# wwPDB EM Validation Summary Report (i)

Jul 3, 2024 – 10:01 am BST

| | | |
|---|---|---|
| PDB ID | : | 6RM3 |
| EMDB ID | : | EMD-4935 |
| Title | : | Evolutionary compaction and adaptation visualized by the structure of the dormant microsporidian ribosome |
| Authors | : | Barandun, J.; Hunziker, M.; Vossbrinck, C.R.; Klinge, S. |
| Deposited on | : | 2019-05-05 |
| Resolution | : | 3.40 Å(reported) |
| Based on initial model | : | 4V88 |

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the (i) 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 (i)) were used in the production of this report:

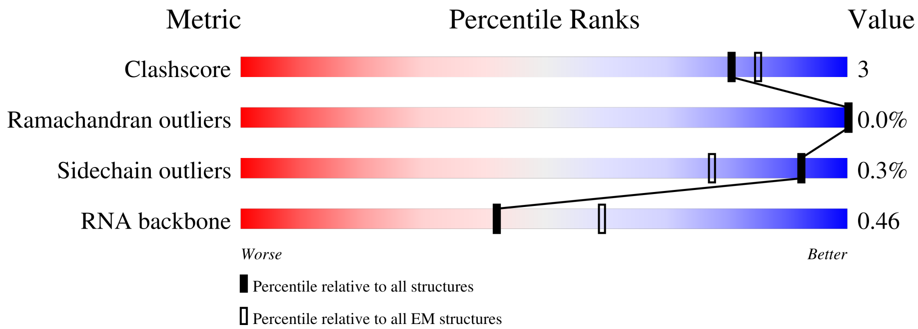
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev92 |
| MolProbity | : | 4.02b-467 |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.37.1 |

# 1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.40 Å.

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




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

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

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | S60 | 1244 | 9%<br>61% 31% 6% • |
| 2 | L70 | 119 | 67% 26% 6% • |
| 3 | LA0 | 237 | 5%<br>87% 11% • |
| 4 | SA0 | 264 | 46%<br>68% 6% 25% |
| 5 | LAA | 148 | •<br>95% 5% |
| 6 | SAA | 104 | 22%<br>85% 9% 7% |
| 7 | LB0 | 384 | 9%<br>88% 8% • |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 8 | SB0 | 237 | 49% 76% 13% 11% |
| 9 | LBB | 55 | 5% 87% 5% 7% |
| 10 | SBB | 94 | 51% 82% 5% 13% |
| 11 | LC0 | 334 | 8% 91% 7% • |
| 12 | SC0 | 237 | 24% 78% 13% 8% |
| 13 | LCC | 108 | 25% 93% • • |
| 14 | SCC | 67 | 82% 82% 12% 6% |
| 15 | LD0 | 295 | 12% 90% 6% • |
| 16 | SD0 | 215 | 79% 91% 7% • |
| 17 | LDD | 111 | 9% 84% 8% 8% |
| 18 | SDD | 68 | 62% 88% 10% • |
| 19 | LE0 | 172 | 78% 91% 8% • |
| 20 | SE0 | 262 | 46% 91% 6% • |
| 21 | LEE | 139 | • 85% • 12% |
| 22 | SEE | 60 | 53% 87% 7% 7% |
| 23 | LF0 | 239 | 5% 88% 8% • |
| 24 | SF0 | 189 | 77% 93% 7% • |
| 25 | LFF | 98 | 5% 91% 7% • |
| 26 | SFF | 151 | 45% 45% 55% |
| 27 | LG0 | 200 | 31% 92% 6% • |
| 28 | SG0 | 217 | 52% 76% 17% 7% |
| 29 | LGG | 106 | 6% 83% 11% 6% |
| 30 | SGG | 337 | 96% 82% 16% • |
| 31 | LH0 | 186 | 15% 91% 8% • |
| 32 | SH0 | 161 | 64% 76% 20% • |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 33 | LHH | 122 | 7% / 93% 5% • |
| 34 | LI0 | 217 | 8% / 91% 8% |
| 35 | SI0 | 166 | 13% / 83% 12% 5% |
| 36 | LII | 95 | 6% / 91% 7% • |
| 37 | LJ0 | 171 | 33% / 88% 10% • |
| 38 | SJ0 | 189 | 32% / 81% 9% 10% |
| 39 | LJJ | 93 | • / 97% • |
| 40 | LL0 | 162 | 6% / 91% 9% |
| 41 | SL0 | 158 | 27% / 85% 15% • |
| 42 | LLL | 52 | 6% / 94% • • |
| 43 | LM0 | 105 | 29% / 82% 5% 13% |
| 44 | LMM | 127 | 7% / 35% 5% 61% |
| 45 | SM0 | 131 | 91% / 82% 8% 9% |
| 46 | LN0 | 204 | 92% 8% |
| 47 | SN0 | 149 | 30% / 87% 11% • |
| 48 | LNN | 160 | 35% / 47% • 50% |
| 49 | SNN | 168 | 82% / 88% 11% • |
| 50 | LO0 | 192 | 9% / 85% 5% 10% |
| 51 | SO0 | 135 | 28% / 79% 19% • |
| 52 | LOO | 103 | 9% / 87% 8% 5% |
| 53 | LP0 | 169 | • / 85% 7% 9% |
| 54 | SP0 | 143 | 69% / 69% 14% 17% |
| 55 | LPP | 89 | • / 87% 7% 7% |
| 56 | LQ0 | 193 | 5% / 90% 5% 5% |
| 57 | SQ0 | 155 | 77% / 90% 8% • |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 58 | LR0 | 175 | 14% 86% 8% • 6% |
| 59 | SR0 | 119 | 86% 82% 17% • |
| 60 | LS0 | 180 | 6% 93% 7% • |
| 61 | SS0 | 160 | 82% 84% 10% 6% |
| 62 | LT0 | 160 | 9% 92% 8% • |
| 63 | ST0 | 133 | 92% 86% 12% • |
| 64 | LU0 | 107 | 32% 84% 7% 9% |
| 65 | SU0 | 101 | 77% 81% 14% 5% |
| 66 | LV0 | 146 | 8% 90% • 8% |
| 67 | SV0 | 67 | 36% 87% 7% 6% |
| 68 | LW0 | 91 | 34% 86% 12% •• |
| 69 | SW0 | 127 | 13% 94% 6% |
| 70 | LX0 | 102 | 5% 88% • 9% |
| 71 | SX0 | 140 | 15% 96% • • |
| 72 | LXX | 73 | 14% 71% • 25% |
| 73 | LY0 | 139 | 19% 88% 8% • |
| 74 | SY0 | 133 | 55% 80% 14% 6% |
| 75 | LZ0 | 126 | 42% 87% 11% • • |
| 76 | SZ0 | 123 | 70% 66% 8% 26% |
| 77 | SK0 | 99 | 79% 78% 8% 14% |
| 78 | L50 | 2484 | • 65% 24% • 7% |

# 2 Entry composition

There are 80 unique types of molecules in this entry. The entry contains 164223 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 rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 1 | S60 | 1231 | Total<br>26291 | C<br>11769 | N<br>4701 | O<br>8590 | P<br>1231 | 0 | 0 |

- Molecule 2 is a RNA chain called 5S rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 2 | L70 | 118 | Total<br>2523 | C<br>1128 | N<br>460 | O<br>817 | P<br>118 | 0 | 0 |

- Molecule 3 is a protein called uL2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 3 | LA0 | 232 | Total<br>1789 | C<br>1124 | N<br>336 | O<br>321 | S<br>8 | 0 | 0 |

- Molecule 4 is a protein called uS2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 4 | SA0 | 197 | Total<br>1558 | C<br>1002 | N<br>262 | O<br>285 | S<br>9 | 0 | 0 |

- Molecule 5 is a protein called uL15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 5 | LAA | 148 | Total<br>1219 | C<br>778 | N<br>240 | O<br>196 | S<br>5 | 0 | 0 |

- Molecule 6 is a protein called eS26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 6 | SAA | 97 | Total<br>776 | C<br>481 | N<br>157 | O<br>130 | S<br>8 | 0 | 0 |

- Molecule 7 is a protein called uL3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 7 | LB0 | 368 | 2912 | 1851 | 537 | 515 | 9 | 0 | 0 |

- Molecule 8 is a protein called eS1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 8 | SB0 | 210 | 1664 | 1050 | 297 | 306 | 11 | 0 | 0 |

- Molecule 9 is a protein called eL29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 9 | LBB | 51 | 416 | 262 | 84 | 68 | 2 | 0 | 0 |

- Molecule 10 is a protein called eS27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 10 | SBB | 82 | 637 | 404 | 107 | 118 | 8 | 0 | 0 |

- Molecule 11 is a protein called uL4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 11 | LC0 | 329 | 2624 | 1656 | 482 | 474 | 12 | 0 | 0 |

- Molecule 12 is a protein called uS5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 12 | SC0 | 217 | 1642 | 1042 | 287 | 308 | 5 | 0 | 0 |

- Molecule 13 is a protein called eL30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 13 | LCC | 104 | 797 | 510 | 137 | 146 | 4 | 0 | 0 |

- Molecule 14 is a protein called eS28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | SCC | 63 | Total 495 | C 305 | N 97 | O 90 | S 3 | 0 | 0 |

- Molecule 15 is a protein called uL18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | LD0 | 282 | Total 2320 | C 1466 | N 422 | O 425 | S 7 | 0 | 0 |

- Molecule 16 is a protein called uS3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 16 | SD0 | 210 | Total 1624 | C 1052 | N 279 | O 286 | S 7 | 0 | 0 |

- Molecule 17 is a protein called eL31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 17 | LDD | 102 | Total 821 | C 526 | N 150 | O 140 | S 5 | 0 | 0 |

- Molecule 18 is a protein called uS14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 18 | SDD | 67 | Total 541 | C 343 | N 96 | O 97 | S 5 | 0 | 0 |

- Molecule 19 is a protein called eL6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 19 | LE0 | 172 | Total 1410 | C 899 | N 229 | O 274 | S 8 | 0 | 0 |

- Molecule 20 is a protein called eS4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 20 | SE0 | 256 | Total 2056 | C 1320 | N 343 | O 386 | S 7 | 0 | 0 |

- Molecule 21 is a protein called eL32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | LEE | 123 | Total<br>1010 | C<br>643 | N<br>200 | O<br>164 | S<br>3 | 0 | 0 |

- Molecule 22 is a protein called eS30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 22 | SEE | 56 | Total<br>454 | C<br>281 | N<br>92 | O<br>77 | S<br>4 | 0 | 0 |

- Molecule 23 is a protein called uL30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 23 | LF0 | 230 | Total<br>1884 | C<br>1209 | N<br>327 | O<br>342 | S<br>6 | 0 | 0 |

- Molecule 24 is a protein called uS7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 24 | SF0 | 188 | Total<br>1457 | C<br>897 | N<br>277 | O<br>277 | S<br>6 | 0 | 0 |

- Molecule 25 is a protein called eL33.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 25 | LFF | 96 | Total<br>771 | C<br>486 | N<br>154 | O<br>129 | S<br>2 | 0 | 0 |

- Molecule 26 is a protein called eS31.

| Mol | Chain | Residues | Atoms | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|
| 26 | SFF | 68 | Total<br>266 | C<br>198 | N<br>68 | 0 | 0 |

- Molecule 27 is a protein called eL8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 27 | LG0 | 195 | Total<br>1573 | C<br>1010 | N<br>272 | O<br>283 | S<br>8 | 0 | 0 |

- Molecule 28 is a protein called eS6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 28 | SG0 | 201 | Total 1587 | C 990 | N 305 | O 286 | S 6 | 0 | 0 |

- Molecule 29 is a protein called eL34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 29 | LGG | 100 | Total 814 | C 506 | N 170 | O 133 | S 5 | 0 | 0 |

- Molecule 30 is a protein called RACK1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 30 | SGG | 330 | Total 2499 | C 1575 | N 414 | O 497 | S 13 | 0 | 0 |

- Molecule 31 is a protein called uL6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 31 | LH0 | 184 | Total 1452 | C 930 | N 253 | O 258 | S 11 | 0 | 0 |

- Molecule 32 is a protein called eS7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 32 | SH0 | 155 | Total 1265 | C 812 | N 208 | O 239 | S 6 | 0 | 0 |

- Molecule 33 is a protein called uL29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 33 | LHH | 120 | Total 1017 | C 640 | N 194 | O 179 | S 4 | 0 | 0 |

- Molecule 34 is a protein called uL16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 34 | LI0 | 216 | Total 1743 | C 1102 | N 332 | O 298 | S 11 | 0 | 0 |

- Molecule 35 is a protein called eS8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 35 | SI0 | 158 | Total<br>1259 | C<br>784 | N<br>238 | O<br>234 | S<br>3 | 0 | 0 |

- Molecule 36 is a protein called eL36.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 36 | LII | 93 | Total<br>765 | C<br>489 | N<br>148 | O<br>126 | S<br>2 | 0 | 0 |

- Molecule 37 is a protein called uL5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 37 | LJ0 | 168 | Total<br>1348 | C<br>854 | N<br>246 | O<br>241 | S<br>7 | 0 | 0 |

- Molecule 38 is a protein called uS4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 38 | SJ0 | 171 | Total<br>1382 | C<br>877 | N<br>245 | O<br>258 | S<br>2 | 0 | 0 |

- Molecule 39 is a protein called eL37.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 39 | LJJ | 90 | Total<br>719 | C<br>450 | N<br>152 | O<br>110 | S<br>7 | 0 | 0 |

- Molecule 40 is a protein called eL13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 40 | LL0 | 162 | Total<br>1328 | C<br>831 | N<br>265 | O<br>225 | S<br>7 | 0 | 0 |

- Molecule 41 is a protein called uS17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 41 | SL0 | 157 | Total<br>1269 | C<br>805 | N<br>227 | O<br>231 | S<br>6 | 0 | 0 |

- Molecule 42 is a protein called eL39.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 42 | LLL | 51 | Total<br>445 | C<br>283 | N<br>93 | O<br>68 | S<br>1 | 0 | 0 |

- Molecule 43 is a protein called eL14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 43 | LM0 | 91 | Total<br>731 | C<br>471 | N<br>122 | O<br>137 | S<br>1 | 0 | 0 |

- Molecule 44 is a protein called eL40.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 44 | LMM | 50 | Total<br>402 | C<br>241 | N<br>87 | O<br>70 | S<br>4 | 0 | 0 |

- Molecule 45 is a protein called eS12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 45 | SM0 | 119 | Total<br>929 | C<br>582 | N<br>168 | O<br>174 | S<br>5 | 0 | 0 |

- Molecule 46 is a protein called eL15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 46 | LN0 | 203 | Total<br>1677 | C<br>1046 | N<br>342 | O<br>280 | S<br>9 | 0 | 0 |

- Molecule 47 is a protein called uS15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 47 | SN0 | 147 | Total<br>1177 | C<br>748 | N<br>212 | O<br>211 | S<br>6 | 0 | 0 |

- Molecule 48 is a protein called MDF2.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 48 | LNN | 80 | Total<br>577 | C<br>345 | N<br>125 | O<br>107 | 0 | 0 |

- Molecule 49 is a protein called MDF1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 49 | SNN | 167 | Total<br>1336 | C<br>844 | N<br>221 | O<br>261 | S<br>10 | 0 | 0 |

- Molecule 50 is a protein called uL13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 50 | LO0 | 173 | Total<br>1371 | C<br>885 | N<br>249 | O<br>226 | S<br>11 | 0 | 0 |

- Molecule 51 is a protein called uS11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 51 | SO0 | 131 | Total<br>977 | C<br>602 | N<br>191 | O<br>177 | S<br>7 | 0 | 0 |

- Molecule 52 is a protein called eL42.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 52 | LOO | 98 | Total<br>792 | C<br>497 | N<br>162 | O<br>126 | S<br>7 | 0 | 0 |

- Molecule 53 is a protein called uL22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 53 | LP0 | 154 | Total<br>1235 | C<br>778 | N<br>242 | O<br>210 | S<br>5 | 0 | 0 |

- Molecule 54 is a protein called uS19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 54 | SP0 | 118 | Total<br>942 | C<br>601 | N<br>174 | O<br>160 | S<br>7 | 0 | 0 |

- Molecule 55 is a protein called eL43.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 55 | LPP | 83 | Total<br>642 | C<br>403 | N<br>122 | O<br>111 | S<br>6 | 0 | 0 |

- Molecule 56 is a protein called eL18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 56 | LQ0 | 184 | Total<br>1460 | C<br>920 | N<br>273 | O<br>260 | S<br>7 | 0 | 0 |

- Molecule 57 is a protein called uS9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 57 | SQ0 | 152 | Total<br>1205 | C<br>773 | N<br>208 | O<br>215 | S<br>9 | 0 | 0 |

- Molecule 58 is a protein called eL19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 58 | LR0 | 165 | Total<br>1342 | C<br>840 | N<br>263 | O<br>232 | S<br>7 | 0 | 0 |

- Molecule 59 is a protein called eS17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 59 | SR0 | 117 | Total<br>958 | C<br>604 | N<br>173 | O<br>176 | S<br>5 | 0 | 0 |

- Molecule 60 is a protein called eL20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 60 | LS0 | 179 | Total<br>1472 | C<br>952 | N<br>251 | O<br>265 | S<br>4 | 0 | 0 |

- Molecule 61 is a protein called uS13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 61 | SS0 | 151 | Total<br>1186 | C<br>731 | N<br>237 | O<br>209 | S<br>9 | 0 | 0 |

- Molecule 62 is a protein called eL21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 62 | LT0 | 159 | Total<br>1310 | C<br>844 | N<br>242 | O<br>223 | S<br>1 | 0 | 0 |

- Molecule 63 is a protein called eS19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 63 | ST0 | 131 | Total<br>1048 | C<br>663 | N<br>173 | O<br>204 | S<br>8 | 0 | 0 |

- Molecule 64 is a protein called eL22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 64 | LU0 | 97 | Total<br>790 | C<br>502 | N<br>138 | O<br>148 | S<br>2 | 0 | 0 |

- Molecule 65 is a protein called uS10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 65 | SU0 | 96 | Total<br>764 | C<br>495 | N<br>126 | O<br>141 | S<br>2 | 0 | 0 |

- Molecule 66 is a protein called uL14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 66 | LV0 | 135 | Total<br>1040 | C<br>650 | N<br>203 | O<br>180 | S<br>7 | 0 | 0 |

- Molecule 67 is a protein called eS21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 67 | SV0 | 63 | Total<br>491 | C<br>304 | N<br>88 | O<br>97 | S<br>2 | 0 | 0 |

- Molecule 68 is a protein called eL24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 68 | LW0 | 90 | Total<br>667 | C<br>415 | N<br>131 | O<br>120 | S<br>1 | 0 | 0 |

- Molecule 69 is a protein called uS8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 69 | SW0 | 127 | Total<br>1018 | C<br>645 | N<br>188 | O<br>179 | S<br>6 | 0 | 0 |

- Molecule 70 is a protein called uL23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 70 | LX0 | 93 | Total 734 | C 466 | N 137 | O 127 | S 4 | 0 | 0 |

- Molecule 71 is a protein called uS12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 71 | SX0 | 138 | Total 1069 | C 687 | N 193 | O 187 | S 2 | 0 | 0 |

- Molecule 72 is a protein called msL1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 72 | LXX | 55 | Total 462 | C 297 | N 84 | O 80 | S 1 | 0 | 0 |

- Molecule 73 is a protein called uL24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 73 | LY0 | 134 | Total 1088 | C 682 | N 203 | O 198 | S 5 | 0 | 0 |

- Molecule 74 is a protein called eS24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 74 | SY0 | 125 | Total 1025 | C 637 | N 198 | O 186 | S 4 | 0 | 0 |

- Molecule 75 is a protein called eL27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 75 | LZ0 | 125 | Total 1006 | C 647 | N 178 | O 176 | S 5 | 0 | 0 |

- Molecule 76 is a protein called eS25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 76 | SZ0 | 91 | Total 724 | C 462 | N 128 | O 131 | S 3 | 0 | 0 |

- Molecule 77 is a protein called eS10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 77 | SK0 | 85 | Total 712 | C 456 | N 118 | O 135 | S 3 | 0 | 0 |

- Molecule 78 is a RNA chain called 23S rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 78 | L50 | 2313 | Total 49259 | C 22082 | N 8715 | O 16149 | P 2313 | 0 | 0 |

- Molecule 79 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 79 | S60 | 49 | Total 49 | Mg 49 | 0 |
| 79 | L70 | 1 | Total 1 | Mg 1 | 0 |
| 79 | LJJ | 1 | Total 1 | Mg 1 | 0 |
| 79 | LV0 | 1 | Total 1 | Mg 1 | 0 |
| 79 | L50 | 122 | Total 122 | Mg 122 | 0 |

- Molecule 80 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 80 | SAA | 1 | Total 1 | Zn 1 | 0 |
| 80 | SBB | 1 | Total 1 | Zn 1 | 0 |
| 80 | SDD | 1 | Total 1 | Zn 1 | 0 |
| 80 | LGG | 1 | Total 1 | Zn 1 | 0 |
| 80 | LJJ | 1 | Total 1 | Zn 1 | 0 |
| 80 | LMM | 1 | Total 1 | Zn 1 | 0 |
| 80 | SNN | 1 | Total 1 | Zn 1 | 0 |
| 80 | LOO | 1 | Total 1 | Zn 1 | 0 |

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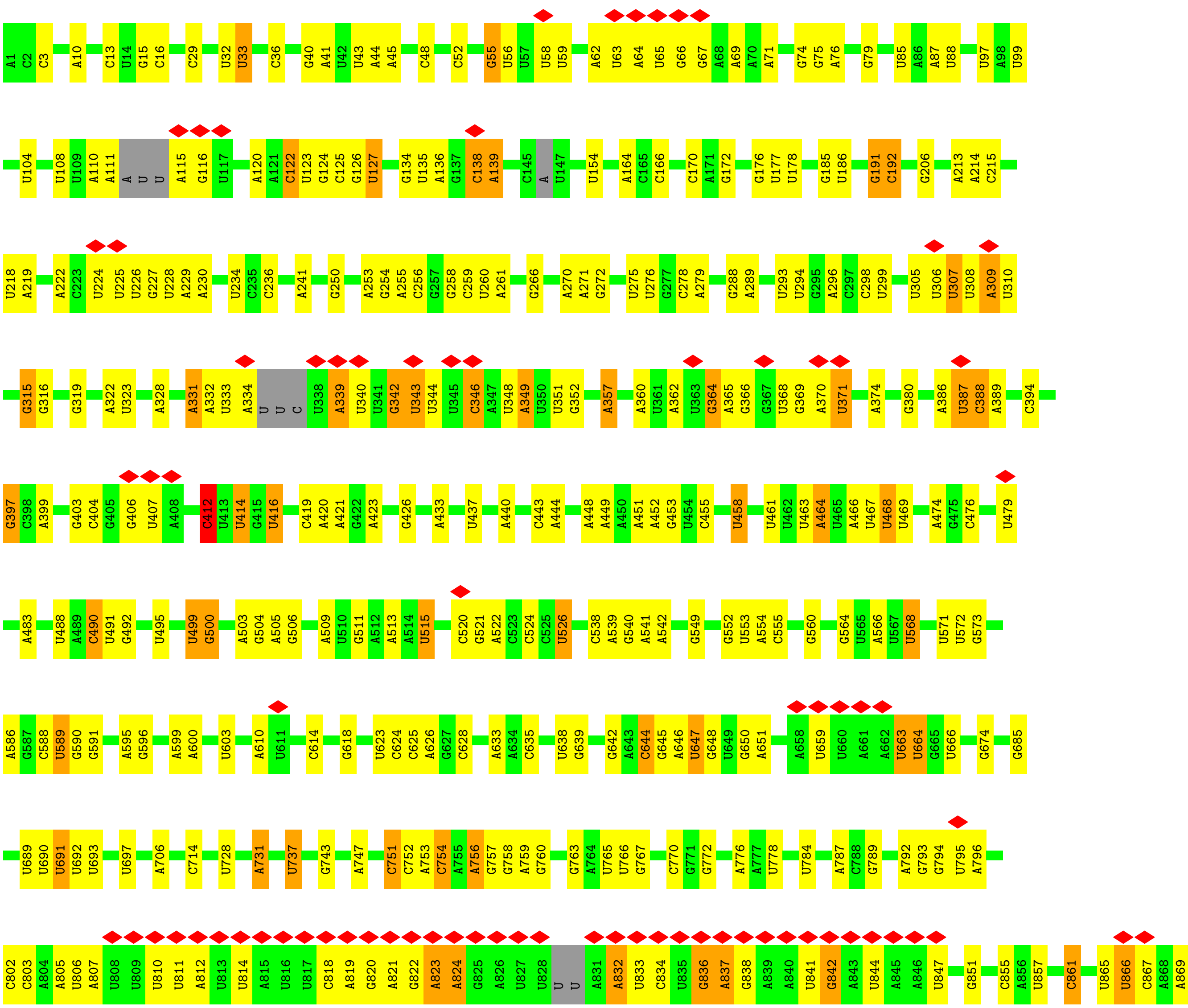
| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 80 | LPP | 1 | Total<br>1 | Zn<br>1 | 0 |

