



wwPDB EM Validation Summary Report ⓘ

Feb 9, 2026 – 05:16 am GMT

PDB ID : 9QLP / pdb_00009qlp
EMDB ID : EMD-53231
Title : NMT1-NAC bound human RNC with full length ARF1 - State 2
Authors : Denk, T.; Berninghausen, O.; Beckmann, R.
Deposited on : 2025-03-21
Resolution : 2.75 Å (reported)

This is a wwPDB EM Validation Summary 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:

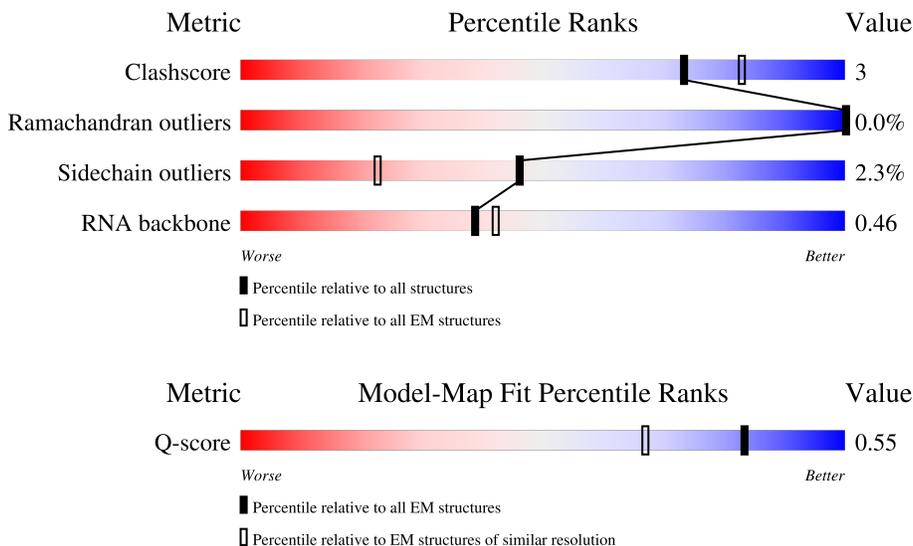
EMDB validation analysis : 0.0.1.dev131
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.48

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 2.75 Å.

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



| Metric | Whole archive (#Entries) | EM structures (#Entries) | Similar EM resolution (#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|--|
| Clashscore | 210492 | 15764 | - |
| Ramachandran outliers | 207382 | 16835 | - |
| Sidechain outliers | 206894 | 16415 | - |
| RNA backbone | 6643 | 2191 | - |
| Q-score | - | 25397 | 10570 (2.25 - 3.25) |

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 $\leq 5\%$. 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 | CM | 952 | 99% |
| 2 | CP | 75 | 63% 37% |
| 3 | CR | 437 | 79% 14% 5% |

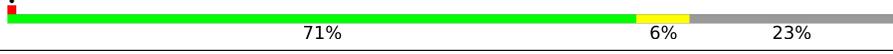
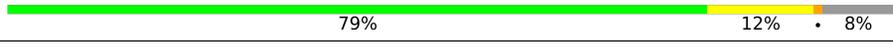
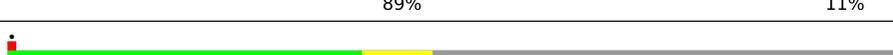
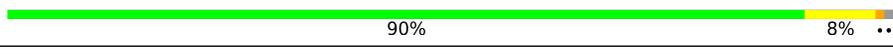
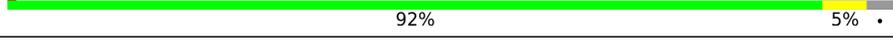
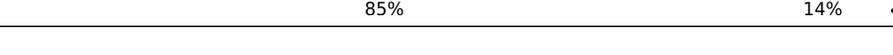
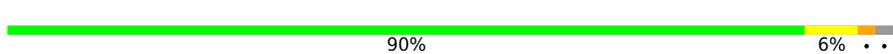
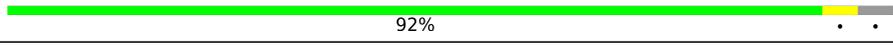
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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 4 | CZ | 217 |  |
| 5 | L5 | 5070 |  |
| 6 | L7 | 121 |  |
| 7 | L8 | 157 |  |
| 8 | LA | 257 |  |
| 9 | LB | 403 |  |
| 10 | LC | 427 |  |
| 11 | LD | 297 |  |
| 12 | LE | 288 |  |
| 13 | LF | 248 |  |
| 14 | LG | 266 |  |
| 15 | LH | 192 |  |
| 16 | LI | 214 |  |
| 17 | LJ | 178 |  |
| 18 | LL | 211 |  |
| 19 | LM | 215 |  |
| 20 | LN | 204 |  |
| 21 | LO | 203 |  |
| 22 | LP | 184 |  |
| 23 | LQ | 188 |  |
| 24 | LR | 196 |  |
| 25 | LS | 176 |  |
| 26 | LT | 160 |  |
| 27 | LU | 128 |  |
| 28 | LV | 140 |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 29 | LW | 157 |  |
| 30 | LX | 156 |  |
| 31 | LY | 145 |  |
| 32 | LZ | 136 |  |
| 33 | La | 148 |  |
| 34 | Lb | 159 |  |
| 35 | Lc | 115 |  |
| 36 | Ld | 125 |  |
| 37 | Le | 135 |  |
| 38 | Lf | 110 |  |
| 39 | Lg | 117 |  |
| 40 | Lh | 123 |  |
| 41 | Li | 105 |  |
| 42 | Lj | 97 |  |
| 43 | Lk | 70 |  |
| 44 | Ll | 51 |  |
| 45 | Lm | 128 |  |
| 46 | Ln | 25 |  |
| 47 | Lo | 106 |  |
| 48 | Lp | 91 |  |
| 49 | Lr | 137 |  |
| 50 | Ls | 317 |  |
| 51 | Lt | 165 |  |
| 52 | NA | 215 |  |
| 53 | NB | 162 |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 54 | NM | 496 | 8% 60% 16% 23% |
| 55 | S2 | 1869 | 58% 31% 8% |
| 56 | SA | 295 | 62% 12% 27% |
| 57 | SB | 264 | 71% 9% 19% |
| 58 | SC | 293 | 67% 6% 25% |
| 59 | SD | 243 | 79% 12% 8% |
| 60 | SE | 263 | 82% 17% |
| 61 | SF | 204 | 76% 12% 11% |
| 62 | SG | 249 | 82% 10% 7% |
| 63 | SH | 194 | 80% 13% 6% |
| 64 | SI | 208 | 91% 8% |
| 65 | SJ | 194 | 85% 8% 8% |
| 66 | SK | 165 | 48% 10% 42% |
| 67 | SL | 158 | 81% 10% 9% |
| 68 | SM | 132 | 6% 67% 24% 8% |
| 69 | SN | 151 | 93% 7% |
| 70 | SO | 151 | 79% 9% 11% |
| 71 | SP | 145 | 72% 17% 11% |
| 72 | SQ | 146 | 82% 15% |
| 73 | SR | 135 | 90% 6% |
| 74 | SS | 152 | 74% 17% 7% |
| 75 | ST | 145 | 86% 13% |
| 76 | SU | 119 | 75% 10% 15% |
| 77 | SV | 83 | 93% 7% |
| 78 | SW | 130 | 93% 6% |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|---|
| 79 | SX | 143 |  87% 10% .. |
| 80 | SY | 133 |  80% 11% . 8% |
| 81 | SZ | 125 |  53% 7% 40% |
| 82 | Sa | 115 |  75% 11% 14% |
| 83 | Sb | 84 |  96% .. |
| 84 | Sc | 69 |  78% 12% . 9% |
| 85 | Sd | 56 |  88% 7% 5% |
| 86 | Se | 133 |  36% 5% 59% |
| 87 | Sf | 156 |  35% . . 60% |
| 88 | Sg | 317 |  83% 13% . . |

2 Entry composition i

There are 92 unique types of molecules in this entry. The entry contains 223418 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 Full length ARF1-V5-hCMV staller mRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|----|---------|-------|
| | | | Total | C | N | O | P | | |
| 1 | CM | 12 | 247 | 111 | 37 | 87 | 12 | 0 | 0 |

- Molecule 2 is a RNA chain called prolyl-tRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| | | | Total | C | N | O | P | | |
| 2 | CP | 75 | 1602 | 713 | 284 | 530 | 75 | 0 | 0 |

- Molecule 3 is a protein called Eukaryotic peptide chain release factor subunit 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 3 | CR | 414 | 3269 | 2080 | 557 | 621 | 11 | 0 | 0 |

- Molecule 4 is a protein called ADP-ribosylation factor 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 4 | CZ | 206 | 1491 | 947 | 250 | 286 | 8 | 0 | 0 |

There are 42 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| CZ | 1 | GLN | - | expression tag | UNP P84077 |
| CZ | 4 | SER | ILE | conflict | UNP P84077 |
| CZ | 6 | SER | ALA | conflict | UNP P84077 |
| CZ | 7 | LYS | ASN | conflict | UNP P84077 |
| CZ | 8 | PRO | LEU | conflict | UNP P84077 |
| CZ | 9 | ARG | PHE | conflict | UNP P84077 |
| CZ | 182 | GLY | - | expression tag | UNP P84077 |
| CZ | 183 | LYS | - | expression tag | UNP P84077 |
| CZ | 184 | PRO | - | expression tag | UNP P84077 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| CZ | 185 | ILE | - | expression tag | UNP P84077 |
| CZ | 186 | PRO | - | expression tag | UNP P84077 |
| CZ | 187 | ASN | - | expression tag | UNP P84077 |
| CZ | 188 | PRO | - | expression tag | UNP P84077 |
| CZ | 189 | LEU | - | expression tag | UNP P84077 |
| CZ | 190 | LEU | - | expression tag | UNP P84077 |
| CZ | 191 | GLY | - | expression tag | UNP P84077 |
| CZ | 192 | LEU | - | expression tag | UNP P84077 |
| CZ | 193 | ASP | - | expression tag | UNP P84077 |
| CZ | 194 | SER | - | expression tag | UNP P84077 |
| CZ | 195 | THR | - | expression tag | UNP P84077 |
| CZ | 196 | MET | - | expression tag | UNP P84077 |
| CZ | 197 | GLU | - | expression tag | UNP P84077 |
| CZ | 198 | PRO | - | expression tag | UNP P84077 |
| CZ | 199 | LEU | - | expression tag | UNP P84077 |
| CZ | 200 | VAL | - | expression tag | UNP P84077 |
| CZ | 201 | LEU | - | expression tag | UNP P84077 |
| CZ | 202 | SER | - | expression tag | UNP P84077 |
| CZ | 203 | ALA | - | expression tag | UNP P84077 |
| CZ | 204 | LYS | - | expression tag | UNP P84077 |
| CZ | 205 | LYS | - | expression tag | UNP P84077 |
| CZ | 206 | LEU | - | expression tag | UNP P84077 |
| CZ | 207 | SER | - | expression tag | UNP P84077 |
| CZ | 208 | SER | - | expression tag | UNP P84077 |
| CZ | 209 | LEU | - | expression tag | UNP P84077 |
| CZ | 210 | LEU | - | expression tag | UNP P84077 |
| CZ | 211 | THR | - | expression tag | UNP P84077 |
| CZ | 212 | CYS | - | expression tag | UNP P84077 |
| CZ | 213 | LYS | - | expression tag | UNP P84077 |
| CZ | 214 | TYR | - | expression tag | UNP P84077 |
| CZ | 215 | ILE | - | expression tag | UNP P84077 |
| CZ | 216 | PRO | - | expression tag | UNP P84077 |
| CZ | 217 | PRO | - | expression tag | UNP P84077 |

- Molecule 5 is a RNA chain called 28S rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| | | | Total | C | N | O | P | | |
| 5 | L5 | 3648 | 78199 | 34823 | 14307 | 25422 | 3647 | 0 | 0 |

- Molecule 6 is a RNA chain called 5S rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| | | | Total | C | N | O | P | | |
| 6 | L7 | 120 | 2558 | 1141 | 456 | 842 | 119 | 0 | 0 |

- Molecule 7 is a RNA chain called RNA (156-MER).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| | | | Total | C | N | O | P | | |
| 7 | L8 | 156 | 3314 | 1480 | 585 | 1094 | 155 | 0 | 0 |

- Molecule 8 is a protein called 60S ribosomal protein L8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 8 | LA | 248 | 1898 | 1189 | 389 | 314 | 6 | 0 | 0 |

- Molecule 9 is a protein called 60S ribosomal protein L3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 9 | LB | 395 | 3183 | 2027 | 597 | 545 | 14 | 0 | 0 |

- Molecule 10 is a protein called 60S ribosomal protein L4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 10 | LC | 364 | 2884 | 1814 | 576 | 479 | 15 | 0 | 0 |

- Molecule 11 is a protein called 60S ribosomal protein L5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 11 | LD | 293 | 2361 | 1496 | 430 | 421 | 14 | 0 | 0 |

- Molecule 12 is a protein called Large ribosomal subunit protein eL6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 12 | LE | 219 | 1754 | 1129 | 334 | 287 | 4 | 0 | 0 |

- Molecule 13 is a protein called Large ribosomal subunit protein uL30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 13 | LF | 225 | Total | C | N | O | S | 0 | 0 |
| | | | 1870 | 1202 | 358 | 301 | 9 | | |

- Molecule 14 is a protein called 60S ribosomal protein L7a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 14 | LG | 229 | Total | C | N | O | S | 0 | 0 |
| | | | 1818 | 1157 | 351 | 306 | 4 | | |

- Molecule 15 is a protein called 60S ribosomal protein L9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 15 | LH | 190 | Total | C | N | O | S | 0 | 0 |
| | | | 1510 | 950 | 282 | 272 | 6 | | |

- Molecule 16 is a protein called Ribosomal protein uL16-like.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 16 | LI | 207 | Total | C | N | O | S | 0 | 0 |
| | | | 1666 | 1059 | 323 | 270 | 14 | | |

- Molecule 17 is a protein called 60S ribosomal protein L11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17 | LJ | 169 | Total | C | N | O | S | 0 | 0 |
| | | | 1329 | 841 | 250 | 232 | 6 | | |

- Molecule 18 is a protein called 60S ribosomal protein L13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 18 | LL | 205 | Total | C | N | O | S | 0 | 0 |
| | | | 1630 | 1020 | 340 | 266 | 4 | | |

- Molecule 19 is a protein called 60S ribosomal protein L14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19 | LM | 139 | Total | C | N | O | S | 0 | 0 |
| | | | 1122 | 720 | 216 | 179 | 7 | | |

- Molecule 20 is a protein called 60S ribosomal protein L15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 20 | LN | 203 | 1701 | 1072 | 359 | 266 | 4 | 0 | 0 |

- Molecule 21 is a protein called 60S ribosomal protein L13a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 21 | LO | 200 | 1633 | 1053 | 318 | 257 | 5 | 0 | 0 |

- Molecule 22 is a protein called 60S ribosomal protein L17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 22 | LP | 153 | 1234 | 771 | 240 | 214 | 9 | 0 | 0 |

- Molecule 23 is a protein called 60S ribosomal protein L18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 23 | LQ | 187 | 1502 | 939 | 313 | 245 | 5 | 0 | 0 |

- Molecule 24 is a protein called 60S ribosomal protein L19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 24 | LR | 176 | 1452 | 898 | 318 | 227 | 9 | 0 | 0 |

- Molecule 25 is a protein called 60S ribosomal protein L18a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 25 | LS | 175 | 1452 | 925 | 283 | 234 | 10 | 0 | 0 |

- Molecule 26 is a protein called 60S ribosomal protein L21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 26 | LT | 159 | 1282 | 813 | 250 | 213 | 6 | 0 | 0 |

- Molecule 27 is a protein called 60S ribosomal protein L22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 27 | LU | 101 | 806 | 520 | 141 | 143 | 2 | 0 | 0 |

- Molecule 28 is a protein called 60S ribosomal protein L23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 28 | LV | 131 | 971 | 613 | 183 | 170 | 5 | 0 | 0 |

- Molecule 29 is a protein called 60S ribosomal protein L24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 29 | LW | 115 | 808 | 506 | 160 | 139 | 3 | 0 | 0 |

- Molecule 30 is a protein called 60S ribosomal protein L23a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 30 | LX | 120 | 981 | 627 | 184 | 169 | 1 | 0 | 0 |

- Molecule 31 is a protein called 60S ribosomal protein L26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 31 | LY | 134 | 1111 | 697 | 225 | 186 | 3 | 0 | 0 |

- Molecule 32 is a protein called 60S ribosomal protein L27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 32 | LZ | 135 | 1107 | 714 | 208 | 182 | 3 | 0 | 0 |

- Molecule 33 is a protein called 60S ribosomal protein L27a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 33 | La | 147 | 1154 | 731 | 236 | 184 | 3 | 0 | 0 |

- Molecule 34 is a protein called 60S ribosomal protein L29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 34 | Lb | 75 | Total | C | N | O | S | 0 | 0 |
| | | | 590 | 367 | 123 | 97 | 3 | | |

- Molecule 35 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35 | Lc | 97 | Total | C | N | O | S | 0 | 0 |
| | | | 742 | 473 | 130 | 133 | 6 | | |

- Molecule 36 is a protein called 60S ribosomal protein L31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 36 | Ld | 107 | Total | C | N | O | S | 0 | 0 |
| | | | 874 | 554 | 171 | 147 | 2 | | |

- Molecule 37 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37 | Le | 128 | Total | C | N | O | S | 0 | 0 |
| | | | 1049 | 664 | 215 | 165 | 5 | | |

- Molecule 38 is a protein called 60S ribosomal protein L35a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38 | Lf | 109 | Total | C | N | O | S | 0 | 0 |
| | | | 872 | 552 | 173 | 144 | 3 | | |

- Molecule 39 is a protein called 60S ribosomal protein L34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39 | Lg | 114 | Total | C | N | O | S | 0 | 0 |
| | | | 889 | 557 | 184 | 142 | 6 | | |

- Molecule 40 is a protein called 60S ribosomal protein L35.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 40 | Lh | 121 | Total | C | N | O | S | 0 | 0 |
| | | | 1006 | 635 | 203 | 167 | 1 | | |

- Molecule 41 is a protein called 60S ribosomal protein L36.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 41 | Li | 102 | Total | C | N | O | S | 0 | 0 |
| | | | 813 | 510 | 176 | 123 | 4 | | |

- Molecule 42 is a protein called Large ribosomal subunit protein eL37.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 42 | Lj | 86 | Total | C | N | O | S | 0 | 0 |
| | | | 705 | 434 | 155 | 111 | 5 | | |

- Molecule 43 is a protein called 60S ribosomal protein L38.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 43 | Lk | 69 | Total | C | N | O | S | 0 | 0 |
| | | | 542 | 350 | 100 | 91 | 1 | | |

- Molecule 44 is a protein called 60S ribosomal protein L39.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 44 | Ll | 50 | Total | C | N | O | S | 0 | 0 |
| | | | 444 | 281 | 98 | 64 | 1 | | |

- Molecule 45 is a protein called Ubiquitin-60S ribosomal protein L40.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 45 | Lm | 52 | Total | C | N | O | S | 0 | 0 |
| | | | 425 | 264 | 90 | 65 | 6 | | |

