# Full wwPDB EM Validation Report ⓘ

Nov 3, 2024 – 05:59 am GMT

| | | |
|---|---|---|
| PDB ID | : | 6SGB |
| EMDB ID | : | EMD-10180 |
| Title | : | mt-SSU assemblosome of Trypanosoma brucei |
| Authors | : | Saurer, M.; Ramrath, D.J.F.; Niemann, M.; Calderaro, S.; Prange, C.; Mattei, S.; Scaiola, A.; Leitner, A.; Bieri, P.; Horn, E.K.; Leibundgut, M.; Boehringer, D.; Schneider, A.; Ban, N. |
| Deposited on | : | 2019-08-03 |
| Resolution | : | 3.30 Å(reported) |

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

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

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

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

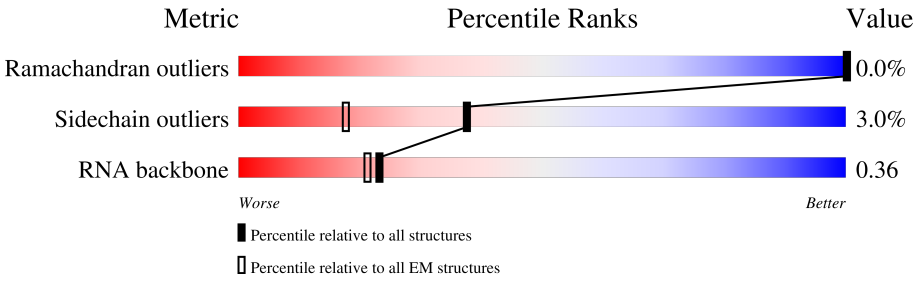
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev113 |
| Mogul | : | 1.8.4, CSD as541be (2020) |
| MolProbity | : | 4.02b-467 |
| buster-report | : | 1.1.7 (2018) |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.39 |

# 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 3.30 Å.

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




| Metric | Whole archive (#Entries) | EM structures (#Entries) |
|---|---|---|
| Ramachandran outliers | 207382 | 16835 |
| Sidechain outliers | 206894 | 16415 |
| RNA backbone | 6643 | 2191 |

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

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | CE | 435 | 15% 87% · 10% |
| 2 | CF | 160 | · 99% ·· |
| 3 | CH | 282 | 7% 77% · 21% |
| 4 | CK | 326 | 15% 62% · 35% |
| 5 | CO | 429 | 5% 82% · 17% |
| 6 | CP | 188 | · 94% · · |
| 7 | CQ | 336 | 10% 63% · 35% |
| 8 | CR | 320 | 12% 46% · 52% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 9 | Ca | 602 | 14% 83% 15% |
| 10 | Cb | 311 | 12% 47% 51% |
| 11 | Cd | 440 | 42% 58% |
| 12 | Cj | 257 | 86% 12% |
| 13 | Cn | 250 | 6% 10% 89% |
| 14 | Cp | 187 | 6% 93% 5% |
| 15 | DD | 812 | 6% 96% |
| 16 | DI | 407 | 6% 94% |
| 17 | DL | 307 | 9% 65% 34% |
| 18 | DO | 282 | 15% 72% 28% |
| 19 | DP | 274 | 76% 23% |
| 20 | DR | 270 | 91% 6% |
| 21 | DU | 228 | 19% 93% |
| 22 | DZ | 94 | 10% 30% 68% |
| 23 | F2 | 1024 | 7% 87% 11% |
| 24 | F3 | 966 | 13% 89% 8% |
| 25 | F5 | 754 | 36% 61% 36% |
| 26 | F6 | 676 | 19% 66% 33% |
| 27 | F7 | 679 | 8% 95% |
| 28 | F8 | 726 | 12% 69% 29% |
| 29 | F9 | 608 | 7% 35% 64% |
| 30 | FA | 642 | 30% 86% 10% |
| 31 | FB | 579 | 5% 63% 35% |
| 31 | FC | 579 | 10% 52% 46% |
| 32 | FE | 553 | 8% 77% 22% |

