# Full wwPDB EM Validation Report ⓘ

Nov 11, 2026 – 10:44 AM JST

| | | |
|---|---|---|
| PDB ID | : | 24NV / pdb_000024nv |
| EMDB ID | : | EMD-69708 |
| Title | : | P-tRNA bound M. smegmatis 70S ribosome |
| Authors | : | Sengupta, J.; Dhur, A.; Baid, P.; Srinivasan, K. |
| Deposited on | : | 2026-03-12 |
| Resolution | : | 3.90 Å(reported) |
| Based on initial model | : | 5O61 |

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:

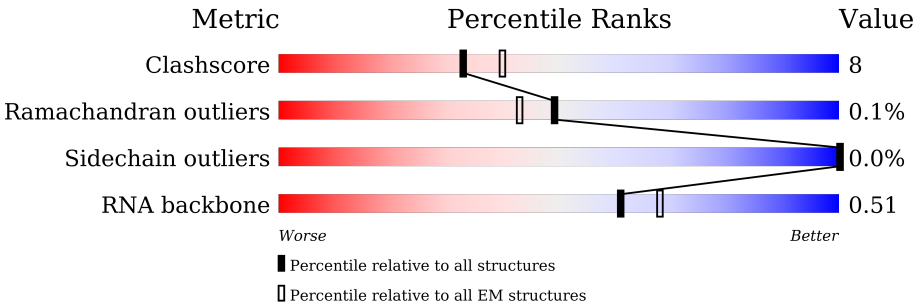
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev133 |
| MolProbity | : | 4-5-2 with Phenix2.2 |
| Percentile statistics | : | 20250101.v01 (using entries in the PDB archive January 1st 2025) |
| EM percentile statistics | : | 202505.v01 (Using data in the EMDB archive up until May 2025) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.51 |

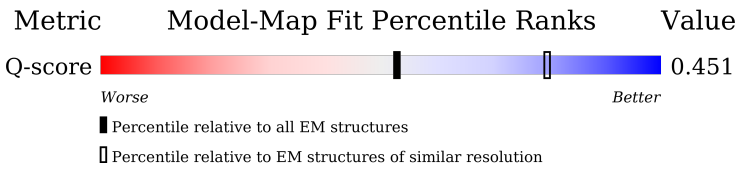
# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.90 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.



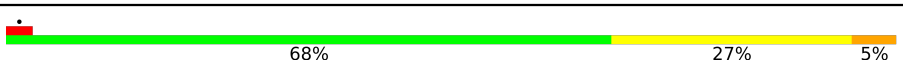
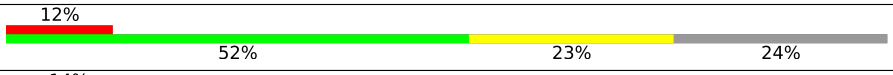
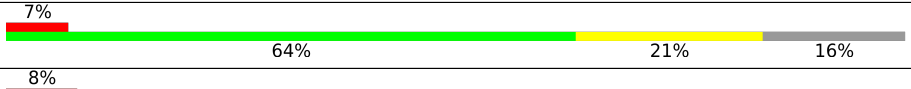
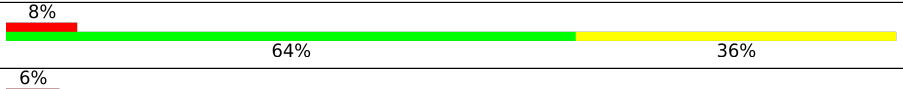
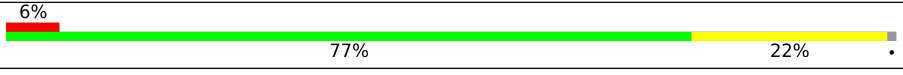
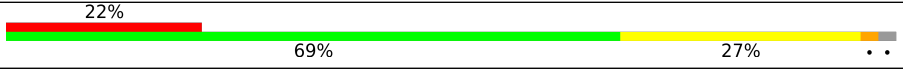
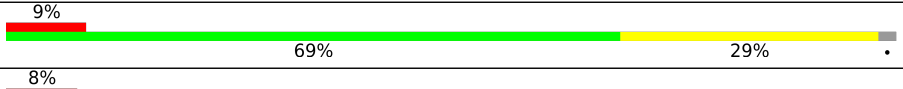
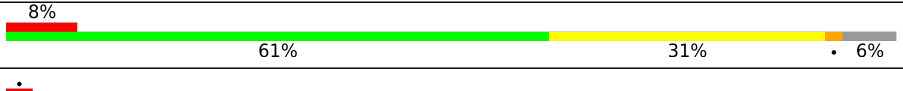
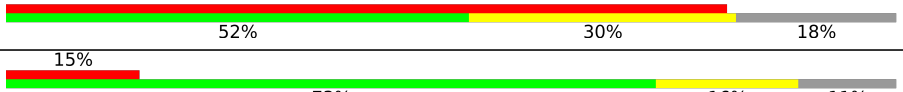
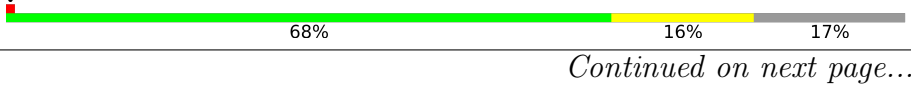

| Metric | Whole archive (#Entries) | EM structures (#Entries) | Similar EM resolution (#Entries, resolution range(Å)) |
|---|---|---|---|
| Clashscore | 229148 | 23984 | - |
| Ramachandran outliers | 224038 | 23583 | - |
| Sidechain outliers | 223484 | 23102 | - |
| RNA backbone | 8273 | 3508 | - |
| Q-score | - | 25397 | 8855 ( 3.40 - 4.40 ) |

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 | 2 | 76 | 5% 55% 37% 8% |
| 2 | 3 | 24 | 12% 83% 12% · |
| 3 | 4 | 8 | 25% 62% 12% 25% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 4 | B | 118 |   |
| 5 | C | 275 |   |
| 6 | D | 201 |   |
| 7 | E | 214 |   |
| 8 | F | 96 |   |
| 9 | G | 156 |   |
| 10 | H | 132 |   |
| 11 | I | 150 |   |
| 12 | J | 101 |   |
| 13 | K | 138 |   |
| 14 | L | 124 |   |
| 15 | M | 124 |   |
| 16 | N | 61 |   |
| 17 | O | 89 |   |
| 18 | P | 156 |   |
| 19 | Q | 98 |   |
| 20 | R | 84 |   |
| 21 | S | 93 |   |
| 22 | T | 86 |   |
| 23 | U | 100 |   |
| 24 | V | 277 |   |
| 25 | W | 215 |   |
| 26 | X | 88 |   |
| 27 | Y | 64 |   |
| 28 | Z | 77 |   |

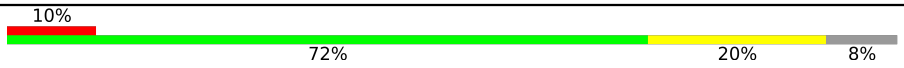
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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 29 | a | 61 | 82% 15% |
| 30 | b | 57 | 82% 12% 5% |
| 31 | c | 55 | 5% 64% 25% 11% |
| 32 | d | 47 | 81% 17% |
| 33 | e | 64 | 81% 17% |
| 34 | f | 37 | 76% 24% |
| 35 | g | 75 | 43% 21% 36% |
| 36 | i | 278 | 83% 16% |
| 37 | j | 217 | 83% 16% |
| 38 | k | 215 | 85% 13% |
| 39 | l | 187 | 6% 61% 36% |
| 40 | m | 179 | 9% 76% 22% |
| 41 | n | 151 | 56% 75% 25% |
| 42 | q | 147 | 85% 14% |
| 43 | r | 122 | 83% 17% |
| 44 | s | 147 | 82% 16% |
| 45 | t | 138 | 78% 21% |
| 46 | u | 199 | 46% 13% 41% |
| 47 | v | 127 | 77% 22% |
| 48 | w | 113 | 6% 84% 16% |
| 49 | x | 129 | 81% 15% |
| 50 | y | 103 | 84% 13% |
| 51 | z | 153 | 66% 8% 25% |
| 52 | o | 142 | 92% 53% 41% 6% |
| 53 | p | 175 | 72% 47% 25% 28% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 54 | 1 | 105 |   |
| 55 | h | 3120 |   |
| 56 | A | 1528 |   |

# 2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 149767 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 P-site tRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | |
| 1 | 2 | 76 | 1614 | 721 | 287 | 531 | 75 | 0 | 0 |

- Molecule 2 is a protein called 50S ribosomal protein bL37.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | | |
| 2 | 3 | 23 | 189 | 111 | 50 | 28 | 0 | 0 |

- Molecule 3 is a RNA chain called mRNA fragment.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | |
| 3 | 4 | 8 | 173 | 78 | 35 | 52 | 8 | 0 | 0 |

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

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | |
| 4 | B | 118 | 2522 | 1126 | 468 | 810 | 118 | 0 | 0 |

- Molecule 5 is a protein called 30S ribosomal protein S3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 5 | C | 208 | 1660 | 1036 | 322 | 298 | 4 | 0 | 0 |

- Molecule 6 is a protein called 30S ribosomal protein S4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 6 | D | 200 | 1641 | 1028 | 316 | 295 | 2 | 0 | 0 |

- Molecule 7 is a protein called 30S ribosomal protein S5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 7 | E | 180 | Total | C | N | O | S | 0 | 0 |
| | | | 1296 | 812 | 245 | 235 | 4 | | |

- Molecule 8 is a protein called Small ribosomal subunit protein bS6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 8 | F | 96 | Total | C | N | O | S | 0 | 0 |
| | | | 771 | 486 | 138 | 145 | 2 | | |

- Molecule 9 is a protein called 30S ribosomal protein S7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 9 | G | 155 | Total | C | N | O | S | 0 | 0 |
| | | | 1232 | 768 | 241 | 221 | 2 | | |

- Molecule 10 is a protein called 30S ribosomal protein S8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 10 | H | 131 | Total | C | N | O | S | 0 | 0 |
| | | | 1010 | 633 | 189 | 187 | 1 | | |

- Molecule 11 is a protein called 30S ribosomal protein S9.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 11 | I | 126 | Total | C | N | O | 0 | 0 |
| | | | 994 | 630 | 194 | 170 | | |

- Molecule 12 is a protein called 30S ribosomal protein S10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 12 | J | 99 | Total | C | N | O | S | 0 | 0 |
| | | | 788 | 495 | 146 | 144 | 3 | | |

- Molecule 13 is a protein called 30S ribosomal protein S11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 13 | K | 115 | Total | C | N | O | S | 0 | 0 |
| | | | 855 | 528 | 170 | 156 | 1 | | |

- Molecule 14 is a protein called 30S ribosomal protein S12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | L | 122 | Total | C | N | O | S | 0 | 0 |
| | | | 958 | 594 | 197 | 165 | 2 | | |

- Molecule 15 is a protein called 30S ribosomal protein S13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | M | 116 | Total | C | N | O | S | 0 | 0 |
| | | | 935 | 572 | 191 | 169 | 3 | | |

- Molecule 16 is a protein called 30S ribosomal protein S14 type Z.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 16 | N | 60 | Total | C | N | O | S | 0 | 0 |
| | | | 477 | 302 | 97 | 73 | 5 | | |

- Molecule 17 is a protein called 30S ribosomal protein S15.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 17 | O | 88 | Total | C | N | O | 0 | 0 |
| | | | 720 | 449 | 147 | 124 | | |

- Molecule 18 is a protein called 30S ribosomal protein S16.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 18 | P | 113 | Total | C | N | O | 0 | 0 |
| | | | 891 | 570 | 162 | 159 | | |

- Molecule 19 is a protein called 30S ribosomal protein S17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 19 | Q | 94 | Total | C | N | O | S | 0 | 0 |
| | | | 748 | 469 | 142 | 135 | 2 | | |

- Molecule 20 is a protein called 30S ribosomal protein S18 2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 20 | R | 65 | Total | C | N | O | S | 0 | 0 |
| | | | 513 | 318 | 102 | 90 | 3 | | |

- Molecule 21 is a protein called 30S ribosomal protein S19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | S | 82 | Total | C | N | O | S | 0 | 0 |
| | | | 662 | 425 | 124 | 112 | 1 | | |

- Molecule 22 is a protein called 30S ribosomal protein S20.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 22 | T | 85 | Total | C | N | O | 0 | 0 |
| | | | 660 | 402 | 139 | 119 | | |

- Molecule 23 is a protein called 50S ribosomal protein L23.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 23 | U | 97 | Total | C | N | O | 0 | 0 |
| | | | 756 | 479 | 138 | 139 | | |

- Molecule 24 is a protein called 30S ribosomal protein S2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 24 | V | 228 | Total | C | N | O | S | 0 | 0 |
| | | | 1793 | 1132 | 322 | 330 | 9 | | |

- Molecule 25 is a protein called 50S ribosomal protein L25.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 25 | W | 192 | Total | C | N | O | 0 | 0 |
| | | | 1428 | 881 | 255 | 292 | | |

- Molecule 26 is a protein called 50S ribosomal protein L27.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 26 | X | 79 | Total | C | N | O | 0 | 0 |
| | | | 586 | 361 | 123 | 102 | | |

- Molecule 27 is a protein called 50S ribosomal protein L28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 27 | Y | 63 | Total | C | N | O | S | 0 | 0 |
| | | | 470 | 283 | 103 | 80 | 4 | | |

- Molecule 28 is a protein called 50S ribosomal protein L29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 28 | Z | 64 | Total | C | N | O | S | 0 | 0 |
| | | | 531 | 324 | 103 | 103 | 1 | | |

- Molecule 29 is a protein called 50S ribosomal protein L30.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 29 | a | 59 | Total | C | N | O | 0 | 0 |
| | | | 474 | 292 | 95 | 87 | | |

- Molecule 30 is a protein called 50S ribosomal protein L32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 30 | b | 54 | Total | C | N | O | S | 0 | 0 |
| | | | 423 | 260 | 93 | 69 | 1 | | |

- Molecule 31 is a protein called 50S ribosomal protein L33 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 31 | c | 49 | Total | C | N | O | S | 0 | 0 |
| | | | 405 | 248 | 82 | 71 | 4 | | |

- Molecule 32 is a protein called 50S ribosomal protein L34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 32 | d | 46 | Total | C | N | O | S | 0 | 0 |
| | | | 377 | 225 | 97 | 54 | 1 | | |

- Molecule 33 is a protein called 50S ribosomal protein L35.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 33 | e | 63 | Total | C | N | O | 0 | 0 |
| | | | 502 | 302 | 115 | 85 | | |

- Molecule 34 is a protein called 50S ribosomal protein L36.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 34 | f | 37 | Total | C | N | O | S | 0 | 0 |
| | | | 299 | 181 | 66 | 47 | 5 | | |

- Molecule 35 is a protein called 50S ribosomal protein L31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 35 | g | 48 | Total | C | N | O | S | 0 | 0 |
| | | | 364 | 225 | 63 | 71 | 5 | | |

- Molecule 36 is a protein called 50S ribosomal protein L2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 36 | i | 275 | Total | C | N | O | S | 0 | 0 |
| | | | 2110 | 1298 | 438 | 370 | 4 | | |

- Molecule 37 is a protein called 50S ribosomal protein L3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 37 | j | 214 | Total | C | N | O | S | 0 | 0 |
| | | | 1587 | 982 | 310 | 290 | 5 | | |

- Molecule 38 is a protein called 50S ribosomal protein L4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 38 | k | 209 | Total | C | N | O | S | 0 | 0 |
| | | | 1569 | 969 | 295 | 303 | 2 | | |

- Molecule 39 is a protein called 50S ribosomal protein L5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 39 | l | 182 | Total | C | N | O | S | 0 | 0 |
| | | | 1445 | 907 | 271 | 261 | 6 | | |

- Molecule 40 is a protein called 50S ribosomal protein L6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 40 | m | 176 | Total | C | N | O | S | 0 | 0 |
| | | | 1348 | 845 | 249 | 253 | 1 | | |

- Molecule 41 is a protein called 50S ribosomal protein L9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 41 | n | 151 | Total | C | N | O | S | 0 | 0 |
| | | | 1018 | 635 | 188 | 194 | 1 | | |

- Molecule 42 is a protein called 50S ribosomal protein L13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 42 | q | 146 | Total | C | N | O | S | 0 | 0 |
| | | | 1130 | 722 | 207 | 200 | 1 | | |

- Molecule 43 is a protein called 50S ribosomal protein L14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 43 | r | 122 | Total | C | N | O | S | 0 | 0 |
| | | | 938 | 586 | 179 | 170 | 3 | | |

- Molecule 44 is a protein called 50S ribosomal protein L15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 44 | s | 145 | Total | C | N | O | S | 0 | 0 |
| | | | 1078 | 676 | 205 | 194 | 3 | | |

- Molecule 45 is a protein called 50S ribosomal protein L16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 45 | t | 136 | Total | C | N | O | S | 0 | 0 |
| | | | 1092 | 690 | 213 | 187 | 2 | | |

- Molecule 46 is a protein called 50S ribosomal protein L17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 46 | u | 118 | Total | C | N | O | S | 0 | 0 |
| | | | 928 | 583 | 180 | 163 | 2 | | |

- Molecule 47 is a protein called 50S ribosomal protein L18.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 47 | v | 126 | Total | C | N | O | 0 | 0 |
| | | | 956 | 586 | 199 | 171 | | |

- Molecule 48 is a protein called 50S ribosomal protein L19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 48 | w | 113 | Total | C | N | O | S | 0 | 0 |
| | | | 907 | 570 | 171 | 165 | 1 | | |

- Molecule 49 is a protein called 50S ribosomal protein L20.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 49 | x | 124 | Total<br>988 | C<br>613 | N<br>203 | O<br>172 | 0 | 0 |

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

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 50 | y | 100 | Total<br>754 | C<br>478 | N<br>137 | O<br>139 | 0 | 0 |

- Molecule 51 is a protein called 50S ribosomal protein L22.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 51 | z | 114 | Total<br>873 | C<br>543 | N<br>171 | O<br>159 | 0 | 0 |

- Molecule 52 is a protein called 50S ribosomal protein L11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 52 | o | 133 | Total<br>990 | C<br>625 | N<br>175 | O<br>187 | S<br>3 | 0 | 0 |

- Molecule 53 is a protein called 50S ribosomal protein L10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 53 | p | 126 | Total<br>918 | C<br>580 | N<br>156 | O<br>180 | S<br>2 | 0 | 0 |

- Molecule 54 is a protein called Large ribosomal subunit protein uL24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 54 | 1 | 97 | Total<br>732 | C<br>456 | N<br>137 | O<br>137 | S<br>2 | 0 | 0 |

- Molecule 55 is a RNA chain called 23S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 55 | h | 3084 | Total<br>66232 | C<br>29522 | N<br>12183 | O<br>21443 | P<br>3084 | 0 | 0 |

- Molecule 56 is a RNA chain called 16S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 56 | A | 1511 | Total<br>32439 | C<br>14448 | N<br>5930 | O<br>10550 | P<br>1511 | 0 | 0 |

- Molecule 57 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 57 | F | 1 | Total<br>1 | Mg<br>1 | 0 |
| 57 | R | 1 | Total<br>1 | Mg<br>1 | 0 |
| 57 | X | 1 | Total<br>1 | Mg<br>1 | 0 |
| 57 | i | 3 | Total<br>3 | Mg<br>3 | 0 |
| 57 | l | 1 | Total<br>1 | Mg<br>1 | 0 |
| 57 | t | 1 | Total<br>1 | Mg<br>1 | 0 |
| 57 | z | 1 | Total<br>1 | Mg<br>1 | 0 |
| 57 | h | 3 | Total<br>3 | Mg<br>3 | 0 |

- Molecule 58 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 58 | N | 1 | Total<br>1 | Zn<br>1 | 0 |
| 58 | R | 1 | Total<br>1 | Zn<br>1 | 0 |
| 58 | Y | 1 | Total<br>1 | Zn<br>1 | 0 |
| 58 | c | 1 | Total<br>1 | Zn<br>1 | 0 |
| 58 | f | 1 | Total<br>1 | Zn<br>1 | 0 |
| 58 | g | 1 | Total<br>1 | Zn<br>1 | 0 |

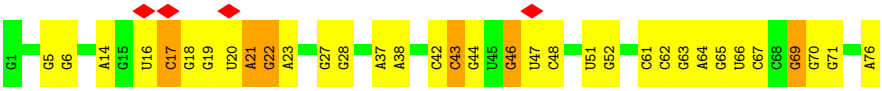
# 3 Residue-property plots (i)

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: P-site tRNA

Chain 2:

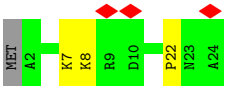



• Molecule 2: 50S ribosomal protein bL37

Chain 3:

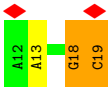



• Molecule 3: mRNA fragment

Chain 4:

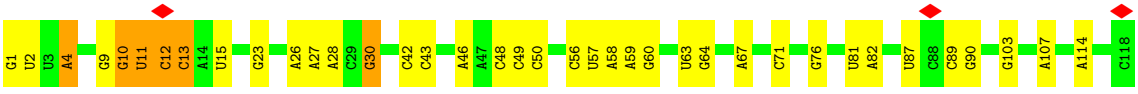



• Molecule 4: 5S ribosomal RNA

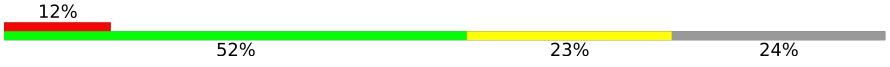
Chain B:

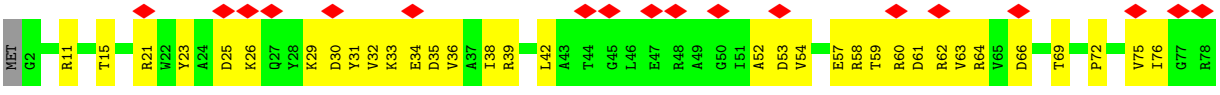


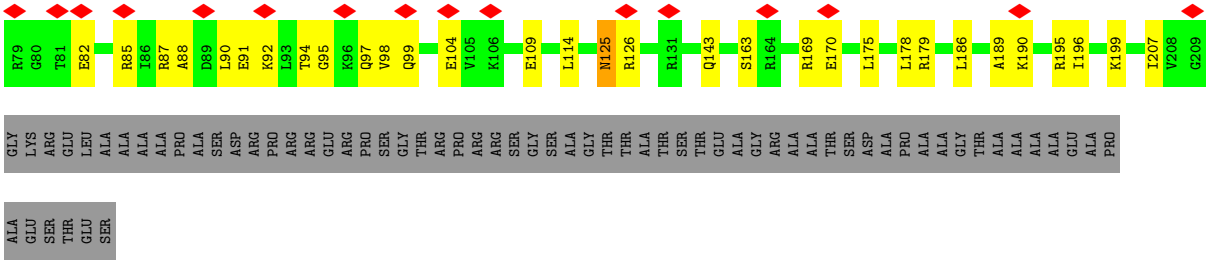




• Molecule 5: 30S ribosomal protein S3

Chain C:

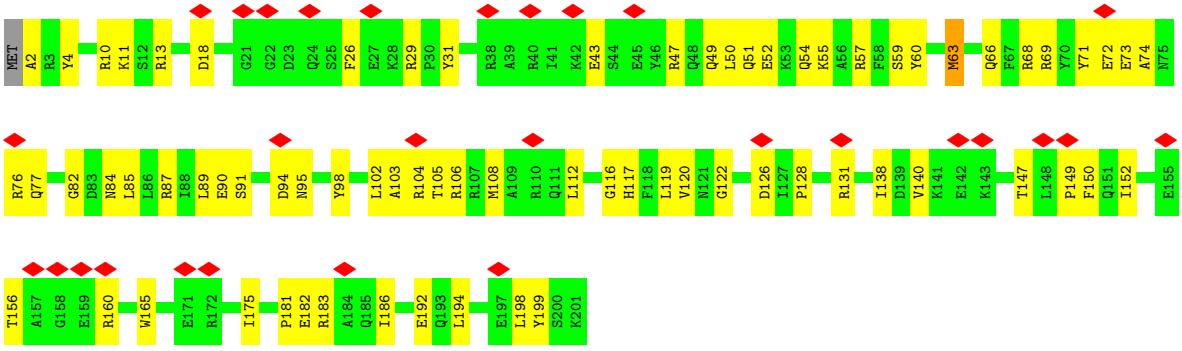




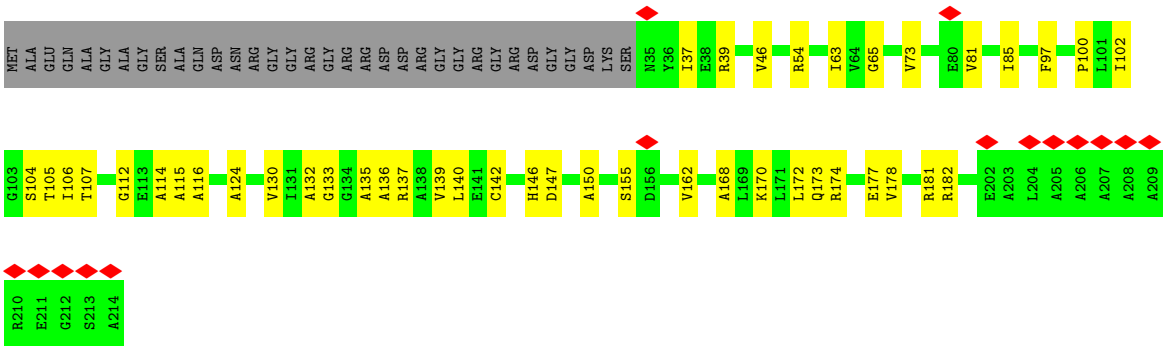

• Molecule 6: 30S ribosomal protein S4



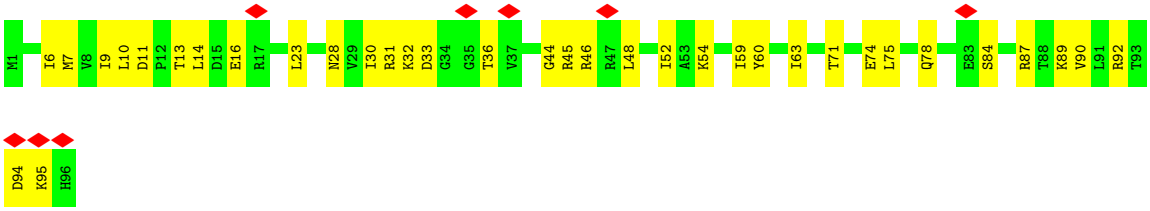

• Molecule 7: 30S ribosomal protein S5



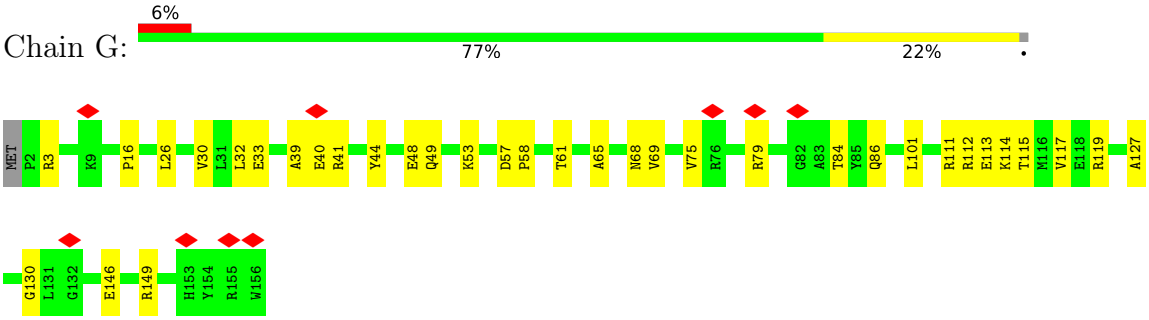

• Molecule 8: Small ribosomal subunit protein bS6



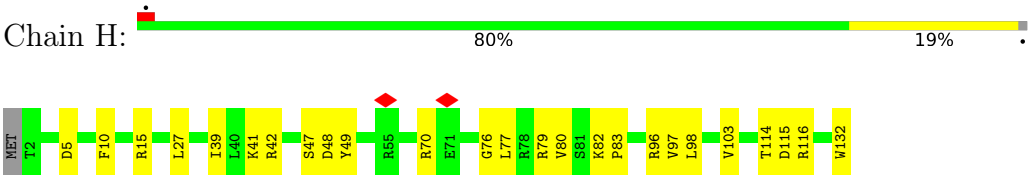

• Molecule 9: 30S ribosomal protein S7

Chain G:



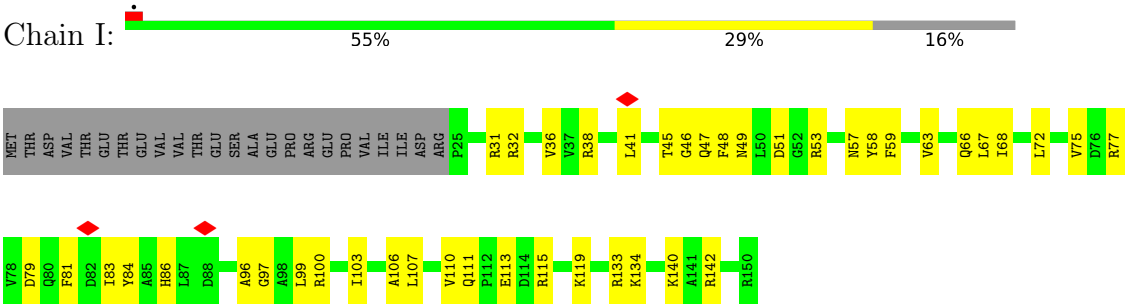

• Molecule 10: 30S ribosomal protein S8

Chain H:




• Molecule 11: 30S ribosomal protein S9

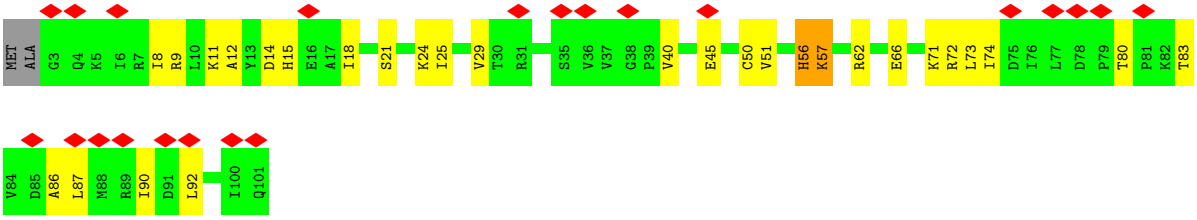
Chain I:




• Molecule 12: 30S ribosomal protein S10

Chain J:

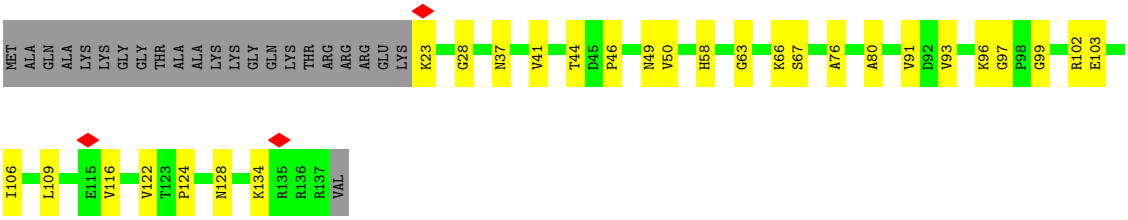



• Molecule 13: 30S ribosomal protein S11

Chain K:

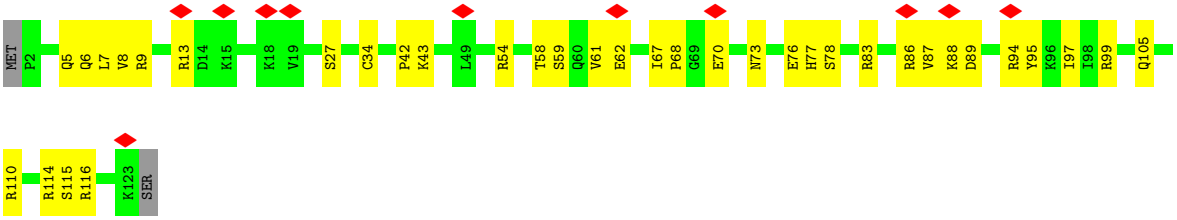


• Molecule 14: 30S ribosomal protein S12

Chain L:

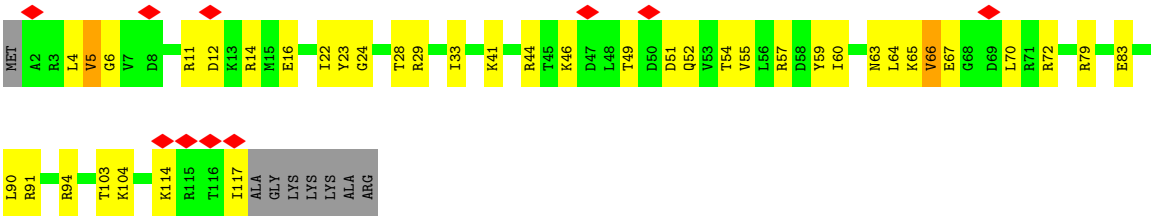



• Molecule 15: 30S ribosomal protein S13

Chain M:




• Molecule 16: 30S ribosomal protein S14 type Z

Chain N:



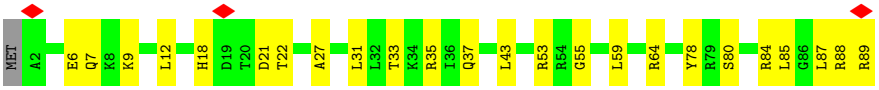




• Molecule 17: 30S ribosomal protein S15

Chain O:

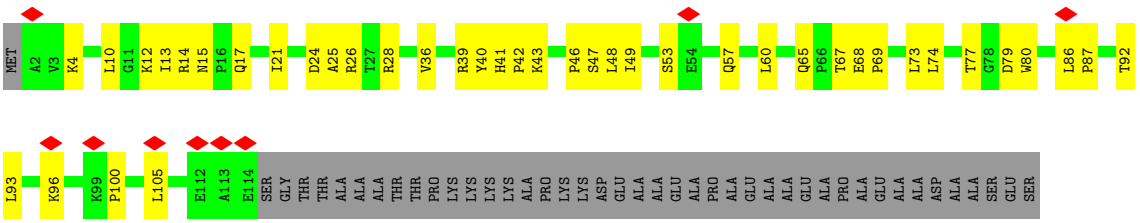



• Molecule 18: 30S ribosomal protein S16

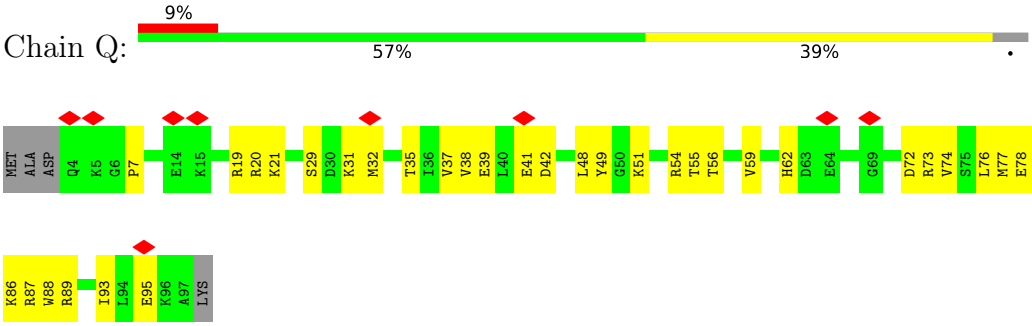
Chain P:



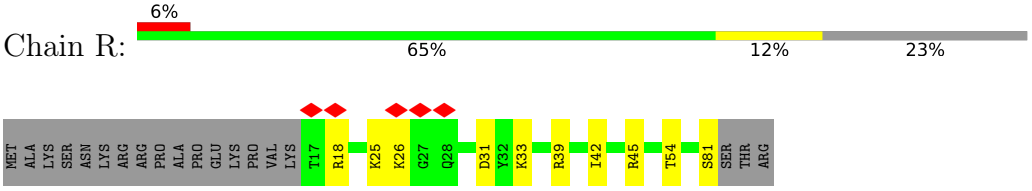

• Molecule 19: 30S ribosomal protein S17

Chain Q:



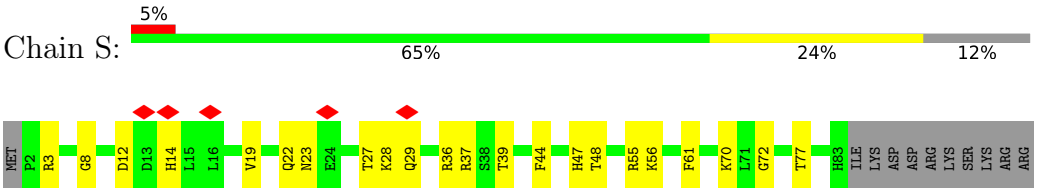

• Molecule 20: 30S ribosomal protein S18 2

Chain R:



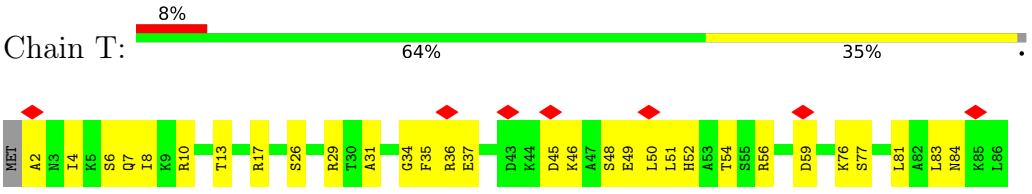

• Molecule 21: 30S ribosomal protein S19

Chain S:



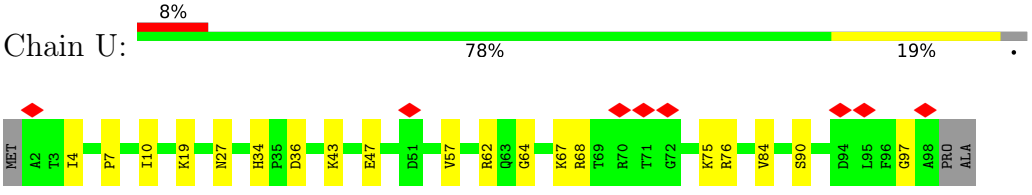

• Molecule 22: 30S ribosomal protein S20

Chain T:



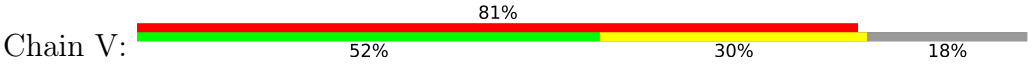

• Molecule 23: 50S ribosomal protein L23

Chain U:

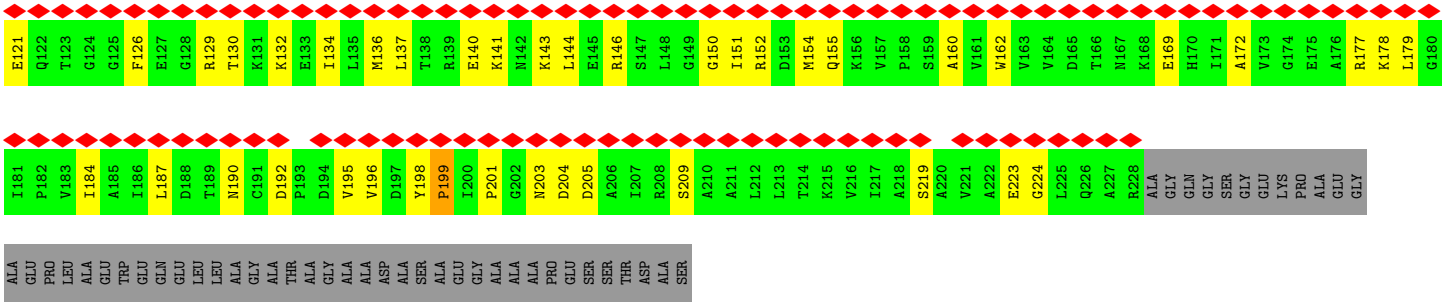



• Molecule 24: 30S ribosomal protein S2

Chain V:

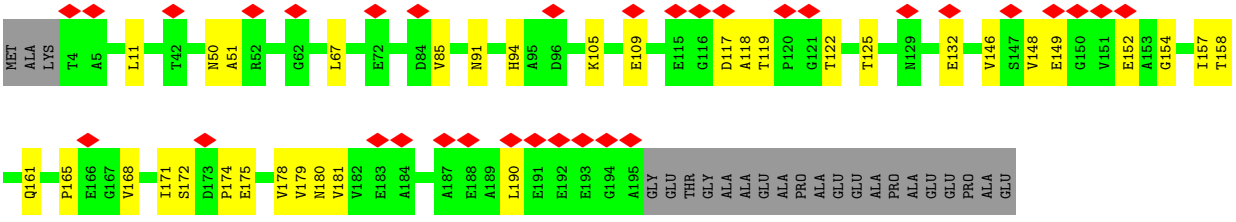




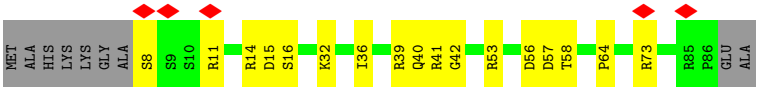

• Molecule 25: 50S ribosomal protein L25



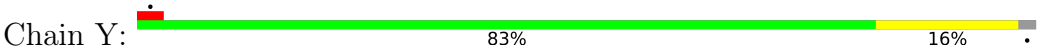



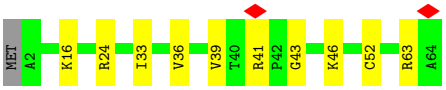

• Molecule 26: 50S ribosomal protein L27



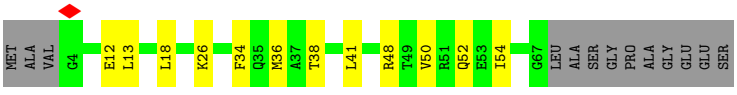

• Molecule 27: 50S ribosomal protein L28



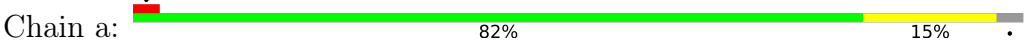



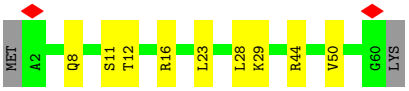

• Molecule 28: 50S ribosomal protein L29




• Molecule 29: 50S ribosomal protein L30

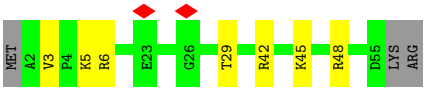


• Molecule 30: 50S ribosomal protein L32

Chain b:

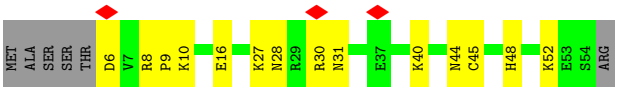



• Molecule 31: 50S ribosomal protein L33 1

Chain c:

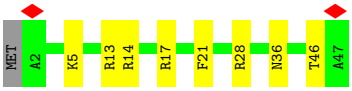



• Molecule 32: 50S ribosomal protein L34

Chain d:

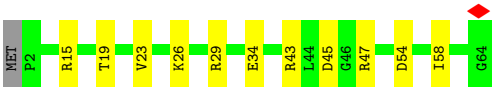



• Molecule 33: 50S ribosomal protein L35

Chain e:

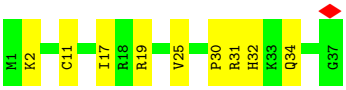



• Molecule 34: 50S ribosomal protein L36

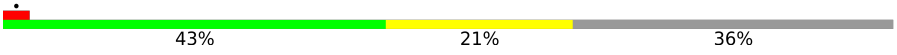
Chain f:

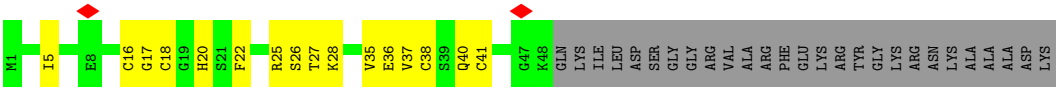



• Molecule 35: 50S ribosomal protein L31

Chain g:

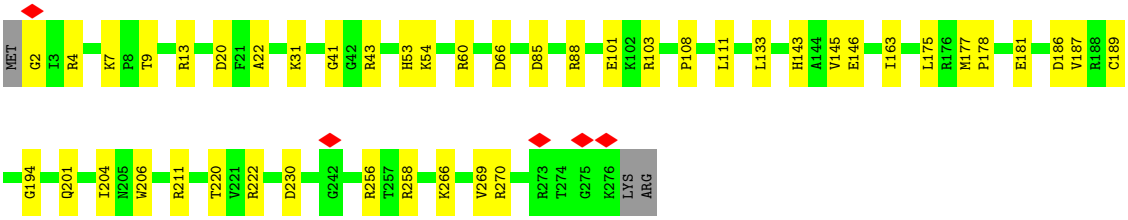


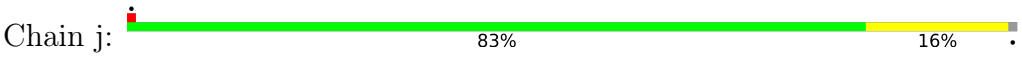

• Molecule 36: 50S ribosomal protein L2

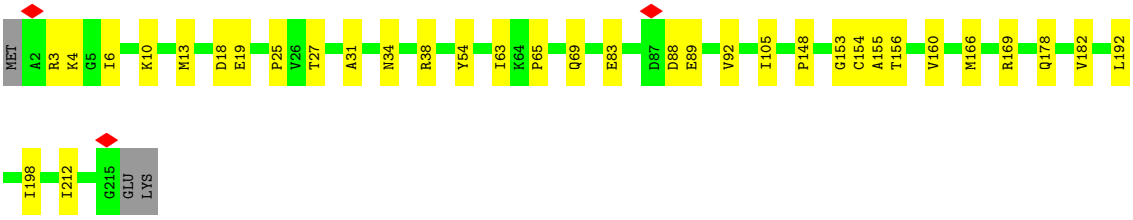
Chain i:



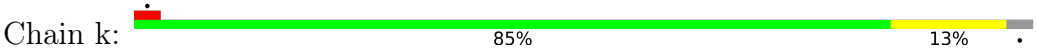


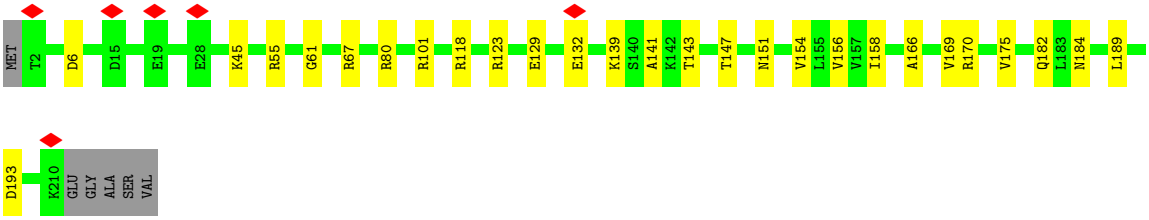

• Molecule 37: 50S ribosomal protein L3



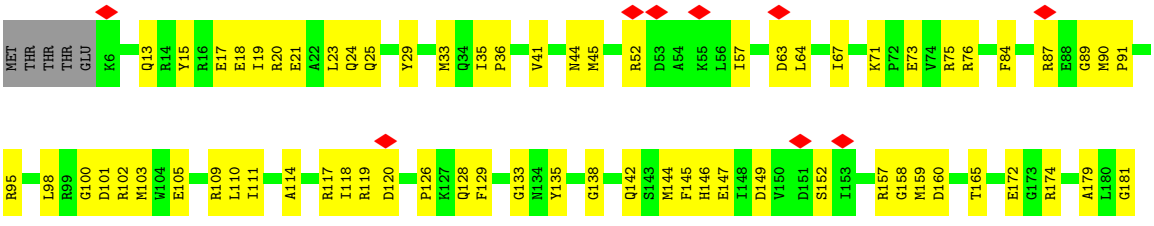

• Molecule 38: 50S ribosomal protein L4



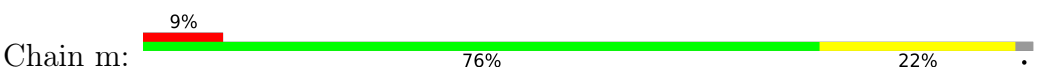



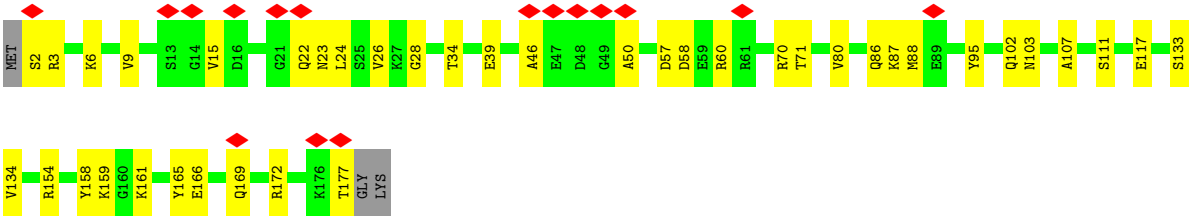

• Molecule 39: 50S ribosomal protein L5




• Molecule 40: 50S ribosomal protein L6

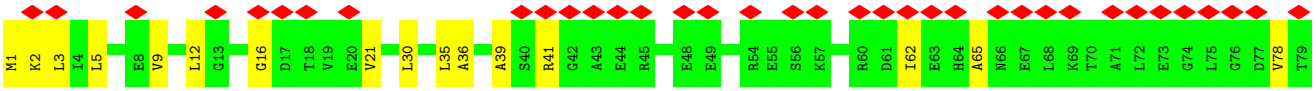


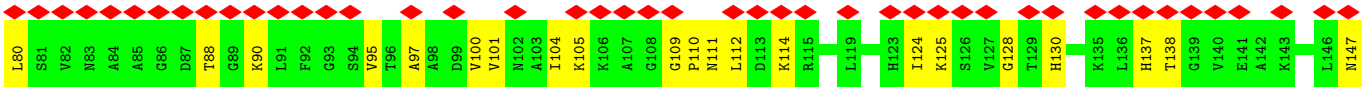


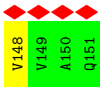

• Molecule 41: 50S ribosomal protein L9

Chain n:



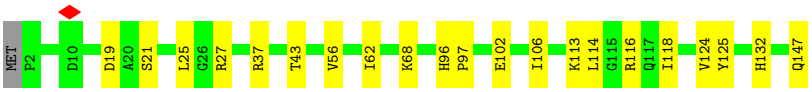




• Molecule 42: 50S ribosomal protein L13

Chain q:

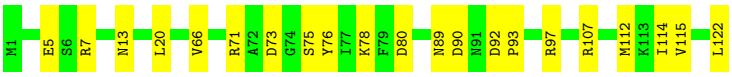



• Molecule 43: 50S ribosomal protein L14

Chain r:

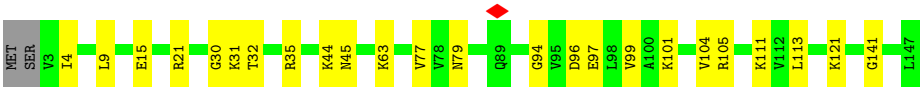



• Molecule 44: 50S ribosomal protein L15

Chain s:

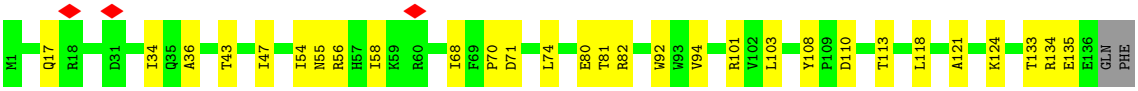



• Molecule 45: 50S ribosomal protein L16

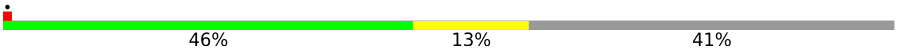
Chain t:

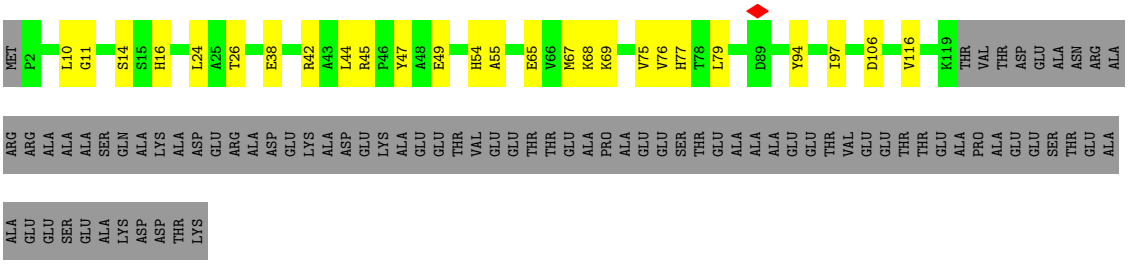





• Molecule 46: 50S ribosomal protein L17

Chain u:




• Molecule 47: 50S ribosomal protein L18

Chain v:



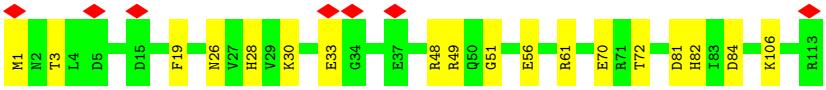




• Molecule 48: 50S ribosomal protein L19

Chain w:

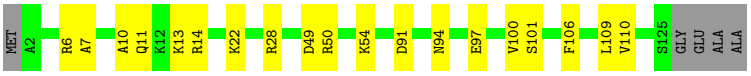



• Molecule 49: 50S ribosomal protein L20

Chain x:

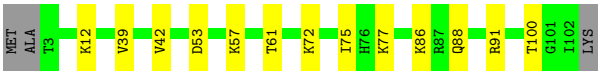



• Molecule 50: 50S ribosomal protein L21

Chain y:




• Molecule 51: 50S ribosomal protein L22

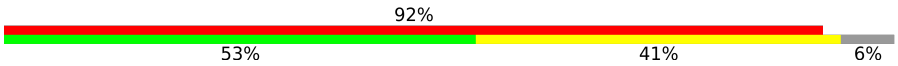
Chain z:

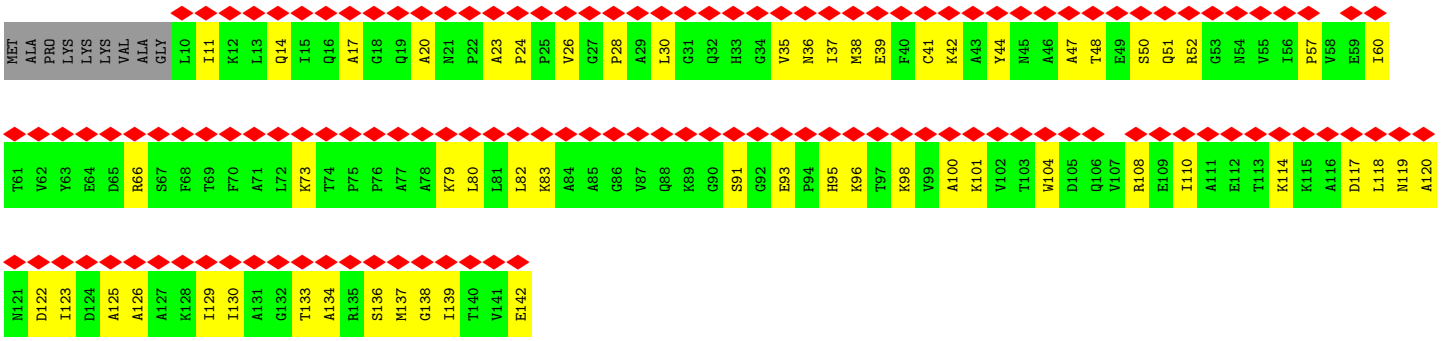




• Molecule 52: 50S ribosomal protein L11

Chain o:

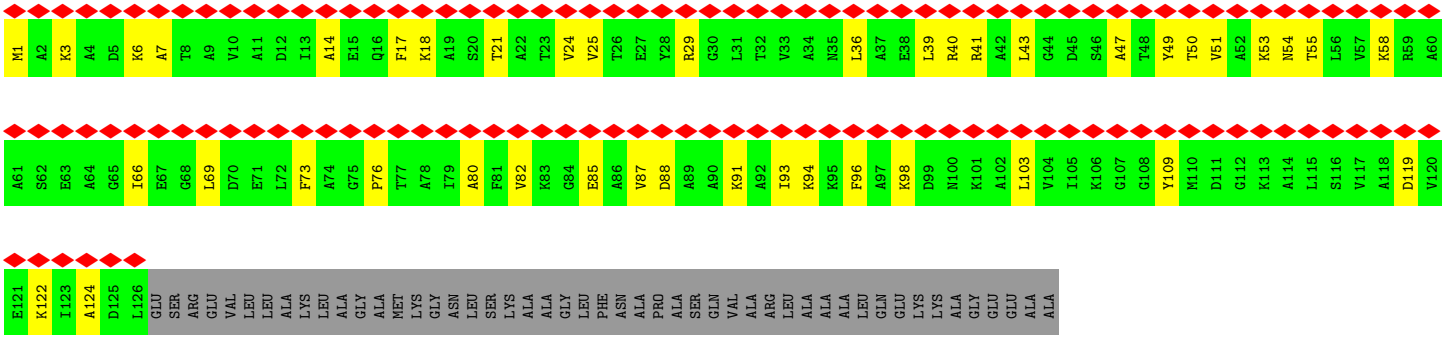


• Molecule 53: 50S ribosomal protein L10

Chain p:

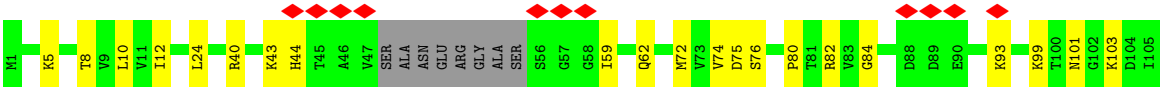


• Molecule 54: Large ribosomal subunit protein uL24

Chain 1:

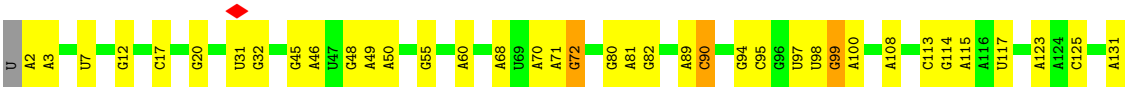


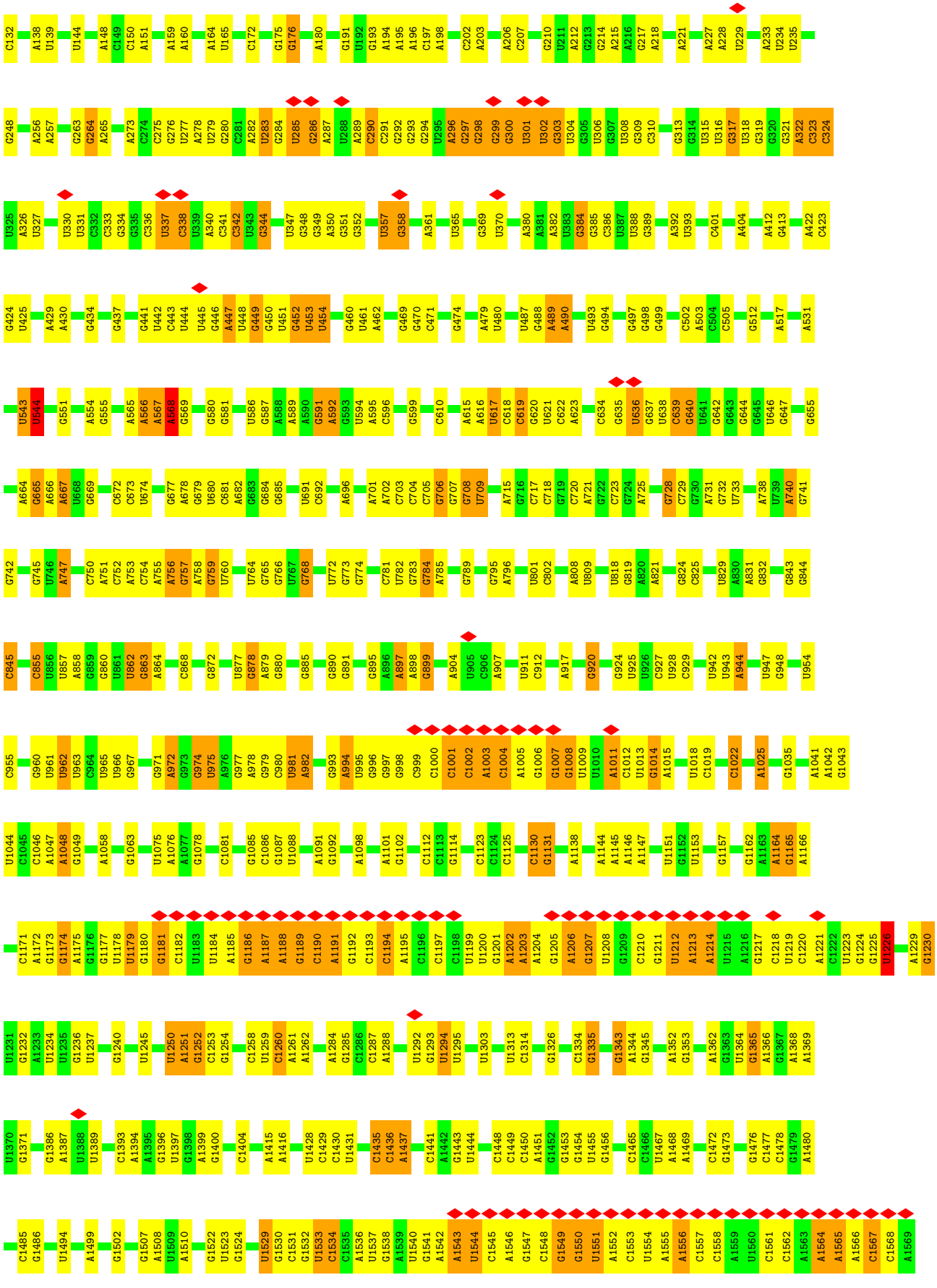



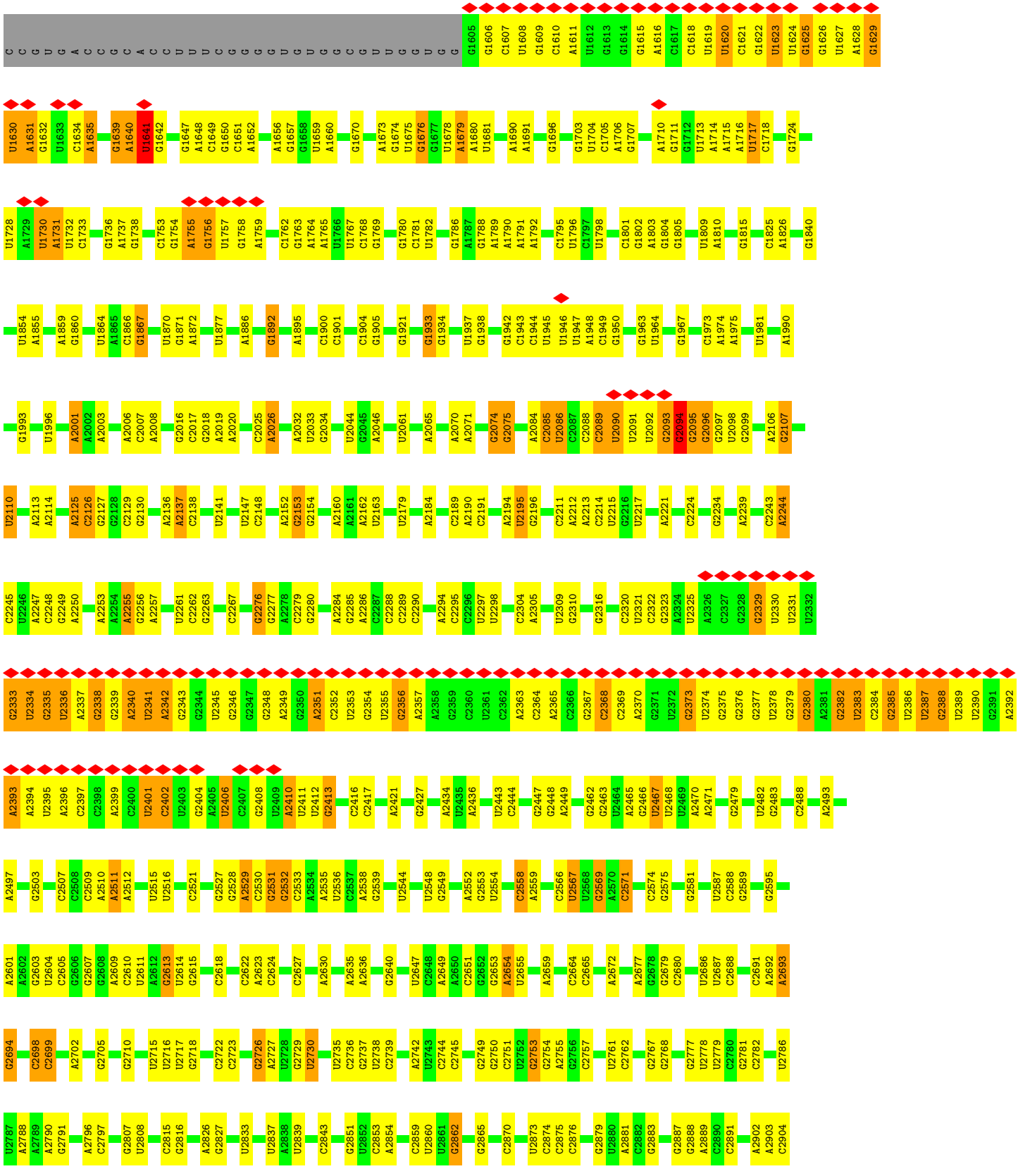
• Molecule 55: 23S ribosomal RNA

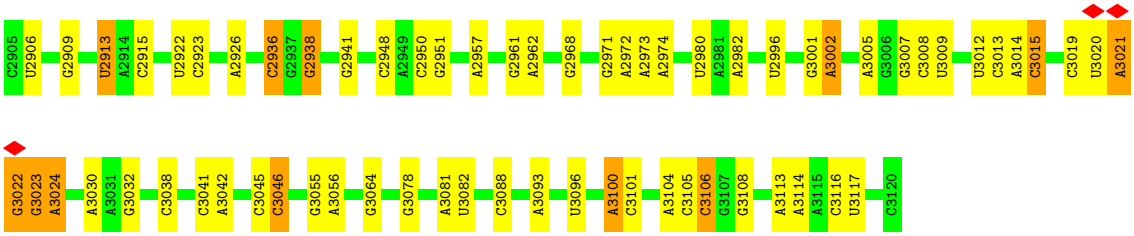
Chain h:





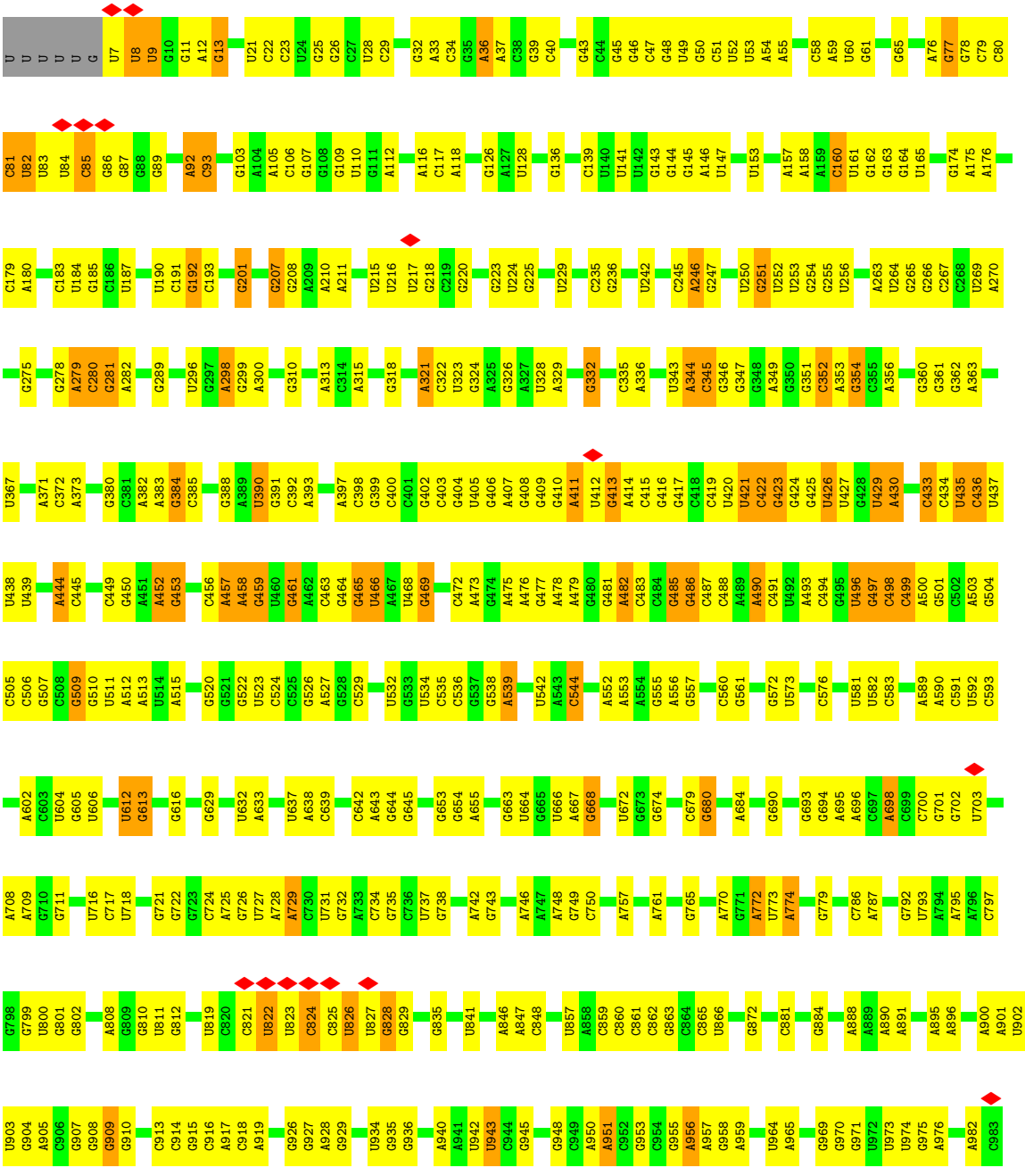


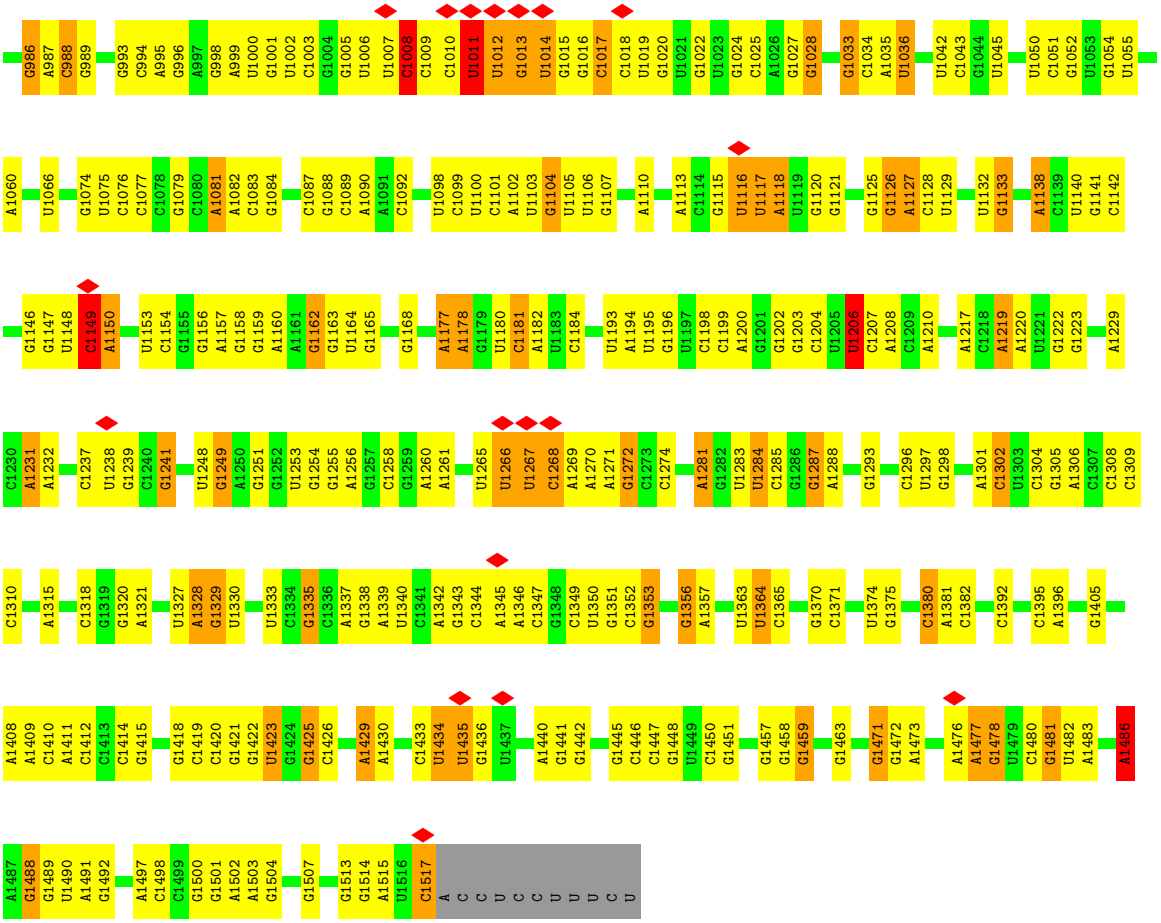


• Molecule 56: 16S ribosomal RNA

Chain A:




G986 A987 C988 G989
G993 C994 A995 G996 A997 G998 A999 U1000 G1001 U1002 C1003 G1004 G1005 U1006 U1007 C1008 C1009 C1010 U1011 U1012 G1013 U1014 G1015 G1016 C1017 C1018 U1019 G1020 U1021 G1022 U1023 G1024 C1025 A1026 G1027 G1028
G1033 C1034 A1035 U1036
U1042 C1043 G1044 U1045
U1050 C1051 G1052 U1053 G1054 U1055
A1060 U1066 G1074 U1075 C1076 C1077 C1078 G1079 C1080 A1081 A1082 C1083 G1084 C1087 G1088 C1089 A1090 A1091 C1092 U1098 C1099 U1100 C1101 A1102 U1103 G1104 U1105 U1106 G1107 A1110 A1113 C1114 G1115 U1116 U1117 A1118 U1119 G1120 G1121 G1125 G1126 A1127 C1128 U1129 U1132 G1133 A1138 C1139 U1140 G1141 C1142
G1146 G1147 U1148 C1149 A1150 U1153 C1154 G1155 G1156 A1157 G1158 G1159 A1160 A1161 G1162 G1163 U1164 G1165 G1168 A1177 A1178 C1179 U1180 C1181 A1182 U1183 C1184 U1193 A1194 U1195 G1196 U1197 C1198 C1199 A1200 C1201 G1202 G1203 C1204 U1205 U1206 C1207 A1208 C1209 A1210 A1217 C1218 A1219 A1220 U1221 G1222 G1223 A1229
C1230 A1231 A1232 C1237 U1238 G1239 C1240 G1241 U1248 G1249 A1250 G1251 G1252 U1253 G1254 G1255 A1256 G1257 C1258 G1259 A1260 A1261 U1265 U1266 U1267 C1268 A1269 A1270 A1271 G1272 C1273 C1274 A1281 G1282 U1283 U1284 C1285 G1286 G1287 A1288 G1293 C1296 U1297 G1298 A1301 C1302 U1303 C1304 G1305 A1306 C1307 C1308 C1309
C1310 A1315 C1318 G1319 G1320 A1321 U1327 A1328 G1329 U1330 U1333 C1334 G1335 C1336 A1337 G1338 A1339 U1340 C1341 A1342 G1343 C1344 A1345 A1346 C1347 G1348 C1349 U1350 G1351 C1352 G1353 G1356 A1357 U1363 U1364 C1365 G1370 C1371 U1374 G1375 C1380 A1381 C1382 C1392 C1395 A1396 G1405
A1408 A1409 C1410 A1411 C1412 C1413 C1414 G1415 G1418 C1419 C1420 G1421 G1422 U1423 G1424 G1425 C1426 A1429 A1430 C1433 U1434 U1435 G1436 U1437 A1440 G1441 G1442 G1445 C1446 C1447 G1448 U1449 C1450 G1451 G1457 G1458 G1459 G1463 G1471 G1472 A1473 A1476 A1477 G1478 U1479 C1480 G1481 U1482 A1483 A1486
A1487 G1488 G1489 U1490 A1491 G1492 A1497 C1498 C1499 G1500 G1501 A1502 A1503 G1504 G1507 G1513 G1514 A1515 U1516 C1517 A C C U C U U U U C U

# 4 Experimental information (i)

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 36773 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | TFS KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/Å^2$) | 20.82 | Depositor |
| Minimum defocus (nm) | 1800 | Depositor |
| Maximum defocus (nm) | 3300 | Depositor |
| Magnification | Not provided | |
| Image detector | FEI FALCON III (4k x 4k) | Depositor |
| Maximum map value | 0.209 | Depositor |
| Minimum map value | -0.116 | Depositor |
| Average map value | 0.000 | Depositor |
| Map value standard deviation | 0.009 | Depositor |
| Recommended contour level | 0.0336 | Depositor |
| Map size (Å) | 449.40002, 449.40002, 449.40002 | wwPDB |
| Map dimensions | 420, 420, 420 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.07, 1.07, 1.07 | 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: ZN, MG

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 | 2 | 0.34 | 0/1802 | 0.78 | 0/2807 |
| 2 | 3 | 0.31 | 0/191 | 0.50 | 0/247 |
| 3 | 4 | 0.33 | 0/194 | 0.74 | 0/300 |
| 4 | B | 0.60 | 0/2821 | 0.76 | 0/4396 |
| 5 | C | 0.24 | 0/1684 | 0.51 | 0/2261 |
| 6 | D | 0.27 | 0/1672 | 0.53 | 0/2251 |
| 7 | E | 0.28 | 0/1312 | 0.42 | 0/1772 |
| 8 | F | 0.27 | 0/782 | 0.41 | 0/1059 |
| 9 | G | 0.22 | 0/1252 | 0.43 | 0/1690 |
| 10 | H | 0.28 | 0/1025 | 0.44 | 0/1385 |
| 11 | I | 0.23 | 0/1012 | 0.48 | 0/1362 |
| 12 | J | 0.24 | 0/802 | 0.48 | 0/1086 |
| 13 | K | 0.27 | 0/873 | 0.45 | 0/1180 |
| 14 | L | 0.28 | 0/969 | 0.52 | 0/1294 |
| 15 | M | 0.26 | 0/942 | 0.63 | 2/1260 (0.2%) |
| 16 | N | 0.26 | 0/488 | 0.46 | 0/650 |
| 17 | O | 0.28 | 0/729 | 0.45 | 0/977 |
| 18 | P | 0.28 | 0/908 | 0.53 | 0/1226 |
| 19 | Q | 0.26 | 0/759 | 0.50 | 0/1016 |
| 20 | R | 0.27 | 0/518 | 0.48 | 0/693 |
| 21 | S | 0.22 | 0/680 | 0.43 | 0/915 |
| 22 | T | 0.25 | 0/663 | 0.45 | 0/882 |
| 23 | U | 0.32 | 0/766 | 0.41 | 0/1030 |
| 24 | V | 0.29 | 1/1822 (0.1%) | 0.60 | 3/2457 (0.1%) |
| 25 | W | 0.24 | 0/1443 | 0.38 | 0/1970 |
| 26 | X | 0.36 | 0/595 | 0.49 | 0/798 |
| 27 | Y | 0.36 | 0/478 | 0.45 | 0/641 |
| 28 | Z | 0.28 | 0/534 | 0.41 | 0/713 |
| 29 | a | 0.33 | 0/477 | 0.46 | 0/640 |
| 30 | b | 0.36 | 0/427 | 0.48 | 0/572 |
| 31 | c | 0.25 | 0/413 | 0.42 | 0/553 |
| 32 | d | 0.37 | 0/380 | 0.51 | 0/500 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 33 | e | 0.32 | 0/507 | 0.50 | 0/672 |
| 34 | f | 0.32 | 0/303 | 0.40 | 0/401 |
| 35 | g | 0.24 | 0/372 | 0.37 | 0/503 |
| 36 | i | 0.37 | 0/2153 | 0.44 | 0/2895 |
| 37 | j | 0.35 | 0/1609 | 0.47 | 0/2165 |
| 38 | k | 0.32 | 0/1592 | 0.43 | 0/2153 |
| 39 | l | 0.29 | 0/1467 | 0.56 | 0/1973 |
| 40 | m | 0.25 | 0/1369 | 0.44 | 0/1848 |
| 41 | n | 0.21 | 0/1027 | 0.47 | 0/1398 |
| 42 | q | 0.32 | 0/1157 | 0.42 | 0/1567 |
| 43 | r | 0.33 | 0/946 | 0.45 | 0/1268 |
| 44 | s | 0.33 | 0/1091 | 0.53 | 0/1457 |
| 45 | t | 0.32 | 0/1118 | 0.51 | 0/1506 |
| 46 | u | 0.34 | 0/945 | 0.50 | 0/1267 |
| 47 | v | 0.28 | 0/966 | 0.44 | 0/1298 |
| 48 | w | 0.31 | 0/921 | 0.43 | 0/1236 |
| 49 | x | 0.36 | 0/1000 | 0.44 | 0/1341 |
| 50 | y | 0.30 | 0/764 | 0.34 | 0/1030 |
| 51 | z | 0.33 | 0/887 | 0.41 | 0/1204 |
| 52 | o | 0.22 | 0/1006 | 0.50 | 0/1364 |
| 53 | p | 0.15 | 0/925 | 0.37 | 0/1246 |
| 54 | 1 | 0.27 | 0/738 | 0.40 | 0/987 |
| 55 | h | 0.73 | 1/74164 (0.0%) | 0.81 | 38/115718 (0.0%) |
| 56 | A | 0.57 | 0/36309 | 0.78 | 15/56657 (0.0%) |
| All | All | 0.59 | 2/162749 (0.0%) | 0.72 | 58/243737 (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 |
|---|---|---|---|
| 6 | D | 0 | 1 |
| 12 | J | 0 | 1 |
| All | All | 0 | 2 |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 24 | V | 199 | PRO | CG-CD | -7.44 | 1.25 | 1.50 |
| 55 | h | 1226 | U | O3'-P | 6.93 | 1.69 | 1.61 |

All (58) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 55 | h | 1194 | C | C6-N1-C2 | 12.93 | 125.47 | 120.30 |
| 24 | V | 199 | PRO | N-CD-CG | -11.43 | 86.06 | 103.20 |
| 55 | h | 338 | C | N3-C2-O2 | -9.60 | 115.18 | 121.90 |
| 24 | V | 199 | PRO | CA-CB-CG | -8.52 | 88.31 | 104.50 |
| 55 | h | 2245 | C | C2-N1-C1' | 7.89 | 127.48 | 118.80 |
| 24 | V | 199 | PRO | N-CA-CB | -7.78 | 96.10 | 103.33 |
| 55 | h | 2730 | U | C2-N1-C1' | 7.73 | 126.97 | 117.70 |
| 55 | h | 338 | C | N1-C2-O2 | 7.63 | 123.48 | 118.90 |
| 55 | h | 2245 | C | N1-C2-O2 | 7.26 | 123.26 | 118.90 |
| 55 | h | 1194 | C | N3-C4-C5 | 7.13 | 124.75 | 121.90 |
| 55 | h | 617 | U | C2-N1-C1' | 7.09 | 126.21 | 117.70 |
| 55 | h | 2730 | U | N1-C2-O2 | 6.91 | 127.64 | 122.80 |
| 56 | A | 1206 | U | C2-N1-C1' | 6.91 | 125.99 | 117.70 |
| 55 | h | 323 | C | C2-N1-C1' | 6.89 | 126.38 | 118.80 |
| 15 | M | 66 | VAL | CA-C-N | 6.80 | 134.53 | 121.54 |
| 15 | M | 66 | VAL | C-N-CA | 6.80 | 134.53 | 121.54 |
| 55 | h | 342 | C | N3-C2-O2 | -6.60 | 117.28 | 121.90 |
| 56 | A | 1008 | C | N3-C2-O2 | -6.52 | 117.33 | 121.90 |
| 55 | h | 1428 | U | C2-N1-C1' | 6.51 | 125.51 | 117.70 |
| 55 | h | 617 | U | N1-C2-O2 | 6.40 | 127.28 | 122.80 |
| 55 | h | 2245 | C | N3-C2-O2 | -6.28 | 117.51 | 121.90 |
| 55 | h | 1429 | C | C2-N1-C1' | 6.18 | 125.60 | 118.80 |
| 55 | h | 2730 | U | N3-C2-O2 | -6.18 | 117.87 | 122.20 |
| 56 | A | 1206 | U | N1-C2-O2 | 6.11 | 127.08 | 122.80 |
| 55 | h | 617 | U | N3-C2-O2 | -6.11 | 117.92 | 122.20 |
| 56 | A | 496 | U | C2-N1-C1' | 6.07 | 124.99 | 117.70 |
| 56 | A | 1206 | U | N3-C2-O2 | -6.01 | 117.99 | 122.20 |
| 55 | h | 191 | G | C4-N9-C1' | 5.93 | 134.20 | 126.50 |
| 55 | h | 3046 | C | N3-C2-O2 | -5.89 | 117.78 | 121.90 |
| 55 | h | 3046 | C | C2-N1-C1' | 5.80 | 125.18 | 118.80 |
| 56 | A | 1017 | C | N3-C2-O2 | -5.79 | 117.85 | 121.90 |
| 55 | h | 1194 | C | N1-C2-N3 | -5.75 | 115.17 | 119.20 |
| 55 | h | 3046 | C | C6-N1-C2 | -5.65 | 118.04 | 120.30 |
| 55 | h | 1641 | U | O5'-C5'-C4' | 5.60 | 113.88 | 109.40 |
| 55 | h | 191 | G | C8-N9-C1' | -5.59 | 119.74 | 127.00 |
| 56 | A | 1149 | C | P-O3'-C3' | 5.51 | 126.31 | 119.70 |
| 55 | h | 1123 | C | C2-N1-C1' | 5.50 | 124.85 | 118.80 |
| 56 | A | 734 | C | C2-N1-C1' | 5.49 | 124.84 | 118.80 |
| 56 | A | 835 | G | O5'-C5'-C4' | 5.46 | 113.77 | 109.40 |
| 56 | A | 415 | C | C2-N1-C1' | 5.42 | 124.76 | 118.80 |
| 55 | h | 2245 | C | C6-N1-C1' | -5.37 | 114.36 | 120.80 |
| 55 | h | 2245 | C | C6-N1-C2 | -5.36 | 118.16 | 120.30 |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 55 | h | 323 | C | C6-N1-C1' | -5.36 | 114.37 | 120.80 |
| 55 | h | 568 | A | O5'-C5'-C4' | 5.29 | 113.63 | 109.40 |
| 55 | h | 338 | C | C6-N1-C2 | -5.28 | 118.19 | 120.30 |
| 56 | A | 1011 | U | C2-N1-C1' | 5.21 | 123.95 | 117.70 |
| 56 | A | 1017 | C | C2-N3-C4 | -5.20 | 117.30 | 119.90 |
| 55 | h | 962 | U | C2-N1-C1' | 5.19 | 123.93 | 117.70 |
| 55 | h | 298 | G | C5-C6-O6 | 5.18 | 131.71 | 128.60 |
| 55 | h | 599 | G | O4'-C1'-N9 | 5.17 | 112.33 | 108.20 |
| 55 | h | 544 | U | O5'-C5'-C4' | 5.16 | 113.53 | 109.40 |
| 55 | h | 2730 | U | C6-N1-C1' | -5.12 | 114.03 | 121.20 |
| 55 | h | 2094 | G | P-O3'-C3' | 5.03 | 125.74 | 119.70 |
| 56 | A | 1008 | C | C6-N1-C2 | -5.03 | 118.29 | 120.30 |
| 55 | h | 1098 | A | N9-C1'-C2' | 5.01 | 117.52 | 112.00 |
| 56 | A | 956 | A | O5'-C5'-C4' | 5.01 | 113.41 | 109.40 |
| 56 | A | 1486 | A | N7-C8-N9 | 5.01 | 116.30 | 113.80 |
| 55 | h | 2025 | C | N3-C2-O2 | -5.00 | 118.40 | 121.90 |

There are no chirality outliers.

All (2) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 6 | D | 63 | MET | Peptide |
| 12 | J | 56 | HIS | 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 | 2 | 1614 | 0 | 823 | 20 | 0 |
| 2 | 3 | 189 | 0 | 205 | 3 | 0 |
| 3 | 4 | 173 | 0 | 88 | 1 | 0 |
| 4 | B | 2522 | 0 | 1285 | 21 | 0 |
| 5 | C | 1660 | 0 | 1707 | 46 | 0 |
| 6 | D | 1641 | 0 | 1668 | 67 | 0 |
| 7 | E | 1296 | 0 | 1360 | 29 | 0 |
| 8 | F | 771 | 0 | 797 | 24 | 0 |
| 9 | G | 1232 | 0 | 1282 | 26 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 10 | H | 1010 | 0 | 1046 | 19 | 0 |
| 11 | I | 994 | 0 | 1050 | 37 | 0 |
| 12 | J | 788 | 0 | 819 | 28 | 0 |
| 13 | K | 855 | 0 | 863 | 20 | 0 |
| 14 | L | 958 | 0 | 1045 | 31 | 0 |
| 15 | M | 935 | 0 | 986 | 34 | 0 |
| 16 | N | 477 | 0 | 499 | 11 | 0 |
| 17 | O | 720 | 0 | 760 | 17 | 0 |
| 18 | P | 891 | 0 | 935 | 35 | 0 |
| 19 | Q | 748 | 0 | 795 | 32 | 0 |
| 20 | R | 513 | 0 | 537 | 7 | 0 |
| 21 | S | 662 | 0 | 677 | 18 | 0 |
| 22 | T | 660 | 0 | 712 | 26 | 0 |
| 23 | U | 756 | 0 | 802 | 15 | 0 |
| 24 | V | 1793 | 0 | 1839 | 62 | 0 |
| 25 | W | 1428 | 0 | 1443 | 23 | 0 |
| 26 | X | 586 | 0 | 601 | 17 | 0 |
| 27 | Y | 470 | 0 | 480 | 8 | 0 |
| 28 | Z | 531 | 0 | 541 | 8 | 0 |
| 29 | a | 474 | 0 | 500 | 6 | 0 |
| 30 | b | 423 | 0 | 463 | 9 | 0 |
| 31 | c | 405 | 0 | 407 | 11 | 0 |
| 32 | d | 377 | 0 | 411 | 6 | 0 |
| 33 | e | 502 | 0 | 541 | 13 | 0 |
| 34 | f | 299 | 0 | 321 | 8 | 0 |
| 35 | g | 364 | 0 | 348 | 13 | 0 |
| 36 | i | 2110 | 0 | 2165 | 37 | 0 |
| 37 | j | 1587 | 0 | 1630 | 30 | 0 |
| 38 | k | 1569 | 0 | 1607 | 23 | 0 |
| 39 | l | 1445 | 0 | 1476 | 52 | 0 |
| 40 | m | 1348 | 0 | 1399 | 28 | 0 |
| 41 | n | 1018 | 0 | 988 | 31 | 0 |
| 42 | q | 1130 | 0 | 1167 | 15 | 0 |
| 43 | r | 938 | 0 | 1000 | 15 | 0 |
| 44 | s | 1078 | 0 | 1151 | 17 | 0 |
| 45 | t | 1092 | 0 | 1128 | 20 | 0 |
| 46 | u | 928 | 0 | 972 | 18 | 0 |
| 47 | v | 956 | 0 | 991 | 20 | 0 |
| 48 | w | 907 | 0 | 938 | 13 | 0 |
| 49 | x | 988 | 0 | 1038 | 14 | 0 |
| 50 | y | 754 | 0 | 802 | 7 | 0 |
| 51 | z | 873 | 0 | 909 | 9 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 52 | o | 990 | 0 | 1021 | 44 | 0 |
| 53 | p | 918 | 0 | 959 | 36 | 0 |
| 54 | 1 | 732 | 0 | 782 | 14 | 0 |
| 55 | h | 66232 | 0 | 33325 | 706 | 0 |
| 56 | A | 32439 | 0 | 16321 | 493 | 0 |
| 57 | F | 1 | 0 | 0 | 0 | 0 |
| 57 | R | 1 | 0 | 0 | 0 | 0 |
| 57 | X | 1 | 0 | 0 | 0 | 0 |
| 57 | h | 3 | 0 | 0 | 0 | 0 |
| 57 | i | 3 | 0 | 0 | 0 | 0 |
| 57 | l | 1 | 0 | 0 | 0 | 0 |
| 57 | t | 1 | 0 | 0 | 0 | 0 |
| 57 | z | 1 | 0 | 0 | 0 | 0 |
| 58 | N | 1 | 0 | 0 | 0 | 0 |
| 58 | R | 1 | 0 | 0 | 0 | 0 |
| 58 | Y | 1 | 0 | 0 | 0 | 0 |
| 58 | c | 1 | 0 | 0 | 0 | 0 |
| 58 | f | 1 | 0 | 0 | 0 | 0 |
| 58 | g | 1 | 0 | 0 | 0 | 0 |
| All | All | 149767 | 0 | 100405 | 2070 | 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 8.