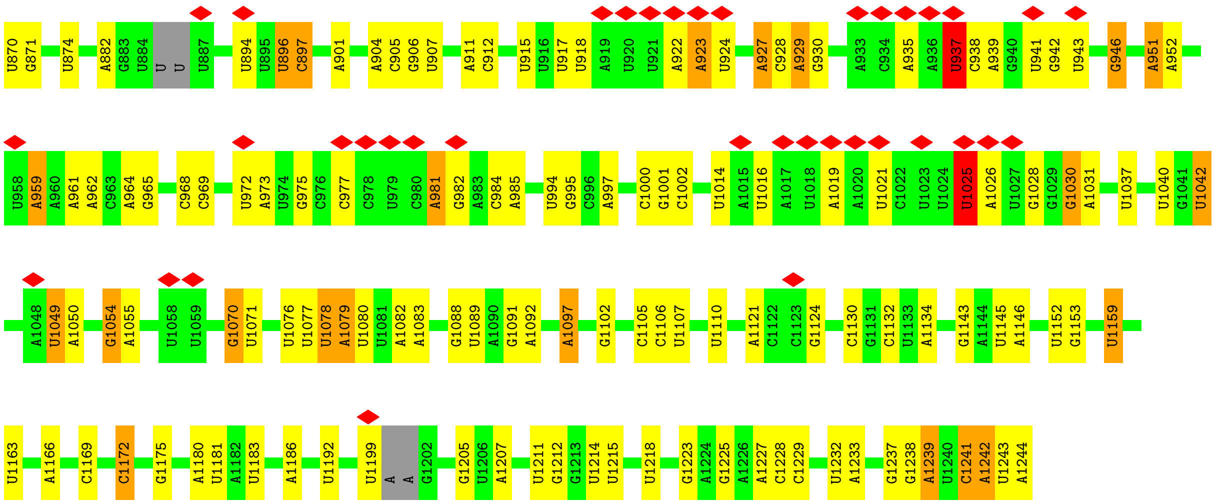
# 3 Residue-property plots

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 rRNA

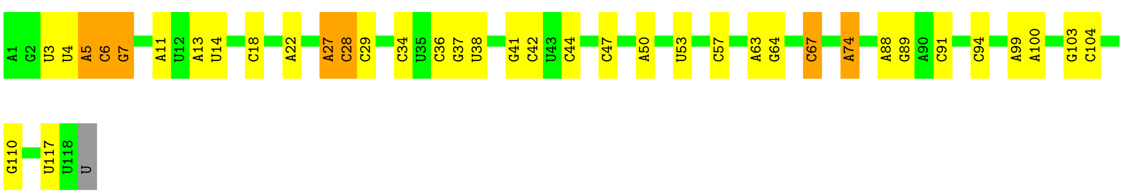
Chain S60:



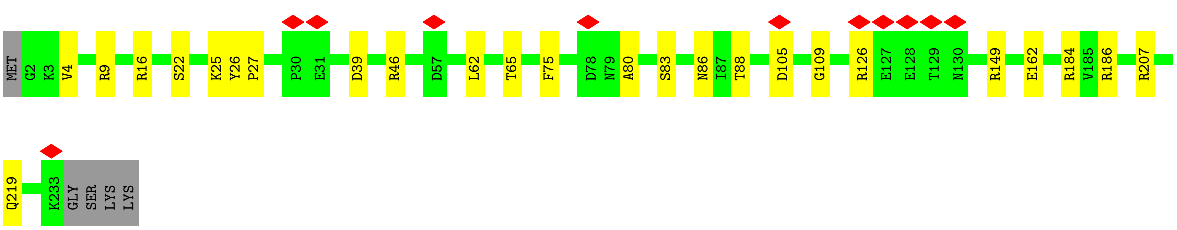

- Molecule 2: 5S rRNA

Chain L70:

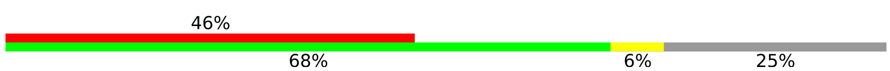

- Molecule 3: uL2

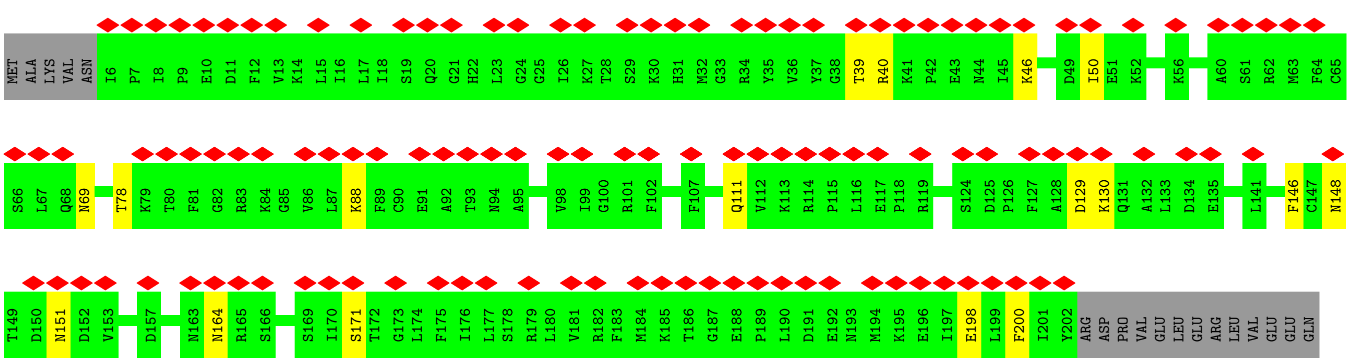
Chain LA0:


- Molecule 4: uS2

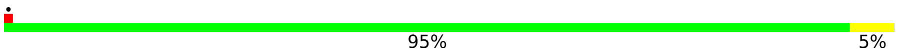
Chain SA0:

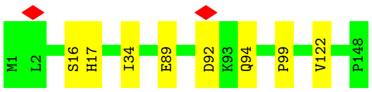



- Molecule 5: uL15

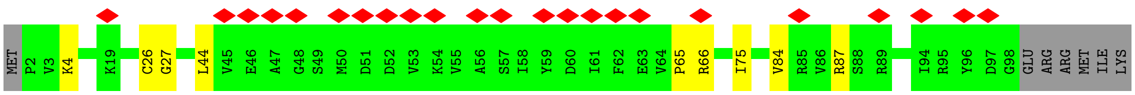
Chain LAA:



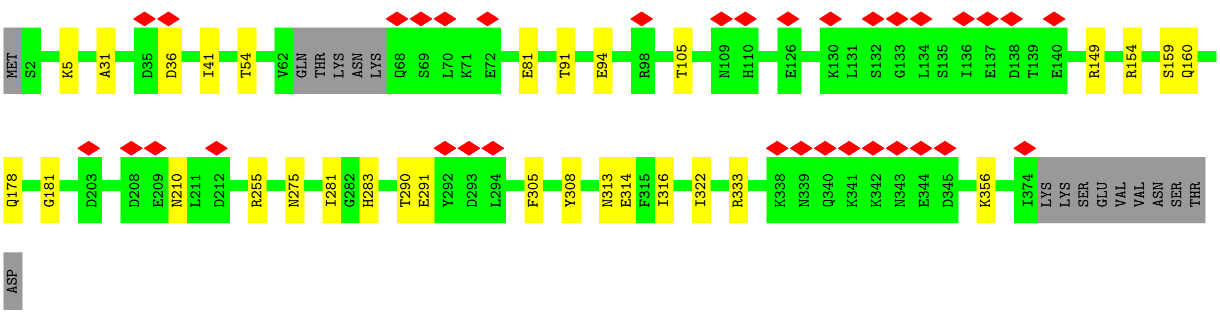

- Molecule 6: eS26

Chain SAA:

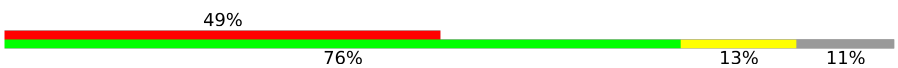

- Molecule 7: uL3

Chain LB0:


- Molecule 8: eS1

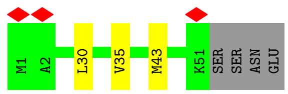
Chain SB0:





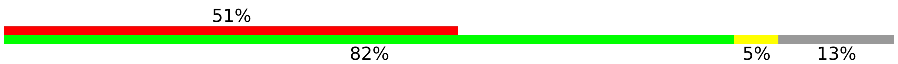
- Molecule 9: eL29

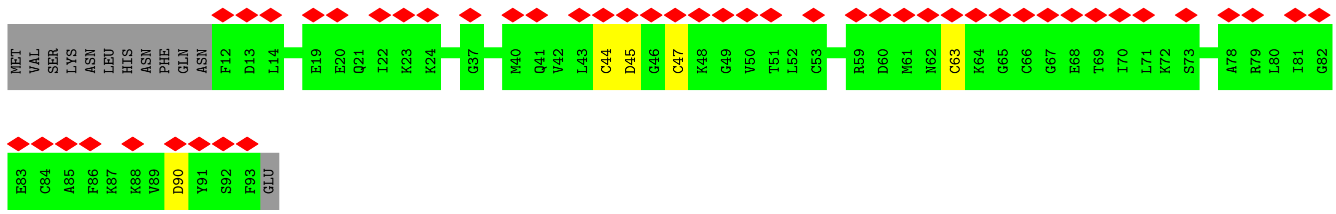
Chain LBB:


- Molecule 10: eS27

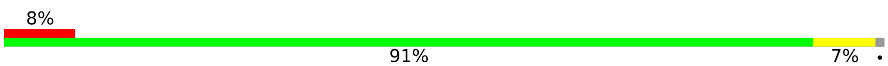
Chain SBB:

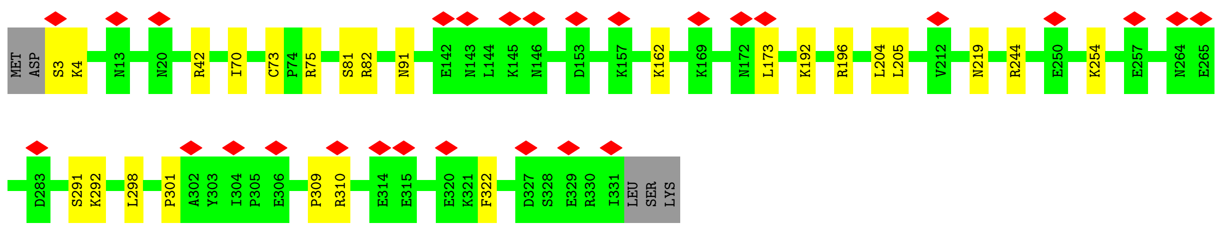



- Molecule 11: uL4

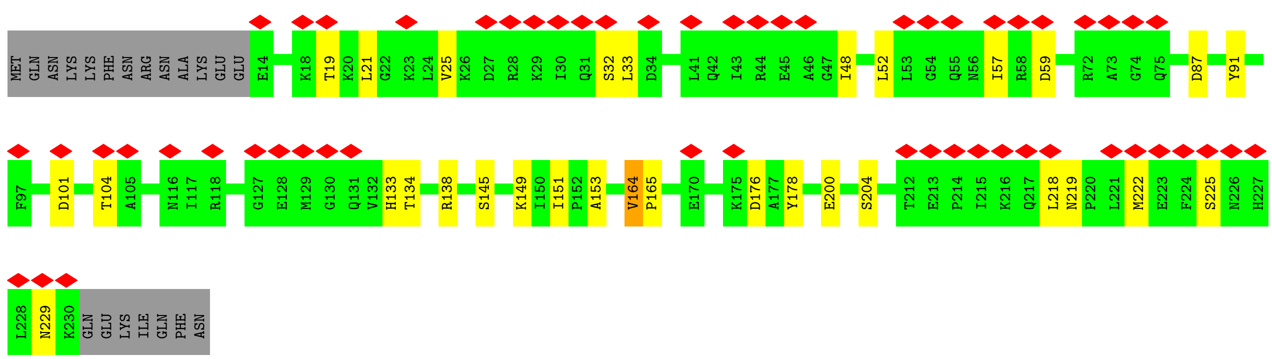
Chain LC0:



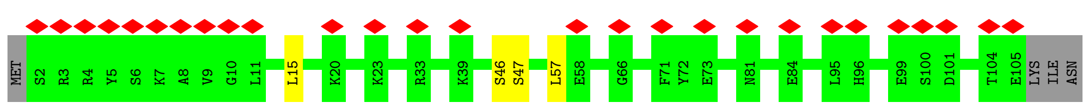

- Molecule 12: uS5

Chain SC0:

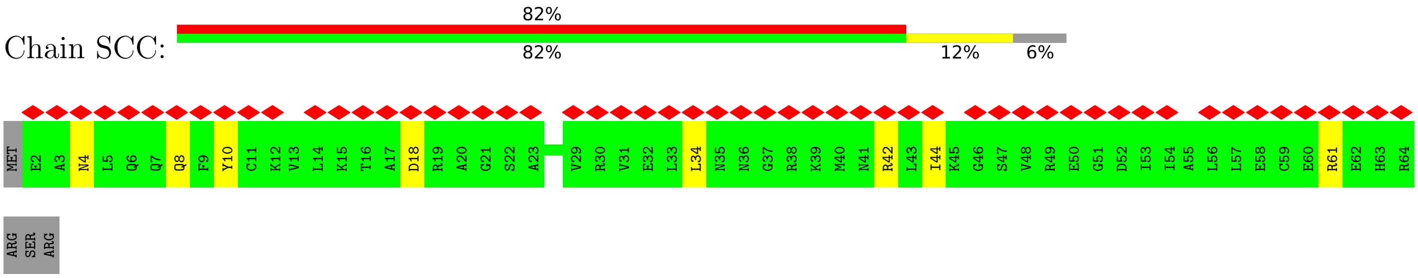

- Molecule 13: eL30

Chain LCC:

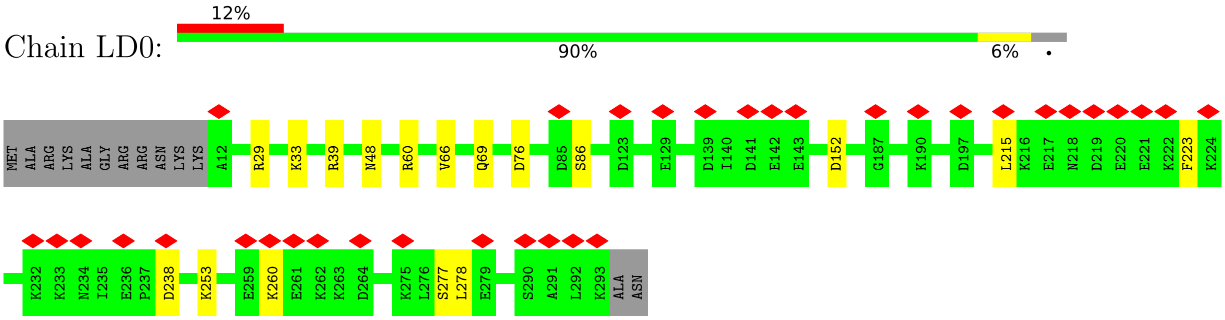

- Molecule 14: eS28

Chain SCC:



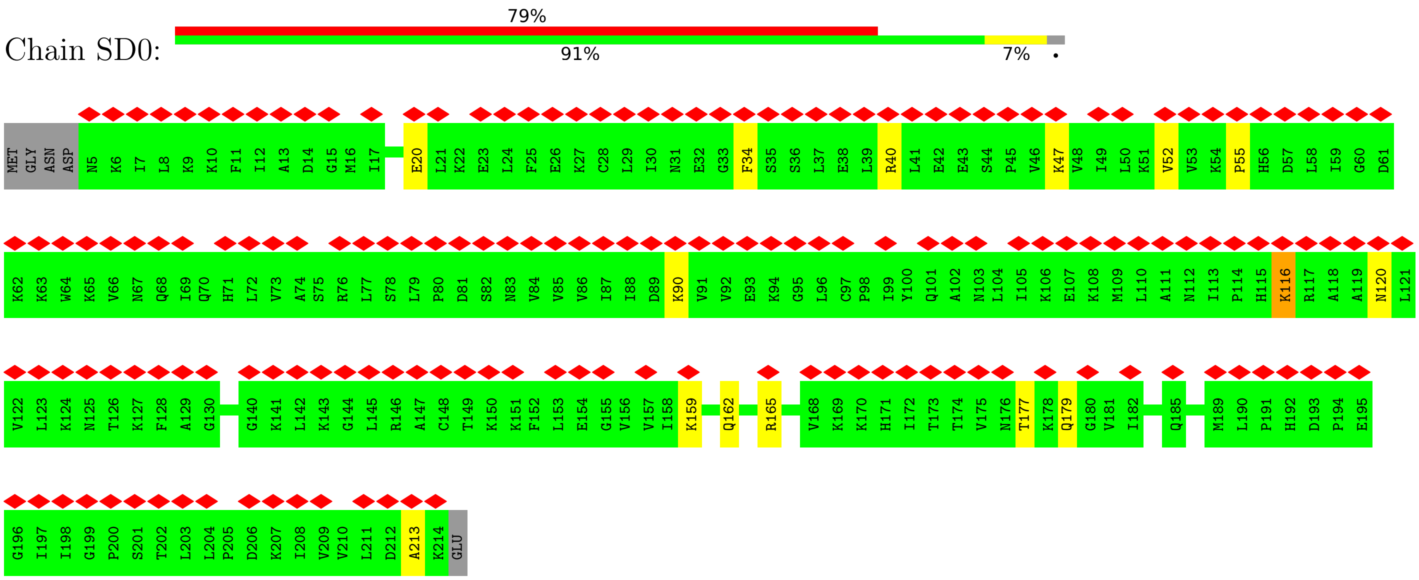

• Molecule 15: uL18

Chain LD0:



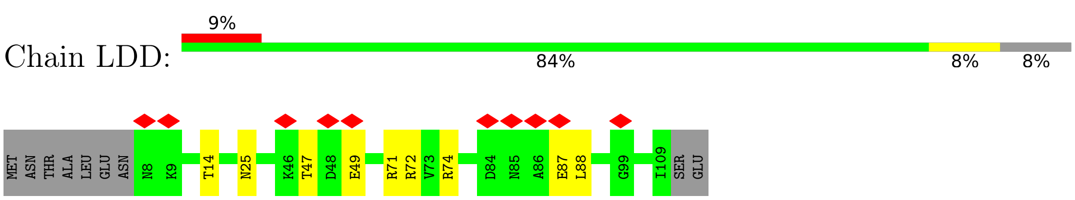

• Molecule 16: uS3

Chain SD0:



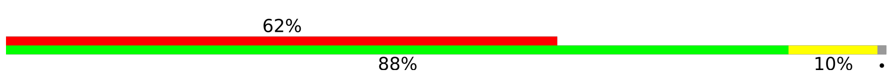

• Molecule 17: eL31

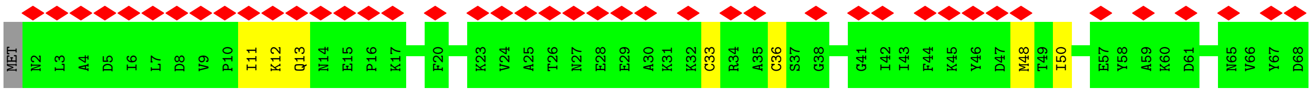
Chain LDD:




• Molecule 18: uS14

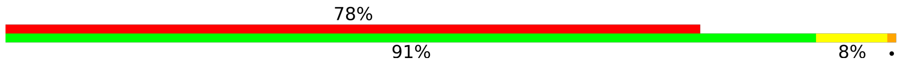
Chain SDD:






• Molecule 19: eL6

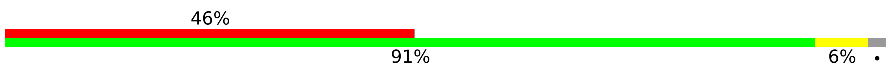
Chain LE0:

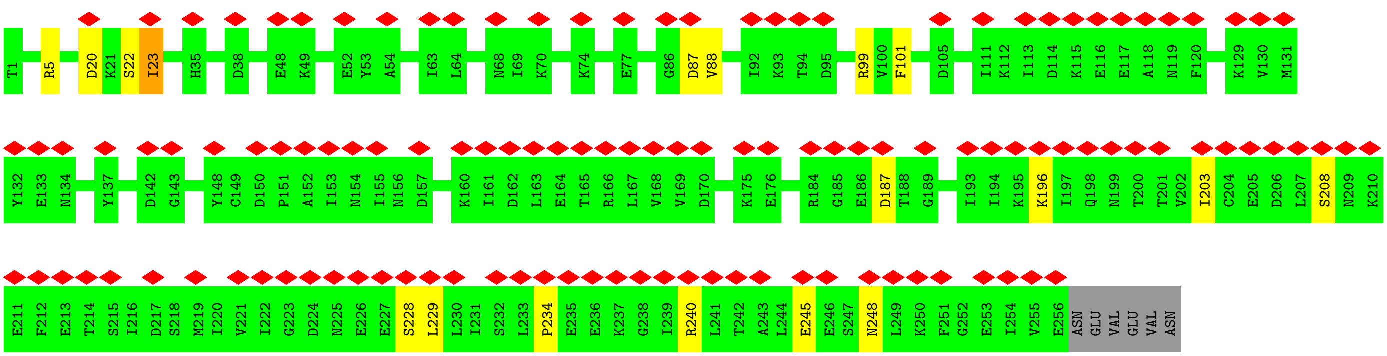




• Molecule 20: eS4

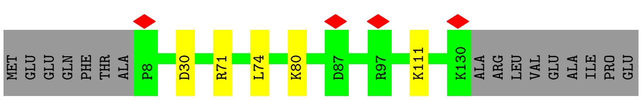
Chain SE0:



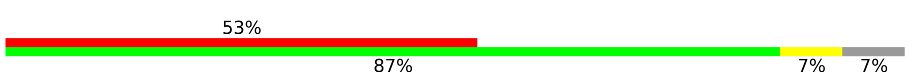

• Molecule 21: eL32

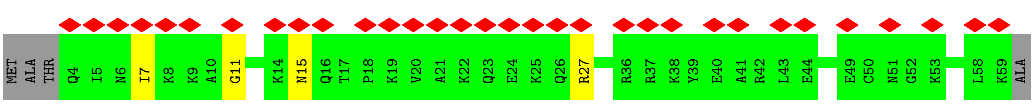
Chain LEE:


• Molecule 22: eS30

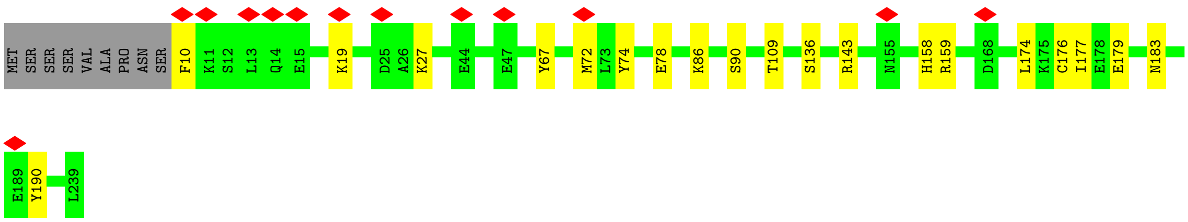
Chain SEE:



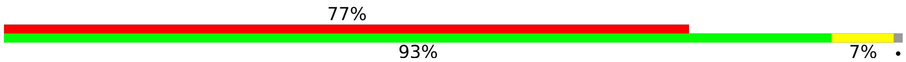

• Molecule 23: uL30

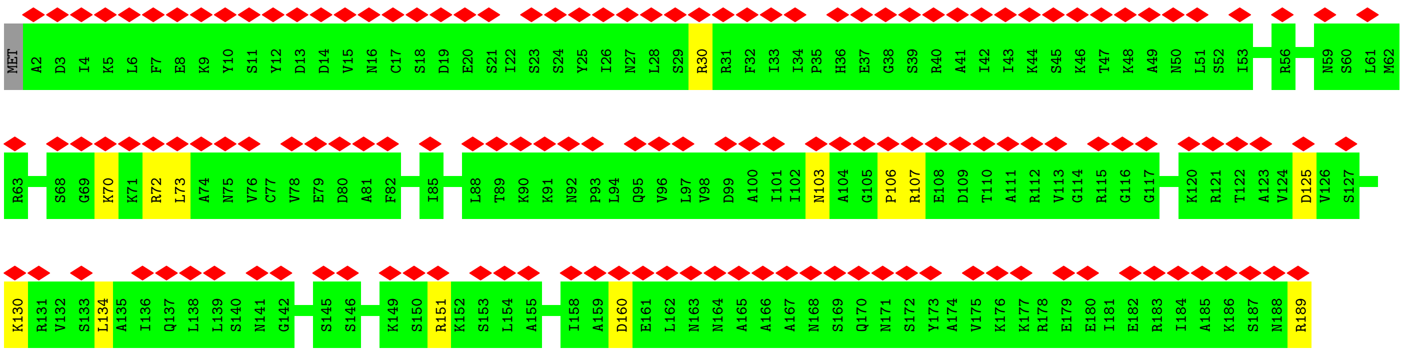
Chain LF0:


• Molecule 24: uS7

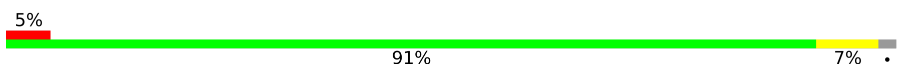
Chain SF0:

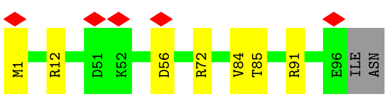



• Molecule 25: eL33

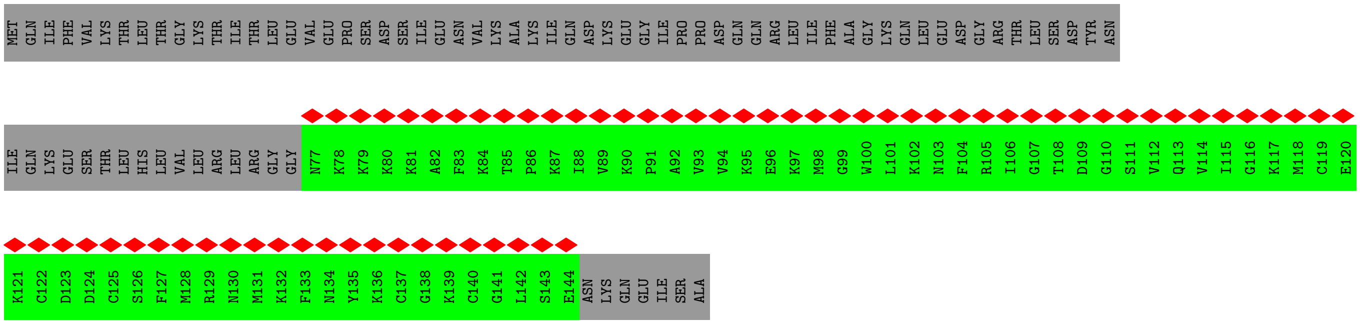
Chain LFF:



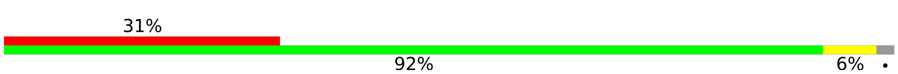

• Molecule 26: eS31

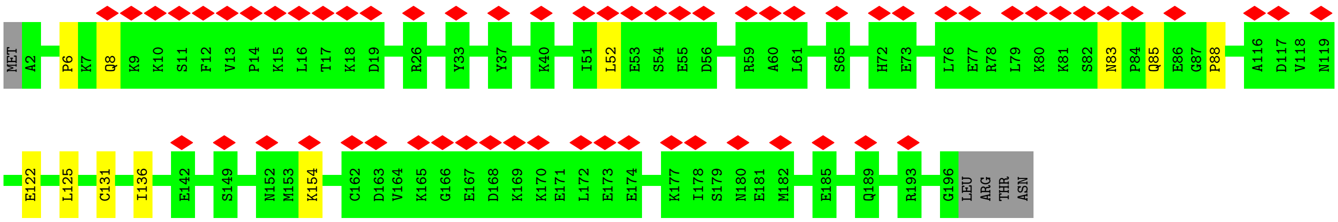
Chain SFF:

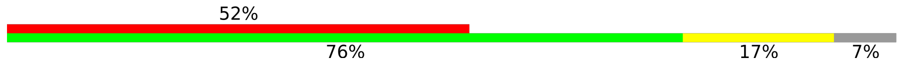

• Molecule 27: eL8

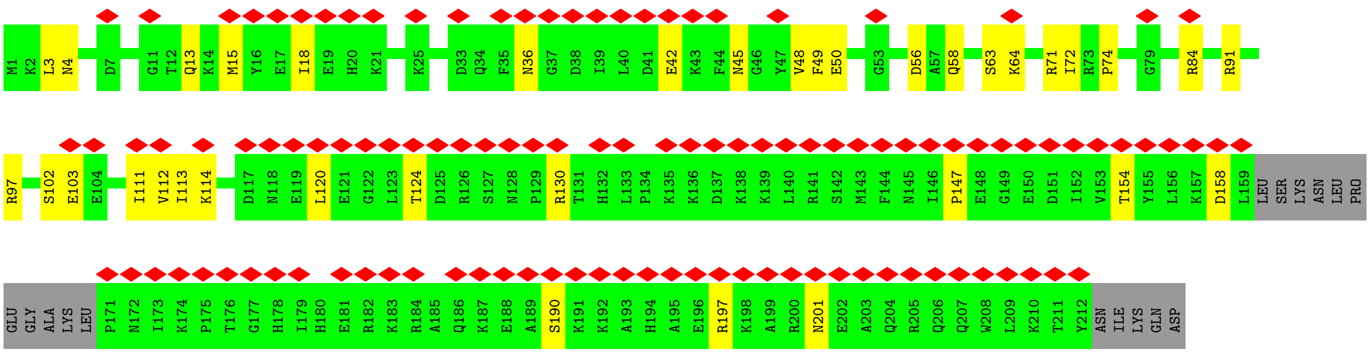
Chain LG0:






• Molecule 28: eS6

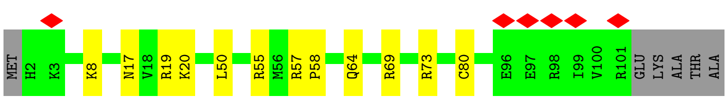
Chain SG0:


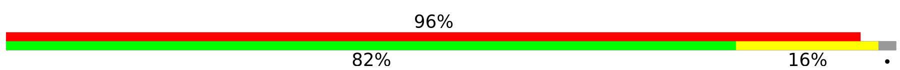

• Molecule 29: eL34

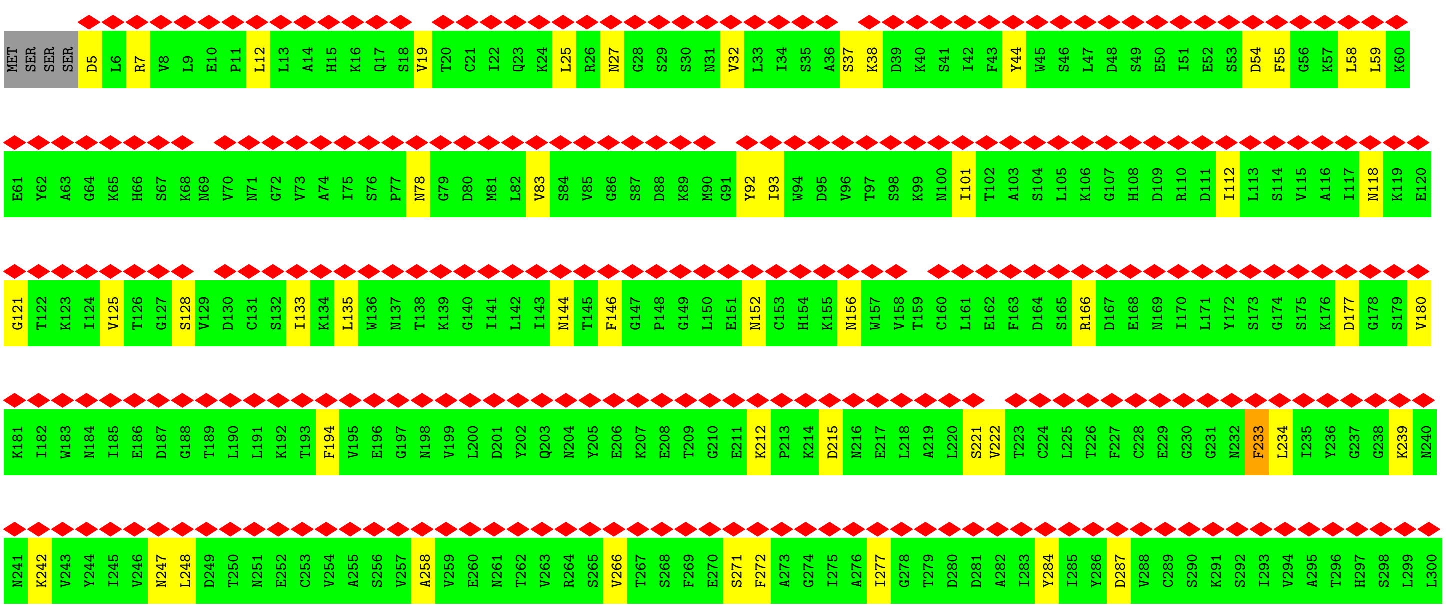
Chain LGG:

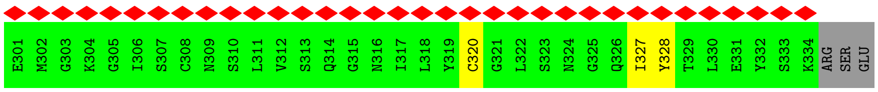





• Molecule 30: RACK1

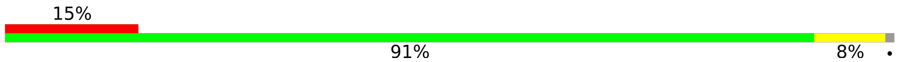
Chain SGG:


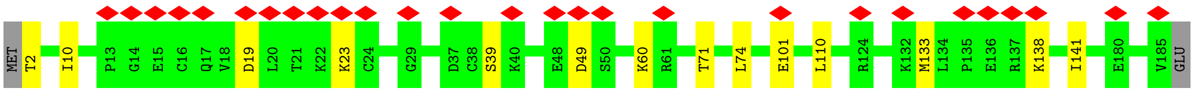






• Molecule 31: uL6

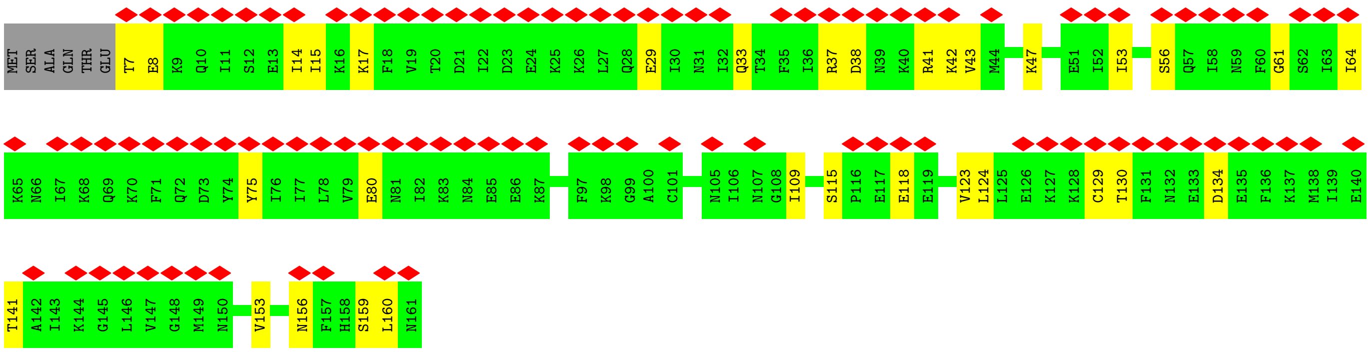
Chain LH0:



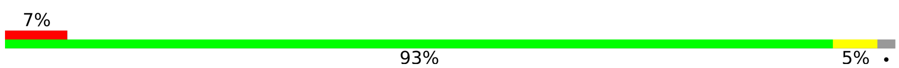

• Molecule 32: eS7

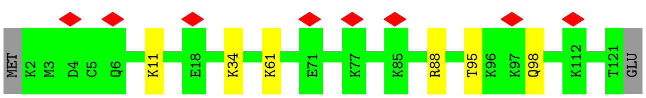
Chain SH0:


• Molecule 33: uL29

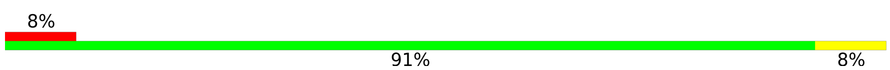
Chain LHH:

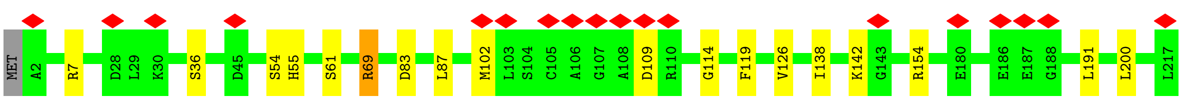



• Molecule 34: uL16

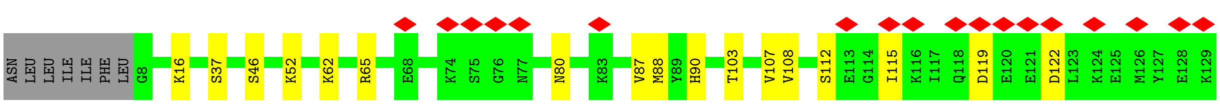
Chain LI0:

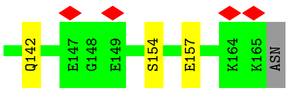


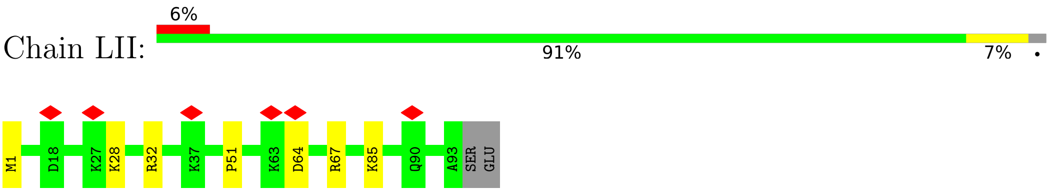

• Molecule 35: eS8

Chain SI0:

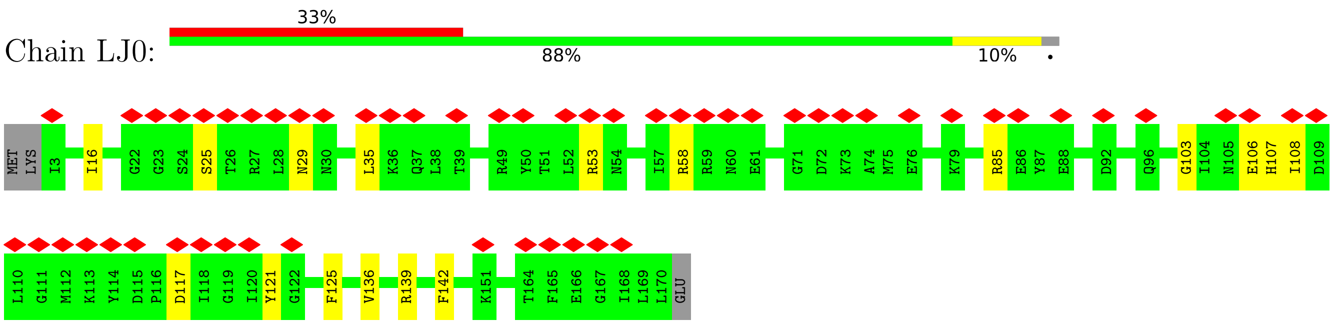





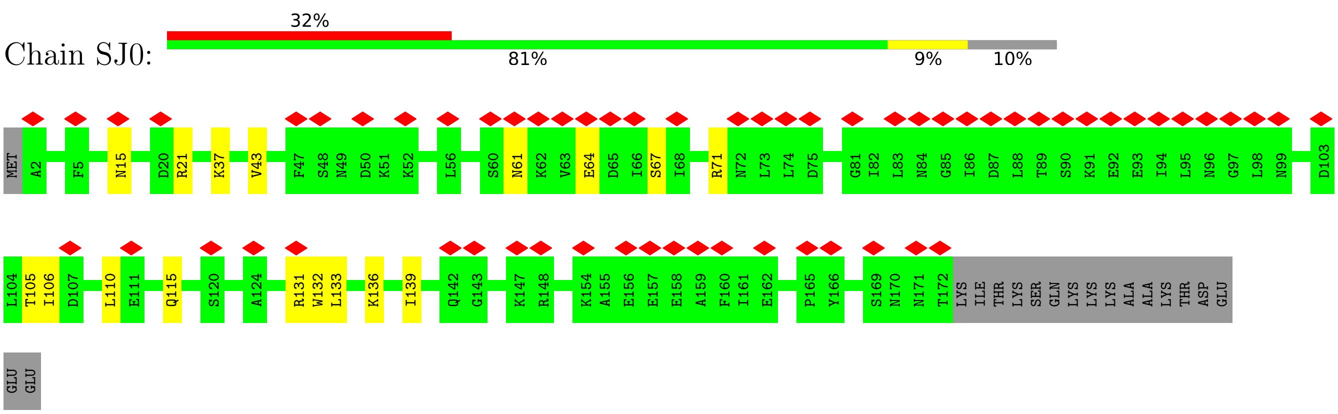

• Molecule 36: eL36



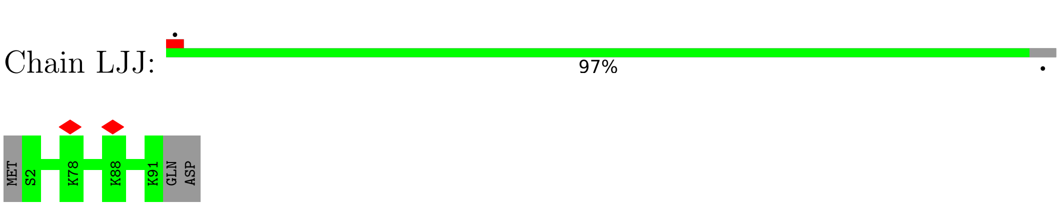

• Molecule 37: uL5



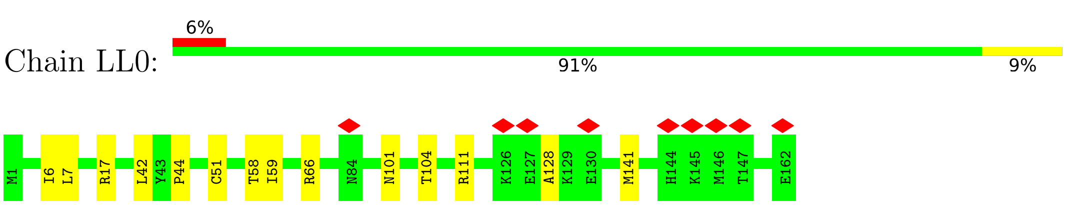

• Molecule 38: uS4



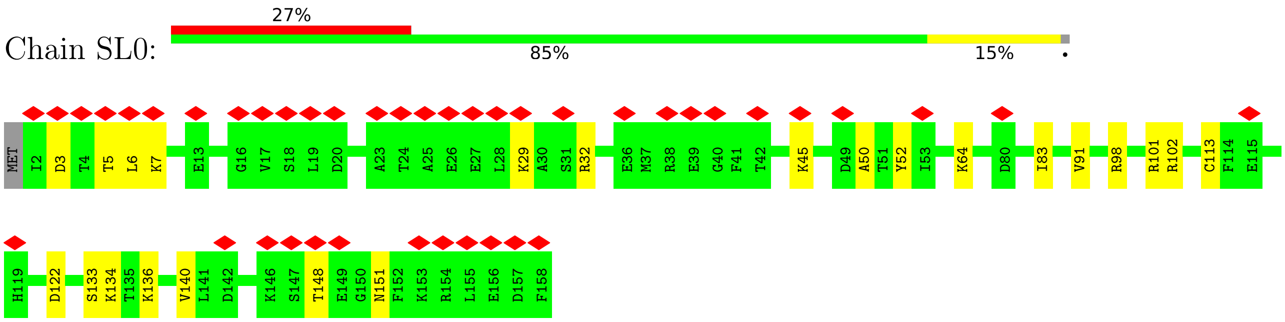

• Molecule 39: eL37



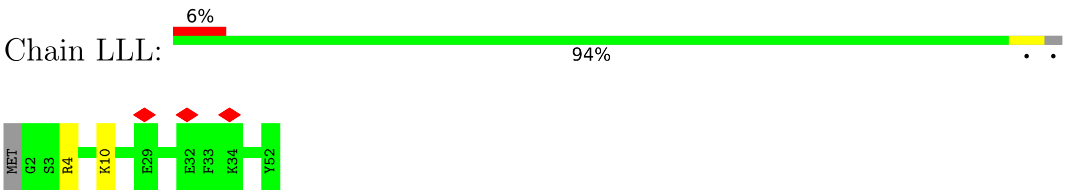

• Molecule 40: eL13



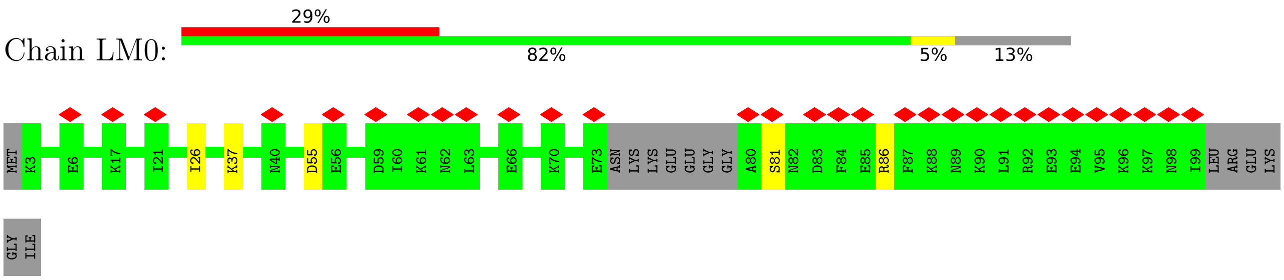
• Molecule 41: uS17



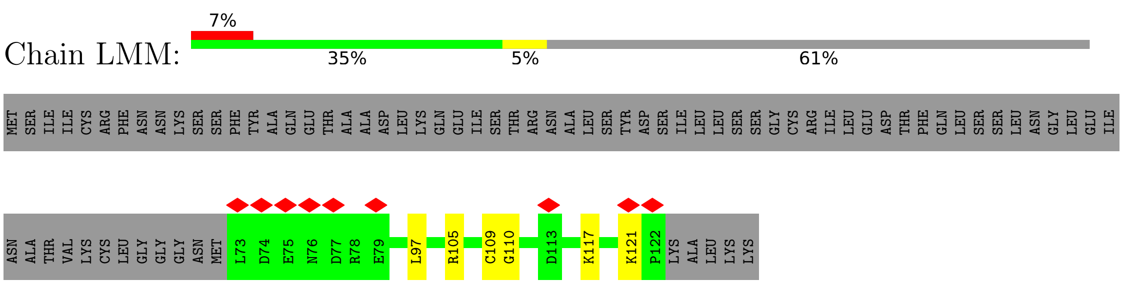

• Molecule 42: eL39



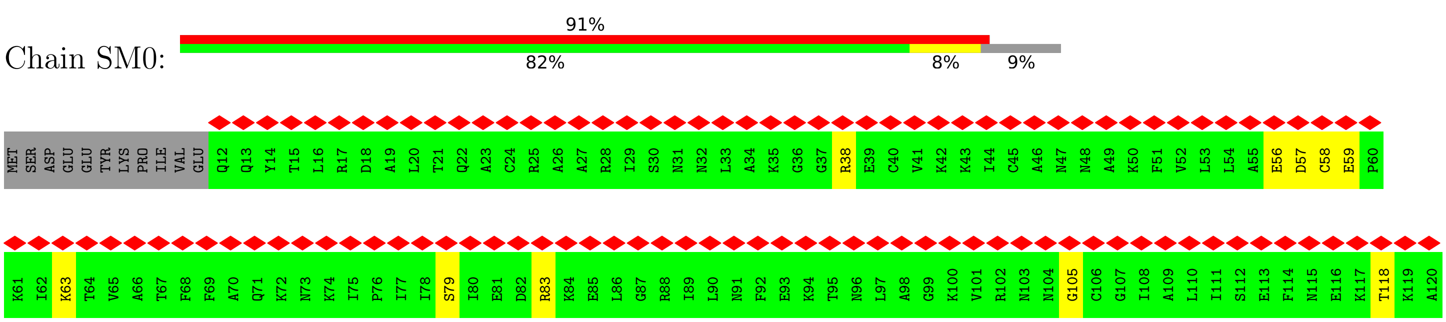

• Molecule 43: eL14

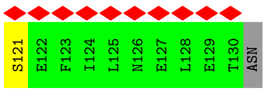



• Molecule 44: eL40



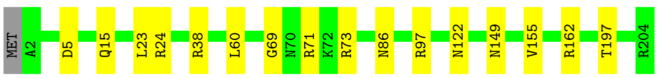

• Molecule 45: eS12





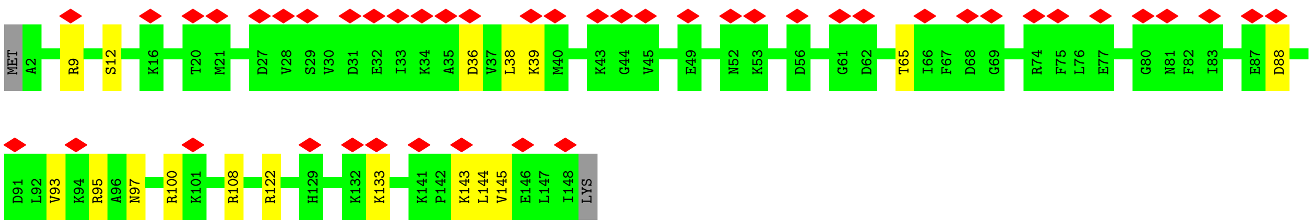

- Molecule 46: eL15

Chain LN0:

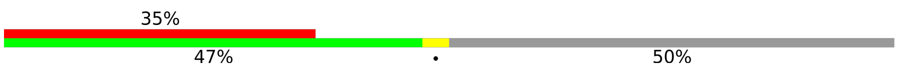

- Molecule 47: uS15

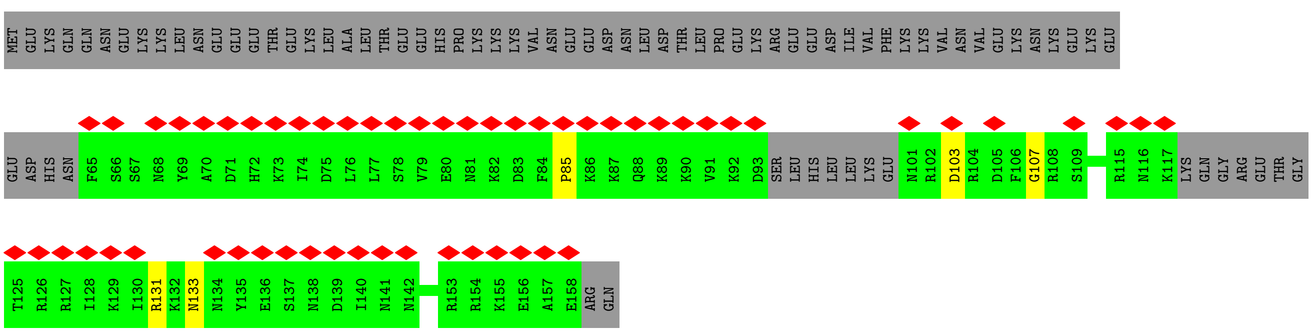
Chain SN0:


- Molecule 48: MDF2

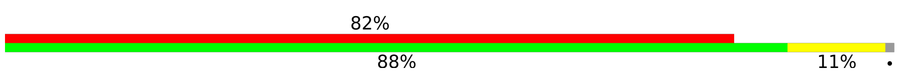
Chain LNN:

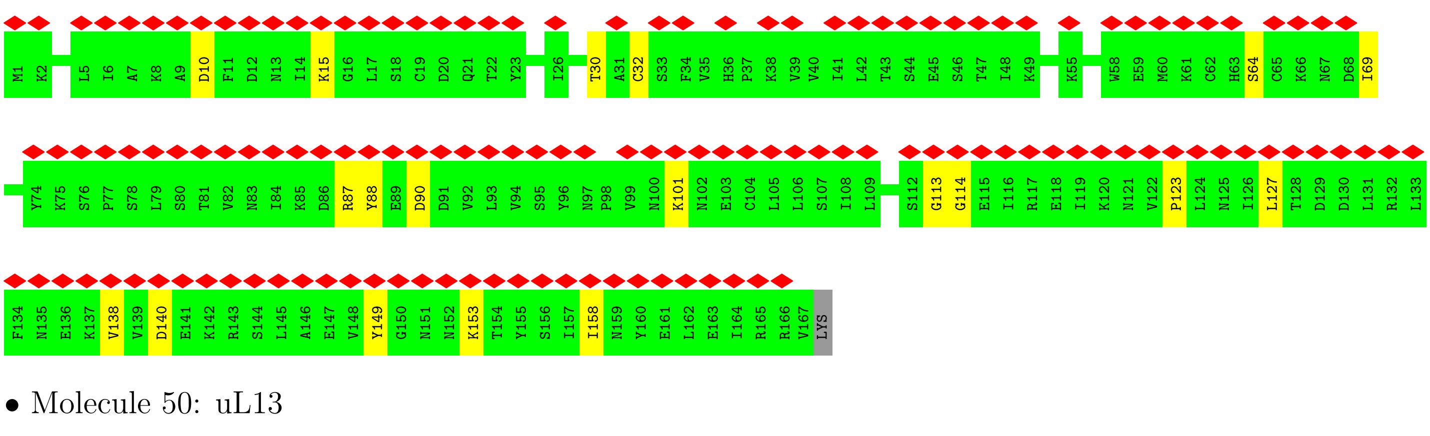



- Molecule 49: MDF1

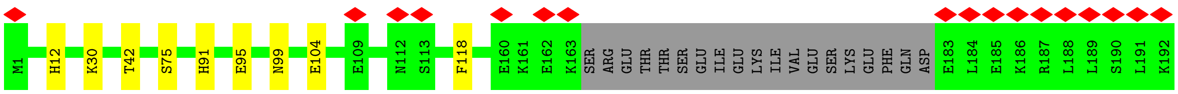
Chain SNN:



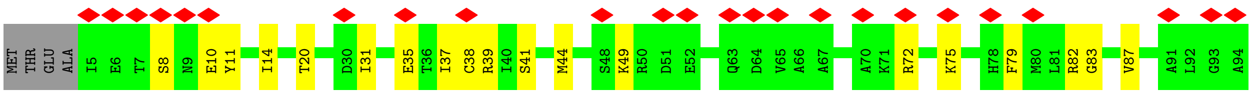

- Molecule 50: uL13

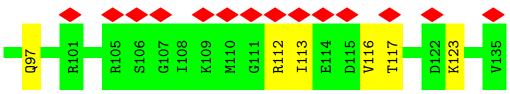
Chain LO0:


- Molecule 51: uS11

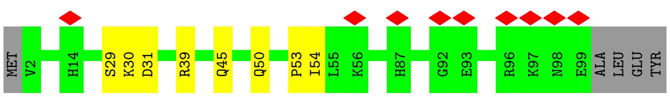
Chain SO0:

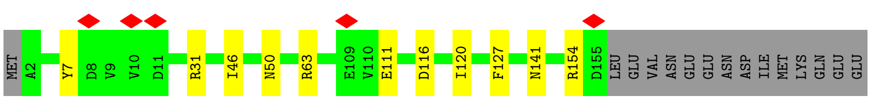

- Molecule 52: eL42

Chain LOO:

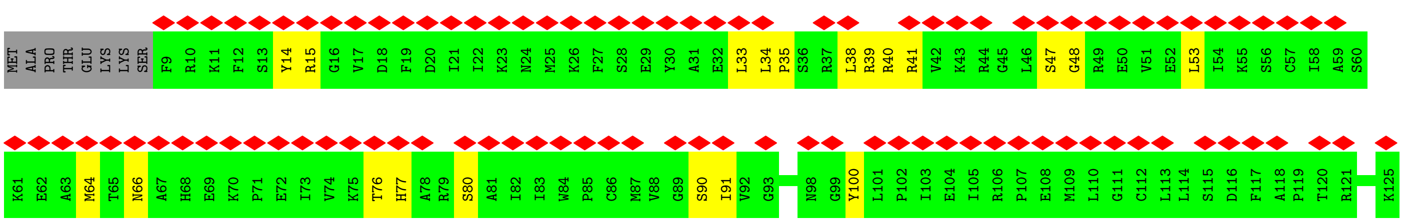

- Molecule 53: uL22

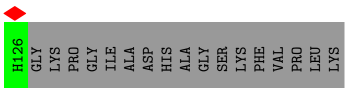
Chain LP0:


- Molecule 54: uS19

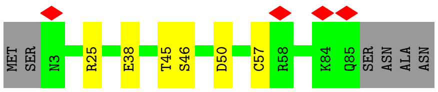
Chain SP0:

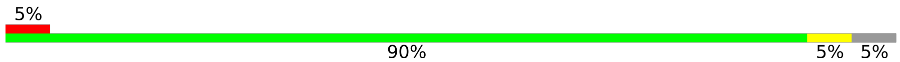



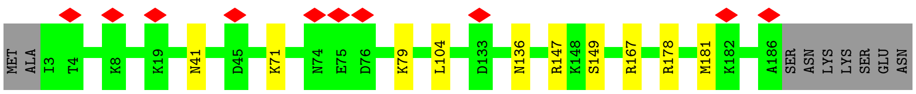

- Molecule 55: eL43

Chain LPP:

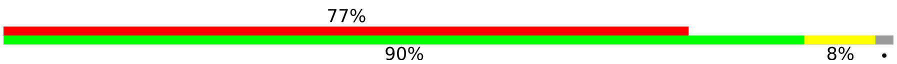


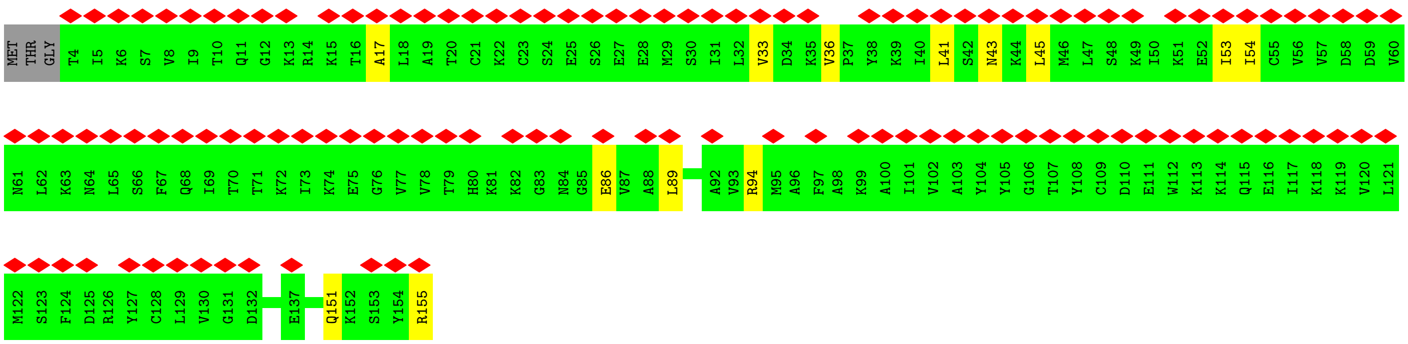

• Molecule 56: eL18

Chain LQ0:



• Molecule 57: uS9

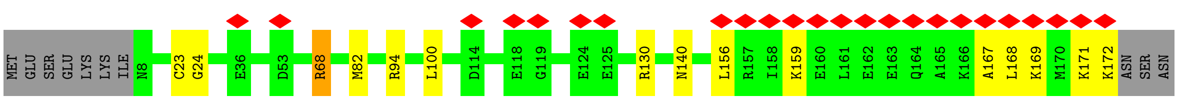
Chain SQ0:



• Molecule 58: eL19

Chain LR0:

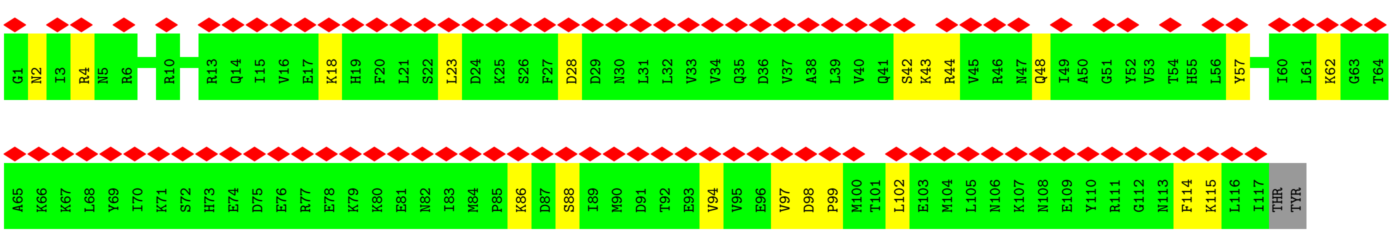




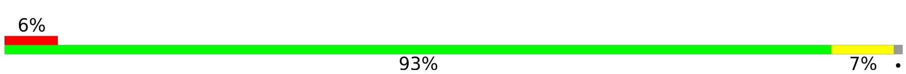

• Molecule 59: eS17

Chain SR0:



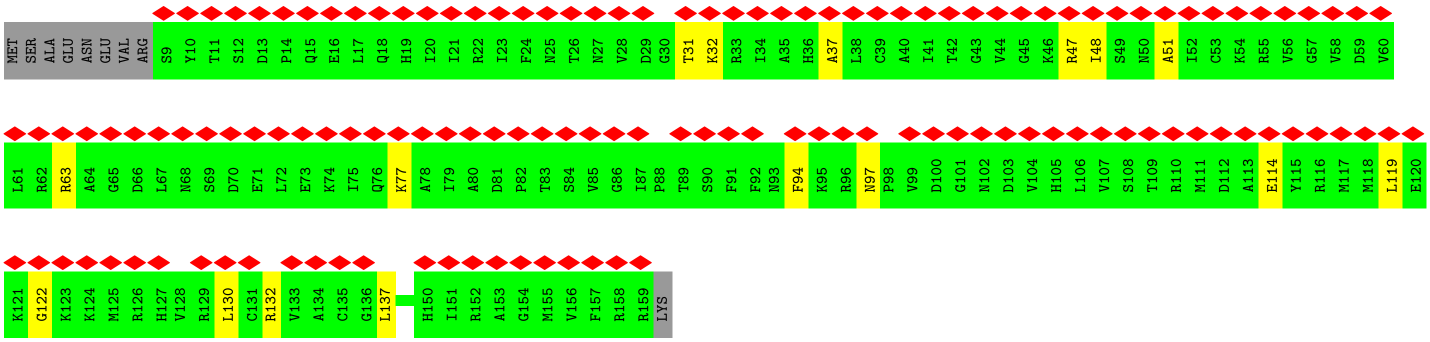



• Molecule 60: eL20

Chain LS0:


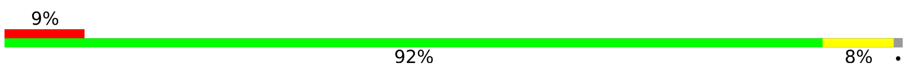

• Molecule 61: uS13

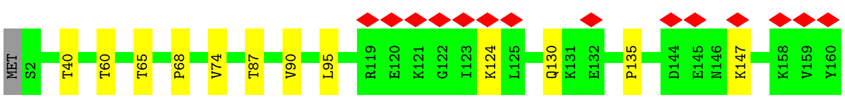
Chain SS0:


• Molecule 62: eL21

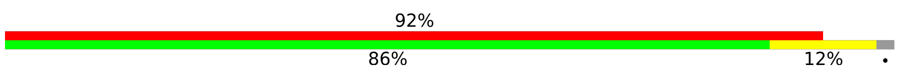
Chain LT0:

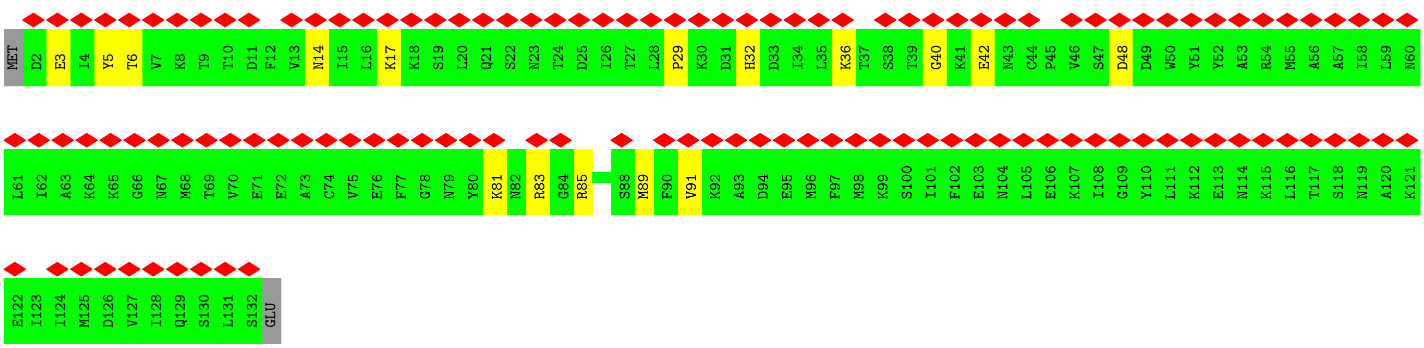



• Molecule 63: eS19

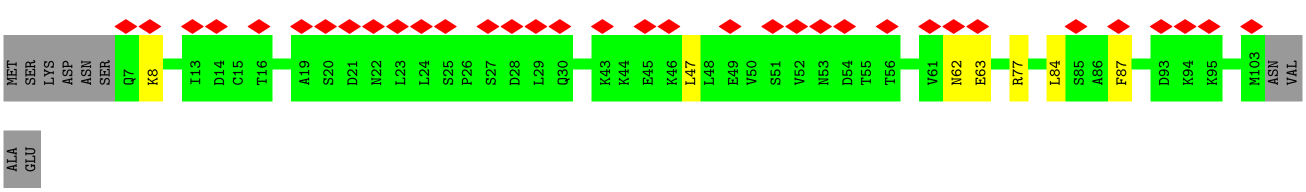
Chain ST0:



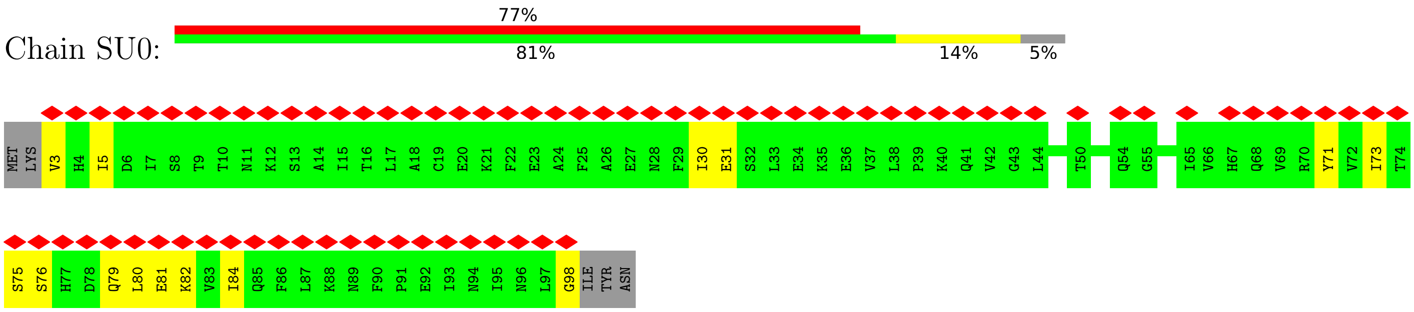




• Molecule 64: eL22

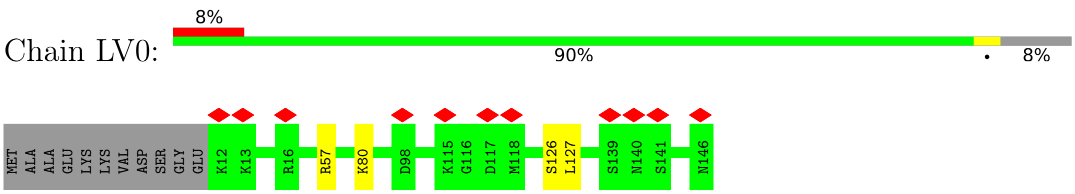
Chain LU0:

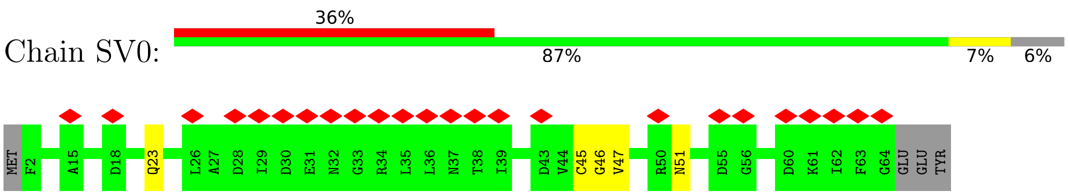
• Molecule 65: uS10



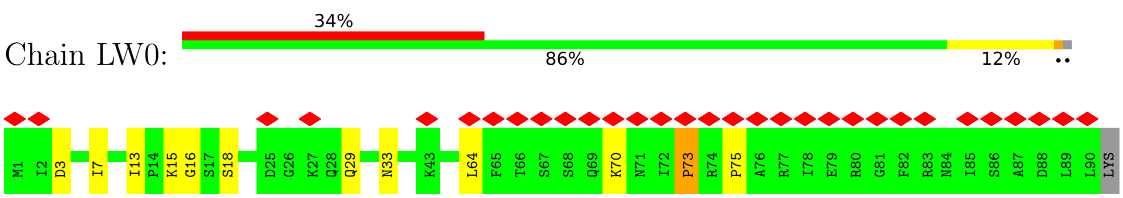

• Molecule 66: uL14



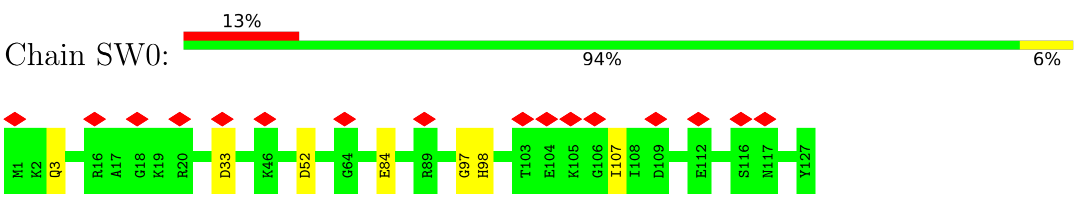

• Molecule 67: eS21



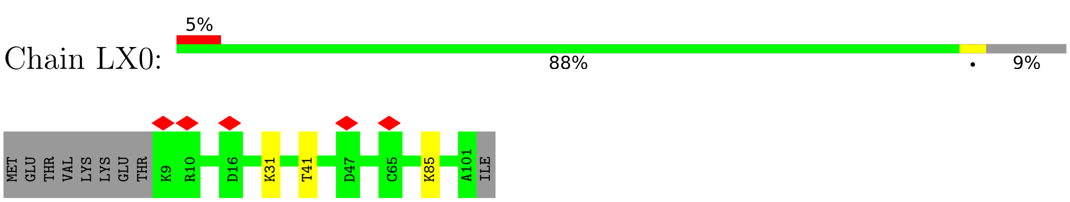

• Molecule 68: eL24



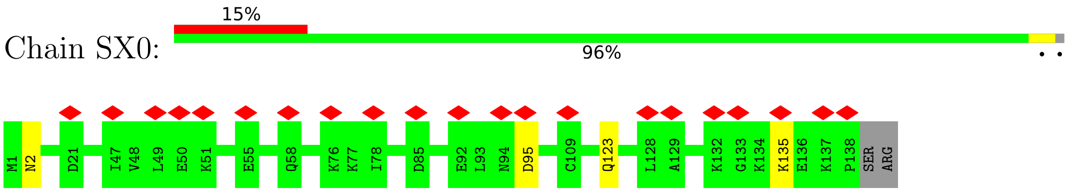

• Molecule 69: uS8



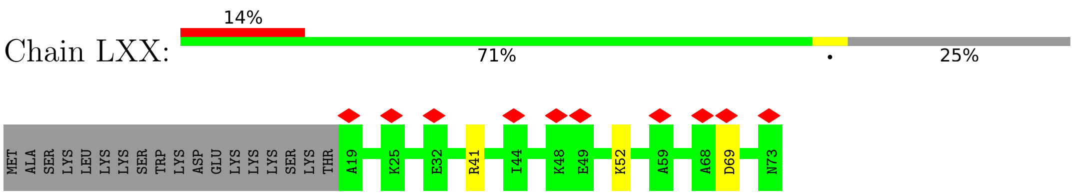

• Molecule 70: uL23



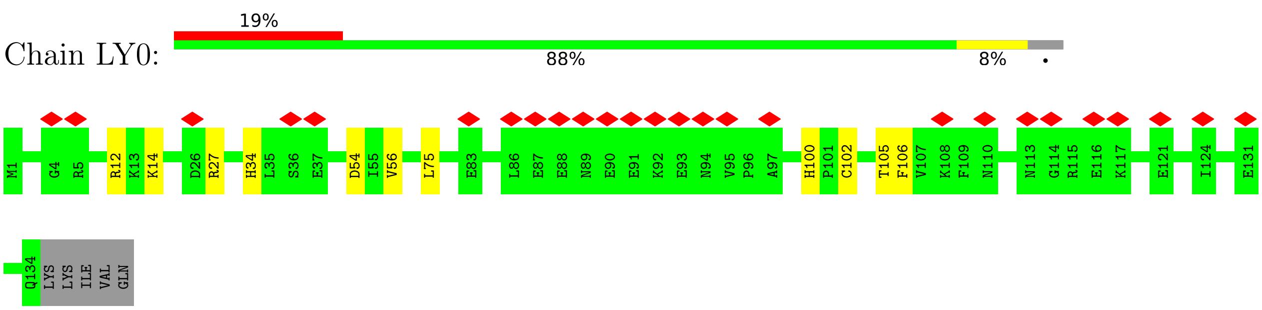

• Molecule 71: uS12



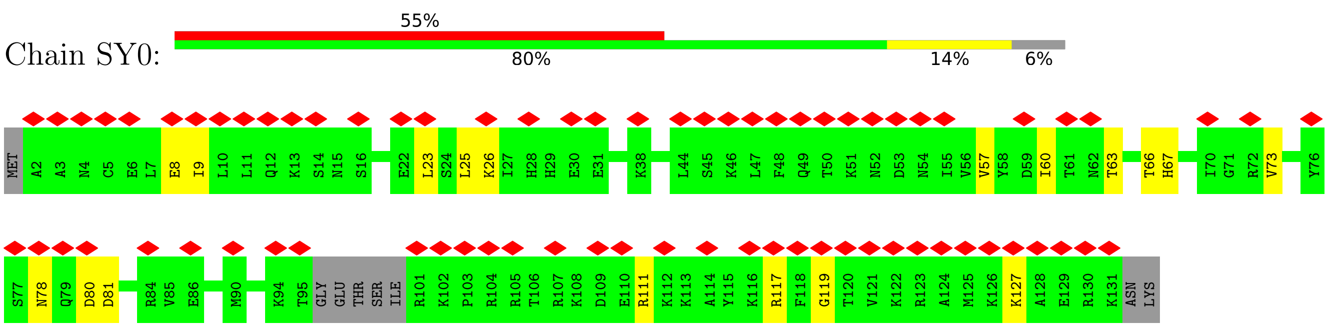

• Molecule 72: msL1



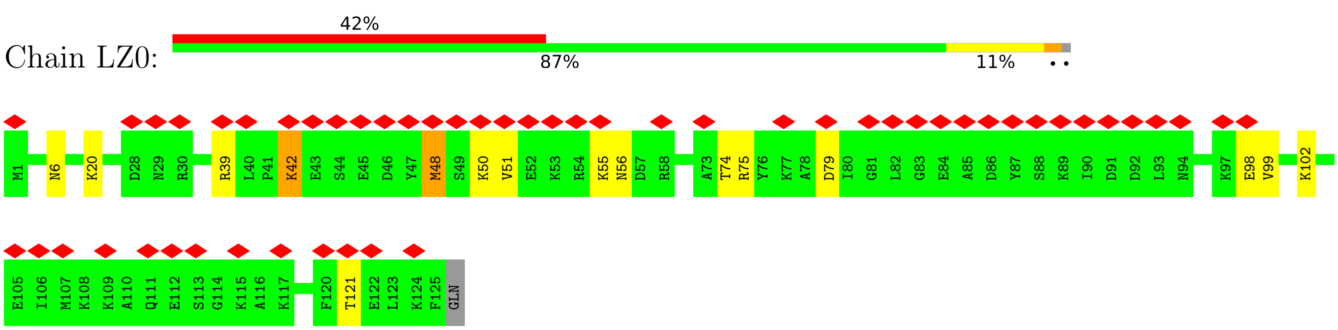

• Molecule 73: uL24



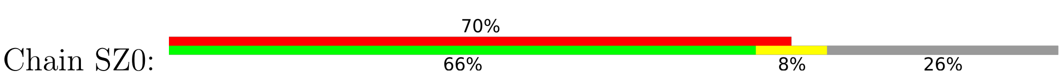

• Molecule 74: eS24

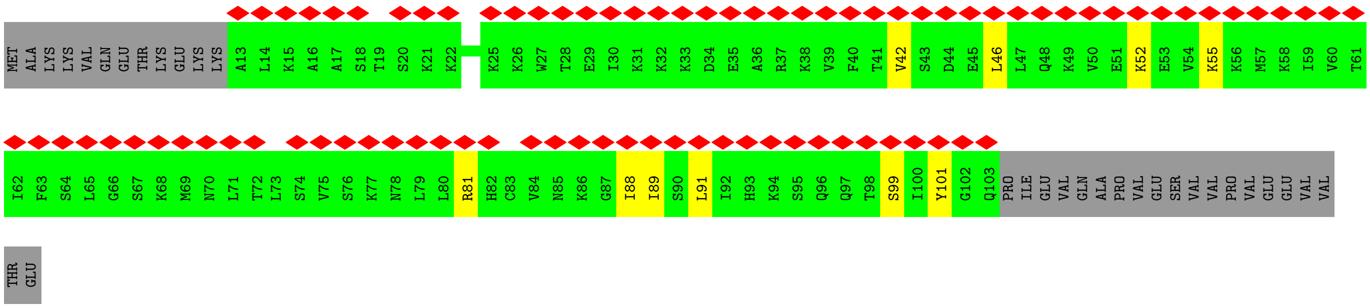



• Molecule 75: eL27



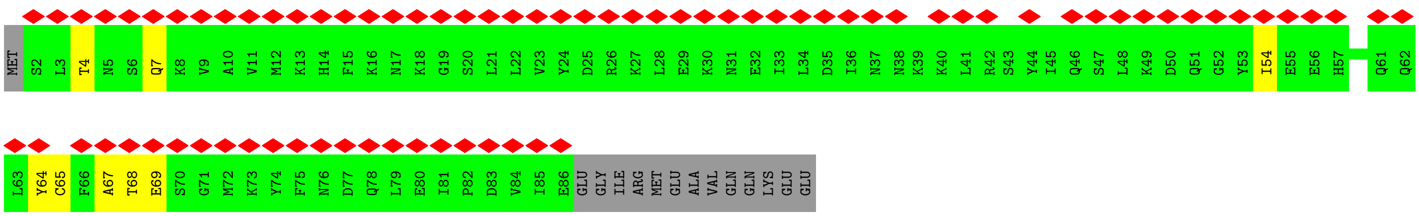

• Molecule 76: eS25





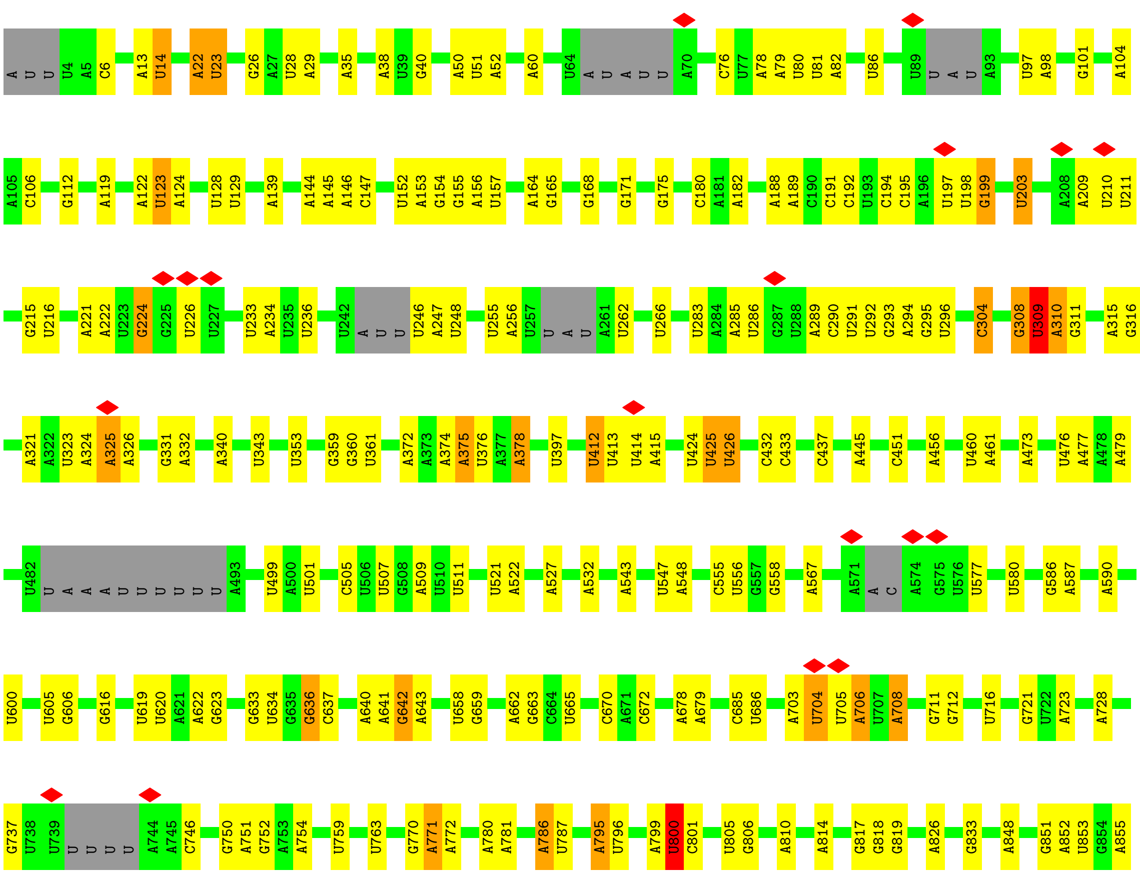

- Molecule 77: eS10

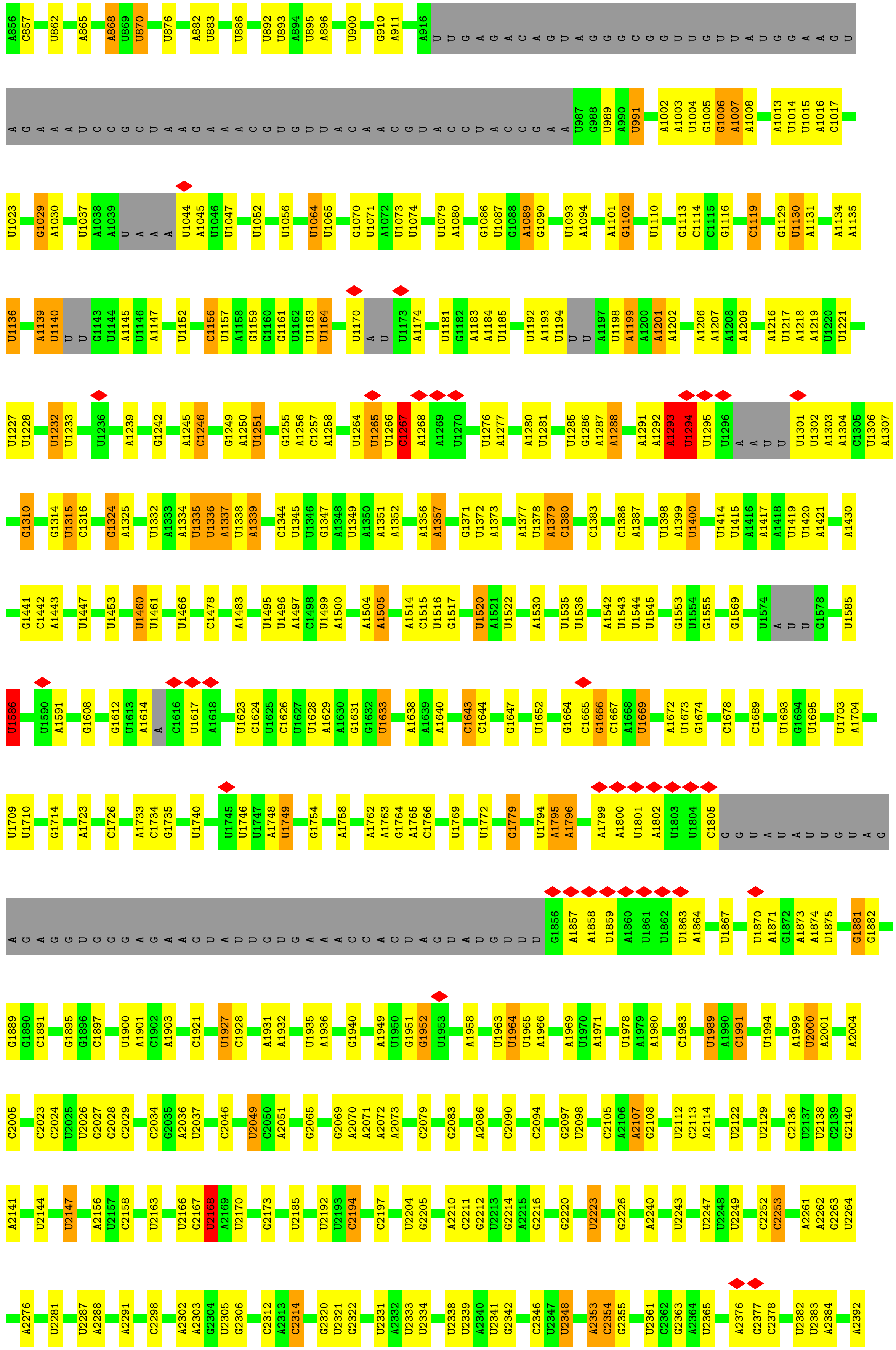
Chain SK0:

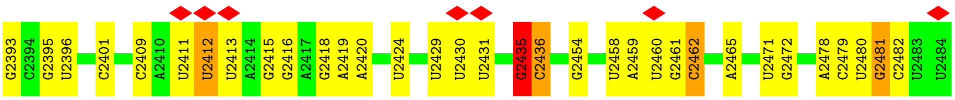




- Molecule 78: 23S rRNA

Chain L50:


A856 C857 U862 A865 A868 U869 U870 U876 A882 U883 U886 U892 U893 A894 U895 A896 U900 G910 A911 A916 U U G A G A C A G U A G G G C G G U U G U U A U G G A A G U
A G A A A U C C G C U A A G A A A C G U G U U A C A A C G U A C C C U A C C C G A A U987 G988 U989 A990 U991 A1002 A1003 U1004 G1005 G1006 A1007 A1008 A1013 U1014 U1015 A1016 C1017
U1023 G1029 A1030 U1037 A1038 A1039 U A A A U1044 A1045 U1046 U1047 U1052 U1056 U1064 U1065 G1070 U1071 A1072 U1073 U1074 U1079 A1080 G1086 U1087 G1088 A1089 G1090 U1093 A1094 A1101 G1102 U1110 G1113 C1114 C1115 G1116 C1119 G1129 U1130 A1131 A1134 A1135
U1136 A1139 U1140 U U G1143 U1144 A1145 U1146 A1147 U1152 C1156 U1157 A1158 G1159 G1160 G1161 U1162 U1163 U1164 U1170 A U U1173 A1174 U1181 G1182 A1183 A1184 U1185 U1192 A1193 U1194 U U A1197 U1198 A1199 A1200 A1201 A1202 A1206 A1207 A1208 A1209 A1216 U1217 A1218 A1219 U1220 U1221
U1227 U1228 U1232 U1233 U1236 A1239 G1242 A1245 C1246 G1249 A1250 U1251 G1255 A1256 C1257 A1258 U1264 U1265 U1266 C1267 A1268 A1269 U1270 U1276 A1277 A1280 U1281 U1285 G1286 A1287 A1288 A1291 A1292 A1293 U1294 U1295 U1296 A A U U U1301 U1302 A1303 A1304 C1305 U1306 A1307
G1310 G1314 U1315 C1316 G1324 A1325 U1332 A1333 A1334 U1335 U1336 A1337 U1338 A1339 C1344 U1345 U1346 G1347 A1348 U1349 A1350 A1351 A1352 A1356 A1357 G1371 U1372 A1373 A1377 U1378 A1379 C1380 C1383 C1386 A1387 U1398 A1399 U1400 U1414 U1415 A1416 A1417 A1418 U1419 U1420 A1421 A1430
G1441 C1442 A1443 U1447 U1453 U1460 U1461 U1466 C1478 A1483 U1495 U1496 A1497 C1498 U1499 A1500 A1504 A1505 A1514 C1515 U1516 G1517 U1520 A1521 U1522 A1530 U1535 U1536 A1542 U1543 U1544 U1545 G1553 U1554 G1555 G1569 U1574 A U U G1578 U1585
U1586 U1590 A1591 G1608 G1612 U1613 A1614 A C1616 U1617 A1618 U1623 C1624 U1625 C1626 U1627 U1628 A1629 A1630 G1631 G1632 U1633 A1638 A1639 A1640 C1643 C1644 G1647 U1652 G1664 C1665 G1666 C1667 A1668 U1669 A1672 U1673 G1674 C1678 C1689 U1693 G1694 U1695 U1703 A1704
U1709 U1710 G1714 A1723 C1726 A1733 C1734 G1735 U1740 U1745 U1746 U1747 A1748 U1749 G1754 A1758 A1762 A1763 G1764 A1765 C1766 U1769 U1772 G1779 U1794 A1795 A1796 A1799 A1800 U1801 A1802 U1803 U1804 C1805 G G U A U A U U G U A G
A G A G G U G G G A G A A G U A U U G U G A A A C C A C U A G U A U G U U U G1856 A1857 A1858 U1859 A1860 U1861 U1862 U1863 A1864 U1867 U1870 A1871 G1872 A1873 A1874 U1875 G1881 G1882
G1889 G1890 C1891 G1895 G1896 C1897 U1900 A1901 C1902 A1903 C1921 U1927 C1928 A1931 A1932 U1935 A1936 G1940 A1949 U1950 G1951 G1952 U1953 A1958 U1963 U1964 U1965 A1966 A1969 U1970 A1971 U1978 A1979 A1980 C1983 U1989 A1990 C1991 U1994 A1999 U2000 A2001 A2004
C2005 C2023 C2024 U2025 U2026 G2027 G2028 C2029 C2034 G2035 A2036 U2037 C2046 U2049 C2050 A2051 G2065 G2069 A2070 A2071 A2072 A2073 C2079 G2083 A2086 C2090 C2094 G2097 U2098 C2105 A2106 A2107 G2108 U2112 C2113 A2114 U2122 U2129 C2136 U2137 U2138 C2139 G2140
A2141 U2144 U2147 A2156 U2157 C2158 U2163 U2166 G2167 U2168 A2169 U2170 G2173 U2185 U2192 U2193 C2194 C2197 U2204 G2205 A2210 C2211 G2212 U2213 G2214 A2215 G2216 G2220 U2223 G2226 A2240 U2243 U2247 U2248 U2249 C2252 C2253 A2261 A2262 G2263 U2264
A2276 U2281 U2287 A2288 A2291 C2298 A2302 A2303 G2304 U2305 G2306 C2312 A2313 C2314 G2320 U2321 G2322 U2331 A2332 U2333 U2334 U2338 U2339 A2340 U2341 G2342 C2346 U2347 U2348 A2353 C2354 G2355 U2361 C2362 G2363 A2364 U2365 A2376 G2377 C2378 U2382 U2383 A2384 A2392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C2394
G2395
U2396
C2401
C2409
A2410
U2411
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A2414
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A2419
A2420
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U2429
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U2431
G2435
C2436
G2454
U2458
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U2460
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C2462
A2465
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U2480
G2481
C2482
U2483
U2484

