



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 3, 2020 – 08:36 pm BST

PDB ID : 6BUW
Title : Thermus thermophilus 70S complex containing 16S G299A ram mutation and empty A site.
Authors : Hoffer, E.D.; Maehigashi, T.; Fagan, C.E.; Dunham, C.M.
Deposited on : 2017-12-11
Resolution : 3.50 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

| | | |
|--------------------------------|---|--|
| MolProbity | : | 4.02b-467 |
| Mogul | : | 1.8.5 (274361), CSD as541be (2020) |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | FAILED |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.11 |

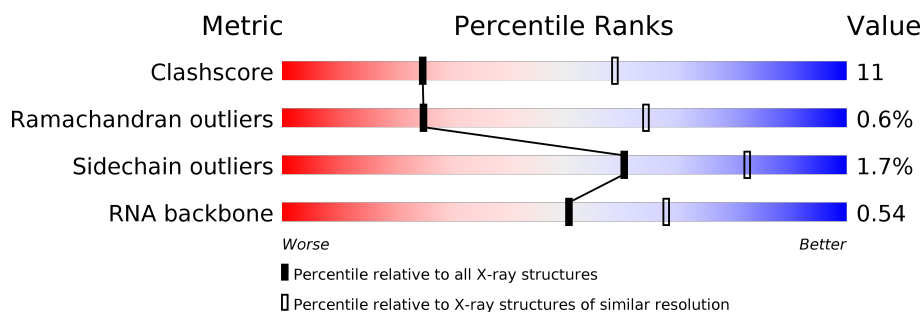
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.50 Å.

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



| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| Clashscore | 141614 | 1036 (3.58-3.42) |
| Ramachandran outliers | 138981 | 1005 (3.58-3.42) |
| Sidechain outliers | 138945 | 1006 (3.58-3.42) |
| RNA backbone | 3102 | 1002 (4.00-3.00) |


























The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. 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 $\leq 5\%$.

Note EDS failed to run properly.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | QA | 1508 | 48% 42% 9% .. |
| 1 | XA | 1508 | 48% 42% 10% . |
| 2 | QB | 256 | 58% 32% . 8% |
| 2 | XB | 256 | 61% 30% . 8% |
| 3 | QC | 239 | 55% 30% . 14% |
| 3 | XC | 239 | 59% 26% 14% |
| 4 | QD | 209 | 66% 33% . |


























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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 4 | XD | 209 |  |
| 5 | QE | 162 |  |
| 5 | XE | 162 |  |
| 6 | QF | 101 |  |
| 6 | XF | 101 |  |
| 7 | QG | 156 |  |
| 7 | XG | 156 |  |
| 8 | QH | 138 |  |
| 8 | XH | 138 |  |
| 9 | QI | 128 |  |
| 9 | XI | 128 |  |
| 10 | QJ | 105 |  |
| 10 | XJ | 105 |  |
| 11 | QK | 129 |  |
| 11 | XK | 129 |  |
| 12 | QL | 132 |  |
| 12 | XL | 132 |  |
| 13 | QM | 126 |  |
| 13 | XM | 126 |  |
| 14 | QN | 61 |  |
| 14 | XN | 61 |  |
| 15 | QO | 89 |  |
| 15 | XO | 89 |  |
| 16 | QP | 88 |  |
| 16 | XP | 88 |  |















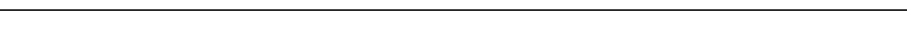




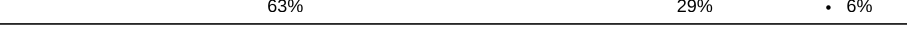





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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 17 | QQ | 105 |  |
| 17 | XQ | 105 |  |
| 18 | QR | 88 |  |
| 18 | XR | 88 |  |
| 19 | QS | 93 |  |
| 19 | XS | 93 |  |
| 20 | QT | 106 |  |
| 20 | XT | 106 |  |
| 21 | QU | 27 |  |
| 21 | XU | 27 |  |
| 22 | QV | 77 |  |
| 22 | XV | 77 |  |
| 23 | QX | 25 |  |
| 23 | XX | 25 |  |
| 24 | RA | 2915 |  |
| 24 | YA | 2915 |  |
| 25 | RB | 122 |  |
| 25 | YB | 122 |  |
| 26 | RD | 276 |  |
| 26 | YD | 276 |  |
| 27 | RE | 206 |  |
| 27 | YE | 206 |  |
| 28 | RF | 210 |  |
| 28 | YF | 210 |  |
| 29 | RG | 182 |  |


























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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 29 | YG | 182 |  |
| 30 | RH | 180 |  |
| 30 | YH | 180 |  |
| 31 | RI | 148 |  |
| 31 | YI | 148 |  |
| 32 | RN | 140 |  |
| 32 | YN | 140 |  |
| 33 | RO | 122 |  |
| 33 | YO | 122 |  |
| 34 | RP | 150 |  |
| 34 | YP | 150 |  |
| 35 | RQ | 141 |  |
| 35 | YQ | 141 |  |
| 36 | RR | 118 |  |
| 36 | YR | 118 |  |
| 37 | RS | 112 |  |
| 37 | YS | 112 |  |
| 38 | RT | 146 |  |
| 38 | YT | 146 |  |
| 39 | RU | 118 |  |
| 39 | YU | 118 |  |
| 40 | RV | 101 |  |
| 40 | YV | 101 |  |
| 41 | RW | 113 |  |
| 41 | YW | 113 |  |


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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 42 | RX | 96 |  |
| 42 | YX | 96 |  |
| 43 | RY | 110 |  |
| 43 | YY | 110 |  |
| 44 | RZ | 206 |  |
| 44 | YZ | 206 |  |
| 45 | R0 | 85 |  |
| 45 | Y0 | 85 |  |
| 46 | R1 | 98 |  |
| 46 | Y1 | 98 |  |
| 47 | R2 | 72 |  |
| 47 | Y2 | 72 |  |
| 48 | R3 | 60 |  |
| 48 | Y3 | 60 |  |
| 49 | R4 | 71 |  |
| 49 | Y4 | 71 |  |
| 50 | R5 | 60 |  |
| 50 | Y5 | 60 |  |
| 51 | R6 | 54 |  |
| 51 | Y6 | 54 |  |
| 52 | R7 | 49 |  |
| 52 | Y7 | 49 |  |
| 53 | R8 | 65 |  |
| 53 | Y8 | 65 |  |
| 54 | R9 | 37 |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|---|
| 54 | Y9 | 37 |  62% 35% |

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 |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 56 | SF4 | XD | 301 | - | - | X | - |

2 Entry composition

There are 57 unique types of molecules in this entry. The entry contains 291948 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 16S rRNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|---------|-------|
| 1 | QA | 1500 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 32246 | 14353 | 5981 | 10413 | 1499 | | | |
| 1 | XA | 1500 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 32248 | 14354 | 5984 | 10411 | 1499 | | | |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------------------|-------------|
| QA | 299 | A | G | engineered mutation | GB 55771382 |
| XA | 299 | A | G | engineered mutation | GB 55771382 |

- Molecule 2 is a protein called 30S ribosomal protein S2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 2 | QB | 235 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1907 | 1217 | 342 | 343 | 5 | | | |
| 2 | XB | 236 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1915 | 1223 | 343 | 344 | 5 | | | |

- Molecule 3 is a protein called 30S ribosomal protein S3.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 3 | QC | 205 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1605 | 1011 | 313 | 280 | 1 | | | |
| 3 | XC | 205 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1605 | 1011 | 313 | 280 | 1 | | | |

- Molecule 4 is a protein called 30S ribosomal protein S4.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 4 | QD | 208 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1703 | 1066 | 339 | 291 | 7 | | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 4 | XD | 208 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1703 | 1066 | 339 | 291 | 7 | | | |

- Molecule 5 is a protein called 30S ribosomal protein S5.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 5 | QE | 151 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1155 | 729 | 218 | 204 | 4 | | | |
| 5 | XE | 151 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1155 | 729 | 218 | 204 | 4 | | | |

- Molecule 6 is a protein called 30S ribosomal protein S6.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 6 | QF | 101 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 843 | 531 | 155 | 154 | 3 | | | |
| 6 | XF | 101 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 843 | 531 | 155 | 154 | 3 | | | |

- Molecule 7 is a protein called 30S ribosomal protein S7.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 7 | QG | 155 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1257 | 781 | 252 | 218 | 6 | | | |
| 7 | XG | 155 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1257 | 781 | 252 | 218 | 6 | | | |

- Molecule 8 is a protein called 30S ribosomal protein S8.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 8 | QH | 137 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1108 | 700 | 214 | 192 | 2 | | | |
| 8 | XH | 137 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1108 | 700 | 214 | 192 | 2 | | | |

- Molecule 9 is a protein called 30S ribosomal protein S9.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 9 | QI | 127 | Total | C | N | O | 0 | 0 | 0 |
| | | | 1010 | 639 | 197 | 174 | | | |
| 9 | XI | 126 | Total | C | N | O | 0 | 0 | 0 |
| | | | 998 | 633 | 193 | 172 | | | |

- Molecule 10 is a protein called 30S ribosomal protein S10.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 10 | QJ | 99 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 801 | 504 | 157 | 139 | 1 | | | |
| 10 | XJ | 96 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 777 | 487 | 153 | 136 | 1 | | | |

- Molecule 11 is a protein called 30S ribosomal protein S11.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 11 | QK | 119 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 885 | 549 | 168 | 165 | 3 | | | |
| 11 | XK | 116 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 864 | 537 | 164 | 160 | 3 | | | |

- Molecule 12 is a protein called 30S ribosomal protein S12.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 12 | QL | 125 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 975 | 614 | 196 | 164 | 1 | | | |
| 12 | XL | 122 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 956 | 603 | 193 | 159 | 1 | | | |

- Molecule 13 is a protein called 30S ribosomal protein S13.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 13 | QM | 120 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 955 | 591 | 197 | 165 | 2 | | | |
| 13 | XM | 119 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 946 | 585 | 195 | 164 | 2 | | | |

- Molecule 14 is a protein called 30S ribosomal protein S14 type Z.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 14 | QN | 60 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 492 | 312 | 104 | 72 | 4 | | | |
| 14 | XN | 60 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 492 | 312 | 104 | 72 | 4 | | | |

- Molecule 15 is a protein called 30S ribosomal protein S15.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 15 | QO | 88 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 734 | 459 | 147 | 126 | 2 | | | |
| 15 | XO | 87 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 729 | 457 | 146 | 124 | 2 | | | |

- Molecule 16 is a protein called 30S ribosomal protein S16.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 16 | QP | 84 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 705 | 446 | 140 | 118 | 1 | | | |
| 16 | XP | 84 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 705 | 446 | 140 | 118 | 1 | | | |

- Molecule 17 is a protein called 30S ribosomal protein S17.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 17 | QQ | 100 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 834 | 534 | 155 | 143 | 2 | | | |
| 17 | XQ | 100 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 834 | 534 | 155 | 143 | 2 | | | |

- Molecule 18 is a protein called 30S ribosomal protein S18.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---------|---------|-------|
| 18 | QR | 70 | Total | C | N | O | 0 | 0 | 0 |
| | | | 574 | 367 | 112 | 95 | | | |
| 18 | XR | 70 | Total | C | N | O | 0 | 0 | 0 |
| | | | 574 | 367 | 112 | 95 | | | |

- Molecule 19 is a protein called 30S ribosomal protein S19.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 19 | QS | 83 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 665 | 424 | 124 | 115 | 2 | | | |
| 19 | XS | 84 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 674 | 430 | 126 | 116 | 2 | | | |

- Molecule 20 is a protein called 30S ribosomal protein S20.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 20 | QT | 99 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 763 | 470 | 162 | 129 | 2 | | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 20 | XT | 99 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 763 | 470 | 162 | 129 | 2 | | | |

- Molecule 21 is a protein called 30S ribosomal protein Thx.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|---------|-------|
| 21 | QU | 25 | Total | C | N | O | 0 | 0 | 0 |
| | | | 217 | 134 | 52 | 31 | | | |
| 21 | XU | 25 | Total | C | N | O | 0 | 0 | 0 |
| | | | 217 | 134 | 52 | 31 | | | |

- Molecule 22 is a RNA chain called P-site tRNA fMet.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|---------|-------|
| 22 | QV | 77 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 1644 | 732 | 297 | 538 | 77 | | | |
| 22 | XV | 77 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 1644 | 732 | 297 | 538 | 77 | | | |

- Molecule 23 is a RNA chain called messenger RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|----|---------|---------|-------|
| 23 | QX | 12 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 261 | 117 | 51 | 81 | 12 | | | |
| 23 | XX | 11 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 239 | 107 | 46 | 75 | 11 | | | |

- Molecule 24 is a RNA chain called 23S rRNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|---------|-------|
| 24 | RA | 2882 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 62071 | 27627 | 11611 | 19952 | 2881 | | | |
| 24 | YA | 2883 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 62091 | 27636 | 11613 | 19960 | 2882 | | | |

- Molecule 25 is a RNA chain called 5S rRNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|---------|-------|
| 25 | RB | 120 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 2573 | 1146 | 476 | 832 | 119 | | | |
| 25 | YB | 120 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 2573 | 1146 | 476 | 832 | 119 | | | |

- Molecule 26 is a protein called 50S ribosomal protein L2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 26 | RD | 272 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 2115 | 1335 | 420 | 357 | 3 | | | |
| 26 | YD | 272 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 2115 | 1335 | 420 | 357 | 3 | | | |

- Molecule 27 is a protein called 50S ribosomal protein L3.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 27 | RE | 205 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1568 | 991 | 300 | 271 | 6 | | | |
| 27 | YE | 205 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1568 | 991 | 300 | 271 | 6 | | | |

- Molecule 28 is a protein called 50S ribosomal protein L4.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 28 | RF | 202 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1585 | 1011 | 297 | 275 | 2 | | | |
| 28 | YF | 202 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1585 | 1011 | 297 | 275 | 2 | | | |

- Molecule 29 is a protein called 50S ribosomal protein L5.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 29 | RG | 181 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1474 | 942 | 268 | 260 | 4 | | | |
| 29 | YG | 181 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1474 | 942 | 268 | 260 | 4 | | | |

- Molecule 30 is a protein called 50S ribosomal protein L6.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 30 | RH | 174 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1336 | 848 | 251 | 236 | 1 | | | |
| 30 | YH | 174 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1336 | 848 | 251 | 236 | 1 | | | |

- Molecule 31 is a protein called 50S ribosomal protein L9.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 31 | RI | 146 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1136 | 726 | 201 | 208 | 1 | | | |
| 31 | YI | 146 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1136 | 726 | 201 | 208 | 1 | | | |

- Molecule 32 is a protein called 50S ribosomal protein L13.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 32 | RN | 138 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1104 | 712 | 206 | 182 | 4 | | | |
| 32 | YN | 138 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1104 | 712 | 206 | 182 | 4 | | | |

- Molecule 33 is a protein called 50S ribosomal protein L14.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 33 | RO | 122 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 933 | 588 | 171 | 170 | 4 | | | |
| 33 | YO | 122 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 933 | 588 | 171 | 170 | 4 | | | |

- Molecule 34 is a protein called 50S ribosomal protein L15.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 34 | RP | 150 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1145 | 712 | 232 | 198 | 3 | | | |
| 34 | YP | 147 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1122 | 698 | 229 | 192 | 3 | | | |

- Molecule 35 is a protein called 50S ribosomal protein L16.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 35 | RQ | 141 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1122 | 715 | 212 | 188 | 7 | | | |
| 35 | YQ | 141 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1122 | 715 | 212 | 188 | 7 | | | |

- Molecule 36 is a protein called 50S ribosomal protein L17.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 36 | RR | 117 | Total | C | N | O | 0 | 0 | 0 |
| | | | 960 | 599 | 202 | 159 | | | |

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| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 36 | YR | 117 | Total | C | N | O | 0 | 0 | 0 |
| | | | 960 | 599 | 202 | 159 | | | |

- Molecule 37 is a protein called 50S ribosomal protein L18.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 37 | RS | 111 | Total | C | N | O | 0 | 0 | 0 |
| | | | 882 | 556 | 176 | 150 | | | |
| 37 | YS | 111 | Total | C | N | O | 0 | 0 | 0 |
| | | | 882 | 556 | 176 | 150 | | | |

- Molecule 38 is a protein called 50S ribosomal protein L19.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 38 | RT | 137 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1141 | 710 | 234 | 196 | 1 | | | |
| 38 | YT | 137 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1141 | 710 | 234 | 196 | 1 | | | |

- Molecule 39 is a protein called 50S ribosomal protein L20.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 39 | RU | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 964 | 610 | 202 | 151 | 1 | | | |
| 39 | YU | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 964 | 610 | 202 | 151 | 1 | | | |

- Molecule 40 is a protein called 50S ribosomal protein L21.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 40 | RV | 101 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 779 | 501 | 142 | 135 | 1 | | | |
| 40 | YV | 101 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 779 | 501 | 142 | 135 | 1 | | | |

- Molecule 41 is a protein called 50S ribosomal protein L22.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 41 | RW | 113 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 900 | 566 | 177 | 155 | 2 | | | |
| 41 | YW | 113 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 900 | 566 | 177 | 155 | 2 | | | |

- Molecule 42 is a protein called 50S ribosomal protein L23.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 42 | RX | 92 | Total | C | N | O | 0 | 0 | 0 |
| | | | 725 | 471 | 131 | 123 | | | |
| 42 | YX | 92 | Total | C | N | O | 0 | 0 | 0 |
| | | | 725 | 471 | 131 | 123 | | | |

- Molecule 43 is a protein called 50S ribosomal protein L24.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 43 | RY | 107 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 818 | 525 | 155 | 132 | 6 | | | |
| 43 | YY | 107 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 818 | 525 | 155 | 132 | 6 | | | |

- Molecule 44 is a protein called 50S ribosomal protein L25.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 44 | RZ | 183 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1461 | 933 | 260 | 265 | 3 | | | |
| 44 | YZ | 183 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1461 | 933 | 260 | 265 | 3 | | | |

- Molecule 45 is a protein called 50S ribosomal protein L27.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 45 | R0 | 81 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 643 | 398 | 137 | 107 | 1 | | | |
| 45 | Y0 | 82 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 648 | 401 | 138 | 108 | 1 | | | |

- Molecule 46 is a protein called 50S ribosomal protein L28.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 46 | R1 | 96 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 755 | 475 | 149 | 130 | 1 | | | |
| 46 | Y1 | 93 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 729 | 457 | 145 | 126 | 1 | | | |

- Molecule 47 is a protein called 50S ribosomal protein L29.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 47 | R2 | 69 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 581 | 358 | 118 | 104 | 1 | | | |
| 47 | Y2 | 69 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 581 | 358 | 118 | 104 | 1 | | | |

- Molecule 48 is a protein called 50S ribosomal protein L30.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 48 | R3 | 59 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 469 | 298 | 90 | 81 | | | | |
| 48 | Y3 | 59 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 469 | 298 | 90 | 81 | | | | |

- Molecule 49 is a protein called 50S ribosomal protein L31.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 49 | R4 | 69 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 565 | 356 | 103 | 101 | 5 | | | |
| 49 | Y4 | 69 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 565 | 356 | 103 | 101 | 5 | | | |

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

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 50 | R5 | 59 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 459 | 288 | 90 | 76 | 5 | | | |
| 50 | Y5 | 59 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 459 | 288 | 90 | 76 | 5 | | | |

- Molecule 51 is a protein called 50S ribosomal protein L33.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 51 | R6 | 53 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 453 | 281 | 91 | 77 | 4 | | | |
| 51 | Y6 | 53 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 453 | 281 | 91 | 77 | 4 | | | |

- Molecule 52 is a protein called 50S ribosomal protein L34.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 52 | R7 | 47 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 409 | 251 | 102 | 54 | 2 | | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 52 | Y7 | 48 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 418 | 257 | 104 | 55 | 2 | | | |

- Molecule 53 is a protein called 50S ribosomal protein L35.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 53 | R8 | 64 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 517 | 331 | 102 | 82 | 2 | | | |
| 53 | Y8 | 64 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 517 | 331 | 102 | 82 | 2 | | | |

- Molecule 54 is a protein called 50S ribosomal protein L36.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 54 | R9 | 37 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 307 | 188 | 68 | 47 | 4 | | | |
| 54 | Y9 | 37 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 307 | 188 | 68 | 47 | 4 | | | |

- Molecule 55 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|-----|---------|---------|
| 55 | QA | 180 | Total | Mg | 0 | 0 |
| | | | 180 | 180 | | |
| 55 | RP | 3 | Total | Mg | 0 | 0 |
| | | | 3 | 3 | | |
| 55 | QX | 2 | Total | Mg | 0 | 0 |
| | | | 2 | 2 | | |
| 55 | YA | 515 | Total | Mg | 0 | 0 |
| | | | 515 | 515 | | |
| 55 | Y5 | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |
| 55 | RT | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |
| 55 | RN | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |
| 55 | XE | 2 | Total | Mg | 0 | 0 |
| | | | 2 | 2 | | |
| 55 | XS | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |
| 55 | YD | 2 | Total | Mg | 0 | 0 |
| | | | 2 | 2 | | |

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| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|--------------|-----------|---------|---------|
| 55 | QV | 6 | Total 6 | Mg 6 | 0 | 0 |
| 55 | RX | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | Y8 | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | YO | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | XA | 171 | Total 171 | Mg 171 | 0 | 0 |
| 55 | YY | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | RQ | 2 | Total 2 | Mg 2 | 0 | 0 |
| 55 | R0 | 2 | Total 2 | Mg 2 | 0 | 0 |
| 55 | QL | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | YU | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | RU | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | RO | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | QH | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | YQ | 3 | Total 3 | Mg 3 | 0 | 0 |
| 55 | RY | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | QC | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | YX | 2 | Total 2 | Mg 2 | 0 | 0 |
| 55 | RD | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | R1 | 2 | Total 2 | Mg 2 | 0 | 0 |
| 55 | Y7 | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | QF | 1 | Total 1 | Mg 1 | 0 | 0 |

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| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|--------------|-----------|---------|---------|
| 55 | R5 | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | Y0 | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | XQ | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | RA | 493 | Total 493 | Mg 493 | 0 | 0 |
| 55 | YP | 3 | Total 3 | Mg 3 | 0 | 0 |
| 55 | RE | 4 | Total 4 | Mg 4 | 0 | 0 |
| 55 | XL | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | YB | 10 | Total 10 | Mg 10 | 0 | 0 |
| 55 | RW | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | RI | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | XV | 8 | Total 8 | Mg 8 | 0 | 0 |
| 55 | RB | 10 | Total 10 | Mg 10 | 0 | 0 |
| 55 | RF | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | XM | 1 | Total 1 | Mg 1 | 0 | 0 |
| 55 | YE | 4 | Total 4 | Mg 4 | 0 | 0 |

- Molecule 56 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe₄S₄).



| Mol | Chain | Residues | Atoms | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---------|---------|
| 56 | QD | 1 | Total | Fe | S | 0 | 0 |
| | | | 8 | 4 | 4 | | |
| 56 | XD | 1 | Total | Fe | S | 0 | 0 |
| | | | 8 | 4 | 4 | | |

- Molecule 57 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 57 | Y9 | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | YY | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | Y6 | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | QN | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | XN | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | RY | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | Y4 | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | R6 | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | Y5 | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |
| 57 | R5 | 1 | Total | Zn | 0 | 0 |
| | | | 1 | 1 | | |

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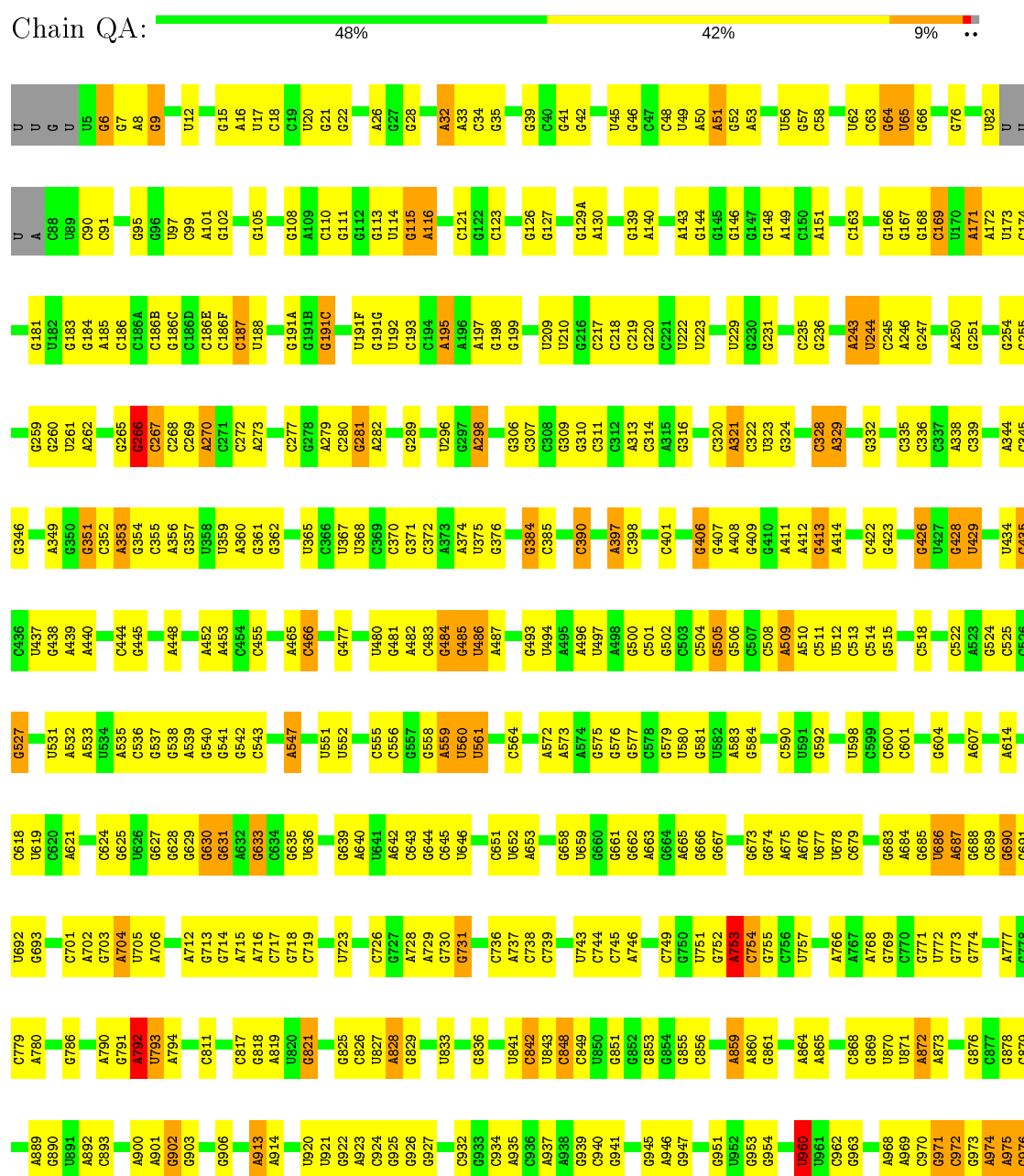
| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|------------|---------|---------|---------|
| 57 | R4 | 1 | Total 1 | Zn 1 | 0 | 0 |
| 57 | R9 | 1 | Total 1 | Zn 1 | 0 | 0 |

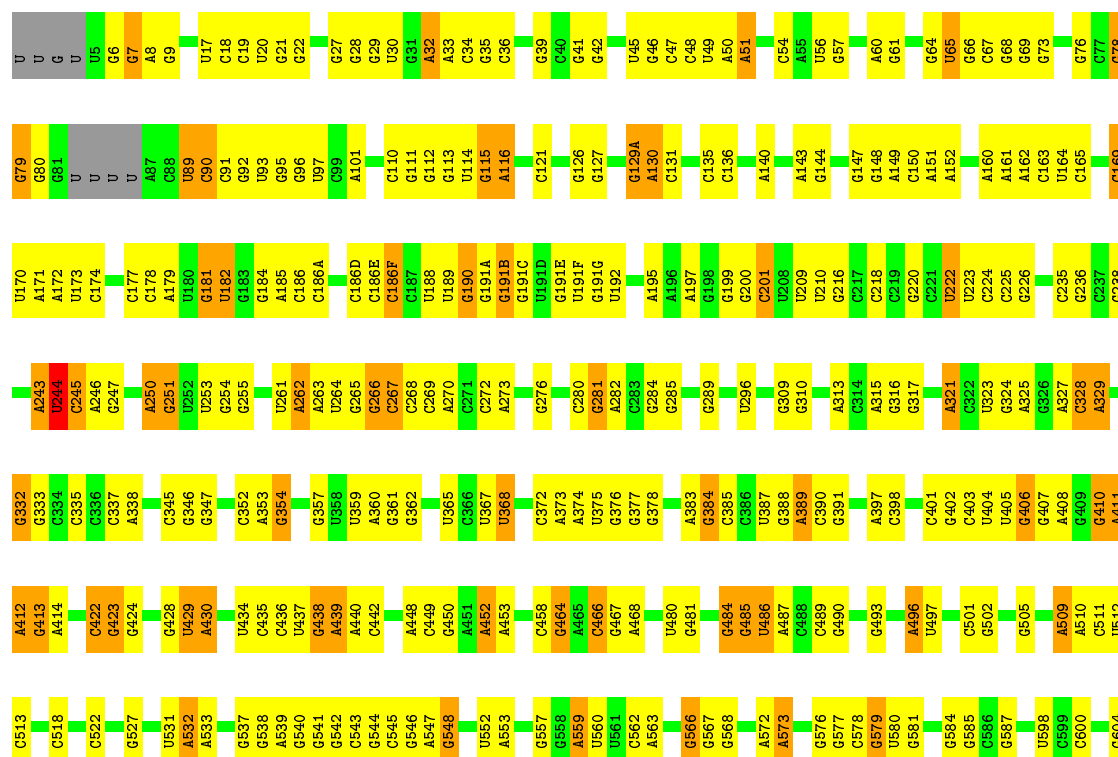
3 Residue-property plots

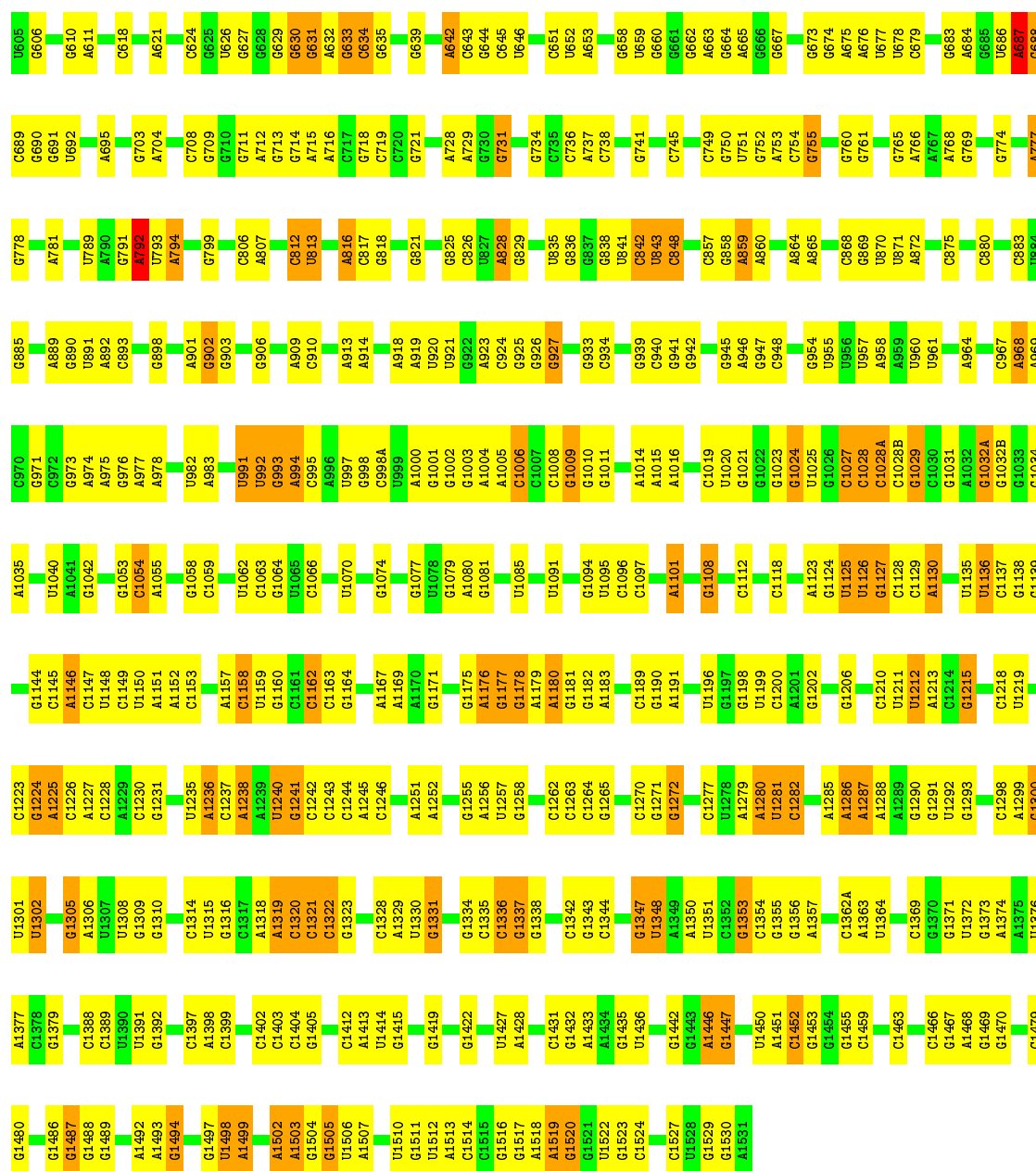
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according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

Note EDS failed to run properly.

• Molecule 1: 16S rRNA

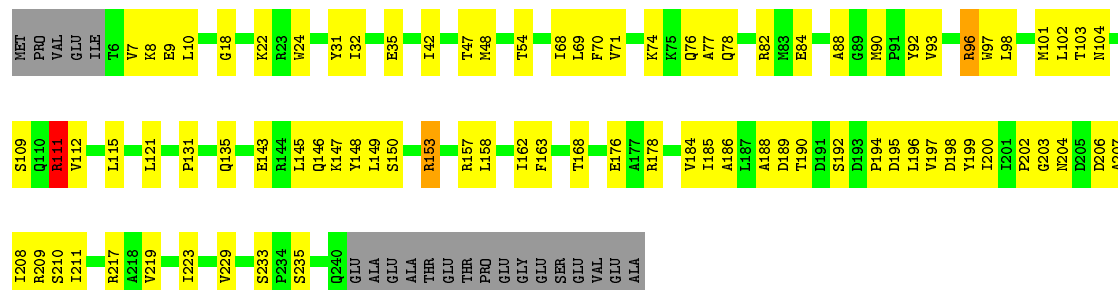






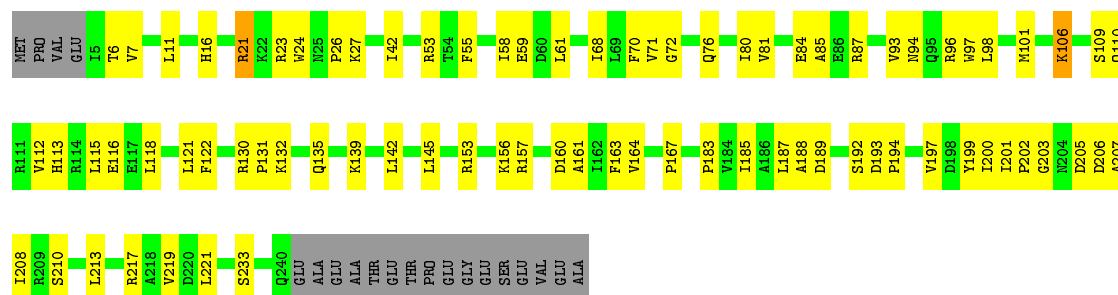
- Molecule 2: 30S ribosomal protein S2

Chain QB:  58% 32% 8%



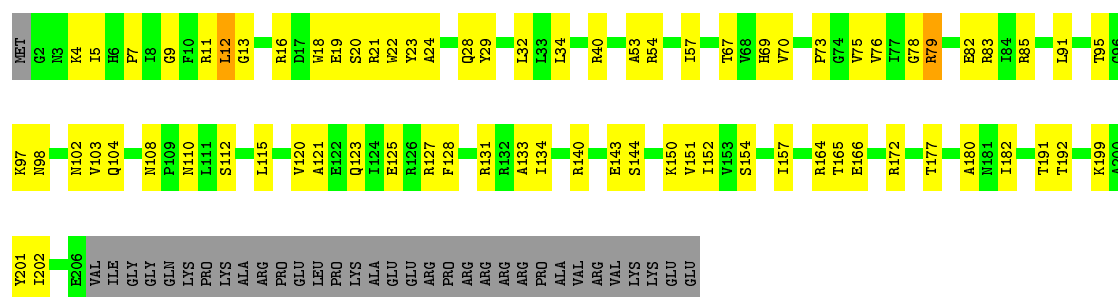
- Molecule 2: 30S ribosomal protein S2

Chain XB:  61% 30% 8%



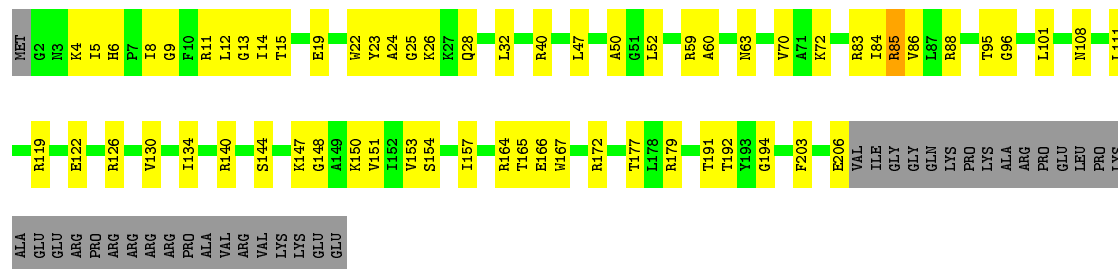
- Molecule 3: 30S ribosomal protein S3

Chain QC: 



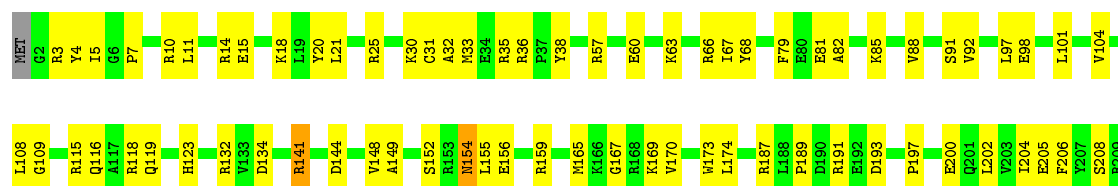
- Molecule 3: 30S ribosomal protein S3

Chain XC: 



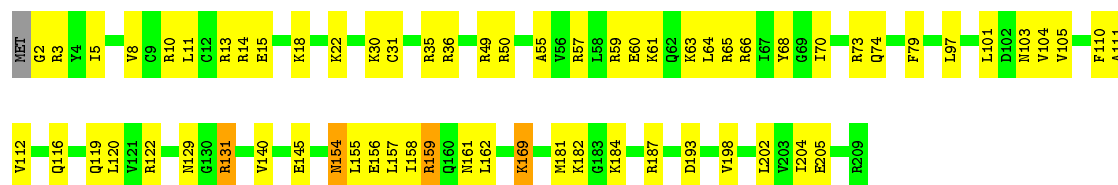
- Molecule 4: 30S ribosomal protein S4

Chain QD:  66% 33%



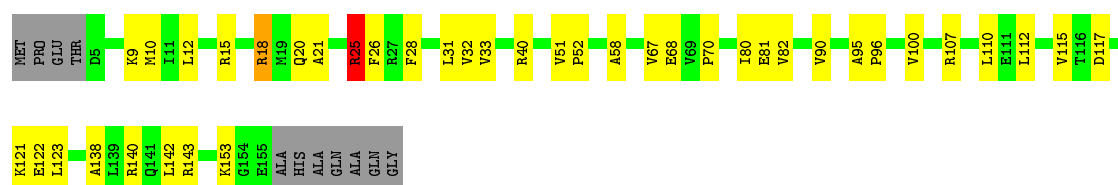
- Molecule 4: 30S ribosomal protein S4

Chain XD:  68% 29% .



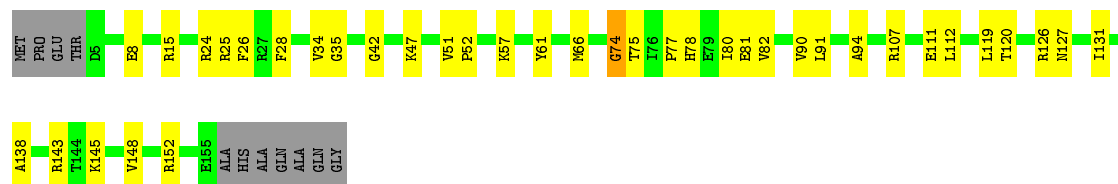
- Molecule 5: 30S ribosomal protein S5

Chain QE:  69% 23% .. 7%




- Molecule 5: 30S ribosomal protein S5

Chain XE:  70% 23% • 7%



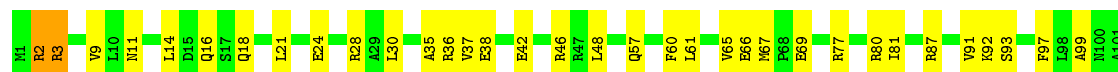
- Molecule 6: 30S ribosomal protein S6

Chain QF: 



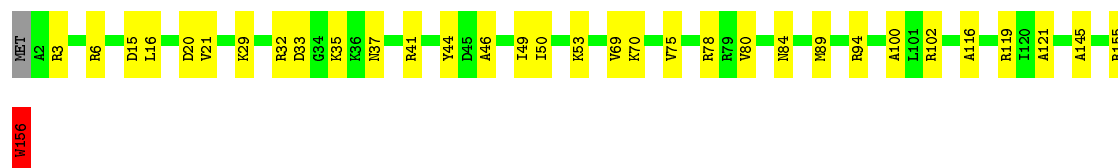
- Molecule 6: 30S ribosomal protein S6

Chain XF: 



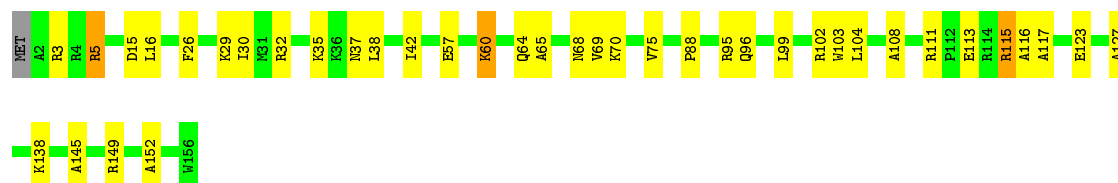
- Molecule 7: 30S ribosomal protein S7

Chain QG: 78% 21%



- Molecule 7: 30S ribosomal protein S7

Chain XG: 74% 23% ..



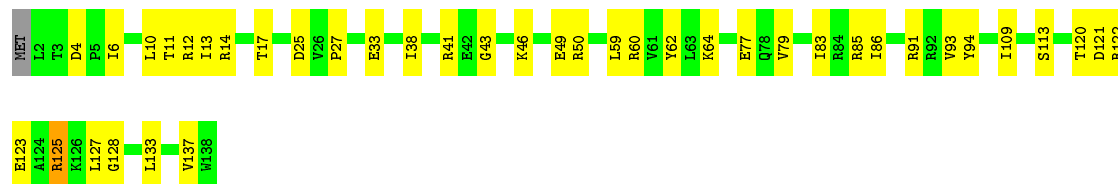
- Molecule 8: 30S ribosomal protein S8

Chain QH: 61% 38% .



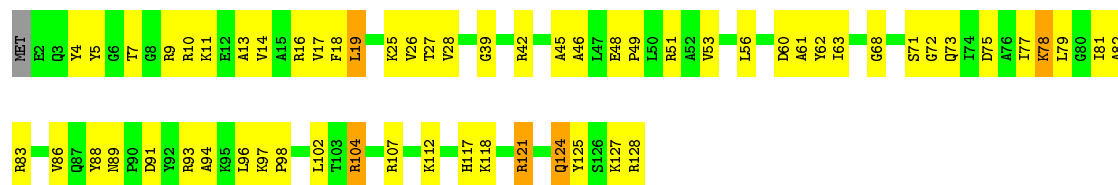
- Molecule 8: 30S ribosomal protein S8

Chain XH: 70% 28% ..



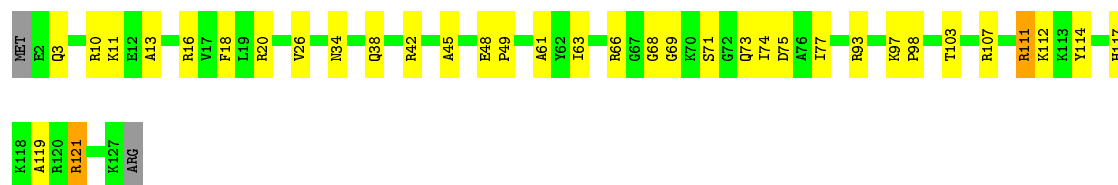
- Molecule 9: 30S ribosomal protein S9

Chain QI: 52% 43% . .

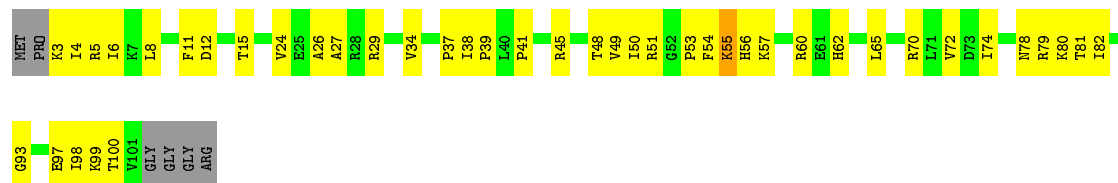


- Molecule 9: 30S ribosomal protein S9

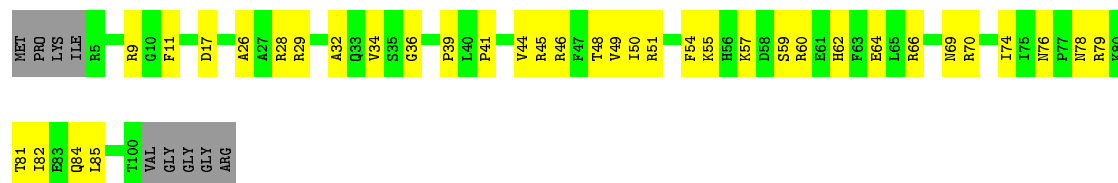
Chain XI: 71% 26% . .



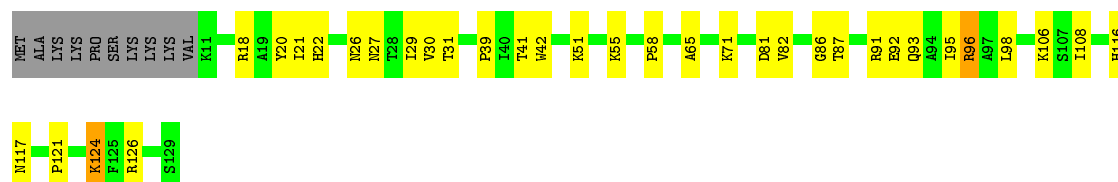
- Molecule 10: 30S ribosomal protein S10



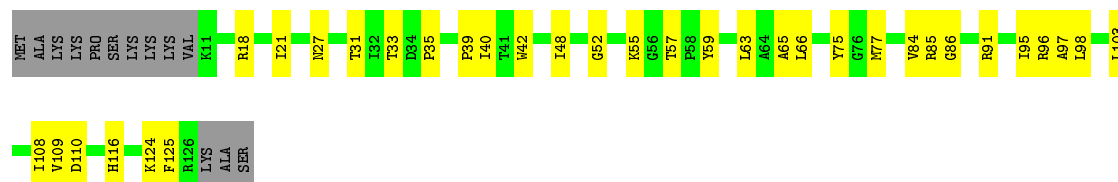
- Molecule 10: 30S ribosomal protein S10



- Molecule 11: 30S ribosomal protein S11

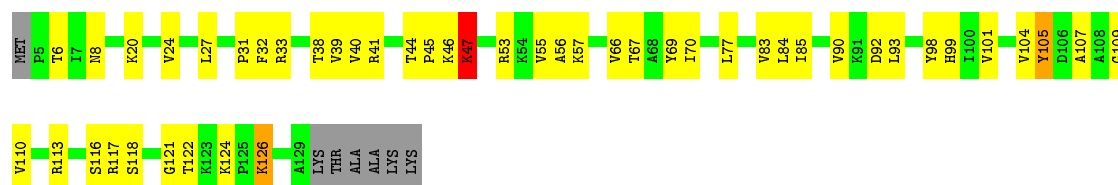


- Molecule 11: 30S ribosomal protein S11



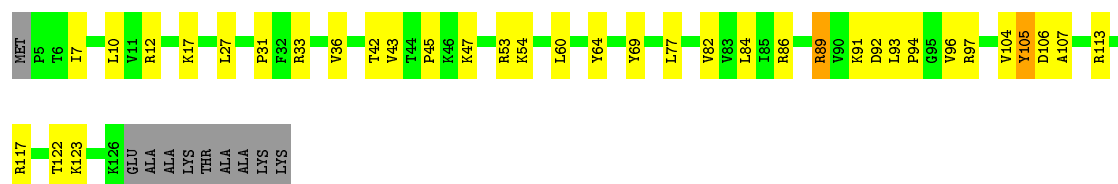
- Molecule 12: 30S ribosomal protein S12

Chain QL:  59% 33% 5%



- Molecule 12: 30S ribosomal protein S12

Chain XL:  65% 26% 8%



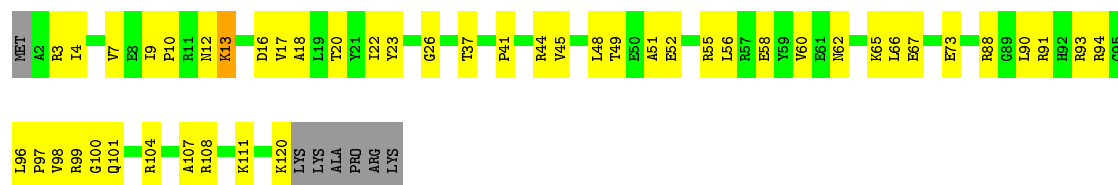
- Molecule 13: 30S ribosomal protein S13

Chain QM:  58% 35% 5%



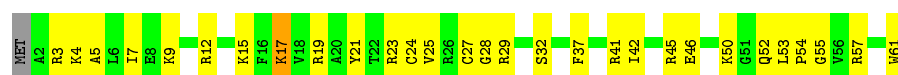
- Molecule 13: 30S ribosomal protein S13

Chain XM:  57% 37% 6%



- Molecule 14: 30S ribosomal protein S14 type Z

Chain QN:  51% 46% 2%



- Molecule 14: 30S ribosomal protein S14 type Z

Chain XN:  66% 28% 5%



- Molecule 15: 30S ribosomal protein S15

Chain QQ: 74% 25% .



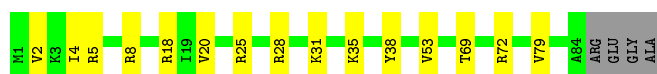
- Molecule 15: 30S ribosomal protein S15

Chain XO: 75% 22% .



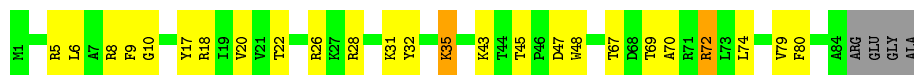
- Molecule 16: 30S ribosomal protein S16

Chain QP: 78% 17% 5%



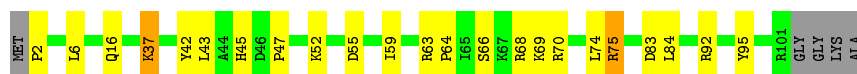
- Molecule 16: 30S ribosomal protein S16

Chain XP: 67% 26% 5%



- Molecule 17: 30S ribosomal protein S17

Chain QQ: 73% 20% 5%



- Molecule 17: 30S ribosomal protein S17

Chain XQ: 66% 29% 5%

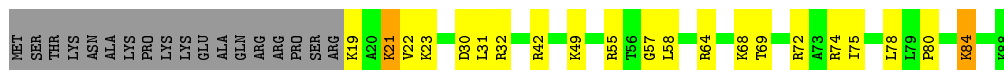


- Molecule 18: 30S ribosomal protein S18

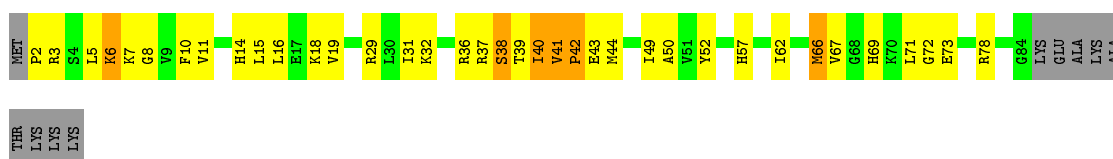
Chain QR: 52% 27% 20%



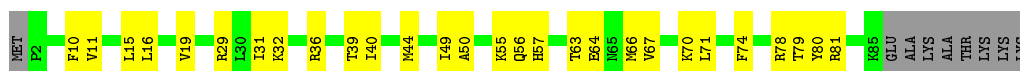
- Molecule 18: 30S ribosomal protein S18



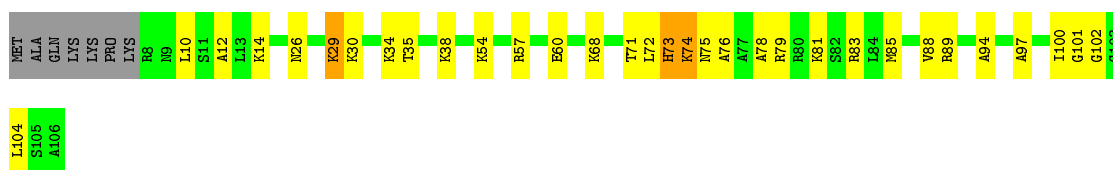
- Molecule 19: 30S ribosomal protein S19



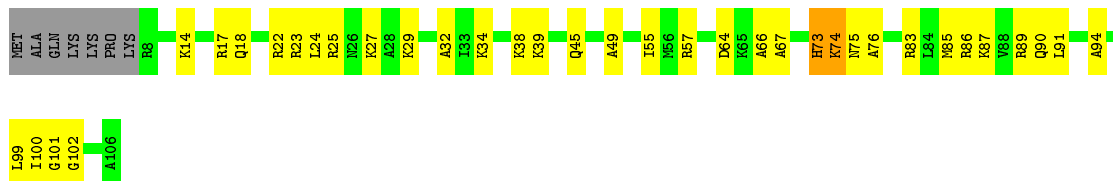
- Molecule 19: 30S ribosomal protein S19



- Molecule 20: 30S ribosomal protein S20



- Molecule 20: 30S ribosomal protein S20



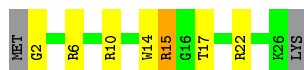
- Molecule 21: 30S ribosomal protein Thx





- Molecule 21: 30S ribosomal protein Thx

Chain XU: 67% 22% 7%



- Molecule 22: P-site tRNA fMet

Chain QV: 55% 31% 14%



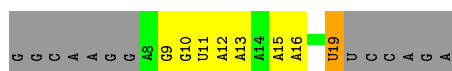
- Molecule 22: P-site tRNA fMet

Chain XV: 65% 26% 8%



- Molecule 23: messenger RNA

Chain QX: 16% 28% 52%



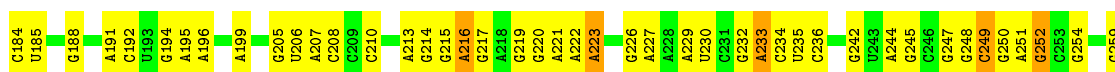
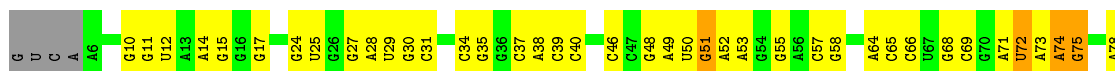
- Molecule 23: messenger RNA

Chain XX: 12% 24% 8% 56%



- Molecule 24: 23S rRNA

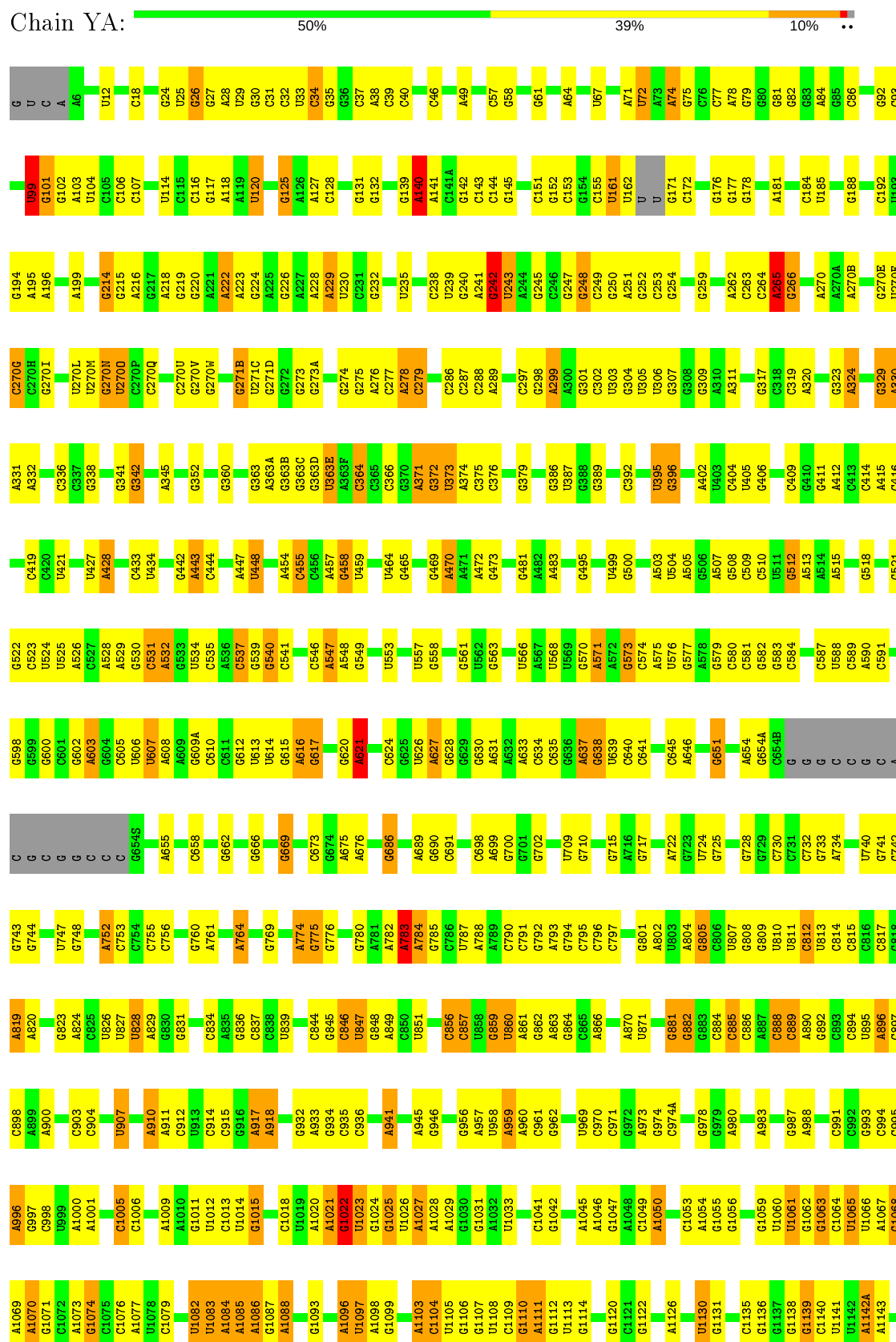
Chain RA: 51% 39% 8%



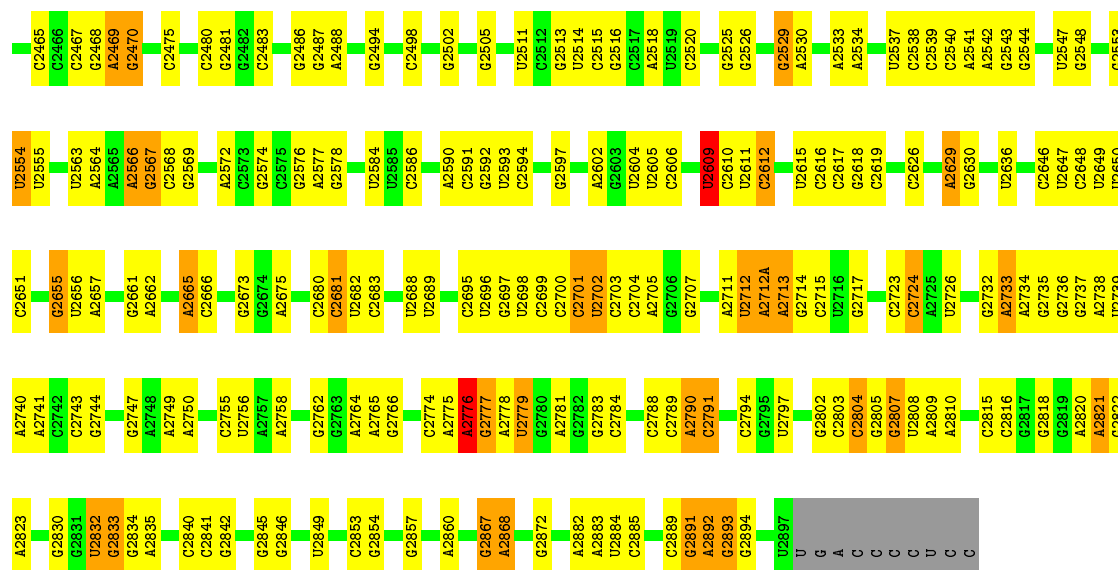
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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C1417 | G1418 | A1419 | G1420 | G1421 | G1422 | G1423 | G1424 | G1425 | G1426 | C1427 | G1428 | G1429 | C1430 | U1431 | C1432 | U1433 | G1436 | G1444 | A1444A | C1445 | A1449 | G1449A | U1454 | G1455 | A1460 | G1461 | C1464 | A1469 | G1470 | A1471 | A1472 | G1473 | C1474 | C1475 | C1476 | A1477 | U1482 | G1483 | G1484 | G1485 | A1486 | G1487 | A1490 | C1493 | A1494 | A1495 | A1496 | U1497 | C1498 | | | |
| G1332 | A1336 | G1337 | G1338 | U1341 | U1342 | U1343 | G1346 | G1347 | G1348 | A1349 | U1352 | A1353 | A1354 | U1359 | A1365 | A1366 | A1367 | C1370 | G1371 | U1372 | A1379 | G1380 | A1384 | G1385 | G1389 | U1390 | U1391 | A1392 | A1393 | U1394 | A1395 | U1396 | U1397 | C1398 | G1399 | G1400 | G1401 | C1402 | C1403 | G1404 | U1405 | U1406 | C1407 | C1408 | C1409 | G1410 | C1411 | A1412 | G1413 | G1416 | | |
| A1254 | U1255 | U1256 | C1257 | G1258 | G1259 | U1263 | G1264 | A1265 | G1266 | C1270 | G1271 | A1272 | U1273 | A1274 | G1275 | A1276 | G1277 | A1278 | G1279 | U1282 | G1283 | A1286 | A1287 | U1288 | C1289 | C1290 | C1291 | U1292 | C1293 | G1296 | C1297 | C1298 | U1300 | A1301 | A1302 | A1308 | G1309 | G1310 | G1311 | U1312 | U1313 | C1314 | C1315 | U1316 | A1317 | A1321 | A1322 | U1329 | C1330 | A1331 | | |
| U1165 | C1166 | U1167 | G1168 | G1171 | G1173 | A1174 | U1175 | G1176 | A1177 | C1178 | C1179 | G1180 | C1181 | A1182 | G1186 | G1187 | U1188 | A1189 | G1190 | G1191 | G1195 | C1196 | G1197 | C1201 | G1202 | G1203 | A1204 | U1205 | G1206 | A1210 | U1211 | G1212 | A1220 | C1221 | C1222 | G1223 | C1224 | C1225 | G1226 | A1227 | G1235 | C1236 | C1237 | G1238 | A1246 | G1247 | G1248 | U1249 | G1250 | A1253 | | |
| A1073 | C1076 | A1077 | U1078 | C1079 | C1080 | U1081 | U1082 | U1083 | A1084 | A1085 | A1086 | G1087 | A1088 | A1089 | U1090 | G1091 | C1092 | G1093 | A1096 | U1097 | A1098 | A1103 | C1104 | U1105 | G1106 | G1107 | G1110 | A1111 | G1112 | C1116 | G1117 | G1122 | A1126 | G1131 | C1135 | G1136 | C1140 | U1141 | U1142 | A1142A | A1148 | A1155 | U1159 | G1163 | G1164 | | | | | | | |
| U1165 | C1166 | U1167 | G1168 | G1171 | G1173 | A1174 | U1175 | G1176 | A1177 | C1178 | C1179 | G1180 | C1181 | A1182 | G1186 | G1187 | U1188 | A1189 | G1190 | G1191 | G1195 | C1196 | G1197 | C1201 | G1202 | G1203 | A1204 | U1205 | G1206 | A1210 | U1211 | G1212 | A1220 | C1221 | C1222 | G1223 | C1224 | C1225 | G1226 | A1227 | G1235 | C1236 | C1237 | G1238 | A1246 | G1247 | G1248 | U1249 | G1250 | A1253 | | |
| A1254 | U1255 | U1256 | C1257 | G1258 | G1259 | U1263 | G1264 | A1265 | G1266 | C1270 | G1271 | A1272 | U1273 | A1274 | G1275 | A1276 | G1277 | A1278 | G1279 | U1282 | G1283 | A1286 | A1287 | U1288 | C1289 | C1290 | C1291 | U1292 | C1293 | G1296 | C1297 | C1298 | U1300 | A1301 | A1302 | A1308 | G1309 | G1310 | G1311 | U1312 | U1313 | C1314 | C1315 | U1316 | A1317 | A1321 | A1322 | U1329 | C1330 | A1331 | | |
| G1332 | G1336 | G1337 | G1338 | U1341 | G1342 | G1343 | G1344 | G1345 | G1346 | G1347 | G1348 | A1349 | U1352 | A1353 | A1354 | U1359 | A1365 | A1366 | A1367 | C1370 | G1371 | U1372 | A1379 | G1380 | A1384 | G1385 | G1389 | U1390 | U1391 | A1392 | A1393 | U1394 | A1395 | U1396 | U1397 | C1398 | G1399 | G1400 | G1401 | C1402 | C1403 | G1404 | U1405 | U1406 | C1407 | C1408 | C1409 | G1410 | C1411 | A1412 | G1413 | G1416 |

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| G2838 | A2753 | U2649 | C2559 | G2371 | C2292 | C2188 | U2113 | A2020 | G1920 | G1799 | G1685 | A1583 | G1499 |
| G2839 | U2754 | U2650 | C2560 | G2372 | C2293 | U2189 | A2114 | C2021 | U1923 | C1800 | C1686 | C1585 | G1500 |
| G2840 | G2755 | G2651 | A2561 | G2373 | U2296 | G2190 | G2115 | U2022 | U1923 | G1801 | U1687 | C1501 | C1500 |
| G2843 | U2756 | A2654 | G2562 | G2374 | U2297 | G2191 | G2116 | G2023 | G1929 | A1802 | U1688 | A1587 | C1502 |
| G2844 | A2757 | G2655 | U2563 | G2375 | G2298 | G2192 | U2118 | G2029 | G1930 | A1803 | C1589 | C1588 | U1503 |
| G2845 | A2758 | U2656 | G2564 | G2376 | G2299 | A2198 | A2119 | A2030 | U1931 | A1812 | U1698 | C1589 | A1504 |
| G2846 | G2761 | A2656 | A2565 | A2377 | G2300 | G2193 | G2120 | A2031 | U1931 | A1813 | A1698 | C1505 | C1505 |
| G2847 | G2762 | A2657 | G2566 | G2378 | G2301 | G2210 | G2121 | A2032 | G1935 | U1709 | C1506 | A1507 | C1506 |
| G2848 | A2765 | C2568 | G2567 | G2379 | G2302 | G2211 | G2122 | A2033 | G1936 | C1710 | C1592 | A1508 | A1508 |
| G2849 | G2766 | G2569 | G2568 | C2380 | G2303 | A2212 | G2123 | A2034 | A1937 | G1817 | G1594 | C1509 | C1509 |
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| G2853 | A2776 | G2571 | G2382 | G2382 | C2305 | G2215 | G2125 | G2038 | U1939 | A1819 | A1511 | A1511 | A1511 |
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| G2858 | A2778 | A2573 | G2384 | G2384 | G2307 | G2217 | G2127 | A2040 | A1945 | A1729 | C1598 | C1598 | C1513 |
| G2859 | U2779 | G2574 | G2385 | G2385 | G2308 | G2218 | G2128 | C2041 | A1952 | C1827 | G1731 | U1514 | U1514 |
| G2860 | G2780 | C2483 | G2386 | G2386 | G2309 | G2219 | G2129 | C2042 | A1953 | A1732 | G1733 | U1515 | U1516 |
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| G2862 | G2782 | G2485 | G2388 | G2388 | G2311 | G2221 | G2131 | C2044 | U1955 | G1832 | G1735 | U1518 | U1518 |
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| G2899 | U2811 | G2609 | G2418 | G2418 | G2341 | G2251 | G2161 | G2074 | U1985 | G1861 | G1765 | G1632 | G1632 |
| G2900 | G2812 | G2610 | G2419 | G2419 | G2342 | G2252 | G2162 | G2075 | U1986 | G1862 | G1766 | G1633 | G1633 |
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| G2902 | U2814 | G2612 | G2421 | G2421 | G2344 | G2254 | G2164 | G2077 | U1988 | G1864 | G1768 | G1635 | G1635 |
| G2903 | G2815 | G2613 | G2422 | G2422 | G2345 | G2255 | G2165 | G2078 | U1989 | G1865 | G1769 | G1636 | G1636 |
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| G2906 | U2818 | G2616 | G2425 | G2425 | G2348 | G2258 | G2168 | G2081 | U1992 | G1868 | G1772 | G1639 | G1639 |
| G2907 | G2819 | G2617 | G2426 | G2426 | G2349 | G2259 | G2169 | G2082 | U1993 | G1869 | G1773 | G1640 | G1640 |
| G2908 | C2820 | G2618 | G2427 | G2427 | G2350 | G2260 | G2170 | G2083 | U1994 | G1870 | G1774 | G1641 | G1641 |
| G2909 | U2821 | G2619 | G2428 | G2428 | G2351 | G2261 | G2171 | G2084 | U1995 | G1871 | G1775 | G1642 | G1642 |
| G2910 | G2822 | G2620 | G2429 | G2429 | G2352 | G2262 | G2172 | G2085 | U1996 | G1872 | G1776 | G1643 | G1643 |
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| G2913 | G2825 | G2623 | G2432 | G2432 | G2355 | G2265 | G2175 | G2088 | U1999 | G1875 | G1779 | G1646 | G1646 |
| G2914 | U2826 | G2624 | G2433 | G2433 | G2356 | G2266 | G2176 | G2089 | U2000 | G1876 | G1780 | G1647 | G1647 |
| G2915 | C2827 | G2625 | G2434 | G2434 | G2357 | G2267 | G2177 | G2090 | U2001 | G1877 | G1781 | G1648 | G1648 |
| G2916 | U2828 | G2626 | G2435 | G2435 | G2358 | G2268 | G2178 | G2091 | U2002 | G1878 | G1782 | G1649 | G1649 |
| G2917 | G2829 | G2627 | G2436 | G2436 | G2359 | G2269 | G2179 | G2092 | U2003 | G1879 | G1783 | G1650 | G1650 |
| G2918 | C2830 | G2628 | G2437 | G2437 | G2360 | G2270 | G2180 | G2093 | U2004 | G1880 | G1784 | G1651 | G1651 |
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| G2920 | G2832 | G2630 | G2439 | G2439 | G2362 | G2272 | G2182 | G2095 | U2006 | G1882 | G1786 | G1653 | G1653 |
| G2921 | C2833 | G2631 | G2440 | G2440 | G2363 | G2273 | G2183 | G2096 | U2007 | G1883 | G1787 | G1654 | G1654 |
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| G2932 | U2844 | G2642 | G2451 | G2451 | G2374 | G2284 | G2194 | G2107 | U2018 | G1894 | G1798 | G1665 | G1665 |
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| G2934 | U2846 | G2644 | G2453 | G2453 | G2376 | G2286 | G2196 | G2109 | U2020 | G1896 | G1800 | G1667 | G1667 |
| G2935 | C2847 | G2645 | G2454 | G2454 | G2377 | G2287 | G2197 | G2110 | U2021 | G1897 | G1801 | G1668 | G1668 |
| G2936 | U2848 | G2646 | G2455 | G2455 | G2378 | G2288 | G2198 | G2111 | U2022 | G1898 | G1802 | G1669 | G1669 |
| G2937 | G2849 | G2647 | G2456 | G2456 | G2379 | G2289 | G2199 | G2112 | U2023 | G1899 | G1803 | G1670 | G1670 |
| G2938 | C2850 | G2648 | G2457 | G2457 | G2380 | G2290 | G2200 | G2113 | U2024 | G1900 | G1804 | G1671 | G1671 |
| G2939 | U2851 | G2649 | G2458 | G2458 | G2381 | G2291 | G2201 | G2114 | U2025 | G1901 | G1805 | G1672 | G1672 |
| G2940 | G2852 | G2650 | G2459 | G2459 | G2382 | G2292 | G2202 | G2115 | U2026 | G1902 | G1806 | G1673 | G1673 |
| G2941 | C2853 | G2651 | G2460 | G2460 | G2383 | G2293 | G2203 | G2116 | U2027 | G1903 | G1807 | G1674 | G1674 |
| G2942 | U2854 | G2652 | G2461 | G2461 | G2384 | G2294 | G2204 | G2117 | U2028 | G1904 | G1808 | G1675 | G1675 |
| G2943 | G2855 | G2653 | G2462 | G2462 | G2385 | G2295 | G2205 | G2118 | U2029 | G1905 | G1809 | G1676 | G1676 |
| G2944 | U2856 | G2654 | G2463 | G2463 | G2386 | G2296 | G2206 | G2119 | U2030 | G1906 | G1810 | G1677 | G1677 |
| G2945 | C2857 | | | | | | | | | | | | |

- Molecule 24: 23S rRNA

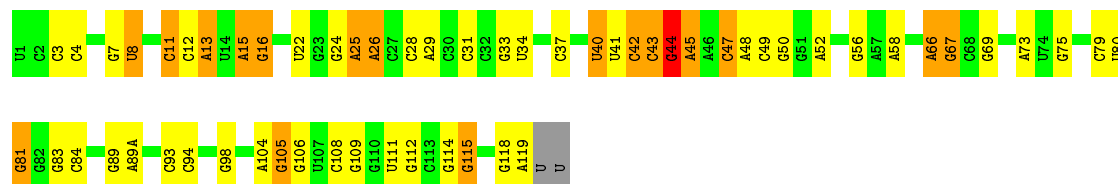


| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| G2395 | G2396 | G2397 | G2398 | G2399 | G2400 | U2401 | G2402 | G2403 | G2404 | G2405 | G2406 | G2409 | G2410 | A2411 | G2415 | A2418 | U2419 | A2422 | U2423 | C2424 | A2425 | A2426 | G2427 | G2428 | G2429 | A2430 | A2433 | A2434 | A2435 | A2436 | U2437 | U2438 | A2439 | G2440 | G2441 | G2442 | G2443 | G2446 | G2447 | G2448 | U2449 | A2450 | A2453 | G2454 | G2455 | G2456 | U2457 | G2458 | A2459 | U2460 | A2461 | U2462 | | | |
| C2313 | C2314 | C2315 | C2316 | C2317 | C2318 | C2319 | A2320 | C2325 | C2326 | C2327 | C2328 | A2328 | G2329 | G2330 | G2331 | G2332 | G2333 | G2334 | A2335 | A2336 | G2342 | C2343 | C2344 | G2345 | A2346 | C2347 | A2348 | G2349 | C2350 | G2354 | C2355 | C2356 | C2357 | G2358 | C2363 | C2364 | C2365 | C2368 | A2369 | G2370 | G2373 | C2380 | G2383 | C2384 | C2385 | G2389 | U2390 | G2391 | G2392 | A2393 | C2394 | | | | |
| G2216 | A2225 | C2226 | A2227 | G2230 | G2233 | G2234 | G2238 | G2239 | U2243 | U2244 | U2245 | U2246 | U2247 | U2248 | U2249 | G2250 | G2259 | G2265 | A2266 | A2267 | A2268 | G2271 | G2275 | A2278 | G2279 | G2280 | G2281 | G2282 | G2283 | A2286 | A2287 | A2288 | A2289 | G2290 | U2291 | C2292 | C2293 | C2294 | C2295 | U2296 | G2304 | A2305 | C2306 | G2307 | G2308 | A2311 | U2312 | | | | | | | | |
| U2068 | G2069 | G2070 | G2071 | G2072 | G2073 | U2074 | U2075 | U2076 | A2077 | G2078 | U2079 | A2082 | G2083 | U2086 | G2090 | G2093 | U2099 | G2100 | G2101 | U2102 | C2103 | C2104 | C2105 | C2106 | C2107 | G2110 | C2111 | G2112 | U2113 | A2114 | C2115 | G2116 | A2117 | U2118 | C2119 | G2120 | G2121 | U2122 | G2123 | G2124 | A2125 | G2126 | G2127 | C2128 | U2132 | G2133 | G2134 | A2135 | C2136 | C2137 | C2138 | C2139 | | | |
| C2140 | G2141 | C2142 | C2143 | U2144 | C2145 | C2146 | G2147 | G2148 | G2149 | U2150 | G2151 | G2152 | G2153 | G2154 | C2161 | C2162 | C2163 | C2164 | C2165 | C2166 | U2167 | C2168 | A2169 | C2170 | C2171 | U2172 | A2173 | C2174 | C2175 | A2176 | C2177 | U2180 | G2181 | C2182 | C2183 | C2184 | C2185 | G2186 | U2189 | G2190 | G2191 | G2192 | G2193 | G2194 | A2198 | G2202 | G2203 | G2204 | G2211 | G2212 | U2213 | G2215 | | | |
| G2216 | A2225 | C2226 | A2227 | G2230 | G2233 | G2234 | G2238 | G2239 | U2243 | U2244 | U2245 | U2246 | U2247 | U2248 | U2249 | G2250 | G2259 | G2265 | A2266 | A2267 | A2268 | G2271 | G2275 | A2278 | G2279 | G2280 | G2281 | G2282 | G2283 | A2286 | A2287 | A2288 | A2289 | G2290 | U2291 | C2292 | C2293 | C2294 | C2295 | U2296 | G2304 | A2305 | C2306 | G2307 | G2308 | A2311 | U2312 | | | | | | | | |
| C2313 | C2314 | C2315 | C2316 | C2317 | C2318 | C2319 | A2320 | C2325 | C2326 | C2327 | C2328 | C2329 | G2330 | G2331 | G2332 | G2333 | G2334 | A2335 | A2336 | G2342 | C2343 | C2344 | G2345 | A2346 | C2347 | U2348 | G2349 | C2350 | G2354 | C2355 | C2356 | C2357 | G2358 | C2363 | C2364 | C2365 | C2368 | A2369 | G2370 | G2373 | C2380 | G2383 | G2384 | C2385 | G2389 | U2390 | G2391 | G2392 | A2393 | C2394 | | | | | |
| G2395 | G2396 | G2397 | G2398 | G2399 | G2400 | U2401 | G2402 | G2403 | G2404 | G2405 | G2406 | G2409 | G2410 | A2411 | G2415 | A2418 | U2419 | A2422 | U2423 | C2424 | A2425 | A2426 | G2427 | G2428 | G2429 | A2430 | A2433 | A2434 | A2435 | A2436 | U2437 | U2438 | A2439 | G2440 | G2441 | G2442 | G2443 | G2446 | G2447 | G2448 | U2449 | A2450 | A2453 | G2454 | G2455 | G2456 | U2457 | G2458 | A2459 | U2460 | A2461 | U2462 | | | |
| U1352 | A1353 | A1354 | G1355 | A1359 | A1360 | G1364 | A1365 | G1368 | G1369 | C1370 | G1371 | U1372 | A1379 | A1384 | G1385 | U1391 | U1394 | U1397 | G1400 | G1401 | C1402 | C1403 | C1404 | U1482 | G1483 | G1484 | G1485 | A1486 | G1487 | G1488 | U1489 | A1490 | G1491 | G1492 | C1493 | A1494 | A1495 | A1496 | U1497 | A1498 | G1499 | G1500 | C1505 | C1506 | A1507 | A1508 | A1509 | A1510 | A1511 | G1512 | G1517 | | | | |
| G1252 | A1253 | G1256 | U1263 | A1264 | A1265 | G1266 | U1267 | A1268 | A1269 | C1270 | G1271 | A1272 | A1278 | A1279 | A1286 | U1287 | U1288 | U1292 | C1293 | U1294 | U1300 | A1301 | C1309 | G1310 | U1313 | C1314 | G1315 | A1316 | A1317 | C1318 | A1322 | U1329 | C1330 | A1331 | G1332 | C1333 | A1336 | G1337 | G1338 | C1339 | U1340 | U1341 | G1344 | A1349 | G1349 | A1354 | G1355 | G1356 | G1357 | G1358 | G1359 | G1360 | | | |
| G1151 | C1152 | G1153 | A1154 | A1155 | A1156 | G1157 | G1164 | U1165 | A1166 | U1167 | G1168 | G1173 | A1174 | U1175 | G1176 | A1177 | G1178 | C1179 | C1180 | G1184 | G1187 | G1190 | G1191 | A1194 | G1195 | C1201 | C1202 | G1203 | A1204 | U1205 | G1206 | A1210 | U1211 | G1212 | U1329 | C1330 | A1331 | G1332 | C1333 | A1336 | G1337 | G1338 | C1339 | U1340 | U1341 | G1344 | A1349 | G1349 | A1354 | G1355 | G1356 | G1357 | G1358 | G1359 | G1360 |



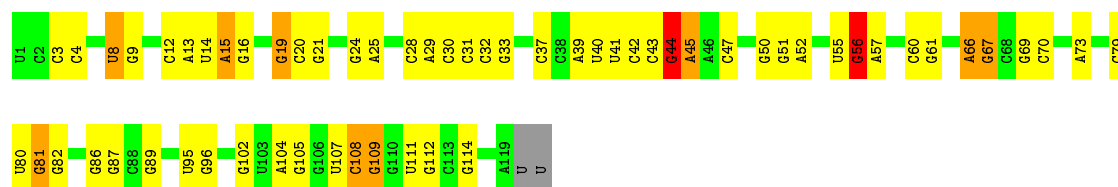
• Molecule 25: 5S rRNA

Chain RB: 51% 33% 14% ..



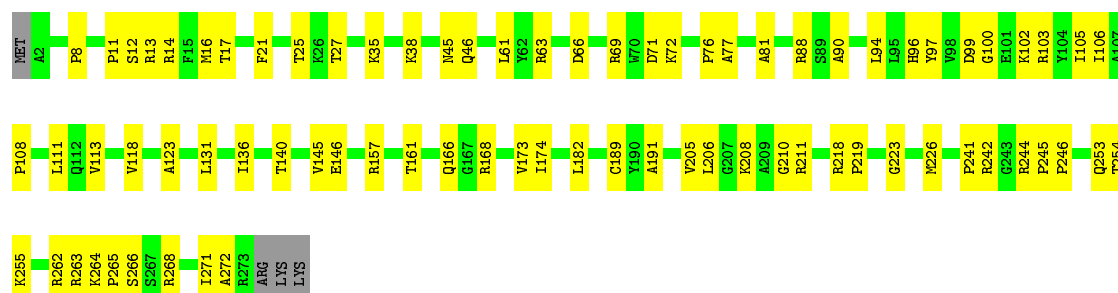
• Molecule 25: 5S rRNA

Chain YB: 49% 40% 7% ..

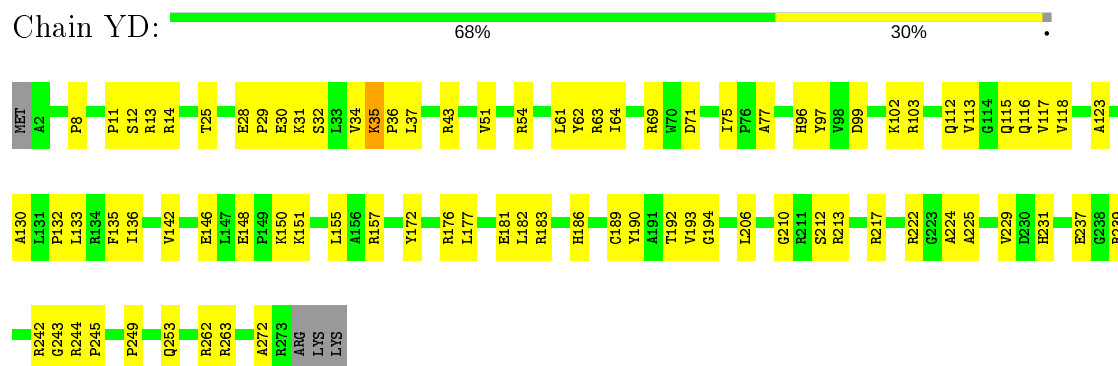


• Molecule 26: 50S ribosomal protein L2

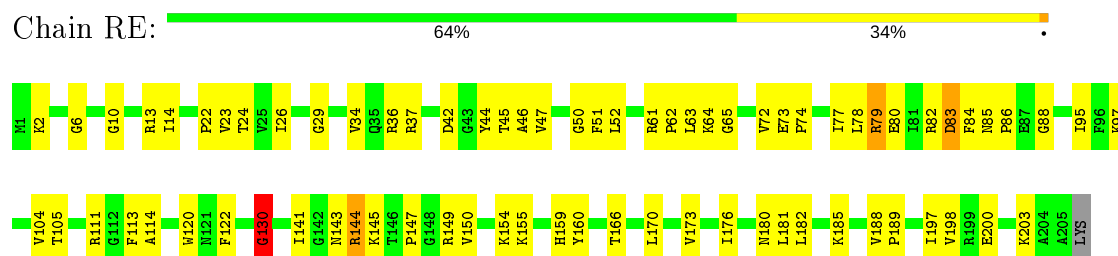
Chain RD: 70% 28% .



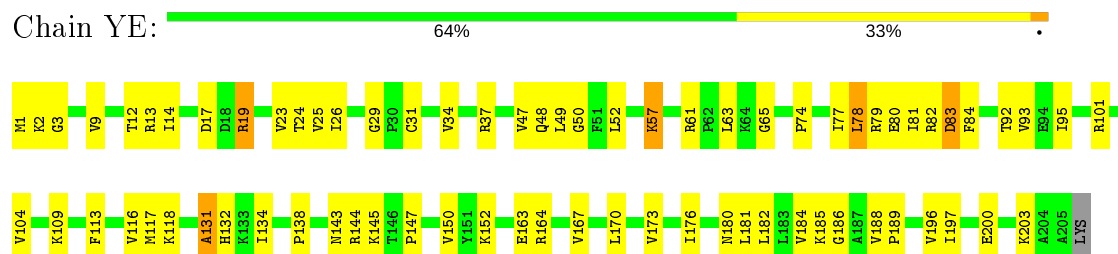
- Molecule 26: 50S ribosomal protein L2



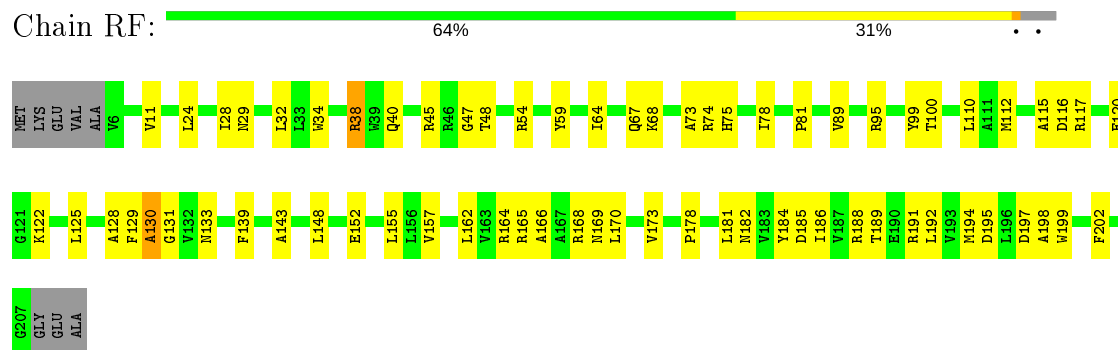
- Molecule 27: 50S ribosomal protein L3



- Molecule 27: 50S ribosomal protein L3

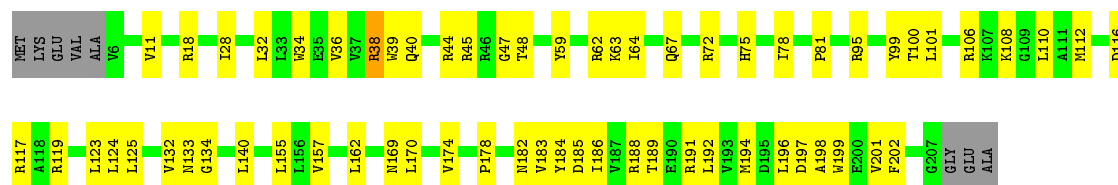


- Molecule 28: 50S ribosomal protein L4

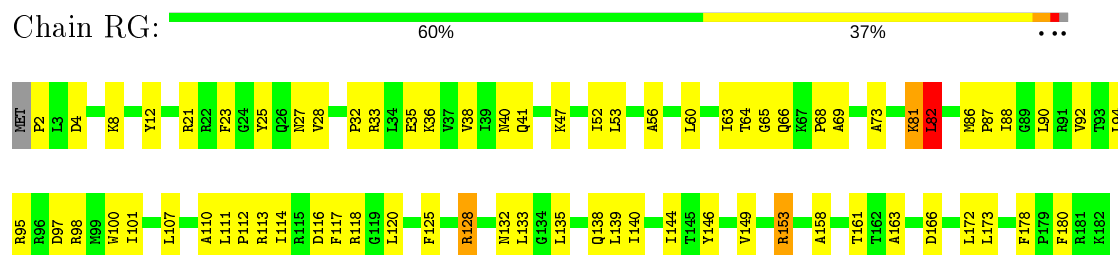


- Molecule 28: 50S ribosomal protein L4

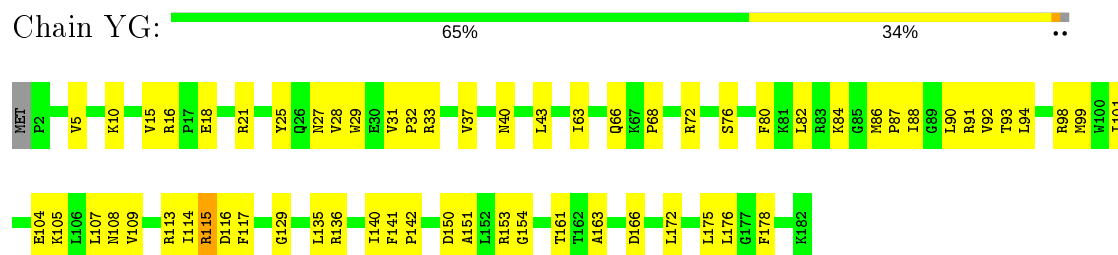




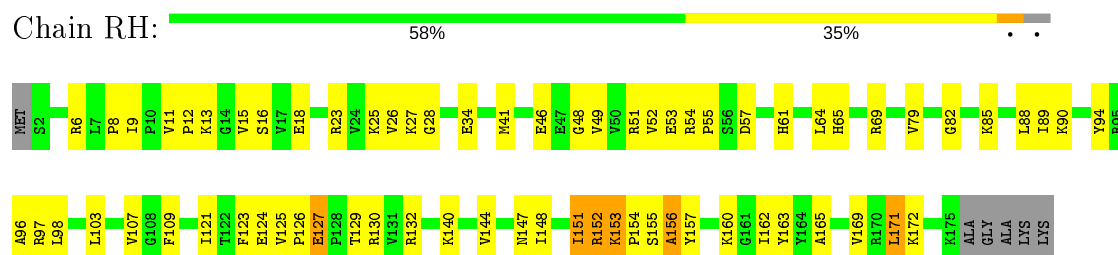
• Molecule 29: 50S ribosomal protein L5



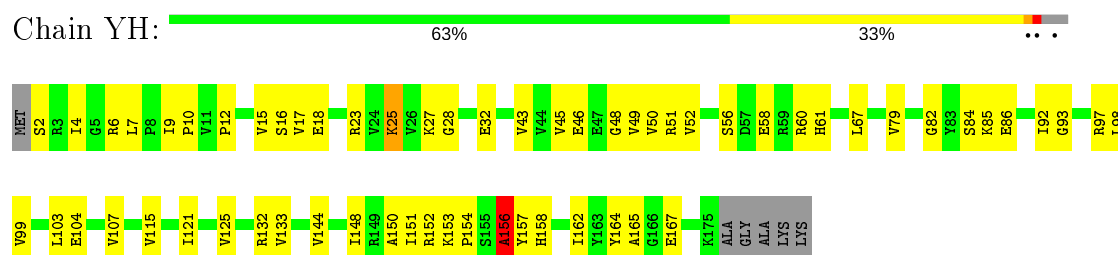
• Molecule 29: 50S ribosomal protein L5



• Molecule 30: 50S ribosomal protein L6

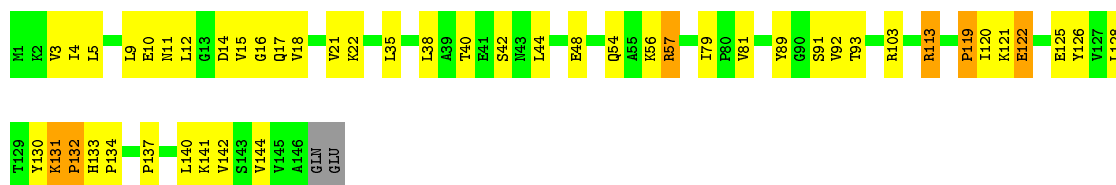


• Molecule 30: 50S ribosomal protein L6

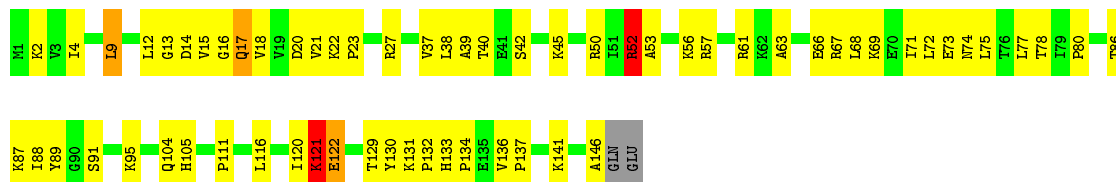


• Molecule 31: 50S ribosomal protein L9

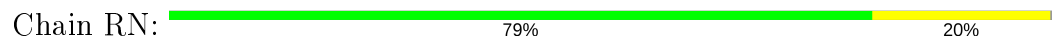




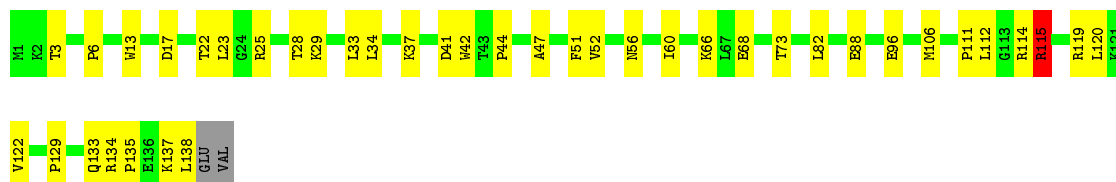
- Molecule 31: 50S ribosomal protein L9



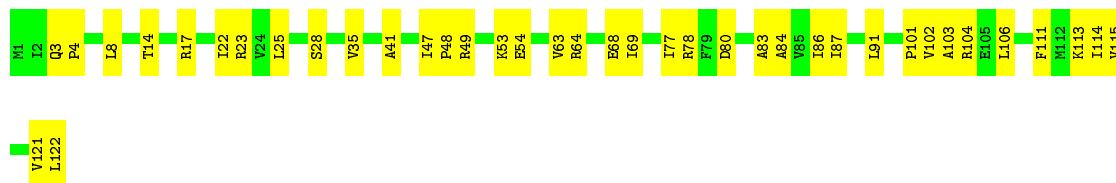
- Molecule 32: 50S ribosomal protein L13



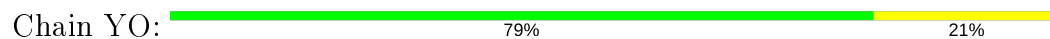
- Molecule 32: 50S ribosomal protein L13



- Molecule 33: 50S ribosomal protein L14

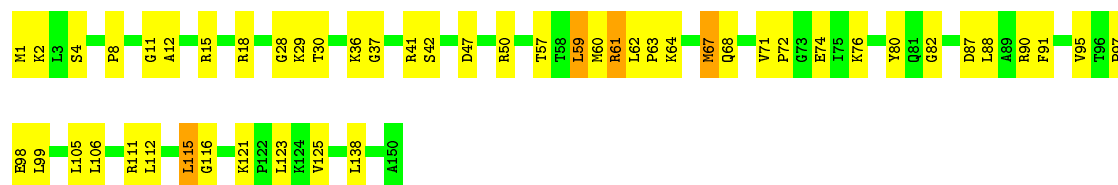


- Molecule 33: 50S ribosomal protein L14



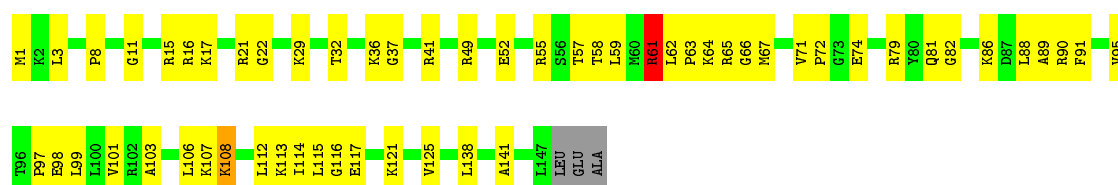
- Molecule 34: 50S ribosomal protein L15

Chain RP:  67% 31% .



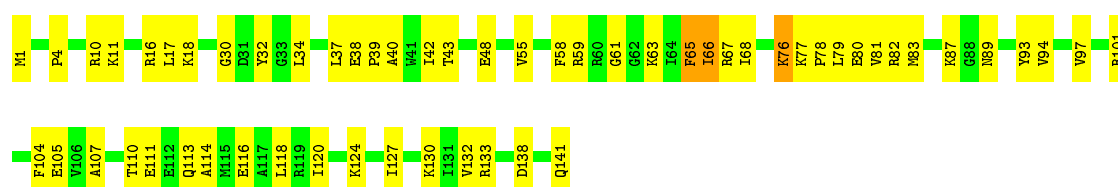
- Molecule 34: 50S ribosomal protein L15

Chain YP:  60% 37% ..



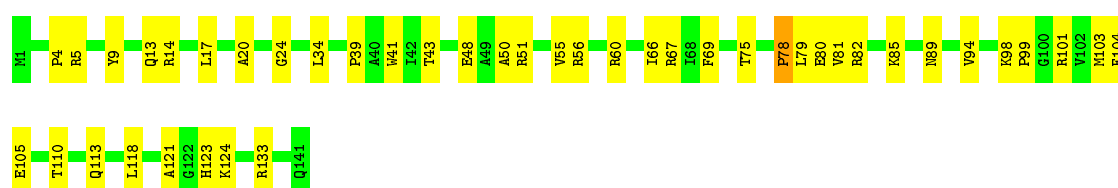
- Molecule 35: 50S ribosomal protein L16

Chain RQ:  60% 38% .



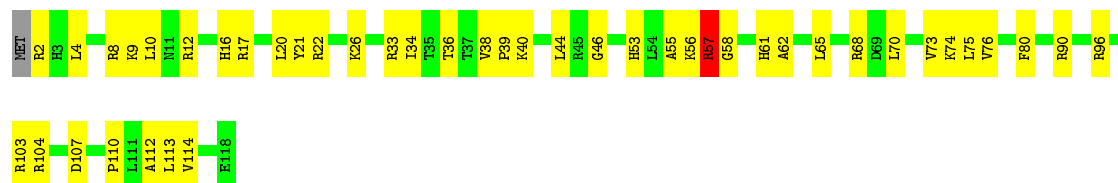
- Molecule 35: 50S ribosomal protein L16

Chain YQ:  70% 30% .

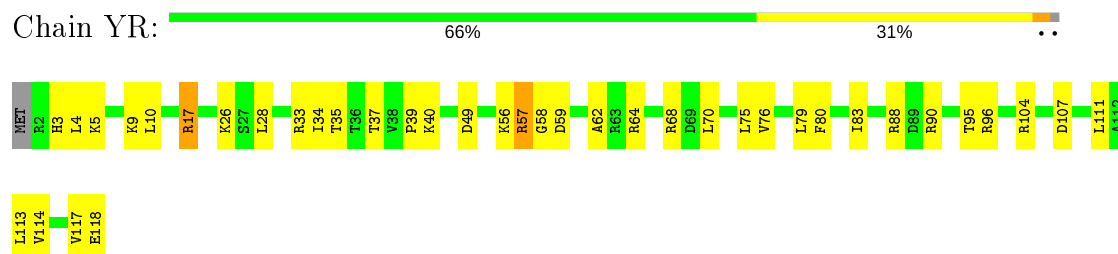


- Molecule 36: 50S ribosomal protein L17

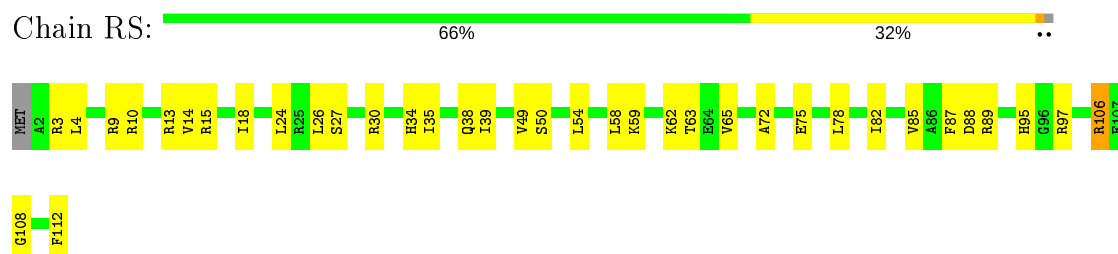
Chain RR:  62% 36% ..