- Molecule 46 is a protein called 60S ribosomal protein L41.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 46 | Ln | 24 | Total | C | N | O | S | 0 | 0 |
| | | | 230 | 139 | 62 | 26 | 3 | | |

- Molecule 47 is a protein called 60S ribosomal protein L36a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 47 | Lo | 105 | Total | C | N | O | S | 0 | 0 |
| | | | 862 | 542 | 175 | 139 | 6 | | |

- Molecule 48 is a protein called 60S ribosomal protein L37a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 48 | Lp | 91 | 696 | 440 | 135 | 114 | 7 | 0 | 0 |

- Molecule 49 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 49 | Lr | 125 | 997 | 618 | 207 | 168 | 4 | 0 | 0 |

- Molecule 50 is a protein called 60S acidic ribosomal protein P0.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 50 | Ls | 212 | 1640 | 1042 | 284 | 305 | 9 | 0 | 0 |

- Molecule 51 is a protein called Large ribosomal subunit protein uL11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 51 | Lt | 160 | 1208 | 749 | 226 | 229 | 4 | 0 | 0 |

- Molecule 52 is a protein called Nascent polypeptide-associated complex subunit alpha.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 52 | NA | 73 | 573 | 361 | 105 | 106 | 1 | 0 | 0 |

- Molecule 53 is a protein called Isoform 2 of Transcription factor BTF3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 53 | NB | 127 | 980 | 606 | 178 | 193 | 3 | 0 | 0 |

- Molecule 54 is a protein called Glycylpeptide N-tetradecanoyltransferase 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 54 | NM | 380 | 3122 | 2024 | 527 | 555 | 16 | 3 | 0 |

- Molecule 55 is a RNA chain called 18S rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| | | | Total | C | N | O | P | | |
| 55 | S2 | 1713 | 36562 | 16320 | 6564 | 11966 | 1712 | 0 | 0 |

- Molecule 56 is a protein called 40S ribosomal protein SA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 56 | SA | 216 | 1671 | 1068 | 297 | 298 | 8 | 0 | 0 |

- Molecule 57 is a protein called 40S ribosomal protein S3a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 57 | SB | 213 | 1718 | 1092 | 308 | 304 | 14 | 0 | 0 |

- Molecule 58 is a protein called 40S ribosomal protein S2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 58 | SC | 219 | 1661 | 1076 | 284 | 291 | 10 | 0 | 0 |

- Molecule 59 is a protein called 40S ribosomal protein S3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 59 | SD | 223 | 1594 | 1023 | 291 | 273 | 7 | 0 | 0 |

- Molecule 60 is a protein called Small ribosomal subunit protein eS4, X isoform.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 60 | SE | 262 | 1972 | 1270 | 370 | 324 | 8 | 0 | 0 |

- Molecule 61 is a protein called 40S ribosomal protein S5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 61 | SF | 181 | 1403 | 879 | 269 | 248 | 7 | 0 | 0 |

- Molecule 62 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 62 | SG | 231 | 1634 | 1026 | 332 | 269 | 7 | 0 | 0 |

- Molecule 63 is a protein called 40S ribosomal protein S7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 63 | SH | 183 | 1274 | 819 | 242 | 213 | | 0 | 0 |

- Molecule 64 is a protein called 40S ribosomal protein S8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 64 | SI | 206 | 1574 | 989 | 308 | 272 | 5 | 0 | 0 |

- Molecule 65 is a protein called 40S ribosomal protein S9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 65 | SJ | 179 | 1431 | 915 | 290 | 224 | 2 | 0 | 0 |

- Molecule 66 is a protein called 40S ribosomal protein S10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 66 | SK | 96 | 726 | 479 | 127 | 115 | 5 | 0 | 0 |

- Molecule 67 is a protein called 40S ribosomal protein S11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 67 | SL | 144 | 1143 | 730 | 213 | 194 | 6 | 0 | 0 |

- Molecule 68 is a protein called 40S ribosomal protein S12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 68 | SM | 122 | 950 | 596 | 168 | 177 | 9 | 0 | 0 |

- Molecule 69 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 69 | SN | 150 | 1182 | 758 | 226 | 197 | 1 | 0 | 0 |

- Molecule 70 is a protein called 40S ribosomal protein S14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 70 | SO | 134 | 969 | 596 | 194 | 173 | 6 | 0 | 0 |

- Molecule 71 is a protein called 40S ribosomal protein S15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 71 | SP | 129 | 990 | 626 | 190 | 168 | 6 | 0 | 0 |

- Molecule 72 is a protein called 40S ribosomal protein S16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 72 | SQ | 142 | 1075 | 689 | 204 | 179 | 3 | 0 | 0 |

- Molecule 73 is a protein called 40S ribosomal protein S17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 73 | SR | 131 | 942 | 600 | 179 | 159 | 4 | 0 | 0 |

- Molecule 74 is a protein called 40S ribosomal protein S18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 74 | SS | 141 | 1130 | 712 | 232 | 185 | 1 | 0 | 0 |

- Molecule 75 is a protein called 40S ribosomal protein S19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 75 | ST | 143 | 1081 | 679 | 210 | 189 | 3 | 0 | 0 |

- Molecule 76 is a protein called 40S ribosomal protein S20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 76 | SU | 101 | Total | C | N | O | S | 0 | 0 |
| | | | 713 | 447 | 137 | 125 | 4 | | |

- Molecule 77 is a protein called 40S ribosomal protein S21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 77 | SV | 83 | Total | C | N | O | S | 0 | 0 |
| | | | 618 | 385 | 115 | 113 | 5 | | |

- Molecule 78 is a protein called 40S ribosomal protein S15a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 78 | SW | 129 | Total | C | N | O | S | 0 | 0 |
| | | | 1026 | 655 | 193 | 172 | 6 | | |

- Molecule 79 is a protein called 40S ribosomal protein S23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 79 | SX | 141 | Total | C | N | O | S | 0 | 0 |
| | | | 1078 | 682 | 212 | 181 | 3 | | |

- Molecule 80 is a protein called 40S ribosomal protein S24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 80 | SY | 123 | Total | C | N | O | S | 0 | 0 |
| | | | 927 | 588 | 183 | 152 | 4 | | |

- Molecule 81 is a protein called 40S ribosomal protein S25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 81 | SZ | 75 | Total | C | N | O | S | 0 | 0 |
| | | | 559 | 361 | 105 | 92 | 1 | | |

- Molecule 82 is a protein called 40S ribosomal protein S26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 82 | Sa | 99 | Total | C | N | O | S | 0 | 0 |
| | | | 781 | 487 | 165 | 124 | 5 | | |

- Molecule 83 is a protein called 40S ribosomal protein S27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 83 | Sb | 83 | Total | C | N | O | S | 0 | 0 |
| | | | 618 | 386 | 118 | 107 | 7 | | |

- Molecule 84 is a protein called 40S ribosomal protein S28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 84 | Sc | 63 | Total | C | N | O | S | 0 | 0 |
| | | | 472 | 289 | 92 | 89 | 2 | | |

- Molecule 85 is a protein called 40S ribosomal protein S29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 85 | Sd | 53 | Total | C | N | O | S | 0 | 0 |
| | | | 433 | 271 | 87 | 70 | 5 | | |

- Molecule 86 is a protein called Ubiquitin-like FUBI-ribosomal protein eS30 fusion protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 86 | Se | 55 | Total | C | N | O | S | 0 | 0 |
| | | | 416 | 254 | 93 | 68 | 1 | | |

- Molecule 87 is a protein called Ubiquitin.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 87 | Sf | 63 | Total | C | N | O | S | 0 | 0 |
| | | | 515 | 324 | 98 | 86 | 7 | | |

- Molecule 88 is a protein called Receptor of activated protein C kinase 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 88 | Sg | 308 | Total | C | N | O | S | 0 | 0 |
| | | | 2180 | 1393 | 381 | 395 | 11 | | |

- Molecule 89 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

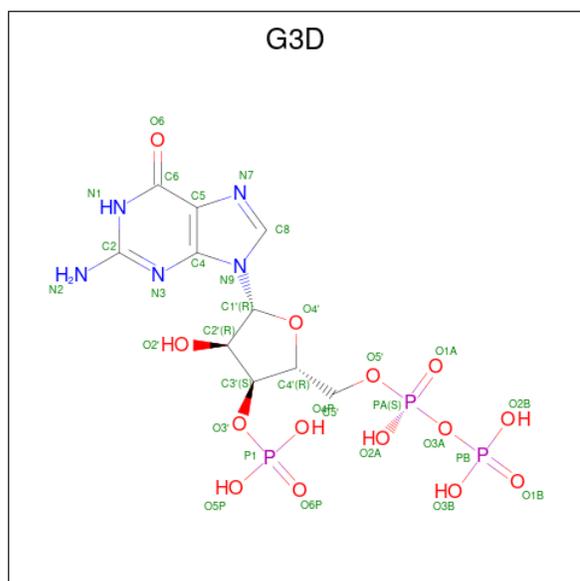
| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|-----|---------|
| 89 | CM | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |
| 89 | L5 | 126 | Total | Mg | 0 |
| | | | 126 | 126 | |
| 89 | L7 | 3 | Total | Mg | 0 |
| | | | 3 | 3 | |

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| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| | | | Total | Mg | |
| 89 | L8 | 3 | 3 | 3 | 0 |
| 89 | LA | 1 | 1 | 1 | 0 |
| 89 | LC | 1 | 1 | 1 | 0 |
| 89 | LI | 1 | 1 | 1 | 0 |
| 89 | LN | 1 | 1 | 1 | 0 |
| 89 | LP | 1 | 1 | 1 | 0 |
| 89 | LV | 1 | 1 | 1 | 0 |
| 89 | S2 | 51 | 51 | 51 | 0 |
| 89 | ST | 1 | 1 | 1 | 0 |

- Molecule 90 is GUANOSINE-3'-MONOPHOSPHATE-5'-DIPHOSPHATE (CCD ID: G3D) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



| Mol | Chain | Residues | Atoms | | | | AltConf | |
|-----|-------|----------|-------|----|---|----|---------|---|
| | | | Total | C | N | O | | P |
| 90 | CZ | 1 | 32 | 10 | 5 | 14 | 3 | 0 |

- Molecule 91 is ZINC ION (CCD ID: ZN) (formula: Zn).

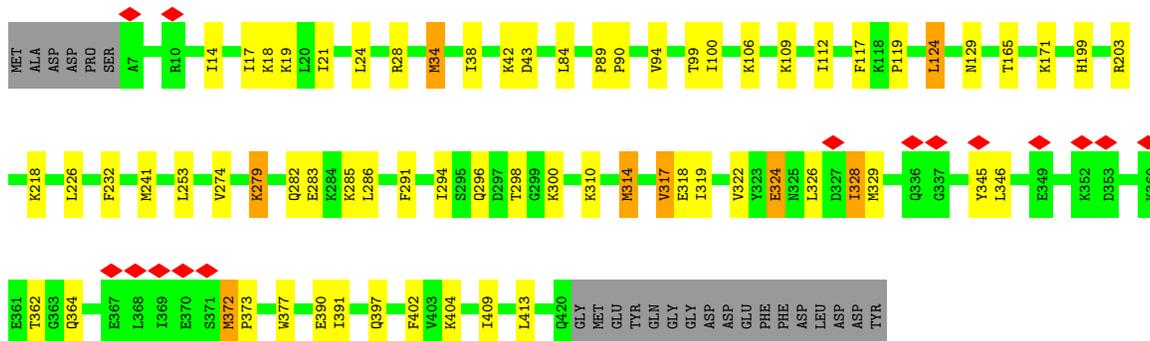
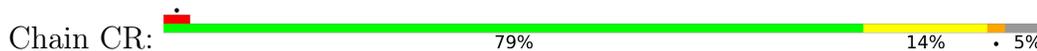
| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|------------|---------|---------|
| 91 | Lg | 1 | Total 1 | Zn 1 | 0 |
| 91 | Lj | 1 | Total 1 | Zn 1 | 0 |
| 91 | Lm | 1 | Total 1 | Zn 1 | 0 |
| 91 | Lo | 1 | Total 1 | Zn 1 | 0 |
| 91 | Lp | 1 | Total 1 | Zn 1 | 0 |
| 91 | Sa | 1 | Total 1 | Zn 1 | 0 |
| 91 | Sd | 1 | Total 1 | Zn 1 | 0 |
| 91 | Sf | 1 | Total 1 | Zn 1 | 0 |

- Molecule 92 is water.

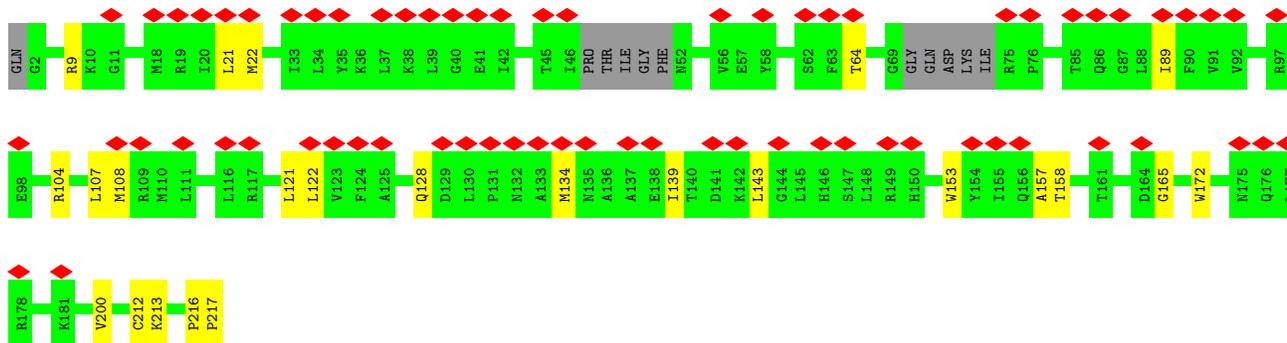
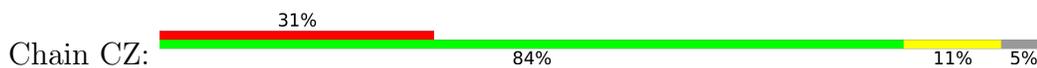
| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|------------|--------|---------|
| 92 | L5 | 3 | Total 3 | O 3 | 0 |
| 92 | L7 | 1 | Total 1 | O 1 | 0 |
| 92 | LI | 1 | Total 1 | O 1 | 0 |
| 92 | LN | 1 | Total 1 | O 1 | 0 |
| 92 | La | 1 | Total 1 | O 1 | 0 |
| 92 | Lp | 1 | Total 1 | O 1 | 0 |
| 92 | S2 | 3 | Total 3 | O 3 | 0 |



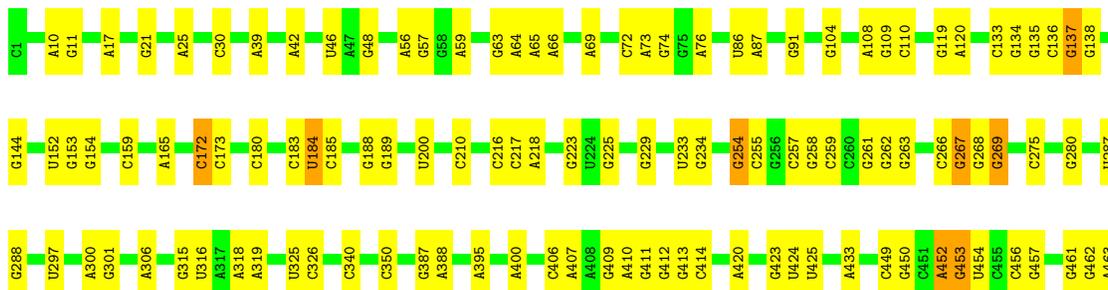
• Molecule 3: Eukaryotic peptide chain release factor subunit 1