All (2070) 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) |
|---|---|---|---|
| 55:h:1177:G:C6 | 55:h:1206:A:C6 | 2.56 | 0.94 |
| 55:h:2528:G:H22 | 55:h:2536:U:H3 | 1.11 | 0.94 |
| 55:h:2329:G:H1 | 55:h:2406:U:H3 | 1.21 | 0.87 |
| 12:J:14:ASP:OD1 | 12:J:15:HIS:N | 2.07 | 0.86 |
| 55:h:3013:C:H5' | 55:h:3014:A:H5' | 1.58 | 0.86 |
| 55:h:365:U:H3 | 55:h:437:G:H1 | 1.23 | 0.86 |
| 55:h:2345:U:H3 | 55:h:2399:A:H61 | 1.23 | 0.85 |
| 35:g:18:CYS:HB3 | 35:g:41:CYS:SG | 2.17 | 0.84 |
| 14:L:88:LYS:NZ | 56:A:505:C:OP2 | 2.13 | 0.82 |
| 14:L:116:ARG:NH1 | 56:A:483:C:OP1 | 2.12 | 0.82 |
| 24:V:110:ARG:NH2 | 56:A:1084:G:O5' | 2.11 | 0.82 |
| 55:h:1194:C:H2' | 55:h:1195:A:C8 | 2.14 | 0.82 |
| 55:h:1177:G:C6 | 55:h:1206:A:N6 | 2.48 | 0.82 |
| 6:D:98:TYR:O | 6:D:160:ARG:NH2 | 2.13 | 0.82 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:772:A:O2' | 56:A:774:A:N7 | 2.12 | 0.82 |
| 55:h:327:U:O2 | 55:h:449:G:N2 | 2.13 | 0.81 |
| 55:h:2343:G:H1 | 55:h:2401:U:H3 | 1.29 | 0.81 |
| 48:w:51:GLY:HA2 | 48:w:56:GLU:HG3 | 1.61 | 0.80 |
| 6:D:105:THR:HG22 | 6:D:108:MET:HG2 | 1.64 | 0.80 |
| 24:V:21:ARG:HH12 | 56:A:811:U:P | 2.05 | 0.80 |
| 6:D:138:ILE:HB | 6:D:175:ILE:HB | 1.64 | 0.80 |
| 55:h:1177:G:C6 | 55:h:1206:A:N1 | 2.50 | 0.80 |
| 56:A:1232:A:H62 | 56:A:1268:C:H42 | 1.27 | 0.80 |
| 6:D:43:GLU:HA | 6:D:47:ARG:HH21 | 1.48 | 0.79 |
| 55:h:993:G:N2 | 55:h:1015:A:OP2 | 2.15 | 0.79 |
| 6:D:50:LEU:O | 6:D:54:GLN:NE2 | 2.15 | 0.79 |
| 56:A:728:A:O2' | 56:A:729:A:N7 | 2.15 | 0.79 |
| 56:A:500:A:H62 | 56:A:509:G:H8 | 1.30 | 0.79 |
| 18:P:39:ARG:NH1 | 56:A:606:U:OP1 | 2.15 | 0.78 |
| 36:i:66:ASP:OD2 | 36:i:103:ARG:NH1 | 2.16 | 0.78 |
| 11:I:142:ARG:HD3 | 56:A:1330:U:H4' | 1.66 | 0.78 |
| 41:n:1:MET:N | 41:n:21:VAL:O | 2.17 | 0.78 |
| 21:S:22:GLN:NE2 | 21:S:27:THR:O | 2.17 | 0.77 |
| 40:m:57:ASP:OD1 | 40:m:58:ASP:N | 2.17 | 0.77 |
| 14:L:42:PRO:HB3 | 14:L:89:ASP:HB3 | 1.65 | 0.77 |
| 6:D:29:ARG:NH1 | 56:A:413:G:O6 | 2.18 | 0.77 |
| 8:F:94:ASP:OD1 | 8:F:95:LYS:N | 2.18 | 0.77 |
| 40:m:60:ARG:NH2 | 55:h:1153:U:O3' | 2.17 | 0.77 |
| 11:I:133:ARG:HH21 | 56:A:1168:G:H4' | 1.49 | 0.76 |
| 56:A:1110:A:H61 | 56:A:1125:G:H1' | 1.49 | 0.76 |
| 15:M:33:ILE:HD13 | 15:M:60:ILE:HG22 | 1.67 | 0.76 |
| 24:V:69:PHE:HB3 | 24:V:80:ILE:HG23 | 1.68 | 0.76 |
| 55:h:293:G:H2' | 55:h:294:G:C8 | 2.21 | 0.76 |
| 14:L:76:GLU:OE1 | 14:L:77:HIS:ND1 | 2.16 | 0.76 |
| 5:C:35:ASP:OD1 | 5:C:58:ARG:NH2 | 2.19 | 0.75 |
| 55:h:2343:G:N2 | 55:h:2402:C:N3 | 2.35 | 0.75 |
| 12:J:9:ARG:NH1 | 56:A:1106:U:O4 | 2.17 | 0.75 |
| 24:V:21:ARG:NH1 | 56:A:811:U:H5' | 2.02 | 0.75 |
| 56:A:1014:U:H2' | 56:A:1015:G:H8 | 1.51 | 0.75 |
| 11:I:142:ARG:NH2 | 56:A:1327:U:OP1 | 2.19 | 0.75 |
| 12:J:8:ILE:HB | 12:J:74:ILE:HB | 1.68 | 0.75 |
| 55:h:1825:C:N4 | 55:h:1840:G:OP2 | 2.19 | 0.75 |
| 34:f:31:ARG:NH2 | 55:h:2753:G:N7 | 2.33 | 0.74 |
| 55:h:1177:G:N1 | 55:h:1206:A:N6 | 2.34 | 0.74 |
| 56:A:1027:G:HO2' | 56:A:1196:G:HO2' | 1.34 | 0.74 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 36:i:266:LYS:NZ | 55:h:2448:G:OP1 | 2.21 | 0.74 |
| 55:h:543:U:H3' | 55:h:544:U:H5" | 1.69 | 0.74 |
| 24:V:178:LYS:NZ | 56:A:1055:U:OP1 | 2.19 | 0.74 |
| 55:h:860:G:HO2' | 55:h:863:G:HO2' | 1.34 | 0.73 |
| 3:4:18:G:O2' | 3:4:19:C:OP2 | 2.05 | 0.73 |
| 18:P:28:ARG:NH2 | 56:A:310:G:OP2 | 2.22 | 0.73 |
| 55:h:324:C:O2 | 55:h:452:G:N2 | 2.21 | 0.73 |
| 55:h:1187:A:H4' | 55:h:1188:A:H5" | 1.70 | 0.73 |
| 10:H:48:ASP:OD1 | 10:H:49:TYR:N | 2.22 | 0.73 |
| 42:q:37:ARG:NH1 | 55:h:1125:C:OP1 | 2.21 | 0.73 |
| 31:c:8:ARG:NH1 | 55:h:2509:C:OP2 | 2.22 | 0.73 |
| 55:h:1541:G:H22 | 55:h:1631:A:H61 | 1.35 | 0.73 |
| 19:Q:19:ARG:NH1 | 56:A:616:G:O3' | 2.22 | 0.73 |
| 24:V:143:LYS:HA | 24:V:146:ARG:HE | 1.54 | 0.73 |
| 56:A:644:G:H22 | 56:A:721:G:H1 | 1.36 | 0.73 |
| 23:U:97:GLY:HA3 | 28:Z:38:THR:HG21 | 1.70 | 0.73 |
| 5:C:58:ARG:HG3 | 5:C:63:VAL:HG22 | 1.71 | 0.72 |
| 36:i:258:ARG:NH1 | 55:h:2016:G:OP1 | 2.21 | 0.72 |
| 39:l:52:ARG:NH1 | 39:l:84:PHE:O | 2.21 | 0.72 |
| 56:A:1066:U:H3 | 56:A:1079:G:H22 | 1.35 | 0.72 |
| 15:M:72:ARG:NH2 | 39:l:120:ASP:OD2 | 2.22 | 0.72 |
| 46:u:106:ASP:OD2 | 55:h:1867:G:O2' | 2.06 | 0.72 |
| 55:h:981:U:O2' | 55:h:982:A:OP2 | 2.07 | 0.72 |
| 48:w:3:THR:HG23 | 55:h:3096:U:H4' | 1.71 | 0.72 |
| 5:C:59:THR:HG22 | 5:C:60:ARG:H | 1.54 | 0.72 |
| 55:h:2137:A:N6 | 56:A:1392:C:O2 | 2.22 | 0.72 |
| 37:j:83:GLU:OE2 | 55:h:2859:C:O2' | 2.08 | 0.72 |
| 18:P:39:ARG:HH12 | 56:A:606:U:P | 2.12 | 0.71 |
| 55:h:747:A:N6 | 55:h:768:G:O2' | 2.23 | 0.71 |
| 7:E:155:SER:OG | 56:A:23:C:OP1 | 2.08 | 0.71 |
| 55:h:1547:G:H1 | 55:h:1623:U:H3 | 1.35 | 0.71 |
| 9:G:16:PRO:HB3 | 11:I:66:GLN:HG2 | 1.72 | 0.71 |
| 56:A:654:G:H2' | 56:A:655:A:H8 | 1.55 | 0.71 |
| 44:s:44:LYS:HG3 | 44:s:45:ASN:H | 1.56 | 0.71 |
| 12:J:45:GLU:OE2 | 12:J:71:LYS:NZ | 2.24 | 0.71 |
| 21:S:23:ASN:HB3 | 21:S:47:HIS:HE1 | 1.56 | 0.71 |
| 24:V:63:HIS:ND1 | 24:V:63:HIS:O | 2.24 | 0.70 |
| 27:Y:24:ARG:NH1 | 55:h:469:G:OP1 | 2.24 | 0.70 |
| 55:h:2338:G:OP1 | 55:h:2388:G:N2 | 2.24 | 0.70 |
| 56:A:1486:A:H2 | 56:A:1489:G:H1 | 1.38 | 0.70 |
| 55:h:1177:G:O6 | 55:h:1206:A:C6 | 2.43 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:1476:A:H2' | 56:A:1477:A:H2' | 1.71 | 0.70 |
| 56:A:1159:G:N2 | 56:A:1162:G:OP2 | 2.22 | 0.70 |
| 15:M:114:LYS:NZ | 56:A:1210:A:OP2 | 2.17 | 0.70 |
| 10:H:5:ASP:OD2 | 10:H:79:ARG:NH1 | 2.25 | 0.70 |
| 23:U:68:ARG:HH22 | 55:h:1449:C:H5" | 1.56 | 0.70 |
| 18:P:47:SER:HB2 | 56:A:452:A:H2 | 1.55 | 0.69 |
| 36:i:222:ARG:NH1 | 55:h:2044:U:OP2 | 2.21 | 0.69 |
| 55:h:1556:A:N6 | 55:h:1615:G:N1 | 2.40 | 0.69 |
| 14:L:89:ASP:OD1 | 56:A:503:A:N6 | 2.24 | 0.69 |
| 53:p:3:LYS:HA | 53:p:6:LYS:HE3 | 1.74 | 0.69 |
| 55:h:2356:G:H2' | 55:h:2380:G:H1 | 1.58 | 0.69 |
| 6:D:68:ARG:NH1 | 6:D:72:GLU:OE2 | 2.19 | 0.69 |
| 55:h:1624:U:HO2' | 55:h:1625:G:H8 | 1.40 | 0.69 |
| 37:j:63:ILE:HG12 | 37:j:65:PRO:HD2 | 1.73 | 0.69 |
| 1:2:51:U:H3 | 1:2:63:G:H1 | 1.39 | 0.69 |
| 25:W:178:VAL:HG12 | 25:W:179:VAL:HG23 | 1.75 | 0.69 |
| 6:D:183:ARG:NE | 6:D:192:GLU:OE2 | 2.22 | 0.69 |
| 7:E:133:GLY:O | 7:E:137:ARG:HB3 | 1.93 | 0.69 |
| 32:d:28:ARG:NH2 | 55:h:210:G:OP1 | 2.22 | 0.69 |
| 9:G:41:ARG:NH1 | 56:A:1274:C:OP2 | 2.26 | 0.69 |
| 6:D:104:ARG:NH2 | 56:A:408:G:O2' | 2.25 | 0.68 |
| 14:L:58:THR:HG21 | 56:A:362:G:H5" | 1.75 | 0.68 |
| 24:V:72:THR:O | 24:V:77:GLN:NE2 | 2.25 | 0.68 |
| 31:c:40:LYS:NZ | 55:h:2571:C:OP1 | 2.26 | 0.68 |
| 5:C:62:ARG:HH22 | 5:C:64:ARG:HB2 | 1.58 | 0.68 |
| 16:N:16:PHE:HD2 | 16:N:19:ARG:HE | 1.41 | 0.68 |
| 36:i:163:ILE:HG22 | 36:i:178:PRO:HD3 | 1.73 | 0.68 |
| 21:S:22:GLN:HE22 | 21:S:28:LYS:HA | 1.58 | 0.68 |
| 5:C:109:GLU:HB2 | 5:C:143:GLN:HE21 | 1.59 | 0.68 |
| 52:o:114:LYS:O | 52:o:118:LEU:N | 2.20 | 0.68 |
| 55:h:2249:G:H2' | 55:h:2250:A:C8 | 2.29 | 0.68 |
| 36:i:145:VAL:HG21 | 36:i:163:ILE:HD11 | 1.76 | 0.68 |
| 4:B:60:G:H4' | 47:v:12:GLU:HG3 | 1.76 | 0.67 |
| 43:r:93:PRO:HG3 | 43:r:114:ILE:HD13 | 1.75 | 0.67 |
| 56:A:1375:G:N2 | 56:A:1486:A:H8 | 1.92 | 0.67 |
| 39:l:87:ARG:H | 39:l:90:MET:HE3 | 1.58 | 0.67 |
| 26:X:11:ARG:O | 26:X:14:ARG:NH1 | 2.27 | 0.67 |
| 11:I:110:VAL:HG12 | 11:I:111:GLN:HG3 | 1.75 | 0.67 |
| 32:d:36:ASN:ND2 | 55:h:555:G:OP1 | 2.28 | 0.67 |
| 33:e:47:ARG:HH22 | 55:h:725:A:P | 2.17 | 0.67 |
| 42:q:116:ARG:NH2 | 55:h:615:A:OP2 | 2.27 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:1561:C:H42 | 55:h:1610:C:H42 | 1.41 | 0.67 |
| 55:h:669:G:O2' | 55:h:1369:A:OP1 | 2.11 | 0.67 |
| 56:A:1203:G:OP2 | 56:A:1304:C:N4 | 2.27 | 0.67 |
| 4:B:56:C:H1' | 39:l:33:MET:HE1 | 1.76 | 0.67 |
| 7:E:174:ARG:HB2 | 7:E:177:GLU:HG3 | 1.75 | 0.67 |
| 33:e:47:ARG:NH2 | 55:h:725:A:OP2 | 2.28 | 0.67 |
| 55:h:1201:G:H21 | 55:h:1203:A:H8 | 1.43 | 0.67 |
| 40:m:154:ARG:NH2 | 55:h:2750:G:OP2 | 2.27 | 0.67 |
| 1:2:27:G:H2' | 1:2:28:G:H8 | 1.59 | 0.66 |
| 37:j:38:ARG:NH2 | 55:h:3008:C:O2' | 2.28 | 0.66 |
| 47:v:34:GLU:HG2 | 47:v:35:VAL:HG23 | 1.77 | 0.66 |
| 11:I:38:ARG:HG2 | 11:I:86:HIS:HB2 | 1.77 | 0.66 |
| 17:O:35:ARG:NH2 | 56:A:722:G:OP2 | 2.28 | 0.66 |
| 39:l:98:LEU:HB3 | 39:l:103:MET:HB3 | 1.77 | 0.66 |
| 55:h:1007:G:H2' | 55:h:1008:G:C8 | 2.31 | 0.66 |
| 55:h:681:C:H2' | 55:h:682:A:H8 | 1.59 | 0.66 |
| 55:h:1177:G:O6 | 55:h:1206:A:N1 | 2.28 | 0.66 |
| 55:h:1552:A:N6 | 55:h:1616:A:OP2 | 2.28 | 0.66 |
| 25:W:109:GLU:HG3 | 25:W:132:GLU:HB3 | 1.78 | 0.66 |
| 39:l:95:ARG:NH2 | 55:h:2538:A:OP1 | 2.28 | 0.66 |
| 56:A:184:U:H2' | 56:A:185:G:H8 | 1.59 | 0.66 |
| 19:Q:77:MET:SD | 19:Q:89:ARG:NH2 | 2.69 | 0.66 |
| 21:S:14:HIS:NE2 | 56:A:998:G:OP1 | 2.29 | 0.66 |
| 42:q:114:LEU:O | 42:q:118:ILE:HG13 | 1.95 | 0.66 |
| 55:h:2862:G:O2' | 55:h:3002:A:N6 | 2.29 | 0.66 |
| 56:A:490:A:HO2' | 56:A:522:G:HO2' | 1.44 | 0.66 |
| 24:V:21:ARG:NH1 | 56:A:810:G:O3' | 2.28 | 0.65 |
| 24:V:154:MET:SD | 24:V:155:GLN:N | 2.69 | 0.65 |
| 12:J:51:VAL:HG13 | 16:N:41:ARG:HB2 | 1.78 | 0.65 |
| 38:k:55:ARG:NH2 | 55:h:789:G:OP1 | 2.27 | 0.65 |
| 55:h:2552:A:H2' | 55:h:2553:G:C8 | 2.32 | 0.65 |
| 56:A:653:G:H2' | 56:A:654:G:C8 | 2.31 | 0.65 |
| 56:A:693:G:H2' | 56:A:694:G:C8 | 2.32 | 0.65 |
| 26:X:73:ARG:HD2 | 26:X:73:ARG:O | 1.96 | 0.65 |
| 55:h:217:G:H22 | 55:h:235:U:H4' | 1.60 | 0.65 |
| 56:A:92:A:O2' | 56:A:93:C:O5' | 2.15 | 0.65 |
| 56:A:1298:G:N1 | 56:A:1301:A:OP2 | 2.28 | 0.65 |
| 56:A:1338:G:H2' | 56:A:1339:A:C8 | 2.31 | 0.65 |
| 13:K:93:VAL:HG11 | 13:K:106:ILE:HD11 | 1.79 | 0.65 |
| 52:o:114:LYS:HG3 | 52:o:130:ILE:HD11 | 1.78 | 0.65 |
| 56:A:694:G:H2' | 56:A:695:A:C8 | 2.32 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:G:79:ARG:HA | 9:G:84:THR:HA | 1.79 | 0.65 |
| 13:K:49:ASN:OD1 | 56:A:663:G:N2 | 2.27 | 0.65 |
| 18:P:67:THR:HG22 | 18:P:68:GLU:H | 1.62 | 0.65 |
| 33:e:43:ARG:NH2 | 55:h:2587:U:OP2 | 2.29 | 0.65 |
| 36:i:143:HIS:ND1 | 36:i:194:GLY:O | 2.18 | 0.65 |
| 56:A:926:G:N1 | 56:A:1320:G:OP2 | 2.27 | 0.65 |
| 39:l:126:PRO:O | 39:l:174:ARG:NH1 | 2.30 | 0.64 |
| 49:x:6:ARG:HD3 | 55:h:1365:G:H5" | 1.79 | 0.64 |
| 55:h:218:A:N3 | 55:h:234:U:O2' | 2.30 | 0.64 |
| 55:h:1690:A:H2' | 55:h:1691:A:C8 | 2.33 | 0.64 |
| 8:F:54:LYS:NZ | 56:A:690:G:OP1 | 2.29 | 0.64 |
| 55:h:3014:A:O2' | 55:h:3015:C:H5" | 1.97 | 0.64 |
| 4:B:13:C:H2' | 26:X:73:ARG:HA | 1.79 | 0.64 |
| 24:V:151:ILE:HA | 24:V:154:MET:HG3 | 1.79 | 0.64 |
| 55:h:2333:G:OP2 | 55:h:2341:U:N3 | 2.29 | 0.64 |
| 43:r:107:ARG:NH1 | 48:w:33:GLU:OE2 | 2.30 | 0.64 |
| 5:C:90:LEU:HB3 | 5:C:98:VAL:HG21 | 1.79 | 0.64 |
| 40:m:159:LYS:NZ | 55:h:2883:G:OP1 | 2.30 | 0.64 |
| 45:t:54:ILE:HG13 | 45:t:121:ALA:HB2 | 1.80 | 0.64 |
| 8:F:6:ILE:HD12 | 8:F:90:VAL:HG22 | 1.80 | 0.64 |
| 55:h:451:U:H2' | 55:h:452:G:C8 | 2.32 | 0.64 |
| 23:U:19:LYS:NZ | 55:h:1455:U:OP1 | 2.31 | 0.64 |
| 55:h:681:C:H2' | 55:h:682:A:C8 | 2.33 | 0.64 |
| 56:A:380:G:N2 | 56:A:383:A:OP2 | 2.30 | 0.64 |
| 24:V:117:LEU:O | 24:V:141:LYS:NZ | 2.31 | 0.63 |
| 55:h:293:G:H2' | 55:h:294:G:H8 | 1.61 | 0.63 |
| 55:h:2378:U:H3' | 55:h:2379:G:C8 | 2.33 | 0.63 |
| 56:A:1232:A:N3 | 56:A:1352:C:O2' | 2.30 | 0.63 |
| 37:j:3:ARG:NH1 | 37:j:212:ILE:HD11 | 2.13 | 0.63 |
| 40:m:111:SER:OG | 55:h:2891:C:N3 | 2.29 | 0.63 |
| 11:I:134:LYS:NZ | 56:A:1350:U:OP2 | 2.29 | 0.63 |
| 52:o:101:LYS:HE2 | 52:o:142:GLU:HB3 | 1.81 | 0.63 |
| 56:A:1265:U:H5" | 56:A:1266:U:H4' | 1.81 | 0.63 |
| 16:N:4:LYS:N | 56:A:1028:G:OP1 | 2.24 | 0.63 |
| 37:j:3:ARG:HH12 | 37:j:212:ILE:HD11 | 1.63 | 0.63 |
| 48:w:30:LYS:NZ | 48:w:81:ASP:OD1 | 2.27 | 0.63 |
| 6:D:104:ARG:NH2 | 56:A:408:G:O3' | 2.31 | 0.63 |
| 13:K:41:VAL:HG11 | 13:K:76:ALA:HA | 1.78 | 0.63 |
| 52:o:125:ALA:HB1 | 55:h:1199:U:H4' | 1.80 | 0.63 |
| 34:f:2:LYS:NZ | 34:f:31:ARG:O | 2.32 | 0.63 |
| 55:h:1996:U:OP2 | 55:h:2001:A:N6 | 2.26 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 19:Q:7:PRO:O | 56:A:136:G:O2' | 2.15 | 0.63 |
| 56:A:60:U:H2' | 56:A:61:G:H8 | 1.64 | 0.63 |
| 55:h:2351:A:H2' | 55:h:2352:C:C6 | 2.34 | 0.63 |
| 56:A:1266:U:H2' | 56:A:1267:U:H5" | 1.80 | 0.63 |
| 26:X:64:PRO:HB3 | 55:h:759:G:H1 | 1.63 | 0.63 |
| 36:i:13:ARG:HD2 | 55:h:843:G:H4' | 1.81 | 0.63 |
| 37:j:27:THR:HG21 | 37:j:198:ILE:HG12 | 1.80 | 0.63 |
| 10:H:96:ARG:NH2 | 56:A:7:U:O4 | 2.32 | 0.62 |
| 20:R:18:ARG:NH2 | 20:R:54:THR:O | 2.27 | 0.62 |
| 27:Y:36:VAL:HG12 | 27:Y:63:ARG:HH21 | 1.64 | 0.62 |
| 21:S:23:ASN:HB3 | 21:S:47:HIS:CE1 | 2.32 | 0.62 |
| 22:T:2:ALA:HB1 | 22:T:8:ILE:HG12 | 1.79 | 0.62 |
| 36:i:230:ASP:OD1 | 55:h:895:G:N1 | 2.27 | 0.62 |
| 44:s:15:GLU:OE2 | 55:h:691:U:O2' | 2.13 | 0.62 |
| 56:A:21:U:H2' | 56:A:22:C:C6 | 2.34 | 0.62 |
| 2:3:8:LYS:NZ | 55:h:2253:A:OP2 | 2.26 | 0.62 |
| 5:C:179:ARG:NE | 56:A:1092:C:O2' | 2.30 | 0.62 |
| 55:h:1550:G:H22 | 55:h:1620:U:H3 | 1.47 | 0.62 |
| 23:U:67:LYS:HE2 | 23:U:76:ARG:HH21 | 1.64 | 0.62 |
| 6:D:108:MET:HE3 | 56:A:408:G:H5' | 1.82 | 0.62 |
| 26:X:73:ARG:NH2 | 55:h:2558:C:N3 | 2.43 | 0.62 |
| 56:A:872:G:O2' | 56:A:888:A:N6 | 2.33 | 0.62 |
| 56:A:1375:G:H21 | 56:A:1486:A:H8 | 1.47 | 0.62 |
| 21:S:55:ARG:HG2 | 21:S:56:LYS:HE3 | 1.81 | 0.62 |
| 23:U:57:VAL:HG12 | 23:U:84:VAL:HG13 | 1.82 | 0.62 |
| 35:g:38:CYS:H | 35:g:41:CYS:HB2 | 1.65 | 0.62 |
| 56:A:1220:A:H62 | 56:A:1281:A:H62 | 1.48 | 0.62 |
| 56:A:1287:G:HO2' | 56:A:1288:A:H8 | 1.48 | 0.62 |
| 56:A:146:A:H2' | 56:A:147:U:C6 | 2.35 | 0.62 |
| 6:D:91:SER:HB3 | 6:D:131:ARG:HG3 | 1.81 | 0.62 |
| 36:i:88:ARG:NH2 | 55:h:2034:G:OP1 | 2.33 | 0.62 |
| 55:h:448:U:H2' | 55:h:449:G:C4 | 2.34 | 0.62 |
| 56:A:1374:U:H2' | 56:A:1375:G:C8 | 2.35 | 0.62 |
| 5:C:34:GLU:OE1 | 5:C:58:ARG:NH1 | 2.33 | 0.61 |
| 41:n:101:VAL:HG23 | 41:n:112:LEU:HB2 | 1.82 | 0.61 |
| 55:h:1220:C:H2' | 55:h:1221:A:H8 | 1.65 | 0.61 |
| 55:h:1556:A:N1 | 55:h:1615:G:N2 | 2.48 | 0.61 |
| 55:h:2096:G:H2' | 55:h:2097:G:C8 | 2.35 | 0.61 |
| 55:h:2410:A:H2' | 55:h:2411:U:C6 | 2.35 | 0.61 |
| 20:R:39:ARG:HA | 20:R:42:ILE:HG12 | 1.81 | 0.61 |
| 40:m:23:ASN:OD1 | 40:m:24:LEU:N | 2.32 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:1541:G:N2 | 55:h:1631:A:H61 | 1.98 | 0.61 |
| 41:n:95:VAL:HG12 | 41:n:124:ILE:HG21 | 1.82 | 0.61 |
| 55:h:286:G:O2' | 55:h:300:G:O6 | 2.13 | 0.61 |
| 23:U:34:HIS:ND1 | 23:U:36:ASP:OD1 | 2.33 | 0.61 |
| 55:h:1706:A:H2' | 55:h:1707:G:H8 | 1.65 | 0.61 |
| 56:A:1220:A:H62 | 56:A:1281:A:N6 | 1.98 | 0.61 |
| 6:D:60:TYR:OH | 6:D:90:GLU:OE2 | 2.19 | 0.61 |
| 42:q:68:LYS:NZ | 55:h:1258:C:OP2 | 2.26 | 0.61 |
| 12:J:62:ARG:NH1 | 56:A:1349:C:O2' | 2.33 | 0.61 |
| 56:A:592:U:H2' | 56:A:593:C:C6 | 2.35 | 0.61 |
| 24:V:121:GLU:HG3 | 24:V:126:PHE:HZ | 1.65 | 0.61 |
| 53:p:29:ARG:NH2 | 55:h:1171:C:O2 | 2.34 | 0.61 |
| 41:n:2:LYS:HG2 | 41:n:39:ALA:HB3 | 1.82 | 0.61 |
| 55:h:999:C:H42 | 55:h:1009:U:H3 | 1.49 | 0.61 |
| 55:h:1710:A:N6 | 55:h:1716:A:OP2 | 2.33 | 0.61 |
| 55:h:2136:A:HO2' | 56:A:1478:G:HO2' | 1.48 | 0.61 |
| 14:L:115:SER:OG | 56:A:39:G:N3 | 2.34 | 0.61 |
| 35:g:16:CYS:SG | 35:g:17:GLY:N | 2.74 | 0.61 |
| 55:h:1544:U:O2 | 55:h:1626:G:N2 | 2.34 | 0.61 |
| 55:h:2363:A:H61 | 55:h:2374:U:H3 | 1.48 | 0.61 |
| 55:h:2482:U:O2' | 55:h:2651:C:OP2 | 2.19 | 0.61 |
| 41:n:9:VAL:HG23 | 41:n:12:LEU:HB2 | 1.82 | 0.60 |
| 55:h:302:U:O2' | 55:h:303:G:N7 | 2.33 | 0.60 |
| 55:h:995:U:H2' | 55:h:996:G:C8 | 2.36 | 0.60 |
| 55:h:1566:A:H2' | 55:h:1567:C:H5 | 1.65 | 0.60 |
| 10:H:41:LYS:HZ3 | 10:H:48:ASP:HA | 1.65 | 0.60 |
| 21:S:19:VAL:HG11 | 21:S:44:PHE:HE1 | 1.66 | 0.60 |
| 55:h:72:G:H22 | 55:h:108:A:H2 | 1.48 | 0.60 |
| 55:h:2085:C:O2' | 55:h:2086:U:O5' | 2.18 | 0.60 |
| 10:H:41:LYS:NZ | 10:H:47:SER:O | 2.33 | 0.60 |
| 46:u:14:SER:HG | 55:h:2913:U:HO2' | 1.47 | 0.60 |
| 55:h:447:A:H2' | 55:h:448:U:C6 | 2.35 | 0.60 |
| 55:h:1756:G:H1' | 55:h:1758:G:C5 | 2.36 | 0.60 |
| 55:h:3012:U:O2' | 55:h:3030:A:N3 | 2.33 | 0.60 |
| 56:A:936:G:H21 | 56:A:1208:A:H62 | 1.49 | 0.60 |
| 8:F:14:LEU:HD11 | 8:F:84:SER:HB2 | 1.82 | 0.60 |
| 15:M:16:GLU:HB2 | 15:M:41:LYS:HB2 | 1.82 | 0.60 |
| 55:h:1673:A:H5" | 55:h:1674:G:H5" | 1.84 | 0.60 |
| 24:V:56:PHE:HE2 | 24:V:184:ILE:HD11 | 1.66 | 0.60 |
| 55:h:1675:U:O2' | 55:h:1676:G:N7 | 2.35 | 0.60 |
| 56:A:153:U:H3 | 56:A:162:G:H1 | 1.49 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 6:D:52:GLU:HG3 | 6:D:194:LEU:HD12 | 1.84 | 0.60 |
| 11:I:48:PHE:CE1 | 11:I:83:ILE:HD11 | 2.37 | 0.60 |
| 14:L:43:LYS:NZ | 14:L:88:LYS:O | 2.35 | 0.60 |
| 55:h:380:A:N3 | 55:h:401:C:O2' | 2.34 | 0.60 |
| 55:h:470:G:H22 | 55:h:480:U:H3 | 1.48 | 0.60 |
| 40:m:71:THR:HG21 | 55:h:2971:G:H5' | 1.84 | 0.60 |
| 51:z:11:THR:HG22 | 51:z:113:ILE:HG12 | 1.82 | 0.60 |
| 55:h:928:U:H2' | 55:h:929:C:C6 | 2.37 | 0.60 |
| 55:h:995:U:H2' | 55:h:996:G:H8 | 1.66 | 0.60 |
| 23:U:27:ASN:HD21 | 23:U:90:SER:HB2 | 1.67 | 0.60 |
| 55:h:277:U:H2' | 55:h:278:A:C8 | 2.36 | 0.60 |
| 31:c:44:ASN:OD1 | 31:c:45:CYS:N | 2.35 | 0.60 |
| 39:l:73:GLU:OE2 | 39:l:75:ARG:NH1 | 2.34 | 0.60 |
| 5:C:82:GLU:OE2 | 5:C:85:ARG:NH1 | 2.34 | 0.60 |
| 17:O:18:HIS:CE1 | 17:O:21:ASP:HB3 | 2.36 | 0.60 |
| 19:Q:31:LYS:HE2 | 56:A:275:G:P | 2.42 | 0.60 |
| 45:t:36:ALA:HB2 | 45:t:103:LEU:HD11 | 1.84 | 0.60 |
| 55:h:2367:G:N2 | 55:h:2369:C:O2' | 2.34 | 0.60 |
| 55:h:2412:U:H2' | 55:h:2413:G:C8 | 2.36 | 0.60 |
| 56:A:438:U:O2' | 56:A:439:U:O2 | 2.13 | 0.60 |
| 56:A:461:G:O2' | 56:A:463:C:N4 | 2.34 | 0.60 |
| 56:A:928:A:H2' | 56:A:929:G:C8 | 2.37 | 0.60 |
| 27:Y:41:ARG:HH12 | 55:h:165:U:H4' | 1.66 | 0.59 |
| 24:V:16:PHE:O | 24:V:203:ASN:ND2 | 2.34 | 0.59 |
| 30:b:45:LYS:O | 30:b:48:ARG:N | 2.35 | 0.59 |
| 7:E:173:GLN:OE1 | 7:E:181:ARG:NH2 | 2.31 | 0.59 |
| 9:G:30:VAL:HG13 | 9:G:39:ALA:HB1 | 1.83 | 0.59 |
| 26:X:41:ARG:NH1 | 55:h:2610:C:O2' | 2.35 | 0.59 |
| 53:p:43:LEU:O | 53:p:47:ALA:N | 2.32 | 0.59 |
| 56:A:672:U:O2' | 56:A:674:G:N7 | 2.29 | 0.59 |
| 52:o:118:LEU:HG | 52:o:120:ALA:H | 1.67 | 0.59 |
| 52:o:133:THR:O | 52:o:136:SER:OG | 2.15 | 0.59 |
| 55:h:3023:G:H2' | 55:h:3024:A:O4' | 2.03 | 0.59 |
| 37:j:34:ASN:ND2 | 37:j:54:TYR:HB2 | 2.18 | 0.59 |
| 55:h:1710:A:H61 | 55:h:1716:A:H5" | 1.66 | 0.59 |
| 2:3:7:LYS:NZ | 55:h:1252:G:O4' | 2.36 | 0.59 |
| 15:M:104:LYS:NZ | 56:A:935:G:O6 | 2.36 | 0.59 |
| 33:e:23:VAL:HG11 | 33:e:47:ARG:HD3 | 1.85 | 0.59 |
| 36:i:269:VAL:HG12 | 36:i:270:ARG:HG3 | 1.84 | 0.59 |
| 55:h:365:U:O2 | 55:h:437:G:N2 | 2.30 | 0.59 |
| 56:A:144:G:H2' | 56:A:145:G:C8 | 2.36 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:708:A:H2' | 56:A:709:A:C8 | 2.38 | 0.59 |
| 56:A:1013:G:H2' | 56:A:1014:U:O4' | 2.02 | 0.59 |
| 18:P:86:LEU:HB2 | 18:P:87:PRO:HD3 | 1.84 | 0.59 |
| 53:p:1:MET:HE3 | 53:p:6:LYS:HD3 | 1.83 | 0.59 |
| 5:C:15:THR:HG23 | 5:C:207:ILE:HD12 | 1.85 | 0.59 |
| 6:D:108:MET:HE1 | 56:A:407:A:O2' | 2.03 | 0.59 |
| 54:1:75:ASP:OD1 | 54:1:76:SER:N | 2.30 | 0.59 |
| 55:h:2902:A:H2' | 55:h:2903:A:C8 | 2.37 | 0.59 |
| 55:h:2922:U:H2' | 55:h:2923:C:C6 | 2.37 | 0.59 |
| 56:A:479:A:N1 | 56:A:526:G:O2' | 2.31 | 0.59 |
| 56:A:1418:G:H2' | 56:A:1419:C:C6 | 2.37 | 0.59 |
| 55:h:287:A:N6 | 55:h:299:G:O2' | 2.35 | 0.58 |
| 55:h:308:U:H2' | 55:h:309:G:H8 | 1.67 | 0.58 |
| 55:h:2726:G:H5" | 55:h:2727:A:H5" | 1.84 | 0.58 |
| 56:A:654:G:H2' | 56:A:655:A:C8 | 2.37 | 0.58 |
| 56:A:1410:C:H2' | 56:A:1411:A:H8 | 1.66 | 0.58 |
| 19:Q:73:ARG:HB3 | 19:Q:95:GLU:HG2 | 1.84 | 0.58 |
| 38:k:184:ASN:HD21 | 55:h:708:G:N2 | 2.01 | 0.58 |
| 49:x:49:ASP:OD2 | 55:h:621:U:O2' | 2.11 | 0.58 |
| 55:h:1180:G:H3' | 55:h:1181:G:H8 | 1.68 | 0.58 |
| 55:h:1468:A:H2' | 55:h:1469:A:C8 | 2.38 | 0.58 |
| 56:A:716:U:H2' | 56:A:717:C:C6 | 2.38 | 0.58 |
| 14:L:70:GLU:OE2 | 56:A:500:A:O2' | 2.15 | 0.58 |
| 19:Q:32:MET:SD | 19:Q:35:THR:OG1 | 2.59 | 0.58 |
| 22:T:81:LEU:HD22 | 56:A:184:U:H5" | 1.84 | 0.58 |
| 52:o:93:GLU:OE1 | 52:o:93:GLU:HA | 2.03 | 0.58 |
| 55:h:1678:U:H5' | 55:h:1679:A:OP2 | 2.03 | 0.58 |
| 1:2:21:A:N6 | 1:2:46:G:O2' | 2.36 | 0.58 |
| 7:E:132:ALA:O | 7:E:137:ARG:NH1 | 2.36 | 0.58 |
| 22:T:51:LEU:HD22 | 22:T:83:LEU:HD13 | 1.85 | 0.58 |
| 26:X:36:ILE:HG21 | 26:X:39:ARG:HD3 | 1.85 | 0.58 |
| 6:D:60:TYR:CE2 | 6:D:89:LEU:HB3 | 2.38 | 0.58 |
| 24:V:29:ARG:HH12 | 24:V:30:PHE:HE1 | 1.50 | 0.58 |
| 49:x:22:LYS:NZ | 55:h:17:C:OP1 | 2.36 | 0.58 |
| 52:o:117:ASP:OD1 | 52:o:118:LEU:N | 2.37 | 0.58 |
| 55:h:1162:G:O2' | 55:h:1229:A:N6 | 2.30 | 0.58 |
| 22:T:45:ASP:O | 22:T:49:GLU:HG3 | 2.03 | 0.58 |
| 56:A:1248:U:O2' | 56:A:1249:G:O5' | 2.22 | 0.58 |
| 45:t:110:ASP:OD1 | 45:t:113:THR:OG1 | 2.21 | 0.58 |
| 55:h:2515:U:H2' | 55:h:2516:U:C6 | 2.39 | 0.58 |
| 56:A:32:G:O2' | 56:A:296:U:OP1 | 2.21 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 24:V:46:THR:HA | 24:V:201:PRO:HG2 | 1.85 | 0.58 |
| 55:h:138:A:H2' | 55:h:139:U:O2 | 2.04 | 0.58 |
| 55:h:2351:A:N3 | 55:h:2396:A:O2' | 2.37 | 0.58 |
| 56:A:695:A:H2' | 56:A:696:A:C8 | 2.38 | 0.58 |
| 56:A:1199:C:H2' | 56:A:1200:A:C8 | 2.39 | 0.58 |
| 14:L:114:ARG:NH2 | 56:A:481:G:OP1 | 2.36 | 0.58 |
| 30:b:42:ARG:NH2 | 46:u:38:GLU:OE1 | 2.35 | 0.58 |
| 46:u:26:THR:HG23 | 46:u:75:VAL:HG21 | 1.86 | 0.58 |
| 56:A:986:G:N1 | 56:A:1016:G:O6 | 2.37 | 0.58 |
| 56:A:987:A:C6 | 56:A:1008:C:H1' | 2.39 | 0.57 |
| 56:A:1149:C:O2' | 56:A:1150:A:OP2 | 2.20 | 0.57 |
| 18:P:40:TYR:CE2 | 18:P:42:PRO:HG3 | 2.38 | 0.57 |
| 53:p:7:ALA:HA | 55:h:1164:A:C2 | 2.39 | 0.57 |
| 55:h:279:U:H2' | 55:h:280:G:H8 | 1.69 | 0.57 |
| 24:V:162:TRP:HE3 | 24:V:184:ILE:HG22 | 1.69 | 0.57 |
| 52:o:23:ALA:HB3 | 52:o:24:PRO:HD3 | 1.86 | 0.57 |
| 55:h:2096:G:H2' | 55:h:2097:G:H8 | 1.69 | 0.57 |
| 56:A:481:G:H2' | 56:A:482:A:C8 | 2.40 | 0.57 |
| 56:A:943:U:OP2 | 56:A:1204:C:O2' | 2.13 | 0.57 |
| 39:l:24:GLN:HE21 | 39:l:35:ILE:HD11 | 1.68 | 0.57 |
| 53:p:53:LYS:NZ | 55:h:1224:G:OP1 | 2.38 | 0.57 |
| 55:h:997:G:C6 | 55:h:998:G:C6 | 2.92 | 0.57 |
| 55:h:2106:A:H3' | 55:h:2107:G:H5" | 1.86 | 0.57 |
| 55:h:2961:G:H2' | 55:h:2962:A:C8 | 2.39 | 0.57 |
| 9:G:32:LEU:HG | 9:G:33:GLU:HG2 | 1.86 | 0.57 |
| 9:G:68:ASN:HD21 | 9:G:130:GLY:HA2 | 1.69 | 0.57 |
| 11:I:75:VAL:HG13 | 11:I:77:ARG:H | 1.69 | 0.57 |
| 24:V:111:LEU:O | 24:V:115:LYS:HD3 | 2.05 | 0.57 |
| 55:h:1530:G:H21 | 55:h:1805:G:H1 | 1.52 | 0.57 |
| 6:D:94:ASP:OD1 | 6:D:95:ASN:N | 2.37 | 0.57 |
| 21:S:22:GLN:HE21 | 21:S:29:GLN:H | 1.52 | 0.57 |
| 22:T:29:ARG:NH1 | 56:A:1421:G:OP2 | 2.37 | 0.57 |
| 23:U:68:ARG:NH2 | 55:h:1449:C:H5" | 2.19 | 0.57 |
| 25:W:118:ALA:HB2 | 25:W:148:VAL:HG22 | 1.87 | 0.57 |
| 37:j:6:ILE:HD11 | 37:j:31:ALA:HB1 | 1.85 | 0.57 |
| 55:h:2386:U:OP1 | 55:h:2393:A:O2' | 2.21 | 0.57 |
| 9:G:112:ARG:HG3 | 9:G:112:ARG:HH11 | 1.70 | 0.57 |
| 55:h:2470:A:H2' | 55:h:2471:A:C8 | 2.39 | 0.57 |
| 5:C:109:GLU:OE1 | 5:C:143:GLN:NE2 | 2.38 | 0.57 |
| 25:W:11:LEU:HD12 | 25:W:67:LEU:HD22 | 1.87 | 0.57 |
| 56:A:819:U:H3 | 56:A:829:G:H1 | 1.53 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 6:D:182:GLU:O | 6:D:186:ILE:HD12 | 2.05 | 0.57 |
| 55:h:1201:G:N2 | 55:h:1204:A:OP2 | 2.36 | 0.57 |
| 24:V:52:LYS:HE2 | 24:V:198:TYR:HE1 | 1.70 | 0.57 |
| 55:h:591:G:O2' | 55:h:592:A:OP2 | 2.22 | 0.57 |
| 6:D:49:GLN:HB3 | 6:D:198:LEU:HB2 | 1.86 | 0.56 |
| 18:P:60:LEU:HD11 | 18:P:74:LEU:HD21 | 1.87 | 0.56 |
| 22:T:13:THR:O | 22:T:17:ARG:HG3 | 2.04 | 0.56 |
| 43:r:76:TYR:HB2 | 48:w:72:THR:HG22 | 1.86 | 0.56 |
| 46:u:49:GLU:HG3 | 46:u:94:TYR:CD2 | 2.40 | 0.56 |
| 55:h:1229:A:H8 | 55:h:1230:G:H1' | 1.69 | 0.56 |
| 56:A:498:C:H2' | 56:A:510:G:C8 | 2.40 | 0.56 |
| 56:A:1231:A:N3 | 56:A:1353:G:O2' | 2.34 | 0.56 |
| 40:m:22:GLN:NE2 | 40:m:39:GLU:HA | 2.20 | 0.56 |
| 41:n:62:ILE:H | 41:n:65:ALA:HB3 | 1.70 | 0.56 |
| 42:q:125:TYR:HH | 42:q:132:HIS:HE2 | 1.51 | 0.56 |
| 56:A:1477:A:H4' | 56:A:1478:G:OP1 | 2.03 | 0.56 |
| 6:D:128:PRO:HD2 | 56:A:403:C:H5" | 1.87 | 0.56 |
| 13:K:99:GLY:HA3 | 13:K:102:ARG:HD2 | 1.86 | 0.56 |
| 14:L:73:ASN:ND2 | 14:L:105:GLN:HG3 | 2.20 | 0.56 |
| 22:T:6:SER:OG | 56:A:65:G:N7 | 2.27 | 0.56 |
| 22:T:46:LYS:O | 22:T:50:LEU:HG | 2.05 | 0.56 |
| 27:Y:41:ARG:HG3 | 27:Y:43:GLY:H | 1.71 | 0.56 |
| 31:c:28:ASN:ND2 | 55:h:2509:C:OP2 | 2.36 | 0.56 |
| 41:n:124:ILE:HG22 | 41:n:125:LYS:H | 1.70 | 0.56 |
| 43:r:7:ARG:HE | 43:r:20:LEU:HD13 | 1.70 | 0.56 |
| 55:h:996:G:H2' | 55:h:997:G:H8 | 1.70 | 0.56 |
| 56:A:407:A:H2' | 56:A:408:G:C8 | 2.41 | 0.56 |
| 56:A:642:C:H2' | 56:A:643:A:C8 | 2.40 | 0.56 |
| 56:A:900:A:H2' | 56:A:901:A:C8 | 2.40 | 0.56 |
| 56:A:1296:C:H2' | 56:A:1297:U:C6 | 2.40 | 0.56 |
| 6:D:73:GLU:O | 6:D:77:GLN:HG2 | 2.06 | 0.56 |
| 15:M:4:LEU:HG | 15:M:5:VAL:H | 1.71 | 0.56 |
| 40:m:161:LYS:NZ | 55:h:2881:A:O2' | 2.39 | 0.56 |
| 55:h:290:C:H2' | 55:h:301:U:C5 | 2.40 | 0.56 |
| 56:A:25:G:H2' | 56:A:26:G:C8 | 2.40 | 0.56 |
| 56:A:1410:C:H2' | 56:A:1411:A:C8 | 2.40 | 0.56 |
| 24:V:15:HIS:HB2 | 24:V:40:ILE:HG23 | 1.87 | 0.56 |
| 40:m:87:LYS:HA | 40:m:133:SER:HA | 1.86 | 0.56 |
| 40:m:103:ASN:ND2 | 40:m:117:GLU:OE1 | 2.38 | 0.56 |
| 53:p:69:LEU:HD11 | 53:p:109:TYR:HB2 | 1.88 | 0.56 |
| 14:L:5:GLN:HA | 14:L:8:VAL:HG22 | 1.86 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:L:27:SER:OG | 56:A:363:A:N7 | 2.39 | 0.56 |
| 17:O:22:THR:HG21 | 56:A:638:A:O4' | 2.05 | 0.56 |
| 27:Y:16:LYS:HD2 | 27:Y:24:ARG:HB3 | 1.87 | 0.56 |
| 33:e:19:THR:HG23 | 55:h:745:G:H5" | 1.87 | 0.56 |
| 56:A:1148:U:OP1 | 56:A:1150:A:N6 | 2.39 | 0.56 |
| 47:v:127:PHE:O | 55:h:2601:A:O2' | 2.16 | 0.56 |
| 49:x:91:ASP:OD1 | 49:x:94:ASN:ND2 | 2.39 | 0.56 |
| 50:y:12:LYS:NZ | 55:h:1112:C:O2 | 2.39 | 0.56 |
| 55:h:340:A:H2' | 55:h:341:C:C6 | 2.40 | 0.56 |
| 55:h:747:A:H2 | 55:h:768:G:H21 | 1.52 | 0.56 |
| 55:h:1468:A:H2' | 55:h:1469:A:H8 | 1.70 | 0.56 |
| 55:h:1937:U:H2' | 55:h:1938:G:O4' | 2.06 | 0.56 |
| 56:A:187:U:O2 | 56:A:201:G:O6 | 2.24 | 0.56 |
| 56:A:390:U:H2' | 56:A:391:G:C8 | 2.41 | 0.56 |
| 11:I:32:ARG:HD3 | 11:I:97:GLY:HA3 | 1.87 | 0.56 |
| 21:S:36:ARG:NH2 | 21:S:72:GLY:O | 2.39 | 0.56 |
| 55:h:357:U:H4' | 55:h:358:G:O5' | 2.05 | 0.56 |
| 55:h:2044:U:H5' | 55:h:2195:U:H5' | 1.88 | 0.56 |
| 56:A:146:A:H2' | 56:A:147:U:H6 | 1.70 | 0.56 |
| 56:A:1011:U:H1' | 56:A:1013:G:H1 | 1.71 | 0.56 |
| 19:Q:29:SER:HB3 | 19:Q:37:VAL:HB | 1.86 | 0.56 |
| 42:q:56:VAL:HB | 42:q:124:VAL:HG23 | 1.88 | 0.56 |
| 55:h:740:A:O2' | 55:h:741:G:OP2 | 2.22 | 0.56 |
| 55:h:993:G:O2' | 55:h:994:A:O5' | 2.23 | 0.56 |
| 6:D:90:GLU:HA | 6:D:95:ASN:ND2 | 2.21 | 0.55 |
| 15:M:79:ARG:NH2 | 55:h:1003:A:N1 | 2.53 | 0.55 |
| 19:Q:20:ARG:HG3 | 19:Q:78:GLU:HB2 | 1.88 | 0.55 |
| 21:S:22:GLN:NE2 | 21:S:29:GLN:H | 2.04 | 0.55 |
| 38:k:101:ARG:NH1 | 55:h:774:G:OP1 | 2.38 | 0.55 |
| 45:t:124:LYS:NZ | 55:h:2691:C:O2 | 2.38 | 0.55 |
| 55:h:1551:U:H3' | 55:h:1552:A:H8 | 1.70 | 0.55 |
| 56:A:481:G:H2' | 56:A:482:A:H8 | 1.70 | 0.55 |
| 11:I:53:ARG:HH12 | 56:A:1229:A:H4' | 1.70 | 0.55 |
| 15:M:11:ARG:HH21 | 15:M:46:LYS:NZ | 2.04 | 0.55 |
| 22:T:29:ARG:NH2 | 56:A:1420:C:OP1 | 2.34 | 0.55 |
| 39:l:118:ILE:HD13 | 39:l:144:MET:HG2 | 1.89 | 0.55 |
| 49:x:50:ARG:O | 49:x:54:LYS:NZ | 2.39 | 0.55 |
| 55:h:2304:C:H2' | 55:h:2305:A:H8 | 1.71 | 0.55 |
| 56:A:485:G:H2' | 56:A:486:G:H8 | 1.71 | 0.55 |
| 10:H:103:VAL:HG23 | 10:H:114:THR:HG23 | 1.89 | 0.55 |
| 17:O:6:GLU:O | 17:O:9:LYS:HG2 | 2.07 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 38:k:156:VAL:HG12 | 38:k:158:ILE:HG12 | 1.88 | 0.55 |
| 45:t:56:ARG:NH1 | 55:h:2693:A:O2' | 2.39 | 0.55 |
| 55:h:994:A:N6 | 55:h:1014:G:O2' | 2.39 | 0.55 |
| 56:A:60:U:H2' | 56:A:61:G:C8 | 2.41 | 0.55 |
| 1:2:27:G:H2' | 1:2:28:G:C8 | 2.40 | 0.55 |
| 22:T:59:ASP:HB3 | 56:A:208:G:H4' | 1.88 | 0.55 |
| 36:i:31:LYS:NZ | 55:h:1647:G:N7 | 2.47 | 0.55 |
| 39:l:100:GLY:O | 39:l:103:MET:HG3 | 2.07 | 0.55 |
| 55:h:1630:U:H2' | 55:h:1631:A:C8 | 2.42 | 0.55 |
| 56:A:1177:A:O2' | 56:A:1178:A:OP1 | 2.24 | 0.55 |
| 56:A:1338:G:H2' | 56:A:1339:A:H8 | 1.71 | 0.55 |
| 25:W:190:LEU:O | 45:t:55:ASN:ND2 | 2.40 | 0.55 |
| 55:h:857:U:H2' | 55:h:858:A:C8 | 2.41 | 0.55 |
| 55:h:1704:U:H2' | 55:h:1705:C:C6 | 2.41 | 0.55 |
| 15:M:91:ARG:NH2 | 56:A:1207:C:OP1 | 2.36 | 0.55 |
| 25:W:158:THR:OG1 | 25:W:174:PRO:O | 2.13 | 0.55 |
| 55:h:551:G:N2 | 55:h:554:A:OP2 | 2.36 | 0.55 |
| 10:H:114:THR:HG22 | 10:H:116:ARG:H | 1.72 | 0.55 |
| 12:J:11:LYS:HG2 | 12:J:71:LYS:HG2 | 1.88 | 0.55 |
| 18:P:93:LEU:HA | 56:A:452:A:H62 | 1.72 | 0.55 |
| 35:g:28:LYS:NZ | 39:l:146:HIS:O | 2.32 | 0.55 |
| 55:h:301:U:H5' | 55:h:302:U:O5' | 2.07 | 0.55 |
| 56:A:1231:A:H2' | 56:A:1232:A:C8 | 2.41 | 0.55 |
| 6:D:90:GLU:HA | 6:D:95:ASN:HD22 | 1.72 | 0.55 |
| 55:h:1002:C:H2' | 55:h:1003:A:H5" | 1.89 | 0.55 |
| 55:h:1537:U:H2' | 55:h:1538:G:C8 | 2.42 | 0.55 |
| 56:A:1305:G:H2' | 56:A:1306:A:C8 | 2.41 | 0.55 |
| 5:C:186:LEU:HD13 | 5:C:199:LYS:HG2 | 1.88 | 0.55 |
| 12:J:56:HIS:CG | 12:J:56:HIS:O | 2.60 | 0.55 |
| 13:K:37:ASN:HA | 13:K:67:SER:HB3 | 1.88 | 0.55 |
| 46:u:54:HIS:CE1 | 46:u:65:GLU:HG2 | 2.41 | 0.55 |
| 55:h:389:G:N1 | 55:h:392:A:OP2 | 2.37 | 0.55 |
| 39:l:20:ARG:HE | 39:l:35:ILE:HG21 | 1.72 | 0.54 |
| 12:J:40:VAL:HB | 12:J:73:LEU:HB3 | 1.90 | 0.54 |
| 15:M:29:ARG:O | 15:M:33:ILE:HG13 | 2.07 | 0.54 |
| 36:i:108:PRO:HD2 | 36:i:111:LEU:HD22 | 1.89 | 0.54 |
| 6:D:13:ARG:NH1 | 56:A:427:U:OP1 | 2.40 | 0.54 |
| 6:D:84:ASN:OD1 | 6:D:87:ARG:NH1 | 2.40 | 0.54 |
| 23:U:43:LYS:NZ | 55:h:1815:G:OP2 | 2.34 | 0.54 |
| 52:o:57:PRO:HG2 | 52:o:73:LYS:HB2 | 1.89 | 0.54 |
| 53:p:93:ILE:HD11 | 53:p:103:LEU:HD11 | 1.88 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 54:1:10:LEU:HD23 | 54:1:80:PRO:HG3 | 1.89 | 0.54 |
| 55:h:1206:A:H4' | 55:h:1207:G:H5" | 1.89 | 0.54 |
| 55:h:1556:A:N6 | 55:h:1615:G:H1 | 2.05 | 0.54 |
| 4:B:48:C:OP2 | 47:v:14:ARG:NH1 | 2.41 | 0.54 |
| 17:O:64:ARG:HH21 | 56:A:561:G:H4' | 1.73 | 0.54 |
| 18:P:12:LYS:HZ2 | 56:A:47:C:H4' | 1.73 | 0.54 |
| 18:P:49:ILE:HD12 | 18:P:73:LEU:HD22 | 1.88 | 0.54 |
| 51:z:90:LYS:HB3 | 51:z:102:ARG:NH1 | 2.23 | 0.54 |
| 55:h:334:G:H1 | 55:h:347:U:H3 | 1.56 | 0.54 |
| 55:h:705:C:H2' | 55:h:706:G:H5" | 1.90 | 0.54 |
| 56:A:79:C:H2' | 56:A:80:C:C6 | 2.42 | 0.54 |
| 6:D:13:ARG:NE | 6:D:31:TYR:O | 2.41 | 0.54 |
| 9:G:111:ARG:HB2 | 9:G:119:ARG:HD2 | 1.89 | 0.54 |
| 28:Z:34:PHE:O | 28:Z:38:THR:HG23 | 2.08 | 0.54 |
| 55:h:1555:A:H61 | 55:h:1616:A:H2 | 1.56 | 0.54 |
| 4:B:10:G:O2' | 4:B:11:U:OP1 | 2.20 | 0.54 |
| 6:D:51:GLN:O | 6:D:55:LYS:HG3 | 2.08 | 0.54 |
| 56:A:29:C:H5' | 56:A:504:G:O2' | 2.08 | 0.54 |
| 55:h:2255:A:N3 | 55:h:2679:G:O2' | 2.33 | 0.54 |
| 56:A:1132:U:O2' | 56:A:1133:G:H5" | 2.06 | 0.54 |
| 6:D:105:THR:HG23 | 6:D:108:MET:H | 1.73 | 0.54 |
| 43:r:13:ASN:OD1 | 43:r:97:ARG:HG2 | 2.08 | 0.54 |
| 47:v:37:ARG:NH1 | 47:v:103:ASP:OD2 | 2.41 | 0.54 |
| 53:p:21:THR:OG1 | 53:p:82:VAL:O | 2.26 | 0.54 |
| 53:p:55:THR:HG21 | 55:h:1165:G:P | 2.48 | 0.54 |
| 55:h:2094:G:O2' | 55:h:2095:G:H8 | 1.90 | 0.54 |
| 56:A:1011:U:O2' | 56:A:1012:U:O5' | 2.26 | 0.54 |
| 56:A:1033:G:N7 | 56:A:1181:C:H5" | 2.23 | 0.54 |
| 4:B:11:U:O2' | 4:B:12:C:H5' | 2.08 | 0.54 |
| 12:J:80:THR:O | 12:J:83:THR:OG1 | 2.21 | 0.54 |
| 15:M:90:LEU:O | 15:M:94:ARG:HG2 | 2.08 | 0.54 |
| 22:T:84:ASN:ND2 | 56:A:184:U:O2' | 2.40 | 0.54 |
| 39:l:128:GLN:HB2 | 39:l:135:TYR:CE1 | 2.43 | 0.54 |
| 55:h:1714:A:H2' | 55:h:1715:A:C8 | 2.41 | 0.54 |
| 7:E:102:ILE:HD11 | 7:E:107:THR:HG23 | 1.90 | 0.54 |
| 36:i:177:MET:HE3 | 36:i:178:PRO:HD2 | 1.89 | 0.54 |
| 53:p:7:ALA:HA | 55:h:1164:A:N1 | 2.23 | 0.54 |
| 53:p:36:LEU:HD21 | 55:h:1203:A:H61 | 1.73 | 0.54 |
| 55:h:1343:G:H2' | 55:h:1345:G:C8 | 2.43 | 0.54 |
| 55:h:2745:C:O2' | 55:h:2788:A:N3 | 2.35 | 0.54 |
| 56:A:485:G:H2' | 56:A:486:G:C8 | 2.43 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:C:25:ASP:OD1 | 5:C:26:LYS:N | 2.37 | 0.53 |
| 10:H:15:ARG:NH2 | 10:H:77:LEU:O | 2.37 | 0.53 |
| 10:H:76:GLY:N | 10:H:132:TRP:O | 2.36 | 0.53 |
| 24:V:108:HIS:NE2 | 24:V:155:GLN:OE1 | 2.41 | 0.53 |
| 26:X:8:SER:O | 55:h:2479:G:N2 | 2.39 | 0.53 |
| 36:i:85:ASP:OD2 | 36:i:88:ARG:NH1 | 2.36 | 0.53 |
| 39:l:45:MET:SD | 39:l:64:LEU:HG | 2.48 | 0.53 |
| 41:n:5:LEU:O | 41:n:16:GLY:N | 2.25 | 0.53 |
| 42:q:102:GLU:O | 42:q:106:ILE:HG12 | 2.08 | 0.53 |
| 56:A:1497:A:H2' | 56:A:1498:C:C6 | 2.43 | 0.53 |
| 6:D:103:ALA:HB1 | 6:D:108:MET:HB2 | 1.89 | 0.53 |
| 17:O:43:LEU:HD13 | 17:O:53:ARG:HG2 | 1.89 | 0.53 |
| 48:w:26:ASN:OD1 | 48:w:84:ASP:HB2 | 2.07 | 0.53 |
| 55:h:1546:A:H2' | 55:h:1547:G:C8 | 2.43 | 0.53 |
| 56:A:45:G:H2' | 56:A:46:G:H8 | 1.73 | 0.53 |
| 9:G:79:ARG:HB2 | 9:G:84:THR:HG22 | 1.90 | 0.53 |
| 11:I:119:LYS:NZ | 56:A:1158:G:OP2 | 2.41 | 0.53 |
| 24:V:130:THR:HG22 | 24:V:132:LYS:H | 1.72 | 0.53 |
| 34:f:17:ILE:HD12 | 34:f:19:ARG:HG3 | 1.89 | 0.53 |
| 37:j:148:PRO:O | 55:h:2735:U:O2' | 2.22 | 0.53 |
| 52:o:26:VAL:HG22 | 52:o:30:LEU:HD23 | 1.90 | 0.53 |
| 52:o:44:TYR:CZ | 52:o:48:THR:HG21 | 2.44 | 0.53 |
| 53:p:54:ASN:HD22 | 55:h:1225:G:H5" | 1.73 | 0.53 |
| 55:h:1396:G:H2' | 55:h:1397:U:C6 | 2.42 | 0.53 |
| 55:h:2136:A:O2' | 56:A:1478:G:O2' | 2.19 | 0.53 |
| 55:h:2538:A:H2' | 55:h:2539:G:H8 | 1.73 | 0.53 |
| 56:A:457:A:O2' | 56:A:458:A:O5' | 2.19 | 0.53 |
| 1:2:16:U:O3' | 1:2:17:C:H2' | 2.08 | 0.53 |
| 17:O:88:ARG:NH2 | 55:h:831:A:OP2 | 2.34 | 0.53 |
| 23:U:27:ASN:ND2 | 23:U:90:SER:HB2 | 2.24 | 0.53 |
| 55:h:1436:C:O2' | 55:h:1437:A:OP1 | 2.25 | 0.53 |
| 55:h:1640:A:H2' | 55:h:1642:G:N7 | 2.23 | 0.53 |
| 55:h:2297:U:H2' | 55:h:2298:U:C6 | 2.43 | 0.53 |
| 7:E:135:ALA:HB1 | 7:E:162:VAL:HG23 | 1.90 | 0.53 |
| 7:E:178:VAL:O | 7:E:182:ARG:HG2 | 2.09 | 0.53 |
| 11:I:41:LEU:HD21 | 11:I:81:PHE:CD1 | 2.43 | 0.53 |
| 26:X:53:ARG:NE | 26:X:57:ASP:OD1 | 2.41 | 0.53 |
| 55:h:2224:C:O2' | 55:h:2913:U:OP2 | 2.26 | 0.53 |
| 55:h:2294:A:H2' | 55:h:2295:C:C6 | 2.43 | 0.53 |
| 55:h:2378:U:H3' | 55:h:2379:G:H8 | 1.74 | 0.53 |
| 12:J:56:HIS:ND1 | 56:A:955:G:H1' | 2.24 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 13:K:44:THR:HG22 | 13:K:50:VAL:HG12 | 1.90 | 0.53 |
| 52:o:14:GLN:N | 55:h:1179:U:O4 | 2.41 | 0.53 |
| 55:h:1624:U:O2' | 55:h:1625:G:H8 | 1.91 | 0.53 |
| 15:M:22:ILE:HG22 | 15:M:24:GLY:H | 1.74 | 0.53 |
| 24:V:136:MET:HE2 | 24:V:136:MET:HA | 1.90 | 0.53 |
| 35:g:16:CYS:SG | 35:g:38:CYS:HB3 | 2.49 | 0.53 |
| 41:n:124:ILE:HG22 | 41:n:125:LYS:N | 2.24 | 0.53 |
| 53:p:40:ARG:HE | 53:p:49:TYR:HB3 | 1.72 | 0.53 |
| 55:h:635:G:O2' | 55:h:636:U:O4' | 2.23 | 0.53 |
| 56:A:1457:G:H2' | 56:A:1458:G:C8 | 2.44 | 0.53 |
| 6:D:31:TYR:OH | 56:A:426:U:OP1 | 2.24 | 0.53 |
| 26:X:15:ASP:OD1 | 26:X:16:SER:N | 2.41 | 0.53 |
| 52:o:119:ASN:HA | 53:p:41:ARG:HH21 | 1.72 | 0.53 |
| 56:A:523:U:H2' | 56:A:524:C:C6 | 2.44 | 0.53 |
| 56:A:1011:U:O2' | 56:A:1013:G:N1 | 2.42 | 0.53 |
| 24:V:79:SER:O | 24:V:83:GLU:HG3 | 2.09 | 0.53 |
| 29:a:11:SER:OG | 29:a:12:THR:N | 2.42 | 0.53 |
| 36:i:177:MET:HE3 | 36:i:178:PRO:CD | 2.38 | 0.53 |
| 39:l:138:GLY:HA3 | 55:h:2529:A:H5" | 1.91 | 0.53 |
| 53:p:85:GLU:OE2 | 53:p:87:VAL:HG12 | 2.09 | 0.53 |
| 55:h:502:C:H2' | 55:h:503:A:H8 | 1.74 | 0.53 |
| 55:h:2333:G:H4' | 55:h:2334:U:O5' | 2.09 | 0.53 |
| 56:A:39:G:H2' | 56:A:40:C:C6 | 2.44 | 0.53 |
| 5:C:11:ARG:NH2 | 5:C:175:LEU:O | 2.38 | 0.53 |
| 11:I:72:LEU:HD23 | 11:I:107:LEU:HD11 | 1.91 | 0.53 |
| 52:o:93:GLU:OE2 | 52:o:96:LYS:NZ | 2.38 | 0.53 |
| 8:F:11:ASP:OD2 | 8:F:13:THR:OG1 | 2.23 | 0.52 |
| 8:F:48:LEU:HD13 | 8:F:52:ILE:HG22 | 1.91 | 0.52 |
| 11:I:140:LYS:NZ | 56:A:1333:U:O4 | 2.31 | 0.52 |
| 24:V:104:PHE:HA | 24:V:107:VAL:HG22 | 1.90 | 0.52 |
| 25:W:146:VAL:HG11 | 25:W:157:ILE:HG21 | 1.89 | 0.52 |
| 54:1:44:HIS:ND1 | 54:1:59:ILE:HD12 | 2.24 | 0.52 |
| 55:h:1717:U:H5" | 55:h:1718:C:H5 | 1.74 | 0.52 |
| 55:h:2378:U:H2' | 55:h:2379:G:O4' | 2.09 | 0.52 |
| 56:A:422:C:H4' | 56:A:423:G:O5' | 2.09 | 0.52 |
| 56:A:612:U:H5' | 56:A:613:G:C8 | 2.44 | 0.52 |
| 13:K:50:VAL:HG22 | 56:A:664:U:O2 | 2.08 | 0.52 |
| 19:Q:62:HIS:HB2 | 19:Q:86:LYS:HZ1 | 1.73 | 0.52 |
| 52:o:126:ALA:HA | 52:o:129:ILE:HD12 | 1.92 | 0.52 |
| 55:h:1564:A:O2' | 55:h:1565:A:O4' | 2.21 | 0.52 |
| 56:A:21:U:H2' | 56:A:22:C:H6 | 1.73 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:996:G:N2 | 56:A:999:A:OP2 | 2.38 | 0.52 |
| 19:Q:72:ASP:HB3 | 19:Q:93:ILE:HD11 | 1.90 | 0.52 |
| 43:r:112:MET:HA | 43:r:115:VAL:HG22 | 1.91 | 0.52 |
| 55:h:1679:A:H4' | 55:h:1679:A:OP1 | 2.09 | 0.52 |
| 56:A:437:U:H2' | 56:A:438:U:O4' | 2.09 | 0.52 |
| 6:D:76:ARG:NH2 | 56:A:593:C:H5' | 2.24 | 0.52 |
| 8:F:30:ILE:HG22 | 8:F:36:THR:OG1 | 2.09 | 0.52 |
| 25:W:125:THR:OG1 | 25:W:180:ASN:O | 2.24 | 0.52 |
| 29:a:29:LYS:NZ | 55:h:1048:A:OP1 | 2.36 | 0.52 |
| 39:l:76:ARG:HB3 | 39:l:89:GLY:HA2 | 1.91 | 0.52 |
| 55:h:680:U:H2' | 55:h:681:C:C6 | 2.44 | 0.52 |
| 55:h:1435:C:C5 | 55:h:1444:U:H5" | 2.44 | 0.52 |
| 56:A:485:G:O2' | 56:A:486:G:OP1 | 2.27 | 0.52 |
| 5:C:189:ALA:N | 5:C:196:ILE:O | 2.40 | 0.52 |
| 16:N:21:TYR:HE2 | 16:N:23:ARG:HE | 1.58 | 0.52 |
| 20:R:45:ARG:HH21 | 20:R:81:SER:C | 2.18 | 0.52 |
| 24:V:101:LEU:HB3 | 24:V:179:LEU:HD12 | 1.92 | 0.52 |
| 44:s:32:THR:HG22 | 44:s:35:ARG:H | 1.75 | 0.52 |
| 50:y:75:ILE:HB | 50:y:88:GLN:HB3 | 1.90 | 0.52 |
| 55:h:1174:G:H5" | 55:h:1175:A:H5' | 1.91 | 0.52 |
| 56:A:190:U:H2' | 56:A:191:C:C6 | 2.45 | 0.52 |
| 11:I:46:GLY:HA3 | 11:I:79:ASP:HA | 1.92 | 0.52 |
| 14:L:110:ARG:HG3 | 14:L:114:ARG:HG2 | 1.92 | 0.52 |
| 25:W:117:ASP:N | 25:W:149:GLU:OE2 | 2.34 | 0.52 |
| 42:q:27:ARG:NH1 | 55:h:1130:C:O2 | 2.43 | 0.52 |
| 55:h:2348:G:O2' | 55:h:2396:A:N6 | 2.41 | 0.52 |
| 56:A:1117:U:H1' | 56:A:1118:A:H5" | 1.92 | 0.52 |
| 56:A:1395:C:H2' | 56:A:1396:A:C8 | 2.45 | 0.52 |
| 6:D:74:ALA:HB3 | 6:D:85:LEU:HD22 | 1.91 | 0.52 |
| 9:G:49:GLN:OE1 | 9:G:53:LYS:NZ | 2.41 | 0.52 |
| 39:l:18:GLU:HA | 39:l:21:GLU:OE2 | 2.09 | 0.52 |
| 56:A:523:U:H2' | 56:A:524:C:H6 | 1.74 | 0.52 |
| 21:S:12:ASP:OD1 | 21:S:12:ASP:N | 2.42 | 0.52 |
| 36:i:256:ARG:HH11 | 36:i:256:ARG:HG3 | 1.75 | 0.52 |
| 39:l:111:ILE:HD11 | 39:l:181:GLY:C | 2.35 | 0.52 |
| 56:A:79:C:H2' | 56:A:80:C:H6 | 1.75 | 0.52 |
| 56:A:1337:A:H2' | 56:A:1338:G:H8 | 1.75 | 0.52 |
| 5:C:62:ARG:NH2 | 5:C:99:GLN:OE1 | 2.43 | 0.52 |
| 55:h:453:U:H2' | 55:h:454:U:C6 | 2.45 | 0.52 |
| 55:h:2375:G:H2' | 55:h:2376:G:C8 | 2.45 | 0.52 |
| 56:A:1434:U:O2' | 56:A:1435:U:H5" | 2.10 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 4:B:10:G:O2' | 4:B:11:U:H5' | 2.10 | 0.52 |
| 8:F:28:ASN:HA | 8:F:31:ARG:HG2 | 1.91 | 0.52 |
| 11:I:45:THR:HG23 | 11:I:47:GLN:OE1 | 2.10 | 0.52 |
| 14:L:86:ARG:NH1 | 14:L:87:VAL:O | 2.43 | 0.52 |
| 19:Q:83:SER:O | 19:Q:87:ARG:NH1 | 2.42 | 0.52 |
| 51:z:99:ARG:HH21 | 55:h:862:U:H4' | 1.75 | 0.52 |
| 56:A:1104:G:O2' | 56:A:1126:G:N1 | 2.42 | 0.52 |
| 56:A:1414:C:H2' | 56:A:1415:G:O4' | 2.10 | 0.52 |
| 1:2:5:G:H2' | 1:2:6:G:H8 | 1.75 | 0.51 |
| 51:z:72:ASP:OD2 | 51:z:74:SER:OG | 2.26 | 0.51 |
| 55:h:621:U:H2' | 55:h:622:C:C6 | 2.44 | 0.51 |
| 56:A:969:G:H2' | 56:A:970:G:C8 | 2.45 | 0.51 |
| 7:E:130:VAL:O | 7:E:137:ARG:NH2 | 2.42 | 0.51 |
| 8:F:16:GLU:OE2 | 8:F:45:ARG:NE | 2.27 | 0.51 |
| 8:F:74:GLU:O | 8:F:78:GLN:HG2 | 2.10 | 0.51 |
| 24:V:29:ARG:HG2 | 24:V:29:ARG:HH11 | 1.74 | 0.51 |
| 30:b:5:LYS:C | 30:b:6:ARG:HD2 | 2.35 | 0.51 |
| 40:m:2:SER:OG | 40:m:3:ARG:N | 2.44 | 0.51 |
| 55:h:196:A:H62 | 55:h:2654:A:H2' | 1.75 | 0.51 |
| 5:C:125:ASN:O | 5:C:126:ARG:HD2 | 2.10 | 0.51 |
| 32:d:14:ARG:NH2 | 55:h:885:G:OP2 | 2.44 | 0.51 |
| 55:h:290:C:H41 | 55:h:299:G:H21 | 1.58 | 0.51 |
| 55:h:1011:A:C6 | 55:h:1012:C:H1' | 2.45 | 0.51 |
| 55:h:2851:G:N2 | 55:h:3001:G:OP2 | 2.42 | 0.51 |
| 40:m:169:GLN:O | 40:m:169:GLN:HG2 | 2.11 | 0.51 |
| 52:o:51:GLN:HG3 | 52:o:52:ARG:N | 2.25 | 0.51 |
| 55:h:1476:G:H2' | 55:h:1477:C:C6 | 2.46 | 0.51 |
| 55:h:2569:G:N3 | 55:h:2605:C:H2' | 2.26 | 0.51 |
| 56:A:927:G:C2 | 56:A:928:A:C8 | 2.98 | 0.51 |
| 40:m:158:TYR:O | 40:m:172:ARG:NH2 | 2.37 | 0.51 |
| 41:n:114:LYS:NZ | 55:h:282:A:OP1 | 2.39 | 0.51 |
| 55:h:742:G:O2' | 55:h:2575:G:OP1 | 2.27 | 0.51 |
| 55:h:855:C:H5' | 55:h:2001:A:H3' | 1.93 | 0.51 |
| 55:h:1541:G:H1 | 55:h:1631:A:N6 | 2.08 | 0.51 |
| 55:h:2090:U:N3 | 55:h:2093:G:N1 | 2.59 | 0.51 |
| 55:h:2936:C:OP1 | 55:h:2938:G:H4' | 2.10 | 0.51 |
| 56:A:737:U:H2' | 56:A:738:G:O4' | 2.10 | 0.51 |
| 6:D:57:ARG:HH21 | 6:D:63:MET:HA | 1.74 | 0.51 |
| 8:F:9:ILE:HD12 | 8:F:87:ARG:HB3 | 1.92 | 0.51 |
| 22:T:26:SER:OG | 56:A:1442:G:H5" | 2.11 | 0.51 |
| 29:a:8:GLN:HB2 | 29:a:28:LEU:HD13 | 1.93 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:C:163:SER:OG | 56:A:1036:U:H5' | 2.10 | 0.51 |
| 6:D:10:ARG:HH21 | 56:A:522:G:P | 2.34 | 0.51 |
| 15:M:103:THR:HG22 | 56:A:1207:C:H2' | 1.91 | 0.51 |
| 21:S:77:THR:HG21 | 56:A:1202:G:O3' | 2.10 | 0.51 |
| 24:V:57:VAL:O | 24:V:61:VAL:HG12 | 2.11 | 0.51 |
| 26:X:73:ARG:HH12 | 55:h:2558:C:N4 | 2.07 | 0.51 |
| 40:m:177:THR:HG22 | 55:h:2755:A:H62 | 1.75 | 0.51 |
| 45:t:34:ILE:HG13 | 45:t:118:LEU:HD22 | 1.92 | 0.51 |
| 45:t:74:LEU:HB2 | 45:t:92:TRP:HB2 | 1.93 | 0.51 |
| 49:x:7:ALA:O | 49:x:11:GLN:HG2 | 2.09 | 0.51 |
| 55:h:672:C:H2' | 55:h:673:C:C6 | 2.46 | 0.51 |
| 55:h:2386:U:H3' | 55:h:2387:U:H4' | 1.93 | 0.51 |
| 56:A:1076:C:H2' | 56:A:1077:C:H6 | 1.76 | 0.51 |
| 56:A:1199:C:H2' | 56:A:1200:A:H8 | 1.74 | 0.51 |
| 51:z:18:ARG:NE | 55:h:1436:C:O2' | 2.44 | 0.51 |
| 52:o:20:ALA:HB1 | 52:o:41:CYS:HB2 | 1.93 | 0.51 |
| 52:o:79:LYS:HA | 52:o:82:LEU:HD23 | 1.92 | 0.51 |
| 55:h:978:A:H2' | 55:h:979:G:C8 | 2.45 | 0.51 |
| 56:A:263:A:H2' | 56:A:264:U:C6 | 2.45 | 0.51 |
| 56:A:632:U:O4 | 56:A:732:G:O2' | 2.24 | 0.51 |
| 9:G:111:ARG:NH2 | 9:G:113:GLU:OE2 | 2.39 | 0.51 |
| 14:L:67:ILE:HG12 | 14:L:97:ILE:HD12 | 1.93 | 0.51 |
| 18:P:24:ASP:OD1 | 56:A:229:U:O2' | 2.28 | 0.51 |
| 34:f:19:ARG:NE | 55:h:2980:U:OP2 | 2.41 | 0.51 |
| 41:n:3:LEU:HD13 | 41:n:36:ALA:HB1 | 1.93 | 0.51 |
| 44:s:79:ASN:HA | 44:s:113:LEU:O | 2.11 | 0.51 |
| 44:s:97:GLU:O | 44:s:101:LYS:HG2 | 2.11 | 0.51 |
| 53:p:25:VAL:HG11 | 53:p:73:PHE:HE1 | 1.75 | 0.51 |
| 55:h:996:G:H2' | 55:h:997:G:C8 | 2.46 | 0.51 |
| 55:h:1541:G:O6 | 55:h:1629:G:O2' | 2.29 | 0.51 |
| 55:h:1544:U:H2' | 55:h:1545:C:C6 | 2.46 | 0.51 |
| 55:h:1606:G:H2' | 55:h:1607:C:C6 | 2.45 | 0.51 |
| 55:h:1790:A:H2' | 55:h:1791:A:C8 | 2.45 | 0.51 |
| 56:A:716:U:H2' | 56:A:717:C:H6 | 1.74 | 0.51 |
| 18:P:100:PRO:HB2 | 18:P:105:LEU:HD11 | 1.93 | 0.51 |
| 30:b:45:LYS:NZ | 55:h:3104:A:P | 2.84 | 0.51 |
| 36:i:181:GLU:HB2 | 36:i:270:ARG:O | 2.11 | 0.51 |
| 55:h:1634:C:H2' | 55:h:1635:A:H5' | 1.93 | 0.51 |
| 56:A:299:G:H2' | 56:A:300:A:C8 | 2.46 | 0.51 |
| 32:d:21:PHE:HB2 | 32:d:46:THR:HG21 | 1.92 | 0.50 |
| 37:j:63:ILE:HD11 | 55:h:3032:G:H5" | 1.93 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 38:k:143:THR:O | 38:k:147:THR:HG23 | 2.11 | 0.50 |
| 39:l:44:ASN:OD1 | 39:l:160:ASP:HB2 | 2.11 | 0.50 |
| 43:r:71:ARG:HH22 | 43:r:122:LEU:C | 2.19 | 0.50 |
| 50:y:77:LYS:HD2 | 50:y:86:LYS:HE3 | 1.92 | 0.50 |
| 51:z:99:ARG:NH2 | 55:h:862:U:H4' | 2.26 | 0.50 |
| 53:p:54:ASN:O | 53:p:58:LYS:HG2 | 2.11 | 0.50 |
| 55:h:1002:C:O2' | 55:h:1003:A:OP1 | 2.23 | 0.50 |
| 55:h:2515:U:OP1 | 55:h:2604:U:O2' | 2.27 | 0.50 |
| 7:E:106:ILE:HB | 7:E:172:LEU:HD21 | 1.93 | 0.50 |
| 9:G:3:ARG:NH1 | 56:A:915:G:N7 | 2.60 | 0.50 |
| 12:J:57:LYS:NZ | 56:A:951:A:OP1 | 2.44 | 0.50 |
| 21:S:19:VAL:HG11 | 21:S:44:PHE:CE1 | 2.45 | 0.50 |
| 24:V:140:GLU:O | 24:V:144:LEU:HG | 2.12 | 0.50 |
| 43:r:93:PRO:HG3 | 43:r:114:ILE:CD1 | 2.41 | 0.50 |
| 52:o:80:LEU:O | 52:o:83:LYS:HG3 | 2.10 | 0.50 |
| 55:h:499:G:OP2 | 55:h:2630:A:O2' | 2.29 | 0.50 |
| 55:h:502:C:H2' | 55:h:503:A:C8 | 2.46 | 0.50 |
| 55:h:1656:A:H2' | 55:h:1657:G:C8 | 2.46 | 0.50 |
| 10:H:39:ILE:HD12 | 10:H:42:ARG:HH22 | 1.76 | 0.50 |
| 24:V:66:THR:HA | 24:V:89:MET:HE1 | 1.92 | 0.50 |
| 24:V:126:PHE:HD1 | 24:V:134:ILE:HD12 | 1.76 | 0.50 |
| 37:j:169:ARG:NH2 | 55:h:3046:C:H41 | 2.10 | 0.50 |
| 40:m:46:ALA:HB3 | 40:m:50:ALA:HB3 | 1.93 | 0.50 |
| 55:h:2093:G:O2' | 55:h:2094:G:OP2 | 2.26 | 0.50 |
| 8:F:7:MET:HB3 | 8:F:89:LYS:HB3 | 1.93 | 0.50 |
| 15:M:23:TYR:HB3 | 15:M:67:GLU:HB3 | 1.93 | 0.50 |
| 55:h:1087:G:H2' | 55:h:1088:U:C6 | 2.46 | 0.50 |
| 39:l:172:GLU:N | 39:l:172:GLU:OE2 | 2.43 | 0.50 |
| 44:s:105:ARG:HH11 | 55:h:720:C:N4 | 2.10 | 0.50 |
| 51:z:32:ARG:NH1 | 51:z:81:VAL:O | 2.45 | 0.50 |
| 55:h:1543:A:H2 | 55:h:1628:A:C8 | 2.29 | 0.50 |
| 55:h:1557:C:H2' | 55:h:1558:C:C6 | 2.47 | 0.50 |
| 55:h:1565:A:C5 | 55:h:1566:A:H1' | 2.46 | 0.50 |
| 55:h:1640:A:O2' | 55:h:1641:U:OP1 | 2.25 | 0.50 |
| 55:h:2412:U:H2' | 55:h:2413:G:H8 | 1.77 | 0.50 |
| 56:A:45:G:H2' | 56:A:46:G:C8 | 2.47 | 0.50 |
| 56:A:407:A:H2' | 56:A:408:G:H8 | 1.74 | 0.50 |
| 56:A:555:G:O2' | 56:A:801:G:OP2 | 2.26 | 0.50 |
| 56:A:800:U:H4' | 56:A:801:G:OP2 | 2.10 | 0.50 |
| 56:A:1206:U:O2 | 56:A:1206:U:H2' | 2.10 | 0.50 |
| 18:P:17:GLN:HG2 | 18:P:41:HIS:CD2 | 2.47 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 19:Q:20:ARG:CG | 19:Q:78:GLU:HB2 | 2.41 | 0.50 |
| 30:b:48:ARG:HD3 | 55:h:3106:C:H41 | 1.77 | 0.50 |
| 55:h:2321:U:H2' | 55:h:2322:C:C6 | 2.46 | 0.50 |
| 55:h:2467:U:H2' | 55:h:2468:U:C6 | 2.46 | 0.50 |
| 56:A:725:A:H2' | 56:A:726:G:C8 | 2.46 | 0.50 |
| 15:M:5:VAL:HG11 | 15:M:60:ILE:HD11 | 1.94 | 0.50 |
| 22:T:7:GLN:NE2 | 56:A:332:G:O4' | 2.42 | 0.50 |
| 41:n:30:LEU:HB3 | 41:n:36:ALA:HB3 | 1.94 | 0.50 |
| 47:v:73:ILE:HG22 | 47:v:75:GLY:H | 1.77 | 0.50 |
| 55:h:1544:U:N3 | 55:h:1626:G:N1 | 2.60 | 0.50 |
| 56:A:163:G:H2' | 56:A:164:G:H8 | 1.77 | 0.50 |
| 5:C:64:ARG:NH1 | 5:C:66:ASP:OD2 | 2.45 | 0.50 |
| 17:O:78:TYR:OH | 17:O:89:ARG:O | 2.21 | 0.50 |
| 36:i:41:GLY:O | 36:i:43:ARG:NH1 | 2.45 | 0.50 |
| 39:l:57:ILE:HG13 | 39:l:91:PRO:HB2 | 1.92 | 0.50 |
| 41:n:100:VAL:O | 41:n:104:ILE:HD12 | 2.12 | 0.50 |
| 55:h:1146:A:H2' | 55:h:1147:A:C8 | 2.47 | 0.50 |
| 55:h:1606:G:H2' | 55:h:1607:C:H6 | 1.77 | 0.50 |
| 56:A:1237:C:H5' | 56:A:1239:G:H1' | 1.93 | 0.50 |
| 39:l:129:PHE:CE1 | 39:l:135:TYR:HB2 | 2.47 | 0.50 |
| 55:h:286:G:H21 | 55:h:287:A:H62 | 1.59 | 0.50 |
| 55:h:2074:G:N2 | 55:h:2110:U:O4 | 2.45 | 0.50 |
| 56:A:246:A:C2 | 56:A:282:A:C5 | 2.99 | 0.50 |
| 56:A:458:A:H4' | 56:A:459:G:O4' | 2.11 | 0.50 |
| 19:Q:48:LEU:HD21 | 56:A:544:C:C6 | 2.47 | 0.49 |
| 49:x:97:GLU:O | 49:x:101:SER:HB3 | 2.12 | 0.49 |
| 54:1:43:LYS:NZ | 55:h:568:A:OP2 | 2.38 | 0.49 |
| 55:h:1194:C:H2' | 55:h:1195:A:H8 | 1.70 | 0.49 |
| 55:h:1627:U:H2' | 55:h:1628:A:H8 | 1.76 | 0.49 |
| 55:h:2019:A:H2' | 55:h:2020:A:C8 | 2.46 | 0.49 |
| 56:A:1098:U:H2' | 56:A:1099:C:H6 | 1.77 | 0.49 |
| 6:D:120:VAL:HG22 | 6:D:138:ILE:HG13 | 1.94 | 0.49 |
| 24:V:110:ARG:HH22 | 56:A:1084:G:P | 2.34 | 0.49 |
| 24:V:196:VAL:HG12 | 24:V:199:PRO:HG3 | 1.93 | 0.49 |
| 25:W:109:GLU:HA | 25:W:132:GLU:HA | 1.94 | 0.49 |
| 43:r:89:ASN:OD1 | 43:r:90:ASP:N | 2.46 | 0.49 |
| 55:h:928:U:H2' | 55:h:929:C:H6 | 1.76 | 0.49 |
| 55:h:1284:A:H2' | 55:h:1285:G:H8 | 1.77 | 0.49 |
| 55:h:1561:C:H2' | 55:h:1562:C:H6 | 1.77 | 0.49 |
| 55:h:2538:A:H2' | 55:h:2539:G:C8 | 2.47 | 0.49 |
| 55:h:2730:U:O2 | 55:h:2730:U:H2' | 2.12 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:157:A:H2' | 56:A:158:A:O4' | 2.12 | 0.49 |
| 56:A:1076:C:H2' | 56:A:1077:C:C6 | 2.47 | 0.49 |
| 36:i:101:GLU:OE1 | 36:i:103:ARG:NE | 2.45 | 0.49 |
| 55:h:256:A:H2' | 55:h:257:A:H8 | 1.75 | 0.49 |
| 55:h:287:A:P | 55:h:287:A:H8 | 2.35 | 0.49 |
| 55:h:302:U:H4' | 55:h:303:G:OP1 | 2.12 | 0.49 |
| 55:h:747:A:N6 | 55:h:768:G:HO2' | 2.10 | 0.49 |
| 4:B:28:A:H5' | 47:v:46:HIS:HD2 | 1.77 | 0.49 |
| 6:D:71:TYR:CG | 6:D:199:TYR:HD2 | 2.31 | 0.49 |
| 6:D:147:THR:OG1 | 56:A:437:U:OP1 | 2.31 | 0.49 |
| 7:E:132:ALA:HB2 | 7:E:150:ALA:HB3 | 1.94 | 0.49 |
| 18:P:41:HIS:HB2 | 18:P:48:LEU:HB3 | 1.93 | 0.49 |
| 18:P:74:LEU:HD12 | 18:P:79:ASP:HB2 | 1.94 | 0.49 |
| 35:g:36:GLU:OE1 | 35:g:36:GLU:N | 2.43 | 0.49 |
| 36:i:54:LYS:NZ | 55:h:2032:A:OP2 | 2.44 | 0.49 |
| 38:k:141:ALA:HB1 | 38:k:169:VAL:HG12 | 1.95 | 0.49 |
| 40:m:88:MET:HE2 | 40:m:165:TYR:CE1 | 2.47 | 0.49 |
| 53:p:94:LYS:HZ1 | 53:p:124:ALA:HB3 | 1.78 | 0.49 |
| 55:h:1541:G:H1 | 55:h:1631:A:H61 | 1.59 | 0.49 |
| 55:h:1564:A:H2' | 55:h:1565:A:C8 | 2.47 | 0.49 |
| 55:h:2738:U:H2' | 55:h:2739:C:C6 | 2.48 | 0.49 |
| 56:A:1125:G:H2' | 56:A:1126:G:H5" | 1.93 | 0.49 |
| 56:A:1219:A:H5' | 56:A:1318:C:H41 | 1.77 | 0.49 |
| 6:D:66:GLN:NE2 | 56:A:402:G:OP1 | 2.45 | 0.49 |
| 14:L:42:PRO:CB | 14:L:89:ASP:HB3 | 2.39 | 0.49 |
| 55:h:256:A:H2' | 55:h:257:A:C8 | 2.48 | 0.49 |
| 56:A:175:A:H2' | 56:A:176:A:H8 | 1.77 | 0.49 |
| 56:A:191:C:H2' | 56:A:192:G:O4' | 2.13 | 0.49 |
| 56:A:1486:A:H2 | 56:A:1489:G:N1 | 2.07 | 0.49 |
| 4:B:1:G:H2' | 4:B:2:U:C6 | 2.47 | 0.49 |
| 6:D:4:TYR:CZ | 6:D:11:LYS:HE2 | 2.47 | 0.49 |
| 18:P:12:LYS:HB2 | 18:P:15:ASN:OD1 | 2.13 | 0.49 |
| 19:Q:38:VAL:O | 19:Q:59:VAL:N | 2.37 | 0.49 |
| 45:t:58:ILE:HD11 | 45:t:108:TYR:CG | 2.47 | 0.49 |
| 47:v:9:ASN:OD1 | 47:v:10:ILE:N | 2.46 | 0.49 |
| 54:1:8:THR:O | 54:1:74:VAL:HG12 | 2.13 | 0.49 |
| 55:h:997:G:H21 | 55:h:1011:A:H61 | 1.60 | 0.49 |
| 55:h:1523:U:H2' | 55:h:1524:G:C8 | 2.46 | 0.49 |
| 56:A:993:G:H1 | 56:A:1002:U:H3 | 1.59 | 0.49 |
| 6:D:152:ILE:O | 6:D:156:THR:HG22 | 2.12 | 0.49 |
| 8:F:44:GLY:HA2 | 8:F:60:TYR:H | 1.77 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:I:99:LEU:O | 11:I:103:ILE:HG12 | 2.12 | 0.49 |
| 19:Q:62:HIS:HB2 | 19:Q:86:LYS:NZ | 2.28 | 0.49 |
| 22:T:36:ARG:HH11 | 22:T:36:ARG:HG3 | 1.76 | 0.49 |
| 38:k:189:LEU:HD13 | 44:s:9:LEU:HD11 | 1.94 | 0.49 |
| 55:h:89:A:O2' | 55:h:90:C:OP1 | 2.29 | 0.49 |
| 55:h:2211:C:H2' | 55:h:2212:A:H8 | 1.77 | 0.49 |
| 55:h:2367:G:H2' | 55:h:2369:C:H5' | 1.93 | 0.49 |
| 56:A:420:U:H2' | 56:A:422:C:H5 | 1.78 | 0.49 |
| 56:A:928:A:H2' | 56:A:929:G:H8 | 1.77 | 0.49 |
| 11:I:133:ARG:HD2 | 16:N:61:TRP:CZ2 | 2.48 | 0.49 |
| 30:b:29:THR:HG22 | 55:h:3108:G:OP1 | 2.13 | 0.49 |
| 42:q:147:GLN:HE21 | 55:h:1131:G:H1' | 1.78 | 0.49 |
| 55:h:2288:C:H2' | 55:h:2289:C:C6 | 2.47 | 0.49 |
| 55:h:2510:A:H4' | 55:h:2511:A:O4' | 2.12 | 0.49 |
| 56:A:452:A:O2' | 56:A:453:G:OP1 | 2.30 | 0.49 |
| 56:A:846:A:H2' | 56:A:847:A:C8 | 2.48 | 0.49 |
| 4:B:15:U:OP2 | 4:B:71:C:O2' | 2.29 | 0.49 |
| 8:F:92:ARG:HE | 8:F:94:ASP:HB3 | 1.77 | 0.49 |
| 18:P:10:LEU:HB2 | 18:P:17:GLN:O | 2.12 | 0.49 |
| 39:l:128:GLN:O | 55:h:2527:G:O2' | 2.31 | 0.49 |
| 44:s:21:ARG:HD2 | 55:h:1364:U:O4 | 2.12 | 0.49 |
| 48:w:106:LYS:NZ | 56:A:1414:C:H5" | 2.28 | 0.49 |
| 55:h:1545:C:H2' | 55:h:1546:A:C8 | 2.47 | 0.49 |
| 55:h:1758:G:H2' | 55:h:1759:A:C8 | 2.47 | 0.49 |
| 55:h:2261:U:H2' | 55:h:2262:C:C6 | 2.48 | 0.49 |
| 55:h:2778:U:H2' | 55:h:2779:U:C6 | 2.48 | 0.49 |
| 56:A:505:C:H2' | 56:A:506:C:C6 | 2.47 | 0.49 |
| 56:A:1296:C:H2' | 56:A:1297:U:H6 | 1.77 | 0.49 |
| 56:A:1458:G:H2' | 56:A:1459:G:O4' | 2.13 | 0.49 |
| 11:I:115:ARG:NH2 | 56:A:1160:A:OP2 | 2.41 | 0.49 |
| 14:L:9:ARG:HH22 | 56:A:863:G:P | 2.36 | 0.49 |
| 22:T:31:ALA:HB1 | 22:T:54:THR:HG22 | 1.95 | 0.49 |
| 42:q:25:LEU:HD13 | 42:q:62:ILE:HG12 | 1.95 | 0.49 |
| 47:v:82:VAL:O | 47:v:86:GLN:HG3 | 2.13 | 0.49 |
| 49:x:13:LYS:NZ | 55:h:1366:A:OP1 | 2.36 | 0.49 |
| 54:1:12:ILE:HG13 | 54:1:72:MET:HG3 | 1.94 | 0.49 |
| 56:A:321:A:H2' | 56:A:322:C:H6 | 1.78 | 0.49 |
| 4:B:4:A:H4' | 4:B:63:U:H4' | 1.95 | 0.48 |
| 5:C:57:GLU:OE1 | 5:C:64:ARG:NH2 | 2.46 | 0.48 |
| 9:G:146:GLU:OE1 | 9:G:149:ARG:HD2 | 2.13 | 0.48 |
| 12:J:87:LEU:HD23 | 12:J:90:ILE:HD12 | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 24:V:73:LYS:O | 24:V:77:GLN:HG3 | 2.13 | 0.48 |
| 35:g:20:HIS:CE1 | 35:g:22:PHE:HE1 | 2.31 | 0.48 |
| 55:h:487:U:H2' | 55:h:488:G:O4' | 2.13 | 0.48 |
| 55:h:1900:C:H2' | 55:h:1901:C:C6 | 2.48 | 0.48 |
| 55:h:2781:G:H2' | 55:h:2782:C:C6 | 2.48 | 0.48 |
| 56:A:109:G:H2' | 56:A:110:U:C6 | 2.47 | 0.48 |
| 56:A:315:A:N7 | 56:A:328:U:H5 | 2.11 | 0.48 |
| 56:A:1281:A:H2' | 56:A:1281:A:N3 | 2.27 | 0.48 |
| 11:I:48:PHE:CD1 | 11:I:83:ILE:HD11 | 2.48 | 0.48 |
| 19:Q:21:LYS:HB2 | 19:Q:78:GLU:HG2 | 1.94 | 0.48 |
| 26:X:64:PRO:HB3 | 55:h:759:G:N1 | 2.27 | 0.48 |
| 34:f:2:LYS:HB2 | 34:f:34:GLN:HB3 | 1.95 | 0.48 |
| 41:n:80:LEU:HB2 | 41:n:148:VAL:HG12 | 1.94 | 0.48 |
| 55:h:1171:C:H2' | 55:h:1172:A:H8 | 1.77 | 0.48 |
| 55:h:1212:U:H3' | 55:h:1213:A:H5" | 1.95 | 0.48 |
| 56:A:416:G:H2' | 56:A:417:G:H8 | 1.79 | 0.48 |
| 6:D:50:LEU:HG | 6:D:54:GLN:HE22 | 1.77 | 0.48 |
| 9:G:44:TYR:O | 9:G:48:GLU:HG2 | 2.14 | 0.48 |
| 12:J:62:ARG:NH1 | 56:A:1350:U:H5' | 2.28 | 0.48 |
| 25:W:154:GLY:HA2 | 25:W:181:VAL:O | 2.13 | 0.48 |
| 33:e:15:ARG:NH2 | 33:e:47:ARG:HH21 | 2.10 | 0.48 |
| 35:g:5:ILE:HD12 | 39:l:71:LYS:HD3 | 1.95 | 0.48 |
| 35:g:35:VAL:HG12 | 39:l:146:HIS:CE1 | 2.48 | 0.48 |
| 37:j:4:LYS:HB3 | 37:j:105:ILE:HD12 | 1.94 | 0.48 |
| 40:m:102:GLN:H | 40:m:102:GLN:CD | 2.20 | 0.48 |
| 55:h:844:G:O2' | 55:h:878:G:H4' | 2.12 | 0.48 |
| 55:h:1200:U:H2' | 55:h:1201:G:O4' | 2.13 | 0.48 |
| 56:A:184:U:H2' | 56:A:185:G:C8 | 2.44 | 0.48 |
| 24:V:110:ARG:NH2 | 56:A:1083:C:O3' | 2.46 | 0.48 |
| 35:g:20:HIS:CG | 35:g:40:GLN:HE22 | 2.31 | 0.48 |
| 40:m:95:TYR:HA | 40:m:107:ALA:O | 2.13 | 0.48 |
| 47:v:18:ARG:NH1 | 47:v:105:GLY:O | 2.46 | 0.48 |
| 55:h:1552:A:O2' | 55:h:1618:C:N4 | 2.43 | 0.48 |
| 55:h:2465:A:H2' | 55:h:2466:G:C8 | 2.48 | 0.48 |
| 55:h:3007:G:H2' | 55:h:3008:C:C6 | 2.48 | 0.48 |
| 7:E:39:ARG:HG3 | 7:E:142:CYS:SG | 2.54 | 0.48 |
| 12:J:86:ALA:O | 12:J:90:ILE:HG13 | 2.14 | 0.48 |
| 25:W:119:THR:O | 25:W:122:THR:OG1 | 2.32 | 0.48 |
| 43:r:73:ASP:OD1 | 43:r:75:SER:OG | 2.19 | 0.48 |
| 53:p:29:ARG:HB2 | 53:p:76:PRO:HG3 | 1.95 | 0.48 |
| 55:h:489:A:H2' | 55:h:490:A:C8 | 2.48 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:639:C:O2' | 55:h:640:G:H8 | 1.96 | 0.48 |
| 55:h:1533:U:H3' | 55:h:1534:C:H5" | 1.94 | 0.48 |
| 55:h:1706:A:H2' | 55:h:1707:G:C8 | 2.45 | 0.48 |
| 55:h:2304:C:H2' | 55:h:2305:A:C8 | 2.48 | 0.48 |
| 11:I:32:ARG:NH2 | 56:A:1329:G:O6 | 2.47 | 0.48 |
| 20:R:25:LYS:NZ | 56:A:825:C:OP2 | 2.33 | 0.48 |
| 38:k:139:LYS:NZ | 55:h:401:C:OP2 | 2.26 | 0.48 |
| 41:n:124:ILE:CG2 | 41:n:125:LYS:H | 2.25 | 0.48 |
| 56:A:1500:G:N2 | 56:A:1503:A:OP2 | 2.47 | 0.48 |
| 4:B:30:G:H21 | 4:B:59:A:N6 | 2.11 | 0.48 |
| 11:I:31:ARG:HG3 | 11:I:36:VAL:HG12 | 1.95 | 0.48 |
| 14:L:9:ARG:NH1 | 56:A:862:C:OP1 | 2.46 | 0.48 |
| 24:V:6:MET:SD | 24:V:43:LEU:HB3 | 2.53 | 0.48 |
| 37:j:166:MET:HE1 | 55:h:2843:C:O2 | 2.14 | 0.48 |
| 40:m:26:VAL:HG12 | 40:m:80:VAL:HG21 | 1.95 | 0.48 |
| 53:p:88:ASP:HA | 53:p:91:LYS:HD3 | 1.95 | 0.48 |
| 56:A:321:A:H2' | 56:A:322:C:C6 | 2.48 | 0.48 |
| 56:A:969:G:H2' | 56:A:970:G:H8 | 1.78 | 0.48 |
| 12:J:15:HIS:NE2 | 56:A:1133:G:O5' | 2.47 | 0.48 |
| 18:P:92:THR:HG22 | 18:P:92:THR:O | 2.13 | 0.48 |
| 24:V:44:GLN:O | 24:V:47:LEU:HG | 2.13 | 0.48 |
| 31:c:6:ASP:OD1 | 31:c:6:ASP:N | 2.47 | 0.48 |
| 55:h:316:U:O2' | 55:h:317:G:OP1 | 2.26 | 0.48 |
| 55:h:1561:C:H2' | 55:h:1562:C:C6 | 2.49 | 0.48 |
| 55:h:3014:A:N6 | 55:h:3113:A:OP2 | 2.47 | 0.48 |
| 56:A:1042:U:H2' | 56:A:1043:C:C6 | 2.48 | 0.48 |
| 56:A:1153:U:H2' | 56:A:1154:C:C6 | 2.49 | 0.48 |
| 11:I:58:TYR:HD1 | 11:I:59:PHE:CD1 | 2.31 | 0.48 |
| 11:I:68:ILE:HD13 | 11:I:99:LEU:HD23 | 1.95 | 0.48 |
| 13:K:28:GLY:HA2 | 13:K:46:PRO:HD3 | 1.95 | 0.48 |
| 24:V:137:LEU:O | 24:V:141:LYS:HG3 | 2.14 | 0.48 |
| 55:h:2622:C:H2' | 55:h:2623:A:C8 | 2.48 | 0.48 |
| 55:h:3055:G:H2' | 55:h:3100:A:H61 | 1.78 | 0.48 |
| 7:E:97:PHE:CE1 | 7:E:170:LYS:HG2 | 2.49 | 0.48 |
| 24:V:90:PRO:HB3 | 24:V:154:MET:HB3 | 1.96 | 0.48 |
| 26:X:41:ARG:NH1 | 55:h:2611:U:O4' | 2.47 | 0.48 |
| 32:d:13:ARG:NH2 | 32:d:17:ARG:HH22 | 2.12 | 0.48 |
| 33:e:54:ASP:O | 33:e:58:ILE:HG12 | 2.13 | 0.48 |
| 45:t:47:ILE:HD12 | 45:t:70:PRO:HG3 | 1.96 | 0.48 |
| 56:A:1018:C:H2' | 56:A:1019:U:C6 | 2.49 | 0.48 |
| 56:A:1163:G:H4' | 56:A:1164:U:H5" | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:2:5:G:H2' | 1:2:6:G:C8 | 2.48 | 0.47 |
| 5:C:53:ASP:OD1 | 5:C:54:VAL:N | 2.47 | 0.47 |
| 6:D:102:LEU:HD11 | 6:D:175:ILE:HD11 | 1.95 | 0.47 |
| 42:q:43:THR:HG22 | 49:x:100:VAL:HG13 | 1.96 | 0.47 |
| 52:o:118:LEU:HD21 | 52:o:129:ILE:HD13 | 1.96 | 0.47 |
| 55:h:701:A:H2' | 55:h:702:A:C8 | 2.49 | 0.47 |
| 55:h:718:C:O2' | 55:h:772:U:OP1 | 2.31 | 0.47 |
| 55:h:1441:C:O2' | 55:h:2234:G:O2' | 2.30 | 0.47 |
| 55:h:2376:G:H2' | 55:h:2377:G:H8 | 1.78 | 0.47 |
| 55:h:2777:G:C2 | 55:h:2807:G:H1' | 2.49 | 0.47 |
| 9:G:65:ALA:O | 9:G:69:VAL:HG23 | 2.14 | 0.47 |
| 35:g:26:SER:OG | 35:g:27:THR:N | 2.48 | 0.47 |
| 41:n:109:GLY:N | 41:n:110:PRO:HD2 | 2.29 | 0.47 |
| 53:p:40:ARG:NH1 | 55:h:1201:G:H4' | 2.29 | 0.47 |
| 55:h:1859:A:H2' | 55:h:1860:G:O4' | 2.14 | 0.47 |
| 55:h:2074:G:H5' | 55:h:2075:G:OP2 | 2.13 | 0.47 |
| 55:h:2248:C:H2' | 55:h:2249:G:H8 | 1.79 | 0.47 |
| 9:G:58:PRO:HA | 9:G:61:THR:HG22 | 1.95 | 0.47 |
| 12:J:56:HIS:HD2 | 56:A:1180:U:H4' | 1.79 | 0.47 |
| 25:W:171:ILE:HG13 | 25:W:172:SER:N | 2.29 | 0.47 |
| 55:h:947:U:H2' | 55:h:948:G:C8 | 2.50 | 0.47 |
| 6:D:105:THR:O | 6:D:108:MET:HB2 | 2.14 | 0.47 |
| 8:F:44:GLY:O | 8:F:46:ARG:NH1 | 2.43 | 0.47 |
| 19:Q:39:GLU:OE1 | 19:Q:39:GLU:N | 2.48 | 0.47 |
| 24:V:151:ILE:H | 24:V:151:ILE:HD12 | 1.79 | 0.47 |
