# Full wwPDB EM Validation Report ⓘ

Jul 3, 2025 – 03:47 am BST

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|---|---|---|
| PDB ID | : | 6GQ1 / pdb_00006gq1 |
| EMDB ID | : | EMD-0047 |
| Title | : | Cryo-EM reconstruction of yeast 80S ribosome in complex with mRNA, tRNA and eEF2 (GMPPCP/sordarin) |
| Authors | : | Pellegrino, S.; Demeshkina, N.; Mancera-Martinez, E.; Melnikov, S.; Simonetti, A.; Myasnikov, A.; Yusupov, M.; Yusupova, G.; Hashem, Y. |
| Deposited on | : | 2018-06-07 |
| Resolution | : | 4.40 Å(reported) |

This is a Full wwPDB EM 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/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

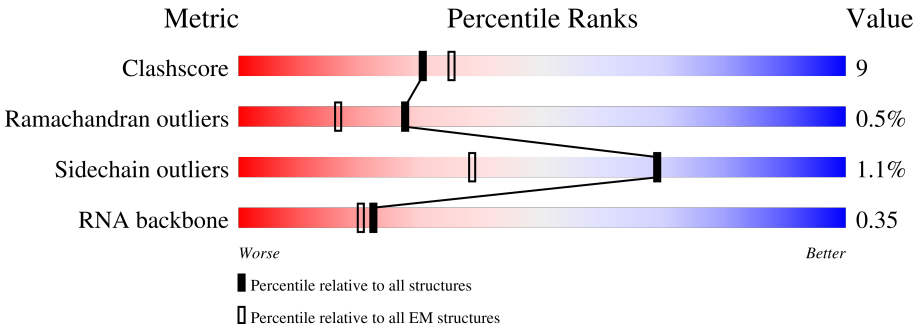
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev118 |
| Mogul | : | 1.8.4, CSD as541be (2020) |
| MolProbity | : | 4-5-2 with Phenix2.0rc1 |
| buster-report | : | 1.1.7 (2018) |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.44 |

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 4.40 Å.

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




| Metric | Whole archive (#Entries) | EM structures (#Entries) |
|---|---|---|
| Clashscore | 210492 | 15764 |
| Ramachandran outliers | 207382 | 16835 |
| Sidechain outliers | 206894 | 16415 |
| RNA backbone | 6643 | 2191 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | 1 | 3396 | 45% 40% 10% 5% |
| 2 | 3 | 121 | 54% 39% 7% |
| 3 | 4 | 158 | 54% 39% 7% |
| 4 | P0 | 189 | 80% 78% 21% |
| 5 | P2 | 94 | 84% 62% 36% |
| 6 | A | 252 | 6% 76% 23% |
| 7 | B | 386 | 78% 22% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 8 | C | 361 | 78% 21% |
| 9 | D | 296 | 5% 82% 18% |
| 10 | E | 175 | 67% 22% 11% |
| 11 | F | 222 | 75% 23% |
| 12 | G | 233 | 83% 16% |
| 13 | H | 191 | 5% 81% 18% |
| 14 | I | 220 | 6% 75% 21% |
| 15 | J | 169 | 8% 73% 26% |
| 16 | L | 193 | 73% 27% |
| 17 | M | 136 | 76% 23% |
| 18 | N | 203 | 68% 31% |
| 19 | O | 197 | 74% 24% |
| 20 | P | 183 | 6% 86% 13% |
| 21 | Q | 185 | 84% 16% |
| 22 | R | 188 | 81% 18% |
| 23 | S | 172 | 70% 30% |
| 24 | T | 159 | 82% 17% |
| 25 | U | 100 | 83% 17% |
| 26 | V | 136 | 7% 72% 27% |
| 27 | W | 63 | 79% 19% |
| 28 | X | 121 | 82% 18% |
| 29 | Y | 126 | 73% 27% |
| 30 | Z | 135 | 79% 21% |
| 31 | a | 148 | 77% 23% |
| 32 | b | 58 | 7% 81% 19% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 33 | c | 97 | 77% 21% |
| 34 | d | 109 | 7% 78% 22% |
| 35 | e | 127 | 86% 14% |
| 36 | f | 106 | 65% 33% |
| 37 | g | 112 | 75% 23% |
| 38 | h | 119 | 77% 22% |
| 39 | i | 99 | 5% 74% 24% |
| 40 | j | 87 | 84% 15% |
| 41 | k | 77 | 9% 83% 17% |
| 42 | l | 50 | 66% 30% |
| 43 | m | 52 | 83% 17% |
| 44 | n | 25 | 20% 68% 32% |
| 45 | o | 105 | 6% 81% 17% |
| 46 | p | 91 | 77% 23% |
| 47 | 2 | 1797 | 39% 45% 15% |
| 48 | q | 206 | 7% 79% 20% |
| 49 | r | 214 | 5% 73% 25% |
| 50 | s | 217 | 80% 20% |
| 51 | t | 223 | 36% 69% 30% |
| 52 | u | 260 | 5% 65% 32% |
| 53 | v | 206 | 40% 71% 29% |
| 54 | w | 223 | 9% 67% 28% |
| 55 | x | 184 | 9% 75% 24% |
| 56 | y | 199 | 9% 69% 25% 6% |
| 57 | z | 185 | 5% 66% 32% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 58 | AA | 105 | 16% 63% 27% 9% |
| 59 | AB | 153 | 14% 80% 20% |
| 60 | AC | 124 | 88% 81% 19% |
| 61 | AD | 150 | 7% 71% 26% |
| 62 | AE | 127 | 83% 17% |
| 63 | AF | 124 | 27% 62% 35% |
| 64 | AG | 141 | 32% 69% 30% |
| 65 | AH | 125 | 32% 70% 25% |
| 66 | AI | 145 | 31% 70% 29% |
| 67 | AJ | 143 | 25% 71% 29% |
| 68 | AK | 107 | 52% 63% 37% |
| 69 | AL | 87 | 9% 74% 25% |
| 70 | AM | 129 | 72% 26% |
| 71 | AN | 144 | 10% 76% 20% |
| 72 | AO | 134 | 8% 71% 29% |
| 73 | AP | 70 | 50% 64% 34% |
| 74 | AQ | 97 | 9% 68% 29% |
| 75 | AR | 81 | 5% 86% 14% |
| 76 | AS | 63 | 49% 57% 43% |
| 77 | AT | 53 | 13% 74% 26% |
| 78 | AU | 60 | 17% 93% 7% |
| 79 | AV | 318 | 44% 58% 42% |
| 80 | AW | 37 | 70% 62% 38% |
| 81 | AX | 76 | 9% 30% 55% 14% |
| 82 | AY | 8 | 75% 12% 50% 38% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 83 | AZ | 840 |   |

# 2 Entry composition (i)

There are 86 unique types of molecules in this entry. The entry contains 210540 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called Saccharomyces cerevisiae S288C 35S pre-ribosomal RNA (RDN37-1), miscRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | |
| 1 | 1 | 3223 | 68931 | 30790 | 12416 | 22502 | 3223 | 0 | 0 |

- Molecule 2 is a RNA chain called 5.8S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | |
| 2 | 3 | 121 | 2579 | 1152 | 461 | 845 | 121 | 0 | 0 |

- Molecule 3 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | |
| 3 | 4 | 158 | 3353 | 1500 | 586 | 1109 | 158 | 0 | 0 |

- Molecule 4 is a protein called 60S acidic ribosomal protein P0.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 4 | P0 | 189 | 1473 | 942 | 257 | 270 | 4 | 0 | 0 |

- Molecule 5 is a protein called 60S ribosomal protein L12-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 5 | P2 | 94 | 723 | 448 | 138 | 135 | 2 | 0 | 0 |

- Molecule 6 is a protein called 60S ribosomal protein L2-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 6 | A | 252 | 1914 | 1191 | 388 | 334 | 1 | 0 | 0 |

- Molecule 7 is a protein called 60S ribosomal protein L3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 7 | B | 386 | Total | C | N | O | S | 0 | 0 |
| | | | 3075 | 1950 | 584 | 533 | 8 | | |

- Molecule 8 is a protein called 60S ribosomal protein L4-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 8 | C | 361 | Total | C | N | O | S | 0 | 0 |
| | | | 2748 | 1729 | 522 | 494 | 3 | | |

- Molecule 9 is a protein called 60S ribosomal protein L5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 9 | D | 296 | Total | C | N | O | S | 0 | 0 |
| | | | 2375 | 1501 | 414 | 458 | 2 | | |

- Molecule 10 is a protein called 60S ribosomal protein L6-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 10 | E | 156 | Total | C | N | O | S | 0 | 0 |
| | | | 1239 | 800 | 222 | 216 | 1 | | |

- Molecule 11 is a protein called 60S ribosomal protein L7-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 11 | F | 222 | Total | C | N | O | S | 0 | 0 |
| | | | 1784 | 1151 | 324 | 308 | 1 | | |

- Molecule 12 is a protein called 60S ribosomal protein L8-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 12 | G | 233 | Total | C | N | O | S | 0 | 0 |
| | | | 1804 | 1151 | 323 | 327 | 3 | | |

- Molecule 13 is a protein called 60S ribosomal protein L9-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 13 | H | 191 | Total | C | N | O | S | 0 | 0 |
| | | | 1518 | 963 | 274 | 277 | 4 | | |

- Molecule 14 is a protein called 60S ribosomal protein L10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | I | 211 | Total | C | N | O | S | 0 | 0 |
| | | | 1705 | 1083 | 322 | 294 | 6 | | |

- Molecule 15 is a protein called 60S ribosomal protein L11-B.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | J | 169 | Total | C | N | O | S | 0 | 0 |
| | | | 1353 | 847 | 253 | 249 | 4 | | |

- Molecule 16 is a protein called 60S ribosomal protein L13-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 16 | L | 193 | Total | C | N | O | 0 | 0 |
| | | | 1543 | 962 | 315 | 266 | | |

- Molecule 17 is a protein called 60S ribosomal protein L14-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 17 | M | 136 | Total | C | N | O | S | 0 | 0 |
| | | | 1053 | 675 | 199 | 177 | 2 | | |

- Molecule 18 is a protein called 60S ribosomal protein L15-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 18 | N | 203 | Total | C | N | O | S | 0 | 0 |
| | | | 1720 | 1077 | 361 | 281 | 1 | | |

- Molecule 19 is a protein called 60S ribosomal protein L16-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 19 | O | 197 | Total | C | N | O | S | 0 | 0 |
| | | | 1555 | 1003 | 289 | 262 | 1 | | |

- Molecule 20 is a protein called 60S ribosomal protein L17-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 20 | P | 183 | Total | C | N | O | 0 | 0 |
| | | | 1420 | 882 | 281 | 257 | | |

- Molecule 21 is a protein called 60S ribosomal protein L18-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | Q | 185 | Total | C | N | O | S | 0 | 0 |
| | | | 1441 | 908 | 290 | 241 | 2 | | |

- Molecule 22 is a protein called 60S ribosomal protein L19-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 22 | R | 188 | Total | C | N | O | 0 | 0 |
| | | | 1521 | 935 | 326 | 260 | | |

- Molecule 23 is a protein called 60S ribosomal protein L20-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 23 | S | 172 | Total | C | N | O | S | 0 | 0 |
| | | | 1445 | 930 | 267 | 244 | 4 | | |

- Molecule 24 is a protein called 60S ribosomal protein L21-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 24 | T | 159 | Total | C | N | O | S | 0 | 0 |
| | | | 1276 | 805 | 246 | 221 | 4 | | |

- Molecule 25 is a protein called 60S ribosomal protein L22-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 25 | U | 100 | Total | C | N | O | 0 | 0 |
| | | | 796 | 516 | 131 | 149 | | |

- Molecule 26 is a protein called 60S ribosomal protein L23-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 26 | V | 136 | Total | C | N | O | S | 0 | 0 |
| | | | 1003 | 628 | 189 | 179 | 7 | | |

- Molecule 27 is a protein called 60S ribosomal protein L24-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 27 | W | 63 | Total | C | N | O | S | 0 | 0 |
| | | | 521 | 336 | 102 | 82 | 1 | | |

- Molecule 28 is a protein called 60S ribosomal protein L25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 28 | X | 121 | Total<br>964 | C<br>620 | N<br>169 | O<br>173 | S<br>2 | 0 | 0 |

- Molecule 29 is a protein called 60S ribosomal protein L26-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 29 | Y | 126 | Total<br>993 | C<br>625 | N<br>192 | O<br>176 | 0 | 0 |

- Molecule 30 is a protein called 60S ribosomal protein L27-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 30 | Z | 135 | Total<br>1092 | C<br>710 | N<br>202 | O<br>180 | 0 | 0 |

- Molecule 31 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 31 | a | 148 | Total<br>1173 | C<br>749 | N<br>231 | O<br>190 | S<br>3 | 0 | 0 |

- Molecule 32 is a protein called 60S ribosomal protein L29.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 32 | b | 58 | Total<br>462 | C<br>289 | N<br>100 | O<br>73 | 0 | 0 |

- Molecule 33 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 33 | c | 97 | Total<br>743 | C<br>479 | N<br>124 | O<br>139 | S<br>1 | 0 | 0 |

- Molecule 34 is a protein called 60S ribosomal protein L31-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 34 | d | 109 | Total<br>883 | C<br>559 | N<br>167 | O<br>156 | S<br>1 | 0 | 0 |

- Molecule 35 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 35 | e | 127 | Total | C | N | O | S | 0 | 0 |
| | | | 1020 | 647 | 205 | 167 | 1 | | |

- Molecule 36 is a protein called 60S ribosomal protein L33-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 36 | f | 106 | Total | C | N | O | S | 0 | 0 |
| | | | 850 | 540 | 165 | 144 | 1 | | |

- Molecule 37 is a protein called 60S ribosomal protein L34-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 37 | g | 112 | Total | C | N | O | S | 0 | 0 |
| | | | 880 | 545 | 179 | 152 | 4 | | |

- Molecule 38 is a protein called 60S ribosomal protein L35-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 38 | h | 119 | Total | C | N | O | S | 0 | 0 |
| | | | 969 | 615 | 186 | 167 | 1 | | |

- Molecule 39 is a protein called 60S ribosomal protein L36-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 39 | i | 99 | Total | C | N | O | S | 0 | 0 |
| | | | 771 | 481 | 156 | 132 | 2 | | |

- Molecule 40 is a protein called 60S ribosomal protein L37-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 40 | j | 87 | Total | C | N | O | S | 0 | 0 |
| | | | 681 | 414 | 148 | 114 | 5 | | |

- Molecule 41 is a protein called 60S ribosomal protein L38.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 41 | k | 77 | Total | C | N | O | 0 | 0 |
| | | | 612 | 391 | 115 | 106 | | |

- Molecule 42 is a protein called 60S ribosomal protein L39.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 42 | l | 50 | Total | C | N | O | S | 0 | 0 |
| | | | 436 | 272 | 97 | 65 | 2 | | |

- Molecule 43 is a protein called Ubiquitin-60S ribosomal protein L40.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 43 | m | 52 | Total | C | N | O | S | 0 | 0 |
| | | | 417 | 259 | 86 | 67 | 5 | | |

- Molecule 44 is a protein called 60S ribosomal protein L41-B.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 44 | n | 25 | Total | C | N | O | S | 0 | 0 |
| | | | 227 | 139 | 60 | 27 | 1 | | |

- Molecule 45 is a protein called 60S ribosomal protein L42-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 45 | o | 105 | Total | C | N | O | S | 0 | 0 |
| | | | 847 | 534 | 170 | 138 | 5 | | |

- Molecule 46 is a protein called 60S ribosomal protein L43-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 46 | p | 91 | Total | C | N | O | S | 0 | 0 |
| | | | 694 | 429 | 138 | 121 | 6 | | |

- Molecule 47 is a RNA chain called 18S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 47 | 2 | 1776 | Total | C | N | O | P | 0 | 0 |
| | | | 37845 | 16918 | 6702 | 12449 | 1776 | | |

- Molecule 48 is a protein called 40S ribosomal protein S0-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 48 | q | 206 | Total | C | N | O | S | 0 | 0 |
| | | | 1577 | 1014 | 278 | 283 | 2 | | |

- Molecule 49 is a protein called 40S ribosomal protein S1-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 49 | r | 214 | Total | C | N | O | S | 0 | 0 |
| | | | 1709 | 1084 | 310 | 311 | 4 | | |

- Molecule 50 is a protein called 40S ribosomal protein S2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 50 | s | 217 | Total | C | N | O | S | 0 | 0 |
| | | | 1635 | 1047 | 289 | 297 | 2 | | |

- Molecule 51 is a protein called 40S ribosomal protein S3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 51 | t | 223 | Total | C | N | O | S | 0 | 0 |
| | | | 1734 | 1101 | 313 | 314 | 6 | | |

- Molecule 52 is a protein called 40S ribosomal protein S4-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 52 | u | 260 | Total | C | N | O | S | 0 | 0 |
| | | | 2068 | 1316 | 389 | 360 | 3 | | |

- Molecule 53 is a protein called 40S ribosomal protein S5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 53 | v | 206 | Total | C | N | O | S | 0 | 0 |
| | | | 1609 | 1007 | 300 | 299 | 3 | | |

- Molecule 54 is a protein called 40S ribosomal protein S6-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 54 | w | 223 | Total | C | N | O | S | 0 | 0 |
| | | | 1790 | 1123 | 346 | 318 | 3 | | |

- Molecule 55 is a protein called 40S ribosomal protein S7-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 55 | x | 184 | Total | C | N | O | 0 | 0 |
| | | | 1481 | 951 | 265 | 265 | | |

- Molecule 56 is a protein called 40S ribosomal protein S8-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 56 | y | 188 | Total | C | N | O | S | 0 | 0 |
| | | | 1489 | 925 | 298 | 264 | 2 | | |

- Molecule 57 is a protein called 40S ribosomal protein S9-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 57 | z | 185 | Total | C | N | O | S | 0 | 0 |
| | | | 1494 | 943 | 289 | 261 | 1 | | |

- Molecule 58 is a protein called 40S ribosomal protein S10-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 58 | AA | 96 | Total | C | N | O | S | 0 | 0 |
| | | | 772 | 499 | 126 | 145 | 2 | | |

- Molecule 59 is a protein called 40S ribosomal protein S11-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 59 | AB | 153 | Total | C | N | O | S | 0 | 0 |
| | | | 1220 | 780 | 231 | 206 | 3 | | |

- Molecule 60 is a protein called 40S ribosomal protein S12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 60 | AC | 124 | Total | C | N | O | S | 0 | 0 |
| | | | 890 | 560 | 156 | 172 | 2 | | |

- Molecule 61 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 61 | AD | 150 | Total | C | N | O | S | 0 | 0 |
| | | | 1192 | 759 | 224 | 207 | 2 | | |

- Molecule 62 is a protein called 40S ribosomal protein S14-B.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 62 | AE | 127 | Total | C | N | O | S | 0 | 0 |
| | | | 891 | 545 | 182 | 163 | 1 | | |

- Molecule 63 is a protein called 40S ribosomal protein S15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 63 | AF | 124 | Total | C | N | O | S | 0 | 0 |
| | | | 977 | 622 | 182 | 166 | 7 | | |

- Molecule 64 is a protein called 40S ribosomal protein S16-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 64 | AG | 141 | Total | C | N | O | 0 | 0 |
| | | | 1105 | 708 | 203 | 194 | | |

- Molecule 65 is a protein called 40S ribosomal protein S17-B.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 65 | AH | 120 | Total | C | N | O | S | 0 | 0 |
| | | | 926 | 577 | 177 | 170 | 2 | | |

- Molecule 66 is a protein called 40S ribosomal protein S18-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 66 | AI | 145 | Total | C | N | O | S | 0 | 0 |
| | | | 1192 | 743 | 237 | 210 | 2 | | |

- Molecule 67 is a protein called 40S ribosomal protein S19-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 67 | AJ | 143 | Total | C | N | O | S | 0 | 0 |
| | | | 1112 | 694 | 208 | 208 | 2 | | |

- Molecule 68 is a protein called 40S ribosomal protein S20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 68 | AK | 107 | Total | C | N | O | S | 0 | 0 |
| | | | 855 | 539 | 156 | 159 | 1 | | |

- Molecule 69 is a protein called 40S ribosomal protein S21-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 69 | AL | 87 | Total | C | N | O | S | 0 | 0 |
| | | | 684 | 420 | 125 | 137 | 2 | | |

- Molecule 70 is a protein called 40S ribosomal protein S22-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 70 | AM | 129 | Total | C | N | O | S | 0 | 0 |
| | | | 1021 | 650 | 188 | 180 | 3 | | |

- Molecule 71 is a protein called 40S ribosomal protein S23-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 71 | AN | 144 | Total | C | N | O | S | 0 | 0 |
| | | | 1121 | 708 | 220 | 191 | 2 | | |

- Molecule 72 is a protein called 40S ribosomal protein S24-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 72 | AO | 134 | Total | C | N | O | 0 | 0 |
| | | | 1073 | 676 | 208 | 189 | | |

- Molecule 73 is a protein called 40S ribosomal protein S25-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 73 | AP | 70 | Total | C | N | O | 0 | 0 |
| | | | 563 | 360 | 104 | 99 | | |

- Molecule 74 is a protein called 40S ribosomal protein S26-B.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 74 | AQ | 97 | Total | C | N | O | S | 0 | 0 |
| | | | 769 | 475 | 160 | 129 | 5 | | |

- Molecule 75 is a protein called 40S ribosomal protein S27-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 75 | AR | 81 | Total | C | N | O | S | 0 | 0 |
| | | | 610 | 382 | 110 | 113 | 5 | | |

- Molecule 76 is a protein called 40S ribosomal protein S28-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 76 | AS | 63 | Total | C | N | O | S | 0 | 0 |
| | | | 497 | 306 | 99 | 91 | 1 | | |

- Molecule 77 is a protein called 40S ribosomal protein S29-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 77 | AT | 53 | Total | C | N | O | S | 0 | 0 |
| | | | 442 | 274 | 92 | 72 | 4 | | |

- Molecule 78 is a protein called 40S ribosomal protein S30-A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 78 | AU | 60 | Total | C | N | O | S | 0 | 0 |
| | | | 475 | 299 | 98 | 77 | 1 | | |

- Molecule 79 is a protein called Guanine nucleotide-binding protein subunit beta-like protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 79 | AV | 318 | Total | C | N | O | S | 0 | 0 |
| | | | 2437 | 1541 | 418 | 470 | 8 | | |

- Molecule 80 is a protein called Ubiquitin-40S ribosomal protein S31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 80 | AW | 37 | Total | C | N | O | S | 0 | 0 |
| | | | 287 | 177 | 57 | 49 | 4 | | |

- Molecule 81 is a RNA chain called Transfer RNA - Phe.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 81 | AX | 76 | Total | C | N | O | P | 0 | 0 |
| | | | 1626 | 725 | 293 | 532 | 76 | | |

- Molecule 82 is a RNA chain called Messenger RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 82 | AY | 8 | Total | C | N | O | P | 0 | 0 |
| | | | 164 | 74 | 23 | 59 | 8 | | |

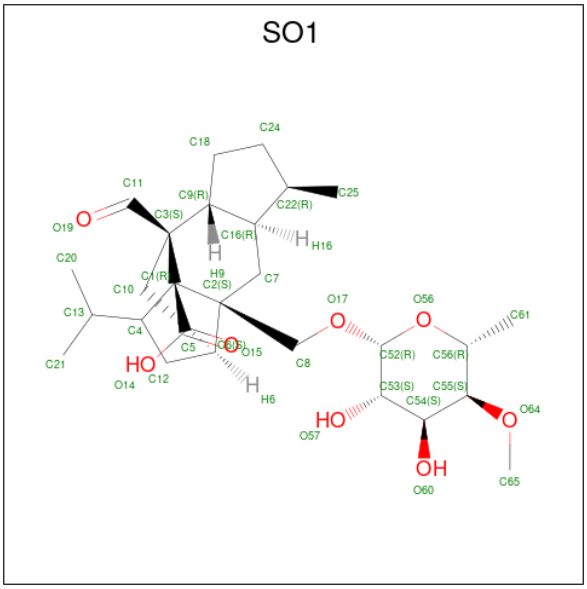
- Molecule 83 is a protein called Elongation factor 2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 83 | AZ | 840 | Total | C | N | O | S | 0 | 0 |
| | | | 6551 | 4161 | 1124 | 1237 | 29 | | |

- Molecule 84 is ZINC ION (CCD ID: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | AltConf |
|---|---|---|---|---|
| 84 | j | 1 | Total Zn<br>1 1 | 0 |
| 84 | m | 1 | Total Zn<br>1 1 | 0 |
| 84 | o | 1 | Total Zn<br>1 1 | 0 |
| 84 | p | 1 | Total Zn<br>1 1 | 0 |
| 84 | AQ | 1 | Total Zn<br>1 1 | 0 |
| 84 | AR | 1 | Total Zn<br>1 1 | 0 |
| 84 | AT | 1 | Total Zn<br>1 1 | 0 |
| 84 | AW | 1 | Total Zn<br>1 1 | 0 |

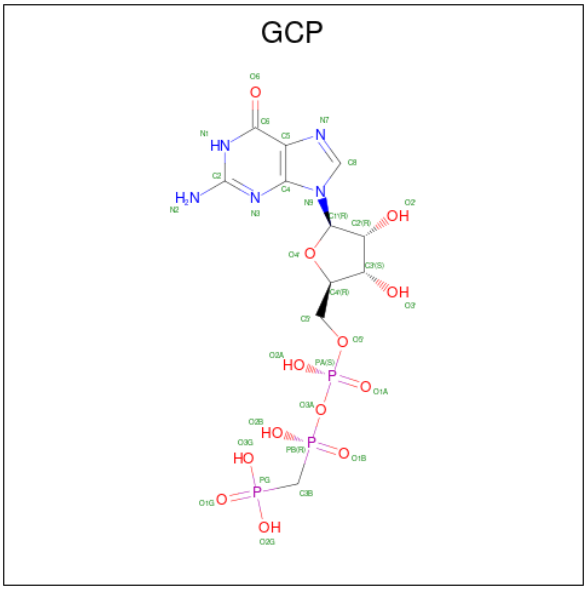
- Molecule 85 is [1R-(1.ALPHA.,3A.BETA.,4.BETA.,4A.BETA.,7.BETA.,7A.ALPHA.,8A.BETA.)]8A-[(6-DEOXY-4-O-METHYL-BETA-D-ALTROPYRANOSYLOXY)METHYL]-4-FORMYL-4,4A,5,6,7,7A,8,8A-OCTAHYDRO-7-METHYL-3-(1-METHYLETHYL)-1,4-METHANO-S-INDACENE-3A(1H)-CARBOXYLIC ACID (CCD ID: SO1) (formula: $C_{27}H_{42}O_8$).




| Mol | Chain | Residues | Atoms | AltConf |
|---|---|---|---|---|
| 85 | AZ | 1 | Total C O<br>35 27 8 | 0 |

- Molecule 86 is PHOSPHOMETHYLPHOSPHONIC ACID GUANYLATE ESTER (CCD

ID: GCP) (formula: $C_{11}H_{18}N_5O_{13}P_3$).



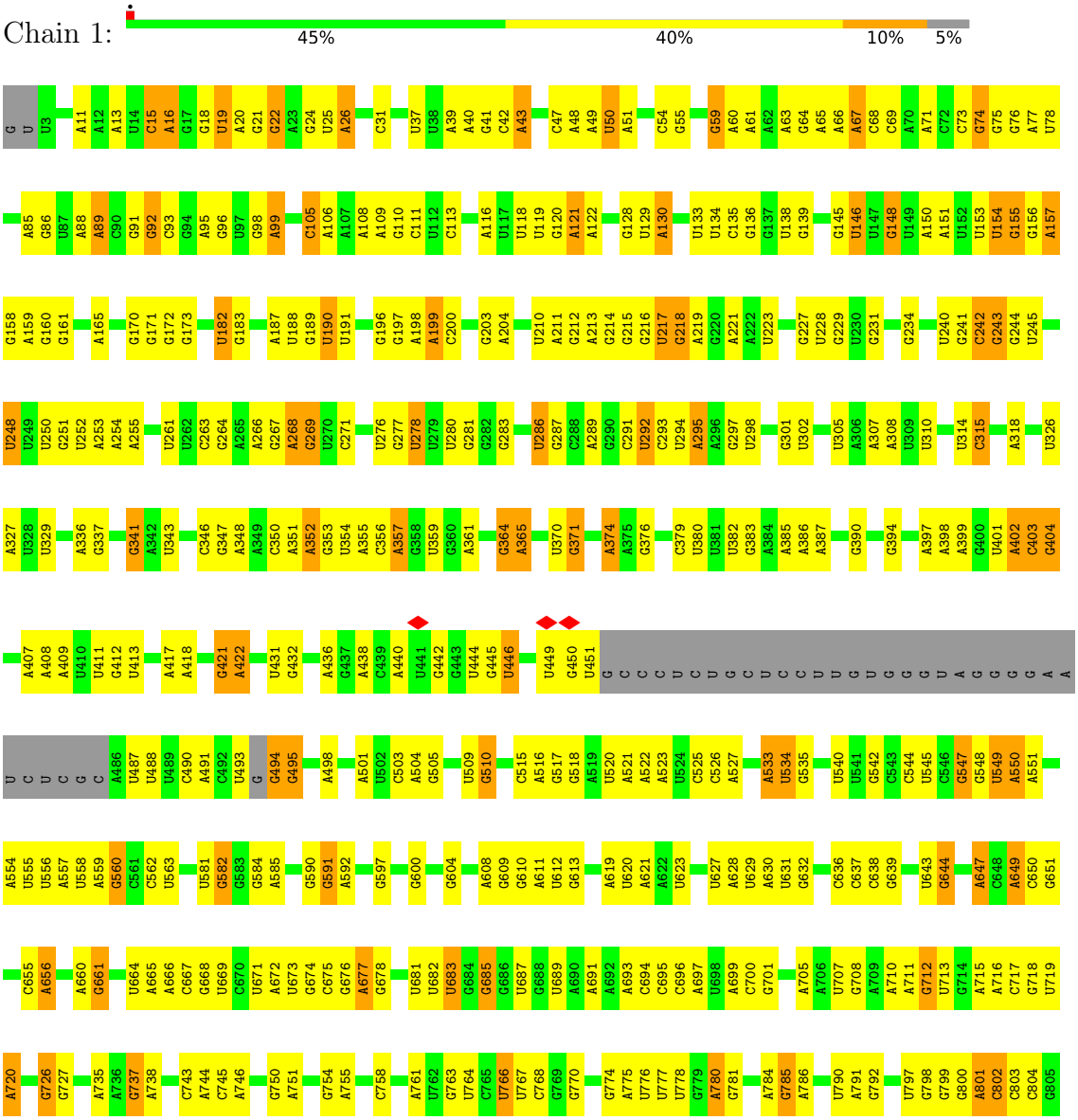

| Mol | Chain | Residues | Atoms | | | | | AltConf |
|---|---|---|---|---|---|---|---|---|
| 86 | AZ | 1 | Total | C | N | O | P | 0 |
| | | | 32 | 11 | 5 | 13 | 3 | |

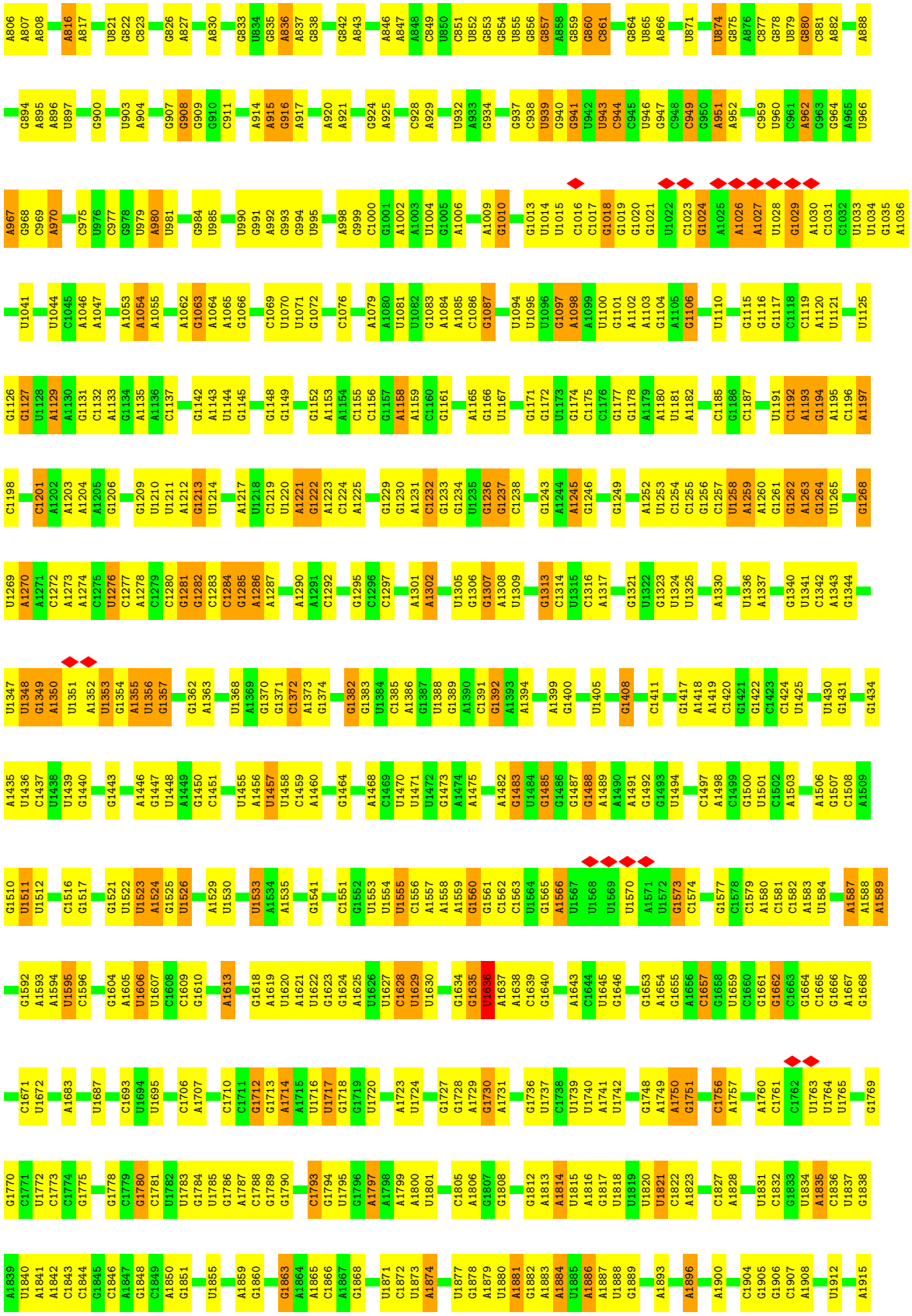
# 3 Residue-property plots (i)

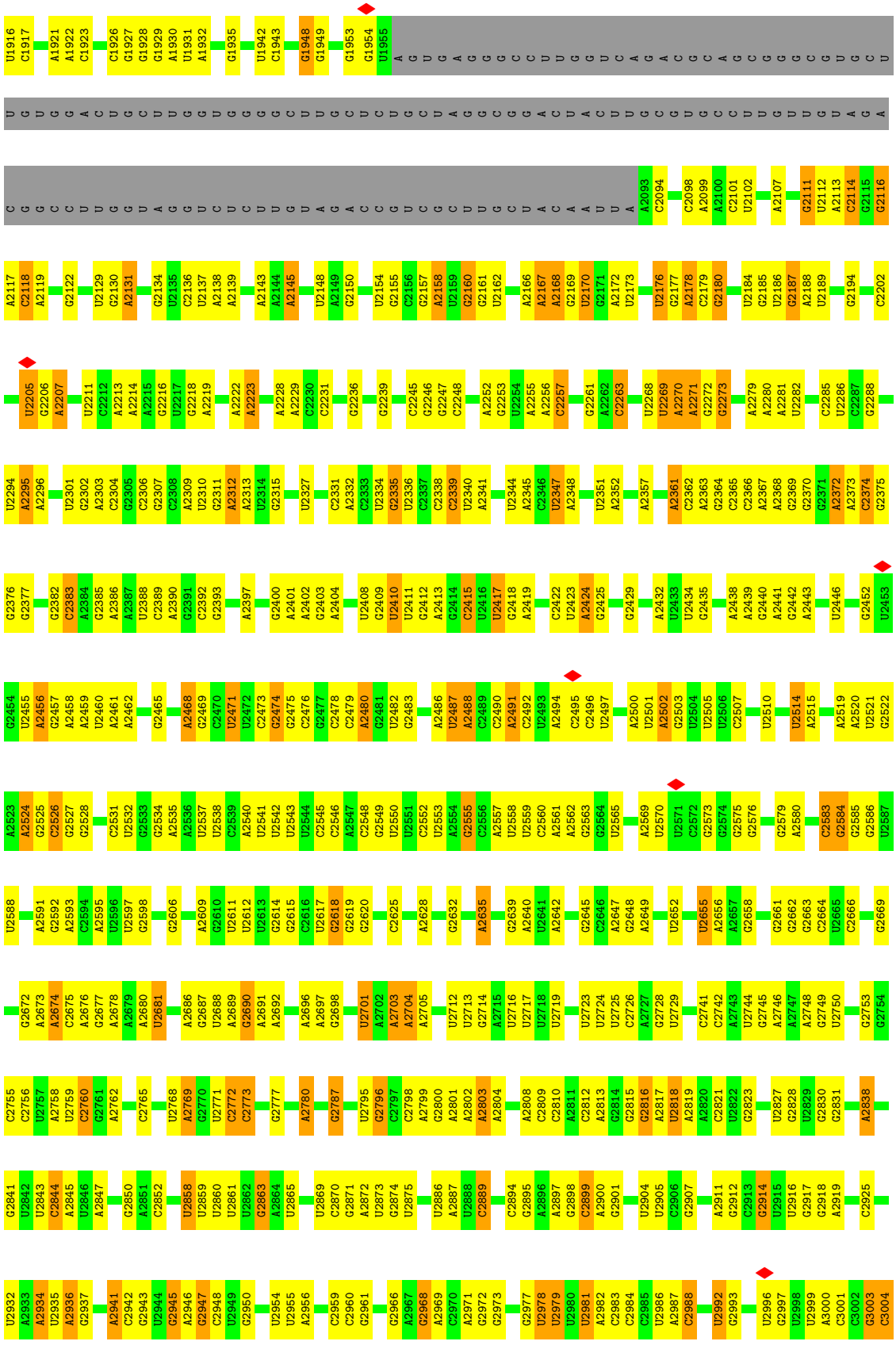
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

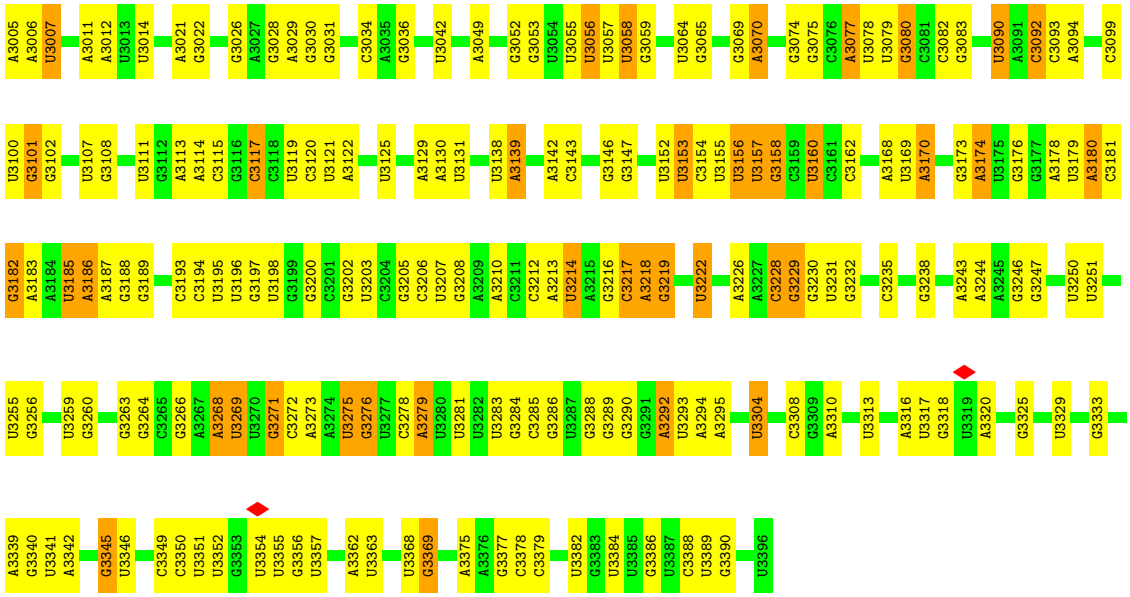
• Molecule 1: Saccharomyces cerevisiae S288C 35S pre-ribosomal RNA (RDN37-1), miscRNA

Chain 1:



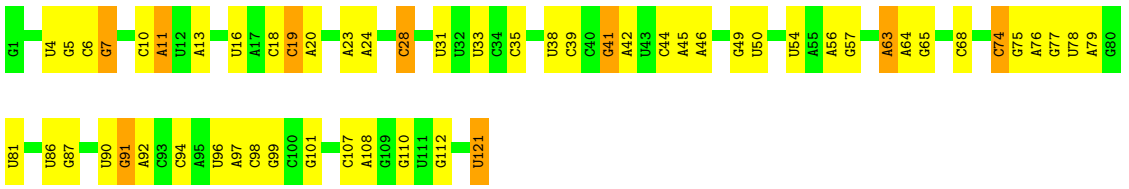






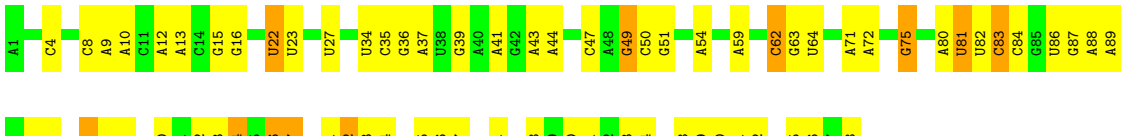
• Molecule 2: 5.8S ribosomal RNA

Chain 3:

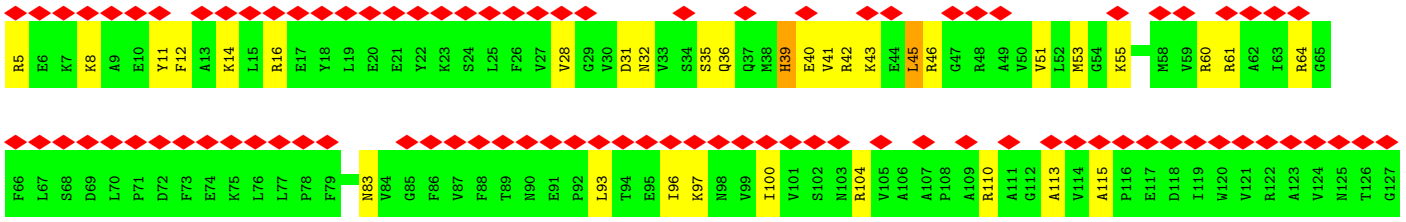
• Molecule 3: 5S ribosomal RNA

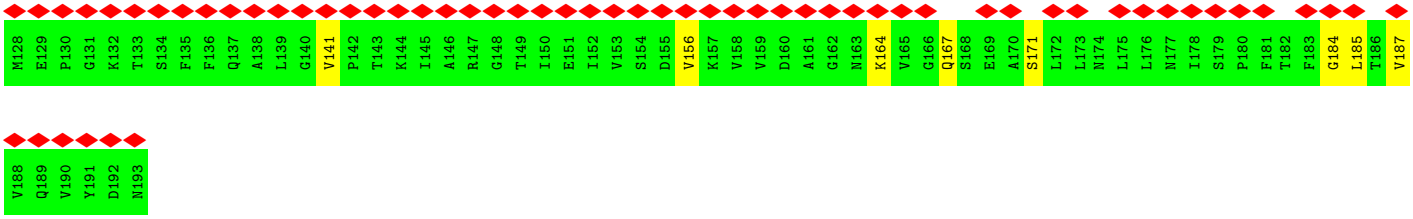
Chain 4:

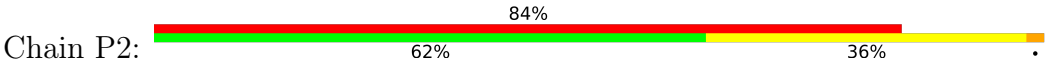
• Molecule 4: 60S acidic ribosomal protein P0

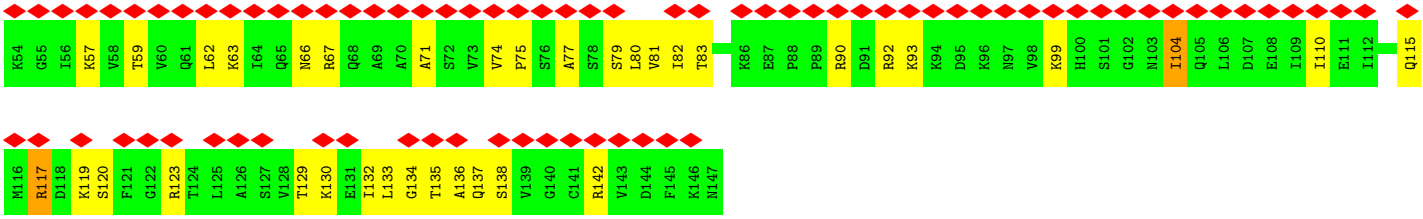
Chain P0:

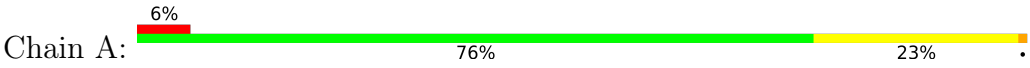


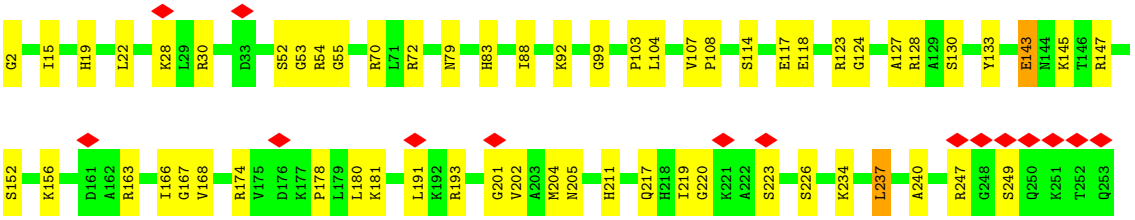

• Molecule 5: 60S ribosomal protein L12-A



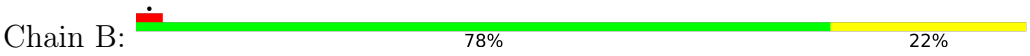



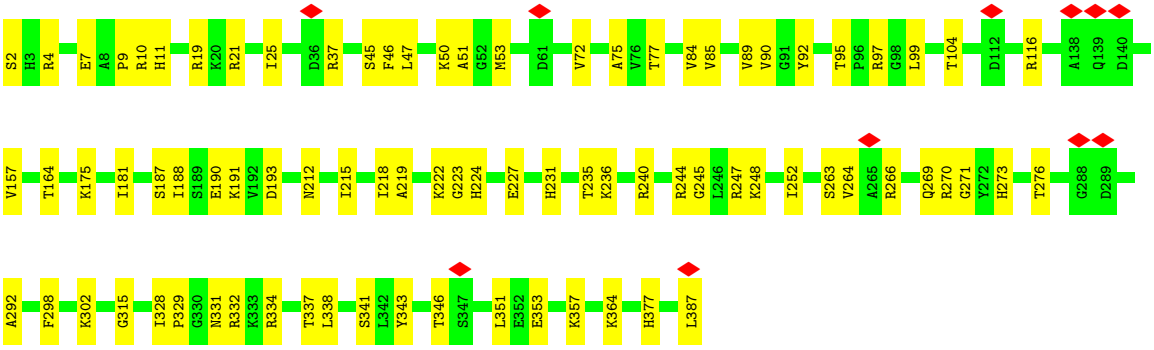

• Molecule 6: 60S ribosomal protein L2-A



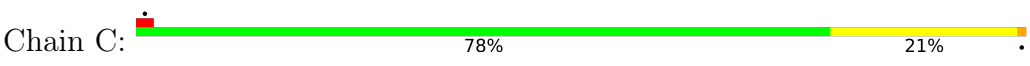



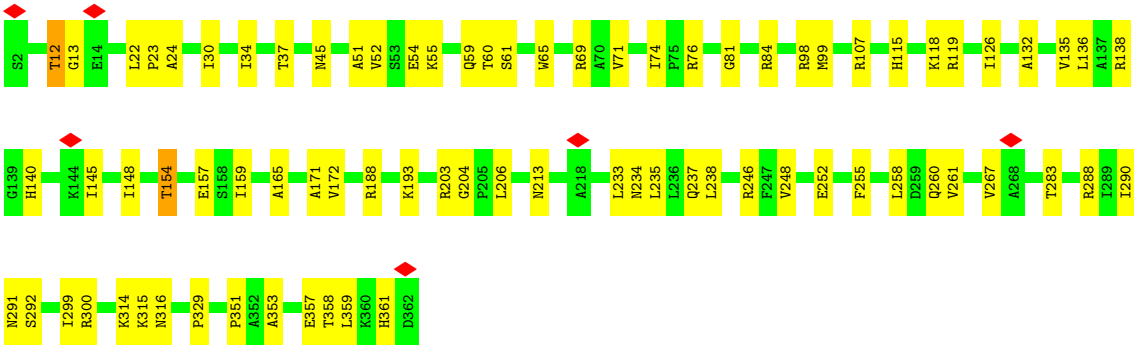

• Molecule 7: 60S ribosomal protein L3



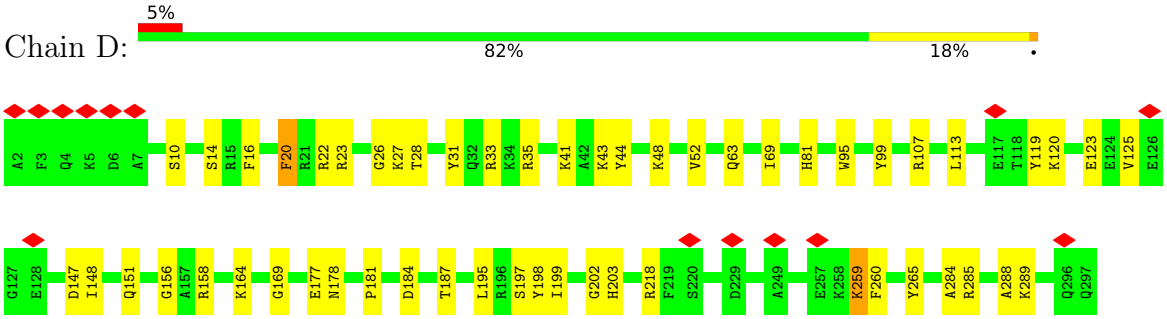




• Molecule 8: 60S ribosomal protein L4-A

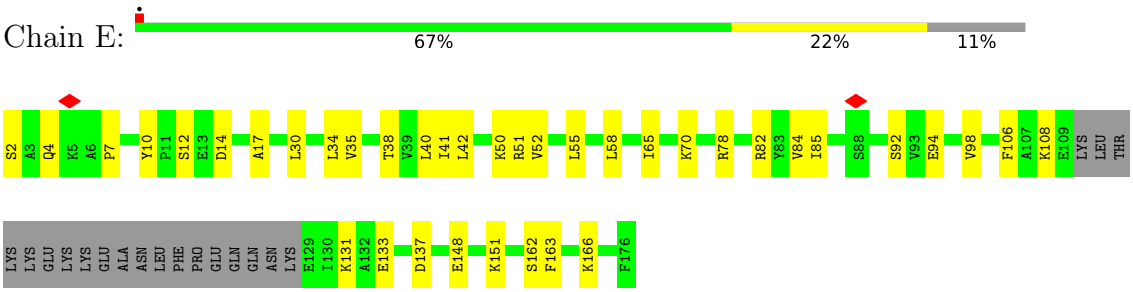




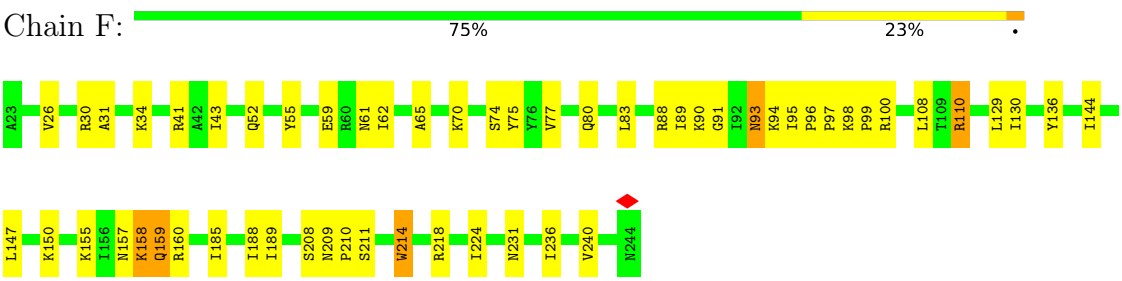

• Molecule 9: 60S ribosomal protein L5



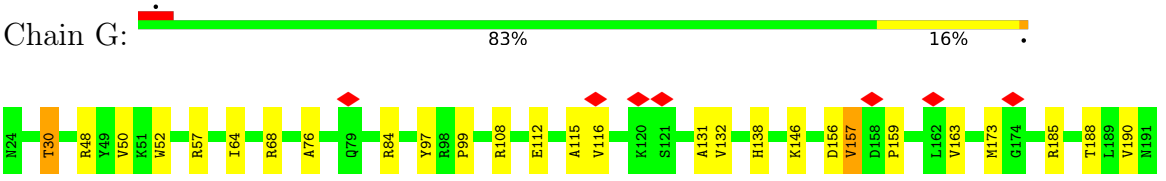

• Molecule 10: 60S ribosomal protein L6-A

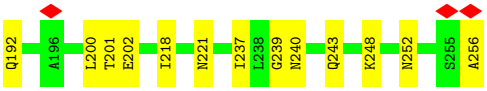



• Molecule 11: 60S ribosomal protein L7-A

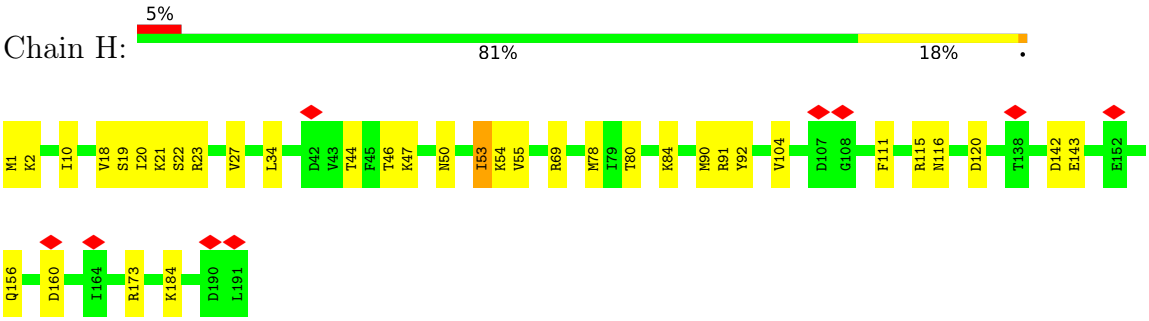



• Molecule 12: 60S ribosomal protein L8-A

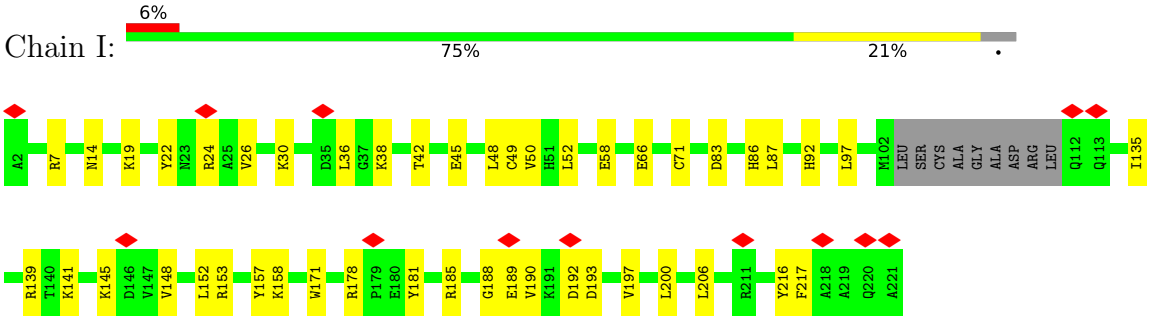




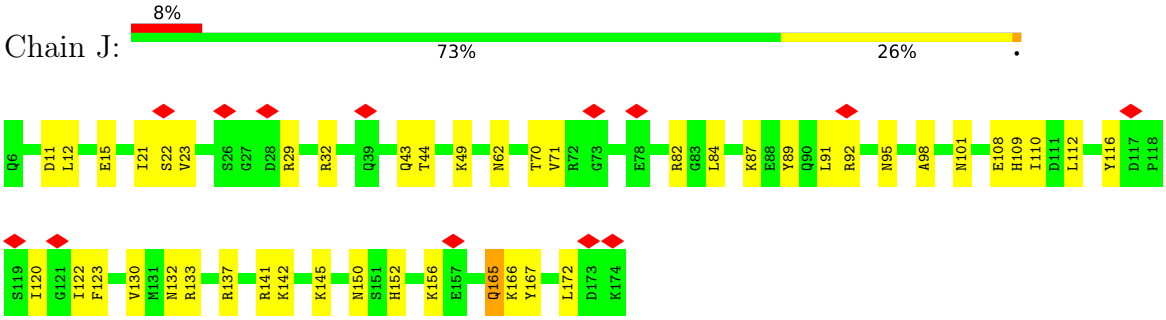

• Molecule 13: 60S ribosomal protein L9-A



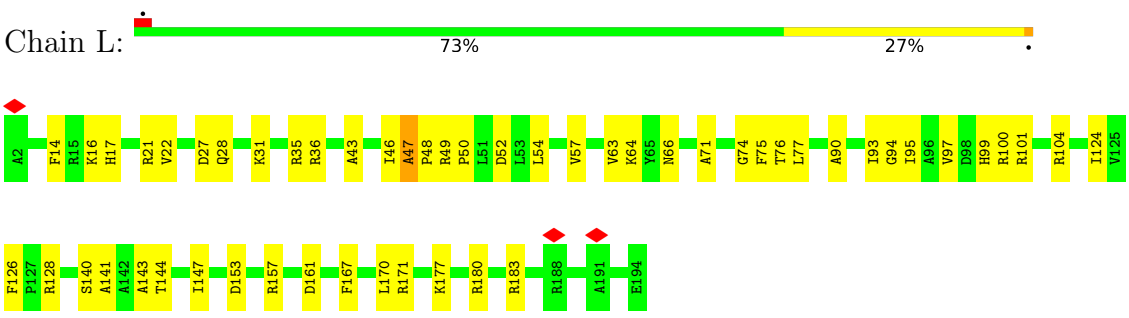

• Molecule 14: 60S ribosomal protein L10




• Molecule 15: 60S ribosomal protein L11-B

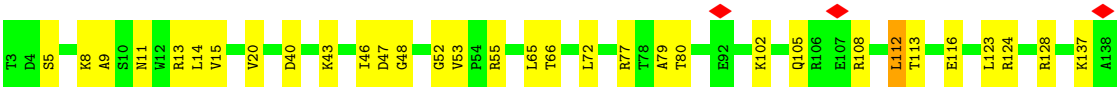



• Molecule 16: 60S ribosomal protein L13-A



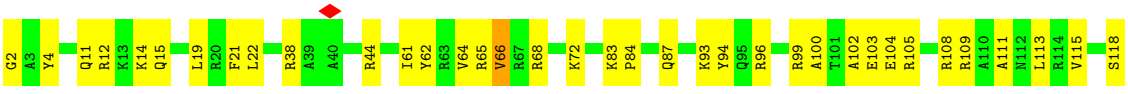

• Molecule 17: 60S ribosomal protein L14-A

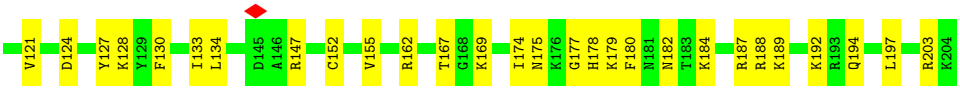
Chain M:


• Molecule 18: 60S ribosomal protein L15-A

Chain N:

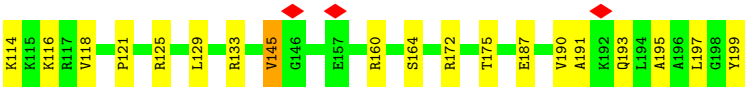




• Molecule 19: 60S ribosomal protein L16-A

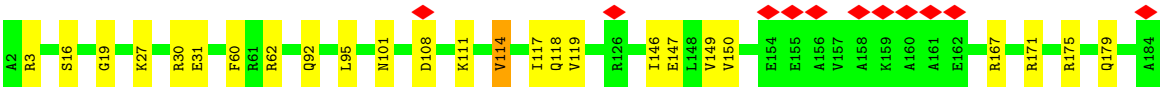
Chain O:





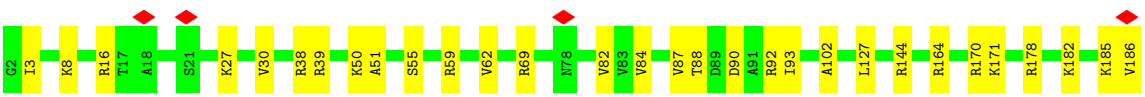

• Molecule 20: 60S ribosomal protein L17-A

Chain P:

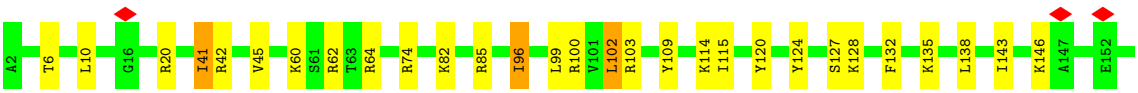

• Molecule 21: 60S ribosomal protein L18-A

Chain Q:

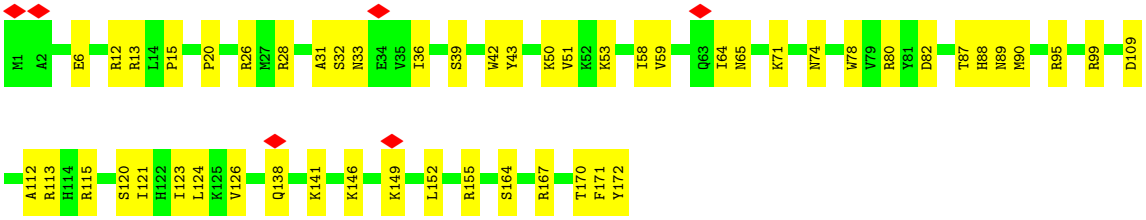

• Molecule 22: 60S ribosomal protein L19-A

Chain R:

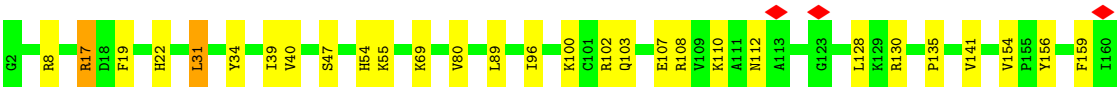

• Molecule 23: 60S ribosomal protein L20-A

Chain S:

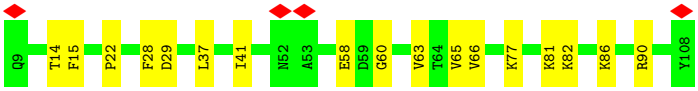

• Molecule 24: 60S ribosomal protein L21-A

Chain T:


• Molecule 25: 60S ribosomal protein L22-A

Chain U:

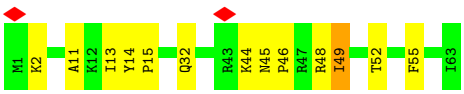

• Molecule 26: 60S ribosomal protein L23-A

Chain V:



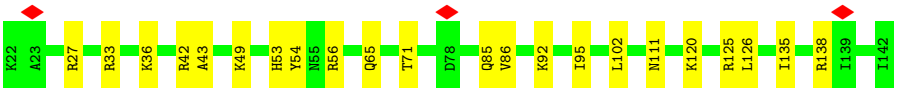
• Molecule 27: 60S ribosomal protein L24-A

Chain W:


• Molecule 28: 60S ribosomal protein L25

Chain X:

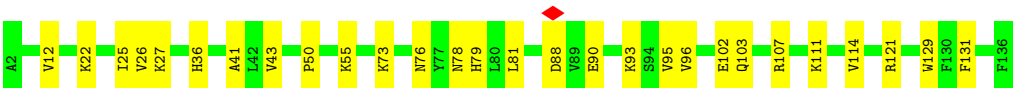

• Molecule 29: 60S ribosomal protein L26-A

Chain Y:




• Molecule 30: 60S ribosomal protein L27-A

Chain Z:

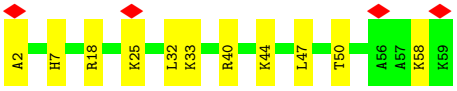

• Molecule 31: 60S ribosomal protein L28

Chain a:



• Molecule 32: 60S ribosomal protein L29

Chain b:


• Molecule 33: 60S ribosomal protein L30

Chain c:

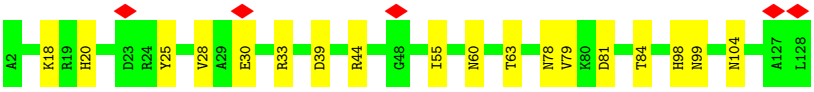


• Molecule 34: 60S ribosomal protein L31-A

Chain d:

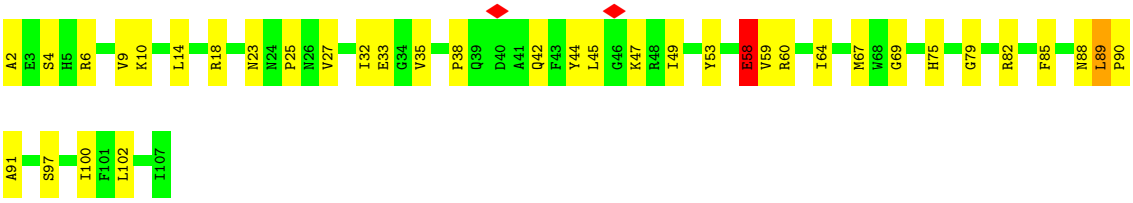

• Molecule 35: 60S ribosomal protein L32

Chain e:

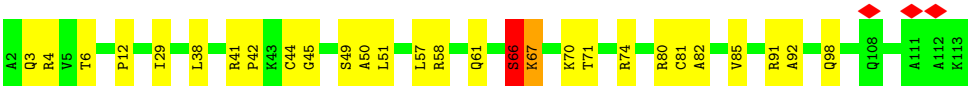

• Molecule 36: 60S ribosomal protein L33-A

Chain f:

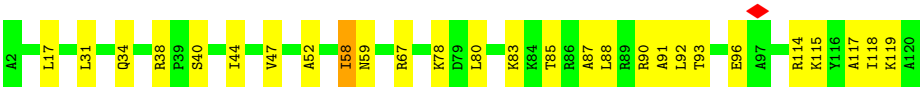

• Molecule 37: 60S ribosomal protein L34-A

Chain g:

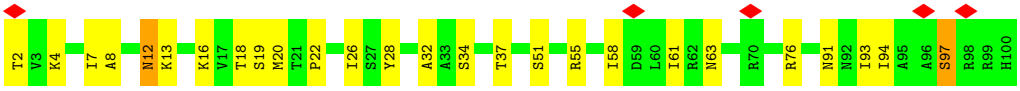

• Molecule 38: 60S ribosomal protein L35-A

Chain h:

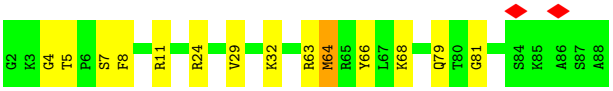

• Molecule 39: 60S ribosomal protein L36-A

Chain i:

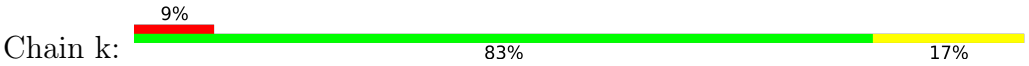



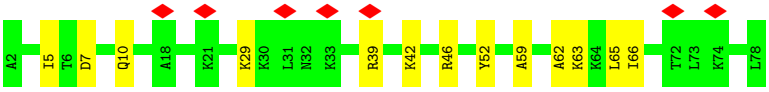

• Molecule 40: 60S ribosomal protein L37-A

Chain j:

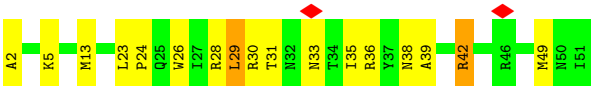



• Molecule 41: 60S ribosomal protein L38

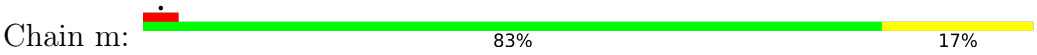



• Molecule 42: 60S ribosomal protein L39

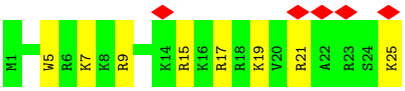




• Molecule 43: Ubiquitin-60S ribosomal protein L40

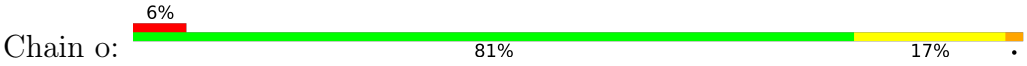


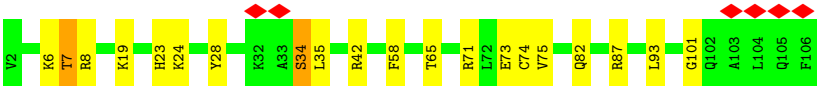


• Molecule 44: 60S ribosomal protein L41-B

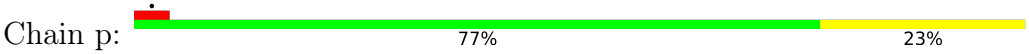




• Molecule 45: 60S ribosomal protein L42-A



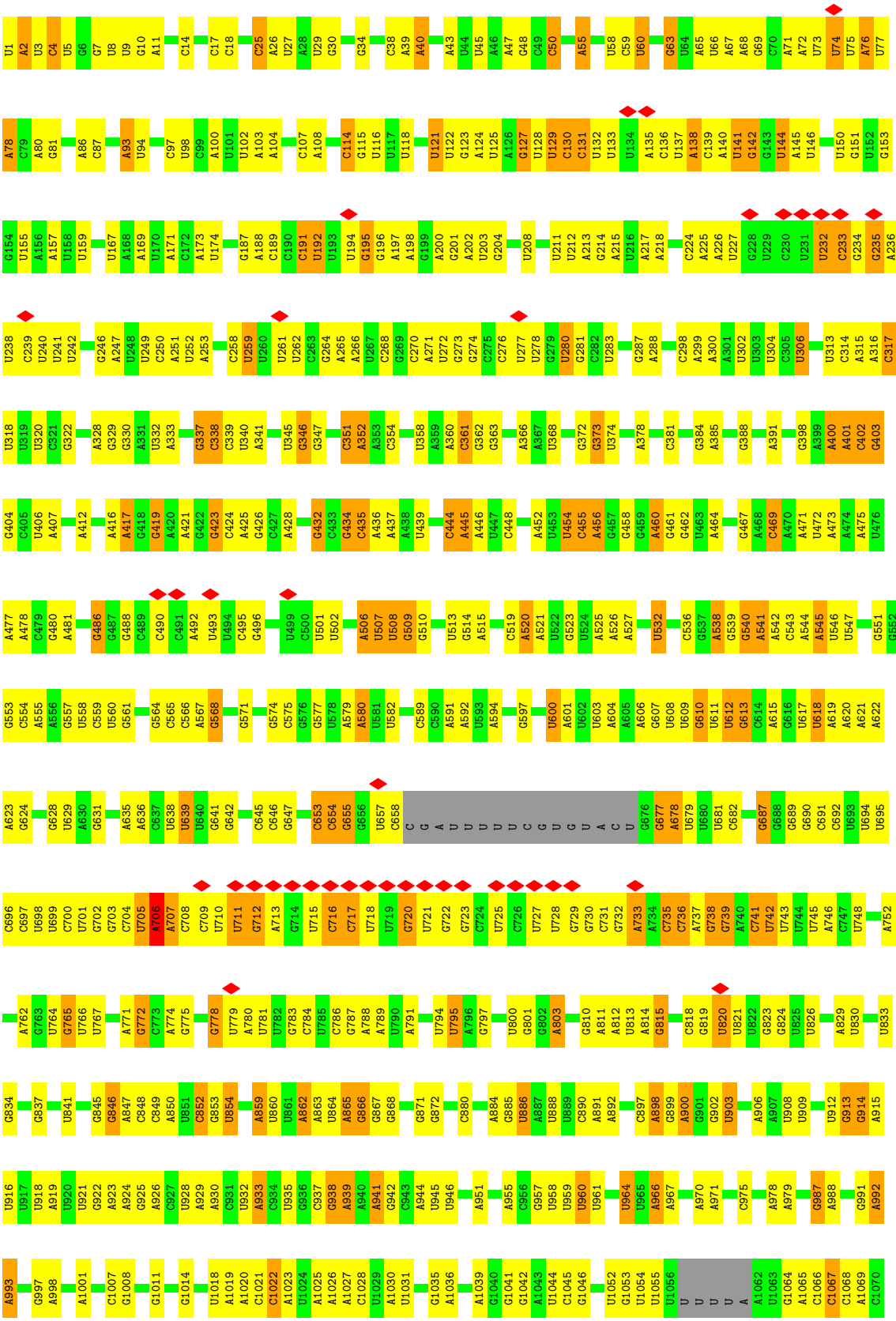

• Molecule 46: 60S ribosomal protein L43-A

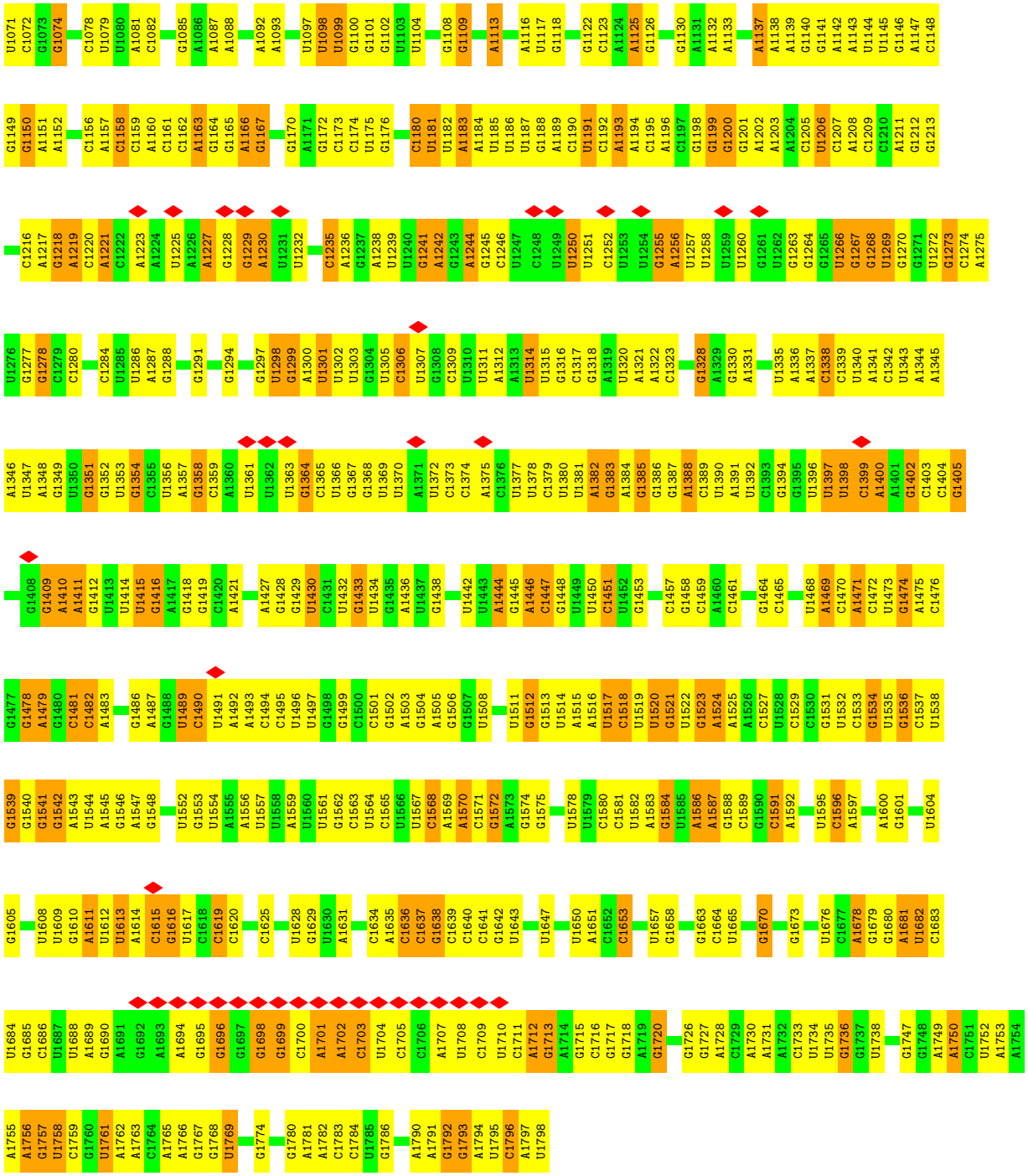




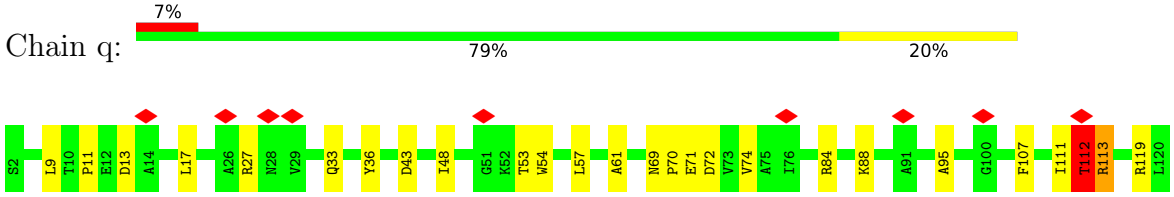
• Molecule 47: 18S ribosomal RNA

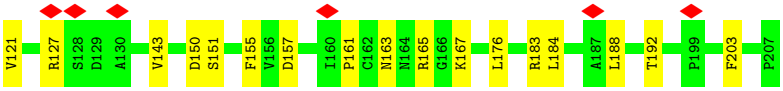
Chain 2:

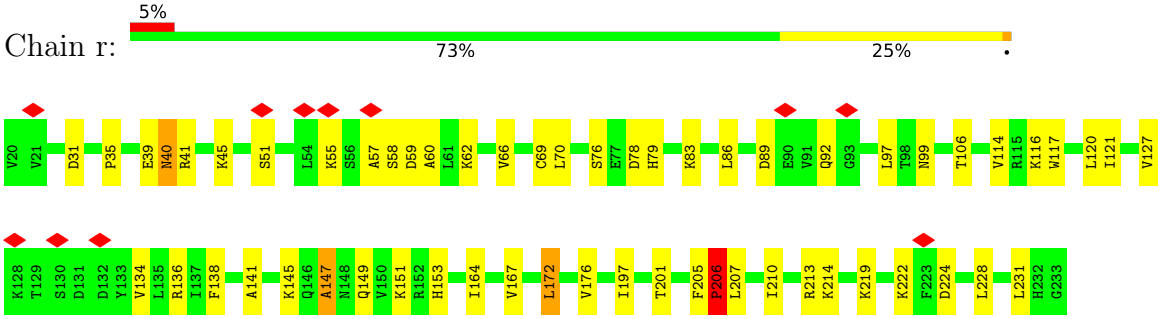


• Molecule 48: 40S ribosomal protein S0-A

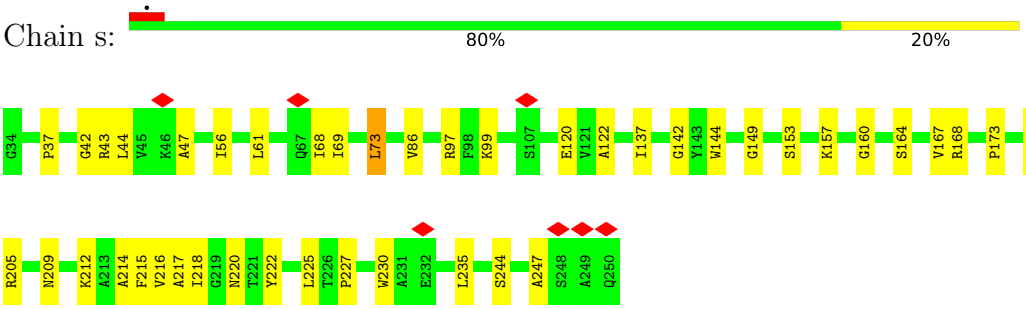




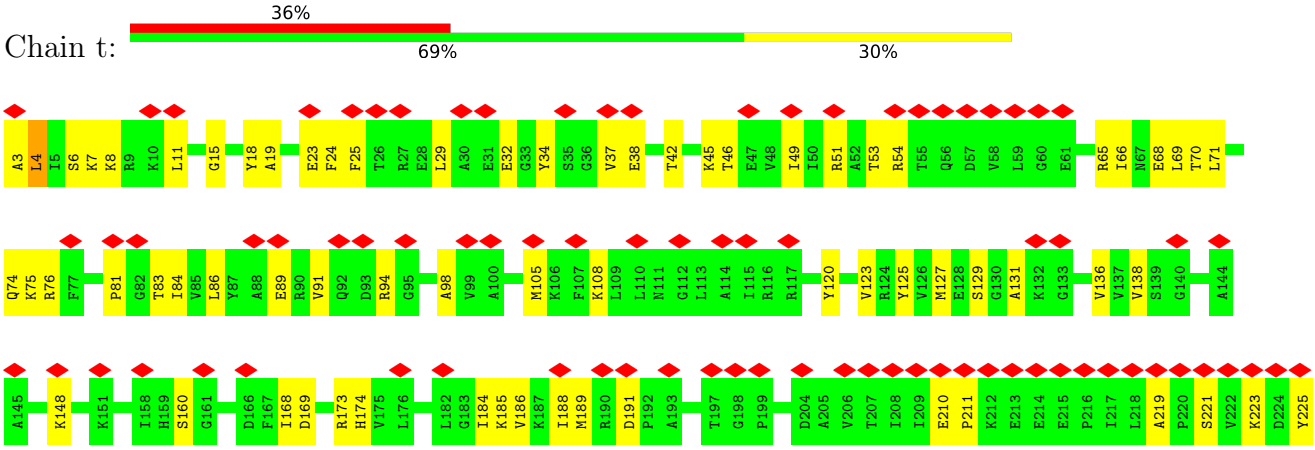

• Molecule 49: 40S ribosomal protein S1-A



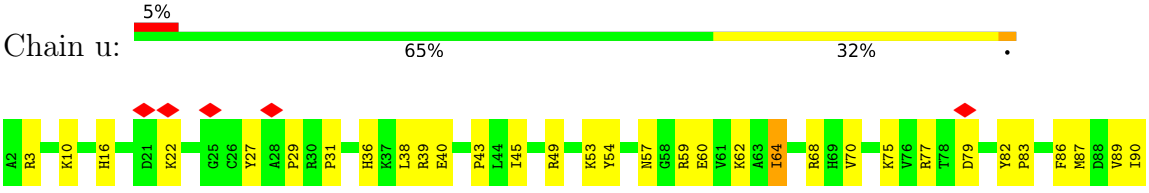

• Molecule 50: 40S ribosomal protein S2

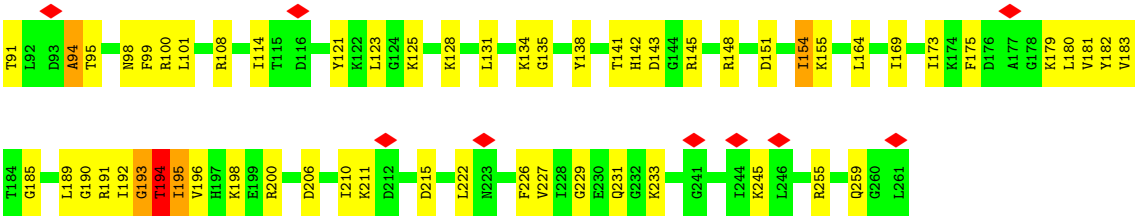



• Molecule 51: 40S ribosomal protein S3

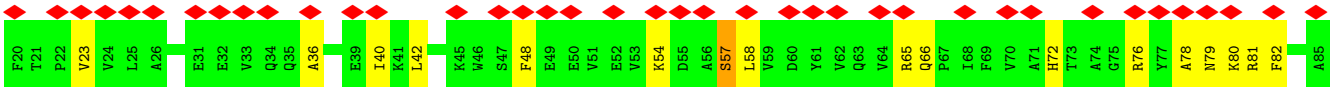


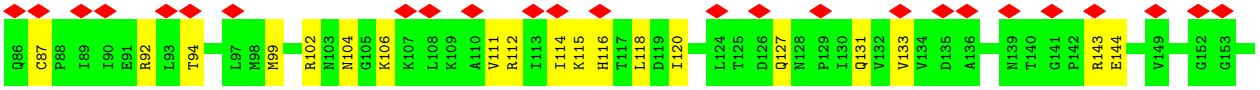

• Molecule 52: 40S ribosomal protein S4-A





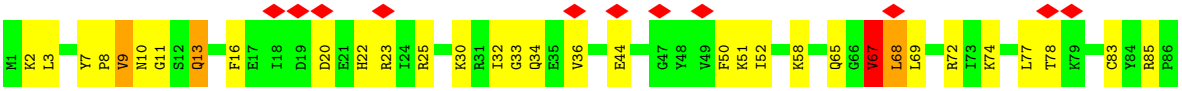

• Molecule 53: 40S ribosomal protein S5

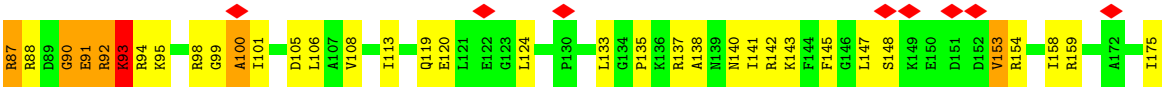



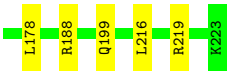





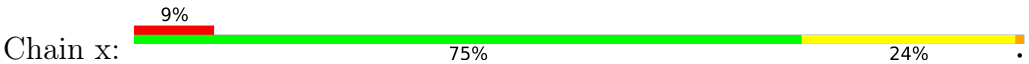
• Molecule 54: 40S ribosomal protein S6-A

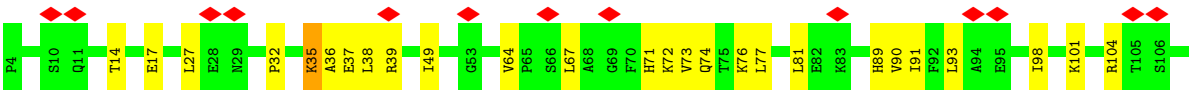



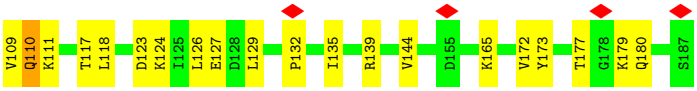




• Molecule 55: 40S ribosomal protein S7-A

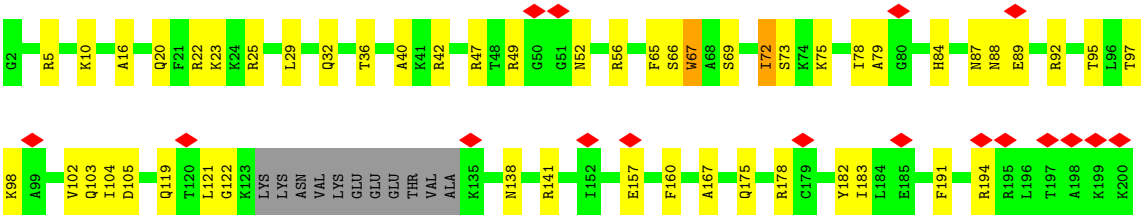


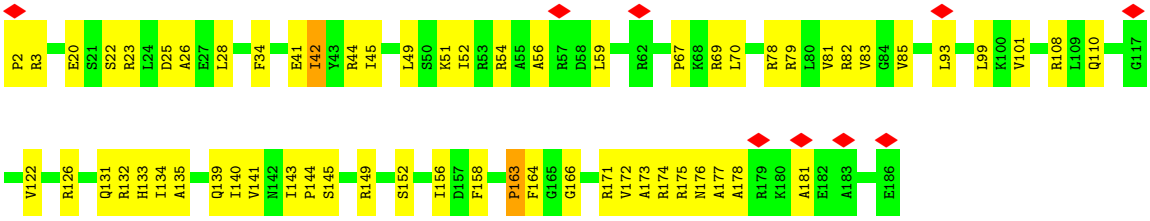

• Molecule 56: 40S ribosomal protein S8-A

Chain y:

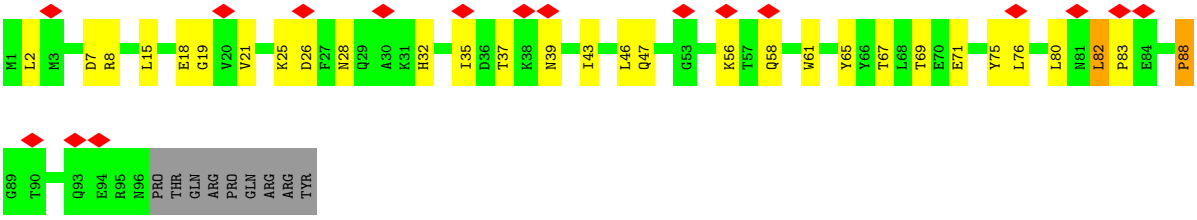

• Molecule 57: 40S ribosomal protein S9-A

Chain z:

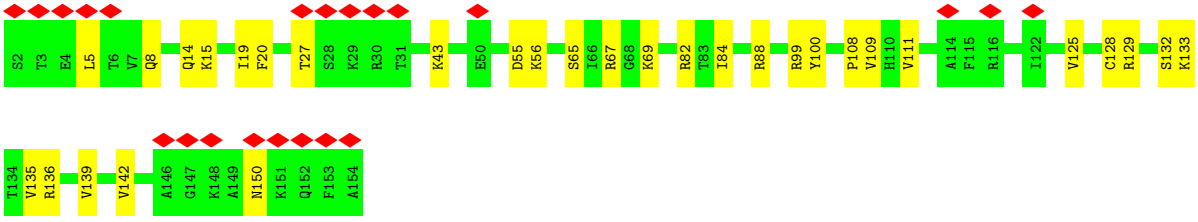

• Molecule 58: 40S ribosomal protein S10-A

Chain AA:

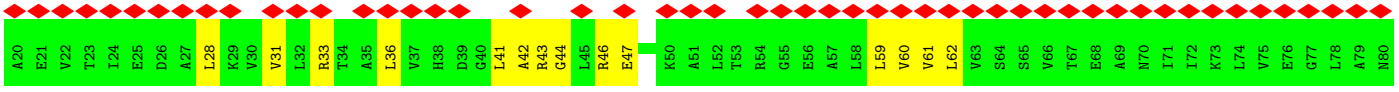

• Molecule 59: 40S ribosomal protein S11-A

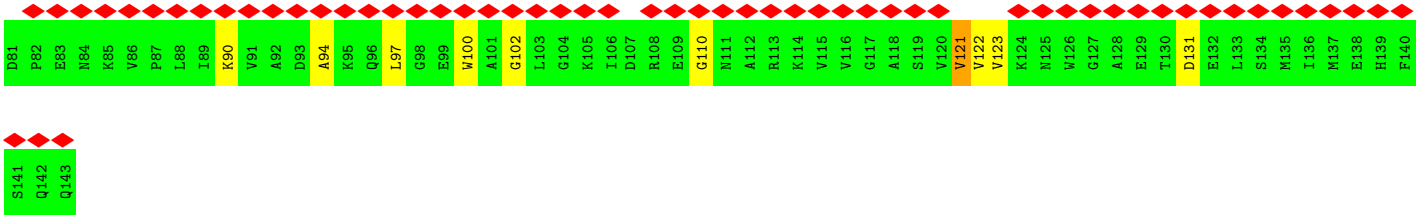
Chain AB:

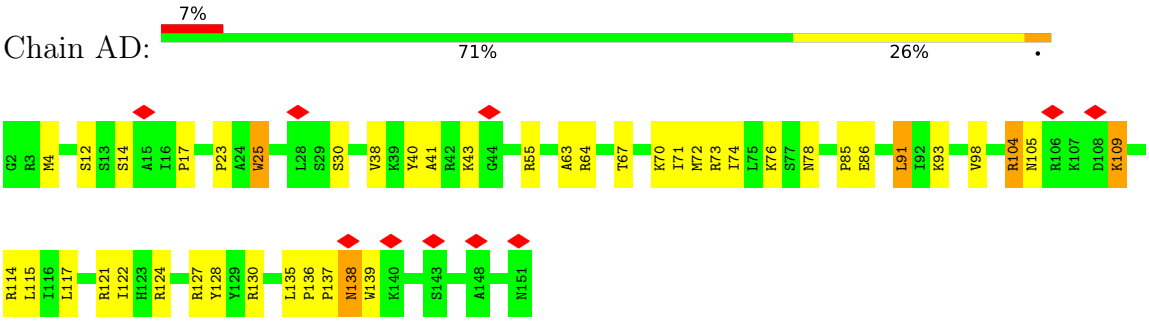

• Molecule 60: 40S ribosomal protein S12

Chain AC:

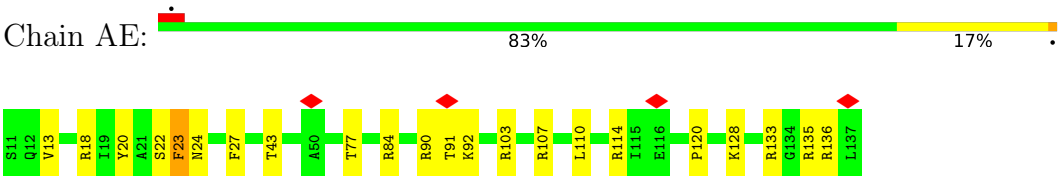





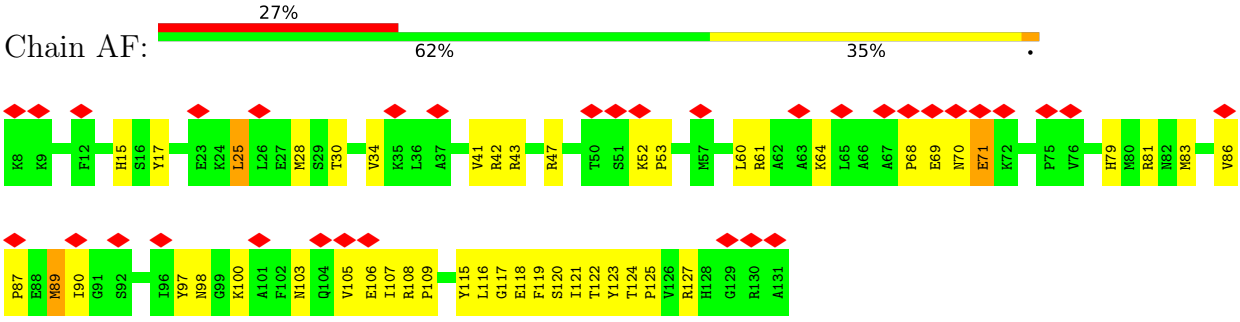

• Molecule 61: 40S ribosomal protein S13



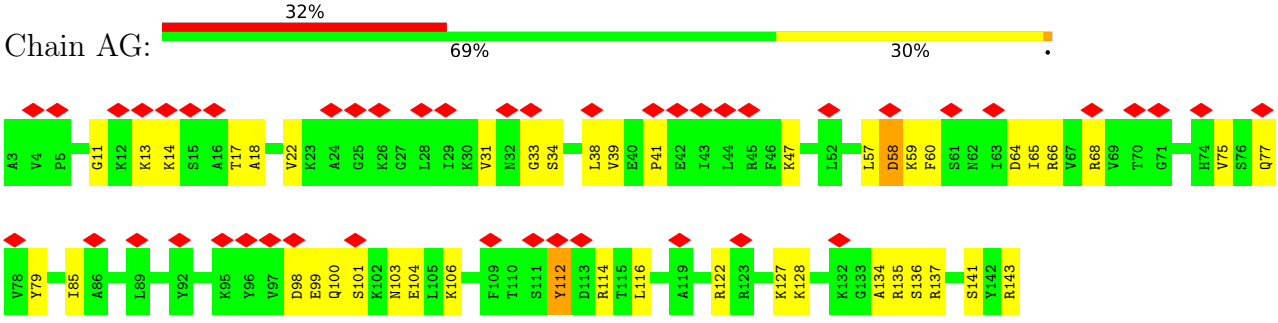

• Molecule 62: 40S ribosomal protein S14-B




• Molecule 63: 40S ribosomal protein S15

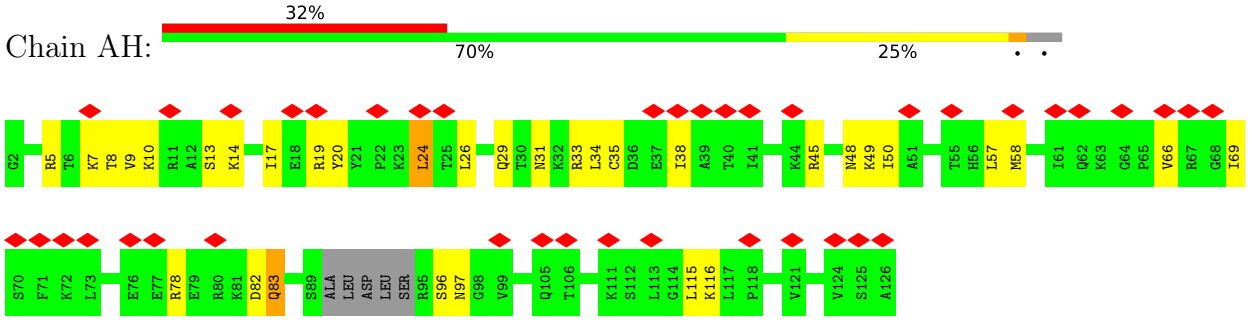



• Molecule 64: 40S ribosomal protein S16-A



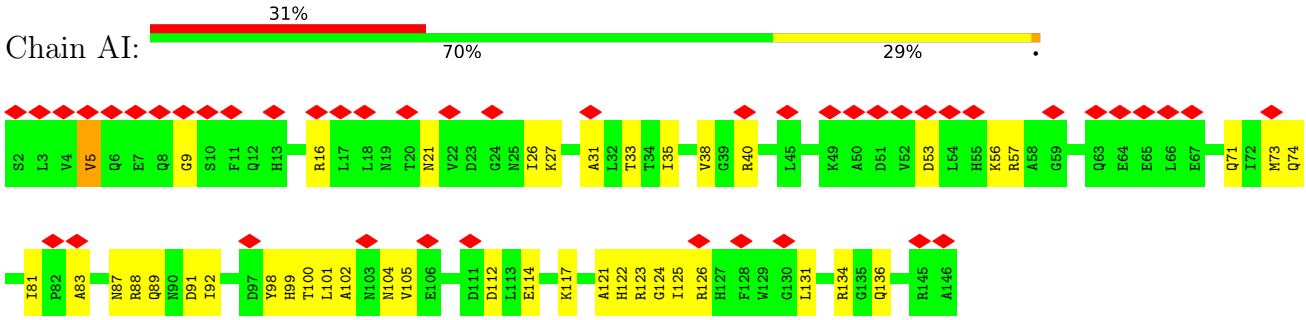

• Molecule 65: 40S ribosomal protein S17-B

Chain AH:



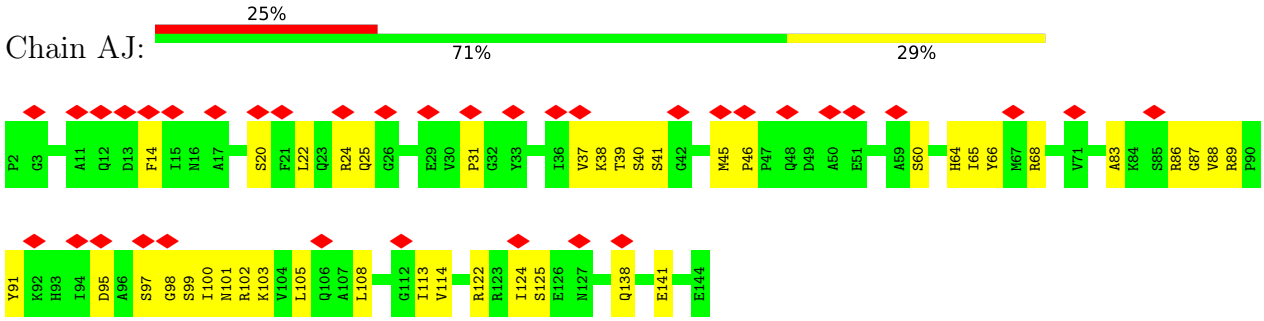

• Molecule 66: 40S ribosomal protein S18-A

Chain AI:



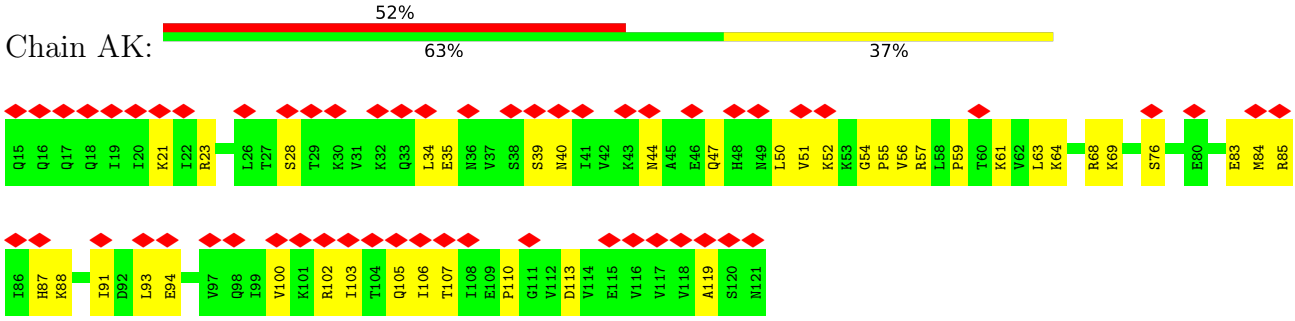

• Molecule 67: 40S ribosomal protein S19-A

Chain AJ:



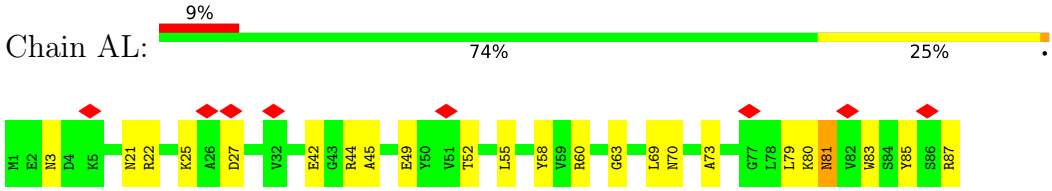

• Molecule 68: 40S ribosomal protein S20

Chain AK:




• Molecule 69: 40S ribosomal protein S21-A

Chain AL:



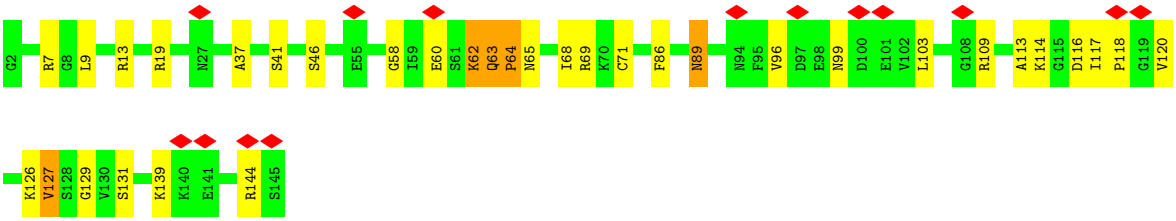
• Molecule 70: 40S ribosomal protein S22-A

Chain AM:



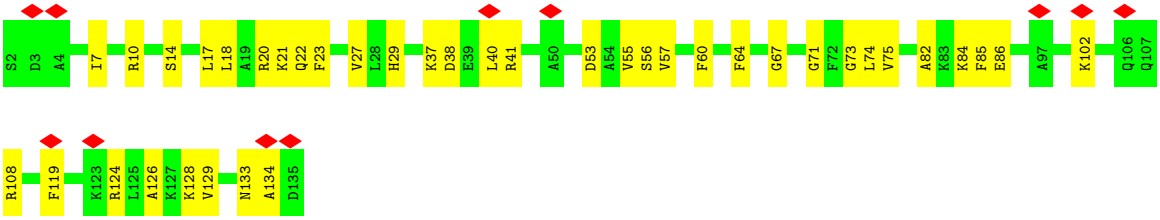
• Molecule 71: 40S ribosomal protein S23-A

Chain AN:

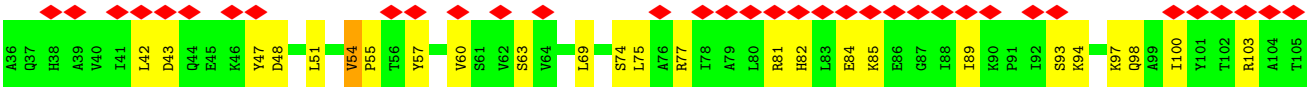

• Molecule 72: 40S ribosomal protein S24-A

Chain AO:

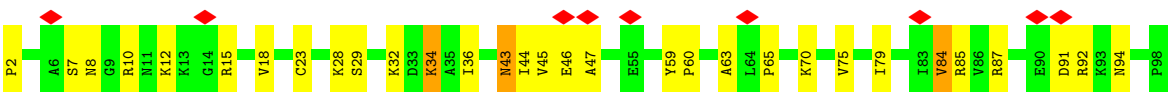

• Molecule 73: 40S ribosomal protein S25-A

Chain AP:

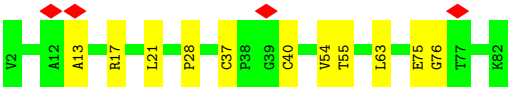

• Molecule 74: 40S ribosomal protein S26-B

Chain AQ:

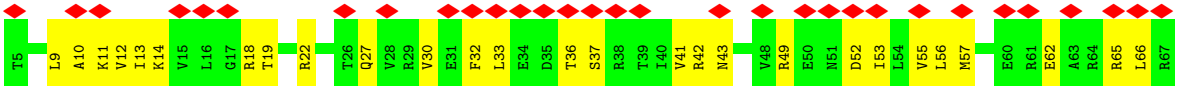

• Molecule 75: 40S ribosomal protein S27-A

Chain AR:

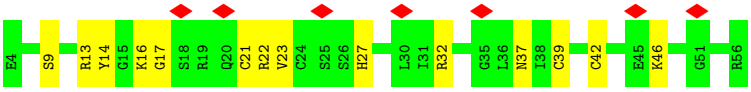

• Molecule 76: 40S ribosomal protein S28-A

Chain AS:

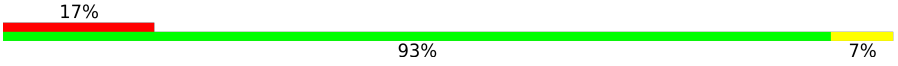

• Molecule 77: 40S ribosomal protein S29-A

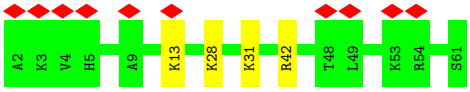
Chain AT:


• Molecule 78: 40S ribosomal protein S30-A

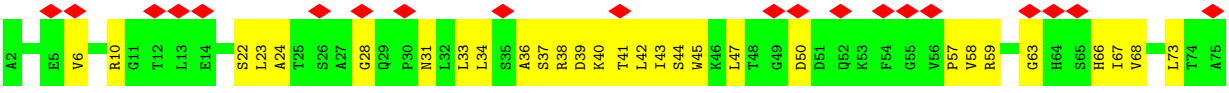
Chain AU:

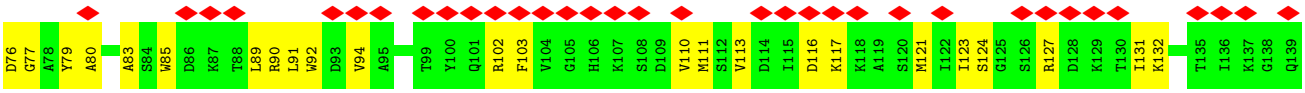


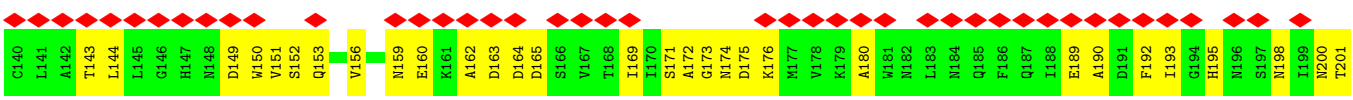



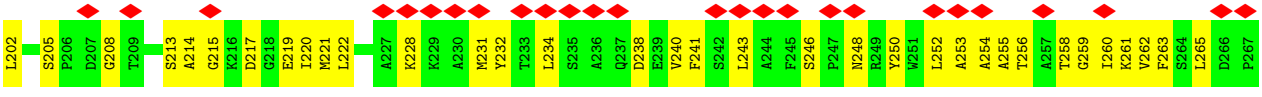

• Molecule 79: Guanine nucleotide-binding protein subunit beta-like protein

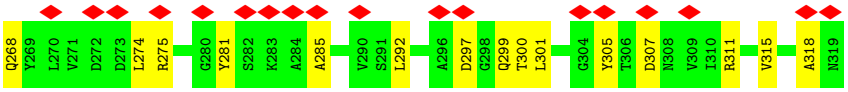
Chain AV:

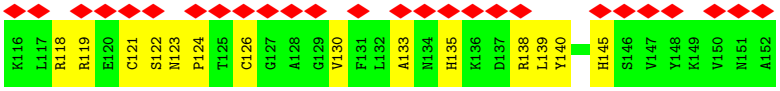



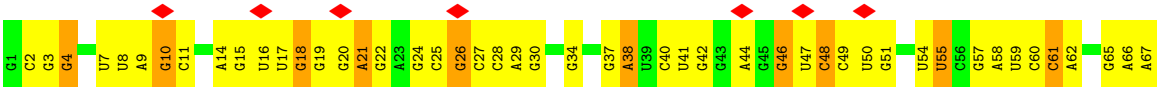
• Molecule 80: Ubiquitin-40S ribosomal protein S31

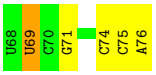
Chain AW:


• Molecule 81: Transfer RNA - Phe

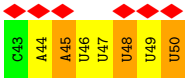
Chain AX:

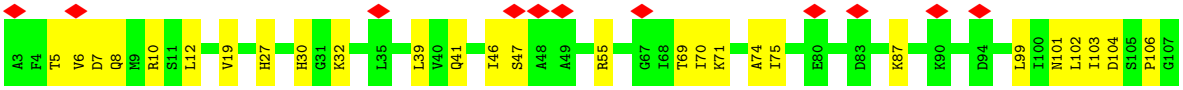

• Molecule 82: Messenger RNA

Chain AY:

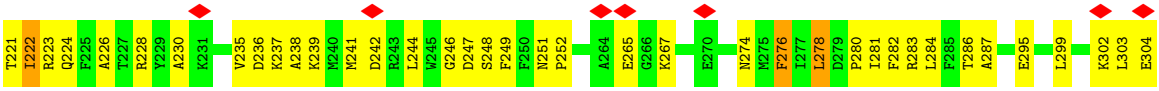



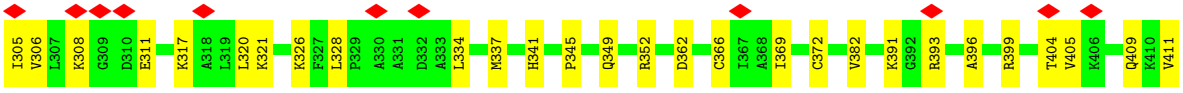

• Molecule 83: Elongation factor 2

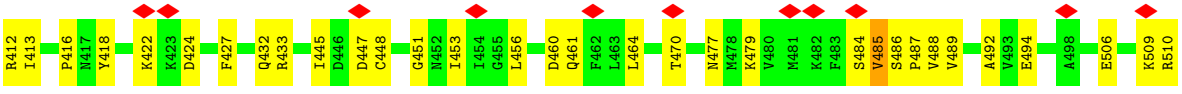
Chain AZ:

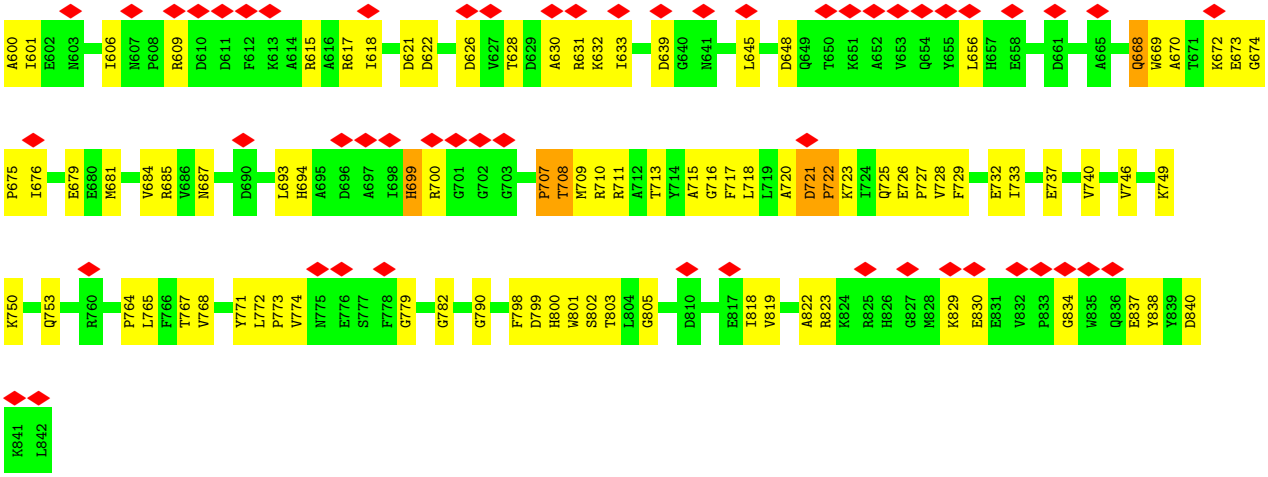









A600 I601 E602 N603 I606 N607 P608 R609 D610 D611 F612 K613 A614 R615 A616 R617 I618 D621 D622 D626 V627 T628 D629 A630 R631 K632 I633 D639 G640 N641 L645 D648 Q649 T650 K651 A652 V653 Q654 Y655 L656 H657 E658 D661 A665 Q668 W669 A670 T671 K672 E673 G674
P675 I676 E679 E680 M681 V684 R685 V686 N687 D690 L693 H694 A695 D696 A697 I698 H699 R700 G701 G702 G703 P707 T708 M709 R710 R711 A712 T713 Y714 A715 G716 F717 L718 L719 A720 D721 P722 K723 I724 Q725 E726 P727 V728 F729 E732 I733 E737 V740 V746 K749
K750 Q753 R760 P764 L765 F766 T767 V768 Y771 L772 P773 V774 N775 E776 S777 F778 G779 G782 G790 F798 D799 H800 W801 S802 T803 L804 G805 D810 E817 I818 V819 A822 R823 K824 R825 H826 G827 M828 K829 E830 E831 V832 P833 G834 W835 Q836 E837 Y838 Y839 D840
K841 L842

# 4 Experimental information (i)

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, C1 | Depositor |
| Number of particles used | 189700 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | FEI TITAN KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/Å^2$) | 60 | Depositor |
| Minimum defocus (nm) | Not provided | |
| Maximum defocus (nm) | Not provided | |
| Magnification | Not provided | |
| Image detector | FEI FALCON II (4k x 4k) | Depositor |
| Maximum map value | 0.347 | Depositor |
| Minimum map value | -0.197 | Depositor |
| Average map value | 0.003 | Depositor |
| Map value standard deviation | 0.018 | Depositor |
| Recommended contour level | 0.05 | Depositor |
| Map size (Å) | 396.0, 396.0, 396.0 | wwPDB |
| Map dimensions | 360, 360, 360 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.1, 1.1, 1.1 | Depositor |

# 5 Model quality (i)

## 5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: DDE, ZN, SO1, GCP

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 | 1 | 0.30 | 0/77157 | 0.47 | 1/120295 (0.0%) |
| 2 | 3 | 0.26 | 0/2883 | 0.42 | 0/4491 |
| 3 | 4 | 0.29 | 0/3746 | 0.46 | 0/5832 |
| 4 | P0 | 0.25 | 0/1498 | 0.70 | 1/2025 (0.0%) |
| 5 | P2 | 0.27 | 0/728 | 0.80 | 0/975 |
| 6 | A | 0.37 | 0/1948 | 0.72 | 0/2617 |
| 7 | B | 0.32 | 0/3146 | 0.68 | 0/4228 |
| 8 | C | 0.30 | 0/2800 | 0.67 | 0/3790 |
| 9 | D | 0.27 | 0/2425 | 0.66 | 0/3271 |
| 10 | E | 0.23 | 0/1260 | 0.59 | 0/1694 |
| 11 | F | 0.31 | 0/1821 | 0.71 | 0/2451 |
| 12 | G | 0.28 | 0/1836 | 0.72 | 0/2481 |
| 13 | H | 0.27 | 0/1539 | 0.70 | 0/2073 |
| 14 | I | 0.31 | 0/1741 | 0.70 | 0/2335 |
| 15 | J | 0.27 | 0/1374 | 0.78 | 0/1842 |
| 16 | L | 0.31 | 0/1568 | 0.79 | 3/2106 (0.1%) |
| 17 | M | 0.26 | 0/1068 | 0.61 | 0/1438 |
| 18 | N | 0.35 | 0/1757 | 0.79 | 0/2354 |
| 19 | O | 0.33 | 0/1585 | 0.73 | 1/2128 (0.0%) |
| 20 | P | 0.29 | 0/1443 | 0.64 | 0/1944 |
| 21 | Q | 0.28 | 0/1465 | 0.66 | 0/1965 |
| 22 | R | 0.28 | 0/1538 | 0.65 | 0/2050 |
| 23 | S | 0.29 | 0/1481 | 0.66 | 0/1990 |
| 24 | T | 0.30 | 0/1300 | 0.73 | 2/1743 (0.1%) |
| 25 | U | 0.25 | 0/812 | 0.65 | 2/1099 (0.2%) |
| 26 | V | 0.31 | 0/1018 | 0.72 | 1/1369 (0.1%) |
| 27 | W | 0.31 | 0/533 | 0.70 | 0/707 |
| 28 | X | 0.27 | 0/979 | 0.65 | 0/1321 |
| 29 | Y | 0.27 | 0/1004 | 0.66 | 0/1341 |
| 30 | Z | 0.28 | 0/1118 | 0.68 | 3/1497 (0.2%) |
| 31 | a | 0.32 | 0/1204 | 0.70 | 0/1612 |
| 32 | b | 0.24 | 0/473 | 0.67 | 0/629 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 33 | c | 0.27 | 0/751 | 0.62 | 0/1008 |
| 34 | d | 0.31 | 0/897 | 0.65 | 0/1205 |
| 35 | e | 0.28 | 0/1041 | 0.67 | 0/1394 |
| 36 | f | 0.34 | 0/868 | 0.81 | 2/1168 (0.2%) |
| 37 | g | 0.32 | 0/890 | 0.77 | 1/1189 (0.1%) |
| 38 | h | 0.29 | 0/978 | 0.71 | 1/1301 (0.1%) |
| 39 | i | 0.28 | 0/778 | 0.74 | 0/1034 |
| 40 | j | 0.36 | 0/696 | 0.85 | 1/923 (0.1%) |
| 41 | k | 0.24 | 0/618 | 0.66 | 0/826 |
| 42 | l | 0.45 | 0/443 | 1.02 | 0/588 |
| 43 | m | 0.28 | 0/423 | 0.64 | 0/562 |
| 44 | n | 0.26 | 0/228 | 0.71 | 0/293 |
| 45 | o | 0.29 | 0/860 | 0.72 | 0/1136 |
| 46 | p | 0.32 | 0/701 | 0.76 | 0/934 |
| 47 | 2 | 0.26 | 0/42328 | 0.48 | 3/65955 (0.0%) |
| 48 | q | 0.26 | 0/1617 | 0.70 | 0/2215 |
| 49 | r | 0.30 | 0/1735 | 0.83 | 4/2335 (0.2%) |
| 50 | s | 0.27 | 0/1665 | 0.68 | 0/2263 |
| 51 | t | 0.29 | 0/1759 | 0.74 | 1/2368 (0.0%) |
| 52 | u | 0.29 | 0/2109 | 0.83 | 8/2839 (0.3%) |
| 53 | v | 0.29 | 0/1629 | 0.77 | 2/2202 (0.1%) |
| 54 | w | 0.30 | 0/1814 | 0.90 | 7/2425 (0.3%) |
| 55 | x | 0.31 | 0/1506 | 0.80 | 2/2028 (0.1%) |
| 56 | y | 0.29 | 0/1514 | 0.79 | 5/2021 (0.2%) |
| 57 | z | 0.28 | 0/1519 | 0.78 | 3/2035 (0.1%) |
| 58 | AA | 0.31 | 0/789 | 0.78 | 1/1067 (0.1%) |
| 59 | AB | 0.27 | 0/1247 | 0.72 | 1/1681 (0.1%) |
| 60 | AC | 0.26 | 0/898 | 0.73 | 0/1220 |
| 61 | AD | 0.29 | 0/1215 | 0.80 | 2/1638 (0.1%) |
| 62 | AE | 0.28 | 0/901 | 0.73 | 2/1217 (0.2%) |
| 63 | AF | 0.34 | 0/998 | 0.91 | 4/1341 (0.3%) |
| 64 | AG | 0.28 | 0/1125 | 0.81 | 0/1510 |
| 65 | AH | 0.27 | 0/935 | 0.72 | 1/1254 (0.1%) |
| 66 | AI | 0.25 | 0/1211 | 0.70 | 0/1628 |
| 67 | AJ | 0.26 | 0/1130 | 0.70 | 0/1517 |
| 68 | AK | 0.28 | 0/865 | 0.70 | 0/1169 |
| 69 | AL | 0.34 | 0/693 | 0.87 | 2/935 (0.2%) |
| 70 | AM | 0.33 | 0/1038 | 0.73 | 1/1395 (0.1%) |
| 71 | AN | 0.33 | 0/1139 | 0.82 | 0/1518 |
| 72 | AO | 0.25 | 0/1087 | 0.67 | 0/1449 |
| 73 | AP | 0.31 | 0/571 | 0.76 | 0/768 |
| 74 | AQ | 0.34 | 0/782 | 0.98 | 4/1047 (0.4%) |
| 75 | AR | 0.31 | 0/620 | 0.86 | 0/838 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 76 | AS | 0.25 | 0/499 | 0.70 | 0/670 |
| 77 | AT | 0.22 | 0/452 | 0.67 | 0/600 |
| 78 | AU | 0.24 | 0/483 | 0.65 | 0/643 |
| 79 | AV | 0.26 | 0/2490 | 0.70 | 4/3389 (0.1%) |
| 80 | AW | 0.23 | 0/292 | 0.76 | 3/390 (0.8%) |
| 81 | AX | 0.22 | 0/1818 | 0.48 | 0/2831 |
| 82 | AY | 0.32 | 0/181 | 0.64 | 0/278 |
| 83 | AZ | 0.31 | 0/6655 | 0.82 | 10/9009 (0.1%) |
| All | All | 0.29 | 0/225729 | 0.59 | 89/330942 (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 |
|---|---|---|---|
| 4 | P0 | 0 | 2 |
| 5 | P2 | 0 | 1 |
| 6 | A | 0 | 1 |
| 7 | B | 0 | 1 |
| 9 | D | 0 | 5 |
| 10 | E | 0 | 1 |
| 11 | F | 0 | 3 |
| 12 | G | 0 | 3 |
| 13 | H | 0 | 2 |
| 14 | I | 0 | 2 |
| 15 | J | 0 | 1 |
| 16 | L | 0 | 1 |
| 19 | O | 0 | 2 |
| 21 | Q | 0 | 1 |
| 24 | T | 0 | 2 |
| 26 | V | 0 | 2 |
| 27 | W | 0 | 1 |
| 31 | a | 0 | 1 |
| 34 | d | 0 | 2 |
| 35 | e | 0 | 2 |
| 36 | f | 0 | 1 |
| 37 | g | 0 | 3 |
| 38 | h | 0 | 1 |
| 39 | i | 0 | 3 |
| 40 | j | 0 | 1 |
| 42 | l | 0 | 1 |

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| Mol | Chain | #Chirality outliers | #Planarity outliers |
|---|---|---|---|
| 45 | o | 0 | 3 |
| 48 | q | 0 | 4 |
| 49 | r | 0 | 4 |
| 51 | t | 0 | 1 |
| 52 | u | 0 | 5 |
| 53 | v | 0 | 2 |
| 54 | w | 0 | 11 |
| 55 | x | 0 | 2 |
| 56 | y | 0 | 1 |
| 57 | z | 0 | 2 |
| 59 | AB | 0 | 1 |
| 60 | AC | 0 | 1 |
| 61 | AD | 0 | 3 |
| 63 | AF | 0 | 2 |
| 64 | AG | 0 | 3 |
| 65 | AH | 0 | 2 |
| 66 | AI | 0 | 1 |
| 69 | AL | 0 | 2 |
| 71 | AN | 0 | 1 |
| 72 | AO | 0 | 1 |
| 73 | AP | 0 | 1 |
| 74 | AQ | 0 | 7 |
| 75 | AR | 0 | 2 |
| 79 | AV | 0 | 1 |
| 83 | AZ | 0 | 14 |
| All | All | 0 | 123 |

There are no bond length outliers.

All (89) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 57 | z | 164 | PHE | N-CA-C | -8.78 | 100.04 | 111.02 |
| 63 | AF | 71 | GLU | CA-C-N | 8.65 | 132.41 | 120.39 |
| 63 | AF | 71 | GLU | C-N-CA | 8.65 | 132.41 | 120.39 |
| 63 | AF | 69 | GLU | CA-C-N | 7.75 | 136.35 | 121.54 |
| 63 | AF | 69 | GLU | C-N-CA | 7.75 | 136.35 | 121.54 |
| 83 | AZ | 247 | ASP | CA-C-N | 7.48 | 135.17 | 121.70 |
| 83 | AZ | 247 | ASP | C-N-CA | 7.48 | 135.17 | 121.70 |
| 83 | AZ | 721 | ASP | CA-C-N | 7.47 | 129.18 | 119.84 |
| 83 | AZ | 721 | ASP | C-N-CA | 7.47 | 129.18 | 119.84 |
| 58 | AA | 88 | PRO | N-CA-CB | 7.46 | 111.08 | 103.25 |
| 74 | AQ | 60 | PRO | CA-C-N | 7.16 | 135.22 | 121.54 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 74 | AQ | 60 | PRO | C-N-CA | 7.16 | 135.22 | 121.54 |
| 54 | w | 92 | ARG | CA-C-N | 7.06 | 135.02 | 121.54 |
| 54 | w | 92 | ARG | C-N-CA | 7.06 | 135.02 | 121.54 |
| 1 | 1 | 1636 | U | C1'-C2'-O2' | -6.70 | 101.75 | 111.80 |
| 54 | w | 67 | VAL | CA-C-N | 6.45 | 133.85 | 121.54 |
| 54 | w | 67 | VAL | C-N-CA | 6.45 | 133.85 | 121.54 |
| 56 | y | 119 | GLN | CA-C-N | 6.41 | 133.24 | 121.70 |
| 56 | y | 119 | GLN | C-N-CA | 6.41 | 133.24 | 121.70 |
| 19 | O | 145 | VAL | N-CA-C | -6.23 | 107.22 | 113.20 |
| 37 | g | 81 | CYS | CA-CB-SG | 6.15 | 128.54 | 114.40 |
| 83 | AZ | 709 | MET | CA-C-N | 6.02 | 129.17 | 120.38 |
| 83 | AZ | 709 | MET | C-N-CA | 6.02 | 129.17 | 120.38 |
| 30 | Z | 103 | GLN | CA-CB-CG | 6.01 | 126.13 | 114.10 |
| 56 | y | 67 | TRP | CA-C-N | 5.90 | 132.33 | 121.70 |
| 56 | y | 67 | TRP | C-N-CA | 5.90 | 132.33 | 121.70 |
| 16 | L | 47 | ALA | CA-C-N | 5.83 | 127.13 | 119.84 |
| 16 | L | 47 | ALA | C-N-CA | 5.83 | 127.13 | 119.84 |
| 38 | h | 91 | ALA | N-CA-C | 5.82 | 118.29 | 111.02 |
| 52 | u | 154 | ILE | CA-C-N | 5.81 | 132.63 | 121.54 |
| 52 | u | 154 | ILE | C-N-CA | 5.81 | 132.63 | 121.54 |
| 52 | u | 193 | GLY | CA-C-N | 5.77 | 132.56 | 121.54 |
| 52 | u | 193 | GLY | C-N-CA | 5.77 | 132.56 | 121.54 |
| 83 | AZ | 149 | GLU | CA-C-N | 5.77 | 132.09 | 121.70 |
| 83 | AZ | 149 | GLU | C-N-CA | 5.77 | 132.09 | 121.70 |
| 74 | AQ | 18 | VAL | CA-C-N | 5.74 | 135.81 | 121.80 |
| 74 | AQ | 18 | VAL | C-N-CA | 5.74 | 135.81 | 121.80 |
| 49 | r | 147 | ALA | CA-C-N | 5.73 | 132.48 | 121.54 |
| 49 | r | 147 | ALA | C-N-CA | 5.73 | 132.48 | 121.54 |
| 51 | t | 76 | ARG | N-CA-C | -5.71 | 106.97 | 114.04 |
| 49 | r | 206 | PRO | CA-C-N | 5.65 | 132.33 | 121.54 |
| 49 | r | 206 | PRO | C-N-CA | 5.65 | 132.33 | 121.54 |
| 52 | u | 194 | THR | CA-C-N | 5.62 | 132.09 | 121.97 |
| 52 | u | 194 | THR | C-N-CA | 5.62 | 132.09 | 121.97 |
| 47 | 2 | 706 | A | C2'-C3'-O3' | 5.60 | 117.90 | 109.50 |
| 56 | y | 40 | ALA | N-CA-C | 5.54 | 117.39 | 110.91 |
| 69 | AL | 44 | ARG | CA-C-N | 5.53 | 132.09 | 121.54 |
| 69 | AL | 44 | ARG | C-N-CA | 5.53 | 132.09 | 121.54 |
| 79 | AV | 164 | ASP | CA-C-N | 5.52 | 132.09 | 121.54 |
| 79 | AV | 164 | ASP | C-N-CA | 5.52 | 132.09 | 121.54 |
| 57 | z | 101 | VAL | CA-C-N | 5.49 | 135.47 | 126.86 |
| 57 | z | 101 | VAL | C-N-CA | 5.49 | 135.47 | 126.86 |
| 80 | AW | 119 | ARG | N-CA-C | 5.48 | 118.02 | 110.35 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 54 | w | 90 | GLY | CA-C-N | 5.47 | 131.56 | 121.70 |
| 54 | w | 90 | GLY | C-N-CA | 5.47 | 131.56 | 121.70 |
| 53 | v | 57 | SER | CA-C-N | 5.43 | 130.34 | 122.36 |
| 53 | v | 57 | SER | C-N-CA | 5.43 | 130.34 | 122.36 |
| 47 | 2 | 706 | A | P-O3'-C3' | 5.38 | 128.27 | 120.20 |
| 40 | j | 64 | MET | CA-CB-CG | 5.37 | 124.84 | 114.10 |
| 24 | T | 19 | PHE | CA-C-N | 5.36 | 135.57 | 125.66 |
| 24 | T | 19 | PHE | C-N-CA | 5.36 | 135.57 | 125.66 |
| 80 | AW | 118 | ARG | CA-C-N | 5.36 | 129.29 | 121.31 |
| 80 | AW | 118 | ARG | C-N-CA | 5.36 | 129.29 | 121.31 |
| 52 | u | 94 | ALA | CA-C-N | 5.36 | 135.93 | 126.45 |
| 52 | u | 94 | ALA | C-N-CA | 5.36 | 135.93 | 126.45 |
| 25 | U | 90 | ARG | CA-C-N | 5.25 | 131.57 | 121.54 |
| 25 | U | 90 | ARG | C-N-CA | 5.25 | 131.57 | 121.54 |
| 16 | L | 93 | ILE | N-CA-C | -5.24 | 107.72 | 112.12 |
| 36 | f | 58 | GLU | CA-C-N | 5.22 | 131.37 | 121.97 |
| 36 | f | 58 | GLU | C-N-CA | 5.22 | 131.37 | 121.97 |
| 70 | AM | 28 | ARG | C-N-CD | -5.20 | 109.17 | 120.60 |
| 30 | Z | 102 | GLU | CA-C-N | 5.18 | 134.45 | 121.80 |
| 30 | Z | 102 | GLU | C-N-CA | 5.18 | 134.45 | 121.80 |
| 47 | 2 | 1338 | C | P-O3'-C3' | 5.18 | 127.97 | 120.20 |
| 83 | AZ | 424 | ASP | CA-C-N | 5.18 | 131.44 | 121.54 |
| 83 | AZ | 424 | ASP | C-N-CA | 5.18 | 131.44 | 121.54 |
| 26 | V | 104 | ASN | N-CA-C | 5.17 | 121.23 | 109.81 |
| 59 | AB | 5 | LEU | CA-CB-CG | 5.16 | 134.35 | 116.30 |
| 62 | AE | 23 | PHE | CA-C-N | 5.16 | 131.39 | 121.54 |
| 62 | AE | 23 | PHE | C-N-CA | 5.16 | 131.39 | 121.54 |
| 4 | P0 | 45 | LEU | CA-CB-CG | 5.15 | 134.32 | 116.30 |
| 61 | AD | 137 | PRO | CA-C-N | 5.12 | 131.33 | 121.54 |
| 61 | AD | 137 | PRO | C-N-CA | 5.12 | 131.33 | 121.54 |
| 54 | w | 93 | LYS | N-CA-C | -5.11 | 99.91 | 110.80 |
| 55 | x | 35 | LYS | CA-C-N | 5.08 | 131.24 | 121.54 |
| 55 | x | 35 | LYS | C-N-CA | 5.08 | 131.24 | 121.54 |
| 65 | AH | 24 | LEU | CA-CB-CG | 5.07 | 134.03 | 116.30 |
| 79 | AV | 162 | ALA | CA-C-N | 5.07 | 131.21 | 121.54 |
| 79 | AV | 162 | ALA | C-N-CA | 5.07 | 131.21 | 121.54 |

There are no chirality outliers.

All (123) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 6 | A | 143 | GLU | Peptide |

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| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 59 | AB | 27 | THR | Peptide |
| 60 | AC | 110 | GLY | Peptide |
| 61 | AD | 104 | ARG | Peptide |
| 61 | AD | 138 | ASN | Peptide |
| 61 | AD | 25 | TRP | Peptide |
| 63 | AF | 100 | LYS | Peptide |
| 63 | AF | 89 | MET | Peptide |
| 64 | AG | 112 | TYR | Peptide |
| 64 | AG | 58 | ASP | Peptide |
| 64 | AG | 68 | ARG | Peptide |
| 65 | AH | 78 | ARG | Peptide |
| 65 | AH | 83 | GLN | Peptide |
| 66 | AI | 91 | ASP | Peptide |
| 69 | AL | 49 | GLU | Peptide |
| 69 | AL | 52 | THR | Peptide |
| 71 | AN | 113 | ALA | Peptide |
| 72 | AO | 37 | LYS | Peptide |
| 73 | AP | 54 | VAL | Peptide |
| 74 | AQ | 34 | LYS | Peptide |
| 74 | AQ | 43 | ASN | Peptide |
| 74 | AQ | 46 | GLU | Peptide |
| 74 | AQ | 47 | ALA | Peptide |
| 74 | AQ | 59 | TYR | Peptide |
| 74 | AQ | 63 | ALA | Peptide |
| 74 | AQ | 7 | SER | Peptide |
| 75 | AR | 55 | THR | Peptide |
| 75 | AR | 75 | GLU | Peptide |
| 79 | AV | 275 | ARG | Peptide |
| 83 | AZ | 111 | PHE | Peptide |
| 83 | AZ | 244 | LEU | Peptide |
| 83 | AZ | 246 | GLY | Peptide |
| 83 | AZ | 251 | ASN | Peptide |
| 83 | AZ | 276 | PHE | Peptide |
| 83 | AZ | 485 | VAL | Peptide |
| 83 | AZ | 487 | PRO | Peptide |
| 83 | AZ | 544 | ASP | Peptide |
| 83 | AZ | 645 | LEU | Peptide |
| 83 | AZ | 656 | LEU | Peptide |
| 83 | AZ | 668 | GLN | Peptide |
| 83 | AZ | 707 | PRO | Peptide |
| 83 | AZ | 721 | ASP | Peptide |
| 83 | AZ | 790 | GLY | Peptide |

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| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 7 | B | 25 | ILE | Peptide |
| 9 | D | 177 | GLU | Peptide |
| 9 | D | 20 | PHE | Peptide |
| 9 | D | 260 | PHE | Peptide |
| 9 | D | 43 | LYS | Peptide |
| 9 | D | 81 | HIS | Peptide |
| 10 | E | 58 | LEU | Peptide |
| 11 | F | 110 | ARG | Peptide |
| 11 | F | 157 | ASN | Peptide |
| 11 | F | 214 | TRP | Peptide |
| 12 | G | 156 | ASP | Peptide |
| 12 | G | 30 | THR | Peptide |
| 12 | G | 76 | ALA | Peptide |
| 13 | H | 20 | ILE | Peptide |
| 13 | H | 21 | LYS | Peptide |
| 14 | I | 217 | PHE | Peptide |
| 14 | I | 58 | GLU | Peptide |
| 15 | J | 167 | TYR | Peptide |
| 16 | L | 47 | ALA | Peptide |
| 19 | O | 110 | PRO | Peptide |
| 19 | O | 36 | VAL | Peptide |
| 4 | P0 | 39 | HIS | Peptide |
| 4 | P0 | 41 | VAL | Peptide |
| 5 | P2 | 117 | ARG | Peptide |
| 21 | Q | 59 | ARG | Peptide |
| 24 | T | 103 | GLN | Peptide |
| 24 | T | 17 | ARG | Peptide |
| 26 | V | 104 | ASN | Peptide |
| 26 | V | 93 | LEU | Peptide |
| 27 | W | 14 | TYR | Peptide |
| 31 | a | 23 | GLY | Peptide |
| 34 | d | 56 | ASN | Peptide |
| 34 | d | 87 | ASN | Peptide |
| 35 | e | 20 | HIS | Peptide |
| 35 | e | 39 | ASP | Peptide |
| 36 | f | 58 | GLU | Peptide |
| 37 | g | 66 | SER | Peptide |
| 37 | g | 80 | ARG | Peptide |
| 37 | g | 82 | ALA | Peptide |
| 38 | h | 90 | ARG | Peptide |
| 39 | i | 12 | ASN | Peptide |
| 39 | i | 63 | ASN | Peptide |

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| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 39 | i | 97 | SER | Peptide |
| 40 | j | 5 | THR | Peptide |
| 42 | l | 29 | LEU | Peptide |
| 45 | o | 28 | TYR | Peptide |
| 45 | o | 34 | SER | Peptide |
| 45 | o | 7 | THR | Peptide |
| 48 | q | 107 | PHE | Peptide |
| 48 | q | 111 | ILE | Peptide |
| 48 | q | 112 | THR | Peptide |
| 48 | q | 192 | THR | Peptide |
| 49 | r | 147 | ALA | Peptide |
| 49 | r | 205 | PHE | Peptide |
| 49 | r | 206 | PRO | Peptide |
| 49 | r | 40 | ASN | Peptide |
| 51 | t | 219 | ALA | Peptide |
| 52 | u | 154 | ILE | Peptide |
| 52 | u | 194 | THR | Peptide |
| 52 | u | 195 | ILE | Peptide |
| 52 | u | 233 | LYS | Peptide |
| 52 | u | 94 | ALA | Peptide |
| 53 | v | 127 | GLN | Peptide |
| 53 | v | 57 | SER | Peptide |
| 54 | w | 100 | ALA | Peptide |
| 54 | w | 119 | GLN | Peptide |
| 54 | w | 13 | GLN | Peptide |
| 54 | w | 148 | SER | Peptide |
| 54 | w | 153 | VAL | Peptide |
| 54 | w | 67 | VAL | Peptide |
| 54 | w | 88 | ARG | Peptide |
| 54 | w | 9 | VAL | Peptide |
| 54 | w | 91 | GLU | Peptide |
| 54 | w | 92 | ARG | Peptide |
| 54 | w | 93 | LYS | Peptide |
| 55 | x | 110 | GLN | Peptide |
| 55 | x | 36 | ALA | Peptide |
| 56 | y | 20 | GLN | Peptide |
| 57 | z | 133 | HIS | Peptide |
| 57 | z | 163 | PRO | Peptide |

## 5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | 1 | 68931 | 0 | 34637 | 848 | 0 |
| 2 | 3 | 2579 | 0 | 1304 | 32 | 0 |
| 3 | 4 | 3353 | 0 | 1695 | 32 | 0 |
| 4 | P0 | 1473 | 0 | 1514 | 39 | 0 |
| 5 | P2 | 723 | 0 | 774 | 31 | 0 |
| 6 | A | 1914 | 0 | 1981 | 47 | 0 |
| 7 | B | 3075 | 0 | 3142 | 57 | 0 |
| 8 | C | 2748 | 0 | 2859 | 57 | 0 |
| 9 | D | 2375 | 0 | 2325 | 34 | 0 |
| 10 | E | 1239 | 0 | 1326 | 24 | 0 |
| 11 | F | 1784 | 0 | 1862 | 38 | 0 |
| 12 | G | 1804 | 0 | 1877 | 26 | 0 |
| 13 | H | 1518 | 0 | 1587 | 28 | 0 |
| 14 | I | 1705 | 0 | 1736 | 30 | 0 |
| 15 | J | 1353 | 0 | 1383 | 29 | 0 |
| 16 | L | 1543 | 0 | 1608 | 41 | 0 |
| 17 | M | 1053 | 0 | 1149 | 25 | 0 |
| 18 | N | 1720 | 0 | 1779 | 51 | 0 |
| 19 | O | 1555 | 0 | 1659 | 30 | 0 |
| 20 | P | 1420 | 0 | 1437 | 17 | 0 |
| 21 | Q | 1441 | 0 | 1543 | 26 | 0 |
| 22 | R | 1521 | 0 | 1617 | 28 | 0 |
| 23 | S | 1445 | 0 | 1487 | 44 | 0 |
| 24 | T | 1276 | 0 | 1323 | 23 | 0 |
| 25 | U | 796 | 0 | 812 | 9 | 0 |
| 26 | V | 1003 | 0 | 1048 | 20 | 0 |
| 27 | W | 521 | 0 | 551 | 6 | 0 |
| 28 | X | 964 | 0 | 1025 | 19 | 0 |
| 29 | Y | 993 | 0 | 1081 | 25 | 0 |
| 30 | Z | 1092 | 0 | 1155 | 20 | 0 |
| 31 | a | 1173 | 0 | 1215 | 31 | 0 |
| 32 | b | 462 | 0 | 491 | 8 | 0 |
| 33 | c | 743 | 0 | 797 | 13 | 0 |
| 34 | d | 883 | 0 | 918 | 19 | 0 |
| 35 | e | 1020 | 0 | 1090 | 11 | 0 |
| 36 | f | 850 | 0 | 880 | 24 | 0 |
| 37 | g | 880 | 0 | 941 | 20 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 38 | h | 969 | 0 | 1078 | 19 | 0 |
| 39 | i | 771 | 0 | 849 | 19 | 0 |
| 40 | j | 681 | 0 | 683 | 9 | 0 |
| 41 | k | 612 | 0 | 682 | 7 | 0 |
| 42 | l | 436 | 0 | 475 | 14 | 0 |
| 43 | m | 417 | 0 | 458 | 6 | 0 |
| 44 | n | 227 | 0 | 273 | 9 | 0 |
| 45 | o | 847 | 0 | 915 | 15 | 0 |
| 46 | p | 694 | 0 | 734 | 20 | 0 |
| 47 | 2 | 37845 | 0 | 19040 | 632 | 0 |
| 48 | q | 1577 | 0 | 1567 | 24 | 0 |
| 49 | r | 1709 | 0 | 1784 | 31 | 0 |
| 50 | s | 1635 | 0 | 1723 | 29 | 0 |
| 51 | t | 1734 | 0 | 1817 | 47 | 0 |
| 52 | u | 2068 | 0 | 2154 | 60 | 0 |
| 53 | v | 1609 | 0 | 1675 | 49 | 0 |
| 54 | w | 1790 | 0 | 1881 | 48 | 0 |
| 55 | x | 1481 | 0 | 1572 | 31 | 0 |
| 56 | y | 1489 | 0 | 1525 | 37 | 0 |
| 57 | z | 1494 | 0 | 1573 | 40 | 0 |
| 58 | AA | 772 | 0 | 727 | 20 | 0 |
| 59 | AB | 1220 | 0 | 1281 | 21 | 0 |
| 60 | AC | 890 | 0 | 887 | 14 | 0 |
| 61 | AD | 1192 | 0 | 1255 | 30 | 0 |
| 62 | AE | 891 | 0 | 883 | 15 | 0 |
| 63 | AF | 977 | 0 | 1002 | 42 | 0 |
| 64 | AG | 1105 | 0 | 1166 | 29 | 0 |
| 65 | AH | 926 | 0 | 930 | 23 | 0 |
| 66 | AI | 1192 | 0 | 1222 | 34 | 0 |
| 67 | AJ | 1112 | 0 | 1124 | 32 | 0 |
| 68 | AK | 855 | 0 | 917 | 27 | 0 |
| 69 | AL | 684 | 0 | 672 | 17 | 0 |
| 70 | AM | 1021 | 0 | 1060 | 26 | 0 |
| 71 | AN | 1121 | 0 | 1196 | 32 | 0 |
| 72 | AO | 1073 | 0 | 1132 | 26 | 0 |
| 73 | AP | 563 | 0 | 603 | 17 | 0 |
| 74 | AQ | 769 | 0 | 816 | 23 | 0 |
| 75 | AR | 610 | 0 | 632 | 5 | 0 |
| 76 | AS | 497 | 0 | 535 | 19 | 0 |
| 77 | AT | 442 | 0 | 431 | 18 | 0 |
| 78 | AU | 475 | 0 | 525 | 4 | 0 |
| 79 | AV | 2437 | 0 | 2386 | 77 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 80 | AW | 287 | 0 | 287 | 8 | 0 |
| 81 | AX | 1626 | 0 | 820 | 24 | 0 |
| 82 | AY | 164 | 0 | 84 | 10 | 0 |
| 83 | AZ | 6551 | 0 | 6613 | 194 | 0 |
| 84 | AQ | 1 | 0 | 0 | 0 | 0 |
| 84 | AR | 1 | 0 | 0 | 0 | 0 |
| 84 | AT | 1 | 0 | 0 | 0 | 0 |
| 84 | AW | 1 | 0 | 0 | 0 | 0 |
| 84 | j | 1 | 0 | 0 | 0 | 0 |
| 84 | m | 1 | 0 | 0 | 0 | 0 |
| 84 | o | 1 | 0 | 0 | 0 | 0 |
| 84 | p | 1 | 0 | 0 | 0 | 0 |
| 85 | AZ | 35 | 0 | 41 | 13 | 0 |
| 86 | AZ | 32 | 0 | 14 | 5 | 0 |
| All | All | 210540 | 0 | 157307 | 3106 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

