



## wwPDB EM Validation Summary Report ⓘ

Mar 29, 2026 – 03:38 PM UTC

PDB ID : 5U9G / pdb\_00005u9g  
EMDB ID : EMD-8522  
Title : 3.2 Å cryo-EM ArfA-RF2 ribosome rescue complex (Structure I)  
Authors : Demo, G.; Svidritskiy, E.; Madireddy, R.; Diaz-Avalos, R.; Grant, T.; Grigorieff, N.; Sousa, D.; Korostelev, A.A.  
Deposited on : 2016-12-16  
Resolution : 3.20 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](mailto: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:

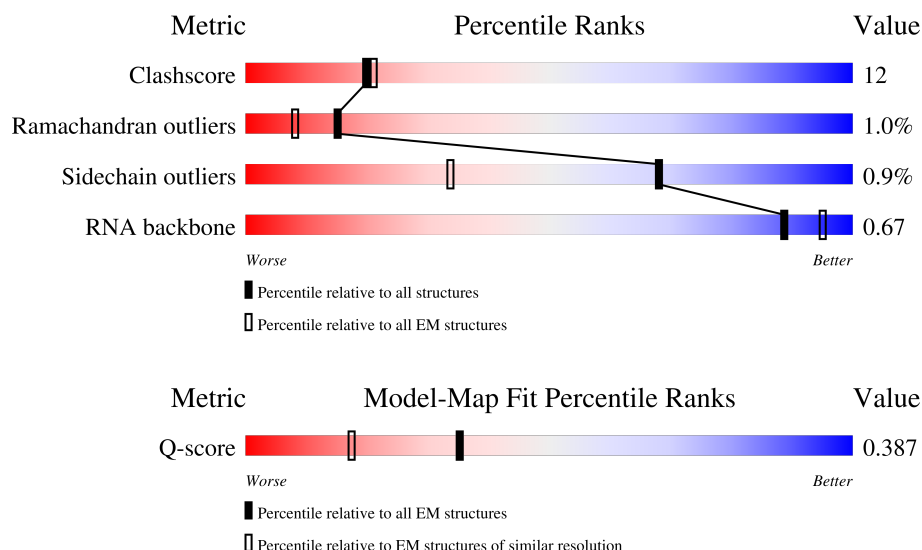
EMDB validation analysis : 0.0.1.dev132  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDb archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.20 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.



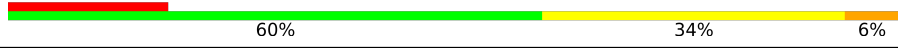
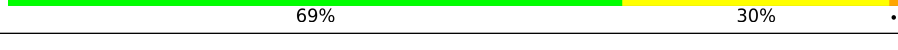
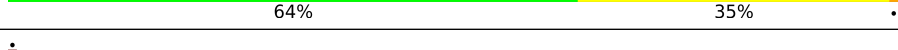
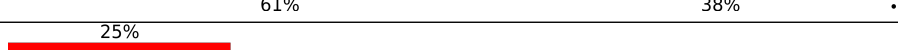
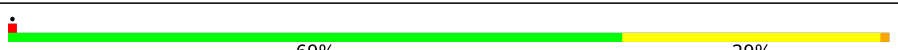
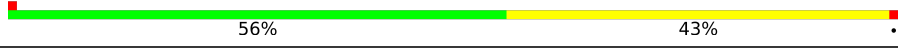
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 229148                      | 23984                       | -                                                        |
| Ramachandran outliers | 224038                      | 23583                       | -                                                        |
| Sidechain outliers    | 223484                      | 23102                       | -                                                        |
| RNA backbone          | 8273                        | 3508                        | -                                                        |
| Q-score               | -                           | 25397                       | 15020 ( 2.70 - 3.70 )                                    |

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  $\geq 3$ , 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   | A     | 1539   |                  |
| 2   | 01    | 2903   |                  |
| 3   | 02    | 119    |                  |

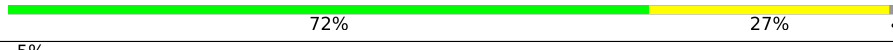
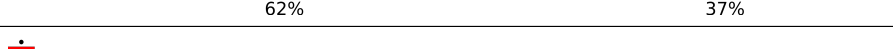
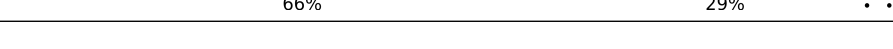
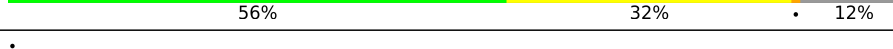
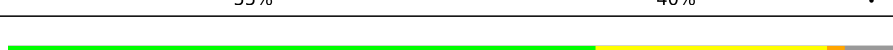
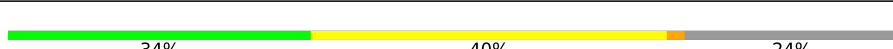
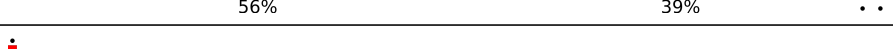
Continued on next page...

Continued from previous page...

| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 4   | Y     | 72     |    |
| 5   | W     | 77     |    |
| 5   | X     | 77     |    |
| 6   | 03    | 234    |    |
| 7   | 04    | 273    |    |
| 8   | 05    | 209    |    |
| 9   | 06    | 201    |    |
| 10  | 07    | 179    |    |
| 11  | 08    | 177    |    |
| 12  | 09    | 149    |    |
| 13  | 10    | 165    |    |
| 14  | 11    | 142    |  |
| 15  | 12    | 142    |  |
| 16  | 13    | 123    |  |
| 17  | 14    | 144    |  |
| 18  | 15    | 136    |  |
| 19  | 16    | 127    |  |
| 20  | 17    | 117    |  |
| 21  | 18    | 115    |  |
| 22  | 19    | 118    |  |
| 23  | 20    | 103    |  |
| 24  | 21    | 110    |  |
| 25  | 22    | 100    |  |
| 26  | 23    | 104    |  |
| 27  | 24    | 94     |  |

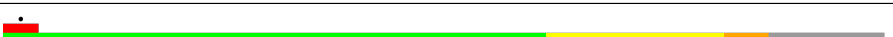
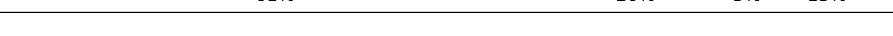
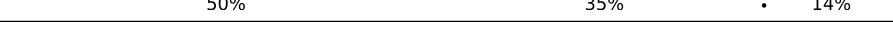
Continued on next page...

Continued from previous page...

| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 28  | 25    | 85     |    |
| 29  | 26    | 78     |    |
| 30  | 27    | 63     |    |
| 31  | 28    | 59     |    |
| 32  | 29    | 70     |    |
| 33  | 30    | 57     |    |
| 34  | 31    | 55     |    |
| 35  | 32    | 46     |    |
| 36  | 33    | 65     |    |
| 37  | 34    | 38     |   |
| 38  | V     | 14     |  |
| 39  | Z     | 365    |  |
| 40  | B     | 241    |  |
| 41  | C     | 233    |  |
| 42  | D     | 206    |  |
| 43  | E     | 167    |  |
| 44  | F     | 131    |  |
| 45  | G     | 156    |  |
| 46  | H     | 130    |  |
| 47  | I     | 130    |  |
| 48  | J     | 103    |  |
| 49  | K     | 129    |  |
| 50  | L     | 124    |  |
| 51  | M     | 118    |  |
| 52  | N     | 101    |  |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Length | Quality of chain                                                                                |
|-----|-------|--------|-------------------------------------------------------------------------------------------------|
| 53  | O     | 89     |  60%38%..     |
| 54  | P     | 82     |  63%35%.      |
| 55  | Q     | 84     |  50%43%. 5%   |
| 56  | R     | 75     |  61%20%5%13%. |
| 57  | S     | 92     |  50%35%. 14%  |
| 58  | T     | 87     |  57%40%.      |
| 59  | U     | 71     |  49%37%... 8% |

## 2 Entry composition [i](#)

There are 61 unique types of molecules in this entry. The entry contains 152649 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 16S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 1   | A     | 1539     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 33012 | 14725 | 6052 | 10697 | 1538 |         |       |

- Molecule 2 is a RNA chain called 23S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 2   | 01    | 2903     | Total | C     | N     | O     | P    | 0       | 0     |
|     |       |          | 62318 | 27801 | 11467 | 20148 | 2902 |         |       |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment  | Reference |
|-------|---------|----------|--------|----------|-----------|
| 01    | 1847    | G        | A      | conflict | GB 42756  |

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

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 3   | 02    | 119      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2546  | 1135 | 466 | 827 | 118 |         |       |

- Molecule 4 is a protein called Alternative ribosome-rescue factor A.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 4   | Y     | 32       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 249   | 155 | 53 | 40 | 1 |         |       |

- Molecule 5 is a RNA chain called fMet-tRNA (P- and E-site).

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 5   | X     | 77       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1622  | 723 | 289 | 534 | 76 |         |       |
| 5   | W     | 77       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1640  | 732 | 297 | 535 | 76 |         |       |

- Molecule 6 is a protein called 50S ribosomal protein L1.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 6   | 03    | 220      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1353  | 804 | 270 | 277 | 2 |         |       |

- Molecule 7 is a protein called 50S ribosomal protein L2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 7   | 04    | 271      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2082  | 1288 | 423 | 364 | 7 |         |       |

- Molecule 8 is a protein called 50S ribosomal protein L3.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 8   | 05    | 209      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1565  | 979 | 288 | 294 | 4 |         |       |

- Molecule 9 is a protein called 50S ribosomal protein L4.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 9   | 06    | 201      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1552  | 974 | 283 | 290 | 5 |         |       |

- Molecule 10 is a protein called 50S ribosomal protein L5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 10  | 07    | 177      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1410  | 899 | 249 | 256 | 6 |         |       |

- Molecule 11 is a protein called 50S ribosomal protein L6.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 11  | 08    | 176      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1323  | 832 | 243 | 246 | 2 |         |       |

- Molecule 12 is a protein called 50S ribosomal protein L9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 12  | 09    | 149      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1111  | 699 | 197 | 214 | 1 |         |       |

- Molecule 13 is a protein called 50S ribosomal protein L10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13  | 10    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 988   | 625 | 175 | 183 | 5 |         |       |

- Molecule 14 is a protein called 50S ribosomal protein L11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14  | 11    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1032  | 651 | 179 | 196 | 6 |         |       |

- Molecule 15 is a protein called 50S ribosomal protein L13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 15  | 12    | 142      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1129  | 714 | 212 | 199 | 4 |         |       |

- Molecule 16 is a protein called 50S ribosomal protein L14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16  | 13    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 938   | 587 | 180 | 165 | 6 |         |       |

- Molecule 17 is a protein called 50S ribosomal protein L15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17  | 14    | 143      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1045  | 649 | 206 | 189 | 1 |         |       |

- Molecule 18 is a protein called 50S ribosomal protein L16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18  | 15    | 136      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1074  | 686 | 205 | 177 | 6 |         |       |

- Molecule 19 is a protein called 50S ribosomal protein L17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19  | 16    | 120      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 960   | 593 | 196 | 166 | 5 |         |       |

- Molecule 20 is a protein called 50S ribosomal protein L18.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 20  | 17    | 116      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 892   | 552 | 178 | 162 |         |       |

- Molecule 21 is a protein called 50S ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 21  | 18    | 114      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 917   | 574 | 179 | 163 | 1 |         |       |

- Molecule 22 is a protein called 50S ribosomal protein L20.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 22  | 19    | 117      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 947   | 604 | 192 | 151 |         |       |

- Molecule 23 is a protein called 50S ribosomal protein L21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23  | 20    | 103      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 816   | 516 | 153 | 145 | 2 |         |       |

- Molecule 24 is a protein called 50S ribosomal protein L22.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24  | 21    | 110      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 857   | 532 | 166 | 156 | 3 |         |       |

- Molecule 25 is a protein called 50S ribosomal protein L23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | 22    | 93       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 738   | 466 | 139 | 131 | 2 |         |       |

- Molecule 26 is a protein called 50S ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 26  | 23    | 102      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 779   | 492 | 146 | 141 |         |       |

- Molecule 27 is a protein called 50S ribosomal protein L25.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27  | 24    | 94       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 753   | 479 | 137 | 134 | 3 |         |       |

- Molecule 28 is a protein called 50S ribosomal protein L27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 28  | 25    | 75       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 575   | 356 | 116 | 102 | 1 |         |       |

- Molecule 29 is a protein called 50S ribosomal protein L28.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | 26    | 77       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 625   | 388 | 129 | 106 | 2 |         |       |

- Molecule 30 is a protein called 50S ribosomal protein L29.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 30  | 27    | 63       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 509   | 313 | 99 | 95 | 2 |         |       |

- Molecule 31 is a protein called 50S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 31  | 28    | 58       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 449   | 281 | 87 | 79 | 2 |         |       |

- Molecule 32 is a protein called 50S ribosomal protein L31.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 32  | 29    | 66       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 522   | 323 | 99 | 94 | 6 |         |       |

- Molecule 33 is a protein called 50S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 33  | 30    | 56       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 444   | 269 | 94 | 80 | 1 |         |       |

- Molecule 34 is a protein called 50S ribosomal protein L33.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 34  | 31    | 50       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 409   | 263 | 75 | 71 |         |       |

- Molecule 35 is a protein called 50S ribosomal protein L34.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 35  | 32    | 46       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 377   | 228 | 90 | 57 | 2 |         |       |

- Molecule 36 is a protein called 50S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 36  | 33    | 64       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 504   | 323 | 105 | 74 | 2 |         |       |

- Molecule 37 is a protein called 50S ribosomal protein L36.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 37  | 34    | 38       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 302   | 185 | 65 | 48 | 4 |         |       |

- Molecule 38 is a RNA chain called truncated mRNA.

| Mol | Chain | Residues | Atoms |     |    |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|----|---------|-------|
| 38  | V     | 14       | Total | C   | N  | O  | P  | 0       | 0     |
|     |       |          | 306   | 138 | 64 | 91 | 13 |         |       |

- Molecule 39 is a protein called Peptide chain release factor RF2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 39  | Z     | 361      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2814  | 1728 | 499 | 578 | 9 |         |       |

- Molecule 40 is a protein called 30S ribosomal protein S2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 40  | B     | 218      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1704  | 1081 | 305 | 311 | 7 |         |       |

- Molecule 41 is a protein called 30S ribosomal protein S3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 41  | C     | 206      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1624  | 1028 | 305 | 288 | 3 |         |       |

- Molecule 42 is a protein called 30S ribosomal protein S4.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 42  | D     | 205      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1643  | 1026 | 315 | 298 | 4 |         |       |

- Molecule 43 is a protein called 30S ribosomal protein S5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43  | E     | 157      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1156  | 719 | 218 | 213 | 6 |         |       |

- Molecule 44 is a protein called 30S ribosomal protein S6.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 44  | F     | 100      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 817   | 515 | 148 | 148 | 6 |         |       |

- Molecule 45 is a protein called 30S ribosomal protein S7.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 45  | G     | 151      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1181  | 735 | 227 | 215 | 4 |         |       |

- Molecule 46 is a protein called 30S ribosomal protein S8.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 46  | H     | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 979   | 616 | 173 | 184 | 6 |         |       |

- Molecule 47 is a protein called 30S ribosomal protein S9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 47  | I     | 127      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1022  | 634 | 206 | 179 | 3 |         |       |

- Molecule 48 is a protein called 30S ribosomal protein S10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 48  | J     | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 786   | 493 | 150 | 142 | 1 |         |       |

- Molecule 49 is a protein called 30S ribosomal protein S11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 49  | K     | 116      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 869   | 535 | 173 | 158 | 3 |         |       |

- Molecule 50 is a protein called 30S ribosomal protein S12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 50  | L     | 123      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 955   | 590 | 196 | 165 | 4 |         |       |

- Molecule 51 is a protein called 30S ribosomal protein S13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 51  | M     | 114      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 883   | 546 | 178 | 156 | 3 |         |       |

- Molecule 52 is a protein called 30S ribosomal protein S14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 52  | N     | 100      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 805   | 499 | 164 | 139 | 3 |         |       |

- Molecule 53 is a protein called 30S ribosomal protein S15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | O     | 88       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 714   | 439 | 144 | 130 | 1 |         |       |

- Molecule 54 is a protein called 30S ribosomal protein S16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 54  | P     | 82       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 649   | 406 | 128 | 114 | 1 |         |       |

- Molecule 55 is a protein called 30S ribosomal protein S17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 55  | Q     | 80       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 648   | 411 | 121 | 113 | 3 |         |       |

- Molecule 56 is a protein called 30S ribosomal protein S18.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 56  | R     | 65       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 535   | 339 | 100 | 95 | 1 |         |       |

- Molecule 57 is a protein called 30S ribosomal protein S19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 57  | S     | 79       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 637   | 408 | 120 | 107 | 2 |         |       |

- Molecule 58 is a protein called 30S ribosomal protein S20.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 58  | T     | 85       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 665   | 411 | 137 | 114 | 3 |         |       |

- Molecule 59 is a protein called 30S ribosomal protein S21.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 59  | U     | 65       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 544   | 335 | 117 | 91 | 1 |         |       |

- Molecule 60 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms |     | AltConf |
|-----|-------|----------|-------|-----|---------|
| 60  | A     | 97       | Total | Mg  | 0       |
|     |       |          | 97    | 97  |         |
| 60  | 01    | 239      | Total | Mg  | 0       |
|     |       |          | 239   | 239 |         |
| 60  | 02    | 4        | Total | Mg  | 0       |
|     |       |          | 4     | 4   |         |
| 60  | X     | 2        | Total | Mg  | 0       |
|     |       |          | 2     | 2   |         |
| 60  | 14    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 60  | 25    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Residues | Atoms      |         | AltConf |
|-----|-------|----------|------------|---------|---------|
| 60  | 30    | 1        | Total<br>1 | Mg<br>1 | 0       |
| 60  | W     | 2        | Total<br>2 | Mg<br>2 | 0       |
| 60  | H     | 1        | Total<br>1 | Mg<br>1 | 0       |

