# Full wwPDB EM Validation Report ⓘ

Dec 26, 2024 – 09:28 AM EST

| | | |
|---|---|---|
| PDB ID | : | 6HCM |
| EMDB ID | : | EMD-0195 |
| Title | : | Structure of the rabbit collided di-ribosome (stalled monosome) |
| Authors | : | Juszkiewicz, S.; Chandrasekaran, V.; Lin, Z.; Kraatz, S.; Ramakrishnan, V.; Hegde, R.S. |
| Deposited on | : | 2018-08-15 |
| Resolution | : | 6.80 Å(reported) |

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

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

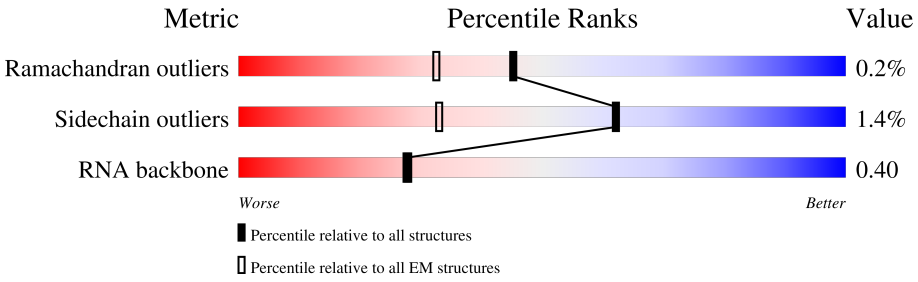
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev113 |
| Mogul | : | 2022.3.0, CSD as543be (2022) |
| MolProbity | : | 4.02b-467 |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.40 |

# 1 Overall quality at a glance (i)

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

The reported resolution of this entry is 6.80 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) |
|---|---|---|
| Ramachandran outliers | 207382 | 16835 |
| Sidechain outliers | 206894 | 16415 |
| RNA backbone | 6643 | 2191 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A1 | 1869 | 65% 26% 7% |
| 2 | B1 | 295 | 25% 72% 26% |
| 3 | C1 | 264 | 39% 79% 19% |
| 4 | D1 | 293 | 25% 75% 25% |
| 5 | E1 | 243 | 30% 92% 6% |
| 6 | F1 | 263 | 33% 99% |
| 7 | G1 | 204 | 34% 90% 9% |
| 8 | H1 | 249 | 32% 94% 5% |

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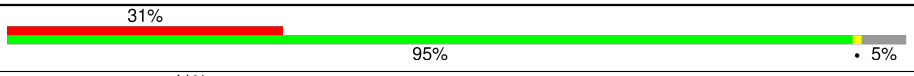
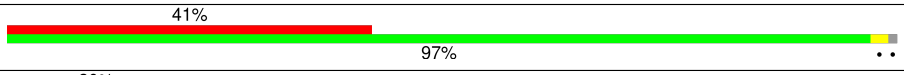
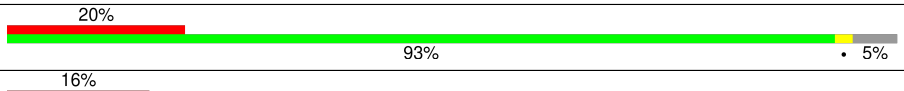
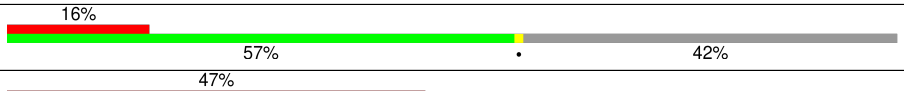
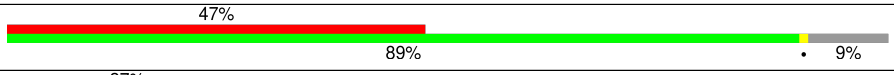
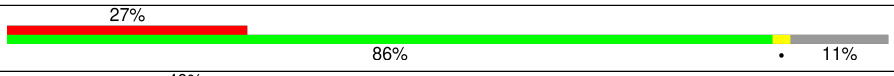
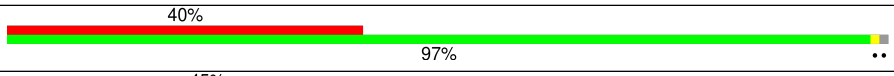
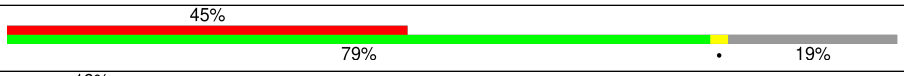
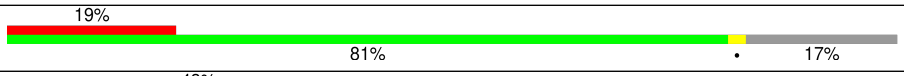
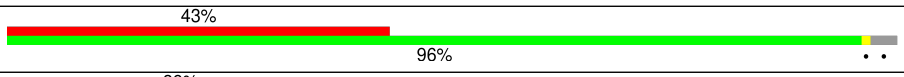
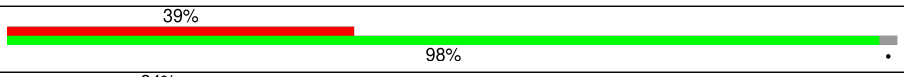
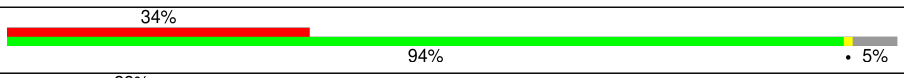
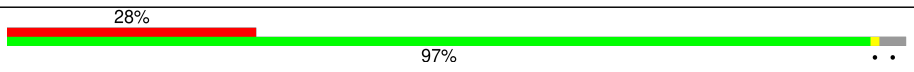
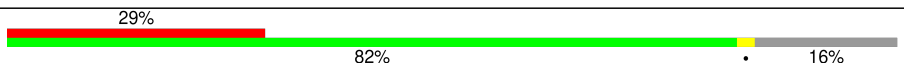
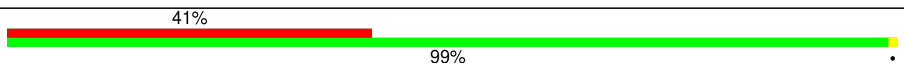
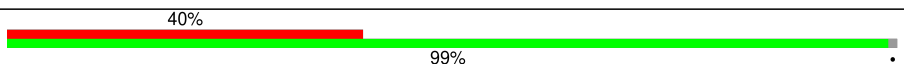
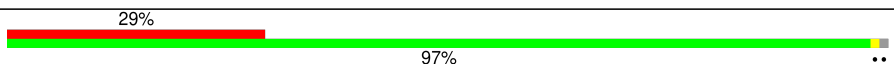
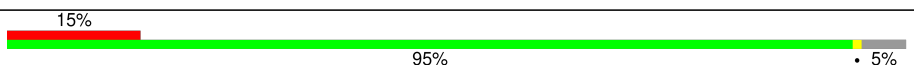
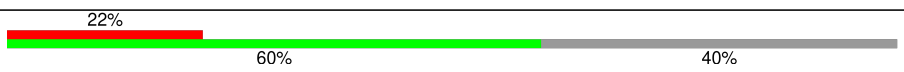
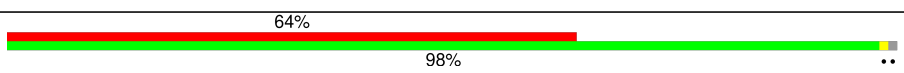
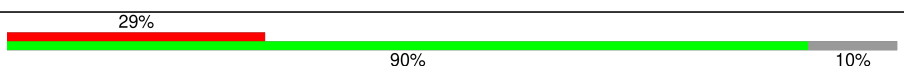
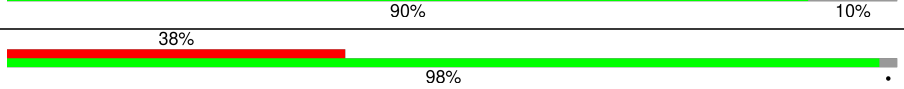
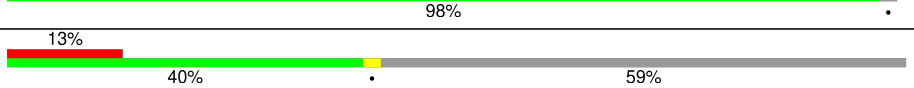
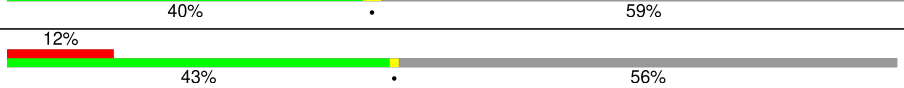
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 9 | I1 | 194 |   |
| 10 | J1 | 208 |   |
| 11 | K1 | 194 |   |
| 12 | L1 | 165 |   |
| 13 | M1 | 158 |   |
| 14 | N1 | 132 |   |
| 15 | O1 | 151 |   |
| 16 | P1 | 168 |   |
| 17 | Q1 | 145 |   |
| 18 | R1 | 146 |   |
| 19 | S1 | 135 |   |
| 20 | T1 | 152 |   |
| 21 | U1 | 145 |   |
| 22 | V1 | 119 |   |
| 23 | W1 | 83 |   |
| 24 | X1 | 130 |   |
| 25 | Y1 | 143 |   |
| 26 | Z1 | 130 |   |
| 27 | a1 | 125 |   |
| 28 | b1 | 115 |   |
| 29 | c1 | 84 |   |
| 30 | d1 | 69 |   |
| 31 | e1 | 56 |   |
| 32 | f1 | 133 |   |
| 33 | g1 | 156 |   |

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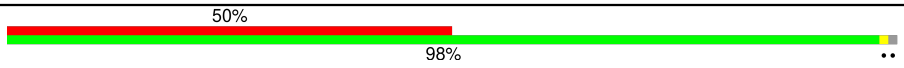
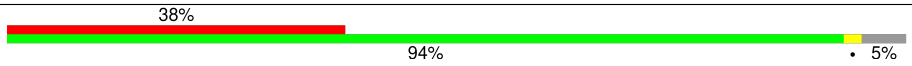
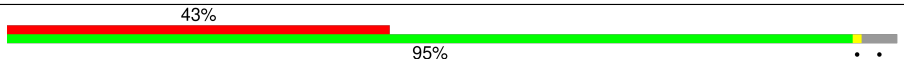
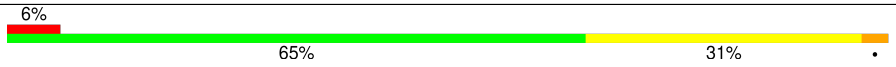
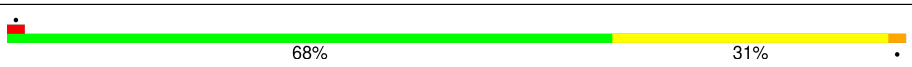
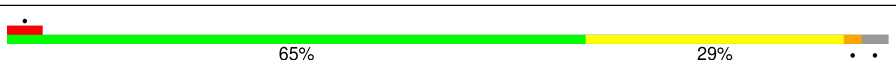
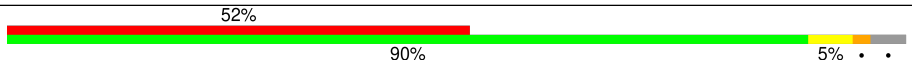
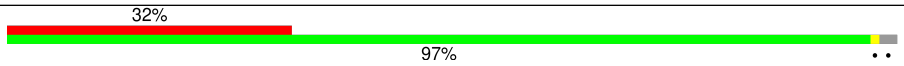
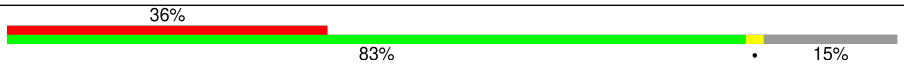
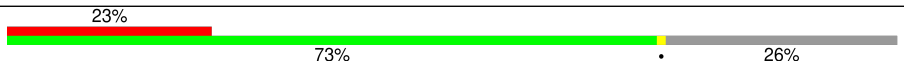
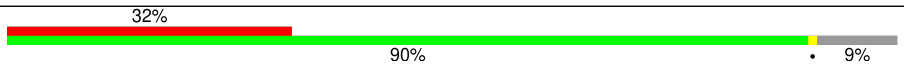
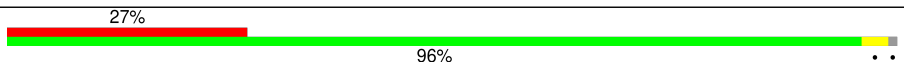
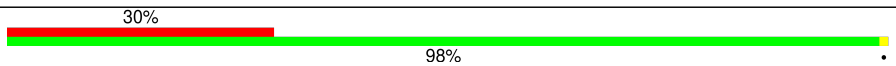
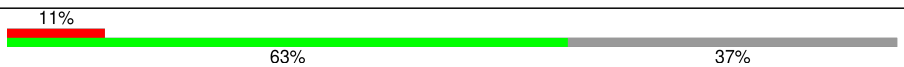
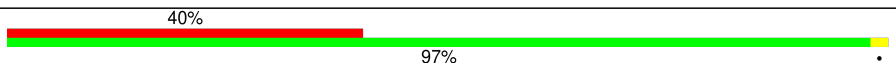
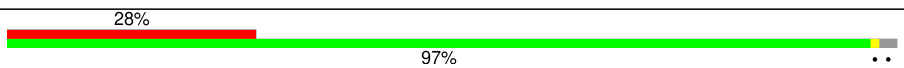
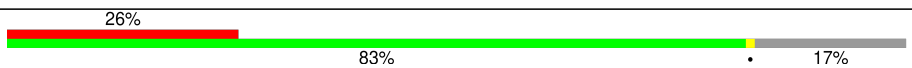
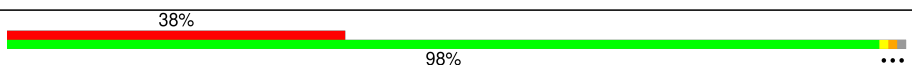
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 34 | h1 | 317 |   |
| 35 | j1 | 439 |   |
| 36 | k1 | 599 |   |
| 37 | 52 | 3634 |   |
| 38 | 72 | 120 |   |
| 39 | 82 | 156 |   |
| 40 | A3 | 257 |   |
| 41 | B3 | 403 |   |
| 42 | C3 | 425 |   |
| 43 | E3 | 291 |   |
| 44 | F3 | 247 |   |
| 45 | H3 | 192 |   |
| 46 | L3 | 211 |   |
| 47 | M3 | 218 |   |
| 48 | N3 | 204 |   |
| 49 | O3 | 203 |   |
| 50 | P3 | 184 |   |
| 51 | Q3 | 188 |   |
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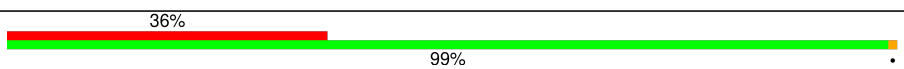
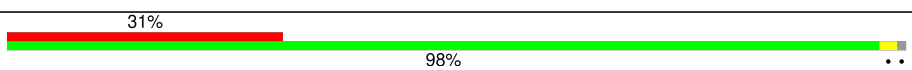
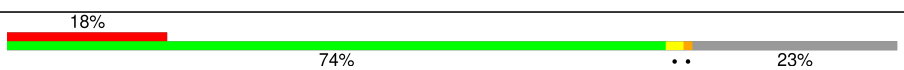
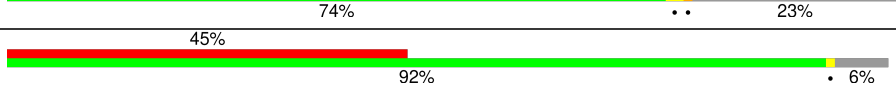
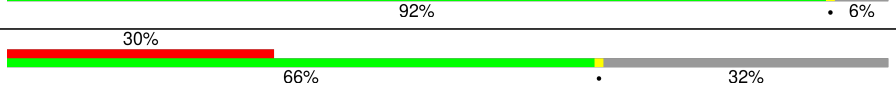
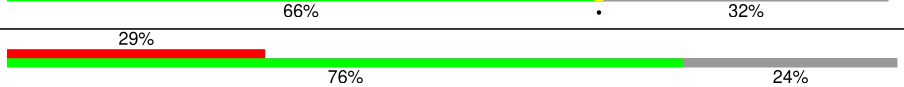
| 53 | S3 | 176 |   |
| 54 | T3 | 160 |   |
| 55 | U3 | 128 |   |
| 56 | V3 | 140 |   |
| 57 | W3 | 157 |   |
| 58 | X3 | 156 |   |

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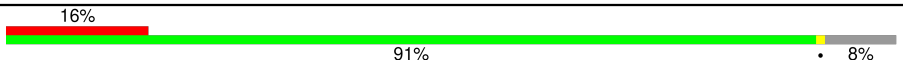
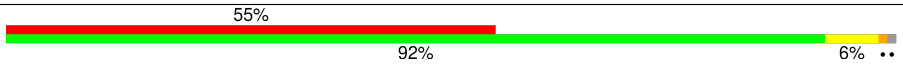
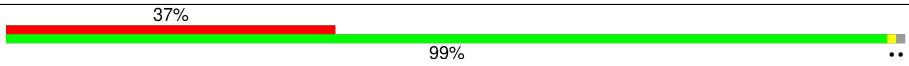
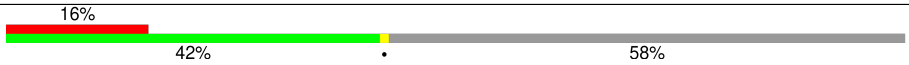
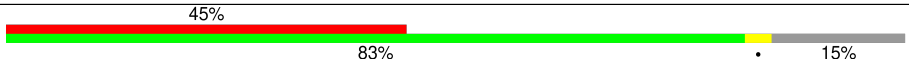
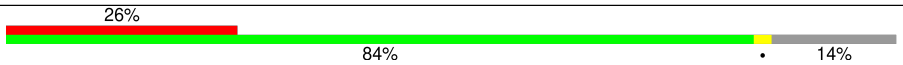
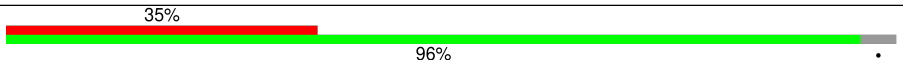
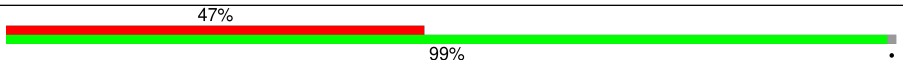
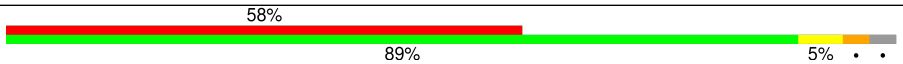
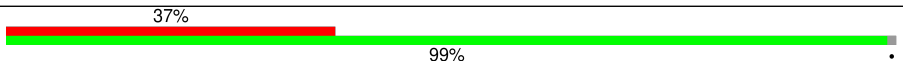
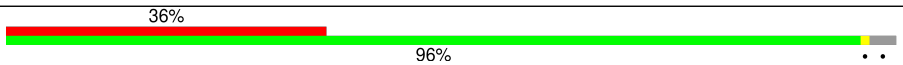
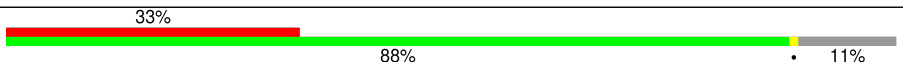
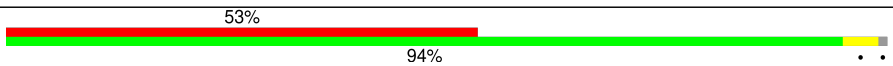
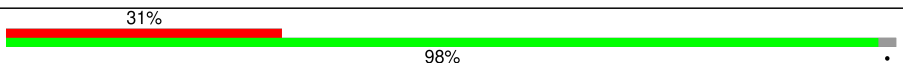
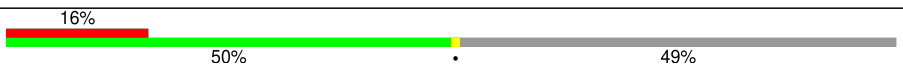
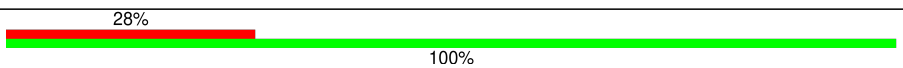
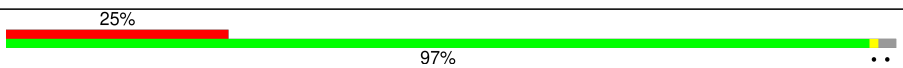
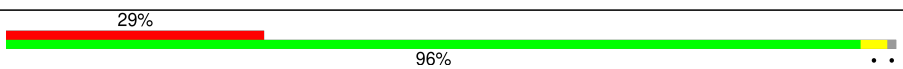
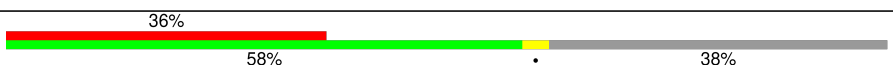
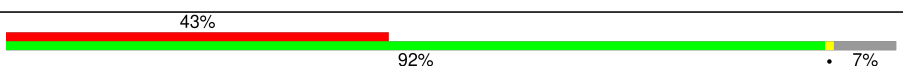
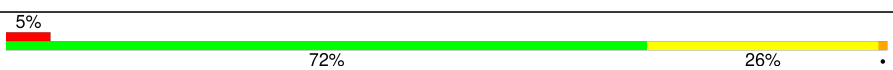
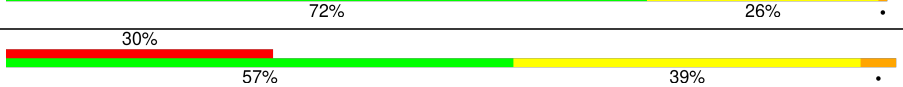
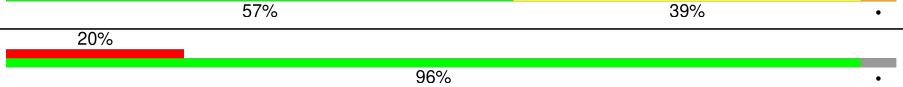
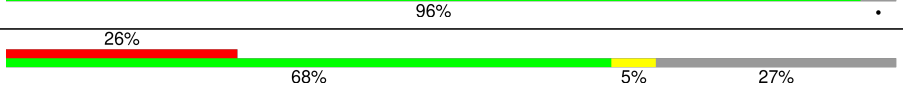
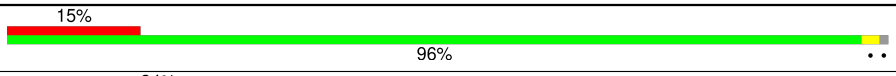
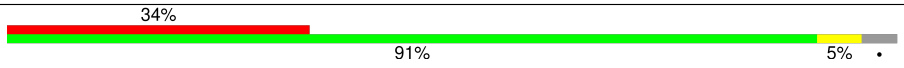
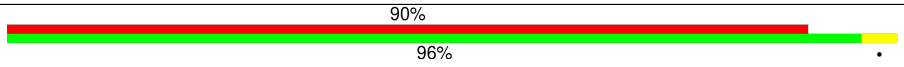
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 59 | Y3 | 145 |   |
| 60 | Z3 | 136 |   |
| 61 | a3 | 148 |   |
| 62 | b3 | 245 |   |
| 63 | c3 | 115 |   |
| 64 | d3 | 125 |   |
| 65 | e3 | 134 |   |
| 66 | f3 | 110 |   |
| 67 | g3 | 117 |   |
| 68 | h3 | 123 |   |
| 69 | i3 | 105 |   |
| 70 | j3 | 97 |   |
| 71 | k3 | 70 |   |
| 72 | l3 | 51 |   |
| 73 | m3 | 102 |   |
| 74 | n3 | 25 |   |
| 75 | o3 | 106 |   |
| 76 | p3 | 92 |   |
| 77 | r3 | 137 |   |
| 78 | s3 | 318 |   |
| 79 | t3 | 165 |   |
| 80 | 23 | 76 |   |
| 81 | w3 | 23 |   |
| 82 | J3 | 178 |   |
| 83 | G3 | 319 |   |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 84 | D3 | 297 |   |
| 85 | I3 | 214 |   |
| 86 | 1 | 22 |   |
| 87 | u3 | 217 |   |

# 2 Entry composition

There are 91 unique types of molecules in this entry. The entry contains 226754 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 18S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | |
| 1 | A1 | 1732 | 36969 | 16502 | 6637 | 12099 | 1731 | 0 | 0 |

- Molecule 2 is a protein called uS2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 2 | B1 | 217 | 1710 | 1086 | 300 | 316 | 8 | 0 | 0 |

- Molecule 3 is a protein called 40S ribosomal protein S3a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 3 | C1 | 213 | 1729 | 1098 | 309 | 308 | 14 | 0 | 0 |

- Molecule 4 is a protein called uS5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 4 | D1 | 221 | 1716 | 1111 | 295 | 301 | 9 | 0 | 0 |

- Molecule 5 is a protein called uS3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 5 | E1 | 228 | 1768 | 1126 | 318 | 316 | 8 | 0 | 0 |

- Molecule 6 is a protein called eS4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 6 | F1 | 262 | 2076 | 1324 | 386 | 358 | 8 | 0 | 0 |

- Molecule 7 is a protein called Ribosomal protein S5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 7 | G1 | 185 | Total | C | N | O | S | 0 | 0 |
| | | | 1471 | 921 | 277 | 266 | 7 | | |

- Molecule 8 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 8 | H1 | 237 | Total | C | N | O | S | 0 | 0 |
| | | | 1923 | 1200 | 387 | 329 | 7 | | |

- Molecule 9 is a protein called 40S ribosomal protein S7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 9 | I1 | 185 | Total | C | N | O | S | 0 | 0 |
| | | | 1488 | 952 | 271 | 264 | 1 | | |

- Molecule 10 is a protein called eS8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 10 | J1 | 206 | Total | C | N | O | S | 0 | 0 |
| | | | 1686 | 1058 | 332 | 291 | 5 | | |

- Molecule 11 is a protein called Ribosomal protein S9 (Predicted).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 11 | K1 | 185 | Total | C | N | O | S | 0 | 0 |
| | | | 1525 | 969 | 306 | 248 | 2 | | |

- Molecule 12 is a protein called eS10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 12 | L1 | 96 | Total | C | N | O | S | 0 | 0 |
| | | | 810 | 530 | 143 | 131 | 6 | | |

- Molecule 13 is a protein called Ribosomal protein S11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 13 | M1 | 143 | Total | C | N | O | S | 0 | 0 |
| | | | 1175 | 749 | 222 | 198 | 6 | | |

- Molecule 14 is a protein called 40S ribosomal protein S12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | N1 | 117 | Total | C | N | O | S | 0 | 0 |
| | | | 908 | 570 | 161 | 169 | 8 | | |

- Molecule 15 is a protein called uS15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | O1 | 149 | Total | C | N | O | S | 0 | 0 |
| | | | 1202 | 770 | 228 | 203 | 1 | | |

- Molecule 16 is a protein called uS11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 16 | P1 | 136 | Total | C | N | O | S | 0 | 0 |
| | | | 1016 | 621 | 199 | 190 | 6 | | |

- Molecule 17 is a protein called uS19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 17 | Q1 | 120 | Total | C | N | O | S | 0 | 0 |
| | | | 997 | 635 | 187 | 168 | 7 | | |

- Molecule 18 is a protein called Ribosomal protein S16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 18 | R1 | 142 | Total | C | N | O | S | 0 | 0 |
| | | | 1128 | 717 | 213 | 195 | 3 | | |

- Molecule 19 is a protein called eS17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 19 | S1 | 132 | Total | C | N | O | S | 0 | 0 |
| | | | 1068 | 670 | 199 | 195 | 4 | | |

- Molecule 20 is a protein called uS13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 20 | T1 | 144 | Total | C | N | O | S | 0 | 0 |
| | | | 1190 | 746 | 241 | 202 | 1 | | |

- Molecule 21 is a protein called eS19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | U1 | 141 | Total | C | N | O | S | 0 | 0 |
| | | | 1097 | 688 | 211 | 195 | 3 | | |

- Molecule 22 is a protein called uS10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 22 | V1 | 100 | Total | C | N | O | S | 0 | 0 |
| | | | 795 | 498 | 152 | 141 | 4 | | |

- Molecule 23 is a protein called eS21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 23 | W1 | 83 | Total | C | N | O | S | 0 | 0 |
| | | | 636 | 393 | 117 | 121 | 5 | | |

- Molecule 24 is a protein called Ribosomal protein S15a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 24 | X1 | 129 | Total | C | N | O | S | 0 | 0 |
| | | | 1034 | 659 | 193 | 176 | 6 | | |

- Molecule 25 is a protein called uS12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 25 | Y1 | 141 | Total | C | N | O | S | 0 | 0 |
| | | | 1098 | 693 | 219 | 183 | 3 | | |

- Molecule 26 is a protein called eS24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 26 | Z1 | 124 | Total | C | N | O | S | 0 | 0 |
| | | | 1011 | 640 | 198 | 168 | 5 | | |

- Molecule 27 is a protein called eS25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 27 | a1 | 75 | Total | C | N | O | S | 0 | 0 |
| | | | 598 | 382 | 111 | 104 | 1 | | |

- Molecule 28 is a protein called eS26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 28 | b1 | 101 | Total | C | N | O | S | 0 | 0 |
| | | | 814 | 507 | 170 | 132 | 5 | | |

- Molecule 29 is a protein called 40S ribosomal protein S27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 29 | c1 | 83 | Total | C | N | O | S | 0 | 0 |
| | | | 651 | 408 | 121 | 115 | 7 | | |

- Molecule 30 is a protein called Ribosomal protein S28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 30 | d1 | 62 | Total | C | N | O | S | 0 | 0 |
| | | | 488 | 297 | 97 | 92 | 2 | | |

- Molecule 31 is a protein called uS14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 31 | e1 | 55 | Total | C | N | O | S | 0 | 0 |
| | | | 459 | 286 | 94 | 74 | 5 | | |

- Molecule 32 is a protein called 40S ribosomal protein S30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 32 | f1 | 55 | Total | C | N | O | S | 0 | 0 |
| | | | 443 | 274 | 97 | 71 | 1 | | |

- Molecule 33 is a protein called Ribosomal protein S27a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 33 | g1 | 68 | Total | C | N | O | S | 0 | 0 |
| | | | 555 | 351 | 103 | 94 | 7 | | |

- Molecule 34 is a protein called RACK1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 34 | h1 | 313 | Total | C | N | O | S | 0 | 0 |
| | | | 2436 | 1535 | 424 | 465 | 12 | | |

- Molecule 35 is a protein called eRF1(AAQ).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 35 | j1 | 419 | Total | C | N | O | S | 0 | 0 |
| | | | 3309 | 2106 | 562 | 629 | 12 | | |

- Molecule 36 is a protein called ATP binding cassette subfamily E member 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 36 | k1 | 577 | Total | C | N | O | S | 0 | 0 |
| | | | 4555 | 2914 | 780 | 830 | 31 | | |

- Molecule 37 is a RNA chain called 28S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 37 | 52 | 3634 | Total | C | N | O | P | 0 | 0 |
| | | | 77819 | 34651 | 14241 | 25293 | 3634 | | |

- Molecule 38 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 38 | 72 | 120 | Total | C | N | O | P | 0 | 0 |
| | | | 2558 | 1141 | 456 | 842 | 119 | | |

- Molecule 39 is a RNA chain called 5.8S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 39 | 82 | 151 | Total | C | N | O | P | 0 | 0 |
| | | | 3208 | 1432 | 564 | 1062 | 150 | | |

- Molecule 40 is a protein called Ribosomal protein L8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 40 | A3 | 248 | Total | C | N | O | S | 0 | 0 |
| | | | 1898 | 1189 | 389 | 314 | 6 | | |

- Molecule 41 is a protein called uL3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 41 | B3 | 394 | Total | C | N | O | S | 0 | 0 |
| | | | 3172 | 2020 | 597 | 542 | 13 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| B3 | 1 | MET | - | initiating methionine | UNP G1TL06 |

- Molecule 42 is a protein called uL4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 42 | C3 | 362 | Total | C | N | O | S | 0 | 0 |
| | | | 2883 | 1812 | 577 | 480 | 14 | | |

- Molecule 43 is a protein called 60S ribosomal protein L6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 43 | E3 | 216 | Total | C | N | O | S | 0 | 0 |
| | | | 1729 | 1115 | 329 | 282 | 3 | | |

- Molecule 44 is a protein called uL30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 44 | F3 | 225 | Total | C | N | O | S | 0 | 0 |
| | | | 1875 | 1205 | 358 | 303 | 9 | | |

There are 4 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| F3 | 61 | ARG | GLY | conflict | UNP G1TUB1 |
| F3 | 93 | ARG | GLY | conflict | UNP G1TUB1 |
| F3 | 131 | MET | VAL | conflict | UNP G1TUB1 |
| F3 | 153 | ILE | VAL | conflict | UNP G1TUB1 |

- Molecule 45 is a protein called uL6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 45 | H3 | 190 | Total | C | N | O | S | 0 | 0 |
| | | | 1516 | 954 | 284 | 272 | 6 | | |

- Molecule 46 is a protein called eL13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 46 | L3 | 210 | Total | C | N | O | S | 0 | 0 |
| | | | 1702 | 1065 | 354 | 279 | 4 | | |

- Molecule 47 is a protein called Ribosomal protein L14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 47 | M3 | 138 | Total | C | N | O | S | 0 | 0 |
| | | | 1137 | 727 | 221 | 182 | 7 | | |

- Molecule 48 is a protein called Ribosomal protein L15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 48 | N3 | 203 | Total | C | N | O | S | 0 | 0 |
| | | | 1701 | 1072 | 359 | 266 | 4 | | |

- Molecule 49 is a protein called uL13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 49 | O3 | 199 | Total | C | N | O | S | 0 | 0 |
| | | | 1630 | 1051 | 319 | 255 | 5 | | |

- Molecule 50 is a protein called uL22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 50 | P3 | 153 | Total | C | N | O | S | 0 | 0 |
| | | | 1242 | 777 | 241 | 215 | 9 | | |

- Molecule 51 is a protein called eL18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 51 | Q3 | 187 | Total | C | N | O | S | 0 | 0 |
| | | | 1515 | 946 | 315 | 250 | 4 | | |

- Molecule 52 is a protein called eL19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 52 | R3 | 180 | Total | C | N | O | S | 0 | 0 |
| | | | 1508 | 933 | 328 | 238 | 9 | | |

- Molecule 53 is a protein called eL20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 53 | S3 | 176 | Total | C | N | O | S | 0 | 0 |
| | | | 1462 | 930 | 285 | 236 | 11 | | |

- Molecule 54 is a protein called eL21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 54 | T3 | 159 | Total | C | N | O | S | 0 | 0 |
| | | | 1298 | 823 | 252 | 217 | 6 | | |

- Molecule 55 is a protein called eL22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 55 | U3 | 99 | Total | C | N | O | S | 0 | 0 |
| | | | 809 | 519 | 141 | 147 | 2 | | |

- Molecule 56 is a protein called Ribosomal protein L23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 56 | V3 | 131 | Total | C | N | O | S | 0 | 0 |
| | | | 979 | 618 | 184 | 172 | 5 | | |

- Molecule 57 is a protein called eL24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 57 | W3 | 106 | Total | C | N | O | S | 0 | 0 |
| | | | 860 | 538 | 174 | 144 | 4 | | |

- Molecule 58 is a protein called uL23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 58 | X3 | 118 | Total | C | N | O | S | 0 | 0 |
| | | | 967 | 618 | 181 | 167 | 1 | | |

- Molecule 59 is a protein called Ribosomal protein L26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 59 | Y3 | 134 | Total | C | N | O | S | 0 | 0 |
| | | | 1115 | 700 | 226 | 186 | 3 | | |

- Molecule 60 is a protein called eL27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 60 | Z3 | 135 | Total | C | N | O | S | 0 | 0 |
| | | | 1107 | 714 | 208 | 182 | 3 | | |

- Molecule 61 is a protein called uL15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 61 | a3 | 147 | Total | C | N | O | S | 0 | 0 |
| | | | 1162 | 734 | 239 | 185 | 4 | | |

- Molecule 62 is a protein called eL29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 62 | b3 | 104 | Total | C | N | O | S | 0 | 0 |
| | | | 848 | 527 | 189 | 129 | 3 | | |

- Molecule 63 is a protein called eL30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 63 | c3 | 98 | Total | C | N | O | S | 0 | 0 |
| | | | 761 | 481 | 134 | 140 | 6 | | |

- Molecule 64 is a protein called eL31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 64 | d3 | 107 | Total | C | N | O | S | 0 | 0 |
| | | | 888 | 560 | 171 | 155 | 2 | | |

- Molecule 65 is a protein called eL32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 65 | e3 | 128 | Total | C | N | O | S | 0 | 0 |
| | | | 1053 | 667 | 216 | 165 | 5 | | |

- Molecule 66 is a protein called eL33.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 66 | f3 | 109 | Total | C | N | O | S | 0 | 0 |
| | | | 876 | 555 | 174 | 143 | 4 | | |

- Molecule 67 is a protein called eL34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 67 | g3 | 114 | Total | C | N | O | S | 0 | 0 |
| | | | 906 | 566 | 187 | 147 | 6 | | |

- Molecule 68 is a protein called uL29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 68 | h3 | 122 | Total | C | N | O | S | 0 | 0 |
| | | | 1013 | 640 | 204 | 168 | 1 | | |

- Molecule 69 is a protein called 60S ribosomal protein L36.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 69 | i3 | 102 | Total | C | N | O | S | 0 | 0 |
| | | | 830 | 520 | 176 | 129 | 5 | | |

- Molecule 70 is a protein called Ribosomal protein L37.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 70 | j3 | 86 | Total | C | N | O | S | 0 | 0 |
| | | | 705 | 434 | 155 | 111 | 5 | | |

- Molecule 71 is a protein called eL38.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 71 | k3 | 69 | Total | C | N | O | S | 0 | 0 |
| | | | 569 | 366 | 103 | 99 | 1 | | |

- Molecule 72 is a protein called eL39.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 72 | l3 | 50 | Total | C | N | O | S | 0 | 0 |
| | | | 447 | 286 | 96 | 64 | 1 | | |

- Molecule 73 is a protein called eL40.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 73 | m3 | 52 | Total | C | N | O | S | 0 | 0 |
| | | | 429 | 266 | 90 | 67 | 6 | | |

- Molecule 74 is a protein called eL41.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 74 | n3 | 25 | Total | C | N | O | S | 0 | 0 |
| | | | 239 | 145 | 64 | 27 | 3 | | |

- Molecule 75 is a protein called eL42.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 75 | o3 | 104 | Total | C | N | O | S | 0 | 0 |
| | | | 851 | 533 | 174 | 138 | 6 | | |

- Molecule 76 is a protein called eL43.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 76 | p3 | 91 | Total | C | N | O | S | 0 | 0 |
| | | | 708 | 445 | 136 | 120 | 7 | | |

- Molecule 77 is a protein called eL28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 77 | r3 | 124 | Total | C | N | O | S | 0 | 0 |
| | | | 994 | 616 | 205 | 167 | 6 | | |

- Molecule 78 is a protein called uL10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 78 | s3 | 196 | Total | C | N | O | S | 0 | 0 |
| | | | 1507 | 959 | 263 | 276 | 9 | | |

- Molecule 79 is a protein called Ribosomal protein L12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 79 | t3 | 153 | Total | C | N | O | S | 0 | 0 |
| | | | 1160 | 722 | 218 | 217 | 3 | | |

- Molecule 80 is a RNA chain called P-site tRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 80 | 23 | 76 | Total | C | N | O | P | 0 | 0 |
| | | | 1616 | 723 | 291 | 527 | 75 | | |

- Molecule 81 is a RNA chain called mRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 81 | w3 | 23 | Total | C | N | O | P | 0 | 0 |
| | | | 493 | 222 | 94 | 154 | 23 | | |

- Molecule 82 is a protein called Ribosomal protein L11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 82 | J3 | 170 | Total | C | N | O | S | 0 | 0 |
| | | | 1362 | 861 | 254 | 241 | 6 | | |

- Molecule 83 is a protein called eL8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 83 | G3 | 233 | Total | C | N | O | S | 0 | 0 |
| | | | 1879 | 1199 | 361 | 315 | 4 | | |

- Molecule 84 is a protein called 60S ribosomal protein L5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 84 | D3 | 293 | Total | C | N | O | S | 0 | 0 |
| | | | 2391 | 1512 | 438 | 427 | 14 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| D3 | 1 | MET | - | initiating methionine | UNP G1SYJ6 |

- Molecule 85 is a protein called 60S ribosomal protein L10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 85 | I3 | 205 | Total | C | N | O | S | 0 | 0 |
| | | | 1664 | 1056 | 321 | 274 | 13 | | |

- Molecule 86 is a protein called nascent chain.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 86 | 1 | 22 | Total | C | N | O | 0 | 0 |
| | | | 110 | 66 | 22 | 22 | | |

- Molecule 87 is a protein called Ribosomal protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 87 | u3 | 217 | Total | C | N | O | S | 0 | 0 |
| | | | 1741 | 1113 | 312 | 307 | 9 | | |

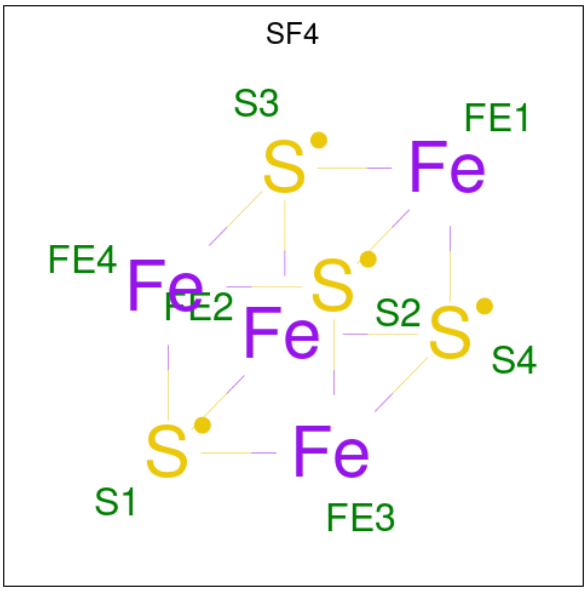
- Molecule 88 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | AltConf |
|---|---|---|---|---|
| 88 | A1 | 77 | Total Mg<br>77 77 | 0 |
| 88 | G1 | 1 | Total Mg<br>1 1 | 0 |
| 88 | M1 | 1 | Total Mg<br>1 1 | 0 |
| 88 | 52 | 204 | Total Mg<br>204 204 | 0 |
| 88 | 72 | 7 | Total Mg<br>7 7 | 0 |
| 88 | 82 | 5 | Total Mg<br>5 5 | 0 |
| 88 | P3 | 1 | Total Mg<br>1 1 | 0 |
| 88 | V3 | 1 | Total Mg<br>1 1 | 0 |
| 88 | a3 | 1 | Total Mg<br>1 1 | 0 |
| 88 | g3 | 1 | Total Mg<br>1 1 | 0 |
| 88 | w3 | 1 | Total Mg<br>1 1 | 0 |

- Molecule 89 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | AltConf |
|---|---|---|---|---|
| 89 | b1 | 1 | Total Zn<br>1 1 | 0 |
| 89 | e1 | 1 | Total Zn<br>1 1 | 0 |
| 89 | g1 | 1 | Total Zn<br>1 1 | 0 |
| 89 | g3 | 1 | Total Zn<br>1 1 | 0 |
| 89 | j3 | 1 | Total Zn<br>1 1 | 0 |
| 89 | m3 | 1 | Total Zn<br>1 1 | 0 |
| 89 | o3 | 1 | Total Zn<br>1 1 | 0 |
| 89 | p3 | 1 | Total Zn<br>1 1 | 0 |

- Molecule 90 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: $Fe_4S_4$).




| Mol | Chain | Residues | Atoms | AltConf |
|---|---|---|---|---|
| 90 | k1 | 1 | Total Fe S<br>8 4 4 | 0 |
| 90 | k1 | 1 | Total Fe S<br>8 4 4 | 0 |

- Molecule 91 is water.

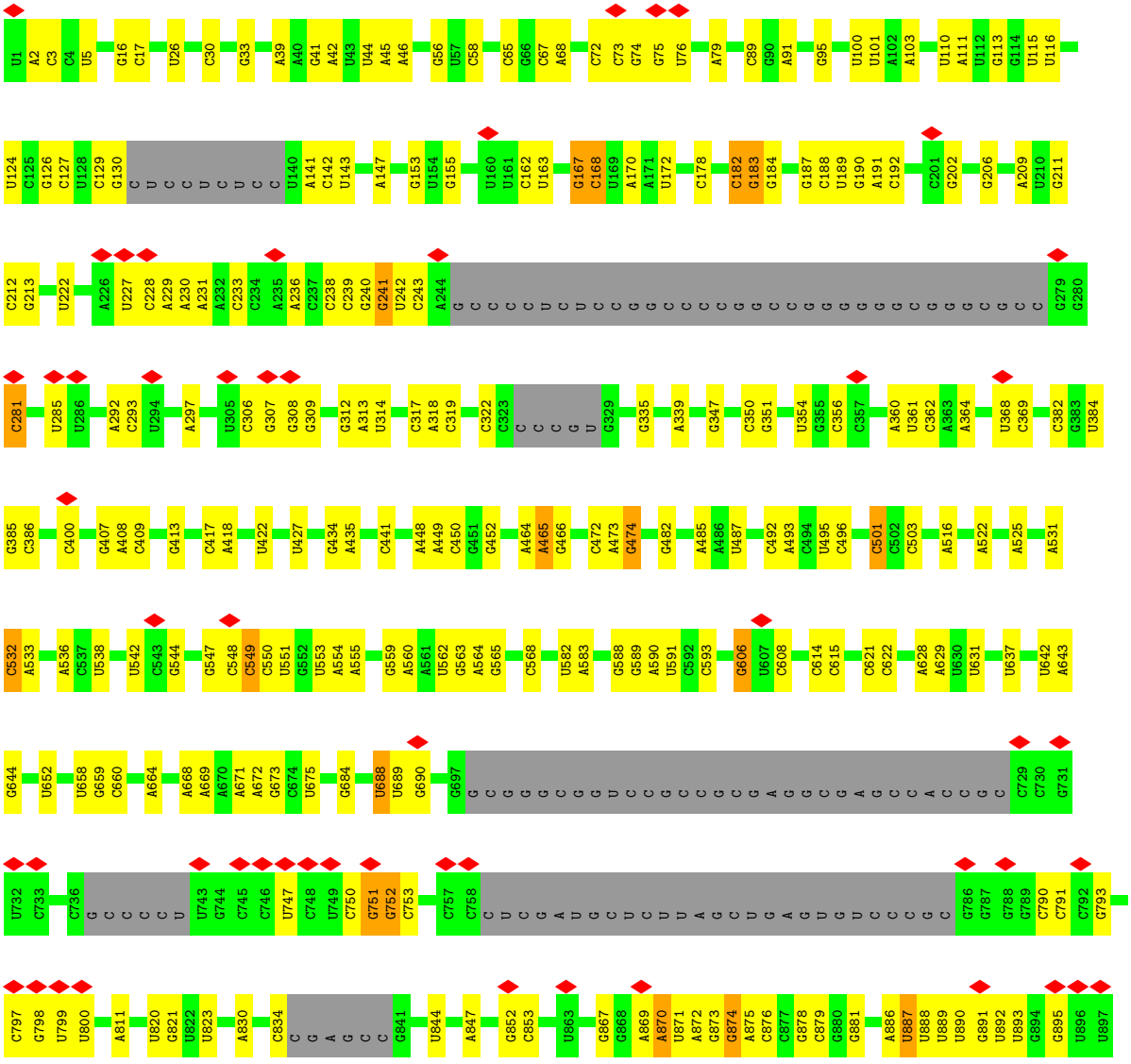
| Mol | Chain | Residues | Atoms | AltConf |
|---|---|---|---|---|
| 91 | 52 | 3 | Total O<br>3 3 | 0 |
| 91 | 1 | 1 | Total O<br>1 1 | 0 |

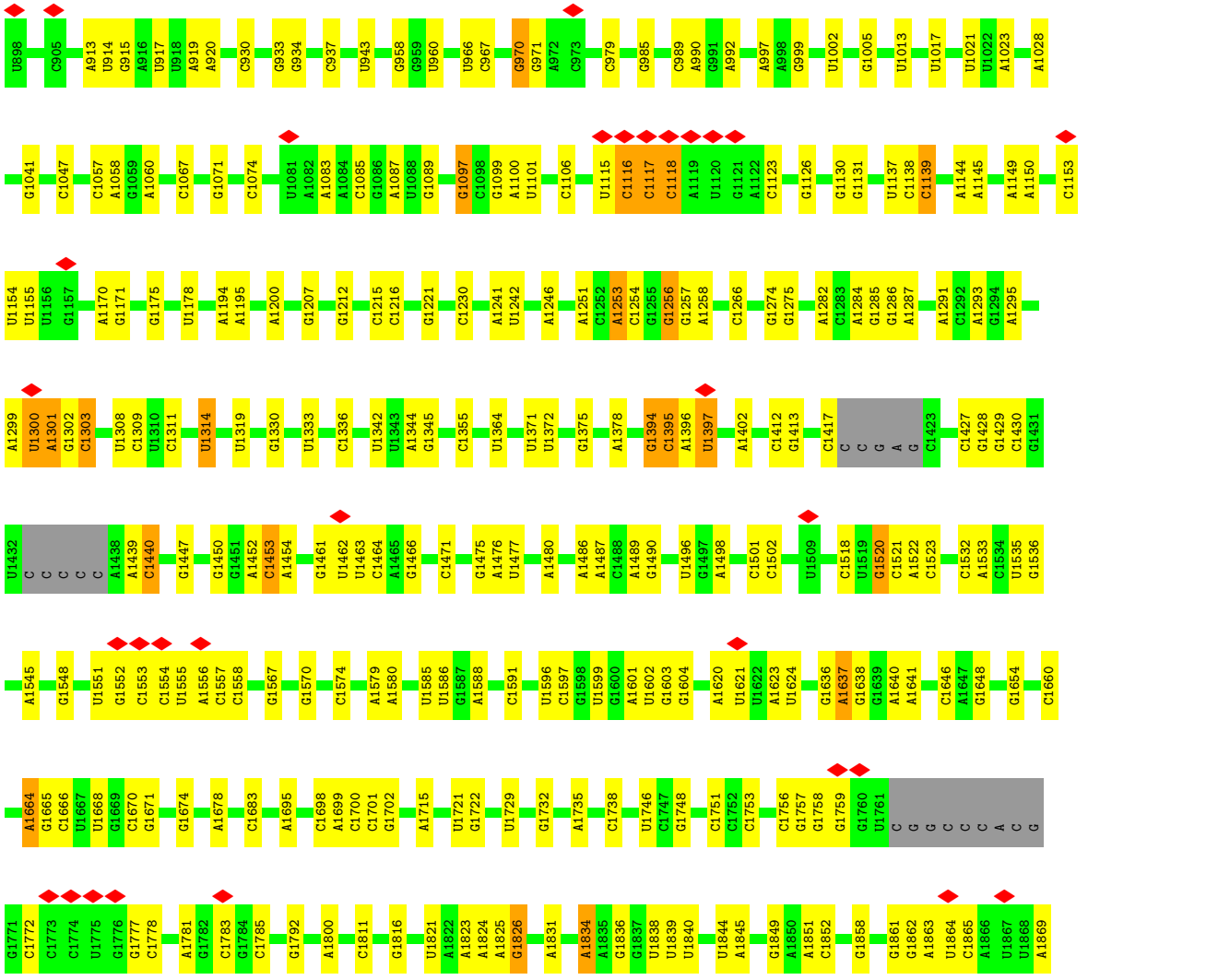
# 3 Residue-property plots (i)

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: 18S ribosomal RNA

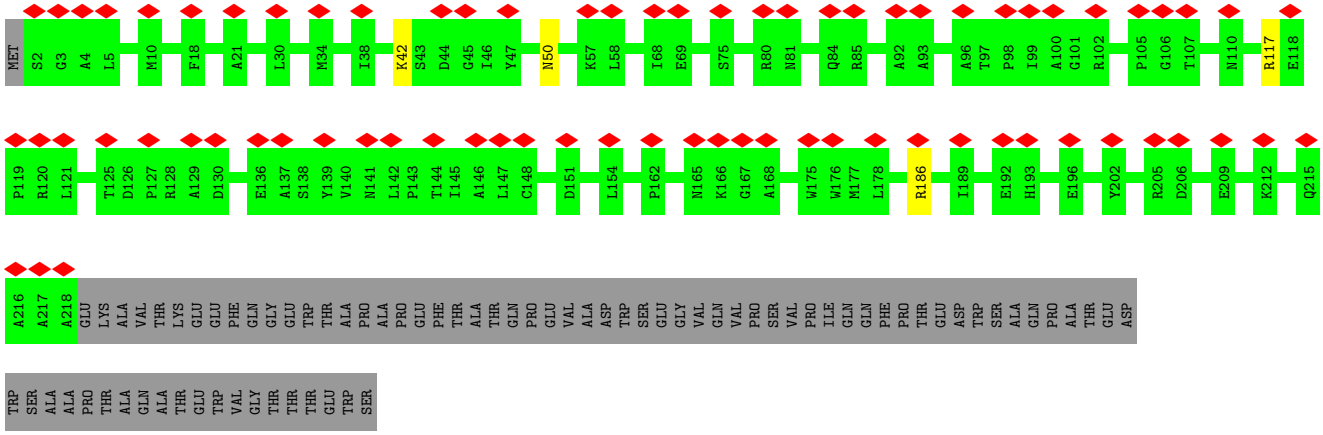
Chain A1:



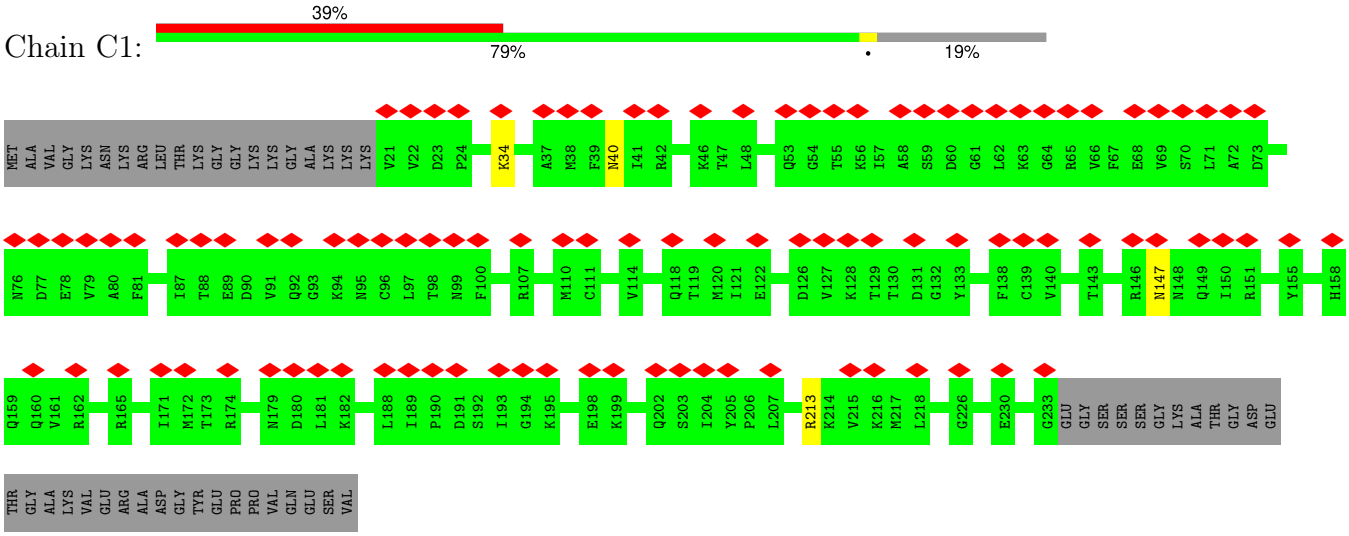

- Molecule 2: uS2

Chain B1:

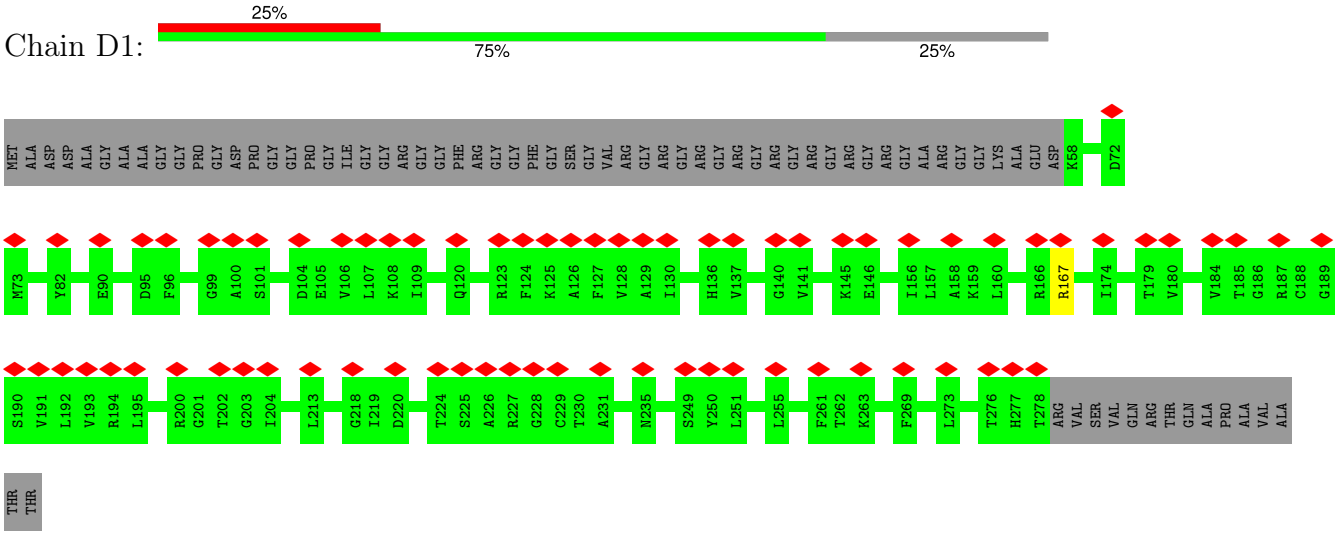

- Molecule 3: 40S ribosomal protein S3a

Chain C1:



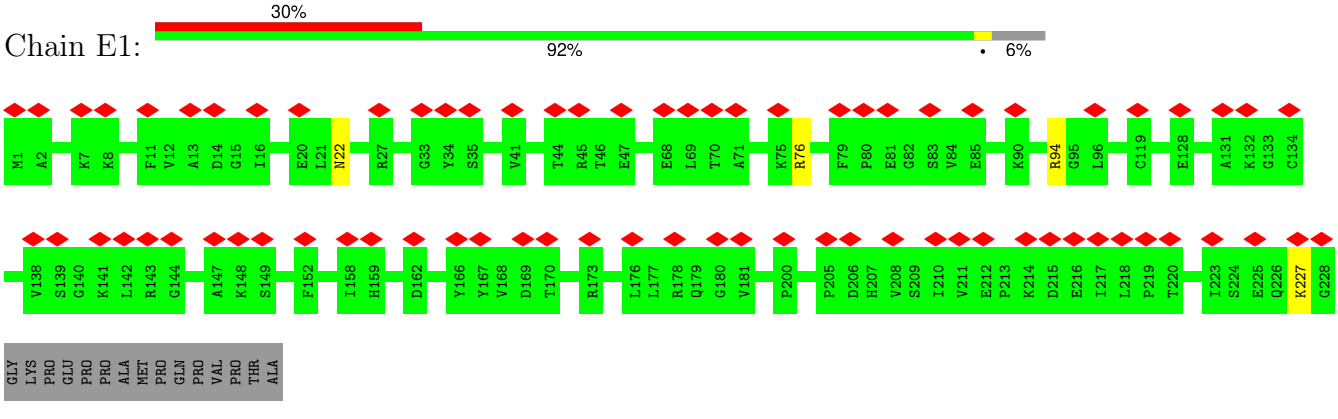

• Molecule 4: uS5

Chain D1:



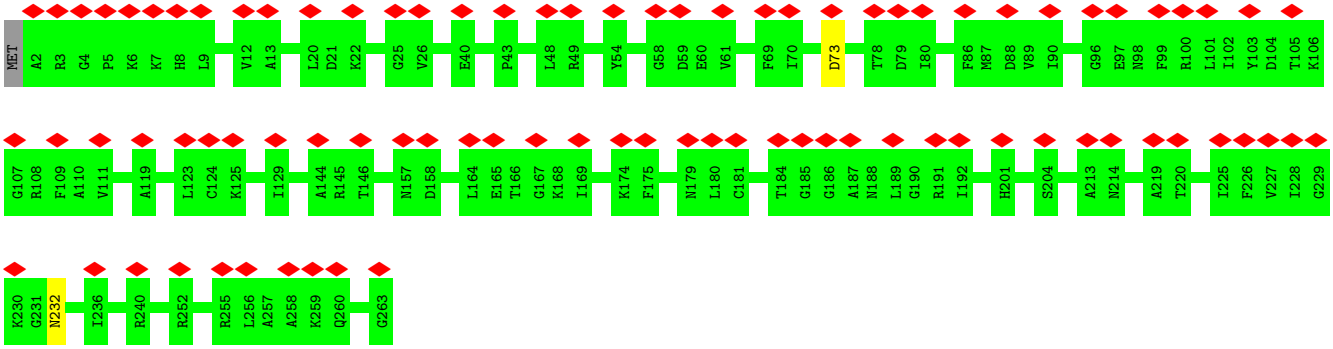

• Molecule 5: uS3

Chain E1:



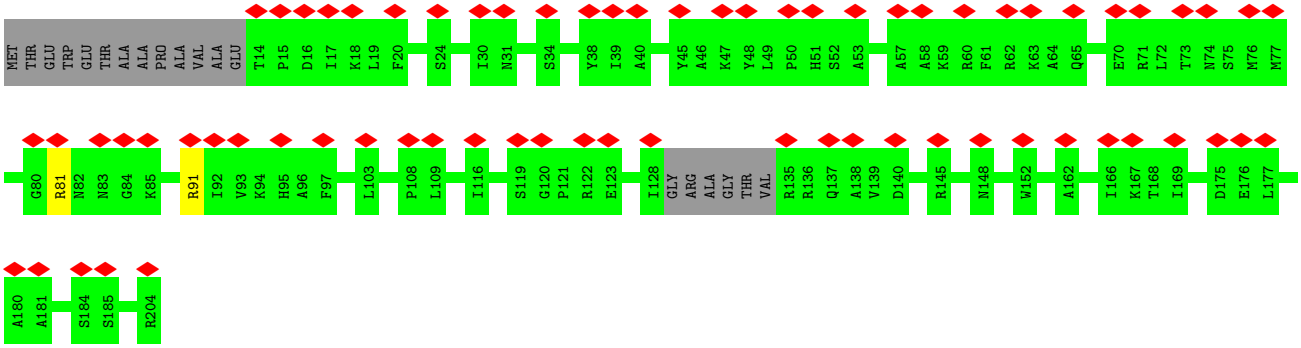

• Molecule 6: eS4

Chain F1:



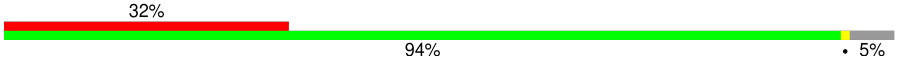

• Molecule 7: Ribosomal protein S5

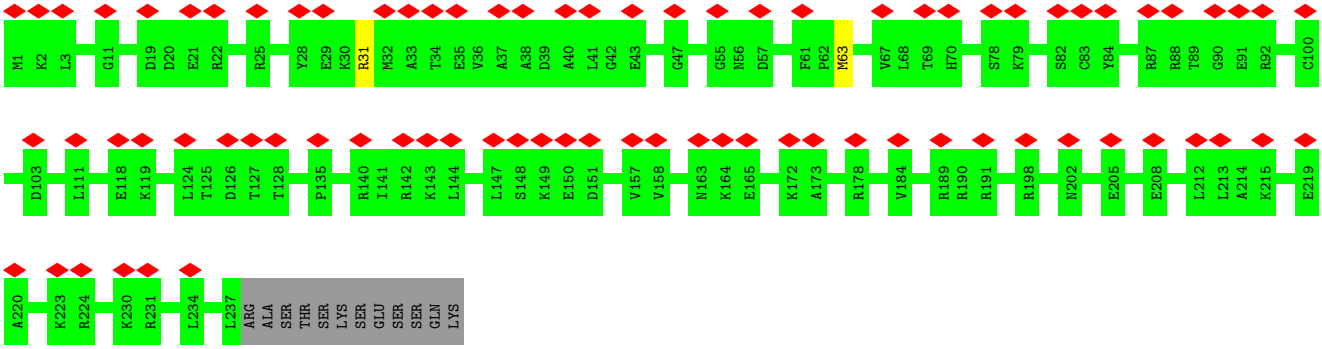
Chain G1:


• Molecule 8: 40S ribosomal protein S6

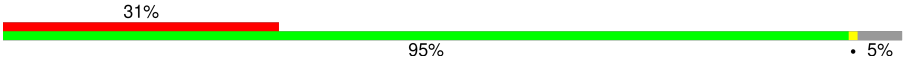
Chain H1:

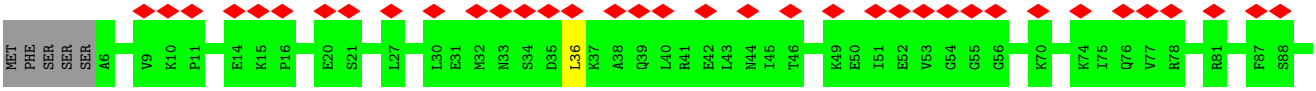


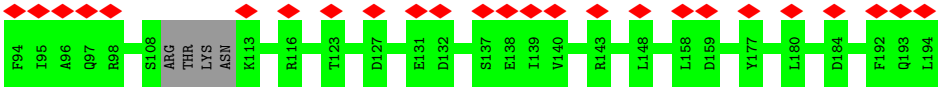




• Molecule 9: 40S ribosomal protein S7

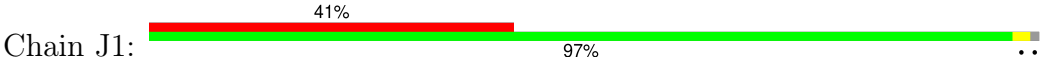
Chain I1:

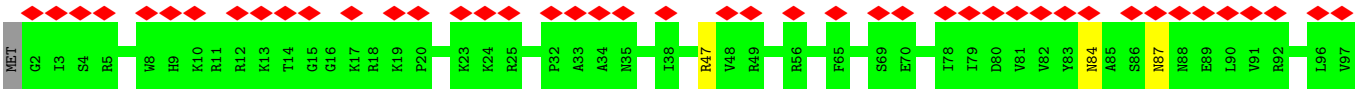


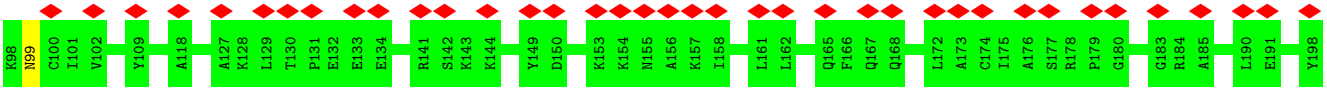



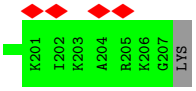



• Molecule 10: eS8

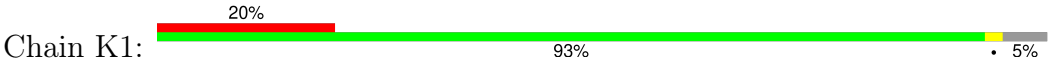


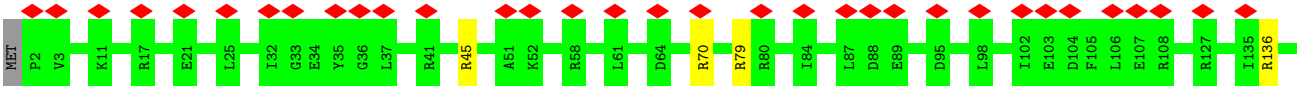



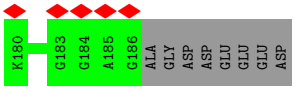



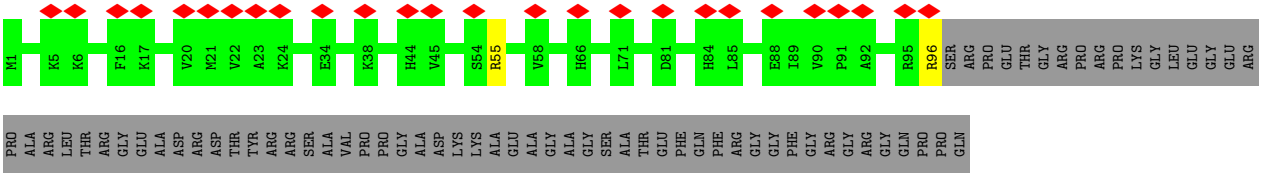

• Molecule 11: Ribosomal protein S9 (Predicted)



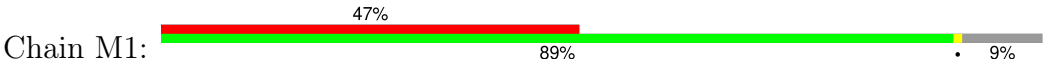



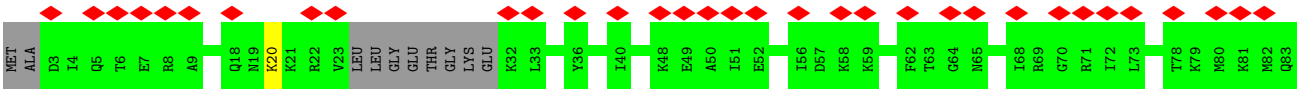



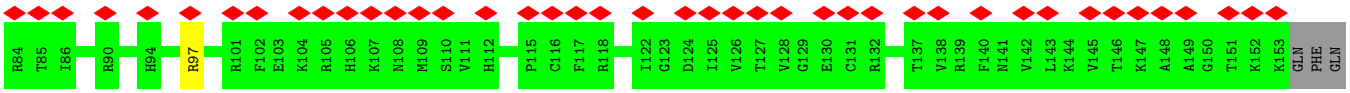

• Molecule 12: eS10


• Molecule 13: Ribosomal protein S11

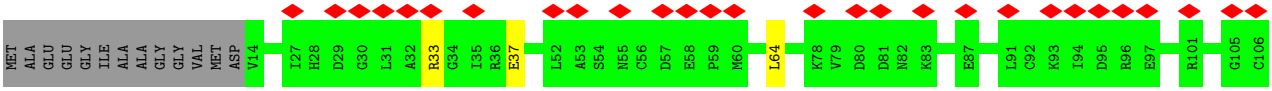


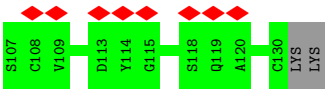




• Molecule 14: 40S ribosomal protein S12

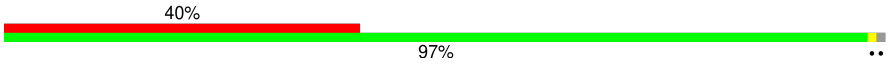
Chain N1:

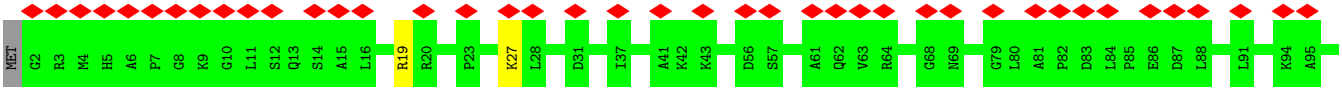



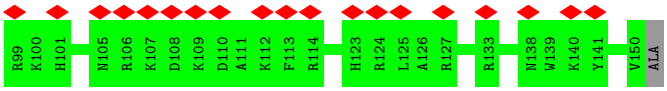




• Molecule 15: uS15

Chain O1:

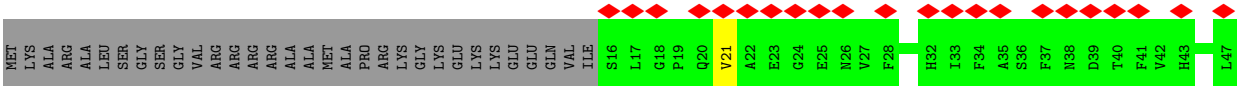


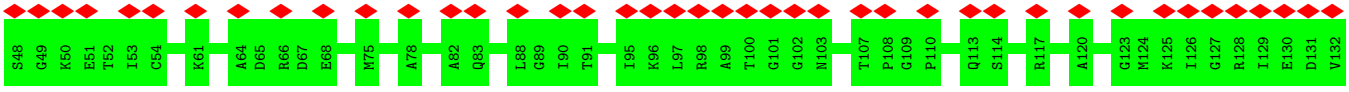



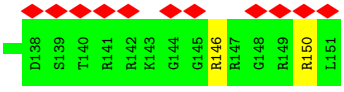




• Molecule 16: uS11

Chain P1:

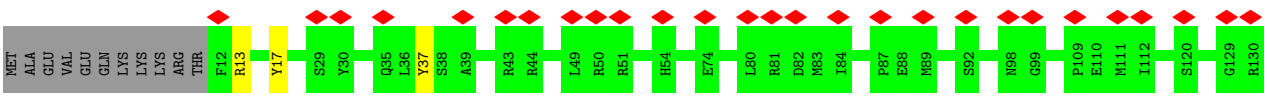



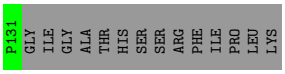




• Molecule 17: uS19

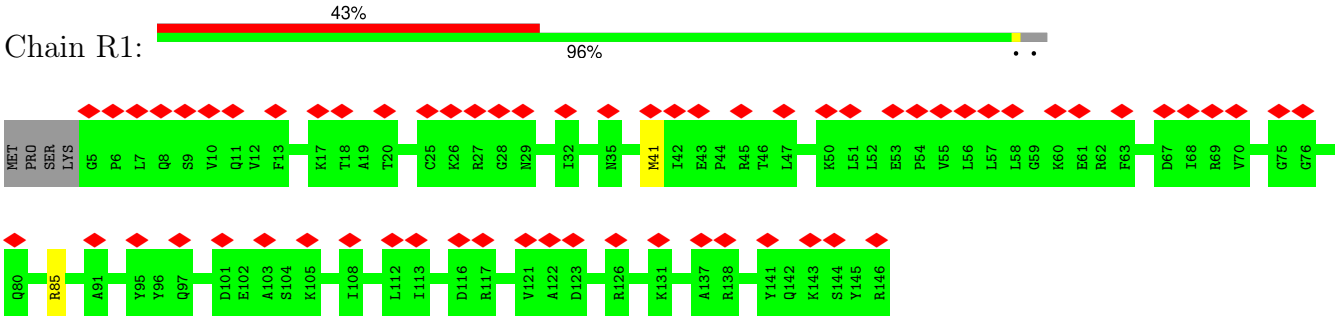
Chain Q1:

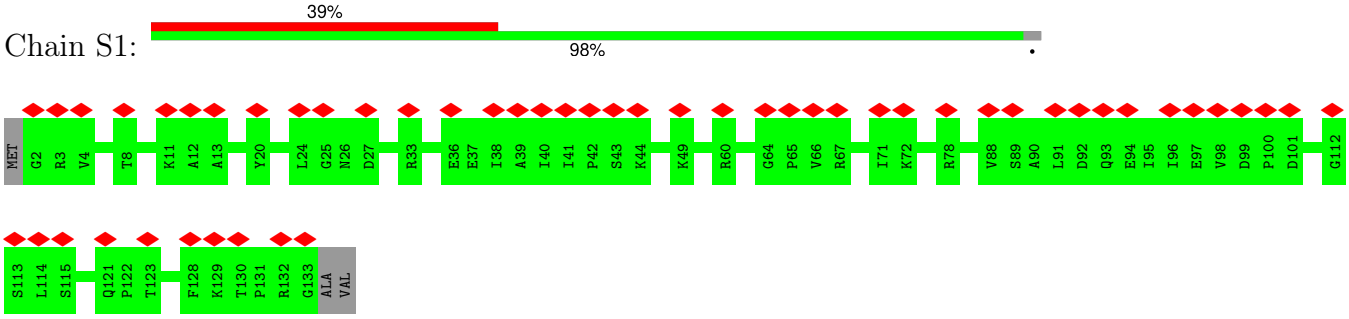

• Molecule 18: Ribosomal protein S16

Chain R1:



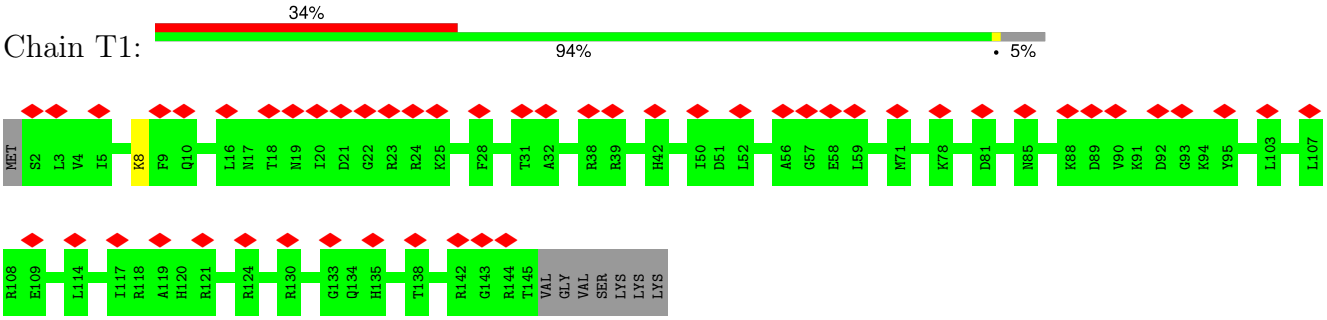

• Molecule 19: eS17

Chain S1:



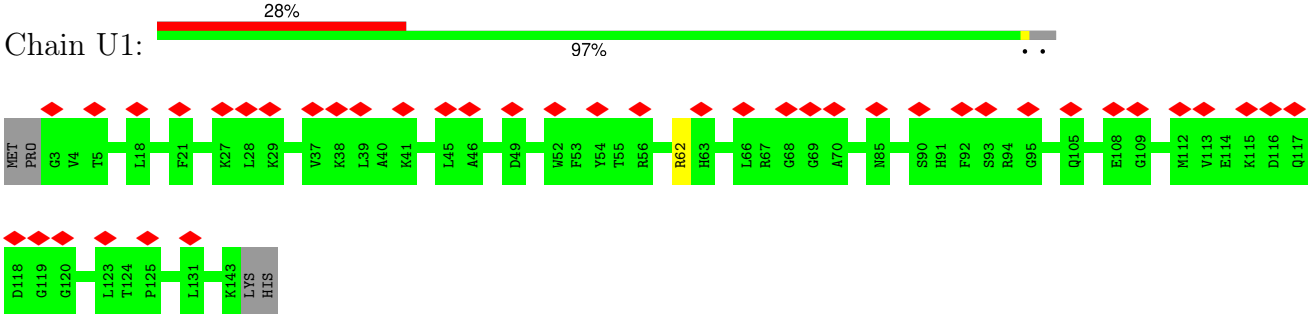

• Molecule 20: uS13

Chain T1:



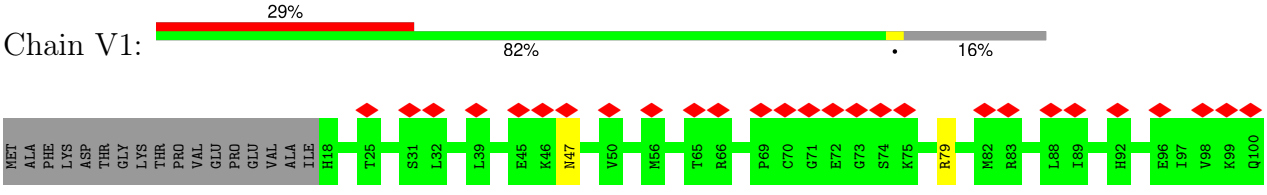

• Molecule 21: eS19

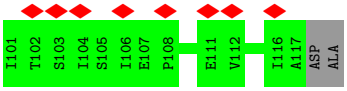
Chain U1:




• Molecule 22: uS10

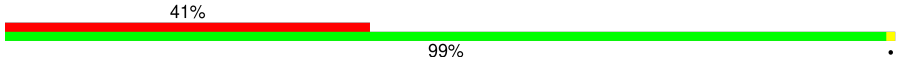
Chain V1:

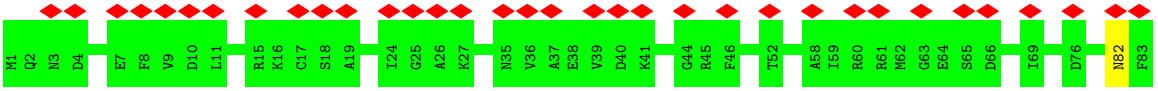





- Molecule 23: eS21

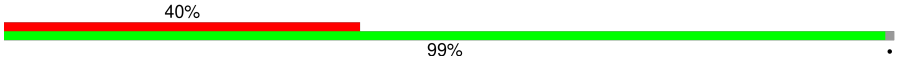
Chain W1:

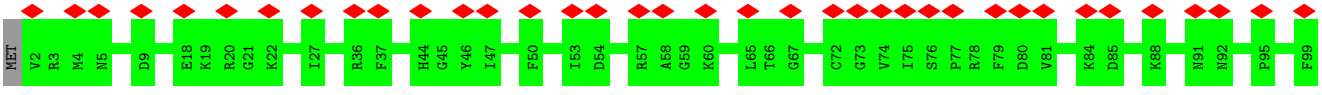


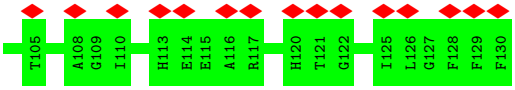




- Molecule 24: Ribosomal protein S15a

Chain X1:

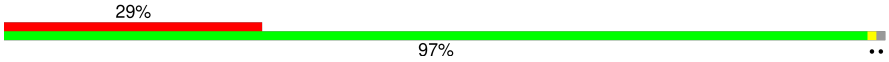


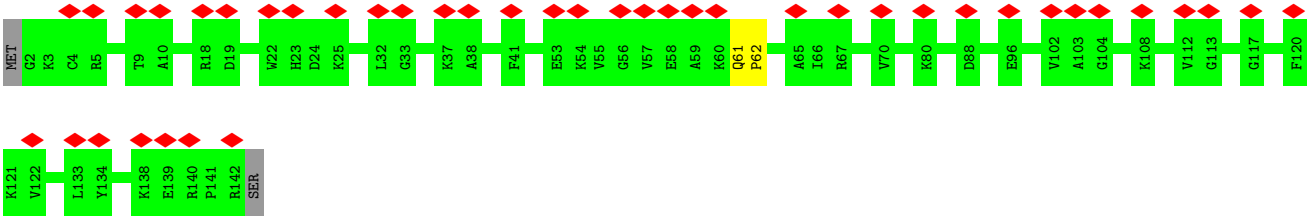




- Molecule 25: uS12

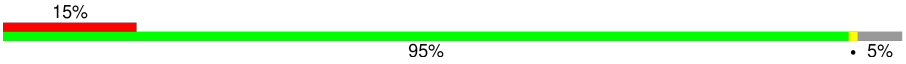
Chain Y1:

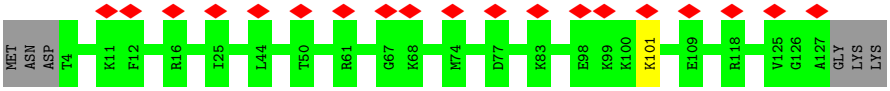



- Molecule 26: eS24

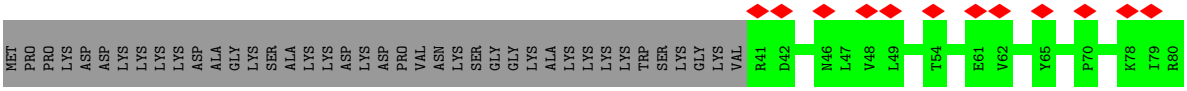
Chain Z1:

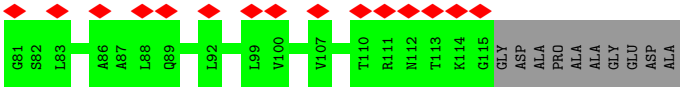



- Molecule 27: eS25

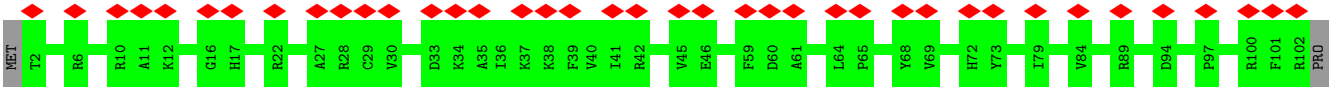
Chain a1:




• Molecule 28: eS26

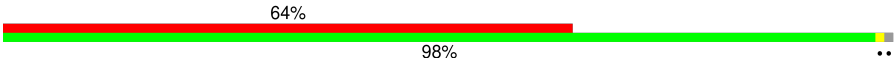
Chain b1:

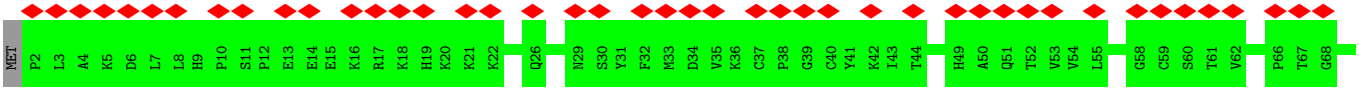



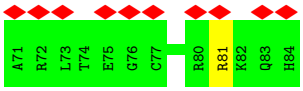


• Molecule 29: 40S ribosomal protein S27

Chain c1:

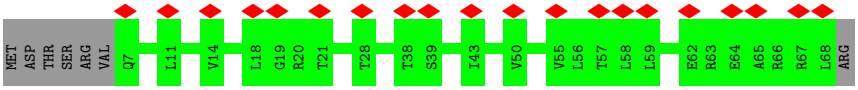


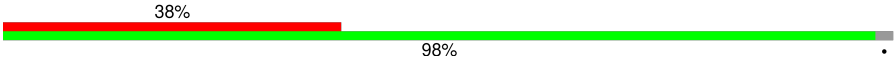

• Molecule 30: Ribosomal protein S28

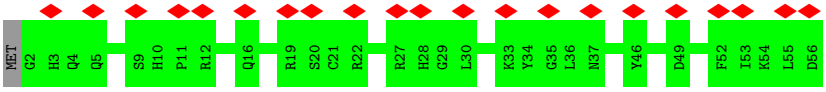
Chain d1:


• Molecule 31: uS14

Chain e1:

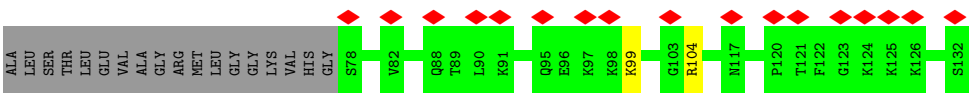



• Molecule 32: 40S ribosomal protein S30

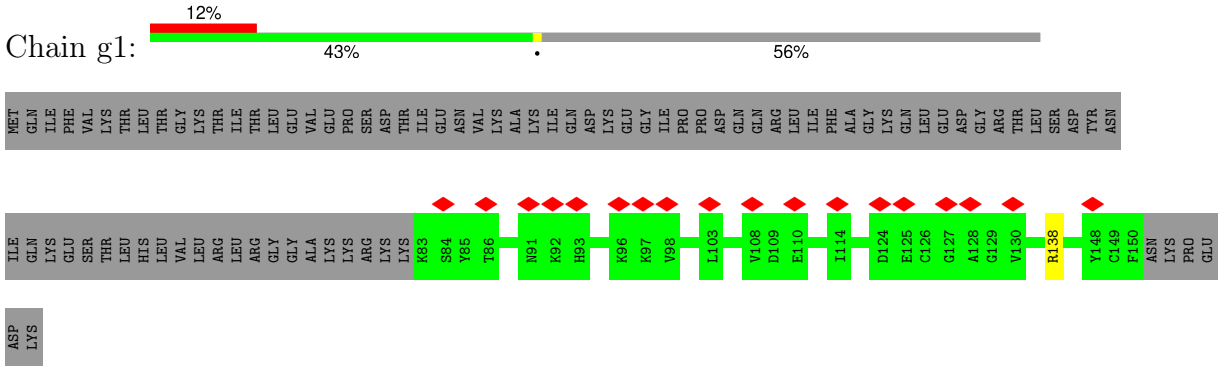
Chain f1:





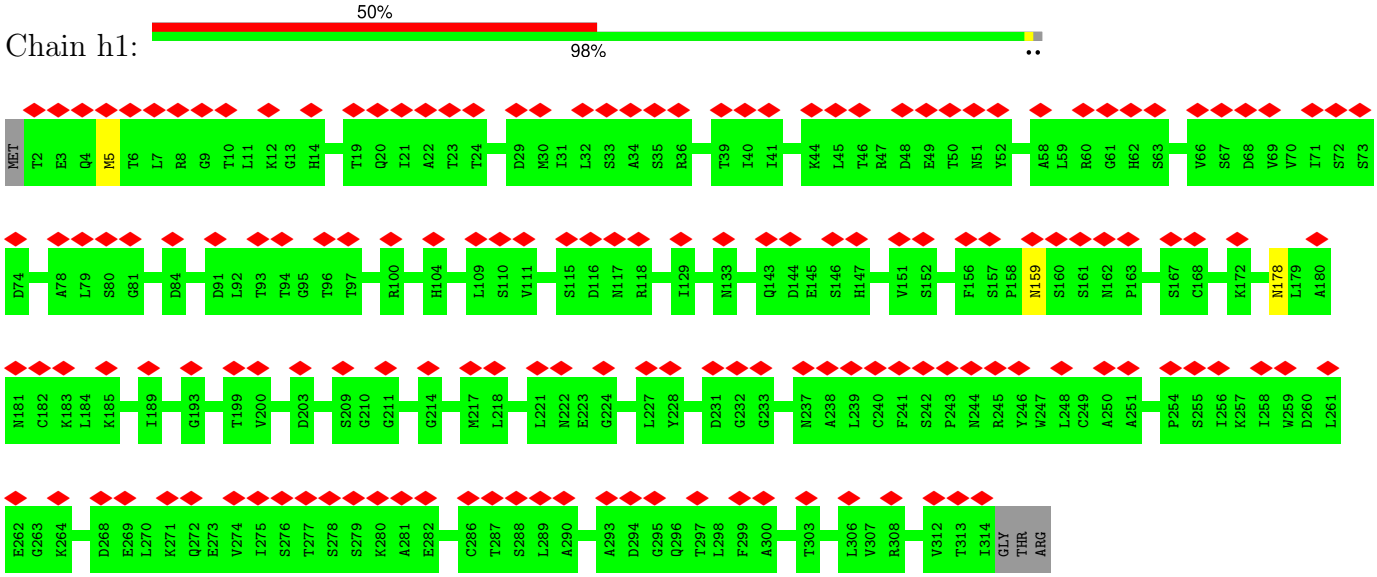

• Molecule 33: Ribosomal protein S27a

Chain g1:



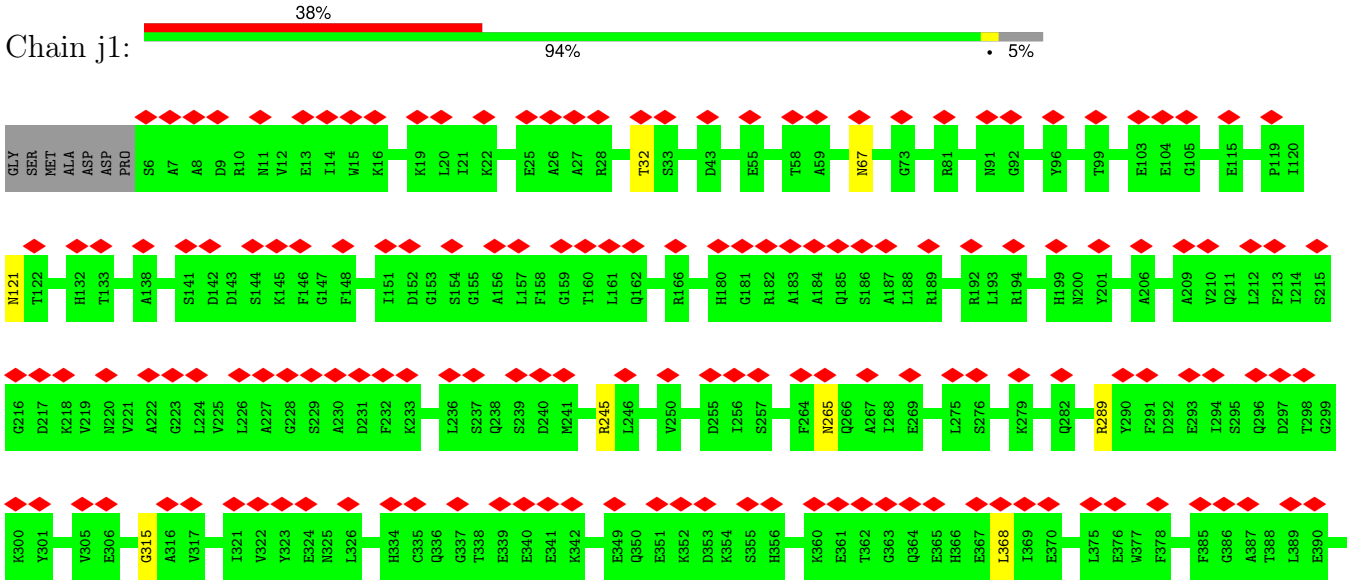

• Molecule 34: RACK1

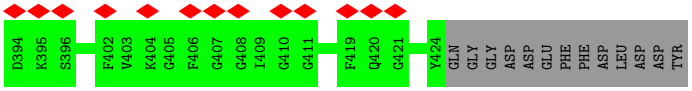
Chain h1:




• Molecule 35: eRF1(AAQ)

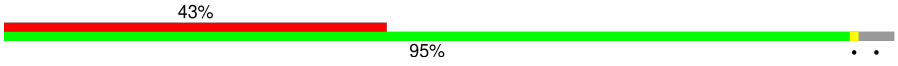
Chain j1:

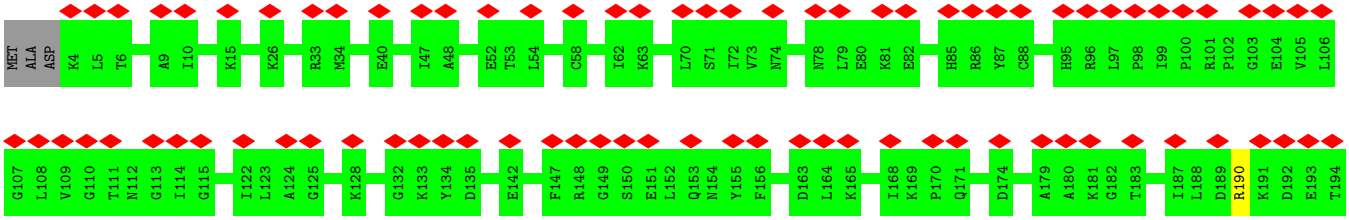





• Molecule 36: ATP binding cassette subfamily E member 1

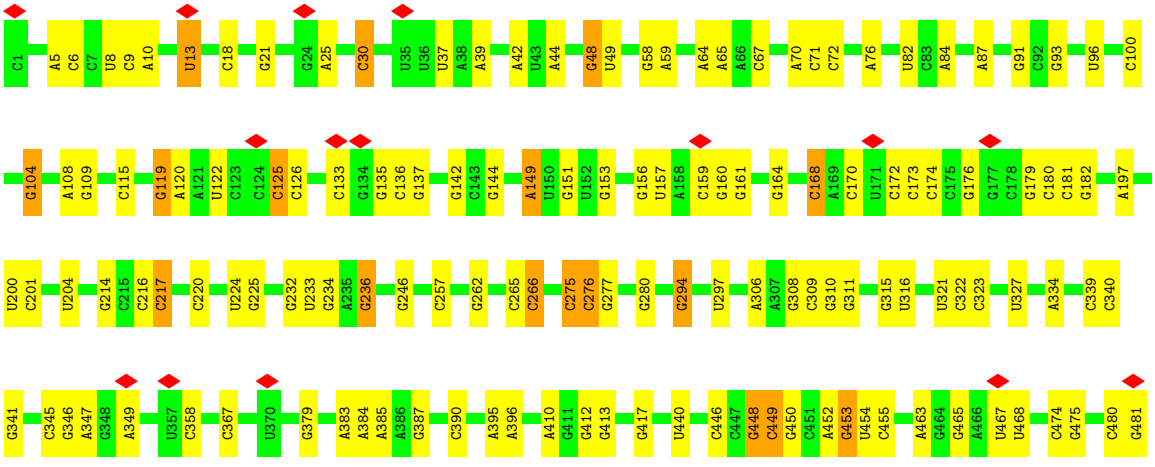
Chain k1:

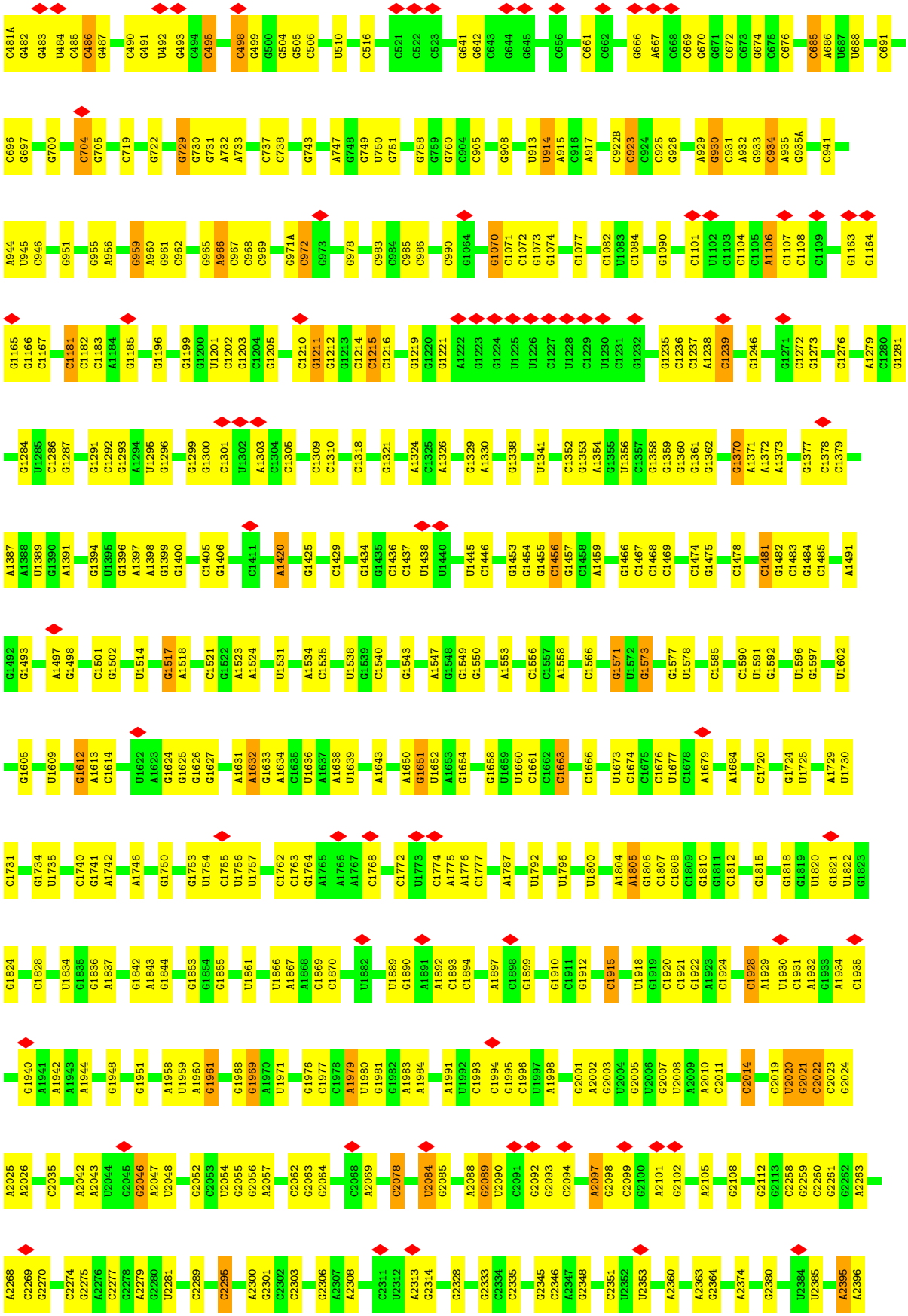



• Molecule 37: 28S ribosomal RNA

Chain 52:


C481A G482 G483 U484 C485 C486 G487 C490 G491 U492 G493 C494 C495 C498 G499 G500 G504 G505 C506 U510 C516 C521 C522 C523 G641 G642 C643 G644 G645 C656 C661 C662 G666 A667 C668 C669 G670 G671 C672 C673 G674 C675 C676 C685 A686 U687 U688 C691
C696 G697 G700 C704 G705 C719 G722 G729 G730 G731 A732 A733 C737 C738 G743 A747 G748 G749 U750 G751 G758 G759 G760 C904 C905 G908 U913 U914 A915 C916 A917 C922B C923 C924 C925 G926 A929 G930 C931 A932 G933 C934 A935 G935A C941
A944 U945 C946 G951 G955 A956 G959 A960 G961 C962 G965 A966 C967 G968 C969 G971A C972 G973 G978 C983 C984 C985 C986 C990 G1064 G1070 C1071 C1072 G1073 G1074 C1077 C1082 U1083 C1084 G1090 C1101 U1102 C1103 C1104 C1105 A1106 C1107 C1108 C1109 G1163 G1164
G1165 G1166 C1167 C1181 C1182 C1183 A1184 G1185 G1196 G1199 G1200 U1201 C1202 G1203 C1204 G1205 C1210 G1211 G1212 G1213 C1214 C1215 C1216 G1219 G1220 G1221 A1222 G1223 G1224 U1225 U1226 C1227 U1228 C1229 U1230 C1231 G1232 G1235 C1236 C1237 A1238 C1239 G1246 G1271 C1272 G1273 C1276 A1279 C1280 G1281
G1284 U1285 C1286 G1287 G1291 C1292 G1293 A1294 U1295 G1296 G1299 G1300 C1301 U1302 A1303 C1304 C1305 C1309 C1310 C1318 G1321 A1324 C1325 A1326 G1329 A1330 G1338 U1341 C1352 G1353 A1354 G1355 U1356 C1357 G1358 G1359 G1360 G1361 G1362 G1370 A1371 A1372 A1373 G1377 C1378 C1379
A1387 A1388 U1389 G1390 A1391 G1394 U1395 G1396 A1397 A1398 G1399 G1400 C1405 G1406 C1411 A1420 G1425 C1429 G1434 G1435 C1436 C1437 U1438 U1440 U1445 C1446 G1453 G1454 G1455 C1456 G1457 C1458 A1459 G1466 C1467 C1468 C1469 C1474 G1475 C1478 C1481 G1482 C1483 G1484 C1485 A1491
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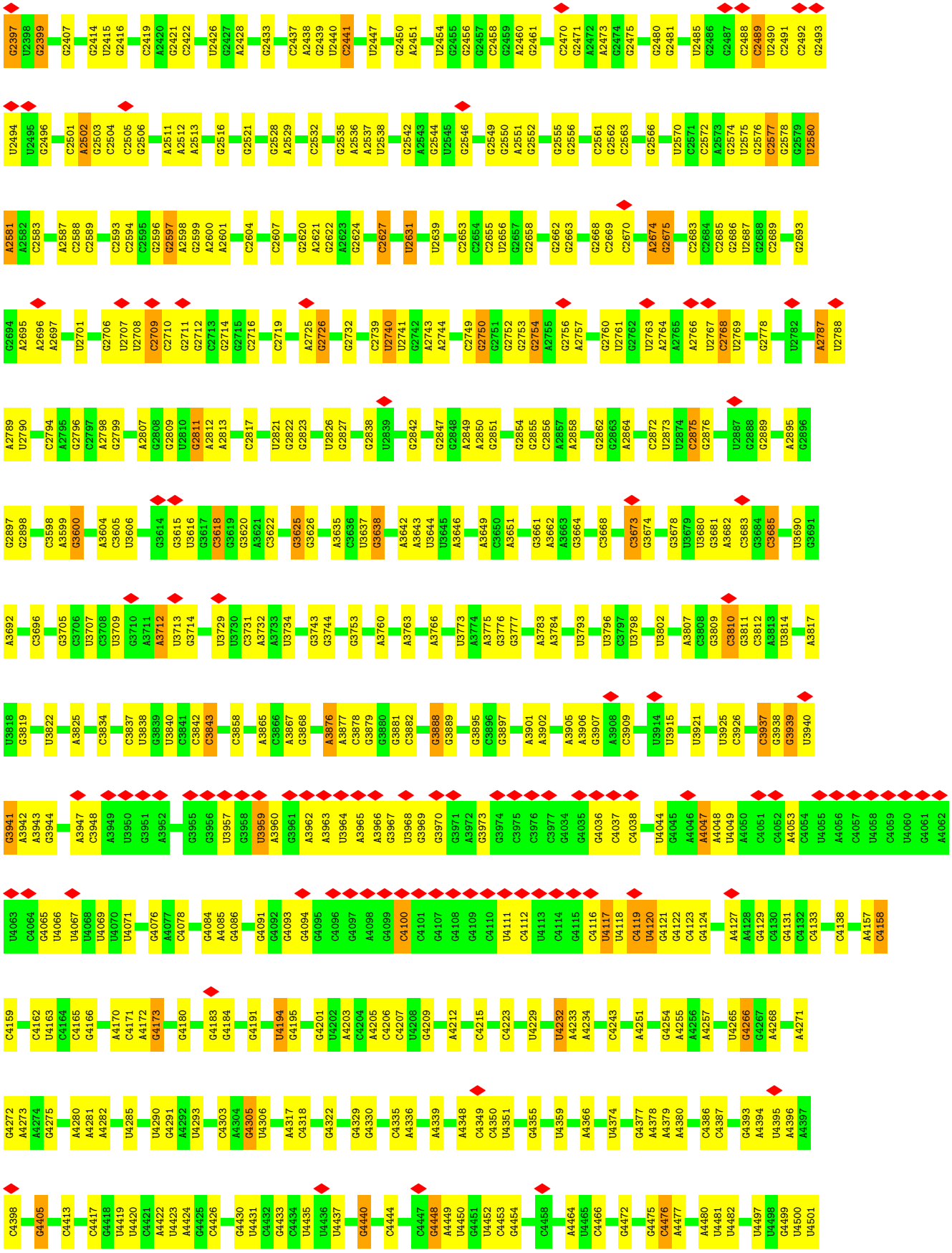
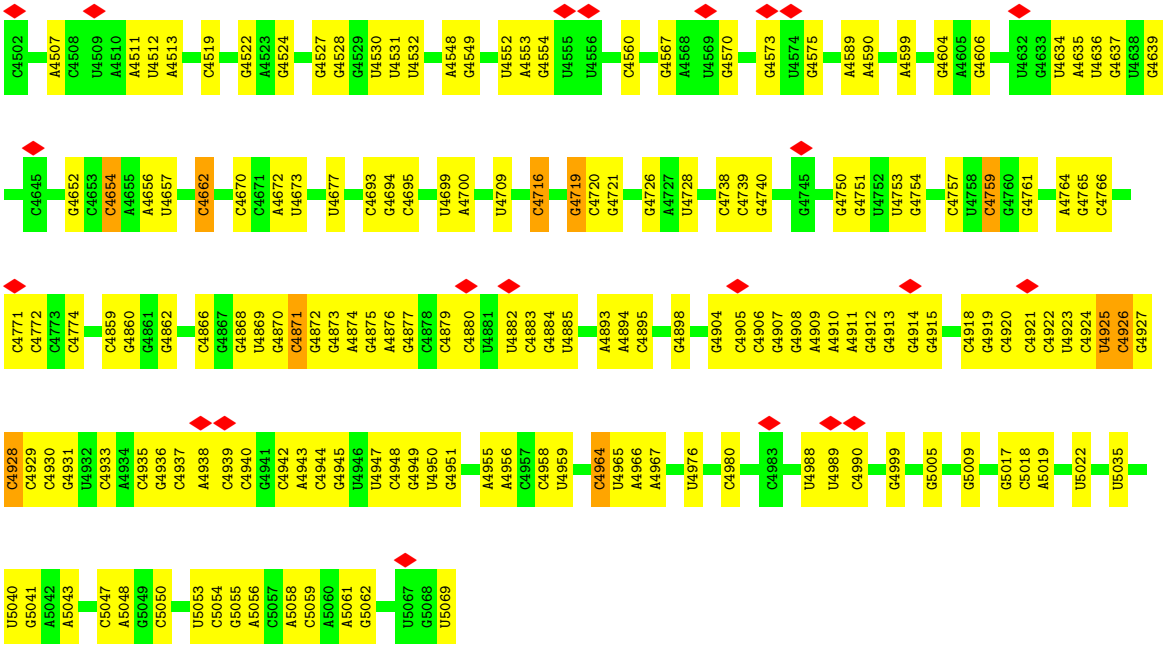
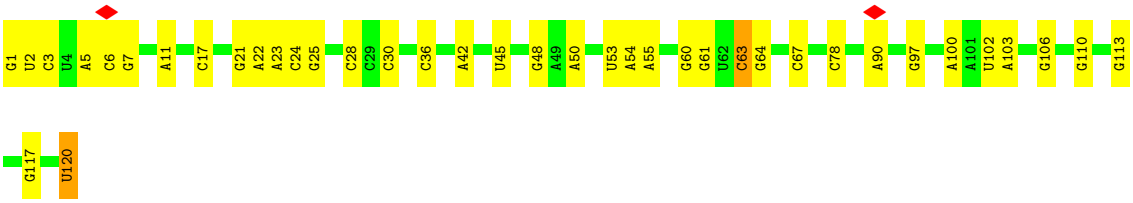
G1605 U1609 G1612 A1613 C1614 U1622 A1623 G1624 G1625 G1626 G1627 A1631 A1632 G1633 A1634 C1635 U1636 A1637 A1638 U1639 A1643 A1650 G1651 U1652 A1653 G1654 C1658 U1659 U1660 C1661 C1662 C1663 C1666 U1673 C1674 C1675 C1676 U1677 C1678 A1679 A1684 C1720 G1724 U1725 A1729 U1730
C1731 G1734 U1735 C1740 G1741 A1742 A1746 G1750 G1753 U1754 C1755 U1756 U1757 C1762 C1763 G1764 A1765 A1766 A1767 C1768 C1772 U1773 C1774 A1775 A1776 C1777 A1787 U1792 U1796 U1800 A1804 A1805 G1806 C1807 C1808 C1809 G1810 G1811 C1812 G1815 G1818 G1819 U1820 G1821 U1822 G1823
G1824 C1828 U1834 G1835 G1836 A1837 G1842 A1843 A1844 G1853 G1854 G1855 U1861 U1866 A1867 A1868 G1869 C1870 U1882 U1889 G1890 A1891 A1892 C1893 C1894 A1897 C1898 G1899 G1910 C1911 G1912 C1915 U1918 G1919 C1920 C1921 G1922 A1923 C1924 C1928 A1929 U1930 C1931 A1932 G1933 A1934 C1935
G1940 A1941 A1942 A1943 A1944 G1948 G1951 A1958 U1959 A1960 G1961 G1968 G1969 A1970 U1971 G1976 C1977 C1978 A1979 U1980 G1981 G1982 A1983 A1984 A1991 U1992 C1993 C1994 G1995 C1996 U1997 A1998 G2001 A2002 G2003 U2004 G2005 U2006 G2007 U2008 A2009 A2010 C2011 C2014 C2019 U2020 G2021 C2022 C2023 G2024
A2025 A2026 C2035 A2042 A2043 U2044 G2045 G2046 A2047 U2048 G2052 C2053 U2054 G2055 G2056 A2057 C2062 G2063 G2064 C2068 A2069 C2078 U2084 G2085 A2088 G2089 U2090 C2091 G2092 G2093 C2094 A2097 G2098 C2099 G2100 A2101 G2102 A2105 G2108 G2112 G2113 C2258 G2259 C2260 G2261 G2262 A2263
A2268 C2269 G2270 C2274 G2275 A2276 C2277 G2278 A2279 G2280 U2281 C2289 C2295 A2300 G2301 C2302 C2303 G2306 A2307 A2308 C2311 U2312 A2313 C2314 G2328 G2333 C2334 C2335 G2345 C2346 A2347 C2348 C2351 U2352 U2353 A2360 A2363 C2364 A2374 G2380 U2384 U2385 A2396 A2396





