# wwPDB EM Validation Summary Report

Dec 11, 2022 – 04:00 pm GMT

| | | |
|---|---|---|
| PDB ID | : | 5AKA |
| EMDB ID | : | EMD-2917 |
| Title | : | EM structure of ribosome-SRP-FtsY complex in closed state |
| Authors | : | von Loeffelholz, O.; Jiang, Q.; Ariosa, A.; Karuppasamy, M.; Huard, K.; Berger, I.; Shan, S.; Schaffitzel, C. |
| Deposited on | : | 2015-03-03 |
| Resolution | : | 5.70 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.

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

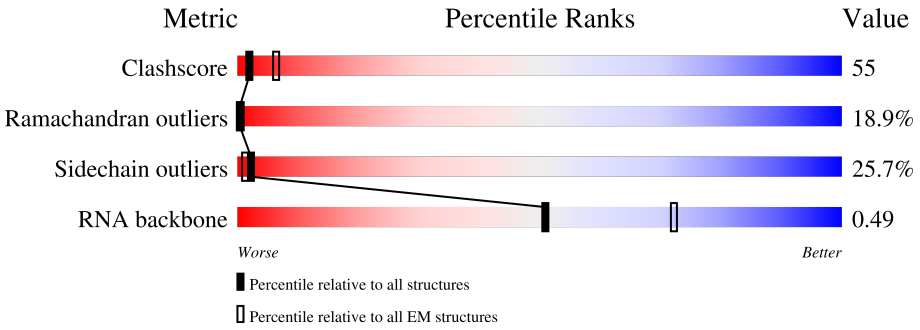
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev43 |
| MolProbity | : | 4.02b-467 |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| MapQ | : | 1.9.9 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.31.3 |

# 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 5.70 Å.

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




| Metric | Whole archive (#Entries) | EM structures (#Entries) |
|---|---|---|
| Clashscore | 158937 | 4297 |
| Ramachandran outliers | 154571 | 4023 |
| Sidechain outliers | 154315 | 3826 |
| RNA backbone | 4643 | 859 |

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

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | 0 | 56 | 39% 16% 52% 20% 12% |
| 2 | 1 | 54 | 35% 17% 46% 35% . |
| 3 | 2 | 46 | 46% 28% 46% 26% |
| 4 | 3 | 64 | 67% 23% 42% 33% . |
| 5 | 4 | 38 | 39% 21% 37% 39% . |
| 6 | 5 | 109 | 49% 44% 50% 6% |
| 7 | 6 | 8 | 25% 88% 12% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 8 | 7 | 74 | 16% 55% 43% |
| 9 | A | 120 | 9% 28% 56% 13% |
| 10 | B | 2904 | 24% 58% 15% |
| 11 | C | 273 | 38% 13% 42% 35% 8% |
| 12 | D | 209 | 35% 13% 51% 33% |
| 13 | E | 201 | 28% 15% 52% 27% 5% |
| 14 | F | 178 | 31% 24% 48% 25% |
| 15 | G | 176 | 25% 25% 56% 17% |
| 16 | H | 149 | 32% 27% 52% 19% |
| 17 | I | 141 | 32% 30% 65% |
| 18 | J | 142 | 41% 9% 52% 35% |
| 19 | K | 123 | 26% 20% 54% 20% |
| 20 | L | 144 | 39% 19% 29% 26% 22% |
| 21 | M | 136 | 36% 18% 46% 25% 11% |
| 22 | N | 127 | 37% 17% 50% 30% |
| 23 | O | 117 | 38% 20% 46% 30% |
| 24 | P | 114 | 44% 11% 38% 41% 10% |
| 25 | Q | 117 | 38% 16% 60% 21% |
| 26 | R | 103 | 33% 13% 53% 30% |
| 27 | S | 110 | 28% 30% 45% 18% 6% |
| 28 | T | 100 | 39% 19% 49% 25% 6% |
| 29 | U | 103 | 12% 17% 47% 29% 6% |
| 30 | V | 94 | 15% 24% 60% 15% |
| 31 | W | 84 | 45% 17% 44% 29% 11% |
| 32 | X | 63 | 16% 22% 46% 32% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 33 | Y | 58 | 28% 28% 48% 19% 5% |
| 34 | Z | 70 | 24% 21% 43% 23% 13% |

# 2 Entry composition (i)

There are 36 unique types of molecules in this entry. The entry contains 92737 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 protein called 50S RIBOSOMAL PROTEIN L32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 1 | 0 | 56 | 444 | 269 | 94 | 80 | 1 | 0 | 0 |

- Molecule 2 is a protein called 50S RIBOSOMAL PROTEIN L33.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | | |
| 2 | 1 | 54 | 441 | 284 | 81 | 76 | 0 | 0 |

- Molecule 3 is a protein called 50S RIBOSOMAL PROTEIN L34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 3 | 2 | 46 | 377 | 228 | 90 | 57 | 2 | 0 | 0 |

- Molecule 4 is a protein called 50S RIBOSOMAL PROTEIN L35.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 4 | 3 | 64 | 504 | 323 | 105 | 74 | 2 | 0 | 0 |

- Molecule 5 is a protein called 50S RIBOSOMAL PROTEIN L36.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 5 | 4 | 38 | 302 | 185 | 65 | 48 | 4 | 0 | 0 |

- Molecule 6 is a protein called SIGNAL RECOGNITION PARTICLE PROTEIN.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 6 | 5 | 109 | 850 | 523 | 159 | 153 | 15 | 0 | 0 |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| 5 | 406 | SER | CYS | conflict | UNP P0AGD7 |

- Molecule 7 is a protein called ALA-ALA-ALA-ALA-ALA-ALA-ALA-ALA.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 7 | 6 | 8 | Total | C | N | O | 0 | 0 |
| | | | 41 | 24 | 8 | 9 | | |

- Molecule 8 is a RNA chain called 4.5S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 8 | 7 | 74 | Total | C | N | O | P | 0 | 0 |
| | | | 1591 | 709 | 298 | 511 | 73 | | |

- Molecule 9 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 9 | A | 117 | Total | C | N | O | P | 0 | 0 |
| | | | 2507 | 1116 | 459 | 815 | 117 | | |

- Molecule 10 is a RNA chain called 23S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 10 | B | 2841 | Total | C | N | O | P | 0 | 0 |
| | | | 60995 | 27210 | 11229 | 19715 | 2841 | | |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| B | 2798 | U | UNK | conflict | GB 731469900 |
| B | 2800 | A | UNK | conflict | GB 731469900 |

- Molecule 11 is a protein called 50S RIBOSOMAL PROTEIN L2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 11 | C | 267 | Total | C | N | O | S | 0 | 0 |
| | | | 2053 | 1271 | 416 | 359 | 7 | | |

- Molecule 12 is a protein called 50S RIBOSOMAL PROTEIN L3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 12 | D | 209 | Total | C | N | O | S | 0 | 0 |
| | | | 1565 | 979 | 288 | 294 | 4 | | |

- Molecule 13 is a protein called 50S RIBOSOMAL PROTEIN L4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 13 | E | 201 | Total | C | N | O | S | 0 | 0 |
| | | | 1552 | 974 | 283 | 290 | 5 | | |

- Molecule 14 is a protein called 50S RIBOSOMAL PROTEIN L5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | F | 178 | Total | C | N | O | S | 0 | 0 |
| | | | 1420 | 905 | 251 | 258 | 6 | | |

- Molecule 15 is a protein called 50S RIBOSOMAL PROTEIN L6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | G | 176 | Total | C | N | O | S | 0 | 0 |
| | | | 1323 | 832 | 243 | 246 | 2 | | |

- Molecule 16 is a protein called 50S RIBOSOMAL PROTEIN L9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 16 | H | 149 | Total | C | N | O | S | 0 | 0 |
| | | | 1111 | 699 | 197 | 214 | 1 | | |

- Molecule 17 is a protein called 50S RIBOSOMAL PROTEIN L11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 17 | I | 141 | Total | C | N | O | S | 0 | 0 |
| | | | 1032 | 651 | 179 | 196 | 6 | | |

- Molecule 18 is a protein called 50S RIBOSOMAL PROTEIN L13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 18 | J | 140 | Total | C | N | O | S | 0 | 0 |
| | | | 1112 | 704 | 210 | 194 | 4 | | |

- Molecule 19 is a protein called 50S RIBOSOMAL PROTEIN L14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 19 | K | 121 | Total | C | N | O | S | 0 | 0 |
| | | | 930 | 582 | 179 | 164 | 5 | | |

- Molecule 20 is a protein called 50S RIBOSOMAL PROTEIN L15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 20 | L | 138 | Total | C | N | O | S | 0 | 0 |
| | | | 1002 | 623 | 197 | 181 | 1 | | |

- Molecule 21 is a protein called 50S RIBOSOMAL PROTEIN L16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | M | 136 | Total | C | N | O | S | 0 | 0 |
| | | | 1074 | 686 | 205 | 177 | 6 | | |

- Molecule 22 is a protein called 50S RIBOSOMAL PROTEIN L17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 22 | N | 127 | Total | C | N | O | S | 0 | 0 |
| | | | 1008 | 621 | 204 | 178 | 5 | | |

- Molecule 23 is a protein called 50S RIBOSOMAL PROTEIN L18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 23 | O | 117 | Total | C | N | O | S | 0 | 0 |
| | | | 900 | 557 | 179 | 163 | 1 | | |

- Molecule 24 is a protein called 50S RIBOSOMAL PROTEIN L19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 24 | P | 114 | Total | C | N | O | S | 0 | 0 |
| | | | 917 | 574 | 179 | 163 | 1 | | |

- Molecule 25 is a protein called 50S RIBOSOMAL PROTEIN L20.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 25 | Q | 117 | Total | C | N | O | 0 | 0 |
| | | | 947 | 604 | 192 | 151 | | |

- Molecule 26 is a protein called 50S RIBOSOMAL PROTEIN L21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 26 | R | 103 | Total | C | N | O | S | 0 | 0 |
| | | | 816 | 516 | 153 | 145 | 2 | | |

- Molecule 27 is a protein called 50S RIBOSOMAL PROTEIN L22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 27 | S | 110 | Total | C | N | O | S | 0 | 0 |
| | | | 857 | 532 | 166 | 156 | 3 | | |

- Molecule 28 is a protein called 50S RIBOSOMAL PROTEIN L23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 28 | T | 99 | Total | C | N | O | S | 0 | 0 |
| | | | 777 | 491 | 145 | 139 | 2 | | |

- Molecule 29 is a protein called 50S RIBOSOMAL PROTEIN L24.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 29 | U | 102 | Total | C | N | O | 0 | 0 |
| | | | 779 | 492 | 146 | 141 | | |

- Molecule 30 is a protein called 50S RIBOSOMAL PROTEIN L25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 30 | V | 94 | Total | C | N | O | S | 0 | 0 |
| | | | 753 | 479 | 137 | 134 | 3 | | |

- Molecule 31 is a protein called 50S RIBOSOMAL PROTEIN L27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 31 | W | 84 | Total | C | N | O | S | 0 | 0 |
| | | | 634 | 391 | 129 | 113 | 1 | | |

- Molecule 32 is a protein called 50S RIBOSOMAL PROTEIN L29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 32 | X | 63 | Total | C | N | O | S | 0 | 0 |
| | | | 509 | 313 | 99 | 95 | 2 | | |

- Molecule 33 is a protein called 50S RIBOSOMAL PROTEIN L30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 33 | Y | 58 | Total | C | N | O | S | 0 | 0 |
| | | | 449 | 281 | 87 | 79 | 2 | | |

- Molecule 34 is a protein called 50S RIBOSOMAL PROTEIN L31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 34 | Z | 70 | Total | C | N | O | S | 0 | 0 |
| | | | 549 | 339 | 104 | 100 | 6 | | |

- Molecule 35 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 35 | B | 110 | Total | Mg | 0 |
| | | | 110 | 110 | |

- Molecule 36 is water.