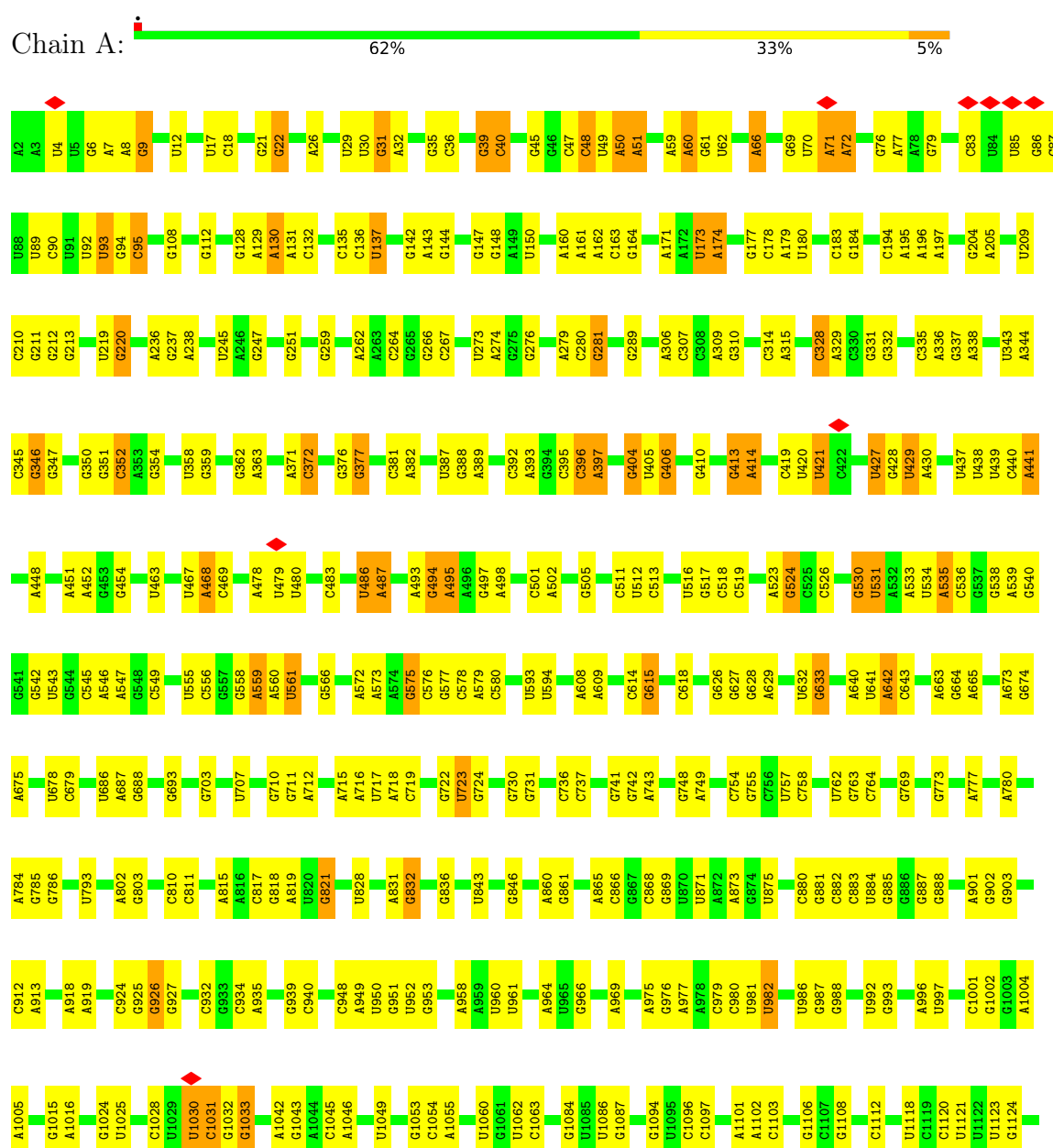
- Molecule 61 is ZINC ION (CCD ID: ZN) (formula: Zn).

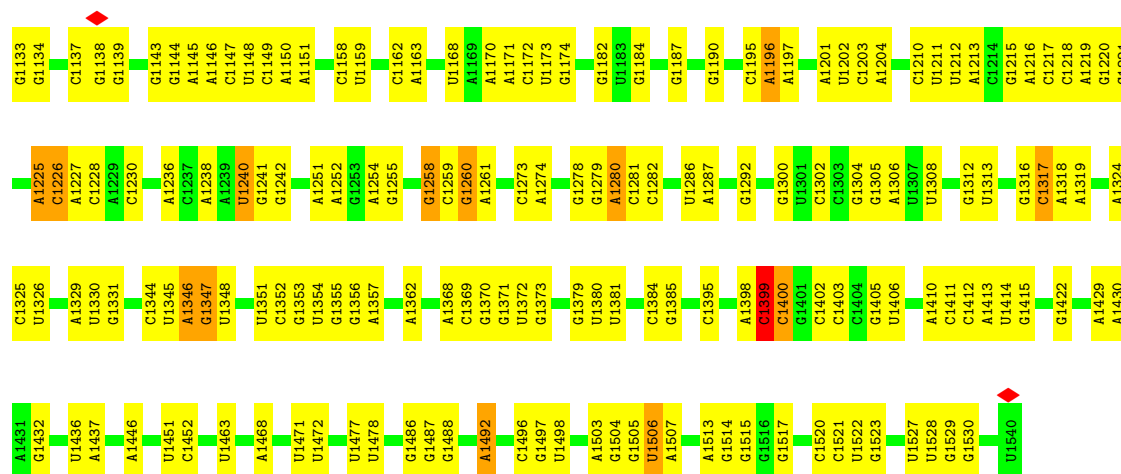
| Mol | Chain | Residues | Atoms      |         | AltConf |
|-----|-------|----------|------------|---------|---------|
| 61  | 34    | 1        | Total<br>1 | Zn<br>1 | 0       |

### 3 Residue-property plots

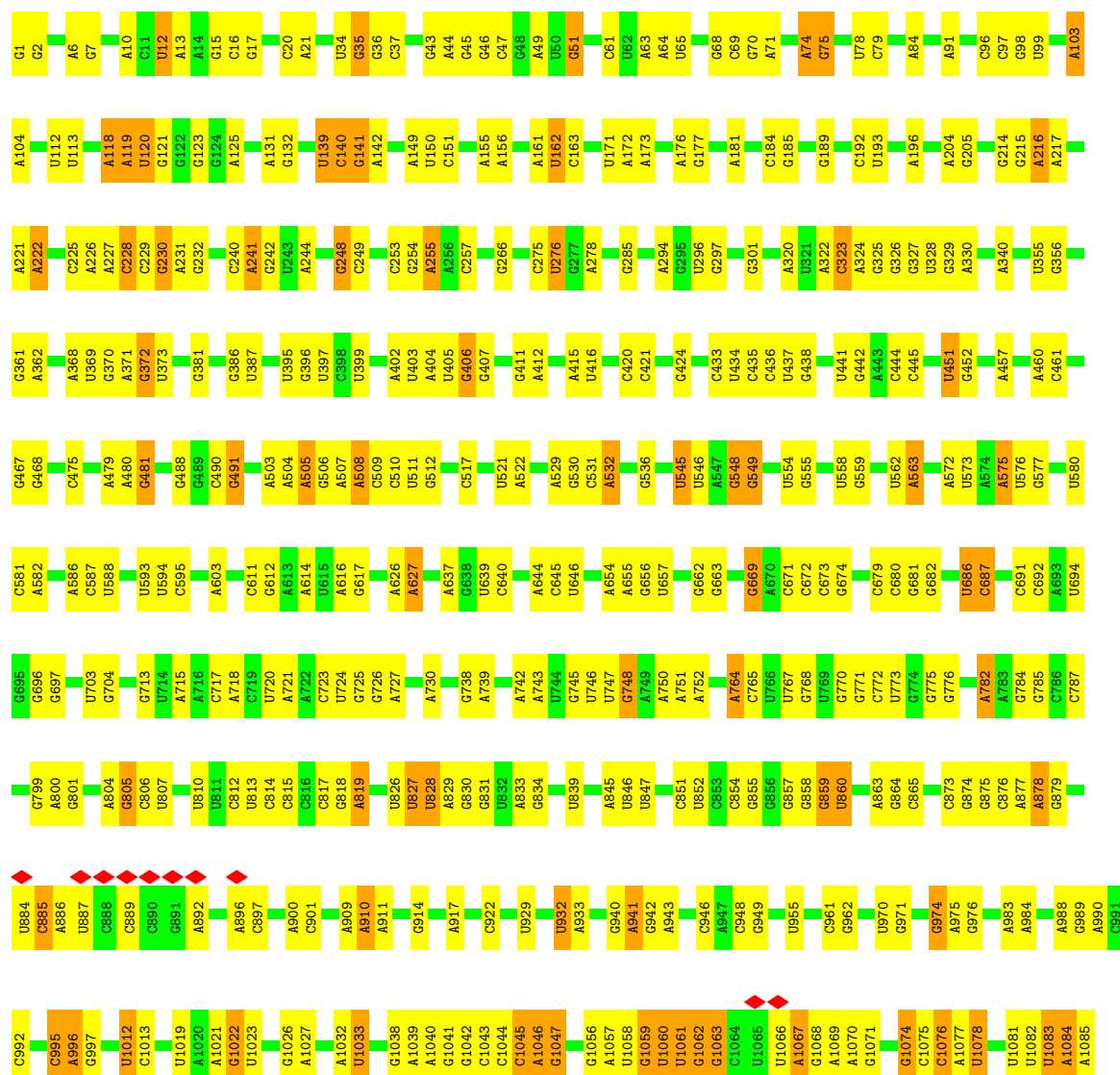
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: 16S ribosomal RNA