| 36:i:133:LEU:HB2 | 36:i:189:CYS:O | 2.14 | 0.47 |
| 37:j:18:ASP:OD1 | 37:j:19:GLU:N | 2.42 | 0.47 |
| 41:n:105:LYS:NZ | 41:n:111:ASN:OD1 | 2.44 | 0.47 |
| 44:s:63:LYS:HD2 | 55:h:2618:C:H5" | 1.96 | 0.47 |
| 47:v:38:LEU:HD23 | 47:v:102:PHE:CD1 | 2.49 | 0.47 |
| 54:1:82:ARG:NH2 | 55:h:382:A:OP2 | 2.43 | 0.47 |
| 55:h:55:G:O2' | 55:h:70:A:N1 | 2.42 | 0.47 |
| 55:h:971:G:H2' | 55:h:972:A:C8 | 2.49 | 0.47 |
| 55:h:1185:A:O2' | 55:h:1186:G:O4' | 2.32 | 0.47 |
| 5:C:32:VAL:O | 5:C:36:VAL:HG23 | 2.15 | 0.47 |
| 8:F:32:LYS:HG3 | 8:F:33:ASP:OD1 | 2.14 | 0.47 |
| 12:J:25:ILE:O | 12:J:29:VAL:HG22 | 2.14 | 0.47 |
| 14:L:13:ARG:NH1 | 56:A:242:U:OP1 | 2.45 | 0.47 |
| 15:M:59:TYR:O | 15:M:63:ASN:ND2 | 2.43 | 0.47 |
| 18:P:67:THR:HG22 | 18:P:68:GLU:N | 2.29 | 0.47 |
| 35:g:25:ARG:O | 39:l:109:ARG:NH1 | 2.47 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 50:y:72:LYS:HD2 | 50:y:91:ARG:HG3 | 1.97 | 0.47 |
| 55:h:1690:A:H2' | 55:h:1691:A:H8 | 1.76 | 0.47 |
| 55:h:3078:G:N2 | 55:h:3081:A:OP2 | 2.29 | 0.47 |
| 56:A:81:C:H3' | 56:A:82:U:H5" | 1.97 | 0.47 |
| 56:A:910:G:O2' | 56:A:1517:C:OP1 | 2.31 | 0.47 |
| 1:2:21:A:H2' | 1:2:22:G:C8 | 2.50 | 0.47 |
| 1:2:63:G:H2' | 1:2:64:A:C8 | 2.50 | 0.47 |
| 7:E:81:VAL:O | 7:E:85:ILE:HG12 | 2.15 | 0.47 |
| 23:U:4:ILE:O | 28:Z:26:LYS:NZ | 2.48 | 0.47 |
| 24:V:18:HIS:CG | 24:V:19:GLN:H | 2.32 | 0.47 |
| 29:a:23:LEU:HD12 | 29:a:50:VAL:HG11 | 1.95 | 0.47 |
| 31:c:10:LYS:HD2 | 33:e:34:GLU:HG2 | 1.96 | 0.47 |
| 54:1:43:LYS:HZ3 | 55:h:568:A:C5' | 2.28 | 0.47 |
| 55:h:279:U:H2' | 55:h:280:G:C8 | 2.49 | 0.47 |
| 55:h:673:C:H2' | 55:h:674:U:C6 | 2.49 | 0.47 |
| 55:h:979:G:H2' | 55:h:980:C:C6 | 2.50 | 0.47 |
| 55:h:1542:A:H2' | 55:h:1543:A:C8 | 2.49 | 0.47 |
| 55:h:1548:C:H2' | 55:h:1549:G:C8 | 2.50 | 0.47 |
| 55:h:1755:A:H2' | 55:h:1758:G:H1 | 1.79 | 0.47 |
| 55:h:2515:U:H2' | 55:h:2516:U:H6 | 1.78 | 0.47 |
| 55:h:2698:C:O2' | 55:h:2699:C:OP1 | 2.31 | 0.47 |
| 56:A:1098:U:H2' | 56:A:1099:C:C6 | 2.50 | 0.47 |
| 5:C:38:ILE:O | 5:C:42:LEU:HG | 2.15 | 0.47 |
| 6:D:74:ALA:CB | 6:D:85:LEU:HD22 | 2.44 | 0.47 |
| 8:F:10:LEU:HB2 | 8:F:59:ILE:HB | 1.97 | 0.47 |
| 8:F:30:ILE:HD11 | 8:F:75:LEU:HD13 | 1.97 | 0.47 |
| 10:H:115:ASP:N | 10:H:115:ASP:OD1 | 2.46 | 0.47 |
| 11:I:31:ARG:NH2 | 56:A:1098:U:OP1 | 2.48 | 0.47 |
| 15:M:65:LYS:O | 15:M:70:LEU:HB2 | 2.15 | 0.47 |
| 24:V:110:ARG:NH2 | 56:A:1084:G:P | 2.88 | 0.47 |
| 24:V:151:ILE:HA | 24:V:154:MET:CG | 2.45 | 0.47 |
| 26:X:56:ASP:OD1 | 26:X:58:THR:HG23 | 2.14 | 0.47 |
| 27:Y:33:ILE:HA | 27:Y:52:CYS:HA | 1.95 | 0.47 |
| 37:j:83:GLU:OE1 | 55:h:2860:U:H4' | 2.14 | 0.47 |
| 39:l:19:ILE:HD12 | 39:l:179:ALA:HB1 | 1.96 | 0.47 |
| 39:l:63:ASP:OD2 | 39:l:157:ARG:HD2 | 2.14 | 0.47 |
| 46:u:42:ARG:NH2 | 55:h:3038:C:OP1 | 2.43 | 0.47 |
| 51:z:95:ARG:HG3 | 51:z:101:PHE:CD2 | 2.50 | 0.47 |
| 52:o:126:ALA:O | 52:o:130:ILE:HG12 | 2.14 | 0.47 |
| 55:h:672:C:H2' | 55:h:673:C:H6 | 1.79 | 0.47 |
| 55:h:756:A:H3' | 55:h:757:G:H21 | 1.79 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:974:G:O2' | 55:h:975:U:P | 2.72 | 0.47 |
| 55:h:1696:G:O2' | 55:h:1736:G:O6 | 2.30 | 0.47 |
| 55:h:2088:C:H2' | 55:h:2089:C:C6 | 2.50 | 0.47 |
| 55:h:2902:A:H2' | 55:h:2903:A:H8 | 1.77 | 0.47 |
| 56:A:235:C:H2' | 56:A:236:G:H8 | 1.79 | 0.47 |
| 56:A:252:U:H2' | 56:A:253:U:C6 | 2.49 | 0.47 |
| 56:A:581:U:H2' | 56:A:582:U:C6 | 2.50 | 0.47 |
| 56:A:987:A:C5 | 56:A:1008:C:H1' | 2.49 | 0.47 |
| 56:A:1337:A:H2' | 56:A:1338:G:C8 | 2.49 | 0.47 |
| 31:c:16:GLU:OE2 | 31:c:52:LYS:HB2 | 2.15 | 0.47 |
| 41:n:88:THR:HG22 | 41:n:90:LYS:HD3 | 1.96 | 0.47 |
| 52:o:47:ALA:O | 52:o:50:SER:OG | 2.22 | 0.47 |
| 53:p:51:VAL:HG11 | 55:h:1202:A:C2 | 2.50 | 0.47 |
| 55:h:635:G:OP2 | 55:h:635:G:N2 | 2.46 | 0.47 |
| 55:h:795:G:H2' | 55:h:796:A:C8 | 2.49 | 0.47 |
| 55:h:2815:C:H2' | 55:h:2816:G:H8 | 1.79 | 0.47 |
| 55:h:3007:G:H2' | 55:h:3008:C:H6 | 1.79 | 0.47 |
| 56:A:36:A:H2' | 56:A:37:A:C8 | 2.50 | 0.47 |
| 56:A:822:U:H2' | 56:A:824:C:H1' | 1.97 | 0.47 |
| 56:A:986:G:H8 | 56:A:986:G:OP2 | 1.98 | 0.47 |
| 56:A:1241:G:O2' | 56:A:1256:A:N6 | 2.48 | 0.47 |
| 16:N:2:ALA:N | 56:A:1184:C:OP1 | 2.48 | 0.47 |
| 19:Q:76:LEU:HB3 | 19:Q:88:TRP:CE3 | 2.49 | 0.47 |
| 24:V:177:ARG:NH2 | 24:V:195:VAL:HA | 2.30 | 0.47 |
| 30:b:3:VAL:HG12 | 55:h:2239:A:C2 | 2.50 | 0.47 |
| 38:k:123:ARG:HD2 | 38:k:193:ASP:OD1 | 2.15 | 0.47 |
| 56:A:534:U:H2' | 56:A:535:C:C6 | 2.50 | 0.47 |
| 56:A:1083:C:H2' | 56:A:1084:G:O4' | 2.14 | 0.47 |
| 5:C:125:ASN:C | 5:C:126:ARG:HD2 | 2.40 | 0.47 |
| 12:J:21:SER:O | 12:J:25:ILE:HG12 | 2.15 | 0.47 |
| 15:M:23:TYR:CE2 | 15:M:70:LEU:HD22 | 2.49 | 0.47 |
| 17:O:55:GLY:O | 17:O:59:LEU:HG | 2.15 | 0.47 |
| 23:U:43:LYS:O | 23:U:47:GLU:HG3 | 2.15 | 0.47 |
| 23:U:64:GLY:O | 23:U:75:LYS:NZ | 2.48 | 0.47 |
| 31:c:30:ARG:HB3 | 31:c:30:ARG:NH1 | 2.30 | 0.47 |
| 39:l:64:LEU:HD23 | 39:l:67:ILE:HD11 | 1.97 | 0.47 |
| 40:m:9:VAL:HG12 | 40:m:70:ARG:NH1 | 2.29 | 0.47 |
| 55:h:1250:U:H3' | 55:h:1251:A:H5" | 1.96 | 0.47 |
| 55:h:1551:U:H3' | 55:h:1552:A:C8 | 2.48 | 0.47 |
| 55:h:2390:U:C2 | 55:h:2392:A:H5" | 2.49 | 0.47 |
| 56:A:280:C:O2' | 56:A:281:G:OP1 | 2.29 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:582:U:H2' | 56:A:583:C:C6 | 2.49 | 0.47 |
| 6:D:74:ALA:HB1 | 6:D:84:ASN:HB2 | 1.96 | 0.46 |
| 14:L:5:GLN:OE1 | 19:Q:51:LYS:NZ | 2.41 | 0.46 |
| 15:M:52:GLN:HA | 15:M:55:VAL:HG22 | 1.96 | 0.46 |
| 20:R:26:LYS:NZ | 56:A:825:C:O3' | 2.48 | 0.46 |
| 36:i:20:ASP:O | 36:i:22:ALA:N | 2.48 | 0.46 |
| 43:r:80:ASP:OD2 | 48:w:61:ARG:NH2 | 2.40 | 0.46 |
| 55:h:303:G:H2' | 55:h:304:U:O4' | 2.15 | 0.46 |
| 55:h:999:C:H2' | 55:h:1000:C:O4' | 2.14 | 0.46 |
| 55:h:1627:U:H2' | 55:h:1628:A:H2' | 1.97 | 0.46 |
| 55:h:2339:G:O6 | 55:h:2387:U:C2 | 2.68 | 0.46 |
| 55:h:2531:G:H4' | 55:h:2532:G:O4' | 2.15 | 0.46 |
| 56:A:84:U:H3' | 56:A:85:C:C6 | 2.50 | 0.46 |
| 56:A:1014:U:H2' | 56:A:1015:G:C8 | 2.41 | 0.46 |
| 1:2:43:C:H2' | 1:2:44:G:C8 | 2.50 | 0.46 |
| 16:N:35:ARG:NH2 | 56:A:1342:A:OP2 | 2.48 | 0.46 |
| 21:S:55:ARG:HB2 | 56:A:940:A:C6 | 2.50 | 0.46 |
| 55:h:489:A:H2' | 55:h:490:A:H8 | 1.80 | 0.46 |
| 55:h:2323:G:N2 | 55:h:2412:U:O2 | 2.42 | 0.46 |
| 56:A:323:U:H2' | 56:A:324:G:O4' | 2.15 | 0.46 |
| 56:A:390:U:H2' | 56:A:391:G:H8 | 1.78 | 0.46 |
| 56:A:725:A:H2' | 56:A:726:G:H8 | 1.79 | 0.46 |
| 56:A:746:A:OP2 | 56:A:792:G:N2 | 2.48 | 0.46 |
| 56:A:826:U:H2' | 56:A:828:G:H5' | 1.96 | 0.46 |
| 56:A:1329:G:O2' | 56:A:1356:G:O6 | 2.27 | 0.46 |
| 7:E:100:PRO:HB3 | 7:E:174:ARG:HG3 | 1.97 | 0.46 |
| 15:M:66:VAL:C | 15:M:67:GLU:OE1 | 2.58 | 0.46 |
| 44:s:30:GLY:O | 44:s:32:THR:N | 2.48 | 0.46 |
| 44:s:99:VAL:HG12 | 44:s:104:VAL:HG23 | 1.97 | 0.46 |
| 52:o:36:ASN:H | 52:o:66:ARG:NH1 | 2.14 | 0.46 |
| 52:o:100:ALA:HB3 | 52:o:139:ILE:HD12 | 1.96 | 0.46 |
| 55:h:965:U:H2' | 55:h:966:U:H6 | 1.80 | 0.46 |
| 56:A:28:U:O2' | 56:A:504:G:O2' | 2.13 | 0.46 |
| 8:F:45:ARG:HD3 | 8:F:59:ILE:HG12 | 1.97 | 0.46 |
| 19:Q:81:PRO:O | 56:A:264:U:O2' | 2.33 | 0.46 |
| 36:i:4:ARG:NH2 | 55:h:821:A:O2' | 2.48 | 0.46 |
| 40:m:2:SER:O | 40:m:6:LYS:N | 2.45 | 0.46 |
| 56:A:399:G:H2' | 56:A:400:C:C6 | 2.51 | 0.46 |
| 56:A:481:G:H1' | 56:A:529:C:H1' | 1.97 | 0.46 |
| 56:A:737:U:O2' | 56:A:861:C:O2 | 2.30 | 0.46 |
| 56:A:821:C:N4 | 56:A:822:U:O2 | 2.48 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:C:69:THR:HG21 | 5:C:75:VAL:HG21 | 1.96 | 0.46 |
| 7:E:133:GLY:HA3 | 56:A:13:G:H5' | 1.98 | 0.46 |
| 16:N:52:GLU:HG3 | 16:N:52:GLU:O | 2.14 | 0.46 |
| 26:X:40:GLN:HG3 | 26:X:42:GLY:O | 2.16 | 0.46 |
| 45:t:17:GLN:HG3 | 55:h:1075:U:O4 | 2.16 | 0.46 |
| 45:t:68:ILE:HD11 | 45:t:101:ARG:HE | 1.81 | 0.46 |
| 52:o:11:ILE:HD11 | 52:o:60:ILE:HD12 | 1.96 | 0.46 |
| 55:h:283:U:H3' | 55:h:284:G:H21 | 1.80 | 0.46 |
| 55:h:429:A:H2' | 55:h:430:A:C8 | 2.50 | 0.46 |
| 55:h:1556:A:N6 | 55:h:1615:G:C6 | 2.83 | 0.46 |
| 55:h:2289:C:H2' | 55:h:2290:C:C6 | 2.50 | 0.46 |
| 55:h:2622:C:H2' | 55:h:2623:A:H8 | 1.81 | 0.46 |
| 56:A:493:A:H2' | 56:A:494:C:C6 | 2.50 | 0.46 |
| 21:S:37:ARG:HB3 | 56:A:1302:C:H41 | 1.81 | 0.46 |
| 37:j:13:MET:HE1 | 55:h:2904:C:O2' | 2.15 | 0.46 |
| 41:n:9:VAL:HG12 | 41:n:35:LEU:HD23 | 1.98 | 0.46 |
| 55:h:858:A:O2' | 55:h:1877:U:OP1 | 2.27 | 0.46 |
| 55:h:1567:C:H2' | 55:h:1568:C:C6 | 2.50 | 0.46 |
| 56:A:409:G:H2' | 56:A:410:G:O4' | 2.15 | 0.46 |
| 56:A:928:A:O2' | 56:A:1315:A:N3 | 2.41 | 0.46 |
| 56:A:1472:G:H2' | 56:A:1473:A:H8 | 1.81 | 0.46 |
| 1:2:62:C:H2' | 1:2:63:G:H8 | 1.81 | 0.46 |
| 6:D:59:SER:OG | 6:D:60:TYR:HD1 | 1.99 | 0.46 |
| 13:K:128:ASN:HB2 | 56:A:698:A:H5' | 1.97 | 0.46 |
| 22:T:77:SER:O | 22:T:81:LEU:HD23 | 2.16 | 0.46 |
| 55:h:965:U:H2' | 55:h:966:U:C6 | 2.51 | 0.46 |
| 55:h:980:C:O2' | 55:h:981:U:O5' | 2.33 | 0.46 |
| 55:h:1171:C:H2' | 55:h:1172:A:C8 | 2.50 | 0.46 |
| 55:h:1485:C:H2' | 55:h:1486:G:O4' | 2.16 | 0.46 |
| 55:h:1627:U:H2' | 55:h:1628:A:C8 | 2.50 | 0.46 |
| 55:h:2364:C:H2' | 55:h:2365:A:C8 | 2.50 | 0.46 |
| 55:h:3022:G:H2' | 55:h:3023:G:O4' | 2.15 | 0.46 |
| 56:A:112:A:H61 | 56:A:313:A:H1' | 1.80 | 0.46 |
| 56:A:269:U:H2' | 56:A:270:A:C8 | 2.51 | 0.46 |
| 56:A:1104:G:HO2' | 56:A:1126:G:H1 | 1.62 | 0.46 |
| 11:I:72:LEU:HA | 11:I:75:VAL:HG12 | 1.98 | 0.46 |
| 40:m:15:VAL:HG12 | 40:m:28:GLY:HA3 | 1.97 | 0.46 |
| 55:h:276:G:H2' | 55:h:277:U:O4' | 2.16 | 0.46 |
| 55:h:752:C:H2' | 55:h:753:A:H8 | 1.80 | 0.46 |
| 55:h:818:U:H2' | 55:h:819:G:O4' | 2.16 | 0.46 |
| 55:h:1177:G:C5 | 55:h:1206:A:N1 | 2.84 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:1546:A:H2' | 55:h:1547:G:H8 | 1.79 | 0.46 |
| 56:A:457:A:N1 | 56:A:458:A:N6 | 2.64 | 0.46 |
| 4:B:1:G:H2' | 4:B:2:U:H6 | 1.80 | 0.46 |
| 20:R:31:ASP:OD2 | 20:R:33:LYS:HG2 | 2.15 | 0.46 |
| 24:V:61:VAL:HG13 | 24:V:224:GLY:HA3 | 1.98 | 0.46 |
| 54:1:5:LYS:HG3 | 54:1:24:LEU:O | 2.16 | 0.46 |
| 55:h:1523:U:H2' | 55:h:1524:G:H8 | 1.81 | 0.46 |
| 55:h:1904:C:H2' | 55:h:1905:G:O4' | 2.16 | 0.46 |
| 56:A:434:C:H2' | 56:A:435:U:C6 | 2.51 | 0.46 |
| 56:A:742:A:H2' | 56:A:743:G:H8 | 1.81 | 0.46 |
| 56:A:1429:A:O2' | 56:A:1430:A:H5' | 2.16 | 0.46 |
| 19:Q:41:GLU:CD | 19:Q:54:ARG:HH21 | 2.24 | 0.46 |
| 25:W:119:THR:OG1 | 25:W:152:GLU:OE2 | 2.34 | 0.46 |
| 26:X:14:ARG:HD3 | 26:X:14:ARG:H | 1.81 | 0.46 |
| 39:l:145:PHE:CZ | 39:l:159:MET:HE1 | 2.51 | 0.46 |
| 43:r:92:ASP:N | 43:r:92:ASP:OD1 | 2.49 | 0.46 |
| 45:t:58:ILE:HD11 | 45:t:108:TYR:CD2 | 2.51 | 0.46 |
| 46:u:24:LEU:HB3 | 46:u:44:LEU:HD22 | 1.97 | 0.46 |
| 55:h:2623:A:H2' | 55:h:2624:C:C6 | 2.51 | 0.46 |
| 55:h:2815:C:H2' | 55:h:2816:G:C8 | 2.50 | 0.46 |
| 56:A:572:G:H2' | 56:A:573:U:C6 | 2.50 | 0.46 |
| 56:A:958:G:OP2 | 56:A:1340:U:O2' | 2.33 | 0.46 |
| 56:A:1374:U:H2' | 56:A:1375:G:H8 | 1.81 | 0.46 |
| 56:A:1515:A:H8 | 56:A:1515:A:O5' | 1.98 | 0.46 |
| 7:E:37:ILE:N | 7:E:65:GLY:O | 2.47 | 0.45 |
| 8:F:30:ILE:HG12 | 8:F:71:THR:HG22 | 1.98 | 0.45 |
| 22:T:45:ASP:OD1 | 22:T:46:LYS:N | 2.48 | 0.45 |
| 27:Y:39:VAL:HG22 | 27:Y:46:LYS:HG2 | 1.98 | 0.45 |
| 36:i:7:LYS:O | 36:i:9:THR:N | 2.45 | 0.45 |
| 53:p:14:ALA:O | 53:p:18:LYS:HG2 | 2.17 | 0.45 |
| 55:h:150:C:H2' | 55:h:151:A:H8 | 1.80 | 0.45 |
| 55:h:667:A:OP2 | 55:h:2723:C:O2' | 2.33 | 0.45 |
| 55:h:723:C:O2 | 55:h:733:U:O2' | 2.33 | 0.45 |
| 55:h:1001:C:H1' | 55:h:1007:G:H22 | 1.81 | 0.45 |
| 55:h:1202:A:N3 | 55:h:1223:U:O2' | 2.47 | 0.45 |
| 56:A:411:A:N3 | 56:A:413:G:O2' | 2.31 | 0.45 |
| 56:A:429:U:H1' | 56:A:430:A:H5" | 1.98 | 0.45 |
| 56:A:731:U:H2' | 56:A:732:G:O4' | 2.15 | 0.45 |
| 56:A:1440:A:H3' | 56:A:1441:G:H8 | 1.81 | 0.45 |
| 10:H:82:LYS:NZ | 56:A:859:C:OP1 | 2.42 | 0.45 |
| 44:s:121:LYS:NZ | 44:s:141:GLY:O | 2.38 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:1472:C:H2' | 55:h:1473:G:O4' | 2.15 | 0.45 |
| 56:A:254:G:H2' | 56:A:255:G:H8 | 1.80 | 0.45 |
| 56:A:589:A:C5 | 56:A:590:A:C8 | 3.05 | 0.45 |
| 1:2:37:A:C4 | 1:2:38:A:C8 | 3.04 | 0.45 |
| 4:B:49:C:H2' | 4:B:50:C:H6 | 1.81 | 0.45 |
| 19:Q:55:THR:OG1 | 56:A:280:C:O2 | 2.34 | 0.45 |
| 22:T:52:HIS:O | 22:T:56:ARG:HG3 | 2.15 | 0.45 |
| 28:Z:48:ARG:O | 28:Z:52:GLN:HG2 | 2.16 | 0.45 |
| 55:h:1189:G:H2' | 55:h:1190:C:C6 | 2.52 | 0.45 |
| 55:h:1656:A:H2' | 55:h:1657:G:H8 | 1.81 | 0.45 |
| 56:A:998:G:H2' | 56:A:999:A:C8 | 2.51 | 0.45 |
| 4:B:63:U:H2' | 4:B:64:G:H8 | 1.80 | 0.45 |
| 6:D:103:ALA:HB1 | 6:D:108:MET:CB | 2.47 | 0.45 |
| 37:j:160:VAL:O | 37:j:160:VAL:HG12 | 2.15 | 0.45 |
| 49:x:28:ARG:HE | 55:h:619:C:H2' | 1.82 | 0.45 |
| 55:h:113:C:O2' | 55:h:123:A:N3 | 2.46 | 0.45 |
| 55:h:443:C:H2' | 55:h:444:U:O4' | 2.16 | 0.45 |
| 55:h:1145:A:H61 | 55:h:1245:U:H5 | 1.64 | 0.45 |
| 55:h:2385:G:H5' | 55:h:2396:A:C8 | 2.50 | 0.45 |
| 56:A:465:G:O2' | 56:A:466:U:H5" | 2.16 | 0.45 |
| 56:A:918:C:C2 | 56:A:919:A:C8 | 3.04 | 0.45 |
| 56:A:1157:A:H2' | 56:A:1158:G:C8 | 2.52 | 0.45 |
| 56:A:1411:A:H2' | 56:A:1412:C:C6 | 2.51 | 0.45 |
| 9:G:115:THR:HG22 | 9:G:117:VAL:HG12 | 1.97 | 0.45 |
| 15:M:4:LEU:C | 15:M:6:GLY:H | 2.25 | 0.45 |
| 24:V:21:ARG:HH11 | 56:A:811:U:H5' | 1.78 | 0.45 |
| 55:h:461:U:H2' | 55:h:462:A:H8 | 1.82 | 0.45 |
| 55:h:1146:A:N3 | 55:h:2710:G:O2' | 2.44 | 0.45 |
| 55:h:2351:A:H2' | 55:h:2352:C:C5 | 2.52 | 0.45 |
| 55:h:2390:U:O2 | 55:h:2392:A:H3' | 2.17 | 0.45 |
| 55:h:2873:U:H2' | 55:h:2874:C:C6 | 2.51 | 0.45 |
| 56:A:582:U:H2' | 56:A:583:C:H6 | 1.80 | 0.45 |
| 5:C:76:ILE:HA | 5:C:82:GLU:HB3 | 1.99 | 0.45 |
| 17:O:80:SER:O | 17:O:84:ARG:HG3 | 2.17 | 0.45 |
| 42:q:96:HIS:HA | 42:q:97:PRO:HD3 | 1.68 | 0.45 |
| 55:h:1224:G:H2' | 55:h:1225:G:H8 | 1.82 | 0.45 |
| 55:h:1762:C:H2' | 55:h:1763:G:O4' | 2.16 | 0.45 |
| 56:A:343:U:O2' | 56:A:346:G:O6 | 2.28 | 0.45 |
| 56:A:468:U:H2' | 56:A:469:G:H8 | 1.82 | 0.45 |
| 56:A:1017:C:H2' | 56:A:1018:C:C6 | 2.52 | 0.45 |
| 56:A:1138:A:C8 | 56:A:1162:G:C2 | 3.05 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:1146:G:H3' | 56:A:1147:G:H8 | 1.81 | 0.45 |
| 5:C:61:ASP:OD1 | 5:C:62:ARG:N | 2.50 | 0.45 |
| 15:M:63:ASN:C | 15:M:64:LEU:HD12 | 2.41 | 0.45 |
| 34:f:11:CYS:HB3 | 34:f:32:HIS:CE1 | 2.52 | 0.45 |
| 37:j:88:ASP:OD1 | 37:j:88:ASP:N | 2.47 | 0.45 |
| 38:k:101:ARG:O | 55:h:774:G:H4' | 2.16 | 0.45 |
| 39:l:142:GLN:OE1 | 39:l:142:GLN:N | 2.50 | 0.45 |
| 47:v:34:GLU:OE1 | 47:v:34:GLU:N | 2.40 | 0.45 |
| 55:h:72:G:H2' | 55:h:72:G:N3 | 2.31 | 0.45 |
| 55:h:263:G:O2' | 55:h:517:A:N3 | 2.42 | 0.45 |
| 55:h:954:U:H2' | 55:h:955:C:C6 | 2.52 | 0.45 |
| 55:h:1294:U:H2' | 55:h:1295:U:C6 | 2.51 | 0.45 |
| 55:h:1556:A:N1 | 55:h:1615:G:C2 | 2.85 | 0.45 |
| 55:h:1732:U:H2' | 55:h:1733:C:C6 | 2.52 | 0.45 |
| 56:A:1253:U:H2' | 56:A:1254:G:O4' | 2.16 | 0.45 |
| 56:A:1396:A:H2 | 56:A:1471:G:H22 | 1.65 | 0.45 |
| 56:A:1447:C:H2' | 56:A:1448:G:H8 | 1.82 | 0.45 |
| 5:C:23:TYR:OH | 12:J:11:LYS:HE2 | 2.16 | 0.45 |
| 14:L:83:ARG:HH11 | 56:A:532:U:H5' | 1.81 | 0.45 |
| 24:V:13:GLY:O | 24:V:209:SER:OG | 2.34 | 0.45 |
| 33:e:19:THR:OG1 | 55:h:745:G:OP1 | 2.34 | 0.45 |
| 37:j:155:ALA:H | 55:h:2277:G:H5' | 1.82 | 0.45 |
| 55:h:2:A:H2' | 55:h:3:A:C8 | 2.52 | 0.45 |
| 55:h:781:C:H2' | 55:h:782:U:C6 | 2.52 | 0.45 |
| 55:h:1400:G:N2 | 55:h:1443:G:H5" | 2.32 | 0.45 |
| 55:h:1716:A:H2' | 55:h:1718:C:C5 | 2.52 | 0.45 |
| 55:h:2152:A:H2' | 55:h:2153:G:O4' | 2.17 | 0.45 |
| 55:h:2686:U:H2' | 55:h:2687:U:C6 | 2.51 | 0.45 |
| 56:A:727:U:H2' | 56:A:728:A:O4' | 2.16 | 0.45 |
| 56:A:1116:U:O2 | 56:A:1117:U:N3 | 2.50 | 0.45 |
| 8:F:74:GLU:OE1 | 8:F:74:GLU:HA | 2.17 | 0.45 |
| 11:I:67:LEU:HG | 11:I:100:ARG:HD3 | 1.99 | 0.45 |
| 12:J:56:HIS:CD2 | 56:A:1180:U:H4' | 2.51 | 0.45 |
| 13:K:122:VAL:HG23 | 13:K:122:VAL:O | 2.17 | 0.45 |
| 17:O:6:GLU:O | 17:O:9:LYS:N | 2.50 | 0.45 |
| 34:f:25:VAL:HB | 34:f:34:GLN:HG3 | 1.99 | 0.45 |
| 53:p:6:LYS:NZ | 55:h:1164:A:O2' | 2.50 | 0.45 |
| 55:h:113:C:H2' | 55:h:114:G:O4' | 2.17 | 0.45 |
| 55:h:175:G:O2' | 55:h:176:G:H5' | 2.16 | 0.45 |
| 55:h:586:U:H2' | 55:h:587:G:O4' | 2.17 | 0.45 |
| 55:h:610:C:O2 | 55:h:646:U:O2' | 2.35 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:1180:G:N7 | 55:h:1206:A:O2' | 2.49 | 0.45 |
| 55:h:1659:U:H2' | 55:h:1660:A:H8 | 1.82 | 0.45 |
| 55:h:2309:U:H2' | 55:h:2310:G:C8 | 2.52 | 0.45 |
| 56:A:252:U:C2 | 56:A:253:U:C5 | 3.05 | 0.45 |
| 56:A:572:G:H2' | 56:A:573:U:H6 | 1.82 | 0.45 |
| 56:A:679:C:H2' | 56:A:680:G:H5" | 1.99 | 0.45 |
| 56:A:964:U:H4' | 56:A:965:A:O4' | 2.17 | 0.45 |
| 56:A:1050:U:H2' | 56:A:1051:C:C6 | 2.52 | 0.45 |
| 56:A:1125:G:N2 | 56:A:1127:A:H62 | 2.14 | 0.45 |
| 1:2:63:G:H2' | 1:2:64:A:H8 | 1.81 | 0.45 |
| 9:G:33:GLU:OE1 | 56:A:1333:U:H4' | 2.17 | 0.45 |
| 13:K:63:GLY:O | 13:K:66:LYS:HG2 | 2.17 | 0.45 |
| 37:j:6:ILE:CD1 | 37:j:31:ALA:HB1 | 2.46 | 0.45 |
| 39:l:13:GLN:O | 39:l:17:GLU:HG2 | 2.17 | 0.45 |
| 46:u:49:GLU:HG3 | 46:u:94:TYR:HD2 | 1.80 | 0.45 |
| 55:h:385:G:H2' | 55:h:386:C:C6 | 2.52 | 0.45 |
| 56:A:160:C:H2' | 56:A:161:U:O4' | 2.17 | 0.45 |
| 56:A:750:C:O2' | 56:A:881:C:N3 | 2.44 | 0.45 |
| 56:A:987:A:H2' | 56:A:988:C:C6 | 2.52 | 0.45 |
| 14:L:68:PRO:O | 14:L:99:ARG:NH1 | 2.50 | 0.44 |
| 35:g:36:GLU:HG2 | 35:g:37:VAL:N | 2.31 | 0.44 |
| 36:i:2:GLY:C | 36:i:20:ASP:HB3 | 2.42 | 0.44 |
| 55:h:80:G:N2 | 55:h:100:A:OP2 | 2.50 | 0.44 |
| 55:h:202:C:OP2 | 55:h:203:A:O2' | 2.30 | 0.44 |
| 55:h:1035:G:H21 | 55:h:2493:A:H8 | 1.64 | 0.44 |
| 55:h:1326:G:H1' | 55:h:1352:A:N6 | 2.32 | 0.44 |
| 55:h:2113:A:H2' | 55:h:2114:A:C8 | 2.52 | 0.44 |
| 55:h:2342:A:N6 | 55:h:2390:U:O2' | 2.51 | 0.44 |
| 56:A:264:U:H2' | 56:A:265:G:O4' | 2.17 | 0.44 |
| 56:A:278:G:H5' | 56:A:279:A:OP1 | 2.17 | 0.44 |
| 56:A:737:U:OP1 | 56:A:802:G:O2' | 2.36 | 0.44 |
| 5:C:31:TYR:CE2 | 5:C:58:ARG:HD2 | 2.53 | 0.44 |
| 36:i:53:HIS:CD2 | 36:i:220:THR:HA | 2.52 | 0.44 |
| 43:r:66:VAL:O | 43:r:78:LYS:HG3 | 2.17 | 0.44 |
| 52:o:134:ALA:HA | 52:o:137:MET:HG3 | 1.98 | 0.44 |
| 55:h:159:A:H2' | 55:h:160:A:C8 | 2.51 | 0.44 |
| 55:h:193:G:H2' | 55:h:194:A:O4' | 2.17 | 0.44 |
| 55:h:691:U:H2' | 55:h:692:C:C6 | 2.52 | 0.44 |
| 55:h:943:U:H2' | 55:h:944:A:C8 | 2.52 | 0.44 |
| 55:h:1201:G:N2 | 55:h:1203:A:H3' | 2.30 | 0.44 |
| 55:h:1313:U:H2' | 55:h:1314:C:C6 | 2.53 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:246:A:N1 | 56:A:278:G:O2' | 2.44 | 0.44 |
| 56:A:890:A:H2' | 56:A:891:A:H8 | 1.82 | 0.44 |
| 56:A:902:U:H2' | 56:A:903:U:C6 | 2.51 | 0.44 |
| 4:B:49:C:H2' | 4:B:50:C:C6 | 2.52 | 0.44 |
| 5:C:30:ASP:HA | 5:C:33:LYS:HE2 | 2.00 | 0.44 |
| 5:C:39:ARG:NE | 16:N:52:GLU:OE2 | 2.51 | 0.44 |
| 6:D:119:LEU:HD13 | 6:D:122:GLY:HA2 | 2.00 | 0.44 |
| 10:H:15:ARG:HD2 | 56:A:857:U:O2' | 2.17 | 0.44 |
| 15:M:79:ARG:NH2 | 15:M:83:GLU:OE2 | 2.51 | 0.44 |
| 18:P:4:LYS:HE2 | 18:P:25:ALA:HB2 | 1.99 | 0.44 |
| 39:l:133:GLY:O | 39:l:165:THR:OG1 | 2.34 | 0.44 |
| 39:l:145:PHE:HZ | 39:l:159:MET:HE1 | 1.81 | 0.44 |
| 52:o:95:HIS:HA | 52:o:98:LYS:HE2 | 2.00 | 0.44 |
| 55:h:349:G:C2 | 55:h:350:A:C8 | 3.04 | 0.44 |
| 55:h:911:U:H2' | 55:h:912:C:C6 | 2.52 | 0.44 |
| 55:h:1795:C:H2' | 55:h:1796:U:C6 | 2.53 | 0.44 |
| 55:h:1933:G:C2 | 55:h:1934:G:C8 | 3.06 | 0.44 |
| 55:h:2566:C:H2' | 55:h:2567:U:O4' | 2.17 | 0.44 |
| 56:A:1222:G:H2' | 56:A:1223:G:H8 | 1.82 | 0.44 |
| 56:A:1480:C:H2' | 56:A:1481:G:O4' | 2.16 | 0.44 |
| 5:C:59:THR:HG22 | 5:C:60:ARG:N | 2.26 | 0.44 |
| 24:V:24:ASN:H | 24:V:190:ASN:HA | 1.82 | 0.44 |
| 28:Z:50:VAL:O | 28:Z:54:ILE:HG13 | 2.18 | 0.44 |
| 44:s:96:ASP:O | 44:s:99:VAL:HG22 | 2.17 | 0.44 |
| 48:w:1:MET:N | 55:h:3064:G:H21 | 2.15 | 0.44 |
| 55:h:289:A:N6 | 55:h:290:C:H5 | 2.15 | 0.44 |
| 55:h:844:G:H4' | 55:h:878:G:H5' | 2.00 | 0.44 |
| 55:h:1529:U:H3' | 55:h:1530:G:C8 | 2.52 | 0.44 |
| 55:h:2376:G:H2' | 55:h:2377:G:C8 | 2.52 | 0.44 |
| 55:h:2603:G:H2' | 55:h:2604:U:C6 | 2.53 | 0.44 |
| 56:A:1308:C:H2' | 56:A:1309:C:H6 | 1.82 | 0.44 |
| 15:M:5:VAL:HG12 | 15:M:57:ARG:HG2 | 2.00 | 0.44 |
| 18:P:13:ILE:HD11 | 56:A:48:G:P | 2.58 | 0.44 |
| 24:V:18:HIS:CG | 24:V:19:GLN:N | 2.85 | 0.44 |
| 38:k:45:LYS:HD2 | 55:h:709:U:O4 | 2.17 | 0.44 |
| 39:l:21:GLU:O | 39:l:25:GLN:OE1 | 2.36 | 0.44 |
| 39:l:149:ASP:HB2 | 39:l:152:SER:OG | 2.16 | 0.44 |
| 40:m:24:LEU:O | 40:m:34:THR:OG1 | 2.35 | 0.44 |
| 52:o:91:SER:HB2 | 52:o:137:MET:O | 2.17 | 0.44 |
| 55:h:703:C:H2' | 55:h:704:C:H6 | 1.83 | 0.44 |
| 55:h:824:G:H2' | 55:h:825:C:C6 | 2.52 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:1650:G:H2' | 55:h:1651:C:C6 | 2.52 | 0.44 |
| 55:h:1710:A:N6 | 55:h:1716:A:H5" | 2.32 | 0.44 |
| 5:C:30:ASP:HA | 5:C:33:LYS:HG2 | 2.00 | 0.44 |
| 36:i:256:ARG:HG2 | 55:h:2061:U:H5" | 2.00 | 0.44 |
| 39:l:24:GLN:HE22 | 39:l:29:TYR:HB2 | 1.82 | 0.44 |
| 53:p:39:LEU:HD13 | 53:p:96:PHE:CE2 | 2.52 | 0.44 |
| 55:h:206:A:H2' | 55:h:207:C:O4' | 2.18 | 0.44 |
| 55:h:808:A:H2' | 55:h:809:U:C6 | 2.53 | 0.44 |
| 55:h:1651:C:H2' | 55:h:1652:A:H8 | 1.82 | 0.44 |
| 1:2:17:C:O2' | 1:2:18:G:H5" | 2.17 | 0.44 |
| 11:I:59:PHE:CE2 | 11:I:96:ALA:HB2 | 2.52 | 0.44 |
| 12:J:50:CYS:SG | 12:J:62:ARG:HD3 | 2.58 | 0.44 |
| 18:P:15:ASN:OD1 | 18:P:15:ASN:N | 2.50 | 0.44 |
| 18:P:26:ARG:O | 56:A:106:C:O2' | 2.36 | 0.44 |
| 36:i:60:ARG:HA | 55:h:1788:G:H5' | 1.99 | 0.44 |
| 39:l:117:ARG:HH11 | 39:l:146:HIS:CD2 | 2.36 | 0.44 |
| 52:o:36:ASN:ND2 | 52:o:39:GLU:HB2 | 2.33 | 0.44 |
| 55:h:297:G:H2' | 55:h:298:G:C8 | 2.52 | 0.44 |
| 55:h:422:A:H2' | 55:h:423:C:O4' | 2.17 | 0.44 |
| 55:h:567:A:H4' | 55:h:568:A:OP1 | 2.17 | 0.44 |
| 55:h:974:G:HO2' | 55:h:975:U:P | 2.41 | 0.44 |
| 55:h:977:G:H2' | 55:h:978:A:O4' | 2.18 | 0.44 |
| 55:h:993:G:HO2' | 55:h:994:A:P | 2.41 | 0.44 |
| 55:h:2075:G:O2' | 55:h:2107:G:N2 | 2.37 | 0.44 |
| 55:h:2335:G:H2' | 55:h:2336:U:C2 | 2.53 | 0.44 |
| 56:A:136:G:C6 | 56:A:225:G:C6 | 3.06 | 0.44 |
| 56:A:534:U:H2' | 56:A:535:C:H6 | 1.83 | 0.44 |
| 56:A:988:C:H2' | 56:A:989:G:O4' | 2.17 | 0.44 |
| 13:K:58:HIS:HA | 56:A:668:G:H5' | 2.00 | 0.44 |
| 14:L:54:ARG:HG3 | 14:L:62:GLU:OE2 | 2.18 | 0.44 |
| 15:M:12:ASP:OD1 | 15:M:44:ARG:HD2 | 2.18 | 0.44 |
| 15:M:49:THR:OG1 | 15:M:52:GLN:HG3 | 2.17 | 0.44 |
| 36:i:163:ILE:HD12 | 36:i:175:LEU:HD22 | 1.99 | 0.44 |
| 53:p:51:VAL:O | 55:h:1202:A:H5' | 2.17 | 0.44 |
| 53:p:94:LYS:HG2 | 53:p:98:LYS:NZ | 2.32 | 0.44 |
| 55:h:194:A:H61 | 55:h:197:C:H3' | 1.82 | 0.44 |
| 55:h:479:A:H1' | 55:h:499:G:O4' | 2.18 | 0.44 |
| 55:h:728:G:H2' | 55:h:729:C:C6 | 2.53 | 0.44 |
| 55:h:752:C:H2' | 55:h:753:A:C8 | 2.52 | 0.44 |
| 56:A:1249:G:H22 | 56:A:1293:G:N2 | 2.16 | 0.44 |
| 10:H:70:ARG:HA | 10:H:70:ARG:HE | 1.82 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:L:7:LEU:HD23 | 19:Q:49:TYR:CE1 | 2.52 | 0.44 |
| 37:j:154:CYS:C | 37:j:156:THR:H | 2.26 | 0.44 |
| 37:j:178:GLN:HE21 | 55:h:2996:U:H5' | 1.82 | 0.44 |
| 38:k:151:ASN:ND2 | 38:k:193:ASP:OD2 | 2.42 | 0.44 |
| 55:h:263:G:H2' | 55:h:264:G:O4' | 2.18 | 0.44 |
| 55:h:296:A:N6 | 55:h:297:G:O6 | 2.50 | 0.44 |
| 55:h:2691:C:H2' | 55:h:2692:A:O4' | 2.18 | 0.44 |
| 56:A:382:A:H2' | 56:A:383:A:C8 | 2.53 | 0.44 |
| 56:A:444:A:H2' | 56:A:445:C:C6 | 2.53 | 0.44 |
| 56:A:786:C:H2' | 56:A:787:A:H8 | 1.82 | 0.44 |
| 56:A:907:G:C2 | 56:A:909:G:C8 | 3.06 | 0.44 |
| 56:A:1271:A:H2' | 56:A:1272:G:H5' | 2.00 | 0.44 |
| 4:B:81:U:H2' | 4:B:82:A:C8 | 2.53 | 0.43 |
| 6:D:82:GLY:HA3 | 6:D:192:GLU:HB3 | 1.99 | 0.43 |
| 7:E:112:GLY:HA3 | 7:E:168:ALA:HB2 | 1.99 | 0.43 |
| 11:I:51:ASP:OD1 | 11:I:86:HIS:HA | 2.18 | 0.43 |
| 46:u:11:GLY:O | 46:u:16:HIS:ND1 | 2.45 | 0.43 |
| 52:o:118:LEU:HD12 | 52:o:119:ASN:H | 1.82 | 0.43 |
| 53:p:17:PHE:CE1 | 53:p:66:ILE:HD13 | 2.53 | 0.43 |
| 55:h:333:C:H2' | 55:h:334:G:C8 | 2.53 | 0.43 |
| 56:A:92:A:O2' | 56:A:93:C:H6 | 2.01 | 0.43 |
| 56:A:510:G:H2' | 56:A:510:G:N3 | 2.32 | 0.43 |
| 7:E:105:THR:HG22 | 7:E:147:ASP:HB2 | 2.00 | 0.43 |
| 19:Q:31:LYS:HE2 | 56:A:275:G:OP1 | 2.17 | 0.43 |
| 25:W:175:GLU:OE1 | 25:W:175:GLU:N | 2.52 | 0.43 |
| 27:Y:36:VAL:HG12 | 27:Y:63:ARG:NH2 | 2.32 | 0.43 |
| 37:j:10:LYS:HG3 | 37:j:198:ILE:HD11 | 2.00 | 0.43 |
| 51:z:13:LYS:HB2 | 55:h:581:G:H4' | 2.00 | 0.43 |
| 53:p:6:LYS:HZ3 | 55:h:1164:A:C2' | 2.30 | 0.43 |
| 55:h:217:G:N2 | 55:h:235:U:H4' | 2.30 | 0.43 |
| 55:h:1188:A:N7 | 55:h:1214:A:O2' | 2.51 | 0.43 |
| 55:h:1393:C:H2' | 55:h:1394:A:H8 | 1.83 | 0.43 |
| 55:h:1393:C:H2' | 55:h:1394:A:C8 | 2.53 | 0.43 |
| 55:h:2635:A:H2' | 55:h:2636:A:C8 | 2.53 | 0.43 |
| 56:A:637:U:C2 | 56:A:638:A:C8 | 3.06 | 0.43 |
| 7:E:63:ILE:HG12 | 7:E:139:VAL:HG22 | 2.00 | 0.43 |
| 15:M:51:ASP:O | 15:M:54:THR:OG1 | 2.29 | 0.43 |
| 17:O:12:LEU:HG | 17:O:31:LEU:HD21 | 2.00 | 0.43 |
| 19:Q:86:LYS:C | 19:Q:87:ARG:HD2 | 2.44 | 0.43 |
| 22:T:59:ASP:OD1 | 22:T:76:LYS:NZ | 2.49 | 0.43 |
| 24:V:111:LEU:CD1 | 24:V:152:ARG:HA | 2.48 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 24:V:187:LEU:HD21 | 24:V:196:VAL:HG21 | 1.99 | 0.43 |
| 25:W:165:PRO:HD2 | 25:W:168:VAL:HG21 | 2.00 | 0.43 |
| 36:i:186:ASP:OD1 | 36:i:187:VAL:N | 2.51 | 0.43 |
| 44:s:31:LYS:O | 55:h:925:U:C4 | 2.70 | 0.43 |
| 45:t:80:GLU:OE2 | 55:h:2717:U:O2' | 2.29 | 0.43 |
| 52:o:35:VAL:HA | 52:o:66:ARG:HH11 | 1.83 | 0.43 |
| 53:p:40:ARG:NE | 53:p:49:TYR:HB3 | 2.32 | 0.43 |
| 55:h:297:G:H3' | 55:h:298:G:H8 | 1.83 | 0.43 |
| 55:h:2736:C:H2' | 55:h:2737:G:O4' | 2.18 | 0.43 |
| 56:A:433:C:H2' | 56:A:434:C:C6 | 2.53 | 0.43 |
| 56:A:486:G:H2' | 56:A:487:C:C6 | 2.53 | 0.43 |
| 56:A:560:C:H2' | 56:A:561:G:O4' | 2.18 | 0.43 |
| 4:B:26:A:H2' | 4:B:27:A:C8 | 2.53 | 0.43 |
| 19:Q:86:LYS:HE2 | 19:Q:86:LYS:HB3 | 1.59 | 0.43 |
| 33:e:29:ARG:CZ | 33:e:45:ASP:HB3 | 2.48 | 0.43 |
| 46:u:65:GLU:O | 46:u:68:LYS:HG2 | 2.18 | 0.43 |
| 50:y:53:ASP:O | 50:y:57:LYS:HG2 | 2.18 | 0.43 |
| 55:h:273:A:H62 | 55:h:313:G:H21 | 1.66 | 0.43 |
| 55:h:301:U:N3 | 55:h:338:C:OP2 | 2.52 | 0.43 |
| 55:h:1001:C:H1' | 55:h:1007:G:N2 | 2.33 | 0.43 |
| 55:h:1217:G:H2' | 55:h:1218:C:C6 | 2.54 | 0.43 |
| 55:h:1550:G:C4 | 55:h:1551:U:C5 | 3.05 | 0.43 |
| 55:h:2374:U:H2' | 55:h:2375:G:C8 | 2.53 | 0.43 |
| 55:h:2416:C:H2' | 55:h:2417:C:C6 | 2.54 | 0.43 |
| 55:h:3020:U:O2' | 55:h:3021:A:O5' | 2.35 | 0.43 |
| 56:A:436:C:H2' | 56:A:437:U:C6 | 2.54 | 0.43 |
| 56:A:449:C:H2' | 56:A:450:G:O4' | 2.19 | 0.43 |
| 56:A:1082:A:H2' | 56:A:1083:C:C6 | 2.53 | 0.43 |
| 56:A:1445:G:H2' | 56:A:1446:C:H6 | 1.83 | 0.43 |
| 7:E:104:SER:OG | 7:E:146:HIS:HB2 | 2.19 | 0.43 |
| 17:O:6:GLU:O | 17:O:7:GLN:C | 2.61 | 0.43 |
| 18:P:14:ARG:HH21 | 56:A:47:C:P | 2.41 | 0.43 |
| 38:k:6:ASP:OD1 | 38:k:6:ASP:N | 2.49 | 0.43 |
| 45:t:43:THR:HG22 | 45:t:94:VAL:HG12 | 2.00 | 0.43 |
| 55:h:388:U:H2' | 55:h:389:G:O4' | 2.18 | 0.43 |
| 55:h:920:G:H22 | 55:h:943:U:H5" | 1.84 | 0.43 |
| 55:h:1530:G:N2 | 55:h:1805:G:H1 | 2.15 | 0.43 |
| 55:h:2125:A:O2' | 55:h:2126:C:OP2 | 2.29 | 0.43 |
| 55:h:2753:G:H5" | 55:h:2754:G:H5" | 2.01 | 0.43 |
| 56:A:360:G:C6 | 56:A:361:G:C6 | 3.06 | 0.43 |
| 56:A:748:A:H4' | 56:A:1507:G:N2 | 2.33 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:2:64:A:H2' | 1:2:65:G:H8 | 1.83 | 0.43 |
| 5:C:190:LYS:HG2 | 5:C:195:ARG:CZ | 2.49 | 0.43 |
| 6:D:116:GLY:HA2 | 6:D:126:ASP:HB3 | 1.99 | 0.43 |
| 9:G:26:LEU:HD13 | 9:G:101:LEU:HD22 | 2.01 | 0.43 |
| 12:J:25:ILE:HD11 | 12:J:92:LEU:HD11 | 2.01 | 0.43 |
| 15:M:4:LEU:O | 15:M:6:GLY:N | 2.52 | 0.43 |
| 18:P:47:SER:HB2 | 56:A:452:A:C2 | 2.45 | 0.43 |
| 19:Q:84:ALA:O | 19:Q:86:LYS:N | 2.51 | 0.43 |
| 38:k:61:GLY:HA3 | 38:k:80:ARG:HG2 | 2.00 | 0.43 |
| 46:u:45:ARG:HD2 | 46:u:97:ILE:HG13 | 2.00 | 0.43 |
| 48:w:28:HIS:HD2 | 48:w:82:HIS:HB2 | 1.83 | 0.43 |
| 54:1:93:LYS:HB3 | 54:1:93:LYS:HE3 | 1.84 | 0.43 |
| 55:h:1043:G:H2' | 55:h:1044:U:H6 | 1.83 | 0.43 |
| 55:h:1191:A:C4 | 55:h:1192:G:C8 | 3.07 | 0.43 |
| 55:h:1621:C:H2' | 55:h:1622:G:C8 | 2.54 | 0.43 |
| 55:h:1942:G:H2' | 55:h:1943:C:H6 | 1.83 | 0.43 |
| 56:A:76:A:H2' | 56:A:77:G:C8 | 2.53 | 0.43 |
| 56:A:667:A:C2 | 56:A:684:A:C5 | 3.07 | 0.43 |
| 56:A:1232:A:N6 | 56:A:1268:C:H42 | 2.03 | 0.43 |
| 13:K:106:ILE:HD13 | 13:K:106:ILE:HA | 1.84 | 0.43 |
| 18:P:46:PRO:HG3 | 18:P:96:LYS:HA | 2.01 | 0.43 |
| 19:Q:21:LYS:HB2 | 19:Q:78:GLU:CG | 2.49 | 0.43 |
| 24:V:169:GLU:HB3 | 24:V:172:ALA:HB3 | 2.01 | 0.43 |
| 24:V:192:ASP:HB3 | 24:V:195:VAL:HG22 | 2.01 | 0.43 |
| 45:t:133:THR:HG22 | 45:t:134:ARG:N | 2.33 | 0.43 |
| 47:v:83:ARG:NH1 | 47:v:87:LEU:HB2 | 2.34 | 0.43 |
| 52:o:93:GLU:OE2 | 55:h:1194:C:H4' | 2.18 | 0.43 |
| 53:p:85:GLU:OE1 | 53:p:88:ASP:N | 2.49 | 0.43 |
| 55:h:309:G:H2' | 55:h:310:C:H6 | 1.84 | 0.43 |
| 55:h:1180:G:C6 | 55:h:1195:A:N1 | 2.87 | 0.43 |
| 55:h:1764:A:H2' | 55:h:1765:A:C8 | 2.54 | 0.43 |
| 55:h:2380:G:P | 55:h:2380:G:H8 | 2.41 | 0.43 |
| 56:A:425:G:H2' | 56:A:426:U:C6 | 2.54 | 0.43 |
| 56:A:490:A:N3 | 56:A:523:U:H1' | 2.34 | 0.43 |
| 56:A:1488:G:OP1 | 56:A:1491:A:H4' | 2.19 | 0.43 |
| 15:M:23:TYR:HB3 | 15:M:67:GLU:CB | 2.48 | 0.43 |
| 18:P:21:ILE:HD12 | 18:P:36:VAL:HA | 2.01 | 0.43 |
| 19:Q:56:THR:HG22 | 56:A:280:C:N3 | 2.33 | 0.43 |
| 26:X:32:LYS:HB3 | 55:h:759:G:C6 | 2.54 | 0.43 |
| 37:j:169:ARG:HH22 | 55:h:3046:C:H41 | 1.65 | 0.43 |
| 52:o:17:ALA:HB1 | 52:o:48:THR:HB | 1.99 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 52:o:38:MET:O | 52:o:42:LYS:HG2 | 2.18 | 0.43 |
| 55:h:898:A:N3 | 55:h:899:G:H5" | 2.34 | 0.43 |
| 56:A:105:A:H5' | 56:A:106:C:H5 | 1.84 | 0.43 |
| 56:A:452:A:HO2' | 56:A:453:G:P | 2.41 | 0.43 |
| 56:A:1005:G:H2' | 56:A:1006:U:C6 | 2.54 | 0.43 |
| 7:E:136:ALA:O | 7:E:140:LEU:HD23 | 2.19 | 0.43 |
| 12:J:66:GLU:HB3 | 16:N:59:SER:HB2 | 2.00 | 0.43 |
| 18:P:67:THR:HG22 | 18:P:69:PRO:HD2 | 2.00 | 0.43 |
| 25:W:148:VAL:HG13 | 25:W:148:VAL:O | 2.19 | 0.43 |
| 37:j:153:GLY:O | 55:h:2276:G:H4' | 2.19 | 0.43 |
| 44:s:94:GLY:H | 44:s:97:GLU:CD | 2.27 | 0.43 |
| 46:u:47:TYR:OH | 46:u:69:LYS:HD2 | 2.19 | 0.43 |
| 54:1:84:GLY:HA3 | 54:1:99:LYS:HD3 | 2.00 | 0.43 |
| 55:h:97:U:H5" | 55:h:99:G:O4' | 2.19 | 0.43 |
| 55:h:2106:A:OP2 | 55:h:2106:A:H8 | 2.02 | 0.43 |
| 55:h:2107:G:H4' | 55:h:2107:G:OP1 | 2.19 | 0.43 |
| 55:h:2761:U:H2' | 55:h:2762:C:C6 | 2.54 | 0.43 |
| 56:A:78:G:H2' | 56:A:79:C:C6 | 2.54 | 0.43 |
| 56:A:509:G:H5' | 56:A:510:G:OP2 | 2.18 | 0.43 |
| 56:A:994:C:H2' | 56:A:995:A:H8 | 1.83 | 0.43 |
| 56:A:1054:G:O2' | 56:A:1081:A:N1 | 2.50 | 0.43 |
| 56:A:1320:G:H2' | 56:A:1321:A:C8 | 2.54 | 0.43 |
| 56:A:1370:G:H2' | 56:A:1371:C:C6 | 2.54 | 0.43 |
| 6:D:50:LEU:HG | 6:D:54:GLN:NE2 | 2.34 | 0.43 |
| 24:V:219:SER:O | 24:V:223:GLU:OE1 | 2.37 | 0.43 |
| 38:k:154:VAL:HG23 | 38:k:193:ASP:HB2 | 2.00 | 0.43 |
| 45:t:135:GLU:N | 45:t:135:GLU:OE2 | 2.52 | 0.43 |
| 55:h:974:G:O2' | 55:h:975:U:O5' | 2.32 | 0.43 |
| 55:h:1730:U:H4' | 55:h:1731:A:OP2 | 2.18 | 0.43 |
| 56:A:8:U:O2 | 56:A:9:U:N3 | 2.52 | 0.43 |
| 56:A:865:C:O2' | 56:A:866:U:H5' | 2.19 | 0.43 |
| 56:A:907:G:O2' | 56:A:909:G:OP1 | 2.32 | 0.43 |
| 56:A:1102:A:H2' | 56:A:1103:U:O4' | 2.19 | 0.43 |
| 56:A:1364:U:H2' | 56:A:1365:C:O4' | 2.18 | 0.43 |
| 5:C:88:ALA:O | 5:C:92:LYS:HG2 | 2.19 | 0.42 |
| 7:E:54:ARG:NH2 | 56:A:1380:C:OP2 | 2.51 | 0.42 |
| 12:J:12:ALA:HB3 | 12:J:18:ILE:HB | 2.01 | 0.42 |
| 14:L:6:GLN:NE2 | 56:A:863:G:OP2 | 2.49 | 0.42 |
| 16:N:9:LYS:NZ | 56:A:1198:C:OP1 | 2.31 | 0.42 |
| 19:Q:74:VAL:HG12 | 19:Q:76:LEU:HD22 | 2.00 | 0.42 |
| 20:R:45:ARG:NH2 | 20:R:81:SER:O | 2.51 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 23:U:62:ARG:NH1 | 55:h:1454:G:N7 | 2.67 | 0.42 |
| 29:a:16:ARG:HD3 | 55:h:1086:C:OP2 | 2.18 | 0.42 |
| 41:n:12:LEU:HD23 | 41:n:12:LEU:HA | 1.90 | 0.42 |
| 43:r:5:GLU:HG3 | 43:r:5:GLU:O | 2.18 | 0.42 |
| 47:v:83:ARG:HD2 | 47:v:83:ARG:HA | 1.72 | 0.42 |
| 47:v:87:LEU:O | 47:v:90:GLU:HG3 | 2.19 | 0.42 |
| 52:o:28:PRO:HB2 | 55:h:1213:A:N6 | 2.34 | 0.42 |
| 55:h:1651:C:H2' | 55:h:1652:A:C8 | 2.54 | 0.42 |
| 55:h:2373:G:H2' | 55:h:2374:U:C6 | 2.53 | 0.42 |
| 55:h:2396:A:H2' | 55:h:2397:C:H6 | 1.84 | 0.42 |
| 56:A:904:G:H2' | 56:A:905:A:C8 | 2.54 | 0.42 |
| 6:D:2:ALA:HA | 56:A:404:G:N7 | 2.34 | 0.42 |
| 6:D:10:ARG:NH2 | 56:A:522:G:O5' | 2.51 | 0.42 |
| 22:T:48:SER:O | 22:T:52:HIS:ND1 | 2.52 | 0.42 |
| 42:q:113:LYS:HD3 | 55:h:615:A:H5' | 2.00 | 0.42 |
| 47:v:31:GLY:N | 47:v:54:ASP:OD2 | 2.46 | 0.42 |
| 47:v:46:HIS:HB3 | 47:v:65:SER:HB3 | 2.01 | 0.42 |
| 55:h:772:U:H2' | 55:h:773:G:H8 | 1.84 | 0.42 |
| 55:h:993:G:H2' | 55:h:1014:G:H22 | 1.84 | 0.42 |
| 55:h:1157:G:H1 | 55:h:1234:U:H3 | 1.67 | 0.42 |
| 55:h:1809:U:H2' | 55:h:1810:A:C8 | 2.55 | 0.42 |
| 55:h:2553:G:H2' | 55:h:2554:U:C6 | 2.54 | 0.42 |
| 55:h:2581:G:H8 | 55:h:2581:G:OP2 | 2.01 | 0.42 |
| 56:A:335:C:H2' | 56:A:336:A:C8 | 2.55 | 0.42 |
| 56:A:905:A:O2' | 56:A:1382:C:OP2 | 2.34 | 0.42 |
| 5:C:39:ARG:NH1 | 5:C:54:VAL:O | 2.35 | 0.42 |
| 5:C:178:LEU:HD23 | 5:C:178:LEU:HA | 1.78 | 0.42 |
| 7:E:46:VAL:HG21 | 56:A:1060:A:H4' | 2.00 | 0.42 |
| 7:E:133:GLY:O | 7:E:137:ARG:CB | 2.66 | 0.42 |
| 11:I:142:ARG:NH2 | 56:A:1328:A:OP1 | 2.31 | 0.42 |
| 14:L:59:SER:HB2 | 14:L:61:VAL:HG22 | 2.01 | 0.42 |
| 18:P:53:SER:O | 18:P:57:GLN:HG2 | 2.19 | 0.42 |
| 24:V:91:TYR:H | 24:V:150:GLY:HA3 | 1.84 | 0.42 |
| 30:b:45:LYS:NZ | 55:h:3104:A:OP2 | 2.48 | 0.42 |
| 37:j:182:VAL:HG21 | 37:j:192:LEU:HD22 | 2.00 | 0.42 |
| 55:h:580:G:H2' | 55:h:581:G:O4' | 2.19 | 0.42 |
| 55:h:2070:A:H2' | 55:h:2071:A:C8 | 2.54 | 0.42 |
| 55:h:2588:C:H2' | 55:h:2589:G:O4' | 2.19 | 0.42 |
| 56:A:1100:U:H2' | 56:A:1101:C:C6 | 2.55 | 0.42 |
| 4:B:43:C:C5 | 39:l:73:GLU:OE1 | 2.72 | 0.42 |
| 6:D:104:ARG:H | 6:D:108:MET:HG3 | 1.84 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:G:68:ASN:ND2 | 9:G:127:ALA:O | 2.53 | 0.42 |
| 30:b:3:VAL:HG12 | 55:h:2239:A:N3 | 2.34 | 0.42 |
| 33:e:45:ASP:OD1 | 33:e:45:ASP:N | 2.51 | 0.42 |
| 38:k:182:GLN:HE22 | 55:h:706:G:H8 | 1.67 | 0.42 |
| 55:h:49:A:H2' | 55:h:50:A:C8 | 2.54 | 0.42 |
| 55:h:286:G:H21 | 55:h:287:A:N6 | 2.17 | 0.42 |
| 55:h:337:U:C2 | 55:h:344:G:N1 | 2.88 | 0.42 |
| 55:h:1025:A:N3 | 55:h:2488:C:O2' | 2.49 | 0.42 |
| 55:h:2757:C:OP1 | 55:h:2889:A:O2' | 2.31 | 0.42 |
| 56:A:360:G:H2' | 56:A:361:G:C8 | 2.54 | 0.42 |
| 56:A:538:G:OP2 | 56:A:539:A:O2' | 2.30 | 0.42 |
| 56:A:1382:C:C2 | 56:A:1486:A:N6 | 2.87 | 0.42 |
| 1:2:66:U:H2' | 1:2:67:C:C6 | 2.55 | 0.42 |
| 13:K:91:VAL:O | 13:K:116:VAL:HA | 2.20 | 0.42 |
| 22:T:4:ILE:O | 22:T:8:ILE:HG13 | 2.20 | 0.42 |
| 22:T:56:ARG:HG2 | 56:A:207:G:H4' | 2.01 | 0.42 |
| 25:W:50:ASN:OD1 | 25:W:51:ALA:N | 2.53 | 0.42 |
| 31:c:28:ASN:HB3 | 31:c:31:ASN:HB2 | 2.02 | 0.42 |
| 39:l:67:ILE:HA | 39:l:147:GLU:OE1 | 2.19 | 0.42 |
| 40:m:58:ASP:OD1 | 40:m:58:ASP:O | 2.37 | 0.42 |
| 47:v:25:LEU:HD11 | 47:v:104:ARG:HG2 | 2.01 | 0.42 |
| 48:w:19:PHE:O | 48:w:49:ARG:NH1 | 2.52 | 0.42 |
| 52:o:104:TRP:O | 52:o:108:ARG:HG2 | 2.19 | 0.42 |
| 55:h:1543:A:N1 | 55:h:1628:A:O2' | 2.47 | 0.42 |
| 55:h:2613:G:H5" | 55:h:2614:U:O4' | 2.20 | 0.42 |
| 56:A:250:U:H4' | 56:A:251:G:O5' | 2.19 | 0.42 |
| 56:A:1269:A:H2' | 56:A:1270:A:C8 | 2.55 | 0.42 |
| 56:A:1297:U:H2' | 56:A:1298:G:O4' | 2.19 | 0.42 |
| 56:A:1411:A:H2' | 56:A:1412:C:H6 | 1.85 | 0.42 |
| 2:3:22:PRO:HB3 | 55:h:1102:G:H2' | 2.01 | 0.42 |
| 5:C:87:ARG:O | 5:C:91:GLU:OE1 | 2.37 | 0.42 |
| 6:D:90:GLU:HG3 | 6:D:186:ILE:HG13 | 2.00 | 0.42 |
| 6:D:165:TRP:NE1 | 6:D:181:PRO:HB3 | 2.35 | 0.42 |
| 15:M:117:ILE:HG13 | 56:A:1208:A:N3 | 2.35 | 0.42 |
| 17:O:33:THR:HG21 | 17:O:85:LEU:HD22 | 2.00 | 0.42 |
| 24:V:67:VAL:HA | 24:V:160:ALA:O | 2.20 | 0.42 |
| 28:Z:12:GLU:C | 28:Z:13:LEU:HD12 | 2.45 | 0.42 |
| 33:e:29:ARG:NE | 33:e:45:ASP:HB3 | 2.35 | 0.42 |
| 36:i:146:GLU:HB2 | 36:i:189:CYS:HB3 | 2.01 | 0.42 |
| 37:j:65:PRO:O | 37:j:69:GLN:HG3 | 2.19 | 0.42 |
| 39:l:158:GLY:N | 55:h:2529:A:N1 | 2.65 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 41:n:95:VAL:CG1 | 41:n:124:ILE:HG21 | 2.47 | 0.42 |
| 46:u:77:HIS:CE1 | 55:h:1674:G:C5 | 3.07 | 0.42 |
| 55:h:321:G:H2' | 55:h:322:A:H8 | 1.84 | 0.42 |
| 55:h:1018:U:H2' | 55:h:1019:C:C6 | 2.55 | 0.42 |
| 55:h:2243:C:N4 | 55:h:2244:A:H62 | 2.17 | 0.42 |
| 55:h:2483:G:C8 | 55:h:2651:C:C4 | 3.08 | 0.42 |
| 55:h:2874:C:H2' | 55:h:2875:C:H6 | 1.85 | 0.42 |
| 56:A:344:A:H5" | 56:A:345:C:H5 | 1.84 | 0.42 |
| 56:A:847:A:H2' | 56:A:848:C:C6 | 2.55 | 0.42 |
| 56:A:1105:U:C2 | 56:A:1107:G:C8 | 3.08 | 0.42 |
| 4:B:76:G:HO2' | 25:W:94:HIS:CE1 | 2.30 | 0.42 |
| 5:C:169:ARG:HG2 | 5:C:170:GLU:N | 2.35 | 0.42 |
| 6:D:2:ALA:HB1 | 56:A:405:U:O4 | 2.19 | 0.42 |
| 6:D:102:LEU:CD1 | 6:D:175:ILE:HD11 | 2.50 | 0.42 |
| 7:E:116:ALA:HB2 | 56:A:846:A:H5' | 2.00 | 0.42 |
| 33:e:26:LYS:HE3 | 33:e:43:ARG:O | 2.19 | 0.42 |
| 39:l:20:ARG:HA | 39:l:20:ARG:HD2 | 1.76 | 0.42 |
| 52:o:122:ASP:OD1 | 52:o:123:ILE:N | 2.53 | 0.42 |
| 55:h:664:A:H5" | 55:h:665:G:OP2 | 2.18 | 0.42 |
| 55:h:678:A:N1 | 55:h:924:G:O2' | 2.40 | 0.42 |
| 55:h:782:U:H2' | 55:h:783:G:O4' | 2.20 | 0.42 |
| 55:h:1944:C:H2' | 55:h:1945:U:H6 | 1.85 | 0.42 |
| 55:h:2147:U:H2' | 55:h:2148:C:C6 | 2.54 | 0.42 |
| 55:h:2416:C:H2' | 55:h:2417:C:H6 | 1.84 | 0.42 |
| 55:h:2443:U:H2' | 55:h:2444:C:C6 | 2.54 | 0.42 |
| 56:A:105:A:C6 | 56:A:326:G:C6 | 3.08 | 0.42 |
| 56:A:498:C:H4' | 56:A:499:C:O5' | 2.20 | 0.42 |
| 56:A:638:A:H2' | 56:A:639:C:H6 | 1.84 | 0.42 |
| 56:A:1258:C:O2' | 56:A:1260:A:H8 | 2.03 | 0.42 |
| 7:E:73:VAL:HG21 | 7:E:162:VAL:HG11 | 2.00 | 0.42 |
| 8:F:11:ASP:N | 8:F:84:SER:O | 2.52 | 0.42 |
| 9:G:114:LYS:O | 56:A:1220:A:O2' | 2.37 | 0.42 |
| 11:I:111:GLN:HB3 | 11:I:113:GLU:CD | 2.45 | 0.42 |
| 14:L:88:LYS:HD3 | 56:A:503:A:C2 | 2.55 | 0.42 |
| 18:P:74:LEU:HG | 18:P:80:TRP:HB2 | 2.01 | 0.42 |
| 39:l:15:TYR:CE2 | 39:l:20:ARG:HD3 | 2.55 | 0.42 |
| 39:l:23:LEU:HD13 | 39:l:36:PRO:HG2 | 2.02 | 0.42 |
| 39:l:101:ASP:OD1 | 39:l:102:ARG:N | 2.52 | 0.42 |
| 40:m:46:ALA:N | 40:m:50:ALA:O | 2.49 | 0.42 |
| 41:n:80:LEU:HD13 | 41:n:95:VAL:HG21 | 2.02 | 0.42 |
| 41:n:124:ILE:HD13 | 41:n:130:HIS:HD2 | 1.85 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:278:A:H2' | 55:h:279:U:C6 | 2.55 | 0.42 |
| 55:h:1313:U:H2' | 55:h:1314:C:H6 | 1.84 | 0.42 |
| 55:h:2529:A:H2' | 55:h:2530:C:C6 | 2.55 | 0.42 |
| 56:A:535:C:H2' | 56:A:536:C:C6 | 2.55 | 0.42 |
| 56:A:994:C:H2' | 56:A:995:A:C8 | 2.54 | 0.42 |
| 4:B:76:G:O2' | 25:W:94:HIS:NE2 | 2.33 | 0.42 |
| 6:D:69:ARG:HH22 | 56:A:602:A:H5" | 1.84 | 0.42 |
| 11:I:53:ARG:NH1 | 56:A:1229:A:H4' | 2.35 | 0.42 |
| 11:I:106:ALA:O | 11:I:110:VAL:HG23 | 2.19 | 0.42 |
| 13:K:103:GLU:OE2 | 13:K:103:GLU:N | 2.52 | 0.42 |
| 29:a:44:ARG:HD3 | 29:a:44:ARG:HA | 1.82 | 0.42 |
| 34:f:30:PRO:HB3 | 55:h:2751:C:H5" | 2.01 | 0.42 |
| 38:k:166:ALA:O | 38:k:170:ARG:HB2 | 2.18 | 0.42 |
| 55:h:784:G:H2' | 55:h:784:G:N3 | 2.35 | 0.42 |
| 55:h:829:U:N3 | 55:h:832:G:OP2 | 2.42 | 0.42 |
| 55:h:1557:C:H2' | 55:h:1558:C:H6 | 1.83 | 0.42 |
| 55:h:2288:C:H2' | 55:h:2289:C:H6 | 1.84 | 0.42 |
| 55:h:2382:G:H2' | 55:h:2383:U:C6 | 2.55 | 0.42 |
| 56:A:78:G:H2' | 56:A:79:C:H6 | 1.85 | 0.42 |
| 56:A:1116:U:H1' | 56:A:1117:U:C4 | 2.54 | 0.42 |
| 56:A:1254:G:H2' | 56:A:1255:G:O4' | 2.20 | 0.42 |
| 56:A:1491:A:H2' | 56:A:1492:G:C8 | 2.55 | 0.42 |
| 5:C:94:THR:O | 5:C:94:THR:HG22 | 2.20 | 0.42 |
| 6:D:140:VAL:HG11 | 6:D:150:PHE:CZ | 2.55 | 0.42 |
| 10:H:10:PHE:HD1 | 10:H:27:LEU:HD21 | 1.84 | 0.42 |
| 14:L:94:ARG:HB2 | 14:L:95:TYR:CE1 | 2.55 | 0.42 |
| 36:i:163:ILE:CG2 | 36:i:178:PRO:HD3 | 2.47 | 0.42 |
| 36:i:220:THR:O | 55:h:2006:A:H5" | 2.20 | 0.42 |
| 48:w:48:ARG:NH2 | 55:h:2909:G:OP1 | 2.47 | 0.42 |
| 55:h:978:A:H2' | 55:h:979:G:H8 | 1.81 | 0.42 |
| 55:h:1639:G:H5' | 55:h:1640:A:OP1 | 2.20 | 0.42 |
| 55:h:2368:C:H2' | 55:h:2370:A:C5 | 2.55 | 0.42 |
| 56:A:106:C:H2' | 56:A:107:G:O4' | 2.20 | 0.42 |
| 56:A:421:U:H3' | 56:A:422:C:H5' | 2.01 | 0.42 |
| 56:A:708:A:H2' | 56:A:709:A:H8 | 1.82 | 0.42 |
| 56:A:1269:A:H2 | 56:A:1335:G:H1' | 1.85 | 0.42 |
| 7:E:105:THR:HG21 | 7:E:124:ALA:O | 2.20 | 0.41 |
| 9:G:16:PRO:HG3 | 11:I:63:VAL:HG22 | 2.02 | 0.41 |
| 9:G:57:ASP:OD1 | 9:G:58:PRO:HD2 | 2.20 | 0.41 |
| 12:J:72:ARG:HH22 | 56:A:1133:G:P | 2.43 | 0.41 |
| 23:U:7:PRO:O | 23:U:10:ILE:HG22 | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 39:l:101:ASP:O | 39:l:105:GLU:HG2 | 2.20 | 0.41 |
| 39:l:110:LEU:HA | 39:l:114:ALA:HB3 | 2.02 | 0.41 |
| 53:p:88:ASP:O | 53:p:91:LYS:HG2 | 2.20 | 0.41 |
| 55:h:673:C:H2' | 55:h:674:U:H6 | 1.85 | 0.41 |
| 55:h:750:C:H2' | 55:h:751:A:C8 | 2.54 | 0.41 |
| 55:h:994:A:H2' | 55:h:994:A:N3 | 2.35 | 0.41 |
| 55:h:1430:C:C2 | 55:h:1453:G:N2 | 2.88 | 0.41 |
| 55:h:1436:C:HO2' | 55:h:1437:A:P | 2.43 | 0.41 |
| 55:h:1532:G:N2 | 55:h:1804:G:C4 | 2.88 | 0.41 |
| 55:h:2340:A:N6 | 55:h:2389:U:O2 | 2.52 | 0.41 |
| 55:h:3116:C:H2' | 55:h:3117:U:C6 | 2.55 | 0.41 |
| 56:A:49:U:H2' | 56:A:50:G:C8 | 2.55 | 0.41 |
| 56:A:223:G:H2' | 56:A:224:U:O4' | 2.20 | 0.41 |
| 6:D:165:TRP:CD1 | 6:D:165:TRP:H | 2.36 | 0.41 |
| 13:K:96:LYS:HD2 | 13:K:124:PRO:HD3 | 2.02 | 0.41 |
| 18:P:73:LEU:O | 18:P:77:THR:HG23 | 2.20 | 0.41 |
| 21:S:39:THR:HA | 21:S:70:LYS:HD3 | 2.01 | 0.41 |
| 38:k:118:ARG:NH2 | 44:s:4:ILE:O | 2.53 | 0.41 |
| 46:u:10:LEU:HD12 | 46:u:10:LEU:HA | 1.85 | 0.41 |
| 53:p:24:VAL:HG23 | 53:p:80:ALA:HB3 | 2.02 | 0.41 |
| 55:h:287:A:N6 | 55:h:299:G:HO2' | 2.18 | 0.41 |
| 55:h:1000:C:H2' | 55:h:1008:G:H22 | 1.85 | 0.41 |
| 55:h:1551:U:H2' | 55:h:1552:A:O4' | 2.21 | 0.41 |
| 55:h:1619:U:H2' | 55:h:1620:U:C6 | 2.55 | 0.41 |
| 55:h:1900:C:H2' | 55:h:1901:C:H6 | 1.85 | 0.41 |
| 55:h:2084:A:H2' | 55:h:2085:C:O4' | 2.20 | 0.41 |
| 55:h:2693:A:H2' | 55:h:2694:G:O4' | 2.19 | 0.41 |
| 56:A:255:G:H2' | 56:A:256:U:C6 | 2.54 | 0.41 |
| 56:A:604:U:H2' | 56:A:605:G:C8 | 2.55 | 0.41 |
| 6:D:149:PRO:HG3 | 56:A:436:C:O2' | 2.20 | 0.41 |
| 12:J:56:HIS:HE1 | 56:A:945:G:N3 | 2.18 | 0.41 |
| 17:O:85:LEU:HB3 | 17:O:87:LEU:HD13 | 2.02 | 0.41 |
| 19:Q:42:ASP:OD1 | 19:Q:55:THR:HG22 | 2.21 | 0.41 |
| 24:V:93:ASN:OD1 | 24:V:94:GLN:N | 2.53 | 0.41 |
| 55:h:81:A:C2 | 55:h:100:A:C5 | 3.07 | 0.41 |
| 55:h:384:G:H2' | 55:h:385:G:H8 | 1.86 | 0.41 |
| 55:h:1007:G:O2' | 55:h:1008:G:O5' | 2.31 | 0.41 |
| 55:h:2086:U:H3 | 55:h:2096:G:H1 | 1.68 | 0.41 |
| 55:h:2137:A:C2 | 56:A:1477:A:C8 | 3.08 | 0.41 |
| 56:A:504:G:H2' | 56:A:505:C:C6 | 2.55 | 0.41 |
| 56:A:819:U:H3 | 56:A:829:G:H22 | 1.67 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 56:A:1005:G:H2' | 56:A:1006:U:H6 | 1.83 | 0.41 |
| 56:A:1051:C:H2' | 56:A:1052:G:H8 | 1.86 | 0.41 |
| 56:A:1408:A:H2' | 56:A:1409:A:O4' | 2.19 | 0.41 |
| 56:A:1422:G:H2' | 56:A:1423:U:C6 | 2.55 | 0.41 |
| 5:C:52:ALA:HB2 | 5:C:114:LEU:HD21 | 2.02 | 0.41 |
| 10:H:79:ARG:HG2 | 10:H:80:VAL:N | 2.35 | 0.41 |
| 13:K:80:ALA:HB2 | 13:K:109:LEU:HD23 | 2.02 | 0.41 |
| 24:V:204:ASP:OD1 | 24:V:205:ASP:N | 2.54 | 0.41 |
| 41:n:124:ILE:CG2 | 41:n:125:LYS:N | 2.84 | 0.41 |
| 44:s:77:VAL:HA | 44:s:111:LYS:O | 2.20 | 0.41 |
| 46:u:55:ALA:HB2 | 46:u:79:LEU:HG | 2.02 | 0.41 |
| 52:o:79:LYS:HA | 52:o:82:LEU:CD2 | 2.51 | 0.41 |
| 55:h:844:G:H5' | 55:h:845:C:H5" | 2.02 | 0.41 |
| 55:h:1942:G:H2' | 55:h:1943:C:C6 | 2.55 | 0.41 |
| 56:A:92:A:O2' | 56:A:93:C:C6 | 2.73 | 0.41 |
| 56:A:143:G:C2 | 56:A:174:G:C5 | 3.08 | 0.41 |
| 56:A:1001:G:H2' | 56:A:1002:U:C6 | 2.54 | 0.41 |
| 15:M:14:ARG:NH2 | 15:M:16:GLU:OE2 | 2.54 | 0.41 |
| 37:j:13:MET:HE3 | 37:j:13:MET:HB2 | 1.82 | 0.41 |
| 39:l:41:VAL:HG12 | 39:l:103:MET:HB2 | 2.03 | 0.41 |
| 42:q:27:ARG:NH2 | 55:h:1260:C:O2' | 2.54 | 0.41 |
| 46:u:67:MET:HG2 | 46:u:76:VAL:HG21 | 2.02 | 0.41 |
| 46:u:94:TYR:O | 46:u:116:VAL:HG22 | 2.21 | 0.41 |
| 55:h:962:U:H5' | 55:h:963:U:OP2 | 2.21 | 0.41 |
| 55:h:1334:C:H2' | 55:h:1335:G:O4' | 2.20 | 0.41 |
| 55:h:1963:G:H2' | 55:h:1964:U:C6 | 2.55 | 0.41 |
| 55:h:2369:C:H5" | 55:h:2370:A:C8 | 2.55 | 0.41 |
| 55:h:2807:G:H2' | 55:h:2808:U:O4' | 2.21 | 0.41 |
| 56:A:522:G:H2' | 56:A:523:U:H6 | 1.85 | 0.41 |
| 56:A:993:G:H2' | 56:A:994:C:C6 | 2.55 | 0.41 |
| 56:A:1087:C:C4 | 56:A:1088:G:C8 | 3.08 | 0.41 |
| 1:2:66:U:H2' | 1:2:67:C:H6 | 1.85 | 0.41 |
| 6:D:18:ASP:HB2 | 6:D:26:PHE:CD2 | 2.56 | 0.41 |
| 6:D:112:LEU:HD12 | 6:D:117:HIS:ND1 | 2.36 | 0.41 |
| 22:T:35:PHE:HA | 22:T:50:LEU:HD11 | 2.03 | 0.41 |
| 25:W:158:THR:HG22 | 25:W:161:GLN:OE1 | 2.21 | 0.41 |
| 37:j:89:GLU:HA | 37:j:92:VAL:HB | 2.02 | 0.41 |
| 39:l:87:ARG:N | 39:l:90:MET:HE3 | 2.32 | 0.41 |
| 39:l:144:MET:N | 39:l:144:MET:SD | 2.93 | 0.41 |
| 52:o:51:GLN:HG3 | 52:o:52:ARG:H | 1.84 | 0.41 |
| 52:o:91:SER:HB2 | 52:o:138:GLY:HA3 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:1081:C:O2' | 55:h:2497:A:N3 | 2.49 | 0.41 |
| 55:h:1197:C:N4 | 55:h:1206:A:C5 | 2.88 | 0.41 |
| 55:h:1608:U:H2' | 55:h:1609:G:H8 | 1.86 | 0.41 |
| 55:h:1791:A:H2' | 55:h:1792:A:C8 | 2.56 | 0.41 |
| 56:A:717:C:H2' | 56:A:718:U:H6 | 1.85 | 0.41 |
| 56:A:934:U:H2' | 56:A:935:G:H8 | 1.85 | 0.41 |
| 56:A:1425:G:H5' | 56:A:1426:C:H5 | 1.86 | 0.41 |
| 56:A:1472:G:H2' | 56:A:1473:A:C8 | 2.56 | 0.41 |
| 1:2:38:A:O2' | 56:A:770:A:OP1 | 2.36 | 0.41 |
| 10:H:83:PRO:HG2 | 56:A:860:C:H5' | 2.02 | 0.41 |
| 11:I:53:ARG:HB3 | 11:I:57:ASN:HB3 | 2.02 | 0.41 |
| 19:Q:80:ARG:O | 19:Q:82:LEU:HD12 | 2.21 | 0.41 |
| 21:S:48:THR:HG22 | 21:S:61:PHE:HD1 | 1.86 | 0.41 |
| 28:Z:36:MET:HB2 | 28:Z:41:LEU:HD23 | 2.02 | 0.41 |
| 36:i:201:GLN:O | 36:i:204:ILE:HG12 | 2.21 | 0.41 |
| 38:k:154:VAL:HG12 | 38:k:175:VAL:HG22 | 2.02 | 0.41 |
| 52:o:30:LEU:HD13 | 52:o:37:ILE:HG13 | 2.02 | 0.41 |
| 52:o:79:LYS:O | 52:o:82:LEU:HG | 2.20 | 0.41 |
| 55:h:131:A:H2' | 55:h:132:C:C6 | 2.56 | 0.41 |
| 55:h:2737:G:H2' | 55:h:2738:U:C6 | 2.55 | 0.41 |
| 56:A:522:G:H2' | 56:A:523:U:C6 | 2.56 | 0.41 |
| 1:2:61:C:H2' | 1:2:62:C:C6 | 2.55 | 0.41 |
| 5:C:72:PRO:HD3 | 5:C:104:GLU:HG2 | 2.03 | 0.41 |
| 8:F:23:LEU:HD22 | 8:F:63:ILE:HD11 | 2.03 | 0.41 |
| 21:S:3:ARG:HD3 | 21:S:8:GLY:O | 2.21 | 0.41 |
| 22:T:10:ARG:NH2 | 56:A:103:G:N7 | 2.65 | 0.41 |
| 25:W:85:VAL:HG13 | 25:W:91:ASN:O | 2.21 | 0.41 |
| 38:k:129:GLU:OE1 | 38:k:132:GLU:HA | 2.21 | 0.41 |
| 41:n:3:LEU:HA | 41:n:39:ALA:H | 1.85 | 0.41 |
| 50:y:39:VAL:HG11 | 50:y:42:VAL:HG23 | 2.01 | 0.41 |
| 55:h:772:U:H2' | 55:h:773:G:C8 | 2.56 | 0.41 |
| 55:h:1343:G:H2' | 55:h:1345:G:N7 | 2.35 | 0.41 |
| 55:h:1478:C:O2' | 55:h:2026:A:N3 | 2.51 | 0.41 |
| 1:2:5:G:C2 | 1:2:69:G:C2 | 3.09 | 0.41 |
| 5:C:29:LYS:HE2 | 5:C:29:LYS:HB3 | 1.85 | 0.41 |
| 5:C:109:GLU:HB2 | 5:C:143:GLN:NE2 | 2.32 | 0.41 |
| 8:F:30:ILE:CD1 | 8:F:75:LEU:HD13 | 2.50 | 0.41 |
| 12:J:24:LYS:NZ | 12:J:90:ILE:HG23 | 2.36 | 0.41 |
| 13:K:97:GLY:O | 13:K:102:ARG:NH1 | 2.53 | 0.41 |
| 14:L:88:LYS:NZ | 56:A:505:C:P | 2.94 | 0.41 |
| 15:M:14:ARG:NH1 | 56:A:1284:U:O4 | 2.49 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 15:M:28:THR:HG21 | 56:A:1310:C:H5" | 2.03 | 0.41 |
| 24:V:52:LYS:HE2 | 24:V:198:TYR:CE1 | 2.54 | 0.41 |
| 24:V:120:MET:HE1 | 24:V:129:ARG:NH2 | 2.36 | 0.41 |
| 25:W:105:LYS:HD3 | 25:W:105:LYS:HA | 1.83 | 0.41 |
| 31:c:48:HIS:ND1 | 55:h:2595:G:O2' | 2.46 | 0.41 |
| 42:q:19:ASP:OD1 | 42:q:21:SER:OG | 2.23 | 0.41 |
| 43:r:78:LYS:HD3 | 48:w:70:GLU:OE2 | 2.21 | 0.41 |
| 55:h:285:U:H3' | 55:h:286:G:H5" | 2.03 | 0.41 |
| 55:h:565:A:H2' | 55:h:566:A:C8 | 2.56 | 0.41 |
| 55:h:754:C:H2' | 55:h:755:A:O4' | 2.21 | 0.41 |
| 55:h:877:U:H4' | 55:h:878:G:O5' | 2.21 | 0.41 |
| 55:h:1091:A:H5' | 55:h:1303:U:H1' | 2.02 | 0.41 |
| 55:h:1236:G:H2' | 55:h:1237:U:O4' | 2.21 | 0.41 |
| 55:h:1556:A:C6 | 55:h:1615:G:N1 | 2.88 | 0.41 |
| 55:h:1608:U:H2' | 55:h:1609:G:C8 | 2.55 | 0.41 |
| 55:h:1781:C:H2' | 55:h:1782:U:C6 | 2.56 | 0.41 |
| 55:h:2098:U:H2' | 55:h:2099:G:O4' | 2.20 | 0.41 |
| 55:h:2552:A:H2' | 55:h:2553:G:H8 | 1.81 | 0.41 |
| 55:h:2767:G:H2' | 55:h:2768:G:C8 | 2.56 | 0.41 |
| 55:h:2973:A:OP2 | 55:h:2974:A:O2' | 2.35 | 0.41 |
| 56:A:384:G:H2' | 56:A:385:C:C6 | 2.56 | 0.41 |
| 56:A:590:A:C5 | 56:A:591:C:C5 | 3.09 | 0.41 |
| 56:A:592:U:H2' | 56:A:593:C:H6 | 1.83 | 0.41 |
| 56:A:1089:C:C2 | 56:A:1090:A:C8 | 3.09 | 0.41 |
| 56:A:1156:G:H2' | 56:A:1157:A:H8 | 1.86 | 0.41 |
| 22:T:34:GLY:O | 22:T:37:GLU:HG3 | 2.21 | 0.41 |
| 22:T:36:ARG:HG3 | 22:T:36:ARG:NH1 | 2.37 | 0.41 |
| 32:d:5:LYS:HE2 | 55:h:802:C:H5" | 2.03 | 0.41 |
| 38:k:151:ASN:HD22 | 38:k:193:ASP:CG | 2.26 | 0.41 |
| 52:o:110:ILE:O | 52:o:114:LYS:HG2 | 2.21 | 0.41 |
| 54:1:43:LYS:HZ1 | 55:h:568:A:P | 2.41 | 0.41 |
| 55:h:453:U:H2' | 55:h:454:U:C5 | 2.56 | 0.41 |
| 55:h:717:C:H2' | 55:h:718:C:H6 | 1.86 | 0.41 |
| 55:h:732:G:H2' | 55:h:733:U:O4' | 2.22 | 0.41 |
| 55:h:750:C:H2' | 55:h:751:A:H8 | 1.86 | 0.41 |
| 55:h:1041:A:H2' | 55:h:1042:A:O4' | 2.22 | 0.41 |
| 55:h:1284:A:H2' | 55:h:1285:G:C8 | 2.56 | 0.41 |
| 55:h:1450:C:H2' | 55:h:1451:A:C8 | 2.56 | 0.41 |
| 55:h:1886:A:O2' | 55:h:1892:G:N7 | 2.47 | 0.41 |
| 55:h:2003:A:H1' | 55:h:2162:A:N6 | 2.36 | 0.41 |
| 55:h:2213:A:H2' | 55:h:2214:C:O4' | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 6:D:59:SER:O | 6:D:106:ARG:HD2 | 2.21 | 0.40 |
| 6:D:90:GLU:CD | 6:D:95:ASN:HD21 | 2.29 | 0.40 |
| 9:G:111:ARG:HB3 | 9:G:113:GLU:OE1 | 2.21 | 0.40 |
| 10:H:79:ARG:HG2 | 10:H:80:VAL:H | 1.86 | 0.40 |
| 17:O:12:LEU:HD23 | 17:O:27:ALA:HB1 | 2.03 | 0.40 |
| 28:Z:18:LEU:HD23 | 28:Z:18:LEU:HA | 1.90 | 0.40 |
| 38:k:55:ARG:HH22 | 55:h:789:G:P | 2.42 | 0.40 |
| 45:t:101:ARG:HH22 | 55:h:1022:C:HO2' | 1.66 | 0.40 |
| 54:1:40:ARG:HA | 54:1:62:GLN:O | 2.21 | 0.40 |
| 54:1:101:ASN:OD1 | 54:1:103:LYS:HG3 | 2.21 | 0.40 |
| 55:h:150:C:H2' | 55:h:151:A:C8 | 2.57 | 0.40 |
| 55:h:298:G:H3' | 55:h:299:G:C8 | 2.56 | 0.40 |
| 55:h:441:G:H2' | 55:h:442:U:C6 | 2.56 | 0.40 |
| 55:h:1210:C:H2' | 55:h:1211:G:O4' | 2.21 | 0.40 |
| 55:h:1854:U:H2' | 55:h:1855:A:C8 | 2.56 | 0.40 |
| 55:h:2007:C:H2' | 55:h:2008:A:C8 | 2.56 | 0.40 |
| 56:A:164:G:H2' | 56:A:165:U:C6 | 2.55 | 0.40 |
| 6:D:13:ARG:HG3 | 6:D:29:ARG:O | 2.20 | 0.40 |
| 9:G:40:GLU:OE2 | 9:G:44:TYR:CZ | 2.74 | 0.40 |
| 13:K:134:LYS:NZ | 56:A:1507:G:OP1 | 2.45 | 0.40 |
| 24:V:160:ALA:HB1 | 24:V:184:ILE:HD13 | 2.04 | 0.40 |
| 37:j:25:PRO:HB3 | 55:h:2906:U:O2 | 2.21 | 0.40 |
| 40:m:86:GLN:O | 40:m:134:VAL:N | 2.39 | 0.40 |
| 40:m:87:LYS:HG3 | 40:m:166:GLU:OE2 | 2.22 | 0.40 |
| 41:n:41:ARG:HH11 | 55:h:306:U:H5" | 1.86 | 0.40 |
| 41:n:97:ALA:HB3 | 41:n:114:LYS:HD2 | 2.02 | 0.40 |
| 45:t:71:ASP:OD1 | 45:t:71:ASP:N | 2.54 | 0.40 |
| 47:v:83:ARG:HH12 | 47:v:87:LEU:HB2 | 1.86 | 0.40 |
| 53:p:50:THR:HA | 55:h:1202:A:OP1 | 2.21 | 0.40 |
| 55:h:289:A:H62 | 55:h:299:G:H22 | 1.68 | 0.40 |
| 55:h:1138:A:N1 | 55:h:1259:U:H2' | 2.36 | 0.40 |
| 55:h:1162:G:H1' | 55:h:1166:A:H1' | 2.04 | 0.40 |
| 56:A:352:C:O2' | 56:A:354:G:OP1 | 2.29 | 0.40 |
| 56:A:392:C:C2 | 56:A:393:A:C8 | 3.10 | 0.40 |
| 56:A:742:A:H2' | 56:A:743:G:C8 | 2.56 | 0.40 |
| 5:C:95:GLY:C | 5:C:97:GLN:H | 2.28 | 0.40 |
| 7:E:114:ALA:O | 7:E:115:ALA:C | 2.63 | 0.40 |
| 9:G:75:VAL:HG13 | 9:G:86:GLN:HB3 | 2.03 | 0.40 |
| 17:O:33:THR:O | 17:O:37:GLN:HG3 | 2.20 | 0.40 |
| 31:c:9:PRO:HD2 | 31:c:27:LYS:O | 2.21 | 0.40 |
| 36:i:256:ARG:HG3 | 36:i:256:ARG:NH1 | 2.36 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 49:x:10:ALA:HB1 | 49:x:14:ARG:NH2 | 2.36 | 0.40 |
| 49:x:106:PHE:O | 49:x:110:VAL:HG23 | 2.22 | 0.40 |
| 55:h:1556:A:C2 | 55:h:1615:G:N2 | 2.89 | 0.40 |
| 56:A:298:A:H2' | 56:A:299:G:C8 | 2.56 | 0.40 |
| 56:A:472:C:H2' | 56:A:473:A:C8 | 2.56 | 0.40 |
| 56:A:890:A:H2' | 56:A:891:A:C8 | 2.56 | 0.40 |
| 56:A:1141:G:C2 | 56:A:1142:C:C6 | 3.10 | 0.40 |
| 13:K:23:LYS:HE2 | 13:K:23:LYS:HA | 2.04 | 0.40 |
| 14:L:34:CYS:HB2 | 14:L:78:SER:H | 1.86 | 0.40 |
| 18:P:69:PRO:O | 18:P:73:LEU:HG | 2.22 | 0.40 |
| 36:i:206:TRP:O | 36:i:211:ARG:HD3 | 2.21 | 0.40 |
| 41:n:128:GLY:O | 41:n:148:VAL:HG22 | 2.22 | 0.40 |
| 41:n:137:HIS:CG | 41:n:138:THR:N | 2.89 | 0.40 |
| 45:t:81:THR:HG22 | 45:t:82:ARG:O | 2.21 | 0.40 |
| 47:v:110:GLY:HA2 | 47:v:114:ALA:HB2 | 2.03 | 0.40 |
| 55:h:895:G:H2' | 55:h:897:A:N7 | 2.36 | 0.40 |
| 55:h:1003:A:O2' | 55:h:1004:C:H5" | 2.22 | 0.40 |
| 55:h:1181:G:C6 | 55:h:1182:C:C4 | 3.10 | 0.40 |
| 55:h:1287:C:H2' | 55:h:1288:A:H8 | 1.86 | 0.40 |
| 55:h:1732:U:H2' | 55:h:1733:C:H6 | 1.85 | 0.40 |
| 55:h:2879:G:O2' | 55:h:2888:G:O6 | 2.34 | 0.40 |
| 56:A:33:A:O2' | 56:A:34:C:H5' | 2.21 | 0.40 |
| 56:A:496:U:H3' | 56:A:497:G:H5" | 2.02 | 0.40 |
| 56:A:724:C:H2' | 56:A:725:A:H8 | 1.87 | 0.40 |
| 56:A:1035:A:H8 | 56:A:1035:A:O5' | 2.05 | 0.40 |
| 5:C:21:ARG:NH2 | 5:C:57:GLU:OE2 | 2.54 | 0.40 |
| 10:H:97:VAL:HG12 | 10:H:98:LEU:HD13 | 2.04 | 0.40 |
| 11:I:49:ASN:HB3 | 11:I:84:TYR:CD1 | 2.57 | 0.40 |
| 15:M:6:GLY:O | 39:l:119:ARG:NH1 | 2.55 | 0.40 |
| 18:P:13:ILE:H | 18:P:13:ILE:HD12 | 1.87 | 0.40 |
| 18:P:43:LYS:NZ | 56:A:449:C:O2 | 2.35 | 0.40 |
| 38:k:67:ARG:HG3 | 38:k:67:ARG:HH11 | 1.87 | 0.40 |
| 41:n:78:VAL:O | 41:n:147:ASN:N | 2.36 | 0.40 |
| 41:n:124:ILE:HD13 | 41:n:124:ILE:HA | 1.95 | 0.40 |
| 49:x:6:ARG:NH2 | 55:h:677:G:N7 | 2.69 | 0.40 |
| 49:x:109:LEU:HD23 | 49:x:109:LEU:HA | 1.84 | 0.40 |
| 50:y:61:THR:HG23 | 50:y:100:THR:OG1 | 2.21 | 0.40 |
| 53:p:119:ASP:O | 53:p:122:LYS:HG2 | 2.22 | 0.40 |
| 55:h:966:U:H2' | 55:h:967:G:H8 | 1.86 | 0.40 |
| 55:h:1225:G:H2' | 55:h:1226:U:C6 | 2.56 | 0.40 |
| 55:h:1430:C:H2' | 55:h:1431:U:C6 | 2.56 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 55:h:1621:C:H2' | 55:h:1622:G:H8 | 1.86 | 0.40 |
| 55:h:2679:G:H2' | 55:h:2680:C:C6 | 2.56 | 0.40 |
| 55:h:3045:C:H2' | 55:h:3046:C:O4' | 2.20 | 0.40 |
| 56:A:749:G:H4' | 56:A:1497:A:H4' | 2.04 | 0.40 |
| 56:A:1100:U:H2' | 56:A:1101:C:H6 | 1.87 | 0.40 |
| 56:A:1450:C:H2' | 56:A:1451:G:O4' | 2.21 | 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 | |
|---|---|---|---|---|---|---|---|
| 2 | 3 | 21/24 (88%) | 19 (90%) | 2 (10%) | 0 | 100 | 100 |
| 5 | C | 206/275 (75%) | 192 (93%) | 13 (6%) | 1 (0%) | 24 | 59 |
| 6 | D | 198/201 (98%) | 185 (93%) | 13 (7%) | 0 | 100 | 100 |
| 7 | E | 178/214 (83%) | 166 (93%) | 12 (7%) | 0 | 100 | 100 |
| 8 | F | 94/96 (98%) | 91 (97%) | 3 (3%) | 0 | 100 | 100 |
| 9 | G | 153/156 (98%) | 149 (97%) | 4 (3%) | 0 | 100 | 100 |
| 10 | H | 129/132 (98%) | 126 (98%) | 3 (2%) | 0 | 100 | 100 |
| 11 | I | 124/150 (83%) | 113 (91%) | 11 (9%) | 0 | 100 | 100 |
| 12 | J | 97/101 (96%) | 90 (93%) | 6 (6%) | 1 (1%) | 12 | 45 |
| 13 | K | 113/138 (82%) | 107 (95%) | 6 (5%) | 0 | 100 | 100 |
| 14 | L | 120/124 (97%) | 111 (92%) | 9 (8%) | 0 | 100 | 100 |
| 15 | M | 114/124 (92%) | 106 (93%) | 7 (6%) | 1 (1%) | 14 | 47 |
| 16 | N | 58/61 (95%) | 50 (86%) | 8 (14%) | 0 | 100 | 100 |
| 17 | O | 86/89 (97%) | 81 (94%) | 5 (6%) | 0 | 100 | 100 |
| 18 | P | 111/156 (71%) | 101 (91%) | 10 (9%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 19 | Q | 92/98 (94%) | 89 (97%) | 3 (3%) | 0 | 100 | 100 |
| 20 | R | 63/84 (75%) | 61 (97%) | 2 (3%) | 0 | 100 | 100 |
| 21 | S | 80/93 (86%) | 77 (96%) | 3 (4%) | 0 | 100 | 100 |
| 22 | T | 83/86 (96%) | 83 (100%) | 0 | 0 | 100 | 100 |
| 23 | U | 95/100 (95%) | 90 (95%) | 5 (5%) | 0 | 100 | 100 |
| 24 | V | 226/277 (82%) | 213 (94%) | 13 (6%) | 0 | 100 | 100 |
| 25 | W | 190/215 (88%) | 181 (95%) | 9 (5%) | 0 | 100 | 100 |
| 26 | X | 77/88 (88%) | 73 (95%) | 4 (5%) | 0 | 100 | 100 |
| 27 | Y | 61/64 (95%) | 60 (98%) | 1 (2%) | 0 | 100 | 100 |
| 28 | Z | 62/77 (80%) | 61 (98%) | 1 (2%) | 0 | 100 | 100 |
| 29 | a | 57/61 (93%) | 53 (93%) | 4 (7%) | 0 | 100 | 100 |
| 30 | b | 52/57 (91%) | 50 (96%) | 2 (4%) | 0 | 100 | 100 |
| 31 | c | 47/55 (86%) | 45 (96%) | 2 (4%) | 0 | 100 | 100 |
| 32 | d | 44/47 (94%) | 44 (100%) | 0 | 0 | 100 | 100 |
| 33 | e | 61/64 (95%) | 60 (98%) | 1 (2%) | 0 | 100 | 100 |
| 34 | f | 35/37 (95%) | 33 (94%) | 2 (6%) | 0 | 100 | 100 |
| 35 | g | 46/75 (61%) | 42 (91%) | 4 (9%) | 0 | 100 | 100 |
| 36 | i | 273/278 (98%) | 257 (94%) | 16 (6%) | 0 | 100 | 100 |
| 37 | j | 212/217 (98%) | 199 (94%) | 13 (6%) | 0 | 100 | 100 |
| 38 | k | 207/215 (96%) | 203 (98%) | 4 (2%) | 0 | 100 | 100 |
| 39 | l | 180/187 (96%) | 172 (96%) | 8 (4%) | 0 | 100 | 100 |
| 40 | m | 174/179 (97%) | 166 (95%) | 8 (5%) | 0 | 100 | 100 |
| 41 | n | 149/151 (99%) | 136 (91%) | 13 (9%) | 0 | 100 | 100 |
| 42 | q | 144/147 (98%) | 138 (96%) | 6 (4%) | 0 | 100 | 100 |
| 43 | r | 120/122 (98%) | 113 (94%) | 7 (6%) | 0 | 100 | 100 |
| 44 | s | 143/147 (97%) | 129 (90%) | 14 (10%) | 0 | 100 | 100 |
| 45 | t | 134/138 (97%) | 125 (93%) | 9 (7%) | 0 | 100 | 100 |
| 46 | u | 116/199 (58%) | 109 (94%) | 7 (6%) | 0 | 100 | 100 |
| 47 | v | 124/127 (98%) | 122 (98%) | 2 (2%) | 0 | 100 | 100 |
| 48 | w | 111/113 (98%) | 105 (95%) | 6 (5%) | 0 | 100 | 100 |
| 49 | x | 122/129 (95%) | 120 (98%) | 2 (2%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 50 | y | 98/103 (95%) | 95 (97%) | 3 (3%) | 0 | 100 | 100 |
| 51 | z | 112/153 (73%) | 109 (97%) | 3 (3%) | 0 | 100 | 100 |
| 52 | o | 131/142 (92%) | 123 (94%) | 8 (6%) | 0 | 100 | 100 |
| 53 | p | 124/175 (71%) | 120 (97%) | 4 (3%) | 0 | 100 | 100 |
| 54 | 1 | 93/105 (89%) | 90 (97%) | 3 (3%) | 0 | 100 | 100 |
| All | All | 5940/6646 (89%) | 5633 (95%) | 304 (5%) | 3 (0%) | 49 | 80 |

