B:745:A:O2' | 2:B:746:G:H5' | 2.01 | 0.61 |
| 2:B:883:U:H5' | 2:B:886:C:C1' | 2.31 | 0.61 |
| 3:C:89:U:H2' | 3:C:90:U:C6 | 2.35 | 0.61 |
| 6:F:63:A:H4' | 6:F:64:U:OP2 | 1.99 | 0.61 |
| 14:Q:20:PHE:HD1 | 14:Q:62:GLU:HB2 | 1.65 | 0.61 |
| 17:T:15:LEU:O | 17:T:52:ARG:NH1 | 2.33 | 0.61 |
| 19:V:48:GLU:HA | 19:V:77:LEU:HD21 | 1.82 | 0.61 |
| 1:A:1005:G:H1' | 5:E:120:U:O2' | 2.01 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1351:U:C5 | 1:A:1525:5MC:HM53 | 2.36 | 0.61 |
| 2:B:124:G:H2' | 2:B:125:C:O4' | 2.01 | 0.61 |
| 2:B:1529:OMC:HM22 | 2:B:1530:C:O4' | 2.01 | 0.61 |
| 2:B:753:C:H2' | 2:B:754:U:H6 | 1.66 | 0.61 |
| 3:C:164:G:OP1 | 21:X:79:TYR:OH | 2.06 | 0.61 |
| 4:D:72:U:H2' | 4:D:73:U:O4' | 2.00 | 0.61 |
| 8:H:41:A:H1' | 8:H:100:A:H62 | 1.64 | 0.61 |
| 8:H:24:A:H2' | 8:H:25:A:O4' | 2.01 | 0.61 |
| 9:I:175:ASN:ND2 | 9:I:178:LYS:HB2 | 2.15 | 0.61 |
| 15:R:52:LEU:HD11 | 15:R:85:ARG:HG3 | 1.82 | 0.61 |
| 1:A:1013:A:H2' | 1:A:1014:A:C8 | 2.36 | 0.61 |
| 1:A:1142:C:C2' | 1:A:1143:U:H5' | 2.31 | 0.61 |
| 1:A:1364:C:OP1 | 1:A:1366:U:H5' | 2.00 | 0.61 |
| 1:A:67:A:N6 | 1:A:356:G:O2' | 2.26 | 0.61 |
| 2:B:1462:A:O2' | 2:B:1463:G:H5' | 2.01 | 0.61 |
| 1:A:373:A:C2 | 3:C:34:U:H5 | 2.19 | 0.61 |
| 14:Q:25:GLU:HG3 | 14:Q:28:LYS:HD2 | 1.83 | 0.61 |
| 19:V:57:LEU:HD12 | 19:V:58:ASN:N | 2.16 | 0.61 |
| 5:E:129:G:H2' | 5:E:130:G:C8 | 2.32 | 0.60 |
| 5:E:175:U:H2' | 5:E:176:U:C6 | 2.36 | 0.60 |
| 7:G:102:G:OP1 | 7:G:104:G:H4' | 2.00 | 0.60 |
| 13:P:5:ASN:ND2 | 13:P:59:LEU:O | 2.34 | 0.60 |
| 20:W:41:VAL:HG21 | 20:W:54:ALA:N | 2.15 | 0.60 |
| 23:Z:47:VAL:HG11 | 23:Z:77:ILE:HD11 | 1.82 | 0.60 |
| 1:A:332:U:H2' | 1:A:333:G:H8 | 1.66 | 0.60 |
| 2:B:8:U:O2' | 2:B:9:G:H5' | 2.00 | 0.60 |
| 7:G:170:A:O2' | 7:G:171:G:O5' | 2.12 | 0.60 |
| 11:N:60:ARG:CD | 11:N:101:ARG:HG3 | 2.30 | 0.60 |
| 11:N:85:LEU:HD23 | 11:N:121:LEU:HD13 | 1.83 | 0.60 |
| 12:O:190:THR:OG1 | 12:O:194:ARG:NH1 | 2.34 | 0.60 |
| 2:B:866:A:H2' | 2:B:867:U:O4' | 2.00 | 0.60 |
| 16:S:105:VAL:CG2 | 16:S:128:VAL:HG21 | 2.32 | 0.60 |
| 1:A:1301:C:O2' | 1:A:1337:A:N1 | 2.28 | 0.60 |
| 2:B:1495:C:C2' | 2:B:1496:A:H5' | 2.30 | 0.60 |
| 2:B:1496:A:H2' | 2:B:1497:C:O4' | 2.01 | 0.60 |
| 2:B:1524:U:H5' | 2:B:1525:U:OP1 | 2.02 | 0.60 |
| 2:B:51:U:O2' | 2:B:464:G:O2' | 2.09 | 0.60 |
| 2:B:69:A:O4' | 8:H:17:A:H5' | 2.01 | 0.60 |
| 6:F:13:U:H5' | 6:F:14:C:H5' | 1.82 | 0.60 |
| 13:P:7:ILE:HD13 | 13:P:53:LEU:HD22 | 1.84 | 0.60 |
| 19:V:46:ASN:O | 19:V:50:TYR:N | 2.33 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 20:W:59:ILE:HD11 | 20:W:128:TRP:HH2 | 1.66 | 0.60 |
| 21:X:142:ALA:O | 21:X:172:LYS:NZ | 2.35 | 0.60 |
| 1:A:1669:G:H2' | 1:A:1670:G:O4' | 2.01 | 0.60 |
| 2:B:1456:U:H2' | 2:B:1481:A:N7 | 2.16 | 0.60 |
| 4:D:110:G:H2' | 4:D:111:C:C6 | 2.36 | 0.60 |
| 4:D:54:A:H2' | 4:D:55:A:O4' | 2.02 | 0.60 |
| 13:P:134:LYS:HE2 | 13:P:135:LYS:O | 2.00 | 0.60 |
| 13:P:137:VAL:HG11 | 13:P:139:TRP:CE2 | 2.36 | 0.60 |
| 15:R:119:VAL:CG2 | 15:R:144:CYS:HB2 | 2.30 | 0.60 |
| 1:A:1616:G:H1' | 1:A:1643:A:N6 | 2.17 | 0.60 |
| 1:A:25:A:N3 | 1:A:370:C:O2' | 2.34 | 0.60 |
| 1:A:504:C:H2' | 1:A:505:U:C6 | 2.36 | 0.60 |
| 2:B:126:U:O3' | 8:H:65:G:N2 | 2.25 | 0.60 |
| 2:B:882:G:O2' | 2:B:883:U:OP2 | 2.19 | 0.60 |
| 3:C:57:C:O2' | 3:C:58:G:H5' | 2.02 | 0.60 |
| 10:L:21:LYS:HE2 | 10:L:142:GLU:HB2 | 1.83 | 0.60 |
| 14:Q:182:SER:OG | 14:Q:191:ARG:NH2 | 2.29 | 0.60 |
| 2:B:1360:A:OP2 | 9:I:184:SER:OG | 2.19 | 0.60 |
| 1:A:468:A:C2 | 2:B:709:A:H4' | 2.36 | 0.60 |
| 3:C:166:OMG:C2' | 3:C:167:U:H5' | 2.32 | 0.60 |
| 14:Q:119:GLU:OE1 | 14:Q:181:THR:OG1 | 2.13 | 0.60 |
| 16:S:71:LEU:O | 16:S:71:LEU:HD23 | 2.01 | 0.60 |
| 20:W:56:LEU:HD11 | 20:W:121:ALA:HB3 | 1.83 | 0.60 |
| 22:Y:27:LEU:O | 22:Y:29:THR:N | 2.32 | 0.60 |
| 1:A:115:G:H2' | 1:A:116:U:H5' | 1.82 | 0.60 |
| 1:A:393:A:H4' | 1:A:394:C:OP2 | 2.02 | 0.60 |
| 2:B:6:A:H2' | 2:B:7:C:H5' | 1.84 | 0.60 |
| 13:P:15:ILE:CD1 | 13:P:51:GLN:HG3 | 2.32 | 0.60 |
| 16:S:80:ILE:CD1 | 16:S:108:ALA:HB1 | 2.32 | 0.60 |
| 16:S:9:TYR:HB2 | 16:S:31:VAL:CG2 | 2.30 | 0.60 |
| 19:V:60:ARG:HH11 | 19:V:63:LYS:HZ2 | 1.50 | 0.60 |
| 20:W:86:SER:HB3 | 20:W:96:TYR:HB3 | 1.84 | 0.60 |
| 1:A:142:U:H1' | 1:A:143:G:H5'' | 1.83 | 0.60 |
| 1:A:14:G:H2' | 1:A:15:U:H5' | 1.84 | 0.60 |
| 1:A:809:G:H2' | 1:A:810:A:O4' | 2.02 | 0.60 |
| 2:B:1111:C:H5'' | 2:B:1112:A:OP2 | 2.02 | 0.60 |
| 2:B:1163:U:H2' | 2:B:1164:G:O4' | 2.02 | 0.60 |
| 2:B:1271:U:H2' | 2:B:1272:U:C6 | 2.37 | 0.60 |
| 3:C:1:A:C2' | 3:C:2:A:H5' | 2.32 | 0.60 |
| 4:D:76:U:C2' | 4:D:77:A:H5' | 2.30 | 0.60 |
| 4:D:91:U:O2' | 4:D:92:G:H5' | 2.01 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:Q:156:ARG:HH21 | 14:Q:160:ARG:CZ | 2.15 | 0.60 |
| 1:A:1719:U:C2' | 1:A:1720:G:H5' | 2.32 | 0.60 |
| 1:A:1722:A:H4' | 1:A:1723:G:OP2 | 2.01 | 0.60 |
| 1:A:249:C:C2' | 1:A:250:A:H5' | 2.31 | 0.60 |
| 2:B:131:G:N2 | 2:B:449:C:O2 | 2.22 | 0.60 |
| 2:B:9:G:H2' | 2:B:10:C:C6 | 2.37 | 0.60 |
| 7:G:116:U:O2' | 20:W:14:ARG:NH2 | 2.35 | 0.60 |
| 12:O:150:SER:HB2 | 16:S:155:HIS:CE1 | 2.37 | 0.60 |
| 16:S:136:VAL:HG11 | 16:S:141:ILE:CG1 | 2.30 | 0.60 |
| 19:V:52:GLN:HA | 19:V:64:LEU:HD11 | 1.84 | 0.60 |
| 1:A:1144:U:H1' | 1:A:1151:A:H62 | 1.67 | 0.59 |
| 1:A:1357:G:O2' | 1:A:1358:U:H5' | 2.02 | 0.59 |
| 1:A:766:C:HO2' | 1:A:767:C:P | 2.25 | 0.59 |
| 2:B:1288:G:C5' | 18:U:83:ARG:HH22 | 2.15 | 0.59 |
| 2:B:1447:G:H2' | 2:B:1448:G:O4' | 2.03 | 0.59 |
| 3:C:89:U:H2' | 3:C:90:U:H6 | 1.67 | 0.59 |
| 5:E:115:A:N6 | 5:E:121:U:O4 | 2.20 | 0.59 |
| 13:P:7:ILE:HG22 | 16:S:151:PHE:O | 2.01 | 0.59 |
| 14:Q:182:SER:O | 14:Q:191:ARG:NH2 | 2.35 | 0.59 |
| 21:X:127:LYS:HB3 | 21:X:133:THR:HB | 1.83 | 0.59 |
| 21:X:165:LEU:HD11 | 21:X:173:LYS:HE2 | 1.83 | 0.59 |
| 22:Y:51:ARG:HH11 | 22:Y:51:ARG:CG | 2.13 | 0.59 |
| 1:A:373:A:H2' | 1:A:374:G:O4' | 2.01 | 0.59 |
| 1:A:418:A:H2' | 1:A:419:A:H5' | 1.84 | 0.59 |
| 2:B:76:A:H2' | 2:B:77:OMC:O4' | 2.02 | 0.59 |
| 5:E:192:U:O2 | 5:E:195:A:N6 | 2.35 | 0.59 |
| 7:G:91:U:OP2 | 17:T:62:ARG:NH1 | 2.29 | 0.59 |
| 12:O:57:GLU:HG3 | 12:O:58:GLN:HG2 | 1.83 | 0.59 |
| 18:U:26:SER:OG | 18:U:27:VAL:N | 2.35 | 0.59 |
| 21:X:183:ASP:OD2 | 21:X:186:GLU:HG2 | 2.02 | 0.59 |
| 1:A:452:A:O5' | 1:A:452:A:H8 | 1.85 | 0.59 |
| 1:A:1735:U:C5 | 2:B:18:A:N1 | 2.69 | 0.59 |
| 2:B:784:A:H2' | 2:B:785:G:O4' | 2.02 | 0.59 |
| 3:C:69:U:H2' | 3:C:70:C:O4' | 2.02 | 0.59 |
| 5:E:29:A:H4' | 5:E:30:C:H5' | 1.83 | 0.59 |
| 16:S:125:VAL:HG22 | 16:S:127:GLY:H | 1.66 | 0.59 |
| 17:T:138:LEU:HD21 | 17:T:142:ILE:HD11 | 1.85 | 0.59 |
| 5:E:47:G:OP2 | 19:V:86:ARG:NH2 | 2.35 | 0.59 |
| 20:W:83:GLN:HA | 20:W:100:ASN:CB | 2.32 | 0.59 |
| 20:W:98:GLU:HB2 | 22:Y:23:PRO:HA | 1.84 | 0.59 |
| 1:A:1340:G:O2' | 1:A:1341:C:H5' | 2.02 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1737:C:H2' | 1:A:1738:G:C8 | 2.38 | 0.59 |
| 2:B:1518:C:O2' | 2:B:1519:U:H5' | 2.02 | 0.59 |
| 2:B:1557:A:H2' | 2:B:1558:C:O4' | 2.02 | 0.59 |
| 2:B:570:G:H22 | 2:B:1354:C:C4' | 2.15 | 0.59 |
| 3:C:116:C:C2' | 3:C:117:A:H5' | 2.32 | 0.59 |
| 16:S:166:VAL:HG23 | 16:S:178:VAL:CG2 | 2.32 | 0.59 |
| 1:A:482:C:O2 | 1:A:753:G:N2 | 2.19 | 0.59 |
| 2:B:1222:G:H2' | 2:B:1223:C:O4' | 2.03 | 0.59 |
| 5:E:3:U:H2' | 5:E:4:G:H8 | 1.67 | 0.59 |
| 12:O:123:TYR:CD1 | 12:O:127:PRO:HG2 | 2.38 | 0.59 |
| 12:O:26:VAL:HG12 | 12:O:52:THR:HB | 1.83 | 0.59 |
| 12:O:30:LYS:HD3 | 12:O:55:ARG:NH2 | 2.17 | 0.59 |
| 16:S:75:ASN:HD22 | 16:S:145:HIS:HE1 | 1.50 | 0.59 |
| 1:A:921:A:H2' | 1:A:922:A:H5' | 1.83 | 0.59 |
| 2:B:462:A:O2' | 7:G:105:C:O2 | 2.18 | 0.59 |
| 10:L:144:VAL:HG22 | 10:L:152:SER:HB2 | 1.84 | 0.59 |
| 10:L:77:VAL:HG12 | 10:L:78:ARG:N | 2.16 | 0.59 |
| 16:S:78:VAL:HG12 | 16:S:80:ILE:CG1 | 2.32 | 0.59 |
| 1:A:1153:A:C2' | 1:A:1154:A:H5' | 2.32 | 0.59 |
| 1:A:402:G:N2 | 1:A:405:A:OP2 | 2.29 | 0.59 |
| 1:A:758:G:H2' | 1:A:759:C:H6 | 1.67 | 0.59 |
| 2:B:641:A:C2 | 20:W:39:ILE:HG23 | 2.37 | 0.59 |
| 4:D:28:C:OP1 | 10:L:143:ARG:NH2 | 2.35 | 0.59 |
| 11:N:46:LEU:O | 11:N:46:LEU:HD23 | 2.03 | 0.59 |
| 13:P:132:ASP:CG | 13:P:139:TRP:HE1 | 2.01 | 0.59 |
| 14:Q:156:ARG:HE | 14:Q:160:ARG:HE | 1.49 | 0.59 |
| 16:S:74:ARG:HG3 | 16:S:76:TYR:CE2 | 2.37 | 0.59 |
| 17:T:109:TYR:OH | 17:T:139:MET:SD | 2.60 | 0.59 |
| 17:T:90:PRO:HD2 | 17:T:93:GLU:OE1 | 2.03 | 0.59 |
| 1:A:33:A:H2' | 1:A:34:A:O4' | 2.02 | 0.59 |
| 1:A:423:A2M:H2' | 1:A:423:A2M:N3 | 2.16 | 0.59 |
| 2:B:1390:A:H2' | 2:B:1391:C:H5' | 1.84 | 0.59 |
| 4:D:12:U:OP2 | 4:D:67:C:O2' | 2.21 | 0.59 |
| 1:A:1760:A:H5' | 21:X:121:THR:HG22 | 1.85 | 0.59 |
| 2:B:752:C:H2' | 2:B:753:C:C6 | 2.38 | 0.59 |
| 3:C:142:C:H2' | 3:C:143:C:C6 | 2.37 | 0.59 |
| 5:E:62:C:H2' | 5:E:63:A:H8 | 1.66 | 0.59 |
| 13:P:7:ILE:HD13 | 13:P:53:LEU:CD2 | 2.33 | 0.59 |
| 14:Q:192:HIS:O | 14:Q:201:ARG:NH1 | 2.36 | 0.59 |
| 14:Q:54:ARG:HG2 | 14:Q:55:LEU:N | 2.18 | 0.59 |
| 17:T:106:LEU:HD21 | 17:T:138:LEU:HD11 | 1.84 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 18:U:17:LYS:HB2 | 18:U:22:HIS:CE1 | 2.38 | 0.59 |
| 1:A:1093:A:H2' | 1:A:1094:C:O4' | 2.03 | 0.59 |
| 1:A:1313:A:O2' | 2:B:1395:C:O2' | 2.20 | 0.59 |
| 1:A:1164:G:N3 | 2:B:1196:A:H2' | 2.17 | 0.59 |
| 2:B:542:C:H2' | 2:B:588:A:H61 | 1.67 | 0.59 |
| 12:O:126:ILE:HD11 | 12:O:130:VAL:HG12 | 1.83 | 0.59 |
| 1:A:9:U:H2' | 1:A:10:G:O4' | 2.03 | 0.58 |
| 1:A:148:G:H5'' | 14:Q:71:THR:HG21 | 1.85 | 0.58 |
| 2:B:1258:C:H2' | 2:B:1259:G:O4' | 2.02 | 0.58 |
| 2:B:718:A:C3' | 2:B:719:A:H5' | 2.28 | 0.58 |
| 5:E:103:U:H3 | 5:E:129:G:H1 | 1.50 | 0.58 |
| 5:E:205:U:H2' | 5:E:206:G:O4' | 2.03 | 0.58 |
| 9:I:71:MET:HE1 | 9:I:87:ALA:HB2 | 1.83 | 0.58 |
| 16:S:144:TYR:HA | 16:S:149:LEU:HD22 | 1.85 | 0.58 |
| 16:S:46:MET:CE | 18:U:148:ARG:HD3 | 2.33 | 0.58 |
| 19:V:32:ILE:HB | 19:V:33:PRO:HD3 | 1.84 | 0.58 |
| 20:W:119:PRO:HD3 | 22:Y:26:PHE:CE2 | 2.38 | 0.58 |
| 21:X:115:ILE:HD12 | 21:X:154:LEU:HD12 | 1.85 | 0.58 |
| 23:Z:98:PRO:O | 23:Z:101:VAL:HG22 | 2.03 | 0.58 |
| 1:A:1782:A:H61 | 1:A:1793:U:H3 | 1.50 | 0.58 |
| 1:A:356:G:H2' | 1:A:357:C:O4' | 2.03 | 0.58 |
| 1:A:430:A:H2' | 1:A:431:A:C8 | 2.38 | 0.58 |
| 9:I:71:MET:HE3 | 9:I:87:ALA:HB2 | 1.85 | 0.58 |
| 12:O:26:VAL:HG23 | 12:O:26:VAL:O | 2.02 | 0.58 |
| 12:O:28:ASP:OD1 | 12:O:55:ARG:HD3 | 2.02 | 0.58 |
| 13:P:28:VAL:CG2 | 13:P:39:GLU:HB3 | 2.32 | 0.58 |
| 17:T:95:TRP:HZ3 | 17:T:130:ASN:HB3 | 1.67 | 0.58 |
| 20:W:56:LEU:HD11 | 20:W:121:ALA:CB | 2.33 | 0.58 |
| 21:X:166:ILE:HA | 21:X:172:LYS:HA | 1.85 | 0.58 |
| 1:A:1012:G:N2 | 1:A:1015:A:OP2 | 2.36 | 0.58 |
| 2:B:1390:A:C2' | 2:B:1391:C:H5' | 2.32 | 0.58 |
| 5:E:52:G:O2' | 5:E:53:C:H5' | 2.02 | 0.58 |
| 6:F:53:G:H5'' | 13:P:122:PHE:CE2 | 2.39 | 0.58 |
| 8:H:93:G:H2' | 8:H:94:G:C5' | 2.33 | 0.58 |
| 15:R:5:SER:H | 15:R:147:GLN:HE22 | 1.50 | 0.58 |
| 12:O:150:SER:HB2 | 16:S:155:HIS:NE2 | 2.18 | 0.58 |
| 18:U:42:VAL:HG21 | 18:U:89:ILE:HD11 | 1.84 | 0.58 |
| 1:A:1545:C:N4 | 1:A:1575:G:O6 | 2.19 | 0.58 |
| 1:A:755:G:H21 | 1:A:1623:A:H8 | 1.50 | 0.58 |
| 2:B:1648:U:C2' | 2:B:1649:A:H5'' | 2.33 | 0.58 |
| 4:D:9:C:C2' | 4:D:10:C:H5' | 2.32 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 13:P:5:ASN:HD21 | 13:P:59:LEU:C | 2.07 | 0.58 |
| 1:A:1232:A:O2' | 18:U:102:GLN:HG2 | 2.03 | 0.58 |
| 3:C:71:A:H3' | 23:Z:48:ARG:HG3 | 1.86 | 0.58 |
| 1:A:1312:A:H2' | 1:A:1313:A:C8 | 2.38 | 0.58 |
| 1:A:1734:U:H4' | 1:A:1735:U:O5' | 2.04 | 0.58 |
| 1:A:505:U:O2' | 1:A:506:C:H5' | 2.03 | 0.58 |
| 2:B:495:A:N6 | 2:B:533:G:H1' | 2.18 | 0.58 |
| 7:G:29:G:O2' | 7:G:164:A:N1 | 2.25 | 0.58 |
| 9:I:188:ARG:HH22 | 9:I:191:ARG:NH1 | 2.01 | 0.58 |
| 1:A:1594:G:O2' | 1:A:1595:A:H5' | 2.03 | 0.58 |
| 1:A:505:U:C2' | 1:A:506:C:H5' | 2.34 | 0.58 |
| 2:B:1516:A2M:H8 | 2:B:1516:A2M:O5' | 2.03 | 0.58 |
| 2:B:546:U:O3' | 2:B:764:G:N2 | 2.36 | 0.58 |
| 9:I:48:VAL:O | 9:I:52:LEU:HB2 | 2.04 | 0.58 |
| 14:Q:56:ARG:HG3 | 14:Q:57:ARG:HG3 | 1.86 | 0.58 |
| 16:S:50:LYS:NZ | 18:U:148:ARG:HD2 | 2.18 | 0.58 |
| 2:B:99:A:H4' | 17:T:83:GLY:O | 2.03 | 0.58 |
| 1:A:1073:5MC:H2' | 1:A:1074:G:C8 | 2.38 | 0.58 |
| 1:A:1350:A:H2' | 1:A:1351:U:O4' | 2.03 | 0.58 |
| 2:B:687:A:O2' | 7:G:114:U:O2' | 2.22 | 0.58 |
| 4:D:3:G:O2' | 4:D:4:U:H5' | 2.04 | 0.58 |
| 13:P:33:GLY:O | 13:P:53:LEU:HD12 | 2.03 | 0.58 |
| 13:P:73:THR:O | 13:P:76:ASN:HB3 | 2.04 | 0.58 |
| 19:V:31:THR:HG22 | 19:V:75:ASN:HB2 | 1.85 | 0.58 |
| 1:A:1165:G:N2 | 1:A:1166:U:O4 | 2.29 | 0.58 |
| 1:A:1962:A:O2' | 1:A:1963:U:H5' | 2.04 | 0.58 |
| 1:A:842:U:OP1 | 1:A:947:A:O2' | 2.16 | 0.58 |
| 2:B:865:A:O2' | 2:B:866:A:H5' | 2.04 | 0.58 |
| 6:F:67:A:HO2' | 6:F:68:C:P | 2.27 | 0.58 |
| 16:S:166:VAL:HG11 | 16:S:169:VAL:CG1 | 2.34 | 0.58 |
| 1:A:133:A:H2 | 1:A:176:G:N3 | 2.02 | 0.58 |
| 2:B:1184:C:O2' | 2:B:1185:A:H5'' | 2.03 | 0.58 |
| 2:B:1225:C:OP2 | 2:B:1246:G:N1 | 2.28 | 0.58 |
| 10:L:145:ALA:HA | 10:L:152:SER:O | 2.04 | 0.58 |
| 16:S:10:CYS:SG | 16:S:28:LYS:HG3 | 2.43 | 0.58 |
| 19:V:66:GLU:OE2 | 19:V:67:LYS:HE3 | 2.04 | 0.58 |
| 1:A:1687:C:N3 | 1:A:1710:OMG:N1 | 2.47 | 0.58 |
| 1:A:503:C:H2' | 1:A:504:C:H6 | 1.68 | 0.58 |
| 2:B:1509:G:O2' | 2:B:1510:A:H5' | 2.04 | 0.58 |
| 1:A:998:A:O2' | 2:B:47:A:N3 | 2.37 | 0.58 |
| 2:B:494:U:H2' | 2:B:495:A:C4 | 2.39 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:H:15:A:O2' | 8:H:16:A:H5' | 2.04 | 0.58 |
| 20:W:125:ALA:O | 20:W:132:SER:HB3 | 2.03 | 0.58 |
| 20:W:18:ALA:HB2 | 20:W:83:GLN:NE2 | 2.19 | 0.58 |
| 1:A:1159:U:O2' | 1:A:1160:G:H5' | 2.04 | 0.57 |
| 1:A:599:C:H4' | 1:A:600:A:O5' | 2.03 | 0.57 |
| 7:G:169:C:H5' | 7:G:170:A:OP1 | 2.04 | 0.57 |
| 8:H:26:C:H4' | 8:H:27:A:O5' | 2.03 | 0.57 |
| 8:H:87:C:H2' | 8:H:88:C:O4' | 2.04 | 0.57 |
| 9:I:44:PHE:CB | 9:I:140:GLY:HA3 | 2.34 | 0.57 |
| 10:L:147:ARG:O | 10:L:151:THR:OG1 | 2.18 | 0.57 |
| 16:S:43:PHE:O | 16:S:47:MET:HG2 | 2.04 | 0.57 |
| 19:V:72:LEU:HA | 19:V:76:VAL:O | 2.03 | 0.57 |
| 2:B:1153:A:H4' | 2:B:1154:U:OP1 | 2.03 | 0.57 |
| 7:G:28:U:O2' | 7:G:29:G:H5' | 2.04 | 0.57 |
| 12:O:131:VAL:HG23 | 12:O:136:ARG:NH2 | 2.18 | 0.57 |
| 12:O:201:ARG:HG2 | 13:P:120:ARG:NH2 | 2.19 | 0.57 |
| 13:P:5:ASN:HD22 | 13:P:60:LYS:HA | 1.69 | 0.57 |
| 18:U:27:VAL:CG1 | 18:U:31:LEU:HD13 | 2.34 | 0.57 |
| 20:W:37:TYR:HB2 | 20:W:65:LYS:HG3 | 1.86 | 0.57 |
| 1:A:1052:U:H2' | 1:A:1053:OMC:O2 | 2.03 | 0.57 |
| 1:A:1099:U:O5' | 11:N:22:SER:OG | 2.15 | 0.57 |
| 1:A:1375:A:H2' | 12:O:67:ARG:HH12 | 1.69 | 0.57 |
| 1:A:1375:A:N3 | 1:A:1375:A:H2' | 2.18 | 0.57 |
| 1:A:232:U:H2' | 1:A:233:C:O4' | 2.04 | 0.57 |
| 2:B:1556:U:H2' | 2:B:1557:A:C8 | 2.38 | 0.57 |
| 2:B:543:OMC:N4 | 2:B:587:U:H2' | 2.19 | 0.57 |
| 7:G:159:G:H2' | 7:G:160:U:O4' | 2.04 | 0.57 |
| 2:B:1288:G:H5'' | 18:U:83:ARG:HH12 | 1.69 | 0.57 |
| 2:B:1500:A:O2' | 20:W:40:SER:HB3 | 2.04 | 0.57 |
| 1:A:1949:A:H2' | 21:X:177:ARG:NH2 | 2.17 | 0.57 |
| 1:A:1027:G:H5' | 1:A:1028:C:H5'' | 1.84 | 0.57 |
| 1:A:1291:A:O2' | 1:A:1292:C:H5' | 2.04 | 0.57 |
| 1:A:254:A:H1' | 1:A:255:A:OP2 | 2.04 | 0.57 |
| 1:A:28:C:H4' | 1:A:61:A:H4' | 1.86 | 0.57 |
| 4:D:109:U:O2' | 4:D:110:G:OP2 | 2.19 | 0.57 |
| 9:I:108:CYS:HB2 | 9:I:128:LEU:CD1 | 2.34 | 0.57 |
| 1:A:116:U:H4' | 14:Q:20:PHE:CD2 | 2.40 | 0.57 |
| 16:S:78:VAL:HG22 | 16:S:128:VAL:HG13 | 1.86 | 0.57 |
| 5:E:48:G:OP2 | 19:V:86:ARG:HG3 | 2.03 | 0.57 |
| 20:W:86:SER:CB | 20:W:96:TYR:HB3 | 2.34 | 0.57 |
| 1:A:1316:OMG:H2' | 1:A:1317:G:H5' | 1.86 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:461:C:H2' | 1:A:462:A:H8 | 1.69 | 0.57 |
| 3:C:122:A:C2' | 3:C:123:G:H5' | 2.35 | 0.57 |
| 5:E:147:A:HO2' | 5:E:148:U:P | 2.27 | 0.57 |
| 9:I:172:PHE:HB3 | 11:N:7:ALA:HB2 | 1.85 | 0.57 |
| 11:N:98:ILE:HD11 | 11:N:100:ILE:HD12 | 1.85 | 0.57 |
| 13:P:139:TRP:CD1 | 13:P:140:HIS:N | 2.73 | 0.57 |
| 14:Q:185:ARG:HG2 | 14:Q:188:ARG:NH1 | 2.18 | 0.57 |
| 14:Q:186:LYS:HD3 | 14:Q:191:ARG:HD2 | 1.86 | 0.57 |
| 16:S:153:LEU:HD23 | 16:S:156:ARG:NH2 | 2.20 | 0.57 |
| 19:V:48:GLU:HG3 | 19:V:72:LEU:HD11 | 1.86 | 0.57 |
| 20:W:119:PRO:HD3 | 22:Y:26:PHE:CD2 | 2.38 | 0.57 |
| 1:A:328:G:H2' | 1:A:329:C:O4' | 2.05 | 0.57 |
| 1:A:516:A:H61 | 1:A:587:C:N4 | 1.98 | 0.57 |
| 2:B:1326:U:H3 | 2:B:1361:OMG:HN1 | 1.51 | 0.57 |
| 2:B:582:G:H2' | 2:B:583:C:O4' | 2.04 | 0.57 |
| 3:C:30:U:O2' | 3:C:31:A:H5' | 2.05 | 0.57 |
| 2:B:1111:C:N4 | 5:E:208:G:O2' | 2.38 | 0.57 |
| 9:I:188:ARG:NH2 | 9:I:191:ARG:HD2 | 2.20 | 0.57 |
| 1:A:794:A2M:H3' | 1:A:794:A2M:C8 | 2.35 | 0.57 |
| 1:A:921:A:H2' | 1:A:922:A:O4' | 2.04 | 0.57 |
| 2:B:6:A:C2' | 2:B:7:C:H5' | 2.35 | 0.57 |
| 12:O:126:ILE:HG23 | 12:O:179:ARG:NE | 2.18 | 0.57 |
| 12:O:42:ALA:O | 12:O:46:LEU:HD13 | 2.03 | 0.57 |
| 13:P:83:ILE:HD13 | 13:P:86:LYS:NZ | 2.19 | 0.57 |
| 1:A:44:A:OP2 | 14:Q:101:LYS:HD2 | 2.04 | 0.57 |
| 23:Z:77:ILE:O | 23:Z:77:ILE:HG23 | 2.04 | 0.57 |
| 1:A:1514:U:O4 | 1:A:1522:G:H1' | 2.05 | 0.57 |
| 1:A:278:A:H2' | 1:A:279:A:H5' | 1.86 | 0.57 |
| 2:B:1323:C:H2' | 2:B:1324:C:O4' | 2.05 | 0.57 |
| 2:B:570:G:N2 | 2:B:1354:C:O4' | 2.38 | 0.57 |
| 2:B:1435:U:O2' | 2:B:1436:C:H5' | 2.04 | 0.57 |
| 2:B:62:A:H2' | 2:B:62:A:N3 | 2.20 | 0.57 |
| 1:A:332:U:H2' | 1:A:333:G:C8 | 2.39 | 0.57 |
| 1:A:845:A:H2' | 1:A:846:A:C8 | 2.40 | 0.57 |
| 17:T:10:LEU:O | 17:T:14:ILE:HG12 | 2.05 | 0.57 |
| 18:U:34:PHE:O | 18:U:67:VAL:HG11 | 2.03 | 0.57 |
| 19:V:60:ARG:HD3 | 19:V:63:LYS:HZ2 | 1.68 | 0.57 |
| 1:A:1120:G:H1' | 1:A:1298:G:H5'' | 1.87 | 0.57 |
| 1:A:1781:A:H2' | 1:A:1782:A:O4' | 2.05 | 0.57 |
| 2:B:117:A:H2' | 2:B:118:G:H5' | 1.85 | 0.57 |
| 2:B:1545:U:C2' | 2:B:1546:G:H5' | 2.35 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:B:1579:A:H2' | 2:B:1580:A:C8 | 2.39 | 0.57 |
| 2:B:490:A:H1' | 2:B:627:A2M:H62 | 1.68 | 0.57 |
| 2:B:754:U:O2' | 2:B:755:OMG:H5' | 2.05 | 0.57 |
| 4:D:44:U:H2' | 4:D:45:U:H6 | 1.70 | 0.57 |
| 7:G:35:A:N1 | 7:G:67:C:O2' | 2.34 | 0.57 |
| 8:H:36:C:O2' | 8:H:37:U:H5' | 2.04 | 0.57 |
| 1:A:278:A:C2' | 1:A:279:A:H5' | 2.35 | 0.56 |
| 1:A:413:U:C4' | 1:A:414:U:H5'' | 2.30 | 0.56 |
| 1:A:48:C:OP1 | 11:N:15:LYS:HE2 | 2.05 | 0.56 |
| 1:A:66:A:H2' | 1:A:343:OMC:HM23 | 1.87 | 0.56 |
| 2:B:1493:U:H2' | 2:B:1494:U:H6 | 1.70 | 0.56 |
| 13:P:119:SER:O | 13:P:123:TRP:HD1 | 1.88 | 0.56 |
| 13:P:12:LEU:CD2 | 13:P:59:LEU:HD12 | 2.28 | 0.56 |
| 13:P:83:ILE:HA | 13:P:86:LYS:HE3 | 1.87 | 0.56 |
| 1:A:983:A:N6 | 1:A:1077:G:O2' | 2.39 | 0.56 |
| 1:A:47:A:H4' | 1:A:48:C:H5' | 1.86 | 0.56 |
| 1:A:805:A:OP2 | 9:I:113:SER:HA | 2.06 | 0.56 |
| 10:L:155:GLY:O | 10:L:159:ARG:HG3 | 2.06 | 0.56 |
| 11:N:121:LEU:O | 11:N:125:MET:HG2 | 2.04 | 0.56 |
| 13:P:28:VAL:HG23 | 13:P:39:GLU:HB3 | 1.87 | 0.56 |
| 19:V:30:CYS:O | 19:V:33:PRO:HD2 | 2.05 | 0.56 |
| 20:W:17:LEU:HD13 | 20:W:53:ALA:HB3 | 1.87 | 0.56 |
| 1:A:995:A:H2' | 1:A:996:C:C6 | 2.40 | 0.56 |
| 7:G:125:G:H1 | 7:G:157:C:H42 | 1.51 | 0.56 |
| 20:W:83:GLN:HG2 | 20:W:85:LYS:O | 2.05 | 0.56 |
| 20:W:94:VAL:HG13 | 22:Y:19:ARG:HB3 | 1.84 | 0.56 |
| 23:Z:32:LEU:HD21 | 23:Z:45:MET:HB3 | 1.88 | 0.56 |
| 1:A:355:U:O2' | 1:A:356:G:H5' | 2.04 | 0.56 |
| 1:A:868:U:H5' | 1:A:869:G:H5'' | 1.87 | 0.56 |
| 1:A:94:G:H2' | 1:A:95:A:C8 | 2.40 | 0.56 |
| 2:B:1329:C:O2' | 2:B:1330:G:H5' | 2.04 | 0.56 |
| 2:B:541:C:O2 | 2:B:593:G:N2 | 2.23 | 0.56 |
| 2:B:91:C:H3' | 2:B:92:A:C8 | 2.39 | 0.56 |
| 3:C:77:A:C2 | 3:C:78:G:H1' | 2.39 | 0.56 |
| 4:D:44:U:H2' | 4:D:45:U:C6 | 2.40 | 0.56 |
| 7:G:38:A:H2' | 7:G:39:C:C6 | 2.40 | 0.56 |
| 13:P:12:LEU:HD13 | 13:P:83:ILE:HG22 | 1.86 | 0.56 |
| 13:P:83:ILE:HD13 | 13:P:86:LYS:HZ1 | 1.69 | 0.56 |
| 15:R:13:LYS:HA | 15:R:107:LEU:HD21 | 1.86 | 0.56 |
| 15:R:59:PRO:HB3 | 15:R:76:TRP:CG | 2.40 | 0.56 |
| 1:A:588:A:H61 | 16:S:63:CYS:CB | 2.18 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:T:4:LEU:O | 17:T:4:LEU:HD12 | 2.06 | 0.56 |
| 1:A:988:U:H4' | 1:A:1079:G:H5' | 1.86 | 0.56 |
| 1:A:243:U:H2' | 1:A:244:U:O4' | 2.04 | 0.56 |
| 1:A:518:U:H2' | 1:A:519:G:C8 | 2.40 | 0.56 |
| 2:B:719:A:H62 | 2:B:1437:C:H1' | 1.69 | 0.56 |
| 2:B:1454:C:H2' | 2:B:1455:C:H6 | 1.69 | 0.56 |
| 1:A:1722:A:H5'' | 2:B:41:A:C6 | 2.40 | 0.56 |
| 2:B:470:G:O2' | 2:B:471:A:H5' | 2.05 | 0.56 |
| 2:B:532:U:C2' | 2:B:533:G:H5' | 2.36 | 0.56 |
| 2:B:878:A:H2' | 2:B:878:A:N3 | 2.19 | 0.56 |
| 9:I:65:SER:HB2 | 9:I:96:ASP:HB3 | 1.87 | 0.56 |
| 13:P:25:GLY:HA2 | 13:P:40:ASN:HB2 | 1.88 | 0.56 |
| 1:A:1364:C:O2 | 12:O:141:LYS:NZ | 2.37 | 0.56 |
| 1:A:1571:G:H2' | 1:A:1572:A:O4' | 2.05 | 0.56 |
| 1:A:1792:G:H2' | 1:A:1793:U:H6 | 1.70 | 0.56 |
| 1:A:587:C:OP1 | 16:S:7:ARG:NH1 | 2.36 | 0.56 |
| 2:B:1240:U:C2' | 2:B:1241:C:H5' | 2.36 | 0.56 |
| 7:G:128:U:N3 | 7:G:154:A:N1 | 2.44 | 0.56 |
| 2:B:462:A:H8 | 7:G:86:G:H21 | 1.52 | 0.56 |
| 16:S:14:ARG:HD3 | 16:S:61:LEU:HD11 | 1.88 | 0.56 |
| 17:T:105:LEU:HD21 | 17:T:109:TYR:CE2 | 2.41 | 0.56 |
| 21:X:160:VAL:HG23 | 21:X:179:SER:CA | 2.36 | 0.56 |
| 1:A:328:G:OP1 | 14:Q:196:LYS:HD3 | 2.05 | 0.56 |
| 1:A:370:C:H5' | 1:A:371:A:C2 | 2.41 | 0.56 |
| 1:A:516:A:H2' | 1:A:517:C:O4' | 2.05 | 0.56 |
| 1:A:751:A:H2' | 1:A:752:U:C6 | 2.41 | 0.56 |
| 2:B:10:C:C2' | 2:B:11:A:H5' | 2.35 | 0.56 |
| 2:B:1183:G:H1' | 2:B:1185:A:H61 | 1.71 | 0.56 |
| 2:B:458:G:O2' | 2:B:459:C:H5' | 2.06 | 0.56 |
| 2:B:9:G:H2' | 2:B:10:C:H6 | 1.70 | 0.56 |
| 5:E:135:C:H2' | 5:E:136:A:C8 | 2.41 | 0.56 |
| 6:F:15:U:C2' | 6:F:16:C:H5' | 2.35 | 0.56 |
| 12:O:59:LEU:O | 12:O:157:LEU:N | 2.37 | 0.56 |
| 18:U:64:VAL:HG13 | 18:U:72:VAL:HG13 | 1.87 | 0.56 |
| 18:U:80:VAL:CG1 | 18:U:83:ARG:HE | 2.11 | 0.56 |
| 2:B:616:A:H2' | 2:B:617:A:O4' | 2.05 | 0.56 |
| 2:B:649:A:C2' | 2:B:650:C:H5' | 2.35 | 0.56 |
| 1:A:827:G:OP1 | 14:Q:218:ARG:NH1 | 2.36 | 0.56 |
| 15:R:36:ILE:CG2 | 15:R:114:ILE:HG13 | 2.36 | 0.56 |
| 1:A:1012:G:H2' | 1:A:1014:A:OP2 | 2.05 | 0.56 |
| 1:A:1359:C:OP2 | 1:A:1360:A:O2' | 2.19 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1593:A:H2' | 1:A:1594:G:H5' | 1.87 | 0.56 |
| 1:A:827:G:H2' | 1:A:828:U:H5' | 1.88 | 0.56 |
| 2:B:644:U:C3' | 2:B:645:A:H5' | 2.35 | 0.56 |
| 5:E:56:U:OP1 | 19:V:100:LYS:NZ | 2.39 | 0.56 |
| 7:G:79:U:H1' | 7:G:81:C:OP1 | 2.05 | 0.56 |
| 8:H:123:G:H2' | 8:H:124:C:C6 | 2.41 | 0.56 |
| 13:P:17:ARG:HG3 | 16:S:161:PRO:HA | 1.87 | 0.56 |
| 17:T:142:ILE:HA | 17:T:145:VAL:HG12 | 1.88 | 0.56 |
| 1:A:470:U:H2' | 1:A:471:G:O4' | 2.05 | 0.56 |
| 2:B:1187:A:H2' | 2:B:1188:U:O4' | 2.06 | 0.56 |
| 2:B:1496:A:C2' | 2:B:1497:C:H5' | 2.35 | 0.56 |
| 2:B:99:A:O2' | 2:B:100:U:H5' | 2.06 | 0.56 |
| 5:E:182:U:O2' | 5:E:183:U:H5' | 2.06 | 0.56 |
| 13:P:15:ILE:HD12 | 13:P:51:GLN:HG3 | 1.88 | 0.56 |
| 17:T:141:HIS:O | 17:T:145:VAL:N | 2.37 | 0.56 |
| 18:U:92:ARG:HG2 | 18:U:94:GLU:OE1 | 2.06 | 0.56 |
| 21:X:178:LEU:HD12 | 21:X:184:ALA:CA | 2.35 | 0.56 |
| 1:A:777:OMC:C6 | 1:A:777:OMC:H5'' | 2.39 | 0.56 |
| 2:B:24:C:H1' | 2:B:31:U:C1' | 2.35 | 0.56 |
| 3:C:62:A:H5'' | 3:C:62:A:N3 | 2.21 | 0.56 |
| 4:D:32:A:H2' | 4:D:41:G:O6 | 2.06 | 0.56 |
| 16:S:80:ILE:HD11 | 16:S:108:ALA:HB1 | 1.88 | 0.56 |
| 1:A:1295:A:H2' | 1:A:1296:G:C8 | 2.41 | 0.55 |
| 1:A:233:C:C2' | 1:A:234:A:H5' | 2.35 | 0.55 |
| 1:A:435:G:H2' | 1:A:436:A:H5' | 1.88 | 0.55 |
| 3:C:159:U:H2' | 3:C:159:U:O2 | 2.06 | 0.55 |
| 9:I:29:LEU:HD11 | 9:I:130:PHE:HB2 | 1.88 | 0.55 |
| 12:O:102:VAL:HG11 | 12:O:120:LEU:HD21 | 1.84 | 0.55 |
| 12:O:140:PRO:HA | 12:O:143:GLN:HG2 | 1.86 | 0.55 |
| 2:B:1506:A:H2' | 2:B:1507:G:C8 | 2.41 | 0.55 |
| 1:A:389:G:H2' | 3:C:24:G:O2' | 2.06 | 0.55 |
| 8:H:111:C:O2' | 8:H:112:U:H5'' | 2.05 | 0.55 |
| 8:H:131:A:C2' | 8:H:132:C:H5' | 2.37 | 0.55 |
| 9:I:86:ILE:O | 9:I:144:PHE:N | 2.35 | 0.55 |
| 11:N:24:LYS:NZ | 11:N:24:LYS:HB2 | 2.21 | 0.55 |
| 13:P:8:ARG:NH2 | 13:P:62:SER:OG | 2.40 | 0.55 |
| 16:S:131:ILE:HG23 | 16:S:135:GLN:HB2 | 1.89 | 0.55 |
| 18:U:27:VAL:HG12 | 18:U:31:LEU:HD13 | 1.87 | 0.55 |
| 19:V:87:LYS:HG2 | 19:V:117:TYR:OH | 2.06 | 0.55 |
| 1:A:371:A:H2' | 1:A:371:A:N3 | 2.21 | 0.55 |
| 1:A:916:U:O2' | 1:A:917:G:H5' | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:117:U:H2' | 5:E:119:G:OP2 | 2.07 | 0.55 |
| 11:N:185:ASN:HD21 | 11:N:188:LYS:HD2 | 1.69 | 0.55 |
| 13:P:14:ARG:HD2 | 13:P:96:ILE:HD13 | 1.87 | 0.55 |
| 14:Q:138:ASN:OD1 | 14:Q:139:ALA:N | 2.39 | 0.55 |
| 18:U:43:VAL:HG23 | 18:U:58:HIS:CE1 | 2.41 | 0.55 |
| 22:Y:53:VAL:HG23 | 22:Y:56:THR:CG2 | 2.36 | 0.55 |
| 23:Z:29:SER:HA | 23:Z:46:PRO:HA | 1.87 | 0.55 |
| 1:A:1288:G:N7 | 9:I:13:ARG:NH2 | 2.54 | 0.55 |
| 1:A:41:C:O2' | 1:A:42:A:H5' | 2.06 | 0.55 |
| 2:B:1185:A:H5' | 2:B:1186:U:C5' | 2.36 | 0.55 |
| 2:B:55:C:H2' | 2:B:56:U:H5' | 1.88 | 0.55 |
| 5:E:126:A:H1' | 5:E:127:C:OP2 | 2.07 | 0.55 |
| 5:E:150:C:H2' | 5:E:151:A:C8 | 2.41 | 0.55 |
| 16:S:126:LEU:HD22 | 18:U:148:ARG:HB2 | 1.89 | 0.55 |
| 17:T:109:TYR:CD2 | 17:T:142:ILE:HG21 | 2.41 | 0.55 |
| 19:V:52:GLN:HB2 | 19:V:64:LEU:HD12 | 1.88 | 0.55 |
| 1:A:266:C:H5' | 23:Z:31:PRO:HD3 | 1.88 | 0.55 |
| 2:B:1393:G:O2' | 2:B:1394:G:H5' | 2.07 | 0.55 |
| 12:O:107:PRO:HG2 | 12:O:112:ARG:NH2 | 2.22 | 0.55 |
| 13:P:12:LEU:HD13 | 13:P:83:ILE:CG2 | 2.36 | 0.55 |
| 16:S:149:LEU:O | 16:S:149:LEU:HD12 | 2.06 | 0.55 |
| 17:T:116:ASP:OD1 | 17:T:117:ARG:N | 2.40 | 0.55 |
| 17:T:15:LEU:HD13 | 17:T:52:ARG:HB2 | 1.88 | 0.55 |
| 1:A:1511:A:H2' | 1:A:1512:A:O4' | 2.07 | 0.55 |
| 1:A:1689:G:C2 | 1:A:1691:A:H3' | 2.41 | 0.55 |
| 1:A:1740:G:H2' | 1:A:1741:C:O4' | 2.07 | 0.55 |
| 1:A:810:A:N6 | 1:A:834:U:C2 | 2.75 | 0.55 |
| 2:B:1107:7MG:O2' | 2:B:1108:A:OP1 | 2.23 | 0.55 |
| 2:B:1572:G:H4' | 2:B:1573:C:C6 | 2.42 | 0.55 |
| 2:B:498:U:C2' | 2:B:499:U:H5' | 2.37 | 0.55 |
| 2:B:630:C:H3' | 2:B:631:C:C6 | 2.41 | 0.55 |
| 5:E:99:G:H2' | 5:E:100:C:O4' | 2.06 | 0.55 |
| 12:O:107:PRO:HB2 | 12:O:110:THR:CG2 | 2.36 | 0.55 |
| 1:A:1495:G:C4 | 12:O:78:LYS:HD3 | 2.41 | 0.55 |
| 13:P:66:SER:O | 13:P:69:CYS:HB2 | 2.07 | 0.55 |
| 1:A:1326:A:H5' | 1:A:1592:U:C1' | 2.35 | 0.55 |
| 1:A:413:U:H5'' | 1:A:414:U:O5' | 2.07 | 0.55 |
| 2:B:775:G:H2' | 2:B:776:G:H8 | 1.71 | 0.55 |
| 6:F:46:G:H4' | 12:O:201:ARG:NH1 | 2.21 | 0.55 |
| 7:G:115:A:N3 | 7:G:117:C:O2' | 2.37 | 0.55 |
| 1:A:1748:C:P | 15:R:127:ARG:HH12 | 2.30 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 16:S:40:LYS:HE2 | 16:S:63:CYS:SG | 2.47 | 0.55 |
| 21:X:109:TRP:HH2 | 21:X:141:ASN:HB2 | 1.71 | 0.55 |
| 22:Y:57:ARG:CZ | 22:Y:61:ARG:HH21 | 2.19 | 0.55 |
| 23:Z:25:ARG:HB3 | 23:Z:72:ARG:CZ | 2.37 | 0.55 |
| 1:A:1537:G:O2' | 1:A:1538:G:H5' | 2.07 | 0.55 |
| 1:A:1747:G:H4' | 15:R:127:ARG:NH1 | 2.22 | 0.55 |
| 1:A:1798:U:H2' | 1:A:1800:A:C5' | 2.37 | 0.55 |
| 1:A:21:G:H1' | 3:C:103:A:N3 | 2.22 | 0.55 |
| 3:C:153:C:O2' | 3:C:154:A:H5' | 2.07 | 0.55 |
| 8:H:42:U:O2' | 8:H:98:U:O2 | 2.22 | 0.55 |
| 6:F:14:C:P | 12:O:136:ARG:HH22 | 2.29 | 0.55 |
| 8:H:93:G:O2' | 8:H:94:G:H5' | 2.06 | 0.55 |
| 13:P:74:LEU:O | 13:P:78:LEU:HG | 2.06 | 0.55 |
| 1:A:1646:A:H2' | 1:A:1647:G:H5' | 1.88 | 0.55 |
| 1:A:1804:A2M:H4' | 1:A:1805:A:O5' | 2.07 | 0.55 |
| 1:A:190:G:OP1 | 23:Z:118:ARG:NH1 | 2.40 | 0.55 |
| 1:A:371:A:O2' | 11:N:24:LYS:HE2 | 2.06 | 0.55 |
| 2:B:1145:U:H2' | 2:B:1146:U:H6 | 1.72 | 0.55 |
| 2:B:1229:G:O2' | 2:B:1230:G:H5' | 2.07 | 0.55 |
| 2:B:1287:A:OP2 | 2:B:1288:G:N2 | 2.38 | 0.55 |
| 2:B:1643:C:H42 | 2:B:1647:G:H1 | 1.55 | 0.55 |
| 3:C:8:C:C2' | 3:C:9:G:H5' | 2.37 | 0.55 |
| 12:O:99:LEU:HA | 12:O:102:VAL:CG1 | 2.36 | 0.55 |
| 12:O:80:LYS:HD2 | 12:O:86:LEU:CD1 | 2.30 | 0.55 |
| 14:Q:80:VAL:HG21 | 14:Q:122:LEU:HB2 | 1.89 | 0.55 |
| 15:R:129:THR:CA | 15:R:139:TYR:CE2 | 2.86 | 0.55 |
| 15:R:30:PHE:HA | 15:R:119:VAL:CG1 | 2.25 | 0.55 |
| 15:R:60:PHE:CE2 | 15:R:82:ARG:HG2 | 2.42 | 0.55 |
| 7:G:65:G:OP1 | 20:W:14:ARG:HD3 | 2.06 | 0.55 |
| 1:A:100:A:H5'' | 14:Q:198:SER:HB2 | 1.89 | 0.54 |
| 1:A:1037:A:O2' | 1:A:1038:U:P | 2.65 | 0.54 |
| 1:A:88:A:H2' | 1:A:89:G:O4' | 2.07 | 0.54 |
| 1:A:967:G:H2' | 1:A:968:A:N7 | 2.21 | 0.54 |
| 2:B:1135:G:H3' | 2:B:1136:G:H8 | 1.71 | 0.54 |
| 2:B:1145:U:H2' | 2:B:1146:U:C6 | 2.41 | 0.54 |
| 2:B:1277:A:O2' | 2:B:1298:A:N1 | 2.33 | 0.54 |
| 2:B:1478:C:H2' | 2:B:1479:U:C6 | 2.42 | 0.54 |
| 2:B:1525:U:OP2 | 2:B:1547:G:N2 | 2.35 | 0.54 |
| 2:B:1642:A:N6 | 2:B:1649:A:C4 | 2.75 | 0.54 |
| 2:B:488:A:H4' | 2:B:489:A:O5' | 2.07 | 0.54 |
| 2:B:520:U:H4' | 2:B:521:A:O5' | 2.07 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|---------------------|--------------------------|-------------------|
| 2:B:635:U:H2' | 2:B:636:C:C6 | 2.42 | 0.54 |
| 5:E:11:C:O2' | 5:E:12:G:H5' | 2.07 | 0.54 |
| 12:O:107:PRO:HB2 | 12:O:110:THR:HG22 | 1.89 | 0.54 |
| 14:Q:159:ARG:HD2 | 14:Q:168:VAL:HG21 | 1.89 | 0.54 |
| 18:U:14:LEU:HD11 | 18:U:58:HIS:HD2 | 1.72 | 0.54 |
| 1:A:1046:U:H2' | 1:A:1046:U:O2 | 2.07 | 0.54 |
| 1:A:1161:U:H4' | 18:U:100:ARG:HB2 | 1.89 | 0.54 |
| 1:A:1524:C:O2' | 1:A:1525:5MC:H5' | 2.07 | 0.54 |
| 1:A:847:G:H4' | 11:N:198:ARG:NH1 | 2.21 | 0.54 |
| 2:B:1296:C:H3' | 2:B:1297:G:H5'' | 1.89 | 0.54 |
| 5:E:183:U:H2' | 5:E:184:C:C6 | 2.42 | 0.54 |
| 8:H:131:A:O2' | 8:H:132:C:H5' | 2.08 | 0.54 |
| 14:Q:161:ASP:OD2 | 14:Q:164:ILE:HG22 | 2.07 | 0.54 |
| 15:R:51:VAL:HG21 | 15:R:58:ILE:HG12 | 1.89 | 0.54 |
| 17:T:4:LEU:CD1 | 17:T:24:LEU:HD22 | 2.36 | 0.54 |
| 21:X:167:ARG:HB3 | 21:X:168:PRO:HD2 | 1.88 | 0.54 |
| 1:A:1599:G:H5' | 1:A:1600:G:OP1 | 2.06 | 0.54 |
| 1:A:1689:G:N2 | 1:A:1691:A:H3' | 2.22 | 0.54 |
| 1:A:1805:A:H2' | 1:A:1805:A:OP2 | 2.08 | 0.54 |
| 1:A:877:C:H4' | 9:I:140:GLY:O | 2.07 | 0.54 |
| 1:A:916:U:C2' | 1:A:917:G:H5' | 2.38 | 0.54 |
| 1:A:805:A:O2' | 1:A:953:A:N1 | 2.32 | 0.54 |
| 1:A:934:C:O2 | 2:B:1278:A:O2' | 2.25 | 0.54 |
| 2:B:522:U:C2' | 2:B:523:G:H5' | 2.37 | 0.54 |
| 2:B:753:C:H2' | 2:B:754:U:C6 | 2.41 | 0.54 |
| 4:D:3:G:N2 | 4:D:116:A:H2 | 1.96 | 0.54 |
| 12:O:191:GLU:OE1 | 12:O:194:ARG:NH2 | 2.38 | 0.54 |
| 1:A:1369:G:OP2 | 1:A:1369:G:H4' | 2.08 | 0.54 |
| 1:A:151:G:OP1 | 14:Q:163:ARG:NH2 | 2.31 | 0.54 |
| 1:A:1636:C:C2' | 1:A:1637:A:H5' | 2.37 | 0.54 |
| 1:A:1937:G:O2' | 1:A:1938:G:H3' | 2.07 | 0.54 |
| 1:A:337:A:N1 | 1:A:359:A:N6 | 2.54 | 0.54 |
| 2:B:705:C:O2' | 2:B:706:G:H5' | 2.08 | 0.54 |
| 2:B:781:G:H4' | 14:Q:40[B]:ARG:HH22 | 1.72 | 0.54 |
| 5:E:201:A:C2' | 5:E:202:A:H5' | 2.37 | 0.54 |
| 14:Q:172:HIS:HB3 | 14:Q:175:ARG:CD | 2.37 | 0.54 |
| 1:A:146:U:O2' | 21:X:192:GLY:HA2 | 88.73 | 0.54 |
| 22:Y:20:ARG:HB3 | 22:Y:32:VAL:HG22 | 1.89 | 0.54 |
| 1:A:1226:A:N3 | 4:D:79:G:O2' | 2.38 | 0.54 |
| 1:A:1370:G:N1 | 1:A:1509:C:N3 | 2.38 | 0.54 |
| 1:A:232:U:O2' | 1:A:233:C:H5' | 2.07 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:367:A:H5'' | 1:A:368:U:OP2 | 2.08 | 0.54 |
| 2:B:647:A:O2' | 2:B:648:G:H5' | 2.08 | 0.54 |
| 12:O:100:ARG:HA | 12:O:103:ARG:HG2 | 1.88 | 0.54 |
| 12:O:79:ARG:NH1 | 12:O:84:PRO:HG3 | 2.21 | 0.54 |
| 13:P:11:ARG:HD3 | 13:P:62:SER:HB3 | 1.89 | 0.54 |
| 16:S:7:ARG:HB2 | 16:S:9:TYR:HE2 | 1.72 | 0.54 |
| 17:T:135:LYS:O | 17:T:139:MET:N | 2.38 | 0.54 |
| 20:W:47:ARG:HB3 | 20:W:50:ARG:NH1 | 2.22 | 0.54 |
| 1:A:1918:A:H1' | 21:X:83:GLN:NE2 | 2.22 | 0.54 |
| 1:A:504:C:H2' | 1:A:505:U:H6 | 1.73 | 0.54 |
| 2:B:1383:A:H2' | 2:B:1384:G:O4' | 2.07 | 0.54 |
| 3:C:156:A:H4' | 3:C:157:U:OP2 | 2.06 | 0.54 |
| 3:C:1:A:H3' | 3:C:2:A:H2 | 1.73 | 0.54 |
| 6:F:62:U:H4' | 6:F:63:A:H3' | 1.88 | 0.54 |
| 8:H:24:A:C2' | 8:H:25:A:H5' | 2.37 | 0.54 |
| 17:T:12:ALA:HA | 17:T:22:VAL:HG11 | 1.90 | 0.54 |
| 18:U:24:VAL:HB | 18:U:25:PRO:HD2 | 1.90 | 0.54 |
| 19:V:110:LEU:O | 19:V:117:TYR:HA | 2.07 | 0.54 |
| 22:Y:53:VAL:HG23 | 22:Y:56:THR:HG23 | 1.89 | 0.54 |
| 1:A:1610:A:C2 | 1:A:1646:A:N6 | 2.72 | 0.54 |
| 1:A:249:C:O2' | 1:A:250:A:H5' | 2.08 | 0.54 |
| 1:A:413:U:C4' | 1:A:414:U:C5' | 2.85 | 0.54 |
| 1:A:1677:A:H1' | 2:B:693:U:O5' | 2.08 | 0.54 |
| 1:A:782:A:H5' | 2:B:707:A:C5' | 2.38 | 0.54 |
| 2:B:711:U:H3 | 2:B:728:A2M:C2 | 2.21 | 0.54 |
| 19:V:47:PHE:O | 19:V:77:LEU:HD11 | 2.08 | 0.54 |
| 21:X:90:TYR:HE2 | 21:X:92:ARG:HG3 | 1.72 | 0.54 |
| 23:Z:82:VAL:HG12 | 23:Z:94:VAL:HG13 | 1.89 | 0.54 |
| 1:A:1104:G:H22 | 1:A:1127:OMU:H5'' | 1.72 | 0.54 |
| 1:A:840:A:H4' | 1:A:841:C:OP1 | 2.07 | 0.54 |
| 2:B:1226:A:O2' | 2:B:1250:A:OP1 | 2.16 | 0.54 |
| 2:B:1271:U:HO2' | 2:B:1303:G:HO2' | 1.34 | 0.54 |
| 2:B:1516:A2M:H1' | 2:B:1551:U:C4 | 2.43 | 0.54 |
| 1:A:1680:G:N1 | 7:G:101:A:OP1 | 2.28 | 0.54 |
| 11:N:62:GLN:OE1 | 11:N:169:PRO:HD2 | 2.08 | 0.54 |
| 15:R:36:ILE:HG22 | 15:R:114:ILE:HG13 | 1.89 | 0.54 |
| 1:A:1319:G:O2' | 1:A:1320:C:H5' | 2.07 | 0.54 |
| 2:B:770:A:H5' | 14:Q:106:LEU:HD11 | 1.89 | 0.54 |
| 2:B:852:G:H1' | 2:B:853:C:P | 2.47 | 0.54 |
| 4:D:111:C:H2' | 4:D:112:U:C6 | 2.43 | 0.54 |
| 4:D:13:A:H5'' | 4:D:110:G:OP2 | 2.08 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:E:101:C:H2' | 5:E:102:U:O4' | 2.08 | 0.54 |
| 5:E:39:C:H2' | 5:E:40:C:O4' | 2.08 | 0.54 |
| 9:I:92:ASP:CG | 9:I:111:ARG:HH11 | 2.11 | 0.54 |
| 12:O:102:VAL:HG11 | 12:O:120:LEU:HD23 | 1.89 | 0.54 |
| 8:H:18:C:O2 | 15:R:69:ARG:HD2 | 2.08 | 0.54 |
| 1:A:442:A:C4' | 1:A:443:U:H5' | 2.29 | 0.54 |
| 1:A:842:U:H5'' | 1:A:946:G:H1' | 1.89 | 0.54 |
| 2:B:701:G:OP2 | 15:R:25:HIS:NE2 | 2.39 | 0.54 |
| 4:D:53:U:H4' | 4:D:54:A:H8 | 1.72 | 0.54 |
| 2:B:688:G:H5'' | 7:G:113:C:O2' | 2.08 | 0.54 |
| 7:G:24:A:H2' | 7:G:25:U:C6 | 2.43 | 0.54 |
| 1:A:1539:U:O2' | 9:I:15:VAL:HG22 | 2.07 | 0.54 |
| 18:U:100:ARG:NE | 18:U:103:GLU:OE1 | 2.41 | 0.54 |
| 2:B:1282:U:O2' | 18:U:88:ARG:O | 2.24 | 0.54 |
| 1:A:1368:U:C6 | 13:P:18:GLY:HA2 | 2.43 | 0.53 |
| 1:A:419:A:H4' | 1:A:420:A:OP1 | 2.06 | 0.53 |
| 2:B:100:U:H2' | 2:B:101:G:H8 | 1.71 | 0.53 |
| 2:B:1214:U:H4' | 2:B:1215:A:O4' | 2.08 | 0.53 |
| 2:B:624:5MC:H2' | 2:B:625:A:H5'' | 1.89 | 0.53 |
| 3:C:116:C:O2' | 3:C:117:A:H5' | 2.09 | 0.53 |
| 4:D:76:U:H2' | 4:D:77:A:H5' | 1.88 | 0.53 |
| 6:F:47:C:O2' | 6:F:48:G:H5' | 2.08 | 0.53 |
| 1:A:101:G:H2' | 1:A:102:A:O4' | 2.07 | 0.53 |
| 1:A:955:U:H2' | 1:A:956:G:C8 | 2.42 | 0.53 |
| 10:L:167:HIS:O | 10:L:170:GLU:HB2 | 2.08 | 0.53 |
| 13:P:128:PHE:O | 13:P:132:ASP:N | 2.41 | 0.53 |
| 15:R:27:LYS:O | 15:R:31:GLU:HG2 | 2.08 | 0.53 |
| 1:A:71:C:H1' | 11:N:66:PRO:O | 2.08 | 0.53 |
| 2:B:104:U:O2' | 2:B:116:A:N7 | 2.34 | 0.53 |
| 2:B:21:OMC:HM22 | 2:B:21:OMC:O3' | 2.08 | 0.53 |
| 2:B:705:C:H2' | 2:B:706:G:O4' | 2.08 | 0.53 |
| 4:D:45:U:H2' | 4:D:46:G:H8 | 1.70 | 0.53 |
| 5:E:123:G:H4' | 5:E:127:C:H5' | 1.90 | 0.53 |
| 5:E:29:A:H4' | 5:E:30:C:C5' | 2.38 | 0.53 |
| 6:F:45:G:O2' | 6:F:46:G:H5' | 2.08 | 0.53 |
| 7:G:24:A:H2' | 7:G:25:U:H6 | 1.73 | 0.53 |
| 11:N:33:GLN:N | 11:N:34:PRO:HD2 | 2.23 | 0.53 |
| 12:O:138:VAL:HG13 | 12:O:143:GLN:NE2 | 2.23 | 0.53 |
| 14:Q:110:LEU:HD21 | 14:Q:117:ILE:HD11 | 1.88 | 0.53 |
| 14:Q:45:GLU:OE2 | 14:Q:49:GLN:NE2 | 2.41 | 0.53 |
| 12:O:137:VAL:HG11 | 16:S:177:VAL:HG11 | 1.89 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 19:V:112:ARG:HB2 | 19:V:118:GLN:HG2 | 1.89 | 0.53 |
| 22:Y:3:THR:HG22 | 22:Y:14:HIS:ND1 | 2.22 | 0.53 |
| 1:A:1037:A:HO2' | 1:A:1038:U:P | 2.31 | 0.53 |
| 1:A:942:G:O2' | 1:A:943:G:H5' | 2.08 | 0.53 |
| 2:B:1313:G:C2' | 2:B:1314:G:H5' | 2.38 | 0.53 |
| 2:B:460:U:H5' | 22:Y:46:ARG:HD3 | 1.90 | 0.53 |
| 2:B:527:C:H2' | 2:B:528:A:C8 | 2.43 | 0.53 |
| 2:B:714:A:H2' | 2:B:715:G:O4' | 2.09 | 0.53 |
| 9:I:35:PHE:CE1 | 9:I:39:ARG:HG3 | 2.43 | 0.53 |
| 10:L:26:ASN:O | 10:L:132:ASP:N | 2.40 | 0.53 |
| 11:N:199:PHE:O | 11:N:203:ARG:HG3 | 2.08 | 0.53 |
| 18:U:43:VAL:HG13 | 18:U:43:VAL:O | 2.08 | 0.53 |
| 18:U:57:TYR:OH | 18:U:87:LYS:HE2 | 2.09 | 0.53 |
| 1:A:1042:G:C2 | 1:A:1053:OMC:H5 | 2.25 | 0.53 |
| 1:A:1117:G:N1 | 1:A:1592:U:OP2 | 2.28 | 0.53 |
| 1:A:494:C:H2' | 1:A:495:A:O4' | 2.08 | 0.53 |
| 1:A:69:A:C2' | 1:A:70:A:H5' | 2.38 | 0.53 |
| 2:B:1136:G:H5' | 2:B:1137:A:OP2 | 2.09 | 0.53 |
| 1:A:1085:C:H5'' | 2:B:484:A:N7 | 2.23 | 0.53 |
| 2:B:628:U:O4' | 2:B:1530:C:O2' | 2.20 | 0.53 |
| 5:E:192:U:O2 | 5:E:195:A:C6 | 2.62 | 0.53 |
| 14:Q:65:ARG:HH11 | 14:Q:71:THR:HG23 | 1.73 | 0.53 |
| 15:R:35:VAL:HG21 | 15:R:58:ILE:HG23 | 1.90 | 0.53 |
| 22:Y:46:ARG:HB2 | 22:Y:48:LYS:HG2 | 1.91 | 0.53 |
| 1:A:463:A:N1 | 3:C:4:G:N2 | 2.52 | 0.53 |
| 11:N:200:PHE:O | 11:N:204:ARG:HG3 | 2.08 | 0.53 |
| 11:N:78:ARG:O | 11:N:103:ASP:HB2 | 2.09 | 0.53 |
| 11:N:82:VAL:HG12 | 11:N:86:LYS:HE2 | 1.90 | 0.53 |
| 1:A:308:G:O3' | 14:Q:66:MET:HE1 | 2.09 | 0.53 |
| 15:R:85:ARG:O | 15:R:89:VAL:HG13 | 2.07 | 0.53 |
| 1:A:1804:A2M:N6 | 21:X:88:HIS:HA | 2.24 | 0.53 |
| 1:A:1943:U:O2 | 1:A:1943:U:H3' | 2.08 | 0.53 |
| 1:A:8:C:OP1 | 14:Q:56:ARG:NH2 | 2.41 | 0.53 |
| 2:B:1240:U:H2' | 2:B:1241:C:C6 | 2.40 | 0.53 |
| 2:B:477:A:OP1 | 2:B:533:G:O2' | 2.23 | 0.53 |
| 2:B:490:A:H62 | 2:B:1545:U:C4' | 2.21 | 0.53 |
| 4:D:11:A:O2' | 4:D:12:U:H3' | 2.08 | 0.53 |
| 4:D:38:U:N3 | 4:D:41:G:OP2 | 2.33 | 0.53 |
| 9:I:154:GLU:HG2 | 9:I:157:LYS:HE2 | 1.89 | 0.53 |
| 13:P:41:PRO:HB3 | 13:P:75:LYS:HD3 | 1.91 | 0.53 |
| 1:A:1799:U:H3 | 14:Q:48:HIS:HD1 | 1.57 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 20:W:82:ARG:NH1 | 20:W:119:PRO:O | 2.40 | 0.53 |
| 21:X:110:ASP:O | 21:X:114:VAL:HG23 | 2.08 | 0.53 |
| 1:A:1001:U:H2' | 1:A:1002:G:O4' | 2.09 | 0.53 |
| 1:A:1105:C:OP1 | 1:A:1130:G:H5' | 2.09 | 0.53 |
| 1:A:1539:U:O2 | 9:I:14:VAL:HA | 2.09 | 0.53 |
| 1:A:1669:G:C2' | 1:A:1670:G:H5' | 2.39 | 0.53 |
| 1:A:53:C:C2' | 1:A:54:G:H5' | 2.39 | 0.53 |
| 2:B:1269:G:H2' | 2:B:1270:C:C6 | 2.43 | 0.53 |
| 2:B:1556:U:H2' | 2:B:1557:A:H8 | 1.74 | 0.53 |
| 2:B:1641:U:O2' | 2:B:1642:A:H2' | 2.09 | 0.53 |
| 4:D:85:C:H2' | 4:D:86:A:C8 | 2.44 | 0.53 |
| 9:I:44:PHE:CG | 9:I:140:GLY:HA3 | 2.43 | 0.53 |
| 14:Q:113:ASN:HD22 | 14:Q:183:ALA:HB1 | 1.74 | 0.53 |
| 1:A:1144:U:H2' | 1:A:1145:G:O4' | 2.08 | 0.53 |
| 1:A:1650:U:O2' | 1:A:1651:C:H5' | 2.09 | 0.53 |
| 1:A:1765:U:H5' | 2:B:13:A:OP2 | 2.08 | 0.53 |
| 1:A:351:U:H2' | 1:A:352:G:C8 | 2.44 | 0.53 |
| 1:A:596:G:O2' | 1:A:597:G:H5' | 2.09 | 0.53 |
| 1:A:998:A:H2' | 1:A:999:G:O4' | 2.09 | 0.53 |
| 2:B:1481:A:H4' | 2:B:1482:G:H8 | 1.73 | 0.53 |
| 3:C:28:C:H5'' | 11:N:32:ASN:CB | 2.35 | 0.53 |
| 5:E:50:G:H4' | 5:E:152:G:H4' | 1.91 | 0.53 |
| 6:F:12:U:O2' | 6:F:13:U:OP1 | 2.20 | 0.53 |
| 14:Q:65:ARG:NH1 | 14:Q:71:THR:HG23 | 2.24 | 0.53 |
| 16:S:29:PHE:CE2 | 16:S:31:VAL:CG1 | 2.92 | 0.53 |
| 1:A:1509:C:C2' | 1:A:1510:C:H5' | 2.39 | 0.53 |
| 1:A:1719:U:H2' | 1:A:1720:G:H5' | 1.91 | 0.53 |
| 2:B:1511:A:H8 | 2:B:1511:A:OP2 | 1.91 | 0.53 |
| 1:A:1721:G:O2' | 2:B:42:A:OP2 | 2.26 | 0.53 |
| 2:B:865:A:H2' | 2:B:866:A:C8 | 2.43 | 0.53 |
| 3:C:151:G:H2' | 3:C:152:C:O4' | 2.09 | 0.53 |
| 1:A:76:A:H5' | 11:N:105:ARG:NH2 | 2.23 | 0.53 |
| 13:P:39:GLU:OE1 | 13:P:48:ARG:N | 2.42 | 0.53 |
| 1:A:1785:U:H5'' | 14:Q:83:ARG:HE | 1.74 | 0.53 |
| 15:R:36:ILE:HG13 | 15:R:48:TYR:OH | 2.09 | 0.53 |
| 1:A:953:A:H4' | 1:A:954:G:H5' | 1.90 | 0.52 |
| 1:A:1315:C:H4' | 2:B:1435:U:O2' | 2.08 | 0.52 |
| 2:B:19:C:O2' | 2:B:25:A:N1 | 2.38 | 0.52 |
| 2:B:875:C:H2' | 2:B:912:C:C5 | 2.44 | 0.52 |
| 3:C:154:A:O2' | 3:C:155:U:H5' | 2.08 | 0.52 |
| 3:C:4:G:H2' | 3:C:5:U:H5' | 1.90 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:P:64:GLU:OE1 | 13:P:81:LYS:HE3 | 2.09 | 0.52 |
| 16:S:136:VAL:CG1 | 16:S:141:ILE:HD11 | 2.33 | 0.52 |
| 19:V:51:PHE:CE1 | 19:V:93:LEU:HD12 | 2.44 | 0.52 |
| 22:Y:14:HIS:HB3 | 22:Y:15:PRO:HD2 | 1.91 | 0.52 |
| 23:Z:86:LYS:HG2 | 23:Z:87:ALA:H | 1.73 | 0.52 |
| 1:A:1918:A:C2 | 1:A:1919:G:H1' | 2.44 | 0.52 |
| 1:A:452:A:H2' | 1:A:453:A:O4' | 2.09 | 0.52 |
| 1:A:797:A:H2' | 1:A:798:G:C8 | 2.45 | 0.52 |
| 1:A:90:C:C2' | 1:A:91:G:H5' | 2.39 | 0.52 |
| 2:B:755:OMG:N1 | 2:B:1382:C:N3 | 2.51 | 0.52 |
| 2:B:1177:G:C8 | 2:B:1435:U:H5'' | 2.45 | 0.52 |
| 2:B:682:U:H2' | 2:B:683:OMC:O4' | 2.09 | 0.52 |
| 3:C:100:U:H2' | 3:C:101:U:O4' | 2.08 | 0.52 |
| 4:D:53:U:H4' | 4:D:54:A:C8 | 2.44 | 0.52 |
| 12:O:72:TYR:O | 12:O:75:PHE:HB3 | 2.09 | 0.52 |
| 21:X:155:TYR:O | 21:X:157:VAL:HG13 | 2.09 | 0.52 |
| 1:A:1719:U:C3' | 1:A:1720:G:H5' | 2.39 | 0.52 |
| 1:A:3:C:HO2' | 1:A:4:A:H8 | 1.58 | 0.52 |
| 2:B:1113:A:H61 | 2:B:1136:G:C2' | 2.21 | 0.52 |
| 1:A:934:C:HO2' | 2:B:1278:A:H4' | 1.73 | 0.52 |
| 3:C:62:A:H4' | 3:C:63:G:O5' | 2.10 | 0.52 |
| 7:G:70:OMG:N1 | 7:G:119:C:N3 | 2.45 | 0.52 |
| 7:G:158:A:C2' | 7:G:159:G:H5' | 2.39 | 0.52 |
| 9:I:108:CYS:SG | 9:I:133:LEU:HB2 | 2.49 | 0.52 |
| 11:N:61:PRO:HG2 | 11:N:77:GLY:HA3 | 1.92 | 0.52 |
| 11:N:91:ASN:HB3 | 11:N:94:PHE:HB3 | 1.90 | 0.52 |
| 6:F:13:U:C2' | 12:O:132:ARG:HA | 2.39 | 0.52 |
| 12:O:156:VAL:HG13 | 12:O:159:ASN:HB2 | 1.91 | 0.52 |
| 13:P:135:LYS:N | 13:P:135:LYS:HD2 | 2.24 | 0.52 |
| 19:V:27:LYS:HG2 | 19:V:78:THR:HG22 | 1.91 | 0.52 |
| 20:W:30:ASN:HB3 | 20:W:114:SER:H | 1.74 | 0.52 |
| 1:A:1342:U:C5' | 9:I:2:GLY:HA2 | 2.38 | 0.52 |
| 1:A:146:U:O2' | 21:X:192:GLY:CA | 88.02 | 0.52 |
| 1:A:196:C:OP2 | 1:A:196:C:H3' | 2.08 | 0.52 |
| 1:A:766:C:H5'' | 2:B:723:A:C2 | 2.44 | 0.52 |
| 1:A:876:A:H4' | 9:I:47:LEU:HD12 | 1.90 | 0.52 |
| 3:C:15:G:O2' | 3:C:16:A:H8 | 1.92 | 0.52 |
| 8:H:45:G:H2' | 8:H:46:C:O4' | 2.09 | 0.52 |
| 13:P:6:TYR:HE2 | 16:S:152:PRO:HD3 | 1.71 | 0.52 |
| 23:Z:79:ILE:HB | 23:Z:82:VAL:HB | 1.90 | 0.52 |
| 1:A:110:A:H4' | 1:A:111:A:OP1 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:129:U:O2' | 1:A:130:C:H5' | 2.09 | 0.52 |
| 1:A:1624:U:H2' | 1:A:1625:G:N9 | 2.24 | 0.52 |
| 1:A:24:U:O2' | 1:A:26:C:N4 | 2.23 | 0.52 |
| 1:A:595:A:O2' | 1:A:596:G:H5' | 2.09 | 0.52 |
| 1:A:933:C:O2 | 1:A:943:G:N2 | 2.25 | 0.52 |
| 2:B:15:C:OP1 | 21:X:172:LYS:NZ | 2.37 | 0.52 |
| 2:B:24:C:H1' | 2:B:31:U:H1' | 1.92 | 0.52 |
| 3:C:59:A:OP2 | 3:C:97:U:O2' | 2.16 | 0.52 |
| 8:H:124:C:H2' | 8:H:125:U:O4' | 2.10 | 0.52 |
| 9:I:172:PHE:HE2 | 11:N:5:LYS:HE3 | 1.74 | 0.52 |
| 12:O:160:MET:HG3 | 12:O:161:CYS:N | 2.24 | 0.52 |
| 15:R:48:TYR:HA | 15:R:51:VAL:CG1 | 2.35 | 0.52 |
| 16:S:25:THR:HG21 | 18:U:144:GLU:OE1 | 2.09 | 0.52 |
| 17:T:95:TRP:CZ3 | 17:T:130:ASN:HB3 | 2.43 | 0.52 |
| 23:Z:106:LEU:HD13 | 23:Z:112:ARG:HD3 | 1.90 | 0.52 |
| 1:A:1163:C:H2' | 1:A:1164:G:H5' | 1.92 | 0.52 |
| 1:A:178:U:C3' | 1:A:179:G:H5'' | 2.40 | 0.52 |
| 2:B:1362:A:H5'' | 17:T:67:LYS:HD2 | 126.40 | 0.52 |
| 2:B:1568:A:HO2' | 2:B:1569:A:P | 2.29 | 0.52 |
| 2:B:547:G:C2' | 2:B:548:C:H5' | 2.40 | 0.52 |
| 2:B:911:U:O2 | 2:B:911:U:H2' | 2.10 | 0.52 |
| 5:E:32:A:C2 | 5:E:33:A:H1' | 2.44 | 0.52 |
| 8:H:107:A:H4' | 8:H:108:G:O5' | 2.10 | 0.52 |
| 8:H:109:G:O2' | 8:H:110:C:H5' | 2.09 | 0.52 |
| 8:H:129:G:H2' | 8:H:130:G:O4' | 2.10 | 0.52 |
| 1:A:109:C:N3 | 11:N:54:ARG:NH1 | 2.58 | 0.52 |
| 12:O:138:VAL:CG1 | 12:O:143:GLN:NE2 | 2.73 | 0.52 |
| 14:Q:79:ARG:HB2 | 14:Q:147:GLU:HG2 | 1.91 | 0.52 |
| 15:R:102:ALA:O | 15:R:107:LEU:HB2 | 2.09 | 0.52 |
| 1:A:1046:U:H4' | 15:R:132:ALA:CB | 2.40 | 0.52 |
| 16:S:77:SER:CB | 16:S:131:ILE:HD11 | 2.32 | 0.52 |
| 18:U:138:VAL:HG23 | 18:U:138:VAL:O | 2.09 | 0.52 |
| 23:Z:85:GLU:OE2 | 23:Z:89:GLY:HA2 | 2.10 | 0.52 |
| 1:A:1027:G:H5' | 1:A:1028:C:C5' | 2.40 | 0.52 |
| 1:A:1599:G:H4' | 1:A:1600:G:O5' | 2.09 | 0.52 |
| 1:A:1760:A:H5' | 21:X:121:THR:CG2 | 2.40 | 0.52 |
| 1:A:452:A:O2' | 1:A:453:A:H5' | 2.10 | 0.52 |
| 2:B:1516:A2M:C5' | 2:B:1517:G:H5' | 2.21 | 0.52 |
| 2:B:672:A:C2' | 2:B:673:U:H5' | 2.40 | 0.52 |
| 7:G:176:C:O2' | 8:H:3:A:N3 | 2.40 | 0.52 |
| 14:Q:42:ARG:O | 14:Q:46:PHE:N | 2.37 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 23:Z:28:MET:HE1 | 23:Z:72:ARG:HG2 | 1.90 | 0.52 |
| 1:A:188:G:N2 | 1:A:273:C:O2 | 2.42 | 0.52 |
| 1:A:766:C:O2' | 1:A:767:C:OP1 | 2.26 | 0.52 |
| 1:A:778:A2M:H2' | 1:A:779:C:C6 | 2.45 | 0.52 |
| 1:A:373:A:N1 | 3:C:34:U:C5 | 2.77 | 0.52 |
| 7:G:109:G:H5' | 8:H:40:C:OP1 | 2.10 | 0.52 |
| 19:V:118:GLN:HE21 | 19:V:120:LYS:NZ | 2.08 | 0.52 |
| 20:W:128:TRP:HB3 | 20:W:131:ILE:HG12 | 1.91 | 0.52 |
| 1:A:1030:U:H2' | 1:A:1031:G:O4' | 2.09 | 0.52 |
| 1:A:1940:U:H2' | 1:A:1942:A:OP2 | 2.09 | 0.52 |
| 1:A:59:A:H2' | 1:A:60:A:O4' | 2.10 | 0.52 |
| 1:A:85:G:H4' | 1:A:86:U:H5' | 1.92 | 0.52 |
| 1:A:87:C:H5'' | 1:A:88:A:OP2 | 2.10 | 0.52 |
| 1:A:977:G:C2' | 1:A:978:U:H5' | 2.39 | 0.52 |
| 1:A:991:C:H2' | 1:A:992:U:O4' | 2.08 | 0.52 |
| 2:B:1175:C:C2' | 2:B:1176:U:H5' | 2.39 | 0.52 |
| 2:B:576:C:H2' | 2:B:577:G:C4' | 2.39 | 0.52 |
| 2:B:861:A:C2' | 2:B:862:U:H5' | 2.39 | 0.52 |
| 5:E:121:U:C2' | 5:E:122:C:H5' | 2.40 | 0.52 |
| 11:N:85:LEU:HD23 | 11:N:121:LEU:CD1 | 2.39 | 0.52 |
| 13:P:40:ASN:OD1 | 13:P:84:LEU:HD11 | 2.10 | 0.52 |
| 15:R:5:SER:H | 15:R:147:GLN:NE2 | 2.08 | 0.52 |
| 21:X:93:PRO:O | 21:X:94:SER:HB3 | 2.09 | 0.52 |
| 1:A:439:G:P | 23:Z:84:ARG:HH22 | 2.33 | 0.52 |
| 1:A:112:C:C2' | 1:A:113:U:H5' | 2.40 | 0.52 |
| 1:A:1316:OMG:C2' | 1:A:1317:G:H5' | 2.40 | 0.52 |
| 1:A:470:U:H2' | 1:A:471:G:H5' | 1.91 | 0.52 |
| 1:A:807:G:C2' | 1:A:808:G:H5' | 2.40 | 0.52 |
| 2:B:1455:C:C2' | 2:B:1456:U:H5' | 2.40 | 0.52 |
| 2:B:1541:A:H5'' | 2:B:1542:G:C5' | 2.40 | 0.52 |
| 2:B:65:G:O2' | 2:B:66:A:H5' | 2.10 | 0.52 |
| 3:C:78:G:C2' | 3:C:79:A:H5' | 2.39 | 0.52 |
| 4:D:53:U:H4' | 4:D:54:A:O5' | 2.09 | 0.52 |
| 5:E:207:G:H2' | 5:E:208:G:O4' | 2.10 | 0.52 |
| 8:H:26:C:O5' | 8:H:26:C:H6 | 1.92 | 0.52 |
| 17:T:138:LEU:HD21 | 17:T:142:ILE:CD1 | 2.40 | 0.52 |
| 17:T:106:LEU:HD23 | 17:T:142:ILE:HD11 | 1.92 | 0.52 |
| 19:V:71:GLY:O | 19:V:77:LEU:HA | 2.10 | 0.52 |
| 1:A:1367:A:H2 | 1:A:1511:A:C2 | 2.28 | 0.51 |
| 2:B:1376:U:H2' | 2:B:1377:U:C6 | 2.45 | 0.51 |
| 2:B:1452:U:H2' | 2:B:1453:U:O4' | 2.10 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:489:A:O2' | 2:B:490:A:H2' | 2.10 | 0.51 |
| 2:B:571:U:H2' | 2:B:572:U:C6 | 2.45 | 0.51 |
| 4:D:15:U:O2' | 4:D:16:U:H5' | 2.10 | 0.51 |
| 5:E:140:U:C2' | 5:E:141:U:H5' | 2.40 | 0.51 |
| 5:E:62:C:O2' | 5:E:63:A:H5' | 2.10 | 0.51 |
| 8:H:99:G:N3 | 8:H:99:G:H3' | 2.25 | 0.51 |
| 11:N:82:VAL:O | 11:N:86:LYS:HG3 | 2.09 | 0.51 |
| 12:O:27:VAL:HA | 12:O:137:VAL:HG23 | 1.91 | 0.51 |
| 1:A:1495:G:H5' | 12:O:78:LYS:HE3 | 1.92 | 0.51 |
| 17:T:99:LEU:O | 17:T:103:ARG:HG3 | 2.10 | 0.51 |
| 1:A:1013:A:H2' | 1:A:1014:A:O4' | 2.09 | 0.51 |
| 1:A:1117:G:O2' | 1:A:1593:A:N6 | 2.43 | 0.51 |
| 1:A:476:U:H2' | 1:A:477:A:C8 | 2.45 | 0.51 |
| 2:B:497:G:O2' | 2:B:589:A:N1 | 2.35 | 0.51 |
| 2:B:684:C:H2' | 2:B:685:C:C5 | 2.45 | 0.51 |
| 3:C:123:G:H2' | 3:C:124:A:H8 | 1.70 | 0.51 |
| 4:D:29:C:H5'' | 10:L:140:ARG:HD3 | 1.92 | 0.51 |
| 5:E:193:A:O2' | 5:E:195:A:H2' | 2.10 | 0.51 |
| 12:O:213:LEU:O | 12:O:213:LEU:HD23 | 2.10 | 0.51 |
| 16:S:26:VAL:O | 18:U:143:VAL:HA | 2.11 | 0.51 |
| 1:A:1002:G:H1' | 1:A:1025:A:H62 | 1.73 | 0.51 |
| 1:A:1571:G:C2' | 1:A:1572:A:H5' | 2.39 | 0.51 |
| 1:A:1662:OMC:HM22 | 1:A:1663:U:H5' | 1.92 | 0.51 |
| 1:A:1716:U:H2' | 1:A:1717:A:O4' | 2.10 | 0.51 |
| 1:A:1944:A:N1 | 1:A:1947:C:H1' | 2.25 | 0.51 |
| 1:A:51:A:H1' | 1:A:978:U:O2' | 2.10 | 0.51 |
| 1:A:803:G:O4' | 15:R:118:GLN:NE2 | 71.94 | 0.51 |
| 1:A:809:G:H2' | 1:A:810:A:C1' | 2.39 | 0.51 |
| 1:A:919:OMC:HM21 | 9:I:144:PHE:HE1 | 1.75 | 0.51 |
| 2:B:1301:C:H2' | 2:B:1302:U:O4' | 2.11 | 0.51 |
| 2:B:1435:U:H2' | 2:B:1436:C:H5' | 1.90 | 0.51 |
| 1:A:1059:C:H4' | 2:B:480:G:OP1 | 2.10 | 0.51 |
| 3:C:5:U:O2' | 3:C:6:G:H5' | 2.11 | 0.51 |
| 1:A:120:C:H2' | 1:A:121:G:C5' | 2.34 | 0.51 |
| 1:A:1798:U:H2' | 1:A:1800:A:H5'' | 1.92 | 0.51 |
| 1:A:749:A:H2' | 1:A:750:A:C8 | 2.45 | 0.51 |
| 1:A:988:U:C4' | 1:A:1079:G:H5' | 2.39 | 0.51 |
| 3:C:2:A:H2' | 3:C:3:C:O4' | 2.10 | 0.51 |
| 4:D:106:G:H2' | 4:D:107:G:O4' | 2.11 | 0.51 |
| 4:D:44:U:O2' | 4:D:45:U:H5' | 2.11 | 0.51 |
| 4:D:28:C:O2' | 4:D:54:A:N1 | 2.41 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:G:79:U:O3' | 7:G:80:U:H3' | 2.10 | 0.51 |
| 9:I:96:ASP:OD2 | 9:I:98:ARG:NH2 | 2.42 | 0.51 |
| 11:N:78:ARG:O | 11:N:78:ARG:HG2 | 2.10 | 0.51 |
| 12:O:131:VAL:HG23 | 12:O:136:ARG:HH21 | 1.76 | 0.51 |
| 16:S:131:ILE:CG2 | 16:S:135:GLN:HB2 | 2.41 | 0.51 |
| 18:U:80:VAL:HG12 | 18:U:83:ARG:HG3 | 1.93 | 0.51 |
| 1:A:1623:A:H5' | 1:A:1624:U:P | 2.50 | 0.51 |
| 1:A:1763:U:OP2 | 1:A:1943:U:O2' | 2.18 | 0.51 |
| 1:A:185:A:H2' | 1:A:186:U:O4' | 2.10 | 0.51 |
| 2:B:1313:G:H2' | 2:B:1314:G:H5' | 1.92 | 0.51 |
| 2:B:635:U:H2' | 2:B:636:C:H6 | 1.74 | 0.51 |
| 1:A:1964:G:N7 | 2:B:6:A:N6 | 2.58 | 0.51 |
| 2:B:861:A:H2' | 2:B:862:U:H5' | 1.92 | 0.51 |
| 2:B:908:C:O2' | 2:B:909:C:H5' | 2.11 | 0.51 |
| 7:G:177:C:H5' | 7:G:178:A:O5' | 2.10 | 0.51 |
| 12:O:99:LEU:CD1 | 12:O:122:ALA:HB2 | 2.40 | 0.51 |
| 13:P:133:LYS:CD | 13:P:134:LYS:N | 2.73 | 0.51 |
| 17:T:96:MET:HE3 | 17:T:100:ARG:HH21 | 1.76 | 0.51 |
| 1:A:310:G:H5'' | 14:Q:30:LYS:CE | 2.35 | 0.51 |
| 1:A:932:G:N2 | 1:A:945:U:H1' | 2.25 | 0.51 |
| 2:B:1299:G:C2' | 2:B:1300:A:H5' | 2.40 | 0.51 |
| 2:B:883:U:H4' | 2:B:884:U:H5'' | 1.92 | 0.51 |
| 3:C:152:C:H2' | 3:C:153:C:C6 | 2.45 | 0.51 |
| 3:C:5:U:H2' | 3:C:6:G:H5' | 1.93 | 0.51 |
| 5:E:201:A:H2' | 5:E:202:A:O4' | 2.11 | 0.51 |
| 16:S:70:LYS:HG3 | 16:S:71:LEU:N | 2.26 | 0.51 |
| 1:A:1045:7MG:C2 | 2:B:1550:U:H5'' | 2.46 | 0.51 |
| 1:A:1939:A:H1' | 1:A:1944:A:N6 | 2.26 | 0.51 |
| 1:A:206:G:H2' | 1:A:207:C:C6 | 2.46 | 0.51 |
| 1:A:933:C:H2' | 1:A:934:C:O4' | 2.10 | 0.51 |
| 2:B:1445:U:H5'' | 2:B:1515:G:O6 | 2.10 | 0.51 |
| 2:B:1517:G:OP2 | 2:B:1517:G:H4' | 2.10 | 0.51 |
| 3:C:31:A:C3' | 3:C:32:U:H5'' | 2.40 | 0.51 |
| 4:D:24:U:H1' | 4:D:118:C:H1' | 1.90 | 0.51 |
| 6:F:46:G:H2' | 6:F:47:C:O4' | 2.11 | 0.51 |
| 9:I:3:VAL:HG12 | 9:I:4:ASP:O | 2.11 | 0.51 |
| 12:O:76:LEU:HD11 | 12:O:92:ARG:NH2 | 2.20 | 0.51 |
| 15:R:32:THR:CG2 | 15:R:91:MET:HG3 | 2.38 | 0.51 |
| 22:Y:39:LYS:O | 22:Y:43:MET:HB2 | 2.11 | 0.51 |
| 23:Z:28:MET:SD | 23:Z:75:TRP:HA | 2.51 | 0.51 |
| 1:A:1140:U:H2' | 1:A:1141:G:O4' | 2.11 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1593:A:C2' | 1:A:1594:G:H5' | 2.41 | 0.51 |
| 2:B:1220:G:O2' | 2:B:1221:A:H5' | 2.10 | 0.51 |
| 2:B:1517:G:OP1 | 2:B:1552:A:N6 | 2.33 | 0.51 |
| 3:C:68:A:H2' | 3:C:69:U:O4' | 2.11 | 0.51 |
| 11:N:42:ARG:O | 11:N:46:LEU:HB2 | 2.10 | 0.51 |
| 12:O:72:TYR:CE2 | 12:O:164:VAL:HG11 | 2.45 | 0.51 |
| 12:O:218:LYS:O | 12:O:219:PHE:HB2 | 2.10 | 0.51 |
| 12:O:67:ARG:O | 12:O:71:LYS:HG3 | 2.11 | 0.51 |
| 15:R:47:LEU:HD11 | 15:R:76:TRP:CZ2 | 2.46 | 0.51 |
| 16:S:112:LEU:HD23 | 16:S:123:ILE:HG12 | 1.93 | 0.51 |
| 22:Y:42:ALA:O | 22:Y:46:ARG:HG3 | 2.11 | 0.51 |
| 1:A:1313:A:C6 | 1:A:1315:C:H1' | 2.46 | 0.51 |
| 1:A:1747:G:C8 | 15:R:139:TYR:CE2 | 2.98 | 0.51 |
| 1:A:758:G:O2' | 1:A:759:C:H5' | 2.11 | 0.51 |
| 1:A:871:U:O2' | 1:A:872:G:H5' | 2.10 | 0.51 |
| 2:B:493:A:C2' | 2:B:494:U:H5' | 2.41 | 0.51 |
| 2:B:654:C:OP1 | 2:B:655:A:O2' | 2.19 | 0.51 |
| 3:C:4:G:O2' | 3:C:5:U:H5' | 2.11 | 0.51 |
| 14:Q:34:VAL:HG13 | 14:Q:35:MET:N | 2.26 | 0.51 |
| 1:A:1291:A:H2' | 1:A:1292:C:C6 | 2.45 | 0.51 |
| 1:A:1369:G:N2 | 1:A:1510:C:O2 | 2.19 | 0.51 |
| 1:A:1721:G:N3 | 2:B:41:A:O2' | 2.42 | 0.51 |
| 1:A:184:A:H2' | 1:A:185:A:C5' | 2.41 | 0.51 |
| 1:A:208:A:H3' | 1:A:209:A:C5' | 2.41 | 0.51 |
| 1:A:44:A:P | 14:Q:101:LYS:HD2 | 2.51 | 0.51 |
| 1:A:42:A:H4' | 2:B:1169:OMG:HM21 | 1.92 | 0.51 |
| 2:B:1267:U:C2' | 2:B:1268:U:H5' | 2.40 | 0.51 |
| 2:B:490:A:H62 | 2:B:1545:U:H4' | 1.76 | 0.51 |
| 3:C:15:G:HO2' | 3:C:16:A:P | 2.34 | 0.51 |
| 4:D:18:G:H3' | 4:D:19:C:H6 | 1.75 | 0.51 |
| 15:R:29:THR:HA | 15:R:87:SER:OG | 2.11 | 0.51 |
| 16:S:144:TYR:HA | 16:S:149:LEU:CD2 | 2.41 | 0.51 |
| 16:S:29:PHE:HB2 | 18:U:146:LEU:HB3 | 1.92 | 0.51 |
| 18:U:68:THR:HB | 18:U:69:PRO:CD | 2.41 | 0.51 |
| 20:W:41:VAL:HG21 | 20:W:53:ALA:C | 2.31 | 0.51 |
| 21:X:138:VAL:HG21 | 21:X:147:ILE:HG12 | 1.93 | 0.51 |
| 1:A:1347:G:H1 | 1:A:1531:U:H3 | 1.57 | 0.50 |
| 1:A:1652:U:O2' | 1:A:1653:A:H5' | 2.11 | 0.50 |
| 1:A:1779:A:H2 | 1:A:1921:G:H1 | 1.58 | 0.50 |
| 1:A:249:C:H2' | 1:A:250:A:H5' | 1.93 | 0.50 |
| 1:A:349:U:O2 | 2:B:569:G:N2 | 2.43 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:439:G:H5' | 23:Z:84:ARG:HH12 | 1.76 | 0.50 |
| 1:A:451:G:H1' | 1:A:452:A:OP2 | 2.11 | 0.50 |
| 1:A:492:G:H2' | 1:A:492:G:N3 | 2.26 | 0.50 |
| 1:A:741:G:H2' | 1:A:742:G:H8 | 1.76 | 0.50 |
| 1:A:7:C:H2' | 1:A:8:C:H6 | 1.76 | 0.50 |
| 2:B:1106:U:H3' | 2:B:1107:7MG:C5' | 2.41 | 0.50 |
| 2:B:1477:G:H2' | 2:B:1478:C:H6 | 1.74 | 0.50 |
| 2:B:1642:A:H1' | 2:B:1643:C:OP1 | 2.11 | 0.50 |
| 2:B:757:U:H3 | 2:B:1381:A:H2 | 1.58 | 0.50 |
| 3:C:15:G:O2' | 3:C:16:A:O5' | 2.29 | 0.50 |
| 1:A:805:A:OP2 | 9:I:111:ARG:NH2 | 2.44 | 0.50 |
| 12:O:181:GLU:O | 12:O:185:ARG:HG3 | 2.11 | 0.50 |
| 12:O:214:GLU:O | 12:O:218:LYS:HG2 | 2.11 | 0.50 |
| 13:P:15:ILE:HD13 | 13:P:56:VAL:HG12 | 1.92 | 0.50 |
| 13:P:6:TYR:O | 13:P:11:ARG:NE | 2.40 | 0.50 |
| 23:Z:106:LEU:HD11 | 23:Z:108:LEU:HD21 | 1.93 | 0.50 |
| 1:A:1047:G:H2' | 1:A:1049:A:N7 | 2.26 | 0.50 |
| 1:A:1711:U:O2' | 1:A:1712:U:H5' | 2.10 | 0.50 |
| 1:A:375:U:O2' | 1:A:376:A:H5' | 2.11 | 0.50 |
| 1:A:418:A:C2' | 1:A:419:A:H5' | 2.40 | 0.50 |
| 1:A:776:A:H4' | 1:A:777:OMC:OP2 | 2.11 | 0.50 |
| 1:A:922:A:H2' | 1:A:923:C:C6 | 2.46 | 0.50 |
| 1:A:952:G:H2' | 1:A:952:G:N3 | 2.26 | 0.50 |
| 2:B:1212:C:O2 | 2:B:1314:G:N2 | 2.30 | 0.50 |
| 2:B:1227:G:O2' | 2:B:1228:U:H5' | 2.10 | 0.50 |
| 2:B:460:U:H5' | 22:Y:46:ARG:NE | 2.25 | 0.50 |
| 4:D:56:G:H2' | 4:D:57:C:H5' | 1.93 | 0.50 |
| 1:A:34:A:C5' | 14:Q:98:GLY:HA3 | 2.41 | 0.50 |
| 16:S:126:LEU:HD21 | 18:U:148:ARG:HB2 | 1.94 | 0.50 |
| 18:U:14:LEU:HD11 | 18:U:58:HIS:CD2 | 2.46 | 0.50 |
| 19:V:47:PHE:HB2 | 19:V:97:PHE:CZ | 2.45 | 0.50 |
| 22:Y:20:ARG:HB3 | 22:Y:32:VAL:HG21 | 1.92 | 0.50 |
| 1:A:258:U:O2' | 23:Z:100:ASN:ND2 | 2.43 | 0.50 |
| 1:A:1659:OMG:HM23 | 1:A:1659:OMG:C8 | 2.45 | 0.50 |
| 1:A:387:U:O2 | 1:A:1664:U:H1' | 2.11 | 0.50 |
| 1:A:394:C:N3 | 1:A:412:G:H5' | 2.27 | 0.50 |
| 1:A:449:C:C2' | 1:A:450:U:H5' | 2.41 | 0.50 |
| 2:B:1217:G:H5' | 2:B:1314:G:H1' | 1.92 | 0.50 |
| 7:G:80:U:O4' | 7:G:82:U:H5'' | 2.11 | 0.50 |
| 9:I:188:ARG:HH22 | 9:I:191:ARG:HD2 | 1.74 | 0.50 |
| 9:I:47:LEU:O | 9:I:51:ARG:HG3 | 2.11 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 13:P:65:LEU:HD23 | 13:P:66:SER:N | 2.26 | 0.50 |
| 15:R:119:VAL:HA | 15:R:145:HIS:O | 2.11 | 0.50 |
| 2:B:698:A:H5'' | 15:R:83:TRP:O | 2.11 | 0.50 |
| 18:U:41:ASP:OD1 | 18:U:99:SER:OG | 2.28 | 0.50 |
| 20:W:110:GLU:HA | 20:W:130:LYS:HD2 | 1.94 | 0.50 |
| 1:A:1040:C:H4' | 2:B:92:A:H5' | 1.93 | 0.50 |
| 1:A:1358:U:H2' | 1:A:1359:C:O4' | 2.11 | 0.50 |
| 1:A:178:U:H2' | 1:A:179:G:H5'' | 1.94 | 0.50 |
| 1:A:378:G:C2' | 1:A:379:A:H5' | 2.41 | 0.50 |
| 2:B:1355:A:O2' | 2:B:1356:U:H5' | 2.11 | 0.50 |
| 12:O:72:TYR:OH | 12:O:91:HIS:O | 2.28 | 0.50 |
| 1:A:324:G:O6 | 1:A:346:G:H1' | 2.12 | 0.50 |
| 1:A:874:G:O2' | 1:A:921:A:N6 | 2.45 | 0.50 |
| 2:B:1167:G:O2' | 2:B:1168:A:H5' | 2.12 | 0.50 |
| 2:B:1263:A:HO2' | 2:B:1264:A:H2' | 1.76 | 0.50 |
| 2:B:1482:G:H3' | 2:B:1483:G:C8 | 2.47 | 0.50 |
| 1:A:1961:C:O2' | 3:C:139:A:N3 | 2.36 | 0.50 |
| 7:G:116:U:O2' | 7:G:118:G:OP2 | 2.26 | 0.50 |
| 7:G:119:C:H2' | 7:G:120:A:C8 | 2.46 | 0.50 |
| 1:A:867:G:C5' | 9:I:72:LYS:HE2 | 2.42 | 0.50 |
| 1:A:1075:OMG:N2 | 14:Q:92:HIS:CD2 | 2.80 | 0.50 |
| 16:S:52:LYS:HG2 | 16:S:52:LYS:O | 2.11 | 0.50 |
| 17:T:4:LEU:HD22 | 17:T:32:ILE:CG2 | 2.42 | 0.50 |
| 1:A:804:C:O2 | 1:A:808:G:H4' | 2.11 | 0.50 |
| 2:B:1135:G:H3' | 2:B:1136:G:C8 | 2.47 | 0.50 |
| 2:B:562:G:H2' | 2:B:563:U:C6 | 2.47 | 0.50 |
| 2:B:653:G:O2' | 2:B:656:U:OP2 | 2.29 | 0.50 |
| 1:A:1126:C:H2' | 2:B:756:U:C2 | 2.47 | 0.50 |
| 1:A:1170:G:C5' | 4:D:102:C:H1' | 2.42 | 0.50 |
| 9:I:158:HIS:CD2 | 9:I:170:LYS:HB3 | 2.47 | 0.50 |
| 9:I:89:ILE:CG2 | 9:I:109:ALA:HB2 | 2.42 | 0.50 |
| 12:O:92:ARG:HD3 | 12:O:165:GLY:HA3 | 1.94 | 0.50 |
| 13:P:129:ASP:O | 13:P:132:ASP:HB3 | 2.12 | 0.50 |
| 21:X:119:LEU:HD13 | 21:X:137:ILE:CD1 | 2.41 | 0.50 |
| 22:Y:43:MET:HE1 | 22:Y:55:TRP:HH2 | 1.76 | 0.50 |
| 1:A:1290:C:O2' | 1:A:1291:A:H5' | 2.12 | 0.50 |
| 1:A:429:G:C8 | 1:A:1690:A:H1' | 2.47 | 0.50 |
| 2:B:123:G:N2 | 2:B:124:G:H1' | 2.26 | 0.50 |
| 2:B:1276:U:H2' | 2:B:1277:A:O4' | 2.11 | 0.50 |
| 15:R:17:ALA:HB2 | 15:R:98:ALA:HB2 | 1.93 | 0.50 |
| 17:T:95:TRP:CZ2 | 17:T:99:LEU:HD22 | 2.47 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:1666:G:O2' | 1:A:1667:U:H5' | 2.11 | 0.50 |
| 2:B:1260:U:OP1 | 18:U:23:GLY:N | 2.43 | 0.50 |
| 2:B:532:U:H2' | 2:B:533:G:H5' | 1.92 | 0.50 |
| 3:C:56:G:H2' | 3:C:57:C:O4' | 2.11 | 0.50 |
| 5:E:197:C:H5' | 5:E:198:A:OP1 | 2.12 | 0.50 |
| 6:F:53:G:O6 | 13:P:118:ARG:NH1 | 2.44 | 0.50 |
| 11:N:85:LEU:CD1 | 11:N:102:VAL:HG22 | 2.37 | 0.50 |
| 11:N:51:THR:CG2 | 11:N:54:ARG:HB3 | 2.42 | 0.50 |
| 14:Q:153:PRO:O | 14:Q:159:ARG:HD3 | 2.12 | 0.50 |
| 15:R:59:PRO:HB3 | 15:R:76:TRP:CB | 2.42 | 0.50 |
| 18:U:143:VAL:O | 18:U:143:VAL:HG13 | 2.11 | 0.50 |
| 1:A:1757:A:H2' | 1:A:1758:C:C6 | 2.46 | 0.50 |
| 1:A:1953:A:H3' | 1:A:1954:G:C5' | 2.37 | 0.50 |
| 1:A:206:G:H2' | 1:A:207:C:H6 | 1.76 | 0.50 |
| 1:A:944:U:H2' | 1:A:945:U:C6 | 2.47 | 0.50 |
| 2:B:1372:A:OP2 | 2:B:1372:A:H3' | 2.12 | 0.50 |
| 2:B:1564:U:O2' | 2:B:1565:G:O4' | 2.30 | 0.50 |
| 5:E:176:U:H2' | 5:E:177:G:C8 | 2.46 | 0.50 |
| 7:G:41:A:N1 | 7:G:61:C:N3 | 2.60 | 0.50 |
| 14:Q:186:LYS:HD3 | 14:Q:191:ARG:CD | 2.42 | 0.50 |
| 14:Q:78:PHE:O | 14:Q:147:GLU:HA | 2.12 | 0.50 |
| 15:R:102:ALA:HB1 | 15:R:112:MET:HE2 | 1.93 | 0.50 |
| 16:S:46:MET:HE2 | 18:U:148:ARG:HG2 | 1.93 | 0.50 |
| 22:Y:57:ARG:NE | 22:Y:61:ARG:HE | 2.10 | 0.50 |
| 1:A:347:U:H3' | 1:A:347:U:P | 2.52 | 0.49 |
| 2:B:703:A:H5' | 15:R:137:THR:HB | 1.93 | 0.49 |
| 5:E:139:A:H2' | 5:E:140:U:O4' | 2.12 | 0.49 |
| 7:G:111:C:H2' | 7:G:112:G:O4' | 2.12 | 0.49 |
| 10:L:137:LEU:O | 10:L:160:VAL:HG21 | 2.11 | 0.49 |
| 11:N:187:TYR:O | 11:N:191:LYS:N | 2.43 | 0.49 |
| 14:Q:93:LYS:HB2 | 14:Q:95:ILE:CD1 | 2.39 | 0.49 |
| 15:R:67:ILE:HG23 | 15:R:82:ARG:HH21 | 1.77 | 0.49 |
| 16:S:98:ASP:OD2 | 16:S:103:GLY:HA3 | 2.12 | 0.49 |
| 20:W:84:ARG:H | 20:W:100:ASN:HB3 | 1.77 | 0.49 |
| 21:X:109:TRP:CH2 | 21:X:141:ASN:HB2 | 2.47 | 0.49 |
| 21:X:132:ASN:HA | 21:X:184:ALA:HB3 | 1.93 | 0.49 |
| 1:A:189:U:O3' | 23:Z:118:ARG:NH1 | 2.45 | 0.49 |
| 1:A:192:A:H2' | 1:A:193:A:O4' | 2.12 | 0.49 |
| 1:A:789:A:N1 | 1:A:1108:G:O2' | 2.36 | 0.49 |
| 2:B:690:U:H2' | 2:B:691:A2M:C8 | 2.42 | 0.49 |
| 4:D:28:C:C2' | 4:D:29:C:H5' | 2.42 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 5:E:71:C:O2' | 5:E:72:C:H5' | 2.11 | 0.49 |
| 8:H:111:C:H4' | 8:H:112:U:OP1 | 2.12 | 0.49 |
| 9:I:36:LEU:O | 9:I:40:THR:OG1 | 2.18 | 0.49 |
| 13:P:13:VAL:HB | 13:P:56:VAL:HB | 1.94 | 0.49 |
| 16:S:31:VAL:HG21 | 16:S:39:ALA:CB | 2.35 | 0.49 |
| 17:T:14:ILE:HD12 | 17:T:42:ARG:HG2 | 1.93 | 0.49 |
| 19:V:91:LYS:HB2 | 19:V:117:TYR:CE1 | 2.47 | 0.49 |
| 1:A:1249:G:O6 | 1:A:1264:C:N4 | 2.26 | 0.49 |
| 1:A:1666:G:C2' | 1:A:1667:U:H5' | 2.42 | 0.49 |
| 1:A:379:A:H2' | 1:A:380:A:O4' | 2.12 | 0.49 |
| 2:B:1387:A:H3' | 2:B:1388:U:H2' | 1.93 | 0.49 |
| 5:E:36:A:H2' | 5:E:37:A:C8 | 2.48 | 0.49 |
| 16:S:74:ARG:O | 16:S:97:ARG:HG3 | 2.11 | 0.49 |
| 17:T:24:LEU:HD12 | 17:T:24:LEU:N | 2.27 | 0.49 |
| 21:X:164:THR:HG22 | 21:X:174:ALA:HB2 | 1.94 | 0.49 |
| 1:A:979:G:N1 | 1:A:1095:C:N3 | 2.43 | 0.49 |
| 1:A:776:A:O2' | 1:A:777:OMC:HM22 | 2.12 | 0.49 |
| 2:B:1192:U:O2' | 2:B:1193:U:H5' | 2.12 | 0.49 |
| 2:B:477:A:H2' | 2:B:478:C:C5' | 2.42 | 0.49 |
| 7:G:87:U:H2' | 7:G:88:U:C6 | 2.47 | 0.49 |
| 8:H:92:A:H2' | 8:H:93:G:O4' | 2.13 | 0.49 |
| 1:A:30:C:C4' | 14:Q:112:LYS:HE3 | 2.37 | 0.49 |
| 15:R:13:LYS:HE2 | 15:R:154:GLN:OE1 | 2.12 | 0.49 |
| 5:E:118:U:O4' | 17:T:96:MET:HG2 | 2.13 | 0.49 |
| 23:Z:54:ARG:HB3 | 23:Z:64:GLU:HG2 | 1.94 | 0.49 |
| 1:A:1618:A:N3 | 3:C:18:G:O2' | 2.40 | 0.49 |
| 1:A:348:A:H61 | 2:B:1353:U:H3 | 1.61 | 0.49 |
| 1:A:421:G:H4' | 1:A:421:G:OP1 | 2.12 | 0.49 |
| 1:A:807:G:O2' | 1:A:808:G:H5' | 2.13 | 0.49 |
| 2:B:764:G:H5' | 2:B:1165:G:N2 | 2.27 | 0.49 |
| 2:B:562:G:O2' | 2:B:563:U:H5' | 2.12 | 0.49 |
| 2:B:679:C:H2' | 2:B:680:U:C6 | 2.47 | 0.49 |
| 2:B:781:G:H2' | 2:B:782:U:O4' | 2.12 | 0.49 |
| 5:E:101:C:C2' | 5:E:102:U:H5' | 2.43 | 0.49 |
| 5:E:4:G:C2' | 5:E:5:G:H5' | 2.43 | 0.49 |
| 9:I:16:ARG:NE | 9:I:53:LEU:O | 2.38 | 0.49 |
| 18:U:75:ILE:HG12 | 18:U:88:ARG:CD | 2.41 | 0.49 |
| 19:V:88:LYS:HA | 19:V:117:TYR:OH | 2.12 | 0.49 |
| 23:Z:82:VAL:HG12 | 23:Z:94:VAL:HG12 | 1.91 | 0.49 |
| 1:A:972:OMG:N1 | 1:A:1105:C:N3 | 2.48 | 0.49 |
| 1:A:138:A:H2' | 1:A:139:A:C8 | 2.48 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:1689:G:H1' | 1:A:1751:U:O2 | 2.13 | 0.49 |
| 1:A:1774:U:O2' | 1:A:1775:G:H5' | 2.13 | 0.49 |
| 1:A:18:C:H5' | 14:Q:154:MET:SD | 2.53 | 0.49 |
| 1:A:311:U:O2' | 1:A:360:A:H1' | 2.12 | 0.49 |
| 1:A:36:U:O3' | 1:A:1102:U:H4' | 2.12 | 0.49 |
| 1:A:422:C:O2' | 1:A:436:A:N1 | 2.38 | 0.49 |
| 1:A:65:A:H3' | 1:A:358:C:H5'' | 1.94 | 0.49 |
| 2:B:1106:U:H3' | 2:B:1107:7MG:H5' | 1.94 | 0.49 |
| 1:A:453:A:H61 | 3:C:14:G:H1' | 1.77 | 0.49 |
| 3:C:3:C:H2' | 3:C:4:G:O4' | 2.12 | 0.49 |
| 4:D:47:U:H2' | 4:D:48:G:O4' | 2.13 | 0.49 |
| 7:G:103:U:C3' | 7:G:104:G:H5'' | 2.43 | 0.49 |
| 1:A:98:G:N7 | 11:N:12:HIS:NE2 | 2.60 | 0.49 |
| 1:A:1367:A:OP1 | 13:P:17:ARG:NH1 | 2.45 | 0.49 |
| 13:P:38:VAL:O | 13:P:48:ARG:HA | 2.12 | 0.49 |
| 13:P:49:HIS:CD2 | 13:P:51:GLN:HG2 | 2.47 | 0.49 |
| 18:U:40:VAL:O | 18:U:61:THR:HG23 | 2.11 | 0.49 |
| 20:W:110:GLU:HG2 | 20:W:130:LYS:CE | 2.43 | 0.49 |
| 20:W:94:VAL:HG13 | 22:Y:19:ARG:CB | 2.43 | 0.49 |
| 1:A:213:C:H5' | 1:A:214:G:OP2 | 2.12 | 0.49 |
| 1:A:319:C:H41 | 1:A:326:G:H22 | 1.60 | 0.49 |
| 2:B:499:U:O2' | 2:B:500:U:H5' | 2.13 | 0.49 |
| 2:B:539:U:H1' | 2:B:661:G:N2 | 2.28 | 0.49 |
| 2:B:712:C:H2' | 2:B:713:A:C8 | 2.48 | 0.49 |
| 5:E:71:C:C2' | 5:E:72:C:H5' | 2.43 | 0.49 |
| 16:S:47:MET:CE | 16:S:53:VAL:HG11 | 2.43 | 0.49 |
| 17:T:96:MET:HE2 | 17:T:100:ARG:HH21 | 1.76 | 0.49 |
| 1:A:1253:A:O2' | 1:A:1254:A:H5' | 2.12 | 0.49 |
| 1:A:1588:G:O2' | 1:A:1589:A:H5' | 2.12 | 0.49 |
| 1:A:1666:G:H2' | 1:A:1667:U:O4' | 2.13 | 0.49 |
| 1:A:921:A:O2' | 1:A:922:A:H5' | 2.13 | 0.49 |
| 2:B:1298:A:C2' | 2:B:1299:G:H5' | 2.43 | 0.49 |
| 2:B:1186:U:O2' | 2:B:1368:C:OP2 | 2.13 | 0.49 |
| 1:A:1785:U:O2' | 2:B:513:A:H1' | 2.13 | 0.49 |
| 2:B:754:U:H2' | 2:B:755:OMG:H5' | 1.94 | 0.49 |
| 4:D:2:G:H1 | 4:D:117:U:H3 | 1.60 | 0.49 |
| 7:G:58:C:H2' | 7:G:59:U:H5' | 1.95 | 0.49 |
| 12:O:99:LEU:CA | 12:O:102:VAL:HG12 | 2.42 | 0.49 |
| 13:P:45:LYS:HA | 13:P:47:TRP:CZ3 | 2.47 | 0.49 |
| 16:S:88:GLY:O | 16:S:89:TYR:HB2 | 2.13 | 0.49 |
| 18:U:54:HIS:O | 18:U:55:LYS:HB2 | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 23:Z:48:ARG:HG2 | 23:Z:49:LYS:N | 2.28 | 0.49 |
| 1:A:1319:G:C2' | 1:A:1320:C:H5' | 2.43 | 0.49 |
| 1:A:1801:G:H1' | 21:X:86:ARG:HB3 | 1.94 | 0.49 |
| 1:A:428:G:N2 | 1:A:430:A:H3' | 2.27 | 0.49 |
| 1:A:982:G:OP1 | 11:N:16:HIS:NE2 | 33.19 | 0.49 |
| 2:B:451:C:C2' | 2:B:452:A:H5' | 2.42 | 0.49 |
| 2:B:718:A:H5'' | 2:B:719:A:C8 | 2.33 | 0.49 |
| 2:B:722:G:H2' | 2:B:723:A:C8 | 2.48 | 0.49 |
| 2:B:99:A:C2' | 2:B:100:U:H5' | 2.43 | 0.49 |
| 3:C:103:A:OP2 | 3:C:104:A:H2' | 2.12 | 0.49 |
| 6:F:47:C:O3' | 13:P:125:ARG:NH2 | 2.45 | 0.49 |
| 1:A:1511:A:H4' | 16:S:5:HIS:CD2 | 2.48 | 0.49 |
| 17:T:28:GLU:OE1 | 17:T:49:LEU:HG | 2.13 | 0.49 |
| 19:V:27:LYS:HE3 | 19:V:116:THR:HG22 | 1.95 | 0.49 |
| 1:A:1008:C:H2' | 1:A:1009:G:O4' | 2.13 | 0.49 |
| 1:A:1087:C:OP1 | 1:A:1090:C:N4 | 2.37 | 0.49 |
| 1:A:836:U:H2' | 1:A:837:C:C6 | 2.48 | 0.49 |
| 2:B:1282:U:OP2 | 9:I:188:ARG:NH1 | 2.45 | 0.49 |
| 2:B:1506:A:H2' | 2:B:1507:G:H8 | 1.77 | 0.49 |
| 2:B:705:C:C2' | 2:B:706:G:H5' | 2.43 | 0.49 |
| 2:B:73:OMU:H1' | 2:B:73:OMU:HM23 | 1.54 | 0.49 |
| 2:B:778:U:H2' | 2:B:779:C:O4' | 2.12 | 0.49 |
| 4:D:77:A:H2' | 4:D:78:C:O4' | 2.13 | 0.49 |
| 5:E:136:A:H2' | 5:E:137:A:O4' | 2.13 | 0.49 |
| 5:E:145:A:H4' | 5:E:146:A:O5' | 2.13 | 0.49 |
| 6:F:58:U:C2' | 6:F:59:U:H5'' | 2.42 | 0.49 |
| 12:O:30:LYS:HA | 12:O:58:GLN:HB2 | 1.93 | 0.49 |
| 14:Q:47:ARG:HD3 | 14:Q:140:ASP:OD2 | 2.13 | 0.49 |
| 18:U:64:VAL:HG12 | 18:U:66:ASN:H | 1.78 | 0.49 |
| 21:X:128:ILE:HG23 | 21:X:184:ALA:O | 2.13 | 0.49 |
| 1:A:1085:C:H2' | 1:A:1086:U:H5' | 1.95 | 0.48 |
| 1:A:1918:A:H1' | 21:X:83:GLN:HE22 | 1.78 | 0.48 |
| 1:A:1943:U:H4' | 2:B:18:A:H4' | 1.95 | 0.48 |
| 1:A:33:A:N3 | 1:A:977:G:O2' | 2.37 | 0.48 |
| 1:A:494:C:N3 | 1:A:741:G:N1 | 2.49 | 0.48 |
| 2:B:476:A:H2' | 2:B:477:A:O3' | 2.13 | 0.48 |
| 4:D:18:G:H3' | 4:D:19:C:C6 | 2.48 | 0.48 |
| 9:I:120:ILE:HG21 | 9:I:127:CYS:HB2 | 1.94 | 0.48 |
| 9:I:44:PHE:HZ | 9:I:133:LEU:HD21 | 1.77 | 0.48 |
| 12:O:139:ILE:HG12 | 16:S:168:PHE:CD1 | 2.48 | 0.48 |
| 12:O:146:TYR:OH | 16:S:159:LYS:HD3 | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:S:76:TYR:O | 16:S:95:GLU:HG2 | 2.12 | 0.48 |
| 20:W:96:TYR:CE2 | 22:Y:21:TYR:HD1 | 2.31 | 0.48 |
| 1:A:131:U:C5' | 1:A:132:U:H5' | 2.42 | 0.48 |
| 1:A:1501:G:O3' | 12:O:35:GLY:HA3 | 2.13 | 0.48 |
| 1:A:1638:G:H5' | 1:A:1639:A:OP1 | 2.12 | 0.48 |
| 1:A:421:G:H1' | 1:A:445:G:N2 | 2.28 | 0.48 |
| 1:A:930:C:C5 | 1:A:931:7MG:HM73 | 2.48 | 0.48 |
| 2:B:501:G:H2' | 2:B:502:U:O4' | 2.14 | 0.48 |
| 4:D:55:A:C2' | 4:D:56:G:H5' | 2.43 | 0.48 |
| 5:E:61:U:H5'' | 17:T:61:SER:HB3 | 1.95 | 0.48 |
| 13:P:37:LEU:HD21 | 16:S:71:LEU:O | 2.14 | 0.48 |
| 16:S:95:GLU:CD | 16:S:141:ILE:HG12 | 2.33 | 0.48 |
| 17:T:98:ARG:NH1 | 17:T:130:ASN:CB | 2.76 | 0.48 |
| 17:T:99:LEU:HD21 | 17:T:103:ARG:NH2 | 2.27 | 0.48 |
| 19:V:51:PHE:CE2 | 19:V:79:ILE:HG12 | 2.48 | 0.48 |
| 20:W:44:TYR:CE1 | 20:W:52:PRO:HA | 2.48 | 0.48 |
| 1:A:1068:G:H2' | 1:A:1069:G:O4' | 2.12 | 0.48 |
| 1:A:112:C:O2' | 1:A:113:U:H5' | 2.13 | 0.48 |
| 1:A:384:C:N4 | 1:A:385:G:C6 | 2.81 | 0.48 |
| 1:A:774:A:H1' | 1:A:776:A:OP2 | 2.12 | 0.48 |
| 2:B:547:G:O2' | 2:B:548:C:H5' | 2.14 | 0.48 |
| 2:B:551:U:H3 | 2:B:583:C:N4 | 2.06 | 0.48 |
| 2:B:647:A:C2' | 2:B:648:G:H5' | 2.43 | 0.48 |
| 2:B:7:C:H2' | 2:B:8:U:O4' | 2.13 | 0.48 |
| 2:B:883:U:H4' | 2:B:884:U:O5' | 2.13 | 0.48 |
| 2:B:91:C:H3' | 2:B:92:A:H8 | 1.77 | 0.48 |
| 4:D:1:G:H2' | 4:D:2:G:H8 | 1.78 | 0.48 |
| 6:F:48:G:H2' | 6:F:49:C:O2 | 2.13 | 0.48 |
| 7:G:97:G:H2' | 7:G:98:G:O4' | 2.12 | 0.48 |
| 9:I:92:ASP:OD1 | 9:I:111:ARG:HB3 | 2.13 | 0.48 |
| 18:U:74:VAL:HG12 | 18:U:76:VAL:HG23 | 1.94 | 0.48 |
| 19:V:109:ILE:HG13 | 19:V:119:LEU:HD22 | 1.95 | 0.48 |
| 19:V:51:PHE:CZ | 19:V:79:ILE:HG12 | 2.48 | 0.48 |
| 20:W:34:LYS:HG2 | 20:W:67:GLY:HA2 | 1.94 | 0.48 |
| 20:W:72:ARG:HG3 | 20:W:73:ARG:HG3 | 1.95 | 0.48 |
| 1:A:1080:A:H2 | 2:B:480:G:N3 | 2.10 | 0.48 |
| 1:A:1170:G:H5'' | 4:D:102:C:H1' | 1.94 | 0.48 |
| 2:B:505:U:H5' | 2:B:1154:U:H6 | 1.78 | 0.48 |
| 2:B:1177:G:HO2' | 2:B:1435:U:P | 2.35 | 0.48 |
| 2:B:1455:C:O2' | 2:B:1456:U:H5' | 2.13 | 0.48 |
| 2:B:679:C:H2' | 2:B:680:U:C1' | 2.43 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:B:711:U:O2 | 2:B:728:A2M:H2 | 2.13 | 0.48 |
| 3:C:141:C:C2' | 3:C:142:C:H5' | 2.43 | 0.48 |
| 3:C:19:A:C2' | 3:C:20:C:H5' | 2.43 | 0.48 |
| 4:D:11:A:O2' | 4:D:13:A:OP2 | 2.17 | 0.48 |
| 7:G:82:U:H3' | 7:G:82:U:O2 | 2.12 | 0.48 |
| 9:I:144:PHE:CE2 | 9:I:146:LEU:HD21 | 2.49 | 0.48 |
| 4:D:6:C:OP1 | 10:L:149:ARG:NH2 | 2.45 | 0.48 |
| 1:A:74:U:C5' | 11:N:63:VAL:HB | 2.42 | 0.48 |
| 14:Q:64:ALA:O | 14:Q:69:TYR:HB3 | 2.13 | 0.48 |
| 16:S:77:SER:HB2 | 16:S:131:ILE:HD12 | 1.91 | 0.48 |
| 23:Z:71:TYR:HB3 | 23:Z:76:VAL:HG23 | 1.95 | 0.48 |
| 1:A:1284:U:H2' | 1:A:1285:U:O4' | 2.14 | 0.48 |
| 1:A:1289:G:O2' | 1:A:1290:C:H5' | 2.13 | 0.48 |
| 1:A:1797:U:C2' | 1:A:1798:U:O5' | 2.62 | 0.48 |
| 1:A:1944:A:C2 | 1:A:1947:C:H1' | 2.49 | 0.48 |
| 2:B:61:C:H2' | 2:B:62:A:O4' | 2.14 | 0.48 |
| 2:B:852:G:H1' | 2:B:853:C:O5' | 2.14 | 0.48 |
| 3:C:112:G:N3 | 3:C:112:G:H3' | 2.28 | 0.48 |
| 6:F:15:U:O2' | 6:F:16:C:H5' | 2.13 | 0.48 |
| 6:F:51:A:OP1 | 6:F:53:G:N2 | 2.41 | 0.48 |
| 8:H:5:G:H2' | 8:H:6:U:C6 | 2.48 | 0.48 |
| 12:O:108:ARG:HG3 | 12:O:109:TYR:CE1 | 2.49 | 0.48 |
| 12:O:146:TYR:O | 16:S:157:ARG:NH2 | 2.47 | 0.48 |
| 14:Q:67:LEU:O | 14:Q:132:LEU:HD22 | 2.13 | 0.48 |
| 17:T:98:ARG:O | 17:T:102:LEU:HG | 2.13 | 0.48 |
| 2:B:1288:G:O6 | 18:U:78:LYS:HD3 | 2.13 | 0.48 |
| 20:W:58:ASP:O | 20:W:79:VAL:HA | 2.12 | 0.48 |
| 21:X:178:LEU:CD1 | 21:X:184:ALA:HA | 2.42 | 0.48 |
| 1:A:459:G:O4' | 15:R:6:ARG:HD3 | 2.14 | 0.48 |
| 1:A:462:A:H2' | 1:A:463:A:O4' | 2.14 | 0.48 |
| 1:A:600:A:H4' | 1:A:601:U:H5' | 1.96 | 0.48 |
| 2:B:65:G:C2' | 2:B:66:A:H5' | 2.44 | 0.48 |
| 4:D:23:G:H2' | 4:D:24:U:C6 | 2.48 | 0.48 |
| 10:L:139:ARG:HD2 | 10:L:158:HIS:O | 2.13 | 0.48 |
| 13:P:135:LYS:CB | 13:P:136:PRO:HA | 2.44 | 0.48 |
| 13:P:67:ARG:HD3 | 16:S:147:SER:HA | 1.94 | 0.48 |
| 14:Q:156:ARG:HG2 | 14:Q:156:ARG:O | 2.12 | 0.48 |
| 20:W:96:TYR:CE2 | 22:Y:21:TYR:CD1 | 3.01 | 0.48 |
| 23:Z:60:TYR:CE2 | 23:Z:94:VAL:HG11 | 2.49 | 0.48 |
| 1:A:188:G:H2' | 1:A:189:U:C6 | 2.49 | 0.48 |
| 1:A:57:G:H4' | 14:Q:171:VAL:HG22 | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:593:C:O2' | 1:A:594:G:H5' | 2.13 | 0.48 |
| 8:H:64:U:H5'' | 8:H:65:G:OP2 | 2.14 | 0.48 |
| 12:O:177:THR:O | 12:O:181:GLU:HG2 | 2.12 | 0.48 |
| 14:Q:107:GLY:O | 14:Q:109:LYS:HD2 | 2.14 | 0.48 |
| 17:T:23:TRP:N | 17:T:51:ILE:O | 2.44 | 0.48 |
| 23:Z:47:VAL:HG12 | 23:Z:48:ARG:N | 2.28 | 0.48 |
| 1:A:1042:G:N2 | 1:A:1053:OMC:H5 | 2.12 | 0.48 |
| 1:A:1367:A:H2 | 1:A:1511:A:H2 | 1.62 | 0.48 |
| 1:A:1361:A:O2' | 1:A:1524:C:H4' | 2.14 | 0.48 |
| 1:A:847:G:H2' | 1:A:848:G:O4' | 2.13 | 0.48 |
| 2:B:1308:A:C5 | 2:B:1309:G:H1' | 2.49 | 0.48 |
| 2:B:131:G:O6 | 2:B:448:A:N6 | 2.47 | 0.48 |
| 2:B:728:A2M:HM'1 | 12:O:88:PRO:HD3 | 1.94 | 0.48 |
| 11:N:102:VAL:HG12 | 11:N:103:ASP:N | 2.29 | 0.48 |
| 12:O:98:PHE:O | 12:O:102:VAL:HG12 | 2.13 | 0.48 |
| 14:Q:84:ARG:CG | 14:Q:144:VAL:HG13 | 2.44 | 0.48 |
| 18:U:14:LEU:CD2 | 18:U:55:LYS:HG3 | 2.43 | 0.48 |
| 20:W:112:LYS:O | 20:W:112:LYS:HG2 | 2.13 | 0.48 |
| 20:W:82:ARG:HB2 | 20:W:97:PHE:CG | 2.49 | 0.48 |
| 1:A:141:U:H5' | 1:A:142:U:OP1 | 2.14 | 0.48 |
| 1:A:1750:C:H2' | 1:A:1752:C:C4 | 2.49 | 0.48 |
| 1:A:1964:G:H5'' | 1:A:1964:G:N3 | 2.29 | 0.48 |
| 1:A:245:G:O2' | 1:A:246:A:H5' | 2.14 | 0.48 |
| 2:B:1454:C:H2' | 2:B:1455:C:C6 | 2.47 | 0.48 |
| 3:C:165:U:H5'' | 3:C:166:OMG:OP1 | 2.14 | 0.48 |
| 5:E:22:C:H42 | 5:E:207:G:H1 | 1.62 | 0.48 |
| 6:F:45:G:P | 16:S:173:THR:HG23 | 2.54 | 0.48 |
| 12:O:187:HIS:O | 12:O:194:ARG:NH2 | 2.31 | 0.48 |
| 12:O:29:LEU:HB3 | 12:O:59:LEU:HD21 | 1.96 | 0.48 |
| 1:A:1509:C:O2' | 16:S:113:ALA:O | 2.22 | 0.48 |
| 1:A:1142:C:O2' | 1:A:1143:U:H5' | 2.14 | 0.48 |
| 1:A:34:A:H5'' | 14:Q:98:GLY:CA | 2.43 | 0.48 |
| 1:A:72:C:H4' | 1:A:73:G:OP2 | 2.14 | 0.48 |
| 1:A:741:G:H2' | 1:A:742:G:C8 | 2.49 | 0.48 |
| 1:A:768:G:C2' | 1:A:769:U:H5' | 2.43 | 0.48 |
| 2:B:1494:U:H2' | 2:B:1495:C:H5' | 1.96 | 0.48 |
| 2:B:1649:A:C8 | 2:B:1649:A:H5' | 2.49 | 0.48 |
| 2:B:489:A:C2' | 2:B:490:A:H2' | 2.44 | 0.48 |
| 3:C:154:A:C2' | 3:C:155:U:H5' | 2.44 | 0.48 |
| 1:A:452:A:H61 | 3:C:15:G:H1' | 1.79 | 0.48 |
| 7:G:28:U:H2' | 7:G:29:G:H5' | 1.94 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:I:105:LEU:O | 9:I:125:GLY:HA3 | 2.13 | 0.48 |
| 10:L:135:VAL:HG12 | 10:L:137:LEU:HD12 | 1.95 | 0.48 |
| 13:P:54:LYS:O | 16:S:156:ARG:NH1 | 2.47 | 0.48 |
| 16:S:75:ASN:ND2 | 16:S:136:VAL:HG21 | 2.29 | 0.48 |
| 16:S:16:THR:HG22 | 16:S:57:HIS:O | 2.14 | 0.48 |
| 21:X:140:SER:HA | 21:X:172:LYS:HB2 | 1.94 | 0.48 |
| 22:Y:35:PHE:CE2 | 22:Y:41:PHE:HD1 | 2.31 | 0.48 |
| 1:A:1340:G:C2' | 1:A:1341:C:H5' | 2.44 | 0.47 |
| 1:A:184:A:H2' | 1:A:185:A:H5' | 1.94 | 0.47 |
| 1:A:951:G:C2' | 1:A:951:G:N3 | 2.77 | 0.47 |
| 2:B:1462:A:C2' | 2:B:1463:G:H5' | 2.43 | 0.47 |
| 2:B:1444:G:H22 | 2:B:1549:U:H3 | 1.62 | 0.47 |
| 1:A:350:G:H1' | 2:B:568:A:N3 | 2.28 | 0.47 |
| 3:C:147:G:C2' | 3:C:148:C:H5' | 2.44 | 0.47 |
| 5:E:65:C:H5'' | 5:E:66:A:H5' | 1.96 | 0.47 |
| 12:O:212:ASN:O | 12:O:216:LEU:HG | 2.14 | 0.47 |
| 1:A:31:C:OP1 | 14:Q:110:LEU:HD12 | 2.14 | 0.47 |
| 15:R:128:ARG:NH2 | 15:R:136:ILE:HD13 | 2.29 | 0.47 |
| 15:R:129:THR:HG22 | 15:R:139:TYR:CE1 | 2.48 | 0.47 |
| 16:S:166:VAL:HG11 | 16:S:169:VAL:HG11 | 1.95 | 0.47 |
| 16:S:83:TYR:HD1 | 16:S:88:GLY:O | 1.98 | 0.47 |
| 2:B:1190:U:O4 | 18:U:3:HIS:HE1 | 1.97 | 0.47 |
| 23:Z:20:PRO:HD2 | 23:Z:23:VAL:HG21 | 1.96 | 0.47 |
| 1:A:175:U:H2' | 1:A:176:G:C8 | 2.50 | 0.47 |
| 2:B:132:G:O2' | 2:B:133:G:H5' | 2.14 | 0.47 |
| 2:B:1460:C:N4 | 2:B:1483:G:H1 | 2.09 | 0.47 |