All (3106) 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) |
|---|---|---|---|
| 47:2:40:A:H62 | 47:2:467:G:N2 | 1.55 | 1.03 |
| 47:2:214:G:N2 | 47:2:251:A:H62 | 1.55 | 1.03 |
| 1:1:1636:U:H5' | 1:1:1636:U:H6 | 1.24 | 1.02 |
| 1:1:1636:U:H5' | 1:1:1636:U:C6 | 1.94 | 1.02 |
| 47:2:214:G:H21 | 47:2:251:A:N6 | 1.59 | 0.99 |
| 47:2:993:A:H62 | 47:2:1011:G:N2 | 1.61 | 0.98 |
| 1:1:1257:C:H42 | 1:1:1261:G:N2 | 1.63 | 0.97 |
| 2:3:79:A:H62 | 2:3:101:G:N2 | 1.62 | 0.97 |
| 47:2:1542:G:H21 | 47:2:1569:A:H62 | 1.04 | 0.97 |
| 83:AZ:317:LYS:O | 83:AZ:321:LYS:HB2 | 1.64 | 0.97 |
| 47:2:628:G:H21 | 47:2:971:A:H62 | 1.11 | 0.96 |
| 1:1:1257:C:N4 | 1:1:1261:G:H22 | 1.63 | 0.96 |
| 85:AZ:901:SO1:H203 | 85:AZ:901:SO1:C11 | 1.96 | 0.96 |
| 1:1:1071:U:H3 | 1:1:1087:G:H1 | 1.12 | 0.95 |
| 1:1:2465:G:H21 | 1:1:2491:A:N6 | 1.64 | 0.95 |
| 1:1:2465:G:H21 | 1:1:2491:A:H62 | 1.08 | 0.94 |
| 83:AZ:576:LEU:HA | 83:AZ:586:ILE:O | 1.68 | 0.94 |
| 47:2:1588:G:H1 | 47:2:1608:U:H3 | 0.95 | 0.94 |
| 1:1:355:A:H62 | 1:1:364:G:H21 | 1.13 | 0.93 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:40:A:N6 | 47:2:467:G:H21 | 1.66 | 0.93 |
| 47:2:993:A:N6 | 47:2:1011:G:H21 | 1.66 | 0.93 |
| 47:2:1356:U:H3 | 47:2:1367:G:H1 | 0.97 | 0.92 |
| 47:2:629:U:H3 | 47:2:970:A:H62 | 1.03 | 0.92 |
| 81:AX:4:G:H1 | 81:AX:69:U:H3 | 0.99 | 0.92 |
| 2:3:79:A:N6 | 2:3:101:G:H21 | 1.68 | 0.92 |
| 47:2:1663:G:H1 | 47:2:1738:U:H3 | 0.96 | 0.91 |
| 47:2:826:U:H3 | 47:2:846:G:H1 | 0.92 | 0.91 |
| 47:2:486:G:H1 | 47:2:501:U:H3 | 0.94 | 0.90 |
| 47:2:1203:A:H61 | 47:2:1553:G:H21 | 1.13 | 0.90 |
| 1:1:3222:U:H3 | 1:1:3263:G:H1 | 0.95 | 0.90 |
| 47:2:1542:G:N2 | 47:2:1569:A:H62 | 1.67 | 0.90 |
| 1:1:3189:G:H1 | 1:1:3203:U:H3 | 1.15 | 0.89 |
| 1:1:1257:C:H42 | 1:1:1261:G:H22 | 0.90 | 0.88 |
| 1:1:1533:U:H3 | 1:1:1587:A:N6 | 1.70 | 0.88 |
| 1:1:3160:U:H3 | 1:1:3290:G:H1 | 1.20 | 0.87 |
| 47:2:1499:G:H1 | 47:2:1508:U:H3 | 0.91 | 0.87 |
| 47:2:1335:U:H3 | 47:2:1416:G:H1 | 1.16 | 0.87 |
| 47:2:1542:G:H21 | 47:2:1569:A:N6 | 1.73 | 0.87 |
| 47:2:40:A:H62 | 47:2:467:G:H21 | 0.87 | 0.86 |
| 2:3:79:A:H62 | 2:3:101:G:H21 | 0.87 | 0.86 |
| 1:1:1896:A:H61 | 1:1:2339:C:N4 | 1.73 | 0.85 |
| 83:AZ:74:ALA:HA | 83:AZ:102:LEU:O | 1.76 | 0.85 |
| 47:2:1203:A:H61 | 47:2:1553:G:N2 | 1.75 | 0.85 |
| 47:2:1490:C:HO2’ | 51:t:3:ALA:N | 1.75 | 0.84 |
| 83:AZ:75:ILE:O | 83:AZ:101:ASN:HA | 1.76 | 0.84 |
| 83:AZ:404:THR:HA | 83:AZ:448:CYS:O | 1.77 | 0.84 |
| 1:1:355:A:H62 | 1:1:364:G:N2 | 1.77 | 0.83 |
| 1:1:182:U:H3 | 1:1:234:G:H1 | 1.28 | 0.82 |
| 2:3:81:U:H3 | 2:3:99:G:H1 | 1.27 | 0.82 |
| 1:1:355:A:N6 | 1:1:364:G:H21 | 1.77 | 0.81 |
| 47:2:752:A:H2 | 47:2:797:G:H1 | 1.24 | 0.81 |
| 47:2:478:A:H2 | 47:2:510:G:H1 | 1.25 | 0.81 |
| 47:2:1213:G:H1 | 47:2:1450:U:H3 | 1.28 | 0.81 |
| 1:1:2465:G:N2 | 1:1:2491:A:H62 | 1.79 | 0.80 |
| 47:2:628:G:H21 | 47:2:971:A:N6 | 1.78 | 0.80 |
| 83:AZ:538:LEU:O | 83:AZ:542:LEU:HB2 | 1.81 | 0.80 |
| 1:1:1193:A:H62 | 1:1:1314:C:N4 | 1.80 | 0.80 |
| 1:1:2696:A:C6 | 1:1:2758:A:N1 | 2.49 | 0.79 |
| 83:AZ:713:THR:O | 83:AZ:717:PHE:HB2 | 1.82 | 0.79 |
| 47:2:628:G:N2 | 47:2:971:A:H62 | 1.79 | 0.79 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:774:VAL:HG11 | 85:AZ:901:SO1:H202 | 1.64 | 0.79 |
| 1:1:2565:U:H3 | 1:1:2576:G:H1 | 1.31 | 0.79 |
| 83:AZ:226:ALA:O | 83:AZ:230:ALA:HB2 | 1.83 | 0.79 |
| 47:2:629:U:H3 | 47:2:970:A:N6 | 1.80 | 0.78 |
| 83:AZ:539:GLU:O | 83:AZ:543:GLN:HB2 | 1.83 | 0.78 |
| 1:1:1533:U:H3 | 1:1:1587:A:H62 | 0.85 | 0.78 |
| 47:2:752:A:C2 | 47:2:797:G:N1 | 2.51 | 0.78 |
| 83:AZ:280:PRO:O | 83:AZ:284:LEU:HB2 | 1.83 | 0.78 |
| 47:2:1203:A:N6 | 47:2:1553:G:H21 | 1.81 | 0.77 |
| 1:1:1234:G:H21 | 5:P2:132:ILE:HG12 | 1.49 | 0.77 |
| 47:2:174:U:H3 | 47:2:266:A:H62 | 1.31 | 0.75 |
| 1:1:754:G:H1 | 1:1:778:U:H3 | 1.35 | 0.75 |
| 1:1:2844:C:N4 | 1:1:2898:G:H22 | 1.86 | 0.74 |
| 1:1:2256:A:H2 | 47:2:1757:G:P | 2.12 | 0.73 |
| 49:r:145:LYS:HB3 | 49:r:149:GLN:HG3 | 1.70 | 0.73 |
| 36:f:38:PRO:HG3 | 36:f:79:GLY:H | 1.52 | 0.73 |
| 83:AZ:345:PRO:O | 83:AZ:349:GLN:HB2 | 1.88 | 0.73 |
| 83:AZ:492:ALA:HB3 | 83:AZ:557:SER:O | 1.89 | 0.73 |
| 83:AZ:818:ILE:O | 83:AZ:822:ALA:HB3 | 1.89 | 0.72 |
| 47:2:273:G:H1 | 47:2:283:U:H3 | 0.81 | 0.72 |
| 1:1:2696:A:N6 | 1:1:2758:A:C6 | 2.57 | 0.72 |
| 47:2:1316:G:H5” | 65:AH:7:LYS:HG3 | 1.72 | 0.71 |
| 34:d:6:ASP:H | 34:d:77:ARG:HH21 | 1.37 | 0.71 |
| 47:2:752:A:H2 | 47:2:797:G:N1 | 1.88 | 0.71 |
| 51:t:38:GLU:HB2 | 68:AK:110:PRO:HG3 | 1.73 | 0.71 |
| 1:1:354:U:H3 | 1:1:365:A:H62 | 1.38 | 0.71 |
| 1:1:2256:A:C2 | 47:2:1757:G:O5’ | 2.43 | 0.71 |
| 1:1:2635:A:N7 | 1:1:2642:A:N6 | 2.39 | 0.71 |
| 1:1:1257:C:H5’ | 4:P0:46:ARG:HH12 | 1.54 | 0.70 |
| 10:E:51:ARG:HH21 | 10:E:163:PHE:HB2 | 1.54 | 0.70 |
| 31:a:124:ILE:HG22 | 31:a:144:VAL:H | 1.56 | 0.70 |
| 47:2:993:A:H62 | 47:2:1011:G:H21 | 0.81 | 0.70 |
| 3:4:95:G:N3 | 40:j:79:GLN:NE2 | 2.39 | 0.70 |
| 71:AN:62:LYS:HD2 | 71:AN:118:PRO:HD3 | 1.73 | 0.70 |
| 83:AZ:305:ILE:HG23 | 83:AZ:306:VAL:HG13 | 1.71 | 0.70 |
| 1:1:1636:U:OP1 | 30:Z:36:HIS:CE1 | 2.44 | 0.70 |
| 1:1:2256:A:H2 | 47:2:1757:G:O5’ | 1.73 | 0.70 |
| 47:2:902:G:N7 | 62:AE:24:ASN:ND2 | 2.39 | 0.70 |
| 83:AZ:115:VAL:O | 83:AZ:119:LEU:HB2 | 1.91 | 0.70 |
| 7:B:95:THR:HG23 | 7:B:97:ARG:H | 1.56 | 0.70 |
| 52:u:151:ASP:H | 52:u:169:ILE:HD11 | 1.57 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:238:ALA:O | 83:AZ:242:ASP:HB2 | 1.92 | 0.70 |
| 58:AA:7:ASP:HB3 | 58:AA:37:THR:HG22 | 1.73 | 0.69 |
| 4:P0:40:GLU:HG3 | 4:P0:43:LYS:HD2 | 1.73 | 0.69 |
| 67:AJ:37:VAL:HG13 | 67:AJ:39:THR:H | 1.57 | 0.69 |
| 80:AW:135:HIS:HB2 | 80:AW:138:ARG:HB3 | 1.75 | 0.69 |
| 45:o:7:THR:HA | 45:o:24:LYS:HA | 1.74 | 0.69 |
| 6:A:55:GLY:HA3 | 6:A:174:ARG:HH12 | 1.56 | 0.69 |
| 28:X:49:LYS:HD2 | 38:h:78:LYS:HZ1 | 1.58 | 0.69 |
| 1:1:1195:A:H61 | 1:1:1313:G:H1 | 1.40 | 0.69 |
| 47:2:1433:G:N2 | 77:AT:42:CYS:SG | 2.66 | 0.69 |
| 47:2:1580:C:H4' | 64:AG:137:ARG:HB2 | 1.73 | 0.69 |
| 47:2:1388:A:C2 | 47:2:1409:G:N2 | 2.61 | 0.69 |
| 70:AM:3:ARG:HE | 70:AM:28:ARG:HH12 | 1.41 | 0.69 |
| 1:1:2844:C:H42 | 1:1:2898:G:N2 | 1.92 | 0.68 |
| 83:AZ:405:VAL:O | 83:AZ:447:ASP:HA | 1.93 | 0.68 |
| 79:AV:37:SER:HB3 | 79:AV:41:THR:H | 1.59 | 0.68 |
| 79:AV:80:ALA:HB3 | 79:AV:92:TRP:HB2 | 1.74 | 0.68 |
| 83:AZ:733:ILE:O | 83:AZ:767:THR:HA | 1.94 | 0.68 |
| 20:P:31:GLU:HG2 | 20:P:60:PHE:HA | 1.76 | 0.68 |
| 47:2:214:G:H21 | 47:2:251:A:H62 | 0.78 | 0.68 |
| 1:1:1231:A:N6 | 4:P0:110:ARG:HH12 | 1.92 | 0.68 |
| 54:w:25:ARG:HH22 | 54:w:106:LEU:HB3 | 1.59 | 0.68 |
| 79:AV:131:ILE:HD11 | 79:AV:171:SER:HB2 | 1.75 | 0.68 |
| 1:1:1805:C:H2' | 1:1:1806:A:H8 | 1.60 | 0.67 |
| 1:1:3113:A:H4' | 13:H:69:ARG:HD2 | 1.75 | 0.67 |
| 5:P2:77:ALA:O | 5:P2:117:ARG:NH1 | 2.27 | 0.67 |
| 18:N:103:GLU:HG3 | 18:N:118:SER:HB3 | 1.75 | 0.67 |
| 47:2:478:A:C2 | 47:2:510:G:N1 | 2.57 | 0.67 |
| 54:w:77:LEU:HD23 | 54:w:95:LYS:HB3 | 1.77 | 0.67 |
| 69:AL:22:ARG:HH22 | 69:AL:58:TYR:HB3 | 1.58 | 0.67 |
| 47:2:788:A:N7 | 52:u:108:ARG:NH1 | 2.43 | 0.67 |
| 66:AI:126:ARG:HD3 | 66:AI:131:LEU:HD22 | 1.77 | 0.67 |
| 83:AZ:144:ARG:HA | 83:AZ:147:LEU:HG | 1.76 | 0.67 |
| 47:2:903:U:O2 | 47:2:906:A:N7 | 2.28 | 0.67 |
| 1:1:2844:C:N4 | 1:1:2898:G:N2 | 2.42 | 0.66 |
| 14:I:188:GLY:HA3 | 14:I:216:TYR:HB2 | 1.77 | 0.66 |
| 47:2:507:U:C6 | 47:2:507:U:H5" | 2.30 | 0.66 |
| 85:AZ:901:SO1:O15 | 85:AZ:901:SO1:H212 | 1.95 | 0.66 |
| 52:u:181:VAL:H | 52:u:194:THR:HA | 1.61 | 0.66 |
| 16:L:90:ALA:HB1 | 16:L:95:ILE:HB | 1.76 | 0.66 |
| 53:v:177:ILE:HD13 | 53:v:180:ARG:HH12 | 1.61 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:396:ALA:HB3 | 83:AZ:456:LEU:HB3 | 1.78 | 0.66 |
| 5:P2:134:GLY:H | 5:P2:137:GLN:HB3 | 1.61 | 0.66 |
| 7:B:10:ARG:NH1 | 7:B:11:HIS:O | 2.29 | 0.66 |
| 47:2:227:U:O2 | 47:2:834:G:N2 | 2.28 | 0.66 |
| 1:1:1259:A:OP2 | 4:P0:14:LYS:NZ | 2.27 | 0.66 |
| 47:2:1346:A:H5" | 47:2:1348:A:H62 | 1.60 | 0.66 |
| 8:C:258:LEU:HA | 8:C:261:VAL:HG12 | 1.77 | 0.65 |
| 30:Z:22:LYS:NZ | 30:Z:129:TRP:O | 2.29 | 0.65 |
| 47:2:1167:G:H1 | 47:2:1578:U:H3 | 1.43 | 0.65 |
| 1:1:2769:A:H1' | 45:o:82:GLN:HE22 | 1.62 | 0.65 |
| 1:1:1347:U:H3' | 21:Q:38:ARG:HH22 | 1.60 | 0.65 |
| 4:P0:97:LYS:HZ2 | 4:P0:187:VAL:HG22 | 1.60 | 0.65 |
| 44:n:5:TRP:HE1 | 47:2:1784:C:H41 | 1.44 | 0.65 |
| 83:AZ:713:THR:O | 83:AZ:717:PHE:CB | 2.44 | 0.65 |
| 1:1:1195:A:N6 | 1:1:1313:G:H1 | 1.95 | 0.65 |
| 22:R:167:ARG:HG2 | 22:R:170:ARG:HE | 1.61 | 0.65 |
| 47:2:1116:A:H62 | 47:2:1130:G:H21 | 1.43 | 0.65 |
| 1:1:3158:G:C6 | 1:1:3292:A:N1 | 2.65 | 0.65 |
| 4:P0:60:ARG:HH21 | 4:P0:64:ARG:HD3 | 1.60 | 0.65 |
| 53:v:92:ARG:NH2 | 53:v:169:ASN:OD1 | 2.30 | 0.65 |
| 54:w:67:VAL:HG21 | 54:w:99:GLY:HA3 | 1.79 | 0.65 |
| 70:AM:28:ARG:HB3 | 70:AM:60:LYS:HG2 | 1.79 | 0.65 |
| 6:A:28:LYS:HG3 | 6:A:123:ARG:HD2 | 1.79 | 0.65 |
| 81:AX:18:G:H22 | 81:AX:57:G:H2' | 1.62 | 0.65 |
| 39:i:34:SER:HG | 39:i:37:THR:HG1 | 1.40 | 0.65 |
| 7:B:10:ARG:NH2 | 7:B:263:SER:O | 2.29 | 0.65 |
| 1:1:1257:C:N3 | 1:1:1261:G:N1 | 2.41 | 0.65 |
| 1:1:1405:U:H3 | 35:e:55:ILE:HD12 | 1.62 | 0.65 |
| 1:1:1231:A:H62 | 4:P0:110:ARG:HH12 | 1.43 | 0.64 |
| 1:1:412:G:N3 | 20:P:118:GLN:NE2 | 2.44 | 0.64 |
| 1:1:510:G:H1 | 1:1:581:U:H3 | 1.46 | 0.64 |
| 47:2:195:G:N7 | 56:y:141:ARG:NH2 | 2.46 | 0.64 |
| 47:2:1157:A:H3' | 47:2:1160:A:H62 | 1.62 | 0.64 |
| 57:z:163:PRO:HA | 57:z:166:GLY:H | 1.62 | 0.64 |
| 57:z:143:ILE:HG22 | 57:z:145:SER:H | 1.62 | 0.64 |
| 21:Q:171:LYS:H | 31:a:56:VAL:HG11 | 1.61 | 0.64 |
| 34:d:44:MET:HG2 | 34:d:77:ARG:HH11 | 1.61 | 0.64 |
| 47:2:1294:G:H1 | 47:2:1303:U:H3 | 1.43 | 0.64 |
| 1:1:995:U:H3 | 1:1:1054:A:H62 | 1.43 | 0.64 |
| 52:u:68:ARG:NH1 | 52:u:70:VAL:O | 2.30 | 0.64 |
| 53:v:80:LYS:HE3 | 53:v:82:PHE:HB2 | 1.78 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:282:PHE:O | 83:AZ:286:THR:HB | 1.98 | 0.64 |
| 85:AZ:901:SO1:H203 | 85:AZ:901:SO1:O19 | 1.97 | 0.64 |
| 12:G:190:VAL:HG13 | 12:G:192:GLN:H | 1.63 | 0.64 |
| 19:O:190:VAL:HA | 19:O:193:GLN:HE21 | 1.63 | 0.64 |
| 5:P2:110:ILE:HD13 | 5:P2:130:LYS:HZ2 | 1.63 | 0.64 |
| 31:a:74:ASN:HD22 | 31:a:114:GLY:HA2 | 1.62 | 0.64 |
| 1:1:2114:C:O2' | 1:1:2116:G:N2 | 2.31 | 0.64 |
| 79:AV:250:TYR:HB3 | 79:AV:265:LEU:HB2 | 1.80 | 0.64 |
| 1:1:2176:U:OP1 | 6:A:54:ARG:NH2 | 2.31 | 0.63 |
| 11:F:90:LYS:HD2 | 11:F:95:ILE:HD11 | 1.80 | 0.63 |
| 47:2:1256:A:H3' | 60:AC:43:ARG:HE | 1.63 | 0.63 |
| 85:AZ:901:SO1:H212 | 85:AZ:901:SO1:O19 | 1.97 | 0.63 |
| 14:I:71:CYS:SG | 14:I:158:LYS:NZ | 2.71 | 0.63 |
| 47:2:715:U:H3' | 47:2:720:G:H21 | 1.63 | 0.63 |
| 1:1:351:A:H61 | 42:l:38:ASN:HA | 1.61 | 0.63 |
| 52:u:79:ASP:HB3 | 52:u:82:TYR:HB2 | 1.80 | 0.63 |
| 52:u:191:ARG:HG3 | 52:u:245:LYS:HG2 | 1.80 | 0.63 |
| 79:AV:202:LEU:HA | 79:AV:243:LEU:HD12 | 1.80 | 0.63 |
| 1:1:1213:G:O2' | 23:S:90:MET:SD | 2.56 | 0.63 |
| 47:2:1673:G:N1 | 47:2:1728:A:C2 | 2.65 | 0.63 |
| 11:F:98:LYS:HG3 | 11:F:129:LEU:HD11 | 1.80 | 0.63 |
| 74:AQ:12:LYS:HD2 | 74:AQ:15:ARG:HB2 | 1.81 | 0.63 |
| 1:1:1062:A:N3 | 24:T:130:ARG:NH2 | 2.46 | 0.63 |
| 1:1:3158:G:O6 | 1:1:3292:A:N1 | 2.31 | 0.63 |
| 23:S:138:GLN:HA | 23:S:141:LYS:HG2 | 1.80 | 0.63 |
| 79:AV:172:ALA:HB1 | 79:AV:201:THR:HA | 1.79 | 0.63 |
| 1:1:1132:C:H2' | 1:1:1133:A:H8 | 1.62 | 0.63 |
| 17:M:47:ASP:OD2 | 17:M:55:ARG:NH1 | 2.32 | 0.63 |
| 47:2:55:A:H3' | 47:2:403:G:H22 | 1.64 | 0.63 |
| 2:3:28:C:OP1 | 15:J:137:ARG:NH1 | 2.31 | 0.62 |
| 30:Z:50:PRO:HG3 | 30:Z:131:PHE:HB3 | 1.80 | 0.62 |
| 39:i:58:ILE:HA | 39:i:61:ILE:HD12 | 1.79 | 0.62 |
| 43:m:96:CYS:SG | 43:m:97:ARG:N | 2.72 | 0.62 |
| 50:s:137:ILE:HD12 | 69:AL:27:ASP:HB2 | 1.80 | 0.62 |
| 83:AZ:412:ARG:HB2 | 83:AZ:470:THR:O | 1.99 | 0.62 |
| 1:1:2898:G:OP2 | 13:H:173:ARG:NH2 | 2.31 | 0.62 |
| 1:1:3138:U:H2' | 1:1:3139:A:H8 | 1.64 | 0.62 |
| 1:1:3213:A:N7 | 17:M:124:ARG:NH1 | 2.46 | 0.62 |
| 47:2:1227:A:H1' | 60:AC:44:GLY:HA2 | 1.81 | 0.62 |
| 1:1:2256:A:C2 | 47:2:1757:G:OP1 | 2.52 | 0.62 |
| 1:1:2838:A:H62 | 1:1:2850:G:H21 | 1.48 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1354:G:H1 | 47:2:1369:U:H3 | 1.43 | 0.62 |
| 56:y:72:ILE:HD12 | 56:y:73:SER:H | 1.63 | 0.62 |
| 79:AV:156:VAL:HA | 79:AV:169:ILE:HG22 | 1.79 | 0.62 |
| 80:AW:133:ALA:HB3 | 80:AW:140:TYR:HB3 | 1.80 | 0.62 |
| 59:AB:8:GLN:NE2 | 59:AB:14:GLN:O | 2.31 | 0.62 |
| 1:1:1015:U:H3 | 1:1:1035:G:H22 | 1.46 | 0.62 |
| 47:2:1150:G:N1 | 82:AY:46:U:OP2 | 2.26 | 0.62 |
| 50:s:225:LEU:HB3 | 50:s:230:TRP:HE1 | 1.64 | 0.62 |
| 79:AV:83:ALA:HB2 | 79:AV:113:VAL:HG12 | 1.82 | 0.62 |
| 1:1:98:G:O3' | 18:N:194:GLN:NE2 | 2.32 | 0.62 |
| 71:AN:96:VAL:HG22 | 71:AN:127:VAL:HG11 | 1.80 | 0.62 |
| 83:AZ:615:ARG:HH22 | 83:AZ:630:ALA:HA | 1.65 | 0.62 |
| 1:1:1350:A:N6 | 1:1:1353:U:O2' | 2.33 | 0.62 |
| 47:2:553:G:N2 | 47:2:571:G:N7 | 2.47 | 0.62 |
| 63:AF:98:ASN:HB2 | 63:AF:122:THR:HG22 | 1.81 | 0.62 |
| 24:T:17:ARG:HE | 24:T:22:HIS:HA | 1.65 | 0.62 |
| 85:AZ:901:SO1:O60 | 85:AZ:901:SO1:H652 | 1.99 | 0.62 |
| 1:1:1348:U:OP2 | 21:Q:38:ARG:NH2 | 2.33 | 0.62 |
| 1:1:1491:A:N7 | 42:l:2:ALA:N | 2.47 | 0.62 |
| 47:2:1352:G:OP1 | 64:AG:66:ARG:NH2 | 2.33 | 0.62 |
| 47:2:1529:C:OP1 | 53:v:112:ARG:NH1 | 2.33 | 0.62 |
| 47:2:1727:G:N2 | 56:y:32:GLN:OE1 | 2.30 | 0.62 |
| 1:1:1127:G:H21 | 1:1:1129:A:H8 | 1.46 | 0.61 |
| 1:1:2256:A:H2 | 47:2:1757:G:OP1 | 1.81 | 0.61 |
| 7:B:190:GLU:HA | 7:B:193:ASP:HB2 | 1.82 | 0.61 |
| 16:L:76:THR:HG23 | 16:L:101:ARG:HE | 1.65 | 0.61 |
| 41:k:29:LYS:HE3 | 41:k:39:ARG:HH22 | 1.64 | 0.61 |
| 51:t:49:ILE:HG23 | 51:t:89:GLU:HG3 | 1.82 | 0.61 |
| 51:t:53:THR:HG23 | 51:t:54:ARG:HD2 | 1.81 | 0.61 |
| 1:1:562:C:OP2 | 17:M:77:ARG:NH1 | 2.33 | 0.61 |
| 5:P2:62:LEU:HB2 | 5:P2:75:PRO:HG3 | 1.83 | 0.61 |
| 14:I:189:GLU:HG2 | 14:I:200:LEU:HB3 | 1.82 | 0.61 |
| 21:Q:82:VAL:HA | 21:Q:102:ALA:HB3 | 1.82 | 0.61 |
| 63:AF:98:ASN:ND2 | 63:AF:120:SER:OG | 2.33 | 0.61 |
| 73:AP:54:VAL:HG13 | 73:AP:60:VAL:HG21 | 1.82 | 0.61 |
| 1:1:1383:G:OP1 | 8:C:203:ARG:NH1 | 2.34 | 0.61 |
| 1:1:1671:C:OP1 | 22:R:60:LYS:NZ | 2.33 | 0.61 |
| 47:2:78:A:OP2 | 54:w:159:ARG:NH2 | 2.32 | 0.61 |
| 54:w:113:ILE:HG13 | 54:w:124:LEU:HD21 | 1.82 | 0.61 |
| 1:1:542:G:H1 | 1:1:549:U:H3 | 1.48 | 0.61 |
| 1:1:1896:A:N6 | 1:1:2339:C:N4 | 2.46 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:x:27:LEU:HD12 | 55:x:32:PRO:HG3 | 1.83 | 0.61 |
| 1:1:1029:G:H2' | 1:1:1030:A:H8 | 1.66 | 0.61 |
| 38:h:85:THR:HG22 | 38:h:87:ALA:H | 1.65 | 0.61 |
| 47:2:7:G:N7 | 50:s:205:ARG:NH1 | 2.49 | 0.61 |
| 47:2:647:G:H1 | 47:2:687:G:H22 | 1.46 | 0.61 |
| 47:2:1140:G:H2' | 47:2:1141:G:H8 | 1.66 | 0.61 |
| 63:AF:90:ILE:HD11 | 63:AF:109:PRO:HA | 1.83 | 0.61 |
| 83:AZ:171:LYS:HA | 83:AZ:274:ASN:HD22 | 1.66 | 0.61 |
| 16:L:74:GLY:O | 16:L:101:ARG:NH2 | 2.34 | 0.61 |
| 47:2:862:A:OP2 | 61:AD:64:ARG:NH2 | 2.33 | 0.61 |
| 47:2:1614:A:N6 | 53:v:78:ALA:O | 2.34 | 0.61 |
| 54:w:67:VAL:HG22 | 54:w:69:LEU:H | 1.65 | 0.61 |
| 83:AZ:727:PRO:HG3 | 83:AZ:801:TRP:HE1 | 1.66 | 0.61 |
| 15:J:98:ALA:HA | 15:J:156:LYS:HB2 | 1.82 | 0.61 |
| 47:2:1678:A:OP2 | 56:y:42:ARG:NH1 | 2.34 | 0.61 |
| 54:w:68:LEU:H | 54:w:100:ALA:HB2 | 1.64 | 0.61 |
| 83:AZ:488:VAL:HG13 | 83:AZ:489:VAL:HG13 | 1.81 | 0.61 |
| 1:1:1636:U:OP1 | 30:Z:36:HIS:HE1 | 1.83 | 0.61 |
| 47:2:354:C:H5" | 56:y:16:ALA:HB2 | 1.83 | 0.61 |
| 57:z:25:ASP:HA | 57:z:28:LEU:HB2 | 1.82 | 0.61 |
| 1:1:269:G:O6 | 18:N:15:GLN:NE2 | 2.33 | 0.61 |
| 16:L:128:ARG:HE | 38:h:114:ARG:HD2 | 1.66 | 0.61 |
| 22:R:167:ARG:HA | 22:R:170:ARG:HB2 | 1.82 | 0.61 |
| 31:a:75:LEU:H | 31:a:114:GLY:HA3 | 1.64 | 0.61 |
| 1:1:1126:G:OP2 | 14:I:14:ASN:ND2 | 2.33 | 0.60 |
| 9:D:289:LYS:HD2 | 14:I:206:LEU:HD23 | 1.83 | 0.60 |
| 33:c:22:LYS:HB2 | 33:c:94:GLU:HB3 | 1.82 | 0.60 |
| 57:z:135:ALA:HB2 | 57:z:140:ILE:HD13 | 1.83 | 0.60 |
| 1:1:3283:U:H2' | 1:1:3284:G:H8 | 1.66 | 0.60 |
| 33:c:46:ALA:H | 33:c:73:GLY:HA2 | 1.66 | 0.60 |
| 47:2:1681:A:N7 | 54:w:65:GLN:NE2 | 2.49 | 0.60 |
| 60:AC:36:LEU:HD11 | 60:AC:102:GLY:HA3 | 1.84 | 0.60 |
| 83:AZ:829:LYS:HD3 | 83:AZ:830:GLU:H | 1.66 | 0.60 |
| 47:2:509:G:C5' | 47:2:509:G:H8 | 2.14 | 0.60 |
| 47:2:1793:G:H1 | 74:AQ:75:VAL:HG21 | 1.65 | 0.60 |
| 60:AC:94:ALA:HA | 60:AC:97:LEU:HD13 | 1.82 | 0.60 |
| 1:1:1261:G:O2' | 1:1:1262:G:N7 | 2.34 | 0.60 |
| 6:A:166:ILE:HD12 | 46:p:83:ILE:HG21 | 1.84 | 0.60 |
| 52:u:31:PRO:HG2 | 52:u:39:ARG:HG3 | 1.82 | 0.60 |
| 79:AV:73:LEU:HB3 | 79:AV:77:GLY:HA2 | 1.83 | 0.60 |
| 8:C:358:THR:O | 23:S:26:ARG:NH1 | 2.32 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:D:52:VAL:HG12 | 9:D:147:ASP:HB2 | 1.82 | 0.60 |
| 47:2:1588:G:O6 | 47:2:1608:U:O4 | 2.20 | 0.60 |
| 50:s:149:GLY:HA2 | 69:AL:3:ASN:HB2 | 1.82 | 0.60 |
| 50:s:157:LYS:HE2 | 70:AM:95:PRO:HA | 1.83 | 0.60 |
| 19:O:4:GLU:HB2 | 19:O:7:VAL:HG12 | 1.82 | 0.60 |
| 34:d:49:VAL:HG12 | 34:d:91:SER:HB2 | 1.83 | 0.60 |
| 56:y:167:ALA:HA | 56:y:183:ILE:HA | 1.82 | 0.60 |
| 83:AZ:208:THR:HA | 83:AZ:337:MET:HE3 | 1.83 | 0.60 |
| 83:AZ:729:PHE:CZ | 85:AZ:901:SO1:H122 | 2.36 | 0.60 |
| 1:1:3042:U:OP2 | 1:1:3092:C:N4 | 2.33 | 0.60 |
| 2:3:86:U:O2' | 11:F:218:ARG:NH1 | 2.34 | 0.60 |
| 5:P2:79:SER:HA | 5:P2:82:ILE:HD12 | 1.84 | 0.60 |
| 14:I:192:ASP:HA | 14:I:197:VAL:HG22 | 1.83 | 0.60 |
| 15:J:12:LEU:HD23 | 15:J:133:ARG:HE | 1.66 | 0.60 |
| 18:N:155:VAL:O | 18:N:162:ARG:NH1 | 2.34 | 0.60 |
| 58:AA:8:ARG:HH12 | 58:AA:46:LEU:HD22 | 1.66 | 0.60 |
| 58:AA:58:GLN:HB3 | 58:AA:65:TYR:HB2 | 1.84 | 0.60 |
| 66:AI:101:LEU:H | 66:AI:104:ASN:HB3 | 1.66 | 0.60 |
| 1:1:1712:G:N1 | 1:1:1731:A:OP2 | 2.34 | 0.60 |
| 1:1:215:G:OP1 | 29:Y:12:ARG:NH1 | 2.35 | 0.60 |
| 1:1:1533:U:O4 | 1:1:1587:A:N7 | 2.35 | 0.60 |
| 4:P0:35:SER:O | 4:P0:39:HIS:ND1 | 2.35 | 0.60 |
| 17:M:124:ARG:NH2 | 19:O:199:TYR:OH | 2.35 | 0.60 |
| 44:n:21:ARG:HH12 | 47:2:1653:C:H4' | 1.66 | 0.60 |
| 47:2:933:A:OP1 | 49:r:116:LYS:NZ | 2.32 | 0.60 |
| 52:u:181:VAL:HG12 | 52:u:227:VAL:HG12 | 1.82 | 0.60 |
| 1:1:353:G:H22 | 1:1:364:G:H3' | 1.67 | 0.60 |
| 1:1:1475:A:H4' | 34:d:57:GLN:HE22 | 1.67 | 0.60 |
| 16:L:75:PHE:HB2 | 16:L:97:VAL:HG12 | 1.84 | 0.60 |
| 37:g:44:CYS:SG | 37:g:45:GLY:N | 2.74 | 0.60 |
| 38:h:83:LYS:NZ | 40:j:66:TYR:OH | 2.31 | 0.60 |
| 53:v:112:ARG:O | 53:v:116:HIS:ND1 | 2.35 | 0.60 |
| 1:1:278:U:H3 | 1:1:287:G:H1 | 1.50 | 0.59 |
| 18:N:68:ARG:HG3 | 18:N:128:LYS:HG3 | 1.84 | 0.59 |
| 37:g:42:PRO:HB2 | 37:g:51:LEU:HD12 | 1.83 | 0.59 |
| 47:2:472:U:H2' | 47:2:473:A:H8 | 1.67 | 0.59 |
| 57:z:41:GLU:OE1 | 57:z:44:ARG:NE | 2.35 | 0.59 |
| 42:l:28:ARG:NH2 | 42:l:36:ARG:O | 2.33 | 0.59 |
| 1:1:874:U:N3 | 1:1:2978:U:OP1 | 2.35 | 0.59 |
| 9:D:107:ARG:NH2 | 9:D:169:GLY:O | 2.35 | 0.59 |
| 12:G:157:VAL:HG22 | 12:G:159:PRO:HD2 | 1.83 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 23:S:109:ASP:OD1 | 23:S:113:ARG:NH1 | 2.35 | 0.59 |
| 54:w:2:LYS:HB2 | 54:w:108:VAL:HG12 | 1.82 | 0.59 |
| 54:w:85:ARG:NH2 | 72:AO:119:PHE:O | 2.35 | 0.59 |
| 60:AC:62:LEU:H | 60:AC:90:LYS:HG3 | 1.68 | 0.59 |
| 83:AZ:399:ARG:HE | 83:AZ:451:GLY:HA2 | 1.66 | 0.59 |
| 1:1:1233:G:O2' | 4:P0:43:LYS:NZ | 2.26 | 0.59 |
| 1:1:1714:A:H62 | 1:1:1730:G:N2 | 2.00 | 0.59 |
| 1:1:2487:U:H3' | 1:1:2488:A:H8 | 1.68 | 0.59 |
| 13:H:115:ARG:NH2 | 13:H:120:ASP:O | 2.34 | 0.59 |
| 47:2:752:A:N1 | 47:2:797:G:O6 | 2.35 | 0.59 |
| 47:2:803:A:N7 | 55:x:104:ARG:NH2 | 2.50 | 0.59 |
| 48:q:33:GLN:NE2 | 69:AL:63:GLY:O | 2.35 | 0.59 |
| 83:AZ:212:GLY:HA3 | 83:AZ:218:TRP:O | 2.02 | 0.59 |
| 83:AZ:588:LEU:HD11 | 83:AZ:716:GLY:HA3 | 1.83 | 0.59 |
| 1:1:3092:C:O2' | 1:1:3094:A:OP2 | 2.21 | 0.59 |
| 16:L:140:SER:HB2 | 16:L:143:ALA:HB3 | 1.84 | 0.59 |
| 47:2:960:U:OP2 | 61:AD:55:ARG:NH1 | 2.35 | 0.59 |
| 83:AZ:149:GLU:OE1 | 83:AZ:352:ARG:NH2 | 2.35 | 0.59 |
| 1:1:668:G:O2' | 21:Q:164:ARG:NH1 | 2.35 | 0.59 |
| 1:1:683:U:OP2 | 16:L:28:GLN:NE2 | 2.35 | 0.59 |
| 1:1:696:C:OP2 | 8:C:119:ARG:NH2 | 2.32 | 0.59 |
| 1:1:1106:G:O2' | 32:b:25:LYS:NZ | 2.36 | 0.59 |
| 1:1:1281:G:N2 | 4:P0:31:ASP:OD1 | 2.35 | 0.59 |
| 1:1:1420:C:OP2 | 8:C:193:LYS:NZ | 2.36 | 0.59 |
| 47:2:1299:G:OP1 | 50:s:212:LYS:NZ | 2.35 | 0.59 |
| 69:AL:70:ASN:HB3 | 69:AL:83:TRP:HB2 | 1.84 | 0.59 |
| 1:1:1194:G:H2' | 1:1:1195:A:H8 | 1.68 | 0.59 |
| 1:1:3056:U:O2 | 34:d:28:ARG:NH2 | 2.35 | 0.59 |
| 1:1:3185:U:HO2' | 23:S:170:THR:HG1 | 1.48 | 0.59 |
| 47:2:197:A:N1 | 56:y:138:ASN:ND2 | 2.51 | 0.59 |
| 47:2:478:A:N1 | 47:2:510:G:O6 | 2.35 | 0.59 |
| 47:2:508:U:H2' | 47:2:509:G:H5" | 1.85 | 0.59 |
| 51:t:120:TYR:HA | 51:t:123:VAL:HG22 | 1.85 | 0.59 |
| 52:u:183:VAL:HB | 52:u:190:GLY:H | 1.68 | 0.59 |
| 25:U:58:GLU:HG3 | 25:U:63:VAL:HG22 | 1.84 | 0.59 |
| 47:2:1354:G:N1 | 47:2:1369:U:N3 | 2.46 | 0.59 |
| 54:w:175:ILE:HD11 | 54:w:178:LEU:HD12 | 1.85 | 0.59 |
| 68:AK:55:PRO:HA | 68:AK:91:ILE:HG23 | 1.85 | 0.59 |
| 83:AZ:416:PRO:O | 83:AZ:477:ASN:ND2 | 2.35 | 0.59 |
| 1:1:1523:U:O2 | 28:X:111:ASN:ND2 | 2.35 | 0.59 |
| 1:1:1739:U:O2 | 37:g:41:ARG:NH1 | 2.35 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:1863:G:O2' | 22:R:82:LYS:NZ | 2.35 | 0.59 |
| 1:1:2947:G:OP1 | 1:1:2982:A:N6 | 2.36 | 0.59 |
| 13:H:90:MET:N | 13:H:90:MET:SD | 2.72 | 0.59 |
| 47:2:1533:C:O2' | 47:2:1539:G:N7 | 2.34 | 0.59 |
| 48:q:53:THR:HG22 | 48:q:161:PRO:HG2 | 1.85 | 0.59 |
| 1:1:1145:G:OP1 | 35:e:44:ARG:NH1 | 2.36 | 0.59 |
| 1:1:1723:A:OP1 | 22:R:128:LYS:NZ | 2.35 | 0.59 |
| 7:B:269:GLN:NE2 | 7:B:270:ARG:O | 2.36 | 0.59 |
| 16:L:27:ASP:OD2 | 16:L:31:LYS:NZ | 2.34 | 0.59 |
| 47:2:1158:C:OP2 | 47:2:1161:C:N4 | 2.36 | 0.59 |
| 83:AZ:27:HIS:O | 83:AZ:32:LYS:NZ | 2.36 | 0.59 |
| 1:1:2981:U:OP2 | 7:B:244:ARG:NH2 | 2.36 | 0.58 |
| 7:B:219:ALA:HB3 | 7:B:329:PRO:HG2 | 1.85 | 0.58 |
| 42:l:28:ARG:HA | 42:l:33:ASN:HA | 1.84 | 0.58 |
| 47:2:2:A:O2' | 50:s:199:GLN:NE2 | 2.36 | 0.58 |
| 47:2:1187:U:H2' | 47:2:1188:G:H8 | 1.67 | 0.58 |
| 47:2:1572:G:OP1 | 47:2:1574:G:N2 | 2.36 | 0.58 |
| 1:1:908:G:N2 | 1:1:2609:A:OP1 | 2.36 | 0.58 |
| 16:L:170:LEU:HD21 | 31:a:147:LEU:HD22 | 1.85 | 0.58 |
| 47:2:868:G:OP1 | 61:AD:121:ARG:NH1 | 2.36 | 0.58 |
| 47:2:1311:U:N3 | 47:2:1314:U:OP2 | 2.35 | 0.58 |
| 47:2:1790:A:OP1 | 74:AQ:10:ARG:NH1 | 2.37 | 0.58 |
| 83:AZ:237:LYS:O | 83:AZ:241:MET:HB3 | 2.03 | 0.58 |
| 1:1:280:U:O2' | 18:N:182:ASN:ND2 | 2.36 | 0.58 |
| 1:1:608:A:OP1 | 8:C:315:LYS:NZ | 2.35 | 0.58 |
| 64:AG:39:VAL:HG12 | 64:AG:41:PRO:HD3 | 1.85 | 0.58 |
| 26:V:81:GLN:O | 26:V:98:ASN:ND2 | 2.36 | 0.58 |
| 47:2:1022:C:O2' | 47:2:1125:A:N1 | 2.36 | 0.58 |
| 47:2:1638:G:O5' | 47:2:1638:G:H8 | 1.85 | 0.58 |
| 1:1:1336:U:H2' | 1:1:1337:A:H8 | 1.68 | 0.58 |
| 11:F:97:PRO:HA | 11:F:100:ARG:HG2 | 1.85 | 0.58 |
| 44:n:21:ARG:NH2 | 47:2:1653:C:O3' | 2.36 | 0.58 |
| 47:2:778:G:H22 | 72:AO:10:ARG:HH12 | 1.51 | 0.58 |
| 47:2:1211:A:N3 | 63:AF:97:TYR:OH | 2.33 | 0.58 |
| 47:2:1301:U:OP2 | 50:s:97:ARG:NH2 | 2.36 | 0.58 |
| 58:AA:76:LEU:HD12 | 58:AA:80:LEU:HB2 | 1.85 | 0.58 |
| 83:AZ:618:ILE:O | 83:AZ:622:ASP:HB2 | 2.03 | 0.58 |
| 1:1:713:U:H5" | 16:L:171:ARG:HH12 | 1.68 | 0.58 |
| 1:1:1492:G:N7 | 42:l:2:ALA:N | 2.52 | 0.58 |
| 1:1:3200:G:OP2 | 17:M:8:LYS:NZ | 2.37 | 0.58 |
| 47:2:639:U:OP1 | 55:x:117:THR:OG1 | 2.21 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:815:G:N2 | 59:AB:150:ASN:OD1 | 2.37 | 0.58 |
| 47:2:1166:A:H4' | 47:2:1587:A:H4' | 1.84 | 0.58 |
| 47:2:1181:U:O2 | 63:AF:127:ARG:NH1 | 2.36 | 0.58 |
| 47:2:1397:U:H5" | 47:2:1399:C:H42 | 1.68 | 0.58 |
| 47:2:1552:U:OP2 | 63:AF:43:ARG:NH2 | 2.37 | 0.58 |
| 70:AM:15:ASN:HD21 | 70:AM:72:CYS:H | 1.52 | 0.58 |
| 1:1:816:A:H5" | 1:1:920:A:H62 | 1.69 | 0.58 |
| 1:1:1193:A:N6 | 1:1:1314:C:N4 | 2.49 | 0.58 |
| 1:1:2701:U:OP1 | 24:T:17:ARG:NH2 | 2.37 | 0.58 |
| 20:P:30:ARG:HA | 20:P:119:VAL:HG21 | 1.85 | 0.58 |
| 47:2:819:G:H1' | 47:2:820:U:H2' | 1.85 | 0.58 |
| 47:2:1489:U:OP2 | 47:2:1515:A:N6 | 2.36 | 0.58 |
| 51:t:211:PRO:HG3 | 65:AH:19:ARG:HD3 | 1.85 | 0.58 |
| 83:AZ:521:TYR:HE2 | 85:AZ:901:SO1:O14 | 1.86 | 0.58 |
| 1:1:31:C:OP2 | 18:N:187:ARG:NH2 | 2.35 | 0.58 |
| 1:1:1125:U:H2' | 1:1:1126:G:H8 | 1.69 | 0.58 |
| 5:P2:66:ASN:HD21 | 5:P2:67:ARG:NH1 | 2.02 | 0.58 |
| 10:E:41:ILE:HD13 | 10:E:51:ARG:HB3 | 1.86 | 0.58 |
| 34:d:13:THR:OG1 | 34:d:72:ARG:NH1 | 2.37 | 0.58 |
| 47:2:1102:G:OP2 | 71:AN:7:ARG:NH2 | 2.37 | 0.58 |
| 53:v:143:ARG:HA | 53:v:167:ARG:HH12 | 1.69 | 0.58 |
| 83:AZ:676:ILE:O | 83:AZ:823:ARG:NH2 | 2.37 | 0.58 |
| 1:1:436:A:OP2 | 1:1:621:A:N6 | 2.36 | 0.58 |
| 1:1:3070:A:OP1 | 22:R:62:ARG:NH1 | 2.37 | 0.58 |
| 30:Z:12:VAL:HB | 30:Z:81:LEU:HB3 | 1.86 | 0.58 |
| 47:2:1288:G:N7 | 47:2:1314:U:O2' | 2.32 | 0.58 |
| 56:y:191:PHE:HA | 56:y:194:ARG:HG2 | 1.86 | 0.58 |
| 83:AZ:220:PHE:HB3 | 83:AZ:328:LEU:HD11 | 1.84 | 0.58 |
| 1:1:2655:U:O4 | 45:o:8:ARG:NH1 | 2.37 | 0.58 |
| 3:4:156:U:OP2 | 12:G:84:ARG:NH2 | 2.36 | 0.58 |
| 6:A:180:LEU:HD21 | 46:p:26:VAL:HG21 | 1.86 | 0.58 |
| 13:H:47:LYS:HD3 | 13:H:50:ASN:H | 1.67 | 0.58 |
| 14:I:38:LYS:NZ | 14:I:83:ASP:O | 2.36 | 0.58 |
| 47:2:1230:A:H8 | 47:2:1255:G:H21 | 1.52 | 0.58 |
| 47:2:1346:A:OP2 | 47:2:1348:A:N6 | 2.37 | 0.58 |
| 47:2:1497:U:N3 | 47:2:1511:U:O2 | 2.37 | 0.58 |
| 83:AZ:631:ARG:HH11 | 83:AZ:648:ASP:HB3 | 1.68 | 0.58 |
| 1:1:1238:C:H1' | 5:P2:138:SER:HB2 | 1.84 | 0.57 |
| 1:1:2386:A:H62 | 1:1:2993:G:H21 | 1.52 | 0.57 |
| 1:1:2647:A:H4' | 14:I:22:TYR:HB2 | 1.86 | 0.57 |
| 1:1:2664:C:OP2 | 15:J:142:LYS:NZ | 2.34 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 6:A:133:TYR:HB3 | 6:A:168:VAL:HG12 | 1.85 | 0.57 |
| 31:a:101:VAL:HG22 | 31:a:124:ILE:HD11 | 1.86 | 0.57 |
| 83:AZ:819:VAL:O | 83:AZ:823:ARG:HB2 | 2.04 | 0.57 |
| 1:1:2562:A:H1' | 12:G:30:THR:HG22 | 1.85 | 0.57 |
| 5:P2:74:VAL:HB | 5:P2:80:LEU:HD23 | 1.85 | 0.57 |
| 7:B:4:ARG:HD2 | 7:B:7:GLU:HA | 1.86 | 0.57 |
| 47:2:18:C:O3' | 71:AN:109:ARG:NH2 | 2.37 | 0.57 |
| 47:2:304:U:O2 | 59:AB:69:LYS:NZ | 2.37 | 0.57 |
| 47:2:328:A:OP1 | 59:AB:56:LYS:NZ | 2.37 | 0.57 |
| 64:AG:114:ARG:H | 64:AG:116:LEU:HD23 | 1.69 | 0.57 |
| 83:AZ:732:GLU:HA | 83:AZ:768:VAL:O | 2.05 | 0.57 |
| 1:1:943:U:N3 | 1:1:1431:G:OP1 | 2.37 | 0.57 |
| 5:P2:77:ALA:H | 5:P2:80:LEU:HD22 | 1.68 | 0.57 |
| 7:B:346:THR:HG23 | 7:B:351:LEU:HD21 | 1.85 | 0.57 |
| 23:S:12:ARG:HH12 | 23:S:15:PRO:HD3 | 1.70 | 0.57 |
| 47:2:127:G:O6 | 54:w:199:GLN:NE2 | 2.34 | 0.57 |
| 47:2:215:A:H62 | 47:2:242:U:H2' | 1.68 | 0.57 |
| 51:t:7:LYS:HD2 | 68:AK:88:LYS:HE2 | 1.85 | 0.57 |
| 63:AF:123:TYR:OH | 66:AI:126:ARG:NH2 | 2.37 | 0.57 |
| 83:AZ:728:VAL:HA | 83:AZ:773:PRO:HA | 1.86 | 0.57 |
| 10:E:30:LEU:HD11 | 10:E:34:LEU:HD12 | 1.86 | 0.57 |
| 46:p:38:ASP:HB3 | 46:p:45:LYS:HB3 | 1.87 | 0.57 |
| 55:x:98:ILE:HD11 | 55:x:118:LEU:HA | 1.85 | 0.57 |
| 83:AZ:725:GLN:NE2 | 83:AZ:726:GLU:O | 2.38 | 0.57 |
| 14:I:30:LYS:NZ | 14:I:66:GLU:OE2 | 2.37 | 0.57 |
| 47:2:129:U:OP1 | 47:2:131:C:N4 | 2.38 | 0.57 |
| 48:q:112:THR:OG1 | 48:q:113:ARG:N | 2.37 | 0.57 |
| 1:1:75:G:H3' | 1:1:76:G:H8 | 1.70 | 0.57 |
| 1:1:157:A:H62 | 1:1:264:G:H21 | 1.51 | 0.57 |
| 1:1:286:U:H2' | 1:1:287:G:H8 | 1.69 | 0.57 |
| 1:1:1874:A:N7 | 22:R:20:ARG:NH1 | 2.52 | 0.57 |
| 4:P0:11:TYR:OH | 4:P0:61:ARG:NH2 | 2.37 | 0.57 |
| 44:n:7:LYS:NZ | 47:2:1774:G:OP1 | 2.36 | 0.57 |
| 47:2:540:G:OP1 | 47:2:541:A:N6 | 2.37 | 0.57 |
| 47:2:1229:G:H21 | 47:2:1256:A:H62 | 1.51 | 0.57 |
| 1:1:1282:G:O4' | 4:P0:83:ASN:ND2 | 2.38 | 0.57 |
| 8:C:107:ARG:O | 18:N:203:ARG:NH2 | 2.38 | 0.57 |
| 13:H:1:MET:SD | 23:S:113:ARG:NH2 | 2.77 | 0.57 |
| 15:J:108:GLU:HG2 | 15:J:122:ILE:HD11 | 1.87 | 0.57 |
| 23:S:28:ARG:HH21 | 23:S:99:ARG:HH22 | 1.53 | 0.57 |
| 29:Y:49:PRO:O | 29:Y:115:ARG:NH2 | 2.38 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 29:Y:59:VAL:HG13 | 29:Y:60:ARG:HG2 | 1.87 | 0.57 |
| 46:p:10:ILE:HD13 | 46:p:31:ILE:HB | 1.87 | 0.57 |
| 54:w:216:LEU:HA | 54:w:219:ARG:HB3 | 1.87 | 0.57 |
| 83:AZ:746:VAL:HA | 83:AZ:749:LYS:HG2 | 1.86 | 0.57 |
| 1:1:1119:C:H2' | 1:1:1120:A:H8 | 1.69 | 0.57 |
| 1:1:2417:U:O2' | 1:1:2966:G:N2 | 2.37 | 0.57 |
| 10:E:52:VAL:HG21 | 10:E:65:ILE:HG23 | 1.87 | 0.57 |
| 47:2:639:U:H5" | 55:x:101:LYS:HD2 | 1.86 | 0.57 |
| 47:2:1220:C:H2' | 47:2:1221:A:H8 | 1.70 | 0.57 |
| 51:t:225:TYR:HB2 | 79:AV:189:GLU:HA | 1.85 | 0.57 |
| 52:u:10:LYS:HA | 52:u:27:TYR:HA | 1.86 | 0.57 |
| 1:1:780:A:N7 | 21:Q:178:ARG:NH2 | 2.50 | 0.57 |
| 7:B:222:LYS:HD2 | 7:B:331:ASN:HB3 | 1.87 | 0.57 |
| 16:L:22:VAL:HG12 | 18:N:197:LEU:HB2 | 1.86 | 0.57 |
| 17:M:108:ARG:NH1 | 19:O:195:ALA:O | 2.36 | 0.57 |
| 26:V:36:ILE:HD11 | 26:V:58:VAL:HG11 | 1.87 | 0.57 |
| 47:2:706:A:N6 | 47:2:733:A:OP1 | 2.38 | 0.57 |
| 51:t:105:MET:HA | 51:t:108:LYS:HD3 | 1.87 | 0.57 |
| 83:AZ:539:GLU:O | 83:AZ:543:GLN:CB | 2.52 | 0.57 |
| 1:1:2351:U:H2' | 1:1:2352:A:H8 | 1.70 | 0.57 |
| 6:A:180:LEU:HD12 | 46:p:18:TYR:HB3 | 1.87 | 0.57 |
| 36:f:25:PRO:O | 36:f:88:ASN:ND2 | 2.36 | 0.57 |
| 47:2:1665:U:O2 | 47:2:1736:G:N2 | 2.37 | 0.57 |
| 47:2:50:C:OP1 | 47:2:423:G:N2 | 2.37 | 0.56 |
| 47:2:862:A:H62 | 61:AD:70:LYS:HE2 | 1.69 | 0.56 |
| 47:2:1539:G:H21 | 67:AJ:45:MET:HG3 | 1.69 | 0.56 |
| 51:t:173:ARG:HB2 | 51:t:184:ILE:HB | 1.87 | 0.56 |
| 63:AF:98:ASN:ND2 | 63:AF:121:ILE:O | 2.38 | 0.56 |
| 66:AI:53:ASP:HB3 | 66:AI:56:LYS:HG3 | 1.86 | 0.56 |
| 5:P2:66:ASN:HD21 | 5:P2:67:ARG:HH11 | 1.52 | 0.56 |
| 20:P:167:ARG:O | 36:f:60:ARG:NH2 | 2.38 | 0.56 |
| 23:S:80:ARG:NH2 | 24:T:154:VAL:O | 2.38 | 0.56 |
| 45:o:24:LYS:N | 45:o:73:GLU:O | 2.38 | 0.56 |
| 47:2:774:A:N6 | 47:2:786:C:O2 | 2.37 | 0.56 |
| 48:q:84:ARG:NH2 | 65:AH:82:ASP:O | 2.37 | 0.56 |
| 58:AA:26:ASP:O | 58:AA:39:ASN:ND2 | 2.38 | 0.56 |
| 83:AZ:711:ARG:NH1 | 83:AZ:837:GLU:OE2 | 2.34 | 0.56 |
| 1:1:67:A:O2' | 1:1:315:C:O2 | 2.23 | 0.56 |
| 1:1:203:G:H2' | 1:1:204:A:H8 | 1.70 | 0.56 |
| 1:1:1221:A:N3 | 4:P0:5:ARG:NH2 | 2.51 | 0.56 |
| 1:1:3379:C:H4' | 7:B:315:GLY:HA2 | 1.86 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:C:74:ILE:HG22 | 8:C:76:ARG:HH21 | 1.69 | 0.56 |
| 21:Q:38:ARG:HG3 | 21:Q:39:ARG:HG3 | 1.87 | 0.56 |
| 29:Y:63:LYS:HB3 | 29:Y:66:GLN:HE22 | 1.70 | 0.56 |
| 44:n:21:ARG:NH1 | 47:2:1117:U:OP1 | 2.38 | 0.56 |
| 47:2:705:U:O4 | 47:2:707:A:N6 | 2.39 | 0.56 |
| 47:2:705:U:H2' | 47:2:706:A:H2' | 1.88 | 0.56 |
| 47:2:800:U:H2' | 47:2:801:G:H8 | 1.71 | 0.56 |
| 47:2:1471:A:H1' | 47:2:1540:G:H1' | 1.86 | 0.56 |
| 47:2:1611:A:H8 | 53:v:99:MET:HE1 | 1.70 | 0.56 |
| 52:u:255:ARG:O | 52:u:259:GLN:NE2 | 2.38 | 0.56 |
| 67:AJ:31:PRO:HG2 | 67:AJ:100:ILE:HG23 | 1.87 | 0.56 |
| 67:AJ:86:ARG:O | 67:AJ:89:ARG:NE | 2.36 | 0.56 |
| 73:AP:81:ARG:HH22 | 73:AP:94:LYS:HZ3 | 1.53 | 0.56 |
| 79:AV:240:VAL:HG22 | 79:AV:256:THR:HG22 | 1.87 | 0.56 |
| 83:AZ:708:THR:O | 83:AZ:710:ARG:NH1 | 2.38 | 0.56 |
| 1:1:302:U:O3' | 18:N:179:LYS:NZ | 2.36 | 0.56 |
| 1:1:1268:G:N3 | 1:1:1274:A:N6 | 2.53 | 0.56 |
| 1:1:1566:A:O2' | 1:1:1573:G:O6 | 2.20 | 0.56 |
| 8:C:359:LEU:HD11 | 23:S:64:ILE:HG21 | 1.88 | 0.56 |
| 36:f:85:PHE:HE2 | 36:f:89:LEU:HD23 | 1.69 | 0.56 |
| 39:i:91:ASN:HA | 39:i:94:ILE:HG22 | 1.88 | 0.56 |
| 40:j:8:PHE:HD1 | 40:j:11:ARG:HE | 1.51 | 0.56 |
| 47:2:1132:A:H2' | 47:2:1133:A:H8 | 1.70 | 0.56 |
| 47:2:1765:A:H62 | 47:2:1768:G:H1 | 1.52 | 0.56 |
| 63:AF:43:ARG:HE | 63:AF:47:ARG:HD2 | 1.71 | 0.56 |
| 71:AN:62:LYS:HE3 | 71:AN:118:PRO:HD3 | 1.87 | 0.56 |
| 83:AZ:519:LEU:O | 83:AZ:531:ALA:HB3 | 2.05 | 0.56 |
| 83:AZ:681:MET:N | 83:AZ:681:MET:SD | 2.79 | 0.56 |
| 1:1:677:A:N6 | 1:1:785:G:O2' | 2.36 | 0.56 |
| 1:1:852:U:H2' | 1:1:853:G:H8 | 1.69 | 0.56 |
| 1:1:2301:U:H2' | 1:1:2302:G:H8 | 1.69 | 0.56 |
| 1:1:2435:G:N2 | 1:1:2514:U:O4 | 2.39 | 0.56 |
| 2:3:5:G:O2' | 9:D:63:GLN:NE2 | 2.39 | 0.56 |
| 47:2:1099:U:O4 | 50:s:168:ARG:NH1 | 2.39 | 0.56 |
| 47:2:1242:A:N6 | 47:2:1244:A:N7 | 2.54 | 0.56 |
| 57:z:178:ALA:HA | 57:z:181:ALA:HB3 | 1.87 | 0.56 |
| 68:AK:102:ARG:HB2 | 68:AK:105:GLN:HE21 | 1.71 | 0.56 |
| 1:1:1055:A:N3 | 2:3:81:U:O2' | 2.39 | 0.56 |
| 1:1:2828:G:OP2 | 14:I:7:ARG:NH2 | 2.39 | 0.56 |
| 1:1:3082:C:H2' | 1:1:3083:G:H8 | 1.71 | 0.56 |
| 8:C:235:LEU:HA | 8:C:238:LEU:HB2 | 1.87 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:F:155:LYS:HE3 | 11:F:158:LYS:HG3 | 1.86 | 0.56 |
| 27:W:2:LYS:HB3 | 27:W:15:PRO:HG2 | 1.88 | 0.56 |
| 47:2:1476:C:O2' | 47:2:1539:G:N2 | 2.39 | 0.56 |
| 50:s:37:PRO:HG2 | 50:s:43:ARG:HG2 | 1.86 | 0.56 |
| 52:u:179:LYS:O | 52:u:194:THR:OG1 | 2.20 | 0.56 |
| 62:AE:20:TYR:HD1 | 62:AE:84:ARG:HE | 1.51 | 0.56 |
| 1:1:151:A:OP2 | 18:N:147:ARG:NH2 | 2.38 | 0.56 |
| 1:1:1639:C:H2' | 1:1:1640:G:H8 | 1.70 | 0.56 |
| 1:1:2756:C:O2 | 24:T:8:ARG:NH2 | 2.39 | 0.56 |
| 1:1:3158:G:N1 | 1:1:3292:A:C2 | 2.64 | 0.56 |
| 47:2:58:U:OP1 | 47:2:456:A:O2' | 2.23 | 0.56 |
| 47:2:513:U:O2' | 57:z:131:GLN:OE1 | 2.23 | 0.56 |
| 47:2:753:A:N1 | 47:2:754:A:N6 | 2.53 | 0.56 |
| 49:r:213:ARG:HD3 | 49:r:214:LYS:HG2 | 1.86 | 0.56 |
| 65:AH:31:ASN:O | 65:AH:35:CYS:N | 2.37 | 0.56 |
| 1:1:1560:G:O6 | 28:X:33:ARG:NH1 | 2.38 | 0.56 |
| 1:1:2162:U:OP1 | 6:A:234:LYS:NZ | 2.38 | 0.56 |
| 12:G:239:GLY:O | 12:G:243:GLN:N | 2.38 | 0.56 |
| 12:G:252:ASN:HA | 12:G:256:ALA:HB2 | 1.87 | 0.56 |
| 28:X:125:ARG:NH2 | 28:X:126:LEU:O | 2.38 | 0.56 |
| 47:2:167:U:H1' | 54:w:133:LEU:HB3 | 1.87 | 0.56 |
| 47:2:865:A:OP1 | 70:AM:3:ARG:NH2 | 2.39 | 0.56 |
| 63:AF:115:TYR:HB2 | 63:AF:118:GLU:HG3 | 1.87 | 0.56 |
| 71:AN:62:LYS:HD3 | 71:AN:116:ASP:O | 2.05 | 0.56 |
| 79:AV:66:HIS:HD2 | 79:AV:85:TRP:HB2 | 1.71 | 0.56 |
| 83:AZ:544:ASP:O | 83:AZ:549:HIS:ND1 | 2.39 | 0.56 |
| 1:1:865:U:H2' | 1:1:866:A:H8 | 1.71 | 0.56 |
| 47:2:444:C:OP2 | 72:AO:108:ARG:NH2 | 2.35 | 0.56 |
| 66:AI:99:HIS:O | 66:AI:104:ASN:ND2 | 2.39 | 0.56 |
| 71:AN:99:ASN:ND2 | 83:AZ:526:GLY:O | 2.39 | 0.56 |
| 77:AT:21:CYS:SG | 77:AT:22:ARG:N | 2.79 | 0.56 |
| 79:AV:85:TRP:HA | 79:AV:110:VAL:H | 1.71 | 0.56 |
| 83:AZ:718:LEU:HA | 83:AZ:722:PRO:HG2 | 1.87 | 0.56 |
| 1:1:655:C:H2' | 1:1:656:A:H8 | 1.71 | 0.56 |
| 39:i:93:ILE:O | 39:i:97:SER:N | 2.37 | 0.56 |
| 47:2:388:G:OP2 | 47:2:423:G:O2' | 2.24 | 0.56 |
| 47:2:547:U:OP1 | 71:AN:139:LYS:NZ | 2.38 | 0.56 |
| 53:v:178:GLY:HA2 | 53:v:209:TYR:HD2 | 1.69 | 0.56 |
| 63:AF:124:THR:O | 63:AF:127:ARG:NH2 | 2.39 | 0.56 |
| 68:AK:50:LEU:HD21 | 68:AK:93:LEU:HB2 | 1.88 | 0.56 |
| 83:AZ:283:ARG:O | 83:AZ:287:ALA:CB | 2.54 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:1541:G:C6 | 1:1:1555:U:N3 | 2.73 | 0.55 |
| 1:1:1561:G:N7 | 28:X:36:LYS:NZ | 2.46 | 0.55 |
| 1:1:2245:C:O2' | 6:A:220:GLY:O | 2.23 | 0.55 |
| 1:1:2723:U:H4' | 24:T:89:LEU:HD12 | 1.87 | 0.55 |
| 1:1:2772:C:H4' | 1:1:2773:C:H5' | 1.87 | 0.55 |
| 8:C:140:HIS:HE1 | 8:C:204:GLY:HA2 | 1.71 | 0.55 |
| 30:Z:88:ASP:O | 30:Z:121:ARG:NH2 | 2.39 | 0.55 |
| 47:2:93:A:O2' | 47:2:398:G:N2 | 2.38 | 0.55 |
| 63:AF:60:LEU:HD12 | 63:AF:61:ARG:HH11 | 1.71 | 0.55 |
| 83:AZ:30:HIS:O | 83:AZ:159:LYS:NZ | 2.39 | 0.55 |
| 83:AZ:228:ARG:HH12 | 83:AZ:303:LEU:HD11 | 1.70 | 0.55 |
| 83:AZ:228:ARG:NH1 | 83:AZ:304:GLU:OE1 | 2.39 | 0.55 |
| 1:1:105:C:H2' | 1:1:106:A:H8 | 1.71 | 0.55 |
| 2:3:46:A:OP2 | 9:D:158:ARG:NH1 | 2.40 | 0.55 |
| 36:f:27:VAL:HG11 | 36:f:82:ARG:HD2 | 1.88 | 0.55 |
| 47:2:478:A:H2 | 47:2:510:G:N1 | 2.01 | 0.55 |
| 47:2:867:G:H1 | 47:2:961:U:H3 | 1.53 | 0.55 |
| 47:2:938:G:N2 | 47:2:941:A:OP2 | 2.38 | 0.55 |
| 47:2:1008:G:OP1 | 62:AE:135:ARG:NH1 | 2.38 | 0.55 |
| 47:2:1267:G:H21 | 47:2:1448:G:H5' | 1.70 | 0.55 |
| 47:2:1542:G:H3' | 67:AJ:87:GLY:HA2 | 1.89 | 0.55 |
| 47:2:1575:G:N2 | 81:AX:41:U:O2' | 2.38 | 0.55 |
| 47:2:1637:C:C5' | 82:AY:48:U:C4 | 2.89 | 0.55 |
| 83:AZ:574:THR:HA | 83:AZ:588:LEU:O | 2.06 | 0.55 |
| 1:1:768:C:O2' | 16:L:183:ARG:NH2 | 2.39 | 0.55 |
| 1:1:2471:U:O2 | 1:1:2473:C:N4 | 2.39 | 0.55 |
| 9:D:69:ILE:HG23 | 24:T:31:LEU:HD12 | 1.88 | 0.55 |
| 19:O:74:ARG:NH1 | 19:O:145:VAL:O | 2.39 | 0.55 |
| 47:2:1055:U:H3 | 47:2:1064:G:H1 | 1.55 | 0.55 |
| 52:u:54:TYR:O | 72:AO:20:ARG:NH1 | 2.38 | 0.55 |
| 79:AV:10:ARG:NH1 | 79:AV:50:ASP:O | 2.40 | 0.55 |
| 1:1:627:U:H2' | 1:1:628:A:C8 | 2.41 | 0.55 |
| 1:1:3213:A:OP1 | 17:M:128:ARG:NH2 | 2.39 | 0.55 |
| 21:Q:182:LYS:HD3 | 31:a:55:LYS:H | 1.71 | 0.55 |
| 23:S:13:ARG:HD3 | 23:S:51:VAL:HG23 | 1.89 | 0.55 |
| 47:2:939:A:OP1 | 61:AD:114:ARG:NH2 | 2.37 | 0.55 |
| 47:2:1345:A:N6 | 47:2:1377:U:O2' | 2.36 | 0.55 |
| 47:2:1354:G:O6 | 47:2:1369:U:O4 | 2.25 | 0.55 |
| 47:2:1471:A:N1 | 47:2:1474:G:N2 | 2.54 | 0.55 |
| 57:z:108:ARG:NH2 | 57:z:144:PRO:O | 2.39 | 0.55 |
| 64:AG:100:GLN:O | 64:AG:104:GLU:N | 2.38 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 10:E:7:PRO:HG2 | 10:E:10:TYR:HE1 | 1.71 | 0.55 |
| 12:G:68:ARG:NH1 | 12:G:237:ILE:O | 2.39 | 0.55 |
| 47:2:958:U:O2' | 61:AD:55:ARG:NH1 | 2.39 | 0.55 |
| 52:u:57:ASN:HB2 | 52:u:60:GLU:HB2 | 1.89 | 0.55 |
| 83:AZ:382:VAL:HG21 | 83:AZ:396:ALA:HB1 | 1.88 | 0.55 |
| 1:1:92:G:OP2 | 45:o:42:ARG:NH2 | 2.40 | 0.55 |
| 1:1:1233:G:OP1 | 4:P0:36:GLN:NE2 | 2.40 | 0.55 |
| 1:1:2673:A:N6 | 1:1:2681:U:O4 | 2.39 | 0.55 |
| 35:e:60:ASN:HB3 | 35:e:63:THR:HG22 | 1.87 | 0.55 |
| 47:2:385:A:H5" | 56:y:22:ARG:HB3 | 1.87 | 0.55 |
| 47:2:699:U:O2 | 47:2:739:G:N2 | 2.35 | 0.55 |
| 55:x:35:LYS:HA | 55:x:38:LEU:HB2 | 1.88 | 0.55 |
| 1:1:2528:G:H5" | 12:G:248:LYS:HD2 | 1.89 | 0.55 |
| 1:1:2553:U:O4 | 37:g:98:GLN:NE2 | 2.39 | 0.55 |
| 1:1:3266:G:OP2 | 10:E:70:LYS:NZ | 2.32 | 0.55 |
| 18:N:94:TYR:OH | 18:N:96:ARG:NH2 | 2.40 | 0.55 |
| 23:S:112:ALA:O | 23:S:115:ARG:NH1 | 2.40 | 0.55 |
| 24:T:39:ILE:HD12 | 24:T:102:ARG:HB2 | 1.89 | 0.55 |
| 29:Y:112:ASP:O | 29:Y:116:LYS:NZ | 2.35 | 0.55 |
| 47:2:151:G:N3 | 54:w:13:GLN:NE2 | 2.55 | 0.55 |
| 47:2:1280:C:H5" | 68:AK:69:LYS:HE2 | 1.89 | 0.55 |
| 49:r:134:VAL:HG12 | 49:r:219:LYS:HB2 | 1.89 | 0.55 |
| 79:AV:124:SER:O | 79:AV:132:LYS:N | 2.38 | 0.55 |
| 1:1:281:G:N7 | 18:N:182:ASN:ND2 | 2.51 | 0.55 |
| 1:1:1785:U:H5" | 37:g:38:LEU:HD11 | 1.87 | 0.55 |
| 1:1:3333:G:H22 | 1:1:3369:G:H1' | 1.71 | 0.55 |
| 6:A:79:ASN:HD21 | 6:A:99:GLY:HA2 | 1.72 | 0.55 |
| 14:I:48:LEU:HA | 14:I:178:ARG:HH22 | 1.71 | 0.55 |
| 16:L:144:THR:OG1 | 38:h:119:LYS:NZ | 2.40 | 0.55 |
| 47:2:259:U:O2 | 56:y:178:ARG:NH1 | 2.40 | 0.55 |
| 47:2:486:G:O6 | 47:2:501:U:O4 | 2.24 | 0.55 |
| 47:2:1035:G:H2' | 47:2:1036:A:H8 | 1.72 | 0.55 |
| 47:2:1236:A:N6 | 47:2:1250:U:O2 | 2.40 | 0.55 |
| 77:AT:21:CYS:SG | 77:AT:39:CYS:N | 2.77 | 0.55 |
| 1:1:877:C:O2' | 1:1:880:G:O2' | 2.23 | 0.55 |
| 1:1:916:G:OP2 | 6:A:205:ASN:ND2 | 2.40 | 0.55 |
| 1:1:2131:A:H61 | 46:p:18:TYR:HD1 | 1.55 | 0.55 |
| 1:1:3325:G:OP1 | 34:d:70:ARG:NH2 | 2.40 | 0.55 |
| 10:E:42:LEU:HA | 10:E:84:VAL:HG23 | 1.88 | 0.55 |
| 12:G:64:ILE:HD11 | 12:G:68:ARG:HH21 | 1.72 | 0.55 |
| 24:T:112:ASN:HB3 | 24:T:128:LEU:HD12 | 1.89 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 53:v:200:ASN:HB3 | 53:v:205:SER:HB2 | 1.89 | 0.55 |
| 70:AM:24:GLN:HE21 | 70:AM:62:VAL:HG23 | 1.70 | 0.55 |
| 1:1:894:G:H4' | 1:1:895:A:H5' | 1.89 | 0.55 |
| 1:1:3080:G:OP1 | 34:d:65:LYS:NZ | 2.37 | 0.55 |
| 3:4:81:U:O2' | 3:4:83:C:OP2 | 2.21 | 0.55 |
| 51:t:71:LEU:HA | 51:t:74:GLN:HB3 | 1.89 | 0.55 |
| 59:AB:111:VAL:HG23 | 59:AB:139:VAL:HG11 | 1.89 | 0.55 |
| 62:AE:22:SER:OG | 62:AE:23:PHE:N | 2.39 | 0.55 |
| 83:AZ:675:PRO:HG2 | 83:AZ:676:ILE:HD12 | 1.89 | 0.55 |
| 1:1:348:A:N3 | 1:1:352:A:O2' | 2.38 | 0.54 |
| 1:1:903:U:H2' | 1:1:904:A:H8 | 1.72 | 0.54 |
| 1:1:2167:A:OP1 | 18:N:72:LYS:NZ | 2.39 | 0.54 |
| 1:1:3153:U:OP2 | 1:1:3293:U:O2' | 2.25 | 0.54 |
| 2:3:38:U:N3 | 2:3:41:G:OP2 | 2.40 | 0.54 |
| 5:P2:77:ALA:HB3 | 5:P2:80:LEU:HD13 | 1.89 | 0.54 |
| 47:2:795:U:OP1 | 70:AM:82:LYS:NZ | 2.39 | 0.54 |
| 53:v:196:GLU:O | 53:v:200:ASN:ND2 | 2.37 | 0.54 |
| 47:2:1341:A:O2' | 79:AV:102:ARG:NH1 | 2.39 | 0.54 |
| 66:AI:33:THR:HA | 66:AI:38:VAL:HG11 | 1.89 | 0.54 |
| 66:AI:88:ARG:HD3 | 66:AI:98:TYR:HD2 | 1.72 | 0.54 |
| 79:AV:28:GLY:HA3 | 79:AV:76:ASP:HA | 1.90 | 0.54 |
| 1:1:2179:C:O2' | 6:A:130:SER:O | 2.23 | 0.54 |
| 6:A:30:ARG:O | 6:A:163:ARG:NH1 | 2.39 | 0.54 |
| 47:2:1067:C:OP1 | 49:r:151:LYS:NZ | 2.40 | 0.54 |
| 66:AI:81:ILE:HG22 | 66:AI:83:ALA:H | 1.72 | 0.54 |
| 68:AK:68:ARG:NH2 | 68:AK:76:SER:O | 2.40 | 0.54 |
| 1:1:785:G:H1 | 21:Q:90:ASP:HA | 1.72 | 0.54 |
| 1:1:2150:G:O6 | 1:1:2187:G:N2 | 2.40 | 0.54 |
| 47:2:416:A:OP2 | 47:2:417:A:N6 | 2.40 | 0.54 |
| 47:2:1191:U:O2' | 47:2:1193:A:N7 | 2.41 | 0.54 |
| 49:r:76:SER:OG | 49:r:78:ASP:OD1 | 2.25 | 0.54 |
| 57:z:34:PHE:HD1 | 57:z:122:VAL:HG11 | 1.72 | 0.54 |
| 74:AQ:28:LYS:NZ | 74:AQ:29:SER:O | 2.35 | 0.54 |
| 79:AV:252:LEU:O | 79:AV:263:PHE:N | 2.34 | 0.54 |
| 1:1:445:G:O6 | 1:1:490:C:O2' | 2.24 | 0.54 |
| 1:1:677:A:OP2 | 21:Q:88:THR:OG1 | 2.25 | 0.54 |
| 1:1:1363:A:OP1 | 11:F:160:ARG:NH1 | 2.40 | 0.54 |
| 1:1:1789:G:H2' | 1:1:1790:G:H8 | 1.72 | 0.54 |
| 1:1:3174:A:OP1 | 36:f:97:SER:OG | 2.26 | 0.54 |
| 1:1:3217:C:H5' | 1:1:3219:G:H21 | 1.72 | 0.54 |
| 11:F:88:ARG:HB2 | 11:F:108:LEU:HD23 | 1.90 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 16:L:161:ASP:OD2 | 31:a:139:ARG:NH1 | 2.40 | 0.54 |
| 19:O:121:PRO:HG3 | 23:S:164:SER:HB3 | 1.90 | 0.54 |
| 25:U:22:PRO:HB2 | 25:U:28:PHE:HB2 | 1.90 | 0.54 |
| 33:c:26:GLY:O | 33:c:30:THR:OG1 | 2.25 | 0.54 |
| 47:2:859:A:O2' | 61:AD:73:ARG:NH2 | 2.37 | 0.54 |
| 47:2:1586:A:H62 | 47:2:1610:G:N2 | 2.06 | 0.54 |
| 72:AO:57:VAL:HA | 72:AO:73:GLY:HA2 | 1.90 | 0.54 |
| 83:AZ:211:PHE:O | 83:AZ:219:ALA:HA | 2.06 | 0.54 |
| 83:AZ:710:ARG:O | 83:AZ:711:ARG:NE | 2.40 | 0.54 |
| 1:1:1388:U:O2' | 35:e:99:ASN:O | 2.23 | 0.54 |
| 1:1:2361:A:HO2' | 35:e:25:TYR:HH | 1.49 | 0.54 |
| 1:1:2362:C:O2 | 1:1:2377:G:N2 | 2.40 | 0.54 |
| 3:4:36:G:O2' | 3:4:104:A:N1 | 2.41 | 0.54 |
| 47:2:868:G:H22 | 47:2:960:U:H3 | 1.56 | 0.54 |
| 47:2:1398:U:OP1 | 47:2:1400:A:N6 | 2.40 | 0.54 |
| 47:2:1544:U:O4 | 47:2:1545:A:N6 | 2.41 | 0.54 |
| 47:2:1596:C:OP2 | 77:AT:32:ARG:NH2 | 2.41 | 0.54 |
| 1:1:700:C:H2' | 1:1:701:G:H8 | 1.72 | 0.54 |
| 1:1:726:G:N1 | 1:1:743:C:OP2 | 2.38 | 0.54 |
| 1:1:975:C:O2' | 21:Q:144:ARG:NH1 | 2.40 | 0.54 |
| 17:M:112:LEU:HD12 | 17:M:116:GLU:HB2 | 1.90 | 0.54 |
| 20:P:118:GLN:HB3 | 20:P:147:GLU:HG3 | 1.88 | 0.54 |
| 24:T:17:ARG:HD3 | 24:T:47:SER:HB3 | 1.89 | 0.54 |
| 47:2:932:U:O3' | 74:AQ:32:LYS:NZ | 2.39 | 0.54 |
| 64:AG:128:LYS:HE2 | 64:AG:135:ARG:HD2 | 1.90 | 0.54 |
| 83:AZ:120:ARG:HD3 | 83:AZ:479:LYS:HZ1 | 1.73 | 0.54 |
| 1:1:347:G:H21 | 8:C:59:GLN:HG3 | 1.73 | 0.54 |
| 6:A:83:HIS:HA | 46:p:64:VAL:HA | 1.89 | 0.54 |
| 8:C:353:ALA:O | 8:C:357:GLU:N | 2.41 | 0.54 |
| 47:2:140:A:N6 | 47:2:280:U:O2' | 2.41 | 0.54 |
| 47:2:1591:C:H2' | 47:2:1592:A:H8 | 1.72 | 0.54 |
| 48:q:36:TYR:HB3 | 48:q:48:ILE:HG23 | 1.89 | 0.54 |
| 51:t:53:THR:OG1 | 51:t:94:ARG:NH1 | 2.41 | 0.54 |
| 57:z:174:ARG:O | 57:z:178:ALA:N | 2.41 | 0.54 |
| 85:AZ:901:SO1:C21 | 85:AZ:901:SO1:C5 | 2.85 | 0.54 |
| 1:1:1019:G:H2' | 1:1:1020:G:H8 | 1.72 | 0.54 |
| 1:1:1524:A:O2' | 1:1:1526:U:OP2 | 2.25 | 0.54 |
| 5:P2:59:THR:HG23 | 5:P2:80:LEU:HD11 | 1.90 | 0.54 |
| 47:2:997:G:H2' | 47:2:998:A:H8 | 1.73 | 0.54 |
| 47:2:1483:A:OP1 | 47:2:1521:G:N2 | 2.41 | 0.54 |
| 49:r:51:SER:HA | 49:r:57:ALA:H | 1.73 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:50:U:OP1 | 18:N:188:ARG:NH1 | 2.41 | 0.54 |
| 1:1:71:A:OP1 | 31:a:67:HIS:NE2 | 2.39 | 0.54 |
| 1:1:210:U:HO2' | 1:1:229:G:HO2' | 1.53 | 0.54 |
| 1:1:1948:G:H2' | 1:1:1949:G:H8 | 1.73 | 0.54 |
| 1:1:3090:U:OP1 | 7:B:270:ARG:NH2 | 2.41 | 0.54 |
| 4:P0:93:LEU:HG | 4:P0:96:ILE:HD11 | 1.90 | 0.54 |
| 7:B:245:GLY:HA3 | 7:B:248:LYS:HE3 | 1.89 | 0.54 |
| 16:L:17:HIS:O | 16:L:21:ARG:NH2 | 2.41 | 0.54 |
| 47:2:866:G:H2' | 47:2:867:G:H8 | 1.72 | 0.54 |
| 47:2:961:U:H5" | 61:AD:71:ILE:HD13 | 1.90 | 0.54 |
| 47:2:1670:G:H21 | 47:2:1731:A:H62 | 1.56 | 0.54 |
| 57:z:45:ILE:O | 57:z:49:LEU:N | 2.39 | 0.54 |
| 66:AI:71:GLN:HA | 66:AI:74:GLN:HG2 | 1.88 | 0.54 |
| 72:AO:14:SER:HA | 72:AO:21:LYS:HA | 1.90 | 0.54 |
| 83:AZ:237:LYS:O | 83:AZ:241:MET:CB | 2.56 | 0.54 |
| 83:AZ:588:LEU:HA | 83:AZ:687:ASN:O | 2.08 | 0.54 |
| 1:1:943:U:H3' | 31:a:13:GLY:HA2 | 1.89 | 0.53 |
| 2:3:81:U:O2 | 2:3:99:G:N2 | 2.37 | 0.53 |
| 12:G:146:LYS:NZ | 12:G:173:MET:O | 2.41 | 0.53 |
| 33:c:98:SER:OG | 33:c:99:ASP:N | 2.41 | 0.53 |
| 39:i:20:MET:HG3 | 39:i:22:PRO:HD3 | 1.89 | 0.53 |
| 47:2:615:A:O2' | 47:2:621:A:N6 | 2.42 | 0.53 |
| 51:t:221:SER:HB2 | 51:t:223:LYS:HG2 | 1.90 | 0.53 |
| 1:1:1237:G:N2 | 5:P2:138:SER:OG | 2.40 | 0.53 |
| 1:1:2640:A:OP1 | 24:T:55:LYS:NZ | 2.40 | 0.53 |
| 1:1:3304:U:O3' | 7:B:334:ARG:NH2 | 2.41 | 0.53 |
| 38:h:31:LEU:HA | 38:h:34:GLN:HB2 | 1.90 | 0.53 |
| 47:2:17:C:O2' | 47:2:1137:A:N6 | 2.41 | 0.53 |
| 47:2:975:C:H5" | 61:AD:109:LYS:HE2 | 1.90 | 0.53 |
| 47:2:1586:A:H1' | 47:2:1611:A:H61 | 1.73 | 0.53 |
| 59:AB:15:LYS:NZ | 59:AB:19:ILE:O | 2.39 | 0.53 |
| 63:AF:60:LEU:HG | 63:AF:89:MET:HG3 | 1.89 | 0.53 |
| 1:1:326:U:H2' | 1:1:327:A:H8 | 1.74 | 0.53 |
| 1:1:687:U:OP2 | 16:L:36:ARG:NH2 | 2.42 | 0.53 |
| 1:1:804:C:OP1 | 8:C:98:ARG:NH2 | 2.42 | 0.53 |
| 8:C:22:LEU:HD13 | 8:C:24:ALA:H | 1.72 | 0.53 |
| 9:D:22:ARG:O | 9:D:26:GLY:N | 2.38 | 0.53 |
| 15:J:49:LYS:HD3 | 15:J:62:ASN:HB2 | 1.89 | 0.53 |
| 20:P:175:ARG:NH2 | 20:P:179:GLN:OE1 | 2.40 | 0.53 |
| 29:Y:27:ARG:HD3 | 29:Y:78:PHE:HE1 | 1.74 | 0.53 |
| 35:e:18:LYS:HE2 | 35:e:30:GLU:HA | 1.90 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:29:U:H2' | 47:2:30:G:H8 | 1.72 | 0.53 |
| 47:2:107:C:H2' | 47:2:108:A:C8 | 2.44 | 0.53 |
| 80:AW:140:TYR:OH | 80:AW:145:HIS:O | 2.27 | 0.53 |
| 1:1:2956:A:H62 | 1:1:2977:G:H21 | 1.56 | 0.53 |
| 1:1:3231:U:H2' | 1:1:3232:G:H8 | 1.73 | 0.53 |
| 2:3:39:C:N3 | 15:J:70:THR:OG1 | 2.33 | 0.53 |
| 22:R:186:LYS:O | 55:x:35:LYS:NZ | 2.40 | 0.53 |
| 47:2:1553:G:N7 | 63:AF:47:ARG:NH2 | 2.45 | 0.53 |
| 47:2:1769:U:O2 | 62:AE:136:ARG:NH1 | 2.40 | 0.53 |
| 57:z:82:ARG:HH21 | 57:z:149:ARG:HH21 | 1.57 | 0.53 |
| 83:AZ:32:LYS:HE3 | 83:AZ:106:PRO:HA | 1.88 | 0.53 |
| 83:AZ:484:SER:OG | 83:AZ:485:VAL:N | 2.39 | 0.53 |
| 83:AZ:772:LEU:HD22 | 83:AZ:773:PRO:HD2 | 1.90 | 0.53 |
| 1:1:821:U:H2' | 1:1:822:G:H8 | 1.73 | 0.53 |
| 1:1:1389:G:OP1 | 35:e:104:ASN:ND2 | 2.39 | 0.53 |
| 1:1:1634:G:OP1 | 30:Z:107:ARG:NH1 | 2.41 | 0.53 |
| 4:P0:100:ILE:HB | 4:P0:185:LEU:HD23 | 1.91 | 0.53 |
| 8:C:300:ARG:HE | 21:Q:39:ARG:HA | 1.73 | 0.53 |
| 47:2:957:G:N7 | 61:AD:12:SER:OG | 2.40 | 0.53 |
| 54:w:142:ARG:HH21 | 54:w:153:VAL:H | 1.54 | 0.53 |
| 72:AO:55:VAL:HA | 72:AO:75:VAL:HA | 1.90 | 0.53 |
| 73:AP:57:TYR:O | 73:AP:103:ARG:NH2 | 2.38 | 0.53 |
| 83:AZ:510:ARG:NH2 | 83:AZ:549:HIS:O | 2.42 | 0.53 |
| 83:AZ:723:LYS:HD3 | 83:AZ:805:GLY:HA2 | 1.89 | 0.53 |
| 83:AZ:729:PHE:HZ | 85:AZ:901:SO1:H122 | 1.73 | 0.53 |
| 1:1:15:C:OP1 | 28:X:42:ARG:NH1 | 2.41 | 0.53 |
| 1:1:2256:A:C2 | 47:2:1757:G:P | 2.97 | 0.53 |
| 1:1:2742:C:O5' | 45:o:19:LYS:NZ | 2.41 | 0.53 |
| 1:1:3064:U:H2' | 1:1:3065:G:H8 | 1.74 | 0.53 |
| 11:F:59:GLU:HA | 11:F:62:ILE:HG12 | 1.90 | 0.53 |
| 13:H:18:VAL:HG12 | 13:H:27:VAL:HG22 | 1.90 | 0.53 |
| 23:S:74:ASN:OD1 | 23:S:95:ARG:NH1 | 2.42 | 0.53 |
| 26:V:45:ARG:HB3 | 26:V:48:ARG:HG2 | 1.90 | 0.53 |
| 47:2:589:C:OP1 | 78:AU:42:ARG:NH1 | 2.42 | 0.53 |
| 47:2:1595:U:OP2 | 77:AT:32:ARG:NH1 | 2.41 | 0.53 |
| 47:2:1757:G:O5' | 47:2:1757:G:H8 | 1.92 | 0.53 |
| 55:x:73:VAL:HB | 55:x:77:LEU:HD23 | 1.90 | 0.53 |
| 1:1:148:G:O6 | 12:G:138:HIS:N | 2.37 | 0.53 |
| 1:1:2696:A:C5 | 1:1:2758:A:N1 | 2.77 | 0.53 |
| 6:A:117:GLU:OE2 | 6:A:124:GLY:N | 2.41 | 0.53 |
| 7:B:84:VAL:HG12 | 7:B:164:THR:HG22 | 1.89 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1098:U:OP2 | 50:s:168:ARG:NE | 2.41 | 0.53 |
| 47:2:1205:C:O2 | 77:AT:17:GLY:N | 2.39 | 0.53 |
| 47:2:1682:U:O4 | 47:2:1720:G:N2 | 2.40 | 0.53 |
| 52:u:180:LEU:HB2 | 52:u:229:GLY:H | 1.73 | 0.53 |
| 57:z:152:SER:O | 57:z:156:ILE:N | 2.40 | 0.53 |
| 72:AO:38:ASP:OD1 | 72:AO:41:ARG:NH1 | 2.35 | 0.53 |
| 1:1:43:A:OP1 | 18:N:83:LYS:NZ | 2.40 | 0.53 |
| 1:1:91:G:N2 | 1:1:95:A:OP2 | 2.42 | 0.53 |
| 1:1:944:C:OP1 | 35:e:33:ARG:NH1 | 2.42 | 0.53 |
| 1:1:1306:G:N2 | 1:1:1307:G:N7 | 2.56 | 0.53 |
| 1:1:1464:G:H21 | 1:1:1511:U:H3 | 1.56 | 0.53 |
| 1:1:2746:A:H5" | 9:D:178:ASN:HD22 | 1.73 | 0.53 |
| 10:E:166:LYS:HE2 | 36:f:4:SER:HB2 | 1.91 | 0.53 |
| 11:F:31:ALA:HA | 11:F:34:LYS:HB2 | 1.91 | 0.53 |
| 26:V:80:ARG:NH1 | 26:V:117:PRO:O | 2.36 | 0.53 |
| 30:Z:27:LYS:NZ | 30:Z:96:VAL:O | 2.42 | 0.53 |
| 41:k:5:ILE:HD12 | 41:k:52:TYR:HB3 | 1.91 | 0.53 |
| 71:AN:126:LYS:HA | 71:AN:131:SER:HA | 1.91 | 0.53 |
| 79:AV:253:ALA:HA | 79:AV:262:VAL:HA | 1.90 | 0.53 |
| 1:1:2202:C:H5" | 6:A:226:SER:HB3 | 1.91 | 0.53 |
| 1:1:2216:G:H22 | 1:1:2229:A:H2 | 1.55 | 0.53 |
| 9:D:22:ARG:HG2 | 9:D:28:THR:HG23 | 1.90 | 0.53 |
| 13:H:91:ARG:HG2 | 13:H:143:GLU:HG3 | 1.89 | 0.53 |
| 16:L:153:ASP:OD2 | 31:a:126:LYS:NZ | 2.40 | 0.53 |
| 23:S:6:GLU:OE2 | 23:S:64:ILE:N | 2.42 | 0.53 |
| 47:2:25:C:O2' | 47:2:366:A:O2' | 2.26 | 0.53 |
| 49:r:69:CYS:SG | 49:r:70:LEU:N | 2.82 | 0.53 |
| 83:AZ:115:VAL:O | 83:AZ:119:LEU:CB | 2.57 | 0.53 |
| 1:1:1220:U:O4' | 1:1:1286:A:N6 | 2.42 | 0.53 |
| 1:1:1223:A:OP2 | 1:1:1285:G:N2 | 2.42 | 0.53 |
| 1:1:1232:C:H2' | 1:1:1233:G:H8 | 1.74 | 0.53 |
| 1:1:1382:G:OP2 | 8:C:188:ARG:NH1 | 2.41 | 0.53 |
| 1:1:3214:U:OP2 | 17:M:128:ARG:NH1 | 2.38 | 0.53 |
| 4:P0:115:ALA:H | 4:P0:164:LYS:HD3 | 1.74 | 0.53 |
| 5:P2:83:THR:HA | 5:P2:90:ARG:HG2 | 1.91 | 0.53 |
| 9:D:197:SER:O | 9:D:202:GLY:N | 2.40 | 0.53 |
| 15:J:141:ARG:HD2 | 15:J:145:LYS:HA | 1.91 | 0.53 |
| 48:q:69:ASN:ND2 | 48:q:71:GLU:OE2 | 2.41 | 0.53 |
| 49:r:89:ASP:OD2 | 49:r:99:ASN:ND2 | 2.39 | 0.53 |
| 52:u:91:THR:OG1 | 52:u:98:ASN:ND2 | 2.42 | 0.53 |
| 83:AZ:216:HIS:NE2 | 83:AZ:320:LEU:O | 2.33 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:494:G:N2 | 1:1:495:G:O6 | 2.42 | 0.52 |
| 1:1:665:A:OP1 | 18:N:203:ARG:NH1 | 2.41 | 0.52 |
| 1:1:962:A:N6 | 1:1:2408:U:O2 | 2.42 | 0.52 |
| 1:1:1487:G:H1' | 37:g:6:THR:HG21 | 1.91 | 0.52 |
| 1:1:2471:U:N3 | 1:1:2474:G:N7 | 2.57 | 0.52 |
| 1:1:2787:G:O2' | 31:a:58:MET:SD | 2.66 | 0.52 |
| 6:A:147:ARG:NH1 | 47:2:892:A:O2' | 2.43 | 0.52 |
| 8:C:52:VAL:HG21 | 8:C:99:MET:HE2 | 1.90 | 0.52 |
| 22:R:96:ILE:O | 22:R:100:ARG:N | 2.41 | 0.52 |
| 47:2:174:U:O4 | 47:2:266:A:N7 | 2.42 | 0.52 |
| 47:2:959:U:H5" | 61:AD:14:SER:HB3 | 1.90 | 0.52 |
| 47:2:1615:C:N4 | 53:v:79:ASN:O | 2.42 | 0.52 |
| 51:t:42:THR:OG1 | 51:t:45:LYS:O | 2.27 | 0.52 |
| 53:v:112:ARG:HA | 53:v:115:LYS:HG2 | 1.90 | 0.52 |
| 53:v:133:VAL:HG12 | 53:v:198:LEU:HD23 | 1.91 | 0.52 |
| 55:x:64:VAL:HA | 55:x:67:LEU:HD23 | 1.89 | 0.52 |
| 1:1:86:G:N2 | 1:1:99:A:OP2 | 2.43 | 0.52 |
| 1:1:1149:G:H21 | 1:1:1198:C:H42 | 1.56 | 0.52 |
| 1:1:1541:G:N1 | 1:1:1555:U:N3 | 2.57 | 0.52 |
| 1:1:2154:U:H2' | 1:1:2155:G:C8 | 2.45 | 0.52 |
| 6:A:247:ARG:NE | 6:A:249:SER:OG | 2.42 | 0.52 |
| 8:C:361:HIS:O | 23:S:26:ARG:NH2 | 2.42 | 0.52 |
| 47:2:1216:C:O2 | 47:2:1446:A:N6 | 2.40 | 0.52 |
| 47:2:1503:A:H4' | 67:AJ:97:SER:HB2 | 1.91 | 0.52 |
| 79:AV:79:TYR:HB3 | 79:AV:91:LEU:HD11 | 1.90 | 0.52 |
| 79:AV:299:GLN:O | 79:AV:315:VAL:N | 2.39 | 0.52 |
| 83:AZ:12:LEU:HB3 | 83:AZ:99:LEU:HD22 | 1.91 | 0.52 |
| 83:AZ:725:GLN:NE2 | 83:AZ:802:SER:O | 2.39 | 0.52 |
| 1:1:74:G:H5" | 16:L:104:ARG:HD2 | 1.91 | 0.52 |
| 1:1:708:G:N2 | 1:1:711:A:OP2 | 2.37 | 0.52 |
| 1:1:1613:A:OP2 | 41:k:46:ARG:NH1 | 2.42 | 0.52 |
| 1:1:2160:G:H2' | 1:1:2161:G:H8 | 1.75 | 0.52 |
| 2:3:7:G:O5' | 9:D:33:ARG:NH1 | 2.43 | 0.52 |
| 9:D:31:TYR:O | 9:D:35:ARG:NH1 | 2.42 | 0.52 |
| 13:H:115:ARG:HE | 13:H:116:ASN:H | 1.56 | 0.52 |
| 15:J:82:ARG:HG3 | 15:J:112:LEU:HD12 | 1.90 | 0.52 |
| 15:J:84:LEU:HD12 | 15:J:89:TYR:HA | 1.91 | 0.52 |
| 47:2:741:C:OP1 | 59:AB:43:LYS:NZ | 2.43 | 0.52 |
| 47:2:1330:G:N2 | 65:AH:8:THR:OG1 | 2.40 | 0.52 |
| 79:AV:132:LYS:HG2 | 79:AV:143:THR:HG23 | 1.91 | 0.52 |
| 79:AV:200:ASN:H | 79:AV:215:GLY:HA2 | 1.74 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:408:A:N3 | 1:1:655:C:O2' | 2.41 | 0.52 |
| 1:1:1383:G:O3' | 8:C:138:ARG:NH2 | 2.43 | 0.52 |
| 1:1:2374:C:O2' | 1:1:2941:A:N6 | 2.42 | 0.52 |
| 1:1:3189:G:O6 | 1:1:3203:U:O4 | 2.27 | 0.52 |
| 9:D:198:TYR:HE1 | 9:D:203:HIS:HB3 | 1.74 | 0.52 |
| 33:c:41:LEU:N | 33:c:65:THR:OG1 | 2.39 | 0.52 |
| 47:2:400:A:H62 | 56:y:29:LEU:HG | 1.73 | 0.52 |
| 47:2:1482:C:H4' | 64:AG:77:GLN:HE22 | 1.75 | 0.52 |
| 47:2:1587:A:O2' | 53:v:104:ASN:ND2 | 2.36 | 0.52 |
| 49:r:222:LYS:HD2 | 49:r:224:ASP:H | 1.75 | 0.52 |
| 63:AF:106:GLU:O | 63:AF:108:ARG:NH1 | 2.43 | 0.52 |
| 66:AI:16:ARG:NH2 | 66:AI:21:ASN:OD1 | 2.42 | 0.52 |
| 74:AQ:43:ASN:ND2 | 74:AQ:65:PRO:O | 2.41 | 0.52 |
| 1:1:98:G:OP1 | 16:L:16:LYS:NZ | 2.36 | 0.52 |
| 1:1:413:U:OP1 | 20:P:30:ARG:NH2 | 2.42 | 0.52 |
| 1:1:2988:C:OP1 | 19:O:68:ARG:NH2 | 2.43 | 0.52 |
| 26:V:114:ILE:HD11 | 26:V:134:GLY:H | 1.73 | 0.52 |
| 47:2:401:A:OP1 | 56:y:23:LYS:NZ | 2.38 | 0.52 |
| 47:2:509:G:C5' | 47:2:509:G:C8 | 2.93 | 0.52 |
| 52:u:189:LEU:O | 52:u:191:ARG:NH1 | 2.42 | 0.52 |
| 65:AH:66:VAL:HB | 65:AH:69:ILE:HB | 1.92 | 0.52 |
| 71:AN:37:ALA:HA | 71:AN:41:SER:HB3 | 1.91 | 0.52 |
| 1:1:148:G:OP2 | 18:N:4:TYR:OH | 2.28 | 0.52 |
| 1:1:1071:U:O2 | 1:1:1087:G:N2 | 2.38 | 0.52 |
| 1:1:1529:A:OP2 | 1:1:1592:G:N2 | 2.40 | 0.52 |
| 1:1:1886:A:H2' | 1:1:1887:A:H8 | 1.74 | 0.52 |
| 1:1:2696:A:N6 | 1:1:2758:A:N1 | 2.58 | 0.52 |
| 12:G:132:VAL:HG12 | 12:G:200:LEU:HD23 | 1.91 | 0.52 |
| 47:2:610:G:O2' | 47:2:613:G:O2' | 2.20 | 0.52 |
| 52:u:173:ILE:HG21 | 52:u:229:GLY:HA2 | 1.92 | 0.52 |
| 54:w:32:ILE:H | 54:w:34:GLN:HE22 | 1.57 | 0.52 |
| 64:AG:31:VAL:HB | 64:AG:34:SER:HB2 | 1.92 | 0.52 |
| 67:AJ:99:SER:OG | 67:AJ:102:ARG:NH2 | 2.42 | 0.52 |
| 68:AK:28:SER:HB3 | 68:AK:34:LEU:HB2 | 1.92 | 0.52 |
| 70:AM:40:VAL:HA | 70:AM:43:LYS:HZ3 | 1.75 | 0.52 |
| 71:AN:103:LEU:N | 71:AN:126:LYS:O | 2.41 | 0.52 |
| 83:AZ:617:ARG:O | 83:AZ:621:ASP:HB2 | 2.10 | 0.52 |
| 1:1:1222:G:HO2' | 1:1:1285:G:H1 | 1.54 | 0.52 |
| 1:1:2180:G:OP1 | 6:A:174:ARG:NH2 | 2.43 | 0.52 |
| 7:B:212:ASN:ND2 | 7:B:353:GLU:OE1 | 2.42 | 0.52 |
| 10:E:92:SER:OG | 10:E:94:GLU:OE1 | 2.27 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:I:52:LEU:HD12 | 14:I:135:ILE:HB | 1.91 | 0.52 |
| 15:J:21:ILE:HD13 | 15:J:23:VAL:HG12 | 1.92 | 0.52 |
| 40:j:63:ARG:O | 40:j:68:LYS:NZ | 2.35 | 0.52 |
| 47:2:1553:G:N1 | 47:2:1556:A:OP2 | 2.35 | 0.52 |
| 47:2:1752:U:H2' | 47:2:1753:A:H8 | 1.74 | 0.52 |
| 52:u:86:PHE:HA | 52:u:101:LEU:HD12 | 1.90 | 0.52 |
| 52:u:182:TYR:N | 52:u:226:PHE:O | 2.42 | 0.52 |
| 53:v:114:ILE:O | 53:v:118:LEU:N | 2.41 | 0.52 |
| 54:w:140:ASN:HA | 54:w:143:LYS:HB2 | 1.91 | 0.52 |
| 64:AG:11:GLY:N | 64:AG:18:ALA:O | 2.42 | 0.52 |
| 69:AL:85:TYR:O | 69:AL:87:ARG:NH1 | 2.41 | 0.52 |
| 85:AZ:901:SO1:H212 | 85:AZ:901:SO1:C5 | 2.40 | 0.52 |
| 1:1:764:U:O2' | 1:1:766:U:OP2 | 2.28 | 0.52 |
| 1:1:1604:G:H4' | 1:1:1835:A:H4' | 1.92 | 0.52 |
| 13:H:10:ILE:HD12 | 13:H:55:VAL:HG21 | 1.92 | 0.52 |
| 47:2:653:C:H3' | 47:2:654:C:H4' | 1.92 | 0.52 |
| 47:2:961:U:O2' | 61:AD:86:GLU:OE2 | 2.24 | 0.52 |
| 55:x:71:HIS:HA | 55:x:74:GLN:HG2 | 1.92 | 0.52 |
| 74:AQ:87:ARG:NH2 | 74:AQ:91:ASP:OD2 | 2.43 | 0.52 |
| 79:AV:22:SER:HB3 | 79:AV:36:ALA:HB3 | 1.92 | 0.52 |
| 1:1:150:A:OP1 | 18:N:147:ARG:NH1 | 2.43 | 0.52 |
| 1:1:754:G:N2 | 1:1:778:U:O2 | 2.35 | 0.52 |
| 1:1:1459:C:H2' | 1:1:1460:A:H8 | 1.74 | 0.52 |
| 1:1:1793:C:OP2 | 46:p:49:ARG:NH2 | 2.43 | 0.52 |
| 1:1:3049:A:H4' | 7:B:364:LYS:HD2 | 1.92 | 0.52 |
| 1:1:3219:G:O6 | 36:f:2:ALA:N | 2.43 | 0.52 |
| 7:B:224:HIS:HB2 | 7:B:270:ARG:HD2 | 1.91 | 0.52 |
| 12:G:50:VAL:HG11 | 28:X:27:ARG:HD2 | 1.92 | 0.52 |
| 19:O:23:VAL:O | 19:O:27:LEU:N | 2.42 | 0.52 |
| 25:U:82:LYS:O | 25:U:86:LYS:N | 2.43 | 0.52 |
| 47:2:4:C:OP1 | 50:s:181:SER:OG | 2.27 | 0.52 |
| 47:2:1344:A:H4' | 68:AK:54:GLY:HA3 | 1.91 | 0.52 |
| 47:2:1421:A:H4' | 51:t:160:SER:HB3 | 1.92 | 0.52 |
| 47:2:1504:G:N3 | 47:2:1563:C:O2' | 2.43 | 0.52 |
| 55:x:81:LEU:HD13 | 55:x:90:VAL:HG11 | 1.92 | 0.52 |
| 60:AC:42:ALA:HB2 | 60:AC:122:VAL:HB | 1.90 | 0.52 |
| 79:AV:307:ASP:OD2 | 79:AV:311:ARG:NH1 | 2.42 | 0.52 |
| 83:AZ:195:GLU:HG2 | 83:AZ:196:VAL:HG23 | 1.92 | 0.52 |
| 1:1:1156:C:OP2 | 11:F:94:LYS:NZ | 2.34 | 0.52 |
| 1:1:1832:C:OP1 | 28:X:120:LYS:NZ | 2.40 | 0.52 |
| 1:1:2415:C:OP1 | 6:A:2:GLY:N | 2.43 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:3188:G:OP1 | 13:H:22:SER:OG | 2.27 | 0.52 |
| 3:4:141:C:OP1 | 18:N:109:ARG:NH2 | 2.43 | 0.52 |
| 8:C:12:THR:HA | 8:C:171:ALA:HB1 | 1.92 | 0.52 |
| 11:F:75:TYR:HB2 | 24:T:141:VAL:HB | 1.92 | 0.52 |
| 28:X:53:HIS:ND1 | 28:X:54:TYR:O | 2.37 | 0.52 |
| 49:r:164:ILE:HA | 49:r:167:VAL:HG22 | 1.92 | 0.52 |
| 53:v:58:LEU:HD11 | 53:v:167:ARG:HG2 | 1.92 | 0.52 |
| 53:v:188:LYS:HZ1 | 53:v:192:GLU:HB2 | 1.75 | 0.52 |
| 59:AB:128:CYS:SG | 59:AB:129:ARG:N | 2.83 | 0.52 |
| 1:1:1233:G:N3 | 5:P2:120:SER:OG | 2.43 | 0.51 |
| 1:1:1523:U:O2' | 28:X:111:ASN:ND2 | 2.43 | 0.51 |
| 1:1:2168:A:N6 | 1:1:2170:U:O2 | 2.43 | 0.51 |
| 1:1:2818:U:OP1 | 32:b:2:ALA:N | 2.43 | 0.51 |
| 1:1:3146:G:H2' | 1:1:3147:G:H8 | 1.74 | 0.51 |
| 11:F:224:ILE:HA | 23:S:36:ILE:HG22 | 1.92 | 0.51 |
| 36:f:10:LYS:HB2 | 36:f:33:GLU:HB2 | 1.92 | 0.51 |
| 47:2:897:C:N4 | 47:2:914:G:O2' | 2.42 | 0.51 |
| 47:2:1541:G:N2 | 47:2:1569:A:OP2 | 2.42 | 0.51 |
| 47:2:1637:C:H5' | 82:AY:48:U:C4 | 2.45 | 0.51 |
| 71:AN:62:LYS:CD | 71:AN:118:PRO:HD3 | 2.40 | 0.51 |
| 83:AZ:295:GLU:O | 83:AZ:299:LEU:HB2 | 2.09 | 0.51 |
| 1:1:278:U:O4 | 1:1:287:G:O6 | 2.28 | 0.51 |
| 1:1:584:G:H2' | 1:1:585:A:H8 | 1.74 | 0.51 |
| 1:1:1372:C:O5' | 31:a:7:LYS:NZ | 2.42 | 0.51 |
| 1:1:1786:G:H2' | 1:1:1787:A:C8 | 2.45 | 0.51 |
| 3:4:49:G:H5' | 38:h:44:ILE:HD11 | 1.91 | 0.51 |
| 19:O:12:LYS:HE2 | 23:S:167:ARG:HD3 | 1.92 | 0.51 |
| 47:2:144:U:O4 | 54:w:137:ARG:NH2 | 2.43 | 0.51 |
| 47:2:406:U:H5" | 54:w:94:ARG:HB2 | 1.92 | 0.51 |
| 51:t:211:PRO:HB3 | 65:AH:19:ARG:HB2 | 1.91 | 0.51 |
| 69:AL:21:ASN:HB2 | 70:AM:67:GLY:HA3 | 1.92 | 0.51 |
| 79:AV:6:VAL:HB | 79:AV:318:ALA:HB3 | 1.93 | 0.51 |
| 1:1:799:G:OP1 | 31:a:32:ARG:NH1 | 2.44 | 0.51 |
| 1:1:941:G:H1' | 1:1:1435:A:H1' | 1.91 | 0.51 |
| 1:1:2828:G:H22 | 1:1:2863:G:H1' | 1.75 | 0.51 |
| 1:1:3058:U:O4 | 34:d:65:LYS:NZ | 2.41 | 0.51 |
| 33:c:30:THR:HG23 | 33:c:91:SER:HB2 | 1.92 | 0.51 |
| 39:i:19:SER:OG | 39:i:20:MET:N | 2.43 | 0.51 |
| 47:2:506:A:O2' | 47:2:507:U:H5" | 2.11 | 0.51 |
| 47:2:1213:G:N2 | 47:2:1450:U:O2 | 2.41 | 0.51 |
| 47:2:1786:G:OP2 | 62:AE:133:ARG:NH1 | 2.43 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 53:v:23:VAL:HG12 | 64:AG:57:LEU:HD23 | 1.92 | 0.51 |
| 53:v:94:THR:HG22 | 53:v:114:ILE:HG13 | 1.92 | 0.51 |
| 81:AX:8:U:O2' | 81:AX:21:A:N1 | 2.37 | 0.51 |
| 83:AZ:160:VAL:O | 83:AZ:164:LEU:HB2 | 2.10 | 0.51 |
| 83:AZ:399:ARG:HB2 | 83:AZ:453:ILE:HG22 | 1.91 | 0.51 |
| 83:AZ:728:VAL:HG22 | 83:AZ:773:PRO:HB3 | 1.91 | 0.51 |
| 1:1:2713:U:O2' | 45:o:8:ARG:NH2 | 2.43 | 0.51 |
| 16:L:126:PHE:HB2 | 38:h:115:LYS:HG3 | 1.92 | 0.51 |
| 48:q:127:ARG:HD3 | 48:q:151:SER:HA | 1.92 | 0.51 |
| 53:v:72:HIS:O | 64:AG:79:TYR:OH | 2.26 | 0.51 |
| 56:y:79:ALA:HB3 | 56:y:103:GLN:HG3 | 1.91 | 0.51 |
| 83:AZ:32:LYS:N | 86:AZ:902:GCP:O1B | 2.39 | 0.51 |
| 83:AZ:129:VAL:HB | 83:AZ:157:ILE:HG22 | 1.92 | 0.51 |
| 83:AZ:494:GLU:HB3 | 83:AZ:555:LYS:HE3 | 1.93 | 0.51 |
| 1:1:138:U:H2' | 1:1:139:G:H8 | 1.74 | 0.51 |
| 1:1:1516:C:H2' | 1:1:1517:G:H8 | 1.76 | 0.51 |
| 1:1:1923:C:OP1 | 44:n:25:LYS:NZ | 2.42 | 0.51 |
| 1:1:2338:C:H3' | 1:1:2339:C:H2' | 1.91 | 0.51 |
| 1:1:3174:A:N1 | 1:1:3279:A:O2' | 2.39 | 0.51 |
| 10:E:50:LYS:NZ | 10:E:162:SER:OG | 2.42 | 0.51 |
| 38:h:38:ARG:NH1 | 38:h:40:SER:O | 2.44 | 0.51 |
| 45:o:6:LYS:NZ | 45:o:93:LEU:O | 2.38 | 0.51 |
| 47:2:448:C:OP1 | 52:u:49:ARG:NH1 | 2.44 | 0.51 |
| 47:2:733:A:O2' | 47:2:736:C:N4 | 2.44 | 0.51 |
| 47:2:1268:G:N3 | 47:2:1447:C:O2' | 2.44 | 0.51 |
| 47:2:1474:G:H2' | 47:2:1475:A:H8 | 1.76 | 0.51 |
| 47:2:1520:U:H5' | 47:2:1523:G:H22 | 1.75 | 0.51 |
| 47:2:1637:C:H5" | 82:AY:48:U:C4 | 2.46 | 0.51 |
| 58:AA:28:ASN:ND2 | 77:AT:9:SER:OG | 2.44 | 0.51 |
| 66:AI:35:ILE:HG23 | 66:AI:102:ALA:HB2 | 1.93 | 0.51 |
| 1:1:693:A:OP1 | 8:C:45:ASN:ND2 | 2.42 | 0.51 |
| 1:1:775:A:OP2 | 32:b:44:LYS:NZ | 2.42 | 0.51 |
| 1:1:990:U:H4' | 24:T:100:LYS:HG3 | 1.92 | 0.51 |
| 1:1:1194:G:H2' | 1:1:1195:A:C8 | 2.45 | 0.51 |
| 1:1:1530:U:HO2' | 3:4:114:G:HO2' | 1.53 | 0.51 |
| 1:1:2960:C:H2' | 1:1:2961:G:C8 | 2.46 | 0.51 |
| 8:C:159:ILE:HG21 | 8:C:165:ALA:HB2 | 1.92 | 0.51 |
| 33:c:25:LEU:O | 33:c:29:SER:OG | 2.29 | 0.51 |
| 47:2:211:U:H5" | 59:AB:20:PHE:HB2 | 1.93 | 0.51 |
| 47:2:923:A:H2' | 47:2:924:A:C8 | 2.45 | 0.51 |
| 47:2:1527:C:OP1 | 53:v:106:LYS:NZ | 2.40 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 57:z:59:LEU:HD12 | 57:z:69:ARG:HG2 | 1.92 | 0.51 |
| 64:AG:58:ASP:O | 64:AG:60:PHE:N | 2.44 | 0.51 |
| 75:AR:37:CYS:HB3 | 75:AR:40:CYS:HB2 | 1.92 | 0.51 |
| 82:AY:48:U:H4' | 82:AY:48:U:OP1 | 2.11 | 0.51 |
| 1:1:356:C:O2' | 8:C:81:GLY:O | 2.28 | 0.51 |
| 1:1:638:C:N4 | 1:1:639:G:O6 | 2.44 | 0.51 |
| 1:1:938:C:OP1 | 1:1:962:A:O2' | 2.26 | 0.51 |
| 1:1:1201:C:N4 | 1:1:2858:U:OP1 | 2.44 | 0.51 |
| 19:O:98:ALA:HA | 19:O:101:ARG:HE | 1.75 | 0.51 |
| 47:2:60:U:N3 | 47:2:63:G:OP1 | 2.36 | 0.51 |
| 47:2:564:G:N2 | 47:2:577:G:OP1 | 2.36 | 0.51 |
| 47:2:1180:C:O2' | 63:AF:127:ARG:O | 2.27 | 0.51 |
| 51:t:23:GLU:OE1 | 58:AA:61:TRP:NE1 | 2.43 | 0.51 |
| 56:y:36:THR:O | 56:y:95:THR:OG1 | 2.22 | 0.51 |
| 79:AV:255:ALA:HA | 79:AV:260:ILE:HA | 1.93 | 0.51 |
| 83:AZ:413:ILE:HB | 83:AZ:427:PHE:HB2 | 1.92 | 0.51 |
| 1:1:560:G:H5' | 17:M:80:THR:HG23 | 1.92 | 0.51 |
| 1:1:1592:G:OP1 | 37:g:58:ARG:NH2 | 2.43 | 0.51 |
| 1:1:1783:U:H2' | 1:1:1784:G:H8 | 1.76 | 0.51 |
| 1:1:2270:A:H2' | 1:1:2271:A:C8 | 2.46 | 0.51 |
| 1:1:2347:U:H3' | 1:1:2348:A:H8 | 1.75 | 0.51 |
| 1:1:2468:A:O2' | 1:1:2478:C:O2 | 2.28 | 0.51 |
| 1:1:2812:C:H2' | 1:1:2813:A:C8 | 2.45 | 0.51 |
| 1:1:2812:C:H2' | 1:1:2813:A:H8 | 1.76 | 0.51 |
| 1:1:2960:C:H2' | 1:1:2961:G:H8 | 1.76 | 0.51 |
| 8:C:54:GLU:OE2 | 8:C:55:LYS:NZ | 2.40 | 0.51 |
| 18:N:61:ILE:HG22 | 18:N:133:ILE:HA | 1.92 | 0.51 |
| 21:Q:185:LYS:HG2 | 21:Q:186:VAL:HG22 | 1.93 | 0.51 |
| 47:2:351:C:O4' | 71:AN:13:ARG:NH1 | 2.44 | 0.51 |
| 47:2:922:G:H2' | 47:2:923:A:C8 | 2.46 | 0.51 |
| 53:v:111:VAL:O | 53:v:115:LYS:N | 2.37 | 0.51 |
| 56:y:49:ARG:O | 56:y:52:ASN:ND2 | 2.43 | 0.51 |
| 70:AM:55:ASP:OD2 | 70:AM:57:ARG:NH1 | 2.41 | 0.51 |
| 79:AV:150:TRP:HB2 | 79:AV:174:ASN:HB2 | 1.91 | 0.51 |
| 80:AW:121:CYS:SG | 80:AW:122:SER:N | 2.84 | 0.51 |
| 1:1:365:A:OP1 | 8:C:84:ARG:NH1 | 2.44 | 0.51 |
| 1:1:707:U:OP1 | 1:1:780:A:O2' | 2.27 | 0.51 |
| 1:1:911:C:H5" | 6:A:15:ILE:HD13 | 1.91 | 0.51 |
| 1:1:1459:C:H2' | 1:1:1460:A:C8 | 2.45 | 0.51 |
| 1:1:1831:U:OP2 | 28:X:92:LYS:NZ | 2.33 | 0.51 |
| 1:1:1868:G:HO2' | 1:1:2118:C:HO2' | 1.58 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:3:107:C:H2' | 2:3:108:A:H8 | 1.75 | 0.51 |
| 7:B:51:ALA:O | 7:B:332:ARG:NH1 | 2.40 | 0.51 |
| 22:R:99:LEU:HD23 | 22:R:103:ARG:HH21 | 1.75 | 0.51 |
| 47:2:332:U:OP1 | 56:y:56:ARG:NH2 | 2.35 | 0.51 |
| 47:2:1396:U:O2 | 47:2:1402:G:O6 | 2.28 | 0.51 |
| 47:2:1733:C:H2' | 47:2:1734:U:H6 | 1.75 | 0.51 |
| 50:s:44:LEU:HA | 50:s:47:ALA:HB3 | 1.93 | 0.51 |
| 83:AZ:601:ILE:HA | 83:AZ:606:ILE:HD11 | 1.92 | 0.51 |
| 1:1:293:C:O3' | 39:i:76:ARG:NH2 | 2.44 | 0.51 |
| 1:1:799:G:H2' | 1:1:801:A:H62 | 1.75 | 0.51 |
| 9:D:10:SER:O | 9:D:14:SER:N | 2.39 | 0.51 |
| 47:2:810:G:N2 | 55:x:109:VAL:O | 2.44 | 0.51 |
| 47:2:1272:U:O2 | 47:2:1438:G:O6 | 2.29 | 0.51 |
| 47:2:1481:C:N4 | 47:2:1525:A:OP2 | 2.44 | 0.51 |
| 60:AC:41:LEU:O | 60:AC:46:ARG:NH2 | 2.43 | 0.51 |
| 68:AK:44:ASN:OD1 | 68:AK:47:GLN:NE2 | 2.37 | 0.51 |
| 72:AO:82:ALA:O | 72:AO:86:GLU:N | 2.43 | 0.51 |
| 79:AV:116:ASP:HB2 | 79:AV:121:MET:HB3 | 1.92 | 0.51 |
| 83:AZ:226:ALA:O | 83:AZ:230:ALA:CB | 2.55 | 0.51 |
| 83:AZ:248:SER:OG | 83:AZ:249:PHE:N | 2.44 | 0.51 |
| 1:1:155:G:H1' | 39:i:26:ILE:HD11 | 1.94 | 0.50 |
| 1:1:297:G:O2' | 39:i:32:ALA:O | 2.27 | 0.50 |
| 7:B:116:ARG:HG3 | 7:B:175:LYS:HG3 | 1.92 | 0.50 |
| 9:D:22:ARG:HD2 | 9:D:27:LYS:HB2 | 1.92 | 0.50 |
| 42:l:24:PRO:HB2 | 42:l:26:TRP:HB3 | 1.93 | 0.50 |
| 47:2:227:U:H3 | 47:2:834:G:H1 | 1.58 | 0.50 |
| 47:2:283:U:OP2 | 54:w:188:ARG:NH2 | 2.43 | 0.50 |
| 47:2:1470:C:OP1 | 47:2:1471:A:O2' | 2.29 | 0.50 |
| 51:t:138:VAL:O | 51:t:148:LYS:NZ | 2.40 | 0.50 |
| 61:AD:30:SER:HB3 | 61:AD:67:THR:HG22 | 1.92 | 0.50 |
| 65:AH:9:VAL:HG23 | 65:AH:50:ILE:HA | 1.93 | 0.50 |
| 67:AJ:86:ARG:HH21 | 67:AJ:89:ARG:HB3 | 1.77 | 0.50 |
| 72:AO:60:PHE:H | 72:AO:71:GLY:HA2 | 1.76 | 0.50 |
| 79:AV:123:ILE:HD11 | 79:AV:169:ILE:HD13 | 1.92 | 0.50 |
| 83:AZ:337:MET:HE2 | 83:AZ:341:HIS:HB3 | 1.93 | 0.50 |
| 83:AZ:819:VAL:O | 83:AZ:823:ARG:CB | 2.58 | 0.50 |
| 1:1:544:C:N3 | 1:1:547:G:N1 | 2.60 | 0.50 |
| 1:1:2918:G:H2' | 1:1:2919:A:H8 | 1.75 | 0.50 |
| 3:4:75:G:OP2 | 29:Y:74:TYR:OH | 2.22 | 0.50 |
| 14:I:49:CYS:SG | 14:I:50:VAL:N | 2.83 | 0.50 |
| 23:S:82:ASP:OD1 | 23:S:120:SER:OG | 2.23 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 37:g:67:LYS:HA | 37:g:70:LYS:HB2 | 1.93 | 0.50 |
| 47:2:1547:A:O2' | 66:AI:89:GLN:O | 2.29 | 0.50 |
| 47:2:1641:C:H2' | 47:2:1642:G:C8 | 2.46 | 0.50 |
| 47:2:1797:A:H61 | 74:AQ:84:VAL:HG21 | 1.75 | 0.50 |
| 53:v:206:SER:H | 53:v:211:ILE:HG13 | 1.74 | 0.50 |
| 63:AF:121:ILE:HD11 | 66:AI:125:ILE:HD11 | 1.92 | 0.50 |
| 68:AK:106:ILE:HG13 | 68:AK:107:THR:HG23 | 1.93 | 0.50 |
| 83:AZ:162:ARG:HH11 | 86:AZ:902:GCP:HN22 | 1.58 | 0.50 |
| 1:1:1635:G:N7 | 30:Z:73:LYS:NZ | 2.47 | 0.50 |
| 1:1:2351:U:H2' | 1:1:2352:A:C8 | 2.46 | 0.50 |
| 1:1:2392:C:O2 | 7:B:266:ARG:NH2 | 2.45 | 0.50 |
| 4:P0:46:ARG:NH1 | 5:P2:123:ARG:NH1 | 2.59 | 0.50 |
| 8:C:34:ILE:HA | 8:C:37:THR:HG22 | 1.93 | 0.50 |
| 14:I:141:LYS:O | 14:I:145:LYS:NZ | 2.34 | 0.50 |
| 37:g:58:ARG:H | 37:g:61:GLN:HE21 | 1.59 | 0.50 |
| 45:o:74:CYS:SG | 45:o:75:VAL:N | 2.84 | 0.50 |
| 47:2:1213:G:O6 | 47:2:1450:U:O4 | 2.28 | 0.50 |
| 57:z:110:GLN:OE1 | 57:z:126:ARG:NH2 | 2.44 | 0.50 |
| 83:AZ:69:THR:HB | 83:AZ:106:PRO:HB3 | 1.94 | 0.50 |
| 83:AZ:149:GLU:HB3 | 83:AZ:352:ARG:HH12 | 1.77 | 0.50 |
| 83:AZ:566:THR:OG1 | 83:AZ:723:LYS:O | 2.26 | 0.50 |
| 1:1:501:A:OP1 | 10:E:82:ARG:NH1 | 2.32 | 0.50 |
| 1:1:2675:C:N4 | 15:J:22:SER:O | 2.43 | 0.50 |
| 7:B:341:SER:OG | 7:B:343:TYR:O | 2.30 | 0.50 |
| 12:G:112:GLU:HA | 12:G:115:ALA:HB3 | 1.93 | 0.50 |
| 14:I:19:LYS:HG2 | 14:I:26:VAL:HG11 | 1.94 | 0.50 |
| 29:Y:3:LYS:HG2 | 29:Y:8:VAL:HG11 | 1.93 | 0.50 |
| 30:Z:26:VAL:O | 30:Z:93:LYS:NZ | 2.34 | 0.50 |
| 38:h:92:LEU:HD12 | 38:h:96:GLU:HG3 | 1.94 | 0.50 |
| 47:2:1616:G:OP1 | 76:AS:18:ARG:NH2 | 2.44 | 0.50 |
| 48:q:183:ARG:NE | 69:AL:42:GLU:OE2 | 2.44 | 0.50 |
| 56:y:84:HIS:NE2 | 56:y:97:THR:OG1 | 2.42 | 0.50 |
| 64:AG:99:GLU:N | 79:AV:58:VAL:O | 2.43 | 0.50 |
| 83:AZ:715:ALA:HB2 | 83:AZ:838:TYR:HB2 | 1.92 | 0.50 |
| 1:1:2588:U:OP1 | 12:G:48:ARG:NH2 | 2.44 | 0.50 |
| 1:1:3208:G:O6 | 19:O:116:LYS:NZ | 2.42 | 0.50 |
| 39:i:4:LYS:HB2 | 39:i:16:LYS:HA | 1.94 | 0.50 |
| 42:l:23:LEU:HD21 | 42:l:35:ILE:HG22 | 1.92 | 0.50 |
| 46:p:20:SER:HA | 46:p:23:ARG:HG2 | 1.94 | 0.50 |
| 47:2:1216:C:H5" | 58:AA:2:LEU:HD11 | 1.94 | 0.50 |
| 49:r:138:PHE:HB2 | 49:r:214:LYS:HB2 | 1.92 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 51:t:210:GLU:O | 65:AH:20:TYR:OH | 2.28 | 0.50 |
| 52:u:206:ASP:HB2 | 52:u:222:LEU:HB2 | 1.92 | 0.50 |
| 56:y:67:TRP:HD1 | 56:y:69:SER:H | 1.60 | 0.50 |
| 83:AZ:265:GLU:OE2 | 83:AZ:267:LYS:NZ | 2.41 | 0.50 |
| 83:AZ:349:GLN:NE2 | 83:AZ:369:ILE:O | 2.35 | 0.50 |
| 1:1:547:G:H2' | 1:1:548:G:C8 | 2.47 | 0.50 |
| 47:2:78:A:H5' | 54:w:154:ARG:HG3 | 1.94 | 0.50 |
| 47:2:86:A:H2' | 47:2:87:C:H6 | 1.76 | 0.50 |
| 47:2:478:A:N1 | 47:2:510:G:C6 | 2.80 | 0.50 |
| 47:2:1147:A:O2' | 47:2:1636:C:OP2 | 2.29 | 0.50 |
| 57:z:134:ILE:HG22 | 57:z:158:PHE:HA | 1.94 | 0.50 |
| 63:AF:68:PRO:HG2 | 63:AF:71:GLU:HB3 | 1.93 | 0.50 |
| 64:AG:103:ASN:HA | 64:AG:106:LYS:HB3 | 1.92 | 0.50 |
| 67:AJ:14:PHE:HE2 | 67:AJ:60:SER:HA | 1.77 | 0.50 |
| 70:AM:38:LEU:HA | 70:AM:41:MET:HE3 | 1.92 | 0.50 |
| 71:AN:60:GLU:HA | 71:AN:68:ILE:HA | 1.92 | 0.50 |
| 79:AV:152:SER:OG | 79:AV:172:ALA:O | 2.26 | 0.50 |
| 79:AV:201:THR:HG23 | 79:AV:214:ALA:HB3 | 1.93 | 0.50 |
| 1:1:370:U:H4' | 1:1:404:G:H5" | 1.92 | 0.50 |
| 1:1:851:C:OP2 | 46:p:6:LYS:NZ | 2.41 | 0.50 |
| 1:1:1921:A:H2' | 1:1:1922:A:H8 | 1.77 | 0.50 |
| 1:1:2841:G:N2 | 1:1:2898:G:O6 | 2.45 | 0.50 |
| 9:D:156:GLY:HA2 | 9:D:181:PRO:HB3 | 1.93 | 0.50 |
| 15:J:11:ASP:OD1 | 15:J:11:ASP:N | 2.42 | 0.50 |
| 15:J:15:GLU:OE1 | 15:J:132:ASN:ND2 | 2.41 | 0.50 |
| 22:R:115:ILE:HD13 | 22:R:120:TYR:HB2 | 1.92 | 0.50 |
| 22:R:143:ILE:HA | 22:R:146:LYS:HG2 | 1.92 | 0.50 |
| 47:2:757:A:O3' | 52:u:22:LYS:NZ | 2.44 | 0.50 |
| 47:2:1536:G:O2' | 47:2:1572:G:O6 | 2.29 | 0.50 |
| 47:2:1542:G:H22 | 47:2:1568:C:H1' | 1.75 | 0.50 |
| 47:2:1619:C:H2' | 47:2:1620:C:H6 | 1.77 | 0.50 |
| 50:s:244:SER:HA | 50:s:247:ALA:HB3 | 1.94 | 0.50 |
| 51:t:70:THR:HA | 51:t:86:LEU:HD11 | 1.93 | 0.50 |
| 53:v:144:GLU:HB2 | 53:v:161:ASP:HA | 1.94 | 0.50 |
| 55:x:64:VAL:HG13 | 55:x:67:LEU:HB2 | 1.94 | 0.50 |
| 65:AH:34:LEU:O | 65:AH:38:ILE:N | 2.45 | 0.50 |
| 69:AL:55:LEU:HD21 | 69:AL:69:LEU:HD21 | 1.93 | 0.50 |
| 83:AZ:10:ARG:HD2 | 83:AZ:445:ILE:HG22 | 1.93 | 0.50 |
| 83:AZ:121:VAL:O | 83:AZ:399:ARG:NH1 | 2.42 | 0.50 |
| 83:AZ:597:VAL:HA | 83:AZ:600:ALA:HB3 | 1.93 | 0.50 |
| 1:1:1229:G:H4' | 4:P0:32:ASN:HA | 1.94 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:1237:G:N2 | 5:P2:135:THR:O | 2.44 | 0.50 |
| 1:1:1618:G:H2' | 1:1:1619:A:H8 | 1.77 | 0.50 |
| 8:C:288:ARG:HA | 8:C:291:ASN:HB2 | 1.93 | 0.50 |
| 13:H:156:GLN:NE2 | 13:H:160:ASP:OD2 | 2.40 | 0.50 |
| 39:i:7:ILE:O | 39:i:13:LYS:NZ | 2.39 | 0.50 |
| 47:2:853:G:H2' | 47:2:854:U:H6 | 1.77 | 0.50 |
| 47:2:1796:C:OP2 | 74:AQ:92:ARG:NH1 | 2.44 | 0.50 |
| 50:s:142:GLY:N | 50:s:153:SER:O | 2.45 | 0.50 |
| 83:AZ:235:VAL:HG13 | 83:AZ:236:ASP:HB3 | 1.93 | 0.50 |
| 1:1:952:A:O2' | 1:1:968:G:N2 | 2.42 | 0.50 |
| 1:1:1342:C:H2' | 1:1:1343:A:H8 | 1.77 | 0.50 |
| 1:1:3188:G:H2' | 1:1:3189:G:H8 | 1.76 | 0.50 |
| 2:3:35:C:O2 | 2:3:45:A:O2' | 2.30 | 0.50 |
| 17:M:48:GLY:O | 17:M:52:GLY:N | 2.43 | 0.50 |
| 47:2:30:G:OP1 | 71:AN:126:LYS:NZ | 2.36 | 0.50 |
| 47:2:114:C:N4 | 47:2:247:A:N7 | 2.60 | 0.50 |
| 47:2:273:G:O6 | 47:2:283:U:O4 | 2.28 | 0.50 |
| 1:1:121:A:N1 | 12:G:108:ARG:NH1 | 2.59 | 0.49 |
| 1:1:122:A:N7 | 1:1:146:U:N3 | 2.60 | 0.49 |
| 30:Z:78:ASN:HA | 33:c:35:ARG:HH22 | 1.77 | 0.49 |
| 33:c:25:LEU:HD12 | 33:c:87:VAL:HG21 | 1.93 | 0.49 |
| 46:p:24:ARG:NH2 | 47:2:1123:C:O2 | 2.44 | 0.49 |
| 47:2:509:G:H8 | 47:2:509:G:H5" | 1.77 | 0.49 |
| 47:2:1586:A:H62 | 47:2:1610:G:H21 | 1.59 | 0.49 |
| 57:z:52:ILE:O | 57:z:56:ALA:N | 2.44 | 0.49 |
| 60:AC:61:VAL:HG23 | 60:AC:90:LYS:HA | 1.92 | 0.49 |
| 68:AK:51:VAL:HB | 68:AK:94:GLU:HB2 | 1.94 | 0.49 |
| 72:AO:29:HIS:N | 72:AO:67:GLY:O | 2.38 | 0.49 |
| 74:AQ:23:CYS:HB3 | 74:AQ:28:LYS:H | 1.76 | 0.49 |
| 79:AV:153:GLN:HB2 | 79:AV:172:ALA:HB3 | 1.93 | 0.49 |
| 1:1:68:C:OP2 | 1:1:301:G:N2 | 2.43 | 0.49 |
| 1:1:422:A:N1 | 1:1:2362:C:O2' | 2.37 | 0.49 |
| 1:1:631:U:H2' | 1:1:632:G:H8 | 1.76 | 0.49 |
| 1:1:2218:G:H2' | 1:1:2219:A:H8 | 1.77 | 0.49 |
| 2:3:121:U:OP2 | 9:D:265:TYR:OH | 2.25 | 0.49 |
| 6:A:92:LYS:HA | 6:A:103:PRO:HD2 | 1.93 | 0.49 |
| 47:2:372:G:H1' | 47:2:612:U:H3 | 1.75 | 0.49 |
| 72:AO:40:LEU:HD11 | 72:AO:57:VAL:HG21 | 1.93 | 0.49 |
| 1:1:938:C:O2 | 1:1:2813:A:O2' | 2.30 | 0.49 |
| 1:1:1408:G:OP2 | 35:e:33:ARG:NH2 | 2.40 | 0.49 |
| 5:P2:92:ARG:HD3 | 5:P2:93:LYS:HB2 | 1.95 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 15:J:110:ILE:HG21 | 15:J:116:TYR:HD1 | 1.76 | 0.49 |
| 33:c:86:ARG:HH12 | 46:p:44:LYS:HA | 1.77 | 0.49 |
| 47:2:138:A:O2' | 47:2:141:U:OP1 | 2.30 | 0.49 |
| 47:2:332:U:OP2 | 56:y:175:GLN:NE2 | 2.43 | 0.49 |
| 51:t:8:LYS:HG2 | 68:AK:61:LYS:HD2 | 1.94 | 0.49 |
| 57:z:34:PHE:O | 57:z:110:GLN:NE2 | 2.45 | 0.49 |
| 79:AV:33:LEU:O | 79:AV:45:TRP:N | 2.46 | 0.49 |
| 1:1:307:A:H2' | 1:1:308:A:H8 | 1.77 | 0.49 |
| 1:1:383:G:O2' | 1:1:385:A:N7 | 2.43 | 0.49 |
| 1:1:1883:A:H2' | 1:1:1884:A:H8 | 1.78 | 0.49 |
| 11:F:26:VAL:O | 11:F:30:ARG:N | 2.45 | 0.49 |
| 47:2:937:C:H41 | 74:AQ:15:ARG:HG3 | 1.78 | 0.49 |
| 47:2:1218:G:O4' | 47:2:1444:A:N6 | 2.46 | 0.49 |
| 47:2:1294:G:N2 | 47:2:1303:U:O2 | 2.32 | 0.49 |
| 47:2:1695:G:O6 | 47:2:1696:G:N2 | 2.45 | 0.49 |
| 49:r:197:ILE:HG21 | 49:r:210:ILE:HG21 | 1.95 | 0.49 |
| 57:z:139:GLN:HE22 | 72:AO:64:PHE:HB3 | 1.78 | 0.49 |
| 83:AZ:711:ARG:O | 83:AZ:715:ALA:HB2 | 2.11 | 0.49 |
| 1:1:2446:U:H1' | 1:1:2502:A:H61 | 1.78 | 0.49 |
| 8:C:329:PRO:HG3 | 11:F:41:ARG:HD2 | 1.95 | 0.49 |
| 9:D:259:LYS:O | 9:D:265:TYR:OH | 2.31 | 0.49 |
| 17:M:112:LEU:HD13 | 17:M:113:THR:H | 1.76 | 0.49 |
| 33:c:42:ILE:HB | 33:c:67:VAL:HG22 | 1.94 | 0.49 |
| 45:o:23:HIS:HA | 45:o:74:CYS:HA | 1.93 | 0.49 |
| 47:2:235:G:H2' | 47:2:236:A:H8 | 1.78 | 0.49 |
| 47:2:1174:C:H42 | 47:2:1465:C:H42 | 1.61 | 0.49 |
| 67:AJ:38:LYS:HA | 67:AJ:46:PRO:HB3 | 1.93 | 0.49 |
| 68:AK:63:LEU:HD12 | 68:AK:84:MET:HB3 | 1.94 | 0.49 |
| 74:AQ:44:ILE:N | 74:AQ:65:PRO:O | 2.41 | 0.49 |
| 83:AZ:41:GLN:HA | 83:AZ:46:ILE:HG12 | 1.94 | 0.49 |
| 1:1:1727:G:OP2 | 46:p:44:LYS:NZ | 2.35 | 0.49 |
| 1:1:2744:U:H2' | 1:1:2745:G:C8 | 2.48 | 0.49 |
| 1:1:2889:C:O2' | 1:1:2934:A:O2' | 2.25 | 0.49 |
| 1:1:3065:G:O6 | 1:1:3077:A:N6 | 2.45 | 0.49 |
| 6:A:211:HIS:HB3 | 6:A:219:ILE:HG22 | 1.94 | 0.49 |
| 23:S:33:ASN:HB2 | 23:S:36:ILE:HG12 | 1.94 | 0.49 |
| 25:U:37:LEU:O | 25:U:41:ILE:N | 2.46 | 0.49 |
| 26:V:120:LYS:HE2 | 26:V:136:VAL:HG12 | 1.94 | 0.49 |
| 36:f:75:HIS:HB2 | 36:f:82:ARG:HG3 | 1.93 | 0.49 |
| 47:2:306:U:OP2 | 59:AB:88:ARG:NH2 | 2.34 | 0.49 |
| 47:2:629:U:O4 | 47:2:970:A:N7 | 2.46 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:898:A:N6 | 47:2:912:U:O4’ | 2.46 | 0.49 |
| 47:2:922:G:H2’ | 47:2:923:A:H8 | 1.77 | 0.49 |
| 47:2:1160:A:O2’ | 47:2:1620:C:N3 | 2.42 | 0.49 |
| 47:2:1298:U:O2 | 50:s:209:ASN:ND2 | 2.33 | 0.49 |
| 48:q:88:LYS:NZ | 65:AH:83:GLN:OE1 | 2.35 | 0.49 |
| 49:r:58:SER:O | 49:r:62:LYS:NZ | 2.45 | 0.49 |
| 75:AR:13:ALA:HB1 | 75:AR:17:ARG:HH21 | 1.77 | 0.49 |
| 79:AV:37:SER:OG | 79:AV:39:ASP:OD1 | 2.24 | 0.49 |
| 1:1:67:A:N6 | 1:1:271:C:O2’ | 2.45 | 0.49 |
| 1:1:1193:A:N6 | 1:1:1314:C:C4 | 2.80 | 0.49 |
| 1:1:1822:C:H2’ | 1:1:1823:A:H8 | 1.76 | 0.49 |
| 1:1:2992:U:OP1 | 7:B:21:ARG:NH1 | 2.40 | 0.49 |
| 27:W:11:ALA:HB3 | 27:W:32:GLN:HG3 | 1.94 | 0.49 |
| 37:g:3:GLN:HE21 | 37:g:29:ILE:HG23 | 1.77 | 0.49 |
| 47:2:174:U:H3 | 47:2:266:A:N6 | 2.06 | 0.49 |
| 47:2:891:A:H2’ | 47:2:892:A:H8 | 1.77 | 0.49 |
| 47:2:1328:G:H5’ | 51:t:160:SER:H | 1.77 | 0.49 |
| 47:2:1356:U:H2’ | 47:2:1357:A:C8 | 2.47 | 0.49 |
| 47:2:1765:A:N6 | 47:2:1768:G:H1 | 2.10 | 0.49 |
| 49:r:57:ALA:HA | 49:r:60:ALA:HB2 | 1.94 | 0.49 |
| 54:w:3:LEU:N | 54:w:16:PHE:O | 2.44 | 0.49 |
| 58:AA:21:VAL:HB | 58:AA:67:THR:HA | 1.95 | 0.49 |
| 68:AK:35:GLU:O | 68:AK:39:SER:N | 2.44 | 0.49 |
| 83:AZ:30:HIS:N | 86:AZ:902:GCP:O2B | 2.43 | 0.49 |
| 1:1:150:A:H5’ | 18:N:147:ARG:HH22 | 1.77 | 0.49 |
| 1:1:1148:G:H21 | 1:1:1197:A:H61 | 1.60 | 0.49 |
| 1:1:1167:U:O2’ | 11:F:210:PRO:O | 2.30 | 0.49 |
| 1:1:2526:C:H2’ | 1:1:2527:G:H8 | 1.77 | 0.49 |
| 8:C:145:ILE:HD11 | 8:C:172:VAL:HG22 | 1.95 | 0.49 |
| 14:I:145:LYS:HA | 14:I:148:VAL:HG12 | 1.95 | 0.49 |
| 34:d:62:ARG:NH1 | 34:d:66:GLY:O | 2.45 | 0.49 |
| 39:i:2:THR:OG1 | 39:i:12:ASN:ND2 | 2.45 | 0.49 |
| 47:2:337:G:H3’ | 59:AB:133:LYS:HB2 | 1.95 | 0.49 |
| 47:2:400:A:H4’ | 47:2:401:A:H5” | 1.95 | 0.49 |
| 47:2:520:A:H2’ | 47:2:521:A:C8 | 2.48 | 0.49 |
| 47:2:1358:G:H2’ | 47:2:1359:C:C6 | 2.48 | 0.49 |
| 53:v:192:GLU:HA | 53:v:195:ALA:HB3 | 1.95 | 0.49 |
| 83:AZ:345:PRO:O | 83:AZ:349:GLN:CB | 2.59 | 0.49 |
| 1:1:158:G:H2’ | 1:1:159:A:H8 | 1.78 | 0.49 |
| 1:1:354:U:O4 | 1:1:365:A:N7 | 2.46 | 0.49 |
| 1:1:671:U:H2’ | 1:1:672:A:H8 | 1.78 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:1026:A:H2' | 1:1:1027:A:H4' | 1.93 | 0.49 |
| 1:1:1748:G:OP2 | 41:k:42:LYS:NZ | 2.41 | 0.49 |
| 1:1:2211:U:O2 | 81:AX:71:G:O2' | 2.31 | 0.49 |
| 1:1:2703:A:H5" | 1:1:2704:A:H5' | 1.95 | 0.49 |
| 1:1:2760:C:N4 | 1:1:2796:G:O6 | 2.46 | 0.49 |
| 20:P:108:ASP:HB3 | 20:P:111:LYS:HG2 | 1.94 | 0.49 |
| 25:U:15:PHE:HB2 | 25:U:65:VAL:HG23 | 1.94 | 0.49 |
| 47:2:467:G:O2' | 47:2:469:C:OP2 | 2.27 | 0.49 |
| 47:2:872:G:O6 | 47:2:955:A:N1 | 2.46 | 0.49 |
| 47:2:908:U:H5" | 47:2:909:U:H5 | 1.78 | 0.49 |
| 47:2:1381:U:H4' | 68:AK:59:PRO:HG3 | 1.95 | 0.49 |
| 50:s:42:GLY:HA2 | 50:s:68:ILE:HD11 | 1.95 | 0.49 |
| 52:u:181:VAL:HA | 52:u:227:VAL:HA | 1.95 | 0.49 |
| 54:w:83:CYS:SG | 54:w:95:LYS:NZ | 2.81 | 0.49 |
| 55:x:144:VAL:HG13 | 70:AM:42:GLN:HE22 | 1.77 | 0.49 |
| 68:AK:103:ILE:HA | 68:AK:106:ILE:HG22 | 1.95 | 0.49 |
| 79:AV:111:MET:HE1 | 79:AV:127:ARG:HA | 1.94 | 0.49 |
| 83:AZ:668:GLN:O | 83:AZ:672:LYS:N | 2.42 | 0.49 |
| 1:1:197:G:H21 | 1:1:218:G:H21 | 1.59 | 0.49 |
| 1:1:664:U:H2' | 1:1:665:A:C8 | 2.47 | 0.49 |
| 1:1:1167:U:H4' | 11:F:211:SER:HA | 1.94 | 0.49 |
| 1:1:1595:U:O2' | 1:1:1606:U:O2 | 2.31 | 0.49 |
| 7:B:53:MET:HG2 | 7:B:77:THR:HG22 | 1.94 | 0.49 |
| 47:2:1044:U:O2 | 47:2:1074:G:O6 | 2.31 | 0.49 |
| 47:2:1464:G:O2' | 64:AG:141:SER:OG | 2.31 | 0.49 |
| 49:r:69:CYS:HB3 | 62:AE:114:ARG:HH21 | 1.77 | 0.49 |
| 52:u:90:ILE:HG23 | 52:u:99:PHE:HB2 | 1.95 | 0.49 |
| 57:z:2:PRO:HD2 | 57:z:3:ARG:HH21 | 1.78 | 0.49 |
| 64:AG:13:LYS:HG3 | 64:AG:14:LYS:H | 1.78 | 0.49 |
| 65:AH:35:CYS:HA | 65:AH:38:ILE:HG22 | 1.94 | 0.49 |
| 79:AV:176:LYS:NZ | 79:AV:198:ASN:OD1 | 2.46 | 0.49 |
| 81:AX:4:G:O6 | 81:AX:69:U:O4 | 2.30 | 0.49 |
| 83:AZ:235:VAL:HA | 83:AZ:236:ASP:HA | 1.71 | 0.49 |
| 1:1:509:U:O2 | 1:1:582:G:O6 | 2.31 | 0.48 |
| 1:1:525:C:H5" | 17:M:79:ALA:HB2 | 1.95 | 0.48 |
| 1:1:3058:U:H5" | 34:d:28:ARG:HH12 | 1.77 | 0.48 |
| 1:1:3228:C:OP1 | 17:M:137:LYS:NZ | 2.40 | 0.48 |
| 15:J:133:ARG:NH1 | 15:J:152:HIS:O | 2.46 | 0.48 |
| 47:2:340:U:H2' | 47:2:341:A:C8 | 2.48 | 0.48 |
| 47:2:1489:U:H1' | 47:2:1494:C:C2 | 2.48 | 0.48 |
| 81:AX:15:G:N2 | 81:AX:48:C:O2 | 2.35 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:294:U:OP2 | 18:N:15:GLN:NE2 | 2.46 | 0.48 |
| 11:F:185:ILE:HA | 11:F:188:ILE:HG22 | 1.96 | 0.48 |
| 14:I:181:TYR:HE2 | 14:I:185:ARG:HH11 | 1.60 | 0.48 |
| 25:U:58:GLU:HG2 | 25:U:60:GLY:H | 1.79 | 0.48 |
| 29:Y:112:ASP:OD1 | 29:Y:115:ARG:N | 2.45 | 0.48 |
| 36:f:32:ILE:HD13 | 36:f:44:TYR:HE2 | 1.79 | 0.48 |
| 47:2:140:A:H61 | 47:2:281:G:H5" | 1.77 | 0.48 |
| 47:2:235:G:H2' | 47:2:236:A:C8 | 2.48 | 0.48 |
| 47:2:1183:A:N6 | 63:AF:122:THR:O | 2.46 | 0.48 |
| 51:t:127:MET:HA | 51:t:131:ALA:H | 1.77 | 0.48 |
| 51:t:136:VAL:HG22 | 51:t:186:VAL:HG22 | 1.95 | 0.48 |
| 57:z:141:VAL:HG12 | 57:z:143:ILE:H | 1.78 | 0.48 |
| 60:AC:31:VAL:HG12 | 60:AC:123:VAL:HG21 | 1.95 | 0.48 |
| 74:AQ:91:ASP:OD1 | 74:AQ:94:ASN:ND2 | 2.39 | 0.48 |
| 79:AV:31:ASN:HA | 79:AV:47:LEU:HB2 | 1.94 | 0.48 |
| 83:AZ:570:GLU:O | 83:AZ:589:LYS:NZ | 2.38 | 0.48 |
| 1:1:2458:A:H2 | 1:1:2480:A:H61 | 1.61 | 0.48 |
| 1:1:2768:U:O2' | 45:o:71:ARG:NH1 | 2.36 | 0.48 |
| 11:F:236:ILE:HG22 | 11:F:240:VAL:HG23 | 1.95 | 0.48 |
| 26:V:75:PRO:HD2 | 26:V:104:ASN:HB2 | 1.95 | 0.48 |
| 47:2:1041:G:H2' | 47:2:1042:G:C8 | 2.48 | 0.48 |
| 53:v:58:LEU:HD21 | 53:v:167:ARG:HB3 | 1.96 | 0.48 |
| 66:AI:122:HIS:CE1 | 66:AI:126:ARG:HE | 2.31 | 0.48 |
| 76:AS:42:ARG:HG3 | 76:AS:43:ASN:H | 1.78 | 0.48 |
| 79:AV:34:LEU:HA | 79:AV:44:SER:HA | 1.94 | 0.48 |
| 79:AV:299:GLN:OE1 | 79:AV:300:THR:OG1 | 2.31 | 0.48 |
| 81:AX:55:U:N3 | 81:AX:58:A:OP2 | 2.46 | 0.48 |
| 1:1:129:U:H2' | 1:1:130:A:C8 | 2.49 | 0.48 |
| 1:1:371:G:N1 | 1:1:374:A:OP2 | 2.42 | 0.48 |
| 1:1:790:U:H2' | 1:1:791:A:H8 | 1.77 | 0.48 |
| 1:1:2257:C:H4' | 1:1:2257:C:OP1 | 2.12 | 0.48 |
| 1:1:3180:A:C6 | 19:O:114:LYS:HD2 | 2.49 | 0.48 |
| 1:1:3345:G:OP1 | 56:y:92:ARG:NH1 | 2.41 | 0.48 |
| 9:D:95:TRP:O | 9:D:99:TYR:N | 2.39 | 0.48 |
| 12:G:201:THR:HG23 | 12:G:202:GLU:HG3 | 1.95 | 0.48 |
| 16:L:99:HIS:CE1 | 16:L:100:ARG:HE | 2.31 | 0.48 |
| 16:L:157:ARG:HH21 | 31:a:124:ILE:HD13 | 1.78 | 0.48 |
| 47:2:400:A:H5" | 56:y:25:ARG:HA | 1.95 | 0.48 |
| 47:2:689:G:H2' | 47:2:690:G:H8 | 1.78 | 0.48 |
| 47:2:1727:G:H2' | 47:2:1728:A:C8 | 2.48 | 0.48 |
| 63:AF:98:ASN:ND2 | 63:AF:103:ASN:OD1 | 2.46 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:802:SER:OG | 83:AZ:803:THR:N | 2.46 | 0.48 |
| 1:1:361:A:OP1 | 40:j:24:ARG:NH1 | 2.46 | 0.48 |
| 1:1:650:C:H2' | 1:1:651:G:C8 | 2.49 | 0.48 |
| 1:1:2519:A:H2' | 1:1:2520:A:H8 | 1.77 | 0.48 |
| 1:1:2583:C:N4 | 1:1:2584:G:O6 | 2.46 | 0.48 |
| 1:1:3114:A:OP2 | 1:1:3115:C:O2' | 2.27 | 0.48 |
| 8:C:206:LEU:HB3 | 8:C:248:VAL:HG12 | 1.96 | 0.48 |
| 18:N:14:LYS:HA | 18:N:19:LEU:HD11 | 1.94 | 0.48 |
| 22:R:103:ARG:NH1 | 22:R:124:TYR:OH | 2.46 | 0.48 |
| 51:t:74:GLN:HB2 | 51:t:84:ILE:HG21 | 1.95 | 0.48 |
| 52:u:211:LYS:HE2 | 52:u:215:ASP:HA | 1.94 | 0.48 |
| 54:w:33:GLY:N | 54:w:52:ILE:O | 2.46 | 0.48 |
| 54:w:78:THR:O | 54:w:87:ARG:NH2 | 2.47 | 0.48 |
| 56:y:78:ILE:HD12 | 56:y:104:ILE:HG22 | 1.95 | 0.48 |
| 65:AH:66:VAL:N | 65:AH:69:ILE:O | 2.45 | 0.48 |
| 68:AK:40:ASN:O | 68:AK:44:ASN:N | 2.42 | 0.48 |
| 76:AS:19:THR:OG1 | 76:AS:27:GLN:NE2 | 2.34 | 0.48 |
| 83:AZ:432:GLN:HG3 | 83:AZ:433:ARG:HG3 | 1.94 | 0.48 |
| 4:P0:141:VAL:HG12 | 4:P0:156:VAL:HB | 1.95 | 0.48 |
| 47:2:655:G:N2 | 47:2:679:U:OP2 | 2.47 | 0.48 |
| 47:2:1142:A:H5" | 74:AQ:2:PRO:HB3 | 1.95 | 0.48 |
| 49:r:117:TRP:HB3 | 49:r:153:HIS:HA | 1.95 | 0.48 |
| 63:AF:25:LEU:HD12 | 63:AF:87:PRO:HB2 | 1.96 | 0.48 |
| 71:AN:126:LYS:HD3 | 71:AN:129:GLY:HA2 | 1.96 | 0.48 |
| 73:AP:82:HIS:O | 73:AP:85:LYS:NZ | 2.43 | 0.48 |
| 1:1:1488:G:H21 | 37:g:12:PRO:HG3 | 1.79 | 0.48 |
| 1:1:2458:A:H62 | 1:1:2475:G:H2' | 1.78 | 0.48 |
| 1:1:2531:C:H42 | 1:1:2548:C:H42 | 1.60 | 0.48 |
| 2:3:74:C:H2' | 2:3:75:G:C8 | 2.49 | 0.48 |
| 2:3:96:U:OP1 | 23:S:43:TYR:OH | 2.25 | 0.48 |
| 7:B:50:LYS:HG3 | 7:B:328:ILE:HD11 | 1.95 | 0.48 |
| 8:C:252:GLU:HA | 8:C:255:PHE:HB3 | 1.96 | 0.48 |
| 46:p:56:THR:HG23 | 46:p:63:THR:HG22 | 1.95 | 0.48 |
| 47:2:1152:A:H4' | 74:AQ:85:ARG:HG2 | 1.94 | 0.48 |
| 47:2:1201:G:H21 | 47:2:1600:A:H5' | 1.79 | 0.48 |
| 47:2:1305:U:OP2 | 47:2:1306:C:N4 | 2.43 | 0.48 |
| 48:q:143:VAL:HG23 | 48:q:157:ASP:H | 1.78 | 0.48 |
| 63:AF:52:LYS:HE2 | 63:AF:83:MET:HA | 1.96 | 0.48 |
| 65:AH:26:LEU:HD23 | 65:AH:58:MET:HB3 | 1.96 | 0.48 |
| 67:AJ:108:LEU:HB2 | 67:AJ:113:ILE:HD12 | 1.95 | 0.48 |
| 67:AJ:114:VAL:HG23 | 67:AJ:124:ILE:HA | 1.96 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:120:ARG:HB2 | 83:AZ:479:LYS:HZ1 | 1.79 | 0.48 |
| 83:AZ:798:PHE:N | 85:AZ:901:SO1:O57 | 2.47 | 0.48 |
| 1:1:39:A:H5" | 31:a:35:ALA:HB2 | 1.96 | 0.48 |
| 1:1:542:G:O6 | 1:1:549:U:O4 | 2.32 | 0.48 |
| 1:1:802:C:H41 | 31:a:25:HIS:HB3 | 1.79 | 0.48 |
| 1:1:1029:G:H2' | 1:1:1030:A:C8 | 2.48 | 0.48 |
| 1:1:2555:G:H1' | 37:g:92:ALA:HB2 | 1.96 | 0.48 |
| 5:P2:133:LEU:HD22 | 5:P2:137:GLN:HB2 | 1.96 | 0.48 |
| 15:J:109:HIS:CD2 | 15:J:123:PHE:H | 2.32 | 0.48 |
| 18:N:66:VAL:HG22 | 18:N:102:ALA:HB2 | 1.95 | 0.48 |
| 28:X:86:VAL:HG21 | 28:X:95:ILE:HD11 | 1.95 | 0.48 |
| 47:2:1756:A:H2 | 82:AY:50:U:OP2 | 1.96 | 0.48 |
| 48:q:13:ASP:HB3 | 48:q:17:LEU:HD13 | 1.95 | 0.48 |