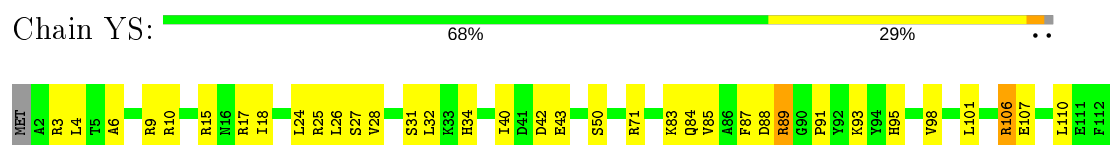
- Molecule 36: 50S ribosomal protein L17



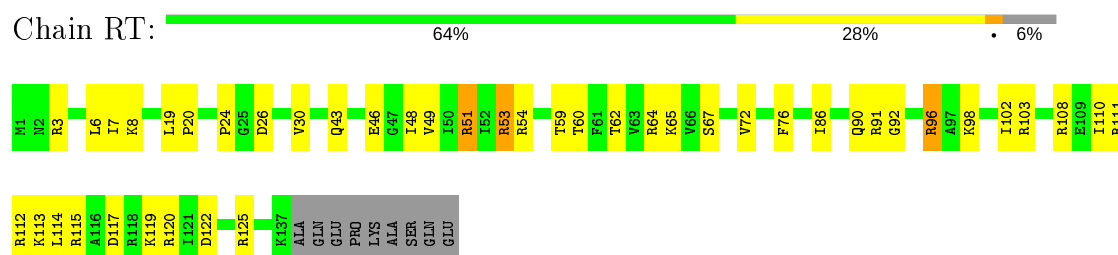
- Molecule 37: 50S ribosomal protein L18



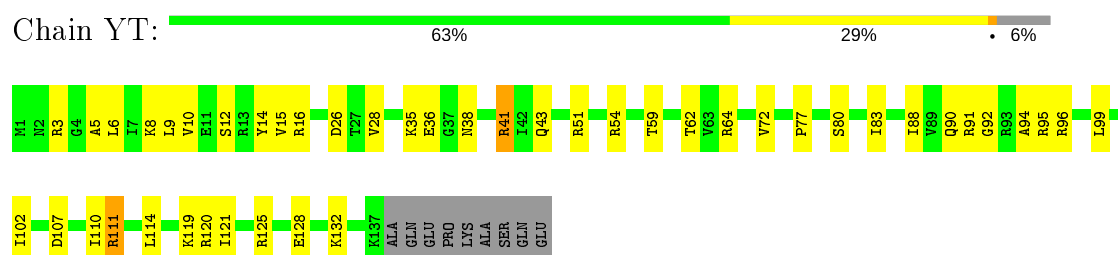
- Molecule 37: 50S ribosomal protein L18



- Molecule 38: 50S ribosomal protein L19



- Molecule 38: 50S ribosomal protein L19



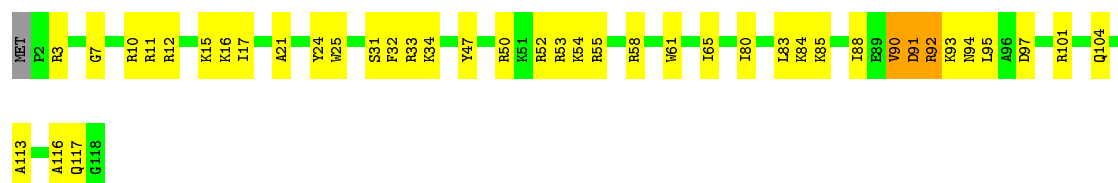
- Molecule 39: 50S ribosomal protein L20

Chain RU:  70% 25% ..



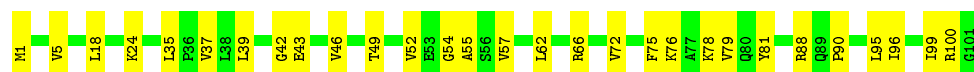
- Molecule 39: 50S ribosomal protein L20

Chain YU:  64% 32% ..




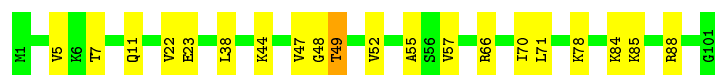
- Molecule 40: 50S ribosomal protein L21

Chain RV:  71% 29%



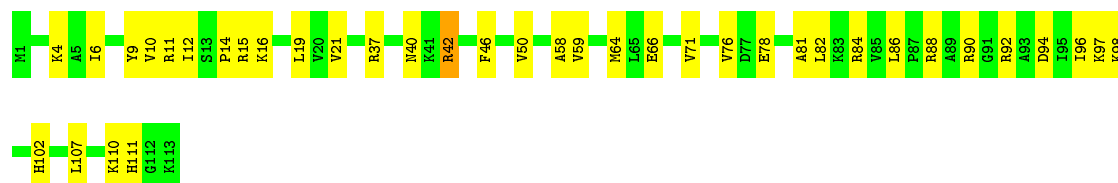
- Molecule 40: 50S ribosomal protein L21

Chain YV:  80% 19% .




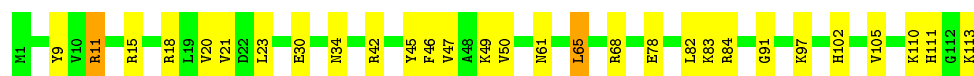
- Molecule 41: 50S ribosomal protein L22

Chain RW:  66% 33% .



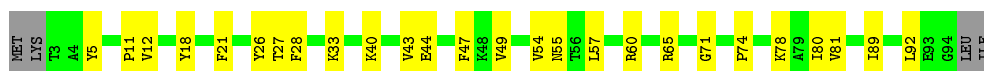
- Molecule 41: 50S ribosomal protein L22

Chain YW:  74% 24% .



- Molecule 42: 50S ribosomal protein L23

Chain RX:  69% 27% .



- Molecule 42: 50S ribosomal protein L23

Chain YX: 76% 20% .



- Molecule 43: 50S ribosomal protein L24

Chain RY: 79% 18% .



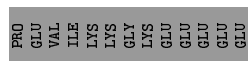
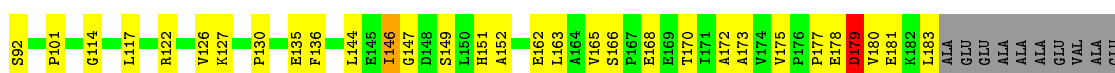
- Molecule 43: 50S ribosomal protein L24

Chain YY: 64% 33% . .



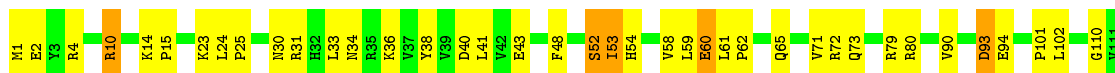
- Molecule 44: 50S ribosomal protein L25

Chain RZ: 55% 31% . 11%



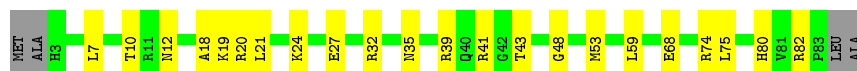
- Molecule 44: 50S ribosomal protein L25

Chain YZ: 58% 27% . 11%



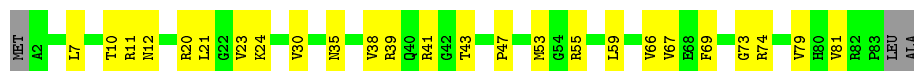
- Molecule 45: 50S ribosomal protein L27

Chain R0: 



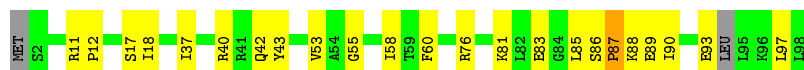
- Molecule 45: 50S ribosomal protein L27

Chain Y0: 



- Molecule 46: 50S ribosomal protein L28

Chain R1: 



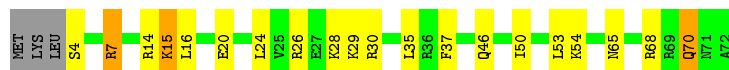
- Molecule 46: 50S ribosomal protein L28

Chain Y1: 



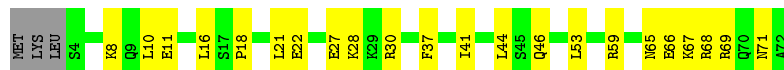
- Molecule 47: 50S ribosomal protein L29

Chain R2: 



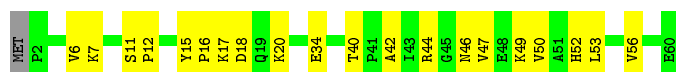
- Molecule 47: 50S ribosomal protein L29

Chain Y2: 



- Molecule 48: 50S ribosomal protein L30

Chain R3: 



- Molecule 48: 50S ribosomal protein L30

Chain Y3:  67% 32% .



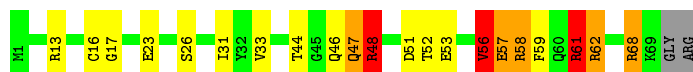
- Molecule 49: 50S ribosomal protein L31

Chain R4:  58% 30% . 6% .



- Molecule 49: 50S ribosomal protein L31

Chain Y4:  68% 18% 7% . .



- Molecule 50: 50S ribosomal protein L32

Chain R5:  73% 22% . .



- Molecule 50: 50S ribosomal protein L32

Chain Y5:  73% 25% .




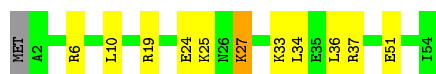
- Molecule 51: 50S ribosomal protein L33

Chain R6:  61% 35% . .



- Molecule 51: 50S ribosomal protein L33

Chain Y6:  78% 19% . .



- Molecule 52: 50S ribosomal protein L34

Chain R7:  59% 37% .



- Molecule 52: 50S ribosomal protein L34

Chain Y7:  69% 29% .



- Molecule 53: 50S ribosomal protein L35

Chain R8:  55% 37% . . .




- Molecule 53: 50S ribosomal protein L35

Chain Y8:  63% 34% . .



- Molecule 54: 50S ribosomal protein L36

Chain R9:  78% 16% 5%



- Molecule 54: 50S ribosomal protein L36

Chain Y9:  62% 35% .



4 Data and refinement statistics

EDS failed to run properly - this section is therefore incomplete.

| Property | Value | Source |
|--|---|-----------|
| Space group | P 21 21 21 | Depositor |
| Cell constants a, b, c, α , β , γ | 210.24Å 449.36Å 618.47Å 90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 121.99 – 3.50 | Depositor |
| % Data completeness (in resolution range) | 97.9 (121.99-3.50) | Depositor |
| R_{merge} | 0.17 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 1.45 (at 3.26Å) | Xtriage |
| Refinement program | PHENIX 1.12-2829 | Depositor |
| R, R_{free} | 0.207 , 0.250 | Depositor |
| Wilson B-factor (Å ²) | 86.9 | Xtriage |
| Anisotropy | 0.138 | Xtriage |
| L-test for twinning ² | $\langle L \rangle = 0.41$, $\langle L^2 \rangle = 0.23$ | Xtriage |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| Total number of atoms | 291948 | wwPDB-VP |
| Average B, all atoms (Å ²) | 97.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.72% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ZN, SF4

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

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|---------------|-------------|-----------------|
| | | RMSZ | # $ Z > 5$ | RMSZ | # $ Z > 5$ |
| 1 | QA | 0.31 | 0/36097 | 0.87 | 27/56339 (0.0%) |
| 1 | XA | 0.33 | 0/36100 | 0.90 | 26/56344 (0.0%) |
| 2 | QB | 0.26 | 0/1942 | 0.55 | 2/2619 (0.1%) |
| 2 | XB | 0.26 | 0/1950 | 0.51 | 0/2630 |
| 3 | QC | 0.26 | 0/1629 | 0.52 | 0/2195 |
| 3 | XC | 0.26 | 0/1629 | 0.51 | 0/2195 |
| 4 | QD | 0.28 | 0/1733 | 0.52 | 0/2318 |
| 4 | XD | 0.33 | 1/1733 (0.1%) | 0.71 | 2/2318 (0.1%) |
| 5 | QE | 0.29 | 0/1171 | 0.55 | 1/1576 (0.1%) |
| 5 | XE | 0.26 | 0/1171 | 0.51 | 0/1576 |
| 6 | QF | 0.25 | 0/856 | 0.51 | 0/1154 |
| 6 | XF | 0.25 | 0/856 | 0.50 | 0/1154 |
| 7 | QG | 0.27 | 0/1276 | 0.50 | 1/1709 (0.1%) |
| 7 | XG | 0.25 | 0/1276 | 0.47 | 0/1709 |
| 8 | QH | 0.26 | 0/1128 | 0.48 | 0/1517 |
| 8 | XH | 0.26 | 0/1128 | 0.49 | 0/1517 |
| 9 | QI | 0.31 | 0/1029 | 0.59 | 0/1379 |
| 9 | XI | 0.30 | 0/1017 | 0.52 | 0/1365 |
| 10 | QJ | 0.27 | 0/814 | 0.54 | 0/1095 |
| 10 | XJ | 0.26 | 0/790 | 0.53 | 0/1063 |
| 11 | QK | 0.25 | 0/900 | 0.50 | 0/1213 |
| 11 | XK | 0.25 | 0/879 | 0.46 | 0/1187 |
| 12 | QL | 0.27 | 0/991 | 0.53 | 0/1327 |
| 12 | XL | 0.26 | 0/972 | 0.54 | 0/1301 |
| 13 | QM | 0.25 | 0/965 | 0.52 | 0/1292 |
| 13 | XM | 0.27 | 0/956 | 0.55 | 0/1281 |
| 14 | QN | 0.27 | 0/501 | 0.54 | 0/664 |
| 14 | XN | 0.26 | 0/501 | 0.54 | 0/664 |
| 15 | QO | 0.25 | 0/745 | 0.48 | 0/992 |
| 15 | XO | 0.25 | 0/740 | 0.47 | 0/987 |
| 16 | QP | 0.26 | 0/721 | 0.47 | 0/970 |
| 16 | XP | 0.26 | 0/721 | 0.51 | 0/970 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|---------------|-------------|------------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 17 | QQ | 0.26 | 0/847 | 0.48 | 0/1131 |
| 17 | XQ | 0.25 | 0/847 | 0.53 | 0/1131 |
| 18 | QR | 0.25 | 0/579 | 0.49 | 0/768 |
| 18 | XR | 0.25 | 0/579 | 0.51 | 0/768 |
| 19 | QS | 0.27 | 0/680 | 0.64 | 0/915 |
| 19 | XS | 0.25 | 0/689 | 0.56 | 0/926 |
| 20 | QT | 0.27 | 0/765 | 0.57 | 0/1007 |
| 20 | XT | 0.27 | 0/765 | 0.55 | 0/1007 |
| 21 | QU | 0.23 | 0/221 | 0.49 | 0/288 |
| 21 | XU | 0.38 | 0/221 | 0.56 | 1/288 (0.3%) |
| 22 | QV | 0.40 | 1/1836 (0.1%) | 0.91 | 0/2859 |
| 22 | XV | 0.41 | 1/1836 (0.1%) | 0.89 | 1/2859 (0.0%) |
| 23 | QX | 0.23 | 0/293 | 0.69 | 0/455 |
| 23 | XX | 0.24 | 0/268 | 0.68 | 0/416 |
| 24 | RA | 0.38 | 0/69521 | 0.92 | 54/108529 (0.0%) |
| 24 | YA | 0.41 | 0/69543 | 0.96 | 70/108563 (0.1%) |
| 25 | RB | 0.32 | 0/2878 | 0.91 | 3/4490 (0.1%) |
| 25 | YB | 0.36 | 0/2878 | 0.97 | 6/4490 (0.1%) |
| 26 | RD | 0.29 | 0/2165 | 0.54 | 0/2919 |
| 26 | YD | 0.28 | 0/2165 | 0.52 | 0/2919 |
| 27 | RE | 0.28 | 0/1601 | 0.59 | 0/2160 |
| 27 | YE | 0.34 | 1/1601 (0.1%) | 0.60 | 1/2160 (0.0%) |
| 28 | RF | 0.29 | 0/1620 | 0.50 | 0/2194 |
| 28 | YF | 0.28 | 0/1620 | 0.51 | 0/2194 |
| 29 | RG | 0.28 | 0/1499 | 0.65 | 1/2016 (0.0%) |
| 29 | YG | 0.26 | 0/1499 | 0.53 | 0/2016 |
| 30 | RH | 0.27 | 0/1362 | 0.58 | 1/1841 (0.1%) |
| 30 | YH | 0.29 | 0/1362 | 0.55 | 0/1841 |
| 31 | RI | 0.28 | 0/1151 | 0.64 | 0/1558 |
| 31 | YI | 0.31 | 0/1151 | 0.68 | 2/1558 (0.1%) |
| 32 | RN | 0.27 | 0/1131 | 0.52 | 0/1525 |
| 32 | YN | 0.27 | 0/1131 | 0.53 | 0/1525 |
| 33 | RO | 0.27 | 0/943 | 0.49 | 0/1269 |
| 33 | YO | 0.26 | 0/943 | 0.52 | 0/1269 |
| 34 | RP | 0.52 | 1/1162 (0.1%) | 0.68 | 2/1544 (0.1%) |
| 34 | YP | 0.29 | 0/1139 | 0.67 | 4/1514 (0.3%) |
| 35 | RQ | 0.28 | 0/1143 | 0.59 | 1/1527 (0.1%) |
| 35 | YQ | 0.27 | 0/1143 | 0.54 | 0/1527 |
| 36 | RR | 0.28 | 0/974 | 0.52 | 0/1302 |
| 36 | YR | 0.29 | 0/974 | 0.56 | 0/1302 |
| 37 | RS | 0.28 | 0/892 | 0.54 | 0/1187 |
| 37 | YS | 0.28 | 0/892 | 0.53 | 0/1187 |
| 38 | RT | 0.27 | 0/1155 | 0.51 | 0/1542 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|-----------------|-------------|-------------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 38 | YT | 0.28 | 0/1155 | 0.56 | 0/1542 |
| 39 | RU | 0.28 | 0/982 | 0.52 | 0/1306 |
| 39 | YU | 0.28 | 0/982 | 0.50 | 0/1306 |
| 40 | RV | 0.27 | 0/790 | 0.55 | 0/1057 |
| 40 | YV | 0.29 | 0/790 | 0.60 | 0/1057 |
| 41 | RW | 0.27 | 0/911 | 0.50 | 0/1220 |
| 41 | YW | 0.26 | 0/911 | 0.56 | 1/1220 (0.1%) |
| 42 | RX | 0.27 | 0/739 | 0.47 | 0/993 |
| 42 | YX | 0.28 | 0/739 | 0.51 | 0/993 |
| 43 | RY | 0.27 | 0/831 | 0.48 | 0/1108 |
| 43 | YY | 0.29 | 0/831 | 0.57 | 2/1108 (0.2%) |
| 44 | RZ | 0.28 | 0/1493 | 0.65 | 1/2026 (0.0%) |
| 44 | YZ | 0.27 | 0/1493 | 0.61 | 1/2026 (0.0%) |
| 45 | R0 | 0.27 | 0/652 | 0.47 | 0/867 |
| 45 | Y0 | 0.31 | 0/657 | 0.51 | 0/874 |
| 46 | R1 | 0.29 | 0/761 | 0.53 | 0/1008 |
| 46 | Y1 | 0.27 | 0/736 | 0.52 | 0/978 |
| 47 | R2 | 0.27 | 0/583 | 0.51 | 0/771 |
| 47 | Y2 | 0.26 | 0/583 | 0.48 | 0/771 |
| 48 | R3 | 0.25 | 0/474 | 0.46 | 0/635 |
| 48 | Y3 | 0.25 | 0/474 | 0.47 | 0/635 |
| 49 | R4 | 0.28 | 0/578 | 0.60 | 0/776 |
| 49 | Y4 | 0.27 | 0/578 | 0.60 | 0/776 |
| 50 | R5 | 0.25 | 0/473 | 0.45 | 0/639 |
| 50 | Y5 | 0.37 | 0/473 | 0.52 | 0/639 |
| 51 | R6 | 0.23 | 0/460 | 0.47 | 0/613 |
| 51 | Y6 | 0.43 | 1/460 (0.2%) | 0.63 | 1/613 (0.2%) |
| 52 | R7 | 0.24 | 0/417 | 0.51 | 0/550 |
| 52 | Y7 | 0.25 | 0/426 | 0.45 | 0/561 |
| 53 | R8 | 0.30 | 0/525 | 0.65 | 1/691 (0.1%) |
| 53 | Y8 | 0.29 | 0/525 | 0.62 | 0/691 |
| 54 | R9 | 0.24 | 0/310 | 0.48 | 0/407 |
| 54 | Y9 | 0.26 | 0/310 | 0.50 | 0/407 |
| All | All | 0.35 | 6/315683 (0.0%) | 0.84 | 213/471970 (0.0%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 2 | XB | 0 | 1 |

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| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 3 | QC | 0 | 1 |
| 4 | QD | 0 | 1 |
| 5 | QE | 0 | 2 |
| 5 | XE | 0 | 2 |
| 7 | QG | 0 | 1 |
| 7 | XG | 0 | 1 |
| 9 | QI | 0 | 1 |
| 12 | QL | 0 | 2 |
| 12 | XL | 0 | 2 |
| 13 | QM | 0 | 1 |
| 18 | QR | 0 | 1 |
| 18 | XR | 0 | 1 |
| 19 | QS | 0 | 5 |
| 20 | QT | 0 | 3 |
| 20 | XT | 0 | 3 |
| 26 | YD | 0 | 2 |
| 27 | RE | 0 | 3 |
| 27 | YE | 0 | 2 |
| 29 | RG | 0 | 4 |
| 29 | YG | 0 | 1 |
| 30 | RH | 0 | 7 |
| 30 | YH | 0 | 9 |
| 31 | RI | 0 | 7 |
| 31 | YI | 0 | 4 |
| 32 | RN | 0 | 2 |
| 32 | YN | 0 | 2 |
| 33 | YO | 0 | 1 |
| 34 | RP | 0 | 1 |
| 34 | YP | 0 | 2 |
| 35 | RQ | 0 | 3 |
| 35 | YQ | 0 | 2 |
| 36 | RR | 0 | 1 |
| 38 | RT | 0 | 1 |
| 38 | YT | 0 | 2 |
| 39 | RU | 0 | 1 |
| 39 | YU | 0 | 1 |
| 40 | RV | 0 | 2 |
| 40 | YV | 0 | 2 |
| 44 | RZ | 0 | 5 |
| 44 | YZ | 0 | 4 |
| 46 | R1 | 0 | 1 |
| 46 | Y1 | 0 | 1 |

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| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 47 | R2 | 0 | 2 |
| 47 | Y2 | 0 | 1 |
| 49 | R4 | 0 | 4 |
| 49 | Y4 | 0 | 3 |
| 53 | R8 | 0 | 3 |
| 53 | Y8 | 0 | 1 |
| 54 | Y9 | 0 | 1 |
| All | All | 0 | 116 |

All (6) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|--------|-------------|----------|
| 34 | RP | 68 | GLN | CG-CD | -11.33 | 1.25 | 1.51 |
| 22 | XV | 1 | C | OP3-P | -10.64 | 1.48 | 1.61 |
| 22 | QV | 1 | C | OP3-P | -10.59 | 1.48 | 1.61 |
| 27 | YE | 109 | LYS | C-N | 6.64 | 1.45 | 1.33 |
| 51 | Y6 | 27 | LYS | CD-CE | 6.39 | 1.67 | 1.51 |
| 4 | XD | 159 | ARG | CZ-NH1 | -5.66 | 1.25 | 1.33 |

All (213) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|--------|------|------------|--------|-------------|----------|
| 4 | XD | 159 | ARG | NE-CZ-NH2 | -18.27 | 111.16 | 120.30 |
| 4 | XD | 159 | ARG | NE-CZ-NH1 | 14.35 | 127.48 | 120.30 |
| 29 | RG | 21 | ARG | NE-CZ-NH2 | 10.54 | 125.57 | 120.30 |
| 1 | XA | 792 | A | O4'-C1'-N9 | 8.90 | 115.32 | 108.20 |
| 1 | XA | 1158 | C | C2-N1-C1' | 8.42 | 128.06 | 118.80 |
| 25 | YB | 31 | C | C2-N1-C1' | 7.57 | 127.12 | 118.80 |
| 24 | YA | 1313 | U | C2-N1-C1' | 7.52 | 126.72 | 117.70 |
| 34 | YP | 61 | ARG | CG-CD-NE | 7.51 | 127.57 | 111.80 |
| 1 | XA | 186(F) | C | N3-C2-O2 | -7.37 | 116.74 | 121.90 |
| 1 | QA | 1301 | U | C2-N1-C1' | 7.28 | 126.44 | 117.70 |
| 31 | YI | 52 | ARG | NE-CZ-NH2 | -7.26 | 116.67 | 120.30 |
| 30 | RH | 171 | LEU | C-N-CA | 7.24 | 139.80 | 121.70 |
| 24 | RA | 1314 | C | C2-N1-C1' | 7.21 | 126.73 | 118.80 |
| 27 | YE | 78 | LEU | CA-CB-CG | 7.21 | 131.88 | 115.30 |
| 1 | QA | 1301 | U | N1-C2-O2 | 7.18 | 127.83 | 122.80 |
| 1 | XA | 1158 | C | N1-C2-O2 | 6.97 | 123.08 | 118.90 |
| 25 | RB | 31 | C | C2-N1-C1' | 6.90 | 126.39 | 118.80 |
| 1 | QA | 1198 | G | C5-C6-O6 | 6.88 | 132.73 | 128.60 |
| 1 | XA | 789 | U | N3-C2-O2 | -6.86 | 117.40 | 122.20 |
| 24 | YA | 1314 | C | C2-N1-C1' | 6.83 | 126.31 | 118.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 24 | RA | 1899 | G | C2-N3-C4 | -6.80 | 108.50 | 111.90 |
| 24 | RA | 828 | U | N3-C2-O2 | -6.79 | 117.44 | 122.20 |
| 24 | RA | 676 | A | N7-C8-N9 | 6.79 | 117.20 | 113.80 |
| 53 | R8 | 62 | LEU | CA-CB-CG | 6.79 | 130.92 | 115.30 |
| 1 | QA | 1066 | C | C2-N1-C1' | 6.79 | 126.26 | 118.80 |
| 1 | XA | 368 | U | C2-N3-C4 | -6.77 | 122.94 | 127.00 |
| 41 | YW | 65 | LEU | CA-CB-CG | 6.76 | 130.84 | 115.30 |
| 24 | RA | 1882 | C | C2-N1-C1' | 6.75 | 126.23 | 118.80 |
| 24 | RA | 1313 | U | C2-N1-C1' | 6.75 | 125.80 | 117.70 |
| 24 | RA | 456 | C | C2-N1-C1' | 6.71 | 126.18 | 118.80 |
| 24 | YA | 1385 | G | O4'-C1'-N9 | 6.70 | 113.56 | 108.20 |
| 24 | YA | 2138 | C | N3-C2-O2 | -6.70 | 117.21 | 121.90 |
| 24 | YA | 2152 | G | C5-C6-O6 | 6.70 | 132.62 | 128.60 |
| 1 | QA | 1301 | U | N3-C2-O2 | -6.68 | 117.53 | 122.20 |
| 24 | RA | 1407 | C | C2-N1-C1' | 6.67 | 126.14 | 118.80 |
| 44 | RZ | 179 | ASP | C-N-CA | 6.64 | 138.31 | 121.70 |
| 1 | XA | 1158 | C | N3-C2-O2 | -6.63 | 117.26 | 121.90 |
| 25 | YB | 31 | C | N1-C2-O2 | 6.60 | 122.86 | 118.90 |
| 24 | YA | 537 | C | C2-N1-C1' | 6.59 | 126.05 | 118.80 |
| 24 | YA | 1204 | A | O4'-C1'-N9 | 6.59 | 113.47 | 108.20 |
| 24 | RA | 828 | U | N1-C2-O2 | 6.57 | 127.40 | 122.80 |
| 34 | RP | 67 | MET | CA-CB-CG | 6.55 | 124.43 | 113.30 |
| 24 | YA | 2152 | G | N1-C6-O6 | -6.53 | 115.98 | 119.90 |
| 24 | RA | 1502 | C | C2-N1-C1' | 6.49 | 125.94 | 118.80 |
| 24 | YA | 774 | A | C2-N3-C4 | -6.47 | 107.37 | 110.60 |
| 43 | YY | 14 | LEU | CB-CG-CD1 | -6.46 | 100.02 | 111.00 |
| 1 | QA | 1158 | C | C2-N1-C1' | 6.45 | 125.89 | 118.80 |
| 44 | YZ | 179 | ASP | C-N-CA | 6.23 | 137.28 | 121.70 |
| 24 | RA | 1474 | C | C2-N1-C1' | 6.21 | 125.63 | 118.80 |
| 24 | YA | 2140 | C | N3-C2-O2 | -6.19 | 117.57 | 121.90 |
| 1 | QA | 1198 | G | N1-C6-O6 | -6.11 | 116.23 | 119.90 |
| 1 | XA | 1158 | C | C6-N1-C2 | -6.10 | 117.86 | 120.30 |
| 24 | YA | 2681 | C | P-O3'-C3' | 6.09 | 127.00 | 119.70 |
| 31 | YI | 121 | LYS | CD-CE-NZ | 6.08 | 125.69 | 111.70 |
| 24 | YA | 2137 | C | N1-C2-O2 | 6.04 | 122.53 | 118.90 |
| 1 | QA | 1065 | U | P-O3'-C3' | 6.04 | 126.95 | 119.70 |
| 1 | QA | 792 | A | P-O3'-C3' | 6.04 | 126.94 | 119.70 |
| 24 | RA | 2161 | C | N1-C2-O2 | 6.03 | 122.52 | 118.90 |
| 24 | RA | 904 | C | C2-N1-C1' | 6.02 | 125.42 | 118.80 |
| 22 | XV | 20 | G | O4'-C1'-N9 | -6.00 | 103.40 | 108.20 |
| 1 | XA | 449 | C | C2-N1-C1' | 5.99 | 125.39 | 118.80 |
| 24 | RA | 546 | C | N1-C2-O2 | 5.97 | 122.48 | 118.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|---------|------|------------|-------|-------------|----------|
| 24 | YA | 2468 | G | O4'-C1'-N9 | 5.97 | 112.98 | 108.20 |
| 24 | RA | 1022 | G | P-O3'-C3' | 5.97 | 126.86 | 119.70 |
| 24 | RA | 1204 | A | O4'-C1'-N9 | 5.96 | 112.97 | 108.20 |
| 1 | XA | 754 | C | C2-N1-C1' | 5.96 | 125.35 | 118.80 |
| 25 | YB | 44 | G | C6-C5-N7 | 5.96 | 133.97 | 130.40 |
| 1 | QA | 1158 | C | N1-C2-O2 | 5.94 | 122.46 | 118.90 |
| 24 | YA | 1180 | C | C2-N1-C1' | 5.93 | 125.32 | 118.80 |
| 24 | YA | 1653 | G | P-O3'-C3' | 5.91 | 126.79 | 119.70 |
| 2 | QB | 111 | ARG | CG-CD-NE | 5.91 | 124.20 | 111.80 |
| 24 | RA | 530 | G | O4'-C1'-N9 | 5.89 | 112.91 | 108.20 |
| 24 | YA | 2584 | U | C2-N1-C1' | 5.86 | 124.73 | 117.70 |
| 24 | RA | 2688 | U | N3-C2-O2 | -5.86 | 118.10 | 122.20 |
| 24 | RA | 373 | U | C2-N1-C1' | 5.83 | 124.70 | 117.70 |
| 1 | XA | 812 | C | P-O3'-C3' | 5.81 | 126.67 | 119.70 |
| 24 | YA | 265 | A | O4'-C1'-N9 | 5.81 | 112.85 | 108.20 |
| 24 | RA | 676 | A | C5-N7-C8 | -5.80 | 101.00 | 103.90 |
| 51 | Y6 | 27 | LYS | CG-CD-CE | 5.78 | 129.25 | 111.90 |
| 24 | YA | 2609 | U | C2-N1-C1' | -5.78 | 110.77 | 117.70 |
| 24 | YA | 2335 | A | O4'-C1'-N9 | 5.77 | 112.81 | 108.20 |
| 24 | RA | 1313 | U | N3-C2-O2 | -5.74 | 118.18 | 122.20 |
| 1 | XA | 191(B) | G | C5-C6-O6 | 5.73 | 132.04 | 128.60 |
| 24 | RA | 1931 | U | N3-C2-O2 | -5.73 | 118.19 | 122.20 |
| 24 | YA | 1022 | G | P-O3'-C3' | 5.72 | 126.57 | 119.70 |
| 24 | RA | 2584 | U | O4'-C1'-N1 | 5.71 | 112.77 | 108.20 |
| 1 | XA | 191(B) | G | N3-C4-N9 | -5.70 | 122.58 | 126.00 |
| 1 | QA | 980 | C | N1-C2-O2 | 5.69 | 122.31 | 118.90 |
| 5 | QE | 153 | LYS | CD-CE-NZ | 5.68 | 124.76 | 111.70 |
| 24 | RA | 1314 | C | C6-N1-C1' | -5.66 | 114.01 | 120.80 |
| 1 | QA | 754 | C | C2-N1-C1' | 5.65 | 125.02 | 118.80 |
| 24 | YA | 846 | C | P-O3'-C3' | 5.65 | 126.48 | 119.70 |
| 24 | RA | 846 | C | C6-N1-C2 | -5.64 | 118.04 | 120.30 |
| 24 | YA | 783 | A | N1-C6-N6 | 5.64 | 121.99 | 118.60 |
| 1 | XA | 1158 | C | C6-N1-C1' | -5.61 | 114.07 | 120.80 |
| 24 | YA | 2776 | A | P-O3'-C3' | 5.59 | 126.41 | 119.70 |
| 24 | YA | 1411 | C | C2-N1-C1' | 5.58 | 124.94 | 118.80 |
| 24 | YA | 2031 | A | O4'-C1'-N9 | 5.58 | 112.67 | 108.20 |
| 1 | XA | 1362(A) | C | N3-C2-O2 | -5.58 | 118.00 | 121.90 |
| 21 | XU | 15 | ARG | NE-CZ-NH2 | 5.57 | 123.09 | 120.30 |
| 34 | YP | 61 | ARG | NE-CZ-NH2 | 5.57 | 123.09 | 120.30 |
| 1 | QA | 1066 | C | N1-C2-O2 | 5.56 | 122.24 | 118.90 |
| 24 | YA | 1406 | U | C2-N1-C1' | 5.56 | 124.37 | 117.70 |
| 24 | RA | 2307 | G | O4'-C1'-N9 | 5.55 | 112.64 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 24 | YA | 1992 | G | P-O3'-C3' | 5.54 | 126.34 | 119.70 |
| 24 | RA | 1992 | G | P-O3'-C3' | 5.52 | 126.33 | 119.70 |
| 1 | QA | 980 | C | N3-C2-O2 | -5.52 | 118.04 | 121.90 |
| 24 | RA | 404 | C | P-O3'-C3' | 5.50 | 126.30 | 119.70 |
| 24 | YA | 114 | U | C2-N1-C1' | 5.50 | 124.30 | 117.70 |
| 24 | YA | 783 | A | C8-N9-C4 | -5.50 | 103.60 | 105.80 |
| 2 | QB | 111 | ARG | CB-CG-CD | -5.50 | 97.31 | 111.60 |
| 24 | YA | 1678 | G | C6-C5-N7 | -5.48 | 127.11 | 130.40 |
| 25 | YB | 31 | C | C6-N1-C1' | -5.48 | 114.22 | 120.80 |
| 24 | YA | 229 | A | OP2-P-O3' | 5.48 | 117.25 | 105.20 |
| 1 | QA | 1395 | C | N1-C2-O2 | 5.48 | 122.19 | 118.90 |
| 1 | QA | 1163 | C | C2-N1-C1' | 5.47 | 124.82 | 118.80 |
| 24 | YA | 2779 | U | C2-N1-C1' | 5.45 | 124.24 | 117.70 |
| 24 | RA | 2284 | C | P-O3'-C3' | 5.45 | 126.23 | 119.70 |
| 24 | YA | 621 | A | O4'-C1'-N9 | 5.43 | 112.54 | 108.20 |
| 1 | XA | 687 | A | P-O3'-C3' | 5.42 | 126.21 | 119.70 |
| 1 | QA | 960 | U | C2-N1-C1' | 5.42 | 124.21 | 117.70 |
| 24 | YA | 2152 | G | N3-C4-N9 | -5.42 | 122.75 | 126.00 |
| 1 | XA | 328 | C | P-O3'-C3' | 5.41 | 126.19 | 119.70 |
| 24 | YA | 912 | C | C2-N1-C1' | 5.41 | 124.75 | 118.80 |
| 24 | YA | 1694 | C | P-O3'-C3' | 5.41 | 126.19 | 119.70 |
| 24 | YA | 783 | A | C5-N7-C8 | -5.39 | 101.21 | 103.90 |
| 1 | XA | 368 | U | C5-C4-O4 | -5.39 | 122.67 | 125.90 |
| 24 | YA | 1314 | C | C6-N1-C1' | -5.36 | 114.37 | 120.80 |
| 24 | RA | 846 | C | P-O3'-C3' | 5.36 | 126.13 | 119.70 |
| 24 | RA | 2342 | C | C2-N1-C1' | 5.36 | 124.69 | 118.80 |
| 25 | YB | 44 | G | C4-N9-C1' | -5.34 | 119.56 | 126.50 |
| 24 | YA | 1930 | G | C4-N9-C1' | -5.34 | 119.56 | 126.50 |
| 1 | QA | 108 | G | O4'-C1'-N9 | 5.33 | 112.46 | 108.20 |
| 24 | YA | 1411 | C | C5-C6-N1 | 5.33 | 123.67 | 121.00 |
| 24 | RA | 828 | U | C2-N1-C1' | 5.33 | 124.09 | 117.70 |
| 24 | YA | 1591 | G | N3-C4-N9 | 5.32 | 129.19 | 126.00 |
| 24 | RA | 893 | C | C2-N1-C1' | 5.32 | 124.65 | 118.80 |
| 24 | RA | 1598 | C | N1-C2-O2 | 5.31 | 122.09 | 118.90 |
| 24 | RA | 637 | A | P-O3'-C3' | 5.31 | 126.07 | 119.70 |
| 24 | YA | 1021 | A | C2-N3-C4 | -5.30 | 107.95 | 110.60 |
| 24 | RA | 265 | A | O4'-C1'-N9 | 5.30 | 112.44 | 108.20 |
| 34 | YP | 59 | LEU | CA-CB-CG | 5.30 | 127.48 | 115.30 |
| 24 | YA | 242 | G | P-O3'-C3' | 5.30 | 126.06 | 119.70 |
| 24 | RA | 2439 | A | P-O3'-C3' | 5.29 | 126.05 | 119.70 |
| 24 | YA | 99 | U | OP2-P-O3' | 5.29 | 116.83 | 105.20 |
| 7 | QG | 156 | TRP | CA-CB-CG | 5.28 | 123.73 | 113.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|--------|------|------------|-------|-------------|----------|
| 24 | YA | 1591 | G | C4-N9-C1' | 5.28 | 133.36 | 126.50 |
| 24 | YA | 1407 | C | C2-N1-C1' | 5.27 | 124.60 | 118.80 |
| 24 | RA | 2161 | C | N3-C2-O2 | -5.26 | 118.22 | 121.90 |
| 24 | RA | 1899 | G | N3-C4-N9 | -5.26 | 122.84 | 126.00 |
| 24 | RA | 537 | C | C2-N1-C1' | 5.25 | 124.58 | 118.80 |
| 24 | YA | 752 | A | P-O3'-C3' | 5.25 | 126.00 | 119.70 |
| 1 | QA | 115 | G | P-O3'-C3' | 5.24 | 125.98 | 119.70 |
| 24 | RA | 1407 | C | C5-C6-N1 | 5.24 | 123.62 | 121.00 |
| 24 | YA | 1053 | C | C2-N1-C1' | 5.24 | 124.56 | 118.80 |
| 24 | YA | 1332 | G | C4-N9-C1' | 5.23 | 133.30 | 126.50 |
| 24 | RA | 2430 | A | N1-C2-N3 | 5.23 | 131.91 | 129.30 |
| 24 | RA | 456 | C | C6-N1-C1' | -5.23 | 114.53 | 120.80 |
| 34 | YP | 61 | ARG | NE-CZ-NH1 | -5.23 | 117.69 | 120.30 |
| 1 | QA | 690 | G | O4'-C1'-N9 | 5.22 | 112.38 | 108.20 |
| 24 | RA | 285 | C | C2-N1-C1' | 5.22 | 124.54 | 118.80 |
| 25 | RB | 11 | C | N1-C2-O2 | 5.21 | 122.03 | 118.90 |
| 1 | QA | 717 | C | N1-C2-O2 | 5.21 | 122.03 | 118.90 |
| 24 | YA | 140 | A | C8-N9-C4 | -5.21 | 103.72 | 105.80 |
| 24 | YA | 1313 | U | N1-C2-O2 | 5.21 | 126.44 | 122.80 |
| 1 | QA | 913 | A | P-O3'-C3' | 5.20 | 125.94 | 119.70 |
| 24 | YA | 783 | A | N7-C8-N9 | 5.19 | 116.40 | 113.80 |
| 24 | RA | 2501 | C | C2-N1-C1' | -5.18 | 113.10 | 118.80 |
| 1 | XA | 244 | U | P-O3'-C3' | 5.18 | 125.92 | 119.70 |
| 1 | QA | 108 | G | C4-N9-C1' | 5.17 | 133.21 | 126.50 |
| 1 | XA | 961 | U | N1-C2-N3 | 5.16 | 118.00 | 114.90 |
| 24 | YA | 1313 | U | N3-C2-O2 | -5.16 | 118.59 | 122.20 |
| 24 | RA | 1314 | C | N1-C2-O2 | 5.16 | 121.99 | 118.90 |
| 24 | YA | 214 | G | N1-C6-O6 | -5.16 | 116.81 | 119.90 |
| 24 | RA | 1914 | C | O4'-C1'-N1 | 5.15 | 112.32 | 108.20 |
| 1 | QA | 753 | A | P-O3'-C3' | 5.15 | 125.88 | 119.70 |
| 24 | YA | 748 | G | O4'-C1'-N9 | 5.14 | 112.31 | 108.20 |
| 24 | YA | 846 | C | C6-N1-C2 | -5.14 | 118.24 | 120.30 |
| 1 | QA | 266 | G | P-O3'-C3' | 5.13 | 125.86 | 119.70 |
| 24 | YA | 271(B) | G | P-O3'-C3' | 5.13 | 125.86 | 119.70 |
| 24 | YA | 2343 | C | N3-C2-O2 | -5.13 | 118.31 | 121.90 |
| 24 | YA | 2889 | C | C2-N1-C1' | 5.13 | 124.44 | 118.80 |
| 24 | RA | 533 | G | C4-N9-C1' | 5.12 | 133.16 | 126.50 |
| 34 | RP | 59 | LEU | CA-CB-CG | 5.12 | 127.08 | 115.30 |
| 24 | RA | 1502 | C | C6-N1-C1' | -5.12 | 114.66 | 120.80 |
| 1 | XA | 1224 | G | C8-N9-C1' | 5.11 | 133.64 | 127.00 |
| 25 | RB | 44 | G | C4-N9-C1' | -5.10 | 119.87 | 126.50 |
| 1 | XA | 1498 | U | P-O3'-C3' | 5.10 | 125.82 | 119.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 1 | XA | 992 | U | P-O3'-C3' | 5.09 | 125.81 | 119.70 |
| 24 | YA | 621 | A | C2-N3-C4 | -5.08 | 108.06 | 110.60 |
| 24 | YA | 1882 | C | C2-N1-C1' | 5.08 | 124.39 | 118.80 |
| 1 | XA | 1452 | C | N1-C2-O2 | 5.08 | 121.95 | 118.90 |
| 24 | YA | 140 | A | N7-C8-N9 | 5.06 | 116.33 | 113.80 |
| 24 | YA | 1558 | A | P-O3'-C3' | 5.06 | 125.78 | 119.70 |
| 24 | RA | 676 | A | C8-N9-C4 | -5.06 | 103.78 | 105.80 |
| 1 | QA | 1346 | A | P-O3'-C3' | 5.05 | 125.76 | 119.70 |
| 43 | YY | 14 | LEU | CA-CB-CG | -5.05 | 103.68 | 115.30 |
| 24 | YA | 1314 | C | C5-C6-N1 | 5.05 | 123.53 | 121.00 |
| 24 | RA | 1313 | U | N1-C2-O2 | 5.05 | 126.33 | 122.80 |
| 1 | XA | 449 | C | O4'-C1'-N1 | 5.05 | 112.24 | 108.20 |
| 24 | YA | 2342 | C | N1-C2-O2 | 5.04 | 121.93 | 118.90 |
| 35 | RQ | 76 | LYS | C-N-CA | 5.04 | 134.31 | 121.70 |
| 25 | YB | 56 | G | C4-N9-C1' | 5.04 | 133.05 | 126.50 |
| 24 | YA | 229 | A | P-O3'-C3' | 5.04 | 125.74 | 119.70 |
| 1 | QA | 1066 | C | C5-C6-N1 | 5.03 | 123.51 | 121.00 |
| 24 | RA | 1558 | A | P-O3'-C3' | 5.02 | 125.73 | 119.70 |
| 24 | RA | 2307 | G | C4-N9-C1' | 5.01 | 133.01 | 126.50 |
| 24 | RA | 546 | C | N3-C2-O2 | -5.01 | 118.39 | 121.90 |
| 1 | XA | 1224 | G | C4-N9-C1' | -5.01 | 119.99 | 126.50 |
| 24 | YA | 1529 | A | N1-C2-N3 | 5.01 | 131.80 | 129.30 |
| 24 | YA | 1332 | G | N7-C8-N9 | 5.01 | 115.60 | 113.10 |
| 24 | YA | 12 | U | C2-N1-C1' | 5.00 | 123.70 | 117.70 |
| 24 | YA | 1313 | U | C6-N1-C1' | -5.00 | 114.20 | 121.20 |

There are no chirality outliers.

All (116) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|-----------|
| 3 | QC | 143 | GLU | Peptide |
| 4 | QD | 33 | MET | Peptide |
| 5 | QE | 10 | MET | Peptide |
| 5 | QE | 25 | ARG | Peptide |
| 7 | QG | 155 | ARG | Peptide |
| 9 | QI | 124 | GLN | Sidechain |
| 12 | QL | 104 | VAL | Peptide |
| 12 | QL | 47 | LYS | Peptide |
| 13 | QM | 117 | VAL | Peptide |
| 18 | QR | 21 | LYS | Peptide |
| 19 | QS | 38 | SER | Peptide |
| 19 | QS | 40 | ILE | Peptide |

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| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 19 | QS | 41 | VAL | Peptide |
| 19 | QS | 5 | LEU | Peptide |
| 19 | QS | 6 | LYS | Peptide |
| 20 | QT | 73 | HIS | Peptide |
| 20 | QT | 94 | ALA | Peptide |
| 20 | QT | 97 | ALA | Peptide |
| 46 | R1 | 87 | PRO | Peptide |
| 47 | R2 | 46 | GLN | Peptide |
| 47 | R2 | 70 | GLN | Peptide |
| 49 | R4 | 46 | GLN | Peptide |
| 49 | R4 | 56 | VAL | Peptide |
| 49 | R4 | 57 | GLU | Peptide |
| 49 | R4 | 61 | ARG | Peptide |
| 53 | R8 | 28 | GLY | Peptide |
| 53 | R8 | 29 | LYS | Peptide |
| 53 | R8 | 62 | LEU | Peptide |
| 27 | RE | 130 | GLY | Peptide |
| 27 | RE | 72 | VAL | Peptide |
| 27 | RE | 79 | ARG | Peptide |
| 29 | RG | 4 | ASP | Peptide |
| 29 | RG | 52 | ILE | Peptide |
| 29 | RG | 81 | LYS | Peptide |
| 29 | RG | 82 | LEU | Peptide |
| 30 | RH | 127 | GLU | Peptide |
| 30 | RH | 151 | ILE | Peptide |
| 30 | RH | 153 | LYS | Peptide |
| 30 | RH | 154 | PRO | Peptide |
| 30 | RH | 156 | ALA | Peptide |
| 30 | RH | 82 | GLY | Peptide |
| 30 | RH | 85 | LYS | Peptide |
| 31 | RI | 10 | GLU | Peptide |
| 31 | RI | 11 | ASN | Peptide |
| 31 | RI | 119 | PRO | Peptide |
| 31 | RI | 130 | TYR | Peptide |
| 31 | RI | 131 | LYS | Peptide |
| 31 | RI | 144 | VAL | Peptide |
| 31 | RI | 17 | GLN | Peptide |
| 32 | RN | 21 | LYS | Peptide |
| 32 | RN | 22 | THR | Peptide |
| 34 | RP | 115 | LEU | Peptide |
| 35 | RQ | 104 | PHE | Peptide |
| 35 | RQ | 65 | PHE | Peptide |

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| Mol | Chain | Res | Type | Group |
|------------|--------------|------------|-------------|--------------|
| 35 | RQ | 89 | ASN | Peptide |
| 36 | RR | 57 | ARG | Peptide |
| 38 | RT | 122 | ASP | Peptide |
| 39 | RU | 95 | LEU | Peptide |
| 40 | RV | 43 | GLU | Peptide |
| 40 | RV | 49 | THR | Peptide |
| 44 | RZ | 136 | PHE | Peptide |
| 44 | RZ | 146 | ILE | Peptide |
| 44 | RZ | 179 | ASP | Peptide |
| 44 | RZ | 52 | SER | Peptide |
| 44 | RZ | 62 | PRO | Peptide |
| 2 | XB | 233 | SER | Peptide |
| 5 | XE | 26 | PHE | Peptide |
| 5 | XE | 74 | GLY | Peptide |
| 7 | XG | 5 | ARG | Peptide |
| 12 | XL | 104 | VAL | Peptide |
| 12 | XL | 47 | LYS | Peptide |
| 18 | XR | 21 | LYS | Peptide |
| 20 | XT | 73 | HIS | Peptide |
| 20 | XT | 85 | MET | Peptide |
| 20 | XT | 94 | ALA | Peptide |
| 46 | Y1 | 40 | ARG | Peptide |
| 47 | Y2 | 46 | GLN | Peptide |
| 49 | Y4 | 48 | ARG | Peptide |
| 49 | Y4 | 56 | VAL | Peptide |
| 49 | Y4 | 61 | ARG | Peptide |
| 53 | Y8 | 62 | LEU | Peptide |
| 54 | Y9 | 24 | TYR | Peptide |
| 26 | YD | 237 | GLU | Peptide |
| 26 | YD | 35 | LYS | Peptide |
| 27 | YE | 131 | ALA | Peptide |
| 27 | YE | 57 | LYS | Peptide |
| 29 | YG | 116 | ASP | Peptide |
| 30 | YH | 150 | ALA | Peptide |
| 30 | YH | 151 | ILE | Peptide |
| 30 | YH | 152 | ARG | Peptide |
| 30 | YH | 153 | LYS | Peptide |
| 30 | YH | 154 | PRO | Peptide |
| 30 | YH | 156 | ALA | Peptide |
| 30 | YH | 7 | LEU | Peptide |
| 30 | YH | 82 | GLY | Peptide |
| 30 | YH | 85 | LYS | Peptide |

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| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 31 | YI | 121 | LYS | Peptide |
| 31 | YI | 17 | GLN | Peptide |
| 31 | YI | 86 | THR | Peptide |
| 31 | YI | 9 | LEU | Peptide |
| 32 | YN | 115 | ARG | Peptide |
| 32 | YN | 22 | THR | Peptide |
| 33 | YO | 96 | THR | Peptide |
| 34 | YP | 107 | LYS | Peptide |
| 34 | YP | 115 | LEU | Peptide |
| 35 | YQ | 104 | PHE | Peptide |
| 35 | YQ | 89 | ASN | Peptide |
| 38 | YT | 111 | ARG | Peptide |
| 38 | YT | 5 | ALA | Peptide |
| 39 | YU | 95 | LEU | Peptide |
| 40 | YV | 47 | VAL | Peptide |
| 40 | YV | 49 | THR | Peptide |
| 44 | YZ | 179 | ASP | Peptide |
| 44 | YZ | 52 | SER | Peptide |
| 44 | YZ | 62 | PRO | Peptide |
| 44 | YZ | 93 | ASP | Peptide |

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of 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 | QA | 32246 | 0 | 16278 | 582 | 0 |
| 1 | XA | 32248 | 0 | 16279 | 542 | 2 |
| 2 | QB | 1907 | 0 | 1958 | 59 | 0 |
| 2 | XB | 1915 | 0 | 1969 | 56 | 0 |
| 3 | QC | 1605 | 0 | 1668 | 59 | 0 |
| 3 | XC | 1605 | 0 | 1668 | 47 | 0 |
| 4 | QD | 1703 | 0 | 1766 | 63 | 0 |
| 4 | XD | 1703 | 0 | 1767 | 50 | 1 |
| 5 | QE | 1155 | 0 | 1213 | 25 | 0 |
| 5 | XE | 1155 | 0 | 1213 | 22 | 0 |
| 6 | QF | 843 | 0 | 857 | 15 | 0 |
| 6 | XF | 843 | 0 | 857 | 28 | 0 |
| 7 | QG | 1257 | 0 | 1296 | 23 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 7 | XG | 1257 | 0 | 1296 | 27 | 0 |
| 8 | QH | 1108 | 0 | 1165 | 44 | 0 |
| 8 | XH | 1108 | 0 | 1165 | 37 | 0 |
| 9 | QI | 1010 | 0 | 1037 | 57 | 0 |
| 9 | XI | 998 | 0 | 1024 | 32 | 0 |
| 10 | QJ | 801 | 0 | 849 | 42 | 0 |
| 10 | XJ | 777 | 0 | 816 | 38 | 0 |
| 11 | QK | 885 | 0 | 904 | 26 | 0 |
| 11 | XK | 864 | 0 | 881 | 28 | 0 |
| 12 | QL | 975 | 0 | 1062 | 33 | 0 |
| 12 | XL | 956 | 0 | 1046 | 25 | 0 |
| 13 | QM | 955 | 0 | 1021 | 43 | 0 |
| 13 | XM | 946 | 0 | 1007 | 36 | 0 |
| 14 | QN | 492 | 0 | 529 | 27 | 0 |
| 14 | XN | 492 | 0 | 529 | 16 | 0 |
| 15 | QO | 734 | 0 | 771 | 18 | 0 |
| 15 | XO | 729 | 0 | 768 | 12 | 0 |
| 16 | QP | 705 | 0 | 725 | 12 | 0 |
| 16 | XP | 705 | 0 | 725 | 25 | 0 |
| 17 | QQ | 834 | 0 | 904 | 21 | 0 |
| 17 | XQ | 834 | 0 | 904 | 25 | 0 |
| 18 | QR | 574 | 0 | 644 | 16 | 0 |
| 18 | XR | 574 | 0 | 644 | 19 | 0 |
| 19 | QS | 665 | 0 | 686 | 40 | 0 |
| 19 | XS | 674 | 0 | 699 | 24 | 0 |
| 20 | QT | 763 | 0 | 861 | 23 | 0 |
| 20 | XT | 763 | 0 | 861 | 25 | 0 |
| 21 | QU | 217 | 0 | 234 | 7 | 0 |
| 21 | XU | 217 | 0 | 234 | 6 | 0 |
| 22 | QV | 1644 | 0 | 836 | 23 | 0 |
| 22 | XV | 1644 | 0 | 836 | 15 | 0 |
| 23 | QX | 261 | 0 | 130 | 2 | 0 |
| 23 | XX | 239 | 0 | 119 | 3 | 0 |
| 24 | RA | 62071 | 0 | 31291 | 862 | 2 |
| 24 | YA | 62091 | 0 | 31301 | 958 | 0 |
| 25 | RB | 2573 | 0 | 1306 | 44 | 0 |
| 25 | YB | 2573 | 0 | 1306 | 45 | 0 |
| 26 | RD | 2115 | 0 | 2195 | 56 | 0 |
| 26 | YD | 2115 | 0 | 2195 | 75 | 0 |
| 27 | RE | 1568 | 0 | 1634 | 52 | 0 |
| 27 | YE | 1568 | 0 | 1634 | 65 | 0 |
| 28 | RF | 1585 | 0 | 1632 | 54 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 28 | YF | 1585 | 0 | 1632 | 44 | 0 |
| 29 | RG | 1474 | 0 | 1535 | 58 | 0 |
| 29 | YG | 1474 | 0 | 1535 | 51 | 0 |
| 30 | RH | 1336 | 0 | 1418 | 41 | 0 |
| 30 | YH | 1336 | 0 | 1418 | 38 | 0 |
| 31 | RI | 1136 | 0 | 1223 | 26 | 2 |
| 31 | YI | 1136 | 0 | 1223 | 43 | 0 |
| 32 | RN | 1104 | 0 | 1180 | 17 | 0 |
| 32 | YN | 1104 | 0 | 1180 | 30 | 0 |
| 33 | RO | 933 | 0 | 996 | 26 | 0 |
| 33 | YO | 933 | 0 | 996 | 17 | 0 |
| 34 | RP | 1145 | 0 | 1228 | 43 | 0 |
| 34 | YP | 1122 | 0 | 1206 | 56 | 0 |
| 35 | RQ | 1122 | 0 | 1179 | 51 | 0 |
| 35 | YQ | 1122 | 0 | 1179 | 32 | 0 |
| 36 | RR | 960 | 0 | 1021 | 38 | 0 |
| 36 | YR | 960 | 0 | 1021 | 29 | 0 |
| 37 | RS | 882 | 0 | 943 | 31 | 0 |
| 37 | YS | 882 | 0 | 943 | 32 | 0 |
| 38 | RT | 1141 | 0 | 1202 | 37 | 0 |
| 38 | YT | 1141 | 0 | 1202 | 41 | 0 |
| 39 | RU | 964 | 0 | 1022 | 33 | 0 |
| 39 | YU | 964 | 0 | 1022 | 39 | 0 |
| 40 | RV | 779 | 0 | 852 | 24 | 0 |
| 40 | YV | 779 | 0 | 852 | 17 | 1 |
| 41 | RW | 900 | 0 | 964 | 26 | 0 |
| 41 | YW | 900 | 0 | 964 | 21 | 0 |
| 42 | RX | 725 | 0 | 778 | 23 | 0 |
| 42 | YX | 725 | 0 | 778 | 14 | 0 |
| 43 | RY | 818 | 0 | 911 | 12 | 0 |
| 43 | YY | 818 | 0 | 912 | 26 | 0 |
| 44 | RZ | 1461 | 0 | 1493 | 55 | 0 |
| 44 | YZ | 1461 | 0 | 1493 | 46 | 0 |
| 45 | R0 | 643 | 0 | 667 | 18 | 0 |
| 45 | Y0 | 648 | 0 | 672 | 23 | 0 |
| 46 | R1 | 755 | 0 | 836 | 16 | 0 |
| 46 | Y1 | 729 | 0 | 802 | 20 | 0 |
| 47 | R2 | 581 | 0 | 629 | 13 | 0 |
| 47 | Y2 | 581 | 0 | 629 | 12 | 1 |
| 48 | R3 | 469 | 0 | 518 | 13 | 0 |
| 48 | Y3 | 469 | 0 | 518 | 14 | 0 |
| 49 | R4 | 565 | 0 | 560 | 31 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 49 | Y4 | 565 | 0 | 559 | 20 | 0 |
| 50 | R5 | 459 | 0 | 476 | 17 | 0 |
| 50 | Y5 | 459 | 0 | 478 | 11 | 1 |
| 51 | R6 | 453 | 0 | 475 | 16 | 0 |
| 51 | Y6 | 453 | 0 | 474 | 11 | 0 |
| 52 | R7 | 409 | 0 | 454 | 14 | 0 |
| 52 | Y7 | 418 | 0 | 467 | 10 | 0 |
| 53 | R8 | 517 | 0 | 582 | 25 | 0 |
| 53 | Y8 | 517 | 0 | 582 | 24 | 0 |
| 54 | R9 | 307 | 0 | 336 | 6 | 0 |
| 54 | Y9 | 307 | 0 | 335 | 13 | 0 |
| 55 | QA | 180 | 0 | 0 | 0 | 0 |
| 55 | QC | 1 | 0 | 0 | 0 | 0 |
| 55 | QF | 1 | 0 | 0 | 0 | 0 |
| 55 | QH | 1 | 0 | 0 | 0 | 0 |
| 55 | QL | 1 | 0 | 0 | 0 | 0 |
| 55 | QV | 6 | 0 | 0 | 0 | 0 |
| 55 | QX | 2 | 0 | 0 | 0 | 0 |
| 55 | R0 | 2 | 0 | 0 | 0 | 0 |
| 55 | R1 | 2 | 0 | 0 | 0 | 0 |
| 55 | R5 | 1 | 0 | 0 | 0 | 0 |
| 55 | RA | 493 | 0 | 0 | 0 | 0 |
| 55 | RB | 10 | 0 | 0 | 0 | 0 |
| 55 | RD | 1 | 0 | 0 | 0 | 0 |
| 55 | RE | 4 | 0 | 0 | 0 | 0 |
| 55 | RF | 1 | 0 | 0 | 0 | 0 |
| 55 | RI | 1 | 0 | 0 | 0 | 0 |
| 55 | RN | 1 | 0 | 0 | 0 | 0 |
| 55 | RO | 1 | 0 | 0 | 0 | 0 |
| 55 | RP | 3 | 0 | 0 | 0 | 0 |
| 55 | RQ | 2 | 0 | 0 | 0 | 0 |
| 55 | RT | 1 | 0 | 0 | 0 | 0 |
| 55 | RU | 1 | 0 | 0 | 0 | 0 |
| 55 | RW | 1 | 0 | 0 | 0 | 0 |
| 55 | RX | 1 | 0 | 0 | 0 | 0 |
| 55 | RY | 1 | 0 | 0 | 0 | 0 |
| 55 | XA | 171 | 0 | 0 | 0 | 0 |
| 55 | XE | 2 | 0 | 0 | 0 | 0 |
| 55 | XL | 1 | 0 | 0 | 0 | 0 |
| 55 | XM | 1 | 0 | 0 | 0 | 0 |
| 55 | XQ | 1 | 0 | 0 | 0 | 0 |
| 55 | XS | 1 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 55 | XV | 8 | 0 | 0 | 0 | 0 |
| 55 | Y0 | 1 | 0 | 0 | 0 | 0 |
| 55 | Y5 | 1 | 0 | 0 | 0 | 0 |
| 55 | Y7 | 1 | 0 | 0 | 0 | 0 |
| 55 | Y8 | 1 | 0 | 0 | 0 | 0 |
| 55 | YA | 515 | 0 | 0 | 0 | 0 |
| 55 | YB | 10 | 0 | 0 | 0 | 0 |
| 55 | YD | 2 | 0 | 0 | 0 | 0 |
| 55 | YE | 4 | 0 | 0 | 0 | 0 |
| 55 | YO | 1 | 0 | 0 | 0 | 0 |
| 55 | YP | 3 | 0 | 0 | 0 | 0 |
| 55 | YQ | 3 | 0 | 0 | 0 | 0 |
| 55 | YU | 1 | 0 | 0 | 0 | 0 |
| 55 | YX | 2 | 0 | 0 | 0 | 0 |
| 55 | YY | 1 | 0 | 0 | 0 | 0 |
| 56 | QD | 8 | 0 | 0 | 1 | 0 |
| 56 | XD | 8 | 0 | 0 | 2 | 0 |
| 57 | QN | 1 | 0 | 0 | 0 | 0 |
| 57 | R4 | 1 | 0 | 0 | 0 | 0 |
| 57 | R5 | 1 | 0 | 0 | 0 | 0 |
| 57 | R6 | 1 | 0 | 0 | 0 | 0 |
| 57 | R9 | 1 | 0 | 0 | 0 | 0 |
| 57 | RY | 1 | 0 | 0 | 0 | 0 |
| 57 | XN | 1 | 0 | 0 | 0 | 0 |
| 57 | Y4 | 1 | 0 | 0 | 0 | 0 |
| 57 | Y5 | 1 | 0 | 0 | 0 | 0 |
| 57 | Y6 | 1 | 0 | 0 | 0 | 0 |
| 57 | Y9 | 1 | 0 | 0 | 0 | 0 |
| 57 | YY | 1 | 0 | 0 | 0 | 0 |
| All | All | 291948 | 0 | 197745 | 5207 | 5 |

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 11.