| 1:A:349:U:H1' | 2:B:569:G:H21 | 1.79 | 0.47 |
| 2:B:619:G:N2 | 2:B:620:U:O4 | 2.30 | 0.47 |
| 2:B:771:G:O2' | 2:B:772:U:H5' | 2.14 | 0.47 |
| 2:B:907:A:H5'' | 2:B:908:C:OP2 | 2.14 | 0.47 |
| 7:G:42:G:H2' | 7:G:43:G:C8 | 2.50 | 0.47 |
| 9:I:158:HIS:HD2 | 9:I:170:LYS:O | 1.97 | 0.47 |
| 11:N:28:LYS:HB2 | 14:Q:213:ARG:HD2 | 1.95 | 0.47 |
| 12:O:164:VAL:HG12 | 12:O:164:VAL:O | 2.13 | 0.47 |
| 1:A:310:G:H5' | 14:Q:136:TRP:CE3 | 2.49 | 0.47 |
| 2:B:1297:G:OP1 | 18:U:70:ARG:HB2 | 2.14 | 0.47 |
| 1:A:1805:A:H3' | 1:A:1805:A:OP1 | 2.14 | 0.47 |
| 2:B:460:U:H5' | 22:Y:46:ARG:CD | 2.44 | 0.47 |
| 3:C:50:C:N4 | 3:C:75:OMG:HN1 | 2.12 | 0.47 |
| 4:D:13:A:HO2' | 4:D:14:C:P | 2.35 | 0.47 |
| 8:H:41:A:O2' | 8:H:42:U:P | 2.71 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 11:N:65:CYS:HB2 | 11:N:70:HIS:O | 2.13 | 0.47 |
| 14:Q:115:ARG:CG | 14:Q:146:TYR:CE1 | 2.98 | 0.47 |
| 19:V:51:PHE:CE2 | 19:V:70:VAL:HG11 | 2.50 | 0.47 |
| 22:Y:57:ARG:HE | 22:Y:61:ARG:HE | 1.62 | 0.47 |
| 23:Z:55:VAL:HA | 23:Z:101:VAL:HG12 | 1.96 | 0.47 |
| 1:A:1056:U:H2' | 1:A:1057:C:O4' | 2.14 | 0.47 |
| 1:A:1369:G:H5' | 13:P:52:ASN:HD22 | 1.78 | 0.47 |
| 1:A:1509:C:O2' | 1:A:1510:C:H5' | 2.15 | 0.47 |
| 1:A:1923:C:O2' | 1:A:1924:A:H5' | 2.15 | 0.47 |
| 2:B:1160:A:H2' | 2:B:1161:G:C8 | 2.49 | 0.47 |
| 2:B:1189:C:OP1 | 18:U:6:GLY:HA2 | 2.14 | 0.47 |
| 2:B:1458:A:H2' | 2:B:1480:A:H61 | 1.79 | 0.47 |
| 2:B:506:G:H2' | 2:B:507:C:C6 | 2.50 | 0.47 |
| 5:E:95:U:H3 | 5:E:137:A:N6 | 2.11 | 0.47 |
| 9:I:65:SER:HB2 | 9:I:96:ASP:CB | 2.44 | 0.47 |
| 14:Q:115:ARG:HG2 | 14:Q:146:TYR:CE1 | 2.50 | 0.47 |
| 14:Q:81:ARG:HD2 | 14:Q:143:PHE:CD1 | 2.50 | 0.47 |
| 15:R:98:ALA:O | 15:R:102:ALA:N | 2.42 | 0.47 |
| 1:A:1306:U:H2' | 1:A:1307:U:O4' | 2.15 | 0.47 |
| 1:A:1340:G:H2' | 1:A:1341:C:O4' | 2.13 | 0.47 |
| 1:A:1803:A:H4' | 1:A:1804:A2M:OP2 | 2.12 | 0.47 |
| 1:A:211:C:O2' | 1:A:212:C:OP2 | 2.24 | 0.47 |
| 1:A:234:A:H2' | 1:A:235:U:C6 | 2.50 | 0.47 |
| 1:A:351:U:H2' | 1:A:352:G:H8 | 1.77 | 0.47 |
| 1:A:378:G:O2' | 1:A:379:A:H5' | 2.13 | 0.47 |
| 1:A:417:A:H2' | 1:A:418:A:C8 | 2.50 | 0.47 |
| 1:A:759:C:H2' | 1:A:760:C:C6 | 2.49 | 0.47 |
| 2:B:103:G:H2' | 2:B:104:U:O4' | 2.14 | 0.47 |
| 2:B:1643:C:H5' | 2:B:1644:U:OP2 | 2.14 | 0.47 |
| 2:B:574:A:H2' | 2:B:575:C:H6 | 1.78 | 0.47 |
| 2:B:681:G:C1' | 2:B:683:OMC:HN42 | 2.26 | 0.47 |
| 1:A:781:G:H2' | 2:B:707:A:C4' | 2.44 | 0.47 |
| 2:B:95:A:H2 | 2:B:468:G:C8 | 2.32 | 0.47 |
| 8:H:105:U:O2 | 8:H:108:G:H5' | 2.14 | 0.47 |
| 8:H:15:A:C2' | 8:H:16:A:H5' | 2.44 | 0.47 |
| 10:L:138:GLY:HA3 | 10:L:142:GLU:OE2 | 2.15 | 0.47 |
| 15:R:10:VAL:HG11 | 15:R:13:LYS:HD3 | 1.96 | 0.47 |
| 15:R:107:LEU:HB3 | 15:R:112:MET:CE | 2.43 | 0.47 |
| 15:R:31:GLU:OE1 | 15:R:60:PHE:HA | 2.15 | 0.47 |
| 20:W:110:GLU:HG2 | 20:W:130:LYS:NZ | 2.30 | 0.47 |
| 21:X:120:THR:O | 21:X:120:THR:HG22 | 2.14 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:460:U:H5' | 22:Y:46:ARG:HE | 1.78 | 0.47 |
| 22:Y:51:ARG:CG | 22:Y:51:ARG:NH1 | 2.73 | 0.47 |
| 1:A:110:A:N1 | 1:A:364:U:O2' | 2.46 | 0.47 |
| 1:A:1773:C:H2' | 1:A:1774:U:O4' | 2.15 | 0.47 |
| 1:A:1922:G:O2' | 1:A:1923:C:H5' | 2.14 | 0.47 |
| 1:A:26:C:N4 | 1:A:56:A:N6 | 2.63 | 0.47 |
| 2:B:1254:C:H4' | 2:B:1255:A:OP1 | 2.15 | 0.47 |
| 2:B:1393:G:C2' | 2:B:1394:G:H5' | 2.44 | 0.47 |
| 2:B:1508:G:C2' | 2:B:1509:G:H5' | 2.44 | 0.47 |
| 2:B:638:U:H3 | 2:B:646:G:H1 | 1.61 | 0.47 |
| 4:D:42:A:H5'' | 10:L:78:ARG:HD2 | 1.96 | 0.47 |
| 7:G:40:G:H2' | 7:G:41:A:C8 | 2.50 | 0.47 |
| 13:P:49:HIS:CD2 | 13:P:51:GLN:HE21 | 2.31 | 0.47 |
| 15:R:116:HIS:O | 15:R:148:LEU:HA | 2.13 | 0.47 |
| 12:O:139:ILE:HG12 | 16:S:168:PHE:HE1 | 1.76 | 0.47 |
| 16:S:33:ALA:HB3 | 16:S:39:ALA:HB2 | 1.96 | 0.47 |
| 21:X:165:LEU:O | 21:X:173:LYS:N | 2.32 | 0.47 |
| 1:A:1030:U:C2' | 1:A:1031:G:H5' | 2.45 | 0.47 |
| 1:A:208:A:H2' | 1:A:214:G:O6 | 2.15 | 0.47 |
| 1:A:419:A:H4' | 1:A:420:A:C5' | 2.43 | 0.47 |
| 1:A:837:C:O2' | 1:A:955:U:OP1 | 2.24 | 0.47 |
| 2:B:1245:C:H2' | 2:B:1246:G:C5' | 2.44 | 0.47 |
| 2:B:538:C:O2 | 2:B:661:G:N2 | 2.33 | 0.47 |
| 2:B:657:7MG:O3' | 2:B:658:A:C4' | 2.63 | 0.47 |
| 3:C:39:G:H1' | 3:C:104:A:N1 | 2.30 | 0.47 |
| 4:D:67:C:O5' | 4:D:67:C:H6 | 1.98 | 0.47 |
| 5:E:72:C:H2' | 5:E:73:A:C8 | 2.49 | 0.47 |
| 9:I:32:LEU:C | 9:I:32:LEU:HD23 | 2.35 | 0.47 |
| 9:I:61:PRO:O | 9:I:148:GLY:HA3 | 2.15 | 0.47 |
| 10:L:106:GLY:HA3 | 10:L:160:VAL:CG1 | 2.44 | 0.47 |
| 11:N:196:ALA:O | 11:N:200:PHE:HB2 | 2.14 | 0.47 |
| 13:P:134:LYS:HD2 | 13:P:135:LYS:O | 2.14 | 0.47 |
| 14:Q:69:TYR:HB2 | 14:Q:149:VAL:HG11 | 1.97 | 0.47 |
| 1:A:151:G:P | 14:Q:163:ARG:HH22 | 2.37 | 0.47 |
| 16:S:95:GLU:OE1 | 16:S:141:ILE:HG21 | 2.15 | 0.47 |
| 5:E:115:A:OP2 | 17:T:121:ARG:HD3 | 2.14 | 0.47 |
| 20:W:116:ILE:HD11 | 20:W:131:ILE:HG23 | 1.96 | 0.47 |
| 21:X:119:LEU:HD13 | 21:X:137:ILE:HD11 | 1.97 | 0.47 |
| 1:A:1085:C:O2' | 1:A:1086:U:H5' | 2.14 | 0.47 |
| 1:A:1532:C:H2' | 1:A:1533:C:C6 | 2.50 | 0.47 |
| 1:A:1669:G:O2' | 1:A:1670:G:H5' | 2.15 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:1770:A:C2' | 1:A:1771:U:H5' | 2.45 | 0.47 |
| 1:A:1800:A:O2' | 1:A:1801:G:OP2 | 2.25 | 0.47 |
| 1:A:439:G:C5' | 23:Z:84:ARG:HH12 | 2.27 | 0.47 |
| 1:A:794:A2M:H8 | 1:A:794:A2M:H3' | 1.97 | 0.47 |
| 1:A:977:G:O2' | 1:A:978:U:H5' | 2.15 | 0.47 |
| 2:B:1443:U:H5 | 2:B:1511:A:H2 | 1.62 | 0.47 |
| 2:B:1652:A:O2' | 2:B:1653:A:H8 | 1.85 | 0.47 |
| 2:B:498:U:H2' | 2:B:499:U:H6 | 1.79 | 0.47 |
| 2:B:511:C:O2' | 2:B:513:A:N7 | 2.40 | 0.47 |
| 2:B:777:C:H2' | 2:B:778:U:O4' | 2.14 | 0.47 |
| 5:E:33:A:C2' | 5:E:34:U:H5' | 2.44 | 0.47 |
| 11:N:41:ARG:O | 11:N:45:LEU:HD13 | 2.14 | 0.47 |
| 12:O:204:ALA:HA | 12:O:207:LYS:HG2 | 1.97 | 0.47 |
| 1:A:1636:C:O2' | 1:A:1637:A:H5' | 2.15 | 0.47 |
| 1:A:247:G:H2' | 1:A:248:C:C5' | 2.44 | 0.47 |
| 1:A:878:A:O2' | 1:A:879:C:H5' | 2.15 | 0.47 |
| 1:A:918:C:H2' | 1:A:919:OMC:H4' | 1.97 | 0.47 |
| 1:A:956:G:H2' | 1:A:957:U:O4' | 2.15 | 0.47 |
| 2:B:126:U:OP2 | 17:T:74:ARG:NE | 2.33 | 0.47 |
| 2:B:742:G:C6 | 2:B:744:A:H1' | 2.50 | 0.47 |
| 3:C:122:A:O2' | 3:C:123:G:H5' | 2.14 | 0.47 |
| 4:D:95:G:OP1 | 16:S:45:ARG:HD2 | 2.15 | 0.47 |
| 5:E:3:U:H2' | 5:E:4:G:C8 | 2.48 | 0.47 |
| 10:L:106:GLY:HA2 | 10:L:160:VAL:HG12 | 1.95 | 0.47 |
| 12:O:61:ILE:N | 12:O:155:THR:O | 2.46 | 0.47 |
| 1:A:1495:G:OP1 | 12:O:78:LYS:HE3 | 2.15 | 0.47 |
| 14:Q:117:ILE:O | 14:Q:121:ARG:HG3 | 2.15 | 0.47 |
| 15:R:24:CYS:SG | 15:R:86:LYS:HG2 | 2.55 | 0.47 |
| 16:S:47:MET:HE2 | 16:S:53:VAL:HG11 | 1.97 | 0.47 |
| 17:T:132:PHE:CE2 | 17:T:138:LEU:HD12 | 2.48 | 0.47 |
| 18:U:80:VAL:HG13 | 18:U:81:ARG:N | 2.29 | 0.47 |
| 20:W:122:LYS:HA | 20:W:138:ILE:CG2 | 2.45 | 0.47 |
| 23:Z:37:ARG:HG3 | 23:Z:42:VAL:O | 2.15 | 0.47 |
| 1:A:1682:U:H2' | 1:A:1683:C:C6 | 2.50 | 0.47 |
| 1:A:1772:A:OP1 | 1:A:1772:A:H8 | 1.98 | 0.47 |
| 1:A:483:A:H2' | 1:A:484:U:O4' | 2.14 | 0.47 |
| 2:B:1308:A:N7 | 2:B:1309:G:H1' | 2.30 | 0.47 |
| 2:B:1540:C:H4' | 2:B:1541:A:N1 | 2.30 | 0.47 |
| 2:B:513:A:OP1 | 14:Q:88:LYS:NZ | 2.45 | 0.47 |
| 2:B:651:G:OP2 | 2:B:651:G:N2 | 2.35 | 0.47 |
| 2:B:745:A:C2' | 2:B:746:G:H5' | 2.45 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:880:G:O2' | 2:B:881:G:H5' | 2.15 | 0.47 |
| 5:E:113:C:H4' | 5:E:114:G:OP1 | 2.14 | 0.47 |
| 5:E:203:C:H2' | 5:E:204:C:H6 | 1.80 | 0.47 |
| 8:H:131:A:H2' | 8:H:132:C:O4' | 2.14 | 0.47 |
| 13:P:13:VAL:HG13 | 13:P:27:VAL:HG23 | 1.96 | 0.47 |
| 1:A:323:G:O6 | 14:Q:199:LYS:HG2 | 2.15 | 0.47 |
| 14:Q:93:LYS:HE2 | 14:Q:95:ILE:CD1 | 2.45 | 0.47 |
| 16:S:47:MET:SD | 18:U:146:LEU:HD22 | 2.55 | 0.47 |
| 20:W:21:VAL:HA | 20:W:38:ILE:HG22 | 1.96 | 0.47 |
| 1:A:1008:C:H5' | 17:T:125:VAL:O | 2.15 | 0.47 |
| 1:A:1022:U:H2' | 1:A:1023:G:O4' | 2.15 | 0.47 |
| 1:A:1112:A:H61 | 1:A:1598:U:H3 | 1.62 | 0.47 |
| 1:A:350:G:H5' | 2:B:569:G:O2' | 2.16 | 0.47 |
| 2:B:120:A:H2' | 2:B:121:U:C6 | 2.49 | 0.47 |
| 2:B:1282:U:H4' | 18:U:88:ARG:HB2 | 1.96 | 0.47 |
| 2:B:1296:C:C3' | 2:B:1297:G:H5'' | 2.44 | 0.47 |
| 2:B:460:U:O2 | 7:G:107:C:H1' | 2.15 | 0.47 |
| 2:B:489:A:H2' | 2:B:490:A:H2' | 1.96 | 0.47 |
| 2:B:576:C:H3' | 2:B:577:G:C5' | 2.45 | 0.47 |
| 7:G:71:C:O2' | 7:G:72:C:H5' | 2.14 | 0.47 |
| 7:G:98:G:H2' | 7:G:99:C:O4' | 2.15 | 0.47 |
| 1:A:919:OMC:HM21 | 9:I:144:PHE:CE1 | 2.50 | 0.47 |
| 12:O:29:LEU:HD12 | 12:O:56:CYS:SG | 2.55 | 0.47 |
| 23:Z:106:LEU:O | 23:Z:106:LEU:HD12 | 2.15 | 0.47 |
| 1:A:1053:OMC:HM23 | 1:A:1053:OMC:H1' | 1.53 | 0.46 |
| 1:A:1152:A:O2' | 1:A:1288:G:O2' | 2.33 | 0.46 |
| 1:A:260:U:H4' | 1:A:261:U:OP2 | 2.15 | 0.46 |
| 1:A:348:A:C2 | 2:B:1354:C:H1' | 2.50 | 0.46 |
| 1:A:381:G:C3' | 1:A:382:A:H5'' | 2.46 | 0.46 |
| 1:A:38:A:H2 | 1:A:43:U:O4 | 1.98 | 0.46 |
| 2:B:117:A:C2' | 2:B:118:G:H5' | 2.44 | 0.46 |
| 2:B:1180:G:H2' | 2:B:1181:C:C5' | 2.45 | 0.46 |
| 2:B:477:A:C2' | 2:B:478:C:H5' | 2.45 | 0.46 |
| 2:B:567:G:N1 | 2:B:570:G:OP2 | 2.41 | 0.46 |
| 3:C:57:C:H2' | 3:C:58:G:H5' | 1.98 | 0.46 |
| 3:C:50:C:H42 | 3:C:75:OMG:HN1 | 1.63 | 0.46 |
| 10:L:172:THR:HG22 | 10:L:172:THR:O | 2.15 | 0.46 |
| 12:O:36:ARG:HD2 | 12:O:147:CYS:SG | 2.55 | 0.46 |
| 18:U:75:ILE:CG2 | 18:U:86:ARG:HG2 | 2.45 | 0.46 |
| 21:X:132:ASN:OD1 | 21:X:184:ALA:N | 2.48 | 0.46 |
| 23:Z:28:MET:CG | 23:Z:98:PRO:CG | 2.92 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:1610:A:H2' | 1:A:1611:A:O4' | 2.16 | 0.46 |
| 1:A:1735:U:H5' | 1:A:1755:A:OP1 | 2.15 | 0.46 |
| 1:A:413:U:C5' | 1:A:414:U:H5'' | 2.44 | 0.46 |
| 1:A:413:U:H5'' | 1:A:414:U:C5' | 2.45 | 0.46 |
| 2:B:1478:C:H2' | 2:B:1479:U:O4' | 2.16 | 0.46 |
| 2:B:1543:G:C2' | 2:B:1544:U:H5' | 2.45 | 0.46 |
| 2:B:1642:A:N3 | 2:B:1642:A:H2' | 2.29 | 0.46 |
| 2:B:765:A:H2' | 2:B:766:C:C6 | 2.51 | 0.46 |
| 12:O:215:VAL:HG11 | 13:P:112:GLN:O | 2.16 | 0.46 |
| 14:Q:155:CYS:O | 14:Q:159:ARG:HG2 | 2.15 | 0.46 |
| 15:R:51:VAL:HG22 | 15:R:51:VAL:O | 2.15 | 0.46 |
| 20:W:70:GLU:O | 20:W:74:LYS:NZ | 2.48 | 0.46 |
| 21:X:109:TRP:CZ2 | 21:X:113:ARG:NH1 | 2.82 | 0.46 |
| 22:Y:57:ARG:O | 22:Y:61:ARG:HG3 | 2.15 | 0.46 |
| 1:A:415:U:H4' | 1:A:449:C:H5' | 1.96 | 0.46 |
| 1:A:592:A:H2' | 1:A:593:C:C6 | 2.50 | 0.46 |
| 2:B:11:A:H2' | 2:B:12:G:O4' | 2.15 | 0.46 |
| 2:B:662:G:H2' | 2:B:663:A:O4' | 2.15 | 0.46 |
| 4:D:46:G:C2' | 4:D:47:U:H5' | 2.46 | 0.46 |
| 4:D:57:C:H2' | 4:D:58:G:C8 | 2.50 | 0.46 |
| 7:G:93:G:O2' | 17:T:61:SER:OG | 2.28 | 0.46 |
| 10:L:154:VAL:HG23 | 10:L:159:ARG:CG | 2.43 | 0.46 |
| 11:N:90:ILE:HD11 | 11:N:125:MET:HG3 | 1.96 | 0.46 |
| 1:A:74:U:H5' | 11:N:64:ASN:O | 2.15 | 0.46 |
| 15:R:48:TYR:HB2 | 15:R:92:LEU:HD21 | 1.96 | 0.46 |
| 16:S:50:LYS:HZ3 | 18:U:148:ARG:HD2 | 1.79 | 0.46 |
| 22:Y:14:HIS:HB2 | 22:Y:17:HIS:HD2 | 1.80 | 0.46 |
| 23:Z:31:PRO:HA | 23:Z:44:ALA:HA | 1.96 | 0.46 |
| 1:A:1169:A:C2' | 1:A:1170:G:H5' | 2.46 | 0.46 |
| 1:A:1963:U:H3 | 2:B:7:C:H42 | 1.64 | 0.46 |
| 1:A:235:U:O2' | 1:A:236:G:H5' | 2.15 | 0.46 |
| 1:A:32:G:OP1 | 14:Q:89:ARG:HD3 | 2.16 | 0.46 |
| 1:A:330:A:H2' | 1:A:331:G:C8 | 2.51 | 0.46 |
| 1:A:406:G:OP2 | 1:A:406:G:H8 | 1.98 | 0.46 |
| 1:A:476:U:H2' | 1:A:477:A:H8 | 1.80 | 0.46 |
| 1:A:592:A:H2' | 1:A:593:C:H6 | 1.80 | 0.46 |
| 1:A:928:A:H2' | 1:A:929:C:O4' | 2.16 | 0.46 |
| 2:B:1110:C:H2' | 2:B:1111:C:H6 | 1.79 | 0.46 |
| 2:B:1395:C:H2' | 2:B:1396:U:O4' | 2.15 | 0.46 |
| 2:B:1518:C:C2' | 2:B:1519:U:H5' | 2.45 | 0.46 |
| 2:B:710:G:H1 | 2:B:742:G:H21 | 1.62 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:B:771:G:H2' | 2:B:772:U:H6 | 1.81 | 0.46 |
| 2:B:775:G:O2' | 2:B:776:G:H5' | 2.15 | 0.46 |
| 1:A:1960:G:O2' | 3:C:140:U:O2' | 2.16 | 0.46 |
| 8:H:92:A:H2' | 8:H:93:G:H5' | 1.97 | 0.46 |
| 19:V:112:ARG:HD2 | 19:V:118:GLN:NE2 | 2.29 | 0.46 |
| 1:A:1949:A:N1 | 21:X:160:VAL:HG11 | 2.31 | 0.46 |
| 23:Z:55:VAL:HG22 | 23:Z:101:VAL:HG12 | 1.96 | 0.46 |
| 1:A:1049:A:O2' | 1:A:1051:A:H5'' | 2.14 | 0.46 |
| 1:A:142:U:O4' | 1:A:143:G:H5'' | 2.16 | 0.46 |
| 1:A:450:U:O4 | 1:A:451:G:N1 | 2.49 | 0.46 |
| 1:A:451:G:OP1 | 1:A:1640:U:O2' | 2.30 | 0.46 |
| 2:B:1458:A:H2 | 2:B:1460:C:H41 | 1.64 | 0.46 |
| 2:B:750:A:H5' | 2:B:751:C:OP2 | 2.15 | 0.46 |
| 2:B:862:U:O2' | 2:B:863:C:H5' | 2.16 | 0.46 |
| 3:C:143:C:O2' | 3:C:144:C:H5' | 2.16 | 0.46 |
| 5:E:101:C:O2' | 5:E:102:U:H5' | 2.16 | 0.46 |
| 5:E:32:A:C2' | 5:E:33:A:H5' | 2.46 | 0.46 |
| 13:P:135:LYS:HE3 | 13:P:140:HIS:C | 2.35 | 0.46 |
| 13:P:28:VAL:HG11 | 13:P:48:ARG:CZ | 2.45 | 0.46 |
| 13:P:6:TYR:CD2 | 16:S:152:PRO:HD3 | 2.49 | 0.46 |
| 20:W:97:PHE:HZ | 20:W:139:VAL:HG23 | 1.79 | 0.46 |
| 1:A:1539:U:OP2 | 1:A:1540:A:H5'' | 2.16 | 0.46 |
| 1:A:1622:G:H1 | 1:A:1636:C:H42 | 1.63 | 0.46 |
| 2:B:1149:A:H2' | 2:B:1150:G:C5' | 2.37 | 0.46 |
| 2:B:1242:U:H2' | 2:B:1243:C:C6 | 2.51 | 0.46 |
| 2:B:1576:G:O6 | 12:O:119:GLN:HA | 2.16 | 0.46 |
| 2:B:542:C:H2' | 2:B:588:A:N6 | 2.30 | 0.46 |
| 3:C:44:A:C2' | 3:C:45:C:H5' | 2.45 | 0.46 |
| 4:D:42:A:H5'' | 10:L:78:ARG:CD | 2.46 | 0.46 |
| 5:E:115:A:H4' | 5:E:128:G:H4' | 1.97 | 0.46 |
| 2:B:78:U:O2' | 7:G:78:U:OP1 | 2.18 | 0.46 |
| 9:I:129:THR:H | 9:I:132:GLN:NE2 | 2.13 | 0.46 |
| 12:O:70:ILE:O | 12:O:74:GLN:HG3 | 2.16 | 0.46 |
| 14:Q:176:GLU:HG2 | 14:Q:177:GLN:N | 2.31 | 0.46 |
| 20:W:47:ARG:CB | 20:W:50:ARG:NH1 | 2.79 | 0.46 |
| 20:W:47:ARG:HB3 | 20:W:50:ARG:HH11 | 1.79 | 0.46 |
| 1:A:421:G:OP2 | 23:Z:87:ALA:HB2 | 2.16 | 0.46 |
| 1:A:1002:G:C2' | 1:A:1024:G:H22 | 2.28 | 0.46 |
| 1:A:1007:C:H2' | 1:A:1008:C:C6 | 2.51 | 0.46 |
| 1:A:1291:A:H2' | 1:A:1292:C:H6 | 1.79 | 0.46 |
| 1:A:254:A:N3 | 1:A:255:A:N7 | 2.64 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:452:A:C2' | 1:A:453:A:H5' | 2.46 | 0.46 |
| 1:A:500:C:C2 | 1:A:603:G:N2 | 2.84 | 0.46 |
| 2:B:1186:U:H4' | 2:B:1187:A:OP1 | 2.14 | 0.46 |
| 2:B:1379:C:H2' | 2:B:1380:OMC:O5' | 2.15 | 0.46 |
| 2:B:498:U:H2' | 2:B:499:U:C6 | 2.50 | 0.46 |
| 2:B:505:U:O2' | 2:B:506:G:OP1 | 2.26 | 0.46 |
| 2:B:593:G:H2' | 2:B:594:C:O4' | 2.16 | 0.46 |
| 2:B:625:A:H2' | 2:B:634:OMG:O6 | 2.16 | 0.46 |
| 7:G:169:C:O2' | 7:G:171:G:OP1 | 2.34 | 0.46 |
| 2:B:127:C:P | 8:H:65:G:H21 | 2.38 | 0.46 |
| 10:L:23:LEU:HB3 | 10:L:77:VAL:HB | 1.96 | 0.46 |
| 13:P:107:ASP:HA | 13:P:110:ARG:NH2 | 2.31 | 0.46 |
| 13:P:17:ARG:HH12 | 16:S:159:LYS:HE2 | 1.80 | 0.46 |
| 19:V:87:LYS:HZ1 | 19:V:116:THR:N | 2.14 | 0.46 |
| 1:A:1512:A:O2' | 1:A:1515:A:H2 | 1.98 | 0.46 |
| 1:A:211:C:O2' | 1:A:212:C:H6 | 1.99 | 0.46 |
| 1:A:311:U:H2' | 1:A:312:A:C8 | 2.51 | 0.46 |
| 1:A:800:C:OP1 | 9:I:55:SER:OG | 2.24 | 0.46 |
| 2:B:668:U:C2' | 2:B:669:G:H5' | 2.46 | 0.46 |
| 5:E:124:G:N3 | 5:E:124:G:H2' | 2.30 | 0.46 |
| 1:A:742:G:O4' | 6:F:67:A:N6 | 2.48 | 0.46 |
| 12:O:218:LYS:HE2 | 12:O:219:PHE:CE2 | 2.50 | 0.46 |
| 12:O:86:LEU:HD12 | 12:O:86:LEU:C | 2.36 | 0.46 |
| 13:P:16:ILE:HG22 | 13:P:17:ARG:N | 2.31 | 0.46 |
| 21:X:160:VAL:HG21 | 21:X:179:SER:HA | 1.97 | 0.46 |
| 1:A:1670:G:N2 | 2:B:704:A:H62 | 2.12 | 0.46 |
| 1:A:791:U:H2' | 1:A:792:OMC:C6 | 2.51 | 0.46 |
| 2:B:1159:C:C2' | 2:B:1160:A:H5' | 2.45 | 0.46 |
| 2:B:1288:G:H5'' | 18:U:83:ARG:NH2 | 2.29 | 0.46 |
| 2:B:513:A:H2' | 2:B:514:G:N3 | 2.31 | 0.46 |
| 2:B:574:A:H2' | 2:B:575:C:C6 | 2.51 | 0.46 |
| 3:C:60:U:C5 | 3:C:97:U:H4' | 2.51 | 0.46 |
| 4:D:1:G:H2' | 4:D:2:G:C8 | 2.51 | 0.46 |
| 7:G:170:A:H4' | 7:G:171:G:O5' | 2.15 | 0.46 |
| 10:L:108:PHE:HE1 | 10:L:168:TRP:CZ2 | 2.28 | 0.46 |
| 4:D:29:C:O3' | 10:L:140:ARG:NH2 | 2.49 | 0.46 |
| 10:L:77:VAL:O | 10:L:78:ARG:HB3 | 2.16 | 0.46 |
| 11:N:36:GLN:OE1 | 11:N:39:ARG:NE | 2.40 | 0.46 |
| 12:O:209:SER:O | 12:O:213:LEU:HB2 | 2.16 | 0.46 |
| 12:O:66:ILE:O | 12:O:70:ILE:HG12 | 2.16 | 0.46 |
| 1:A:136:G:OP2 | 14:Q:160:ARG:NH1 | 2.48 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 14:Q:188:ARG:NH1 | 14:Q:190:LEU:HD12 | 2.31 | 0.46 |
| 14:Q:81:ARG:HD2 | 14:Q:143:PHE:CG | 2.51 | 0.46 |
| 21:X:146:GLU:OE2 | 21:X:149:LYS:NZ | 2.40 | 0.46 |
| 1:A:1000:G:OP1 | 17:T:86:GLU:HB3 | 2.16 | 0.46 |
| 1:A:325:A:N1 | 2:B:1354:C:O2' | 2.40 | 0.46 |
| 1:A:375:U:H2' | 1:A:376:A:H5' | 1.97 | 0.46 |
| 1:A:41:C:C2' | 1:A:42:A:H5' | 2.45 | 0.46 |
| 1:A:446:A:H1' | 1:A:448:C:C4 | 2.51 | 0.46 |
| 2:B:627:A2M:HM'2 | 2:B:628:U:C6 | 2.51 | 0.46 |
| 2:B:876:C:H3' | 2:B:877:A:H5' | 1.97 | 0.46 |
| 3:C:69:U:H2' | 3:C:70:C:C1' | 2.46 | 0.46 |
| 4:D:48:G:C6 | 4:D:49:A:C6 | 3.04 | 0.46 |
| 10:L:149:ARG:HG2 | 10:L:150:LYS:HG3 | 1.97 | 0.46 |
| 14:Q:89:ARG:NH2 | 14:Q:102:THR:O | 2.49 | 0.46 |
| 1:A:28:C:O2' | 14:Q:178:ARG:O | 2.30 | 0.46 |
| 14:Q:210:ARG:HA | 14:Q:213:ARG:HH21 | 1.79 | 0.46 |
| 16:S:139:LEU:O | 16:S:142:SER:OG | 2.32 | 0.46 |
| 5:E:115:A:OP2 | 17:T:121:ARG:CD | 2.64 | 0.46 |
| 17:T:109:TYR:CE2 | 17:T:142:ILE:HG21 | 2.51 | 0.46 |
| 17:T:89:MET:HA | 17:T:90:PRO:HD3 | 1.81 | 0.46 |
| 21:X:122:ASP:O | 21:X:126:LYS:HG3 | 2.15 | 0.46 |
| 22:Y:51:ARG:NH1 | 22:Y:51:ARG:HB2 | 2.12 | 0.46 |
| 1:A:1321:A:O2' | 1:A:1322:G:H5' | 2.16 | 0.45 |
| 1:A:142:U:H4' | 1:A:143:G:O5' | 2.14 | 0.45 |
| 1:A:236:G:H5'' | 1:A:237:U:OP1 | 2.16 | 0.45 |
| 2:B:1329:C:N4 | 2:B:1330:G:O6 | 2.49 | 0.45 |
| 2:B:1495:C:O2' | 2:B:1496:A:H5' | 2.16 | 0.45 |
| 8:H:15:A:H2' | 8:H:16:A:O4' | 2.16 | 0.45 |
| 8:H:16:A:O2' | 8:H:18:C:OP2 | 2.17 | 0.45 |
| 1:A:71:C:H5' | 11:N:68:VAL:CG1 | 2.46 | 0.45 |
| 13:P:147:LEU:O | 13:P:148:GLN:C | 2.51 | 0.45 |
| 14:Q:151:VAL:HG21 | 14:Q:164:ILE:HD11 | 1.98 | 0.45 |
| 14:Q:192:HIS:O | 14:Q:197:ALA:HB3 | 2.16 | 0.45 |
| 23:Z:86:LYS:HG2 | 23:Z:87:ALA:N | 2.30 | 0.45 |
| 23:Z:8:SER:OG | 23:Z:11:LYS:HD2 | 2.15 | 0.45 |
| 1:A:1044:C:O2' | 1:A:1047:G:O2' | 2.10 | 0.45 |
| 1:A:210:A:N7 | 1:A:211:C:N4 | 2.64 | 0.45 |
| 1:A:412:G:HO2' | 1:A:414:U:H5 | 1.63 | 0.45 |
| 1:A:768:G:H2' | 1:A:769:U:H5' | 1.97 | 0.45 |
| 2:B:1649:A:H5' | 2:B:1649:A:H8 | 1.80 | 0.45 |
| 2:B:55:C:C2' | 2:B:56:U:H5' | 2.46 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 6:F:45:G:H2' | 6:F:46:G:C8 | 2.52 | 0.45 |
| 8:H:92:A:C2' | 8:H:93:G:H5' | 2.46 | 0.45 |
| 1:A:1500:C:O2' | 12:O:104:SER:HB2 | 2.15 | 0.45 |
| 13:P:83:ILE:HD13 | 13:P:86:LYS:CE | 2.46 | 0.45 |
| 19:V:57:LEU:CD1 | 19:V:58:ASN:HD22 | 2.29 | 0.45 |
| 21:X:152:ARG:HH22 | 21:X:158:LYS:HD2 | 1.81 | 0.45 |
| 1:A:132:U:H2' | 1:A:133:A:OP1 | 2.15 | 0.45 |
| 1:A:274:C:O5' | 1:A:274:C:H6 | 1.99 | 0.45 |
| 1:A:921:A:H2' | 1:A:922:A:C5' | 2.46 | 0.45 |
| 2:B:1377:U:O3' | 2:B:1378:A:H3' | 2.17 | 0.45 |
| 2:B:668:U:O2' | 2:B:669:G:H5' | 2.16 | 0.45 |
| 2:B:739:G:O2' | 2:B:740:G:P | 2.74 | 0.45 |
| 4:D:110:G:H2' | 4:D:111:C:O4' | 2.16 | 0.45 |
| 4:D:24:U:O2' | 4:D:118:C:O4' | 2.32 | 0.45 |
| 6:F:13:U:H6 | 6:F:13:U:H5'' | 1.81 | 0.45 |
| 8:H:30:C:H2' | 8:H:31:A:O4' | 2.16 | 0.45 |
| 12:O:25:ILE:O | 12:O:25:ILE:HG13 | 2.16 | 0.45 |
| 12:O:29:LEU:HB3 | 12:O:59:LEU:CD2 | 2.46 | 0.45 |
| 13:P:52:ASN:OD1 | 13:P:53:LEU:N | 2.50 | 0.45 |
| 19:V:52:GLN:HB3 | 19:V:70:VAL:HG21 | 1.97 | 0.45 |
| 23:Z:28:MET:CE | 23:Z:70:CYS:SG | 3.04 | 0.45 |
| 1:A:129:U:H2' | 1:A:130:C:O4' | 2.16 | 0.45 |
| 1:A:1338:C:H1' | 1:A:1385:C:O2 | 2.17 | 0.45 |
| 1:A:1529:A:H2' | 1:A:1530:U:C6 | 2.51 | 0.45 |
| 1:A:1652:U:C2' | 1:A:1653:A:H5' | 2.46 | 0.45 |
| 1:A:1922:G:H2' | 1:A:1923:C:O4' | 2.16 | 0.45 |
| 1:A:210:A:N3 | 1:A:210:A:H2' | 2.32 | 0.45 |
| 1:A:212:C:HO2' | 1:A:213:C:H6 | 1.61 | 0.45 |
| 1:A:321:U:O2 | 1:A:323:G:H3' | 2.16 | 0.45 |
| 1:A:450:U:C3' | 1:A:451:G:H5' | 2.47 | 0.45 |
| 1:A:50:A:H2' | 1:A:51:A:O4' | 2.16 | 0.45 |
| 2:B:116:A:H2' | 2:B:117:A:H5' | 1.98 | 0.45 |
| 2:B:1492:OMG:H3' | 2:B:1493:U:C5' | 2.45 | 0.45 |
| 2:B:1503:G:H8 | 2:B:1503:G:O5' | 1.99 | 0.45 |
| 1:A:1048:C:H1' | 2:B:33:A:C8 | 2.51 | 0.45 |
| 1:A:1496:A:N6 | 2:B:713:A:N3 | 2.64 | 0.45 |
| 5:E:36:A:H62 | 5:E:184:C:H42 | 1.63 | 0.45 |
| 7:G:63:A:C2' | 7:G:64:U:H5' | 2.46 | 0.45 |
| 7:G:96:C:H2' | 7:G:97:G:O4' | 2.17 | 0.45 |
| 9:I:100:ALA:O | 9:I:119:ARG:NH1 | 2.50 | 0.45 |
| 12:O:124:GLU:HG3 | 12:O:166:TRP:CZ2 | 2.52 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 5:E:121:U:OP1 | 12:O:36:ARG:NH2 | 130.74 | 0.45 |
| 22:Y:43:MET:HE1 | 22:Y:55:TRP:CH2 | 2.52 | 0.45 |
| 1:A:1057:C:H2' | 1:A:1058:G:H8 | 1.80 | 0.45 |
| 1:A:1323:G:H2' | 1:A:1324:C:C6 | 2.52 | 0.45 |
| 1:A:1803:A:C3' | 1:A:1804:A2M:H5'' | 2.46 | 0.45 |
| 1:A:7:C:O2' | 1:A:8:C:H5' | 2.17 | 0.45 |
| 1:A:920:C:C2 | 9:I:147:ARG:NH1 | 2.85 | 0.45 |
| 2:B:1326:U:O2 | 2:B:1361:OMG:N2 | 2.47 | 0.45 |
| 2:B:1495:C:H2' | 2:B:1496:A:H5' | 1.98 | 0.45 |
| 2:B:1564:U:H2' | 2:B:1565:G:H8 | 1.82 | 0.45 |
| 5:E:115:A:OP1 | 17:T:117:ARG:HG3 | 2.17 | 0.45 |
| 7:G:41:A:H61 | 7:G:61:C:N4 | 2.15 | 0.45 |
| 18:U:146:LEU:O | 18:U:146:LEU:HG | 2.17 | 0.45 |
| 18:U:40:VAL:HB | 18:U:96:VAL:CG1 | 2.45 | 0.45 |
| 18:U:91:VAL:HG12 | 18:U:92:ARG:O | 2.17 | 0.45 |
| 18:U:91:VAL:HG13 | 18:U:95:HIS:HB2 | 1.99 | 0.45 |
| 5:E:52:G:OP2 | 19:V:104:ARG:NH2 | 2.49 | 0.45 |
| 19:V:60:ARG:NH1 | 19:V:63:LYS:HZ2 | 2.13 | 0.45 |
| 23:Z:53:VAL:CG2 | 23:Z:101:VAL:HB | 2.46 | 0.45 |
| 1:A:1042:G:H22 | 1:A:1053:OMC:H5 | 1.61 | 0.45 |
| 1:A:1170:G:H1 | 1:A:1221:U:H3 | 1.64 | 0.45 |
| 1:A:1120:G:O2' | 1:A:1299:G:H5' | 2.16 | 0.45 |
| 1:A:1619:G:H2' | 1:A:1620:C:O4' | 2.16 | 0.45 |
| 1:A:393:A:C3' | 1:A:394:C:H5'' | 2.47 | 0.45 |
| 1:A:518:U:H1' | 1:A:586:G:N2 | 2.32 | 0.45 |
| 2:B:1220:G:H2' | 2:B:1221:A:C8 | 2.51 | 0.45 |
| 2:B:684:C:H3' | 2:B:685:C:H2' | 1.98 | 0.45 |
| 6:F:13:U:HO2' | 6:F:14:C:P | 2.35 | 0.45 |
| 7:G:72:C:H5 | 7:G:115:A:N6 | 2.03 | 0.45 |
| 1:A:804:C:H3' | 9:I:111:ARG:HH21 | 1.81 | 0.45 |
| 1:A:964:U:H5' | 11:N:2:PRO:HD3 | 1.96 | 0.45 |
| 11:N:58:ALA:HB1 | 11:N:99:GLY:O | 2.16 | 0.45 |
| 2:B:735:A:H5'' | 15:R:80:LYS:HE2 | 1.99 | 0.45 |
| 19:V:95:LYS:HD2 | 19:V:104:ARG:HE | 1.82 | 0.45 |
| 19:V:86:ARG:HD3 | 19:V:88:LYS:HG2 | 1.99 | 0.45 |
| 1:A:1057:C:H2' | 1:A:1058:G:C8 | 2.51 | 0.45 |
| 1:A:1119:A:H1' | 1:A:1297:U:O2' | 2.16 | 0.45 |
| 1:A:445:G:H5'' | 1:A:448:C:O2' | 2.17 | 0.45 |
| 1:A:738:U:C2' | 1:A:739:U:H5' | 2.47 | 0.45 |
| 1:A:809:G:H2' | 1:A:810:A:H1' | 1.99 | 0.45 |
| 1:A:874:G:H3' | 1:A:919:OMC:HN42 | 1.82 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:1382:C:H2' | 2:B:1383:A:C8 | 2.52 | 0.45 |
| 2:B:1447:G:O2' | 2:B:1493:U:O2' | 2.31 | 0.45 |
| 2:B:1533:C:C2' | 2:B:1534:G:H5' | 2.47 | 0.45 |
| 1:A:1666:G:O2' | 3:C:14:G:H4' | 2.17 | 0.45 |
| 4:D:13:A:OP1 | 4:D:109:U:O2' | 2.34 | 0.45 |
| 4:D:77:A:H61 | 4:D:99:G:C2' | 2.29 | 0.45 |
| 7:G:43:G:O5' | 7:G:43:G:H8 | 2.00 | 0.45 |
| 8:H:20:A:H2' | 8:H:21:G:C5' | 2.33 | 0.45 |
| 13:P:12:LEU:O | 13:P:59:LEU:HB2 | 2.17 | 0.45 |
| 14:Q:54:ARG:HB2 | 14:Q:78:PHE:CE1 | 2.52 | 0.45 |
| 15:R:150:MET:HG3 | 15:R:150:MET:O | 2.17 | 0.45 |
| 16:S:11:VAL:HG13 | 16:S:60:VAL:CG2 | 2.46 | 0.45 |
| 22:Y:8:PHE:CE2 | 22:Y:53:VAL:HG21 | 2.52 | 0.45 |
| 3:C:72:A:OP2 | 23:Z:49:LYS:HG3 | 2.16 | 0.45 |
| 1:A:1610:A:C2 | 1:A:1646:A:N1 | 2.76 | 0.45 |
| 1:A:1804:A2M:HM'3 | 21:X:91:ARG:NH1 | 2.29 | 0.45 |
| 1:A:315:A:O2' | 1:A:316:C:H5' | 2.16 | 0.45 |
| 1:A:811:G:H2' | 1:A:812:A:C8 | 2.52 | 0.45 |
| 1:A:868:U:O2' | 1:A:951:G:N2 | 2.49 | 0.45 |
| 2:B:1300:A:O2' | 2:B:1301:C:H5' | 2.17 | 0.45 |
| 5:E:128:G:H2' | 5:E:128:G:N3 | 2.32 | 0.45 |
| 5:E:32:A:H2' | 5:E:33:A:H5' | 1.99 | 0.45 |
| 9:I:153:ARG:O | 9:I:156:VAL:HG22 | 2.17 | 0.45 |
| 12:O:126:ILE:CD1 | 12:O:130:VAL:HG12 | 2.47 | 0.45 |
| 12:O:21:ARG:CG | 12:O:22:PRO:HD2 | 2.46 | 0.45 |
| 16:S:32:PHE:HD2 | 16:S:125:VAL:HG11 | 1.82 | 0.45 |
| 18:U:43:VAL:HG23 | 18:U:58:HIS:HE1 | 1.82 | 0.45 |
| 20:W:25:VAL:HB | 20:W:100:ASN:O | 2.17 | 0.45 |
| 20:W:95:ILE:HG13 | 22:Y:20:ARG:HB2 | 1.99 | 0.45 |
| 1:A:127:G:OP2 | 14:Q:156:ARG:NH1 | 2.45 | 0.45 |
| 1:A:1342:U:H5' | 9:I:2:GLY:CA | 2.42 | 0.45 |
| 1:A:1779:A:HO2' | 1:A:1780:C:P | 2.37 | 0.45 |
| 1:A:355:U:C2' | 1:A:356:G:H5' | 2.46 | 0.45 |
| 1:A:73:G:OP1 | 11:N:110:SER:OG | 2.20 | 0.45 |
| 1:A:752:U:C2' | 1:A:753:G:H5' | 2.47 | 0.45 |
| 1:A:794:A2M:OP1 | 14:Q:220:ARG:NH1 | 2.49 | 0.45 |
| 2:B:627:A2M:H8 | 2:B:627:A2M:H2' | 1.80 | 0.45 |
| 2:B:691:A2M:H1' | 2:B:691:A2M:HM'3 | 1.63 | 0.45 |
| 5:E:68:A:H2' | 5:E:69:A:C8 | 2.52 | 0.45 |
| 1:A:29:G:H5'' | 14:Q:188:ARG:HD3 | 1.98 | 0.45 |
| 15:R:116:HIS:CE1 | 15:R:147:GLN:HE21 | 2.28 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:S:173:THR:CG2 | 16:S:174:LYS:N | 2.80 | 0.45 |
| 18:U:77:ASN:OD1 | 18:U:86:ARG:HG3 | 2.17 | 0.45 |
| 21:X:109:TRP:CE2 | 21:X:113:ARG:NH1 | 2.85 | 0.45 |
| 23:Z:103:ILE:HG21 | 23:Z:106:LEU:HB3 | 1.98 | 0.45 |
| 1:A:1507:G:O2' | 1:A:1508:C:H5' | 2.17 | 0.45 |
| 1:A:1616:G:C1' | 1:A:1643:A:N6 | 2.79 | 0.45 |
| 1:A:1799:U:H5' | 1:A:1800:A:OP1 | 2.17 | 0.45 |
| 1:A:1798:U:H2' | 1:A:1800:A:H5' | 1.99 | 0.45 |
| 1:A:26:C:H42 | 1:A:56:A:N6 | 2.15 | 0.45 |
| 2:B:131:G:OP1 | 17:T:136:ARG:NE | 2.42 | 0.45 |
| 1:A:1492:A:H1' | 2:B:1455:C:H1' | 1.98 | 0.45 |
| 2:B:725:U:H6 | 2:B:725:U:O5' | 2.00 | 0.45 |
| 2:B:870:A:N7 | 21:X:82:PRO:HG3 | 2.32 | 0.45 |
| 4:D:49:A:OP2 | 4:D:49:A:H8 | 2.00 | 0.45 |
| 8:H:41:A:O2' | 8:H:42:U:O4' | 2.35 | 0.45 |
| 10:L:77:VAL:CG1 | 10:L:78:ARG:N | 2.80 | 0.45 |
| 15:R:48:TYR:CA | 15:R:51:VAL:HG12 | 2.38 | 0.45 |
| 13:P:67:ARG:NH1 | 16:S:144:TYR:O | 2.34 | 0.45 |
| 22:Y:27:LEU:HG | 22:Y:29:THR:HB | 1.98 | 0.45 |
| 22:Y:6:CYS:SG | 22:Y:35:PHE:HA | 2.56 | 0.45 |
| 1:A:135:A:HO2' | 1:A:136:G:P | 2.39 | 0.44 |
| 1:A:188:G:H2' | 1:A:189:U:H6 | 1.81 | 0.44 |
| 1:A:239:A:H2' | 1:A:240:G:H5'' | 2.00 | 0.44 |
| 1:A:50:A:C2' | 1:A:51:A:H5' | 2.46 | 0.44 |
| 1:A:601:U:O2' | 1:A:602:G:H5' | 2.17 | 0.44 |
| 1:A:957:U:H2' | 1:A:958:OMG:H8 | 1.82 | 0.44 |
| 2:B:1229:G:H2' | 2:B:1230:G:H8 | 1.82 | 0.44 |
| 2:B:458:G:H2' | 2:B:459:C:O2 | 2.17 | 0.44 |
| 2:B:787:C:H6 | 2:B:787:C:O5' | 2.00 | 0.44 |
| 3:C:146:U:O2' | 3:C:147:G:H5' | 2.17 | 0.44 |
| 3:C:8:C:O2' | 3:C:9:G:H5' | 2.17 | 0.44 |
| 7:G:166:G:H4' | 7:G:167:A:O5' | 2.16 | 0.44 |
| 9:I:44:PHE:CZ | 9:I:133:LEU:HD21 | 2.52 | 0.44 |
| 12:O:212:ASN:HB3 | 13:P:116:ALA:CB | 2.47 | 0.44 |
| 2:B:702:A:O2' | 15:R:129:THR:HG21 | 2.17 | 0.44 |
| 20:W:86:SER:HA | 20:W:96:TYR:HB3 | 1.99 | 0.44 |
| 22:Y:8:PHE:CE2 | 22:Y:43:MET:HG2 | 2.52 | 0.44 |
| 1:A:105:G:O2' | 1:A:813:A:H4' | 2.18 | 0.44 |
| 1:A:1118:A:H5'' | 1:A:1326:A:N1 | 2.32 | 0.44 |
| 1:A:1618:A:C2' | 1:A:1619:G:H5' | 2.47 | 0.44 |
| 1:A:1640:U:H2' | 1:A:1641:G:O4' | 2.17 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1709:C:H2' | 1:A:1710:OMG:H8 | 1.82 | 0.44 |
| 1:A:1711:U:C2' | 1:A:1712:U:H5' | 2.47 | 0.44 |
| 1:A:1921:G:C2' | 1:A:1922:G:H5' | 2.46 | 0.44 |
| 1:A:214:G:H1' | 1:A:215:U:OP2 | 2.17 | 0.44 |
| 1:A:24:U:H5'' | 1:A:25:A:OP1 | 2.17 | 0.44 |
| 1:A:421:G:C2' | 1:A:446:A:N6 | 2.81 | 0.44 |
| 1:A:1123:U:O2' | 2:B:1287:A:N7 | 2.34 | 0.44 |
| 2:B:67:G:H22 | 2:B:694:A:H61 | 1.64 | 0.44 |
| 2:B:698:A:OP2 | 15:R:82:ARG:HD2 | 2.17 | 0.44 |
| 3:C:147:G:O2' | 3:C:148:C:H5' | 2.17 | 0.44 |
| 8:H:121:A:H2' | 8:H:122:U:H6 | 1.80 | 0.44 |
| 10:L:137:LEU:HD22 | 10:L:168:TRP:CD2 | 2.52 | 0.44 |
| 12:O:60:THR:HG21 | 12:O:144:ARG:HD3 | 1.99 | 0.44 |
| 13:P:129:ASP:HA | 13:P:132:ASP:HB2 | 1.99 | 0.44 |
| 14:Q:201:ARG:HA | 14:Q:201:ARG:HD2 | 1.65 | 0.44 |
| 16:S:119:ARG:HH21 | 16:S:122:ASN:HD21 | 1.65 | 0.44 |
| 18:U:52:MET:HA | 18:U:53:PRO:HD3 | 1.71 | 0.44 |
| 18:U:75:ILE:HG12 | 18:U:88:ARG:HD3 | 1.97 | 0.44 |
| 23:Z:85:GLU:CG | 23:Z:89:GLY:HA2 | 2.47 | 0.44 |
| 1:A:1331:G:O2' | 1:A:1332:A:H5' | 2.17 | 0.44 |
| 1:A:139:A:H2' | 1:A:140:C:O4' | 2.16 | 0.44 |
| 2:B:1197:C:O2 | 18:U:60:ARG:NH2 | 2.29 | 0.44 |
| 2:B:1366:G:OP2 | 2:B:1367:U:O2' | 2.26 | 0.44 |
| 2:B:546:U:O4 | 49:B:1801:HOH:O | 2.18 | 0.44 |
| 2:B:635:U:O2' | 2:B:636:C:H5' | 2.17 | 0.44 |
| 2:B:773:C:H2' | 2:B:774:U:H6 | 1.82 | 0.44 |
| 2:B:87:U:H6 | 2:B:87:U:O5' | 2.01 | 0.44 |
| 1:A:17:G:N2 | 3:C:153:C:C2 | 2.85 | 0.44 |
| 4:D:109:U:O2' | 4:D:110:G:P | 2.75 | 0.44 |
| 9:I:108:CYS:HA | 9:I:128:LEU:O | 2.17 | 0.44 |
| 9:I:55:SER:HB2 | 9:I:58:ASN:HD22 | 1.83 | 0.44 |
| 3:C:153:C:OP1 | 14:Q:54:ARG:HD2 | 2.17 | 0.44 |
| 1:A:34:A:H5'' | 14:Q:98:GLY:HA3 | 1.98 | 0.44 |
| 15:R:35:VAL:CG2 | 15:R:59:PRO:HD2 | 2.48 | 0.44 |
| 19:V:68:VAL:HG12 | 19:V:68:VAL:O | 2.17 | 0.44 |
| 20:W:17:LEU:HA | 20:W:55:ALA:HB2 | 1.99 | 0.44 |
| 1:A:147:U:H3' | 1:A:148:G:C5' | 2.47 | 0.44 |
| 1:A:224:A:C2' | 1:A:225:C:H5' | 2.48 | 0.44 |
| 2:B:1289:U:C2' | 2:B:1290:A:H5' | 2.47 | 0.44 |
| 2:B:1306:A:H2' | 2:B:1307:A:O4' | 2.17 | 0.44 |
| 2:B:1540:C:HO2' | 2:B:1541:A:H2 | 1.63 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:569:G:H8 | 2:B:569:G:OP2 | 1.99 | 0.44 |
| 2:B:663:A:H2' | 2:B:664:U:H5' | 1.98 | 0.44 |
| 2:B:680:U:H2' | 2:B:681:G:H5' | 2.00 | 0.44 |
| 4:D:24:U:H5'' | 4:D:25:G:OP2 | 2.17 | 0.44 |
| 5:E:199:A:H2' | 5:E:200:A:C8 | 2.53 | 0.44 |
| 5:E:50:G:O2' | 5:E:51:A:H5' | 2.16 | 0.44 |
| 6:F:47:C:H5'' | 13:P:121:ALA:HB1 | 2.00 | 0.44 |
| 2:B:1561:A:O2' | 8:H:19:G:N7 | 2.45 | 0.44 |
| 9:I:51:ARG:HG2 | 9:I:51:ARG:HH11 | 1.81 | 0.44 |
| 12:O:103:ARG:HB3 | 12:O:117:LEU:HD22 | 1.99 | 0.44 |
| 12:O:32:HIS:CE1 | 12:O:139:ILE:H | 2.36 | 0.44 |
| 12:O:219:PHE:O | 13:P:98:ALA:HB1 | 2.18 | 0.44 |
| 16:S:112:LEU:HA | 16:S:112:LEU:HD12 | 1.72 | 0.44 |
| 21:X:86:ARG:HA | 21:X:87:PRO:HD3 | 1.74 | 0.44 |
| 21:X:92:ARG:HA | 21:X:93:PRO:HD3 | 1.76 | 0.44 |
| 22:Y:57:ARG:HG2 | 22:Y:61:ARG:HG3 | 1.98 | 0.44 |
| 1:A:1771:U:C3' | 1:A:1772:A:H5'' | 2.46 | 0.44 |
| 1:A:790:G:H4' | 1:A:791:U:H6 | 1.83 | 0.44 |
| 1:A:1316:OMG:HM23 | 2:B:1177:G:C6 | 2.52 | 0.44 |
| 2:B:1361:OMG:HM23 | 2:B:1361:OMG:H1' | 1.46 | 0.44 |
| 2:B:1502:U:OP1 | 20:W:43:GLY:N | 2.48 | 0.44 |
| 2:B:656:U:O5' | 2:B:656:U:H6 | 2.00 | 0.44 |
| 5:E:134:U:H2' | 5:E:135:C:C6 | 2.53 | 0.44 |
| 10:L:20:VAL:CA | 10:L:137:LEU:HG | 2.39 | 0.44 |
| 10:L:139:ARG:HH12 | 10:L:160:VAL:HA | 1.82 | 0.44 |
| 1:A:18:C:C4' | 14:Q:154:MET:SD | 3.02 | 0.44 |
| 17:T:98:ARG:O | 17:T:98:ARG:HG2 | 2.17 | 0.44 |
| 19:V:108:ARG:NH1 | 19:V:122:PHE:HA | 2.33 | 0.44 |
| 22:Y:51:ARG:HA | 22:Y:58:THR:HG23 | 1.99 | 0.44 |
| 1:A:266:C:OP1 | 23:Z:44:ALA:HB2 | 2.18 | 0.44 |
| 1:A:146:U:H5' | 1:A:147:U:P | 2.58 | 0.44 |
| 1:A:1528:U:H2' | 1:A:1529:A:C8 | 2.52 | 0.44 |
| 1:A:1782:A:H2' | 1:A:1783:C:O4' | 2.17 | 0.44 |
| 2:B:1484:G:H2' | 2:B:1485:U:O4' | 2.17 | 0.44 |
| 2:B:1530:C:H2' | 2:B:1531:G:C8 | 2.53 | 0.44 |
| 2:B:1574:G:H4' | 2:B:1575:A:H5'' | 2.00 | 0.44 |
| 2:B:785:G:O6 | 2:B:786:G:C6 | 2.70 | 0.44 |
| 3:C:49:G:H8 | 3:C:49:G:O5' | 2.00 | 0.44 |
| 7:G:41:A:N6 | 7:G:61:C:H42 | 2.15 | 0.44 |
| 7:G:81:C:N3 | 7:G:109:G:N2 | 2.44 | 0.44 |
| 13:P:7:ILE:HG21 | 16:S:153:LEU:HD11 | 1.99 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 16:S:74:ARG:HD2 | 16:S:76:TYR:CZ | 2.52 | 0.44 |
| 17:T:10:LEU:HD22 | 17:T:38:ARG:HG2 | 1.99 | 0.44 |
| 2:B:1257:G:H5'' | 18:U:12:ARG:NH1 | 2.33 | 0.44 |
| 21:X:188:ALA:O | 21:X:193:LEU:HB2 | 2.17 | 0.44 |
| 20:W:94:VAL:CG1 | 22:Y:19:ARG:HB3 | 2.47 | 0.44 |
| 1:A:1054:G:H2' | 1:A:1055:C:C6 | 2.53 | 0.44 |
| 1:A:1616:G:C1' | 1:A:1643:A:H61 | 2.31 | 0.44 |
| 1:A:54:G:H4' | 14:Q:124:LYS:HZ2 | 1.82 | 0.44 |
| 1:A:7:C:N3 | 3:C:166:OMG:N1 | 2.58 | 0.44 |
| 2:B:21:OMC:H4' | 2:B:22:A:N3 | 2.33 | 0.44 |
| 2:B:515:U:H5'' | 2:B:516:G:OP2 | 2.17 | 0.44 |
| 1:A:468:A:N3 | 2:B:709:A:H4' | 2.33 | 0.44 |
| 3:C:96:A:C2' | 3:C:97:U:H5' | 2.48 | 0.44 |
| 5:E:50:G:O6 | 19:V:88:LYS:NZ | 2.46 | 0.44 |
| 7:G:119:C:H2' | 7:G:120:A:H8 | 1.83 | 0.44 |
| 7:G:63:A:H2' | 7:G:64:U:O4' | 2.17 | 0.44 |
| 9:I:139:THR:HG22 | 9:I:140:GLY:N | 2.32 | 0.44 |
| 9:I:85:PRO:HA | 9:I:142:ASN:O | 2.18 | 0.44 |
| 12:O:124:GLU:HG3 | 12:O:166:TRP:HZ2 | 1.82 | 0.44 |
| 15:R:128:ARG:HE | 15:R:136:ILE:HG21 | 1.81 | 0.44 |
| 1:A:1023:G:C6 | 1:A:1024:G:N1 | 2.86 | 0.44 |
| 1:A:1036:G:C2' | 1:A:1037:A:H5' | 2.48 | 0.44 |
| 1:A:144:A:H2' | 1:A:145:G:C5' | 2.48 | 0.44 |
| 1:A:1494:G:O6 | 2:B:712:C:O2' | 2.36 | 0.44 |
| 1:A:1511:A:O2' | 1:A:1512:A:H5' | 2.18 | 0.44 |
| 1:A:1712:U:H5'' | 17:T:4:LEU:CD1 | 2.48 | 0.44 |
| 1:A:1760:A:C2' | 1:A:1761:G:H5' | 2.48 | 0.44 |
| 1:A:386:A:N1 | 1:A:393:A:O2' | 2.46 | 0.44 |
| 2:B:1273:G:H8 | 2:B:1311:A:H2' | 1.82 | 0.44 |
| 2:B:69:A:OP2 | 8:H:107:A:N6 | 2.50 | 0.44 |
| 2:B:709:A:C2' | 2:B:710:G:H5' | 2.47 | 0.44 |
| 1:A:452:A:H62 | 3:C:15:G:H1' | 1.81 | 0.44 |
| 4:D:116:A:C2' | 4:D:117:U:H5' | 2.48 | 0.44 |
| 5:E:127:C:H2' | 5:E:128:G:O4' | 2.16 | 0.44 |
| 7:G:124:U:H6 | 7:G:124:U:OP2 | 2.00 | 0.44 |
| 8:H:41:A:HO2' | 8:H:42:U:H6 | 1.63 | 0.44 |
| 9:I:25:TYR:O | 9:I:29:LEU:HB2 | 2.18 | 0.44 |
| 9:I:66:ARG:CZ | 9:I:70:CYS:SG | 3.06 | 0.44 |
| 11:N:184:LYS:NZ | 11:N:186:VAL:HG12 | 2.33 | 0.44 |
| 12:O:93:SER:O | 12:O:97:ILE:HG13 | 2.18 | 0.44 |
| 13:P:81:LYS:HB3 | 13:P:86:LYS:HZ1 | 1.82 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 20:W:28:ALA:CB | 20:W:81:ILE:HD11 | 2.47 | 0.44 |
| 21:X:147:ILE:CD1 | 21:X:164:THR:HG21 | 2.47 | 0.44 |
| 1:A:239:A:H1' | 1:A:259:G:N3 | 2.33 | 0.44 |
| 1:A:27:C:H2' | 1:A:28:C:C6 | 2.53 | 0.44 |
| 1:A:324:G:OP2 | 1:A:326:G:H4' | 2.17 | 0.44 |
| 1:A:590:G:H2' | 1:A:591:A:O4' | 2.17 | 0.44 |
| 1:A:92:G:H4' | 1:A:92:G:OP1 | 2.17 | 0.44 |
| 2:B:1299:G:O2' | 2:B:1300:A:H5' | 2.18 | 0.44 |
| 3:C:121:G:H2' | 3:C:122:A:C8 | 2.53 | 0.44 |
| 5:E:115:A:C2' | 5:E:116:G:H5' | 2.48 | 0.44 |
| 7:G:115:A:O2' | 7:G:117:C:H2' | 2.18 | 0.44 |
| 7:G:39:C:O2' | 7:G:40:G:H5' | 2.18 | 0.44 |
| 12:O:27:VAL:HA | 12:O:137:VAL:CG2 | 2.48 | 0.44 |
| 14:Q:99:LYS:HA | 14:Q:100:PRO:HD3 | 1.76 | 0.44 |
| 23:Z:118:ARG:HG3 | 23:Z:118:ARG:O | 2.18 | 0.44 |
| 1:A:107:U:O4' | 1:A:367:A:H1' | 2.17 | 0.43 |
| 1:A:347:U:H3' | 1:A:347:U:OP1 | 2.17 | 0.43 |
| 2:B:68:A:H4' | 2:B:69:A:OP1 | 2.15 | 0.43 |
| 4:D:68:C:O2' | 4:D:69:U:H5' | 2.18 | 0.43 |
| 12:O:24:ILE:HG23 | 12:O:50:LYS:O | 2.18 | 0.43 |
| 14:Q:188:ARG:HH11 | 14:Q:190:LEU:HD12 | 1.83 | 0.43 |
| 16:S:29:PHE:HB3 | 16:S:43:PHE:HD1 | 1.82 | 0.43 |
| 17:T:92:LYS:O | 17:T:96:MET:HG3 | 2.18 | 0.43 |
| 18:U:107:GLN:O | 18:U:110:LYS:HB3 | 2.18 | 0.43 |
| 23:Z:83:ASN:HB2 | 23:Z:92:VAL:O | 2.19 | 0.43 |
| 1:A:1023:G:OP1 | 17:T:92:LYS:NZ | 2.51 | 0.43 |
| 1:A:1613:G:O2' | 1:A:1643:A:N1 | 2.38 | 0.43 |
| 1:A:1604:G:C6 | 1:A:1653:A:C2 | 3.06 | 0.43 |
| 1:A:1740:G:C2 | 1:A:1741:C:H1' | 2.53 | 0.43 |
| 1:A:1794:U:O5' | 1:A:1794:U:H6 | 2.01 | 0.43 |
| 1:A:313:G:H2' | 1:A:314:C:O4' | 2.18 | 0.43 |
| 1:A:794:A2M:HM'2 | 1:A:795:A:O4' | 2.18 | 0.43 |
| 2:B:1174:G:H2' | 2:B:1175:C:C6 | 2.54 | 0.43 |
| 2:B:1643:C:H6 | 2:B:1643:C:C5' | 2.29 | 0.43 |
| 3:C:105:OMC:H5' | 3:C:107:C:OP2 | 2.18 | 0.43 |
| 4:D:13:A:H5'' | 4:D:109:U:HO2' | 1.83 | 0.43 |
| 7:G:38:A:H2' | 7:G:39:C:H6 | 1.82 | 0.43 |
| 7:G:41:A:H61 | 7:G:61:C:H42 | 1.66 | 0.43 |
| 9:I:114:LYS:O | 9:I:118:GLU:HG2 | 2.18 | 0.43 |
| 1:A:948:G:OP1 | 9:I:157:LYS:HD2 | 2.18 | 0.43 |
| 1:A:868:U:O2' | 9:I:69:VAL:HG11 | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 10:L:106:GLY:HA2 | 10:L:165:ALA:HB2 | 2.00 | 0.43 |
| 12:O:166:TRP:CZ3 | 12:O:169:SER:HA | 2.53 | 0.43 |
| 13:P:76:ASN:O | 13:P:79:ALA:HB3 | 2.18 | 0.43 |
| 12:O:219:PHE:C | 13:P:98:ALA:HB1 | 2.38 | 0.43 |
| 14:Q:164:ILE:O | 14:Q:164:ILE:HG13 | 2.18 | 0.43 |
| 1:A:793:A:O3' | 14:Q:220:ARG:NH1 | 2.51 | 0.43 |
| 15:R:129:THR:OG1 | 15:R:137:THR:N | 2.51 | 0.43 |
| 15:R:15:ALA:HB2 | 15:R:102:ALA:HA | 2.00 | 0.43 |
| 19:V:48:GLU:HG3 | 19:V:72:LEU:CD1 | 2.46 | 0.43 |
| 19:V:86:ARG:CD | 19:V:88:LYS:HG2 | 2.47 | 0.43 |
| 20:W:81:ILE:HG12 | 20:W:101:ALA:O | 2.18 | 0.43 |
| 1:A:131:U:H3' | 1:A:132:U:H5'' | 1.99 | 0.43 |
| 1:A:1538:G:O2' | 1:A:1540:A:O5' | 2.34 | 0.43 |
| 1:A:45:U:H2' | 1:A:46:U:O4' | 2.18 | 0.43 |
| 1:A:842:U:H2' | 1:A:843:G:C8 | 2.53 | 0.43 |
| 2:B:1268:U:H2' | 2:B:1269:G:C8 | 2.53 | 0.43 |
| 2:B:1643:C:N4 | 2:B:1647:G:H1 | 2.16 | 0.43 |
| 5:E:182:U:H2' | 5:E:183:U:H5' | 2.00 | 0.43 |
| 7:G:100:A:O2' | 7:G:101:A:H5' | 2.18 | 0.43 |
| 12:O:205:LEU:O | 12:O:213:LEU:HD12 | 2.18 | 0.43 |
| 19:V:72:LEU:CD1 | 19:V:77:LEU:HD23 | 2.48 | 0.43 |
| 20:W:62:ALA:O | 20:W:76:LEU:HB2 | 2.18 | 0.43 |
| 20:W:81:ILE:HD12 | 20:W:120:VAL:HG22 | 2.00 | 0.43 |
| 1:A:1025:A:O2' | 1:A:1026:G:H5' | 2.18 | 0.43 |
| 1:A:305:A:H2' | 1:A:306:G:O4' | 2.18 | 0.43 |
| 1:A:431:A:C5 | 1:A:432:A:H1' | 2.53 | 0.43 |
| 2:B:766:C:H2' | 2:B:767:OMU:H6 | 1.99 | 0.43 |
| 2:B:93:A:H2' | 2:B:94:A:O4' | 2.19 | 0.43 |
| 3:C:22:U:H4' | 23:Z:14:ARG:HB2 | 2.00 | 0.43 |
| 15:R:151:THR:HG22 | 15:R:152:GLN:N | 2.33 | 0.43 |
| 16:S:9:TYR:HB2 | 16:S:31:VAL:HG23 | 1.99 | 0.43 |
| 17:T:119:ILE:O | 17:T:122:GLU:HB3 | 2.19 | 0.43 |
| 1:A:1712:U:H5'' | 17:T:4:LEU:HD12 | 2.00 | 0.43 |
| 18:U:109:GLN:HA | 18:U:112:PHE:HB3 | 2.00 | 0.43 |
| 1:A:1570:A:C2' | 1:A:1571:G:H5' | 2.49 | 0.43 |
| 1:A:1934:C:H2' | 1:A:1935:U:C6 | 2.54 | 0.43 |
| 1:A:195:U:OP1 | 1:A:196:C:H5'' | 2.18 | 0.43 |
| 1:A:771:U:O5' | 1:A:771:U:H6 | 2.01 | 0.43 |
| 1:A:804:C:H3' | 9:I:111:ARG:NH2 | 2.33 | 0.43 |
| 2:B:10:C:O2' | 2:B:11:A:H5' | 2.19 | 0.43 |
| 2:B:1529:OMC:HM22 | 2:B:1530:C:C4' | 2.47 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:F:44:C:C5 | 13:P:95:ARG:HD2 | 2.54 | 0.43 |
| 9:I:158:HIS:O | 11:N:5:LYS:NZ | 2.48 | 0.43 |
| 4:D:43:U:OP1 | 10:L:143:ARG:HG3 | 2.17 | 0.43 |
| 12:O:99:LEU:CD1 | 12:O:122:ALA:CB | 2.96 | 0.43 |
| 14:Q:172:HIS:HB3 | 14:Q:175:ARG:CG | 2.47 | 0.43 |
| 14:Q:44:TRP:HA | 14:Q:47:ARG:NH2 | 2.29 | 0.43 |
| 15:R:151:THR:HG22 | 15:R:152:GLN:O | 2.19 | 0.43 |
| 15:R:99:GLU:O | 15:R:103:ILE:HG13 | 2.19 | 0.43 |
| 20:W:77:ASN:HB2 | 20:W:105:VAL:O | 2.18 | 0.43 |
| 20:W:36:LEU:HD13 | 20:W:78:ALA:CB | 2.48 | 0.43 |
| 22:Y:30:LYS:HE2 | 22:Y:30:LYS:HB2 | 1.80 | 0.43 |
| 23:Z:60:TYR:CZ | 23:Z:94:VAL:HG11 | 2.53 | 0.43 |
| 1:A:814:G:OP1 | 11:N:44:ARG:NH1 | 2.47 | 0.43 |
| 2:B:1288:G:H5' | 18:U:83:ARG:NH1 | 2.34 | 0.43 |
| 3:C:104:A:H1' | 3:C:105:OMC:HM23 | 2.00 | 0.43 |
| 5:E:203:C:H2' | 5:E:204:C:C6 | 2.54 | 0.43 |
| 8:H:42:U:H1' | 8:H:100:A:C4 | 2.53 | 0.43 |
| 13:P:81:LYS:O | 13:P:86:LYS:HE2 | 2.18 | 0.43 |
| 1:A:18:C:C5' | 14:Q:154:MET:SD | 3.07 | 0.43 |
| 14:Q:197:ALA:O | 14:Q:201:ARG:HB2 | 2.19 | 0.43 |
| 14:Q:95:ILE:HG22 | 14:Q:96:THR:N | 2.32 | 0.43 |
| 16:S:81:ALA:HB2 | 16:S:126:LEU:HD11 | 1.99 | 0.43 |
| 16:S:141:ILE:HD12 | 16:S:145:HIS:NE2 | 2.33 | 0.43 |
| 17:T:102:LEU:HD21 | 17:T:134:ASN:O | 2.19 | 0.43 |
| 17:T:136:ARG:CA | 17:T:139:MET:HB3 | 2.31 | 0.43 |
| 2:B:55:C:O3' | 17:T:56:LYS:HB3 | 2.18 | 0.43 |
| 19:V:109:ILE:HD12 | 19:V:109:ILE:H | 1.84 | 0.43 |
| 20:W:87:TRP:O | 20:W:94:VAL:HA | 2.19 | 0.43 |
| 1:A:1098:C:H3' | 1:A:1099:U:H2' | 2.00 | 0.43 |
| 1:A:1685:A:O2' | 1:A:1686:A:H5' | 2.18 | 0.43 |
| 1:A:960:C:H2' | 1:A:961:U:O4' | 2.19 | 0.43 |
| 2:B:1180:G:H2' | 2:B:1181:C:H5' | 2.01 | 0.43 |
| 2:B:504:A:OP1 | 2:B:505:U:H5 | 2.02 | 0.43 |
| 2:B:673:U:H2' | 2:B:674:U:C6 | 2.54 | 0.43 |
| 2:B:709:A:O2' | 2:B:710:G:H5' | 2.18 | 0.43 |
| 2:B:761:U:C2' | 2:B:762:U:H5' | 2.49 | 0.43 |
| 8:H:41:A:O2' | 8:H:42:U:H6 | 2.02 | 0.43 |
| 11:N:79:GLY:HA2 | 11:N:101:ARG:HB2 | 2.00 | 0.43 |
| 12:O:208:VAL:HG12 | 13:P:123:TRP:NE1 | 2.34 | 0.43 |
| 20:W:87:TRP:NE1 | 20:W:123:GLU:OE2 | 2.51 | 0.43 |
| 23:Z:51:ASP:CB | 23:Z:106:LEU:HA | 2.43 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1027:G:O2' | 1:A:1062:G:H4' | 2.19 | 0.43 |
| 1:A:1071:A2M:HM'3 | 1:A:1071:A2M:H1' | 1.63 | 0.43 |
| 1:A:1681:A:H4' | 1:A:1682:U:O5' | 2.19 | 0.43 |
| 1:A:249:C:H2' | 1:A:250:A:C5' | 2.48 | 0.43 |
| 2:B:1267:U:H2' | 2:B:1268:U:H5' | 2.01 | 0.43 |
| 2:B:1177:G:O2' | 2:B:1435:U:OP1 | 2.28 | 0.43 |
| 2:B:469:G:O2' | 2:B:470:G:H5' | 2.19 | 0.43 |
| 2:B:493:A:H2' | 2:B:494:U:O4' | 2.19 | 0.43 |
| 1:A:453:A:N6 | 3:C:14:G:H1' | 2.34 | 0.43 |
| 3:C:155:U:O2' | 3:C:156:A:H5' | 2.18 | 0.43 |
| 1:A:1623:A:H2 | 3:C:8:C:C4' | 2.32 | 0.43 |
| 5:E:121:U:H2' | 5:E:122:C:O4' | 2.18 | 0.43 |
| 6:F:8:C:H2' | 6:F:9:C:H5' | 2.00 | 0.43 |
| 11:N:61:PRO:CD | 11:N:79:GLY:H | 2.32 | 0.43 |
| 15:R:6:ARG:HE | 15:R:116:HIS:HD2 | 1.66 | 0.43 |
| 15:R:118:GLN:OE1 | 15:R:147:GLN:NE2 | 2.51 | 0.43 |
| 15:R:35:VAL:CG2 | 15:R:58:ILE:HG23 | 2.48 | 0.43 |
| 16:S:99:VAL:HG12 | 16:S:99:VAL:O | 2.19 | 0.43 |
| 2:B:1257:G:H5'' | 18:U:12:ARG:HH12 | 1.84 | 0.43 |
| 23:Z:53:VAL:HG21 | 23:Z:101:VAL:HG21 | 2.01 | 0.43 |
| 1:A:329:C:O3' | 14:Q:187:HIS:HA | 2.19 | 0.43 |
| 1:A:752:U:O2' | 1:A:753:G:H5' | 2.19 | 0.43 |
| 1:A:480:U:H1' | 1:A:755:G:N2 | 2.33 | 0.43 |
| 1:A:78:U:H2' | 1:A:79:C:O4' | 2.19 | 0.43 |
| 1:A:106:A:H5'' | 1:A:814:G:H5' | 2.01 | 0.43 |
| 2:B:1435:U:C3' | 2:B:1436:C:H5' | 2.48 | 0.43 |
| 2:B:1458:A:C2' | 2:B:1480:A:H61 | 2.32 | 0.43 |
| 2:B:1642:A:N3 | 2:B:1642:A:C2' | 2.82 | 0.43 |
| 2:B:763:U:C2' | 2:B:764:G:H5'' | 2.48 | 0.43 |
| 2:B:82:G:H2' | 2:B:83:G:O4' | 2.19 | 0.43 |
| 2:B:909:C:H2' | 2:B:910:G:C8 | 2.54 | 0.43 |
| 3:C:45:C:H2' | 3:C:46:G:O4' | 2.19 | 0.43 |
| 6:F:49:C:C5 | 13:P:114:ARG:HD2 | 2.53 | 0.43 |
| 13:P:73:THR:O | 13:P:77:VAL:HG23 | 2.19 | 0.43 |
| 15:R:48:TYR:CE2 | 15:R:91:MET:HB3 | 2.53 | 0.43 |
| 16:S:119:ARG:NH2 | 16:S:122:ASN:HD21 | 2.16 | 0.43 |
| 21:X:108:LYS:HE2 | 21:X:108:LYS:HB2 | 1.59 | 0.43 |
| 1:A:1078:C:H2' | 1:A:1079:G:C8 | 2.54 | 0.43 |
| 1:A:1921:G:O2' | 1:A:1922:G:H5' | 2.18 | 0.43 |
| 1:A:766:C:O2' | 1:A:767:C:P | 2.74 | 0.43 |
| 1:A:983:A:H4' | 1:A:984:A:H5' | 2.00 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:B:1175:C:O2' | 2:B:1176:U:H5' | 2.19 | 0.43 |
| 2:B:1282:U:H2' | 2:B:1283:U:C6 | 2.53 | 0.43 |
| 2:B:1379:C:H2' | 2:B:1380:OMC:H4' | 1.99 | 0.43 |
| 2:B:1649:A:C5' | 2:B:1649:A:H8 | 2.32 | 0.43 |
| 2:B:1650:C:O5' | 2:B:1650:C:H6 | 2.02 | 0.43 |
| 9:I:172:PHE:O | 9:I:173:THR:HG23 | 2.19 | 0.43 |
| 9:I:32:LEU:HD21 | 9:I:36:LEU:HD22 | 2.00 | 0.43 |
| 12:O:205:LEU:CD2 | 13:P:120:ARG:HD2 | 2.46 | 0.43 |
| 14:Q:143:PHE:HB2 | 14:Q:145:TRP:CH2 | 2.54 | 0.43 |
| 15:R:64:ASN:O | 15:R:67:ILE:HD12 | 2.18 | 0.43 |
| 18:U:14:LEU:HD23 | 18:U:55:LYS:HG3 | 2.00 | 0.43 |
| 18:U:91:VAL:HG11 | 18:U:96:VAL:HG23 | 2.01 | 0.43 |
| 1:A:1622:G:O2' | 1:A:1624:U:OP2 | 2.37 | 0.42 |
| 1:A:190:G:H1' | 1:A:271:A:H61 | 1.84 | 0.42 |
| 1:A:1958:U:H2' | 1:A:1959:U:C6 | 2.53 | 0.42 |
| 1:A:459:G:OP1 | 15:R:37:ASN:ND2 | 2.52 | 0.42 |
| 1:A:587:C:O2' | 1:A:588:A:H2' | 2.19 | 0.42 |
| 1:A:778:A2M:HM'2 | 1:A:779:C:O4' | 2.19 | 0.42 |
| 1:A:921:A:P | 9:I:66:ARG:HH21 | 2.42 | 0.42 |
| 1:A:95:A:C4 | 1:A:96:G:H1' | 2.52 | 0.42 |
| 2:B:1136:G:H3' | 2:B:1137:A:C8 | 2.54 | 0.42 |
| 2:B:1541:A:H5'' | 2:B:1542:G:H5' | 2.02 | 0.42 |
| 2:B:1556:U:O2' | 2:B:1557:A:H5' | 2.19 | 0.42 |
| 2:B:466:C:H6 | 2:B:466:C:O5' | 2.02 | 0.42 |
| 2:B:853:C:C4 | 2:B:854:U:C4 | 3.06 | 0.42 |
| 3:C:18:G:H2' | 3:C:19:A:C8 | 2.54 | 0.42 |
| 5:E:135:C:O2' | 5:E:136:A:H5' | 2.19 | 0.42 |
| 5:E:176:U:H2' | 5:E:177:G:H8 | 1.84 | 0.42 |
| 7:G:163:C:H2' | 7:G:164:A:O4' | 2.19 | 0.42 |
| 12:O:137:VAL:HA | 16:S:169:VAL:O | 2.18 | 0.42 |
| 15:R:91:MET:HE3 | 15:R:146:VAL:HG21 | 2.01 | 0.42 |
| 16:S:101:LYS:O | 16:S:105:VAL:HG23 | 2.18 | 0.42 |
| 1:A:1018:C:H2' | 1:A:1019:G:H5'' | 2.01 | 0.42 |
| 1:A:1252:A:H2' | 1:A:1253:A:C8 | 2.54 | 0.42 |
| 1:A:1597:G:H2' | 1:A:1598:U:O4' | 2.18 | 0.42 |
| 1:A:1723:G:C8 | 1:A:1725:7MG:H82 | 2.54 | 0.42 |
| 1:A:1773:C:H2' | 1:A:1774:U:C6 | 2.53 | 0.42 |
| 1:A:1961:C:H2' | 1:A:1962:A:O4' | 2.19 | 0.42 |
| 1:A:596:G:H2' | 1:A:597:G:C8 | 2.54 | 0.42 |
| 1:A:958:OMG:HM23 | 1:A:958:OMG:H1' | 1.82 | 0.42 |
| 2:B:1153:A:O2' | 2:B:1154:U:O5' | 2.25 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:1345:OMU:H1' | 2:B:1345:OMU:HM23 | 1.90 | 0.42 |
| 2:B:1516:A2M:H3' | 2:B:1516:A2M:C8 | 2.49 | 0.42 |
| 2:B:38:C:H2' | 2:B:39:C:C6 | 2.55 | 0.42 |
| 2:B:532:U:O2' | 2:B:533:G:H5' | 2.19 | 0.42 |
| 9:I:120:ILE:CG2 | 9:I:121:THR:HG23 | 2.49 | 0.42 |
| 11:N:32:ASN:O | 11:N:36:GLN:HG2 | 2.18 | 0.42 |
| 1:A:1672:G:N7 | 15:R:27:LYS:HB2 | 2.34 | 0.42 |
| 16:S:112:LEU:HD23 | 16:S:123:ILE:HD13 | 1.98 | 0.42 |
| 1:A:1713:G:H4' | 17:T:26:PRO:HD3 | 2.01 | 0.42 |
| 18:U:48:VAL:HG21 | 18:U:94:GLU:CG | 2.48 | 0.42 |
| 22:Y:27:LEU:C | 22:Y:29:THR:N | 2.73 | 0.42 |
| 23:Z:49:LYS:O | 23:Z:50:ASP:HB2 | 2.19 | 0.42 |
| 1:A:1153:A:O2' | 1:A:1154:A:H5' | 2.19 | 0.42 |
| 1:A:1578:U:O2 | 1:A:1599:G:H2' | 2.20 | 0.42 |
| 1:A:1689:G:C2' | 1:A:1691:A:N7 | 2.82 | 0.42 |
| 1:A:1938:G:H5'' | 1:A:1939:A:N7 | 2.35 | 0.42 |
| 1:A:413:U:H5'' | 1:A:414:U:H5'' | 2.00 | 0.42 |
| 1:A:499:C:H2' | 1:A:500:C:C6 | 2.53 | 0.42 |
| 1:A:847:G:N2 | 1:A:931:7MG:O3' | 2.53 | 0.42 |
| 1:A:924:A:C2' | 1:A:925:C:H5' | 2.49 | 0.42 |
| 2:B:127:C:H2' | 2:B:128:U:C6 | 2.54 | 0.42 |
| 2:B:1444:G:H4' | 2:B:1445:U:OP1 | 2.19 | 0.42 |
| 2:B:690:U:H2' | 2:B:691:A2M:H8 | 2.02 | 0.42 |
| 2:B:896:G:H4' | 2:B:897:C:OP2 | 2.18 | 0.42 |
| 2:B:95:A:H2 | 2:B:468:G:H8 | 1.68 | 0.42 |
| 4:D:9:C:OP2 | 18:U:26:SER:OG | 2.34 | 0.42 |
| 7:G:122:G:O3' | 7:G:123:G:N2 | 2.53 | 0.42 |
| 7:G:40:G:H2' | 7:G:41:A:H8 | 1.84 | 0.42 |
| 12:O:24:ILE:HG22 | 12:O:25:ILE:N | 2.34 | 0.42 |
| 16:S:13:GLY:HA2 | 16:S:61:LEU:HG | 2.01 | 0.42 |
| 16:S:173:THR:HG22 | 16:S:174:LYS:H | 1.82 | 0.42 |
| 7:G:91:U:P | 17:T:62:ARG:HH22 | 2.42 | 0.42 |
| 19:V:120:LYS:HB3 | 19:V:121:TYR:H | 1.49 | 0.42 |
| 21:X:119:LEU:HA | 21:X:119:LEU:HD12 | 1.83 | 0.42 |
| 1:A:1008:C:N3 | 1:A:1019:G:O6 | 2.52 | 0.42 |
| 1:A:1046:U:O3' | 15:R:132:ALA:HB2 | 2.20 | 0.42 |
| 1:A:1233:A:H4' | 18:U:105:PHE:CD1 | 2.55 | 0.42 |
| 1:A:1688:G:H1 | 1:A:1709:C:N4 | 2.07 | 0.42 |
| 1:A:22:A:OP1 | 11:N:44:ARG:N | 42.65 | 0.42 |
| 1:A:484:U:H2' | 1:A:485:U:C6 | 2.55 | 0.42 |
| 1:A:597:G:H2' | 1:A:598:U:O4' | 2.18 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:806:A:N1 | 1:A:838:G:O2' | 2.44 | 0.42 |
| 1:A:7:C:H2' | 1:A:8:C:C6 | 2.53 | 0.42 |
| 2:B:1183:G:H1' | 2:B:1185:A:N6 | 2.35 | 0.42 |
| 2:B:1217:G:C5' | 2:B:1314:G:H1' | 2.49 | 0.42 |
| 2:B:1386:G:H4' | 2:B:1387:A:O5' | 2.19 | 0.42 |
| 2:B:1509:G:H2' | 2:B:1510:A:H5' | 2.01 | 0.42 |
| 2:B:756:U:H5' | 2:B:757:U:OP1 | 2.19 | 0.42 |
| 2:B:858:C:H2' | 2:B:859:U:C6 | 2.54 | 0.42 |
| 2:B:911:U:C2' | 2:B:911:U:O2 | 2.67 | 0.42 |
| 3:C:17:U:H2' | 3:C:18:G:C8 | 2.54 | 0.42 |
| 5:E:44:C:H2' | 5:E:45:A:C8 | 2.54 | 0.42 |
| 6:F:62:U:C5' | 6:F:63:A:H3' | 2.49 | 0.42 |
| 8:H:19:G:N3 | 8:H:19:G:H5'' | 2.35 | 0.42 |
| 12:O:218:LYS:O | 12:O:219:PHE:CB | 2.67 | 0.42 |
| 15:R:107:LEU:HB3 | 15:R:112:MET:HE3 | 2.01 | 0.42 |
| 20:W:97:PHE:CZ | 20:W:139:VAL:HG23 | 2.54 | 0.42 |
| 2:B:869:A:OP1 | 21:X:83:GLN:HB3 | 2.20 | 0.42 |
| 23:Z:45:MET:CE | 23:Z:115:ILE:HG21 | 2.45 | 0.42 |
| 1:A:1634:C:H2' | 1:A:1635:U:H6 | 1.85 | 0.42 |
| 1:A:182:G:C2' | 1:A:183:G:H5'' | 2.49 | 0.42 |
| 1:A:53:C:O2' | 1:A:54:G:H5' | 2.19 | 0.42 |
| 1:A:867:G:C2' | 1:A:867:G:N3 | 2.82 | 0.42 |
| 2:B:13:A:H4' | 21:X:145:THR:HG23 | 2.01 | 0.42 |
| 2:B:882:G:H21 | 2:B:886:C:P | 2.43 | 0.42 |
| 4:D:21:G:H1 | 4:D:57:C:N4 | 2.13 | 0.42 |
| 5:E:28:G:H2' | 5:E:200:A:N6 | 2.35 | 0.42 |
| 8:H:128:G:N3 | 8:H:128:G:H2' | 2.35 | 0.42 |
| 9:I:117:ARG:O | 9:I:121:THR:HG23 | 2.19 | 0.42 |
| 12:O:42:ALA:HB2 | 12:O:102:VAL:HG23 | 2.01 | 0.42 |
| 12:O:138:VAL:CG1 | 12:O:143:GLN:HE21 | 2.31 | 0.42 |
| 14:Q:130:ARG:HH21 | 14:Q:173:LYS:HG2 | 1.85 | 0.42 |
| 17:T:122:GLU:O | 17:T:126:LYS:HD3 | 2.20 | 0.42 |
| 17:T:56:LYS:HE2 | 17:T:56:LYS:HB2 | 1.87 | 0.42 |
| 21:X:111:ALA:O | 21:X:154:LEU:HD11 | 2.19 | 0.42 |
| 22:Y:8:PHE:CZ | 22:Y:53:VAL:HG21 | 2.55 | 0.42 |
| 1:A:1090:C:C2 | 1:A:1093:A:H5' | 2.54 | 0.42 |
| 1:A:1516:G:OP1 | 13:P:19:PRO:HG2 | 2.19 | 0.42 |
| 1:A:1660:A:H5'' | 1:A:1661:U:H5'' | 2.02 | 0.42 |
| 1:A:483:A:H2' | 1:A:484:U:C6 | 2.55 | 0.42 |
| 2:B:1191:G:H5'' | 18:U:12:ARG:HB2 | 2.01 | 0.42 |
| 2:B:1502:U:H2' | 2:B:1504:A:OP2 | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:1529:OMC:HM22 | 2:B:1530:C:H5' | 2.01 | 0.42 |
| 2:B:1642:A:H3' | 2:B:1642:A:OP2 | 2.19 | 0.42 |
| 2:B:58:G:H3' | 2:B:59:U:H5'' | 2.01 | 0.42 |
| 2:B:693:U:H2' | 2:B:694:A:O4' | 2.19 | 0.42 |
| 1:A:781:G:H2' | 2:B:707:A:H4' | 2.02 | 0.42 |
| 2:B:788:G:O6 | 2:B:789:A:N6 | 2.52 | 0.42 |
| 2:B:894:C:O2' | 2:B:895:U:H5' | 2.19 | 0.42 |
| 5:E:33:A:H2' | 5:E:34:U:O4' | 2.19 | 0.42 |
| 7:G:125:G:H1 | 7:G:157:C:N4 | 2.16 | 0.42 |
| 10:L:27:ILE:HG12 | 10:L:131:MET:CA | 2.38 | 0.42 |
| 15:R:129:THR:OG1 | 15:R:137:THR:O | 2.29 | 0.42 |
| 16:S:112:LEU:HD23 | 16:S:123:ILE:CG1 | 2.48 | 0.42 |
| 16:S:51:ASN:HB2 | 16:S:53:VAL:HG12 | 2.00 | 0.42 |
| 19:V:25:VAL:HG22 | 19:V:80:THR:HA | 2.01 | 0.42 |
| 1:A:1144:U:H5'' | 1:A:1144:U:H6 | 1.85 | 0.42 |
| 1:A:1296:G:H2' | 1:A:1297:U:O4' | 2.19 | 0.42 |
| 1:A:1138:G:O2' | 1:A:1595:A:H1' | 2.20 | 0.42 |
| 1:A:1659:OMG:H4' | 1:A:1660:A:OP2 | 2.20 | 0.42 |
| 1:A:784:C:H2' | 1:A:785:A:C8 | 2.54 | 0.42 |
| 2:B:1157:G:O2' | 2:B:1158:C:H5' | 2.19 | 0.42 |
| 2:B:1254:C:O2 | 2:B:1318:G:N2 | 2.47 | 0.42 |
| 1:A:1122:U:O2' | 2:B:1287:A:OP1 | 2.26 | 0.42 |
| 2:B:1629:U:O2' | 2:B:1630:U:C6 | 2.66 | 0.42 |
| 2:B:532:U:H2' | 2:B:533:G:C5' | 2.49 | 0.42 |
| 2:B:894:C:O2 | 2:B:899:G:N2 | 2.44 | 0.42 |
| 2:B:908:C:C2' | 2:B:909:C:H5' | 2.49 | 0.42 |
| 7:G:63:A:O2' | 7:G:64:U:H5' | 2.20 | 0.42 |
| 9:I:88:VAL:HG21 | 9:I:133:LEU:HD21 | 2.02 | 0.42 |
| 14:Q:191:ARG:HG2 | 14:Q:191:ARG:HH11 | 1.85 | 0.42 |
| 14:Q:54:ARG:CG | 14:Q:55:LEU:N | 2.83 | 0.42 |
| 14:Q:70:LYS:O | 14:Q:72:LYS:N | 2.52 | 0.42 |
| 15:R:59:PRO:HG3 | 15:R:76:TRP:CD2 | 2.55 | 0.42 |
| 18:U:48:VAL:HG11 | 18:U:92:ARG:HD3 | 2.02 | 0.42 |
| 23:Z:25:ARG:NH1 | 23:Z:26:ILE:HD11 | 2.34 | 0.42 |
| 23:Z:53:VAL:HG22 | 23:Z:101:VAL:HB | 2.01 | 0.42 |
| 23:Z:53:VAL:HG22 | 23:Z:54:ARG:N | 2.35 | 0.42 |
| 1:A:106:A:C2' | 1:A:107:U:H5' | 2.49 | 0.42 |
| 1:A:1354:G:H2' | 1:A:1355:G:O4' | 2.20 | 0.42 |
| 1:A:1660:A:H5'' | 1:A:1661:U:C5' | 2.50 | 0.42 |
| 1:A:1788:C:O2' | 14:Q:124:LYS:NZ | 2.53 | 0.42 |
| 1:A:178:U:C2' | 1:A:179:G:H5'' | 2.49 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:411:A:C3' | 1:A:412:G:H5'' | 2.50 | 0.42 |
| 2:B:1165:G:N3 | 2:B:1165:G:H2' | 2.34 | 0.42 |
| 2:B:1256:A:H2' | 2:B:1257:G:C8 | 2.54 | 0.42 |
| 2:B:1377:U:HO2' | 2:B:1379:C:H5 | 1.65 | 0.42 |
| 2:B:852:G:C1' | 2:B:853:C:P | 3.07 | 0.42 |
| 2:B:854:U:O2' | 2:B:855:U:P | 2.78 | 0.42 |
| 3:C:95:A:H2' | 3:C:96:A:O4' | 2.18 | 0.42 |
| 4:D:106:G:O2' | 4:D:107:G:H5' | 2.20 | 0.42 |
| 4:D:3:G:H1' | 4:D:24:U:H3 | 1.85 | 0.42 |
| 5:E:57:C:C2' | 5:E:58:U:H5' | 2.50 | 0.42 |
| 1:A:1292:C:H5'' | 9:I:159:PHE:CD1 | 2.55 | 0.42 |
| 17:T:96:MET:O | 17:T:100:ARG:HG3 | 2.20 | 0.42 |
| 19:V:98:LEU:HD22 | 19:V:103:LEU:HB2 | 2.00 | 0.42 |
| 23:Z:55:VAL:HB | 23:Z:60:TYR:O | 2.20 | 0.42 |
| 23:Z:74:ARG:HB2 | 23:Z:76:VAL:HG22 | 2.00 | 0.42 |
| 1:A:1070:U:H2' | 1:A:1071:A2M:C8 | 2.49 | 0.42 |
| 1:A:1142:C:H2' | 1:A:1143:U:O4' | 2.20 | 0.42 |
| 1:A:181:A:N7 | 1:A:182:G:C8 | 2.87 | 0.42 |
| 1:A:1928:G:N3 | 1:A:1928:G:H2' | 2.35 | 0.42 |
| 1:A:1963:U:H2' | 1:A:1964:G:O4' | 2.20 | 0.42 |
| 1:A:802:C:C2' | 1:A:803:G:H5' | 2.49 | 0.42 |
| 2:B:1145:U:C6 | 2:B:1145:U:C3' | 3.03 | 0.42 |
| 2:B:1190:U:O2' | 2:B:1256:A:H1' | 2.19 | 0.42 |
| 2:B:1508:G:O2' | 2:B:1509:G:H5' | 2.20 | 0.42 |
| 2:B:718:A:C5' | 2:B:719:A:H8 | 2.22 | 0.42 |
| 4:D:10:C:C4' | 4:D:13:A:H61 | 2.33 | 0.42 |
| 5:E:32:A:H2' | 5:E:33:A:O4' | 2.20 | 0.42 |
| 9:I:103:PRO:O | 9:I:105:LEU:N | 2.52 | 0.42 |
| 1:A:109:C:O2' | 11:N:96:PRO:O | 2.24 | 0.42 |
| 12:O:215:VAL:HG12 | 12:O:215:VAL:O | 2.20 | 0.42 |
| 12:O:78:LYS:O | 12:O:88:PRO:HG2 | 2.20 | 0.42 |
| 13:P:137:VAL:HG11 | 13:P:139:TRP:NE1 | 2.34 | 0.42 |
| 16:S:50:LYS:HD2 | 18:U:146:LEU:CD1 | 2.50 | 0.42 |
| 19:V:86:ARG:HG2 | 19:V:88:LYS:HG2 | 2.01 | 0.42 |
| 20:W:41:VAL:HG22 | 20:W:54:ALA:HB2 | 2.02 | 0.42 |
| 23:Z:54:ARG:HA | 23:Z:64:GLU:HA | 2.02 | 0.42 |
| 23:Z:52:GLU:HA | 23:Z:66:LYS:HA | 2.02 | 0.42 |
| 1:A:1120:G:H1' | 1:A:1298:G:C5' | 2.49 | 0.42 |
| 1:A:1743:A:H61 | 1:A:1756:C:H4' | 1.85 | 0.42 |
| 1:A:405:A:C8 | 1:A:406:G:H1' | 2.55 | 0.42 |
| 1:A:600:A:H4' | 1:A:601:U:C5' | 2.50 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:818:U:H3' | 1:A:825:C:H42 | 1.85 | 0.42 |
| 2:B:1138:7MG:H81 | 2:B:1138:7MG:O5' | 2.20 | 0.42 |
| 2:B:1386:G:HO2' | 2:B:1439:U:H5 | 1.66 | 0.42 |
| 2:B:621:A:H2' | 2:B:622:G:O4' | 2.20 | 0.42 |
| 3:C:23:G:N7 | 23:Z:10:ARG:NE | 2.68 | 0.42 |
| 3:C:51:A:N3 | 3:C:51:A:H2' | 2.35 | 0.42 |
| 5:E:118:U:OP1 | 17:T:100:ARG:NH1 | 2.53 | 0.42 |
| 11:N:184:LYS:HZ2 | 11:N:186:VAL:HG12 | 1.85 | 0.42 |
| 1:A:75:G:H3' | 11:N:78:ARG:HD3 | 2.00 | 0.42 |
| 17:T:109:TYR:CE1 | 17:T:114:LYS:HD2 | 2.55 | 0.42 |
| 19:V:60:ARG:HD3 | 19:V:63:LYS:HZ1 | 1.79 | 0.42 |
| 19:V:77:LEU:O | 19:V:79:ILE:HD12 | 2.19 | 0.42 |
| 20:W:47:ARG:CG | 20:W:48:LEU:N | 2.80 | 0.42 |
| 7:G:75:U:C4' | 20:W:94:VAL:HG11 | 2.47 | 0.42 |
| 3:C:91:A:H5' | 23:Z:20:PRO:HB3 | 2.00 | 0.42 |
| 1:A:1079:G:H2' | 1:A:1081:A:N7 | 2.35 | 0.41 |
| 1:A:1170:G:H4' | 4:D:102:C:O2' | 2.19 | 0.41 |
| 1:A:1367:A:P | 16:S:159:LYS:HE3 | 2.59 | 0.41 |
| 1:A:1574:A:H4' | 1:A:1575:G:O5' | 2.20 | 0.41 |
| 1:A:1634:C:H2' | 1:A:1635:U:C6 | 2.55 | 0.41 |
| 1:A:1938:G:H4' | 1:A:1939:A:OP2 | 2.18 | 0.41 |
| 2:B:1190:U:H2' | 2:B:1191:G:C8 | 2.55 | 0.41 |
| 2:B:1373:U:H4' | 2:B:1374:A:OP1 | 2.19 | 0.41 |
| 2:B:1444:G:HO2' | 2:B:1445:U:P | 2.39 | 0.41 |
| 2:B:1579:A:O2' | 2:B:1580:A:H5' | 2.19 | 0.41 |
| 2:B:689:U:O2' | 2:B:690:U:H5' | 2.20 | 0.41 |
| 2:B:763:U:H2' | 2:B:764:G:H5'' | 2.02 | 0.41 |
| 3:C:26:U:C2' | 3:C:27:U:H5' | 2.50 | 0.41 |
| 4:D:27:A:H2' | 4:D:28:C:C6 | 2.54 | 0.41 |
| 4:D:56:G:C2' | 4:D:57:C:H5' | 2.49 | 0.41 |
| 5:E:203:C:H2' | 5:E:204:C:O4' | 2.20 | 0.41 |
| 5:E:31:C:H4' | 5:E:32:A:OP1 | 2.20 | 0.41 |
| 6:F:7:G:N2 | 6:F:47:C:O2 | 2.54 | 0.41 |
| 8:H:36:C:H2' | 8:H:37:U:C6 | 2.55 | 0.41 |
| 9:I:175:ASN:HB3 | 9:I:178:LYS:HB2 | 2.01 | 0.41 |
| 11:N:52:PHE:N | 11:N:53:PRO:HD2 | 2.35 | 0.41 |
| 1:A:761:C:H5'' | 12:O:112:ARG:HB2 | 2.02 | 0.41 |
| 12:O:208:VAL:O | 12:O:208:VAL:HG22 | 2.20 | 0.41 |
| 17:T:115:ILE:HG21 | 17:T:142:ILE:CG2 | 2.48 | 0.41 |
| 7:G:93:G:HO2' | 17:T:61:SER:HG | 1.62 | 0.41 |
| 18:U:51:GLY:HA3 | 18:U:92:ARG:HB2 | 2.01 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 20:W:86:SER:CA | 20:W:96:TYR:HB3 | 2.50 | 0.41 |
| 1:A:267:A:H4' | 23:Z:27:LEU:HA | 2.02 | 0.41 |
| 1:A:1037:A:O2' | 1:A:1038:U:C5 | 2.74 | 0.41 |
| 1:A:1302:C:H2' | 1:A:1303:U:O4' | 2.20 | 0.41 |
| 1:A:1597:G:C2' | 1:A:1598:U:H5' | 2.50 | 0.41 |
| 1:A:257:G:C2' | 1:A:258:U:H5' | 2.50 | 0.41 |
| 1:A:469:A:H2' | 1:A:470:U:C5' | 2.50 | 0.41 |
| 1:A:785:A:C6 | 1:A:786:A:C6 | 3.09 | 0.41 |
| 1:A:844:A:O2' | 1:A:845:A:H5' | 2.19 | 0.41 |
| 1:A:95:A:O5' | 1:A:95:A:H8 | 2.03 | 0.41 |
| 1:A:978:U:H2' | 1:A:979:G:O4' | 2.20 | 0.41 |
| 2:B:1163:U:C2' | 2:B:1164:G:H5' | 2.50 | 0.41 |
| 2:B:1282:U:O2' | 2:B:1283:U:H5' | 2.20 | 0.41 |
| 2:B:1300:A:C2' | 2:B:1301:C:H5' | 2.50 | 0.41 |
| 2:B:1350:A:O3' | 11:N:201:GLY:HA3 | 2.20 | 0.41 |
| 2:B:1394:G:O2' | 2:B:1395:C:H5' | 2.20 | 0.41 |
| 6:F:58:U:H2' | 6:F:59:U:H5'' | 2.02 | 0.41 |
| 7:G:107:C:O2' | 22:Y:46:ARG:NH2 | 2.52 | 0.41 |
| 10:L:156:CYS:N | 10:L:157:PRO:CD | 2.83 | 0.41 |
| 10:L:161:ARG:O | 10:L:164:GLU:HB2 | 2.20 | 0.41 |
| 11:N:95:ALA:HB1 | 11:N:100:ILE:HB | 2.02 | 0.41 |
| 12:O:94:PRO:HD3 | 12:O:166:TRP:CD2 | 2.54 | 0.41 |
| 15:R:14:SER:O | 15:R:105:LYS:HE2 | 2.20 | 0.41 |
| 15:R:36:ILE:HG22 | 15:R:36:ILE:O | 2.19 | 0.41 |
| 15:R:36:ILE:CG1 | 15:R:48:TYR:OH | 2.67 | 0.41 |
| 16:S:108:ALA:O | 16:S:112:LEU:HB2 | 2.20 | 0.41 |
| 21:X:134:LEU:HD21 | 21:X:188:ALA:HB2 | 2.01 | 0.41 |
| 23:Z:106:LEU:HD12 | 23:Z:106:LEU:C | 2.40 | 0.41 |
| 1:A:1374:C:O2 | 12:O:152:ARG:NH2 | 2.53 | 0.41 |
| 1:A:1646:A:H8 | 1:A:1646:A:O5' | 2.04 | 0.41 |
| 1:A:1766:U:O2 | 1:A:1933:C:H5' | 2.20 | 0.41 |
| 1:A:194:U:O2' | 1:A:195:U:H4' | 2.20 | 0.41 |
| 1:A:396:A:H1' | 1:A:397:G:OP2 | 2.20 | 0.41 |
| 1:A:399:A:H2' | 1:A:400:G:O4' | 2.19 | 0.41 |
| 1:A:48:C:OP1 | 11:N:15:LYS:CE | 2.67 | 0.41 |
| 1:A:50:A:O2' | 1:A:51:A:H5' | 2.21 | 0.41 |
| 2:B:1282:U:H2' | 2:B:1283:U:H6 | 1.85 | 0.41 |
| 2:B:1283:U:O2' | 2:B:1284:U:H5' | 2.20 | 0.41 |
| 2:B:58:G:C3' | 2:B:59:U:H5'' | 2.50 | 0.41 |
| 2:B:771:G:H2' | 2:B:772:U:O4' | 2.19 | 0.41 |
| 2:B:864:G:O2' | 2:B:865:A:H5' | 2.19 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 3:C:23:G:H2' | 3:C:24:G:O4' | 2.20 | 0.41 |
| 3:C:27:U:H2' | 3:C:28:C:O4' | 2.20 | 0.41 |
| 3:C:48:A:H2 | 3:C:62:A:HO2' | 1.63 | 0.41 |
| 3:C:67:U:H2' | 3:C:68:A:C8 | 2.56 | 0.41 |
| 5:E:34:U:H2' | 5:E:35:C:H6 | 1.76 | 0.41 |
| 14:Q:131:VAL:HA | 14:Q:150:ALA:HA | 2.02 | 0.41 |
| 14:Q:172:HIS:HB3 | 14:Q:175:ARG:HG3 | 2.02 | 0.41 |
| 1:A:34:A:H5' | 14:Q:98:GLY:HA3 | 2.02 | 0.41 |
| 15:R:60:PHE:N | 15:R:60:PHE:CD1 | 2.88 | 0.41 |
| 17:T:98:ARG:HH12 | 17:T:130:ASN:HD22 | 1.67 | 0.41 |
| 20:W:34:LYS:HG2 | 20:W:67:GLY:CA | 2.50 | 0.41 |
| 20:W:59:ILE:HD11 | 20:W:128:TRP:CZ2 | 2.54 | 0.41 |
| 1:A:1947:C:H5' | 21:X:163:ASN:HD21 | 1.85 | 0.41 |
| 1:A:1167:A:N3 | 4:D:78:C:O2' | 2.51 | 0.41 |
| 1:A:1316:OMG:H2' | 1:A:1317:G:C5' | 2.50 | 0.41 |
| 1:A:1731:G:H2' | 1:A:1732:G:O4' | 2.20 | 0.41 |
| 1:A:343:OMC:HM22 | 1:A:344:A:C5' | 2.43 | 0.41 |
| 1:A:419:A:C4' | 1:A:420:A:H5' | 2.44 | 0.41 |
| 2:B:122:U:H1' | 17:T:78:ALA:HB3 | 2.02 | 0.41 |
| 2:B:1267:U:O2' | 2:B:1268:U:H5' | 2.20 | 0.41 |
| 2:B:1315:C:H2' | 2:B:1316:C:O4' | 2.21 | 0.41 |
| 2:B:574:A:O2' | 2:B:575:C:H5' | 2.21 | 0.41 |
| 2:B:719:A:HO2' | 2:B:720:C:P | 2.37 | 0.41 |
| 2:B:767:OMU:H2' | 2:B:768:C:O4' | 2.20 | 0.41 |
| 4:D:82:G:C6 | 4:D:83:A:C6 | 3.08 | 0.41 |
| 12:O:107:PRO:CB | 12:O:110:THR:HG22 | 2.50 | 0.41 |
| 2:B:1576:G:N2 | 12:O:52:THR:OG1 | 2.50 | 0.41 |
| 13:P:135:LYS:CG | 13:P:141:LYS:HA | 2.45 | 0.41 |
| 13:P:82:LYS:HB3 | 13:P:85:GLU:HB3 | 2.01 | 0.41 |
| 17:T:109:TYR:CB | 17:T:115:ILE:HG12 | 2.51 | 0.41 |
| 18:U:18:LYS:HE2 | 18:U:21:LYS:HD3 | 2.02 | 0.41 |
| 19:V:94:THR:O | 19:V:97:PHE:HB3 | 2.20 | 0.41 |
| 1:A:1298:G:H2' | 1:A:1298:G:N3 | 2.34 | 0.41 |
| 1:A:129:U:C2' | 1:A:130:C:H5' | 2.50 | 0.41 |
| 1:A:1539:U:H1' | 9:I:15:VAL:CG2 | 2.46 | 0.41 |
| 1:A:1623:A:H5' | 1:A:1624:U:OP2 | 2.21 | 0.41 |
| 1:A:1939:A:H1' | 1:A:1944:A:H62 | 1.85 | 0.41 |
| 1:A:232:U:C2' | 1:A:233:C:H5' | 2.50 | 0.41 |
| 1:A:247:G:C2' | 1:A:248:C:H5' | 2.51 | 0.41 |
| 1:A:257:G:O2' | 1:A:258:U:H5' | 2.21 | 0.41 |
| 1:A:394:C:N3 | 1:A:412:G:C5' | 2.82 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:428:G:N2 | 1:A:431:A:C8 | 2.84 | 0.41 |
| 2:B:1291:C:H6 | 2:B:1291:C:O5' | 2.03 | 0.41 |
| 3:C:96:A:H2' | 3:C:97:U:H5' | 2.02 | 0.41 |
| 9:I:62:ILE:HB | 9:I:89:ILE:HD12 | 2.03 | 0.41 |
| 15:R:115:LYS:HB2 | 15:R:149:PHE:CE1 | 2.55 | 0.41 |
| 16:S:136:VAL:HG21 | 16:S:141:ILE:HD11 | 2.03 | 0.41 |
| 16:S:50:LYS:HD2 | 18:U:146:LEU:HD12 | 2.02 | 0.41 |
| 19:V:103:LEU:O | 19:V:106:TRP:N | 2.49 | 0.41 |
| 19:V:51:PHE:HE2 | 19:V:70:VAL:HG11 | 1.86 | 0.41 |
| 1:A:1074:G:H2' | 1:A:1093:A:N6 | 2.32 | 0.41 |
| 1:A:1348:A:C2' | 1:A:1349:U:H5' | 2.51 | 0.41 |
| 1:A:1375:A:N3 | 12:O:67:ARG:NH1 | 2.69 | 0.41 |
| 1:A:1535:U:H2' | 1:A:1536:U:C6 | 2.55 | 0.41 |
| 1:A:1603:U:O2 | 1:A:1655:U:H1' | 2.21 | 0.41 |
| 1:A:452:A:H5' | 1:A:1620:C:O2' | 2.20 | 0.41 |
| 1:A:1642:G:O2' | 1:A:1643:A:OP2 | 2.38 | 0.41 |
| 1:A:435:G:H2' | 1:A:436:A:O4' | 2.20 | 0.41 |
| 2:B:1285:C:H3' | 2:B:1286:C:O2 | 2.20 | 0.41 |
| 2:B:1435:U:H2' | 2:B:1436:C:O4' | 2.21 | 0.41 |
| 2:B:1548:U:C3' | 2:B:1549:U:H5' | 2.50 | 0.41 |
| 2:B:462:A:H1' | 7:G:106:U:H1' | 2.02 | 0.41 |
| 2:B:498:U:H2' | 2:B:499:U:O4' | 2.21 | 0.41 |
| 2:B:576:C:C2' | 2:B:577:G:H4' | 2.49 | 0.41 |
| 2:B:630:C:H3' | 2:B:631:C:H6 | 1.85 | 0.41 |
| 2:B:6:A:N3 | 2:B:6:A:H5' | 2.36 | 0.41 |
| 2:B:785:G:C6 | 2:B:786:G:C6 | 3.09 | 0.41 |
| 3:C:118:OMU:HM23 | 3:C:118:OMU:H1' | 1.86 | 0.41 |
| 5:E:200:A:H2' | 5:E:201:A:C8 | 2.56 | 0.41 |
| 8:H:26:C:H1' | 8:H:27:A:OP2 | 2.21 | 0.41 |
| 8:H:92:A:H2' | 8:H:93:G:C5' | 2.50 | 0.41 |
| 9:I:23:ASN:HB3 | 9:I:26:ILE:HG12 | 2.01 | 0.41 |
| 9:I:29:LEU:HD11 | 9:I:130:PHE:CB | 2.49 | 0.41 |
| 10:L:165:ALA:O | 10:L:168:TRP:NE1 | 2.53 | 0.41 |
| 1:A:71:C:H5' | 11:N:68:VAL:HG12 | 2.03 | 0.41 |
| 12:O:131:VAL:HG22 | 12:O:132:ARG:N | 2.35 | 0.41 |
| 13:P:12:LEU:HD23 | 13:P:12:LEU:O | 2.20 | 0.41 |
| 13:P:17:ARG:HA | 13:P:21:GLN:HE22 | 1.85 | 0.41 |
| 14:Q:161:ASP:HB3 | 14:Q:164:ILE:HG22 | 2.02 | 0.41 |
| 18:U:25:PRO:HG3 | 18:U:94:GLU:CG | 2.48 | 0.41 |
| 1:A:1141:G:C2' | 1:A:1142:C:H5' | 2.50 | 0.41 |
| 1:A:1685:A:H2' | 1:A:1686:A:C8 | 2.55 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:333:G:H2' | 1:A:334:U:O4' | 2.21 | 0.41 |
| 1:A:411:A:H2' | 1:A:412:G:H5'' | 2.03 | 0.41 |
| 1:A:67:A:O3' | 14:Q:194:GLY:HA3 | 2.21 | 0.41 |
| 2:B:1169:OMG:H2' | 2:B:1170:U:O4' | 2.19 | 0.41 |
| 1:A:1225:A:H5'' | 2:B:1196:A:N1 | 2.36 | 0.41 |
| 2:B:1286:C:H3' | 2:B:1288:G:H21 | 1.86 | 0.41 |
| 2:B:1295:U:O3' | 18:U:51:GLY:HA2 | 2.21 | 0.41 |
| 2:B:38:C:H2' | 2:B:39:C:H6 | 1.86 | 0.41 |
| 2:B:474:C:C2 | 2:B:672:A:C2 | 3.09 | 0.41 |
| 2:B:47:A:OP1 | 17:T:88:ARG:NH1 | 2.54 | 0.41 |
| 2:B:674:U:H2' | 2:B:675:C:O4' | 2.20 | 0.41 |
| 2:B:873:G:O2' | 2:B:874:A:H5' | 2.21 | 0.41 |
| 2:B:890:U:H6 | 2:B:890:U:O5' | 2.04 | 0.41 |
| 4:D:5:A:H61 | 4:D:114:C:N4 | 2.07 | 0.41 |
| 9:I:84:ALA:HB1 | 9:I:85:PRO:HD2 | 2.03 | 0.41 |
| 12:O:107:PRO:HG2 | 12:O:112:ARG:HH21 | 1.85 | 0.41 |
| 12:O:41:VAL:O | 12:O:45:LEU:HG | 2.20 | 0.41 |
| 1:A:588:A:N6 | 16:S:63:CYS:HB2 | 2.31 | 0.41 |
| 19:V:112:ARG:HD2 | 19:V:118:GLN:OE1 | 2.19 | 0.41 |
| 22:Y:14:HIS:HB3 | 22:Y:15:PRO:CD | 2.50 | 0.41 |
| 1:A:1110:U:O2 | 1:A:1656:G:H2' | 2.21 | 0.41 |
| 1:A:131:U:H5' | 1:A:132:U:H5' | 2.02 | 0.41 |
| 1:A:196:C:O2' | 1:A:197:A:H5' | 2.21 | 0.41 |
| 1:A:324:G:O2' | 17:T:38:ARG:NH1 | 101.06 | 0.41 |
| 1:A:343:OMC:CM2 | 1:A:344:A:H5' | 2.44 | 0.41 |
| 1:A:445:G:H1' | 1:A:446:A:OP2 | 2.20 | 0.41 |
| 1:A:449:C:H2' | 1:A:450:U:H5' | 2.03 | 0.41 |
| 1:A:758:G:H2' | 1:A:759:C:O4' | 2.21 | 0.41 |
| 1:A:765:C:H4' | 1:A:766:C:OP1 | 2.21 | 0.41 |
| 1:A:834:U:H2' | 1:A:835:C:C6 | 2.55 | 0.41 |
| 2:B:1273:G:H5' | 2:B:1275:U:C6 | 2.55 | 0.41 |
| 2:B:1541:A:H5'' | 2:B:1542:G:H5'' | 2.02 | 0.41 |
| 2:B:480:G:N2 | 2:B:493:A:H1' | 2.35 | 0.41 |
| 1:A:1080:A:C2 | 2:B:480:G:N3 | 2.89 | 0.41 |
| 2:B:634:OMG:HM23 | 2:B:634:OMG:H1' | 1.68 | 0.41 |
| 2:B:668:U:H2' | 2:B:669:G:H5' | 2.03 | 0.41 |
| 2:B:728:A2M:H1' | 2:B:728:A2M:HM'3 | 1.51 | 0.41 |
| 2:B:98:G:P | 2:B:115:G:H22 | 2.43 | 0.41 |
| 3:C:71:A:H4' | 3:C:72:A:O5' | 2.21 | 0.41 |
| 4:D:25:G:H2' | 4:D:26:C:O4' | 2.21 | 0.41 |
| 4:D:55:A:H2' | 4:D:56:G:H5' | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:G:172:A:H2' | 7:G:173:U:O4' | 2.21 | 0.41 |
| 9:I:158:HIS:HD2 | 9:I:170:LYS:HB3 | 1.85 | 0.41 |
| 13:P:49:HIS:NE2 | 13:P:51:GLN:HG2 | 2.36 | 0.41 |
| 14:Q:130:ARG:NH2 | 14:Q:173:LYS:HG2 | 2.35 | 0.41 |
| 14:Q:27:TRP:CH2 | 14:Q:39:GLN:NE2 | 2.88 | 0.41 |
| 16:S:82:TYR:CE2 | 16:S:90:THR:HB | 2.56 | 0.41 |
| 17:T:80:ARG:O | 17:T:80:ARG:HG3 | 2.20 | 0.41 |
| 18:U:80:VAL:HG12 | 18:U:83:ARG:O | 2.20 | 0.41 |
| 19:V:32:ILE:HB | 19:V:33:PRO:CD | 2.49 | 0.41 |
| 21:X:139:ASP:OD1 | 21:X:140:SER:N | 2.54 | 0.41 |
| 3:C:161:U:O2 | 21:X:89:THR:HB | 2.21 | 0.41 |
| 22:Y:43:MET:HE3 | 22:Y:55:TRP:HZ2 | 1.85 | 0.41 |
| 23:Z:48:ARG:HD2 | 23:Z:112:ARG:HH21 | 1.85 | 0.41 |
| 1:A:1288:G:H2' | 1:A:1289:G:O4' | 2.21 | 0.41 |
| 1:A:1536:U:O2' | 1:A:1537:G:H5' | 2.21 | 0.41 |
| 1:A:1735:U:H5'' | 1:A:1736:U:OP2 | 2.19 | 0.41 |
| 1:A:1738:G:H2' | 1:A:1739:U:C6 | 2.56 | 0.41 |
| 1:A:1783:C:H2' | 1:A:1784:G:O4' | 2.21 | 0.41 |
| 1:A:247:G:H2' | 1:A:248:C:H5' | 2.03 | 0.41 |
| 1:A:37:U:H2' | 1:A:38:A:O4' | 2.21 | 0.41 |
| 1:A:407:C:C3' | 1:A:408:G:H5' | 2.51 | 0.41 |
| 1:A:499:C:O2' | 1:A:500:C:H5' | 2.20 | 0.41 |
| 1:A:58:G:C4' | 1:A:59:A:H4' | 2.51 | 0.41 |
| 1:A:74:U:O3' | 11:N:75:ARG:NH2 | 2.49 | 0.41 |
| 1:A:875:C:H3' | 1:A:876:A:H8 | 1.86 | 0.41 |
| 2:B:780:U:C5 | 2:B:1151:A:O3' | 2.73 | 0.41 |
| 2:B:117:A:OP1 | 2:B:467:G:N2 | 2.51 | 0.41 |
| 2:B:1273:G:H5' | 2:B:1275:U:C5 | 2.55 | 0.41 |
| 2:B:570:G:N2 | 2:B:1354:C:C4' | 2.84 | 0.41 |
| 2:B:52:G:H2' | 2:B:53:C:O4' | 2.20 | 0.41 |
| 1:A:1670:G:H21 | 2:B:704:A:H62 | 1.69 | 0.41 |
| 2:B:709:A:H1' | 2:B:722:G:N2 | 2.36 | 0.41 |
| 2:B:85:A:N3 | 2:B:85:A:H2' | 2.36 | 0.41 |
| 2:B:98:G:OP1 | 2:B:115:G:N1 | 2.54 | 0.41 |
| 4:D:5:A:N6 | 4:D:114:C:H42 | 2.07 | 0.41 |
| 6:F:67:A:O2' | 6:F:68:C:P | 2.77 | 0.41 |
| 8:H:35:G:C2' | 8:H:36:C:H5' | 2.51 | 0.41 |
| 1:A:1574:A:C2 | 9:I:35:PHE:HD1 | 2.39 | 0.41 |
| 11:N:118:ILE:HG13 | 11:N:119:GLN:N | 2.36 | 0.41 |
| 15:R:103:ILE:HG13 | 15:R:109:PRO:HG3 | 2.02 | 0.41 |
| 16:S:29:PHE:HB3 | 16:S:43:PHE:CD1 | 2.56 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 19:V:101:LYS:O | 19:V:102:ASP:HB2 | 2.21 | 0.41 |
| 20:W:44:TYR:CD2 | 20:W:52:PRO:HB3 | 2.55 | 0.41 |
| 20:W:38:ILE:HG12 | 20:W:60:VAL:HG11 | 1.96 | 0.41 |
| 1:A:1312:A:N3 | 2:B:1396:U:O2' | 2.50 | 0.41 |
| 1:A:131:U:N3 | 1:A:135:A:C2 | 2.86 | 0.41 |
| 1:A:1622:G:H1 | 1:A:1636:C:N4 | 2.19 | 0.41 |
| 1:A:1797:U:O2' | 1:A:1798:U:O5' | 2.38 | 0.41 |
| 1:A:1957:A:H2' | 1:A:1958:U:O4' | 2.21 | 0.41 |
| 1:A:1959:U:O2' | 1:A:1960:G:H5' | 2.21 | 0.41 |
| 1:A:321:U:H1' | 1:A:327:U:O2 | 2.21 | 0.41 |
| 1:A:238:G:N2 | 1:A:417:A:C8 | 2.89 | 0.41 |
| 2:B:1168:A:O2' | 2:B:1169:OMG:H5' | 2.21 | 0.41 |
| 2:B:1169:OMG:H1' | 2:B:1169:OMG:HM23 | 1.83 | 0.41 |
| 2:B:103:G:C2' | 2:B:117:A:H61 | 2.34 | 0.41 |
| 2:B:1646:G:H4' | 2:B:1647:G:O4' | 2.21 | 0.41 |
| 4:D:26:C:H2' | 4:D:27:A:O4' | 2.21 | 0.41 |
| 1:A:875:C:H2' | 9:I:47:LEU:HD11 | 2.01 | 0.41 |
| 11:N:129:VAL:HG23 | 11:N:129:VAL:O | 2.21 | 0.41 |
| 1:A:982:G:H5' | 11:N:16:HIS:CE1 | 32.05 | 0.41 |
| 9:I:172:PHE:CE2 | 11:N:5:LYS:HE3 | 2.56 | 0.41 |
| 1:A:99:A:OP1 | 14:Q:211:ASN:HB3 | 2.21 | 0.41 |
| 14:Q:89:ARG:HG3 | 14:Q:90:PRO:HD2 | 2.03 | 0.41 |
| 20:W:55:ALA:N | 20:W:58:ASP:OD2 | 2.45 | 0.41 |
| 1:A:1059:C:H2' | 1:A:1060:A:O4' | 2.20 | 0.41 |
| 1:A:1364:C:O2 | 1:A:1364:C:H2' | 2.21 | 0.41 |
| 1:A:1720:G:H5'' | 1:A:1723:G:C4' | 2.50 | 0.41 |
| 1:A:212:C:O2' | 1:A:213:C:H6 | 2.03 | 0.41 |
| 1:A:394:C:N3 | 1:A:411:A:H2' | 2.36 | 0.41 |
| 1:A:403:U:O2 | 1:A:982:G:H4' | 2.21 | 0.41 |
| 2:B:1191:G:C2' | 2:B:1192:U:H5' | 2.50 | 0.41 |
| 2:B:1203:C:H5'' | 2:B:1204:G:H5'' | 2.00 | 0.41 |
| 2:B:1313:G:O2' | 2:B:1314:G:H5' | 2.21 | 0.41 |
| 2:B:512:A:C2' | 2:B:513:A:H5' | 2.50 | 0.41 |
| 2:B:543:OMC:O2 | 2:B:590:A:N6 | 2.54 | 0.41 |
| 2:B:656:U:C2' | 2:B:657:7MG:O5' | 2.68 | 0.41 |
| 2:B:1144:U:OP1 | 3:C:165:U:H5 | 2.04 | 0.41 |
| 1:A:389:G:O2' | 3:C:24:G:N3 | 2.46 | 0.41 |
| 3:C:29:C:H2' | 3:C:30:U:H6 | 1.86 | 0.41 |
| 7:G:28:U:H2' | 7:G:29:G:O4' | 2.20 | 0.41 |
| 6:F:49:C:C5 | 13:P:114:ARG:CD | 3.04 | 0.41 |
| 1:A:148:G:H3' | 14:Q:65:ARG:NH1 | 2.36 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:98:G:O2' | 17:T:82:GLU:O | 2.27 | 0.41 |
| 20:W:105:VAL:HG23 | 20:W:110:GLU:O | 2.21 | 0.41 |
| 1:A:1594:G:H2' | 1:A:1595:A:C8 | 2.57 | 0.40 |
| 1:A:778:A2M:O4' | 2:B:1439:U:H5'' | 2.21 | 0.40 |
| 1:A:85:G:O6 | 11:N:12:HIS:HB2 | 2.21 | 0.40 |
| 1:A:919:OMC:H1' | 1:A:919:OMC:HM23 | 1.80 | 0.40 |
| 2:B:1198:G:C2' | 2:B:1199:A:H5' | 2.51 | 0.40 |
| 2:B:1257:G:H2' | 2:B:1258:C:O4' | 2.21 | 0.40 |
| 2:B:58:G:H2' | 2:B:59:U:O4' | 2.21 | 0.40 |
| 2:B:8:U:H2' | 2:B:9:G:H8 | 1.85 | 0.40 |
| 1:A:452:A:C2 | 3:C:16:A:H1' | 2.56 | 0.40 |
| 3:C:72:A:P | 23:Z:49:LYS:HG3 | 2.60 | 0.40 |
| 4:D:25:G:O2' | 4:D:26:C:H5' | 2.21 | 0.40 |
| 5:E:57:C:H2' | 5:E:58:U:H5' | 2.02 | 0.40 |
| 2:B:1566:G:H2' | 7:G:168:C:N4 | 2.35 | 0.40 |
| 12:O:144:ARG:NH1 | 12:O:154:TYR:CZ | 2.89 | 0.40 |
| 14:Q:129:LEU:O | 14:Q:130:ARG:HG3 | 2.21 | 0.40 |
| 1:A:68:C:OP1 | 14:Q:195:HIS:HD2 | 2.04 | 0.40 |
| 17:T:14:ILE:HD12 | 17:T:42:ARG:CG | 2.51 | 0.40 |
| 19:V:112:ARG:O | 19:V:112:ARG:HG2 | 2.21 | 0.40 |
| 19:V:51:PHE:HE1 | 19:V:90:PHE:HD1 | 1.68 | 0.40 |
| 20:W:111:MET:SD | 20:W:131:ILE:HD13 | 2.61 | 0.40 |
| 22:Y:27:LEU:O | 22:Y:28:SER:CB | 2.70 | 0.40 |
| 1:A:1048:C:H2' | 1:A:1049:A:H8 | 1.85 | 0.40 |
| 1:A:1507:G:H2' | 1:A:1508:C:H6 | 1.86 | 0.40 |
| 1:A:1515:A:HO2' | 1:A:1516:G:C5' | 2.31 | 0.40 |
| 1:A:319:C:N4 | 1:A:326:G:N2 | 2.69 | 0.40 |
| 1:A:26:C:N4 | 1:A:56:A:H61 | 2.19 | 0.40 |
| 2:B:1291:C:H2' | 2:B:1292:G:O4' | 2.21 | 0.40 |
| 2:B:1482:G:H3' | 2:B:1483:G:H8 | 1.87 | 0.40 |
| 2:B:1515:G:H5' | 2:B:1517:G:N7 | 2.37 | 0.40 |
| 2:B:1519:U:C5 | 2:B:1520:G:C6 | 3.09 | 0.40 |
| 2:B:456:C:H2' | 2:B:457:U:O4' | 2.20 | 0.40 |
| 5:E:34:U:O2' | 5:E:35:C:H5' | 2.21 | 0.40 |
| 7:G:173:U:H2' | 7:G:174:G:H8 | 1.86 | 0.40 |
| 1:A:952:G:H1 | 9:I:96:ASP:HA | 1.87 | 0.40 |
| 1:A:826:A:H4' | 11:N:34:PRO:HB2 | 2.03 | 0.40 |
| 15:R:41:LEU:HD22 | 15:R:150:MET:SD | 2.62 | 0.40 |
| 15:R:60:PHE:HZ | 15:R:84:PRO:HG3 | 1.86 | 0.40 |
| 16:S:11:VAL:HG13 | 16:S:60:VAL:HG23 | 2.03 | 0.40 |
| 17:T:115:ILE:CG2 | 17:T:142:ILE:HG23 | 2.47 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 17:T:81:ARG:HG2 | 17:T:88:ARG:CZ | 2.52 | 0.40 |
| 19:V:52:GLN:HB2 | 19:V:64:LEU:CD1 | 2.50 | 0.40 |
| 19:V:28:ILE:O | 19:V:76:VAL:HA | 2.20 | 0.40 |
| 23:Z:31:PRO:HA | 23:Z:44:ALA:CB | 2.51 | 0.40 |
| 1:A:1079:G:O2' | 1:A:1081:A:OP1 | 2.34 | 0.40 |
| 1:A:1576:U:H1' | 9:I:17:HIS:CD2 | 2.56 | 0.40 |
| 1:A:1940:U:O2 | 1:A:1942:A:H8 | 2.04 | 0.40 |
| 1:A:1948:C:H3' | 1:A:1949:A:C8 | 2.56 | 0.40 |
| 1:A:33:A:OP1 | 14:Q:102:THR:HB | 2.22 | 0.40 |
| 2:B:1273:G:H4' | 2:B:1274:A:C5' | 2.52 | 0.40 |
| 1:A:348:A:N6 | 2:B:1353:U:H3 | 2.18 | 0.40 |
| 2:B:884:U:O2 | 2:B:884:U:H2' | 2.22 | 0.40 |
| 3:C:41:A:N6 | 3:C:102:G:H1' | 2.36 | 0.40 |
| 4:D:116:A:H2' | 4:D:117:U:H5' | 2.02 | 0.40 |
| 5:E:118:U:O2 | 17:T:92:LYS:NZ | 2.49 | 0.40 |
| 7:G:86:G:H2' | 7:G:87:U:O4' | 2.21 | 0.40 |
| 1:A:1576:U:H1' | 9:I:17:HIS:NE2 | 2.37 | 0.40 |
| 3:C:27:U:H4' | 11:N:31:LEU:HD13 | 2.03 | 0.40 |
| 1:A:375:U:H4' | 11:N:71:ASN:ND2 | 58.54 | 0.40 |
| 11:N:90:ILE:HG22 | 11:N:91:ASN:N | 2.37 | 0.40 |
| 12:O:144:ARG:HG3 | 12:O:148:TYR:CE2 | 2.57 | 0.40 |
| 18:U:89:ILE:O | 18:U:89:ILE:HG13 | 2.20 | 0.40 |
| 19:V:29:ASP:OD1 | 19:V:31:THR:OG1 | 2.33 | 0.40 |
| 1:A:190:G:P | 23:Z:118:ARG:NH1 | 2.95 | 0.40 |
| 1:A:1228:G:N2 | 2:B:1197:C:O4' | 2.55 | 0.40 |
| 1:A:1750:C:O2' | 1:A:1751:U:H2' | 2.20 | 0.40 |
| 1:A:33:A:OP1 | 1:A:33:A:H4' | 2.21 | 0.40 |
| 2:B:1176:U:C1' | 2:B:1203:C:N4 | 2.84 | 0.40 |
| 2:B:129:G:H2' | 2:B:130:A:O4' | 2.21 | 0.40 |
| 2:B:481:U:H2' | 2:B:482:A2M:C8 | 2.50 | 0.40 |
| 2:B:650:C:C2' | 2:B:651:G:H5' | 2.51 | 0.40 |
| 2:B:722:G:C6 | 2:B:723:A:N6 | 2.89 | 0.40 |
| 7:G:30:A:OP1 | 12:O:168:TYR:OH | 2.27 | 0.40 |
| 13:P:142:VAL:O | 13:P:146:LYS:CB | 2.70 | 0.40 |
| 2:B:703:A:C4' | 15:R:137:THR:HG21 | 2.44 | 0.40 |
| 15:R:35:VAL:HG21 | 15:R:58:ILE:HD12 | 2.02 | 0.40 |
| 21:X:152:ARG:NH2 | 21:X:158:LYS:CG | 2.84 | 0.40 |
| 1:A:1495:G:O2' | 2:B:713:A:O2' | 2.22 | 0.40 |
| 1:A:191:A:O2' | 1:A:192:A:H5' | 2.22 | 0.40 |
| 1:A:453:A:H2' | 1:A:454:G:O4' | 2.21 | 0.40 |
| 2:B:1169:OMG:CM2 | 14:Q:100:PRO:HD3 | 2.51 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 2:B:1289:U:O2' | 2:B:1290:A:H5' | 2.21 | 0.40 |
| 1:A:1315:C:O2' | 2:B:1435:U:H4' | 2.20 | 0.40 |
| 2:B:591:C:H2' | 2:B:592:G:O4' | 2.21 | 0.40 |
| 2:B:688:G:HO2' | 7:G:78:U:C2' | 2.28 | 0.40 |
| 7:G:173:U:H2' | 7:G:174:G:C8 | 2.56 | 0.40 |
| 8:H:106:G:H2' | 8:H:108:G:OP1 | 2.22 | 0.40 |
| 2:B:1575:A:O2' | 12:O:20:HIS:HD2 | 2.04 | 0.40 |
| 14:Q:148:VAL:HG12 | 14:Q:149:VAL:N | 2.37 | 0.40 |
| 14:Q:40[A]:ARG:HH11 | 14:Q:40[A]:ARG:HG2 | 1.87 | 0.40 |
| 15:R:108:ASP:HA | 15:R:109:PRO:HD3 | 1.88 | 0.40 |
| 16:S:25:THR:HG22 | 16:S:26:VAL:O | 2.21 | 0.40 |
| 16:S:45:ARG:O | 16:S:49:GLU:HG2 | 2.22 | 0.40 |
| 5:E:119:G:OP1 | 17:T:103:ARG:NH2 | 2.55 | 0.40 |
| 5:E:114:G:H5'' | 17:T:121:ARG:HG3 | 2.04 | 0.40 |
| 19:V:50:TYR:O | 19:V:54:ASN:HB2 | 2.22 | 0.40 |
| 19:V:95:LYS:HG3 | 19:V:109:ILE:HD13 | 2.04 | 0.40 |
| 20:W:30:ASN:HD22 | 20:W:114:SER:HB3 | 1.85 | 0.40 |
| 21:X:171:LEU:N | 21:X:171:LEU:HD12 | 2.37 | 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 PDB entries followed by that with respect to all EM entries.