# 4 Experimental information ⓘ

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, C1 | Depositor |
| Number of particles used | 185445 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | NONE | Depositor |
| Microscope | FEI TALOS ARCTICA | Depositor |
| Voltage (kV) | 200 | Depositor |
| Electron dose ($e^-/\text{Å}^2$) | 5.55 | Depositor |
| Minimum defocus (nm) | 4000 | Depositor |
| Maximum defocus (nm) | Not provided | |
| Magnification | Not provided | |
| Image detector | GATAN K2 SUMMIT (4k x 4k) | Depositor |
| Maximum map value | 0.126 | Depositor |
| Minimum map value | -0.072 | Depositor |
| Average map value | 0.000 | Depositor |
| Map value standard deviation | 0.005 | Depositor |
| Recommended contour level | 0.0199 | Depositor |
| Map size (Å) | 408.00003, 408.00003, 408.00003 | wwPDB |
| Map dimensions | 340, 340, 340 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.2, 1.2, 1.2 | Depositor |

# 5 Model quality (i)

## 5.1 Standard geometry (i)

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

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 | S60 | 0.53 | 0/29436 | 1.13 | 233/45858 (0.5%) |
| 2 | L70 | 0.61 | 0/2824 | 1.25 | 32/4400 (0.7%) |
| 3 | LA0 | 0.35 | 0/1828 | 0.53 | 0/2465 |
| 4 | SA0 | 0.30 | 0/1590 | 0.48 | 0/2152 |
| 5 | LAA | 0.34 | 0/1253 | 0.48 | 0/1676 |
| 6 | SAA | 0.31 | 0/788 | 0.46 | 0/1049 |
| 7 | LB0 | 0.33 | 0/2966 | 0.49 | 0/3977 |
| 8 | SB0 | 0.27 | 0/1687 | 0.48 | 0/2259 |
| 9 | LBB | 0.33 | 0/420 | 0.50 | 0/552 |
| 10 | SBB | 0.28 | 0/649 | 0.49 | 0/868 |
| 11 | LC0 | 0.31 | 0/2669 | 0.49 | 0/3579 |
| 12 | SC0 | 0.28 | 0/1668 | 0.48 | 0/2251 |
| 13 | LCC | 0.30 | 0/808 | 0.46 | 0/1087 |
| 14 | SCC | 0.26 | 0/497 | 0.50 | 0/663 |
| 15 | LD0 | 0.32 | 0/2357 | 0.47 | 0/3141 |
| 16 | SD0 | 0.28 | 0/1648 | 0.52 | 0/2220 |
| 17 | LDD | 0.31 | 0/829 | 0.49 | 0/1102 |
| 18 | SDD | 0.30 | 0/552 | 0.47 | 0/739 |
| 19 | LE0 | 0.28 | 0/1428 | 0.49 | 0/1916 |
| 20 | SE0 | 0.30 | 0/2092 | 0.52 | 0/2817 |
| 21 | LEE | 0.34 | 0/1032 | 0.50 | 0/1383 |
| 22 | SEE | 0.28 | 0/457 | 0.46 | 0/600 |
| 23 | LF0 | 0.33 | 0/1914 | 0.46 | 0/2557 |
| 24 | SF0 | 0.27 | 0/1470 | 0.47 | 0/1971 |
| 25 | LFF | 0.35 | 0/781 | 0.56 | 0/1048 |
| 26 | SFF | 0.25 | 0/265 | 0.49 | 0/326 |
| 27 | LG0 | 0.29 | 0/1599 | 0.51 | 1/2142 (0.0%) |
| 28 | SG0 | 0.28 | 0/1611 | 0.48 | 1/2152 (0.0%) |
| 29 | LGG | 0.31 | 0/825 | 0.49 | 0/1096 |
| 30 | SGG | 0.28 | 0/2538 | 0.56 | 0/3434 |
| 31 | LH0 | 0.30 | 0/1476 | 0.52 | 0/1982 |
| 32 | SH0 | 0.29 | 0/1282 | 0.49 | 0/1721 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 33 | LHH | 0.29 | 0/1030 | 0.47 | 0/1371 |
| 34 | LI0 | 0.33 | 0/1777 | 0.47 | 0/2376 |
| 35 | SI0 | 0.30 | 0/1275 | 0.50 | 0/1695 |
| 36 | LII | 0.28 | 0/774 | 0.44 | 0/1025 |
| 37 | LJ0 | 0.30 | 0/1367 | 0.48 | 0/1823 |
| 38 | SJ0 | 0.28 | 0/1403 | 0.46 | 0/1888 |
| 39 | LJJ | 0.34 | 0/734 | 0.49 | 0/973 |
| 40 | LL0 | 0.31 | 0/1350 | 0.48 | 1/1803 (0.1%) |
| 41 | SL0 | 0.31 | 0/1291 | 0.49 | 0/1731 |
| 42 | LLL | 0.32 | 0/454 | 0.46 | 0/602 |
| 43 | LM0 | 0.30 | 0/736 | 0.46 | 0/984 |
| 44 | LMM | 0.26 | 0/403 | 0.45 | 0/532 |
| 45 | SM0 | 0.27 | 0/937 | 0.49 | 0/1255 |
| 46 | LN0 | 0.34 | 0/1708 | 0.48 | 0/2289 |
| 47 | SN0 | 0.27 | 0/1197 | 0.46 | 0/1603 |
| 48 | LNN | 0.27 | 0/578 | 0.50 | 1/770 (0.1%) |
| 49 | SNN | 0.29 | 0/1357 | 0.53 | 0/1835 |
| 50 | LO0 | 0.33 | 0/1400 | 0.44 | 0/1871 |
| 51 | SO0 | 0.27 | 0/987 | 0.49 | 0/1322 |
| 52 | LOO | 0.30 | 0/801 | 0.49 | 0/1058 |
| 53 | LP0 | 0.33 | 0/1255 | 0.47 | 0/1686 |
| 54 | SP0 | 0.28 | 0/963 | 0.45 | 0/1294 |
| 55 | LPP | 0.34 | 0/651 | 0.50 | 0/866 |
| 56 | LQ0 | 0.34 | 0/1478 | 0.48 | 0/1975 |
| 57 | SQ0 | 0.26 | 0/1222 | 0.50 | 0/1633 |
| 58 | LR0 | 0.31 | 0/1353 | 0.43 | 0/1787 |
| 59 | SR0 | 0.26 | 0/969 | 0.45 | 0/1297 |
| 60 | LS0 | 0.34 | 0/1504 | 0.47 | 1/2024 (0.0%) |
| 61 | SS0 | 0.27 | 0/1202 | 0.51 | 0/1609 |
| 62 | LT0 | 0.36 | 0/1339 | 0.49 | 0/1795 |
| 63 | ST0 | 0.27 | 0/1063 | 0.49 | 0/1428 |
| 64 | LU0 | 0.30 | 0/802 | 0.48 | 0/1074 |
| 65 | SU0 | 0.28 | 0/779 | 0.50 | 0/1055 |
| 66 | LV0 | 0.33 | 0/1056 | 0.51 | 0/1412 |
| 67 | SV0 | 0.29 | 0/496 | 0.54 | 0/667 |
| 68 | LW0 | 0.33 | 0/674 | 0.58 | 2/905 (0.2%) |
| 69 | SW0 | 0.27 | 0/1037 | 0.45 | 0/1389 |
| 70 | LX0 | 0.31 | 0/743 | 0.47 | 0/994 |
| 71 | SX0 | 0.31 | 0/1086 | 0.48 | 0/1450 |
| 72 | LXX | 0.29 | 0/464 | 0.40 | 0/609 |
| 73 | LY0 | 0.31 | 0/1104 | 0.46 | 0/1470 |
| 74 | SY0 | 0.27 | 0/1036 | 0.46 | 0/1379 |
| 75 | LZ0 | 0.29 | 0/1019 | 0.53 | 0/1358 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 76 | SZ0 | 0.26 | 0/730 | 0.50 | 0/969 |
| 77 | SK0 | 0.28 | 0/725 | 0.56 | 0/973 |
| 78 | L50 | 0.65 | 0/55133 | 1.14 | 371/85837 (0.4%) |
| All | All | 0.48 | 0/174681 | 0.90 | 643/252924 (0.3%) |

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 |
|---|---|---|---|
| 25 | LFF | 0 | 1 |

There are no bond length outliers.

The worst 5 of 643 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | S60 | 928 | C | N1-C2-O2 | 11.63 | 125.88 | 118.90 |
| 1 | S60 | 1025 | U | N1-C2-O2 | 11.18 | 130.62 | 122.80 |
| 78 | L50 | 1870 | U | C2-N1-C1' | 10.98 | 130.88 | 117.70 |
| 78 | L50 | 2253 | C | C2-N1-C1' | 10.92 | 130.81 | 118.80 |
| 78 | L50 | 1217 | U | C2-N1-C1' | 10.88 | 130.75 | 117.70 |

There are no chirality outliers.

All (1) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 25 | LFF | 12 | ARG | Peptide |

## 5.2 Too-close contacts (i)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | S60 | 26291 | 0 | 13176 | 105 | 0 |
| 2 | L70 | 2523 | 0 | 1273 | 7 | 0 |
| 3 | LA0 | 1789 | 0 | 1824 | 15 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 4 | SA0 | 1558 | 0 | 1596 | 12 | 0 |
| 5 | LAA | 1219 | 0 | 1247 | 4 | 0 |
| 6 | SAA | 776 | 0 | 814 | 6 | 0 |
| 7 | LB0 | 2912 | 0 | 3040 | 16 | 0 |
| 8 | SB0 | 1664 | 0 | 1734 | 22 | 0 |
| 9 | LBB | 416 | 0 | 458 | 2 | 0 |
| 10 | SBB | 637 | 0 | 632 | 3 | 0 |
| 11 | LC0 | 2624 | 0 | 2709 | 18 | 0 |
| 12 | SC0 | 1642 | 0 | 1717 | 21 | 0 |
| 13 | LCC | 797 | 0 | 844 | 3 | 0 |
| 14 | SCC | 495 | 0 | 517 | 9 | 0 |
| 15 | LD0 | 2320 | 0 | 2370 | 14 | 0 |
| 16 | SD0 | 1624 | 0 | 1769 | 10 | 0 |
| 17 | LDD | 821 | 0 | 911 | 6 | 0 |
| 18 | SDD | 541 | 0 | 532 | 5 | 0 |
| 19 | LE0 | 1410 | 0 | 1449 | 8 | 0 |
| 20 | SE0 | 2056 | 0 | 2113 | 10 | 0 |
| 21 | LEE | 1010 | 0 | 1072 | 4 | 0 |
| 22 | SEE | 454 | 0 | 492 | 2 | 0 |
| 23 | LF0 | 1884 | 0 | 1972 | 13 | 0 |
| 24 | SF0 | 1457 | 0 | 1510 | 13 | 0 |
| 25 | LFF | 771 | 0 | 830 | 5 | 0 |
| 26 | SFF | 266 | 0 | 145 | 0 | 0 |
| 27 | LG0 | 1573 | 0 | 1679 | 7 | 0 |
| 28 | SG0 | 1587 | 0 | 1605 | 22 | 0 |
| 29 | LGG | 814 | 0 | 878 | 8 | 0 |
| 30 | SGG | 2499 | 0 | 2465 | 31 | 0 |
| 31 | LH0 | 1452 | 0 | 1531 | 8 | 0 |
| 32 | SH0 | 1265 | 0 | 1313 | 18 | 0 |
| 33 | LHH | 1017 | 0 | 1096 | 5 | 0 |
| 34 | LI0 | 1743 | 0 | 1792 | 12 | 0 |
| 35 | SI0 | 1259 | 0 | 1305 | 13 | 0 |
| 36 | LII | 765 | 0 | 860 | 7 | 0 |
| 37 | LJ0 | 1348 | 0 | 1406 | 13 | 0 |
| 38 | SJ0 | 1382 | 0 | 1431 | 10 | 0 |
| 39 | LJJ | 719 | 0 | 771 | 0 | 0 |
| 40 | LL0 | 1328 | 0 | 1417 | 9 | 0 |
| 41 | SL0 | 1269 | 0 | 1311 | 17 | 0 |
| 42 | LLL | 445 | 0 | 482 | 2 | 0 |
| 43 | LM0 | 731 | 0 | 785 | 3 | 0 |
| 44 | LMM | 402 | 0 | 433 | 5 | 0 |
| 45 | SM0 | 929 | 0 | 967 | 7 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 46 | LN0 | 1677 | 0 | 1726 | 13 | 0 |
| 47 | SN0 | 1177 | 0 | 1237 | 16 | 0 |
| 48 | LNN | 577 | 0 | 496 | 4 | 0 |
| 49 | SNN | 1336 | 0 | 1349 | 12 | 0 |
| 50 | LO0 | 1371 | 0 | 1424 | 5 | 0 |
| 51 | SO0 | 977 | 0 | 1032 | 16 | 0 |
| 52 | LOO | 792 | 0 | 889 | 6 | 0 |
| 53 | LP0 | 1235 | 0 | 1300 | 6 | 0 |
| 54 | SP0 | 942 | 0 | 975 | 12 | 0 |
| 55 | LPP | 642 | 0 | 673 | 4 | 0 |
| 56 | LQ0 | 1460 | 0 | 1579 | 7 | 0 |
| 57 | SQ0 | 1205 | 0 | 1285 | 9 | 0 |
| 58 | LR0 | 1342 | 0 | 1462 | 11 | 0 |
| 59 | SR0 | 958 | 0 | 1002 | 13 | 0 |
| 60 | LS0 | 1472 | 0 | 1503 | 9 | 0 |
| 61 | SS0 | 1186 | 0 | 1224 | 10 | 0 |
| 62 | LT0 | 1310 | 0 | 1368 | 9 | 0 |
| 63 | ST0 | 1048 | 0 | 1062 | 14 | 0 |
| 64 | LU0 | 790 | 0 | 814 | 4 | 0 |
| 65 | SU0 | 764 | 0 | 788 | 8 | 0 |
| 66 | LV0 | 1040 | 0 | 1102 | 3 | 0 |
| 67 | SV0 | 491 | 0 | 492 | 3 | 0 |
| 68 | LW0 | 667 | 0 | 676 | 7 | 0 |
| 69 | SW0 | 1018 | 0 | 1041 | 5 | 0 |
| 70 | LX0 | 734 | 0 | 796 | 2 | 0 |
| 71 | SX0 | 1069 | 0 | 1154 | 3 | 0 |
| 72 | LXX | 462 | 0 | 518 | 3 | 0 |
| 73 | LY0 | 1088 | 0 | 1124 | 8 | 0 |
| 74 | SY0 | 1025 | 0 | 1090 | 13 | 0 |
| 75 | LZ0 | 1006 | 0 | 1080 | 9 | 0 |
| 76 | SZ0 | 724 | 0 | 800 | 7 | 0 |
| 77 | SK0 | 712 | 0 | 709 | 5 | 0 |
| 78 | L50 | 49259 | 0 | 24706 | 110 | 0 |
| 79 | L50 | 122 | 0 | 0 | 0 | 0 |
| 79 | L70 | 1 | 0 | 0 | 0 | 0 |
| 79 | LJJ | 1 | 0 | 0 | 0 | 0 |
| 79 | LV0 | 1 | 0 | 0 | 0 | 0 |
| 79 | S60 | 49 | 0 | 0 | 0 | 0 |
| 80 | LGG | 1 | 0 | 0 | 0 | 0 |
| 80 | LJJ | 1 | 0 | 0 | 0 | 0 |
| 80 | LMM | 1 | 0 | 0 | 0 | 0 |
| 80 | LOO | 1 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 80 | LPP | 1 | 0 | 0 | 0 | 0 |
| 80 | SAA | 1 | 0 | 0 | 0 | 0 |
| 80 | SBB | 1 | 0 | 0 | 0 | 0 |
| 80 | SDD | 1 | 0 | 0 | 0 | 0 |
| 80 | SNN | 1 | 0 | 0 | 0 | 0 |
| All | All | 164223 | 0 | 128749 | 749 | 0 |

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

The worst 5 of 749 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) |
|---|---|---|---|
| 1:S60:500:G:H1 | 1:S60:526:U:H3 | 1.11 | 0.98 |
| 1:S60:124:G:H22 | 1:S60:135:U:H3 | 1.40 | 0.69 |
| 7:LB0:283:HIS:HD2 | 7:LB0:314:GLU:HG3 | 1.61 | 0.65 |
| 16:SD0:40:ARG:HB2 | 16:SD0:47:LYS:HB2 | 1.78 | 0.65 |
| 1:S60:647:U:H3' | 1:S60:648:G:H21 | 1.62 | 0.65 |

There are no symmetry-related clashes.

## 5.3 Torsion angles (i)

### 5.3.1 Protein backbone (i)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 3 | LA0 | 230/237 (97%) | 216 (94%) | 14 (6%) | 0 | 100 | 100 |
| 4 | SA0 | 195/264 (74%) | 189 (97%) | 6 (3%) | 0 | 100 | 100 |
| 5 | LAA | 146/148 (99%) | 135 (92%) | 11 (8%) | 0 | 100 | 100 |
| 6 | SAA | 95/104 (91%) | 89 (94%) | 6 (6%) | 0 | 100 | 100 |
| 7 | LB0 | 364/384 (95%) | 353 (97%) | 11 (3%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 8 | SB0 | 206/237 (87%) | 195 (95%) | 11 (5%) | 0 | 100 | 100 |
| 9 | LBB | 49/55 (89%) | 45 (92%) | 4 (8%) | 0 | 100 | 100 |
| 10 | SBB | 80/94 (85%) | 76 (95%) | 4 (5%) | 0 | 100 | 100 |
| 11 | LC0 | 327/334 (98%) | 312 (95%) | 15 (5%) | 0 | 100 | 100 |
| 12 | SC0 | 215/237 (91%) | 206 (96%) | 9 (4%) | 0 | 100 | 100 |
| 13 | LCC | 102/108 (94%) | 101 (99%) | 1 (1%) | 0 | 100 | 100 |
| 14 | SCC | 61/67 (91%) | 58 (95%) | 3 (5%) | 0 | 100 | 100 |
| 15 | LD0 | 280/295 (95%) | 273 (98%) | 7 (2%) | 0 | 100 | 100 |
| 16 | SD0 | 208/215 (97%) | 203 (98%) | 5 (2%) | 0 | 100 | 100 |
| 17 | LDD | 100/111 (90%) | 91 (91%) | 9 (9%) | 0 | 100 | 100 |
| 18 | SDD | 65/68 (96%) | 59 (91%) | 6 (9%) | 0 | 100 | 100 |
| 19 | LE0 | 170/172 (99%) | 163 (96%) | 7 (4%) | 0 | 100 | 100 |
| 20 | SE0 | 254/262 (97%) | 242 (95%) | 11 (4%) | 1 (0%) | 34 | 67 |
| 21 | LEE | 121/139 (87%) | 118 (98%) | 3 (2%) | 0 | 100 | 100 |
| 22 | SEE | 54/60 (90%) | 52 (96%) | 2 (4%) | 0 | 100 | 100 |
| 23 | LF0 | 228/239 (95%) | 216 (95%) | 12 (5%) | 0 | 100 | 100 |
| 24 | SF0 | 186/189 (98%) | 182 (98%) | 4 (2%) | 0 | 100 | 100 |
| 25 | LFF | 94/98 (96%) | 90 (96%) | 4 (4%) | 0 | 100 | 100 |
| 26 | SFF | 66/151 (44%) | 65 (98%) | 1 (2%) | 0 | 100 | 100 |
| 27 | LG0 | 193/200 (96%) | 186 (96%) | 7 (4%) | 0 | 100 | 100 |
| 28 | SG0 | 197/217 (91%) | 188 (95%) | 9 (5%) | 0 | 100 | 100 |
| 29 | LGG | 98/106 (92%) | 94 (96%) | 4 (4%) | 0 | 100 | 100 |
| 30 | SGG | 328/337 (97%) | 314 (96%) | 14 (4%) | 0 | 100 | 100 |
| 31 | LH0 | 182/186 (98%) | 172 (94%) | 10 (6%) | 0 | 100 | 100 |
| 32 | SH0 | 153/161 (95%) | 145 (95%) | 8 (5%) | 0 | 100 | 100 |
| 33 | LHH | 118/122 (97%) | 113 (96%) | 5 (4%) | 0 | 100 | 100 |
| 34 | LI0 | 214/217 (99%) | 199 (93%) | 15 (7%) | 0 | 100 | 100 |
| 35 | SI0 | 156/166 (94%) | 150 (96%) | 6 (4%) | 0 | 100 | 100 |
| 36 | LII | 91/95 (96%) | 88 (97%) | 3 (3%) | 0 | 100 | 100 |
| 37 | LJ0 | 166/171 (97%) | 159 (96%) | 7 (4%) | 0 | 100 | 100 |
| 38 | SJ0 | 169/189 (89%) | 162 (96%) | 7 (4%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 39 | LJJ | 88/93 (95%) | 84 (96%) | 4 (4%) | 0 | 100 | 100 |
| 40 | LL0 | 160/162 (99%) | 150 (94%) | 10 (6%) | 0 | 100 | 100 |
| 41 | SL0 | 155/158 (98%) | 147 (95%) | 8 (5%) | 0 | 100 | 100 |
| 42 | LLL | 49/52 (94%) | 46 (94%) | 3 (6%) | 0 | 100 | 100 |
| 43 | LM0 | 87/105 (83%) | 83 (95%) | 4 (5%) | 0 | 100 | 100 |
| 44 | LMM | 48/127 (38%) | 45 (94%) | 3 (6%) | 0 | 100 | 100 |
| 45 | SM0 | 117/131 (89%) | 113 (97%) | 4 (3%) | 0 | 100 | 100 |
| 46 | LN0 | 201/204 (98%) | 191 (95%) | 10 (5%) | 0 | 100 | 100 |
| 47 | SN0 | 145/149 (97%) | 139 (96%) | 6 (4%) | 0 | 100 | 100 |
| 48 | LNN | 74/160 (46%) | 67 (90%) | 7 (10%) | 0 | 100 | 100 |
| 49 | SNN | 165/168 (98%) | 152 (92%) | 13 (8%) | 0 | 100 | 100 |
| 50 | LO0 | 169/192 (88%) | 165 (98%) | 4 (2%) | 0 | 100 | 100 |
| 51 | SO0 | 129/135 (96%) | 124 (96%) | 5 (4%) | 0 | 100 | 100 |
| 52 | LOO | 96/103 (93%) | 94 (98%) | 2 (2%) | 0 | 100 | 100 |
| 53 | LP0 | 152/169 (90%) | 147 (97%) | 5 (3%) | 0 | 100 | 100 |
| 54 | SP0 | 116/143 (81%) | 112 (97%) | 4 (3%) | 0 | 100 | 100 |
| 55 | LPP | 81/89 (91%) | 76 (94%) | 5 (6%) | 0 | 100 | 100 |
| 56 | LQ0 | 182/193 (94%) | 169 (93%) | 13 (7%) | 0 | 100 | 100 |
| 57 | SQ0 | 150/155 (97%) | 143 (95%) | 7 (5%) | 0 | 100 | 100 |
| 58 | LR0 | 163/175 (93%) | 160 (98%) | 3 (2%) | 0 | 100 | 100 |
| 59 | SR0 | 115/119 (97%) | 112 (97%) | 3 (3%) | 0 | 100 | 100 |
| 60 | LS0 | 177/180 (98%) | 167 (94%) | 10 (6%) | 0 | 100 | 100 |
| 61 | SS0 | 149/160 (93%) | 142 (95%) | 7 (5%) | 0 | 100 | 100 |
| 62 | LT0 | 157/160 (98%) | 151 (96%) | 6 (4%) | 0 | 100 | 100 |
| 63 | ST0 | 129/133 (97%) | 124 (96%) | 5 (4%) | 0 | 100 | 100 |
| 64 | LU0 | 95/107 (89%) | 91 (96%) | 4 (4%) | 0 | 100 | 100 |
| 65 | SU0 | 94/101 (93%) | 86 (92%) | 8 (8%) | 0 | 100 | 100 |
| 66 | LV0 | 133/146 (91%) | 126 (95%) | 7 (5%) | 0 | 100 | 100 |
| 67 | SV0 | 61/67 (91%) | 56 (92%) | 5 (8%) | 0 | 100 | 100 |
| 68 | LW0 | 88/91 (97%) | 84 (96%) | 3 (3%) | 1 (1%) | 14 | 44 |
| 69 | SW0 | 125/127 (98%) | 121 (97%) | 4 (3%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 70 | LX0 | 91/102 (89%) | 84 (92%) | 7 (8%) | 0 | 100 | 100 |
| 71 | SX0 | 136/140 (97%) | 134 (98%) | 2 (2%) | 0 | 100 | 100 |
| 72 | LXX | 53/73 (73%) | 53 (100%) | 0 | 0 | 100 | 100 |
| 73 | LY0 | 132/139 (95%) | 126 (96%) | 6 (4%) | 0 | 100 | 100 |
| 74 | SY0 | 121/133 (91%) | 115 (95%) | 6 (5%) | 0 | 100 | 100 |
| 75 | LZ0 | 123/126 (98%) | 114 (93%) | 9 (7%) | 0 | 100 | 100 |
| 76 | SZ0 | 89/123 (72%) | 84 (94%) | 5 (6%) | 0 | 100 | 100 |
| 77 | SK0 | 83/99 (84%) | 82 (99%) | 1 (1%) | 0 | 100 | 100 |
| All | All | 10639/11624 (92%) | 10158 (96%) | 479 (4%) | 2 (0%) | 100 | 100 |