All (3) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 12 | J | 57 | LYS |
| 5 | C | 125 | ASN |
| 15 | M | 5 | VAL |

### 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 | |
|---|---|---|---|---|---|---|
| 2 | 3 | 18/19 (95%) | 18 (100%) | 0 | 100 | 100 |
| 5 | C | 170/212 (80%) | 170 (100%) | 0 | 100 | 100 |
| 6 | D | 175/176 (99%) | 175 (100%) | 0 | 100 | 100 |
| 7 | E | 127/147 (86%) | 127 (100%) | 0 | 100 | 100 |
| 8 | F | 85/85 (100%) | 85 (100%) | 0 | 100 | 100 |
| 9 | G | 131/132 (99%) | 131 (100%) | 0 | 100 | 100 |
| 10 | H | 107/108 (99%) | 107 (100%) | 0 | 100 | 100 |
| 11 | I | 102/125 (82%) | 102 (100%) | 0 | 100 | 100 |
| 12 | J | 89/90 (99%) | 89 (100%) | 0 | 100 | 100 |
| 13 | K | 89/105 (85%) | 89 (100%) | 0 | 100 | 100 |
| 14 | L | 103/105 (98%) | 103 (100%) | 0 | 100 | 100 |
| 15 | M | 99/104 (95%) | 99 (100%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 16 | N | 49/50 (98%) | 49 (100%) | 0 | 100 | 100 |
| 17 | O | 76/77 (99%) | 76 (100%) | 0 | 100 | 100 |
| 18 | P | 92/118 (78%) | 91 (99%) | 1 (1%) | 65 | 74 |
| 19 | Q | 80/83 (96%) | 80 (100%) | 0 | 100 | 100 |
| 20 | R | 55/72 (76%) | 55 (100%) | 0 | 100 | 100 |
| 21 | S | 73/84 (87%) | 73 (100%) | 0 | 100 | 100 |
| 22 | T | 69/70 (99%) | 69 (100%) | 0 | 100 | 100 |
| 23 | U | 83/85 (98%) | 83 (100%) | 0 | 100 | 100 |
| 24 | V | 191/218 (88%) | 191 (100%) | 0 | 100 | 100 |
| 25 | W | 155/168 (92%) | 155 (100%) | 0 | 100 | 100 |
| 26 | X | 58/63 (92%) | 58 (100%) | 0 | 100 | 100 |
| 27 | Y | 50/51 (98%) | 50 (100%) | 0 | 100 | 100 |
| 28 | Z | 58/66 (88%) | 58 (100%) | 0 | 100 | 100 |
| 29 | a | 52/54 (96%) | 52 (100%) | 0 | 100 | 100 |
| 30 | b | 43/46 (94%) | 43 (100%) | 0 | 100 | 100 |
| 31 | c | 47/52 (90%) | 47 (100%) | 0 | 100 | 100 |
| 32 | d | 35/36 (97%) | 35 (100%) | 0 | 100 | 100 |
| 33 | e | 53/54 (98%) | 53 (100%) | 0 | 100 | 100 |
| 34 | f | 35/35 (100%) | 35 (100%) | 0 | 100 | 100 |
| 35 | g | 43/63 (68%) | 43 (100%) | 0 | 100 | 100 |
| 36 | i | 215/218 (99%) | 215 (100%) | 0 | 100 | 100 |
| 37 | j | 160/163 (98%) | 160 (100%) | 0 | 100 | 100 |
| 38 | k | 169/173 (98%) | 169 (100%) | 0 | 100 | 100 |
| 39 | l | 151/156 (97%) | 151 (100%) | 0 | 100 | 100 |
| 40 | m | 148/150 (99%) | 148 (100%) | 0 | 100 | 100 |
| 41 | n | 90/116 (78%) | 90 (100%) | 0 | 100 | 100 |
| 42 | q | 119/120 (99%) | 119 (100%) | 0 | 100 | 100 |
| 43 | r | 100/100 (100%) | 100 (100%) | 0 | 100 | 100 |
| 44 | s | 112/114 (98%) | 112 (100%) | 0 | 100 | 100 |
| 45 | t | 114/116 (98%) | 114 (100%) | 0 | 100 | 100 |
| 46 | u | 97/158 (61%) | 97 (100%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 47 | v | 93/94 (99%) | 93 (100%) | 0 | 100 | 100 |
| 48 | w | 100/100 (100%) | 100 (100%) | 0 | 100 | 100 |
| 49 | x | 97/99 (98%) | 97 (100%) | 0 | 100 | 100 |
| 50 | y | 81/83 (98%) | 81 (100%) | 0 | 100 | 100 |
| 51 | z | 90/117 (77%) | 90 (100%) | 0 | 100 | 100 |
| 52 | o | 102/108 (94%) | 102 (100%) | 0 | 100 | 100 |
| 53 | p | 89/120 (74%) | 89 (100%) | 0 | 100 | 100 |
| 54 | 1 | 81/86 (94%) | 81 (100%) | 0 | 100 | 100 |
| All | All | 4900/5344 (92%) | 4899 (100%) | 1 (0%) | 100 | 100 |