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 | |
|-----|-------|----------------|-----------|---------|----------|-------------|-----|
| 9 | I | 190/192 (99%) | 177 (93%) | 11 (6%) | 2 (1%) | 16 | 23 |
| 10 | L | 57/65 (88%) | 51 (90%) | 5 (9%) | 1 (2%) | 9 | 12 |
| 11 | N | 168/205 (82%) | 154 (92%) | 12 (7%) | 2 (1%) | 14 | 20 |
| 12 | O | 201/203 (99%) | 191 (95%) | 8 (4%) | 2 (1%) | 17 | 26 |
| 13 | P | 147/149 (99%) | 133 (90%) | 11 (8%) | 3 (2%) | 8 | 9 |
| 14 | Q | 202/203 (100%) | 188 (93%) | 14 (7%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|----------------|-----------|---------|----------|-------------|-----|
| 15 | R | 150/152 (99%) | 138 (92%) | 10 (7%) | 2 (1%) | 13 | 19 |
| 16 | S | 175/177 (99%) | 158 (90%) | 13 (7%) | 4 (2%) | 7 | 7 |
| 17 | T | 148/150 (99%) | 144 (97%) | 3 (2%) | 1 (1%) | 24 | 34 |
| 18 | U | 122/146 (84%) | 111 (91%) | 7 (6%) | 4 (3%) | 4 | 3 |
| 19 | V | 79/99 (80%) | 70 (89%) | 9 (11%) | 0 | 100 | 100 |
| 20 | W | 125/127 (98%) | 120 (96%) | 3 (2%) | 2 (2%) | 11 | 14 |
| 21 | X | 105/116 (90%) | 101 (96%) | 3 (3%) | 1 (1%) | 17 | 26 |
| 22 | Y | 59/61 (97%) | 57 (97%) | 2 (3%) | 0 | 100 | 100 |
| 23 | Z | 111/113 (98%) | 100 (90%) | 10 (9%) | 1 (1%) | 19 | 28 |
| 24 | a | 99/132 (75%) | 92 (93%) | 5 (5%) | 2 (2%) | 8 | 9 |
| 25 | b | 142/144 (99%) | 130 (92%) | 11 (8%) | 1 (1%) | 24 | 34 |
| 26 | c | 116/125 (93%) | 108 (93%) | 6 (5%) | 2 (2%) | 10 | 13 |
| 27 | d | 61/63 (97%) | 56 (92%) | 2 (3%) | 3 (5%) | 2 | 1 |
| 28 | e | 243/245 (99%) | 225 (93%) | 16 (7%) | 2 (1%) | 21 | 31 |
| 29 | f | 395/397 (100%) | 372 (94%) | 19 (5%) | 4 (1%) | 17 | 26 |
| 30 | g | 62/66 (94%) | 59 (95%) | 2 (3%) | 1 (2%) | 11 | 14 |
| 31 | h | 140/169 (83%) | 133 (95%) | 7 (5%) | 0 | 100 | 100 |
| 32 | i | 111/113 (98%) | 108 (97%) | 2 (2%) | 1 (1%) | 19 | 28 |
| 33 | j | 102/104 (98%) | 98 (96%) | 4 (4%) | 0 | 100 | 100 |
| 34 | k | 109/120 (91%) | 105 (96%) | 3 (3%) | 1 (1%) | 19 | 28 |
| 35 | l | 134/136 (98%) | 123 (92%) | 9 (7%) | 2 (2%) | 11 | 16 |
| 36 | m | 93/95 (98%) | 87 (94%) | 3 (3%) | 3 (3%) | 4 | 3 |
| 37 | n | 79/81 (98%) | 71 (90%) | 7 (9%) | 1 (1%) | 13 | 19 |
| 38 | o | 83/85 (98%) | 76 (92%) | 4 (5%) | 3 (4%) | 4 | 2 |
| 39 | p | 48/58 (83%) | 44 (92%) | 3 (6%) | 1 (2%) | 8 | 8 |
| 40 | q | 48/50 (96%) | 43 (90%) | 4 (8%) | 1 (2%) | 8 | 8 |
| 41 | r | 321/337 (95%) | 309 (96%) | 10 (3%) | 2 (1%) | 27 | 38 |
| 42 | t | 91/93 (98%) | 86 (94%) | 4 (4%) | 1 (1%) | 16 | 23 |
| 43 | u | 187/254 (74%) | 176 (94%) | 9 (5%) | 2 (1%) | 16 | 23 |
| 44 | v | 128/171 (75%) | 119 (93%) | 7 (6%) | 2 (2%) | 11 | 14 |
| 45 | w | 213/215 (99%) | 194 (91%) | 16 (8%) | 3 (1%) | 12 | 17 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|----------|-------------|----|
| 46 | x | 204/223 (92%) | 196 (96%) | 7 (3%) | 1 (0%) | 31 | 44 |
| All | All | 5248/5634 (93%) | 4903 (93%) | 281 (5%) | 64 (1%) | 19 | 20 |