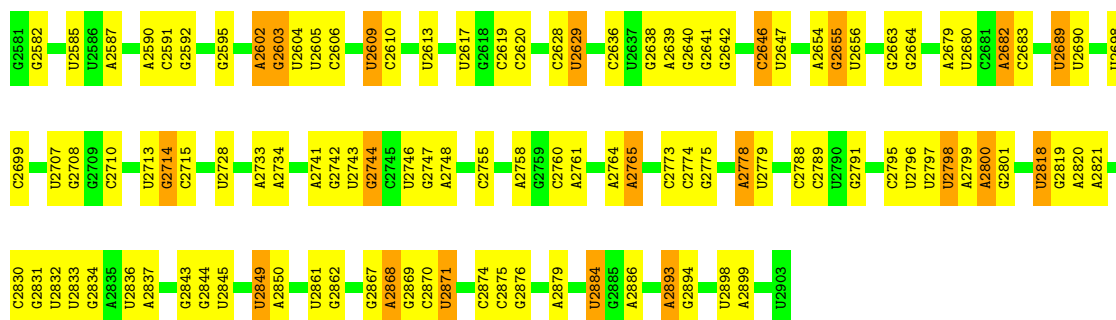




• Molecule 2: 23S ribosomal RNA



|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| G2484 | G2491 | G2494 | G2498 | G2502 | G2503 | G2504 | G2505 | G2508 | G2514 | G2515 | G2516 | G2517 | G2518 | G2519 | G2520 | G2521 | G2526 | G2529 | G2530 | G2537 | G2538 | G2543 | G2544 | A2547 | G2548 | G2549 | G2553 | G2554 | G2557 | G2558 | G2563 | A2566 | G2567 | A2572 | G2573 | G2574 | G2578 | G2579 | U2580 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| G2370 | C2380 | A2381 | G2382 | G2383 | C2384 | C2385 | G2389 | A2390 | U2402 | U2403 | U2404 | A2405 | A2406 | A2412 | G2413 | U2423 | C2424 | A2425 | G2429 | A2430 | U2431 | A2432 | A2433 | A2434 | A2435 | U2441 | C2442 | C2443 | G2444 | A2448 | C2452 | U2457 | G2462 | C2465 | C2466 | C2467 | A2468 | G2470 | A2471 | C2475 | A2476 | U2477 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| C2283 | G2284 | C2285 | C2286 | A2287 | U2292 | G2293 | G2294 | C2295 | U2296 | A2297 | A2298 | U2299 | U2302 | G2303 | G2304 | U2305 | A2309 | C2313 | A2314 | G2315 | G2316 | A2317 | G2318 | G2319 | U2320 | U2321 | A2322 | G2323 | G2324 | G2325 | G2326 | A2327 | A2328 | G2329 | G2330 | U2334 | A2335 | U2343 | U2344 | G2345 | C2350 | G2351 | A2352 | G2353 | C2354 | G2360 | C2361 | C2362 | G2363 | C2364 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| A2184 | U2185 | U2188 | U2189 | U2194 | U2195 | G2196 | U2197 | A2198 | U2203 | G2204 | A2212 | U2213 | U2214 | C2215 | G2216 | G2217 | G2218 | U2220 | A2221 | C2222 | G2223 | G2224 | A2225 | C2226 | G2230 | U2233 | G2234 | G2238 | G2239 | U2240 | A2241 | G2242 | U2243 | U2244 | A2247 | C2248 | U2249 | G2250 | U2257 | C2258 | C2263 | A2266 | C2267 | A2268 | A2281 | G2282 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| U2092 | G2093 | A2094 | A2101 | G2102 | C2103 | G2107 | A2108 | U2109 | G2110 | U2111 | G2112 | U2113 | G2114 | G2115 | U2118 | G2119 | G2120 | G2121 | U2122 | G2123 | G2124 | G2125 | A2126 | G2127 | U2132 | G2133 | A2134 | A2135 | C2153 | A2154 | A2158 | C2161 | G2162 | A2163 | C2164 | C2165 | U2166 | A2170 | A2171 | U2172 | A2173 | G2174 | C2175 | A2176 | C2177 | C2178 | C2179 | U2180 | U2181 | A2182 | A2183 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| G2010 | U2011 | G2012 | A2013 | A2020 | C2021 | U2022 | C2023 | G2024 | G2029 | A2030 | A2031 | G2032 | A2033 | U2034 | G2035 | C2036 | A2037 | G2038 | U2039 | G2040 | C2043 | G2044 | C2045 | C2050 | C2055 | G2056 | A2060 | G2061 | A2062 | C2066 | G2067 | U2068 | G2069 | A2070 | A2071 | C2072 | C2073 | U2074 | U2075 | U2079 | A2080 | U2081 | A2082 | G2083 | U2086 | C2087 | A2088 | C2089 | A2090 | C2091 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| C1909 | G1910 | U1911 | A1912 | G1913 | U1915 | A1916 | A1917 | A1918 | A1919 | C1920 | U1923 | C1924 | A1928 | G1929 | G1930 | U1931 | G1935 | A1936 | U1937 | A1938 | U1943 | U1944 | G1945 | U1955 | U1963 | G1964 | C1965 | A1966 | C1967 | G1968 | A1969 | U1970 | U1971 | G1972 | A1978 | U1979 | G1980 | A1981 | U1982 | U1991 | G1992 | U1993 | A1994 | U1995 | C1996 | C1997 | G2004 | A2005 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| C1795 | U1796 | G1797 | U1798 | G1799 | C1800 | A1801 | G1807 | A1808 | A1809 | A1810 | G1811 | C1816 | G1817 | U1818 | A1821 | C1822 | G1826 | U1827 | G1828 | A1829 | C1838 | G1839 | G1842 | C1843 | C1844 | G1845 | G1846 | G1847 | A1854 | U1855 | U1856 | G1857 | G1869 | C1870 | A1871 | U1879 | G1882 | U1883 | G1884 | A1885 | G1888 | A1901 | G1906 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| A1690 | C1691 | G1695 | G1696 | G1697 | A1698 | G1699 | A1700 | A1701 | G1710 | A1711 | G1715 | U1716 | A1717 | G1718 | C1726 | G1727 | U1602 | A1603 | C1604 | C1605 | A1609 | A1614 | G1615 | A1616 | A1637 | G1645 | C1646 | U1647 | U1648 | G1649 | A1651 | A1652 | U1657 | C1658 | A1664 | A1665 | G1666 | A1668 | A1669 | A1672 | U1673 | G1674 | U1680 | A1791 | A1794 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| C1565 | A1566 | G1567 | G1568 | A1569 | U1578 | A1583 | U1584 | C1585 | A1586 | G1587 | A1593 | U1594 | C1595 | U1599 | G1600 | A1601 | U1602 | A1603 | C1604 | C1605 | A1609 | A1614 | G1615 | A1616 | A1637 | G1645 | C1646 | U1647 | U1648 | G1649 | A1651 | A1652 | U1657 | C1658 | A1664 | A1665 | G1666 | A1668 | A1669 | A1672 | U1673 | G1674 | U1680 | A1681 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| U1188 | A1189 | G1190 | U1198 | U1199 | C1200 | U1201 | G1202 | U1203 | G1212 | C1214 | U1219 | G1220 | G1225 | U1239 | U1240 | G1250 | G1251 | G1252 | A1253 | A1254 | U1255 | U1256 | G1257 | G1258 | G1259 | U1263 | A1264 | A1265 | A1268 | A1269 | G1271 | A1272 | G1277 | A1287 | C1297 | G1300 | A1301 | A1308 | G1309 | U1310 | G1311 | U1316 | G1317 | C1319 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| C1320 | U1326 | G1332 | A1336 | G1337 | G1338 | G1339 | U1344 | C1345 | C1357 | G1358 | A1359 | G1360 | G1361 | A1365 | A1373 | C1376 | G1377 | U1378 | U1379 | G1380 | A1383 | C1386 | A1387 | U1394 | U1409 | G1410 | U1415 | G1416 | C1417 | G1418 | A1419 | A1420 | G1421 | G1424 | G1425 | A1427 | C1428 | G1429 | G1430 | A1431 | G1432 | A1433 | A1434 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| G1441 | U1442 | G1443 | G1450 | C1451 | G1452 | C1453 | G1454 | G1459 | U1460 | C1463 | G1464 | U1468 | U1476 | G1482 | A1490 | C1498 | U1506 | C1507 | A1508 | A1509 | G1510 | A1515 | G1521 | A1522 | U1523 | G1524 | A1535 | C1536 | G1537 | C1541 | U1542 | A1548 | A1549 | C1550 | A1551 | G1555 | U1558 | U1559 | G1560 | U1563 | C1564 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |
| G1186 | G1187 | A1188 | A1189 | A1190 | A1191 | A1192 | A1193 | A1194 | A1195 | A1196 | A1197 | A1198 | A1199 | A1200 | A1201 | A1202 | A1203 | A1204 | A1205 | A1206 | A1207 | A1208 | A1209 | A1210 | A1211 | A1212 | A1213 | A1214 | A1215 | A1216 | A1217 | A1218 | A1219 | A1220 | A1221 | A1222 | A1223 | A1224 | A1225 | A1226 | A1227 | A1228 | A1229 | A1230 | A1231 | A1232 | A1233 | A1234 | A1235 | A1236 | A1237 | A1238 | A1239 | A1240 | A1241 | A1242 | A1243 | A1244 | A1245 | A1246 | A1247 | A1248 | A1249 | A1250 | A1251 | A1252 | A1253 | A1254 | A1255 | A1256 | A1257 | A1258 | A1259 | A1260 | A1261 | A1262 | A1263 | A1264 | A1265 | A1266 | A1267 | A1268 | A1269 | A1270 | A1271 | A1272 | A1273 | A1274 | A1275 | A1276 | A1277 | A1278 | A1279 | A1280 | A1281 | A1282 | A1283 | A1284 | A1285 | A1286 | A1287 | A1288 | A1289 | A1290 | A1291 | A1292 | A1293 | A1294 | A1295 | A1296 | A1297 | A1298 | A1299 | A1300 | A1301 | A1302 | A1303 | A1304 | A1305 | A1306 | A1307 | A1308 | A1309 | A1310 | A1311 | A1312 | A1313 | A1314 | A1315 | A1316 | A1317 | A1318 | A1319 | A1320 | A1321 | A1322 | A1323 | A1324 | A1325 | A1326 | A1327 | A1328 | A1329 | A1330 | A1331 | A1332 | A1333 | A1334 | A1335 | A1336 | A1337 | A1338 | A1339 | A1340 | A1341 | A1342 | A1343 | A1344 | A1345 | A1346 | A1347 | A1348 | A1349 | A1350 | A1351 | A1352 | A1353 | A1354 | A1355 | A1356 | A1357 | A1358 | A1359 | A1360 | A1361 | A1362 | A1363 | A1364 | A1365 | A1366 | A1367 | A1368 | A1369 | A1370 | A1371 | A1372 | A1373 | A1374 | A1375 | A1376 | A1377 | A1378 | A1379 | A1380 | A1381 | A1382 | A1383 | A1384 | A1385 | A1386 | A1387 | A1388 | A1389 | A1390 | A1391 | A1392 | A1393 | A1394 | A1395 | A1396 | A1397 | A1398 | A1399 | A1400 | A1401 | A1402 | A1403 | A1404 | A1405 | A1406 | A1407 | A1408 | A1409 | A1410 | A1411 | A1412 | A1413 | A1414 | A1415 | A1416 | A1417 | A1418 | A1419 | A1420 | A1421 | A1422 | A1423 | A1424 | A1425 | A1426 | A1427 | A1428 | A1429 | A1430 | A1431 | A1432 | A1433 | A1434 | A1435 | A1436 | A1437 | A1438 | A1439 | A1440 | A1441 | A1442 | A1443 | A1444 | A1445 | A1446 | A1447 | A1448 | A1449 | A1450 | A1451 | A1452 | A1453 | A1454 | A1455 | A1456 | A1457 | A1458 | A1459 | A1460 | A1461 | A1462 | A1463 | A1464 | A1465 | A1466 | A1467 | A1468 | A1469 | A1470 | A1471 | A1472 | A1473 | A1474 | A1475 | A1476 | A1477 | A1478 | A1479 | A1480 | A1481 | A1482 | A1483 | A1484 | A1485 | A1486 | A1487 | A1488 | A1489 | A1490 | A1491 | A1492 | A1493 | A1494 | A1495 | A1496 | A1497 | A1498 | A1499 | A1500 | A1501 | A1502 | A1503 | A1504 | A1505 | A1506 | A1507 | A1508 | A1509 | A1510 | A1511 | A1512 | A1513 | A1514 | A1515 | A1516 | A1517 | A1518 | A1519 | A1520 | A1521 | A1522 | A1523 | A1524 | A1525 | A1526 | A1527 | A1528 | A1529 | A1530 | A1531 | A1532 | A1533 | A1534 | A1535 | A1536 | A1537 | A1538 | A1539 | A1540 | A1541 | A1542 | A1543 | A1544 | A1545 | A1546 | A1547 | A1548 | A1549 | A1550 | A1551 | A1552 | A1553 | A1554 | A1555 | A1556 | A1557 | A1558 | A1559 | A1560 | A1561 | A1562 | A1563 | A1564 | A1565 | A1566 | A1567 | A1568 | A1569 | A1570 | A1571 | A1572 | A1573 | A1574 | A1575 | A1576 | A1577 | A1578 | A1579 | A1580 | A1581 | A1582 | A1583 | A1584 | A1585 | A1586 | A1587 | A1588 | A1589 | A1590 | A1591 | A1592 | A1593 | A1594 | A1595 | A1596 | A1597 | A1598 | A1599 | A1600 | A1601 | A1602 | A1603 | A1604 | A1605 | A1606 | A1607 | A1608 | A1609 | A1610 | A1611 | A1612 | A1613 | A1614 | A1615 | A1616 | A1617 | A1618 | A1619 | A1620 | A1621 | A1622 | A1623 | A1624 | A1625 | A1626 | A1627 | A1628 | A1629 | A1630 | A1631 | A1632 | A1633 | A1634 | A1635 | A1636 | A1637 | A1638 | A1639 | A1640 | A1641 | A1642 | A1643 | A1644 | A1645 | A1646 | A1647 | A1648 | A1649 | A1650 | A1651 | A1652 | A1653 | A1654 | A1655 | A1656 | A1657 | A1658 | A1659 | A1660 | A1661 | A1662 | A1663 | A1664 | A1665 | A1666 | A1667 | A1668 | A1669 | A1670 | A1671 | A1672 | A1673 | A1674 | A1675 | A1676 | A1677 | A1678 | A1679 | A1680 | A1681 | A1682 | A1683 | A1684 | A1685 | A1686 | A1687 | A1688 | A1689 | A1690 | A1691 | A1692 | A1693 | A1694 | A1695 | A1696 | A1697 | A1698 | A1699 | A1700 | A1701 | A1702 | A1703 | A1704 | A1705 | A1706 | A1707 | A1708 | A1709 | A1710 | A1711 | A1712 | A1713 | A1714 | A1715 | A1716 | A1717 | A1718 | A1719 | A1720 | A1721 | A1722 | A1723 | A1724 | A1725 | A1726 | A1727 | A1728 | A1729 | A1730 | A1731 | A1732 | A1733 | A1734 | A1735 | A1736 | A1737 | A1738 | A1739 | A1740 | A1741 | A1742 | A1743 | A1744 | A1745 | A1746 | A1747 | A1748 | A1749 | A1750 | A1751 | A1752 | A1753 | A1754 | A1755 | A1756 | A1757 | A1758 | A1759 | A1760 | A1761 | A1762 | A1763 | A1764 | A1765 | A1766 | A1767 | A1768 | A1769 | A1770 | A1771 | A1772 | A1773 | A1774 | A1775 | A1776 | A1777 | A1778 | A1779 | A1780 | A1781 | A1782 | A1783 | A1784 | A1785 | A1786 | A1787 | A1788 | A1789 | A1790 | A1791 | A1792 | A1793 | A1794 | A1795 | A1796 | A1797 | A1798 | A1799 | A1800 | A1801 | A1802 | A1803 | A1804 | A1805 | A1806 | A1807 | A1808 | A1809 | A1810 | A1811 | A1812 | A1813 | A1814 | A1815 | A1816 | A1817 | A1818 | A1819 | A1820 | A1821 | A1822 | A1823 | A1824 | A1825 | A1826 | A1827 | A1828 | A1829 | A1830 | A1831 | A1832 | A1833 | A1834 | A1835 | A1836 | A1837 | A1838 | A1839 | A1840 | A1841 | A1842 | A1843 | A1844 | A1845 | A1846 | A1847 | A1848 | A1849 | A1850 | A1851 | A1852 | A1853 | A1854 | A1855 | A1856 | A1857 | A1858 | A1859 | A1860 | A1861 | A1862 | A1863 | A1864 | A1865 | A1866 | A1867 | A1868 | A1869 | A1870 | A1871 | A1872 | A1873 | A1874 | A1875 | A1876 | A1877 | A1878 | A1879 | A1880 | A1881 | A1882 | A1883 | A1884 | A1885 | A1886 | A1887 | A1888 | A1889 | A1890 | A1891 | A1892 | A1893 | A1894 | A1895 | A1896 | A1897 | A1898 | A1899 | A1900 | A1901 | A1902 | A1903 | A1904 | A1905 | A1906 | A1907 | A1908 | A1909 | A1910 | A1911 | A1912 | A1913 | A1914 | A1915 | A1916 | A1917 | A1918 | A1919 | A1920 | A1921 | A1922 | A1923 | A1924 | A1925 | A1926 | A1927</ |



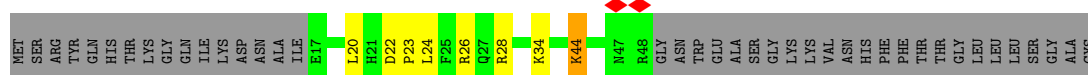
• Molecule 3: 5S ribosomal RNA

Chain 02: 66% 32% .



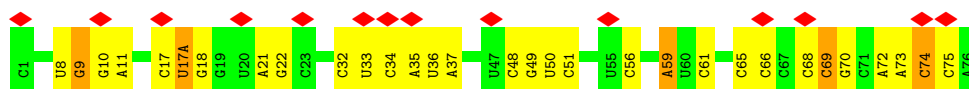
• Molecule 4: Alternative ribosome-rescue factor A

Chain Y: 33% 10% 56% .



• Molecule 5: fMet-tRNA (P- and E-site)

Chain X: 18% 60% 34% 6%



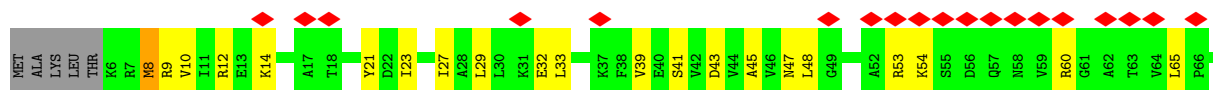
• Molecule 5: fMet-tRNA (P- and E-site)

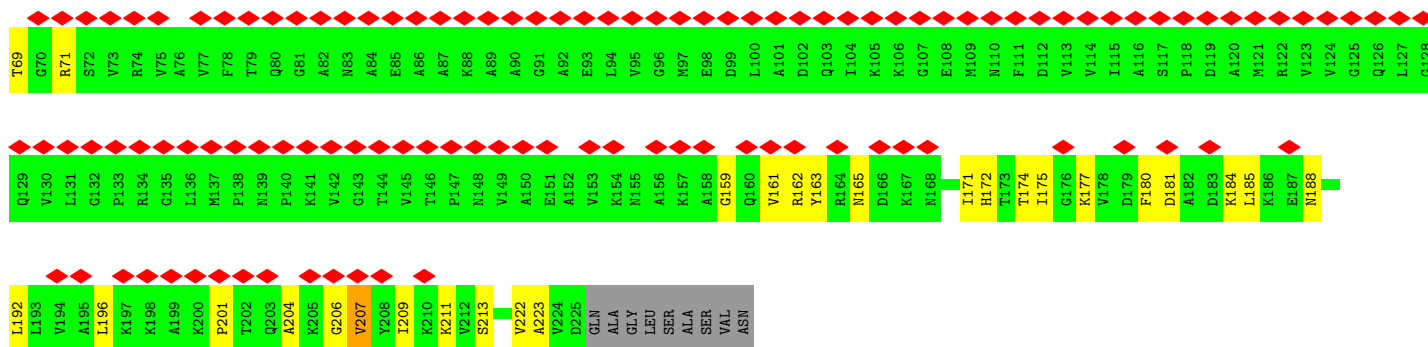
Chain W: 65% 31% .



• Molecule 6: 50S ribosomal protein L1

Chain 03: 56% 73% 20% 6%





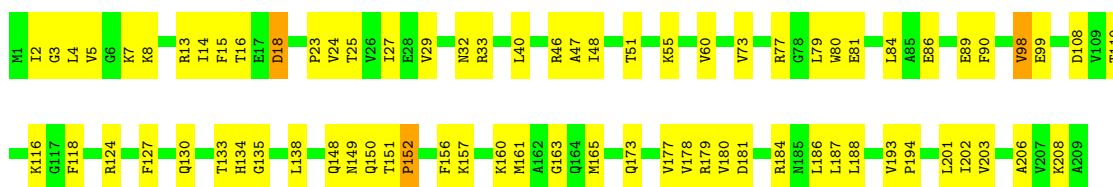
• Molecule 7: 50S ribosomal protein L2

Chain 04: 64% 34% ..



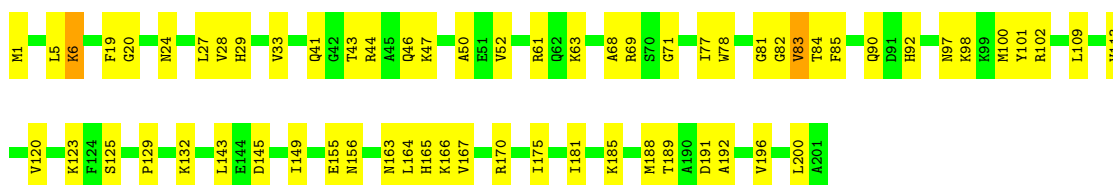
• Molecule 8: 50S ribosomal protein L3

Chain 05: 64% 34% .



• Molecule 9: 50S ribosomal protein L4

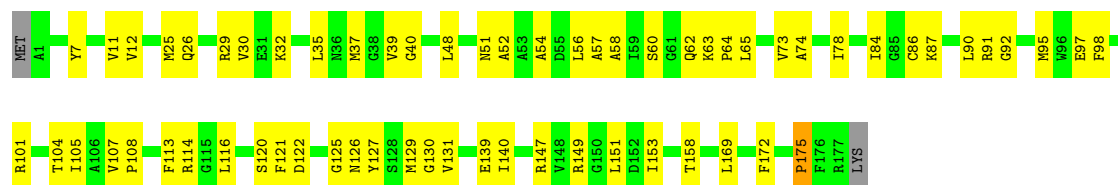
Chain 06: 69% 30% .



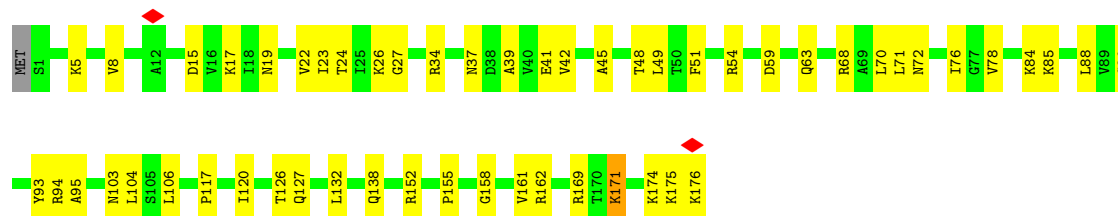
• Molecule 10: 50S ribosomal protein L5

Chain 07: 64% 35% ..