| 49:r:92:GLN:HE22 | 49:r:228:LEU:HD11 | 1.79 | 0.48 |
| 56:y:87:ASN:ND2 | 56:y:89:GLU:OE2 | 2.47 | 0.48 |
| 57:z:22:SER:O | 57:z:26:ALA:N | 2.46 | 0.48 |
| 65:AH:17:ILE:HG22 | 65:AH:24:LEU:HD11 | 1.96 | 0.48 |
| 67:AJ:105:LEU:HD13 | 67:AJ:122:ARG:HH22 | 1.79 | 0.48 |
| 83:AZ:840:ASP:N | 83:AZ:840:ASP:OD1 | 2.46 | 0.48 |
| 1:1:411:U:H2' | 1:1:412:G:H8 | 1.79 | 0.48 |
| 11:F:110:ARG:HH21 | 21:Q:3:ILE:HG23 | 1.79 | 0.48 |
| 16:L:52:ASP:HB3 | 16:L:141:ALA:HB3 | 1.96 | 0.48 |
| 47:2:445:A:H61 | 47:2:462:G:H1' | 1.79 | 0.48 |
| 47:2:507:U:O2 | 47:2:507:U:H2' | 2.13 | 0.48 |
| 47:2:1219:A:O2' | 58:AA:47:GLN:O | 2.29 | 0.48 |
| 47:2:1512:G:N3 | 47:2:1518:C:O2' | 2.34 | 0.48 |
| 47:2:1641:C:H2' | 47:2:1642:G:H8 | 1.79 | 0.48 |
| 47:2:1688:U:H3 | 47:2:1713:G:H1 | 1.62 | 0.48 |
| 50:s:227:PRO:HA | 50:s:230:TRP:CD2 | 2.49 | 0.48 |
| 57:z:20:GLU:OE1 | 57:z:23:ARG:N | 2.42 | 0.48 |
| 65:AH:5:ARG:NH1 | 65:AH:49:LYS:O | 2.47 | 0.48 |
| 66:AI:100:THR:HB | 66:AI:105:VAL:HA | 1.96 | 0.48 |
| 67:AJ:65:ILE:HA | 67:AJ:68:ARG:HH21 | 1.78 | 0.48 |
| 1:1:68:C:N4 | 1:1:314:U:O2' | 2.46 | 0.48 |
| 1:1:69:C:OP1 | 18:N:178:HIS:ND1 | 2.37 | 0.48 |
| 1:1:417:A:H2' | 1:1:418:A:C8 | 2.49 | 0.48 |
| 1:1:2248:C:N4 | 1:1:2312:A:OP2 | 2.46 | 0.48 |
| 8:C:55:LYS:HB3 | 8:C:59:GLN:HE21 | 1.79 | 0.48 |
| 8:C:299:ILE:HG23 | 21:Q:39:ARG:HB3 | 1.95 | 0.48 |
| 19:O:110:PRO:O | 19:O:112:TYR:N | 2.46 | 0.48 |
| 23:S:89:ASN:ND2 | 24:T:156:TYR:O | 2.37 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 36:f:69:GLY:HA2 | 36:f:85:PHE:HA | 1.96 | 0.48 |
| 46:p:38:ASP:OD1 | 46:p:38:ASP:N | 2.47 | 0.48 |
| 47:2:538:A:OP2 | 57:z:175:ARG:NH1 | 2.47 | 0.48 |
| 47:2:631:G:N2 | 47:2:1104:U:OP1 | 2.47 | 0.48 |
| 47:2:732:G:O2' | 47:2:733:A:O4' | 2.31 | 0.48 |
| 47:2:1101:G:H21 | 70:AM:4:SER:HG | 1.58 | 0.48 |
| 47:2:1411:A:O2' | 47:2:1415:U:O2 | 2.30 | 0.48 |
| 47:2:1499:G:O6 | 47:2:1508:U:O4 | 2.32 | 0.48 |
| 52:u:128:LYS:NZ | 52:u:138:TYR:OH | 2.47 | 0.48 |
| 68:AK:85:ARG:HE | 68:AK:87:HIS:HD2 | 1.62 | 0.48 |
| 1:1:297:G:OP2 | 1:1:297:G:N2 | 2.37 | 0.47 |
| 6:A:201:GLY:HA2 | 6:A:204:MET:HE2 | 1.96 | 0.47 |
| 7:B:215:ILE:HD13 | 7:B:338:LEU:HD12 | 1.96 | 0.47 |
| 12:G:112:GLU:HB2 | 12:G:116:VAL:HG23 | 1.95 | 0.47 |
| 17:M:9:ALA:HB1 | 17:M:11:ASN:HB2 | 1.96 | 0.47 |
| 30:Z:95:VAL:HG23 | 30:Z:96:VAL:HG23 | 1.95 | 0.47 |
| 34:d:8:VAL:HG23 | 34:d:10:ARG:HH11 | 1.78 | 0.47 |
| 39:i:8:ALA:HA | 39:i:13:LYS:HD2 | 1.96 | 0.47 |
| 47:2:1389:C:N4 | 47:2:1391:A:O4' | 2.47 | 0.47 |
| 47:2:1534:G:N1 | 73:AP:98:GLN:OE1 | 2.47 | 0.47 |
| 57:z:67:PRO:HA | 57:z:70:LEU:HB2 | 1.95 | 0.47 |
| 58:AA:71:GLU:O | 58:AA:75:TYR:N | 2.47 | 0.47 |
| 63:AF:90:ILE:HG13 | 63:AF:107:ILE:HG22 | 1.96 | 0.47 |
| 79:AV:248:ASN:ND2 | 79:AV:297:ASP:O | 2.47 | 0.47 |
| 83:AZ:626:ASP:OD2 | 83:AZ:628:THR:OG1 | 2.30 | 0.47 |
| 1:1:89:A:OP2 | 21:Q:170:ARG:NH1 | 2.46 | 0.47 |
| 1:1:612:U:H2' | 1:1:613:G:H8 | 1.79 | 0.47 |
| 1:1:655:C:H2' | 1:1:656:A:C8 | 2.48 | 0.47 |
| 1:1:1232:C:H2' | 1:1:1233:G:C8 | 2.49 | 0.47 |
| 1:1:1483:G:O6 | 1:1:1873:U:O4 | 2.33 | 0.47 |
| 1:1:1622:U:H2' | 1:1:1623:G:H8 | 1.79 | 0.47 |
| 1:1:1834:U:OP1 | 42:l:5:LYS:NZ | 2.39 | 0.47 |
| 1:1:2703:A:N1 | 9:D:23:ARG:NH2 | 2.62 | 0.47 |
| 1:1:2945:G:O2' | 1:1:2948:C:OP2 | 2.24 | 0.47 |
| 1:1:3152:U:H5" | 1:1:3293:U:H1' | 1.95 | 0.47 |
| 11:F:158:LYS:H | 11:F:158:LYS:HD2 | 1.79 | 0.47 |
| 36:f:6:ARG:HH12 | 36:f:10:LYS:HE3 | 1.78 | 0.47 |
| 41:k:59:ALA:O | 41:k:63:LYS:N | 2.46 | 0.47 |
| 52:u:125:LYS:HD3 | 52:u:226:PHE:HD1 | 1.79 | 0.47 |
| 53:v:174:LEU:HA | 53:v:177:ILE:HB | 1.96 | 0.47 |
| 58:AA:21:VAL:HG11 | 58:AA:46:LEU:HG | 1.96 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 59:AB:65:SER:H | 59:AB:67:ARG:HH22 | 1.62 | 0.47 |
| 67:AJ:22:LEU:HD13 | 67:AJ:25:GLN:HG3 | 1.95 | 0.47 |
| 79:AV:305:TYR:HE2 | 79:AV:311:ARG:HB2 | 1.79 | 0.47 |
| 83:AZ:304:GLU:O | 83:AZ:326:LYS:NZ | 2.40 | 0.47 |
| 1:1:591:G:O2' | 10:E:17:ALA:O | 2.29 | 0.47 |
| 1:1:1175:C:O2' | 19:O:87:MET:O | 2.29 | 0.47 |
| 3:4:8:C:H2' | 3:4:9:A:C8 | 2.50 | 0.47 |
| 7:B:45:SER:HB2 | 7:B:181:ILE:HG22 | 1.95 | 0.47 |
| 10:E:35:VAL:O | 10:E:38:THR:OG1 | 2.30 | 0.47 |
| 16:L:50:PRO:HG3 | 38:h:118:ILE:HD11 | 1.96 | 0.47 |
| 19:O:34:VAL:HG22 | 19:O:103:LYS:H | 1.79 | 0.47 |
| 47:2:432:G:OP1 | 83:AZ:391:LYS:NZ | 2.37 | 0.47 |
| 47:2:811:A:C5 | 55:x:110:GLN:HB3 | 2.49 | 0.47 |
| 47:2:925:G:H2' | 47:2:926:A:H8 | 1.79 | 0.47 |
| 47:2:1208:A:H1' | 47:2:1269:U:H1' | 1.96 | 0.47 |
| 47:2:1673:G:H1 | 47:2:1728:A:H2 | 1.54 | 0.47 |
| 61:AD:135:LEU:HD13 | 61:AD:136:PRO:HD2 | 1.96 | 0.47 |
| 1:1:196:G:N1 | 1:1:199:A:OP2 | 2.35 | 0.47 |
| 1:1:860:G:H5' | 1:1:861:C:H5" | 1.95 | 0.47 |
| 1:1:1354:G:H1 | 1:1:1357:G:HO2' | 1.59 | 0.47 |
| 1:1:1942:U:HO2' | 1:1:3345:G:HO2' | 1.61 | 0.47 |
| 1:1:2748:A:O3' | 9:D:48:LYS:NZ | 2.46 | 0.47 |
| 2:3:63:A:OP1 | 9:D:285:ARG:NH1 | 2.48 | 0.47 |
| 6:A:178:PRO:HB2 | 6:A:180:LEU:HD22 | 1.96 | 0.47 |
| 7:B:218:ILE:HB | 7:B:276:THR:HG23 | 1.97 | 0.47 |
| 15:J:43:GLN:HE22 | 15:J:71:VAL:HG13 | 1.79 | 0.47 |
| 23:S:32:SER:H | 23:S:36:ILE:HD11 | 1.79 | 0.47 |
| 47:2:762:A:H5" | 57:z:79:ARG:HH12 | 1.79 | 0.47 |
| 47:2:1148:C:H2' | 47:2:1149:G:H8 | 1.79 | 0.47 |
| 47:2:1548:G:H1' | 66:AI:89:GLN:HE21 | 1.79 | 0.47 |
| 53:v:189:THR:OG1 | 53:v:192:GLU:OE1 | 2.32 | 0.47 |
| 67:AJ:83:ALA:HB1 | 67:AJ:91:TYR:HB3 | 1.97 | 0.47 |
| 73:AP:48:ASP:HA | 73:AP:51:LEU:HD13 | 1.96 | 0.47 |
| 79:AV:252:LEU:N | 79:AV:263:PHE:O | 2.47 | 0.47 |
| 83:AZ:393:ARG:NH1 | 83:AZ:461:GLN:OE1 | 2.40 | 0.47 |
| 1:1:292:U:OP2 | 18:N:68:ARG:NH2 | 2.48 | 0.47 |
| 1:1:661:G:OP2 | 1:1:661:G:N2 | 2.42 | 0.47 |
| 1:1:1666:G:H2' | 1:1:1667:A:H8 | 1.80 | 0.47 |
| 1:1:2340:U:H2' | 1:1:2341:A:H8 | 1.79 | 0.47 |
| 1:1:3114:A:OP1 | 13:H:69:ARG:NH1 | 2.48 | 0.47 |
| 23:S:123:ILE:HG21 | 23:S:126:VAL:HG13 | 1.95 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:142:G:H22 | 47:2:173:A:H2 | 1.62 | 0.47 |
| 48:q:57:LEU:O | 48:q:61:ALA:N | 2.47 | 0.47 |
| 52:u:200:ARG:NH2 | 52:u:206:ASP:OD1 | 2.47 | 0.47 |
| 81:AX:54:U:C2 | 81:AX:58:A:N7 | 2.82 | 0.47 |
| 1:1:836:A:O2' | 46:p:9:GLY:O | 2.26 | 0.47 |
| 1:1:1827:C:H2' | 1:1:1828:A:C8 | 2.50 | 0.47 |
| 1:1:2424:A:H3' | 1:1:2425:G:H8 | 1.79 | 0.47 |
| 1:1:2899:C:O2 | 13:H:173:ARG:NH2 | 2.48 | 0.47 |
| 3:4:8:C:H2' | 3:4:9:A:H8 | 1.79 | 0.47 |
| 7:B:223:GLY:HA2 | 7:B:271:GLY:HA3 | 1.97 | 0.47 |
| 8:C:288:ARG:O | 8:C:292:SER:N | 2.47 | 0.47 |
| 20:P:30:ARG:NH1 | 20:P:31:GLU:OE1 | 2.44 | 0.47 |
| 47:2:406:U:O2' | 54:w:94:ARG:NH2 | 2.48 | 0.47 |
| 47:2:756:A:O3' | 52:u:16:HIS:NE2 | 2.48 | 0.47 |
| 47:2:818:C:N3 | 47:2:819:G:N1 | 2.62 | 0.47 |
| 47:2:1642:G:N3 | 47:2:1781:A:O2' | 2.41 | 0.47 |
| 51:t:51:ARG:HG2 | 51:t:91:VAL:HG23 | 1.97 | 0.47 |
| 71:AN:86:PHE:HB2 | 71:AN:120:VAL:HG11 | 1.97 | 0.47 |
| 71:AN:103:LEU:HB3 | 71:AN:126:LYS:HB3 | 1.96 | 0.47 |
| 83:AZ:524:GLU:HG2 | 83:AZ:562:ALA:HB2 | 1.96 | 0.47 |
| 83:AZ:571:SER:H | 83:AZ:720:ALA:HB2 | 1.78 | 0.47 |
| 83:AZ:818:ILE:O | 83:AZ:822:ALA:CB | 2.61 | 0.47 |
| 1:1:707:U:H2' | 1:1:708:G:C8 | 2.50 | 0.47 |
| 1:1:1350:A:N6 | 1:1:1354:G:OP2 | 2.47 | 0.47 |
| 1:1:1551:C:HO2' | 1:1:2170:U:HO2' | 1.59 | 0.47 |
| 1:1:2178:A:O2' | 6:A:152:SER:OG | 2.33 | 0.47 |
| 1:1:2207:A:H61 | 1:1:2236:G:H1 | 1.63 | 0.47 |
| 1:1:2519:A:H2' | 1:1:2520:A:C8 | 2.50 | 0.47 |
| 1:1:2666:C:OP2 | 1:1:2687:G:N1 | 2.37 | 0.47 |
| 1:1:2916:U:H2' | 1:1:2917:G:H8 | 1.80 | 0.47 |
| 1:1:3304:U:H4' | 7:B:331:ASN:HD21 | 1.79 | 0.47 |
| 2:3:11:A:N6 | 9:D:16:PHE:O | 2.48 | 0.47 |
| 5:P2:115:GLN:HA | 5:P2:119:LYS:NZ | 2.30 | 0.47 |
| 6:A:247:ARG:HE | 6:A:249:SER:HG | 1.60 | 0.47 |
| 9:D:125:VAL:HG22 | 9:D:199:ILE:HD13 | 1.96 | 0.47 |
| 16:L:124:ILE:HD11 | 38:h:117:ALA:HB3 | 1.97 | 0.47 |
| 20:P:16:SER:O | 20:P:101:ASN:ND2 | 2.48 | 0.47 |
| 20:P:92:GLN:HA | 20:P:95:LEU:HG | 1.96 | 0.47 |
| 34:d:72:ARG:NH1 | 34:d:104:LEU:O | 2.48 | 0.47 |
| 47:2:629:U:H5" | 61:AD:127:ARG:HH22 | 1.80 | 0.47 |
| 47:2:1181:U:O2' | 63:AF:127:ARG:NE | 2.40 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1517:U:OP2 | 47:2:1518:C:N4 | 2.38 | 0.47 |
| 51:t:34:TYR:HE1 | 51:t:37:VAL:HG13 | 1.78 | 0.47 |
| 51:t:168:ILE:HA | 51:t:189:MET:HA | 1.97 | 0.47 |
| 54:w:20:ASP:HB3 | 54:w:23:ARG:HB2 | 1.96 | 0.47 |
| 55:x:127:GLU:HG2 | 55:x:135:ILE:HD13 | 1.97 | 0.47 |
| 58:AA:82:LEU:HD22 | 58:AA:83:PRO:HD2 | 1.96 | 0.47 |
| 61:AD:17:PRO:HG3 | 75:AR:28:PRO:HG3 | 1.97 | 0.47 |
| 72:AO:126:ALA:HA | 72:AO:129:VAL:HG12 | 1.97 | 0.47 |
| 79:AV:34:LEU:HD11 | 79:AV:42:LEU:HB3 | 1.95 | 0.47 |
| 83:AZ:103:ILE:HD11 | 83:AZ:122:THR:HB | 1.97 | 0.47 |
| 83:AZ:575:ALA:O | 83:AZ:587:TYR:HA | 2.14 | 0.47 |
| 1:1:355:A:O2' | 42:l:39:ALA:O | 2.33 | 0.47 |
| 1:1:713:U:O2' | 1:1:754:G:OP1 | 2.29 | 0.47 |
| 1:1:2750:U:OP2 | 24:T:69:LYS:NZ | 2.43 | 0.47 |
| 1:1:3004:C:O2' | 7:B:99:LEU:N | 2.48 | 0.47 |
| 15:J:91:LEU:HD13 | 15:J:95:ASN:HD22 | 1.79 | 0.47 |
| 21:Q:51:ALA:HB1 | 21:Q:84:VAL:HG11 | 1.96 | 0.47 |
| 22:R:169:ALA:O | 22:R:173:ARG:NE | 2.41 | 0.47 |
| 22:R:172:ARG:HH21 | 47:2:852:C:H5" | 1.80 | 0.47 |
| 47:2:1108:G:H4' | 47:2:1109:G:H5" | 1.96 | 0.47 |
| 47:2:1192:C:H3' | 47:2:1193:A:C8 | 2.50 | 0.47 |
| 47:2:1584:G:N7 | 53:v:76:ARG:NH1 | 2.62 | 0.47 |
| 53:v:116:HIS:NE2 | 73:AP:93:SER:OG | 2.46 | 0.47 |
| 55:x:35:LYS:HD2 | 55:x:39:ARG:HB2 | 1.96 | 0.47 |
| 71:AN:62:LYS:CE | 71:AN:118:PRO:HD3 | 2.45 | 0.47 |
| 76:AS:49:ARG:N | 76:AS:52:ASP:OD2 | 2.47 | 0.47 |
| 79:AV:159:ASN:HB3 | 79:AV:163:ASP:HA | 1.96 | 0.47 |
| 1:1:216:G:OP1 | 29:Y:16:ARG:NH1 | 2.48 | 0.47 |
| 1:1:242:C:O2' | 1:1:243:G:N7 | 2.40 | 0.47 |
| 1:1:846:A:H2' | 1:1:847:A:C8 | 2.50 | 0.47 |
| 1:1:1497:C:H2' | 1:1:1498:A:H8 | 1.80 | 0.47 |
| 1:1:1863:G:N1 | 1:1:1866:C:OP2 | 2.46 | 0.47 |
| 3:4:64:U:O2' | 38:h:52:ALA:O | 2.32 | 0.47 |
| 8:C:351:PRO:HB3 | 11:F:70:LYS:HD2 | 1.96 | 0.47 |
| 11:F:96:PRO:HB2 | 11:F:99:PRO:HD2 | 1.97 | 0.47 |
| 12:G:240:ASN:HA | 12:G:243:GLN:HB3 | 1.97 | 0.47 |
| 13:H:173:ARG:HB2 | 43:m:127:LEU:HD22 | 1.95 | 0.47 |
| 14:I:171:TRP:HE3 | 14:I:178:ARG:HG3 | 1.79 | 0.47 |
| 24:T:34:TYR:OH | 24:T:96:ILE:O | 2.33 | 0.47 |
| 47:2:513:U:H2' | 47:2:514:G:C8 | 2.50 | 0.47 |
| 47:2:1030:A:N6 | 47:2:1792:G:N7 | 2.62 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1156:C:H2' | 47:2:1157:A:H8 | 1.80 | 0.47 |
| 48:q:27:ARG:NH1 | 48:q:43:ASP:O | 2.48 | 0.47 |
| 49:r:114:VAL:HG12 | 49:r:120:LEU:HD21 | 1.97 | 0.47 |
| 53:v:188:LYS:HA | 73:AP:63:SER:HB3 | 1.96 | 0.47 |
| 54:w:72:ARG:HA | 54:w:98:ARG:HA | 1.96 | 0.47 |
| 83:AZ:593:ILE:HD11 | 83:AZ:685:ARG:HB2 | 1.96 | 0.47 |
| 1:1:644:G:N2 | 1:1:2372:A:O4' | 2.47 | 0.47 |
| 1:1:1203:A:H4' | 2:3:91:G:H22 | 1.80 | 0.47 |
| 12:G:97:TYR:HB3 | 12:G:131:ALA:HA | 1.97 | 0.47 |
| 19:O:51:LYS:O | 19:O:55:HIS:N | 2.48 | 0.47 |
| 47:2:318:U:O2 | 47:2:346:G:O6 | 2.33 | 0.47 |
| 47:2:568:G:N7 | 71:AN:69:ARG:NH1 | 2.63 | 0.47 |
| 47:2:1165:G:O2' | 47:2:1166:A:O5' | 2.31 | 0.47 |
| 52:u:89:VAL:HB | 52:u:100:ARG:HE | 1.79 | 0.47 |
| 58:AA:56:LYS:H | 58:AA:69:THR:HG21 | 1.80 | 0.47 |
| 69:AL:21:ASN:OD1 | 70:AM:23:ARG:NH1 | 2.44 | 0.47 |
| 81:AX:10:G:O6 | 81:AX:44:A:N6 | 2.48 | 0.47 |
| 1:1:286:U:H2' | 1:1:287:G:C8 | 2.49 | 0.46 |
| 1:1:837:A:N6 | 1:1:856:G:O2' | 2.48 | 0.46 |
| 1:1:1231:A:O2' | 1:1:1278:A:N6 | 2.49 | 0.46 |
| 1:1:1336:U:H2' | 1:1:1337:A:C8 | 2.50 | 0.46 |
| 1:1:1836:C:H2' | 1:1:1837:U:H6 | 1.80 | 0.46 |
| 3:4:9:A:H2' | 3:4:10:A:C8 | 2.50 | 0.46 |
| 3:4:91:C:H2' | 3:4:92:A:C8 | 2.50 | 0.46 |
| 8:C:154:THR:OG1 | 8:C:252:GLU:OE2 | 2.33 | 0.46 |
| 9:D:284:ALA:O | 9:D:288:ALA:N | 2.47 | 0.46 |
| 19:O:160:ARG:O | 19:O:164:SER:N | 2.48 | 0.46 |
| 47:2:1045:C:H2' | 47:2:1046:G:C8 | 2.50 | 0.46 |
| 47:2:1320:U:N3 | 47:2:1323:C:OP1 | 2.47 | 0.46 |
| 47:2:1382:A:H1' | 68:AK:57:ARG:HH21 | 1.81 | 0.46 |
| 47:2:1533:C:OP2 | 73:AP:77:ARG:NH2 | 2.48 | 0.46 |
| 47:2:1544:U:OP1 | 66:AI:136:GLN:NE2 | 2.48 | 0.46 |
| 51:t:29:LEU:HG | 51:t:32:GLU:HB3 | 1.98 | 0.46 |
| 54:w:135:PRO:HD2 | 54:w:158:ILE:HG13 | 1.97 | 0.46 |
| 61:AD:38:VAL:HA | 61:AD:41:ALA:HB3 | 1.97 | 0.46 |
| 79:AV:292:LEU:HD12 | 79:AV:301:LEU:HD11 | 1.96 | 0.46 |
| 80:AW:123:ASN:HB3 | 80:AW:126:CYS:HB2 | 1.96 | 0.46 |
| 83:AZ:278:LEU:HD12 | 83:AZ:281:ILE:HB | 1.96 | 0.46 |
| 83:AZ:409:GLN:HE22 | 83:AZ:411:VAL:HB | 1.80 | 0.46 |
| 1:1:3255:U:H2' | 1:1:3256:G:H8 | 1.80 | 0.46 |
| 12:G:97:TYR:HB2 | 12:G:132:VAL:HG13 | 1.97 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 30:Z:76:ASN:HD21 | 30:Z:78:ASN:HD22 | 1.63 | 0.46 |
| 31:a:73:LEU:HD21 | 31:a:81:LEU:HD11 | 1.97 | 0.46 |
| 38:h:67:ARG:HG2 | 38:h:80:LEU:HD21 | 1.96 | 0.46 |
| 47:2:416:A:N6 | 83:AZ:47:SER:OG | 2.48 | 0.46 |
| 47:2:477:A:OP1 | 78:AU:31:LYS:N | 2.45 | 0.46 |
| 54:w:145:PHE:HB2 | 54:w:147:LEU:HG | 1.97 | 0.46 |
| 71:AN:144:ARG:HH11 | 83:AZ:464:LEU:HD23 | 1.79 | 0.46 |
| 79:AV:66:HIS:CD2 | 79:AV:85:TRP:HB2 | 2.49 | 0.46 |
| 83:AZ:283:ARG:O | 83:AZ:287:ALA:HB2 | 2.16 | 0.46 |
| 1:1:214:G:H2' | 1:1:215:G:C8 | 2.50 | 0.46 |
| 1:1:399:A:HO2' | 1:1:403:C:HO2' | 1.57 | 0.46 |
| 1:1:836:A:N7 | 1:1:856:G:N2 | 2.64 | 0.46 |
| 1:1:1717:U:H2' | 1:1:1718:G:H8 | 1.80 | 0.46 |
| 1:1:2112:U:O2 | 1:1:2113:A:N6 | 2.49 | 0.46 |
| 1:1:2526:C:H2' | 1:1:2527:G:C8 | 2.50 | 0.46 |
| 16:L:71:ALA:HB2 | 16:L:147:ILE:HD11 | 1.97 | 0.46 |
| 27:W:52:THR:HG23 | 27:W:55:PHE:H | 1.80 | 0.46 |
| 29:Y:60:ARG:HB2 | 29:Y:103:LYS:HD2 | 1.97 | 0.46 |
| 47:2:107:C:H2' | 47:2:108:A:H8 | 1.80 | 0.46 |
| 47:2:1546:G:OP2 | 66:AI:134:ARG:NE | 2.46 | 0.46 |
| 53:v:222:LYS:NZ | 76:AS:57:MET:O | 2.49 | 0.46 |
| 71:AN:96:VAL:HG13 | 71:AN:127:VAL:HG21 | 1.97 | 0.46 |
| 81:AX:21:A:N6 | 81:AX:48:C:OP2 | 2.47 | 0.46 |
| 1:1:647:A:O2' | 1:1:649:A:OP1 | 2.33 | 0.46 |
| 1:1:951:A:O2' | 1:1:969:C:O2' | 2.33 | 0.46 |
| 1:1:1236:G:H1' | 1:1:1245:A:H1' | 1.98 | 0.46 |
| 1:1:2802:A:H4' | 45:o:58:PHE:HA | 1.97 | 0.46 |
| 1:1:3250:U:H2' | 1:1:3251:U:H6 | 1.80 | 0.46 |
| 9:D:120:LYS:NZ | 9:D:123:GLU:OE1 | 2.47 | 0.46 |
| 10:E:12:SER:OG | 10:E:14:ASP:OD1 | 2.33 | 0.46 |
| 10:E:131:LYS:HG3 | 10:E:133:GLU:H | 1.80 | 0.46 |
| 47:2:717:C:N4 | 47:2:723:G:O6 | 2.48 | 0.46 |
| 47:2:1547:A:OP2 | 66:AI:123:ARG:NH2 | 2.49 | 0.46 |
| 47:2:1616:G:N2 | 76:AS:22:ARG:O | 2.35 | 0.46 |
| 48:q:167:LYS:HE3 | 48:q:203:PHE:HB3 | 1.96 | 0.46 |
| 59:AB:132:SER:HG | 59:AB:135:VAL:H | 1.60 | 0.46 |
| 62:AE:92:LYS:NZ | 62:AE:120:PRO:O | 2.49 | 0.46 |
| 67:AJ:20:SER:O | 67:AJ:24:ARG:NH1 | 2.46 | 0.46 |
| 79:AV:59:ARG:HH21 | 79:AV:94:VAL:HG12 | 1.80 | 0.46 |
| 83:AZ:563:TYR:HE2 | 83:AZ:818:ILE:HD12 | 1.81 | 0.46 |
| 83:AZ:711:ARG:O | 83:AZ:715:ALA:CB | 2.64 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:1348:U:O2 | 1:1:1349:G:N2 | 2.37 | 0.46 |
| 1:1:2154:U:H2' | 1:1:2155:G:H8 | 1.80 | 0.46 |
| 1:1:2661:G:H2' | 1:1:2662:G:H8 | 1.80 | 0.46 |
| 1:1:2918:G:H2' | 1:1:2919:A:C8 | 2.50 | 0.46 |
| 1:1:3058:U:OP2 | 34:d:28:ARG:NH2 | 2.49 | 0.46 |
| 1:1:3222:U:O2 | 1:1:3263:G:N2 | 2.35 | 0.46 |
| 2:3:18:C:OP2 | 15:J:150:ASN:ND2 | 2.47 | 0.46 |
| 3:4:41:A:H62 | 3:4:103:G:H21 | 1.64 | 0.46 |
| 6:A:108:PRO:HG2 | 46:p:86:LEU:HD11 | 1.98 | 0.46 |
| 11:F:80:GLN:HB3 | 24:T:135:PRO:HB2 | 1.96 | 0.46 |
| 38:h:17:LEU:HD22 | 38:h:58:ILE:HG23 | 1.98 | 0.46 |
| 47:2:118:U:H3 | 47:2:298:C:H42 | 1.63 | 0.46 |
| 47:2:299:A:H2' | 47:2:300:A:H8 | 1.81 | 0.46 |
| 47:2:748:U:O2 | 47:2:801:G:O6 | 2.33 | 0.46 |
| 47:2:864:U:H5 | 70:AM:28:ARG:HE | 1.63 | 0.46 |
| 47:2:1149:G:N3 | 47:2:1765:A:O2' | 2.46 | 0.46 |
| 47:2:1277:G:H21 | 51:t:174:HIS:HE1 | 1.64 | 0.46 |
| 47:2:1524:A:H2' | 47:2:1525:A:C8 | 2.51 | 0.46 |
| 47:2:1591:C:H2' | 47:2:1592:A:C8 | 2.50 | 0.46 |
| 83:AZ:669:TRP:HA | 83:AZ:670:ALA:HA | 1.66 | 0.46 |
| 1:1:213:A:O2' | 29:Y:3:LYS:NZ | 2.46 | 0.46 |
| 1:1:673:U:H2' | 1:1:674:G:H8 | 1.81 | 0.46 |
| 1:1:964:G:OP2 | 1:1:1115:G:N1 | 2.46 | 0.46 |
| 1:1:1187:C:OP1 | 13:H:2:LYS:NZ | 2.42 | 0.46 |
| 1:1:1783:U:H2' | 1:1:1784:G:C8 | 2.51 | 0.46 |
| 2:3:107:C:H2' | 2:3:108:A:C8 | 2.50 | 0.46 |
| 10:E:55:LEU:HD21 | 10:E:98:VAL:HG22 | 1.96 | 0.46 |
| 38:h:44:ILE:HA | 38:h:47:VAL:HG12 | 1.97 | 0.46 |
| 38:h:93:THR:N | 38:h:96:GLU:OE2 | 2.48 | 0.46 |
| 47:2:609:U:O2' | 71:AN:19:ARG:NH2 | 2.45 | 0.46 |
| 47:2:1758:U:C4 | 47:2:1759:C:C4 | 3.04 | 0.46 |
| 54:w:7:TYR:HD1 | 54:w:113:ILE:HB | 1.81 | 0.46 |
| 55:x:14:THR:HG23 | 55:x:17:GLU:H | 1.80 | 0.46 |
| 57:z:78:ARG:O | 57:z:82:ARG:N | 2.49 | 0.46 |
| 74:AQ:79:ILE:HB | 74:AQ:85:ARG:HA | 1.97 | 0.46 |
| 1:1:1119:C:H2' | 1:1:1120:A:C8 | 2.50 | 0.46 |
| 1:1:1695:U:O2' | 1:1:1749:A:N1 | 2.38 | 0.46 |
| 1:1:3229:G:H2' | 1:1:3230:G:H8 | 1.80 | 0.46 |
| 47:2:645:C:H2' | 47:2:646:C:H6 | 1.80 | 0.46 |
| 47:2:1068:C:H2' | 47:2:1069:A:H8 | 1.80 | 0.46 |
| 47:2:1113:A:H62 | 47:2:1132:A:H62 | 1.64 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1532:U:OP2 | 73:AP:77:ARG:NH1 | 2.49 | 0.46 |
| 66:AI:73:MET:O | 66:AI:99:HIS:NE2 | 2.48 | 0.46 |
| 83:AZ:6:VAL:HA | 83:AZ:7:ASP:HA | 1.68 | 0.46 |
| 1:1:63:A:N3 | 1:1:78:U:O2' | 2.42 | 0.46 |
| 1:1:1018:G:H22 | 1:1:1034:U:H3 | 1.64 | 0.46 |
| 1:1:1019:G:H2' | 1:1:1020:G:C8 | 2.50 | 0.46 |
| 3:4:95:G:H1' | 40:j:81:GLY:HA2 | 1.98 | 0.46 |
| 18:N:84:PRO:HA | 18:N:87:GLN:HB2 | 1.96 | 0.46 |
| 23:S:155:ARG:NE | 23:S:171:PHE:O | 2.49 | 0.46 |
| 47:2:610:G:HO2' | 47:2:613:G:HO2' | 1.58 | 0.46 |
| 47:2:918:U:H2' | 47:2:919:A:C8 | 2.50 | 0.46 |
| 47:2:1148:C:H2' | 47:2:1149:G:C8 | 2.50 | 0.46 |
| 47:2:1235:C:H1' | 80:AW:138:ARG:HH12 | 1.81 | 0.46 |
| 47:2:1524:A:H2' | 47:2:1525:A:H8 | 1.80 | 0.46 |
| 47:2:1761:U:C5 | 82:AY:47:U:H5" | 2.50 | 0.46 |
| 47:2:1792:G:OP1 | 74:AQ:8:ASN:ND2 | 2.45 | 0.46 |
| 51:t:75:LYS:HZ3 | 51:t:81:PRO:HD3 | 1.80 | 0.46 |
| 53:v:183:ALA:HA | 53:v:186:ASN:HD21 | 1.80 | 0.46 |
| 63:AF:118:GLU:O | 66:AI:122:HIS:N | 2.45 | 0.46 |
| 72:AO:41:ARG:HH22 | 72:AO:53:ASP:HA | 1.81 | 0.46 |
| 76:AS:10:ALA:HA | 76:AS:32:PHE:HA | 1.97 | 0.46 |
| 1:1:157:A:N7 | 39:i:26:ILE:HD13 | 2.31 | 0.46 |
| 1:1:609:G:OP2 | 8:C:315:LYS:NZ | 2.44 | 0.46 |
| 1:1:952:A:N7 | 1:1:1142:G:N2 | 2.64 | 0.46 |
| 1:1:2366:C:H2' | 1:1:2367:A:H8 | 1.80 | 0.46 |
| 1:1:2696:A:C6 | 1:1:2758:A:C2 | 3.03 | 0.46 |
| 18:N:11:GLN:OE1 | 18:N:44:ARG:NE | 2.42 | 0.46 |
| 20:P:19:GLY:N | 20:P:146:ILE:O | 2.43 | 0.46 |
| 26:V:101:VAL:HG11 | 26:V:109:MET:HE2 | 1.98 | 0.46 |
| 47:2:826:U:O2 | 47:2:846:G:N2 | 2.33 | 0.46 |
| 47:2:884:A:H2' | 47:2:885:G:C8 | 2.51 | 0.46 |
| 50:s:167:VAL:HG21 | 50:s:214:ALA:HA | 1.98 | 0.46 |
| 72:AO:56:SER:O | 72:AO:74:LEU:N | 2.49 | 0.46 |
| 83:AZ:506:GLU:HA | 83:AZ:509:LYS:HG2 | 1.98 | 0.46 |
| 1:1:13:A:O2' | 1:1:15:C:OP2 | 2.30 | 0.46 |
| 1:1:1618:G:H2' | 1:1:1619:A:C8 | 2.51 | 0.46 |
| 1:1:2158:A:O2' | 6:A:118:GLU:OE2 | 2.33 | 0.46 |
| 1:1:2950:G:H22 | 1:1:2979:U:H2' | 1.80 | 0.46 |
| 2:3:31:U:O2' | 9:D:218:ARG:NH2 | 2.36 | 0.46 |
| 7:B:46:PHE:O | 7:B:337:THR:OG1 | 2.32 | 0.46 |
| 14:I:42:THR:OG1 | 14:I:45:GLU:OE1 | 2.29 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:I:42:THR:N | 14:I:45:GLU:OE2 | 2.49 | 0.46 |
| 47:2:454:U:O2' | 47:2:455:C:O4' | 2.31 | 0.46 |
| 47:2:1001:A:OP1 | 81:AX:38:A:O2' | 2.31 | 0.46 |
| 47:2:1474:G:H2' | 47:2:1475:A:C8 | 2.51 | 0.46 |
| 47:2:1673:G:C6 | 47:2:1728:A:N1 | 2.84 | 0.46 |
| 48:q:72:ASP:OD2 | 48:q:119:ARG:N | 2.49 | 0.46 |
| 52:u:193:GLY:HA3 | 52:u:210:ILE:HG23 | 1.98 | 0.46 |
| 54:w:98:ARG:NH2 | 54:w:105:ASP:OD2 | 2.49 | 0.46 |
| 79:AV:131:ILE:HB | 79:AV:144:LEU:HD13 | 1.98 | 0.46 |
| 79:AV:241:PHE:N | 79:AV:255:ALA:O | 2.49 | 0.46 |
| 1:1:1158:A:OP1 | 11:F:91:GLY:N | 2.46 | 0.45 |
| 1:1:1342:C:H2' | 1:1:1343:A:C8 | 2.51 | 0.45 |
| 1:1:1785:U:H2' | 1:1:1786:G:C8 | 2.51 | 0.45 |
| 1:1:2521:U:O2' | 1:1:2524:A:OP1 | 2.27 | 0.45 |
| 1:1:2586:G:O2' | 1:1:2588:U:OP2 | 2.31 | 0.45 |
| 14:I:36:LEU:HG | 14:I:87:LEU:HB2 | 1.97 | 0.45 |
| 22:R:162:ARG:NH1 | 47:2:815:G:N3 | 2.64 | 0.45 |
| 28:X:53:HIS:CE1 | 28:X:56:ARG:HE | 2.34 | 0.45 |
| 42:l:29:LEU:O | 42:l:31:THR:N | 2.49 | 0.45 |
| 47:2:689:G:H2' | 47:2:690:G:C8 | 2.51 | 0.45 |
| 47:2:733:A:O2' | 47:2:735:C:N4 | 2.48 | 0.45 |
| 47:2:964:U:OP1 | 61:AD:128:TYR:OH | 2.33 | 0.45 |
| 47:2:1374:C:H2' | 47:2:1375:A:C8 | 2.52 | 0.45 |
| 47:2:1501:C:H2' | 47:2:1502:G:C8 | 2.51 | 0.45 |
| 49:r:39:GLU:HG3 | 49:r:40:ASN:H | 1.80 | 0.45 |
| 52:u:180:LEU:HG | 52:u:231:GLN:HA | 1.98 | 0.45 |
| 58:AA:32:HIS:HD2 | 58:AA:35:ILE:HB | 1.80 | 0.45 |
| 83:AZ:39:LEU:HD21 | 83:AZ:334:LEU:HD12 | 1.99 | 0.45 |
| 1:1:402:A:OP2 | 42:l:36:ARG:NH2 | 2.49 | 0.45 |
| 1:1:1231:A:H62 | 4:P0:110:ARG:HH22 | 1.63 | 0.45 |
| 1:1:1344:G:N3 | 11:F:159:GLN:NE2 | 2.64 | 0.45 |
| 1:1:2222:A:H2' | 1:1:2223:A:C8 | 2.51 | 0.45 |
| 15:J:165:GLN:CD | 15:J:166:LYS:H | 2.24 | 0.45 |
| 23:S:82:ASP:HA | 23:S:87:THR:HA | 1.98 | 0.45 |
| 44:n:9:ARG:NH2 | 47:2:1642:G:O2' | 2.49 | 0.45 |
| 47:2:381:C:O2' | 47:2:755:A:N1 | 2.45 | 0.45 |
| 47:2:891:A:H2' | 47:2:892:A:C8 | 2.51 | 0.45 |
| 47:2:1167:G:OP2 | 53:v:102:ARG:NH2 | 2.40 | 0.45 |
| 61:AD:63:ALA:HB3 | 61:AD:71:ILE:HD11 | 1.98 | 0.45 |
| 64:AG:127:LYS:HG3 | 64:AG:134:ALA:HA | 1.98 | 0.45 |
| 76:AS:41:VAL:HG12 | 76:AS:62:GLU:HB2 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 81:AX:50:U:H2' | 81:AX:51:G:H8 | 1.80 | 0.45 |
| 1:1:116:A:OP2 | 18:N:2:GLY:N | 2.50 | 0.45 |
| 1:1:590:G:C2 | 1:1:610:G:H2' | 2.52 | 0.45 |
| 1:1:842:G:H2' | 1:1:843:A:H8 | 1.81 | 0.45 |
| 1:1:966:U:H2' | 1:1:967:A:C8 | 2.51 | 0.45 |
| 1:1:2273:G:O2' | 1:1:2311:G:O6 | 2.27 | 0.45 |
| 1:1:2943:G:C8 | 7:B:2:SER:HB3 | 2.52 | 0.45 |
| 1:1:3101:G:H2' | 1:1:3102:G:H8 | 1.82 | 0.45 |
| 8:C:260:GLN:HA | 8:C:267:VAL:HG11 | 1.97 | 0.45 |
| 17:M:123:LEU:HB3 | 19:O:193:GLN:HE22 | 1.82 | 0.45 |
| 29:Y:58:VAL:HG13 | 29:Y:65:GLY:H | 1.80 | 0.45 |
| 37:g:41:ARG:NH2 | 37:g:51:LEU:O | 2.49 | 0.45 |
| 47:2:677:G:H21 | 47:2:678:A:H62 | 1.64 | 0.45 |
| 47:2:991:G:H1' | 47:2:1014:G:H22 | 1.82 | 0.45 |
| 48:q:184:LEU:HD12 | 69:AL:45:ALA:HB2 | 1.97 | 0.45 |
| 67:AJ:97:SER:O | 67:AJ:101:ASN:ND2 | 2.35 | 0.45 |
| 83:AZ:238:ALA:O | 83:AZ:242:ASP:CB | 2.63 | 0.45 |
| 83:AZ:583:HIS:HA | 83:AZ:694:HIS:HE1 | 1.81 | 0.45 |
| 1:1:50:U:H2' | 1:1:51:A:H8 | 1.82 | 0.45 |
| 1:1:417:A:H2' | 1:1:418:A:H8 | 1.82 | 0.45 |
| 1:1:534:U:H1' | 23:S:146:LYS:HE2 | 1.98 | 0.45 |
| 1:1:671:U:H2' | 1:1:672:A:C8 | 2.52 | 0.45 |
| 1:1:1231:A:H62 | 4:P0:110:ARG:NH1 | 2.12 | 0.45 |
| 1:1:3119:U:O3' | 43:m:111:ARG:NH1 | 2.50 | 0.45 |
| 6:A:202:VAL:HG12 | 6:A:217:GLN:HB3 | 1.97 | 0.45 |
| 7:B:19:ARG:HB2 | 7:B:273:HIS:CE1 | 2.51 | 0.45 |
| 10:E:41:ILE:N | 10:E:85:ILE:O | 2.48 | 0.45 |
| 15:J:32:ARG:HB2 | 15:J:120:ILE:HG23 | 1.97 | 0.45 |
| 18:N:65:ARG:HD3 | 18:N:127:TYR:CD1 | 2.52 | 0.45 |
| 45:o:65:THR:HG21 | 45:o:87:ARG:HB3 | 1.99 | 0.45 |
| 47:2:641:G:H2' | 47:2:642:G:H8 | 1.81 | 0.45 |
| 47:2:711:U:H2' | 47:2:712:G:C8 | 2.52 | 0.45 |
| 47:2:1018:U:H2' | 47:2:1019:A:H8 | 1.81 | 0.45 |
| 47:2:1698:G:N2 | 47:2:1703:C:N3 | 2.65 | 0.45 |
| 52:u:131:LEU:HD11 | 52:u:135:GLY:HA2 | 1.99 | 0.45 |
| 62:AE:13:VAL:N | 62:AE:77:THR:OG1 | 2.50 | 0.45 |
| 63:AF:105:VAL:HG12 | 63:AF:108:ARG:HH12 | 1.81 | 0.45 |
| 63:AF:119:PHE:HA | 66:AI:121:ALA:HA | 1.97 | 0.45 |
| 67:AJ:113:ILE:O | 67:AJ:125:SER:OG | 2.31 | 0.45 |
| 79:AV:232:TYR:HE1 | 79:AV:268:GLN:HE21 | 1.64 | 0.45 |
| 79:AV:254:ALA:HB3 | 79:AV:261:LYS:HB2 | 1.97 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:418:TYR:OH | 83:AZ:422:LYS:O | 2.34 | 0.45 |
| 1:1:86:G:H22 | 1:1:98:G:H3' | 1.82 | 0.45 |
| 1:1:878:G:H1' | 1:1:880:G:H21 | 1.82 | 0.45 |
| 1:1:1063:G:O2' | 1:1:1097:G:N2 | 2.50 | 0.45 |
| 1:1:1609:C:H2' | 1:1:1610:G:H8 | 1.82 | 0.45 |
| 1:1:2412:G:H2' | 1:1:2413:A:H8 | 1.80 | 0.45 |
| 1:1:2968:G:H2' | 1:1:2969:A:H8 | 1.81 | 0.45 |
| 4:P0:8:LYS:HG2 | 4:P0:55:LYS:HE3 | 1.98 | 0.45 |
| 4:P0:60:ARG:HH21 | 4:P0:64:ARG:HH11 | 1.64 | 0.45 |
| 23:S:13:ARG:NH1 | 23:S:50:LYS:O | 2.48 | 0.45 |
| 47:2:716:C:OP2 | 47:2:717:C:N4 | 2.49 | 0.45 |
| 49:r:41:ARG:NH2 | 49:r:231:LEU:O | 2.50 | 0.45 |
| 64:AG:100:GLN:HG2 | 64:AG:104:GLU:HG2 | 1.97 | 0.45 |
| 66:AI:5:VAL:HG11 | 73:AP:75:LEU:HD12 | 1.98 | 0.45 |
| 70:AM:2:THR:O | 70:AM:3:ARG:NH1 | 2.44 | 0.45 |
| 71:AN:65:ASN:ND2 | 71:AN:116:ASP:OD1 | 2.47 | 0.45 |
| 71:AN:126:LYS:HG3 | 71:AN:131:SER:H | 1.81 | 0.45 |
| 77:AT:13:ARG:HG3 | 77:AT:14:TYR:HD1 | 1.82 | 0.45 |
| 79:AV:24:ALA:HB3 | 79:AV:34:LEU:HB3 | 1.97 | 0.45 |
| 1:1:672:A:OP2 | 21:Q:55:SER:OG | 2.35 | 0.45 |
| 1:1:881:C:H2' | 1:1:882:A:H8 | 1.82 | 0.45 |
| 1:1:928:C:H2' | 1:1:929:A:H8 | 1.82 | 0.45 |
| 36:f:49:ILE:HD13 | 36:f:100:ILE:HD13 | 1.99 | 0.45 |
| 47:2:446:A:OP1 | 52:u:59:ARG:NE | 2.43 | 0.45 |
| 47:2:764:U:O2 | 47:2:772:G:O6 | 2.34 | 0.45 |
| 47:2:937:C:H2' | 47:2:938:G:C8 | 2.52 | 0.45 |
| 47:2:1150:G:H1 | 82:AY:46:U:P | 2.39 | 0.45 |
| 50:s:69:ILE:HG23 | 50:s:73:LEU:HD11 | 1.99 | 0.45 |
| 57:z:78:ARG:HA | 57:z:81:VAL:HG22 | 1.97 | 0.45 |
| 63:AF:81:ARG:NH1 | 63:AF:117:GLY:O | 2.50 | 0.45 |
| 68:AK:113:ASP:N | 68:AK:113:ASP:OD1 | 2.48 | 0.45 |
| 83:AZ:737:GLU:HA | 83:AZ:740:VAL:HG23 | 1.98 | 0.45 |
| 1:1:1636:U:H6 | 1:1:1636:U:C5' | 2.12 | 0.45 |
| 1:1:1943:C:H5 | 22:R:74:ARG:HH12 | 1.65 | 0.45 |
| 1:1:3049:A:C6 | 7:B:75:ALA:HB2 | 2.52 | 0.45 |
| 1:1:3155:U:H3' | 1:1:3156:U:H4' | 1.98 | 0.45 |
| 1:1:3222:U:O4 | 1:1:3263:G:O6 | 2.34 | 0.45 |
| 7:B:292:ALA:HB2 | 7:B:302:LYS:HE3 | 1.98 | 0.45 |
| 10:E:2:SER:OG | 10:E:4:GLN:O | 2.33 | 0.45 |
| 12:G:218:ILE:HA | 12:G:221:ASN:HB2 | 1.99 | 0.45 |
| 19:O:58:LEU:HD21 | 19:O:74:ARG:HH22 | 1.81 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1241:G:H1' | 63:AF:79:HIS:H | 1.80 | 0.45 |
| 81:AX:28:C:H2' | 81:AX:29:A:H8 | 1.82 | 0.45 |
| 83:AZ:221:THR:HG23 | 83:AZ:223:ARG:H | 1.82 | 0.45 |
| 1:1:563:U:OP1 | 23:S:71:LYS:NZ | 2.48 | 0.45 |
| 1:1:631:U:H2' | 1:1:632:G:C8 | 2.51 | 0.45 |
| 1:1:737:G:H2' | 1:1:738:A:C8 | 2.52 | 0.45 |
| 1:1:1062:A:O2' | 1:1:1098:A:OP2 | 2.30 | 0.45 |
| 1:1:1301:A:H4' | 1:1:1302:A:H5" | 1.97 | 0.45 |
| 1:1:2280:A:N6 | 1:1:2282:U:O2' | 2.49 | 0.45 |
| 1:1:3052:G:H2' | 1:1:3053:G:H8 | 1.82 | 0.45 |
| 1:1:3108:G:OP2 | 1:1:3120:C:N4 | 2.49 | 0.45 |
| 9:D:164:LYS:HE2 | 9:D:195:LEU:HD11 | 1.98 | 0.45 |
| 10:E:78:ARG:HH21 | 10:E:106:PHE:HB2 | 1.82 | 0.45 |
| 18:N:21:PHE:HD2 | 18:N:22:LEU:HD22 | 1.82 | 0.45 |
| 23:S:155:ARG:HD3 | 23:S:172:TYR:HD1 | 1.82 | 0.45 |
| 47:2:76:A:O2' | 47:2:80:A:N6 | 2.48 | 0.45 |
| 47:2:1267:G:O6 | 47:2:1442:U:O2 | 2.35 | 0.45 |
| 47:2:1469:A:OP1 | 67:AJ:91:TYR:OH | 2.26 | 0.45 |
| 61:AD:130:ARG:HD2 | 61:AD:138:ASN:HA | 1.98 | 0.45 |
| 79:AV:259:GLY:HA3 | 79:AV:274:LEU:H | 1.82 | 0.45 |
| 1:1:118:U:N3 | 1:1:122:A:OP2 | 2.37 | 0.45 |
| 1:1:928:C:H2' | 1:1:929:A:C8 | 2.52 | 0.45 |
| 1:1:1262:G:N2 | 1:1:1265:U:OP1 | 2.49 | 0.45 |
| 1:1:1882:G:O3' | 34:d:34:LYS:NZ | 2.42 | 0.45 |
| 1:1:2176:U:OP2 | 6:A:128:ARG:NH2 | 2.50 | 0.45 |
| 1:1:2272:G:OP2 | 1:1:2272:G:N2 | 2.50 | 0.45 |
| 1:1:2999:U:H2' | 1:1:3000:A:H8 | 1.81 | 0.45 |
| 1:1:3285:C:H2' | 1:1:3286:G:C8 | 2.52 | 0.45 |
| 2:3:78:U:H2' | 2:3:79:A:H8 | 1.81 | 0.45 |
| 10:E:133:GLU:O | 10:E:137:ASP:N | 2.48 | 0.45 |
| 11:F:208:SER:OG | 11:F:209:ASN:N | 2.50 | 0.45 |
| 18:N:104:GLU:OE2 | 18:N:108:ARG:NH2 | 2.50 | 0.45 |
| 21:Q:92:ARG:NE | 31:a:76:ASP:OD1 | 2.50 | 0.45 |
| 47:2:129:U:O4' | 47:2:264:G:N1 | 2.50 | 0.45 |
| 47:2:232:U:H3' | 47:2:233:C:H4' | 1.98 | 0.45 |
| 47:2:1613:U:H6 | 53:v:81:ARG:HH12 | 1.65 | 0.45 |
| 47:2:1797:A:C6 | 74:AQ:87:ARG:HD2 | 2.51 | 0.45 |
| 60:AC:33:ARG:HE | 60:AC:36:LEU:HD12 | 1.81 | 0.45 |
| 66:AI:57:ARG:NH2 | 73:AP:74:SER:OG | 2.49 | 0.45 |
| 67:AJ:98:GLY:O | 67:AJ:102:ARG:N | 2.50 | 0.45 |
| 76:AS:9:LEU:HA | 76:AS:55:VAL:HG23 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:220:PHE:HA | 83:AZ:224:GLN:HE21 | 1.80 | 0.45 |
| 1:1:1439:U:H2' | 1:1:1440:G:H8 | 1.81 | 0.45 |
| 1:1:1907:C:O2 | 7:B:240:ARG:NH2 | 2.50 | 0.45 |
| 1:1:2423:U:H2' | 1:1:2424:A:H8 | 1.82 | 0.45 |
| 1:1:2579:G:H3' | 1:1:2580:A:H8 | 1.81 | 0.45 |
| 6:A:70:ARG:HE | 6:A:72:ARG:HB3 | 1.81 | 0.45 |
| 17:M:13:ARG:NH1 | 17:M:65:LEU:O | 2.50 | 0.45 |
| 22:R:42:ARG:HA | 22:R:45:VAL:HG13 | 1.99 | 0.45 |
| 22:R:109:TYR:HD1 | 22:R:114:LYS:HB2 | 1.82 | 0.45 |
| 23:S:31:ALA:HB1 | 23:S:36:ILE:HG13 | 1.99 | 0.45 |
| 47:2:629:U:C2 | 47:2:970:A:N6 | 2.84 | 0.45 |
| 47:2:1758:U:O4 | 47:2:1759:C:N4 | 2.50 | 0.45 |
| 51:t:98:ALA:N | 51:t:169:ASP:OD2 | 2.46 | 0.45 |
| 54:w:138:ALA:HA | 54:w:141:ILE:HD12 | 1.99 | 0.45 |
| 72:AO:124:ARG:HH12 | 72:AO:128:LYS:HB2 | 1.80 | 0.45 |
| 75:AR:13:ALA:O | 75:AR:17:ARG:NE | 2.44 | 0.45 |
| 79:AV:220:ILE:N | 79:AV:234:LEU:O | 2.49 | 0.45 |
| 83:AZ:130:ASP:HB2 | 83:AZ:133:GLU:HB2 | 1.99 | 0.45 |
| 83:AZ:631:ARG:NH1 | 83:AZ:648:ASP:O | 2.50 | 0.45 |
| 1:1:754:G:H2' | 1:1:755:A:H8 | 1.82 | 0.44 |
| 1:1:1447:G:C8 | 20:P:27:LYS:HB2 | 2.52 | 0.44 |
| 1:1:1785:U:H2' | 1:1:1786:G:H8 | 1.82 | 0.44 |
| 1:1:2897:A:OP2 | 43:m:124:LYS:NZ | 2.40 | 0.44 |
| 1:1:2986:U:H2' | 1:1:2987:A:H8 | 1.82 | 0.44 |
| 1:1:3185:U:OP1 | 13:H:23:ARG:NH1 | 2.50 | 0.44 |
| 2:3:23:A:H2' | 2:3:24:A:C8 | 2.51 | 0.44 |
| 2:3:77:G:O2' | 2:3:101:G:O6 | 2.32 | 0.44 |
| 12:G:64:ILE:HG13 | 12:G:68:ARG:HE | 1.81 | 0.44 |
| 15:J:92:ARG:HA | 15:J:172:LEU:HD12 | 1.99 | 0.44 |
| 37:g:67:LYS:HB2 | 37:g:71:THR:HG22 | 1.98 | 0.44 |
| 47:2:1405:G:O4' | 76:AS:49:ARG:NH2 | 2.50 | 0.44 |
| 53:v:215:ASP:O | 53:v:219:ARG:N | 2.40 | 0.44 |
| 56:y:121:LEU:HA | 56:y:122:GLY:HA2 | 1.76 | 0.44 |
| 58:AA:61:TRP:HA | 77:AT:23:VAL:HG23 | 1.99 | 0.44 |
| 83:AZ:7:ASP:HB3 | 83:AZ:10:ARG:HH12 | 1.81 | 0.44 |
| 83:AZ:282:PHE:O | 83:AZ:286:THR:CB | 2.64 | 0.44 |
| 1:1:673:U:H2' | 1:1:674:G:C8 | 2.52 | 0.44 |
| 1:1:1922:A:H62 | 1:1:1929:G:H21 | 1.64 | 0.44 |
| 1:1:2111:G:C8 | 27:W:49:ILE:HG22 | 2.53 | 0.44 |
| 1:1:3271:G:H2' | 10:E:108:LYS:HE3 | 1.98 | 0.44 |
| 1:1:3275:U:C4 | 36:f:64:ILE:HG12 | 2.51 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:3:98:C:OP1 | 23:S:39:SER:OG | 2.30 | 0.44 |
| 4:P0:5:ARG:HH11 | 4:P0:8:LYS:CD | 2.30 | 0.44 |
| 7:B:92:TYR:HB2 | 7:B:157:VAL:HG23 | 1.99 | 0.44 |
| 16:L:46:ILE:HG13 | 16:L:49:ARG:HB2 | 1.99 | 0.44 |
| 16:L:157:ARG:O | 31:a:99:ALA:N | 2.46 | 0.44 |
| 16:L:177:LYS:HA | 16:L:180:ARG:HB2 | 1.99 | 0.44 |
| 24:T:54:HIS:CE1 | 24:T:55:LYS:HG2 | 2.52 | 0.44 |
| 47:2:702:G:H2' | 47:2:703:G:C8 | 2.52 | 0.44 |
| 52:u:77:ARG:HD3 | 52:u:82:TYR:CZ | 2.53 | 0.44 |
| 59:AB:55:ASP:OD1 | 59:AB:82:ARG:NH1 | 2.50 | 0.44 |
| 64:AG:22:VAL:HG23 | 64:AG:64:ASP:H | 1.81 | 0.44 |
| 81:AX:54:U:O2 | 81:AX:58:A:N7 | 2.51 | 0.44 |
| 1:1:158:G:N2 | 1:1:264:G:H1' | 2.31 | 0.44 |
| 1:1:1340:G:H2' | 1:1:1341:U:C6 | 2.52 | 0.44 |
| 1:1:2697:A:H2' | 1:1:2698:G:H8 | 1.82 | 0.44 |
| 3:4:97:A:O2' | 38:h:59:ASN:ND2 | 2.50 | 0.44 |
| 30:Z:111:LYS:HA | 30:Z:114:VAL:HG12 | 1.99 | 0.44 |
| 39:i:18:THR:OG1 | 39:i:19:SER:N | 2.49 | 0.44 |
| 43:m:109:ASN:ND2 | 43:m:117:HIS:O | 2.41 | 0.44 |
| 47:2:150:U:H2' | 47:2:151:G:C8 | 2.53 | 0.44 |
| 47:2:435:C:N4 | 71:AN:46:SER:OG | 2.51 | 0.44 |
| 47:2:454:U:H4' | 52:u:62:LYS:HE3 | 1.98 | 0.44 |
| 47:2:1117:U:H2' | 47:2:1118:G:H8 | 1.83 | 0.44 |
| 47:2:1468:U:H2' | 47:2:1469:A:C8 | 2.53 | 0.44 |
| 47:2:1642:G:H2' | 47:2:1643:U:H6 | 1.81 | 0.44 |
| 49:r:172:LEU:HD22 | 49:r:172:LEU:HA | 1.83 | 0.44 |
| 63:AF:34:VAL:HG22 | 63:AF:42:ARG:HG2 | 2.00 | 0.44 |
| 66:AI:26:ILE:HG22 | 66:AI:27:LYS:H | 1.81 | 0.44 |
| 66:AI:114:GLU:HA | 66:AI:117:LYS:HB2 | 2.00 | 0.44 |
| 70:AM:23:ARG:NH1 | 70:AM:66:ASN:O | 2.50 | 0.44 |
| 71:AN:69:ARG:HB3 | 71:AN:86:PHE:HE1 | 1.82 | 0.44 |
| 76:AS:11:LYS:HG2 | 76:AS:53:ILE:HA | 1.98 | 0.44 |
| 79:AV:117:LYS:HE3 | 79:AV:160:GLU:HA | 1.98 | 0.44 |
| 79:AV:151:VAL:HA | 79:AV:173:GLY:HA2 | 1.99 | 0.44 |
| 83:AZ:5:THR:O | 83:AZ:8:GLN:N | 2.50 | 0.44 |
| 83:AZ:220:PHE:HZ | 83:AZ:278:LEU:HD21 | 1.82 | 0.44 |
| 1:1:379:C:H2' | 1:1:380:U:H6 | 1.82 | 0.44 |
| 1:1:768:C:H4' | 16:L:183:ARG:HH21 | 1.83 | 0.44 |
| 1:1:1258:U:O2' | 1:1:1260:A:N7 | 2.39 | 0.44 |
| 1:1:2268:U:H3' | 1:1:2269:U:H5" | 2.00 | 0.44 |
| 1:1:2830:G:H2' | 1:1:2831:G:H8 | 1.83 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 6:A:223:SER:O | 6:A:237:LEU:N | 2.50 | 0.44 |
| 7:B:37:ARG:HE | 7:B:187:SER:H | 1.66 | 0.44 |
| 18:N:68:ARG:NH1 | 18:N:124:ASP:O | 2.49 | 0.44 |
| 47:2:506:A:O2' | 47:2:507:U:C5' | 2.66 | 0.44 |
| 47:2:1163:A:N3 | 47:2:1613:U:O2' | 2.32 | 0.44 |
| 47:2:1356:U:O4 | 47:2:1367:G:O6 | 2.36 | 0.44 |
| 47:2:1554:U:H6 | 77:AT:13:ARG:HH12 | 1.65 | 0.44 |
| 55:x:179:LYS:HG3 | 55:x:180:GLN:H | 1.83 | 0.44 |
| 59:AB:108:PRO:HB2 | 59:AB:135:VAL:HG22 | 2.00 | 0.44 |
| 65:AH:45:ARG:HA | 65:AH:48:ASN:HD22 | 1.83 | 0.44 |
| 79:AV:85:TRP:NE1 | 79:AV:111:MET:HA | 2.32 | 0.44 |
| 83:AZ:108:HIS:O | 83:AZ:111:PHE:N | 2.50 | 0.44 |
| 1:1:190:U:O2' | 29:Y:60:ARG:NH2 | 2.48 | 0.44 |
| 1:1:421:G:N1 | 1:1:2383:C:O2 | 2.50 | 0.44 |
| 1:1:650:C:H2' | 1:1:651:G:H8 | 1.83 | 0.44 |
| 1:1:998:A:H2' | 1:1:999:G:H8 | 1.83 | 0.44 |
| 1:1:3283:U:H2' | 1:1:3284:G:C8 | 2.50 | 0.44 |
| 4:P0:97:LYS:HA | 4:P0:100:ILE:HG12 | 1.98 | 0.44 |
| 7:B:46:PHE:HB3 | 7:B:338:LEU:HB2 | 2.00 | 0.44 |
| 11:F:93:ASN:HD22 | 11:F:94:LYS:H | 1.64 | 0.44 |
| 16:L:63:VAL:HA | 16:L:66:ASN:HB2 | 2.00 | 0.44 |
| 21:Q:170:ARG:NH2 | 31:a:58:MET:O | 2.38 | 0.44 |
| 25:U:77:LYS:HG2 | 25:U:81:LYS:HE2 | 2.00 | 0.44 |
| 26:V:18:PRO:HA | 26:V:51:ALA:HA | 1.99 | 0.44 |
| 47:2:434:G:N2 | 47:2:437:A:OP2 | 2.50 | 0.44 |
| 47:2:1235:C:H2' | 47:2:1236:A:H8 | 1.83 | 0.44 |
| 47:2:1335:U:O4 | 47:2:1416:G:O6 | 2.34 | 0.44 |
| 47:2:1486:G:H2' | 47:2:1487:A:C8 | 2.52 | 0.44 |
| 48:q:70:PRO:HB2 | 48:q:95:ALA:H | 1.82 | 0.44 |
| 51:t:24:PHE:HE1 | 58:AA:58:GLN:HG2 | 1.83 | 0.44 |
| 53:v:54:LYS:HB3 | 53:v:131:GLN:HE22 | 1.81 | 0.44 |
| 53:v:65:ARG:HA | 53:v:66:GLN:HA | 1.76 | 0.44 |
| 55:x:49:ILE:HD11 | 55:x:172:VAL:HG22 | 1.99 | 0.44 |
| 55:x:173:TYR:O | 55:x:177:THR:OG1 | 2.29 | 0.44 |
| 83:AZ:631:ARG:HH12 | 83:AZ:632:LYS:HZ3 | 1.64 | 0.44 |
| 1:1:627:U:H2' | 1:1:628:A:H8 | 1.80 | 0.44 |
| 1:1:707:U:O2 | 1:1:712:G:O6 | 2.36 | 0.44 |
| 1:1:1211:U:H2' | 1:1:1212:A:H8 | 1.82 | 0.44 |
| 1:1:2218:G:H2' | 1:1:2219:A:C8 | 2.53 | 0.44 |
| 2:3:96:U:H2' | 2:3:97:A:H8 | 1.83 | 0.44 |
| 7:B:227:GLU:HG2 | 7:B:231:HIS:HD2 | 1.82 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:C:13:GLY:N | 8:C:171:ALA:O | 2.50 | 0.44 |
| 36:f:18:ARG:HA | 36:f:23:ASN:HA | 2.00 | 0.44 |
| 47:2:741:C:O2' | 47:2:742:U:O4' | 2.33 | 0.44 |
| 47:2:1502:G:N2 | 47:2:1505:A:OP2 | 2.42 | 0.44 |
| 47:2:1752:U:H2' | 47:2:1753:A:C8 | 2.52 | 0.44 |
| 49:r:127:VAL:HG11 | 49:r:176:VAL:HG11 | 1.98 | 0.44 |
| 50:s:215:PHE:HA | 50:s:218:ILE:HG22 | 2.00 | 0.44 |
| 53:v:111:VAL:HA | 53:v:114:ILE:HB | 2.00 | 0.44 |
| 1:1:694:C:OP1 | 8:C:118:LYS:NZ | 2.51 | 0.44 |
| 1:1:1069:C:H2' | 1:1:1070:U:H6 | 1.82 | 0.44 |
| 3:4:41:A:H62 | 3:4:103:G:N2 | 2.16 | 0.44 |
| 5:P2:63:LYS:HE3 | 5:P2:71:ALA:H | 1.83 | 0.44 |
| 6:A:114:SER:OG | 6:A:127:ALA:O | 2.34 | 0.44 |
| 8:C:237:GLN:HG3 | 8:C:246:ARG:HH21 | 1.83 | 0.44 |
| 29:Y:118:LEU:HA | 29:Y:121:ARG:HE | 1.82 | 0.44 |
| 30:Z:43:VAL:HG22 | 30:Z:73:LYS:H | 1.82 | 0.44 |
| 36:f:89:LEU:HD13 | 36:f:91:ALA:H | 1.81 | 0.44 |
| 47:2:187:G:H21 | 47:2:198:A:H62 | 1.66 | 0.44 |
| 50:s:216:VAL:O | 50:s:220:ASN:ND2 | 2.51 | 0.44 |
| 62:AE:133:ARG:HD2 | 62:AE:136:ARG:NH2 | 2.33 | 0.44 |
| 70:AM:11:LEU:HD11 | 70:AM:37:PHE:HE2 | 1.83 | 0.44 |
| 1:1:966:U:H2' | 1:1:967:A:H8 | 1.83 | 0.44 |
| 1:1:1636:U:C6 | 1:1:1636:U:C5' | 2.85 | 0.44 |
| 1:1:1667:A:H2' | 1:1:1668:G:C8 | 2.52 | 0.44 |
| 1:1:2382:G:OP2 | 19:O:90:HIS:NE2 | 2.41 | 0.44 |
| 1:1:2502:A:H2' | 1:1:2503:G:H8 | 1.83 | 0.44 |
| 7:B:252:ILE:HG23 | 7:B:264:VAL:HG11 | 2.00 | 0.44 |
| 7:B:252:ILE:HG23 | 7:B:264:VAL:HG21 | 2.00 | 0.44 |
| 8:C:71:VAL:HG12 | 8:C:76:ARG:HH22 | 1.82 | 0.44 |
| 8:C:283:THR:HG21 | 8:C:288:ARG:HD2 | 1.99 | 0.44 |
| 9:D:184:ASP:OD2 | 9:D:187:THR:OG1 | 2.36 | 0.44 |
| 23:S:15:PRO:HB3 | 23:S:20:PRO:HA | 1.99 | 0.44 |
| 28:X:135:ILE:HA | 28:X:138:ARG:HB2 | 2.00 | 0.44 |
| 31:a:126:LYS:HD2 | 31:a:148:ILE:HG12 | 2.00 | 0.44 |
| 42:l:42:ARG:HH21 | 42:l:49:MET:HB3 | 1.83 | 0.44 |
| 47:2:130:C:O2' | 47:2:131:C:O4' | 2.35 | 0.44 |
| 47:2:1278:G:H5' | 51:t:185:LYS:HE2 | 1.99 | 0.44 |
| 47:2:1464:G:HO2' | 64:AG:141:SER:HG | 1.64 | 0.44 |
| 47:2:1756:A:C2 | 82:AY:50:U:OP2 | 2.70 | 0.44 |
| 49:r:55:LYS:NZ | 49:r:59:ASP:O | 2.47 | 0.44 |
| 57:z:172:VAL:O | 57:z:176:ASN:ND2 | 2.51 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 81:AX:21:A:O4' | 81:AX:48:C:N4 | 2.51 | 0.44 |
| 1:1:122:A:N6 | 1:1:146:U:O4' | 2.51 | 0.44 |
| 1:1:700:C:H2' | 1:1:701:G:C8 | 2.51 | 0.44 |
| 1:1:1355:A:H4' | 1:1:1356:U:H5" | 2.00 | 0.44 |
| 1:1:1439:U:H2' | 1:1:1440:G:C8 | 2.53 | 0.44 |
| 1:1:1622:U:H2' | 1:1:1623:G:C8 | 2.53 | 0.44 |
| 1:1:1821:U:O3' | 37:g:66:SER:OG | 2.32 | 0.44 |
| 1:1:1859:A:H2' | 1:1:1860:G:H8 | 1.83 | 0.44 |
| 1:1:2213:A:H2' | 1:1:2214:A:C8 | 2.53 | 0.44 |
| 1:1:3119:U:H4' | 43:m:104:PRO:HG2 | 1.98 | 0.44 |
| 3:4:143:U:H2' | 3:4:144:G:C8 | 2.53 | 0.44 |
| 8:C:135:VAL:HG11 | 8:C:148:ILE:HD13 | 2.00 | 0.44 |
| 11:F:52:GLN:HA | 11:F:55:TYR:HB2 | 2.00 | 0.44 |
| 22:R:6:THR:O | 22:R:10:LEU:N | 2.51 | 0.44 |
| 33:c:57:GLU:HA | 33:c:60:ALA:HB3 | 1.99 | 0.44 |
| 47:2:1064:G:H2' | 47:2:1065:A:C8 | 2.53 | 0.44 |
| 47:2:1478:G:H2' | 47:2:1479:A:H8 | 1.83 | 0.44 |
| 49:r:121:ILE:HB | 49:r:141:ALA:HB3 | 1.99 | 0.44 |
| 73:AP:43:ASP:O | 73:AP:47:TYR:N | 2.51 | 0.44 |
| 81:AX:25:C:H2' | 81:AX:26:G:H8 | 1.83 | 0.44 |
| 83:AZ:222:ILE:H | 83:AZ:222:ILE:HG13 | 1.40 | 0.44 |
| 1:1:16:A:OP2 | 28:X:42:ARG:NH1 | 2.51 | 0.43 |
| 1:1:61:A:N1 | 18:N:189:LYS:NZ | 2.65 | 0.43 |
| 1:1:64:G:OP2 | 18:N:169:LYS:NZ | 2.37 | 0.43 |
| 1:1:268:A:N7 | 18:N:12:ARG:NE | 2.65 | 0.43 |
| 1:1:1010:G:N2 | 14:I:193:ASP:OD2 | 2.51 | 0.43 |
| 1:1:1871:U:H2' | 1:1:1872:C:H6 | 1.83 | 0.43 |
| 1:1:2335:G:N2 | 1:1:2339:C:O2 | 2.52 | 0.43 |
| 1:1:2534:G:H2' | 1:1:2535:A:C8 | 2.53 | 0.43 |
| 1:1:2687:G:O2' | 1:1:2690:G:O6 | 2.36 | 0.43 |
| 1:1:2972:G:H2' | 1:1:2973:G:H8 | 1.83 | 0.43 |
| 12:G:99:PRO:HG2 | 12:G:190:VAL:HA | 2.00 | 0.43 |
| 23:S:42:TRP:CG | 23:S:53:LYS:HB3 | 2.53 | 0.43 |
| 29:Y:85:VAL:HG12 | 29:Y:97:ILE:HD11 | 2.00 | 0.43 |
| 35:e:81:ASP:O | 35:e:84:THR:OG1 | 2.36 | 0.43 |
| 47:2:29:U:H2' | 47:2:30:G:C8 | 2.52 | 0.43 |
| 47:2:208:U:N3 | 47:2:258:C:O2 | 2.51 | 0.43 |
| 47:2:351:C:H5' | 47:2:352:A:N7 | 2.32 | 0.43 |
| 47:2:1198:G:H5" | 47:2:1199:G:C8 | 2.53 | 0.43 |
| 47:2:1609:U:H5" | 64:AG:75:VAL:HB | 1.98 | 0.43 |
| 52:u:175:PHE:HD2 | 52:u:198:LYS:HE3 | 1.83 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 66:AI:40:ARG:NH2 | 67:AJ:45:MET:SD | 2.91 | 0.43 |
| 81:AX:61:C:H2' | 81:AX:62:A:C8 | 2.53 | 0.43 |
| 83:AZ:104:ASP:OD1 | 83:AZ:104:ASP:N | 2.51 | 0.43 |
| 83:AZ:485:VAL:HG22 | 83:AZ:486:SER:HB3 | 1.99 | 0.43 |
| 83:AZ:718:LEU:HD11 | 83:AZ:838:TYR:CZ | 2.53 | 0.43 |
| 1:1:835:G:N2 | 1:1:857:G:O2' | 2.51 | 0.43 |
| 1:1:1916:U:O3' | 22:R:85:ARG:NH2 | 2.42 | 0.43 |
| 1:1:2894:C:H2' | 1:1:2895:G:H8 | 1.83 | 0.43 |
| 1:1:2936:A:H2' | 1:1:2937:G:H8 | 1.82 | 0.43 |
| 3:4:47:C:O2' | 3:4:62:C:OP2 | 2.36 | 0.43 |
| 18:N:100:ALA:O | 18:N:104:GLU:N | 2.51 | 0.43 |
| 26:V:77:ILE:HD11 | 26:V:126:TRP:CD1 | 2.53 | 0.43 |
| 47:2:1145:U:H2' | 47:2:1146:G:H8 | 1.81 | 0.43 |
| 51:t:125:TYR:O | 51:t:129:SER:N | 2.49 | 0.43 |
| 53:v:87:CYS:HB2 | 53:v:92:ARG:HD2 | 2.00 | 0.43 |
| 61:AD:72:MET:O | 61:AD:76:LYS:N | 2.51 | 0.43 |
| 61:AD:74:ILE:O | 61:AD:78:ASN:ND2 | 2.50 | 0.43 |
| 63:AF:15:HIS:HD2 | 63:AF:17:TYR:HB2 | 1.83 | 0.43 |
| 63:AF:83:MET:HE2 | 63:AF:116:LEU:HD12 | 1.99 | 0.43 |
| 68:AK:21:LYS:HA | 68:AK:94:GLU:HG2 | 2.00 | 0.43 |
| 1:1:940:G:OP2 | 31:a:24:LYS:NZ | 2.47 | 0.43 |
| 1:1:1098:A:P | 24:T:108:ARG:HH12 | 2.42 | 0.43 |
| 1:1:1778:G:O2' | 1:1:1780:G:OP2 | 2.31 | 0.43 |
| 1:1:3157:U:H4' | 1:1:3158:G:H5' | 2.01 | 0.43 |
| 1:1:3186:A:H8 | 13:H:44:THR:HG23 | 1.83 | 0.43 |
| 3:4:27:U:H4' | 8:C:51:ALA:HB3 | 2.00 | 0.43 |
| 6:A:167:GLY:HA2 | 46:p:79:VAL:HG21 | 1.99 | 0.43 |
| 44:n:15:ARG:O | 44:n:19:LYS:N | 2.47 | 0.43 |
| 47:2:317:C:O2' | 47:2:354:C:O2' | 2.33 | 0.43 |
| 47:2:406:U:H2' | 47:2:407:A:C8 | 2.53 | 0.43 |
| 47:2:885:G:H2' | 47:2:886:U:C6 | 2.53 | 0.43 |
| 52:u:100:ARG:HB2 | 52:u:114:ILE:HD13 | 2.00 | 0.43 |
| 59:AB:132:SER:O | 59:AB:136:ARG:NH2 | 2.47 | 0.43 |
| 63:AF:83:MET:O | 63:AF:116:LEU:N | 2.51 | 0.43 |
| 67:AJ:138:GLN:HA | 67:AJ:141:GLU:HB2 | 2.01 | 0.43 |
| 79:AV:37:SER:H | 79:AV:68:VAL:HG23 | 1.83 | 0.43 |
| 83:AZ:19:VAL:HG22 | 83:AZ:99:LEU:HD21 | 2.00 | 0.43 |
| 83:AZ:523:SER:OG | 83:AZ:524:GLU:N | 2.50 | 0.43 |
| 1:1:1225:A:O2' | 1:1:3117:C:N3 | 2.51 | 0.43 |
| 1:1:1373:A:H2' | 1:1:1374:G:H8 | 1.84 | 0.43 |
| 1:1:1661:G:H2' | 1:1:1662:G:C8 | 2.54 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:1672:U:OP1 | 22:R:64:ARG:NH2 | 2.51 | 0.43 |
| 1:1:1717:U:H2' | 1:1:1718:G:C8 | 2.54 | 0.43 |
| 1:1:1831:U:OP1 | 28:X:92:LYS:N | 2.50 | 0.43 |
| 1:1:2173:U:O3' | 6:A:193:ARG:NH1 | 2.51 | 0.43 |
| 1:1:2205:U:O2 | 47:2:913:G:N2 | 2.51 | 0.43 |
| 1:1:3153:U:H3 | 1:1:3293:U:H2' | 1.84 | 0.43 |
| 1:1:3186:A:C8 | 13:H:44:THR:HG23 | 2.52 | 0.43 |
| 6:A:88:ILE:HD12 | 6:A:88:ILE:HA | 1.87 | 0.43 |
| 14:I:48:LEU:HD23 | 14:I:145:LYS:HE2 | 2.00 | 0.43 |
| 19:O:105:PHE:CE2 | 19:O:109:PRO:HG3 | 2.53 | 0.43 |
| 27:W:45:ASN:HA | 27:W:46:PRO:HD3 | 1.92 | 0.43 |
| 32:b:33:LYS:O | 32:b:40:ARG:NH2 | 2.51 | 0.43 |
| 46:p:24:ARG:HH22 | 47:2:1123:C:H1' | 1.84 | 0.43 |
| 47:2:368:U:O4 | 47:2:373:G:O6 | 2.37 | 0.43 |
| 47:2:545:A:H4' | 47:2:546:U:H5' | 1.99 | 0.43 |
| 47:2:702:G:H2' | 47:2:703:G:H8 | 1.83 | 0.43 |
| 47:2:1142:A:H2' | 47:2:1143:A:C8 | 2.54 | 0.43 |
| 47:2:1587:A:H2' | 47:2:1588:G:C8 | 2.53 | 0.43 |
| 49:r:66:VAL:HB | 49:r:86:LEU:HB2 | 2.00 | 0.43 |
| 56:y:65:PHE:HE2 | 56:y:104:ILE:HG21 | 1.83 | 0.43 |
| 65:AH:96:SER:HA | 65:AH:97:ASN:HA | 1.74 | 0.43 |
| 70:AM:111:MET:HE1 | 70:AM:121:VAL:HG23 | 1.99 | 0.43 |
| 71:AN:58:GLY:HA2 | 71:AN:71:CYS:H | 1.84 | 0.43 |
| 75:AR:54:VAL:HG13 | 75:AR:63:LEU:HB2 | 2.01 | 0.43 |
| 83:AZ:74:ALA:CA | 83:AZ:102:LEU:O | 2.59 | 0.43 |
| 83:AZ:567:VAL:HG12 | 83:AZ:684:VAL:HG12 | 2.00 | 0.43 |
| 1:1:19:U:H3 | 3:4:140:G:H1 | 1.66 | 0.43 |
| 1:1:522:A:O2' | 23:S:65:ASN:O | 2.35 | 0.43 |
| 1:1:720:A:OP2 | 31:a:117:ARG:NH2 | 2.48 | 0.43 |
| 1:1:2386:A:H62 | 1:1:2993:G:N2 | 2.14 | 0.43 |
| 1:1:3229:G:H2' | 1:1:3230:G:C8 | 2.54 | 0.43 |
| 3:4:149:A:H2' | 3:4:150:G:C8 | 2.53 | 0.43 |
| 47:2:339:C:OP2 | 56:y:10:LYS:NZ | 2.51 | 0.43 |
| 47:2:532:U:OP1 | 57:z:132:ARG:NH2 | 2.51 | 0.43 |
| 47:2:992:A:H3' | 47:2:993:A:H8 | 1.84 | 0.43 |
| 47:2:1064:G:H2' | 47:2:1065:A:H8 | 1.84 | 0.43 |
| 47:2:1502:G:OP2 | 67:AJ:103:LYS:NZ | 2.48 | 0.43 |
| 47:2:1596:C:OP1 | 77:AT:16:LYS:NZ | 2.46 | 0.43 |
| 47:2:1712:A:H3' | 47:2:1713:G:H8 | 1.82 | 0.43 |
| 50:s:120:GLU:OE1 | 50:s:122:ALA:N | 2.46 | 0.43 |
| 50:s:160:GLY:HA3 | 50:s:217:ALA:HB2 | 2.01 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 52:u:180:LEU:HD22 | 52:u:192:ILE:HD11 | 1.99 | 0.43 |
| 54:w:7:TYR:HA | 54:w:8:PRO:HD3 | 1.89 | 0.43 |
| 67:AJ:45:MET:HE3 | 67:AJ:46:PRO:HD2 | 1.99 | 0.43 |
| 79:AV:195:HIS:HD2 | 79:AV:219:GLU:HG2 | 1.84 | 0.43 |
| 1:1:154:U:H4' | 1:1:155:G:H5' | 1.99 | 0.43 |
| 1:1:310:U:O4 | 1:1:2780:A:N6 | 2.52 | 0.43 |
| 1:1:1100:U:H2' | 1:1:1101:G:H8 | 1.83 | 0.43 |
| 1:1:1693:C:O2' | 1:1:1772:U:O2' | 2.32 | 0.43 |
| 1:1:2158:A:OP2 | 6:A:156:LYS:NZ | 2.41 | 0.43 |
| 1:1:2959:C:OP1 | 6:A:217:GLN:NE2 | 2.51 | 0.43 |
| 11:F:130:ILE:HD12 | 11:F:130:ILE:HG23 | 1.85 | 0.43 |
| 16:L:57:VAL:HG22 | 16:L:147:ILE:HG23 | 2.00 | 0.43 |
| 18:N:108:ARG:HA | 18:N:111:ALA:HB2 | 2.00 | 0.43 |
| 47:2:38:C:H5 | 47:2:39:A:C5 | 2.37 | 0.43 |
| 47:2:73:U:O2' | 47:2:74:U:O4' | 2.30 | 0.43 |
| 47:2:97:C:H2' | 47:2:98:U:C6 | 2.53 | 0.43 |
| 47:2:1175:U:H3 | 47:2:1464:G:H1 | 1.65 | 0.43 |
| 47:2:1242:A:N1 | 47:2:1451:C:O2' | 2.51 | 0.43 |
| 47:2:1351:G:H5" | 64:AG:66:ARG:HH22 | 1.83 | 0.43 |
| 52:u:95:THR:HG21 | 72:AO:17:LEU:HD23 | 1.99 | 0.43 |
| 52:u:141:THR:OG1 | 52:u:145:ARG:N | 2.51 | 0.43 |
| 59:AB:109:VAL:HG21 | 59:AB:125:VAL:HG11 | 2.00 | 0.43 |
| 61:AD:98:VAL:HG13 | 61:AD:115:LEU:HD23 | 2.00 | 0.43 |
| 83:AZ:299:LEU:HA | 83:AZ:302:LYS:HB2 | 2.01 | 0.43 |
| 83:AZ:764:PRO:HB2 | 83:AZ:765:LEU:HD12 | 2.00 | 0.43 |
| 1:1:16:A:H5' | 28:X:43:ALA:HB3 | 2.00 | 0.43 |
| 1:1:516:A:H2' | 1:1:517:G:C8 | 2.54 | 0.43 |
| 1:1:526:C:H2' | 1:1:527:A:H8 | 1.84 | 0.43 |
| 1:1:533:A:H2' | 1:1:535:G:C8 | 2.54 | 0.43 |
| 1:1:1799:A:H2' | 1:1:1800:A:C8 | 2.54 | 0.43 |
| 1:1:2252:A:H2' | 1:1:2253:G:H8 | 1.84 | 0.43 |
| 3:4:143:U:H2' | 3:4:144:G:H8 | 1.84 | 0.43 |
| 23:S:82:ASP:HB3 | 23:S:87:THR:HG22 | 2.00 | 0.43 |
| 25:U:14:THR:HG23 | 25:U:66:VAL:HG22 | 2.01 | 0.43 |
| 26:V:19:VAL:HG23 | 26:V:37:ILE:HA | 2.01 | 0.43 |
| 29:Y:51:ARG:HB2 | 29:Y:115:ARG:HH12 | 1.83 | 0.43 |
| 40:j:4:GLY:O | 40:j:7:SER:OG | 2.25 | 0.43 |
| 46:p:83:ILE:O | 46:p:87:ARG:N | 2.51 | 0.43 |
| 47:2:155:U:H4' | 54:w:58:LYS:HG3 | 1.99 | 0.43 |
| 47:2:212:U:H2' | 47:2:213:A:C8 | 2.54 | 0.43 |
| 47:2:919:A:OP1 | 62:AE:18:ARG:NH1 | 2.50 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1192:C:OP2 | 47:2:1193:A:O2' | 2.34 | 0.43 |
| 47:2:1495:C:O2' | 47:2:1519:U:O2 | 2.32 | 0.43 |
| 47:2:1698:G:O2' | 47:2:1699:G:O4' | 2.34 | 0.43 |
| 51:t:71:LEU:HD11 | 58:AA:18:GLU:HB3 | 2.01 | 0.43 |
| 52:u:38:LEU:HB3 | 52:u:40:GLU:HG3 | 2.01 | 0.43 |
| 66:AI:26:ILE:HB | 66:AI:31:ALA:HB2 | 2.01 | 0.43 |
| 76:AS:11:LYS:HB3 | 76:AS:33:LEU:HD13 | 2.00 | 0.43 |
| 76:AS:13:ILE:HD12 | 76:AS:14:LYS:HG2 | 2.01 | 0.43 |
| 79:AV:238:ASP:OD2 | 79:AV:258:THR:OG1 | 2.29 | 0.43 |
| 1:1:354:U:H3 | 1:1:365:A:N6 | 2.12 | 0.43 |
| 1:1:504:A:H2' | 1:1:505:G:H8 | 1.84 | 0.43 |
| 1:1:1259:A:OP1 | 4:P0:53:MET:N | 2.52 | 0.43 |
| 1:1:1657:C:O2' | 1:1:1797:A:OP2 | 2.34 | 0.43 |
| 1:1:1714:A:H62 | 1:1:1730:G:H21 | 1.66 | 0.43 |
| 1:1:1831:U:O2' | 3:4:114:G:OP1 | 2.30 | 0.43 |
| 1:1:2697:A:H2' | 1:1:2698:G:C8 | 2.53 | 0.43 |
| 1:1:2999:U:H2' | 1:1:3000:A:C8 | 2.53 | 0.43 |
| 4:P0:28:VAL:HG23 | 4:P0:53:MET:HE1 | 2.00 | 0.43 |
| 8:C:132:ALA:HB1 | 8:C:136:LEU:HD23 | 2.01 | 0.43 |
| 16:L:27:ASP:HB2 | 16:L:31:LYS:HG2 | 2.00 | 0.43 |
| 16:L:54:LEU:N | 16:L:94:GLY:O | 2.51 | 0.43 |
| 21:Q:27:LYS:HA | 21:Q:30:VAL:HG12 | 2.00 | 0.43 |
| 27:W:45:ASN:HD21 | 27:W:48:ARG:HD3 | 1.84 | 0.43 |
| 47:2:121:U:H2' | 47:2:122:U:H6 | 1.84 | 0.43 |
| 47:2:591:A:H2' | 47:2:592:A:C8 | 2.53 | 0.43 |
| 47:2:762:A:OP1 | 57:z:79:ARG:NH2 | 2.39 | 0.43 |
| 47:2:923:A:H2' | 47:2:924:A:H8 | 1.84 | 0.43 |
| 47:2:1595:U:H3' | 77:AT:32:ARG:HH22 | 1.82 | 0.43 |
| 47:2:1756:A:H2' | 47:2:1757:G:H5" | 2.00 | 0.43 |
| 53:v:42:LEU:HA | 53:v:48:PHE:HB3 | 2.00 | 0.43 |
| 54:w:74:LYS:HD3 | 54:w:94:ARG:HD2 | 2.00 | 0.43 |
| 55:x:37:GLU:HB2 | 55:x:73:VAL:HG11 | 2.01 | 0.43 |
| 57:z:85:VAL:HG11 | 57:z:99:LEU:HD11 | 2.01 | 0.43 |
| 59:AB:99:ARG:NE | 71:AN:7:ARG:O | 2.43 | 0.43 |
| 63:AF:25:LEU:HD23 | 63:AF:28:MET:HE2 | 2.01 | 0.43 |
| 73:AP:84:GLU:HA | 73:AP:89:ILE:HD11 | 2.00 | 0.43 |
| 79:AV:38:ARG:HD3 | 79:AV:67:ILE:HG21 | 2.00 | 0.43 |
| 79:AV:246:SER:OG | 79:AV:248:ASN:OD1 | 2.36 | 0.43 |
| 83:AZ:283:ARG:O | 83:AZ:287:ALA:HB3 | 2.18 | 0.43 |
| 83:AZ:305:ILE:HA | 83:AZ:306:VAL:HA | 1.82 | 0.43 |
| 83:AZ:670:ALA:HB1 | 83:AZ:674:GLY:HA2 | 2.00 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:26:A:N1 | 1:1:59:G:O6 | 2.52 | 0.43 |
| 1:1:254:A:H2' | 1:1:255:A:H8 | 1.83 | 0.43 |
| 1:1:336:A:OP2 | 29:Y:10:SER:OG | 2.32 | 0.43 |
| 1:1:1035:G:H2' | 1:1:1036:A:C8 | 2.54 | 0.43 |
| 1:1:1079:A:C4 | 9:D:113:LEU:HD21 | 2.54 | 0.43 |
| 1:1:1888:U:H5" | 7:B:247:ARG:HB2 | 1.99 | 0.43 |
| 1:1:2374:C:OP1 | 1:1:2823:G:O2' | 2.35 | 0.43 |
| 1:1:2442:G:H2' | 1:1:2443:A:H8 | 1.83 | 0.43 |
| 1:1:2701:U:P | 24:T:17:ARG:HH22 | 2.41 | 0.43 |
| 5:P2:129:THR:HA | 5:P2:132:ILE:HD12 | 2.00 | 0.43 |
| 30:Z:22:LYS:HZ3 | 30:Z:129:TRP:CD1 | 2.37 | 0.43 |
| 40:j:29:VAL:O | 40:j:32:LYS:NZ | 2.38 | 0.43 |
| 47:2:299:A:H2' | 47:2:300:A:C8 | 2.54 | 0.43 |
| 47:2:419:G:H5' | 54:w:72:ARG:HH21 | 1.84 | 0.43 |
| 47:2:600:U:H2' | 47:2:601:A:C8 | 2.53 | 0.43 |
| 47:2:1564:U:H2' | 47:2:1565:C:C6 | 2.54 | 0.43 |
| 47:2:1735:U:H2' | 47:2:1736:G:C8 | 2.54 | 0.43 |
| 56:y:102:VAL:HG23 | 56:y:167:ALA:HB3 | 2.01 | 0.43 |
| 68:AK:100:VAL:HG13 | 68:AK:103:ILE:HD12 | 2.01 | 0.43 |
| 76:AS:19:THR:HG21 | 76:AS:65:ARG:HA | 2.00 | 0.43 |
| 78:AU:13:LYS:HD2 | 83:AZ:609:ARG:HG2 | 2.00 | 0.43 |
| 79:AV:63:GLY:O | 79:AV:90:ARG:NH2 | 2.51 | 0.43 |
| 83:AZ:214:GLY:N | 86:AZ:902:GCP:O6 | 2.49 | 0.43 |
| 1:1:970:A:OP2 | 32:b:18:ARG:NE | 2.52 | 0.43 |
| 4:P0:104:ARG:HE | 4:P0:184:GLY:HA3 | 1.84 | 0.43 |
| 12:G:52:TRP:H | 12:G:57:ARG:HH21 | 1.64 | 0.43 |
| 26:V:21:ALA:H | 26:V:36:ILE:HG22 | 1.84 | 0.43 |
| 63:AF:103:ASN:OD1 | 63:AF:120:SER:OG | 2.37 | 0.43 |
| 76:AS:12:VAL:HG22 | 76:AS:30:VAL:HG12 | 2.01 | 0.43 |
| 1:1:715:A:C8 | 31:a:115:LYS:HG2 | 2.54 | 0.42 |
| 1:1:1044:U:H1' | 14:I:92:HIS:CE1 | 2.54 | 0.42 |
| 1:1:1280:C:H2' | 1:1:1281:G:H8 | 1.83 | 0.42 |
| 1:1:1457:U:H5 | 1:1:1877:U:H2' | 1.83 | 0.42 |
| 1:1:1523:U:OP1 | 1:1:1834:U:O2' | 2.36 | 0.42 |
| 4:P0:167:GLN:O | 4:P0:171:SER:OG | 2.33 | 0.42 |
| 5:P2:110:ILE:HD13 | 5:P2:130:LYS:NZ | 2.32 | 0.42 |
| 11:F:77:VAL:HG12 | 23:S:59:VAL:HA | 2.01 | 0.42 |
| 19:O:29:ASN:HD21 | 36:f:14:LEU:HD13 | 1.82 | 0.42 |
| 19:O:172:ARG:HA | 19:O:175:THR:HG22 | 2.01 | 0.42 |
| 32:b:47:LEU:HA | 32:b:50:THR:HG22 | 2.01 | 0.42 |
| 47:2:434:G:O2' | 47:2:436:A:N7 | 2.44 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:477:A:OP2 | 78:AU:28:LYS:NZ | 2.51 | 0.42 |
| 47:2:1200:G:OP2 | 47:2:1595:U:O2' | 2.33 | 0.42 |
| 47:2:1561:U:H2' | 47:2:1562:G:H8 | 1.83 | 0.42 |
| 52:u:121:TYR:HA | 52:u:164:LEU:HD23 | 2.01 | 0.42 |
| 56:y:104:ILE:HG13 | 56:y:105:ASP:H | 1.83 | 0.42 |
| 83:AZ:799:ASP:N | 83:AZ:799:ASP:OD1 | 2.50 | 0.42 |
| 1:1:146:U:O2 | 1:1:148:G:C2 | 2.72 | 0.42 |
| 1:1:518:G:OP2 | 1:1:518:G:N2 | 2.35 | 0.42 |
| 1:1:797:U:H2' | 1:1:798:G:C8 | 2.54 | 0.42 |
| 1:1:1100:U:H2' | 1:1:1101:G:C8 | 2.54 | 0.42 |
| 1:1:3107:U:H2' | 1:1:3108:G:C8 | 2.54 | 0.42 |
| 4:P0:110:ARG:HB3 | 4:P0:113:ALA:HB2 | 2.01 | 0.42 |
| 7:B:364:LYS:HA | 7:B:364:LYS:HD3 | 1.90 | 0.42 |
| 14:I:190:VAL:HG13 | 14:I:197:VAL:HG11 | 2.00 | 0.42 |
| 20:P:3:ARG:HD3 | 20:P:3:ARG:HA | 1.89 | 0.42 |
| 47:2:258:C:H5" | 56:y:75:LYS:HD2 | 2.01 | 0.42 |
| 47:2:1595:U:H6 | 77:AT:32:ARG:HH12 | 1.67 | 0.42 |
| 53:v:40:ILE:HG23 | 53:v:42:LEU:HD22 | 2.00 | 0.42 |
| 54:w:9:VAL:O | 54:w:11:GLY:N | 2.52 | 0.42 |
| 58:AA:25:LYS:HB3 | 58:AA:43:ILE:HD12 | 2.00 | 0.42 |
| 68:AK:64:LYS:NZ | 68:AK:83:GLU:OE2 | 2.39 | 0.42 |
| 76:AS:30:VAL:HG21 | 76:AS:56:LEU:HD11 | 2.00 | 0.42 |
| 81:AX:28:C:H2' | 81:AX:29:A:C8 | 2.54 | 0.42 |
| 83:AZ:707:PRO:O | 83:AZ:710:ARG:N | 2.52 | 0.42 |
| 1:1:737:G:H2' | 1:1:738:A:H8 | 1.84 | 0.42 |
| 1:1:823:C:H4' | 6:A:19:HIS:HD2 | 1.85 | 0.42 |
| 1:1:1238:C:OP1 | 5:P2:79:SER:OG | 2.29 | 0.42 |
| 1:1:1257:C:H5' | 4:P0:46:ARG:NH1 | 2.28 | 0.42 |
| 1:1:1262:G:C4 | 1:1:1264:G:H1' | 2.54 | 0.42 |
| 1:1:1284:C:H2' | 1:1:1285:G:C8 | 2.54 | 0.42 |
| 1:1:1710:C:OP1 | 30:Z:79:HIS:NE2 | 2.53 | 0.42 |
| 1:1:2256:A:H3' | 1:1:2256:A:H8 | 1.85 | 0.42 |
| 1:1:2295:A:C4 | 26:V:37:ILE:HD11 | 2.54 | 0.42 |
| 1:1:3111:U:OP1 | 13:H:184:LYS:NZ | 2.42 | 0.42 |
| 8:C:234:ASN:OD1 | 8:C:234:ASN:N | 2.49 | 0.42 |
| 44:n:17:ARG:NH2 | 47:2:1750:A:O2' | 2.52 | 0.42 |
| 47:2:124:A:O2' | 52:u:148:ARG:NE | 2.52 | 0.42 |
| 47:2:384:G:H2' | 47:2:385:A:C8 | 2.55 | 0.42 |
| 47:2:564:G:N1 | 47:2:580:A:OP2 | 2.49 | 0.42 |
| 47:2:603:U:H2' | 47:2:604:A:C8 | 2.54 | 0.42 |
| 47:2:924:A:O2' | 47:2:987:G:OP1 | 2.34 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1140:G:H2' | 47:2:1141:G:C8 | 2.51 | 0.42 |
| 47:2:1512:G:H2' | 47:2:1513:G:C8 | 2.54 | 0.42 |
| 55:x:91:ILE:HD11 | 55:x:129:LEU:HA | 2.02 | 0.42 |
| 61:AD:91:LEU:HD22 | 61:AD:122:ILE:HG12 | 2.00 | 0.42 |
| 81:AX:21:A:N6 | 81:AX:46:G:N3 | 2.67 | 0.42 |
| 83:AZ:55:ARG:HH12 | 86:AZ:902:GCP:H5'2 | 1.83 | 0.42 |
| 83:AZ:673:GLU:HA | 83:AZ:679:GLU:HA | 2.01 | 0.42 |
| 1:1:446:U:N3 | 1:1:490:C:O2 | 2.53 | 0.42 |
| 1:1:629:U:H2' | 1:1:630:A:C8 | 2.54 | 0.42 |
| 1:1:784:A:C5 | 21:Q:93:ILE:HD11 | 2.55 | 0.42 |
| 1:1:860:G:O4' | 6:A:181:LYS:NZ | 2.51 | 0.42 |
| 1:1:1206:G:OP1 | 14:I:157:TYR:OH | 2.28 | 0.42 |
| 1:1:1411:C:OP1 | 35:e:98:HIS:ND1 | 2.40 | 0.42 |
| 1:1:1750:A:H4' | 1:1:1751:G:H5' | 2.00 | 0.42 |
| 1:1:2246:G:H2' | 1:1:2247:G:C8 | 2.54 | 0.42 |
| 1:1:2618:G:O2' | 1:1:2865:U:OP1 | 2.37 | 0.42 |
| 3:4:106:C:H4' | 3:4:107:G:H5" | 2.00 | 0.42 |
| 6:A:52:SER:OG | 6:A:53:GLY:N | 2.50 | 0.42 |
| 17:M:48:GLY:HA3 | 17:M:53:VAL:HG22 | 2.01 | 0.42 |
| 18:N:177:GLY:O | 18:N:184:LYS:NZ | 2.42 | 0.42 |
| 21:Q:16:ARG:O | 21:Q:50:LYS:NZ | 2.53 | 0.42 |
| 29:Y:55:GLU:HB2 | 29:Y:108:LYS:H | 1.84 | 0.42 |
| 36:f:35:VAL:HG21 | 36:f:79:GLY:HA3 | 2.01 | 0.42 |
| 45:o:34:SER:OG | 45:o:35:LEU:O | 2.37 | 0.42 |
| 47:2:225:A:H2' | 47:2:226:A:C8 | 2.55 | 0.42 |
| 47:2:1638:G:O5' | 47:2:1638:G:C8 | 2.70 | 0.42 |
| 64:AG:98:ASP:O | 64:AG:101:SER:OG | 2.29 | 0.42 |
| 65:AH:10:LYS:HA | 65:AH:13:SER:HB2 | 2.01 | 0.42 |
| 66:AI:101:LEU:N | 66:AI:104:ASN:HB3 | 2.33 | 0.42 |
| 68:AK:52:LYS:HE2 | 68:AK:52:LYS:HB3 | 1.89 | 0.42 |
| 79:AV:89:LEU:O | 79:AV:103:PHE:N | 2.52 | 0.42 |
| 81:AX:2:C:H2' | 81:AX:3:G:C8 | 2.54 | 0.42 |
| 81:AX:7:U:O4 | 81:AX:67:A:N6 | 2.53 | 0.42 |
| 83:AZ:221:THR:H | 83:AZ:224:GLN:NE2 | 2.18 | 0.42 |
| 83:AZ:538:LEU:O | 83:AZ:542:LEU:CB | 2.60 | 0.42 |
| 1:1:294:U:O2' | 1:1:295:A:O4' | 2.34 | 0.42 |
| 1:1:315:C:OP2 | 39:i:28:TYR:OH | 2.30 | 0.42 |
| 1:1:1203:A:H2' | 1:1:1204:A:C8 | 2.54 | 0.42 |
| 1:1:1258:U:H2' | 1:1:1259:A:H3' | 2.01 | 0.42 |
| 1:1:2202:C:O2' | 6:A:240:ALA:O | 2.27 | 0.42 |
| 1:1:2268:U:O4 | 1:1:2272:G:O6 | 2.38 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:2900:A:H61 | 1:1:3029:A:H61 | 1.67 | 0.42 |
| 4:P0:42:ARG:NH2 | 4:P0:51:VAL:HG11 | 2.33 | 0.42 |
| 7:B:377:HIS:CD2 | 7:B:387:LEU:HG | 2.55 | 0.42 |
| 20:P:114:VAL:HA | 20:P:150:VAL:HA | 2.02 | 0.42 |
| 23:S:155:ARG:HD3 | 23:S:172:TYR:CD1 | 2.54 | 0.42 |
| 33:c:51:LEU:HD21 | 37:g:91:ARG:HA | 2.01 | 0.42 |
| 42:l:13:MET:HE1 | 42:l:49:MET:HE3 | 2.02 | 0.42 |
| 47:2:250:C:H2' | 47:2:251:A:C8 | 2.54 | 0.42 |
| 47:2:884:A:H2' | 47:2:885:G:H8 | 1.84 | 0.42 |
| 47:2:1365:C:H2' | 47:2:1366:U:C6 | 2.53 | 0.42 |
| 47:2:1486:G:O6 | 47:2:1520:U:O4 | 2.37 | 0.42 |
| 52:u:75:LYS:HD3 | 52:u:77:ARG:HH21 | 1.83 | 0.42 |
| 83:AZ:145:GLN:HA | 83:AZ:146:ALA:HA | 1.73 | 0.42 |
| 1:1:214:G:O6 | 1:1:227:G:N2 | 2.52 | 0.42 |
| 1:1:980:A:H2 | 1:1:1104:G:H21 | 1.65 | 0.42 |
| 1:1:1541:G:N1 | 1:1:1555:U:C2 | 2.87 | 0.42 |
| 1:1:1624:G:H2' | 1:1:1625:A:H8 | 1.83 | 0.42 |
| 1:1:1655:G:N2 | 1:1:1801:U:O4 | 2.53 | 0.42 |
| 1:1:1816:A:H2' | 1:1:1817:G:C8 | 2.54 | 0.42 |
| 1:1:2412:G:H2' | 1:1:2413:A:C8 | 2.55 | 0.42 |
| 1:1:3101:G:H2' | 1:1:3102:G:C8 | 2.54 | 0.42 |
| 1:1:3268:A:O2' | 1:1:3269:U:O2 | 2.37 | 0.42 |
| 6:A:143:GLU:O | 6:A:145:LYS:N | 2.53 | 0.42 |
| 10:E:82:ARG:HH11 | 10:E:82:ARG:HD3 | 1.71 | 0.42 |
| 26:V:64:LYS:HA | 26:V:70:ARG:HD3 | 2.01 | 0.42 |
| 47:2:400:A:N6 | 56:y:29:LEU:HG | 2.34 | 0.42 |
| 47:2:460:A:O2' | 52:u:27:TYR:OH | 2.33 | 0.42 |
| 47:2:1071:U:H2' | 47:2:1072:C:C6 | 2.55 | 0.42 |
| 47:2:1352:G:O6 | 47:2:1373:C:N4 | 2.49 | 0.42 |
| 47:2:1354:G:N2 | 47:2:1369:U:O2 | 2.50 | 0.42 |
| 47:2:1366:U:O2 | 67:AJ:66:TYR:OH | 2.29 | 0.42 |
| 47:2:1387:G:O2' | 47:2:1410:A:N6 | 2.53 | 0.42 |
| 47:2:1490:C:H2' | 51:t:4:LEU:HB2 | 2.00 | 0.42 |
| 47:2:1690:G:N2 | 47:2:1712:A:O2' | 2.51 | 0.42 |
| 51:t:65:ARG:HH21 | 51:t:68:GLU:CD | 2.28 | 0.42 |
| 51:t:66:ILE:HA | 51:t:69:LEU:HB2 | 2.02 | 0.42 |
| 55:x:126:LEU:HD13 | 55:x:129:LEU:HD12 | 2.01 | 0.42 |
| 61:AD:23:PRO:HB2 | 61:AD:25:TRP:CD1 | 2.54 | 0.42 |
| 66:AI:88:ARG:NH2 | 66:AI:112:ASP:OD2 | 2.52 | 0.42 |
| 70:AM:3:ARG:HE | 70:AM:28:ARG:NH1 | 2.15 | 0.42 |
| 74:AQ:23:CYS:HB3 | 74:AQ:28:LYS:N | 2.35 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 83:AZ:362:ASP:N | 83:AZ:366:CYS:SG | 2.93 | 0.42 |
| 1:1:695:C:OP2 | 8:C:115:HIS:NE2 | 2.42 | 0.42 |
| 1:1:846:A:N6 | 47:2:971:A:N1 | 2.68 | 0.42 |
| 1:1:2340:U:H2' | 1:1:2341:A:C8 | 2.55 | 0.42 |
| 1:1:3158:G:H1 | 1:1:3292:A:H2 | 1.52 | 0.42 |
| 2:3:68:C:OP1 | 9:D:14:SER:OG | 2.33 | 0.42 |
| 4:P0:42:ARG:HA | 4:P0:45:LEU:HB3 | 2.00 | 0.42 |
| 14:I:48:LEU:HA | 14:I:178:ARG:NH2 | 2.35 | 0.42 |
| 18:N:102:ALA:HA | 18:N:105:ARG:HG2 | 2.02 | 0.42 |
| 23:S:88:HIS:HB3 | 23:S:90:MET:HE2 | 2.00 | 0.42 |
| 26:V:24:ASN:HA | 26:V:33:ASN:HA | 2.01 | 0.42 |
| 47:2:122:U:H4' | 52:u:77:ARG:HH12 | 1.84 | 0.42 |
| 47:2:1711:C:C2 | 47:2:1712:A:H1' | 2.55 | 0.42 |
| 62:AE:103:ARG:NH2 | 62:AE:107:ARG:HB2 | 2.34 | 0.42 |
| 63:AF:61:ARG:HA | 63:AF:64:LYS:HB3 | 2.02 | 0.42 |
| 69:AL:25:LYS:HA | 69:AL:25:LYS:HD2 | 1.87 | 0.42 |
| 69:AL:73:ALA:HB1 | 69:AL:79:LEU:HD13 | 2.00 | 0.42 |
| 70:AM:36:LYS:HG3 | 70:AM:39:GLN:HE21 | 1.85 | 0.42 |
| 83:AZ:693:LEU:HD21 | 83:AZ:700:ARG:HB3 | 2.00 | 0.42 |
| 83:AZ:800:HIS:HE2 | 83:AZ:802:SER:HB2 | 1.85 | 0.42 |
| 1:1:182:U:O4 | 1:1:234:G:O6 | 2.38 | 0.42 |
| 1:1:408:A:H2' | 1:1:409:A:C8 | 2.55 | 0.42 |
| 1:1:915:A:OP1 | 1:1:2145:A:O2' | 2.28 | 0.42 |
| 1:1:1883:A:H2' | 1:1:1884:A:C8 | 2.54 | 0.42 |
| 1:1:2618:G:N2 | 1:1:2645:G:OP1 | 2.52 | 0.42 |
| 3:4:4:C:OP1 | 20:P:62:ARG:NH2 | 2.52 | 0.42 |
| 3:4:140:G:O2' | 18:N:109:ARG:O | 2.37 | 0.42 |
| 6:A:22:LEU:HD23 | 6:A:191:LEU:HD11 | 2.00 | 0.42 |
| 6:A:247:ARG:HH12 | 47:2:987:G:H1 | 1.68 | 0.42 |
| 7:B:264:VAL:HG13 | 7:B:266:ARG:HG3 | 2.02 | 0.42 |
| 7:B:377:HIS:HD2 | 7:B:387:LEU:HG | 1.85 | 0.42 |
| 11:F:74:SER:OG | 24:T:141:VAL:O | 2.31 | 0.42 |
| 13:H:46:THR:O | 13:H:54:LYS:N | 2.47 | 0.42 |
| 16:L:64:LYS:HG3 | 31:a:69:TRP:CG | 2.55 | 0.42 |
| 17:M:20:VAL:O | 17:M:66:THR:OG1 | 2.37 | 0.42 |
| 37:g:49:SER:OG | 37:g:50:ALA:N | 2.52 | 0.42 |
| 37:g:74:ARG:HD3 | 37:g:85:VAL:HG11 | 2.01 | 0.42 |
| 41:k:62:ALA:HA | 41:k:65:LEU:HD23 | 2.02 | 0.42 |
| 47:2:645:C:H2' | 47:2:646:C:C6 | 2.55 | 0.42 |
| 47:2:1195:C:H42 | 64:AG:143:ARG:HA | 1.84 | 0.42 |
| 47:2:1266:U:H2' | 47:2:1267:G:H8 | 1.84 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 59:AB:100:TYR:N | 71:AN:9:LEU:O | 2.42 | 0.42 |
| 81:AX:50:U:H2' | 81:AX:51:G:C8 | 2.54 | 0.42 |
| 83:AZ:834:GLY:HA3 | 83:AZ:838:TYR:CE2 | 2.54 | 0.42 |
| 1:1:157:A:H62 | 1:1:264:G:N2 | 2.16 | 0.42 |
| 1:1:1084:A:H2' | 1:1:1085:A:C8 | 2.55 | 0.42 |
| 1:1:1165:A:H2' | 1:1:1166:G:H8 | 1.84 | 0.42 |
| 1:1:1259:A:C5 | 4:P0:53:MET:HB3 | 2.55 | 0.42 |
| 1:1:1497:C:H2' | 1:1:1498:A:C8 | 2.54 | 0.42 |
| 1:1:1827:C:H2' | 1:1:1828:A:H8 | 1.85 | 0.42 |
| 1:1:2389:C:H2' | 1:1:2390:A:C8 | 2.55 | 0.42 |
| 1:1:2632:G:O6 | 1:1:2647:A:N6 | 2.53 | 0.42 |
| 2:3:19:C:H2' | 2:3:20:A:H8 | 1.85 | 0.42 |
| 4:P0:46:ARG:NH1 | 5:P2:123:ARG:HH11 | 2.18 | 0.42 |
| 5:P2:81:VAL:HG13 | 5:P2:142:ARG:HH22 | 1.85 | 0.42 |
| 7:B:188:ILE:HA | 7:B:191:LYS:HD2 | 2.02 | 0.42 |
| 13:H:47:LYS:HA | 13:H:53:ILE:HG13 | 2.02 | 0.42 |
| 15:J:29:ARG:HA | 15:J:32:ARG:HG2 | 2.01 | 0.42 |
| 23:S:42:TRP:HE1 | 23:S:58:ILE:HD11 | 1.84 | 0.42 |
| 25:U:29:ASP:OD1 | 25:U:29:ASP:N | 2.49 | 0.42 |
| 29:Y:55:GLU:HG3 | 29:Y:108:LYS:HB2 | 2.01 | 0.42 |
| 47:2:618:U:H5' | 47:2:1030:A:C5 | 2.55 | 0.42 |
| 47:2:679:U:O4 | 47:2:682:C:N4 | 2.52 | 0.42 |
| 47:2:752:A:N1 | 47:2:797:G:C6 | 2.88 | 0.42 |
| 49:r:78:ASP:OD1 | 49:r:79:HIS:ND1 | 2.53 | 0.42 |
| 51:t:6:SER:OG | 51:t:7:LYS:N | 2.53 | 0.42 |
| 55:x:89:HIS:CE1 | 55:x:165:LYS:HG2 | 2.55 | 0.42 |
| 57:z:51:LYS:HA | 57:z:54:ARG:HB3 | 2.02 | 0.42 |
| 60:AC:43:ARG:HH11 | 60:AC:46:ARG:NH2 | 2.18 | 0.42 |
| 63:AF:79:HIS:HA | 63:AF:97:TYR:HB3 | 2.02 | 0.42 |
| 66:AI:5:VAL:HG22 | 73:AP:42:LEU:HD13 | 2.02 | 0.42 |
| 72:AO:27:VAL:HG12 | 72:AO:29:HIS:HD2 | 1.85 | 0.42 |
| 74:AQ:87:ARG:NH2 | 74:AQ:91:ASP:O | 2.43 | 0.42 |
| 79:AV:22:SER:OG | 79:AV:23:LEU:N | 2.50 | 0.42 |
| 1:1:276:U:H2' | 1:1:277:G:H8 | 1.85 | 0.42 |
| 1:1:431:U:H2' | 1:1:432:G:H8 | 1.84 | 0.42 |
| 1:1:685:G:OP2 | 16:L:35:ARG:NH2 | 2.53 | 0.42 |
| 1:1:790:U:H2' | 1:1:791:A:C8 | 2.54 | 0.42 |
| 1:1:1917:C:P | 22:R:85:ARG:HH22 | 2.43 | 0.42 |
| 1:1:2611:U:H2' | 1:1:2612:U:C6 | 2.54 | 0.42 |
| 1:1:2642:A:H5' | 32:b:7:HIS:CD2 | 2.55 | 0.42 |
| 1:1:2662:G:H2' | 1:1:2663:G:H8 | 1.84 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:C:126:ILE:HD11 | 8:C:233:LEU:HD11 | 2.02 | 0.42 |
| 13:H:18:VAL:O | 17:M:5:SER:OG | 2.29 | 0.42 |
| 18:N:113:LEU:HB2 | 18:N:134:LEU:HD23 | 2.01 | 0.42 |
| 26:V:66:LYS:HA | 26:V:67:PRO:HD3 | 1.87 | 0.42 |
| 30:Z:25:ILE:HG23 | 30:Z:41:ALA:HB1 | 2.02 | 0.42 |
| 36:f:9:VAL:HG12 | 36:f:100:ILE:HB | 2.02 | 0.42 |
| 39:i:13:LYS:HA | 39:i:13:LYS:HD3 | 1.86 | 0.42 |
| 47:2:1541:G:N2 | 47:2:1570:A:H62 | 2.18 | 0.42 |
| 47:2:1701:A:C5 | 47:2:1702:A:H1' | 2.55 | 0.42 |
| 48:q:9:LEU:HD23 | 48:q:54:TRP:CD2 | 2.54 | 0.42 |
| 48:q:17:LEU:HD11 | 48:q:176:LEU:HD11 | 2.01 | 0.42 |
| 48:q:74:VAL:HB | 48:q:121:VAL:HG12 | 2.02 | 0.42 |
| 48:q:163:ASN:HB2 | 48:q:165:ARG:HG2 | 2.01 | 0.42 |
| 49:r:83:LYS:HE2 | 49:r:106:THR:HG22 | 2.01 | 0.42 |
| 52:u:87:MET:HB2 | 52:u:87:MET:HE3 | 1.84 | 0.42 |
| 53:v:76:ARG:HE | 64:AG:122:ARG:HD3 | 1.84 | 0.42 |
| 77:AT:21:CYS:SG | 77:AT:23:VAL:N | 2.84 | 0.42 |
| 79:AV:192:PHE:HZ | 79:AV:228:LYS:HB3 | 1.85 | 0.42 |
| 83:AZ:70:ILE:HG22 | 83:AZ:71:LYS:HG3 | 2.02 | 0.42 |
| 1:1:504:A:H2' | 1:1:505:G:C8 | 2.55 | 0.41 |
| 1:1:1621:A:H2' | 1:1:1622:U:C6 | 2.55 | 0.41 |
| 1:1:1665:C:H2' | 1:1:1666:G:H8 | 1.85 | 0.41 |
| 1:1:1896:A:N6 | 1:1:2339:C:H42 | 2.17 | 0.41 |
| 17:M:14:LEU:HD13 | 23:S:149:LYS:HD2 | 2.02 | 0.41 |
| 18:N:100:ALA:HB2 | 18:N:167:THR:HG21 | 2.02 | 0.41 |
| 47:2:338:C:H1' | 56:y:5:ARG:HG3 | 2.02 | 0.41 |
| 47:2:898:A:H62 | 47:2:914:G:N2 | 2.18 | 0.41 |
| 47:2:1066:C:H2' | 47:2:1067:C:C6 | 2.55 | 0.41 |
| 50:s:144:TRP:CD2 | 50:s:173:PRO:HG3 | 2.55 | 0.41 |
| 52:u:125:LYS:H | 52:u:142:HIS:CD2 | 2.38 | 0.41 |
| 55:x:173:TYR:HE2 | 55:x:179:LYS:HB3 | 1.85 | 0.41 |
| 57:z:42:ILE:H | 57:z:42:ILE:HG13 | 1.76 | 0.41 |
| 69:AL:80:LYS:HB3 | 69:AL:81:ASN:H | 1.60 | 0.41 |
| 74:AQ:43:ASN:HB3 | 74:AQ:45:VAL:HG22 | 2.01 | 0.41 |
| 80:AW:123:ASN:HD22 | 80:AW:124:PRO:HD2 | 1.85 | 0.41 |
| 85:AZ:901:SO1:H4 | 85:AZ:901:SO1:H81 | 1.76 | 0.41 |
| 1:1:549:U:H2' | 1:1:550:A:C8 | 2.55 | 0.41 |
| 1:1:710:A:H2' | 1:1:711:A:C8 | 2.55 | 0.41 |
| 1:1:939:U:OP2 | 31:a:26:ARG:NH2 | 2.53 | 0.41 |
| 1:1:1349:G:H2' | 1:1:1350:A:H4' | 2.01 | 0.41 |
| 1:1:2261:G:O2' | 1:1:2263:C:N4 | 2.52 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:2456:A:O2' | 1:1:2457:G:O4' | 2.38 | 0.41 |
| 1:1:2674:A:H62 | 15:J:22:SER:H | 1.67 | 0.41 |
| 1:1:3181:C:H2' | 1:1:3182:G:C8 | 2.55 | 0.41 |
| 1:1:3198:U:HO2' | 13:H:19:SER:HG | 1.67 | 0.41 |
| 1:1:3218:A:H5" | 1:1:3219:G:C8 | 2.55 | 0.41 |
| 7:B:72:VAL:HG22 | 26:V:88:ARG:HB3 | 2.02 | 0.41 |
| 9:D:107:ARG:NH2 | 9:D:119:TYR:O | 2.48 | 0.41 |
| 13:H:104:VAL:N | 13:H:111:PHE:O | 2.52 | 0.41 |
| 15:J:84:LEU:HA | 15:J:87:LYS:HB2 | 2.01 | 0.41 |
| 18:N:152:CYS:HB3 | 38:h:92:LEU:HD21 | 2.01 | 0.41 |
| 22:R:127:SER:HB2 | 22:R:132:PHE:HD2 | 1.84 | 0.41 |
| 37:g:57:LEU:HB2 | 37:g:61:GLN:HE21 | 1.85 | 0.41 |
| 47:2:14:C:H5" | 50:s:164:SER:HB2 | 2.02 | 0.41 |
| 47:2:402:C:OP1 | 52:u:3:ARG:NH1 | 2.53 | 0.41 |
| 47:2:899:G:H2' | 47:2:900:A:H8 | 1.85 | 0.41 |
| 47:2:903:U:C2 | 47:2:906:A:N7 | 2.87 | 0.41 |
| 47:2:930:A:H5" | 74:AQ:70:LYS:HZ1 | 1.85 | 0.41 |
| 52:u:29:PRO:HB3 | 52:u:45:ILE:HD11 | 2.01 | 0.41 |
| 53:v:94:THR:HG21 | 53:v:111:VAL:HG22 | 2.02 | 0.41 |
| 57:z:171:ARG:NH1 | 57:z:174:ARG:HE | 2.18 | 0.41 |
| 64:AG:47:LYS:HZ1 | 64:AG:112:TYR:HH | 1.65 | 0.41 |
| 64:AG:65:ILE:HG13 | 64:AG:85:ILE:HG23 | 2.02 | 0.41 |
| 71:AN:89:ASN:HD22 | 71:AN:89:ASN:HA | 1.60 | 0.41 |
| 80:AW:121:CYS:HB3 | 80:AW:130:VAL:HG23 | 2.02 | 0.41 |
| 83:AZ:190:SER:OG | 83:AZ:201:GLN:NE2 | 2.47 | 0.41 |
| 1:1:21:G:H3' | 1:1:22:G:H8 | 1.85 | 0.41 |
| 1:1:171:G:N1 | 1:1:248:U:N3 | 2.69 | 0.41 |
| 1:1:1135:A:H1' | 1:1:2642:A:H2 | 1.85 | 0.41 |
| 1:1:1192:C:N4 | 1:1:1302:A:O5' | 2.54 | 0.41 |
| 1:1:1510:G:H2' | 1:1:1512:U:C4 | 2.55 | 0.41 |
| 1:1:1756:C:H2' | 1:1:1757:A:H8 | 1.84 | 0.41 |
| 1:1:2597:U:H2' | 1:1:2598:G:H8 | 1.85 | 0.41 |
| 1:1:3022:G:O2' | 1:1:3031:G:O6 | 2.35 | 0.41 |
| 11:F:89:ILE:HD11 | 11:F:214:TRP:HH2 | 1.85 | 0.41 |
| 14:I:153:ARG:HH11 | 14:I:157:TYR:HE2 | 1.68 | 0.41 |
| 18:N:175:ASN:HB2 | 18:N:180:PHE:CE2 | 2.55 | 0.41 |
| 21:Q:62:VAL:HG13 | 21:Q:87:VAL:HG12 | 2.02 | 0.41 |
| 29:Y:119:ILE:O | 29:Y:124:GLY:N | 2.52 | 0.41 |
| 47:2:398:G:OP2 | 56:y:47:ARG:NH1 | 2.37 | 0.41 |
| 47:2:925:G:H2' | 47:2:926:A:C8 | 2.55 | 0.41 |
| 47:2:1552:U:H2' | 47:2:1553:G:C8 | 2.54 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1561:U:H2' | 47:2:1562:G:C8 | 2.55 | 0.41 |
| 47:2:1640:C:O2 | 47:2:1763:A:C6 | 2.73 | 0.41 |
| 51:t:46:THR:N | 51:t:83:THR:O | 2.42 | 0.41 |
| 63:AF:15:HIS:CD2 | 63:AF:17:TYR:HB2 | 2.55 | 0.41 |
| 65:AH:14:LYS:HZ1 | 65:AH:57:LEU:HD11 | 1.85 | 0.41 |
| 68:AK:23:ARG:HG3 | 68:AK:119:ALA:HB3 | 2.03 | 0.41 |
| 71:AN:63:GLN:HA | 71:AN:64:PRO:HA | 1.73 | 0.41 |
| 1:1:217:U:O2' | 29:Y:102:SER:OG | 2.38 | 0.41 |
| 1:1:341:G:O2' | 3:4:22:U:O4 | 2.38 | 0.41 |
| 1:1:353:G:N2 | 1:1:365:A:OP2 | 2.53 | 0.41 |
| 1:1:407:A:H2' | 1:1:408:A:H8 | 1.85 | 0.41 |
| 1:1:1257:C:O2 | 1:1:1261:G:O6 | 2.38 | 0.41 |
| 1:1:1262:G:H8 | 1:1:1262:G:H2' | 1.72 | 0.41 |
| 1:1:1949:G:OP2 | 22:R:135:LYS:NZ | 2.52 | 0.41 |
| 1:1:2294:U:H2' | 1:1:2295:A:H3' | 2.02 | 0.41 |
| 1:1:2565:U:O2 | 1:1:2576:G:N2 | 2.39 | 0.41 |
| 1:1:3064:U:H2' | 1:1:3065:G:C8 | 2.55 | 0.41 |
| 5:P2:99:LYS:HE2 | 5:P2:99:LYS:HB3 | 1.87 | 0.41 |
| 7:B:187:SER:O | 7:B:190:GLU:N | 2.51 | 0.41 |
| 8:C:22:LEU:HA | 8:C:23:PRO:HD3 | 1.79 | 0.41 |
| 8:C:316:ASN:HD22 | 11:F:150:LYS:HE2 | 1.84 | 0.41 |
| 11:F:136:TYR:CZ | 11:F:231:ASN:HB3 | 2.55 | 0.41 |
| 17:M:40:ASP:OD1 | 17:M:43:LYS:N | 2.45 | 0.41 |
| 19:O:129:LEU:HD21 | 19:O:133:ARG:HB3 | 2.03 | 0.41 |
| 22:R:10:LEU:HD12 | 22:R:10:LEU:HA | 1.88 | 0.41 |
| 22:R:102:LEU:HD21 | 22:R:138:LEU:HB2 | 2.03 | 0.41 |
| 23:S:78:TRP:HB2 | 23:S:124:LEU:HB2 | 2.02 | 0.41 |
| 41:k:7:ASP:OD1 | 41:k:10:GLN:NE2 | 2.53 | 0.41 |
| 47:2:361:C:H2' | 47:2:362:G:H8 | 1.84 | 0.41 |
| 47:2:384:G:H2' | 47:2:385:A:H8 | 1.85 | 0.41 |
| 47:2:526:A:H2' | 47:2:527:A:C4 | 2.56 | 0.41 |
| 51:t:7:LYS:HA | 51:t:11:LEU:HD13 | 2.02 | 0.41 |
| 52:u:36:HIS:HA | 52:u:143:ASP:HA | 2.01 | 0.41 |
| 53:v:36:ALA:HB1 | 53:v:42:LEU:HD21 | 2.02 | 0.41 |
| 54:w:100:ALA:HB1 | 54:w:101:ILE:HD12 | 2.01 | 0.41 |
| 55:x:71:HIS:CD2 | 55:x:132:PRO:HG3 | 2.56 | 0.41 |
| 59:AB:8:GLN:HE21 | 59:AB:14:GLN:H | 1.69 | 0.41 |
| 60:AC:97:LEU:HG | 60:AC:100:TRP:HB2 | 2.01 | 0.41 |
| 61:AD:93:LYS:HE2 | 61:AD:93:LYS:HB3 | 1.95 | 0.41 |
| 79:AV:180:ALA:HB3 | 79:AV:190:ALA:HB3 | 2.03 | 0.41 |
| 1:1:939:U:H2' | 1:1:940:G:C8 | 2.56 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:1243:G:N2 | 1:1:1270:A:O2' | 2.53 | 0.41 |
| 1:1:1521:G:H5' | 28:X:71:THR:HG21 | 2.03 | 0.41 |
| 1:1:2368:A:H2' | 1:1:2369:G:C8 | 2.55 | 0.41 |
| 1:1:2916:U:H2' | 1:1:2917:G:C8 | 2.56 | 0.41 |
| 4:P0:5:ARG:HD2 | 4:P0:8:LYS:HB2 | 2.03 | 0.41 |
| 5:P2:104:ILE:H | 5:P2:104:ILE:HG13 | 1.64 | 0.41 |
| 6:A:104:LEU:HA | 6:A:107:VAL:HG22 | 2.02 | 0.41 |
| 7:B:10:ARG:HH21 | 7:B:263:SER:HG | 1.65 | 0.41 |
| 29:Y:80:VAL:O | 29:Y:99:LEU:N | 2.51 | 0.41 |
| 34:d:9:THR:HG21 | 34:d:74:ARG:HH21 | 1.85 | 0.41 |
| 47:2:872:G:C6 | 47:2:955:A:N1 | 2.89 | 0.41 |
| 49:r:31:ASP:HA | 49:r:45:LYS:HA | 2.01 | 0.41 |
| 49:r:35:PRO:HB3 | 49:r:231:LEU:HD13 | 2.03 | 0.41 |
| 52:u:64:ILE:HG13 | 72:AO:18:LEU:HD21 | 2.02 | 0.41 |
| 52:u:185:GLY:H | 52:u:189:LEU:HB2 | 1.86 | 0.41 |
| 54:w:74:LYS:HD3 | 54:w:94:ARG:HH11 | 1.85 | 0.41 |
| 64:AG:136:SER:OG | 64:AG:137:ARG:N | 2.49 | 0.41 |
| 76:AS:43:ASN:HD22 | 76:AS:66:LEU:HD12 | 1.85 | 0.41 |
| 83:AZ:235:VAL:O | 83:AZ:239:LYS:NZ | 2.54 | 0.41 |
| 83:AZ:236:ASP:HB2 | 83:AZ:237:LYS:H | 1.73 | 0.41 |
| 1:1:307:A:H2' | 1:1:308:A:C8 | 2.54 | 0.41 |
| 1:1:356:C:H2' | 1:1:357:A:H8 | 1.86 | 0.41 |
| 1:1:798:G:O2' | 16:L:14:PHE:O | 2.34 | 0.41 |
| 1:1:1627:U:H2' | 1:1:1814:A:H62 | 1.85 | 0.41 |
| 1:1:1653:G:H2' | 1:1:1654:A:C8 | 2.55 | 0.41 |
| 1:1:2098:C:H2' | 1:1:2099:A:C8 | 2.54 | 0.41 |
| 1:1:2331:C:H2' | 1:1:2332:A:C8 | 2.55 | 0.41 |
| 1:1:2440:G:H2' | 1:1:2441:A:C8 | 2.55 | 0.41 |
| 3:4:141:C:O3' | 18:N:62:TYR:OH | 2.39 | 0.41 |
| 9:D:148:ILE:O | 9:D:151:GLN:NE2 | 2.46 | 0.41 |
| 11:F:89:ILE:HD12 | 11:F:89:ILE:HA | 1.82 | 0.41 |
| 14:I:36:LEU:HD11 | 14:I:87:LEU:HD12 | 2.02 | 0.41 |
| 16:L:167:PHE:HZ | 16:L:171:ARG:HH11 | 1.69 | 0.41 |
| 17:M:105:GLN:NE2 | 19:O:199:TYR:O | 2.53 | 0.41 |
| 18:N:99:ARG:HA | 18:N:130:PHE:CE2 | 2.55 | 0.41 |
| 28:X:65:GLN:HB2 | 28:X:85:GLN:HB3 | 2.02 | 0.41 |
| 30:Z:90:GLU:HA | 30:Z:93:LYS:HB2 | 2.03 | 0.41 |
| 39:i:20:MET:HE3 | 39:i:22:PRO:HG3 | 2.02 | 0.41 |
| 39:i:51:SER:O | 39:i:55:ARG:N | 2.52 | 0.41 |
| 47:2:97:C:H2' | 47:2:98:U:H6 | 1.84 | 0.41 |
| 47:2:506:A:H4' | 47:2:507:U:H5 | 1.86 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 47:2:1087:A:H2' | 47:2:1088:A:C8 | 2.55 | 0.41 |
| 47:2:1144:U:H2' | 47:2:1145:U:H6 | 1.86 | 0.41 |
| 47:2:1158:C:H41 | 47:2:1581:C:H2' | 1.85 | 0.41 |
| 47:2:1175:U:H2' | 47:2:1176:G:C8 | 2.56 | 0.41 |
| 47:2:1330:G:H3' | 47:2:1331:A:H8 | 1.86 | 0.41 |
| 47:2:1364:G:H2' | 47:2:1365:C:C6 | 2.55 | 0.41 |
| 47:2:1595:U:H3' | 77:AT:32:ARG:NH2 | 2.36 | 0.41 |
| 50:s:222:TYR:HB2 | 69:AL:25:LYS:HE3 | 2.02 | 0.41 |
| 51:t:15:GLY:HA2 | 51:t:18:TYR:CE2 | 2.55 | 0.41 |
| 51:t:191:ASP:OD1 | 51:t:191:ASP:N | 2.50 | 0.41 |
| 52:u:64:ILE:HD11 | 72:AO:18:LEU:HD11 | 2.01 | 0.41 |
| 54:w:33:GLY:HA2 | 54:w:51:LYS:HA | 2.03 | 0.41 |
| 57:z:34:PHE:HA | 57:z:122:VAL:HG21 | 2.02 | 0.41 |
| 60:AC:42:ALA:HA | 60:AC:47:GLU:HB2 | 2.03 | 0.41 |
| 61:AD:40:TYR:HA | 61:AD:43:LYS:HE2 | 2.01 | 0.41 |
| 65:AH:29:GLN:HG3 | 65:AH:33:ARG:HH22 | 1.85 | 0.41 |
| 66:AI:74:GLN:HA | 66:AI:99:HIS:HE2 | 1.85 | 0.41 |
| 74:AQ:10:ARG:HB2 | 74:AQ:34:LYS:HA | 2.03 | 0.41 |
| 81:AX:65:G:H2' | 81:AX:66:A:C8 | 2.56 | 0.41 |
| 83:AZ:349:GLN:HE21 | 83:AZ:372:CYS:HB3 | 1.86 | 0.41 |
| 1:1:276:U:H2' | 1:1:277:G:C8 | 2.56 | 0.41 |
| 1:1:584:G:H2' | 1:1:585:A:C8 | 2.54 | 0.41 |
| 1:1:1756:C:H2' | 1:1:1757:A:C8 | 2.55 | 0.41 |
| 1:1:2562:A:H3' | 1:1:2563:G:H8 | 1.85 | 0.41 |
| 12:G:185:ARG:O | 12:G:188:THR:OG1 | 2.31 | 0.41 |
| 22:R:10:LEU:HD23 | 22:R:41:ILE:HD13 | 2.02 | 0.41 |
| 24:T:107:GLU:HA | 24:T:110:LYS:HB3 | 2.02 | 0.41 |
| 26:V:108:GLU:HA | 26:V:128:ARG:HG2 | 2.03 | 0.41 |
| 29:Y:32:SER:HA | 29:Y:50:ILE:HD11 | 2.02 | 0.41 |
| 31:a:35:ALA:O | 31:a:41:HIS:ND1 | 2.54 | 0.41 |
| 34:d:25:PHE:HB3 | 34:d:65:LYS:HG2 | 2.03 | 0.41 |
| 47:2:890:C:H2' | 47:2:891:A:C8 | 2.56 | 0.41 |
| 47:2:1133:A:N3 | 47:2:1650:U:O2' | 2.54 | 0.41 |
| 47:2:1220:C:H2' | 47:2:1221:A:C8 | 2.52 | 0.41 |
| 47:2:1481:C:OP2 | 67:AJ:64:HIS:ND1 | 2.53 | 0.41 |
| 47:2:1503:A:H2' | 47:2:1504:G:C8 | 2.56 | 0.41 |
| 47:2:1517:U:P | 47:2:1518:C:H41 | 2.43 | 0.41 |
| 48:q:11:PRO:HG3 | 65:AH:115:LEU:HD22 | 2.02 | 0.41 |
| 50:s:86:VAL:HG21 | 50:s:99:LYS:HE3 | 2.03 | 0.41 |
| 56:y:66:SER:H | 56:y:182:TYR:HA | 1.84 | 0.41 |
| 56:y:67:TRP:CD1 | 56:y:69:SER:H | 2.39 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:y:157:GLU:HA | 56:y:160:PHE:HD2 | 1.86 | 0.41 |
| 57:z:69:ARG:HH21 | 57:z:93:LEU:HD12 | 1.86 | 0.41 |
| 63:AF:25:LEU:HD22 | 63:AF:25:LEU:HA | 1.90 | 0.41 |
| 67:AJ:41:SER:OG | 67:AJ:95:ASP:O | 2.28 | 0.41 |
| 69:AL:69:LEU:O | 69:AL:73:ALA:N | 2.54 | 0.41 |
| 72:AO:102:LYS:H | 72:AO:102:LYS:HD2 | 1.85 | 0.41 |
| 76:AS:36:THR:OG1 | 76:AS:37:SER:N | 2.53 | 0.41 |
| 79:AV:281:TYR:HB3 | 79:AV:285:ALA:HB3 | 2.02 | 0.41 |
| 1:1:76:G:N7 | 16:L:101:ARG:HG2 | 2.36 | 0.41 |
| 1:1:431:U:OP1 | 36:f:53:TYR:OH | 2.37 | 0.41 |
| 1:1:946:U:H2' | 1:1:947:G:H8 | 1.85 | 0.41 |
| 1:1:1009:A:H2' | 1:1:1010:G:C8 | 2.56 | 0.41 |
| 1:1:1392:G:N1 | 1:1:1417:G:N7 | 2.69 | 0.41 |
| 1:1:2252:A:H2' | 1:1:2253:G:C8 | 2.55 | 0.41 |
| 1:1:2409:G:H3' | 1:1:2410:U:H4' | 2.01 | 0.41 |
| 7:B:298:PHE:HD2 | 7:B:357:LYS:HG3 | 1.85 | 0.41 |
| 19:O:187:GLU:HA | 19:O:191:ALA:HB2 | 2.03 | 0.41 |
| 36:f:47:LYS:HZ2 | 36:f:102:LEU:HA | 1.85 | 0.41 |
| 47:2:358:U:H2' | 47:2:360:A:H8 | 1.85 | 0.41 |
| 47:2:641:G:H2' | 47:2:642:G:C8 | 2.56 | 0.41 |
| 47:2:846:G:H2' | 47:2:847:A:H8 | 1.85 | 0.41 |
| 47:2:871:G:H2' | 47:2:872:G:C8 | 2.56 | 0.41 |
| 47:2:885:G:OP1 | 49:r:136:ARG:NH1 | 2.54 | 0.41 |
| 53:v:164:PRO:HG3 | 76:AS:52:ASP:HB3 | 2.03 | 0.41 |
| 54:w:90:GLY:H | 54:w:91:GLU:HB3 | 1.85 | 0.41 |
| 55:x:72:LYS:O | 55:x:76:LYS:NZ | 2.54 | 0.41 |
| 60:AC:59:LEU:HD22 | 60:AC:121:VAL:H | 1.85 | 0.41 |
| 63:AF:34:VAL:HG23 | 63:AF:41:VAL:HG12 | 2.03 | 0.41 |
| 67:AJ:40:SER:OG | 67:AJ:41:SER:N | 2.53 | 0.41 |
| 72:AO:23:PHE:HE1 | 72:AO:75:VAL:HG12 | 1.85 | 0.41 |
| 77:AT:22:ARG:N | 77:AT:37:ASN:O | 2.54 | 0.41 |
| 79:AV:213:SER:N | 79:AV:221:MET:O | 2.54 | 0.41 |
| 83:AZ:151:ILE:HD12 | 83:AZ:151:ILE:HA | 1.97 | 0.41 |
| 1:1:54:C:H2' | 1:1:55:G:H8 | 1.86 | 0.41 |
| 1:1:385:A:O2' | 1:1:386:A:O4' | 2.36 | 0.41 |
| 1:1:835:G:O2' | 1:1:857:G:N2 | 2.44 | 0.41 |
| 1:1:900:G:N3 | 1:1:1589:A:N6 | 2.69 | 0.41 |
| 1:1:949:C:O2' | 21:Q:8:LYS:NZ | 2.39 | 0.41 |
| 1:1:1023:C:N4 | 1:1:1024:G:N3 | 2.69 | 0.41 |
| 1:1:2563:G:O5' | 30:Z:55:LYS:NZ | 2.50 | 0.41 |
| 1:1:3007:U:OP1 | 19:O:74:ARG:N | 2.51 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:3049:A:OP1 | 7:B:332:ARG:NH2 | 2.54 | 0.41 |
| 1:1:3255:U:H2' | 1:1:3256:G:C8 | 2.56 | 0.41 |
| 1:1:3276:G:O6 | 20:P:171:ARG:NE | 2.54 | 0.41 |
| 1:1:3325:G:H5" | 34:d:103:GLY:HA2 | 2.02 | 0.41 |
| 3:4:95:G:H21 | 40:j:79:GLN:HE22 | 1.69 | 0.41 |
| 4:P0:12:PHE:O | 4:P0:16:ARG:N | 2.49 | 0.41 |
| 5:P2:57:LYS:HE3 | 5:P2:79:SER:HB2 | 2.02 | 0.41 |
| 7:B:235:THR:OG1 | 7:B:236:LYS:N | 2.51 | 0.41 |
| 10:E:148:GLU:O | 10:E:151:LYS:NZ | 2.54 | 0.41 |
| 13:H:92:TYR:HB2 | 13:H:142:ASP:HB3 | 2.03 | 0.41 |
| 15:J:101:ASN:HD22 | 15:J:130:VAL:HA | 1.86 | 0.41 |
| 26:V:81:GLN:HB3 | 26:V:85:TRP:HZ3 | 1.86 | 0.41 |
| 31:a:2:PRO:HB2 | 31:a:3:SER:H | 1.76 | 0.41 |
| 47:2:201:G:H2' | 47:2:202:A:C8 | 2.56 | 0.41 |
| 47:2:358:U:H2' | 47:2:360:A:C8 | 2.56 | 0.41 |
| 47:2:560:U:H2' | 47:2:561:G:H8 | 1.85 | 0.41 |
| 47:2:636:A:H5" | 70:AM:31:SER:HB3 | 2.02 | 0.41 |
| 47:2:1018:U:H2' | 47:2:1019:A:C8 | 2.55 | 0.41 |
| 47:2:1158:C:H5 | 47:2:1582:U:H5" | 1.86 | 0.41 |
| 47:2:1206:U:H4' | 77:AT:27:HIS:NE2 | 2.36 | 0.41 |
| 47:2:1273:G:O2' | 47:2:1430:U:OP2 | 2.37 | 0.41 |
| 47:2:1344:A:N6 | 47:2:1377:U:O2' | 2.54 | 0.41 |
| 47:2:1379:C:H4' | 64:AG:17:THR:HG21 | 2.03 | 0.41 |
| 47:2:1385:G:H2' | 47:2:1386:G:C8 | 2.56 | 0.41 |
| 47:2:1587:A:H2' | 47:2:1588:G:H8 | 1.86 | 0.41 |
| 51:t:19:ALA:HB1 | 77:AT:46:LYS:HG2 | 2.03 | 0.41 |
| 51:t:169:ASP:N | 51:t:188:ILE:O | 2.54 | 0.41 |
| 54:w:94:ARG:HD3 | 54:w:94:ARG:HA | 1.88 | 0.41 |
| 57:z:173:ALA:O | 57:z:177:ALA:N | 2.49 | 0.41 |
| 61:AD:4:MET:HE2 | 61:AD:4:MET:HB2 | 1.89 | 0.41 |
| 62:AE:27:PHE:HB3 | 62:AE:43:THR:HA | 2.02 | 0.41 |
| 63:AF:60:LEU:O | 63:AF:64:LYS:N | 2.46 | 0.41 |
| 79:AV:40:LYS:HG2 | 79:AV:67:ILE:HA | 2.02 | 0.41 |
| 83:AZ:567:VAL:HG23 | 83:AZ:722:PRO:HG3 | 2.02 | 0.41 |
| 83:AZ:699:DDE:HAU3 | 83:AZ:699:DDE:HAB2 | 1.85 | 0.41 |
| 83:AZ:753:GLN:HB2 | 83:AZ:771:TYR:HB2 | 2.02 | 0.41 |
| 1:1:2129:U:H2' | 1:1:2130:G:C8 | 2.55 | 0.41 |
| 1:1:2724:U:H4' | 24:T:54:HIS:CE1 | 2.56 | 0.41 |
| 1:1:3003:G:O2' | 7:B:92:TYR:OH | 2.30 | 0.41 |
| 1:1:3205:G:H5" | 17:M:102:LYS:NZ | 2.36 | 0.41 |
| 8:C:157:GLU:HB3 | 8:C:213:ASN:HB2 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 36:f:42:GLN:HA | 36:f:45:LEU:HG | 2.03 | 0.41 |
| 47:2:1078:C:H2' | 47:2:1079:U:H6 | 1.86 | 0.41 |
| 47:2:1676:U:C2 | 47:2:1726:G:N1 | 2.89 | 0.41 |
| 47:2:1758:U:C4 | 47:2:1759:C:N4 | 2.88 | 0.41 |
| 52:u:43:PRO:HA | 52:u:83:PRO:HA | 2.03 | 0.41 |
| 52:u:123:LEU:HD12 | 52:u:123:LEU:HA | 1.90 | 0.41 |
| 55:x:123:ASP:OD1 | 55:x:124:LYS:N | 2.53 | 0.41 |
| 55:x:139:ARG:HG3 | 70:AM:53:ILE:HD12 | 2.03 | 0.41 |
| 58:AA:15:LEU:O | 58:AA:19:GLY:N | 2.54 | 0.41 |
| 67:AJ:65:ILE:HG12 | 67:AJ:68:ARG:HH21 | 1.86 | 0.41 |
| 83:AZ:75:ILE:HB | 83:AZ:102:LEU:HB3 | 2.03 | 0.41 |
| 83:AZ:75:ILE:HD12 | 83:AZ:102:LEU:HD23 | 2.01 | 0.41 |
| 83:AZ:130:ASP:OD1 | 83:AZ:159:LYS:NZ | 2.40 | 0.41 |
| 83:AZ:779:GLY:O | 83:AZ:782:GLY:N | 2.53 | 0.41 |
| 1:1:41:G:H21 | 1:1:2803:A:H62 | 1.69 | 0.40 |
| 1:1:289:A:O2' | 18:N:93:LYS:O | 2.36 | 0.40 |
| 1:1:842:G:H2' | 1:1:843:A:C8 | 2.56 | 0.40 |
| 1:1:852:U:H2' | 1:1:853:G:C8 | 2.54 | 0.40 |
| 1:1:903:U:H2' | 1:1:904:A:C8 | 2.53 | 0.40 |
| 1:1:1485:G:N3 | 37:g:4:ARG:NH2 | 2.69 | 0.40 |
| 1:1:2545:C:H2' | 1:1:2546:C:C6 | 2.56 | 0.40 |
| 1:1:3185:U:O2' | 23:S:170:THR:OG1 | 2.25 | 0.40 |
| 8:C:65:TRP:CG | 8:C:69:ARG:HH22 | 2.39 | 0.40 |
| 8:C:314:LYS:NZ | 8:C:315:LYS:O | 2.42 | 0.40 |
| 11:F:144:ILE:HG21 | 11:F:189:ILE:HD11 | 2.03 | 0.40 |
| 13:H:80:THR:HG23 | 13:H:84:LYS:HD2 | 2.03 | 0.40 |
| 14:I:86:HIS:HB3 | 14:I:139:ARG:HG2 | 2.03 | 0.40 |
| 19:O:49:ARG:O | 19:O:53:LYS:N | 2.44 | 0.40 |
| 19:O:80:PHE:HA | 19:O:83:ALA:HB3 | 2.02 | 0.40 |
| 31:a:126:LYS:HG2 | 31:a:146:GLU:HB3 | 2.02 | 0.40 |
| 47:2:97:C:O2 | 47:2:425:A:O2' | 2.33 | 0.40 |
| 47:2:114:C:O2' | 59:AB:67:ARG:NH2 | 2.34 | 0.40 |
| 47:2:253:A:H5' | 52:u:134:LYS:HA | 2.03 | 0.40 |
| 47:2:520:A:H2' | 47:2:521:A:H8 | 1.87 | 0.40 |
| 47:2:765:G:H1 | 57:z:149:ARG:HB2 | 1.86 | 0.40 |
| 47:2:1022:C:H5 | 47:2:1023:A:C6 | 2.39 | 0.40 |
| 47:2:1172:G:N2 | 67:AJ:88:VAL:HG11 | 2.36 | 0.40 |
| 47:2:1303:U:O2' | 47:2:1322:A:OP2 | 2.29 | 0.40 |
| 47:2:1470:C:OP1 | 47:2:1540:G:O2' | 2.34 | 0.40 |
| 48:q:155:PHE:O | 69:AL:60:ARG:NH1 | 2.54 | 0.40 |
| 53:v:76:ARG:HD3 | 53:v:76:ARG:HA | 1.82 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 54:w:30:LYS:HE3 | 54:w:34:GLN:HG2 | 2.02 | 0.40 |
| 54:w:36:VAL:HB | 54:w:50:PHE:HB2 | 2.03 | 0.40 |
| 55:x:98:ILE:HD12 | 55:x:98:ILE:HA | 1.96 | 0.40 |
| 63:AF:86:VAL:HA | 63:AF:87:PRO:HD3 | 1.80 | 0.40 |
| 66:AI:87:ASN:OD1 | 66:AI:87:ASN:N | 2.53 | 0.40 |
| 66:AI:121:ALA:HB3 | 66:AI:124:GLY:H | 1.85 | 0.40 |
| 67:AJ:65:ILE:HA | 67:AJ:68:ARG:HE | 1.86 | 0.40 |
| 70:AM:20:THR:OG1 | 70:AM:22:LYS:NZ | 2.39 | 0.40 |
| 83:AZ:308:LYS:O | 83:AZ:311:GLU:HB2 | 2.21 | 0.40 |
| 1:1:720:A:H5' | 21:Q:69:ARG:HH22 | 1.86 | 0.40 |
| 1:1:1263:A:H61 | 5:P2:136:ALA:HB2 | 1.86 | 0.40 |
| 1:1:1628:C:H4' | 1:1:1629:U:H3' | 2.02 | 0.40 |
| 1:1:2228:A:H2' | 1:1:2229:A:H8 | 1.86 | 0.40 |
| 1:1:2815:G:N7 | 1:1:2870:C:O2' | 2.52 | 0.40 |
| 11:F:43:ILE:H | 11:F:43:ILE:HG13 | 1.69 | 0.40 |
| 13:H:34:LEU:HD21 | 13:H:78:MET:HB2 | 2.04 | 0.40 |
| 32:b:32:LEU:O | 32:b:40:ARG:NH2 | 2.54 | 0.40 |
| 47:2:737:A:O2' | 47:2:738:G:O5' | 2.37 | 0.40 |
| 47:2:899:G:H2' | 47:2:900:A:C8 | 2.56 | 0.40 |
| 47:2:966:A:OP1 | 61:AD:124:ARG:NE | 2.53 | 0.40 |
| 47:2:1150:G:N2 | 82:AY:45:A:O2' | 2.54 | 0.40 |
| 47:2:1673:G:O6 | 47:2:1728:A:N1 | 2.54 | 0.40 |
| 50:s:56:ILE:HD11 | 50:s:61:LEU:HB2 | 2.02 | 0.40 |
| 52:u:53:LYS:O | 72:AO:22:GLN:NE2 | 2.43 | 0.40 |
| 54:w:44:GLU:HB2 | 54:w:120:GLU:HB2 | 2.04 | 0.40 |
| 56:y:98:LYS:HE3 | 56:y:98:LYS:HB3 | 1.97 | 0.40 |
| 57:z:83:VAL:HG23 | 57:z:85:VAL:HG23 | 2.03 | 0.40 |
| 65:AH:115:LEU:HB3 | 65:AH:116:LYS:H | 1.77 | 0.40 |
| 72:AO:84:LYS:HE3 | 72:AO:85:PHE:HE2 | 1.86 | 0.40 |
| 79:AV:43:ILE:HG23 | 79:AV:57:PRO:HB3 | 2.03 | 0.40 |
| 83:AZ:574:THR:HG22 | 83:AZ:589:LYS:HB2 | 2.02 | 0.40 |
| 1:1:160:G:H1 | 1:1:261:U:H3 | 1.68 | 0.40 |
| 1:1:1084:A:H4' | 9:D:44:TYR:HE2 | 1.86 | 0.40 |
| 1:1:1276:U:P | 4:P0:110:ARG:HH11 | 2.44 | 0.40 |
| 1:1:1348:U:H2' | 8:C:290:ILE:HD13 | 2.04 | 0.40 |
| 1:1:1881:A:H2' | 1:1:1882:G:H8 | 1.86 | 0.40 |
| 1:1:2591:A:H2' | 1:1:2592:G:C8 | 2.56 | 0.40 |
| 1:1:2816:G:N2 | 1:1:2819:A:OP2 | 2.41 | 0.40 |
| 3:4:111:A:O2' | 3:4:112:U:OP1 | 2.38 | 0.40 |
| 3:4:143:U:OP1 | 18:N:38:ARG:NH2 | 2.54 | 0.40 |
| 8:C:60:THR:OG1 | 8:C:61:SER:N | 2.54 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:F:61:ASN:O | 11:F:65:ALA:N | 2.49 | 0.40 |
| 15:J:62:ASN:ND2 | 45:o:101:GLY:O | 2.54 | 0.40 |
| 16:L:21:ARG:HB3 | 18:N:192:LYS:NZ | 2.37 | 0.40 |
| 17:M:15:VAL:HG11 | 23:S:152:LEU:HD23 | 2.02 | 0.40 |
| 19:O:42:ASN:ND2 | 19:O:125:ARG:HG3 | 2.37 | 0.40 |
| 26:V:68:GLU:HG2 | 26:V:69:LEU:HD22 | 2.03 | 0.40 |
| 34:d:61:LYS:HE2 | 34:d:61:LYS:HB3 | 1.96 | 0.40 |
| 42:l:49:MET:HE2 | 42:l:49:MET:HB2 | 1.91 | 0.40 |
| 47:2:86:A:H2' | 47:2:87:C:C6 | 2.55 | 0.40 |
| 47:2:142:G:H1 | 47:2:173:A:H2 | 1.57 | 0.40 |
| 47:2:975:C:H5" | 61:AD:109:LYS:HG2 | 2.02 | 0.40 |
| 47:2:978:A:H2' | 47:2:979:A:H8 | 1.87 | 0.40 |
| 47:2:1474:G:N7 | 73:AP:97:LYS:NZ | 2.57 | 0.40 |
| 53:v:120:ILE:HD13 | 73:AP:100:ILE:HD11 | 2.02 | 0.40 |
| 62:AE:90:ARG:HB3 | 62:AE:91:THR:H | 1.72 | 0.40 |
| 70:AM:101:TYR:HA | 70:AM:113:HIS:HE1 | 1.86 | 0.40 |
| 79:AV:149:ASP:HB2 | 79:AV:175:ASP:HA | 2.03 | 0.40 |
| 79:AV:205:SER:OG | 79:AV:208:GLY:N | 2.50 | 0.40 |
| 1:1:49:A:H61 | 1:1:287:G:H21 | 1.69 | 0.40 |
| 1:1:1224:C:H2' | 1:1:1225:A:H8 | 1.87 | 0.40 |
| 1:1:1370:G:H2' | 1:1:1371:G:C8 | 2.56 | 0.40 |
| 1:1:2367:A:H2' | 1:1:2368:A:C8 | 2.57 | 0.40 |
| 1:1:2661:G:H2' | 1:1:2662:G:C8 | 2.56 | 0.40 |
| 1:1:2914:G:H5' | 7:B:9:PRO:HG3 | 2.03 | 0.40 |
| 10:E:38:THR:HG22 | 10:E:40:LEU:HB3 | 2.02 | 0.40 |
| 16:L:43:ALA:HA | 16:L:46:ILE:HG22 | 2.02 | 0.40 |
| 29:Y:31:LEU:HD11 | 29:Y:78:PHE:HA | 2.04 | 0.40 |
| 36:f:67:MET:HE1 | 36:f:90:PRO:HD3 | 2.04 | 0.40 |
| 47:2:1316:G:H2' | 47:2:1317:C:C6 | 2.56 | 0.40 |
| 47:2:1383:G:N7 | 68:AK:57:ARG:NH2 | 2.70 | 0.40 |
| 56:y:52:ASN:N | 56:y:52:ASN:OD1 | 2.54 | 0.40 |
| 62:AE:103:ARG:HH22 | 62:AE:107:ARG:HB2 | 1.85 | 0.40 |
| 70:AM:51:GLU:HB3 | 70:AM:62:VAL:HG13 | 2.04 | 0.40 |
| 83:AZ:579:SER:N | 83:AZ:710:ARG:HH21 | 2.19 | 0.40 |
| 1:1:39:A:H61 | 1:1:42:C:H3' | 1.86 | 0.40 |
| 1:1:88:A:H62 | 1:1:98:G:N2 | 2.19 | 0.40 |
| 1:1:720:A:OP1 | 31:a:117:ARG:NH1 | 2.42 | 0.40 |
| 1:1:745:C:H2' | 1:1:746:A:C8 | 2.57 | 0.40 |
| 1:1:915:A:H2' | 1:1:916:G:H4' | 2.04 | 0.40 |
| 1:1:992:A:N6 | 1:1:993:G:O6 | 2.54 | 0.40 |
| 1:1:3169:U:H2' | 1:1:3170:A:C8 | 2.56 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:1:3340:G:O2' | 1:1:3342:A:OP2 | 2.35 | 0.40 |
| 2:3:39:C:O2' | 15:J:44:THR:O | 2.39 | 0.40 |
| 47:2:191:C:O2' | 47:2:192:U:O4' | 2.38 | 0.40 |
| 47:2:546:U:H2' | 47:2:547:U:C6 | 2.56 | 0.40 |
| 47:2:1628:U:H2' | 47:2:1629:G:C8 | 2.56 | 0.40 |
| 48:q:150:ASP:OD1 | 48:q:150:ASP:N | 2.51 | 0.40 |
| 51:t:25:PHE:HD1 | 51:t:29:LEU:HD22 | 1.87 | 0.40 |
| 54:w:22:HIS:HA | 54:w:25:ARG:HB2 | 2.03 | 0.40 |
| 72:AO:133:ASN:HA | 72:AO:134:ALA:HA | 1.76 | 0.40 |
| 79:AV:217:ASP:OD1 | 79:AV:217:ASP:N | 2.54 | 0.40 |
| 79:AV:222:LEU:HB2 | 79:AV:231:MET:HB2 | 2.04 | 0.40 |
| 83:AZ:460:ASP:OD1 | 83:AZ:460:ASP:N | 2.54 | 0.40 |