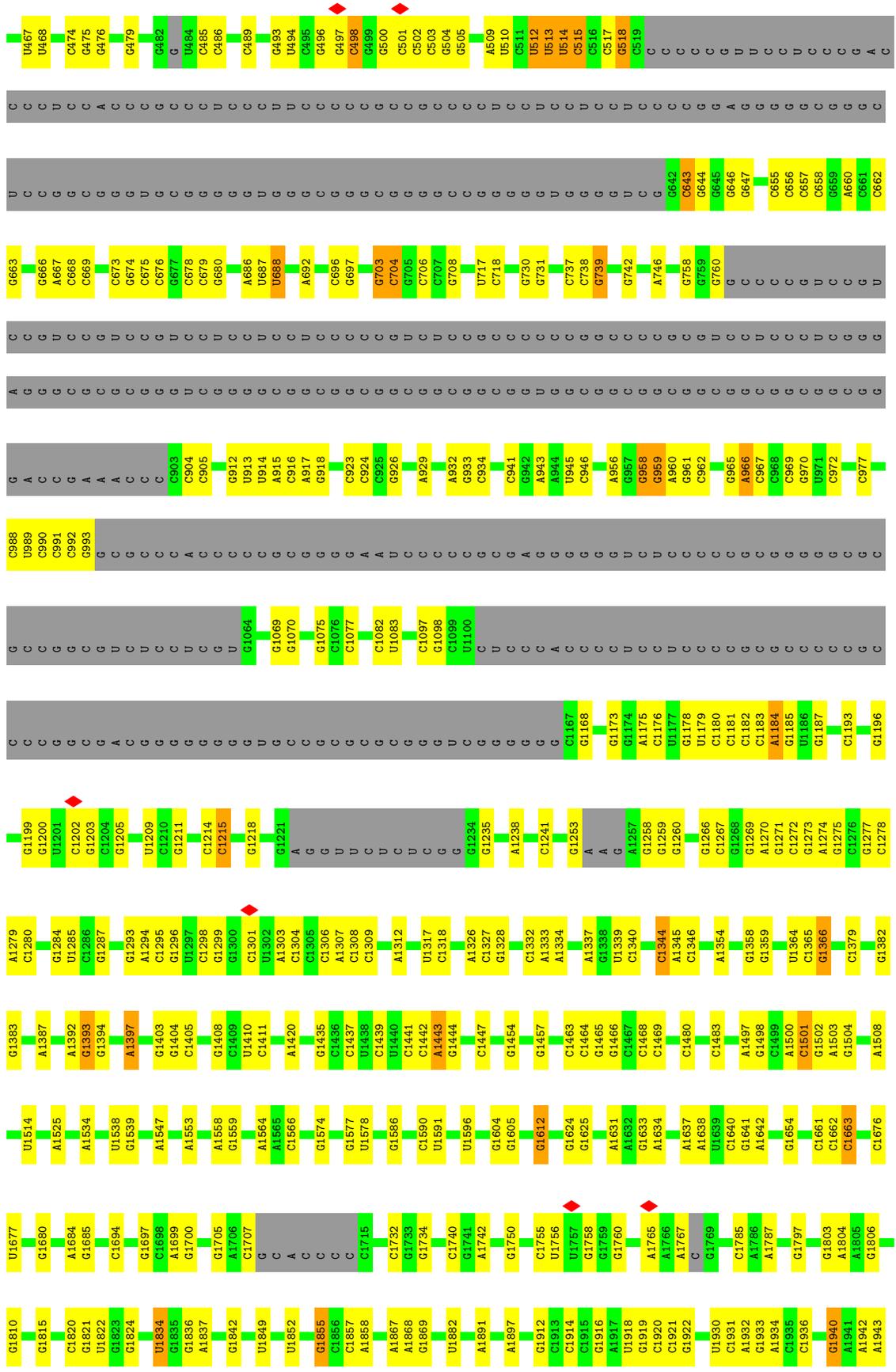


• Molecule 4: ADP-ribosylation factor 1



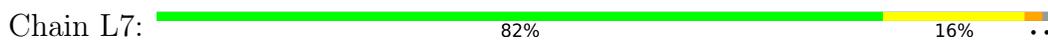
• Molecule 5: 28S rRNA

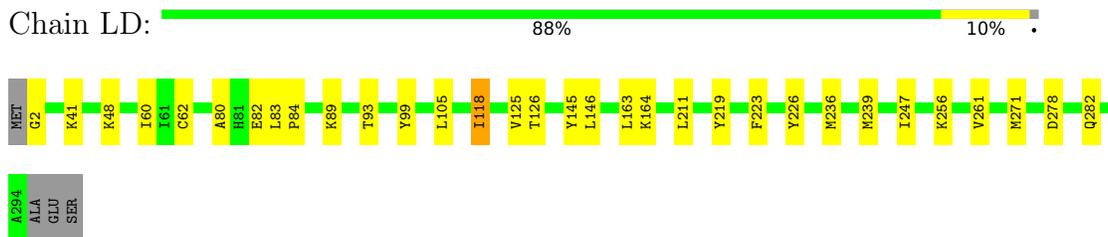




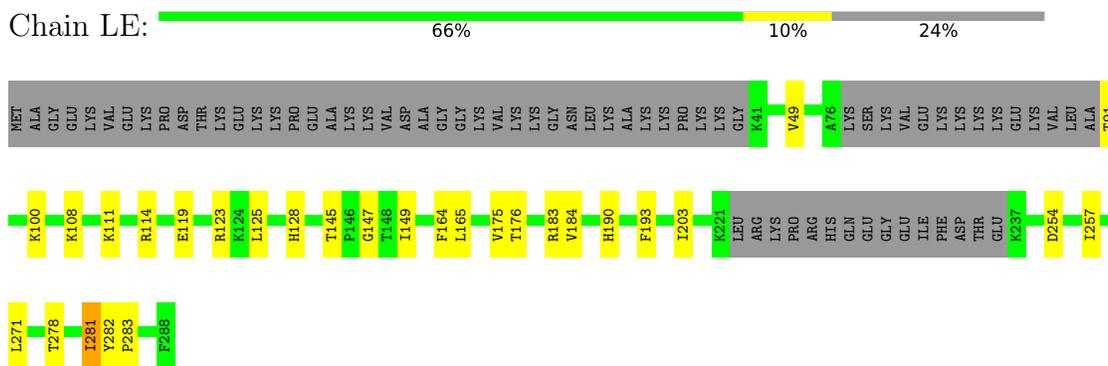
| | | | | | | | | | | | |
|-------|-------|-------|---|-------|-------|-------|-------|-------|-------|-------|-------|
| G3585 | A3711 | U3848 | G | G4089 | G4175 | U4296 | U4438 | U4574 | G4735 | U4882 | C4990 |
| G3586 | A3712 | A3849 | U | G4090 | A4178 | U4301 | C4444 | G4575 | C4736 | C4883 | U4991 |
| C3587 | U3713 | A3861 | G | G4094 | A4179 | A4302 | U4448 | A4584 | G4737 | G4888 | G4992 |
| C3588 | A3718 | A3862 | A | G4097 | G4183 | G4303 | A4449 | A4584 | G4740 | G4889 | G4993 |
| C3591 | A3719 | A3867 | C | A4098 | G4184 | A4304 | U4452 | A4590 | G4741 | A4894 | U5006 |
| C3592 | G3720 | A3869 | A | G4099 | U4188 | U4306 | C4453 | U4591 | G4742 | C4895 | A5007 |
| C3593 | G3721 | C3869 | U | C4102 | U4189 | G4309 | U4457 | C4592 | G4743 | G4896 | A5011 |
| C3594 | U3722 | A3877 | A | G4103 | U4190 | G4314 | C4458 | G4600 | G4744 | C4900 | A5014 |
| U3595 | A3723 | C3878 | C | G4104 | G4191 | U4319 | U4459 | G4608 | G4745 | G4901 | A5016 |
| A3596 | A3726 | G3879 | C | A4105 | A4203 | C4320 | U4460 | G4617 | G4754 | C4906 | A5017 |
| G3597 | A3727 | G3885 | C | A4106 | C4206 | U4321 | C4461 | G4618 | C4757 | G4907 | C5018 |
| C3598 | U3729 | U3892 | U | G4107 | U4207 | G4322 | U4464 | G4619 | U4758 | G4909 | A5019 |
| A3599 | A3733 | G3897 | C | U4113 | U4208 | G4329 | U4465 | U4620 | G4759 | A4910 | A5022 |
| G3600 | U3734 | C3900 | C | C4114 | G4209 | G4330 | U4466 | U4621 | G4760 | G4911 | C5023 |
| A3604 | G3735 | A3901 | C | G4115 | G4219 | G4331 | U4467 | A4622 | G4761 | G4912 | C5024 |
| C3605 | A3746 | A3906 | C | G4116 | C4221 | C4332 | U4468 | U4626 | C4771 | G4913 | C5025 |
| U3606 | A3748 | G3907 | C | C4119 | G4222 | G4338 | U4469 | U4627 | C4772 | C4914 | U5026 |
| C3607 | G3749 | C3909 | C | G4122 | G4225 | U4344 | A4507 | U4632 | C4773 | U4925 | C5027 |
| A3610 | C3750 | C3910 | C | C4125 | G4228 | G4345 | C4508 | U4636 | C4774 | G4927 | G5028 |
| A3611 | G3751 | C3911 | C | A4128 | U4229 | U4346 | U4512 | U4637 | C4775 | C4928 | C5029 |
| C3612 | C3752 | C3915 | C | G4130 | U4233 | G4347 | U4513 | G4639 | G4776 | G4931 | U5030 |
| U3613 | G3753 | U3915 | C | G4131 | A4238 | A4348 | A4518 | U4652 | G4777 | U4934 | C5031 |
| G3614 | A3760 | C3916 | C | G4135 | A4239 | U4354 | C4519 | U4656 | G4778 | A4935 | A5034 |
| G3615 | C3761 | A3917 | C | G4136 | C4240 | A4363 | A4524 | U4669 | C4779 | C4936 | U5037 |
| C3616 | C3771 | G3918 | C | A4137 | G4243 | G4373 | C4525 | C4670 | C4780 | G4937 | G5041 |
| C3618 | A3775 | A3923 | C | C4138 | U4249 | U4376 | G4529 | U4685 | A4672 | C4940 | C5050 |
| G3619 | G3776 | C3924 | C | G4139 | G4250 | G4377 | U4532 | G4686 | C4671 | G4941 | C5054 |
| A3624 | G3777 | C3926 | C | C4141 | A4251 | A4378 | U4537 | U4687 | A4672 | A4943 | C5057 |
| G3625 | A3784 | U3930 | C | G4143 | G4254 | A4379 | G4538 | A4691 | U4699 | C4944 | A5058 |
| C3626 | A3785 | C3931 | C | C4144 | U4258 | C4387 | G4543 | A4692 | A4700 | G4949 | G5062 |
| A3630 | U3814 | G3933 | C | G4146 | U4259 | A4388 | U4544 | G4694 | C4704 | U4959 | U5069 |
| A3635 | A3817 | A3942 | C | G4150 | C4261 | C4389 | A4548 | U4699 | A4705 | G4960 | C |
| U3641 | U3818 | A3943 | A | G4154 | A4268 | G4391 | G4549 | A4700 | C4708 | G4963 | |
| U3644 | G3819 | A3944 | C | C4155 | A4273 | A4394 | G4554 | C4704 | U4708 | A4966 | |
| U3645 | U3819 | A3945 | C | G4156 | U4274 | A4422 | C4550 | A4705 | U4709 | A4967 | |
| A3646 | G3823 | C3946 | C | U4062 | C4275 | C4426 | C4567 | A4708 | G4732 | A4968 | |
| A3647 | U | A3947 | C | U4063 | U4067 | U4437 | U4570 | U4709 | C4733 | U4976 | |
| A3648 | G | A3948 | C | U4064 | U4086 | U4438 | G4573 | G4733 | A4734 | A4979 | |
| A3662 | U | A3949 | C | C4064 | U4088 | U4439 | G4574 | C4734 | U4881 | U4988 | |
| A3663 | U | C3949 | C | G4065 | U4089 | U4437 | G4575 | C4735 | | U4989 | |
| G3664 | U | A3949 | C | G4066 | U4090 | U4437 | G4576 | A4736 | | | |
| G3665 | U | U | C | U4067 | U4091 | U4437 | G4577 | A4737 | | | |
| C3673 | U | U | C | U4068 | U4092 | U4437 | G4578 | A4738 | | | |
| G3674 | U | U | C | U4069 | U4093 | U4437 | G4579 | A4739 | | | |
| U3697 | U | U | C | G4076 | U4094 | U4437 | G4580 | A4740 | | | |
| G3698 | U | U | C | G4084 | U4095 | U4437 | G4581 | A4741 | | | |
| G3699 | U | U | C | U4088 | U4096 | U4437 | G4582 | A4742 | | | |
| U3707 | U | U | C | C4088 | U4097 | U4437 | G4583 | A4743 | | | |
| C3708 | U | U | C | | U4098 | U4437 | G4584 | A4744 | | | |

• Molecule 6: 5S rRNA

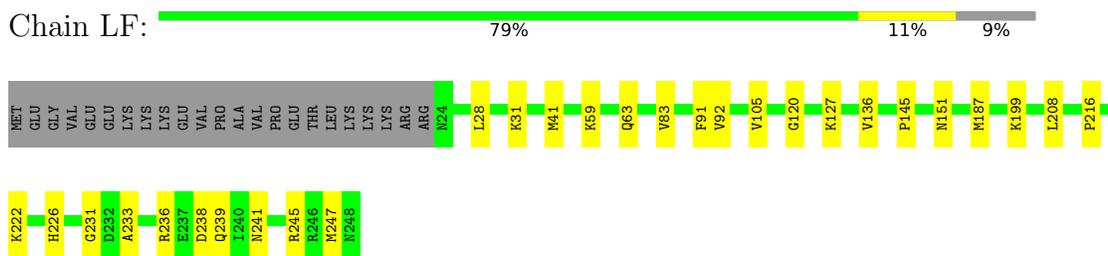




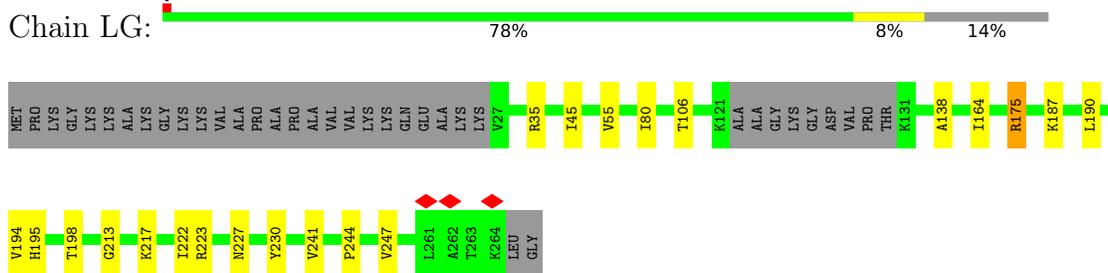
- Molecule 12: Large ribosomal subunit protein eL6



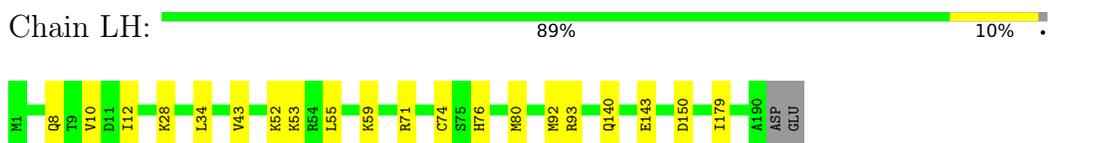
- Molecule 13: Large ribosomal subunit protein uL30



- Molecule 14: 60S ribosomal protein L7a



- Molecule 15: 60S ribosomal protein L9



- Molecule 16: Ribosomal protein uL16-like

LYS
LYS
LEU
LYS
LYS
GLN
LYS
LEU
MET
ALA
ARG
GLU

- Molecule 23: 60S ribosomal protein L18

Chain LQ: 87% 12% ..

MET K2 K12 V13 R14 D22 R26 A36 Q45 R50 M53 L63 M66 I67 R68 R75 K78 V81 L98 C101 R110 I120 L128 K132 P159 H160 E175 R178 H186

- Molecule 24: 60S ribosomal protein L19

Chain LR: 83% 7% 10%

MET S2 M3 K19 W23 D25 E28 I51 R97 I101 L105 K135 L138 M139 K144 L177 GLN ALA LYS LYS LYS LYS ILE ILE THR LEU SER LYS GLU GLU THR LYS LYS

- Molecule 25: 60S ribosomal protein L18a

Chain LS: 90% 10%

MET K2 L7 R15 P28 P26 L27 M30 K70 I80 Y84 M93 I124 M127 K128 V129 K136 D147 I180 V188 F175 F176

- Molecule 26: 60S ribosomal protein L21

Chain LT: 86% 12% ..

MET T2 K5 T11 M14 K35 K43 V48 H54 H58 A71 V72 K78 G82 K83 L84 L85 A86 K87 R92 I93 E94 H95 I96 L128 A133 P153 A160

- Molecule 27: 60S ribosomal protein L22

Chain LU: 74% 5% 21%

MET ALA PRO VAL LYS LYS LEU VAL VAL LYS GLY GLY LYS LYS LYS LYS Q17 P28 M34 V60 K80 E108 I117 ASN GLN ASP ASP GLU GLU GLU GLU ASP ASP ASP

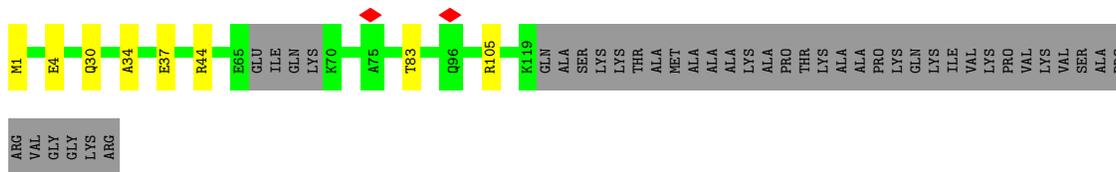
- Molecule 28: 60S ribosomal protein L23

Chain LV: 86% 8% 6%

MET SER LYS ARG ARG GLY GLY SER S10 K13 F14 R15 K43 G44 I45 R48 L49 P53 M62 Q84 R85 K86 L128 A140

- Molecule 29: 60S ribosomal protein L24

Chain LW: 68% 5% 27%



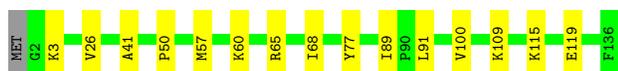
• Molecule 30: 60S ribosomal protein L23a



• Molecule 31: 60S ribosomal protein L26



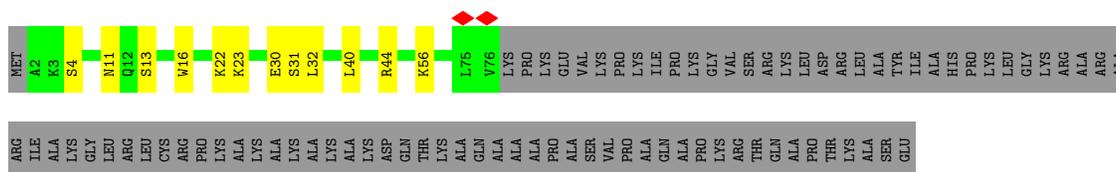
• Molecule 32: 60S ribosomal protein L27



• Molecule 33: 60S ribosomal protein L27a



• Molecule 34: 60S ribosomal protein L29

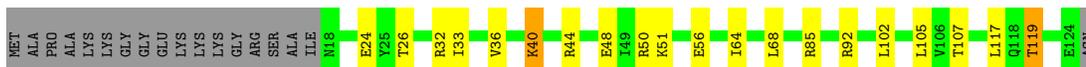


• Molecule 35: 60S ribosomal protein L30





- Molecule 36: 60S ribosomal protein L31



- Molecule 37: 60S ribosomal protein L32



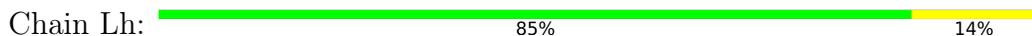
- Molecule 38: 60S ribosomal protein L35a



- Molecule 39: 60S ribosomal protein L34



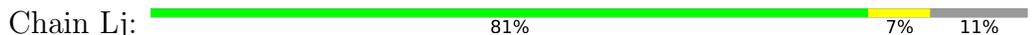
- Molecule 40: 60S ribosomal protein L35



- Molecule 41: 60S ribosomal protein L36

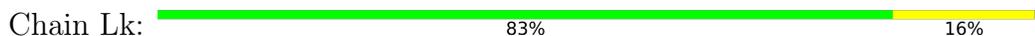


- Molecule 42: Large ribosomal subunit protein eL37





- Molecule 43: 60S ribosomal protein L38



- Molecule 44: 60S ribosomal protein L39



- Molecule 45: Ubiquitin-60S ribosomal protein L40



- Molecule 46: 60S ribosomal protein L41



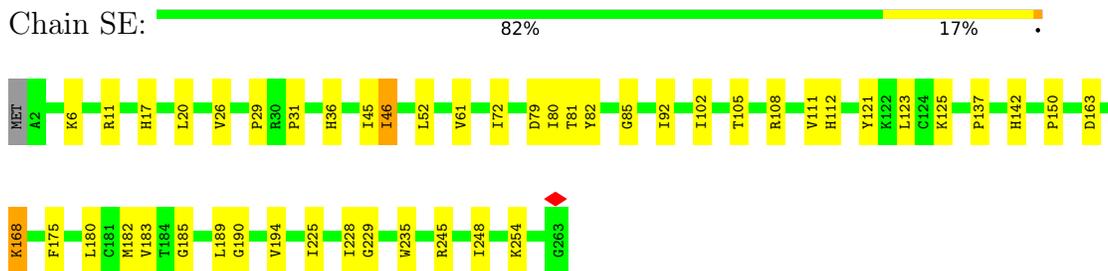
- Molecule 47: 60S ribosomal protein L36a



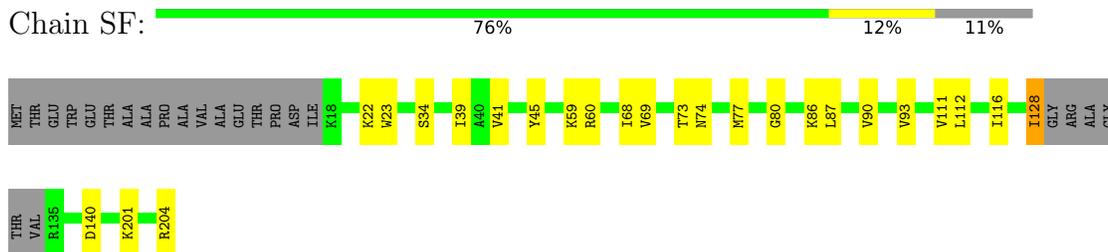
- Molecule 48: 60S ribosomal protein L37a