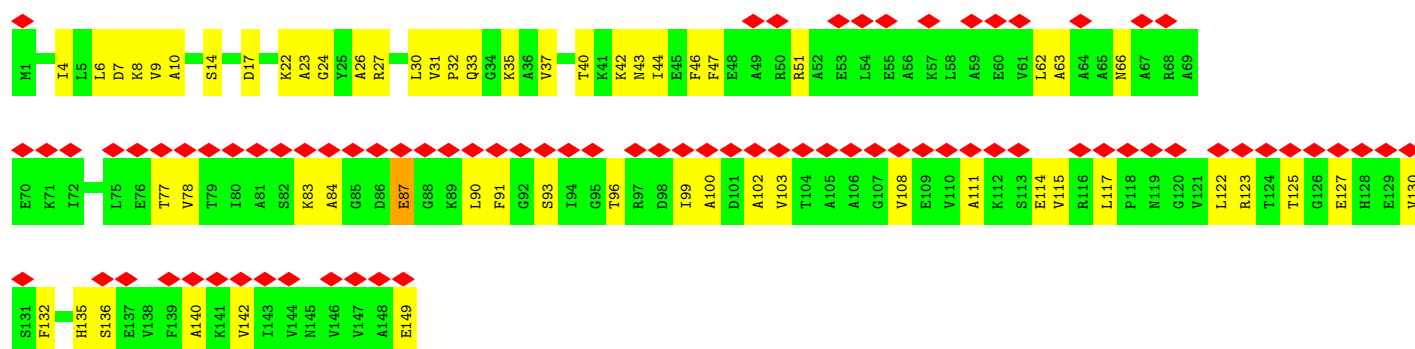




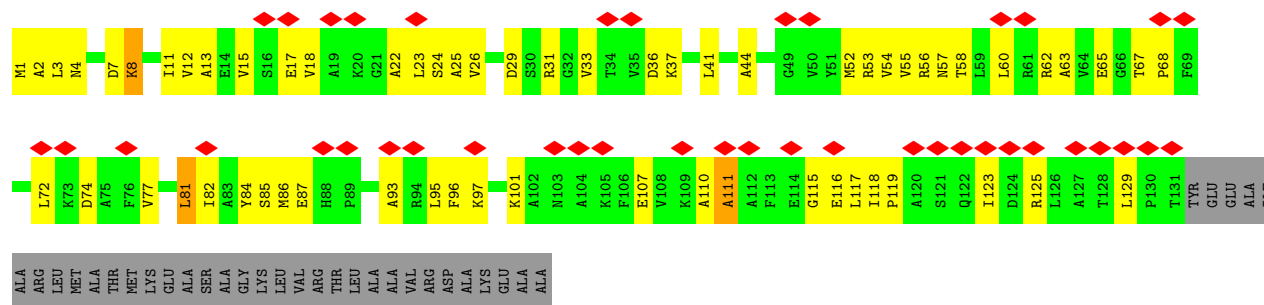
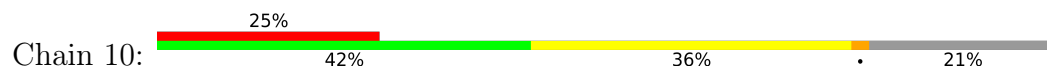
• Molecule 11: 50S ribosomal protein L6



• Molecule 12: 50S ribosomal protein L9

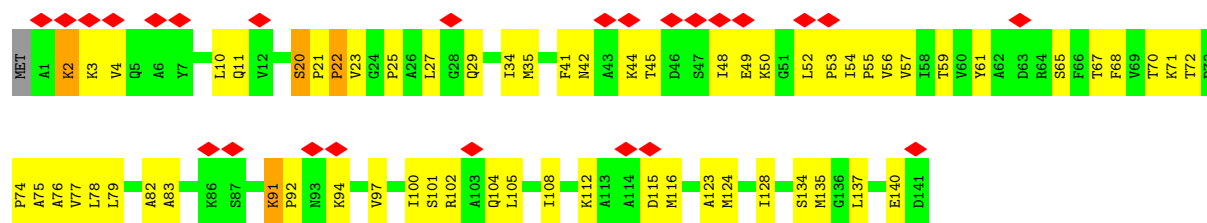


• Molecule 13: 50S ribosomal protein L10



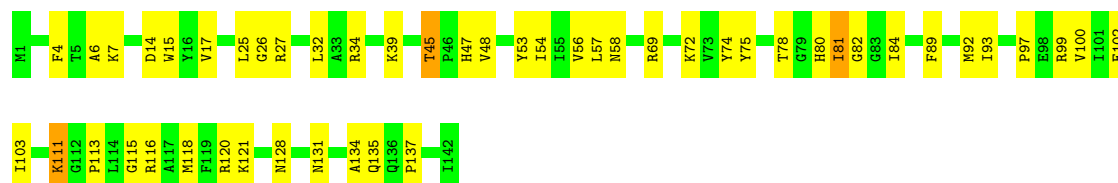
• Molecule 14: 50S ribosomal protein L11





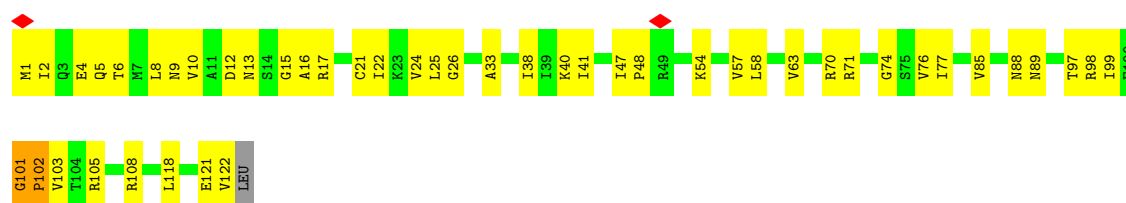
- Molecule 15: 50S ribosomal protein L13

Chain 12: 65% 32% .



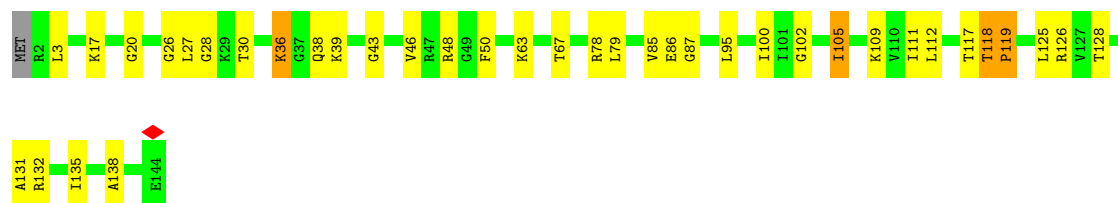
- Molecule 16: 50S ribosomal protein L14

Chain 13: 61% 37% ..



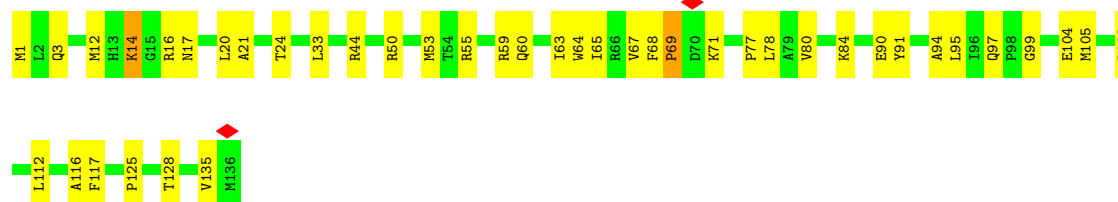
- Molecule 17: 50S ribosomal protein L15

Chain 14: 73% 24% ..

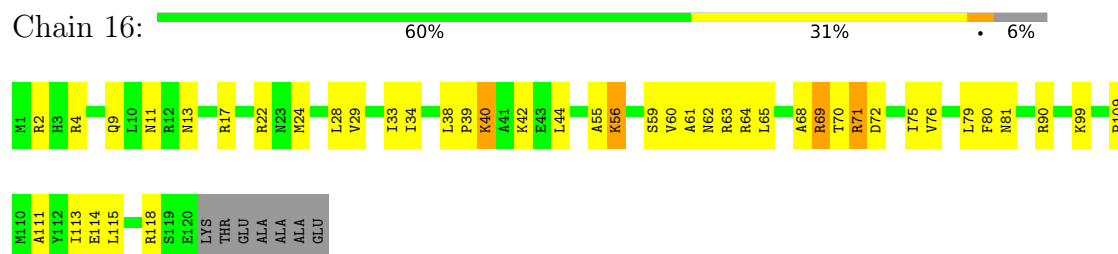


- Molecule 18: 50S ribosomal protein L16

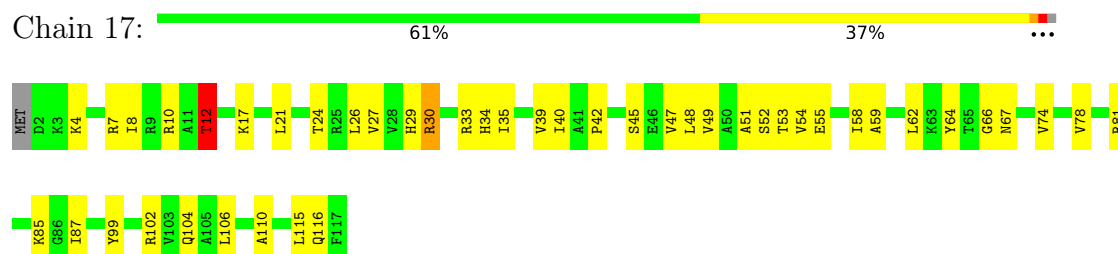
Chain 15: 69% 29% .



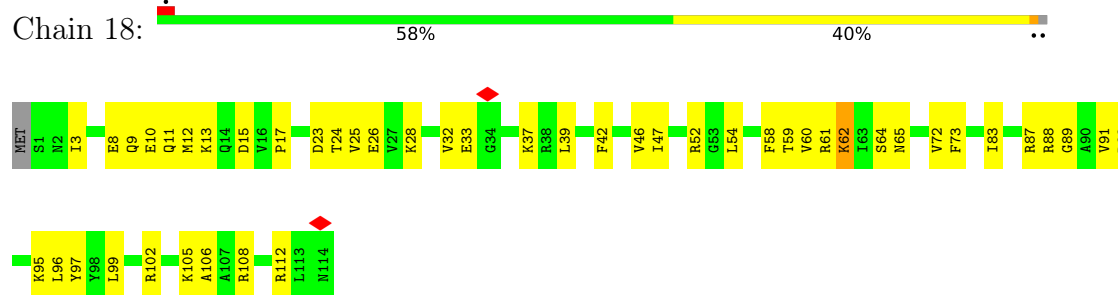
- Molecule 19: 50S ribosomal protein L17



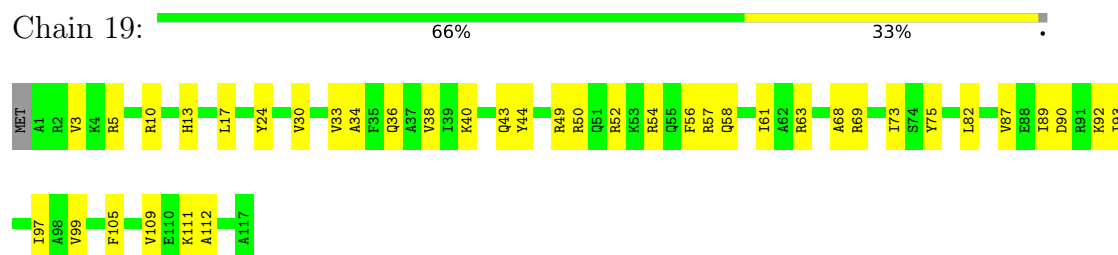
- Molecule 20: 50S ribosomal protein L18



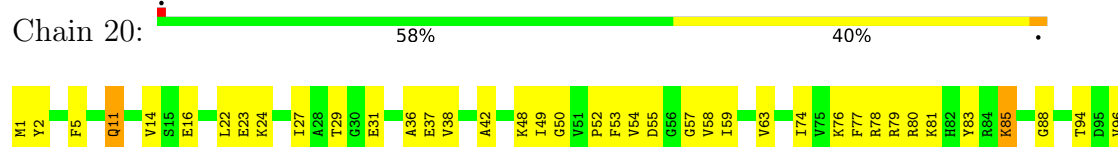
- Molecule 21: 50S ribosomal protein L19



- Molecule 22: 50S ribosomal protein L20



- Molecule 23: 50S ribosomal protein L21





- Molecule 24: 50S ribosomal protein L22

Chain 21: 56% 43%



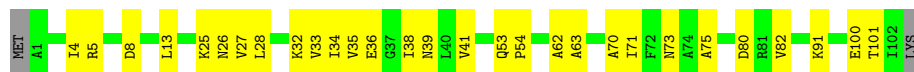
- Molecule 25: 50S ribosomal protein L23

Chain 22: 59% 33% 7%



- Molecule 26: 50S ribosomal protein L24

Chain 23: 70% 28%



- Molecule 27: 50S ribosomal protein L25

Chain 24: 60% 39%



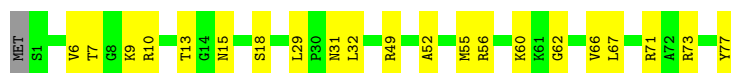
- Molecule 28: 50S ribosomal protein L27

Chain 25: 49% 36% 12%

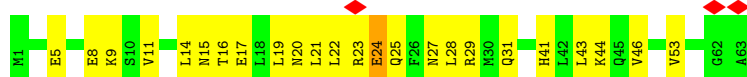


- Molecule 29: 50S ribosomal protein L28

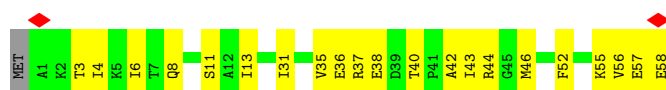
Chain 26: 72% 27%



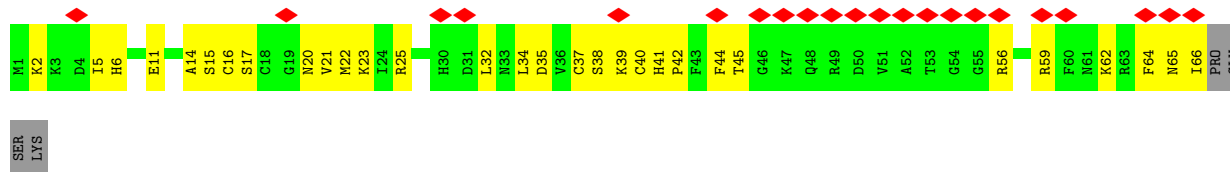
- Molecule 30: 50S ribosomal protein L29



- Molecule 31: 50S ribosomal protein L30



- Molecule 32: 50S ribosomal protein L31



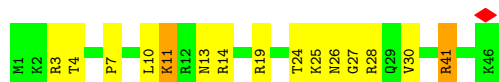
- Molecule 33: 50S ribosomal protein L32



- Molecule 34: 50S ribosomal protein L33



- Molecule 35: 50S ribosomal protein L34

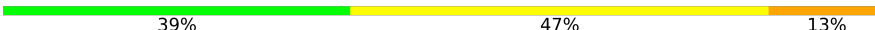


- Molecule 36: 50S ribosomal protein L35

Chain 33:  66% 29% ..



- Molecule 37: 50S ribosomal protein L36

Chain 34:  39% 47% 13%



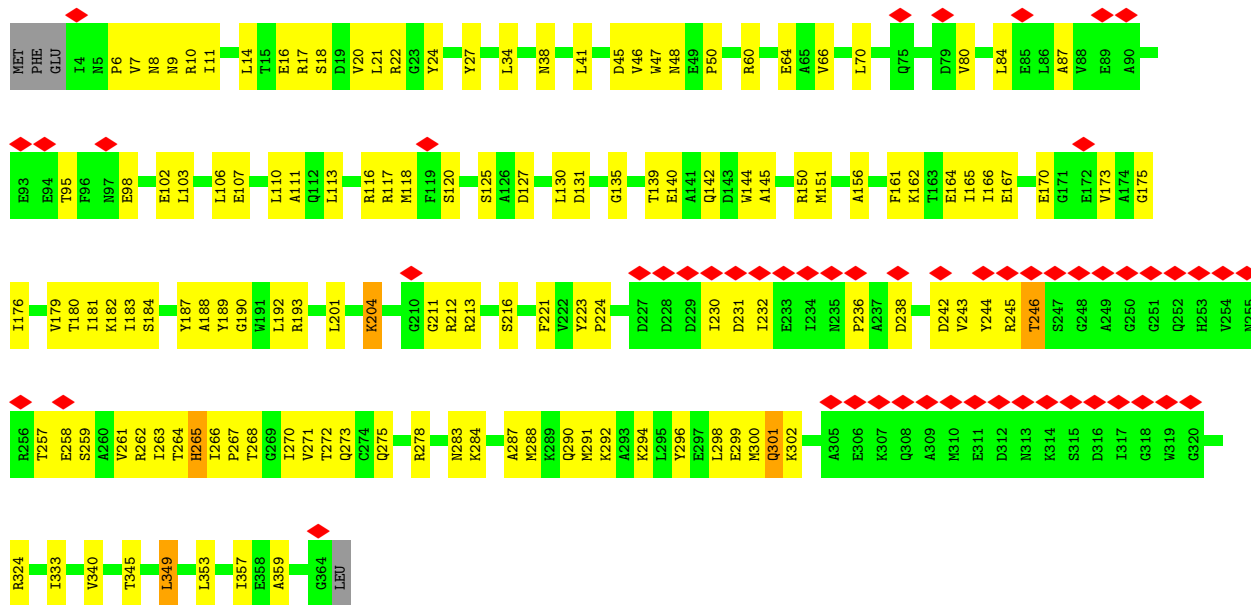
- Molecule 38: truncated mRNA

Chain V:  7% 79% 21%



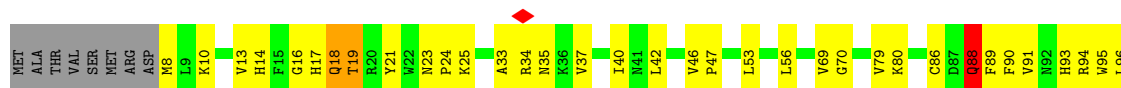
- Molecule 39: Peptide chain release factor RF2

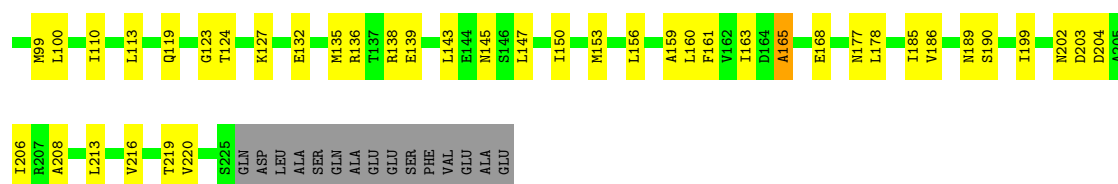
Chain Z:  15% 62% 36% ..