All (1) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 18 | P | 65 | GLN |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (42) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | 3 | 23 | ASN |
| 5 | C | 125 | ASN |
| 5 | C | 143 | GLN |
| 5 | C | 176 | HIS |
| 6 | D | 75 | ASN |
| 6 | D | 95 | ASN |
| 6 | D | 193 | GLN |
| 8 | F | 80 | ASN |
| 9 | G | 68 | ASN |
| 11 | I | 27 | GLN |
| 13 | K | 38 | ASN |
| 13 | K | 58 | HIS |
| 15 | M | 42 | ASN |
| 15 | M | 106 | ASN |
| 17 | O | 18 | HIS |
| 17 | O | 72 | GLN |
| 18 | P | 41 | HIS |
| 21 | S | 22 | GLN |
| 22 | T | 74 | ASN |
| 23 | U | 27 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 24 | V | 15 | HIS |
| 24 | V | 155 | GLN |
| 25 | W | 40 | HIS |
| 26 | X | 44 | HIS |
| 29 | a | 33 | GLN |
| 33 | e | 59 | ASN |
| 36 | i | 87 | ASN |
| 36 | i | 109 | GLN |
| 37 | j | 69 | GLN |
| 37 | j | 145 | HIS |
| 37 | j | 178 | GLN |
| 38 | k | 91 | HIS |
| 39 | l | 24 | GLN |
| 39 | l | 146 | HIS |
| 39 | l | 187 | ASN |
| 41 | n | 11 | HIS |
| 42 | q | 136 | GLN |
| 42 | q | 144 | GLN |
| 44 | s | 69 | ASN |
| 45 | t | 9 | HIS |
| 49 | x | 39 | GLN |
| 52 | o | 32 | GLN |