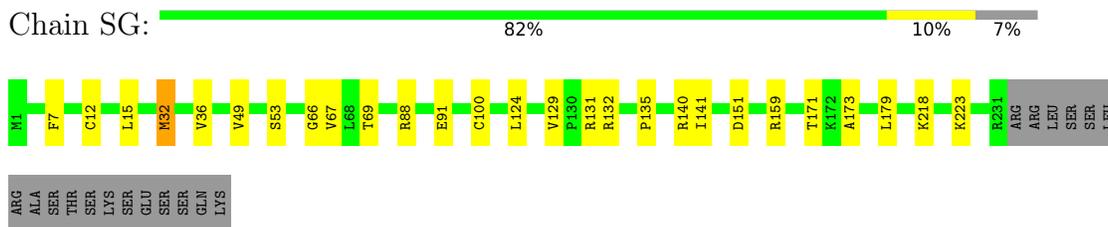
- Molecule 49: 60S ribosomal protein L28



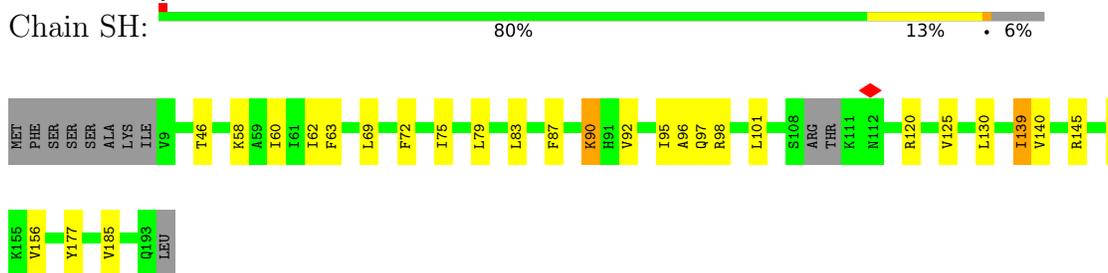
• Molecule 61: 40S ribosomal protein S5



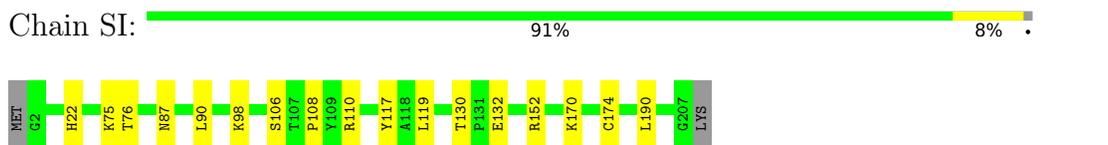
• Molecule 62: 40S ribosomal protein S6



• Molecule 63: 40S ribosomal protein S7



• Molecule 64: 40S ribosomal protein S8



• Molecule 65: 40S ribosomal protein S9

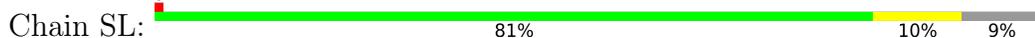




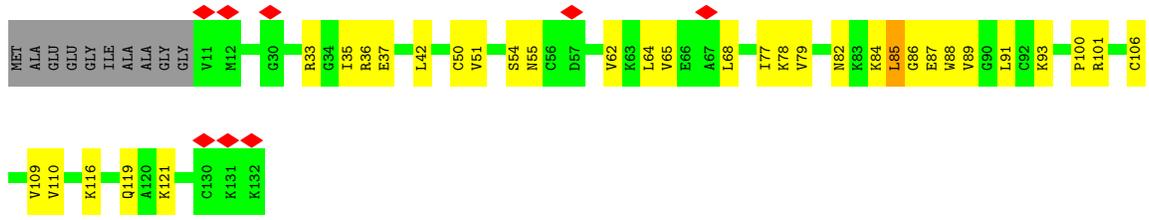
• Molecule 66: 40S ribosomal protein S10



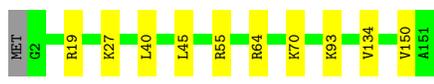
• Molecule 67: 40S ribosomal protein S11



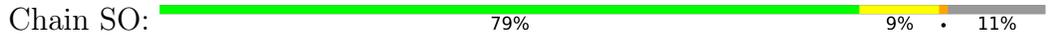
• Molecule 68: 40S ribosomal protein S12



• Molecule 69: 40S ribosomal protein S13



• Molecule 70: 40S ribosomal protein S14



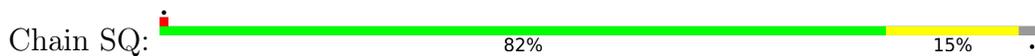
• Molecule 71: 40S ribosomal protein S15





LYS

- Molecule 72: 40S ribosomal protein S16



- Molecule 73: 40S ribosomal protein S17



- Molecule 74: 40S ribosomal protein S18

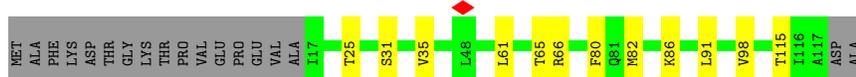
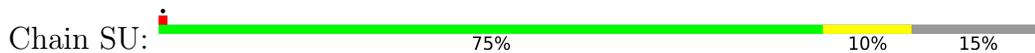


LYS
LYS

- Molecule 75: 40S ribosomal protein S19



- Molecule 76: 40S ribosomal protein S20



- Molecule 77: 40S ribosomal protein S21





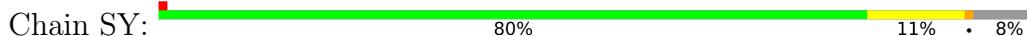
- Molecule 78: 40S ribosomal protein S15a



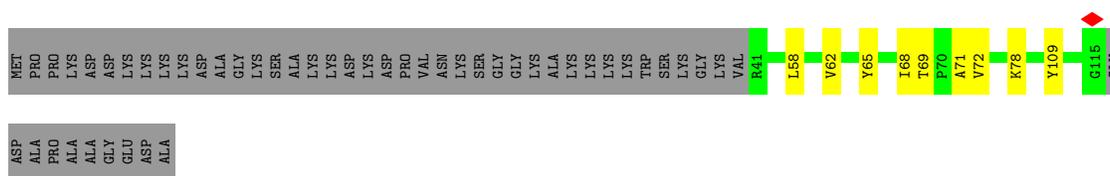
- Molecule 79: 40S ribosomal protein S23



- Molecule 80: 40S ribosomal protein S24



- Molecule 81: 40S ribosomal protein S25



- Molecule 82: 40S ribosomal protein S26



- Molecule 83: 40S ribosomal protein S27



- Molecule 84: 40S ribosomal protein S28

4 Experimental information

| Property | Value | Source |
|--------------------------------------|---|-----------|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 21642 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | TFS KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/\text{\AA}^2$) | 40 | Depositor |
| Minimum defocus (nm) | 500 | Depositor |
| Maximum defocus (nm) | 3500 | Depositor |
| Magnification | Not provided | |
| Image detector | FEI FALCON IV (4k x 4k) | Depositor |
| Maximum map value | 4.803 | Depositor |
| Minimum map value | -2.734 | Depositor |
| Average map value | 0.008 | Depositor |
| Map value standard deviation | 0.119 | Depositor |
| Recommended contour level | 0.1 | Depositor |
| Map size (\AA) | 465.28, 465.28, 465.28 | wwPDB |
| Map dimensions | 640, 640, 640 | wwPDB |
| Map angles ($^\circ$) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (\AA) | 0.727, 0.727, 0.727 | Depositor |

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: G3D, ZN, MG, LYO

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 | CM | 0.20 | 0/273 | 0.42 | 0/421 |
| 2 | CP | 0.19 | 0/1789 | 0.44 | 0/2788 |
| 3 | CR | 0.25 | 0/3311 | 0.60 | 5/4452 (0.1%) |
| 4 | CZ | 0.22 | 0/1515 | 0.60 | 0/2063 |
| 5 | L5 | 0.20 | 0/87471 | 0.35 | 1/136443 (0.0%) |
| 6 | L7 | 0.19 | 0/2858 | 0.32 | 0/4455 |
| 7 | L8 | 0.19 | 0/3701 | 0.33 | 0/5766 |
| 8 | LA | 0.23 | 0/1936 | 0.56 | 0/2596 |
| 9 | LB | 0.22 | 0/3251 | 0.51 | 0/4352 |
| 10 | LC | 0.20 | 0/2938 | 0.47 | 0/3947 |
| 11 | LD | 0.22 | 0/2407 | 0.54 | 0/3227 |
| 12 | LE | 0.24 | 0/1788 | 0.57 | 1/2399 (0.0%) |
| 13 | LF | 0.21 | 0/1905 | 0.48 | 0/2539 |
| 14 | LG | 0.21 | 0/1849 | 0.52 | 2/2496 (0.1%) |
| 15 | LH | 0.23 | 0/1529 | 0.54 | 0/2058 |
| 16 | LI | 0.21 | 0/1705 | 0.51 | 0/2277 |
| 17 | LJ | 0.19 | 0/1352 | 0.48 | 0/1813 |
| 18 | LL | 0.20 | 0/1661 | 0.51 | 0/2229 |
| 19 | LM | 0.20 | 0/1145 | 0.46 | 0/1536 |
| 20 | LN | 0.20 | 0/1746 | 0.42 | 0/2338 |
| 21 | LO | 0.21 | 0/1665 | 0.49 | 0/2229 |
| 22 | LP | 0.21 | 0/1260 | 0.49 | 0/1692 |
| 23 | LQ | 0.20 | 0/1526 | 0.46 | 0/2038 |
| 24 | LR | 0.20 | 0/1468 | 0.47 | 0/1945 |
| 25 | LS | 0.19 | 0/1492 | 0.45 | 0/2003 |
| 26 | LT | 0.21 | 0/1310 | 0.54 | 0/1752 |
| 27 | LU | 0.19 | 0/820 | 0.54 | 0/1102 |
| 28 | LV | 0.21 | 0/985 | 0.53 | 0/1323 |
| 29 | LW | 0.20 | 0/820 | 0.47 | 0/1104 |
| 30 | LX | 0.22 | 0/998 | 0.49 | 0/1341 |
| 31 | LY | 0.21 | 0/1128 | 0.47 | 0/1500 |
| 32 | LZ | 0.20 | 0/1130 | 0.44 | 0/1507 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|---------|-------------|----------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 33 | La | 0.18 | 0/1183 | 0.40 | 0/1582 |
| 34 | Lb | 0.20 | 0/600 | 0.47 | 0/796 |
| 35 | Lc | 0.20 | 0/752 | 0.49 | 0/1011 |
| 36 | Ld | 0.21 | 0/889 | 0.49 | 0/1198 |
| 37 | Le | 0.21 | 0/1067 | 0.48 | 0/1425 |
| 38 | Lf | 0.23 | 0/891 | 0.53 | 0/1194 |
| 39 | Lg | 0.20 | 0/899 | 0.48 | 0/1200 |
| 40 | Lh | 0.17 | 0/1014 | 0.41 | 0/1340 |
| 41 | Li | 0.22 | 0/824 | 0.54 | 0/1093 |
| 42 | Lj | 0.21 | 0/720 | 0.50 | 0/952 |
| 43 | Lk | 0.25 | 0/548 | 0.61 | 0/730 |
| 44 | Ll | 0.22 | 0/454 | 0.49 | 0/599 |
| 45 | Lm | 0.18 | 0/431 | 0.46 | 0/570 |
| 46 | Ln | 0.20 | 0/231 | 0.37 | 0/294 |
| 47 | Lo | 0.18 | 0/876 | 0.44 | 0/1156 |
| 48 | Lp | 0.19 | 0/706 | 0.51 | 0/939 |
| 49 | Lr | 0.23 | 0/1012 | 0.50 | 0/1358 |
| 50 | Ls | 0.24 | 0/1666 | 0.62 | 2/2250 (0.1%) |
| 51 | Lt | 0.29 | 0/1224 | 0.80 | 4/1651 (0.2%) |
| 52 | NA | 0.13 | 0/578 | 0.38 | 0/771 |
| 53 | NB | 0.15 | 0/989 | 0.40 | 0/1327 |
| 54 | NM | 0.28 | 0/3211 | 0.71 | 1/4365 (0.0%) |
| 55 | S2 | 0.20 | 0/40882 | 0.39 | 2/63715 (0.0%) |
| 56 | SA | 0.23 | 0/1708 | 0.55 | 0/2324 |
| 57 | SB | 0.19 | 0/1745 | 0.49 | 0/2337 |
| 58 | SC | 0.21 | 0/1697 | 0.48 | 1/2301 (0.0%) |
| 59 | SD | 0.21 | 0/1620 | 0.52 | 0/2198 |
| 60 | SE | 0.19 | 0/2014 | 0.51 | 2/2726 (0.1%) |
| 61 | SF | 0.20 | 0/1423 | 0.53 | 0/1913 |
| 62 | SG | 0.27 | 0/1657 | 0.55 | 0/2247 |
| 63 | SH | 0.21 | 0/1295 | 0.47 | 0/1763 |
| 64 | SI | 0.20 | 0/1603 | 0.49 | 0/2161 |
| 65 | SJ | 0.18 | 0/1456 | 0.48 | 0/1957 |
| 66 | SK | 0.20 | 0/750 | 0.49 | 0/1026 |
| 67 | SL | 0.19 | 0/1163 | 0.43 | 0/1562 |
| 68 | SM | 0.21 | 0/960 | 0.59 | 1/1286 (0.1%) |
| 69 | SN | 0.21 | 0/1206 | 0.49 | 1/1626 (0.1%) |
| 70 | SO | 0.22 | 0/982 | 0.58 | 0/1320 |
| 71 | SP | 0.18 | 0/1010 | 0.48 | 0/1362 |
| 72 | SQ | 0.21 | 0/1093 | 0.61 | 0/1470 |
| 73 | SR | 0.21 | 0/955 | 0.56 | 0/1294 |
| 74 | SS | 0.24 | 0/1148 | 0.62 | 0/1542 |
| 75 | ST | 0.19 | 0/1100 | 0.44 | 0/1479 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|----------|-------------|------------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 76 | SU | 0.17 | 0/722 | 0.45 | 0/983 |
| 77 | SV | 0.18 | 0/625 | 0.42 | 0/837 |
| 78 | SW | 0.20 | 0/1043 | 0.43 | 0/1396 |
| 79 | SX | 0.22 | 0/1096 | 0.56 | 0/1467 |
| 80 | SY | 0.18 | 0/944 | 0.50 | 0/1271 |
| 81 | SZ | 0.21 | 0/565 | 0.54 | 0/764 |
| 82 | Sa | 0.20 | 0/794 | 0.47 | 0/1065 |
| 83 | Sb | 0.22 | 0/632 | 0.51 | 0/851 |
| 84 | Sc | 0.21 | 0/474 | 0.61 | 0/638 |
| 85 | Sd | 0.17 | 0/443 | 0.44 | 0/589 |
| 86 | Se | 0.18 | 0/420 | 0.56 | 0/554 |
| 87 | Sf | 0.18 | 0/525 | 0.52 | 0/695 |
| 88 | Sg | 0.23 | 0/2235 | 0.65 | 0/3068 |
| All | All | 0.20 | 0/239482 | 0.43 | 23/351319 (0.0%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 4 | CZ | 0 | 1 |
| 18 | LL | 0 | 1 |
| 62 | SG | 0 | 2 |
| 74 | SS | 0 | 1 |
| 77 | SV | 0 | 1 |
| All | All | 0 | 6 |

There are no bond length outliers.

The worst 5 of 23 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|------|-------------|----------|
| 55 | S2 | 1145 | A | O4'-C1'-N9 | 9.02 | 122.04 | 108.50 |
| 50 | Ls | 26 | LYS | CB-CG-CD | 5.92 | 124.91 | 111.30 |
| 54 | NM | 169 | LEU | CA-CB-CG | 5.88 | 136.90 | 116.30 |
| 14 | LG | 164 | ILE | CA-C-N | 5.82 | 130.84 | 122.23 |
| 14 | LG | 164 | ILE | C-N-CA | 5.82 | 130.84 | 122.23 |

There are no chirality outliers.

5 of 6 planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|-----------|
| 4 | CZ | 9 | ARG | Peptide |
| 18 | LL | 47 | ALA | Peptide |
| 62 | SG | 140 | ARG | Sidechain |
| 62 | SG | 32 | MET | Peptide |
| 74 | SS | 11 | HIS | Peptide |