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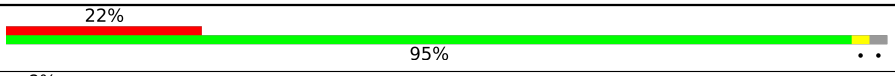
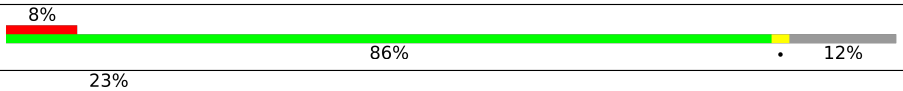
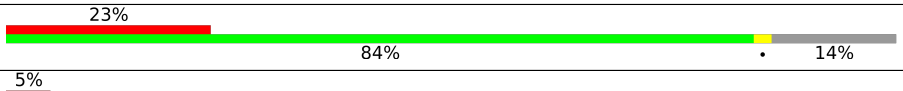
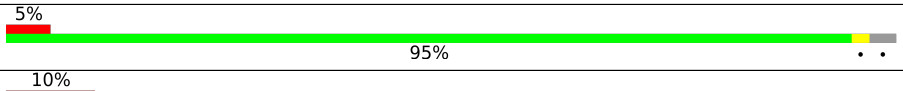
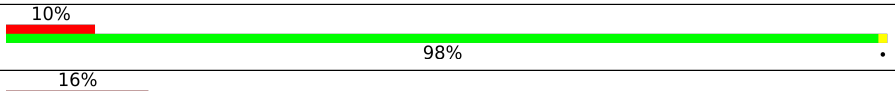
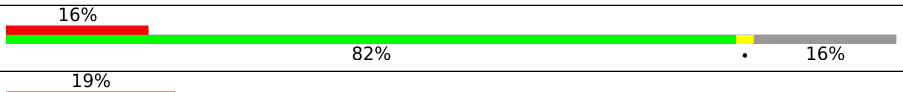
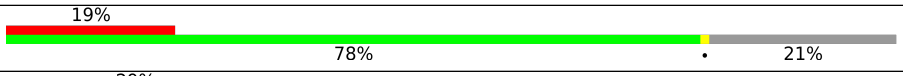
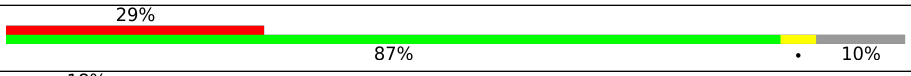
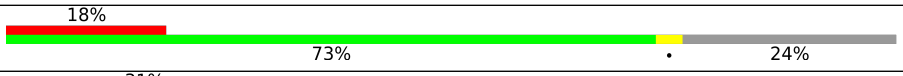
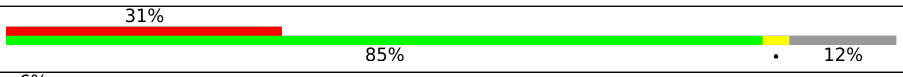
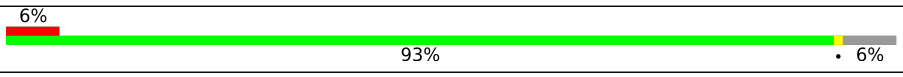
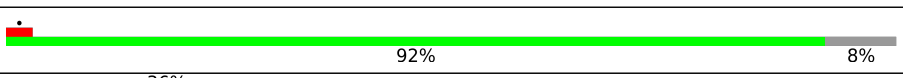
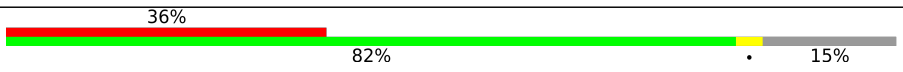
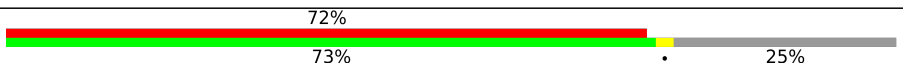
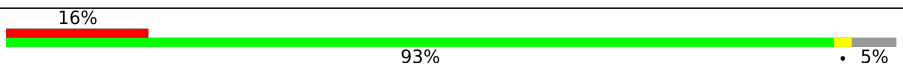
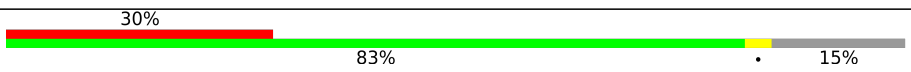
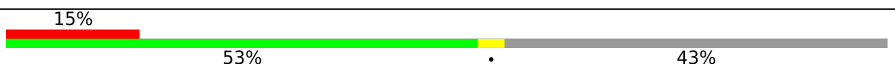
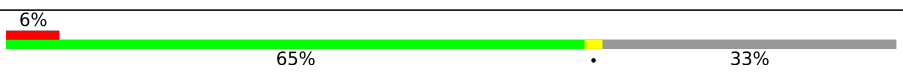
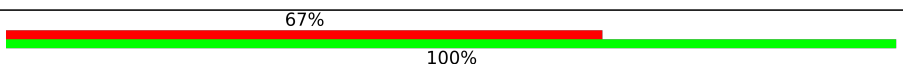