There are no symmetry-related clashes.

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 4 | P0 | 187/189 (99%) | 151 (81%) | 36 (19%) | 0 | 100 | 100 |
| 5 | P2 | 92/94 (98%) | 71 (77%) | 21 (23%) | 0 | 100 | 100 |
| 6 | A | 250/252 (99%) | 212 (85%) | 38 (15%) | 0 | 100 | 100 |
| 7 | B | 384/386 (100%) | 337 (88%) | 47 (12%) | 0 | 100 | 100 |
| 8 | C | 359/361 (99%) | 307 (86%) | 52 (14%) | 0 | 100 | 100 |
| 9 | D | 294/296 (99%) | 257 (87%) | 35 (12%) | 2 (1%) | 19 | 56 |
| 10 | E | 152/175 (87%) | 135 (89%) | 17 (11%) | 0 | 100 | 100 |
| 11 | F | 220/222 (99%) | 184 (84%) | 34 (16%) | 2 (1%) | 14 | 50 |
| 12 | G | 231/233 (99%) | 199 (86%) | 31 (13%) | 1 (0%) | 30 | 67 |
| 13 | H | 189/191 (99%) | 159 (84%) | 30 (16%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 14 | I | 207/220 (94%) | 182 (88%) | 24 (12%) | 1 (0%) | 25 63 |
| 15 | J | 167/169 (99%) | 135 (81%) | 31 (19%) | 1 (1%) | 22 59 |
| 16 | L | 191/193 (99%) | 155 (81%) | 34 (18%) | 2 (1%) | 13 48 |
| 17 | M | 134/136 (98%) | 119 (89%) | 15 (11%) | 0 | 100 100 |
| 18 | N | 201/203 (99%) | 171 (85%) | 30 (15%) | 0 | 100 100 |
| 19 | O | 195/197 (99%) | 170 (87%) | 22 (11%) | 3 (2%) | 8 39 |
| 20 | P | 181/183 (99%) | 161 (89%) | 20 (11%) | 0 | 100 100 |
| 21 | Q | 183/185 (99%) | 162 (88%) | 21 (12%) | 0 | 100 100 |
| 22 | R | 186/188 (99%) | 173 (93%) | 13 (7%) | 0 | 100 100 |
| 23 | S | 170/172 (99%) | 147 (86%) | 23 (14%) | 0 | 100 100 |
| 24 | T | 157/159 (99%) | 137 (87%) | 19 (12%) | 1 (1%) | 22 59 |
| 25 | U | 98/100 (98%) | 85 (87%) | 13 (13%) | 0 | 100 100 |
| 26 | V | 134/136 (98%) | 114 (85%) | 19 (14%) | 1 (1%) | 19 56 |
| 27 | W | 61/63 (97%) | 55 (90%) | 6 (10%) | 0 | 100 100 |
| 28 | X | 119/121 (98%) | 103 (87%) | 16 (13%) | 0 | 100 100 |
| 29 | Y | 124/126 (98%) | 112 (90%) | 12 (10%) | 0 | 100 100 |
| 30 | Z | 133/135 (98%) | 111 (84%) | 22 (16%) | 0 | 100 100 |
| 31 | a | 146/148 (99%) | 117 (80%) | 28 (19%) | 1 (1%) | 19 56 |
| 32 | b | 56/58 (97%) | 48 (86%) | 8 (14%) | 0 | 100 100 |
| 33 | c | 95/97 (98%) | 84 (88%) | 11 (12%) | 0 | 100 100 |
| 34 | d | 107/109 (98%) | 91 (85%) | 16 (15%) | 0 | 100 100 |
| 35 | e | 125/127 (98%) | 111 (89%) | 12 (10%) | 2 (2%) | 8 37 |
| 36 | f | 104/106 (98%) | 82 (79%) | 20 (19%) | 2 (2%) | 6 33 |
| 37 | g | 110/112 (98%) | 99 (90%) | 9 (8%) | 2 (2%) | 7 34 |
| 38 | h | 117/119 (98%) | 103 (88%) | 14 (12%) | 0 | 100 100 |
| 39 | i | 97/99 (98%) | 78 (80%) | 19 (20%) | 0 | 100 100 |
| 40 | j | 85/87 (98%) | 65 (76%) | 19 (22%) | 1 (1%) | 11 43 |
| 41 | k | 75/77 (97%) | 67 (89%) | 8 (11%) | 0 | 100 100 |
| 42 | l | 48/50 (96%) | 36 (75%) | 11 (23%) | 1 (2%) | 5 30 |
| 43 | m | 50/52 (96%) | 45 (90%) | 5 (10%) | 0 | 100 100 |
| 44 | n | 23/25 (92%) | 23 (100%) | 0 | 0 | 100 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 45 | o | 103/105 (98%) | 78 (76%) | 25 (24%) | 0 | 100 | 100 |
| 46 | p | 89/91 (98%) | 78 (88%) | 11 (12%) | 0 | 100 | 100 |
| 48 | q | 204/206 (99%) | 169 (83%) | 33 (16%) | 2 (1%) | 13 | 48 |
| 49 | r | 212/214 (99%) | 161 (76%) | 49 (23%) | 2 (1%) | 14 | 50 |
| 50 | s | 215/217 (99%) | 183 (85%) | 32 (15%) | 0 | 100 | 100 |
| 51 | t | 221/223 (99%) | 182 (82%) | 39 (18%) | 0 | 100 | 100 |
| 52 | u | 258/260 (99%) | 200 (78%) | 56 (22%) | 2 (1%) | 16 | 53 |
| 53 | v | 204/206 (99%) | 164 (80%) | 40 (20%) | 0 | 100 | 100 |
| 54 | w | 221/223 (99%) | 157 (71%) | 61 (28%) | 3 (1%) | 9 | 40 |
| 55 | x | 182/184 (99%) | 150 (82%) | 31 (17%) | 1 (0%) | 25 | 63 |
| 56 | y | 184/199 (92%) | 141 (77%) | 43 (23%) | 0 | 100 | 100 |
| 57 | z | 183/185 (99%) | 153 (84%) | 30 (16%) | 0 | 100 | 100 |
| 58 | AA | 94/105 (90%) | 77 (82%) | 16 (17%) | 1 (1%) | 12 | 46 |
| 59 | AB | 151/153 (99%) | 125 (83%) | 26 (17%) | 0 | 100 | 100 |
| 60 | AC | 122/124 (98%) | 98 (80%) | 23 (19%) | 1 (1%) | 16 | 53 |
| 61 | AD | 148/150 (99%) | 129 (87%) | 15 (10%) | 4 (3%) | 4 | 26 |
| 62 | AE | 125/127 (98%) | 105 (84%) | 20 (16%) | 0 | 100 | 100 |
| 63 | AF | 122/124 (98%) | 85 (70%) | 33 (27%) | 4 (3%) | 3 | 21 |
| 64 | AG | 139/141 (99%) | 111 (80%) | 26 (19%) | 2 (1%) | 9 | 40 |
| 65 | AH | 116/125 (93%) | 97 (84%) | 19 (16%) | 0 | 100 | 100 |
| 66 | AI | 143/145 (99%) | 122 (85%) | 19 (13%) | 2 (1%) | 9 | 40 |
| 67 | AJ | 141/143 (99%) | 124 (88%) | 17 (12%) | 0 | 100 | 100 |
| 68 | AK | 105/107 (98%) | 91 (87%) | 14 (13%) | 0 | 100 | 100 |
| 69 | AL | 85/87 (98%) | 64 (75%) | 20 (24%) | 1 (1%) | 11 | 43 |
| 70 | AM | 127/129 (98%) | 114 (90%) | 12 (9%) | 1 (1%) | 16 | 53 |
| 71 | AN | 142/144 (99%) | 114 (80%) | 26 (18%) | 2 (1%) | 9 | 40 |
| 72 | AO | 132/134 (98%) | 112 (85%) | 20 (15%) | 0 | 100 | 100 |
| 73 | AP | 68/70 (97%) | 46 (68%) | 21 (31%) | 1 (2%) | 8 | 39 |
| 74 | AQ | 95/97 (98%) | 65 (68%) | 30 (32%) | 0 | 100 | 100 |
| 75 | AR | 79/81 (98%) | 57 (72%) | 21 (27%) | 1 (1%) | 10 | 42 |
| 76 | AS | 61/63 (97%) | 54 (88%) | 7 (12%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 77 | AT | 51/53 (96%) | 46 (90%) | 5 (10%) | 0 | 100 | 100 |
| 78 | AU | 58/60 (97%) | 49 (84%) | 9 (16%) | 0 | 100 | 100 |
| 79 | AV | 316/318 (99%) | 254 (80%) | 61 (19%) | 1 (0%) | 37 | 72 |
| 80 | AW | 35/37 (95%) | 26 (74%) | 9 (26%) | 0 | 100 | 100 |
| 83 | AZ | 837/840 (100%) | 676 (81%) | 157 (19%) | 4 (0%) | 25 | 63 |
| All | All | 12005/12221 (98%) | 10010 (83%) | 1937 (16%) | 58 (0%) | 27 | 63 |