5.2 Too-close contacts [i](#)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | CM | 247 | 0 | 128 | 1 | 0 |
| 2 | CP | 1602 | 0 | 809 | 3 | 0 |
| 3 | CR | 3269 | 0 | 3312 | 39 | 0 |
| 4 | CZ | 1491 | 0 | 1365 | 14 | 0 |
| 5 | L5 | 78199 | 0 | 39524 | 259 | 0 |
| 6 | L7 | 2558 | 0 | 1296 | 9 | 0 |
| 7 | L8 | 3314 | 0 | 1683 | 13 | 0 |
| 8 | LA | 1898 | 0 | 1993 | 17 | 0 |
| 9 | LB | 3183 | 0 | 3316 | 30 | 0 |
| 10 | LC | 2884 | 0 | 3050 | 19 | 0 |
| 11 | LD | 2361 | 0 | 2378 | 19 | 0 |
| 12 | LE | 1754 | 0 | 1899 | 14 | 0 |
| 13 | LF | 1870 | 0 | 1996 | 15 | 0 |
| 14 | LG | 1818 | 0 | 1911 | 11 | 0 |
| 15 | LH | 1510 | 0 | 1579 | 14 | 0 |
| 16 | LI | 1666 | 0 | 1711 | 9 | 0 |
| 17 | LJ | 1329 | 0 | 1348 | 10 | 0 |
| 18 | LL | 1630 | 0 | 1715 | 15 | 0 |
| 19 | LM | 1122 | 0 | 1174 | 4 | 0 |
| 20 | LN | 1701 | 0 | 1749 | 13 | 0 |
| 21 | LO | 1633 | 0 | 1771 | 12 | 0 |
| 22 | LP | 1234 | 0 | 1254 | 15 | 0 |
| 23 | LQ | 1502 | 0 | 1616 | 14 | 0 |
| 24 | LR | 1452 | 0 | 1580 | 8 | 0 |
| 25 | LS | 1452 | 0 | 1490 | 10 | 0 |
| 26 | LT | 1282 | 0 | 1336 | 16 | 0 |
| 27 | LU | 806 | 0 | 826 | 3 | 0 |
| 28 | LV | 971 | 0 | 1024 | 7 | 0 |
| 29 | LW | 808 | 0 | 726 | 6 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 30 | LX | 981 | 0 | 1055 | 8 | 0 |
| 31 | LY | 1111 | 0 | 1194 | 11 | 0 |
| 32 | LZ | 1107 | 0 | 1182 | 9 | 0 |
| 33 | La | 1154 | 0 | 1198 | 10 | 0 |
| 34 | Lb | 590 | 0 | 613 | 9 | 0 |
| 35 | Lc | 742 | 0 | 774 | 9 | 0 |
| 36 | Ld | 874 | 0 | 918 | 12 | 0 |
| 37 | Le | 1049 | 0 | 1136 | 6 | 0 |
| 38 | Lf | 872 | 0 | 901 | 5 | 0 |
| 39 | Lg | 889 | 0 | 968 | 3 | 0 |
| 40 | Lh | 1006 | 0 | 1132 | 11 | 0 |
| 41 | Li | 813 | 0 | 887 | 4 | 0 |
| 42 | Lj | 705 | 0 | 737 | 3 | 0 |
| 43 | Lk | 542 | 0 | 590 | 7 | 0 |
| 44 | Ll | 444 | 0 | 483 | 2 | 0 |
| 45 | Lm | 425 | 0 | 462 | 0 | 0 |
| 46 | Ln | 230 | 0 | 276 | 0 | 0 |
| 47 | Lo | 862 | 0 | 929 | 4 | 0 |
| 48 | Lp | 696 | 0 | 744 | 6 | 0 |
| 49 | Lr | 997 | 0 | 1054 | 6 | 0 |
| 50 | Ls | 1640 | 0 | 1687 | 22 | 0 |
| 51 | Lt | 1208 | 0 | 1257 | 21 | 0 |
| 52 | NA | 573 | 0 | 620 | 6 | 0 |
| 53 | NB | 980 | 0 | 994 | 5 | 0 |
| 54 | NM | 3122 | 0 | 3103 | 48 | 0 |
| 55 | S2 | 36562 | 0 | 18472 | 161 | 0 |
| 56 | SA | 1671 | 0 | 1672 | 16 | 0 |
| 57 | SB | 1718 | 0 | 1786 | 16 | 0 |
| 58 | SC | 1661 | 0 | 1710 | 12 | 0 |
| 59 | SD | 1594 | 0 | 1568 | 17 | 0 |
| 60 | SE | 1972 | 0 | 2012 | 24 | 0 |
| 61 | SF | 1403 | 0 | 1421 | 17 | 0 |
| 62 | SG | 1634 | 0 | 1568 | 14 | 0 |
| 63 | SH | 1274 | 0 | 1196 | 16 | 0 |
| 64 | SI | 1574 | 0 | 1540 | 11 | 0 |
| 65 | SJ | 1431 | 0 | 1497 | 11 | 0 |
| 66 | SK | 726 | 0 | 674 | 12 | 0 |
| 67 | SL | 1143 | 0 | 1177 | 8 | 0 |
| 68 | SM | 950 | 0 | 987 | 17 | 0 |
| 69 | SN | 1182 | 0 | 1249 | 6 | 0 |
| 70 | SO | 969 | 0 | 982 | 9 | 0 |
| 71 | SP | 990 | 0 | 974 | 15 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 72 | SQ | 1075 | 0 | 1110 | 13 | 0 |
| 73 | SR | 942 | 0 | 913 | 4 | 0 |
| 74 | SS | 1130 | 0 | 1167 | 15 | 0 |
| 75 | ST | 1081 | 0 | 1093 | 11 | 0 |
| 76 | SU | 713 | 0 | 692 | 6 | 0 |
| 77 | SV | 618 | 0 | 617 | 2 | 0 |
| 78 | SW | 1026 | 0 | 1072 | 6 | 0 |
| 79 | SX | 1078 | 0 | 1130 | 8 | 0 |
| 80 | SY | 927 | 0 | 914 | 10 | 0 |
| 81 | SZ | 559 | 0 | 594 | 6 | 0 |
| 82 | Sa | 781 | 0 | 831 | 9 | 0 |
| 83 | Sb | 618 | 0 | 604 | 1 | 0 |
| 84 | Sc | 472 | 0 | 484 | 4 | 0 |
| 85 | Sd | 433 | 0 | 415 | 3 | 0 |
| 86 | Se | 416 | 0 | 439 | 4 | 0 |
| 87 | Sf | 515 | 0 | 521 | 5 | 0 |
| 88 | Sg | 2180 | 0 | 1968 | 23 | 0 |
| 89 | CM | 1 | 0 | 0 | 0 | 0 |
| 89 | L5 | 126 | 0 | 0 | 0 | 0 |
| 89 | L7 | 3 | 0 | 0 | 0 | 0 |
| 89 | L8 | 3 | 0 | 0 | 0 | 0 |
| 89 | LA | 1 | 0 | 0 | 0 | 0 |
| 89 | LC | 1 | 0 | 0 | 0 | 0 |
| 89 | LI | 1 | 0 | 0 | 0 | 0 |
| 89 | LN | 1 | 0 | 0 | 0 | 0 |
| 89 | LP | 1 | 0 | 0 | 0 | 0 |
| 89 | LV | 1 | 0 | 0 | 0 | 0 |
| 89 | S2 | 51 | 0 | 0 | 0 | 0 |
| 89 | ST | 1 | 0 | 0 | 0 | 0 |
| 90 | CZ | 32 | 0 | 10 | 0 | 0 |
| 91 | Lg | 1 | 0 | 0 | 0 | 0 |
| 91 | Lj | 1 | 0 | 0 | 0 | 0 |
| 91 | Lm | 1 | 0 | 0 | 0 | 0 |
| 91 | Lo | 1 | 0 | 0 | 0 | 0 |
| 91 | Lp | 1 | 0 | 0 | 0 | 0 |
| 91 | Sa | 1 | 0 | 0 | 0 | 0 |
| 91 | Sd | 1 | 0 | 0 | 0 | 0 |
| 91 | Sf | 1 | 0 | 0 | 0 | 0 |
| 92 | L5 | 3 | 0 | 0 | 0 | 0 |
| 92 | L7 | 1 | 0 | 0 | 0 | 0 |
| 92 | LI | 1 | 0 | 0 | 0 | 0 |
| 92 | LN | 1 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 92 | La | 1 | 0 | 0 | 0 | 0 |
| 92 | Lp | 1 | 0 | 0 | 0 | 0 |
| 92 | S2 | 3 | 0 | 0 | 0 | 0 |
| All | All | 223418 | 0 | 165512 | 1205 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 3.

The worst 5 of 1205 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 55:S2:1748:G:H1 | 55:S2:1786:U:H3 | 1.21 | 0.85 |
| 55:S2:529:A:H61 | 55:S2:556:U:H3 | 1.29 | 0.79 |
| 54:NM:182:GLU:HB3 | 54:NM:189:ARG:HH21 | 1.48 | 0.79 |
| 5:L5:1443:A:N6 | 5:L5:2103:G:C6 | 2.51 | 0.77 |
| 54:NM:278:GLN:HG3 | 54:NM:480:ASN:HB3 | 1.68 | 0.76 |

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 3 | CR | 411/437 (94%) | 397 (97%) | 14 (3%) | 0 | 100 | 100 |
| 4 | CZ | 200/217 (92%) | 190 (95%) | 10 (5%) | 0 | 100 | 100 |
| 8 | LA | 246/257 (96%) | 230 (94%) | 16 (6%) | 0 | 100 | 100 |
| 9 | LB | 393/403 (98%) | 378 (96%) | 15 (4%) | 0 | 100 | 100 |
| 10 | LC | 362/427 (85%) | 336 (93%) | 26 (7%) | 0 | 100 | 100 |
| 11 | LD | 291/297 (98%) | 275 (94%) | 16 (6%) | 0 | 100 | 100 |
| 12 | LE | 213/288 (74%) | 194 (91%) | 19 (9%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 13 | LF | 223/248 (90%) | 213 (96%) | 10 (4%) | 0 | 100 | 100 |
| 14 | LG | 225/266 (85%) | 210 (93%) | 15 (7%) | 0 | 100 | 100 |
| 15 | LH | 188/192 (98%) | 179 (95%) | 9 (5%) | 0 | 100 | 100 |
| 16 | LI | 203/214 (95%) | 191 (94%) | 12 (6%) | 0 | 100 | 100 |
| 17 | LJ | 167/178 (94%) | 162 (97%) | 5 (3%) | 0 | 100 | 100 |
| 18 | LL | 203/211 (96%) | 192 (95%) | 11 (5%) | 0 | 100 | 100 |
| 19 | LM | 137/215 (64%) | 131 (96%) | 6 (4%) | 0 | 100 | 100 |
| 20 | LN | 201/204 (98%) | 196 (98%) | 5 (2%) | 0 | 100 | 100 |
| 21 | LO | 198/203 (98%) | 194 (98%) | 4 (2%) | 0 | 100 | 100 |
| 22 | LP | 151/184 (82%) | 142 (94%) | 8 (5%) | 1 (1%) | 19 | 32 |
| 23 | LQ | 185/188 (98%) | 181 (98%) | 4 (2%) | 0 | 100 | 100 |
| 24 | LR | 174/196 (89%) | 173 (99%) | 1 (1%) | 0 | 100 | 100 |
| 25 | LS | 173/176 (98%) | 161 (93%) | 12 (7%) | 0 | 100 | 100 |
| 26 | LT | 157/160 (98%) | 145 (92%) | 12 (8%) | 0 | 100 | 100 |
| 27 | LU | 99/128 (77%) | 93 (94%) | 6 (6%) | 0 | 100 | 100 |
| 28 | LV | 129/140 (92%) | 122 (95%) | 7 (5%) | 0 | 100 | 100 |
| 29 | LW | 111/157 (71%) | 103 (93%) | 8 (7%) | 0 | 100 | 100 |
| 30 | LX | 118/156 (76%) | 114 (97%) | 4 (3%) | 0 | 100 | 100 |
| 31 | LY | 132/145 (91%) | 126 (96%) | 6 (4%) | 0 | 100 | 100 |
| 32 | LZ | 133/136 (98%) | 124 (93%) | 9 (7%) | 0 | 100 | 100 |
| 33 | La | 145/148 (98%) | 139 (96%) | 6 (4%) | 0 | 100 | 100 |
| 34 | Lb | 73/159 (46%) | 69 (94%) | 4 (6%) | 0 | 100 | 100 |
| 35 | Lc | 95/115 (83%) | 91 (96%) | 4 (4%) | 0 | 100 | 100 |
| 36 | Ld | 105/125 (84%) | 104 (99%) | 1 (1%) | 0 | 100 | 100 |
| 37 | Le | 126/135 (93%) | 123 (98%) | 3 (2%) | 0 | 100 | 100 |
| 38 | Lf | 107/110 (97%) | 100 (94%) | 7 (6%) | 0 | 100 | 100 |
| 39 | Lg | 112/117 (96%) | 104 (93%) | 8 (7%) | 0 | 100 | 100 |
| 40 | Lh | 119/123 (97%) | 117 (98%) | 2 (2%) | 0 | 100 | 100 |
| 41 | Li | 100/105 (95%) | 97 (97%) | 3 (3%) | 0 | 100 | 100 |
| 42 | Lj | 84/97 (87%) | 82 (98%) | 2 (2%) | 0 | 100 | 100 |
| 43 | Lk | 67/70 (96%) | 62 (92%) | 5 (8%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|------------|----------|----------|-------------|-----|
| 44 | Ll | 48/51 (94%) | 46 (96%) | 2 (4%) | 0 | 100 | 100 |
| 45 | Lm | 50/128 (39%) | 50 (100%) | 0 | 0 | 100 | 100 |
| 46 | Ln | 22/25 (88%) | 22 (100%) | 0 | 0 | 100 | 100 |
| 47 | Lo | 103/106 (97%) | 98 (95%) | 5 (5%) | 0 | 100 | 100 |
| 48 | Lp | 89/91 (98%) | 86 (97%) | 3 (3%) | 0 | 100 | 100 |
| 49 | Lr | 123/137 (90%) | 114 (93%) | 9 (7%) | 0 | 100 | 100 |
| 50 | Ls | 210/317 (66%) | 204 (97%) | 6 (3%) | 0 | 100 | 100 |
| 51 | Lt | 158/165 (96%) | 154 (98%) | 4 (2%) | 0 | 100 | 100 |
| 52 | NA | 71/215 (33%) | 70 (99%) | 1 (1%) | 0 | 100 | 100 |
| 53 | NB | 123/162 (76%) | 123 (100%) | 0 | 0 | 100 | 100 |
| 54 | NM | 381/496 (77%) | 365 (96%) | 16 (4%) | 0 | 100 | 100 |
| 56 | SA | 214/295 (72%) | 201 (94%) | 11 (5%) | 2 (1%) | 14 | 26 |
| 57 | SB | 211/264 (80%) | 206 (98%) | 5 (2%) | 0 | 100 | 100 |
| 58 | SC | 217/293 (74%) | 208 (96%) | 9 (4%) | 0 | 100 | 100 |
| 59 | SD | 219/243 (90%) | 209 (95%) | 10 (5%) | 0 | 100 | 100 |
| 60 | SE | 260/263 (99%) | 254 (98%) | 6 (2%) | 0 | 100 | 100 |
| 61 | SF | 177/204 (87%) | 170 (96%) | 6 (3%) | 1 (1%) | 22 | 36 |
| 62 | SG | 229/249 (92%) | 211 (92%) | 18 (8%) | 0 | 100 | 100 |
| 63 | SH | 179/194 (92%) | 170 (95%) | 9 (5%) | 0 | 100 | 100 |
| 64 | SI | 204/208 (98%) | 197 (97%) | 7 (3%) | 0 | 100 | 100 |
| 65 | SJ | 177/194 (91%) | 173 (98%) | 4 (2%) | 0 | 100 | 100 |
| 66 | SK | 94/165 (57%) | 88 (94%) | 6 (6%) | 0 | 100 | 100 |
| 67 | SL | 140/158 (89%) | 130 (93%) | 10 (7%) | 0 | 100 | 100 |
| 68 | SM | 120/132 (91%) | 113 (94%) | 7 (6%) | 0 | 100 | 100 |
| 69 | SN | 148/151 (98%) | 143 (97%) | 5 (3%) | 0 | 100 | 100 |
| 70 | SO | 132/151 (87%) | 118 (89%) | 14 (11%) | 0 | 100 | 100 |
| 71 | SP | 127/145 (88%) | 117 (92%) | 10 (8%) | 0 | 100 | 100 |
| 72 | SQ | 140/146 (96%) | 129 (92%) | 11 (8%) | 0 | 100 | 100 |
| 73 | SR | 129/135 (96%) | 118 (92%) | 11 (8%) | 0 | 100 | 100 |
| 74 | SS | 139/152 (91%) | 120 (86%) | 19 (14%) | 0 | 100 | 100 |
| 75 | ST | 141/145 (97%) | 135 (96%) | 6 (4%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-------------------|-------------|----------|----------|-------------|-----|
| 76 | SU | 99/119 (83%) | 92 (93%) | 7 (7%) | 0 | 100 | 100 |
| 77 | SV | 81/83 (98%) | 80 (99%) | 1 (1%) | 0 | 100 | 100 |
| 78 | SW | 127/130 (98%) | 121 (95%) | 6 (5%) | 0 | 100 | 100 |
| 79 | SX | 139/143 (97%) | 127 (91%) | 12 (9%) | 0 | 100 | 100 |
| 80 | SY | 121/133 (91%) | 115 (95%) | 6 (5%) | 0 | 100 | 100 |
| 81 | SZ | 73/125 (58%) | 69 (94%) | 4 (6%) | 0 | 100 | 100 |
| 82 | Sa | 97/115 (84%) | 90 (93%) | 7 (7%) | 0 | 100 | 100 |
| 83 | Sb | 81/84 (96%) | 75 (93%) | 6 (7%) | 0 | 100 | 100 |
| 84 | Sc | 61/69 (88%) | 54 (88%) | 7 (12%) | 0 | 100 | 100 |
| 85 | Sd | 51/56 (91%) | 50 (98%) | 1 (2%) | 0 | 100 | 100 |
| 86 | Se | 53/133 (40%) | 52 (98%) | 1 (2%) | 0 | 100 | 100 |
| 87 | Sf | 61/156 (39%) | 55 (90%) | 6 (10%) | 0 | 100 | 100 |
| 88 | Sg | 304/317 (96%) | 275 (90%) | 29 (10%) | 0 | 100 | 100 |
| All | All | 12679/14770 (86%) | 12037 (95%) | 638 (5%) | 4 (0%) | 100 | 100 |

All (4) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 56 | SA | 196 | GLU |
| 61 | SF | 80 | GLY |
| 22 | LP | 20 | SER |
| 56 | SA | 11 | LYS |