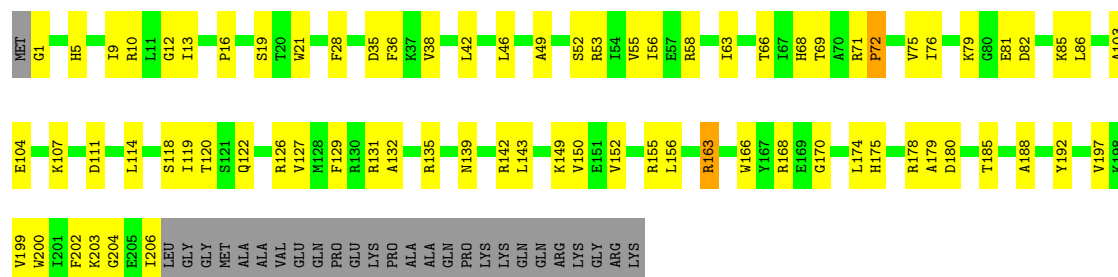
- Molecule 40: 30S ribosomal protein S2

Chain B:  59% 30% 10%

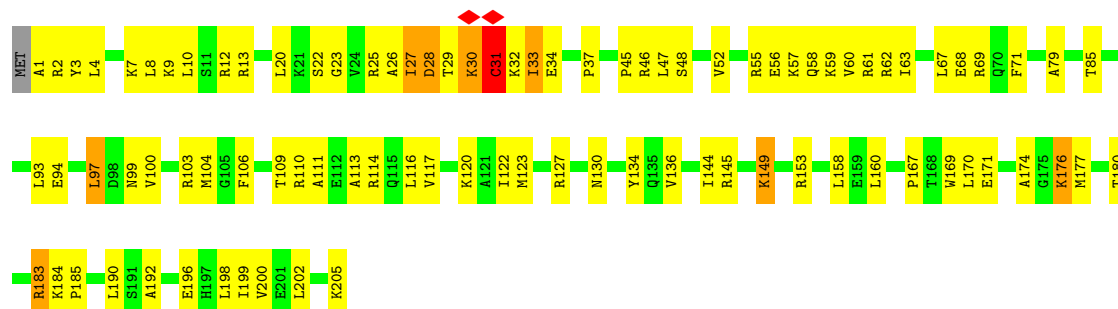




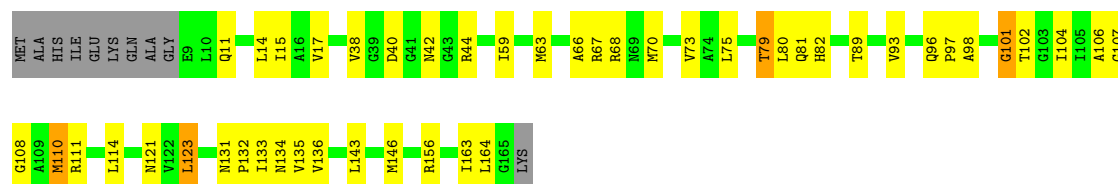
• Molecule 41: 30S ribosomal protein S3



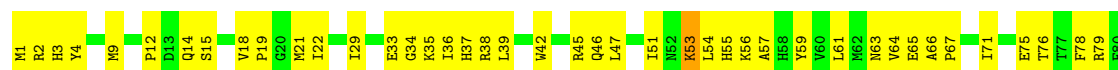
• Molecule 42: 30S ribosomal protein S4

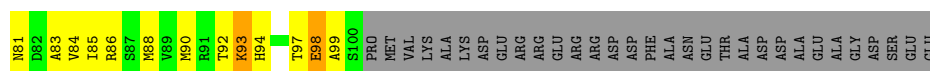


• Molecule 43: 30S ribosomal protein S5

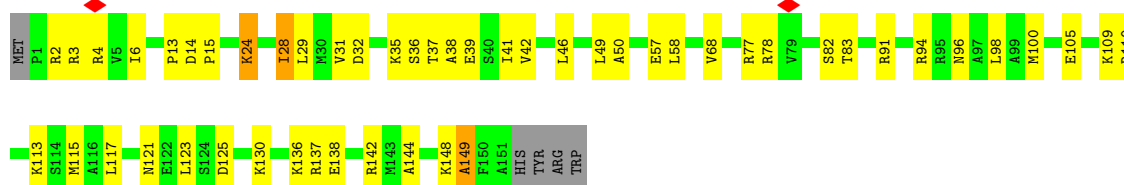


• Molecule 44: 30S ribosomal protein S6

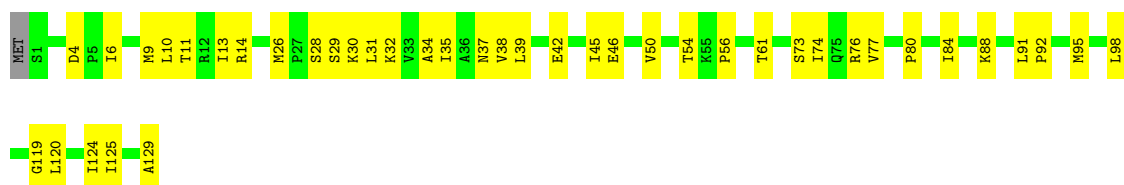




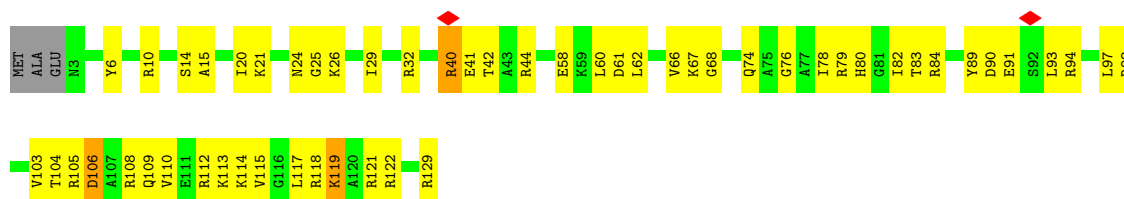
- Molecule 45: 30S ribosomal protein S7



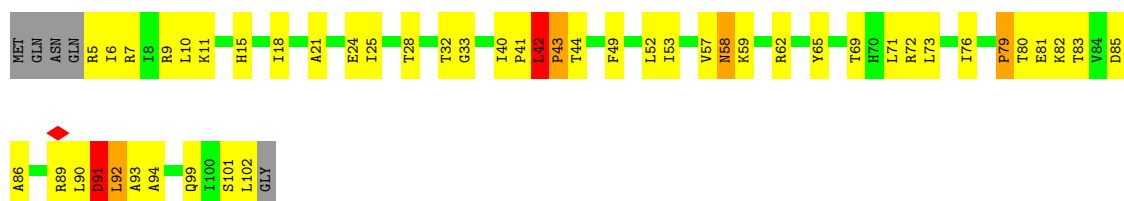
- Molecule 46: 30S ribosomal protein S8



- Molecule 47: 30S ribosomal protein S9

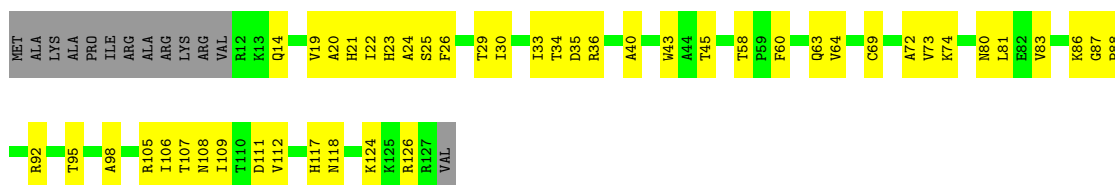


- Molecule 48: 30S ribosomal protein S10



- Molecule 49: 30S ribosomal protein S11





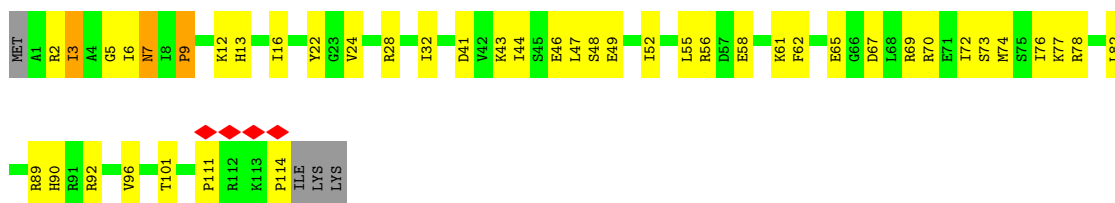
- Molecule 50: 30S ribosomal protein S12

Chain L: 60% 36% ..



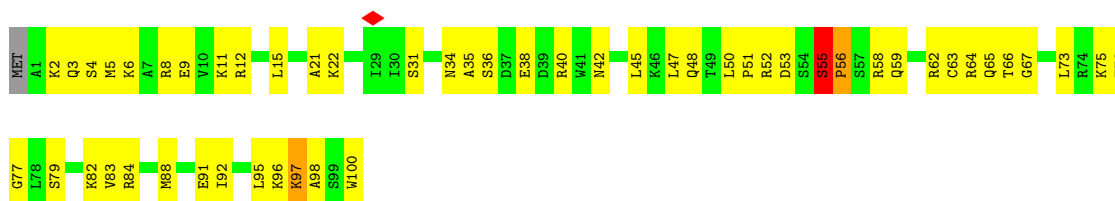
- Molecule 51: 30S ribosomal protein S13

Chain M: 59% 35% ..



- Molecule 52: 30S ribosomal protein S14

Chain N: 48% 49% ..



- Molecule 53: 30S ribosomal protein S15

Chain O: 60% 38% ..



- Molecule 54: 30S ribosomal protein S16

Chain P: 63% 35% .



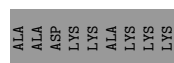
- Molecule 55: 30S ribosomal protein S17



- Molecule 56: 30S ribosomal protein S18



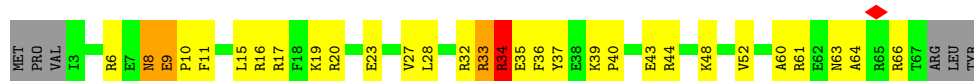
- Molecule 57: 30S ribosomal protein S19



- Molecule 58: 30S ribosomal protein S20



- Molecule 59: 30S ribosomal protein S21



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, C1                               | Depositor |
| Number of particles used             | 139861                                  | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | FEI TITAN KRIOS                         | Depositor |
| Voltage (kV)                         | 300                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 1.2                                     | Depositor |
| Minimum defocus (nm)                 | 500                                     | Depositor |
| Maximum defocus (nm)                 | 3000                                    | Depositor |
| Magnification                        | 29000                                   | Depositor |
| Image detector                       | DIRECT ELECTRON DE-20 (5k x 3k)         | Depositor |
| Maximum map value                    | 17.734                                  | Depositor |
| Minimum map value                    | -5.902                                  | Depositor |
| Average map value                    | -1.160                                  | Depositor |
| Map value standard deviation         | 1.507                                   | Depositor |
| Recommended contour level            | 2.5                                     | Depositor |
| Map size (Å)                         | 388.80002, 388.80002, 388.80002         | wwPDB     |
| Map dimensions                       | 320, 320, 320                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 1.215, 1.215, 1.215                     | Depositor |

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

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

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

| Mol | Chain | Bond lengths |             | Bond angles |                 |
|-----|-------|--------------|-------------|-------------|-----------------|
|     |       | RMSZ         | $\# Z  > 5$ | RMSZ        | $\# Z  > 5$     |
| 1   | A     | 0.39         | 0/36963     | 0.48        | 1/57662 (0.0%)  |
| 2   | 01    | 0.39         | 0/69797     | 0.48        | 1/108890 (0.0%) |
| 3   | 02    | 0.40         | 0/2847      | 0.48        | 0/4440          |
| 4   | Y     | 0.37         | 0/253       | 0.72        | 0/330           |
| 5   | W     | 0.39         | 0/1832      | 0.45        | 0/2855          |
| 5   | X     | 0.41         | 0/1811      | 0.53        | 1/2822 (0.0%)   |
| 6   | 03    | 0.40         | 0/1361      | 0.88        | 5/1796 (0.3%)   |
| 7   | 04    | 0.38         | 0/2121      | 0.82        | 4/2852 (0.1%)   |
| 8   | 05    | 0.41         | 0/1586      | 0.79        | 3/2134 (0.1%)   |
| 9   | 06    | 0.38         | 0/1571      | 0.79        | 3/2113 (0.1%)   |
| 10  | 07    | 0.39         | 0/1434      | 0.83        | 1/1926 (0.1%)   |
| 11  | 08    | 0.37         | 0/1343      | 0.77        | 0/1816          |
| 12  | 09    | 0.40         | 0/1122      | 0.86        | 1/1515 (0.1%)   |
| 13  | 10    | 0.49         | 0/1001      | 1.00        | 3/1350 (0.2%)   |
| 14  | 11    | 0.46         | 0/1046      | 0.89        | 2/1410 (0.1%)   |
| 15  | 12    | 0.38         | 0/1152      | 0.80        | 3/1551 (0.2%)   |
| 16  | 13    | 0.38         | 0/947       | 0.88        | 2/1268 (0.2%)   |
| 17  | 14    | 0.42         | 0/1054      | 0.92        | 3/1403 (0.2%)   |
| 18  | 15    | 0.38         | 0/1093      | 0.80        | 1/1460 (0.1%)   |
| 19  | 16    | 0.40         | 0/973       | 0.86        | 2/1301 (0.2%)   |
| 20  | 17    | 0.36         | 0/902       | 0.81        | 2/1209 (0.2%)   |
| 21  | 18    | 0.39         | 0/929       | 0.79        | 1/1242 (0.1%)   |
| 22  | 19    | 0.38         | 0/960       | 0.79        | 1/1278 (0.1%)   |
| 23  | 20    | 0.39         | 0/829       | 0.87        | 3/1107 (0.3%)   |
| 24  | 21    | 0.37         | 0/864       | 0.85        | 2/1156 (0.2%)   |
| 25  | 22    | 0.36         | 0/744       | 0.72        | 0/994           |
| 26  | 23    | 0.39         | 0/787       | 0.82        | 2/1051 (0.2%)   |
| 27  | 24    | 0.34         | 0/766       | 0.77        | 1/1025 (0.1%)   |
| 28  | 25    | 0.39         | 0/582       | 0.88        | 2/769 (0.3%)    |
| 29  | 26    | 0.37         | 0/635       | 0.77        | 1/848 (0.1%)    |
| 30  | 27    | 0.36         | 0/510       | 0.80        | 1/677 (0.1%)    |
| 31  | 28    | 0.36         | 0/453       | 0.68        | 0/605           |

| Mol | Chain | Bond lengths |          | Bond angles |                   |
|-----|-------|--------------|----------|-------------|-------------------|
|     |       | RMSZ         | # Z  >5  | RMSZ        | # Z  >5           |
| 32  | 29    | 0.35         | 0/531    | 0.80        | 0/709             |
| 33  | 30    | 0.39         | 0/450    | 0.85        | 1/599 (0.2%)      |
| 34  | 31    | 0.35         | 0/416    | 0.73        | 0/554             |
| 35  | 32    | 0.38         | 0/380    | 0.85        | 1/498 (0.2%)      |
| 36  | 33    | 0.40         | 0/513    | 0.89        | 1/676 (0.1%)      |
| 37  | 34    | 0.28         | 0/303    | 0.77        | 1/397 (0.3%)      |
| 38  | V     | 0.40         | 0/345    | 0.48        | 0/538             |
| 39  | Z     | 0.38         | 0/2854   | 0.87        | 4/3842 (0.1%)     |
| 40  | B     | 0.40         | 0/1735   | 0.92        | 4/2338 (0.2%)     |
| 41  | C     | 0.39         | 0/1651   | 0.82        | 2/2225 (0.1%)     |
| 42  | D     | 0.38         | 0/1665   | 0.93        | 7/2227 (0.3%)     |
| 43  | E     | 0.42         | 0/1169   | 0.87        | 5/1573 (0.3%)     |
| 44  | F     | 0.44         | 0/835    | 0.96        | 4/1128 (0.4%)     |
| 45  | G     | 0.37         | 0/1195   | 0.90        | 4/1602 (0.2%)     |
| 46  | H     | 0.38         | 0/989    | 0.81        | 0/1326            |
| 47  | I     | 0.39         | 0/1034   | 0.90        | 4/1375 (0.3%)     |
| 48  | J     | 0.43         | 0/796    | 0.95        | 4/1077 (0.4%)     |
| 49  | K     | 0.39         | 0/885    | 0.88        | 2/1195 (0.2%)     |
| 50  | L     | 0.43         | 0/969    | 0.94        | 6/1300 (0.5%)     |
| 51  | M     | 0.40         | 0/892    | 0.89        | 3/1193 (0.3%)     |
| 52  | N     | 0.47         | 0/817    | 0.99        | 6/1088 (0.6%)     |
| 53  | O     | 0.36         | 0/722    | 0.81        | 1/964 (0.1%)      |
| 54  | P     | 0.39         | 0/659    | 0.86        | 0/884             |
| 55  | Q     | 0.37         | 0/657    | 0.80        | 2/881 (0.2%)      |
| 56  | R     | 0.40         | 0/544    | 0.85        | 2/731 (0.3%)      |
| 57  | S     | 0.41         | 0/652    | 0.85        | 2/877 (0.2%)      |
| 58  | T     | 0.38         | 0/671    | 0.84        | 2/888 (0.2%)      |
| 59  | U     | 0.52         | 0/550    | 1.09        | 3/728 (0.4%)      |
| All | All   | 0.39         | 0/165147 | 0.61        | 123/246268 (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 |
|-----|-------|---------------------|---------------------|
| 39  | Z     | 0                   | 2                   |
| 52  | N     | 0                   | 1                   |
| All | All   | 0                   | 3                   |

There are no bond length outliers.

The worst 5 of 123 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms  | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 49  | K     | 73  | VAL  | N-CA-C | -9.46 | 104.12      | 113.20   |
| 23  | 20    | 55  | ASP  | N-CA-C | 9.13  | 122.15      | 111.02   |
| 59  | U     | 11  | PHE  | N-CA-C | 8.28  | 123.32      | 112.72   |
| 44  | F     | 98  | GLU  | N-CA-C | 8.10  | 121.69      | 109.63   |
| 9   | 06    | 81  | GLY  | N-CA-C | -8.06 | 94.08       | 113.18   |

There are no chirality outliers.