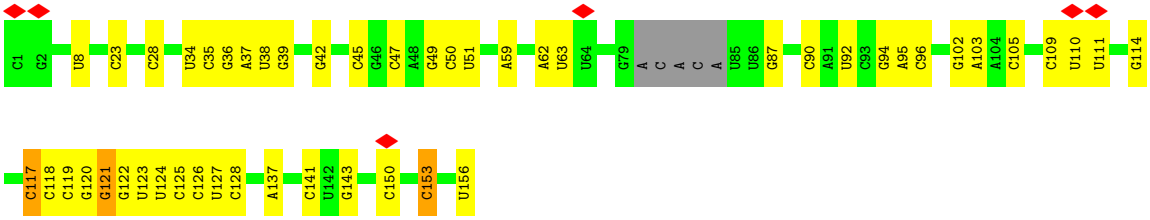

• Molecule 38: 5S ribosomal RNA

Chain 72:

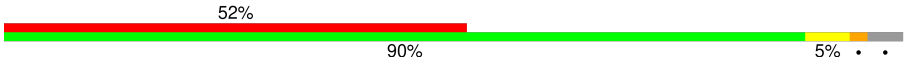

• Molecule 39: 5.8S ribosomal RNA

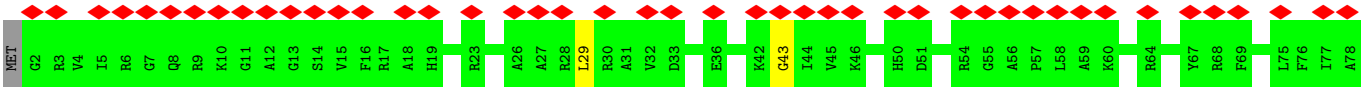
Chain 82:

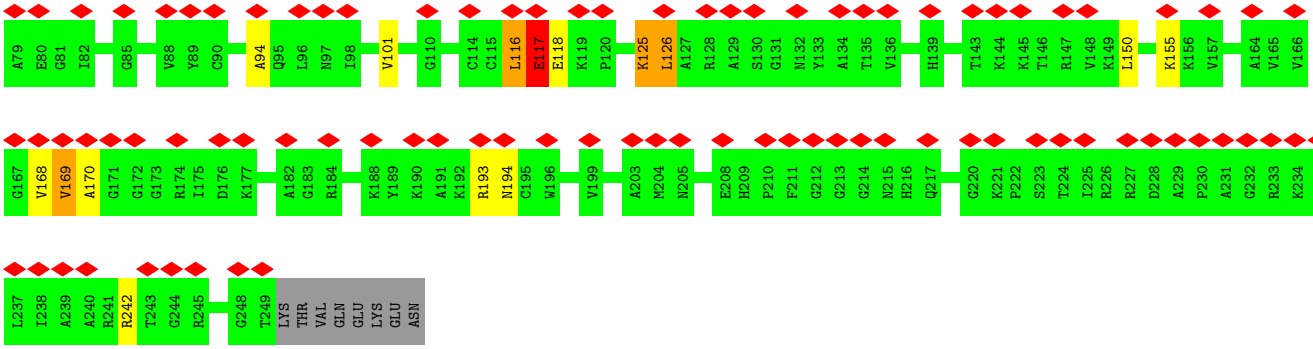




• Molecule 40: Ribosomal protein L8

Chain A3:

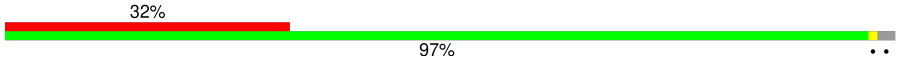


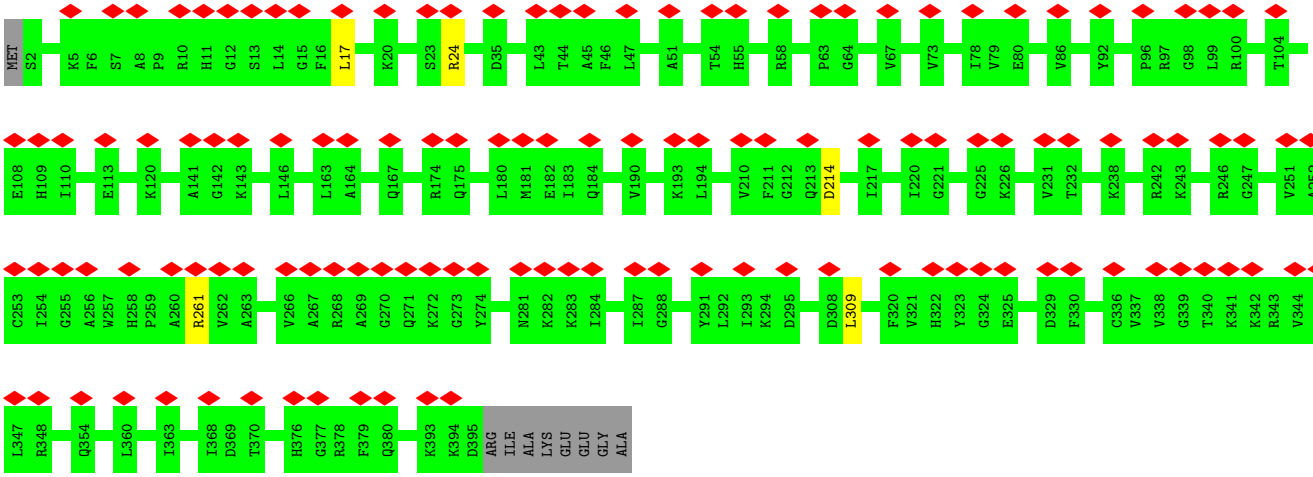






• Molecule 41: uL3

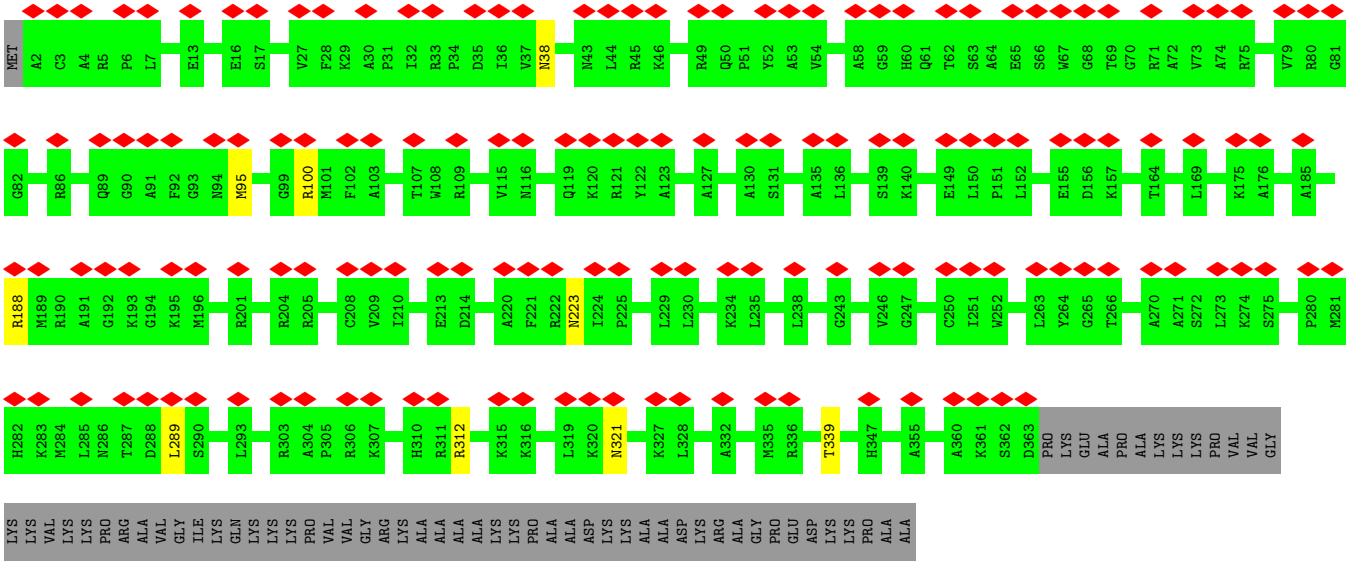
Chain B3:



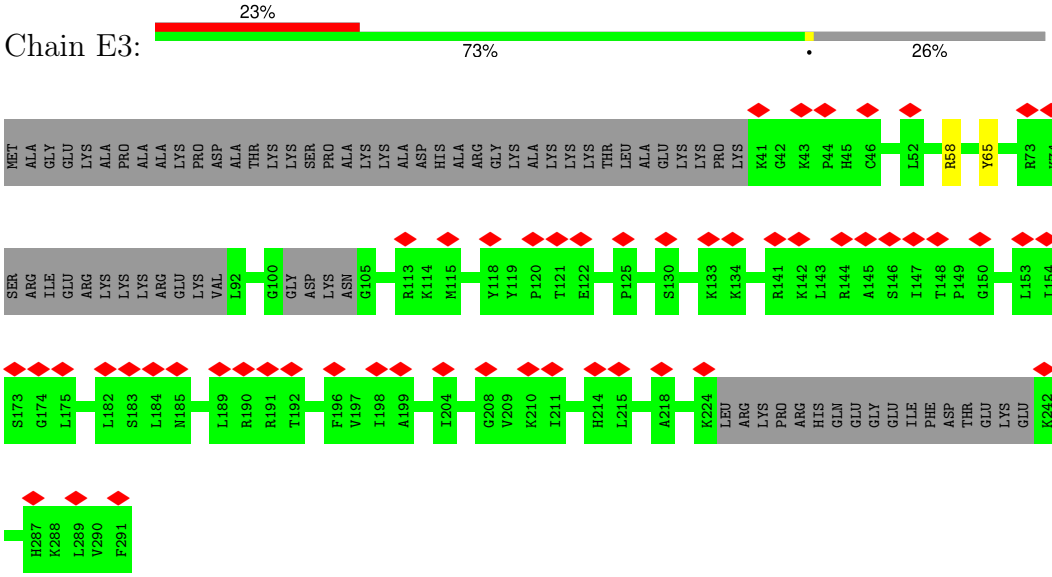

• Molecule 42: uL4

Chain C3:

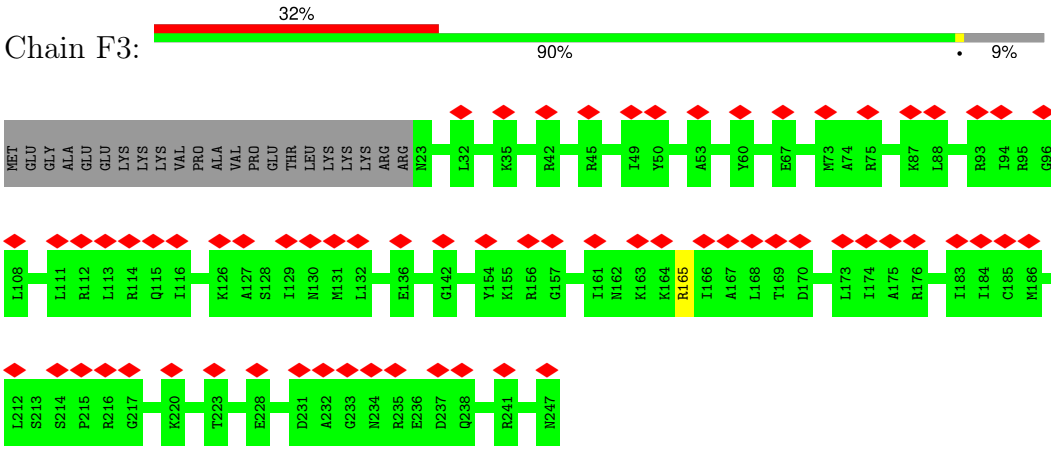
• Molecule 43: 60S ribosomal protein L6

Chain E3:



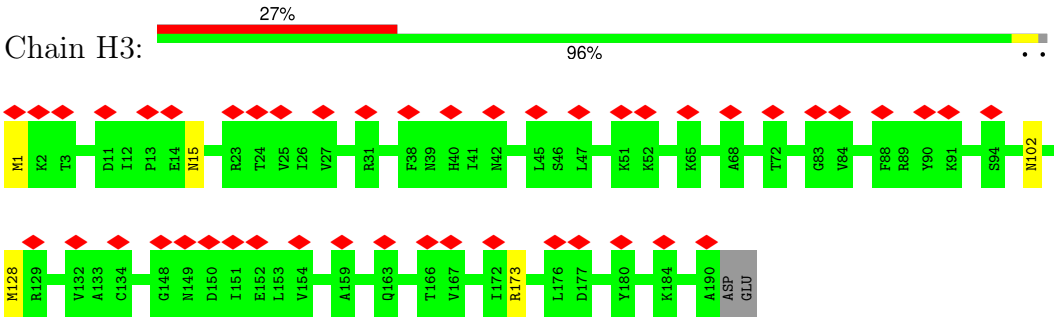

• Molecule 44: uL30

Chain F3:



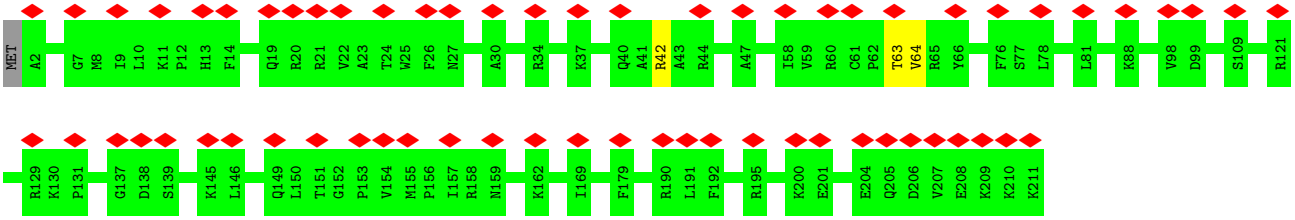

• Molecule 45: uL6

Chain H3:

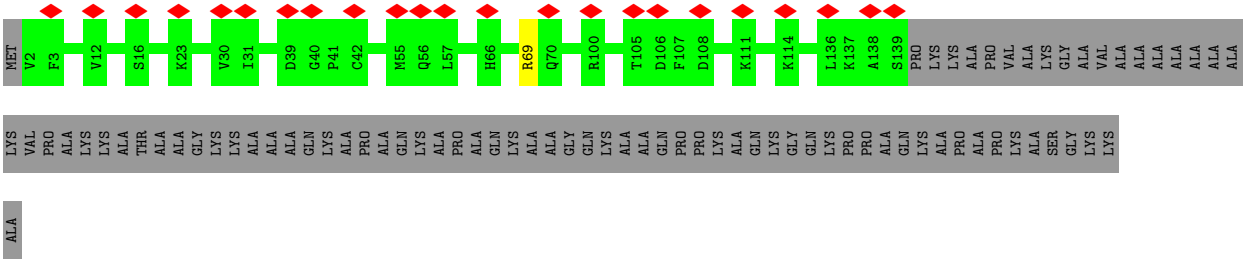



• Molecule 46: eL13

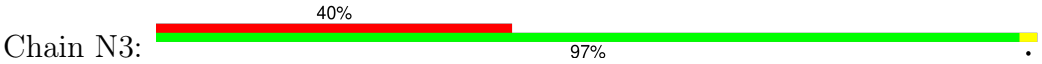
Chain L3:

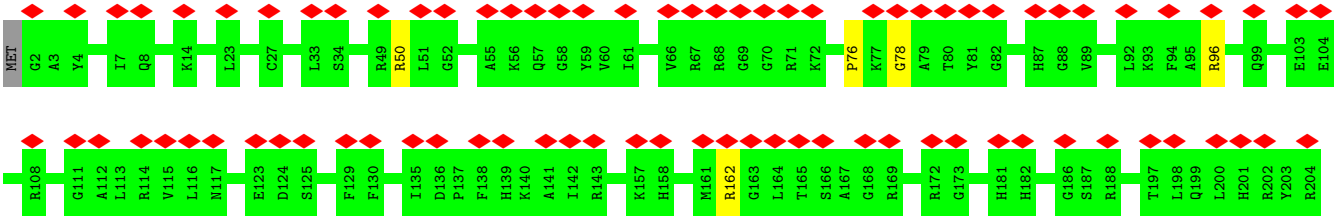



• Molecule 47: Ribosomal protein L14

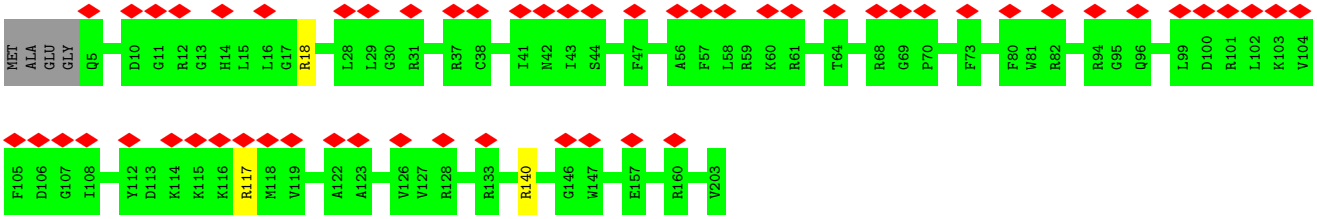




• Molecule 48: Ribosomal protein L15

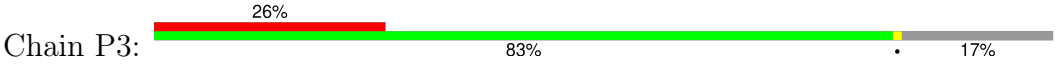


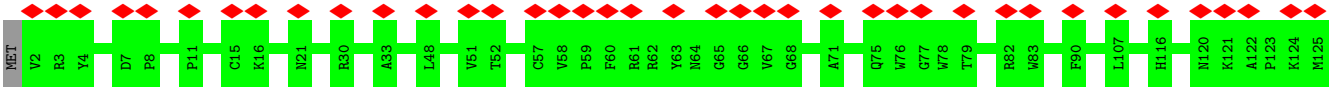



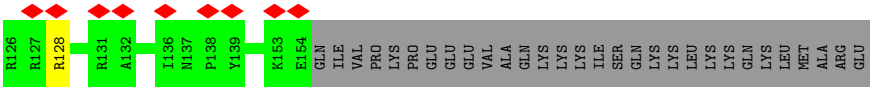

• Molecule 49: uL13


• Molecule 50: uL22

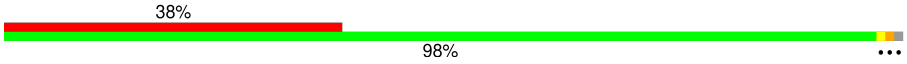


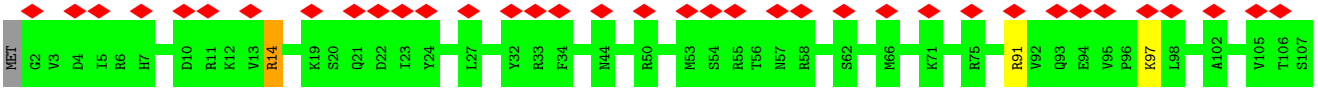



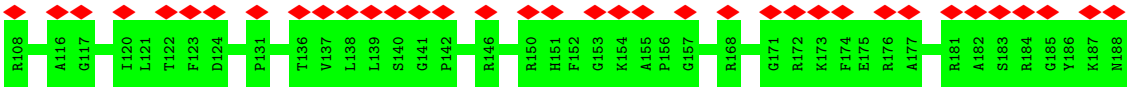



• Molecule 51: eL18

Chain Q3:

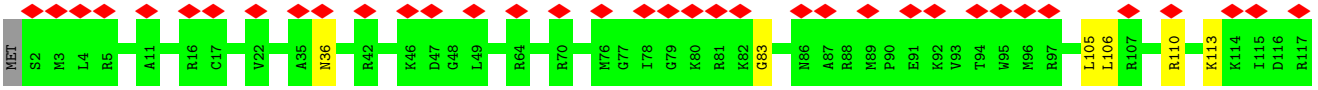


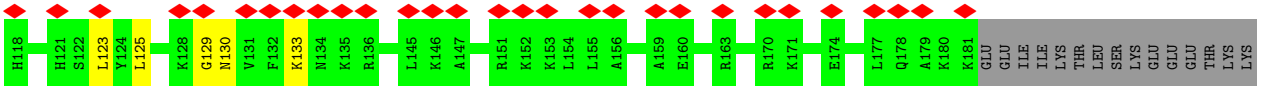




• Molecule 52: eL19

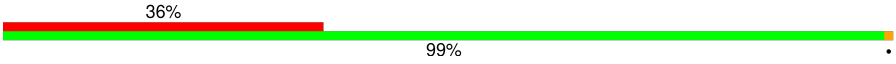
Chain R3:

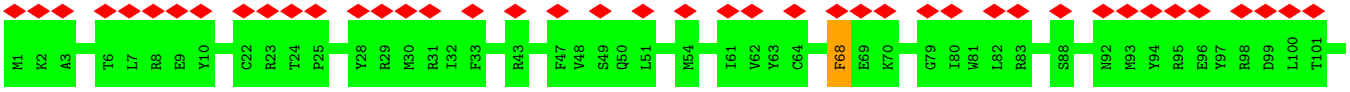



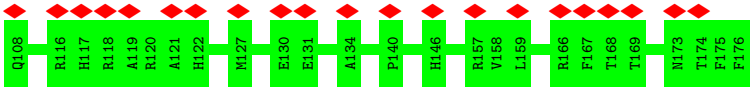




• Molecule 53: eL20

Chain S3:

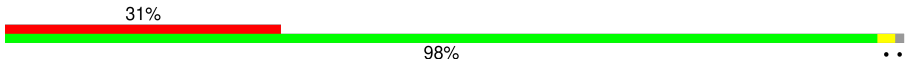


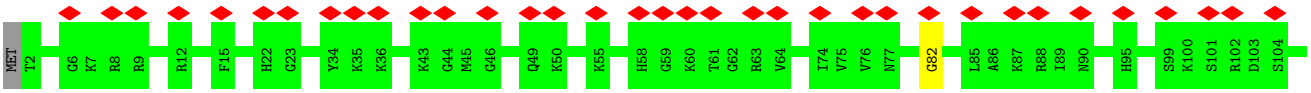



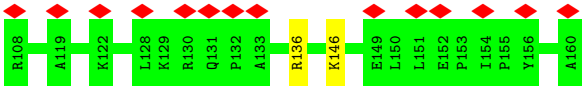




• Molecule 54: eL21

Chain T3:

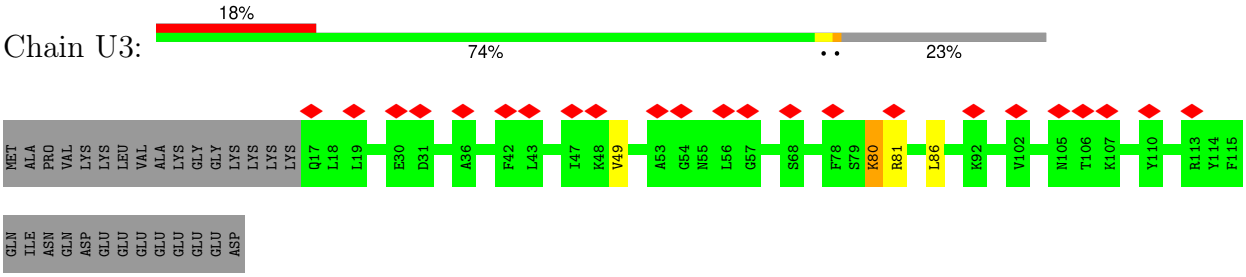


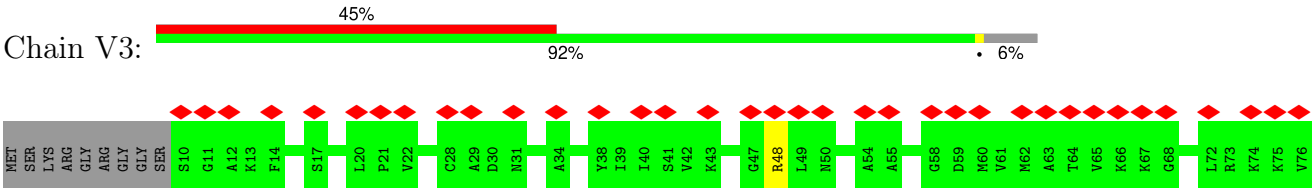

• Molecule 55: eL22

Chain U3:



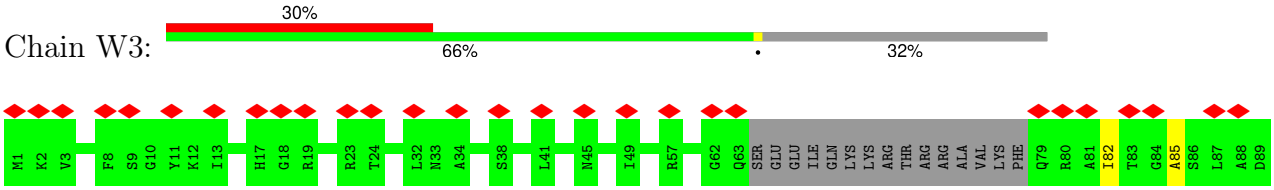

• Molecule 56: Ribosomal protein L23

Chain V3:



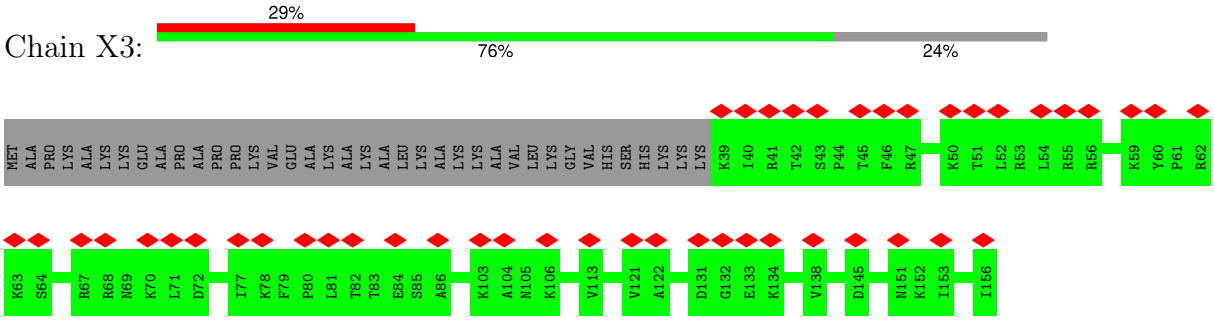

• Molecule 57: eL24

Chain W3:



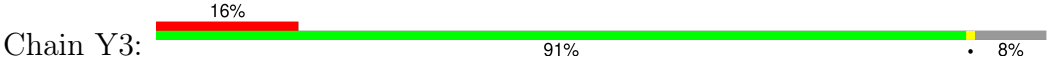

• Molecule 58: uL23

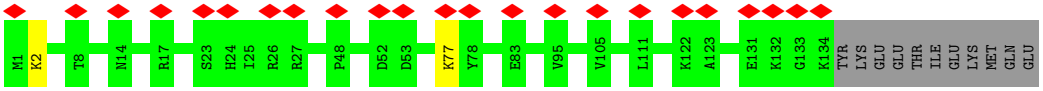
Chain X3:



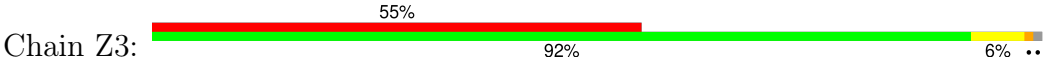

• Molecule 59: Ribosomal protein L26

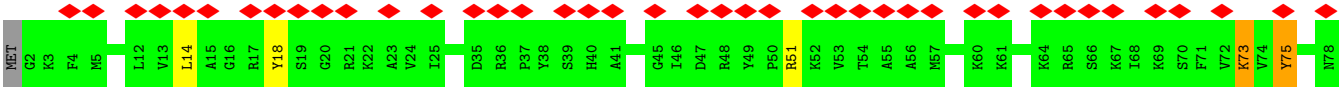
Chain Y3:

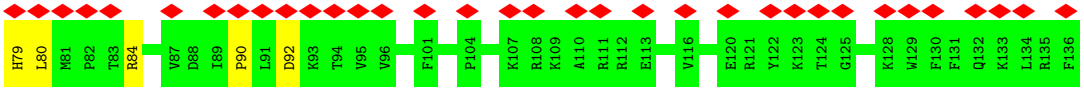




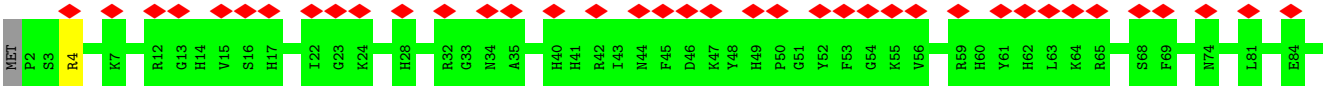

• Molecule 60: eL27

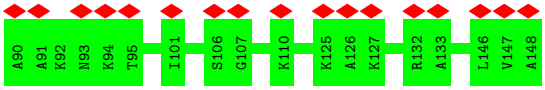


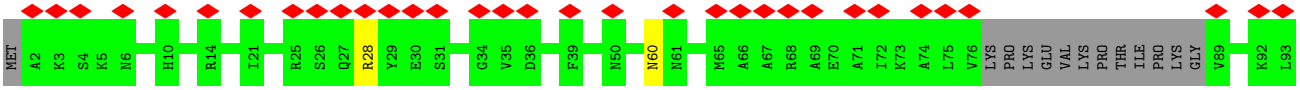



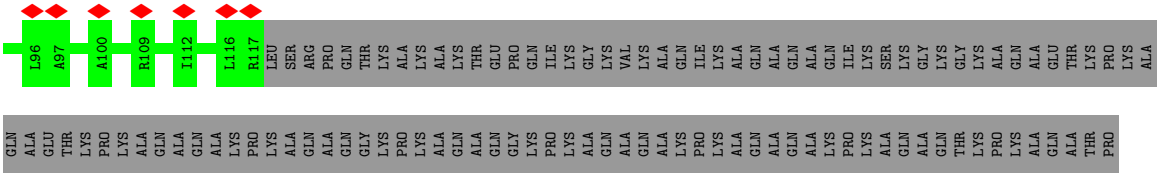

• Molecule 61: uL15

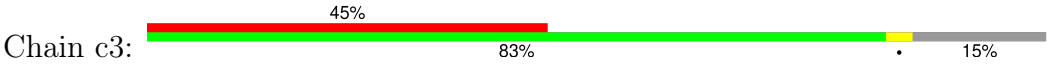



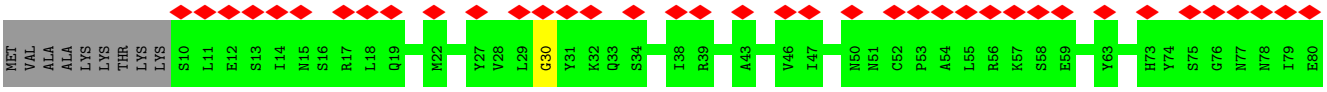

• Molecule 62: eL29

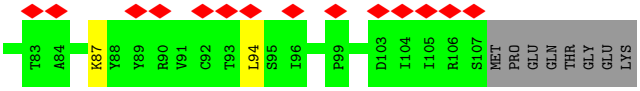




• Molecule 63: eL30

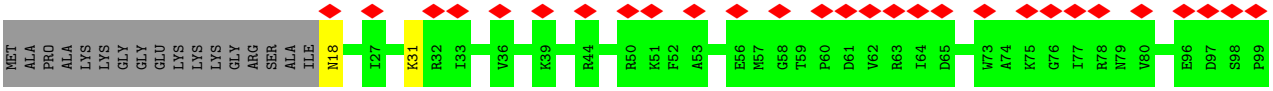


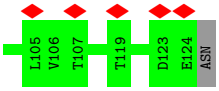






• Molecule 64: eL31

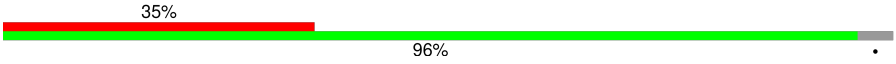
Chain d3:

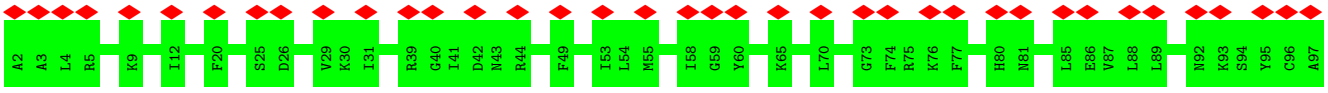



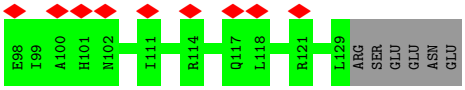




• Molecule 65: eL32

Chain e3:

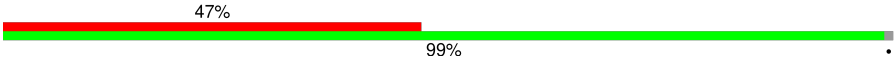


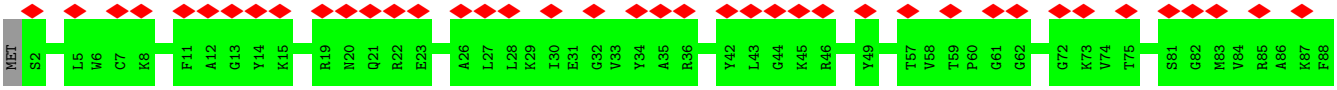



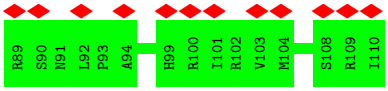




• Molecule 66: eL33

Chain f3:

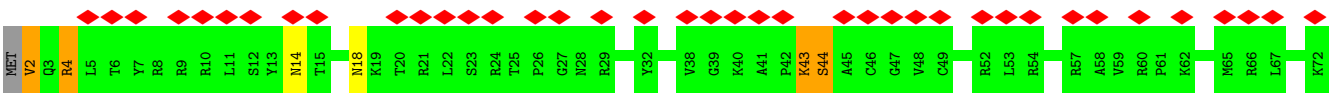


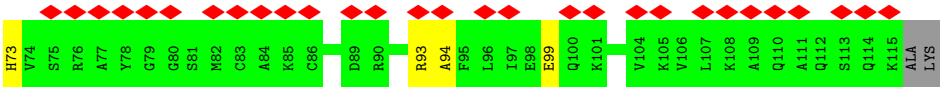




• Molecule 67: eL34

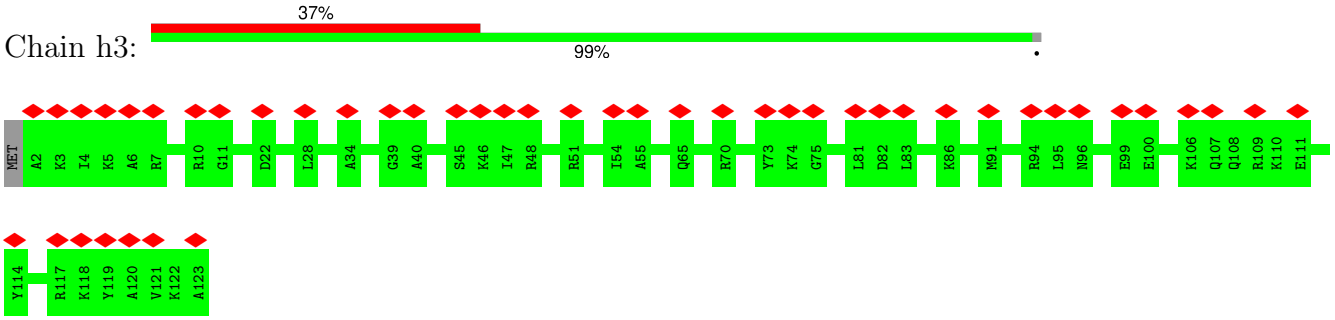
Chain g3:

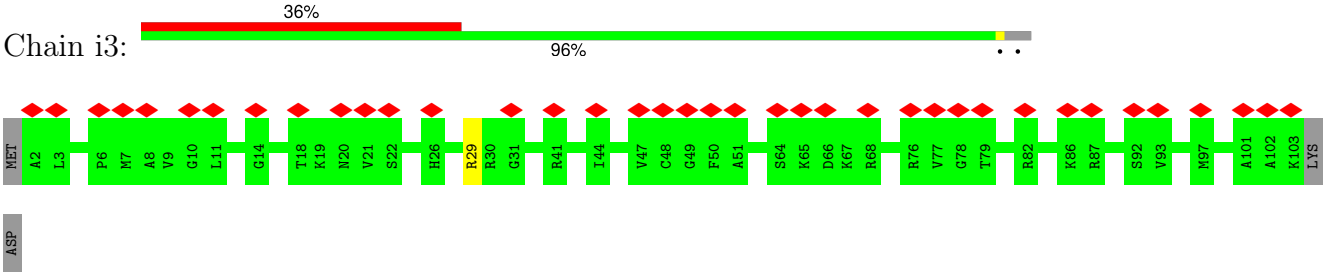

• Molecule 68: uL29

Chain h3:



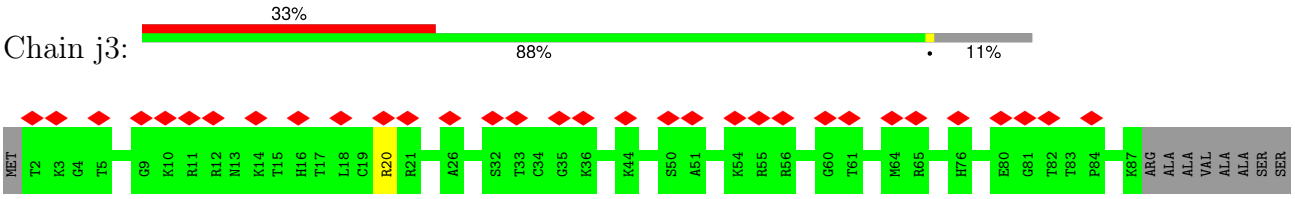

• Molecule 69: 60S ribosomal protein L36

Chain i3:



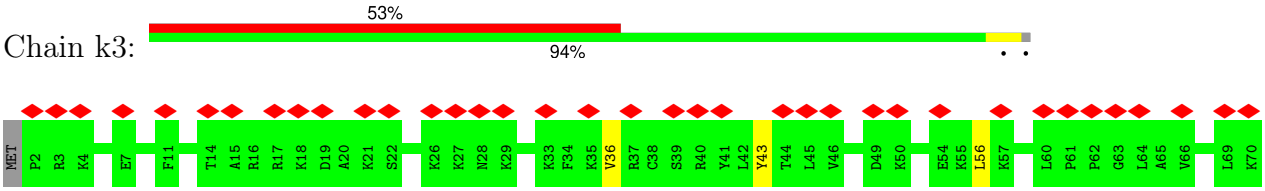

• Molecule 70: Ribosomal protein L37

Chain j3:



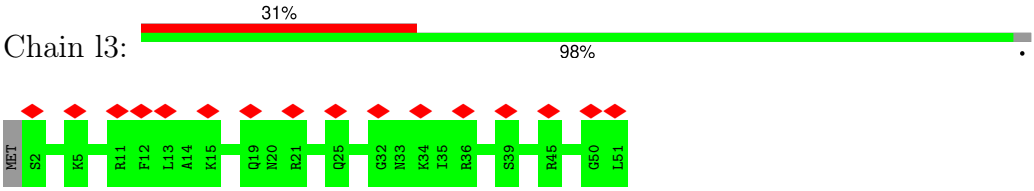

• Molecule 71: eL38

Chain k3:



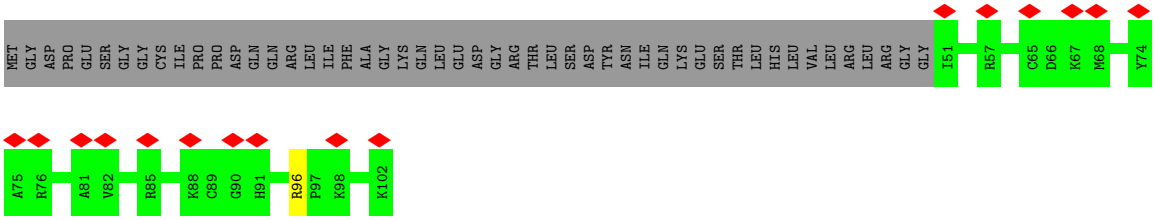

• Molecule 72: eL39

Chain l3:



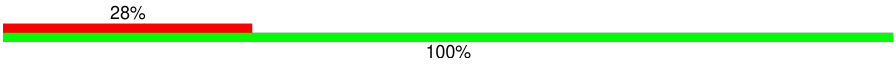

• Molecule 73: eL40

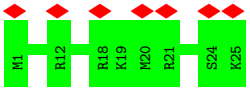
Chain m3:




• Molecule 74: eL41

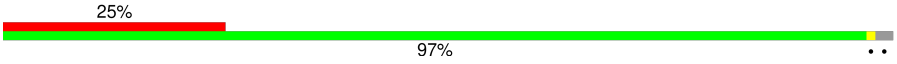
Chain n3:

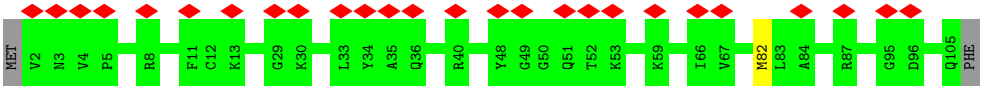



• Molecule 75: eL42

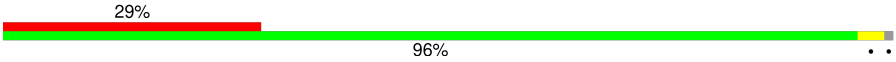
Chain o3:

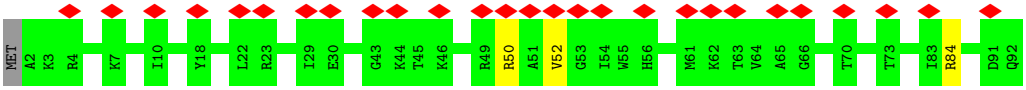



• Molecule 76: eL43

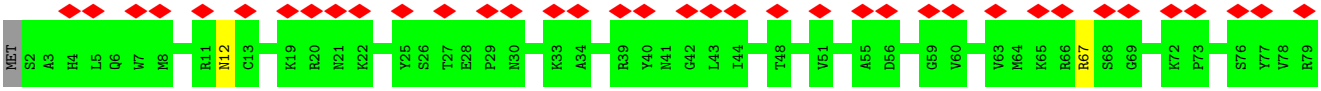
Chain p3:

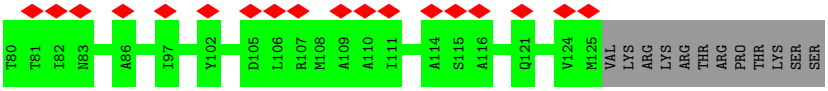



• Molecule 77: eL28

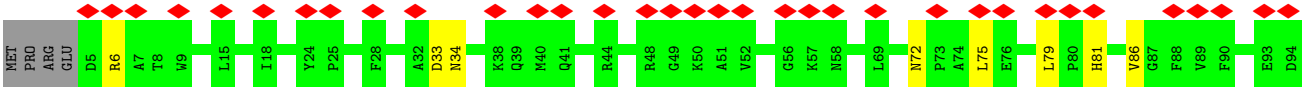
Chain r3:

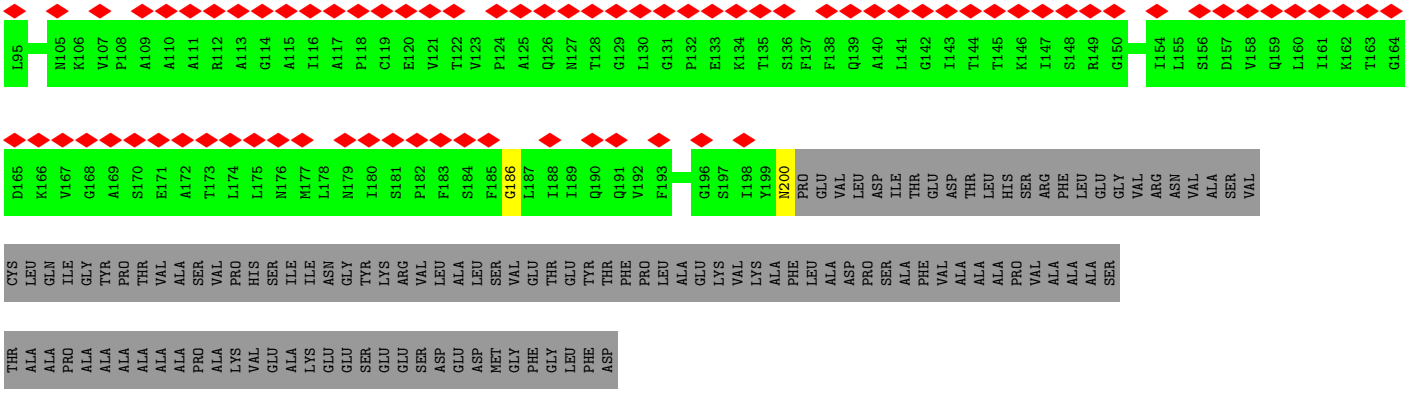




• Molecule 78: uL10

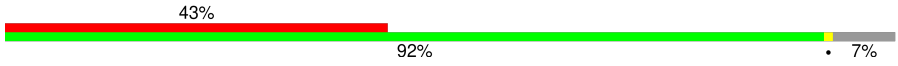
Chain s3:

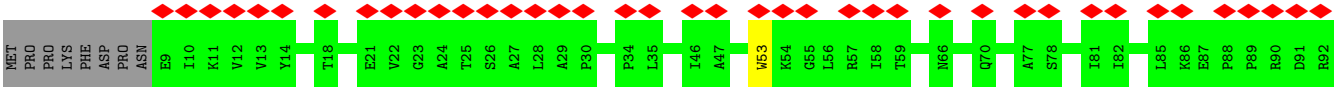



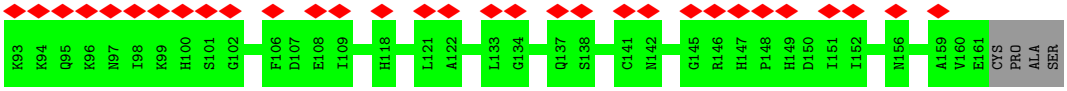



• Molecule 79: Ribosomal protein L12

Chain t3:

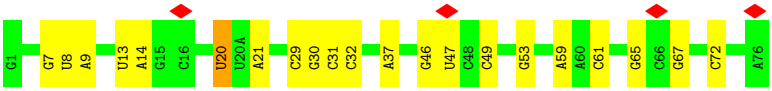


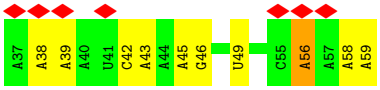

• Molecule 80: P-site tRNA

Chain 23:

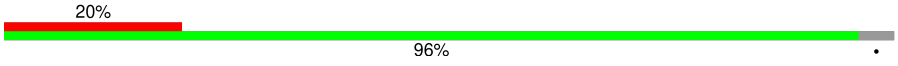

• Molecule 81: mRNA

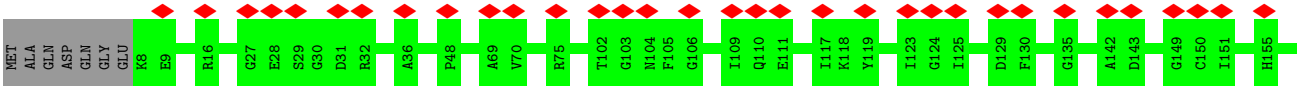
Chain w3:

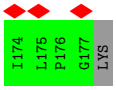




• Molecule 82: Ribosomal protein L11

Chain J3:

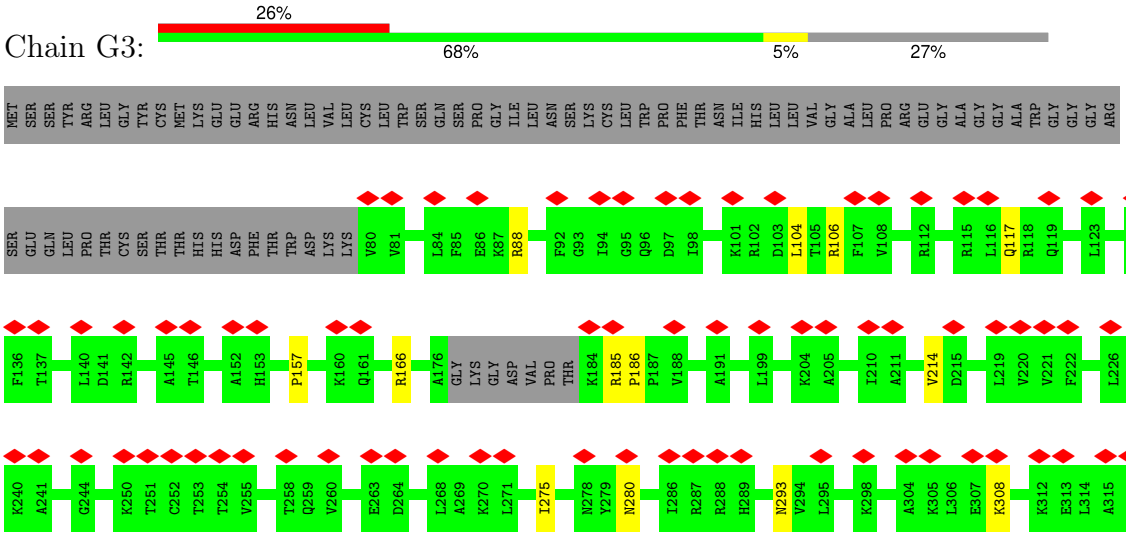



• Molecule 83: eL8

Chain G3:

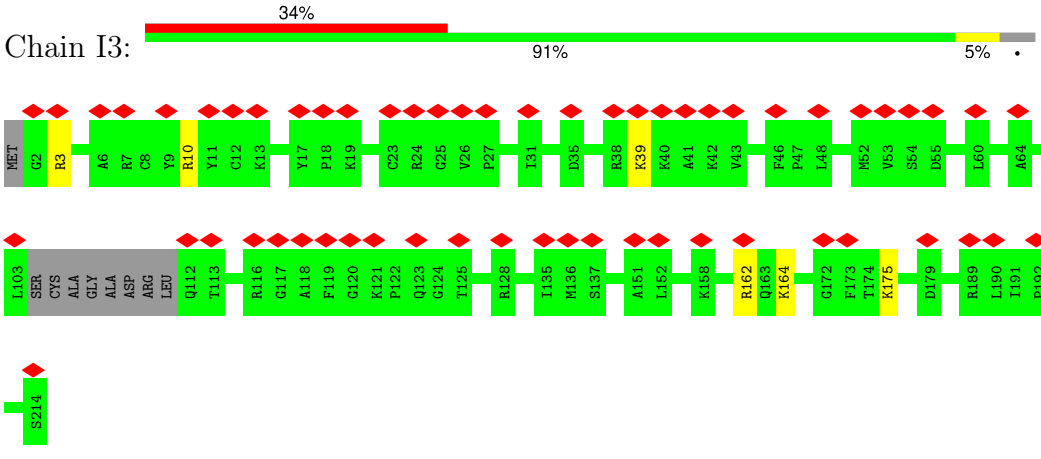



• Molecule 84: 60S ribosomal protein L5

Chain D3:

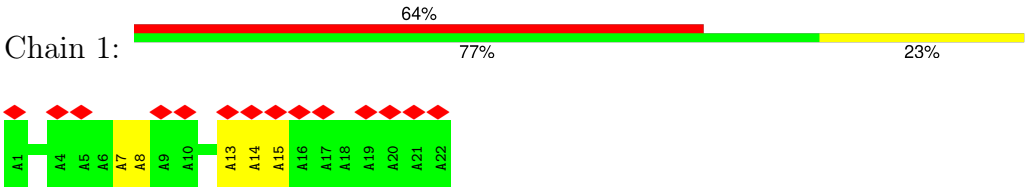

• Molecule 85: 60S ribosomal protein L10

Chain I3:



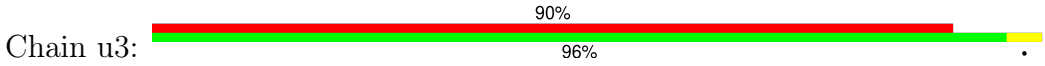

• Molecule 86: nascent chain

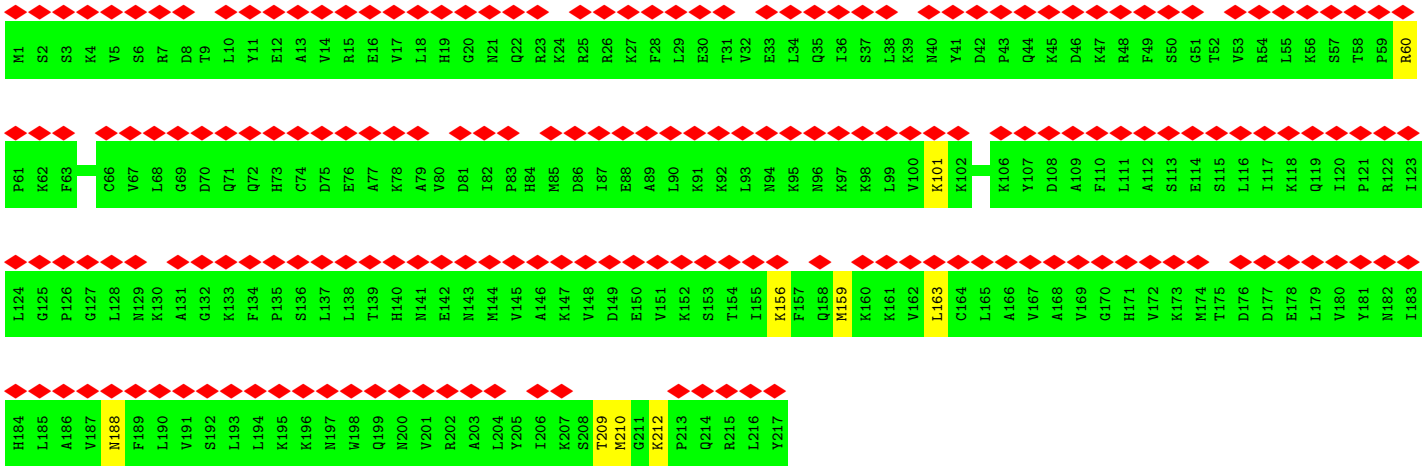
Chain 1:




• Molecule 87: Ribosomal protein

Chain u3:


90%
96%


M1 S2 S3 K4 V5 S6 R7 D8 T9 L10 Y11 E12 A13 V14 R15 E16 V17 L18 H19 G20 N21 Q22 R23 K24 R25 R26 K27 F28 L29 E30 T31 V32 E33 L34 Q35 I36 S37 L38 K39 N40 Y41 D42 P43 Q44 K45 D46 K47 R48 F49 S50 G51 T52 V53 R54 L55 K56 S57 T58 P59 R60
P61 K62 F63 C66 V67 L68 G69 D70 Q71 Q72 H73 C74 D75 E76 A77 K78 A79 V80 D81 I82 P83 H84 M85 D86 I87 E88 A89 L90 K91 K92 L93 N94 K95 N96 K97 K98 L99 V100 K101 K102 K106 Y107 D108 A109 F110 L111 A112 S113 E114 S115 L116 I117 K118 Q119 I120 P121 R122 I123
L124 G125 P126 G127 L128 N129 K130 A131 G132 K133 F134 P135 S136 L137 L138 T139 H140 N141 E142 N143 M144 V145 A146 K147 V148 D149 E150 V151 K152 S153 T154 I155 K156 F157 Q158 M159 K160 K161 V162 L163 C164 L165 A166 V167 A168 V169 G170 H171 V172 K173 M174 T175 D176 D177 E178 L179 V180 Y181 N182 I183
H184 L185 A186 V187 N188 F189 L190 V191 S192 L193 L194 K195 K196 N197 W198 Q199 N200 V201 R202 A203 L204 Y205 I206 K207 S208 T209 M210 G211 K212 P213 Q214 R215 L216 Y217

# 4 Experimental information (i)

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 14634 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | FEI TITAN KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/Å^2$) | 1.79 | Depositor |
| Minimum defocus (nm) | Not provided | |
| Maximum defocus (nm) | Not provided | |
| Magnification | Not provided | |
| Image detector | FEI FALCON III (4k x 4k) | Depositor |
| Maximum map value | 0.373 | Depositor |
| Minimum map value | -0.246 | Depositor |
| Average map value | 0.000 | Depositor |
| Map value standard deviation | 0.007 | Depositor |
| Recommended contour level | 0.07 | Depositor |
| Map size (Å) | 1070.0, 1070.0, 1070.0 | wwPDB |
| Map dimensions | 500, 500, 500 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 2.14, 2.14, 2.14 | Depositor |

# 5 Model quality

## 5.1 Standard geometry

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

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

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #$\|Z\|$ >5 | RMSZ | #$\|Z\|$ >5 |
| 1 | A1 | 1.76 | 9/41324 (0.0%) | 1.12 | 171/64370 (0.3%) |
| 2 | B1 | 0.39 | 0/1747 | 0.57 | 0/2374 |
| 3 | C1 | 0.38 | 0/1756 | 0.58 | 1/2350 (0.0%) |
| 4 | D1 | 0.44 | 0/1753 | 0.58 | 0/2369 |
| 5 | E1 | 0.38 | 0/1796 | 0.59 | 0/2417 |
| 6 | F1 | 0.39 | 0/2118 | 0.57 | 1/2849 (0.0%) |
| 7 | G1 | 0.38 | 0/1492 | 0.56 | 0/2005 |
| 8 | H1 | 0.36 | 0/1946 | 0.62 | 0/2590 |
| 9 | I1 | 0.34 | 0/1510 | 0.60 | 1/2022 (0.0%) |
| 10 | J1 | 0.42 | 0/1715 | 0.57 | 0/2287 |
| 11 | K1 | 0.38 | 0/1550 | 0.60 | 0/2069 |
| 12 | L1 | 0.37 | 0/834 | 0.59 | 0/1125 |
| 13 | M1 | 0.46 | 0/1195 | 0.57 | 0/1597 |
| 14 | N1 | 0.32 | 0/918 | 0.65 | 1/1233 (0.1%) |
| 15 | O1 | 0.38 | 0/1226 | 0.55 | 0/1649 |
| 16 | P1 | 0.39 | 0/1029 | 0.57 | 0/1380 |
| 17 | Q1 | 0.42 | 0/1017 | 0.60 | 0/1358 |
| 18 | R1 | 0.41 | 0/1146 | 0.59 | 0/1534 |
| 19 | S1 | 0.35 | 0/1082 | 0.55 | 0/1452 |
| 20 | T1 | 0.39 | 0/1208 | 0.59 | 0/1618 |
| 21 | U1 | 0.39 | 0/1115 | 0.57 | 0/1493 |
| 22 | V1 | 0.33 | 0/805 | 0.54 | 0/1081 |
| 23 | W1 | 0.40 | 0/643 | 0.59 | 0/860 |
| 24 | X1 | 0.42 | 0/1051 | 0.58 | 0/1406 |
| 25 | Y1 | 0.43 | 0/1116 | 0.59 | 0/1490 |
| 26 | Z1 | 0.36 | 0/1028 | 0.53 | 0/1366 |
| 27 | a1 | 0.37 | 0/604 | 0.67 | 0/810 |
| 28 | b1 | 0.42 | 0/828 | 0.54 | 0/1109 |
| 29 | c1 | 0.36 | 0/665 | 0.57 | 0/891 |
| 30 | d1 | 0.38 | 0/490 | 0.55 | 0/656 |
| 31 | e1 | 0.44 | 0/470 | 0.57 | 0/623 |
| 32 | f1 | 0.35 | 0/447 | 0.51 | 0/587 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 33 | g1 | 0.28 | 0/567 | 0.57 | 0/753 |
| 34 | h1 | 0.34 | 0/2493 | 0.58 | 0/3394 |
| 35 | j1 | 0.35 | 0/3363 | 0.57 | 1/4523 (0.0%) |
| 36 | k1 | 0.36 | 0/4640 | 0.57 | 0/6264 |
| 37 | 52 | 2.86 | 73/87026 (0.1%) | 1.46 | 554/135683 (0.4%) |
| 38 | 72 | 5.70 | 7/2858 (0.2%) | 1.28 | 21/4455 (0.5%) |
| 39 | 82 | 1.02 | 0/3581 | 1.12 | 15/5577 (0.3%) |
| 40 | A3 | 0.56 | 2/1936 (0.1%) | 0.85 | 7/2596 (0.3%) |
| 41 | B3 | 0.51 | 0/3240 | 0.63 | 3/4339 (0.1%) |
| 42 | C3 | 0.53 | 0/2937 | 0.63 | 1/3946 (0.0%) |
| 43 | E3 | 2.24 | 3/1762 (0.2%) | 0.69 | 3/2362 (0.1%) |
| 44 | F3 | 0.57 | 0/1911 | 0.61 | 0/2549 |
| 45 | H3 | 0.47 | 0/1535 | 0.60 | 0/2063 |
| 46 | L3 | 0.50 | 0/1733 | 0.62 | 0/2316 |
| 47 | M3 | 0.52 | 0/1158 | 0.59 | 0/1547 |
| 48 | N3 | 0.58 | 0/1746 | 0.64 | 0/2338 |
| 49 | O3 | 0.54 | 0/1662 | 0.65 | 1/2222 (0.0%) |
| 50 | P3 | 0.55 | 0/1268 | 0.58 | 0/1700 |
| 51 | Q3 | 1.98 | 2/1539 (0.1%) | 0.95 | 4/2054 (0.2%) |
| 52 | R3 | 0.46 | 0/1524 | 0.71 | 1/2013 (0.0%) |
| 53 | S3 | 1.00 | 1/1501 (0.1%) | 0.82 | 5/2012 (0.2%) |
| 54 | T3 | 0.53 | 0/1326 | 0.56 | 0/1770 |
| 55 | U3 | 1.95 | 3/823 (0.4%) | 1.36 | 7/1104 (0.6%) |
| 56 | V3 | 0.49 | 0/993 | 0.60 | 0/1332 |
| 57 | W3 | 0.43 | 0/873 | 0.60 | 0/1158 |
| 58 | X3 | 0.45 | 0/984 | 0.55 | 0/1323 |
| 59 | Y3 | 0.51 | 0/1132 | 0.60 | 0/1504 |
| 60 | Z3 | 0.61 | 0/1130 | 1.00 | 4/1507 (0.3%) |
| 61 | a3 | 0.52 | 0/1191 | 0.59 | 0/1590 |
| 62 | b3 | 1.83 | 2/861 (0.2%) | 0.84 | 4/1138 (0.4%) |
| 63 | c3 | 0.46 | 0/771 | 0.84 | 3/1034 (0.3%) |
| 64 | d3 | 0.51 | 0/903 | 0.62 | 0/1216 |
| 65 | e3 | 0.52 | 0/1071 | 0.60 | 0/1429 |
| 66 | f3 | 0.59 | 0/895 | 0.63 | 0/1198 |
| 67 | g3 | 5.33 | 4/916 (0.4%) | 1.34 | 7/1220 (0.6%) |
| 68 | h3 | 0.47 | 0/1021 | 0.59 | 0/1348 |
| 69 | i3 | 0.43 | 0/841 | 0.59 | 0/1112 |
| 70 | j3 | 0.54 | 0/720 | 0.61 | 0/952 |
| 71 | k3 | 0.42 | 0/575 | 0.80 | 1/761 (0.1%) |
| 72 | l3 | 0.47 | 0/459 | 0.58 | 0/608 |
| 73 | m3 | 0.46 | 0/435 | 0.55 | 0/575 |
| 74 | n3 | 0.40 | 0/240 | 0.66 | 0/305 |
| 75 | o3 | 0.46 | 0/864 | 0.58 | 0/1140 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 76 | p3 | 0.55 | 0/718 | 0.74 | 0/953 |
| 77 | r3 | 0.53 | 0/1010 | 0.63 | 0/1354 |
| 78 | s3 | 0.50 | 1/1530 (0.1%) | 0.89 | 5/2064 (0.2%) |
| 79 | t3 | 0.31 | 0/1174 | 0.64 | 0/1582 |
| 80 | 23 | 0.61 | 0/1805 | 1.13 | 10/2809 (0.4%) |
| 81 | w3 | 0.62 | 0/553 | 1.24 | 2/859 (0.2%) |
| 82 | J3 | 0.41 | 0/1385 | 0.58 | 0/1852 |
| 83 | G3 | 1.53 | 2/1910 (0.1%) | 0.98 | 6/2569 (0.2%) |
| 84 | D3 | 0.48 | 0/2437 | 0.61 | 0/3264 |
| 85 | I3 | 1.09 | 2/1702 (0.1%) | 0.76 | 4/2272 (0.2%) |
| 86 | 1 | 0.45 | 0/109 | 0.65 | 0/151 |
| 87 | u3 | 0.29 | 0/1769 | 0.64 | 1/2371 (0.0%) |
| All | All | 2.04 | 111/242730 (0.0%) | 1.12 | 845/355150 (0.2%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|---|---|---|---|
| 2 | B1 | 0 | 1 |
| 14 | N1 | 0 | 1 |
| 16 | P1 | 0 | 1 |
| 17 | Q1 | 0 | 2 |
| 25 | Y1 | 0 | 1 |
| 35 | j1 | 0 | 1 |
| 36 | k1 | 0 | 1 |
| 40 | A3 | 0 | 5 |
| 42 | C3 | 0 | 1 |
| 47 | M3 | 0 | 1 |
| 48 | N3 | 0 | 2 |
| 52 | R3 | 0 | 5 |
| 53 | S3 | 0 | 1 |
| 55 | U3 | 0 | 1 |
| 57 | W3 | 0 | 1 |
| 60 | Z3 | 0 | 3 |
| 63 | c3 | 0 | 1 |
| 67 | g3 | 0 | 8 |
| 71 | k3 | 0 | 1 |
| 76 | p3 | 0 | 2 |
| 78 | s3 | 0 | 4 |
| 79 | t3 | 0 | 1 |

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| Mol | Chain | #Chirality outliers | #Planarity outliers |
|---|---|---|---|
| 83 | G3 | 0 | 3 |
| 85 | I3 | 0 | 1 |
| 87 | u3 | 0 | 2 |
| All | All | 0 | 51 |

All (111) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 732 | A | N3-C4 | 183.92 | 2.45 | 1.34 |
| 37 | 52 | 1805 | A | N3-C4 | 177.18 | 2.41 | 1.34 |
| 37 | 52 | 732 | A | C6-N1 | 163.94 | 2.50 | 1.35 |
| 1 | A1 | 970 | G | C6-N1 | 162.04 | 2.52 | 1.39 |
| 37 | 52 | 2631 | U | C2-N3 | 160.43 | 2.50 | 1.37 |
| 37 | 52 | 1805 | A | C6-N1 | 156.98 | 2.45 | 1.35 |
| 38 | 72 | 63 | C | N3-C4 | 154.10 | 2.41 | 1.33 |
| 1 | A1 | 970 | G | N1-C2 | 147.62 | 2.55 | 1.37 |
| 67 | g3 | 2 | VAL | CA-CB | 147.00 | 4.63 | 1.54 |
| 38 | 72 | 63 | C | C2-N3 | 141.12 | 2.48 | 1.35 |
| 37 | 52 | 2399 | G | N3-C4 | 140.98 | 2.34 | 1.35 |
| 37 | 52 | 119 | G | N3-C4 | 140.74 | 2.33 | 1.35 |
| 38 | 72 | 63 | C | N1-C6 | 137.26 | 2.19 | 1.37 |
| 37 | 52 | 1805 | A | C5-C4 | 131.30 | 2.30 | 1.38 |
| 1 | A1 | 970 | G | N3-C4 | 130.52 | 2.26 | 1.35 |
| 37 | 52 | 2631 | U | N1-C2 | 129.23 | 2.54 | 1.38 |
| 37 | 52 | 2084 | U | C2-N3 | 128.24 | 2.27 | 1.37 |
| 37 | 52 | 732 | A | C5-C4 | 128.21 | 2.28 | 1.38 |
| 37 | 52 | 2631 | U | N3-C4 | 126.02 | 2.51 | 1.38 |
| 37 | 52 | 119 | G | C2-N3 | 125.41 | 2.33 | 1.32 |
| 37 | 52 | 2399 | G | C2-N3 | 125.05 | 2.32 | 1.32 |
| 37 | 52 | 732 | A | N1-C2 | 123.46 | 2.45 | 1.34 |
| 37 | 52 | 1805 | A | N1-C2 | 119.63 | 2.42 | 1.34 |
| 37 | 52 | 732 | A | C2-N3 | 119.41 | 2.41 | 1.33 |
| 37 | 52 | 1805 | A | C5-C6 | 119.35 | 2.48 | 1.41 |
| 37 | 52 | 1239 | C | N3-C4 | 118.41 | 2.16 | 1.33 |
| 37 | 52 | 2631 | U | N1-C6 | 118.05 | 2.44 | 1.38 |
| 1 | A1 | 970 | G | C5-C4 | 117.54 | 2.20 | 1.38 |
| 37 | 52 | 2631 | U | C4-C5 | 115.95 | 2.48 | 1.43 |
| 1 | A1 | 970 | G | C2-N3 | 115.88 | 2.25 | 1.32 |
| 37 | 52 | 1805 | A | C2-N3 | 114.84 | 2.37 | 1.33 |
| 37 | 52 | 119 | G | C6-N1 | 114.36 | 2.19 | 1.39 |
| 37 | 52 | 2399 | G | C6-N1 | 111.68 | 2.17 | 1.39 |
| 37 | 52 | 732 | A | C5-C6 | 109.11 | 2.39 | 1.41 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 2631 | U | C5-C6 | 108.83 | 2.32 | 1.34 |
| 37 | 52 | 1239 | C | C2-N3 | 104.50 | 2.19 | 1.35 |
| 38 | 72 | 63 | C | C4-C5 | 101.87 | 2.24 | 1.43 |
| 37 | 52 | 2084 | U | N3-C4 | 100.61 | 2.29 | 1.38 |
| 37 | 52 | 2084 | U | N1-C2 | 99.49 | 2.28 | 1.38 |
| 37 | 52 | 119 | G | N1-C2 | 98.51 | 2.16 | 1.37 |
| 37 | 52 | 2399 | G | N1-C2 | 97.19 | 2.15 | 1.37 |
| 37 | 52 | 2084 | U | N1-C6 | 95.14 | 2.23 | 1.38 |
| 37 | 52 | 2399 | G | C5-C4 | 94.78 | 2.04 | 1.38 |
| 38 | 72 | 63 | C | C5-C6 | 94.72 | 2.10 | 1.34 |
| 37 | 52 | 119 | G | C5-C4 | 94.06 | 2.04 | 1.38 |
| 37 | 52 | 1239 | C | N1-C6 | 93.41 | 1.93 | 1.37 |
| 1 | A1 | 970 | G | C5-C6 | 91.53 | 2.33 | 1.42 |
| 43 | E3 | 65 | TYR | CZ-OH | 90.98 | 2.92 | 1.37 |
| 37 | 52 | 2084 | U | C4-C5 | 90.28 | 2.24 | 1.43 |
| 38 | 72 | 63 | C | N1-C2 | 89.65 | 2.29 | 1.40 |
| 37 | 52 | 2084 | U | C5-C6 | 85.61 | 2.11 | 1.34 |
| 37 | 52 | 3712 | A | N1-C2 | 82.18 | 2.08 | 1.34 |
| 37 | 52 | 3712 | A | C2-N3 | 81.71 | 2.07 | 1.33 |
| 51 | Q3 | 14 | ARG | CD-NE | 74.43 | 2.73 | 1.46 |
| 37 | 52 | 3712 | A | N3-C4 | 72.92 | 1.78 | 1.34 |
| 37 | 52 | 2399 | G | C5-C6 | 72.46 | 2.14 | 1.42 |
| 37 | 52 | 119 | G | C5-C6 | 72.38 | 2.14 | 1.42 |
| 37 | 52 | 2395 | A | N3-C4 | 68.04 | 1.75 | 1.34 |
| 37 | 52 | 3712 | A | C6-N1 | 65.58 | 1.81 | 1.35 |
| 37 | 52 | 1239 | C | C4-C5 | 65.57 | 1.95 | 1.43 |
| 37 | 52 | 2395 | A | C6-N1 | 62.98 | 1.79 | 1.35 |
| 83 | G3 | 185 | ARG | CD-NE | 62.81 | 2.53 | 1.46 |
| 67 | g3 | 4 | ARG | CD-NE | 62.75 | 2.53 | 1.46 |
| 37 | 52 | 1239 | C | C5-C6 | 61.88 | 1.83 | 1.34 |
| 37 | 52 | 1239 | C | N1-C2 | 60.55 | 2.00 | 1.40 |
| 62 | b3 | 28 | ARG | CA-CB | 51.93 | 2.68 | 1.53 |
| 37 | 52 | 2395 | A | C5-C4 | 51.01 | 1.74 | 1.38 |
| 55 | U3 | 49 | VAL | CA-CB | 49.09 | 2.57 | 1.54 |
| 37 | 52 | 2395 | A | N1-C2 | 47.58 | 1.77 | 1.34 |
| 37 | 52 | 2395 | A | C2-N3 | 44.34 | 1.73 | 1.33 |
| 37 | 52 | 2395 | A | C5-C6 | 43.11 | 1.79 | 1.41 |
| 85 | I3 | 203 | ARG | C-N | 35.18 | 1.96 | 1.33 |
| 53 | S3 | 68 | PHE | CA-C | 31.86 | 2.35 | 1.52 |
| 85 | I3 | 204 | GLY | N-CA | 20.27 | 1.76 | 1.46 |
| 55 | U3 | 49 | VAL | CB-CG1 | 16.48 | 1.87 | 1.52 |
| 55 | U3 | 49 | VAL | CB-CG2 | 14.17 | 1.82 | 1.52 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 78 | s3 | 186 | GLY | C-N | 14.08 | 1.66 | 1.34 |
| 83 | G3 | 185 | ARG | NE-CZ | 11.39 | 1.47 | 1.33 |
| 67 | g3 | 4 | ARG | NE-CZ | 10.93 | 1.47 | 1.33 |
| 37 | 52 | 1805 | A | C8-N7 | 9.37 | 1.38 | 1.31 |
| 1 | A1 | 970 | G | C8-N7 | 9.09 | 1.36 | 1.30 |
| 43 | E3 | 65 | TYR | CE1-CZ | 9.00 | 1.50 | 1.38 |
| 37 | 52 | 3712 | A | C5-C4 | -8.59 | 1.32 | 1.38 |
| 43 | E3 | 65 | TYR | CE2-CZ | 8.12 | 1.49 | 1.38 |
| 37 | 52 | 3712 | A | C5-C6 | -7.77 | 1.34 | 1.41 |
| 37 | 52 | 1969 | G | C8-N7 | -7.63 | 1.26 | 1.30 |
| 37 | 52 | 3712 | A | N9-C4 | 7.29 | 1.42 | 1.37 |
| 67 | g3 | 4 | ARG | CG-CD | 7.29 | 1.70 | 1.51 |
| 51 | Q3 | 14 | ARG | NE-CZ | 7.00 | 1.42 | 1.33 |
| 37 | 52 | 2598 | A | N7-C5 | -6.99 | 1.35 | 1.39 |
| 37 | 52 | 732 | A | C8-N7 | 6.90 | 1.36 | 1.31 |
| 37 | 52 | 119 | G | C8-N7 | 6.89 | 1.35 | 1.30 |
| 37 | 52 | 1805 | A | N9-C8 | 6.84 | 1.43 | 1.37 |
| 37 | 52 | 2675 | G | N7-C5 | -6.83 | 1.35 | 1.39 |
| 62 | b3 | 28 | ARG | CB-CG | 6.64 | 1.70 | 1.52 |
| 37 | 52 | 2597 | G | N9-C8 | -6.59 | 1.33 | 1.37 |
| 38 | 72 | 5 | A | N9-C4 | -6.48 | 1.33 | 1.37 |
| 40 | A3 | 117 | GLU | CB-CG | -6.34 | 1.40 | 1.52 |
| 37 | 52 | 2598 | A | N9-C4 | 6.09 | 1.41 | 1.37 |
| 1 | A1 | 970 | G | N9-C8 | 6.06 | 1.42 | 1.37 |
| 37 | 52 | 1969 | G | N7-C5 | -6.04 | 1.35 | 1.39 |
| 37 | 52 | 347 | A | N9-C4 | -5.69 | 1.34 | 1.37 |
| 1 | A1 | 970 | G | N9-C4 | -5.33 | 1.33 | 1.38 |
| 37 | 52 | 2399 | G | N7-C5 | -5.31 | 1.36 | 1.39 |
| 37 | 52 | 3681 | G | N3-C4 | -5.29 | 1.31 | 1.35 |
| 37 | 52 | 2675 | G | N9-C8 | -5.22 | 1.34 | 1.37 |
| 37 | 52 | 1805 | A | N9-C4 | -5.21 | 1.34 | 1.37 |
| 40 | A3 | 169 | VAL | CB-CG2 | -5.15 | 1.42 | 1.52 |
| 37 | 52 | 1324 | A | N7-C5 | -5.08 | 1.36 | 1.39 |
| 37 | 52 | 1577 | G | C8-N7 | -5.04 | 1.27 | 1.30 |
| 37 | 52 | 2597 | G | O3'-P | 5.00 | 1.67 | 1.61 |