All (64) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9 | I | 142 | ASN |
| 11 | N | 66 | PRO |
| 11 | N | 174 | PRO |
| 13 | P | 21 | GLN |
| 15 | R | 132 | ALA |
| 16 | S | 70 | LYS |
| 18 | U | 55 | LYS |
| 18 | U | 81 | ARG |
| 18 | U | 143 | VAL |
| 25 | b | 112 | ASN |
| 29 | f | 372 | ILE |
| 35 | l | 67 | ASN |
| 36 | m | 36 | ALA |
| 37 | n | 32 | GLU |
| 38 | o | 51 | ALA |
| 44 | v | 58 | ASN |
| 45 | w | 111 | ILE |
| 16 | S | 71 | LEU |
| 17 | T | 130 | ASN |
| 20 | W | 48 | LEU |
| 28 | e | 19 | HIS |
| 28 | e | 153 | GLY |
| 29 | f | 172 | ARG |
| 34 | k | 15 | LYS |
| 35 | l | 27 | SER |
| 36 | m | 39 | SER |
| 38 | o | 46 | ALA |
| 39 | p | 48 | ALA |
| 40 | q | 50 | HIS |
| 41 | r | 217 | ARG |
| 45 | w | 192 | GLY |
| 9 | I | 104 | ALA |
| 10 | L | 158 | HIS |
| 15 | R | 64 | ASN |
| 16 | S | 89 | TYR |
| 20 | W | 117 | ALA |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27 | d | 30 | HIS |
| 41 | r | 101 | PHE |
| 12 | O | 207 | LYS |
| 16 | S | 133 | ASN |
| 18 | U | 4 | SER |
| 21 | X | 114 | VAL |
| 27 | d | 33 | LYS |
| 29 | f | 365 | PHE |
| 24 | a | 36 | PRO |
| 26 | c | 43 | ALA |
| 27 | d | 34 | ARG |
| 29 | f | 375 | GLY |
| 30 | g | 43 | LEU |
| 36 | m | 38 | SER |
| 42 | t | 52 | GLY |
| 43 | u | 193 | LYS |
| 32 | i | 13 | LYS |
| 45 | w | 164 | VAL |
| 46 | x | 216 | PRO |
| 12 | O | 107 | PRO |
| 43 | u | 45 | GLY |
| 13 | P | 31 | ILE |
| 24 | a | 25 | VAL |
| 44 | v | 65 | GLY |
| 23 | Z | 77 | ILE |
| 26 | c | 57 | GLY |
| 38 | o | 59 | GLY |
| 13 | P | 136 | PRO |