### 5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 1 | 2 | 75/76 (98%) | 17 (22%) | 0 |
| 3 | 4 | 7/8 (87%) | 2 (28%) | 1 (14%) |
| 4 | B | 117/118 (99%) | 18 (15%) | 1 (0%) |
| 55 | h | 3082/3120 (98%) | 584 (18%) | 0 |
| 56 | A | 1510/1528 (98%) | 300 (19%) | 14 (0%) |
| All | All | 4791/4850 (98%) | 921 (19%) | 16 (0%) |

All (921) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 2 | 14 | A |
| 1 | 2 | 17 | C |
| 1 | 2 | 19 | G |
| 1 | 2 | 20 | U |
| 1 | 2 | 21 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 2 | 22 | G |
| 1 | 2 | 23 | A |
| 1 | 2 | 42 | C |
| 1 | 2 | 43 | C |
| 1 | 2 | 46 | G |
| 1 | 2 | 47 | U |
| 1 | 2 | 48 | C |
| 1 | 2 | 52 | G |
| 1 | 2 | 69 | G |
| 1 | 2 | 70 | G |
| 1 | 2 | 71 | G |
| 1 | 2 | 76 | A |
| 3 | 4 | 13 | A |
| 3 | 4 | 19 | C |
| 4 | B | 4 | A |
| 4 | B | 9 | G |
| 4 | B | 11 | U |
| 4 | B | 12 | C |
| 4 | B | 13 | C |
| 4 | B | 23 | G |
| 4 | B | 30 | G |
| 4 | B | 42 | C |
| 4 | B | 46 | A |
| 4 | B | 57 | U |
| 4 | B | 58 | A |
| 4 | B | 67 | A |
| 4 | B | 87 | U |
| 4 | B | 89 | C |
| 4 | B | 90 | G |
| 4 | B | 103 | G |
| 4 | B | 107 | A |
| 4 | B | 114 | A |
| 55 | h | 7 | U |
| 55 | h | 12 | G |
| 55 | h | 20 | G |
| 55 | h | 31 | U |
| 55 | h | 32 | G |
| 55 | h | 45 | G |
| 55 | h | 46 | A |
| 55 | h | 48 | G |
| 55 | h | 60 | A |
| 55 | h | 68 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 71 | A |
| 55 | h | 72 | G |
| 55 | h | 82 | G |
| 55 | h | 90 | C |
| 55 | h | 94 | G |
| 55 | h | 95 | C |
| 55 | h | 98 | U |
| 55 | h | 99 | G |
| 55 | h | 115 | A |
| 55 | h | 117 | U |
| 55 | h | 125 | C |
| 55 | h | 144 | U |
| 55 | h | 148 | A |
| 55 | h | 164 | A |
| 55 | h | 172 | C |
| 55 | h | 176 | G |
| 55 | h | 180 | A |
| 55 | h | 195 | A |
| 55 | h | 198 | A |
| 55 | h | 212 | A |
| 55 | h | 214 | G |
| 55 | h | 215 | A |
| 55 | h | 221 | A |
| 55 | h | 227 | A |
| 55 | h | 228 | A |
| 55 | h | 229 | U |
| 55 | h | 233 | A |
| 55 | h | 248 | G |
| 55 | h | 264 | G |
| 55 | h | 265 | A |
| 55 | h | 275 | C |
| 55 | h | 283 | U |
| 55 | h | 285 | U |
| 55 | h | 286 | G |
| 55 | h | 290 | C |
| 55 | h | 291 | C |
| 55 | h | 292 | G |
| 55 | h | 296 | A |
| 55 | h | 297 | G |
| 55 | h | 299 | G |
| 55 | h | 300 | G |
| 55 | h | 301 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 302 | U |
| 55 | h | 303 | G |
| 55 | h | 315 | U |
| 55 | h | 317 | G |
| 55 | h | 318 | U |
| 55 | h | 319 | G |
| 55 | h | 322 | A |
| 55 | h | 323 | C |
| 55 | h | 324 | C |
| 55 | h | 326 | A |
| 55 | h | 330 | U |
| 55 | h | 331 | U |
| 55 | h | 336 | C |
| 55 | h | 337 | U |
| 55 | h | 342 | C |
| 55 | h | 344 | G |
| 55 | h | 348 | G |
| 55 | h | 351 | G |
| 55 | h | 352 | G |
| 55 | h | 357 | U |
| 55 | h | 358 | G |
| 55 | h | 361 | A |
| 55 | h | 369 | G |
| 55 | h | 370 | U |
| 55 | h | 384 | G |
| 55 | h | 393 | U |
| 55 | h | 404 | A |
| 55 | h | 412 | A |
| 55 | h | 413 | G |
| 55 | h | 424 | G |
| 55 | h | 425 | U |
| 55 | h | 434 | G |
| 55 | h | 445 | U |
| 55 | h | 446 | G |
| 55 | h | 447 | A |
| 55 | h | 449 | G |
| 55 | h | 450 | G |
| 55 | h | 452 | G |
| 55 | h | 453 | U |
| 55 | h | 454 | U |
| 55 | h | 460 | G |
| 55 | h | 471 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 474 | G |
| 55 | h | 489 | A |
| 55 | h | 490 | A |
| 55 | h | 493 | U |
| 55 | h | 494 | G |
| 55 | h | 497 | G |
| 55 | h | 498 | G |
| 55 | h | 505 | C |
| 55 | h | 512 | G |
| 55 | h | 531 | A |
| 55 | h | 543 | U |
| 55 | h | 544 | U |
| 55 | h | 566 | A |
| 55 | h | 567 | A |
| 55 | h | 568 | A |
| 55 | h | 569 | G |
| 55 | h | 589 | A |
| 55 | h | 591 | G |
| 55 | h | 592 | A |
| 55 | h | 594 | U |
| 55 | h | 595 | A |
| 55 | h | 596 | C |
| 55 | h | 616 | A |
| 55 | h | 617 | U |
| 55 | h | 618 | C |
| 55 | h | 619 | C |
| 55 | h | 620 | G |
| 55 | h | 623 | A |
| 55 | h | 634 | C |
| 55 | h | 636 | U |
| 55 | h | 637 | G |
| 55 | h | 638 | U |
| 55 | h | 639 | C |
| 55 | h | 640 | G |
| 55 | h | 642 | G |
| 55 | h | 644 | G |
| 55 | h | 647 | G |
| 55 | h | 655 | G |
| 55 | h | 665 | G |
| 55 | h | 666 | A |
| 55 | h | 667 | A |
| 55 | h | 679 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 684 | G |
| 55 | h | 685 | G |
| 55 | h | 696 | A |
| 55 | h | 706 | G |
| 55 | h | 707 | G |
| 55 | h | 708 | G |
| 55 | h | 709 | U |
| 55 | h | 715 | A |
| 55 | h | 721 | A |
| 55 | h | 728 | G |
| 55 | h | 731 | A |
| 55 | h | 738 | A |
| 55 | h | 740 | A |
| 55 | h | 747 | A |
| 55 | h | 756 | A |
| 55 | h | 757 | G |
| 55 | h | 758 | A |
| 55 | h | 759 | G |
| 55 | h | 760 | U |
| 55 | h | 764 | U |
| 55 | h | 765 | G |
| 55 | h | 766 | G |
| 55 | h | 768 | G |
| 55 | h | 784 | G |
| 55 | h | 785 | A |
| 55 | h | 801 | U |
| 55 | h | 845 | C |
| 55 | h | 855 | C |
| 55 | h | 862 | U |
| 55 | h | 863 | G |
| 55 | h | 864 | A |
| 55 | h | 868 | C |
| 55 | h | 872 | G |
| 55 | h | 878 | G |
| 55 | h | 879 | A |
| 55 | h | 880 | G |
| 55 | h | 890 | G |
| 55 | h | 891 | G |
| 55 | h | 897 | A |
| 55 | h | 899 | G |
| 55 | h | 904 | A |
| 55 | h | 907 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 917 | A |
| 55 | h | 920 | G |
| 55 | h | 927 | C |
| 55 | h | 942 | U |
| 55 | h | 944 | A |
| 55 | h | 960 | G |
| 55 | h | 961 | U |
| 55 | h | 972 | A |
| 55 | h | 974 | G |
| 55 | h | 975 | U |
| 55 | h | 981 | U |
| 55 | h | 982 | A |
| 55 | h | 994 | A |
| 55 | h | 1001 | C |
| 55 | h | 1002 | C |
| 55 | h | 1003 | A |
| 55 | h | 1004 | C |
| 55 | h | 1005 | A |
| 55 | h | 1006 | G |
| 55 | h | 1007 | G |
| 55 | h | 1008 | G |
| 55 | h | 1011 | A |
| 55 | h | 1013 | U |
| 55 | h | 1014 | G |
| 55 | h | 1022 | C |
| 55 | h | 1025 | A |
| 55 | h | 1046 | C |
| 55 | h | 1047 | A |
| 55 | h | 1048 | A |
| 55 | h | 1049 | G |
| 55 | h | 1058 | A |
| 55 | h | 1063 | G |
| 55 | h | 1076 | A |
| 55 | h | 1078 | G |
| 55 | h | 1085 | G |
| 55 | h | 1092 | G |
| 55 | h | 1101 | A |
| 55 | h | 1114 | G |
| 55 | h | 1130 | C |
| 55 | h | 1131 | G |
| 55 | h | 1144 | A |
| 55 | h | 1151 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 1164 | A |
| 55 | h | 1165 | G |
| 55 | h | 1173 | G |
| 55 | h | 1174 | G |
| 55 | h | 1178 | U |
| 55 | h | 1179 | U |
| 55 | h | 1181 | G |
| 55 | h | 1184 | U |
| 55 | h | 1186 | G |
| 55 | h | 1187 | A |
| 55 | h | 1188 | A |
| 55 | h | 1189 | G |
| 55 | h | 1190 | C |
| 55 | h | 1191 | A |
| 55 | h | 1193 | C |
| 55 | h | 1202 | A |
| 55 | h | 1203 | A |
| 55 | h | 1205 | G |
| 55 | h | 1206 | A |
| 55 | h | 1207 | G |
| 55 | h | 1208 | U |
| 55 | h | 1212 | U |
| 55 | h | 1213 | A |
| 55 | h | 1214 | A |
| 55 | h | 1219 | U |
| 55 | h | 1226 | U |
| 55 | h | 1230 | G |
| 55 | h | 1232 | G |
| 55 | h | 1240 | G |
| 55 | h | 1250 | U |
| 55 | h | 1251 | A |
| 55 | h | 1252 | G |
| 55 | h | 1253 | C |
| 55 | h | 1254 | G |
| 55 | h | 1260 | C |
| 55 | h | 1261 | A |
| 55 | h | 1262 | A |
| 55 | h | 1292 | U |
| 55 | h | 1293 | G |
| 55 | h | 1294 | U |
| 55 | h | 1335 | G |
| 55 | h | 1343 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 1344 | A |
| 55 | h | 1353 | G |
| 55 | h | 1362 | A |
| 55 | h | 1365 | G |
| 55 | h | 1368 | A |
| 55 | h | 1371 | G |
| 55 | h | 1386 | G |
| 55 | h | 1387 | A |
| 55 | h | 1389 | U |
| 55 | h | 1399 | A |
| 55 | h | 1404 | C |
| 55 | h | 1415 | A |
| 55 | h | 1416 | A |
| 55 | h | 1435 | C |
| 55 | h | 1436 | C |
| 55 | h | 1437 | A |
| 55 | h | 1448 | C |
| 55 | h | 1456 | G |
| 55 | h | 1465 | C |
| 55 | h | 1467 | U |
| 55 | h | 1480 | A |
| 55 | h | 1494 | U |
| 55 | h | 1499 | A |
| 55 | h | 1502 | G |
| 55 | h | 1507 | G |
| 55 | h | 1508 | A |
| 55 | h | 1510 | A |
| 55 | h | 1522 | G |
| 55 | h | 1529 | U |
| 55 | h | 1531 | C |
| 55 | h | 1533 | U |
| 55 | h | 1534 | C |
| 55 | h | 1536 | A |
| 55 | h | 1540 | U |
| 55 | h | 1543 | A |
| 55 | h | 1544 | U |
| 55 | h | 1549 | G |
| 55 | h | 1550 | G |
| 55 | h | 1551 | U |
| 55 | h | 1553 | C |
| 55 | h | 1554 | U |
| 55 | h | 1556 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 1564 | A |
| 55 | h | 1565 | A |
| 55 | h | 1567 | C |
| 55 | h | 1611 | A |
| 55 | h | 1620 | U |
| 55 | h | 1623 | U |
| 55 | h | 1625 | G |
| 55 | h | 1629 | G |
| 55 | h | 1630 | U |
| 55 | h | 1631 | A |
| 55 | h | 1632 | G |
| 55 | h | 1635 | A |
| 55 | h | 1639 | G |
| 55 | h | 1640 | A |
| 55 | h | 1641 | U |
| 55 | h | 1648 | A |
| 55 | h | 1649 | C |
| 55 | h | 1670 | G |
| 55 | h | 1676 | G |
| 55 | h | 1679 | A |
| 55 | h | 1680 | A |
| 55 | h | 1681 | U |
| 55 | h | 1703 | G |
| 55 | h | 1711 | G |
| 55 | h | 1713 | U |
| 55 | h | 1717 | U |
| 55 | h | 1724 | G |
| 55 | h | 1728 | U |
| 55 | h | 1730 | U |
| 55 | h | 1731 | A |
| 55 | h | 1737 | A |
| 55 | h | 1738 | G |
| 55 | h | 1753 | C |
| 55 | h | 1754 | G |
| 55 | h | 1755 | A |
| 55 | h | 1756 | G |
| 55 | h | 1757 | U |
| 55 | h | 1767 | U |
| 55 | h | 1768 | C |
| 55 | h | 1769 | G |
| 55 | h | 1780 | G |
| 55 | h | 1786 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 1789 | A |
| 55 | h | 1798 | U |
| 55 | h | 1801 | C |
| 55 | h | 1802 | G |
| 55 | h | 1803 | A |
| 55 | h | 1826 | A |
| 55 | h | 1864 | U |
| 55 | h | 1866 | C |
| 55 | h | 1867 | G |
| 55 | h | 1870 | U |
| 55 | h | 1871 | G |
| 55 | h | 1872 | A |
| 55 | h | 1892 | G |
| 55 | h | 1895 | A |
| 55 | h | 1921 | G |
| 55 | h | 1933 | G |
| 55 | h | 1946 | U |
| 55 | h | 1947 | U |
| 55 | h | 1948 | A |
| 55 | h | 1949 | C |
| 55 | h | 1950 | G |
| 55 | h | 1967 | G |
| 55 | h | 1973 | C |
| 55 | h | 1974 | A |
| 55 | h | 1975 | A |
| 55 | h | 1981 | U |
| 55 | h | 1990 | A |
| 55 | h | 1993 | G |
| 55 | h | 2001 | A |
| 55 | h | 2017 | C |
| 55 | h | 2018 | G |
| 55 | h | 2026 | A |
| 55 | h | 2033 | U |
| 55 | h | 2046 | A |
| 55 | h | 2065 | A |
| 55 | h | 2074 | G |
| 55 | h | 2075 | G |
| 55 | h | 2085 | C |
| 55 | h | 2086 | U |
| 55 | h | 2089 | C |
| 55 | h | 2090 | U |
| 55 | h | 2091 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 2092 | U |
| 55 | h | 2093 | G |
| 55 | h | 2094 | G |
| 55 | h | 2095 | G |
| 55 | h | 2096 | G |
| 55 | h | 2107 | G |
| 55 | h | 2110 | U |
| 55 | h | 2125 | A |
| 55 | h | 2126 | C |
| 55 | h | 2127 | G |
| 55 | h | 2129 | C |
| 55 | h | 2130 | G |
| 55 | h | 2137 | A |
| 55 | h | 2138 | C |
| 55 | h | 2141 | U |
| 55 | h | 2153 | G |
| 55 | h | 2154 | G |
| 55 | h | 2160 | A |
| 55 | h | 2163 | U |
| 55 | h | 2179 | U |
| 55 | h | 2184 | A |
| 55 | h | 2189 | C |
| 55 | h | 2190 | A |
| 55 | h | 2191 | C |
| 55 | h | 2194 | A |
| 55 | h | 2195 | U |
| 55 | h | 2196 | G |
| 55 | h | 2215 | U |
| 55 | h | 2217 | U |
| 55 | h | 2221 | A |
| 55 | h | 2244 | A |
| 55 | h | 2247 | A |
| 55 | h | 2255 | A |
| 55 | h | 2256 | G |
| 55 | h | 2257 | A |
| 55 | h | 2263 | G |
| 55 | h | 2267 | C |
| 55 | h | 2276 | G |
| 55 | h | 2279 | C |
| 55 | h | 2280 | G |
| 55 | h | 2284 | A |
| 55 | h | 2285 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 2286 | A |
| 55 | h | 2316 | G |
| 55 | h | 2320 | C |
| 55 | h | 2325 | U |
| 55 | h | 2329 | G |
| 55 | h | 2330 | U |
| 55 | h | 2331 | U |
| 55 | h | 2333 | G |
| 55 | h | 2334 | U |
| 55 | h | 2335 | G |
| 55 | h | 2336 | U |
| 55 | h | 2337 | A |
| 55 | h | 2338 | G |
| 55 | h | 2340 | A |
| 55 | h | 2341 | U |
| 55 | h | 2342 | A |
| 55 | h | 2346 | G |
| 55 | h | 2349 | A |
| 55 | h | 2351 | A |
| 55 | h | 2353 | U |
| 55 | h | 2354 | G |
| 55 | h | 2355 | U |
| 55 | h | 2356 | G |
| 55 | h | 2357 | A |
| 55 | h | 2368 | C |
| 55 | h | 2373 | G |
| 55 | h | 2380 | G |
| 55 | h | 2382 | G |
| 55 | h | 2383 | U |
| 55 | h | 2384 | C |
| 55 | h | 2385 | G |
| 55 | h | 2387 | U |
| 55 | h | 2388 | G |
| 55 | h | 2393 | A |
| 55 | h | 2394 | A |
| 55 | h | 2395 | U |
| 55 | h | 2401 | U |
| 55 | h | 2402 | C |
| 55 | h | 2404 | G |
| 55 | h | 2406 | U |
| 55 | h | 2408 | G |
| 55 | h | 2410 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 2413 | G |
| 55 | h | 2421 | A |
| 55 | h | 2427 | G |
| 55 | h | 2434 | A |
| 55 | h | 2436 | A |
| 55 | h | 2447 | G |
| 55 | h | 2449 | A |
| 55 | h | 2462 | G |
| 55 | h | 2463 | G |
| 55 | h | 2467 | U |
| 55 | h | 2503 | G |
| 55 | h | 2507 | C |
| 55 | h | 2511 | A |
| 55 | h | 2512 | A |
| 55 | h | 2521 | C |
| 55 | h | 2529 | A |
| 55 | h | 2531 | G |
| 55 | h | 2532 | G |
| 55 | h | 2533 | C |
| 55 | h | 2535 | A |
| 55 | h | 2544 | U |
| 55 | h | 2548 | U |
| 55 | h | 2549 | G |
| 55 | h | 2558 | C |
| 55 | h | 2559 | A |
| 55 | h | 2567 | U |
| 55 | h | 2569 | G |
| 55 | h | 2571 | C |
| 55 | h | 2574 | C |
| 55 | h | 2607 | G |
| 55 | h | 2609 | A |
| 55 | h | 2613 | G |
| 55 | h | 2615 | G |
| 55 | h | 2627 | C |
| 55 | h | 2640 | G |
| 55 | h | 2647 | U |
| 55 | h | 2649 | A |
| 55 | h | 2653 | G |
| 55 | h | 2654 | A |
| 55 | h | 2655 | U |
| 55 | h | 2659 | A |
| 55 | h | 2664 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 2665 | C |
| 55 | h | 2672 | A |
| 55 | h | 2677 | A |
| 55 | h | 2688 | C |
| 55 | h | 2693 | A |
| 55 | h | 2694 | G |
| 55 | h | 2698 | C |
| 55 | h | 2699 | C |
| 55 | h | 2702 | A |
| 55 | h | 2705 | G |
| 55 | h | 2715 | U |
| 55 | h | 2716 | U |
| 55 | h | 2718 | G |
| 55 | h | 2722 | C |
| 55 | h | 2726 | G |
| 55 | h | 2729 | G |
| 55 | h | 2742 | A |
| 55 | h | 2744 | C |
| 55 | h | 2749 | G |
| 55 | h | 2753 | G |
| 55 | h | 2786 | U |
| 55 | h | 2790 | A |
| 55 | h | 2791 | G |
| 55 | h | 2796 | A |
| 55 | h | 2797 | C |
| 55 | h | 2826 | A |
| 55 | h | 2827 | G |
| 55 | h | 2833 | U |
| 55 | h | 2837 | U |
| 55 | h | 2839 | U |
| 55 | h | 2853 | C |
| 55 | h | 2854 | A |
| 55 | h | 2862 | G |
| 55 | h | 2865 | G |
| 55 | h | 2870 | C |
| 55 | h | 2876 | C |
| 55 | h | 2887 | G |
| 55 | h | 2913 | U |
| 55 | h | 2915 | C |
| 55 | h | 2926 | A |
| 55 | h | 2936 | C |
| 55 | h | 2938 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 55 | h | 2941 | G |
| 55 | h | 2948 | C |
| 55 | h | 2950 | C |
| 55 | h | 2951 | G |
| 55 | h | 2957 | A |
| 55 | h | 2968 | G |
| 55 | h | 2972 | A |
| 55 | h | 2982 | A |
| 55 | h | 3002 | A |
| 55 | h | 3005 | A |
| 55 | h | 3009 | U |
| 55 | h | 3015 | C |
| 55 | h | 3019 | C |
| 55 | h | 3021 | A |
| 55 | h | 3022 | G |
| 55 | h | 3023 | G |
| 55 | h | 3024 | A |
| 55 | h | 3041 | C |
| 55 | h | 3042 | A |
| 55 | h | 3056 | A |
| 55 | h | 3082 | U |
| 55 | h | 3088 | C |
| 55 | h | 3093 | A |
| 55 | h | 3100 | A |
| 55 | h | 3101 | C |
| 55 | h | 3105 | C |
| 55 | h | 3106 | C |
| 55 | h | 3114 | A |
| 56 | A | 8 | U |
| 56 | A | 9 | U |
| 56 | A | 11 | G |
| 56 | A | 12 | A |
| 56 | A | 13 | G |
| 56 | A | 36 | A |
| 56 | A | 43 | G |
| 56 | A | 51 | C |
| 56 | A | 52 | U |
| 56 | A | 53 | U |
| 56 | A | 54 | A |
| 56 | A | 55 | A |
| 56 | A | 58 | C |
| 56 | A | 59 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | A | 77 | G |
| 56 | A | 81 | C |
| 56 | A | 82 | U |
| 56 | A | 83 | U |
| 56 | A | 85 | C |
| 56 | A | 86 | G |
| 56 | A | 87 | G |
| 56 | A | 89 | G |
| 56 | A | 93 | C |
| 56 | A | 116 | A |
| 56 | A | 117 | C |
| 56 | A | 118 | A |
| 56 | A | 126 | G |
| 56 | A | 128 | U |
| 56 | A | 139 | C |
| 56 | A | 141 | U |
| 56 | A | 160 | C |
| 56 | A | 179 | C |
| 56 | A | 180 | A |
| 56 | A | 183 | C |
| 56 | A | 192 | G |
| 56 | A | 193 | C |
| 56 | A | 201 | G |
| 56 | A | 207 | G |
| 56 | A | 210 | A |
| 56 | A | 211 | A |
| 56 | A | 215 | U |
| 56 | A | 216 | U |
| 56 | A | 217 | U |
| 56 | A | 218 | G |
| 56 | A | 220 | G |
| 56 | A | 245 | C |
| 56 | A | 246 | A |
| 56 | A | 247 | G |
| 56 | A | 251 | G |
| 56 | A | 266 | G |
| 56 | A | 267 | C |
| 56 | A | 279 | A |
| 56 | A | 280 | C |
| 56 | A | 281 | G |
| 56 | A | 289 | G |
| 56 | A | 298 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | A | 318 | G |
| 56 | A | 321 | A |
| 56 | A | 329 | A |
| 56 | A | 332 | G |
| 56 | A | 344 | A |
| 56 | A | 345 | C |
| 56 | A | 347 | G |
| 56 | A | 349 | A |
| 56 | A | 351 | G |
| 56 | A | 352 | C |
| 56 | A | 353 | A |
| 56 | A | 354 | G |
| 56 | A | 356 | A |
| 56 | A | 367 | U |
| 56 | A | 371 | A |
| 56 | A | 372 | C |
| 56 | A | 373 | A |
| 56 | A | 384 | G |
| 56 | A | 388 | G |
| 56 | A | 390 | U |
| 56 | A | 397 | A |
| 56 | A | 398 | C |
| 56 | A | 406 | G |
| 56 | A | 411 | A |
| 56 | A | 412 | U |
| 56 | A | 413 | G |
| 56 | A | 414 | A |
| 56 | A | 419 | C |
| 56 | A | 421 | U |
| 56 | A | 422 | C |
| 56 | A | 423 | G |
| 56 | A | 424 | G |
| 56 | A | 426 | U |
| 56 | A | 429 | U |
| 56 | A | 430 | A |
| 56 | A | 433 | C |
| 56 | A | 435 | U |
| 56 | A | 436 | C |
| 56 | A | 444 | A |
| 56 | A | 452 | A |
| 56 | A | 453 | G |
| 56 | A | 456 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | A | 457 | A |
| 56 | A | 458 | A |
| 56 | A | 459 | G |
| 56 | A | 461 | G |
| 56 | A | 464 | G |
| 56 | A | 465 | G |
| 56 | A | 466 | U |
| 56 | A | 469 | G |
| 56 | A | 475 | A |
| 56 | A | 476 | A |
| 56 | A | 477 | G |
| 56 | A | 478 | A |
| 56 | A | 482 | A |
| 56 | A | 486 | G |
| 56 | A | 488 | C |
| 56 | A | 490 | A |
| 56 | A | 491 | C |
| 56 | A | 497 | G |
| 56 | A | 498 | C |
| 56 | A | 499 | C |
| 56 | A | 501 | G |
| 56 | A | 507 | G |
| 56 | A | 509 | G |
| 56 | A | 511 | U |
| 56 | A | 512 | A |
| 56 | A | 513 | A |
| 56 | A | 515 | A |
| 56 | A | 520 | G |
| 56 | A | 527 | A |
| 56 | A | 539 | A |
| 56 | A | 542 | U |
| 56 | A | 544 | C |
| 56 | A | 552 | A |
| 56 | A | 553 | A |
| 56 | A | 556 | A |
| 56 | A | 557 | G |
| 56 | A | 576 | C |
| 56 | A | 612 | U |
| 56 | A | 613 | G |
| 56 | A | 629 | G |
| 56 | A | 633 | A |
| 56 | A | 645 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | A | 666 | U |
| 56 | A | 668 | G |
| 56 | A | 680 | G |
| 56 | A | 698 | A |
| 56 | A | 700 | C |
| 56 | A | 701 | G |
| 56 | A | 702 | G |
| 56 | A | 703 | U |
| 56 | A | 711 | G |
| 56 | A | 729 | A |
| 56 | A | 735 | G |
| 56 | A | 757 | A |
| 56 | A | 761 | A |
| 56 | A | 765 | G |
| 56 | A | 772 | A |
| 56 | A | 773 | U |
| 56 | A | 774 | A |
| 56 | A | 779 | G |
| 56 | A | 793 | U |
| 56 | A | 795 | A |
| 56 | A | 797 | C |
| 56 | A | 799 | G |
| 56 | A | 808 | A |
| 56 | A | 812 | G |
| 56 | A | 822 | U |
| 56 | A | 823 | U |
| 56 | A | 824 | C |
| 56 | A | 826 | U |
| 56 | A | 827 | U |
| 56 | A | 828 | G |
| 56 | A | 841 | U |
| 56 | A | 884 | G |
| 56 | A | 896 | A |
| 56 | A | 908 | G |
| 56 | A | 909 | G |
| 56 | A | 913 | C |
| 56 | A | 914 | C |
| 56 | A | 916 | C |
| 56 | A | 917 | A |
| 56 | A | 942 | U |
| 56 | A | 943 | U |
| 56 | A | 948 | G |