All (58) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 19 | O | 111 | PRO |
| 48 | q | 113 | ARG |
| 49 | r | 207 | LEU |
| 54 | w | 10 | ASN |
| 54 | w | 68 | LEU |
| 58 | AA | 88 | PRO |
| 61 | AD | 105 | ASN |
| 64 | AG | 59 | LYS |
| 16 | L | 48 | PRO |
| 16 | L | 77 | LEU |
| 26 | V | 105 | PRO |
| 35 | e | 79 | VAL |
| 36 | f | 58 | GLU |
| 36 | f | 59 | VAL |
| 42 | l | 30 | ARG |
| 49 | r | 206 | PRO |
| 52 | u | 195 | ILE |
| 54 | w | 93 | LYS |
| 71 | AN | 114 | LYS |
| 75 | AR | 76 | GLY |
| 11 | F | 159 | GLN |
| 24 | T | 159 | PHE |
| 48 | q | 112 | THR |
| 55 | x | 111 | LYS |
| 61 | AD | 85 | PRO |
| 63 | AF | 30 | THR |
| 63 | AF | 53 | PRO |
| 73 | AP | 55 | PRO |
| 83 | AZ | 252 | PRO |
| 83 | AZ | 708 | THR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 83 | AZ | 722 | PRO |
| 11 | F | 158 | LYS |
| 14 | I | 24 | ARG |
| 19 | O | 37 | ARG |
| 31 | a | 78 | LEU |
| 37 | g | 66 | SER |
| 40 | j | 64 | MET |
| 52 | u | 155 | LYS |
| 61 | AD | 139 | TRP |
| 69 | AL | 81 | ASN |
| 79 | AV | 165 | ASP |
| 9 | D | 259 | LYS |
| 19 | O | 110 | PRO |
| 35 | e | 78 | ASN |
| 37 | g | 67 | LYS |
| 60 | AC | 131 | ASP |
| 61 | AD | 104 | ARG |
| 63 | AF | 125 | PRO |
| 83 | AZ | 639 | ASP |
| 9 | D | 20 | PHE |
| 15 | J | 165 | GLN |
| 63 | AF | 70 | ASN |
| 66 | AI | 9 | GLY |
| 12 | G | 157 | VAL |
| 71 | AN | 64 | PRO |
| 64 | AG | 33 | GLY |
| 66 | AI | 92 | ILE |
| 70 | AM | 67 | GLY |