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 PDB entries followed by that with respect to all EM entries.

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 | |
|-----|-------|----------------|------------|----------|-------------|-----|
| 9 | I | 160/160 (100%) | 160 (100%) | 0 | 100 | 100 |
| 10 | L | 57/57 (100%) | 57 (100%) | 0 | 100 | 100 |
| 11 | N | 153/178 (86%) | 150 (98%) | 3 (2%) | 58 | 74 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|----------------|------------|----------|-------------|-----|
| 12 | O | 175/175 (100%) | 175 (100%) | 0 | 100 | 100 |
| 13 | P | 119/131 (91%) | 115 (97%) | 4 (3%) | 40 | 55 |
| 14 | Q | 177/176 (101%) | 177 (100%) | 0 | 100 | 100 |
| 15 | R | 131/131 (100%) | 131 (100%) | 0 | 100 | 100 |
| 16 | S | 158/158 (100%) | 158 (100%) | 0 | 100 | 100 |
| 17 | T | 134/134 (100%) | 134 (100%) | 0 | 100 | 100 |
| 18 | U | 108/123 (88%) | 108 (100%) | 0 | 100 | 100 |
| 19 | V | 79/90 (88%) | 79 (100%) | 0 | 100 | 100 |
| 20 | W | 99/99 (100%) | 99 (100%) | 0 | 100 | 100 |
| 21 | X | 96/103 (93%) | 96 (100%) | 0 | 100 | 100 |
| 22 | Y | 55/55 (100%) | 52 (94%) | 3 (6%) | 24 | 33 |
| 23 | Z | 97/97 (100%) | 97 (100%) | 0 | 100 | 100 |
| 24 | a | 93/116 (80%) | 93 (100%) | 0 | 100 | 100 |
| 25 | b | 116/116 (100%) | 114 (98%) | 2 (2%) | 63 | 78 |
| 26 | c | 99/102 (97%) | 99 (100%) | 0 | 100 | 100 |
| 27 | d | 52/52 (100%) | 52 (100%) | 0 | 100 | 100 |
| 28 | e | 194/194 (100%) | 194 (100%) | 0 | 100 | 100 |
| 29 | f | 339/339 (100%) | 332 (98%) | 7 (2%) | 56 | 72 |
| 30 | g | 62/62 (100%) | 60 (97%) | 2 (3%) | 42 | 58 |
| 31 | h | 91/144 (63%) | 89 (98%) | 2 (2%) | 55 | 71 |
| 32 | i | 100/100 (100%) | 100 (100%) | 0 | 100 | 100 |
| 33 | j | 90/90 (100%) | 90 (100%) | 0 | 100 | 100 |
| 34 | k | 103/108 (95%) | 103 (100%) | 0 | 100 | 100 |
| 35 | l | 102/112 (91%) | 100 (98%) | 2 (2%) | 58 | 74 |
| 36 | m | 77/77 (100%) | 77 (100%) | 0 | 100 | 100 |
| 37 | n | 69/69 (100%) | 69 (100%) | 0 | 100 | 100 |
| 38 | o | 68/68 (100%) | 68 (100%) | 0 | 100 | 100 |
| 39 | p | 48/53 (91%) | 48 (100%) | 0 | 100 | 100 |
| 40 | q | 46/46 (100%) | 46 (100%) | 0 | 100 | 100 |
| 41 | r | 262/273 (96%) | 262 (100%) | 0 | 100 | 100 |
| 42 | t | 82/82 (100%) | 82 (100%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|-------------|-----|
| 43 | u | 155/207 (75%) | 155 (100%) | 0 | 100 | 100 |
| 44 | v | 112/141 (79%) | 112 (100%) | 0 | 100 | 100 |
| 45 | w | 180/180 (100%) | 180 (100%) | 0 | 100 | 100 |
| 46 | x | 182/194 (94%) | 182 (100%) | 0 | 100 | 100 |
| All | All | 4520/4792 (94%) | 4495 (99%) | 25 (1%) | 88 | 93 |