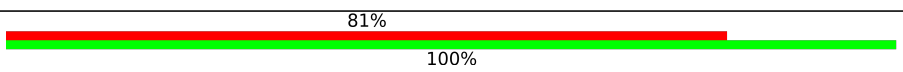
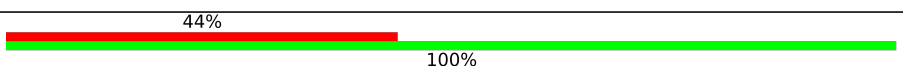
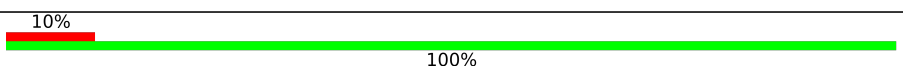
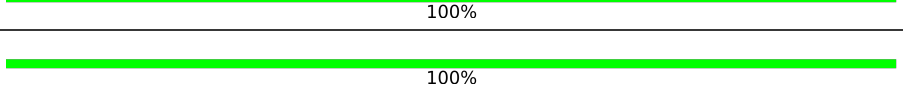
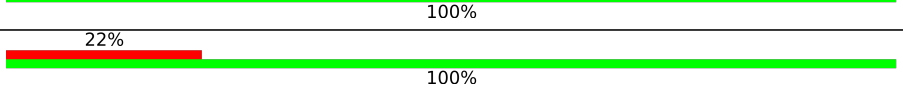
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 33 | FJ | 362 |   |
| 34 | FM | 370 |   |
| 34 | FN | 370 |   |
| 35 | FO | 334 |   |
| 36 | FP | 349 |   |
| 37 | FQ | 307 |   |
| 37 | FR | 307 |   |
| 37 | FS | 307 |   |
| 37 | FT | 307 |   |
| 37 | FU | 307 |   |
| 38 | FW | 263 |   |
| 39 | FX | 239 |   |
| 40 | FY | 188 |   |
| 41 | FZ | 178 |   |
| 42 | Fa | 171 |   |
| 43 | Fb | 151 |   |
| 44 | Fc | 148 |   |
| 45 | Fd | 143 |   |
| 46 | UA | 21 |   |
| 47 | UB | 27 |   |
| 47 | Uk | 27 |   |
| 48 | UC | 10 |   |
| 49 | UD | 9 |   |
| 49 | UM | 9 |   |
| 49 | UQ | 9 |   |