### 5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 4 | P0 | 160/160 (100%) | 160 (100%) | 0 | 100 100 |
| 5 | P2 | 81/81 (100%) | 80 (99%) | 1 (1%) | 67 79 |
| 6 | A | 193/194 (100%) | 192 (100%) | 1 (0%) | 86 90 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 7 | B | 321/322 (100%) | 316 (98%) | 5 (2%) | 58 74 |
| 8 | C | 288/288 (100%) | 285 (99%) | 3 (1%) | 73 81 |
| 9 | D | 244/244 (100%) | 243 (100%) | 1 (0%) | 89 91 |
| 10 | E | 134/152 (88%) | 134 (100%) | 0 | 100 100 |
| 11 | F | 186/186 (100%) | 183 (98%) | 3 (2%) | 58 74 |
| 12 | G | 187/191 (98%) | 186 (100%) | 1 (0%) | 86 90 |
| 13 | H | 171/171 (100%) | 170 (99%) | 1 (1%) | 84 88 |
| 14 | I | 177/186 (95%) | 175 (99%) | 2 (1%) | 70 80 |
| 15 | J | 147/147 (100%) | 147 (100%) | 0 | 100 100 |
| 16 | L | 154/154 (100%) | 154 (100%) | 0 | 100 100 |
| 17 | M | 107/107 (100%) | 104 (97%) | 3 (3%) | 38 59 |
| 18 | N | 175/175 (100%) | 170 (97%) | 5 (3%) | 37 58 |
| 19 | O | 160/160 (100%) | 154 (96%) | 6 (4%) | 28 50 |
| 20 | P | 140/145 (97%) | 137 (98%) | 3 (2%) | 48 67 |
| 21 | Q | 150/150 (100%) | 149 (99%) | 1 (1%) | 81 87 |
| 22 | R | 153/153 (100%) | 150 (98%) | 3 (2%) | 50 69 |
| 23 | S | 156/156 (100%) | 155 (99%) | 1 (1%) | 84 88 |
| 24 | T | 136/136 (100%) | 133 (98%) | 3 (2%) | 47 66 |
| 25 | U | 87/87 (100%) | 87 (100%) | 0 | 100 100 |
| 26 | V | 104/104 (100%) | 103 (99%) | 1 (1%) | 73 81 |
| 27 | W | 55/55 (100%) | 52 (94%) | 3 (6%) | 18 40 |
| 28 | X | 104/105 (99%) | 103 (99%) | 1 (1%) | 73 81 |
| 29 | Y | 109/109 (100%) | 109 (100%) | 0 | 100 100 |
| 30 | Z | 115/115 (100%) | 115 (100%) | 0 | 100 100 |
| 31 | a | 118/118 (100%) | 118 (100%) | 0 | 100 100 |
| 32 | b | 46/46 (100%) | 45 (98%) | 1 (2%) | 47 66 |
| 33 | c | 81/81 (100%) | 78 (96%) | 3 (4%) | 29 51 |
| 34 | d | 94/96 (98%) | 94 (100%) | 0 | 100 100 |
| 35 | e | 109/109 (100%) | 108 (99%) | 1 (1%) | 75 83 |
| 36 | f | 90/90 (100%) | 89 (99%) | 1 (1%) | 70 80 |
| 37 | g | 95/95 (100%) | 95 (100%) | 0 | 100 100 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 38 | h | 104/104 (100%) | 102 (98%) | 2 (2%) | 52 70 |
| 39 | i | 81/81 (100%) | 81 (100%) | 0 | 100 100 |
| 40 | j | 70/70 (100%) | 70 (100%) | 0 | 100 100 |
| 41 | k | 68/68 (100%) | 67 (98%) | 1 (2%) | 60 75 |
| 42 | l | 45/45 (100%) | 44 (98%) | 1 (2%) | 47 66 |
| 43 | m | 47/47 (100%) | 46 (98%) | 1 (2%) | 48 67 |
| 44 | n | 22/23 (96%) | 22 (100%) | 0 | 100 100 |
| 45 | o | 90/90 (100%) | 90 (100%) | 0 | 100 100 |
| 46 | p | 71/71 (100%) | 70 (99%) | 1 (1%) | 62 76 |
| 48 | q | 164/173 (95%) | 163 (99%) | 1 (1%) | 84 88 |
| 49 | r | 191/191 (100%) | 188 (98%) | 3 (2%) | 58 74 |
| 50 | s | 176/176 (100%) | 174 (99%) | 2 (1%) | 70 80 |
| 51 | t | 182/182 (100%) | 181 (100%) | 1 (0%) | 86 90 |
| 52 | u | 221/221 (100%) | 219 (99%) | 2 (1%) | 75 83 |
| 53 | v | 173/173 (100%) | 173 (100%) | 0 | 100 100 |
| 54 | w | 189/191 (99%) | 188 (100%) | 1 (0%) | 86 90 |
| 55 | x | 165/165 (100%) | 164 (99%) | 1 (1%) | 84 88 |
| 56 | y | 150/160 (94%) | 148 (99%) | 2 (1%) | 65 77 |
| 57 | z | 158/158 (100%) | 157 (99%) | 1 (1%) | 84 88 |
| 58 | AA | 77/98 (79%) | 76 (99%) | 1 (1%) | 65 77 |
| 59 | AB | 133/134 (99%) | 131 (98%) | 2 (2%) | 60 75 |
| 60 | AC | 88/100 (88%) | 85 (97%) | 3 (3%) | 32 53 |
| 61 | AD | 127/127 (100%) | 124 (98%) | 3 (2%) | 44 63 |
| 62 | AE | 81/96 (84%) | 79 (98%) | 2 (2%) | 42 62 |
| 63 | AF | 101/104 (97%) | 100 (99%) | 1 (1%) | 73 81 |
| 64 | AG | 117/117 (100%) | 116 (99%) | 1 (1%) | 75 83 |
| 65 | AH | 94/113 (83%) | 94 (100%) | 0 | 100 100 |
| 66 | AI | 128/128 (100%) | 127 (99%) | 1 (1%) | 79 85 |
| 67 | AJ | 115/115 (100%) | 115 (100%) | 0 | 100 100 |
| 68 | AK | 100/100 (100%) | 99 (99%) | 1 (1%) | 73 81 |
| 69 | AL | 74/74 (100%) | 74 (100%) | 0 | 100 100 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 70 | AM | 110/110 (100%) | 107 (97%) | 3 (3%) | 40 60 |
| 71 | AN | 119/119 (100%) | 114 (96%) | 5 (4%) | 25 47 |
| 72 | AO | 112/112 (100%) | 111 (99%) | 1 (1%) | 75 83 |
| 73 | AP | 61/61 (100%) | 60 (98%) | 1 (2%) | 58 74 |
| 74 | AQ | 83/83 (100%) | 81 (98%) | 2 (2%) | 44 63 |
| 75 | AR | 70/70 (100%) | 69 (99%) | 1 (1%) | 62 76 |
| 76 | AS | 56/56 (100%) | 56 (100%) | 0 | 100 100 |
| 77 | AT | 47/47 (100%) | 47 (100%) | 0 | 100 100 |
| 78 | AU | 51/51 (100%) | 51 (100%) | 0 | 100 100 |
| 79 | AV | 259/261 (99%) | 258 (100%) | 1 (0%) | 89 91 |
| 80 | AW | 31/31 (100%) | 30 (97%) | 1 (3%) | 34 55 |
| 83 | AZ | 711/712 (100%) | 702 (99%) | 9 (1%) | 65 77 |
| All | All | 10139/10276 (99%) | 10026 (99%) | 113 (1%) | 69 80 |

All (113) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 5 | P2 | 104 | ILE |
| 6 | A | 237 | LEU |
| 7 | B | 47 | LEU |
| 7 | B | 85 | VAL |
| 7 | B | 89 | VAL |
| 7 | B | 90 | VAL |
| 7 | B | 104 | THR |
| 8 | C | 12 | THR |
| 8 | C | 30 | ILE |
| 8 | C | 154 | THR |
| 9 | D | 41 | LYS |
| 11 | F | 83 | LEU |
| 11 | F | 93 | ASN |
| 11 | F | 147 | LEU |
| 12 | G | 163 | VAL |
| 13 | H | 53 | ILE |
| 14 | I | 97 | LEU |
| 14 | I | 152 | LEU |
| 17 | M | 46 | ILE |
| 17 | M | 72 | LEU |
| 17 | M | 112 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 18 | N | 64 | VAL |
| 18 | N | 66 | VAL |
| 18 | N | 115 | VAL |
| 18 | N | 121 | VAL |
| 18 | N | 174 | ILE |
| 19 | O | 12 | LYS |
| 19 | O | 16 | VAL |
| 19 | O | 33 | ILE |
| 19 | O | 104 | VAL |
| 19 | O | 118 | VAL |
| 19 | O | 197 | LEU |
| 20 | P | 114 | VAL |
| 20 | P | 117 | ILE |
| 20 | P | 149 | VAL |
| 21 | Q | 127 | LEU |
| 22 | R | 41 | ILE |
| 22 | R | 96 | ILE |
| 22 | R | 102 | LEU |
| 23 | S | 121 | ILE |
| 24 | T | 31 | LEU |
| 24 | T | 40 | VAL |
| 24 | T | 80 | VAL |
| 26 | V | 73 | VAL |
| 27 | W | 13 | ILE |
| 27 | W | 44 | LYS |
| 27 | W | 49 | ILE |
| 28 | X | 102 | LEU |
| 32 | b | 58 | LYS |
| 33 | c | 34 | LEU |
| 33 | c | 41 | LEU |
| 33 | c | 51 | LEU |
| 35 | e | 28 | VAL |
| 36 | f | 89 | LEU |
| 38 | h | 58 | ILE |
| 38 | h | 88 | LEU |
| 41 | k | 66 | ILE |
| 42 | l | 42 | ARG |
| 43 | m | 78 | ILE |
| 46 | p | 8 | VAL |
| 48 | q | 188 | LEU |
| 49 | r | 97 | LEU |
| 49 | r | 172 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 49 | r | 201 | THR |
| 50 | s | 73 | LEU |
| 50 | s | 235 | LEU |
| 51 | t | 4 | LEU |
| 52 | u | 64 | ILE |
| 52 | u | 196 | VAL |
| 54 | w | 87 | ARG |
| 55 | x | 93 | LEU |
| 56 | y | 72 | ILE |
| 56 | y | 88 | ASN |
| 57 | z | 42 | ILE |
| 58 | AA | 82 | LEU |
| 59 | AB | 84 | ILE |
| 59 | AB | 142 | VAL |
| 60 | AC | 28 | LEU |
| 60 | AC | 60 | VAL |
| 60 | AC | 121 | VAL |
| 61 | AD | 91 | LEU |
| 61 | AD | 109 | LYS |
| 61 | AD | 117 | LEU |
| 62 | AE | 110 | LEU |
| 62 | AE | 128 | LYS |
| 63 | AF | 25 | LEU |
| 64 | AG | 38 | LEU |
| 66 | AI | 5 | VAL |
| 68 | AK | 56 | VAL |
| 70 | AM | 34 | ILE |
| 70 | AM | 62 | VAL |
| 70 | AM | 93 | LEU |
| 71 | AN | 62 | LYS |
| 71 | AN | 63 | GLN |
| 71 | AN | 89 | ASN |
| 71 | AN | 117 | ILE |
| 71 | AN | 127 | VAL |
| 72 | AO | 7 | ILE |
| 73 | AP | 69 | LEU |
| 74 | AQ | 36 | ILE |
| 74 | AQ | 84 | VAL |
| 75 | AR | 21 | LEU |
| 79 | AV | 193 | ILE |
| 80 | AW | 139 | LEU |
| 83 | AZ | 87 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 83 | AZ | 156 | VAL |
| 83 | AZ | 222 | ILE |
| 83 | AZ | 276 | PHE |
| 83 | AZ | 278 | LEU |
| 83 | AZ | 529 | ILE |
| 83 | AZ | 593 | ILE |
| 83 | AZ | 633 | ILE |
| 83 | AZ | 750 | LYS |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (167) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 4 | P0 | 98 | ASN |
| 5 | P2 | 66 | ASN |
| 5 | P2 | 105 | GLN |
| 6 | A | 24 | GLN |
| 6 | A | 132 | ASN |
| 6 | A | 205 | ASN |
| 6 | A | 209 | HIS |
| 7 | B | 68 | HIS |
| 7 | B | 109 | HIS |
| 7 | B | 163 | HIS |
| 7 | B | 177 | HIS |
| 7 | B | 345 | ASN |
| 7 | B | 377 | HIS |
| 8 | C | 43 | ASN |
| 8 | C | 59 | GLN |
| 8 | C | 140 | HIS |
| 8 | C | 291 | ASN |
| 9 | D | 39 | GLN |
| 9 | D | 57 | ASN |
| 9 | D | 63 | GLN |
| 9 | D | 90 | HIS |
| 9 | D | 178 | ASN |
| 9 | D | 206 | GLN |
| 9 | D | 244 | HIS |
| 9 | D | 297 | GLN |
| 11 | F | 93 | ASN |
| 11 | F | 104 | GLN |
| 11 | F | 199 | ASN |
| 13 | H | 37 | ASN |
| 13 | H | 58 | HIS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 13 | H | 162 | GLN |
| 14 | I | 14 | ASN |
| 14 | I | 133 | GLN |
| 15 | J | 6 | GLN |
| 15 | J | 43 | GLN |
| 15 | J | 101 | ASN |
| 15 | J | 150 | ASN |
| 16 | L | 114 | GLN |
| 17 | M | 27 | GLN |
| 17 | M | 105 | GLN |
| 17 | M | 126 | GLN |
| 18 | N | 37 | HIS |
| 18 | N | 156 | HIS |
| 18 | N | 195 | ASN |
| 19 | O | 29 | ASN |
| 19 | O | 31 | GLN |
| 19 | O | 193 | GLN |
| 20 | P | 72 | GLN |
| 20 | P | 92 | GLN |
| 20 | P | 97 | ASN |
| 20 | P | 145 | HIS |
| 21 | Q | 5 | HIS |
| 21 | Q | 9 | GLN |
| 21 | Q | 45 | ASN |
| 22 | R | 39 | ASN |
| 22 | R | 166 | ASN |
| 23 | S | 49 | HIS |
| 23 | S | 88 | HIS |
| 24 | T | 90 | ASN |
| 24 | T | 127 | GLN |
| 24 | T | 131 | GLN |
| 25 | U | 87 | ASN |
| 26 | V | 98 | ASN |
| 28 | X | 85 | GLN |
| 29 | Y | 120 | GLN |
| 30 | Z | 36 | HIS |
| 30 | Z | 57 | HIS |
| 30 | Z | 78 | ASN |
| 30 | Z | 127 | ASN |
| 31 | a | 14 | HIS |
| 31 | a | 38 | GLN |
| 31 | a | 74 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 32 | b | 19 | ASN |
| 32 | b | 42 | ASN |
| 32 | b | 45 | HIS |
| 34 | d | 21 | HIS |
| 34 | d | 57 | GLN |
| 34 | d | 87 | ASN |
| 36 | f | 77 | ASN |
| 37 | g | 61 | GLN |
| 37 | g | 69 | HIS |
| 38 | h | 104 | GLN |
| 39 | i | 12 | ASN |
| 40 | j | 79 | GLN |
| 42 | l | 4 | GLN |
| 45 | o | 47 | GLN |
| 45 | o | 82 | GLN |
| 46 | p | 33 | GLN |
| 48 | q | 39 | ASN |
| 48 | q | 46 | HIS |
| 48 | q | 131 | GLN |
| 49 | r | 42 | ASN |
| 49 | r | 92 | GLN |
| 49 | r | 199 | ASN |
| 49 | r | 209 | ASN |
| 50 | s | 199 | GLN |
| 50 | s | 233 | GLN |
| 51 | t | 159 | HIS |
| 51 | t | 174 | HIS |
| 52 | u | 8 | HIS |
| 52 | u | 98 | ASN |
| 52 | u | 209 | HIS |
| 52 | u | 223 | ASN |
| 52 | u | 259 | GLN |
| 53 | v | 86 | GLN |
| 53 | v | 95 | ASN |
| 53 | v | 104 | ASN |
| 53 | v | 131 | GLN |
| 54 | w | 56 | ASN |
| 54 | w | 139 | ASN |
| 54 | w | 182 | GLN |
| 55 | x | 71 | HIS |
| 55 | x | 86 | GLN |
| 55 | x | 174 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | y | 88 | ASN |
| 57 | z | 139 | GLN |
| 58 | AA | 12 | HIS |
| 58 | AA | 28 | ASN |
| 58 | AA | 62 | GLN |
| 59 | AB | 8 | GLN |
| 59 | AB | 81 | HIS |
| 60 | AC | 142 | GLN |
| 63 | AF | 15 | HIS |
| 63 | AF | 98 | ASN |
| 63 | AF | 103 | ASN |
| 64 | AG | 77 | GLN |
| 64 | AG | 103 | ASN |
| 65 | AH | 31 | ASN |
| 65 | AH | 48 | ASN |
| 66 | AI | 19 | ASN |
| 66 | AI | 44 | ASN |
| 66 | AI | 63 | GLN |
| 67 | AJ | 43 | ASN |
| 68 | AK | 36 | ASN |
| 68 | AK | 48 | HIS |
| 68 | AK | 105 | GLN |
| 69 | AL | 33 | GLN |
| 69 | AL | 35 | ASN |
| 69 | AL | 70 | ASN |
| 70 | AM | 16 | ASN |
| 70 | AM | 24 | GLN |
| 70 | AM | 42 | GLN |
| 71 | AN | 79 | ASN |
| 72 | AO | 113 | ASN |
| 74 | AQ | 43 | ASN |
| 77 | AT | 20 | GLN |
| 78 | AU | 17 | GLN |
| 78 | AU | 46 | ASN |
| 79 | AV | 66 | HIS |
| 79 | AV | 148 | ASN |
| 79 | AV | 184 | ASN |
| 79 | AV | 195 | HIS |
| 79 | AV | 237 | GLN |
| 80 | AW | 123 | ASN |
| 80 | AW | 145 | HIS |
| 83 | AZ | 27 | HIS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 83 | AZ | 176 | GLN |
| 83 | AZ | 201 | GLN |
| 83 | AZ | 224 | GLN |
| 83 | AZ | 259 | ASN |
| 83 | AZ | 274 | ASN |
| 83 | AZ | 355 | GLN |
| 83 | AZ | 409 | GLN |
| 83 | AZ | 414 | GLN |
| 83 | AZ | 452 | ASN |
| 83 | AZ | 528 | HIS |
| 83 | AZ | 583 | HIS |

### 5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 1 | 1 | 3220/3396 (94%) | 1049 (32%) | 18 (0%) |
| 2 | 3 | 120/121 (99%) | 31 (25%) | 0 |
| 3 | 4 | 157/158 (99%) | 50 (31%) | 2 (1%) |
| 47 | 2 | 1774/1797 (98%) | 665 (37%) | 23 (1%) |
| 81 | AX | 75/76 (98%) | 33 (44%) | 1 (1%) |
| 82 | AY | 7/8 (87%) | 5 (71%) | 0 |
| All | All | 5353/5556 (96%) | 1833 (34%) | 44 (0%) |

All (1833) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 11 | A |
| 1 | 1 | 15 | C |
| 1 | 1 | 16 | A |
| 1 | 1 | 18 | G |
| 1 | 1 | 19 | U |
| 1 | 1 | 20 | A |
| 1 | 1 | 22 | G |
| 1 | 1 | 24 | G |
| 1 | 1 | 25 | U |
| 1 | 1 | 26 | A |
| 1 | 1 | 37 | U |
| 1 | 1 | 40 | A |
| 1 | 1 | 43 | A |
| 1 | 1 | 47 | C |
| 1 | 1 | 48 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 50 | U |
| 1 | 1 | 59 | G |
| 1 | 1 | 60 | A |
| 1 | 1 | 65 | A |
| 1 | 1 | 66 | A |
| 1 | 1 | 67 | A |
| 1 | 1 | 73 | C |
| 1 | 1 | 74 | G |
| 1 | 1 | 77 | A |
| 1 | 1 | 85 | A |
| 1 | 1 | 89 | A |
| 1 | 1 | 92 | G |
| 1 | 1 | 93 | C |
| 1 | 1 | 96 | G |
| 1 | 1 | 99 | A |
| 1 | 1 | 105 | C |
| 1 | 1 | 108 | A |
| 1 | 1 | 109 | A |
| 1 | 1 | 110 | G |
| 1 | 1 | 111 | C |
| 1 | 1 | 113 | C |
| 1 | 1 | 119 | U |
| 1 | 1 | 120 | G |
| 1 | 1 | 121 | A |
| 1 | 1 | 128 | G |
| 1 | 1 | 130 | A |
| 1 | 1 | 133 | U |
| 1 | 1 | 134 | U |
| 1 | 1 | 135 | C |
| 1 | 1 | 136 | G |
| 1 | 1 | 145 | G |
| 1 | 1 | 146 | U |
| 1 | 1 | 148 | G |
| 1 | 1 | 153 | U |
| 1 | 1 | 154 | U |
| 1 | 1 | 155 | G |
| 1 | 1 | 156 | G |
| 1 | 1 | 157 | A |
| 1 | 1 | 161 | G |
| 1 | 1 | 165 | A |
| 1 | 1 | 170 | G |
| 1 | 1 | 172 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 173 | G |
| 1 | 1 | 182 | U |
| 1 | 1 | 183 | G |
| 1 | 1 | 187 | A |
| 1 | 1 | 188 | U |
| 1 | 1 | 189 | G |
| 1 | 1 | 190 | U |
| 1 | 1 | 191 | U |
| 1 | 1 | 198 | A |
| 1 | 1 | 199 | A |
| 1 | 1 | 200 | C |
| 1 | 1 | 211 | A |
| 1 | 1 | 212 | G |
| 1 | 1 | 217 | U |
| 1 | 1 | 218 | G |
| 1 | 1 | 219 | A |
| 1 | 1 | 221 | A |
| 1 | 1 | 223 | U |
| 1 | 1 | 228 | U |
| 1 | 1 | 231 | G |
| 1 | 1 | 240 | U |
| 1 | 1 | 241 | G |
| 1 | 1 | 242 | C |
| 1 | 1 | 243 | G |
| 1 | 1 | 244 | G |
| 1 | 1 | 245 | U |
| 1 | 1 | 248 | U |
| 1 | 1 | 250 | U |
| 1 | 1 | 251 | G |
| 1 | 1 | 252 | U |
| 1 | 1 | 253 | A |
| 1 | 1 | 263 | C |
| 1 | 1 | 266 | A |
| 1 | 1 | 267 | G |
| 1 | 1 | 268 | A |
| 1 | 1 | 269 | G |
| 1 | 1 | 278 | U |
| 1 | 1 | 283 | G |
| 1 | 1 | 286 | U |
| 1 | 1 | 291 | C |
| 1 | 1 | 292 | U |
| 1 | 1 | 295 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 298 | U |
| 1 | 1 | 305 | U |
| 1 | 1 | 315 | C |
| 1 | 1 | 318 | A |
| 1 | 1 | 329 | U |
| 1 | 1 | 337 | G |
| 1 | 1 | 341 | G |
| 1 | 1 | 343 | U |
| 1 | 1 | 346 | C |
| 1 | 1 | 350 | C |
| 1 | 1 | 352 | A |
| 1 | 1 | 357 | A |
| 1 | 1 | 359 | U |
| 1 | 1 | 364 | G |
| 1 | 1 | 365 | A |
| 1 | 1 | 371 | G |
| 1 | 1 | 374 | A |
| 1 | 1 | 376 | G |
| 1 | 1 | 382 | U |
| 1 | 1 | 387 | A |
| 1 | 1 | 390 | G |
| 1 | 1 | 394 | G |
| 1 | 1 | 397 | A |
| 1 | 1 | 398 | A |
| 1 | 1 | 401 | U |
| 1 | 1 | 402 | A |
| 1 | 1 | 403 | C |
| 1 | 1 | 404 | G |
| 1 | 1 | 421 | G |
| 1 | 1 | 422 | A |
| 1 | 1 | 438 | A |
| 1 | 1 | 440 | A |
| 1 | 1 | 442 | G |
| 1 | 1 | 444 | U |
| 1 | 1 | 446 | U |
| 1 | 1 | 449 | U |
| 1 | 1 | 450 | G |
| 1 | 1 | 451 | U |
| 1 | 1 | 487 | U |
| 1 | 1 | 488 | U |
| 1 | 1 | 491 | A |
| 1 | 1 | 493 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 494 | G |
| 1 | 1 | 495 | G |
| 1 | 1 | 498 | A |
| 1 | 1 | 503 | C |
| 1 | 1 | 510 | G |
| 1 | 1 | 515 | C |
| 1 | 1 | 520 | U |
| 1 | 1 | 521 | A |
| 1 | 1 | 523 | A |
| 1 | 1 | 533 | A |
| 1 | 1 | 534 | U |
| 1 | 1 | 540 | U |
| 1 | 1 | 545 | U |
| 1 | 1 | 547 | G |
| 1 | 1 | 549 | U |
| 1 | 1 | 550 | A |
| 1 | 1 | 551 | A |
| 1 | 1 | 554 | A |
| 1 | 1 | 555 | U |
| 1 | 1 | 556 | U |
| 1 | 1 | 557 | A |
| 1 | 1 | 558 | U |
| 1 | 1 | 559 | A |
| 1 | 1 | 560 | G |
| 1 | 1 | 582 | G |
| 1 | 1 | 591 | G |
| 1 | 1 | 592 | A |
| 1 | 1 | 597 | G |
| 1 | 1 | 600 | G |
| 1 | 1 | 604 | G |
| 1 | 1 | 611 | A |
| 1 | 1 | 619 | A |
| 1 | 1 | 620 | U |
| 1 | 1 | 623 | U |
| 1 | 1 | 636 | C |
| 1 | 1 | 637 | C |
| 1 | 1 | 643 | U |
| 1 | 1 | 644 | G |
| 1 | 1 | 647 | A |
| 1 | 1 | 649 | A |
| 1 | 1 | 656 | A |
| 1 | 1 | 660 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 661 | G |
| 1 | 1 | 666 | A |
| 1 | 1 | 667 | C |
| 1 | 1 | 669 | U |
| 1 | 1 | 675 | C |
| 1 | 1 | 676 | G |
| 1 | 1 | 677 | A |
| 1 | 1 | 678 | G |
| 1 | 1 | 681 | U |
| 1 | 1 | 682 | U |
| 1 | 1 | 683 | U |
| 1 | 1 | 685 | G |
| 1 | 1 | 689 | U |
| 1 | 1 | 691 | A |
| 1 | 1 | 697 | A |
| 1 | 1 | 699 | A |
| 1 | 1 | 705 | A |
| 1 | 1 | 712 | G |
| 1 | 1 | 716 | A |
| 1 | 1 | 717 | C |
| 1 | 1 | 718 | G |
| 1 | 1 | 719 | U |
| 1 | 1 | 720 | A |
| 1 | 1 | 726 | G |
| 1 | 1 | 727 | G |
| 1 | 1 | 735 | A |
| 1 | 1 | 737 | G |
| 1 | 1 | 744 | A |
| 1 | 1 | 750 | G |
| 1 | 1 | 751 | A |
| 1 | 1 | 758 | C |
| 1 | 1 | 761 | A |
| 1 | 1 | 763 | G |
| 1 | 1 | 766 | U |
| 1 | 1 | 767 | U |
| 1 | 1 | 770 | G |
| 1 | 1 | 774 | G |
| 1 | 1 | 776 | U |
| 1 | 1 | 777 | U |
| 1 | 1 | 780 | A |
| 1 | 1 | 781 | G |
| 1 | 1 | 785 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 786 | A |
| 1 | 1 | 792 | G |
| 1 | 1 | 800 | G |
| 1 | 1 | 801 | A |
| 1 | 1 | 802 | C |
| 1 | 1 | 803 | C |
| 1 | 1 | 806 | A |
| 1 | 1 | 807 | A |
| 1 | 1 | 808 | A |
| 1 | 1 | 816 | A |
| 1 | 1 | 817 | A |
| 1 | 1 | 826 | G |
| 1 | 1 | 827 | A |
| 1 | 1 | 830 | A |
| 1 | 1 | 833 | G |
| 1 | 1 | 836 | A |
| 1 | 1 | 838 | G |
| 1 | 1 | 849 | C |
| 1 | 1 | 854 | G |
| 1 | 1 | 855 | U |
| 1 | 1 | 857 | G |
| 1 | 1 | 859 | G |
| 1 | 1 | 860 | G |
| 1 | 1 | 861 | C |
| 1 | 1 | 864 | G |
| 1 | 1 | 871 | U |
| 1 | 1 | 874 | U |
| 1 | 1 | 875 | G |
| 1 | 1 | 879 | U |
| 1 | 1 | 880 | G |
| 1 | 1 | 888 | A |
| 1 | 1 | 896 | A |
| 1 | 1 | 897 | U |
| 1 | 1 | 907 | G |
| 1 | 1 | 908 | G |
| 1 | 1 | 909 | G |
| 1 | 1 | 914 | A |
| 1 | 1 | 915 | A |
| 1 | 1 | 916 | G |
| 1 | 1 | 917 | A |
| 1 | 1 | 921 | A |
| 1 | 1 | 924 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 925 | A |
| 1 | 1 | 932 | U |
| 1 | 1 | 934 | G |
| 1 | 1 | 937 | G |
| 1 | 1 | 939 | U |
| 1 | 1 | 941 | G |
| 1 | 1 | 943 | U |
| 1 | 1 | 944 | C |
| 1 | 1 | 949 | C |
| 1 | 1 | 951 | A |
| 1 | 1 | 959 | C |
| 1 | 1 | 960 | U |
| 1 | 1 | 962 | A |
| 1 | 1 | 967 | A |
| 1 | 1 | 970 | A |
| 1 | 1 | 977 | C |
| 1 | 1 | 979 | U |
| 1 | 1 | 980 | A |
| 1 | 1 | 981 | U |
| 1 | 1 | 984 | G |
| 1 | 1 | 985 | U |
| 1 | 1 | 991 | G |
| 1 | 1 | 994 | G |
| 1 | 1 | 1000 | C |
| 1 | 1 | 1002 | A |
| 1 | 1 | 1004 | U |
| 1 | 1 | 1006 | A |
| 1 | 1 | 1010 | G |
| 1 | 1 | 1013 | G |
| 1 | 1 | 1014 | U |
| 1 | 1 | 1016 | C |
| 1 | 1 | 1017 | C |
| 1 | 1 | 1018 | G |
| 1 | 1 | 1021 | G |
| 1 | 1 | 1024 | G |
| 1 | 1 | 1026 | A |
| 1 | 1 | 1027 | A |
| 1 | 1 | 1028 | U |
| 1 | 1 | 1029 | G |
| 1 | 1 | 1031 | C |
| 1 | 1 | 1033 | U |
| 1 | 1 | 1041 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 1046 | A |
| 1 | 1 | 1047 | A |
| 1 | 1 | 1054 | A |
| 1 | 1 | 1063 | G |
| 1 | 1 | 1064 | A |
| 1 | 1 | 1065 | A |
| 1 | 1 | 1066 | G |
| 1 | 1 | 1072 | G |
| 1 | 1 | 1076 | C |
| 1 | 1 | 1081 | U |
| 1 | 1 | 1083 | G |
| 1 | 1 | 1086 | C |
| 1 | 1 | 1087 | G |
| 1 | 1 | 1094 | U |
| 1 | 1 | 1095 | U |
| 1 | 1 | 1097 | G |
| 1 | 1 | 1098 | A |
| 1 | 1 | 1102 | A |
| 1 | 1 | 1103 | A |
| 1 | 1 | 1106 | G |
| 1 | 1 | 1110 | U |
| 1 | 1 | 1116 | G |
| 1 | 1 | 1117 | G |
| 1 | 1 | 1121 | U |
| 1 | 1 | 1127 | G |
| 1 | 1 | 1129 | A |
| 1 | 1 | 1131 | G |
| 1 | 1 | 1137 | C |
| 1 | 1 | 1143 | A |
| 1 | 1 | 1144 | U |
| 1 | 1 | 1152 | G |
| 1 | 1 | 1153 | A |
| 1 | 1 | 1155 | C |
| 1 | 1 | 1158 | A |
| 1 | 1 | 1159 | A |
| 1 | 1 | 1161 | G |
| 1 | 1 | 1171 | G |
| 1 | 1 | 1172 | G |
| 1 | 1 | 1174 | G |
| 1 | 1 | 1177 | G |
| 1 | 1 | 1178 | G |
| 1 | 1 | 1180 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 1181 | U |
| 1 | 1 | 1182 | A |
| 1 | 1 | 1185 | C |
| 1 | 1 | 1191 | U |
| 1 | 1 | 1192 | C |
| 1 | 1 | 1193 | A |
| 1 | 1 | 1194 | G |
| 1 | 1 | 1196 | C |
| 1 | 1 | 1197 | A |
| 1 | 1 | 1201 | C |
| 1 | 1 | 1209 | G |
| 1 | 1 | 1210 | U |
| 1 | 1 | 1213 | G |
| 1 | 1 | 1214 | U |
| 1 | 1 | 1217 | A |
| 1 | 1 | 1219 | C |
| 1 | 1 | 1221 | A |
| 1 | 1 | 1222 | G |
| 1 | 1 | 1230 | G |
| 1 | 1 | 1232 | C |
| 1 | 1 | 1236 | G |
| 1 | 1 | 1237 | G |
| 1 | 1 | 1245 | A |
| 1 | 1 | 1246 | G |
| 1 | 1 | 1249 | G |
| 1 | 1 | 1252 | A |
| 1 | 1 | 1253 | U |
| 1 | 1 | 1254 | C |
| 1 | 1 | 1255 | C |
| 1 | 1 | 1256 | G |
| 1 | 1 | 1258 | U |
| 1 | 1 | 1259 | A |
| 1 | 1 | 1262 | G |
| 1 | 1 | 1263 | A |
| 1 | 1 | 1264 | G |
| 1 | 1 | 1268 | G |
| 1 | 1 | 1269 | U |
| 1 | 1 | 1270 | A |
| 1 | 1 | 1272 | C |
| 1 | 1 | 1273 | A |
| 1 | 1 | 1276 | U |
| 1 | 1 | 1277 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 1281 | G |
| 1 | 1 | 1282 | G |
| 1 | 1 | 1284 | C |
| 1 | 1 | 1285 | G |
| 1 | 1 | 1286 | A |
| 1 | 1 | 1287 | A |
| 1 | 1 | 1290 | A |
| 1 | 1 | 1292 | C |
| 1 | 1 | 1295 | G |
| 1 | 1 | 1297 | C |
| 1 | 1 | 1302 | A |
| 1 | 1 | 1305 | U |
| 1 | 1 | 1307 | G |
| 1 | 1 | 1308 | A |
| 1 | 1 | 1309 | U |
| 1 | 1 | 1313 | G |
| 1 | 1 | 1316 | C |
| 1 | 1 | 1317 | A |
| 1 | 1 | 1321 | G |
| 1 | 1 | 1323 | G |
| 1 | 1 | 1324 | U |
| 1 | 1 | 1325 | U |
| 1 | 1 | 1330 | A |
| 1 | 1 | 1348 | U |
| 1 | 1 | 1349 | G |
| 1 | 1 | 1350 | A |
| 1 | 1 | 1351 | U |
| 1 | 1 | 1352 | A |
| 1 | 1 | 1353 | U |
| 1 | 1 | 1355 | A |
| 1 | 1 | 1356 | U |
| 1 | 1 | 1357 | G |
| 1 | 1 | 1362 | G |
| 1 | 1 | 1368 | U |
| 1 | 1 | 1372 | C |
| 1 | 1 | 1382 | G |
| 1 | 1 | 1385 | C |
| 1 | 1 | 1386 | A |
| 1 | 1 | 1391 | C |
| 1 | 1 | 1392 | G |
| 1 | 1 | 1394 | A |
| 1 | 1 | 1399 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 1400 | G |
| 1 | 1 | 1408 | G |
| 1 | 1 | 1418 | A |
| 1 | 1 | 1419 | A |
| 1 | 1 | 1422 | G |
| 1 | 1 | 1424 | C |
| 1 | 1 | 1425 | U |
| 1 | 1 | 1430 | U |
| 1 | 1 | 1434 | G |
| 1 | 1 | 1436 | U |
| 1 | 1 | 1437 | C |
| 1 | 1 | 1443 | G |
| 1 | 1 | 1446 | A |
| 1 | 1 | 1448 | U |
| 1 | 1 | 1450 | G |
| 1 | 1 | 1451 | C |
| 1 | 1 | 1455 | U |
| 1 | 1 | 1456 | A |
| 1 | 1 | 1457 | U |
| 1 | 1 | 1458 | U |
| 1 | 1 | 1468 | A |
| 1 | 1 | 1470 | U |
| 1 | 1 | 1471 | U |
| 1 | 1 | 1473 | G |
| 1 | 1 | 1482 | A |
| 1 | 1 | 1483 | G |
| 1 | 1 | 1485 | G |
| 1 | 1 | 1488 | G |
| 1 | 1 | 1489 | A |
| 1 | 1 | 1494 | U |
| 1 | 1 | 1500 | G |
| 1 | 1 | 1501 | U |
| 1 | 1 | 1503 | A |
| 1 | 1 | 1507 | G |
| 1 | 1 | 1508 | C |
| 1 | 1 | 1511 | U |
| 1 | 1 | 1522 | U |
| 1 | 1 | 1523 | U |
| 1 | 1 | 1524 | A |
| 1 | 1 | 1525 | G |
| 1 | 1 | 1526 | U |
| 1 | 1 | 1533 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 1535 | A |
| 1 | 1 | 1553 | U |
| 1 | 1 | 1554 | U |
| 1 | 1 | 1555 | U |
| 1 | 1 | 1556 | C |
| 1 | 1 | 1557 | A |
| 1 | 1 | 1558 | A |
| 1 | 1 | 1559 | A |
| 1 | 1 | 1560 | G |
| 1 | 1 | 1562 | C |
| 1 | 1 | 1563 | C |
| 1 | 1 | 1565 | G |
| 1 | 1 | 1566 | A |
| 1 | 1 | 1570 | U |
| 1 | 1 | 1573 | G |
| 1 | 1 | 1574 | C |
| 1 | 1 | 1577 | G |
| 1 | 1 | 1579 | C |
| 1 | 1 | 1580 | A |
| 1 | 1 | 1581 | C |
| 1 | 1 | 1582 | C |
| 1 | 1 | 1583 | A |
| 1 | 1 | 1584 | U |
| 1 | 1 | 1587 | A |
| 1 | 1 | 1588 | A |
| 1 | 1 | 1589 | A |
| 1 | 1 | 1593 | A |
| 1 | 1 | 1595 | U |
| 1 | 1 | 1596 | C |
| 1 | 1 | 1605 | A |
| 1 | 1 | 1606 | U |
| 1 | 1 | 1607 | U |
| 1 | 1 | 1613 | A |
| 1 | 1 | 1620 | U |
| 1 | 1 | 1628 | C |
| 1 | 1 | 1630 | U |
| 1 | 1 | 1635 | G |
| 1 | 1 | 1636 | U |
| 1 | 1 | 1637 | A |
| 1 | 1 | 1638 | A |
| 1 | 1 | 1643 | A |
| 1 | 1 | 1645 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 1646 | G |
| 1 | 1 | 1657 | C |
| 1 | 1 | 1659 | U |
| 1 | 1 | 1662 | G |
| 1 | 1 | 1664 | G |
| 1 | 1 | 1683 | A |
| 1 | 1 | 1687 | U |
| 1 | 1 | 1706 | C |
| 1 | 1 | 1707 | A |
| 1 | 1 | 1712 | G |
| 1 | 1 | 1713 | G |
| 1 | 1 | 1714 | A |
| 1 | 1 | 1716 | U |
| 1 | 1 | 1717 | U |
| 1 | 1 | 1720 | U |
| 1 | 1 | 1724 | U |
| 1 | 1 | 1728 | G |
| 1 | 1 | 1729 | A |
| 1 | 1 | 1730 | G |
| 1 | 1 | 1736 | G |
| 1 | 1 | 1737 | U |
| 1 | 1 | 1740 | U |
| 1 | 1 | 1741 | A |
| 1 | 1 | 1742 | U |
| 1 | 1 | 1750 | A |
| 1 | 1 | 1751 | G |
| 1 | 1 | 1756 | C |
| 1 | 1 | 1760 | A |
| 1 | 1 | 1761 | C |
| 1 | 1 | 1763 | U |
| 1 | 1 | 1764 | U |
| 1 | 1 | 1765 | U |
| 1 | 1 | 1769 | G |
| 1 | 1 | 1770 | G |
| 1 | 1 | 1773 | C |
| 1 | 1 | 1775 | G |
| 1 | 1 | 1780 | G |
| 1 | 1 | 1781 | C |
| 1 | 1 | 1788 | C |
| 1 | 1 | 1793 | C |
| 1 | 1 | 1794 | G |
| 1 | 1 | 1795 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 1797 | A |
| 1 | 1 | 1808 | G |
| 1 | 1 | 1812 | G |
| 1 | 1 | 1813 | A |
| 1 | 1 | 1814 | A |
| 1 | 1 | 1815 | U |
| 1 | 1 | 1818 | U |
| 1 | 1 | 1820 | U |
| 1 | 1 | 1821 | U |
| 1 | 1 | 1835 | A |
| 1 | 1 | 1838 | G |
| 1 | 1 | 1840 | U |
| 1 | 1 | 1841 | A |
| 1 | 1 | 1842 | A |
| 1 | 1 | 1843 | C |
| 1 | 1 | 1844 | C |
| 1 | 1 | 1846 | C |
| 1 | 1 | 1848 | G |
| 1 | 1 | 1850 | A |
| 1 | 1 | 1851 | G |
| 1 | 1 | 1855 | U |
| 1 | 1 | 1863 | G |
| 1 | 1 | 1865 | A |
| 1 | 1 | 1874 | A |
| 1 | 1 | 1878 | G |
| 1 | 1 | 1879 | A |
| 1 | 1 | 1880 | U |
| 1 | 1 | 1881 | A |
| 1 | 1 | 1884 | A |
| 1 | 1 | 1886 | A |
| 1 | 1 | 1889 | G |
| 1 | 1 | 1893 | A |
| 1 | 1 | 1896 | A |
| 1 | 1 | 1900 | A |
| 1 | 1 | 1904 | C |
| 1 | 1 | 1905 | G |
| 1 | 1 | 1906 | G |
| 1 | 1 | 1908 | A |
| 1 | 1 | 1912 | U |
| 1 | 1 | 1915 | A |
| 1 | 1 | 1926 | C |
| 1 | 1 | 1927 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 1928 | G |
| 1 | 1 | 1930 | A |
| 1 | 1 | 1931 | U |
| 1 | 1 | 1932 | A |
| 1 | 1 | 1935 | G |
| 1 | 1 | 1948 | G |
| 1 | 1 | 1953 | G |
| 1 | 1 | 1954 | G |
| 1 | 1 | 2094 | C |
| 1 | 1 | 2101 | C |
| 1 | 1 | 2102 | U |
| 1 | 1 | 2107 | A |
| 1 | 1 | 2111 | G |
| 1 | 1 | 2114 | C |
| 1 | 1 | 2116 | G |
| 1 | 1 | 2117 | A |
| 1 | 1 | 2118 | C |
| 1 | 1 | 2119 | A |
| 1 | 1 | 2122 | G |
| 1 | 1 | 2131 | A |
| 1 | 1 | 2134 | G |
| 1 | 1 | 2136 | C |
| 1 | 1 | 2137 | U |
| 1 | 1 | 2138 | A |
| 1 | 1 | 2139 | A |
| 1 | 1 | 2143 | A |
| 1 | 1 | 2145 | A |
| 1 | 1 | 2148 | U |
| 1 | 1 | 2157 | G |
| 1 | 1 | 2158 | A |
| 1 | 1 | 2160 | G |
| 1 | 1 | 2166 | A |
| 1 | 1 | 2167 | A |
| 1 | 1 | 2168 | A |
| 1 | 1 | 2169 | G |
| 1 | 1 | 2170 | U |
| 1 | 1 | 2172 | A |
| 1 | 1 | 2176 | U |
| 1 | 1 | 2177 | G |
| 1 | 1 | 2178 | A |
| 1 | 1 | 2180 | G |
| 1 | 1 | 2184 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 2185 | G |
| 1 | 1 | 2186 | U |
| 1 | 1 | 2187 | G |
| 1 | 1 | 2188 | A |
| 1 | 1 | 2189 | U |
| 1 | 1 | 2194 | G |
| 1 | 1 | 2205 | U |
| 1 | 1 | 2206 | G |
| 1 | 1 | 2207 | A |
| 1 | 1 | 2223 | A |
| 1 | 1 | 2231 | C |
| 1 | 1 | 2239 | G |
| 1 | 1 | 2255 | A |
| 1 | 1 | 2257 | C |
| 1 | 1 | 2263 | C |
| 1 | 1 | 2269 | U |
| 1 | 1 | 2270 | A |
| 1 | 1 | 2271 | A |
| 1 | 1 | 2273 | G |
| 1 | 1 | 2279 | A |
| 1 | 1 | 2281 | A |
| 1 | 1 | 2285 | C |
| 1 | 1 | 2286 | U |
| 1 | 1 | 2288 | G |
| 1 | 1 | 2295 | A |
| 1 | 1 | 2296 | A |
| 1 | 1 | 2303 | A |
| 1 | 1 | 2304 | C |
| 1 | 1 | 2306 | C |
| 1 | 1 | 2307 | G |
| 1 | 1 | 2309 | A |
| 1 | 1 | 2310 | U |
| 1 | 1 | 2312 | A |
| 1 | 1 | 2313 | A |
| 1 | 1 | 2315 | G |
| 1 | 1 | 2327 | U |
| 1 | 1 | 2334 | U |
| 1 | 1 | 2335 | G |
| 1 | 1 | 2336 | U |
| 1 | 1 | 2339 | C |
| 1 | 1 | 2344 | U |
| 1 | 1 | 2345 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 2347 | U |
| 1 | 1 | 2357 | A |
| 1 | 1 | 2361 | A |
| 1 | 1 | 2363 | A |
| 1 | 1 | 2364 | G |
| 1 | 1 | 2365 | C |
| 1 | 1 | 2370 | G |
| 1 | 1 | 2372 | A |
| 1 | 1 | 2373 | A |
| 1 | 1 | 2374 | C |
| 1 | 1 | 2375 | G |
| 1 | 1 | 2376 | G |
| 1 | 1 | 2383 | C |
| 1 | 1 | 2385 | G |
| 1 | 1 | 2388 | U |
| 1 | 1 | 2393 | G |
| 1 | 1 | 2397 | A |
| 1 | 1 | 2400 | G |
| 1 | 1 | 2401 | A |
| 1 | 1 | 2402 | A |
| 1 | 1 | 2403 | G |
| 1 | 1 | 2404 | A |
| 1 | 1 | 2410 | U |
| 1 | 1 | 2411 | U |
| 1 | 1 | 2415 | C |
| 1 | 1 | 2417 | U |
| 1 | 1 | 2418 | G |
| 1 | 1 | 2419 | A |
| 1 | 1 | 2422 | C |
| 1 | 1 | 2424 | A |
| 1 | 1 | 2429 | G |
| 1 | 1 | 2432 | A |
| 1 | 1 | 2434 | U |
| 1 | 1 | 2438 | A |
| 1 | 1 | 2439 | A |
| 1 | 1 | 2452 | G |
| 1 | 1 | 2455 | U |
| 1 | 1 | 2456 | A |
| 1 | 1 | 2459 | A |
| 1 | 1 | 2460 | U |
| 1 | 1 | 2461 | A |
| 1 | 1 | 2462 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 2468 | A |
| 1 | 1 | 2469 | G |
| 1 | 1 | 2471 | U |
| 1 | 1 | 2474 | G |
| 1 | 1 | 2476 | C |
| 1 | 1 | 2479 | C |
| 1 | 1 | 2480 | A |
| 1 | 1 | 2482 | U |
| 1 | 1 | 2483 | G |
| 1 | 1 | 2486 | A |
| 1 | 1 | 2487 | U |
| 1 | 1 | 2488 | A |
| 1 | 1 | 2490 | C |
| 1 | 1 | 2491 | A |
| 1 | 1 | 2492 | C |
| 1 | 1 | 2494 | A |
| 1 | 1 | 2495 | C |
| 1 | 1 | 2496 | C |
| 1 | 1 | 2497 | U |
| 1 | 1 | 2500 | A |
| 1 | 1 | 2501 | U |
| 1 | 1 | 2502 | A |
| 1 | 1 | 2505 | U |
| 1 | 1 | 2507 | C |
| 1 | 1 | 2510 | U |
| 1 | 1 | 2514 | U |
| 1 | 1 | 2515 | A |
| 1 | 1 | 2522 | G |
| 1 | 1 | 2524 | A |
| 1 | 1 | 2525 | G |
| 1 | 1 | 2526 | C |
| 1 | 1 | 2532 | U |
| 1 | 1 | 2537 | U |
| 1 | 1 | 2538 | U |
| 1 | 1 | 2540 | A |
| 1 | 1 | 2541 | U |
| 1 | 1 | 2542 | U |
| 1 | 1 | 2543 | U |
| 1 | 1 | 2549 | G |
| 1 | 1 | 2550 | U |
| 1 | 1 | 2552 | C |
| 1 | 1 | 2555 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 2557 | A |
| 1 | 1 | 2558 | U |
| 1 | 1 | 2559 | U |
| 1 | 1 | 2560 | C |
| 1 | 1 | 2561 | A |
| 1 | 1 | 2569 | A |
| 1 | 1 | 2570 | U |
| 1 | 1 | 2573 | G |
| 1 | 1 | 2575 | G |
| 1 | 1 | 2583 | C |
| 1 | 1 | 2584 | G |
| 1 | 1 | 2585 | G |
| 1 | 1 | 2593 | A |
| 1 | 1 | 2595 | A |
| 1 | 1 | 2606 | G |
| 1 | 1 | 2614 | G |
| 1 | 1 | 2615 | G |
| 1 | 1 | 2617 | U |
| 1 | 1 | 2618 | G |
| 1 | 1 | 2619 | G |
| 1 | 1 | 2620 | G |
| 1 | 1 | 2625 | C |
| 1 | 1 | 2628 | A |
| 1 | 1 | 2635 | A |
| 1 | 1 | 2639 | G |
| 1 | 1 | 2648 | G |
| 1 | 1 | 2649 | A |
| 1 | 1 | 2652 | U |
| 1 | 1 | 2655 | U |
| 1 | 1 | 2656 | A |
| 1 | 1 | 2658 | G |
| 1 | 1 | 2669 | G |
| 1 | 1 | 2672 | G |
| 1 | 1 | 2674 | A |
| 1 | 1 | 2676 | A |
| 1 | 1 | 2677 | G |
| 1 | 1 | 2678 | A |
| 1 | 1 | 2680 | A |
| 1 | 1 | 2681 | U |
| 1 | 1 | 2686 | A |
| 1 | 1 | 2688 | U |
| 1 | 1 | 2689 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 2690 | G |
| 1 | 1 | 2691 | A |
| 1 | 1 | 2692 | A |
| 1 | 1 | 2701 | U |
| 1 | 1 | 2703 | A |
| 1 | 1 | 2704 | A |
| 1 | 1 | 2705 | A |
| 1 | 1 | 2712 | U |
| 1 | 1 | 2714 | G |
| 1 | 1 | 2716 | U |
| 1 | 1 | 2717 | U |
| 1 | 1 | 2719 | U |
| 1 | 1 | 2725 | U |
| 1 | 1 | 2726 | C |
| 1 | 1 | 2728 | G |
| 1 | 1 | 2729 | U |
| 1 | 1 | 2741 | C |
| 1 | 1 | 2749 | G |
| 1 | 1 | 2753 | G |
| 1 | 1 | 2755 | C |
| 1 | 1 | 2759 | U |
| 1 | 1 | 2760 | C |
| 1 | 1 | 2762 | A |
| 1 | 1 | 2765 | C |
| 1 | 1 | 2769 | A |
| 1 | 1 | 2771 | U |
| 1 | 1 | 2772 | C |
| 1 | 1 | 2773 | C |
| 1 | 1 | 2777 | G |
| 1 | 1 | 2780 | A |
| 1 | 1 | 2787 | G |
| 1 | 1 | 2795 | U |
| 1 | 1 | 2796 | G |
| 1 | 1 | 2798 | C |
| 1 | 1 | 2799 | A |
| 1 | 1 | 2800 | G |
| 1 | 1 | 2801 | A |
| 1 | 1 | 2803 | A |
| 1 | 1 | 2804 | A |
| 1 | 1 | 2808 | A |
| 1 | 1 | 2809 | C |
| 1 | 1 | 2810 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 2816 | G |
| 1 | 1 | 2817 | A |
| 1 | 1 | 2818 | U |
| 1 | 1 | 2821 | C |
| 1 | 1 | 2827 | U |
| 1 | 1 | 2838 | A |
| 1 | 1 | 2843 | U |
| 1 | 1 | 2844 | C |
| 1 | 1 | 2845 | A |
| 1 | 1 | 2847 | A |
| 1 | 1 | 2852 | C |
| 1 | 1 | 2858 | U |
| 1 | 1 | 2859 | U |
| 1 | 1 | 2860 | U |
| 1 | 1 | 2861 | U |
| 1 | 1 | 2863 | G |
| 1 | 1 | 2869 | U |
| 1 | 1 | 2871 | G |
| 1 | 1 | 2872 | A |
| 1 | 1 | 2873 | U |
| 1 | 1 | 2875 | U |
| 1 | 1 | 2886 | U |
| 1 | 1 | 2887 | A |
| 1 | 1 | 2889 | C |
| 1 | 1 | 2899 | C |
| 1 | 1 | 2901 | G |
| 1 | 1 | 2904 | U |
| 1 | 1 | 2905 | U |
| 1 | 1 | 2907 | G |
| 1 | 1 | 2911 | A |
| 1 | 1 | 2912 | G |
| 1 | 1 | 2914 | G |
| 1 | 1 | 2925 | C |
| 1 | 1 | 2932 | U |
| 1 | 1 | 2934 | A |
| 1 | 1 | 2935 | U |
| 1 | 1 | 2936 | A |
| 1 | 1 | 2941 | A |
| 1 | 1 | 2942 | C |
| 1 | 1 | 2945 | G |
| 1 | 1 | 2946 | A |
| 1 | 1 | 2947 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 2954 | U |
| 1 | 1 | 2955 | U |
| 1 | 1 | 2968 | G |
| 1 | 1 | 2971 | A |
| 1 | 1 | 2978 | U |
| 1 | 1 | 2979 | U |
| 1 | 1 | 2981 | U |
| 1 | 1 | 2983 | C |
| 1 | 1 | 2984 | C |
| 1 | 1 | 2988 | C |
| 1 | 1 | 2992 | U |
| 1 | 1 | 2996 | U |
| 1 | 1 | 2997 | G |
| 1 | 1 | 3001 | C |
| 1 | 1 | 3003 | G |
| 1 | 1 | 3005 | A |
| 1 | 1 | 3006 | A |
| 1 | 1 | 3007 | U |
| 1 | 1 | 3011 | A |
| 1 | 1 | 3012 | A |
| 1 | 1 | 3014 | U |
| 1 | 1 | 3021 | A |
| 1 | 1 | 3026 | G |
| 1 | 1 | 3028 | G |
| 1 | 1 | 3030 | G |
| 1 | 1 | 3034 | C |
| 1 | 1 | 3036 | G |
| 1 | 1 | 3055 | U |
| 1 | 1 | 3056 | U |
| 1 | 1 | 3057 | U |
| 1 | 1 | 3058 | U |
| 1 | 1 | 3059 | G |
| 1 | 1 | 3069 | G |
| 1 | 1 | 3070 | A |
| 1 | 1 | 3074 | G |
| 1 | 1 | 3075 | G |
| 1 | 1 | 3077 | A |
| 1 | 1 | 3078 | U |
| 1 | 1 | 3079 | U |
| 1 | 1 | 3080 | G |
| 1 | 1 | 3090 | U |
| 1 | 1 | 3092 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 3093 | C |
| 1 | 1 | 3099 | C |
| 1 | 1 | 3100 | U |
| 1 | 1 | 3101 | G |
| 1 | 1 | 3117 | C |
| 1 | 1 | 3122 | A |
| 1 | 1 | 3125 | U |
| 1 | 1 | 3129 | A |
| 1 | 1 | 3130 | A |
| 1 | 1 | 3131 | U |
| 1 | 1 | 3139 | A |
| 1 | 1 | 3142 | A |
| 1 | 1 | 3143 | C |
| 1 | 1 | 3153 | U |
| 1 | 1 | 3154 | C |
| 1 | 1 | 3156 | U |
| 1 | 1 | 3157 | U |
| 1 | 1 | 3158 | G |
| 1 | 1 | 3160 | U |
| 1 | 1 | 3162 | C |
| 1 | 1 | 3168 | A |
| 1 | 1 | 3170 | A |
| 1 | 1 | 3173 | G |
| 1 | 1 | 3174 | A |
| 1 | 1 | 3176 | G |
| 1 | 1 | 3178 | A |
| 1 | 1 | 3179 | U |
| 1 | 1 | 3180 | A |
| 1 | 1 | 3182 | G |
| 1 | 1 | 3183 | A |
| 1 | 1 | 3185 | U |
| 1 | 1 | 3186 | A |
| 1 | 1 | 3187 | A |
| 1 | 1 | 3193 | C |
| 1 | 1 | 3194 | C |
| 1 | 1 | 3195 | U |
| 1 | 1 | 3196 | U |
| 1 | 1 | 3197 | G |
| 1 | 1 | 3202 | G |
| 1 | 1 | 3206 | C |
| 1 | 1 | 3207 | U |
| 1 | 1 | 3210 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 3212 | C |
| 1 | 1 | 3214 | U |
| 1 | 1 | 3216 | G |
| 1 | 1 | 3217 | C |
| 1 | 1 | 3218 | A |
| 1 | 1 | 3219 | G |
| 1 | 1 | 3222 | U |
| 1 | 1 | 3226 | A |
| 1 | 1 | 3228 | C |
| 1 | 1 | 3229 | G |
| 1 | 1 | 3235 | C |
| 1 | 1 | 3238 | G |
| 1 | 1 | 3243 | A |
| 1 | 1 | 3244 | A |
| 1 | 1 | 3246 | G |
| 1 | 1 | 3247 | G |
| 1 | 1 | 3259 | U |
| 1 | 1 | 3260 | G |
| 1 | 1 | 3264 | G |
| 1 | 1 | 3268 | A |
| 1 | 1 | 3269 | U |
| 1 | 1 | 3271 | G |
| 1 | 1 | 3272 | C |
| 1 | 1 | 3273 | A |
| 1 | 1 | 3275 | U |
| 1 | 1 | 3276 | G |
| 1 | 1 | 3278 | C |
| 1 | 1 | 3279 | A |
| 1 | 1 | 3281 | U |
| 1 | 1 | 3288 | G |
| 1 | 1 | 3289 | G |
| 1 | 1 | 3292 | A |
| 1 | 1 | 3294 | A |
| 1 | 1 | 3295 | A |
| 1 | 1 | 3304 | U |
| 1 | 1 | 3308 | C |
| 1 | 1 | 3310 | A |
| 1 | 1 | 3313 | U |
| 1 | 1 | 3316 | A |
| 1 | 1 | 3317 | U |
| 1 | 1 | 3318 | G |
| 1 | 1 | 3320 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 3329 | U |
| 1 | 1 | 3339 | A |
| 1 | 1 | 3341 | U |
| 1 | 1 | 3345 | G |
| 1 | 1 | 3346 | U |
| 1 | 1 | 3349 | C |
| 1 | 1 | 3350 | C |
| 1 | 1 | 3351 | U |
| 1 | 1 | 3352 | U |
| 1 | 1 | 3354 | U |
| 1 | 1 | 3355 | U |
| 1 | 1 | 3356 | G |
| 1 | 1 | 3357 | U |
| 1 | 1 | 3362 | A |
| 1 | 1 | 3363 | U |
| 1 | 1 | 3368 | U |
| 1 | 1 | 3369 | G |
| 1 | 1 | 3375 | A |
| 1 | 1 | 3377 | G |
| 1 | 1 | 3378 | C |
| 1 | 1 | 3382 | U |
| 1 | 1 | 3384 | U |
| 1 | 1 | 3386 | G |
| 1 | 1 | 3388 | C |
| 1 | 1 | 3389 | U |
| 1 | 1 | 3390 | G |
| 2 | 3 | 4 | U |
| 2 | 3 | 6 | C |
| 2 | 3 | 7 | G |
| 2 | 3 | 10 | C |
| 2 | 3 | 11 | A |
| 2 | 3 | 13 | A |
| 2 | 3 | 16 | U |
| 2 | 3 | 19 | C |
| 2 | 3 | 28 | C |
| 2 | 3 | 33 | U |
| 2 | 3 | 41 | G |
| 2 | 3 | 42 | A |
| 2 | 3 | 44 | C |
| 2 | 3 | 49 | G |
| 2 | 3 | 50 | U |
| 2 | 3 | 54 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | 3 | 56 | A |
| 2 | 3 | 57 | G |
| 2 | 3 | 63 | A |
| 2 | 3 | 64 | A |
| 2 | 3 | 65 | G |
| 2 | 3 | 74 | C |
| 2 | 3 | 76 | A |
| 2 | 3 | 87 | G |
| 2 | 3 | 90 | U |
| 2 | 3 | 91 | G |
| 2 | 3 | 92 | A |
| 2 | 3 | 94 | C |
| 2 | 3 | 110 | G |
| 2 | 3 | 112 | G |
| 2 | 3 | 121 | U |
| 3 | 4 | 12 | A |
| 3 | 4 | 13 | A |
| 3 | 4 | 15 | G |
| 3 | 4 | 16 | G |
| 3 | 4 | 22 | U |
| 3 | 4 | 23 | U |
| 3 | 4 | 34 | U |
| 3 | 4 | 35 | C |
| 3 | 4 | 37 | A |
| 3 | 4 | 39 | G |
| 3 | 4 | 43 | A |
| 3 | 4 | 44 | A |
| 3 | 4 | 49 | G |
| 3 | 4 | 50 | C |
| 3 | 4 | 51 | G |
| 3 | 4 | 54 | A |
| 3 | 4 | 59 | A |
| 3 | 4 | 62 | C |
| 3 | 4 | 63 | G |
| 3 | 4 | 71 | A |
| 3 | 4 | 72 | A |
| 3 | 4 | 75 | G |
| 3 | 4 | 80 | A |
| 3 | 4 | 81 | U |
| 3 | 4 | 82 | U |
| 3 | 4 | 83 | C |
| 3 | 4 | 84 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 3 | 4 | 86 | U |
| 3 | 4 | 87 | G |
| 3 | 4 | 88 | A |
| 3 | 4 | 89 | A |
| 3 | 4 | 95 | G |
| 3 | 4 | 96 | A |
| 3 | 4 | 100 | U |
| 3 | 4 | 102 | U |
| 3 | 4 | 104 | A |
| 3 | 4 | 106 | C |
| 3 | 4 | 107 | G |
| 3 | 4 | 112 | U |
| 3 | 4 | 113 | U |
| 3 | 4 | 125 | U |
| 3 | 4 | 126 | A |
| 3 | 4 | 127 | U |
| 3 | 4 | 131 | A |
| 3 | 4 | 138 | A |
| 3 | 4 | 148 | G |
| 3 | 4 | 151 | C |
| 3 | 4 | 152 | G |
| 3 | 4 | 155 | A |
| 3 | 4 | 158 | U |
| 47 | 2 | 2 | A |
| 47 | 2 | 3 | U |
| 47 | 2 | 4 | C |
| 47 | 2 | 5 | U |
| 47 | 2 | 8 | U |
| 47 | 2 | 9 | U |
| 47 | 2 | 10 | G |
| 47 | 2 | 11 | A |
| 47 | 2 | 25 | C |
| 47 | 2 | 26 | A |
| 47 | 2 | 27 | U |
| 47 | 2 | 34 | G |
| 47 | 2 | 40 | A |
| 47 | 2 | 43 | A |
| 47 | 2 | 45 | U |
| 47 | 2 | 47 | A |
| 47 | 2 | 48 | G |
| 47 | 2 | 50 | C |
| 47 | 2 | 55 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 59 | C |
| 47 | 2 | 60 | U |
| 47 | 2 | 63 | G |
| 47 | 2 | 65 | A |
| 47 | 2 | 66 | U |
| 47 | 2 | 67 | A |
| 47 | 2 | 68 | A |
| 47 | 2 | 69 | G |
| 47 | 2 | 71 | A |
| 47 | 2 | 72 | A |
| 47 | 2 | 74 | U |
| 47 | 2 | 75 | U |
| 47 | 2 | 76 | A |
| 47 | 2 | 77 | U |
| 47 | 2 | 78 | A |
| 47 | 2 | 81 | G |
| 47 | 2 | 93 | A |
| 47 | 2 | 94 | U |
| 47 | 2 | 100 | A |
| 47 | 2 | 102 | U |
| 47 | 2 | 103 | A |
| 47 | 2 | 104 | A |
| 47 | 2 | 114 | C |
| 47 | 2 | 115 | G |
| 47 | 2 | 116 | U |
| 47 | 2 | 121 | U |
| 47 | 2 | 123 | G |
| 47 | 2 | 125 | U |
| 47 | 2 | 127 | G |
| 47 | 2 | 128 | U |
| 47 | 2 | 129 | U |
| 47 | 2 | 130 | C |
| 47 | 2 | 131 | C |
| 47 | 2 | 132 | U |
| 47 | 2 | 133 | U |
| 47 | 2 | 135 | A |
| 47 | 2 | 136 | C |
| 47 | 2 | 137 | U |
| 47 | 2 | 138 | A |
| 47 | 2 | 139 | C |
| 47 | 2 | 141 | U |
| 47 | 2 | 142 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 144 | U |
| 47 | 2 | 145 | A |
| 47 | 2 | 146 | U |
| 47 | 2 | 153 | G |
| 47 | 2 | 157 | A |
| 47 | 2 | 159 | U |
| 47 | 2 | 169 | A |
| 47 | 2 | 171 | A |
| 47 | 2 | 188 | A |
| 47 | 2 | 189 | C |
| 47 | 2 | 191 | C |
| 47 | 2 | 192 | U |
| 47 | 2 | 194 | U |
| 47 | 2 | 195 | G |
| 47 | 2 | 196 | G |
| 47 | 2 | 200 | A |
| 47 | 2 | 203 | U |
| 47 | 2 | 204 | G |
| 47 | 2 | 217 | A |
| 47 | 2 | 218 | A |
| 47 | 2 | 224 | C |
| 47 | 2 | 232 | U |
| 47 | 2 | 233 | C |
| 47 | 2 | 234 | G |
| 47 | 2 | 235 | G |
| 47 | 2 | 238 | U |
| 47 | 2 | 239 | C |
| 47 | 2 | 240 | U |
| 47 | 2 | 241 | U |
| 47 | 2 | 246 | G |
| 47 | 2 | 249 | U |
| 47 | 2 | 252 | U |
| 47 | 2 | 259 | U |
| 47 | 2 | 261 | U |
| 47 | 2 | 262 | U |
| 47 | 2 | 265 | A |
| 47 | 2 | 268 | C |
| 47 | 2 | 270 | C |
| 47 | 2 | 271 | A |
| 47 | 2 | 272 | U |
| 47 | 2 | 274 | G |
| 47 | 2 | 276 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 277 | U |
| 47 | 2 | 278 | U |
| 47 | 2 | 280 | U |
| 47 | 2 | 287 | G |
| 47 | 2 | 288 | A |
| 47 | 2 | 302 | U |
| 47 | 2 | 306 | U |
| 47 | 2 | 313 | U |
| 47 | 2 | 314 | C |
| 47 | 2 | 316 | A |
| 47 | 2 | 317 | C |
| 47 | 2 | 320 | U |
| 47 | 2 | 322 | G |
| 47 | 2 | 329 | G |
| 47 | 2 | 330 | G |
| 47 | 2 | 333 | A |
| 47 | 2 | 337 | G |
| 47 | 2 | 338 | C |
| 47 | 2 | 345 | U |
| 47 | 2 | 346 | G |
| 47 | 2 | 347 | G |
| 47 | 2 | 351 | C |
| 47 | 2 | 352 | A |
| 47 | 2 | 361 | C |
| 47 | 2 | 363 | G |
| 47 | 2 | 373 | G |
| 47 | 2 | 374 | U |
| 47 | 2 | 378 | A |
| 47 | 2 | 391 | A |
| 47 | 2 | 400 | A |
| 47 | 2 | 401 | A |
| 47 | 2 | 402 | C |
| 47 | 2 | 403 | G |
| 47 | 2 | 404 | G |
| 47 | 2 | 412 | A |
| 47 | 2 | 417 | A |
| 47 | 2 | 419 | G |
| 47 | 2 | 421 | A |
| 47 | 2 | 423 | G |
| 47 | 2 | 424 | C |
| 47 | 2 | 426 | G |
| 47 | 2 | 428 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 432 | G |
| 47 | 2 | 434 | G |
| 47 | 2 | 435 | C |
| 47 | 2 | 439 | U |
| 47 | 2 | 444 | C |
| 47 | 2 | 445 | A |
| 47 | 2 | 452 | A |
| 47 | 2 | 454 | U |
| 47 | 2 | 455 | C |
| 47 | 2 | 456 | A |
| 47 | 2 | 458 | G |
| 47 | 2 | 460 | A |
| 47 | 2 | 461 | G |
| 47 | 2 | 464 | A |
| 47 | 2 | 469 | C |
| 47 | 2 | 471 | A |
| 47 | 2 | 475 | A |
| 47 | 2 | 480 | G |
| 47 | 2 | 481 | A |
| 47 | 2 | 486 | G |
| 47 | 2 | 488 | G |
| 47 | 2 | 490 | C |
| 47 | 2 | 492 | A |
| 47 | 2 | 493 | U |
| 47 | 2 | 495 | C |
| 47 | 2 | 496 | G |
| 47 | 2 | 502 | U |
| 47 | 2 | 506 | A |
| 47 | 2 | 507 | U |
| 47 | 2 | 508 | U |
| 47 | 2 | 509 | G |
| 47 | 2 | 515 | A |
| 47 | 2 | 519 | C |
| 47 | 2 | 520 | A |
| 47 | 2 | 523 | G |
| 47 | 2 | 525 | A |
| 47 | 2 | 532 | U |
| 47 | 2 | 536 | C |
| 47 | 2 | 538 | A |
| 47 | 2 | 539 | G |
| 47 | 2 | 540 | G |
| 47 | 2 | 541 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 542 | A |
| 47 | 2 | 543 | C |
| 47 | 2 | 544 | A |
| 47 | 2 | 545 | A |
| 47 | 2 | 551 | G |
| 47 | 2 | 554 | C |
| 47 | 2 | 555 | A |
| 47 | 2 | 557 | G |
| 47 | 2 | 558 | U |
| 47 | 2 | 559 | C |
| 47 | 2 | 565 | C |
| 47 | 2 | 566 | C |
| 47 | 2 | 567 | A |
| 47 | 2 | 568 | G |
| 47 | 2 | 574 | G |
| 47 | 2 | 575 | C |
| 47 | 2 | 579 | A |
| 47 | 2 | 580 | A |
| 47 | 2 | 582 | U |
| 47 | 2 | 594 | A |
| 47 | 2 | 597 | G |
| 47 | 2 | 600 | U |
| 47 | 2 | 606 | A |
| 47 | 2 | 607 | G |
| 47 | 2 | 608 | U |
| 47 | 2 | 610 | G |
| 47 | 2 | 611 | U |
| 47 | 2 | 612 | U |
| 47 | 2 | 613 | G |
| 47 | 2 | 617 | U |
| 47 | 2 | 618 | U |
| 47 | 2 | 619 | A |
| 47 | 2 | 620 | A |
| 47 | 2 | 622 | A |
| 47 | 2 | 623 | A |
| 47 | 2 | 624 | G |
| 47 | 2 | 635 | A |
| 47 | 2 | 638 | U |
| 47 | 2 | 639 | U |
| 47 | 2 | 653 | C |
| 47 | 2 | 654 | C |
| 47 | 2 | 655 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 657 | U |
| 47 | 2 | 658 | C |
| 47 | 2 | 677 | G |
| 47 | 2 | 678 | A |
| 47 | 2 | 681 | U |
| 47 | 2 | 687 | G |
| 47 | 2 | 691 | C |
| 47 | 2 | 692 | C |
| 47 | 2 | 694 | U |
| 47 | 2 | 695 | U |
| 47 | 2 | 696 | C |
| 47 | 2 | 697 | C |
| 47 | 2 | 698 | U |
| 47 | 2 | 700 | C |
| 47 | 2 | 701 | U |
| 47 | 2 | 704 | C |
| 47 | 2 | 705 | U |
| 47 | 2 | 706 | A |
| 47 | 2 | 707 | A |
| 47 | 2 | 708 | C |
| 47 | 2 | 709 | C |
| 47 | 2 | 710 | U |
| 47 | 2 | 711 | U |
| 47 | 2 | 712 | G |
| 47 | 2 | 713 | A |
| 47 | 2 | 716 | C |
| 47 | 2 | 717 | C |
| 47 | 2 | 718 | U |
| 47 | 2 | 720 | G |
| 47 | 2 | 721 | U |
| 47 | 2 | 722 | G |
| 47 | 2 | 725 | U |
| 47 | 2 | 727 | U |
| 47 | 2 | 728 | U |
| 47 | 2 | 729 | G |
| 47 | 2 | 730 | G |
| 47 | 2 | 731 | C |
| 47 | 2 | 733 | A |
| 47 | 2 | 735 | C |
| 47 | 2 | 736 | C |
| 47 | 2 | 738 | G |
| 47 | 2 | 739 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 741 | C |
| 47 | 2 | 742 | U |
| 47 | 2 | 743 | U |
| 47 | 2 | 745 | U |
| 47 | 2 | 746 | A |
| 47 | 2 | 754 | A |
| 47 | 2 | 755 | A |
| 47 | 2 | 765 | G |
| 47 | 2 | 766 | U |
| 47 | 2 | 767 | U |
| 47 | 2 | 771 | A |
| 47 | 2 | 772 | G |
| 47 | 2 | 775 | G |
| 47 | 2 | 778 | G |
| 47 | 2 | 779 | U |
| 47 | 2 | 780 | A |
| 47 | 2 | 781 | U |
| 47 | 2 | 783 | G |
| 47 | 2 | 784 | C |
| 47 | 2 | 787 | G |
| 47 | 2 | 789 | A |
| 47 | 2 | 791 | A |
| 47 | 2 | 794 | U |
| 47 | 2 | 795 | U |
| 47 | 2 | 803 | A |
| 47 | 2 | 812 | A |
| 47 | 2 | 813 | U |
| 47 | 2 | 814 | A |
| 47 | 2 | 815 | G |
| 47 | 2 | 820 | U |
| 47 | 2 | 821 | U |
| 47 | 2 | 823 | G |
| 47 | 2 | 824 | G |
| 47 | 2 | 829 | A |
| 47 | 2 | 830 | U |
| 47 | 2 | 833 | U |
| 47 | 2 | 837 | G |
| 47 | 2 | 841 | U |
| 47 | 2 | 845 | G |
| 47 | 2 | 846 | G |
| 47 | 2 | 848 | C |
| 47 | 2 | 849 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 850 | A |
| 47 | 2 | 852 | C |
| 47 | 2 | 854 | U |
| 47 | 2 | 859 | A |
| 47 | 2 | 860 | U |
| 47 | 2 | 862 | A |
| 47 | 2 | 863 | A |
| 47 | 2 | 865 | A |
| 47 | 2 | 866 | G |
| 47 | 2 | 880 | C |
| 47 | 2 | 886 | U |
| 47 | 2 | 888 | U |
| 47 | 2 | 898 | A |
| 47 | 2 | 900 | A |
| 47 | 2 | 903 | U |
| 47 | 2 | 913 | G |
| 47 | 2 | 914 | G |
| 47 | 2 | 915 | A |
| 47 | 2 | 916 | U |
| 47 | 2 | 921 | U |
| 47 | 2 | 928 | U |
| 47 | 2 | 929 | A |
| 47 | 2 | 933 | A |
| 47 | 2 | 935 | U |
| 47 | 2 | 938 | G |
| 47 | 2 | 939 | A |
| 47 | 2 | 942 | G |
| 47 | 2 | 944 | A |
| 47 | 2 | 945 | U |
| 47 | 2 | 946 | U |
| 47 | 2 | 951 | A |
| 47 | 2 | 960 | U |
| 47 | 2 | 964 | U |
| 47 | 2 | 966 | A |
| 47 | 2 | 967 | A |
| 47 | 2 | 987 | G |
| 47 | 2 | 988 | A |
| 47 | 2 | 992 | A |
| 47 | 2 | 993 | A |
| 47 | 2 | 1007 | C |
| 47 | 2 | 1020 | A |
| 47 | 2 | 1021 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 1022 | C |
| 47 | 2 | 1025 | A |
| 47 | 2 | 1026 | A |
| 47 | 2 | 1027 | A |
| 47 | 2 | 1028 | C |
| 47 | 2 | 1031 | U |
| 47 | 2 | 1039 | A |
| 47 | 2 | 1052 | U |
| 47 | 2 | 1053 | G |
| 47 | 2 | 1054 | U |
| 47 | 2 | 1067 | C |
| 47 | 2 | 1074 | G |
| 47 | 2 | 1081 | A |
| 47 | 2 | 1082 | C |
| 47 | 2 | 1085 | G |
| 47 | 2 | 1092 | A |
| 47 | 2 | 1093 | A |
| 47 | 2 | 1097 | U |
| 47 | 2 | 1098 | U |
| 47 | 2 | 1099 | U |
| 47 | 2 | 1100 | G |
| 47 | 2 | 1109 | G |
| 47 | 2 | 1113 | A |
| 47 | 2 | 1122 | G |
| 47 | 2 | 1125 | A |
| 47 | 2 | 1126 | G |
| 47 | 2 | 1137 | A |
| 47 | 2 | 1138 | A |
| 47 | 2 | 1139 | A |
| 47 | 2 | 1150 | G |
| 47 | 2 | 1151 | A |
| 47 | 2 | 1158 | C |
| 47 | 2 | 1159 | C |
| 47 | 2 | 1162 | C |
| 47 | 2 | 1163 | A |
| 47 | 2 | 1164 | G |
| 47 | 2 | 1166 | A |
| 47 | 2 | 1167 | G |
| 47 | 2 | 1170 | G |
| 47 | 2 | 1173 | C |
| 47 | 2 | 1180 | C |
| 47 | 2 | 1181 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 1182 | U |
| 47 | 2 | 1183 | A |
| 47 | 2 | 1184 | A |
| 47 | 2 | 1185 | U |
| 47 | 2 | 1186 | U |
| 47 | 2 | 1189 | A |
| 47 | 2 | 1190 | C |
| 47 | 2 | 1191 | U |
| 47 | 2 | 1193 | A |
| 47 | 2 | 1194 | A |
| 47 | 2 | 1196 | A |
| 47 | 2 | 1199 | G |
| 47 | 2 | 1200 | G |
| 47 | 2 | 1202 | A |
| 47 | 2 | 1206 | U |
| 47 | 2 | 1207 | C |
| 47 | 2 | 1209 | C |
| 47 | 2 | 1212 | G |
| 47 | 2 | 1217 | A |
| 47 | 2 | 1218 | G |
| 47 | 2 | 1219 | A |
| 47 | 2 | 1221 | A |
| 47 | 2 | 1223 | A |
| 47 | 2 | 1225 | U |
| 47 | 2 | 1227 | A |
| 47 | 2 | 1228 | G |
| 47 | 2 | 1229 | G |
| 47 | 2 | 1230 | A |
| 47 | 2 | 1232 | U |
| 47 | 2 | 1235 | C |
| 47 | 2 | 1238 | A |
| 47 | 2 | 1239 | U |
| 47 | 2 | 1241 | G |
| 47 | 2 | 1242 | A |
| 47 | 2 | 1244 | A |
| 47 | 2 | 1245 | G |
| 47 | 2 | 1246 | C |
| 47 | 2 | 1250 | U |
| 47 | 2 | 1251 | U |
| 47 | 2 | 1252 | C |
| 47 | 2 | 1255 | G |
| 47 | 2 | 1256 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 1257 | U |
| 47 | 2 | 1258 | U |
| 47 | 2 | 1260 | U |
| 47 | 2 | 1263 | G |
| 47 | 2 | 1264 | G |
| 47 | 2 | 1266 | U |
| 47 | 2 | 1267 | G |
| 47 | 2 | 1268 | G |
| 47 | 2 | 1269 | U |
| 47 | 2 | 1270 | G |
| 47 | 2 | 1273 | G |
| 47 | 2 | 1274 | C |
| 47 | 2 | 1275 | A |
| 47 | 2 | 1278 | G |
| 47 | 2 | 1284 | C |
| 47 | 2 | 1286 | U |
| 47 | 2 | 1287 | A |
| 47 | 2 | 1291 | G |
| 47 | 2 | 1297 | G |
| 47 | 2 | 1298 | U |
| 47 | 2 | 1299 | G |
| 47 | 2 | 1300 | A |
| 47 | 2 | 1301 | U |
| 47 | 2 | 1302 | U |
| 47 | 2 | 1306 | C |
| 47 | 2 | 1307 | U |
| 47 | 2 | 1309 | C |
| 47 | 2 | 1312 | A |
| 47 | 2 | 1314 | U |
| 47 | 2 | 1315 | U |
| 47 | 2 | 1318 | G |
| 47 | 2 | 1321 | A |
| 47 | 2 | 1328 | G |
| 47 | 2 | 1336 | A |
| 47 | 2 | 1337 | A |
| 47 | 2 | 1339 | C |
| 47 | 2 | 1340 | U |
| 47 | 2 | 1342 | C |
| 47 | 2 | 1343 | U |
| 47 | 2 | 1347 | U |
| 47 | 2 | 1349 | G |
| 47 | 2 | 1351 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 1353 | U |
| 47 | 2 | 1354 | G |
| 47 | 2 | 1358 | G |
| 47 | 2 | 1361 | U |
| 47 | 2 | 1363 | U |
| 47 | 2 | 1364 | G |
| 47 | 2 | 1368 | G |
| 47 | 2 | 1370 | U |
| 47 | 2 | 1372 | U |
| 47 | 2 | 1378 | U |
| 47 | 2 | 1380 | U |
| 47 | 2 | 1382 | A |
| 47 | 2 | 1383 | G |
| 47 | 2 | 1384 | A |
| 47 | 2 | 1385 | G |
| 47 | 2 | 1388 | A |
| 47 | 2 | 1390 | U |
| 47 | 2 | 1392 | U |
| 47 | 2 | 1394 | G |
| 47 | 2 | 1397 | U |
| 47 | 2 | 1398 | U |
| 47 | 2 | 1399 | C |
| 47 | 2 | 1400 | A |
| 47 | 2 | 1402 | G |
| 47 | 2 | 1403 | C |
| 47 | 2 | 1404 | C |
| 47 | 2 | 1405 | G |
| 47 | 2 | 1409 | G |
| 47 | 2 | 1410 | A |
| 47 | 2 | 1411 | A |
| 47 | 2 | 1412 | G |
| 47 | 2 | 1414 | U |
| 47 | 2 | 1415 | U |
| 47 | 2 | 1416 | G |
| 47 | 2 | 1418 | G |
| 47 | 2 | 1419 | G |
| 47 | 2 | 1427 | A |
| 47 | 2 | 1428 | G |
| 47 | 2 | 1429 | G |
| 47 | 2 | 1430 | U |
| 47 | 2 | 1432 | U |
| 47 | 2 | 1433 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 1434 | U |
| 47 | 2 | 1436 | A |
| 47 | 2 | 1444 | A |
| 47 | 2 | 1445 | G |
| 47 | 2 | 1446 | A |
| 47 | 2 | 1447 | C |
| 47 | 2 | 1451 | C |
| 47 | 2 | 1453 | G |
| 47 | 2 | 1457 | C |
| 47 | 2 | 1458 | G |
| 47 | 2 | 1459 | C |
| 47 | 2 | 1461 | C |
| 47 | 2 | 1469 | A |
| 47 | 2 | 1471 | A |
| 47 | 2 | 1472 | C |
| 47 | 2 | 1473 | U |
| 47 | 2 | 1474 | G |
| 47 | 2 | 1478 | G |
| 47 | 2 | 1479 | A |
| 47 | 2 | 1481 | C |
| 47 | 2 | 1482 | C |
| 47 | 2 | 1489 | U |
| 47 | 2 | 1490 | C |
| 47 | 2 | 1491 | U |
| 47 | 2 | 1492 | A |
| 47 | 2 | 1493 | A |
| 47 | 2 | 1496 | U |
| 47 | 2 | 1506 | G |
| 47 | 2 | 1512 | G |
| 47 | 2 | 1514 | U |
| 47 | 2 | 1516 | A |
| 47 | 2 | 1517 | U |
| 47 | 2 | 1518 | C |
| 47 | 2 | 1520 | U |
| 47 | 2 | 1521 | G |
| 47 | 2 | 1522 | U |
| 47 | 2 | 1523 | G |
| 47 | 2 | 1524 | A |
| 47 | 2 | 1531 | G |
| 47 | 2 | 1534 | G |
| 47 | 2 | 1535 | U |
| 47 | 2 | 1536 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 1537 | C |
| 47 | 2 | 1538 | U |
| 47 | 2 | 1539 | G |
| 47 | 2 | 1541 | G |
| 47 | 2 | 1542 | G |
| 47 | 2 | 1543 | A |
| 47 | 2 | 1557 | U |
| 47 | 2 | 1559 | A |
| 47 | 2 | 1567 | U |
| 47 | 2 | 1568 | C |
| 47 | 2 | 1570 | A |
| 47 | 2 | 1571 | C |
| 47 | 2 | 1572 | G |
| 47 | 2 | 1583 | A |
| 47 | 2 | 1584 | G |
| 47 | 2 | 1586 | A |
| 47 | 2 | 1587 | A |
| 47 | 2 | 1589 | C |
| 47 | 2 | 1591 | C |
| 47 | 2 | 1596 | C |
| 47 | 2 | 1597 | A |
| 47 | 2 | 1601 | G |
| 47 | 2 | 1604 | U |
| 47 | 2 | 1605 | G |
| 47 | 2 | 1612 | U |
| 47 | 2 | 1613 | U |
| 47 | 2 | 1615 | C |
| 47 | 2 | 1616 | G |
| 47 | 2 | 1617 | U |
| 47 | 2 | 1619 | C |
| 47 | 2 | 1625 | C |
| 47 | 2 | 1631 | A |
| 47 | 2 | 1634 | C |
| 47 | 2 | 1635 | A |
| 47 | 2 | 1636 | C |
| 47 | 2 | 1637 | C |
| 47 | 2 | 1638 | G |
| 47 | 2 | 1639 | C |
| 47 | 2 | 1647 | U |
| 47 | 2 | 1651 | A |
| 47 | 2 | 1653 | C |
| 47 | 2 | 1657 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 1658 | G |
| 47 | 2 | 1664 | C |
| 47 | 2 | 1670 | G |
| 47 | 2 | 1678 | A |
| 47 | 2 | 1679 | G |
| 47 | 2 | 1680 | G |
| 47 | 2 | 1681 | A |
| 47 | 2 | 1682 | U |
| 47 | 2 | 1683 | C |
| 47 | 2 | 1684 | U |
| 47 | 2 | 1685 | G |
| 47 | 2 | 1686 | C |
| 47 | 2 | 1689 | A |
| 47 | 2 | 1694 | A |
| 47 | 2 | 1696 | G |
| 47 | 2 | 1698 | G |
| 47 | 2 | 1699 | G |
| 47 | 2 | 1700 | C |
| 47 | 2 | 1701 | A |
| 47 | 2 | 1702 | A |
| 47 | 2 | 1703 | C |
| 47 | 2 | 1704 | U |
| 47 | 2 | 1705 | C |
| 47 | 2 | 1707 | A |
| 47 | 2 | 1708 | U |
| 47 | 2 | 1709 | C |
| 47 | 2 | 1710 | U |
| 47 | 2 | 1712 | A |
| 47 | 2 | 1713 | G |
| 47 | 2 | 1715 | G |
| 47 | 2 | 1716 | C |
| 47 | 2 | 1717 | G |
| 47 | 2 | 1718 | G |
| 47 | 2 | 1720 | G |
| 47 | 2 | 1730 | A |
| 47 | 2 | 1736 | G |
| 47 | 2 | 1747 | G |
| 47 | 2 | 1749 | A |
| 47 | 2 | 1750 | A |
| 47 | 2 | 1755 | A |
| 47 | 2 | 1756 | A |
| 47 | 2 | 1757 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 1758 | U |
| 47 | 2 | 1761 | U |
| 47 | 2 | 1762 | A |
| 47 | 2 | 1766 | A |
| 47 | 2 | 1767 | G |
| 47 | 2 | 1769 | U |
| 47 | 2 | 1780 | G |
| 47 | 2 | 1782 | A |
| 47 | 2 | 1783 | C |
| 47 | 2 | 1791 | A |
| 47 | 2 | 1792 | G |
| 47 | 2 | 1793 | G |
| 47 | 2 | 1794 | A |
| 47 | 2 | 1795 | U |
| 47 | 2 | 1796 | C |
| 47 | 2 | 1798 | U |
| 81 | AX | 4 | G |
| 81 | AX | 9 | A |
| 81 | AX | 10 | G |
| 81 | AX | 11 | C |
| 81 | AX | 14 | A |
| 81 | AX | 16 | U |
| 81 | AX | 17 | U |
| 81 | AX | 18 | G |
| 81 | AX | 19 | G |
| 81 | AX | 20 | G |
| 81 | AX | 21 | A |
| 81 | AX | 22 | G |
| 81 | AX | 24 | G |
| 81 | AX | 26 | G |
| 81 | AX | 27 | C |
| 81 | AX | 30 | G |
| 81 | AX | 34 | G |
| 81 | AX | 37 | G |
| 81 | AX | 38 | A |
| 81 | AX | 40 | C |
| 81 | AX | 42 | G |
| 81 | AX | 46 | G |
| 81 | AX | 47 | U |
| 81 | AX | 48 | C |
| 81 | AX | 49 | C |
| 81 | AX | 55 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 81 | AX | 59 | U |
| 81 | AX | 60 | C |
| 81 | AX | 61 | C |
| 81 | AX | 69 | U |
| 81 | AX | 74 | C |
| 81 | AX | 75 | C |
| 81 | AX | 76 | A |
| 82 | AY | 44 | A |
| 82 | AY | 45 | A |
| 82 | AY | 48 | U |
| 82 | AY | 49 | U |
| 82 | AY | 50 | U |