All (845) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 3712 | A | N1-C2-N3 | -240.06 | 9.27 | 129.30 |
| 37 | 52 | 3712 | A | C2-N3-C4 | 88.06 | 154.63 | 110.60 |
| 37 | 52 | 3712 | A | C6-N1-C2 | 69.44 | 160.27 | 118.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 3712 | A | C4-C5-C6 | -48.11 | 92.94 | 117.00 |
| 1 | A1 | 970 | G | C4-C5-N7 | -38.21 | 95.52 | 110.80 |
| 37 | 52 | 732 | A | N7-C8-N9 | 36.97 | 132.28 | 113.80 |
| 37 | 52 | 2395 | A | N1-C2-N3 | -36.01 | 111.29 | 129.30 |
| 37 | 52 | 2399 | G | N3-C4-N9 | 35.70 | 147.42 | 126.00 |
| 37 | 52 | 2399 | G | C4-C5-N7 | -35.19 | 96.72 | 110.80 |
| 37 | 52 | 732 | A | N1-C2-N3 | -34.80 | 111.90 | 129.30 |
| 37 | 52 | 1805 | A | C4-C5-N7 | -34.61 | 93.39 | 110.70 |
| 37 | 52 | 119 | G | N3-C4-N9 | 34.04 | 146.43 | 126.00 |
| 37 | 52 | 2399 | G | C2-N3-C4 | 34.01 | 128.90 | 111.90 |
| 37 | 52 | 119 | G | C4-C5-N7 | -33.38 | 97.45 | 110.80 |
| 37 | 52 | 119 | G | C2-N3-C4 | 33.31 | 128.56 | 111.90 |
| 37 | 52 | 1805 | A | N7-C8-N9 | 33.28 | 130.44 | 113.80 |
| 37 | 52 | 1805 | A | N1-C2-N3 | -32.84 | 112.88 | 129.30 |
| 37 | 52 | 2399 | G | N3-C4-C5 | -32.84 | 112.18 | 128.60 |
| 37 | 52 | 732 | A | C4-C5-N7 | -32.65 | 94.38 | 110.70 |
| 37 | 52 | 3712 | A | N3-C4-N9 | 32.63 | 153.51 | 127.40 |
| 37 | 52 | 2395 | A | C2-N3-C4 | 31.58 | 126.39 | 110.60 |
| 37 | 52 | 119 | G | N3-C4-C5 | -31.52 | 112.84 | 128.60 |
| 1 | A1 | 970 | G | C2-N3-C4 | 31.24 | 127.52 | 111.90 |
| 1 | A1 | 970 | G | N7-C8-N9 | 30.40 | 128.30 | 113.10 |
| 37 | 52 | 732 | A | C2-N3-C4 | 29.97 | 125.59 | 110.60 |
| 37 | 52 | 1805 | A | C2-N3-C4 | 29.80 | 125.50 | 110.60 |
| 37 | 52 | 2399 | G | N1-C2-N3 | -28.61 | 106.73 | 123.90 |
| 37 | 52 | 119 | G | N1-C2-N3 | -28.47 | 106.82 | 123.90 |
| 1 | A1 | 168 | C | OP1-P-OP2 | -28.25 | 77.22 | 119.60 |
| 1 | A1 | 168 | C | O5'-P-OP1 | -28.05 | 77.04 | 110.70 |
| 37 | 52 | 3712 | A | N3-C4-C5 | -27.29 | 107.70 | 126.80 |
| 37 | 52 | 119 | G | N7-C8-N9 | 27.13 | 126.67 | 113.10 |
| 37 | 52 | 1239 | C | N3-C4-C5 | -26.82 | 111.17 | 121.90 |
| 1 | A1 | 970 | G | N1-C2-N3 | -26.76 | 107.84 | 123.90 |
| 37 | 52 | 2399 | G | N7-C8-N9 | 26.48 | 126.34 | 113.10 |
| 67 | g3 | 4 | ARG | CD-NE-CZ | 24.97 | 158.55 | 123.60 |
| 83 | G3 | 185 | ARG | CD-NE-CZ | 24.43 | 157.80 | 123.60 |
| 37 | 52 | 732 | A | N9-C4-C5 | -24.39 | 96.04 | 105.80 |
| 51 | Q3 | 14 | ARG | CD-NE-CZ | 23.72 | 156.81 | 123.60 |
| 37 | 52 | 3712 | A | C5-C6-N1 | -22.82 | 106.29 | 117.70 |
| 37 | 52 | 1239 | C | N1-C2-N3 | -22.41 | 103.52 | 119.20 |
| 37 | 52 | 1805 | A | N9-C4-C5 | -22.33 | 96.87 | 105.80 |
| 37 | 52 | 732 | A | N3-C4-N9 | 21.84 | 144.87 | 127.40 |
| 37 | 52 | 3712 | A | C4-C5-N7 | 21.66 | 121.53 | 110.70 |
| 1 | A1 | 970 | G | N9-C4-C5 | -21.06 | 96.98 | 105.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 1805 | A | C6-C5-N7 | 21.00 | 147.00 | 132.30 |
| 38 | 72 | 63 | C | N3-C4-C5 | -20.97 | 113.51 | 121.90 |
| 1 | A1 | 970 | G | N3-C4-N9 | 20.84 | 138.50 | 126.00 |
| 55 | U3 | 49 | VAL | CG1-CB-CG2 | -20.81 | 77.61 | 110.90 |
| 38 | 72 | 63 | C | C6-N1-C2 | 20.71 | 128.58 | 120.30 |
| 38 | 72 | 63 | C | N1-C2-N3 | -20.56 | 104.81 | 119.20 |
| 37 | 52 | 2395 | A | N7-C8-N9 | 20.00 | 123.80 | 113.80 |
| 37 | 52 | 1239 | C | C6-N1-C2 | 19.73 | 128.19 | 120.30 |
| 83 | G3 | 185 | ARG | NE-CZ-NH1 | 19.70 | 130.15 | 120.30 |
| 37 | 52 | 2399 | G | C5-C6-N1 | 19.68 | 121.34 | 111.50 |
| 55 | U3 | 49 | VAL | CA-CB-CG1 | 19.63 | 140.34 | 110.90 |
| 1 | A1 | 970 | G | C6-C5-N7 | 19.14 | 141.88 | 130.40 |
| 37 | 52 | 119 | G | C5-C6-N1 | 19.05 | 121.03 | 111.50 |
| 37 | 52 | 1805 | A | N3-C4-N9 | 19.03 | 142.62 | 127.40 |
| 37 | 52 | 3712 | A | C6-C5-N7 | 18.83 | 145.48 | 132.30 |
| 85 | I3 | 203 | ARG | C-N-CA | 18.40 | 160.93 | 122.30 |
| 55 | U3 | 49 | VAL | CA-CB-CG2 | 18.34 | 138.41 | 110.90 |
| 37 | 52 | 3712 | A | N9-C4-C5 | -17.62 | 98.75 | 105.80 |
| 38 | 72 | 63 | C | N1-C2-O2 | 16.64 | 128.88 | 118.90 |
| 67 | g3 | 4 | ARG | NE-CZ-NH1 | 16.46 | 128.53 | 120.30 |
| 37 | 52 | 1239 | C | C2-N3-C4 | 16.43 | 128.11 | 119.90 |
| 37 | 52 | 3712 | A | N1-C6-N6 | 16.16 | 128.30 | 118.60 |
| 62 | b3 | 28 | ARG | CA-CB-CG | 15.94 | 148.46 | 113.40 |
| 78 | s3 | 186 | GLY | O-C-N | -15.86 | 97.33 | 122.70 |
| 51 | Q3 | 14 | ARG | NE-CZ-NH1 | 15.68 | 128.14 | 120.30 |
| 1 | A1 | 167 | G | OP1-P-O3' | 15.25 | 138.75 | 105.20 |
| 37 | 52 | 2399 | G | N9-C4-C5 | -15.06 | 99.38 | 105.40 |
| 53 | S3 | 68 | PHE | O-C-N | -14.92 | 98.83 | 122.70 |
| 53 | S3 | 68 | PHE | CB-CA-C | 14.87 | 140.14 | 110.40 |
| 37 | 52 | 2399 | G | C6-C5-N7 | 14.70 | 139.22 | 130.40 |
| 37 | 52 | 1239 | C | N1-C2-O2 | 14.39 | 127.53 | 118.90 |
| 1 | A1 | 281 | C | N1-C2-O2 | 14.23 | 127.44 | 118.90 |
| 37 | 52 | 732 | A | C6-C5-N7 | 14.18 | 142.23 | 132.30 |
| 37 | 52 | 2395 | A | C6-N1-C2 | 13.84 | 126.91 | 118.60 |
| 37 | 52 | 2399 | G | N3-C2-N2 | 13.80 | 129.56 | 119.90 |
| 1 | A1 | 168 | C | O5'-P-OP2 | 13.74 | 127.19 | 110.70 |
| 38 | 72 | 63 | C | C2-N3-C4 | 13.53 | 126.67 | 119.90 |
| 1 | A1 | 167 | G | OP2-P-O3' | -13.48 | 75.54 | 105.20 |
| 37 | 52 | 119 | G | C6-C5-N7 | 13.47 | 138.49 | 130.40 |
| 1 | A1 | 281 | C | C2-N1-C1' | 13.40 | 133.54 | 118.80 |
| 37 | 52 | 1805 | A | C5-N7-C8 | 13.34 | 110.57 | 103.90 |
| 37 | 52 | 2397 | G | N1-C6-O6 | -13.31 | 111.91 | 119.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 83 | G3 | 185 | ARG | NE-CZ-NH2 | -13.16 | 113.72 | 120.30 |
| 37 | 52 | 119 | G | N9-C4-C5 | -12.52 | 100.39 | 105.40 |
| 37 | 52 | 3712 | A | C5-N7-C8 | -12.52 | 97.64 | 103.90 |
| 37 | 52 | 4123 | C | C6-N1-C2 | -12.50 | 115.30 | 120.30 |
| 37 | 52 | 4123 | C | C2-N1-C1' | 12.41 | 132.45 | 118.80 |
| 67 | g3 | 4 | ARG | NE-CZ-NH2 | -12.31 | 114.14 | 120.30 |
| 37 | 52 | 2395 | A | C4-C5-N7 | -12.16 | 104.62 | 110.70 |
| 51 | Q3 | 14 | ARG | CG-CD-NE | 12.08 | 137.17 | 111.80 |
| 37 | 52 | 2399 | G | C5-N7-C8 | 11.93 | 110.27 | 104.30 |
| 37 | 52 | 2395 | A | N3-C4-N9 | 11.78 | 136.82 | 127.40 |
| 37 | 52 | 4123 | C | N1-C2-O2 | 11.67 | 125.90 | 118.90 |
| 37 | 52 | 732 | A | N3-C4-C5 | -11.65 | 118.64 | 126.80 |
| 1 | A1 | 281 | C | N3-C2-O2 | -11.62 | 113.77 | 121.90 |
| 37 | 52 | 732 | A | C4-C5-C6 | 11.56 | 122.78 | 117.00 |
| 37 | 52 | 2021 | G | C8-N9-C4 | -11.50 | 101.80 | 106.40 |
| 37 | 52 | 2258 | C | N1-C2-O2 | 11.45 | 125.77 | 118.90 |
| 37 | 52 | 4119 | C | N1-C2-O2 | 11.31 | 125.69 | 118.90 |
| 37 | 52 | 2397 | G | C5-C6-O6 | 11.30 | 135.38 | 128.60 |
| 37 | 52 | 1239 | C | C4-C5-C6 | 11.16 | 122.98 | 117.40 |
| 37 | 52 | 4120 | U | C2-N1-C1' | 11.10 | 131.02 | 117.70 |
| 37 | 52 | 4123 | C | N3-C2-O2 | -11.10 | 114.13 | 121.90 |
| 1 | A1 | 887 | U | N1-C2-O2 | 11.01 | 130.51 | 122.80 |
| 55 | U3 | 49 | VAL | CB-CA-C | 10.97 | 132.25 | 111.40 |
| 1 | A1 | 887 | U | C2-N1-C1' | 10.97 | 130.86 | 117.70 |
| 37 | 52 | 732 | A | C5-N7-C8 | 10.97 | 109.38 | 103.90 |
| 40 | A3 | 126 | LEU | CA-CB-CG | 10.91 | 140.39 | 115.30 |
| 78 | s3 | 186 | GLY | CA-C-N | 10.81 | 140.97 | 117.20 |
| 78 | s3 | 186 | GLY | C-N-CA | 10.79 | 148.68 | 121.70 |
| 37 | 52 | 119 | G | N1-C2-N2 | 10.76 | 125.88 | 116.20 |
| 1 | A1 | 356 | C | N1-C2-O2 | 10.73 | 125.34 | 118.90 |
| 62 | b3 | 28 | ARG | CB-CA-C | 10.71 | 131.82 | 110.40 |
| 37 | 52 | 1805 | A | C6-N1-C2 | 10.69 | 125.01 | 118.60 |
| 37 | 52 | 327 | U | C2-N1-C1' | 10.57 | 130.38 | 117.70 |
| 80 | 23 | 20 | U | N1-C2-O2 | 10.56 | 130.19 | 122.80 |
| 37 | 52 | 3810 | C | N1-C2-O2 | 10.53 | 125.22 | 118.90 |
| 37 | 52 | 2597 | G | N3-C4-C5 | -10.50 | 123.35 | 128.60 |
| 80 | 23 | 20 | U | C2-N1-C1' | 10.47 | 130.26 | 117.70 |
| 37 | 52 | 2021 | G | O4'-C1'-N9 | 10.43 | 116.54 | 108.20 |
| 1 | A1 | 970 | G | C5-N7-C8 | 10.42 | 109.51 | 104.30 |
| 37 | 52 | 119 | G | N3-C2-N2 | 10.39 | 127.17 | 119.90 |
| 37 | 52 | 2021 | G | C4-N9-C1' | 10.29 | 139.87 | 126.50 |
| 37 | 52 | 2021 | G | N3-C4-C5 | -10.24 | 123.48 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 67 | g3 | 4 | ARG | CG-CD-NE | 10.17 | 133.16 | 111.80 |
| 80 | 23 | 20 | U | N3-C2-O2 | -10.12 | 115.12 | 122.20 |
| 37 | 52 | 1915 | C | N1-C2-O2 | 10.05 | 124.93 | 118.90 |
| 37 | 52 | 2021 | G | C2-N3-C4 | 9.90 | 116.85 | 111.90 |
| 37 | 52 | 2258 | C | N3-C2-O2 | -9.83 | 115.02 | 121.90 |
| 37 | 52 | 2399 | G | N1-C6-O6 | -9.83 | 114.00 | 119.90 |
| 37 | 52 | 3810 | C | C6-N1-C2 | -9.79 | 116.38 | 120.30 |
| 38 | 72 | 63 | C | C4-C5-C6 | 9.75 | 122.28 | 117.40 |
| 37 | 52 | 2019 | C | N1-C2-O2 | 9.72 | 124.73 | 118.90 |
| 37 | 52 | 2597 | G | C4-N9-C1' | 9.70 | 139.11 | 126.50 |
| 37 | 52 | 1915 | C | N3-C2-O2 | -9.70 | 115.11 | 121.90 |
| 37 | 52 | 4119 | C | N3-C2-O2 | -9.65 | 115.14 | 121.90 |
| 37 | 52 | 2397 | G | C6-C5-N7 | 9.61 | 136.17 | 130.40 |
| 37 | 52 | 2598 | A | C8-N9-C4 | -9.57 | 101.97 | 105.80 |
| 37 | 52 | 2581 | A | O5'-P-OP2 | 9.56 | 122.18 | 110.70 |
| 1 | A1 | 970 | G | N3-C2-N2 | 9.51 | 126.56 | 119.90 |
| 83 | G3 | 185 | ARG | CG-CD-NE | 9.50 | 131.75 | 111.80 |
| 55 | U3 | 49 | VAL | N-CA-C | -9.43 | 85.53 | 111.00 |
| 1 | A1 | 887 | U | N3-C2-O2 | -9.38 | 115.63 | 122.20 |
| 37 | 52 | 732 | A | C6-N1-C2 | 9.37 | 124.22 | 118.60 |
| 1 | A1 | 970 | G | N1-C2-N2 | 9.35 | 124.61 | 116.20 |
| 37 | 52 | 2397 | G | N9-C4-C5 | 9.34 | 109.13 | 105.40 |
| 37 | 52 | 1996 | C | C5-C6-N1 | 9.33 | 125.67 | 121.00 |
| 37 | 52 | 2581 | A | O5'-P-OP1 | -9.33 | 97.30 | 105.70 |
| 43 | E3 | 65 | TYR | CE1-CZ-CE2 | -9.32 | 104.89 | 119.80 |
| 37 | 52 | 1639 | U | C2-N1-C1' | 9.28 | 128.83 | 117.70 |
| 1 | A1 | 356 | C | C2-N1-C1' | 9.27 | 129.00 | 118.80 |
| 37 | 52 | 3810 | C | C5-C6-N1 | 9.25 | 125.63 | 121.00 |
| 1 | A1 | 281 | C | C6-N1-C1' | -9.25 | 109.70 | 120.80 |
| 37 | 52 | 2397 | G | N3-C4-N9 | -9.15 | 120.51 | 126.00 |
| 37 | 52 | 119 | G | C5-N7-C8 | 9.13 | 108.86 | 104.30 |
| 37 | 52 | 4948 | C | C2-N1-C1' | 9.12 | 128.83 | 118.80 |
| 37 | 52 | 1805 | A | N3-C4-C5 | -9.09 | 120.44 | 126.80 |
| 37 | 52 | 119 | G | C5-C6-O6 | -9.08 | 123.15 | 128.60 |
| 37 | 52 | 3810 | C | C2-N1-C1' | 9.01 | 128.71 | 118.80 |
| 37 | 52 | 1915 | C | C6-N1-C2 | -8.94 | 116.73 | 120.30 |
| 37 | 52 | 2395 | A | N3-C4-C5 | -8.94 | 120.55 | 126.80 |
| 1 | A1 | 281 | C | C6-N1-C2 | -8.91 | 116.73 | 120.30 |
| 37 | 52 | 4948 | C | N1-C2-O2 | 8.91 | 124.24 | 118.90 |
| 1 | A1 | 1520 | G | N3-C4-N9 | 8.87 | 131.32 | 126.00 |
| 37 | 52 | 1239 | C | N3-C2-O2 | 8.82 | 128.08 | 121.90 |
| 1 | A1 | 501 | C | N1-C2-O2 | 8.82 | 124.19 | 118.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 4123 | C | C5-C6-N1 | 8.78 | 125.39 | 121.00 |
| 1 | A1 | 356 | C | N3-C2-O2 | -8.77 | 115.76 | 121.90 |
| 37 | 52 | 1239 | C | C5-C6-N1 | 8.75 | 125.38 | 121.00 |
| 37 | 52 | 119 | G | C4-C5-C6 | 8.74 | 124.05 | 118.80 |
| 37 | 52 | 1915 | C | C2-N1-C1' | 8.71 | 128.38 | 118.80 |
| 37 | 52 | 2399 | G | C4-C5-C6 | 8.68 | 124.01 | 118.80 |
| 37 | 52 | 4928 | C | N1-C2-O2 | 8.67 | 124.10 | 118.90 |
| 37 | 52 | 2674 | A | OP1-P-OP2 | -8.65 | 106.63 | 119.60 |
| 37 | 52 | 2397 | G | C4-C5-N7 | -8.62 | 107.35 | 110.80 |
| 37 | 52 | 275 | C | C6-N1-C2 | -8.57 | 116.87 | 120.30 |
| 1 | A1 | 970 | G | N3-C4-C5 | -8.53 | 124.34 | 128.60 |
| 85 | I3 | 203 | ARG | CA-C-O | -8.46 | 102.33 | 120.10 |
| 1 | A1 | 1518 | C | C2-N1-C1' | 8.46 | 128.10 | 118.80 |
| 1 | A1 | 1520 | G | N3-C4-C5 | -8.45 | 124.38 | 128.60 |
| 37 | 52 | 2395 | A | N9-C4-C5 | -8.43 | 102.43 | 105.80 |
| 37 | 52 | 327 | U | N3-C2-O2 | -8.37 | 116.34 | 122.20 |
| 67 | g3 | 2 | VAL | CA-CB-CG1 | 8.35 | 123.42 | 110.90 |
| 37 | 52 | 2399 | G | N1-C2-N2 | 8.34 | 123.71 | 116.20 |
| 37 | 52 | 2258 | C | C6-N1-C2 | -8.30 | 116.98 | 120.30 |
| 37 | 52 | 4119 | C | C2-N1-C1' | 8.29 | 127.92 | 118.80 |
| 1 | A1 | 369 | C | N1-C2-O2 | 8.29 | 123.87 | 118.90 |
| 37 | 52 | 358 | C | N1-C2-O2 | 8.28 | 123.86 | 118.90 |
| 1 | A1 | 1518 | C | N1-C2-O2 | 8.27 | 123.86 | 118.90 |
| 53 | S3 | 68 | PHE | N-CA-CB | -8.26 | 95.73 | 110.60 |
| 1 | A1 | 1520 | G | C4-N9-C1' | 8.24 | 137.22 | 126.50 |
| 37 | 52 | 2019 | C | C5-C6-N1 | 8.20 | 125.10 | 121.00 |
| 37 | 52 | 2597 | G | N7-C8-N9 | 8.19 | 117.19 | 113.10 |
| 37 | 52 | 2597 | G | C8-N9-C4 | -8.16 | 103.14 | 106.40 |
| 37 | 52 | 4928 | C | C2-N1-C1' | 8.16 | 127.78 | 118.80 |
| 37 | 52 | 3941 | G | N3-C4-C5 | -8.15 | 124.52 | 128.60 |
| 37 | 52 | 4928 | C | N3-C2-O2 | -8.13 | 116.21 | 121.90 |
| 37 | 52 | 3810 | C | N3-C2-O2 | -8.12 | 116.22 | 121.90 |
| 1 | A1 | 1518 | C | N3-C2-O2 | -8.08 | 116.24 | 121.90 |
| 37 | 52 | 4120 | U | N1-C2-O2 | 8.02 | 128.41 | 122.80 |
| 37 | 52 | 4120 | U | C5-C6-N1 | 8.01 | 126.70 | 122.70 |
| 37 | 52 | 3941 | G | C4-N9-C1' | 8.01 | 136.91 | 126.50 |
| 37 | 52 | 257 | C | N1-C2-O2 | 7.99 | 123.70 | 118.90 |
| 1 | A1 | 970 | G | C8-N9-C4 | 7.94 | 109.58 | 106.40 |
| 37 | 52 | 4948 | C | N3-C2-O2 | -7.91 | 116.36 | 121.90 |
| 37 | 52 | 2019 | C | C6-N1-C2 | -7.86 | 117.16 | 120.30 |
| 37 | 52 | 3661 | G | C4-C5-N7 | 7.86 | 113.94 | 110.80 |
| 37 | 52 | 3941 | G | N3-C4-N9 | 7.86 | 130.71 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 51 | Q3 | 14 | ARG | NE-CZ-NH2 | -7.84 | 116.38 | 120.30 |
| 37 | 52 | 2583 | C | C6-N1-C2 | -7.79 | 117.19 | 120.30 |
| 78 | s3 | 75 | LEU | CA-CB-CG | 7.76 | 133.16 | 115.30 |
| 37 | 52 | 358 | C | N3-C2-O2 | -7.76 | 116.47 | 121.90 |
| 37 | 52 | 737 | C | N1-C2-O2 | 7.75 | 123.55 | 118.90 |
| 1 | A1 | 887 | U | C6-N1-C1' | -7.74 | 110.37 | 121.20 |
| 43 | E3 | 65 | TYR | CD1-CE1-CZ | 7.72 | 126.75 | 119.80 |
| 37 | 52 | 1239 | C | C5-C4-N4 | 7.72 | 125.60 | 120.20 |
| 37 | 52 | 1070 | G | C4-N9-C1' | 7.64 | 136.43 | 126.50 |
| 55 | U3 | 49 | VAL | N-CA-CB | 7.63 | 128.28 | 111.50 |
| 37 | 52 | 672 | C | N1-C2-O2 | 7.63 | 123.48 | 118.90 |
| 1 | A1 | 1624 | U | N3-C2-O2 | -7.62 | 116.86 | 122.20 |
| 1 | A1 | 1303 | C | N1-C2-O2 | 7.61 | 123.46 | 118.90 |
| 38 | 72 | 1 | G | N3-C4-C5 | -7.60 | 124.80 | 128.60 |
| 37 | 52 | 327 | U | N1-C2-O2 | 7.59 | 128.12 | 122.80 |
| 37 | 52 | 1556 | C | N1-C2-O2 | 7.59 | 123.45 | 118.90 |
| 37 | 52 | 2598 | A | N3-C4-C5 | -7.59 | 121.49 | 126.80 |
| 85 | I3 | 203 | ARG | CA-C-N | 7.57 | 131.35 | 116.20 |
| 37 | 52 | 4120 | U | C6-N1-C1' | -7.54 | 110.64 | 121.20 |
| 37 | 52 | 1639 | U | N1-C2-O2 | 7.51 | 128.06 | 122.80 |
| 1 | A1 | 1624 | U | C2-N1-C1' | 7.51 | 126.71 | 117.70 |
| 37 | 52 | 2597 | G | N3-C4-N9 | 7.50 | 130.50 | 126.00 |
| 37 | 52 | 2552 | G | N3-C4-N9 | 7.49 | 130.49 | 126.00 |
| 67 | g3 | 2 | VAL | CA-CB-CG2 | 7.46 | 122.09 | 110.90 |
| 37 | 52 | 2021 | G | N7-C8-N9 | 7.45 | 116.83 | 113.10 |
| 37 | 52 | 3843 | C | N1-C2-O2 | 7.44 | 123.36 | 118.90 |
| 38 | 72 | 63 | C | C6-N1-C1' | -7.39 | 111.93 | 120.80 |
| 37 | 52 | 4123 | C | C6-N1-C1' | -7.39 | 111.94 | 120.80 |
| 1 | A1 | 501 | C | C2-N1-C1' | 7.39 | 126.93 | 118.80 |
| 37 | 52 | 737 | C | N3-C2-O2 | -7.36 | 116.75 | 121.90 |
| 37 | 52 | 2019 | C | C2-N3-C4 | 7.34 | 123.57 | 119.90 |
| 37 | 52 | 2528 | G | C4-N9-C1' | 7.32 | 136.01 | 126.50 |
| 1 | A1 | 751 | G | P-O3'-C3' | 7.29 | 128.45 | 119.70 |
| 1 | A1 | 369 | C | C2-N1-C1' | 7.29 | 126.82 | 118.80 |
| 1 | A1 | 501 | C | N3-C2-O2 | -7.29 | 116.80 | 121.90 |
| 37 | 52 | 1612 | G | C4-N9-C1' | 7.26 | 135.94 | 126.50 |
| 38 | 72 | 1 | G | N3-C4-N9 | 7.26 | 130.35 | 126.00 |
| 37 | 52 | 2084 | U | C2-N3-C4 | -7.25 | 122.65 | 127.00 |
| 37 | 52 | 48 | G | P-O3'-C3' | 7.24 | 128.39 | 119.70 |
| 37 | 52 | 2598 | A | C4-C5-C6 | 7.24 | 120.62 | 117.00 |
| 37 | 52 | 2046 | G | P-O3'-C3' | 7.23 | 128.38 | 119.70 |
| 43 | E3 | 65 | TYR | CZ-CE2-CD2 | 7.23 | 126.30 | 119.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 1805 | A | C8-N9-C4 | 7.21 | 108.69 | 105.80 |
| 1 | A1 | 751 | G | OP1-P-O3' | 7.21 | 121.06 | 105.20 |
| 37 | 52 | 1305 | C | C6-N1-C2 | -7.20 | 117.42 | 120.30 |
| 37 | 52 | 1310 | C | C6-N1-C2 | -7.19 | 117.42 | 120.30 |
| 37 | 52 | 2597 | G | C8-N9-C1' | -7.16 | 117.70 | 127.00 |
| 37 | 52 | 2022 | C | O5'-P-OP2 | -7.11 | 99.30 | 105.70 |
| 37 | 52 | 1556 | C | N3-C2-O2 | -7.11 | 116.92 | 121.90 |
| 37 | 52 | 2395 | A | C6-C5-N7 | 7.11 | 137.27 | 132.30 |
| 39 | 82 | 36 | G | C4-N9-C1' | 7.09 | 135.72 | 126.50 |
| 37 | 52 | 1239 | C | N3-C4-N4 | 7.09 | 122.96 | 118.00 |
| 53 | S3 | 68 | PHE | CA-C-O | 7.07 | 134.94 | 120.10 |
| 1 | A1 | 1520 | G | C8-N9-C1' | -7.06 | 117.82 | 127.00 |
| 37 | 52 | 3661 | G | N9-C4-C5 | -7.05 | 102.58 | 105.40 |
| 37 | 52 | 3941 | G | C8-N9-C1' | -7.05 | 117.83 | 127.00 |
| 52 | R3 | 125 | LEU | CB-CG-CD1 | -7.04 | 99.03 | 111.00 |
| 37 | 52 | 1996 | C | C6-N1-C2 | -7.04 | 117.48 | 120.30 |
| 37 | 52 | 2580 | U | OP2-P-O3' | -7.04 | 89.72 | 105.20 |
| 37 | 52 | 4528 | G | C4-N9-C1' | 7.02 | 135.62 | 126.50 |
| 1 | A1 | 241 | G | N3-C4-N9 | 6.99 | 130.19 | 126.00 |
| 1 | A1 | 1664 | A | P-O3'-C3' | 6.99 | 128.09 | 119.70 |
| 1 | A1 | 1303 | C | N3-C2-O2 | -6.98 | 117.02 | 121.90 |
| 37 | 52 | 2580 | U | OP1-P-O3' | 6.97 | 120.53 | 105.20 |
| 37 | 52 | 2875 | C | P-O3'-C3' | 6.96 | 128.05 | 119.70 |
| 1 | A1 | 1303 | C | C2-N1-C1' | 6.96 | 126.45 | 118.80 |
| 37 | 52 | 2078 | C | C5-C6-N1 | 6.95 | 124.48 | 121.00 |
| 37 | 52 | 3809 | G | N3-C4-N9 | 6.95 | 130.17 | 126.00 |
| 1 | A1 | 183 | G | N3-C4-N9 | 6.95 | 130.17 | 126.00 |
| 37 | 52 | 2597 | G | C4-C5-C6 | 6.94 | 122.97 | 118.80 |
| 37 | 52 | 2084 | U | C6-N1-C2 | 6.94 | 125.17 | 121.00 |
| 37 | 52 | 2581 | A | C5'-C4'-C3' | 6.93 | 127.09 | 116.00 |
| 37 | 52 | 4119 | C | C6-N1-C2 | -6.91 | 117.54 | 120.30 |
| 37 | 52 | 4138 | C | N1-C2-O2 | 6.91 | 123.04 | 118.90 |
| 37 | 52 | 2504 | C | C6-N1-C2 | -6.90 | 117.54 | 120.30 |
| 37 | 52 | 3651 | A | O5'-P-OP1 | -6.89 | 99.50 | 105.70 |
| 71 | k3 | 56 | LEU | CA-CB-CG | 6.88 | 131.13 | 115.30 |
| 37 | 52 | 3661 | G | C5-C6-O6 | -6.87 | 124.48 | 128.60 |
| 37 | 52 | 119 | G | N1-C6-O6 | -6.84 | 115.80 | 119.90 |
| 1 | A1 | 356 | C | C6-N1-C1' | -6.84 | 112.60 | 120.80 |
| 37 | 52 | 3637 | U | N3-C2-O2 | -6.83 | 117.42 | 122.20 |
| 80 | 23 | 20 | U | C6-N1-C1' | -6.82 | 111.65 | 121.20 |
| 37 | 52 | 1639 | U | N3-C2-O2 | -6.78 | 117.45 | 122.20 |
| 1 | A1 | 183 | G | C4-N9-C1' | 6.74 | 135.27 | 126.50 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 4117 | U | N3-C2-O2 | -6.73 | 117.49 | 122.20 |
| 1 | A1 | 75 | G | N3-C4-N9 | 6.72 | 130.03 | 126.00 |
| 1 | A1 | 970 | G | C4-N9-C1' | -6.71 | 117.78 | 126.50 |
| 87 | u3 | 163 | LEU | CA-CB-CG | 6.71 | 130.72 | 115.30 |
| 37 | 52 | 2580 | U | C4-C5-C6 | 6.70 | 123.72 | 119.70 |
| 37 | 52 | 2258 | C | C2-N1-C1' | 6.70 | 126.16 | 118.80 |
| 37 | 52 | 2397 | G | C8-N9-C1' | 6.70 | 135.70 | 127.00 |
| 37 | 52 | 2089 | G | P-O3'-C3' | 6.69 | 127.73 | 119.70 |
| 37 | 52 | 2768 | C | O4'-C1'-N1 | 6.69 | 113.56 | 108.20 |
| 37 | 52 | 1612 | G | C8-N9-C1' | -6.68 | 118.32 | 127.00 |
| 37 | 52 | 2021 | G | C8-N9-C1' | -6.67 | 118.32 | 127.00 |
| 37 | 52 | 2875 | C | OP2-P-O3' | 6.67 | 119.87 | 105.20 |
| 37 | 52 | 1210 | C | N1-C2-O2 | 6.66 | 122.89 | 118.90 |
| 1 | A1 | 281 | C | C5-C6-N1 | 6.65 | 124.32 | 121.00 |
| 1 | A1 | 1858 | G | C4-N9-C1' | 6.64 | 135.13 | 126.50 |
| 37 | 52 | 48 | G | OP2-P-O3' | 6.64 | 119.81 | 105.20 |
| 37 | 52 | 358 | C | C2-N1-C1' | 6.64 | 126.10 | 118.80 |
| 37 | 52 | 327 | U | C6-N1-C1' | -6.63 | 111.92 | 121.20 |
| 1 | A1 | 751 | G | N3-C4-N9 | 6.62 | 129.97 | 126.00 |
| 37 | 52 | 1210 | C | C2-N1-C1' | 6.62 | 126.08 | 118.80 |
| 1 | A1 | 1057 | C | C2-N1-C1' | 6.61 | 126.08 | 118.80 |
| 49 | O3 | 18 | ARG | NE-CZ-NH2 | -6.61 | 117.00 | 120.30 |
| 37 | 52 | 2631 | U | C2-N3-C4 | -6.60 | 123.04 | 127.00 |
| 37 | 52 | 2399 | G | C5-C6-O6 | -6.60 | 124.64 | 128.60 |
| 1 | A1 | 75 | G | C4-N9-C1' | 6.60 | 135.07 | 126.50 |
| 1 | A1 | 293 | C | N1-C2-O2 | 6.59 | 122.86 | 118.90 |
| 1 | A1 | 688 | U | P-O3'-C3' | 6.58 | 127.60 | 119.70 |
| 37 | 52 | 1517 | G | C4-N9-C1' | 6.58 | 135.06 | 126.50 |
| 37 | 52 | 4243 | C | N3-C2-O2 | -6.58 | 117.30 | 121.90 |
| 1 | A1 | 212 | C | C6-N1-C2 | -6.56 | 117.68 | 120.30 |
| 37 | 52 | 2574 | G | O5'-P-OP1 | 6.55 | 118.57 | 110.70 |
| 1 | A1 | 369 | C | N3-C2-O2 | -6.55 | 117.32 | 121.90 |
| 60 | Z3 | 80 | LEU | CA-CB-CG | 6.55 | 130.36 | 115.30 |
| 37 | 52 | 672 | C | N3-C2-O2 | -6.55 | 117.32 | 121.90 |
| 37 | 52 | 2750 | G | C6-C5-N7 | -6.54 | 126.47 | 130.40 |
| 37 | 52 | 1305 | C | C2-N1-C1' | 6.54 | 125.99 | 118.80 |
| 1 | A1 | 1637 | A | P-O3'-C3' | 6.53 | 127.54 | 119.70 |
| 37 | 52 | 2084 | U | N3-C4-C5 | 6.52 | 118.51 | 114.60 |
| 39 | 82 | 36 | G | N3-C4-C5 | -6.51 | 125.35 | 128.60 |
| 1 | A1 | 1518 | C | C6-N1-C2 | -6.50 | 117.70 | 120.30 |
| 37 | 52 | 217 | C | N1-C2-O2 | 6.50 | 122.80 | 118.90 |
| 37 | 52 | 2528 | G | C8-N9-C1' | -6.50 | 118.55 | 127.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 2580 | U | N3-C4-O4 | 6.50 | 123.95 | 119.40 |
| 37 | 52 | 4243 | C | N1-C2-O2 | 6.49 | 122.79 | 118.90 |
| 37 | 52 | 3959 | U | P-O3'-C3' | 6.48 | 127.48 | 119.70 |
| 78 | s3 | 79 | LEU | CA-CB-CG | -6.48 | 100.40 | 115.30 |
| 37 | 52 | 1805 | A | C4-N9-C1' | -6.47 | 114.66 | 126.30 |
| 37 | 52 | 2572 | C | C5-C4-N4 | -6.47 | 115.67 | 120.20 |
| 40 | A3 | 117 | GLU | CB-CA-C | -6.47 | 97.46 | 110.40 |
| 37 | 52 | 2489 | C | N1-C2-O2 | 6.46 | 122.78 | 118.90 |
| 1 | A1 | 1118 | C | C2-N1-C1' | 6.46 | 125.90 | 118.80 |
| 1 | A1 | 532 | C | C6-N1-C2 | -6.46 | 117.72 | 120.30 |
| 37 | 52 | 4880 | C | C2-N1-C1' | 6.46 | 125.90 | 118.80 |
| 37 | 52 | 1651 | G | C4-N9-C1' | 6.46 | 134.89 | 126.50 |
| 39 | 82 | 36 | G | N3-C4-N9 | 6.45 | 129.87 | 126.00 |
| 37 | 52 | 4926 | C | C2-N1-C1' | 6.42 | 125.86 | 118.80 |
| 1 | A1 | 1314 | U | C2-N1-C1' | 6.41 | 125.40 | 117.70 |
| 37 | 52 | 100 | C | C2-N1-C1' | 6.41 | 125.85 | 118.80 |
| 37 | 52 | 4948 | C | C6-N1-C1' | -6.39 | 113.13 | 120.80 |
| 37 | 52 | 2580 | U | P-O3'-C3' | 6.39 | 127.37 | 119.70 |
| 80 | 23 | 30 | G | N3-C4-N9 | 6.38 | 129.83 | 126.00 |
| 37 | 52 | 2014 | C | N1-C2-O2 | 6.37 | 122.72 | 118.90 |
| 63 | c3 | 30 | GLY | N-CA-C | 6.37 | 129.03 | 113.10 |
| 37 | 52 | 1573 | G | O5'-P-OP1 | -6.34 | 100.00 | 105.70 |
| 37 | 52 | 2078 | C | C6-N1-C2 | -6.34 | 117.77 | 120.30 |
| 37 | 52 | 2552 | G | N3-C4-C5 | -6.33 | 125.43 | 128.60 |
| 1 | A1 | 474 | G | C4-N9-C1' | 6.33 | 134.73 | 126.50 |
| 1 | A1 | 970 | G | C4-C5-C6 | 6.33 | 122.60 | 118.80 |
| 37 | 52 | 1070 | G | C8-N9-C1' | -6.33 | 118.77 | 127.00 |
| 37 | 52 | 1961 | G | C8-N9-C4 | -6.33 | 103.87 | 106.40 |
| 37 | 52 | 4919 | G | N3-C4-C5 | -6.32 | 125.44 | 128.60 |
| 1 | A1 | 1300 | U | N3-C2-O2 | -6.31 | 117.78 | 122.20 |
| 37 | 52 | 4423 | U | N3-C2-O2 | -6.31 | 117.78 | 122.20 |
| 1 | A1 | 241 | G | N3-C4-C5 | -6.30 | 125.45 | 128.60 |
| 37 | 52 | 2084 | U | C5-C6-N1 | -6.28 | 119.56 | 122.70 |
| 37 | 52 | 1185 | G | C8-N9-C4 | -6.28 | 103.89 | 106.40 |
| 37 | 52 | 4942 | C | N1-C2-O2 | 6.28 | 122.67 | 118.90 |
| 37 | 52 | 4926 | C | N1-C2-O2 | 6.27 | 122.66 | 118.90 |
| 37 | 52 | 1612 | G | N3-C4-N9 | 6.27 | 129.76 | 126.00 |
| 1 | A1 | 1636 | G | C4-N9-C1' | 6.26 | 134.64 | 126.50 |
| 63 | c3 | 94 | LEU | CA-CB-CG | 6.26 | 129.71 | 115.30 |
| 37 | 52 | 2019 | C | N3-C2-O2 | -6.26 | 117.52 | 121.90 |
| 37 | 52 | 986 | C | N1-C2-O2 | 6.26 | 122.66 | 118.90 |
| 37 | 52 | 4560 | C | N3-C2-O2 | -6.26 | 117.52 | 121.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A1 | 751 | G | C4-N9-C1' | 6.25 | 134.63 | 126.50 |
| 37 | 52 | 4919 | G | N3-C4-N9 | 6.25 | 129.75 | 126.00 |
| 37 | 52 | 4759 | C | C2-N1-C1' | 6.25 | 125.67 | 118.80 |
| 62 | b3 | 28 | ARG | N-CA-C | -6.24 | 94.14 | 111.00 |
| 37 | 52 | 1979 | A | P-O3'-C3' | 6.24 | 127.19 | 119.70 |
| 37 | 52 | 1632 | A | C2-N3-C4 | 6.24 | 113.72 | 110.60 |
| 38 | 72 | 63 | C | N3-C2-O2 | 6.24 | 126.26 | 121.90 |
| 37 | 52 | 4869 | U | C2-N1-C1' | 6.22 | 125.17 | 117.70 |
| 1 | A1 | 1130 | G | N3-C4-C5 | -6.22 | 125.49 | 128.60 |
| 37 | 52 | 1639 | U | C6-N1-C1' | -6.22 | 112.50 | 121.20 |
| 1 | A1 | 870 | A | P-O3'-C3' | 6.21 | 127.16 | 119.70 |
| 14 | N1 | 64 | LEU | CA-CB-CG | 6.21 | 129.58 | 115.30 |
| 37 | 52 | 2528 | G | N3-C4-N9 | 6.20 | 129.72 | 126.00 |
| 37 | 52 | 449 | C | P-O3'-C3' | 6.20 | 127.14 | 119.70 |
| 37 | 52 | 294 | G | C4-N9-C1' | 6.20 | 134.56 | 126.50 |
| 37 | 52 | 1968 | G | C8-N9-C4 | -6.19 | 103.92 | 106.40 |
| 37 | 52 | 4303 | C | C2-N1-C1' | 6.19 | 125.61 | 118.80 |
| 37 | 52 | 1961 | G | N3-C4-C5 | -6.19 | 125.51 | 128.60 |
| 37 | 52 | 1961 | G | C4-N9-C1' | 6.17 | 134.52 | 126.50 |
| 37 | 52 | 3888 | G | P-O3'-C3' | 6.17 | 127.10 | 119.70 |
| 37 | 52 | 2597 | G | C6-C5-N7 | -6.16 | 126.70 | 130.40 |
| 37 | 52 | 4528 | G | C8-N9-C1' | -6.15 | 119.01 | 127.00 |
| 37 | 52 | 1456 | C | C6-N1-C2 | -6.14 | 117.84 | 120.30 |
| 62 | b3 | 28 | ARG | N-CA-CB | 6.14 | 121.64 | 110.60 |
| 37 | 52 | 4413 | C | N1-C2-O2 | 6.13 | 122.58 | 118.90 |
| 37 | 52 | 2594 | C | C6-N1-C2 | -6.13 | 117.85 | 120.30 |
| 37 | 52 | 2811 | G | C8-N9-C4 | -6.12 | 103.95 | 106.40 |
| 37 | 52 | 4413 | C | N3-C2-O2 | -6.11 | 117.62 | 121.90 |
| 39 | 82 | 36 | G | C8-N9-C1' | -6.09 | 119.08 | 127.00 |
| 85 | I3 | 204 | GLY | N-CA-C | 6.09 | 128.31 | 113.10 |
| 39 | 82 | 153 | C | N1-C2-O2 | 6.08 | 122.55 | 118.90 |
| 1 | A1 | 1364 | U | C2-N1-C1' | 6.08 | 125.00 | 117.70 |
| 37 | 52 | 4413 | C | C2-N1-C1' | 6.07 | 125.48 | 118.80 |
| 38 | 72 | 1 | G | C4-N9-C1' | 6.05 | 134.36 | 126.50 |
| 37 | 52 | 2397 | G | C4-N9-C1' | -6.04 | 118.64 | 126.50 |
| 37 | 52 | 2550 | G | N7-C8-N9 | 6.04 | 116.12 | 113.10 |
| 37 | 52 | 1805 | A | O4'-C1'-N9 | -6.04 | 103.37 | 108.20 |
| 37 | 52 | 104 | G | C4-N9-C1' | 6.04 | 134.35 | 126.50 |
| 37 | 52 | 180 | C | N1-C2-O2 | 6.04 | 122.52 | 118.90 |
| 1 | A1 | 183 | G | C8-N9-C1' | -6.04 | 119.15 | 127.00 |
| 1 | A1 | 1130 | G | N3-C4-N9 | 6.04 | 129.62 | 126.00 |
| 38 | 72 | 63 | C | N3-C4-N4 | 6.04 | 122.22 | 118.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 1556 | C | C2-N1-C1' | 6.02 | 125.42 | 118.80 |
| 37 | 52 | 2598 | A | C2-N3-C4 | 6.02 | 113.61 | 110.60 |
| 37 | 52 | 4759 | C | N3-C2-O2 | -6.02 | 117.69 | 121.90 |
| 37 | 52 | 3809 | G | N3-C4-C5 | -6.02 | 125.59 | 128.60 |
| 1 | A1 | 1394 | G | P-O3'-C3' | 6.02 | 126.92 | 119.70 |
| 1 | A1 | 1453 | C | C2-N1-C1' | 6.01 | 125.42 | 118.80 |
| 1 | A1 | 1397 | U | N3-C2-O2 | -6.01 | 117.99 | 122.20 |
| 37 | 52 | 704 | C | C2-N1-C1' | 6.00 | 125.40 | 118.80 |
| 37 | 52 | 4919 | G | C4-N9-C1' | 5.99 | 134.29 | 126.50 |
| 37 | 52 | 4454 | G | C4-N9-C1' | 5.99 | 134.28 | 126.50 |
| 37 | 52 | 275 | C | N3-C2-O2 | -5.98 | 117.71 | 121.90 |
| 37 | 52 | 1612 | G | C6-C5-N7 | -5.98 | 126.81 | 130.40 |
| 37 | 52 | 966 | A | N7-C8-N9 | 5.98 | 116.79 | 113.80 |
| 1 | A1 | 1314 | U | N3-C2-O2 | -5.98 | 118.02 | 122.20 |
| 37 | 52 | 2754 | G | C5'-C4'-O4' | 5.98 | 116.27 | 109.10 |
| 1 | A1 | 465 | A | P-O3'-C3' | 5.97 | 126.87 | 119.70 |
| 37 | 52 | 1215 | C | N1-C2-O2 | 5.96 | 122.48 | 118.90 |
| 37 | 52 | 4423 | U | C2-N1-C1' | 5.96 | 124.86 | 117.70 |
| 1 | A1 | 183 | G | N3-C4-C5 | -5.96 | 125.62 | 128.60 |
| 37 | 52 | 4120 | U | N3-C2-O2 | -5.96 | 118.03 | 122.20 |
| 37 | 52 | 4266 | G | C4-N9-C1' | 5.96 | 134.24 | 126.50 |
| 1 | A1 | 75 | G | C8-N9-C1' | -5.95 | 119.26 | 127.00 |
| 37 | 52 | 3712 | A | C8-N9-C1' | -5.94 | 117.00 | 127.70 |
| 37 | 52 | 1469 | C | C6-N1-C2 | -5.94 | 117.92 | 120.30 |
| 37 | 52 | 2740 | U | N3-C2-O2 | -5.94 | 118.04 | 122.20 |
| 37 | 52 | 2750 | G | C4-N9-C1' | 5.93 | 134.21 | 126.50 |
| 37 | 52 | 3941 | G | C2-N3-C4 | 5.93 | 114.87 | 111.90 |
| 80 | 23 | 29 | C | O4'-C1'-N1 | 5.93 | 112.94 | 108.20 |
| 37 | 52 | 2583 | C | C5-C6-N1 | 5.91 | 123.96 | 121.00 |
| 1 | A1 | 1333 | U | N3-C2-O2 | -5.91 | 118.06 | 122.20 |
| 37 | 52 | 1070 | G | N7-C8-N9 | 5.91 | 116.06 | 113.10 |
| 1 | A1 | 823 | U | C2-N1-C1' | 5.91 | 124.79 | 117.70 |
| 37 | 52 | 1485 | C | N1-C2-O2 | 5.91 | 122.44 | 118.90 |
| 37 | 52 | 2594 | C | N3-C2-O2 | -5.90 | 117.77 | 121.90 |
| 37 | 52 | 3948 | C | N1-C2-O2 | 5.90 | 122.44 | 118.90 |
| 37 | 52 | 3842 | C | N1-C2-O2 | 5.89 | 122.44 | 118.90 |
| 38 | 72 | 63 | C | C5-C6-N1 | 5.88 | 123.94 | 121.00 |
| 37 | 52 | 972 | C | N1-C2-O2 | 5.88 | 122.43 | 118.90 |
| 37 | 52 | 30 | C | C6-N1-C2 | -5.87 | 117.95 | 120.30 |
| 37 | 52 | 1185 | G | N3-C4-C5 | -5.87 | 125.66 | 128.60 |
| 37 | 52 | 4173 | G | C6-C5-N7 | -5.87 | 126.88 | 130.40 |
| 40 | A3 | 43 | GLY | N-CA-C | 5.87 | 127.77 | 113.10 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 2578 | G | C4-C5-N7 | 5.87 | 113.15 | 110.80 |
| 37 | 52 | 959 | G | P-O3'-C3' | 5.87 | 126.74 | 119.70 |
| 37 | 52 | 1181 | C | N1-C2-O2 | 5.87 | 122.42 | 118.90 |
| 37 | 52 | 2726 | G | C4-N9-C1' | 5.86 | 134.11 | 126.50 |
| 37 | 52 | 2577 | C | C6-N1-C2 | -5.85 | 117.96 | 120.30 |
| 37 | 52 | 257 | C | N3-C2-O2 | -5.85 | 117.81 | 121.90 |
| 37 | 52 | 2258 | C | C5-C6-N1 | 5.85 | 123.92 | 121.00 |
| 37 | 52 | 2597 | G | P-O3'-C3' | 5.84 | 126.71 | 119.70 |
| 37 | 52 | 2303 | C | C6-N1-C2 | -5.83 | 117.97 | 120.30 |
| 37 | 52 | 2407 | G | C4-N9-C1' | 5.83 | 134.08 | 126.50 |
| 37 | 52 | 37 | U | C2-N1-C1' | 5.83 | 124.70 | 117.70 |
| 37 | 52 | 4243 | C | C2-N1-C1' | 5.83 | 125.21 | 118.80 |
| 37 | 52 | 257 | C | C2-N1-C1' | 5.83 | 125.21 | 118.80 |
| 37 | 52 | 3712 | A | C4-N9-C1' | 5.83 | 136.79 | 126.30 |
| 1 | A1 | 853 | C | C2-N1-C1' | 5.82 | 125.20 | 118.80 |
| 37 | 52 | 495 | C | N1-C2-O2 | 5.82 | 122.39 | 118.90 |
| 37 | 52 | 1961 | G | N7-C8-N9 | 5.82 | 116.01 | 113.10 |
| 1 | A1 | 501 | C | C6-N1-C2 | -5.81 | 117.98 | 120.30 |
| 37 | 52 | 1915 | C | C5-C6-N1 | 5.81 | 123.90 | 121.00 |
| 37 | 52 | 4232 | U | P-O3'-C3' | 5.81 | 126.67 | 119.70 |
| 1 | A1 | 823 | U | N3-C2-O2 | -5.80 | 118.14 | 122.20 |
| 1 | A1 | 1475 | G | C4-N9-C1' | 5.80 | 134.05 | 126.50 |
| 37 | 52 | 327 | U | C5-C6-N1 | 5.80 | 125.60 | 122.70 |
| 40 | A3 | 126 | LEU | CB-CA-C | -5.80 | 99.17 | 110.20 |
| 37 | 52 | 1720 | C | C6-N1-C2 | -5.80 | 117.98 | 120.30 |
| 37 | 52 | 4759 | C | N1-C2-O2 | 5.80 | 122.38 | 118.90 |
| 37 | 52 | 276 | C | C6-N1-C2 | -5.80 | 117.98 | 120.30 |
| 37 | 52 | 115 | C | N1-C2-O2 | 5.79 | 122.38 | 118.90 |
| 37 | 52 | 2749 | C | C6-N1-C2 | -5.79 | 117.98 | 120.30 |
| 37 | 52 | 3842 | C | C2-N1-C1' | 5.79 | 125.17 | 118.80 |
| 1 | A1 | 538 | U | N1-C2-O2 | 5.79 | 126.85 | 122.80 |
| 37 | 52 | 4138 | C | N3-C2-O2 | -5.79 | 117.85 | 121.90 |
| 37 | 52 | 4942 | C | N3-C2-O2 | -5.78 | 117.85 | 121.90 |
| 37 | 52 | 4928 | C | C6-N1-C2 | -5.78 | 117.99 | 120.30 |
| 1 | A1 | 1624 | U | N1-C2-O2 | 5.77 | 126.84 | 122.80 |
| 1 | A1 | 182 | C | P-O3'-C3' | 5.77 | 126.63 | 119.70 |
| 1 | A1 | 1300 | U | N1-C2-O2 | 5.77 | 126.84 | 122.80 |
| 1 | A1 | 241 | G | C2-N3-C4 | 5.76 | 114.78 | 111.90 |
| 1 | A1 | 751 | G | N3-C4-C5 | -5.76 | 125.72 | 128.60 |
| 37 | 52 | 1762 | C | C6-N1-C2 | -5.76 | 118.00 | 120.30 |
| 80 | 23 | 72 | C | N1-C2-O2 | 5.75 | 122.35 | 118.90 |
| 1 | A1 | 874 | G | P-O3'-C3' | 5.75 | 126.60 | 119.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A1 | 1738 | C | C6-N1-C2 | -5.74 | 118.00 | 120.30 |
| 37 | 52 | 1467 | C | C6-N1-C2 | -5.74 | 118.00 | 120.30 |
| 37 | 52 | 1571 | G | C2-N3-C4 | 5.74 | 114.77 | 111.90 |
| 37 | 52 | 2470 | C | N1-C2-O2 | 5.74 | 122.34 | 118.90 |
| 37 | 52 | 104 | G | C8-N9-C1' | -5.74 | 119.54 | 127.00 |
| 37 | 52 | 914 | U | C5-C6-N1 | 5.74 | 125.57 | 122.70 |
| 37 | 52 | 327 | U | C6-N1-C2 | -5.73 | 117.56 | 121.00 |
| 37 | 52 | 3649 | A | C4-N9-C1' | 5.73 | 136.62 | 126.30 |
| 1 | A1 | 659 | G | C4-N9-C1' | 5.73 | 133.95 | 126.50 |
| 1 | A1 | 75 | G | N3-C4-C5 | -5.73 | 125.74 | 128.60 |
| 37 | 52 | 1912 | G | C4-N9-C1' | 5.73 | 133.95 | 126.50 |
| 63 | c3 | 30 | GLY | C-N-CA | 5.73 | 136.02 | 121.70 |
| 1 | A1 | 1772 | C | C6-N1-C2 | -5.73 | 118.01 | 120.30 |
| 1 | A1 | 1811 | C | C6-N1-C2 | -5.73 | 118.01 | 120.30 |
| 1 | A1 | 1551 | U | C2-N1-C1' | 5.72 | 124.56 | 117.70 |
| 37 | 52 | 1182 | C | N1-C2-O2 | 5.72 | 122.33 | 118.90 |
| 37 | 52 | 1550 | G | C4-N9-C1' | 5.72 | 133.94 | 126.50 |
| 1 | A1 | 1397 | U | N1-C2-O2 | 5.72 | 126.80 | 122.80 |
| 37 | 52 | 4662 | C | C6-N1-C2 | -5.72 | 118.01 | 120.30 |
| 37 | 52 | 1651 | G | C6-C5-N7 | -5.71 | 126.97 | 130.40 |
| 1 | A1 | 752 | G | O5'-P-OP1 | -5.69 | 100.58 | 105.70 |
| 37 | 52 | 275 | C | P-O3'-C3' | 5.69 | 126.53 | 119.70 |
| 37 | 52 | 1517 | G | N3-C4-C5 | -5.69 | 125.75 | 128.60 |
| 37 | 52 | 1969 | G | C5-C6-O6 | 5.69 | 132.01 | 128.60 |
| 37 | 52 | 2014 | C | C2-N1-C1' | 5.69 | 125.06 | 118.80 |
| 1 | A1 | 751 | G | C8-N9-C1' | -5.68 | 119.61 | 127.00 |
| 1 | A1 | 958 | G | C4-N9-C1' | 5.67 | 133.87 | 126.50 |
| 38 | 72 | 113 | G | C4-N9-C1' | 5.67 | 133.87 | 126.50 |
| 37 | 52 | 4964 | C | C6-N1-C2 | -5.66 | 118.03 | 120.30 |
| 37 | 52 | 498 | C | P-O3'-C3' | 5.66 | 126.49 | 119.70 |
| 37 | 52 | 4194 | U | N3-C2-O2 | -5.66 | 118.24 | 122.20 |
| 80 | 23 | 30 | G | C4-N9-C1' | 5.66 | 133.85 | 126.50 |
| 37 | 52 | 4948 | C | C6-N1-C2 | -5.65 | 118.04 | 120.30 |
| 37 | 52 | 311 | G | C4-N9-C1' | 5.65 | 133.84 | 126.50 |
| 1 | A1 | 1834 | A | C4-N9-C1' | 5.64 | 136.45 | 126.30 |
| 1 | A1 | 1253 | A | P-O3'-C3' | 5.63 | 126.45 | 119.70 |
| 37 | 52 | 3843 | C | C2-N1-C1' | 5.62 | 124.99 | 118.80 |
| 1 | A1 | 1624 | U | C6-N1-C2 | -5.62 | 117.63 | 121.00 |
| 37 | 52 | 672 | C | C2-N1-C1' | 5.62 | 124.98 | 118.80 |
| 41 | B3 | 309 | LEU | CA-CB-CG | 5.62 | 128.22 | 115.30 |
| 37 | 52 | 1632 | A | N3-C4-N9 | 5.62 | 131.89 | 127.40 |
| 37 | 52 | 2594 | C | C2-N1-C1' | 5.62 | 124.98 | 118.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 729 | G | N3-C4-C5 | -5.62 | 125.79 | 128.60 |
| 1 | A1 | 1117 | C | N1-C2-O2 | 5.61 | 122.27 | 118.90 |
| 37 | 52 | 1969 | G | N1-C2-N2 | -5.61 | 111.15 | 116.20 |
| 37 | 52 | 1286 | C | N1-C2-O2 | 5.61 | 122.27 | 118.90 |
| 39 | 82 | 47 | C | C6-N1-C2 | -5.61 | 118.06 | 120.30 |
| 37 | 52 | 934 | C | C6-N1-C2 | -5.60 | 118.06 | 120.30 |
| 37 | 52 | 1928 | C | N3-C2-O2 | -5.60 | 117.98 | 121.90 |
| 37 | 52 | 4925 | U | P-O3'-C3' | 5.60 | 126.42 | 119.70 |
| 37 | 52 | 1663 | C | C6-N1-C2 | -5.60 | 118.06 | 120.30 |
| 37 | 52 | 685 | C | O5'-P-OP2 | -5.59 | 100.66 | 105.70 |
| 37 | 52 | 204 | U | N3-C2-O2 | -5.59 | 118.29 | 122.20 |
| 37 | 52 | 4476 | C | C2-N1-C1' | 5.59 | 124.95 | 118.80 |
| 37 | 52 | 339 | C | C6-N1-C2 | -5.58 | 118.07 | 120.30 |
| 37 | 52 | 115 | C | C2-N1-C1' | 5.58 | 124.94 | 118.80 |
| 1 | A1 | 427 | U | C2-N1-C1' | 5.58 | 124.39 | 117.70 |
| 37 | 52 | 1639 | U | C5-C6-N1 | 5.58 | 125.49 | 122.70 |
| 1 | A1 | 532 | C | N1-C2-O2 | 5.57 | 122.24 | 118.90 |
| 37 | 52 | 4871 | C | C2-N1-C1' | 5.57 | 124.93 | 118.80 |
| 37 | 52 | 37 | U | N1-C2-O2 | 5.57 | 126.70 | 122.80 |
| 37 | 52 | 2020 | U | C5-C6-N1 | 5.57 | 125.48 | 122.70 |
| 1 | A1 | 30 | C | C6-N1-C2 | -5.56 | 118.08 | 120.30 |
| 37 | 52 | 37 | U | N3-C2-O2 | -5.56 | 118.31 | 122.20 |
| 1 | A1 | 1440 | C | N1-C2-O2 | 5.56 | 122.23 | 118.90 |
| 37 | 52 | 3937 | C | C6-N1-C2 | -5.55 | 118.08 | 120.30 |
| 37 | 52 | 4528 | G | N3-C4-N9 | 5.55 | 129.33 | 126.00 |
| 37 | 52 | 4869 | U | N3-C2-O2 | -5.55 | 118.31 | 122.20 |
| 37 | 52 | 3625 | G | P-O3'-C3' | 5.55 | 126.36 | 119.70 |
| 37 | 52 | 4866 | C | C6-N1-C2 | -5.55 | 118.08 | 120.30 |
| 37 | 52 | 4117 | U | C2-N1-C1' | 5.55 | 124.36 | 117.70 |
| 37 | 52 | 4223 | C | C6-N1-C2 | -5.55 | 118.08 | 120.30 |
| 1 | A1 | 1518 | C | C6-N1-C1' | -5.54 | 114.15 | 120.80 |
| 37 | 52 | 3843 | C | N3-C2-O2 | -5.54 | 118.02 | 121.90 |
| 37 | 52 | 4560 | C | N1-C2-O2 | 5.54 | 122.22 | 118.90 |
| 37 | 52 | 704 | C | N1-C2-O2 | 5.54 | 122.22 | 118.90 |
| 37 | 52 | 1310 | C | C5-C6-N1 | 5.53 | 123.77 | 121.00 |
| 37 | 52 | 4047 | A | OP1-P-O3' | 5.53 | 117.36 | 105.20 |
| 1 | A1 | 1826 | G | C4-N9-C1' | 5.53 | 133.69 | 126.50 |
| 37 | 52 | 930 | G | P-O3'-C3' | 5.53 | 126.33 | 119.70 |
| 37 | 52 | 4939 | C | N1-C2-O2 | 5.53 | 122.22 | 118.90 |
| 37 | 52 | 217 | C | N3-C2-O2 | -5.53 | 118.03 | 121.90 |
| 37 | 52 | 1420 | A | C2-N3-C4 | 5.52 | 113.36 | 110.60 |
| 1 | A1 | 1660 | C | C2-N1-C1' | 5.52 | 124.87 | 118.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 1853 | G | C4-N9-C1' | 5.52 | 133.67 | 126.50 |
| 37 | 52 | 4716 | C | C6-N1-C2 | -5.52 | 118.09 | 120.30 |
| 37 | 52 | 4999 | G | C4-N9-C1' | 5.51 | 133.66 | 126.50 |
| 37 | 52 | 3638 | G | C6-C5-N7 | -5.50 | 127.10 | 130.40 |
| 37 | 52 | 4448 | G | P-O3'-C3' | 5.50 | 126.30 | 119.70 |
| 37 | 52 | 2753 | G | P-O3'-C3' | 5.50 | 126.30 | 119.70 |
| 37 | 52 | 2631 | U | N3-C4-C5 | 5.50 | 117.90 | 114.60 |
| 37 | 52 | 2675 | G | C8-N9-C1' | -5.50 | 119.86 | 127.00 |
| 37 | 52 | 294 | G | N3-C4-N9 | 5.49 | 129.30 | 126.00 |
| 37 | 52 | 1968 | G | N7-C8-N9 | 5.49 | 115.85 | 113.10 |
| 39 | 82 | 141 | C | C6-N1-C2 | -5.49 | 118.10 | 120.30 |
| 37 | 52 | 3876 | A | P-O3'-C3' | 5.49 | 126.28 | 119.70 |
| 37 | 52 | 2489 | C | C6-N1-C2 | -5.48 | 118.11 | 120.30 |
| 37 | 52 | 311 | G | C6-C5-N7 | -5.48 | 127.11 | 130.40 |
| 37 | 52 | 4405 | G | C4-N9-C1' | 5.48 | 133.62 | 126.50 |
| 1 | A1 | 1301 | A | C2-N3-C4 | 5.47 | 113.34 | 110.60 |
| 37 | 52 | 4928 | C | C6-N1-C1' | -5.47 | 114.23 | 120.80 |
| 37 | 52 | 732 | A | O4'-C1'-N9 | 5.47 | 112.57 | 108.20 |
| 37 | 52 | 2014 | C | N3-C2-O2 | -5.47 | 118.07 | 121.90 |
| 39 | 82 | 28 | C | C6-N1-C2 | -5.47 | 118.11 | 120.30 |
| 1 | A1 | 1309 | C | N1-C2-O2 | 5.46 | 122.17 | 118.90 |
| 37 | 52 | 2550 | G | C6-C5-N7 | -5.46 | 127.12 | 130.40 |
| 1 | A1 | 549 | C | C6-N1-C2 | -5.46 | 118.12 | 120.30 |
| 37 | 52 | 2594 | C | N1-C2-O2 | 5.46 | 122.17 | 118.90 |
| 1 | A1 | 1785 | C | N1-C2-O2 | 5.45 | 122.17 | 118.90 |
| 37 | 52 | 4528 | G | N3-C4-C5 | -5.45 | 125.87 | 128.60 |
| 37 | 52 | 2014 | C | C6-N1-C2 | -5.45 | 118.12 | 120.30 |
| 37 | 52 | 2021 | G | N9-C4-C5 | 5.45 | 107.58 | 105.40 |
| 38 | 72 | 63 | C | C5-C4-N4 | 5.45 | 124.01 | 120.20 |
| 37 | 52 | 1420 | A | N3-C4-N9 | 5.44 | 131.75 | 127.40 |
| 37 | 52 | 3600 | G | C4-N9-C1' | 5.44 | 133.57 | 126.50 |
| 1 | A1 | 606 | G | C4-N9-C1' | 5.44 | 133.57 | 126.50 |
| 37 | 52 | 448 | G | C4-N9-C1' | 5.43 | 133.56 | 126.50 |
| 39 | 82 | 153 | C | N3-C2-O2 | -5.43 | 118.10 | 121.90 |
| 37 | 52 | 2441 | C | C6-N1-C2 | -5.43 | 118.13 | 120.30 |
| 37 | 52 | 934 | C | N3-C2-O2 | -5.43 | 118.10 | 121.90 |
| 37 | 52 | 1084 | C | C5-C6-N1 | 5.43 | 123.71 | 121.00 |
| 37 | 52 | 3709 | U | C2-N1-C1' | 5.42 | 124.21 | 117.70 |
| 1 | A1 | 1664 | A | OP1-P-O3' | 5.42 | 117.12 | 105.20 |
| 37 | 52 | 1674 | C | C6-N1-C2 | -5.42 | 118.13 | 120.30 |
| 37 | 52 | 1666 | C | C6-N1-C2 | -5.41 | 118.14 | 120.30 |
| 37 | 52 | 115 | C | N3-C2-O2 | -5.41 | 118.11 | 121.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 1239 | C | C6-N1-C1' | -5.41 | 114.31 | 120.80 |
| 37 | 52 | 1305 | C | N3-C2-O2 | -5.40 | 118.12 | 121.90 |
| 37 | 52 | 4527 | G | C4-N9-C1' | 5.39 | 133.51 | 126.50 |
| 37 | 52 | 2008 | U | C2-N1-C1' | 5.39 | 124.17 | 117.70 |
| 39 | 82 | 117 | C | N1-C2-O2 | 5.39 | 122.14 | 118.90 |
| 37 | 52 | 4100 | C | C6-N1-C2 | -5.39 | 118.14 | 120.30 |
| 1 | A1 | 853 | C | N3-C2-O2 | -5.39 | 118.13 | 121.90 |
| 37 | 52 | 257 | C | C6-N1-C2 | -5.39 | 118.14 | 120.30 |
| 37 | 52 | 1517 | G | C8-N9-C1' | -5.38 | 120.00 | 127.00 |
| 37 | 52 | 1651 | G | C8-N9-C1' | -5.38 | 120.00 | 127.00 |
| 37 | 52 | 2035 | C | C6-N1-C2 | -5.38 | 118.15 | 120.30 |
| 37 | 52 | 2580 | U | C5'-C4'-O4' | -5.38 | 102.65 | 109.10 |
| 81 | w3 | 56 | A | C2-N3-C4 | 5.37 | 113.28 | 110.60 |
| 37 | 52 | 3943 | A | C2-N3-C4 | 5.37 | 113.28 | 110.60 |
| 80 | 23 | 20 | U | C5-C6-N1 | 5.37 | 125.38 | 122.70 |
| 60 | Z3 | 73 | LYS | CB-CA-C | 5.36 | 121.13 | 110.40 |
| 1 | A1 | 474 | G | C8-N9-C1' | -5.36 | 120.03 | 127.00 |
| 37 | 52 | 236 | G | N3-C2-N2 | -5.36 | 116.15 | 119.90 |
| 1 | A1 | 1364 | U | N1-C2-O2 | 5.36 | 126.55 | 122.80 |
| 37 | 52 | 3618 | C | C6-N1-C2 | -5.35 | 118.16 | 120.30 |
| 37 | 52 | 3809 | G | C4-N9-C1' | 5.35 | 133.45 | 126.50 |
| 35 | j1 | 368 | LEU | CA-CB-CG | 5.34 | 127.58 | 115.30 |
| 37 | 52 | 1969 | G | N3-C2-N2 | 5.34 | 123.64 | 119.90 |
| 37 | 52 | 1370 | G | P-O3'-C3' | 5.33 | 126.10 | 119.70 |
| 37 | 52 | 4654 | C | C6-N1-C2 | -5.33 | 118.17 | 120.30 |
| 37 | 52 | 2787 | A | C4-N9-C1' | 5.33 | 135.89 | 126.30 |
| 1 | A1 | 652 | U | N3-C2-O2 | -5.33 | 118.47 | 122.20 |
| 39 | 82 | 42 | G | C6-C5-N7 | -5.32 | 127.21 | 130.40 |
| 1 | A1 | 1453 | C | N1-C2-O2 | 5.32 | 122.09 | 118.90 |
| 37 | 52 | 125 | C | P-O3'-C3' | 5.32 | 126.08 | 119.70 |
| 53 | S3 | 68 | PHE | CB-CG-CD1 | 5.32 | 124.53 | 120.80 |
| 1 | A1 | 1256 | G | C4-N9-C1' | 5.32 | 133.41 | 126.50 |
| 37 | 52 | 4243 | C | C6-N1-C2 | -5.32 | 118.17 | 120.30 |
| 37 | 52 | 2577 | C | C5-C6-N1 | 5.32 | 123.66 | 121.00 |
| 83 | G3 | 275 | ILE | CG1-CB-CG2 | -5.32 | 99.70 | 111.40 |
| 37 | 52 | 1286 | C | C2-N1-C1' | 5.31 | 124.65 | 118.80 |
| 1 | A1 | 1520 | G | C6-C5-N7 | -5.31 | 127.22 | 130.40 |
| 37 | 52 | 2851 | G | C6-C5-N7 | -5.30 | 127.22 | 130.40 |
| 37 | 52 | 4926 | C | N3-C2-O2 | -5.30 | 118.19 | 121.90 |
| 37 | 52 | 1084 | C | C6-N1-C2 | -5.30 | 118.18 | 120.30 |
| 1 | A1 | 1395 | C | O4'-C1'-N1 | 5.30 | 112.44 | 108.20 |
| 37 | 52 | 4305 | G | C4-N9-C1' | 5.30 | 133.39 | 126.50 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 9 | I1 | 36 | LEU | CA-CB-CG | 5.30 | 127.48 | 115.30 |
| 37 | 52 | 1485 | C | C2-N1-C1' | 5.29 | 124.62 | 118.80 |
| 37 | 52 | 4173 | G | C5-C6-O6 | -5.28 | 125.43 | 128.60 |
| 1 | A1 | 1751 | C | C5-C6-N1 | 5.28 | 123.64 | 121.00 |
| 39 | 82 | 117 | C | N3-C2-O2 | -5.28 | 118.20 | 121.90 |
| 37 | 52 | 966 | A | C5-N7-C8 | -5.28 | 101.26 | 103.90 |
| 37 | 52 | 2489 | C | N3-C2-O2 | -5.28 | 118.21 | 121.90 |
| 60 | Z3 | 14 | LEU | CA-CB-CG | 5.28 | 127.44 | 115.30 |
| 81 | w3 | 56 | A | C4-N9-C1' | 5.28 | 135.80 | 126.30 |
| 1 | A1 | 532 | C | N3-C2-O2 | -5.26 | 118.22 | 121.90 |
| 37 | 52 | 2581 | A | C8-N9-C4 | -5.26 | 103.70 | 105.80 |
| 37 | 52 | 2750 | G | C4-C5-N7 | 5.26 | 112.91 | 110.80 |
| 1 | A1 | 1314 | U | N1-C2-O2 | 5.26 | 126.48 | 122.80 |
| 37 | 52 | 176 | G | N3-C4-N9 | -5.26 | 122.84 | 126.00 |
| 37 | 52 | 204 | U | N1-C2-O2 | 5.26 | 126.48 | 122.80 |
| 37 | 52 | 13 | U | N3-C2-O2 | -5.26 | 118.52 | 122.20 |
| 37 | 52 | 294 | G | N3-C4-C5 | -5.26 | 125.97 | 128.60 |
| 37 | 52 | 1556 | C | C6-N1-C2 | -5.26 | 118.20 | 120.30 |
| 37 | 52 | 1636 | U | C2-N1-C1' | 5.26 | 124.01 | 117.70 |
| 37 | 52 | 2598 | A | N3-C4-N9 | 5.26 | 131.60 | 127.40 |
| 1 | A1 | 142 | C | N1-C2-O2 | 5.25 | 122.05 | 118.90 |
| 1 | A1 | 1116 | C | N1-C2-O2 | 5.25 | 122.05 | 118.90 |
| 37 | 52 | 149 | A | C4-N9-C1' | 5.25 | 135.76 | 126.30 |
| 39 | 82 | 121 | G | C4-N9-C1' | 5.25 | 133.33 | 126.50 |
| 1 | A1 | 967 | C | C6-N1-C2 | -5.25 | 118.20 | 120.30 |
| 37 | 52 | 1070 | G | C6-C5-N7 | -5.25 | 127.25 | 130.40 |
| 1 | A1 | 1118 | C | N1-C2-O2 | 5.24 | 122.05 | 118.90 |
| 37 | 52 | 3600 | G | N3-C4-N9 | 5.24 | 129.15 | 126.00 |
| 37 | 52 | 1571 | G | O4'-C1'-N9 | 5.24 | 112.39 | 108.20 |
| 37 | 52 | 986 | C | N3-C2-O2 | -5.24 | 118.23 | 121.90 |
| 37 | 52 | 1481 | C | C2-N1-C1' | 5.24 | 124.56 | 118.80 |
| 37 | 52 | 923 | C | O5'-P-OP1 | 5.24 | 116.98 | 110.70 |
| 37 | 52 | 4119 | C | C6-N1-C1' | -5.24 | 114.52 | 120.80 |
| 38 | 72 | 5 | A | N3-C4-C5 | 5.23 | 130.46 | 126.80 |
| 41 | B3 | 214 | ASP | CB-CG-OD1 | 5.23 | 123.01 | 118.30 |
| 37 | 52 | 1467 | C | C5-C6-N1 | 5.23 | 123.61 | 121.00 |
| 1 | A1 | 1139 | C | N1-C2-O2 | 5.22 | 122.03 | 118.90 |
| 37 | 52 | 1632 | A | C4-N9-C1' | 5.22 | 135.70 | 126.30 |
| 37 | 52 | 4440 | G | C4-N9-C1' | 5.22 | 133.29 | 126.50 |
| 37 | 52 | 4303 | C | N3-C2-O2 | -5.22 | 118.25 | 121.90 |
| 1 | A1 | 1858 | G | C6-C5-N7 | -5.21 | 127.27 | 130.40 |
| 37 | 52 | 1774 | C | C6-N1-C2 | -5.21 | 118.21 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 40 | A3 | 29 | LEU | CA-CB-CG | 5.21 | 127.29 | 115.30 |
| 37 | 52 | 2750 | G | N7-C8-N9 | 5.21 | 115.71 | 113.10 |
| 37 | 52 | 2019 | C | C2-N1-C1' | 5.21 | 124.53 | 118.80 |
| 37 | 52 | 2753 | G | O3'-P-O5' | 5.21 | 113.89 | 104.00 |
| 37 | 52 | 1211 | G | P-O3'-C3' | 5.20 | 125.94 | 119.70 |
| 80 | 23 | 30 | G | C8-N9-C1' | -5.20 | 120.25 | 127.00 |
| 1 | A1 | 937 | C | C6-N1-C2 | -5.19 | 118.22 | 120.30 |
| 1 | A1 | 1057 | C | N3-C2-O2 | -5.19 | 118.27 | 121.90 |
| 1 | A1 | 1620 | A | C4-N9-C1' | 5.19 | 135.65 | 126.30 |
| 37 | 52 | 30 | C | C5-C6-N1 | 5.19 | 123.60 | 121.00 |
| 37 | 52 | 4165 | C | C6-N1-C2 | -5.19 | 118.22 | 120.30 |
| 37 | 52 | 4173 | G | N1-C6-O6 | 5.19 | 123.02 | 119.90 |
| 1 | A1 | 1858 | G | C8-N9-C1' | -5.19 | 120.25 | 127.00 |
| 1 | A1 | 958 | G | O4'-C1'-N9 | 5.19 | 112.35 | 108.20 |
| 37 | 52 | 3809 | G | C8-N9-C1' | -5.19 | 120.26 | 127.00 |
| 1 | A1 | 1364 | U | N3-C2-O2 | -5.18 | 118.57 | 122.20 |
| 37 | 52 | 1485 | C | N3-C2-O2 | -5.18 | 118.27 | 121.90 |
| 37 | 52 | 2021 | G | N9-C1'-C2' | 5.18 | 120.74 | 114.00 |
| 1 | A1 | 853 | C | N1-C2-O2 | 5.18 | 122.01 | 118.90 |
| 37 | 52 | 257 | C | C5-C6-N1 | 5.18 | 123.59 | 121.00 |
| 37 | 52 | 2502 | A | P-O3'-C3' | 5.18 | 125.92 | 119.70 |
| 1 | A1 | 688 | U | OP2-P-O3' | 5.18 | 116.59 | 105.20 |
| 37 | 52 | 1912 | G | C8-N9-C1' | -5.17 | 120.28 | 127.00 |
| 37 | 52 | 4880 | C | N1-C2-O2 | 5.17 | 122.00 | 118.90 |
| 1 | A1 | 870 | A | OP2-P-O3' | 5.17 | 116.57 | 105.20 |
| 1 | A1 | 369 | C | C6-N1-C2 | -5.17 | 118.23 | 120.30 |
| 3 | C1 | 34 | LYS | C-N-CA | 5.17 | 134.61 | 121.70 |
| 37 | 52 | 168 | C | N1-C2-O2 | 5.17 | 122.00 | 118.90 |
| 37 | 52 | 4948 | C | O4'-C1'-N1 | 5.17 | 112.33 | 108.20 |
| 37 | 52 | 2097 | A | C4-N9-C1' | 5.16 | 135.59 | 126.30 |
| 1 | A1 | 1300 | U | C2-N1-C1' | 5.16 | 123.89 | 117.70 |
| 37 | 52 | 3939 | G | P-O3'-C3' | 5.16 | 125.89 | 119.70 |
| 1 | A1 | 1074 | C | C6-N1-C2 | -5.16 | 118.24 | 120.30 |
| 37 | 52 | 2726 | G | C8-N9-C1' | -5.16 | 120.30 | 127.00 |
| 1 | A1 | 538 | U | N3-C2-O2 | -5.16 | 118.59 | 122.20 |
| 38 | 72 | 120 | U | C5-C6-N1 | 5.16 | 125.28 | 122.70 |
| 1 | A1 | 915 | G | O4'-C1'-N9 | 5.15 | 112.32 | 108.20 |
| 1 | A1 | 887 | U | C5-C6-N1 | 5.15 | 125.28 | 122.70 |
| 37 | 52 | 1474 | C | C6-N1-C2 | -5.15 | 118.24 | 120.30 |
| 37 | 52 | 495 | C | C6-N1-C2 | -5.15 | 118.24 | 120.30 |
| 37 | 52 | 2787 | A | N3-C4-N9 | 5.15 | 131.52 | 127.40 |
| 37 | 52 | 1805 | A | C4-C5-C6 | 5.15 | 119.57 | 117.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 1106 | A | P-O3'-C3' | 5.14 | 125.87 | 119.70 |
| 37 | 52 | 4201 | G | C4-N9-C1' | 5.14 | 133.19 | 126.50 |
| 37 | 52 | 4871 | C | N1-C2-O2 | 5.14 | 121.99 | 118.90 |
| 1 | A1 | 1333 | U | N1-C2-O2 | 5.14 | 126.40 | 122.80 |
| 83 | G3 | 104 | LEU | CA-CB-CG | 5.14 | 127.13 | 115.30 |
| 37 | 52 | 2441 | C | C5-C6-N1 | 5.14 | 123.57 | 121.00 |
| 1 | A1 | 791 | C | C6-N1-C2 | -5.14 | 118.24 | 120.30 |
| 37 | 52 | 2528 | G | N3-C4-C5 | -5.14 | 126.03 | 128.60 |
| 37 | 52 | 2838 | G | C4-N9-C1' | 5.14 | 133.18 | 126.50 |
| 37 | 52 | 2295 | C | C6-N1-C2 | -5.14 | 118.25 | 120.30 |
| 38 | 72 | 36 | C | C6-N1-C2 | -5.14 | 118.25 | 120.30 |
| 60 | Z3 | 51 | ARG | CD-NE-CZ | 5.14 | 130.79 | 123.60 |
| 1 | A1 | 1636 | G | C6-C5-N7 | -5.13 | 127.32 | 130.40 |
| 1 | A1 | 1130 | G | C2-N3-C4 | 5.13 | 114.46 | 111.90 |
| 37 | 52 | 453 | G | N3-C4-N9 | 5.13 | 129.08 | 126.00 |
| 37 | 52 | 1202 | C | C6-N1-C2 | -5.12 | 118.25 | 120.30 |
| 37 | 52 | 4527 | G | N3-C4-N9 | 5.12 | 129.07 | 126.00 |
| 41 | B3 | 17 | LEU | CA-CB-CG | 5.12 | 127.09 | 115.30 |
| 37 | 52 | 4454 | G | C8-N9-C1' | -5.12 | 120.34 | 127.00 |
| 37 | 52 | 4879 | C | C6-N1-C2 | -5.12 | 118.25 | 120.30 |
| 1 | A1 | 1097 | G | C4-N9-C1' | 5.12 | 133.16 | 126.50 |
| 37 | 52 | 1517 | G | N3-C4-N9 | 5.12 | 129.07 | 126.00 |
| 37 | 52 | 2740 | U | C2-N1-C1' | 5.12 | 123.84 | 117.70 |
| 37 | 52 | 3842 | C | N3-C2-O2 | -5.12 | 118.32 | 121.90 |
| 37 | 52 | 4423 | U | N1-C2-O2 | 5.12 | 126.38 | 122.80 |
| 40 | A3 | 125 | LYS | C-N-CA | 5.11 | 134.48 | 121.70 |
| 37 | 52 | 4232 | U | OP2-P-O3' | 5.11 | 116.44 | 105.20 |
| 37 | 52 | 1890 | G | C4-C5-N7 | 5.11 | 112.84 | 110.80 |
| 38 | 72 | 1 | G | C2-N3-C4 | 5.10 | 114.45 | 111.90 |
| 37 | 52 | 1899 | G | C4-N9-C1' | 5.10 | 133.13 | 126.50 |
| 37 | 52 | 3685 | C | C6-N1-C2 | -5.10 | 118.26 | 120.30 |
| 37 | 52 | 3938 | G | C8-N9-C4 | 5.10 | 108.44 | 106.40 |
| 38 | 72 | 67 | C | C6-N1-C2 | -5.09 | 118.26 | 120.30 |
| 37 | 52 | 385 | A | OP1-P-O3' | 5.09 | 116.40 | 105.20 |
| 37 | 52 | 1070 | G | N3-C4-N9 | 5.09 | 129.05 | 126.00 |
| 37 | 52 | 1286 | C | C6-N1-C2 | -5.08 | 118.27 | 120.30 |
| 37 | 52 | 2596 | G | N1-C2-N2 | -5.08 | 111.62 | 116.20 |
| 37 | 52 | 4158 | C | O5'-P-OP1 | -5.08 | 101.13 | 105.70 |
| 37 | 52 | 486 | C | C5-C6-N1 | 5.08 | 123.54 | 121.00 |
| 37 | 52 | 3673 | C | N1-C2-O2 | 5.08 | 121.94 | 118.90 |
| 37 | 52 | 13 | U | N1-C2-O2 | 5.07 | 126.35 | 122.80 |
| 37 | 52 | 2504 | C | C5-C6-N1 | 5.07 | 123.53 | 121.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 39 | 82 | 38 | U | N3-C2-O2 | -5.07 | 118.65 | 122.20 |
| 37 | 52 | 4719 | G | OP1-P-O3' | 5.07 | 116.35 | 105.20 |
| 1 | A1 | 465 | A | OP2-P-O3' | 5.07 | 116.35 | 105.20 |
| 37 | 52 | 2419 | C | C6-N1-C2 | -5.07 | 118.27 | 120.30 |
| 37 | 52 | 2709 | C | C6-N1-C2 | -5.07 | 118.27 | 120.30 |
| 1 | A1 | 1834 | A | N7-C8-N9 | 5.06 | 116.33 | 113.80 |
| 37 | 52 | 4774 | C | N1-C2-O2 | 5.06 | 121.94 | 118.90 |
| 37 | 52 | 4527 | G | N3-C4-C5 | -5.06 | 126.07 | 128.60 |
| 37 | 52 | 1853 | G | C8-N9-C1' | -5.06 | 120.42 | 127.00 |
| 37 | 52 | 1305 | C | N1-C2-O2 | 5.06 | 121.94 | 118.90 |
| 37 | 52 | 266 | C | O5'-P-OP2 | -5.05 | 101.15 | 105.70 |
| 37 | 52 | 1286 | C | N3-C2-O2 | -5.05 | 118.36 | 121.90 |
| 37 | 52 | 498 | C | OP2-P-O3' | 5.05 | 116.32 | 105.20 |
| 55 | U3 | 80 | LYS | CD-CE-NZ | 5.05 | 123.32 | 111.70 |
| 37 | 52 | 729 | G | N3-C4-N9 | 5.05 | 129.03 | 126.00 |
| 37 | 52 | 2550 | G | C5-N7-C8 | -5.05 | 101.78 | 104.30 |
| 37 | 52 | 236 | G | N1-C2-N3 | 5.05 | 126.93 | 123.90 |
| 37 | 52 | 294 | G | C8-N9-C1' | -5.05 | 120.44 | 127.00 |
| 37 | 52 | 3661 | G | O4'-C1'-N9 | -5.05 | 104.16 | 108.20 |
| 37 | 52 | 4078 | C | C6-N1-C2 | -5.05 | 118.28 | 120.30 |
| 37 | 52 | 4272 | G | N3-C4-C5 | -5.05 | 126.08 | 128.60 |
| 37 | 52 | 1577 | G | C8-N9-C1' | -5.04 | 120.45 | 127.00 |
| 67 | g3 | 43 | LYS | C-N-CA | 5.04 | 134.30 | 121.70 |
| 42 | C3 | 289 | LEU | CA-CB-CG | 5.03 | 126.87 | 115.30 |
| 1 | A1 | 1751 | C | C6-N1-C2 | -5.03 | 118.29 | 120.30 |
| 6 | F1 | 73 | ASP | CB-CG-OD1 | 5.03 | 122.83 | 118.30 |
| 1 | A1 | 1118 | C | C6-N1-C2 | -5.03 | 118.29 | 120.30 |
| 37 | 52 | 2740 | U | N1-C2-O2 | 5.03 | 126.32 | 122.80 |
| 37 | 52 | 3810 | C | C2-N3-C4 | 5.03 | 122.41 | 119.90 |
| 37 | 52 | 1894 | C | C6-N1-C2 | -5.03 | 118.29 | 120.30 |
| 39 | 82 | 42 | G | C4-C5-N7 | 5.03 | 112.81 | 110.80 |
| 37 | 52 | 4919 | G | C8-N9-C1' | -5.02 | 120.47 | 127.00 |
| 1 | A1 | 1057 | C | C6-N1-C2 | -5.02 | 118.29 | 120.30 |
| 37 | 52 | 3876 | A | OP2-P-O3' | 5.01 | 116.23 | 105.20 |
| 1 | A1 | 1858 | G | N7-C8-N9 | 5.01 | 115.61 | 113.10 |
| 37 | 52 | 2627 | C | C6-N1-C2 | -5.01 | 118.30 | 120.30 |
| 40 | A3 | 117 | GLU | N-CA-C | 5.01 | 124.53 | 111.00 |
| 38 | 72 | 113 | G | C8-N9-C1' | -5.01 | 120.49 | 127.00 |
| 37 | 52 | 2008 | U | N3-C2-O2 | -5.01 | 118.69 | 122.20 |
| 37 | 52 | 3888 | G | C8-N9-C4 | -5.01 | 104.40 | 106.40 |
| 37 | 52 | 4266 | G | C8-N9-C1' | -5.01 | 120.49 | 127.00 |
| 1 | A1 | 659 | G | C8-N9-C1' | -5.00 | 120.49 | 127.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 37 | 52 | 1929 | A | C2-N3-C4 | 5.00 | 113.10 | 110.60 |
| 37 | 52 | 4929 | C | C6-N1-C2 | -5.00 | 118.30 | 120.30 |