All (3) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 52  | N     | 55  | SER  | Mainchain |
| 39  | Z     | 236 | PRO  | Peptide   |
| 39  | Z     | 246 | THR  | Peptide   |

## 5.2 Too-close contacts ⓘ

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   | A     | 33012 | 0        | 16618    | 432     | 0            |
| 2   | 01    | 62318 | 0        | 31345    | 809     | 0            |
| 3   | 02    | 2546  | 0        | 1292     | 41      | 0            |
| 4   | Y     | 249   | 0        | 255      | 13      | 0            |
| 5   | W     | 1640  | 0        | 837      | 15      | 0            |
| 5   | X     | 1622  | 0        | 827      | 17      | 0            |
| 6   | 03    | 1353  | 0        | 1159     | 40      | 0            |
| 7   | 04    | 2082  | 0        | 2157     | 81      | 0            |
| 8   | 05    | 1565  | 0        | 1616     | 71      | 0            |
| 9   | 06    | 1552  | 0        | 1619     | 50      | 0            |
| 10  | 07    | 1410  | 0        | 1447     | 60      | 0            |
| 11  | 08    | 1323  | 0        | 1374     | 54      | 0            |
| 12  | 09    | 1111  | 0        | 1148     | 52      | 0            |
| 13  | 10    | 988   | 0        | 1025     | 58      | 0            |
| 14  | 11    | 1032  | 0        | 1088     | 51      | 0            |
| 15  | 12    | 1129  | 0        | 1162     | 47      | 0            |
| 16  | 13    | 938   | 0        | 1012     | 39      | 0            |
| 17  | 14    | 1045  | 0        | 1117     | 31      | 0            |
| 18  | 15    | 1074  | 0        | 1157     | 36      | 0            |
| 19  | 16    | 960   | 0        | 1000     | 57      | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 20  | 17    | 892   | 0        | 923      | 36      | 0            |
| 21  | 18    | 917   | 0        | 965      | 45      | 0            |
| 22  | 19    | 947   | 0        | 1022     | 35      | 0            |
| 23  | 20    | 816   | 0        | 839      | 35      | 0            |
| 24  | 21    | 857   | 0        | 922      | 40      | 0            |
| 25  | 22    | 738   | 0        | 807      | 32      | 0            |
| 26  | 23    | 779   | 0        | 834      | 17      | 0            |
| 27  | 24    | 753   | 0        | 780      | 35      | 0            |
| 28  | 25    | 575   | 0        | 592      | 30      | 0            |
| 29  | 26    | 625   | 0        | 655      | 23      | 0            |
| 30  | 27    | 509   | 0        | 543      | 20      | 0            |
| 31  | 28    | 449   | 0        | 491      | 18      | 0            |
| 32  | 29    | 522   | 0        | 524      | 29      | 0            |
| 33  | 30    | 444   | 0        | 461      | 25      | 0            |
| 34  | 31    | 409   | 0        | 440      | 8       | 0            |
| 35  | 32    | 377   | 0        | 418      | 21      | 0            |
| 36  | 33    | 504   | 0        | 574      | 16      | 0            |
| 37  | 34    | 302   | 0        | 340      | 29      | 0            |
| 38  | V     | 306   | 0        | 154      | 1       | 0            |
| 39  | Z     | 2814  | 0        | 2682     | 113     | 0            |
| 40  | B     | 1704  | 0        | 1732     | 67      | 0            |
| 41  | C     | 1624  | 0        | 1699     | 64      | 0            |
| 42  | D     | 1643  | 0        | 1710     | 85      | 0            |
| 43  | E     | 1156  | 0        | 1199     | 43      | 0            |
| 44  | F     | 817   | 0        | 808      | 55      | 0            |
| 45  | G     | 1181  | 0        | 1240     | 47      | 0            |
| 46  | H     | 979   | 0        | 1034     | 31      | 0            |
| 47  | I     | 1022  | 0        | 1070     | 60      | 0            |
| 48  | J     | 786   | 0        | 828      | 52      | 0            |
| 49  | K     | 869   | 0        | 878      | 43      | 0            |
| 50  | L     | 955   | 0        | 1019     | 36      | 0            |
| 51  | M     | 883   | 0        | 944      | 50      | 0            |
| 52  | N     | 805   | 0        | 847      | 55      | 0            |
| 53  | O     | 714   | 0        | 737      | 33      | 0            |
| 54  | P     | 649   | 0        | 666      | 29      | 0            |
| 55  | Q     | 648   | 0        | 691      | 39      | 0            |
| 56  | R     | 535   | 0        | 552      | 20      | 0            |
| 57  | S     | 637   | 0        | 665      | 30      | 0            |
| 58  | T     | 665   | 0        | 714      | 31      | 0            |
| 59  | U     | 544   | 0        | 579      | 32      | 0            |
| 60  | 01    | 239   | 0        | 0        | 0       | 0            |
| 60  | 02    | 4     | 0        | 0        | 0       | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 60  | 14    | 1      | 0        | 0        | 0       | 0            |
| 60  | 25    | 1      | 0        | 0        | 0       | 0            |
| 60  | 30    | 1      | 0        | 0        | 0       | 0            |
| 60  | A     | 97     | 0        | 0        | 0       | 0            |
| 60  | H     | 1      | 0        | 0        | 0       | 0            |
| 60  | W     | 2      | 0        | 0        | 0       | 0            |
| 60  | X     | 2      | 0        | 0        | 0       | 0            |
| 61  | 34    | 1      | 0        | 0        | 0       | 0            |
| All | All   | 152649 | 0        | 103833   | 3175    | 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 12.

The worst 5 of 3175 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) |
|------------------|------------------|--------------------------|-------------------|
| 2:01:45:G:H5''   | 2:01:46:G:H5'    | 1.26                     | 1.16              |
| 1:A:376:G:H2'    | 1:A:377:G:H5''   | 1.33                     | 1.08              |
| 2:01:1173:U:H2'  | 2:01:1174:U:H4'  | 1.36                     | 1.04              |
| 42:D:149:LYS:HG3 | 42:D:177:MET:HE1 | 1.43                     | 1.01              |
| 1:A:9:G:H5'      | 43:E:107:GLY:HA3 | 1.44                     | 1.00              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 4   | Y     | 30/72 (42%)   | 26 (87%)  | 4 (13%)  | 0        | 100         | 100 |
| 6   | 03    | 218/234 (93%) | 192 (88%) | 25 (12%) | 1 (0%)   | 24          | 59  |
| 7   | 04    | 269/273 (98%) | 244 (91%) | 22 (8%)  | 3 (1%)   | 11          | 43  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 8   | 05    | 207/209 (99%) | 181 (87%) | 24 (12%) | 2 (1%)   | 12          | 45  |
| 9   | 06    | 199/201 (99%) | 179 (90%) | 18 (9%)  | 2 (1%)   | 12          | 45  |
| 10  | 07    | 175/179 (98%) | 148 (85%) | 26 (15%) | 1 (1%)   | 21          | 56  |
| 11  | 08    | 174/177 (98%) | 164 (94%) | 10 (6%)  | 0        | 100         | 100 |
| 12  | 09    | 147/149 (99%) | 136 (92%) | 9 (6%)   | 2 (1%)   | 9           | 39  |
| 13  | 10    | 129/165 (78%) | 94 (73%)  | 32 (25%) | 3 (2%)   | 5           | 29  |
| 14  | 11    | 139/142 (98%) | 121 (87%) | 17 (12%) | 1 (1%)   | 18          | 52  |
| 15  | 12    | 140/142 (99%) | 135 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 16  | 13    | 120/123 (98%) | 102 (85%) | 15 (12%) | 3 (2%)   | 4           | 27  |
| 17  | 14    | 141/144 (98%) | 126 (89%) | 13 (9%)  | 2 (1%)   | 9           | 39  |
| 18  | 15    | 134/136 (98%) | 122 (91%) | 11 (8%)  | 1 (1%)   | 18          | 52  |
| 19  | 16    | 118/127 (93%) | 102 (86%) | 15 (13%) | 1 (1%)   | 16          | 50  |
| 20  | 17    | 114/117 (97%) | 106 (93%) | 7 (6%)   | 1 (1%)   | 14          | 47  |
| 21  | 18    | 112/115 (97%) | 101 (90%) | 11 (10%) | 0        | 100         | 100 |
| 22  | 19    | 115/118 (98%) | 113 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 23  | 20    | 101/103 (98%) | 85 (84%)  | 16 (16%) | 0        | 100         | 100 |
| 24  | 21    | 108/110 (98%) | 100 (93%) | 8 (7%)   | 0        | 100         | 100 |
| 25  | 22    | 91/100 (91%)  | 84 (92%)  | 6 (7%)   | 1 (1%)   | 11          | 43  |
| 26  | 23    | 100/104 (96%) | 87 (87%)  | 12 (12%) | 1 (1%)   | 12          | 45  |
| 27  | 24    | 92/94 (98%)   | 86 (94%)  | 6 (6%)   | 0        | 100         | 100 |
| 28  | 25    | 73/85 (86%)   | 69 (94%)  | 4 (6%)   | 0        | 100         | 100 |
| 29  | 26    | 75/78 (96%)   | 66 (88%)  | 9 (12%)  | 0        | 100         | 100 |
| 30  | 27    | 61/63 (97%)   | 59 (97%)  | 2 (3%)   | 0        | 100         | 100 |
| 31  | 28    | 56/59 (95%)   | 51 (91%)  | 5 (9%)   | 0        | 100         | 100 |
| 32  | 29    | 64/70 (91%)   | 54 (84%)  | 9 (14%)  | 1 (2%)   | 7           | 36  |
| 33  | 30    | 54/57 (95%)   | 50 (93%)  | 4 (7%)   | 0        | 100         | 100 |
| 34  | 31    | 48/55 (87%)   | 45 (94%)  | 3 (6%)   | 0        | 100         | 100 |
| 35  | 32    | 44/46 (96%)   | 43 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 36  | 33    | 62/65 (95%)   | 57 (92%)  | 4 (6%)   | 1 (2%)   | 7           | 36  |
| 37  | 34    | 36/38 (95%)   | 29 (81%)  | 6 (17%)  | 1 (3%)   | 4           | 25  |
| 39  | Z     | 359/365 (98%) | 310 (86%) | 49 (14%) | 0        | 100         | 100 |

*Continued on next page...*

Continued from previous page...

| Mol | Chain | Analysed        | Favoured   | Allowed   | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|-----------|----------|-------------|-----|
| 40  | B     | 216/241 (90%)   | 188 (87%)  | 26 (12%)  | 2 (1%)   | 14          | 47  |
| 41  | C     | 204/233 (88%)   | 191 (94%)  | 13 (6%)   | 0        | 100         | 100 |
| 42  | D     | 203/206 (98%)   | 176 (87%)  | 24 (12%)  | 3 (2%)   | 8           | 37  |
| 43  | E     | 155/167 (93%)   | 137 (88%)  | 18 (12%)  | 0        | 100         | 100 |
| 44  | F     | 98/131 (75%)    | 83 (85%)   | 14 (14%)  | 1 (1%)   | 12          | 45  |
| 45  | G     | 149/156 (96%)   | 133 (89%)  | 16 (11%)  | 0        | 100         | 100 |
| 46  | H     | 127/130 (98%)   | 118 (93%)  | 9 (7%)    | 0        | 100         | 100 |
| 47  | I     | 125/130 (96%)   | 107 (86%)  | 17 (14%)  | 1 (1%)   | 16          | 50  |
| 48  | J     | 96/103 (93%)    | 78 (81%)   | 11 (12%)  | 7 (7%)   | 1           | 6   |
| 49  | K     | 114/129 (88%)   | 96 (84%)   | 16 (14%)  | 2 (2%)   | 6           | 34  |
| 50  | L     | 121/124 (98%)   | 99 (82%)   | 19 (16%)  | 3 (2%)   | 4           | 27  |
| 51  | M     | 112/118 (95%)   | 100 (89%)  | 9 (8%)    | 3 (3%)   | 4           | 25  |
| 52  | N     | 98/101 (97%)    | 80 (82%)   | 13 (13%)  | 5 (5%)   | 1           | 13  |
| 53  | O     | 86/89 (97%)     | 82 (95%)   | 3 (4%)    | 1 (1%)   | 10          | 42  |
| 54  | P     | 80/82 (98%)     | 67 (84%)   | 13 (16%)  | 0        | 100         | 100 |
| 55  | Q     | 78/84 (93%)     | 61 (78%)   | 17 (22%)  | 0        | 100         | 100 |
| 56  | R     | 63/75 (84%)     | 52 (82%)   | 10 (16%)  | 1 (2%)   | 7           | 36  |
| 57  | S     | 77/92 (84%)     | 67 (87%)   | 10 (13%)  | 0        | 100         | 100 |
| 58  | T     | 83/87 (95%)     | 81 (98%)   | 2 (2%)    | 0        | 100         | 100 |
| 59  | U     | 63/71 (89%)     | 46 (73%)   | 12 (19%)  | 5 (8%)   | 1           | 5   |
| All | All   | 6453/6864 (94%) | 5709 (88%) | 682 (11%) | 62 (1%)  | 15          | 45  |

5 of 62 Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | 03    | 207 | VAL  |
| 9   | 06    | 61  | ARG  |
| 9   | 06    | 83  | VAL  |
| 13  | 10    | 123 | ILE  |
| 16  | 13    | 89  | ASN  |

### 5.3.2 Protein sidechains ⓘ

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

entries.

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

| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 4   | Y     | 24/59 (41%)    | 23 (96%)   | 1 (4%)   | 26          | 60  |
| 6   | 03    | 106/181 (59%)  | 105 (99%)  | 1 (1%)   | 70          | 81  |
| 7   | 04    | 216/218 (99%)  | 214 (99%)  | 2 (1%)   | 70          | 81  |
| 8   | 05    | 164/164 (100%) | 164 (100%) | 0        | 100         | 100 |
| 9   | 06    | 165/165 (100%) | 165 (100%) | 0        | 100         | 100 |
| 10  | 07    | 148/150 (99%)  | 148 (100%) | 0        | 100         | 100 |
| 11  | 08    | 137/138 (99%)  | 136 (99%)  | 1 (1%)   | 76          | 83  |
| 12  | 09    | 114/114 (100%) | 113 (99%)  | 1 (1%)   | 70          | 81  |
| 13  | 10    | 100/123 (81%)  | 99 (99%)   | 1 (1%)   | 68          | 80  |
| 14  | 11    | 109/110 (99%)  | 108 (99%)  | 1 (1%)   | 70          | 81  |
| 15  | 12    | 116/116 (100%) | 115 (99%)  | 1 (1%)   | 70          | 81  |
| 16  | 13    | 103/104 (99%)  | 102 (99%)  | 1 (1%)   | 68          | 80  |
| 17  | 14    | 102/103 (99%)  | 101 (99%)  | 1 (1%)   | 68          | 80  |
| 18  | 15    | 109/109 (100%) | 108 (99%)  | 1 (1%)   | 70          | 81  |
| 19  | 16    | 100/104 (96%)  | 99 (99%)   | 1 (1%)   | 68          | 80  |
| 20  | 17    | 86/87 (99%)    | 84 (98%)   | 2 (2%)   | 44          | 70  |
| 21  | 18    | 99/100 (99%)   | 98 (99%)   | 1 (1%)   | 68          | 80  |
| 22  | 19    | 89/90 (99%)    | 89 (100%)  | 0        | 100         | 100 |
| 23  | 20    | 84/84 (100%)   | 82 (98%)   | 2 (2%)   | 43          | 70  |
| 24  | 21    | 93/93 (100%)   | 92 (99%)   | 1 (1%)   | 65          | 79  |
| 25  | 22    | 80/84 (95%)    | 79 (99%)   | 1 (1%)   | 61          | 78  |
| 26  | 23    | 83/85 (98%)    | 83 (100%)  | 0        | 100         | 100 |
| 27  | 24    | 78/78 (100%)   | 77 (99%)   | 1 (1%)   | 61          | 78  |
| 28  | 25    | 57/63 (90%)    | 57 (100%)  | 0        | 100         | 100 |
| 29  | 26    | 67/68 (98%)    | 67 (100%)  | 0        | 100         | 100 |
| 30  | 27    | 55/55 (100%)   | 55 (100%)  | 0        | 100         | 100 |
| 31  | 28    | 48/49 (98%)    | 48 (100%)  | 0        | 100         | 100 |
| 32  | 29    | 59/62 (95%)    | 59 (100%)  | 0        | 100         | 100 |
| 33  | 30    | 47/48 (98%)    | 47 (100%)  | 0        | 100         | 100 |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|-------------|-----|
| 34  | 31    | 45/49 (92%)     | 45 (100%)  | 0        | 100         | 100 |
| 35  | 32    | 38/38 (100%)    | 36 (95%)   | 2 (5%)   | 20          | 53  |
| 36  | 33    | 51/52 (98%)     | 49 (96%)   | 2 (4%)   | 28          | 62  |
| 37  | 34    | 34/34 (100%)    | 31 (91%)   | 3 (9%)   | 9           | 35  |
| 39  | Z     | 296/311 (95%)   | 295 (100%) | 1 (0%)   | 86          | 88  |
| 40  | B     | 180/199 (90%)   | 179 (99%)  | 1 (1%)   | 78          | 84  |
| 41  | C     | 170/190 (90%)   | 169 (99%)  | 1 (1%)   | 78          | 84  |
| 42  | D     | 172/173 (99%)   | 168 (98%)  | 4 (2%)   | 44          | 70  |
| 43  | E     | 119/126 (94%)   | 118 (99%)  | 1 (1%)   | 73          | 82  |
| 44  | F     | 87/112 (78%)    | 86 (99%)   | 1 (1%)   | 65          | 79  |
| 45  | G     | 124/129 (96%)   | 123 (99%)  | 1 (1%)   | 73          | 82  |
| 46  | H     | 104/105 (99%)   | 104 (100%) | 0        | 100         | 100 |
| 47  | I     | 105/107 (98%)   | 103 (98%)  | 2 (2%)   | 50          | 73  |
| 48  | J     | 86/90 (96%)     | 85 (99%)   | 1 (1%)   | 63          | 79  |
| 49  | K     | 89/99 (90%)     | 88 (99%)   | 1 (1%)   | 65          | 79  |
| 50  | L     | 103/104 (99%)   | 103 (100%) | 0        | 100         | 100 |
| 51  | M     | 92/96 (96%)     | 92 (100%)  | 0        | 100         | 100 |
| 52  | N     | 83/84 (99%)     | 83 (100%)  | 0        | 100         | 100 |
| 53  | O     | 76/77 (99%)     | 75 (99%)   | 1 (1%)   | 61          | 78  |
| 54  | P     | 65/65 (100%)    | 64 (98%)   | 1 (2%)   | 57          | 76  |
| 55  | Q     | 74/78 (95%)     | 73 (99%)   | 1 (1%)   | 59          | 77  |
| 56  | R     | 56/65 (86%)     | 53 (95%)   | 3 (5%)   | 20          | 53  |
| 57  | S     | 70/79 (89%)     | 70 (100%)  | 0        | 100         | 100 |
| 58  | T     | 65/66 (98%)     | 65 (100%)  | 0        | 100         | 100 |
| 59  | U     | 55/61 (90%)     | 54 (98%)   | 1 (2%)   | 51          | 74  |
| All | All   | 5277/5593 (94%) | 5228 (99%) | 49 (1%)  | 68          | 81  |