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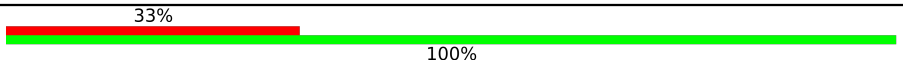
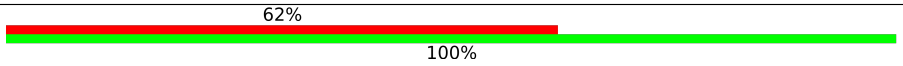
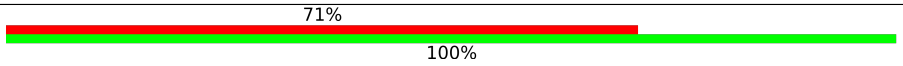
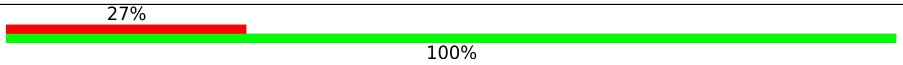
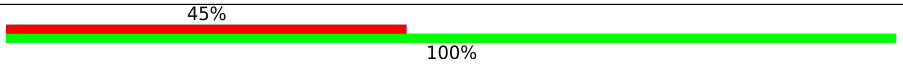
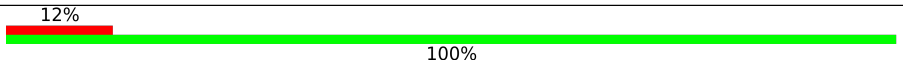
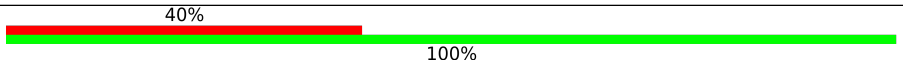
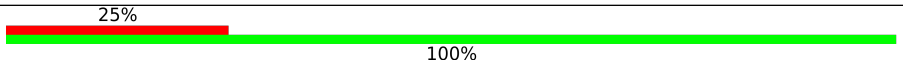
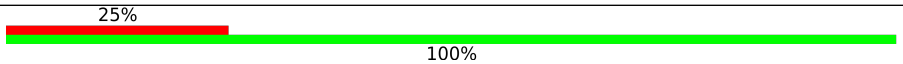
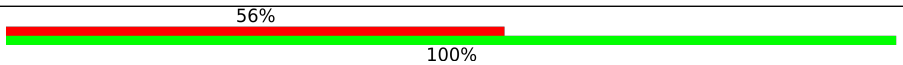
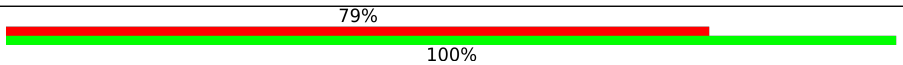
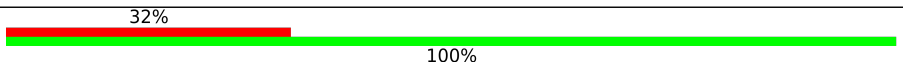
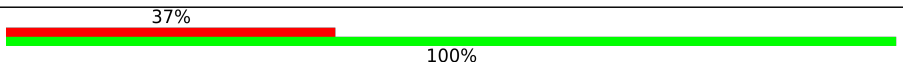
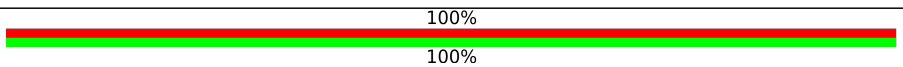
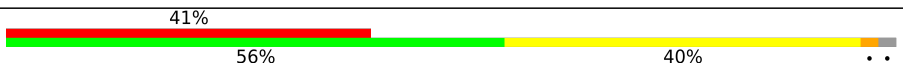
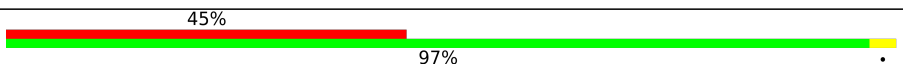
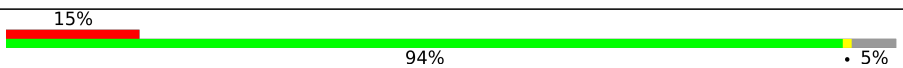