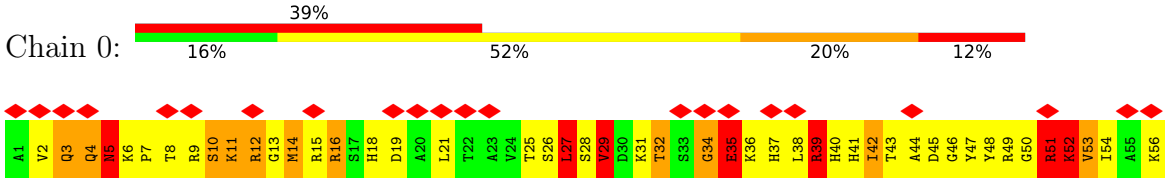
| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 36 | B | 497 | Total | O | 0 |
| | | | 497 | 497 | |
| 36 | C | 1 | Total | O | 0 |
| | | | 1 | 1 | |
| 36 | E | 5 | Total | O | 0 |
| | | | 5 | 5 | |
| 36 | L | 2 | Total | O | 0 |
| | | | 2 | 2 | |
| 36 | N | 1 | Total | O | 0 |
| | | | 1 | 1 | |

# 3 Residue-property plots (i)

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

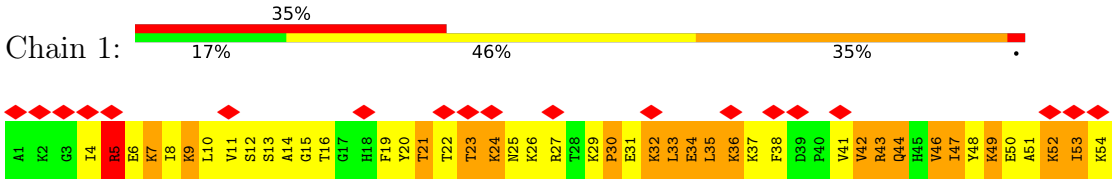
• Molecule 1: 50S RIBOSOMAL PROTEIN L32

Chain 0:



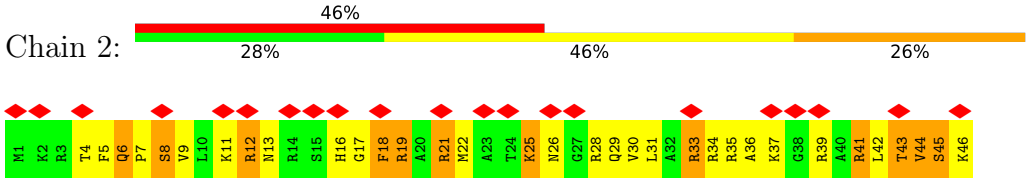

• Molecule 2: 50S RIBOSOMAL PROTEIN L33

Chain 1:



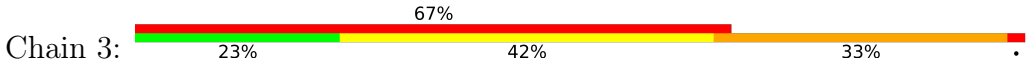

• Molecule 3: 50S RIBOSOMAL PROTEIN L34

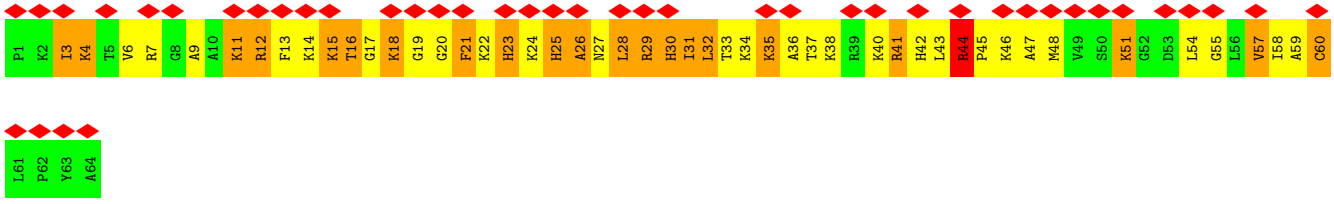
Chain 2:




• Molecule 4: 50S RIBOSOMAL PROTEIN L35

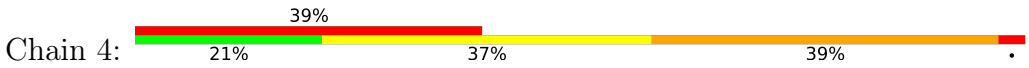
Chain 3:

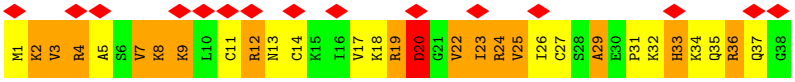


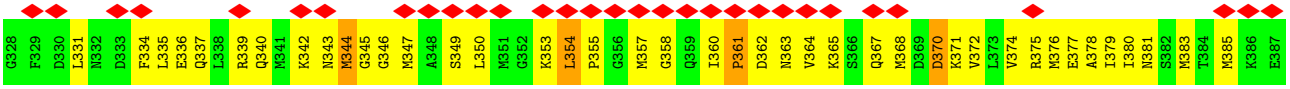

• Molecule 5: 50S RIBOSOMAL PROTEIN L36

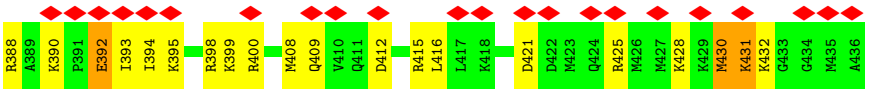
Chain 4:



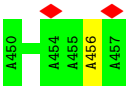



• Molecule 6: SIGNAL RECOGNITION PARTICLE PROTEIN

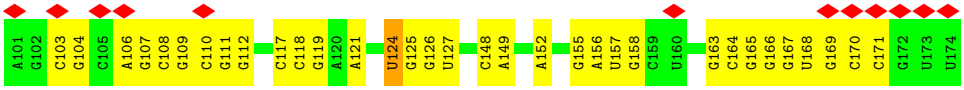



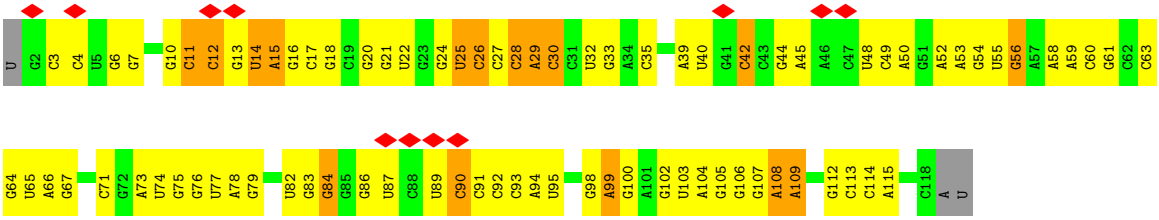

• Molecule 7: ALA-ALA-ALA-ALA-ALA-ALA-ALA-ALA

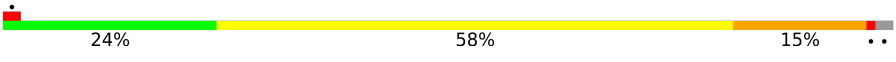

• Molecule 8: 4.5S ribosomal RNA

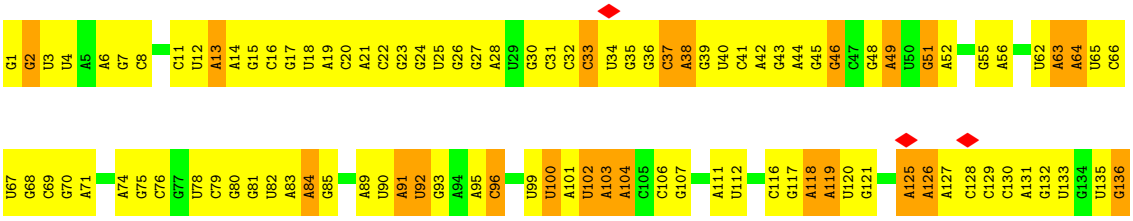



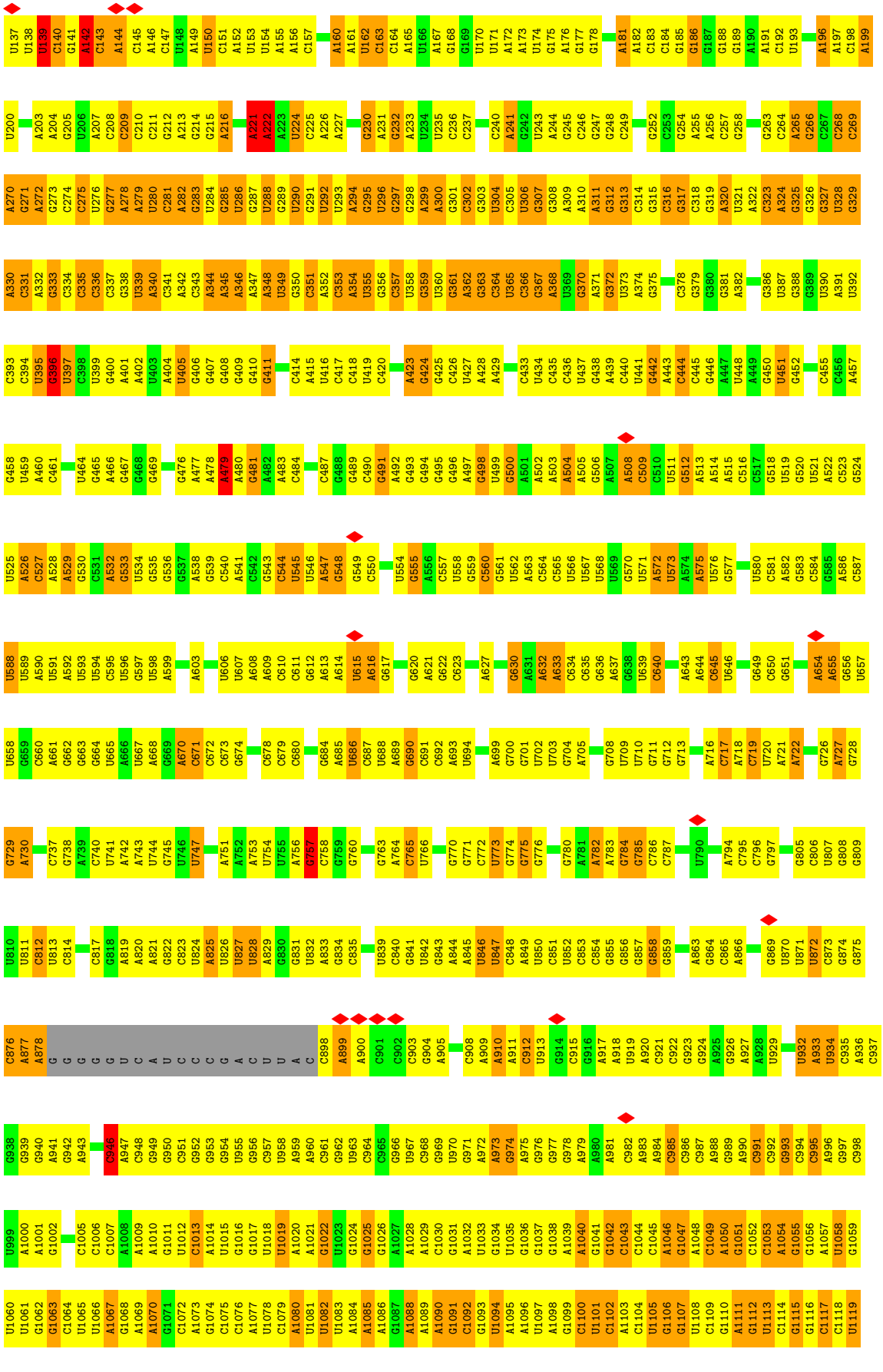

• Molecule 9: 5S ribosomal RNA

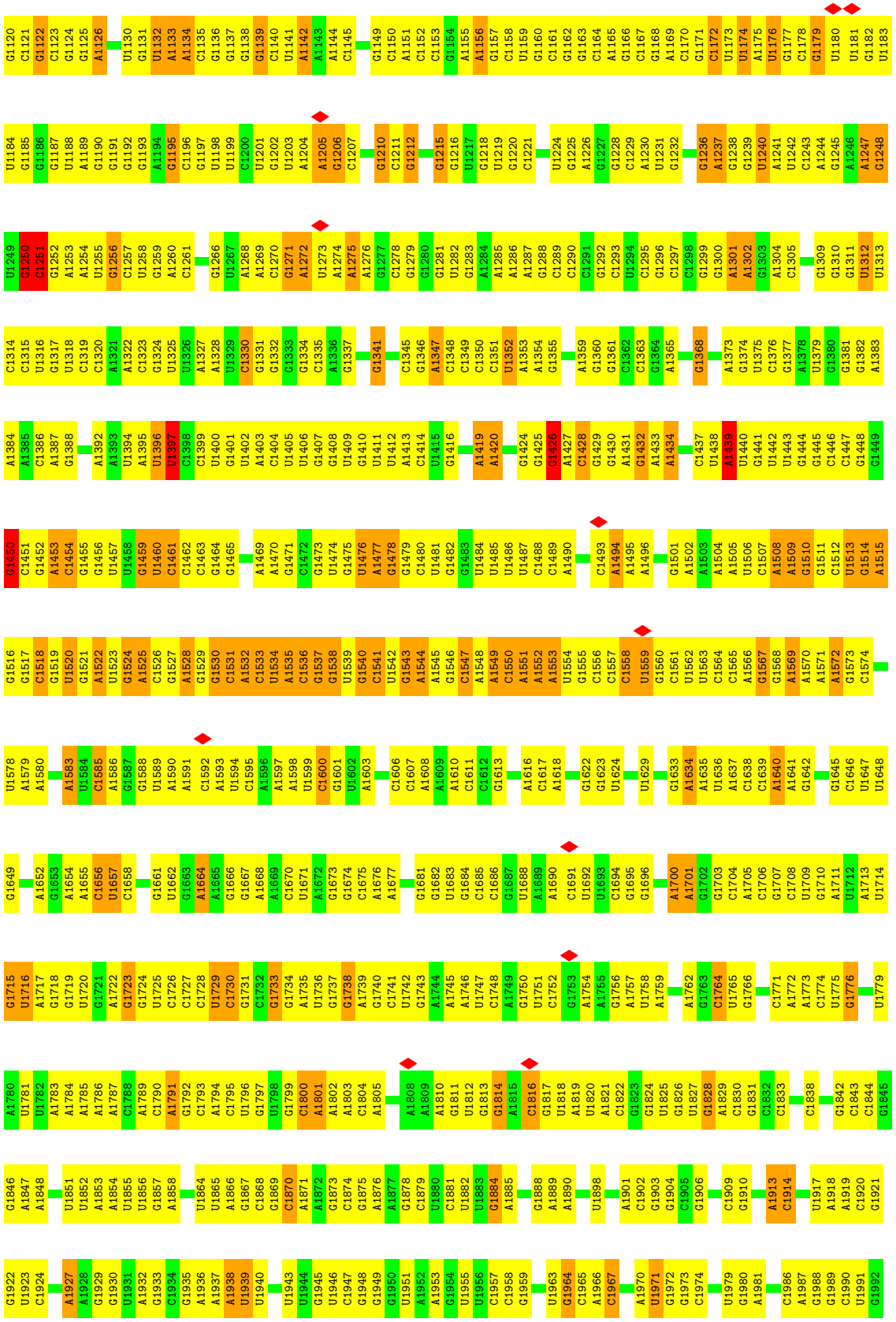



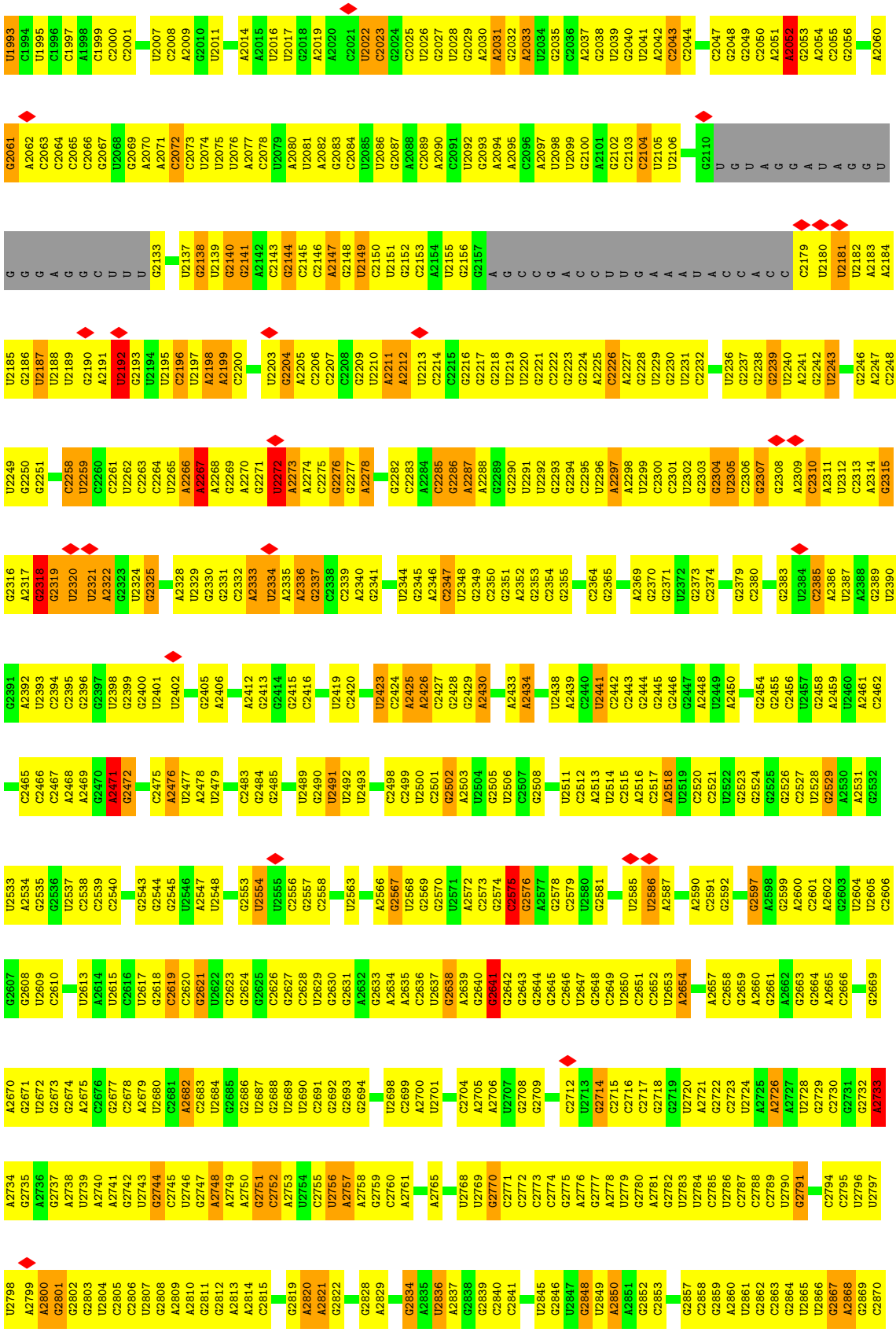

• Molecule 10: 23S ribosomal RNA

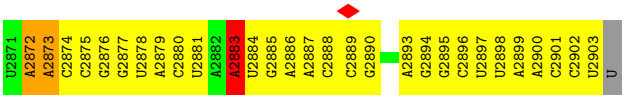




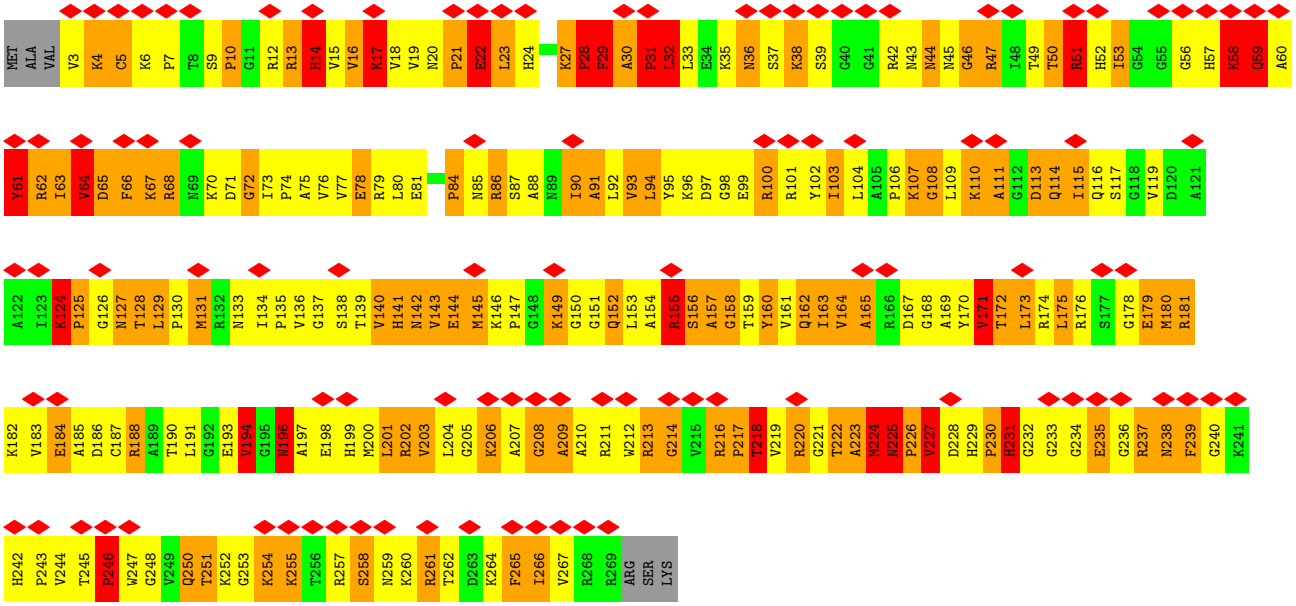






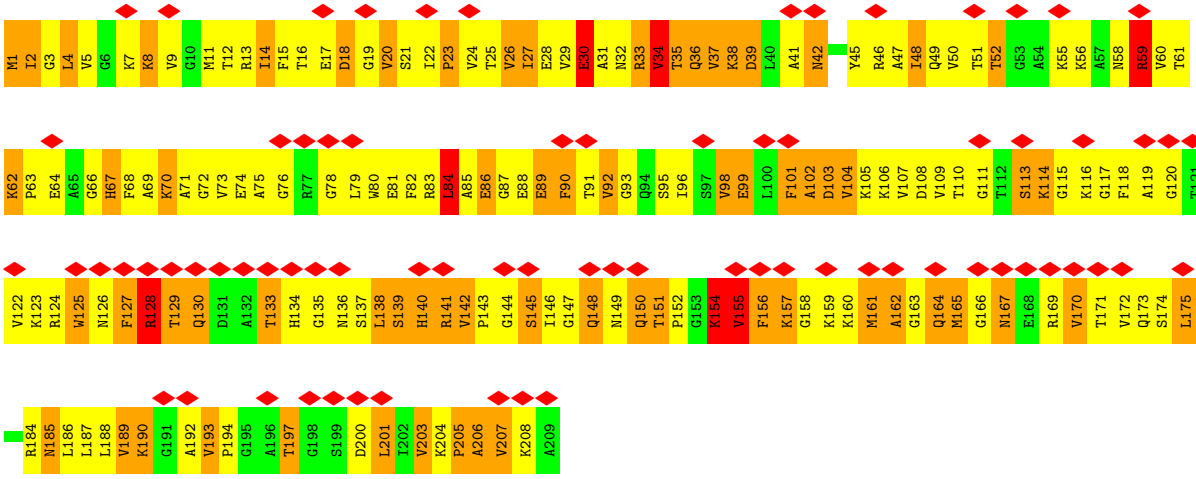

• Molecule 11: 50S RIBOSOMAL PROTEIN L2

Chain C:

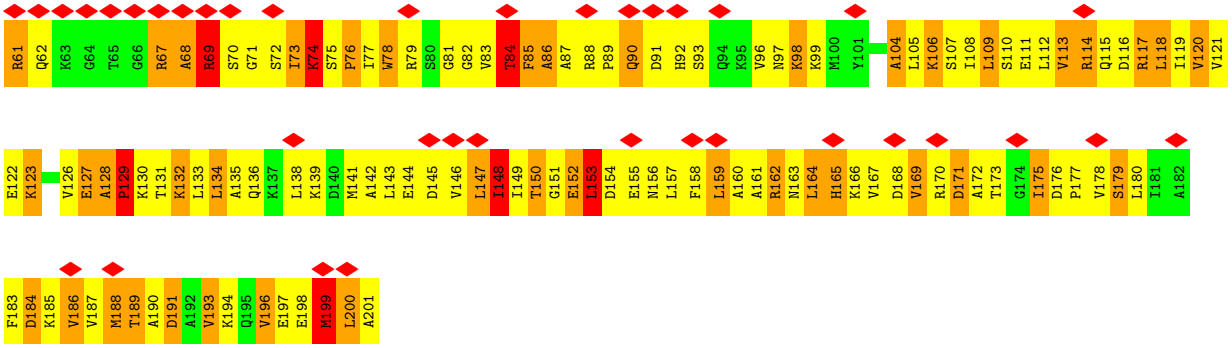

• Molecule 12: 50S RIBOSOMAL PROTEIN L3

Chain D:

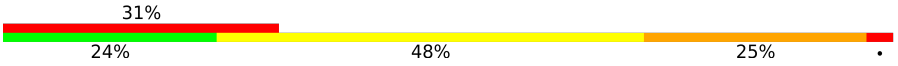

• Molecule 13: 50S RIBOSOMAL PROTEIN L4

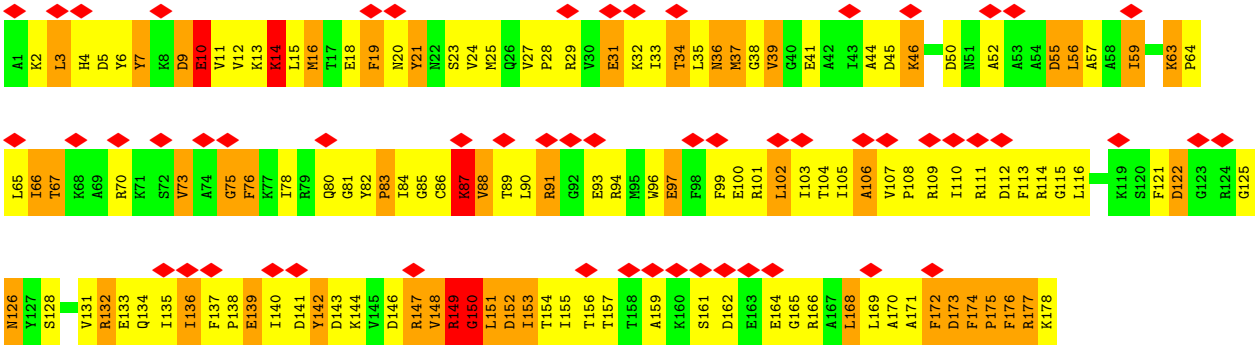
Chain E:

• Molecule 14: 50S RIBOSOMAL PROTEIN L5

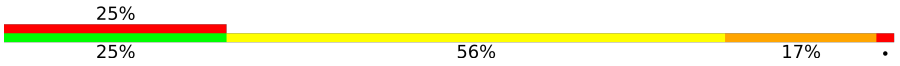
Chain F:

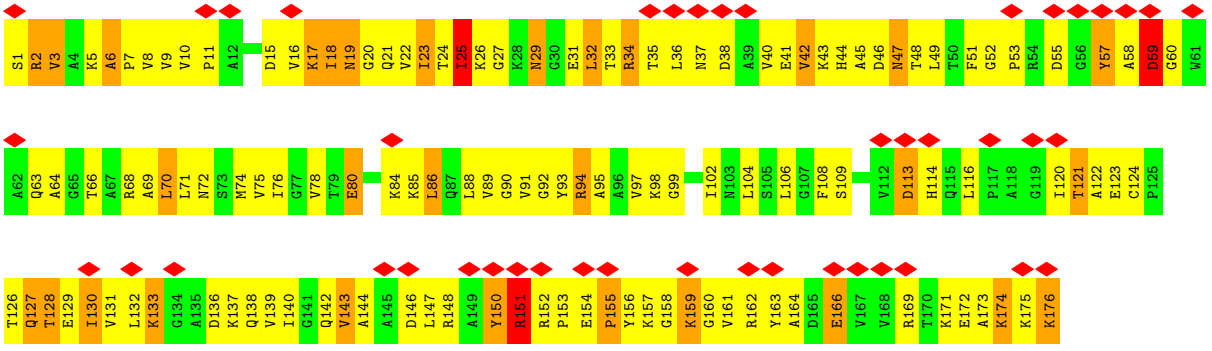


• Molecule 15: 50S RIBOSOMAL PROTEIN L6

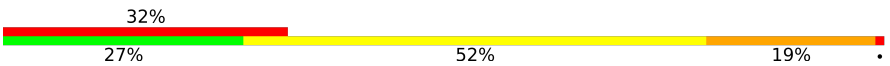
Chain G:

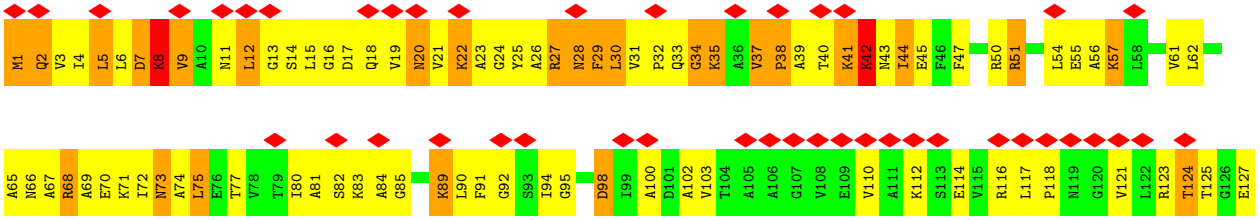


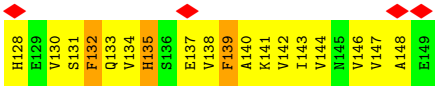



• Molecule 16: 50S RIBOSOMAL PROTEIN L9

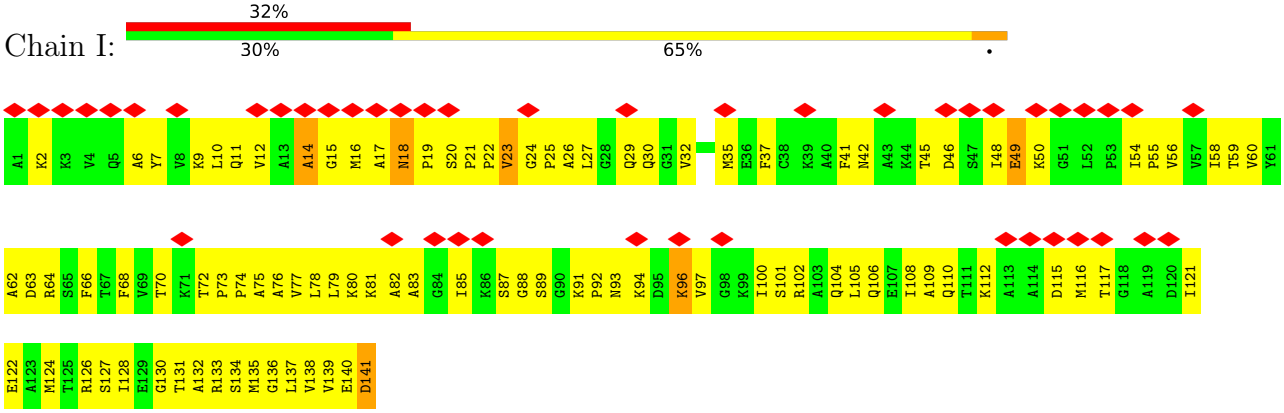
Chain H:



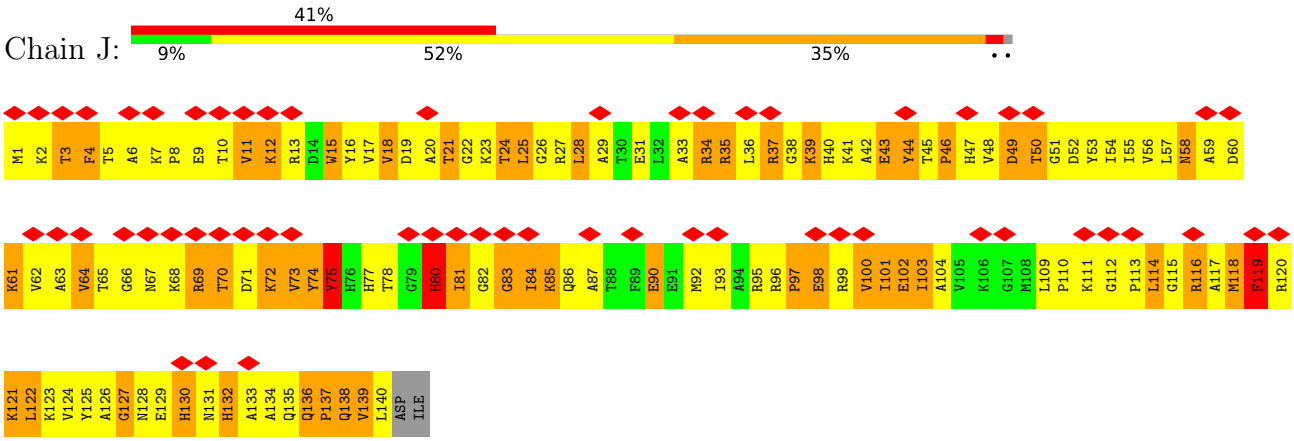





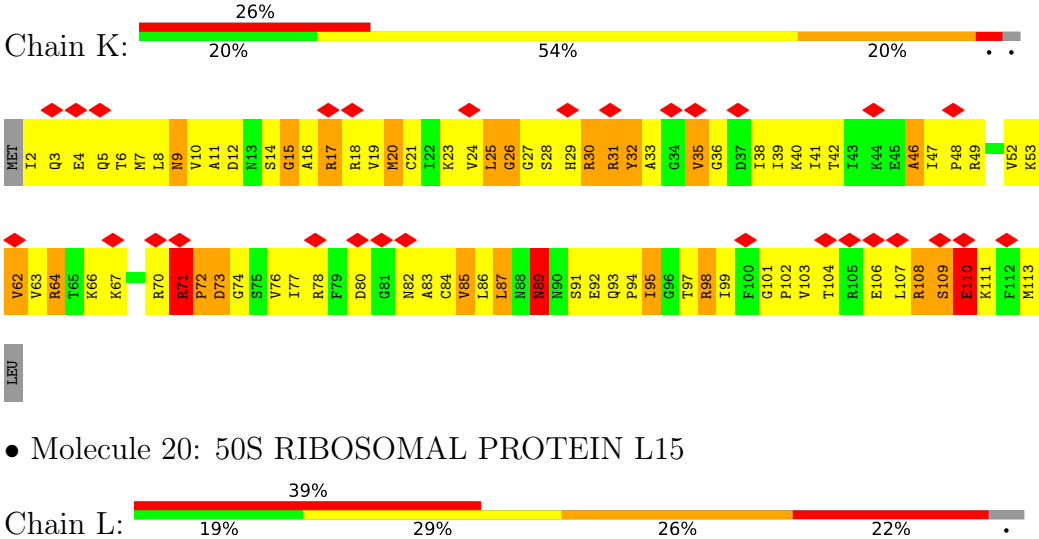

• Molecule 17: 50S RIBOSOMAL PROTEIN L11



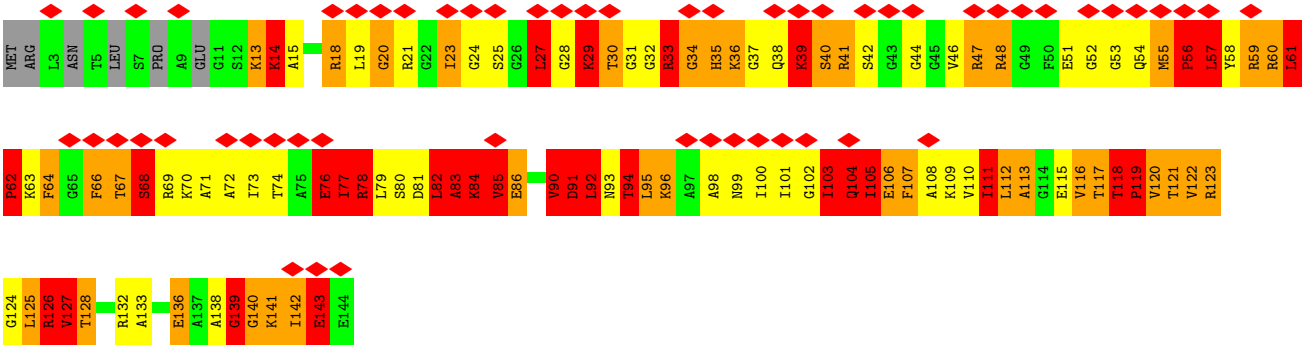

• Molecule 18: 50S RIBOSOMAL PROTEIN L13




• Molecule 19: 50S RIBOSOMAL PROTEIN L14

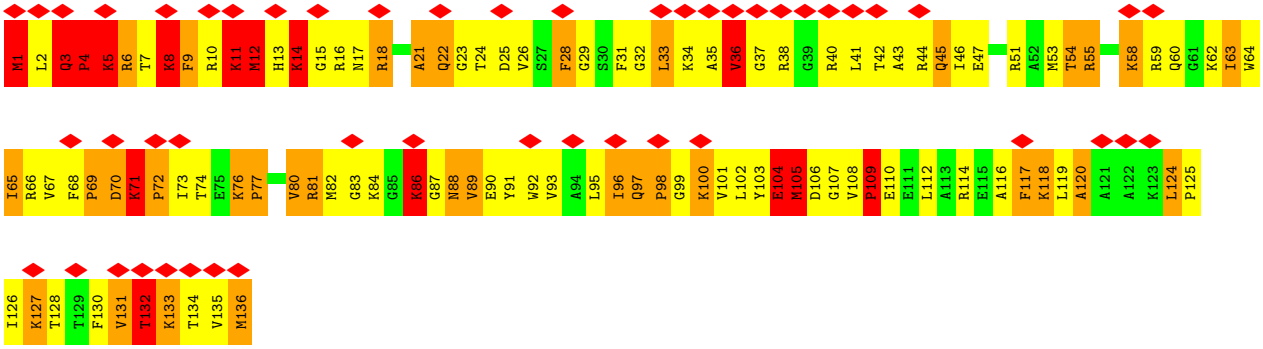



• Molecule 20: 50S RIBOSOMAL PROTEIN L15



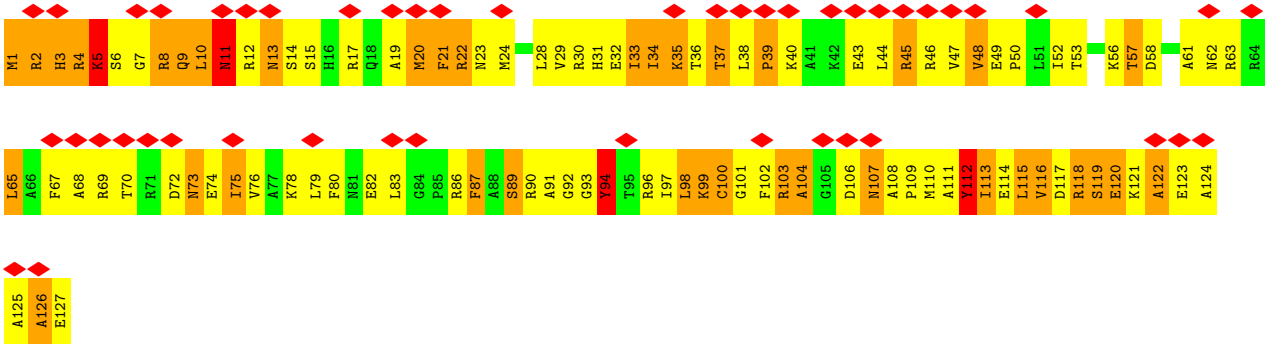
• Molecule 21: 50S RIBOSOMAL PROTEIN L16

Chain M:

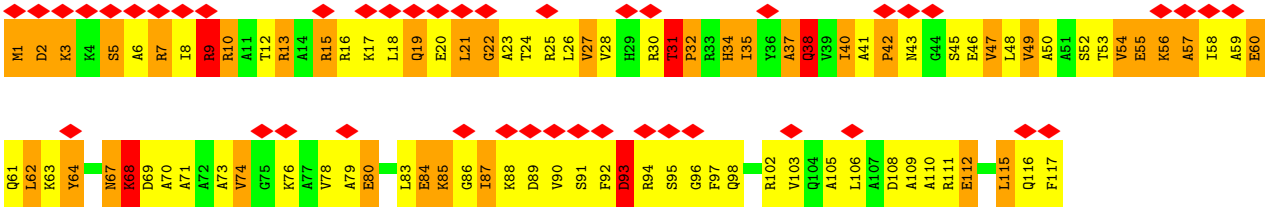
• Molecule 22: 50S RIBOSOMAL PROTEIN L17

Chain N:

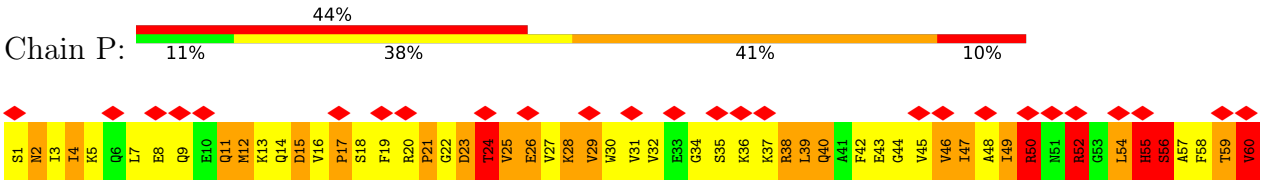
• Molecule 23: 50S RIBOSOMAL PROTEIN L18

Chain O:

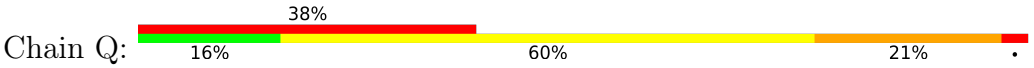
• Molecule 24: 50S RIBOSOMAL PROTEIN L19

Chain P:



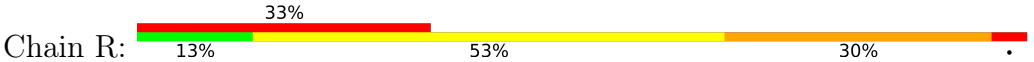

• Molecule 25: 50S RIBOSOMAL PROTEIN L20

Chain Q:




• Molecule 26: 50S RIBOSOMAL PROTEIN L21

Chain R:

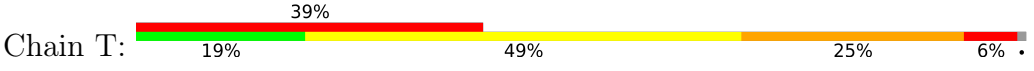


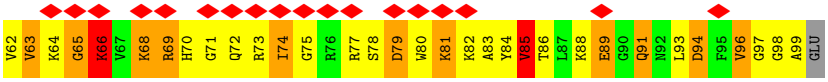

• Molecule 27: 50S RIBOSOMAL PROTEIN L22

Chain S:

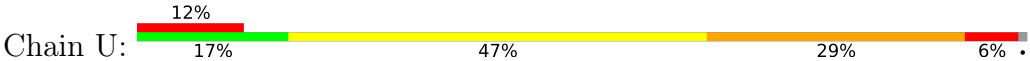

• Molecule 28: 50S RIBOSOMAL PROTEIN L23

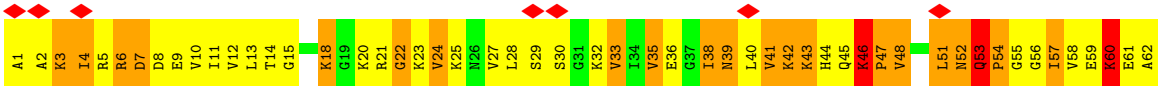
Chain T:

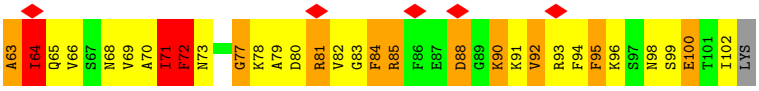




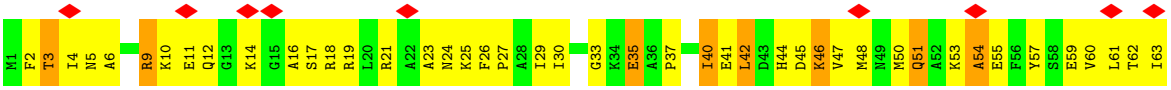

• Molecule 29: 50S RIBOSOMAL PROTEIN L24



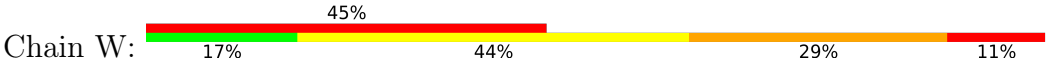



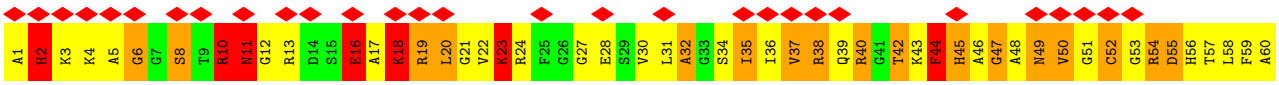

• Molecule 30: 50S RIBOSOMAL PROTEIN L25

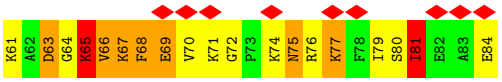





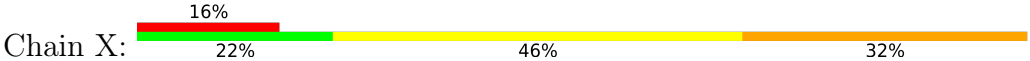
• Molecule 31: 50S RIBOSOMAL PROTEIN L27

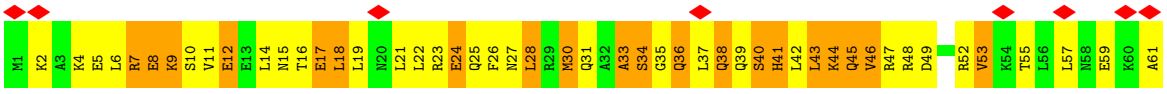



• Molecule 32: 50S RIBOSOMAL PROTEIN L29

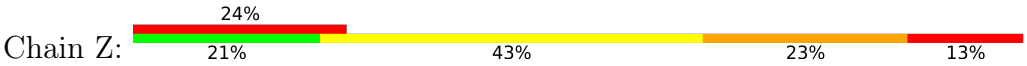


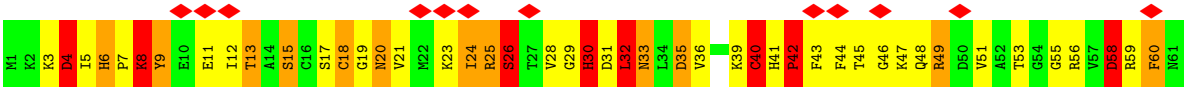



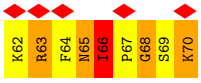


• Molecule 33: 50S RIBOSOMAL PROTEIN L30


• Molecule 34: 50S RIBOSOMAL PROTEIN L31



# 4 Experimental information (i)

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, C1 | Depositor |
| Number of particles used | 32170 | Depositor |
| Resolution determination method | Not provided | |
| CTF correction method | PER MICROGRAPH | Depositor |
| Microscope | FEI TITAN KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/Å^2$) | 24 | Depositor |
| Minimum defocus (nm) | 600 | Depositor |
| Maximum defocus (nm) | 3000 | Depositor |
| Magnification | 77769 | Depositor |
| Image detector | FEI FALCON II (4k x 4k) | Depositor |
| Maximum map value | 0.158 | Depositor |
| Minimum map value | -0.099 | Depositor |
| Average map value | 0.000 | Depositor |
| Map value standard deviation | 0.014 | Depositor |
| Recommended contour level | 0.02 | Depositor |
| Map size (Å) | 360.0, 360.0, 360.0 | wwPDB |
| Map dimensions | 180, 180, 180 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 2.0, 2.0, 2.0 | Depositor |

# 5 Model quality (i)

## 5.1 Standard geometry (i)

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

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

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #$\|Z\|$ >5 | RMSZ | #$\|Z\|$ >5 |
| 1 | 0 | 0.53 | 1/450 (0.2%) | 1.15 | 7/599 (1.2%) |
| 2 | 1 | 0.36 | 0/448 | 0.71 | 0/594 |
| 3 | 2 | 0.33 | 0/380 | 0.64 | 0/498 |
| 4 | 3 | 0.47 | 0/513 | 0.96 | 1/676 (0.1%) |
| 5 | 4 | 0.40 | 0/303 | 0.73 | 0/397 |
| 6 | 5 | 0.24 | 0/855 | 0.38 | 0/1124 |
| 7 | 6 | 0.37 | 0/40 | 0.26 | 0/53 |
| 8 | 7 | 0.13 | 0/1781 | 0.63 | 0/2779 |
| 9 | A | 0.27 | 0/2803 | 0.74 | 0/4371 |
| 10 | B | 0.32 | 11/68314 (0.0%) | 0.77 | 54/106569 (0.1%) |
| 11 | C | 0.40 | 0/2092 | 0.88 | 7/2813 (0.2%) |
| 12 | D | 0.40 | 0/1586 | 0.80 | 2/2134 (0.1%) |
| 13 | E | 0.45 | 1/1571 (0.1%) | 0.88 | 6/2113 (0.3%) |
| 14 | F | 0.33 | 0/1444 | 0.87 | 5/1937 (0.3%) |
| 15 | G | 0.31 | 0/1343 | 0.69 | 0/1816 |
| 16 | H | 0.27 | 0/1122 | 0.59 | 0/1515 |
| 17 | I | 0.26 | 0/1046 | 0.58 | 0/1410 |
| 18 | J | 0.41 | 1/1135 (0.1%) | 0.72 | 3/1529 (0.2%) |
| 19 | K | 0.35 | 0/939 | 0.99 | 2/1258 (0.2%) |
| 20 | L | 0.71 | 0/1006 | 1.61 | 29/1331 (2.2%) |
| 21 | M | 0.48 | 0/1093 | 1.03 | 8/1460 (0.5%) |
| 22 | N | 0.34 | 0/1021 | 0.78 | 4/1364 (0.3%) |
| 23 | O | 0.30 | 0/910 | 0.67 | 1/1219 (0.1%) |
| 24 | P | 0.55 | 0/929 | 1.40 | 16/1242 (1.3%) |
| 25 | Q | 0.41 | 0/960 | 0.86 | 2/1278 (0.2%) |
| 26 | R | 1.06 | 6/829 (0.7%) | 1.42 | 13/1107 (1.2%) |
| 27 | S | 0.28 | 0/864 | 0.69 | 1/1156 (0.1%) |
| 28 | T | 0.38 | 0/784 | 0.77 | 4/1048 (0.4%) |
| 29 | U | 0.48 | 0/787 | 0.74 | 3/1051 (0.3%) |
| 30 | V | 0.30 | 0/766 | 0.53 | 0/1025 |
| 31 | W | 0.36 | 0/642 | 0.96 | 5/848 (0.6%) |
| 32 | X | 0.29 | 0/509 | 0.81 | 1/674 (0.1%) |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 33 | Y | 0.30 | 0/453 | 0.64 | 0/605 |
| 34 | Z | 0.48 | 0/559 | 1.04 | 5/745 (0.7%) |
| All | All | 0.35 | 20/100277 (0.0%) | 0.80 | 179/150338 (0.1%) |

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 |
|---|---|---|---|
| 10 | B | 0 | 55 |
| 11 | C | 0 | 3 |
| 18 | J | 0 | 2 |
| 20 | L | 0 | 1 |
| 24 | P | 0 | 1 |
| 25 | Q | 0 | 1 |
| 26 | R | 0 | 1 |
| All | All | 0 | 64 |

The worst 5 of 20 bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 26 | R | 53 | PHE | CB-CG | 17.81 | 1.81 | 1.51 |
| 26 | R | 54 | VAL | N-CA | -11.64 | 1.23 | 1.46 |
| 26 | R | 54 | VAL | CA-CB | 11.12 | 1.78 | 1.54 |
| 10 | B | 2196 | C | O3'-P | 10.16 | 1.73 | 1.61 |
| 10 | B | 2052 | A | C4'-C3' | -8.24 | 1.44 | 1.53 |

The worst 5 of 179 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 10 | B | 2791 | G | O5'-P-OP1 | -28.73 | 76.22 | 110.70 |
| 10 | B | 2791 | G | O5'-P-OP2 | 18.24 | 132.59 | 110.70 |
| 26 | R | 53 | PHE | CA-C-N | -17.34 | 79.05 | 117.20 |
| 26 | R | 54 | VAL | CB-CA-C | 15.12 | 140.12 | 111.40 |
| 10 | B | 2790 | U | OP1-P-O3' | 14.24 | 136.52 | 105.20 |

There are no chirality outliers.

5 of 64 planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 10 | B | 136 | G | Sidechain |
| 10 | B | 139 | U | Sidechain |
| 10 | B | 142 | A | Sidechain |
| 10 | B | 143 | C | Sidechain |
| 10 | B | 51 | G | Sidechain |

## 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 | 0 | 444 | 0 | 461 | 105 | 0 |
| 2 | 1 | 441 | 0 | 485 | 68 | 0 |
| 3 | 2 | 377 | 0 | 418 | 50 | 0 |
| 4 | 3 | 504 | 0 | 574 | 108 | 0 |
| 5 | 4 | 302 | 0 | 343 | 45 | 0 |
| 6 | 5 | 850 | 0 | 897 | 94 | 0 |
| 7 | 6 | 41 | 0 | 39 | 1 | 0 |
| 8 | 7 | 1591 | 0 | 806 | 24 | 0 |
| 9 | A | 2507 | 0 | 1270 | 86 | 0 |
| 10 | B | 60995 | 0 | 30659 | 4160 | 0 |
| 11 | C | 2053 | 0 | 2122 | 432 | 0 |
| 12 | D | 1565 | 0 | 1616 | 377 | 0 |
| 13 | E | 1552 | 0 | 1617 | 282 | 0 |
| 14 | F | 1420 | 0 | 1460 | 167 | 0 |
| 15 | G | 1323 | 0 | 1374 | 165 | 0 |
| 16 | H | 1111 | 0 | 1148 | 190 | 0 |
| 17 | I | 1032 | 0 | 1088 | 199 | 0 |
| 18 | J | 1112 | 0 | 1147 | 217 | 0 |
| 19 | K | 930 | 0 | 1000 | 119 | 0 |
| 20 | L | 1002 | 0 | 1070 | 287 | 0 |
| 21 | M | 1074 | 0 | 1157 | 244 | 0 |
| 22 | N | 1008 | 0 | 1036 | 232 | 0 |
| 23 | O | 900 | 0 | 935 | 129 | 0 |
| 24 | P | 917 | 0 | 965 | 205 | 0 |
| 25 | Q | 947 | 0 | 1022 | 173 | 0 |
| 26 | R | 816 | 0 | 838 | 166 | 0 |
| 27 | S | 857 | 0 | 922 | 120 | 0 |
| 28 | T | 777 | 0 | 840 | 129 | 0 |
| 29 | U | 779 | 0 | 831 | 255 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 30 | V | 753 | 0 | 780 | 104 | 0 |
| 31 | W | 634 | 0 | 656 | 157 | 0 |
| 32 | X | 509 | 0 | 541 | 68 | 0 |
| 33 | Y | 449 | 0 | 491 | 57 | 0 |
| 34 | Z | 549 | 0 | 552 | 114 | 0 |
| 35 | B | 110 | 0 | 0 | 0 | 0 |
| 36 | B | 497 | 0 | 0 | 17 | 0 |
| 36 | C | 1 | 0 | 0 | 0 | 0 |
| 36 | E | 5 | 0 | 0 | 0 | 0 |
| 36 | L | 2 | 0 | 0 | 0 | 0 |
| 36 | N | 1 | 0 | 0 | 0 | 0 |
| All | All | 92737 | 0 | 61160 | 8365 | 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 55.