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 | |
|-----|-------|---------------|------------|----------|-------------|-----|
| 3 | CR | 356/375 (95%) | 346 (97%) | 10 (3%) | 38 | 60 |
| 4 | CZ | 139/189 (74%) | 139 (100%) | 0 | 100 | 100 |
| 8 | LA | 190/199 (96%) | 181 (95%) | 9 (5%) | 22 | 40 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|---------------|------------|----------|-------------|-----|
| 9 | LB | 343/349 (98%) | 337 (98%) | 6 (2%) | 56 | 74 |
| 10 | LC | 299/348 (86%) | 294 (98%) | 5 (2%) | 56 | 74 |
| 11 | LD | 241/250 (96%) | 237 (98%) | 4 (2%) | 56 | 74 |
| 12 | LE | 191/252 (76%) | 185 (97%) | 6 (3%) | 35 | 56 |
| 13 | LF | 194/215 (90%) | 191 (98%) | 3 (2%) | 60 | 76 |
| 14 | LG | 188/223 (84%) | 184 (98%) | 4 (2%) | 48 | 69 |
| 15 | LH | 167/171 (98%) | 167 (100%) | 0 | 100 | 100 |
| 16 | LI | 174/181 (96%) | 174 (100%) | 0 | 100 | 100 |
| 17 | LJ | 136/149 (91%) | 135 (99%) | 1 (1%) | 81 | 89 |
| 18 | LL | 164/177 (93%) | 160 (98%) | 4 (2%) | 44 | 65 |
| 19 | LM | 114/161 (71%) | 111 (97%) | 3 (3%) | 41 | 63 |
| 20 | LN | 171/172 (99%) | 167 (98%) | 4 (2%) | 45 | 67 |
| 21 | LO | 170/174 (98%) | 169 (99%) | 1 (1%) | 84 | 90 |
| 22 | LP | 132/163 (81%) | 129 (98%) | 3 (2%) | 45 | 67 |
| 23 | LQ | 161/165 (98%) | 158 (98%) | 3 (2%) | 52 | 71 |
| 24 | LR | 150/175 (86%) | 148 (99%) | 2 (1%) | 65 | 80 |
| 25 | LS | 156/157 (99%) | 153 (98%) | 3 (2%) | 52 | 71 |
| 26 | LT | 135/140 (96%) | 133 (98%) | 2 (2%) | 60 | 76 |
| 27 | LU | 86/115 (75%) | 85 (99%) | 1 (1%) | 67 | 81 |
| 28 | LV | 99/107 (92%) | 99 (100%) | 0 | 100 | 100 |
| 29 | LW | 61/126 (48%) | 61 (100%) | 0 | 100 | 100 |
| 30 | LX | 107/133 (80%) | 106 (99%) | 1 (1%) | 75 | 86 |
| 31 | LY | 123/135 (91%) | 121 (98%) | 2 (2%) | 58 | 75 |
| 32 | LZ | 117/118 (99%) | 115 (98%) | 2 (2%) | 56 | 74 |
| 33 | La | 118/121 (98%) | 116 (98%) | 2 (2%) | 56 | 74 |
| 34 | Lb | 59/126 (47%) | 56 (95%) | 3 (5%) | 20 | 36 |
| 35 | Lc | 79/97 (81%) | 74 (94%) | 5 (6%) | 15 | 27 |
| 36 | Ld | 94/110 (86%) | 91 (97%) | 3 (3%) | 34 | 55 |
| 37 | Le | 113/121 (93%) | 112 (99%) | 1 (1%) | 75 | 86 |
| 38 | Lf | 87/89 (98%) | 85 (98%) | 2 (2%) | 45 | 67 |
| 39 | Lg | 93/100 (93%) | 92 (99%) | 1 (1%) | 70 | 83 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|---------------|------------|----------|-------------|-----|
| 40 | Lh | 108/110 (98%) | 106 (98%) | 2 (2%) | 52 | 71 |
| 41 | Li | 81/89 (91%) | 78 (96%) | 3 (4%) | 29 | 50 |
| 42 | Lj | 73/80 (91%) | 70 (96%) | 3 (4%) | 26 | 46 |
| 43 | Lk | 57/65 (88%) | 56 (98%) | 1 (2%) | 54 | 72 |
| 44 | Ll | 47/48 (98%) | 45 (96%) | 2 (4%) | 25 | 44 |
| 45 | Lm | 47/116 (40%) | 44 (94%) | 3 (6%) | 14 | 27 |
| 46 | Ln | 23/24 (96%) | 22 (96%) | 1 (4%) | 25 | 44 |
| 47 | Lo | 93/94 (99%) | 88 (95%) | 5 (5%) | 18 | 34 |
| 48 | Lp | 71/74 (96%) | 69 (97%) | 2 (3%) | 38 | 60 |
| 49 | Lr | 107/121 (88%) | 102 (95%) | 5 (5%) | 22 | 40 |
| 50 | Ls | 180/258 (70%) | 175 (97%) | 5 (3%) | 38 | 60 |
| 51 | Lt | 132/137 (96%) | 130 (98%) | 2 (2%) | 60 | 76 |
| 52 | NA | 64/183 (35%) | 64 (100%) | 0 | 100 | 100 |
| 53 | NB | 107/136 (79%) | 106 (99%) | 1 (1%) | 75 | 86 |
| 54 | NM | 345/443 (78%) | 340 (99%) | 5 (1%) | 62 | 78 |
| 56 | SA | 170/243 (70%) | 163 (96%) | 7 (4%) | 26 | 46 |
| 57 | SB | 191/231 (83%) | 189 (99%) | 2 (1%) | 73 | 84 |
| 58 | SC | 175/225 (78%) | 169 (97%) | 6 (3%) | 32 | 54 |
| 59 | SD | 148/202 (73%) | 145 (98%) | 3 (2%) | 50 | 70 |
| 60 | SE | 196/225 (87%) | 189 (96%) | 7 (4%) | 30 | 51 |
| 61 | SF | 142/170 (84%) | 139 (98%) | 3 (2%) | 48 | 69 |
| 62 | SG | 138/218 (63%) | 132 (96%) | 6 (4%) | 25 | 44 |
| 63 | SH | 109/174 (63%) | 106 (97%) | 3 (3%) | 38 | 60 |
| 64 | SI | 149/180 (83%) | 149 (100%) | 0 | 100 | 100 |
| 65 | SJ | 143/168 (85%) | 142 (99%) | 1 (1%) | 81 | 89 |
| 66 | SK | 65/136 (48%) | 64 (98%) | 1 (2%) | 60 | 76 |
| 67 | SL | 121/142 (85%) | 118 (98%) | 3 (2%) | 42 | 64 |
| 68 | SM | 104/108 (96%) | 100 (96%) | 4 (4%) | 28 | 49 |
| 69 | SN | 123/131 (94%) | 122 (99%) | 1 (1%) | 79 | 88 |
| 70 | SO | 95/119 (80%) | 94 (99%) | 1 (1%) | 70 | 83 |
| 71 | SP | 98/130 (75%) | 96 (98%) | 2 (2%) | 50 | 70 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-------------------|-------------|----------|-------------|-----|
| 72 | SQ | 103/121 (85%) | 101 (98%) | 2 (2%) | 52 | 71 |
| 73 | SR | 84/122 (69%) | 79 (94%) | 5 (6%) | 16 | 29 |
| 74 | SS | 112/132 (85%) | 107 (96%) | 5 (4%) | 23 | 42 |
| 75 | ST | 105/115 (91%) | 103 (98%) | 2 (2%) | 52 | 71 |
| 76 | SU | 68/107 (64%) | 64 (94%) | 4 (6%) | 16 | 30 |
| 77 | SV | 62/67 (92%) | 59 (95%) | 3 (5%) | 21 | 39 |
| 78 | SW | 110/113 (97%) | 110 (100%) | 0 | 100 | 100 |
| 79 | SX | 109/115 (95%) | 104 (95%) | 5 (5%) | 23 | 41 |
| 80 | SY | 86/115 (75%) | 83 (96%) | 3 (4%) | 31 | 52 |
| 81 | SZ | 56/103 (54%) | 56 (100%) | 0 | 100 | 100 |
| 82 | Sa | 83/98 (85%) | 82 (99%) | 1 (1%) | 67 | 81 |
| 83 | Sb | 65/76 (86%) | 64 (98%) | 1 (2%) | 60 | 76 |
| 84 | Sc | 51/62 (82%) | 47 (92%) | 4 (8%) | 10 | 19 |
| 85 | Sd | 44/49 (90%) | 43 (98%) | 1 (2%) | 45 | 67 |
| 86 | Se | 39/104 (38%) | 37 (95%) | 2 (5%) | 20 | 36 |
| 87 | Sf | 56/140 (40%) | 53 (95%) | 3 (5%) | 18 | 34 |
| 88 | Sg | 201/275 (73%) | 193 (96%) | 8 (4%) | 27 | 47 |
| All | All | 10343/12577 (82%) | 10108 (98%) | 235 (2%) | 46 | 67 |

5 of 235 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47 | Lo | 103 | VAL |
| 85 | Sd | 25 | SER |
| 57 | SB | 106 | THR |
| 84 | Sc | 50 | VAL |
| 75 | ST | 87 | VAL |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 114 such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47 | Lo | 102 | GLN |
| 85 | Sd | 26 | ASN |
| 54 | NM | 317 | ASN |
| 84 | Sc | 7 | GLN |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 70 | SO | 32 | HIS |

5.3.3 RNA [i](#)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1 | CM | 11/952 (1%) | 2 (18%) | 0 |
| 2 | CP | 74/75 (98%) | 21 (28%) | 2 (2%) |
| 5 | L5 | 3633/5070 (71%) | 772 (21%) | 14 (0%) |
| 55 | S2 | 1704/1869 (91%) | 465 (27%) | 17 (0%) |
| 6 | L7 | 119/121 (98%) | 11 (9%) | 0 |
| 7 | L8 | 155/157 (98%) | 29 (18%) | 1 (0%) |
| All | All | 5696/8244 (69%) | 1300 (22%) | 34 (0%) |

5 of 1300 RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | CM | 804 | C |
| 1 | CM | 809 | U |
| 2 | CP | 2 | G |
| 2 | CP | 4 | U |
| 2 | CP | 6 | G |

5 of 34 RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 55 | S2 | 1273 | C |
| 55 | S2 | 1519 | U |
| 55 | S2 | 1664 | A |
| 5 | L5 | 3673 | C |
| 5 | L5 | 3614 | G |

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

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

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

RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 3 | LYO | CR | 63 | 3 | 7,9,10 | 0.77 | 0 | 6,10,12 | 1.07 | 0 |

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 |
|-----|------|-------|-----|------|---------|----------|-------|
| 3 | LYO | CR | 63 | 3 | - | 2/8/9/11 | - |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|------------|
| 3 | CR | 63 | LYO | N-CA-CB-CG |
| 3 | CR | 63 | LYO | C-CA-CB-CG |

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 200 ligands modelled in this entry, 199 are monoatomic - leaving 1 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 | G3D | CZ | 301 | - | 28,34,34 | 3.42 | 13 (46%) | 36,54,54 | 1.36 | 5 (13%) |

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 | G3D | CZ | 301 | - | - | 2/17/37/37 | 0/3/3/3 |

The worst 5 of 13 bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 90 | CZ | 301 | G3D | C3'-C4' | -8.02 | 1.31 | 1.52 |
| 90 | CZ | 301 | G3D | O4'-C4' | 7.80 | 1.62 | 1.45 |
| 90 | CZ | 301 | G3D | O4'-C1' | -7.21 | 1.31 | 1.41 |
| 90 | CZ | 301 | G3D | C2-N3 | 5.42 | 1.46 | 1.33 |
| 90 | CZ | 301 | G3D | C4-N3 | 4.97 | 1.49 | 1.37 |

All (5) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 90 | CZ | 301 | G3D | C5-C6-N1 | 3.43 | 120.00 | 113.95 |
| 90 | CZ | 301 | G3D | C8-N7-C5 | 3.05 | 108.79 | 102.99 |
| 90 | CZ | 301 | G3D | PA-O3A-PB | -3.01 | 122.51 | 132.83 |
| 90 | CZ | 301 | G3D | C2-N1-C6 | -2.81 | 119.93 | 125.10 |
| 90 | CZ | 301 | G3D | O6-C6-C5 | -2.21 | 120.06 | 124.37 |

There are no chirality outliers.

All (2) torsion outliers are listed below:

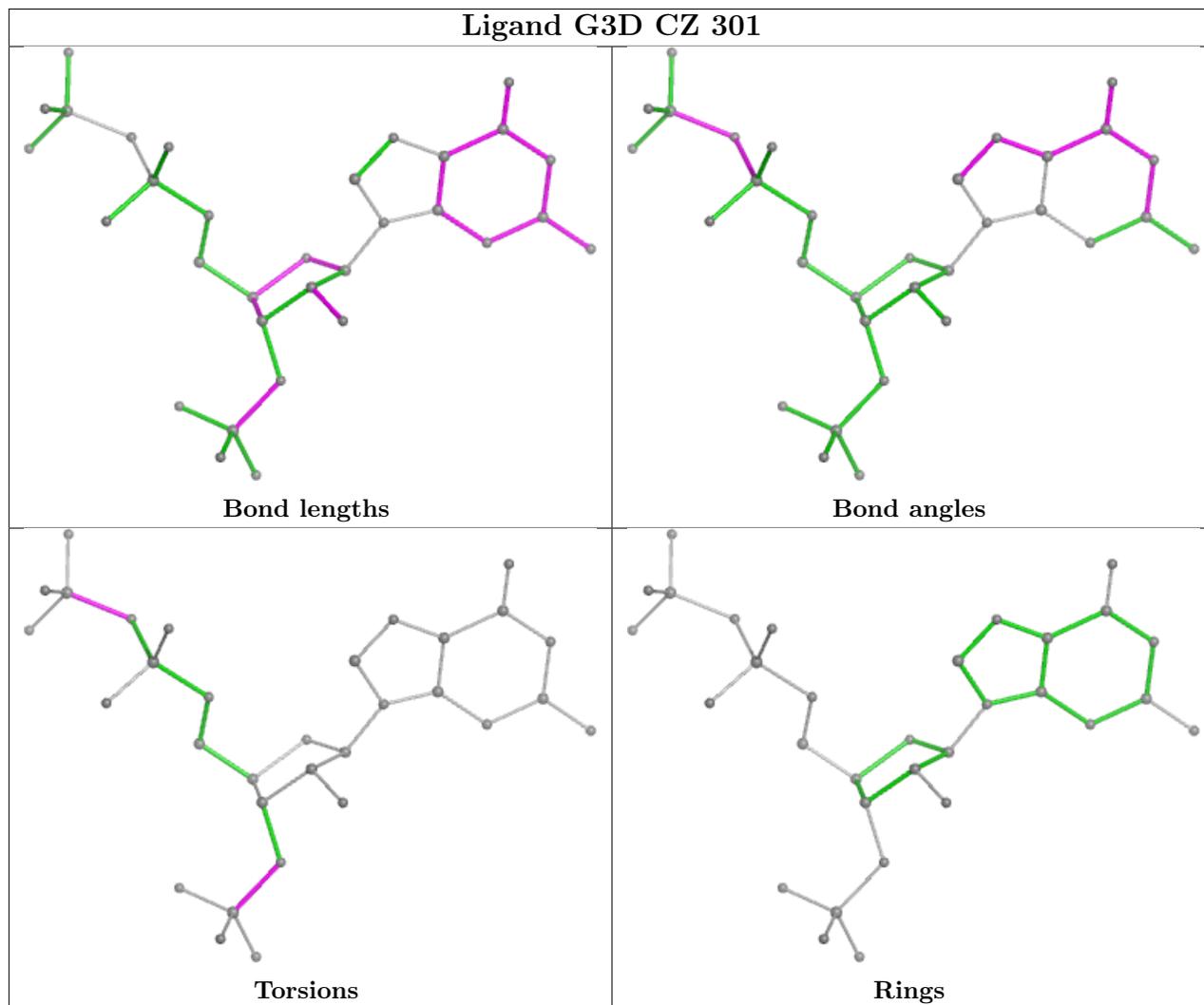
| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|----------------|
| 90 | CZ | 301 | G3D | PA-O3A-PB-O1B |
| 90 | CZ | 301 | G3D | C3'-O3'-P1-O5P |

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will

also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [\(i\)](#)

There are no chain breaks in this entry.

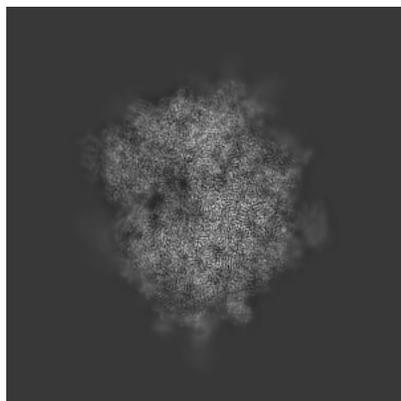
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-53231. These allow visual inspection of the internal detail of the map and identification of artifacts.

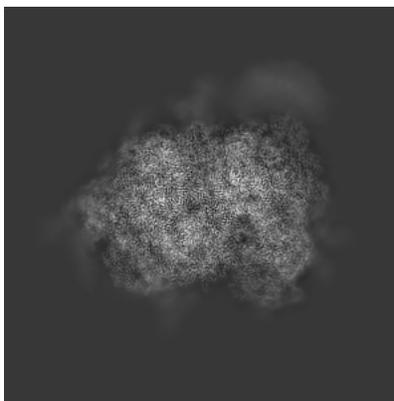
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

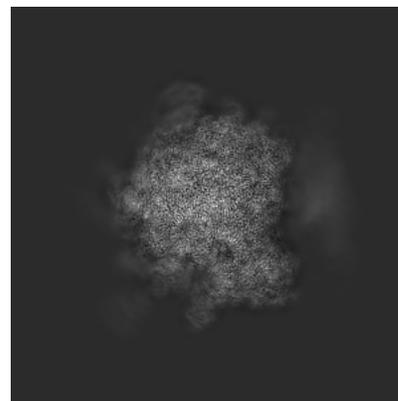
6.1.1 Primary map



X

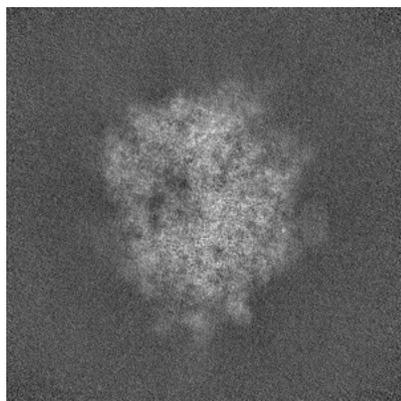


Y

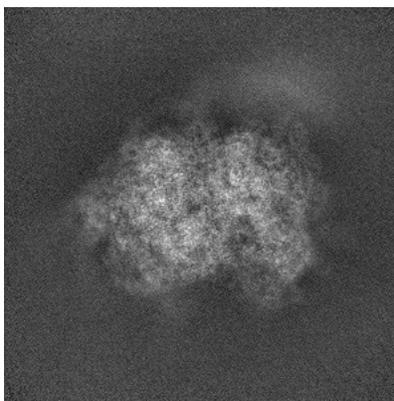


Z

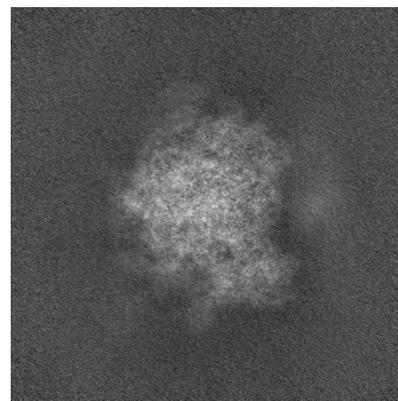
6.1.2 Raw map



X



Y

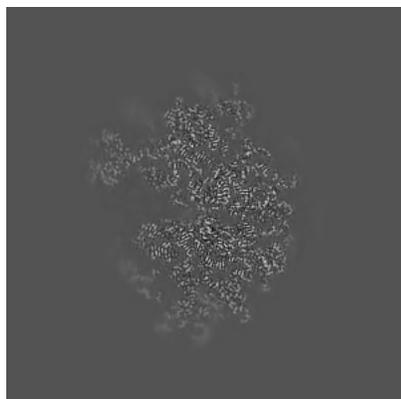


Z

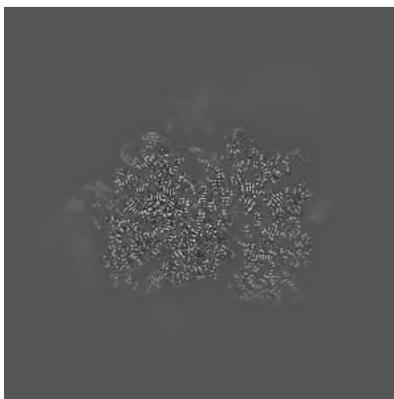
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