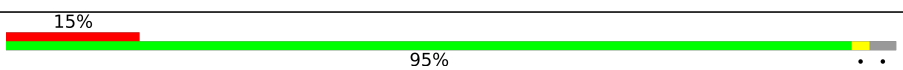
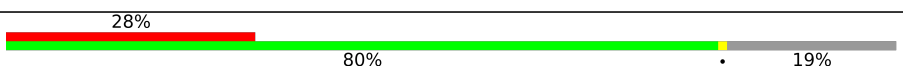
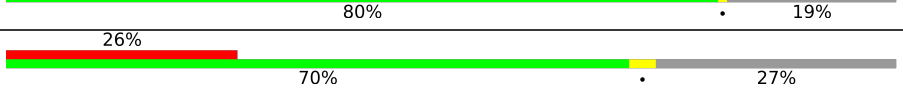
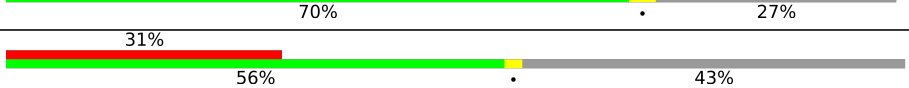
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 49 | Uf | 9 |   |
| 50 | UE | 45 |   |
| 50 | UP | 45 |   |
| 51 | UF | 11 |   |
| 51 | Um | 11 |   |
| 52 | UG | 17 |   |
| 53 | UH | 5 |   |
| 54 | UI | 8 |   |
| 54 | UN | 8 |   |
| 55 | UJ | 16 |   |
| 56 | UK | 24 |   |
| 57 | UL | 22 |   |
| 58 | UO | 30 |   |
| 59 | UY | 468 |   |
| 60 | CA | 620 |   |
| 61 | CC | 74 |   |
| 62 | CI | 443 |   |
| 63 | CJ | 817 |   |
| 64 | CN | 166 |   |
| 65 | CS | 244 |   |
| 66 | Cg | 498 |   |
| 67 | Ci | 181 |   |
| 68 | Ck | 874 |   |
| 69 | DB | 1181 |   |
| 70 | DC | 1165 |   |