The worst 5 of 8365 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) |
|---|---|---|---|
| 10:B:1062:G:H21 | 17:I:134:SER:CB | 1.09 | 1.62 |
| 10:B:1059:G:C5' | 17:I:117:THR:HG23 | 1.22 | 1.60 |
| 26:R:54:VAL:CA | 26:R:54:VAL:CB | 1.78 | 1.59 |
| 26:R:53:PHE:CB | 26:R:53:PHE:CG | 1.81 | 1.58 |
| 10:B:80:G:C5' | 10:B:346:A:C8 | 1.88 | 1.53 |

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 |
|---|---|---|---|---|---|---|
| 1 | 0 | 54/56 (96%) | 30 (56%) | 15 (28%) | 9 (17%) | 0 3 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 2 | 1 | 52/54 (96%) | 19 (36%) | 23 (44%) | 10 (19%) | 0 2 |
| 3 | 2 | 44/46 (96%) | 23 (52%) | 14 (32%) | 7 (16%) | 0 3 |
| 4 | 3 | 62/64 (97%) | 30 (48%) | 25 (40%) | 7 (11%) | 0 7 |
| 5 | 4 | 36/38 (95%) | 18 (50%) | 9 (25%) | 9 (25%) | 0 1 |
| 6 | 5 | 107/109 (98%) | 83 (78%) | 19 (18%) | 5 (5%) | 2 21 |
| 7 | 6 | 6/8 (75%) | 5 (83%) | 1 (17%) | 0 | 100 100 |
| 11 | C | 265/273 (97%) | 103 (39%) | 82 (31%) | 80 (30%) | 0 0 |
| 12 | D | 207/209 (99%) | 90 (44%) | 69 (33%) | 48 (23%) | 0 1 |
| 13 | E | 199/201 (99%) | 98 (49%) | 60 (30%) | 41 (21%) | 0 2 |
| 14 | F | 176/178 (99%) | 95 (54%) | 48 (27%) | 33 (19%) | 0 2 |
| 15 | G | 174/176 (99%) | 118 (68%) | 39 (22%) | 17 (10%) | 0 9 |
| 16 | H | 147/149 (99%) | 85 (58%) | 47 (32%) | 15 (10%) | 0 8 |
| 17 | I | 139/141 (99%) | 124 (89%) | 11 (8%) | 4 (3%) | 4 29 |
| 18 | J | 138/142 (97%) | 67 (49%) | 42 (30%) | 29 (21%) | 0 2 |
| 19 | K | 119/123 (97%) | 71 (60%) | 32 (27%) | 16 (13%) | 0 4 |
| 20 | L | 132/144 (92%) | 55 (42%) | 36 (27%) | 41 (31%) | 0 0 |
| 21 | M | 134/136 (98%) | 69 (52%) | 37 (28%) | 28 (21%) | 0 2 |
| 22 | N | 125/127 (98%) | 71 (57%) | 34 (27%) | 20 (16%) | 0 3 |
| 23 | O | 115/117 (98%) | 64 (56%) | 26 (23%) | 25 (22%) | 0 2 |
| 24 | P | 112/114 (98%) | 39 (35%) | 36 (32%) | 37 (33%) | 0 0 |
| 25 | Q | 115/117 (98%) | 81 (70%) | 22 (19%) | 12 (10%) | 0 8 |
| 26 | R | 101/103 (98%) | 44 (44%) | 31 (31%) | 26 (26%) | 0 1 |
| 27 | S | 108/110 (98%) | 63 (58%) | 27 (25%) | 18 (17%) | 0 3 |
| 28 | T | 97/100 (97%) | 41 (42%) | 39 (40%) | 17 (18%) | 0 3 |
| 29 | U | 100/103 (97%) | 30 (30%) | 47 (47%) | 23 (23%) | 0 1 |
| 30 | V | 92/94 (98%) | 62 (67%) | 22 (24%) | 8 (9%) | 1 11 |
| 31 | W | 82/84 (98%) | 29 (35%) | 26 (32%) | 27 (33%) | 0 0 |
| 32 | X | 60/63 (95%) | 28 (47%) | 20 (33%) | 12 (20%) | 0 2 |
| 33 | Y | 56/58 (97%) | 29 (52%) | 17 (30%) | 10 (18%) | 0 3 |
| 34 | Z | 68/70 (97%) | 29 (43%) | 26 (38%) | 13 (19%) | 0 2 |
| All | All | 3422/3507 (98%) | 1793 (52%) | 982 (29%) | 647 (19%) | 0 2 |

5 of 647 Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | 0 | 10 | SER |
| 1 | 0 | 29 | VAL |
| 1 | 0 | 35 | GLU |
| 2 | 1 | 46 | VAL |
| 3 | 2 | 4 | THR |

### 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 |
|---|---|---|---|---|---|
| 1 | 0 | 47/47 (100%) | 31 (66%) | 16 (34%) | 0 1 |
| 2 | 1 | 48/48 (100%) | 33 (69%) | 15 (31%) | 0 2 |
| 3 | 2 | 38/38 (100%) | 27 (71%) | 11 (29%) | 0 2 |
| 4 | 3 | 51/51 (100%) | 33 (65%) | 18 (35%) | 0 1 |
| 5 | 4 | 34/34 (100%) | 22 (65%) | 12 (35%) | 0 1 |
| 6 | 5 | 92/92 (100%) | 89 (97%) | 3 (3%) | 38 61 |
| 11 | C | 213/218 (98%) | 145 (68%) | 68 (32%) | 0 2 |
| 12 | D | 164/164 (100%) | 112 (68%) | 52 (32%) | 0 2 |
| 13 | E | 165/165 (100%) | 115 (70%) | 50 (30%) | 0 2 |
| 14 | F | 149/149 (100%) | 119 (80%) | 30 (20%) | 1 7 |
| 15 | G | 137/137 (100%) | 105 (77%) | 32 (23%) | 1 4 |
| 16 | H | 114/114 (100%) | 87 (76%) | 27 (24%) | 1 4 |
| 17 | I | 109/109 (100%) | 106 (97%) | 3 (3%) | 43 64 |
| 18 | J | 114/116 (98%) | 84 (74%) | 30 (26%) | 0 3 |
| 19 | K | 102/104 (98%) | 78 (76%) | 24 (24%) | 1 4 |
| 20 | L | 97/103 (94%) | 57 (59%) | 40 (41%) | 0 0 |
| 21 | M | 109/109 (100%) | 77 (71%) | 32 (29%) | 0 2 |
| 22 | N | 103/103 (100%) | 78 (76%) | 25 (24%) | 0 4 |
| 23 | O | 87/87 (100%) | 58 (67%) | 29 (33%) | 0 2 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 24 | P | 99/99 (100%) | 77 (78%) | 22 (22%) | 1 6 |
| 25 | Q | 89/89 (100%) | 66 (74%) | 23 (26%) | 0 3 |
| 26 | R | 84/84 (100%) | 68 (81%) | 16 (19%) | 1 8 |
| 27 | S | 93/93 (100%) | 72 (77%) | 21 (23%) | 1 5 |
| 28 | T | 83/84 (99%) | 60 (72%) | 23 (28%) | 0 3 |
| 29 | U | 83/84 (99%) | 58 (70%) | 25 (30%) | 0 2 |
| 30 | V | 78/78 (100%) | 66 (85%) | 12 (15%) | 2 14 |
| 31 | W | 62/62 (100%) | 46 (74%) | 16 (26%) | 0 3 |
| 32 | X | 55/55 (100%) | 40 (73%) | 15 (27%) | 0 3 |
| 33 | Y | 48/48 (100%) | 36 (75%) | 12 (25%) | 0 3 |
| 34 | Z | 62/62 (100%) | 43 (69%) | 19 (31%) | 0 2 |
| All | All | 2809/2826 (99%) | 2088 (74%) | 721 (26%) | 2 3 |

5 of 721 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 22 | N | 1 | MET |
| 26 | R | 66 | HIS |
| 22 | N | 57 | THR |
| 21 | M | 136 | MET |
| 24 | P | 24 | THR |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 102 such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 19 | K | 82 | ASN |
| 24 | P | 2 | ASN |
| 34 | Z | 30 | HIS |
| 20 | L | 38 | GLN |
| 22 | N | 73 | ASN |

### 5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 10 | B | 2837/2904 (97%) | 552 (19%) | 19 (0%) |
| 8 | 7 | 73/74 (98%) | 3 (4%) | 0 |

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| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 9 | A | 116/120 (96%) | 23 (19%) | 0 |
| All | All | 3026/3098 (97%) | 578 (19%) | 19 (0%) |

5 of 578 RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 8 | 7 | 121 | A |
| 8 | 7 | 124 | U |
| 8 | 7 | 168 | U |
| 9 | A | 11 | C |
| 9 | A | 12 | C |

5 of 19 RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 10 | B | 2258 | C |
| 10 | B | 2425 | A |
| 10 | B | 2756 | U |
| 10 | B | 2336 | A |
| 10 | B | 1236 | G |

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

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

## 5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 110 ligands modelled in this entry, 110 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|---|---|---|
| 32 | X | 1 |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|---|---|---|---|---|---|---|
| 1 | X | 1:MET | C | 2:LYS | N | 3.26 |

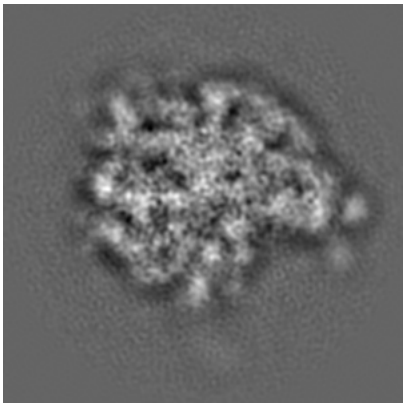
# 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-2917. These allow visual inspection of the internal detail of the map and identification of artifacts.

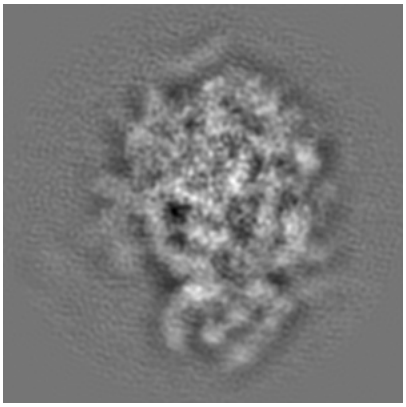
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

## 6.1 Orthogonal projections

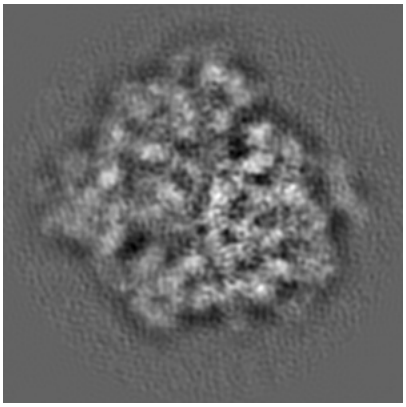
### 6.1.1 Primary map



X



Y

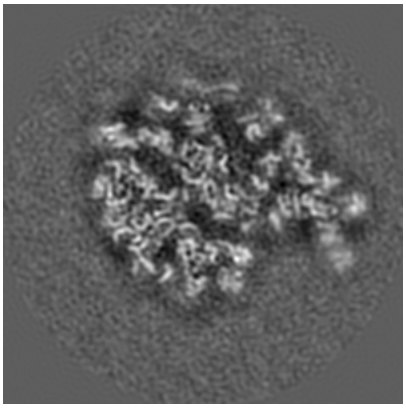


Z

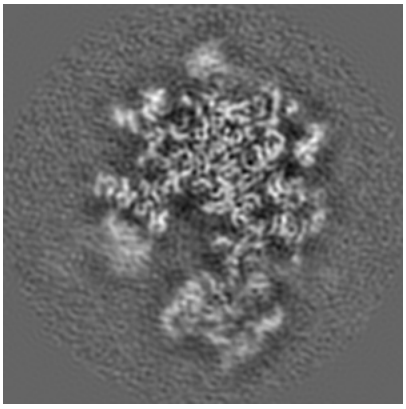
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices

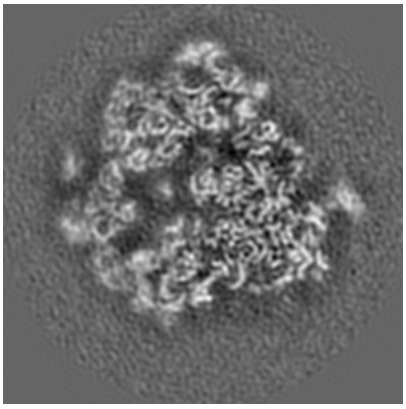
### 6.2.1 Primary map



X Index: 90



Y Index: 90

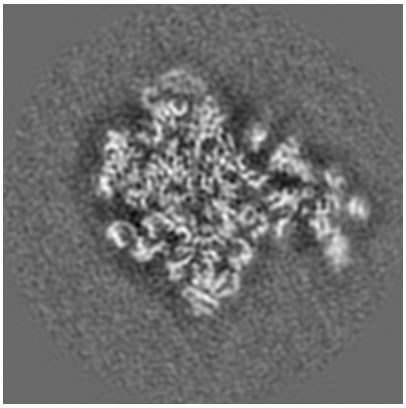


Z Index: 90

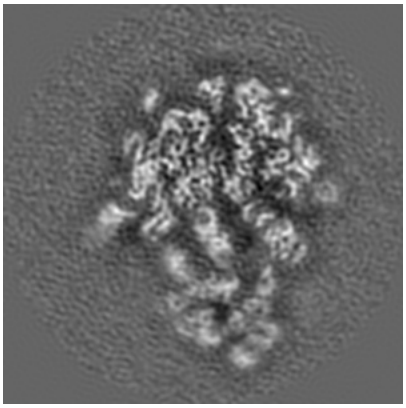
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices (i)