All (25) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11 | N | 20 | CYS |
| 11 | N | 22 | SER |
| 11 | N | 24 | LYS |
| 13 | P | 133 | LYS |
| 13 | P | 134 | LYS |
| 13 | P | 138 | SER |
| 13 | P | 139 | TRP |
| 22 | Y | 28 | SER |
| 22 | Y | 30 | LYS |
| 22 | Y | 51 | ARG |
| 25 | b | 16 | PHE |
| 25 | b | 45 | PHE |
| 29 | f | 65 | SER |
| 29 | f | 66 | LYS |
| 29 | f | 67 | VAL |
| 29 | f | 69 | LYS |
| 29 | f | 71 | GLU |
| 29 | f | 209 | ARG |
| 29 | f | 396 | ARG |
| 30 | g | 42 | LYS |
| 30 | g | 95 | THR |
| 31 | h | 79 | ARG |
| 31 | h | 84 | ILE |
| 35 | l | 25 | LYS |
| 35 | l | 149 | ILE |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (80) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9 | I | 45 | ASN |
| 9 | I | 158 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 10 | L | 167 | HIS |
| 11 | N | 6 | ASN |
| 11 | N | 23 | GLN |
| 12 | O | 20 | HIS |
| 12 | O | 68 | ASN |
| 12 | O | 119 | GLN |
| 12 | O | 143 | GLN |
| 13 | P | 5 | ASN |
| 13 | P | 21 | GLN |
| 14 | Q | 39 | GLN |
| 14 | Q | 92 | HIS |
| 14 | Q | 113 | ASN |
| 14 | Q | 133 | ASN |
| 14 | Q | 195 | HIS |
| 15 | R | 28 | ASN |
| 15 | R | 97 | ASN |
| 15 | R | 116 | HIS |
| 15 | R | 147 | GLN |
| 16 | S | 57 | HIS |
| 16 | S | 121 | HIS |
| 16 | S | 122 | ASN |
| 16 | S | 145 | HIS |
| 18 | U | 3 | HIS |
| 18 | U | 33 | ASN |
| 18 | U | 54 | HIS |
| 18 | U | 107 | GLN |
| 19 | V | 58 | ASN |
| 19 | V | 118 | GLN |
| 20 | W | 30 | ASN |
| 20 | W | 49 | ASN |
| 20 | W | 106 | ASN |
| 21 | X | 83 | GLN |
| 21 | X | 163 | ASN |
| 22 | Y | 17 | HIS |
| 23 | Z | 97 | HIS |
| 23 | Z | 100 | ASN |
| 24 | a | 124 | ASN |
| 25 | b | 49 | HIS |
| 25 | b | 60 | HIS |
| 26 | c | 34 | ASN |
| 27 | d | 7 | HIS |
| 27 | d | 9 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27 | d | 30 | HIS |
| 28 | e | 17 | GLN |
| 28 | e | 38 | HIS |
| 28 | e | 100 | ASN |
| 28 | e | 194 | ASN |
| 28 | e | 211 | HIS |
| 28 | e | 217 | GLN |
| 28 | e | 221 | HIS |
| 29 | f | 11 | HIS |
| 29 | f | 109 | HIS |
| 29 | f | 173 | ASN |
| 29 | f | 182 | HIS |
| 29 | f | 189 | ASN |
| 29 | f | 248 | HIS |
| 29 | f | 279 | HIS |
| 29 | f | 289 | GLN |
| 31 | h | 125 | ASN |
| 31 | h | 137 | HIS |
| 32 | i | 21 | HIS |
| 32 | i | 28 | GLN |
| 33 | j | 13 | HIS |
| 33 | j | 51 | HIS |
| 34 | k | 37 | GLN |
| 35 | l | 116 | HIS |
| 37 | n | 10 | GLN |
| 38 | o | 21 | ASN |
| 41 | r | 33 | HIS |
| 41 | r | 42 | ASN |
| 42 | t | 83 | ASN |
| 43 | u | 201 | HIS |
| 45 | w | 104 | GLN |
| 45 | w | 110 | GLN |
| 45 | w | 120 | ASN |
| 45 | w | 159 | GLN |
| 45 | w | 177 | ASN |
| 46 | x | 117 | GLN |

5.3.3 RNA [i](#)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1 | A | 1249/1278 (97%) | 348 (27%) | 33 (2%) |

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| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 2 | B | 925/941 (98%) | 275 (29%) | 18 (1%) |
| 3 | C | 144/169 (85%) | 39 (27%) | 2 (1%) |
| 4 | D | 111/118 (94%) | 23 (20%) | 4 (3%) |
| 5 | E | 141/146 (96%) | 30 (21%) | 4 (2%) |
| 6 | F | 44/46 (95%) | 21 (47%) | 7 (15%) |
| 7 | G | 117/123 (95%) | 28 (23%) | 2 (1%) |
| 8 | H | 86/91 (94%) | 20 (23%) | 3 (3%) |
| All | All | 2817/2912 (96%) | 784 (27%) | 73 (2%) |

All (784) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 4 | A |
| 1 | A | 5 | G |
| 1 | A | 12 | G |
| 1 | A | 15 | U |
| 1 | A | 20 | G |
| 1 | A | 21 | G |
| 1 | A | 25 | A |
| 1 | A | 34 | A |
| 1 | A | 39 | A |
| 1 | A | 42 | A |
| 1 | A | 48 | C |
| 1 | A | 51 | A |
| 1 | A | 55 | G |
| 1 | A | 56 | A |
| 1 | A | 59 | A |
| 1 | A | 64 | A |
| 1 | A | 65 | A |
| 1 | A | 67 | A |
| 1 | A | 68 | C |
| 1 | A | 70 | A |
| 1 | A | 71 | C |
| 1 | A | 72 | C |
| 1 | A | 73 | G |
| 1 | A | 76 | A |
| 1 | A | 82 | U |
| 1 | A | 84 | A |
| 1 | A | 85 | G |
| 1 | A | 86 | U |
| 1 | A | 88 | A |
| 1 | A | 91 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 92 | G |
| 1 | A | 94 | G |
| 1 | A | 99 | A |
| 1 | A | 100 | A |
| 1 | A | 108 | C |
| 1 | A | 110 | A |
| 1 | A | 111 | A |
| 1 | A | 115 | G |
| 1 | A | 116 | U |
| 1 | A | 131 | U |
| 1 | A | 132 | U |
| 1 | A | 133 | A |
| 1 | A | 135 | A |
| 1 | A | 136 | G |
| 1 | A | 142 | U |
| 1 | A | 143 | G |
| 1 | A | 147 | U |
| 1 | A | 148 | G |
| 1 | A | 149 | U |
| 1 | A | 176 | G |
| 1 | A | 179 | G |
| 1 | A | 181 | A |
| 1 | A | 182 | G |
| 1 | A | 183 | G |
| 1 | A | 187 | G |
| 1 | A | 188 | G |
| 1 | A | 191 | A |
| 1 | A | 195 | U |
| 1 | A | 196 | C |
| 1 | A | 209 | A |
| 1 | A | 210 | A |
| 1 | A | 212 | C |
| 1 | A | 213 | C |
| 1 | A | 214 | G |
| 1 | A | 215 | U |
| 1 | A | 216 | U |
| 1 | A | 225 | C |
| 1 | A | 234 | A |
| 1 | A | 235 | U |
| 1 | A | 237 | U |
| 1 | A | 238 | G |
| 1 | A | 240 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 241 | U |
| 1 | A | 247 | G |
| 1 | A | 251 | A |
| 1 | A | 253 | G |
| 1 | A | 254 | A |
| 1 | A | 255 | A |
| 1 | A | 256 | G |
| 1 | A | 259 | G |
| 1 | A | 260 | U |
| 1 | A | 261 | U |
| 1 | A | 265 | C |
| 1 | A | 269 | U |
| 1 | A | 276 | U |
| 1 | A | 277 | G |
| 1 | A | 278 | A |
| 1 | A | 281 | C |
| 1 | A | 309 | A |
| 1 | A | 310 | G |
| 1 | A | 311 | U |
| 1 | A | 322 | G |
| 1 | A | 324 | G |
| 1 | A | 326 | G |
| 1 | A | 327 | U |
| 1 | A | 332 | U |
| 1 | A | 336 | A |
| 1 | A | 337 | A |
| 1 | A | 339 | C |
| 1 | A | 340 | U |
| 1 | A | 341 | G |
| 1 | A | 346 | G |
| 1 | A | 347 | U |
| 1 | A | 359 | A |
| 1 | A | 365 | A |
| 1 | A | 371 | A |
| 1 | A | 372 | G |
| 1 | A | 373 | A |
| 1 | A | 375 | U |
| 1 | A | 376 | A |
| 1 | A | 377 | G |
| 1 | A | 381 | G |
| 1 | A | 382 | A |
| 1 | A | 386 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 394 | C |
| 1 | A | 396 | A |
| 1 | A | 397 | G |
| 1 | A | 403 | U |
| 1 | A | 405 | A |
| 1 | A | 408 | G |
| 1 | A | 412 | G |
| 1 | A | 413 | U |
| 1 | A | 414 | U |
| 1 | A | 415 | U |
| 1 | A | 420 | A |
| 1 | A | 421 | G |
| 1 | A | 423 | A2M |
| 1 | A | 430 | A |
| 1 | A | 432 | A |
| 1 | A | 436 | A |
| 1 | A | 443 | U |
| 1 | A | 444 | A |
| 1 | A | 446 | A |
| 1 | A | 451 | G |
| 1 | A | 452 | A |
| 1 | A | 456 | C |
| 1 | A | 471 | G |
| 1 | A | 481 | C |
| 1 | A | 482 | C |
| 1 | A | 496 | A |
| 1 | A | 499 | C |
| 1 | A | 500 | C |
| 1 | A | 503 | C |
| 1 | A | 505 | U |
| 1 | A | 519 | G |
| 1 | A | 588 | A |
| 1 | A | 600 | A |
| 1 | A | 601 | U |
| 1 | A | 739 | U |
| 1 | A | 741 | G |
| 1 | A | 749 | A |
| 1 | A | 765 | C |
| 1 | A | 766 | C |
| 1 | A | 767 | C |
| 1 | A | 774 | A |
| 1 | A | 777 | OMC |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 778 | A2M |
| 1 | A | 787 | G |
| 1 | A | 789 | A |
| 1 | A | 794 | A2M |
| 1 | A | 795 | A |
| 1 | A | 803 | G |
| 1 | A | 806 | A |
| 1 | A | 816 | U |
| 1 | A | 817 | A |
| 1 | A | 826 | A |
| 1 | A | 828 | U |
| 1 | A | 831 | U |
| 1 | A | 840 | A |
| 1 | A | 841 | C |
| 1 | A | 845 | A |
| 1 | A | 847 | G |
| 1 | A | 850 | A |
| 1 | A | 867 | G |
| 1 | A | 868 | U |
| 1 | A | 875 | C |
| 1 | A | 919 | OMC |
| 1 | A | 925 | C |
| 1 | A | 932 | G |
| 1 | A | 934 | C |
| 1 | A | 947 | A |
| 1 | A | 948 | G |
| 1 | A | 951 | G |
| 1 | A | 952 | G |
| 1 | A | 954 | G |
| 1 | A | 956 | G |
| 1 | A | 965 | U |
| 1 | A | 966 | G |
| 1 | A | 973 | A |
| 1 | A | 976 | G |
| 1 | A | 978 | U |
| 1 | A | 982 | G |
| 1 | A | 983 | A |
| 1 | A | 984 | A |
| 1 | A | 987 | A |
| 1 | A | 992 | U |
| 1 | A | 1002 | G |
| 1 | A | 1007 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1019 | G |
| 1 | A | 1026 | G |
| 1 | A | 1028 | C |
| 1 | A | 1036 | G |
| 1 | A | 1037 | A |
| 1 | A | 1038 | U |
| 1 | A | 1041 | U |
| 1 | A | 1046 | U |
| 1 | A | 1047 | G |
| 1 | A | 1050 | A |
| 1 | A | 1059 | C |
| 1 | A | 1063 | A |
| 1 | A | 1073 | 5MC |
| 1 | A | 1074 | G |
| 1 | A | 1075 | OMG |
| 1 | A | 1076 | A |
| 1 | A | 1081 | A |
| 1 | A | 1083 | G |
| 1 | A | 1084 | A |
| 1 | A | 1086 | U |
| 1 | A | 1088 | A |
| 1 | A | 1090 | C |
| 1 | A | 1091 | G |
| 1 | A | 1092 | A |
| 1 | A | 1104 | G |
| 1 | A | 1111 | C |
| 1 | A | 1126 | C |
| 1 | A | 1132 | A |
| 1 | A | 1141 | G |
| 1 | A | 1151 | A |
| 1 | A | 1154 | A |
| 1 | A | 1157 | A |
| 1 | A | 1161 | U |
| 1 | A | 1162 | G |
| 1 | A | 1164 | G |
| 1 | A | 1166 | U |
| 1 | A | 1222 | U |
| 1 | A | 1223 | U |
| 1 | A | 1227 | OMU |
| 1 | A | 1228 | G |
| 1 | A | 1269 | U |
| 1 | A | 1287 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1298 | G |
| 1 | A | 1300 | G |
| 1 | A | 1307 | U |
| 1 | A | 1314 | G |
| 1 | A | 1315 | C |
| 1 | A | 1318 | A |
| 1 | A | 1327 | U |
| 1 | A | 1335 | G |
| 1 | A | 1338 | C |
| 1 | A | 1339 | C |
| 1 | A | 1342 | U |
| 1 | A | 1343 | U |
| 1 | A | 1351 | U |
| 1 | A | 1362 | A |
| 1 | A | 1364 | C |
| 1 | A | 1368 | U |
| 1 | A | 1375 | A |
| 1 | A | 1494 | G |
| 1 | A | 1495 | G |
| 1 | A | 1496 | A |
| 1 | A | 1497 | OMU |
| 1 | A | 1498 | G |
| 1 | A | 1499 | A |
| 1 | A | 1504 | C |
| 1 | A | 1508 | C |
| 1 | A | 1515 | A |
| 1 | A | 1516 | G |
| 1 | A | 1525 | 5MC |
| 1 | A | 1526 | A |
| 1 | A | 1527 | U |
| 1 | A | 1528 | U |
| 1 | A | 1530 | U |
| 1 | A | 1539 | U |
| 1 | A | 1542 | G |
| 1 | A | 1573 | A |
| 1 | A | 1574 | A |
| 1 | A | 1576 | U |
| 1 | A | 1580 | G |
| 1 | A | 1590 | U |
| 1 | A | 1598 | U |
| 1 | A | 1599 | G |
| 1 | A | 1600 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1608 | G |
| 1 | A | 1616 | G |
| 1 | A | 1623 | A |
| 1 | A | 1624 | U |
| 1 | A | 1625 | G |
| 1 | A | 1637 | A |
| 1 | A | 1639 | A |
| 1 | A | 1640 | U |
| 1 | A | 1643 | A |
| 1 | A | 1647 | G |
| 1 | A | 1650 | U |
| 1 | A | 1653 | A |
| 1 | A | 1654 | G |
| 1 | A | 1655 | U |
| 1 | A | 1658 | A |
| 1 | A | 1661 | U |
| 1 | A | 1662 | OMC |
| 1 | A | 1669 | G |
| 1 | A | 1670 | G |
| 1 | A | 1671 | C |
| 1 | A | 1672 | G |
| 1 | A | 1675 | OMG |
| 1 | A | 1680 | G |
| 1 | A | 1681 | A |
| 1 | A | 1685 | A |
| 1 | A | 1690 | A |
| 1 | A | 1712 | U |
| 1 | A | 1720 | G |
| 1 | A | 1721 | G |
| 1 | A | 1722 | A |
| 1 | A | 1723 | G |
| 1 | A | 1725 | 7MG |
| 1 | A | 1734 | U |
| 1 | A | 1735 | U |
| 1 | A | 1743 | A |
| 1 | A | 1748 | C |
| 1 | A | 1751 | U |
| 1 | A | 1755 | A |
| 1 | A | 1761 | G |
| 1 | A | 1766 | U |
| 1 | A | 1769 | G |
| 1 | A | 1772 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1773 | C |
| 1 | A | 1777 | G |
| 1 | A | 1780 | C |
| 1 | A | 1789 | A |
| 1 | A | 1790 | C |
| 1 | A | 1792 | G |
| 1 | A | 1798 | U |
| 1 | A | 1799 | U |
| 1 | A | 1800 | A |
| 1 | A | 1801 | G |
| 1 | A | 1804 | A2M |
| 1 | A | 1805 | A |
| 1 | A | 1927 | A |
| 1 | A | 1929 | A |
| 1 | A | 1932 | A |
| 1 | A | 1939 | A |
| 1 | A | 1940 | U |
| 1 | A | 1944 | A |
| 1 | A | 1946 | U |
| 1 | A | 1947 | C |
| 1 | A | 1951 | A |
| 1 | A | 1952 | A |
| 1 | A | 1954 | G |
| 1 | A | 1964 | G |
| 2 | B | 9 | G |
| 2 | B | 17 | U |
| 2 | B | 22 | A |
| 2 | B | 23 | U |
| 2 | B | 24 | C |
| 2 | B | 30 | A |
| 2 | B | 32 | C |
| 2 | B | 33 | A |
| 2 | B | 41 | A |
| 2 | B | 47 | A |
| 2 | B | 58 | G |
| 2 | B | 59 | U |
| 2 | B | 61 | C |
| 2 | B | 62 | A |
| 2 | B | 63 | U |
| 2 | B | 67 | G |
| 2 | B | 68 | A |
| 2 | B | 69 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | B | 75 | C |
| 2 | B | 77 | OMC |
| 2 | B | 81 | G |
| 2 | B | 88 | C |
| 2 | B | 90 | G |
| 2 | B | 91 | C |
| 2 | B | 116 | A |
| 2 | B | 119 | C |
| 2 | B | 131 | G |
| 2 | B | 135 | A |
| 2 | B | 448 | A |
| 2 | B | 449 | C |
| 2 | B | 450 | U |
| 2 | B | 460 | U |
| 2 | B | 461 | U |
| 2 | B | 462 | A |
| 2 | B | 463 | C |
| 2 | B | 467 | G |
| 2 | B | 468 | G |
| 2 | B | 477 | A |
| 2 | B | 480 | G |
| 2 | B | 486 | U |
| 2 | B | 488 | A |
| 2 | B | 490 | A |
| 2 | B | 491 | A |
| 2 | B | 499 | U |
| 2 | B | 504 | A |
| 2 | B | 505 | U |
| 2 | B | 506 | G |
| 2 | B | 512 | A |
| 2 | B | 516 | G |
| 2 | B | 521 | A |
| 2 | B | 539 | U |
| 2 | B | 540 | G |
| 2 | B | 541 | C |
| 2 | B | 543 | OMC |
| 2 | B | 548 | C |
| 2 | B | 569 | G |
| 2 | B | 577 | G |
| 2 | B | 590 | A |
| 2 | B | 617 | A |
| 2 | B | 618 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | B | 619 | G |
| 2 | B | 627 | A2M |
| 2 | B | 628 | U |
| 2 | B | 630 | C |
| 2 | B | 632 | U |
| 2 | B | 634 | OMG |
| 2 | B | 645 | A |
| 2 | B | 650 | C |
| 2 | B | 652 | C |
| 2 | B | 653 | G |
| 2 | B | 654 | C |
| 2 | B | 657 | 7MG |
| 2 | B | 658 | A |
| 2 | B | 659 | A |
| 2 | B | 660 | U |
| 2 | B | 661 | G |
| 2 | B | 664 | U |
| 2 | B | 670 | A |
| 2 | B | 680 | U |
| 2 | B | 681 | G |
| 2 | B | 682 | U |
| 2 | B | 691 | A2M |
| 2 | B | 692 | C |
| 2 | B | 707 | A |
| 2 | B | 709 | A |
| 2 | B | 711 | U |
| 2 | B | 719 | A |
| 2 | B | 720 | C |
| 2 | B | 721 | G |
| 2 | B | 735 | A |
| 2 | B | 740 | G |
| 2 | B | 743 | A |
| 2 | B | 748 | A |
| 2 | B | 749 | G |
| 2 | B | 750 | A |
| 2 | B | 755 | OMG |
| 2 | B | 757 | U |
| 2 | B | 764 | G |
| 2 | B | 768 | C |
| 2 | B | 769 | C |
| 2 | B | 781 | G |
| 2 | B | 853 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 2 | B | 855 | U |
| 2 | B | 857 | A |
| 2 | B | 859 | U |
| 2 | B | 860 | U |
| 2 | B | 868 | G |
| 2 | B | 872 | A |
| 2 | B | 873 | G |
| 2 | B | 877 | A |
| 2 | B | 878 | A |
| 2 | B | 879 | U |
| 2 | B | 880 | G |
| 2 | B | 883 | U |
| 2 | B | 884 | U |
| 2 | B | 885 | U |
| 2 | B | 886 | C |
| 2 | B | 887 | G |
| 2 | B | 896 | G |
| 2 | B | 897 | C |
| 2 | B | 905 | G |
| 2 | B | 907 | A |
| 2 | B | 908 | C |
| 2 | B | 911 | U |
| 2 | B | 1106 | U |
| 2 | B | 1108 | A |
| 2 | B | 1109 | A |
| 2 | B | 1112 | A |
| 2 | B | 1113 | A |
| 2 | B | 1135 | G |
| 2 | B | 1136 | G |
| 2 | B | 1137 | A |
| 2 | B | 1138 | 7MG |
| 2 | B | 1139 | U |
| 2 | B | 1143 | G |
| 2 | B | 1144 | U |
| 2 | B | 1145 | U |
| 2 | B | 1146 | U |
| 2 | B | 1151 | A |
| 2 | B | 1153 | A |
| 2 | B | 1154 | U |
| 2 | B | 1165 | G |
| 2 | B | 1166 | G |
| 2 | B | 1169 | OMG |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 2 | B | 1170 | U |
| 2 | B | 1173 | G |
| 2 | B | 1175 | C |
| 2 | B | 1178 | G |
| 2 | B | 1180 | G |
| 2 | B | 1185 | A |
| 2 | B | 1187 | A |
| 2 | B | 1207 | G |
| 2 | B | 1208 | G |
| 2 | B | 1210 | OMG |
| 2 | B | 1211 | U |
| 2 | B | 1216 | A |
| 2 | B | 1225 | C |
| 2 | B | 1241 | C |
| 2 | B | 1248 | A |
| 2 | B | 1249 | G |
| 2 | B | 1250 | A |
| 2 | B | 1253 | A |
| 2 | B | 1255 | A |
| 2 | B | 1273 | G |
| 2 | B | 1274 | A |
| 2 | B | 1279 | C |
| 2 | B | 1280 | G |
| 2 | B | 1287 | A |
| 2 | B | 1288 | G |
| 2 | B | 1289 | U |
| 2 | B | 1293 | A |
| 2 | B | 1297 | G |
| 2 | B | 1302 | U |
| 2 | B | 1312 | A |
| 2 | B | 1313 | G |
| 2 | B | 1315 | C |
| 2 | B | 1347 | A |
| 2 | B | 1348 | A |
| 2 | B | 1350 | A |
| 2 | B | 1359 | C |
| 2 | B | 1363 | OMG |
| 2 | B | 1364 | G |
| 2 | B | 1366 | G |
| 2 | B | 1369 | A |
| 2 | B | 1370 | G |
| 2 | B | 1371 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 2 | B | 1372 | A |
| 2 | B | 1373 | U |
| 2 | B | 1374 | A |
| 2 | B | 1378 | A |
| 2 | B | 1380 | OMC |
| 2 | B | 1384 | G |
| 2 | B | 1387 | A |
| 2 | B | 1388 | U |
| 2 | B | 1389 | A |
| 2 | B | 1390 | A |
| 2 | B | 1436 | C |
| 2 | B | 1437 | C |
| 2 | B | 1441 | G |
| 2 | B | 1442 | A |
| 2 | B | 1445 | U |
| 2 | B | 1449 | OMC |
| 2 | B | 1453 | U |
| 2 | B | 1458 | A |
| 2 | B | 1459 | C |
| 2 | B | 1481 | A |
| 2 | B | 1483 | G |
| 2 | B | 1487 | G |
| 2 | B | 1491 | OMU |
| 2 | B | 1492 | OMG |
| 2 | B | 1493 | U |
| 2 | B | 1503 | G |
| 2 | B | 1505 | C |
| 2 | B | 1506 | A |
| 2 | B | 1511 | A |
| 2 | B | 1512 | C |
| 2 | B | 1524 | U |
| 2 | B | 1525 | U |
| 2 | B | 1541 | A |
| 2 | B | 1546 | G |
| 2 | B | 1548 | U |
| 2 | B | 1549 | U |
| 2 | B | 1550 | U |
| 2 | B | 1553 | C |
| 2 | B | 1560 | U |
| 2 | B | 1561 | A |
| 2 | B | 1564 | U |
| 2 | B | 1565 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 2 | B | 1568 | A |
| 2 | B | 1569 | A |
| 2 | B | 1570 | U |
| 2 | B | 1573 | C |
| 2 | B | 1574 | G |
| 2 | B | 1575 | A |
| 2 | B | 1578 | A |
| 2 | B | 1592 | A |
| 2 | B | 1593 | A |
| 2 | B | 1594 | A |
| 2 | B | 1595 | A |
| 2 | B | 1602 | U |
| 2 | B | 1603 | U |
| 2 | B | 1604 | U |
| 2 | B | 1605 | U |
| 2 | B | 1606 | U |
| 2 | B | 1612 | A |
| 2 | B | 1613 | A |
| 2 | B | 1614 | A |
| 2 | B | 1622 | U |
| 2 | B | 1623 | U |
| 2 | B | 1624 | U |
| 2 | B | 1625 | U |
| 2 | B | 1626 | U |
| 2 | B | 1627 | U |
| 2 | B | 1628 | U |
| 2 | B | 1629 | U |
| 2 | B | 1630 | U |
| 2 | B | 1631 | U |
| 2 | B | 1632 | U |
| 2 | B | 1633 | U |
| 2 | B | 1642 | A |
| 2 | B | 1643 | C |
| 2 | B | 1644 | U |
| 2 | B | 1646 | G |
| 2 | B | 1647 | G |
| 2 | B | 1648 | U |
| 2 | B | 1649 | A |
| 2 | B | 1650 | C |
| 2 | B | 1651 | G |
| 2 | B | 1652 | A |
| 2 | B | 1653 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 2 | B | 1654 | A |
| 2 | B | 1655 | A |
| 2 | B | 1656 | A |
| 2 | B | 1657 | A |
| 2 | B | 1658 | A |
| 3 | C | 7 | OMU |
| 3 | C | 9 | G |
| 3 | C | 16 | A |
| 3 | C | 20 | C |
| 3 | C | 22 | U |
| 3 | C | 23 | G |
| 3 | C | 31 | A |
| 3 | C | 32 | U |
| 3 | C | 34 | U |
| 3 | C | 38 | U |
| 3 | C | 45 | C |
| 3 | C | 49 | G |
| 3 | C | 58 | G |
| 3 | C | 59 | A |
| 3 | C | 60 | U |
| 3 | C | 62 | A |
| 3 | C | 63 | G |
| 3 | C | 70 | C |
| 3 | C | 75 | OMG |
| 3 | C | 79 | A |
| 3 | C | 96 | A |
| 3 | C | 98 | C |
| 3 | C | 99 | U |
| 3 | C | 105 | OMC |
| 3 | C | 106 | G |
| 3 | C | 110 | A |
| 3 | C | 112 | G |
| 3 | C | 116 | C |
| 3 | C | 117 | A |
| 3 | C | 118 | OMU |
| 3 | C | 125 | A |
| 3 | C | 141 | C |
| 3 | C | 142 | C |
| 3 | C | 157 | U |
| 3 | C | 158 | U |
| 3 | C | 162 | C |
| 3 | C | 163 | A2M |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | C | 168 | C |
| 3 | C | 169 | G |
| 4 | D | 7 | G |
| 4 | D | 8 | A |
| 4 | D | 13 | A |
| 4 | D | 14 | C |
| 4 | D | 25 | G |
| 4 | D | 27 | A |
| 4 | D | 32 | A |
| 4 | D | 33 | U |
| 4 | D | 42 | A |
| 4 | D | 48 | G |
| 4 | D | 49 | A |
| 4 | D | 54 | A |
| 4 | D | 62 | A |
| 4 | D | 63 | C |
| 4 | D | 64 | A |
| 4 | D | 71 | G |
| 4 | D | 74 | A |
| 4 | D | 77 | A |
| 4 | D | 86 | A |
| 4 | D | 92 | G |
| 4 | D | 95 | G |
| 4 | D | 100 | A |
| 4 | D | 110 | G |
| 5 | E | 3 | U |
| 5 | E | 5 | G |
| 5 | E | 32 | A |
| 5 | E | 38 | U |
| 5 | E | 41 | U |
| 5 | E | 55 | U |
| 5 | E | 67 | U |
| 5 | E | 68 | A |
| 5 | E | 72 | C |
| 5 | E | 74 | C |
| 5 | E | 102 | U |
| 5 | E | 114 | G |
| 5 | E | 120 | U |
| 5 | E | 121 | U |
| 5 | E | 124 | G |
| 5 | E | 125 | A |
| 5 | E | 127 | C |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5 | E | 137 | A |
| 5 | E | 141 | U |
| 5 | E | 145 | A |
| 5 | E | 146 | A |
| 5 | E | 147 | A |
| 5 | E | 148 | U |
| 5 | E | 152 | G |
| 5 | E | 176 | U |
| 5 | E | 177 | G |
| 5 | E | 195 | A |
| 5 | E | 196 | G |
| 5 | E | 198 | A |
| 5 | E | 199 | A |
| 6 | F | 7 | G |
| 6 | F | 9 | C |
| 6 | F | 10 | A |
| 6 | F | 11 | C |
| 6 | F | 12 | U |
| 6 | F | 13 | U |
| 6 | F | 14 | C |
| 6 | F | 16 | C |
| 6 | F | 50 | C |
| 6 | F | 52 | A |
| 6 | F | 53 | G |
| 6 | F | 54 | U |
| 6 | F | 56 | C |
| 6 | F | 59 | U |
| 6 | F | 63 | A |
| 6 | F | 64 | U |
| 6 | F | 65 | U |
| 6 | F | 67 | A |
| 6 | F | 68 | C |
| 6 | F | 69 | A |
| 6 | F | 70 | A |
| 7 | G | 24 | A |
| 7 | G | 27 | G |
| 7 | G | 29 | G |
| 7 | G | 30 | A |
| 7 | G | 36 | G |
| 7 | G | 58 | C |
| 7 | G | 61 | C |
| 7 | G | 70 | OMG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | G | 82 | U |
| 7 | G | 93 | G |
| 7 | G | 98 | G |
| 7 | G | 102 | G |
| 7 | G | 103 | U |
| 7 | G | 110 | A |
| 7 | G | 116 | U |
| 7 | G | 117 | C |
| 7 | G | 119 | C |
| 7 | G | 123 | G |
| 7 | G | 124 | U |
| 7 | G | 155 | G |
| 7 | G | 164 | A |
| 7 | G | 165 | A |
| 7 | G | 166 | G |
| 7 | G | 167 | A |
| 7 | G | 169 | C |
| 7 | G | 170 | A |
| 7 | G | 171 | G |
| 7 | G | 174 | G |
| 8 | H | 13 | C |
| 8 | H | 14 | C |
| 8 | H | 23 | G |
| 8 | H | 26 | C |
| 8 | H | 27 | A |
| 8 | H | 28 | U |
| 8 | H | 32 | U |
| 8 | H | 38 | G |
| 8 | H | 42 | U |
| 8 | H | 46 | C |
| 8 | H | 65 | G |
| 8 | H | 88 | C |
| 8 | H | 95 | C |
| 8 | H | 99 | G |
| 8 | H | 105 | U |
| 8 | H | 107 | A |
| 8 | H | 108 | G |
| 8 | H | 109 | G |
| 8 | H | 112 | U |
| 8 | H | 122 | U |

All (73) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 3 | C |
| 1 | A | 4 | A |
| 1 | A | 20 | G |
| 1 | A | 58 | G |
| 1 | A | 87 | C |
| 1 | A | 110 | A |
| 1 | A | 132 | U |
| 1 | A | 142 | U |
| 1 | A | 146 | U |
| 1 | A | 148 | G |
| 1 | A | 214 | G |
| 1 | A | 254 | A |
| 1 | A | 323 | G |
| 1 | A | 394 | C |
| 1 | A | 396 | A |
| 1 | A | 412 | G |
| 1 | A | 419 | A |
| 1 | A | 442 | A |
| 1 | A | 445 | G |
| 1 | A | 451 | G |
| 1 | A | 599 | C |
| 1 | A | 766 | C |
| 1 | A | 1037 | A |
| 1 | A | 1075 | OMG |
| 1 | A | 1083 | G |
| 1 | A | 1326 | A |
| 1 | A | 1515 | A |
| 1 | A | 1599 | G |
| 1 | A | 1622 | G |
| 1 | A | 1722 | A |
| 1 | A | 1779 | A |
| 1 | A | 1797 | U |
| 1 | A | 1938 | G |
| 2 | B | 68 | A |
| 2 | B | 719 | A |
| 2 | B | 739 | G |
| 2 | B | 852 | G |
| 2 | B | 854 | U |
| 2 | B | 884 | U |
| 2 | B | 1107 | 7MG |
| 2 | B | 1112 | A |
| 2 | B | 1138 | 7MG |
| 2 | B | 1153 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 2 | B | 1186 | U |
| 2 | B | 1215 | A |
| 2 | B | 1254 | C |
| 2 | B | 1273 | G |
| 2 | B | 1444 | G |
| 2 | B | 1568 | A |
| 2 | B | 1642 | A |
| 2 | B | 1649 | A |
| 3 | C | 15 | G |
| 3 | C | 105 | OMC |
| 4 | D | 13 | A |
| 4 | D | 32 | A |
| 4 | D | 53 | U |
| 4 | D | 109 | U |
| 5 | E | 67 | U |
| 5 | E | 113 | C |
| 5 | E | 126 | A |
| 5 | E | 147 | A |
| 6 | F | 10 | A |
| 6 | F | 12 | U |
| 6 | F | 13 | U |
| 6 | F | 53 | G |
| 6 | F | 62 | U |
| 6 | F | 63 | A |
| 6 | F | 67 | A |
| 7 | G | 123 | G |
| 7 | G | 170 | A |
| 8 | H | 26 | C |
| 8 | H | 41 | A |
| 8 | H | 111 | C |