There are no chirality outliers.

All (51) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 40 | A3 | 116 | LEU | Peptide |
| 40 | A3 | 117 | GLU | Peptide |
| 40 | A3 | 168 | VAL | Peptide |
| 40 | A3 | 170 | ALA | Peptide |
| 40 | A3 | 94 | ALA | Peptide |
| 2 | B1 | 42 | LYS | Peptide |
| 42 | C3 | 339 | THR | Peptide |
| 83 | G3 | 157 | PRO | Peptide |
| 83 | G3 | 186 | PRO | Peptide |
| 83 | G3 | 214 | VAL | Peptide |
| 85 | I3 | 204 | GLY | Peptide |
| 47 | M3 | 69 | ARG | Peptide |
| 14 | N1 | 37 | GLU | Peptide |
| 48 | N3 | 76 | PRO | Peptide |
| 48 | N3 | 78 | GLY | Peptide |
| 16 | P1 | 21 | VAL | Peptide |
| 17 | Q1 | 17 | TYR | Peptide |
| 17 | Q1 | 37 | TYR | Peptide |
| 52 | R3 | 106 | LEU | Peptide |
| 52 | R3 | 113 | LYS | Peptide |
| 52 | R3 | 123 | LEU | Peptide |
| 52 | R3 | 129 | GLY | Peptide |
| 52 | R3 | 83 | GLY | Peptide |
| 53 | S3 | 68 | PHE | Peptide |
| 55 | U3 | 86 | LEU | Peptide |
| 57 | W3 | 85 | ALA | Peptide |
| 25 | Y1 | 61 | GLN | Peptide |
| 60 | Z3 | 18 | TYR | Peptide |
| 60 | Z3 | 79 | HIS | Peptide |
| 60 | Z3 | 92 | ASP | Peptide |
| 63 | c3 | 87 | LYS | Peptide |
| 67 | g3 | 2 | VAL | Peptide |
| 67 | g3 | 4 | ARG | Sidechain |
| 67 | g3 | 43 | LYS | Mainchain |
| 67 | g3 | 44 | SER | Peptide |

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| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 67 | g3 | 73 | HIS | Peptide |
| 67 | g3 | 93 | ARG | Peptide |
| 67 | g3 | 94 | ALA | Peptide |
| 67 | g3 | 99 | GLU | Peptide |
| 35 | j1 | 315 | GLY | Peptide |
| 36 | k1 | 364 | ILE | Peptide |
| 71 | k3 | 43 | TYR | Peptide |
| 76 | p3 | 50 | ARG | Peptide |
| 76 | p3 | 52 | VAL | Peptide |
| 78 | s3 | 33 | ASP | Peptide |
| 78 | s3 | 72 | ASN | Peptide |
| 78 | s3 | 81 | HIS | Peptide |
| 78 | s3 | 86 | VAL | Peptide |
| 79 | t3 | 53 | TRP | Peptide |
| 87 | u3 | 209 | THR | Peptide |
| 87 | u3 | 60 | ARG | Peptide |

## 5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

## 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 | B1 | 215/295 (73%) | 199 (93%) | 16 (7%) | 0 | 100 | 100 |
| 3 | C1 | 211/264 (80%) | 191 (90%) | 20 (10%) | 0 | 100 | 100 |
| 4 | D1 | 219/293 (75%) | 206 (94%) | 13 (6%) | 0 | 100 | 100 |
| 5 | E1 | 226/243 (93%) | 211 (93%) | 15 (7%) | 0 | 100 | 100 |
| 6 | F1 | 260/263 (99%) | 227 (87%) | 33 (13%) | 0 | 100 | 100 |
| 7 | G1 | 181/204 (89%) | 167 (92%) | 14 (8%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 8 | H1 | 235/249 (94%) | 218 (93%) | 17 (7%) | 0 | 100 | 100 |
| 9 | I1 | 181/194 (93%) | 165 (91%) | 16 (9%) | 0 | 100 | 100 |
| 10 | J1 | 204/208 (98%) | 184 (90%) | 20 (10%) | 0 | 100 | 100 |
| 11 | K1 | 183/194 (94%) | 173 (94%) | 10 (6%) | 0 | 100 | 100 |
| 12 | L1 | 94/165 (57%) | 83 (88%) | 11 (12%) | 0 | 100 | 100 |
| 13 | M1 | 139/158 (88%) | 128 (92%) | 11 (8%) | 0 | 100 | 100 |
| 14 | N1 | 115/132 (87%) | 101 (88%) | 14 (12%) | 0 | 100 | 100 |
| 15 | O1 | 147/151 (97%) | 139 (95%) | 8 (5%) | 0 | 100 | 100 |
| 16 | P1 | 134/168 (80%) | 123 (92%) | 11 (8%) | 0 | 100 | 100 |
| 17 | Q1 | 118/145 (81%) | 106 (90%) | 12 (10%) | 0 | 100 | 100 |
| 18 | R1 | 140/146 (96%) | 126 (90%) | 14 (10%) | 0 | 100 | 100 |
| 19 | S1 | 130/135 (96%) | 122 (94%) | 8 (6%) | 0 | 100 | 100 |
| 20 | T1 | 142/152 (93%) | 128 (90%) | 14 (10%) | 0 | 100 | 100 |
| 21 | U1 | 139/145 (96%) | 128 (92%) | 11 (8%) | 0 | 100 | 100 |
| 22 | V1 | 98/119 (82%) | 94 (96%) | 4 (4%) | 0 | 100 | 100 |
| 23 | W1 | 81/83 (98%) | 72 (89%) | 9 (11%) | 0 | 100 | 100 |
| 24 | X1 | 127/130 (98%) | 119 (94%) | 8 (6%) | 0 | 100 | 100 |
| 25 | Y1 | 139/143 (97%) | 124 (89%) | 14 (10%) | 1 (1%) | 19 | 57 |
| 26 | Z1 | 122/130 (94%) | 109 (89%) | 13 (11%) | 0 | 100 | 100 |
| 27 | a1 | 73/125 (58%) | 65 (89%) | 8 (11%) | 0 | 100 | 100 |
| 28 | b1 | 99/115 (86%) | 92 (93%) | 7 (7%) | 0 | 100 | 100 |
| 29 | c1 | 81/84 (96%) | 74 (91%) | 7 (9%) | 0 | 100 | 100 |
| 30 | d1 | 60/69 (87%) | 57 (95%) | 3 (5%) | 0 | 100 | 100 |
| 31 | e1 | 53/56 (95%) | 50 (94%) | 3 (6%) | 0 | 100 | 100 |
| 32 | f1 | 53/133 (40%) | 49 (92%) | 4 (8%) | 0 | 100 | 100 |
| 33 | g1 | 66/156 (42%) | 58 (88%) | 8 (12%) | 0 | 100 | 100 |
| 34 | h1 | 311/317 (98%) | 268 (86%) | 43 (14%) | 0 | 100 | 100 |
| 35 | j1 | 417/439 (95%) | 388 (93%) | 29 (7%) | 0 | 100 | 100 |
| 36 | k1 | 571/599 (95%) | 517 (90%) | 54 (10%) | 0 | 100 | 100 |
| 40 | A3 | 246/257 (96%) | 185 (75%) | 54 (22%) | 7 (3%) | 4 | 25 |
| 41 | B3 | 392/403 (97%) | 355 (91%) | 37 (9%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 42 | C3 | 360/425 (85%) | 325 (90%) | 35 (10%) | 0 | 100 | 100 |
| 43 | E3 | 208/291 (72%) | 191 (92%) | 17 (8%) | 0 | 100 | 100 |
| 44 | F3 | 223/247 (90%) | 205 (92%) | 18 (8%) | 0 | 100 | 100 |
| 45 | H3 | 188/192 (98%) | 174 (93%) | 13 (7%) | 1 (0%) | 25 | 64 |
| 46 | L3 | 208/211 (99%) | 194 (93%) | 12 (6%) | 2 (1%) | 13 | 49 |
| 47 | M3 | 136/218 (62%) | 121 (89%) | 15 (11%) | 0 | 100 | 100 |
| 48 | N3 | 201/204 (98%) | 181 (90%) | 20 (10%) | 0 | 100 | 100 |
| 49 | O3 | 197/203 (97%) | 185 (94%) | 12 (6%) | 0 | 100 | 100 |
| 50 | P3 | 151/184 (82%) | 143 (95%) | 8 (5%) | 0 | 100 | 100 |
| 51 | Q3 | 185/188 (98%) | 167 (90%) | 18 (10%) | 0 | 100 | 100 |
| 52 | R3 | 178/196 (91%) | 161 (90%) | 17 (10%) | 0 | 100 | 100 |
| 53 | S3 | 174/176 (99%) | 154 (88%) | 20 (12%) | 0 | 100 | 100 |
| 54 | T3 | 157/160 (98%) | 144 (92%) | 12 (8%) | 1 (1%) | 22 | 60 |
| 55 | U3 | 97/128 (76%) | 79 (81%) | 18 (19%) | 0 | 100 | 100 |
| 56 | V3 | 129/140 (92%) | 119 (92%) | 10 (8%) | 0 | 100 | 100 |
| 57 | W3 | 102/157 (65%) | 92 (90%) | 10 (10%) | 0 | 100 | 100 |
| 58 | X3 | 116/156 (74%) | 109 (94%) | 7 (6%) | 0 | 100 | 100 |
| 59 | Y3 | 132/145 (91%) | 120 (91%) | 12 (9%) | 0 | 100 | 100 |
| 60 | Z3 | 133/136 (98%) | 105 (79%) | 25 (19%) | 3 (2%) | 5 | 28 |
| 61 | a3 | 145/148 (98%) | 134 (92%) | 11 (8%) | 0 | 100 | 100 |
| 62 | b3 | 100/245 (41%) | 94 (94%) | 6 (6%) | 0 | 100 | 100 |
| 63 | c3 | 96/115 (84%) | 81 (84%) | 15 (16%) | 0 | 100 | 100 |
| 64 | d3 | 105/125 (84%) | 90 (86%) | 15 (14%) | 0 | 100 | 100 |
| 65 | e3 | 126/134 (94%) | 115 (91%) | 11 (9%) | 0 | 100 | 100 |
| 66 | f3 | 107/110 (97%) | 96 (90%) | 11 (10%) | 0 | 100 | 100 |
| 67 | g3 | 112/117 (96%) | 98 (88%) | 13 (12%) | 1 (1%) | 14 | 52 |
| 68 | h3 | 120/123 (98%) | 113 (94%) | 7 (6%) | 0 | 100 | 100 |
| 69 | i3 | 100/105 (95%) | 96 (96%) | 4 (4%) | 0 | 100 | 100 |
| 70 | j3 | 84/97 (87%) | 75 (89%) | 9 (11%) | 0 | 100 | 100 |
| 71 | k3 | 67/70 (96%) | 59 (88%) | 8 (12%) | 0 | 100 | 100 |
| 72 | l3 | 48/51 (94%) | 41 (85%) | 7 (15%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 73 | m3 | 50/102 (49%) | 48 (96%) | 2 (4%) | 0 | 100 100 |
| 74 | n3 | 23/25 (92%) | 23 (100%) | 0 | 0 | 100 100 |
| 75 | o3 | 102/106 (96%) | 96 (94%) | 6 (6%) | 0 | 100 100 |
| 76 | p3 | 89/92 (97%) | 77 (86%) | 12 (14%) | 0 | 100 100 |
| 77 | r3 | 122/137 (89%) | 110 (90%) | 12 (10%) | 0 | 100 100 |
| 78 | s3 | 194/318 (61%) | 156 (80%) | 37 (19%) | 1 (0%) | 25 64 |
| 79 | t3 | 151/165 (92%) | 127 (84%) | 24 (16%) | 0 | 100 100 |
| 82 | J3 | 168/178 (94%) | 158 (94%) | 10 (6%) | 0 | 100 100 |
| 83 | G3 | 229/319 (72%) | 195 (85%) | 34 (15%) | 0 | 100 100 |
| 84 | D3 | 291/297 (98%) | 253 (87%) | 38 (13%) | 0 | 100 100 |
| 85 | I3 | 201/214 (94%) | 167 (83%) | 33 (16%) | 1 (0%) | 25 64 |
| 86 | 1 | 20/22 (91%) | 11 (55%) | 4 (20%) | 5 (25%) | 0 1 |
| 87 | u3 | 215/217 (99%) | 183 (85%) | 30 (14%) | 2 (1%) | 14 52 |
| All | All | 12742/14651 (87%) | 11466 (90%) | 1251 (10%) | 25 (0%) | 45 78 |

All (25) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 40 | A3 | 116 | LEU |
| 40 | A3 | 118 | GLU |
| 40 | A3 | 126 | LEU |
| 46 | L3 | 64 | VAL |
| 60 | Z3 | 73 | LYS |
| 86 | 1 | 15 | ALA |
| 87 | u3 | 101 | LYS |
| 40 | A3 | 169 | VAL |
| 78 | s3 | 34 | ASN |
| 86 | 1 | 7 | ALA |
| 87 | u3 | 210 | MET |
| 46 | L3 | 63 | THR |
| 60 | Z3 | 75 | TYR |
| 67 | g3 | 44 | SER |
| 86 | 1 | 13 | ALA |
| 86 | 1 | 14 | ALA |
| 40 | A3 | 117 | GLU |
| 86 | 1 | 8 | ALA |
| 40 | A3 | 125 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 45 | H3 | 108 | ASN |
| 40 | A3 | 150 | LEU |
| 25 | Y1 | 62 | PRO |
| 85 | I3 | 205 | PRO |
| 54 | T3 | 82 | GLY |
| 60 | Z3 | 90 | PRO |

### 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 | B1 | 180/245 (74%) | 177 (98%) | 3 (2%) | 56 72 |
| 3 | C1 | 194/231 (84%) | 191 (98%) | 3 (2%) | 60 75 |
| 4 | D1 | 187/225 (83%) | 186 (100%) | 1 (0%) | 86 89 |
| 5 | E1 | 190/202 (94%) | 186 (98%) | 4 (2%) | 48 66 |
| 6 | F1 | 224/225 (100%) | 223 (100%) | 1 (0%) | 89 91 |
| 7 | G1 | 158/170 (93%) | 156 (99%) | 2 (1%) | 65 77 |
| 8 | H1 | 207/218 (95%) | 205 (99%) | 2 (1%) | 73 82 |
| 9 | I1 | 165/174 (95%) | 165 (100%) | 0 | 100 100 |
| 10 | J1 | 178/180 (99%) | 174 (98%) | 4 (2%) | 47 65 |
| 11 | K1 | 161/168 (96%) | 157 (98%) | 4 (2%) | 42 61 |
| 12 | L1 | 87/136 (64%) | 85 (98%) | 2 (2%) | 45 64 |
| 13 | M1 | 130/142 (92%) | 128 (98%) | 2 (2%) | 60 75 |
| 14 | N1 | 99/108 (92%) | 98 (99%) | 1 (1%) | 73 82 |
| 15 | O1 | 130/131 (99%) | 128 (98%) | 2 (2%) | 60 75 |
| 16 | P1 | 106/130 (82%) | 104 (98%) | 2 (2%) | 52 69 |
| 17 | Q1 | 109/130 (84%) | 108 (99%) | 1 (1%) | 75 83 |
| 18 | R1 | 117/121 (97%) | 115 (98%) | 2 (2%) | 56 72 |
| 19 | S1 | 119/121 (98%) | 119 (100%) | 0 | 100 100 |
| 20 | T1 | 125/132 (95%) | 124 (99%) | 1 (1%) | 79 85 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 21 | U1 | 111/115 (96%) | 110 (99%) | 1 (1%) | 75 83 |
| 22 | V1 | 92/107 (86%) | 90 (98%) | 2 (2%) | 47 65 |
| 23 | W1 | 67/67 (100%) | 66 (98%) | 1 (2%) | 60 75 |
| 24 | X1 | 112/113 (99%) | 112 (100%) | 0 | 100 100 |
| 25 | Y1 | 113/115 (98%) | 113 (100%) | 0 | 100 100 |
| 26 | Z1 | 107/112 (96%) | 106 (99%) | 1 (1%) | 75 83 |
| 27 | a1 | 66/103 (64%) | 66 (100%) | 0 | 100 100 |
| 28 | b1 | 88/98 (90%) | 88 (100%) | 0 | 100 100 |
| 29 | c1 | 75/76 (99%) | 74 (99%) | 1 (1%) | 65 77 |
| 30 | d1 | 55/62 (89%) | 55 (100%) | 0 | 100 100 |
| 31 | e1 | 48/49 (98%) | 48 (100%) | 0 | 100 100 |
| 32 | f1 | 46/106 (43%) | 44 (96%) | 2 (4%) | 25 46 |
| 33 | g1 | 61/140 (44%) | 60 (98%) | 1 (2%) | 58 74 |
| 34 | h1 | 272/275 (99%) | 269 (99%) | 3 (1%) | 70 80 |
| 35 | j1 | 361/377 (96%) | 355 (98%) | 6 (2%) | 56 72 |
| 36 | k1 | 509/526 (97%) | 505 (99%) | 4 (1%) | 79 85 |
| 40 | A3 | 190/199 (96%) | 185 (97%) | 5 (3%) | 41 59 |
| 41 | B3 | 342/348 (98%) | 340 (99%) | 2 (1%) | 84 88 |
| 42 | C3 | 302/347 (87%) | 295 (98%) | 7 (2%) | 45 64 |
| 43 | E3 | 190/251 (76%) | 188 (99%) | 2 (1%) | 70 80 |
| 44 | F3 | 196/215 (91%) | 194 (99%) | 2 (1%) | 73 82 |
| 45 | H3 | 169/171 (99%) | 164 (97%) | 5 (3%) | 36 55 |
| 46 | L3 | 175/176 (99%) | 174 (99%) | 1 (1%) | 84 88 |
| 47 | M3 | 117/161 (73%) | 117 (100%) | 0 | 100 100 |
| 48 | N3 | 171/172 (99%) | 168 (98%) | 3 (2%) | 54 71 |
| 49 | O3 | 171/173 (99%) | 169 (99%) | 2 (1%) | 67 79 |
| 50 | P3 | 134/163 (82%) | 133 (99%) | 1 (1%) | 81 87 |
| 51 | Q3 | 164/165 (99%) | 161 (98%) | 3 (2%) | 54 71 |
| 52 | R3 | 159/175 (91%) | 154 (97%) | 5 (3%) | 35 54 |
| 53 | S3 | 157/157 (100%) | 157 (100%) | 0 | 100 100 |
| 54 | T3 | 139/140 (99%) | 137 (99%) | 2 (1%) | 62 75 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 55 | U3 | 89/114 (78%) | 87 (98%) | 2 (2%) | 47 | 65 |
| 56 | V3 | 101/107 (94%) | 99 (98%) | 2 (2%) | 50 | 68 |
| 57 | W3 | 86/126 (68%) | 85 (99%) | 1 (1%) | 67 | 79 |
| 58 | X3 | 106/134 (79%) | 106 (100%) | 0 | 100 | 100 |
| 59 | Y3 | 124/135 (92%) | 122 (98%) | 2 (2%) | 58 | 74 |
| 60 | Z3 | 117/118 (99%) | 115 (98%) | 2 (2%) | 56 | 72 |
| 61 | a3 | 119/120 (99%) | 118 (99%) | 1 (1%) | 79 | 85 |
| 62 | b3 | 84/184 (46%) | 83 (99%) | 1 (1%) | 67 | 79 |
| 63 | c3 | 84/98 (86%) | 84 (100%) | 0 | 100 | 100 |
| 64 | d3 | 98/110 (89%) | 96 (98%) | 2 (2%) | 50 | 68 |
| 65 | e3 | 114/120 (95%) | 114 (100%) | 0 | 100 | 100 |
| 66 | f3 | 88/89 (99%) | 88 (100%) | 0 | 100 | 100 |
| 67 | g3 | 98/100 (98%) | 96 (98%) | 2 (2%) | 50 | 68 |
| 68 | h3 | 109/110 (99%) | 109 (100%) | 0 | 100 | 100 |
| 69 | i3 | 86/89 (97%) | 85 (99%) | 1 (1%) | 67 | 79 |
| 70 | j3 | 73/80 (91%) | 72 (99%) | 1 (1%) | 62 | 75 |
| 71 | k3 | 64/65 (98%) | 63 (98%) | 1 (2%) | 58 | 74 |
| 72 | l3 | 47/48 (98%) | 47 (100%) | 0 | 100 | 100 |
| 73 | m3 | 48/90 (53%) | 47 (98%) | 1 (2%) | 48 | 66 |
| 74 | n3 | 24/24 (100%) | 24 (100%) | 0 | 100 | 100 |
| 75 | o3 | 92/94 (98%) | 91 (99%) | 1 (1%) | 70 | 80 |
| 76 | p3 | 74/75 (99%) | 73 (99%) | 1 (1%) | 62 | 75 |
| 77 | r3 | 108/121 (89%) | 106 (98%) | 2 (2%) | 52 | 69 |
| 78 | s3 | 164/258 (64%) | 162 (99%) | 2 (1%) | 67 | 79 |
| 79 | t3 | 126/137 (92%) | 126 (100%) | 0 | 100 | 100 |
| 82 | J3 | 143/149 (96%) | 143 (100%) | 0 | 100 | 100 |
| 83 | G3 | 200/272 (74%) | 191 (96%) | 9 (4%) | 23 | 45 |
| 84 | D3 | 247/250 (99%) | 240 (97%) | 7 (3%) | 38 | 57 |
| 85 | I3 | 175/181 (97%) | 167 (95%) | 8 (5%) | 23 | 44 |
| 87 | u3 | 195/196 (100%) | 191 (98%) | 4 (2%) | 48 | 66 |
| All | All | 11108/12437 (89%) | 10956 (99%) | 152 (1%) | 62 | 75 |

All (152) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B1 | 50 | ASN |
| 2 | B1 | 117 | ARG |
| 2 | B1 | 186 | ARG |
| 3 | C1 | 40 | ASN |
| 3 | C1 | 147 | ASN |
| 3 | C1 | 213 | ARG |
| 4 | D1 | 167 | ARG |
| 5 | E1 | 22 | ASN |
| 5 | E1 | 76 | ARG |
| 5 | E1 | 94 | ARG |
| 5 | E1 | 227 | LYS |
| 6 | F1 | 232 | ASN |
| 7 | G1 | 81 | ARG |
| 7 | G1 | 91 | ARG |
| 8 | H1 | 31 | ARG |
| 8 | H1 | 63 | MET |
| 10 | J1 | 47 | ARG |
| 10 | J1 | 84 | ASN |
| 10 | J1 | 87 | ASN |
| 10 | J1 | 99 | ASN |
| 11 | K1 | 45 | ARG |
| 11 | K1 | 70 | ARG |
| 11 | K1 | 79 | ARG |
| 11 | K1 | 136 | ARG |
| 12 | L1 | 55 | ARG |
| 12 | L1 | 96 | ARG |
| 13 | M1 | 20 | LYS |
| 13 | M1 | 97 | ARG |
| 14 | N1 | 33 | ARG |
| 15 | O1 | 19 | ARG |
| 15 | O1 | 27 | LYS |
| 16 | P1 | 146 | ARG |
| 16 | P1 | 150 | ARG |
| 17 | Q1 | 13 | ARG |
| 18 | R1 | 41 | MET |
| 18 | R1 | 85 | ARG |
| 20 | T1 | 8 | LYS |
| 21 | U1 | 62 | ARG |
| 22 | V1 | 47 | ASN |
| 22 | V1 | 79 | ARG |
| 23 | W1 | 82 | ASN |
| 26 | Z1 | 101 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 29 | c1 | 81 | ARG |
| 32 | f1 | 99 | LYS |
| 32 | f1 | 104 | ARG |
| 33 | g1 | 138 | ARG |
| 34 | h1 | 5 | MET |
| 34 | h1 | 159 | ASN |
| 34 | h1 | 178 | ASN |
| 35 | j1 | 32 | THR |
| 35 | j1 | 67 | ASN |
| 35 | j1 | 121 | ASN |
| 35 | j1 | 245 | ARG |
| 35 | j1 | 265 | ASN |
| 35 | j1 | 289 | ARG |
| 36 | k1 | 190 | ARG |
| 36 | k1 | 250 | LYS |
| 36 | k1 | 321 | ASN |
| 36 | k1 | 385 | LYS |
| 40 | A3 | 101 | VAL |
| 40 | A3 | 155 | LYS |
| 40 | A3 | 193 | ARG |
| 40 | A3 | 194 | ASN |
| 40 | A3 | 242 | ARG |
| 41 | B3 | 24 | ARG |
| 41 | B3 | 261 | ARG |
| 42 | C3 | 38 | ASN |
| 42 | C3 | 95 | MET |
| 42 | C3 | 100 | ARG |
| 42 | C3 | 188 | ARG |
| 42 | C3 | 223 | ASN |
| 42 | C3 | 312 | ARG |
| 42 | C3 | 321 | ASN |
| 43 | E3 | 58 | ARG |
| 43 | E3 | 164 | ARG |
| 44 | F3 | 165 | ARG |
| 44 | F3 | 205 | ASN |
| 45 | H3 | 1 | MET |
| 45 | H3 | 15 | ASN |
| 45 | H3 | 102 | ASN |
| 45 | H3 | 128 | MET |
| 45 | H3 | 173 | ARG |
| 46 | L3 | 42 | ARG |
| 48 | N3 | 50 | ARG |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 48 | N3 | 96 | ARG |
| 48 | N3 | 162 | ARG |
| 49 | O3 | 117 | ARG |
| 49 | O3 | 140 | ARG |
| 50 | P3 | 128 | ARG |
| 51 | Q3 | 14 | ARG |
| 51 | Q3 | 91 | ARG |
| 51 | Q3 | 97 | LYS |
| 52 | R3 | 36 | ASN |
| 52 | R3 | 105 | LEU |
| 52 | R3 | 110 | ARG |
| 52 | R3 | 130 | ASN |
| 52 | R3 | 133 | LYS |
| 54 | T3 | 136 | ARG |
| 54 | T3 | 146 | LYS |
| 55 | U3 | 80 | LYS |
| 55 | U3 | 81 | ARG |
| 56 | V3 | 48 | ARG |
| 56 | V3 | 85 | ARG |
| 57 | W3 | 82 | ILE |
| 59 | Y3 | 2 | LYS |
| 59 | Y3 | 77 | LYS |
| 60 | Z3 | 75 | TYR |
| 60 | Z3 | 84 | ARG |
| 61 | a3 | 4 | ARG |
| 62 | b3 | 60 | ASN |
| 64 | d3 | 18 | ASN |
| 64 | d3 | 31 | LYS |
| 67 | g3 | 14 | ASN |
| 67 | g3 | 18 | ASN |
| 69 | i3 | 29 | ARG |
| 70 | j3 | 20 | ARG |
| 71 | k3 | 36 | VAL |
| 73 | m3 | 96 | ARG |
| 75 | o3 | 82 | MET |
| 76 | p3 | 84 | ARG |
| 77 | r3 | 12 | ASN |
| 77 | r3 | 67 | ARG |
| 78 | s3 | 6 | ARG |
| 78 | s3 | 200 | ASN |
| 83 | G3 | 88 | ARG |
| 83 | G3 | 106 | ARG |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 83 | G3 | 117 | GLN |
| 83 | G3 | 134 | ASN |
| 83 | G3 | 166 | ARG |
| 83 | G3 | 228 | ARG |
| 83 | G3 | 280 | ASN |
| 83 | G3 | 293 | ASN |
| 83 | G3 | 308 | LYS |
| 84 | D3 | 23 | ARG |
| 84 | D3 | 33 | ARG |
| 84 | D3 | 50 | ARG |
| 84 | D3 | 143 | THR |
| 84 | D3 | 220 | LYS |
| 84 | D3 | 242 | LYS |
| 84 | D3 | 293 | ARG |
| 85 | I3 | 3 | ARG |
| 85 | I3 | 10 | ARG |
| 85 | I3 | 39 | LYS |
| 85 | I3 | 100 | ASN |
| 85 | I3 | 102 | MET |
| 85 | I3 | 162 | ARG |
| 85 | I3 | 164 | LYS |
| 85 | I3 | 175 | LYS |
| 87 | u3 | 156 | LYS |
| 87 | u3 | 159 | MET |
| 87 | u3 | 188 | ASN |
| 87 | u3 | 212 | LYS |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (97) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B1 | 141 | ASN |
| 3 | C1 | 40 | ASN |
| 3 | C1 | 147 | ASN |
| 4 | D1 | 113 | GLN |
| 5 | E1 | 22 | ASN |
| 6 | F1 | 138 | HIS |
| 6 | F1 | 142 | HIS |
| 6 | F1 | 209 | HIS |
| 6 | F1 | 232 | ASN |
| 7 | G1 | 82 | ASN |
| 7 | G1 | 114 | ASN |
| 8 | H1 | 81 | HIS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 8 | H1 | 186 | GLN |
| 8 | H1 | 202 | ASN |
| 9 | I1 | 33 | ASN |
| 9 | I1 | 186 | ASN |
| 10 | J1 | 84 | ASN |
| 10 | J1 | 87 | ASN |
| 10 | J1 | 99 | ASN |
| 12 | L1 | 7 | ASN |
| 13 | M1 | 19 | ASN |
| 13 | M1 | 106 | HIS |
| 14 | N1 | 28 | HIS |
| 14 | N1 | 82 | ASN |
| 15 | O1 | 5 | HIS |
| 15 | O1 | 105 | ASN |
| 16 | P1 | 94 | HIS |
| 17 | Q1 | 104 | GLN |
| 18 | R1 | 97 | GLN |
| 20 | T1 | 120 | HIS |
| 20 | T1 | 135 | HIS |
| 22 | V1 | 47 | ASN |
| 23 | W1 | 33 | GLN |
| 24 | X1 | 113 | HIS |
| 26 | Z1 | 15 | ASN |
| 30 | d1 | 26 | GLN |
| 30 | d1 | 29 | GLN |
| 33 | g1 | 111 | ASN |
| 33 | g1 | 135 | HIS |
| 34 | h1 | 133 | ASN |
| 34 | h1 | 159 | ASN |
| 34 | h1 | 178 | ASN |
| 35 | j1 | 11 | ASN |
| 35 | j1 | 121 | ASN |
| 35 | j1 | 380 | ASN |
| 36 | k1 | 171 | GLN |
| 36 | k1 | 251 | GLN |
| 36 | k1 | 321 | ASN |
| 36 | k1 | 381 | ASN |
| 36 | k1 | 440 | GLN |
| 36 | k1 | 520 | HIS |
| 40 | A3 | 194 | ASN |
| 41 | B3 | 179 | HIS |
| 41 | B3 | 245 | HIS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 42 | C3 | 38 | ASN |
| 42 | C3 | 245 | HIS |
| 42 | C3 | 321 | ASN |
| 44 | F3 | 38 | GLN |
| 44 | F3 | 79 | ASN |
| 44 | F3 | 205 | ASN |
| 45 | H3 | 8 | GLN |
| 45 | H3 | 15 | ASN |
| 45 | H3 | 102 | ASN |
| 48 | N3 | 199 | GLN |
| 49 | O3 | 5 | GLN |
| 50 | P3 | 25 | HIS |
| 50 | P3 | 80 | GLN |
| 50 | P3 | 120 | ASN |
| 52 | R3 | 36 | ASN |
| 52 | R3 | 130 | ASN |
| 52 | R3 | 143 | HIS |
| 52 | R3 | 178 | GLN |
| 53 | S3 | 156 | HIS |
| 53 | S3 | 163 | HIS |
| 54 | T3 | 95 | HIS |
| 58 | X3 | 93 | ASN |
| 58 | X3 | 105 | ASN |
| 58 | X3 | 111 | GLN |
| 64 | d3 | 18 | ASN |
| 66 | f3 | 65 | ASN |
| 66 | f3 | 99 | HIS |
| 67 | g3 | 14 | ASN |
| 67 | g3 | 114 | GLN |
| 70 | j3 | 76 | HIS |
| 77 | r3 | 12 | ASN |
| 82 | J3 | 104 | ASN |
| 83 | G3 | 134 | ASN |
| 83 | G3 | 280 | ASN |
| 83 | G3 | 293 | ASN |
| 84 | D3 | 195 | HIS |
| 84 | D3 | 202 | GLN |
| 84 | D3 | 222 | GLN |
| 84 | D3 | 275 | GLN |
| 85 | I3 | 95 | HIS |
| 85 | I3 | 100 | ASN |
| 87 | u3 | 40 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 87 | u3 | 188 | ASN |

### 5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 1 | A1 | 1709/1869 (91%) | 474 (27%) | 23 (1%) |
| 37 | 52 | 3591/3634 (98%) | 1136 (31%) | 45 (1%) |
| 38 | 72 | 119/120 (99%) | 34 (28%) | 0 |
| 39 | 82 | 149/156 (95%) | 43 (28%) | 0 |
| 80 | 23 | 74/76 (97%) | 18 (24%) | 0 |
| 81 | w3 | 22/23 (95%) | 10 (45%) | 0 |
| All | All | 5664/5878 (96%) | 1715 (30%) | 68 (1%) |