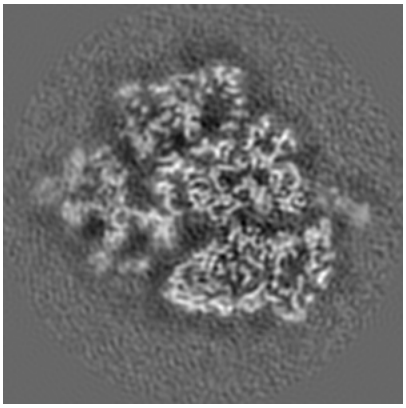
### 6.3.1 Primary map



X Index: 95



Y Index: 79



Z Index: 98

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

## 6.4 Orthogonal surface views (i)

### 6.4.1 Primary map

X

Y

Z

The images above show the 3D surface view of the map at the recommended contour level 0.02. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

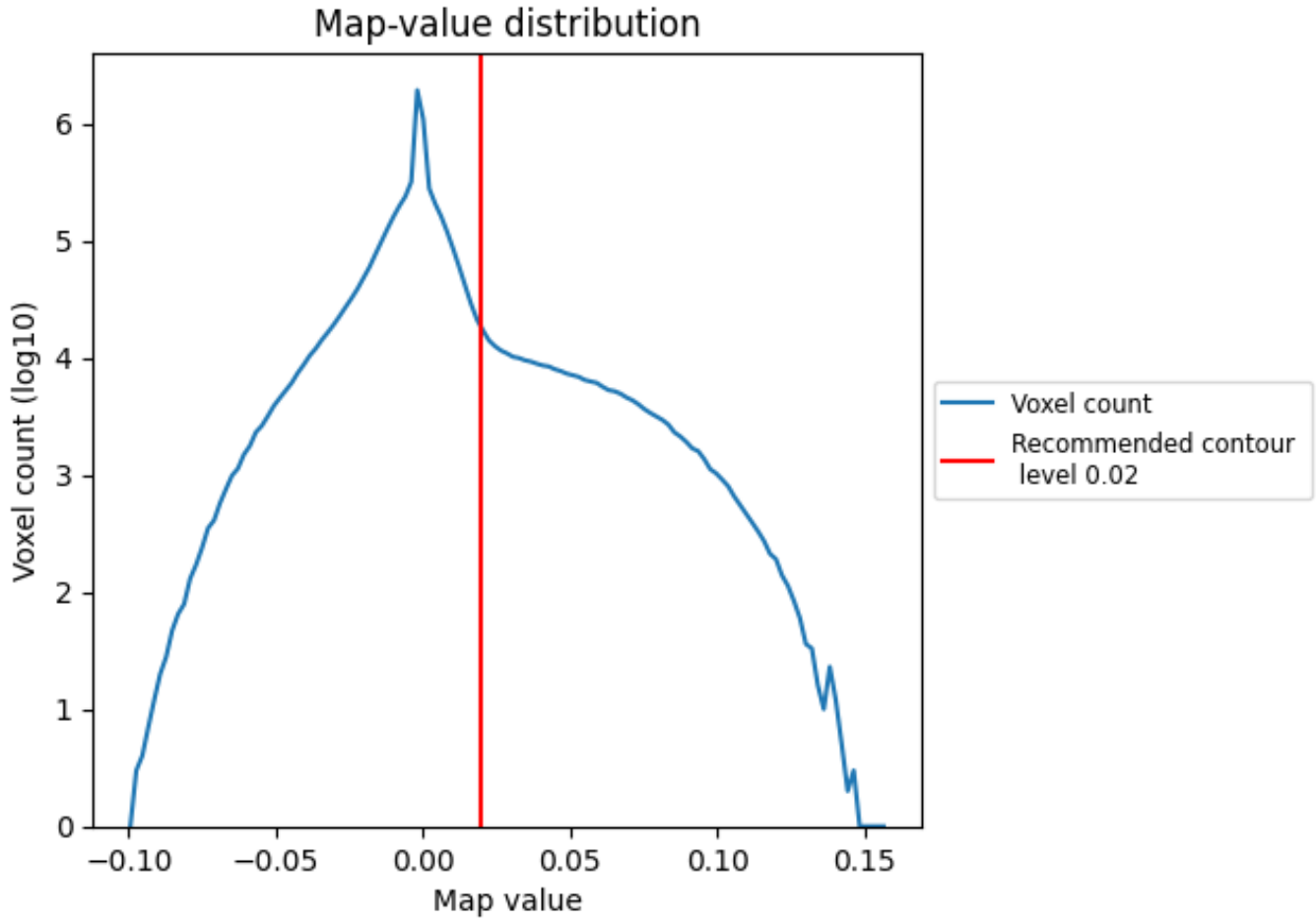
## 6.5 Mask visualisation (i)

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

# 7 Map analysis

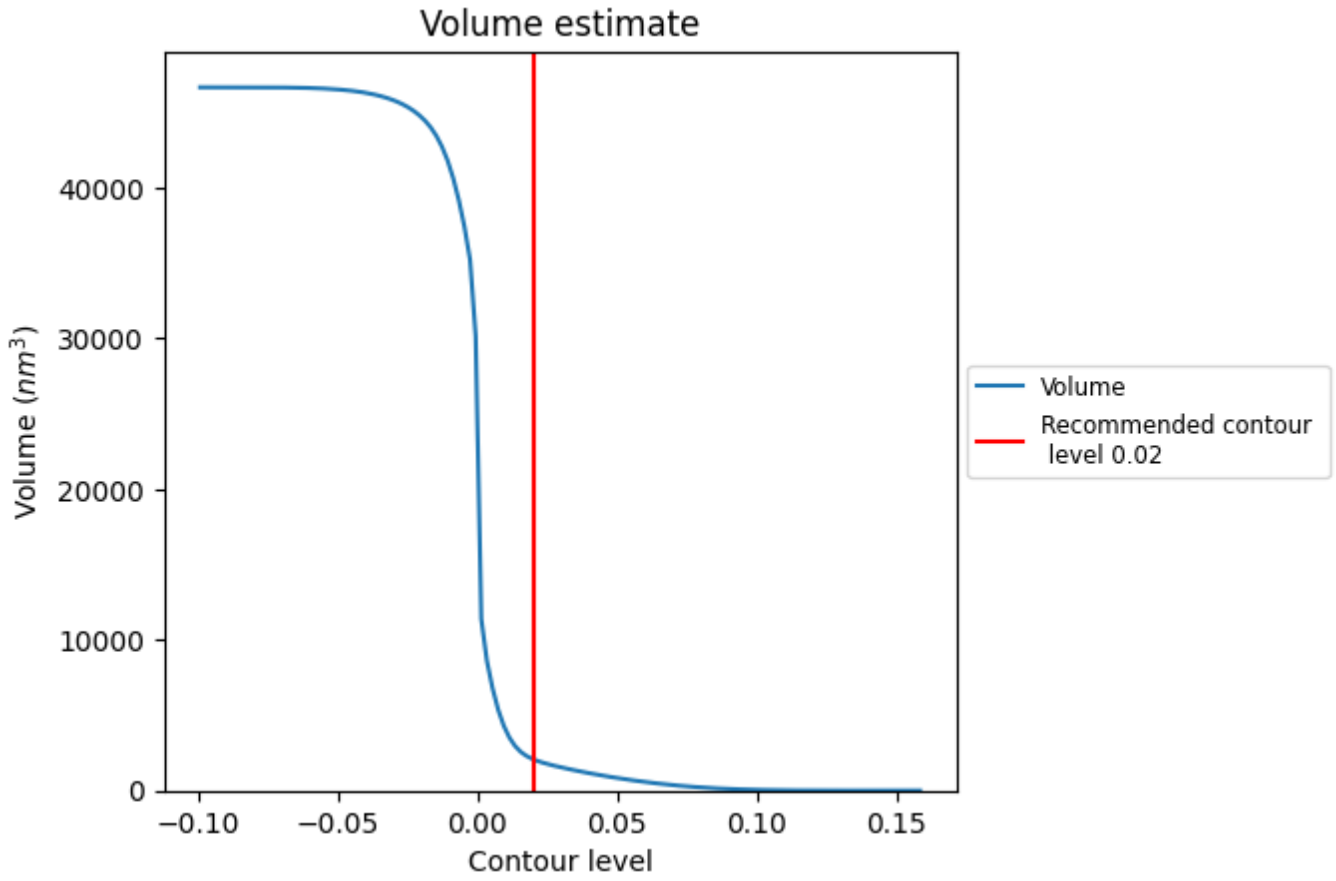
This section contains the results of statistical analysis of the map.

## 7.1 Map-value distribution




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

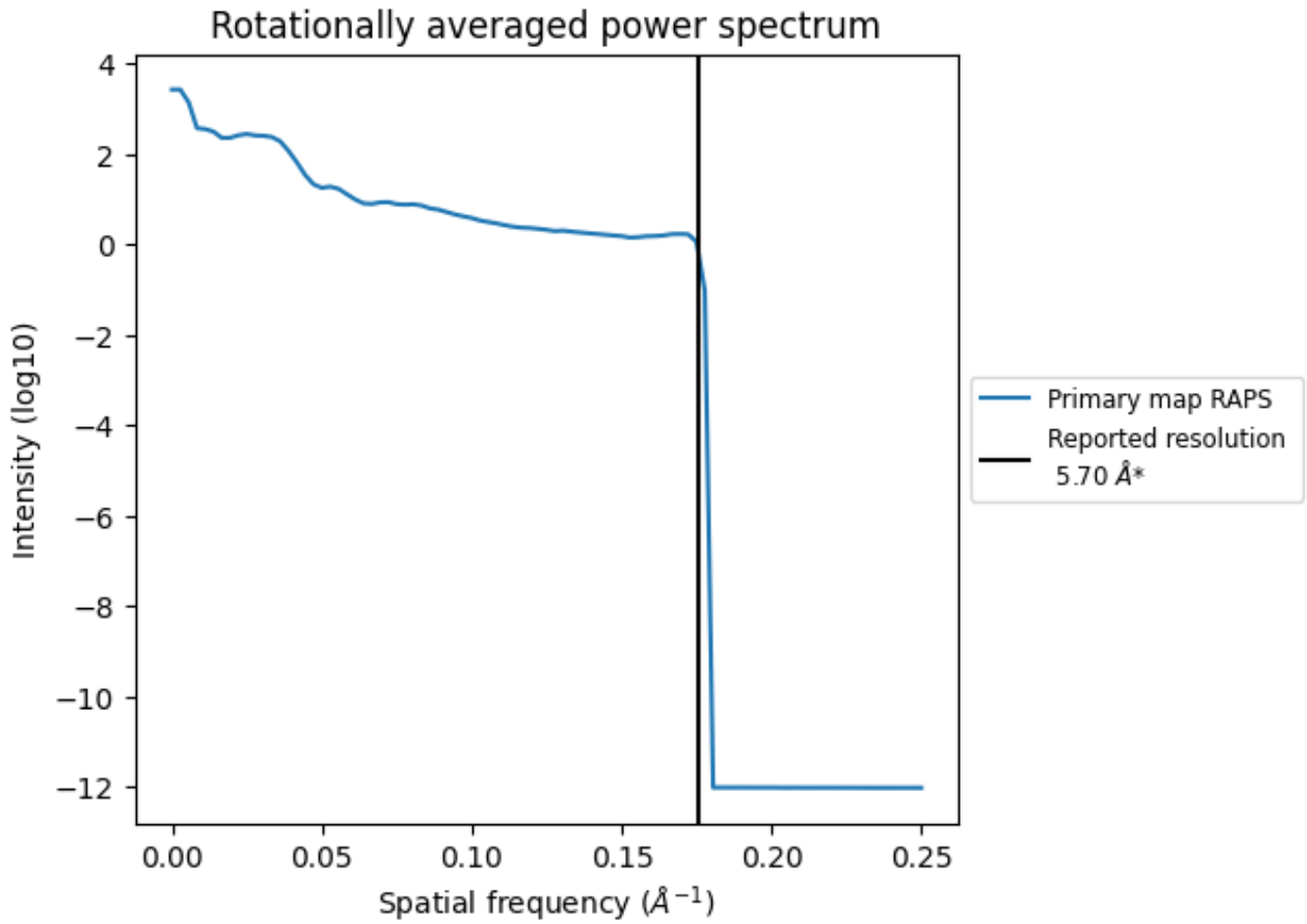
## 7.2 Volume estimate (i)




The volume at the recommended contour level is 2076 $nm^3$; this corresponds to an approximate mass of 1875 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)