*Continued on next page...*

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | A | 950 | A |
| 56 | A | 951 | A |
| 56 | A | 953 | G |
| 56 | A | 956 | A |
| 56 | A | 957 | A |
| 56 | A | 959 | A |
| 56 | A | 971 | G |
| 56 | A | 973 | U |
| 56 | A | 974 | U |
| 56 | A | 975 | G |
| 56 | A | 976 | A |
| 56 | A | 982 | A |
| 56 | A | 986 | G |
| 56 | A | 988 | C |
| 56 | A | 1000 | U |
| 56 | A | 1003 | C |
| 56 | A | 1007 | U |
| 56 | A | 1008 | C |
| 56 | A | 1009 | C |
| 56 | A | 1010 | C |
| 56 | A | 1012 | U |
| 56 | A | 1013 | G |
| 56 | A | 1014 | U |
| 56 | A | 1020 | G |
| 56 | A | 1022 | G |
| 56 | A | 1024 | G |
| 56 | A | 1025 | C |
| 56 | A | 1028 | G |
| 56 | A | 1033 | G |
| 56 | A | 1034 | C |
| 56 | A | 1036 | U |
| 56 | A | 1045 | U |
| 56 | A | 1074 | G |
| 56 | A | 1075 | U |
| 56 | A | 1081 | A |
| 56 | A | 1104 | G |
| 56 | A | 1113 | A |
| 56 | A | 1115 | G |
| 56 | A | 1116 | U |
| 56 | A | 1117 | U |
| 56 | A | 1118 | A |
| 56 | A | 1120 | G |

*Continued on next page...*

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | A | 1121 | G |
| 56 | A | 1127 | A |
| 56 | A | 1128 | C |
| 56 | A | 1129 | U |
| 56 | A | 1133 | G |
| 56 | A | 1138 | A |
| 56 | A | 1140 | U |
| 56 | A | 1149 | C |
| 56 | A | 1150 | A |
| 56 | A | 1162 | G |
| 56 | A | 1165 | G |
| 56 | A | 1177 | A |
| 56 | A | 1178 | A |
| 56 | A | 1181 | C |
| 56 | A | 1182 | A |
| 56 | A | 1193 | U |
| 56 | A | 1194 | A |
| 56 | A | 1195 | U |
| 56 | A | 1206 | U |
| 56 | A | 1217 | A |
| 56 | A | 1219 | A |
| 56 | A | 1231 | A |
| 56 | A | 1238 | U |
| 56 | A | 1241 | G |
| 56 | A | 1249 | G |
| 56 | A | 1251 | G |
| 56 | A | 1261 | A |
| 56 | A | 1266 | U |
| 56 | A | 1267 | U |
| 56 | A | 1268 | C |
| 56 | A | 1272 | G |
| 56 | A | 1281 | A |
| 56 | A | 1283 | U |
| 56 | A | 1284 | U |
| 56 | A | 1285 | C |
| 56 | A | 1287 | G |
| 56 | A | 1302 | C |
| 56 | A | 1328 | A |
| 56 | A | 1329 | G |
| 56 | A | 1335 | G |
| 56 | A | 1343 | G |
| 56 | A | 1344 | C |

*Continued on next page...*

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | A | 1345 | A |
| 56 | A | 1346 | A |
| 56 | A | 1347 | C |
| 56 | A | 1351 | G |
| 56 | A | 1353 | G |
| 56 | A | 1356 | G |
| 56 | A | 1357 | A |
| 56 | A | 1363 | U |
| 56 | A | 1364 | U |
| 56 | A | 1380 | C |
| 56 | A | 1381 | A |
| 56 | A | 1405 | G |
| 56 | A | 1423 | U |
| 56 | A | 1425 | G |
| 56 | A | 1429 | A |
| 56 | A | 1433 | C |
| 56 | A | 1434 | U |
| 56 | A | 1435 | U |
| 56 | A | 1436 | G |
| 56 | A | 1459 | G |
| 56 | A | 1463 | G |
| 56 | A | 1471 | G |
| 56 | A | 1478 | G |
| 56 | A | 1481 | G |
| 56 | A | 1483 | A |
| 56 | A | 1486 | A |
| 56 | A | 1488 | G |
| 56 | A | 1490 | U |
| 56 | A | 1501 | G |
| 56 | A | 1502 | A |
| 56 | A | 1504 | G |
| 56 | A | 1513 | G |
| 56 | A | 1514 | G |
| 56 | A | 1517 | C |

All (16) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 3 | 4 | 18 | G |
| 4 | B | 10 | G |
| 56 | A | 92 | A |
| 56 | A | 422 | C |

*Continued on next page...*

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 56 | A | 429 | U |
| 56 | A | 485 | G |
| 56 | A | 498 | C |
| 56 | A | 895 | A |
| 56 | A | 1007 | U |
| 56 | A | 1011 | U |
| 56 | A | 1117 | U |
| 56 | A | 1126 | G |
| 56 | A | 1149 | C |
| 56 | A | 1435 | U |
| 56 | A | 1477 | A |
| 56 | A | 1482 | U |

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

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

## 5.5 Carbohydrates

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry

Of 18 ligands modelled in this entry, 18 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

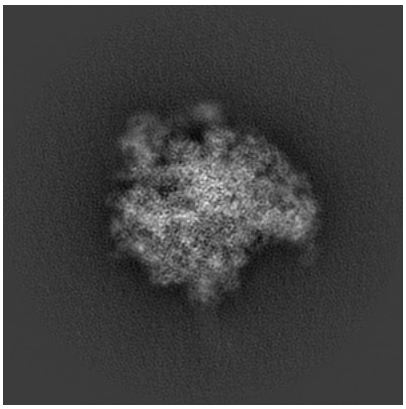
# 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-69708. These allow visual inspection of the internal detail of the map and identification of artifacts.

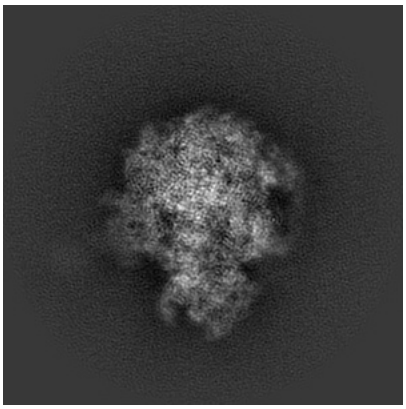
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

## 6.1 Orthogonal projections

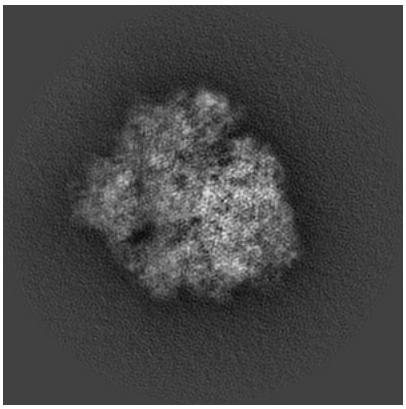
### 6.1.1 Primary map



X

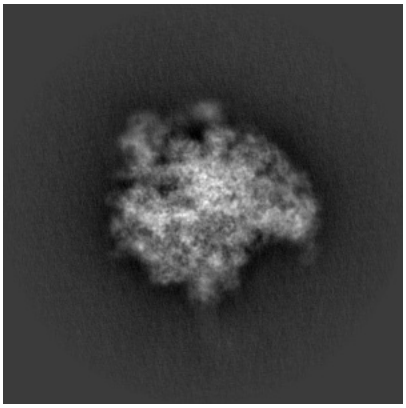


Y

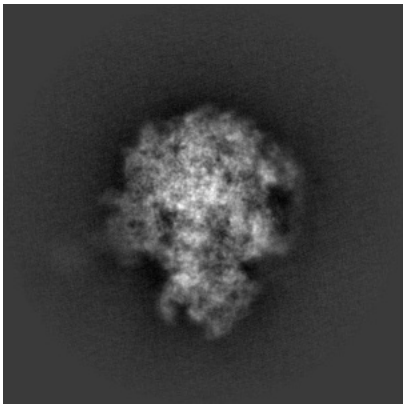


Z

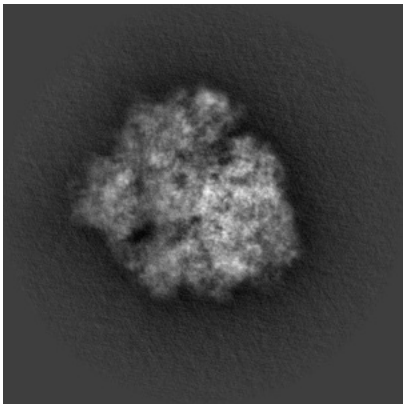
### 6.1.2 Raw map



X



Y

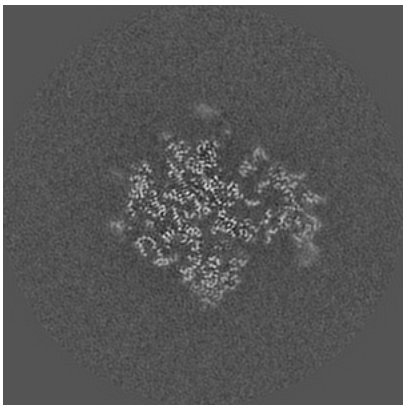


Z

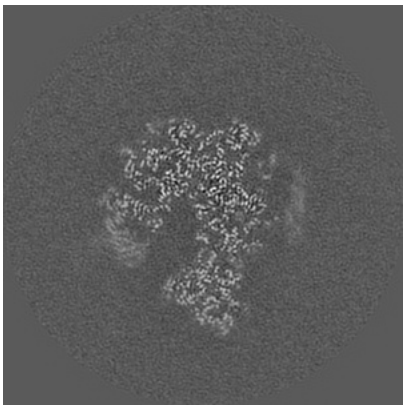
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices (i)

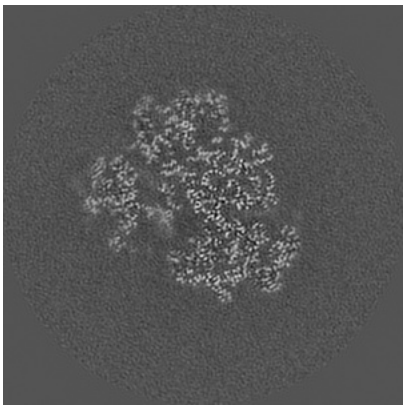
### 6.2.1 Primary map



X Index: 210

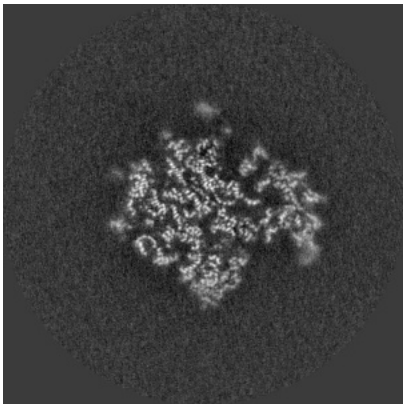


Y Index: 210

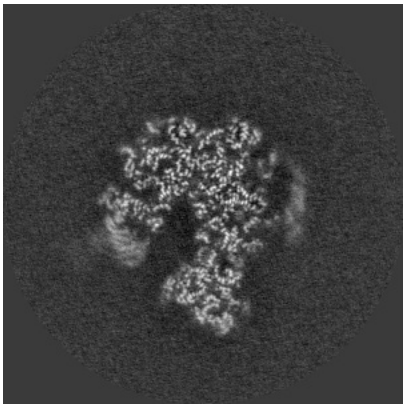


Z Index: 210

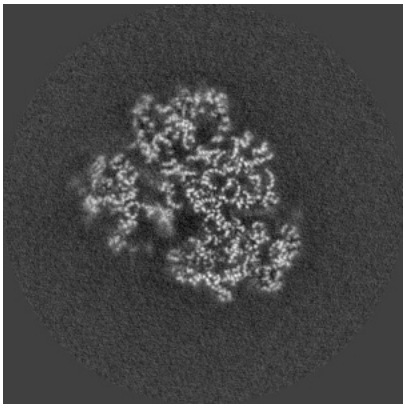
### 6.2.2 Raw map



X Index: 210



Y Index: 210

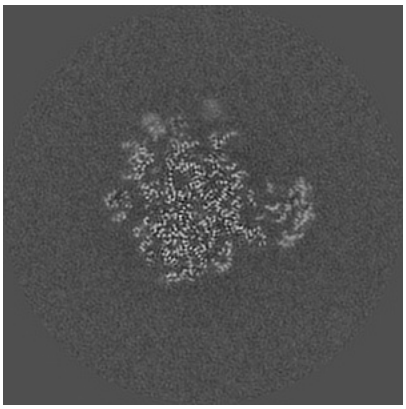


Z Index: 210

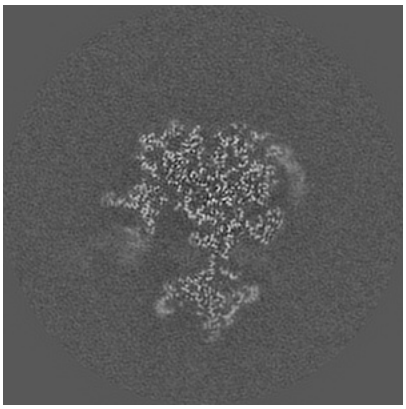
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices (i)

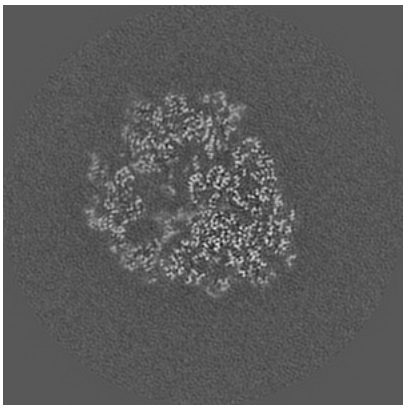
### 6.3.1 Primary map



X Index: 231

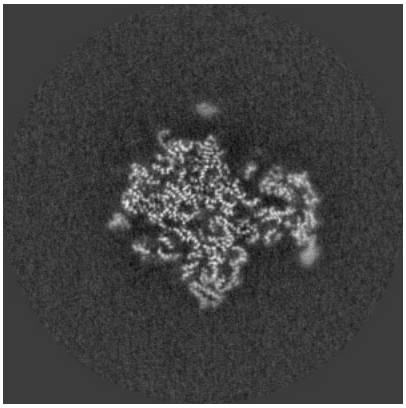


Y Index: 224

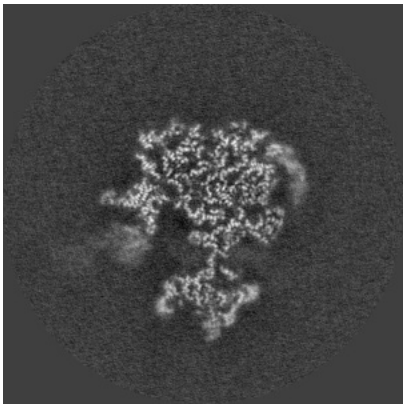


Z Index: 199

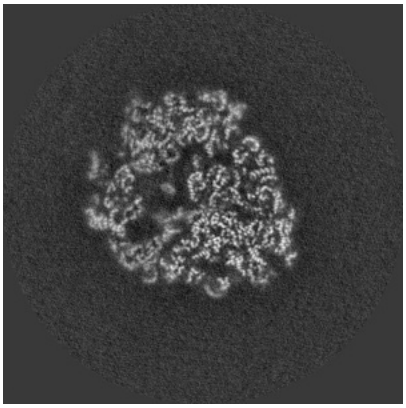
### 6.3.2 Raw map



X Index: 214



Y Index: 223

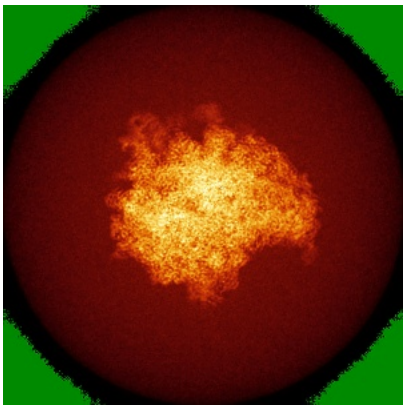


Z Index: 198

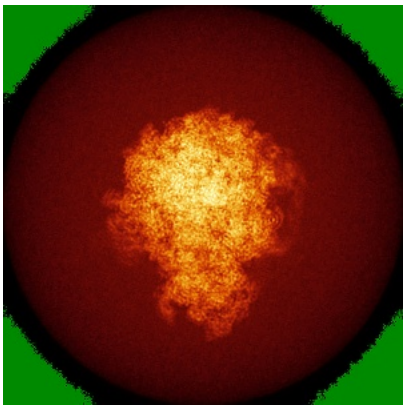
The images above show the largest variance slices of the map in three orthogonal directions.

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

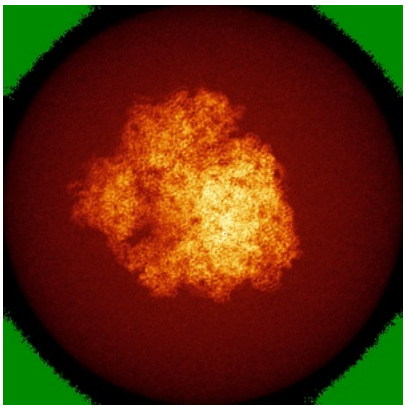
### 6.4.1 Primary map



X

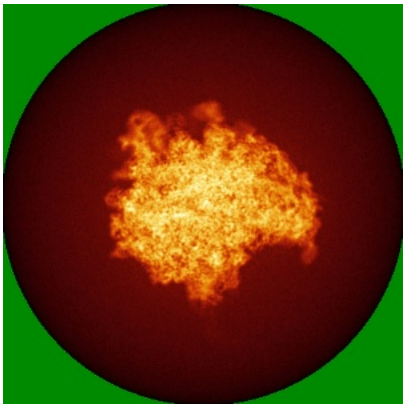


Y

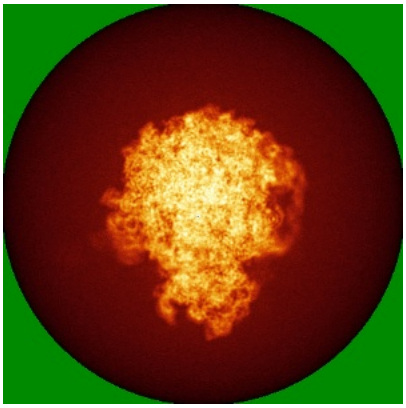


Z

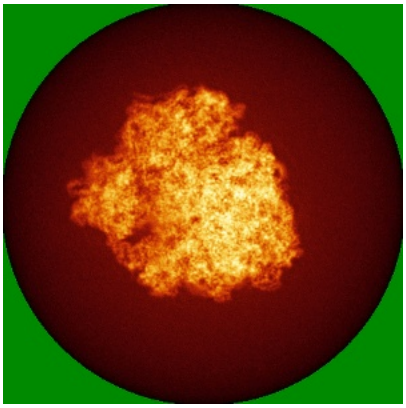
### 6.4.2 Raw map



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 0.0336. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

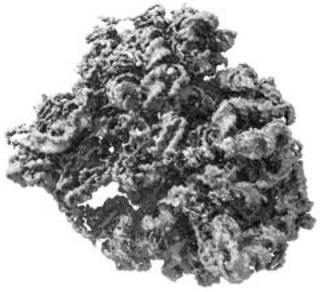
### 6.5.2 Raw map



X



Y



Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

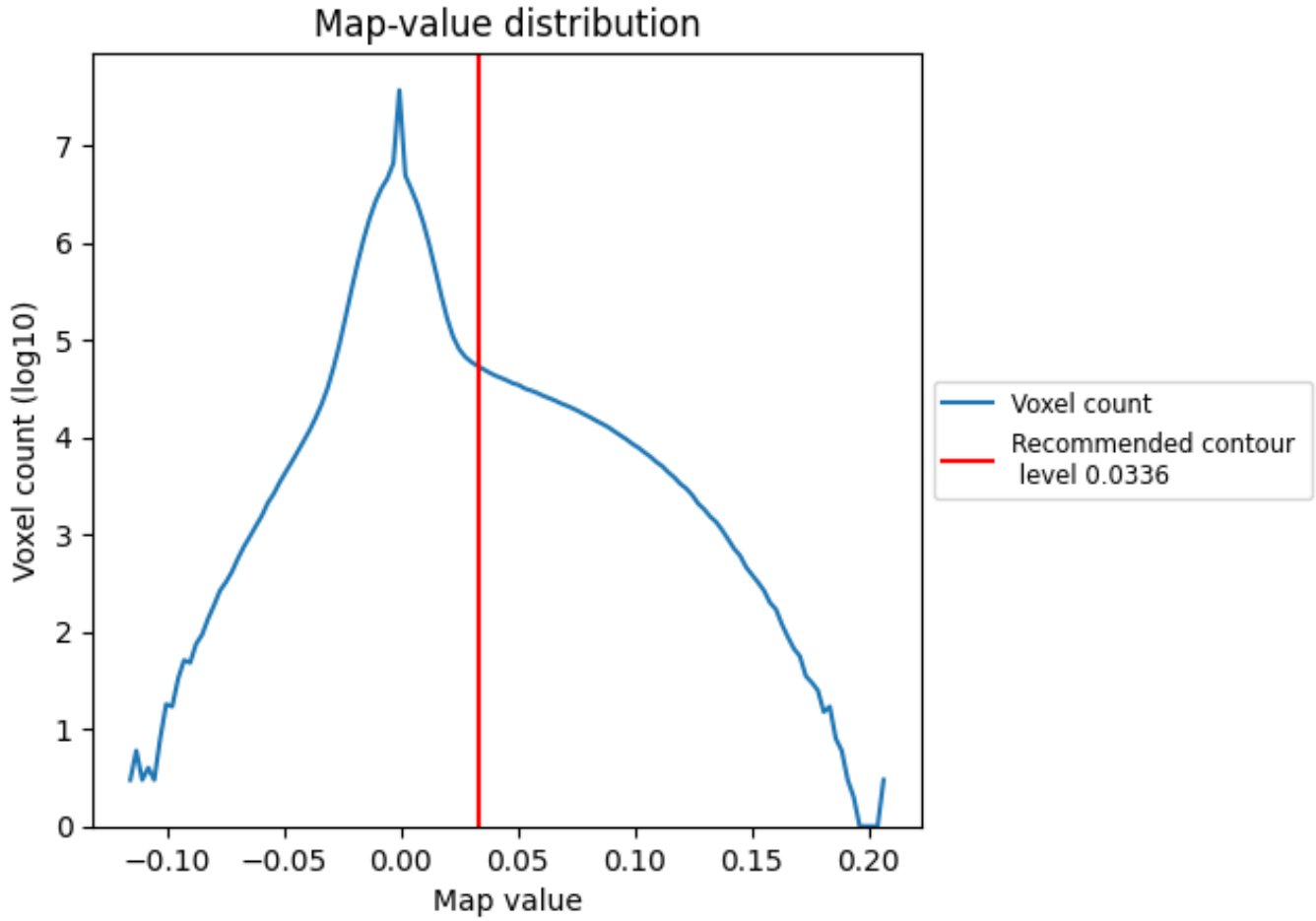
## 6.6 Mask visualisation (i)

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

# 7 Map analysis

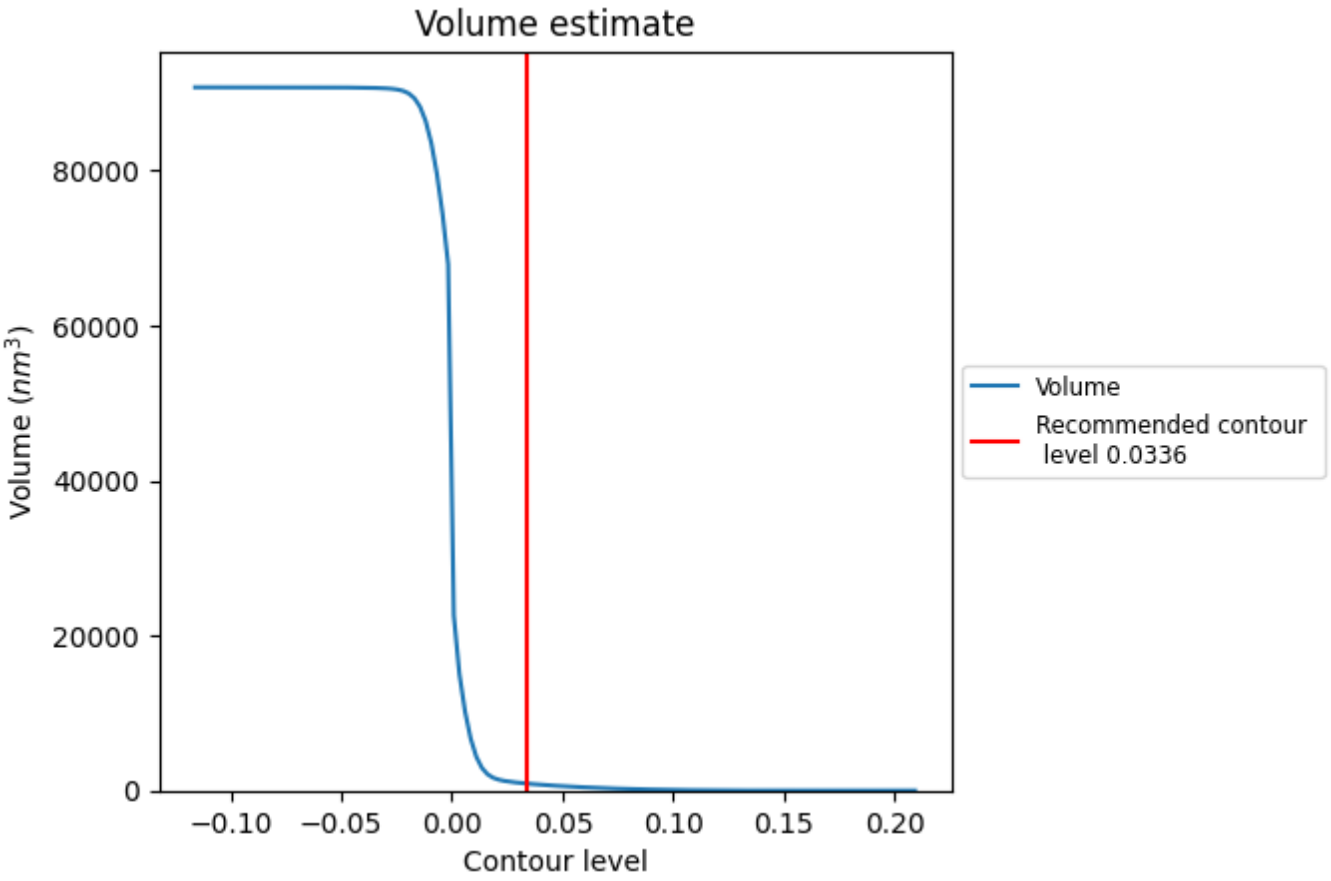
This section contains the results of statistical analysis of the map.

## 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.

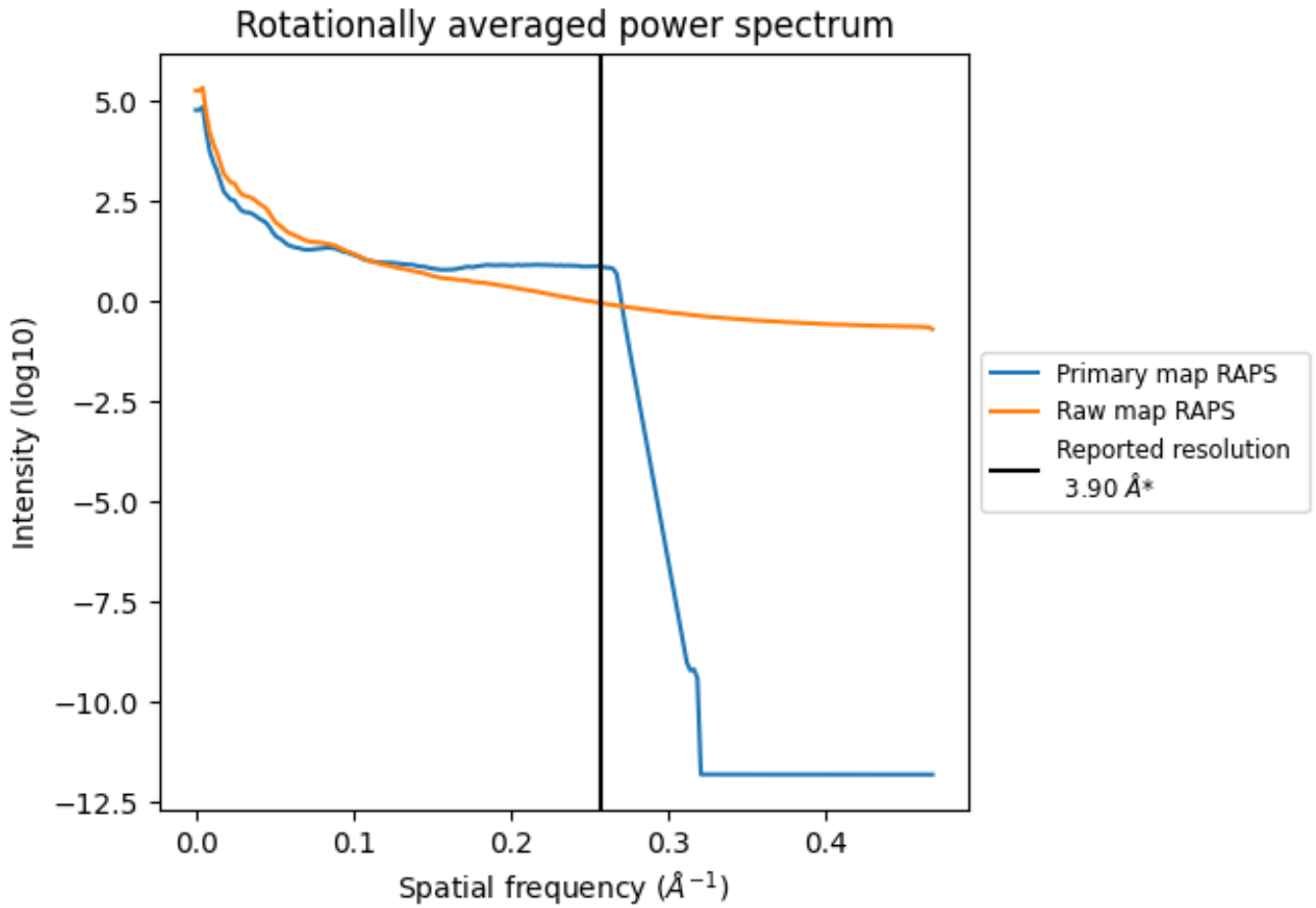
## 7.2 Volume estimate




The volume at the recommended contour level is 910 $nm^3$; this corresponds to an approximate mass of 822 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)

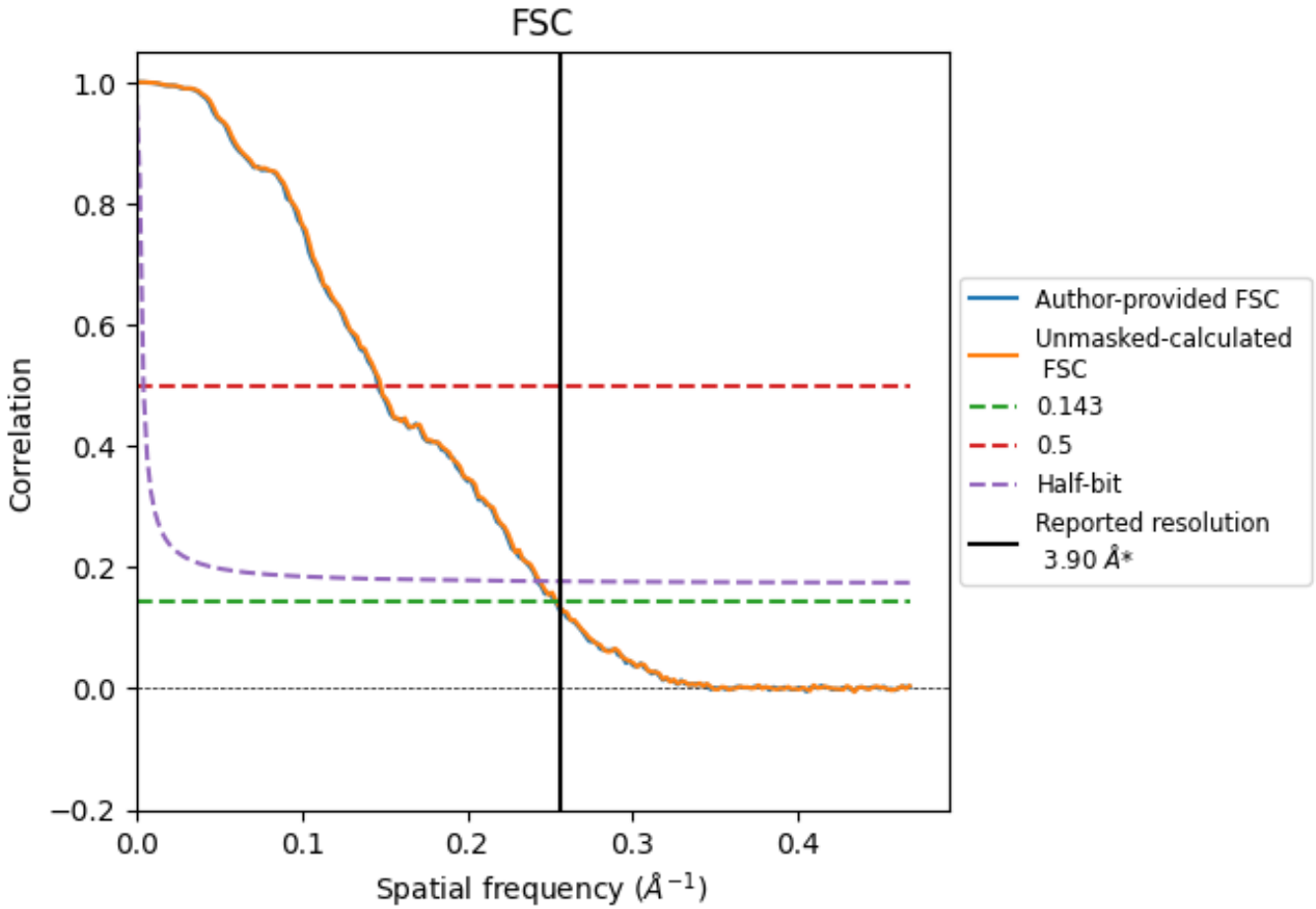



*Reported resolution corresponds to spatial frequency of 0.256 $Å^{-1}$

# 8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

## 8.1 FSC




*Reported resolution corresponds to spatial frequency of 0.256 Å$^{-1}$

## 8.2 Resolution estimates (i)

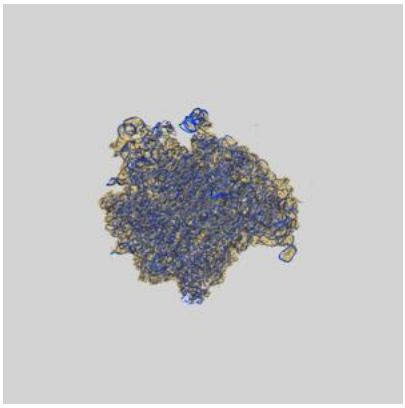
| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---|---|---|---|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 3.90 | - | - |
| Author-provided FSC curve | 3.95 | 6.84 | 4.13 |
| Unmasked-calculated* | 3.94 | 6.77 | 4.10 |

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

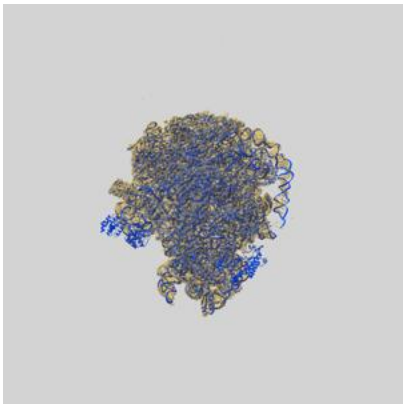
# 9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-69708 and PDB model 24NV. Per-residue inclusion information can be found in section 3 on page 15.

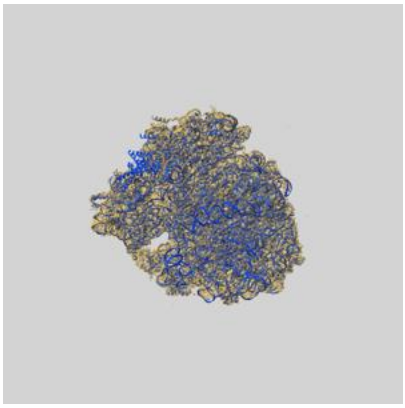
## 9.1 Map-model overlay



X



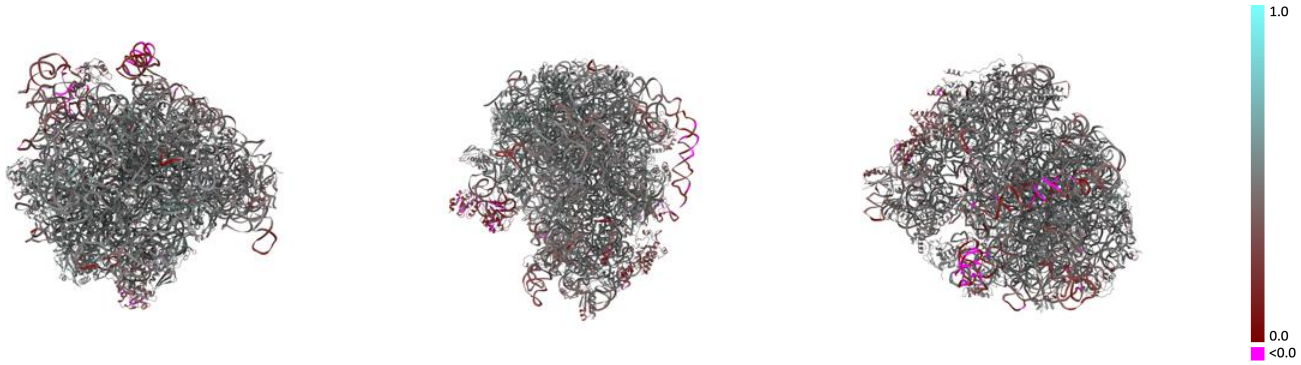
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0336 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.

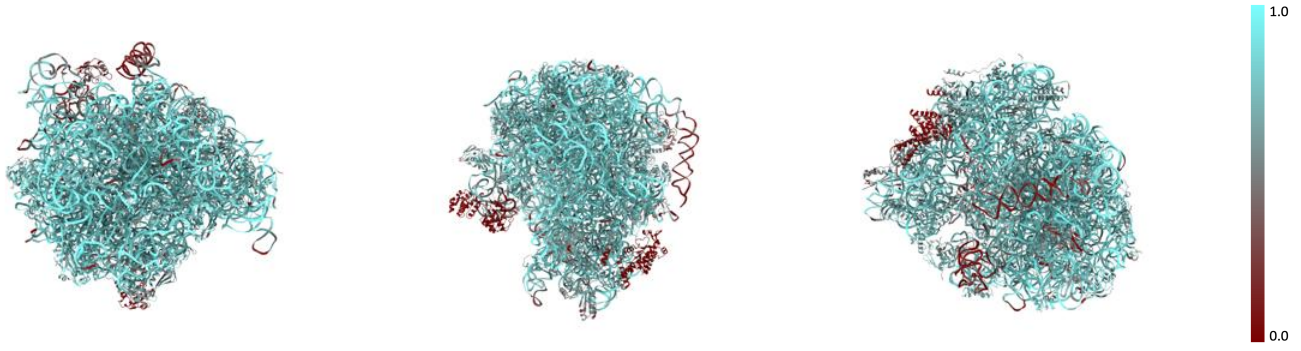
## 9.2 Q-score mapped to coordinate model (i)




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.

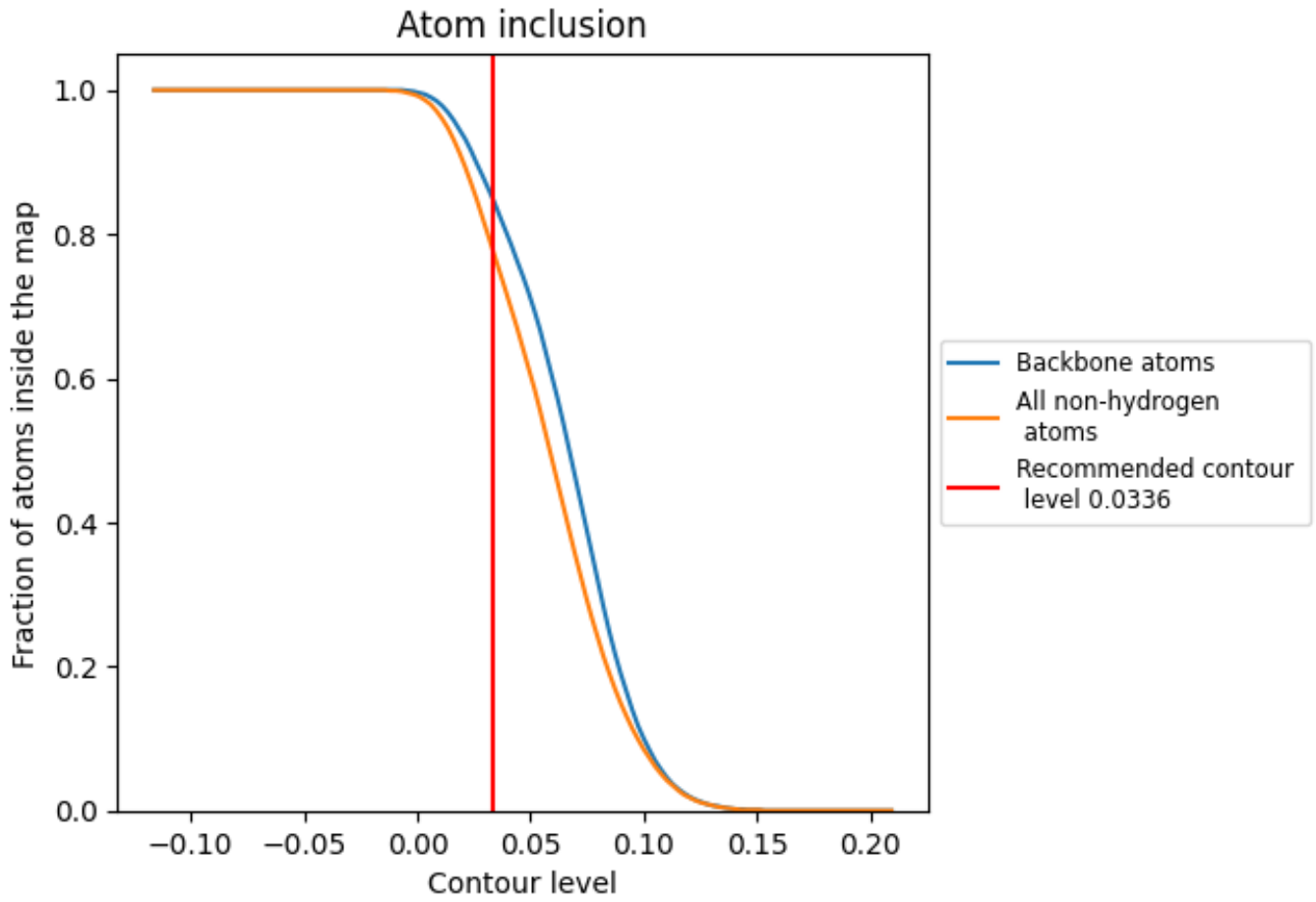
## 9.3 Atom inclusion mapped to coordinate model (i)




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 (0.0336).

## 9.4 Atom inclusion (i)




At the recommended contour level, 85% of all backbone atoms, 78% 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 (0.0336) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.7750 | 0.4510 |
| 1 | 0.6420 | 0.4720 |
| 2 | 0.7740 | 0.4270 |
| 3 | 0.6370 | 0.4900 |
| 4 | 0.5380 | 0.3630 |
| A | 0.8500 | 0.4520 |
| B | 0.8780 | 0.4660 |
| C | 0.6240 | 0.4300 |
| D | 0.6120 | 0.4300 |
| E | 0.6560 | 0.4640 |
| F | 0.6560 | 0.4510 |
| G | 0.6650 | 0.4530 |
| H | 0.7370 | 0.4920 |
| I | 0.6830 | 0.4590 |
| J | 0.5750 | 0.4110 |
| K | 0.6930 | 0.4750 |
| L | 0.6590 | 0.4880 |
| M | 0.6830 | 0.4540 |
| N | 0.7150 | 0.4960 |
| O | 0.7190 | 0.4750 |
| P | 0.6760 | 0.4480 |
| Q | 0.6310 | 0.4500 |
| R | 0.7060 | 0.4670 |
| S | 0.6800 | 0.4440 |
| T | 0.6670 | 0.4520 |
| U | 0.7000 | 0.4810 |
| V | 0.0460 | 0.3040 |
| W | 0.5840 | 0.4500 |
| X | 0.7570 | 0.5050 |
| Y | 0.7530 | 0.5130 |
| Z | 0.7350 | 0.4630 |
| a | 0.7080 | 0.5060 |
| b | 0.7790 | 0.5060 |
| c | 0.6830 | 0.4930 |
| d | 0.7940 | 0.5170 |




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| Chain | Atom inclusion | Q-score |
|---|---|---|
| e | 0.7290 | 0.5250 |
| f | 0.7330 | 0.5210 |
| g | 0.7310 | 0.4550 |
| h | 0.8270 | 0.4470 |
| i | 0.7590 | 0.5140 |
| j | 0.7780 | 0.5090 |
| k | 0.7510 | 0.4960 |
| l | 0.6910 | 0.4570 |
| m | 0.6580 | 0.4390 |
| n | 0.3500 | 0.3940 |
| o | 0.0440 | 0.1820 |
| p | 0.0140 | 0.2000 |
| q | 0.7760 | 0.5110 |
| r | 0.7260 | 0.5050 |
| s | 0.7630 | 0.4960 |
| t | 0.7190 | 0.5030 |
| u | 0.7760 | 0.5100 |
| v | 0.7430 | 0.4750 |
| w | 0.7070 | 0.4810 |
| x | 0.7950 | 0.5050 |
| y | 0.7770 | 0.5210 |
| z | 0.7620 | 0.5060 |