All (1715) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 2 | A |
| 1 | A1 | 3 | C |
| 1 | A1 | 5 | U |
| 1 | A1 | 16 | G |
| 1 | A1 | 17 | C |
| 1 | A1 | 26 | U |
| 1 | A1 | 33 | G |
| 1 | A1 | 39 | A |
| 1 | A1 | 41 | G |
| 1 | A1 | 42 | A |
| 1 | A1 | 44 | U |
| 1 | A1 | 45 | A |
| 1 | A1 | 46 | A |
| 1 | A1 | 56 | G |
| 1 | A1 | 58 | C |
| 1 | A1 | 65 | C |
| 1 | A1 | 67 | C |
| 1 | A1 | 68 | A |
| 1 | A1 | 72 | C |
| 1 | A1 | 73 | C |
| 1 | A1 | 74 | G |
| 1 | A1 | 76 | U |
| 1 | A1 | 79 | A |
| 1 | A1 | 89 | C |
| 1 | A1 | 91 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 95 | G |
| 1 | A1 | 100 | U |
| 1 | A1 | 101 | U |
| 1 | A1 | 103 | A |
| 1 | A1 | 111 | A |
| 1 | A1 | 113 | G |
| 1 | A1 | 115 | U |
| 1 | A1 | 116 | U |
| 1 | A1 | 124 | U |
| 1 | A1 | 126 | G |
| 1 | A1 | 127 | C |
| 1 | A1 | 129 | C |
| 1 | A1 | 130 | G |
| 1 | A1 | 141 | A |
| 1 | A1 | 143 | U |
| 1 | A1 | 147 | A |
| 1 | A1 | 153 | G |
| 1 | A1 | 155 | G |
| 1 | A1 | 162 | C |
| 1 | A1 | 163 | U |
| 1 | A1 | 167 | G |
| 1 | A1 | 168 | C |
| 1 | A1 | 170 | A |
| 1 | A1 | 172 | U |
| 1 | A1 | 178 | C |
| 1 | A1 | 182 | C |
| 1 | A1 | 183 | G |
| 1 | A1 | 184 | G |
| 1 | A1 | 187 | G |
| 1 | A1 | 188 | C |
| 1 | A1 | 189 | U |
| 1 | A1 | 190 | G |
| 1 | A1 | 191 | A |
| 1 | A1 | 192 | C |
| 1 | A1 | 202 | G |
| 1 | A1 | 206 | G |
| 1 | A1 | 209 | A |
| 1 | A1 | 211 | G |
| 1 | A1 | 213 | G |
| 1 | A1 | 222 | U |
| 1 | A1 | 227 | U |
| 1 | A1 | 228 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 229 | A |
| 1 | A1 | 230 | A |
| 1 | A1 | 231 | A |
| 1 | A1 | 233 | C |
| 1 | A1 | 236 | A |
| 1 | A1 | 238 | C |
| 1 | A1 | 239 | C |
| 1 | A1 | 240 | G |
| 1 | A1 | 241 | G |
| 1 | A1 | 242 | U |
| 1 | A1 | 243 | C |
| 1 | A1 | 281 | C |
| 1 | A1 | 285 | U |
| 1 | A1 | 292 | A |
| 1 | A1 | 297 | A |
| 1 | A1 | 306 | C |
| 1 | A1 | 307 | G |
| 1 | A1 | 308 | G |
| 1 | A1 | 309 | G |
| 1 | A1 | 312 | G |
| 1 | A1 | 313 | A |
| 1 | A1 | 314 | U |
| 1 | A1 | 317 | C |
| 1 | A1 | 318 | A |
| 1 | A1 | 319 | C |
| 1 | A1 | 322 | C |
| 1 | A1 | 335 | G |
| 1 | A1 | 339 | A |
| 1 | A1 | 347 | G |
| 1 | A1 | 350 | C |
| 1 | A1 | 351 | G |
| 1 | A1 | 354 | U |
| 1 | A1 | 360 | A |
| 1 | A1 | 361 | U |
| 1 | A1 | 362 | C |
| 1 | A1 | 364 | A |
| 1 | A1 | 368 | U |
| 1 | A1 | 382 | C |
| 1 | A1 | 384 | U |
| 1 | A1 | 385 | G |
| 1 | A1 | 386 | C |
| 1 | A1 | 400 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 407 | G |
| 1 | A1 | 408 | A |
| 1 | A1 | 409 | C |
| 1 | A1 | 413 | G |
| 1 | A1 | 417 | C |
| 1 | A1 | 418 | A |
| 1 | A1 | 422 | U |
| 1 | A1 | 435 | A |
| 1 | A1 | 441 | C |
| 1 | A1 | 448 | A |
| 1 | A1 | 449 | A |
| 1 | A1 | 450 | C |
| 1 | A1 | 452 | G |
| 1 | A1 | 464 | A |
| 1 | A1 | 465 | A |
| 1 | A1 | 466 | G |
| 1 | A1 | 472 | C |
| 1 | A1 | 473 | A |
| 1 | A1 | 474 | G |
| 1 | A1 | 482 | G |
| 1 | A1 | 485 | A |
| 1 | A1 | 487 | U |
| 1 | A1 | 492 | C |
| 1 | A1 | 493 | A |
| 1 | A1 | 495 | U |
| 1 | A1 | 496 | C |
| 1 | A1 | 501 | C |
| 1 | A1 | 503 | C |
| 1 | A1 | 516 | A |
| 1 | A1 | 522 | A |
| 1 | A1 | 525 | A |
| 1 | A1 | 531 | A |
| 1 | A1 | 532 | C |
| 1 | A1 | 533 | A |
| 1 | A1 | 536 | A |
| 1 | A1 | 542 | U |
| 1 | A1 | 544 | G |
| 1 | A1 | 547 | G |
| 1 | A1 | 548 | C |
| 1 | A1 | 549 | C |
| 1 | A1 | 550 | C |
| 1 | A1 | 551 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 554 | A |
| 1 | A1 | 555 | A |
| 1 | A1 | 559 | G |
| 1 | A1 | 560 | A |
| 1 | A1 | 562 | U |
| 1 | A1 | 563 | G |
| 1 | A1 | 564 | A |
| 1 | A1 | 565 | G |
| 1 | A1 | 568 | C |
| 1 | A1 | 582 | U |
| 1 | A1 | 583 | A |
| 1 | A1 | 588 | G |
| 1 | A1 | 589 | G |
| 1 | A1 | 590 | A |
| 1 | A1 | 591 | U |
| 1 | A1 | 593 | C |
| 1 | A1 | 606 | G |
| 1 | A1 | 608 | C |
| 1 | A1 | 614 | C |
| 1 | A1 | 615 | C |
| 1 | A1 | 621 | C |
| 1 | A1 | 622 | C |
| 1 | A1 | 628 | A |
| 1 | A1 | 629 | A |
| 1 | A1 | 631 | U |
| 1 | A1 | 637 | U |
| 1 | A1 | 642 | U |
| 1 | A1 | 643 | A |
| 1 | A1 | 644 | G |
| 1 | A1 | 658 | U |
| 1 | A1 | 660 | C |
| 1 | A1 | 664 | A |
| 1 | A1 | 668 | A |
| 1 | A1 | 669 | A |
| 1 | A1 | 671 | A |
| 1 | A1 | 672 | A |
| 1 | A1 | 673 | G |
| 1 | A1 | 675 | U |
| 1 | A1 | 684 | G |
| 1 | A1 | 688 | U |
| 1 | A1 | 689 | U |
| 1 | A1 | 690 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 747 | U |
| 1 | A1 | 750 | C |
| 1 | A1 | 752 | G |
| 1 | A1 | 753 | C |
| 1 | A1 | 790 | C |
| 1 | A1 | 793 | G |
| 1 | A1 | 797 | C |
| 1 | A1 | 798 | G |
| 1 | A1 | 799 | U |
| 1 | A1 | 800 | U |
| 1 | A1 | 811 | A |
| 1 | A1 | 820 | U |
| 1 | A1 | 821 | G |
| 1 | A1 | 830 | A |
| 1 | A1 | 834 | C |
| 1 | A1 | 844 | U |
| 1 | A1 | 847 | A |
| 1 | A1 | 852 | G |
| 1 | A1 | 867 | G |
| 1 | A1 | 869 | A |
| 1 | A1 | 870 | A |
| 1 | A1 | 871 | U |
| 1 | A1 | 872 | A |
| 1 | A1 | 873 | G |
| 1 | A1 | 874 | G |
| 1 | A1 | 875 | A |
| 1 | A1 | 876 | C |
| 1 | A1 | 878 | G |
| 1 | A1 | 879 | C |
| 1 | A1 | 881 | G |
| 1 | A1 | 886 | A |
| 1 | A1 | 887 | U |
| 1 | A1 | 888 | U |
| 1 | A1 | 889 | U |
| 1 | A1 | 890 | U |
| 1 | A1 | 891 | G |
| 1 | A1 | 892 | U |
| 1 | A1 | 893 | U |
| 1 | A1 | 895 | G |
| 1 | A1 | 913 | A |
| 1 | A1 | 914 | U |
| 1 | A1 | 917 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 919 | A |
| 1 | A1 | 920 | A |
| 1 | A1 | 930 | C |
| 1 | A1 | 933 | G |
| 1 | A1 | 934 | G |
| 1 | A1 | 943 | U |
| 1 | A1 | 960 | U |
| 1 | A1 | 966 | U |
| 1 | A1 | 970 | G |
| 1 | A1 | 971 | G |
| 1 | A1 | 979 | C |
| 1 | A1 | 985 | G |
| 1 | A1 | 989 | C |
| 1 | A1 | 990 | A |
| 1 | A1 | 992 | A |
| 1 | A1 | 997 | A |
| 1 | A1 | 999 | G |
| 1 | A1 | 1002 | U |
| 1 | A1 | 1005 | G |
| 1 | A1 | 1013 | U |
| 1 | A1 | 1017 | U |
| 1 | A1 | 1021 | U |
| 1 | A1 | 1023 | A |
| 1 | A1 | 1028 | A |
| 1 | A1 | 1041 | G |
| 1 | A1 | 1047 | C |
| 1 | A1 | 1058 | A |
| 1 | A1 | 1060 | A |
| 1 | A1 | 1067 | C |
| 1 | A1 | 1071 | G |
| 1 | A1 | 1083 | A |
| 1 | A1 | 1085 | C |
| 1 | A1 | 1087 | A |
| 1 | A1 | 1089 | G |
| 1 | A1 | 1097 | G |
| 1 | A1 | 1099 | G |
| 1 | A1 | 1100 | A |
| 1 | A1 | 1101 | U |
| 1 | A1 | 1106 | C |
| 1 | A1 | 1115 | U |
| 1 | A1 | 1116 | C |
| 1 | A1 | 1117 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 1118 | C |
| 1 | A1 | 1123 | C |
| 1 | A1 | 1126 | G |
| 1 | A1 | 1131 | G |
| 1 | A1 | 1138 | C |
| 1 | A1 | 1139 | C |
| 1 | A1 | 1144 | A |
| 1 | A1 | 1145 | A |
| 1 | A1 | 1149 | A |
| 1 | A1 | 1150 | A |
| 1 | A1 | 1153 | C |
| 1 | A1 | 1154 | U |
| 1 | A1 | 1155 | U |
| 1 | A1 | 1170 | A |
| 1 | A1 | 1171 | G |
| 1 | A1 | 1175 | G |
| 1 | A1 | 1178 | U |
| 1 | A1 | 1194 | A |
| 1 | A1 | 1195 | A |
| 1 | A1 | 1200 | A |
| 1 | A1 | 1207 | G |
| 1 | A1 | 1212 | G |
| 1 | A1 | 1215 | C |
| 1 | A1 | 1216 | C |
| 1 | A1 | 1221 | G |
| 1 | A1 | 1230 | C |
| 1 | A1 | 1241 | A |
| 1 | A1 | 1242 | U |
| 1 | A1 | 1246 | A |
| 1 | A1 | 1251 | A |
| 1 | A1 | 1253 | A |
| 1 | A1 | 1254 | C |
| 1 | A1 | 1256 | G |
| 1 | A1 | 1257 | G |
| 1 | A1 | 1258 | A |
| 1 | A1 | 1266 | C |
| 1 | A1 | 1274 | G |
| 1 | A1 | 1275 | G |
| 1 | A1 | 1282 | A |
| 1 | A1 | 1284 | A |
| 1 | A1 | 1285 | G |
| 1 | A1 | 1286 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 1287 | A |
| 1 | A1 | 1291 | A |
| 1 | A1 | 1293 | A |
| 1 | A1 | 1295 | A |
| 1 | A1 | 1299 | A |
| 1 | A1 | 1300 | U |
| 1 | A1 | 1301 | A |
| 1 | A1 | 1302 | G |
| 1 | A1 | 1303 | C |
| 1 | A1 | 1308 | U |
| 1 | A1 | 1311 | C |
| 1 | A1 | 1314 | U |
| 1 | A1 | 1319 | U |
| 1 | A1 | 1330 | G |
| 1 | A1 | 1336 | C |
| 1 | A1 | 1342 | U |
| 1 | A1 | 1344 | A |
| 1 | A1 | 1345 | G |
| 1 | A1 | 1355 | C |
| 1 | A1 | 1371 | U |
| 1 | A1 | 1372 | U |
| 1 | A1 | 1375 | G |
| 1 | A1 | 1378 | A |
| 1 | A1 | 1395 | C |
| 1 | A1 | 1396 | A |
| 1 | A1 | 1397 | U |
| 1 | A1 | 1402 | A |
| 1 | A1 | 1412 | C |
| 1 | A1 | 1413 | G |
| 1 | A1 | 1417 | C |
| 1 | A1 | 1427 | C |
| 1 | A1 | 1428 | G |
| 1 | A1 | 1429 | G |
| 1 | A1 | 1430 | C |
| 1 | A1 | 1439 | A |
| 1 | A1 | 1440 | C |
| 1 | A1 | 1447 | G |
| 1 | A1 | 1450 | G |
| 1 | A1 | 1452 | A |
| 1 | A1 | 1453 | C |
| 1 | A1 | 1454 | A |
| 1 | A1 | 1461 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 1462 | U |
| 1 | A1 | 1463 | U |
| 1 | A1 | 1464 | C |
| 1 | A1 | 1466 | G |
| 1 | A1 | 1471 | C |
| 1 | A1 | 1476 | A |
| 1 | A1 | 1477 | U |
| 1 | A1 | 1480 | A |
| 1 | A1 | 1486 | A |
| 1 | A1 | 1487 | A |
| 1 | A1 | 1489 | A |
| 1 | A1 | 1490 | G |
| 1 | A1 | 1496 | U |
| 1 | A1 | 1498 | A |
| 1 | A1 | 1501 | C |
| 1 | A1 | 1502 | C |
| 1 | A1 | 1521 | C |
| 1 | A1 | 1522 | A |
| 1 | A1 | 1523 | C |
| 1 | A1 | 1532 | C |
| 1 | A1 | 1533 | A |
| 1 | A1 | 1535 | U |
| 1 | A1 | 1536 | G |
| 1 | A1 | 1545 | A |
| 1 | A1 | 1548 | G |
| 1 | A1 | 1552 | G |
| 1 | A1 | 1553 | C |
| 1 | A1 | 1554 | C |
| 1 | A1 | 1555 | U |
| 1 | A1 | 1556 | A |
| 1 | A1 | 1557 | C |
| 1 | A1 | 1558 | C |
| 1 | A1 | 1567 | G |
| 1 | A1 | 1570 | G |
| 1 | A1 | 1574 | C |
| 1 | A1 | 1579 | A |
| 1 | A1 | 1580 | A |
| 1 | A1 | 1585 | U |
| 1 | A1 | 1586 | U |
| 1 | A1 | 1588 | A |
| 1 | A1 | 1591 | C |
| 1 | A1 | 1596 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 1597 | C |
| 1 | A1 | 1599 | U |
| 1 | A1 | 1601 | A |
| 1 | A1 | 1602 | U |
| 1 | A1 | 1603 | G |
| 1 | A1 | 1604 | G |
| 1 | A1 | 1621 | U |
| 1 | A1 | 1623 | A |
| 1 | A1 | 1637 | A |
| 1 | A1 | 1638 | G |
| 1 | A1 | 1640 | A |
| 1 | A1 | 1641 | A |
| 1 | A1 | 1646 | C |
| 1 | A1 | 1648 | G |
| 1 | A1 | 1654 | G |
| 1 | A1 | 1665 | G |
| 1 | A1 | 1666 | C |
| 1 | A1 | 1668 | U |
| 1 | A1 | 1670 | C |
| 1 | A1 | 1671 | G |
| 1 | A1 | 1674 | G |
| 1 | A1 | 1678 | A |
| 1 | A1 | 1683 | C |
| 1 | A1 | 1695 | A |
| 1 | A1 | 1698 | C |
| 1 | A1 | 1699 | A |
| 1 | A1 | 1700 | C |
| 1 | A1 | 1701 | C |
| 1 | A1 | 1702 | G |
| 1 | A1 | 1715 | A |
| 1 | A1 | 1721 | U |
| 1 | A1 | 1722 | G |
| 1 | A1 | 1729 | U |
| 1 | A1 | 1732 | G |
| 1 | A1 | 1735 | A |
| 1 | A1 | 1746 | U |
| 1 | A1 | 1748 | G |
| 1 | A1 | 1753 | C |
| 1 | A1 | 1756 | C |
| 1 | A1 | 1757 | G |
| 1 | A1 | 1758 | G |
| 1 | A1 | 1759 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 1777 | G |
| 1 | A1 | 1778 | C |
| 1 | A1 | 1781 | A |
| 1 | A1 | 1783 | C |
| 1 | A1 | 1792 | G |
| 1 | A1 | 1800 | A |
| 1 | A1 | 1816 | G |
| 1 | A1 | 1821 | U |
| 1 | A1 | 1823 | A |
| 1 | A1 | 1824 | A |
| 1 | A1 | 1825 | A |
| 1 | A1 | 1826 | G |
| 1 | A1 | 1831 | A |
| 1 | A1 | 1834 | A |
| 1 | A1 | 1836 | G |
| 1 | A1 | 1838 | U |
| 1 | A1 | 1839 | U |
| 1 | A1 | 1840 | U |
| 1 | A1 | 1844 | U |
| 1 | A1 | 1845 | A |
| 1 | A1 | 1849 | G |
| 1 | A1 | 1851 | A |
| 1 | A1 | 1852 | C |
| 1 | A1 | 1861 | G |
| 1 | A1 | 1862 | G |
| 1 | A1 | 1863 | A |
| 1 | A1 | 1864 | U |
| 1 | A1 | 1865 | C |
| 1 | A1 | 1869 | A |
| 37 | 52 | 5 | A |
| 37 | 52 | 6 | C |
| 37 | 52 | 8 | U |
| 37 | 52 | 9 | C |
| 37 | 52 | 10 | A |
| 37 | 52 | 13 | U |
| 37 | 52 | 18 | C |
| 37 | 52 | 21 | G |
| 37 | 52 | 25 | A |
| 37 | 52 | 30 | C |
| 37 | 52 | 39 | A |
| 37 | 52 | 42 | A |
| 37 | 52 | 44 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 48 | G |
| 37 | 52 | 49 | U |
| 37 | 52 | 58 | G |
| 37 | 52 | 59 | A |
| 37 | 52 | 64 | A |
| 37 | 52 | 65 | A |
| 37 | 52 | 67 | C |
| 37 | 52 | 70 | A |
| 37 | 52 | 71 | C |
| 37 | 52 | 72 | C |
| 37 | 52 | 76 | A |
| 37 | 52 | 82 | U |
| 37 | 52 | 84 | A |
| 37 | 52 | 87 | A |
| 37 | 52 | 91 | G |
| 37 | 52 | 93 | G |
| 37 | 52 | 96 | U |
| 37 | 52 | 104 | G |
| 37 | 52 | 108 | A |
| 37 | 52 | 109 | G |
| 37 | 52 | 119 | G |
| 37 | 52 | 120 | A |
| 37 | 52 | 122 | U |
| 37 | 52 | 126 | C |
| 37 | 52 | 133 | C |
| 37 | 52 | 135 | G |
| 37 | 52 | 136 | C |
| 37 | 52 | 137 | G |
| 37 | 52 | 142 | G |
| 37 | 52 | 144 | G |
| 37 | 52 | 149 | A |
| 37 | 52 | 151 | G |
| 37 | 52 | 153 | G |
| 37 | 52 | 156 | G |
| 37 | 52 | 157 | U |
| 37 | 52 | 159 | C |
| 37 | 52 | 160 | G |
| 37 | 52 | 161 | G |
| 37 | 52 | 164 | G |
| 37 | 52 | 168 | C |
| 37 | 52 | 170 | C |
| 37 | 52 | 172 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 173 | C |
| 37 | 52 | 174 | C |
| 37 | 52 | 179 | G |
| 37 | 52 | 181 | C |
| 37 | 52 | 182 | G |
| 37 | 52 | 197 | A |
| 37 | 52 | 200 | U |
| 37 | 52 | 201 | C |
| 37 | 52 | 214 | G |
| 37 | 52 | 216 | C |
| 37 | 52 | 217 | C |
| 37 | 52 | 220 | C |
| 37 | 52 | 224 | U |
| 37 | 52 | 225 | G |
| 37 | 52 | 232 | G |
| 37 | 52 | 233 | U |
| 37 | 52 | 234 | G |
| 37 | 52 | 236 | G |
| 37 | 52 | 246 | G |
| 37 | 52 | 262 | G |
| 37 | 52 | 265 | C |
| 37 | 52 | 266 | C |
| 37 | 52 | 276 | C |
| 37 | 52 | 277 | G |
| 37 | 52 | 280 | G |
| 37 | 52 | 294 | G |
| 37 | 52 | 297 | U |
| 37 | 52 | 306 | A |
| 37 | 52 | 308 | G |
| 37 | 52 | 309 | C |
| 37 | 52 | 310 | G |
| 37 | 52 | 315 | G |
| 37 | 52 | 316 | U |
| 37 | 52 | 321 | U |
| 37 | 52 | 322 | C |
| 37 | 52 | 323 | C |
| 37 | 52 | 334 | A |
| 37 | 52 | 340 | C |
| 37 | 52 | 341 | G |
| 37 | 52 | 345 | C |
| 37 | 52 | 346 | G |
| 37 | 52 | 349 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 367 | C |
| 37 | 52 | 379 | G |
| 37 | 52 | 383 | A |
| 37 | 52 | 384 | A |
| 37 | 52 | 387 | G |
| 37 | 52 | 390 | C |
| 37 | 52 | 395 | A |
| 37 | 52 | 396 | A |
| 37 | 52 | 410 | A |
| 37 | 52 | 412 | G |
| 37 | 52 | 413 | G |
| 37 | 52 | 417 | G |
| 37 | 52 | 440 | U |
| 37 | 52 | 446 | C |
| 37 | 52 | 448 | G |
| 37 | 52 | 449 | C |
| 37 | 52 | 450 | G |
| 37 | 52 | 452 | A |
| 37 | 52 | 453 | G |
| 37 | 52 | 454 | U |
| 37 | 52 | 455 | C |
| 37 | 52 | 463 | A |
| 37 | 52 | 465 | G |
| 37 | 52 | 467 | U |
| 37 | 52 | 468 | U |
| 37 | 52 | 474 | C |
| 37 | 52 | 475 | G |
| 37 | 52 | 481 | G |
| 37 | 52 | 481(A) | C |
| 37 | 52 | 482 | G |
| 37 | 52 | 483 | G |
| 37 | 52 | 484 | U |
| 37 | 52 | 485 | C |
| 37 | 52 | 486 | C |
| 37 | 52 | 487 | G |
| 37 | 52 | 490 | C |
| 37 | 52 | 491 | G |
| 37 | 52 | 492 | U |
| 37 | 52 | 493 | G |
| 37 | 52 | 495 | C |
| 37 | 52 | 498 | C |
| 37 | 52 | 499 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 505 | G |
| 37 | 52 | 506 | C |
| 37 | 52 | 510 | U |
| 37 | 52 | 516 | C |
| 37 | 52 | 641 | G |
| 37 | 52 | 642 | G |
| 37 | 52 | 661 | C |
| 37 | 52 | 666 | G |
| 37 | 52 | 667 | A |
| 37 | 52 | 669 | C |
| 37 | 52 | 670 | G |
| 37 | 52 | 674 | G |
| 37 | 52 | 676 | C |
| 37 | 52 | 685 | C |
| 37 | 52 | 686 | A |
| 37 | 52 | 688 | U |
| 37 | 52 | 691 | C |
| 37 | 52 | 696 | C |
| 37 | 52 | 697 | G |
| 37 | 52 | 700 | G |
| 37 | 52 | 704 | C |
| 37 | 52 | 705 | G |
| 37 | 52 | 719 | C |
| 37 | 52 | 722 | G |
| 37 | 52 | 729 | G |
| 37 | 52 | 730 | G |
| 37 | 52 | 731 | G |
| 37 | 52 | 733 | A |
| 37 | 52 | 738 | C |
| 37 | 52 | 743 | G |
| 37 | 52 | 747 | A |
| 37 | 52 | 749 | G |
| 37 | 52 | 750 | U |
| 37 | 52 | 751 | G |
| 37 | 52 | 758 | G |
| 37 | 52 | 760 | G |
| 37 | 52 | 905 | C |
| 37 | 52 | 908 | G |
| 37 | 52 | 913 | U |
| 37 | 52 | 914 | U |
| 37 | 52 | 915 | A |
| 37 | 52 | 917 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 922(B) | C |
| 37 | 52 | 923 | C |
| 37 | 52 | 925 | C |
| 37 | 52 | 926 | G |
| 37 | 52 | 929 | A |
| 37 | 52 | 930 | G |
| 37 | 52 | 931 | C |
| 37 | 52 | 932 | A |
| 37 | 52 | 933 | G |
| 37 | 52 | 934 | C |
| 37 | 52 | 935 | A |
| 37 | 52 | 935(A) | G |
| 37 | 52 | 941 | C |
| 37 | 52 | 944 | A |
| 37 | 52 | 945 | U |
| 37 | 52 | 946 | C |
| 37 | 52 | 951 | G |
| 37 | 52 | 955 | G |
| 37 | 52 | 956 | A |
| 37 | 52 | 959 | G |
| 37 | 52 | 960 | A |
| 37 | 52 | 961 | G |
| 37 | 52 | 962 | C |
| 37 | 52 | 965 | G |
| 37 | 52 | 966 | A |
| 37 | 52 | 967 | C |
| 37 | 52 | 968 | C |
| 37 | 52 | 969 | C |
| 37 | 52 | 972 | C |
| 37 | 52 | 978 | G |
| 37 | 52 | 983 | C |
| 37 | 52 | 985 | C |
| 37 | 52 | 990 | C |
| 37 | 52 | 1070 | G |
| 37 | 52 | 1071 | C |
| 37 | 52 | 1072 | C |
| 37 | 52 | 1073 | G |
| 37 | 52 | 1074 | G |
| 37 | 52 | 1077 | C |
| 37 | 52 | 1082 | C |
| 37 | 52 | 1090 | G |
| 37 | 52 | 1101 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 1104 | C |
| 37 | 52 | 1107 | C |
| 37 | 52 | 1108 | C |
| 37 | 52 | 1163 | G |
| 37 | 52 | 1164 | G |
| 37 | 52 | 1165 | G |
| 37 | 52 | 1166 | G |
| 37 | 52 | 1167 | C |
| 37 | 52 | 1181 | C |
| 37 | 52 | 1183 | C |
| 37 | 52 | 1196 | G |
| 37 | 52 | 1199 | G |
| 37 | 52 | 1201 | U |
| 37 | 52 | 1203 | G |
| 37 | 52 | 1205 | G |
| 37 | 52 | 1211 | G |
| 37 | 52 | 1212 | G |
| 37 | 52 | 1214 | C |
| 37 | 52 | 1215 | C |
| 37 | 52 | 1216 | C |
| 37 | 52 | 1219 | G |
| 37 | 52 | 1221 | G |
| 37 | 52 | 1235 | G |
| 37 | 52 | 1236 | C |
| 37 | 52 | 1237 | C |
| 37 | 52 | 1238 | A |
| 37 | 52 | 1239 | C |
| 37 | 52 | 1246 | G |
| 37 | 52 | 1272 | C |
| 37 | 52 | 1273 | G |
| 37 | 52 | 1276 | C |
| 37 | 52 | 1279 | A |
| 37 | 52 | 1281 | G |
| 37 | 52 | 1284 | G |
| 37 | 52 | 1287 | G |
| 37 | 52 | 1292 | C |
| 37 | 52 | 1293 | G |
| 37 | 52 | 1295 | U |
| 37 | 52 | 1296 | G |
| 37 | 52 | 1299 | G |
| 37 | 52 | 1300 | G |
| 37 | 52 | 1301 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 1303 | A |
| 37 | 52 | 1309 | C |
| 37 | 52 | 1318 | C |
| 37 | 52 | 1321 | G |
| 37 | 52 | 1326 | A |
| 37 | 52 | 1330 | A |
| 37 | 52 | 1338 | G |
| 37 | 52 | 1341 | U |
| 37 | 52 | 1352 | C |
| 37 | 52 | 1353 | G |
| 37 | 52 | 1354 | A |
| 37 | 52 | 1356 | U |
| 37 | 52 | 1358 | G |
| 37 | 52 | 1359 | G |
| 37 | 52 | 1360 | G |
| 37 | 52 | 1361 | G |
| 37 | 52 | 1362 | G |
| 37 | 52 | 1371 | A |
| 37 | 52 | 1372 | A |
| 37 | 52 | 1373 | A |
| 37 | 52 | 1377 | G |
| 37 | 52 | 1378 | C |
| 37 | 52 | 1379 | C |
| 37 | 52 | 1387 | A |
| 37 | 52 | 1389 | U |
| 37 | 52 | 1391 | A |
| 37 | 52 | 1394 | G |
| 37 | 52 | 1396 | G |
| 37 | 52 | 1397 | A |
| 37 | 52 | 1398 | A |
| 37 | 52 | 1399 | G |
| 37 | 52 | 1400 | G |
| 37 | 52 | 1405 | C |
| 37 | 52 | 1406 | G |
| 37 | 52 | 1420 | A |
| 37 | 52 | 1425 | G |
| 37 | 52 | 1429 | C |
| 37 | 52 | 1434 | G |
| 37 | 52 | 1436 | C |
| 37 | 52 | 1437 | C |
| 37 | 52 | 1438 | U |
| 37 | 52 | 1445 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 1446 | C |
| 37 | 52 | 1453 | G |
| 37 | 52 | 1454 | G |
| 37 | 52 | 1456 | C |
| 37 | 52 | 1457 | G |
| 37 | 52 | 1459 | A |
| 37 | 52 | 1466 | G |
| 37 | 52 | 1468 | C |
| 37 | 52 | 1475 | G |
| 37 | 52 | 1478 | C |
| 37 | 52 | 1481 | C |
| 37 | 52 | 1482 | G |
| 37 | 52 | 1483 | C |
| 37 | 52 | 1484 | G |
| 37 | 52 | 1491 | A |
| 37 | 52 | 1493 | G |
| 37 | 52 | 1497 | A |
| 37 | 52 | 1498 | G |
| 37 | 52 | 1501 | C |
| 37 | 52 | 1502 | G |
| 37 | 52 | 1514 | U |
| 37 | 52 | 1517 | G |
| 37 | 52 | 1518 | A |
| 37 | 52 | 1521 | C |
| 37 | 52 | 1523 | A |
| 37 | 52 | 1524 | A |
| 37 | 52 | 1531 | U |
| 37 | 52 | 1534 | A |
| 37 | 52 | 1535 | C |
| 37 | 52 | 1538 | U |
| 37 | 52 | 1540 | C |
| 37 | 52 | 1543 | G |
| 37 | 52 | 1547 | A |
| 37 | 52 | 1549 | G |
| 37 | 52 | 1553 | A |
| 37 | 52 | 1558 | A |
| 37 | 52 | 1566 | C |
| 37 | 52 | 1571 | G |
| 37 | 52 | 1573 | G |
| 37 | 52 | 1578 | U |
| 37 | 52 | 1585 | C |
| 37 | 52 | 1590 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 1591 | U |
| 37 | 52 | 1592 | G |
| 37 | 52 | 1596 | U |
| 37 | 52 | 1597 | G |
| 37 | 52 | 1602 | U |
| 37 | 52 | 1605 | G |
| 37 | 52 | 1609 | U |
| 37 | 52 | 1612 | G |
| 37 | 52 | 1613 | A |
| 37 | 52 | 1614 | C |
| 37 | 52 | 1624 | G |
| 37 | 52 | 1625 | G |
| 37 | 52 | 1626 | G |
| 37 | 52 | 1627 | G |
| 37 | 52 | 1631 | A |
| 37 | 52 | 1632 | A |
| 37 | 52 | 1633 | G |
| 37 | 52 | 1634 | A |
| 37 | 52 | 1638 | A |
| 37 | 52 | 1643 | A |
| 37 | 52 | 1650 | A |
| 37 | 52 | 1651 | G |
| 37 | 52 | 1652 | U |
| 37 | 52 | 1654 | G |
| 37 | 52 | 1658 | G |
| 37 | 52 | 1660 | U |
| 37 | 52 | 1661 | C |
| 37 | 52 | 1663 | C |
| 37 | 52 | 1673 | U |
| 37 | 52 | 1676 | C |
| 37 | 52 | 1677 | U |
| 37 | 52 | 1679 | A |
| 37 | 52 | 1684 | A |
| 37 | 52 | 1724 | G |
| 37 | 52 | 1725 | U |
| 37 | 52 | 1729 | A |
| 37 | 52 | 1730 | U |
| 37 | 52 | 1731 | C |
| 37 | 52 | 1734 | G |
| 37 | 52 | 1735 | U |
| 37 | 52 | 1740 | C |
| 37 | 52 | 1741 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 1742 | A |
| 37 | 52 | 1746 | A |
| 37 | 52 | 1750 | G |
| 37 | 52 | 1753 | G |
| 37 | 52 | 1754 | U |
| 37 | 52 | 1755 | C |
| 37 | 52 | 1756 | U |
| 37 | 52 | 1757 | U |
| 37 | 52 | 1763 | C |
| 37 | 52 | 1764 | G |
| 37 | 52 | 1768 | C |
| 37 | 52 | 1772 | C |
| 37 | 52 | 1775 | A |
| 37 | 52 | 1776 | A |
| 37 | 52 | 1777 | C |
| 37 | 52 | 1787 | A |
| 37 | 52 | 1792 | U |
| 37 | 52 | 1796 | U |
| 37 | 52 | 1800 | U |
| 37 | 52 | 1804 | A |
| 37 | 52 | 1805 | A |
| 37 | 52 | 1806 | G |
| 37 | 52 | 1807 | C |
| 37 | 52 | 1808 | C |
| 37 | 52 | 1810 | G |
| 37 | 52 | 1812 | C |
| 37 | 52 | 1815 | G |
| 37 | 52 | 1818 | G |
| 37 | 52 | 1820 | U |
| 37 | 52 | 1821 | G |
| 37 | 52 | 1822 | U |
| 37 | 52 | 1824 | G |
| 37 | 52 | 1828 | C |
| 37 | 52 | 1834 | U |
| 37 | 52 | 1836 | G |
| 37 | 52 | 1837 | A |
| 37 | 52 | 1842 | G |
| 37 | 52 | 1843 | A |
| 37 | 52 | 1844 | G |
| 37 | 52 | 1855 | G |
| 37 | 52 | 1861 | U |
| 37 | 52 | 1866 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 1867 | A |
| 37 | 52 | 1869 | G |
| 37 | 52 | 1870 | C |
| 37 | 52 | 1889 | U |
| 37 | 52 | 1892 | A |
| 37 | 52 | 1893 | C |
| 37 | 52 | 1897 | A |
| 37 | 52 | 1910 | G |
| 37 | 52 | 1915 | C |
| 37 | 52 | 1918 | U |
| 37 | 52 | 1920 | C |
| 37 | 52 | 1921 | C |
| 37 | 52 | 1922 | G |
| 37 | 52 | 1924 | C |
| 37 | 52 | 1928 | C |
| 37 | 52 | 1930 | U |
| 37 | 52 | 1931 | C |
| 37 | 52 | 1932 | A |
| 37 | 52 | 1934 | A |
| 37 | 52 | 1935 | C |
| 37 | 52 | 1940 | G |
| 37 | 52 | 1942 | A |
| 37 | 52 | 1944 | A |
| 37 | 52 | 1948 | G |
| 37 | 52 | 1951 | G |
| 37 | 52 | 1958 | A |
| 37 | 52 | 1959 | U |
| 37 | 52 | 1960 | A |
| 37 | 52 | 1961 | G |
| 37 | 52 | 1969 | G |
| 37 | 52 | 1971 | U |
| 37 | 52 | 1976 | G |
| 37 | 52 | 1977 | C |
| 37 | 52 | 1979 | A |
| 37 | 52 | 1980 | U |
| 37 | 52 | 1981 | G |
| 37 | 52 | 1983 | A |
| 37 | 52 | 1984 | A |
| 37 | 52 | 1991 | A |
| 37 | 52 | 1993 | C |
| 37 | 52 | 1994 | C |
| 37 | 52 | 1995 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 1998 | A |
| 37 | 52 | 2001 | G |
| 37 | 52 | 2002 | A |
| 37 | 52 | 2003 | G |
| 37 | 52 | 2005 | G |
| 37 | 52 | 2007 | G |
| 37 | 52 | 2010 | A |
| 37 | 52 | 2011 | C |
| 37 | 52 | 2014 | C |
| 37 | 52 | 2020 | U |
| 37 | 52 | 2021 | G |
| 37 | 52 | 2022 | C |
| 37 | 52 | 2023 | C |
| 37 | 52 | 2024 | G |
| 37 | 52 | 2025 | A |
| 37 | 52 | 2026 | A |
| 37 | 52 | 2042 | A |
| 37 | 52 | 2043 | A |
| 37 | 52 | 2046 | G |
| 37 | 52 | 2047 | A |
| 37 | 52 | 2048 | U |
| 37 | 52 | 2052 | G |
| 37 | 52 | 2054 | U |
| 37 | 52 | 2055 | G |
| 37 | 52 | 2056 | G |
| 37 | 52 | 2057 | A |
| 37 | 52 | 2062 | C |
| 37 | 52 | 2063 | G |
| 37 | 52 | 2064 | G |
| 37 | 52 | 2069 | A |
| 37 | 52 | 2078 | C |
| 37 | 52 | 2084 | U |
| 37 | 52 | 2085 | G |
| 37 | 52 | 2088 | A |
| 37 | 52 | 2089 | G |
| 37 | 52 | 2090 | U |
| 37 | 52 | 2092 | G |
| 37 | 52 | 2093 | G |
| 37 | 52 | 2094 | C |
| 37 | 52 | 2097 | A |
| 37 | 52 | 2098 | G |
| 37 | 52 | 2099 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 2101 | A |
| 37 | 52 | 2102 | G |
| 37 | 52 | 2105 | A |
| 37 | 52 | 2108 | G |
| 37 | 52 | 2112 | G |
| 37 | 52 | 2259 | G |
| 37 | 52 | 2260 | C |
| 37 | 52 | 2261 | G |
| 37 | 52 | 2263 | A |
| 37 | 52 | 2268 | A |
| 37 | 52 | 2269 | C |
| 37 | 52 | 2270 | G |
| 37 | 52 | 2274 | C |
| 37 | 52 | 2275 | G |
| 37 | 52 | 2277 | C |
| 37 | 52 | 2279 | A |
| 37 | 52 | 2281 | U |
| 37 | 52 | 2289 | C |
| 37 | 52 | 2295 | C |
| 37 | 52 | 2300 | A |
| 37 | 52 | 2301 | G |
| 37 | 52 | 2306 | G |
| 37 | 52 | 2308 | A |
| 37 | 52 | 2313 | A |
| 37 | 52 | 2314 | G |
| 37 | 52 | 2328 | G |
| 37 | 52 | 2333 | G |
| 37 | 52 | 2335 | C |
| 37 | 52 | 2345 | G |
| 37 | 52 | 2346 | C |
| 37 | 52 | 2348 | G |
| 37 | 52 | 2351 | C |
| 37 | 52 | 2353 | U |
| 37 | 52 | 2360 | A |
| 37 | 52 | 2363 | A |
| 37 | 52 | 2364 | G |
| 37 | 52 | 2374 | A |
| 37 | 52 | 2380 | G |
| 37 | 52 | 2385 | U |
| 37 | 52 | 2395 | A |
| 37 | 52 | 2396 | A |
| 37 | 52 | 2397 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 2399 | G |
| 37 | 52 | 2414 | G |
| 37 | 52 | 2415 | U |
| 37 | 52 | 2416 | G |
| 37 | 52 | 2421 | G |
| 37 | 52 | 2422 | C |
| 37 | 52 | 2426 | U |
| 37 | 52 | 2428 | A |
| 37 | 52 | 2433 | G |
| 37 | 52 | 2437 | C |
| 37 | 52 | 2438 | A |
| 37 | 52 | 2439 | G |
| 37 | 52 | 2440 | U |
| 37 | 52 | 2441 | C |
| 37 | 52 | 2447 | U |
| 37 | 52 | 2450 | G |
| 37 | 52 | 2451 | A |
| 37 | 52 | 2454 | U |
| 37 | 52 | 2456 | G |
| 37 | 52 | 2458 | C |
| 37 | 52 | 2460 | A |
| 37 | 52 | 2461 | G |
| 37 | 52 | 2471 | G |
| 37 | 52 | 2473 | A |
| 37 | 52 | 2475 | G |
| 37 | 52 | 2480 | G |
| 37 | 52 | 2481 | G |
| 37 | 52 | 2485 | U |
| 37 | 52 | 2488 | C |
| 37 | 52 | 2489 | C |
| 37 | 52 | 2490 | U |
| 37 | 52 | 2491 | C |
| 37 | 52 | 2492 | C |
| 37 | 52 | 2493 | G |
| 37 | 52 | 2494 | U |
| 37 | 52 | 2496 | G |
| 37 | 52 | 2501 | C |
| 37 | 52 | 2503 | G |
| 37 | 52 | 2505 | C |
| 37 | 52 | 2506 | G |
| 37 | 52 | 2511 | A |
| 37 | 52 | 2512 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 2513 | A |
| 37 | 52 | 2516 | G |
| 37 | 52 | 2521 | G |
| 37 | 52 | 2529 | A |
| 37 | 52 | 2532 | C |
| 37 | 52 | 2535 | G |
| 37 | 52 | 2536 | A |
| 37 | 52 | 2537 | A |
| 37 | 52 | 2538 | U |
| 37 | 52 | 2542 | G |
| 37 | 52 | 2544 | G |
| 37 | 52 | 2546 | G |
| 37 | 52 | 2549 | G |
| 37 | 52 | 2551 | A |
| 37 | 52 | 2555 | G |
| 37 | 52 | 2556 | G |
| 37 | 52 | 2561 | C |
| 37 | 52 | 2562 | G |
| 37 | 52 | 2563 | C |
| 37 | 52 | 2566 | G |
| 37 | 52 | 2570 | U |
| 37 | 52 | 2575 | U |
| 37 | 52 | 2576 | G |
| 37 | 52 | 2577 | C |
| 37 | 52 | 2580 | U |
| 37 | 52 | 2581 | A |
| 37 | 52 | 2587 | A |
| 37 | 52 | 2588 | C |
| 37 | 52 | 2589 | C |
| 37 | 52 | 2593 | C |
| 37 | 52 | 2597 | G |
| 37 | 52 | 2599 | G |
| 37 | 52 | 2600 | A |
| 37 | 52 | 2601 | A |
| 37 | 52 | 2604 | C |
| 37 | 52 | 2607 | C |
| 37 | 52 | 2620 | G |
| 37 | 52 | 2621 | A |
| 37 | 52 | 2622 | G |
| 37 | 52 | 2624 | G |
| 37 | 52 | 2627 | C |
| 37 | 52 | 2631 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 2639 | U |
| 37 | 52 | 2653 | C |
| 37 | 52 | 2655 | C |
| 37 | 52 | 2656 | U |
| 37 | 52 | 2658 | G |
| 37 | 52 | 2662 | G |
| 37 | 52 | 2663 | G |
| 37 | 52 | 2668 | G |
| 37 | 52 | 2669 | C |
| 37 | 52 | 2670 | C |
| 37 | 52 | 2674 | A |
| 37 | 52 | 2675 | G |
| 37 | 52 | 2683 | C |
| 37 | 52 | 2685 | C |
| 37 | 52 | 2686 | G |
| 37 | 52 | 2687 | U |
| 37 | 52 | 2689 | C |
| 37 | 52 | 2693 | G |
| 37 | 52 | 2695 | A |
| 37 | 52 | 2696 | A |
| 37 | 52 | 2697 | A |
| 37 | 52 | 2701 | U |
| 37 | 52 | 2706 | G |
| 37 | 52 | 2707 | U |
| 37 | 52 | 2708 | U |
| 37 | 52 | 2709 | C |
| 37 | 52 | 2710 | C |
| 37 | 52 | 2711 | G |
| 37 | 52 | 2712 | G |
| 37 | 52 | 2714 | G |
| 37 | 52 | 2716 | C |
| 37 | 52 | 2719 | C |
| 37 | 52 | 2725 | A |
| 37 | 52 | 2726 | G |
| 37 | 52 | 2732 | G |
| 37 | 52 | 2739 | C |
| 37 | 52 | 2740 | U |
| 37 | 52 | 2741 | U |
| 37 | 52 | 2743 | A |
| 37 | 52 | 2744 | A |
| 37 | 52 | 2750 | G |
| 37 | 52 | 2752 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 2754 | G |
| 37 | 52 | 2756 | G |
| 37 | 52 | 2757 | A |
| 37 | 52 | 2760 | G |
| 37 | 52 | 2761 | U |
| 37 | 52 | 2763 | U |
| 37 | 52 | 2764 | A |
| 37 | 52 | 2766 | A |
| 37 | 52 | 2767 | U |
| 37 | 52 | 2768 | C |
| 37 | 52 | 2769 | U |
| 37 | 52 | 2778 | G |
| 37 | 52 | 2787 | A |
| 37 | 52 | 2788 | U |
| 37 | 52 | 2789 | A |
| 37 | 52 | 2790 | U |
| 37 | 52 | 2794 | C |
| 37 | 52 | 2796 | G |
| 37 | 52 | 2798 | A |
| 37 | 52 | 2799 | G |
| 37 | 52 | 2807 | A |
| 37 | 52 | 2809 | G |
| 37 | 52 | 2811 | G |
| 37 | 52 | 2812 | A |
| 37 | 52 | 2813 | A |
| 37 | 52 | 2817 | C |
| 37 | 52 | 2821 | U |
| 37 | 52 | 2822 | G |
| 37 | 52 | 2823 | G |
| 37 | 52 | 2826 | U |
| 37 | 52 | 2827 | G |
| 37 | 52 | 2842 | G |
| 37 | 52 | 2847 | G |
| 37 | 52 | 2849 | A |
| 37 | 52 | 2850 | A |
| 37 | 52 | 2854 | G |
| 37 | 52 | 2855 | G |
| 37 | 52 | 2856 | C |
| 37 | 52 | 2858 | A |
| 37 | 52 | 2862 | G |
| 37 | 52 | 2864 | A |
| 37 | 52 | 2872 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 2873 | U |
| 37 | 52 | 2875 | C |
| 37 | 52 | 2876 | G |
| 37 | 52 | 2889 | G |
| 37 | 52 | 2895 | A |
| 37 | 52 | 2897 | G |
| 37 | 52 | 2898 | G |
| 37 | 52 | 3598 | C |
| 37 | 52 | 3599 | A |
| 37 | 52 | 3600 | G |
| 37 | 52 | 3604 | A |
| 37 | 52 | 3605 | C |
| 37 | 52 | 3606 | U |
| 37 | 52 | 3615 | G |
| 37 | 52 | 3616 | U |
| 37 | 52 | 3618 | C |
| 37 | 52 | 3620 | G |
| 37 | 52 | 3622 | C |
| 37 | 52 | 3625 | G |
| 37 | 52 | 3626 | G |
| 37 | 52 | 3635 | A |
| 37 | 52 | 3638 | G |
| 37 | 52 | 3642 | A |
| 37 | 52 | 3643 | A |
| 37 | 52 | 3644 | U |
| 37 | 52 | 3646 | A |
| 37 | 52 | 3662 | A |
| 37 | 52 | 3664 | G |
| 37 | 52 | 3668 | C |
| 37 | 52 | 3673 | C |
| 37 | 52 | 3674 | G |
| 37 | 52 | 3678 | G |
| 37 | 52 | 3680 | U |
| 37 | 52 | 3682 | A |
| 37 | 52 | 3683 | C |
| 37 | 52 | 3685 | C |
| 37 | 52 | 3690 | U |
| 37 | 52 | 3692 | A |
| 37 | 52 | 3696 | C |
| 37 | 52 | 3705 | G |
| 37 | 52 | 3707 | U |
| 37 | 52 | 3712 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 3713 | U |
| 37 | 52 | 3714 | G |
| 37 | 52 | 3729 | U |
| 37 | 52 | 3731 | C |
| 37 | 52 | 3732 | A |
| 37 | 52 | 3734 | U |
| 37 | 52 | 3743 | G |
| 37 | 52 | 3744 | G |
| 37 | 52 | 3753 | G |
| 37 | 52 | 3760 | A |
| 37 | 52 | 3763 | A |
| 37 | 52 | 3766 | A |
| 37 | 52 | 3773 | U |
| 37 | 52 | 3775 | A |
| 37 | 52 | 3776 | G |
| 37 | 52 | 3777 | G |
| 37 | 52 | 3783 | A |
| 37 | 52 | 3784 | A |
| 37 | 52 | 3793 | U |
| 37 | 52 | 3796 | U |
| 37 | 52 | 3798 | U |
| 37 | 52 | 3802 | U |
| 37 | 52 | 3807 | A |
| 37 | 52 | 3810 | C |
| 37 | 52 | 3811 | G |
| 37 | 52 | 3812 | C |
| 37 | 52 | 3814 | U |
| 37 | 52 | 3817 | A |
| 37 | 52 | 3819 | G |
| 37 | 52 | 3822 | U |
| 37 | 52 | 3825 | A |
| 37 | 52 | 3834 | C |
| 37 | 52 | 3837 | C |
| 37 | 52 | 3838 | U |
| 37 | 52 | 3840 | U |
| 37 | 52 | 3843 | C |
| 37 | 52 | 3858 | C |
| 37 | 52 | 3865 | A |
| 37 | 52 | 3867 | A |
| 37 | 52 | 3868 | G |
| 37 | 52 | 3876 | A |
| 37 | 52 | 3877 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 3878 | C |
| 37 | 52 | 3879 | G |
| 37 | 52 | 3881 | G |
| 37 | 52 | 3882 | C |
| 37 | 52 | 3889 | G |
| 37 | 52 | 3895 | G |
| 37 | 52 | 3897 | G |
| 37 | 52 | 3901 | A |
| 37 | 52 | 3902 | A |
| 37 | 52 | 3905 | A |
| 37 | 52 | 3906 | A |
| 37 | 52 | 3907 | G |
| 37 | 52 | 3909 | C |
| 37 | 52 | 3915 | U |
| 37 | 52 | 3921 | U |
| 37 | 52 | 3925 | U |
| 37 | 52 | 3926 | C |
| 37 | 52 | 3937 | C |
| 37 | 52 | 3940 | U |
| 37 | 52 | 3941 | G |
| 37 | 52 | 3942 | A |
| 37 | 52 | 3944 | G |
| 37 | 52 | 3947 | A |
| 37 | 52 | 3957 | U |
| 37 | 52 | 3959 | U |
| 37 | 52 | 3960 | A |
| 37 | 52 | 3962 | A |
| 37 | 52 | 3963 | A |
| 37 | 52 | 3964 | U |
| 37 | 52 | 3965 | A |
| 37 | 52 | 3966 | A |
| 37 | 52 | 3967 | G |
| 37 | 52 | 3969 | G |
| 37 | 52 | 3970 | G |
| 37 | 52 | 3973 | G |
| 37 | 52 | 4037 | C |
| 37 | 52 | 4038 | C |
| 37 | 52 | 4044 | U |
| 37 | 52 | 4047 | A |
| 37 | 52 | 4048 | A |
| 37 | 52 | 4049 | U |
| 37 | 52 | 4053 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 4065 | G |
| 37 | 52 | 4066 | U |
| 37 | 52 | 4067 | U |
| 37 | 52 | 4069 | U |
| 37 | 52 | 4071 | U |
| 37 | 52 | 4076 | G |
| 37 | 52 | 4084 | G |
| 37 | 52 | 4085 | A |
| 37 | 52 | 4086 | G |
| 37 | 52 | 4091 | G |
| 37 | 52 | 4093 | G |
| 37 | 52 | 4094 | G |
| 37 | 52 | 4100 | C |
| 37 | 52 | 4111 | U |
| 37 | 52 | 4112 | C |
| 37 | 52 | 4116 | C |
| 37 | 52 | 4117 | U |
| 37 | 52 | 4118 | U |
| 37 | 52 | 4119 | C |
| 37 | 52 | 4120 | U |
| 37 | 52 | 4121 | G |
| 37 | 52 | 4122 | G |
| 37 | 52 | 4124 | G |
| 37 | 52 | 4127 | A |
| 37 | 52 | 4129 | G |
| 37 | 52 | 4131 | G |
| 37 | 52 | 4133 | C |
| 37 | 52 | 4157 | A |
| 37 | 52 | 4158 | C |
| 37 | 52 | 4159 | C |
| 37 | 52 | 4162 | C |
| 37 | 52 | 4163 | U |
| 37 | 52 | 4166 | G |
| 37 | 52 | 4170 | A |
| 37 | 52 | 4171 | C |
| 37 | 52 | 4172 | A |
| 37 | 52 | 4173 | G |
| 37 | 52 | 4180 | G |
| 37 | 52 | 4183 | G |
| 37 | 52 | 4184 | G |
| 37 | 52 | 4191 | G |
| 37 | 52 | 4194 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 4195 | G |
| 37 | 52 | 4203 | A |
| 37 | 52 | 4205 | A |
| 37 | 52 | 4206 | C |
| 37 | 52 | 4207 | C |
| 37 | 52 | 4209 | G |
| 37 | 52 | 4212 | A |
| 37 | 52 | 4215 | C |
| 37 | 52 | 4229 | U |
| 37 | 52 | 4233 | A |
| 37 | 52 | 4234 | A |
| 37 | 52 | 4251 | A |
| 37 | 52 | 4254 | G |
| 37 | 52 | 4255 | A |
| 37 | 52 | 4257 | A |
| 37 | 52 | 4265 | U |
| 37 | 52 | 4266 | G |
| 37 | 52 | 4268 | A |
| 37 | 52 | 4271 | A |
| 37 | 52 | 4273 | A |
| 37 | 52 | 4275 | G |
| 37 | 52 | 4280 | A |
| 37 | 52 | 4281 | A |
| 37 | 52 | 4282 | A |
| 37 | 52 | 4285 | U |
| 37 | 52 | 4290 | U |
| 37 | 52 | 4291 | G |
| 37 | 52 | 4293 | U |
| 37 | 52 | 4305 | G |
| 37 | 52 | 4306 | U |
| 37 | 52 | 4317 | A |
| 37 | 52 | 4318 | C |
| 37 | 52 | 4322 | G |
| 37 | 52 | 4329 | G |
| 37 | 52 | 4330 | G |
| 37 | 52 | 4335 | C |
| 37 | 52 | 4336 | A |
| 37 | 52 | 4339 | A |
| 37 | 52 | 4348 | A |
| 37 | 52 | 4349 | C |
| 37 | 52 | 4350 | C |
| 37 | 52 | 4351 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 4355 | G |
| 37 | 52 | 4359 | U |
| 37 | 52 | 4366 | A |
| 37 | 52 | 4374 | U |
| 37 | 52 | 4377 | G |
| 37 | 52 | 4378 | A |
| 37 | 52 | 4379 | A |
| 37 | 52 | 4380 | A |
| 37 | 52 | 4386 | C |
| 37 | 52 | 4387 | C |
| 37 | 52 | 4393 | G |
| 37 | 52 | 4394 | A |
| 37 | 52 | 4395 | U |
| 37 | 52 | 4396 | A |
| 37 | 52 | 4398 | C |
| 37 | 52 | 4405 | G |
| 37 | 52 | 4417 | C |
| 37 | 52 | 4419 | U |
| 37 | 52 | 4420 | U |
| 37 | 52 | 4422 | A |
| 37 | 52 | 4424 | A |
| 37 | 52 | 4426 | C |
| 37 | 52 | 4430 | G |
| 37 | 52 | 4431 | U |
| 37 | 52 | 4433 | G |
| 37 | 52 | 4435 | U |
| 37 | 52 | 4437 | U |
| 37 | 52 | 4440 | G |
| 37 | 52 | 4444 | C |
| 37 | 52 | 4448 | G |
| 37 | 52 | 4449 | A |
| 37 | 52 | 4450 | U |
| 37 | 52 | 4452 | U |
| 37 | 52 | 4453 | C |
| 37 | 52 | 4464 | A |
| 37 | 52 | 4466 | C |
| 37 | 52 | 4472 | G |
| 37 | 52 | 4475 | G |
| 37 | 52 | 4476 | C |
| 37 | 52 | 4477 | A |
| 37 | 52 | 4480 | A |
| 37 | 52 | 4481 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 4482 | U |
| 37 | 52 | 4497 | U |
| 37 | 52 | 4499 | G |
| 37 | 52 | 4500 | U |
| 37 | 52 | 4501 | U |
| 37 | 52 | 4507 | A |
| 37 | 52 | 4511 | A |
| 37 | 52 | 4512 | U |
| 37 | 52 | 4513 | A |
| 37 | 52 | 4519 | C |
| 37 | 52 | 4522 | G |
| 37 | 52 | 4524 | G |
| 37 | 52 | 4530 | U |
| 37 | 52 | 4531 | U |
| 37 | 52 | 4532 | U |
| 37 | 52 | 4548 | A |
| 37 | 52 | 4549 | G |
| 37 | 52 | 4552 | U |
| 37 | 52 | 4553 | A |
| 37 | 52 | 4554 | G |
| 37 | 52 | 4567 | G |
| 37 | 52 | 4570 | G |
| 37 | 52 | 4573 | G |
| 37 | 52 | 4575 | G |
| 37 | 52 | 4589 | A |
| 37 | 52 | 4590 | A |
| 37 | 52 | 4599 | A |
| 37 | 52 | 4604 | G |
| 37 | 52 | 4606 | G |
| 37 | 52 | 4634 | U |
| 37 | 52 | 4635 | A |
| 37 | 52 | 4636 | U |
| 37 | 52 | 4637 | G |
| 37 | 52 | 4639 | G |
| 37 | 52 | 4652 | G |
| 37 | 52 | 4654 | C |
| 37 | 52 | 4656 | A |
| 37 | 52 | 4657 | U |
| 37 | 52 | 4662 | C |
| 37 | 52 | 4670 | C |
| 37 | 52 | 4672 | A |
| 37 | 52 | 4673 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 4677 | U |
| 37 | 52 | 4693 | C |
| 37 | 52 | 4694 | G |
| 37 | 52 | 4695 | C |
| 37 | 52 | 4700 | A |
| 37 | 52 | 4709 | U |
| 37 | 52 | 4716 | C |
| 37 | 52 | 4719 | G |
| 37 | 52 | 4720 | C |
| 37 | 52 | 4721 | G |
| 37 | 52 | 4726 | G |
| 37 | 52 | 4728 | U |
| 37 | 52 | 4738 | C |
| 37 | 52 | 4739 | C |
| 37 | 52 | 4740 | G |
| 37 | 52 | 4750 | G |
| 37 | 52 | 4751 | G |
| 37 | 52 | 4753 | U |
| 37 | 52 | 4754 | G |
| 37 | 52 | 4757 | C |
| 37 | 52 | 4759 | C |
| 37 | 52 | 4761 | G |
| 37 | 52 | 4764 | A |
| 37 | 52 | 4765 | G |
| 37 | 52 | 4766 | C |
| 37 | 52 | 4771 | C |
| 37 | 52 | 4772 | C |
| 37 | 52 | 4860 | G |
| 37 | 52 | 4862 | G |
| 37 | 52 | 4868 | G |
| 37 | 52 | 4870 | G |
| 37 | 52 | 4871 | C |
| 37 | 52 | 4872 | G |
| 37 | 52 | 4873 | G |
| 37 | 52 | 4874 | A |
| 37 | 52 | 4875 | G |
| 37 | 52 | 4876 | A |
| 37 | 52 | 4877 | G |
| 37 | 52 | 4882 | U |
| 37 | 52 | 4883 | C |
| 37 | 52 | 4885 | U |
| 37 | 52 | 4893 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 4894 | A |
| 37 | 52 | 4895 | C |
| 37 | 52 | 4898 | G |
| 37 | 52 | 4904 | G |
| 37 | 52 | 4905 | C |
| 37 | 52 | 4906 | C |
| 37 | 52 | 4907 | G |
| 37 | 52 | 4908 | G |
| 37 | 52 | 4909 | A |
| 37 | 52 | 4910 | A |
| 37 | 52 | 4911 | A |
| 37 | 52 | 4912 | G |
| 37 | 52 | 4913 | G |
| 37 | 52 | 4914 | G |
| 37 | 52 | 4915 | G |
| 37 | 52 | 4918 | C |
| 37 | 52 | 4920 | C |
| 37 | 52 | 4921 | C |
| 37 | 52 | 4922 | C |
| 37 | 52 | 4923 | U |
| 37 | 52 | 4924 | C |
| 37 | 52 | 4926 | C |
| 37 | 52 | 4927 | G |
| 37 | 52 | 4928 | C |
| 37 | 52 | 4930 | C |
| 37 | 52 | 4931 | G |
| 37 | 52 | 4933 | C |
| 37 | 52 | 4935 | C |
| 37 | 52 | 4937 | C |
| 37 | 52 | 4938 | A |
| 37 | 52 | 4940 | C |
| 37 | 52 | 4943 | A |
| 37 | 52 | 4944 | C |
| 37 | 52 | 4945 | G |
| 37 | 52 | 4947 | U |
| 37 | 52 | 4949 | G |
| 37 | 52 | 4950 | U |
| 37 | 52 | 4951 | G |
| 37 | 52 | 4955 | A |
| 37 | 52 | 4956 | A |
| 37 | 52 | 4958 | C |
| 37 | 52 | 4959 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 4964 | C |
| 37 | 52 | 4965 | U |
| 37 | 52 | 4966 | A |
| 37 | 52 | 4967 | A |
| 37 | 52 | 4976 | U |
| 37 | 52 | 4980 | C |
| 37 | 52 | 4988 | U |
| 37 | 52 | 4989 | U |
| 37 | 52 | 4990 | C |
| 37 | 52 | 5005 | G |
| 37 | 52 | 5009 | G |
| 37 | 52 | 5017 | G |
| 37 | 52 | 5018 | C |
| 37 | 52 | 5019 | A |
| 37 | 52 | 5022 | U |
| 37 | 52 | 5035 | U |
| 37 | 52 | 5040 | U |
| 37 | 52 | 5041 | G |
| 37 | 52 | 5043 | A |
| 37 | 52 | 5047 | C |
| 37 | 52 | 5048 | A |
| 37 | 52 | 5050 | C |
| 37 | 52 | 5053 | U |
| 37 | 52 | 5054 | C |
| 37 | 52 | 5055 | G |
| 37 | 52 | 5056 | A |
| 37 | 52 | 5058 | A |
| 37 | 52 | 5059 | C |
| 37 | 52 | 5061 | A |
| 37 | 52 | 5062 | G |
| 37 | 52 | 5069 | U |
| 38 | 72 | 2 | U |
| 38 | 72 | 3 | C |
| 38 | 72 | 6 | C |
| 38 | 72 | 7 | G |
| 38 | 72 | 11 | A |
| 38 | 72 | 17 | C |
| 38 | 72 | 21 | G |
| 38 | 72 | 22 | A |
| 38 | 72 | 23 | A |
| 38 | 72 | 24 | C |
| 38 | 72 | 25 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 38 | 72 | 28 | C |
| 38 | 72 | 30 | C |
| 38 | 72 | 42 | A |
| 38 | 72 | 45 | U |
| 38 | 72 | 48 | G |
| 38 | 72 | 50 | A |
| 38 | 72 | 53 | U |
| 38 | 72 | 54 | A |
| 38 | 72 | 55 | A |
| 38 | 72 | 60 | G |
| 38 | 72 | 61 | G |
| 38 | 72 | 63 | C |
| 38 | 72 | 64 | G |
| 38 | 72 | 78 | C |
| 38 | 72 | 90 | A |
| 38 | 72 | 97 | G |
| 38 | 72 | 100 | A |
| 38 | 72 | 102 | U |
| 38 | 72 | 103 | A |
| 38 | 72 | 106 | G |
| 38 | 72 | 110 | G |
| 38 | 72 | 117 | G |
| 38 | 72 | 120 | U |
| 39 | 82 | 8 | U |
| 39 | 82 | 23 | C |
| 39 | 82 | 34 | U |
| 39 | 82 | 35 | C |
| 39 | 82 | 37 | A |
| 39 | 82 | 39 | G |
| 39 | 82 | 45 | C |
| 39 | 82 | 49 | G |
| 39 | 82 | 50 | C |
| 39 | 82 | 51 | U |
| 39 | 82 | 59 | A |
| 39 | 82 | 62 | A |
| 39 | 82 | 63 | U |
| 39 | 82 | 87 | G |
| 39 | 82 | 90 | C |
| 39 | 82 | 92 | U |
| 39 | 82 | 94 | G |
| 39 | 82 | 95 | A |
| 39 | 82 | 96 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 39 | 82 | 102 | G |
| 39 | 82 | 103 | A |
| 39 | 82 | 105 | C |
| 39 | 82 | 109 | C |
| 39 | 82 | 110 | U |
| 39 | 82 | 111 | U |
| 39 | 82 | 114 | G |
| 39 | 82 | 117 | C |
| 39 | 82 | 118 | C |
| 39 | 82 | 119 | C |
| 39 | 82 | 120 | G |
| 39 | 82 | 121 | G |
| 39 | 82 | 122 | G |
| 39 | 82 | 123 | U |
| 39 | 82 | 124 | U |
| 39 | 82 | 125 | C |
| 39 | 82 | 126 | C |
| 39 | 82 | 127 | U |
| 39 | 82 | 128 | C |
| 39 | 82 | 137 | A |
| 39 | 82 | 143 | G |
| 39 | 82 | 150 | C |
| 39 | 82 | 153 | C |
| 39 | 82 | 156 | U |
| 80 | 23 | 7 | G |
| 80 | 23 | 8 | U |
| 80 | 23 | 9 | A |
| 80 | 23 | 13 | U |
| 80 | 23 | 14 | A |
| 80 | 23 | 20 | U |
| 80 | 23 | 21 | A |
| 80 | 23 | 31 | C |
| 80 | 23 | 32 | C |
| 80 | 23 | 37 | A |
| 80 | 23 | 46 | G |
| 80 | 23 | 47 | U |
| 80 | 23 | 49 | C |
| 80 | 23 | 53 | G |
| 80 | 23 | 59 | A |
| 80 | 23 | 61 | C |
| 80 | 23 | 65 | G |
| 80 | 23 | 67 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 81 | w3 | 38 | A |
| 81 | w3 | 39 | A |
| 81 | w3 | 42 | C |
| 81 | w3 | 43 | A |
| 81 | w3 | 45 | A |
| 81 | w3 | 46 | G |
| 81 | w3 | 49 | U |
| 81 | w3 | 56 | A |
| 81 | w3 | 58 | A |
| 81 | w3 | 59 | A |

All (68) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A1 | 110 | U |
| 1 | A1 | 182 | C |
| 1 | A1 | 228 | C |
| 1 | A1 | 241 | G |
| 1 | A1 | 434 | G |
| 1 | A1 | 465 | A |
| 1 | A1 | 532 | C |
| 1 | A1 | 553 | U |
| 1 | A1 | 642 | U |
| 1 | A1 | 688 | U |
| 1 | A1 | 751 | G |
| 1 | A1 | 870 | A |
| 1 | A1 | 874 | G |
| 1 | A1 | 1137 | U |
| 1 | A1 | 1253 | A |
| 1 | A1 | 1394 | G |
| 1 | A1 | 1395 | C |
| 1 | A1 | 1396 | A |
| 1 | A1 | 1489 | A |
| 1 | A1 | 1520 | G |
| 1 | A1 | 1637 | A |
| 1 | A1 | 1664 | A |
| 1 | A1 | 1824 | A |
| 37 | 52 | 48 | G |
| 37 | 52 | 125 | C |
| 37 | 52 | 265 | C |
| 37 | 52 | 275 | C |
| 37 | 52 | 449 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 52 | 480 | C |
| 37 | 52 | 498 | C |
| 37 | 52 | 504 | G |
| 37 | 52 | 930 | G |
| 37 | 52 | 959 | G |
| 37 | 52 | 966 | A |
| 37 | 52 | 971(A) | G |
| 37 | 52 | 1106 | A |
| 37 | 52 | 1211 | G |
| 37 | 52 | 1238 | A |
| 37 | 52 | 1291 | G |
| 37 | 52 | 1329 | G |
| 37 | 52 | 1370 | G |
| 37 | 52 | 1445 | U |
| 37 | 52 | 1455 | G |
| 37 | 52 | 1979 | A |
| 37 | 52 | 1994 | C |
| 37 | 52 | 2046 | G |
| 37 | 52 | 2089 | G |
| 37 | 52 | 2502 | A |
| 37 | 52 | 2536 | A |
| 37 | 52 | 2875 | C |
| 37 | 52 | 3625 | G |
| 37 | 52 | 3876 | A |
| 37 | 52 | 3888 | G |
| 37 | 52 | 3939 | G |
| 37 | 52 | 3940 | U |
| 37 | 52 | 3959 | U |
| 37 | 52 | 3965 | A |
| 37 | 52 | 3968 | U |
| 37 | 52 | 4036 | G |
| 37 | 52 | 4157 | A |
| 37 | 52 | 4232 | U |
| 37 | 52 | 4448 | G |
| 37 | 52 | 4699 | U |
| 37 | 52 | 4719 | G |
| 37 | 52 | 4859 | C |
| 37 | 52 | 4884 | G |
| 37 | 52 | 4925 | U |
| 37 | 52 | 4936 | G |

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

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

## 5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 310 ligands modelled in this entry, 308 are monoatomic - leaving 2 for Mogul analysis.