All (2) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 68 | LW0 | 73 | PRO |
| 20 | SE0 | 23 | ILE |

#### 5.3.2 Protein sidechains (i)

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 3 | LA0 | 193/197 (98%) | 190 (98%) | 3 (2%) | 62 | 81 |
| 4 | SA0 | 179/237 (76%) | 179 (100%) | 0 | 100 | 100 |
| 5 | LAA | 126/126 (100%) | 125 (99%) | 1 (1%) | 81 | 91 |
| 6 | SAA | 86/93 (92%) | 84 (98%) | 2 (2%) | 50 | 74 |
| 7 | LB0 | 318/334 (95%) | 317 (100%) | 1 (0%) | 92 | 97 |
| 8 | SB0 | 186/210 (89%) | 186 (100%) | 0 | 100 | 100 |
| 9 | LBB | 43/47 (92%) | 43 (100%) | 0 | 100 | 100 |
| 10 | SBB | 70/82 (85%) | 69 (99%) | 1 (1%) | 67 | 83 |
| 11 | LC0 | 287/292 (98%) | 286 (100%) | 1 (0%) | 92 | 97 |
| 12 | SC0 | 179/198 (90%) | 178 (99%) | 1 (1%) | 86 | 94 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 13 | LCC | 88/92 (96%) | 88 (100%) | 0 | 100 | 100 |
| 14 | SCC | 52/56 (93%) | 52 (100%) | 0 | 100 | 100 |
| 15 | LD0 | 247/256 (96%) | 247 (100%) | 0 | 100 | 100 |
| 16 | SD0 | 185/189 (98%) | 183 (99%) | 2 (1%) | 73 | 86 |
| 17 | LDD | 93/101 (92%) | 93 (100%) | 0 | 100 | 100 |
| 18 | SDD | 58/59 (98%) | 58 (100%) | 0 | 100 | 100 |
| 19 | LE0 | 162/163 (99%) | 160 (99%) | 2 (1%) | 71 | 85 |
| 20 | SE0 | 231/237 (98%) | 230 (100%) | 1 (0%) | 91 | 95 |
| 21 | LEE | 109/122 (89%) | 109 (100%) | 0 | 100 | 100 |
| 22 | SEE | 47/49 (96%) | 46 (98%) | 1 (2%) | 53 | 76 |
| 23 | LF0 | 208/216 (96%) | 208 (100%) | 0 | 100 | 100 |
| 24 | SF0 | 162/163 (99%) | 162 (100%) | 0 | 100 | 100 |
| 25 | LFF | 86/88 (98%) | 86 (100%) | 0 | 100 | 100 |
| 27 | LG0 | 175/180 (97%) | 175 (100%) | 0 | 100 | 100 |
| 28 | SG0 | 163/189 (86%) | 163 (100%) | 0 | 100 | 100 |
| 29 | LGG | 90/94 (96%) | 89 (99%) | 1 (1%) | 73 | 86 |
| 30 | SGG | 280/295 (95%) | 277 (99%) | 3 (1%) | 73 | 86 |
| 31 | LH0 | 162/164 (99%) | 161 (99%) | 1 (1%) | 86 | 94 |
| 32 | SH0 | 148/153 (97%) | 148 (100%) | 0 | 100 | 100 |
| 33 | LHH | 114/116 (98%) | 114 (100%) | 0 | 100 | 100 |
| 34 | LI0 | 183/184 (100%) | 182 (100%) | 1 (0%) | 88 | 94 |
| 35 | SI0 | 136/144 (94%) | 135 (99%) | 1 (1%) | 84 | 92 |
| 36 | LII | 83/85 (98%) | 83 (100%) | 0 | 100 | 100 |
| 37 | LJ0 | 148/151 (98%) | 148 (100%) | 0 | 100 | 100 |
| 38 | SJ0 | 157/173 (91%) | 157 (100%) | 0 | 100 | 100 |
| 39 | LJJ | 76/79 (96%) | 76 (100%) | 0 | 100 | 100 |
| 40 | LL0 | 144/144 (100%) | 144 (100%) | 0 | 100 | 100 |
| 41 | SL0 | 141/142 (99%) | 141 (100%) | 0 | 100 | 100 |
| 42 | LLL | 46/47 (98%) | 46 (100%) | 0 | 100 | 100 |
| 43 | LM0 | 85/96 (88%) | 85 (100%) | 0 | 100 | 100 |
| 44 | LMM | 46/112 (41%) | 46 (100%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 45 | SM0 | 100/112 (89%) | 100 (100%) | 0 | 100 | 100 |
| 46 | LN0 | 176/177 (99%) | 176 (100%) | 0 | 100 | 100 |
| 47 | SN0 | 134/136 (98%) | 134 (100%) | 0 | 100 | 100 |
| 48 | LNN | 46/153 (30%) | 46 (100%) | 0 | 100 | 100 |
| 49 | SNN | 158/159 (99%) | 158 (100%) | 0 | 100 | 100 |
| 50 | LO0 | 148/177 (84%) | 148 (100%) | 0 | 100 | 100 |
| 51 | SO0 | 102/105 (97%) | 101 (99%) | 1 (1%) | 76 | 88 |
| 52 | LOO | 89/93 (96%) | 89 (100%) | 0 | 100 | 100 |
| 53 | LP0 | 133/148 (90%) | 133 (100%) | 0 | 100 | 100 |
| 54 | SP0 | 103/122 (84%) | 103 (100%) | 0 | 100 | 100 |
| 55 | LPP | 67/72 (93%) | 67 (100%) | 0 | 100 | 100 |
| 56 | LQ0 | 166/174 (95%) | 166 (100%) | 0 | 100 | 100 |
| 57 | SQ0 | 132/134 (98%) | 132 (100%) | 0 | 100 | 100 |
| 58 | LR0 | 141/151 (93%) | 140 (99%) | 1 (1%) | 84 | 92 |
| 59 | SR0 | 108/110 (98%) | 106 (98%) | 2 (2%) | 57 | 78 |
| 60 | LS0 | 162/163 (99%) | 161 (99%) | 1 (1%) | 86 | 94 |
| 61 | SS0 | 129/137 (94%) | 129 (100%) | 0 | 100 | 100 |
| 62 | LT0 | 141/142 (99%) | 141 (100%) | 0 | 100 | 100 |
| 63 | ST0 | 119/121 (98%) | 119 (100%) | 0 | 100 | 100 |
| 64 | LU0 | 90/99 (91%) | 90 (100%) | 0 | 100 | 100 |
| 65 | SU0 | 87/92 (95%) | 87 (100%) | 0 | 100 | 100 |
| 66 | LV0 | 110/118 (93%) | 110 (100%) | 0 | 100 | 100 |
| 67 | SV0 | 56/60 (93%) | 56 (100%) | 0 | 100 | 100 |
| 68 | LW0 | 67/82 (82%) | 67 (100%) | 0 | 100 | 100 |
| 69 | SW0 | 111/111 (100%) | 111 (100%) | 0 | 100 | 100 |
| 70 | LX0 | 81/90 (90%) | 81 (100%) | 0 | 100 | 100 |
| 71 | SX0 | 116/119 (98%) | 116 (100%) | 0 | 100 | 100 |
| 72 | LXX | 49/66 (74%) | 49 (100%) | 0 | 100 | 100 |
| 73 | LY0 | 119/124 (96%) | 119 (100%) | 0 | 100 | 100 |
| 74 | SY0 | 116/123 (94%) | 116 (100%) | 0 | 100 | 100 |
| 75 | LZ0 | 110/111 (99%) | 108 (98%) | 2 (2%) | 59 | 79 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 76 | SZ0 | 84/114 (74%) | 84 (100%) | 0 | 100 | 100 |
| 77 | SK0 | 80/92 (87%) | 80 (100%) | 0 | 100 | 100 |
| All | All | 9402/10142 (93%) | 9372 (100%) | 30 (0%) | 92 | 97 |

5 of 30 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 20 | SE0 | 5 | ARG |
| 60 | LS0 | 117 | ARG |
| 30 | SGG | 152 | ASN |
| 75 | LZ0 | 48 | MET |
| 58 | LR0 | 68 | ARG |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 1 | S60 | 1224/1244 (98%) | 311 (25%) | 11 (0%) |
| 2 | L70 | 117/119 (98%) | 24 (20%) | 2 (1%) |
| 78 | L50 | 2296/2484 (92%) | 483 (21%) | 17 (0%) |
| All | All | 3637/3847 (94%) | 818 (22%) | 30 (0%) |

5 of 818 RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | S60 | 10 | A |
| 1 | S60 | 16 | C |
| 1 | S60 | 32 | U |
| 1 | S60 | 33 | U |
| 1 | S60 | 40 | G |

5 of 30 RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 78 | L50 | 308 | G |
| 78 | L50 | 2353 | A |
| 78 | L50 | 636 | G |
| 78 | L50 | 2481 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 78 | L50 | 1337 | A |

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

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

## 5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 183 ligands modelled in this entry, 183 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.

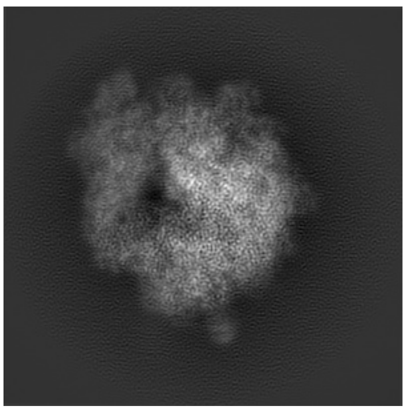
# 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-4935. These allow visual inspection of the internal detail of the map and identification of artifacts.

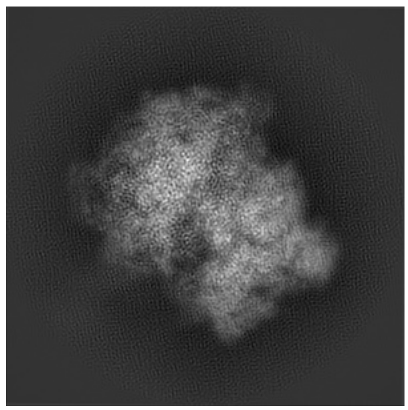
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

## 6.1 Orthogonal projections

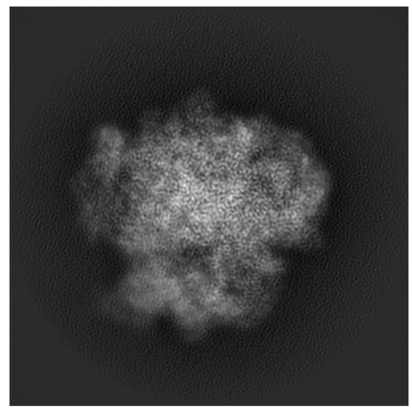
### 6.1.1 Primary map



X



Y

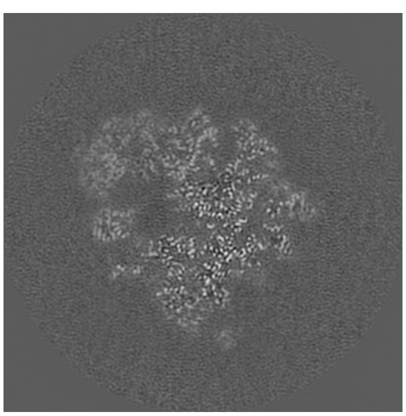


Z

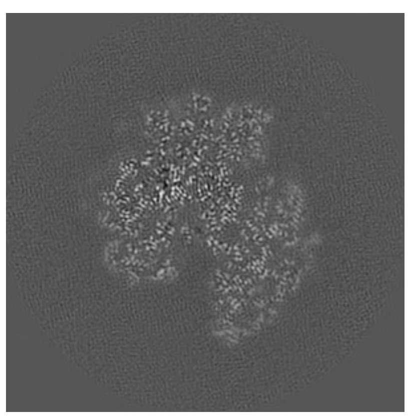
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices

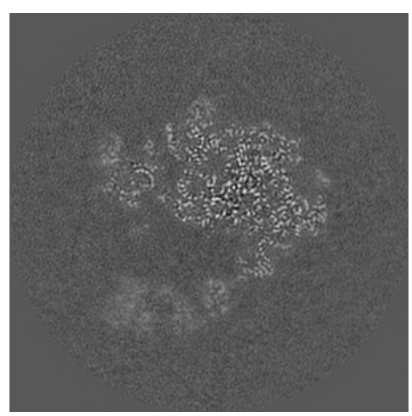
### 6.2.1 Primary map



X Index: 170



Y Index: 170

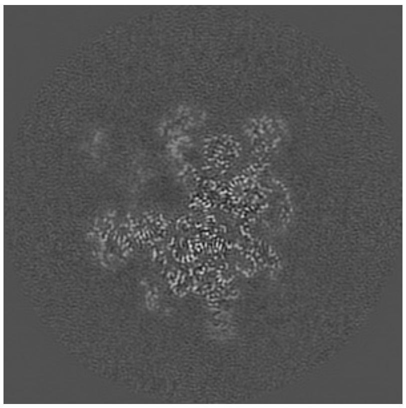


Z Index: 170

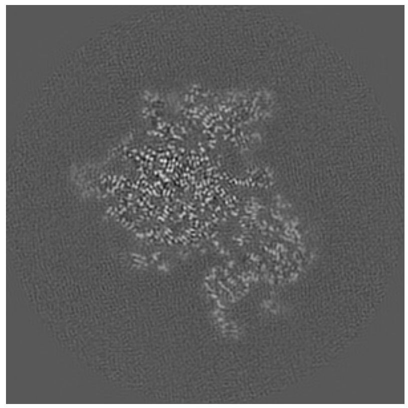
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices ⓘ

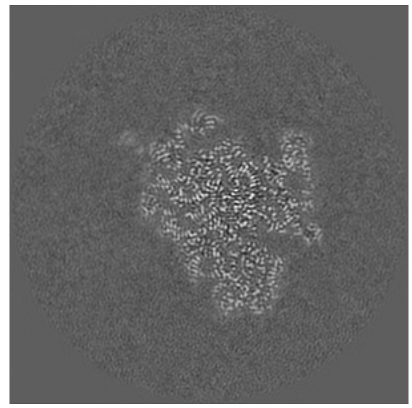
### 6.3.1 Primary map



X Index: 192



Y Index: 178

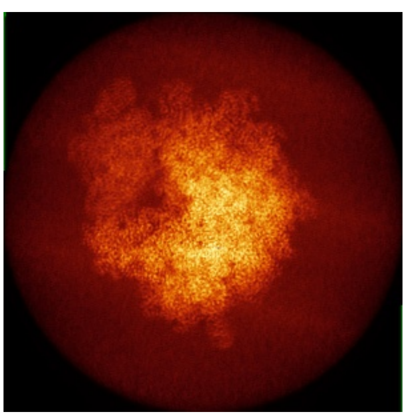


Z Index: 136

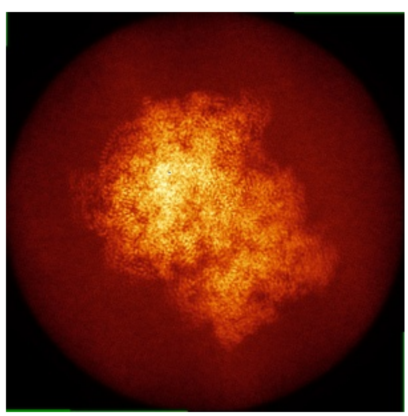
The images above show the largest variance slices of the map in three orthogonal directions.

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

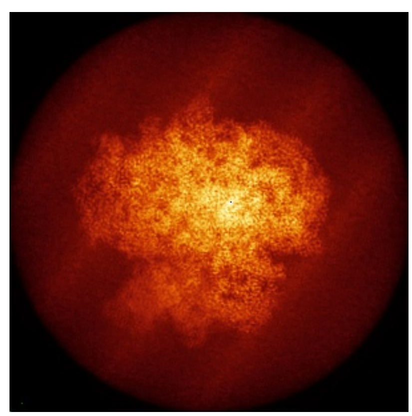
### 6.4.1 Primary map



X



Y



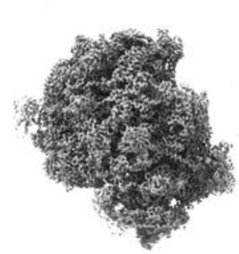
Z

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.

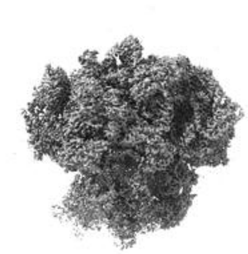
## 6.5 Orthogonal surface views (i)

### 6.5.1 Primary map

X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0199. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

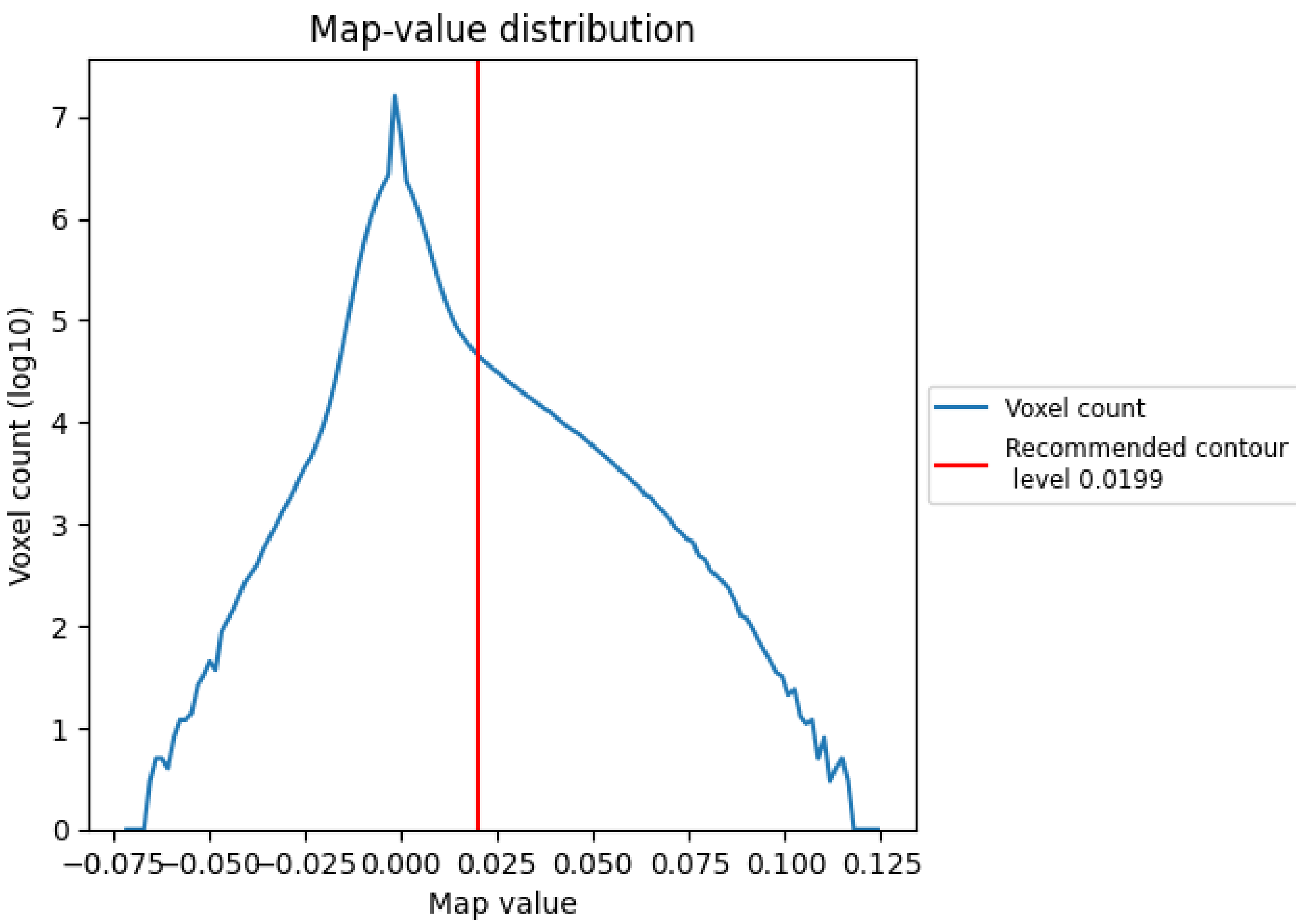
## 6.6 Mask visualisation (i)

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

# 7 Map analysis

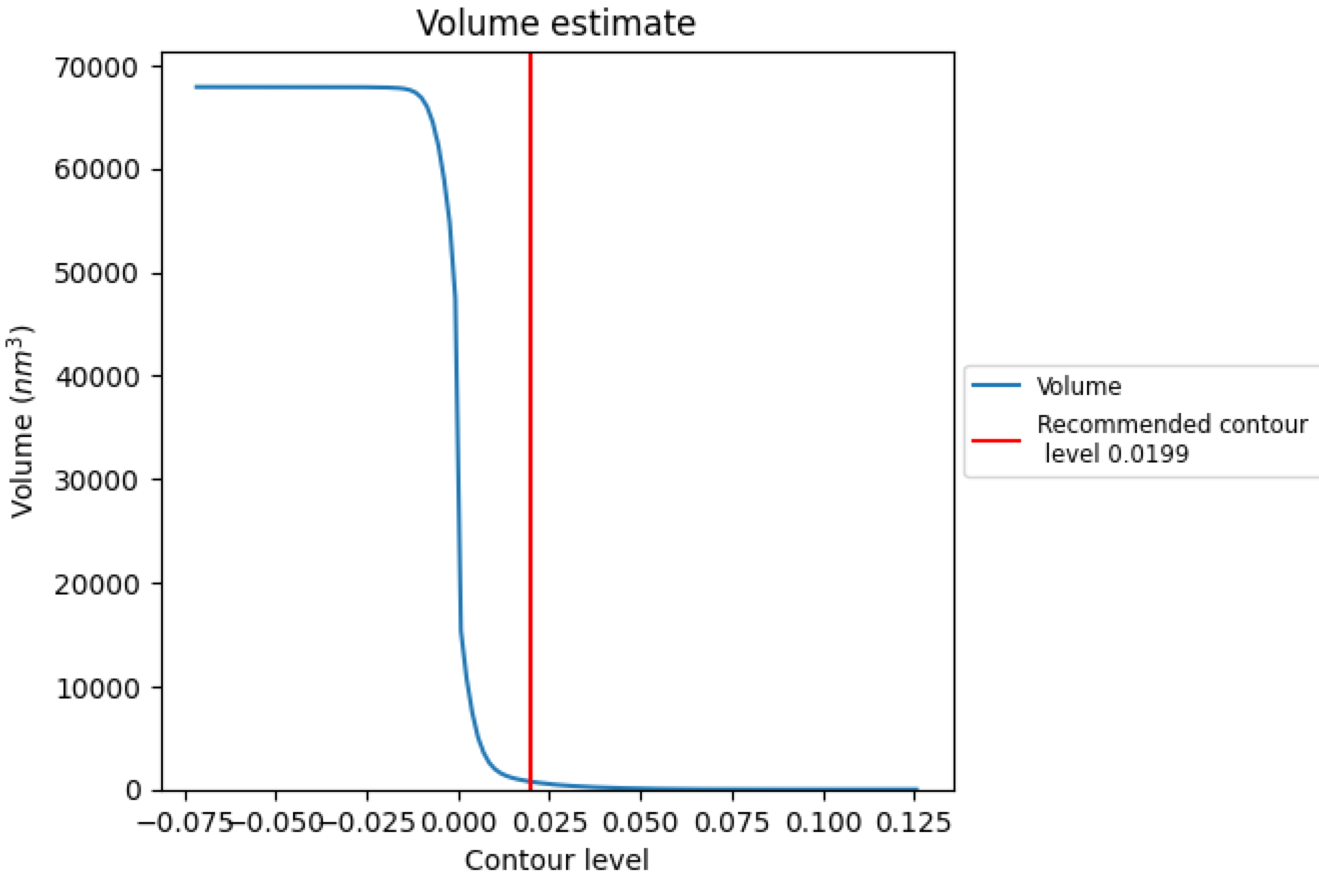
This section contains the results of statistical analysis of the map.