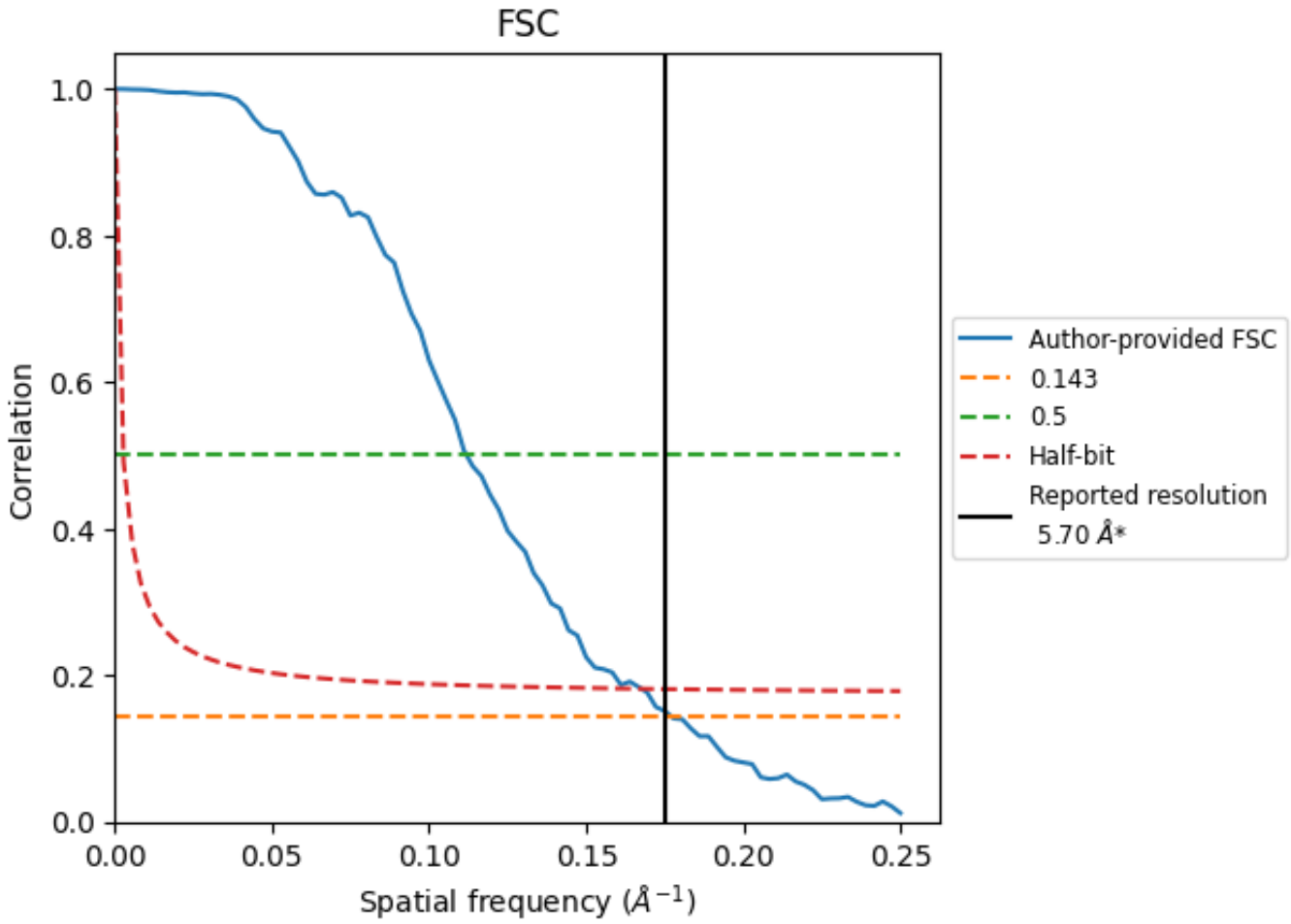



*Reported resolution corresponds to spatial frequency of 0.175 Å$^{-1}$

# 8 Fourier-Shell correlation

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

## 8.1 FSC




*Reported resolution corresponds to spatial frequency of 0.175 Å$^{-1}$

## 8.2 Resolution estimates (i)

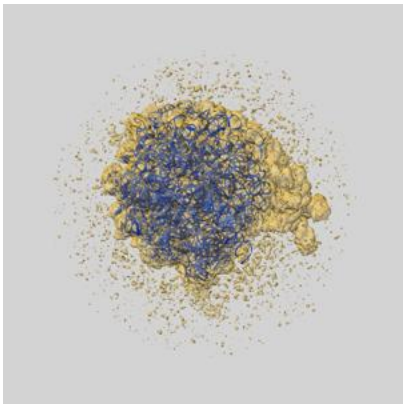
| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---|---|---|---|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | - | - | - |
| Author-provided FSC curve | 5.64 | 8.93 | 5.97 |
| Unmasked-calculated* | - | - | - |

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

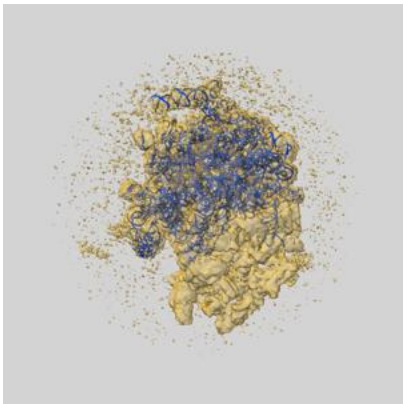
# 9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-2917 and PDB model 5AKA. Per-residue inclusion information can be found in section 3 on page 11.

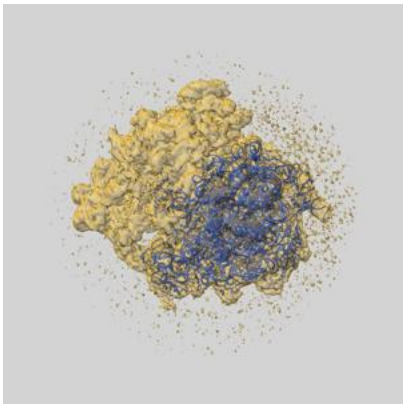
## 9.1 Map-model overlay



X



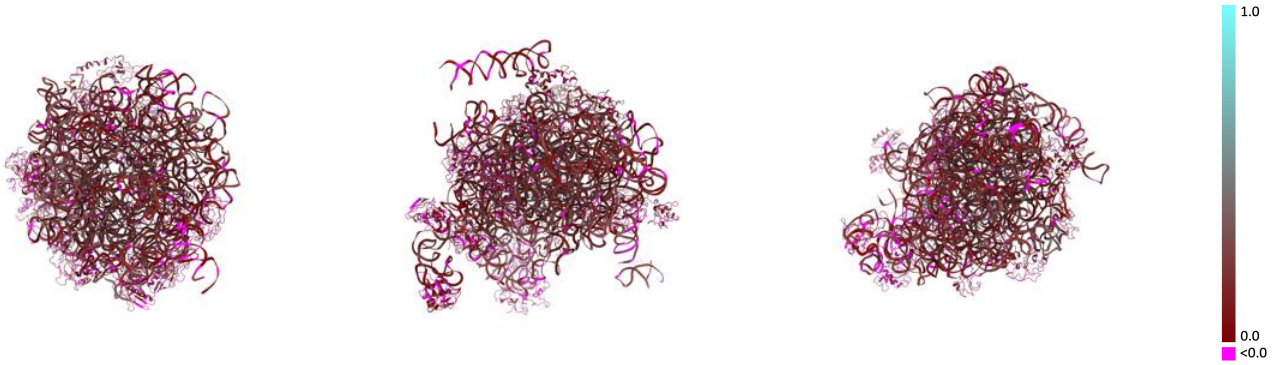
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.02 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

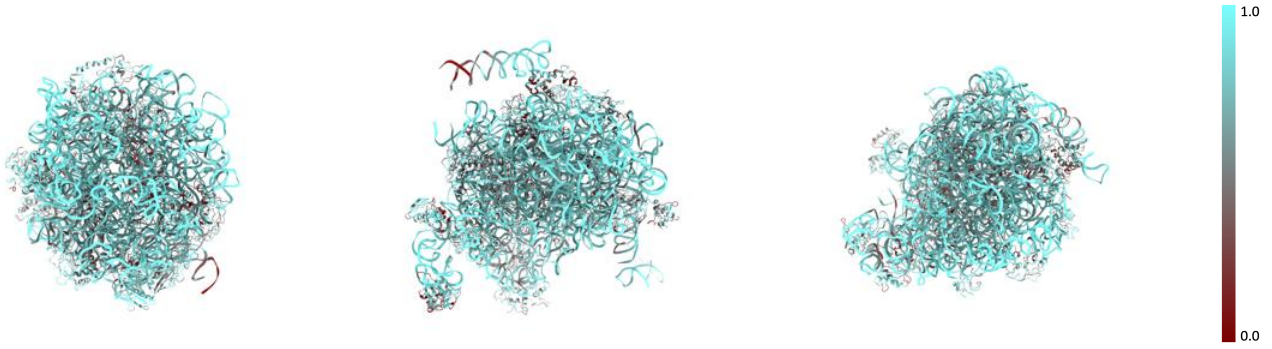
## 9.2 Q-score mapped to coordinate model (i)




X Y Z

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

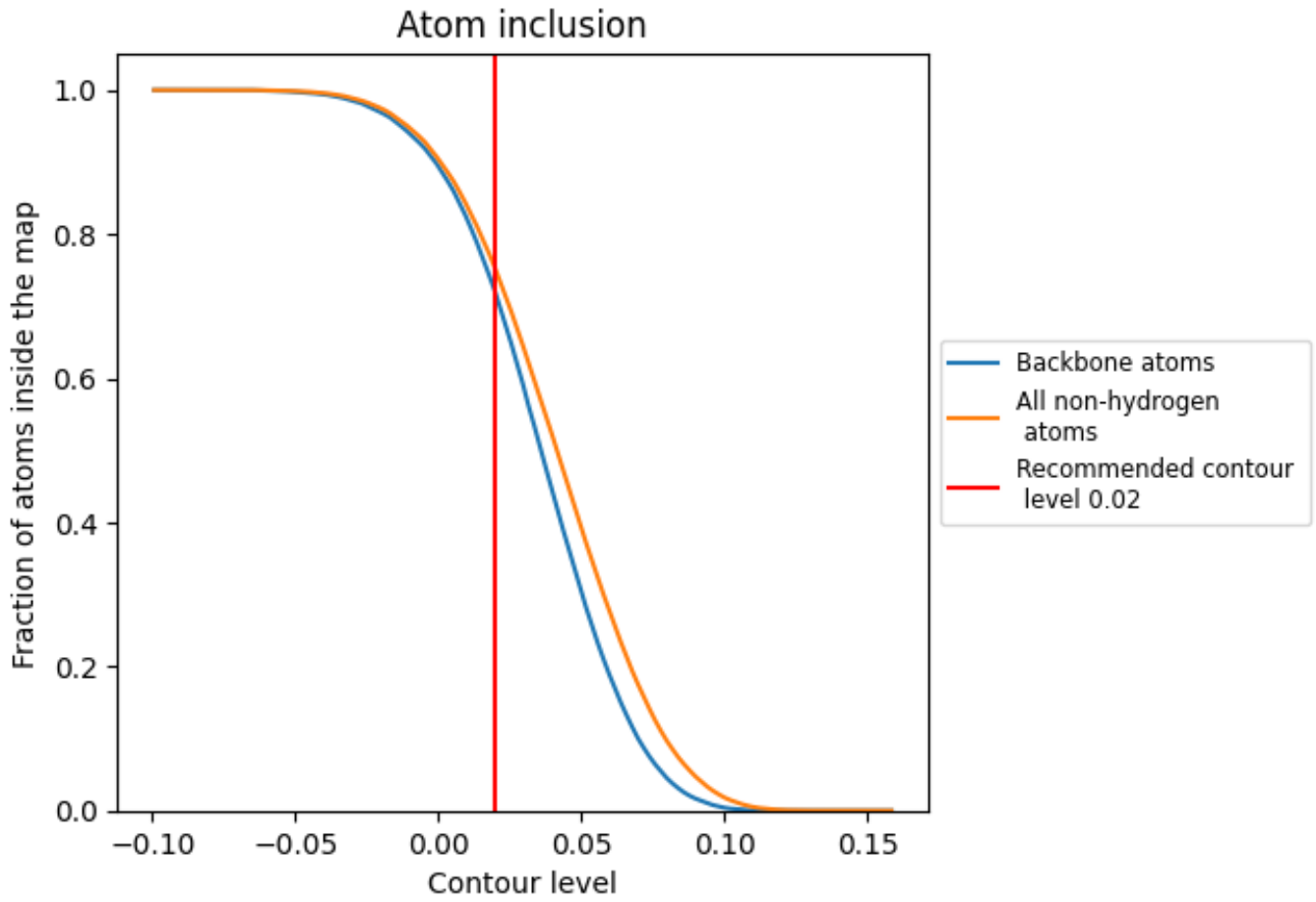
## 9.3 Atom inclusion mapped to coordinate model (i)




X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.02).

## 9.4 Atom inclusion (i)




At the recommended contour level, 72% of all backbone atoms, 75% 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 (0.02) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.7515 | 0.1560 |
| 0 | 0.5397 | 0.1450 |
| 1 | 0.5497 | 0.0750 |
| 2 | 0.4197 | 0.1470 |
| 3 | 0.3116 | 0.1210 |
| 4 | 0.4384 | 0.0500 |
| 5 | 0.4329 | 0.1280 |
| 6 | 0.6585 | 0.3100 |
| 7 | 0.7373 | 0.0860 |
| A | 0.7894 | 0.1070 |
| B | 0.8416 | 0.1890 |
| C | 0.5048 | 0.0930 |
| D | 0.5273 | 0.0790 |
| E | 0.5941 | 0.1120 |
| F | 0.6182 | 0.0300 |
| G | 0.6461 | 0.0400 |
| H | 0.5766 | 0.1080 |
| I | 0.5861 | 0.0720 |
| J | 0.5014 | 0.0970 |
| K | 0.5713 | 0.1020 |
| L | 0.4923 | 0.0690 |
| M | 0.5096 | 0.0930 |
| N | 0.5258 | 0.1220 |
| O | 0.5304 | 0.0150 |
| P | 0.4707 | 0.0770 |
| Q | 0.5374 | 0.0980 |
| R | 0.5847 | 0.0930 |
| S | 0.5287 | 0.1330 |
| T | 0.4915 | 0.1170 |
| U | 0.7497 | 0.1510 |
| V | 0.6978 | 0.0690 |
| W | 0.4466 | 0.0640 |
| X | 0.6740 | 0.1360 |
| Y | 0.6133 | 0.1120 |
| Z | 0.5446 | 0.0960 |