All (5207) 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) |
|------------------|-------------------|--------------------------|-------------------|
| 24:RA:2285:C:OP2 | 51:R6:6:ARG:NH2 | 1.85 | 1.08 |
| 24:RA:2068:U:H3 | 24:RA:2430:A:H2 | 1.11 | 0.99 |
| 24:RA:676:A:H8 | 24:RA:2069:G:H21 | 1.04 | 0.98 |
| 10:QJ:4:ILE:HG22 | 10:QJ:74:ILE:HG12 | 1.46 | 0.96 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:XA:686:U:H1' | 11:XK:42:TRP:HE1 | 1.31 | 0.93 |
| 1:QA:481:G:HO2' | 1:QA:482:A:H8 | 1.02 | 0.93 |
| 1:QA:426:G:OP2 | 4:QD:36:ARG:NH1 | 2.03 | 0.92 |
| 25:YB:8:U:H3 | 25:YB:112:G:H1 | 0.98 | 0.92 |
| 24:YA:2470:G:H5' | 35:YQ:56:ARG:HH21 | 1.36 | 0.90 |
| 24:YA:1138:G:H21 | 32:YN:106:MET:HE3 | 1.35 | 0.90 |
| 49:Y4:61:ARG:HH11 | 49:Y4:62:ARG:HA | 1.34 | 0.90 |
| 34:YP:61:ARG:HH21 | 53:Y8:13:ARG:HD2 | 1.35 | 0.90 |
| 27:YE:78:LEU:HD23 | 27:YE:79:ARG:HG2 | 1.50 | 0.90 |
| 2:XB:185:ILE:HG22 | 2:XB:199:TYR:HB2 | 1.54 | 0.89 |
| 49:Y4:57:GLU:HG2 | 49:Y4:61:ARG:HB3 | 1.54 | 0.89 |
| 24:YA:2304:G:H22 | 24:YA:2312:U:H3 | 1.21 | 0.88 |
| 24:RA:884:C:O2 | 24:RA:892:G:N2 | 2.07 | 0.88 |
| 4:QD:30:LYS:HG2 | 4:QD:35:ARG:HD2 | 1.57 | 0.87 |
| 24:YA:888:C:H3' | 24:YA:889:C:H4' | 1.57 | 0.87 |
| 30:RH:18:GLU:HB2 | 30:RH:25:LYS:HB2 | 1.57 | 0.87 |
| 24:RA:1899:G:N2 | 24:RA:1902:C:H41 | 1.72 | 0.86 |
| 1:XA:1356:G:H2' | 1:XA:1357:A:H8 | 1.39 | 0.85 |
| 25:RB:37:C:O2 | 37:RS:95:HIS:NE2 | 2.10 | 0.85 |
| 49:R4:55:ARG:O | 49:R4:60:GLN:NE2 | 2.10 | 0.85 |
| 1:QA:259:G:OP2 | 20:QT:83:ARG:NH1 | 2.10 | 0.84 |
| 8:XH:109:ILE:HG23 | 8:XH:137:VAL:HG13 | 1.59 | 0.84 |
| 19:QS:19:VAL:HG21 | 19:QS:44:MET:HG2 | 1.59 | 0.84 |
| 49:R4:61:ARG:HH11 | 49:R4:62:ARG:HA | 1.42 | 0.84 |
| 45:R0:10:THR:HG22 | 45:R0:12:ASN:H | 1.42 | 0.83 |
| 24:RA:1568:G:H5'' | 26:RD:61:LEU:HD23 | 1.60 | 0.83 |
| 10:QJ:29:ARG:NH2 | 1:XA:1164:G:OP1 | 2.11 | 0.83 |
| 13:QM:23:TYR:HB3 | 13:QM:67:GLU:HG3 | 1.61 | 0.83 |
| 1:XA:1348:U:H3 | 1:XA:1374:A:H2 | 1.23 | 0.83 |
| 4:QD:18:LYS:NZ | 4:QD:31:CYS:SG | 2.52 | 0.82 |
| 24:RA:27:G:N2 | 24:RA:513:A:OP2 | 2.11 | 0.82 |
| 24:RA:819:A:OP2 | 24:RA:1187:G:N2 | 2.12 | 0.82 |
| 24:YA:2245:U:H5' | 24:YA:2246:G:H5' | 1.60 | 0.82 |
| 24:YA:270(O):U:H2' | 31:YI:52:ARG:HH22 | 1.43 | 0.82 |
| 13:XM:3:ARG:HG3 | 13:XM:9:ILE:HG21 | 1.60 | 0.82 |
| 24:YA:259:G:H21 | 24:YA:621:A:H8 | 1.25 | 0.82 |
| 24:YA:996:A:OP2 | 39:YU:92:ARG:NH2 | 2.12 | 0.82 |
| 41:RW:4:LYS:HE3 | 41:RW:6:ILE:HD11 | 1.60 | 0.81 |
| 1:XA:1127:G:N2 | 1:XA:1145:C:C2 | 2.48 | 0.81 |
| 1:QA:1422:G:H5'' | 33:RO:48:PRO:HB3 | 1.63 | 0.81 |
| 1:QA:559:A:H4' | 1:QA:560:U:H3' | 1.62 | 0.81 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:1485:G:H1 | 24:RA:1504:C:H42 | 1.29 | 0.81 |
| 1:QA:501:C:H2' | 1:QA:502:G:H8 | 1.46 | 0.81 |
| 34:YP:61:ARG:NH2 | 53:Y8:13:ARG:HD2 | 1.96 | 0.81 |
| 24:RA:2285:C:P | 51:R6:6:ARG:HH22 | 2.05 | 0.80 |
| 24:YA:2701:C:H3' | 24:YA:2702:U:H5'' | 1.60 | 0.80 |
| 24:YA:1800:C:OP2 | 26:YD:183:ARG:NH1 | 2.14 | 0.80 |
| 24:YA:1062:G:H1 | 24:YA:1076:C:H42 | 1.26 | 0.80 |
| 27:RE:2:LYS:HD2 | 27:RE:95:ILE:HG23 | 1.64 | 0.80 |
| 31:RI:4:ILE:HG22 | 31:RI:18:VAL:HG22 | 1.64 | 0.80 |
| 24:YA:2296:U:OP2 | 37:YS:9:ARG:NH2 | 2.13 | 0.80 |
| 1:XA:1028(A):C:O2 | 1:XA:1032(B):G:N2 | 2.15 | 0.80 |
| 26:RD:8:PRO:HB3 | 26:RD:14:ARG:HB3 | 1.63 | 0.80 |
| 1:QA:1306:A:N6 | 1:QA:1331:G:O2' | 2.15 | 0.79 |
| 24:RA:2102:U:H3 | 24:RA:2187:G:H1 | 1.27 | 0.79 |
| 24:YA:141:A:H8 | 24:YA:1595:G:H21 | 1.30 | 0.79 |
| 24:YA:2068:U:H3 | 24:YA:2430:A:H2 | 1.29 | 0.79 |
| 24:YA:1649:G:O2' | 36:YR:107:ASP:OD1 | 2.00 | 0.79 |
| 37:YS:10:ARG:NH1 | 37:YS:91:PRO:O | 2.16 | 0.79 |
| 1:QA:932:C:OP2 | 7:QG:3:ARG:NH1 | 2.16 | 0.79 |
| 1:XA:1028(A):C:N3 | 1:XA:1032(B):G:N1 | 2.31 | 0.79 |
| 1:XA:1291:G:O2' | 9:XI:38:GLN:NE2 | 2.16 | 0.79 |
| 1:QA:1002:G:H1 | 1:QA:1038:C:H42 | 1.29 | 0.79 |
| 27:YE:104:VAL:HG11 | 27:YE:188:VAL:HG12 | 1.65 | 0.79 |
| 1:QA:951:G:OP2 | 13:QM:102:ARG:NH2 | 2.16 | 0.78 |
| 14:QN:4:LYS:HA | 14:QN:7:ILE:HG12 | 1.65 | 0.78 |
| 1:QA:448:A:OP2 | 1:QA:485:G:N2 | 2.15 | 0.78 |
| 49:Y4:13:ARG:HH12 | 49:Y4:23:GLU:HG3 | 1.48 | 0.78 |
| 24:YA:2327:A:H2' | 24:YA:2328:A:C8 | 2.18 | 0.78 |
| 2:QB:8:LYS:HD3 | 2:QB:10:LEU:H | 1.47 | 0.78 |
| 33:RO:35:VAL:HG11 | 33:RO:103:ALA:HB3 | 1.64 | 0.78 |
| 24:YA:2646:C:OP2 | 24:YA:2732:G:O2' | 2.01 | 0.78 |
| 27:YE:144:ARG:HG3 | 27:YE:145:LYS:H | 1.48 | 0.78 |
| 15:QO:29:VAL:HG21 | 15:QO:81:LEU:HD21 | 1.66 | 0.78 |
| 44:RZ:166:SER:HB3 | 44:RZ:168:GLU:H | 1.46 | 0.78 |
| 24:YA:958:U:OP2 | 35:YQ:14:ARG:NH1 | 2.16 | 0.78 |
| 35:RQ:81:VAL:O | 35:RQ:82:ARG:NE | 2.17 | 0.78 |
| 1:XA:1446:A:H4' | 38:YT:125:ARG:HH22 | 1.49 | 0.78 |
| 24:RA:593:G:H4' | 53:R8:61:LEU:HD12 | 1.63 | 0.78 |
| 9:XI:111:ARG:NH1 | 9:XI:112:LYS:O | 2.16 | 0.78 |
| 1:QA:1222:G:H5'' | 19:QS:78:ARG:HH12 | 1.47 | 0.78 |
| 24:YA:1109:C:O2' | 24:YA:1110:G:O4' | 2.00 | 0.78 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:YG:29:TRP:O | 29:YG:33:ARG:NH1 | 2.17 | 0.78 |
| 17:QQ:66:SER:O | 17:QQ:70:ARG:NH1 | 2.17 | 0.78 |
| 13:XM:49:THR:HG22 | 13:XM:51:ALA:H | 1.49 | 0.78 |
| 24:RA:2882:A:OP1 | 36:RR:96:ARG:NH1 | 2.15 | 0.77 |
| 44:RZ:53:ILE:HG22 | 44:RZ:71:VAL:HG13 | 1.64 | 0.77 |
| 24:YA:2783:G:H21 | 27:YE:37:ARG:HH22 | 1.32 | 0.77 |
| 45:Y0:10:THR:HG22 | 45:Y0:12:ASN:H | 1.49 | 0.77 |
| 25:RB:40:U:O2 | 25:RB:45:A:N6 | 2.17 | 0.77 |
| 25:YB:40:U:O2 | 25:YB:45:A:N6 | 2.17 | 0.77 |
| 24:RA:1012:U:OP1 | 39:RU:75:ASN:ND2 | 2.18 | 0.77 |
| 9:QI:117:HIS:HB2 | 9:QI:121:ARG:HE | 1.49 | 0.77 |
| 9:QI:125:TYR:HE2 | 9:QI:127:LYS:HE2 | 1.49 | 0.77 |
| 27:YE:24:THR:HG23 | 27:YE:186:GLY:HA2 | 1.67 | 0.77 |
| 1:XA:719:C:H1' | 18:XR:49:LYS:HB2 | 1.66 | 0.77 |
| 39:RU:90:VAL:O | 39:RU:92:ARG:N | 2.18 | 0.77 |
| 24:YA:2794:C:O2 | 24:YA:2802:G:N2 | 2.18 | 0.77 |
| 1:QA:414:A:OP2 | 1:QA:428:G:N2 | 2.17 | 0.77 |
| 24:RA:2483:C:N3 | 35:RQ:124:LYS:NZ | 2.33 | 0.77 |
| 24:YA:249:C:O2 | 53:Y8:12:LYS:NZ | 2.16 | 0.76 |
| 24:YA:1689:A:H62 | 24:YA:1698:A:H2 | 1.31 | 0.76 |
| 48:R3:7:LYS:HG2 | 48:R3:34:GLU:HG3 | 1.67 | 0.76 |
| 24:RA:807:U:H2' | 24:RA:808:G:H8 | 1.50 | 0.76 |
| 1:QA:714:G:H2' | 1:QA:715:A:C8 | 2.21 | 0.76 |
| 8:QH:102:ARG:HH22 | 8:QH:105:ARG:HG3 | 1.50 | 0.76 |
| 24:RA:2844:G:H3' | 24:RA:2845:G:H8 | 1.49 | 0.76 |
| 38:RT:102:ILE:HG23 | 38:RT:110:ILE:HD12 | 1.64 | 0.76 |
| 49:Y4:51:ASP:HB2 | 49:Y4:53:GLU:HG2 | 1.67 | 0.76 |
| 24:YA:2724:C:OP1 | 27:YE:118:LYS:NZ | 2.18 | 0.76 |
| 1:XA:559:A:OP1 | 5:XE:126:ARG:NH2 | 2.17 | 0.76 |
| 1:XA:675:A:H1' | 11:XK:116:HIS:CD2 | 2.21 | 0.76 |
| 29:RG:47:LYS:HB3 | 29:RG:81:LYS:HD2 | 1.67 | 0.76 |
| 24:YA:2134:A:N6 | 24:YA:2156:G:O2' | 2.19 | 0.76 |
| 1:QA:1350:A:OP1 | 9:QI:121:ARG:NH1 | 2.18 | 0.76 |
| 4:QD:31:CYS:SG | 4:QD:32:ALA:N | 2.58 | 0.76 |
| 24:RA:2701:C:H3' | 24:RA:2702:U:H5'' | 1.68 | 0.75 |
| 24:YA:1607:C:N4 | 24:YA:1622:G:OP2 | 2.19 | 0.75 |
| 41:RW:11:ARG:HH21 | 41:RW:98:LYS:HD2 | 1.51 | 0.75 |
| 25:YB:80:U:H2' | 25:YB:81:G:H21 | 1.52 | 0.75 |
| 24:YA:24:G:O2' | 41:YW:78:GLU:O | 2.04 | 0.75 |
| 24:RA:414:C:O2 | 24:RA:1864:U:O2' | 2.04 | 0.75 |
| 1:XA:410:G:O3' | 4:XD:30:LYS:NZ | 2.19 | 0.75 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 10:QJ:3:LYS:N | 10:QJ:74:ILE:O | 2.19 | 0.75 |
| 51:Y6:25:LYS:HZ1 | 51:Y6:34:LEU:HD11 | 1.52 | 0.75 |
| 24:YA:676:A:H8 | 24:YA:2069:G:H21 | 1.34 | 0.75 |
| 4:QD:11:LEU:HD13 | 4:QD:66:ARG:HD2 | 1.68 | 0.75 |
| 31:RI:79:ILE:HD11 | 31:RI:142:VAL:HG12 | 1.69 | 0.75 |
| 1:QA:1267:C:H2' | 21:QU:20:LYS:HE3 | 1.69 | 0.75 |
| 10:QJ:4:ILE:HG13 | 10:QJ:100:THR:HB | 1.67 | 0.75 |
| 30:RH:152:ARG:HD2 | 30:RH:153:LYS:HG3 | 1.69 | 0.75 |
| 24:YA:1859:A:N6 | 24:YA:1883:G:O2' | 2.20 | 0.75 |
| 44:RZ:166:SER:HB3 | 44:RZ:168:GLU:N | 2.02 | 0.74 |
| 1:XA:1003:G:H21 | 1:XA:1005:A:H5' | 1.52 | 0.74 |
| 54:Y9:25:VAL:HG22 | 54:Y9:34:GLN:HB3 | 1.68 | 0.74 |
| 1:QA:1023:G:H3' | 1:QA:1024:G:H5'' | 1.70 | 0.74 |
| 24:RA:2134:A:N7 | 24:RA:2157:G:O2' | 2.21 | 0.74 |
| 26:YD:8:PRO:HB3 | 26:YD:14:ARG:HG2 | 1.70 | 0.74 |
| 1:QA:1178:G:OP2 | 9:QI:93:ARG:NH2 | 2.21 | 0.74 |
| 19:QS:39:THR:HG22 | 19:QS:40:ILE:H | 1.52 | 0.74 |
| 7:XG:69:VAL:HG21 | 7:XG:104:LEU:HD21 | 1.68 | 0.74 |
| 24:RA:1542:G:O6 | 24:RA:1543:A:N6 | 2.20 | 0.74 |
| 24:RA:1980:G:O2' | 24:RA:1982:C:OP2 | 2.03 | 0.74 |
| 24:RA:662:G:OP1 | 34:RP:15:ARG:NH1 | 2.20 | 0.74 |
| 24:YA:1899:G:H21 | 24:YA:1902:C:H41 | 1.35 | 0.74 |
| 1:QA:1347:G:N2 | 1:QA:1374:A:OP2 | 2.18 | 0.74 |
| 24:RA:2245:U:H5' | 24:RA:2246:G:H5' | 1.68 | 0.74 |
| 24:YA:2349:G:N2 | 24:YA:2368:C:O2 | 2.18 | 0.74 |
| 24:RA:2392:A:H2 | 24:RA:2424:C:H42 | 1.36 | 0.74 |
| 24:YA:2294:C:H5' | 37:YS:93:LYS:HE3 | 1.69 | 0.74 |
| 44:YZ:166:SER:HB2 | 44:YZ:168:GLU:N | 2.03 | 0.74 |
| 29:RG:101:ILE:HD11 | 49:R4:25:TYR:HB2 | 1.67 | 0.73 |
| 44:YZ:53:ILE:HG22 | 44:YZ:71:VAL:HG13 | 1.68 | 0.73 |
| 12:QL:113:ARG:HH21 | 12:QL:116:SER:HB2 | 1.52 | 0.73 |
| 24:RA:1403:C:H5'' | 24:RA:1471:A:H1' | 1.68 | 0.73 |
| 39:YU:90:VAL:O | 39:YU:92:ARG:N | 2.20 | 0.73 |
| 24:RA:1359:A:H62 | 24:RA:1372:U:H3 | 1.35 | 0.73 |
| 2:XB:115:LEU:HD23 | 2:XB:153:ARG:HD2 | 1.69 | 0.73 |
| 24:YA:1155:A:H5'' | 39:YU:55:ARG:HH11 | 1.53 | 0.73 |
| 1:XA:1318:A:H4' | 19:XS:11:VAL:HG11 | 1.70 | 0.73 |
| 27:RE:36:ARG:NH2 | 27:RE:88:GLY:HA2 | 2.03 | 0.73 |
| 1:XA:838:G:H1 | 1:XA:848:C:H42 | 1.36 | 0.73 |
| 31:RI:133:HIS:HB3 | 31:RI:134:PRO:HD3 | 1.71 | 0.73 |
| 41:RW:81:ALA:HB3 | 41:RW:97:LYS:HE2 | 1.71 | 0.73 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 2:XB:118:LEU:HD13 | 2:XB:142:LEU:HA | 1.68 | 0.73 |
| 1:QA:501:C:H2' | 1:QA:502:G:C8 | 2.23 | 0.73 |
| 24:RA:2867:G:OP2 | 38:RT:119:LYS:NZ | 2.18 | 0.73 |
| 24:RA:1667:G:O2' | 24:RA:1991:U:O4 | 2.06 | 0.73 |
| 1:XA:1127:G:H1' | 1:XA:1147:C:H42 | 1.53 | 0.73 |
| 5:XE:35:GLY:HA3 | 5:XE:112:LEU:HB3 | 1.69 | 0.73 |
| 1:QA:17:U:H2' | 1:QA:18:C:C6 | 2.24 | 0.72 |
| 1:QA:713:G:H2' | 1:QA:714:G:C8 | 2.24 | 0.72 |
| 1:QA:376:G:H5'' | 16:QP:5:ARG:HD2 | 1.72 | 0.72 |
| 1:QA:542:G:OP1 | 4:QD:10:ARG:NH1 | 2.21 | 0.72 |
| 10:QJ:24:VAL:HG21 | 10:QJ:37:PRO:HG3 | 1.71 | 0.72 |
| 12:XL:27:LEU:HD22 | 12:XL:33:ARG:HH12 | 1.53 | 0.72 |
| 24:YA:994:C:OP1 | 39:YU:53:ARG:NH2 | 2.22 | 0.72 |
| 41:YW:110:LYS:HG3 | 41:YW:111:HIS:H | 1.54 | 0.72 |
| 34:RP:88:LEU:HD11 | 34:RP:95:VAL:HG11 | 1.70 | 0.72 |
| 35:RQ:17:LEU:HD13 | 35:RQ:39:PRO:HB2 | 1.71 | 0.72 |
| 2:QB:96:ARG:NH1 | 2:QB:97:TRP:O | 2.22 | 0.72 |
| 44:YZ:52:SER:O | 44:YZ:54:HIS:N | 2.22 | 0.72 |
| 24:RA:2580:U:H4' | 27:RE:130:GLY:HA3 | 1.71 | 0.72 |
| 29:RG:82:LEU:HD21 | 29:RG:88:ILE:HD13 | 1.71 | 0.72 |
| 6:XF:11:ASN:HB3 | 6:XF:14:LEU:HD13 | 1.70 | 0.72 |
| 6:XF:87:ARG:NH1 | 18:XR:75:ILE:O | 2.22 | 0.72 |
| 24:YA:28:A:N6 | 24:YA:512:G:O2' | 2.22 | 0.72 |
| 2:XB:27:LYS:HG3 | 2:XB:194:PRO:HD2 | 1.70 | 0.72 |
| 17:XQ:66:SER:O | 17:XQ:70:ARG:NH1 | 2.23 | 0.72 |
| 24:YA:2577:A:H5'' | 24:YA:2578:G:H5' | 1.72 | 0.72 |
| 24:YA:270(Q):C:OP1 | 31:YI:45:LYS:NZ | 2.23 | 0.72 |
| 25:RB:48:A:OP2 | 37:RS:30:ARG:NH2 | 2.23 | 0.72 |
| 29:RG:41:GLN:HB3 | 29:RG:90:LEU:HB2 | 1.71 | 0.72 |
| 1:XA:1347:G:N2 | 1:XA:1374:A:OP2 | 2.22 | 0.72 |
| 26:YD:182:LEU:H | 26:YD:272:ALA:HB3 | 1.54 | 0.72 |
| 24:RA:2680:C:H5' | 27:RE:189:PRO:HA | 1.72 | 0.72 |
| 1:XA:438:G:O2' | 1:XA:496:A:N6 | 2.22 | 0.72 |
| 24:YA:1449:A:C4 | 24:YA:1529:A:H2 | 2.08 | 0.72 |
| 19:QS:67:VAL:HB | 49:R4:58:ARG:HB3 | 1.71 | 0.71 |
| 24:RA:2517:C:N3 | 24:RA:2542:A:N6 | 2.37 | 0.71 |
| 24:RA:2296:U:OP2 | 37:RS:9:ARG:NH1 | 2.23 | 0.71 |
| 39:RU:50:ARG:HH22 | 40:RV:72:VAL:HG22 | 1.55 | 0.71 |
| 1:XA:1356:G:H2' | 1:XA:1357:A:C8 | 2.25 | 0.71 |
| 1:QA:790:A:OP1 | 22:QV:39:A:O2' | 2.08 | 0.71 |
| 24:RA:265:A:N6 | 24:RA:427:U:O2' | 2.23 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:XA:1095:U:OP1 | 1:XA:1108:G:N2 | 2.22 | 0.71 |
| 1:XA:880:C:OP1 | 12:XL:12:ARG:NH1 | 2.19 | 0.71 |
| 4:QD:98:GLU:HG2 | 4:QD:189:PRO:HG3 | 1.72 | 0.71 |
| 3:QC:134:ILE:HG13 | 3:QC:151:VAL:HG13 | 1.72 | 0.71 |
| 52:R7:24:THR:HG23 | 52:R7:27:GLY:H | 1.55 | 0.71 |
| 1:XA:17:U:H2' | 1:XA:18:C:C6 | 2.25 | 0.71 |
| 1:XA:73:G:H1 | 1:XA:97:U:H3 | 1.36 | 0.71 |
| 1:QA:974:A:OP2 | 14:QN:41:ARG:NH2 | 2.23 | 0.71 |
| 24:RA:2612:C:H5' | 50:R5:2:ALA:HB2 | 1.72 | 0.71 |
| 46:Y1:87:PRO:HA | 46:Y1:90:ILE:HG22 | 1.72 | 0.71 |
| 24:YA:662:G:OP1 | 34:YP:15:ARG:NH1 | 2.24 | 0.71 |
| 3:XC:14:ILE:HG12 | 3:XC:15:THR:HG23 | 1.73 | 0.71 |
| 24:YA:571:A:H5' | 24:YA:2030:A:H62 | 1.56 | 0.71 |
| 24:YA:2306:C:H3' | 24:YA:2307:G:H5'' | 1.73 | 0.71 |
| 3:QC:76:VAL:HG21 | 3:QC:103:VAL:HG21 | 1.73 | 0.71 |
| 14:QN:46:GLU:HG2 | 14:QN:50:LYS:HE2 | 1.73 | 0.71 |
| 34:RP:62:LEU:HD12 | 53:R8:30:ARG:HH21 | 1.55 | 0.70 |
| 10:XJ:34:VAL:HG22 | 10:XJ:74:ILE:HG22 | 1.71 | 0.70 |
| 1:XA:191(G):G:O2' | 20:XT:101:GLY:O | 2.09 | 0.70 |
| 43:YY:14:LEU:HD22 | 43:YY:82:PRO:HG3 | 1.72 | 0.70 |
| 9:QI:7:THR:HG23 | 9:QI:83:ARG:HH11 | 1.55 | 0.70 |
| 29:RG:112:PRO:HG3 | 49:R4:43:TYR:HE2 | 1.56 | 0.70 |
| 3:QC:9:GLY:HA2 | 3:QC:12:LEU:HD13 | 1.73 | 0.70 |
| 7:QG:16:LEU:HD22 | 9:QI:42:ARG:HA | 1.73 | 0.70 |
| 1:QA:1119:C:OP2 | 9:QI:9:ARG:NH2 | 2.24 | 0.70 |
| 1:XA:714:G:H2' | 1:XA:715:A:C8 | 2.27 | 0.70 |
| 36:RR:20:LEU:HD21 | 36:RR:40:LYS:HE3 | 1.73 | 0.70 |
| 1:QA:673:G:H2' | 1:QA:674:G:C8 | 2.27 | 0.70 |
| 24:RA:1062:G:H2' | 24:RA:1063:G:H8 | 1.57 | 0.70 |
| 47:Y2:22:GLU:OE2 | 47:Y2:68:ARG:NH2 | 2.24 | 0.70 |
| 24:YA:270(N):G:N3 | 31:YI:50:ARG:NH2 | 2.38 | 0.70 |
| 28:YF:125:LEU:HA | 28:YF:194:MET:O | 1.91 | 0.70 |
| 13:QM:94:ARG:HB3 | 13:QM:96:LEU:HD23 | 1.73 | 0.70 |
| 24:RA:2438:U:O3' | 24:RA:2439:A:H3' | 1.92 | 0.70 |
| 26:RD:136:ILE:HG22 | 26:RD:140:THR:HG21 | 1.74 | 0.70 |
| 32:RN:3:THR:HG21 | 39:RU:61:TRP:HE1 | 1.57 | 0.70 |
| 41:RW:110:LYS:HG3 | 41:RW:111:HIS:H | 1.57 | 0.70 |
| 49:Y4:56:VAL:HG12 | 49:Y4:57:GLU:H | 1.56 | 0.70 |
| 1:XA:1062:U:H2' | 1:XA:1063:C:C6 | 2.27 | 0.70 |
| 1:QA:407:G:O4' | 4:QD:119:GLN:NE2 | 2.25 | 0.70 |
| 30:RH:153:LYS:HA | 30:RH:155:SER:HB3 | 1.74 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 22:XV:15:G:H1 | 22:XV:49:C:H5 | 1.39 | 0.69 |
| 44:YZ:52:SER:O | 44:YZ:54:HIS:ND1 | 2.25 | 0.69 |
| 24:YA:2655:G:N2 | 24:YA:2665:A:OP2 | 2.25 | 0.69 |
| 24:YA:997:G:OP1 | 39:YU:93:LYS:HD3 | 1.92 | 0.69 |
| 11:QK:58:PRO:HB2 | 11:QK:93:GLN:HG3 | 1.73 | 0.69 |
| 16:XP:20:VAL:HG23 | 16:XP:35:LYS:HA | 1.74 | 0.69 |
| 1:QA:947:G:O3' | 13:QM:109:THR:OG1 | 2.10 | 0.69 |
| 1:XA:243:A:H4' | 1:XA:244:U:H3' | 1.75 | 0.69 |
| 27:RE:36:ARG:HH22 | 27:RE:88:GLY:HA2 | 1.58 | 0.69 |
| 1:XA:673:G:H2' | 1:XA:674:G:C8 | 2.27 | 0.69 |
| 1:QA:1004:A:O2' | 1:QA:1036:G:N2 | 2.25 | 0.69 |
| 24:RA:2331:G:H4' | 45:R0:43:THR:H | 1.55 | 0.69 |
| 53:R8:29:LYS:O | 53:R8:31:HIS:N | 2.25 | 0.69 |
| 24:YA:933:A:OP1 | 48:Y3:24:LYS:NZ | 2.26 | 0.69 |
| 29:YG:18:GLU:OE2 | 29:YG:21:ARG:NH2 | 2.24 | 0.69 |
| 31:YI:131:LYS:NZ | 31:YI:133:HIS:O | 2.23 | 0.69 |
| 44:YZ:4:ARG:NH1 | 44:YZ:60:GLU:OE2 | 2.26 | 0.69 |
| 24:RA:1818:U:OP2 | 26:RD:157:ARG:NH1 | 2.26 | 0.69 |
| 24:YA:1028:A:H2' | 24:YA:1029:A:C8 | 2.27 | 0.69 |
| 1:QA:409:G:H5' | 4:QD:25:ARG:HG3 | 1.74 | 0.69 |
| 10:QJ:45:ARG:HB3 | 10:QJ:65:LEU:HB3 | 1.75 | 0.69 |
| 24:RA:442:G:H1' | 28:RF:48:THR:HG21 | 1.73 | 0.69 |
| 24:RA:581:C:H2' | 24:RA:582:G:H8 | 1.57 | 0.69 |
| 27:RE:176:ILE:HD11 | 27:RE:181:LEU:HD12 | 1.73 | 0.69 |
| 24:RA:2013:A:O2' | 41:RW:94:ASP:OD2 | 2.10 | 0.69 |
| 3:XC:150:LYS:HD2 | 3:XC:167:TRP:HE1 | 1.58 | 0.69 |
| 28:YF:198:ALA:HA | 28:YF:201:VAL:HG12 | 1.75 | 0.69 |
| 35:YQ:20:ALA:HB1 | 35:YQ:99:PRO:HD2 | 1.74 | 0.69 |
| 4:XD:18:LYS:NZ | 56:XD:301:SF4:S3 | 2.65 | 0.69 |
| 24:RA:1142(A):A:H4' | 32:RN:25:ARG:HH22 | 1.56 | 0.69 |
| 3:XC:19:GLU:HG2 | 3:XC:40:ARG:HH21 | 1.57 | 0.69 |
| 35:RQ:34:LEU:HB2 | 35:RQ:118:LEU:HD12 | 1.75 | 0.68 |
| 24:YA:598:G:H5' | 34:YP:11:GLY:HA3 | 1.75 | 0.68 |
| 24:RA:49:A:H61 | 24:RA:177:G:H2' | 1.59 | 0.68 |
| 24:RA:2262:U:OP1 | 45:R0:19:LYS:NZ | 2.26 | 0.68 |
| 35:RQ:138:ASP:O | 35:RQ:141:GLN:NE2 | 2.25 | 0.68 |
| 1:XA:403:C:OP2 | 4:XD:74:GLN:NE2 | 2.26 | 0.68 |
| 24:YA:288:C:H2' | 24:YA:289:A:H8 | 1.58 | 0.68 |
| 1:QA:266:G:H5' | 1:QA:268:C:H41 | 1.58 | 0.68 |
| 1:QA:501:C:OP1 | 12:QL:117:ARG:NH2 | 2.26 | 0.68 |
| 13:XM:13:LYS:HA | 13:XM:44:ARG:HD2 | 1.75 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:882:G:H22 | 24:YA:894:C:H42 | 1.41 | 0.68 |
| 13:QM:107:ALA:HB3 | 13:QM:111:LYS:HE2 | 1.74 | 0.68 |
| 17:QQ:92:ARG:HD3 | 17:QQ:95:TYR:HE2 | 1.57 | 0.68 |
| 1:XA:1422:G:H5'' | 33:YO:48:PRO:HB3 | 1.76 | 0.68 |
| 6:QF:24:GLU:OE1 | 6:QF:28:ARG:NH1 | 2.25 | 0.68 |
| 17:QQ:6:LEU:HD22 | 17:QQ:42:TYR:HE2 | 1.57 | 0.68 |
| 24:RA:1310:G:OP2 | 52:R7:9:ARG:NE | 2.20 | 0.68 |
| 8:QH:104:ARG:HB3 | 8:QH:108:GLY:H | 1.59 | 0.68 |
| 2:XB:68:ILE:HG22 | 2:XB:161:ALA:HB3 | 1.76 | 0.68 |
| 24:YA:1789:A:OP2 | 26:YD:222:ARG:NH1 | 2.25 | 0.68 |
| 24:YA:1899:G:H21 | 24:YA:1902:C:N4 | 1.91 | 0.68 |
| 29:RG:56:ALA:HB2 | 29:RG:153:ARG:HH21 | 1.59 | 0.68 |
| 29:RG:47:LYS:HE3 | 29:RG:81:LYS:HG2 | 1.74 | 0.68 |
| 38:RT:20:PRO:HD2 | 38:RT:86:ILE:HG23 | 1.76 | 0.68 |
| 1:XA:946:A:H2' | 1:XA:947:G:C8 | 2.28 | 0.68 |
| 8:XH:4:ASP:OD2 | 8:XH:85:ARG:NH1 | 2.27 | 0.68 |
| 24:YA:2313:C:O4' | 29:YG:40:ASN:ND2 | 2.27 | 0.68 |
| 18:QR:32:ARG:HD3 | 18:QR:65:ILE:HG12 | 1.75 | 0.67 |
| 33:RO:87:ILE:HD12 | 33:RO:91:LEU:HA | 1.76 | 0.67 |
| 1:XA:130:A:OP2 | 17:XQ:63:ARG:NH1 | 2.26 | 0.67 |
| 2:XB:163:PHE:HA | 2:XB:185:ILE:O | 1.93 | 0.67 |
| 24:YA:1728:G:N1 | 24:YA:1730:U:OP2 | 2.27 | 0.67 |
| 24:YA:2293:C:H5'' | 37:YS:89:ARG:HH22 | 1.59 | 0.67 |
| 24:YA:330:A:HO2' | 24:YA:331:A:H8 | 1.40 | 0.67 |
| 1:QA:218:C:H5' | 1:QA:466:C:H42 | 1.60 | 0.67 |
| 9:QI:94:ALA:HA | 9:QI:97:LYS:HE3 | 1.76 | 0.67 |
| 24:RA:1066:U:HO2' | 24:RA:1068:G:H8 | 1.40 | 0.67 |
| 24:RA:664:C:OP1 | 34:RP:18:ARG:NH2 | 2.28 | 0.67 |
| 28:RF:157:VAL:HB | 28:RF:194:MET:HG2 | 1.76 | 0.67 |
| 44:RZ:69:THR:HG22 | 44:RZ:90:VAL:HG12 | 1.77 | 0.67 |
| 27:YE:25:VAL:HG22 | 27:YE:181:LEU:HD12 | 1.76 | 0.67 |
| 34:YP:97:PRO:O | 34:YP:98:GLU:HG3 | 1.95 | 0.67 |
| 42:RX:60:ARG:HH12 | 52:R7:47:ARG:HH22 | 1.38 | 0.67 |
| 13:XM:23:TYR:HB3 | 13:XM:67:GLU:HA | 1.77 | 0.67 |
| 13:XM:90:LEU:HD23 | 13:XM:93:ARG:HD3 | 1.76 | 0.67 |
| 24:YA:2246:G:H2' | 24:YA:2247:A:H8 | 1.57 | 0.67 |
| 3:QC:182:ILE:HA | 3:QC:202:ILE:O | 1.95 | 0.67 |
| 10:QJ:34:VAL:HG23 | 10:QJ:74:ILE:HA | 1.75 | 0.67 |
| 18:QR:23:LYS:NZ | 18:QR:62:GLU:OE1 | 2.28 | 0.67 |
| 24:RA:275:G:H3' | 24:RA:276:A:H5'' | 1.76 | 0.67 |
| 24:YA:1061:U:H5' | 24:YA:1070:A:H1' | 1.77 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:QB:157:ARG:HG3 | 2:QB:158:LEU:H | 1.60 | 0.67 |
| 24:YA:1980:G:O2' | 24:YA:1982:C:OP2 | 2.11 | 0.67 |
| 24:RA:997:G:OP1 | 39:RU:93:LYS:HD3 | 1.95 | 0.67 |
| 1:QA:1335:C:OP1 | 1:QA:1337:G:N2 | 2.21 | 0.67 |
| 49:R4:58:ARG:H | 49:R4:58:ARG:HD3 | 1.59 | 0.67 |
| 24:RA:2308:G:H22 | 24:RA:2311:A:H2 | 1.43 | 0.67 |
| 24:YA:881:G:O6 | 24:YA:895:U:O2 | 2.12 | 0.67 |
| 3:QC:191:THR:HG22 | 3:QC:192:THR:H | 1.60 | 0.67 |
| 24:RA:141:A:H8 | 24:RA:1595:G:H21 | 1.42 | 0.67 |
| 48:Y3:40:THR:HG22 | 48:Y3:42:ALA:H | 1.60 | 0.67 |
| 1:QA:1124:G:H1' | 10:QJ:38:ILE:HD13 | 1.76 | 0.67 |
| 29:RG:65:GLY:HA3 | 49:R4:9:LEU:HD21 | 1.77 | 0.67 |
| 24:YA:774:A:H2 | 24:YA:787:U:HO2' | 1.41 | 0.67 |
| 30:YH:28:GLY:HA3 | 30:YH:79:VAL:HB | 1.77 | 0.67 |
| 1:QA:1172:C:H2' | 1:QA:1173:G:H8 | 1.60 | 0.66 |
| 1:QA:426:G:OP2 | 4:QD:38:TYR:OH | 2.08 | 0.66 |
| 3:QC:152:ILE:HB | 3:QC:199:LYS:HB2 | 1.77 | 0.66 |
| 24:RA:1359:A:N6 | 24:RA:1372:U:H3 | 1.93 | 0.66 |
| 24:RA:1525:G:H2' | 24:RA:1526:G:H8 | 1.59 | 0.66 |
| 5:XE:145:LYS:HA | 5:XE:148:VAL:HG22 | 1.77 | 0.66 |
| 24:YA:2246:G:H2' | 24:YA:2247:A:C8 | 2.29 | 0.66 |
| 24:YA:607:U:H3 | 24:YA:621:A:H2 | 1.42 | 0.66 |
| 26:YD:148:GLU:OE1 | 26:YD:151:LYS:NZ | 2.24 | 0.66 |
| 26:YD:28:GLU:HG2 | 26:YD:29:PRO:HD3 | 1.78 | 0.66 |
| 24:RA:392:C:H5'' | 24:RA:409:C:H5'' | 1.76 | 0.66 |
| 28:RF:133:ASN:H | 28:RF:162:LEU:HD13 | 1.60 | 0.66 |
| 36:RR:57:ARG:HE | 36:RR:62:ALA:HB2 | 1.60 | 0.66 |
| 7:XG:108:ALA:HB2 | 7:XG:123:GLU:HG2 | 1.77 | 0.66 |
| 24:YA:1210:A:H5'' | 24:YA:1211:U:H3' | 1.76 | 0.66 |
| 24:YA:1405:U:H2' | 24:YA:1406:U:H6 | 1.60 | 0.66 |
| 24:YA:1499:C:H2' | 24:YA:1500:G:H8 | 1.60 | 0.66 |
| 27:YE:50:GLY:HA2 | 27:YE:77:ILE:HA | 1.76 | 0.66 |
| 1:QA:1141:C:H2' | 1:QA:1142:G:H8 | 1.60 | 0.66 |
| 1:QA:986:A:N3 | 19:QS:52:TYR:OH | 2.27 | 0.66 |
| 24:RA:1817:G:OP1 | 26:RD:88:ARG:NH2 | 2.29 | 0.66 |
| 1:XA:718:G:O6 | 18:XR:74:ARG:NH1 | 2.28 | 0.66 |
| 1:QA:359:U:OP1 | 31:YI:87:LYS:NZ | 2.21 | 0.66 |
| 11:QK:86:GLY:O | 11:QK:91:ARG:NH1 | 2.29 | 0.66 |
| 35:RQ:30:GLY:HA2 | 35:RQ:107:ALA:HB2 | 1.78 | 0.66 |
| 46:Y1:3:LYS:HA | 46:Y1:61:ARG:HH12 | 1.61 | 0.66 |
| 6:QF:9:VAL:HB | 6:QF:87:ARG:HB2 | 1.78 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 24:RA:1062:G:H2' | 24:RA:1063:G:C8 | 2.31 | 0.66 |
| 24:RA:1292:U:H2' | 24:RA:1293:C:C6 | 2.31 | 0.66 |
| 24:RA:848:G:H2' | 24:RA:849:A:C8 | 2.31 | 0.66 |
| 28:RF:116:ASP:OD2 | 34:RP:1:MET:N | 2.29 | 0.66 |
| 33:RO:14:THR:HG21 | 33:RO:86:ILE:HD12 | 1.78 | 0.66 |
| 39:RU:90:VAL:HG22 | 40:RV:39:LEU:HD23 | 1.77 | 0.66 |
| 10:XJ:78:ASN:O | 10:XJ:81:THR:OG1 | 2.10 | 0.66 |
| 10:XJ:26:ALA:O | 10:XJ:84:GLN:NE2 | 2.28 | 0.66 |
| 24:YA:2882:A:OP1 | 36:YR:96:ARG:NH1 | 2.27 | 0.66 |
| 25:YB:114:G:O2' | 37:YS:50:SER:OG | 2.14 | 0.66 |
| 1:QA:1065:U:O2' | 1:QA:1066:C:OP2 | 2.12 | 0.66 |
| 1:XA:1027:C:H1' | 1:XA:1028:C:H5 | 1.60 | 0.66 |
| 1:XA:452:A:H4' | 16:XP:72:ARG:HH12 | 1.61 | 0.66 |
| 24:YA:584:C:OP2 | 39:YU:10:ARG:NH2 | 2.29 | 0.66 |
| 1:QA:715:A:H2' | 1:QA:716:A:C8 | 2.30 | 0.66 |
| 24:RA:1899:G:H21 | 24:RA:1902:C:H41 | 1.41 | 0.66 |
| 44:RZ:3:TYR:HB2 | 44:RZ:57:ILE:HG22 | 1.76 | 0.66 |
| 21:XU:6:ARG:HH11 | 21:XU:15:ARG:HE | 1.44 | 0.66 |
| 24:YA:2680:C:H5' | 27:YE:189:PRO:HA | 1.76 | 0.66 |
| 1:QA:262:A:H5'' | 20:QT:76:ALA:HB2 | 1.76 | 0.66 |
| 27:RE:147:PRO:HB2 | 27:RE:149:ARG:HG2 | 1.78 | 0.66 |
| 1:XA:186(A):C:O3' | 20:XT:89:ARG:NH2 | 2.29 | 0.66 |
| 1:QA:1327:C:H5'' | 21:QU:20:LYS:HD2 | 1.78 | 0.66 |
| 1:XA:56:U:H2' | 1:XA:57:G:H8 | 1.58 | 0.66 |
| 46:Y1:83:GLU:HG3 | 46:Y1:85:LEU:H | 1.59 | 0.66 |
| 1:QA:1238:A:OP1 | 1:QA:1335:C:O2' | 2.12 | 0.65 |
| 24:RA:768:G:O2' | 24:RA:1379:A:N6 | 2.29 | 0.65 |
| 1:XA:405:U:O4 | 4:XD:2:GLY:N | 2.29 | 0.65 |
| 35:YQ:81:VAL:O | 35:YQ:82:ARG:NE | 2.24 | 0.65 |
| 6:QF:82:ARG:HB2 | 6:QF:85:VAL:HG12 | 1.78 | 0.65 |
| 13:QM:13:LYS:HA | 13:QM:44:ARG:HD2 | 1.78 | 0.65 |
| 1:XA:129(A):G:N2 | 1:XA:188:U:O2' | 2.29 | 0.65 |
| 24:YA:265:A:N6 | 24:YA:427:U:O2' | 2.30 | 0.65 |
| 31:YI:57:ARG:HH11 | 31:YI:61:ARG:HH11 | 1.43 | 0.65 |
| 9:QI:51:ARG:HE | 9:QI:56:LEU:HD22 | 1.61 | 0.65 |
| 10:QJ:48:THR:HG22 | 10:QJ:62:HIS:HB3 | 1.78 | 0.65 |
| 9:QI:128:ARG:NH1 | 22:QV:36:A:OP2 | 2.29 | 0.65 |
| 29:RG:114:ILE:HB | 29:RG:117:PHE:HB2 | 1.78 | 0.65 |
| 34:RP:59:LEU:HA | 34:RP:61:ARG:HD3 | 1.78 | 0.65 |
| 51:Y6:25:LYS:NZ | 51:Y6:34:LEU:HD11 | 2.11 | 0.65 |
| 1:QA:129(A):G:N2 | 1:QA:188:U:O2' | 2.29 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:QB:111:ARG:HD3 | 2:QB:111:ARG:N | 2.11 | 0.65 |
| 51:R6:37:ARG:HG2 | 51:R6:48:VAL:HG22 | 1.77 | 0.65 |
| 24:RA:1464:C:HO2' | 24:RA:1528:A:H8 | 1.42 | 0.65 |
| 20:XT:100:ILE:HG13 | 20:XT:102:GLY:H | 1.61 | 0.65 |
| 24:YA:140:A:H8 | 24:YA:1408:C:HO2' | 1.44 | 0.65 |
| 1:QA:429:U:H2' | 4:QD:25:ARG:HH12 | 1.62 | 0.65 |
| 44:RZ:52:SER:O | 44:RZ:54:HIS:N | 2.28 | 0.65 |
| 24:YA:2086:U:OP2 | 26:YD:263:ARG:NH1 | 2.28 | 0.65 |
| 1:QA:1289:A:OP1 | 21:QU:9:ARG:NH2 | 2.29 | 0.65 |
| 13:QM:49:THR:HG22 | 13:QM:51:ALA:H | 1.60 | 0.65 |
| 24:RA:144:C:H2' | 24:RA:145:G:H8 | 1.61 | 0.65 |
| 24:RA:2133:G:N3 | 24:RA:2158:A:N6 | 2.44 | 0.65 |
| 24:RA:2287:A:N6 | 24:RA:2344:U:H3 | 1.95 | 0.65 |
| 24:YA:1405:U:H2' | 24:YA:1406:U:C6 | 2.32 | 0.65 |
| 24:YA:1667:G:O2' | 24:YA:1991:U:O4 | 2.14 | 0.65 |
| 29:YG:114:ILE:HG23 | 29:YG:140:ILE:HD12 | 1.77 | 0.65 |
| 1:QA:129(A):G:N2 | 1:QA:188:U:HO2' | 1.95 | 0.65 |
| 1:QA:407:G:H5'' | 4:QD:115:ARG:HG3 | 1.77 | 0.65 |
| 1:QA:860:A:N3 | 8:QH:18:ARG:NH1 | 2.45 | 0.65 |
| 24:RA:884:C:N3 | 24:RA:892:G:N1 | 2.45 | 0.65 |
| 24:RA:569:U:O2' | 24:RA:983:A:N1 | 2.30 | 0.65 |
| 24:YA:1353:A:H2' | 24:YA:1354:A:C8 | 2.32 | 0.65 |
| 24:YA:1728:G:H8 | 24:YA:1732:A:H62 | 1.45 | 0.65 |
| 36:YR:104:ARG:HG3 | 36:YR:111:LEU:HD11 | 1.79 | 0.65 |
| 3:QC:22:TRP:CH2 | 3:QC:32:LEU:HD13 | 2.32 | 0.65 |
| 1:QA:939:G:OP1 | 7:QG:102:ARG:NH2 | 2.30 | 0.65 |
| 19:QS:42:PRO:HG3 | 19:QS:67:VAL:HG13 | 1.79 | 0.65 |
| 24:RA:598:G:H5' | 34:RP:11:GLY:HA3 | 1.79 | 0.65 |
| 24:RA:605:C:O2 | 24:RA:657:U:O2' | 2.14 | 0.65 |
| 28:RF:143:ALA:HB1 | 28:RF:148:LEU:HB2 | 1.79 | 0.65 |
| 34:RP:97:PRO:O | 34:RP:98:GLU:HG3 | 1.96 | 0.65 |
| 38:RT:65:LYS:NZ | 38:RT:67:SER:OG | 2.25 | 0.65 |
| 24:YA:1203:G:H3' | 24:YA:1204:A:H5'' | 1.78 | 0.65 |
| 26:YD:148:GLU:HB2 | 26:YD:151:LYS:HD2 | 1.79 | 0.65 |
| 28:YF:11:VAL:HB | 28:YF:18:ARG:HG3 | 1.78 | 0.65 |
| 35:YQ:60:ARG:HH11 | 44:YZ:177:PRO:HG2 | 1.60 | 0.65 |
| 25:YB:104:A:OP1 | 44:YZ:72:ARG:NH1 | 2.29 | 0.65 |
| 1:QA:1172:C:H2' | 1:QA:1173:G:C8 | 2.31 | 0.65 |
| 27:RE:26:ILE:HG23 | 27:RE:182:LEU:HB3 | 1.79 | 0.65 |
| 3:XC:47:LEU:HG | 3:XC:52:LEU:HB3 | 1.77 | 0.65 |
| 24:YA:793:A:OP2 | 24:YA:2071:A:O2' | 2.14 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:1826:G:H4' | 26:YD:242:ARG:HE | 1.62 | 0.65 |
| 43:YY:86:ARG:HB2 | 43:YY:98:VAL:HG23 | 1.78 | 0.65 |
| 1:QA:1356:G:H2' | 1:QA:1357:A:H8 | 1.60 | 0.65 |
| 24:RA:1935:G:H1' | 24:RA:1964:G:N2 | 2.12 | 0.65 |
| 44:RZ:6:LYS:HE3 | 44:RZ:40:ASP:HB2 | 1.80 | 0.65 |
| 25:RB:104:A:OP1 | 44:RZ:72:ARG:NH2 | 2.29 | 0.65 |
| 24:YA:278:A:H2' | 24:YA:279:C:C6 | 2.32 | 0.65 |
| 29:YG:76:SER:HB2 | 29:YG:84:LYS:HD2 | 1.79 | 0.65 |
| 30:YH:43:VAL:HG22 | 30:YH:52:VAL:HG22 | 1.79 | 0.65 |
| 19:XS:32:LYS:HA | 19:XS:50:ALA:HB3 | 1.78 | 0.64 |
| 33:YO:87:ILE:HD12 | 33:YO:91:LEU:HA | 1.77 | 0.64 |
| 36:YR:35:THR:HG22 | 36:YR:113:LEU:HD23 | 1.80 | 0.64 |
| 1:QA:684:A:O2' | 11:QK:39:PRO:O | 2.13 | 0.64 |
| 3:QC:20:SER:HG | 3:QC:22:TRP:HE1 | 1.42 | 0.64 |
| 24:RA:2126:A:H4' | 24:RA:2127:G:O5' | 1.96 | 0.64 |
| 24:RA:581:C:H2' | 24:RA:582:G:C8 | 2.32 | 0.64 |
| 1:XA:946:A:H2' | 1:XA:947:G:H8 | 1.62 | 0.64 |
| 25:RB:42:C:H5'' | 29:RG:69:ALA:HB2 | 1.78 | 0.64 |
| 32:RN:96:GLU:HB2 | 32:RN:122:VAL:HG12 | 1.78 | 0.64 |
| 1:XA:1435:G:H2' | 1:XA:1436:U:C6 | 2.33 | 0.64 |
| 1:XA:422:C:O2' | 1:XA:423:G:N2 | 2.31 | 0.64 |
| 6:XF:3:ARG:HD2 | 6:XF:93:SER:HB2 | 1.79 | 0.64 |
| 24:YA:309:G:N3 | 24:YA:329:G:O2' | 2.30 | 0.64 |
| 1:QA:269:C:H2' | 1:QA:270:A:H8 | 1.63 | 0.64 |
| 31:RI:120:ILE:HG13 | 31:RI:121:LYS:H | 1.62 | 0.64 |
| 44:RZ:54:HIS:ND1 | 44:RZ:101:PRO:HG3 | 2.12 | 0.64 |
| 25:YB:60:C:H2' | 25:YB:61:G:H8 | 1.62 | 0.64 |
| 30:YH:45:VAL:HA | 30:YH:50:VAL:HG12 | 1.80 | 0.64 |
| 33:YO:34:THR:HG22 | 33:YO:35:VAL:H | 1.61 | 0.64 |
| 34:YP:62:LEU:H | 34:YP:62:LEU:HD23 | 1.61 | 0.64 |
| 1:QA:1376:U:H2' | 1:QA:1377:A:C8 | 2.32 | 0.64 |
| 35:RQ:42:ILE:HD12 | 35:RQ:97:VAL:HG11 | 1.78 | 0.64 |
| 1:XA:542:G:OP1 | 4:XD:10:ARG:NH1 | 2.25 | 0.64 |
| 24:YA:1348:G:H2' | 24:YA:1349:A:H5'' | 1.79 | 0.64 |
| 37:YS:24:LEU:HB2 | 37:YS:85:VAL:HG12 | 1.79 | 0.64 |
| 44:YZ:24:LEU:HD23 | 44:YZ:41:LEU:HD23 | 1.80 | 0.64 |
| 1:QA:438:G:H4' | 4:QD:123:HIS:ND1 | 2.13 | 0.64 |
| 15:QO:26:GLU:HA | 15:QO:29:VAL:HG22 | 1.79 | 0.64 |
| 18:QR:26:LEU:HD22 | 18:QR:42:ARG:HH12 | 1.62 | 0.64 |
| 24:RA:1026:U:H4' | 24:RA:1027:A:OP1 | 1.96 | 0.64 |
| 24:RA:2285:C:H5' | 24:RA:2288:A:C6 | 2.33 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:XA:674:G:H2' | 1:XA:675:A:H8 | 1.62 | 0.64 |
| 24:YA:1359:A:H62 | 24:YA:1372:U:H3 | 1.46 | 0.64 |
| 41:YW:18:ARG:HA | 41:YW:21:VAL:HG22 | 1.79 | 0.64 |
| 24:RA:1045:A:O4' | 24:RA:1111:A:N6 | 2.30 | 0.64 |
| 1:XA:1230:C:H2' | 1:XA:1231:G:H8 | 1.63 | 0.64 |
| 1:XA:1450:U:O2' | 1:XA:1451:A:N7 | 2.30 | 0.64 |
| 4:XD:15:GLU:OE2 | 4:XD:59:ARG:NH2 | 2.31 | 0.64 |
| 20:XT:49:ALA:HB3 | 20:XT:99:LEU:HD13 | 1.78 | 0.64 |
| 49:Y4:16:CYS:SG | 49:Y4:17:GLY:N | 2.70 | 0.64 |
| 24:YA:589:C:H2' | 24:YA:590:A:H8 | 1.63 | 0.64 |
| 31:YI:88:ILE:O | 31:YI:121:LYS:NZ | 2.30 | 0.64 |
| 4:QD:191:ARG:NH1 | 4:QD:200:GLU:OE2 | 2.30 | 0.64 |
| 9:QI:42:ARG:NH1 | 9:QI:71:SER:OG | 2.30 | 0.64 |
| 24:RA:2233:U:H2' | 24:RA:2234:G:C8 | 2.32 | 0.64 |
| 1:XA:1029:G:HO2' | 1:XA:1032(A):G:H1 | 1.46 | 0.64 |
| 24:YA:1341:U:OP2 | 24:YA:1394:U:O2' | 2.09 | 0.64 |
| 24:YA:639:U:H2' | 24:YA:640:C:C6 | 2.32 | 0.64 |
| 36:YR:10:LEU:HD13 | 36:YR:40:LYS:HG2 | 1.79 | 0.64 |
| 25:RB:24:G:O2' | 25:RB:26:A:N7 | 2.31 | 0.64 |
| 24:YA:1479:G:N7 | 24:YA:1510:A:N6 | 2.46 | 0.64 |
| 24:YA:1796:U:H2' | 24:YA:1797:C:H6 | 1.63 | 0.64 |
| 24:YA:49:A:N7 | 24:YA:120:U:H5 | 1.95 | 0.64 |
| 1:QA:407:G:O2' | 4:QD:116:GLN:HG2 | 1.98 | 0.64 |
| 24:RA:1525:G:H2' | 24:RA:1526:G:C8 | 2.32 | 0.64 |
| 24:YA:1796:U:H2' | 24:YA:1797:C:C6 | 2.31 | 0.64 |
| 43:YY:39:VAL:HG23 | 43:YY:42:VAL:HB | 1.79 | 0.64 |
| 12:QL:83:VAL:HG12 | 12:QL:107:ALA:HB2 | 1.79 | 0.63 |
| 26:RD:182:LEU:H | 26:RD:272:ALA:HB3 | 1.63 | 0.63 |
| 24:YA:72:U:O4 | 47:Y2:65:ASN:ND2 | 2.31 | 0.63 |
| 30:YH:46:GLU:HB2 | 30:YH:49:VAL:HG23 | 1.79 | 0.63 |
| 1:QA:1064:G:H1' | 1:QA:1066:C:C6 | 2.33 | 0.63 |
| 1:QA:985:C:H2' | 1:QA:986:A:H8 | 1.63 | 0.63 |
| 8:QH:91:ARG:HH11 | 8:QH:93:VAL:HG22 | 1.62 | 0.63 |
| 24:RA:2355:C:H1' | 45:R0:39:ARG:HH21 | 1.63 | 0.63 |
| 46:R1:58:ILE:HD13 | 46:R1:87:PRO:HD3 | 1.81 | 0.63 |
| 1:XA:17:U:H2' | 1:XA:18:C:H6 | 1.64 | 0.63 |
| 1:XA:765:G:N2 | 1:XA:813:U:OP2 | 2.31 | 0.63 |
| 8:XH:33:GLU:HG2 | 8:XH:59:LEU:HD21 | 1.80 | 0.63 |
| 52:Y7:13:ALA:HB2 | 52:Y7:46:VAL:HG11 | 1.78 | 0.63 |
| 1:QA:1356:G:H2' | 1:QA:1357:A:C8 | 2.33 | 0.63 |
| 1:QA:1510:U:H2' | 1:QA:1511:G:C8 | 2.33 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:247:G:H4' | 24:RA:386:G:C5 | 2.34 | 0.63 |
| 29:RG:36:LYS:HE2 | 29:RG:95:ARG:HH22 | 1.61 | 0.63 |
| 10:XJ:17:ASP:OD1 | 10:XJ:70:ARG:NH1 | 2.31 | 0.63 |
| 14:YN:3:ARG:O | 14:YN:7:ILE:HG12 | 1.98 | 0.63 |
| 32:YN:47:ALA:HB2 | 32:YN:112:LEU:HD11 | 1.80 | 0.63 |
| 24:RA:2327:A:H2' | 24:RA:2328:A:C8 | 2.32 | 0.63 |
| 24:RA:2347:C:OP1 | 51:R6:38:LYS:NZ | 2.26 | 0.63 |
| 24:RA:309:G:N3 | 24:RA:329:G:O2' | 2.31 | 0.63 |
| 2:XB:16:HIS:HD2 | 2:XB:210:SER:HA | 1.61 | 0.63 |
| 26:YD:146:GLU:HB2 | 26:YD:189:CYS:HB3 | 1.80 | 0.63 |
| 24:YA:442:G:H1' | 28:YF:48:THR:HG21 | 1.81 | 0.63 |
| 29:YG:43:LEU:HD12 | 29:YG:90:LEU:HD23 | 1.79 | 0.63 |
| 44:YZ:166:SER:HB2 | 44:YZ:168:GLU:H | 1.61 | 0.63 |
| 27:RE:141:ILE:O | 27:RE:154:LYS:NZ | 2.29 | 0.63 |
| 33:RO:104:ARG:NH2 | 38:RT:43:GLN:OE1 | 2.31 | 0.63 |
| 34:RP:62:LEU:HD23 | 34:RP:62:LEU:H | 1.64 | 0.63 |
| 19:XS:10:PHE:HE2 | 19:XS:16:LEU:HB2 | 1.64 | 0.63 |
| 35:RQ:65:PHE:O | 35:RQ:67:ARG:HG2 | 1.99 | 0.63 |
| 11:QK:22:HIS:HB3 | 11:QK:29:ILE:HG23 | 1.81 | 0.63 |
| 24:RA:307:G:H21 | 24:RA:330:A:H62 | 1.45 | 0.63 |
| 28:RF:152:GLU:OE1 | 28:RF:191:ARG:NE | 2.32 | 0.63 |
| 29:RG:64:THR:HG23 | 29:RG:94:LEU:HD11 | 1.81 | 0.63 |
| 2:XB:55:PHE:HA | 2:XB:58:ILE:HG12 | 1.81 | 0.63 |
| 24:YA:270(B):A:O2' | 24:YA:364:C:O2 | 2.15 | 0.63 |
| 44:YZ:114:GLY:HA3 | 44:YZ:177:PRO:HG3 | 1.79 | 0.63 |
| 3:QC:110:ASN:HD22 | 3:QC:140:ARG:HG2 | 1.64 | 0.63 |
| 8:QH:34:GLU:OE1 | 8:QH:37:ARG:NH2 | 2.31 | 0.63 |
| 1:XA:715:A:H2' | 1:XA:716:A:C8 | 2.34 | 0.63 |
| 24:YA:1802:A:H2' | 24:YA:1803:A:C8 | 2.33 | 0.63 |
| 1:QA:677:U:H3 | 1:QA:713:G:H22 | 1.45 | 0.63 |
| 52:R7:13:ALA:HB2 | 52:R7:46:VAL:HG11 | 1.81 | 0.63 |
| 24:RA:2843:G:H1 | 24:RA:2874:C:H42 | 1.47 | 0.63 |
| 1:QA:1446:A:H1' | 38:RT:125:ARG:HH12 | 1.64 | 0.63 |
| 1:XA:1023:G:H3' | 1:XA:1024:G:H5'' | 1.81 | 0.63 |
| 1:XA:1125:U:OP2 | 1:XA:1145:C:N4 | 2.31 | 0.63 |
| 1:XA:713:G:H2' | 1:XA:714:G:C8 | 2.33 | 0.63 |
| 2:XB:7:VAL:HG22 | 2:XB:217:ARG:HH11 | 1.64 | 0.63 |
| 13:XM:12:ASN:O | 13:XM:13:LYS:HB2 | 1.99 | 0.63 |
| 5:QE:68:GLU:HG2 | 5:QE:70:PRO:HD3 | 1.81 | 0.62 |
| 35:RQ:138:ASP:HB2 | 44:RZ:122:ARG:HH22 | 1.63 | 0.62 |
| 36:RR:58:GLY:HA2 | 36:RR:80:PHE:HE1 | 1.64 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 17:XQ:74:LEU:HD12 | 17:XQ:75:ARG:HB2 | 1.79 | 0.62 |
| 27:YE:34:VAL:HG11 | 27:YE:77:ILE:HD11 | 1.81 | 0.62 |
| 31:YI:14:ASP:O | 31:YI:16:GLY:N | 2.32 | 0.62 |
| 36:YR:56:LYS:O | 36:YR:88:ARG:NH2 | 2.32 | 0.62 |
| 1:QA:56:U:H2' | 1:QA:57:G:H8 | 1.64 | 0.62 |
| 24:RA:864:G:H21 | 24:RA:866:A:H61 | 1.45 | 0.62 |
| 1:XA:642:A:N3 | 8:XH:113:SER:OG | 2.31 | 0.62 |
| 7:XG:99:LEU:HA | 7:XG:102:ARG:HG2 | 1.81 | 0.62 |
| 24:YA:547:A:H2' | 24:YA:548:A:C8 | 2.34 | 0.62 |
| 35:YQ:55:VAL:HG13 | 44:YZ:178:GLU:HB3 | 1.79 | 0.62 |
| 14:QN:9:LYS:HG3 | 14:QN:12:ARG:HE | 1.63 | 0.62 |
| 19:QS:41:VAL:O | 19:QS:43:GLU:N | 2.32 | 0.62 |
| 24:RA:2839:G:H5' | 36:RR:46:GLY:HA2 | 1.79 | 0.62 |
| 2:XB:71:VAL:HB | 2:XB:164:VAL:HG12 | 1.81 | 0.62 |
| 20:XT:74:LYS:H | 20:XT:74:LYS:HD3 | 1.64 | 0.62 |
| 24:YA:414:C:H2' | 24:YA:415:A:C8 | 2.33 | 0.62 |
| 28:YF:63:LYS:NZ | 28:YF:75:HIS:O | 2.31 | 0.62 |
| 1:QA:923:A:O2' | 1:QA:1399:C:OP2 | 2.15 | 0.62 |
| 3:QC:164:ARG:NH1 | 3:QC:166:GLU:OE1 | 2.31 | 0.62 |
| 11:QK:87:THR:HA | 11:QK:91:ARG:HD2 | 1.79 | 0.62 |
| 24:RA:517:C:OP1 | 50:R5:16:ARG:NH2 | 2.27 | 0.62 |
| 24:RA:860:U:H2' | 24:RA:861:A:H8 | 1.64 | 0.62 |
| 38:RT:30:VAL:HG21 | 38:RT:76:PHE:CE2 | 2.33 | 0.62 |
| 54:Y9:16:VAL:HG12 | 54:Y9:25:VAL:HG12 | 1.81 | 0.62 |
| 24:YA:1266:G:O2' | 24:YA:2012:G:O6 | 2.16 | 0.62 |
| 24:YA:2483:C:N3 | 35:YQ:124:LYS:NZ | 2.44 | 0.62 |
| 24:YA:820:A:H4' | 24:YA:836:G:H22 | 1.63 | 0.62 |
| 1:QA:1060:C:H4' | 10:QJ:51:ARG:HB3 | 1.81 | 0.62 |
| 8:QH:11:THR:HG22 | 8:QH:14:ARG:HH12 | 1.63 | 0.62 |
| 24:RA:1796:U:H2' | 24:RA:1797:C:H6 | 1.63 | 0.62 |
| 24:RA:1899:G:O2' | 24:RA:1900:A:H5'' | 1.98 | 0.62 |
| 1:XA:1305:G:HO2' | 1:XA:1306:A:H8 | 1.48 | 0.62 |
| 16:XP:45:THR:HG22 | 16:XP:47:ASP:H | 1.64 | 0.62 |
| 38:YT:3:ARG:HE | 38:YT:6:LEU:HG | 1.65 | 0.62 |
| 9:QI:17:VAL:HG21 | 9:QI:81:ILE:HD13 | 1.80 | 0.62 |
| 11:XK:77:MET:HG3 | 11:XK:103:LEU:HD21 | 1.82 | 0.62 |
| 17:XQ:67:LYS:HG2 | 17:XQ:68:ARG:HG3 | 1.82 | 0.62 |
| 36:YR:3:HIS:O | 36:YR:5:LYS:N | 2.33 | 0.62 |
| 43:YY:15:VAL:HG21 | 43:YY:42:VAL:HG11 | 1.81 | 0.62 |
| 13:QM:3:ARG:HG2 | 13:QM:9:ILE:HD13 | 1.80 | 0.62 |
| 15:QO:21:ASP:OD1 | 15:QO:24:SER:OG | 2.17 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:RT:30:VAL:HG21 | 38:RT:76:PHE:HE2 | 1.63 | 0.62 |
| 1:XA:34:C:H2' | 1:XA:35:G:H8 | 1.64 | 0.62 |
| 10:XJ:28:ARG:HH22 | 10:XJ:34:VAL:H | 1.47 | 0.62 |
| 24:YA:1084:A:N1 | 24:YA:1085:A:N6 | 2.48 | 0.62 |
| 24:RA:1638:C:O3' | 24:RA:2709:G:N2 | 2.33 | 0.62 |
| 24:RA:1689:A:H62 | 24:RA:1698:A:H2 | 1.48 | 0.62 |
| 24:RA:2845:G:H2' | 24:RA:2846:G:H8 | 1.64 | 0.62 |
| 24:RA:690:G:H2' | 24:RA:691:C:C6 | 2.35 | 0.62 |
| 26:RD:168:ARG:HG2 | 26:RD:173:VAL:HG22 | 1.81 | 0.62 |
| 24:YA:2698:U:H2' | 24:YA:2699:C:C6 | 2.33 | 0.62 |
| 1:QA:1252:A:H61 | 1:QA:1285:A:H61 | 1.48 | 0.62 |
| 24:RA:2441:C:OP2 | 24:RA:2586:C:O2' | 2.17 | 0.62 |
| 29:RG:114:ILE:HD11 | 29:RG:135:LEU:HD21 | 1.80 | 0.62 |
| 24:YA:2816:C:O2 | 24:YA:2883:A:O2' | 2.18 | 0.62 |
| 30:YH:12:PRO:HG3 | 30:YH:48:GLY:HA2 | 1.81 | 0.62 |
| 1:QA:272:C:H2' | 1:QA:273:A:H8 | 1.65 | 0.62 |
| 42:RX:12:VAL:HB | 42:RX:27:THR:HG23 | 1.81 | 0.62 |
| 19:XS:55:LYS:HG3 | 19:XS:56:GLN:HG3 | 1.82 | 0.62 |
| 37:YS:83:LYS:HG3 | 37:YS:84:GLN:HG2 | 1.82 | 0.62 |
| 1:QA:191(F):U:H2' | 1:QA:191(G):G:H8 | 1.65 | 0.61 |
| 1:QA:316:G:OP2 | 1:QA:351:G:O2' | 2.19 | 0.61 |
| 1:QA:359:U:H2' | 1:QA:360:A:C8 | 2.35 | 0.61 |
| 2:QB:22:LYS:HA | 2:QB:24:TRP:HD1 | 1.65 | 0.61 |
| 8:QH:120:THR:HG22 | 8:QH:121:ASP:H | 1.64 | 0.61 |
| 20:QT:74:LYS:H | 20:QT:74:LYS:HD3 | 1.64 | 0.61 |
| 20:QT:60:GLU:HG3 | 20:QT:81:LYS:HD3 | 1.81 | 0.61 |
| 24:RA:1796:U:H2' | 24:RA:1797:C:C6 | 2.35 | 0.61 |
| 29:RG:82:LEU:HA | 29:RG:86:MET:HG3 | 1.82 | 0.61 |
| 33:RO:3:GLN:HB2 | 33:RO:4:PRO:HD2 | 1.82 | 0.61 |
| 36:RR:73:VAL:HG13 | 36:RR:74:LYS:HD3 | 1.81 | 0.61 |
| 26:YD:212:SER:HB3 | 26:YD:217:ARG:HB2 | 1.81 | 0.61 |
| 33:YO:24:VAL:HA | 33:YO:39:ILE:HG22 | 1.81 | 0.61 |
| 1:QA:1446:A:O2' | 1:QA:1447:G:O5' | 2.17 | 0.61 |
| 8:QH:14:ARG:NH2 | 8:QH:83:ILE:O | 2.28 | 0.61 |
| 24:RA:1859:A:N6 | 24:RA:1883:G:O2' | 2.34 | 0.61 |
| 35:RQ:63:LYS:HD2 | 44:RZ:175:VAL:HG21 | 1.82 | 0.61 |
| 1:XA:954:G:O6 | 13:XM:104:ARG:NH1 | 2.33 | 0.61 |
| 3:XC:191:THR:HG22 | 3:XC:192:THR:H | 1.65 | 0.61 |
| 1:XA:1178:G:OP2 | 9:XI:93:ARG:NH2 | 2.28 | 0.61 |
| 24:YA:1310:G:OP2 | 52:Y7:9:ARG:NE | 2.32 | 0.61 |
| 1:QA:876:G:H4' | 8:QH:84:ARG:NH1 | 2.16 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:QI:5:TYR:HE1 | 9:QI:16:ARG:HG3 | 1.65 | 0.61 |
| 24:RA:2037:G:H2' | 24:RA:2038:G:C8 | 2.35 | 0.61 |
| 24:RA:2648:C:H2' | 24:RA:2649:U:C6 | 2.36 | 0.61 |
| 1:XA:1112:C:H1' | 3:XC:179:ARG:HE | 1.65 | 0.61 |
| 1:XA:235:C:H2' | 1:XA:236:G:H8 | 1.65 | 0.61 |
| 4:XD:157:LEU:O | 4:XD:161:ASN:ND2 | 2.34 | 0.61 |
| 24:YA:2291:U:H2' | 24:YA:2292:C:C6 | 2.34 | 0.61 |
| 25:YB:44:G:O2' | 25:YB:47:C:N4 | 2.33 | 0.61 |
| 27:YE:131:ALA:O | 27:YE:134:ILE:HG13 | 2.00 | 0.61 |
| 36:YR:56:LYS:NZ | 36:YR:90:ARG:O | 2.33 | 0.61 |
| 24:RA:529:A:H8 | 24:RA:530:G:C6 | 2.18 | 0.61 |
| 26:RD:146:GLU:HB2 | 26:RD:189:CYS:HB3 | 1.82 | 0.61 |
| 11:XK:109:VAL:HG13 | 18:XR:84:LYS:HD3 | 1.82 | 0.61 |
| 51:Y6:34:LEU:HD13 | 51:Y6:36:LEU:HD13 | 1.81 | 0.61 |
| 24:YA:848:G:H2' | 24:YA:849:A:C8 | 2.35 | 0.61 |
| 28:YF:157:VAL:HG13 | 28:YF:194:MET:HB3 | 1.81 | 0.61 |
| 1:QA:1412:C:H2' | 1:QA:1413:A:C8 | 2.36 | 0.61 |
| 1:QA:590:C:O3' | 8:QH:30:ARG:NH1 | 2.33 | 0.61 |
| 24:RA:2844:G:H3' | 24:RA:2845:G:C8 | 2.35 | 0.61 |
| 24:YA:1464:C:HO2' | 24:YA:1528:A:H8 | 1.48 | 0.61 |
| 42:YX:55:ASN:HB2 | 42:YX:80:ILE:HG23 | 1.83 | 0.61 |
| 1:QA:674:G:H2' | 1:QA:675:A:H8 | 1.66 | 0.61 |
| 7:QG:49:ILE:HG23 | 7:QG:53:LYS:HD3 | 1.82 | 0.61 |
| 53:R8:29:LYS:HG3 | 53:R8:30:ARG:H | 1.64 | 0.61 |
| 4:XD:105:VAL:HG13 | 4:XD:110:PHE:HB2 | 1.82 | 0.61 |
| 51:Y6:25:LYS:HE3 | 51:Y6:34:LEU:HD21 | 1.83 | 0.61 |
| 24:YA:2010:G:H5'' | 41:YW:42:ARG:HB2 | 1.81 | 0.61 |
| 24:YA:2216:G:H21 | 26:YD:150:LYS:HD2 | 1.66 | 0.61 |
| 1:QA:21:G:H2' | 1:QA:22:G:C8 | 2.36 | 0.61 |
| 1:XA:1226:C:H5'' | 13:XM:94:ARG:HH22 | 1.65 | 0.61 |
| 16:XP:74:LEU:HB3 | 16:XP:79:VAL:HG11 | 1.83 | 0.61 |
| 24:YA:2064:C:H2' | 24:YA:2065:C:C6 | 2.36 | 0.61 |
| 8:QH:5:PRO:HB2 | 8:QH:32:LYS:HE2 | 1.82 | 0.61 |
| 1:QA:684:A:H1' | 11:QK:39:PRO:HD2 | 1.81 | 0.61 |
| 26:RD:71:ASP:HB2 | 26:RD:103:ARG:HH12 | 1.66 | 0.61 |
| 24:RA:2394:C:OP1 | 34:RP:63:PRO:HD2 | 2.01 | 0.61 |
| 2:XB:132:LYS:HA | 2:XB:135:GLN:HB2 | 1.82 | 0.61 |
| 3:XC:95:THR:HG22 | 3:XC:96:GLY:H | 1.66 | 0.61 |
| 1:XA:1130:A:O3' | 9:XI:20:ARG:NH2 | 2.33 | 0.61 |
| 24:YA:2537:U:H2' | 24:YA:2538:C:C6 | 2.34 | 0.61 |
| 1:QA:279:A:OP2 | 17:QQ:95:TYR:OH | 2.15 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:RA:1028:A:H2' | 24:RA:1029:A:C8 | 2.36 | 0.61 |
| 24:RA:2680:C:OP2 | 27:RE:111:ARG:NH2 | 2.34 | 0.61 |
| 26:RD:13:ARG:NH1 | 26:RD:16:MET:SD | 2.74 | 0.61 |
| 2:XB:197:VAL:HG21 | 2:XB:200:ILE:HD13 | 1.83 | 0.61 |
| 34:YP:65:ARG:HE | 53:Y8:15:LYS:HB2 | 1.66 | 0.61 |
| 27:YE:163:GLU:HG2 | 27:YE:164:ARG:H | 1.66 | 0.61 |
| 27:YE:79:ARG:HG3 | 27:YE:197:ILE:HG21 | 1.81 | 0.61 |
| 24:YA:1022:G:O6 | 32:YN:66:LYS:NZ | 2.29 | 0.61 |
| 24:RA:2537:U:H2' | 24:RA:2538:C:C6 | 2.35 | 0.61 |
| 24:RA:30:G:H2' | 24:RA:31:C:C6 | 2.36 | 0.61 |
| 41:RW:59:VAL:HG11 | 41:RW:66:GLU:HB2 | 1.83 | 0.61 |
| 9:XI:18:PHE:HB3 | 9:XI:20:ARG:HH12 | 1.66 | 0.61 |
| 24:YA:2233:U:H2' | 24:YA:2234:G:C8 | 2.36 | 0.61 |
| 26:YD:35:LYS:HB2 | 26:YD:63:ARG:HA | 1.82 | 0.61 |
| 24:RA:2331:G:O2' | 45:R0:43:THR:HG22 | 2.01 | 0.60 |
| 1:XA:1290:G:H4' | 7:XG:35:LYS:HE2 | 1.83 | 0.60 |
| 1:XA:1397:C:OP2 | 5:XE:24:ARG:NH2 | 2.32 | 0.60 |
| 1:QA:1314:C:OP1 | 19:QS:6:LYS:HE2 | 2.00 | 0.60 |
| 1:QA:745:C:OP1 | 1:QA:851:G:O2' | 2.18 | 0.60 |
| 1:QA:970:C:N4 | 9:QI:128:ARG:OXT | 2.34 | 0.60 |
| 53:R8:16:ILE:HG12 | 53:R8:22:VAL:HG12 | 1.82 | 0.60 |
| 34:RP:2:LYS:NZ | 34:RP:4:SER:OG | 2.33 | 0.60 |
| 24:YA:1403:C:H5'' | 24:YA:1471:A:H1' | 1.81 | 0.60 |
| 31:YI:4:ILE:HG22 | 31:YI:18:VAL:HG12 | 1.83 | 0.60 |
| 24:RA:1405:U:H2' | 24:RA:1406:U:H6 | 1.66 | 0.60 |
| 2:XB:131:PRO:O | 2:XB:135:GLN:N | 2.33 | 0.60 |
| 4:XD:18:LYS:HD2 | 56:XD:301:SF4:S4 | 2.40 | 0.60 |
| 24:YA:1657:C:H2' | 24:YA:1658:C:C6 | 2.36 | 0.60 |
| 24:RA:1483:G:O6 | 24:RA:1507:A:N6 | 2.34 | 0.60 |
| 24:RA:2648:C:H2' | 24:RA:2649:U:H6 | 1.66 | 0.60 |
| 35:RQ:68:ILE:HD12 | 35:RQ:101:ARG:HD3 | 1.84 | 0.60 |
| 1:XA:45:U:H2' | 1:XA:46:G:C8 | 2.36 | 0.60 |
| 7:QG:29:LYS:HE2 | 7:QG:102:ARG:HB3 | 1.84 | 0.60 |
| 24:RA:1026:U:H1' | 24:RA:1027:A:H5'' | 1.82 | 0.60 |
| 24:RA:751:A:H5' | 41:RW:90:ARG:HG2 | 1.82 | 0.60 |
| 24:RA:2086:U:OP2 | 26:RD:263:ARG:NH1 | 2.35 | 0.60 |
| 3:XC:19:GLU:O | 3:XC:40:ARG:NH2 | 2.34 | 0.60 |
| 24:YA:2344:U:OP1 | 51:Y6:37:ARG:NH2 | 2.33 | 0.60 |
| 38:YT:16:ARG:NH1 | 38:YT:83:ILE:O | 2.34 | 0.60 |
| 1:QA:985:C:H2' | 1:QA:986:A:C8 | 2.37 | 0.60 |
| 16:QP:8:ARG:HB3 | 16:QP:28:ARG:NH1 | 2.16 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 21:QU:2:GLY:HA2 | 21:QU:10:ARG:HH21 | 1.66 | 0.60 |
| 24:RA:793:A:OP2 | 24:RA:2071:A:O2' | 2.17 | 0.60 |
| 24:RA:903:C:H2' | 24:RA:904:C:H6 | 1.64 | 0.60 |
| 1:XA:1011:G:N2 | 1:XA:1019:C:O2 | 2.34 | 0.60 |
| 1:XA:126:G:H5' | 1:XA:633:G:H22 | 1.67 | 0.60 |
| 47:Y2:8:LYS:HA | 47:Y2:11:GLU:HG2 | 1.83 | 0.60 |
| 1:QA:692:U:OP2 | 11:QK:26:ASN:ND2 | 2.34 | 0.60 |
| 24:RA:1071:G:N2 | 24:RA:1090:U:OP2 | 2.35 | 0.60 |
| 24:RA:1991:U:H2' | 24:RA:1992:G:H5'' | 1.84 | 0.60 |
| 24:RA:2753:A:O2' | 54:R9:15:LYS:NZ | 2.35 | 0.60 |
| 27:RE:52:LEU:O | 27:RE:74:PRO:HA | 2.01 | 0.60 |
| 25:RB:33:G:H5' | 29:RG:2:PRO:HD3 | 1.84 | 0.60 |
| 39:RU:92:ARG:C | 39:RU:94:ASN:H | 2.05 | 0.60 |
| 49:Y4:51:ASP:OD1 | 49:Y4:52:THR:N | 2.34 | 0.60 |
| 24:YA:2033:A:O2' | 24:YA:2035:G:OP2 | 2.19 | 0.60 |
| 24:YA:820:A:H4' | 24:YA:836:G:N2 | 2.17 | 0.60 |
| 29:YG:104:GLU:O | 29:YG:108:ASN:ND2 | 2.33 | 0.60 |
| 1:QA:411:A:C5 | 1:QA:413:G:H1' | 2.37 | 0.60 |
| 1:QA:64:G:H4' | 1:QA:65:U:O5' | 2.02 | 0.60 |
| 3:QC:97:LYS:HG3 | 3:QC:98:ASN:H | 1.67 | 0.60 |
| 14:QN:27:CYS:SG | 14:QN:28:GLY:N | 2.75 | 0.60 |
| 35:RQ:81:VAL:HG22 | 35:RQ:82:ARG:HG2 | 1.84 | 0.60 |
| 41:RW:86:LEU:HD22 | 41:RW:96:ILE:HD11 | 1.84 | 0.60 |
| 1:XA:324:G:N2 | 1:XA:327:A:OP2 | 2.32 | 0.60 |
| 1:XA:692:U:OP1 | 11:XK:124:LYS:NZ | 2.29 | 0.60 |
| 1:XA:677:U:H3 | 1:XA:713:G:H22 | 1.50 | 0.60 |
| 3:XC:47:LEU:HD12 | 3:XC:50:ALA:HB3 | 1.84 | 0.60 |
| 24:YA:1510:A:O2' | 24:YA:1512:G:N7 | 2.35 | 0.60 |
| 24:YA:1937:A:N7 | 24:YA:1939:U:H2' | 2.17 | 0.60 |
| 24:YA:2591:C:H2' | 24:YA:2592:G:C8 | 2.37 | 0.60 |
| 44:YZ:54:HIS:HB3 | 44:YZ:101:PRO:HD3 | 1.83 | 0.60 |
| 24:RA:1769:G:O2' | 24:RA:1958:C:OP1 | 2.20 | 0.60 |
| 1:XA:1412:C:H2' | 1:XA:1413:A:C8 | 2.37 | 0.60 |
| 1:XA:7:G:H2' | 5:XE:119:LEU:HD23 | 1.84 | 0.60 |
| 1:XA:920:U:H2' | 1:XA:921:U:C6 | 2.37 | 0.60 |
| 2:XB:98:LEU:H | 2:XB:101:MET:HE3 | 1.67 | 0.60 |
| 1:XA:254:G:O2' | 17:XQ:16:GLN:O | 2.19 | 0.60 |
| 4:QD:101:LEU:HA | 4:QD:104:VAL:HG12 | 1.83 | 0.60 |
| 24:RA:11:G:N2 | 24:RA:2628:C:OP1 | 2.35 | 0.60 |
| 24:RA:2788:C:O2' | 24:RA:2809:A:N3 | 2.34 | 0.60 |
| 26:RD:76:PRO:HB3 | 26:RD:118:VAL:HG22 | 1.84 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:XA:1510:U:H2' | 1:XA:1511:G:C8 | 2.37 | 0.60 |
| 51:Y6:34:LEU:N | 51:Y6:51:GLU:OE1 | 2.33 | 0.60 |
| 24:YA:1009:A:OP2 | 32:YN:37:LYS:NZ | 2.35 | 0.60 |
| 1:QA:1129:C:H5' | 1:QA:1130:A:OP1 | 2.02 | 0.59 |
| 24:RA:2306:C:H3' | 24:RA:2307:G:H5'' | 1.84 | 0.59 |
| 30:RH:98:LEU:HD22 | 30:RH:125:VAL:HG22 | 1.84 | 0.59 |
| 40:RV:35:LEU:HD23 | 40:RV:35:LEU:H | 1.66 | 0.59 |
| 24:RA:138:G:N2 | 42:RX:44:GLU:OE1 | 2.34 | 0.59 |
| 24:YA:270(O):U:H2' | 31:YI:52:ARG:NH2 | 2.14 | 0.59 |
| 26:YD:133:LEU:HD23 | 26:YD:136:ILE:HD12 | 1.84 | 0.59 |
| 27:YE:2:LYS:HD2 | 27:YE:95:ILE:HG22 | 1.83 | 0.59 |
| 28:YF:116:ASP:OD2 | 34:YP:1:MET:N | 2.35 | 0.59 |
| 1:QA:222:U:H2' | 1:QA:223:U:C6 | 2.38 | 0.59 |
| 1:QA:1073:U:O2 | 2:QB:104:ASN:ND2 | 2.34 | 0.59 |
| 2:QB:188:ALA:HB3 | 2:QB:200:ILE:HD11 | 1.84 | 0.59 |
| 2:QB:32:ILE:HD11 | 2:QB:190:THR:HG22 | 1.83 | 0.59 |
| 1:XA:1175:G:H2' | 1:XA:1176:A:C8 | 2.37 | 0.59 |
| 24:YA:1657:C:H2' | 24:YA:1658:C:H6 | 1.68 | 0.59 |
| 24:YA:635:C:O2' | 24:YA:639:U:OP1 | 2.20 | 0.59 |
| 1:QA:864:A:H2' | 1:QA:865:A:C8 | 2.37 | 0.59 |
| 1:QA:429:U:C2' | 4:QD:25:ARG:HH12 | 2.15 | 0.59 |
| 11:QK:41:THR:HG21 | 11:QK:71:LYS:HG3 | 1.84 | 0.59 |
| 24:RA:1140:C:OP2 | 32:RN:66:LYS:NZ | 2.35 | 0.59 |
| 24:RA:1497:U:H5'' | 24:RA:1498:C:H5 | 1.67 | 0.59 |
| 24:RA:1826:G:H4' | 26:RD:242:ARG:HH21 | 1.67 | 0.59 |
| 26:RD:61:LEU:O | 26:RD:63:ARG:NH1 | 2.35 | 0.59 |
| 31:RI:113:ARG:NH2 | 31:RI:132:PRO:HD3 | 2.17 | 0.59 |
| 34:RP:87:ASP:HB3 | 34:RP:105:LEU:HD11 | 1.83 | 0.59 |
| 38:RT:26:ASP:HB3 | 38:RT:92:GLY:H | 1.67 | 0.59 |
| 17:XQ:45:HIS:CD2 | 17:XQ:47:PRO:HG3 | 2.37 | 0.59 |
| 24:YA:2803:C:H2' | 24:YA:2804:C:C6 | 2.36 | 0.59 |
| 24:YA:698:C:O2' | 24:YA:734:A:N6 | 2.33 | 0.59 |
| 24:RA:2784:C:H2' | 24:RA:2785:C:C6 | 2.36 | 0.59 |
| 24:RA:678:C:H2' | 24:RA:679:C:C6 | 2.38 | 0.59 |
| 26:RD:264:LYS:HG3 | 26:RD:266:SER:H | 1.66 | 0.59 |
| 1:XA:272:C:H2' | 1:XA:273:A:H8 | 1.65 | 0.59 |
| 3:XC:70:VAL:HG12 | 3:XC:72:LYS:H | 1.67 | 0.59 |
| 11:XK:91:ARG:NH2 | 11:XK:110:ASP:OD1 | 2.28 | 0.59 |
| 24:YA:2065:C:H1' | 24:YA:2449:U:H3 | 1.66 | 0.59 |
| 24:YA:299:A:N3 | 24:YA:319:C:O2' | 2.32 | 0.59 |
| 24:YA:813:U:H2' | 24:YA:814:C:H6 | 1.67 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 28:YF:140:LEU:HD11 | 28:YF:170:LEU:HD21 | 1.85 | 0.59 |
| 24:YA:1142(A):A:H4' | 32:YN:25:ARG:HH22 | 1.68 | 0.59 |
| 44:YZ:165:VAL:HG23 | 44:YZ:166:SER:H | 1.67 | 0.59 |
| 1:QA:439:A:OP2 | 1:QA:493:G:N1 | 2.30 | 0.59 |
| 30:RH:89:ILE:HG12 | 30:RH:162:ILE:HG22 | 1.82 | 0.59 |
| 1:XA:28:G:O2' | 1:XA:296:U:OP1 | 2.19 | 0.59 |
| 1:XA:954:G:H2' | 1:XA:955:U:C6 | 2.37 | 0.59 |
| 24:YA:579:G:H2' | 24:YA:580:C:C6 | 2.38 | 0.59 |
| 30:YH:12:PRO:HD3 | 30:YH:48:GLY:O | 2.02 | 0.59 |
| 1:QA:8:A:N6 | 4:QD:208:SER:O | 2.36 | 0.59 |
| 4:QD:88:VAL:HG13 | 4:QD:91:SER:HB2 | 1.85 | 0.59 |
| 8:QH:12:ARG:HD2 | 8:QH:26:VAL:HG12 | 1.85 | 0.59 |
| 24:RA:1065:U:O2 | 24:RA:1073:A:N6 | 2.25 | 0.59 |
| 24:RA:2529:G:H5'' | 24:RA:2530:A:H5'' | 1.84 | 0.59 |
| 32:RN:35:ARG:HG3 | 32:RN:37:LYS:HG2 | 1.85 | 0.59 |
| 34:RP:59:LEU:HB2 | 53:R8:13:ARG:NH1 | 2.17 | 0.59 |
| 40:RV:24:LYS:HE2 | 40:RV:90:PRO:HB2 | 1.84 | 0.59 |
| 11:XK:57:THR:HG22 | 11:XK:59:TYR:H | 1.67 | 0.59 |
| 24:YA:1204:A:H1' | 24:YA:1206:G:N7 | 2.17 | 0.59 |
| 24:YA:2394:C:OP1 | 34:YP:63:PRO:HD2 | 2.02 | 0.59 |
| 24:YA:2401:U:H2' | 24:YA:2402:C:H5'' | 1.83 | 0.59 |
| 31:YI:130:TYR:HB3 | 31:YI:136:VAL:HG13 | 1.85 | 0.59 |
| 1:QA:217:C:O2' | 1:QA:466:C:N4 | 2.35 | 0.59 |
| 13:QM:14:ARG:H | 13:QM:44:ARG:HA | 1.68 | 0.59 |
| 24:RA:11:G:H22 | 24:RA:2628:C:P | 2.26 | 0.59 |
| 1:XA:1320:C:H42 | 19:XS:36:ARG:HG3 | 1.67 | 0.59 |
| 1:XA:439:A:OP2 | 1:XA:493:G:N1 | 2.25 | 0.59 |
| 22:XV:35:C:H2' | 22:XV:36:A:C8 | 2.37 | 0.59 |
| 28:YF:132:VAL:HG12 | 28:YF:133:ASN:H | 1.68 | 0.59 |
| 38:YT:125:ARG:HA | 38:YT:128:GLU:HG2 | 1.85 | 0.59 |
| 14:QN:21:TYR:HE2 | 14:QN:23:ARG:HH11 | 1.51 | 0.59 |
| 22:QV:10:G:N2 | 22:QV:27:G:H1' | 2.18 | 0.59 |
| 24:RA:2612:C:O5' | 50:R5:2:ALA:N | 2.35 | 0.59 |
| 1:XA:933:G:N7 | 7:XG:3:ARG:NH1 | 2.51 | 0.59 |
| 29:YG:135:LEU:O | 29:YG:154:GLY:HA3 | 2.02 | 0.59 |
| 31:YI:63:ALA:HA | 31:YI:66:GLU:HG2 | 1.84 | 0.59 |
| 27:YE:14:ILE:HG23 | 38:YT:14:TYR:CE2 | 2.38 | 0.59 |
| 24:RA:698:C:O2' | 24:RA:734:A:N6 | 2.36 | 0.59 |
| 29:RG:144:ILE:HG22 | 29:RG:146:TYR:H | 1.68 | 0.59 |
| 2:XB:72:GLY:HA3 | 2:XB:81:VAL:HG21 | 1.85 | 0.59 |
| 24:YA:1833:U:O2' | 24:YA:1969:A:N1 | 2.30 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:2469:A:H2 | 24:YA:2481:G:H21 | 1.50 | 0.59 |
| 43:YY:8:LYS:HE2 | 43:YY:97:ARG:HH21 | 1.68 | 0.59 |
| 1:QA:629:G:H2' | 1:QA:630:G:C8 | 2.37 | 0.59 |
| 2:QB:143:GLU:OE2 | 2:QB:147:LYS:NZ | 2.36 | 0.59 |
| 48:R3:44:ARG:HA | 48:R3:47:VAL:HG22 | 1.85 | 0.59 |
| 24:RA:582:G:H2' | 24:RA:583:G:H8 | 1.68 | 0.59 |
| 37:RS:26:LEU:HB3 | 37:RS:87:PHE:HA | 1.85 | 0.59 |
| 1:XA:974:A:OP1 | 14:YN:29:ARG:NH2 | 2.35 | 0.59 |
| 4:XD:8:VAL:HA | 4:XD:11:LEU:HD13 | 1.84 | 0.59 |
| 13:XM:17:VAL:O | 13:XM:20:THR:OG1 | 2.17 | 0.59 |
| 19:XS:31:ILE:HD11 | 19:XS:49:ILE:HD12 | 1.83 | 0.59 |
| 24:YA:2213:U:H1' | 46:Y1:52:ARG:NH1 | 2.17 | 0.59 |
| 24:YA:1055:G:H22 | 24:YA:1104:C:H42 | 1.51 | 0.59 |
| 24:YA:2845:G:H2' | 24:YA:2846:G:H8 | 1.67 | 0.59 |
| 32:YN:23:LEU:HD13 | 32:YN:60:ILE:HD12 | 1.83 | 0.59 |
| 49:R4:16:CYS:SG | 49:R4:17:GLY:N | 2.75 | 0.58 |
| 24:RA:249:C:O2 | 53:R8:12:LYS:NZ | 2.33 | 0.58 |
| 41:RW:14:PRO:HG2 | 41:RW:78:GLU:HG2 | 1.85 | 0.58 |
| 24:YA:566:U:O4 | 40:YV:78:LYS:HD3 | 2.03 | 0.58 |
| 27:YE:26:ILE:HG23 | 27:YE:182:LEU:HB3 | 1.84 | 0.58 |
| 24:YA:389:G:H22 | 34:YP:72:PRO:HD3 | 1.68 | 0.58 |
| 1:QA:1151:A:H2' | 1:QA:1152:A:H8 | 1.68 | 0.58 |
| 1:QA:335:C:H2' | 1:QA:336:C:H6 | 1.68 | 0.58 |
| 24:RA:503:A:H4' | 24:RA:504:U:H5' | 1.86 | 0.58 |
| 24:RA:1287:A:H8 | 36:RR:104:ARG:HD3 | 1.68 | 0.58 |
| 1:XA:1241:G:H2' | 1:XA:1242:C:C6 | 2.37 | 0.58 |
| 1:XA:135:C:H2' | 1:XA:136:C:H5' | 1.85 | 0.58 |
| 4:XD:116:GLN:HE21 | 4:XD:157:LEU:HD21 | 1.68 | 0.58 |
| 1:XA:689:C:OP1 | 11:XK:27:ASN:ND2 | 2.36 | 0.58 |
| 8:XH:91:ARG:HG3 | 17:XQ:34:LYS:HB3 | 1.83 | 0.58 |
| 24:YA:1449:A:C4 | 24:YA:1529:A:C2 | 2.91 | 0.58 |
| 24:YA:2695:C:H2' | 24:YA:2696:U:C6 | 2.39 | 0.58 |
| 27:YE:48:GLN:HE21 | 27:YE:77:ILE:HG12 | 1.67 | 0.58 |
| 37:YS:26:LEU:HB3 | 37:YS:87:PHE:HA | 1.84 | 0.58 |
| 1:QA:946:A:H2' | 1:QA:947:G:C8 | 2.38 | 0.58 |
| 24:RA:177:G:H3' | 24:RA:178:G:H8 | 1.68 | 0.58 |
| 24:RA:2847:U:H3 | 24:RA:2869:G:H1 | 1.50 | 0.58 |
| 24:RA:49:A:N7 | 24:RA:120:U:H5 | 2.00 | 0.58 |
| 29:RG:139:LEU:HD21 | 29:RG:149:VAL:HG21 | 1.84 | 0.58 |
| 26:YD:132:PRO:HG3 | 26:YD:190:TYR:HE1 | 1.66 | 0.58 |
| 3:QC:11:ARG:O | 3:QC:13:GLY:N | 2.36 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:R8:61:LEU:HG | 53:R8:62:LEU:HD23 | 1.85 | 0.58 |
| 24:RA:1204:A:O2' | 24:RA:1205:U:O5' | 2.22 | 0.58 |
| 24:RA:2006:C:O2' | 24:RA:2823:A:N3 | 2.36 | 0.58 |
| 24:RA:2154:G:H2' | 24:RA:2155:G:H8 | 1.67 | 0.58 |
| 24:RA:227:A:H2' | 34:RP:76:LYS:HE2 | 1.85 | 0.58 |
| 24:RA:2701:C:H3' | 24:RA:2702:U:C5' | 2.33 | 0.58 |
| 1:XA:1330:U:H4' | 13:XM:23:TYR:CE1 | 2.39 | 0.58 |
| 1:XA:1446:A:O2' | 1:XA:1447:G:O5' | 2.20 | 0.58 |
| 13:XM:22:ILE:HG21 | 13:XM:66:LEU:HD23 | 1.85 | 0.58 |
| 19:XS:50:ALA:HB1 | 19:XS:57:HIS:HB3 | 1.86 | 0.58 |
| 24:YA:2335:A:O2' | 24:YA:2336:A:H2' | 2.02 | 0.58 |
| 24:YA:581:C:H2' | 24:YA:582:G:H8 | 1.67 | 0.58 |
| 29:YG:142:PRO:HB2 | 49:Y4:31:ILE:HG21 | 1.85 | 0.58 |
| 36:YR:79:LEU:HA | 36:YR:83:ILE:HB | 1.84 | 0.58 |
| 1:XA:1446:A:C4' | 38:YT:125:ARG:HH22 | 2.17 | 0.58 |
| 3:QC:131:ARG:NH1 | 3:QC:166:GLU:OE2 | 2.35 | 0.58 |
| 13:QM:88:ARG:HH12 | 19:QS:73:GLU:HG2 | 1.69 | 0.58 |
| 24:RA:1155:A:H5" | 39:RU:55:ARG:HH11 | 1.69 | 0.58 |
| 27:RE:37:ARG:HD3 | 27:RE:42:ASP:OD2 | 2.03 | 0.58 |
| 30:RH:46:GLU:OE1 | 30:RH:51:ARG:NH1 | 2.37 | 0.58 |
| 24:RA:2020:A:H4' | 39:RU:25:TRP:HZ3 | 1.67 | 0.58 |
| 44:RZ:165:VAL:HG23 | 44:RZ:166:SER:H | 1.67 | 0.58 |
| 1:XA:143:A:H2 | 1:XA:220:G:H1 | 1.51 | 0.58 |
| 48:Y3:12:PRO:HB2 | 48:Y3:20:LYS:HG2 | 1.84 | 0.58 |
| 24:YA:1062:G:H1 | 24:YA:1076:C:N4 | 1.96 | 0.58 |
| 32:YN:29:LYS:O | 32:YN:33:LEU:HD13 | 2.04 | 0.58 |
| 39:YU:92:ARG:C | 39:YU:94:ASN:H | 2.06 | 0.58 |
| 43:YY:83:THR:HG21 | 43:YY:99:CYS:SG | 2.44 | 0.58 |
| 37:RS:39:ILE:HD11 | 37:RS:82:ILE:HD13 | 1.85 | 0.58 |
| 1:XA:359:U:H2' | 1:XA:360:A:C8 | 2.38 | 0.58 |
| 1:XA:606:G:H22 | 1:XA:631:G:H5" | 1.68 | 0.58 |
| 3:XC:130:VAL:HG11 | 3:XC:157:ILE:HG23 | 1.83 | 0.58 |
| 31:YI:14:ASP:C | 31:YI:16:GLY:H | 2.07 | 0.58 |
| 39:YU:83:LEU:HD12 | 39:YU:113:ALA:HB2 | 1.85 | 0.58 |
| 1:QA:662:G:H2' | 1:QA:663:A:C8 | 2.39 | 0.58 |
| 12:QL:39:VAL:HG22 | 12:QL:57:LYS:HG2 | 1.85 | 0.58 |
| 45:R0:27:GLU:HG3 | 45:R0:68:GLU:HA | 1.84 | 0.58 |
| 24:RA:1060:U:O2' | 24:RA:1062:G:H5" | 2.03 | 0.58 |
| 35:RQ:55:VAL:HG13 | 44:RZ:178:GLU:HB3 | 1.86 | 0.58 |
| 1:XA:1218:C:H2' | 1:XA:1219:U:C6 | 2.38 | 0.58 |
| 6:XF:18:GLN:HG2 | 6:XF:21:LEU:HD23 | 1.84 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 10:XJ:50:ILE:HA | 10:XJ:60:ARG:HB2 | 1.85 | 0.58 |
| 24:YA:1869:G:H5' | 24:YA:1870:C:OP2 | 2.03 | 0.58 |
| 24:YA:2788:C:O2' | 24:YA:2809:A:N3 | 2.34 | 0.58 |
| 24:YA:600:G:O3' | 28:YF:108:LYS:NZ | 2.33 | 0.58 |
| 29:YG:72:ARG:HA | 29:YG:87:PRO:HA | 1.84 | 0.58 |
| 24:YA:998:C:OP1 | 39:YU:84:LYS:NZ | 2.30 | 0.58 |
| 25:RB:44:G:H1' | 25:RB:47:C:N4 | 2.18 | 0.58 |
| 25:RB:49:C:H2' | 25:RB:50:G:C8 | 2.39 | 0.58 |
| 42:RX:21:PHE:HE1 | 42:RX:92:LEU:HB3 | 1.68 | 0.58 |
| 1:XA:269:C:H2' | 1:XA:270:A:C8 | 2.38 | 0.58 |
| 24:YA:998:C:OP2 | 39:YU:58:ARG:NH1 | 2.36 | 0.58 |
| 26:YD:172:TYR:HD1 | 26:YD:186:HIS:HA | 1.68 | 0.58 |
| 37:YS:25:ARG:HG2 | 37:YS:88:ASP:HB2 | 1.85 | 0.58 |
| 1:QA:1129:C:H4' | 1:QA:1130:A:H5' | 1.86 | 0.58 |
| 1:QA:975:A:H4' | 1:QA:976:G:H5'' | 1.85 | 0.58 |
| 24:RA:1526:G:H2' | 24:RA:1527:G:C8 | 2.38 | 0.58 |
| 2:XB:87:ARG:HH21 | 2:XB:219:VAL:HG13 | 1.68 | 0.58 |
| 24:YA:1593:G:H2' | 24:YA:1594:G:C8 | 2.39 | 0.58 |
| 1:QA:1399:C:C2 | 1:QA:1502:A:N6 | 2.72 | 0.58 |
| 1:QA:690:G:H22 | 11:QK:55:LYS:HZ3 | 1.50 | 0.58 |
| 1:QA:1314:C:N4 | 19:QS:2:PRO:O | 2.37 | 0.58 |
| 51:R6:26:ASN:ND2 | 51:R6:28:ARG:H | 2.02 | 0.58 |
| 24:RA:2853:C:H2' | 24:RA:2854:G:H8 | 1.68 | 0.58 |
| 27:RE:104:VAL:HG22 | 27:RE:198:VAL:HG22 | 1.86 | 0.58 |
| 30:RH:94:TYR:OH | 30:RH:160:LYS:NZ | 2.32 | 0.58 |
| 54:Y9:24:TYR:CD1 | 54:Y9:35:ARG:HB3 | 2.39 | 0.58 |
| 1:QA:509:A:OP2 | 1:QA:509:A:H3' | 2.04 | 0.57 |
| 2:QB:77:ALA:HB2 | 2:QB:211:ILE:HD13 | 1.86 | 0.57 |
| 9:QI:11:LYS:NZ | 9:QI:107:ARG:O | 2.26 | 0.57 |
| 20:QT:74:LYS:O | 20:QT:76:ALA:N | 2.36 | 0.57 |
| 22:QV:16:C:O2' | 22:QV:62:C:OP1 | 2.22 | 0.57 |
| 24:RA:1348:G:H2' | 24:RA:1349:A:H5'' | 1.85 | 0.57 |
| 24:RA:590:A:H2' | 24:RA:591:C:C6 | 2.40 | 0.57 |
| 24:RA:86:C:H4' | 24:RA:104:U:H1' | 1.85 | 0.57 |
| 41:RW:82:LEU:HG | 41:RW:98:LYS:HB2 | 1.85 | 0.57 |
| 1:XA:406:G:N3 | 4:XD:119:GLN:NE2 | 2.52 | 0.57 |
| 27:YE:17:ASP:O | 27:YE:19:ARG:NH1 | 2.36 | 0.57 |
| 24:RA:2698:U:H2' | 24:RA:2699:C:C6 | 2.39 | 0.57 |
| 24:RA:755:C:H2' | 24:RA:756:C:C6 | 2.40 | 0.57 |
| 1:XA:452:A:H62 | 1:XA:480:U:H3 | 1.50 | 0.57 |
| 1:XA:902:G:H2' | 1:XA:903:G:H8 | 1.69 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 13:XM:10:PRO:HB2 | 13:XM:18:ALA:HB1 | 1.85 | 0.57 |
| 24:YA:819:A:OP2 | 24:YA:1187:G:N2 | 2.18 | 0.57 |
| 24:YA:881:G:H3' | 24:YA:882:G:C8 | 2.38 | 0.57 |
| 29:YG:10:LYS:NZ | 29:YG:175:LEU:O | 2.37 | 0.57 |
| 5:QE:80:ILE:HD13 | 8:QH:104:ARG:HH12 | 1.69 | 0.57 |
| 24:RA:263:C:H2' | 24:RA:264:C:O4' | 2.04 | 0.57 |
| 24:RA:288:C:H2' | 24:RA:289:A:H8 | 1.68 | 0.57 |
| 30:RH:96:ALA:HB3 | 30:RH:126:PRO:HG3 | 1.86 | 0.57 |
| 1:XA:573:A:N3 | 1:XA:883:C:O2' | 2.32 | 0.57 |
| 10:XJ:46:ARG:HA | 10:XJ:64:GLU:HA | 1.86 | 0.57 |
| 20:XT:45:GLN:HG3 | 20:XT:91:LEU:HD22 | 1.86 | 0.57 |
| 24:YA:603:A:O4' | 24:YA:655:A:N6 | 2.37 | 0.57 |
| 1:QA:1286:A:H2' | 1:QA:1287:A:H4' | 1.85 | 0.57 |
| 1:QA:1314:C:H2' | 1:QA:1315:U:H6 | 1.69 | 0.57 |
| 1:QA:1106:G:H5'' | 3:QC:172:ARG:HG2 | 1.84 | 0.57 |
| 13:QM:88:ARG:HG3 | 13:QM:98:VAL:HG22 | 1.85 | 0.57 |
| 19:QS:3:ARG:HH21 | 19:QS:7:LYS:HD3 | 1.70 | 0.57 |
| 20:QT:10:LEU:HG | 20:QT:12:ALA:H | 1.69 | 0.57 |
| 24:RA:957:A:H5' | 35:RQ:76:LYS:HG2 | 1.85 | 0.57 |
| 35:YQ:110:THR:HG22 | 35:YQ:113:GLN:HG2 | 1.87 | 0.57 |
| 40:YV:71:LEU:HD12 | 40:YV:84:LYS:HD2 | 1.86 | 0.57 |
| 24:RA:265:A:N6 | 24:RA:428:A:C8 | 2.73 | 0.57 |
| 26:RD:38:LYS:HA | 26:RD:61:LEU:HD13 | 1.86 | 0.57 |
| 29:RG:66:GLN:OE1 | 29:RG:98:ARG:NH1 | 2.38 | 0.57 |
| 44:RZ:24:LEU:HD12 | 44:RZ:41:LEU:HD23 | 1.86 | 0.57 |
| 1:XA:126:G:H5' | 1:XA:633:G:N2 | 2.20 | 0.57 |
| 1:XA:1469:G:H2' | 1:XA:1470:G:H8 | 1.69 | 0.57 |
| 1:XA:269:C:H2' | 1:XA:270:A:H8 | 1.69 | 0.57 |
| 24:YA:2750:A:OP2 | 30:YH:6:ARG:NH2 | 2.37 | 0.57 |
| 1:QA:1251:A:H2' | 1:QA:1252:A:C8 | 2.40 | 0.57 |
| 1:QA:269:C:H2' | 1:QA:270:A:C8 | 2.40 | 0.57 |
| 24:RA:1802:A:H2' | 24:RA:1803:A:C8 | 2.39 | 0.57 |
| 24:RA:639:U:H2' | 24:RA:640:C:C6 | 2.40 | 0.57 |
| 24:RA:2319:G:O6 | 37:RS:4:LEU:HB2 | 2.04 | 0.57 |
| 18:XR:32:ARG:HA | 18:XR:69:THR:HG21 | 1.87 | 0.57 |
| 20:XT:74:LYS:O | 20:XT:76:ALA:N | 2.38 | 0.57 |
| 54:Y9:3:VAL:HG12 | 54:Y9:35:ARG:HG3 | 1.86 | 0.57 |
| 24:YA:1332:G:H21 | 24:YA:1610:A:H8 | 1.50 | 0.57 |
| 34:YP:101:VAL:HG21 | 34:YP:108:LYS:HG3 | 1.86 | 0.57 |
| 39:YU:92:ARG:HD2 | 40:YV:11:GLN:HB2 | 1.86 | 0.57 |
| 41:YW:111:HIS:HB2 | 41:YW:113:LYS:HG2 | 1.87 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 24:YA:81:G:N2 | 43:YY:1:MET:SD | 2.77 | 0.57 |
| 1:QA:1329:A:H5'' | 13:QM:26:GLY:H | 1.70 | 0.57 |
| 9:QI:10:ARG:HG3 | 9:QI:79:LEU:HD11 | 1.86 | 0.57 |
| 28:RF:40:GLN:HE22 | 28:RF:182:ASN:HB2 | 1.69 | 0.57 |
| 1:XA:1014:A:C2 | 1:XA:1219:U:H1' | 2.40 | 0.57 |
| 13:XM:91:ARG:HB2 | 13:XM:98:VAL:HG22 | 1.87 | 0.57 |
| 24:YA:857:C:H4' | 45:Y0:23:VAL:HG21 | 1.86 | 0.57 |
| 24:YA:86:C:H4' | 24:YA:104:U:H1' | 1.86 | 0.57 |
| 24:YA:1500:G:N2 | 26:YD:99:ASP:O | 2.37 | 0.57 |
| 24:YA:2305:A:H1' | 29:YG:136:ARG:HG2 | 1.86 | 0.57 |
| 32:YN:6:PRO:HG3 | 32:YN:41:ASP:HB2 | 1.86 | 0.57 |
| 36:YR:57:ARG:HE | 36:YR:62:ALA:HB2 | 1.69 | 0.57 |
| 1:QA:1124:G:H3' | 1:QA:1145:C:N4 | 2.20 | 0.57 |
| 5:QE:20:GLN:HB2 | 5:QE:25:ARG:NH1 | 2.20 | 0.57 |
| 16:QP:18:ARG:HH21 | 16:QP:35:LYS:HD3 | 1.70 | 0.57 |
| 24:RA:74:A:H4' | 24:RA:75:G:O5' | 2.03 | 0.57 |
| 34:RP:91:PHE:CE2 | 34:RP:95:VAL:HG22 | 2.40 | 0.57 |
| 38:RT:51:ARG:HB2 | 38:RT:98:LYS:HE2 | 1.85 | 0.57 |
| 40:RV:76:LYS:HB2 | 40:RV:81:TYR:HB3 | 1.85 | 0.57 |
| 41:RW:19:LEU:HB3 | 50:R5:25:LEU:HD13 | 1.87 | 0.57 |
| 1:XA:1494:G:HO2' | 24:YA:1912:A:HO2' | 1.50 | 0.57 |
| 3:XC:84:ILE:HG23 | 3:XC:85:ARG:HD3 | 1.87 | 0.57 |
| 1:XA:684:A:O2' | 11:XK:39:PRO:O | 2.19 | 0.57 |
| 24:YA:2740:A:H2' | 24:YA:2741:A:C8 | 2.40 | 0.57 |
| 24:YA:2867:G:O2' | 24:YA:2868:A:H8 | 1.87 | 0.57 |
| 49:R4:56:VAL:HA | 49:R4:60:GLN:HB2 | 1.87 | 0.57 |
| 27:RE:36:ARG:NH1 | 27:RE:85:ASN:OD1 | 2.38 | 0.57 |
| 44:RZ:151:HIS:HB2 | 44:RZ:170:THR:HA | 1.85 | 0.57 |
| 1:XA:1077:G:N2 | 1:XA:1080:A:OP2 | 2.34 | 0.57 |
| 1:XA:250:A:H4' | 1:XA:251:G:O5' | 2.03 | 0.57 |
| 2:XB:113:HIS:O | 2:XB:116:GLU:HG3 | 2.05 | 0.57 |
| 24:YA:1939:U:OP1 | 24:YA:2604:U:O2' | 2.23 | 0.57 |
| 24:YA:263:C:H2' | 24:YA:264:C:O4' | 2.04 | 0.57 |
| 1:QA:1004:A:N1 | 1:QA:1025:U:H1' | 2.20 | 0.57 |
| 1:QA:1338:G:N3 | 22:QV:42:C:O2' | 2.37 | 0.57 |
| 1:QA:184:G:H2' | 1:QA:185:A:H8 | 1.70 | 0.57 |
| 1:QA:277:C:OP1 | 17:QQ:68:ARG:NH2 | 2.37 | 0.57 |
| 13:QM:97:PRO:HA | 13:QM:110:ARG:HD3 | 1.87 | 0.57 |
| 24:RA:1296:G:OP1 | 24:RA:2709:G:O2' | 2.11 | 0.57 |
| 24:RA:304:G:H2' | 24:RA:305:U:C6 | 2.39 | 0.57 |
| 38:RT:24:PRO:HA | 38:RT:49:VAL:HG13 | 1.86 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:XH:10:LEU:HB3 | 8:XH:83:ILE:HD13 | 1.86 | 0.57 |
| 13:XM:16:ASP:HB3 | 13:XM:41:PRO:HB3 | 1.86 | 0.57 |
| 34:YP:89:ALA:O | 34:YP:121:LYS:NZ | 2.25 | 0.57 |
| 1:QA:1513:A:H2' | 1:QA:1514:C:C6 | 2.40 | 0.56 |
| 1:QA:34:C:H2' | 1:QA:35:G:H8 | 1.69 | 0.56 |
| 1:QA:731:G:OP1 | 1:QA:766:A:H1' | 2.04 | 0.56 |
| 1:QA:922:G:H2' | 1:QA:923:A:C8 | 2.40 | 0.56 |
| 19:QS:10:PHE:HB2 | 19:QS:39:THR:HB | 1.87 | 0.56 |
| 49:R4:61:ARG:NH1 | 49:R4:62:ARG:O | 2.38 | 0.56 |
| 24:RA:1020:A:N6 | 24:RA:1141:U:O2' | 2.37 | 0.56 |
| 24:RA:1657:C:H2' | 24:RA:1658:C:H6 | 1.70 | 0.56 |
| 35:RQ:58:PHE:HD2 | 35:RQ:61:GLY:HA3 | 1.70 | 0.56 |
| 1:XA:1372:U:H5'' | 9:XI:71:SER:HB2 | 1.86 | 0.56 |
| 13:XM:107:ALA:HB3 | 13:XM:111:LYS:HE2 | 1.86 | 0.56 |
| 24:YA:1528:A:H2' | 24:YA:1529:A:C8 | 2.40 | 0.56 |
| 32:YN:96:GLU:HB2 | 32:YN:122:VAL:HG12 | 1.86 | 0.56 |
| 35:YQ:66:ILE:HG13 | 35:YQ:67:ARG:H | 1.70 | 0.56 |
| 1:QA:1412:C:H2' | 1:QA:1413:A:H8 | 1.70 | 0.56 |
| 24:RA:678:C:H2' | 24:RA:679:C:H6 | 1.70 | 0.56 |
| 39:RU:89:GLU:O | 39:RU:92:ARG:NH1 | 2.36 | 0.56 |
| 24:YA:1359:A:N7 | 24:YA:1372:U:O4 | 2.38 | 0.56 |
| 24:YA:139:G:N2 | 24:YA:1596:A:H4' | 2.19 | 0.56 |
| 36:YR:37:THR:HG22 | 36:YR:39:PRO:HD2 | 1.85 | 0.56 |
| 38:YT:77:PRO:HB2 | 38:YT:80:SER:HB2 | 1.88 | 0.56 |
| 11:QK:51:LYS:HA | 11:QK:55:LYS:HD2 | 1.86 | 0.56 |
| 22:QV:37:U:H2' | 22:QV:38:A:H8 | 1.71 | 0.56 |
| 35:RQ:43:THR:HG22 | 35:RQ:94:VAL:HG12 | 1.87 | 0.56 |
| 1:XA:335:C:O2' | 1:XA:1433:A:N3 | 2.32 | 0.56 |
| 1:XA:406:G:H5' | 4:XD:5:ILE:HD13 | 1.87 | 0.56 |
| 1:XA:64:G:H5'' | 1:XA:65:U:H5' | 1.87 | 0.56 |
| 24:YA:2110:G:O2' | 24:YA:2111:C:O4' | 2.23 | 0.56 |
| 24:YA:1614:A:C6 | 41:YW:91:GLY:HA2 | 2.39 | 0.56 |
| 1:QA:1015:A:H2' | 1:QA:1016:A:C8 | 2.40 | 0.56 |
| 1:QA:1004:A:HO2' | 1:QA:1036:G:H22 | 1.51 | 0.56 |
| 1:QA:811:C:O2' | 1:QA:901:A:N1 | 2.39 | 0.56 |
| 47:R2:14:ARG:O | 47:R2:15:LYS:HG3 | 2.05 | 0.56 |
| 49:R4:58:ARG:O | 49:R4:61:ARG:HD2 | 2.04 | 0.56 |
| 24:RA:65:C:H1' | 24:RA:456:C:H42 | 1.70 | 0.56 |
| 1:XA:708:C:OP1 | 11:XK:85:ARG:NH2 | 2.37 | 0.56 |
| 24:YA:1195:G:N7 | 34:YP:16:ARG:NH1 | 2.53 | 0.56 |
| 24:YA:127:A:H5'' | 24:YA:128:C:C6 | 2.40 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:2572:A:C8 | 27:YE:144:ARG:HG2 | 2.41 | 0.56 |
| 1:QA:359:U:H2' | 1:QA:360:A:H8 | 1.70 | 0.56 |
| 24:RA:666:G:N2 | 53:R8:2:PRO:O | 2.38 | 0.56 |
| 24:RA:1247:A:OP1 | 28:RF:95:ARG:NH2 | 2.34 | 0.56 |
| 24:RA:1570:A:H2' | 24:RA:1571:A:C8 | 2.39 | 0.56 |
| 24:RA:2415:G:H4' | 34:RP:67:MET:H | 1.70 | 0.56 |
| 39:RU:91:ASP:O | 39:RU:93:LYS:N | 2.38 | 0.56 |
| 1:XA:544:G:OP1 | 4:XD:59:ARG:NH1 | 2.38 | 0.56 |
| 24:YA:987:G:O2' | 24:YA:1000:A:N3 | 2.34 | 0.56 |
| 24:YA:1888:G:OP2 | 24:YA:1888:G:N2 | 2.38 | 0.56 |
| 24:YA:857:C:OP1 | 45:Y0:69:PHE:HD2 | 1.89 | 0.56 |
| 1:QA:977:A:H8 | 1:QA:1223:C:C4 | 2.24 | 0.56 |
| 24:RA:1000:A:H2' | 24:RA:1001:A:C8 | 2.40 | 0.56 |
| 29:RG:32:PRO:HB2 | 29:RG:172:LEU:HD13 | 1.86 | 0.56 |
| 33:RO:63:VAL:HB | 33:RO:102:VAL:HG23 | 1.87 | 0.56 |
| 1:XA:1199:U:O2' | 1:XA:1202:G:OP1 | 2.23 | 0.56 |
| 4:XD:145:GLU:HG3 | 4:XD:184:LYS:HG2 | 1.88 | 0.56 |
| 24:YA:1434:A:H61 | 24:YA:1558:A:N6 | 2.03 | 0.56 |
| 24:YA:2646:C:H2' | 24:YA:2647:U:O4' | 2.04 | 0.56 |
| 24:YA:2735:G:H2' | 24:YA:2736:G:H8 | 1.71 | 0.56 |
| 43:YY:87:LYS:HD3 | 43:YY:95:LYS:HD2 | 1.88 | 0.56 |
| 3:QC:7:PRO:O | 3:QC:11:ARG:NH1 | 2.39 | 0.56 |
| 24:RA:2212:A:H1' | 24:RA:2215:G:C5 | 2.41 | 0.56 |
| 24:RA:259:G:H21 | 24:RA:621:A:H8 | 1.52 | 0.56 |
| 31:RI:93:THR:HG22 | 31:RI:119:PRO:HB3 | 1.87 | 0.56 |
| 31:RI:40:THR:HG23 | 31:RI:42:SER:H | 1.70 | 0.56 |
| 1:XA:1308:U:H2' | 1:XA:1309:G:H8 | 1.70 | 0.56 |
| 24:YA:1628:G:H2' | 24:YA:1629:U:C6 | 2.40 | 0.56 |
| 24:YA:2128:C:HO2' | 24:YA:2173:A:H2 | 1.53 | 0.56 |
| 24:YA:414:C:H2' | 24:YA:415:A:H8 | 1.71 | 0.56 |
| 24:YA:2511:U:O2' | 27:YE:138:PRO:O | 2.20 | 0.56 |
| 27:YE:184:VAL:HG12 | 27:YE:185:LYS:H | 1.70 | 0.56 |
| 35:YQ:48:GLU:OE2 | 35:YQ:51:ARG:NH2 | 2.35 | 0.56 |
| 39:YU:91:ASP:O | 39:YU:93:LYS:N | 2.38 | 0.56 |
| 2:QB:93:VAL:HG11 | 2:QB:97:TRP:HE3 | 1.70 | 0.56 |
| 12:QL:27:LEU:HD23 | 12:QL:33:ARG:HH12 | 1.71 | 0.56 |
| 24:RA:654(B):C:H42 | 24:RA:654(S):G:H1 | 1.54 | 0.56 |
| 1:XA:688:G:H2' | 1:XA:689:C:H6 | 1.70 | 0.56 |
| 3:XC:157:ILE:HD12 | 3:XC:164:ARG:HG3 | 1.88 | 0.56 |
| 18:XR:23:LYS:HD2 | 18:XR:58:LEU:HD23 | 1.87 | 0.56 |
| 24:YA:1049:C:H2' | 24:YA:1050:A:H5'' | 1.87 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:1068:G:O2' | 24:YA:1096:A:N3 | 2.35 | 0.56 |
| 24:YA:2636:U:H4' | 27:YE:80:GLU:OE2 | 2.06 | 0.56 |
| 33:YO:22:ILE:HD11 | 33:YO:42:SER:HB3 | 1.87 | 0.56 |
| 1:QA:1320:C:H4' | 13:QM:88:ARG:NH1 | 2.21 | 0.56 |
| 1:QA:32:A:H2' | 1:QA:33:A:C8 | 2.41 | 0.56 |
| 10:QJ:27:ALA:HB3 | 10:QJ:34:VAL:HG11 | 1.87 | 0.56 |
| 1:QA:1329:A:N7 | 21:QU:7:ARG:NH2 | 2.54 | 0.56 |
| 24:RA:546:C:H3' | 24:RA:547:A:H8 | 1.70 | 0.56 |
| 3:XC:108:ASN:ND2 | 3:XC:144:SER:OG | 2.32 | 0.56 |
| 1:XA:1243:C:OP2 | 21:XU:10:ARG:NH2 | 2.39 | 0.56 |
| 30:YH:9:ILE:HG21 | 30:YH:49:VAL:HB | 1.88 | 0.56 |
| 4:QD:141:ARG:NH1 | 4:QD:144:ASP:OD1 | 2.38 | 0.56 |
| 24:RA:2150:U:H2' | 24:RA:2151:G:H8 | 1.71 | 0.56 |
| 24:RA:922:U:H2' | 24:RA:923:C:C6 | 2.41 | 0.56 |
| 24:RA:969:U:H2' | 24:RA:970:C:C6 | 2.41 | 0.56 |
| 31:RI:128:LEU:HD22 | 31:RI:140:LEU:HD21 | 1.87 | 0.56 |
| 1:XA:56:U:H2' | 1:XA:57:G:C8 | 2.40 | 0.56 |
| 9:XI:18:PHE:HB3 | 9:XI:20:ARG:NH1 | 2.20 | 0.56 |
| 24:YA:1693:U:O2' | 24:YA:1695:G:O6 | 2.18 | 0.56 |
| 1:QA:1198:G:N3 | 10:QJ:54:PHE:HZ | 2.04 | 0.56 |
| 1:QA:375:U:OP1 | 16:QP:69:THR:OG1 | 2.17 | 0.56 |
| 24:RA:593:G:H4' | 53:R8:61:LEU:CD1 | 2.35 | 0.56 |
| 1:XA:1126:U:H1' | 1:XA:1280:A:C5 | 2.41 | 0.56 |
| 1:XA:1271:G:H2' | 1:XA:1272:G:H5" | 1.87 | 0.56 |
| 1:XA:401:C:H2' | 1:XA:402:G:H8 | 1.71 | 0.56 |
| 12:XL:53:ARG:HB3 | 12:XL:69:TYR:HE1 | 1.71 | 0.56 |
| 24:YA:2343:C:HO2' | 24:YA:2373:G:HO2' | 1.54 | 0.56 |
| 24:YA:813:U:H2' | 24:YA:814:C:C6 | 2.40 | 0.56 |
| 1:QA:712:A:H2' | 1:QA:713:G:C8 | 2.40 | 0.55 |
| 49:R4:48:ARG:HG2 | 49:R4:52:THR:HA | 1.87 | 0.55 |
| 24:RA:2341:G:H2' | 24:RA:2342:C:C6 | 2.41 | 0.55 |
| 35:RQ:1:MET:N | 35:RQ:48:GLU:HG3 | 2.20 | 0.55 |
| 42:RX:5:TYR:CE2 | 47:R2:30:ARG:HB2 | 2.41 | 0.55 |
| 1:XA:1015:A:H2' | 1:XA:1016:A:C8 | 2.41 | 0.55 |
| 1:XA:130:A:N3 | 1:XA:263:A:O2' | 2.36 | 0.55 |
| 1:XA:403:C:H4' | 4:XD:122:ARG:HH11 | 1.71 | 0.55 |
| 1:XA:578:C:O2' | 1:XA:728:A:N3 | 2.36 | 0.55 |
| 8:XH:38:ILE:HD12 | 8:XH:41:ARG:HH21 | 1.70 | 0.55 |
| 9:XI:112:LYS:HA | 9:XI:119:ALA:HB2 | 1.88 | 0.55 |
| 24:YA:2212:A:H1' | 24:YA:2215:G:C5 | 2.41 | 0.55 |
| 24:YA:2354:G:H4' | 45:Y0:35:ASN:ND2 | 2.21 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:574:C:N3 | 27:YE:145:LYS:NZ | 2.53 | 0.55 |
| 31:YI:21:VAL:HG22 | 31:YI:22:LYS:H | 1.70 | 0.55 |
| 39:YU:85:LYS:HE3 | 39:YU:116:ALA:HB1 | 1.88 | 0.55 |
| 12:QL:90:VAL:HG13 | 12:QL:93:LEU:HB2 | 1.88 | 0.55 |
| 22:QV:15:G:H22 | 22:QV:49:C:H5 | 1.52 | 0.55 |
| 48:R3:40:THR:HG22 | 48:R3:42:ALA:H | 1.71 | 0.55 |
| 24:RA:567:A:N6 | 40:RV:78:LYS:HD2 | 2.21 | 0.55 |
| 13:XM:4:ILE:HD11 | 13:XM:56:LEU:HD12 | 1.88 | 0.55 |
| 19:XS:40:ILE:HD13 | 19:XS:71:LEU:HD21 | 1.89 | 0.55 |
| 24:YA:1105:U:H2' | 24:YA:1106:G:H8 | 1.72 | 0.55 |
| 24:YA:1165:U:H2' | 24:YA:1166:C:C6 | 2.40 | 0.55 |
| 24:YA:1204:A:H1' | 24:YA:1206:G:C8 | 2.41 | 0.55 |
| 24:YA:2176:A:H2' | 24:YA:2177:C:C6 | 2.41 | 0.55 |
| 24:YA:34:C:H41 | 24:YA:447:A:H61 | 1.53 | 0.55 |
| 43:YY:28:LYS:N | 43:YY:38:ILE:O | 2.39 | 0.55 |
| 44:YZ:10:ARG:HH21 | 44:YZ:25:PRO:HB3 | 1.71 | 0.55 |
| 1:QA:1342:C:H4' | 9:QI:125:TYR:H | 1.70 | 0.55 |
| 53:R8:52:LYS:N | 53:R8:53:PRO:HD2 | 2.22 | 0.55 |
| 24:RA:184:C:O2' | 24:RA:217:G:N3 | 2.39 | 0.55 |
| 24:RA:2022:U:O2' | 24:RA:2617:C:H5' | 2.05 | 0.55 |
| 27:RE:45:THR:O | 27:RE:83:ASP:N | 2.36 | 0.55 |
| 1:XA:452:A:O2' | 16:XP:72:ARG:NH1 | 2.39 | 0.55 |
| 24:YA:1263:U:H2' | 24:YA:1264:G:C8 | 2.41 | 0.55 |
| 24:YA:30:G:H2' | 24:YA:31:C:H6 | 1.71 | 0.55 |
| 24:YA:38:A:H2' | 24:YA:39:C:C6 | 2.41 | 0.55 |
| 24:YA:2250:G:C4 | 35:YQ:82:ARG:HG3 | 2.41 | 0.55 |
| 12:QL:45:PRO:HB3 | 12:QL:92:ASP:HB3 | 1.87 | 0.55 |
| 22:QV:35:C:O2' | 22:QV:36:A:OP1 | 2.22 | 0.55 |
| 29:RG:82:LEU:H | 29:RG:86:MET:HE2 | 1.70 | 0.55 |
| 36:RR:33:ARG:HD3 | 36:RR:113:LEU:HD11 | 1.88 | 0.55 |
| 1:XA:662:G:H2' | 1:XA:663:A:C8 | 2.41 | 0.55 |
| 1:XA:64:G:N2 | 1:XA:68:G:O6 | 2.31 | 0.55 |
| 24:YA:1508:A:O2' | 24:YA:1509:C:O4' | 2.20 | 0.55 |
| 24:YA:2424:C:O2 | 24:YA:2429:G:O2' | 2.17 | 0.55 |
| 27:YE:14:ILE:HG23 | 38:YT:14:TYR:HE2 | 1.69 | 0.55 |
| 1:QA:1427:U:H2' | 1:QA:1428:A:C8 | 2.42 | 0.55 |
| 18:QR:73:ALA:HB1 | 18:QR:79:LEU:HD13 | 1.89 | 0.55 |
| 24:RA:1772:G:N2 | 24:RA:1774:C:H5' | 2.22 | 0.55 |
| 24:RA:2328:A:H2' | 24:RA:2329:G:C8 | 2.41 | 0.55 |
| 24:RA:372:G:N2 | 24:RA:401:A:OP2 | 2.39 | 0.55 |
| 27:RE:34:VAL:HG21 | 27:RE:77:ILE:HD11 | 1.88 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 36:RR:17:ARG:HG2 | 36:RR:21:TYR:CE2 | 2.42 | 0.55 |
| 7:XG:64:GLN:HE21 | 7:XG:68:ASN:HD21 | 1.54 | 0.55 |
| 24:YA:2076:U:OP2 | 24:YA:2238:G:N2 | 2.36 | 0.55 |
| 24:YA:639:U:H2' | 24:YA:640:C:H6 | 1.70 | 0.55 |
| 24:YA:918:A:N3 | 25:YB:80:U:O2' | 2.36 | 0.55 |
| 34:YP:88:LEU:HD11 | 34:YP:114:ILE:HG12 | 1.88 | 0.55 |
| 1:QA:827:U:H5 | 1:QA:872:A:H61 | 1.54 | 0.55 |
| 5:QE:33:VAL:HG13 | 5:QE:112:LEU:HD12 | 1.87 | 0.55 |
| 13:QM:4:ILE:HG23 | 13:QM:57:ARG:HG2 | 1.88 | 0.55 |
| 20:QT:78:ALA:HA | 20:QT:81:LYS:HZ1 | 1.71 | 0.55 |
| 24:RA:300:A:OP1 | 43:RY:86:ARG:NH2 | 2.40 | 0.55 |
| 24:RA:304:G:H2' | 24:RA:305:U:H6 | 1.72 | 0.55 |
| 28:RF:125:LEU:HA | 28:RF:194:MET:O | 2.07 | 0.55 |
| 31:RI:125:GLU:HG2 | 31:RI:141:LYS:HG3 | 1.88 | 0.55 |
| 1:XA:1320:C:N4 | 19:XS:36:ARG:HG3 | 2.22 | 0.55 |
| 49:Y4:68:ARG:HD2 | 49:Y4:68:ARG:H | 1.72 | 0.55 |
| 51:Y6:10:LEU:HD13 | 51:Y6:19:ARG:HG2 | 1.88 | 0.55 |
| 24:YA:523:C:O2 | 24:YA:553:U:O2' | 2.25 | 0.55 |
| 26:YD:34:VAL:HG13 | 26:YD:64:ILE:HG13 | 1.89 | 0.55 |
| 31:YI:133:HIS:HB3 | 31:YI:134:PRO:HD3 | 1.87 | 0.55 |
| 43:YY:99:CYS:SG | 43:YY:100:ALA:N | 2.80 | 0.55 |
| 24:RA:577:G:O2' | 24:RA:1254:A:OP1 | 2.25 | 0.55 |
| 24:RA:530:G:O2' | 24:RA:532:A:N7 | 2.40 | 0.55 |
| 28:RF:11:VAL:HG22 | 28:RF:125:LEU:HB2 | 1.88 | 0.55 |
| 44:RZ:31:ARG:HD3 | 44:RZ:31:ARG:H | 1.70 | 0.55 |
| 1:XA:1376:U:H2' | 1:XA:1377:A:C8 | 2.42 | 0.55 |
| 1:XA:991:U:O4 | 1:XA:1212:U:O2' | 2.25 | 0.55 |
| 2:XB:188:ALA:HB3 | 2:XB:200:ILE:HD11 | 1.89 | 0.55 |
| 3:XC:11:ARG:NH2 | 3:XC:177:THR:O | 2.40 | 0.55 |
| 24:YA:1528:A:H2' | 24:YA:1529:A:H8 | 1.72 | 0.55 |
| 24:YA:528:A:N1 | 24:YA:2042:A:H2' | 2.21 | 0.55 |
| 24:YA:769:G:H5' | 24:YA:1379:A:N6 | 2.22 | 0.55 |
| 1:QA:920:U:H2' | 1:QA:921:U:C6 | 2.42 | 0.55 |
| 4:QD:79:PHE:CE1 | 4:QD:204:ILE:HD13 | 2.41 | 0.55 |
| 5:QE:32:VAL:HG22 | 5:QE:58:ALA:HB1 | 1.89 | 0.55 |
| 49:R4:46:GLN:O | 49:R4:48:ARG:N | 2.31 | 0.55 |
| 24:RA:271(D):G:H2' | 24:RA:272:G:H8 | 1.72 | 0.55 |
| 24:RA:2784:C:O2' | 27:RE:37:ARG:NH1 | 2.39 | 0.55 |
| 24:RA:2815:C:H4' | 50:R5:29:THR:HG21 | 1.89 | 0.55 |
| 24:RA:2415:G:H4' | 34:RP:67:MET:N | 2.22 | 0.55 |
| 46:Y1:80:LEU:HD12 | 46:Y1:81:LYS:HG3 | 1.87 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:2853:C:H2' | 24:YA:2854:G:H8 | 1.72 | 0.55 |
| 31:YI:80:PRO:HB2 | 31:YI:146:ALA:HB2 | 1.89 | 0.55 |
| 34:YP:86:LYS:HE3 | 34:YP:117:GLU:HG3 | 1.88 | 0.55 |
| 38:YT:99:LEU:HB3 | 38:YT:102:ILE:HD13 | 1.89 | 0.55 |
| 3:QC:73:PRO:HA | 3:QC:76:VAL:HG22 | 1.89 | 0.55 |
| 53:R8:29:LYS:HG3 | 53:R8:30:ARG:N | 2.22 | 0.55 |
| 25:RB:111:U:H2' | 25:RB:112:G:H8 | 1.72 | 0.55 |
| 32:RN:13:TRP:O | 32:RN:135:PRO:HD2 | 2.07 | 0.55 |
| 24:RA:24:G:O2' | 41:RW:78:GLU:O | 2.23 | 0.55 |
| 1:XA:1292:U:H2' | 1:XA:1293:G:H8 | 1.71 | 0.55 |
| 2:XB:27:LYS:HD2 | 2:XB:193:ASP:HB2 | 1.87 | 0.55 |
| 46:Y1:18:ILE:HG12 | 46:Y1:37:ILE:HG12 | 1.89 | 0.55 |
| 46:Y1:44:PRO:HG2 | 46:Y1:46:LEU:HD13 | 1.88 | 0.55 |
| 24:YA:330:A:H2 | 24:YA:1210:A:O2' | 1.90 | 0.55 |
| 24:YA:2790:A:H2' | 24:YA:2791:C:H5'' | 1.88 | 0.55 |
| 24:YA:330:A:O2' | 24:YA:331:A:H8 | 1.89 | 0.55 |
| 24:YA:581:C:H2' | 24:YA:582:G:C8 | 2.42 | 0.55 |
| 38:YT:6:LEU:HD23 | 38:YT:9:LEU:HD12 | 1.87 | 0.55 |
| 1:QA:1422:G:O3' | 33:RO:49:ARG:NH1 | 2.40 | 0.55 |
| 1:QA:539:A:H2' | 1:QA:540:G:H8 | 1.72 | 0.55 |
| 1:QA:9:G:OP1 | 5:QE:122:GLU:HG2 | 2.06 | 0.55 |
| 24:RA:2470:G:O6 | 24:RA:2481:G:N2 | 2.40 | 0.55 |
| 24:RA:674:G:H1' | 28:RF:74:ARG:NH1 | 2.22 | 0.55 |
| 25:RB:3:C:H2' | 25:RB:4:C:H6 | 1.72 | 0.55 |
| 32:RN:86:PRO:HG2 | 32:RN:89:LYS:HE2 | 1.88 | 0.55 |
| 35:RQ:65:PHE:HB2 | 35:RQ:105:GLU:HB2 | 1.88 | 0.55 |
| 1:XA:21:G:H2' | 1:XA:22:G:C8 | 2.42 | 0.55 |
| 4:XD:169:LYS:HD2 | 4:XD:169:LYS:H | 1.71 | 0.55 |
| 31:YI:53:ALA:O | 31:YI:56:LYS:HG2 | 2.06 | 0.55 |
| 1:QA:976:G:H5' | 1:QA:1358:U:O2' | 2.08 | 0.54 |
| 1:QA:1522:U:H2' | 1:QA:1523:G:H8 | 1.72 | 0.54 |
| 1:QA:222:U:H2' | 1:QA:223:U:H6 | 1.72 | 0.54 |
| 4:QD:156:GLU:O | 4:QD:159:ARG:HG2 | 2.06 | 0.54 |
| 1:QA:406:G:H5' | 4:QD:5:ILE:HD13 | 1.88 | 0.54 |
| 24:RA:2010:G:H5'' | 41:RW:42:ARG:HB2 | 1.89 | 0.54 |
| 24:RA:2154:G:H2' | 24:RA:2155:G:C8 | 2.41 | 0.54 |
| 24:RA:638:G:H2' | 24:RA:639:U:C6 | 2.42 | 0.54 |
| 1:XA:1287:A:H2' | 1:XA:1288:A:C8 | 2.42 | 0.54 |
| 1:XA:892:A:H2' | 1:XA:893:C:C6 | 2.41 | 0.54 |
| 8:XH:86:ILE:HG21 | 8:XH:133:LEU:HD23 | 1.88 | 0.54 |
| 24:YA:1292:U:H2' | 24:YA:1293:C:C6 | 2.42 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 29:YG:80:PHE:O | 29:YG:82:LEU:HB2 | 2.07 | 0.54 |
| 38:YT:91:ARG:HD2 | 38:YT:120:ARG:NH1 | 2.22 | 0.54 |
| 1:QA:1391:U:H2' | 1:QA:1392:G:C8 | 2.41 | 0.54 |
| 2:QB:69:LEU:HB3 | 2:QB:162:ILE:HG22 | 1.89 | 0.54 |
| 3:QC:70:VAL:HG11 | 3:QC:76:VAL:HG11 | 1.89 | 0.54 |
| 4:QD:60:GLU:O | 4:QD:63:LYS:HG2 | 2.08 | 0.54 |
| 35:RQ:83:MET:HG2 | 45:R0:7:LEU:HD23 | 1.88 | 0.54 |
| 24:RA:2784:C:H2' | 24:RA:2785:C:H6 | 1.71 | 0.54 |
| 24:RA:620:G:H4' | 24:RA:621:A:H5'' | 1.89 | 0.54 |
| 24:RA:860:U:C5 | 24:RA:917:A:H2 | 2.25 | 0.54 |
| 27:RE:78:LEU:HG | 27:RE:79:ARG:HG2 | 1.89 | 0.54 |
| 29:RG:63:ILE:HG21 | 29:RG:138:GLN:HE22 | 1.72 | 0.54 |
| 32:RN:23:LEU:HD23 | 32:RN:60:ILE:HG21 | 1.88 | 0.54 |
| 44:RZ:19:ARG:HH12 | 44:RZ:84:GLU:HB2 | 1.71 | 0.54 |
| 1:XA:736:C:H2' | 1:XA:737:A:C8 | 2.42 | 0.54 |
| 2:XB:76:GLN:NE2 | 2:XB:206:ASP:OD1 | 2.35 | 0.54 |
| 3:XC:164:ARG:NH2 | 3:XC:166:GLU:OE2 | 2.37 | 0.54 |
| 8:XH:25:ASP:OD1 | 8:XH:60:ARG:HG2 | 2.08 | 0.54 |
| 11:XK:86:GLY:O | 11:XK:91:ARG:NH1 | 2.40 | 0.54 |
| 24:YA:1069:A:H2' | 24:YA:1073:A:N7 | 2.23 | 0.54 |
| 24:YA:1972:A:H2' | 24:YA:1973:G:H8 | 1.72 | 0.54 |
| 24:YA:2151:G:H2' | 24:YA:2152:G:C8 | 2.42 | 0.54 |
| 27:YE:52:LEU:O | 27:YE:74:PRO:HA | 2.07 | 0.54 |
| 2:QB:9:GLU:HG2 | 2:QB:48:MET:HG3 | 1.88 | 0.54 |
| 14:QN:17:LYS:HD3 | 14:QN:17:LYS:H | 1.73 | 0.54 |
| 24:RA:1056:G:H5'' | 24:RA:1057:A:H5' | 1.90 | 0.54 |
| 24:RA:1287:A:N7 | 36:RR:107:ASP:HB2 | 2.23 | 0.54 |
| 24:RA:2030:A:H4' | 24:RA:2031:A:H8 | 1.71 | 0.54 |
| 24:RA:2133:G:H1' | 24:RA:2158:A:H61 | 1.73 | 0.54 |
| 24:RA:796:C:H2' | 24:RA:797:C:C6 | 2.43 | 0.54 |
| 24:RA:807:U:H2' | 24:RA:808:G:C8 | 2.37 | 0.54 |
| 27:RE:63:LEU:HD12 | 27:RE:65:GLY:H | 1.72 | 0.54 |
| 1:XA:115:G:H4' | 1:XA:116:A:O5' | 2.07 | 0.54 |
| 1:XA:1314:C:H2' | 1:XA:1315:U:C6 | 2.42 | 0.54 |
| 1:XA:32:A:H2' | 1:XA:33:A:C8 | 2.41 | 0.54 |
| 6:XF:60:PHE:HE2 | 18:XR:78:LEU:HD21 | 1.72 | 0.54 |
| 24:YA:1268:A:H2' | 24:YA:1269:A:O4' | 2.08 | 0.54 |
| 24:YA:2099:U:O4 | 24:YA:2190:G:O6 | 2.25 | 0.54 |
| 24:YA:2783:G:H2' | 24:YA:2784:C:C6 | 2.43 | 0.54 |
| 24:RA:1431:U:H2' | 24:RA:1432:C:C6 | 2.43 | 0.54 |
| 24:RA:1728:G:N1 | 24:RA:1730:U:OP2 | 2.40 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:RD:108:PRO:HD2 | 26:RD:111:LEU:HD22 | 1.90 | 0.54 |
| 36:RR:22:ARG:O | 36:RR:26:LYS:HG2 | 2.06 | 0.54 |
| 1:XA:993:G:O2' | 1:XA:994:A:N7 | 2.40 | 0.54 |
| 45:Y0:69:PHE:HE1 | 45:Y0:79:VAL:HG13 | 1.72 | 0.54 |
| 47:Y2:16:LEU:O | 47:Y2:67:LYS:NZ | 2.41 | 0.54 |
| 48:Y3:3:ARG:NH2 | 48:Y3:60:GLU:O | 2.35 | 0.54 |
| 34:YP:61:ARG:HH11 | 53:Y8:56:GLU:CD | 2.11 | 0.54 |
| 24:YA:30:G:H2' | 24:YA:31:C:C6 | 2.41 | 0.54 |
| 1:QA:1510:U:H2' | 1:QA:1511:G:H8 | 1.72 | 0.54 |
| 49:R4:53:GLU:HB2 | 49:R4:56:VAL:HG22 | 1.90 | 0.54 |
| 30:RH:8:PRO:O | 30:RH:69:ARG:NH1 | 2.40 | 0.54 |
| 1:XA:1149:C:H2' | 1:XA:1150:U:C6 | 2.42 | 0.54 |
| 1:XA:428:G:OP2 | 4:XD:10:ARG:HD2 | 2.07 | 0.54 |
| 24:YA:2019:A:O2' | 39:YU:34:LYS:NZ | 2.40 | 0.54 |
| 24:YA:2025:C:H2' | 24:YA:2026:C:C6 | 2.43 | 0.54 |
| 24:YA:2023:G:H5' | 24:YA:2617:C:H4' | 1.90 | 0.54 |
| 39:YU:92:ARG:CD | 40:YV:11:GLN:HB2 | 2.38 | 0.54 |
| 24:YA:993:G:H4' | 40:YV:70:ILE:HD11 | 1.88 | 0.54 |
| 43:YY:9:LYS:HG3 | 43:YY:29:GLU:HA | 1.89 | 0.54 |
| 1:QA:1321:C:H4' | 13:QM:87:TYR:CZ | 2.42 | 0.54 |
| 1:QA:1464:G:OP2 | 38:RT:112:ARG:NH2 | 2.36 | 0.54 |
| 22:QV:21:U:H5' | 22:QV:22:A:OP2 | 2.07 | 0.54 |
| 24:RA:2804:C:N4 | 24:RA:2805:G:O6 | 2.41 | 0.54 |
| 24:RA:2867:G:O2' | 24:RA:2868:A:H8 | 1.90 | 0.54 |
| 30:RH:121:ILE:HD11 | 30:RH:140:LYS:HB3 | 1.90 | 0.54 |
| 40:RV:62:LEU:HD11 | 40:RV:95:LEU:HB2 | 1.90 | 0.54 |
| 1:XA:1118:C:H1' | 1:XA:1179:A:C5 | 2.43 | 0.54 |
| 1:XA:1486:G:H2' | 1:XA:1487:G:O4' | 2.08 | 0.54 |
| 2:XB:24:TRP:CZ3 | 2:XB:26:PRO:HA | 2.42 | 0.54 |
| 24:YA:1678:G:N2 | 24:YA:1989:G:H22 | 2.05 | 0.54 |
| 24:YA:620:G:H4' | 24:YA:621:A:H5'' | 1.88 | 0.54 |
| 33:YO:25:LEU:HD11 | 33:YO:40:VAL:HG23 | 1.89 | 0.54 |
| 36:YR:58:GLY:HA2 | 36:YR:80:PHE:HE1 | 1.73 | 0.54 |
| 38:YT:12:SER:HB3 | 38:YT:15:VAL:HG13 | 1.90 | 0.54 |
| 1:QA:1004:A:C2 | 1:QA:1025:U:H1' | 2.43 | 0.54 |
| 1:QA:579:G:H5' | 1:QA:728:A:H1' | 1.89 | 0.54 |
| 24:RA:1405:U:H2' | 24:RA:1406:U:C6 | 2.43 | 0.54 |
| 24:RA:2140:C:H2' | 24:RA:2141:G:H8 | 1.71 | 0.54 |
| 1:XA:1028(A):C:N4 | 1:XA:1032(B):G:O6 | 2.41 | 0.54 |
| 1:XA:251:G:N2 | 1:XA:253:U:O4 | 2.41 | 0.54 |
| 1:XA:486:U:H2' | 1:XA:487:A:H8 | 1.73 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:1695:G:N7 | 26:YD:14:ARG:NH2 | 2.56 | 0.54 |
| 24:YA:784:A:C5 | 26:YD:229:VAL:HG21 | 2.43 | 0.54 |
| 24:YA:2334:G:H5' | 37:YS:9:ARG:HG3 | 1.90 | 0.54 |
| 44:YZ:31:ARG:NH1 | 44:YZ:94:GLU:OE1 | 2.40 | 0.54 |
| 1:QA:539:A:H2' | 1:QA:540:G:C8 | 2.43 | 0.54 |
| 2:QB:168:THR:HG23 | 2:QB:192:SER:HB2 | 1.89 | 0.54 |
| 20:QT:30:LYS:HG3 | 20:QT:34:LYS:HE3 | 1.88 | 0.54 |
| 22:QV:9:G:O2' | 22:QV:10:G:N7 | 2.41 | 0.54 |
| 24:RA:2845:G:H2' | 24:RA:2846:G:C8 | 2.43 | 0.54 |
| 24:RA:923:C:H2' | 24:RA:924:C:H6 | 1.72 | 0.54 |
| 30:RH:9:ILE:HD11 | 30:RH:49:VAL:HB | 1.89 | 0.54 |
| 1:XA:1070:U:O5' | 5:XE:25:ARG:NH2 | 2.41 | 0.54 |
| 1:XA:1287:A:H2 | 1:XA:1353:G:H1' | 1.73 | 0.54 |
| 1:XA:22:G:H4' | 1:XA:885:G:C8 | 2.42 | 0.54 |
| 1:XA:464:G:H21 | 1:XA:468:A:H62 | 1.54 | 0.54 |
| 6:XF:99:ALA:HB1 | 18:XR:23:LYS:HE2 | 1.89 | 0.54 |
| 24:YA:589:C:H2' | 24:YA:590:A:C8 | 2.41 | 0.54 |
| 24:YA:259:G:N2 | 24:YA:621:A:H8 | 2.02 | 0.54 |
| 36:YR:59:ASP:HB2 | 36:YR:62:ALA:H | 1.72 | 0.54 |
| 1:QA:1141:C:H2' | 1:QA:1142:G:C8 | 2.42 | 0.54 |
| 1:QA:988:G:H2' | 1:QA:989:C:O4' | 2.07 | 0.54 |
| 19:QS:36:ARG:HA | 19:QS:71:LEU:HD23 | 1.89 | 0.54 |
| 24:RA:184:C:H2' | 24:RA:185:U:H6 | 1.73 | 0.54 |
| 24:RA:479:A:N3 | 24:RA:481:G:H5" | 2.23 | 0.54 |
| 24:RA:840:C:H2' | 24:RA:841:A:H8 | 1.73 | 0.54 |
| 26:RD:25:THR:HG21 | 26:RD:113:VAL:HG21 | 1.90 | 0.54 |
| 30:RH:11:VAL:HG12 | 30:RH:13:LYS:HG2 | 1.90 | 0.54 |
| 35:RQ:65:PHE:HB2 | 35:RQ:105:GLU:CB | 2.37 | 0.54 |
| 35:RQ:66:ILE:HD12 | 35:RQ:66:ILE:H | 1.72 | 0.54 |
| 1:XA:1211:U:H4' | 1:XA:1213:A:H1' | 1.89 | 0.54 |
| 9:XI:114:TYR:HE2 | 10:XJ:59:SER:HA | 1.73 | 0.54 |
| 24:YA:1992:G:N2 | 24:YA:1996:C:O2' | 2.41 | 0.54 |
| 25:YB:37:C:HO2' | 37:YS:95:HIS:CE1 | 2.24 | 0.54 |
| 43:YY:14:LEU:O | 43:YY:72:VAL:HA | 2.08 | 0.54 |
| 1:QA:619:U:N3 | 4:QD:134:ASP:OD1 | 2.39 | 0.54 |
| 35:RQ:81:VAL:HG12 | 45:R0:7:LEU:HD21 | 1.89 | 0.54 |
| 24:RA:1657:C:H2' | 24:RA:1658:C:C6 | 2.43 | 0.54 |
| 1:XA:501:C:H2' | 1:XA:502:G:H8 | 1.74 | 0.54 |
| 1:XA:708:C:H2' | 1:XA:709:G:H8 | 1.72 | 0.54 |
| 45:Y0:24:LYS:HZ1 | 45:Y0:39:ARG:HG3 | 1.72 | 0.54 |
| 24:YA:1062:G:H1' | 24:YA:1088:A:C5 | 2.43 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:2059:A:H5' | 24:YA:2060:A:OP2 | 2.07 | 0.54 |
| 24:YA:2564:A:C2 | 24:YA:2647:U:H4' | 2.43 | 0.54 |
| 1:QA:1241:G:H2' | 1:QA:1242:C:C6 | 2.43 | 0.53 |
| 1:QA:484:G:H4' | 1:QA:485:G:O5' | 2.08 | 0.53 |
| 1:QA:229:U:H4' | 16:QP:2:VAL:HG11 | 1.89 | 0.53 |
| 20:QT:35:THR:HA | 20:QT:38:LYS:HE2 | 1.90 | 0.53 |
| 49:R4:14:ILE:HG23 | 49:R4:22:ILE:HB | 1.90 | 0.53 |
| 52:R7:5:TRP:NE1 | 52:R7:7:PRO:HG3 | 2.23 | 0.53 |
| 53:R8:49:VAL:HG23 | 53:R8:53:PRO:HG3 | 1.89 | 0.53 |
| 27:RE:23:VAL:HG12 | 27:RE:173:VAL:HG21 | 1.90 | 0.53 |
| 24:RA:17:G:H4' | 39:RU:25:TRP:HE1 | 1.74 | 0.53 |
| 44:RZ:40:ASP:HB3 | 44:RZ:43:GLU:HB2 | 1.90 | 0.53 |
| 1:XA:718:G:C8 | 11:XK:116:HIS:HB3 | 2.42 | 0.53 |
| 1:XA:7:G:O2' | 5:XE:120:THR:O | 2.26 | 0.53 |
| 22:XV:15:G:H22 | 22:XV:49:C:H41 | 1.56 | 0.53 |
| 24:YA:1429:G:H2' | 24:YA:1430:C:C6 | 2.43 | 0.53 |
| 24:YA:2308:G:H1 | 24:YA:2311:A:H2 | 1.53 | 0.53 |
| 24:YA:2074:U:HO2' | 24:YA:2597:G:HO2' | 1.54 | 0.53 |
| 24:YA:270(V):G:H2' | 24:YA:270(W):G:H8 | 1.72 | 0.53 |
| 26:YD:130:ALA:HB2 | 26:YD:192:THR:HG22 | 1.88 | 0.53 |
| 1:QA:1261:A:H62 | 1:QA:1274:G:H21 | 1.54 | 0.53 |
| 1:QA:1305:G:N2 | 1:QA:1332:A:OP2 | 2.38 | 0.53 |
| 1:QA:384:G:H2' | 1:QA:385:C:C6 | 2.43 | 0.53 |
| 1:QA:689:C:H3' | 1:QA:690:G:H21 | 1.72 | 0.53 |
| 2:QB:162:ILE:HD11 | 2:QB:184:VAL:HG22 | 1.90 | 0.53 |
| 2:QB:7:VAL:HG22 | 2:QB:217:ARG:HG2 | 1.90 | 0.53 |
| 9:QI:82:ALA:HB1 | 9:QI:96:LEU:HD11 | 1.90 | 0.53 |
| 24:RA:1889:A:H2' | 24:RA:1890:A:C8 | 2.42 | 0.53 |
| 24:RA:2070:G:H2' | 24:RA:2071:A:C8 | 2.43 | 0.53 |
| 24:RA:345:A:O2' | 24:RA:347:A:N7 | 2.41 | 0.53 |
| 24:RA:704:G:O2' | 24:RA:726:G:N2 | 2.38 | 0.53 |
| 24:RA:755:C:H2' | 24:RA:756:C:H6 | 1.72 | 0.53 |
| 24:RA:910:A:H2' | 24:RA:911:A:C8 | 2.44 | 0.53 |
| 1:XA:191(A):G:H2' | 1:XA:191(B):G:C8 | 2.43 | 0.53 |
| 1:XA:337:C:H2' | 1:XA:338:A:C8 | 2.42 | 0.53 |
| 1:XA:8:A:N6 | 4:XD:205:GLU:O | 2.41 | 0.53 |
| 16:XP:6:LEU:HA | 16:XP:18:ARG:O | 2.08 | 0.53 |
| 24:YA:2271:G:H5' | 45:Y0:20:ARG:HG2 | 1.90 | 0.53 |
| 24:YA:624:C:H5" | 53:Y8:64:TYR:HD2 | 1.73 | 0.53 |
| 24:YA:1113:U:H2' | 24:YA:1114:G:C8 | 2.44 | 0.53 |
| 24:YA:1464:C:O2' | 24:YA:1528:A:H8 | 1.91 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:458:G:O2' | 24:YA:469:G:O6 | 2.22 | 0.53 |
| 24:YA:26:G:H1' | 24:YA:515:A:H61 | 1.73 | 0.53 |
| 25:YB:60:C:H2' | 25:YB:61:G:C8 | 2.43 | 0.53 |
| 26:YD:69:ARG:HH22 | 26:YD:117:VAL:HG12 | 1.72 | 0.53 |
| 38:YT:36:GLU:OE1 | 38:YT:41:ARG:NH1 | 2.39 | 0.53 |
| 44:YZ:121:HIS:ND1 | 44:YZ:169:GLU:OE1 | 2.41 | 0.53 |
| 1:QA:335:C:H2' | 1:QA:336:C:C6 | 2.42 | 0.53 |
| 1:QA:45:U:H2' | 1:QA:46:G:C8 | 2.44 | 0.53 |
| 1:QA:45:U:H2' | 1:QA:46:G:H8 | 1.72 | 0.53 |
| 1:QA:407:G:H5'' | 4:QD:115:ARG:CG | 2.38 | 0.53 |
| 14:QN:29:ARG:HH21 | 14:QN:32:SER:HB3 | 1.74 | 0.53 |
| 24:RA:1072:C:H42 | 24:RA:1092:C:H41 | 1.55 | 0.53 |
| 24:RA:1055:G:H22 | 24:RA:1105:U:H3 | 1.55 | 0.53 |
| 24:RA:511:U:H4' | 24:RA:1235:G:H4' | 1.90 | 0.53 |
| 24:RA:2629:A:H4' | 24:RA:2629:A:OP1 | 2.07 | 0.53 |
| 24:RA:455:C:N3 | 24:RA:472:A:H2' | 2.23 | 0.53 |
| 31:RI:14:ASP:C | 31:RI:16:GLY:H | 2.10 | 0.53 |
| 1:XA:955:U:H5' | 13:XM:120:LYS:HE3 | 1.89 | 0.53 |
| 5:XE:81:GLU:HG2 | 5:XE:90:VAL:HG12 | 1.91 | 0.53 |
| 35:YQ:81:VAL:H | 45:Y0:7:LEU:HD21 | 1.73 | 0.53 |
| 24:YA:1499:C:H2' | 24:YA:1500:G:C8 | 2.43 | 0.53 |
| 26:YD:30:GLU:CD | 26:YD:63:ARG:HH21 | 2.12 | 0.53 |
| 31:YI:9:LEU:HB3 | 31:YI:12:LEU:HB3 | 1.91 | 0.53 |
| 34:YP:64:LYS:HB3 | 53:Y8:25:MET:HG3 | 1.89 | 0.53 |
| 41:YW:83:LYS:HG2 | 41:YW:97:LYS:HG2 | 1.89 | 0.53 |
| 44:YZ:58:VAL:O | 44:YZ:59:LEU:HB2 | 2.09 | 0.53 |
| 2:QB:31:TYR:HE2 | 2:QB:194:PRO:HG3 | 1.74 | 0.53 |
| 4:QD:31:CYS:HB2 | 56:QD:301:SF4:S3 | 2.48 | 0.53 |
| 24:RA:1509:C:H3' | 24:RA:1510:A:H5'' | 1.90 | 0.53 |
| 24:RA:934:G:H2' | 24:RA:935:C:H6 | 1.73 | 0.53 |
| 1:XA:1513:A:H2' | 1:XA:1514:C:C6 | 2.43 | 0.53 |
| 4:XD:111:ALA:HB2 | 4:XD:120:LEU:HD12 | 1.91 | 0.53 |
| 22:XV:44:A:H2' | 22:XV:45:A:C8 | 2.43 | 0.53 |
| 45:Y0:21:LEU:HD11 | 45:Y0:41:ARG:NH2 | 2.24 | 0.53 |
| 24:YA:1590:U:H2' | 24:YA:1591:G:C8 | 2.43 | 0.53 |
| 24:YA:2364:C:H2' | 24:YA:2365:G:O4' | 2.09 | 0.53 |
| 37:YS:71:ARG:NH1 | 37:YS:107:GLU:OE1 | 2.41 | 0.53 |
| 38:YT:3:ARG:HG3 | 38:YT:6:LEU:HB2 | 1.91 | 0.53 |
| 39:YU:47:TYR:HA | 39:YU:50:ARG:HH11 | 1.74 | 0.53 |
| 39:YU:88:ILE:HG13 | 40:YV:48:GLY:HA2 | 1.90 | 0.53 |
| 4:QD:15:GLU:HG2 | 4:QD:63:LYS:HB3 | 1.91 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:QH:30:ARG:HA | 8:QH:33:GLU:HG2 | 1.90 | 0.53 |
| 24:RA:184:C:H2' | 24:RA:185:U:C6 | 2.44 | 0.53 |
| 24:RA:1678:G:N2 | 24:RA:1989:G:H22 | 2.06 | 0.53 |
| 24:RA:519:U:H2' | 24:RA:520:G:H8 | 1.72 | 0.53 |
| 26:RD:17:THR:HB | 26:RD:205:VAL:H | 1.74 | 0.53 |
| 1:XA:737:A:H2' | 1:XA:738:C:H6 | 1.73 | 0.53 |
| 1:XA:1373:G:OP1 | 9:XI:42:ARG:NH2 | 2.41 | 0.53 |
| 24:YA:2030:A:H4' | 24:YA:2031:A:H8 | 1.74 | 0.53 |
| 24:YA:2849:U:OP2 | 38:YT:95:ARG:NH1 | 2.42 | 0.53 |
| 31:YI:87:LYS:HA | 31:YI:122:GLU:HA | 1.89 | 0.53 |
| 1:QA:954:G:H21 | 1:QA:1227:A:H62 | 1.56 | 0.53 |
| 1:QA:1410:G:H2' | 1:QA:1411:C:C6 | 2.44 | 0.53 |
| 1:QA:186(B):C:H2' | 1:QA:186(C):G:C8 | 2.43 | 0.53 |
| 1:QA:551:U:H2' | 1:QA:552:U:C6 | 2.43 | 0.53 |
| 3:QC:7:PRO:HG3 | 3:QC:201:TYR:HE1 | 1.74 | 0.53 |
| 24:RA:140:A:H8 | 24:RA:1408:C:HO2' | 1.56 | 0.53 |
| 24:RA:1557:C:OP2 | 24:RA:1558:A:O2' | 2.20 | 0.53 |
| 24:RA:890:A:H2' | 24:RA:892:G:H8 | 1.74 | 0.53 |
| 1:XA:1129:C:H5' | 1:XA:1130:A:H5' | 1.91 | 0.53 |
| 1:XA:643:C:H2' | 1:XA:644:G:H8 | 1.73 | 0.53 |
| 1:XA:890:G:O2' | 1:XA:906:G:O6 | 2.24 | 0.53 |
| 1:XA:407:G:O4' | 4:XD:119:GLN:NE2 | 2.42 | 0.53 |
| 24:YA:1020:A:N1 | 24:YA:1141:U:H2' | 2.24 | 0.53 |
| 24:YA:2543:G:H2' | 24:YA:2544:G:C8 | 2.44 | 0.53 |
| 24:YA:794:G:H2' | 24:YA:795:C:C6 | 2.44 | 0.53 |
| 24:YA:848:G:H2' | 24:YA:849:A:H8 | 1.72 | 0.53 |
| 31:YI:2:LYS:HG3 | 31:YI:39:ALA:HB3 | 1.89 | 0.53 |
| 1:QA:455:C:H42 | 1:QA:477:G:H1 | 1.57 | 0.53 |
| 2:QB:186:ALA:HB3 | 2:QB:197:VAL:HG11 | 1.91 | 0.53 |
| 1:QA:686:U:H1' | 11:QK:42:TRP:HE1 | 1.74 | 0.53 |
| 11:QK:92:GLU:O | 11:QK:96:ARG:HD3 | 2.08 | 0.53 |
| 24:RA:2755:C:H2' | 54:R9:19:ARG:HD2 | 1.91 | 0.53 |
| 24:RA:1050:A:H2' | 24:RA:1051:G:O4' | 2.08 | 0.53 |
| 24:RA:2577:A:H5'' | 24:RA:2578:G:H5' | 1.91 | 0.53 |
| 24:RA:600:G:N2 | 24:RA:605:C:O3' | 2.41 | 0.53 |
| 24:RA:823:G:H2' | 24:RA:824:A:H8 | 1.73 | 0.53 |
| 24:RA:1568:G:OP2 | 26:RD:63:ARG:NH2 | 2.42 | 0.53 |
| 30:RH:28:GLY:HA3 | 30:RH:79:VAL:HB | 1.90 | 0.53 |
| 35:RQ:37:LEU:HD11 | 35:RQ:130:LYS:HB2 | 1.91 | 0.53 |
| 44:RZ:8:TYR:O | 44:RZ:37:VAL:HG13 | 2.09 | 0.53 |
| 1:XA:1336:C:O2' | 1:XA:1337:G:OP2 | 2.21 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 41:YW:23:LEU:HD11 | 50:Y5:27:PRO:HA | 1.91 | 0.53 |
| 24:YA:2346:A:H5'' | 24:YA:2383:G:H1' | 1.91 | 0.53 |
| 44:YZ:48:PHE:HE1 | 44:YZ:71:VAL:HG11 | 1.74 | 0.53 |
| 3:QC:18:TRP:HZ3 | 14:QN:55:GLY:N | 2.06 | 0.53 |
| 15:QO:26:GLU:HB2 | 15:QO:81:LEU:HD13 | 1.91 | 0.53 |
| 24:RA:2475:C:H42 | 24:RA:2529:G:H22 | 1.57 | 0.53 |
| 26:RD:45:ASN:OD1 | 26:RD:46:GLN:N | 2.36 | 0.53 |
| 40:RV:76:LYS:HD3 | 40:RV:81:TYR:CD2 | 2.43 | 0.53 |
| 44:RZ:55:HIS:NE2 | 44:RZ:135:GLU:HG3 | 2.23 | 0.53 |
| 1:XA:1240:U:H2' | 7:XG:32:ARG:HG2 | 1.91 | 0.53 |
| 24:YA:1031:G:O2' | 54:Y9:7:VAL:O | 2.22 | 0.53 |
| 24:YA:1045:A:N6 | 24:YA:1111:A:N7 | 2.57 | 0.53 |
| 24:YA:1812:A:H2' | 24:YA:1813:G:H8 | 1.73 | 0.53 |
| 24:YA:67:U:H3 | 24:YA:74:A:H2 | 1.56 | 0.53 |
| 25:YB:15:A:H1' | 25:YB:109:G:C5 | 2.43 | 0.53 |
| 1:QA:1111:A:N1 | 3:QC:177:THR:HG22 | 2.23 | 0.53 |
| 1:QA:1343:G:H2' | 1:QA:1344:C:C6 | 2.44 | 0.53 |
| 1:QA:642:A:N3 | 8:QH:113:SER:OG | 2.33 | 0.53 |
| 49:R4:28:LYS:HG2 | 49:R4:31:ILE:HD11 | 1.90 | 0.53 |
| 24:RA:1338:G:O2' | 24:RA:1393:A:N1 | 2.36 | 0.53 |
| 24:RA:2893:G:H5'' | 24:RA:2894:G:H5' | 1.91 | 0.53 |
| 24:RA:635:C:O2' | 24:RA:639:U:OP1 | 2.25 | 0.53 |
| 24:RA:639:U:H2' | 24:RA:640:C:H6 | 1.74 | 0.53 |
| 24:RA:68:G:H2' | 24:RA:69:C:C6 | 2.44 | 0.53 |
| 28:RF:184:TYR:CE2 | 28:RF:188:ARG:HD2 | 2.43 | 0.53 |
| 1:XA:243:A:H4' | 1:XA:244:U:O5' | 2.08 | 0.53 |
| 1:XA:265:G:H2' | 1:XA:266:G:H5'' | 1.91 | 0.53 |
| 5:XE:42:GLY:HA3 | 5:XE:66:MET:HG2 | 1.91 | 0.53 |
| 6:XF:36:ARG:NH2 | 6:XF:66:GLU:OE1 | 2.36 | 0.53 |
| 24:YA:1799:G:H5' | 24:YA:1819:A:N6 | 2.24 | 0.53 |
| 24:YA:2867:G:OP2 | 38:YT:119:LYS:NZ | 2.28 | 0.53 |
| 1:QA:181:G:O2' | 1:QA:183:G:O6 | 2.24 | 0.53 |
| 10:QJ:98:ILE:O | 10:QJ:99:LYS:HG2 | 2.08 | 0.53 |
| 24:RA:978:G:O4' | 24:RA:1001:A:H2 | 1.92 | 0.53 |
| 34:RP:121:LYS:HB3 | 34:RP:123:LEU:HD22 | 1.91 | 0.53 |
| 38:RT:53:ARG:HD2 | 38:RT:60:THR:HB | 1.91 | 0.53 |
| 1:XA:1469:G:H2' | 1:XA:1470:G:C8 | 2.44 | 0.53 |
| 1:XA:1320:C:H5' | 19:XS:70:LYS:HD2 | 1.90 | 0.53 |
| 24:YA:1674:G:H1' | 24:YA:1676:A:N6 | 2.24 | 0.53 |
| 24:YA:796:C:H2' | 24:YA:797:C:C6 | 2.44 | 0.53 |
| 34:YP:61:ARG:NH1 | 53:Y8:56:GLU:OE1 | 2.42 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 38:YT:54:ARG:HA | 38:YT:59:THR:HG23 | 1.90 | 0.53 |
| 1:QA:1137:C:O2' | 1:QA:1138:G:N2 | 2.42 | 0.52 |
| 1:QA:1410:G:H2' | 1:QA:1411:C:H6 | 1.75 | 0.52 |
| 1:QA:630:G:H22 | 1:QA:631:G:H21 | 1.56 | 0.52 |
| 1:QA:737:A:H2' | 1:QA:738:C:C6 | 2.43 | 0.52 |
| 9:QI:28:VAL:HG13 | 9:QI:63:ILE:HD11 | 1.91 | 0.52 |
| 10:QJ:57:LYS:HG2 | 10:QJ:60:ARG:HH21 | 1.74 | 0.52 |
| 22:QV:24:C:H2' | 22:QV:25:U:C6 | 2.44 | 0.52 |
| 24:RA:1079:C:N4 | 24:RA:1088:A:N7 | 2.52 | 0.52 |
| 25:RB:29:A:O2' | 25:RB:58:A:N1 | 2.37 | 0.52 |
| 27:RE:24:THR:HG21 | 27:RE:188:VAL:HG22 | 1.91 | 0.52 |
| 24:RA:470:A:OP1 | 28:RF:59:TYR:HE1 | 1.92 | 0.52 |
| 32:RN:15:LEU:HB2 | 32:RN:134:ARG:HB3 | 1.91 | 0.52 |
| 35:RQ:111:GLU:HA | 35:RQ:114:ALA:HB3 | 1.91 | 0.52 |
| 39:RU:83:LEU:HD12 | 39:RU:113:ALA:HB2 | 1.91 | 0.52 |
| 1:XA:1005:A:H3' | 1:XA:1006:C:C6 | 2.43 | 0.52 |
| 1:XA:1230:C:H2' | 1:XA:1231:G:C8 | 2.44 | 0.52 |
| 1:XA:390:C:H4' | 16:XP:28:ARG:HH21 | 1.73 | 0.52 |
| 7:XG:29:LYS:NZ | 7:XG:102:ARG:HB3 | 2.24 | 0.52 |
| 7:XG:75:VAL:HG13 | 7:XG:145:ALA:HA | 1.90 | 0.52 |
| 8:XH:120:THR:HB | 8:XH:123:GLU:HG2 | 1.89 | 0.52 |
| 1:XA:1279:A:P | 10:XJ:9:ARG:HH22 | 2.32 | 0.52 |
| 24:YA:1571:A:H2' | 24:YA:1572:A:C8 | 2.44 | 0.52 |
| 1:QA:524:G:H2' | 1:QA:525:C:C6 | 2.44 | 0.52 |
| 9:QI:17:VAL:HG23 | 9:QI:63:ILE:HG22 | 1.92 | 0.52 |
| 12:QL:47:LYS:O | 12:QL:47:LYS:HD2 | 2.08 | 0.52 |
| 17:QQ:45:HIS:NE2 | 17:QQ:47:PRO:HG3 | 2.24 | 0.52 |
| 24:RA:624:C:H5'' | 53:R8:64:TYR:HD2 | 1.74 | 0.52 |
| 24:RA:1278:A:H2' | 24:RA:1279:G:H8 | 1.74 | 0.52 |
| 24:RA:1399:C:H2' | 24:RA:1400:G:H8 | 1.73 | 0.52 |
| 24:RA:534:U:H2' | 24:RA:535:C:C6 | 2.44 | 0.52 |
| 24:RA:840:C:H2' | 24:RA:841:A:C8 | 2.44 | 0.52 |
| 24:RA:617:G:OP1 | 28:RF:40:GLN:HG3 | 2.09 | 0.52 |
| 44:RZ:3:TYR:O | 44:RZ:57:ILE:HA | 2.09 | 0.52 |
| 1:XA:712:A:H2' | 1:XA:713:G:C8 | 2.44 | 0.52 |
| 17:XQ:56:VAL:HG21 | 17:XQ:81:ARG:HH21 | 1.75 | 0.52 |
| 54:Y9:7:VAL:HG23 | 54:Y9:34:GLN:HG2 | 1.91 | 0.52 |
| 24:YA:1204:A:O2' | 24:YA:1205:U:O5' | 2.26 | 0.52 |
| 24:YA:1430:C:H2' | 24:YA:1431:U:C6 | 2.45 | 0.52 |
| 24:YA:1930:G:N2 | 24:YA:1969:A:OP2 | 2.35 | 0.52 |
| 24:YA:2723:C:OP1 | 36:YR:3:HIS:ND1 | 2.42 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 36:YR:56:LYS:HE3 | 36:YR:88:ARG:HA | 1.91 | 0.52 |
| 38:YT:26:ASP:HB3 | 38:YT:92:GLY:H | 1.72 | 0.52 |
| 1:QA:1014:A:H2 | 1:QA:1219:U:H1' | 1.74 | 0.52 |
| 1:QA:876:G:H1' | 8:QH:11:THR:HG21 | 1.91 | 0.52 |
| 1:QA:974:A:OP2 | 14:QN:29:ARG:NH2 | 2.37 | 0.52 |
| 2:QB:102:LEU:HB2 | 2:QB:176:GLU:HG2 | 1.91 | 0.52 |
| 3:QC:69:HIS:CD2 | 3:QC:104:GLN:HB2 | 2.44 | 0.52 |
| 10:QJ:37:PRO:HA | 10:QJ:72:VAL:HG12 | 1.91 | 0.52 |
| 24:RA:1270:C:H5'' | 24:RA:1271:G:H5' | 1.92 | 0.52 |
| 24:RA:323:G:H2' | 28:RF:169:ASN:OD1 | 2.09 | 0.52 |
| 2:XB:42:ILE:HD11 | 2:XB:202:PRO:HB2 | 1.91 | 0.52 |
| 11:XK:40:ILE:HD12 | 11:XK:75:TYR:HD2 | 1.74 | 0.52 |
| 24:YA:2162:G:H3' | 24:YA:2163:C:C5 | 2.45 | 0.52 |
| 24:YA:2314:C:OP1 | 29:YG:91:ARG:NH2 | 2.42 | 0.52 |
| 24:YA:2065:C:H1' | 24:YA:2449:U:N3 | 2.24 | 0.52 |
| 24:YA:2832:U:H4' | 24:YA:2833:G:H5'' | 1.91 | 0.52 |
| 31:YI:95:LYS:HA | 31:YI:111:PRO:HB3 | 1.91 | 0.52 |
| 33:YO:8:LEU:HD13 | 33:YO:82:ASN:HB3 | 1.91 | 0.52 |
| 34:YP:74:GLU:OE2 | 34:YP:79:ARG:NH2 | 2.33 | 0.52 |
| 1:QA:1127:G:H22 | 1:QA:1145:C:H1' | 1.75 | 0.52 |
| 1:QA:481:G:O2' | 1:QA:482:A:H8 | 1.81 | 0.52 |
| 3:QC:131:ARG:O | 3:QC:134:ILE:HG22 | 2.10 | 0.52 |
| 7:QG:75:VAL:HG13 | 7:QG:145:ALA:HA | 1.91 | 0.52 |
| 16:QP:18:ARG:HA | 16:QP:38:TYR:HA | 1.91 | 0.52 |
| 18:QR:31:LEU:HD11 | 18:QR:66:LEU:HB2 | 1.90 | 0.52 |
| 54:R9:3:VAL:HG22 | 54:R9:35:ARG:HD2 | 1.91 | 0.52 |
| 24:RA:144:C:H2' | 24:RA:145:G:C8 | 2.44 | 0.52 |
| 24:RA:2224:G:OP1 | 26:RD:268:ARG:NH1 | 2.42 | 0.52 |
| 44:RZ:39:VAL:HG22 | 44:RZ:40:ASP:H | 1.74 | 0.52 |
| 1:XA:45:U:H2' | 1:XA:46:G:H8 | 1.73 | 0.52 |
| 11:XK:18:ARG:NH1 | 11:XK:35:PRO:O | 2.41 | 0.52 |
| 12:XL:60:LEU:HD21 | 12:XL:64:TYR:HB2 | 1.91 | 0.52 |
| 16:XP:6:LEU:HD13 | 16:XP:17:TYR:CD2 | 2.44 | 0.52 |
| 24:YA:1020:A:N6 | 24:YA:1141:U:O2' | 2.42 | 0.52 |
| 24:YA:1339:G:H5'' | 42:YX:16:LYS:HD3 | 1.92 | 0.52 |
| 24:YA:2290:G:H2' | 24:YA:2291:U:O4' | 2.09 | 0.52 |
| 25:YB:3:C:H2' | 25:YB:4:C:H6 | 1.73 | 0.52 |
| 25:YB:95:U:H2' | 25:YB:96:G:C8 | 2.45 | 0.52 |
| 26:YD:242:ARG:O | 26:YD:244:ARG:HG2 | 2.09 | 0.52 |
| 30:YH:17:VAL:HG21 | 30:YH:50:VAL:HG11 | 1.90 | 0.52 |
| 38:YT:107:ASP:O | 38:YT:110:ILE:HG22 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 41:YW:50:VAL:HG12 | 41:YW:105:VAL:HG22 | 1.92 | 0.52 |
| 44:YZ:10:ARG:HD2 | 44:YZ:38:TYR:HD1 | 1.75 | 0.52 |
| 1:QA:8:A:N6 | 4:QD:205:GLU:O | 2.43 | 0.52 |
| 19:QS:50:ALA:HB1 | 19:QS:57:HIS:HB3 | 1.91 | 0.52 |
| 24:RA:1116:C:H2' | 24:RA:1117:G:C8 | 2.44 | 0.52 |
| 24:RA:2291:U:OP1 | 24:RA:2380:C:O2' | 2.26 | 0.52 |
| 24:RA:848:G:H2' | 24:RA:849:A:H8 | 1.73 | 0.52 |
| 26:RD:108:PRO:HG2 | 26:RD:111:LEU:HB2 | 1.92 | 0.52 |
| 30:RH:124:GLU:HG2 | 30:RH:132:ARG:HH11 | 1.74 | 0.52 |
| 33:RO:53:LYS:HG2 | 33:RO:54:GLU:H | 1.74 | 0.52 |
| 41:RW:88:ARG:HB2 | 41:RW:92:ARG:HB2 | 1.90 | 0.52 |
| 4:XD:112:VAL:HG12 | 4:XD:116:GLN:OE1 | 2.09 | 0.52 |
| 4:XD:18:LYS:HE3 | 4:XD:31:CYS:SG | 2.49 | 0.52 |
| 5:XE:57:LYS:HG2 | 5:XE:61:TYR:CE2 | 2.45 | 0.52 |
| 10:XJ:28:ARG:HH12 | 10:XJ:34:VAL:HB | 1.75 | 0.52 |
| 24:YA:529:A:H8 | 24:YA:530:G:C6 | 2.27 | 0.52 |
| 24:YA:969:U:H2' | 24:YA:970:C:C6 | 2.45 | 0.52 |
| 29:YG:37:VAL:O | 29:YG:94:LEU:HB2 | 2.09 | 0.52 |
| 1:QA:1355:G:H2' | 1:QA:1356:G:C8 | 2.45 | 0.52 |
| 11:QK:121:PRO:HB2 | 11:QK:126:ARG:HB2 | 1.90 | 0.52 |
| 24:RA:2021:C:OP1 | 50:R5:12:SER:OG | 2.27 | 0.52 |
| 24:RA:2688:U:OP1 | 24:RA:2713:A:N6 | 2.43 | 0.52 |
| 24:RA:2853:C:H2' | 24:RA:2854:G:C8 | 2.45 | 0.52 |
| 37:RS:15:ARG:HD3 | 37:RS:88:ASP:OD1 | 2.09 | 0.52 |
| 44:RZ:146:ILE:HG13 | 44:RZ:147:GLY:H | 1.75 | 0.52 |
| 1:XA:188:U:H2' | 1:XA:189:U:H5'' | 1.92 | 0.52 |
| 6:XF:35:ALA:HA | 6:XF:67:MET:HB3 | 1.92 | 0.52 |
| 30:YH:86:GLU:HB3 | 30:YH:165:ALA:HB3 | 1.91 | 0.52 |
| 43:YY:35:TYR:CE2 | 43:YY:69:ALA:HB3 | 2.43 | 0.52 |
| 5:QE:12:LEU:HD23 | 5:QE:31:LEU:HB3 | 1.91 | 0.52 |
| 24:RA:1430:C:H2' | 24:RA:1431:U:C6 | 2.45 | 0.52 |
| 24:RA:251:A:C5 | 24:RA:252:G:H1' | 2.45 | 0.52 |
| 24:RA:78:A:H2' | 24:RA:79:G:H8 | 1.74 | 0.52 |
| 35:RQ:111:GLU:OE1 | 35:RQ:133:ARG:NH1 | 2.43 | 0.52 |
| 1:XA:1145:C:H4' | 1:XA:1146:A:H5' | 1.92 | 0.52 |
| 1:XA:1355:G:H2' | 1:XA:1356:G:H8 | 1.75 | 0.52 |
| 1:XA:1432:G:O2' | 1:XA:1468:A:N6 | 2.43 | 0.52 |
| 1:XA:34:C:H2' | 1:XA:35:G:C8 | 2.43 | 0.52 |
| 7:XG:115:ARG:HD3 | 7:XG:117:ALA:H | 1.74 | 0.52 |
| 21:XU:6:ARG:HH11 | 21:XU:15:ARG:NE | 2.06 | 0.52 |
| 24:YA:184:C:H2' | 24:YA:185:U:C6 | 2.45 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:2150:U:H2' | 24:YA:2151:G:H8 | 1.75 | 0.52 |
| 24:YA:2815:C:H5' | 50:Y5:29:THR:HG21 | 1.91 | 0.52 |
| 24:YA:1693:U:H1' | 26:YD:14:ARG:NH1 | 2.25 | 0.52 |
| 39:YU:52:ARG:HA | 39:YU:55:ARG:HE | 1.74 | 0.52 |
| 1:QA:1072:G:H2' | 1:QA:1073:U:C6 | 2.45 | 0.52 |
| 24:RA:890:A:H2' | 24:RA:892:G:C8 | 2.44 | 0.52 |
| 24:RA:616:A:H4' | 28:RF:182:ASN:ND2 | 2.25 | 0.52 |
| 29:RG:110:ALA:HB1 | 29:RG:140:ILE:HD12 | 1.91 | 0.52 |
| 39:RU:98:LEU:HD12 | 39:RU:102:GLU:HB2 | 1.92 | 0.52 |
| 42:RX:18:TYR:HA | 42:RX:21:PHE:CD2 | 2.44 | 0.52 |
| 8:XH:120:THR:HG22 | 8:XH:121:ASP:H | 1.75 | 0.52 |
| 24:YA:2823:A:OP1 | 27:YE:113:PHE:HB2 | 2.09 | 0.52 |
| 40:YV:66:ARG:NH1 | 40:YV:88:ARG:HD3 | 2.24 | 0.52 |
| 1:QA:514:C:H2' | 1:QA:515:G:H8 | 1.75 | 0.52 |
| 3:QC:16:ARG:HH21 | 3:QC:54:ARG:HH12 | 1.58 | 0.52 |
| 24:RA:2074:U:H2' | 24:RA:2075:U:C6 | 2.45 | 0.52 |
| 24:RA:2291:U:H2' | 24:RA:2292:C:C6 | 2.44 | 0.52 |
| 24:RA:2315:G:H2' | 24:RA:2316:C:C6 | 2.45 | 0.52 |
| 29:RG:73:ALA:HB2 | 29:RG:82:LEU:HD22 | 1.92 | 0.52 |
| 31:RI:5:LEU:HD21 | 31:RI:12:LEU:HG | 1.91 | 0.52 |
| 37:RS:30:ARG:HH11 | 37:RS:97:ARG:HH21 | 1.58 | 0.52 |
| 1:XA:1314:C:H2' | 1:XA:1315:U:H6 | 1.73 | 0.52 |
| 1:XA:1371:G:O3' | 9:XI:69:GLY:HA3 | 2.09 | 0.52 |
| 8:XH:46:LYS:HG3 | 8:XH:64:LYS:HB3 | 1.91 | 0.52 |
| 1:XA:264:U:O2' | 17:XQ:64:PRO:O | 2.26 | 0.52 |
| 24:YA:2647:U:H2' | 24:YA:2648:C:C6 | 2.45 | 0.52 |
| 24:YA:81:G:H2' | 24:YA:82:G:O4' | 2.10 | 0.52 |
| 24:YA:784:A:C6 | 26:YD:229:VAL:HG21 | 2.45 | 0.52 |
| 27:YE:9:VAL:HB | 27:YE:25:VAL:HG13 | 1.92 | 0.52 |
| 32:YN:137:LYS:HG2 | 32:YN:138:LEU:H | 1.75 | 0.52 |
| 41:YW:30:GLU:O | 41:YW:34:ASN:ND2 | 2.43 | 0.52 |
| 42:YX:44:GLU:HB2 | 42:YX:49:VAL:O | 2.10 | 0.52 |
| 24:YA:896:A:H1' | 44:YZ:146:ILE:HG21 | 1.91 | 0.52 |
| 1:QA:1071:C:H2' | 1:QA:1072:G:H8 | 1.75 | 0.52 |
| 1:QA:1119:C:H2' | 1:QA:1120:G:H8 | 1.75 | 0.52 |
| 1:QA:1151:A:H2' | 1:QA:1152:A:C8 | 2.44 | 0.52 |
| 1:QA:406:G:H21 | 4:QD:119:GLN:HE22 | 1.56 | 0.52 |
| 51:R6:6:ARG:HD3 | 51:R6:26:ASN:HA | 1.90 | 0.52 |
| 24:RA:389:G:H1 | 34:RP:71:VAL:H | 1.56 | 0.52 |
| 24:RA:99:U:H4' | 24:RA:101:G:O5' | 2.09 | 0.52 |
| 37:RS:88:ASP:O | 37:RS:89:ARG:HB3 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 44:RZ:31:ARG:NH2 | 44:RZ:92:SER:OG | 2.40 | 0.52 |
| 1:XA:1151:A:H2' | 1:XA:1152:A:H8 | 1.75 | 0.52 |
| 1:XA:429:U:H1' | 1:XA:430:A:H5'' | 1.91 | 0.52 |
| 1:XA:537:G:H5'' | 12:XL:113:ARG:HH12 | 1.75 | 0.52 |
| 24:YA:1428:C:O2' | 24:YA:1569:A:OP2 | 2.28 | 0.52 |
| 24:YA:557:U:H2' | 24:YA:558:G:H8 | 1.74 | 0.52 |
| 40:YV:38:LEU:HD12 | 40:YV:57:VAL:HG23 | 1.92 | 0.52 |
| 1:QA:1167:A:H2' | 1:QA:1169:A:C8 | 2.45 | 0.51 |
| 1:QA:1218:C:H2' | 1:QA:1219:U:C6 | 2.45 | 0.51 |
| 4:QD:57:ARG:HB3 | 4:QD:206:PHE:HB2 | 1.92 | 0.51 |
| 8:QH:10:LEU:HD22 | 8:QH:83:ILE:HD11 | 1.91 | 0.51 |
| 1:QA:1221:G:H5' | 19:QS:36:ARG:NH2 | 2.25 | 0.51 |
| 1:QA:186:C:H5' | 20:QT:78:ALA:HB1 | 1.91 | 0.51 |
| 24:RA:586:A:N1 | 24:RA:809:G:O2' | 2.31 | 0.51 |
| 24:RA:673:C:OP1 | 28:RF:54:ARG:HD2 | 2.10 | 0.51 |
| 35:RQ:38:GLU:HG2 | 35:RQ:127:ILE:HG23 | 1.90 | 0.51 |
| 43:RY:87:LYS:HE3 | 43:RY:95:LYS:HG2 | 1.92 | 0.51 |
| 1:XA:1241:G:H2' | 1:XA:1242:C:H6 | 1.74 | 0.51 |
| 6:XF:42:GLU:HG3 | 6:XF:61:LEU:HD23 | 1.92 | 0.51 |
| 9:XI:73:GLN:O | 9:XI:77:ILE:HG12 | 2.10 | 0.51 |
| 50:Y5:49:CYS:O | 50:Y5:56:LYS:NZ | 2.42 | 0.51 |
| 24:YA:1316:U:H2' | 24:YA:1317:A:H8 | 1.72 | 0.51 |
| 31:YI:68:LEU:HA | 31:YI:71:ILE:HG22 | 1.91 | 0.51 |
| 39:YU:11:ARG:O | 39:YU:15:LYS:HG2 | 2.10 | 0.51 |
| 1:QA:1002:G:H2' | 1:QA:1003:G:H8 | 1.75 | 0.51 |
| 1:QA:17:U:H2' | 1:QA:18:C:H6 | 1.73 | 0.51 |
| 1:QA:630:G:H2' | 1:QA:631:G:H4' | 1.91 | 0.51 |
| 1:QA:736:C:H2' | 1:QA:737:A:C8 | 2.45 | 0.51 |
| 9:QI:5:TYR:CE1 | 9:QI:16:ARG:HG3 | 2.45 | 0.51 |
| 52:R7:31:LEU:HD22 | 52:R7:42:LEU:HD23 | 1.92 | 0.51 |
| 24:RA:1593:G:H2' | 24:RA:1594:G:C8 | 2.45 | 0.51 |
| 24:RA:139:G:N2 | 24:RA:1596:A:H4' | 2.25 | 0.51 |
| 24:RA:2391:G:O2' | 24:RA:2422:A:N7 | 2.43 | 0.51 |
| 24:RA:443:A:H1' | 24:RA:1201:C:O4' | 2.10 | 0.51 |
| 1:XA:1301:U:O2' | 1:XA:1302:U:H5' | 2.10 | 0.51 |
| 1:XA:1305:G:H22 | 1:XA:1331:G:H2' | 1.74 | 0.51 |
| 1:XA:1305:G:OP1 | 21:XU:2:GLY:HA2 | 2.10 | 0.51 |
| 1:XA:537:G:H5'' | 12:XL:113:ARG:NH1 | 2.26 | 0.51 |
| 8:XH:121:ASP:OD1 | 8:XH:122:ARG:N | 2.43 | 0.51 |
| 24:YA:2037:G:H2' | 24:YA:2038:G:C8 | 2.45 | 0.51 |
| 24:YA:689:A:H2' | 24:YA:690:G:C8 | 2.45 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:YG:115:ARG:HD2 | 29:YG:115:ARG:H | 1.75 | 0.51 |
| 41:YW:45:TYR:CZ | 41:YW:49:LYS:HD2 | 2.45 | 0.51 |
| 2:QB:178:ARG:NH1 | 2:QB:198:ASP:OD1 | 2.39 | 0.51 |
| 24:RA:385:C:O2' | 24:RA:388:G:N2 | 2.44 | 0.51 |
| 24:RA:65:C:H2' | 24:RA:66:C:H6 | 1.75 | 0.51 |
| 1:XA:129(A):G:N2 | 1:XA:188:U:HO2' | 2.08 | 0.51 |
| 1:XA:1348:U:N3 | 1:XA:1374:A:H2 | 2.01 | 0.51 |
| 2:XB:16:HIS:CD2 | 2:XB:210:SER:HA | 2.43 | 0.51 |
| 17:XQ:100:LYS:HD2 | 17:XQ:100:LYS:O | 2.10 | 0.51 |
| 20:XT:14:LYS:HA | 20:XT:17:ARG:HG2 | 1.92 | 0.51 |
| 25:YB:12:C:H2' | 45:Y0:73:GLY:HA3 | 1.92 | 0.51 |
| 49:Y4:46:GLN:O | 49:Y4:48:ARG:N | 2.32 | 0.51 |
| 24:YA:1045:A:N7 | 24:YA:1111:A:N6 | 2.58 | 0.51 |
| 24:YA:1427:A:H4' | 24:YA:1428:C:O5' | 2.10 | 0.51 |
| 24:YA:218:A:C2 | 24:YA:235:U:H4' | 2.45 | 0.51 |
| 24:YA:2319:G:O6 | 37:YS:4:LEU:HB2 | 2.11 | 0.51 |
| 28:YF:184:TYR:CE2 | 28:YF:188:ARG:HD2 | 2.45 | 0.51 |
| 1:QA:277:C:H5'' | 17:QQ:68:ARG:HH21 | 1.76 | 0.51 |
| 12:QL:84:LEU:HB2 | 12:QL:105:TYR:HD2 | 1.76 | 0.51 |
| 12:QL:110:VAL:O | 12:QL:122:THR:OG1 | 2.21 | 0.51 |
| 49:R4:14:ILE:CG2 | 49:R4:22:ILE:HB | 2.39 | 0.51 |
| 24:RA:1427:A:H4' | 24:RA:1428:C:O5' | 2.10 | 0.51 |
| 24:RA:576:U:H2' | 24:RA:577:G:C8 | 2.46 | 0.51 |
| 24:RA:946:G:H2' | 24:RA:947:G:H8 | 1.74 | 0.51 |
| 36:RR:103:ARG:HG2 | 36:RR:110:PRO:HA | 1.91 | 0.51 |
| 44:RZ:54:HIS:CG | 44:RZ:101:PRO:HG3 | 2.44 | 0.51 |
| 1:XA:192:U:H4' | 20:XT:57:ARG:HD3 | 1.92 | 0.51 |
| 1:XA:1291:G:HO2' | 9:XI:38:GLN:NE2 | 2.08 | 0.51 |
| 1:XA:973:G:O3' | 14:XN:41:ARG:NH2 | 2.43 | 0.51 |
| 24:YA:1264:G:OP1 | 50:Y5:19:ARG:NH1 | 2.42 | 0.51 |
| 24:YA:1489:U:HO2' | 24:YA:1490:A:H8 | 1.58 | 0.51 |
| 24:YA:1844:C:H2' | 24:YA:1845:G:H8 | 1.74 | 0.51 |
| 25:YB:8:U:O4 | 25:YB:112:G:O6 | 2.29 | 0.51 |
| 26:YD:35:LYS:HD3 | 26:YD:35:LYS:O | 2.11 | 0.51 |
| 30:YH:27:LYS:O | 30:YH:27:LYS:HD3 | 2.10 | 0.51 |
| 31:YI:78:THR:HG22 | 31:YI:141:LYS:HD3 | 1.91 | 0.51 |
| 1:QA:1315:U:H2' | 1:QA:1316:G:O4' | 2.11 | 0.51 |
| 1:QA:51:A:N1 | 1:QA:314:C:O2' | 2.39 | 0.51 |
| 1:QA:980:C:H5'' | 1:QA:981:U:C5 | 2.45 | 0.51 |
| 4:QD:82:ALA:HB1 | 4:QD:92:VAL:HG13 | 1.92 | 0.51 |
| 29:RG:114:ILE:HD13 | 29:RG:140:ILE:HG21 | 1.93 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 36:RR:56:LYS:NZ | 36:RR:90:ARG:O | 2.43 | 0.51 |
| 41:RW:10:VAL:HG12 | 41:RW:12:ILE:HG22 | 1.93 | 0.51 |
| 1:XA:686:U:H2' | 1:XA:687:A:C8 | 2.44 | 0.51 |
| 3:XC:23:TYR:HA | 10:XJ:11:PHE:CE2 | 2.45 | 0.51 |
| 7:XG:26:PHE:O | 7:XG:30:ILE:HG12 | 2.10 | 0.51 |
| 20:XT:83:ARG:HA | 20:XT:86:ARG:HG2 | 1.92 | 0.51 |
| 24:YA:1344:G:H4' | 24:YA:1384:A:C5 | 2.46 | 0.51 |
| 24:YA:2702:U:OP1 | 24:YA:2702:U:H6 | 1.92 | 0.51 |
| 38:YT:91:ARG:HB2 | 38:YT:121:ILE:HG13 | 1.92 | 0.51 |
| 3:QC:22:TRP:HH2 | 3:QC:32:LEU:HD13 | 1.72 | 0.51 |
| 5:QE:15:ARG:HG3 | 5:QE:28:PHE:CE1 | 2.46 | 0.51 |
| 24:RA:1176:G:O3' | 24:RA:1178:C:N4 | 2.44 | 0.51 |
| 24:RA:58:G:H5' | 42:RX:74:PRO:HB3 | 1.92 | 0.51 |
| 29:RG:28:VAL:O | 29:RG:33:ARG:NH2 | 2.44 | 0.51 |
| 36:RR:26:LYS:HE2 | 36:RR:70:LEU:O | 2.11 | 0.51 |
| 42:RX:54:VAL:HG22 | 42:RX:81:VAL:HG12 | 1.91 | 0.51 |
| 1:XA:1079:G:H2' | 1:XA:1080:A:C8 | 2.45 | 0.51 |
| 1:XA:1463:C:OP1 | 38:YT:111:ARG:NH1 | 2.44 | 0.51 |
| 24:YA:531:C:OP1 | 24:YA:561:G:N1 | 2.44 | 0.51 |
| 25:YB:3:C:H2' | 25:YB:4:C:C6 | 2.45 | 0.51 |
| 26:YD:61:LEU:O | 26:YD:63:ARG:NH1 | 2.41 | 0.51 |
| 38:YT:28:VAL:HG12 | 38:YT:88:ILE:HG13 | 1.92 | 0.51 |
| 24:RA:2056:G:N2 | 50:R5:3:LYS:O | 2.29 | 0.51 |
| 24:RA:1055:G:H1 | 24:RA:1105:U:H3 | 1.57 | 0.51 |
| 24:RA:1341:U:OP2 | 24:RA:1394:U:O2' | 2.21 | 0.51 |
| 24:RA:1508:A:O2' | 24:RA:1509:C:O4' | 2.20 | 0.51 |
| 24:RA:1952:A:N3 | 24:RA:2560:C:O2' | 2.38 | 0.51 |
| 24:RA:2439:A:C8 | 24:RA:2439:A:H5' | 2.46 | 0.51 |
| 24:RA:2564:A:H2' | 24:RA:2565:A:C8 | 2.45 | 0.51 |
| 24:RA:492:A:H2' | 24:RA:493:G:O4' | 2.11 | 0.51 |
| 24:RA:602:G:O2' | 24:RA:604:G:O2' | 2.24 | 0.51 |
| 28:RF:181:LEU:HD11 | 28:RF:186:ILE:HD11 | 1.91 | 0.51 |
| 30:RH:157:TYR:CD1 | 30:RH:172:LYS:HG3 | 2.46 | 0.51 |
| 1:XA:191(E):G:H2' | 1:XA:191(F):U:C6 | 2.46 | 0.51 |
| 1:XA:580:U:H3 | 1:XA:761:G:H1 | 1.58 | 0.51 |
| 1:XA:1310:G:OP2 | 13:XM:88:ARG:NH2 | 2.44 | 0.51 |
| 24:YA:2701:C:C3' | 24:YA:2702:U:H5" | 2.37 | 0.51 |
| 24:YA:634:C:H2' | 24:YA:635:C:C6 | 2.46 | 0.51 |
| 24:YA:812:C:H5" | 24:YA:1250:G:O2' | 2.11 | 0.51 |
| 27:YE:1:MET:HG3 | 27:YE:200:GLU:HG2 | 1.93 | 0.51 |
| 27:YE:24:THR:HG21 | 27:YE:188:VAL:HG22 | 1.92 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|---------------------|--------------------------|-------------------|
| 31:YI:104:GLN:HG3 | 31:YI:105:HIS:CD2 | 2.46 | 0.51 |
| 32:YN:73:THR:HB | 32:YN:82:LEU:HD11 | 1.93 | 0.51 |
| 38:YT:51:ARG:HG2 | 38:YT:62:THR:HB | 1.92 | 0.51 |
| 42:YX:25:LYS:HB3 | 42:YX:80:ILE:HD11 | 1.92 | 0.51 |
| 1:QA:855:G:OP2 | 1:QA:871:U:N3 | 2.43 | 0.51 |
| 2:QB:146:GLN:O | 2:QB:150:SER:HB2 | 2.11 | 0.51 |
| 10:QJ:49:VAL:HG12 | 14:QN:41:ARG:HG2 | 1.92 | 0.51 |
| 11:QK:21:ILE:HG13 | 11:QK:30:VAL:HG12 | 1.91 | 0.51 |
| 15:QO:80:ALA:O | 15:QO:83:GLU:HG3 | 2.10 | 0.51 |
| 24:RA:519:U:H2' | 24:RA:520:G:C8 | 2.45 | 0.51 |
| 24:RA:1754:C:OP1 | 38:RT:96:ARG:NE | 2.44 | 0.51 |
| 1:XA:1054:C:O2' | 1:XA:1055:A:H5'' | 2.11 | 0.51 |
| 1:XA:1179:A:H2' | 1:XA:1180:A:O4' | 2.11 | 0.51 |
| 1:XA:186(D):C:H2' | 1:XA:186(E):C:C6 | 2.46 | 0.51 |
| 1:XA:664:G:H22 | 1:XA:741:G:H1 | 1.59 | 0.51 |
| 24:YA:125:G:O6 | 52:Y7:10:ARG:NH1 | 2.43 | 0.51 |
| 24:YA:392:C:H5'' | 24:YA:409:C:H5'' | 1.93 | 0.51 |
| 24:YA:566:U:OP1 | 34:YP:29:LYS:HE2 | 2.11 | 0.51 |
| 29:YG:72:ARG:NH1 | 29:YG:87:PRO:HB3 | 2.26 | 0.51 |
| 1:QA:757:U:O2' | 1:QA:879:C:O2 | 2.28 | 0.51 |
| 8:QH:108:GLY:HA3 | 8:QH:138:TRP:HB3 | 1.93 | 0.51 |
| 52:R7:12:ARG:NH2 | 52:R7:44:PRO:HB3 | 2.26 | 0.51 |
| 24:RA:1310:G:H1' | 24:RA:1611:C:H5'' | 1.93 | 0.51 |
| 24:RA:1449:A:H5' | 24:RA:1449(A):G:OP2 | 2.10 | 0.51 |
| 24:RA:2070:G:H2' | 24:RA:2071:A:H8 | 1.76 | 0.51 |
| 24:RA:2626:C:H2' | 24:RA:2627:G:H8 | 1.75 | 0.51 |
| 24:RA:2823:A:OP1 | 27:RE:113:PHE:HB2 | 2.10 | 0.51 |
| 24:RA:660:G:H21 | 34:RP:12:ALA:HA | 1.75 | 0.51 |
| 24:RA:389:G:H22 | 34:RP:72:PRO:HD3 | 1.76 | 0.51 |
| 37:RS:72:ALA:O | 37:RS:75:GLU:HG2 | 2.11 | 0.51 |
| 38:RT:19:LEU:HD22 | 38:RT:86:ILE:HG22 | 1.93 | 0.51 |
| 1:XA:806:C:H2' | 1:XA:807:A:H8 | 1.75 | 0.51 |
| 1:XA:760:G:N2 | 17:XQ:97:SER:OG | 2.42 | 0.51 |
| 24:YA:1482:U:O4 | 24:YA:1510:A:H8 | 1.94 | 0.51 |
| 24:YA:2074:U:H2' | 24:YA:2075:U:C6 | 2.45 | 0.51 |
| 24:YA:39:C:H2' | 24:YA:40:C:C6 | 2.46 | 0.51 |
| 24:YA:885:C:H41 | 24:YA:892:G:N2 | 2.08 | 0.51 |
| 34:YP:88:LEU:HD22 | 34:YP:95:VAL:HG11 | 1.92 | 0.51 |
| 1:QA:310:G:H4' | 16:QP:31:LYS:HD2 | 1.93 | 0.51 |
| 1:QA:483:C:OP2 | 1:QA:484:G:O2' | 2.19 | 0.51 |
| 1:QA:500:G:H2' | 1:QA:501:C:C6 | 2.46 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:QA:718:G:H5' | 11:QK:117:ASN:OD1 | 2.11 | 0.51 |
| 26:RD:223:GLY:HA2 | 26:RD:226:MET:HE3 | 1.93 | 0.51 |
| 31:RI:9:LEU:HB2 | 31:RI:12:LEU:HB3 | 1.91 | 0.51 |
| 37:RS:26:LEU:HD13 | 37:RS:39:ILE:HG22 | 1.93 | 0.51 |
| 42:RX:47:PHE:HZ | 47:R2:37:PHE:HE2 | 1.59 | 0.51 |
| 44:RZ:74:VAL:HG12 | 44:RZ:86:VAL:HG23 | 1.93 | 0.51 |
| 1:XA:126:G:H4' | 1:XA:634:C:O2 | 2.11 | 0.51 |
| 1:XA:1355:G:H2' | 1:XA:1356:G:C8 | 2.45 | 0.51 |
| 1:XA:359:U:H2' | 1:XA:360:A:H8 | 1.76 | 0.51 |
| 1:XA:579:G:H5' | 1:XA:728:A:H1' | 1.92 | 0.51 |
| 4:XD:162:LEU:HD22 | 4:XD:181:MET:HG2 | 1.93 | 0.51 |
| 9:XI:48:GLU:N | 9:XI:49:PRO:HD2 | 2.26 | 0.51 |
| 15:XO:17:ARG:HD2 | 15:XO:77:ARG:HH21 | 1.76 | 0.51 |
| 24:YA:1270:C:H5'' | 24:YA:1271:G:H5' | 1.93 | 0.51 |
| 24:YA:1316:U:H2' | 24:YA:1317:A:C8 | 2.46 | 0.51 |
| 24:YA:2031:A:N3 | 24:YA:2455:G:O2' | 2.37 | 0.51 |
| 24:YA:2461:C:H2' | 24:YA:2462:U:C6 | 2.46 | 0.51 |
| 25:YB:111:U:H2' | 25:YB:112:G:H8 | 1.76 | 0.51 |
| 31:YI:129:THR:HA | 31:YI:137:PRO:HA | 1.93 | 0.51 |
| 31:YI:12:LEU:HG | 31:YI:13:GLY:H | 1.76 | 0.51 |
| 1:QA:1355:G:H2' | 1:QA:1356:G:H8 | 1.76 | 0.50 |
| 1:QA:1414:U:H2' | 1:QA:1415:G:H8 | 1.76 | 0.50 |
| 1:QA:560:U:H4' | 1:QA:561:U:O5' | 2.11 | 0.50 |
| 1:QA:685:G:H21 | 1:QA:706:A:N6 | 2.09 | 0.50 |
| 3:QC:150:LYS:HB3 | 3:QC:201:TYR:HB2 | 1.94 | 0.50 |
| 8:QH:12:ARG:HH12 | 8:QH:27:PRO:HD3 | 1.76 | 0.50 |
| 24:RA:1752:C:H2' | 24:RA:1753:G:C8 | 2.46 | 0.50 |
| 24:RA:729:G:O2' | 24:RA:763:G:H4' | 2.11 | 0.50 |
| 32:RN:123:TYR:CE2 | 32:RN:129:PRO:HD2 | 2.46 | 0.50 |
| 42:RX:28:PHE:CE1 | 42:RX:92:LEU:HD21 | 2.46 | 0.50 |
| 24:YA:911:A:H2' | 35:YQ:9:TYR:CE2 | 2.46 | 0.50 |
| 1:QA:1062:U:H2' | 1:QA:1063:C:C6 | 2.46 | 0.50 |
| 1:QA:1222:G:H5'' | 19:QS:78:ARG:NH1 | 2.21 | 0.50 |
| 1:QA:20:U:H2' | 1:QA:21:G:O4' | 2.12 | 0.50 |
| 2:QB:163:PHE:HA | 2:QB:185:ILE:HG23 | 1.94 | 0.50 |
| 2:QB:22:LYS:NZ | 2:QB:35:GLU:OE2 | 2.44 | 0.50 |
| 6:QF:35:ALA:HB1 | 6:QF:65:VAL:HG21 | 1.93 | 0.50 |
| 9:QI:13:ALA:HB2 | 9:QI:68:GLY:HA3 | 1.93 | 0.50 |
| 49:R4:37:SER:HA | 49:R4:43:TYR:CD2 | 2.46 | 0.50 |
| 24:RA:1885:A:H5' | 24:RA:1886:C:OP2 | 2.12 | 0.50 |
| 1:XA:667:G:H4' | 15:XO:51:HIS:ND1 | 2.26 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 2:XB:24:TRP:CE3 | 2:XB:26:PRO:HA | 2.47 | 0.50 |
| 5:XE:57:LYS:HG2 | 5:XE:61:TYR:HE2 | 1.76 | 0.50 |
| 24:YA:2118:U:H3 | 24:YA:2148:G:H5' | 1.75 | 0.50 |
| 24:YA:2308:G:H22 | 24:YA:2311:A:H2 | 1.57 | 0.50 |
| 24:YA:2554:U:H2' | 24:YA:2555:U:C6 | 2.46 | 0.50 |
| 24:YA:609(A):G:H2' | 24:YA:610:C:C6 | 2.46 | 0.50 |
| 44:YZ:40:ASP:HB3 | 44:YZ:43:GLU:HB2 | 1.93 | 0.50 |
| 1:QA:1316:G:N1 | 1:QA:1319:A:OP2 | 2.40 | 0.50 |
| 1:QA:971:G:N2 | 1:QA:1363:A:OP2 | 2.42 | 0.50 |
| 1:QA:143:A:H2 | 1:QA:220:G:H1 | 1.58 | 0.50 |
| 10:QJ:78:ASN:O | 10:QJ:81:THR:HG22 | 2.11 | 0.50 |
| 24:RA:1464:C:O2' | 24:RA:1528:A:H8 | 1.94 | 0.50 |
| 24:RA:223:A:O2' | 24:RA:420:C:O2 | 2.29 | 0.50 |
| 24:RA:864:G:N2 | 24:RA:866:A:H61 | 2.08 | 0.50 |
| 31:RI:54:GLN:HA | 31:RI:57:ARG:HD2 | 1.92 | 0.50 |
| 24:RA:1277:G:H5'' | 36:RR:40:LYS:HZ3 | 1.76 | 0.50 |
| 1:XA:1308:U:H2' | 1:XA:1309:G:C8 | 2.46 | 0.50 |
| 1:XA:736:C:H2' | 1:XA:737:A:H8 | 1.76 | 0.50 |
| 2:XB:163:PHE:HA | 2:XB:185:ILE:HG13 | 1.93 | 0.50 |
| 3:QC:79:ARG:NH2 | 11:XK:96:ARG:HA | 2.27 | 0.50 |
| 15:XO:18:PHE:CZ | 15:XO:21:ASP:HB3 | 2.46 | 0.50 |
| 15:XO:43:LEU:HD12 | 15:XO:56:LEU:HD13 | 1.94 | 0.50 |
| 22:XV:35:C:H2' | 22:XV:36:A:H8 | 1.76 | 0.50 |
| 24:YA:2175:C:H2' | 24:YA:2176:A:N7 | 2.26 | 0.50 |
| 24:YA:2441:C:OP2 | 24:YA:2586:C:O2' | 2.30 | 0.50 |
| 24:YA:907:U:O2' | 35:YQ:101:ARG:NH2 | 2.35 | 0.50 |
| 25:YB:15:A:H1' | 25:YB:109:G:C4 | 2.45 | 0.50 |
| 30:YH:56:SER:OG | 30:YH:61:HIS:ND1 | 2.35 | 0.50 |
| 24:YA:1005:C:O2' | 32:YN:28:THR:HG21 | 2.11 | 0.50 |
| 43:YY:37:VAL:HG21 | 43:YY:72:VAL:HG11 | 1.93 | 0.50 |
| 3:QC:180:ALA:HB1 | 3:QC:182:ILE:HG13 | 1.92 | 0.50 |
| 9:QI:4:TYR:HB2 | 9:QI:19:LEU:HG | 1.93 | 0.50 |
| 24:RA:227:A:C2 | 24:RA:2407:G:H1' | 2.46 | 0.50 |
| 30:RH:152:ARG:CD | 30:RH:153:LYS:HG3 | 2.40 | 0.50 |
| 30:RH:88:LEU:HD13 | 30:RH:165:ALA:HB2 | 1.93 | 0.50 |
| 1:XA:186:C:H2' | 1:XA:186(A):C:C6 | 2.47 | 0.50 |
| 1:XA:51:A:N7 | 1:XA:114:U:O2' | 2.44 | 0.50 |
| 4:XD:154:ASN:O | 4:XD:155:LEU:HB2 | 2.11 | 0.50 |
| 9:XI:26:VAL:HG12 | 9:XI:61:ALA:HB3 | 1.94 | 0.50 |
| 15:XO:7:GLU:OE2 | 15:XO:38:ARG:NH2 | 2.43 | 0.50 |
| 46:Y1:70:VAL:O | 46:Y1:74:VAL:HG23 | 2.11 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:2821:A:H2' | 24:YA:2822:G:O4' | 2.11 | 0.50 |
| 2:QB:74:LYS:O | 2:QB:78:GLN:HG3 | 2.11 | 0.50 |
| 5:QE:67:VAL:HG11 | 5:QE:140:ARG:HG2 | 1.93 | 0.50 |
| 2:QB:195:ASP:O | 8:QH:68:ARG:NH2 | 2.44 | 0.50 |
| 10:QJ:38:ILE:HD12 | 10:QJ:39:PRO:HD2 | 1.93 | 0.50 |
| 3:QC:40:ARG:HG3 | 14:QN:52:GLN:NE2 | 2.27 | 0.50 |
| 19:QS:3:ARG:HH12 | 19:QS:11:VAL:HG22 | 1.76 | 0.50 |
| 24:RA:1167:U:H2' | 24:RA:1168:G:H8 | 1.77 | 0.50 |
| 24:RA:1263:U:H2' | 24:RA:1264:G:C8 | 2.45 | 0.50 |
| 24:RA:1819:A:H5'' | 26:RD:161:THR:HG21 | 1.93 | 0.50 |
| 24:RA:844:C:H2' | 24:RA:845:G:O4' | 2.10 | 0.50 |
| 24:RA:856:C:O2' | 24:RA:857:C:OP1 | 2.28 | 0.50 |
| 1:XA:422:C:HO2' | 1:XA:423:G:N2 | 2.10 | 0.50 |
| 3:XC:134:ILE:HG23 | 3:XC:151:VAL:HG13 | 1.94 | 0.50 |
| 24:YA:2019:A:N7 | 50:Y5:9:LYS:HE2 | 2.27 | 0.50 |
| 24:YA:140:A:H8 | 24:YA:1408:C:O2' | 1.95 | 0.50 |
| 24:YA:1444:G:H2' | 24:YA:1445:C:C5 | 2.47 | 0.50 |
| 24:YA:2845:G:H2' | 24:YA:2846:G:C8 | 2.45 | 0.50 |
| 24:YA:31:C:O3' | 24:YA:1238:G:H5'' | 2.11 | 0.50 |
| 24:YA:443:A:H1' | 24:YA:1201:C:O4' | 2.11 | 0.50 |
| 24:YA:18:C:O2' | 24:YA:553:U:OP1 | 2.28 | 0.50 |
| 28:YF:117:ARG:NH2 | 28:YF:189:THR:O | 2.39 | 0.50 |
| 24:YA:2312:U:H2' | 29:YG:40:ASN:HD21 | 1.77 | 0.50 |
| 1:QA:243:A:H4' | 1:QA:244:U:O5' | 2.12 | 0.50 |
| 1:QA:41:G:H2' | 1:QA:42:G:H8 | 1.77 | 0.50 |
| 2:QB:115:LEU:HD21 | 2:QB:153:ARG:HH11 | 1.76 | 0.50 |
| 24:RA:608:A:OP1 | 28:RF:100:THR:HG21 | 2.11 | 0.50 |
| 24:RA:691:C:H2' | 24:RA:692:C:H6 | 1.77 | 0.50 |
| 26:RD:208:LYS:HG3 | 26:RD:210:GLY:H | 1.77 | 0.50 |
| 29:RG:63:ILE:HD13 | 29:RG:138:GLN:HE21 | 1.77 | 0.50 |
| 38:RT:117:ASP:OD2 | 38:RT:120:ARG:NE | 2.44 | 0.50 |
| 39:RU:17:ILE:HD12 | 39:RU:20:LEU:HD12 | 1.93 | 0.50 |
| 1:XA:1399:C:C2 | 1:XA:1502:A:N6 | 2.79 | 0.50 |
| 1:XA:184:G:H2' | 1:XA:185:A:H8 | 1.75 | 0.50 |
| 1:XA:769:G:H4' | 1:XA:1513:A:H4' | 1.93 | 0.50 |
| 5:XE:77:PRO:HG2 | 5:XE:78:HIS:CD2 | 2.47 | 0.50 |
| 8:XH:12:ARG:HH12 | 8:XH:27:PRO:HD3 | 1.77 | 0.50 |
| 12:XL:77:LEU:HD21 | 12:XL:107:ALA:HB2 | 1.93 | 0.50 |
| 13:XM:49:THR:HB | 13:XM:52:GLU:HG2 | 1.93 | 0.50 |
| 29:YG:109:VAL:HG23 | 49:Y4:33:VAL:HG11 | 1.93 | 0.50 |
| 34:YP:63:PRO:HD3 | 53:Y8:13:ARG:NH1 | 2.27 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:Y8:52:LYS:N | 53:Y8:53:PRO:HD2 | 2.27 | 0.50 |
| 24:YA:1329:U:H5'' | 24:YA:1330:C:H5 | 1.75 | 0.50 |
| 24:YA:2391:G:C6 | 24:YA:2427:C:H1' | 2.47 | 0.50 |
| 24:YA:239:U:H2' | 24:YA:240:G:C8 | 2.47 | 0.50 |
| 24:YA:415:A:H2' | 24:YA:416:C:C6 | 2.47 | 0.50 |
| 24:YA:576:U:H2' | 24:YA:577:G:C8 | 2.47 | 0.50 |
| 25:YB:102:G:H21 | 44:YZ:73:GLN:NE2 | 2.09 | 0.50 |
| 26:YD:172:TYR:CD1 | 26:YD:186:HIS:HA | 2.46 | 0.50 |
| 30:YH:16:SER:HB3 | 30:YH:27:LYS:HB3 | 1.94 | 0.50 |
| 1:QA:123:C:OP1 | 1:QA:311:C:O2' | 2.24 | 0.50 |
| 1:QA:6:G:O2' | 1:QA:7:G:H5'' | 2.12 | 0.50 |
| 8:QH:104:ARG:HG3 | 8:QH:107:LEU:HB2 | 1.94 | 0.50 |
| 10:QJ:79:ARG:HA | 10:QJ:82:ILE:HG12 | 1.94 | 0.50 |
| 52:R7:1:MET:HG3 | 52:R7:2:LYS:H | 1.76 | 0.50 |
| 25:RB:80:U:O2 | 25:RB:81:G:N2 | 2.45 | 0.50 |
| 29:RG:116:ASP:O | 29:RG:118:ARG:NH1 | 2.45 | 0.50 |
| 32:RN:133:GLN:C | 32:RN:134:ARG:HD2 | 2.32 | 0.50 |
| 1:XA:1096:C:H2' | 1:XA:1097:C:H6 | 1.76 | 0.50 |
| 1:XA:1292:U:H2' | 1:XA:1293:G:C8 | 2.45 | 0.50 |
| 1:XA:411:A:N9 | 1:XA:413:G:H1' | 2.27 | 0.50 |
| 2:XB:58:ILE:HG22 | 2:XB:61:LEU:HD12 | 1.94 | 0.50 |
| 24:YA:823:G:H2' | 24:YA:824:A:H8 | 1.77 | 0.50 |
| 24:YA:970:C:H2' | 24:YA:971:C:C6 | 2.47 | 0.50 |
| 30:YH:12:PRO:O | 30:YH:15:VAL:HG22 | 2.12 | 0.50 |
| 1:QA:1342:C:H5'' | 9:QI:125:TYR:HB3 | 1.94 | 0.50 |
| 1:QA:976:G:N2 | 1:QA:1362(A):C:OP2 | 2.30 | 0.50 |
| 1:QA:34:C:H2' | 1:QA:35:G:C8 | 2.46 | 0.50 |
| 24:RA:1283:G:N2 | 24:RA:1286:A:OP2 | 2.45 | 0.50 |
| 36:RR:34:ILE:HG22 | 36:RR:36:THR:HG23 | 1.94 | 0.50 |
| 1:XA:1015:A:H2' | 1:XA:1016:A:H8 | 1.76 | 0.50 |
| 1:XA:1189:C:OP1 | 10:XJ:51:ARG:NH2 | 2.37 | 0.50 |
| 1:XA:1286:A:H2' | 1:XA:1287:A:H4' | 1.94 | 0.50 |
| 11:XK:84:VAL:HG11 | 11:XK:95:ILE:HD11 | 1.93 | 0.50 |
| 52:Y7:5:TRP:NE1 | 52:Y7:7:PRO:HG3 | 2.27 | 0.50 |
| 24:YA:1064:C:H2' | 24:YA:1065:U:O4' | 2.11 | 0.50 |
| 24:YA:2539:C:H5' | 54:Y9:3:VAL:HG21 | 1.94 | 0.50 |
| 24:YA:805:G:H22 | 24:YA:828:U:H5'' | 1.76 | 0.50 |
| 27:YE:104:VAL:HG22 | 27:YE:196:VAL:HG22 | 1.93 | 0.50 |
| 29:YG:161:THR:HG22 | 29:YG:163:ALA:H | 1.77 | 0.50 |
| 32:YN:133:GLN:O | 32:YN:134:ARG:HD2 | 2.12 | 0.50 |
| 1:QA:1007:C:H2' | 1:QA:1008:C:H6 | 1.76 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:QA:1320:C:O2 | 19:QS:36:ARG:NH1 | 2.44 | 0.50 |
| 1:QA:598:U:H4' | 8:QH:94:TYR:CD2 | 2.47 | 0.50 |
| 1:QA:667:G:H4' | 15:QO:51:HIS:CE1 | 2.47 | 0.50 |
| 24:RA:1034:G:C5' | 54:R9:18:ARG:HH12 | 2.25 | 0.50 |
| 24:RA:2376:A:H2' | 24:RA:2377:A:O4' | 2.12 | 0.50 |
| 24:RA:616:A:H4' | 28:RF:182:ASN:HD22 | 1.77 | 0.50 |
| 25:RB:44:G:H1' | 25:RB:47:C:H42 | 1.76 | 0.50 |
| 1:XA:1388:C:H2' | 1:XA:1389:C:H6 | 1.77 | 0.50 |
| 24:YA:1429:G:H2' | 24:YA:1430:C:H6 | 1.76 | 0.50 |
| 24:YA:1759:A:H1' | 24:YA:2711:A:C2 | 2.47 | 0.50 |
| 24:YA:389:G:N1 | 34:YP:71:VAL:HG12 | 2.25 | 0.50 |
| 30:YH:25:LYS:HB2 | 30:YH:32:GLU:OE2 | 2.12 | 0.50 |
| 30:YH:58:GLU:HG2 | 30:YH:60:ARG:H | 1.77 | 0.50 |
| 33:YO:104:ARG:NH2 | 38:YT:43:GLN:OE1 | 2.39 | 0.50 |
| 44:YZ:149:SER:OG | 44:YZ:172:ALA:O | 2.30 | 0.50 |
| 1:QA:1124:G:H3' | 1:QA:1145:C:H42 | 1.76 | 0.49 |
| 1:QA:674:G:H2' | 1:QA:675:A:C8 | 2.45 | 0.49 |
| 7:QG:41:ARG:NH2 | 9:QI:39:GLY:O | 2.44 | 0.49 |
| 10:QJ:55:LYS:H | 10:QJ:55:LYS:HD3 | 1.76 | 0.49 |
| 3:QC:40:ARG:HG3 | 14:QN:52:GLN:HE21 | 1.77 | 0.49 |
| 24:RA:634:C:H2' | 24:RA:635:C:C6 | 2.47 | 0.49 |
| 24:RA:823:G:H2' | 24:RA:824:A:C8 | 2.46 | 0.49 |
| 27:RE:10:GLY:HA3 | 38:RT:8:LYS:HE2 | 1.93 | 0.49 |
| 10:XJ:32:ALA:HB2 | 10:XJ:76:ASN:HB2 | 1.93 | 0.49 |
| 24:YA:2146:C:H4' | 24:YA:2147:G:C8 | 2.47 | 0.49 |
| 24:YA:2181:G:H2' | 24:YA:2182:G:C8 | 2.47 | 0.49 |
| 24:YA:2540:C:H2' | 24:YA:2541:A:O4' | 2.12 | 0.49 |
| 1:QA:1427:U:H2' | 1:QA:1428:A:H8 | 1.76 | 0.49 |
| 1:QA:266:G:H5'' | 1:QA:267:C:C5 | 2.47 | 0.49 |
| 1:QA:281:G:H8 | 1:QA:281:G:OP2 | 1.95 | 0.49 |
| 4:QD:152:SER:HA | 4:QD:155:LEU:HD23 | 1.93 | 0.49 |
| 9:QI:75:ASP:O | 9:QI:78:LYS:HG3 | 2.12 | 0.49 |
| 46:R1:83:GLU:HG2 | 46:R1:85:LEU:H | 1.77 | 0.49 |
| 25:RB:83:G:H4' | 48:R3:52:HIS:CG | 2.47 | 0.49 |
| 24:RA:2065:C:H1' | 24:RA:2449:U:C2 | 2.47 | 0.49 |
| 24:RA:286:C:H2' | 24:RA:287:C:H6 | 1.77 | 0.49 |
| 24:RA:1500:G:H21 | 26:RD:100:GLY:HA3 | 1.76 | 0.49 |
| 1:XA:129(A):G:O2' | 1:XA:189:U:H3' | 2.13 | 0.49 |
| 1:XA:377:G:H2' | 1:XA:378:G:C8 | 2.48 | 0.49 |
| 1:XA:629:G:H2' | 1:XA:630:G:C8 | 2.47 | 0.49 |
| 3:XC:154:SER:HB2 | 3:XC:165:THR:HG22 | 1.94 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 4:XD:65:ARG:NH1 | 4:XD:70:ILE:O | 2.45 | 0.49 |
| 9:XI:93:ARG:HG2 | 9:XI:97:LYS:HB2 | 1.93 | 0.49 |
| 47:Y2:10:LEU:HD21 | 47:Y2:59:ARG:HD2 | 1.94 | 0.49 |
| 24:YA:2057:A:H2' | 24:YA:2058:A:O4' | 2.12 | 0.49 |
| 24:YA:2776:A:OP1 | 24:YA:2776:A:H3' | 2.12 | 0.49 |
| 26:YD:77:ALA:HB2 | 26:YD:97:TYR:CE1 | 2.47 | 0.49 |
| 28:YF:38:ARG:HD3 | 28:YF:99:TYR:OH | 2.12 | 0.49 |
| 29:YG:72:ARG:HH11 | 29:YG:87:PRO:HB3 | 1.77 | 0.49 |
| 30:YH:156:ALA:O | 30:YH:158:HIS:N | 2.45 | 0.49 |
| 31:YI:23:PRO:HB2 | 31:YI:27:ARG:NH1 | 2.27 | 0.49 |
| 37:YS:71:ARG:HH22 | 37:YS:107:GLU:HB2 | 1.76 | 0.49 |
| 43:YY:20:TYR:CE2 | 43:YY:43:ASN:HA | 2.47 | 0.49 |
| 1:QA:254:G:O2' | 17:QQ:16:GLN:O | 2.30 | 0.49 |
| 1:QA:1104:G:O4' | 2:QB:111:ARG:NH2 | 2.45 | 0.49 |
| 3:QC:82:GLU:HA | 3:QC:85:ARG:NH1 | 2.27 | 0.49 |
| 1:QA:408:A:H5' | 4:QD:116:GLN:HG3 | 1.94 | 0.49 |
| 4:QD:169:LYS:HB2 | 6:XF:21:LEU:HD21 | 1.93 | 0.49 |
| 48:R3:15:TYR:CE2 | 48:R3:53:LEU:HD21 | 2.48 | 0.49 |
| 50:R5:20:ARG:HA | 50:R5:23:HIS:ND1 | 2.28 | 0.49 |
| 24:RA:1292:U:H2' | 24:RA:1293:C:H6 | 1.74 | 0.49 |
| 24:RA:1628:G:H2' | 24:RA:1629:U:C6 | 2.47 | 0.49 |
| 24:RA:2020:A:H4' | 39:RU:25:TRP:CZ3 | 2.46 | 0.49 |
| 24:RA:2532:G:H2' | 24:RA:2533:A:C8 | 2.47 | 0.49 |
| 24:RA:2636:U:HO2' | 27:RE:44:TYR:HH | 1.61 | 0.49 |
| 24:RA:39:C:H2' | 24:RA:40:C:C6 | 2.48 | 0.49 |
| 35:RQ:132:VAL:HG11 | 44:RZ:81:ARG:NH1 | 2.27 | 0.49 |
| 6:XF:36:ARG:NH1 | 6:XF:38:GLU:HG2 | 2.27 | 0.49 |
| 1:XA:522:C:H41 | 12:XL:53:ARG:NH2 | 2.11 | 0.49 |
| 46:Y1:60:PHE:HE1 | 46:Y1:87:PRO:HB3 | 1.77 | 0.49 |
| 24:YA:1165:U:H2' | 24:YA:1166:C:H6 | 1.76 | 0.49 |
| 24:YA:1729:A:C8 | 24:YA:1731:G:C8 | 3.01 | 0.49 |
| 24:YA:1932:A:H2' | 24:YA:1933:G:O4' | 2.12 | 0.49 |
| 24:YA:1939:U:H3' | 24:YA:1940:U:H5' | 1.93 | 0.49 |
| 24:YA:2135:A:H5'' | 24:YA:2136:C:H5 | 1.77 | 0.49 |
| 24:YA:270(F):U:H2' | 24:YA:270(G):C:C6 | 2.46 | 0.49 |
| 24:YA:2790:A:O2' | 24:YA:2893:G:H2' | 2.12 | 0.49 |
| 24:YA:732:C:H2' | 24:YA:733:G:O4' | 2.12 | 0.49 |
| 39:YU:65:ILE:HD11 | 39:YU:93:LYS:HA | 1.94 | 0.49 |
| 1:QA:1241:G:H2' | 1:QA:1242:C:H6 | 1.77 | 0.49 |
| 1:QA:407:G:H2' | 1:QA:408:A:C8 | 2.48 | 0.49 |
| 24:RA:1412:A:H2' | 24:RA:1413:G:C8 | 2.47 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:2607:G:H2' | 24:RA:2608:G:O4' | 2.11 | 0.49 |
| 33:RO:22:ILE:HG12 | 33:RO:41:ALA:HA | 1.94 | 0.49 |
| 25:RB:7:G:N2 | 37:RS:38:GLN:HE22 | 2.10 | 0.49 |
| 33:RO:122:LEU:HD22 | 38:RT:72:VAL:HG11 | 1.92 | 0.49 |
| 1:XA:235:C:H2' | 1:XA:236:G:C8 | 2.47 | 0.49 |
| 1:XA:429:U:O2' | 4:XD:22:LYS:NZ | 2.45 | 0.49 |
| 1:XA:651:C:H2' | 1:XA:652:U:C6 | 2.48 | 0.49 |
| 1:XA:678:U:H2' | 1:XA:679:C:C6 | 2.47 | 0.49 |
| 24:YA:1509:C:H2' | 24:YA:1511:A:C8 | 2.47 | 0.49 |
| 24:YA:1825:A:H2' | 24:YA:1826:G:C8 | 2.48 | 0.49 |
| 24:YA:2735:G:H2' | 24:YA:2736:G:C8 | 2.48 | 0.49 |
| 24:YA:2774:C:H2' | 24:YA:2775:A:O4' | 2.12 | 0.49 |
| 24:YA:302:C:H2' | 24:YA:303:U:H6 | 1.77 | 0.49 |
| 24:YA:518:G:H4' | 41:YW:18:ARG:HE | 1.77 | 0.49 |
| 24:YA:669:G:C2 | 24:YA:801:G:C6 | 3.00 | 0.49 |
| 24:YA:807:U:H2' | 24:YA:808:G:H8 | 1.78 | 0.49 |
| 24:YA:823:G:H2' | 24:YA:824:A:C8 | 2.47 | 0.49 |
| 24:YA:844:C:H2' | 24:YA:845:G:O4' | 2.13 | 0.49 |
| 24:YA:837:C:N3 | 24:YA:941:A:N6 | 2.61 | 0.49 |
| 24:YA:956:G:OP2 | 35:YQ:14:ARG:NH2 | 2.46 | 0.49 |
| 28:YF:63:LYS:HE2 | 28:YF:67:GLN:HB2 | 1.93 | 0.49 |
| 24:YA:826:U:H4' | 34:YP:55:ARG:HB3 | 1.93 | 0.49 |
| 1:QA:509:A:N3 | 1:QA:543:C:O2' | 2.44 | 0.49 |
| 24:RA:1882:C:H5' | 24:RA:1883:G:OP2 | 2.12 | 0.49 |
| 24:RA:2309:A:H2' | 24:RA:2310:A:O4' | 2.12 | 0.49 |
| 24:RA:2646:C:OP2 | 24:RA:2732:G:O2' | 2.26 | 0.49 |
| 26:RD:254:THR:HG23 | 26:RD:255:LYS:HG3 | 1.95 | 0.49 |
| 31:RI:131:LYS:HG3 | 31:RI:132:PRO:HA | 1.94 | 0.49 |
| 38:RT:111:ARG:C | 38:RT:113:LYS:H | 2.16 | 0.49 |
| 44:RZ:59:LEU:O | 44:RZ:61:LEU:N | 2.39 | 0.49 |
| 1:XA:1511:G:H2' | 1:XA:1512:U:O4' | 2.13 | 0.49 |
| 1:XA:711:G:H2' | 1:XA:712:A:C8 | 2.47 | 0.49 |
| 24:YA:1475:G:H2' | 24:YA:1476:C:C6 | 2.47 | 0.49 |
| 24:YA:2841:C:H2' | 24:YA:2842:G:H8 | 1.76 | 0.49 |
| 30:YH:121:ILE:HD13 | 30:YH:144:VAL:HG21 | 1.95 | 0.49 |
| 1:QA:1053:G:O6 | 1:QA:1199:U:H2' | 2.12 | 0.49 |
| 1:QA:323:U:OP1 | 20:QT:26:ASN:ND2 | 2.43 | 0.49 |
| 1:QA:452:A:H62 | 1:QA:480:U:H3 | 1.59 | 0.49 |
| 1:QA:542:G:O3' | 4:QD:14:ARG:NH2 | 2.46 | 0.49 |
| 2:QB:233:SER:O | 2:QB:235:SER:N | 2.45 | 0.49 |
| 6:QF:23:LYS:HA | 6:QF:26:ILE:HD12 | 1.95 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:QH:16:ALA:HB2 | 8:QH:24:THR:HG21 | 1.95 | 0.49 |
| 8:QH:29:SER:OG | 8:QH:32:LYS:HD3 | 2.11 | 0.49 |
| 9:QI:28:VAL:HG22 | 9:QI:63:ILE:HD11 | 1.95 | 0.49 |
| 1:XA:1244:C:H2' | 1:XA:1245:A:C8 | 2.47 | 0.49 |
| 1:XA:401:C:O2' | 1:XA:621:A:N3 | 2.35 | 0.49 |
| 4:XD:13:ARG:HH22 | 4:XD:36:ARG:HD3 | 1.77 | 0.49 |
| 4:XD:64:LEU:HD13 | 4:XD:198:VAL:HG21 | 1.95 | 0.49 |
| 11:XK:33:THR:HA | 11:XK:39:PRO:HA | 1.94 | 0.49 |
| 24:YA:2286:A:H62 | 51:Y6:36:LEU:HD21 | 1.78 | 0.49 |
| 24:YA:1210:A:H5' | 24:YA:1212:G:O4' | 2.13 | 0.49 |
| 24:YA:1509:C:H3' | 24:YA:1510:A:H5'' | 1.94 | 0.49 |
| 24:YA:1332:G:N2 | 24:YA:1609:A:HO2' | 2.11 | 0.49 |
| 24:YA:1791:A:H3' | 24:YA:1792:G:H8 | 1.77 | 0.49 |
| 24:YA:2183:C:H2' | 24:YA:2184:G:H8 | 1.78 | 0.49 |
| 24:YA:304:G:H2' | 24:YA:305:U:C6 | 2.48 | 0.49 |
| 24:YA:524:U:H2' | 24:YA:525:U:C6 | 2.47 | 0.49 |
| 27:YE:92:THR:HG22 | 27:YE:93:VAL:H | 1.76 | 0.49 |
| 38:YT:16:ARG:NH1 | 38:YT:83:ILE:HG13 | 2.28 | 0.49 |
| 43:YY:81:LYS:HE2 | 43:YY:101:LYS:HD3 | 1.94 | 0.49 |
| 1:QA:1466:C:H2' | 1:QA:1467:G:O4' | 2.13 | 0.49 |
| 1:QA:552:U:O2 | 12:QL:31:PRO:HB3 | 2.12 | 0.49 |
| 1:QA:57:G:H2' | 1:QA:58:C:C6 | 2.48 | 0.49 |
| 2:QB:196:LEU:HA | 8:QH:74:PRO:HG3 | 1.95 | 0.49 |
| 4:QD:167:GLY:HA3 | 26:YD:135:PHE:CE1 | 2.47 | 0.49 |
| 7:QG:116:ALA:HA | 7:QG:119:ARG:HE | 1.78 | 0.49 |
| 9:QI:97:LYS:HG2 | 9:QI:98:PRO:HD3 | 1.95 | 0.49 |
| 19:QS:40:ILE:HG22 | 19:QS:69:HIS:O | 2.13 | 0.49 |
| 24:RA:1085:A:H2' | 24:RA:1086:A:C4 | 2.47 | 0.49 |
| 29:RG:97:ASP:H | 29:RG:100:TRP:HD1 | 1.61 | 0.49 |
| 33:RO:63:VAL:HG12 | 33:RO:106:LEU:HD21 | 1.93 | 0.49 |
| 41:RW:82:LEU:H | 41:RW:82:LEU:HD23 | 1.76 | 0.49 |
| 1:XA:489:C:H2' | 1:XA:490:G:H8 | 1.78 | 0.49 |
| 1:XA:548:G:OP1 | 4:XD:73:ARG:NH2 | 2.46 | 0.49 |
| 3:XC:25:GLY:H | 3:XC:28:GLN:HB2 | 1.77 | 0.49 |
| 3:XC:60:ALA:HB3 | 3:XC:63:ASN:HD21 | 1.78 | 0.49 |
| 19:XS:10:PHE:CE2 | 19:XS:16:LEU:HB2 | 2.46 | 0.49 |
| 24:YA:270(I):G:H21 | 46:Y1:78:LYS:HE3 | 1.77 | 0.49 |
| 24:YA:2065:C:H2' | 24:YA:2066:C:H6 | 1.78 | 0.49 |
| 24:YA:2123:G:H2' | 24:YA:2124:G:H8 | 1.78 | 0.49 |
| 24:YA:2145:C:N3 | 24:YA:2147:G:N1 | 2.59 | 0.49 |
| 24:YA:2286:A:H4' | 24:YA:2287:A:O4' | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 28:YF:40:GLN:HE22 | 28:YF:183:VAL:H | 1.61 | 0.49 |
| 1:QA:452:A:H2' | 1:QA:453:A:C8 | 2.48 | 0.49 |
| 2:QB:163:PHE:HA | 2:QB:185:ILE:O | 2.12 | 0.49 |
| 47:R2:4:SER:O | 47:R2:7:ARG:NE | 2.46 | 0.49 |
| 24:RA:1542:G:H5'' | 24:RA:1543:A:OP2 | 2.13 | 0.49 |
| 24:RA:2166:G:N2 | 24:RA:2168:G:N7 | 2.61 | 0.49 |
| 24:RA:917:A:O2' | 25:RB:98:G:H4' | 2.13 | 0.49 |
| 1:XA:1147:C:O2 | 9:XI:16:ARG:NH1 | 2.46 | 0.49 |
| 1:XA:1235:U:H2' | 1:XA:1236:A:O4' | 2.13 | 0.49 |
| 1:XA:1251:A:N3 | 1:XA:1369:C:O2' | 2.42 | 0.49 |
| 1:XA:1388:C:H2' | 1:XA:1389:C:C6 | 2.48 | 0.49 |
| 1:XA:309:G:H2' | 1:XA:310:G:H8 | 1.78 | 0.49 |
| 1:XA:403:C:H2' | 1:XA:404:U:H6 | 1.78 | 0.49 |
| 3:XC:108:ASN:HD21 | 3:XC:144:SER:HG | 1.59 | 0.49 |
| 4:XD:63:LYS:HD2 | 4:XD:198:VAL:HG12 | 1.95 | 0.49 |
| 24:YA:270(I):G:N2 | 46:Y1:78:LYS:HE3 | 2.28 | 0.49 |
| 24:YA:176:G:O2' | 24:YA:177:G:H5' | 2.13 | 0.49 |
| 24:YA:2695:C:H2' | 24:YA:2696:U:H6 | 1.77 | 0.49 |
| 24:YA:573:G:O2' | 24:YA:574:C:H3' | 2.12 | 0.49 |
| 29:YG:27:ASN:OD1 | 29:YG:28:VAL:N | 2.45 | 0.49 |
| 32:YN:13:TRP:O | 32:YN:135:PRO:HD2 | 2.13 | 0.49 |
| 1:QA:505:G:H2' | 1:QA:506:G:H8 | 1.78 | 0.49 |
| 2:QB:22:LYS:HA | 2:QB:24:TRP:CD1 | 2.47 | 0.49 |
| 1:QA:542:G:P | 4:QD:10:ARG:HH12 | 2.35 | 0.49 |
| 4:QD:79:PHE:HE1 | 4:QD:204:ILE:HD13 | 1.78 | 0.49 |
| 24:RA:1278:A:H4' | 36:RR:34:ILE:HG23 | 1.94 | 0.49 |
| 24:RA:1667:G:OP2 | 24:RA:1667:G:H8 | 1.96 | 0.49 |
| 24:RA:2031:A:N3 | 24:RA:2455:G:O2' | 2.36 | 0.49 |
| 24:RA:2037:G:H2' | 24:RA:2038:G:H8 | 1.78 | 0.49 |
| 24:RA:235:U:H2' | 24:RA:236:C:C6 | 2.48 | 0.49 |
| 24:RA:2591:C:H2' | 24:RA:2592:G:C8 | 2.48 | 0.49 |
| 24:RA:2867:G:HO2' | 24:RA:2868:A:H8 | 1.61 | 0.49 |
| 24:RA:372:G:HO2' | 24:RA:373:U:P | 2.35 | 0.49 |
| 24:RA:623:G:H2' | 24:RA:624:C:C6 | 2.48 | 0.49 |
| 24:RA:710:G:H2' | 24:RA:711:G:H8 | 1.78 | 0.49 |
| 39:RU:97:ASP:HA | 39:RU:100:VAL:HG22 | 1.94 | 0.49 |
| 1:XA:1225:A:N3 | 1:XA:1225:A:H2' | 2.28 | 0.49 |
| 1:XA:532:A:H2 | 1:XA:1206:G:H21 | 1.61 | 0.49 |
| 1:XA:67:C:H2' | 1:XA:68:G:C8 | 2.47 | 0.49 |
| 10:XJ:39:PRO:HA | 10:XJ:70:ARG:HG3 | 1.95 | 0.49 |
| 24:YA:1164:G:H2' | 24:YA:1165:U:C6 | 2.48 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:1826:G:H4' | 26:YD:242:ARG:HH21 | 1.76 | 0.49 |
| 24:YA:956:G:H2' | 24:YA:957:A:H2' | 1.95 | 0.49 |
| 1:QA:1058:G:H2' | 1:QA:1059:C:C6 | 2.48 | 0.49 |
| 1:QA:1143:G:H2' | 1:QA:1144:G:C8 | 2.48 | 0.49 |
| 1:QA:1453:G:O2' | 1:QA:1454:G:OP1 | 2.28 | 0.49 |
| 1:QA:998(A):C:H2' | 1:QA:999:U:C6 | 2.48 | 0.49 |
| 7:QG:89:MET:HE3 | 7:QG:156:TRP:HZ3 | 1.77 | 0.49 |
| 1:QA:1151:A:H5' | 10:QJ:41:PRO:HA | 1.95 | 0.49 |
| 22:QV:12:G:H1' | 24:RA:1923:U:H1' | 1.94 | 0.49 |
| 46:R1:53:VAL:C | 46:R1:55:GLY:H | 2.17 | 0.49 |
| 24:RA:670:A:H5'' | 34:RP:42:SER:O | 2.13 | 0.49 |
| 24:RA:680:G:H2' | 24:RA:681:G:C8 | 2.48 | 0.49 |
| 29:RG:128:ARG:NH2 | 29:RG:163:ALA:O | 2.46 | 0.49 |
| 37:RS:62:LYS:HB3 | 37:RS:97:ARG:HD3 | 1.94 | 0.49 |
| 40:RV:46:VAL:HG22 | 40:RV:52:VAL:HG11 | 1.94 | 0.49 |
| 1:XA:781:A:H4' | 1:XA:1522:U:O2' | 2.13 | 0.49 |
| 4:XD:11:LEU:HD23 | 4:XD:66:ARG:HB3 | 1.94 | 0.49 |
| 8:XH:109:ILE:HG13 | 8:XH:120:THR:HG23 | 1.94 | 0.49 |
| 16:XP:43:LYS:HG2 | 16:XP:48:TRP:HB2 | 1.94 | 0.49 |
| 6:XF:91:VAL:HG13 | 18:XR:72:ARG:HH22 | 1.77 | 0.49 |
| 24:YA:1018:C:O3' | 24:YA:1120:G:N2 | 2.45 | 0.49 |
| 24:YA:2328:A:H2' | 24:YA:2329:G:C8 | 2.48 | 0.49 |
| 24:YA:2364:C:OP1 | 45:Y0:55:ARG:NH2 | 2.45 | 0.49 |
| 34:YP:64:LYS:O | 34:YP:66:GLY:N | 2.46 | 0.49 |
| 1:QA:1004:A:OP1 | 1:QA:1025:U:N3 | 2.27 | 0.48 |
| 1:QA:1010:G:H2' | 1:QA:1011:G:H8 | 1.77 | 0.48 |
| 5:QE:15:ARG:HH21 | 5:QE:26:PHE:HD2 | 1.61 | 0.48 |
| 37:RS:78:LEU:HD11 | 37:RS:108:GLY:HA3 | 1.94 | 0.48 |
| 40:RV:35:LEU:HD12 | 40:RV:37:VAL:HG23 | 1.95 | 0.48 |
| 1:XA:1148:U:H2' | 1:XA:1149:C:O4' | 2.13 | 0.48 |
| 1:XA:1415:G:C6 | 1:XA:1486:G:C6 | 3.01 | 0.48 |
| 1:XA:509:A:N3 | 1:XA:543:C:O2' | 2.38 | 0.48 |
| 1:XA:78:G:O2' | 1:XA:79:G:H8 | 1.96 | 0.48 |
| 7:XG:68:ASN:O | 7:XG:138:LYS:NZ | 2.40 | 0.48 |
| 24:YA:155:C:H5' | 24:YA:161:U:OP2 | 2.13 | 0.48 |
| 24:YA:1842:G:H2' | 24:YA:1843:C:C6 | 2.48 | 0.48 |
| 24:YA:2467:C:O2 | 35:YQ:124:LYS:NZ | 2.43 | 0.48 |
| 24:YA:2749:A:H5'' | 30:YH:6:ARG:HE | 1.78 | 0.48 |
| 24:YA:587:C:OP2 | 34:YP:21:ARG:NH1 | 2.46 | 0.48 |
| 24:YA:870:A:H2' | 24:YA:871:U:O4' | 2.12 | 0.48 |
| 24:YA:2619:C:H5'' | 27:YE:152:LYS:HA | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:YH:10:PRO:HD2 | 30:YH:50:VAL:O | 2.13 | 0.48 |
| 1:QA:1287:A:H2 | 1:QA:1353:G:H1' | 1.78 | 0.48 |
| 1:QA:666:G:H5' | 1:QA:726:C:H1' | 1.95 | 0.48 |
| 24:RA:1264:G:H3' | 24:RA:1265:A:H5'' | 1.94 | 0.48 |
| 24:RA:271(D):G:H2' | 24:RA:272:G:C8 | 2.46 | 0.48 |
| 25:RB:3:C:H2' | 25:RB:4:C:C6 | 2.47 | 0.48 |
| 24:RA:1792:G:H5' | 26:RD:205:VAL:HG13 | 1.93 | 0.48 |
| 30:RH:147:ASN:O | 30:RH:151:ILE:HD12 | 2.13 | 0.48 |
| 34:RP:80:TYR:OH | 34:RP:111:ARG:NH1 | 2.46 | 0.48 |
| 43:RY:14:LEU:HB2 | 43:RY:75:ILE:HD11 | 1.94 | 0.48 |
| 1:XA:1244:C:H2' | 1:XA:1245:A:H8 | 1.77 | 0.48 |
| 1:XA:377:G:H2' | 1:XA:378:G:H8 | 1.78 | 0.48 |
| 1:XA:957:U:H4' | 19:XS:79:THR:HG23 | 1.94 | 0.48 |
| 20:XT:89:ARG:HH11 | 20:XT:90:GLN:NE2 | 2.11 | 0.48 |
| 24:YA:1028:A:N3 | 24:YA:2486:G:O2' | 2.34 | 0.48 |
| 24:YA:1231:G:H2' | 24:YA:1232:G:H8 | 1.76 | 0.48 |
| 24:YA:1678:G:O5' | 24:YA:1678:G:H8 | 1.96 | 0.48 |
| 24:YA:2185:C:H2' | 24:YA:2186:G:H8 | 1.79 | 0.48 |
| 24:YA:247:G:OP2 | 24:YA:249:C:N4 | 2.45 | 0.48 |
| 24:YA:2514:U:H2' | 24:YA:2515:C:H6 | 1.78 | 0.48 |
| 1:QA:1236:A:H2' | 1:QA:1237:C:C6 | 2.48 | 0.48 |
| 1:QA:437:U:H2' | 1:QA:438:G:O4' | 2.13 | 0.48 |
| 1:QA:737:A:H2' | 1:QA:738:C:H6 | 1.77 | 0.48 |
| 1:QA:745:C:H2' | 1:QA:746:A:C8 | 2.48 | 0.48 |
| 2:QB:103:THR:HG23 | 2:QB:176:GLU:HG3 | 1.94 | 0.48 |
| 2:QB:84:GLU:HB3 | 2:QB:219:VAL:HG21 | 1.96 | 0.48 |
| 4:QD:173:TRP:CD1 | 4:QD:174:LEU:HG | 2.49 | 0.48 |
| 1:QA:736:C:O2' | 6:QF:90:VAL:O | 2.30 | 0.48 |
| 8:QH:17:THR:HB | 8:QH:78:GLN:OE1 | 2.14 | 0.48 |
| 1:QA:1342:C:O2' | 9:QI:124:GLN:HA | 2.13 | 0.48 |
| 49:R4:41:PRO:HB3 | 49:R4:47:GLN:HE21 | 1.77 | 0.48 |
| 24:RA:1401:G:H2' | 24:RA:1402:C:C6 | 2.48 | 0.48 |
| 24:RA:673:C:H5'' | 28:RF:81:PRO:HD2 | 1.94 | 0.48 |
| 24:RA:2303:G:O2' | 29:RG:132:ASN:HB2 | 2.13 | 0.48 |
| 34:RP:64:LYS:HB3 | 53:R8:25:MET:HG3 | 1.95 | 0.48 |
| 44:RZ:127:LYS:HB3 | 44:RZ:162:GLU:HB2 | 1.96 | 0.48 |
| 44:RZ:144:LEU:HD11 | 44:RZ:149:SER:HA | 1.96 | 0.48 |
| 1:XA:129(A):G:H1' | 1:XA:190:G:H5'' | 1.94 | 0.48 |
| 3:XC:32:LEU:HD23 | 3:XC:59:ARG:HD3 | 1.94 | 0.48 |
| 24:YA:2025:C:H2' | 24:YA:2026:C:H6 | 1.78 | 0.48 |
| 24:YA:532:A:N1 | 24:YA:2035:G:N2 | 2.61 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:2305:A:N1 | 29:YG:154:GLY:N | 2.54 | 0.48 |
| 24:YA:2698:U:H2' | 24:YA:2699:C:H6 | 1.77 | 0.48 |
| 24:YA:997:G:O2' | 24:YA:998:C:H5' | 2.14 | 0.48 |
| 30:YH:98:LEU:HD23 | 30:YH:125:VAL:HG22 | 1.95 | 0.48 |
| 32:YN:114:ARG:O | 32:YN:115:ARG:HB3 | 2.12 | 0.48 |
| 1:QA:1515:C:H2' | 1:QA:1516:G:H8 | 1.78 | 0.48 |
| 1:QA:356:A:N3 | 1:QA:368:U:O2' | 2.33 | 0.48 |
| 1:QA:900:A:H2' | 1:QA:901:A:C8 | 2.49 | 0.48 |
| 12:QL:84:LEU:HB2 | 12:QL:105:TYR:CD2 | 2.48 | 0.48 |
| 51:R6:5:VAL:HG22 | 51:R6:26:ASN:HD21 | 1.79 | 0.48 |
| 24:RA:1608:A:H1' | 24:RA:1610:A:OP2 | 2.14 | 0.48 |
| 24:RA:1639:U:H2' | 24:RA:1640:C:H5'' | 1.95 | 0.48 |
| 24:RA:1636:C:O2' | 24:RA:1760:A:N3 | 2.41 | 0.48 |
| 24:RA:2065:C:H1' | 24:RA:2449:U:N3 | 2.28 | 0.48 |
| 25:RB:40:U:H3 | 25:RB:43:C:H5'' | 1.78 | 0.48 |
| 27:RE:13:ARG:HA | 27:RE:22:PRO:HA | 1.95 | 0.48 |
| 29:RG:68:PRO:HB3 | 29:RG:92:VAL:HB | 1.96 | 0.48 |
| 31:RI:122:GLU:O | 31:RI:126:TYR:OH | 2.29 | 0.48 |
| 35:RQ:32:TYR:HE1 | 35:RQ:133:ARG:HG3 | 1.78 | 0.48 |
| 36:RR:10:LEU:HD13 | 36:RR:40:LYS:HG2 | 1.96 | 0.48 |
| 1:QA:1464:G:P | 38:RT:112:ARG:HH21 | 2.37 | 0.48 |
| 40:RV:99:ILE:O | 40:RV:99:ILE:HD12 | 2.12 | 0.48 |
| 1:XA:1322:C:H5' | 13:XM:100:GLY:HA2 | 1.94 | 0.48 |
| 1:XA:898:G:N2 | 1:XA:901:A:OP2 | 2.43 | 0.48 |
| 5:XE:127:ASN:O | 5:XE:131:ILE:HG12 | 2.13 | 0.48 |
| 6:XF:21:LEU:O | 6:XF:24:GLU:HG2 | 2.13 | 0.48 |
| 6:XF:2:ARG:NH1 | 6:XF:69:GLU:OE1 | 2.46 | 0.48 |
| 11:XK:40:ILE:HD11 | 11:XK:77:MET:HE1 | 1.96 | 0.48 |
| 12:XL:89:ARG:HB2 | 12:XL:97:ARG:HD3 | 1.95 | 0.48 |
| 18:XR:22:VAL:HG21 | 18:XR:42:ARG:HB3 | 1.94 | 0.48 |
| 45:Y0:47:PRO:HD3 | 45:Y0:53:MET:HE2 | 1.95 | 0.48 |
| 49:Y4:56:VAL:HG12 | 49:Y4:57:GLU:N | 2.27 | 0.48 |
| 24:YA:1108:U:H2' | 24:YA:1109:C:C6 | 2.48 | 0.48 |
| 24:YA:1588:C:H2' | 24:YA:1589:C:C6 | 2.48 | 0.48 |
| 24:YA:1946:U:H2' | 24:YA:1947:C:C6 | 2.48 | 0.48 |
| 24:YA:608:A:OP1 | 28:YF:100:THR:HG21 | 2.13 | 0.48 |
| 24:YA:755:C:H2' | 24:YA:756:C:C6 | 2.48 | 0.48 |
| 24:YA:774:A:H2 | 24:YA:787:U:O2' | 1.97 | 0.48 |
| 24:YA:862:G:H2' | 24:YA:863:A:O4' | 2.13 | 0.48 |
| 25:YB:12:C:O4' | 25:YB:15:A:N6 | 2.46 | 0.48 |
| 26:YD:51:VAL:HG11 | 26:YD:54:ARG:HE | 1.79 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:YT:35:LYS:NZ | 38:YT:38:ASN:H | 2.11 | 0.48 |
| 41:YW:110:LYS:HG3 | 41:YW:111:HIS:CD2 | 2.47 | 0.48 |
| 1:QA:1511:G:H2' | 1:QA:1512:U:O4' | 2.13 | 0.48 |
| 1:QA:280:C:H41 | 17:QQ:37:LYS:NZ | 2.12 | 0.48 |
| 1:QA:527:G:O2' | 1:QA:535:A:N1 | 2.43 | 0.48 |
| 10:QJ:6:ILE:HA | 10:QJ:97:GLU:O | 2.14 | 0.48 |
| 1:QA:390:C:H4' | 16:QP:28:ARG:HH21 | 1.78 | 0.48 |
| 13:QM:84:ILE:HD11 | 19:QS:66:MET:HB3 | 1.96 | 0.48 |
| 24:RA:1164:G:H2' | 24:RA:1165:U:C6 | 2.49 | 0.48 |
| 24:RA:1212:G:H1' | 24:RA:1237:A:N6 | 2.29 | 0.48 |
| 24:RA:2507:C:C2 | 24:RA:2583:G:C2 | 3.02 | 0.48 |
| 24:RA:39:C:H2' | 24:RA:40:C:H6 | 1.78 | 0.48 |
| 24:RA:630:G:N2 | 24:RA:633:A:OP2 | 2.44 | 0.48 |
| 25:RB:7:G:H2' | 25:RB:8:U:O4' | 2.14 | 0.48 |
| 29:RG:125:PHE:HB3 | 29:RG:166:ASP:HB2 | 1.95 | 0.48 |
| 29:RG:173:LEU:HB3 | 29:RG:178:PHE:CD2 | 2.48 | 0.48 |
| 35:RQ:32:TYR:CE1 | 35:RQ:133:ARG:HG3 | 2.47 | 0.48 |
| 38:RT:111:ARG:HB2 | 38:RT:112:ARG:HH11 | 1.78 | 0.48 |
| 42:RX:26:TYR:CD2 | 42:RX:89:ILE:HD12 | 2.48 | 0.48 |
| 43:RY:90:LEU:HD12 | 43:RY:94:LYS:HB2 | 1.94 | 0.48 |
| 44:RZ:117:LEU:HD11 | 44:RZ:172:ALA:HB1 | 1.96 | 0.48 |
| 1:XA:658:G:H2' | 1:XA:659:U:C6 | 2.48 | 0.48 |
| 1:XA:947:G:H2' | 1:XA:948:C:O4' | 2.13 | 0.48 |
| 8:XH:91:ARG:HD2 | 17:XQ:32:TYR:O | 2.13 | 0.48 |
| 24:YA:1417:C:H2' | 24:YA:1418:G:O4' | 2.13 | 0.48 |
| 24:YA:1942:C:OP2 | 24:YA:1943:U:O2' | 2.14 | 0.48 |
| 24:YA:2392:A:H2 | 24:YA:2424:C:H42 | 1.61 | 0.48 |
| 24:YA:2747:G:O2' | 30:YH:67:LEU:HD23 | 2.14 | 0.48 |
| 24:YA:582:G:H2' | 24:YA:583:G:C8 | 2.49 | 0.48 |
| 28:YF:47:GLY:HA3 | 28:YF:95:ARG:O | 2.14 | 0.48 |
| 34:YP:97:PRO:C | 34:YP:99:LEU:H | 2.17 | 0.48 |
| 15:QO:39:LEU:HD23 | 15:QO:56:LEU:HB2 | 1.95 | 0.48 |
| 22:QV:24:C:H2' | 22:QV:25:U:H6 | 1.77 | 0.48 |
| 53:R8:31:HIS:CG | 53:R8:32:LEU:HD12 | 2.49 | 0.48 |
| 24:RA:1204:A:H1' | 24:RA:1206:G:C8 | 2.49 | 0.48 |
| 24:RA:2695:C:H2' | 24:RA:2696:U:C6 | 2.49 | 0.48 |
| 24:RA:2696:U:H2' | 24:RA:2697:G:C8 | 2.48 | 0.48 |
| 24:RA:2698:U:H2' | 24:RA:2699:C:H6 | 1.78 | 0.48 |
| 24:RA:2805:G:H2' | 24:RA:2807:G:C8 | 2.48 | 0.48 |
| 24:RA:589:C:H2' | 24:RA:590:A:C8 | 2.48 | 0.48 |
| 24:RA:923:C:H2' | 24:RA:924:C:C6 | 2.49 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:RA:958:U:O2 | 25:RB:89(A):A:O2' | 2.24 | 0.48 |
| 26:RD:96:HIS:CE1 | 26:RD:102:LYS:HE2 | 2.49 | 0.48 |
| 38:RT:54:ARG:HA | 38:RT:59:THR:HG23 | 1.95 | 0.48 |
| 40:RV:76:LYS:HB3 | 40:RV:79:VAL:HB | 1.96 | 0.48 |
| 1:XA:1167:A:H2' | 1:XA:1169:A:C8 | 2.48 | 0.48 |
| 14:XN:43:CYS:C | 14:XN:45:ARG:H | 2.15 | 0.48 |
| 24:YA:1062:G:N2 | 24:YA:1077:A:N1 | 2.57 | 0.48 |
| 24:YA:1204:A:H1' | 24:YA:1206:G:C5 | 2.49 | 0.48 |
| 24:YA:1794:U:H2' | 24:YA:1795:C:H6 | 1.78 | 0.48 |
| 24:YA:1802:A:H2' | 24:YA:1803:A:H8 | 1.79 | 0.48 |
| 24:YA:2329:G:H2' | 24:YA:2330:G:C8 | 2.49 | 0.48 |
| 24:YA:330:A:H2 | 24:YA:1210:A:HO2' | 1.61 | 0.48 |
| 24:YA:414:C:O2 | 24:YA:1864:U:O2' | 2.29 | 0.48 |
| 24:YA:709:U:H2' | 24:YA:710:G:C8 | 2.49 | 0.48 |
| 37:YS:6:ALA:O | 37:YS:10:ARG:HG2 | 2.13 | 0.48 |
| 43:YY:102:CYS:SG | 43:YY:103:GLY:N | 2.87 | 0.48 |
| 1:QA:1224:G:O2' | 1:QA:1322:C:OP2 | 2.30 | 0.48 |
| 1:QA:493:G:N2 | 1:QA:494:U:O4 | 2.47 | 0.48 |
| 1:QA:705:U:C2 | 1:QA:706:A:C8 | 3.01 | 0.48 |
| 24:RA:1628:G:H2' | 24:RA:1629:U:H6 | 1.79 | 0.48 |
| 24:RA:2103:C:H2' | 24:RA:2104:G:C8 | 2.48 | 0.48 |
| 24:RA:2328:A:H2' | 24:RA:2329:G:H8 | 1.79 | 0.48 |
| 24:RA:2712:U:H1' | 24:RA:2712(A):A:C8 | 2.49 | 0.48 |
| 32:RN:47:ALA:HB2 | 32:RN:112:LEU:HD11 | 1.94 | 0.48 |
| 1:XA:1309:G:C6 | 1:XA:1329:A:N1 | 2.81 | 0.48 |
| 1:XA:1316:G:N2 | 1:XA:1318:A:H3' | 2.29 | 0.48 |
| 1:XA:925:G:N2 | 1:XA:1503:A:OP1 | 2.47 | 0.48 |
| 11:XK:124:LYS:HE3 | 11:XK:125:PHE:CE1 | 2.49 | 0.48 |
| 24:YA:2213:U:H1' | 46:Y1:52:ARG:HH12 | 1.78 | 0.48 |
| 24:YA:1157:G:O2' | 48:Y3:31:LEU:HD12 | 2.13 | 0.48 |
| 24:YA:1641:A:H2' | 24:YA:1642:G:O4' | 2.14 | 0.48 |
| 24:YA:2713:A:O2' | 24:YA:2715:C:OP2 | 2.19 | 0.48 |
| 24:YA:638:G:H2' | 24:YA:639:U:C6 | 2.49 | 0.48 |
| 40:YV:52:VAL:HG21 | 40:YV:55:ALA:HB3 | 1.95 | 0.48 |
| 1:QA:937:A:H1' | 1:QA:1379:G:N2 | 2.29 | 0.48 |
| 1:QA:195:A:H4' | 20:QT:68:LYS:NZ | 2.29 | 0.48 |
| 1:QA:728:A:H2' | 1:QA:729:A:C8 | 2.48 | 0.48 |
| 9:QI:49:PRO:O | 9:QI:53:VAL:HG23 | 2.14 | 0.48 |
| 11:QK:124:LYS:HD2 | 11:QK:124:LYS:H | 1.79 | 0.48 |
| 13:QM:87:TYR:CZ | 13:QM:91:ARG:HD2 | 2.49 | 0.48 |
| 45:R0:53:MET:HE3 | 45:R0:59:LEU:HD21 | 1.96 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:RA:1316:U:H2' | 24:RA:1317:A:H8 | 1.79 | 0.48 |
| 24:RA:2852:G:H2' | 24:RA:2853:C:C6 | 2.49 | 0.48 |
| 24:RA:2808:U:H3 | 24:RA:2892:A:N6 | 2.12 | 0.48 |
| 24:RA:413:C:H2' | 24:RA:414:C:C6 | 2.48 | 0.48 |
| 26:RD:35:LYS:HE3 | 26:RD:61:LEU:HB3 | 1.95 | 0.48 |
| 1:XA:1315:U:H2' | 1:XA:1316:G:O4' | 2.13 | 0.48 |
| 1:XA:448:A:P | 1:XA:485:G:H22 | 2.36 | 0.48 |
| 1:XA:691:G:H2' | 1:XA:692:U:C6 | 2.49 | 0.48 |
| 20:XT:23:ARG:HE | 20:XT:27:LYS:HB2 | 1.79 | 0.48 |
| 24:YA:1322:A:N1 | 24:YA:1333:C:O2' | 2.43 | 0.48 |
| 24:YA:1467:C:C5 | 24:YA:1546:C:H2' | 2.49 | 0.48 |
| 24:YA:1709:U:H2' | 24:YA:1710:C:C6 | 2.49 | 0.48 |
| 24:YA:2743:C:OP2 | 24:YA:2755:C:N4 | 2.46 | 0.48 |
| 24:YA:2822:G:H2' | 24:YA:2823:A:H5'' | 1.96 | 0.48 |
| 24:YA:395:U:H2' | 24:YA:396:G:N7 | 2.29 | 0.48 |
| 27:YE:79:ARG:CZ | 27:YE:164:ARG:HH21 | 2.27 | 0.48 |
| 39:YU:85:LYS:NZ | 39:YU:117:GLN:HB2 | 2.28 | 0.48 |
| 44:YZ:93:ASP:C | 44:YZ:94:GLU:HG2 | 2.33 | 0.48 |
| 1:QA:35:G:N3 | 12:QL:118:SER:OG | 2.43 | 0.48 |
| 1:QA:624:C:H2' | 1:QA:625:G:H8 | 1.79 | 0.48 |
| 1:QA:1191:A:H5'' | 3:QC:4:LYS:HD3 | 1.96 | 0.48 |
| 10:QJ:54:PHE:O | 10:QJ:56:HIS:N | 2.46 | 0.48 |
| 51:R6:13:CYS:SG | 51:R6:14:THR:N | 2.86 | 0.48 |
| 24:RA:1329:U:H5'' | 24:RA:1330:C:H5 | 1.79 | 0.48 |
| 24:RA:2030:A:H4' | 24:RA:2031:A:C8 | 2.49 | 0.48 |
| 36:RR:74:LYS:O | 36:RR:75:LEU:HB3 | 2.14 | 0.48 |
| 40:RV:5:VAL:HG11 | 40:RV:57:VAL:HG11 | 1.94 | 0.48 |
| 1:XA:610:G:C4 | 1:XA:611:A:C8 | 3.01 | 0.48 |
| 1:XA:1191:A:H5'' | 3:XC:4:LYS:HE2 | 1.94 | 0.48 |
| 24:YA:600:G:N2 | 24:YA:605:C:O3' | 2.46 | 0.48 |
| 33:YO:80:ASP:OD2 | 38:YT:64:ARG:NH2 | 2.47 | 0.48 |
| 1:QA:1225:A:N3 | 1:QA:1225:A:H2' | 2.29 | 0.48 |
| 1:QA:1305:G:HO2' | 1:QA:1306:A:H8 | 1.62 | 0.48 |
| 1:QA:1432:G:OP1 | 38:RT:108:ARG:N | 2.36 | 0.48 |
| 7:QG:89:MET:HE3 | 7:QG:156:TRP:CZ3 | 2.49 | 0.48 |
| 24:RA:2064:C:H2' | 24:RA:2065:C:C6 | 2.48 | 0.48 |
| 24:RA:820:A:H4' | 24:RA:836:G:N2 | 2.28 | 0.48 |
| 36:RR:61:HIS:O | 36:RR:65:LEU:HD13 | 2.14 | 0.48 |
| 42:RX:55:ASN:HB2 | 42:RX:80:ILE:HG23 | 1.95 | 0.48 |
| 1:XA:112:G:H5' | 1:XA:389:A:O2' | 2.14 | 0.48 |
| 1:XA:545:C:OP1 | 4:XD:61:LYS:NZ | 2.47 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|---------------------|--------------------------|-------------------|
| 5:XE:82:VAL:HG21 | 5:XE:138:ALA:HA | 1.95 | 0.48 |
| 24:YA:2809:A:H2' | 24:YA:2810:A:C8 | 2.49 | 0.48 |
| 24:YA:222:A:H5'' | 24:YA:421:U:OP1 | 2.13 | 0.48 |
| 24:YA:455:C:N3 | 24:YA:472:A:H2' | 2.28 | 0.48 |
| 24:YA:675:A:C8 | 24:YA:804:A:C6 | 3.02 | 0.48 |
| 27:YE:116:VAL:O | 27:YE:117:MET:HB2 | 2.14 | 0.48 |
| 1:QA:1096:C:H2' | 1:QA:1097:C:H6 | 1.79 | 0.47 |
| 1:QA:1411:C:H2' | 1:QA:1412:C:C6 | 2.49 | 0.47 |
| 14:QN:24:CYS:SG | 14:QN:25:VAL:N | 2.87 | 0.47 |
| 48:R3:12:PRO:HB2 | 48:R3:20:LYS:HG2 | 1.96 | 0.47 |
| 24:RA:1019:U:H3 | 24:RA:1142(A):A:H62 | 1.61 | 0.47 |
| 24:RA:1444:G:H2' | 24:RA:1445:C:C5 | 2.49 | 0.47 |
| 33:RO:23:ARG:NH2 | 33:RO:28:SER:O | 2.47 | 0.47 |
| 37:RS:35:ILE:HD11 | 37:RS:97:ARG:NH1 | 2.28 | 0.47 |
| 24:RA:532:A:H5'' | 39:RU:28:ARG:HH12 | 1.78 | 0.47 |
| 40:RV:76:LYS:HD3 | 40:RV:81:TYR:HD2 | 1.79 | 0.47 |
| 41:RW:12:ILE:HD12 | 41:RW:42:ARG:HD3 | 1.94 | 0.47 |
| 1:XA:127:G:H4' | 17:XQ:2:PRO:HD2 | 1.95 | 0.47 |
| 1:XA:737:A:H2' | 1:XA:738:C:C6 | 2.48 | 0.47 |
| 3:XC:11:ARG:O | 3:XC:13:GLY:N | 2.47 | 0.47 |
| 8:XH:120:THR:HG22 | 8:XH:121:ASP:N | 2.28 | 0.47 |
| 42:YX:11:PRO:HD3 | 47:Y2:37:PHE:CD1 | 2.49 | 0.47 |
| 24:YA:2182:G:H2' | 24:YA:2183:C:C5 | 2.48 | 0.47 |
| 24:YA:2563:U:H1' | 24:YA:2566:A:N6 | 2.29 | 0.47 |
| 24:YA:2853:C:H2' | 24:YA:2854:G:C8 | 2.49 | 0.47 |
| 24:YA:336:C:O2' | 43:YY:35:TYR:OH | 2.32 | 0.47 |
| 24:YA:371:A:N6 | 24:YA:402:A:OP2 | 2.47 | 0.47 |
| 24:YA:699:A:H2' | 24:YA:700:G:O4' | 2.14 | 0.47 |
| 24:YA:851:U:OP1 | 48:Y3:49:LYS:NZ | 2.34 | 0.47 |
| 1:QA:1372:U:H2' | 1:QA:1373:G:O4' | 2.14 | 0.47 |
| 1:QA:184:G:H2' | 1:QA:185:A:C8 | 2.49 | 0.47 |
| 1:QA:323:U:H2' | 1:QA:324:G:O4' | 2.14 | 0.47 |
| 1:QA:551:U:H2' | 1:QA:552:U:H6 | 1.79 | 0.47 |
| 1:QA:62:U:H3 | 1:QA:105:G:H1 | 1.62 | 0.47 |
| 1:QA:639:G:H2' | 1:QA:640:A:H8 | 1.79 | 0.47 |
| 3:QC:128:PHE:HD2 | 3:QC:133:ALA:HB2 | 1.79 | 0.47 |
| 10:QJ:26:ALA:O | 10:QJ:29:ARG:HB3 | 2.14 | 0.47 |
| 10:QJ:99:LYS:HE2 | 10:QJ:99:LYS:HA | 1.94 | 0.47 |
| 20:QT:78:ALA:HA | 20:QT:81:LYS:NZ | 2.29 | 0.47 |
| 24:RA:1416:G:H2' | 24:RA:1417:C:C6 | 2.49 | 0.47 |
| 24:RA:2100:G:O6 | 24:RA:2189:U:O2 | 2.33 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 24:RA:2136:C:H2' | 24:RA:2137:C:C6 | 2.50 | 0.47 |
| 26:RD:241:PRO:O | 26:RD:242:ARG:HG2 | 2.14 | 0.47 |
| 27:RE:114:ALA:HB3 | 27:RE:160:TYR:HB3 | 1.96 | 0.47 |
| 36:RR:10:LEU:O | 36:RR:12:ARG:HG3 | 2.14 | 0.47 |
| 41:RW:82:LEU:HD12 | 41:RW:84:ARG:NH2 | 2.29 | 0.47 |
| 43:RY:30:VAL:HG12 | 43:RY:37:VAL:HG23 | 1.96 | 0.47 |
| 1:XA:1151:A:H5' | 10:XJ:41:PRO:HA | 1.96 | 0.47 |
| 1:XA:1488:G:H2' | 1:XA:1489:G:C8 | 2.49 | 0.47 |