## 7.1 Map-value distribution




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

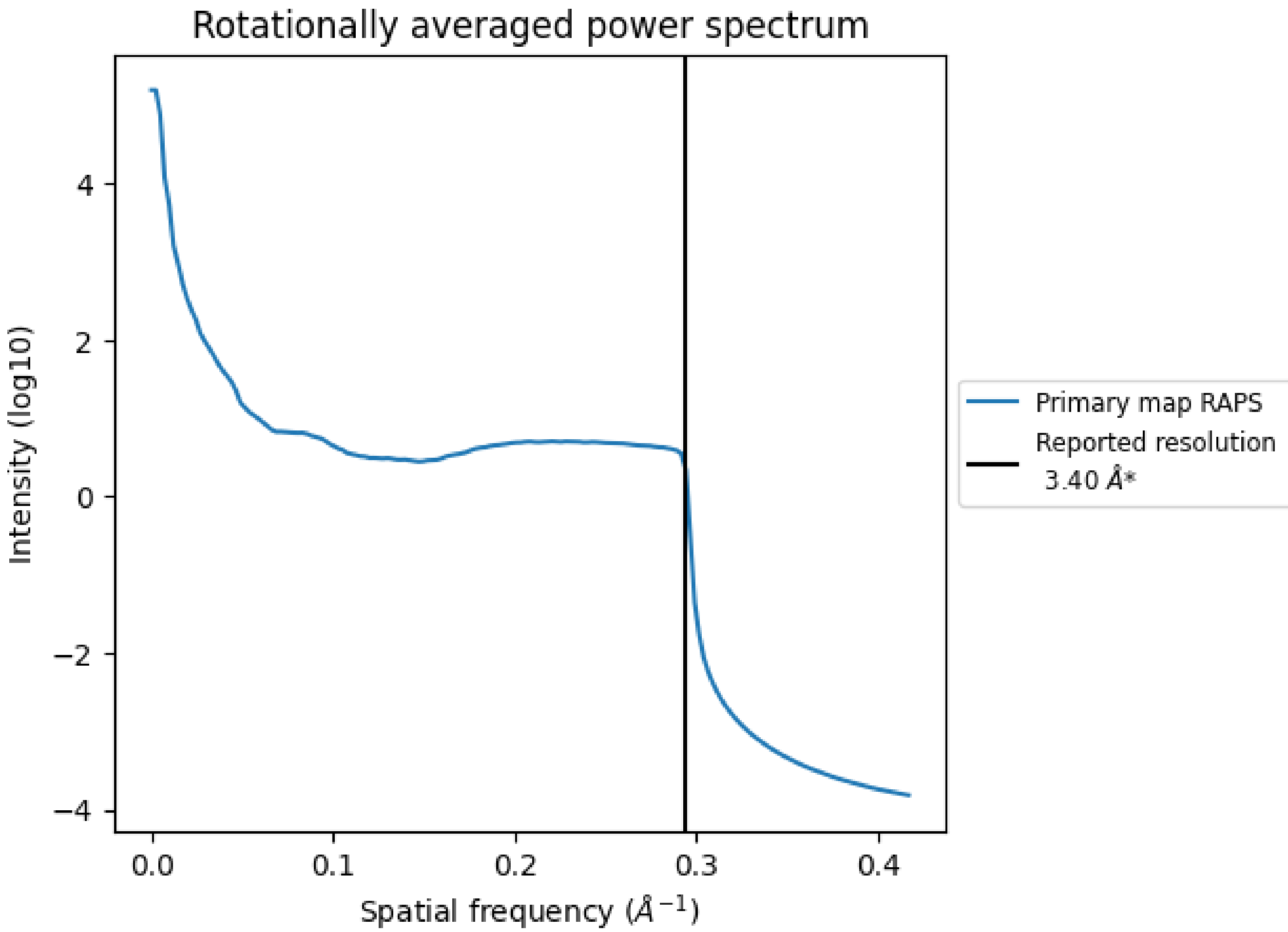
## 7.2 Volume estimate (i)




The volume at the recommended contour level is 750 nm$^3$; this corresponds to an approximate mass of 678 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 ⓘ

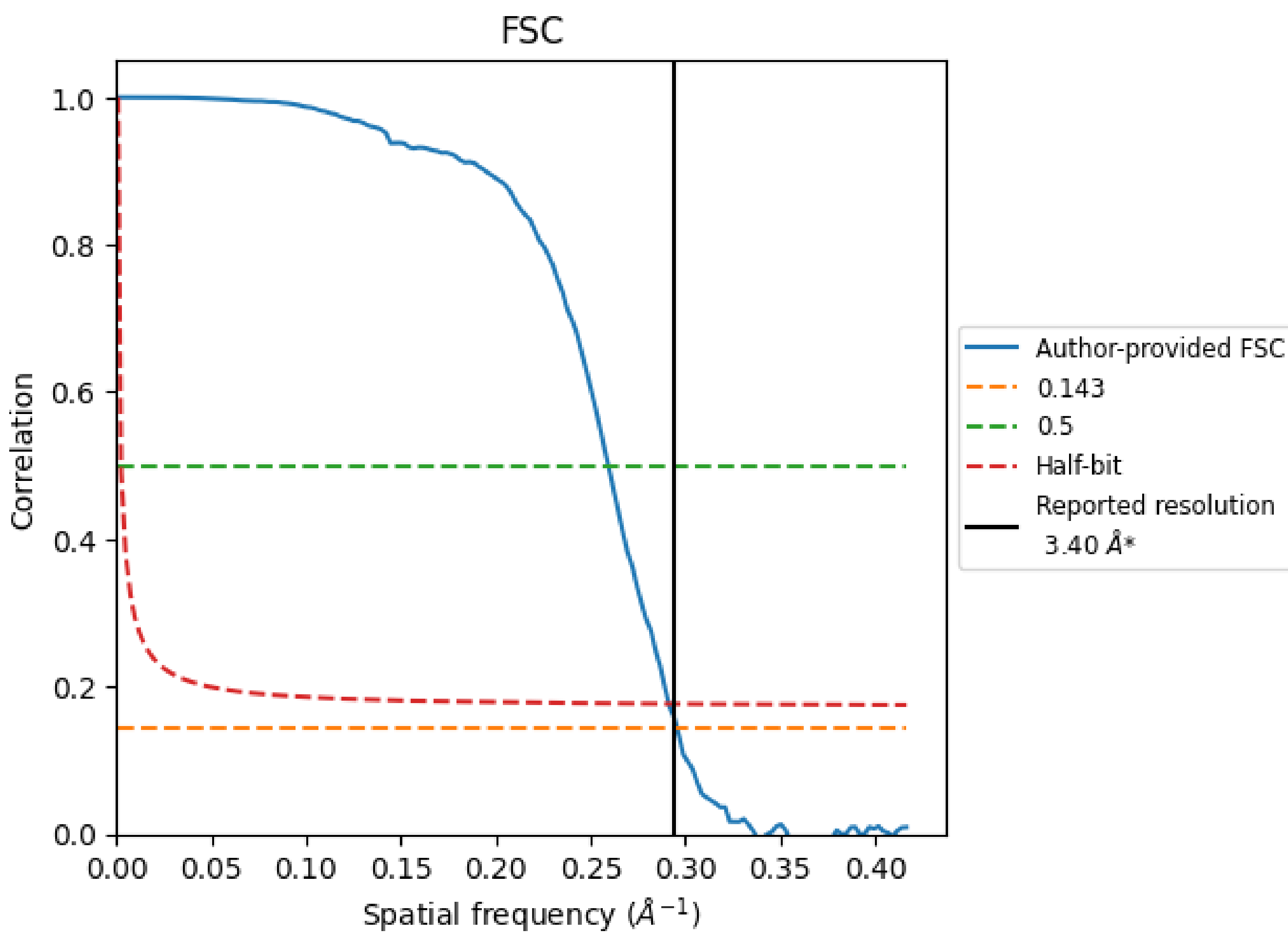



*Reported resolution corresponds to spatial frequency of 0.294 Å$^{-1}$

# 8 Fourier-Shell correlation (i)

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

## 8.1 FSC (i)




*Reported resolution corresponds to spatial frequency of 0.294 Å$^{-1}$

## 8.2 Resolution estimates (i)

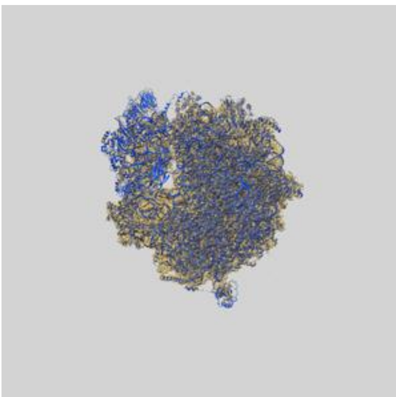
| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---|---|---|---|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 3.40 | - | - |
| Author-provided FSC curve | 3.38 | 3.86 | 3.43 |
| Unmasked-calculated* | - | - | - |

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

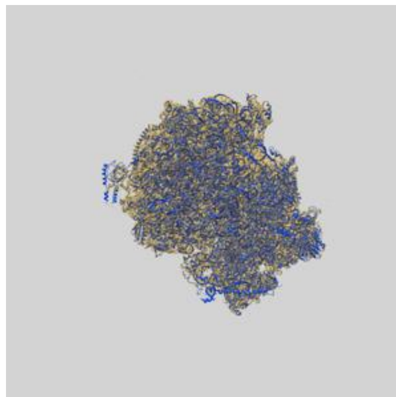
# 9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-4935 and PDB model 6RM3. Per-residue inclusion information can be found in section 3 on page 19.

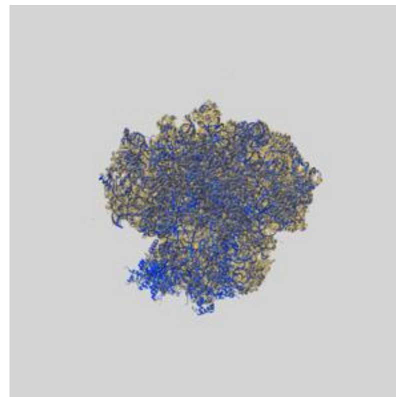
## 9.1 Map-model overlay (i)



X



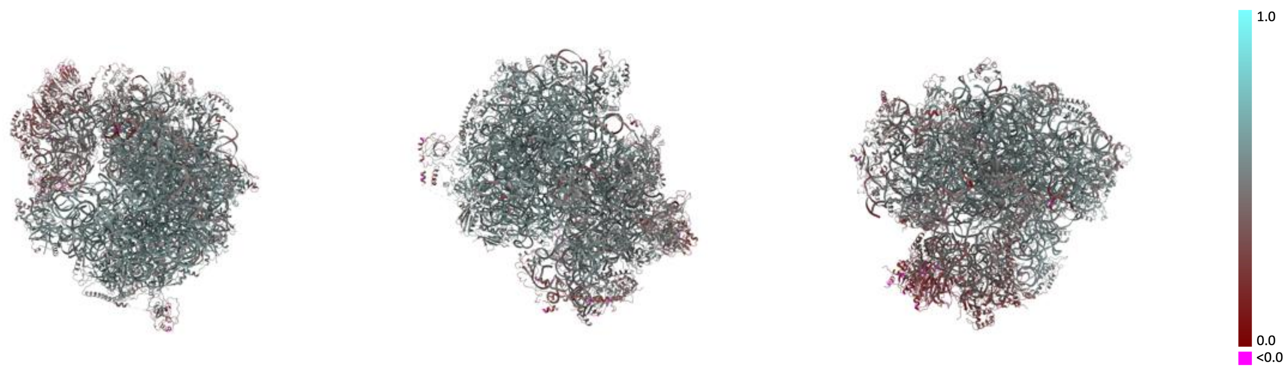
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0199 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

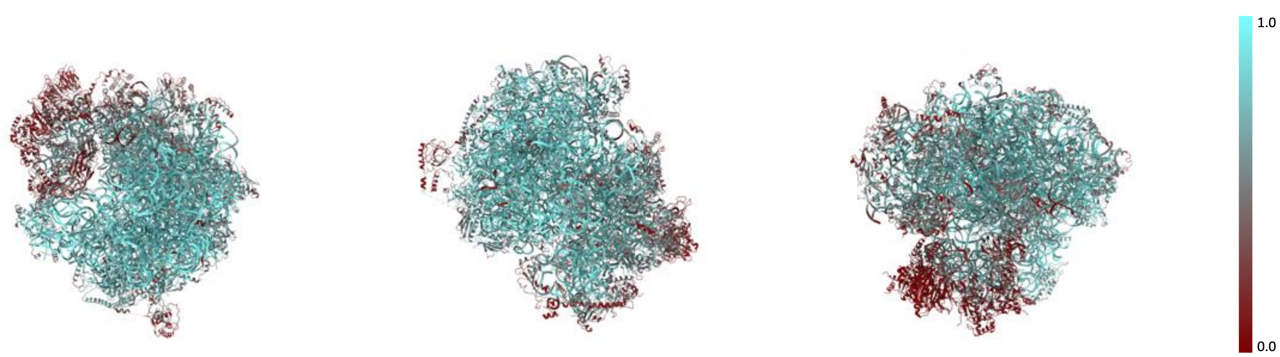
## 9.2 Q-score mapped to coordinate model (i)




X Y Z

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

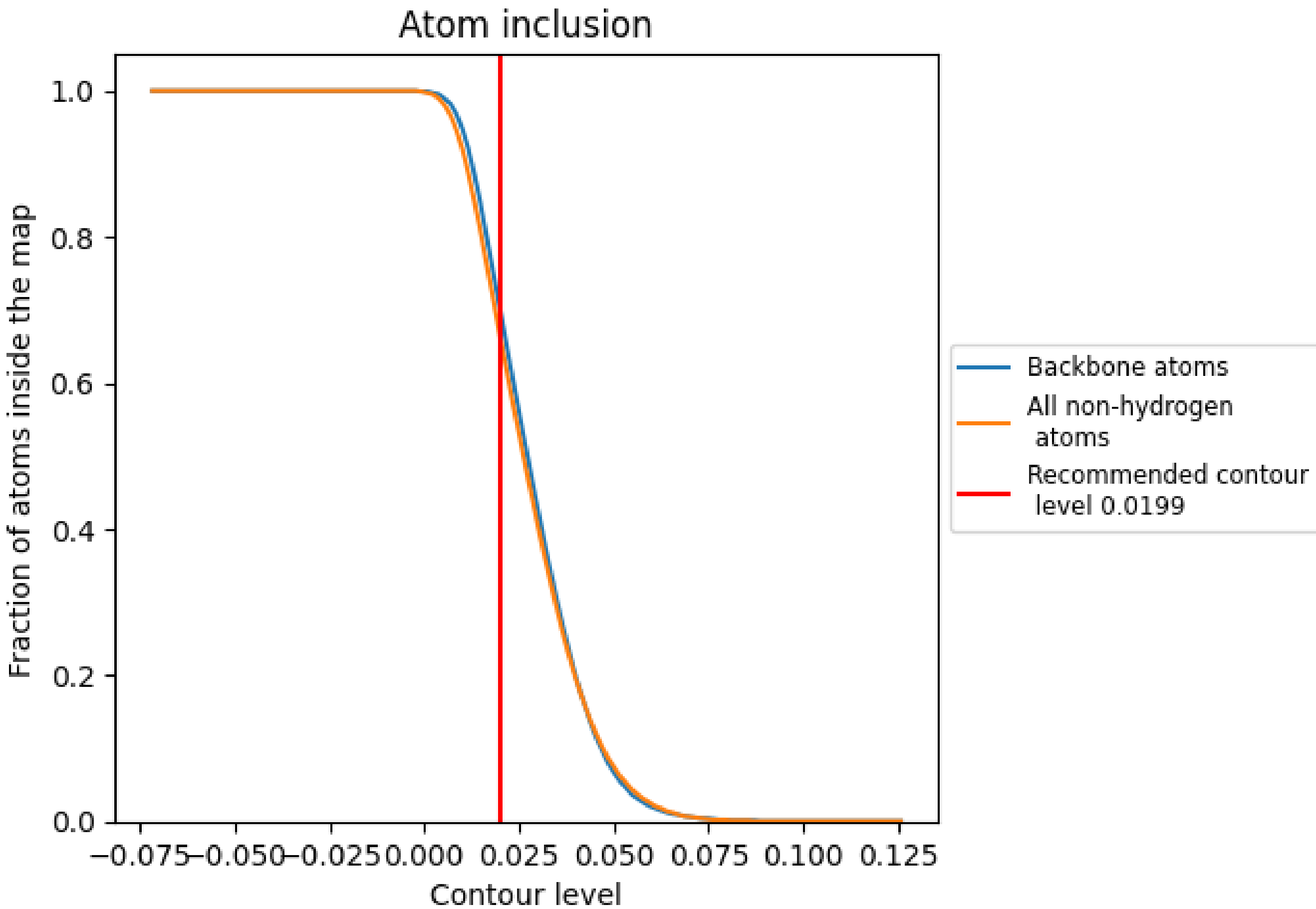
## 9.3 Atom inclusion mapped to coordinate model (i)




X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0199).

## 9.4 Atom inclusion (i)




At the recommended contour level, 70% of all backbone atoms, 67% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.0199) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.6670 | 0.4930 |
| L50 | 0.8710 | 0.5410 |
| L70 | 0.8930 | 0.5290 |
| LA0 | 0.7610 | 0.5440 |
| LAA | 0.7980 | 0.5560 |
| LB0 | 0.7240 | 0.5410 |
| LBB | 0.7190 | 0.5300 |
| LC0 | 0.7000 | 0.5260 |
| LCC | 0.5560 | 0.5070 |
| LD0 | 0.6750 | 0.5050 |
| LDD | 0.6980 | 0.5330 |
| LE0 | 0.2290 | 0.3880 |
| LEE | 0.7640 | 0.5400 |
| LF0 | 0.7150 | 0.5270 |
| LFF | 0.7430 | 0.5390 |
| LG0 | 0.4980 | 0.4720 |
| LGG | 0.7080 | 0.5330 |
| LH0 | 0.6050 | 0.4990 |
| LHH | 0.6750 | 0.5190 |
| LI0 | 0.7180 | 0.5340 |
| LII | 0.6220 | 0.5210 |
| LJ0 | 0.5170 | 0.4740 |
| LJJ | 0.8110 | 0.5590 |
| LL0 | 0.7100 | 0.5370 |
| LLL | 0.7850 | 0.5470 |
| LM0 | 0.4960 | 0.4610 |
| LMM | 0.6450 | 0.5130 |
| LN0 | 0.8100 | 0.5620 |
| LNN | 0.3120 | 0.4670 |
| LO0 | 0.7140 | 0.5400 |
| LOO | 0.6320 | 0.5320 |
| LP0 | 0.7680 | 0.5570 |
| LPP | 0.7210 | 0.5460 |
| LQ0 | 0.7310 | 0.5420 |
| LR0 | 0.6390 | 0.5080 |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| Chain | Atom inclusion | Q-score |
|---|---|---|
| LS0 | 0.7180 | 0.5300 |
| LT0 | 0.7190 | 0.5320 |
| LU0 | 0.4970 | 0.4350 |
| LV0 | 0.7070 | 0.5410 |
| LW0 | 0.5640 | 0.4960 |
| LX0 | 0.7120 | 0.5350 |
| LXX | 0.5510 | 0.5010 |
| LY0 | 0.5960 | 0.4940 |
| LZ0 | 0.4350 | 0.4490 |
| S60 | 0.7430 | 0.4810 |
| SA0 | 0.3490 | 0.4270 |
| SAA | 0.6040 | 0.4950 |
| SB0 | 0.3890 | 0.4220 |
| SBB | 0.3750 | 0.4460 |
| SC0 | 0.5300 | 0.4890 |
| SCC | 0.2060 | 0.3790 |
| SD0 | 0.2330 | 0.3800 |
| SDD | 0.3330 | 0.4170 |
| SE0 | 0.4290 | 0.4410 |
| SEE | 0.3480 | 0.4500 |
| SF0 | 0.2460 | 0.3870 |
| SFF | 0.0040 | 0.0910 |
| SG0 | 0.3750 | 0.4010 |
| SGG | 0.0780 | 0.2750 |
| SH0 | 0.2880 | 0.3830 |
| SI0 | 0.6460 | 0.5110 |
| SJ0 | 0.4880 | 0.4450 |
| SK0 | 0.1580 | 0.3120 |
| SL0 | 0.5630 | 0.4950 |
| SM0 | 0.0190 | 0.1750 |
| SN0 | 0.5160 | 0.4810 |
| SNN | 0.1940 | 0.4290 |
| SO0 | 0.5120 | 0.4770 |
| SP0 | 0.2130 | 0.3760 |
| SQ0 | 0.2450 | 0.3710 |
| SR0 | 0.1810 | 0.3510 |
| SS0 | 0.1700 | 0.3700 |
| ST0 | 0.1520 | 0.3520 |
| SU0 | 0.1750 | 0.2840 |
| SV0 | 0.4260 | 0.4610 |
| SW0 | 0.6140 | 0.5060 |
| SX0 | 0.6080 | 0.5150 |

*Continued on next page...*

*Continued from previous page...*

| Chain | Atom inclusion | Q-score |
|---|---|---|
| SY0 | 0.3510 | 0.3950 |
| SZ0 | 0.1030 | 0.3420 |