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

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\| > 2$ | Counts | RMSZ | $\#\|Z\| > 2$ |
| 90 | SF4 | k1 | 600 | - | 0,12,12 | - | - | - | | |
| 90 | SF4 | k1 | 601 | - | 0,12,12 | - | - | - | | |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 90 | SF4 | k1 | 600 | - | - | - | 0/6/5/5 |
| 90 | SF4 | k1 | 601 | - | - | - | 0/6/5/5 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|---|---|---|
| 37 | 52 | 37 |
| 1 | A1 | 12 |
| 80 | 23 | 1 |
| 85 | I3 | 1 |
| 78 | s3 | 1 |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|---|---|---|---|---|---|---|
| 1 | 52 | 2113:G | O3' | 2258:C | P | 42.99 |
| 1 | 52 | 1252:C | O3' | 1271:G | P | 36.84 |
| 1 | 52 | 1406(C):G | O3' | 1411:C | P | 19.26 |
| 1 | 52 | 1109:C | O3' | 1161:G | P | 17.69 |
| 1 | 52 | 3977:C | O3' | 4034:G | P | 16.37 |
| 1 | 52 | 1696:C | O3' | 1720:C | P | 16.22 |
| 1 | 52 | 4101:C | O3' | 4107:G | P | 15.99 |
| 1 | 52 | 990:C | O3' | 1064:G | P | 15.06 |
| 1 | 52 | 5022:U | O3' | 5028:G | P | 14.93 |
| 1 | 52 | 4777:C | O3' | 4859:C | P | 14.91 |
| 1 | 52 | 523:C | O3' | 638:G | P | 14.66 |
| 1 | 52 | 1364:U | O3' | 1368:A | P | 14.61 |
| 1 | 52 | 2901:G | O3' | 3597:G | P | 13.74 |
| 1 | 52 | 4138:C | O3' | 4146:G | P | 13.54 |
| 1 | 52 | 760:G | O3' | 904:C | P | 12.47 |
| 1 | 52 | 4729:A | O3' | 4735:G | P | 9.89 |
| 1 | 52 | 182:G | O3' | 189:G | P | 9.08 |
| 1 | 52 | 500:G | O3' | 504:G | P | 7.93 |
| 1 | A1 | 745:C | O3' | 746:C | P | 7.34 |
| 1 | 52 | 512:U | O3' | 515:C | P | 7.27 |
| 1 | 52 | 3938:G | O3' | 3939:G | P | 6.79 |
| 1 | 52 | 3937:C | O3' | 3938:G | P | 6.76 |
| 1 | 52 | 4740:G | O3' | 4743:G | P | 6.72 |
| 1 | A1 | 787:G | O3' | 788:G | P | 6.10 |
| 1 | 52 | 3948:C | O3' | 3949:A | P | 5.77 |
| 1 | 52 | 4899:G | O3' | 4902:C | P | 5.75 |

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| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|---|---|---|---|---|---|---|
| 1 | 52 | 1222:A | O3' | 1223:G | P | 5.52 |
| 1 | 23 | 16:C | O3' | 18:G | P | 5.52 |
| 1 | 52 | 3942:A | O3' | 3943:A | P | 5.07 |
| 1 | 52 | 1219:G | O3' | 1220:G | P | 4.89 |
| 1 | A1 | 225:G | O3' | 226:A | P | 4.57 |
| 1 | 52 | 1221:G | O3' | 1222:A | P | 4.51 |
| 1 | 52 | 3947:A | O3' | 3948:C | P | 4.39 |
| 1 | 52 | 170:C | O3' | 171:U | P | 4.17 |
| 1 | 52 | 5020:G | O3' | 5021:C | P | 4.08 |
| 1 | A1 | 748:C | O3' | 749:U | P | 4.02 |
| 1 | A1 | 322:C | O3' | 323:C | P | 3.93 |
| 1 | A1 | 747:U | O3' | 748:C | P | 3.87 |
| 1 | A1 | 286:U | O3' | 287:U | P | 3.86 |
| 1 | A1 | 304:C | O3' | 305:U | P | 3.66 |
| 1 | A1 | 903:A | O3' | 904:A | P | 3.65 |
| 1 | 52 | 1239:C | O3' | 1244:G | P | 3.53 |
| 1 | 52 | 1088:C | O3' | 1089:G | P | 3.45 |
| 1 | A1 | 309:G | O3' | 310:C | P | 3.43 |
| 1 | A1 | 902:G | O3' | 903:A | P | 3.29 |
| 1 | 52 | 1438:U | O3' | 1440:U | P | 3.24 |
| 1 | 52 | 751:G | O3' | 752:G | P | 3.23 |
| 1 | A1 | 1295:A | O3' | 1296:U | P | 3.20 |
| 1 | 52 | 267:G | O3' | 268:G | P | 3.20 |
| 1 | 52 | 4076:G | O3' | 4077:A | P | 3.11 |
| 1 | I3 | 203:ARG | C | 204:GLY | N | 1.96 |
| 1 | s3 | 186:GLY | C | 187:LEU | N | 1.66 |

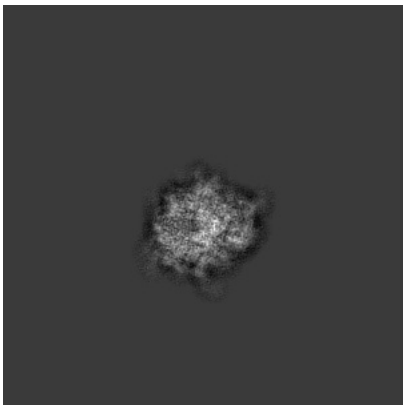
# 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-0195. These allow visual inspection of the internal detail of the map and identification of artifacts.

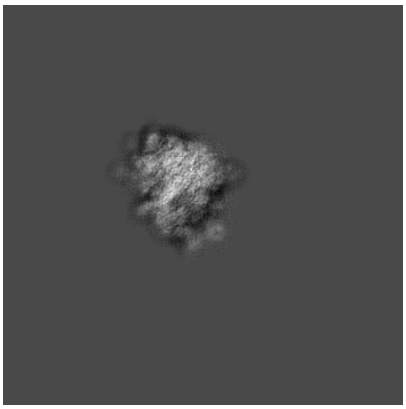
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

## 6.1 Orthogonal projections

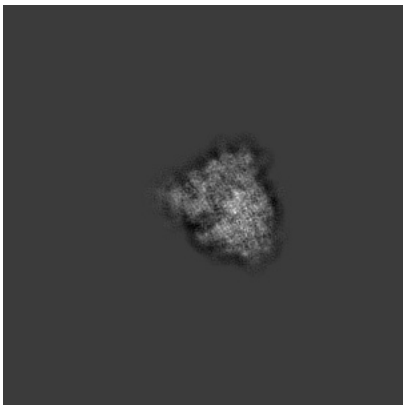
### 6.1.1 Primary map



X

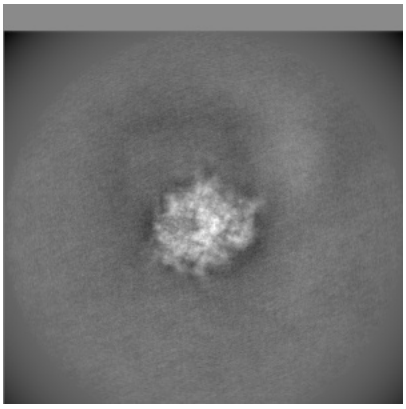


Y

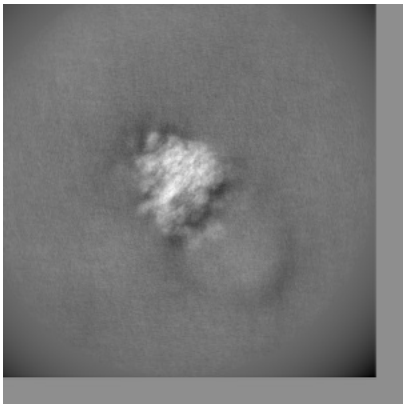


Z

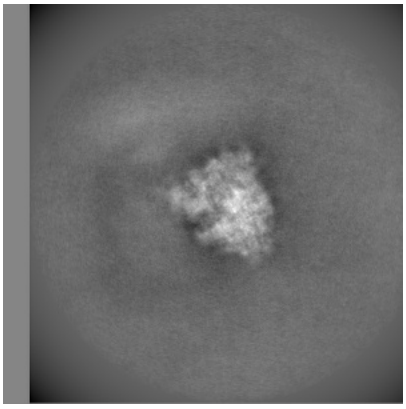
### 6.1.2 Raw map



X



Y

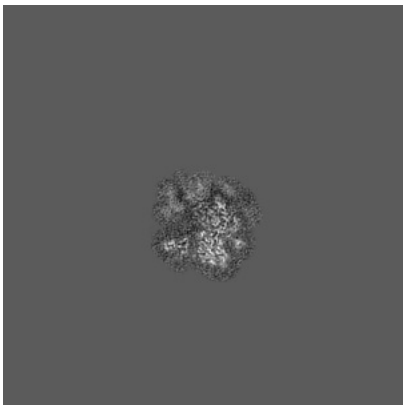


Z

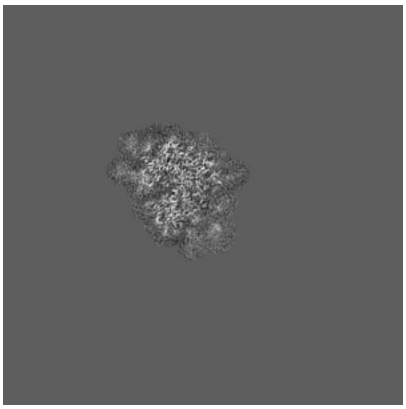
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices (i)

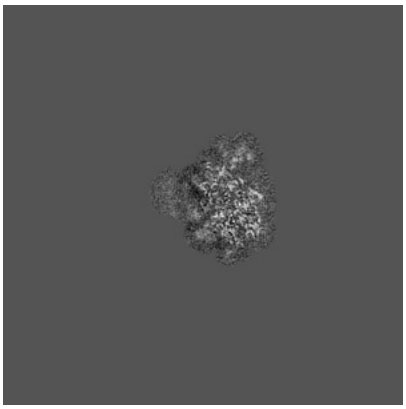
### 6.2.1 Primary map



X Index: 250

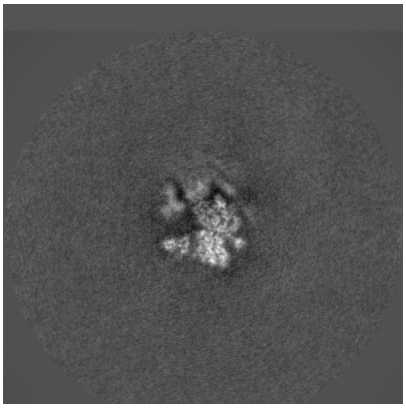


Y Index: 250

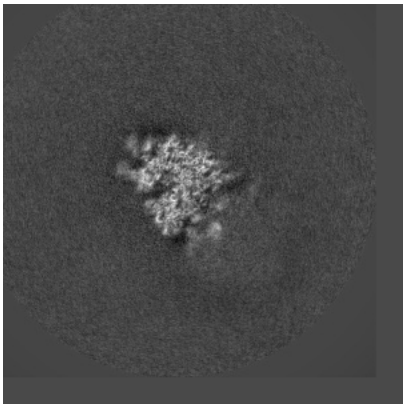


Z Index: 250

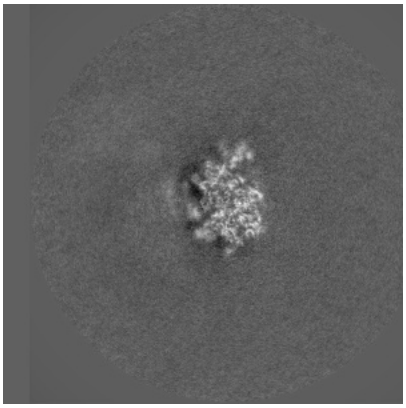
### 6.2.2 Raw map



X Index: 250



Y Index: 250

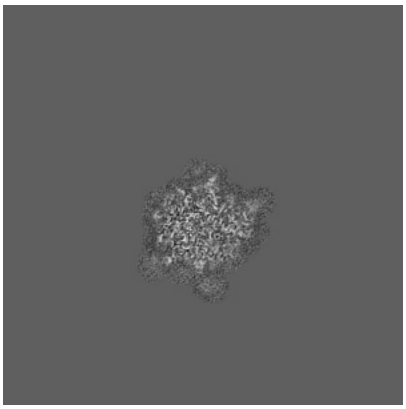


Z Index: 250

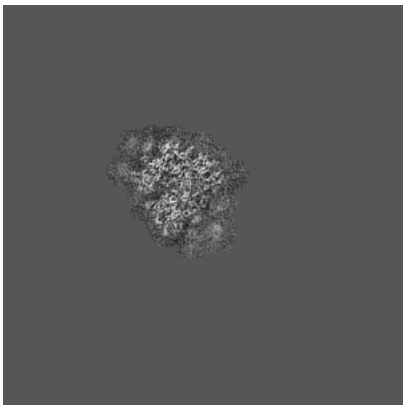
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices (i)

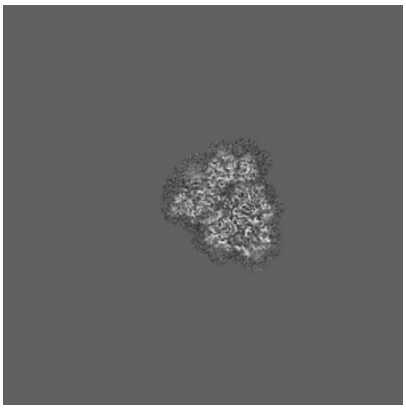
### 6.3.1 Primary map



X Index: 293

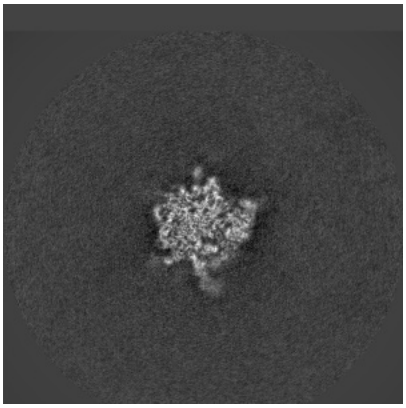


Y Index: 251

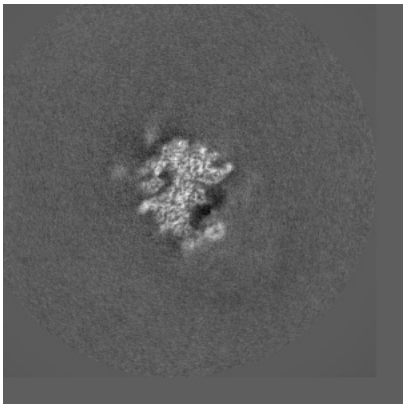


Z Index: 208

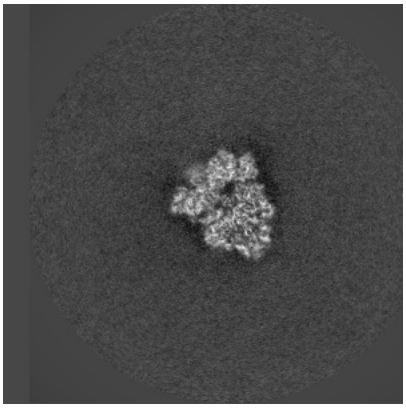
### 6.3.2 Raw map



X Index: 290



Y Index: 264

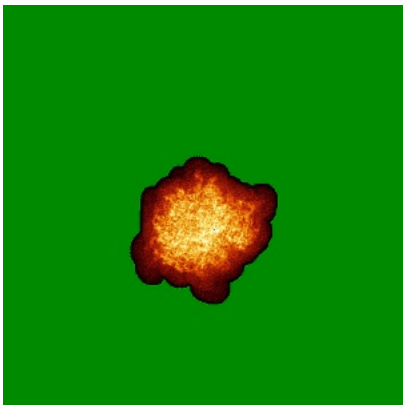


Z Index: 207

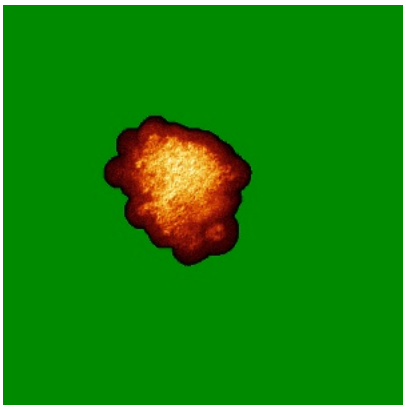
The images above show the largest variance slices of the map in three orthogonal directions.

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

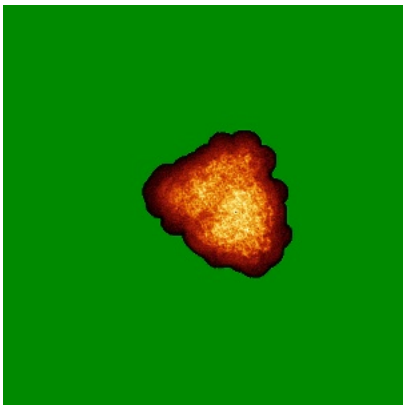
### 6.4.1 Primary map



X

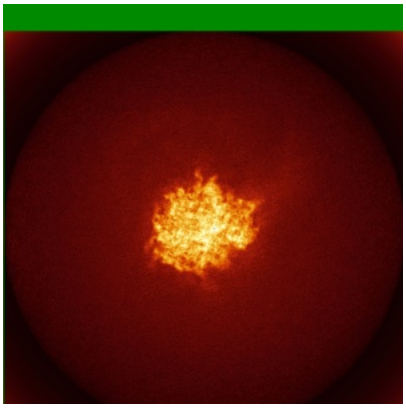


Y

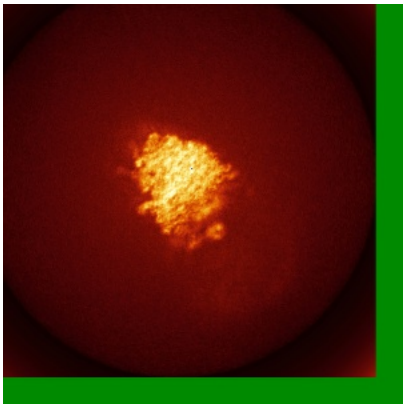


Z

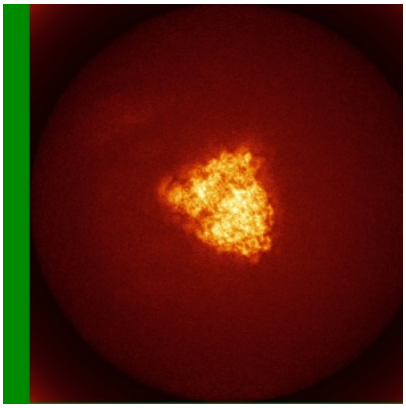
### 6.4.2 Raw map



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 0.07. 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.

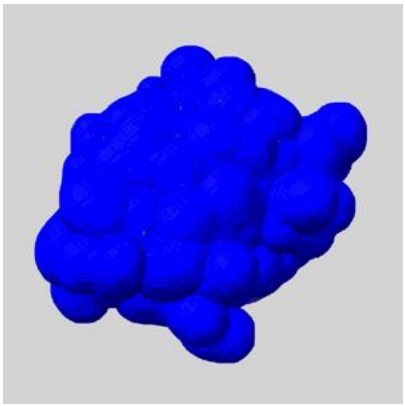
## 6.6 Mask visualisation (i)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

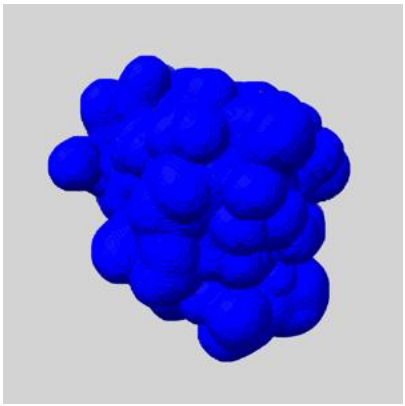
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

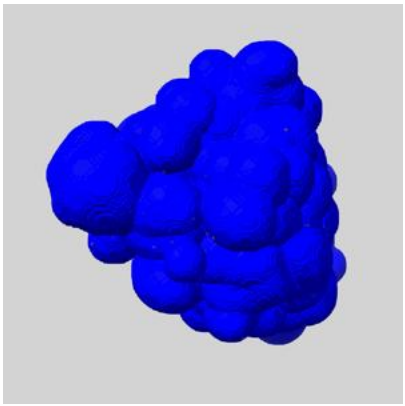
### 6.6.1 emd_0195_msk_1.map (i)



X



Y

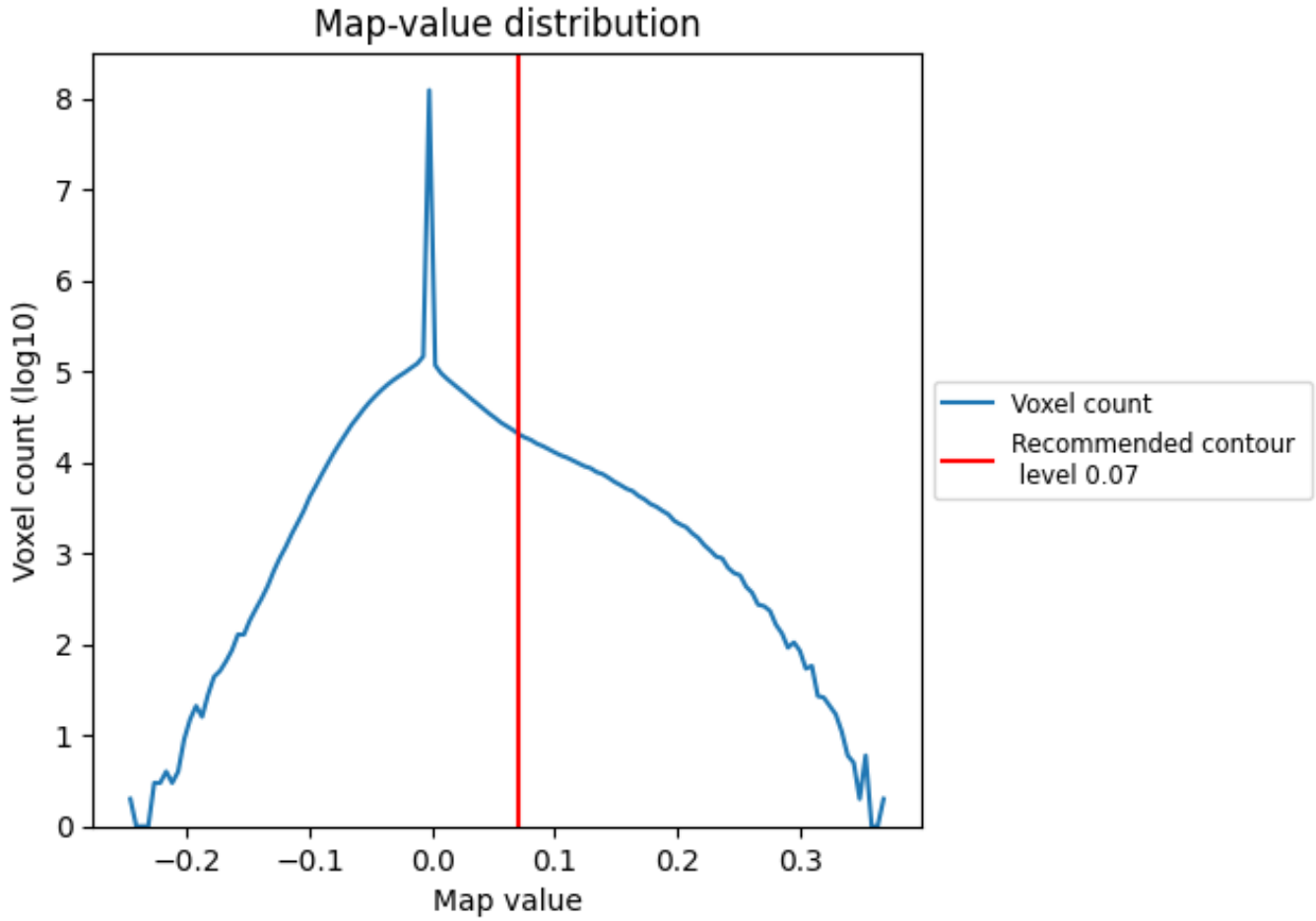


Z

# 7 Map analysis

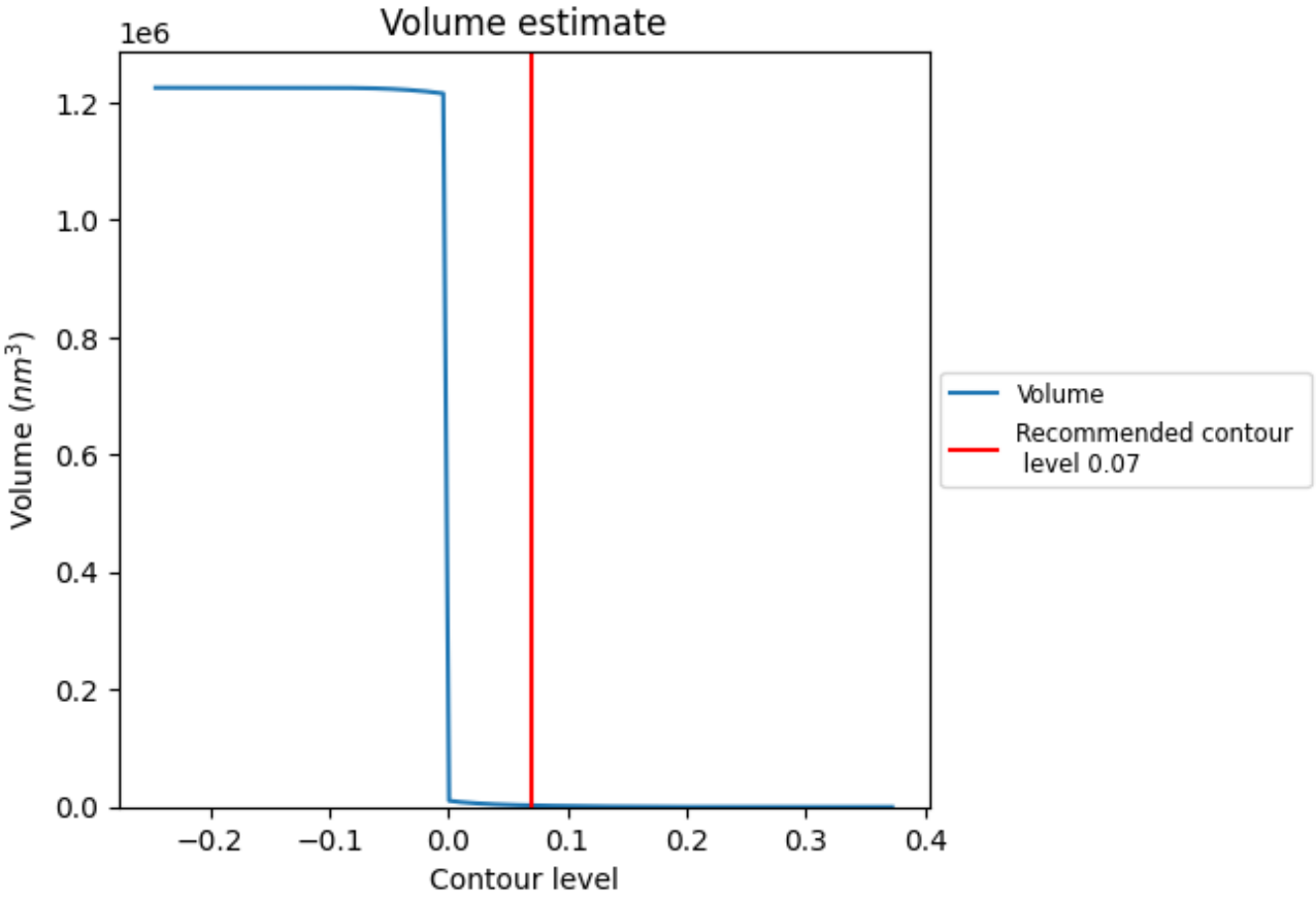
This section contains the results of statistical analysis of the map.

## 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.

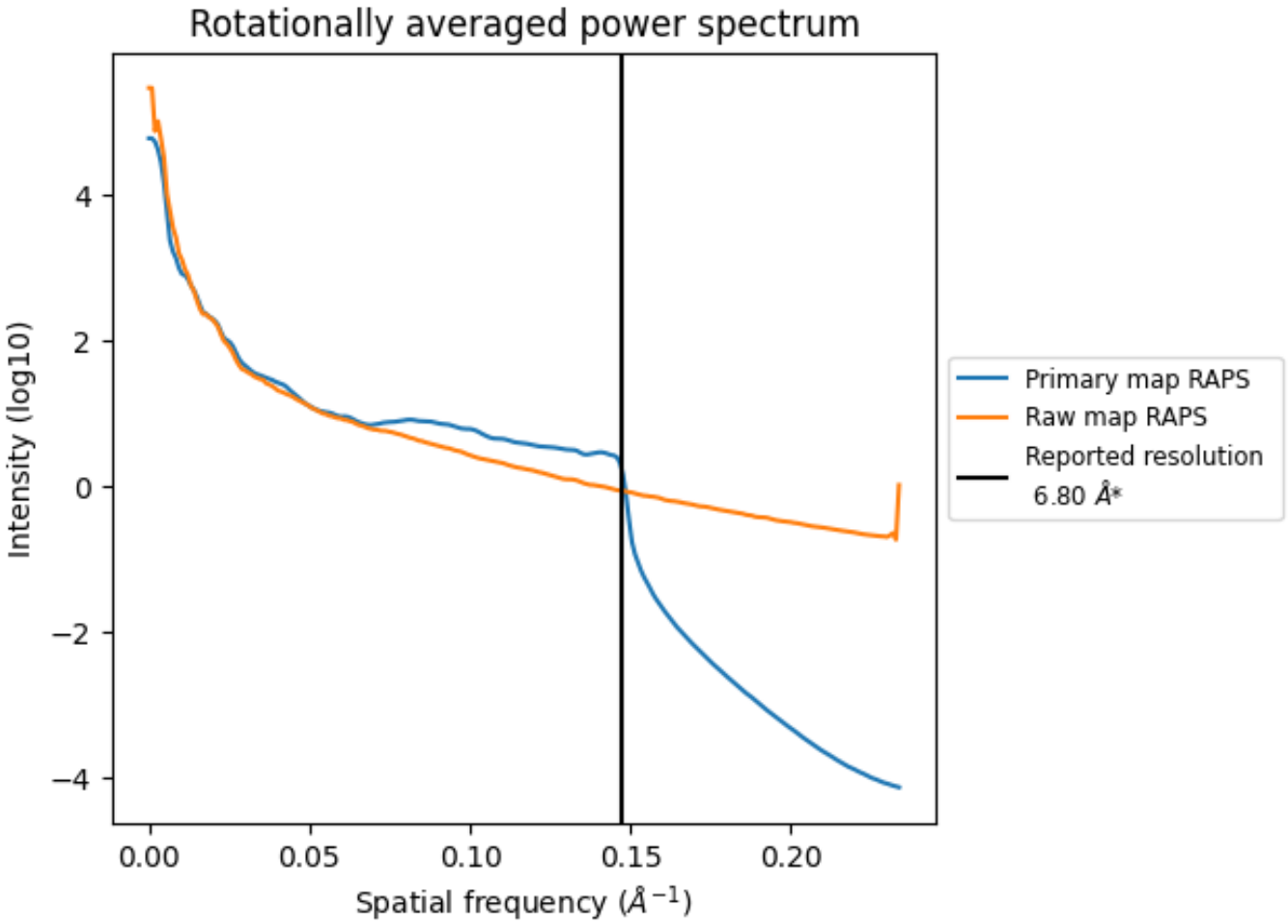
## 7.2 Volume estimate (i)




The volume at the recommended contour level is 2563 $nm^3$; this corresponds to an approximate mass of 2315 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)

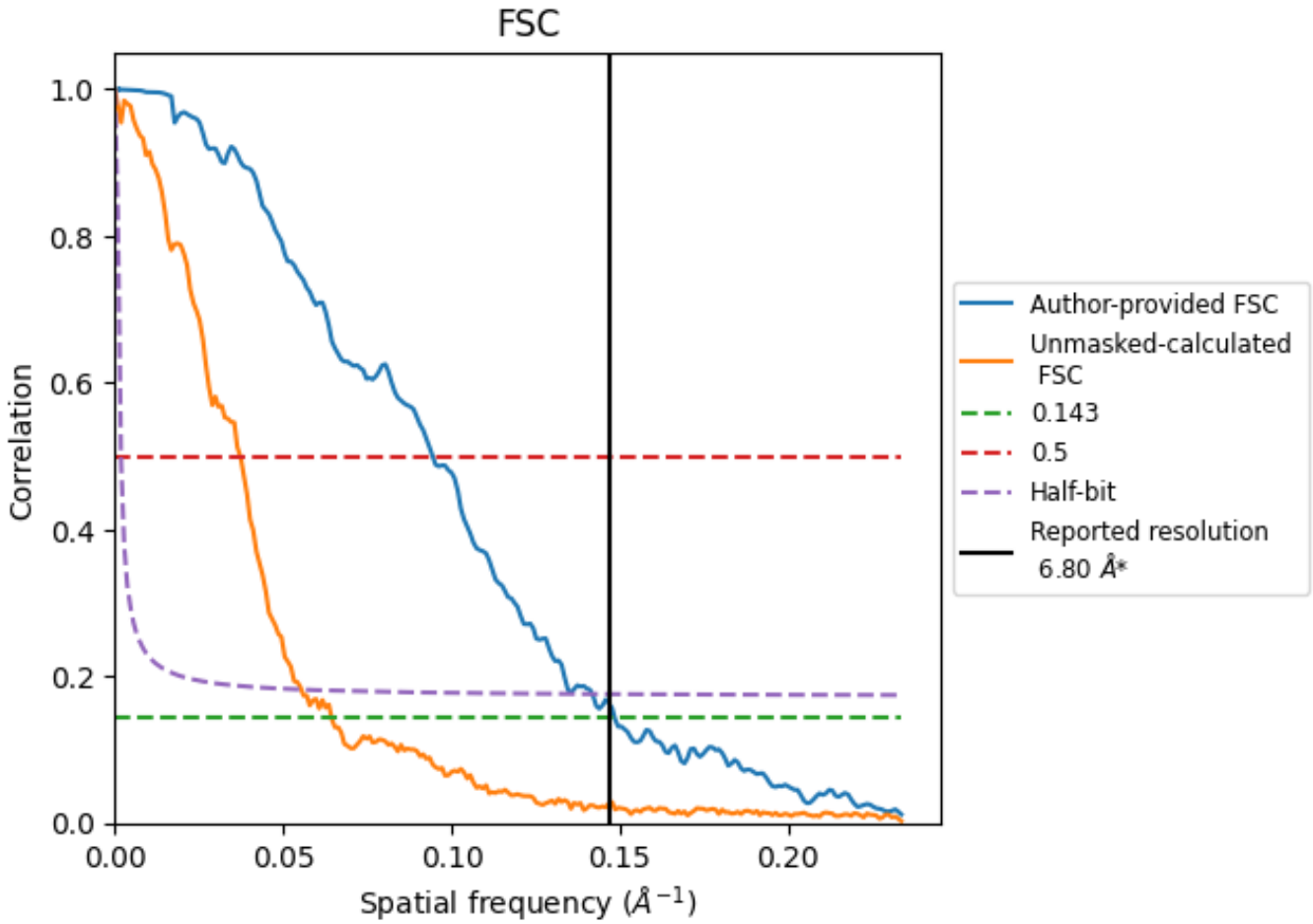



*Reported resolution corresponds to spatial frequency of 0.147 Å$^{-1}$

# 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 0.147 Å$^{-1}$

## 8.2 Resolution estimates (i)

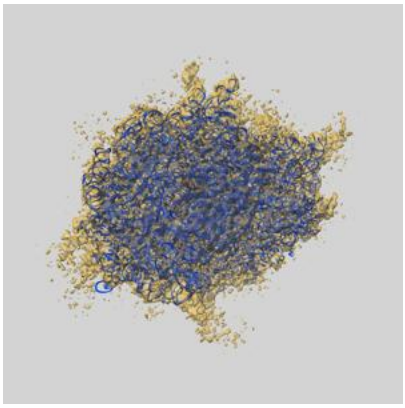
| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---|---|---|---|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 6.80 | - | - |
| Author-provided FSC curve | 6.73 | 10.59 | 7.05 |
| Unmasked-calculated* | 15.53 | 26.81 | 18.05 |

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 15.53 differs from the reported value 6.8 by more than 10 %

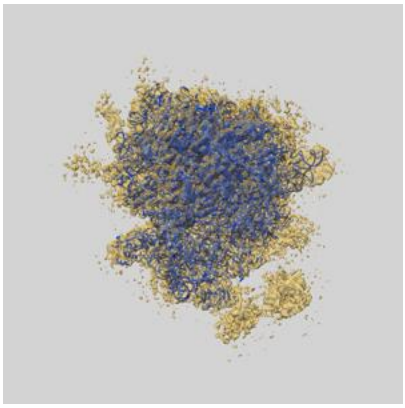
# 9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-0195 and PDB model 6HCM. Per-residue inclusion information can be found in section 3 on page 22.

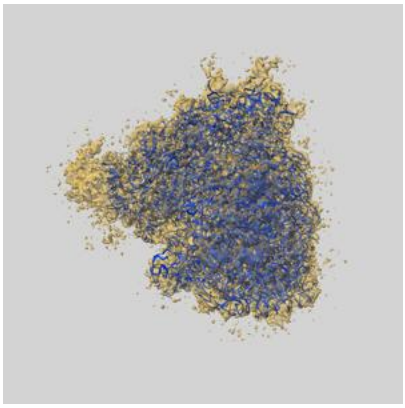
## 9.1 Map-model overlay



X



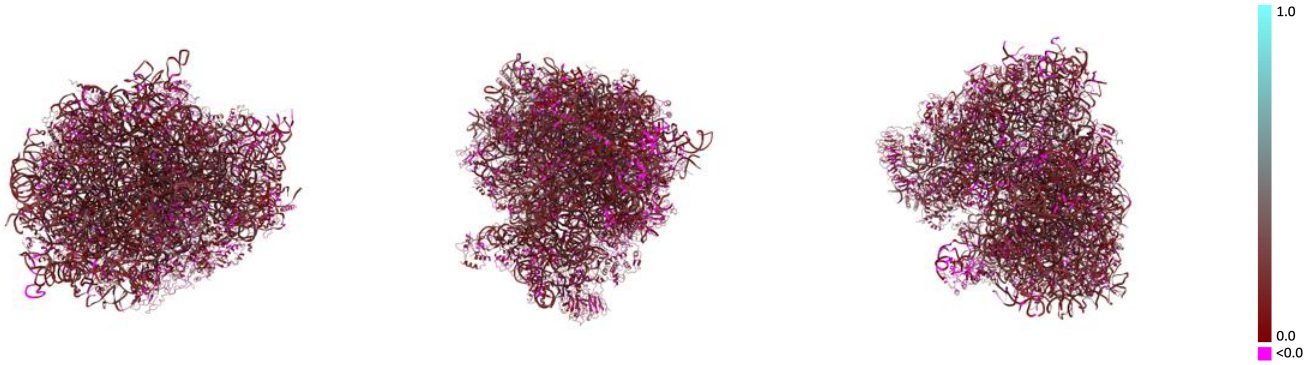
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.07 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.

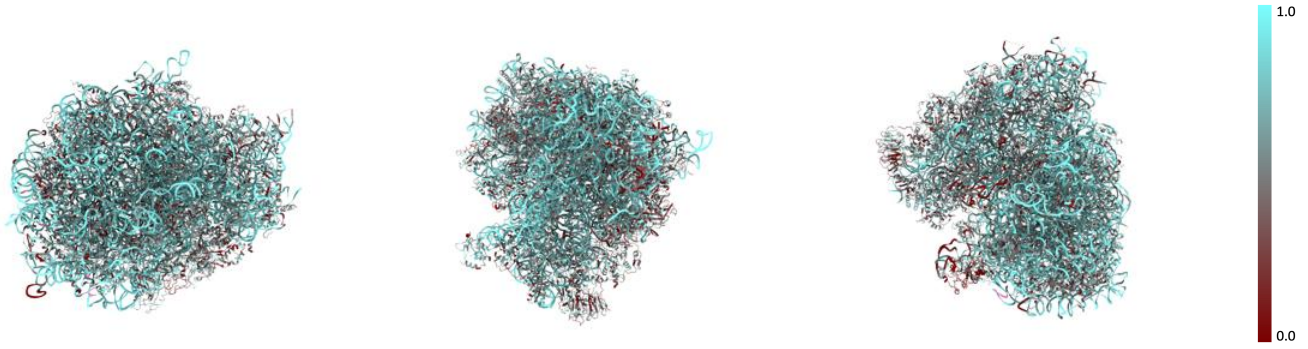
## 9.2 Q-score mapped to coordinate model (i)




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.

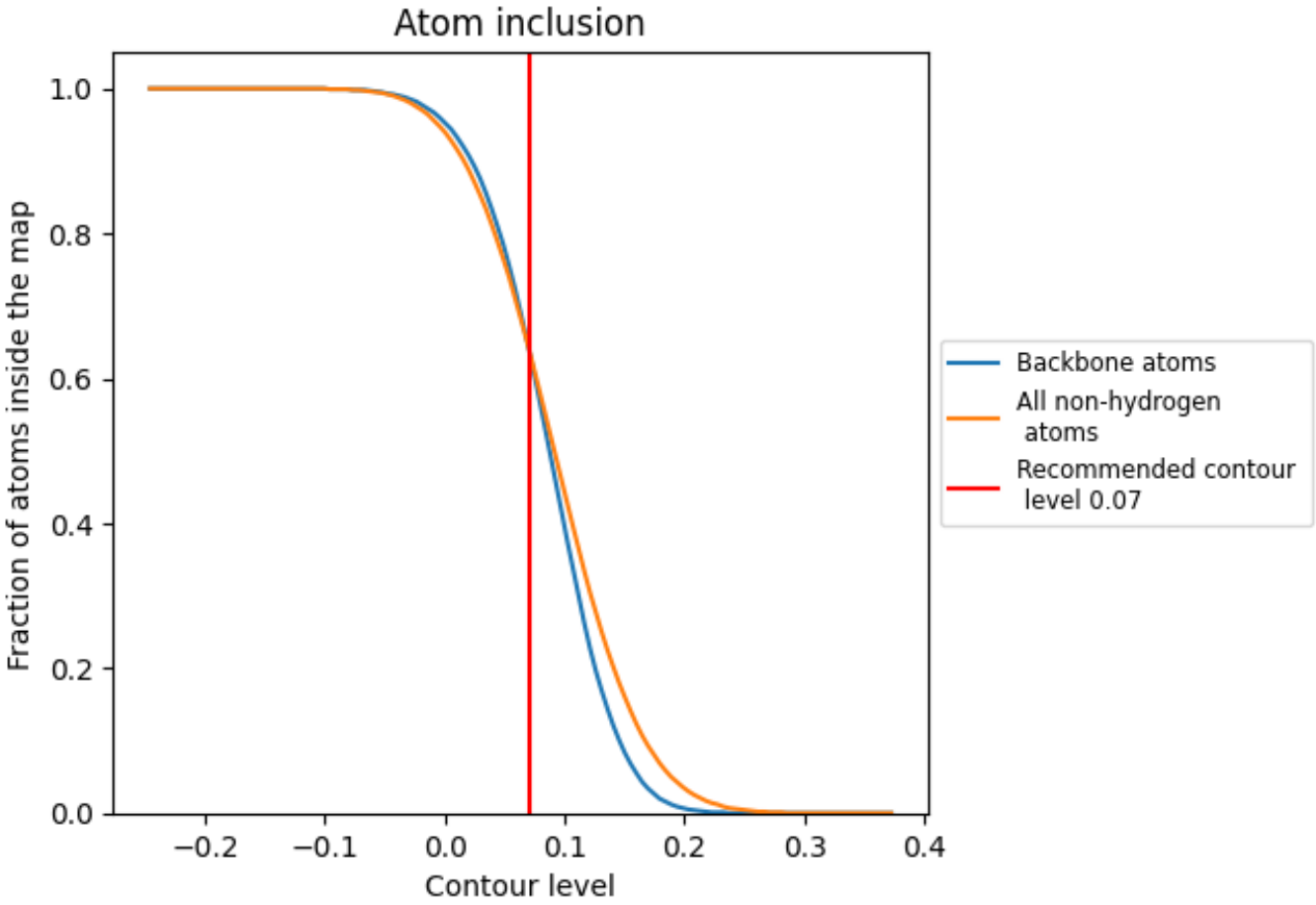
## 9.3 Atom inclusion mapped to coordinate model (i)




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 (0.07).

## 9.4 Atom inclusion (i)




At the recommended contour level, 64% of all backbone atoms, 64% 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 (0.07) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.6430 | 0.1560 |
| 1 | 0.3820 | 0.2540 |
| 23 | 0.8380 | 0.1860 |
| 52 | 0.7750 | 0.1840 |
| 72 | 0.8570 | 0.1930 |
| 82 | 0.7810 | 0.1910 |
| A1 | 0.8010 | 0.1860 |
| A3 | 0.4000 | 0.1180 |
| B1 | 0.5040 | 0.1410 |
| B3 | 0.5100 | 0.1250 |
| C1 | 0.3840 | 0.1360 |
| C3 | 0.4490 | 0.1210 |
| D1 | 0.5040 | 0.1390 |
| D3 | 0.6500 | 0.1380 |
| E1 | 0.5010 | 0.1310 |
| E3 | 0.5310 | 0.1480 |
| F1 | 0.5090 | 0.1320 |
| F3 | 0.4770 | 0.1160 |
| G1 | 0.4840 | 0.1100 |
| G3 | 0.4950 | 0.1370 |
| H1 | 0.5170 | 0.1190 |
| H3 | 0.5210 | 0.1440 |
| I1 | 0.4930 | 0.1200 |
| I3 | 0.5110 | 0.1390 |
| J1 | 0.4680 | 0.1170 |
| J3 | 0.5990 | 0.1310 |
| K1 | 0.5900 | 0.1370 |
| L1 | 0.5420 | 0.1290 |
| L3 | 0.5190 | 0.1400 |
| M1 | 0.3740 | 0.1340 |
| M3 | 0.6010 | 0.1400 |
| N1 | 0.5390 | 0.1050 |
| N3 | 0.4740 | 0.1140 |
| O1 | 0.4680 | 0.1380 |
| O3 | 0.5240 | 0.1390 |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| Chain | Atom inclusion | Q-score |
|---|---|---|
| P1 | 0.3760 | 0.1270 |
| P3 | 0.4850 | 0.1130 |
| Q1 | 0.5750 | 0.1100 |
| Q3 | 0.4550 | 0.1380 |
| R1 | 0.4510 | 0.1160 |
| R3 | 0.4980 | 0.0900 |
| S1 | 0.4370 | 0.1370 |
| S3 | 0.5060 | 0.1360 |
| T1 | 0.5150 | 0.1230 |
| T3 | 0.5050 | 0.1470 |
| U1 | 0.5330 | 0.1170 |
| U3 | 0.5840 | 0.1060 |
| V1 | 0.4880 | 0.1300 |
| V3 | 0.4030 | 0.1360 |
| W1 | 0.4370 | 0.1090 |
| W3 | 0.4680 | 0.0970 |
| X1 | 0.4540 | 0.1250 |
| X3 | 0.4770 | 0.1340 |
| Y1 | 0.5110 | 0.1410 |
| Y3 | 0.6080 | 0.1250 |
| Z1 | 0.6340 | 0.1340 |
| Z3 | 0.3850 | 0.0220 |
| a1 | 0.4430 | 0.1270 |
| a3 | 0.4970 | 0.1220 |
| b1 | 0.4460 | 0.1270 |
| b3 | 0.4630 | 0.1180 |
| c1 | 0.3520 | 0.1230 |
| c3 | 0.3700 | 0.0290 |
| d1 | 0.5060 | 0.1370 |
| d3 | 0.5230 | 0.1210 |
| e1 | 0.5270 | 0.1260 |
| e3 | 0.4710 | 0.1410 |
| f1 | 0.5420 | 0.1390 |
| f3 | 0.4330 | 0.1350 |
| g1 | 0.6580 | 0.1120 |
| g3 | 0.3670 | 0.0690 |
| h1 | 0.4140 | 0.1270 |
| h3 | 0.5120 | 0.1120 |
| i3 | 0.4890 | 0.1140 |
| j1 | 0.4510 | 0.1310 |
| j3 | 0.5070 | 0.1090 |
| k1 | 0.4340 | 0.1300 |

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| Chain | Atom inclusion | Q-score |
|---|---|---|
| k3 | 0.4070 | 0.0340 |
| l3 | 0.5180 | 0.1500 |
| m3 | 0.5430 | 0.1360 |
| n3 | 0.4910 | 0.1060 |
| o3 | 0.5750 | 0.1300 |
| p3 | 0.5180 | 0.1170 |
| r3 | 0.4460 | 0.1340 |
| s3 | 0.3870 | 0.0720 |
| t3 | 0.4490 | 0.1160 |
| u3 | 0.1270 | 0.0230 |
| w3 | 0.5850 | 0.1600 |