| 1:XA:20:U:H2' | 1:XA:21:G:O4' | 2.15 | 0.47 |
| 1:XA:864:A:H2' | 1:XA:865:A:C8 | 2.49 | 0.47 |
| 10:XJ:49:VAL:CG2 | 14:XN:41:ARG:HB2 | 2.44 | 0.47 |
| 14:XN:47:LEU:HB3 | 14:XN:53:LEU:HD23 | 1.95 | 0.47 |
| 48:Y3:23:LEU:HD22 | 48:Y3:50:VAL:HG11 | 1.96 | 0.47 |
| 24:YA:2455:G:H2' | 24:YA:2456:C:C6 | 2.48 | 0.47 |
| 24:YA:814:C:H2' | 24:YA:815:C:H6 | 1.79 | 0.47 |
| 26:YD:112:GLN:HG2 | 26:YD:115:GLN:HG3 | 1.96 | 0.47 |
| 29:YG:63:ILE:HD12 | 29:YG:141:PHE:CD2 | 2.49 | 0.47 |
| 34:YP:138:LEU:HD12 | 34:YP:141:ALA:HB3 | 1.96 | 0.47 |
| 34:YP:37:GLY:O | 34:YP:41:ARG:HG2 | 2.13 | 0.47 |
| 42:YX:12:VAL:HB | 42:YX:27:THR:HG23 | 1.96 | 0.47 |
| 1:QA:1064:G:O2' | 1:QA:1065:U:O5' | 2.30 | 0.47 |
| 1:QA:1435:G:H2' | 1:QA:1436:U:C6 | 2.49 | 0.47 |
| 1:QA:540:G:H2' | 1:QA:541:G:O4' | 2.14 | 0.47 |
| 1:QA:56:U:H2' | 1:QA:57:G:C8 | 2.46 | 0.47 |
| 1:QA:690:G:H22 | 11:QK:55:LYS:NZ | 2.11 | 0.47 |
| 9:QI:9:ARG:O | 9:QI:104:ARG:HG3 | 2.14 | 0.47 |
| 13:QM:51:ALA:HB1 | 13:QM:55:ARG:HH21 | 1.80 | 0.47 |
| 14:QN:42:ILE:O | 14:QN:45:ARG:HB3 | 2.15 | 0.47 |
| 45:R0:18:ALA:O | 45:R0:20:ARG:NH1 | 2.45 | 0.47 |
| 24:RA:1278:A:H2' | 24:RA:1279:G:C8 | 2.50 | 0.47 |
| 24:RA:1423:G:H2' | 24:RA:1424:G:H8 | 1.79 | 0.47 |
| 24:RA:2355:C:H4' | 45:R0:24:LYS:HD2 | 1.96 | 0.47 |
| 24:RA:2478:A:OP2 | 54:R9:2:LYS:NZ | 2.31 | 0.47 |
| 24:RA:2635:C:H2' | 24:RA:2636:U:O4' | 2.15 | 0.47 |
| 24:RA:873:G:H4' | 35:RQ:63:LYS:NZ | 2.29 | 0.47 |
| 31:RI:21:VAL:HG22 | 31:RI:22:LYS:H | 1.79 | 0.47 |
| 1:XA:1162:C:H2' | 1:XA:1163:C:C6 | 2.49 | 0.47 |
| 1:XA:1238:A:H2 | 1:XA:1241:G:N3 | 2.12 | 0.47 |
| 1:XA:224:C:H2' | 1:XA:225:C:C6 | 2.49 | 0.47 |
| 2:XB:72:GLY:O | 2:XB:94:ASN:HA | 2.13 | 0.47 |
| 3:XC:23:TYR:HA | 10:XJ:11:PHE:HE2 | 1.79 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 6:XF:2:ARG:NH1 | 6:XF:69:GLU:HB3 | 2.29 | 0.47 |
| 12:XL:117:ARG:HG2 | 12:XL:122:THR:HB | 1.95 | 0.47 |
| 19:XS:64:GLU:HB2 | 49:Y4:59:PHE:HE2 | 1.78 | 0.47 |
| 46:Y1:64:ALA:HA | 46:Y1:67:ILE:HG13 | 1.96 | 0.47 |
| 34:YP:62:LEU:HD12 | 53:Y8:30:ARG:HE | 1.79 | 0.47 |
| 24:YA:2082:A:H2' | 24:YA:2083:G:O4' | 2.14 | 0.47 |
| 24:YA:288:C:H2' | 24:YA:289:A:C8 | 2.46 | 0.47 |
| 26:YD:244:ARG:HB2 | 26:YD:245:PRO:HD2 | 1.95 | 0.47 |
| 29:YG:25:TYR:CD2 | 29:YG:31:VAL:HG12 | 2.50 | 0.47 |
| 32:YN:129:PRO:O | 32:YN:134:ARG:NH1 | 2.27 | 0.47 |
| 37:YS:15:ARG:HA | 37:YS:18:ILE:HG22 | 1.95 | 0.47 |
| 38:YT:110:ILE:HG23 | 38:YT:111:ARG:H | 1.79 | 0.47 |
| 1:QA:1496:C:H2' | 1:QA:1497:G:C8 | 2.48 | 0.47 |
| 1:QA:384:G:H2' | 1:QA:385:C:H6 | 1.79 | 0.47 |
| 10:QJ:29:ARG:HH21 | 1:XA:1164:G:P | 2.38 | 0.47 |
| 12:QL:6:THR:HG22 | 12:QL:8:ASN:H | 1.77 | 0.47 |
| 48:R3:6:VAL:HG12 | 48:R3:56:VAL:HG12 | 1.96 | 0.47 |
| 24:RA:1429:G:H2' | 24:RA:1430:C:C6 | 2.49 | 0.47 |
| 24:RA:1432:C:H2' | 24:RA:1433:U:O4' | 2.14 | 0.47 |
| 24:RA:1952:A:C5 | 33:RO:22:ILE:HD12 | 2.50 | 0.47 |
| 24:RA:1973:G:H2' | 24:RA:1974:C:C6 | 2.48 | 0.47 |
| 24:RA:2123:G:H2' | 24:RA:2124:G:H8 | 1.80 | 0.47 |
| 24:RA:2127:G:H8 | 24:RA:2127:G:OP2 | 1.97 | 0.47 |
| 24:RA:324:A:H2' | 24:RA:325:G:O4' | 2.14 | 0.47 |
| 24:RA:588:U:O5' | 24:RA:588:U:H6 | 1.98 | 0.47 |
| 1:XA:376:G:H1 | 1:XA:387:U:H3 | 1.63 | 0.47 |
| 1:XA:391:G:O3' | 16:XP:8:ARG:NH1 | 2.45 | 0.47 |
| 1:XA:41:G:H2' | 1:XA:42:G:H8 | 1.79 | 0.47 |
| 12:XL:27:LEU:HB3 | 12:XL:33:ARG:NH1 | 2.29 | 0.47 |
| 1:XA:1455:G:H5' | 20:XT:32:ALA:HB2 | 1.96 | 0.47 |
| 24:YA:978:G:O4' | 24:YA:1001:A:H2 | 1.97 | 0.47 |
| 24:YA:1406:U:H3' | 24:YA:1407:C:H6 | 1.80 | 0.47 |
| 24:YA:1520:U:H2' | 24:YA:1521:G:O4' | 2.14 | 0.47 |
| 24:YA:2590:A:H2' | 24:YA:2591:C:C6 | 2.50 | 0.47 |
| 24:YA:742:G:H2' | 24:YA:743:G:C8 | 2.49 | 0.47 |
| 25:YB:50:G:C2 | 25:YB:51:G:H1' | 2.49 | 0.47 |
| 31:YI:75:LEU:HD13 | 31:YI:105:HIS:ND1 | 2.30 | 0.47 |
| 35:YQ:4:PRO:HG3 | 35:YQ:69:PHE:HE2 | 1.79 | 0.47 |
| 44:YZ:30:ASN:HB3 | 44:YZ:90:VAL:HG22 | 1.95 | 0.47 |
| 1:QA:97:U:H2' | 1:QA:99:C:C6 | 2.49 | 0.47 |
| 6:QF:50:TYR:CE1 | 18:QR:77:GLY:HA2 | 2.50 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 51:R6:8:LYS:HB2 | 51:R6:54:ILE:HG21 | 1.96 | 0.47 |
| 24:RA:1779:U:OP2 | 24:RA:1784:A:N6 | 2.36 | 0.47 |
| 24:RA:2086:U:H2' | 24:RA:2087:G:C8 | 2.49 | 0.47 |
| 24:RA:220:G:O2' | 24:RA:233:A:N3 | 2.44 | 0.47 |
| 24:RA:2576:G:O2' | 24:RA:2579:C:OP2 | 2.26 | 0.47 |
| 24:RA:2792:G:C2 | 24:RA:2793:G:H1' | 2.49 | 0.47 |
| 24:RA:669:G:C2 | 24:RA:801:G:C6 | 3.02 | 0.47 |
| 24:RA:934:G:H2' | 24:RA:935:C:C6 | 2.49 | 0.47 |
| 28:RF:182:ASN:O | 28:RF:186:ILE:HG12 | 2.14 | 0.47 |
| 31:RI:3:VAL:HG12 | 31:RI:38:LEU:HA | 1.96 | 0.47 |
| 1:XA:677:U:O2 | 1:XA:777:A:O2' | 2.31 | 0.47 |
| 3:XC:6:HIS:CE1 | 3:XC:8:ILE:HB | 2.49 | 0.47 |
| 11:XK:95:ILE:HD13 | 11:XK:108:ILE:HD11 | 1.96 | 0.47 |
| 24:YA:1608:A:H1' | 24:YA:1610:A:OP2 | 2.14 | 0.47 |
| 24:YA:2114:A:H2' | 24:YA:2168:G:N3 | 2.29 | 0.47 |
| 24:YA:464:U:H2' | 24:YA:465:G:O4' | 2.15 | 0.47 |
| 30:YH:92:ILE:HG13 | 30:YH:93:GLY:N | 2.29 | 0.47 |
| 1:QA:1181:G:N7 | 1:QA:1182:G:N2 | 2.56 | 0.47 |
| 4:QD:109:GLY:HA3 | 4:QD:165:MET:HG2 | 1.95 | 0.47 |
| 24:RA:2689:U:H4' | 24:RA:2690:C:O5' | 2.14 | 0.47 |
| 24:RA:37:C:H2' | 24:RA:38:A:H8 | 1.80 | 0.47 |
| 25:RB:66:A:O2' | 25:RB:67:G:O5' | 2.31 | 0.47 |
| 28:RF:157:VAL:HG21 | 28:RF:181:LEU:HD13 | 1.97 | 0.47 |
| 1:XA:1198:G:H2' | 1:XA:1199:U:C6 | 2.50 | 0.47 |
| 1:XA:1516:G:N2 | 1:XA:1519:A:OP2 | 2.46 | 0.47 |
| 1:XA:261:U:O2' | 1:XA:263:A:N7 | 2.43 | 0.47 |
| 1:XA:792:A:H1' | 1:XA:794:A:N7 | 2.30 | 0.47 |
| 1:XA:825:G:O2' | 8:XH:12:ARG:NH2 | 2.43 | 0.47 |
| 1:XA:96:G:H2' | 1:XA:97:U:C6 | 2.50 | 0.47 |
| 2:XB:160:ASP:O | 2:XB:183:PRO:HD2 | 2.15 | 0.47 |
| 8:XH:86:ILE:HG22 | 8:XH:93:VAL:HG21 | 1.97 | 0.47 |
| 23:XX:14:A:H3' | 23:XX:15:A:H8 | 1.80 | 0.47 |
| 19:XS:67:VAL:HB | 49:Y4:58:ARG:HB3 | 1.95 | 0.47 |
| 24:YA:2756:U:OP2 | 54:Y9:19:ARG:NH2 | 2.44 | 0.47 |
| 24:YA:1113:U:H2' | 24:YA:1114:G:H8 | 1.79 | 0.47 |
| 24:YA:1139:G:O2' | 24:YA:1143:A:N1 | 2.42 | 0.47 |
| 24:YA:1495:A:H2' | 24:YA:1496:A:O4' | 2.14 | 0.47 |
| 24:YA:2176:A:H2' | 24:YA:2177:C:C5 | 2.49 | 0.47 |
| 24:YA:633:A:O2' | 24:YA:2404:C:OP1 | 2.31 | 0.47 |
| 24:YA:243:U:OP1 | 53:Y8:8:LYS:NZ | 2.32 | 0.47 |
| 41:YW:9:TYR:CD1 | 41:YW:102:HIS:HE1 | 2.33 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:QA:328:C:H4' | 1:QA:329:A:O5' | 2.14 | 0.47 |
| 4:QD:60:GLU:HG2 | 4:QD:202:LEU:HB2 | 1.96 | 0.47 |
| 8:QH:12:ARG:NH1 | 8:QH:27:PRO:HD3 | 2.29 | 0.47 |
| 1:QA:719:C:O2' | 18:QR:50:ILE:O | 2.24 | 0.47 |
| 1:QA:1014:A:H4' | 19:QS:14:HIS:CG | 2.50 | 0.47 |
| 19:QS:40:ILE:HG23 | 19:QS:41:VAL:H | 1.78 | 0.47 |
| 22:QV:37:U:H2' | 22:QV:38:A:C8 | 2.49 | 0.47 |
| 29:RG:101:ILE:CD1 | 49:R4:25:TYR:HB2 | 2.42 | 0.47 |
| 24:RA:1482:U:H3 | 24:RA:1512:G:H1 | 1.62 | 0.47 |
| 24:RA:1636:C:H2' | 24:RA:1637:A:C8 | 2.50 | 0.47 |
| 24:RA:1187:G:H5'' | 40:RV:81:TYR:CE1 | 2.50 | 0.47 |
| 24:RA:64:A:O3' | 42:RX:71:GLY:HA3 | 2.14 | 0.47 |
| 2:XB:122:PHE:HA | 2:XB:139:LYS:NZ | 2.29 | 0.47 |
| 5:XE:75:THR:HG21 | 5:XE:94:ALA:H | 1.80 | 0.47 |
| 1:XA:598:U:H4' | 8:XH:94:TYR:CD2 | 2.49 | 0.47 |
| 24:YA:151:C:H2' | 24:YA:152:G:H8 | 1.79 | 0.47 |
| 24:YA:433:C:H2' | 24:YA:434:U:C6 | 2.50 | 0.47 |
| 24:YA:637:A:H4' | 24:YA:638:G:O5' | 2.13 | 0.47 |
| 24:YA:775:G:C5 | 24:YA:794:G:C8 | 3.03 | 0.47 |
| 25:YB:66:A:O2' | 25:YB:67:G:O5' | 2.30 | 0.47 |
| 24:YA:2733:A:H2 | 27:YE:203:LYS:HG2 | 1.79 | 0.47 |
| 34:YP:64:LYS:CB | 53:Y8:25:MET:HG3 | 2.44 | 0.47 |
| 1:QA:1010:G:H2' | 1:QA:1011:G:C8 | 2.50 | 0.47 |
| 1:QA:1301:U:O2 | 1:QA:1301:U:H2' | 2.14 | 0.47 |
| 1:QA:1327:C:OP2 | 21:QU:6:ARG:NH1 | 2.45 | 0.47 |
| 1:QA:401:C:O2' | 1:QA:621:A:N3 | 2.43 | 0.47 |
| 4:QD:18:LYS:HG2 | 4:QD:20:TYR:HE1 | 1.80 | 0.47 |
| 12:QL:55:VAL:HG12 | 12:QL:69:TYR:HA | 1.96 | 0.47 |
| 19:QS:10:PHE:CE2 | 19:QS:16:LEU:HB2 | 2.49 | 0.47 |
| 53:R8:25:MET:SD | 53:R8:46:ARG:HG2 | 2.55 | 0.47 |
| 53:R8:3:LYS:HE3 | 53:R8:62:LEU:HD11 | 1.95 | 0.47 |
| 24:RA:1019:U:HO2' | 24:RA:1021:A:H2 | 1.63 | 0.47 |
| 24:RA:116:C:O2' | 24:RA:126:A:N3 | 2.45 | 0.47 |
| 24:RA:1332:G:N2 | 24:RA:1609:A:HO2' | 2.13 | 0.47 |
| 24:RA:216:A:C8 | 24:RA:432:A:C6 | 3.03 | 0.47 |
| 26:RD:69:ARG:HD2 | 26:RD:105:ILE:HD11 | 1.96 | 0.47 |
| 27:RE:50:GLY:HA2 | 27:RE:77:ILE:HA | 1.96 | 0.47 |
| 28:RF:117:ARG:NH2 | 28:RF:189:THR:O | 2.41 | 0.47 |
| 28:RF:38:ARG:HD3 | 28:RF:99:TYR:OH | 2.14 | 0.47 |
| 29:RG:120:LEU:HB2 | 29:RG:180:PHE:HD1 | 1.79 | 0.47 |
| 35:RQ:10:ARG:HG2 | 35:RQ:11:LYS:HG3 | 1.97 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:RQ:81:VAL:HG13 | 35:RQ:82:ARG:H | 1.80 | 0.47 |
| 44:RZ:59:LEU:HD11 | 44:RZ:69:THR:HG21 | 1.97 | 0.47 |
| 1:XA:1277:C:O2' | 1:XA:1279:A:H1' | 2.13 | 0.47 |
| 1:XA:1330:U:H3' | 1:XA:1331:G:O4' | 2.15 | 0.47 |
| 3:XC:83:ARG:HA | 3:XC:86:VAL:HG12 | 1.97 | 0.47 |
| 10:XJ:51:ARG:HG3 | 10:XJ:60:ARG:HA | 1.96 | 0.47 |
| 10:XJ:48:THR:HG23 | 10:XJ:62:HIS:HB3 | 1.96 | 0.47 |
| 16:XP:8:ARG:HB3 | 16:XP:28:ARG:HH12 | 1.79 | 0.47 |
| 24:YA:1202:C:N4 | 24:YA:1203:G:C6 | 2.83 | 0.47 |
| 24:YA:1384:A:N3 | 24:YA:1405:U:H1' | 2.29 | 0.47 |
| 24:YA:1794:U:H2' | 24:YA:1795:C:C6 | 2.50 | 0.47 |
| 24:YA:2111:C:N4 | 24:YA:2147:G:H22 | 2.13 | 0.47 |
| 24:YA:250:G:H2' | 24:YA:251:A:C8 | 2.49 | 0.47 |
| 24:YA:637:A:O5' | 34:YP:116:GLY:HA2 | 2.14 | 0.47 |
| 27:YE:23:VAL:HG12 | 27:YE:173:VAL:HG21 | 1.96 | 0.47 |
| 29:YG:98:ARG:O | 29:YG:101:ILE:HG13 | 2.15 | 0.47 |
| 1:QA:999:U:H2' | 1:QA:1000:A:C8 | 2.49 | 0.47 |
| 1:QA:1314:C:H2' | 1:QA:1315:U:C6 | 2.50 | 0.47 |
| 1:QA:1352:C:H2' | 1:QA:1353:G:C8 | 2.50 | 0.47 |
| 1:QA:235:C:H2' | 1:QA:236:G:H8 | 1.80 | 0.47 |
| 3:QC:40:ARG:HH12 | 3:QC:57:ILE:HB | 1.79 | 0.47 |
| 46:R1:11:ARG:HG3 | 46:R1:12:PRO:HD2 | 1.97 | 0.47 |
| 24:RA:1332:G:H21 | 24:RA:1610:A:H8 | 1.60 | 0.47 |
| 24:RA:1389:G:H2' | 24:RA:1390:U:C6 | 2.50 | 0.47 |
| 24:RA:184:C:H1' | 24:RA:217:G:H1' | 1.97 | 0.47 |
| 26:RD:25:THR:O | 26:RD:27:THR:N | 2.43 | 0.47 |
| 37:RS:85:VAL:HG23 | 37:RS:112:PHE:HE1 | 1.80 | 0.47 |
| 41:RW:58:ALA:HB1 | 41:RW:64:MET:HB2 | 1.97 | 0.47 |
| 42:RX:21:PHE:CE1 | 42:RX:92:LEU:HB3 | 2.49 | 0.47 |
| 3:XC:5:ILE:HD13 | 14:XN:58:LYS:HZ2 | 1.80 | 0.47 |
| 11:XK:63:LEU:HD23 | 11:XK:66:LEU:HD12 | 1.97 | 0.47 |
| 24:YA:2335:A:O2' | 24:YA:2336:A:O5' | 2.30 | 0.47 |
| 29:YG:129:GLY:HA2 | 29:YG:166:ASP:HA | 1.95 | 0.47 |
| 41:YW:11:ARG:O | 41:YW:11:ARG:HD3 | 2.15 | 0.47 |
| 24:YA:329:G:OP2 | 43:YY:71:LYS:HD2 | 2.15 | 0.47 |
| 44:YZ:146:ILE:HD12 | 44:YZ:146:ILE:H | 1.79 | 0.47 |
| 1:QA:1293:G:H2' | 1:QA:1294:G:H8 | 1.80 | 0.47 |
| 1:QA:1348:U:C4 | 1:QA:1374:A:H2 | 2.33 | 0.47 |
| 1:QA:1411:C:H2' | 1:QA:1412:C:H6 | 1.80 | 0.47 |
| 1:QA:978:A:C4 | 1:QA:1319:A:C2 | 3.02 | 0.47 |
| 1:QA:1111:A:H61 | 3:QC:177:THR:HG22 | 1.80 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:QD:68:TYR:HD2 | 4:QD:97:LEU:HD13 | 1.80 | 0.47 |
| 10:QJ:50:ILE:HA | 10:QJ:60:ARG:HG2 | 1.96 | 0.47 |
| 24:RA:122:G:OP1 | 24:RA:149:A:O2' | 2.33 | 0.47 |
| 24:RA:1899:G:H22 | 24:RA:1902:C:H41 | 1.59 | 0.47 |
| 24:RA:2377:A:H2' | 24:RA:2378:A:C8 | 2.50 | 0.47 |
| 24:RA:760:G:H2' | 24:RA:761:A:O4' | 2.13 | 0.47 |
| 24:RA:935:C:H2' | 24:RA:936:C:C6 | 2.50 | 0.47 |
| 28:RF:197:ASP:C | 28:RF:199:TRP:H | 2.19 | 0.47 |
| 44:RZ:117:LEU:HD12 | 44:RZ:173:ALA:O | 2.15 | 0.47 |
| 1:XA:1391:U:H2' | 1:XA:1392:G:C8 | 2.50 | 0.47 |
| 1:XA:246:A:OP1 | 17:XQ:100:LYS:HE2 | 2.14 | 0.47 |
| 1:XA:690:G:H2' | 1:XA:691:G:O4' | 2.14 | 0.47 |
| 1:XA:825:G:H2' | 1:XA:826:C:C6 | 2.50 | 0.47 |
| 12:XL:7:ILE:H | 12:XL:7:ILE:HD12 | 1.79 | 0.47 |
| 1:XA:1228:C:H5'' | 13:XM:108:ARG:HH22 | 1.80 | 0.47 |
| 49:Y4:44:THR:OG1 | 49:Y4:47:GLN:OE1 | 2.31 | 0.47 |
| 1:QA:1327:C:H2' | 1:QA:1328:C:C6 | 2.50 | 0.47 |
| 1:QA:779:C:H2' | 1:QA:780:A:O4' | 2.15 | 0.47 |
| 9:QI:89:ASN:OD1 | 9:QI:91:ASP:HB3 | 2.14 | 0.47 |
| 19:QS:3:ARG:NH1 | 19:QS:8:GLY:O | 2.48 | 0.47 |
| 46:R1:89:GLU:O | 46:R1:93:GLU:HB2 | 2.15 | 0.47 |
| 24:RA:1490:A:O2' | 26:RD:99:ASP:OD1 | 2.33 | 0.47 |
| 24:RA:1510:A:O2' | 24:RA:1512:G:N7 | 2.47 | 0.47 |
| 24:RA:1605:C:H2' | 24:RA:1606:G:O4' | 2.15 | 0.47 |
| 24:RA:2011:U:OP2 | 41:RW:16:LYS:NZ | 2.37 | 0.47 |
| 24:RA:2246:G:H2' | 24:RA:2247:A:C8 | 2.49 | 0.47 |
| 24:RA:2370:G:H2' | 24:RA:2371:G:O4' | 2.15 | 0.47 |
| 24:RA:2822:G:H2' | 24:RA:2823:A:H5'' | 1.96 | 0.47 |
| 24:RA:579:G:H2' | 24:RA:580:C:C6 | 2.50 | 0.47 |
| 24:RA:589:C:H2' | 24:RA:590:A:H8 | 1.80 | 0.47 |
| 24:RA:642:G:N2 | 24:RA:645:C:OP2 | 2.49 | 0.47 |
| 28:RF:185:ASP:HA | 28:RF:188:ARG:HD3 | 1.97 | 0.47 |
| 29:RG:8:LYS:HE3 | 29:RG:12:TYR:HE2 | 1.79 | 0.47 |
| 36:RR:38:VAL:HG22 | 36:RR:112:ALA:HB2 | 1.96 | 0.47 |
| 39:RU:65:ILE:HD11 | 39:RU:93:LYS:HA | 1.97 | 0.47 |
| 43:RY:97:ARG:HG3 | 43:RY:106:LEU:HB2 | 1.97 | 0.47 |
| 12:XL:117:ARG:HD2 | 12:XL:123:LYS:O | 2.15 | 0.47 |
| 22:XV:24:C:H2' | 22:XV:25:U:C6 | 2.49 | 0.47 |
| 24:YA:1613:G:O2' | 52:Y7:3:ARG:HD2 | 2.15 | 0.47 |
| 52:Y7:12:ARG:NH2 | 52:Y7:44:PRO:HB3 | 2.30 | 0.47 |
| 24:YA:131:G:H2' | 24:YA:132:G:H8 | 1.78 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:1668:A:N3 | 24:YA:1670:C:C4 | 2.83 | 0.47 |
| 24:YA:2282:G:N2 | 24:YA:2390:U:O2 | 2.39 | 0.47 |
| 24:YA:2079:U:H4' | 24:YA:2433:A:H2 | 1.80 | 0.47 |
| 24:YA:2629:A:O2' | 24:YA:2630:G:H5'' | 2.14 | 0.47 |
| 24:YA:2712:U:OP1 | 24:YA:2714:G:H4' | 2.15 | 0.47 |
| 24:YA:2737:G:H2' | 24:YA:2738:A:C8 | 2.50 | 0.47 |
| 24:YA:859:G:H5' | 24:YA:2268:A:O2' | 2.15 | 0.47 |
| 36:YR:26:LYS:HE2 | 36:YR:70:LEU:O | 2.15 | 0.47 |
| 42:YX:28:PHE:HE1 | 42:YX:92:LEU:HD11 | 1.80 | 0.47 |
| 1:QA:1237:C:O4' | 1:QA:1334:G:N2 | 2.48 | 0.46 |
| 1:QA:1347:G:O2' | 1:QA:1348:U:P | 2.74 | 0.46 |
| 1:QA:28:G:O2' | 1:QA:296:U:OP1 | 2.32 | 0.46 |
| 1:QA:444:C:H2' | 1:QA:445:G:H8 | 1.80 | 0.46 |
| 1:QA:751:U:H2' | 1:QA:752:G:O4' | 2.15 | 0.46 |
| 2:QB:82:ARG:HG2 | 2:QB:92:TYR:CE2 | 2.50 | 0.46 |
| 13:QM:80:ARG:NE | 49:R4:58:ARG:HH12 | 2.13 | 0.46 |
| 24:RA:2315:G:H2' | 24:RA:2316:C:H6 | 1.80 | 0.46 |
| 24:RA:2439:A:H8 | 24:RA:2439:A:H5' | 1.80 | 0.46 |
| 24:RA:84:A:C2 | 24:RA:103:A:C5 | 3.03 | 0.46 |
| 26:RD:11:PRO:O | 26:RD:12:SER:OG | 2.28 | 0.46 |
| 27:RE:47:VAL:HG11 | 27:RE:86:PRO:HD2 | 1.97 | 0.46 |
| 33:RO:111:PHE:HB3 | 33:RO:114:ILE:HD12 | 1.98 | 0.46 |
| 36:RR:58:GLY:HA2 | 36:RR:80:PHE:CE1 | 2.48 | 0.46 |
| 24:RA:2864:G:OP1 | 38:RT:119:LYS:HD2 | 2.16 | 0.46 |
| 39:RU:81:HIS:NE2 | 39:RU:85:LYS:HD2 | 2.29 | 0.46 |
| 44:RZ:48:PHE:HE1 | 44:RZ:71:VAL:HG11 | 1.80 | 0.46 |
| 1:XA:254:G:H2' | 1:XA:255:G:H8 | 1.81 | 0.46 |
| 8:XH:33:GLU:OE1 | 8:XH:50:ARG:NH2 | 2.48 | 0.46 |
| 10:XJ:69:ASN:O | 10:XJ:70:ARG:HD2 | 2.15 | 0.46 |
| 13:XM:99:ARG:HB3 | 13:XM:101:GLN:HE22 | 1.80 | 0.46 |
| 54:Y9:7:VAL:HG12 | 54:Y9:36:GLN:HE21 | 1.80 | 0.46 |
| 24:YA:1062:G:H2' | 24:YA:1063:G:C8 | 2.50 | 0.46 |
| 24:YA:1510:A:OP1 | 24:YA:1511:A:H5' | 2.15 | 0.46 |
| 24:YA:1728:G:H3' | 24:YA:1729:A:H5'' | 1.97 | 0.46 |
| 24:YA:1816:G:H3' | 26:YD:62:TYR:CE1 | 2.50 | 0.46 |
| 24:YA:24:G:C6 | 24:YA:25:U:C4 | 3.03 | 0.46 |
| 24:YA:2805:G:H2' | 24:YA:2807:G:C8 | 2.50 | 0.46 |
| 24:YA:673:C:H5'' | 28:YF:81:PRO:HD2 | 1.97 | 0.46 |
| 2:QB:185:ILE:HA | 2:QB:199:TYR:O | 2.14 | 0.46 |
| 6:QF:79:LEU:O | 6:QF:85:VAL:HG11 | 2.15 | 0.46 |
| 3:QC:21:ARG:HH22 | 10:QJ:11:PHE:HB2 | 1.79 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:QA:1228:C:H5'' | 13:QM:108:ARG:NH2 | 2.29 | 0.46 |
| 24:RA:1812:A:H2' | 24:RA:1813:G:H8 | 1.81 | 0.46 |
| 24:RA:858:U:O2 | 24:RA:2268:A:H2' | 2.15 | 0.46 |
| 24:RA:2557:G:H2' | 24:RA:2558:C:C6 | 2.50 | 0.46 |
| 24:RA:2859:G:H2' | 24:RA:2860:A:C8 | 2.50 | 0.46 |
| 24:RA:329:G:OP2 | 43:RY:71:LYS:NZ | 2.41 | 0.46 |
| 24:RA:396:G:H1' | 46:R1:42:GLN:HG2 | 1.98 | 0.46 |
| 29:RG:120:LEU:HD22 | 29:RG:133:LEU:HD12 | 1.98 | 0.46 |
| 37:RS:34:HIS:CE1 | 37:RS:54:LEU:HD13 | 2.50 | 0.46 |
| 24:RA:561:G:H1' | 39:RU:45:TYR:HE1 | 1.79 | 0.46 |
| 1:XA:1264:C:H2' | 1:XA:1265:G:C8 | 2.50 | 0.46 |
| 1:XA:1376:U:H2' | 1:XA:1377:A:H8 | 1.78 | 0.46 |
| 1:XA:501:C:H2' | 1:XA:502:G:C8 | 2.50 | 0.46 |
| 4:XD:55:ALA:O | 4:XD:59:ARG:HG2 | 2.15 | 0.46 |
| 7:XG:88:PRO:HG2 | 7:XG:152:ALA:HB2 | 1.97 | 0.46 |
| 22:XV:35:C:O2' | 22:XV:36:A:OP1 | 2.28 | 0.46 |
| 24:YA:690:G:H2' | 24:YA:691:C:C6 | 2.50 | 0.46 |
| 31:YI:2:LYS:HA | 31:YI:20:ASP:HA | 1.97 | 0.46 |
| 1:QA:139:G:H2' | 1:QA:140:A:C8 | 2.50 | 0.46 |
| 1:QA:320:C:HO2' | 1:QA:1435:G:HO2' | 1.59 | 0.46 |
| 1:QA:434:U:H2' | 1:QA:435:C:C6 | 2.50 | 0.46 |
| 1:QA:878:G:H5' | 8:QH:89:PRO:HG2 | 1.96 | 0.46 |
| 1:QA:1099:G:OP2 | 2:QB:148:TYR:OH | 2.33 | 0.46 |
| 18:QR:44:LEU:HD11 | 18:QR:79:LEU:HD23 | 1.96 | 0.46 |
| 24:RA:1353:A:H2' | 24:RA:1354:A:C8 | 2.50 | 0.46 |
| 24:RA:2102:U:O2 | 24:RA:2187:G:N2 | 2.42 | 0.46 |
| 24:RA:2121:G:H2' | 24:RA:2122:U:C6 | 2.51 | 0.46 |
| 24:RA:2515:C:H2' | 24:RA:2516:G:H8 | 1.81 | 0.46 |
| 24:RA:270(D):C:H2' | 24:RA:270(E):G:C8 | 2.50 | 0.46 |
| 24:RA:2849:U:H4' | 24:RA:2868:A:C2 | 2.50 | 0.46 |
| 24:RA:946:G:H2' | 24:RA:947:G:C8 | 2.50 | 0.46 |
| 30:RH:169:VAL:HG22 | 30:RH:171:LEU:HG | 1.96 | 0.46 |
| 31:RI:92:VAL:O | 31:RI:120:ILE:HG22 | 2.15 | 0.46 |
| 43:RY:76:CYS:HB3 | 43:RY:79:CYS:H | 1.80 | 0.46 |
| 1:XA:1091:U:C2 | 1:XA:1095:U:C4 | 3.04 | 0.46 |
| 1:XA:170:U:H2' | 1:XA:171:A:H8 | 1.80 | 0.46 |
| 1:XA:538:G:H2' | 1:XA:539:A:H8 | 1.80 | 0.46 |
| 1:XA:711:G:H2' | 1:XA:712:A:H8 | 1.80 | 0.46 |
| 18:XR:74:ARG:HD3 | 18:XR:80:PRO:O | 2.15 | 0.46 |
| 20:XT:29:LYS:HD2 | 20:XT:66:ALA:HB2 | 1.98 | 0.46 |
| 22:XV:19:G:O2' | 22:XV:20:G:H5'' | 2.16 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:1178:C:H2' | 24:YA:1179:C:C6 | 2.50 | 0.46 |
| 24:YA:1201:C:C2 | 24:YA:1202:C:C5 | 3.04 | 0.46 |
| 24:YA:1248:G:O2' | 39:YU:3:ARG:HA | 2.15 | 0.46 |
| 24:YA:1359:A:N6 | 24:YA:1372:U:H3 | 2.12 | 0.46 |
| 24:YA:1825:A:H2' | 24:YA:1826:G:H8 | 1.80 | 0.46 |
| 24:YA:2514:U:H2' | 24:YA:2515:C:C6 | 2.50 | 0.46 |
| 24:YA:747:U:O2 | 24:YA:2014:A:H1' | 2.15 | 0.46 |
| 24:YA:960:A:C8 | 24:YA:962:G:C8 | 3.04 | 0.46 |
| 29:YG:150:ASP:OD1 | 29:YG:151:ALA:N | 2.48 | 0.46 |
| 24:YA:389:G:H1 | 34:YP:71:VAL:HG12 | 1.80 | 0.46 |
| 1:QA:1126:U:H1' | 1:QA:1280:A:N7 | 2.31 | 0.46 |
| 1:QA:1210:C:O2' | 1:QA:1213:A:O2' | 2.28 | 0.46 |
| 1:QA:1317:C:O2 | 19:QS:37:ARG:NH1 | 2.49 | 0.46 |
| 8:QH:120:THR:HG22 | 8:QH:121:ASP:N | 2.30 | 0.46 |
| 15:QO:31:LEU:O | 15:QO:34:LEU:HG | 2.16 | 0.46 |
| 24:RA:2455:G:H2' | 24:RA:2456:C:C6 | 2.50 | 0.46 |
| 24:RA:2554:U:H2' | 24:RA:2555:U:C6 | 2.50 | 0.46 |
| 24:RA:2696:U:H2' | 24:RA:2697:G:H8 | 1.80 | 0.46 |
| 24:RA:29:U:H2' | 24:RA:30:G:C8 | 2.51 | 0.46 |
| 24:RA:608:A:H2' | 24:RA:609:A:C8 | 2.51 | 0.46 |
| 26:RD:136:ILE:CG2 | 26:RD:140:THR:HG21 | 2.43 | 0.46 |
| 26:RD:77:ALA:HB2 | 26:RD:97:TYR:CD1 | 2.50 | 0.46 |
| 28:RF:139:PHE:HB2 | 28:RF:166:ALA:HB1 | 1.97 | 0.46 |
| 40:RV:52:VAL:HG21 | 40:RV:55:ALA:HB3 | 1.97 | 0.46 |
| 44:RZ:181:GLU:HG2 | 44:RZ:183:LEU:N | 2.31 | 0.46 |
| 1:XA:262:A:H2' | 1:XA:263:A:C8 | 2.50 | 0.46 |
| 1:XA:407:G:H2' | 1:XA:408:A:H8 | 1.81 | 0.46 |
| 1:XA:539:A:H2' | 1:XA:540:G:C8 | 2.50 | 0.46 |
| 1:XA:658:G:H2' | 1:XA:659:U:H6 | 1.81 | 0.46 |
| 19:XS:66:MET:HB2 | 19:XS:74:PHE:CZ | 2.49 | 0.46 |
| 47:Y2:28:LYS:HD2 | 47:Y2:53:LEU:HD11 | 1.98 | 0.46 |
| 24:YA:144:C:H2' | 24:YA:145:G:H8 | 1.80 | 0.46 |
| 24:YA:755:C:H2' | 24:YA:756:C:H6 | 1.80 | 0.46 |
| 36:YR:117:VAL:HG22 | 36:YR:118:GLU:H | 1.81 | 0.46 |
| 7:QG:32:ARG:NH1 | 7:QG:33:ASP:OD1 | 2.48 | 0.46 |
| 10:QJ:6:ILE:HG22 | 10:QJ:98:ILE:HB | 1.97 | 0.46 |
| 22:QV:35:C:H2' | 22:QV:36:A:C8 | 2.50 | 0.46 |
| 24:RA:1587:A:H2' | 24:RA:1588:C:C6 | 2.50 | 0.46 |
| 24:RA:2345:G:O2' | 24:RA:2381:C:O2 | 2.28 | 0.46 |
| 37:RS:39:ILE:HG12 | 37:RS:49:VAL:HG22 | 1.96 | 0.46 |
| 1:XA:1414:U:H2' | 1:XA:1415:G:H8 | 1.81 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:XA:1488:G:H2' | 1:XA:1489:G:H8 | 1.80 | 0.46 |
| 1:XA:436:C:H2' | 1:XA:437:U:C6 | 2.51 | 0.46 |
| 45:Y0:67:VAL:HG22 | 45:Y0:81:VAL:HG22 | 1.97 | 0.46 |
| 24:YA:2612:C:OP2 | 50:Y5:2:ALA:N | 2.49 | 0.46 |
| 24:YA:1534:G:N3 | 24:YA:1534:G:H2' | 2.31 | 0.46 |
| 24:YA:579:G:H2' | 24:YA:580:C:H6 | 1.80 | 0.46 |
| 24:YA:590:A:H2' | 24:YA:591:C:C6 | 2.50 | 0.46 |
| 24:YA:640:C:H2' | 24:YA:641:C:C6 | 2.50 | 0.46 |
| 25:YB:8:U:O2' | 37:YS:40:ILE:HD13 | 2.15 | 0.46 |
| 1:QA:166:G:H2' | 1:QA:167:G:H8 | 1.81 | 0.46 |
| 1:QA:505:G:H2' | 1:QA:506:G:C8 | 2.50 | 0.46 |
| 1:QA:833:U:H3 | 1:QA:853:G:H1 | 1.63 | 0.46 |
| 7:QG:15:ASP:OD1 | 7:QG:44:TYR:OH | 2.33 | 0.46 |
| 24:RA:1046:A:N3 | 24:RA:1046:A:H2' | 2.31 | 0.46 |
| 24:RA:2747:G:H21 | 24:RA:2757:A:H62 | 1.63 | 0.46 |
| 31:RI:9:LEU:HD11 | 31:RI:35:LEU:HD13 | 1.98 | 0.46 |
| 37:RS:106:ARG:HD3 | 37:RS:106:ARG:O | 2.15 | 0.46 |
| 1:XA:1502:A:H2 | 1:XA:1505:G:H22 | 1.59 | 0.46 |
| 1:XA:645:C:H2' | 1:XA:646:U:C6 | 2.51 | 0.46 |
| 1:XA:940:C:H2' | 1:XA:941:G:C8 | 2.50 | 0.46 |
| 3:XC:95:THR:HG22 | 3:XC:96:GLY:N | 2.30 | 0.46 |
| 24:YA:1138:G:H2' | 24:YA:1139:G:O4' | 2.15 | 0.46 |
| 24:YA:245:G:O6 | 53:Y8:8:LYS:HE3 | 2.15 | 0.46 |
| 24:YA:302:C:H2' | 24:YA:303:U:C6 | 2.50 | 0.46 |
| 24:YA:363(A):A:H2' | 24:YA:363(B):G:H8 | 1.79 | 0.46 |
| 24:YA:192:C:O2' | 24:YA:802:A:N3 | 2.45 | 0.46 |
| 28:YF:11:VAL:HG22 | 28:YF:125:LEU:HB2 | 1.97 | 0.46 |
| 30:YH:18:GLU:HB3 | 30:YH:25:LYS:HG3 | 1.97 | 0.46 |
| 34:YP:29:LYS:O | 34:YP:29:LYS:HD2 | 2.16 | 0.46 |
| 41:YW:65:LEU:HD21 | 41:YW:68:ARG:NH2 | 2.30 | 0.46 |
| 1:QA:1175:G:N2 | 1:QA:1176:A:H62 | 2.14 | 0.46 |
| 1:QA:186(B):C:H2' | 1:QA:186(C):G:H8 | 1.81 | 0.46 |
| 4:QD:154:ASN:O | 4:QD:155:LEU:HB2 | 2.16 | 0.46 |
| 7:QG:69:VAL:HG23 | 7:QG:100:ALA:HB1 | 1.97 | 0.46 |
| 3:QC:34:LEU:HD13 | 14:QN:25:VAL:HG21 | 1.98 | 0.46 |
| 16:QP:53:VAL:HG13 | 16:QP:79:VAL:HG22 | 1.97 | 0.46 |
| 24:RA:396:G:H1' | 46:R1:42:GLN:NE2 | 2.30 | 0.46 |
| 24:RA:2611:U:O2' | 50:R5:2:ALA:HB3 | 2.15 | 0.46 |
| 24:RA:139:G:N2 | 24:RA:141:A:N1 | 2.56 | 0.46 |
| 24:RA:2059:A:H5' | 24:RA:2060:A:OP2 | 2.16 | 0.46 |
| 24:RA:2618:G:H21 | 27:RE:150:VAL:HG21 | 1.81 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:RA:978:G:H2' | 24:RA:979:G:O4' | 2.16 | 0.46 |
| 25:RB:114:G:O2' | 37:RS:50:SER:OG | 2.26 | 0.46 |
| 26:RD:218:ARG:HB3 | 26:RD:219:PRO:HD2 | 1.97 | 0.46 |
| 27:RE:46:ALA:HB2 | 27:RE:82:ARG:HA | 1.98 | 0.46 |
| 33:RO:64:ARG:HB2 | 33:RO:83:ALA:HB3 | 1.97 | 0.46 |
| 1:XA:1123:A:H4' | 10:XJ:36:GLY:HA3 | 1.97 | 0.46 |
| 1:XA:1127:G:C2 | 1:XA:1145:C:C2 | 3.03 | 0.46 |
| 1:XA:164:U:H2' | 1:XA:165:C:C6 | 2.51 | 0.46 |
| 1:XA:244:U:H4' | 1:XA:245:C:O5' | 2.15 | 0.46 |
| 1:XA:337:C:H2' | 1:XA:338:A:H8 | 1.79 | 0.46 |
| 1:XA:412:A:H4' | 1:XA:413:G:O5' | 2.15 | 0.46 |
| 1:XA:688:G:H2' | 1:XA:689:C:C6 | 2.49 | 0.46 |
| 6:XF:48:LEU:HD13 | 6:XF:57:GLN:HA | 1.97 | 0.46 |
| 14:XN:46:GLU:O | 14:XN:50:LYS:HG2 | 2.15 | 0.46 |
| 3:XC:9:GLY:HA3 | 14:XN:49:HIS:HA | 1.97 | 0.46 |
| 17:XQ:87:LYS:HA | 17:XQ:90:ILE:HG22 | 1.97 | 0.46 |
| 45:Y0:53:MET:HB3 | 45:Y0:59:LEU:HD23 | 1.98 | 0.46 |
| 51:Y6:6:ARG:HG3 | 51:Y6:24:GLU:OE2 | 2.16 | 0.46 |
| 24:YA:1550:C:H2' | 24:YA:1551:C:H6 | 1.80 | 0.46 |
| 24:YA:2783:G:H21 | 27:YE:37:ARG:NH2 | 2.08 | 0.46 |
| 24:YA:395:U:H2' | 24:YA:396:G:C8 | 2.50 | 0.46 |
| 24:YA:588:U:H2' | 24:YA:589:C:C6 | 2.50 | 0.46 |
| 24:YA:861:A:N3 | 25:YB:79:C:O2' | 2.49 | 0.46 |
| 25:YB:44:G:H1' | 25:YB:47:C:H42 | 1.79 | 0.46 |
| 26:YD:71:ASP:HB2 | 26:YD:103:ARG:HH12 | 1.80 | 0.46 |
| 27:YE:14:ILE:HD12 | 38:YT:14:TYR:HE2 | 1.80 | 0.46 |
| 29:YG:5:VAL:HG11 | 29:YG:101:ILE:HG22 | 1.98 | 0.46 |
| 30:YH:4:ILE:C | 30:YH:6:ARG:H | 2.18 | 0.46 |
| 30:YH:9:ILE:CG2 | 30:YH:49:VAL:HB | 2.46 | 0.46 |
| 25:YB:30:C:OP2 | 37:YS:32:LEU:HD11 | 2.15 | 0.46 |
| 40:YV:22:VAL:HG12 | 40:YV:23:GLU:N | 2.31 | 0.46 |
| 40:YV:5:VAL:O | 40:YV:11:GLN:HA | 2.15 | 0.46 |
| 1:QA:1015:A:H2' | 1:QA:1016:A:H8 | 1.81 | 0.46 |
| 1:QA:939:G:H1 | 1:QA:1344:C:H42 | 1.64 | 0.46 |
| 1:QA:555:C:H2' | 1:QA:556:C:C6 | 2.51 | 0.46 |
| 1:QA:836:G:C6 | 1:QA:851:G:C6 | 3.04 | 0.46 |
| 3:QC:24:ALA:HB1 | 3:QC:32:LEU:HD21 | 1.98 | 0.46 |
| 4:QD:187:ARG:NH2 | 4:QD:193:ASP:OD2 | 2.48 | 0.46 |
| 19:QS:41:VAL:HG12 | 19:QS:67:VAL:HA | 1.98 | 0.46 |
| 20:QT:79:ARG:HE | 20:QT:83:ARG:HE | 1.64 | 0.46 |
| 53:R8:15:LYS:HG2 | 53:R8:46:ARG:HH22 | 1.81 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:RA:1003:G:O2' | 24:RA:1010:A:N1 | 2.48 | 0.46 |
| 24:RA:1321:A:C4 | 24:RA:1322:A:C8 | 3.03 | 0.46 |
| 24:RA:2287:A:H61 | 24:RA:2344:U:H3 | 1.59 | 0.46 |
| 24:RA:235:U:H2' | 24:RA:236:C:H6 | 1.80 | 0.46 |
| 24:RA:2778:A:H4' | 24:RA:2779:U:OP1 | 2.16 | 0.46 |
| 24:RA:286:C:H2' | 24:RA:287:C:C6 | 2.51 | 0.46 |
| 24:RA:729:G:H5' | 24:RA:730:C:H5'' | 1.97 | 0.46 |
| 27:RE:29:GLY:HA2 | 27:RE:180:ASN:HB3 | 1.97 | 0.46 |
| 33:RO:101:PRO:HB3 | 33:RO:122:LEU:HD13 | 1.97 | 0.46 |
| 1:XA:1328:C:H2' | 1:XA:1329:A:C8 | 2.51 | 0.46 |
| 1:XA:1347:G:O2' | 1:XA:1348:U:P | 2.73 | 0.46 |
| 19:XS:64:GLU:HB2 | 49:Y4:59:PHE:CE2 | 2.51 | 0.46 |
| 24:YA:2349:G:OP2 | 53:Y8:42:ARG:HD3 | 2.16 | 0.46 |
| 24:YA:1000:A:H2' | 24:YA:1001:A:C8 | 2.51 | 0.46 |
| 24:YA:1140:C:OP1 | 32:YN:23:LEU:HB3 | 2.16 | 0.46 |
| 24:YA:2134:A:N6 | 24:YA:2157:G:H5' | 2.31 | 0.46 |
| 24:YA:2181:G:H2' | 24:YA:2182:G:H8 | 1.81 | 0.46 |
| 24:YA:2591:C:H2' | 24:YA:2592:G:H8 | 1.78 | 0.46 |
| 24:YA:2700:C:O2' | 24:YA:2701:C:H5' | 2.16 | 0.46 |
| 24:YA:71:A:OP1 | 24:YA:72:U:H2' | 2.16 | 0.46 |
| 24:YA:836:G:H2' | 24:YA:837:C:H6 | 1.81 | 0.46 |
| 24:YA:92:G:H2' | 24:YA:93:C:H6 | 1.80 | 0.46 |
| 27:YE:61:ARG:O | 27:YE:63:LEU:N | 2.49 | 0.46 |
| 24:YA:1190:G:H5' | 34:YP:32:THR:HA | 1.97 | 0.46 |
| 42:YX:54:VAL:HG22 | 42:YX:81:VAL:HG12 | 1.96 | 0.46 |
| 4:QD:148:VAL:HG22 | 4:QD:152:SER:OG | 2.16 | 0.46 |
| 5:QE:110:LEU:O | 5:QE:115:VAL:HG22 | 2.16 | 0.46 |
| 7:QG:78:ARG:NH1 | 7:QG:80:VAL:HB | 2.30 | 0.46 |
| 11:QK:92:GLU:HA | 11:QK:95:ILE:HG12 | 1.98 | 0.46 |
| 36:RR:33:ARG:NH1 | 50:R5:57:VAL:O | 2.49 | 0.46 |
| 24:RA:1918:A:O2' | 24:RA:1920:C:N4 | 2.49 | 0.46 |
| 24:RA:2150:U:H2' | 24:RA:2151:G:C8 | 2.51 | 0.46 |
| 24:RA:2392:A:OP2 | 24:RA:2422:A:N6 | 2.47 | 0.46 |
| 24:RA:2591:C:H2' | 24:RA:2592:G:H8 | 1.79 | 0.46 |
| 24:RA:30:G:H2' | 24:RA:31:C:H6 | 1.77 | 0.46 |
| 27:RE:143:ASN:O | 27:RE:144:ARG:HG3 | 2.14 | 0.46 |
| 1:XA:181:G:HO2' | 1:XA:182:U:P | 2.38 | 0.46 |
| 2:XB:207:ALA:O | 2:XB:210:SER:N | 2.49 | 0.46 |
| 2:XB:84:GLU:OE1 | 2:XB:87:ARG:NH2 | 2.49 | 0.46 |
| 51:Y6:24:GLU:O | 51:Y6:25:LYS:HG3 | 2.15 | 0.46 |
| 24:YA:1547:C:H2' | 24:YA:1548:C:C6 | 2.51 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:2039:C:H2' | 24:YA:2040:C:C6 | 2.51 | 0.46 |
| 24:YA:2547:U:H2' | 24:YA:2548:G:C8 | 2.51 | 0.46 |
| 24:YA:2554:U:H2' | 24:YA:2555:U:H6 | 1.80 | 0.46 |
| 24:YA:2616:C:H2' | 24:YA:2617:C:H6 | 1.80 | 0.46 |
| 24:YA:2683:C:O2 | 33:YO:70:LYS:HE3 | 2.15 | 0.46 |
| 24:YA:270(E):G:H1 | 24:YA:270(U):C:H42 | 1.64 | 0.46 |
| 24:YA:324:A:N6 | 24:YA:338:G:O2' | 2.49 | 0.46 |
| 24:YA:499:U:H2' | 24:YA:500:G:O4' | 2.16 | 0.46 |
| 24:YA:99:U:H4' | 24:YA:101:G:H5' | 1.97 | 0.46 |
| 26:YD:75:ILE:HD13 | 26:YD:99:ASP:OD2 | 2.16 | 0.46 |
| 31:YI:116:LEU:HD11 | 31:YI:120:ILE:HG23 | 1.98 | 0.46 |
| 34:YP:106:LEU:HD13 | 34:YP:112:LEU:HD13 | 1.98 | 0.46 |
| 1:QA:1438:G:H2' | 1:QA:1439:C:H6 | 1.80 | 0.46 |
| 1:QA:486:U:H2' | 1:QA:487:A:H8 | 1.81 | 0.46 |
| 1:QA:718:G:C8 | 11:QK:116:HIS:HB3 | 2.50 | 0.46 |
| 1:QA:825:G:H2' | 1:QA:826:C:H6 | 1.81 | 0.46 |
| 2:QB:178:ARG:NH2 | 8:QH:74:PRO:HB3 | 2.31 | 0.46 |
| 3:QC:91:LEU:O | 3:QC:95:THR:HG22 | 2.16 | 0.46 |
| 4:QD:173:TRP:CD2 | 4:QD:189:PRO:HB3 | 2.51 | 0.46 |
| 1:QA:972:C:O2 | 10:QJ:55:LYS:HG2 | 2.16 | 0.46 |
| 10:QJ:8:LEU:HB2 | 10:QJ:70:ARG:HB2 | 1.98 | 0.46 |
| 19:QS:40:ILE:HD13 | 19:QS:71:LEU:HD13 | 1.97 | 0.46 |
| 49:R4:47:GLN:HE22 | 49:R4:49:PHE:HB2 | 1.81 | 0.46 |
| 24:RA:1084:A:H5'' | 24:RA:1085:A:C8 | 2.51 | 0.46 |
| 24:RA:123:G:H2' | 24:RA:124:G:O4' | 2.16 | 0.46 |
| 24:RA:1543:A:H1' | 24:RA:1545:A:O4' | 2.15 | 0.46 |
| 24:RA:1937:A:N7 | 24:RA:1939:U:O2' | 2.40 | 0.46 |
| 24:RA:232:G:H8 | 24:RA:232:G:OP2 | 1.98 | 0.46 |
| 24:RA:2630:G:H2' | 24:RA:2631:G:H8 | 1.81 | 0.46 |
| 24:RA:566:U:OP1 | 34:RP:29:LYS:HE3 | 2.15 | 0.46 |
| 25:RB:13:A:N1 | 25:RB:69:G:O2' | 2.30 | 0.46 |
| 27:RE:84:PHE:CZ | 27:RE:86:PRO:HB3 | 2.51 | 0.46 |
| 35:RQ:77:LYS:HD3 | 35:RQ:80:GLU:HB2 | 1.97 | 0.46 |
| 40:RV:1:MET:HG3 | 40:RV:42:GLY:HA3 | 1.97 | 0.46 |
| 40:RV:18:LEU:HB3 | 40:RV:96:ILE:HD13 | 1.97 | 0.46 |
| 1:XA:1224:G:O2' | 1:XA:1322:C:OP2 | 2.33 | 0.46 |
| 1:XA:1336:C:H1' | 1:XA:1337:G:C6 | 2.51 | 0.46 |
| 1:XA:315:A:H5'' | 1:XA:317:G:OP2 | 2.16 | 0.46 |
| 1:XA:373:A:C2 | 1:XA:374:A:C8 | 3.03 | 0.46 |
| 1:XA:540:G:H2' | 1:XA:541:G:O4' | 2.15 | 0.46 |
| 6:XF:30:LEU:HB3 | 6:XF:35:ALA:HB3 | 1.97 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 13:XM:48:LEU:HD13 | 13:XM:52:GLU:HG3 | 1.97 | 0.46 |
| 15:XO:39:LEU:HD23 | 15:XO:56:LEU:HB2 | 1.96 | 0.46 |
| 19:XS:39:THR:HG22 | 19:XS:40:ILE:N | 2.31 | 0.46 |
| 19:XS:39:THR:HG22 | 19:XS:40:ILE:H | 1.81 | 0.46 |
| 24:YA:1041:C:H2' | 24:YA:1042:G:H8 | 1.80 | 0.46 |
| 24:YA:1469:A:H2' | 24:YA:1470:G:O4' | 2.15 | 0.46 |
| 24:YA:1728:G:H5' | 24:YA:1729:A:OP2 | 2.16 | 0.46 |
| 24:YA:1882:C:H5' | 24:YA:1883:G:OP2 | 2.16 | 0.46 |
| 24:YA:2247:A:H2' | 24:YA:2248:C:H6 | 1.80 | 0.46 |
| 24:YA:248:G:H5' | 24:YA:250:G:N7 | 2.30 | 0.46 |
| 27:YE:1:MET:O | 27:YE:84:PHE:HB2 | 2.16 | 0.46 |
| 32:YN:33:LEU:HD21 | 32:YN:137:LYS:HE2 | 1.98 | 0.46 |
| 34:YP:91:PHE:CE2 | 34:YP:95:VAL:HG22 | 2.51 | 0.46 |
| 36:YR:76:VAL:HA | 36:YR:79:LEU:HG | 1.98 | 0.46 |
| 37:YS:106:ARG:HB2 | 37:YS:110:LEU:HG | 1.98 | 0.46 |
| 1:QA:1179:A:H2' | 1:QA:1180:A:O4' | 2.16 | 0.45 |
| 1:QA:1264:C:H2' | 1:QA:1265:G:C8 | 2.51 | 0.45 |
| 1:QA:645:C:H2' | 1:QA:646:U:C6 | 2.51 | 0.45 |
| 1:QA:861:G:O6 | 1:QA:869:G:N2 | 2.49 | 0.45 |
| 11:QK:82:VAL:O | 11:QK:108:ILE:HA | 2.15 | 0.45 |
| 13:QM:40:ASN:O | 13:QM:43:THR:HG22 | 2.17 | 0.45 |
| 24:RA:219:G:N3 | 24:RA:234:C:O2' | 2.43 | 0.45 |
| 24:RA:2245:U:H5' | 24:RA:2246:G:C5' | 2.42 | 0.45 |
| 24:RA:50:U:H3' | 24:RA:51:G:H5' | 1.98 | 0.45 |
| 34:RP:97:PRO:C | 34:RP:99:LEU:H | 2.20 | 0.45 |
| 2:XB:185:ILE:HA | 2:XB:199:TYR:O | 2.15 | 0.45 |
| 2:XB:87:ARG:HH21 | 2:XB:219:VAL:CG1 | 2.29 | 0.45 |
| 16:XP:22:THR:HG22 | 16:XP:32:TYR:HB3 | 1.97 | 0.45 |
| 24:YA:969:U:OP1 | 48:Y3:17:LYS:HG3 | 2.16 | 0.45 |
| 24:YA:935:C:H2' | 24:YA:936:C:H6 | 1.80 | 0.45 |
| 26:YD:155:LEU:HD23 | 26:YD:177:LEU:HD22 | 1.98 | 0.45 |
| 27:YE:3:GLY:HA3 | 27:YE:81:ILE:HG21 | 1.98 | 0.45 |
| 31:YI:69:LYS:HA | 31:YI:136:VAL:HG21 | 1.96 | 0.45 |
| 39:YU:104:GLN:HG3 | 40:YV:44:LYS:HD3 | 1.98 | 0.45 |
| 1:QA:1022:G:H2' | 1:QA:1023:G:C8 | 2.52 | 0.45 |
| 1:QA:126:G:H5' | 1:QA:633:G:N2 | 2.31 | 0.45 |
| 1:QA:939:G:H1 | 1:QA:1344:C:N4 | 2.14 | 0.45 |
| 1:QA:102:G:O2' | 1:QA:151:A:N3 | 2.43 | 0.45 |
| 1:QA:512:U:H2' | 1:QA:513:C:C6 | 2.51 | 0.45 |
| 4:QD:18:LYS:HG2 | 4:QD:20:TYR:CE1 | 2.51 | 0.45 |
| 5:QE:82:VAL:HG21 | 5:QE:138:ALA:HA | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:QL:84:LEU:HD23 | 12:QL:101:VAL:HG21 | 1.98 | 0.45 |
| 46:R1:12:PRO:HB3 | 46:R1:43:TYR:HA | 1.98 | 0.45 |
| 50:R5:51:TYR:CE1 | 50:R5:56:LYS:HB3 | 2.51 | 0.45 |
| 24:RA:110:G:C2 | 24:RA:111:A:C8 | 3.05 | 0.45 |
| 24:RA:1689:A:OP2 | 24:RA:1698:A:N6 | 2.37 | 0.45 |
| 24:RA:177:G:H3' | 24:RA:178:G:C8 | 2.51 | 0.45 |
| 24:RA:1969:A:O2' | 24:RA:1972:A:N3 | 2.36 | 0.45 |
| 24:RA:2019:A:O4' | 39:RU:34:LYS:NZ | 2.50 | 0.45 |
| 24:RA:2564:A:OP1 | 24:RA:2648:C:H4' | 2.16 | 0.45 |
| 27:RE:34:VAL:HG12 | 27:RE:64:LYS:HZ2 | 1.81 | 0.45 |
| 28:RF:67:GLN:HG3 | 28:RF:74:ARG:HB2 | 1.99 | 0.45 |
| 29:RG:116:ASP:O | 29:RG:118:ARG:HD2 | 2.16 | 0.45 |
| 30:RH:25:LYS:HD3 | 30:RH:34:GLU:HB3 | 1.97 | 0.45 |
| 30:RH:55:PRO:HD2 | 30:RH:61:HIS:NE2 | 2.31 | 0.45 |
| 31:RI:14:ASP:O | 31:RI:16:GLY:N | 2.43 | 0.45 |
| 34:RP:125:VAL:HG11 | 34:RP:138:LEU:HD21 | 1.97 | 0.45 |
| 24:RA:2708:G:H5' | 36:RR:68:ARG:HB2 | 1.97 | 0.45 |
| 1:XA:1262:C:H2' | 1:XA:1263:C:C6 | 2.50 | 0.45 |
| 1:XA:1321:C:C3' | 1:XA:1322:C:H5'' | 2.46 | 0.45 |
| 1:XA:1402:C:H2' | 1:XA:1403:C:O4' | 2.16 | 0.45 |
| 1:XA:374:A:C6 | 1:XA:375:U:C4 | 3.05 | 0.45 |
| 12:XL:84:LEU:HB2 | 12:XL:105:TYR:CD2 | 2.50 | 0.45 |
| 16:XP:6:LEU:HB2 | 16:XP:17:TYR:HB3 | 1.97 | 0.45 |
| 23:XX:14:A:H3' | 23:XX:15:A:C8 | 2.51 | 0.45 |
| 24:YA:1364:G:N7 | 46:Y1:2:SER:N | 2.64 | 0.45 |
| 52:Y7:17:GLY:O | 52:Y7:21:ARG:HG2 | 2.16 | 0.45 |
| 24:YA:1448:G:H5' | 24:YA:1449:A:OP1 | 2.16 | 0.45 |
| 24:YA:1978:A:H2' | 24:YA:1979:C:O4' | 2.17 | 0.45 |
| 24:YA:301:G:C4 | 24:YA:302:C:C5 | 3.04 | 0.45 |
| 24:YA:415:A:H2' | 24:YA:416:C:H6 | 1.81 | 0.45 |
| 24:YA:1816:G:H8 | 26:YD:62:TYR:CZ | 2.33 | 0.45 |
| 3:QC:121:ALA:O | 3:QC:125:GLU:HG3 | 2.16 | 0.45 |
| 3:QC:127:ARG:O | 3:QC:127:ARG:HD3 | 2.16 | 0.45 |
| 10:QJ:12:ASP:HB3 | 10:QJ:15:THR:HG22 | 1.97 | 0.45 |
| 18:QR:22:VAL:O | 18:QR:25:THR:HG22 | 2.17 | 0.45 |
| 22:QV:35:C:H2' | 22:QV:36:A:H8 | 1.82 | 0.45 |
| 24:RA:1069:A:H2' | 24:RA:1073:A:N7 | 2.31 | 0.45 |
| 24:RA:1093:G:H21 | 24:RA:1098:A:H62 | 1.62 | 0.45 |
| 24:RA:1203:G:H3' | 24:RA:1204:A:H5'' | 1.98 | 0.45 |
| 24:RA:1542:G:C6 | 24:RA:1543:A:N6 | 2.84 | 0.45 |
| 24:RA:2611:U:C4 | 50:R5:3:LYS:HG2 | 2.51 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:RA:813:U:H2' | 24:RA:814:C:C6 | 2.51 | 0.45 |
| 26:RD:242:ARG:O | 26:RD:244:ARG:N | 2.49 | 0.45 |
| 27:RE:144:ARG:HB3 | 27:RE:145:LYS:H | 1.62 | 0.45 |
| 35:RQ:1:MET:H1 | 35:RQ:48:GLU:HG3 | 1.80 | 0.45 |
| 35:RQ:65:PHE:O | 35:RQ:67:ARG:N | 2.48 | 0.45 |
| 44:RZ:6:LYS:HD3 | 44:RZ:8:TYR:CZ | 2.51 | 0.45 |
| 1:XA:1095:U:P | 1:XA:1108:G:H1 | 2.39 | 0.45 |
| 1:XA:835:U:OP1 | 18:XR:64:ARG:NH2 | 2.44 | 0.45 |
| 4:XD:18:LYS:NZ | 4:XD:31:CYS:O | 2.37 | 0.45 |
| 24:YA:1309:G:H4' | 52:Y7:7:PRO:HB2 | 1.98 | 0.45 |
| 24:YA:2123:G:H2' | 24:YA:2124:G:C8 | 2.52 | 0.45 |
| 24:YA:2529:G:H5'' | 24:YA:2530:A:H5'' | 1.98 | 0.45 |
| 24:YA:2857:G:N2 | 24:YA:2860:A:OP2 | 2.41 | 0.45 |
| 24:YA:709:U:H2' | 24:YA:710:G:H8 | 1.82 | 0.45 |
| 24:YA:991:C:O2' | 40:YV:85:LYS:NZ | 2.50 | 0.45 |
| 24:YA:1814:G:H4' | 26:YD:51:VAL:HG21 | 1.96 | 0.45 |
| 27:YE:47:VAL:HG11 | 27:YE:84:PHE:HD2 | 1.80 | 0.45 |
| 29:YG:16:ARG:NH2 | 29:YG:28:VAL:O | 2.50 | 0.45 |
| 37:YS:87:PHE:HE1 | 37:YS:101:LEU:HD12 | 1.81 | 0.45 |
| 39:YU:50:ARG:HH21 | 40:YV:70:ILE:HD12 | 1.81 | 0.45 |
| 42:YX:39:ILE:O | 42:YX:43:VAL:HG12 | 2.16 | 0.45 |
| 1:QA:1238:A:H62 | 1:QA:1301:U:H3 | 1.65 | 0.45 |
| 1:QA:1499:A:H1' | 1:QA:1520:G:H5' | 1.98 | 0.45 |
| 1:QA:890:G:O2' | 1:QA:906:G:O6 | 2.21 | 0.45 |
| 2:QB:76:GLN:NE2 | 2:QB:206:ASP:OD1 | 2.49 | 0.45 |
| 6:QF:6:VAL:HG22 | 6:QF:90:VAL:HG12 | 1.98 | 0.45 |
| 8:QH:20:TYR:CE2 | 8:QH:75:ARG:HD3 | 2.52 | 0.45 |
| 12:QL:44:THR:HA | 12:QL:45:PRO:HD3 | 1.80 | 0.45 |
| 13:QM:23:TYR:HB3 | 13:QM:67:GLU:CG | 2.42 | 0.45 |
| 19:QS:18:LYS:HG2 | 19:QS:31:ILE:HD12 | 1.98 | 0.45 |
| 53:R8:15:LYS:HE3 | 53:R8:23:VAL:HB | 1.98 | 0.45 |
| 24:RA:1204:A:H1' | 24:RA:1206:G:C5 | 2.52 | 0.45 |
| 27:RE:120:TRP:CD2 | 27:RE:155:LYS:HD2 | 2.51 | 0.45 |
| 29:RG:35:GLU:HG3 | 29:RG:36:LYS:HB2 | 1.98 | 0.45 |
| 34:RP:47:ASP:OD2 | 34:RP:50:ARG:NH2 | 2.49 | 0.45 |
| 42:RX:40:LYS:HA | 42:RX:43:VAL:HG12 | 1.98 | 0.45 |
| 1:XA:1014:A:H2 | 1:XA:1219:U:H1' | 1.80 | 0.45 |
| 1:XA:362:G:N2 | 1:XA:365:U:OP2 | 2.47 | 0.45 |
| 3:XC:122:GLU:OE2 | 3:XC:126:ARG:NH1 | 2.49 | 0.45 |
| 4:XD:155:LEU:O | 4:XD:158:ILE:HG22 | 2.16 | 0.45 |
| 5:XE:8:GLU:HG2 | 5:XE:34:VAL:HG12 | 1.97 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:XH:121:ASP:O | 8:XH:125:ARG:HD3 | 2.17 | 0.45 |
| 8:XH:13:ILE:O | 8:XH:17:THR:HG23 | 2.16 | 0.45 |
| 10:XJ:51:ARG:HG2 | 14:XN:45:ARG:HH12 | 1.81 | 0.45 |
| 19:XS:31:ILE:HD11 | 19:XS:49:ILE:HG23 | 1.97 | 0.45 |
| 21:XU:14:TRP:HZ3 | 21:XU:15:ARG:NH1 | 2.15 | 0.45 |
| 48:Y3:8:LEU:HD13 | 48:Y3:23:LEU:HD11 | 1.98 | 0.45 |
| 24:YA:1293:C:H2' | 24:YA:1294:U:H6 | 1.80 | 0.45 |
| 24:YA:1485:G:O6 | 24:YA:1505:C:N4 | 2.50 | 0.45 |
| 24:YA:1853:A:H2' | 24:YA:1854:A:H8 | 1.81 | 0.45 |
| 24:YA:2181:G:C2 | 24:YA:2182:G:C5 | 3.04 | 0.45 |
| 24:YA:2650:U:H2' | 24:YA:2651:C:H6 | 1.81 | 0.45 |
| 24:YA:724:U:H2' | 24:YA:725:G:O4' | 2.16 | 0.45 |
| 31:YI:14:ASP:OD1 | 31:YI:17:GLN:HB2 | 2.16 | 0.45 |
| 24:YA:1252:G:C2 | 39:YU:33:ARG:HB2 | 2.52 | 0.45 |
| 43:YY:96:ILE:HG13 | 43:YY:98:VAL:HG13 | 1.99 | 0.45 |
| 1:QA:338:A:H2' | 1:QA:339:C:C6 | 2.50 | 0.45 |
| 9:QI:25:LYS:N | 9:QI:60:ASP:OD1 | 2.45 | 0.45 |
| 24:RA:1012:U:O4 | 32:RN:28:THR:OG1 | 2.21 | 0.45 |
| 24:RA:1196:C:C2 | 24:RA:1197:G:C8 | 3.05 | 0.45 |
| 24:RA:1316:U:H2' | 24:RA:1317:A:C8 | 2.51 | 0.45 |
| 24:RA:1397:U:OP2 | 24:RA:1398:C:N4 | 2.44 | 0.45 |
| 24:RA:2183:C:H2' | 24:RA:2184:G:C8 | 2.52 | 0.45 |
| 24:RA:2553:G:C2 | 24:RA:2583:G:H1' | 2.52 | 0.45 |
| 24:RA:2590:A:H2' | 24:RA:2591:C:C6 | 2.52 | 0.45 |
| 24:RA:2745:C:H2' | 24:RA:2746:U:C6 | 2.51 | 0.45 |
| 24:RA:586:A:H5' | 28:RF:89:VAL:HG21 | 1.98 | 0.45 |
| 33:RO:47:ILE:HG13 | 33:RO:48:PRO:HD2 | 1.98 | 0.45 |
| 1:XA:1000:A:H2' | 1:XA:1001:G:H8 | 1.82 | 0.45 |
| 1:XA:1321:C:H3' | 1:XA:1322:C:H5'' | 1.98 | 0.45 |
| 1:XA:1431:C:H2' | 1:XA:1432:G:O4' | 2.17 | 0.45 |
| 1:XA:1459:C:H4' | 20:XT:24:LEU:HD11 | 1.98 | 0.45 |
| 3:XC:84:ILE:HG12 | 3:XC:88:ARG:NH1 | 2.32 | 0.45 |
| 7:XG:64:GLN:HE21 | 7:XG:68:ASN:ND2 | 2.15 | 0.45 |
| 9:XI:112:LYS:HE2 | 9:XI:117:HIS:O | 2.16 | 0.45 |
| 13:XM:4:ILE:H | 13:XM:9:ILE:HG22 | 1.81 | 0.45 |
| 24:YA:2807:G:H22 | 24:YA:2893:G:H1 | 1.65 | 0.45 |
| 24:YA:742:G:H2' | 24:YA:743:G:H8 | 1.81 | 0.45 |
| 27:YE:2:LYS:HA | 27:YE:84:PHE:CD1 | 2.51 | 0.45 |
| 27:YE:92:THR:HG22 | 27:YE:93:VAL:N | 2.32 | 0.45 |
| 31:YI:69:LYS:HG3 | 31:YI:136:VAL:HG23 | 1.98 | 0.45 |
| 35:YQ:17:LEU:HD13 | 35:YQ:39:PRO:HB2 | 1.97 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:QA:1007:C:H2' | 1:QA:1008:C:C6 | 2.52 | 0.45 |
| 1:QA:1135:U:H4' | 1:QA:1136:U:H5 | 1.81 | 0.45 |
| 1:QA:6:G:O2' | 1:QA:298:A:H1' | 2.17 | 0.45 |
| 1:QA:842:C:O2' | 1:QA:848:C:N4 | 2.50 | 0.45 |
| 3:QC:78:GLY:C | 3:QC:79:ARG:HG3 | 2.37 | 0.45 |
| 19:QS:15:LEU:H | 19:QS:15:LEU:HD23 | 1.81 | 0.45 |
| 24:RA:1181:C:H2' | 24:RA:1182:A:C8 | 2.51 | 0.45 |
| 24:RA:1709:U:H2' | 24:RA:1710:C:C6 | 2.52 | 0.45 |
| 24:RA:350:U:H2' | 24:RA:351:G:O4' | 2.16 | 0.45 |
| 24:RA:532:A:H4' | 24:RA:533:G:C8 | 2.52 | 0.45 |
| 24:RA:638:G:H2' | 24:RA:639:U:H6 | 1.80 | 0.45 |
| 24:RA:686:G:N2 | 24:RA:788:A:H61 | 2.15 | 0.45 |
| 24:RA:846:C:O2' | 24:RA:847:U:OP2 | 2.27 | 0.45 |
| 28:RF:40:GLN:NE2 | 28:RF:182:ASN:HB2 | 2.31 | 0.45 |
| 44:RZ:91:LEU:HD12 | 44:RZ:91:LEU:O | 2.17 | 0.45 |
| 1:XA:626:U:H2' | 1:XA:627:G:C8 | 2.51 | 0.45 |
| 8:XH:43:GLY:O | 8:XH:64:LYS:HD3 | 2.17 | 0.45 |
| 12:XL:42:THR:HG22 | 12:XL:54:LYS:HG3 | 1.99 | 0.45 |
| 16:XP:26:ARG:HD2 | 16:XP:31:LYS:H | 1.80 | 0.45 |
| 45:Y0:38:VAL:HG22 | 45:Y0:59:LEU:HB2 | 1.97 | 0.45 |
| 24:YA:1562:A:H2' | 24:YA:1563:G:C8 | 2.52 | 0.45 |
| 24:YA:1826:G:H4' | 26:YD:242:ARG:NE | 2.32 | 0.45 |
| 24:YA:2661:G:H2' | 24:YA:2662:A:C8 | 2.52 | 0.45 |
| 24:YA:626:U:O4 | 34:YP:81:GLN:NE2 | 2.46 | 0.45 |
| 24:YA:634:C:H2' | 24:YA:635:C:H6 | 1.80 | 0.45 |
| 24:YA:1788:C:H5'' | 26:YD:225:ALA:HB1 | 1.99 | 0.45 |
| 29:YG:63:ILE:HD12 | 29:YG:141:PHE:HD2 | 1.82 | 0.45 |
| 36:YR:113:LEU:HD11 | 50:Y5:58:LEU:HD23 | 1.98 | 0.45 |
| 43:YY:77:PRO:HD3 | 43:YY:106:LEU:HD23 | 1.99 | 0.45 |
| 1:QA:1137:C:HO2' | 1:QA:1138:G:N2 | 2.15 | 0.45 |
| 1:QA:344:A:OP2 | 1:QA:345:C:N4 | 2.49 | 0.45 |
| 46:R1:87:PRO:HA | 46:R1:90:ILE:HG13 | 1.98 | 0.45 |
| 24:RA:2285:C:H5' | 24:RA:2288:A:N6 | 2.31 | 0.45 |
| 24:RA:2023:G:H5' | 24:RA:2617:C:H4' | 1.99 | 0.45 |
| 24:RA:322:A:OP2 | 28:RF:169:ASN:HB2 | 2.16 | 0.45 |
| 28:RF:186:ILE:HD12 | 28:RF:192:LEU:HD11 | 1.99 | 0.45 |
| 24:RA:2749:A:H5' | 30:RH:6:ARG:HD3 | 1.98 | 0.45 |
| 41:RW:9:TYR:CD1 | 41:RW:102:HIS:HE1 | 2.35 | 0.45 |
| 1:XA:1347:G:C8 | 9:XI:107:ARG:HB3 | 2.52 | 0.45 |
| 1:XA:509:A:H3' | 1:XA:509:A:OP2 | 2.16 | 0.45 |
| 1:XA:69:G:H2' | 1:XA:73:G:C8 | 2.52 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 24:YA:1505:C:H2' | 24:YA:1506:C:C6 | 2.51 | 0.45 |
| 24:YA:2182:G:H2' | 24:YA:2183:C:C6 | 2.52 | 0.45 |
| 24:YA:2717:G:H1' | 38:YT:96:ARG:NH2 | 2.31 | 0.45 |
| 24:YA:455:C:HO2' | 24:YA:472:A:H2 | 1.63 | 0.45 |
| 24:YA:631:A:OP1 | 34:YP:64:LYS:HE2 | 2.16 | 0.45 |
| 25:YB:57:A:C8 | 29:YG:27:ASN:ND2 | 2.85 | 0.45 |
| 31:YI:74:ASN:OD1 | 31:YI:75:LEU:N | 2.46 | 0.45 |
| 35:YQ:41:TRP:HB3 | 35:YQ:94:VAL:HB | 1.99 | 0.45 |
| 37:YS:28:VAL:HG11 | 37:YS:98:VAL:HG12 | 1.99 | 0.45 |
| 1:QA:1073:U:C2 | 1:QA:1074:G:C8 | 3.04 | 0.45 |
| 1:QA:1281:U:H5'' | 1:QA:1282:C:H5 | 1.82 | 0.45 |
| 1:QA:1372:U:OP1 | 9:QL:72:GLY:N | 2.49 | 0.45 |
| 1:QA:768:A:N3 | 1:QA:1512:U:O2' | 2.50 | 0.45 |
| 2:QB:88:ALA:HB2 | 2:QB:219:VAL:HG13 | 1.98 | 0.45 |
| 3:QC:120:VAL:HA | 3:QC:123:GLN:HG2 | 1.99 | 0.45 |
| 12:QL:57:LYS:HA | 12:QL:67:THR:HA | 1.99 | 0.45 |
| 22:QV:15:G:H1 | 22:QV:49:C:H5 | 1.63 | 0.45 |
| 25:RB:84:C:OP1 | 48:R3:15:TYR:OH | 2.35 | 0.45 |
| 24:RA:1064:C:H2' | 24:RA:1065:U:O4' | 2.17 | 0.45 |
| 24:RA:38:A:H2' | 24:RA:39:C:C6 | 2.51 | 0.45 |
| 24:RA:903:C:H2' | 24:RA:904:C:C6 | 2.49 | 0.45 |
| 35:RQ:68:ILE:HD13 | 35:RQ:97:VAL:HG12 | 1.99 | 0.45 |
| 40:RV:99:ILE:HG13 | 40:RV:99:ILE:H | 1.70 | 0.45 |
| 1:XA:626:U:H2' | 1:XA:627:G:H8 | 1.81 | 0.45 |
| 1:XA:690:G:H22 | 11:XK:55:LYS:HZ1 | 1.64 | 0.45 |
| 22:XV:17:C:H3' | 22:XV:18:U:H2' | 1.99 | 0.45 |
| 49:Y4:61:ARG:HD2 | 49:Y4:62:ARG:HA | 1.97 | 0.45 |
| 24:YA:1664:A:H61 | 24:YA:1996:C:H42 | 1.63 | 0.45 |
| 24:YA:507:A:H5'' | 24:YA:508:G:H5' | 1.98 | 0.45 |
| 30:YH:99:VAL:HG12 | 30:YH:104:GLU:HB2 | 1.99 | 0.45 |
| 35:YQ:66:ILE:HG13 | 35:YQ:67:ARG:N | 2.31 | 0.45 |
| 35:YQ:43:THR:HG22 | 35:YQ:94:VAL:HG12 | 1.99 | 0.45 |
| 36:YR:96:ARG:O | 36:YR:114:VAL:HA | 2.16 | 0.45 |
| 24:YA:29:U:H4' | 39:YU:7:GLY:O | 2.17 | 0.45 |
| 42:YX:28:PHE:CE1 | 42:YX:92:LEU:HD11 | 2.52 | 0.45 |
| 1:QA:1443:G:H5' | 1:QA:1446:A:OP2 | 2.17 | 0.45 |
| 1:QA:645:C:H2' | 1:QA:646:U:H6 | 1.82 | 0.45 |
| 18:QR:85:LEU:HD23 | 18:QR:88:LYS:HD2 | 1.98 | 0.45 |
| 51:R6:11:LEU:HB3 | 51:R6:49:HIS:HB3 | 1.97 | 0.45 |
| 24:RA:1709:U:H2' | 24:RA:1710:C:H6 | 1.81 | 0.45 |
| 24:RA:1790:C:H5'' | 24:RA:1791:A:OP1 | 2.17 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:2373:G:H2' | 24:RA:2374:C:C6 | 2.52 | 0.45 |
| 24:RA:2649:U:H2' | 24:RA:2650:U:H6 | 1.82 | 0.45 |
| 24:RA:468:G:H2' | 24:RA:469:G:O4' | 2.17 | 0.45 |
| 24:RA:612:G:N2 | 24:RA:617:G:C5 | 2.84 | 0.45 |
| 26:RD:145:VAL:HG22 | 26:RD:191:ALA:HB1 | 1.99 | 0.45 |
| 28:RF:64:ILE:HG21 | 28:RF:78:ILE:HD11 | 1.98 | 0.45 |
| 30:RH:127:GLU:O | 30:RH:129:THR:N | 2.50 | 0.45 |
| 1:XA:542:G:O3' | 4:XD:14:ARG:NH2 | 2.42 | 0.45 |
| 1:XA:560:U:H5' | 1:XA:566:G:N2 | 2.32 | 0.45 |
| 1:XA:659:U:H2' | 1:XA:660:G:H8 | 1.82 | 0.45 |
| 1:XA:777:A:H2' | 1:XA:778:G:C8 | 2.51 | 0.45 |
| 1:XA:997:U:N3 | 1:XA:998:G:N7 | 2.65 | 0.45 |
| 3:XC:108:ASN:ND2 | 3:XC:111:LEU:HD13 | 2.31 | 0.45 |
| 8:XH:123:GLU:O | 8:XH:127:LEU:HD13 | 2.17 | 0.45 |
| 13:XM:45:VAL:HA | 13:XM:48:LEU:HD23 | 1.98 | 0.45 |
| 52:Y7:29:LYS:HD3 | 52:Y7:32:LYS:HD2 | 1.99 | 0.45 |
| 24:YA:1492:G:H3' | 24:YA:1493:C:H5' | 1.97 | 0.45 |
| 24:YA:1935:G:H1' | 24:YA:1964:G:N2 | 2.32 | 0.45 |
| 38:YT:94:ALA:HB1 | 38:YT:99:LEU:HD11 | 1.99 | 0.45 |
| 40:YV:7:THR:HG23 | 40:YV:22:VAL:HG11 | 1.99 | 0.45 |
| 44:YZ:124:ILE:CG2 | 44:YZ:163:LEU:HD11 | 2.47 | 0.45 |
| 44:YZ:59:LEU:O | 44:YZ:61:LEU:N | 2.41 | 0.45 |
| 1:QA:678:U:H2' | 1:QA:679:C:C6 | 2.52 | 0.45 |
| 1:QA:791:G:N2 | 1:QA:1497:G:H4' | 2.32 | 0.45 |
| 1:QA:542:G:P | 4:QD:10:ARG:HH22 | 2.40 | 0.45 |
| 1:QA:1376:U:P | 7:QG:94:ARG:HH21 | 2.40 | 0.45 |
| 9:QI:45:ALA:O | 9:QI:48:GLU:HG2 | 2.16 | 0.45 |
| 19:QS:32:LYS:HB3 | 19:QS:57:HIS:CE1 | 2.52 | 0.45 |
| 50:R5:41:PRO:O | 50:R5:44:THR:OG1 | 2.31 | 0.45 |
| 24:RA:1079:C:H2' | 24:RA:1080:C:O4' | 2.17 | 0.45 |
| 24:RA:1085:A:O2' | 24:RA:1086:A:OP1 | 2.35 | 0.45 |
| 24:RA:1389:G:H2' | 24:RA:1390:U:H6 | 1.81 | 0.45 |
| 24:RA:1412:A:H2' | 24:RA:1413:G:H8 | 1.82 | 0.45 |
| 24:RA:1590:U:H2' | 24:RA:1591:G:H8 | 1.82 | 0.45 |
| 24:RA:1732:A:C2 | 24:RA:1733:G:H1' | 2.52 | 0.45 |
| 24:RA:2246:G:H2' | 24:RA:2247:A:H8 | 1.82 | 0.45 |
| 24:RA:2461:C:H2' | 24:RA:2462:U:C6 | 2.52 | 0.45 |
| 25:RB:3:C:C2 | 25:RB:118:G:N2 | 2.85 | 0.45 |
| 26:RD:166:GLN:HB2 | 26:RD:174:ILE:HG13 | 1.98 | 0.45 |
| 27:RE:44:TYR:HE2 | 27:RE:80:GLU:OE2 | 2.00 | 0.45 |
| 30:RH:15:VAL:HG11 | 30:RH:79:VAL:HG21 | 1.99 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 42:RX:33:LYS:O | 42:RX:33:LYS:HD3 | 2.17 | 0.45 |
| 44:RZ:19:ARG:NH1 | 44:RZ:84:GLU:HB2 | 2.32 | 0.45 |
| 1:XA:1127:G:C2 | 1:XA:1145:C:O2 | 2.70 | 0.45 |
| 1:XA:1213:A:N6 | 1:XA:1215:G:N3 | 2.65 | 0.45 |
| 1:XA:676:A:H2' | 1:XA:677:U:H6 | 1.81 | 0.45 |
| 1:XA:945:G:C2 | 1:XA:946:A:C8 | 3.04 | 0.45 |
| 3:XC:47:LEU:HD23 | 3:XC:52:LEU:HD13 | 2.00 | 0.45 |
| 7:XG:38:LEU:O | 7:XG:42:ILE:HG12 | 2.17 | 0.45 |
| 1:XA:1179:A:H4' | 9:XI:103:THR:HA | 1.98 | 0.45 |
| 10:XJ:57:LYS:HE3 | 10:XJ:60:ARG:HH22 | 1.81 | 0.45 |
| 1:XA:755:G:OP2 | 15:XO:65:ARG:HD2 | 2.17 | 0.45 |
| 53:Y8:34:TRP:CE3 | 53:Y8:35:GLN:HB3 | 2.52 | 0.45 |
| 24:YA:1084:A:O2' | 24:YA:1106:G:H5' | 2.17 | 0.45 |
| 24:YA:1097:U:H3' | 24:YA:1098:A:H8 | 1.80 | 0.45 |
| 24:YA:1870:C:H2' | 24:YA:1871:A:O4' | 2.16 | 0.45 |
| 24:YA:2139:C:N3 | 24:YA:2153:G:N2 | 2.64 | 0.45 |
| 24:YA:2175:C:H2' | 24:YA:2176:A:C8 | 2.52 | 0.45 |
| 24:YA:863:A:H2' | 24:YA:864:G:H8 | 1.81 | 0.45 |
| 24:YA:2415:G:H4' | 34:YP:67:MET:N | 2.31 | 0.45 |
| 35:YQ:20:ALA:HA | 35:YQ:98:LYS:HD3 | 1.98 | 0.45 |
| 39:YU:92:ARG:C | 39:YU:94:ASN:N | 2.70 | 0.45 |
| 1:QA:1148:U:H4' | 9:QI:14:VAL:HG11 | 1.99 | 0.44 |
| 1:QA:730:G:C5 | 1:QA:731:G:H1' | 2.52 | 0.44 |
| 8:QH:51:VAL:HG21 | 8:QH:60:ARG:HB2 | 1.98 | 0.44 |
| 9:QI:10:ARG:HG3 | 9:QI:79:LEU:CD1 | 2.47 | 0.44 |
| 12:QL:32:PHE:HA | 12:QL:85:ILE:O | 2.17 | 0.44 |
| 17:QQ:42:TYR:HD2 | 17:QQ:59:ILE:HD11 | 1.82 | 0.44 |
| 48:R3:46:ASN:O | 48:R3:50:VAL:HG22 | 2.17 | 0.44 |
| 24:RA:1025:G:C4 | 24:RA:1135:C:H1' | 2.52 | 0.44 |
| 24:RA:2029:G:H2' | 24:RA:2031:A:OP1 | 2.17 | 0.44 |
| 24:RA:827:U:H1' | 24:RA:2246:G:O2' | 2.16 | 0.44 |
| 24:RA:345:A:H2' | 24:RA:347:A:H62 | 1.81 | 0.44 |
| 24:RA:435:C:H2' | 24:RA:436:C:H5' | 1.98 | 0.44 |
| 24:RA:813:U:H2' | 24:RA:814:C:H6 | 1.82 | 0.44 |
| 34:RP:95:VAL:HB | 34:RP:125:VAL:HG23 | 1.99 | 0.44 |
| 36:RR:38:VAL:HB | 36:RR:39:PRO:HD3 | 1.99 | 0.44 |
| 37:RS:3:ARG:HG2 | 37:RS:4:LEU:HD23 | 1.98 | 0.44 |
| 38:RT:49:VAL:HG23 | 38:RT:62:THR:O | 2.17 | 0.44 |
| 39:RU:34:LYS:HA | 39:RU:34:LYS:HD3 | 1.70 | 0.44 |
| 41:RW:21:VAL:HG21 | 41:RW:76:VAL:HG23 | 1.99 | 0.44 |
| 1:XA:450:G:N7 | 1:XA:481:G:C6 | 2.85 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:XA:683:G:H2' | 1:XA:684:A:C8 | 2.52 | 0.44 |
| 2:XB:109:SER:O | 2:XB:112:VAL:HG22 | 2.18 | 0.44 |
| 3:XC:22:TRP:HZ3 | 3:XC:24:ALA:HB2 | 1.82 | 0.44 |
| 4:XD:187:ARG:NH1 | 4:XD:193:ASP:OD2 | 2.31 | 0.44 |
| 10:XJ:57:LYS:O | 10:XJ:60:ARG:NH2 | 2.48 | 0.44 |
| 10:XJ:64:GLU:OE1 | 10:XJ:66:ARG:HG3 | 2.18 | 0.44 |
| 1:XA:323:U:OP1 | 20:XT:23:ARG:HD3 | 2.17 | 0.44 |
| 24:YA:1430:C:H2' | 24:YA:1431:U:H6 | 1.81 | 0.44 |
| 24:YA:2395:C:H2' | 24:YA:2396:G:O4' | 2.17 | 0.44 |
| 24:YA:612:G:N2 | 24:YA:617:G:C5 | 2.85 | 0.44 |
| 24:YA:666:G:N2 | 53:Y8:2:PRO:O | 2.50 | 0.44 |
| 24:YA:910:A:C5 | 35:YQ:13:GLN:HG3 | 2.51 | 0.44 |
| 24:YA:728:G:H4' | 26:YD:13:ARG:HD2 | 1.99 | 0.44 |
| 29:YG:66:GLN:NE2 | 29:YG:93:THR:O | 2.50 | 0.44 |
| 30:YH:121:ILE:HD11 | 30:YH:133:VAL:HG22 | 1.99 | 0.44 |
| 33:YO:63:VAL:HG12 | 33:YO:106:LEU:HD21 | 1.98 | 0.44 |
| 44:YZ:54:HIS:CD2 | 44:YZ:101:PRO:HG3 | 2.52 | 0.44 |
| 1:QA:1028:C:H2' | 1:QA:1028(A):C:C6 | 2.52 | 0.44 |
| 1:QA:1321:C:H3' | 1:QA:1322:C:H5'' | 1.98 | 0.44 |
| 1:QA:1236:A:O2' | 1:QA:1334:G:N2 | 2.51 | 0.44 |
| 1:QA:600:C:H2' | 1:QA:601:C:C6 | 2.52 | 0.44 |
| 1:QA:575:G:HO2' | 1:QA:821:G:H5' | 1.82 | 0.44 |
| 16:QP:69:THR:O | 16:QP:72:ARG:HG3 | 2.18 | 0.44 |
| 24:RA:820:A:H4' | 24:RA:836:G:H22 | 1.81 | 0.44 |
| 25:RB:44:G:H5'' | 25:RB:45:A:OP1 | 2.17 | 0.44 |
| 26:RD:90:ALA:HB3 | 26:RD:106:ILE:HD11 | 2.00 | 0.44 |
| 31:RI:128:LEU:O | 31:RI:137:PRO:HA | 2.17 | 0.44 |
| 38:RT:26:ASP:HB2 | 38:RT:90:GLN:O | 2.17 | 0.44 |
| 40:RV:54:GLY:O | 40:RV:100:ARG:NH1 | 2.50 | 0.44 |
| 44:RZ:91:LEU:HD13 | 44:RZ:130:PRO:HB3 | 1.99 | 0.44 |
| 1:XA:728:A:H2' | 1:XA:729:A:H8 | 1.82 | 0.44 |
| 1:XA:939:G:H2' | 1:XA:940:C:C6 | 2.52 | 0.44 |
| 2:XB:106:LYS:O | 2:XB:110:GLN:HG3 | 2.18 | 0.44 |
| 16:XP:43:LYS:HE3 | 16:XP:48:TRP:CD2 | 2.53 | 0.44 |
| 17:XQ:18:THR:OG1 | 17:XQ:69:LYS:NZ | 2.28 | 0.44 |
| 1:XA:760:G:O2' | 17:XQ:98:LEU:HD23 | 2.17 | 0.44 |
| 18:XR:31:LEU:H | 18:XR:31:LEU:HD23 | 1.82 | 0.44 |
| 53:Y8:26:LYS:HG2 | 53:Y8:47:LYS:HD2 | 1.98 | 0.44 |
| 24:YA:2369:A:H2' | 24:YA:2370:G:H8 | 1.81 | 0.44 |
| 24:YA:2648:C:H2' | 24:YA:2649:U:H6 | 1.82 | 0.44 |
| 24:YA:2747:G:O6 | 24:YA:2755:C:H5'' | 2.17 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:507:A:C5' | 24:YA:508:G:H5' | 2.47 | 0.44 |
| 24:YA:911:A:H2' | 35:YQ:9:TYR:HE2 | 1.82 | 0.44 |
| 28:YF:123:LEU:HD13 | 28:YF:192:LEU:HD23 | 2.00 | 0.44 |
| 24:YA:797:C:OP2 | 28:YF:62:ARG:HB3 | 2.16 | 0.44 |
| 1:QA:357:G:O2' | 31:YI:89:TYR:O | 2.29 | 0.44 |
| 37:YS:27:SER:HA | 37:YS:88:ASP:HB3 | 1.98 | 0.44 |
| 1:QA:168:G:H2' | 1:QA:169:C:H5'' | 2.00 | 0.44 |
| 1:QA:683:G:C6 | 1:QA:684:A:C6 | 3.05 | 0.44 |
| 1:QA:976:G:OP2 | 1:QA:1358:U:O2' | 2.28 | 0.44 |
| 2:QB:204:ASN:HB3 | 2:QB:210:SER:OG | 2.17 | 0.44 |
| 3:QC:12:LEU:O | 3:QC:18:TRP:NE1 | 2.31 | 0.44 |
| 4:QD:3:ARG:HH11 | 4:QD:118:ARG:HG3 | 1.82 | 0.44 |
| 9:QI:83:ARG:HB2 | 9:QI:102:LEU:HD13 | 1.99 | 0.44 |
| 49:R4:62:ARG:NH2 | 49:R4:65:ASP:OD2 | 2.51 | 0.44 |
| 24:RA:1178:C:H4' | 24:RA:1179:C:OP1 | 2.16 | 0.44 |
| 24:RA:1309:G:H4' | 52:R7:7:PRO:HB2 | 1.99 | 0.44 |
| 24:RA:1346:G:C6 | 24:RA:1601:G:C6 | 3.06 | 0.44 |
| 24:RA:1754:C:H2' | 24:RA:1755:A:C8 | 2.52 | 0.44 |
| 24:RA:2064:C:H2' | 24:RA:2065:C:H6 | 1.82 | 0.44 |
| 24:RA:2118:U:H3 | 24:RA:2148:G:H4' | 1.81 | 0.44 |
| 24:RA:2779:U:O2' | 24:RA:2781:A:N7 | 2.50 | 0.44 |
| 24:RA:345:A:H5'' | 24:RA:346:A:OP1 | 2.16 | 0.44 |
| 24:RA:606:U:H4' | 24:RA:658:C:H4' | 1.99 | 0.44 |
| 24:RA:824:A:H1' | 24:RA:2358:G:N7 | 2.33 | 0.44 |
| 26:RD:182:LEU:HB2 | 26:RD:271:ILE:HB | 1.99 | 0.44 |
| 26:RD:81:ALA:HB3 | 26:RD:94:LEU:HB3 | 1.99 | 0.44 |
| 29:RG:68:PRO:HG2 | 29:RG:90:LEU:HD23 | 2.00 | 0.44 |
| 30:RH:103:LEU:HD13 | 30:RH:123:PHE:CZ | 2.52 | 0.44 |
| 1:XA:978:A:C4 | 1:XA:1319:A:C2 | 3.04 | 0.44 |
| 2:XB:70:PHE:HD2 | 2:XB:85:ALA:HB2 | 1.82 | 0.44 |
| 5:XE:107:ARG:HG2 | 5:XE:111:GLU:OE1 | 2.17 | 0.44 |
| 1:XA:1151:A:H1' | 10:XJ:39:PRO:CG | 2.47 | 0.44 |
| 13:XM:56:LEU:O | 13:XM:60:VAL:HG22 | 2.16 | 0.44 |
| 47:Y2:66:GLU:HA | 47:Y2:69:ARG:HH21 | 1.82 | 0.44 |
| 24:YA:1317:A:H2' | 24:YA:1318:C:C6 | 2.52 | 0.44 |
| 24:YA:2018:G:C6 | 24:YA:2019:A:C6 | 3.05 | 0.44 |
| 24:YA:2248:C:H2' | 24:YA:2249:U:O4' | 2.18 | 0.44 |
| 24:YA:2777:G:OP2 | 24:YA:2781:A:O2' | 2.21 | 0.44 |
| 24:YA:265:A:N6 | 24:YA:428:A:C8 | 2.85 | 0.44 |
| 26:YD:132:PRO:HG3 | 26:YD:190:TYR:CE1 | 2.51 | 0.44 |
| 31:YI:57:ARG:HH11 | 31:YI:61:ARG:NH1 | 2.13 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:YP:88:LEU:HD13 | 34:YP:125:VAL:HG11 | 1.98 | 0.44 |
| 44:YZ:14:LYS:HA | 44:YZ:15:PRO:HD3 | 1.88 | 0.44 |
| 1:QA:651:C:N4 | 1:QA:753:A:OP2 | 2.50 | 0.44 |
| 1:QA:792:A:H4' | 1:QA:793:U:O5' | 2.17 | 0.44 |
| 1:QA:923:A:H2' | 1:QA:924:C:C6 | 2.53 | 0.44 |
| 8:QH:12:ARG:NH1 | 8:QH:25:ASP:O | 2.45 | 0.44 |
| 8:QH:84:ARG:HE | 8:QH:85:ARG:H | 1.65 | 0.44 |
| 24:RA:2612:C:P | 50:R5:2:ALA:N | 2.91 | 0.44 |
| 24:RA:1282:U:H2' | 24:RA:1283:G:O4' | 2.17 | 0.44 |
| 24:RA:213:A:H2' | 24:RA:214:G:O4' | 2.17 | 0.44 |
| 24:RA:396:G:N3 | 46:R1:42:GLN:NE2 | 2.65 | 0.44 |
| 36:RR:44:LEU:HD23 | 36:RR:114:VAL:HG11 | 1.99 | 0.44 |
| 24:RA:561:G:H1' | 39:RU:45:TYR:CE1 | 2.53 | 0.44 |
| 42:RX:60:ARG:HH22 | 52:R7:47:ARG:NH2 | 2.15 | 0.44 |
| 43:RY:13:VAL:HB | 43:RY:72:VAL:HG22 | 1.99 | 0.44 |
| 1:XA:1010:G:H2' | 1:XA:1011:G:C8 | 2.53 | 0.44 |
| 1:XA:130:A:H1' | 1:XA:264:U:H5' | 2.00 | 0.44 |
| 9:XI:97:LYS:HB3 | 9:XI:98:PRO:HD3 | 1.98 | 0.44 |
| 24:YA:2363:C:O2' | 45:Y0:39:ARG:NH2 | 2.49 | 0.44 |
| 53:Y8:34:TRP:CZ3 | 53:Y8:35:GLN:HB3 | 2.52 | 0.44 |
| 24:YA:1790:C:H2' | 24:YA:1791:A:C5 | 2.53 | 0.44 |
| 24:YA:2127:G:O6 | 24:YA:2162:G:H1' | 2.17 | 0.44 |
| 24:YA:238:C:H2' | 24:YA:239:U:O4' | 2.17 | 0.44 |
| 24:YA:396:G:H1' | 46:Y1:42:GLN:OE1 | 2.17 | 0.44 |
| 24:YA:744:G:OP1 | 27:YE:132:HIS:HA | 2.17 | 0.44 |
| 25:YB:19:G:H2' | 25:YB:20:C:O4' | 2.17 | 0.44 |
| 27:YE:167:VAL:HG23 | 27:YE:170:LEU:HD11 | 2.00 | 0.44 |
| 37:YS:88:ASP:O | 37:YS:89:ARG:HB3 | 2.17 | 0.44 |
| 44:YZ:110:GLY:HA3 | 44:YZ:145:GLU:HG2 | 1.99 | 0.44 |
| 1:QA:512:U:H2' | 1:QA:513:C:H6 | 1.83 | 0.44 |
| 1:QA:902:G:H2' | 1:QA:903:G:H8 | 1.83 | 0.44 |
| 2:QB:54:THR:HG23 | 2:QB:199:TYR:HB3 | 1.99 | 0.44 |
| 3:QC:112:SER:HB3 | 3:QC:115:LEU:HD12 | 1.99 | 0.44 |
| 6:QF:22:GLU:O | 6:QF:25:ILE:HG13 | 2.16 | 0.44 |
| 1:QA:522:C:H41 | 12:QL:53:ARG:HH22 | 1.66 | 0.44 |
| 13:QM:102:ARG:HG2 | 13:QM:104:ARG:H | 1.83 | 0.44 |
| 1:QA:659:U:P | 15:QO:8:LYS:HE3 | 2.58 | 0.44 |
| 19:QS:10:PHE:HE2 | 19:QS:16:LEU:HB2 | 1.83 | 0.44 |
| 46:R1:60:PHE:HZ | 46:R1:90:ILE:HD11 | 1.83 | 0.44 |
| 24:RA:414:C:H1' | 24:RA:1864:U:H1' | 1.99 | 0.44 |
| 24:RA:2298:A:H62 | 24:RA:2318:G:H8 | 1.64 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 24:RA:2540:C:O2' | 24:RA:2740:A:N3 | 2.41 | 0.44 |
| 24:RA:587:C:H4' | 24:RA:588:U:O5' | 2.18 | 0.44 |
| 24:RA:686:G:H1 | 52:R7:16:HIS:CD2 | 2.35 | 0.44 |
| 24:RA:712:G:H2' | 24:RA:713:G:H8 | 1.82 | 0.44 |
| 24:RA:860:U:H2' | 24:RA:861:A:C8 | 2.48 | 0.44 |
| 30:RH:11:VAL:HG22 | 30:RH:49:VAL:HG12 | 1.99 | 0.44 |
| 42:RX:47:PHE:O | 42:RX:49:VAL:HG23 | 2.17 | 0.44 |
| 1:XA:160:A:H61 | 1:XA:347:G:H1' | 1.82 | 0.44 |
| 1:XA:652:U:O4 | 1:XA:752:G:O2' | 2.23 | 0.44 |
| 1:XA:940:C:H2' | 1:XA:941:G:H8 | 1.81 | 0.44 |
| 2:XB:118:LEU:HD11 | 2:XB:145:LEU:HD12 | 2.00 | 0.44 |
| 4:XD:101:LEU:HA | 4:XD:104:VAL:HG22 | 1.99 | 0.44 |
| 5:XE:80:ILE:HG22 | 5:XE:91:LEU:HB2 | 2.00 | 0.44 |
| 6:XF:24:GLU:HG3 | 6:XF:28:ARG:HH21 | 1.83 | 0.44 |
| 24:YA:1472:A:H2' | 24:YA:1473:G:O4' | 2.18 | 0.44 |
| 24:YA:1945:G:H2' | 24:YA:1946:U:C6 | 2.52 | 0.44 |
| 24:YA:341:G:H2' | 24:YA:342:G:O4' | 2.18 | 0.44 |
| 24:YA:764:A:H5' | 26:YD:210:GLY:HA2 | 2.00 | 0.44 |
| 24:YA:903:C:H2' | 24:YA:904:C:H6 | 1.81 | 0.44 |
| 27:YE:61:ARG:HD2 | 27:YE:61:ARG:HH11 | 1.63 | 0.44 |
| 27:YE:2:LYS:HA | 27:YE:84:PHE:CE1 | 2.52 | 0.44 |
| 24:YA:1138:G:N2 | 32:YN:106:MET:HE3 | 2.17 | 0.44 |
| 35:YQ:75:THR:HG21 | 35:YQ:85:LYS:HE3 | 2.00 | 0.44 |
| 1:QA:1060:C:H4' | 10:QJ:51:ARG:CB | 2.48 | 0.44 |
| 1:QA:1429:C:H2' | 1:QA:1430:C:C6 | 2.52 | 0.44 |
| 1:QA:116:A:H61 | 1:QA:313:A:H1' | 1.82 | 0.44 |
| 1:QA:687:A:H2 | 1:QA:704:A:C6 | 2.36 | 0.44 |
| 1:QA:736:C:H2' | 1:QA:737:A:H8 | 1.81 | 0.44 |
| 1:QA:768:A:H5' | 1:QA:1524:C:H1' | 2.00 | 0.44 |
| 2:QB:98:LEU:HB2 | 2:QB:101:MET:HE3 | 1.99 | 0.44 |
| 6:QF:20:ALA:O | 6:QF:23:LYS:HG3 | 2.18 | 0.44 |
| 11:QK:81:ASP:OD1 | 11:QK:106:LYS:HB3 | 2.18 | 0.44 |
| 18:QR:37:VAL:O | 18:QR:41:LYS:HG2 | 2.17 | 0.44 |
| 24:RA:1430:C:H2' | 24:RA:1431:U:H6 | 1.80 | 0.44 |
| 24:RA:2130:U:O2' | 24:RA:2133:G:O2' | 2.22 | 0.44 |
| 24:RA:2364:C:H2' | 24:RA:2365:G:O4' | 2.18 | 0.44 |
| 24:RA:2444:G:P | 28:RF:68:LYS:HD2 | 2.57 | 0.44 |
| 24:RA:2649:U:H2' | 24:RA:2650:U:C6 | 2.53 | 0.44 |
| 24:RA:969:U:OP1 | 48:R3:17:LYS:HG3 | 2.17 | 0.44 |
| 27:RE:170:LEU:HD22 | 27:RE:185:LYS:HB3 | 2.00 | 0.44 |
| 30:RH:90:LYS:HD3 | 30:RH:163:TYR:HD2 | 1.83 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 44:RZ:126:VAL:HG12 | 44:RZ:163:LEU:HD23 | 2.00 | 0.44 |
| 1:XA:1210:C:O2' | 1:XA:1213:A:O2' | 2.29 | 0.44 |
| 1:XA:140:A:H2 | 1:XA:182:U:H3 | 1.65 | 0.44 |
| 1:XA:745:C:O3' | 1:XA:836:G:N2 | 2.47 | 0.44 |
| 9:XI:34:ASN:O | 9:XI:38:GLN:HB3 | 2.18 | 0.44 |
| 16:XP:69:THR:O | 16:XP:72:ARG:HG3 | 2.18 | 0.44 |
| 24:YA:1178:C:H2' | 24:YA:1179:C:H6 | 1.82 | 0.44 |
| 24:YA:1287:A:C8 | 36:YR:107:ASP:HB2 | 2.53 | 0.44 |
| 24:YA:1636:C:H2' | 24:YA:1637:A:C8 | 2.53 | 0.44 |
| 24:YA:448:U:C4 | 24:YA:583:G:H1' | 2.53 | 0.44 |
| 24:YA:828:U:H2' | 24:YA:829:A:C8 | 2.52 | 0.44 |
| 28:YF:34:TRP:CZ3 | 34:YP:8:PRO:HB3 | 2.52 | 0.44 |
| 39:YU:61:TRP:HB3 | 39:YU:93:LYS:O | 2.18 | 0.44 |
| 44:YZ:1:MET:HG2 | 44:YZ:2:GLU:H | 1.82 | 0.44 |
| 1:QA:543:C:OP2 | 4:QD:10:ARG:NH2 | 2.51 | 0.44 |
| 1:QA:600:C:H2' | 1:QA:601:C:H6 | 1.83 | 0.44 |
| 1:QA:768:A:H4' | 1:QA:1523:G:N2 | 2.32 | 0.44 |
| 1:QA:848:C:H2' | 1:QA:849:C:C6 | 2.52 | 0.44 |
| 2:QB:47:THR:HA | 2:QB:202:PRO:HG2 | 2.00 | 0.44 |
| 3:QC:23:TYR:HB3 | 10:QJ:93:GLY:O | 2.18 | 0.44 |
| 5:QE:142:LEU:O | 5:QE:143:ARG:HD3 | 2.17 | 0.44 |
| 17:QQ:83:ASP:OD1 | 17:QQ:84:LEU:N | 2.51 | 0.44 |
| 35:RQ:80:GLU:OE1 | 45:R0:7:LEU:HG | 2.17 | 0.44 |
| 45:R0:48:GLY:HA3 | 45:R0:80:HIS:ND1 | 2.33 | 0.44 |
| 24:RA:2611:U:H2' | 50:R5:2:ALA:O | 2.18 | 0.44 |
| 24:RA:205:G:O2' | 24:RA:206:U:OP2 | 2.35 | 0.44 |
| 24:RA:947:G:H2' | 24:RA:948:G:C8 | 2.52 | 0.44 |
| 27:RE:14:ILE:HD13 | 27:RE:173:VAL:HG11 | 1.98 | 0.44 |
| 30:RH:97:ARG:HE | 30:RH:98:LEU:H | 1.66 | 0.44 |
| 42:RX:11:PRO:HD3 | 47:R2:37:PHE:CD1 | 2.52 | 0.44 |
| 1:XA:266:G:O2' | 1:XA:267:C:OP2 | 2.32 | 0.44 |
| 1:XA:816:A:OP2 | 1:XA:1527:C:H5' | 2.18 | 0.44 |
| 2:XB:16:HIS:HA | 2:XB:210:SER:OG | 2.18 | 0.44 |
| 4:XD:79:PHE:HE1 | 4:XD:204:ILE:HD13 | 1.83 | 0.44 |
| 7:XG:95:ARG:O | 7:XG:99:LEU:HG | 2.18 | 0.44 |
| 15:XO:26:GLU:OE2 | 15:XO:77:ARG:NH2 | 2.51 | 0.44 |
| 20:XT:73:HIS:O | 20:XT:74:LYS:O | 2.34 | 0.44 |
| 48:Y3:26:LEU:O | 48:Y3:35:ARG:NE | 2.50 | 0.44 |
| 48:Y3:40:THR:HB | 48:Y3:43:ILE:HG12 | 1.99 | 0.44 |
| 24:YA:1614:A:N1 | 41:YW:91:GLY:HA2 | 2.32 | 0.44 |
| 24:YA:1782:C:H1' | 24:YA:2609:U:H5'' | 2.00 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:1992:G:H5' | 24:YA:1994:C:H41 | 1.83 | 0.44 |
| 24:YA:2141:G:H2' | 24:YA:2142:C:C6 | 2.51 | 0.44 |
| 24:YA:2355:C:H4' | 45:Y0:24:LYS:HD2 | 1.98 | 0.44 |
| 27:YE:29:GLY:HA2 | 27:YE:180:ASN:HB3 | 1.99 | 0.44 |
| 29:YG:25:TYR:HD2 | 29:YG:31:VAL:HG12 | 1.81 | 0.44 |
| 24:YA:662:G:H5'' | 34:YP:17:LYS:HG2 | 2.00 | 0.44 |
| 38:YT:3:ARG:HG2 | 38:YT:6:LEU:HD12 | 2.00 | 0.44 |
| 1:QA:1032(A):G:H2' | 1:QA:1032(B):G:H8 | 1.82 | 0.44 |
| 1:QA:1288:A:N3 | 1:QA:1352:C:O2' | 2.44 | 0.44 |
| 1:QA:139:G:H2' | 1:QA:140:A:H8 | 1.83 | 0.44 |
| 1:QA:522:C:H41 | 12:QL:53:ARG:NH2 | 2.16 | 0.44 |
| 1:QA:892:A:H2' | 1:QA:893:C:C6 | 2.52 | 0.44 |
| 5:QE:143:ARG:NH1 | 8:QH:77:GLU:OE2 | 2.51 | 0.44 |
| 13:QM:10:PRO:HB2 | 13:QM:18:ALA:HB1 | 1.99 | 0.44 |
| 13:QM:50:GLU:HA | 13:QM:53:VAL:HG22 | 1.99 | 0.44 |
| 20:QT:89:ARG:HD3 | 20:QT:104:LEU:HD13 | 1.98 | 0.44 |
| 22:QV:1:C:O3' | 35:RQ:87:LYS:NZ | 2.51 | 0.44 |
| 47:R2:26:ARG:HG2 | 47:R2:29:LYS:HE3 | 1.99 | 0.44 |
| 24:RA:1021:A:H3' | 24:RA:1022:G:H5'' | 2.00 | 0.44 |
| 24:RA:1473:G:H2' | 24:RA:1474:C:O4' | 2.18 | 0.44 |
| 24:RA:1686:C:H3' | 24:RA:1687:G:H8 | 1.82 | 0.44 |
| 24:RA:785:G:O2' | 24:RA:1779:U:H5'' | 2.18 | 0.44 |
| 24:RA:1831:G:H2' | 24:RA:1832:C:C6 | 2.53 | 0.44 |
| 24:RA:2291:U:H2' | 24:RA:2292:C:H6 | 1.82 | 0.44 |
| 24:RA:2341:G:H2' | 24:RA:2342:C:H6 | 1.82 | 0.44 |
| 24:RA:2821:A:H2' | 24:RA:2822:G:C8 | 2.53 | 0.44 |
| 24:RA:330:A:O2' | 24:RA:331:A:H2' | 2.17 | 0.44 |
| 24:RA:524:U:H2' | 24:RA:525:U:C6 | 2.53 | 0.44 |
| 29:RG:107:LEU:HD21 | 29:RG:178:PHE:CD1 | 2.53 | 0.44 |
| 38:RT:48:ILE:HD11 | 38:RT:114:LEU:HD13 | 2.00 | 0.44 |
| 44:RZ:114:GLY:HA3 | 44:RZ:177:PRO:HG3 | 1.99 | 0.44 |
| 1:XA:1435:G:H2' | 1:XA:1436:U:H6 | 1.82 | 0.44 |
| 2:XB:70:PHE:HB3 | 2:XB:81:VAL:HG13 | 1.99 | 0.44 |
| 3:XC:134:ILE:HD11 | 3:XC:153:VAL:HG12 | 2.00 | 0.44 |
| 4:XD:104:VAL:HG11 | 4:XD:140:VAL:HG21 | 1.99 | 0.44 |
| 8:XH:11:THR:HG22 | 8:XH:14:ARG:NH1 | 2.33 | 0.44 |
| 12:XL:43:VAL:HG23 | 12:XL:93:LEU:HD22 | 1.99 | 0.44 |
| 12:XL:69:TYR:HB2 | 12:XL:96:VAL:HG11 | 2.00 | 0.44 |
| 17:XQ:64:PRO:HB3 | 17:XQ:70:ARG:NH1 | 2.33 | 0.44 |
| 22:XV:24:C:H2' | 22:XV:25:U:H6 | 1.83 | 0.44 |
| 45:Y0:23:VAL:HG13 | 45:Y0:38:VAL:HG12 | 2.00 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:116:C:H2' | 24:YA:117:G:O4' | 2.17 | 0.44 |
| 24:YA:1336:A:H2' | 24:YA:1337:G:H8 | 1.83 | 0.44 |
| 24:YA:142:G:H2' | 24:YA:143:C:C6 | 2.52 | 0.44 |
| 24:YA:1636:C:H2' | 24:YA:1637:A:H8 | 1.83 | 0.44 |
| 24:YA:2065:C:H2' | 24:YA:2066:C:C6 | 2.52 | 0.44 |
| 24:YA:534:U:H2' | 24:YA:535:C:C6 | 2.53 | 0.44 |
| 28:YF:32:LEU:HD13 | 28:YF:112:MET:HE1 | 2.00 | 0.44 |
| 34:YP:58:THR:O | 34:YP:61:ARG:CD | 2.66 | 0.44 |
| 35:YQ:79:LEU:O | 35:YQ:79:LEU:HD23 | 2.17 | 0.44 |
| 1:QA:1004:A:H2' | 1:QA:1005:A:N3 | 2.33 | 0.44 |
| 1:QA:1006:C:H2' | 1:QA:1007:C:C6 | 2.53 | 0.44 |
| 1:QA:1258:G:H2' | 1:QA:1259:C:C6 | 2.53 | 0.44 |
| 1:QA:945:G:C2 | 1:QA:946:A:C8 | 3.05 | 0.44 |
| 1:QA:962:C:H2' | 1:QA:963:G:H8 | 1.82 | 0.44 |
| 1:QA:636:U:H5' | 17:QQ:2:PRO:HG3 | 2.00 | 0.44 |
| 19:QS:39:THR:HG22 | 19:QS:40:ILE:N | 2.29 | 0.44 |
| 19:QS:69:HIS:HB3 | 19:QS:73:GLU:OE1 | 2.18 | 0.44 |
| 47:R2:35:LEU:HB3 | 47:R2:50:ILE:CD1 | 2.48 | 0.44 |
| 24:RA:2400:G:H4' | 51:R6:18:ARG:HE | 1.83 | 0.44 |
| 42:RX:60:ARG:NH1 | 52:R7:47:ARG:HH22 | 2.10 | 0.44 |
| 24:RA:1581:G:H2' | 24:RA:1582:C:O4' | 2.18 | 0.44 |
| 24:RA:2313:C:O4' | 29:RG:40:ASN:ND2 | 2.51 | 0.44 |
| 24:RA:273:G:C2 | 24:RA:273(A):G:C8 | 3.06 | 0.44 |
| 24:RA:372:G:O2' | 24:RA:373:U:O5' | 2.32 | 0.44 |
| 24:RA:478:A:N6 | 24:RA:480:A:N1 | 2.65 | 0.44 |
| 35:RQ:116:GLU:O | 35:RQ:120:ILE:HG12 | 2.18 | 0.44 |
| 24:RA:2250:G:C4 | 35:RQ:82:ARG:HG3 | 2.53 | 0.44 |
| 24:RA:1654:A:OP1 | 36:RR:2:ARG:HD3 | 2.17 | 0.44 |
| 25:RB:75:G:H1' | 44:RZ:27:VAL:HG11 | 2.00 | 0.44 |
| 1:XA:1127:G:H2' | 1:XA:1128:C:C6 | 2.53 | 0.44 |
| 1:XA:1305:G:N2 | 1:XA:1331:G:H2' | 2.33 | 0.44 |
| 1:XA:1499:A:H1' | 1:XA:1520:G:H5' | 2.00 | 0.44 |
| 1:XA:329:A:C5 | 1:XA:332:G:C6 | 3.06 | 0.44 |
| 1:XA:563:A:H2' | 1:XA:567:G:C8 | 2.52 | 0.44 |
| 2:XB:112:VAL:HG21 | 2:XB:156:LYS:HE2 | 1.99 | 0.44 |
| 5:XE:51:VAL:HB | 5:XE:52:PRO:HD3 | 1.99 | 0.44 |
| 1:XA:738:C:H5'' | 6:XF:69:GLU:HB2 | 1.99 | 0.44 |
| 7:XG:42:ILE:HD12 | 7:XG:116:ALA:HB3 | 2.00 | 0.44 |
| 20:XT:89:ARG:HH11 | 20:XT:90:GLN:HE22 | 1.66 | 0.44 |
| 21:XU:17:THR:O | 21:XU:22:ARG:NH1 | 2.50 | 0.44 |
| 45:Y0:69:PHE:CE1 | 45:Y0:79:VAL:HG13 | 2.53 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 24:YA:1593:G:H2' | 24:YA:1594:G:H8 | 1.82 | 0.44 |
| 24:YA:2155:G:H3' | 24:YA:2156:G:H8 | 1.82 | 0.44 |
| 24:YA:2314:C:H2' | 24:YA:2315:G:H8 | 1.82 | 0.44 |
| 24:YA:2487:G:H2' | 24:YA:2488:A:C8 | 2.53 | 0.44 |
| 24:YA:2712:U:O2' | 24:YA:2712(A):A:C8 | 2.63 | 0.44 |
| 24:YA:959:A:H2' | 24:YA:960:A:C8 | 2.53 | 0.44 |
| 25:YB:14:U:O3' | 25:YB:107:U:O2' | 2.27 | 0.44 |
| 26:YD:37:LEU:HD23 | 26:YD:62:TYR:HD2 | 1.83 | 0.44 |
| 24:YA:1130:U:N3 | 27:YE:147:PRO:HB3 | 2.33 | 0.44 |
| 29:YG:37:VAL:HG12 | 29:YG:99:MET:HB2 | 1.99 | 0.44 |
| 44:YZ:10:ARG:O | 44:YZ:36:LYS:HG3 | 2.17 | 0.44 |
| 44:YZ:112:ARG:HG3 | 44:YZ:113:ALA:N | 2.33 | 0.44 |
| 44:YZ:30:ASN:OD1 | 44:YZ:33:LEU:HD23 | 2.18 | 0.44 |
| 1:QA:1032:A:C5 | 1:QA:1032(A):G:H1' | 2.53 | 0.43 |
| 1:QA:1072:G:H2' | 1:QA:1073:U:H6 | 1.83 | 0.43 |
| 1:QA:1287:A:C2 | 1:QA:1353:G:H1' | 2.53 | 0.43 |
| 5:QE:121:LYS:NZ | 5:QE:123:LEU:HB3 | 2.33 | 0.43 |
| 9:QI:97:LYS:CG | 9:QI:98:PRO:HD3 | 2.47 | 0.43 |
| 10:QJ:53:PRO:HG2 | 10:QJ:54:PHE:HD1 | 1.82 | 0.43 |
| 12:QL:117:ARG:HG3 | 12:QL:122:THR:HB | 2.00 | 0.43 |
| 13:QM:115:LYS:O | 13:QM:117:VAL:HG23 | 2.18 | 0.43 |
| 17:QQ:74:LEU:HB3 | 17:QQ:75:ARG:HE | 1.83 | 0.43 |
| 20:QT:100:ILE:HG23 | 20:QT:102:GLY:H | 1.83 | 0.43 |
| 24:RA:270(T):G:H5'' | 46:R1:97:LEU:HD13 | 2.00 | 0.43 |
| 24:RA:182:A:H2' | 24:RA:183:C:H6 | 1.83 | 0.43 |
| 24:RA:2543:G:H2' | 24:RA:2544:G:C8 | 2.53 | 0.43 |
| 24:RA:2776:A:H4' | 24:RA:2777:G:H5'' | 1.99 | 0.43 |
| 24:RA:322:A:H5' | 24:RA:340:A:H1' | 2.00 | 0.43 |
| 24:RA:57:C:H2' | 24:RA:58:G:O4' | 2.18 | 0.43 |
| 24:RA:691:C:H2' | 24:RA:692:C:C6 | 2.53 | 0.43 |
| 27:RE:105:THR:HG23 | 27:RE:166:THR:HG22 | 2.00 | 0.43 |
| 24:RA:1277:G:H5'' | 36:RR:40:LYS:NZ | 2.33 | 0.43 |
| 37:RS:24:LEU:HD23 | 37:RS:39:ILE:HD12 | 2.00 | 0.43 |
| 41:RW:71:VAL:HA | 41:RW:107:LEU:HD23 | 1.99 | 0.43 |
| 44:RZ:24:LEU:HD23 | 44:RZ:25:PRO:O | 2.18 | 0.43 |
| 1:XA:200:G:H2' | 1:XA:201:C:O4' | 2.18 | 0.43 |
| 1:XA:412:A:C6 | 4:XD:35:ARG:HG2 | 2.53 | 0.43 |
| 2:XB:87:ARG:NH2 | 2:XB:219:VAL:HG13 | 2.33 | 0.43 |
| 1:XA:8:A:N1 | 4:XD:57:ARG:NH1 | 2.66 | 0.43 |
| 10:XJ:79:ARG:HA | 10:XJ:82:ILE:HG12 | 2.00 | 0.43 |
| 13:XM:65:LYS:HD2 | 13:XM:73:GLU:OE1 | 2.17 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 14:YN:33:VAL:HG12 | 14:YN:40:CYS:HA | 1.99 | 0.43 |
| 10:XJ:49:VAL:HG23 | 14:YN:41:ARG:HB2 | 1.99 | 0.43 |
| 16:XP:5:ARG:HH12 | 16:XP:28:ARG:HA | 1.82 | 0.43 |
| 53:Y8:61:LEU:C | 53:Y8:63:PRO:HD3 | 2.39 | 0.43 |
| 24:YA:1021:A:H3' | 24:YA:1021:A:H8 | 1.83 | 0.43 |
| 24:YA:1416:G:H2' | 24:YA:1417:C:C6 | 2.53 | 0.43 |
| 24:YA:2331:G:N2 | 24:YA:2385:C:C4 | 2.86 | 0.43 |
| 24:YA:2701:C:H3' | 24:YA:2702:U:C5' | 2.42 | 0.43 |
| 24:YA:526:A:N6 | 24:YA:2626:C:H4' | 2.33 | 0.43 |
| 24:YA:582:G:H2' | 24:YA:583:G:H8 | 1.83 | 0.43 |
| 28:YF:182:ASN:O | 28:YF:186:ILE:HG12 | 2.17 | 0.43 |
| 28:YF:110:LEU:HG | 28:YF:202:PHE:HE1 | 1.82 | 0.43 |
| 29:YG:86:MET:O | 29:YG:88:ILE:HG23 | 2.18 | 0.43 |
| 30:YH:164:TYR:HB2 | 30:YH:167:GLU:HB2 | 2.00 | 0.43 |
| 33:YO:79:PHE:HD1 | 38:YT:72:VAL:HG22 | 1.83 | 0.43 |
| 35:YQ:34:LEU:HB3 | 35:YQ:103:MET:O | 2.18 | 0.43 |
| 44:YZ:54:HIS:CG | 44:YZ:101:PRO:HG3 | 2.53 | 0.43 |
| 1:QA:1228:C:OP1 | 13:QM:115:LYS:N | 2.48 | 0.43 |
| 1:QA:186(F):C:H2' | 1:QA:187:C:O4' | 2.18 | 0.43 |
| 1:QA:272:C:H2' | 1:QA:273:A:C8 | 2.51 | 0.43 |
| 1:QA:513:C:H2' | 1:QA:514:C:H6 | 1.84 | 0.43 |
| 1:QA:583:A:H2' | 1:QA:584:G:O4' | 2.18 | 0.43 |
| 5:QE:81:GLU:HG2 | 5:QE:90:VAL:HG22 | 2.00 | 0.43 |
| 8:QH:4:ASP:HB2 | 8:QH:85:ARG:HH12 | 1.83 | 0.43 |
| 1:QA:1350:A:OP2 | 9:QI:118:LYS:HD3 | 2.17 | 0.43 |
| 19:QS:36:ARG:HD2 | 19:QS:72:GLY:HA2 | 2.00 | 0.43 |
| 22:QV:75:C:O2' | 22:QV:76:C:H5' | 2.17 | 0.43 |
| 24:RA:1015:G:O6 | 24:RA:1148:A:N6 | 2.51 | 0.43 |
| 24:RA:2085:C:H2' | 24:RA:2086:U:O4' | 2.18 | 0.43 |
| 24:RA:2512:C:H2' | 24:RA:2513:G:O4' | 2.18 | 0.43 |
| 24:RA:2891:G:H5' | 24:RA:2892:A:OP1 | 2.18 | 0.43 |
| 24:RA:873:G:H4' | 35:RQ:63:LYS:HZ1 | 1.82 | 0.43 |
| 24:RA:989:G:OP2 | 48:R3:11:SER:OG | 2.22 | 0.43 |
| 27:RE:61:ARG:O | 27:RE:63:LEU:N | 2.50 | 0.43 |
| 36:RR:55:ALA:HA | 36:RR:80:PHE:CE1 | 2.53 | 0.43 |
| 37:RS:14:VAL:O | 37:RS:18:ILE:HG12 | 2.18 | 0.43 |
| 39:RU:80:ILE:HG22 | 39:RU:84:LYS:HZ3 | 1.83 | 0.43 |
| 1:XA:978:A:H61 | 1:XA:1316:G:H1' | 1.83 | 0.43 |
| 1:XA:27:G:C6 | 1:XA:557:G:N1 | 2.86 | 0.43 |
| 1:XA:512:U:H2' | 1:XA:513:C:C6 | 2.53 | 0.43 |
| 12:XL:10:LEU:HB3 | 17:XQ:32:TYR:CE2 | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 14:YN:39:LEU:HB2 | 14:YN:44:LEU:HD12 | 1.99 | 0.43 |
| 16:XP:79:VAL:HG13 | 16:XP:80:PHE:CD1 | 2.53 | 0.43 |
| 16:XP:9:PHE:CE2 | 16:XP:18:ARG:HD2 | 2.53 | 0.43 |
| 47:Y2:18:PRO:HA | 47:Y2:21:LEU:HD12 | 1.99 | 0.43 |
| 24:YA:2099:U:C4 | 24:YA:2190:G:O6 | 2.71 | 0.43 |
| 24:YA:224:G:O6 | 24:YA:419:C:O2' | 2.37 | 0.43 |
| 24:YA:2700:C:C2' | 24:YA:2701:C:H5' | 2.47 | 0.43 |
| 25:YB:28:C:H2' | 25:YB:29:A:O4' | 2.18 | 0.43 |
| 31:YI:37:VAL:HG22 | 31:YI:38:LEU:H | 1.83 | 0.43 |
| 24:YA:995:C:O2 | 32:YN:3:THR:HG23 | 2.17 | 0.43 |
| 38:YT:114:LEU:O | 38:YT:114:LEU:HD12 | 2.18 | 0.43 |
| 1:QA:1213:A:N6 | 1:QA:1215:G:N3 | 2.67 | 0.43 |
| 3:QC:19:GLU:O | 3:QC:40:ARG:NH2 | 2.51 | 0.43 |
| 4:QD:21:LEU:HD21 | 4:QD:66:ARG:O | 2.18 | 0.43 |
| 9:QI:112:LYS:HD2 | 9:QI:117:HIS:O | 2.19 | 0.43 |
| 1:QA:1147:C:O2 | 9:QI:16:ARG:NH2 | 2.52 | 0.43 |
| 9:QI:4:TYR:CZ | 9:QI:88:TYR:HB2 | 2.53 | 0.43 |
| 12:QL:126:LYS:HG2 | 12:QL:126:LYS:O | 2.17 | 0.43 |
| 20:QT:29:LYS:HB3 | 20:QT:29:LYS:HE3 | 1.92 | 0.43 |
| 24:RA:1475:G:H2' | 24:RA:1476:C:C6 | 2.53 | 0.43 |
| 24:RA:1826:G:H2' | 24:RA:1827:C:H6 | 1.83 | 0.43 |
| 24:RA:210:C:H4' | 24:RA:1367:A:H1' | 2.00 | 0.43 |
| 24:RA:954:G:O2' | 24:RA:2274:A:N1 | 2.48 | 0.43 |
| 24:RA:2494:G:C2 | 24:RA:2495:G:C8 | 3.07 | 0.43 |
| 24:RA:301:G:C4 | 24:RA:302:C:C5 | 3.06 | 0.43 |
| 24:RA:612:G:C2 | 24:RA:617:G:C6 | 3.06 | 0.43 |
| 36:RR:8:ARG:HH11 | 36:RR:39:PRO:HB3 | 1.84 | 0.43 |
| 37:RS:58:LEU:HD13 | 37:RS:59:LYS:N | 2.34 | 0.43 |
| 39:RU:44:ASN:OD1 | 40:RV:75:PHE:HB3 | 2.18 | 0.43 |
| 44:RZ:6:LYS:CE | 44:RZ:40:ASP:HB2 | 2.47 | 0.43 |
| 44:RZ:6:LYS:HD3 | 44:RZ:8:TYR:CE1 | 2.53 | 0.43 |
| 1:XA:1262:C:H2' | 1:XA:1263:C:H6 | 1.84 | 0.43 |
| 1:XA:149:A:H2' | 1:XA:150:C:C6 | 2.53 | 0.43 |
| 1:XA:49:U:C2 | 1:XA:361:G:N2 | 2.87 | 0.43 |
| 1:XA:410:G:H4' | 1:XA:411:A:OP1 | 2.19 | 0.43 |
| 1:XA:939:G:H4' | 7:XG:102:ARG:NH2 | 2.33 | 0.43 |
| 9:XI:63:ILE:HG21 | 9:XI:77:ILE:HD12 | 2.00 | 0.43 |
| 16:XP:67:THR:HG23 | 16:XP:70:ALA:H | 1.83 | 0.43 |
| 19:XS:15:LEU:HD23 | 19:XS:15:LEU:H | 1.83 | 0.43 |
| 22:XV:10:G:N2 | 22:XV:27:G:H1' | 2.33 | 0.43 |
| 24:YA:77:C:OP1 | 47:Y2:59:ARG:HD3 | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 24:YA:1726:G:H2' | 24:YA:1727:U:C6 | 2.52 | 0.43 |
| 24:YA:1946:U:H2' | 24:YA:1947:C:H6 | 1.84 | 0.43 |
| 24:YA:265:A:H2' | 24:YA:266:G:O4' | 2.18 | 0.43 |
| 24:YA:2688:U:OP1 | 24:YA:2713:A:N6 | 2.51 | 0.43 |
| 24:YA:630:G:N2 | 24:YA:633:A:OP2 | 2.37 | 0.43 |
| 24:YA:78:A:H2' | 24:YA:79:G:H8 | 1.83 | 0.43 |
| 25:YB:29:A:H2' | 25:YB:30:C:H6 | 1.84 | 0.43 |
| 26:YD:30:GLU:HG2 | 26:YD:63:ARG:HE | 1.83 | 0.43 |
| 27:YE:143:ASN:OD1 | 27:YE:147:PRO:HD2 | 2.19 | 0.43 |
| 28:YF:116:ASP:OD1 | 28:YF:119:ARG:NH2 | 2.51 | 0.43 |
| 30:YH:97:ARG:NH1 | 30:YH:104:GLU:OE1 | 2.50 | 0.43 |
| 41:YW:20:VAL:HG23 | 41:YW:47:VAL:HG21 | 1.99 | 0.43 |
| 1:QA:110:C:H2' | 1:QA:111:G:O4' | 2.18 | 0.43 |
| 1:QA:1262:C:H2' | 1:QA:1263:C:H6 | 1.83 | 0.43 |
| 1:QA:1469:G:H2' | 1:QA:1470:G:H8 | 1.83 | 0.43 |
| 1:QA:171:A:H2' | 1:QA:172:A:C8 | 2.53 | 0.43 |
| 1:QA:12:U:H3 | 1:QA:22:G:H1 | 1.66 | 0.43 |
| 1:QA:374:A:C6 | 1:QA:375:U:C4 | 3.06 | 0.43 |
| 1:QA:731:G:H5' | 1:QA:766:A:H4' | 2.00 | 0.43 |
| 2:QB:68:ILE:HG22 | 2:QB:90:MET:SD | 2.59 | 0.43 |
| 4:QD:57:ARG:NH2 | 5:QE:107:ARG:HD3 | 2.33 | 0.43 |
| 5:QE:96:PRO:HA | 5:QE:117:ASP:OD2 | 2.19 | 0.43 |
| 19:QS:36:ARG:HH11 | 19:QS:72:GLY:HA3 | 1.82 | 0.43 |
| 20:QT:71:THR:OG1 | 20:QT:72:LEU:N | 2.51 | 0.43 |
| 45:R0:21:LEU:HD21 | 45:R0:41:ARG:NH2 | 2.33 | 0.43 |
| 47:R2:24:LEU:O | 47:R2:28:LYS:HG2 | 2.17 | 0.43 |
| 24:RA:1258:C:H2' | 24:RA:1259:G:C8 | 2.54 | 0.43 |
| 24:RA:2292:C:H2' | 24:RA:2293:C:H6 | 1.83 | 0.43 |
| 24:RA:1710:C:O2' | 24:RA:2858:C:N3 | 2.50 | 0.43 |
| 24:RA:680:G:H2' | 24:RA:681:G:H8 | 1.82 | 0.43 |
| 24:RA:851:U:OP1 | 48:R3:49:LYS:NZ | 2.32 | 0.43 |
| 25:RB:50:G:OP1 | 37:RS:63:THR:HG23 | 2.17 | 0.43 |
| 33:RO:17:ARG:HH21 | 33:RO:47:ILE:HD13 | 1.83 | 0.43 |
| 24:RA:566:U:O4 | 40:RV:78:LYS:HD3 | 2.18 | 0.43 |
| 42:RX:47:PHE:CD2 | 42:RX:89:ILE:HD13 | 2.53 | 0.43 |
| 1:XA:842:C:H5' | 1:XA:843:U:OP1 | 2.18 | 0.43 |
| 2:XB:59:GLU:HG3 | 2:XB:221:LEU:HD11 | 1.99 | 0.43 |
| 24:YA:2024:G:H2' | 24:YA:2025:C:C6 | 2.53 | 0.43 |
| 24:YA:2422:A:N7 | 53:Y8:31:HIS:HE1 | 2.17 | 0.43 |
| 24:YA:2566:A:H4' | 24:YA:2567:G:O5' | 2.17 | 0.43 |
| 24:YA:2647:U:H2' | 24:YA:2648:C:H6 | 1.83 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:839:U:H1' | 24:YA:1191:G:H1' | 2.00 | 0.43 |
| 24:YA:1826:G:OP1 | 26:YD:224:ALA:N | 2.51 | 0.43 |
| 26:YD:77:ALA:O | 26:YD:116:GLN:HA | 2.19 | 0.43 |
| 28:YF:197:ASP:C | 28:YF:199:TRP:H | 2.21 | 0.43 |
| 29:YG:129:GLY:O | 29:YG:161:THR:HB | 2.18 | 0.43 |
| 36:YR:64:ARG:O | 36:YR:68:ARG:HG3 | 2.18 | 0.43 |
| 41:YW:82:LEU:HD23 | 41:YW:84:ARG:NH2 | 2.33 | 0.43 |
| 1:QA:690:G:H2' | 1:QA:691:G:O4' | 2.19 | 0.43 |
| 1:QA:1104:G:C1' | 2:QB:111:ARG:HH22 | 2.31 | 0.43 |
| 5:QE:51:VAL:HB | 5:QE:52:PRO:HD3 | 2.00 | 0.43 |
| 9:QI:117:HIS:CB | 9:QI:121:ARG:HE | 2.24 | 0.43 |
| 9:QI:27:THR:HG23 | 9:QI:62:TYR:HD1 | 1.83 | 0.43 |
| 11:QK:18:ARG:HA | 11:QK:81:ASP:H | 1.83 | 0.43 |
| 1:QA:255:G:H1' | 17:QQ:16:GLN:OE1 | 2.17 | 0.43 |
| 1:QA:719:C:O2' | 18:QR:49:LYS:HB3 | 2.17 | 0.43 |
| 46:R1:18:ILE:HG12 | 46:R1:37:ILE:HG12 | 1.99 | 0.43 |
| 49:R4:59:PHE:HD2 | 49:R4:60:GLN:OE1 | 2.01 | 0.43 |
| 51:R6:26:ASN:HD22 | 51:R6:27:LYS:N | 2.17 | 0.43 |
| 24:RA:1332:G:N2 | 24:RA:1609:A:O2' | 2.52 | 0.43 |
| 24:RA:2002:G:OP1 | 36:RR:9:LYS:HD3 | 2.19 | 0.43 |
| 24:RA:2306:C:H2' | 24:RA:2307:G:H21 | 1.82 | 0.43 |
| 24:RA:2392:A:H1' | 34:RP:60:MET:HE3 | 1.99 | 0.43 |
| 24:RA:24:G:C6 | 24:RA:25:U:C4 | 3.06 | 0.43 |
| 24:RA:2566:A:H4' | 24:RA:2567:G:O5' | 2.19 | 0.43 |
| 24:RA:2592:G:C6 | 24:RA:2593:U:C4 | 3.07 | 0.43 |
| 24:RA:2745:C:H2' | 24:RA:2746:U:H6 | 1.82 | 0.43 |
| 24:RA:2822:G:H5'' | 27:RE:159:HIS:CE1 | 2.54 | 0.43 |
| 24:RA:527:C:H4' | 24:RA:528:A:O4' | 2.18 | 0.43 |
| 28:RF:120:GLU:HG3 | 28:RF:122:LYS:HD3 | 2.00 | 0.43 |
| 28:RF:197:ASP:O | 28:RF:199:TRP:N | 2.48 | 0.43 |
| 24:RA:443:A:C4 | 28:RF:45:ARG:NH1 | 2.87 | 0.43 |
| 44:RZ:73:GLN:HB3 | 44:RZ:87:ASP:OD2 | 2.18 | 0.43 |
| 1:XA:1343:G:H2' | 1:XA:1344:C:C6 | 2.54 | 0.43 |
| 1:XA:266:G:H5' | 1:XA:268:C:H41 | 1.82 | 0.43 |
| 2:XB:205:ASP:OD1 | 2:XB:206:ASP:N | 2.51 | 0.43 |
| 13:XM:58:GLU:O | 13:XM:62:ASN:ND2 | 2.50 | 0.43 |
| 16:XP:6:LEU:HD13 | 16:XP:17:TYR:CG | 2.53 | 0.43 |
| 20:XT:83:ARG:O | 20:XT:87:LYS:HG3 | 2.17 | 0.43 |
| 24:YA:1971:A:N3 | 26:YD:239:ARG:O | 2.52 | 0.43 |
| 24:YA:2389:G:H5'' | 24:YA:2390:U:O4' | 2.18 | 0.43 |
| 26:YD:25:THR:HG21 | 26:YD:113:VAL:HG11 | 1.99 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:YD:32:SER:C | 26:YD:34:VAL:H | 2.20 | 0.43 |
| 27:YE:31:CYS:HB3 | 27:YE:49:LEU:HB3 | 2.00 | 0.43 |
| 28:YF:124:LEU:HD23 | 28:YF:191:ARG:HH21 | 1.82 | 0.43 |
| 29:YG:114:ILE:HD11 | 29:YG:117:PHE:HD1 | 1.83 | 0.43 |
| 1:QA:1226:C:OP2 | 13:QM:103:THR:OG1 | 2.19 | 0.43 |
| 1:QA:368:U:P | 31:YI:91:SER:HG | 2.41 | 0.43 |
| 3:QC:53:ALA:HB2 | 3:QC:115:LEU:HG | 2.00 | 0.43 |
| 1:QA:1189:C:H5' | 3:QC:5:ILE:HD13 | 2.00 | 0.43 |
| 9:QI:46:ALA:HA | 9:QI:78:LYS:HB3 | 2.01 | 0.43 |
| 9:QI:82:ALA:O | 9:QI:86:VAL:HG23 | 2.18 | 0.43 |
| 17:QQ:92:ARG:HD3 | 17:QQ:95:TYR:CE2 | 2.46 | 0.43 |
| 6:QF:46:ARG:NH2 | 18:QR:78:LEU:HD22 | 2.33 | 0.43 |
| 53:R8:26:LYS:HE2 | 53:R8:47:LYS:HB3 | 1.99 | 0.43 |
| 24:RA:1540:G:H2' | 24:RA:1541:U:C6 | 2.53 | 0.43 |
| 24:RA:194:G:H2' | 24:RA:195:A:O4' | 2.18 | 0.43 |
| 24:RA:303:U:H2' | 24:RA:304:G:H8 | 1.83 | 0.43 |
| 24:RA:412:A:N7 | 24:RA:2411:A:H2 | 2.17 | 0.43 |
| 24:RA:28:A:C2 | 24:RA:513:A:C8 | 3.06 | 0.43 |
| 25:RB:79:C:H2' | 25:RB:80:U:O4' | 2.18 | 0.43 |
| 30:RH:52:VAL:H | 30:RH:69:ARG:NH2 | 2.17 | 0.43 |
| 34:RP:106:LEU:HD23 | 34:RP:112:LEU:HD23 | 2.01 | 0.43 |
| 34:RP:28:GLY:O | 34:RP:29:LYS:HG2 | 2.19 | 0.43 |
| 25:RB:7:G:H21 | 37:RS:38:GLN:HE22 | 1.66 | 0.43 |
| 1:XA:1177:G:OP2 | 9:XI:97:LYS:HD2 | 2.18 | 0.43 |
| 1:XA:246:A:C2 | 1:XA:282:A:C5 | 3.07 | 0.43 |
| 1:XA:552:U:H2' | 1:XA:553:A:C8 | 2.53 | 0.43 |
| 1:XA:76:G:H1 | 1:XA:93:U:H3 | 1.65 | 0.43 |
| 5:XE:143:ARG:NE | 8:XH:77:GLU:OE2 | 2.51 | 0.43 |
| 9:XI:3:GLN:OE1 | 9:XI:20:ARG:NH2 | 2.51 | 0.43 |
| 7:XG:16:LEU:HD11 | 9:XI:45:ALA:HB2 | 2.00 | 0.43 |
| 11:XK:65:ALA:HB3 | 11:XK:97:ALA:HB3 | 1.99 | 0.43 |
| 1:XA:376:G:H4' | 16:XP:5:ARG:HH11 | 1.84 | 0.43 |
| 17:XQ:50:LYS:HG3 | 17:XQ:51:TYR:CD1 | 2.53 | 0.43 |
| 24:YA:1021:A:H2' | 24:YA:1023:U:H5' | 1.99 | 0.43 |
| 24:YA:1191:G:OP1 | 34:YP:32:THR:HB | 2.19 | 0.43 |
| 24:YA:1317:A:H2' | 24:YA:1318:C:H6 | 1.84 | 0.43 |
| 24:YA:1400:G:H2' | 24:YA:1401:G:H8 | 1.84 | 0.43 |
| 24:YA:666:G:H4' | 34:YP:49:ARG:HH21 | 1.82 | 0.43 |
| 24:YA:764:A:N3 | 26:YD:213:ARG:NH1 | 2.65 | 0.43 |
| 24:YA:92:G:H2' | 24:YA:93:C:C6 | 2.53 | 0.43 |
| 26:YD:231:HIS:HD2 | 26:YD:249:PRO:HG3 | 1.82 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 28:YF:178:PRO:HB3 | 28:YF:198:ALA:CB | 2.49 | 0.43 |
| 13:XM:7:VAL:HB | 29:YG:115:ARG:HH21 | 1.84 | 0.43 |
| 30:YH:46:GLU:OE2 | 30:YH:51:ARG:NH1 | 2.51 | 0.43 |
| 32:YN:13:TRP:HB2 | 32:YN:133:GLN:O | 2.18 | 0.43 |
| 39:YU:21:ALA:HA | 39:YU:24:TYR:CE2 | 2.54 | 0.43 |
| 24:YA:84:A:OP2 | 43:YY:8:LYS:HD3 | 2.19 | 0.43 |
| 1:QA:1288:A:H2' | 1:QA:1289:A:C8 | 2.54 | 0.43 |
| 1:QA:1334:G:H5' | 1:QA:1335:C:OP2 | 2.19 | 0.43 |
| 1:QA:1388:C:H2' | 1:QA:1389:C:C6 | 2.54 | 0.43 |
| 1:QA:41:G:H2' | 1:QA:42:G:C8 | 2.53 | 0.43 |
| 1:QA:309:G:O2' | 1:QA:607:A:N1 | 2.51 | 0.43 |
| 1:QA:922:G:H4' | 5:QE:20:GLN:HA | 1.99 | 0.43 |
| 8:QH:114:THR:HG22 | 8:QH:116:LYS:H | 1.83 | 0.43 |
| 10:QJ:78:ASN:HB2 | 10:QJ:81:THR:HG22 | 2.01 | 0.43 |
| 10:QJ:5:ARG:O | 10:QJ:98:ILE:HA | 2.19 | 0.43 |
| 22:QV:54:G:HO2' | 22:QV:55:U:H6 | 1.65 | 0.43 |
| 24:RA:1221:C:H2' | 24:RA:1222:C:H6 | 1.84 | 0.43 |
| 24:RA:1509:C:N3 | 24:RA:1511:A:N6 | 2.67 | 0.43 |
| 24:RA:2590:A:H2' | 24:RA:2591:C:H6 | 1.83 | 0.43 |
| 24:RA:2862:G:H2' | 24:RA:2863:C:H6 | 1.83 | 0.43 |
| 26:RD:264:LYS:HD3 | 26:RD:265:PRO:HD2 | 2.01 | 0.43 |
| 30:RH:54:ARG:NH2 | 30:RH:57:ASP:OD1 | 2.52 | 0.43 |
| 33:RO:78:ARG:HH21 | 38:RT:103:ARG:NH2 | 2.17 | 0.43 |
| 37:RS:27:SER:HA | 37:RS:88:ASP:HB3 | 2.00 | 0.43 |
| 4:XD:129:ASN:HB2 | 4:XD:131:ARG:NH1 | 2.34 | 0.43 |
| 9:XI:10:ARG:HG3 | 9:XI:11:LYS:HG2 | 2.01 | 0.43 |
| 12:XL:45:PRO:HB3 | 12:XL:92:ASP:HB3 | 2.00 | 0.43 |
| 24:YA:2815:C:C5' | 50:Y5:29:THR:HG21 | 2.48 | 0.43 |
| 50:Y5:33:CYS:HB3 | 50:Y5:40:LYS:HE3 | 1.99 | 0.43 |
| 24:YA:1231:G:H2' | 24:YA:1232:G:C8 | 2.53 | 0.43 |
| 24:YA:1438:U:H2' | 24:YA:1439:A:H8 | 1.84 | 0.43 |
| 24:YA:1853:A:H2' | 24:YA:1854:A:C8 | 2.53 | 0.43 |
| 24:YA:1972:A:H2' | 24:YA:1973:G:C8 | 2.53 | 0.43 |
| 24:YA:2037:G:H2' | 24:YA:2038:G:H8 | 1.83 | 0.43 |
| 24:YA:2648:C:H2' | 24:YA:2649:U:C6 | 2.53 | 0.43 |
| 24:YA:57:C:H2' | 24:YA:58:G:O4' | 2.17 | 0.43 |
| 25:YB:30:C:H1' | 25:YB:57:A:H61 | 1.84 | 0.43 |
| 29:YG:113:ARG:HD2 | 49:Y4:33:VAL:HG13 | 2.00 | 0.43 |
| 29:YG:37:VAL:HG13 | 29:YG:94:LEU:HB2 | 1.99 | 0.43 |
| 38:YT:6:LEU:O | 38:YT:10:VAL:HG23 | 2.17 | 0.43 |
| 41:YW:46:PHE:O | 41:YW:50:VAL:HG23 | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:QA:62:U:H2' | 1:QA:63:C:C6 | 2.54 | 0.43 |
| 2:QB:70:PHE:O | 2:QB:92:TYR:HA | 2.19 | 0.43 |
| 3:QC:24:ALA:HB3 | 3:QC:29:TYR:HD1 | 1.83 | 0.43 |
| 7:QG:32:ARG:O | 7:QG:35:LYS:HG2 | 2.18 | 0.43 |
| 16:QP:4:ILE:HA | 16:QP:20:VAL:O | 2.19 | 0.43 |
| 47:R2:16:LEU:HD21 | 47:R2:20:GLU:HB3 | 2.01 | 0.43 |
| 24:RA:1056:G:H21 | 24:RA:1103:A:H62 | 1.67 | 0.43 |
| 24:RA:1310:G:N2 | 24:RA:1313:U:C4 | 2.87 | 0.43 |
| 24:RA:2111:C:H41 | 24:RA:2147:G:N2 | 2.17 | 0.43 |
| 24:RA:2314:C:H2' | 24:RA:2315:G:C8 | 2.54 | 0.43 |
| 29:RG:82:LEU:HD21 | 29:RG:88:ILE:HG21 | 2.01 | 0.43 |
| 30:RH:53:GLU:HA | 30:RH:65:HIS:NE2 | 2.33 | 0.43 |
| 32:RN:24:GLY:O | 32:RN:28:THR:HG23 | 2.18 | 0.43 |
| 24:RA:994:C:OP1 | 39:RU:53:ARG:NH2 | 2.52 | 0.43 |
| 43:RY:97:ARG:HH21 | 43:RY:106:LEU:HD13 | 1.83 | 0.43 |
| 35:RQ:141:GLN:NE2 | 44:RZ:122:ARG:HH21 | 2.16 | 0.43 |
| 1:XA:1354:C:H2' | 1:XA:1355:G:H8 | 1.84 | 0.43 |
| 1:XA:181:G:O2' | 1:XA:182:U:O5' | 2.36 | 0.43 |
| 1:XA:272:C:H2' | 1:XA:273:A:C8 | 2.49 | 0.43 |
| 1:XA:401:C:H2' | 1:XA:402:G:C8 | 2.51 | 0.43 |
| 1:XA:458:C:H2' | 1:XA:464:G:O4' | 2.19 | 0.43 |
| 1:XA:486:U:H2' | 1:XA:487:A:C8 | 2.51 | 0.43 |
| 3:XC:84:ILE:HG13 | 3:XC:101:LEU:HD23 | 2.00 | 0.43 |
| 1:XA:411:A:P | 4:XD:30:LYS:HZ2 | 2.42 | 0.43 |
| 7:XG:15:ASP:OD1 | 7:XG:16:LEU:N | 2.47 | 0.43 |
| 7:XG:70:LYS:HB3 | 7:XG:96:GLN:HE21 | 1.83 | 0.43 |
| 9:XI:117:HIS:HB2 | 9:XI:121:ARG:HD2 | 1.99 | 0.43 |
| 11:XK:21:ILE:HD11 | 11:XK:98:LEU:HD11 | 2.00 | 0.43 |
| 20:XT:14:LYS:O | 20:XT:18:GLN:HG2 | 2.18 | 0.43 |
| 24:YA:1014:U:H2' | 24:YA:1015:G:H5'' | 2.00 | 0.43 |
| 24:YA:2605:U:H2' | 24:YA:2606:C:C6 | 2.53 | 0.43 |
| 25:YB:8:U:O2' | 37:YS:25:ARG:NH2 | 2.52 | 0.43 |
| 26:YD:118:VAL:HG23 | 26:YD:123:ALA:HB1 | 2.00 | 0.43 |
| 26:YD:176:ARG:HA | 26:YD:181:GLU:O | 2.18 | 0.43 |
| 24:YA:470:A:OP1 | 28:YF:59:TYR:HE1 | 2.00 | 0.43 |
| 1:QA:769:G:H4' | 1:QA:1513:A:H4' | 2.00 | 0.43 |
| 1:QA:1515:C:H2' | 1:QA:1516:G:C8 | 2.54 | 0.43 |
| 1:QA:306:G:C2 | 1:QA:307:C:C6 | 3.07 | 0.43 |
| 24:RA:2354:G:H4' | 45:R0:35:ASN:HD22 | 1.83 | 0.43 |
| 24:RA:450:G:P | 24:RA:1248:G:H22 | 2.42 | 0.43 |
| 24:RA:1638:C:H2' | 24:RA:1639:U:O4' | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:2592:G:C5 | 24:RA:2593:U:C5 | 3.06 | 0.43 |
| 24:RA:582:G:H2' | 24:RA:583:G:C8 | 2.50 | 0.43 |
| 24:RA:866:A:C2 | 24:RA:914:C:H5' | 2.54 | 0.43 |
| 29:RG:161:THR:HG22 | 29:RG:163:ALA:H | 1.84 | 0.43 |
| 35:RQ:79:LEU:HD13 | 35:RQ:79:LEU:O | 2.19 | 0.43 |
| 36:RR:74:LYS:C | 36:RR:76:VAL:H | 2.22 | 0.43 |
| 38:RT:3:ARG:HG3 | 38:RT:6:LEU:HB3 | 2.00 | 0.43 |
| 39:RU:52:ARG:HA | 39:RU:55:ARG:HE | 1.83 | 0.43 |
| 1:XA:1347:G:OP2 | 9:XI:107:ARG:HG2 | 2.18 | 0.43 |
| 1:XA:1523:G:H2' | 1:XA:1524:C:C6 | 2.54 | 0.43 |
| 1:XA:452:A:H2' | 1:XA:453:A:H8 | 1.83 | 0.43 |
| 1:XA:828:A:H2' | 1:XA:829:G:O4' | 2.18 | 0.43 |
| 3:XC:147:LYS:HE3 | 3:XC:203:PHE:CE2 | 2.54 | 0.43 |
| 4:QD:197:PRO:HD3 | 6:XF:16:GLN:HG3 | 2.00 | 0.43 |
| 8:XH:83:ILE:HG22 | 8:XH:137:VAL:HB | 2.00 | 0.43 |
| 23:XX:17:U:O2' | 23:XX:18:G:H5' | 2.18 | 0.43 |
| 48:Y3:8:LEU:HG | 48:Y3:31:LEU:HD23 | 2.00 | 0.43 |
| 24:YA:1106:G:C4 | 24:YA:1107:G:C8 | 3.07 | 0.43 |
| 24:YA:1432:C:H2' | 24:YA:1433:U:O4' | 2.18 | 0.43 |
| 24:YA:151:C:H2' | 24:YA:152:G:C8 | 2.54 | 0.43 |
| 24:YA:1590:U:H2' | 24:YA:1591:G:H8 | 1.83 | 0.43 |
| 24:YA:1686:C:H3' | 24:YA:1687:G:H8 | 1.84 | 0.43 |
| 24:YA:1841:U:H2' | 24:YA:1842:G:H8 | 1.83 | 0.43 |
| 24:YA:2226:C:C2 | 24:YA:2227:A:C8 | 3.07 | 0.43 |
| 24:YA:262:A:H2' | 24:YA:263:C:O4' | 2.19 | 0.43 |
| 24:YA:2650:U:H2' | 24:YA:2651:C:C6 | 2.54 | 0.43 |
| 15:XO:53:HIS:NE2 | 24:YA:715:G:O6 | 2.37 | 0.43 |
| 24:YA:814:C:H2' | 24:YA:815:C:C6 | 2.54 | 0.43 |
| 24:YA:1791:A:H5' | 26:YD:206:LEU:HD12 | 2.01 | 0.43 |
| 44:YZ:155:LEU:H | 44:YZ:155:LEU:HD23 | 1.84 | 0.43 |
| 1:QA:1107:C:C4 | 1:QA:1108:G:C8 | 3.07 | 0.43 |
| 1:QA:260:G:H2' | 1:QA:261:U:C6 | 2.54 | 0.43 |
| 17:QQ:45:HIS:CD2 | 17:QQ:47:PRO:HG3 | 2.54 | 0.43 |
| 24:RA:264:C:O2' | 24:RA:265:A:H5'' | 2.18 | 0.43 |
| 24:RA:2677:G:H2' | 24:RA:2678:C:C6 | 2.54 | 0.43 |
| 24:RA:2695:C:H2' | 24:RA:2696:U:H6 | 1.82 | 0.43 |
| 24:RA:528:A:H2 | 24:RA:2043:C:O5' | 2.02 | 0.43 |
| 24:RA:631:A:H2' | 24:RA:632:A:O4' | 2.19 | 0.43 |
| 24:RA:78:A:H2' | 24:RA:79:G:C8 | 2.52 | 0.43 |
| 25:RB:16:G:N2 | 25:RB:69:G:H1' | 2.34 | 0.43 |
| 26:RD:206:LEU:O | 26:RD:211:ARG:HD3 | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 33:RO:68:GLU:HG3 | 33:RO:78:ARG:HD3 | 2.01 | 0.43 |
| 39:RU:61:TRP:HB3 | 39:RU:93:LYS:O | 2.18 | 0.43 |
| 24:RA:1341:U:O2 | 42:RX:80:ILE:HG21 | 2.18 | 0.43 |
| 44:RZ:151:HIS:CB | 44:RZ:170:THR:HA | 2.47 | 0.43 |
| 1:XA:1281:U:OP2 | 1:XA:1282:C:N4 | 2.52 | 0.43 |
| 1:XA:19:C:H2' | 1:XA:20:U:C6 | 2.54 | 0.43 |
| 1:XA:690:G:H22 | 11:XK:55:LYS:NZ | 2.16 | 0.43 |
| 2:XB:189:ASP:HB3 | 2:XB:203:GLY:O | 2.19 | 0.43 |
| 7:XG:99:LEU:HD13 | 7:XG:103:TRP:CH2 | 2.54 | 0.43 |
| 9:XI:13:ALA:HB2 | 9:XI:68:GLY:HA3 | 2.00 | 0.43 |
| 19:XS:63:THR:HG22 | 19:XS:64:GLU:H | 1.83 | 0.43 |
| 54:Y9:27:CYS:SG | 54:Y9:28:GLU:N | 2.92 | 0.43 |
| 24:YA:1165:U:H3 | 24:YA:1184:G:H1 | 1.67 | 0.43 |
| 24:YA:1477:A:H2' | 24:YA:1478:G:O4' | 2.19 | 0.43 |
| 24:YA:1604:C:C2 | 24:YA:1605:C:C5 | 3.07 | 0.43 |
| 24:YA:2008:C:H2' | 24:YA:2009:G:H8 | 1.83 | 0.43 |
| 24:YA:2399:G:C6 | 24:YA:2418:A:C6 | 3.07 | 0.43 |
| 24:YA:270:A:C2 | 24:YA:366:C:H4' | 2.54 | 0.43 |
| 24:YA:881:G:O6 | 24:YA:895:U:C2 | 2.72 | 0.43 |
| 24:YA:847:U:H3 | 24:YA:934:G:N2 | 2.17 | 0.43 |
| 29:YG:15:VAL:HG13 | 29:YG:175:LEU:HB2 | 2.00 | 0.43 |
| 1:QA:1203:C:H2' | 1:QA:1204:A:C8 | 2.54 | 0.42 |
| 1:QA:1347:G:H22 | 1:QA:1374:A:P | 2.34 | 0.42 |
| 1:QA:536:C:H2' | 1:QA:537:G:H8 | 1.84 | 0.42 |
| 1:QA:678:U:H2' | 1:QA:679:C:H6 | 1.83 | 0.42 |
| 1:QA:771:G:H2' | 1:QA:772:U:C6 | 2.54 | 0.42 |
| 1:QA:940:C:H2' | 1:QA:941:G:C8 | 2.54 | 0.42 |
| 2:QB:189:ASP:HB3 | 2:QB:203:GLY:O | 2.19 | 0.42 |
| 10:QJ:50:ILE:HG12 | 14:QN:41:ARG:NH1 | 2.34 | 0.42 |
| 10:QJ:78:ASN:HB2 | 10:QJ:81:THR:CG2 | 2.49 | 0.42 |
| 13:QM:57:ARG:O | 13:QM:61:GLU:HB2 | 2.19 | 0.42 |
| 1:QA:673:G:H1' | 18:QR:75:ILE:HD12 | 2.00 | 0.42 |
| 24:RA:1106:G:H2' | 24:RA:1107:G:C8 | 2.53 | 0.42 |
| 24:RA:2257:U:H2' | 24:RA:2258:C:C6 | 2.54 | 0.42 |
| 24:RA:249:C:OP2 | 24:RA:2394:C:O2' | 2.32 | 0.42 |
| 24:RA:242:G:O2' | 24:RA:254:G:O6 | 2.24 | 0.42 |
| 24:RA:478:A:C6 | 24:RA:480:A:C6 | 3.07 | 0.42 |
| 24:RA:598:G:H1' | 34:RP:12:ALA:HB2 | 2.01 | 0.42 |
| 24:RA:864:G:H21 | 24:RA:866:A:N6 | 2.16 | 0.42 |
| 24:RA:2314:C:H5' | 29:RG:38:VAL:HG11 | 2.00 | 0.42 |
| 24:RA:2312:U:H5' | 29:RG:88:ILE:HD11 | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 34:RP:82:GLY:HA3 | 34:RP:115:LEU:HD21 | 2.00 | 0.42 |
| 35:RQ:81:VAL:HG13 | 35:RQ:82:ARG:N | 2.34 | 0.42 |
| 44:RZ:5:LEU:HD12 | 44:RZ:59:LEU:HD23 | 2.01 | 0.42 |
| 1:XA:1074:G:O2' | 1:XA:1101:A:N1 | 2.49 | 0.42 |
| 1:XA:360:A:H2' | 1:XA:361:G:C8 | 2.54 | 0.42 |
| 1:XA:731:G:OP1 | 1:XA:766:A:H1' | 2.19 | 0.42 |
| 1:XA:859:A:H2' | 1:XA:860:A:O4' | 2.19 | 0.42 |
| 8:XH:6:ILE:H | 8:XH:6:ILE:HD12 | 1.83 | 0.42 |
| 12:XL:36:VAL:HG12 | 12:XL:82:VAL:HG22 | 2.00 | 0.42 |
| 19:XS:19:VAL:HG21 | 19:XS:44:MET:SD | 2.59 | 0.42 |
| 24:YA:1401:G:H2' | 24:YA:1402:C:C6 | 2.53 | 0.42 |
| 24:YA:184:C:H2' | 24:YA:185:U:H6 | 1.82 | 0.42 |
| 24:YA:2161:C:H2' | 24:YA:2162:G:H8 | 1.84 | 0.42 |
| 24:YA:2572:A:OP2 | 27:YE:144:ARG:HB3 | 2.19 | 0.42 |
| 24:YA:780:G:H21 | 24:YA:783:A:H62 | 1.67 | 0.42 |
| 25:YB:95:U:H2' | 25:YB:96:G:H8 | 1.81 | 0.42 |
| 24:YA:1006:C:H5' | 32:YN:28:THR:HG23 | 2.01 | 0.42 |
| 1:QA:52:G:H2' | 1:QA:53:A:H8 | 1.84 | 0.42 |
| 1:QA:57:G:H2' | 1:QA:58:C:H6 | 1.84 | 0.42 |
| 1:QA:687:A:C2 | 1:QA:704:A:C5 | 3.07 | 0.42 |
| 1:QA:6:G:O6 | 5:QE:95:ALA:N | 2.50 | 0.42 |
| 1:QA:1074:G:O4' | 2:QB:104:ASN:HB2 | 2.19 | 0.42 |
| 2:QB:109:SER:HA | 2:QB:112:VAL:HG22 | 2.02 | 0.42 |
| 2:QB:121:LEU:HD13 | 2:QB:121:LEU:O | 2.19 | 0.42 |
| 13:QM:91:ARG:HB2 | 13:QM:98:VAL:HG23 | 2.00 | 0.42 |
| 1:QA:581:G:OP1 | 15:QO:61:GLY:HA3 | 2.19 | 0.42 |
| 20:QT:85:MET:HA | 20:QT:88:VAL:HG22 | 2.01 | 0.42 |
| 52:R7:17:GLY:O | 52:R7:21:ARG:HG2 | 2.18 | 0.42 |
| 24:RA:1426:G:OP2 | 24:RA:1427:A:O2' | 2.29 | 0.42 |
| 24:RA:1313:U:C2 | 24:RA:1610:A:H2 | 2.37 | 0.42 |
| 24:RA:1651:G:H4' | 36:RR:39:PRO:HG2 | 2.01 | 0.42 |
| 24:RA:296:C:H2' | 24:RA:297:C:H6 | 1.84 | 0.42 |
| 24:RA:646:A:H2' | 24:RA:647:G:O4' | 2.19 | 0.42 |
| 28:RF:164:ARG:O | 28:RF:168:ARG:HG3 | 2.19 | 0.42 |
| 28:RF:47:GLY:HA3 | 28:RF:95:ARG:O | 2.19 | 0.42 |
| 29:RG:27:ASN:OD1 | 29:RG:28:VAL:N | 2.50 | 0.42 |
| 43:RY:8:LYS:HG3 | 43:RY:97:ARG:NH1 | 2.34 | 0.42 |
| 1:XA:1206:G:O4' | 3:XC:194:GLY:HA2 | 2.19 | 0.42 |
| 1:XA:1255:G:P | 10:XJ:45:ARG:HH22 | 2.42 | 0.42 |
| 3:XC:14:ILE:O | 3:XC:15:THR:OG1 | 2.30 | 0.42 |
| 10:XJ:29:ARG:NH2 | 10:XJ:84:GLN:OE1 | 2.52 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 17:XQ:12:SER:HB2 | 17:XQ:14:LYS:HG2 | 2.00 | 0.42 |
| 24:YA:1021:A:H3' | 24:YA:1021:A:C8 | 2.54 | 0.42 |
| 24:YA:1056:G:H1' | 24:YA:1086:A:H8 | 1.84 | 0.42 |
| 24:YA:1082:U:H5' | 24:YA:1083:U:O5' | 2.19 | 0.42 |
| 24:YA:1287:A:N7 | 36:YR:107:ASP:HB2 | 2.34 | 0.42 |
| 24:YA:2453:A:H2' | 24:YA:2454:G:C8 | 2.54 | 0.42 |
| 24:YA:2574:G:O2' | 27:YE:143:ASN:HB2 | 2.19 | 0.42 |
| 24:YA:2593:U:H2' | 24:YA:2594:C:C6 | 2.55 | 0.42 |
| 24:YA:265:A:H2' | 24:YA:266:G:C4' | 2.48 | 0.42 |
| 24:YA:372:G:O2' | 24:YA:373:U:P | 2.77 | 0.42 |
| 24:YA:389:G:H22 | 34:YP:72:PRO:CD | 2.32 | 0.42 |
| 24:YA:613:U:H5' | 24:YA:616:A:N6 | 2.34 | 0.42 |
| 24:YA:935:C:H2' | 24:YA:936:C:C6 | 2.54 | 0.42 |
| 26:YD:11:PRO:O | 26:YD:12:SER:OG | 2.33 | 0.42 |
| 24:YA:1130:U:C2 | 27:YE:147:PRO:HB3 | 2.54 | 0.42 |
| 30:YH:84:SER:HB2 | 30:YH:132:ARG:HD2 | 2.01 | 0.42 |
| 24:YA:558:G:P | 32:YN:111:PRO:HD2 | 2.59 | 0.42 |
| 42:YX:43:VAL:HG13 | 42:YX:51:VAL:HG21 | 2.01 | 0.42 |
| 1:QA:1387:G:H2' | 1:QA:1388:C:H6 | 1.84 | 0.42 |
| 1:QA:624:C:H2' | 1:QA:625:G:C8 | 2.54 | 0.42 |
| 2:QB:71:VAL:HA | 2:QB:93:VAL:HG12 | 2.01 | 0.42 |
| 1:QA:614:A:P | 4:QD:85:LYS:HZ1 | 2.42 | 0.42 |
| 9:QI:10:ARG:HD3 | 9:QI:75:ASP:HB3 | 2.01 | 0.42 |
| 12:QL:40:VAL:HG12 | 12:QL:56:ALA:HB2 | 2.01 | 0.42 |
| 13:QM:23:TYR:HD2 | 13:QM:67:GLU:HA | 1.84 | 0.42 |
| 19:QS:41:VAL:HA | 19:QS:44:MET:HB2 | 2.01 | 0.42 |
| 1:QA:926:G:H22 | 23:QX:16:A:P | 2.42 | 0.42 |
| 24:RA:48:G:H22 | 24:RA:177:G:H5' | 1.84 | 0.42 |
| 24:RA:2120:G:N1 | 24:RA:2121:G:O6 | 2.50 | 0.42 |
| 24:RA:2577:A:O4' | 50:R5:3:LYS:HD2 | 2.19 | 0.42 |
| 25:RB:28:C:H2' | 25:RB:29:A:O4' | 2.20 | 0.42 |
| 31:RI:44:LEU:O | 31:RI:48:GLU:HG3 | 2.19 | 0.42 |
| 33:RO:80:ASP:OD2 | 38:RT:64:ARG:NH2 | 2.52 | 0.42 |
| 34:RP:91:PHE:CZ | 34:RP:95:VAL:HG22 | 2.55 | 0.42 |
| 38:RT:46:GLU:O | 38:RT:65:LYS:HD3 | 2.20 | 0.42 |
| 44:RZ:5:LEU:HD13 | 44:RZ:39:VAL:HG21 | 2.01 | 0.42 |
| 1:XA:1152:A:H2' | 1:XA:1153:C:H6 | 1.84 | 0.42 |
| 11:XK:31:THR:HG22 | 11:XK:42:TRP:HB2 | 2.02 | 0.42 |
| 15:XO:27:VAL:O | 15:XO:31:LEU:HD23 | 2.19 | 0.42 |
| 20:XT:64:ASP:HA | 20:XT:67:ALA:HB3 | 2.01 | 0.42 |
| 24:YA:1084:A:H5'' | 24:YA:1085:A:OP2 | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:YA:1790:C:H5'' | 24:YA:1791:A:OP1 | 2.18 | 0.42 |
| 22:XV:13:C:O2' | 24:YA:1924:C:H4' | 2.18 | 0.42 |
| 24:YA:571:A:OP2 | 24:YA:2030:A:N6 | 2.52 | 0.42 |
| 24:YA:2173:A:N3 | 24:YA:2173:A:H2' | 2.33 | 0.42 |
| 24:YA:2290:G:C2 | 24:YA:2343:C:O2 | 2.71 | 0.42 |
| 24:YA:38:A:H2' | 24:YA:39:C:H6 | 1.85 | 0.42 |
| 25:YB:55:U:H2' | 25:YB:56:G:C8 | 2.54 | 0.42 |
| 24:YA:616:A:H4' | 28:YF:182:ASN:ND2 | 2.34 | 0.42 |
| 32:YN:51:PHE:CE1 | 32:YN:119:ARG:HG2 | 2.54 | 0.42 |
| 35:YQ:24:GLY:H | 35:YQ:101:ARG:HD2 | 1.85 | 0.42 |
| 36:YR:9:LYS:HA | 36:YR:17:ARG:HH12 | 1.84 | 0.42 |
| 1:QA:1024:G:OP1 | 1:QA:1024:G:H4' | 2.20 | 0.42 |
| 1:QA:1392:G:H21 | 1:QA:1502:A:H8 | 1.67 | 0.42 |
| 1:QA:718:G:N2 | 18:QR:49:LYS:HG2 | 2.34 | 0.42 |
| 1:QA:998(A):C:H2' | 1:QA:999:U:H6 | 1.84 | 0.42 |
| 1:QA:1104:G:H1' | 2:QB:111:ARG:HH22 | 1.83 | 0.42 |
| 7:QG:6:ARG:HG2 | 7:QG:6:ARG:O | 2.19 | 0.42 |
| 13:QM:76:ALA:O | 13:QM:80:ARG:HG2 | 2.19 | 0.42 |
| 1:QA:1308:U:H5'' | 13:QM:98:VAL:HG12 | 2.01 | 0.42 |
| 1:QA:265:G:H5' | 17:QQ:64:PRO:O | 2.19 | 0.42 |
| 24:RA:245:G:O6 | 53:R8:8:LYS:HE3 | 2.19 | 0.42 |
| 24:RA:1224:G:N2 | 24:RA:1227:A:OP2 | 2.48 | 0.42 |
| 24:RA:1436:G:H1' | 24:RA:1477:A:O2' | 2.19 | 0.42 |
| 24:RA:1469:A:H2' | 24:RA:1470:G:O4' | 2.19 | 0.42 |
| 24:RA:2340:G:O2' | 24:RA:2341:G:H5' | 2.19 | 0.42 |
| 24:RA:2805:G:H2' | 24:RA:2807:G:H8 | 1.83 | 0.42 |
| 24:RA:851:U:H2' | 24:RA:852:G:H8 | 1.84 | 0.42 |
| 25:RB:118:G:H2' | 25:RB:119:A:O4' | 2.19 | 0.42 |
| 28:RF:155:LEU:HB2 | 28:RF:189:THR:HG21 | 2.01 | 0.42 |
| 28:RF:28:ILE:HA | 28:RF:112:MET:SD | 2.58 | 0.42 |
| 35:RQ:40:ALA:CB | 35:RQ:127:ILE:HD11 | 2.50 | 0.42 |
| 38:RT:3:ARG:HA | 38:RT:3:ARG:HD2 | 1.78 | 0.42 |
| 41:RW:46:PHE:O | 41:RW:50:VAL:HG23 | 2.19 | 0.42 |
| 1:XA:875:C:O2' | 8:XH:14:ARG:NH1 | 2.41 | 0.42 |
| 1:XA:89:U:HO2' | 1:XA:90:C:P | 2.42 | 0.42 |
| 2:XB:21:ARG:O | 2:XB:21:ARG:HD3 | 2.18 | 0.42 |
| 14:YN:32:SER:OG | 14:YN:41:ARG:HG2 | 2.20 | 0.42 |
| 24:YA:242:G:C8 | 53:Y8:5:LYS:HG2 | 2.54 | 0.42 |
| 24:YA:1818:U:H2' | 26:YD:157:ARG:HG3 | 2.01 | 0.42 |
| 24:YA:273:G:H1 | 24:YA:364:C:H42 | 1.66 | 0.42 |
| 25:YB:66:A:N3 | 25:YB:108:C:N4 | 2.68 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:YE:184:VAL:HG12 | 27:YE:185:LYS:N | 2.34 | 0.42 |
| 28:YF:182:ASN:OD1 | 28:YF:185:ASP:HB2 | 2.19 | 0.42 |
| 30:YH:4:ILE:HG21 | 30:YH:6:ARG:NE | 2.35 | 0.42 |
| 37:YS:3:ARG:HG2 | 37:YS:4:LEU:HD23 | 2.01 | 0.42 |
| 1:QA:1145:C:H4' | 1:QA:1146:A:C8 | 2.54 | 0.42 |
| 1:QA:32:A:H2' | 1:QA:33:A:H8 | 1.83 | 0.42 |
| 2:QB:223:ILE:HG23 | 2:QB:229:VAL:HG22 | 2.02 | 0.42 |
| 10:QJ:39:PRO:HA | 10:QJ:70:ARG:HD3 | 1.99 | 0.42 |
| 20:QT:29:LYS:NZ | 20:QT:72:LEU:HB2 | 2.34 | 0.42 |
| 24:RA:1085:A:O2' | 24:RA:1086:A:P | 2.78 | 0.42 |
| 24:RA:1431:U:H2' | 24:RA:1432:C:H6 | 1.83 | 0.42 |
| 24:RA:49:A:N6 | 24:RA:177:G:C4 | 2.87 | 0.42 |
| 24:RA:1914:C:H3' | 24:RA:1915:U:H6 | 1.84 | 0.42 |
| 24:RA:710:G:H2' | 24:RA:711:G:C8 | 2.54 | 0.42 |
| 24:RA:900:A:C4 | 24:RA:901:A:C8 | 3.07 | 0.42 |
| 24:RA:935:C:H2' | 24:RA:936:C:H6 | 1.84 | 0.42 |
| 26:RD:244:ARG:HB2 | 26:RD:245:PRO:HD2 | 2.01 | 0.42 |
| 28:RF:129:PHE:C | 28:RF:131:GLY:H | 2.22 | 0.42 |
| 30:RH:144:VAL:O | 30:RH:148:ILE:HG12 | 2.20 | 0.42 |
| 1:XA:280:C:H3' | 1:XA:281:G:H5' | 2.01 | 0.42 |
| 1:XA:218:C:H4' | 1:XA:466:C:N4 | 2.35 | 0.42 |
| 1:XA:584:G:H2' | 1:XA:585:G:H8 | 1.84 | 0.42 |
| 1:XA:857:C:H2' | 1:XA:858:G:O4' | 2.19 | 0.42 |
| 2:XB:187:LEU:HD12 | 2:XB:201:ILE:O | 2.19 | 0.42 |
| 2:XB:93:VAL:HG11 | 2:XB:97:TRP:CE3 | 2.54 | 0.42 |
| 8:XH:6:ILE:HB | 8:XH:85:ARG:NH1 | 2.35 | 0.42 |
| 11:XK:48:ILE:HG12 | 11:XK:63:LEU:HB3 | 2.00 | 0.42 |
| 24:YA:1286:A:H1' | 24:YA:1288:U:OP2 | 2.18 | 0.42 |
| 24:YA:1656:C:H2' | 24:YA:1657:C:H6 | 1.85 | 0.42 |
| 24:YA:1799:G:H8 | 26:YD:181:GLU:OE1 | 2.01 | 0.42 |
| 24:YA:1812:A:H2' | 24:YA:1813:G:C8 | 2.53 | 0.42 |
| 24:YA:1826:G:H2' | 24:YA:1827:C:C6 | 2.55 | 0.42 |
| 24:YA:218:A:N1 | 24:YA:235:U:H4' | 2.34 | 0.42 |
| 24:YA:2533:A:H2' | 24:YA:2534:A:O4' | 2.19 | 0.42 |
| 24:YA:2696:U:H2' | 24:YA:2697:G:H8 | 1.85 | 0.42 |
| 24:YA:495:G:H21 | 41:YW:61:ASN:HD21 | 1.66 | 0.42 |
| 24:YA:540:G:H5' | 24:YA:541:C:OP2 | 2.19 | 0.42 |
| 25:YB:86:G:H2' | 25:YB:87:G:C8 | 2.54 | 0.42 |
| 26:YD:77:ALA:HB2 | 26:YD:97:TYR:HE1 | 1.85 | 0.42 |
| 29:YG:114:ILE:HD11 | 29:YG:117:PHE:CD1 | 2.54 | 0.42 |
| 32:YN:42:TRP:CZ2 | 32:YN:44:PRO:HB3 | 2.55 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 34:YP:52:GLU:HB2 | 34:YP:57:THR:HG22 | 2.01 | 0.42 |
| 42:YX:43:VAL:CG1 | 42:YX:51:VAL:HG21 | 2.49 | 0.42 |
| 1:QA:1469:G:H2' | 1:QA:1470:G:C8 | 2.54 | 0.42 |
| 1:QA:219:C:H2' | 1:QA:220:G:O4' | 2.20 | 0.42 |
| 1:QA:265:G:H2' | 1:QA:267:C:H5 | 1.85 | 0.42 |
| 1:QA:825:G:H2' | 1:QA:826:C:C6 | 2.54 | 0.42 |
| 7:QG:46:ALA:O | 7:QG:50:ILE:HG12 | 2.19 | 0.42 |
| 8:QH:6:ILE:HB | 8:QH:85:ARG:NH1 | 2.34 | 0.42 |
| 13:QM:15:VAL:HA | 13:QM:18:ALA:HB3 | 2.00 | 0.42 |
| 47:R2:26:ARG:HA | 47:R2:29:LYS:HG2 | 2.00 | 0.42 |
| 24:RA:1510:A:OP1 | 24:RA:1511:A:H5' | 2.20 | 0.42 |
| 24:RA:1565:C:H2' | 26:RD:21:PHE:HE2 | 1.83 | 0.42 |
| 24:RA:2436:G:C6 | 24:RA:2437:U:C4 | 3.07 | 0.42 |
| 24:RA:2809:A:OP2 | 24:RA:2891:G:N1 | 2.51 | 0.42 |
| 32:RN:136:GLU:O | 32:RN:137:LYS:HD2 | 2.19 | 0.42 |
| 27:RE:181:LEU:HD11 | 38:RT:7:ILE:HG23 | 2.01 | 0.42 |
| 40:RV:66:ARG:HG2 | 40:RV:88:ARG:HB3 | 2.01 | 0.42 |
| 10:XJ:54:PHE:CD2 | 10:XJ:55:LYS:HG2 | 2.54 | 0.42 |
| 10:XJ:78:ASN:HB2 | 10:XJ:81:THR:HG23 | 2.01 | 0.42 |
| 13:XM:37:THR:O | 13:XM:55:ARG:NH2 | 2.52 | 0.42 |
| 54:Y9:19:ARG:HB3 | 54:Y9:24:TYR:CE2 | 2.54 | 0.42 |
| 24:YA:700:G:O2' | 24:YA:1632:A:N3 | 2.39 | 0.42 |
| 24:YA:1844:C:H2' | 24:YA:1845:G:C8 | 2.53 | 0.42 |
| 24:YA:2048:G:C5 | 24:YA:2049:G:C8 | 3.08 | 0.42 |
| 24:YA:2071:A:H2' | 24:YA:2072:G:H8 | 1.84 | 0.42 |
| 24:YA:2175:C:N3 | 24:YA:2176:A:N6 | 2.68 | 0.42 |
| 24:YA:2308:G:N1 | 24:YA:2311:A:H2 | 2.18 | 0.42 |
| 24:YA:2410:G:C2 | 24:YA:2411:A:H1' | 2.55 | 0.42 |
| 24:YA:2259:G:H1' | 24:YA:2427:C:C2 | 2.54 | 0.42 |
| 24:YA:253:C:H2' | 24:YA:254:G:O4' | 2.19 | 0.42 |
| 24:YA:2292:C:OP1 | 37:YS:17:ARG:NH2 | 2.53 | 0.42 |
| 1:QA:1103:C:H5' | 2:QB:98:LEU:HD12 | 2.01 | 0.42 |
| 1:QA:1159:U:O2' | 1:QA:1160:G:N7 | 2.53 | 0.42 |
| 1:QA:130:A:OP2 | 17:QQ:63:ARG:NH2 | 2.52 | 0.42 |
| 1:QA:1333:A:H2' | 1:QA:1334:G:O4' | 2.20 | 0.42 |
| 4:QD:148:VAL:HG22 | 4:QD:149:ALA:H | 1.85 | 0.42 |
| 6:QF:8:ILE:HG22 | 6:QF:10:LEU:HD12 | 2.02 | 0.42 |
| 13:QM:82:MET:HG2 | 13:QM:89:GLY:O | 2.20 | 0.42 |
| 3:QC:29:TYR:OH | 14:QN:54:PRO:O | 2.38 | 0.42 |
| 15:QO:68:ARG:HA | 15:QO:71:GLN:HG2 | 2.02 | 0.42 |
| 49:R4:11:PRO:HA | 49:R4:25:TYR:CD1 | 2.54 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 49:R4:47:GLN:OE1 | 49:R4:49:PHE:HB2 | 2.19 | 0.42 |
| 24:RA:244:A:H4' | 34:RP:74:GLU:HB2 | 2.02 | 0.42 |
| 24:RA:2596:U:H2' | 24:RA:2597:G:O4' | 2.19 | 0.42 |
| 24:RA:2836:U:H2' | 24:RA:2837:G:C8 | 2.54 | 0.42 |
| 24:RA:631:A:H61 | 24:RA:2402:C:N4 | 2.18 | 0.42 |
| 27:RE:61:ARG:HB2 | 27:RE:62:PRO:HD3 | 2.01 | 0.42 |
| 28:RF:29:ASN:HD22 | 28:RF:32:LEU:HD23 | 1.84 | 0.42 |
| 30:RH:12:PRO:HD2 | 30:RH:48:GLY:O | 2.19 | 0.42 |
| 24:RA:1276:A:H1' | 36:RR:16:HIS:HE1 | 1.83 | 0.42 |
| 24:RA:1275:A:C4 | 36:RR:16:HIS:ND1 | 2.88 | 0.42 |
| 1:XA:1227:A:OP2 | 13:XM:111:LYS:NZ | 2.50 | 0.42 |
| 1:XA:1321:C:H5'' | 1:XA:1322:C:H5'' | 2.01 | 0.42 |
| 2:XB:121:LEU:HD13 | 2:XB:130:ARG:NH2 | 2.34 | 0.42 |
| 2:XB:96:ARG:HE | 2:XB:97:TRP:N | 2.17 | 0.42 |
| 3:XC:119:ARG:HG2 | 3:XC:140:ARG:HH22 | 1.84 | 0.42 |
| 3:XC:148:GLY:HA3 | 3:XC:172:ARG:O | 2.19 | 0.42 |
| 4:XD:60:GLU:HG3 | 4:XD:202:LEU:HD12 | 2.01 | 0.42 |
| 6:XF:46:ARG:HH21 | 6:XF:60:PHE:HD2 | 1.68 | 0.42 |
| 45:Y0:30:VAL:HG22 | 45:Y0:66:VAL:HG12 | 2.00 | 0.42 |
| 46:Y1:74:VAL:O | 46:Y1:74:VAL:HG12 | 2.19 | 0.42 |
| 24:YA:82:G:N2 | 24:YA:103:A:OP2 | 2.43 | 0.42 |
| 24:YA:2021:C:OP1 | 50:Y5:12:SER:OG | 2.33 | 0.42 |
| 24:YA:530:G:C5 | 24:YA:2022:U:H5'' | 2.54 | 0.42 |
| 24:YA:2526:G:O2' | 54:Y9:1:MET:N | 2.40 | 0.42 |
| 24:YA:2649:U:H2' | 24:YA:2650:U:C6 | 2.54 | 0.42 |
| 24:YA:2891:G:H5' | 24:YA:2892:A:OP1 | 2.20 | 0.42 |
| 24:YA:521:G:H2' | 24:YA:522:G:H8 | 1.84 | 0.42 |
| 24:YA:627:A:H4' | 24:YA:628:G:H5' | 2.02 | 0.42 |
| 24:YA:760:G:H2' | 24:YA:761:A:O4' | 2.19 | 0.42 |
| 29:YG:32:PRO:HB2 | 29:YG:172:LEU:HD22 | 2.02 | 0.42 |
| 38:YT:102:ILE:HG23 | 38:YT:110:ILE:HD12 | 2.02 | 0.42 |
| 38:YT:128:GLU:HG3 | 38:YT:132:LYS:NZ | 2.34 | 0.42 |
| 1:QA:1028(A):C:N3 | 1:QA:1033:G:N2 | 2.67 | 0.42 |
| 2:QB:157:ARG:HG3 | 2:QB:158:LEU:N | 2.31 | 0.42 |
| 2:QB:18:GLY:HA2 | 2:QB:42:ILE:HD12 | 2.02 | 0.42 |
| 4:QD:108:LEU:HD23 | 4:QD:170:VAL:HG21 | 2.01 | 0.42 |
| 4:QD:81:GLU:O | 4:QD:85:LYS:HG2 | 2.19 | 0.42 |
| 7:QG:50:ILE:HG23 | 7:QG:121:ALA:HB1 | 2.01 | 0.42 |
| 9:QI:128:ARG:NH2 | 22:QV:34:U:OP2 | 2.52 | 0.42 |
| 46:R1:81:LYS:HA | 46:R1:81:LYS:HD2 | 1.89 | 0.42 |
| 24:RA:1683:C:H2' | 24:RA:1684:C:C6 | 2.55 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 24:RA:1759:A:H1' | 24:RA:2711:A:C2 | 2.54 | 0.42 |
| 24:RA:1870:C:H2' | 24:RA:1871:A:C8 | 2.54 | 0.42 |
| 24:RA:2081:C:H2' | 24:RA:2082:A:H8 | 1.85 | 0.42 |
| 24:RA:2106:G:H2' | 24:RA:2107:C:O4' | 2.20 | 0.42 |
| 24:RA:2647:U:H2' | 24:RA:2648:C:H6 | 1.85 | 0.42 |
| 24:RA:38:A:H2' | 24:RA:39:C:H6 | 1.83 | 0.42 |
| 24:RA:705:A:C2 | 24:RA:727:A:H1' | 2.55 | 0.42 |
| 27:RE:63:LEU:HD12 | 27:RE:65:GLY:N | 2.34 | 0.42 |
| 30:RH:156:ALA:HA | 30:RH:172:LYS:NZ | 2.34 | 0.42 |
| 37:RS:34:HIS:HE1 | 37:RS:54:LEU:HD13 | 1.85 | 0.42 |
| 1:XA:1342:C:H2' | 1:XA:1343:G:C8 | 2.55 | 0.42 |
| 1:XA:1479:C:H2' | 1:XA:1480:G:H8 | 1.85 | 0.42 |
| 1:XA:161:A:H2' | 1:XA:162:A:C8 | 2.55 | 0.42 |
| 1:XA:186(D):C:H2' | 1:XA:186(E):C:H6 | 1.83 | 0.42 |
| 1:XA:222:U:H2' | 1:XA:223:U:H6 | 1.85 | 0.42 |
| 1:XA:484:G:H1' | 1:XA:485:G:OP2 | 2.20 | 0.42 |
| 6:XF:91:VAL:HG13 | 18:XR:72:ARG:NH2 | 2.35 | 0.42 |
| 24:YA:1006:C:C2 | 24:YA:1138:G:N2 | 2.88 | 0.42 |
| 24:YA:1666:G:O3' | 33:YO:6:THR:HG23 | 2.19 | 0.42 |
| 24:YA:1707:G:H2' | 24:YA:1708:C:C6 | 2.55 | 0.42 |
| 24:YA:1826:G:OP2 | 26:YD:222:ARG:HB2 | 2.20 | 0.42 |
| 24:YA:2153:G:H2' | 24:YA:2154:G:C8 | 2.54 | 0.42 |
| 24:YA:2409:G:H2' | 24:YA:2410:G:O4' | 2.20 | 0.42 |
| 24:YA:2884:U:H2' | 24:YA:2885:C:O4' | 2.19 | 0.42 |
| 24:YA:27:G:H1' | 24:YA:513:A:N6 | 2.34 | 0.42 |
| 24:YA:638:G:C5 | 24:YA:651:G:C2 | 3.08 | 0.42 |
| 25:YB:40:U:H3 | 25:YB:43:C:H5" | 1.85 | 0.42 |
| 26:YD:142:VAL:HA | 26:YD:194:GLY:H | 1.85 | 0.42 |
| 26:YD:37:LEU:HD23 | 26:YD:62:TYR:CD2 | 2.55 | 0.42 |
| 24:YA:1491:G:O4' | 26:YD:99:ASP:HB3 | 2.20 | 0.42 |
| 33:YO:18:LYS:HB2 | 33:YO:45:GLU:HG2 | 2.02 | 0.42 |
| 1:QA:1347:G:C8 | 9:QI:107:ARG:HG2 | 2.55 | 0.42 |
| 1:QA:687:A:C2 | 1:QA:704:A:C6 | 3.07 | 0.42 |
| 1:QA:960:U:O2 | 1:QA:960:U:H2' | 2.19 | 0.42 |
| 24:RA:1186:G:H2' | 24:RA:1187:G:O4' | 2.20 | 0.42 |
| 24:RA:1774:C:H2' | 24:RA:1774:C:O2 | 2.20 | 0.42 |
| 24:RA:2075:U:H4' | 24:RA:2596:U:O2 | 2.20 | 0.42 |
| 24:RA:2656:U:O4 | 24:RA:2665:A:H2 | 2.02 | 0.42 |
| 24:RA:2838:G:C4 | 24:RA:2839:G:C8 | 3.08 | 0.42 |
| 24:RA:280:C:C2 | 24:RA:361:G:N2 | 2.87 | 0.42 |
| 24:RA:605:C:H1' | 24:RA:657:U:O2' | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:626:U:H5'' | 24:RA:627:A:H5' | 2.02 | 0.42 |
| 24:RA:71:A:H4' | 24:RA:72:U:H5'' | 2.01 | 0.42 |
| 24:RA:84:A:N1 | 24:RA:98:G:O2' | 2.51 | 0.42 |
| 33:RO:8:LEU:HD13 | 33:RO:84:ALA:HB2 | 2.01 | 0.42 |
| 34:RP:61:ARG:HH11 | 53:R8:10:ALA:HA | 1.84 | 0.42 |
| 28:RF:34:TRP:CZ3 | 34:RP:8:PRO:HB3 | 2.55 | 0.42 |
| 35:RQ:138:ASP:HB2 | 44:RZ:122:ARG:NH2 | 2.32 | 0.42 |
| 25:RB:114:G:HO2' | 37:RS:50:SER:HG | 1.57 | 0.42 |
| 1:XA:1237:C:O2' | 1:XA:1300:G:N1 | 2.46 | 0.42 |
| 1:XA:1245:A:H2' | 1:XA:1246:C:C6 | 2.54 | 0.42 |
| 1:XA:19:C:H2' | 1:XA:20:U:H6 | 1.85 | 0.42 |
| 1:XA:695:A:OP1 | 11:XK:52:GLY:HA3 | 2.20 | 0.42 |
| 1:XA:946:A:C2 | 1:XA:947:G:C5 | 3.08 | 0.42 |
| 20:XT:22:ARG:HG3 | 20:XT:25:ARG:HD3 | 2.02 | 0.42 |
| 24:YA:1558:A:H1' | 24:YA:1559:G:OP2 | 2.19 | 0.42 |
| 24:YA:1607:C:H4' | 24:YA:1608:A:O5' | 2.20 | 0.42 |
| 24:YA:1690:A:H2' | 24:YA:1691:C:O4' | 2.20 | 0.42 |
| 24:YA:2090:G:C6 | 24:YA:2230:G:C6 | 3.08 | 0.42 |
| 24:YA:34:C:H41 | 24:YA:447:A:N6 | 2.17 | 0.42 |
| 24:YA:483:A:O4' | 43:YY:48:ALA:HB1 | 2.19 | 0.42 |
| 24:YA:817:C:O2' | 24:YA:839:U:H5'' | 2.20 | 0.42 |
| 26:YD:96:HIS:CD2 | 26:YD:102:LYS:HG2 | 2.55 | 0.42 |
| 27:YE:63:LEU:HD12 | 27:YE:65:GLY:N | 2.35 | 0.42 |
| 29:YG:113:ARG:HH12 | 29:YG:142:PRO:HA | 1.85 | 0.42 |
| 30:YH:107:VAL:HG11 | 30:YH:162:ILE:HD11 | 2.01 | 0.42 |
| 31:YI:77:LEU:HD12 | 31:YI:104:GLN:HG2 | 2.01 | 0.42 |
| 39:YU:17:ILE:HG13 | 39:YU:32:PHE:HE1 | 1.83 | 0.42 |
| 43:YY:14:LEU:HB3 | 43:YY:73:ARG:HG2 | 2.02 | 0.42 |
| 44:YZ:79:ARG:HG3 | 44:YZ:80:ARG:HD3 | 2.02 | 0.42 |
| 1:QA:1330:U:H4' | 13:QM:23:TYR:CE1 | 2.55 | 0.42 |
| 1:QA:26:A:H61 | 1:QA:558:G:H1' | 1.85 | 0.42 |
| 1:QA:272:C:C2 | 1:QA:273:A:C8 | 3.07 | 0.42 |
| 1:QA:859:A:H2' | 1:QA:860:A:O4' | 2.20 | 0.42 |
| 1:QA:922:G:N3 | 1:QA:1398:A:H2 | 2.17 | 0.42 |
| 3:QC:110:ASN:ND2 | 3:QC:144:SER:OG | 2.39 | 0.42 |
| 11:QK:20:TYR:HB2 | 11:QK:31:THR:OG1 | 2.20 | 0.42 |
| 12:QL:24:VAL:HG13 | 12:QL:98:TYR:HE1 | 1.84 | 0.42 |
| 12:QL:27:LEU:HD23 | 12:QL:33:ARG:HH22 | 1.85 | 0.42 |
| 12:QL:70:ILE:HD13 | 12:QL:77:LEU:HD12 | 2.02 | 0.42 |
| 12:QL:66:VAL:HG21 | 12:QL:98:TYR:HE2 | 1.84 | 0.42 |
| 49:R4:47:GLN:NE2 | 49:R4:49:PHE:HB2 | 2.35 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:RA:1022:G:N7 | 24:RA:1140:C:N4 | 2.68 | 0.42 |
| 24:RA:1165:U:H2' | 24:RA:1166:C:H6 | 1.85 | 0.42 |
| 24:RA:1336:A:H2' | 24:RA:1337:G:C8 | 2.55 | 0.42 |
| 24:RA:1408:C:H2' | 24:RA:1409:C:C6 | 2.55 | 0.42 |
| 24:RA:688:U:H5' | 24:RA:1780:A:C2 | 2.54 | 0.42 |
| 24:RA:2812:G:H2' | 24:RA:2813:A:H8 | 1.85 | 0.42 |
| 24:RA:414:C:H2' | 24:RA:415:A:C8 | 2.54 | 0.42 |
| 25:RB:15:A:H3' | 25:RB:16:G:H5' | 2.02 | 0.42 |
| 29:RG:36:LYS:HE2 | 29:RG:95:ARG:NH2 | 2.32 | 0.42 |
| 32:RN:34:LEU:O | 32:RN:49:GLY:HA3 | 2.19 | 0.42 |
| 35:RQ:58:PHE:CD2 | 35:RQ:61:GLY:HA3 | 2.53 | 0.42 |
| 1:XA:1058:G:H2' | 1:XA:1059:C:C6 | 2.55 | 0.42 |
| 1:XA:110:C:H2' | 1:XA:111:G:O4' | 2.20 | 0.42 |
| 1:XA:1223:C:P | 19:XS:78:ARG:HH21 | 2.42 | 0.42 |
| 1:XA:224:C:H2' | 1:XA:225:C:H6 | 1.84 | 0.42 |
| 2:XB:80:ILE:HD11 | 2:XB:208:ILE:HG23 | 2.02 | 0.42 |
| 7:XG:65:ALA:HB1 | 7:XG:127:ALA:HB3 | 2.02 | 0.42 |
| 8:XH:12:ARG:NH1 | 8:XH:27:PRO:HD3 | 2.35 | 0.42 |
| 18:XR:19:LYS:O | 18:XR:55:ARG:NH1 | 2.53 | 0.42 |
| 47:Y2:27:GLU:O | 47:Y2:30:ARG:HG2 | 2.20 | 0.42 |
| 24:YA:1103:A:H3' | 24:YA:1104:C:C6 | 2.55 | 0.42 |
| 24:YA:1269:A:H2' | 24:YA:1270:C:C6 | 2.55 | 0.42 |
| 24:YA:2078:C:H2' | 24:YA:2079:U:C6 | 2.54 | 0.42 |
| 24:YA:2122:U:H2' | 24:YA:2123:G:H8 | 1.84 | 0.42 |
| 24:YA:2291:U:H2' | 24:YA:2292:C:H6 | 1.80 | 0.42 |
| 24:YA:2460:U:C4 | 24:YA:2461:C:C5 | 3.08 | 0.42 |
| 24:YA:957:A:N6 | 24:YA:2459:A:C8 | 2.88 | 0.42 |
| 26:YD:34:VAL:N | 26:YD:36:PRO:HD3 | 2.35 | 0.42 |
| 28:YF:36:VAL:HG22 | 28:YF:101:LEU:HD21 | 2.02 | 0.42 |
| 31:YI:69:LYS:NZ | 31:YI:73:GLU:OE1 | 2.51 | 0.42 |
| 44:YZ:151:HIS:CB | 44:YZ:170:THR:HA | 2.49 | 0.42 |
| 1:QA:1095:U:OP1 | 1:QA:1108:G:N2 | 2.40 | 0.41 |
| 1:QA:978:A:O2' | 1:QA:1322:C:N3 | 2.44 | 0.41 |
| 1:QA:1329:A:H5'' | 13:QM:26:GLY:N | 2.33 | 0.41 |
| 1:QA:1415:G:C6 | 1:QA:1486:G:C6 | 3.08 | 0.41 |
| 1:QA:1493:A:H4' | 23:QX:19:U:H1' | 2.02 | 0.41 |
| 1:QA:309:G:H2' | 1:QA:310:G:H8 | 1.85 | 0.41 |
| 3:QC:28:GLN:O | 3:QC:32:LEU:HG | 2.20 | 0.41 |
| 3:QC:75:VAL:O | 3:QC:83:ARG:HD2 | 2.20 | 0.41 |
| 4:QD:200:GLU:O | 4:QD:204:ILE:HG12 | 2.20 | 0.41 |
| 8:QH:11:THR:HG22 | 8:QH:14:ARG:NH1 | 2.33 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:QI:73:GLN:O | 9:QI:77:ILE:HG13 | 2.19 | 0.41 |
| 15:QO:17:ARG:HH12 | 15:QO:26:GLU:H | 1.68 | 0.41 |
| 46:R1:17:SER:HB3 | 46:R1:40:ARG:HD2 | 2.01 | 0.41 |
| 24:RA:1163:G:C2 | 24:RA:1164:G:C8 | 3.08 | 0.41 |
| 24:RA:1246:A:OP1 | 28:RF:38:ARG:NH2 | 2.50 | 0.41 |
| 24:RA:2320:A:N3 | 24:RA:2320:A:H2' | 2.35 | 0.41 |
| 24:RA:550:G:H2' | 24:RA:551:G:H8 | 1.84 | 0.41 |
| 24:RA:828:U:H4' | 24:RA:831:G:N1 | 2.35 | 0.41 |
| 24:RA:863:A:H2' | 24:RA:864:G:C8 | 2.55 | 0.41 |
| 29:RG:23:PHE:HD2 | 29:RG:25:TYR:HH | 1.68 | 0.41 |
| 37:RS:62:LYS:O | 37:RS:65:VAL:HB | 2.20 | 0.41 |
| 39:RU:92:ARG:HA | 39:RU:92:ARG:HD3 | 1.90 | 0.41 |
| 1:XA:923:A:O2' | 1:XA:1399:C:OP2 | 2.24 | 0.41 |
| 1:XA:148:G:H2' | 1:XA:149:A:C8 | 2.55 | 0.41 |
| 1:XA:604:G:C6 | 1:XA:635:G:C6 | 3.08 | 0.41 |
| 1:XA:69:G:H2' | 1:XA:73:G:H8 | 1.84 | 0.41 |
| 1:XA:955:U:H1' | 1:XA:1227:A:N6 | 2.35 | 0.41 |
| 3:XC:150:LYS:HD2 | 3:XC:167:TRP:NE1 | 2.30 | 0.41 |
| 22:XV:15:G:N1 | 22:XV:49:C:H5 | 2.14 | 0.41 |
| 24:YA:1103:A:H5' | 24:YA:1104:C:H5 | 1.85 | 0.41 |
| 24:YA:1550:C:H5' | 24:YA:1733:G:N2 | 2.35 | 0.41 |
| 24:YA:1674:G:H1' | 24:YA:1676:A:H62 | 1.84 | 0.41 |
| 24:YA:2315:G:H2' | 24:YA:2316:C:C6 | 2.55 | 0.41 |
| 24:YA:834:C:H1' | 24:YA:2358:G:N3 | 2.35 | 0.41 |
| 24:YA:2513:G:H2' | 24:YA:2514:U:C6 | 2.55 | 0.41 |
| 24:YA:2712:U:O2' | 24:YA:2712(A):A:P | 2.78 | 0.41 |
| 24:YA:277:C:H3' | 24:YA:278:A:C5' | 2.51 | 0.41 |
| 25:YB:24:G:N7 | 25:YB:56:G:H2' | 2.35 | 0.41 |
| 1:QA:1152:A:H2' | 1:QA:1153:C:H6 | 1.85 | 0.41 |
| 1:QA:321:A:H2' | 1:QA:322:C:C6 | 2.55 | 0.41 |
| 1:QA:452:A:O2' | 1:QA:453:A:O5' | 2.37 | 0.41 |
| 1:QA:538:G:H2' | 1:QA:539:A:H8 | 1.84 | 0.41 |
| 1:QA:676:A:H2' | 1:QA:677:U:H6 | 1.84 | 0.41 |
| 1:QA:745:C:H2' | 1:QA:746:A:H8 | 1.83 | 0.41 |
| 7:QG:20:ASP:OD1 | 7:QG:21:VAL:N | 2.53 | 0.41 |
| 8:QH:12:ARG:NH1 | 8:QH:26:VAL:HA | 2.35 | 0.41 |
| 9:QI:16:ARG:HD3 | 9:QI:18:PHE:CZ | 2.55 | 0.41 |
| 17:QQ:52:LYS:N | 17:QQ:55:ASP:OD2 | 2.51 | 0.41 |
| 24:RA:116:C:H2' | 24:RA:117:G:O4' | 2.20 | 0.41 |
| 24:RA:1220:A:H5' | 24:RA:1221:C:OP2 | 2.20 | 0.41 |
| 24:RA:142:G:H2' | 24:RA:143:C:C6 | 2.54 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:1496:A:H8 | 24:RA:1577:C:HO2' | 1.67 | 0.41 |
| 24:RA:2450:A:C2 | 24:RA:2451:A:C4 | 3.09 | 0.41 |
| 24:RA:2461:C:H2' | 24:RA:2462:U:H6 | 1.84 | 0.41 |
| 24:RA:2567:G:H2' | 24:RA:2568:C:C6 | 2.55 | 0.41 |
| 24:RA:2779:U:O2' | 24:RA:2781:A:C8 | 2.73 | 0.41 |
| 24:RA:52:A:H2' | 24:RA:53:A:C8 | 2.54 | 0.41 |
| 24:RA:656:G:H2' | 24:RA:657:U:O4' | 2.20 | 0.41 |
| 24:RA:845:G:H8 | 24:RA:845:G:OP2 | 2.04 | 0.41 |
| 25:RB:105:G:C2 | 25:RB:106:G:C8 | 3.08 | 0.41 |
| 28:RF:24:LEU:HD23 | 28:RF:115:ALA:HA | 2.02 | 0.41 |
| 30:RH:52:VAL:O | 30:RH:65:HIS:NE2 | 2.42 | 0.41 |
| 39:RU:28:ARG:HD3 | 39:RU:38:THR:OG1 | 2.19 | 0.41 |
| 42:RX:57:LEU:HG | 42:RX:78:LYS:HB2 | 2.01 | 0.41 |
| 1:XA:1005:A:H3' | 1:XA:1006:C:H6 | 1.83 | 0.41 |
| 1:XA:1446:A:HO2' | 1:XA:1447:G:P | 2.41 | 0.41 |
| 1:XA:113:G:O4' | 1:XA:354:G:H4' | 2.21 | 0.41 |
| 1:XA:41:G:H2' | 1:XA:42:G:C8 | 2.55 | 0.41 |
| 1:XA:580:U:H2' | 1:XA:581:G:O4' | 2.20 | 0.41 |
| 1:XA:954:G:H21 | 1:XA:1227:A:H62 | 1.67 | 0.41 |
| 2:XB:221:LEU:O | 2:XB:221:LEU:HD13 | 2.20 | 0.41 |
| 3:XC:179:ARG:O | 3:XC:206:GLU:HA | 2.20 | 0.41 |
| 8:XH:91:ARG:HB2 | 12:XL:7:ILE:HG21 | 2.01 | 0.41 |
| 46:Y1:53:VAL:HG12 | 46:Y1:74:VAL:HG13 | 2.02 | 0.41 |
| 24:YA:1028:A:H2' | 24:YA:1029:A:H8 | 1.81 | 0.41 |
| 24:YA:2331:G:H4' | 45:Y0:43:THR:H | 1.84 | 0.41 |
| 24:YA:2840:C:H2' | 24:YA:2841:C:C6 | 2.56 | 0.41 |
| 24:YA:286:C:H2' | 24:YA:287:C:C6 | 2.55 | 0.41 |
| 24:YA:363(B):G:H2' | 24:YA:363(C):G:H8 | 1.85 | 0.41 |
| 24:YA:856:C:H2' | 24:YA:857:C:C6 | 2.55 | 0.41 |
| 30:YH:144:VAL:O | 30:YH:148:ILE:HG12 | 2.20 | 0.41 |
| 30:YH:92:ILE:HG13 | 30:YH:93:GLY:H | 1.84 | 0.41 |
| 34:YP:90:ARG:HH22 | 34:YP:103:ALA:HB1 | 1.85 | 0.41 |
| 37:YS:42:ASP:O | 37:YS:43:GLU:HB3 | 2.20 | 0.41 |
| 33:YO:79:PHE:CD1 | 38:YT:72:VAL:HG22 | 2.55 | 0.41 |
| 1:QA:218:C:H5' | 1:QA:466:C:N4 | 2.32 | 0.41 |
| 1:QA:627:G:H2' | 1:QA:628:G:H8 | 1.85 | 0.41 |
| 9:QI:125:TYR:CE2 | 9:QI:127:LYS:HE2 | 2.40 | 0.41 |
| 10:QJ:49:VAL:O | 10:QJ:60:ARG:HB3 | 2.20 | 0.41 |
| 14:QN:37:PHE:CD1 | 14:QN:53:LEU:HD11 | 2.55 | 0.41 |
| 15:QO:15:PHE:HZ | 15:QO:84:LYS:HD2 | 1.85 | 0.41 |
| 1:QA:376:G:H5" | 16:QP:5:ARG:HB2 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:527:C:N4 | 24:RA:2779:U:OP2 | 2.44 | 0.41 |
| 36:RR:65:LEU:O | 36:RR:68:ARG:HG2 | 2.21 | 0.41 |
| 38:RT:51:ARG:H | 38:RT:62:THR:HG22 | 1.83 | 0.41 |
| 1:XA:1347:G:H1' | 1:XA:1348:U:H5 | 1.85 | 0.41 |
| 1:XA:152:A:H62 | 1:XA:169:C:H42 | 1.69 | 0.41 |
| 1:XA:403:C:H4' | 4:XD:122:ARG:NH1 | 2.35 | 0.41 |
| 1:XA:440:A:H3' | 1:XA:442:C:H6 | 1.85 | 0.41 |
| 1:XA:674:G:H2' | 1:XA:675:A:C8 | 2.50 | 0.41 |
| 1:XA:689:C:H3' | 1:XA:690:G:H21 | 1.85 | 0.41 |
| 1:XA:902:G:H2' | 1:XA:903:G:C8 | 2.51 | 0.41 |
| 10:XJ:55:LYS:HG3 | 10:XJ:55:LYS:O | 2.20 | 0.41 |
| 22:XV:26:C:H2' | 22:XV:27:G:O4' | 2.20 | 0.41 |
| 47:Y2:41:ILE:HD11 | 47:Y2:44:LEU:HD22 | 2.02 | 0.41 |
| 24:YA:1278:A:H2' | 24:YA:1279:G:H8 | 1.85 | 0.41 |
| 24:YA:2055:C:H5' | 24:YA:2056:G:O5' | 2.21 | 0.41 |
| 24:YA:2553:G:N1 | 24:YA:2554:U:O2 | 2.54 | 0.41 |
| 24:YA:389:G:H1 | 34:YP:71:VAL:H | 1.67 | 0.41 |
| 27:YE:12:THR:OG1 | 38:YT:8:LYS:HD2 | 2.20 | 0.41 |
| 24:YA:2572:A:P | 27:YE:144:ARG:HB3 | 2.59 | 0.41 |
| 29:YG:68:PRO:HB3 | 29:YG:92:VAL:HB | 2.01 | 0.41 |
| 44:YZ:102:LEU:HD11 | 44:YZ:124:ILE:HG13 | 2.01 | 0.41 |
| 1:QA:1158:C:O2 | 1:QA:1158:C:H2' | 2.20 | 0.41 |
| 3:QC:157:ILE:HD12 | 3:QC:164:ARG:HG3 | 2.03 | 0.41 |
| 9:QI:9:ARG:HG2 | 9:QI:14:VAL:HG22 | 2.02 | 0.41 |
| 9:QI:48:GLU:N | 9:QI:49:PRO:HD2 | 2.35 | 0.41 |
| 1:QA:1216:G:H5'' | 14:QN:5:ALA:HB2 | 2.02 | 0.41 |
| 6:QF:50:TYR:OH | 18:QR:74:ARG:O | 2.31 | 0.41 |
| 46:R1:86:SER:N | 46:R1:87:PRO:HD2 | 2.35 | 0.41 |
| 47:R2:50:ILE:HG22 | 47:R2:54:LYS:NZ | 2.36 | 0.41 |
| 24:RA:1627:G:C6 | 24:RA:1640:C:C5 | 3.08 | 0.41 |
| 24:RA:1791:A:H3' | 24:RA:1792:G:H8 | 1.86 | 0.41 |
| 24:RA:226:G:H2' | 24:RA:227:A:C8 | 2.55 | 0.41 |
| 24:RA:2321:G:N3 | 24:RA:2321:G:H2' | 2.34 | 0.41 |
| 24:RA:2656:U:C4 | 24:RA:2665:A:H2 | 2.39 | 0.41 |
| 30:RH:152:ARG:HE | 30:RH:153:LYS:HE3 | 1.84 | 0.41 |
| 24:RA:831:G:OP1 | 34:RP:36:LYS:HE2 | 2.21 | 0.41 |
| 44:RZ:30:ASN:HB3 | 44:RZ:90:VAL:HG22 | 2.03 | 0.41 |
| 1:XA:919:A:O2' | 1:XA:1080:A:N1 | 2.45 | 0.41 |
| 1:XA:186(E):C:H2' | 1:XA:186(F):C:C6 | 2.55 | 0.41 |
| 1:XA:737:A:OP1 | 6:XF:92:LYS:HG2 | 2.20 | 0.41 |
| 48:Y3:6:VAL:HB | 48:Y3:54:VAL:HG21 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:Y9:2:LYS:O | 54:Y9:34:GLN:HA | 2.20 | 0.41 |
| 24:YA:1024:G:C6 | 24:YA:1025:G:C6 | 3.09 | 0.41 |
| 24:YA:1153:C:H2' | 24:YA:1154:G:O4' | 2.20 | 0.41 |
| 24:YA:1543:A:H8 | 24:YA:1545:A:OP2 | 2.04 | 0.41 |
| 24:YA:1587:A:H2' | 24:YA:1588:C:C6 | 2.55 | 0.41 |
| 24:YA:1752:C:H2' | 24:YA:1753:G:C8 | 2.54 | 0.41 |
| 24:YA:2024:G:H2' | 24:YA:2025:C:H6 | 1.85 | 0.41 |
| 24:YA:2031:A:N6 | 24:YA:2498:C:O4' | 2.54 | 0.41 |
| 24:YA:2100:G:C6 | 24:YA:2190:G:C6 | 3.09 | 0.41 |
| 24:YA:2291:U:OP1 | 24:YA:2380:C:O2' | 2.37 | 0.41 |
| 24:YA:740:U:H2' | 24:YA:741:G:C8 | 2.54 | 0.41 |
| 28:YF:28:ILE:HG23 | 28:YF:112:MET:HB3 | 2.02 | 0.41 |
| 28:YF:188:ARG:HG2 | 34:YP:3:LEU:HD11 | 2.01 | 0.41 |
| 28:YF:34:TRP:CE3 | 34:YP:8:PRO:HB3 | 2.55 | 0.41 |
| 24:YA:1112:G:O2' | 30:YH:2:SER:HB2 | 2.21 | 0.41 |
| 1:QA:1250:A:H2 | 1:QA:1370:G:H1' | 1.84 | 0.41 |
| 2:QB:207:ALA:O | 2:QB:209:ARG:N | 2.53 | 0.41 |
| 5:QE:18:ARG:HG2 | 5:QE:25:ARG:NH1 | 2.34 | 0.41 |
| 6:QF:22:GLU:OE1 | 6:QF:84:ASN:HB2 | 2.21 | 0.41 |
| 20:QT:54:LYS:O | 20:QT:57:ARG:HG2 | 2.20 | 0.41 |
| 13:QM:80:ARG:HE | 49:R4:58:ARG:NH1 | 2.19 | 0.41 |
| 24:RA:2365:G:O6 | 53:R8:39:LYS:NZ | 2.54 | 0.41 |
| 24:RA:1000:A:N6 | 24:RA:1155:A:C8 | 2.89 | 0.41 |
| 24:RA:191:A:H2' | 24:RA:192:C:C6 | 2.55 | 0.41 |
| 24:RA:2015:A:N3 | 50:R5:6:VAL:HG12 | 2.36 | 0.41 |
| 24:RA:236:C:O2' | 24:RA:431:U:H4' | 2.20 | 0.41 |
| 24:RA:270(R):G:H2' | 24:RA:270(S):G:C8 | 2.56 | 0.41 |
| 26:RD:262:ARG:HA | 26:RD:262:ARG:HD3 | 1.86 | 0.41 |
| 28:RF:170:LEU:HB2 | 28:RF:173:VAL:HG12 | 2.02 | 0.41 |
| 35:RQ:110:THR:HG23 | 35:RQ:113:GLN:HG2 | 2.03 | 0.41 |
| 35:RQ:4:PRO:HD2 | 35:RQ:93:TYR:CD2 | 2.56 | 0.41 |
| 38:RT:26:ASP:HB2 | 38:RT:91:ARG:HA | 2.03 | 0.41 |
| 1:XA:1028(A):C:C2 | 1:XA:1028(B):C:H5 | 2.39 | 0.41 |
| 1:XA:1128:C:N3 | 1:XA:1144:G:N2 | 2.68 | 0.41 |
| 1:XA:434:U:H2' | 1:XA:435:C:C6 | 2.56 | 0.41 |
| 1:XA:659:U:H2' | 1:XA:660:G:C8 | 2.56 | 0.41 |
| 1:XA:998:G:H2' | 1:XA:998(A):C:H6 | 1.84 | 0.41 |
| 2:XB:6:THR:O | 2:XB:217:ARG:NH1 | 2.53 | 0.41 |
| 6:XF:77:ARG:O | 6:XF:81:ILE:HG13 | 2.20 | 0.41 |
| 7:XG:57:GLU:O | 7:XG:60:LYS:HG3 | 2.20 | 0.41 |
| 5:XE:152:ARG:HG2 | 8:XH:79:VAL:HG13 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 10:XJ:51:ARG:HA | 14:XN:45:ARG:NH1 | 2.36 | 0.41 |
| 53:Y8:40:GLU:O | 53:Y8:44:LYS:HD3 | 2.21 | 0.41 |
| 24:YA:1187:G:O5' | 24:YA:1187:G:H8 | 2.02 | 0.41 |
| 24:YA:1341:U:P | 24:YA:1397:U:H3 | 2.43 | 0.41 |
| 24:YA:1562:A:H2' | 24:YA:1563:G:H8 | 1.86 | 0.41 |
| 24:YA:1686:C:H2' | 24:YA:1687:G:O4' | 2.20 | 0.41 |
| 24:YA:2618:G:H21 | 27:YE:150:VAL:HG21 | 1.86 | 0.41 |
| 24:YA:375:C:H2' | 24:YA:376:C:C6 | 2.55 | 0.41 |
| 24:YA:1843:C:H5' | 26:YD:253:GLN:OE1 | 2.21 | 0.41 |
| 27:YE:12:THR:HG22 | 27:YE:13:ARG:N | 2.35 | 0.41 |
| 27:YE:176:ILE:O | 27:YE:176:ILE:HG13 | 2.19 | 0.41 |
| 44:YZ:129:SER:OG | 44:YZ:132:ASN:OD1 | 2.35 | 0.41 |
| 1:QA:186(E):C:C2 | 1:QA:191(C):G:N2 | 2.89 | 0.41 |
| 1:QA:246:A:C2 | 1:QA:282:A:C5 | 3.09 | 0.41 |
| 1:QA:370:C:H2' | 1:QA:371:G:C8 | 2.55 | 0.41 |
| 1:QA:743:U:H2' | 1:QA:744:C:C6 | 2.56 | 0.41 |
| 5:QE:9:LYS:HG2 | 5:QE:112:LEU:HD11 | 2.02 | 0.41 |
| 8:QH:5:PRO:HB2 | 8:QH:32:LYS:CE | 2.48 | 0.41 |
| 11:QK:65:ALA:HB1 | 11:QK:98:LEU:HD12 | 2.02 | 0.41 |
| 14:QN:3:ARG:O | 14:QN:7:ILE:HG23 | 2.21 | 0.41 |
| 19:QS:40:ILE:HG13 | 19:QS:41:VAL:N | 2.35 | 0.41 |
| 47:R2:16:LEU:HD21 | 47:R2:20:GLU:OE1 | 2.20 | 0.41 |
| 47:R2:28:LYS:HE2 | 47:R2:53:LEU:HD11 | 2.03 | 0.41 |
| 54:R9:14:CYS:HA | 54:R9:27:CYS:SG | 2.61 | 0.41 |
| 24:RA:1040:C:H2' | 24:RA:1041:C:C6 | 2.56 | 0.41 |
| 24:RA:997:G:C2 | 24:RA:1159:U:C2 | 3.09 | 0.41 |
| 24:RA:1289:C:H2' | 24:RA:1290:C:C6 | 2.55 | 0.41 |
| 24:RA:2013:A:H5' | 41:RW:96:ILE:HA | 2.02 | 0.41 |
| 24:RA:2122:U:H2' | 24:RA:2123:G:H8 | 1.85 | 0.41 |
| 24:RA:2626:C:H2' | 24:RA:2627:G:C8 | 2.53 | 0.41 |
| 24:RA:637:A:O5' | 34:RP:116:GLY:HA2 | 2.21 | 0.41 |
| 25:RB:114:G:H2' | 25:RB:115:G:O4' | 2.21 | 0.41 |
| 26:RD:66:ASP:OD2 | 26:RD:69:ARG:HG2 | 2.21 | 0.41 |
| 28:RF:162:LEU:HD23 | 28:RF:165:ARG:HH21 | 1.85 | 0.41 |
| 28:RF:178:PRO:HB3 | 28:RF:198:ALA:CB | 2.50 | 0.41 |
| 29:RG:32:PRO:HB2 | 29:RG:172:LEU:CD1 | 2.49 | 0.41 |
| 24:RA:2314:C:C5' | 29:RG:38:VAL:HG11 | 2.50 | 0.41 |
| 34:RP:37:GLY:O | 34:RP:41:ARG:HG2 | 2.21 | 0.41 |
| 39:RU:92:ARG:C | 39:RU:94:ASN:N | 2.72 | 0.41 |
| 1:XA:1126:U:H1' | 1:XA:1280:A:N7 | 2.35 | 0.41 |
| 1:XA:1127:G:N2 | 1:XA:1145:C:O2 | 2.52 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:XA:1404:C:H2' | 1:XA:1405:G:C8 | 2.55 | 0.41 |
| 1:XA:284:G:H2' | 1:XA:285:G:H8 | 1.85 | 0.41 |
| 1:XA:29:G:O2' | 1:XA:30:U:H5' | 2.20 | 0.41 |
| 2:XB:61:LEU:HD13 | 2:XB:68:ILE:HG21 | 2.02 | 0.41 |
| 3:XC:60:ALA:N | 3:XC:63:ASN:OD1 | 2.50 | 0.41 |
| 24:YA:1194:A:H2' | 24:YA:1195:G:O4' | 2.20 | 0.41 |
| 24:YA:1956:U:C4 | 24:YA:1957:C:C5 | 3.08 | 0.41 |
| 24:YA:2384:G:OP2 | 45:Y0:55:ARG:HD2 | 2.20 | 0.41 |
| 24:YA:2436:G:C6 | 24:YA:2437:U:C4 | 3.09 | 0.41 |
| 24:YA:2703:C:C2 | 24:YA:2704:C:C5 | 3.09 | 0.41 |
| 24:YA:27:G:H1' | 24:YA:513:A:H62 | 1.84 | 0.41 |
| 24:YA:988:A:OP2 | 48:Y3:11:SER:OG | 2.34 | 0.41 |
| 25:YB:9:G:C6 | 25:YB:112:G:C6 | 3.08 | 0.41 |
| 25:YB:9:G:OP1 | 37:YS:15:ARG:HD3 | 2.20 | 0.41 |
| 31:YI:14:ASP:C | 31:YI:16:GLY:N | 2.72 | 0.41 |
| 31:YI:71:ILE:HG23 | 31:YI:72:LEU:HG | 2.03 | 0.41 |
| 1:QA:338:A:H2' | 1:QA:339:C:H6 | 1.85 | 0.41 |
| 1:QA:353:A:H8 | 1:QA:353:A:H5' | 1.85 | 0.41 |
| 1:QA:355:C:C4 | 1:QA:356:A:N7 | 2.88 | 0.41 |
| 1:QA:768:A:H4' | 1:QA:1523:G:H21 | 1.85 | 0.41 |
| 1:QA:954:G:H21 | 1:QA:1227:A:N6 | 2.19 | 0.41 |
| 3:QC:154:SER:HB2 | 3:QC:165:THR:HG22 | 2.02 | 0.41 |
| 5:QE:100:VAL:O | 5:QE:107:ARG:NH2 | 2.48 | 0.41 |
| 14:QN:15:LYS:HE3 | 14:QN:19:ARG:HH12 | 1.85 | 0.41 |
| 19:QS:49:ILE:HD13 | 19:QS:62:ILE:HD11 | 2.02 | 0.41 |
| 22:QV:6:G:H2' | 22:QV:7:G:H5'' | 2.03 | 0.41 |
| 24:RA:1308:A:H2' | 24:RA:1309:G:O4' | 2.20 | 0.41 |
| 24:RA:1790:C:H2' | 24:RA:1791:A:C5 | 2.55 | 0.41 |
| 24:RA:2811:G:OP1 | 27:RE:61:ARG:HG2 | 2.20 | 0.41 |
| 24:RA:37:C:H2' | 24:RA:38:A:C8 | 2.55 | 0.41 |
| 24:RA:515:A:H1' | 24:RA:581:C:H1' | 2.03 | 0.41 |
| 24:RA:690:G:H2' | 24:RA:691:C:H6 | 1.84 | 0.41 |
| 27:RE:122:PHE:HZ | 27:RE:155:LYS:HB2 | 1.86 | 0.41 |
| 28:RF:73:ALA:HB3 | 28:RF:75:HIS:CE1 | 2.56 | 0.41 |
| 31:RI:92:VAL:HB | 31:RI:120:ILE:HG22 | 2.03 | 0.41 |
| 1:XA:116:A:H61 | 1:XA:313:A:H1' | 1.84 | 0.41 |
| 1:XA:376:G:H5'' | 16:XP:5:ARG:HD2 | 2.01 | 0.41 |
| 1:XA:384:G:H2' | 1:XA:385:C:C6 | 2.55 | 0.41 |
| 1:XA:768:A:H4' | 1:XA:1523:G:N2 | 2.35 | 0.41 |
| 1:XA:993:G:H2' | 1:XA:995:C:H41 | 1.86 | 0.41 |
| 2:XB:115:LEU:HA | 2:XB:118:LEU:HD12 | 2.01 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:XB:167:PRO:HG2 | 2:XB:192:SER:OG | 2.20 | 0.41 |
| 5:XE:15:ARG:HG3 | 5:XE:28:PHE:HE1 | 1.84 | 0.41 |
| 46:Y1:51:VAL:HG21 | 46:Y1:74:VAL:HG21 | 2.02 | 0.41 |
| 50:Y5:38:ALA:HB3 | 50:Y5:48:GLU:OE2 | 2.21 | 0.41 |
| 24:YA:1359:A:H2' | 24:YA:1360:A:H5' | 2.03 | 0.41 |
| 24:YA:1482:U:H5' | 24:YA:1483:G:OP2 | 2.20 | 0.41 |
| 24:YA:177:G:H3' | 24:YA:178:G:H8 | 1.85 | 0.41 |
| 24:YA:2332:U:H5' | 24:YA:2336:A:N6 | 2.35 | 0.41 |
| 24:YA:286:C:H2' | 24:YA:287:C:H6 | 1.86 | 0.41 |
| 24:YA:448:U:O4 | 24:YA:583:G:H1' | 2.20 | 0.41 |
| 24:YA:606:U:H4' | 24:YA:658:C:H4' | 2.03 | 0.41 |
| 36:YR:75:LEU:HD13 | 36:YR:75:LEU:O | 2.21 | 0.41 |
| 39:YU:104:GLN:CG | 40:YV:44:LYS:HD3 | 2.49 | 0.41 |
| 39:YU:92:ARG:HD2 | 40:YV:11:GLN:CG | 2.51 | 0.41 |
| 1:QA:113:G:H2' | 1:QA:114:U:H6 | 1.86 | 0.41 |
| 1:QA:1157:A:H4' | 1:QA:1158:C:H5 | 1.86 | 0.41 |
| 1:QA:1478:C:H2' | 1:QA:1479:C:H6 | 1.86 | 0.41 |
| 1:QA:362:G:N2 | 1:QA:365:U:OP2 | 2.54 | 0.41 |
| 1:QA:575:G:O2' | 1:QA:821:G:H5' | 2.21 | 0.41 |
| 1:QA:976:G:OP1 | 14:QN:32:SER:N | 2.53 | 0.41 |
| 3:QC:67:THR:HG22 | 3:QC:102:ASN:HB2 | 2.03 | 0.41 |
| 5:QE:20:GLN:HG3 | 5:QE:21:ALA:H | 1.84 | 0.41 |
| 8:QH:109:ILE:HG22 | 8:QH:137:VAL:HG13 | 2.03 | 0.41 |
| 45:R0:74:ARG:HG3 | 45:R0:75:LEU:HD12 | 2.03 | 0.41 |
| 24:RA:2347:C:HO2' | 51:R6:21:TYR:HH | 1.61 | 0.41 |
| 51:R6:9:LEU:HD11 | 51:R6:23:THR:HG22 | 2.03 | 0.41 |
| 24:RA:1018:C:H2' | 24:RA:1019:U:H6 | 1.86 | 0.41 |
| 24:RA:1164:G:H2' | 24:RA:1165:U:H6 | 1.84 | 0.41 |
| 24:RA:1171:G:N7 | 24:RA:1174:A:N6 | 2.69 | 0.41 |
| 24:RA:1503:U:H2' | 24:RA:1504:C:C6 | 2.55 | 0.41 |
| 24:RA:1869:G:H5' | 24:RA:1870:C:OP2 | 2.20 | 0.41 |
| 24:RA:207:A:H2' | 24:RA:208:C:O4' | 2.21 | 0.41 |
| 24:RA:68:G:H2' | 24:RA:69:C:H6 | 1.85 | 0.41 |
| 25:RB:11:C:OP2 | 25:RB:12:C:N4 | 2.40 | 0.41 |
| 29:RG:173:LEU:HD22 | 29:RG:178:PHE:CE2 | 2.55 | 0.41 |
| 30:RH:107:VAL:HB | 30:RH:109:PHE:CE2 | 2.55 | 0.41 |
| 33:RO:115:VAL:HG13 | 33:RO:121:VAL:HG21 | 2.02 | 0.41 |
| 1:XA:1350:A:H2' | 1:XA:1351:U:C6 | 2.56 | 0.41 |
| 1:XA:321:A:C2 | 1:XA:333:G:C2 | 3.09 | 0.41 |
| 1:XA:538:G:H2' | 1:XA:539:A:C8 | 2.56 | 0.41 |
| 1:XA:584:G:H2' | 1:XA:585:G:C8 | 2.56 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:XA:842:C:O2' | 1:XA:848:C:N4 | 2.53 | 0.41 |
| 1:XA:920:U:H2' | 1:XA:921:U:H6 | 1.82 | 0.41 |
| 7:XG:104:LEU:HD22 | 7:XG:123:GLU:OE1 | 2.20 | 0.41 |
| 1:XA:1329:A:H5'' | 13:XM:26:GLY:H | 1.86 | 0.41 |
| 20:XT:34:LYS:O | 20:XT:38:LYS:HG2 | 2.20 | 0.41 |
| 24:YA:591:C:H1' | 53:Y8:2:PRO:HA | 2.02 | 0.41 |
| 24:YA:139:G:H4' | 24:YA:140:A:H2 | 1.85 | 0.41 |
| 24:YA:1773:A:N7 | 24:YA:1829:A:H1' | 2.35 | 0.41 |
| 24:YA:2079:U:H4' | 24:YA:2433:A:C2 | 2.55 | 0.41 |
| 24:YA:2442:C:H2' | 24:YA:2443:C:C6 | 2.56 | 0.41 |
| 24:YA:1027:A:C2 | 24:YA:2488:A:H5' | 2.55 | 0.41 |
| 24:YA:1462:C:H4' | 24:YA:2703:C:O4' | 2.20 | 0.41 |
| 24:YA:860:U:H5 | 24:YA:917:A:C2 | 2.38 | 0.41 |
| 25:YB:111:U:H2' | 25:YB:112:G:C8 | 2.55 | 0.41 |
| 26:YD:31:LYS:NZ | 26:YD:34:VAL:HB | 2.35 | 0.41 |
| 24:YA:1655:A:H1' | 27:YE:113:PHE:CD2 | 2.56 | 0.41 |
| 28:YF:134:GLY:H | 28:YF:162:LEU:HD23 | 1.86 | 0.41 |
| 28:YF:185:ASP:HA | 28:YF:188:ARG:HD3 | 2.03 | 0.41 |
| 24:YA:443:A:C5 | 28:YF:45:ARG:HD3 | 2.56 | 0.41 |
| 33:YO:8:LEU:HB2 | 33:YO:19:ILE:HG13 | 2.03 | 0.41 |
| 39:YU:12:ARG:O | 39:YU:16:LYS:HD3 | 2.20 | 0.41 |
| 1:QA:1086:U:H3 | 1:QA:1099:G:H22 | 1.68 | 0.41 |
| 1:QA:953:G:C6 | 1:QA:1229:A:C6 | 3.09 | 0.41 |
| 1:QA:397:A:N7 | 1:QA:547:A:O2' | 2.52 | 0.41 |
| 1:QA:444:C:H2' | 1:QA:445:G:C8 | 2.55 | 0.41 |
| 1:QA:738:C:H2' | 1:QA:739:C:C6 | 2.56 | 0.41 |
| 1:QA:855:G:C6 | 1:QA:856:C:C4 | 3.08 | 0.41 |
| 4:QD:197:PRO:HD3 | 6:XF:16:GLN:NE2 | 2.36 | 0.41 |
| 7:QG:50:ILE:O | 7:QG:50:ILE:HG13 | 2.21 | 0.41 |
| 1:QA:1254:C:H5'' | 10:QJ:45:ARG:NH1 | 2.36 | 0.41 |
| 1:QA:690:G:N2 | 11:QK:55:LYS:HZ3 | 2.18 | 0.41 |
| 12:QL:69:TYR:HB3 | 12:QL:99:HIS:CD2 | 2.56 | 0.41 |
| 17:QQ:43:LEU:O | 17:QQ:69:LYS:HG3 | 2.20 | 0.41 |
| 22:QV:53:G:O2' | 22:QV:54:G:OP1 | 2.35 | 0.41 |
| 49:R4:61:ARG:HH11 | 49:R4:62:ARG:CA | 2.25 | 0.41 |
| 51:R6:25:LYS:NZ | 51:R6:34:LEU:HB2 | 2.35 | 0.41 |
| 24:RA:1266:G:N7 | 41:RW:15:ARG:NE | 2.66 | 0.41 |
| 24:RA:1995:U:H2' | 24:RA:1996:C:C5 | 2.56 | 0.41 |
| 24:RA:2355:C:H4' | 45:R0:24:LYS:HE3 | 2.03 | 0.41 |
| 24:RA:445:C:H2' | 24:RA:446:G:O4' | 2.20 | 0.41 |
| 24:RA:51:G:H8 | 24:RA:51:G:OP2 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:RA:569:U:H2' | 24:RA:570:G:C8 | 2.56 | 0.41 |
| 24:RA:637:A:H4' | 24:RA:638:G:O5' | 2.20 | 0.41 |
| 26:RD:245:PRO:HA | 26:RD:246:PRO:HD3 | 1.86 | 0.41 |
| 29:RG:111:LEU:HD22 | 29:RG:117:PHE:CE1 | 2.55 | 0.41 |
| 30:RH:26:VAL:HG13 | 30:RH:27:LYS:N | 2.35 | 0.41 |
| 30:RH:41:MET:HE3 | 30:RH:64:LEU:HB3 | 2.02 | 0.41 |
| 24:RA:2840:C:H5'' | 36:RR:53:HIS:ND1 | 2.35 | 0.41 |
| 44:RZ:23:LYS:HD2 | 44:RZ:38:TYR:CE2 | 2.56 | 0.41 |
| 1:XA:177:C:H2' | 1:XA:178:C:C6 | 2.56 | 0.41 |
| 1:XA:411:A:C4 | 1:XA:413:G:H1' | 2.55 | 0.41 |
| 1:XA:68:G:N2 | 1:XA:152:A:O2' | 2.54 | 0.41 |
| 1:XA:750:G:C2 | 1:XA:751:U:C5 | 3.08 | 0.41 |
| 1:XA:777:A:H2' | 1:XA:778:G:H8 | 1.85 | 0.41 |
| 1:XA:868:C:H2' | 1:XA:869:G:O4' | 2.20 | 0.41 |
| 1:XA:998:G:H2' | 1:XA:998(A):C:C6 | 2.56 | 0.41 |
| 8:XH:49:GLU:OE2 | 8:XH:62:TYR:OH | 2.31 | 0.41 |
| 1:XA:276:G:OP2 | 17:XQ:14:LYS:HE3 | 2.21 | 0.41 |
| 18:XR:68:LYS:O | 18:XR:72:ARG:HG3 | 2.21 | 0.41 |
| 24:YA:2331:G:O2' | 45:Y0:43:THR:HG22 | 2.20 | 0.41 |
| 24:YA:1517:G:H2' | 24:YA:1518:C:C6 | 2.56 | 0.41 |
| 24:YA:152:G:H2' | 24:YA:153:C:C6 | 2.56 | 0.41 |
| 24:YA:1547:C:O2' | 24:YA:1548:C:H5' | 2.20 | 0.41 |
| 24:YA:1651:G:H5' | 36:YR:39:PRO:HG2 | 2.02 | 0.41 |
| 24:YA:2330:G:H2' | 24:YA:2331:G:O4' | 2.20 | 0.41 |
| 24:YA:2356:C:H2' | 24:YA:2357:U:O4' | 2.21 | 0.41 |
| 24:YA:2369:A:H2' | 24:YA:2370:G:C8 | 2.56 | 0.41 |
| 24:YA:2459:A:C4 | 24:YA:2460:U:C6 | 3.09 | 0.41 |
| 24:YA:2696:U:H2' | 24:YA:2697:G:C8 | 2.56 | 0.41 |
| 24:YA:459:U:H4' | 52:Y7:40:TRP:CZ3 | 2.56 | 0.41 |
| 24:YA:896:A:O2' | 44:YZ:176:PRO:HG3 | 2.20 | 0.41 |
| 26:YD:28:GLU:HG2 | 26:YD:29:PRO:CD | 2.49 | 0.41 |
| 28:YF:155:LEU:HD13 | 28:YF:174:VAL:HG13 | 2.03 | 0.41 |
| 28:YF:39:TRP:CH2 | 28:YF:106:ARG:HD3 | 2.56 | 0.41 |
| 32:YN:52:VAL:HB | 32:YN:120:LEU:HD23 | 2.02 | 0.41 |
| 35:YQ:78:PRO:HD2 | 35:YQ:80:GLU:OE1 | 2.21 | 0.41 |
| 37:YS:31:SER:OG | 37:YS:34:HIS:O | 2.38 | 0.41 |
| 24:YA:2020:A:H4' | 39:YU:25:TRP:HZ3 | 1.86 | 0.41 |
| 43:YY:28:LYS:HB3 | 43:YY:38:ILE:HG22 | 2.03 | 0.41 |
| 43:YY:55:TYR:CE1 | 43:YY:61:ILE:HG21 | 2.56 | 0.41 |
| 44:YZ:124:ILE:HG21 | 44:YZ:163:LEU:HD11 | 2.02 | 0.41 |
| 1:QA:1368:G:O3' | 14:QN:61:TRP:HH2 | 2.04 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:QA:15:G:C4 | 1:QA:16:A:C8 | 3.09 | 0.41 |
| 1:QA:792:A:H2' | 1:QA:792:A:N3 | 2.36 | 0.41 |
| 7:QG:78:ARG:O | 7:QG:84:ASN:HA | 2.21 | 0.41 |
| 1:QA:537:G:H5'' | 12:QL:113:ARG:HH12 | 1.86 | 0.41 |
| 1:QA:102:G:P | 20:QT:14:LYS:HZ3 | 2.44 | 0.41 |
| 48:R3:16:PRO:HB2 | 48:R3:18:ASP:OD1 | 2.21 | 0.41 |
| 24:RA:1040:C:H2' | 24:RA:1041:C:H6 | 1.86 | 0.41 |
| 24:RA:1449:A:C4 | 24:RA:1529:A:C2 | 3.09 | 0.41 |
| 24:RA:1632:A:H2' | 24:RA:1633:G:C8 | 2.55 | 0.41 |
| 24:RA:1751:C:H2' | 24:RA:1752:C:C6 | 2.56 | 0.41 |
| 24:RA:2704:C:H2' | 24:RA:2705:A:O4' | 2.21 | 0.41 |
| 24:RA:303:U:H2' | 24:RA:304:G:C8 | 2.55 | 0.41 |
| 24:RA:404:C:H1' | 24:RA:405:U:OP2 | 2.20 | 0.41 |
| 24:RA:522:G:H2' | 24:RA:523:C:C6 | 2.56 | 0.41 |
| 24:RA:764:A:H5' | 26:RD:210:GLY:HA2 | 2.03 | 0.41 |
| 24:RA:1843:C:H5' | 26:RD:253:GLN:OE1 | 2.21 | 0.41 |
| 28:RF:128:ALA:O | 28:RF:130:ALA:N | 2.54 | 0.41 |
| 29:RG:98:ARG:O | 29:RG:101:ILE:HG22 | 2.21 | 0.41 |
| 1:XA:1009:G:C6 | 1:XA:1021:G:C6 | 3.08 | 0.41 |
| 1:XA:1034:G:H2' | 1:XA:1035:A:C8 | 2.55 | 0.41 |
| 1:XA:1251:A:H2' | 1:XA:1252:A:C8 | 2.56 | 0.41 |
| 1:XA:1427:U:H2' | 1:XA:1428:A:H8 | 1.85 | 0.41 |
| 1:XA:49:U:H3 | 1:XA:362:G:H1' | 1.86 | 0.41 |
| 1:XA:925:G:C2 | 1:XA:927:G:C8 | 3.09 | 0.41 |
| 10:XJ:84:GLN:HG3 | 10:XJ:85:LEU:HG | 2.02 | 0.41 |
| 17:XQ:18:THR:HG1 | 17:XQ:69:LYS:HZ1 | 1.61 | 0.41 |
| 24:YA:1709:U:H2' | 24:YA:1710:C:H6 | 1.84 | 0.41 |
| 24:YA:194:G:H2' | 24:YA:195:A:O4' | 2.21 | 0.41 |
| 24:YA:570:G:H2' | 24:YA:2030:A:C5 | 2.56 | 0.41 |
| 24:YA:2106:G:H2' | 24:YA:2107:C:C6 | 2.56 | 0.41 |
| 24:YA:2137:C:H2' | 24:YA:2138:C:C6 | 2.56 | 0.41 |
| 24:YA:2415:G:H4' | 34:YP:67:MET:H | 1.84 | 0.41 |
| 24:YA:301:G:C6 | 24:YA:317:G:C6 | 3.09 | 0.41 |
| 25:YB:47:C:H4' | 37:YS:93:LYS:NZ | 2.36 | 0.41 |
| 26:YD:116:GLN:OE1 | 26:YD:118:VAL:HG13 | 2.21 | 0.41 |
| 32:YN:17:ASP:O | 32:YN:56:ASN:HB2 | 2.21 | 0.41 |
| 38:YT:26:ASP:HB2 | 38:YT:90:GLN:O | 2.21 | 0.41 |
| 32:YN:3:THR:CG2 | 39:YU:61:TRP:HE1 | 2.34 | 0.41 |
| 1:QA:1027:C:HO2' | 1:QA:1028:C:H3' | 1.86 | 0.41 |
| 1:QA:1431:C:H2' | 1:QA:1432:G:O4' | 2.20 | 0.41 |
| 1:QA:1491:G:H5'' | 1:QA:1492:A:OP2 | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|-------------------|--------------------------|-------------------|
| 1:QA:848:C:H2' | 1:QA:849:C:H6 | 1.85 | 0.41 |
| 1:QA:1290:G:O3' | 7:QG:37:ASN:ND2 | 2.54 | 0.41 |
| 13:QM:108:ARG:HH12 | 13:QM:114:ARG:NH1 | 2.19 | 0.41 |
| 13:QM:12:ASN:O | 13:QM:13:LYS:HB2 | 2.21 | 0.41 |
| 13:QM:80:ARG:HD2 | 49:R4:58:ARG:HH22 | 1.85 | 0.41 |
| 3:QC:12:LEU:HB3 | 14:QN:57:ARG:HG3 | 2.02 | 0.41 |
| 29:RG:113:ARG:NH1 | 49:R4:34:GLU:OE1 | 2.46 | 0.41 |
| 51:R6:26:ASN:HD22 | 51:R6:27:LYS:H | 1.68 | 0.41 |
| 24:RA:1142(A):A:H4' | 32:RN:25:ARG:NH2 | 2.29 | 0.41 |
| 24:RA:2187:G:H2' | 24:RA:2188:C:C6 | 2.56 | 0.41 |
| 24:RA:2090:G:C6 | 24:RA:2230:G:C6 | 3.09 | 0.41 |
| 24:RA:2816:C:O2 | 24:RA:2883:A:O2' | 2.36 | 0.41 |
| 24:RA:432:A:H2' | 24:RA:433:C:C6 | 2.56 | 0.41 |
| 24:RA:635:C:H2' | 24:RA:636:G:O4' | 2.21 | 0.41 |
| 24:RA:666:G:H1' | 53:R8:4:MET:SD | 2.61 | 0.41 |
| 25:RB:33:G:O2' | 25:RB:34:U:H5' | 2.21 | 0.41 |
| 25:RB:49:C:H2' | 25:RB:50:G:H8 | 1.85 | 0.41 |
| 27:RE:6:GLY:HA2 | 27:RE:51:PHE:CZ | 2.56 | 0.41 |
| 28:RF:195:ASP:N | 28:RF:195:ASP:OD1 | 2.54 | 0.41 |
| 28:RF:110:LEU:HG | 28:RF:202:PHE:HE1 | 1.86 | 0.41 |
| 30:RH:16:SER:OG | 30:RH:27:LYS:HB2 | 2.21 | 0.41 |
| 31:RI:79:ILE:O | 31:RI:79:ILE:HD12 | 2.21 | 0.41 |
| 34:RP:29:LYS:HG3 | 34:RP:30:THR:HG23 | 2.03 | 0.41 |
| 34:RP:57:THR:HG23 | 34:RP:59:LEU:H | 1.85 | 0.41 |
| 1:XA:1298:C:H4' | 1:XA:1299:A:O4' | 2.21 | 0.41 |
| 1:XA:791:G:C6 | 1:XA:792:A:N1 | 2.89 | 0.41 |
| 4:XD:18:LYS:HA | 4:XD:18:LYS:HD3 | 1.92 | 0.41 |
| 7:XG:111:ARG:HB3 | 7:XG:113:GLU:OE1 | 2.21 | 0.41 |
| 1:XA:600:C:H4' | 8:XH:128:GLY:O | 2.21 | 0.41 |
| 10:XJ:44:VAL:HG22 | 10:XJ:66:ARG:HG2 | 2.03 | 0.41 |
| 13:XM:65:LYS:C | 13:XM:66:LEU:HD12 | 2.42 | 0.41 |
| 20:XT:39:LYS:HG3 | 20:XT:55:ILE:HG21 | 2.03 | 0.41 |
| 24:YA:1598:C:O3' | 42:YX:35:THR:OG1 | 2.35 | 0.41 |
| 24:YA:2100:G:H2' | 24:YA:2100:G:N3 | 2.36 | 0.41 |
| 24:YA:2164:C:H5'' | 24:YA:2165:G:OP2 | 2.20 | 0.41 |
| 24:YA:2266:A:H4' | 24:YA:2267:A:N3 | 2.36 | 0.41 |
| 24:YA:2459:A:C5 | 24:YA:2460:U:C5 | 3.09 | 0.41 |
| 24:YA:278:A:H2' | 24:YA:279:C:H6 | 1.80 | 0.41 |
| 24:YA:320:A:O2' | 28:YF:169:ASN:ND2 | 2.48 | 0.41 |
| 24:YA:455:C:N3 | 24:YA:473:G:H5' | 2.35 | 0.41 |
| 24:YA:795:C:H2' | 24:YA:796:C:C6 | 2.56 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:957:A:N1 | 24:YA:2458:G:H4' | 2.36 | 0.41 |
| 26:YD:35:LYS:HG3 | 26:YD:63:ARG:HD2 | 2.04 | 0.41 |
| 29:YG:15:VAL:HG21 | 29:YG:176:LEU:HD23 | 2.03 | 0.41 |
| 35:YQ:50:ALA:HB1 | 35:YQ:121:ALA:HB1 | 2.02 | 0.41 |
| 39:YU:31:SER:HB3 | 39:YU:34:LYS:HB2 | 2.03 | 0.41 |
| 1:QA:1213:A:C6 | 1:QA:1215:G:C4 | 3.09 | 0.40 |
| 1:QA:1301:U:H3' | 1:QA:1302:U:H5' | 2.02 | 0.40 |
| 1:QA:643:C:H2' | 1:QA:644:G:H8 | 1.86 | 0.40 |
| 19:QS:10:PHE:HA | 19:QS:38:SER:HB3 | 2.03 | 0.40 |
| 24:RA:108:U:H2' | 24:RA:109:G:H8 | 1.86 | 0.40 |
| 24:RA:1826:G:H2' | 24:RA:1827:C:C6 | 2.55 | 0.40 |
| 24:RA:270(I):G:H2' | 24:RA:270(J):G:C8 | 2.55 | 0.40 |
| 24:RA:1759:A:H4' | 24:RA:2715:C:O4' | 2.21 | 0.40 |
| 24:RA:2867:G:O2' | 24:RA:2868:A:C8 | 2.70 | 0.40 |
| 24:RA:299:A:N3 | 24:RA:319:C:O2' | 2.51 | 0.40 |
| 24:RA:512:G:H4' | 24:RA:513:A:O5' | 2.21 | 0.40 |
| 25:RB:24:G:H1' | 25:RB:26:A:H62 | 1.86 | 0.40 |
| 26:RD:72:LYS:NZ | 26:RD:99:ASP:OD2 | 2.54 | 0.40 |
| 29:RG:41:GLN:HB2 | 29:RG:60:LEU:HD22 | 2.03 | 0.40 |
| 35:RQ:16:ARG:NH2 | 35:RQ:18:LYS:HG2 | 2.35 | 0.40 |
| 38:RT:53:ARG:HD3 | 38:RT:53:ARG:O | 2.21 | 0.40 |
| 44:RZ:152:ALA:CB | 44:RZ:168:GLU:HA | 2.51 | 0.40 |
| 1:XA:1135:U:H4' | 1:XA:1136:U:H5 | 1.85 | 0.40 |
| 1:XA:1152:A:H2' | 1:XA:1153:C:C6 | 2.56 | 0.40 |
| 1:XA:1427:U:H2' | 1:XA:1428:A:C8 | 2.56 | 0.40 |
| 1:XA:36:C:O2' | 1:XA:501:C:OP1 | 2.33 | 0.40 |
| 6:XF:9:VAL:HG22 | 6:XF:60:PHE:CD1 | 2.56 | 0.40 |
| 8:XH:120:THR:HG22 | 8:XH:121:ASP:OD1 | 2.21 | 0.40 |
| 12:XL:89:ARG:HE | 12:XL:91:LYS:HA | 1.86 | 0.40 |
| 1:XA:624:C:O3' | 16:XP:10:GLY:HA2 | 2.20 | 0.40 |
| 18:XR:21:LYS:HD3 | 18:XR:57:GLY:HA3 | 2.03 | 0.40 |
| 20:XT:100:ILE:HG13 | 20:XT:102:GLY:N | 2.34 | 0.40 |
| 24:YA:1265:A:H8 | 24:YA:1265:A:OP1 | 2.03 | 0.40 |
| 24:YA:1790:C:H2' | 24:YA:1791:A:C8 | 2.56 | 0.40 |
| 24:YA:2022:U:O2' | 24:YA:2617:C:H5' | 2.21 | 0.40 |
| 24:YA:2163:C:H2' | 24:YA:2164:C:C6 | 2.56 | 0.40 |
| 24:YA:2259:G:C8 | 24:YA:2427:C:C4 | 3.08 | 0.40 |
| 24:YA:686:G:N2 | 24:YA:788:A:H61 | 2.18 | 0.40 |
| 24:YA:775:G:C4 | 24:YA:794:G:C8 | 3.09 | 0.40 |
| 24:YA:809:G:H2' | 24:YA:810:U:C6 | 2.56 | 0.40 |
| 28:YF:64:ILE:HG21 | 28:YF:78:ILE:HD11 | 2.02 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 30:YH:103:LEU:HB3 | 30:YH:115:VAL:CG2 | 2.51 | 0.40 |
| 35:YQ:34:LEU:HB2 | 35:YQ:118:LEU:HD22 | 2.03 | 0.40 |
| 36:YR:28:LEU:HD13 | 36:YR:34:ILE:HG12 | 2.03 | 0.40 |
| 24:YA:2705:A:H2 | 36:YR:64:ARG:HH22 | 1.68 | 0.40 |
| 38:YT:35:LYS:HZ2 | 38:YT:38:ASN:H | 1.68 | 0.40 |
| 42:YX:36:LYS:HB2 | 42:YX:54:VAL:HB | 2.04 | 0.40 |
| 44:YZ:23:LYS:HG2 | 44:YZ:40:ASP:HA | 2.02 | 0.40 |
| 1:QA:1352:C:OP1 | 21:QU:3:LYS:NZ | 2.36 | 0.40 |
| 1:QA:1360:A:H2' | 1:QA:1361:G:C8 | 2.56 | 0.40 |
| 1:QA:580:U:H5'' | 15:QO:58:MET:HG2 | 2.02 | 0.40 |
| 1:QA:604:G:C6 | 1:QA:635:G:C6 | 3.10 | 0.40 |
| 1:QA:659:U:OP1 | 15:QO:9:GLN:NE2 | 2.52 | 0.40 |
| 3:QC:108:ASN:HD21 | 3:QC:144:SER:HB3 | 1.86 | 0.40 |
| 4:QD:4:TYR:OH | 4:QD:7:PRO:O | 2.30 | 0.40 |
| 14:QN:15:LYS:HE3 | 14:QN:19:ARG:NH1 | 2.37 | 0.40 |
| 24:RA:1297:C:H2' | 24:RA:1298:C:H6 | 1.86 | 0.40 |
| 24:RA:1936:A:N7 | 24:RA:1945:G:C8 | 2.89 | 0.40 |
| 24:RA:2306:C:H2' | 24:RA:2307:G:N2 | 2.36 | 0.40 |
| 24:RA:2543:G:H21 | 24:RA:2646:C:H5'' | 1.85 | 0.40 |
| 24:RA:2803:C:H2' | 24:RA:2804:C:C6 | 2.57 | 0.40 |
| 24:RA:483:A:O4' | 43:RY:48:ALA:HB1 | 2.19 | 0.40 |
| 27:RE:73:GLU:CG | 27:RE:74:PRO:HD2 | 2.52 | 0.40 |
| 27:RE:82:ARG:O | 27:RE:83:ASP:HB2 | 2.21 | 0.40 |
| 31:RI:113:ARG:O | 31:RI:113:ARG:HD3 | 2.21 | 0.40 |
| 31:RI:81:VAL:HG11 | 31:RI:92:VAL:HG22 | 2.03 | 0.40 |
| 39:RU:90:VAL:HG13 | 40:RV:39:LEU:HD22 | 2.03 | 0.40 |
| 1:XA:546:G:H4' | 1:XA:548:G:H4' | 2.03 | 0.40 |
| 1:XA:909:A:H2' | 1:XA:910:C:O4' | 2.21 | 0.40 |
| 1:XA:964:A:O3' | 10:XJ:55:LYS:NZ | 2.54 | 0.40 |
| 1:XA:967:C:H5'' | 1:XA:968:A:OP2 | 2.21 | 0.40 |
| 1:XA:411:A:P | 4:XD:30:LYS:NZ | 2.94 | 0.40 |
| 6:XF:37:VAL:HA | 6:XF:65:VAL:HG12 | 2.04 | 0.40 |
| 10:XJ:54:PHE:HD2 | 10:XJ:55:LYS:HG2 | 1.87 | 0.40 |
| 1:XA:552:U:H5' | 12:XL:86:ARG:HH11 | 1.86 | 0.40 |
| 12:XL:92:ASP:O | 12:XL:94:PRO:HD3 | 2.21 | 0.40 |
| 13:XM:3:ARG:NH1 | 29:YG:113:ARG:HH21 | 2.19 | 0.40 |
| 1:XA:238:G:P | 17:XQ:25:ARG:HH22 | 2.45 | 0.40 |
| 17:XQ:60:ILE:CG2 | 17:XQ:72:ARG:HG2 | 2.50 | 0.40 |
| 22:XV:19:G:H21 | 22:XV:59:A:H5' | 1.85 | 0.40 |
| 49:Y4:53:GLU:HB2 | 49:Y4:56:VAL:CG2 | 2.50 | 0.40 |
| 24:YA:106:C:H2' | 24:YA:107:C:H6 | 1.86 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:YA:1173:G:H1' | 24:YA:1175:U:C5 | 2.56 | 0.40 |
| 24:YA:1293:C:H2' | 24:YA:1294:U:C6 | 2.56 | 0.40 |
| 24:YA:1817:G:N3 | 24:YA:1817:G:H2' | 2.35 | 0.40 |
| 24:YA:1878:G:H2' | 24:YA:1879:C:H6 | 1.85 | 0.40 |
| 24:YA:305:U:H2' | 24:YA:306:U:C6 | 2.57 | 0.40 |
| 24:YA:265:A:N6 | 24:YA:428:A:N7 | 2.69 | 0.40 |
| 26:YD:142:VAL:HG12 | 26:YD:193:VAL:HG23 | 2.03 | 0.40 |
| 27:YE:82:ARG:O | 27:YE:83:ASP:HB2 | 2.21 | 0.40 |
| 29:YG:109:VAL:HG11 | 29:YG:142:PRO:HG3 | 2.03 | 0.40 |
| 32:YN:34:LEU:HD11 | 32:YN:120:LEU:HG | 2.02 | 0.40 |
| 39:YU:80:ILE:HG22 | 39:YU:84:LYS:HE2 | 2.03 | 0.40 |
| 44:YZ:59:LEU:C | 44:YZ:61:LEU:H | 2.20 | 0.40 |
| 44:YZ:61:LEU:HD23 | 44:YZ:65:GLN:HB2 | 2.03 | 0.40 |
| 1:QA:1051:C:H2' | 1:QA:1052:U:C6 | 2.56 | 0.40 |
| 3:QC:11:ARG:C | 3:QC:13:GLY:H | 2.24 | 0.40 |
| 4:QD:21:LEU:HD11 | 4:QD:67:ILE:HA | 2.04 | 0.40 |
| 8:QH:6:ILE:HD11 | 8:QH:31:PHE:CD2 | 2.56 | 0.40 |
| 1:QA:1048:G:OP1 | 14:QN:3:ARG:HG2 | 2.21 | 0.40 |
| 1:QA:191(G):G:O2' | 20:QT:101:GLY:O | 2.35 | 0.40 |
| 45:R0:32:ARG:N | 45:R0:35:ASN:OD1 | 2.49 | 0.40 |
| 24:RA:1520:U:H2' | 24:RA:1521:G:O4' | 2.22 | 0.40 |
| 24:RA:191:A:H2' | 24:RA:192:C:H6 | 1.86 | 0.40 |
| 24:RA:1651:G:N2 | 24:RA:2007:C:C2 | 2.89 | 0.40 |
| 24:RA:2168:G:N2 | 24:RA:2170:A:N7 | 2.70 | 0.40 |
| 24:RA:957:A:N6 | 24:RA:2459:A:C8 | 2.90 | 0.40 |
| 24:RA:824:A:H2' | 24:RA:825:C:C6 | 2.56 | 0.40 |
| 24:RA:835:A:C4 | 24:RA:836:G:C8 | 3.10 | 0.40 |
| 24:RA:860:U:C5 | 24:RA:917:A:C2 | 3.09 | 0.40 |
| 25:RB:93:C:H2' | 25:RB:94:C:H6 | 1.87 | 0.40 |
| 26:RD:123:ALA:O | 26:RD:131:LEU:HD11 | 2.22 | 0.40 |
| 29:RG:38:VAL:HG13 | 29:RG:158:ALA:HB3 | 2.03 | 0.40 |
| 24:RA:2845:G:H5'' | 38:RT:54:ARG:O | 2.22 | 0.40 |
| 1:XA:178:C:C2 | 1:XA:179:A:C8 | 3.09 | 0.40 |
| 1:XA:390:C:O3' | 16:XP:28:ARG:NH2 | 2.54 | 0.40 |
| 1:XA:718:G:N2 | 18:XR:49:LYS:HB3 | 2.37 | 0.40 |
| 1:XA:728:A:H2' | 1:XA:729:A:C8 | 2.56 | 0.40 |
| 13:XM:45:VAL:HG23 | 13:XM:48:LEU:HD21 | 2.04 | 0.40 |
| 15:XO:40:SER:O | 15:XO:44:LYS:HG3 | 2.21 | 0.40 |
| 19:XS:80:TYR:O | 19:XS:81:ARG:HG2 | 2.21 | 0.40 |
| 46:Y1:53:VAL:C | 46:Y1:55:GLY:H | 2.25 | 0.40 |
| 29:YG:105:LYS:HE2 | 49:Y4:26:SER:HB3 | 2.03 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 24:YA:2373:G:H5' | 51:Y6:37:ARG:HH22 | 1.85 | 0.40 |
| 24:YA:1694:C:H4' | 24:YA:1695:G:O5' | 2.21 | 0.40 |
| 24:YA:171:G:H2' | 24:YA:172:C:C6 | 2.56 | 0.40 |
| 24:YA:1826:G:H2' | 24:YA:1827:C:H6 | 1.86 | 0.40 |
| 24:YA:1872:A:H5' | 24:YA:1878:G:OP2 | 2.21 | 0.40 |
| 24:YA:2102:U:H2' | 24:YA:2103:C:C6 | 2.57 | 0.40 |
| 24:YA:2317:C:H2' | 24:YA:2318:G:O4' | 2.22 | 0.40 |
| 24:YA:2289:G:N2 | 24:YA:2344:U:O2 | 2.54 | 0.40 |
| 24:YA:2418:A:H2' | 24:YA:2419:U:C6 | 2.56 | 0.40 |
| 24:YA:2516:G:C4 | 24:YA:2569:G:N2 | 2.90 | 0.40 |
| 24:YA:2567:G:H2' | 24:YA:2568:C:C6 | 2.56 | 0.40 |
| 24:YA:307:G:H21 | 24:YA:330:A:N6 | 2.19 | 0.40 |
| 24:YA:32:C:O2' | 24:YA:33:U:H5' | 2.21 | 0.40 |
| 24:YA:363(D):G:H2' | 24:YA:363(E):U:H6 | 1.85 | 0.40 |
| 24:YA:379:G:C6 | 24:YA:396:G:C6 | 3.10 | 0.40 |
| 24:YA:794:G:H2' | 24:YA:795:C:H6 | 1.84 | 0.40 |
| 24:YA:807:U:H2' | 24:YA:808:G:C8 | 2.55 | 0.40 |
| 27:YE:101:ARG:HA | 27:YE:170:LEU:O | 2.21 | 0.40 |
| 29:YG:107:LEU:HD21 | 29:YG:178:PHE:CE1 | 2.57 | 0.40 |
| 31:YI:40:THR:HG22 | 31:YI:42:SER:H | 1.86 | 0.40 |
| 33:YO:7:TYR:HE1 | 33:YO:44:LYS:HG3 | 1.86 | 0.40 |
| 24:YA:2467:C:H4' | 35:YQ:123:HIS:CD2 | 2.57 | 0.40 |
| 36:YR:49:ASP:OD1 | 36:YR:95:THR:HG23 | 2.21 | 0.40 |
| 24:YA:2295:C:OP2 | 37:YS:10:ARG:HD3 | 2.21 | 0.40 |
| 39:YU:97:ASP:OD1 | 39:YU:101:ARG:HG3 | 2.21 | 0.40 |
| 1:QA:1225:A:H4' | 19:QS:78:ARG:HE | 1.86 | 0.40 |
| 1:QA:1236:A:H4' | 1:QA:1304:G:H4' | 2.04 | 0.40 |
| 1:QA:1371:G:H2' | 1:QA:1372:U:C6 | 2.56 | 0.40 |
| 1:QA:148:G:H2' | 1:QA:149:A:C8 | 2.56 | 0.40 |
| 1:QA:49:U:C2 | 1:QA:361:G:N2 | 2.90 | 0.40 |
| 1:QA:504:C:C2 | 1:QA:542:G:N2 | 2.90 | 0.40 |
| 1:QA:689:C:OP1 | 11:QK:27:ASN:ND2 | 2.52 | 0.40 |
| 1:QA:828:A:H2' | 1:QA:829:G:O4' | 2.22 | 0.40 |
| 2:QB:131:PRO:O | 2:QB:135:GLN:HG3 | 2.22 | 0.40 |
| 9:QI:26:VAL:HG22 | 9:QI:61:ALA:HB3 | 2.03 | 0.40 |
| 12:QL:45:PRO:HG3 | 12:QL:53:ARG:HD3 | 2.03 | 0.40 |
| 12:QL:38:THR:OG1 | 12:QL:57:LYS:HG3 | 2.22 | 0.40 |
| 17:QQ:43:LEU:HD12 | 17:QQ:68:ARG:HG3 | 2.03 | 0.40 |
| 24:RA:1331:A:O2' | 24:RA:1332:G:H8 | 2.05 | 0.40 |
| 24:RA:1790:C:H2' | 24:RA:1791:A:C8 | 2.55 | 0.40 |
| 24:RA:2532:G:C6 | 24:RA:2533:A:C6 | 3.10 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:RA:754:C:H2' | 24:RA:755:C:C6 | 2.56 | 0.40 |
| 24:RA:968:G:H2' | 24:RA:969:U:C6 | 2.56 | 0.40 |
| 27:RE:2:LYS:HB2 | 27:RE:200:GLU:HG2 | 2.03 | 0.40 |
| 24:RA:2562:U:H4' | 33:RO:25:LEU:HD21 | 2.03 | 0.40 |
| 35:RQ:40:ALA:HB2 | 35:RQ:127:ILE:HD11 | 2.03 | 0.40 |
| 37:RS:10:ARG:HA | 37:RS:13:ARG:HE | 1.85 | 0.40 |
| 44:RZ:5:LEU:HB2 | 44:RZ:59:LEU:HA | 2.02 | 0.40 |
| 1:XA:1000:A:H2' | 1:XA:1001:G:C8 | 2.57 | 0.40 |
| 1:XA:1009:G:C2 | 1:XA:1010:G:C8 | 3.10 | 0.40 |
| 2:XB:11:LEU:HG | 2:XB:213:LEU:HD11 | 2.02 | 0.40 |
| 4:XD:68:TYR:CE2 | 4:XD:97:LEU:HB3 | 2.57 | 0.40 |
| 7:XG:35:LYS:HE3 | 7:XG:37:ASN:HB3 | 2.04 | 0.40 |
| 9:XI:71:SER:O | 9:XI:74:ILE:HG13 | 2.21 | 0.40 |
| 13:XM:96:LEU:HB3 | 13:XM:97:PRO:HD2 | 2.02 | 0.40 |
| 3:XC:26:LYS:HA | 14:XN:36:PHE:HE1 | 1.85 | 0.40 |
| 6:XF:97:PHE:N | 18:XR:30:ASP:OD1 | 2.54 | 0.40 |
| 24:YA:1074:G:H8 | 24:YA:1074:G:OP2 | 2.05 | 0.40 |
| 24:YA:1331:A:O2' | 24:YA:1332:G:H5' | 2.22 | 0.40 |
| 24:YA:1728:G:H3' | 24:YA:1729:A:C5' | 2.51 | 0.40 |
| 24:YA:2061:G:N3 | 24:YA:2063:C:C5 | 2.89 | 0.40 |
| 24:YA:2143:C:H2' | 24:YA:2144:U:O4' | 2.21 | 0.40 |
| 24:YA:219:G:H2' | 24:YA:220:G:O4' | 2.21 | 0.40 |
| 24:YA:2657:A:H1' | 24:YA:2665:A:N6 | 2.35 | 0.40 |
| 24:YA:273:G:H2' | 24:YA:273(A):G:H8 | 1.87 | 0.40 |
| 24:YA:37:C:H2' | 24:YA:38:A:C8 | 2.56 | 0.40 |
| 24:YA:602:G:O2' | 24:YA:655:A:N6 | 2.53 | 0.40 |
| 25:YB:69:G:C5 | 25:YB:70:C:C5 | 3.10 | 0.40 |
| 32:YN:68:GLU:HG2 | 32:YN:88:GLU:CD | 2.41 | 0.40 |
| 37:YS:18:ILE:HG12 | 37:YS:88:ASP:HA | 2.02 | 0.40 |
| 24:YA:994:C:H3' | 39:YU:54:LYS:HE3 | 2.04 | 0.40 |
| 1:QA:1349:A:OP2 | 9:QI:118:LYS:HE2 | 2.21 | 0.40 |
| 1:QA:192:U:H2' | 1:QA:193:C:C6 | 2.56 | 0.40 |
| 1:QA:198:G:C4 | 1:QA:199:G:C8 | 3.10 | 0.40 |
| 1:QA:628:G:H2' | 1:QA:629:G:C8 | 2.56 | 0.40 |
| 1:QA:658:G:H5'' | 15:QO:8:LYS:NZ | 2.36 | 0.40 |
| 1:QA:922:G:H2' | 1:QA:923:A:H8 | 1.84 | 0.40 |
| 1:QA:925:G:H1' | 1:QA:1502:A:C4 | 2.56 | 0.40 |
| 1:QA:946:A:H2' | 1:QA:947:G:H8 | 1.81 | 0.40 |
| 1:QA:973:G:H3' | 1:QA:974:A:C5' | 2.51 | 0.40 |
| 1:QA:984:C:H2' | 1:QA:985:C:C6 | 2.57 | 0.40 |
| 2:QB:145:LEU:O | 2:QB:149:LEU:HG | 2.22 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:QH:129:VAL:HG13 | 8:QH:130:GLY:N | 2.37 | 0.40 |
| 12:QL:109:GLY:HA3 | 12:QL:121:GLY:O | 2.21 | 0.40 |
| 13:QM:81:LEU:O | 13:QM:84:ILE:HG22 | 2.22 | 0.40 |
| 15:QO:17:ARG:NH1 | 15:QO:26:GLU:HG2 | 2.37 | 0.40 |
| 15:QO:48:LYS:HD3 | 15:QO:48:LYS:O | 2.22 | 0.40 |
| 24:RA:2450:A:C2 | 24:RA:2451:A:C5 | 3.10 | 0.40 |
| 24:RA:2459:A:C5 | 24:RA:2460:U:C5 | 3.10 | 0.40 |
| 24:RA:2666:C:O2 | 30:RH:152:ARG:NH1 | 2.54 | 0.40 |
| 24:RA:2884:U:H2' | 24:RA:2885:C:O4' | 2.22 | 0.40 |
| 24:RA:458:G:H8 | 52:R7:37:LYS:O | 2.05 | 0.40 |
| 24:RA:751:A:C6 | 24:RA:789:A:C5 | 3.09 | 0.40 |
| 25:RB:24:G:H5'' | 25:RB:25:A:OP1 | 2.21 | 0.40 |
| 27:RE:79:ARG:HG3 | 27:RE:197:ILE:HG21 | 2.02 | 0.40 |
| 29:RG:53:LEU:HD13 | 29:RG:87:PRO:HB2 | 2.04 | 0.40 |
| 33:RO:69:ILE:HD11 | 33:RO:77:ILE:HG22 | 2.03 | 0.40 |
| 1:XA:1029:G:O2' | 1:XA:1032(A):G:N1 | 2.40 | 0.40 |
| 1:XA:112:G:H4' | 1:XA:389:A:H4' | 2.03 | 0.40 |
| 1:XA:1466:C:H2' | 1:XA:1467:G:O4' | 2.21 | 0.40 |
| 1:XA:552:U:O2 | 12:XL:31:PRO:HB3 | 2.22 | 0.40 |
| 1:XA:918:A:H2' | 1:XA:919:A:C8 | 2.56 | 0.40 |
| 1:XA:923:A:H2' | 1:XA:924:C:C6 | 2.57 | 0.40 |
| 9:XI:10:ARG:HG2 | 9:XI:75:ASP:HB2 | 2.03 | 0.40 |
| 15:XO:57:LEU:HA | 15:XO:60:VAL:HG22 | 2.03 | 0.40 |
| 24:YA:2397:G:H5'' | 46:Y1:28:GLY:HA2 | 2.04 | 0.40 |
| 24:YA:1575:C:H2' | 24:YA:1576:U:O4' | 2.20 | 0.40 |
| 24:YA:2308:G:N2 | 24:YA:2311:A:H2 | 2.19 | 0.40 |
| 24:YA:2320:A:C8 | 24:YA:2333:A:N6 | 2.90 | 0.40 |
| 24:YA:2547:U:H2' | 24:YA:2548:G:H8 | 1.86 | 0.40 |
| 24:YA:297:C:H2' | 24:YA:298:G:O4' | 2.20 | 0.40 |
| 24:YA:373:U:H2' | 24:YA:374:A:H8 | 1.87 | 0.40 |
| 24:YA:863:A:H2' | 24:YA:864:G:C8 | 2.56 | 0.40 |
| 25:YB:39:A:N3 | 25:YB:44:G:C2 | 2.90 | 0.40 |
| 26:YD:31:LYS:HE2 | 26:YD:102:LYS:HB3 | 2.04 | 0.40 |
| 28:YF:196:LEU:HA | 28:YF:196:LEU:HD23 | 1.93 | 0.40 |
| 34:YP:82:GLY:HA2 | 34:YP:113:LYS:O | 2.22 | 0.40 |
| 24:YA:811:U:H3' | 34:YP:22:GLY:HA2 | 2.04 | 0.40 |
| 34:YP:98:GLU:HA | 34:YP:101:VAL:HG12 | 2.03 | 0.40 |