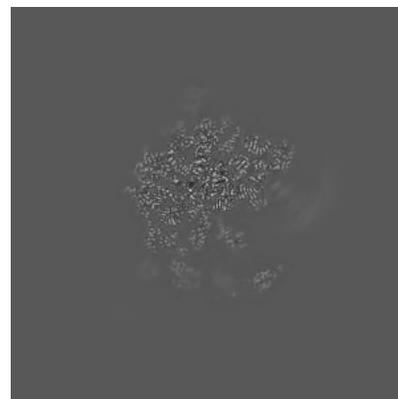
6.2.1 Primary map



X Index: 320

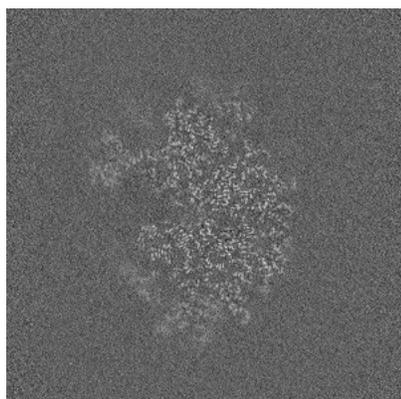


Y Index: 320

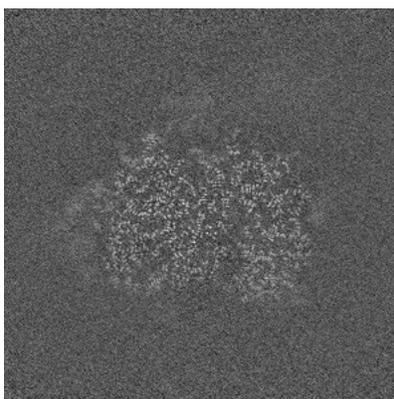


Z Index: 320

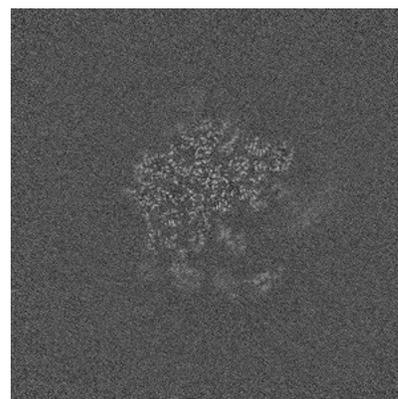
6.2.2 Raw map



X Index: 320



Y Index: 320

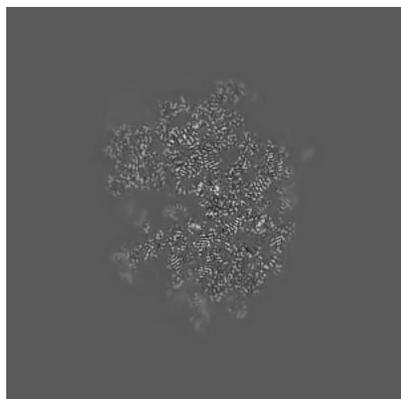


Z Index: 320

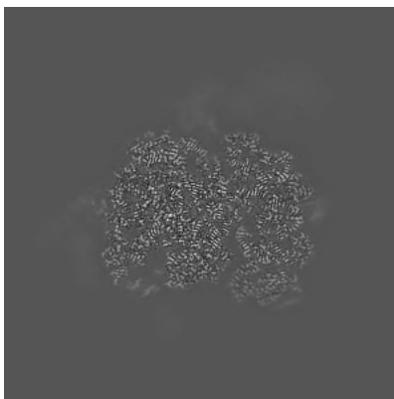
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

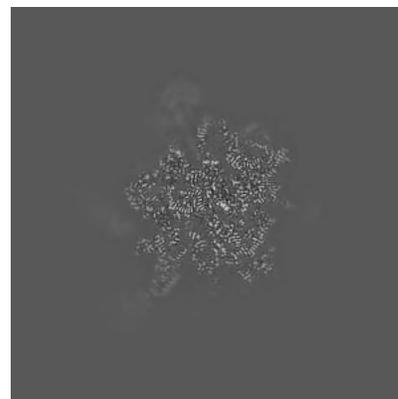
6.3.1 Primary map



X Index: 344

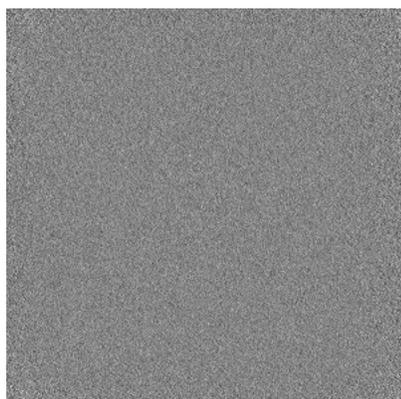


Y Index: 329

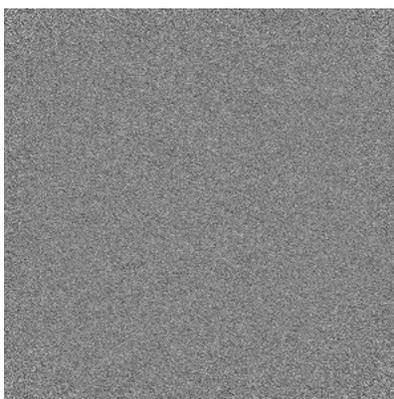


Z Index: 267

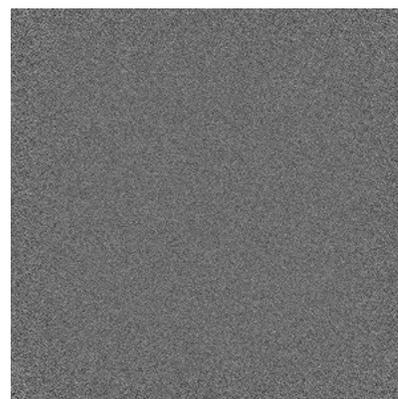
6.3.2 Raw map



X Index: 0



Y Index: 0

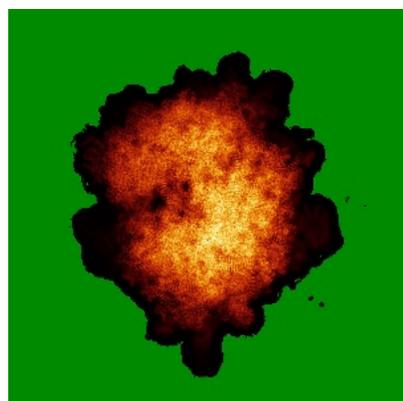


Z Index: 0

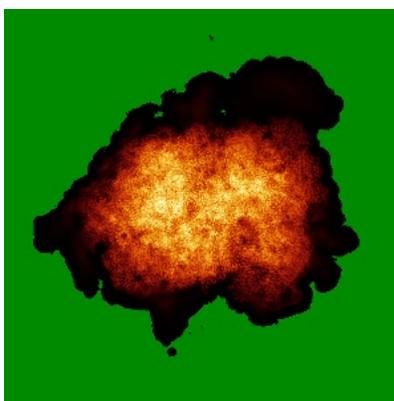
The images above show the largest variance slices of the map in three orthogonal directions.

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

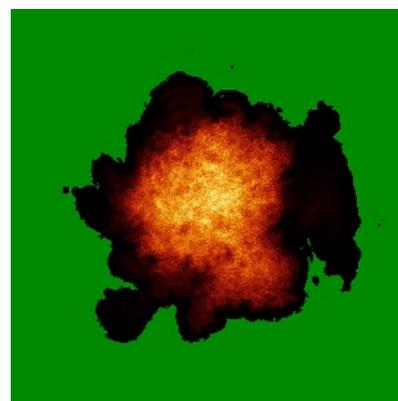
6.4.1 Primary map



X

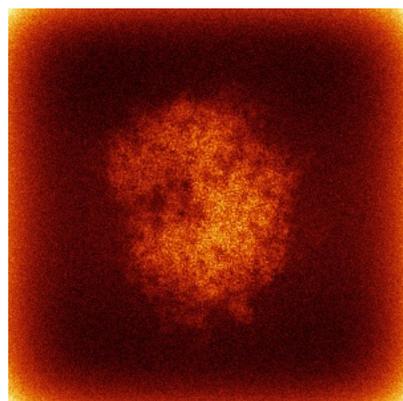


Y

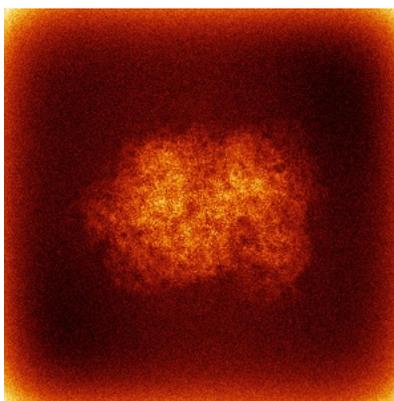


Z

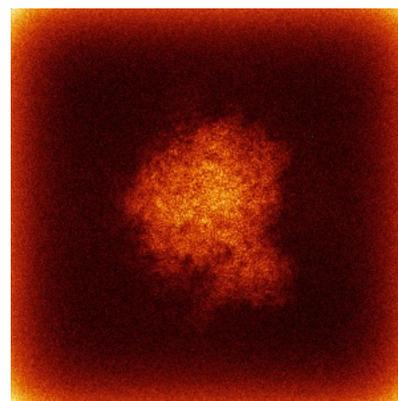
6.4.2 Raw map



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



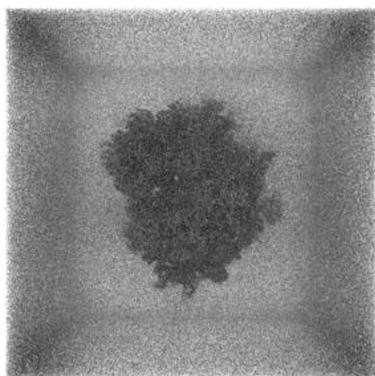
Y



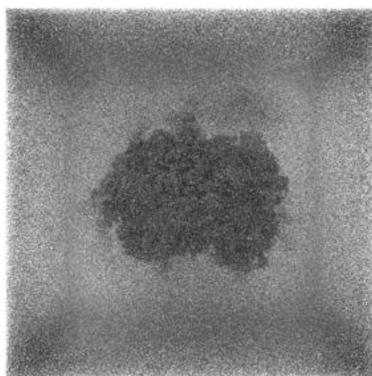
Z

The images above show the 3D surface view of the map at the recommended contour level 0.1. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

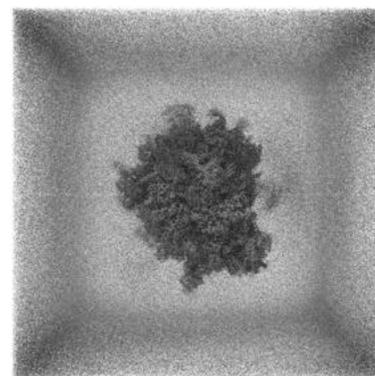
6.5.2 Raw map



X



Y



Z

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

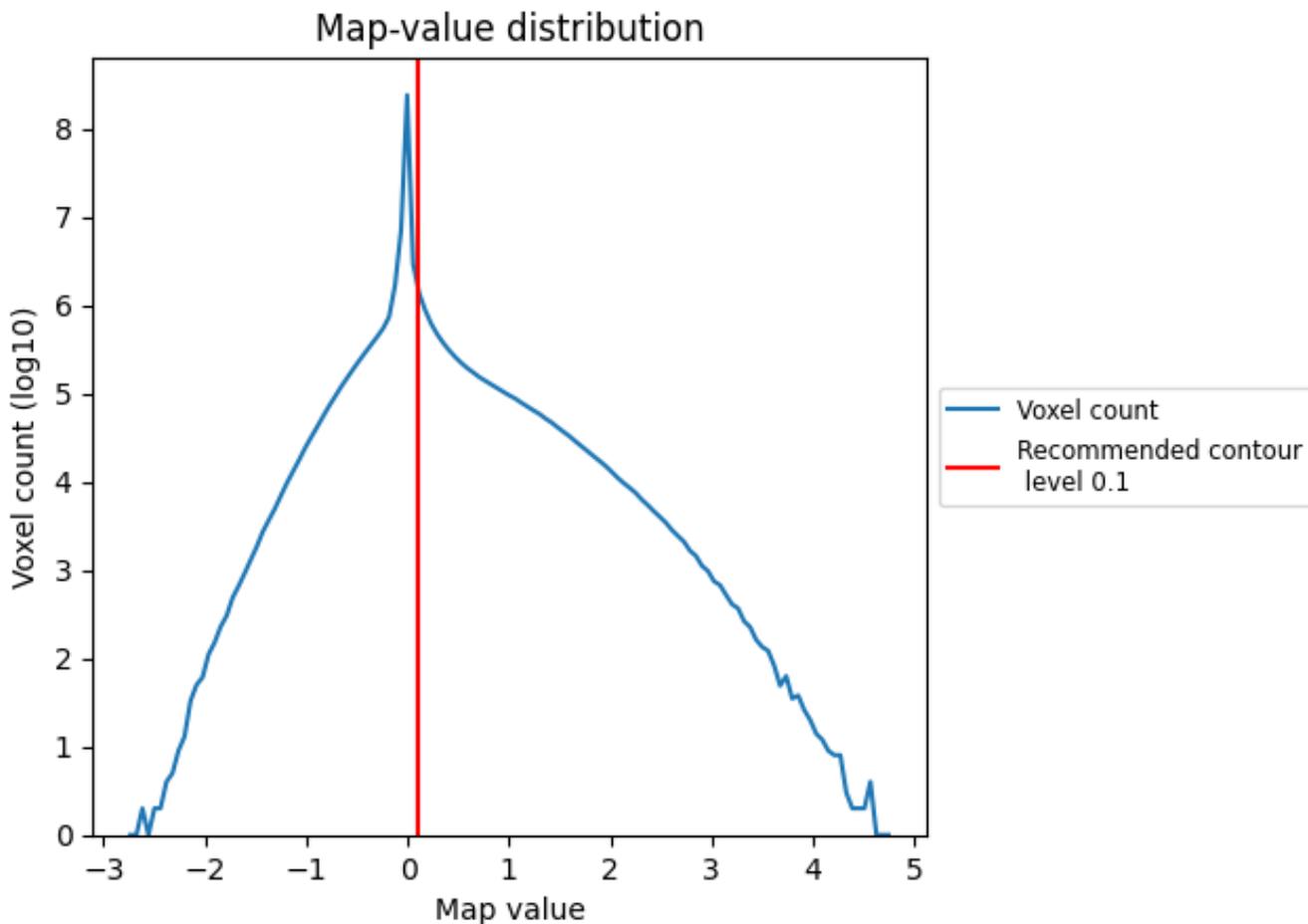
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

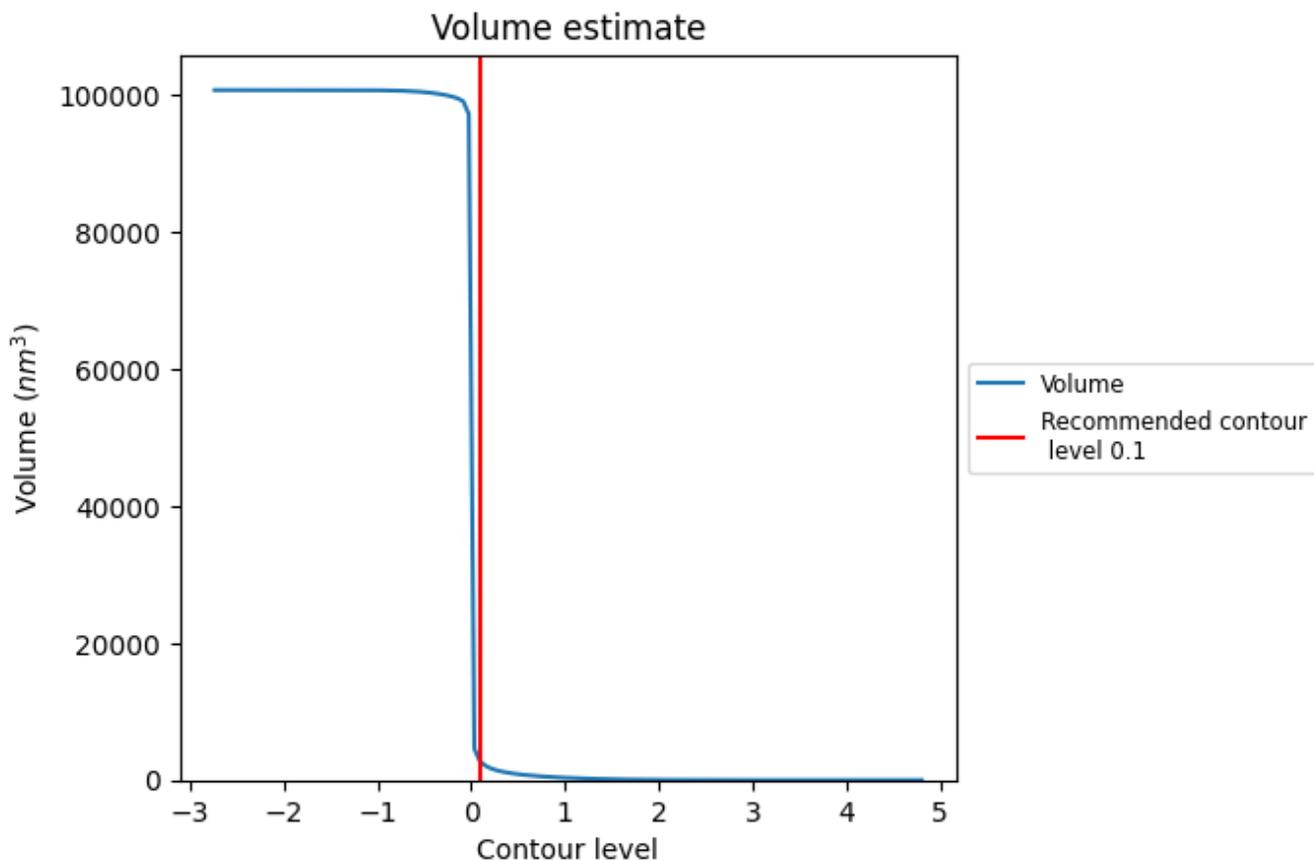
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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.