5 of 49 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 39  | Z     | 301 | GLN  |
| 43  | E     | 79  | THR  |
| 40  | B     | 88  | GLN  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 42  | D     | 31  | CYS  |
| 45  | G     | 24  | LYS  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 181 such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 40  | B     | 176 | ASN  |
| 45  | G     | 96  | ASN  |
| 41  | C     | 31  | ASN  |
| 42  | D     | 119 | HIS  |
| 47  | I     | 109 | GLN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | A     | 1538/1539 (99%) | 176 (11%)         | 3 (0%)          |
| 2   | 01    | 2902/2903 (99%) | 332 (11%)         | 3 (0%)          |
| 3   | 02    | 118/119 (99%)   | 9 (7%)            | 0               |
| 38  | V     | 13/14 (92%)     | 1 (7%)            | 0               |
| 5   | W     | 76/77 (98%)     | 8 (10%)           | 0               |
| 5   | X     | 76/77 (98%)     | 14 (18%)          | 0               |
| All | All   | 4723/4729 (99%) | 540 (11%)         | 6 (0%)          |

5 of 540 RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 4   | U    |
| 1   | A     | 6   | G    |
| 1   | A     | 7   | A    |
| 1   | A     | 9   | G    |
| 1   | A     | 22  | G    |

5 of 6 RNA pucker outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | 01    | 490  | C    |
| 2   | 01    | 859  | G    |
| 2   | 01    | 2326 | C    |
| 1   | A     | 343  | U    |
| 1   | A     | 69   | G    |

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 349 ligands modelled in this entry, 349 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 [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

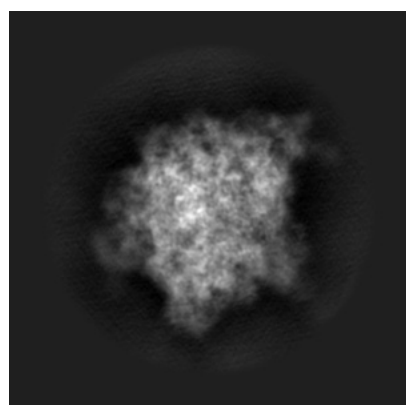
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8522. These allow visual inspection of the internal detail of the map and identification of artifacts.

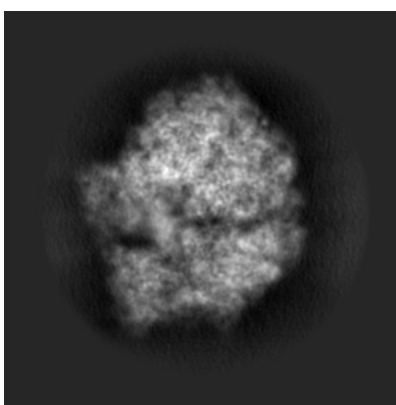
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

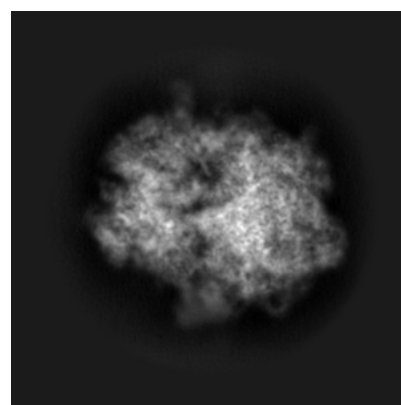
#### 6.1.1 Primary map



X



Y

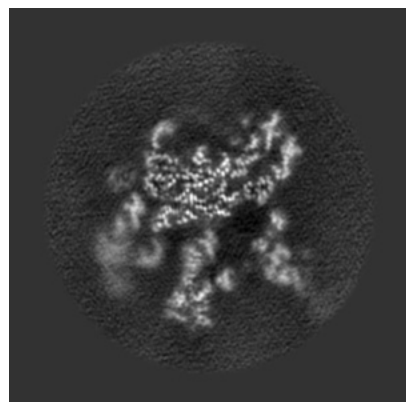


Z

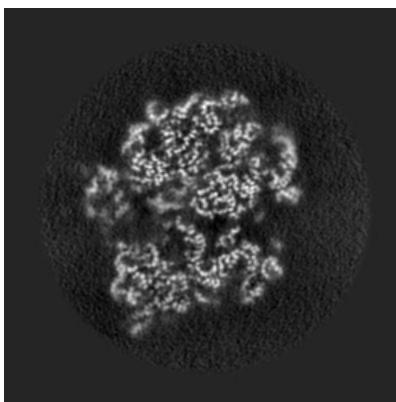
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

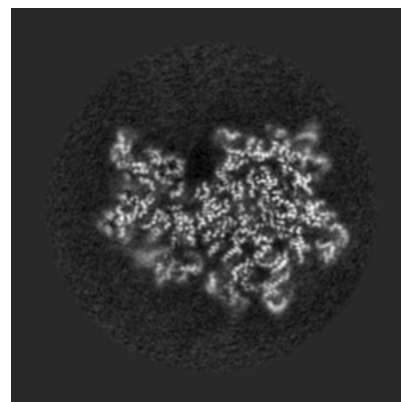
#### 6.2.1 Primary map



X Index: 160



Y Index: 160

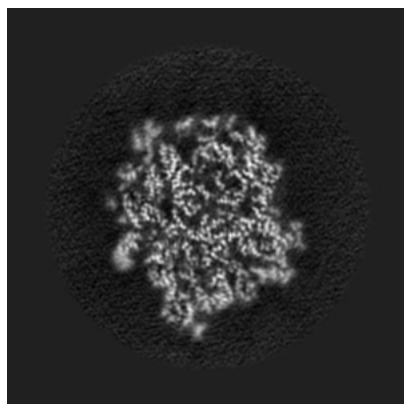


Z Index: 160

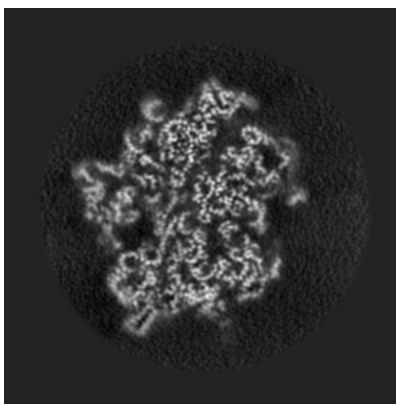
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

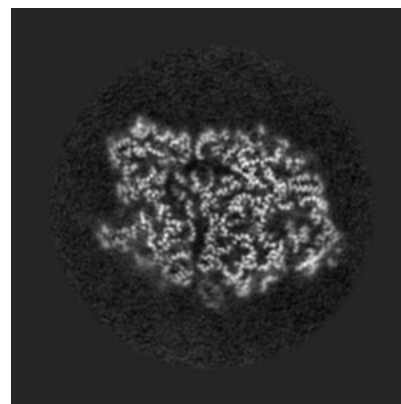
### 6.3.1 Primary map



X Index: 188



Y Index: 154

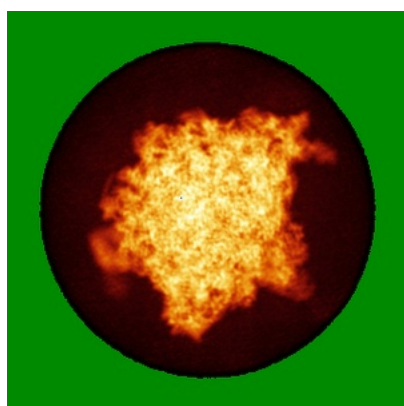


Z Index: 185

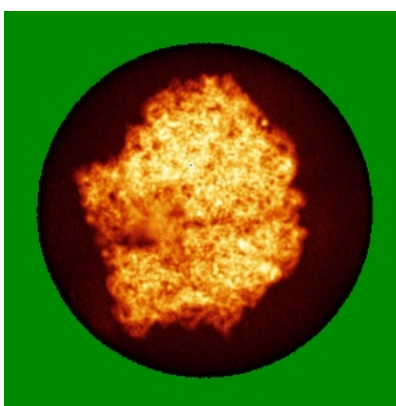
The images above show the largest variance slices of the map in three orthogonal directions.

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

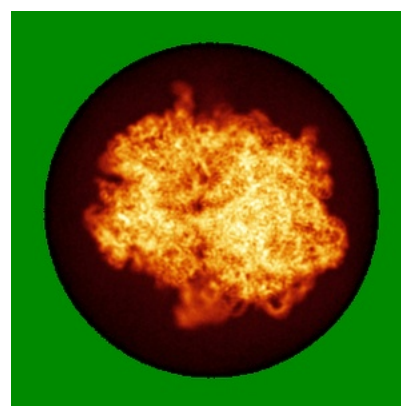
### 6.4.1 Primary map



X



Y

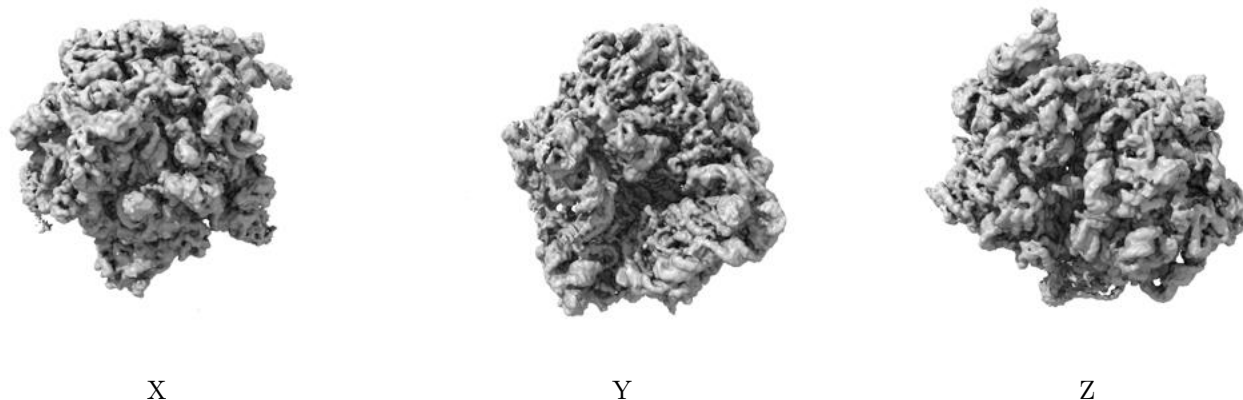


Z

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

## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 2.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

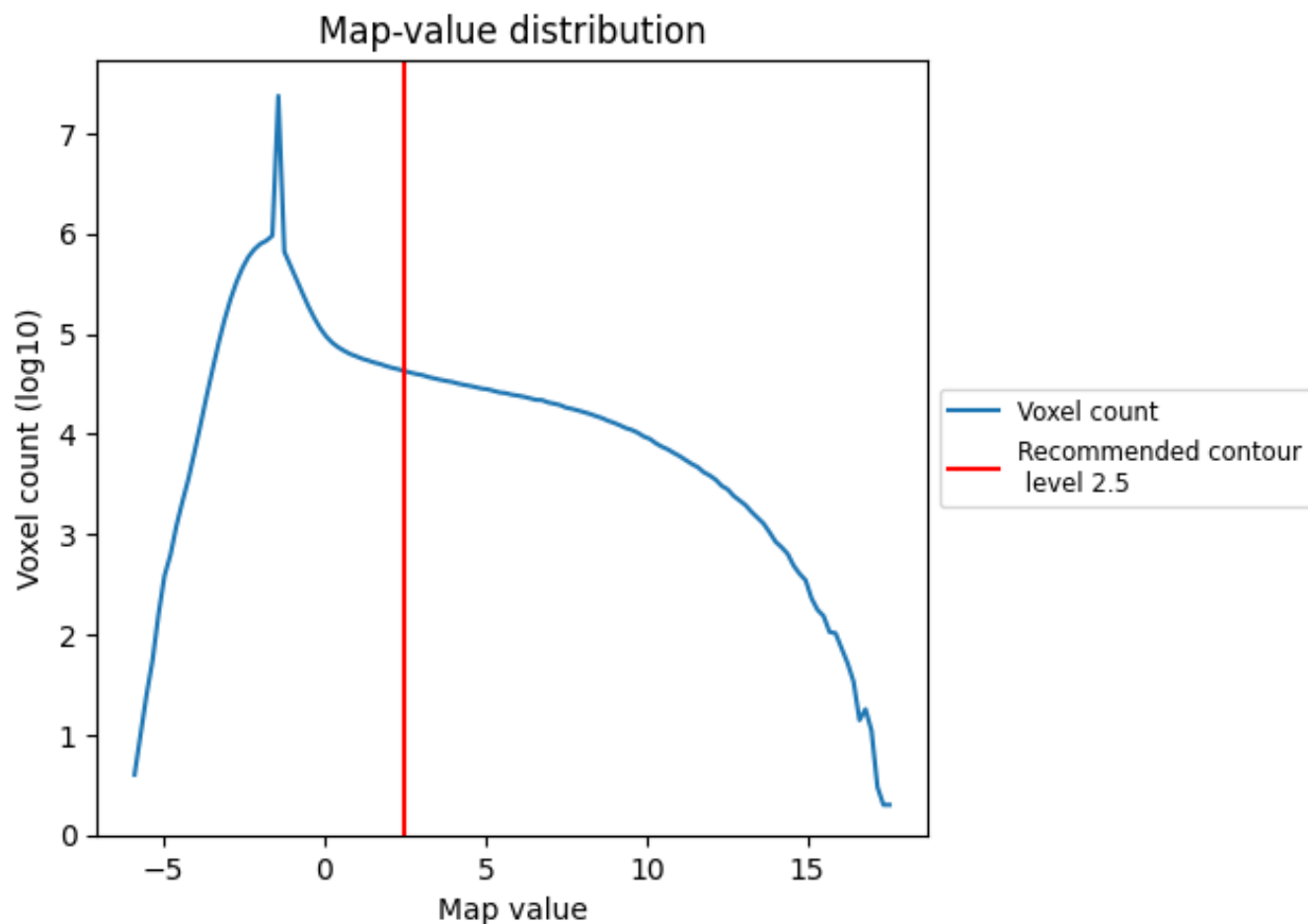
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

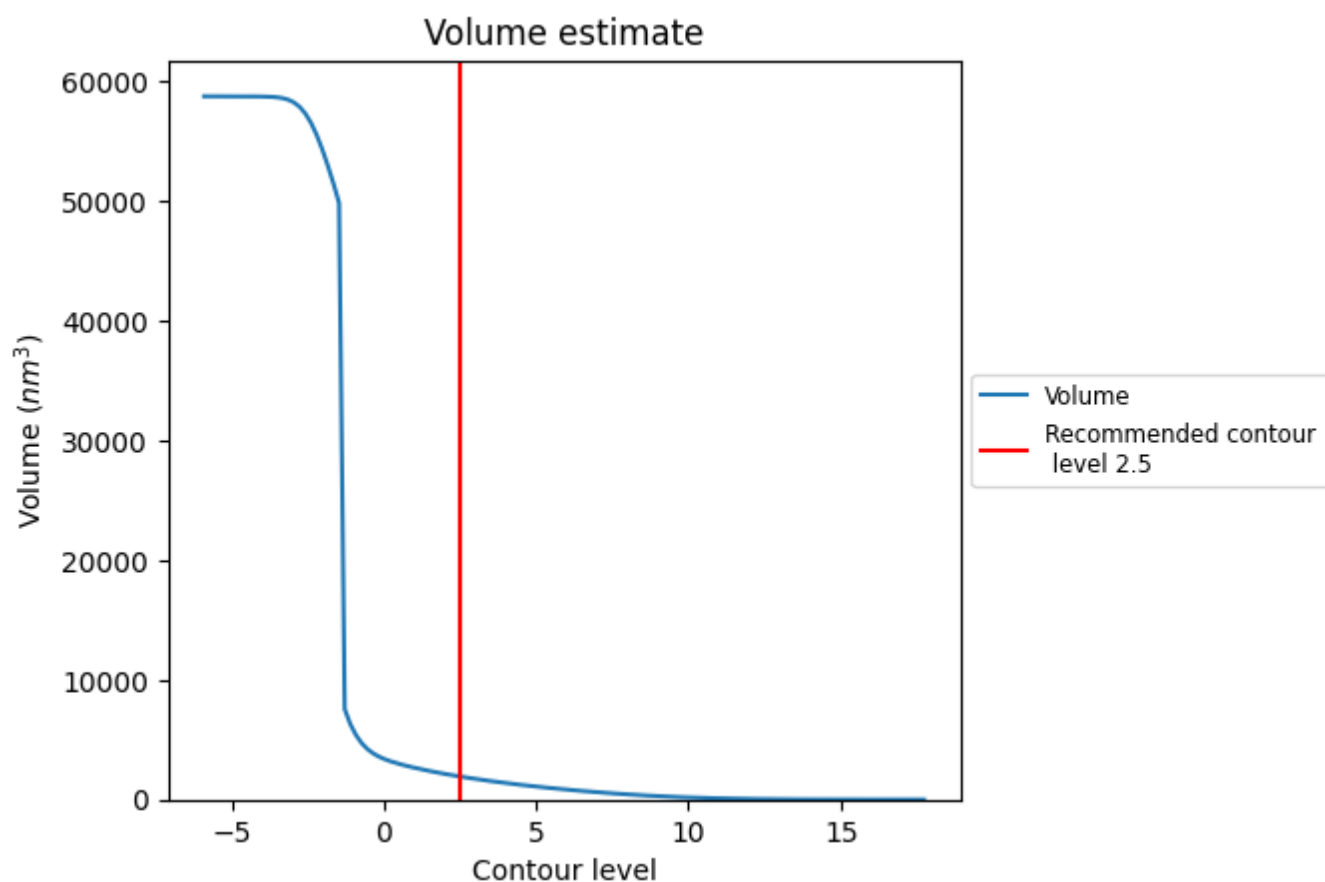
This section contains the results of statistical analysis of the map.