All (5) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------------|--------------------------|-------------------|
| 24:RA:2217:G:OP1 | 4:XD:159:ARG:NH2[4_555] | 2.08 | 0.12 |
| 31:RI:89:TYR:O | 1:XA:357:G:O2'[4_555] | 2.11 | 0.09 |
| 40:YV:49:THR:OG1 | 50:Y5:60:VAL:O[4_445] | 2.12 | 0.08 |
| 24:RA:310:A:OP2 | 47:Y2:71:ASN:ND2[3_555] | 2.14 | 0.06 |
| 31:RI:91:SER:OG | 1:XA:368:U:OP1[4_555] | 2.17 | 0.03 |

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 2 | QB | 233/256 (91%) | 197 (84%) | 35 (15%) | 1 (0%) | 34 | 72 |
| 2 | XB | 234/256 (91%) | 203 (87%) | 31 (13%) | 0 | 100 | 100 |
| 3 | QC | 203/239 (85%) | 186 (92%) | 16 (8%) | 1 (0%) | 29 | 68 |
| 3 | XC | 203/239 (85%) | 188 (93%) | 14 (7%) | 1 (0%) | 29 | 68 |
| 4 | QD | 206/209 (99%) | 189 (92%) | 16 (8%) | 1 (0%) | 29 | 68 |
| 4 | XD | 206/209 (99%) | 196 (95%) | 8 (4%) | 2 (1%) | 15 | 54 |
| 5 | QE | 149/162 (92%) | 139 (93%) | 10 (7%) | 0 | 100 | 100 |
| 5 | XE | 149/162 (92%) | 144 (97%) | 4 (3%) | 1 (1%) | 22 | 61 |
| 6 | QF | 99/101 (98%) | 96 (97%) | 3 (3%) | 0 | 100 | 100 |
| 6 | XF | 99/101 (98%) | 99 (100%) | 0 | 0 | 100 | 100 |
| 7 | QG | 153/156 (98%) | 143 (94%) | 10 (6%) | 0 | 100 | 100 |
| 7 | XG | 153/156 (98%) | 144 (94%) | 9 (6%) | 0 | 100 | 100 |
| 8 | QH | 135/138 (98%) | 128 (95%) | 7 (5%) | 0 | 100 | 100 |
| 8 | XH | 135/138 (98%) | 129 (96%) | 6 (4%) | 0 | 100 | 100 |
| 9 | QI | 125/128 (98%) | 110 (88%) | 15 (12%) | 0 | 100 | 100 |
| 9 | XI | 124/128 (97%) | 114 (92%) | 10 (8%) | 0 | 100 | 100 |
| 10 | QJ | 97/105 (92%) | 90 (93%) | 6 (6%) | 1 (1%) | 15 | 54 |
| 10 | XJ | 94/105 (90%) | 86 (92%) | 8 (8%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 11 | QK | 117/129 (91%) | 109 (93%) | 8 (7%) | 0 | 100 | 100 |
| 11 | XK | 114/129 (88%) | 108 (95%) | 6 (5%) | 0 | 100 | 100 |
| 12 | QL | 123/132 (93%) | 109 (89%) | 12 (10%) | 2 (2%) | 9 | 43 |
| 12 | XL | 120/132 (91%) | 104 (87%) | 14 (12%) | 2 (2%) | 9 | 42 |
| 13 | QM | 118/126 (94%) | 102 (86%) | 14 (12%) | 2 (2%) | 9 | 42 |
| 13 | XM | 117/126 (93%) | 104 (89%) | 12 (10%) | 1 (1%) | 17 | 56 |
| 14 | QN | 58/61 (95%) | 49 (84%) | 8 (14%) | 1 (2%) | 9 | 42 |
| 14 | XN | 58/61 (95%) | 50 (86%) | 7 (12%) | 1 (2%) | 9 | 42 |
| 15 | QO | 86/89 (97%) | 79 (92%) | 7 (8%) | 0 | 100 | 100 |
| 15 | XO | 85/89 (96%) | 81 (95%) | 4 (5%) | 0 | 100 | 100 |
| 16 | QP | 82/88 (93%) | 78 (95%) | 4 (5%) | 0 | 100 | 100 |
| 16 | XP | 82/88 (93%) | 78 (95%) | 4 (5%) | 0 | 100 | 100 |
| 17 | QQ | 98/105 (93%) | 94 (96%) | 4 (4%) | 0 | 100 | 100 |
| 17 | XQ | 98/105 (93%) | 93 (95%) | 5 (5%) | 0 | 100 | 100 |
| 18 | QR | 68/88 (77%) | 67 (98%) | 1 (2%) | 0 | 100 | 100 |
| 18 | XR | 68/88 (77%) | 65 (96%) | 3 (4%) | 0 | 100 | 100 |
| 19 | QS | 81/93 (87%) | 66 (82%) | 14 (17%) | 1 (1%) | 13 | 50 |
| 19 | XS | 82/93 (88%) | 69 (84%) | 13 (16%) | 0 | 100 | 100 |
| 20 | QT | 97/106 (92%) | 83 (86%) | 11 (11%) | 3 (3%) | 4 | 30 |
| 20 | XT | 97/106 (92%) | 86 (89%) | 9 (9%) | 2 (2%) | 7 | 38 |
| 21 | QU | 23/27 (85%) | 21 (91%) | 2 (9%) | 0 | 100 | 100 |
| 21 | XU | 23/27 (85%) | 21 (91%) | 2 (9%) | 0 | 100 | 100 |
| 26 | RD | 270/276 (98%) | 251 (93%) | 19 (7%) | 0 | 100 | 100 |
| 26 | YD | 270/276 (98%) | 244 (90%) | 25 (9%) | 1 (0%) | 34 | 72 |
| 27 | RE | 203/206 (98%) | 169 (83%) | 31 (15%) | 3 (2%) | 10 | 45 |
| 27 | YE | 203/206 (98%) | 173 (85%) | 29 (14%) | 1 (0%) | 29 | 68 |
| 28 | RF | 200/210 (95%) | 183 (92%) | 16 (8%) | 1 (0%) | 29 | 68 |
| 28 | YF | 200/210 (95%) | 185 (92%) | 15 (8%) | 0 | 100 | 100 |
| 29 | RG | 179/182 (98%) | 148 (83%) | 30 (17%) | 1 (1%) | 25 | 64 |
| 29 | YG | 179/182 (98%) | 157 (88%) | 22 (12%) | 0 | 100 | 100 |
| 30 | RH | 172/180 (96%) | 151 (88%) | 21 (12%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 30 | YH | 172/180 (96%) | 145 (84%) | 25 (14%) | 2 (1%) | 13 | 50 |
| 31 | RI | 144/148 (97%) | 113 (78%) | 28 (19%) | 3 (2%) | 7 | 38 |
| 31 | YI | 144/148 (97%) | 123 (85%) | 18 (12%) | 3 (2%) | 7 | 38 |
| 32 | RN | 136/140 (97%) | 121 (89%) | 15 (11%) | 0 | 100 | 100 |
| 32 | YN | 136/140 (97%) | 119 (88%) | 17 (12%) | 0 | 100 | 100 |
| 33 | RO | 120/122 (98%) | 114 (95%) | 6 (5%) | 0 | 100 | 100 |
| 33 | YO | 120/122 (98%) | 114 (95%) | 6 (5%) | 0 | 100 | 100 |
| 34 | RP | 148/150 (99%) | 123 (83%) | 25 (17%) | 0 | 100 | 100 |
| 34 | YP | 145/150 (97%) | 111 (77%) | 34 (23%) | 0 | 100 | 100 |
| 35 | RQ | 139/141 (99%) | 115 (83%) | 22 (16%) | 2 (1%) | 11 | 46 |
| 35 | YQ | 139/141 (99%) | 118 (85%) | 19 (14%) | 2 (1%) | 11 | 46 |
| 36 | RR | 115/118 (98%) | 108 (94%) | 6 (5%) | 1 (1%) | 17 | 56 |
| 36 | YR | 115/118 (98%) | 108 (94%) | 6 (5%) | 1 (1%) | 17 | 56 |
| 37 | RS | 109/112 (97%) | 91 (84%) | 18 (16%) | 0 | 100 | 100 |
| 37 | YS | 109/112 (97%) | 93 (85%) | 16 (15%) | 0 | 100 | 100 |
| 38 | RT | 135/146 (92%) | 120 (89%) | 15 (11%) | 0 | 100 | 100 |
| 38 | YT | 135/146 (92%) | 115 (85%) | 20 (15%) | 0 | 100 | 100 |
| 39 | RU | 115/118 (98%) | 107 (93%) | 4 (4%) | 4 (4%) | 3 | 27 |
| 39 | YU | 115/118 (98%) | 104 (90%) | 8 (7%) | 3 (3%) | 5 | 33 |
| 40 | RV | 99/101 (98%) | 84 (85%) | 15 (15%) | 0 | 100 | 100 |
| 40 | YV | 99/101 (98%) | 89 (90%) | 10 (10%) | 0 | 100 | 100 |
| 41 | RW | 111/113 (98%) | 101 (91%) | 10 (9%) | 0 | 100 | 100 |
| 41 | YW | 111/113 (98%) | 101 (91%) | 10 (9%) | 0 | 100 | 100 |
| 42 | RX | 90/96 (94%) | 85 (94%) | 5 (6%) | 0 | 100 | 100 |
| 42 | YX | 90/96 (94%) | 86 (96%) | 4 (4%) | 0 | 100 | 100 |
| 43 | RY | 105/110 (96%) | 99 (94%) | 6 (6%) | 0 | 100 | 100 |
| 43 | YY | 105/110 (96%) | 103 (98%) | 2 (2%) | 0 | 100 | 100 |
| 44 | RZ | 181/206 (88%) | 147 (81%) | 30 (17%) | 4 (2%) | 6 | 37 |
| 44 | YZ | 181/206 (88%) | 145 (80%) | 32 (18%) | 4 (2%) | 6 | 37 |
| 45 | R0 | 79/85 (93%) | 75 (95%) | 4 (5%) | 0 | 100 | 100 |
| 45 | Y0 | 80/85 (94%) | 76 (95%) | 4 (5%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-------------------|-------------|------------|----------|-------------|-----|
| 46 | R1 | 92/98 (94%) | 79 (86%) | 13 (14%) | 0 | 100 | 100 |
| 46 | Y1 | 91/98 (93%) | 81 (89%) | 10 (11%) | 0 | 100 | 100 |
| 47 | R2 | 67/72 (93%) | 60 (90%) | 6 (9%) | 1 (2%) | 10 | 45 |
| 47 | Y2 | 67/72 (93%) | 63 (94%) | 4 (6%) | 0 | 100 | 100 |
| 48 | R3 | 57/60 (95%) | 56 (98%) | 1 (2%) | 0 | 100 | 100 |
| 48 | Y3 | 57/60 (95%) | 55 (96%) | 2 (4%) | 0 | 100 | 100 |
| 49 | R4 | 67/71 (94%) | 51 (76%) | 11 (16%) | 5 (8%) | 1 | 11 |
| 49 | Y4 | 67/71 (94%) | 51 (76%) | 12 (18%) | 4 (6%) | 1 | 15 |
| 50 | R5 | 57/60 (95%) | 52 (91%) | 5 (9%) | 0 | 100 | 100 |
| 50 | Y5 | 57/60 (95%) | 53 (93%) | 4 (7%) | 0 | 100 | 100 |
| 51 | R6 | 51/54 (94%) | 49 (96%) | 2 (4%) | 0 | 100 | 100 |
| 51 | Y6 | 51/54 (94%) | 46 (90%) | 5 (10%) | 0 | 100 | 100 |
| 52 | R7 | 45/49 (92%) | 45 (100%) | 0 | 0 | 100 | 100 |
| 52 | Y7 | 46/49 (94%) | 46 (100%) | 0 | 0 | 100 | 100 |
| 53 | R8 | 62/65 (95%) | 51 (82%) | 9 (14%) | 2 (3%) | 4 | 29 |
| 53 | Y8 | 62/65 (95%) | 48 (77%) | 14 (23%) | 0 | 100 | 100 |
| 54 | R9 | 35/37 (95%) | 34 (97%) | 1 (3%) | 0 | 100 | 100 |
| 54 | Y9 | 35/37 (95%) | 34 (97%) | 1 (3%) | 0 | 100 | 100 |
| All | All | 11456/12128 (94%) | 10265 (90%) | 1120 (10%) | 71 (1%) | 25 | 64 |