All (44) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 1 | 980 | A |
| 1 | 1 | 1053 | A |
| 1 | 1 | 1283 | C |
| 1 | 1 | 1285 | G |
| 1 | 1 | 1506 | A |
| 1 | 1 | 1562 | C |
| 1 | 1 | 1594 | A |
| 1 | 1 | 1629 | U |
| 1 | 1 | 2270 | A |
| 1 | 1 | 2295 | A |
| 1 | 1 | 2306 | C |
| 1 | 1 | 2461 | A |
| 1 | 1 | 2541 | U |
| 1 | 1 | 2549 | G |
| 1 | 1 | 2874 | G |
| 1 | 1 | 3004 | C |
| 1 | 1 | 3078 | U |
| 1 | 1 | 3121 | U |
| 3 | 4 | 22 | U |
| 3 | 4 | 88 | A |
| 47 | 2 | 1 | U |
| 47 | 2 | 74 | U |
| 47 | 2 | 315 | A |
| 47 | 2 | 507 | U |
| 47 | 2 | 611 | U |
| 47 | 2 | 706 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 47 | 2 | 779 | U |
| 47 | 2 | 780 | A |
| 47 | 2 | 865 | A |
| 47 | 2 | 941 | A |
| 47 | 2 | 1138 | A |
| 47 | 2 | 1244 | A |
| 47 | 2 | 1273 | G |
| 47 | 2 | 1274 | C |
| 47 | 2 | 1298 | U |
| 47 | 2 | 1338 | C |
| 47 | 2 | 1399 | C |
| 47 | 2 | 1491 | U |
| 47 | 2 | 1536 | G |
| 47 | 2 | 1611 | A |
| 47 | 2 | 1637 | C |
| 47 | 2 | 1684 | U |
| 47 | 2 | 1756 | A |
| 81 | AX | 19 | G |

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\| > 2$ | Counts | RMSZ | $\#\|Z\| > 2$ |
| 83 | DDE | AZ | 699 | 83 | 14,20,21 | 1.97 | 3 (21%) | 14,28,30 | 2.18 | 5 (35%) |

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 |
|---|---|---|---|---|---|---|---|
| 83 | DDE | AZ | 699 | 83 | - | 7/20/21/23 | 0/1/1/1 |

All (3) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 83 | AZ | 699 | DDE | CBI-NAD | 5.69 | 1.47 | 1.32 |
| 83 | AZ | 699 | DDE | CAT-CE1 | 3.25 | 1.54 | 1.50 |
| 83 | AZ | 699 | DDE | OAG-CBI | -2.11 | 1.19 | 1.23 |

All (5) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 83 | AZ | 699 | DDE | CBW-CBI-NAD | 5.22 | 121.94 | 115.28 |
| 83 | AZ | 699 | DDE | CAC-NCB-CAB | 3.55 | 117.80 | 108.10 |
| 83 | AZ | 699 | DDE | OAG-CBI-NAD | -2.80 | 118.14 | 123.00 |
| 83 | AZ | 699 | DDE | CAU-CBW-CBI | -2.27 | 106.70 | 111.20 |
| 83 | AZ | 699 | DDE | CG-ND1-CE1 | 2.01 | 108.99 | 103.05 |

There are no chirality outliers.

All (7) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 83 | AZ | 699 | DDE | N-CA-CB-CG |
| 83 | AZ | 699 | DDE | C-CA-CB-CG |
| 83 | AZ | 699 | DDE | CAT-CAU-CBW-CBI |
| 83 | AZ | 699 | DDE | CAT-CAU-CBW-NCB |
| 83 | AZ | 699 | DDE | CE1-CAT-CAU-CBW |
| 83 | AZ | 699 | DDE | NAD-CBI-CBW-NCB |
| 83 | AZ | 699 | DDE | OAG-CBI-CBW-NCB |

There are no ring outliers.

1 monomer is involved in 1 short contact:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|---|---|---|---|---|---|
| 83 | AZ | 699 | DDE | 1 | 0 |

## 5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 10 ligands modelled in this entry, 8 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 | $\#\|Z\| > 2$ |
| 85 | SO1 | AZ | 901 | - | 35,39,39 | 0.20 | 0 | 39,64,64 | 0.85 | 2 (5%) |
| 86 | GCP | AZ | 902 | - | 27,34,34 | 1.18 | 4 (14%) | 34,54,54 | 2.22 | 10 (29%) |

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 |
|---|---|---|---|---|---|---|---|
| 85 | SO1 | AZ | 901 | - | - | 9/21/104/104 | 0/7/5/5 |
| 86 | GCP | AZ | 902 | - | - | 6/15/38/38 | 0/3/3/3 |

All (4) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 86 | AZ | 902 | GCP | C6-N1 | 3.06 | 1.38 | 1.33 |
| 86 | AZ | 902 | GCP | PB-O2B | -2.73 | 1.50 | 1.56 |
| 86 | AZ | 902 | GCP | PG-O1G | 2.17 | 1.54 | 1.50 |
| 86 | AZ | 902 | GCP | PG-O3G | -2.15 | 1.50 | 1.54 |

All (12) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 86 | AZ | 902 | GCP | C5-C6-N1 | -8.16 | 112.27 | 123.43 |
| 86 | AZ | 902 | GCP | C2-N1-C6 | 5.76 | 125.08 | 115.93 |
| 85 | AZ | 901 | SO1 | C18-C9-C16 | -4.13 | 97.73 | 103.64 |
| 86 | AZ | 902 | GCP | O2B-PB-C3B | 3.94 | 122.68 | 106.58 |
| 86 | AZ | 902 | GCP | N3-C2-N1 | -2.94 | 123.30 | 127.22 |
| 86 | AZ | 902 | GCP | O3G-PG-C3B | 2.58 | 112.66 | 106.40 |
| 86 | AZ | 902 | GCP | O1G-PG-C3B | -2.41 | 106.06 | 111.24 |
| 86 | AZ | 902 | GCP | C2-N3-C4 | -2.37 | 112.66 | 115.36 |
| 86 | AZ | 902 | GCP | C4-C5-C6 | -2.28 | 118.62 | 120.80 |
| 85 | AZ | 901 | SO1 | C7-C2-C6 | 2.27 | 116.47 | 112.17 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 86 | AZ | 902 | GCP | PB-O3A-PA | -2.25 | 125.41 | 132.56 |
| 86 | AZ | 902 | GCP | O2G-PG-O1G | -2.06 | 106.95 | 112.39 |

There are no chirality outliers.

All (15) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 86 | AZ | 902 | GCP | PG-C3B-PB-O1B |
| 86 | AZ | 902 | GCP | PG-C3B-PB-O3A |
| 85 | AZ | 901 | SO1 | C56-C55-O64-C65 |
| 85 | AZ | 901 | SO1 | C2-C1-C5-O14 |
| 85 | AZ | 901 | SO1 | C2-C1-C5-O15 |
| 86 | AZ | 902 | GCP | C4'-C5'-O5'-PA |
| 85 | AZ | 901 | SO1 | C3-C1-C5-O15 |
| 85 | AZ | 901 | SO1 | C3-C1-C5-O14 |
| 85 | AZ | 901 | SO1 | O19-C11-C3-C1 |
| 86 | AZ | 902 | GCP | PB-C3B-PG-O1G |
| 86 | AZ | 902 | GCP | C5'-O5'-PA-O3A |
| 86 | AZ | 902 | GCP | C5'-O5'-PA-O2A |
| 85 | AZ | 901 | SO1 | C20-C13-C4-C1 |
| 85 | AZ | 901 | SO1 | C1-C2-C8-O17 |
| 85 | AZ | 901 | SO1 | C54-C55-O64-C65 |

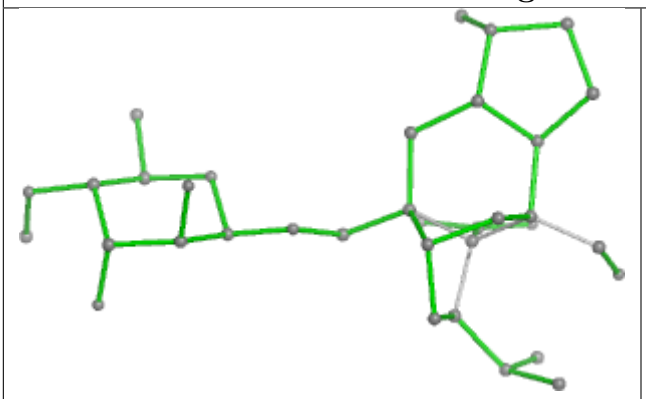
There are no ring outliers.

2 monomers are involved in 18 short contacts:

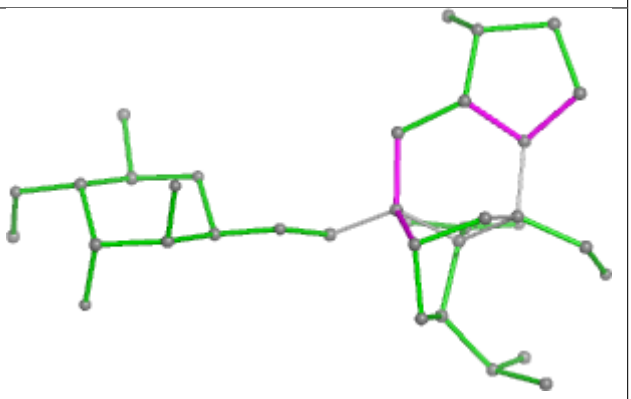
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|---|---|---|---|---|---|
| 85 | AZ | 901 | SO1 | 13 | 0 |
| 86 | AZ | 902 | GCP | 5 | 0 |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

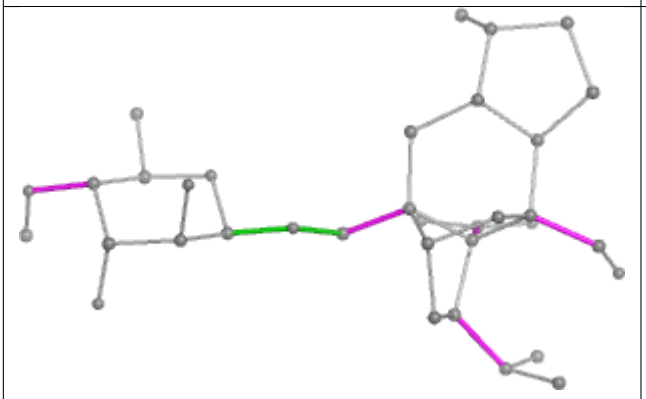
## Ligand SO1 AZ 901



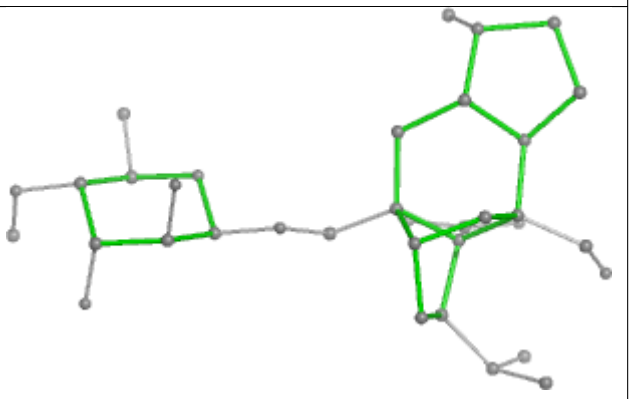
Bond lengths



Bond angles

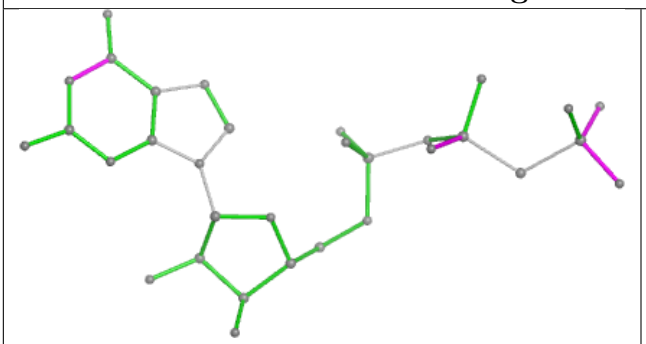


Torsions

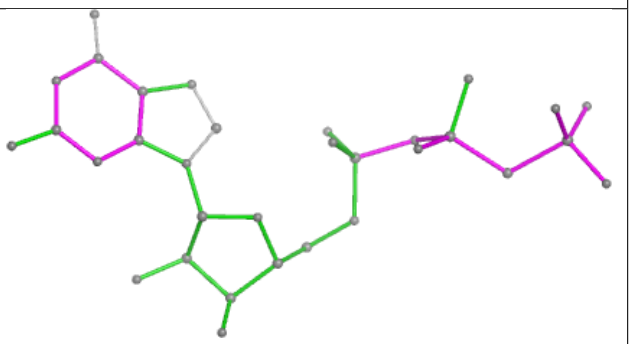


Rings

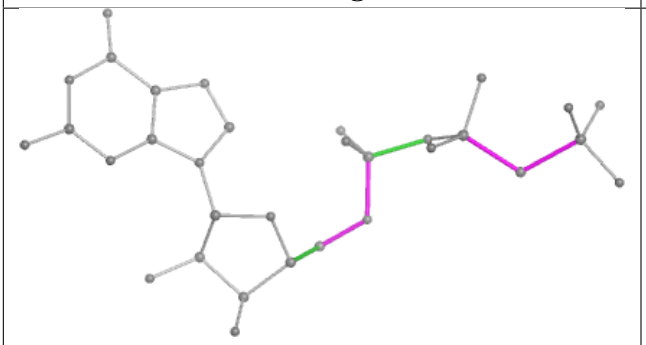
## Ligand GCP AZ 902



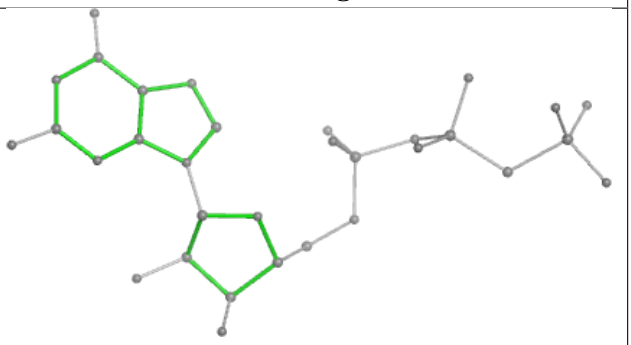
Bond lengths



Bond angles



Torsions



Rings

## 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.

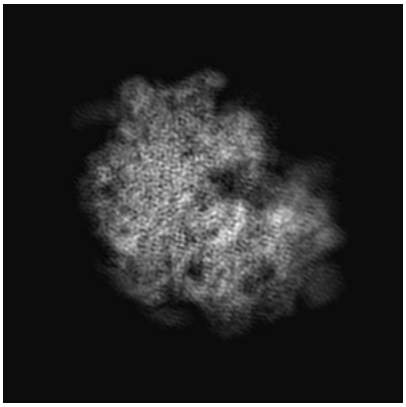
# 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-0047. These allow visual inspection of the internal detail of the map and identification of artifacts.

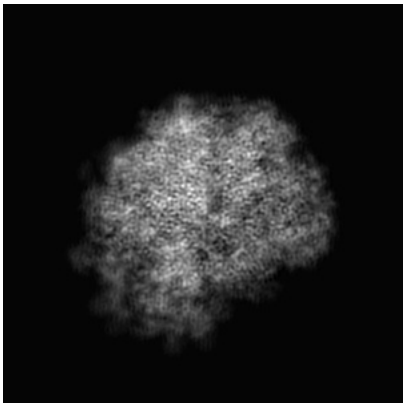
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

## 6.1 Orthogonal projections

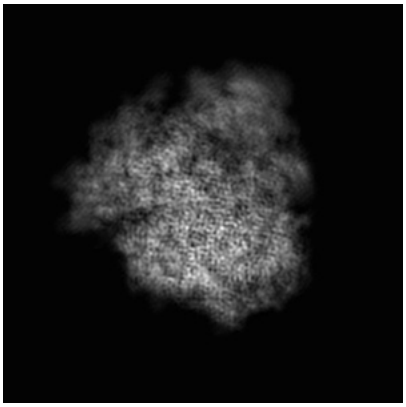
### 6.1.1 Primary map



X



Y

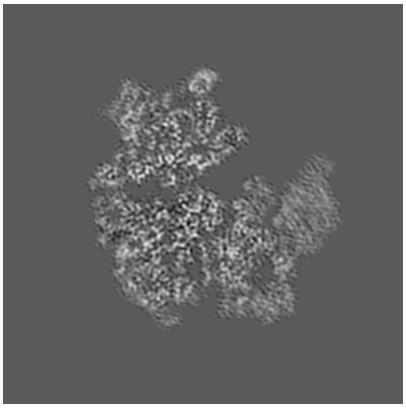


Z

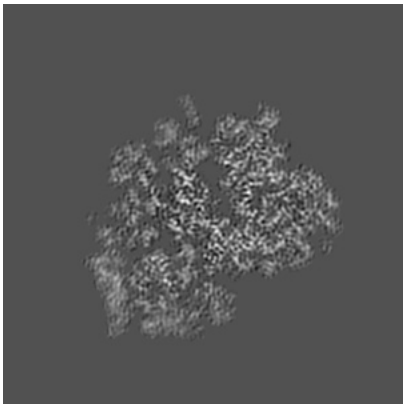
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices

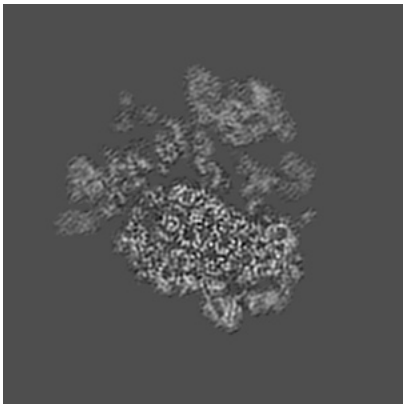
### 6.2.1 Primary map



X Index: 180



Y Index: 180

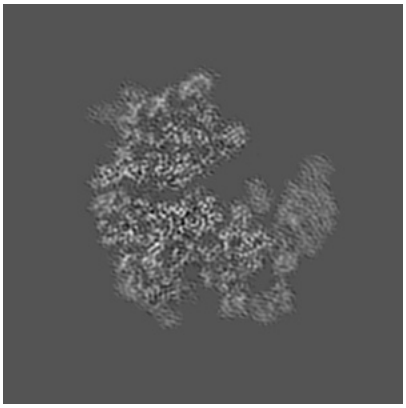


Z Index: 180

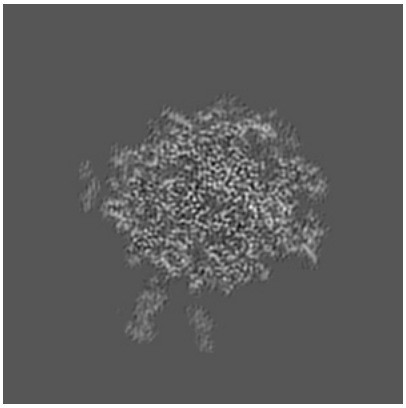
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices (i)

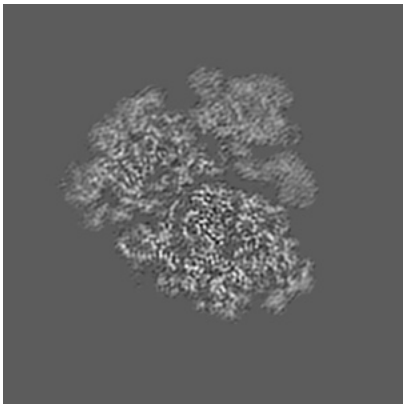
### 6.3.1 Primary map



X Index: 183



Y Index: 156

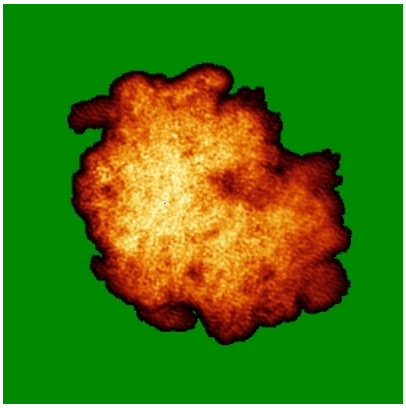


Z Index: 166

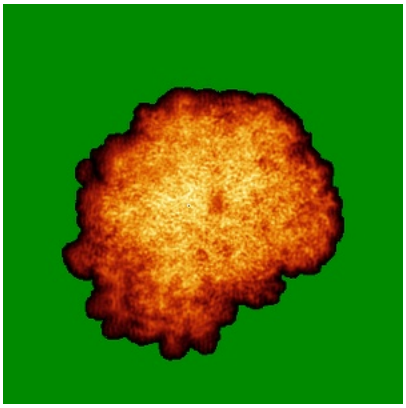
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) (i)

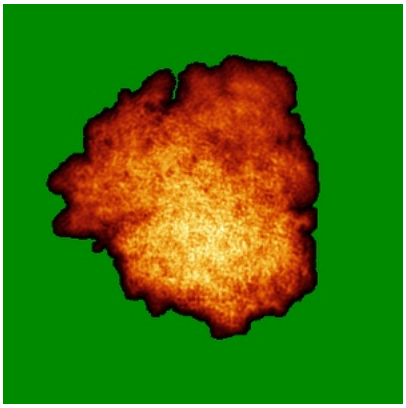
### 6.4.1 Primary map



X



Y



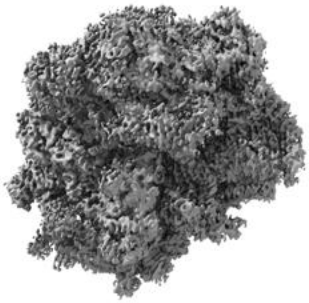
Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views (i)

### 6.5.1 Primary map

X



Y

Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

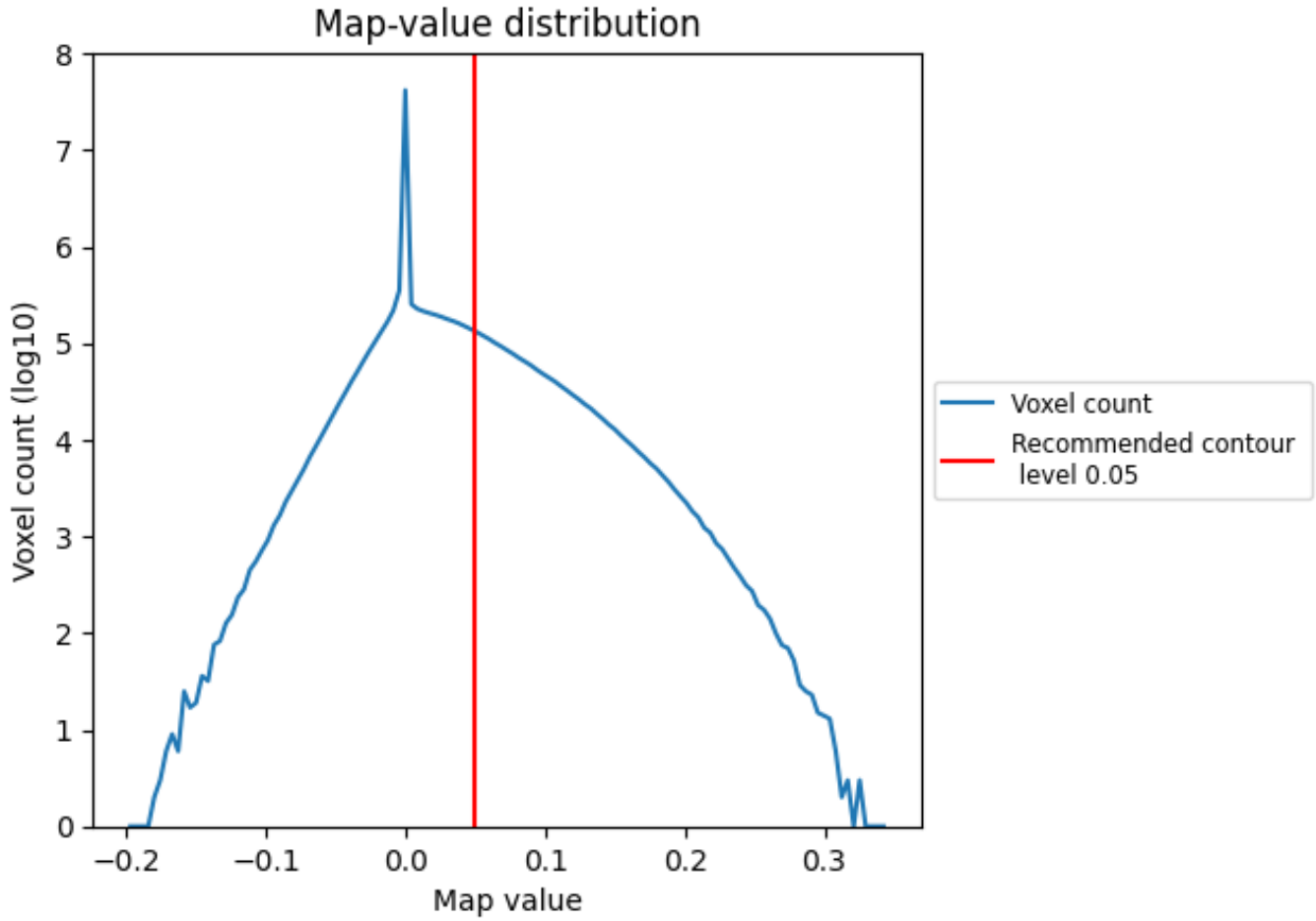
## 6.6 Mask visualisation (i)

This section was not generated. No masks/segmentation were deposited.

# 7 Map analysis

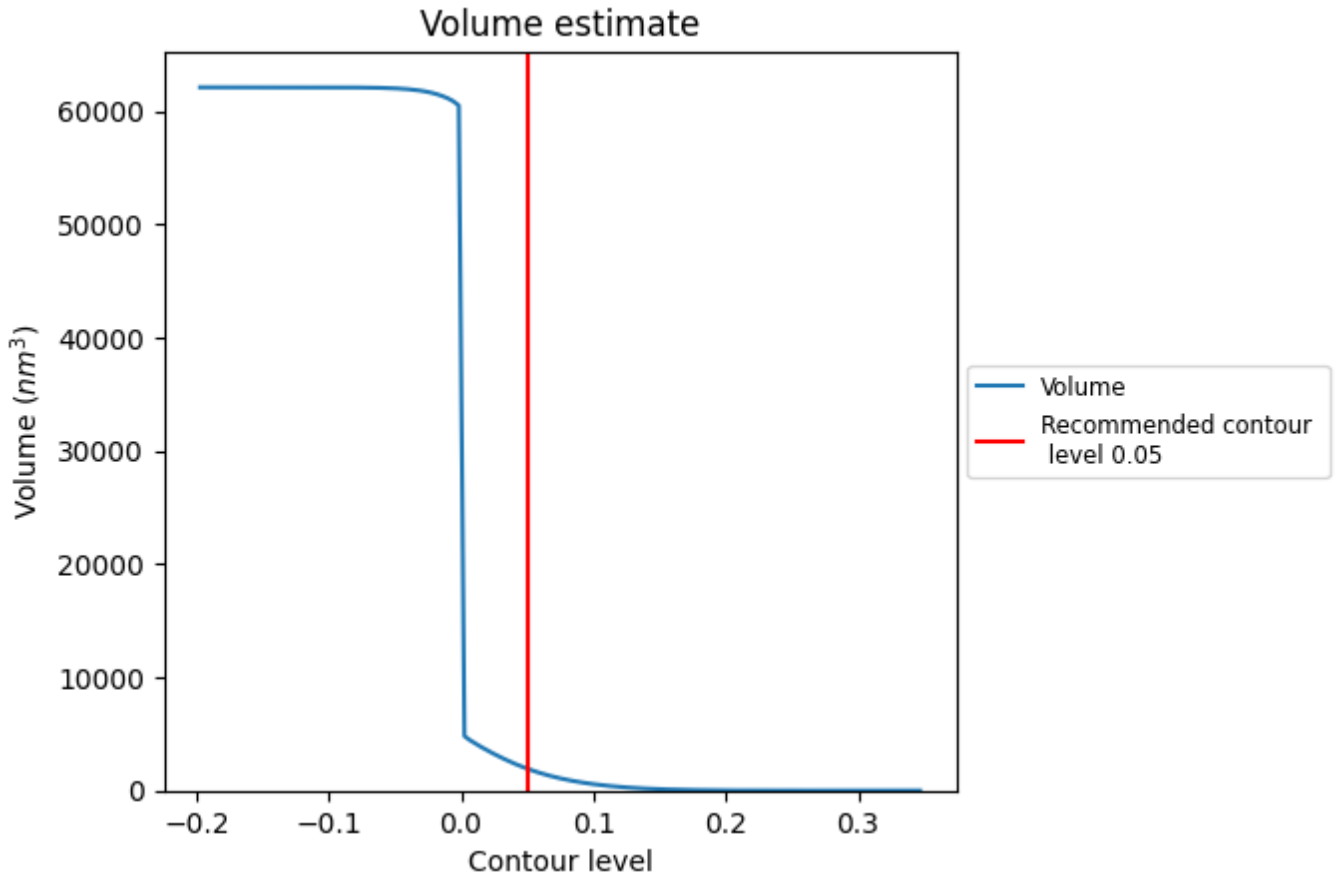
This section contains the results of statistical analysis of the map.

## 7.1 Map-value distribution




The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

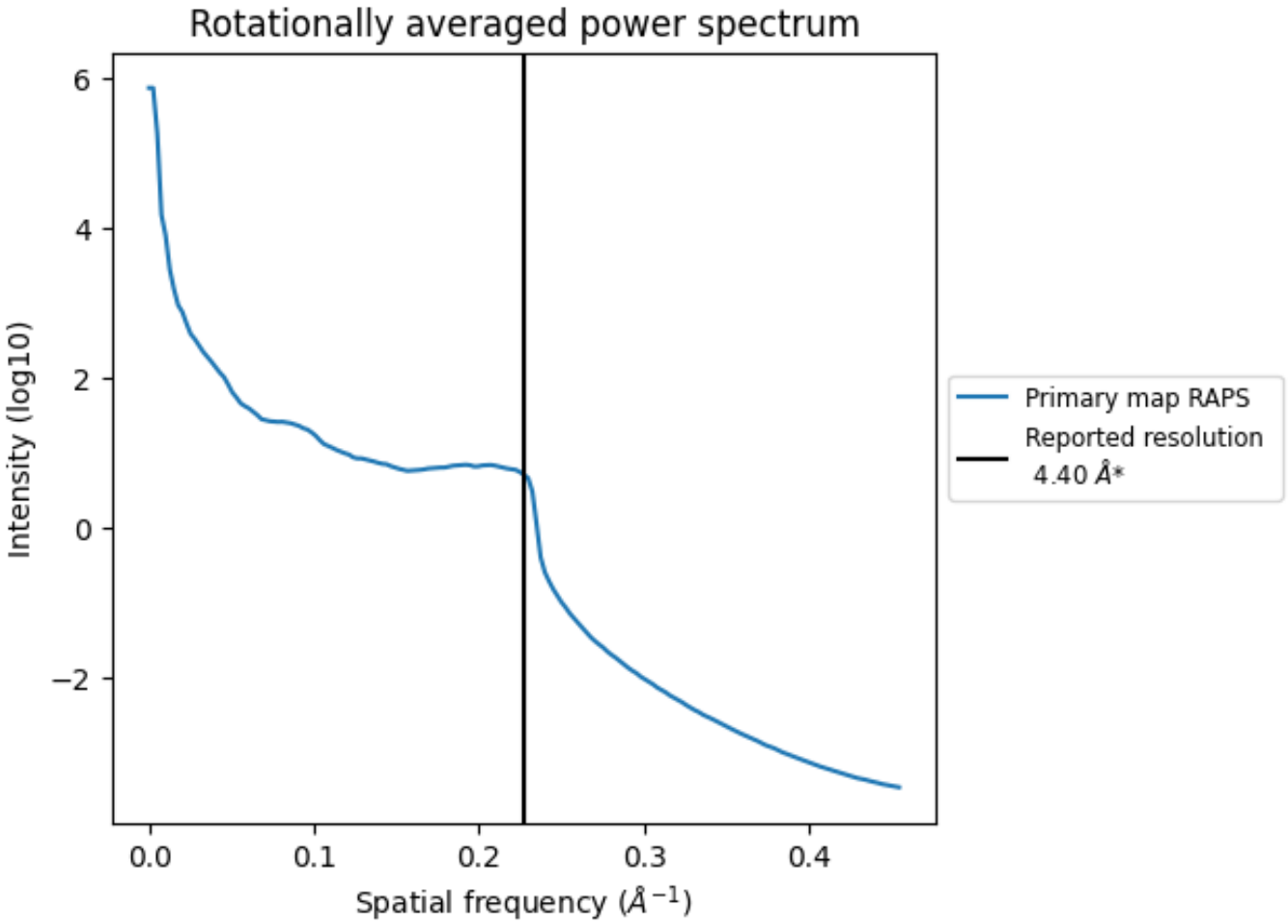
## 7.2 Volume estimate




The volume at the recommended contour level is 1936 $nm^3$; this corresponds to an approximate mass of 1749 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

## 7.3 Rotationally averaged power spectrum (i)




*Reported resolution corresponds to spatial frequency of 0.227 $Å^{-1}$

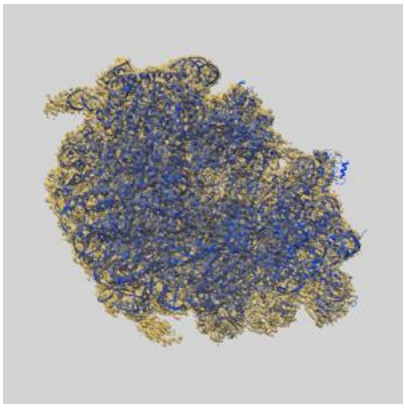
# 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

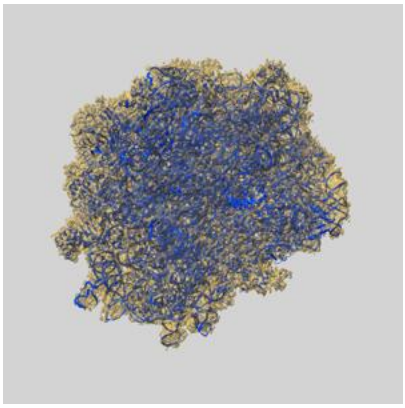
# 9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-0047 and PDB model 6GQ1. Per-residue inclusion information can be found in section 3 on page 21.

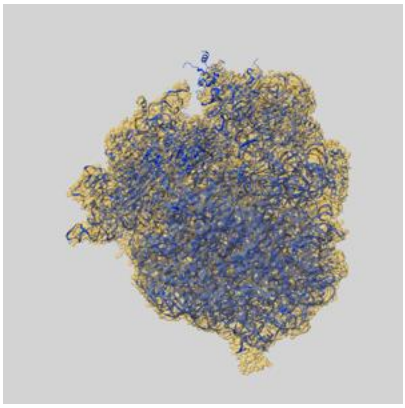
## 9.1 Map-model overlay



X



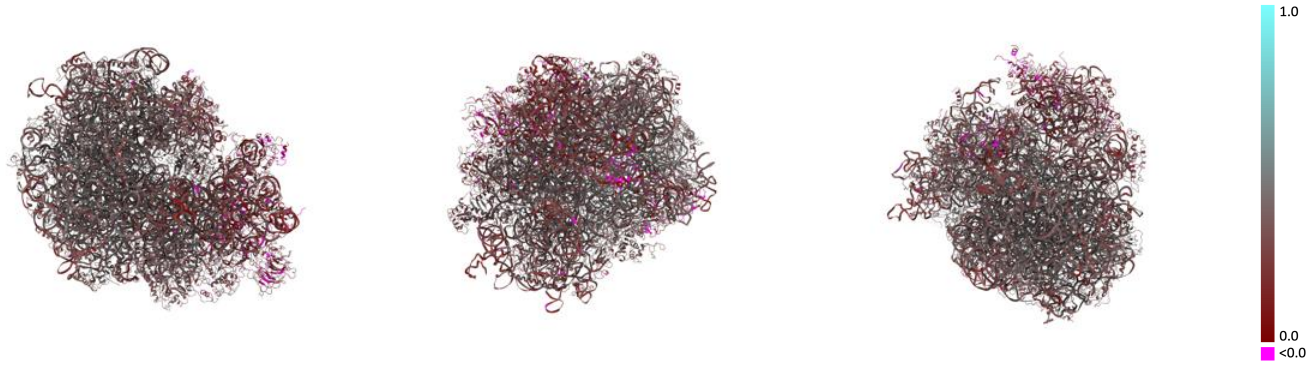
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

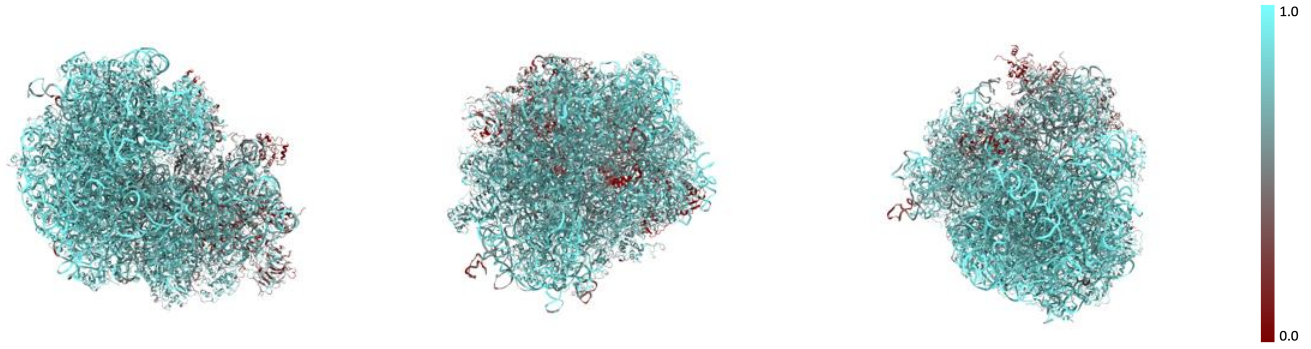
## 9.2 Q-score mapped to coordinate model (i)




X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

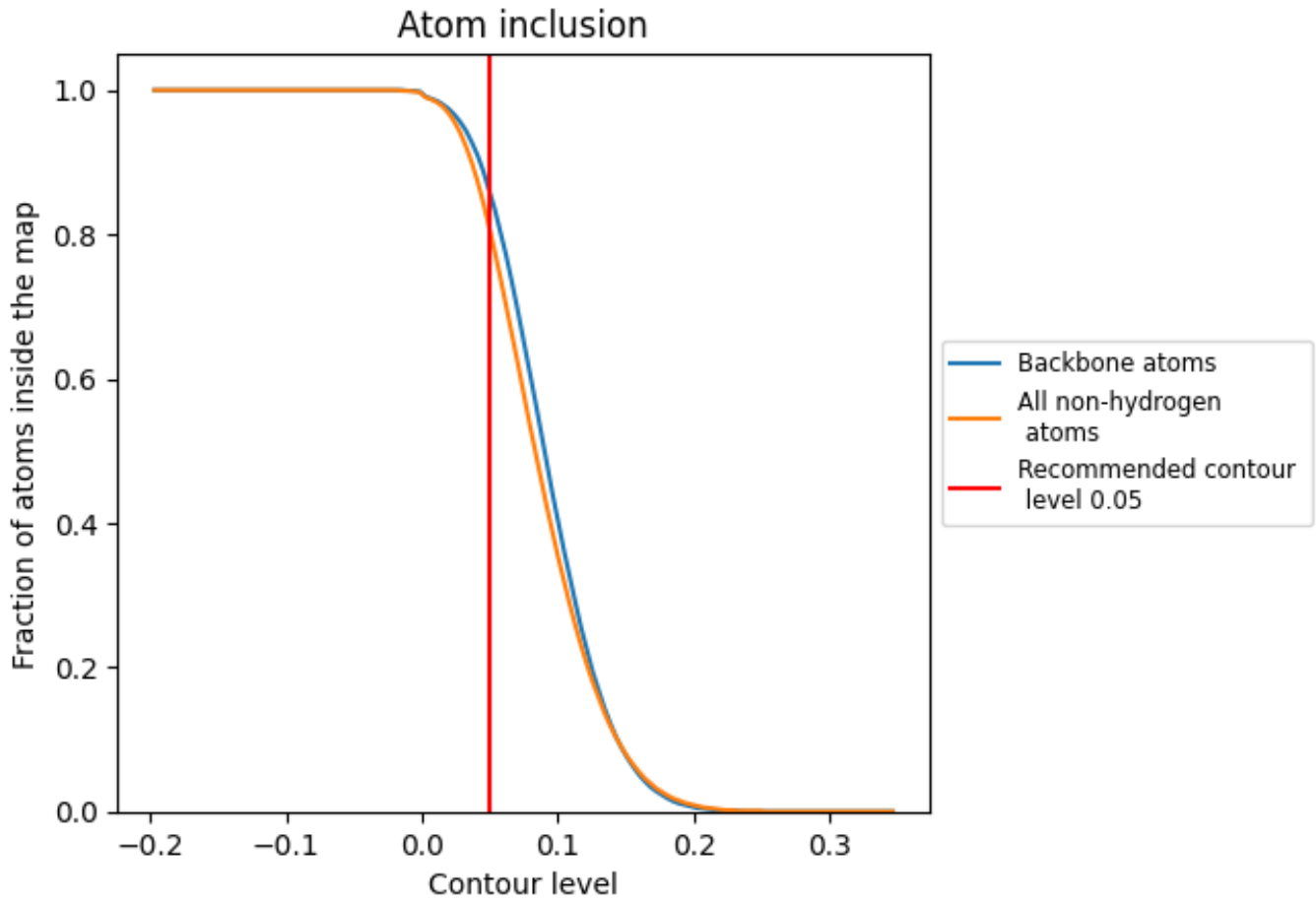
## 9.3 Atom inclusion mapped to coordinate model (i)




X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.05).

## 9.4 Atom inclusion (i)




At the recommended contour level, 86% of all backbone atoms, 81% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.05) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.8060 | 0.3570 |
| 1 | 0.9110 | 0.3810 |
| 2 | 0.8440 | 0.3240 |
| 3 | 0.9360 | 0.3530 |
| 4 | 0.9340 | 0.3930 |
| A | 0.7740 | 0.4380 |
| AA | 0.6570 | 0.2610 |
| AB | 0.6780 | 0.3880 |
| AC | 0.1070 | 0.1250 |
| AD | 0.7700 | 0.3720 |
| AE | 0.7990 | 0.3800 |
| AF | 0.6000 | 0.2770 |
| AG | 0.5530 | 0.2570 |
| AH | 0.5300 | 0.2530 |
| AI | 0.5570 | 0.2540 |
| AJ | 0.5780 | 0.2420 |
| AK | 0.3580 | 0.2170 |
| AL | 0.7110 | 0.3380 |
| AM | 0.7650 | 0.3910 |
| AN | 0.6980 | 0.3920 |
| AO | 0.7460 | 0.3370 |
| AP | 0.3710 | 0.1990 |
| AQ | 0.7460 | 0.3600 |
| AR | 0.7480 | 0.3620 |
| AS | 0.4110 | 0.2240 |
| AT | 0.7030 | 0.2720 |
| AU | 0.6250 | 0.3360 |
| AV | 0.4710 | 0.2100 |
| AW | 0.3210 | 0.1830 |
| AX | 0.6670 | 0.2570 |
| AY | 0.2990 | 0.3080 |
| AZ | 0.6610 | 0.3520 |
| B | 0.8060 | 0.4140 |
| C | 0.8280 | 0.4080 |
| D | 0.7760 | 0.3260 |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| Chain | Atom inclusion | Q-score |
|---|---|---|
| E | 0.8090 | 0.3660 |
| F | 0.8180 | 0.3970 |
| G | 0.7980 | 0.3630 |
| H | 0.7720 | 0.3940 |
| I | 0.7780 | 0.4000 |
| J | 0.7450 | 0.3430 |
| L | 0.8120 | 0.3950 |
| M | 0.8110 | 0.3730 |
| N | 0.8330 | 0.4160 |
| O | 0.8140 | 0.3990 |
| P | 0.8200 | 0.4120 |
| P0 | 0.1920 | 0.1770 |
| P2 | 0.1750 | 0.1810 |
| Q | 0.8150 | 0.4190 |
| R | 0.7980 | 0.3970 |
| S | 0.8030 | 0.4050 |
| T | 0.7980 | 0.4070 |
| U | 0.7560 | 0.3640 |
| V | 0.7370 | 0.4370 |
| W | 0.7860 | 0.4210 |
| X | 0.7830 | 0.4060 |
| Y | 0.8320 | 0.4070 |
| Z | 0.8170 | 0.3910 |
| a | 0.8350 | 0.4160 |
| b | 0.7630 | 0.4150 |
| c | 0.7970 | 0.3830 |
| d | 0.7530 | 0.4080 |
| e | 0.8160 | 0.4230 |
| f | 0.8030 | 0.4150 |
| g | 0.7860 | 0.4240 |
| h | 0.7840 | 0.3870 |
| i | 0.7950 | 0.3630 |
| j | 0.8550 | 0.4370 |
| k | 0.7460 | 0.3910 |
| l | 0.7900 | 0.4110 |
| m | 0.7770 | 0.4180 |
| n | 0.6300 | 0.4360 |
| o | 0.7720 | 0.4100 |
| p | 0.7630 | 0.4320 |
| q | 0.7250 | 0.3320 |
| r | 0.7530 | 0.3650 |
| s | 0.7290 | 0.3740 |

*Continued on next page...*

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| Chain | Atom inclusion | Q-score |
|---|---|---|
| t | 0.5030 | 0.2530 |
| u | 0.7380 | 0.3500 |
| v | 0.4740 | 0.2470 |
| w | 0.7180 | 0.3120 |
| x | 0.7030 | 0.3170 |
| y | 0.7330 | 0.3570 |
| z | 0.7560 | 0.3450 |