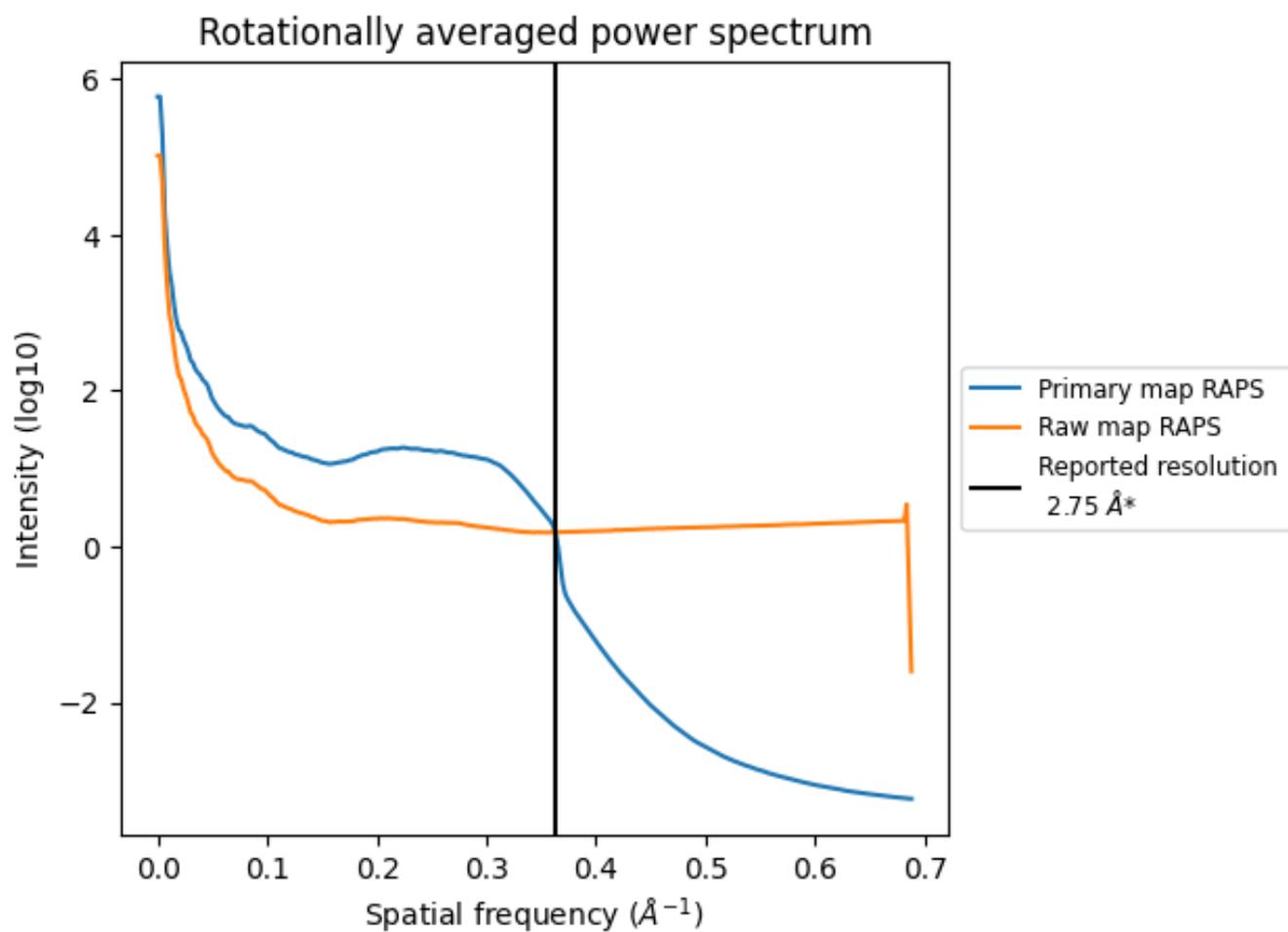
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2667 nm^3 ; this corresponds to an approximate mass of 2409 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

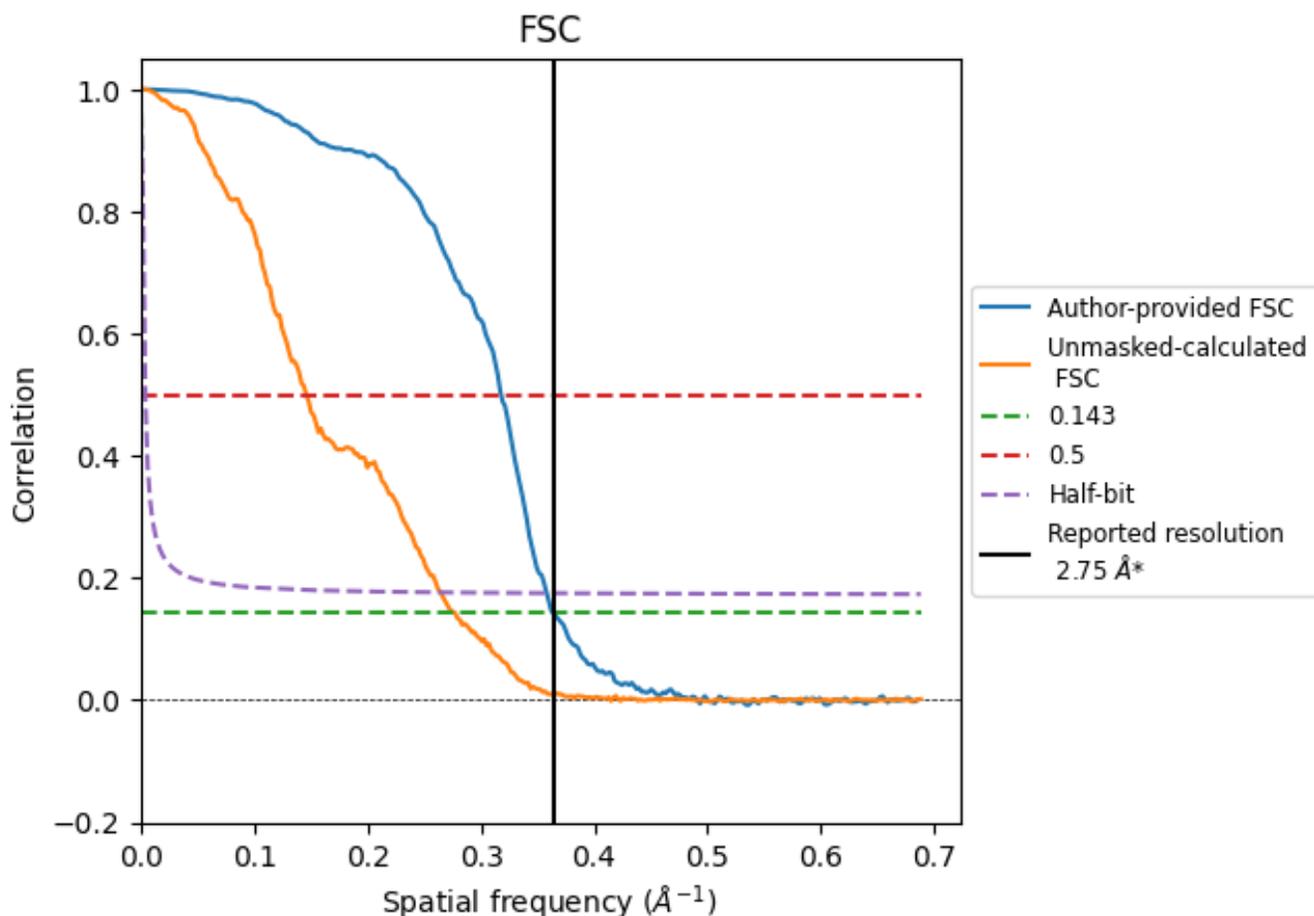


*Reported resolution corresponds to spatial frequency of 0.364 \AA^{-1}

8 Fourier-Shell correlation [i](#)

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 [i](#)



*Reported resolution corresponds to spatial frequency of 0.364 Å⁻¹

8.2 Resolution estimates [i](#)

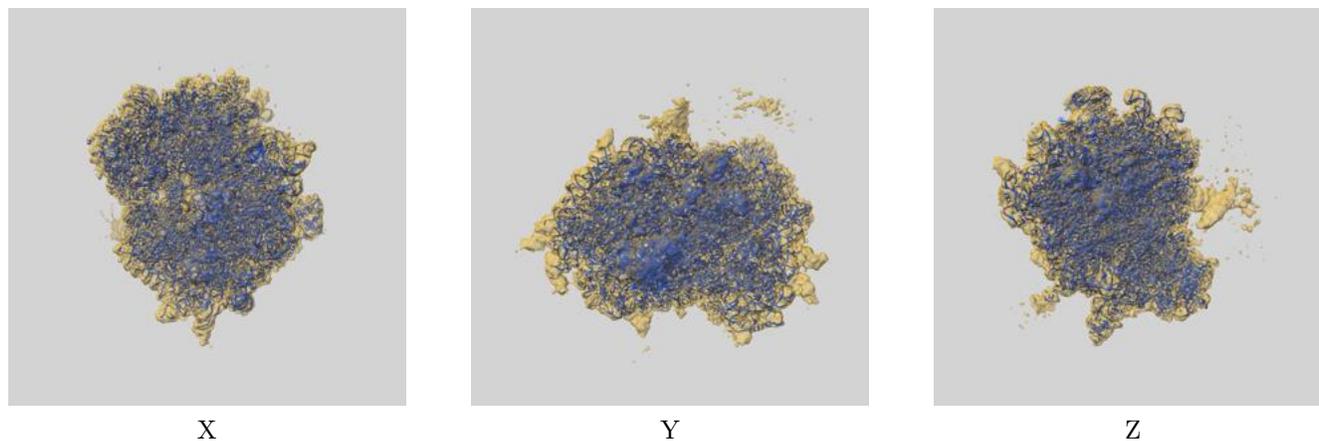
| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---------------------------|------------------------------------|------|----------|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 2.75 | - | - |
| Author-provided FSC curve | 2.75 | 3.15 | 2.79 |
| Unmasked-calculated* | 3.61 | 6.84 | 3.78 |

*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 3.61 differs from the reported value 2.75 by more than 10 %

9 Map-model fit [i](#)

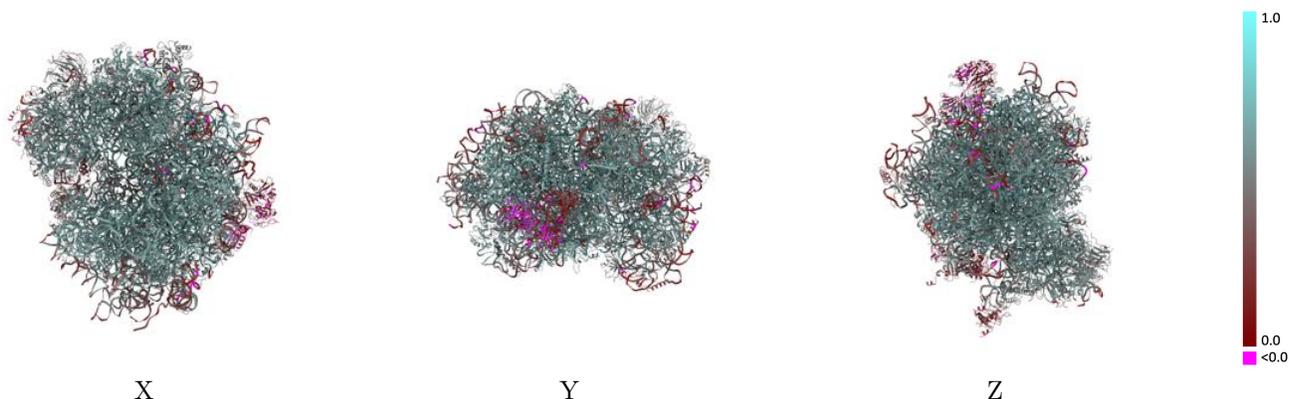
This section contains information regarding the fit between EMDB map EMD-53231 and PDB model 9QLP. Per-residue inclusion information can be found in section 3 on page 23.

9.1 Map-model overlay [i](#)



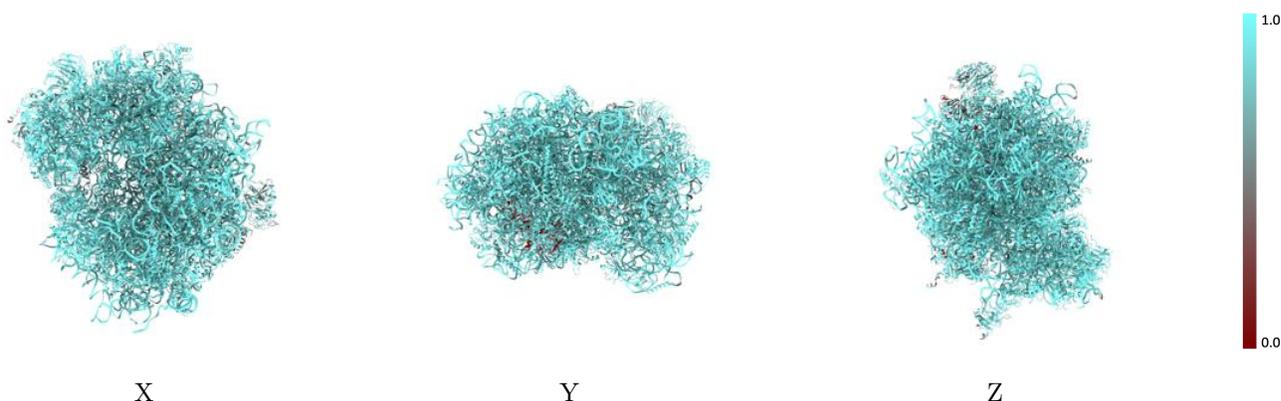
The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



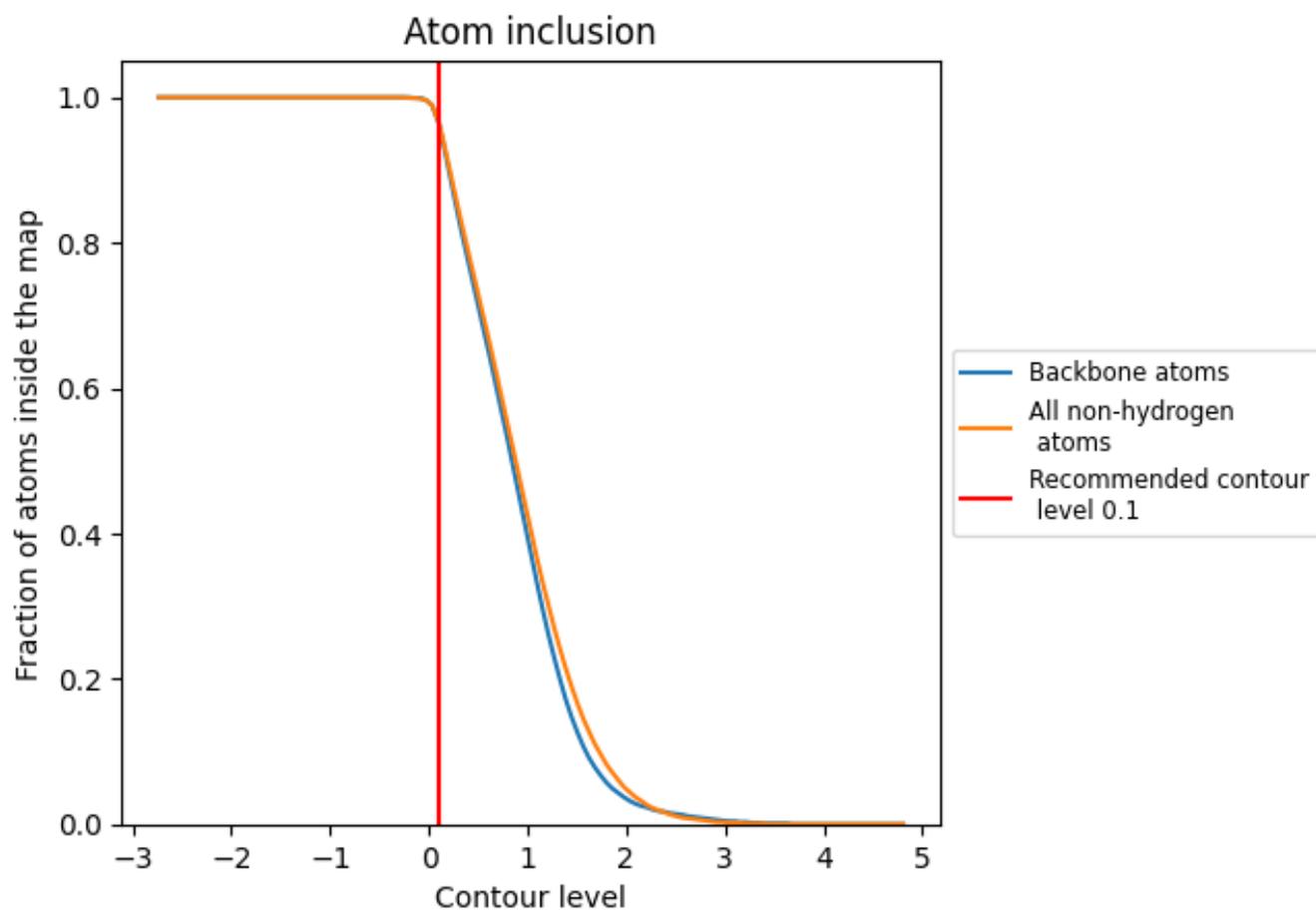
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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](#)



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 (0.1).

9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 97% 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 (0.1) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|-------|--|--|
| All |  0.9660 |  0.5500 |
| CM |  0.9600 |  0.5400 |
| CP |  0.9580 |  0.5000 |
| CR |  0.8870 |  0.4450 |
| CZ |  0.5950 |  0.0830 |
| L5 |  0.9840 |  0.5660 |
| L7 |  0.9960 |  0.6220 |
| L8 |  0.9850 |  0.5880 |
| LA |  0.9900 |  0.6370 |
| LB |  0.9840 |  0.6200 |
| LC |  0.9850 |  0.6150 |
| LD |  0.9760 |  0.5690 |
| LE |  0.9770 |  0.5590 |
| LF |  0.9830 |  0.6180 |
| LG |  0.9640 |  0.5550 |
| LH |  0.9790 |  0.5830 |
| LI |  0.9710 |  0.5900 |
| LJ |  0.9660 |  0.5570 |
| LL |  0.9710 |  0.5840 |
| LM |  0.9910 |  0.5920 |
| LN |  0.9960 |  0.6440 |
| LO |  0.9850 |  0.6270 |
| LP |  0.9850 |  0.6250 |
| LQ |  0.9910 |  0.6310 |
| LR |  0.9860 |  0.6050 |
| LS |  0.9890 |  0.6250 |
| LT |  0.9680 |  0.5830 |
| LU |  0.9570 |  0.4950 |
| LV |  0.9870 |  0.6230 |
| LW |  0.9570 |  0.4840 |
| LX |  0.9650 |  0.5950 |
| LY |  0.9830 |  0.5940 |
| LZ |  0.9820 |  0.5930 |
| La |  0.9910 |  0.6320 |
| Lb |  0.9480 |  0.5450 |



Continued on next page...

Continued from previous page...

| Chain | Atom inclusion | Q-score |
|-------|--|--|
| Lc |  0.9810 |  0.6040 |
| Ld |  0.9830 |  0.6020 |
| Le |  0.9940 |  0.6340 |
| Lf |  0.9830 |  0.6340 |
| Lg |  0.9740 |  0.6050 |
| Lh |  0.9750 |  0.5900 |
| Li |  0.9800 |  0.5790 |
| Lj |  0.9840 |  0.6290 |
| Lk |  0.9340 |  0.5230 |
| Ll |  0.9810 |  0.6110 |
| Lm |  0.9730 |  0.6000 |
| Ln |  0.9950 |  0.6330 |
| Lo |  0.9860 |  0.6150 |
| Lp |  0.9910 |  0.6330 |
| Lr |  0.9810 |  0.6050 |
| Ls |  0.7980 |  0.2570 |
| Lt |  0.8740 |  0.2670 |
| NA |  0.3350 |  0.0570 |
| NB |  0.4800 |  0.1730 |
| NM |  0.8000 |  0.1440 |
| S2 |  0.9790 |  0.5500 |
| SA |  0.9800 |  0.5800 |
| SB |  0.9660 |  0.5800 |
| SC |  0.9840 |  0.5970 |
| SD |  0.9640 |  0.5370 |
| SE |  0.9810 |  0.5650 |
| SF |  0.9560 |  0.5520 |
| SG |  0.9680 |  0.4910 |
| SH |  0.9690 |  0.5130 |
| SI |  0.9820 |  0.5770 |
| SJ |  0.9830 |  0.5730 |
| SK |  0.9610 |  0.5090 |
| SL |  0.9850 |  0.6070 |
| SM |  0.8110 |  0.2230 |
| SN |  0.9800 |  0.6080 |
| SO |  0.9760 |  0.5930 |
| SP |  0.9670 |  0.5180 |
| SQ |  0.9530 |  0.5560 |
| SR |  0.9440 |  0.5150 |
| SS |  0.9630 |  0.5360 |
| ST |  0.9670 |  0.5550 |
| SU |  0.9610 |  0.4940 |

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| Chain | Atom inclusion | Q-score |
|-------|--|--|
| SV |  0.9820 |  0.5790 |
| SW |  0.9800 |  0.6150 |
| SX |  0.9780 |  0.5940 |
| SY |  0.9800 |  0.5360 |
| SZ |  0.9560 |  0.5330 |
| Sa |  0.9680 |  0.5830 |
| Sb |  0.9600 |  0.5420 |
| Sc |  0.9300 |  0.5040 |
| Sd |  0.9760 |  0.5810 |
| Se |  0.9630 |  0.5500 |
| Sf |  0.8150 |  0.2630 |
| Sg |  0.9520 |  0.4780 |