All (71) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | QC | 12 | LEU |
| 20 | QT | 74 | LYS |
| 39 | RU | 91 | ASP |
| 39 | RU | 92 | ARG |
| 44 | RZ | 53 | ILE |
| 49 | R4 | 57 | GLU |
| 53 | R8 | 29 | LYS |
| 53 | R8 | 30 | ARG |
| 20 | XT | 74 | LYS |
| 20 | XT | 75 | ASN |
| 39 | YU | 91 | ASP |
| 39 | YU | 92 | ARG |
| 44 | YZ | 53 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 44 | YZ | 180 | VAL |
| 49 | Y4 | 57 | GLU |
| 20 | QT | 75 | ASN |
| 31 | RI | 132 | PRO |
| 49 | R4 | 58 | ARG |
| 3 | XC | 12 | LEU |
| 30 | YH | 157 | TYR |
| 31 | YI | 15 | VAL |
| 31 | YI | 122 | GLU |
| 31 | YI | 132 | PRO |
| 49 | Y4 | 47 | GLN |
| 4 | QD | 154 | ASN |
| 12 | QL | 105 | TYR |
| 14 | QN | 17 | LYS |
| 20 | QT | 73 | HIS |
| 27 | RE | 83 | ASP |
| 29 | RG | 82 | LEU |
| 31 | RI | 122 | GLU |
| 36 | RR | 4 | LEU |
| 44 | RZ | 180 | VAL |
| 49 | R4 | 47 | GLN |
| 4 | XD | 156 | GLU |
| 12 | XL | 105 | TYR |
| 27 | YE | 83 | ASP |
| 2 | QB | 208 | ILE |
| 31 | RI | 15 | VAL |
| 39 | RU | 93 | LYS |
| 44 | RZ | 60 | GLU |
| 44 | RZ | 179 | ASP |
| 47 | R2 | 70 | GLN |
| 12 | XL | 106 | ASP |
| 13 | XM | 13 | LYS |
| 26 | YD | 243 | GLY |
| 36 | YR | 4 | LEU |
| 44 | YZ | 178 | GLU |
| 13 | QM | 14 | ARG |
| 27 | RE | 144 | ARG |
| 35 | RQ | 78 | PRO |
| 49 | R4 | 48 | ARG |
| 4 | XD | 154 | ASN |
| 14 | XN | 17 | LYS |
| 30 | YH | 156 | ALA |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 35 | YQ | 105 | GLU |
| 44 | YZ | 60 | GLU |
| 49 | Y4 | 48 | ARG |
| 10 | QJ | 55 | LYS |
| 13 | QM | 13 | LYS |
| 28 | RF | 130 | ALA |
| 19 | QS | 42 | PRO |
| 27 | RE | 130 | GLY |
| 39 | RU | 90 | VAL |
| 49 | R4 | 56 | VAL |
| 35 | YQ | 78 | PRO |
| 39 | YU | 90 | VAL |
| 5 | XE | 74 | GLY |
| 12 | QL | 47 | LYS |
| 35 | RQ | 66 | ILE |
| 49 | Y4 | 56 | VAL |