### 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.

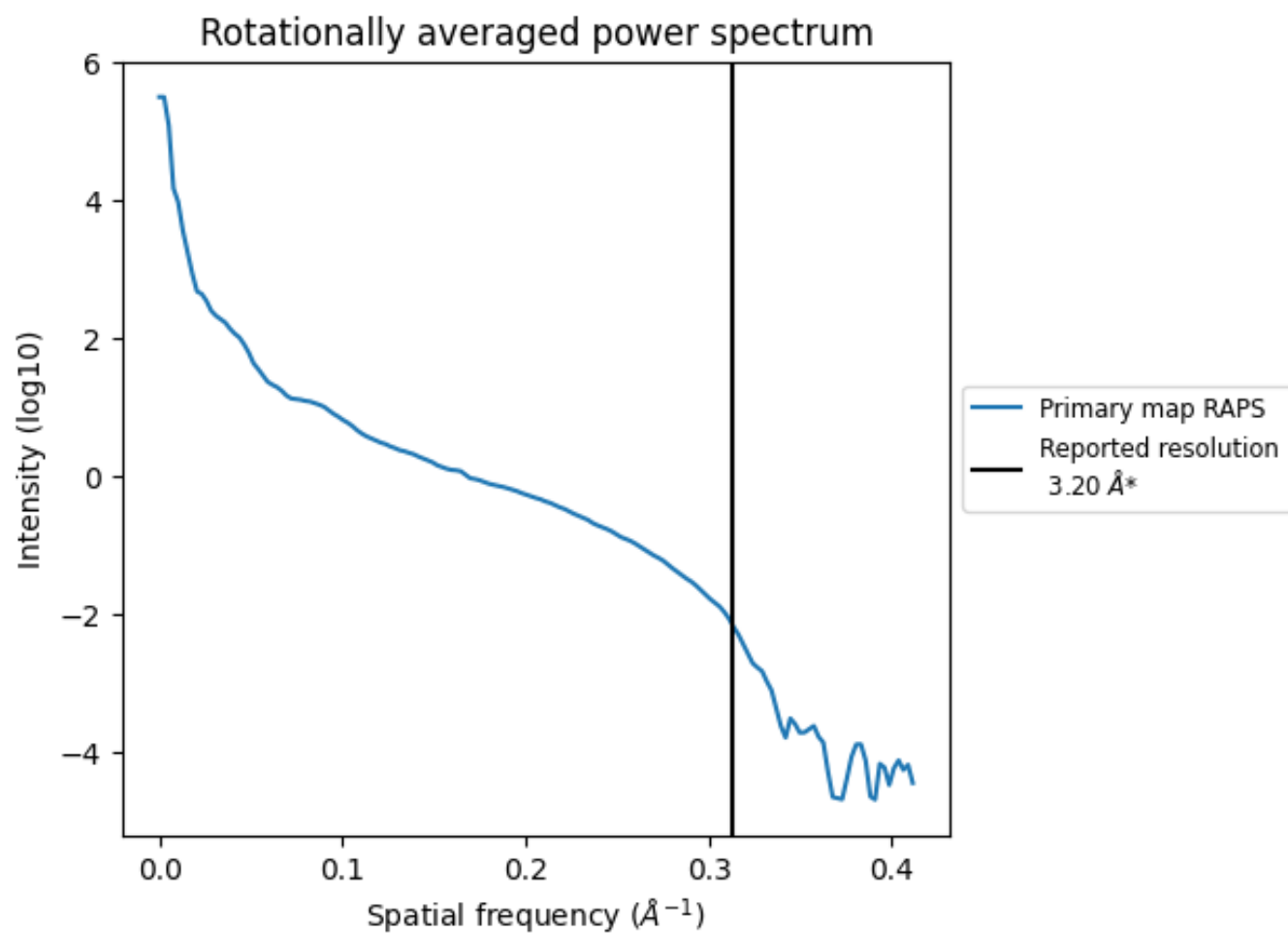
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1927 nm<sup>3</sup>; this corresponds to an approximate mass of 1740 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 ⓘ



\*Reported resolution corresponds to spatial frequency of 0.312 Å<sup>-1</sup>

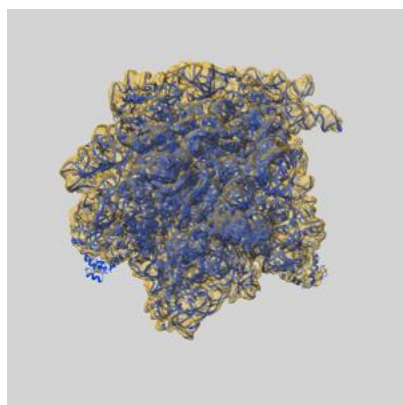
## 8 Fourier-Shell correlation

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

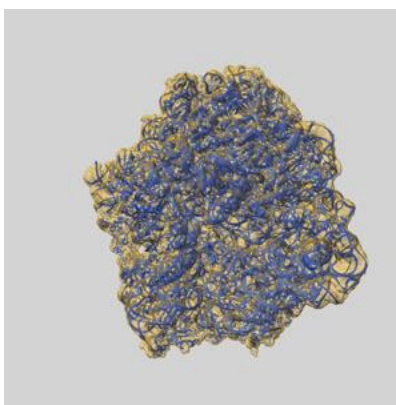
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-8522 and PDB model 5U9G. Per-residue inclusion information can be found in section 3 on page 16.

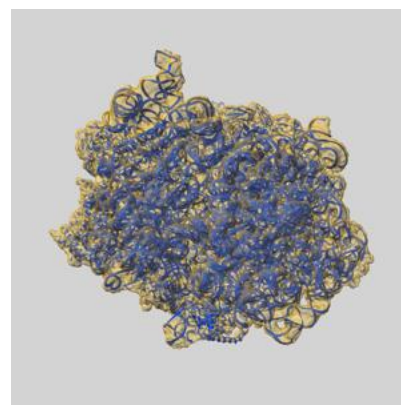
### 9.1 Map-model overlay [i](#)



X



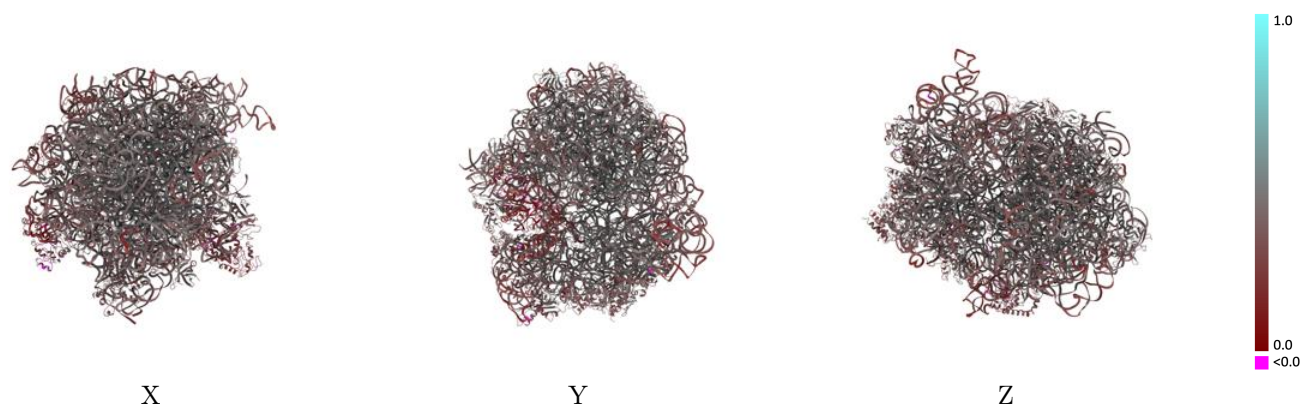
Y



Z

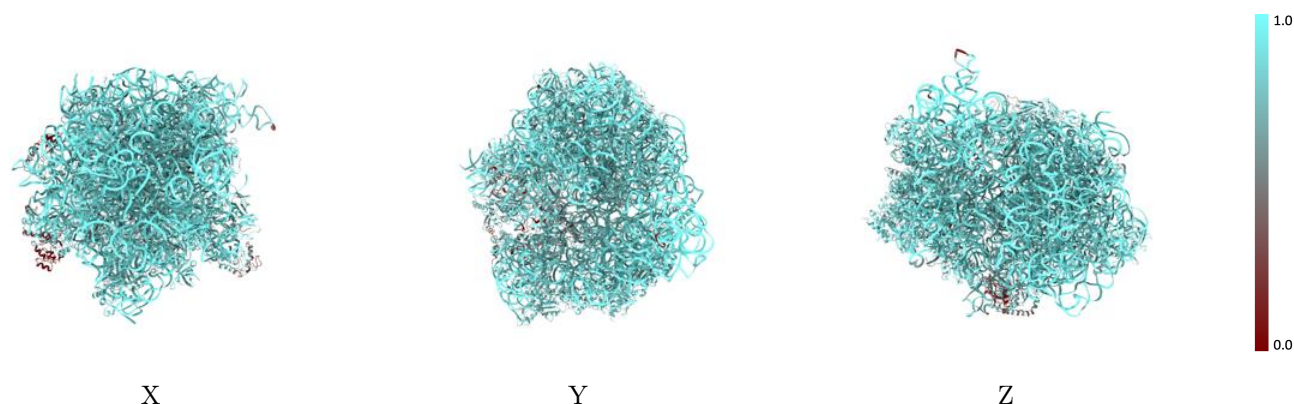
The images above show the 3D surface view of the map at the recommended contour level 2.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



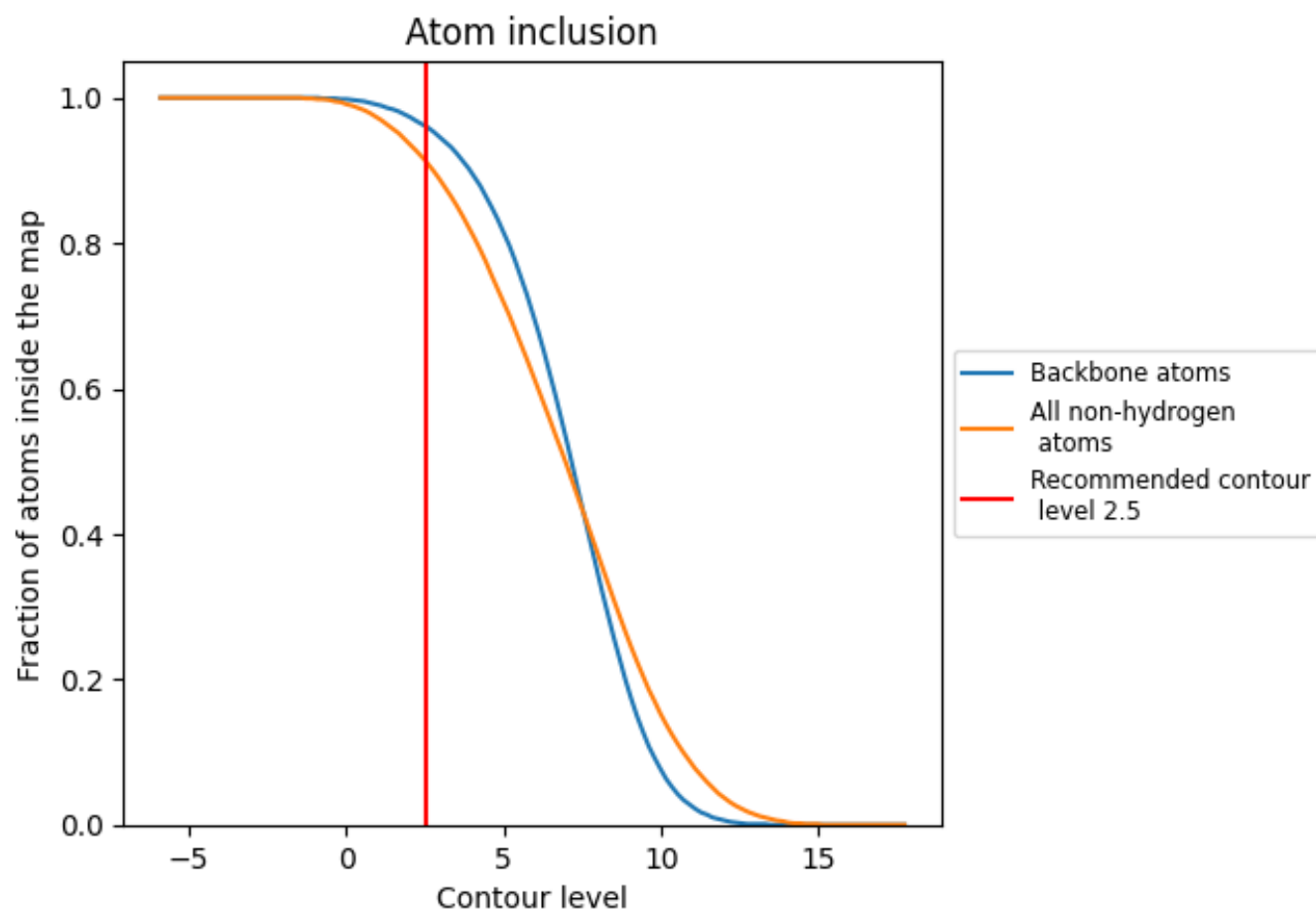
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (2.5).

## 9.4 Atom inclusion ⓘ



At the recommended contour level, 96% of all backbone atoms, 91% 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 (2.5) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.9140   |  0.3870   |
| 01    |  0.9760   |  0.4080   |
| 02    |  0.9840   |  0.3710   |
| 03    |  0.4330   |  0.2010   |
| 04    |  0.8390   |  0.4400   |
| 05    |  0.8690   |  0.4320   |
| 06    |  0.8590   |  0.3960   |
| 07    |  0.8600   |  0.3290   |
| 08    |  0.8460   |  0.3660   |
| 09    |  0.3900   |  0.3110   |
| 10    |  0.5420   |  0.2010   |
| 11    |  0.6900   |  0.2190   |
| 12    |  0.8750   |  0.4110   |
| 13    |  0.7850   |  0.4230   |
| 14    |  0.8680  |  0.4130  |
| 15    |  0.8240 |  0.4150 |
| 16    |  0.8810 |  0.3950 |
| 17    |  0.8930 |  0.3600 |
| 18    |  0.8370 |  0.4100 |
| 19    |  0.8940 |  0.4060 |
| 20    |  0.8780 |  0.4170 |
| 21    |  0.8250 |  0.4100 |
| 22    |  0.7950 |  0.3750 |
| 23    |  0.8480 |  0.3900 |
| 24    |  0.8690 |  0.3900 |
| 25    |  0.9120 |  0.4380 |
| 26    |  0.8470 |  0.4170 |
| 27    |  0.8090 |  0.3180 |
| 28    |  0.8600 |  0.4030 |
| 29    |  0.5220 |  0.2850 |
| 30    |  0.8670 |  0.4190 |
| 31    |  0.7850 |  0.4030 |
| 32    |  0.8620 |  0.4390 |
| 33    |  0.8800 |  0.4370 |
| 34    |  0.8400 |  0.4150 |



*Continued on next page...*

*Continued from previous page...*

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| A     |  0.9760   |  0.3940   |
| B     |  0.8080   |  0.3340   |
| C     |  0.8170   |  0.3840   |
| D     |  0.8340   |  0.3630   |
| E     |  0.8580   |  0.4040   |
| F     |  0.8130   |  0.3560   |
| G     |  0.8020   |  0.3250   |
| H     |  0.8680   |  0.3970   |
| I     |  0.8620   |  0.3430   |
| J     |  0.8190   |  0.3360   |
| K     |  0.8570   |  0.3880   |
| L     |  0.8100   |  0.4200   |
| M     |  0.7860   |  0.3240   |
| N     |  0.8480   |  0.3470   |
| O     |  0.8620   |  0.3550   |
| P     |  0.8850   |  0.3970   |
| Q     |  0.8540   |  0.3840   |
| R     |  0.8270   |  0.3740   |
| S     |  0.8650   |  0.3550   |
| T     |  0.8390  |  0.3400  |
| U     |  0.7410 |  0.2680 |
| V     |  0.8860 |  0.3090 |
| W     |  0.9110 |  0.3830 |
| X     |  0.6200 |  0.2200 |
| Y     |  0.7930 |  0.3870 |
| Z     |  0.6490 |  0.2770 |