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

72 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|------|--------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 1 | A2M | A | 1043 | 1 | 18,25,26 | 3.94 | 7 (38%) | 20,36,39 | 2.71 | 3 (15%) |
| 1 | 7MG | A | 1045 | 1 | 20,26,27 | 3.31 | 7 (35%) | 24,39,42 | 1.59 | 7 (29%) |
| 1 | OMC | A | 1053 | 1 | 15,22,23 | 2.05 | 7 (46%) | 20,31,34 | 0.90 | 0 |
| 1 | A2M | A | 1071 | 1 | 18,25,26 | 4.07 | 7 (38%) | 20,36,39 | 2.42 | 5 (25%) |
| 1 | 5MC | A | 1073 | 1 | 14,22,23 | 2.12 | 6 (42%) | 17,32,35 | 1.39 | 3 (17%) |
| 1 | OMG | A | 1075 | 1 | 18,26,27 | 2.50 | 7 (38%) | 22,38,41 | 4.59 | 6 (27%) |
| 1 | OMU | A | 1127 | 1 | 14,22,23 | 2.95 | 6 (42%) | 17,31,34 | 0.80 | 0 |
| 1 | OMU | A | 1227 | 1 | 14,22,23 | 2.92 | 6 (42%) | 17,31,34 | 0.67 | 0 |
| 1 | OMG | A | 1316 | 1 | 18,26,27 | 2.55 | 7 (38%) | 22,38,41 | 3.91 | 8 (36%) |
| 1 | OMU | A | 1497 | 1 | 14,22,23 | 2.85 | 6 (42%) | 17,31,34 | 0.98 | 0 |
| 1 | 5MC | A | 1525 | 1 | 14,22,23 | 2.14 | 6 (42%) | 17,32,35 | 1.29 | 1 (5%) |
| 1 | OMG | A | 1659 | 1 | 18,26,27 | 2.39 | 7 (38%) | 22,38,41 | 3.95 | 7 (31%) |
| 1 | OMC | A | 1662 | 1 | 15,22,23 | 2.35 | 6 (40%) | 20,31,34 | 1.31 | 2 (10%) |
| 1 | A2M | A | 1674 | 1,47,2 | 18,25,26 | 4.01 | 8 (44%) | 20,36,39 | 2.32 | 3 (15%) |
| 1 | OMG | A | 1675 | 1,2 | 18,26,27 | 2.33 | 6 (33%) | 22,38,41 | 3.98 | 8 (36%) |
| 1 | OMG | A | 1710 | 1 | 18,26,27 | 2.55 | 7 (38%) | 22,38,41 | 4.25 | 5 (22%) |
| 1 | 7MG | A | 1725 | 1,2 | 20,26,27 | 3.20 | 8 (40%) | 24,39,42 | 1.78 | 6 (25%) |
| 1 | A2M | A | 1804 | 1 | 18,25,26 | 4.01 | 8 (44%) | 20,36,39 | 2.60 | 6 (30%) |
| 1 | OMC | A | 343 | 1 | 15,22,23 | 2.49 | 5 (33%) | 20,31,34 | 1.31 | 2 (10%) |
| 1 | A2M | A | 423 | 1 | 18,25,26 | 3.99 | 8 (44%) | 20,36,39 | 2.50 | 5 (25%) |
| 1 | A2M | A | 775 | 1,2 | 18,25,26 | 4.05 | 8 (44%) | 20,36,39 | 2.39 | 4 (20%) |
| 1 | OMC | A | 777 | 1 | 15,22,23 | 2.62 | 7 (46%) | 20,31,34 | 1.06 | 1 (5%) |
| 1 | A2M | A | 778 | 1 | 18,25,26 | 3.90 | 8 (44%) | 20,36,39 | 2.18 | 4 (20%) |
| 1 | OMC | A | 792 | 1 | 15,22,23 | 2.41 | 5 (33%) | 20,31,34 | 1.23 | 1 (5%) |
| 1 | A2M | A | 794 | 1 | 18,25,26 | 4.01 | 6 (33%) | 20,36,39 | 3.10 | 7 (35%) |
| 1 | OMC | A | 919 | 1 | 15,22,23 | 2.52 | 7 (46%) | 20,31,34 | 1.19 | 2 (10%) |
| 1 | OMG | A | 927 | 1 | 18,26,27 | 2.53 | 7 (38%) | 22,38,41 | 4.10 | 7 (31%) |
| 1 | 7MG | A | 931 | 1 | 20,26,27 | 3.08 | 8 (40%) | 24,39,42 | 1.79 | 8 (33%) |
| 1 | OMG | A | 958 | 1 | 18,26,27 | 2.42 | 7 (38%) | 22,38,41 | 3.95 | 8 (36%) |
| 1 | OMU | A | 963 | 1 | 14,22,23 | 2.90 | 6 (42%) | 17,31,34 | 0.75 | 0 |
| 1 | OMG | A | 972 | 1 | 18,26,27 | 2.51 | 7 (38%) | 22,38,41 | 3.61 | 9 (40%) |
| 1 | A2M | A | 974 | 1 | 18,25,26 | 3.89 | 7 (38%) | 20,36,39 | 2.97 | 6 (30%) |
| 2 | 7MG | B | 1107 | 2 | 20,26,27 | 3.39 | 7 (35%) | 24,39,42 | 1.84 | 7 (29%) |
| 2 | 7MG | B | 1138 | 2 | 20,26,27 | 3.50 | 7 (35%) | 24,39,42 | 1.79 | 7 (29%) |
| 2 | OMG | B | 1169 | 2 | 18,26,27 | 2.43 | 7 (38%) | 22,38,41 | 4.00 | 7 (31%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 2 | OMG | B | 1210 | 2 | 18,26,27 | 2.40 | 6 (33%) | 22,38,41 | 3.76 | 11 (50%) |
| 2 | OMU | B | 1345 | 2 | 14,22,23 | 2.89 | 6 (42%) | 17,31,34 | 0.83 | 0 |
| 2 | OMG | B | 1361 | 2 | 18,26,27 | 2.46 | 6 (33%) | 22,38,41 | 3.93 | 7 (31%) |
| 2 | OMG | B | 1363 | 2 | 18,26,27 | 2.62 | 7 (38%) | 22,38,41 | 3.76 | 6 (27%) |
| 2 | OMC | B | 1380 | 2 | 15,22,23 | 2.45 | 5 (33%) | 20,31,34 | 1.31 | 2 (10%) |
| 2 | OMG | B | 1385 | 2 | 18,26,27 | 2.44 | 6 (33%) | 22,38,41 | 3.95 | 7 (31%) |
| 2 | OMC | B | 1449 | 2 | 15,22,23 | 2.42 | 5 (33%) | 20,31,34 | 1.28 | 1 (5%) |
| 2 | OMU | B | 1491 | 2 | 14,22,23 | 2.78 | 6 (42%) | 17,31,34 | 0.73 | 0 |
| 2 | OMG | B | 1492 | 2 | 18,26,27 | 2.55 | 7 (38%) | 22,38,41 | 4.30 | 6 (27%) |
| 2 | A2M | B | 1516 | 47,2 | 18,25,26 | 4.05 | 7 (38%) | 20,36,39 | 2.52 | 4 (20%) |
| 2 | OMC | B | 1529 | 2 | 15,22,23 | 2.40 | 6 (40%) | 20,31,34 | 1.15 | 1 (5%) |
| 2 | OMC | B | 21 | 1,2 | 15,22,23 | 2.44 | 6 (40%) | 20,31,34 | 1.23 | 2 (10%) |
| 2 | A2M | B | 482 | 2 | 18,25,26 | 3.92 | 7 (38%) | 20,36,39 | 2.47 | 3 (15%) |
| 2 | A2M | B | 50 | 47,2 | 18,25,26 | 3.93 | 7 (38%) | 20,36,39 | 2.28 | 3 (15%) |
| 2 | OMC | B | 543 | 2 | 15,22,23 | 2.39 | 5 (33%) | 20,31,34 | 1.19 | 1 (5%) |
| 2 | OMG | B | 564 | 2 | 18,26,27 | 2.67 | 7 (38%) | 22,38,41 | 4.11 | 6 (27%) |
| 2 | 5MC | B | 624 | 2 | 14,22,23 | 2.13 | 6 (42%) | 17,32,35 | 1.30 | 2 (11%) |
| 2 | A2M | B | 627 | 2 | 18,25,26 | 3.82 | 7 (38%) | 20,36,39 | 2.48 | 5 (25%) |
| 2 | OMG | B | 634 | 2 | 18,26,27 | 2.42 | 6 (33%) | 22,38,41 | 4.21 | 7 (31%) |
| 2 | 7MG | B | 657 | 47,2 | 20,26,27 | 3.30 | 8 (40%) | 24,39,42 | 1.78 | 8 (33%) |
| 2 | OMC | B | 683 | 2 | 15,22,23 | 2.38 | 6 (40%) | 20,31,34 | 1.41 | 3 (15%) |
| 2 | A2M | B | 691 | 2 | 18,25,26 | 4.08 | 8 (44%) | 20,36,39 | 3.04 | 8 (40%) |
| 2 | OMG | B | 71 | 2 | 18,26,27 | 2.64 | 7 (38%) | 22,38,41 | 3.78 | 7 (31%) |
| 2 | A2M | B | 728 | 2 | 18,25,26 | 3.92 | 8 (44%) | 20,36,39 | 2.53 | 4 (20%) |
| 2 | OMU | B | 73 | 2 | 14,22,23 | 2.87 | 5 (35%) | 17,31,34 | 0.60 | 0 |
| 2 | OMG | B | 755 | 2 | 18,26,27 | 2.45 | 6 (33%) | 22,38,41 | 4.04 | 6 (27%) |
| 2 | OMU | B | 767 | 2 | 14,22,23 | 2.76 | 6 (42%) | 17,31,34 | 0.79 | 0 |
| 2 | OMC | B | 77 | 2 | 15,22,23 | 2.59 | 7 (46%) | 20,31,34 | 1.22 | 2 (10%) |
| 3 | OMC | C | 105 | 47,3 | 15,22,23 | 2.46 | 5 (33%) | 20,31,34 | 1.47 | 3 (15%) |
| 3 | OMU | C | 118 | 3 | 14,22,23 | 2.77 | 6 (42%) | 17,31,34 | 0.85 | 0 |
| 3 | A2M | C | 163 | 1,3 | 18,25,26 | 3.91 | 8 (44%) | 20,36,39 | 2.41 | 3 (15%) |
| 3 | OMG | C | 166 | 1,3 | 18,26,27 | 2.45 | 7 (38%) | 22,38,41 | 3.98 | 7 (31%) |
| 3 | 7MG | C | 42 | 3 | 20,26,27 | 3.17 | 8 (40%) | 24,39,42 | 1.80 | 8 (33%) |
| 3 | A2M | C | 43 | 3 | 18,25,26 | 3.95 | 7 (38%) | 20,36,39 | 2.28 | 4 (20%) |
| 3 | OMU | C | 7 | 1,3 | 14,22,23 | 3.06 | 6 (42%) | 17,31,34 | 0.78 | 0 |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 3 | OMG | C | 75 | 3 | 18,26,27 | 2.52 | 6 (33%) | 22,38,41 | 4.01 | 7 (31%) |
| 7 | OMG | G | 70 | 7 | 18,26,27 | 2.39 | 7 (38%) | 22,38,41 | 3.89 | 8 (36%) |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|------|--------|---------|-----------|---------|
| 1 | A2M | A | 1043 | 1 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | 7MG | A | 1045 | 1 | - | 0/7/37/38 | 0/3/3/3 |
| 1 | OMC | A | 1053 | 1 | - | 1/5/27/28 | 0/2/2/2 |
| 1 | A2M | A | 1071 | 1 | - | 1/5/27/28 | 0/3/3/3 |
| 1 | 5MC | A | 1073 | 1 | - | 2/3/25/26 | 0/2/2/2 |
| 1 | OMG | A | 1075 | 1 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | OMU | A | 1127 | 1 | - | 0/5/27/28 | 0/2/2/2 |
| 1 | OMU | A | 1227 | 1 | - | 2/5/27/28 | 0/2/2/2 |
| 1 | OMG | A | 1316 | 1 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | OMU | A | 1497 | 1 | - | 0/5/27/28 | 0/2/2/2 |
| 1 | 5MC | A | 1525 | 1 | - | 2/3/25/26 | 0/2/2/2 |
| 1 | OMG | A | 1659 | 1 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | OMC | A | 1662 | 1 | - | 1/5/27/28 | 0/2/2/2 |
| 1 | A2M | A | 1674 | 1,47,2 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | OMG | A | 1675 | 1,2 | - | 1/5/27/28 | 0/3/3/3 |
| 1 | OMG | A | 1710 | 1 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | 7MG | A | 1725 | 1,2 | - | 2/7/37/38 | 0/3/3/3 |
| 1 | A2M | A | 1804 | 1 | - | 4/5/27/28 | 0/3/3/3 |
| 1 | OMC | A | 343 | 1 | - | 0/5/27/28 | 0/2/2/2 |
| 1 | A2M | A | 423 | 1 | - | 2/5/27/28 | 0/3/3/3 |
| 1 | A2M | A | 775 | 1,2 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | OMC | A | 777 | 1 | - | 2/5/27/28 | 0/2/2/2 |
| 1 | A2M | A | 778 | 1 | - | 3/5/27/28 | 0/3/3/3 |
| 1 | OMC | A | 792 | 1 | - | 0/5/27/28 | 0/2/2/2 |
| 1 | A2M | A | 794 | 1 | - | 2/5/27/28 | 0/3/3/3 |
| 1 | OMC | A | 919 | 1 | - | 3/5/27/28 | 0/2/2/2 |
| 1 | OMG | A | 927 | 1 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | 7MG | A | 931 | 1 | - | 0/7/37/38 | 0/3/3/3 |
| 1 | OMG | A | 958 | 1 | - | 0/5/27/28 | 0/3/3/3 |
| 1 | OMU | A | 963 | 1 | - | 0/5/27/28 | 0/2/2/2 |
| 1 | OMG | A | 972 | 1 | - | 0/5/27/28 | 0/3/3/3 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|------|------|---------|-----------|---------|
| 1 | A2M | A | 974 | 1 | - | 0/5/27/28 | 0/3/3/3 |
| 2 | 7MG | B | 1107 | 2 | - | 0/7/37/38 | 0/3/3/3 |
| 2 | 7MG | B | 1138 | 2 | - | 2/7/37/38 | 0/3/3/3 |
| 2 | OMG | B | 1169 | 2 | - | 2/5/27/28 | 0/3/3/3 |
| 2 | OMG | B | 1210 | 2 | - | 2/5/27/28 | 0/3/3/3 |
| 2 | OMU | B | 1345 | 2 | - | 0/5/27/28 | 0/2/2/2 |
| 2 | OMG | B | 1361 | 2 | - | 2/5/27/28 | 0/3/3/3 |
| 2 | OMG | B | 1363 | 2 | - | 0/5/27/28 | 0/3/3/3 |
| 2 | OMC | B | 1380 | 2 | - | 2/5/27/28 | 0/2/2/2 |
| 2 | OMG | B | 1385 | 2 | - | 0/5/27/28 | 0/3/3/3 |
| 2 | OMC | B | 1449 | 2 | - | 0/5/27/28 | 0/2/2/2 |
| 2 | OMU | B | 1491 | 2 | - | 0/5/27/28 | 0/2/2/2 |
| 2 | OMG | B | 1492 | 2 | - | 2/5/27/28 | 0/3/3/3 |
| 2 | A2M | B | 1516 | 47,2 | - | 1/5/27/28 | 0/3/3/3 |
| 2 | OMC | B | 1529 | 2 | - | 0/5/27/28 | 0/2/2/2 |
| 2 | OMC | B | 21 | 1,2 | - | 0/5/27/28 | 0/2/2/2 |
| 2 | A2M | B | 482 | 2 | - | 0/5/27/28 | 0/3/3/3 |
| 2 | A2M | B | 50 | 47,2 | - | 0/5/27/28 | 0/3/3/3 |
| 2 | OMC | B | 543 | 2 | - | 2/5/27/28 | 0/2/2/2 |
| 2 | OMG | B | 564 | 2 | - | 2/5/27/28 | 0/3/3/3 |
| 2 | 5MC | B | 624 | 2 | - | 2/3/25/26 | 0/2/2/2 |
| 2 | A2M | B | 627 | 2 | - | 3/5/27/28 | 0/3/3/3 |
| 2 | OMG | B | 634 | 2 | - | 2/5/27/28 | 0/3/3/3 |
| 2 | 7MG | B | 657 | 47,2 | - | 2/7/37/38 | 0/3/3/3 |
| 2 | OMC | B | 683 | 2 | - | 0/5/27/28 | 0/2/2/2 |
| 2 | A2M | B | 691 | 2 | - | 3/5/27/28 | 0/3/3/3 |
| 2 | OMG | B | 71 | 2 | - | 0/5/27/28 | 0/3/3/3 |
| 2 | A2M | B | 728 | 2 | - | 1/5/27/28 | 0/3/3/3 |
| 2 | OMU | B | 73 | 2 | - | 3/5/27/28 | 0/2/2/2 |
| 2 | OMG | B | 755 | 2 | - | 4/5/27/28 | 0/3/3/3 |
| 2 | OMU | B | 767 | 2 | - | 0/5/27/28 | 0/2/2/2 |
| 2 | OMC | B | 77 | 2 | - | 2/5/27/28 | 0/2/2/2 |
| 3 | OMC | C | 105 | 47,3 | - | 3/5/27/28 | 0/2/2/2 |
| 3 | OMU | C | 118 | 3 | - | 3/5/27/28 | 0/2/2/2 |
| 3 | A2M | C | 163 | 1,3 | - | 2/5/27/28 | 0/3/3/3 |
| 3 | OMG | C | 166 | 1,3 | - | 0/5/27/28 | 0/3/3/3 |
| 3 | 7MG | C | 42 | 3 | - | 0/7/37/38 | 0/3/3/3 |
| 3 | A2M | C | 43 | 3 | - | 0/5/27/28 | 0/3/3/3 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|-----------|---------|
| 3 | OMU | C | 7 | 1,3 | - | 2/5/27/28 | 0/2/2/2 |
| 3 | OMG | C | 75 | 3 | - | 2/5/27/28 | 0/3/3/3 |
| 7 | OMG | G | 70 | 7 | - | 2/5/27/28 | 0/3/3/3 |

All (478) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | A | 794 | A2M | O4'-C1' | 14.54 | 1.61 | 1.41 |
| 2 | B | 691 | A2M | O4'-C1' | 14.43 | 1.61 | 1.41 |
| 2 | B | 1516 | A2M | O4'-C1' | 14.19 | 1.61 | 1.41 |
| 1 | A | 1804 | A2M | O4'-C1' | 14.08 | 1.60 | 1.41 |
| 1 | A | 775 | A2M | O4'-C1' | 13.96 | 1.60 | 1.41 |
| 1 | A | 423 | A2M | O4'-C1' | 13.89 | 1.60 | 1.41 |
| 1 | A | 1071 | A2M | O4'-C1' | 13.83 | 1.60 | 1.41 |
| 1 | A | 1674 | A2M | O4'-C1' | 13.72 | 1.60 | 1.41 |
| 3 | C | 43 | A2M | O4'-C1' | 13.63 | 1.60 | 1.41 |
| 1 | A | 778 | A2M | O4'-C1' | 13.59 | 1.60 | 1.41 |
| 2 | B | 50 | A2M | O4'-C1' | 13.56 | 1.60 | 1.41 |
| 1 | A | 1043 | A2M | O4'-C1' | 13.55 | 1.60 | 1.41 |
| 2 | B | 482 | A2M | O4'-C1' | 13.39 | 1.59 | 1.41 |
| 3 | C | 163 | A2M | O4'-C1' | 13.38 | 1.59 | 1.41 |
| 2 | B | 627 | A2M | O4'-C1' | 13.33 | 1.59 | 1.41 |
| 2 | B | 728 | A2M | O4'-C1' | 13.26 | 1.59 | 1.41 |
| 1 | A | 974 | A2M | O4'-C1' | 13.19 | 1.59 | 1.41 |
| 2 | B | 1138 | 7MG | C4-N3 | 8.69 | 1.45 | 1.34 |
| 2 | B | 657 | 7MG | C4-N3 | 8.37 | 1.44 | 1.34 |
| 2 | B | 1107 | 7MG | C4-N3 | 8.21 | 1.44 | 1.34 |
| 1 | A | 1725 | 7MG | C4-N3 | 7.90 | 1.44 | 1.34 |
| 1 | A | 1045 | 7MG | C4-N3 | 7.88 | 1.44 | 1.34 |
| 3 | C | 42 | 7MG | C4-N3 | 7.81 | 1.44 | 1.34 |
| 1 | A | 931 | 7MG | C4-N3 | 7.78 | 1.44 | 1.34 |
| 2 | B | 1107 | 7MG | C6-C5 | 7.77 | 1.50 | 1.41 |
| 1 | A | 1045 | 7MG | C6-C5 | 7.58 | 1.50 | 1.41 |
| 2 | B | 1138 | 7MG | C6-C5 | 7.54 | 1.50 | 1.41 |
| 3 | C | 42 | 7MG | C6-C5 | 7.24 | 1.49 | 1.41 |
| 1 | A | 1071 | A2M | O4'-C4' | -6.87 | 1.29 | 1.45 |
| 1 | A | 1725 | 7MG | C6-C5 | 6.86 | 1.49 | 1.41 |
| 2 | B | 728 | A2M | O4'-C4' | -6.84 | 1.29 | 1.45 |
| 2 | B | 657 | 7MG | C6-C5 | 6.76 | 1.49 | 1.41 |
| 1 | A | 1674 | A2M | O4'-C4' | -6.74 | 1.29 | 1.45 |
| 1 | A | 974 | A2M | O4'-C4' | -6.66 | 1.30 | 1.45 |
| 1 | A | 775 | A2M | O4'-C4' | -6.65 | 1.30 | 1.45 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2 | B | 482 | A2M | O4'-C4' | -6.51 | 1.30 | 1.45 |
| 3 | C | 163 | A2M | O4'-C4' | -6.48 | 1.30 | 1.45 |
| 3 | C | 43 | A2M | O4'-C4' | -6.47 | 1.30 | 1.45 |
| 1 | A | 1043 | A2M | O4'-C4' | -6.44 | 1.30 | 1.45 |
| 2 | B | 50 | A2M | O4'-C4' | -6.38 | 1.30 | 1.45 |
| 1 | A | 931 | 7MG | C6-C5 | 6.36 | 1.48 | 1.41 |
| 2 | B | 691 | A2M | O4'-C4' | -6.34 | 1.30 | 1.45 |
| 2 | B | 1516 | A2M | O4'-C4' | -6.29 | 1.30 | 1.45 |
| 1 | A | 778 | A2M | O4'-C4' | -6.27 | 1.31 | 1.45 |
| 1 | A | 1804 | A2M | O4'-C4' | -6.24 | 1.31 | 1.45 |
| 2 | B | 627 | A2M | O4'-C4' | -6.15 | 1.31 | 1.45 |
| 1 | A | 423 | A2M | O4'-C4' | -6.10 | 1.31 | 1.45 |
| 1 | A | 794 | A2M | O4'-C4' | -6.07 | 1.31 | 1.45 |
| 2 | B | 564 | OMG | C4-N3 | 5.82 | 1.44 | 1.35 |
| 1 | A | 777 | OMC | C6-N1 | 5.76 | 1.43 | 1.35 |
| 3 | C | 7 | OMU | C6-N1 | 5.72 | 1.43 | 1.35 |
| 1 | A | 1127 | OMU | C4-N3 | 5.69 | 1.43 | 1.33 |
| 2 | B | 71 | OMG | C4-N3 | 5.66 | 1.44 | 1.35 |
| 2 | B | 1363 | OMG | C4-N3 | 5.64 | 1.44 | 1.35 |
| 3 | C | 105 | OMC | C6-N1 | 5.61 | 1.43 | 1.35 |
| 2 | B | 1492 | OMG | C4-N3 | 5.60 | 1.44 | 1.35 |
| 2 | B | 73 | OMU | C4-N3 | 5.57 | 1.42 | 1.33 |
| 2 | B | 1138 | 7MG | C2-N1 | 5.56 | 1.45 | 1.35 |
| 1 | A | 1045 | 7MG | C2-N1 | 5.55 | 1.45 | 1.35 |
| 3 | C | 7 | OMU | C4-N3 | 5.54 | 1.42 | 1.33 |
| 3 | C | 7 | OMU | C2-N3 | 5.51 | 1.49 | 1.38 |
| 2 | B | 77 | OMC | C6-N1 | 5.50 | 1.42 | 1.35 |
| 1 | A | 963 | OMU | C2-N3 | 5.50 | 1.49 | 1.38 |
| 2 | B | 1449 | OMC | C6-N1 | 5.48 | 1.42 | 1.35 |
| 2 | B | 1345 | OMU | C2-N3 | 5.47 | 1.49 | 1.38 |
| 1 | A | 1497 | OMU | C6-N1 | 5.45 | 1.42 | 1.35 |
| 1 | A | 1075 | OMG | C4-N3 | 5.44 | 1.44 | 1.35 |
| 1 | A | 1227 | OMU | C4-N3 | 5.42 | 1.42 | 1.33 |
| 1 | A | 1710 | OMG | C4-N3 | 5.40 | 1.44 | 1.35 |
| 1 | A | 972 | OMG | C4-N3 | 5.40 | 1.44 | 1.35 |
| 2 | B | 1361 | OMG | C4-N3 | 5.38 | 1.44 | 1.35 |
| 2 | B | 1491 | OMU | C6-N1 | 5.36 | 1.42 | 1.35 |
| 3 | C | 118 | OMU | C2-N3 | 5.36 | 1.48 | 1.38 |
| 2 | B | 1529 | OMC | C6-N1 | 5.35 | 1.42 | 1.35 |
| 1 | A | 1227 | OMU | C6-N1 | 5.35 | 1.42 | 1.35 |
| 2 | B | 755 | OMG | C4-N3 | 5.34 | 1.44 | 1.35 |
| 2 | B | 543 | OMC | C6-N1 | 5.31 | 1.42 | 1.35 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|------|-------------|----------|
| 2 | B | 657 | 7MG | C2-N1 | 5.30 | 1.44 | 1.35 |
| 1 | A | 343 | OMC | C6-N1 | 5.29 | 1.42 | 1.35 |
| 1 | A | 1227 | OMU | C2-N3 | 5.29 | 1.48 | 1.38 |
| 2 | B | 73 | OMU | C2-N3 | 5.29 | 1.48 | 1.38 |
| 1 | A | 919 | OMC | C6-N1 | 5.29 | 1.42 | 1.35 |
| 1 | A | 792 | OMC | C6-N1 | 5.26 | 1.42 | 1.35 |
| 2 | B | 1138 | 7MG | C6-N1 | 5.26 | 1.42 | 1.33 |
| 1 | A | 1725 | 7MG | C2-N1 | 5.24 | 1.44 | 1.35 |
| 1 | A | 963 | OMU | C4-N3 | 5.24 | 1.42 | 1.33 |
| 1 | A | 1316 | OMG | C4-N3 | 5.24 | 1.43 | 1.35 |
| 2 | B | 1107 | 7MG | C2-N1 | 5.22 | 1.44 | 1.35 |
| 1 | A | 1127 | OMU | C2-N3 | 5.22 | 1.48 | 1.38 |
| 2 | B | 683 | OMC | C6-N1 | 5.21 | 1.42 | 1.35 |
| 1 | A | 1662 | OMC | C6-N1 | 5.21 | 1.42 | 1.35 |
| 2 | B | 624 | 5MC | C4-N3 | 5.20 | 1.42 | 1.35 |
| 2 | B | 1345 | OMU | C4-N3 | 5.20 | 1.42 | 1.33 |
| 3 | C | 75 | OMG | C4-N3 | 5.19 | 1.43 | 1.35 |
| 2 | B | 634 | OMG | C4-N3 | 5.18 | 1.43 | 1.35 |
| 2 | B | 1169 | OMG | C4-N3 | 5.16 | 1.43 | 1.35 |
| 1 | A | 927 | OMG | C4-N3 | 5.16 | 1.43 | 1.35 |
| 2 | B | 1491 | OMU | C4-N3 | 5.13 | 1.42 | 1.33 |
| 2 | B | 767 | OMU | C2-N3 | 5.11 | 1.48 | 1.38 |
| 2 | B | 1380 | OMC | C6-N1 | 5.11 | 1.42 | 1.35 |
| 1 | A | 1127 | OMU | C6-N1 | 5.10 | 1.42 | 1.35 |
| 1 | A | 963 | OMU | C6-N1 | 5.10 | 1.42 | 1.35 |
| 1 | A | 1045 | 7MG | C6-N1 | 5.09 | 1.41 | 1.33 |
| 3 | C | 166 | OMG | C4-N3 | 5.02 | 1.43 | 1.35 |
| 3 | C | 118 | OMU | C4-N3 | 5.02 | 1.41 | 1.33 |
| 2 | B | 1385 | OMG | C4-N3 | 5.01 | 1.43 | 1.35 |
| 3 | C | 42 | 7MG | C2-N1 | 5.00 | 1.44 | 1.35 |
| 1 | A | 1497 | OMU | C2-N3 | 4.99 | 1.48 | 1.38 |
| 2 | B | 1107 | 7MG | C6-N1 | 4.99 | 1.41 | 1.33 |
| 2 | B | 21 | OMC | C6-N1 | 4.97 | 1.42 | 1.35 |
| 2 | B | 73 | OMU | C6-N1 | 4.97 | 1.42 | 1.35 |
| 2 | B | 1210 | OMG | C4-N3 | 4.96 | 1.43 | 1.35 |
| 2 | B | 1345 | OMU | C6-N1 | 4.95 | 1.42 | 1.35 |
| 1 | A | 1497 | OMU | C4-N3 | 4.93 | 1.41 | 1.33 |
| 2 | B | 1138 | 7MG | C2-N3 | 4.91 | 1.44 | 1.35 |
| 2 | B | 767 | OMU | C6-N1 | 4.90 | 1.42 | 1.35 |
| 1 | A | 958 | OMG | C4-N3 | 4.89 | 1.43 | 1.35 |
| 1 | A | 1075 | OMG | C2-N1 | 4.81 | 1.43 | 1.35 |
| 2 | B | 564 | OMG | C6-C5 | 4.79 | 1.49 | 1.41 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|------|-------------|----------|
| 2 | B | 1107 | 7MG | C2-N3 | 4.76 | 1.43 | 1.35 |
| 1 | A | 931 | 7MG | C6-N1 | 4.75 | 1.41 | 1.33 |
| 1 | A | 931 | 7MG | C2-N1 | 4.75 | 1.43 | 1.35 |
| 2 | B | 767 | OMU | C4-N3 | 4.75 | 1.41 | 1.33 |
| 2 | B | 1492 | OMG | C2-N1 | 4.72 | 1.43 | 1.35 |
| 2 | B | 564 | OMG | C2-N1 | 4.71 | 1.43 | 1.35 |
| 2 | B | 657 | 7MG | C6-N1 | 4.71 | 1.41 | 1.33 |
| 2 | B | 71 | OMG | C6-C5 | 4.67 | 1.49 | 1.41 |
| 1 | A | 1725 | 7MG | C6-N1 | 4.61 | 1.41 | 1.33 |
| 1 | A | 1316 | OMG | C2-N1 | 4.61 | 1.43 | 1.35 |
| 7 | G | 70 | OMG | C4-N3 | 4.60 | 1.42 | 1.35 |
| 1 | A | 1659 | OMG | C4-N3 | 4.59 | 1.42 | 1.35 |
| 2 | B | 1385 | OMG | C2-N1 | 4.58 | 1.43 | 1.35 |
| 1 | A | 1710 | OMG | C2-N1 | 4.56 | 1.43 | 1.35 |
| 2 | B | 1491 | OMU | C2-N3 | 4.53 | 1.47 | 1.38 |
| 3 | C | 118 | OMU | C6-N1 | 4.52 | 1.41 | 1.35 |
| 1 | A | 1675 | OMG | C4-N3 | 4.51 | 1.42 | 1.35 |
| 2 | B | 1363 | OMG | C6-C5 | 4.51 | 1.49 | 1.41 |
| 3 | C | 75 | OMG | C2-N1 | 4.49 | 1.43 | 1.35 |
| 2 | B | 1361 | OMG | C2-N1 | 4.48 | 1.43 | 1.35 |
| 2 | B | 657 | 7MG | C2-N3 | 4.48 | 1.43 | 1.35 |
| 1 | A | 1525 | 5MC | C4-N3 | 4.46 | 1.41 | 1.35 |
| 1 | A | 1710 | OMG | C6-C5 | 4.44 | 1.49 | 1.41 |
| 1 | A | 1073 | 5MC | C4-N3 | 4.43 | 1.41 | 1.35 |
| 1 | A | 927 | OMG | C2-N1 | 4.41 | 1.43 | 1.35 |
| 3 | C | 75 | OMG | C2-N2 | 4.40 | 1.42 | 1.33 |
| 2 | B | 1363 | OMG | C2-N1 | 4.39 | 1.43 | 1.35 |
| 2 | B | 634 | OMG | C6-C5 | 4.39 | 1.49 | 1.41 |
| 3 | C | 42 | 7MG | C2-N3 | 4.38 | 1.43 | 1.35 |
| 1 | A | 972 | OMG | C6-C5 | 4.38 | 1.49 | 1.41 |
| 1 | A | 1316 | OMG | C6-C5 | 4.37 | 1.49 | 1.41 |
| 1 | A | 777 | OMC | C4-N3 | 4.35 | 1.42 | 1.35 |
| 1 | A | 927 | OMG | C2-N2 | 4.34 | 1.42 | 1.33 |
| 2 | B | 71 | OMG | C2-N1 | 4.34 | 1.43 | 1.35 |
| 2 | B | 1210 | OMG | C2-N1 | 4.33 | 1.43 | 1.35 |
| 1 | A | 1725 | 7MG | C2-N3 | 4.31 | 1.43 | 1.35 |
| 3 | C | 75 | OMG | C6-C5 | 4.30 | 1.48 | 1.41 |
| 1 | A | 1045 | 7MG | C2-N3 | 4.30 | 1.43 | 1.35 |
| 2 | B | 1363 | OMG | C2-N2 | 4.30 | 1.42 | 1.33 |
| 2 | B | 1210 | OMG | C6-C5 | 4.27 | 1.48 | 1.41 |
| 1 | A | 1659 | OMG | C2-N1 | 4.25 | 1.42 | 1.35 |
| 1 | A | 958 | OMG | C6-C5 | 4.25 | 1.48 | 1.41 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2 | B | 634 | OMG | C2-N1 | 4.25 | 1.42 | 1.35 |
| 1 | A | 1710 | OMG | C2-N2 | 4.23 | 1.42 | 1.33 |
| 1 | A | 963 | OMU | O4-C4 | -4.23 | 1.13 | 1.24 |
| 1 | A | 931 | 7MG | C2-N3 | 4.21 | 1.42 | 1.35 |
| 3 | C | 166 | OMG | C6-C5 | 4.20 | 1.48 | 1.41 |
| 2 | B | 1169 | OMG | C2-N1 | 4.18 | 1.42 | 1.35 |
| 2 | B | 1492 | OMG | C6-C5 | 4.17 | 1.48 | 1.41 |
| 2 | B | 564 | OMG | C2-N2 | 4.16 | 1.42 | 1.33 |
| 2 | B | 755 | OMG | C2-N1 | 4.16 | 1.42 | 1.35 |
| 2 | B | 1169 | OMG | C6-C5 | 4.16 | 1.48 | 1.41 |
| 1 | A | 927 | OMG | C6-C5 | 4.16 | 1.48 | 1.41 |
| 2 | B | 755 | OMG | C6-C5 | 4.15 | 1.48 | 1.41 |
| 2 | B | 1492 | OMG | C2-N2 | 4.15 | 1.42 | 1.33 |
| 1 | A | 1071 | A2M | O3'-C3' | -4.15 | 1.33 | 1.43 |
| 2 | B | 1138 | 7MG | C2-N2 | 4.15 | 1.42 | 1.33 |
| 2 | B | 77 | OMC | C4-N3 | 4.14 | 1.42 | 1.35 |
| 2 | B | 564 | OMG | C6-N1 | 4.13 | 1.40 | 1.33 |
| 3 | C | 42 | 7MG | C6-N1 | 4.13 | 1.40 | 1.33 |
| 2 | B | 21 | OMC | C4-N3 | 4.12 | 1.42 | 1.35 |
| 3 | C | 166 | OMG | C2-N1 | 4.12 | 1.42 | 1.35 |
| 2 | B | 767 | OMU | O4-C4 | -4.11 | 1.14 | 1.24 |
| 1 | A | 958 | OMG | C2-N1 | 4.11 | 1.42 | 1.35 |
| 1 | A | 1675 | OMG | C6-C5 | 4.11 | 1.48 | 1.41 |
| 2 | B | 1345 | OMU | O4-C4 | -4.10 | 1.14 | 1.24 |
| 7 | G | 70 | OMG | C6-C5 | 4.09 | 1.48 | 1.41 |
| 1 | A | 343 | OMC | C4-N3 | 4.09 | 1.42 | 1.35 |
| 2 | B | 1361 | OMG | C2-N2 | 4.06 | 1.42 | 1.33 |
| 2 | B | 1385 | OMG | C2-N2 | 4.04 | 1.42 | 1.33 |
| 1 | A | 775 | A2M | O3'-C3' | -4.03 | 1.33 | 1.43 |
| 1 | A | 1075 | OMG | C2-N2 | 4.03 | 1.42 | 1.33 |
| 1 | A | 1675 | OMG | C2-N1 | 4.03 | 1.42 | 1.35 |
| 1 | A | 1659 | OMG | C6-C5 | 4.02 | 1.48 | 1.41 |
| 7 | G | 70 | OMG | C2-N1 | 4.01 | 1.42 | 1.35 |
| 1 | A | 972 | OMG | C2-N2 | 4.00 | 1.42 | 1.33 |
| 2 | B | 1380 | OMC | C4-N3 | 4.00 | 1.42 | 1.35 |
| 3 | C | 118 | OMU | O4-C4 | -4.00 | 1.14 | 1.24 |
| 1 | A | 919 | OMC | C4-N3 | 4.00 | 1.42 | 1.35 |
| 2 | B | 1169 | OMG | C2-N2 | 3.99 | 1.42 | 1.33 |
| 1 | A | 1316 | OMG | C2-N2 | 3.98 | 1.42 | 1.33 |
| 2 | B | 73 | OMU | O4-C4 | -3.98 | 1.14 | 1.24 |
| 1 | A | 1053 | OMC | C6-N1 | 3.98 | 1.41 | 1.35 |
| 1 | A | 343 | OMC | C2-N3 | 3.97 | 1.46 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 3 | C | 7 | OMU | O4-C4 | -3.97 | 1.14 | 1.24 |
| 2 | B | 1516 | A2M | O3'-C3' | -3.96 | 1.33 | 1.43 |
| 1 | A | 1675 | OMG | C2-N2 | 3.96 | 1.41 | 1.33 |
| 2 | B | 657 | 7MG | C2-N2 | 3.95 | 1.41 | 1.33 |
| 1 | A | 1043 | A2M | O3'-C3' | -3.95 | 1.33 | 1.43 |
| 1 | A | 1659 | OMG | C6-N1 | 3.94 | 1.39 | 1.33 |
| 2 | B | 755 | OMG | C2-N2 | 3.93 | 1.41 | 1.33 |
| 1 | A | 972 | OMG | C2-N1 | 3.92 | 1.42 | 1.35 |
| 2 | B | 1491 | OMU | O4-C4 | -3.91 | 1.14 | 1.24 |
| 2 | B | 1107 | 7MG | C2-N2 | 3.89 | 1.41 | 1.33 |
| 1 | A | 1497 | OMU | O4-C4 | -3.89 | 1.14 | 1.24 |
| 1 | A | 1659 | OMG | C2-N2 | 3.88 | 1.41 | 1.33 |
| 2 | B | 1492 | OMG | C6-N1 | 3.88 | 1.39 | 1.33 |
| 3 | C | 163 | A2M | O3'-C3' | -3.88 | 1.33 | 1.43 |
| 1 | A | 1316 | OMG | C6-N1 | 3.87 | 1.39 | 1.33 |
| 3 | C | 43 | A2M | O3'-C3' | -3.87 | 1.33 | 1.43 |
| 2 | B | 71 | OMG | C2-N2 | 3.87 | 1.41 | 1.33 |
| 2 | B | 21 | OMC | C2-N3 | 3.87 | 1.45 | 1.38 |
| 1 | A | 1227 | OMU | O4-C4 | -3.86 | 1.14 | 1.24 |
| 2 | B | 1449 | OMC | C4-N3 | 3.86 | 1.41 | 1.35 |
| 3 | C | 166 | OMG | C2-N2 | 3.86 | 1.41 | 1.33 |
| 1 | A | 777 | OMC | C2-N3 | 3.85 | 1.45 | 1.38 |
| 2 | B | 1361 | OMG | C6-C5 | 3.84 | 1.48 | 1.41 |
| 2 | B | 634 | OMG | C2-N2 | 3.83 | 1.41 | 1.33 |
| 3 | C | 105 | OMC | C6-C5 | 3.82 | 1.46 | 1.38 |
| 2 | B | 624 | 5MC | C2-N3 | 3.81 | 1.45 | 1.38 |
| 3 | C | 75 | OMG | C6-N1 | 3.81 | 1.39 | 1.33 |
| 2 | B | 1385 | OMG | C6-C5 | 3.81 | 1.48 | 1.41 |
| 1 | A | 1662 | OMC | C4-N3 | 3.80 | 1.41 | 1.35 |
| 1 | A | 919 | OMC | C2-N3 | 3.78 | 1.45 | 1.38 |
| 2 | B | 1361 | OMG | C6-N1 | 3.78 | 1.39 | 1.33 |
| 7 | G | 70 | OMG | C2-N2 | 3.77 | 1.41 | 1.33 |
| 2 | B | 77 | OMC | C2-N3 | 3.77 | 1.45 | 1.38 |
| 2 | B | 71 | OMG | C6-N1 | 3.76 | 1.39 | 1.33 |
| 1 | A | 792 | OMC | C4-N3 | 3.76 | 1.41 | 1.35 |
| 2 | B | 77 | OMC | C6-C5 | 3.75 | 1.46 | 1.38 |
| 3 | C | 105 | OMC | C4-N3 | 3.75 | 1.41 | 1.35 |
| 2 | B | 1380 | OMC | C2-N3 | 3.75 | 1.45 | 1.38 |
| 2 | B | 1363 | OMG | C6-N1 | 3.74 | 1.39 | 1.33 |
| 1 | A | 1127 | OMU | O4-C4 | -3.74 | 1.15 | 1.24 |
| 1 | A | 958 | OMG | C2-N2 | 3.74 | 1.41 | 1.33 |
| 1 | A | 1710 | OMG | C6-N1 | 3.74 | 1.39 | 1.33 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2 | B | 728 | A2M | O3'-C3' | -3.69 | 1.34 | 1.43 |
| 1 | A | 1075 | OMG | C6-C5 | 3.68 | 1.47 | 1.41 |
| 1 | A | 1073 | 5MC | C5-C4 | 3.68 | 1.46 | 1.41 |
| 7 | G | 70 | OMG | C6-N1 | 3.68 | 1.39 | 1.33 |
| 1 | A | 1075 | OMG | C6-N1 | 3.67 | 1.39 | 1.33 |
| 2 | B | 77 | OMC | C4-N4 | 3.66 | 1.46 | 1.35 |
| 1 | A | 927 | OMG | C6-N1 | 3.65 | 1.39 | 1.33 |
| 1 | A | 343 | OMC | C4-N4 | 3.65 | 1.46 | 1.35 |
| 1 | A | 1497 | OMU | C6-C5 | 3.64 | 1.46 | 1.38 |
| 3 | C | 7 | OMU | C6-C5 | 3.64 | 1.46 | 1.38 |
| 1 | A | 792 | OMC | C2-N3 | 3.63 | 1.45 | 1.38 |
| 1 | A | 777 | OMC | C4-N4 | 3.63 | 1.46 | 1.35 |
| 2 | B | 683 | OMC | C2-N3 | 3.62 | 1.45 | 1.38 |
| 1 | A | 1045 | 7MG | C2-N2 | 3.62 | 1.41 | 1.33 |
| 2 | B | 543 | OMC | C4-N4 | 3.61 | 1.45 | 1.35 |
| 1 | A | 919 | OMC | C4-N4 | 3.61 | 1.45 | 1.35 |
| 1 | A | 423 | A2M | O3'-C3' | -3.61 | 1.34 | 1.43 |
| 2 | B | 1529 | OMC | C4-N3 | 3.60 | 1.41 | 1.35 |
| 2 | B | 482 | A2M | O3'-C3' | -3.60 | 1.34 | 1.43 |
| 2 | B | 1380 | OMC | C4-N4 | 3.58 | 1.45 | 1.35 |
| 1 | A | 931 | 7MG | C2-N2 | 3.57 | 1.41 | 1.33 |
| 1 | A | 1674 | A2M | O3'-C3' | -3.56 | 1.34 | 1.43 |
| 1 | A | 919 | OMC | C6-C5 | 3.55 | 1.45 | 1.38 |
| 2 | B | 1380 | OMC | C6-C5 | 3.55 | 1.45 | 1.38 |
| 3 | C | 105 | OMC | C4-N4 | 3.55 | 1.45 | 1.35 |
| 2 | B | 543 | OMC | C4-N3 | 3.54 | 1.41 | 1.35 |
| 2 | B | 1210 | OMG | C2-N2 | 3.54 | 1.41 | 1.33 |
| 2 | B | 1210 | OMG | C6-N1 | 3.54 | 1.39 | 1.33 |
| 1 | A | 1073 | 5MC | C2-N3 | 3.53 | 1.45 | 1.38 |
| 2 | B | 543 | OMC | C2-N3 | 3.53 | 1.45 | 1.38 |
| 1 | A | 972 | OMG | C6-N1 | 3.52 | 1.39 | 1.33 |
| 1 | A | 1053 | OMC | C4-N4 | 3.51 | 1.45 | 1.35 |
| 2 | B | 1449 | OMC | C6-C5 | 3.50 | 1.45 | 1.38 |
| 2 | B | 755 | OMG | C6-N1 | 3.49 | 1.39 | 1.33 |
| 2 | B | 634 | OMG | C6-N1 | 3.49 | 1.39 | 1.33 |
| 1 | A | 792 | OMC | C4-N4 | 3.49 | 1.45 | 1.35 |
| 1 | A | 1662 | OMC | C4-N4 | 3.49 | 1.45 | 1.35 |
| 1 | A | 1525 | 5MC | C2-N3 | 3.49 | 1.45 | 1.38 |
| 3 | C | 42 | 7MG | C2-N2 | 3.48 | 1.40 | 1.33 |
| 2 | B | 1529 | OMC | C4-N4 | 3.46 | 1.45 | 1.35 |
| 2 | B | 1449 | OMC | C4-N4 | 3.45 | 1.45 | 1.35 |
| 2 | B | 21 | OMC | C4-N4 | 3.45 | 1.45 | 1.35 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2 | B | 683 | OMC | C6-C5 | 3.44 | 1.45 | 1.38 |
| 2 | B | 683 | OMC | C4-N4 | 3.43 | 1.45 | 1.35 |
| 3 | C | 166 | OMG | C6-N1 | 3.43 | 1.39 | 1.33 |
| 1 | A | 778 | A2M | O3'-C3' | -3.42 | 1.34 | 1.43 |
| 2 | B | 1345 | OMU | C6-C5 | 3.42 | 1.45 | 1.38 |
| 1 | A | 777 | OMC | C6-C5 | 3.42 | 1.45 | 1.38 |
| 1 | A | 1675 | OMG | C6-N1 | 3.39 | 1.38 | 1.33 |
| 2 | B | 543 | OMC | C6-C5 | 3.39 | 1.45 | 1.38 |
| 1 | A | 1227 | OMU | C6-C5 | 3.38 | 1.45 | 1.38 |
| 2 | B | 683 | OMC | C4-N3 | 3.38 | 1.41 | 1.35 |
| 2 | B | 1529 | OMC | C6-C5 | 3.37 | 1.45 | 1.38 |
| 1 | A | 974 | A2M | O3'-C3' | -3.37 | 1.35 | 1.43 |
| 2 | B | 1385 | OMG | C6-N1 | 3.35 | 1.38 | 1.33 |
| 1 | A | 958 | OMG | C6-N1 | 3.32 | 1.38 | 1.33 |
| 2 | B | 50 | A2M | O3'-C3' | -3.32 | 1.35 | 1.43 |
| 1 | A | 1525 | 5MC | C5-C4 | 3.32 | 1.46 | 1.41 |
| 1 | A | 1127 | OMU | C6-C5 | 3.32 | 1.45 | 1.38 |
| 1 | A | 792 | OMC | C6-C5 | 3.31 | 1.45 | 1.38 |
| 1 | A | 1725 | 7MG | C2-N2 | 3.31 | 1.40 | 1.33 |
| 1 | A | 343 | OMC | C6-C5 | 3.30 | 1.45 | 1.38 |
| 1 | A | 963 | OMU | C6-C5 | 3.30 | 1.45 | 1.38 |
| 2 | B | 1529 | OMC | C2-N3 | 3.29 | 1.44 | 1.38 |
| 2 | B | 767 | OMU | C6-C5 | 3.25 | 1.45 | 1.38 |
| 2 | B | 1491 | OMU | C6-C5 | 3.25 | 1.45 | 1.38 |
| 2 | B | 21 | OMC | C6-C5 | 3.24 | 1.45 | 1.38 |
| 1 | A | 1662 | OMC | C2-N3 | 3.24 | 1.44 | 1.38 |
| 1 | A | 423 | A2M | C6-N6 | 3.23 | 1.46 | 1.34 |
| 1 | A | 1662 | OMC | C6-C5 | 3.21 | 1.45 | 1.38 |
| 3 | C | 118 | OMU | C6-C5 | 3.21 | 1.45 | 1.38 |
| 2 | B | 73 | OMU | C6-C5 | 3.14 | 1.45 | 1.38 |
| 2 | B | 1449 | OMC | C2-N3 | 3.14 | 1.44 | 1.38 |
| 2 | B | 1169 | OMG | C6-N1 | 3.13 | 1.38 | 1.33 |
| 1 | A | 1053 | OMC | C2-N3 | 3.12 | 1.44 | 1.38 |
| 1 | A | 1804 | A2M | C6-N6 | 3.09 | 1.45 | 1.34 |
| 3 | C | 105 | OMC | C2-N3 | 3.07 | 1.44 | 1.38 |
| 2 | B | 1516 | A2M | C6-N6 | 3.06 | 1.45 | 1.34 |
| 1 | A | 1043 | A2M | C6-N6 | 3.06 | 1.45 | 1.34 |
| 2 | B | 627 | A2M | C6-N6 | 3.05 | 1.45 | 1.34 |
| 1 | A | 974 | A2M | C6-N6 | 3.05 | 1.45 | 1.34 |
| 1 | A | 794 | A2M | C6-N6 | 3.05 | 1.45 | 1.34 |
| 1 | A | 775 | A2M | C6-N6 | 3.04 | 1.45 | 1.34 |
| 2 | B | 627 | A2M | O3'-C3' | -3.01 | 1.35 | 1.43 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | A | 1071 | A2M | C5-C4 | -3.01 | 1.33 | 1.40 |
| 1 | A | 1804 | A2M | O2'-C2' | 2.97 | 1.50 | 1.42 |
| 2 | B | 71 | OMG | C5-C4 | -2.97 | 1.33 | 1.40 |
| 2 | B | 1210 | OMG | C5-C4 | -2.97 | 1.33 | 1.40 |
| 2 | B | 728 | A2M | C6-N6 | 2.97 | 1.45 | 1.34 |
| 2 | B | 691 | A2M | O3'-C3' | -2.96 | 1.36 | 1.43 |
| 2 | B | 755 | OMG | C5-C4 | -2.96 | 1.33 | 1.40 |
| 2 | B | 1363 | OMG | C5-C4 | -2.95 | 1.33 | 1.40 |
| 2 | B | 50 | A2M | C2-N3 | 2.95 | 1.37 | 1.32 |
| 1 | A | 423 | A2M | C2-N3 | 2.95 | 1.37 | 1.32 |
| 2 | B | 50 | A2M | C6-N6 | 2.94 | 1.45 | 1.34 |
| 3 | C | 163 | A2M | C6-N6 | 2.93 | 1.45 | 1.34 |
| 1 | A | 972 | OMG | C5-C4 | -2.92 | 1.33 | 1.40 |
| 1 | A | 958 | OMG | C5-C4 | -2.91 | 1.33 | 1.40 |
| 2 | B | 691 | A2M | C6-N6 | 2.91 | 1.45 | 1.34 |
| 3 | C | 166 | OMG | C5-C4 | -2.90 | 1.34 | 1.40 |
| 7 | G | 70 | OMG | C5-C4 | -2.89 | 1.34 | 1.40 |
| 1 | A | 1804 | A2M | O3'-C3' | -2.88 | 1.36 | 1.43 |
| 1 | A | 1675 | OMG | C5-C4 | -2.85 | 1.34 | 1.40 |
| 3 | C | 43 | A2M | C6-N6 | 2.85 | 1.44 | 1.34 |
| 1 | A | 778 | A2M | C6-N6 | 2.84 | 1.44 | 1.34 |
| 1 | A | 1659 | OMG | C5-C4 | -2.84 | 1.34 | 1.40 |
| 1 | A | 927 | OMG | C5-C4 | -2.82 | 1.34 | 1.40 |
| 1 | A | 1071 | A2M | C6-N6 | 2.82 | 1.44 | 1.34 |
| 2 | B | 482 | A2M | C2-N3 | 2.81 | 1.36 | 1.32 |
| 2 | B | 482 | A2M | C6-N6 | 2.81 | 1.44 | 1.34 |
| 1 | A | 1316 | OMG | C5-C4 | -2.78 | 1.34 | 1.40 |
| 2 | B | 1385 | OMG | C5-C4 | -2.77 | 1.34 | 1.40 |
| 1 | A | 974 | A2M | C2-N3 | 2.76 | 1.36 | 1.32 |
| 1 | A | 1043 | A2M | C5-C4 | -2.74 | 1.34 | 1.40 |
| 2 | B | 71 | OMG | O5'-C5' | -2.72 | 1.41 | 1.44 |
| 1 | A | 1127 | OMU | O5'-C5' | -2.72 | 1.41 | 1.44 |
| 1 | A | 794 | A2M | O3'-C3' | -2.72 | 1.36 | 1.43 |
| 1 | A | 1071 | A2M | O5'-C5' | -2.71 | 1.41 | 1.44 |
| 1 | A | 1725 | 7MG | O5'-C5' | -2.71 | 1.41 | 1.44 |
| 1 | A | 1674 | A2M | C6-N6 | 2.70 | 1.44 | 1.34 |
| 2 | B | 691 | A2M | C5-C4 | -2.68 | 1.34 | 1.40 |
| 1 | A | 423 | A2M | O2'-C2' | 2.66 | 1.49 | 1.42 |
| 3 | C | 43 | A2M | C5-C4 | -2.65 | 1.34 | 1.40 |
| 1 | A | 927 | OMG | O5'-C5' | -2.64 | 1.41 | 1.44 |
| 2 | B | 627 | A2M | C2-N3 | 2.63 | 1.36 | 1.32 |
| 2 | B | 728 | A2M | O2'-C2' | 2.63 | 1.49 | 1.42 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | A | 1525 | 5MC | C4-N4 | 2.63 | 1.40 | 1.34 |
| 2 | B | 1169 | OMG | C5-C4 | -2.62 | 1.34 | 1.40 |
| 2 | B | 1361 | OMG | C5-C4 | -2.61 | 1.34 | 1.40 |
| 3 | C | 166 | OMG | O5'-C5' | -2.61 | 1.41 | 1.44 |
| 1 | A | 1674 | A2M | C5-C4 | -2.60 | 1.34 | 1.40 |
| 2 | B | 657 | 7MG | O5'-C5' | -2.59 | 1.41 | 1.44 |
| 1 | A | 1053 | OMC | C6-C5 | 2.58 | 1.43 | 1.38 |
| 1 | A | 1525 | 5MC | O5'-C5' | -2.58 | 1.41 | 1.44 |
| 1 | A | 1053 | OMC | C4-N3 | 2.58 | 1.39 | 1.35 |
| 2 | B | 50 | A2M | O2'-C2' | 2.56 | 1.49 | 1.42 |
| 2 | B | 482 | A2M | C5-C4 | -2.56 | 1.34 | 1.40 |
| 1 | A | 958 | OMG | O5'-C5' | -2.55 | 1.41 | 1.44 |
| 1 | A | 1053 | OMC | O5'-C5' | -2.54 | 1.41 | 1.44 |
| 1 | A | 974 | A2M | O2'-C2' | 2.52 | 1.49 | 1.42 |
| 3 | C | 163 | A2M | O2'-C2' | 2.51 | 1.49 | 1.42 |
| 1 | A | 1674 | A2M | O2'-C2' | 2.51 | 1.49 | 1.42 |
| 1 | A | 1674 | A2M | C2-N3 | 2.51 | 1.36 | 1.32 |
| 1 | A | 1804 | A2M | O5'-C5' | -2.51 | 1.41 | 1.44 |
| 1 | A | 775 | A2M | C2-N3 | 2.50 | 1.36 | 1.32 |
| 1 | A | 1073 | 5MC | C4-N4 | 2.49 | 1.40 | 1.34 |
| 3 | C | 43 | A2M | O2'-C2' | 2.49 | 1.49 | 1.42 |
| 7 | G | 70 | OMG | O5'-C5' | -2.49 | 1.41 | 1.44 |
| 2 | B | 691 | A2M | C2-N3 | 2.49 | 1.36 | 1.32 |
| 2 | B | 627 | A2M | O2'-C2' | 2.48 | 1.49 | 1.42 |
| 2 | B | 482 | A2M | O2'-C2' | 2.47 | 1.49 | 1.42 |
| 2 | B | 634 | OMG | C5-C4 | -2.47 | 1.34 | 1.40 |
| 1 | A | 794 | A2M | C5-C4 | -2.45 | 1.35 | 1.40 |
| 3 | C | 75 | OMG | C5-C4 | -2.45 | 1.35 | 1.40 |
| 1 | A | 775 | A2M | O2'-C2' | 2.44 | 1.49 | 1.42 |
| 1 | A | 1674 | A2M | O5'-C5' | -2.43 | 1.41 | 1.44 |
| 2 | B | 1516 | A2M | C2-N3 | 2.43 | 1.36 | 1.32 |
| 2 | B | 728 | A2M | C5-C4 | -2.42 | 1.35 | 1.40 |
| 2 | B | 1516 | A2M | O2'-C2' | 2.42 | 1.48 | 1.42 |
| 1 | A | 974 | A2M | O5'-C5' | -2.41 | 1.41 | 1.44 |
| 1 | A | 1710 | OMG | C5-C4 | -2.40 | 1.35 | 1.40 |
| 1 | A | 1043 | A2M | O2'-C2' | 2.40 | 1.48 | 1.42 |
| 2 | B | 624 | 5MC | C4-N4 | 2.40 | 1.40 | 1.34 |
| 1 | A | 778 | A2M | O5'-C5' | -2.39 | 1.41 | 1.44 |
| 1 | A | 972 | OMG | O5'-C5' | -2.39 | 1.41 | 1.44 |
| 2 | B | 1169 | OMG | O5'-C5' | -2.39 | 1.41 | 1.44 |
| 2 | B | 624 | 5MC | C5-C4 | 2.38 | 1.44 | 1.41 |
| 3 | C | 163 | A2M | C2-N3 | 2.36 | 1.36 | 1.32 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | A | 778 | A2M | C5-C4 | -2.36 | 1.35 | 1.40 |
| 2 | B | 77 | OMC | O5'-C5' | -2.36 | 1.41 | 1.44 |
| 1 | A | 1662 | OMC | O5'-C5' | -2.35 | 1.41 | 1.44 |
| 2 | B | 50 | A2M | C5-C4 | -2.35 | 1.35 | 1.40 |
| 3 | C | 42 | 7MG | O6-C6 | -2.34 | 1.18 | 1.24 |
| 1 | A | 1071 | A2M | O2'-C2' | 2.33 | 1.48 | 1.42 |
| 3 | C | 7 | OMU | O5'-C5' | -2.33 | 1.41 | 1.44 |
| 2 | B | 21 | OMC | O5'-C5' | -2.32 | 1.41 | 1.44 |
| 2 | B | 1363 | OMG | O5'-C5' | -2.31 | 1.41 | 1.44 |
| 2 | B | 691 | A2M | O5'-C5' | -2.30 | 1.41 | 1.44 |
| 1 | A | 1075 | OMG | C5-C4 | -2.29 | 1.35 | 1.40 |
| 1 | A | 777 | OMC | C5-C4 | 2.28 | 1.46 | 1.41 |
| 1 | A | 1073 | 5MC | O5'-C5' | -2.28 | 1.41 | 1.44 |
| 2 | B | 683 | OMC | O5'-C5' | -2.28 | 1.41 | 1.44 |
| 1 | A | 1525 | 5MC | C6-C5 | 2.28 | 1.46 | 1.40 |
| 1 | A | 919 | OMC | O5'-C5' | -2.27 | 1.41 | 1.44 |
| 1 | A | 1316 | OMG | O5'-C5' | -2.26 | 1.41 | 1.44 |
| 2 | B | 691 | A2M | O2'-C2' | 2.26 | 1.48 | 1.42 |
| 3 | C | 42 | 7MG | O5'-C5' | -2.25 | 1.41 | 1.44 |
| 2 | B | 627 | A2M | C5-C4 | -2.25 | 1.35 | 1.40 |
| 2 | B | 564 | OMG | O5'-C5' | -2.25 | 1.41 | 1.44 |
| 2 | B | 1529 | OMC | O5'-C5' | -2.24 | 1.41 | 1.44 |
| 2 | B | 564 | OMG | C5-C4 | -2.23 | 1.35 | 1.40 |
| 2 | B | 1516 | A2M | C5-C4 | -2.23 | 1.35 | 1.40 |
| 2 | B | 1345 | OMU | O5'-C5' | -2.22 | 1.41 | 1.44 |
| 1 | A | 931 | 7MG | O6-C6 | -2.22 | 1.19 | 1.24 |
| 1 | A | 1804 | A2M | C5-C4 | -2.22 | 1.35 | 1.40 |
| 1 | A | 775 | A2M | O5'-C5' | -2.21 | 1.41 | 1.44 |
| 1 | A | 1804 | A2M | C2-N3 | 2.21 | 1.35 | 1.32 |
| 1 | A | 1227 | OMU | O5'-C5' | -2.20 | 1.41 | 1.44 |
| 2 | B | 728 | A2M | O5'-C5' | -2.20 | 1.41 | 1.44 |
| 2 | B | 1492 | OMG | C5-C4 | -2.20 | 1.35 | 1.40 |
| 2 | B | 77 | OMC | C5-C4 | 2.20 | 1.46 | 1.41 |
| 1 | A | 778 | A2M | O2'-C2' | 2.18 | 1.48 | 1.42 |
| 2 | B | 657 | 7MG | O6-C6 | -2.17 | 1.19 | 1.24 |
| 1 | A | 1725 | 7MG | O6-C6 | -2.17 | 1.19 | 1.24 |
| 1 | A | 423 | A2M | O5'-C5' | -2.16 | 1.41 | 1.44 |
| 3 | C | 163 | A2M | C5-C4 | -2.16 | 1.35 | 1.40 |
| 1 | A | 1073 | 5MC | C6-C5 | 2.16 | 1.46 | 1.40 |
| 1 | A | 423 | A2M | C5-C4 | -2.15 | 1.35 | 1.40 |
| 3 | C | 163 | A2M | O5'-C5' | -2.15 | 1.41 | 1.44 |
| 2 | B | 767 | OMU | O5'-C5' | -2.15 | 1.41 | 1.44 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | A | 1710 | OMG | O5'-C5' | -2.14 | 1.41 | 1.44 |
| 3 | C | 43 | A2M | C2-N3 | 2.14 | 1.35 | 1.32 |
| 1 | A | 778 | A2M | C2-N3 | 2.14 | 1.35 | 1.32 |
| 1 | A | 931 | 7MG | O5'-C5' | -2.13 | 1.41 | 1.44 |
| 1 | A | 775 | A2M | C5-C4 | -2.13 | 1.35 | 1.40 |
| 1 | A | 794 | A2M | O2'-C2' | 2.11 | 1.48 | 1.42 |
| 1 | A | 1659 | OMG | O5'-C5' | -2.11 | 1.41 | 1.44 |
| 1 | A | 1043 | A2M | C2-N3 | 2.10 | 1.35 | 1.32 |
| 1 | A | 1075 | OMG | O5'-C5' | -2.07 | 1.41 | 1.44 |
| 1 | A | 963 | OMU | O5'-C5' | -2.07 | 1.41 | 1.44 |
| 1 | A | 919 | OMC | C5-C4 | 2.07 | 1.46 | 1.41 |
| 2 | B | 728 | A2M | C2-N3 | 2.06 | 1.35 | 1.32 |
| 3 | C | 118 | OMU | O5'-C5' | -2.06 | 1.41 | 1.44 |
| 2 | B | 624 | 5MC | C6-C5 | 2.06 | 1.45 | 1.40 |
| 2 | B | 1492 | OMG | O5'-C5' | -2.06 | 1.41 | 1.44 |
| 2 | B | 624 | 5MC | O5'-C5' | -2.05 | 1.42 | 1.44 |
| 1 | A | 777 | OMC | O5'-C5' | -2.04 | 1.42 | 1.44 |
| 1 | A | 1045 | 7MG | O5'-C5' | -2.04 | 1.42 | 1.44 |
| 2 | B | 1491 | OMU | O5'-C5' | -2.03 | 1.42 | 1.44 |
| 1 | A | 1497 | OMU | O5'-C5' | -2.03 | 1.42 | 1.44 |
| 1 | A | 1053 | OMC | C5-C4 | 2.02 | 1.46 | 1.41 |
| 2 | B | 1107 | 7MG | O5'-C5' | -2.01 | 1.42 | 1.44 |
| 2 | B | 1138 | 7MG | O6-C6 | -2.00 | 1.19 | 1.24 |