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|-------------|----|
| 2 | QB | 203/220 (92%) | 200 (98%) | 3 (2%) | 65 | 84 |
| 2 | XB | 204/220 (93%) | 199 (98%) | 5 (2%) | 47 | 75 |
| 3 | QC | 159/188 (85%) | 158 (99%) | 1 (1%) | 86 | 94 |
| 3 | XC | 159/188 (85%) | 158 (99%) | 1 (1%) | 86 | 94 |
| 4 | QD | 180/181 (99%) | 178 (99%) | 2 (1%) | 73 | 88 |
| 4 | XD | 180/181 (99%) | 173 (96%) | 7 (4%) | 32 | 64 |
| 5 | QE | 116/123 (94%) | 113 (97%) | 3 (3%) | 46 | 74 |
| 5 | XE | 116/123 (94%) | 115 (99%) | 1 (1%) | 78 | 90 |
| 6 | QF | 90/90 (100%) | 88 (98%) | 2 (2%) | 52 | 78 |
| 6 | XF | 90/90 (100%) | 87 (97%) | 3 (3%) | 38 | 68 |
| 7 | QG | 126/127 (99%) | 124 (98%) | 2 (2%) | 62 | 83 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|---------------|------------|----------|-------------|-----|
| 7 | XG | 126/127 (99%) | 122 (97%) | 4 (3%) | 39 | 69 |
| 8 | QH | 118/119 (99%) | 116 (98%) | 2 (2%) | 60 | 82 |
| 8 | XH | 118/119 (99%) | 117 (99%) | 1 (1%) | 81 | 91 |
| 9 | QI | 98/99 (99%) | 94 (96%) | 4 (4%) | 30 | 63 |
| 9 | XI | 97/99 (98%) | 94 (97%) | 3 (3%) | 40 | 70 |
| 10 | QJ | 89/92 (97%) | 88 (99%) | 1 (1%) | 73 | 88 |
| 10 | XJ | 86/92 (94%) | 86 (100%) | 0 | 100 | 100 |
| 11 | QK | 90/99 (91%) | 88 (98%) | 2 (2%) | 52 | 78 |
| 11 | XK | 88/99 (89%) | 88 (100%) | 0 | 100 | 100 |
| 12 | QL | 104/109 (95%) | 98 (94%) | 6 (6%) | 20 | 53 |
| 12 | XL | 103/109 (94%) | 101 (98%) | 2 (2%) | 57 | 80 |
| 13 | QM | 96/101 (95%) | 95 (99%) | 1 (1%) | 76 | 88 |
| 13 | XM | 95/101 (94%) | 95 (100%) | 0 | 100 | 100 |
| 14 | QN | 49/50 (98%) | 49 (100%) | 0 | 100 | 100 |
| 14 | XN | 49/50 (98%) | 45 (92%) | 4 (8%) | 11 | 40 |
| 15 | QO | 79/80 (99%) | 79 (100%) | 0 | 100 | 100 |
| 15 | XO | 79/80 (99%) | 78 (99%) | 1 (1%) | 69 | 86 |
| 16 | QP | 72/74 (97%) | 71 (99%) | 1 (1%) | 67 | 85 |
| 16 | XP | 72/74 (97%) | 70 (97%) | 2 (3%) | 43 | 72 |
| 17 | QQ | 95/97 (98%) | 93 (98%) | 2 (2%) | 53 | 79 |
| 17 | XQ | 95/97 (98%) | 93 (98%) | 2 (2%) | 53 | 79 |
| 18 | QR | 61/77 (79%) | 61 (100%) | 0 | 100 | 100 |
| 18 | XR | 61/77 (79%) | 60 (98%) | 1 (2%) | 62 | 83 |
| 19 | QS | 72/80 (90%) | 70 (97%) | 2 (3%) | 43 | 72 |
| 19 | XS | 73/80 (91%) | 72 (99%) | 1 (1%) | 67 | 85 |
| 20 | QT | 76/82 (93%) | 75 (99%) | 1 (1%) | 69 | 86 |
| 20 | XT | 76/82 (93%) | 76 (100%) | 0 | 100 | 100 |
| 21 | QU | 20/22 (91%) | 19 (95%) | 1 (5%) | 24 | 58 |
| 21 | XU | 20/22 (91%) | 20 (100%) | 0 | 100 | 100 |
| 26 | RD | 214/218 (98%) | 214 (100%) | 0 | 100 | 100 |
| 26 | YD | 214/218 (98%) | 212 (99%) | 2 (1%) | 78 | 90 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|----------------|------------|----------|-------------|-----|
| 27 | RE | 165/166 (99%) | 163 (99%) | 2 (1%) | 71 | 87 |
| 27 | YE | 165/166 (99%) | 163 (99%) | 2 (1%) | 71 | 87 |
| 28 | RF | 161/166 (97%) | 160 (99%) | 1 (1%) | 86 | 94 |
| 28 | YF | 161/166 (97%) | 158 (98%) | 3 (2%) | 57 | 80 |
| 29 | RG | 155/156 (99%) | 153 (99%) | 2 (1%) | 69 | 86 |
| 29 | YG | 155/156 (99%) | 153 (99%) | 2 (1%) | 69 | 86 |
| 30 | RH | 145/148 (98%) | 142 (98%) | 3 (2%) | 53 | 79 |
| 30 | YH | 145/148 (98%) | 143 (99%) | 2 (1%) | 67 | 85 |
| 31 | RI | 122/124 (98%) | 118 (97%) | 4 (3%) | 38 | 68 |
| 31 | YI | 122/124 (98%) | 120 (98%) | 2 (2%) | 62 | 83 |
| 32 | RN | 117/119 (98%) | 117 (100%) | 0 | 100 | 100 |
| 32 | YN | 117/119 (98%) | 116 (99%) | 1 (1%) | 78 | 90 |
| 33 | RO | 100/100 (100%) | 99 (99%) | 1 (1%) | 76 | 88 |
| 33 | YO | 100/100 (100%) | 100 (100%) | 0 | 100 | 100 |
| 34 | RP | 116/116 (100%) | 114 (98%) | 2 (2%) | 60 | 82 |
| 34 | YP | 114/116 (98%) | 111 (97%) | 3 (3%) | 46 | 74 |
| 35 | RQ | 111/111 (100%) | 110 (99%) | 1 (1%) | 78 | 90 |
| 35 | YQ | 111/111 (100%) | 109 (98%) | 2 (2%) | 59 | 81 |
| 36 | RR | 100/101 (99%) | 99 (99%) | 1 (1%) | 76 | 88 |
| 36 | YR | 100/101 (99%) | 97 (97%) | 3 (3%) | 41 | 71 |
| 37 | RS | 87/88 (99%) | 86 (99%) | 1 (1%) | 73 | 88 |
| 37 | YS | 87/88 (99%) | 85 (98%) | 2 (2%) | 50 | 77 |
| 38 | RT | 120/127 (94%) | 116 (97%) | 4 (3%) | 38 | 68 |
| 38 | YT | 120/127 (94%) | 119 (99%) | 1 (1%) | 81 | 91 |
| 39 | RU | 93/94 (99%) | 91 (98%) | 2 (2%) | 52 | 78 |
| 39 | YU | 93/94 (99%) | 93 (100%) | 0 | 100 | 100 |
| 40 | RV | 82/82 (100%) | 82 (100%) | 0 | 100 | 100 |
| 40 | YV | 82/82 (100%) | 82 (100%) | 0 | 100 | 100 |
| 41 | RW | 92/92 (100%) | 89 (97%) | 3 (3%) | 38 | 68 |
| 41 | YW | 92/92 (100%) | 90 (98%) | 2 (2%) | 52 | 78 |
| 42 | RX | 74/78 (95%) | 73 (99%) | 1 (1%) | 67 | 85 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|------------------|------------|----------|-------------|-----|
| 42 | YX | 74/78 (95%) | 73 (99%) | 1 (1%) | 67 | 85 |
| 43 | RY | 88/91 (97%) | 86 (98%) | 2 (2%) | 50 | 77 |
| 43 | YY | 88/91 (97%) | 88 (100%) | 0 | 100 | 100 |
| 44 | RZ | 162/179 (90%) | 159 (98%) | 3 (2%) | 57 | 80 |
| 44 | YZ | 162/179 (90%) | 160 (99%) | 2 (1%) | 71 | 87 |
| 45 | R0 | 65/67 (97%) | 64 (98%) | 1 (2%) | 65 | 84 |
| 45 | Y0 | 65/67 (97%) | 63 (97%) | 2 (3%) | 40 | 70 |
| 46 | R1 | 81/83 (98%) | 79 (98%) | 2 (2%) | 47 | 75 |
| 46 | Y1 | 78/83 (94%) | 78 (100%) | 0 | 100 | 100 |
| 47 | R2 | 64/67 (96%) | 60 (94%) | 4 (6%) | 18 | 51 |
| 47 | Y2 | 64/67 (96%) | 64 (100%) | 0 | 100 | 100 |
| 48 | R3 | 51/52 (98%) | 51 (100%) | 0 | 100 | 100 |
| 48 | Y3 | 51/52 (98%) | 51 (100%) | 0 | 100 | 100 |
| 49 | R4 | 62/63 (98%) | 59 (95%) | 3 (5%) | 25 | 60 |
| 49 | Y4 | 62/63 (98%) | 58 (94%) | 4 (6%) | 17 | 50 |
| 50 | R5 | 51/52 (98%) | 48 (94%) | 3 (6%) | 19 | 53 |
| 50 | Y5 | 51/52 (98%) | 50 (98%) | 1 (2%) | 55 | 79 |
| 51 | R6 | 51/52 (98%) | 50 (98%) | 1 (2%) | 55 | 79 |
| 51 | Y6 | 51/52 (98%) | 49 (96%) | 2 (4%) | 32 | 64 |
| 52 | R7 | 40/42 (95%) | 40 (100%) | 0 | 100 | 100 |
| 52 | Y7 | 41/42 (98%) | 41 (100%) | 0 | 100 | 100 |
| 53 | R8 | 54/55 (98%) | 52 (96%) | 2 (4%) | 34 | 65 |
| 53 | Y8 | 54/55 (98%) | 53 (98%) | 1 (2%) | 57 | 80 |
| 54 | R9 | 34/34 (100%) | 32 (94%) | 2 (6%) | 19 | 53 |
| 54 | Y9 | 34/34 (100%) | 33 (97%) | 1 (3%) | 42 | 71 |
| All | All | 9690/10066 (96%) | 9524 (98%) | 166 (2%) | 60 | 82 |

All (166) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | QB | 96 | ARG |
| 2 | QB | 111 | ARG |
| 2 | QB | 153 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | QC | 79 | ARG |
| 4 | QD | 132 | ARG |
| 4 | QD | 141 | ARG |
| 5 | QE | 18 | ARG |
| 5 | QE | 25 | ARG |
| 5 | QE | 40 | ARG |
| 6 | QF | 23 | LYS |
| 6 | QF | 36 | ARG |
| 7 | QG | 70 | LYS |
| 7 | QG | 156 | TRP |
| 8 | QH | 98 | LYS |
| 8 | QH | 122 | ARG |
| 9 | QI | 19 | LEU |
| 9 | QI | 78 | LYS |
| 9 | QI | 104 | ARG |
| 9 | QI | 121 | ARG |
| 10 | QJ | 80 | LYS |
| 11 | QK | 96 | ARG |
| 11 | QK | 124 | LYS |
| 12 | QL | 20 | LYS |
| 12 | QL | 41 | ARG |
| 12 | QL | 46 | LYS |
| 12 | QL | 47 | LYS |
| 12 | QL | 124 | LYS |
| 12 | QL | 126 | LYS |
| 13 | QM | 11 | ARG |
| 16 | QP | 25 | ARG |
| 17 | QQ | 37 | LYS |
| 17 | QQ | 75 | ARG |
| 19 | QS | 29 | ARG |
| 19 | QS | 66 | MET |
| 20 | QT | 29 | LYS |
| 21 | QU | 22 | ARG |
| 27 | RE | 97 | LYS |
| 27 | RE | 203 | LYS |
| 28 | RF | 38 | ARG |
| 29 | RG | 128 | ARG |
| 29 | RG | 153 | ARG |
| 30 | RH | 23 | ARG |
| 30 | RH | 130 | ARG |
| 30 | RH | 152 | ARG |
| 31 | RI | 56 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | RI | 57 | ARG |
| 31 | RI | 103 | ARG |
| 31 | RI | 113 | ARG |
| 33 | RO | 113 | LYS |
| 34 | RP | 61 | ARG |
| 34 | RP | 90 | ARG |
| 35 | RQ | 59 | ARG |
| 36 | RR | 57 | ARG |
| 37 | RS | 106 | ARG |
| 38 | RT | 51 | ARG |
| 38 | RT | 53 | ARG |
| 38 | RT | 96 | ARG |
| 38 | RT | 115 | ARG |
| 39 | RU | 12 | ARG |
| 39 | RU | 58 | ARG |
| 41 | RW | 37 | ARG |
| 41 | RW | 40 | ASN |
| 41 | RW | 42 | ARG |
| 42 | RX | 65 | ARG |
| 43 | RY | 46 | LYS |
| 43 | RY | 88 | LYS |
| 44 | RZ | 6 | LYS |
| 44 | RZ | 31 | ARG |
| 44 | RZ | 34 | ASN |
| 45 | R0 | 82 | ARG |
| 46 | R1 | 76 | ARG |
| 46 | R1 | 88 | LYS |
| 47 | R2 | 7 | ARG |
| 47 | R2 | 15 | LYS |
| 47 | R2 | 65 | ASN |
| 47 | R2 | 68 | ARG |
| 49 | R4 | 47 | GLN |
| 49 | R4 | 58 | ARG |
| 49 | R4 | 61 | ARG |
| 50 | R5 | 16 | ARG |
| 50 | R5 | 39 | MET |
| 50 | R5 | 56 | LYS |
| 51 | R6 | 26 | ASN |
| 53 | R8 | 15 | LYS |
| 53 | R8 | 44 | LYS |
| 54 | R9 | 18 | ARG |
| 54 | R9 | 35 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | XB | 21 | ARG |
| 2 | XB | 23 | ARG |
| 2 | XB | 53 | ARG |
| 2 | XB | 106 | LYS |
| 2 | XB | 157 | ARG |
| 3 | XC | 85 | ARG |
| 4 | XD | 3 | ARG |
| 4 | XD | 49 | ARG |
| 4 | XD | 50 | ARG |
| 4 | XD | 103 | ASN |
| 4 | XD | 131 | ARG |
| 4 | XD | 169 | LYS |
| 4 | XD | 182 | LYS |
| 5 | XE | 47 | LYS |
| 6 | XF | 2 | ARG |
| 6 | XF | 3 | ARG |
| 6 | XF | 80 | ARG |
| 7 | XG | 5 | ARG |
| 7 | XG | 60 | LYS |
| 7 | XG | 115 | ARG |
| 7 | XG | 149 | ARG |
| 8 | XH | 125 | ARG |
| 9 | XI | 66 | ARG |
| 9 | XI | 111 | ARG |
| 9 | XI | 121 | ARG |
| 12 | XL | 17 | LYS |
| 12 | XL | 89 | ARG |
| 14 | XN | 3 | ARG |
| 14 | XN | 15 | LYS |
| 14 | XN | 17 | LYS |
| 14 | XN | 45 | ARG |
| 15 | XO | 64 | ARG |
| 16 | XP | 35 | LYS |
| 16 | XP | 72 | ARG |
| 17 | XQ | 34 | LYS |
| 17 | XQ | 52 | LYS |
| 18 | XR | 84 | LYS |
| 19 | XS | 29 | ARG |
| 26 | YD | 43 | ARG |
| 26 | YD | 262 | ARG |
| 27 | YE | 19 | ARG |
| 27 | YE | 57 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 28 | YF | 38 | ARG |
| 28 | YF | 44 | ARG |
| 28 | YF | 72 | ARG |
| 29 | YG | 115 | ARG |
| 29 | YG | 153 | ARG |
| 30 | YH | 23 | ARG |
| 30 | YH | 25 | LYS |
| 31 | YI | 52 | ARG |
| 31 | YI | 67 | ARG |
| 32 | YN | 115 | ARG |
| 34 | YP | 36 | LYS |
| 34 | YP | 61 | ARG |
| 34 | YP | 108 | LYS |
| 35 | YQ | 5 | ARG |
| 35 | YQ | 133 | ARG |
| 36 | YR | 17 | ARG |
| 36 | YR | 33 | ARG |
| 36 | YR | 57 | ARG |
| 37 | YS | 89 | ARG |
| 37 | YS | 106 | ARG |
| 38 | YT | 41 | ARG |
| 41 | YW | 11 | ARG |
| 41 | YW | 15 | ARG |
| 42 | YX | 65 | ARG |
| 44 | YZ | 10 | ARG |
| 44 | YZ | 34 | ASN |
| 45 | Y0 | 11 | ARG |
| 45 | Y0 | 74 | ARG |
| 49 | Y4 | 58 | ARG |
| 49 | Y4 | 61 | ARG |
| 49 | Y4 | 62 | ARG |
| 49 | Y4 | 68 | ARG |
| 50 | Y5 | 3 | LYS |
| 51 | Y6 | 27 | LYS |
| 51 | Y6 | 33 | LYS |
| 53 | Y8 | 44 | LYS |
| 54 | Y9 | 18 | ARG |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | QB | 76 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | QC | 37 | GLN |
| 4 | QD | 119 | GLN |
| 14 | QN | 52 | GLN |
| 26 | RD | 96 | HIS |
| 28 | RF | 40 | GLN |
| 29 | RG | 138 | GLN |
| 34 | RP | 68 | GLN |
| 36 | RR | 53 | HIS |
| 47 | R2 | 65 | ASN |
| 49 | R4 | 47 | GLN |
| 51 | R6 | 26 | ASN |
| 51 | R6 | 29 | ASN |
| 4 | XD | 161 | ASN |
| 7 | XG | 68 | ASN |
| 7 | XG | 96 | GLN |
| 9 | XI | 38 | GLN |
| 20 | XT | 90 | GLN |
| 31 | YI | 28 | ASN |
| 41 | YW | 61 | ASN |
| 45 | Y0 | 3 | HIS |

5.3.3 RNA ⓘ

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1 | QA | 1498/1508 (99%) | 263 (17%) | 30 (2%) |
| 1 | XA | 1498/1508 (99%) | 286 (19%) | 27 (1%) |
| 22 | QV | 76/77 (98%) | 18 (23%) | 2 (2%) |
| 22 | XV | 76/77 (98%) | 16 (21%) | 3 (3%) |
| 23 | QX | 11/25 (44%) | 7 (63%) | 0 |
| 23 | XX | 10/25 (40%) | 6 (60%) | 0 |
| 24 | RA | 2879/2915 (98%) | 577 (20%) | 33 (1%) |
| 24 | YA | 2880/2915 (98%) | 570 (19%) | 36 (1%) |
| 25 | RB | 119/122 (97%) | 24 (20%) | 1 (0%) |
| 25 | YB | 119/122 (97%) | 23 (19%) | 1 (0%) |
| All | All | 9166/9294 (98%) | 1790 (19%) | 133 (1%) |

All (1790) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | QA | 6 | G |
| 1 | QA | 9 | G |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 1 | QA | 32 | A |
| 1 | QA | 39 | G |
| 1 | QA | 48 | C |
| 1 | QA | 50 | A |
| 1 | QA | 51 | A |
| 1 | QA | 65 | U |
| 1 | QA | 66 | G |
| 1 | QA | 76 | G |
| 1 | QA | 82 | U |
| 1 | QA | 90 | C |
| 1 | QA | 91 | C |
| 1 | QA | 95 | G |
| 1 | QA | 101 | A |
| 1 | QA | 116 | A |
| 1 | QA | 121 | C |
| 1 | QA | 127 | G |
| 1 | QA | 144 | G |
| 1 | QA | 146 | G |
| 1 | QA | 163 | C |
| 1 | QA | 169 | C |
| 1 | QA | 171 | A |
| 1 | QA | 173 | U |
| 1 | QA | 174 | C |
| 1 | QA | 187 | C |
| 1 | QA | 191(A) | G |
| 1 | QA | 191(C) | G |
| 1 | QA | 195 | A |
| 1 | QA | 197 | A |
| 1 | QA | 209 | U |
| 1 | QA | 210 | U |
| 1 | QA | 231 | G |
| 1 | QA | 244 | U |
| 1 | QA | 245 | C |
| 1 | QA | 247 | G |
| 1 | QA | 250 | A |
| 1 | QA | 251 | G |
| 1 | QA | 267 | C |
| 1 | QA | 270 | A |
| 1 | QA | 281 | G |
| 1 | QA | 289 | G |
| 1 | QA | 298 | A |
| 1 | QA | 321 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | QA | 328 | C |
| 1 | QA | 329 | A |
| 1 | QA | 332 | G |
| 1 | QA | 346 | G |
| 1 | QA | 349 | A |
| 1 | QA | 351 | G |
| 1 | QA | 352 | C |
| 1 | QA | 353 | A |
| 1 | QA | 354 | G |
| 1 | QA | 367 | U |
| 1 | QA | 372 | C |
| 1 | QA | 384 | G |
| 1 | QA | 390 | C |
| 1 | QA | 397 | A |
| 1 | QA | 398 | C |
| 1 | QA | 406 | G |
| 1 | QA | 412 | A |
| 1 | QA | 413 | G |
| 1 | QA | 422 | C |
| 1 | QA | 423 | G |
| 1 | QA | 426 | G |
| 1 | QA | 428 | G |
| 1 | QA | 429 | U |
| 1 | QA | 435 | C |
| 1 | QA | 440 | A |
| 1 | QA | 465 | A |
| 1 | QA | 466 | C |
| 1 | QA | 485 | G |
| 1 | QA | 486 | U |
| 1 | QA | 496 | A |
| 1 | QA | 497 | U |
| 1 | QA | 505 | G |
| 1 | QA | 508 | C |
| 1 | QA | 509 | A |
| 1 | QA | 510 | A |
| 1 | QA | 511 | C |
| 1 | QA | 518 | C |
| 1 | QA | 527 | G |
| 1 | QA | 531 | U |
| 1 | QA | 532 | A |
| 1 | QA | 533 | A |
| 1 | QA | 547 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | QA | 559 | A |
| 1 | QA | 561 | U |
| 1 | QA | 564 | C |
| 1 | QA | 572 | A |
| 1 | QA | 573 | A |
| 1 | QA | 576 | G |
| 1 | QA | 577 | G |
| 1 | QA | 592 | G |
| 1 | QA | 618 | C |
| 1 | QA | 630 | G |
| 1 | QA | 631 | G |
| 1 | QA | 633 | G |
| 1 | QA | 652 | U |
| 1 | QA | 653 | A |
| 1 | QA | 661 | G |
| 1 | QA | 665 | A |
| 1 | QA | 686 | U |
| 1 | QA | 688 | G |
| 1 | QA | 693 | G |
| 1 | QA | 701 | C |
| 1 | QA | 702 | A |
| 1 | QA | 703 | G |
| 1 | QA | 704 | A |
| 1 | QA | 723 | U |
| 1 | QA | 731 | G |
| 1 | QA | 749 | C |
| 1 | QA | 754 | C |
| 1 | QA | 755 | G |
| 1 | QA | 773 | G |
| 1 | QA | 774 | G |
| 1 | QA | 777 | A |
| 1 | QA | 786 | G |
| 1 | QA | 792 | A |
| 1 | QA | 793 | U |
| 1 | QA | 794 | A |
| 1 | QA | 817 | C |
| 1 | QA | 818 | G |
| 1 | QA | 819 | A |
| 1 | QA | 821 | G |
| 1 | QA | 828 | A |
| 1 | QA | 841 | U |
| 1 | QA | 842 | C |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 1 | QA | 843 | U |
| 1 | QA | 848 | C |
| 1 | QA | 859 | A |
| 1 | QA | 868 | C |
| 1 | QA | 870 | U |
| 1 | QA | 872 | A |
| 1 | QA | 873 | A |
| 1 | QA | 889 | A |
| 1 | QA | 902 | G |
| 1 | QA | 914 | A |
| 1 | QA | 927 | G |
| 1 | QA | 934 | C |
| 1 | QA | 935 | A |
| 1 | QA | 960 | U |
| 1 | QA | 968 | A |
| 1 | QA | 969 | A |
| 1 | QA | 971 | G |
| 1 | QA | 972 | C |
| 1 | QA | 974 | A |
| 1 | QA | 975 | A |
| 1 | QA | 976 | G |
| 1 | QA | 977 | A |
| 1 | QA | 982 | U |
| 1 | QA | 989 | C |
| 1 | QA | 991 | U |
| 1 | QA | 992 | U |
| 1 | QA | 993 | G |
| 1 | QA | 994 | A |
| 1 | QA | 1004 | A |
| 1 | QA | 1006 | C |
| 1 | QA | 1009 | G |
| 1 | QA | 1020 | U |
| 1 | QA | 1023 | G |
| 1 | QA | 1024 | G |
| 1 | QA | 1025 | U |
| 1 | QA | 1027 | C |
| 1 | QA | 1028 | C |
| 1 | QA | 1028(A) | C |
| 1 | QA | 1029 | G |
| 1 | QA | 1032(A) | G |
| 1 | QA | 1033 | G |
| 1 | QA | 1036 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | QA | 1040 | U |
| 1 | QA | 1042 | G |
| 1 | QA | 1046 | A |
| 1 | QA | 1053 | G |
| 1 | QA | 1054 | C |
| 1 | QA | 1055 | A |
| 1 | QA | 1064 | G |
| 1 | QA | 1065 | U |
| 1 | QA | 1066 | C |
| 1 | QA | 1094 | G |
| 1 | QA | 1101 | A |
| 1 | QA | 1124 | G |
| 1 | QA | 1125 | U |
| 1 | QA | 1126 | U |
| 1 | QA | 1130 | A |
| 1 | QA | 1131 | G |
| 1 | QA | 1136 | U |
| 1 | QA | 1137 | C |
| 1 | QA | 1138 | G |
| 1 | QA | 1139 | G |
| 1 | QA | 1146 | A |
| 1 | QA | 1157 | A |
| 1 | QA | 1158 | C |
| 1 | QA | 1159 | U |
| 1 | QA | 1160 | G |
| 1 | QA | 1163 | C |
| 1 | QA | 1171 | G |
| 1 | QA | 1177 | G |
| 1 | QA | 1181 | G |
| 1 | QA | 1183 | A |
| 1 | QA | 1187 | G |
| 1 | QA | 1190 | G |
| 1 | QA | 1196 | U |
| 1 | QA | 1201 | A |
| 1 | QA | 1211 | U |
| 1 | QA | 1212 | U |
| 1 | QA | 1221 | G |
| 1 | QA | 1224 | G |
| 1 | QA | 1225 | A |
| 1 | QA | 1228 | C |
| 1 | QA | 1238 | A |
| 1 | QA | 1240 | U |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 1 | QA | 1241 | G |
| 1 | QA | 1256 | A |
| 1 | QA | 1257 | U |
| 1 | QA | 1258 | G |
| 1 | QA | 1260 | C |
| 1 | QA | 1267 | C |
| 1 | QA | 1270 | C |
| 1 | QA | 1280 | A |
| 1 | QA | 1281 | U |
| 1 | QA | 1282 | C |
| 1 | QA | 1286 | A |
| 1 | QA | 1287 | A |
| 1 | QA | 1300 | G |
| 1 | QA | 1301 | U |
| 1 | QA | 1302 | U |
| 1 | QA | 1303 | C |
| 1 | QA | 1305 | G |
| 1 | QA | 1320 | C |
| 1 | QA | 1322 | C |
| 1 | QA | 1323 | G |
| 1 | QA | 1331 | G |
| 1 | QA | 1335 | C |
| 1 | QA | 1336 | C |
| 1 | QA | 1346 | A |
| 1 | QA | 1347 | G |
| 1 | QA | 1348 | U |
| 1 | QA | 1353 | G |
| 1 | QA | 1362(A) | C |
| 1 | QA | 1364 | U |
| 1 | QA | 1378 | C |
| 1 | QA | 1379 | G |
| 1 | QA | 1397 | C |
| 1 | QA | 1398 | A |
| 1 | QA | 1419 | G |
| 1 | QA | 1442 | G |
| 1 | QA | 1446 | A |
| 1 | QA | 1447 | G |
| 1 | QA | 1452 | C |
| 1 | QA | 1453 | G |
| 1 | QA | 1454 | G |
| 1 | QA | 1492 | A |
| 1 | QA | 1493 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | QA | 1499 | A |
| 1 | QA | 1502 | A |
| 1 | QA | 1503 | A |
| 1 | QA | 1506 | U |
| 1 | QA | 1517 | G |
| 1 | QA | 1519 | A |
| 1 | QA | 1520 | G |
| 1 | QA | 1529 | G |
| 1 | QA | 1530 | G |
| 22 | QV | 5 | G |
| 22 | QV | 7 | G |
| 22 | QV | 8 | U |
| 22 | QV | 18 | U |
| 22 | QV | 19 | G |
| 22 | QV | 20 | G |
| 22 | QV | 21 | U |
| 22 | QV | 22 | A |
| 22 | QV | 35 | C |
| 22 | QV | 36 | A |
| 22 | QV | 48 | U |
| 22 | QV | 49 | C |
| 22 | QV | 53 | G |
| 22 | QV | 54 | G |
| 22 | QV | 55 | U |
| 22 | QV | 59 | A |
| 22 | QV | 76 | C |
| 22 | QV | 77 | A |
| 23 | QX | 9 | G |
| 23 | QX | 10 | G |
| 23 | QX | 11 | U |
| 23 | QX | 12 | A |
| 23 | QX | 13 | A |
| 23 | QX | 15 | A |
| 23 | QX | 19 | U |
| 24 | RA | 10 | G |
| 24 | RA | 12 | U |
| 24 | RA | 14 | A |
| 24 | RA | 15 | G |
| 24 | RA | 34 | C |
| 24 | RA | 35 | G |
| 24 | RA | 46 | C |
| 24 | RA | 51 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 55 | G |
| 24 | RA | 72 | U |
| 24 | RA | 73 | A |
| 24 | RA | 74 | A |
| 24 | RA | 75 | G |
| 24 | RA | 82 | G |
| 24 | RA | 83 | G |
| 24 | RA | 90 | U |
| 24 | RA | 101 | G |
| 24 | RA | 103 | A |
| 24 | RA | 118 | A |
| 24 | RA | 120 | U |
| 24 | RA | 121 | G |
| 24 | RA | 131 | G |
| 24 | RA | 161 | U |
| 24 | RA | 177 | G |
| 24 | RA | 181 | A |
| 24 | RA | 188 | G |
| 24 | RA | 196 | A |
| 24 | RA | 199 | A |
| 24 | RA | 215 | G |
| 24 | RA | 216 | A |
| 24 | RA | 221 | A |
| 24 | RA | 222 | A |
| 24 | RA | 223 | A |
| 24 | RA | 229 | A |
| 24 | RA | 230 | U |
| 24 | RA | 233 | A |
| 24 | RA | 248 | G |
| 24 | RA | 249 | C |
| 24 | RA | 250 | G |
| 24 | RA | 252 | G |
| 24 | RA | 265 | A |
| 24 | RA | 266 | G |
| 24 | RA | 269 | U |
| 24 | RA | 270(L) | U |
| 24 | RA | 270(M) | U |
| 24 | RA | 270(N) | G |
| 24 | RA | 270(P) | C |
| 24 | RA | 271(C) | U |
| 24 | RA | 271(D) | G |
| 24 | RA | 273(F) | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 275 | G |
| 24 | RA | 276 | A |
| 24 | RA | 277 | C |
| 24 | RA | 283 | A |
| 24 | RA | 299 | A |
| 24 | RA | 311 | A |
| 24 | RA | 323 | G |
| 24 | RA | 324 | A |
| 24 | RA | 329 | G |
| 24 | RA | 330 | A |
| 24 | RA | 342 | G |
| 24 | RA | 346 | A |
| 24 | RA | 352 | G |
| 24 | RA | 364 | C |
| 24 | RA | 371 | A |
| 24 | RA | 372 | G |
| 24 | RA | 373 | U |
| 24 | RA | 386 | G |
| 24 | RA | 395 | U |
| 24 | RA | 405 | U |
| 24 | RA | 406 | G |
| 24 | RA | 411 | G |
| 24 | RA | 412 | A |
| 24 | RA | 428 | A |
| 24 | RA | 435 | C |
| 24 | RA | 444 | C |
| 24 | RA | 448 | U |
| 24 | RA | 454 | A |
| 24 | RA | 455 | C |
| 24 | RA | 456 | C |
| 24 | RA | 457 | A |
| 24 | RA | 467 | G |
| 24 | RA | 470 | A |
| 24 | RA | 481 | G |
| 24 | RA | 504 | U |
| 24 | RA | 505 | A |
| 24 | RA | 509 | C |
| 24 | RA | 512 | G |
| 24 | RA | 513 | A |
| 24 | RA | 528 | A |
| 24 | RA | 529 | A |
| 24 | RA | 532 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 533 | G |
| 24 | RA | 537 | C |
| 24 | RA | 539 | G |
| 24 | RA | 540 | G |
| 24 | RA | 546 | C |
| 24 | RA | 547 | A |
| 24 | RA | 549 | G |
| 24 | RA | 556 | G |
| 24 | RA | 563 | G |
| 24 | RA | 573 | G |
| 24 | RA | 574 | C |
| 24 | RA | 575 | A |
| 24 | RA | 588 | U |
| 24 | RA | 603 | A |
| 24 | RA | 607 | U |
| 24 | RA | 614 | U |
| 24 | RA | 615 | G |
| 24 | RA | 616 | A |
| 24 | RA | 617 | G |
| 24 | RA | 621 | A |
| 24 | RA | 627 | A |
| 24 | RA | 629 | G |
| 24 | RA | 637 | A |
| 24 | RA | 638 | G |
| 24 | RA | 645 | C |
| 24 | RA | 646 | A |
| 24 | RA | 651 | G |
| 24 | RA | 652 | C |
| 24 | RA | 654 | A |
| 24 | RA | 654(A) | G |
| 24 | RA | 669 | G |
| 24 | RA | 670 | A |
| 24 | RA | 686 | G |
| 24 | RA | 701 | G |
| 24 | RA | 702 | G |
| 24 | RA | 708 | C |
| 24 | RA | 717 | G |
| 24 | RA | 722 | A |
| 24 | RA | 730 | C |
| 24 | RA | 753 | C |
| 24 | RA | 764 | A |
| 24 | RA | 775 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 776 | G |
| 24 | RA | 782 | A |
| 24 | RA | 783 | A |
| 24 | RA | 784 | A |
| 24 | RA | 785 | G |
| 24 | RA | 790 | C |
| 24 | RA | 791 | C |
| 24 | RA | 792 | G |
| 24 | RA | 805 | G |
| 24 | RA | 812 | C |
| 24 | RA | 819 | A |
| 24 | RA | 827 | U |
| 24 | RA | 828 | U |
| 24 | RA | 846 | C |
| 24 | RA | 847 | U |
| 24 | RA | 856 | C |
| 24 | RA | 857 | C |
| 24 | RA | 859 | G |
| 24 | RA | 866 | A |
| 24 | RA | 869 | G |
| 24 | RA | 882 | G |
| 24 | RA | 884 | C |
| 24 | RA | 885 | C |
| 24 | RA | 886 | C |
| 24 | RA | 888 | C |
| 24 | RA | 889 | C |
| 24 | RA | 890 | A |
| 24 | RA | 893 | C |
| 24 | RA | 896 | A |
| 24 | RA | 897 | C |
| 24 | RA | 900 | A |
| 24 | RA | 907 | U |
| 24 | RA | 910 | A |
| 24 | RA | 914 | C |
| 24 | RA | 915 | C |
| 24 | RA | 917 | A |
| 24 | RA | 932 | G |
| 24 | RA | 938 | G |
| 24 | RA | 941 | A |
| 24 | RA | 945 | A |
| 24 | RA | 946 | G |
| 24 | RA | 959 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 961 | C |
| 24 | RA | 974 | G |
| 24 | RA | 974(A) | C |
| 24 | RA | 980 | A |
| 24 | RA | 983 | A |
| 24 | RA | 989 | G |
| 24 | RA | 996 | A |
| 24 | RA | 1003 | G |
| 24 | RA | 1011 | G |
| 24 | RA | 1012 | U |
| 24 | RA | 1013 | C |
| 24 | RA | 1017 | G |
| 24 | RA | 1022 | G |
| 24 | RA | 1023 | U |
| 24 | RA | 1024 | G |
| 24 | RA | 1026 | U |
| 24 | RA | 1027 | A |
| 24 | RA | 1033 | U |
| 24 | RA | 1044 | G |
| 24 | RA | 1045 | A |
| 24 | RA | 1046 | A |
| 24 | RA | 1047 | G |
| 24 | RA | 1050 | A |
| 24 | RA | 1054 | A |
| 24 | RA | 1055 | G |
| 24 | RA | 1057 | A |
| 24 | RA | 1058 | G |
| 24 | RA | 1059 | G |
| 24 | RA | 1060 | U |
| 24 | RA | 1061 | U |
| 24 | RA | 1062 | G |
| 24 | RA | 1066 | U |
| 24 | RA | 1070 | A |
| 24 | RA | 1071 | G |
| 24 | RA | 1076 | C |
| 24 | RA | 1077 | A |
| 24 | RA | 1078 | U |
| 24 | RA | 1079 | C |
| 24 | RA | 1081 | U |
| 24 | RA | 1082 | U |
| 24 | RA | 1083 | U |
| 24 | RA | 1084 | A |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 24 | RA | 1085 | A |
| 24 | RA | 1086 | A |
| 24 | RA | 1087 | G |
| 24 | RA | 1088 | A |
| 24 | RA | 1089 | G |
| 24 | RA | 1090 | U |
| 24 | RA | 1091 | G |
| 24 | RA | 1093 | G |
| 24 | RA | 1096 | A |
| 24 | RA | 1103 | A |
| 24 | RA | 1105 | U |
| 24 | RA | 1110 | G |
| 24 | RA | 1111 | A |
| 24 | RA | 1112 | G |
| 24 | RA | 1122 | G |
| 24 | RA | 1126 | A |
| 24 | RA | 1131 | G |
| 24 | RA | 1135 | C |
| 24 | RA | 1136 | G |
| 24 | RA | 1142(A) | A |
| 24 | RA | 1173 | G |
| 24 | RA | 1174 | A |
| 24 | RA | 1175 | U |
| 24 | RA | 1176 | G |
| 24 | RA | 1178 | C |
| 24 | RA | 1179 | C |
| 24 | RA | 1181 | C |
| 24 | RA | 1189 | A |
| 24 | RA | 1191 | G |
| 24 | RA | 1195 | G |
| 24 | RA | 1204 | A |
| 24 | RA | 1205 | U |
| 24 | RA | 1206 | G |
| 24 | RA | 1210 | A |
| 24 | RA | 1211 | U |
| 24 | RA | 1220 | A |
| 24 | RA | 1221 | C |
| 24 | RA | 1225 | C |
| 24 | RA | 1226 | G |
| 24 | RA | 1236 | G |
| 24 | RA | 1238 | G |
| 24 | RA | 1250 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 1253 | A |
| 24 | RA | 1256 | G |
| 24 | RA | 1265 | A |
| 24 | RA | 1272 | A |
| 24 | RA | 1273 | U |
| 24 | RA | 1288 | U |
| 24 | RA | 1300 | U |
| 24 | RA | 1301 | A |
| 24 | RA | 1302 | A |
| 24 | RA | 1312 | U |
| 24 | RA | 1313 | U |
| 24 | RA | 1314 | C |
| 24 | RA | 1321 | A |
| 24 | RA | 1329 | U |
| 24 | RA | 1349 | A |
| 24 | RA | 1352 | U |
| 24 | RA | 1365 | A |
| 24 | RA | 1370 | C |
| 24 | RA | 1379 | A |
| 24 | RA | 1380 | G |
| 24 | RA | 1384 | A |
| 24 | RA | 1385 | G |
| 24 | RA | 1391 | U |
| 24 | RA | 1395 | A |
| 24 | RA | 1407 | C |
| 24 | RA | 1408 | C |
| 24 | RA | 1411 | C |
| 24 | RA | 1416 | G |
| 24 | RA | 1419 | A |
| 24 | RA | 1420 | U |
| 24 | RA | 1421 | G |
| 24 | RA | 1428 | C |
| 24 | RA | 1444(A) | A |
| 24 | RA | 1445 | C |
| 24 | RA | 1449 | A |
| 24 | RA | 1449(A) | G |
| 24 | RA | 1454 | U |
| 24 | RA | 1455 | G |
| 24 | RA | 1460 | A |
| 24 | RA | 1461 | G |
| 24 | RA | 1471 | A |
| 24 | RA | 1474 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 1482 | U |
| 24 | RA | 1483 | G |
| 24 | RA | 1487 | G |
| 24 | RA | 1493 | C |
| 24 | RA | 1494 | A |
| 24 | RA | 1497 | U |
| 24 | RA | 1504 | C |
| 24 | RA | 1505 | C |
| 24 | RA | 1507 | A |
| 24 | RA | 1510 | A |
| 24 | RA | 1511 | A |
| 24 | RA | 1513 | C |
| 24 | RA | 1514 | U |
| 24 | RA | 1516 | U |
| 24 | RA | 1522 | G |
| 24 | RA | 1528 | A |
| 24 | RA | 1534 | G |
| 24 | RA | 1535 | U |
| 24 | RA | 1536 | A |
| 24 | RA | 1537 | C |
| 24 | RA | 1538 | G |
| 24 | RA | 1543 | A |
| 24 | RA | 1544 | C |
| 24 | RA | 1545 | A |
| 24 | RA | 1558 | A |
| 24 | RA | 1559 | G |
| 24 | RA | 1566 | A |
| 24 | RA | 1569 | A |
| 24 | RA | 1578 | U |
| 24 | RA | 1580 | A |
| 24 | RA | 1581 | G |
| 24 | RA | 1583 | A |
| 24 | RA | 1586 | A |
| 24 | RA | 1598 | C |
| 24 | RA | 1608 | A |
| 24 | RA | 1609 | A |
| 24 | RA | 1611 | C |
| 24 | RA | 1616 | A |
| 24 | RA | 1617 | C |
| 24 | RA | 1640 | C |
| 24 | RA | 1648 | C |
| 24 | RA | 1654 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 24 | RA | 1667 | G |
| 24 | RA | 1674 | G |
| 24 | RA | 1725 | G |
| 24 | RA | 1728 | G |
| 24 | RA | 1729 | A |
| 24 | RA | 1731 | G |
| 24 | RA | 1742 | C |
| 24 | RA | 1743 | G |
| 24 | RA | 1750 | G |
| 24 | RA | 1756 | G |
| 24 | RA | 1762 | A |
| 24 | RA | 1763 | G |
| 24 | RA | 1764 | G |
| 24 | RA | 1769 | G |
| 24 | RA | 1773 | A |
| 24 | RA | 1774 | C |
| 24 | RA | 1779 | U |
| 24 | RA | 1780 | A |
| 24 | RA | 1782 | C |
| 24 | RA | 1791 | A |
| 24 | RA | 1799 | G |
| 24 | RA | 1800 | C |
| 24 | RA | 1801 | G |
| 24 | RA | 1816 | G |
| 24 | RA | 1820 | U |
| 24 | RA | 1847 | A |
| 24 | RA | 1848 | A |
| 24 | RA | 1858 | G |
| 24 | RA | 1869 | G |
| 24 | RA | 1870 | C |
| 24 | RA | 1871 | A |
| 24 | RA | 1878 | G |
| 24 | RA | 1882 | C |
| 24 | RA | 1888 | G |
| 24 | RA | 1889 | A |
| 24 | RA | 1903 | G |
| 24 | RA | 1905 | C |
| 24 | RA | 1906 | G |
| 24 | RA | 1914 | C |
| 24 | RA | 1929 | G |
| 24 | RA | 1930 | G |
| 24 | RA | 1936 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 1938 | A |
| 24 | RA | 1939 | U |
| 24 | RA | 1955 | U |
| 24 | RA | 1963 | U |
| 24 | RA | 1967 | C |
| 24 | RA | 1969 | A |
| 24 | RA | 1970 | A |
| 24 | RA | 1971 | A |
| 24 | RA | 1972 | A |
| 24 | RA | 1982 | C |
| 24 | RA | 1992 | G |
| 24 | RA | 1993 | U |
| 24 | RA | 1996 | C |
| 24 | RA | 2020 | A |
| 24 | RA | 2023 | G |
| 24 | RA | 2031 | A |
| 24 | RA | 2032 | G |
| 24 | RA | 2033 | A |
| 24 | RA | 2039 | C |
| 24 | RA | 2043 | C |
| 24 | RA | 2055 | C |
| 24 | RA | 2056 | G |
| 24 | RA | 2059 | A |
| 24 | RA | 2060 | A |
| 24 | RA | 2061 | G |
| 24 | RA | 2062 | A |
| 24 | RA | 2069 | G |
| 24 | RA | 2093 | G |
| 24 | RA | 2107 | C |
| 24 | RA | 2109 | U |
| 24 | RA | 2111 | C |
| 24 | RA | 2113 | U |
| 24 | RA | 2114 | A |
| 24 | RA | 2115 | G |
| 24 | RA | 2116 | G |
| 24 | RA | 2117 | A |
| 24 | RA | 2118 | U |
| 24 | RA | 2126 | A |
| 24 | RA | 2127 | G |
| 24 | RA | 2128 | C |
| 24 | RA | 2131 | G |
| 24 | RA | 2132 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 24 | RA | 2133 | G |
| 24 | RA | 2136 | C |
| 24 | RA | 2146 | C |
| 24 | RA | 2147 | G |
| 24 | RA | 2148 | G |
| 24 | RA | 2157 | G |
| 24 | RA | 2161 | C |
| 24 | RA | 2163 | C |
| 24 | RA | 2165 | G |
| 24 | RA | 2166 | G |
| 24 | RA | 2168 | G |
| 24 | RA | 2173 | A |
| 24 | RA | 2174 | C |
| 24 | RA | 2189 | U |
| 24 | RA | 2190 | G |
| 24 | RA | 2192 | G |
| 24 | RA | 2198 | A |
| 24 | RA | 2210 | G |
| 24 | RA | 2211 | G |
| 24 | RA | 2212 | A |
| 24 | RA | 2215 | G |
| 24 | RA | 2225 | A |
| 24 | RA | 2238 | G |
| 24 | RA | 2239 | G |
| 24 | RA | 2243 | U |
| 24 | RA | 2246 | G |
| 24 | RA | 2266 | A |
| 24 | RA | 2273 | A |
| 24 | RA | 2275 | C |
| 24 | RA | 2278 | A |
| 24 | RA | 2280 | G |
| 24 | RA | 2283 | C |
| 24 | RA | 2284 | C |
| 24 | RA | 2285 | C |
| 24 | RA | 2287 | A |
| 24 | RA | 2288 | A |
| 24 | RA | 2300 | G |
| 24 | RA | 2307 | G |
| 24 | RA | 2308 | G |
| 24 | RA | 2311 | A |
| 24 | RA | 2320 | A |
| 24 | RA | 2325 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | RA | 2334 | G |
| 24 | RA | 2336 | A |
| 24 | RA | 2345 | G |
| 24 | RA | 2346 | A |
| 24 | RA | 2347 | C |
| 24 | RA | 2350 | C |
| 24 | RA | 2354 | G |
| 24 | RA | 2358 | G |
| 24 | RA | 2383 | G |
| 24 | RA | 2385 | C |
| 24 | RA | 2391 | G |
| 24 | RA | 2394 | C |
| 24 | RA | 2402 | C |
| 24 | RA | 2403 | C |
| 24 | RA | 2406 | U |
| 24 | RA | 2422 | A |
| 24 | RA | 2424 | C |
| 24 | RA | 2425 | A |
| 24 | RA | 2429 | G |
| 24 | RA | 2430 | A |
| 24 | RA | 2434 | A |
| 24 | RA | 2435 | A |
| 24 | RA | 2439 | A |
| 24 | RA | 2440 | C |
| 24 | RA | 2441 | C |
| 24 | RA | 2448 | A |
| 24 | RA | 2469 | A |
| 24 | RA | 2474 | C |
| 24 | RA | 2475 | C |
| 24 | RA | 2478 | A |
| 24 | RA | 2480 | C |
| 24 | RA | 2494 | G |
| 24 | RA | 2502 | G |
| 24 | RA | 2504 | U |
| 24 | RA | 2505 | G |
| 24 | RA | 2518 | A |
| 24 | RA | 2519 | U |
| 24 | RA | 2520 | C |
| 24 | RA | 2529 | G |
| 24 | RA | 2542 | A |
| 24 | RA | 2543 | G |
| 24 | RA | 2554 | U |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 24 | RA | 2567 | G |
| 24 | RA | 2569 | G |
| 24 | RA | 2572 | A |
| 24 | RA | 2602 | A |
| 24 | RA | 2609 | U |
| 24 | RA | 2611 | U |
| 24 | RA | 2612 | C |
| 24 | RA | 2623 | G |
| 24 | RA | 2629 | A |
| 24 | RA | 2636 | U |
| 24 | RA | 2654 | A |
| 24 | RA | 2655 | G |
| 24 | RA | 2665 | A |
| 24 | RA | 2673 | G |
| 24 | RA | 2689 | U |
| 24 | RA | 2690 | C |
| 24 | RA | 2691 | C |
| 24 | RA | 2702 | U |
| 24 | RA | 2703 | C |
| 24 | RA | 2712(A) | A |
| 24 | RA | 2713 | A |
| 24 | RA | 2714 | G |
| 24 | RA | 2726 | U |
| 24 | RA | 2732 | G |
| 24 | RA | 2733 | A |
| 24 | RA | 2739 | U |
| 24 | RA | 2744 | G |
| 24 | RA | 2748 | A |
| 24 | RA | 2752 | C |
| 24 | RA | 2758 | A |
| 24 | RA | 2761 | G |
| 24 | RA | 2764 | A |
| 24 | RA | 2765 | A |
| 24 | RA | 2766 | G |
| 24 | RA | 2778 | A |
| 24 | RA | 2779 | U |
| 24 | RA | 2780 | G |
| 24 | RA | 2787 | C |
| 24 | RA | 2789 | C |
| 24 | RA | 2790 | A |
| 24 | RA | 2791 | C |
| 24 | RA | 2797 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 24 | RA | 2798 | C |
| 24 | RA | 2810 | A |
| 24 | RA | 2818 | G |
| 24 | RA | 2820 | A |
| 24 | RA | 2821 | A |
| 24 | RA | 2833 | G |
| 24 | RA | 2834 | G |
| 24 | RA | 2835 | A |
| 24 | RA | 2844 | G |
| 24 | RA | 2847 | U |
| 24 | RA | 2849 | U |
| 24 | RA | 2867 | G |
| 24 | RA | 2868 | A |
| 24 | RA | 2871 | C |
| 24 | RA | 2872 | G |
| 24 | RA | 2879 | C |
| 24 | RA | 2880 | C |
| 24 | RA | 2884 | U |
| 24 | RA | 2891 | G |
| 24 | RA | 2892 | A |
| 24 | RA | 2894 | G |
| 24 | RA | 2895 | U |
| 24 | RA | 2897 | U |
| 25 | RB | 8 | U |
| 25 | RB | 13 | A |
| 25 | RB | 15 | A |
| 25 | RB | 16 | G |
| 25 | RB | 22 | U |
| 25 | RB | 25 | A |
| 25 | RB | 26 | A |
| 25 | RB | 40 | U |
| 25 | RB | 41 | U |
| 25 | RB | 42 | C |
| 25 | RB | 43 | C |
| 25 | RB | 44 | G |
| 25 | RB | 45 | A |
| 25 | RB | 47 | C |
| 25 | RB | 52 | A |
| 25 | RB | 56 | G |
| 25 | RB | 67 | G |
| 25 | RB | 73 | A |
| 25 | RB | 81 | G |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 25 | RB | 89 | G |
| 25 | RB | 105 | G |
| 25 | RB | 108 | C |
| 25 | RB | 109 | G |
| 25 | RB | 115 | G |
| 1 | XA | 6 | G |
| 1 | XA | 7 | G |
| 1 | XA | 9 | G |
| 1 | XA | 32 | A |
| 1 | XA | 39 | G |
| 1 | XA | 47 | C |
| 1 | XA | 48 | C |
| 1 | XA | 50 | A |
| 1 | XA | 51 | A |
| 1 | XA | 54 | C |
| 1 | XA | 61 | G |
| 1 | XA | 65 | U |
| 1 | XA | 66 | G |
| 1 | XA | 79 | G |
| 1 | XA | 80 | G |
| 1 | XA | 89 | U |
| 1 | XA | 90 | C |
| 1 | XA | 91 | C |
| 1 | XA | 92 | G |
| 1 | XA | 95 | G |
| 1 | XA | 101 | A |
| 1 | XA | 116 | A |
| 1 | XA | 121 | C |
| 1 | XA | 129(A) | G |
| 1 | XA | 130 | A |
| 1 | XA | 131 | C |
| 1 | XA | 144 | G |
| 1 | XA | 147 | G |
| 1 | XA | 151 | A |
| 1 | XA | 163 | C |
| 1 | XA | 169 | C |
| 1 | XA | 172 | A |
| 1 | XA | 173 | U |
| 1 | XA | 174 | C |
| 1 | XA | 182 | U |
| 1 | XA | 190 | G |
| 1 | XA | 191(C) | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | XA | 195 | A |
| 1 | XA | 197 | A |
| 1 | XA | 199 | G |
| 1 | XA | 201 | C |
| 1 | XA | 209 | U |
| 1 | XA | 210 | U |
| 1 | XA | 216 | G |
| 1 | XA | 222 | U |
| 1 | XA | 226 | G |
| 1 | XA | 244 | U |
| 1 | XA | 245 | C |
| 1 | XA | 247 | G |
| 1 | XA | 251 | G |
| 1 | XA | 262 | A |
| 1 | XA | 267 | C |
| 1 | XA | 281 | G |
| 1 | XA | 289 | G |
| 1 | XA | 316 | G |
| 1 | XA | 321 | A |
| 1 | XA | 325 | A |
| 1 | XA | 328 | C |
| 1 | XA | 329 | A |
| 1 | XA | 332 | G |
| 1 | XA | 345 | C |
| 1 | XA | 346 | G |
| 1 | XA | 352 | C |
| 1 | XA | 353 | A |
| 1 | XA | 354 | G |
| 1 | XA | 367 | U |
| 1 | XA | 372 | C |
| 1 | XA | 383 | A |
| 1 | XA | 384 | G |
| 1 | XA | 389 | A |
| 1 | XA | 397 | A |
| 1 | XA | 398 | C |
| 1 | XA | 406 | G |
| 1 | XA | 411 | A |
| 1 | XA | 412 | A |
| 1 | XA | 413 | G |
| 1 | XA | 414 | A |
| 1 | XA | 422 | C |
| 1 | XA | 423 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | XA | 424 | G |
| 1 | XA | 429 | U |
| 1 | XA | 430 | A |
| 1 | XA | 438 | G |
| 1 | XA | 439 | A |
| 1 | XA | 452 | A |
| 1 | XA | 464 | G |
| 1 | XA | 466 | C |
| 1 | XA | 467 | G |
| 1 | XA | 485 | G |
| 1 | XA | 486 | U |
| 1 | XA | 496 | A |
| 1 | XA | 497 | U |
| 1 | XA | 505 | G |
| 1 | XA | 509 | A |
| 1 | XA | 510 | A |
| 1 | XA | 511 | C |
| 1 | XA | 518 | C |
| 1 | XA | 527 | G |
| 1 | XA | 531 | U |
| 1 | XA | 532 | A |
| 1 | XA | 533 | A |
| 1 | XA | 547 | A |
| 1 | XA | 548 | G |
| 1 | XA | 559 | A |
| 1 | XA | 562 | C |
| 1 | XA | 566 | G |
| 1 | XA | 568 | G |
| 1 | XA | 572 | A |
| 1 | XA | 573 | A |
| 1 | XA | 576 | G |
| 1 | XA | 577 | G |
| 1 | XA | 579 | G |
| 1 | XA | 587 | G |
| 1 | XA | 618 | C |
| 1 | XA | 630 | G |
| 1 | XA | 631 | G |
| 1 | XA | 632 | A |
| 1 | XA | 633 | G |
| 1 | XA | 634 | C |
| 1 | XA | 639 | G |
| 1 | XA | 642 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | XA | 653 | A |
| 1 | XA | 665 | A |
| 1 | XA | 688 | G |
| 1 | XA | 703 | G |
| 1 | XA | 704 | A |
| 1 | XA | 721 | G |
| 1 | XA | 731 | G |
| 1 | XA | 734 | G |
| 1 | XA | 749 | C |
| 1 | XA | 753 | A |
| 1 | XA | 755 | G |
| 1 | XA | 774 | G |
| 1 | XA | 777 | A |
| 1 | XA | 792 | A |
| 1 | XA | 793 | U |
| 1 | XA | 794 | A |
| 1 | XA | 799 | G |
| 1 | XA | 813 | U |
| 1 | XA | 816 | A |
| 1 | XA | 817 | C |
| 1 | XA | 818 | G |
| 1 | XA | 821 | G |
| 1 | XA | 828 | A |
| 1 | XA | 841 | U |
| 1 | XA | 842 | C |
| 1 | XA | 843 | U |
| 1 | XA | 848 | C |
| 1 | XA | 859 | A |
| 1 | XA | 870 | U |
| 1 | XA | 871 | U |
| 1 | XA | 872 | A |
| 1 | XA | 889 | A |
| 1 | XA | 891 | U |
| 1 | XA | 902 | G |
| 1 | XA | 914 | A |
| 1 | XA | 926 | G |
| 1 | XA | 927 | G |
| 1 | XA | 934 | C |
| 1 | XA | 942 | G |
| 1 | XA | 958 | A |
| 1 | XA | 960 | U |
| 1 | XA | 968 | A |

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| Mol | Chain | Res | Type |
|-----|-------|---------|------|
| 1 | XA | 969 | A |
| 1 | XA | 971 | G |
| 1 | XA | 975 | A |
| 1 | XA | 976 | G |
| 1 | XA | 977 | A |
| 1 | XA | 982 | U |
| 1 | XA | 983 | A |
| 1 | XA | 991 | U |
| 1 | XA | 992 | U |
| 1 | XA | 993 | G |
| 1 | XA | 994 | A |
| 1 | XA | 1002 | G |
| 1 | XA | 1004 | A |
| 1 | XA | 1006 | C |
| 1 | XA | 1008 | C |
| 1 | XA | 1009 | G |
| 1 | XA | 1020 | U |
| 1 | XA | 1024 | G |
| 1 | XA | 1025 | U |
| 1 | XA | 1027 | C |
| 1 | XA | 1028 | C |
| 1 | XA | 1028(A) | C |
| 1 | XA | 1029 | G |
| 1 | XA | 1031 | G |
| 1 | XA | 1032(A) | G |
| 1 | XA | 1040 | U |
| 1 | XA | 1042 | G |
| 1 | XA | 1053 | G |
| 1 | XA | 1054 | C |
| 1 | XA | 1064 | G |
| 1 | XA | 1066 | C |
| 1 | XA | 1081 | G |
| 1 | XA | 1085 | U |
| 1 | XA | 1094 | G |
| 1 | XA | 1101 | A |
| 1 | XA | 1108 | G |
| 1 | XA | 1124 | G |
| 1 | XA | 1125 | U |
| 1 | XA | 1126 | U |
| 1 | XA | 1127 | G |
| 1 | XA | 1130 | A |
| 1 | XA | 1136 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | XA | 1137 | C |
| 1 | XA | 1138 | G |
| 1 | XA | 1139 | G |
| 1 | XA | 1146 | A |
| 1 | XA | 1157 | A |
| 1 | XA | 1158 | C |
| 1 | XA | 1159 | U |
| 1 | XA | 1160 | G |
| 1 | XA | 1162 | C |
| 1 | XA | 1171 | G |
| 1 | XA | 1176 | A |
| 1 | XA | 1177 | G |
| 1 | XA | 1178 | G |
| 1 | XA | 1180 | A |
| 1 | XA | 1181 | G |
| 1 | XA | 1182 | G |
| 1 | XA | 1183 | A |
| 1 | XA | 1190 | G |
| 1 | XA | 1196 | U |
| 1 | XA | 1200 | C |
| 1 | XA | 1212 | U |
| 1 | XA | 1215 | G |
| 1 | XA | 1225 | A |
| 1 | XA | 1236 | A |
| 1 | XA | 1238 | A |
| 1 | XA | 1240 | U |
| 1 | XA | 1241 | G |
| 1 | XA | 1256 | A |
| 1 | XA | 1257 | U |
| 1 | XA | 1258 | G |
| 1 | XA | 1270 | C |
| 1 | XA | 1272 | G |
| 1 | XA | 1280 | A |
| 1 | XA | 1281 | U |
| 1 | XA | 1282 | C |
| 1 | XA | 1286 | A |
| 1 | XA | 1287 | A |
| 1 | XA | 1300 | G |
| 1 | XA | 1302 | U |
| 1 | XA | 1305 | G |
| 1 | XA | 1319 | A |
| 1 | XA | 1320 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | XA | 1321 | C |
| 1 | XA | 1322 | C |
| 1 | XA | 1323 | G |
| 1 | XA | 1331 | G |
| 1 | XA | 1334 | G |
| 1 | XA | 1335 | C |
| 1 | XA | 1336 | C |
| 1 | XA | 1337 | G |
| 1 | XA | 1338 | G |
| 1 | XA | 1348 | U |
| 1 | XA | 1353 | G |
| 1 | XA | 1363 | A |
| 1 | XA | 1364 | U |
| 1 | XA | 1379 | G |
| 1 | XA | 1398 | A |
| 1 | XA | 1419 | G |
| 1 | XA | 1442 | G |
| 1 | XA | 1446 | A |
| 1 | XA | 1447 | G |
| 1 | XA | 1452 | C |
| 1 | XA | 1453 | G |
| 1 | XA | 1487 | G |
| 1 | XA | 1492 | A |
| 1 | XA | 1493 | A |
| 1 | XA | 1494 | G |
| 1 | XA | 1497 | G |
| 1 | XA | 1499 | A |
| 1 | XA | 1502 | A |
| 1 | XA | 1503 | A |
| 1 | XA | 1504 | G |
| 1 | XA | 1505 | G |
| 1 | XA | 1506 | U |
| 1 | XA | 1507 | A |
| 1 | XA | 1517 | G |
| 1 | XA | 1518 | A |
| 1 | XA | 1519 | A |
| 1 | XA | 1520 | G |
| 1 | XA | 1529 | G |
| 1 | XA | 1530 | G |
| 22 | XV | 18 | U |
| 22 | XV | 19 | G |
| 22 | XV | 20 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22 | XV | 21 | U |
| 22 | XV | 35 | C |
| 22 | XV | 36 | A |
| 22 | XV | 48 | U |
| 22 | XV | 49 | C |
| 22 | XV | 53 | G |
| 22 | XV | 54 | G |
| 22 | XV | 55 | U |
| 22 | XV | 59 | A |
| 22 | XV | 64 | G |
| 22 | XV | 66 | C |
| 22 | XV | 76 | C |
| 22 | XV | 77 | A |
| 23 | XX | 10 | G |
| 23 | XX | 11 | U |
| 23 | XX | 13 | A |
| 23 | XX | 14 | A |
| 23 | XX | 15 | A |
| 23 | XX | 19 | U |
| 24 | YA | 26 | G |
| 24 | YA | 34 | C |
| 24 | YA | 35 | G |
| 24 | YA | 46 | C |
| 24 | YA | 61 | G |
| 24 | YA | 64 | A |
| 24 | YA | 72 | U |
| 24 | YA | 74 | A |
| 24 | YA | 75 | G |
| 24 | YA | 101 | G |
| 24 | YA | 102 | G |
| 24 | YA | 118 | A |
| 24 | YA | 120 | U |
| 24 | YA | 125 | G |
| 24 | YA | 140 | A |
| 24 | YA | 161 | U |
| 24 | YA | 162 | U |
| 24 | YA | 181 | A |
| 24 | YA | 188 | G |
| 24 | YA | 196 | A |
| 24 | YA | 199 | A |
| 24 | YA | 214 | G |
| 24 | YA | 215 | G |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 24 | YA | 216 | A |
| 24 | YA | 222 | A |
| 24 | YA | 223 | A |
| 24 | YA | 226 | G |
| 24 | YA | 228 | A |
| 24 | YA | 229 | A |
| 24 | YA | 230 | U |
| 24 | YA | 232 | G |
| 24 | YA | 242 | G |
| 24 | YA | 243 | U |
| 24 | YA | 248 | G |
| 24 | YA | 252 | G |
| 24 | YA | 265 | A |
| 24 | YA | 266 | G |
| 24 | YA | 270(G) | C |
| 24 | YA | 270(L) | U |
| 24 | YA | 270(M) | U |
| 24 | YA | 270(N) | G |
| 24 | YA | 270(O) | U |
| 24 | YA | 271(B) | G |
| 24 | YA | 271(C) | U |
| 24 | YA | 271(D) | G |
| 24 | YA | 274 | G |
| 24 | YA | 275 | G |
| 24 | YA | 276 | A |
| 24 | YA | 278 | A |
| 24 | YA | 279 | C |
| 24 | YA | 299 | A |
| 24 | YA | 311 | A |
| 24 | YA | 323 | G |
| 24 | YA | 324 | A |
| 24 | YA | 329 | G |
| 24 | YA | 330 | A |
| 24 | YA | 332 | A |
| 24 | YA | 342 | G |
| 24 | YA | 345 | A |
| 24 | YA | 352 | G |
| 24 | YA | 360 | G |
| 24 | YA | 363 | G |
| 24 | YA | 363(E) | U |
| 24 | YA | 364 | C |
| 24 | YA | 371 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 372 | G |
| 24 | YA | 373 | U |
| 24 | YA | 386 | G |
| 24 | YA | 387 | U |
| 24 | YA | 395 | U |
| 24 | YA | 396 | G |
| 24 | YA | 405 | U |
| 24 | YA | 406 | G |
| 24 | YA | 411 | G |
| 24 | YA | 412 | A |
| 24 | YA | 428 | A |
| 24 | YA | 443 | A |
| 24 | YA | 444 | C |
| 24 | YA | 448 | U |
| 24 | YA | 454 | A |
| 24 | YA | 455 | C |
| 24 | YA | 457 | A |
| 24 | YA | 458 | G |
| 24 | YA | 470 | A |
| 24 | YA | 481 | G |
| 24 | YA | 504 | U |
| 24 | YA | 505 | A |
| 24 | YA | 509 | C |
| 24 | YA | 510 | C |
| 24 | YA | 512 | G |
| 24 | YA | 531 | C |
| 24 | YA | 532 | A |
| 24 | YA | 537 | C |
| 24 | YA | 539 | G |
| 24 | YA | 540 | G |
| 24 | YA | 546 | C |
| 24 | YA | 547 | A |
| 24 | YA | 549 | G |
| 24 | YA | 563 | G |
| 24 | YA | 568 | U |
| 24 | YA | 571 | A |
| 24 | YA | 573 | G |
| 24 | YA | 575 | A |
| 24 | YA | 603 | A |
| 24 | YA | 607 | U |
| 24 | YA | 614 | U |
| 24 | YA | 615 | G |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 24 | YA | 616 | A |
| 24 | YA | 617 | G |
| 24 | YA | 621 | A |
| 24 | YA | 627 | A |
| 24 | YA | 637 | A |
| 24 | YA | 638 | G |
| 24 | YA | 645 | C |
| 24 | YA | 646 | A |
| 24 | YA | 651 | G |
| 24 | YA | 654(A) | G |
| 24 | YA | 669 | G |
| 24 | YA | 686 | G |
| 24 | YA | 702 | G |
| 24 | YA | 717 | G |
| 24 | YA | 722 | A |
| 24 | YA | 730 | C |
| 24 | YA | 753 | C |
| 24 | YA | 764 | A |
| 24 | YA | 775 | G |
| 24 | YA | 776 | G |
| 24 | YA | 782 | A |
| 24 | YA | 783 | A |
| 24 | YA | 784 | A |
| 24 | YA | 785 | G |
| 24 | YA | 790 | C |
| 24 | YA | 791 | C |
| 24 | YA | 792 | G |
| 24 | YA | 805 | G |
| 24 | YA | 812 | C |
| 24 | YA | 819 | A |
| 24 | YA | 827 | U |
| 24 | YA | 828 | U |
| 24 | YA | 831 | G |
| 24 | YA | 846 | C |
| 24 | YA | 847 | U |
| 24 | YA | 856 | C |
| 24 | YA | 857 | C |
| 24 | YA | 860 | U |
| 24 | YA | 866 | A |
| 24 | YA | 881 | G |
| 24 | YA | 882 | G |
| 24 | YA | 884 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 885 | C |
| 24 | YA | 886 | C |
| 24 | YA | 888 | C |
| 24 | YA | 889 | C |
| 24 | YA | 890 | A |
| 24 | YA | 896 | A |
| 24 | YA | 897 | C |
| 24 | YA | 898 | C |
| 24 | YA | 900 | A |
| 24 | YA | 907 | U |
| 24 | YA | 910 | A |
| 24 | YA | 914 | C |
| 24 | YA | 915 | C |
| 24 | YA | 917 | A |
| 24 | YA | 918 | A |
| 24 | YA | 932 | G |
| 24 | YA | 941 | A |
| 24 | YA | 945 | A |
| 24 | YA | 946 | G |
| 24 | YA | 959 | A |
| 24 | YA | 961 | C |
| 24 | YA | 973 | A |
| 24 | YA | 974 | G |
| 24 | YA | 974(A) | C |
| 24 | YA | 980 | A |
| 24 | YA | 983 | A |
| 24 | YA | 996 | A |
| 24 | YA | 1005 | C |
| 24 | YA | 1011 | G |
| 24 | YA | 1012 | U |
| 24 | YA | 1013 | C |
| 24 | YA | 1015 | G |
| 24 | YA | 1022 | G |
| 24 | YA | 1023 | U |
| 24 | YA | 1025 | G |
| 24 | YA | 1026 | U |
| 24 | YA | 1027 | A |
| 24 | YA | 1033 | U |
| 24 | YA | 1046 | A |
| 24 | YA | 1047 | G |
| 24 | YA | 1050 | A |
| 24 | YA | 1054 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 1059 | G |
| 24 | YA | 1060 | U |
| 24 | YA | 1061 | U |
| 24 | YA | 1063 | G |
| 24 | YA | 1065 | U |
| 24 | YA | 1066 | U |
| 24 | YA | 1067 | A |
| 24 | YA | 1068 | G |
| 24 | YA | 1070 | A |
| 24 | YA | 1071 | G |
| 24 | YA | 1074 | G |
| 24 | YA | 1079 | C |
| 24 | YA | 1082 | U |
| 24 | YA | 1083 | U |
| 24 | YA | 1084 | A |
| 24 | YA | 1085 | A |
| 24 | YA | 1086 | A |
| 24 | YA | 1087 | G |
| 24 | YA | 1088 | A |
| 24 | YA | 1093 | G |
| 24 | YA | 1096 | A |
| 24 | YA | 1097 | U |
| 24 | YA | 1099 | G |
| 24 | YA | 1103 | A |
| 24 | YA | 1104 | C |
| 24 | YA | 1110 | G |
| 24 | YA | 1111 | A |
| 24 | YA | 1122 | G |
| 24 | YA | 1126 | A |
| 24 | YA | 1130 | U |
| 24 | YA | 1131 | G |
| 24 | YA | 1135 | C |
| 24 | YA | 1136 | G |
| 24 | YA | 1139 | G |
| 24 | YA | 1142(A) | A |
| 24 | YA | 1151 | G |
| 24 | YA | 1168 | G |
| 24 | YA | 1173 | G |
| 24 | YA | 1174 | A |
| 24 | YA | 1175 | U |
| 24 | YA | 1176 | G |
| 24 | YA | 1179 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 1195 | G |
| 24 | YA | 1204 | A |
| 24 | YA | 1205 | U |
| 24 | YA | 1211 | U |
| 24 | YA | 1220 | A |
| 24 | YA | 1225 | C |
| 24 | YA | 1226 | G |
| 24 | YA | 1236 | G |
| 24 | YA | 1237 | A |
| 24 | YA | 1238 | G |
| 24 | YA | 1250 | G |
| 24 | YA | 1253 | A |
| 24 | YA | 1256 | G |
| 24 | YA | 1265 | A |
| 24 | YA | 1272 | A |
| 24 | YA | 1300 | U |
| 24 | YA | 1301 | A |
| 24 | YA | 1313 | U |
| 24 | YA | 1329 | U |
| 24 | YA | 1341 | U |
| 24 | YA | 1349 | A |
| 24 | YA | 1352 | U |
| 24 | YA | 1365 | A |
| 24 | YA | 1368 | G |
| 24 | YA | 1370 | C |
| 24 | YA | 1379 | A |
| 24 | YA | 1384 | A |
| 24 | YA | 1385 | G |
| 24 | YA | 1391 | U |
| 24 | YA | 1406 | U |
| 24 | YA | 1407 | C |
| 24 | YA | 1411 | C |
| 24 | YA | 1416 | G |
| 24 | YA | 1419 | A |
| 24 | YA | 1420 | U |
| 24 | YA | 1421 | G |
| 24 | YA | 1428 | C |
| 24 | YA | 1444(A) | A |
| 24 | YA | 1445 | C |
| 24 | YA | 1449 | A |
| 24 | YA | 1449(A) | G |
| 24 | YA | 1455 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 1458 | C |
| 24 | YA | 1460 | A |
| 24 | YA | 1461 | G |
| 24 | YA | 1467 | C |
| 24 | YA | 1471 | A |
| 24 | YA | 1478 | G |
| 24 | YA | 1482 | U |
| 24 | YA | 1483 | G |
| 24 | YA | 1487 | G |
| 24 | YA | 1490 | A |
| 24 | YA | 1493 | C |
| 24 | YA | 1496 | A |
| 24 | YA | 1497 | U |
| 24 | YA | 1506 | C |
| 24 | YA | 1507 | A |
| 24 | YA | 1510 | A |
| 24 | YA | 1511 | A |
| 24 | YA | 1520 | U |
| 24 | YA | 1522 | G |
| 24 | YA | 1523 | U |
| 24 | YA | 1535 | U |
| 24 | YA | 1536 | A |
| 24 | YA | 1537 | C |
| 24 | YA | 1538 | G |
| 24 | YA | 1540 | G |
| 24 | YA | 1541 | U |
| 24 | YA | 1543 | A |
| 24 | YA | 1544 | C |
| 24 | YA | 1545 | A |
| 24 | YA | 1547 | C |
| 24 | YA | 1558 | A |
| 24 | YA | 1559 | G |
| 24 | YA | 1566 | A |
| 24 | YA | 1569 | A |
| 24 | YA | 1578 | U |
| 24 | YA | 1580 | A |
| 24 | YA | 1581 | G |
| 24 | YA | 1586 | A |
| 24 | YA | 1591 | G |
| 24 | YA | 1597 | A |
| 24 | YA | 1598 | C |
| 24 | YA | 1608 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 1609 | A |
| 24 | YA | 1616 | A |
| 24 | YA | 1617 | C |
| 24 | YA | 1618 | A |
| 24 | YA | 1640 | C |
| 24 | YA | 1648 | C |
| 24 | YA | 1654 | A |
| 24 | YA | 1672 | C |
| 24 | YA | 1674 | G |
| 24 | YA | 1675 | C |
| 24 | YA | 1688 | U |
| 24 | YA | 1693 | U |
| 24 | YA | 1695 | G |
| 24 | YA | 1698 | A |
| 24 | YA | 1725 | G |
| 24 | YA | 1729 | A |
| 24 | YA | 1731 | G |
| 24 | YA | 1732 | A |
| 24 | YA | 1733 | G |
| 24 | YA | 1743 | G |
| 24 | YA | 1750 | G |
| 24 | YA | 1753 | G |
| 24 | YA | 1754 | C |
| 24 | YA | 1756 | G |
| 24 | YA | 1763 | G |
| 24 | YA | 1764 | G |
| 24 | YA | 1773 | A |
| 24 | YA | 1780 | A |
| 24 | YA | 1782 | C |
| 24 | YA | 1784 | A |
| 24 | YA | 1786 | A |
| 24 | YA | 1791 | A |
| 24 | YA | 1799 | G |
| 24 | YA | 1800 | C |
| 24 | YA | 1801 | G |
| 24 | YA | 1809 | A |
| 24 | YA | 1816 | G |
| 24 | YA | 1829 | A |
| 24 | YA | 1847 | A |
| 24 | YA | 1848 | A |
| 24 | YA | 1858 | G |
| 24 | YA | 1869 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 1870 | C |
| 24 | YA | 1872 | A |
| 24 | YA | 1878 | G |
| 24 | YA | 1882 | C |
| 24 | YA | 1889 | A |
| 24 | YA | 1899 | G |
| 24 | YA | 1903 | G |
| 24 | YA | 1906 | G |
| 24 | YA | 1913 | A |
| 24 | YA | 1914 | C |
| 24 | YA | 1919 | A |
| 24 | YA | 1927 | A |
| 24 | YA | 1929 | G |
| 24 | YA | 1930 | G |
| 24 | YA | 1936 | A |
| 24 | YA | 1938 | A |
| 24 | YA | 1939 | U |
| 24 | YA | 1940 | U |
| 24 | YA | 1955 | U |
| 24 | YA | 1960 | A |
| 24 | YA | 1963 | U |
| 24 | YA | 1967 | C |
| 24 | YA | 1969 | A |
| 24 | YA | 1970 | A |
| 24 | YA | 1971 | A |
| 24 | YA | 1972 | A |
| 24 | YA | 1982 | C |
| 24 | YA | 1992 | G |
| 24 | YA | 1993 | U |
| 24 | YA | 2013 | A |
| 24 | YA | 2020 | A |
| 24 | YA | 2021 | C |
| 24 | YA | 2023 | G |
| 24 | YA | 2031 | A |
| 24 | YA | 2033 | A |
| 24 | YA | 2043 | C |
| 24 | YA | 2052 | G |
| 24 | YA | 2055 | C |
| 24 | YA | 2056 | G |
| 24 | YA | 2059 | A |
| 24 | YA | 2060 | A |
| 24 | YA | 2061 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 2062 | A |
| 24 | YA | 2069 | G |
| 24 | YA | 2093 | G |
| 24 | YA | 2099 | U |
| 24 | YA | 2100 | G |
| 24 | YA | 2104 | G |
| 24 | YA | 2105 | C |
| 24 | YA | 2111 | C |
| 24 | YA | 2113 | U |
| 24 | YA | 2114 | A |
| 24 | YA | 2115 | G |
| 24 | YA | 2116 | G |
| 24 | YA | 2117 | A |
| 24 | YA | 2118 | U |
| 24 | YA | 2120 | G |
| 24 | YA | 2122 | U |
| 24 | YA | 2126 | A |
| 24 | YA | 2127 | G |
| 24 | YA | 2128 | C |
| 24 | YA | 2132 | U |
| 24 | YA | 2133 | G |
| 24 | YA | 2134 | A |
| 24 | YA | 2136 | C |
| 24 | YA | 2138 | C |
| 24 | YA | 2145 | C |
| 24 | YA | 2146 | C |
| 24 | YA | 2147 | G |
| 24 | YA | 2149 | G |
| 24 | YA | 2152 | G |
| 24 | YA | 2155 | G |
| 24 | YA | 2156 | G |
| 24 | YA | 2157 | G |
| 24 | YA | 2158 | A |
| 24 | YA | 2163 | C |
| 24 | YA | 2164 | C |
| 24 | YA | 2165 | G |
| 24 | YA | 2166 | G |
| 24 | YA | 2168 | G |
| 24 | YA | 2169 | A |
| 24 | YA | 2171 | A |
| 24 | YA | 2173 | A |
| 24 | YA | 2175 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 24 | YA | 2176 | A |
| 24 | YA | 2180 | U |
| 24 | YA | 2189 | U |
| 24 | YA | 2190 | G |
| 24 | YA | 2192 | G |
| 24 | YA | 2193 | G |
| 24 | YA | 2194 | G |
| 24 | YA | 2198 | A |
| 24 | YA | 2210 | G |
| 24 | YA | 2211 | G |
| 24 | YA | 2212 | A |
| 24 | YA | 2213 | U |
| 24 | YA | 2215 | G |
| 24 | YA | 2225 | A |
| 24 | YA | 2238 | G |
| 24 | YA | 2239 | G |
| 24 | YA | 2243 | U |
| 24 | YA | 2266 | A |
| 24 | YA | 2275 | C |
| 24 | YA | 2278 | A |
| 24 | YA | 2280 | G |
| 24 | YA | 2283 | C |
| 24 | YA | 2287 | A |
| 24 | YA | 2288 | A |
| 24 | YA | 2305 | A |
| 24 | YA | 2307 | G |
| 24 | YA | 2308 | G |
| 24 | YA | 2311 | A |
| 24 | YA | 2320 | A |
| 24 | YA | 2325 | G |
| 24 | YA | 2334 | G |
| 24 | YA | 2335 | A |
| 24 | YA | 2346 | A |
| 24 | YA | 2347 | C |
| 24 | YA | 2350 | C |
| 24 | YA | 2358 | G |
| 24 | YA | 2383 | G |
| 24 | YA | 2385 | C |
| 24 | YA | 2392 | A |
| 24 | YA | 2394 | C |
| 24 | YA | 2402 | C |
| 24 | YA | 2403 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 2406 | U |
| 24 | YA | 2410 | G |
| 24 | YA | 2423 | U |
| 24 | YA | 2425 | A |
| 24 | YA | 2427 | C |
| 24 | YA | 2429 | G |
| 24 | YA | 2430 | A |
| 24 | YA | 2435 | A |
| 24 | YA | 2439 | A |
| 24 | YA | 2441 | C |
| 24 | YA | 2446 | G |
| 24 | YA | 2448 | A |
| 24 | YA | 2450 | A |
| 24 | YA | 2465 | C |
| 24 | YA | 2469 | A |
| 24 | YA | 2470 | G |
| 24 | YA | 2475 | C |
| 24 | YA | 2480 | C |
| 24 | YA | 2494 | G |
| 24 | YA | 2502 | G |
| 24 | YA | 2505 | G |
| 24 | YA | 2518 | A |
| 24 | YA | 2520 | C |
| 24 | YA | 2525 | G |
| 24 | YA | 2529 | G |
| 24 | YA | 2542 | A |
| 24 | YA | 2554 | U |
| 24 | YA | 2567 | G |
| 24 | YA | 2576 | G |
| 24 | YA | 2602 | A |
| 24 | YA | 2609 | U |
| 24 | YA | 2611 | U |
| 24 | YA | 2612 | C |
| 24 | YA | 2615 | U |
| 24 | YA | 2629 | A |
| 24 | YA | 2655 | G |
| 24 | YA | 2656 | U |
| 24 | YA | 2665 | A |
| 24 | YA | 2666 | C |
| 24 | YA | 2673 | G |
| 24 | YA | 2675 | A |
| 24 | YA | 2682 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 24 | YA | 2689 | U |
| 24 | YA | 2701 | C |
| 24 | YA | 2702 | U |
| 24 | YA | 2707 | G |
| 24 | YA | 2712 | U |
| 24 | YA | 2712(A) | A |
| 24 | YA | 2713 | A |
| 24 | YA | 2724 | C |
| 24 | YA | 2726 | U |
| 24 | YA | 2733 | A |
| 24 | YA | 2734 | A |
| 24 | YA | 2739 | U |
| 24 | YA | 2744 | G |
| 24 | YA | 2758 | A |
| 24 | YA | 2762 | G |
| 24 | YA | 2764 | A |
| 24 | YA | 2765 | A |
| 24 | YA | 2766 | G |
| 24 | YA | 2777 | G |
| 24 | YA | 2778 | A |
| 24 | YA | 2779 | U |
| 24 | YA | 2789 | C |
| 24 | YA | 2790 | A |
| 24 | YA | 2791 | C |
| 24 | YA | 2797 | U |
| 24 | YA | 2804 | C |
| 24 | YA | 2807 | G |
| 24 | YA | 2808 | U |
| 24 | YA | 2818 | G |
| 24 | YA | 2820 | A |
| 24 | YA | 2821 | A |
| 24 | YA | 2830 | G |
| 24 | YA | 2832 | U |
| 24 | YA | 2833 | G |
| 24 | YA | 2834 | G |
| 24 | YA | 2835 | A |
| 24 | YA | 2867 | G |
| 24 | YA | 2868 | A |
| 24 | YA | 2872 | G |
| 24 | YA | 2891 | G |
| 24 | YA | 2892 | A |
| 24 | YA | 2893 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 24 | YA | 2894 | G |
| 25 | YB | 8 | U |
| 25 | YB | 13 | A |
| 25 | YB | 15 | A |
| 25 | YB | 16 | G |
| 25 | YB | 19 | G |
| 25 | YB | 21 | G |
| 25 | YB | 25 | A |
| 25 | YB | 32 | C |
| 25 | YB | 33 | G |
| 25 | YB | 41 | U |
| 25 | YB | 42 | C |
| 25 | YB | 44 | G |
| 25 | YB | 45 | A |
| 25 | YB | 52 | A |
| 25 | YB | 56 | G |
| 25 | YB | 67 | G |
| 25 | YB | 73 | A |
| 25 | YB | 81 | G |
| 25 | YB | 82 | G |
| 25 | YB | 89 | G |
| 25 | YB | 105 | G |
| 25 | YB | 108 | C |
| 25 | YB | 109 | G |

All (133) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | QA | 64 | G |
| 1 | QA | 115 | G |
| 1 | QA | 243 | A |
| 1 | QA | 244 | U |
| 1 | QA | 250 | A |
| 1 | QA | 266 | G |
| 1 | QA | 328 | C |
| 1 | QA | 412 | A |
| 1 | QA | 428 | G |
| 1 | QA | 484 | G |
| 1 | QA | 485 | G |
| 1 | QA | 509 | A |
| 1 | QA | 560 | U |
| 1 | QA | 687 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | QA | 703 | G |
| 1 | QA | 753 | A |
| 1 | QA | 792 | A |
| 1 | QA | 913 | A |
| 1 | QA | 992 | U |
| 1 | QA | 1027 | C |
| 1 | QA | 1065 | U |
| 1 | QA | 1200 | C |
| 1 | QA | 1285 | A |
| 1 | QA | 1301 | U |
| 1 | QA | 1346 | A |
| 1 | QA | 1347 | G |
| 1 | QA | 1446 | A |
| 1 | QA | 1453 | G |
| 1 | QA | 1498 | U |
| 1 | QA | 1528 | U |
| 22 | QV | 35 | C |
| 22 | QV | 53 | G |
| 24 | RA | 74 | A |
| 24 | RA | 99 | U |
| 24 | RA | 229 | A |
| 24 | RA | 271(B) | G |
| 24 | RA | 345 | A |
| 24 | RA | 372 | G |
| 24 | RA | 404 | C |
| 24 | RA | 508 | G |
| 24 | RA | 512 | G |
| 24 | RA | 587 | C |
| 24 | RA | 637 | A |
| 24 | RA | 752 | A |
| 24 | RA | 846 | C |
| 24 | RA | 856 | C |
| 24 | RA | 1022 | G |
| 24 | RA | 1026 | U |
| 24 | RA | 1085 | A |
| 24 | RA | 1178 | C |
| 24 | RA | 1204 | A |
| 24 | RA | 1210 | A |
| 24 | RA | 1312 | U |
| 24 | RA | 1427 | A |
| 24 | RA | 1558 | A |
| 24 | RA | 1653 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 24 | RA | 1786 | A |
| 24 | RA | 1819 | A |
| 24 | RA | 1992 | G |
| 24 | RA | 2126 | A |
| 24 | RA | 2439 | A |
| 24 | RA | 2566 | A |
| 24 | RA | 2610 | C |
| 24 | RA | 2689 | U |
| 24 | RA | 2867 | G |
| 25 | RB | 66 | A |
| 1 | XA | 60 | A |
| 1 | XA | 78 | G |
| 1 | XA | 89 | U |
| 1 | XA | 115 | G |
| 1 | XA | 181 | G |
| 1 | XA | 243 | A |
| 1 | XA | 244 | U |
| 1 | XA | 250 | A |
| 1 | XA | 266 | G |
| 1 | XA | 328 | C |
| 1 | XA | 388 | G |
| 1 | XA | 410 | G |
| 1 | XA | 412 | A |
| 1 | XA | 429 | U |
| 1 | XA | 484 | G |
| 1 | XA | 485 | G |
| 1 | XA | 509 | A |
| 1 | XA | 687 | A |
| 1 | XA | 703 | G |
| 1 | XA | 812 | C |
| 1 | XA | 913 | A |
| 1 | XA | 992 | U |
| 1 | XA | 1285 | A |
| 1 | XA | 1336 | C |
| 1 | XA | 1347 | G |
| 1 | XA | 1446 | A |
| 1 | XA | 1498 | U |
| 22 | XV | 20 | G |
| 22 | XV | 35 | C |
| 22 | XV | 53 | G |
| 24 | YA | 99 | U |
| 24 | YA | 229 | A |

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| Mol | Chain | Res | Type |
|-----|-------|--------|------|
| 24 | YA | 241 | A |
| 24 | YA | 242 | G |
| 24 | YA | 271(B) | G |
| 24 | YA | 278 | A |
| 24 | YA | 372 | G |
| 24 | YA | 404 | C |
| 24 | YA | 503 | A |
| 24 | YA | 637 | A |
| 24 | YA | 654 | A |
| 24 | YA | 752 | A |
| 24 | YA | 846 | C |
| 24 | YA | 856 | C |
| 24 | YA | 859 | G |
| 24 | YA | 1022 | G |
| 24 | YA | 1026 | U |
| 24 | YA | 1082 | U |
| 24 | YA | 1085 | A |
| 24 | YA | 1178 | C |
| 24 | YA | 1204 | A |
| 24 | YA | 1225 | C |
| 24 | YA | 1427 | A |
| 24 | YA | 1460 | A |
| 24 | YA | 1558 | A |
| 24 | YA | 1653 | G |
| 24 | YA | 1694 | C |
| 24 | YA | 1799 | G |
| 24 | YA | 1992 | G |
| 24 | YA | 2566 | A |
| 24 | YA | 2610 | C |
| 24 | YA | 2681 | C |
| 24 | YA | 2712 | U |
| 24 | YA | 2776 | A |
| 24 | YA | 2832 | U |
| 24 | YA | 2867 | G |
| 25 | YB | 66 | A |

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates

There are no carbohydrates in this entry.

5.6 Ligand geometry

Of 1464 ligands modelled in this entry, 1462 are monoatomic - leaving 2 for Mogul analysis.

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 | $\# Z > 2$ |
| 56 | SF4 | QD | 301 | - | 0,12,12 | 0.00 | - | - | | |
| 56 | SF4 | XD | 301 | 4 | 0,12,12 | 0.00 | - | - | | |

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 |
|-----|------|-------|-----|------|---------|----------|---------|
| 56 | SF4 | QD | 301 | - | - | - | 0/6/5/5 |
| 56 | SF4 | XD | 301 | 4 | - | - | 0/6/5/5 |

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.

2 monomers are involved in 3 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 56 | QD | 301 | SF4 | 1 | 0 |
| 56 | XD | 301 | SF4 | 2 | 0 |

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

EDS failed to run properly - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

EDS failed to run properly - this section is therefore empty.

6.3 Carbohydrates [i](#)

EDS failed to run properly - this section is therefore empty.

6.4 Ligands [i](#)

EDS failed to run properly - this section is therefore empty.

6.5 Other polymers [i](#)

EDS failed to run properly - this section is therefore empty.