All (307) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 1 | A | 1075 | OMG | C1'-N9-C4 | 19.82 | 160.88 | 126.64 |
| 2 | B | 1492 | OMG | C1'-N9-C4 | 18.20 | 158.08 | 126.64 |
| 1 | A | 1710 | OMG | C1'-N9-C4 | 18.10 | 157.91 | 126.64 |
| 2 | B | 634 | OMG | C1'-N9-C4 | 17.41 | 156.71 | 126.64 |
| 2 | B | 564 | OMG | C1'-N9-C4 | 17.21 | 156.37 | 126.64 |
| 2 | B | 755 | OMG | C1'-N9-C4 | 16.42 | 155.00 | 126.64 |
| 1 | A | 927 | OMG | C1'-N9-C4 | 16.42 | 155.00 | 126.64 |
| 2 | B | 1361 | OMG | C1'-N9-C4 | 16.25 | 154.72 | 126.64 |
| 3 | C | 75 | OMG | C1'-N9-C4 | 16.17 | 154.58 | 126.64 |
| 2 | B | 1169 | OMG | C1'-N9-C4 | 16.16 | 154.56 | 126.64 |
| 3 | C | 166 | OMG | C1'-N9-C4 | 16.14 | 154.52 | 126.64 |
| 1 | A | 1675 | OMG | C1'-N9-C4 | 15.95 | 154.20 | 126.64 |
| 2 | B | 1385 | OMG | C1'-N9-C4 | 15.83 | 153.99 | 126.64 |
| 1 | A | 1316 | OMG | C1'-N9-C4 | 15.67 | 153.72 | 126.64 |
| 1 | A | 958 | OMG | C1'-N9-C4 | 15.53 | 153.48 | 126.64 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | A | 1659 | OMG | C1'-N9-C4 | 15.25 | 152.98 | 126.64 |
| 2 | B | 1363 | OMG | C1'-N9-C4 | 14.98 | 152.52 | 126.64 |
| 7 | G | 70 | OMG | C1'-N9-C4 | 14.77 | 152.15 | 126.64 |
| 2 | B | 1210 | OMG | C1'-N9-C4 | 14.71 | 152.05 | 126.64 |
| 2 | B | 71 | OMG | C1'-N9-C4 | 14.50 | 151.69 | 126.64 |
| 1 | A | 972 | OMG | C1'-N9-C4 | 13.82 | 150.52 | 126.64 |
| 1 | A | 794 | A2M | C5-C6-N6 | 8.57 | 133.84 | 120.38 |
| 1 | A | 1043 | A2M | C5-C6-N6 | 7.97 | 132.89 | 120.38 |
| 2 | B | 728 | A2M | C5-C6-N6 | 7.61 | 132.32 | 120.38 |
| 1 | A | 974 | A2M | C5-C6-N6 | 7.29 | 131.82 | 120.38 |
| 2 | B | 482 | A2M | C5-C6-N6 | 7.27 | 131.79 | 120.38 |
| 2 | B | 691 | A2M | C5-C6-N6 | 7.25 | 131.75 | 120.38 |
| 1 | A | 1804 | A2M | C5-C6-N6 | 7.23 | 131.74 | 120.38 |
| 1 | A | 423 | A2M | C5-C6-N6 | 7.13 | 131.58 | 120.38 |
| 2 | B | 1516 | A2M | C5-C6-N6 | 7.09 | 131.51 | 120.38 |
| 3 | C | 163 | A2M | C5-C6-N6 | 7.03 | 131.42 | 120.38 |
| 2 | B | 627 | A2M | C5-C6-N6 | 7.00 | 131.37 | 120.38 |
| 2 | B | 50 | A2M | C5-C6-N6 | 6.85 | 131.13 | 120.38 |
| 1 | A | 974 | A2M | C4'-O4'-C1' | -6.79 | 102.74 | 109.83 |
| 1 | A | 1071 | A2M | C5-C6-N6 | 6.67 | 130.85 | 120.38 |
| 1 | A | 1674 | A2M | C5-C6-N6 | 6.59 | 130.73 | 120.38 |
| 1 | A | 775 | A2M | C5-C6-N6 | 6.59 | 130.72 | 120.38 |
| 7 | G | 70 | OMG | N3-C2-N1 | -6.35 | 118.66 | 127.25 |
| 1 | A | 1043 | A2M | N3-C2-N1 | -6.20 | 118.68 | 128.68 |
| 1 | A | 927 | OMG | N3-C2-N1 | -6.19 | 118.87 | 127.25 |
| 1 | A | 778 | A2M | C5-C6-N6 | 6.16 | 130.04 | 120.38 |
| 3 | C | 43 | A2M | C5-C6-N6 | 6.02 | 129.83 | 120.38 |
| 2 | B | 691 | A2M | N3-C2-N1 | -6.00 | 119.00 | 128.68 |
| 1 | A | 794 | A2M | N6-C6-N1 | -5.99 | 106.13 | 118.57 |
| 2 | B | 71 | OMG | N3-C2-N1 | -5.94 | 119.21 | 127.25 |
| 3 | C | 75 | OMG | N3-C2-N1 | -5.93 | 119.23 | 127.25 |
| 2 | B | 1385 | OMG | N3-C2-N1 | -5.91 | 119.25 | 127.25 |
| 2 | B | 1516 | A2M | N3-C2-N1 | -5.90 | 119.18 | 128.68 |
| 1 | A | 1804 | A2M | N3-C2-N1 | -5.81 | 119.31 | 128.68 |
| 1 | A | 1659 | OMG | N3-C2-N1 | -5.76 | 119.45 | 127.25 |
| 3 | C | 43 | A2M | N3-C2-N1 | -5.76 | 119.40 | 128.68 |
| 1 | A | 1675 | OMG | N3-C2-N1 | -5.75 | 119.47 | 127.25 |
| 2 | B | 482 | A2M | N3-C2-N1 | -5.74 | 119.43 | 128.68 |
| 1 | A | 1043 | A2M | N6-C6-N1 | -5.69 | 106.75 | 118.57 |
| 1 | A | 958 | OMG | N3-C2-N1 | -5.66 | 119.60 | 127.25 |
| 2 | B | 1363 | OMG | N3-C2-N1 | -5.65 | 119.60 | 127.25 |
| 1 | A | 794 | A2M | N3-C2-N1 | -5.64 | 119.59 | 128.68 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|-------|-------------|----------|
| 2 | B | 1169 | OMG | N3-C2-N1 | -5.56 | 119.73 | 127.25 |
| 2 | B | 1492 | OMG | N3-C2-N1 | -5.52 | 119.78 | 127.25 |
| 1 | A | 1316 | OMG | N3-C2-N1 | -5.51 | 119.80 | 127.25 |
| 2 | B | 691 | A2M | N6-C6-N1 | -5.50 | 107.14 | 118.57 |
| 1 | A | 1071 | A2M | N3-C2-N1 | -5.50 | 119.81 | 128.68 |
| 1 | A | 972 | OMG | N3-C2-N1 | -5.50 | 119.81 | 127.25 |
| 1 | A | 423 | A2M | N3-C2-N1 | -5.49 | 119.84 | 128.68 |
| 2 | B | 755 | OMG | N3-C2-N1 | -5.45 | 119.88 | 127.25 |
| 1 | A | 1674 | A2M | N3-C2-N1 | -5.42 | 119.94 | 128.68 |
| 2 | B | 634 | OMG | N3-C2-N1 | -5.42 | 119.92 | 127.25 |
| 3 | C | 166 | OMG | N3-C2-N1 | -5.41 | 119.93 | 127.25 |
| 2 | B | 728 | A2M | N6-C6-N1 | -5.35 | 107.45 | 118.57 |
| 2 | B | 482 | A2M | N6-C6-N1 | -5.35 | 107.46 | 118.57 |
| 2 | B | 564 | OMG | N3-C2-N1 | -5.28 | 120.11 | 127.25 |
| 2 | B | 1361 | OMG | N3-C2-N1 | -5.25 | 120.15 | 127.25 |
| 1 | A | 1075 | OMG | N3-C2-N1 | -5.19 | 120.23 | 127.25 |
| 3 | C | 163 | A2M | N3-C2-N1 | -5.18 | 120.33 | 128.68 |
| 2 | B | 50 | A2M | N3-C2-N1 | -5.16 | 120.36 | 128.68 |
| 1 | A | 775 | A2M | N3-C2-N1 | -5.11 | 120.44 | 128.68 |
| 1 | A | 1710 | OMG | N3-C2-N1 | -5.05 | 120.42 | 127.25 |
| 2 | B | 627 | A2M | N6-C6-N1 | -5.04 | 108.10 | 118.57 |
| 1 | A | 1662 | OMC | C2-N3-C4 | 4.98 | 121.02 | 116.26 |
| 1 | A | 778 | A2M | N3-C2-N1 | -4.98 | 120.66 | 128.68 |
| 2 | B | 627 | A2M | N3-C2-N1 | -4.95 | 120.70 | 128.68 |
| 2 | B | 1210 | OMG | N3-C2-N1 | -4.94 | 120.56 | 127.25 |
| 1 | A | 423 | A2M | N6-C6-N1 | -4.91 | 108.37 | 118.57 |
| 2 | B | 683 | OMC | C2-N3-C4 | 4.91 | 120.96 | 116.26 |
| 1 | A | 974 | A2M | N6-C6-N1 | -4.86 | 108.49 | 118.57 |
| 3 | C | 163 | A2M | N6-C6-N1 | -4.84 | 108.52 | 118.57 |
| 7 | G | 70 | OMG | C2-N3-C4 | 4.84 | 120.88 | 115.36 |
| 2 | B | 50 | A2M | N6-C6-N1 | -4.84 | 108.53 | 118.57 |
| 2 | B | 1516 | A2M | N6-C6-N1 | -4.82 | 108.57 | 118.57 |
| 1 | A | 974 | A2M | N3-C2-N1 | -4.73 | 121.05 | 128.68 |
| 1 | A | 1071 | A2M | N6-C6-N1 | -4.72 | 108.77 | 118.57 |
| 2 | B | 728 | A2M | N3-C2-N1 | -4.66 | 121.18 | 128.68 |
| 1 | A | 1674 | A2M | N6-C6-N1 | -4.57 | 109.09 | 118.57 |
| 1 | A | 775 | A2M | N6-C6-N1 | -4.54 | 109.15 | 118.57 |
| 1 | A | 792 | OMC | C2-N3-C4 | 4.52 | 120.59 | 116.26 |
| 1 | A | 1804 | A2M | N6-C6-N1 | -4.51 | 109.21 | 118.57 |
| 1 | A | 1659 | OMG | N2-C2-N1 | 4.34 | 124.05 | 117.25 |
| 2 | B | 71 | OMG | C2-N3-C4 | 4.30 | 120.27 | 115.36 |
| 1 | A | 1725 | 7MG | C6-C5-C4 | 4.30 | 119.81 | 115.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2 | B | 1363 | OMG | C2-N3-C4 | 4.20 | 120.15 | 115.36 |
| 3 | C | 43 | A2M | N6-C6-N1 | -4.18 | 109.90 | 118.57 |
| 1 | A | 927 | OMG | C2-N3-C4 | 4.17 | 120.12 | 115.36 |
| 3 | C | 75 | OMG | C2-N3-C4 | 4.14 | 120.09 | 115.36 |
| 2 | B | 624 | 5MC | C2-N3-C4 | 4.13 | 120.64 | 115.92 |
| 3 | C | 105 | OMC | C2-N3-C4 | 4.12 | 120.20 | 116.26 |
| 2 | B | 1449 | OMC | C2-N3-C4 | 4.10 | 120.18 | 116.26 |
| 2 | B | 1380 | OMC | C2-N3-C4 | 4.10 | 120.18 | 116.26 |
| 1 | A | 343 | OMC | C2-N3-C4 | 4.03 | 120.11 | 116.26 |
| 1 | A | 778 | A2M | N6-C6-N1 | -4.02 | 110.23 | 118.57 |
| 3 | C | 42 | 7MG | C6-C5-C4 | 4.01 | 119.50 | 115.20 |
| 1 | A | 958 | OMG | C2-N3-C4 | 4.00 | 119.93 | 115.36 |
| 2 | B | 543 | OMC | C2-N3-C4 | 3.99 | 120.08 | 116.26 |
| 2 | B | 21 | OMC | C2-N3-C4 | 3.98 | 120.07 | 116.26 |
| 1 | A | 958 | OMG | N2-C2-N1 | 3.98 | 123.48 | 117.25 |
| 1 | A | 1710 | OMG | C2-N3-C4 | 3.97 | 119.89 | 115.36 |
| 3 | C | 42 | 7MG | C5-C4-N3 | -3.97 | 119.84 | 126.47 |
| 1 | A | 931 | 7MG | N1-C2-N3 | -3.93 | 119.18 | 125.42 |
| 2 | B | 564 | OMG | C2-N3-C4 | 3.92 | 119.83 | 115.36 |
| 2 | B | 77 | OMC | C2-N3-C4 | 3.90 | 119.99 | 116.26 |
| 1 | A | 1525 | 5MC | C2-N3-C4 | 3.87 | 120.34 | 115.92 |
| 2 | B | 657 | 7MG | N1-C2-N3 | -3.87 | 119.28 | 125.42 |
| 1 | A | 1316 | OMG | C2-N3-C4 | 3.86 | 119.77 | 115.36 |
| 2 | B | 1385 | OMG | C2-N3-C4 | 3.86 | 119.77 | 115.36 |
| 2 | B | 755 | OMG | C2-N3-C4 | 3.83 | 119.73 | 115.36 |
| 1 | A | 1675 | OMG | C2-N3-C4 | 3.78 | 119.68 | 115.36 |
| 2 | B | 1492 | OMG | C2-N3-C4 | 3.78 | 119.67 | 115.36 |
| 2 | B | 634 | OMG | C2-N3-C4 | 3.73 | 119.62 | 115.36 |
| 1 | A | 972 | OMG | C6-C5-C4 | -3.70 | 117.23 | 120.79 |
| 2 | B | 1169 | OMG | C2-N3-C4 | 3.68 | 119.56 | 115.36 |
| 2 | B | 1529 | OMC | C2-N3-C4 | 3.68 | 119.78 | 116.26 |
| 3 | C | 166 | OMG | C2-N3-C4 | 3.68 | 119.56 | 115.36 |
| 1 | A | 794 | A2M | O3'-C3'-C2' | 3.67 | 121.54 | 111.15 |
| 2 | B | 1210 | OMG | N2-C2-N1 | 3.66 | 122.98 | 117.25 |
| 1 | A | 1659 | OMG | C6-C5-C4 | -3.66 | 117.27 | 120.79 |
| 1 | A | 1659 | OMG | C2-N3-C4 | 3.65 | 119.53 | 115.36 |
| 2 | B | 691 | A2M | O3'-C3'-C2' | 3.64 | 121.46 | 111.15 |
| 7 | G | 70 | OMG | C6-C5-C4 | -3.63 | 117.30 | 120.79 |
| 2 | B | 71 | OMG | C6-C5-C4 | -3.60 | 117.33 | 120.79 |
| 2 | B | 1138 | 7MG | N1-C2-N3 | -3.59 | 119.72 | 125.42 |
| 1 | A | 1075 | OMG | C2-N3-C4 | 3.57 | 119.44 | 115.36 |
| 1 | A | 974 | A2M | O4'-C4'-C3' | -3.57 | 98.09 | 105.14 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2 | B | 1138 | 7MG | C6-C5-C4 | 3.55 | 119.01 | 115.20 |
| 7 | G | 70 | OMG | N2-C2-N1 | 3.53 | 122.77 | 117.25 |
| 1 | A | 1073 | 5MC | C2-N3-C4 | 3.51 | 119.93 | 115.92 |
| 2 | B | 634 | OMG | N2-C2-N1 | 3.51 | 122.75 | 117.25 |
| 1 | A | 919 | OMC | C2-N3-C4 | 3.49 | 119.59 | 116.26 |
| 2 | B | 1107 | 7MG | N1-C2-N3 | -3.48 | 119.90 | 125.42 |
| 1 | A | 1045 | 7MG | C6-C5-C4 | 3.48 | 118.93 | 115.20 |
| 1 | A | 972 | OMG | C2-N3-C4 | 3.46 | 119.31 | 115.36 |
| 1 | A | 1725 | 7MG | C5-C4-N3 | -3.45 | 120.70 | 126.47 |
| 3 | C | 166 | OMG | N2-C2-N1 | 3.44 | 122.63 | 117.25 |
| 1 | A | 1316 | OMG | N2-C2-N1 | 3.43 | 122.61 | 117.25 |
| 2 | B | 1138 | 7MG | C5-C4-N3 | -3.42 | 120.75 | 126.47 |
| 1 | A | 1675 | OMG | N2-C2-N1 | 3.42 | 122.60 | 117.25 |
| 1 | A | 1075 | OMG | N2-C2-N1 | 3.39 | 122.56 | 117.25 |
| 1 | A | 1675 | OMG | C6-C5-C4 | -3.36 | 117.55 | 120.79 |
| 2 | B | 755 | OMG | N2-C2-N1 | 3.36 | 122.51 | 117.25 |
| 2 | B | 1107 | 7MG | C6-C5-C4 | 3.35 | 118.79 | 115.20 |
| 2 | B | 1107 | 7MG | C5-C4-N3 | -3.32 | 120.93 | 126.47 |
| 3 | C | 75 | OMG | N2-C2-N1 | 3.30 | 122.42 | 117.25 |
| 2 | B | 1107 | 7MG | C5-C4-N9 | 3.29 | 110.91 | 106.29 |
| 1 | A | 777 | OMC | C2-N3-C4 | 3.27 | 119.39 | 116.26 |
| 2 | B | 1361 | OMG | C2-N3-C4 | 3.27 | 119.09 | 115.36 |
| 2 | B | 657 | 7MG | C5-C4-N3 | -3.24 | 121.06 | 126.47 |
| 2 | B | 691 | A2M | C1'-N9-C4 | -3.22 | 121.08 | 126.64 |
| 1 | A | 972 | OMG | N2-C2-N1 | 3.22 | 122.29 | 117.25 |
| 2 | B | 1385 | OMG | N2-C2-N1 | 3.21 | 122.27 | 117.25 |
| 2 | B | 1210 | OMG | C2-N3-C4 | 3.21 | 119.02 | 115.36 |
| 1 | A | 958 | OMG | C6-C5-C4 | -3.21 | 117.70 | 120.79 |
| 2 | B | 691 | A2M | C3'-C2'-C1' | -3.21 | 96.84 | 102.90 |
| 1 | A | 931 | 7MG | C6-N1-C2 | 3.20 | 120.62 | 116.06 |
| 2 | B | 691 | A2M | O4'-C4'-C3' | -3.17 | 98.88 | 105.14 |
| 2 | B | 657 | 7MG | C6-C5-C4 | 3.14 | 118.57 | 115.20 |
| 2 | B | 755 | OMG | C6-C5-C4 | -3.14 | 117.77 | 120.79 |
| 1 | A | 1725 | 7MG | N1-C2-N3 | -3.13 | 120.46 | 125.42 |
| 1 | A | 1725 | 7MG | C6-N1-C2 | 3.12 | 120.51 | 116.06 |
| 3 | C | 42 | 7MG | N1-C2-N3 | -3.12 | 120.47 | 125.42 |
| 1 | A | 1045 | 7MG | N1-C2-N3 | -3.11 | 120.48 | 125.42 |
| 1 | A | 927 | OMG | N2-C2-N1 | 3.09 | 122.09 | 117.25 |
| 1 | A | 931 | 7MG | C6-C5-C4 | 3.05 | 118.47 | 115.20 |
| 1 | A | 927 | OMG | C6-N1-C2 | 3.04 | 120.39 | 116.06 |
| 2 | B | 1169 | OMG | N2-C2-N1 | 3.02 | 121.98 | 117.25 |
| 2 | B | 1361 | OMG | N2-C2-N1 | 3.01 | 121.96 | 117.25 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2 | B | 691 | A2M | C4'-O4'-C1' | -3.00 | 106.70 | 109.83 |
| 1 | A | 1045 | 7MG | C5-C4-N3 | -2.97 | 121.52 | 126.47 |
| 2 | B | 1107 | 7MG | C6-N1-C2 | 2.96 | 120.28 | 116.06 |
| 3 | C | 75 | OMG | C6-N1-C2 | 2.95 | 120.27 | 116.06 |
| 2 | B | 657 | 7MG | C6-N1-C2 | 2.93 | 120.23 | 116.06 |
| 2 | B | 1169 | OMG | C6-N1-C2 | 2.93 | 120.23 | 116.06 |
| 7 | G | 70 | OMG | C6-N1-C2 | 2.92 | 120.22 | 116.06 |
| 1 | A | 1710 | OMG | N2-C2-N1 | 2.91 | 121.81 | 117.25 |
| 2 | B | 1138 | 7MG | C5-C4-N9 | 2.91 | 110.37 | 106.29 |
| 2 | B | 1169 | OMG | C6-C5-C4 | -2.90 | 118.00 | 120.79 |
| 3 | C | 42 | 7MG | C5-C4-N9 | 2.90 | 110.36 | 106.29 |
| 2 | B | 634 | OMG | C6-N1-C2 | 2.88 | 120.17 | 116.06 |
| 1 | A | 931 | 7MG | C5-C4-N3 | -2.86 | 121.69 | 126.47 |
| 1 | A | 794 | A2M | C1'-N9-C4 | -2.86 | 121.69 | 126.64 |
| 2 | B | 1385 | OMG | C6-N1-C2 | 2.86 | 120.13 | 116.06 |
| 2 | B | 1138 | 7MG | C6-N1-C2 | 2.83 | 120.09 | 116.06 |
| 2 | B | 71 | OMG | C4-C5-N7 | -2.82 | 106.46 | 109.40 |
| 1 | A | 1659 | OMG | C6-N1-C2 | 2.82 | 120.07 | 116.06 |
| 2 | B | 1492 | OMG | N2-C2-N1 | 2.81 | 121.66 | 117.25 |
| 1 | A | 1045 | 7MG | C6-N1-C2 | 2.81 | 120.06 | 116.06 |
| 2 | B | 1492 | OMG | C6-N1-C2 | 2.80 | 120.05 | 116.06 |
| 1 | A | 927 | OMG | C6-C5-C4 | -2.80 | 118.10 | 120.79 |
| 1 | A | 1675 | OMG | C6-N1-C2 | 2.80 | 120.04 | 116.06 |
| 1 | A | 972 | OMG | C6-N1-C2 | 2.79 | 120.04 | 116.06 |
| 2 | B | 1210 | OMG | C6-C5-C4 | -2.79 | 118.11 | 120.79 |
| 2 | B | 1363 | OMG | N2-C2-N1 | 2.78 | 121.60 | 117.25 |
| 1 | A | 794 | A2M | O4'-C4'-C3' | -2.76 | 99.68 | 105.14 |
| 2 | B | 1385 | OMG | C6-C5-C4 | -2.75 | 118.14 | 120.79 |
| 1 | A | 775 | A2M | C5'-C4'-C3' | -2.75 | 104.86 | 115.21 |
| 1 | A | 931 | 7MG | C4-N9-C1' | -2.75 | 120.01 | 126.54 |
| 2 | B | 564 | OMG | C5-C6-N1 | -2.74 | 119.66 | 123.47 |
| 2 | B | 634 | OMG | C5-C6-N1 | -2.74 | 119.66 | 123.47 |
| 1 | A | 974 | A2M | O5'-C5'-C4' | -2.73 | 99.68 | 108.99 |
| 3 | C | 166 | OMG | C5-C6-N1 | -2.73 | 119.67 | 123.47 |
| 1 | A | 958 | OMG | C6-N1-C2 | 2.73 | 119.94 | 116.06 |
| 3 | C | 166 | OMG | C6-N1-C2 | 2.72 | 119.93 | 116.06 |
| 1 | A | 1804 | A2M | C1'-N9-C4 | -2.69 | 121.98 | 126.64 |
| 2 | B | 1492 | OMG | C5-C6-N1 | -2.69 | 119.73 | 123.47 |
| 2 | B | 1210 | OMG | C3'-C2'-C1' | -2.69 | 97.82 | 102.90 |
| 2 | B | 728 | A2M | C4'-O4'-C1' | -2.68 | 107.03 | 109.83 |
| 1 | A | 1073 | 5MC | N4-C4-N3 | 2.68 | 120.85 | 117.03 |
| 2 | B | 564 | OMG | N2-C2-N1 | 2.68 | 121.44 | 117.25 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2 | B | 627 | A2M | O4'-C1'-C2' | -2.67 | 101.98 | 106.60 |
| 2 | B | 1361 | OMG | C5-C6-N1 | -2.67 | 119.76 | 123.47 |
| 2 | B | 1361 | OMG | C6-N1-C2 | 2.66 | 119.84 | 116.06 |
| 2 | B | 1516 | A2M | C4'-O4'-C1' | -2.61 | 107.11 | 109.83 |
| 2 | B | 71 | OMG | N2-C2-N1 | 2.58 | 121.29 | 117.25 |
| 3 | C | 75 | OMG | C5-C6-N1 | -2.58 | 119.88 | 123.47 |
| 2 | B | 564 | OMG | C6-N1-C2 | 2.56 | 119.70 | 116.06 |
| 2 | B | 627 | A2M | C4'-O4'-C1' | -2.55 | 107.17 | 109.83 |
| 1 | A | 931 | 7MG | C5-C4-N9 | 2.54 | 109.86 | 106.29 |
| 1 | A | 343 | OMC | N4-C4-N3 | 2.50 | 120.42 | 116.48 |
| 1 | A | 1725 | 7MG | C5-C4-N9 | 2.48 | 109.78 | 106.29 |
| 3 | C | 105 | OMC | N4-C4-N3 | 2.47 | 120.36 | 116.48 |
| 2 | B | 1169 | OMG | C5-C6-N1 | -2.46 | 120.04 | 123.47 |
| 1 | A | 927 | OMG | C5-C6-N1 | -2.46 | 120.05 | 123.47 |
| 3 | C | 75 | OMG | C6-C5-C4 | -2.46 | 118.42 | 120.79 |
| 1 | A | 1659 | OMG | C5-C6-N1 | -2.45 | 120.06 | 123.47 |
| 1 | A | 1045 | 7MG | C5-C4-N9 | 2.44 | 109.72 | 106.29 |
| 2 | B | 21 | OMC | N4-C4-N3 | 2.43 | 120.31 | 116.48 |
| 7 | G | 70 | OMG | C4-C5-N7 | -2.42 | 106.88 | 109.40 |
| 1 | A | 1316 | OMG | C6-N1-C2 | 2.41 | 119.49 | 116.06 |
| 1 | A | 1071 | A2M | C4'-O4'-C1' | -2.40 | 107.33 | 109.83 |
| 2 | B | 1385 | OMG | C5-C6-N1 | -2.39 | 120.14 | 123.47 |
| 2 | B | 71 | OMG | C6-N1-C2 | 2.38 | 119.45 | 116.06 |
| 1 | A | 778 | A2M | C4'-O4'-C1' | -2.38 | 107.35 | 109.83 |
| 1 | A | 1073 | 5MC | C5-C6-N1 | -2.38 | 119.58 | 122.15 |
| 3 | C | 42 | 7MG | C2-N3-C4 | 2.38 | 120.59 | 113.94 |
| 1 | A | 1316 | OMG | C6-C5-C4 | -2.38 | 118.50 | 120.79 |
| 2 | B | 657 | 7MG | N2-C2-N1 | 2.37 | 120.95 | 117.25 |
| 1 | A | 1316 | OMG | C5-C6-N1 | -2.35 | 120.20 | 123.47 |
| 2 | B | 1210 | OMG | C5-C6-N1 | -2.35 | 120.20 | 123.47 |
| 1 | A | 958 | OMG | C5-C6-N1 | -2.34 | 120.22 | 123.47 |
| 2 | B | 657 | 7MG | C2-N3-C4 | 2.34 | 120.48 | 113.94 |
| 1 | A | 919 | OMC | N4-C4-N3 | 2.33 | 120.15 | 116.48 |
| 1 | A | 1675 | OMG | C5-C6-N1 | -2.33 | 120.23 | 123.47 |
| 2 | B | 634 | OMG | C6-C5-C4 | -2.32 | 118.56 | 120.79 |
| 1 | A | 423 | A2M | C4'-O4'-C1' | -2.32 | 107.41 | 109.83 |
| 2 | B | 1138 | 7MG | C2-N3-C4 | 2.32 | 120.42 | 113.94 |
| 2 | B | 1363 | OMG | C6-C5-C4 | -2.31 | 118.57 | 120.79 |
| 1 | A | 1045 | 7MG | N2-C2-N1 | 2.29 | 120.84 | 117.25 |
| 2 | B | 1363 | OMG | C6-N1-C2 | 2.28 | 119.30 | 116.06 |
| 2 | B | 624 | 5MC | N4-C4-N3 | 2.28 | 120.28 | 117.03 |
| 2 | B | 1107 | 7MG | C2-N3-C4 | 2.26 | 120.27 | 113.94 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | A | 1075 | OMG | C5-C6-N1 | -2.25 | 120.34 | 123.47 |
| 2 | B | 1210 | OMG | C4-C5-N7 | -2.23 | 107.07 | 109.40 |
| 2 | B | 1210 | OMG | C6-N1-C2 | 2.22 | 119.23 | 116.06 |
| 2 | B | 1210 | OMG | O3'-C3'-C2' | -2.22 | 104.84 | 111.15 |
| 2 | B | 683 | OMC | C5-C4-N3 | -2.22 | 119.14 | 121.72 |
| 1 | A | 931 | 7MG | C2-N3-C4 | 2.22 | 120.16 | 113.94 |
| 7 | G | 70 | OMG | C5-C6-N1 | -2.22 | 120.38 | 123.47 |
| 2 | B | 755 | OMG | C6-N1-C2 | 2.22 | 119.22 | 116.06 |
| 1 | A | 972 | OMG | C5-C6-N1 | -2.21 | 120.39 | 123.47 |
| 1 | A | 972 | OMG | C4-C5-N7 | -2.21 | 107.10 | 109.40 |
| 1 | A | 1075 | OMG | C6-N1-C2 | 2.20 | 119.20 | 116.06 |
| 2 | B | 1138 | 7MG | N2-C2-N1 | 2.20 | 120.70 | 117.25 |
| 3 | C | 166 | OMG | C4-C5-N7 | -2.20 | 107.11 | 109.40 |
| 3 | C | 42 | 7MG | C6-N1-C2 | 2.18 | 119.17 | 116.06 |
| 2 | B | 1380 | OMC | N4-C4-N3 | 2.17 | 119.90 | 116.48 |
| 1 | A | 1710 | OMG | C5-C6-N1 | -2.17 | 120.45 | 123.47 |
| 3 | C | 42 | 7MG | N3-C4-N9 | 2.17 | 129.79 | 126.94 |
| 2 | B | 1107 | 7MG | N2-C2-N1 | 2.15 | 120.62 | 117.25 |
| 1 | A | 423 | A2M | C1'-N9-C4 | -2.15 | 122.92 | 126.64 |
| 1 | A | 794 | A2M | C3'-C2'-C1' | -2.14 | 98.85 | 102.90 |
| 1 | A | 1662 | OMC | N4-C4-N3 | 2.13 | 119.83 | 116.48 |
| 3 | C | 43 | A2M | C4'-O4'-C1' | -2.12 | 107.62 | 109.83 |
| 1 | A | 1316 | OMG | C4-C5-N7 | -2.11 | 107.20 | 109.40 |
| 2 | B | 683 | OMC | C6-N1-C2 | -2.11 | 117.85 | 121.20 |
| 2 | B | 657 | 7MG | C5-C4-N9 | 2.09 | 109.22 | 106.29 |
| 2 | B | 657 | 7MG | N3-C4-N9 | 2.08 | 129.68 | 126.94 |
| 1 | A | 958 | OMG | C4-C5-N7 | -2.07 | 107.24 | 109.40 |
| 2 | B | 1361 | OMG | C6-C5-C4 | -2.07 | 118.80 | 120.79 |
| 2 | B | 77 | OMC | N4-C4-N3 | 2.07 | 119.73 | 116.48 |
| 1 | A | 1804 | A2M | C5'-C4'-C3' | -2.06 | 107.45 | 115.21 |
| 3 | C | 105 | OMC | C5-C4-N3 | -2.05 | 119.34 | 121.72 |
| 1 | A | 931 | 7MG | N2-C2-N1 | 2.05 | 120.46 | 117.25 |
| 1 | A | 1804 | A2M | C3'-C2'-C1' | 2.04 | 106.76 | 102.90 |
| 1 | A | 972 | OMG | CM2-O2'-C2' | -2.04 | 109.11 | 114.53 |
| 1 | A | 1045 | 7MG | C2-N3-C4 | 2.03 | 119.62 | 113.94 |
| 1 | A | 1725 | 7MG | C2-N3-C4 | 2.03 | 119.62 | 113.94 |
| 3 | C | 42 | 7MG | N2-C2-N1 | 2.02 | 120.41 | 117.25 |
| 1 | A | 1071 | A2M | C1'-N9-C4 | -2.02 | 123.15 | 126.64 |
| 1 | A | 1675 | OMG | CM2-O2'-C2' | -2.00 | 109.20 | 114.53 |
| 2 | B | 1210 | OMG | C4'-O4'-C1' | -2.00 | 107.74 | 109.83 |

There are no chirality outliers.

All (81) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 2 | B | 543 | OMC | O4'-C4'-C5'-O5' |
| 1 | A | 423 | A2M | O4'-C4'-C5'-O5' |
| 1 | A | 423 | A2M | C3'-C4'-C5'-O5' |
| 2 | B | 77 | OMC | C3'-C4'-C5'-O5' |
| 2 | B | 1492 | OMG | O4'-C4'-C5'-O5' |
| 3 | C | 7 | OMU | C3'-C4'-C5'-O5' |
| 3 | C | 7 | OMU | O4'-C4'-C5'-O5' |
| 3 | C | 75 | OMG | C3'-C4'-C5'-O5' |
| 2 | B | 1361 | OMG | C1'-C2'-O2'-CM2 |
| 1 | A | 1725 | 7MG | O4'-C4'-C5'-O5' |
| 1 | A | 1725 | 7MG | C3'-C4'-C5'-O5' |
| 2 | B | 634 | OMG | C1'-C2'-O2'-CM2 |
| 2 | B | 728 | A2M | C1'-C2'-O2'-CM' |
| 1 | A | 1053 | OMC | C1'-C2'-O2'-CM2 |
| 2 | B | 691 | A2M | C1'-C2'-O2'-CM' |
| 2 | B | 657 | 7MG | O4'-C4'-C5'-O5' |
| 2 | B | 73 | OMU | C1'-C2'-O2'-CM2 |
| 2 | B | 627 | A2M | C3'-C4'-C5'-O5' |
| 1 | A | 1227 | OMU | C3'-C4'-C5'-O5' |
| 1 | A | 1227 | OMU | O4'-C4'-C5'-O5' |
| 1 | A | 1071 | A2M | C1'-C2'-O2'-CM' |
| 1 | A | 778 | A2M | O4'-C4'-C5'-O5' |
| 3 | C | 118 | OMU | C1'-C2'-O2'-CM2 |
| 3 | C | 118 | OMU | C3'-C4'-C5'-O5' |
| 3 | C | 118 | OMU | O4'-C4'-C5'-O5' |
| 1 | A | 1073 | 5MC | O4'-C4'-C5'-O5' |
| 1 | A | 1073 | 5MC | C3'-C4'-C5'-O5' |
| 2 | B | 1380 | OMC | C3'-C4'-C5'-O5' |
| 2 | B | 1380 | OMC | O4'-C4'-C5'-O5' |
| 2 | B | 564 | OMG | C3'-C4'-C5'-O5' |
| 1 | A | 1804 | A2M | O4'-C4'-C5'-O5' |
| 1 | A | 1804 | A2M | C3'-C4'-C5'-O5' |
| 2 | B | 1492 | OMG | C3'-C4'-C5'-O5' |
| 2 | B | 1138 | 7MG | O4'-C4'-C5'-O5' |
| 1 | A | 1525 | 5MC | C3'-C4'-C5'-O5' |
| 3 | C | 75 | OMG | O4'-C4'-C5'-O5' |
| 2 | B | 691 | A2M | C3'-C4'-C5'-O5' |
| 2 | B | 657 | 7MG | C3'-C4'-C5'-O5' |
| 7 | G | 70 | OMG | C3'-C4'-C5'-O5' |
| 1 | A | 778 | A2M | C3'-C4'-C5'-O5' |
| 2 | B | 543 | OMC | C3'-C4'-C5'-O5' |
| 2 | B | 77 | OMC | O4'-C4'-C5'-O5' |

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| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 3 | C | 163 | A2M | C3'-C4'-C5'-O5' |
| 2 | B | 1138 | 7MG | C3'-C4'-C5'-O5' |
| 1 | A | 794 | A2M | O4'-C4'-C5'-O5' |
| 1 | A | 794 | A2M | C3'-C4'-C5'-O5' |
| 2 | B | 627 | A2M | O4'-C4'-C5'-O5' |
| 2 | B | 564 | OMG | O4'-C4'-C5'-O5' |
| 3 | C | 163 | A2M | O4'-C4'-C5'-O5' |
| 1 | A | 1525 | 5MC | O4'-C4'-C5'-O5' |
| 2 | B | 755 | OMG | O4'-C4'-C5'-O5' |
| 2 | B | 691 | A2M | O4'-C4'-C5'-O5' |
| 2 | B | 624 | 5MC | O4'-C4'-C5'-O5' |
| 7 | G | 70 | OMG | O4'-C4'-C5'-O5' |
| 1 | A | 919 | OMC | C4'-C5'-O5'-P |
| 2 | B | 1169 | OMG | O4'-C4'-C5'-O5' |
| 2 | B | 755 | OMG | C3'-C4'-C5'-O5' |
| 2 | B | 1210 | OMG | O4'-C4'-C5'-O5' |
| 2 | B | 1169 | OMG | C3'-C4'-C5'-O5' |
| 1 | A | 1804 | A2M | C1'-C2'-O2'-CM' |
| 1 | A | 919 | OMC | C1'-C2'-O2'-CM2 |
| 1 | A | 1675 | OMG | C4'-C5'-O5'-P |
| 2 | B | 1210 | OMG | C3'-C4'-C5'-O5' |
| 2 | B | 73 | OMU | C3'-C4'-C5'-O5' |
| 2 | B | 73 | OMU | O4'-C4'-C5'-O5' |
| 2 | B | 755 | OMG | C3'-C2'-O2'-CM2 |
| 2 | B | 1516 | A2M | C3'-C2'-O2'-CM' |
| 3 | C | 105 | OMC | C4'-C5'-O5'-P |
| 1 | A | 778 | A2M | C4'-C5'-O5'-P |
| 1 | A | 777 | OMC | O4'-C4'-C5'-O5' |
| 3 | C | 105 | OMC | C3'-C4'-C5'-O5' |
| 2 | B | 624 | 5MC | C3'-C4'-C5'-O5' |
| 2 | B | 755 | OMG | C1'-C2'-O2'-CM2 |
| 1 | A | 1662 | OMC | O4'-C4'-C5'-O5' |
| 3 | C | 105 | OMC | O4'-C4'-C5'-O5' |
| 2 | B | 627 | A2M | C4'-C5'-O5'-P |
| 2 | B | 1361 | OMG | C3'-C4'-C5'-O5' |
| 1 | A | 777 | OMC | C4'-C5'-O5'-P |
| 1 | A | 919 | OMC | C3'-C4'-C5'-O5' |
| 2 | B | 634 | OMG | C4'-C5'-O5'-P |
| 1 | A | 1804 | A2M | C3'-C2'-O2'-CM' |

There are no ring outliers.

58 monomers are involved in 166 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 1 | A | 1043 | A2M | 1 | 0 |
| 1 | A | 1045 | 7MG | 1 | 0 |
| 1 | A | 1053 | OMC | 7 | 0 |
| 1 | A | 1071 | A2M | 3 | 0 |
| 1 | A | 1073 | 5MC | 2 | 0 |
| 1 | A | 1075 | OMG | 1 | 0 |
| 1 | A | 1127 | OMU | 1 | 0 |
| 1 | A | 1316 | OMG | 5 | 0 |
| 1 | A | 1525 | 5MC | 2 | 0 |
| 1 | A | 1659 | OMG | 3 | 0 |
| 1 | A | 1662 | OMC | 1 | 0 |
| 1 | A | 1674 | A2M | 1 | 0 |
| 1 | A | 1710 | OMG | 3 | 0 |
| 1 | A | 1725 | 7MG | 2 | 0 |
| 1 | A | 1804 | A2M | 7 | 0 |
| 1 | A | 343 | OMC | 4 | 0 |
| 1 | A | 423 | A2M | 1 | 0 |
| 1 | A | 777 | OMC | 4 | 0 |
| 1 | A | 778 | A2M | 3 | 0 |
| 1 | A | 792 | OMC | 2 | 0 |
| 1 | A | 794 | A2M | 4 | 0 |
| 1 | A | 919 | OMC | 7 | 0 |
| 1 | A | 931 | 7MG | 4 | 0 |
| 1 | A | 958 | OMG | 3 | 0 |
| 1 | A | 972 | OMG | 2 | 0 |
| 1 | A | 974 | A2M | 1 | 0 |
| 2 | B | 1107 | 7MG | 3 | 0 |
| 2 | B | 1138 | 7MG | 2 | 0 |
| 2 | B | 1169 | OMG | 5 | 0 |
| 2 | B | 1210 | OMG | 1 | 0 |
| 2 | B | 1345 | OMU | 2 | 0 |
| 2 | B | 1361 | OMG | 3 | 0 |
| 2 | B | 1363 | OMG | 2 | 0 |
| 2 | B | 1380 | OMC | 4 | 0 |
| 2 | B | 1492 | OMG | 3 | 0 |
| 2 | B | 1516 | A2M | 6 | 0 |
| 2 | B | 1529 | OMC | 3 | 0 |
| 2 | B | 21 | OMC | 2 | 0 |
| 2 | B | 482 | A2M | 3 | 0 |
| 2 | B | 543 | OMC | 2 | 0 |
| 2 | B | 564 | OMG | 2 | 0 |
| 2 | B | 624 | 5MC | 2 | 0 |
| 2 | B | 627 | A2M | 4 | 0 |

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| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 2 | B | 634 | OMG | 3 | 0 |
| 2 | B | 657 | 7MG | 3 | 0 |
| 2 | B | 683 | OMC | 3 | 0 |
| 2 | B | 691 | A2M | 4 | 0 |
| 2 | B | 728 | A2M | 4 | 0 |
| 2 | B | 73 | OMU | 1 | 0 |
| 2 | B | 755 | OMG | 6 | 0 |
| 2 | B | 767 | OMU | 2 | 0 |
| 2 | B | 77 | OMC | 2 | 0 |
| 3 | C | 105 | OMC | 2 | 0 |
| 3 | C | 118 | OMU | 1 | 0 |
| 3 | C | 166 | OMG | 6 | 0 |
| 3 | C | 7 | OMU | 1 | 0 |
| 3 | C | 75 | OMG | 2 | 0 |
| 7 | G | 70 | OMG | 2 | 0 |

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 108 ligands modelled in this entry, 108 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|-----|-------|------------------|
| 1 | A | 30 |
| 2 | B | 16 |
| 5 | E | 5 |
| 8 | H | 4 |
| 10 | L | 3 |
| 7 | G | 2 |
| 31 | h | 2 |
| 30 | g | 1 |
| 6 | F | 1 |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1 | A | 282:U | O3' | 304:A | P | 49.48 |
| 1 | A | 1269:U | O3' | 1283:A | P | 36.80 |
| 1 | B | 913:U | O3' | 1105:C | P | 35.79 |
| 1 | A | 1233:A | O3' | 1245:C | P | 34.48 |
| 1 | A | 154:A | O3' | 175:U | P | 29.48 |
| 1 | B | 551:U | O3' | 562:G | P | 29.28 |
| 1 | A | 1385:C | O3' | 1491:A | P | 24.19 |
| 1 | E | 12:G | O3' | 21:G | P | 24.03 |
| 1 | E | 104:U | O3' | 113:C | P | 23.15 |
| 1 | A | 1545:C | O3' | 1569:G | P | 22.63 |
| 1 | L | 78:ARG | C | 105:THR | N | 20.48 |
| 1 | A | 506:C | O3' | 515:U | P | 20.44 |
| 1 | B | 1113:A | O3' | 1134:C | P | 19.75 |
| 1 | A | 1805:A | O3' | 1918:A | P | 19.24 |
| 1 | E | 152:G | O3' | 175:U | P | 18.88 |
| 1 | B | 1595:A | O3' | 1601:U | P | 16.94 |
| 1 | A | 226:A | O3' | 232:U | P | 16.86 |
| 1 | B | 1633:U | O3' | 1641:U | P | 16.77 |
| 1 | A | 219:U | O3' | 224:A | P | 16.61 |
| 1 | F | 17:U | O3' | 44:C | P | 16.06 |
| 1 | A | 936:C | O3' | 941:G | P | 15.93 |
| 1 | E | 185:U | O3' | 190:A | P | 15.65 |
| 1 | B | 1232:A | O3' | 1240:U | P | 15.59 |
| 1 | A | 1171:C | O3' | 1221:U | P | 15.47 |
| 1 | H | 68:G | O3' | 87:C | P | 15.09 |
| 1 | B | 136:A | O3' | 446:C | P | 15.00 |
| 1 | G | 128:U | O3' | 154:A | P | 14.98 |
| 1 | B | 1465:G | O3' | 1477:G | P | 14.92 |
| 1 | A | 519:G | O3' | 585:A | P | 14.88 |
| 1 | B | 1614:A | O3' | 1621:U | P | 14.82 |
| 1 | B | 789:A | O3' | 852:G | P | 14.50 |

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| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1 | A | 1517:U | O3' | 1522:G | P | 14.31 |
| 1 | L | 109:GLY | C | 130:GLY | N | 14.03 |
| 1 | B | 594:C | O3' | 616:A | P | 13.93 |
| 1 | A | 853:U | O3' | 866:U | P | 13.58 |
| 1 | B | 1397:U | O3' | 1434:A | P | 13.52 |
| 1 | B | 577:G | O3' | 580:G | P | 13.36 |
| 1 | A | 744:G | O3' | 748:G | P | 12.66 |
| 1 | A | 487:C | O3' | 492:G | P | 11.73 |
| 1 | B | 1581:A | O3' | 1591:A | P | 11.70 |
| 1 | A | 464:U | O3' | 468:A | P | 11.67 |
| 1 | A | 198:A | O3' | 205:A | P | 11.65 |
| 1 | A | 880:U | O3' | 916:U | P | 11.06 |
| 1 | H | 47:G | O3' | 62:C | P | 10.99 |
| 1 | E | 74:C | O3' | 95:U | P | 10.78 |
| 1 | A | 1691:A | O3' | 1709:C | P | 10.06 |
| 1 | A | 818:U | O3' | 825:C | P | 9.59 |
| 1 | g | 72:TYR | C | 91:VAL | N | 9.54 |
| 1 | h | 74:THR | C | 78:GLY | N | 9.37 |
| 1 | H | 125:U | O3' | 128:G | P | 8.75 |
| 1 | A | 1375:A | O3' | 1380:C | P | 7.78 |
| 1 | A | 1254:A | O3' | 1263:G | P | 7.61 |
| 1 | A | 604:U | O3' | 738:U | P | 7.07 |
| 1 | A | 1794:U | O3' | 1797:U | P | 6.68 |
| 1 | A | 446:A | O3' | 448:C | P | 5.86 |
| 1 | A | 1382:A | O3' | 1384:A | P | 5.70 |
| 1 | H | 112:U | O3' | 120:C | P | 5.37 |
| 1 | B | 1330:G | O3' | 1343:U | P | 5.26 |
| 1 | B | 1606:U | O3' | 1611:A | P | 5.09 |
| 1 | h | 56:ARG | C | 64:GLY | N | 4.76 |
| 1 | L | 27:ILE | C | 73:VAL | N | 4.66 |
| 1 | A | 1145:G | O3' | 1150:A | P | 3.85 |
| 1 | A | 1247:U | O3' | 1249:G | P | 3.62 |
| 1 | G | 177:C | O3' | 178:A | P | 3.32 |