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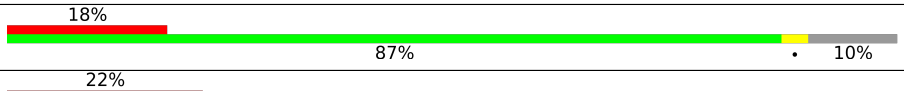
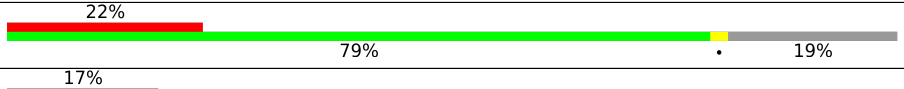
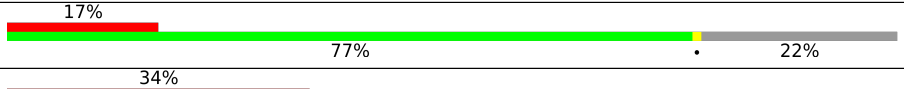
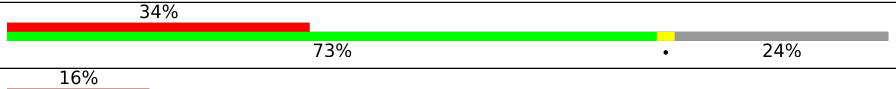
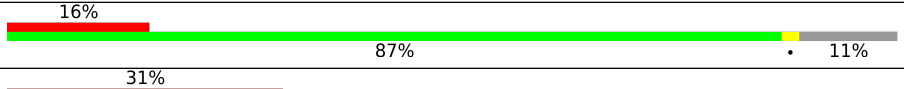
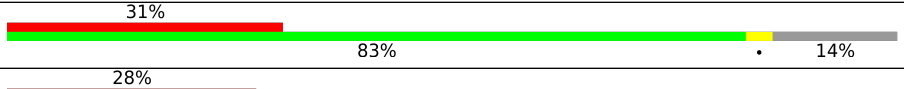
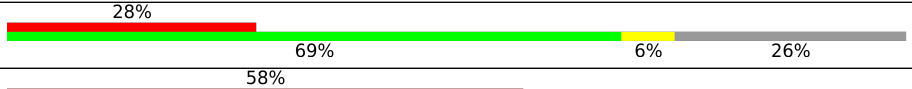
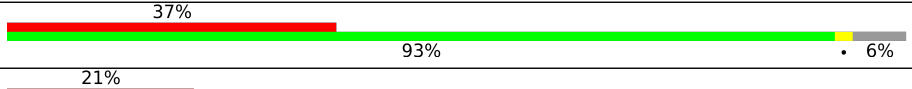
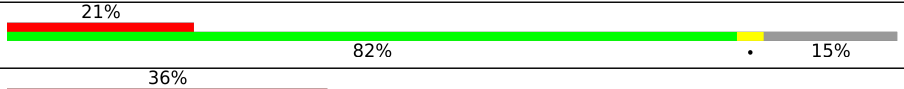
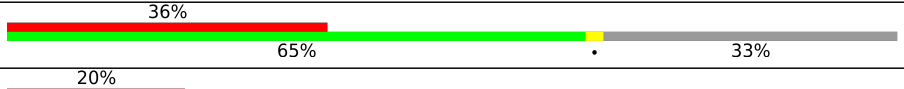
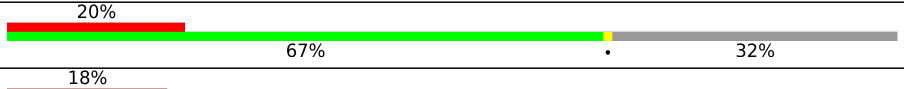
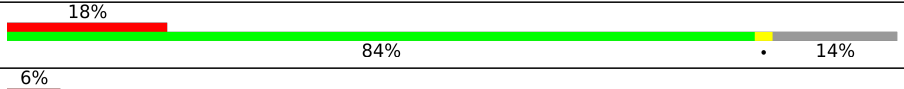
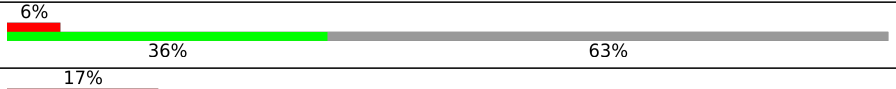
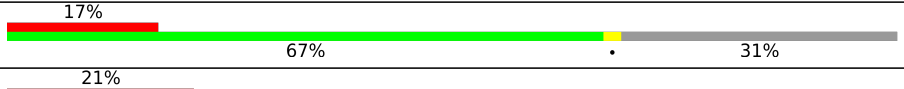
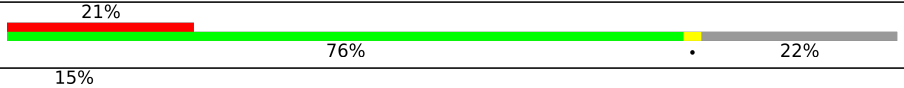
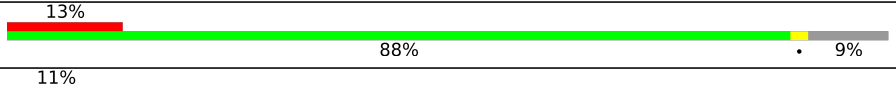
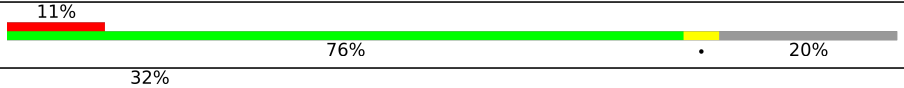
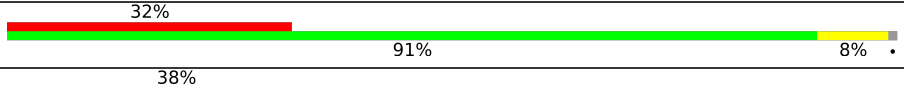
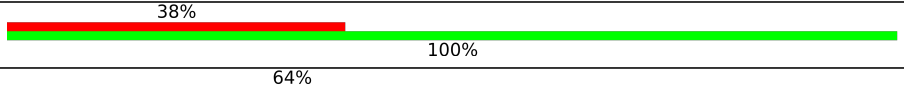
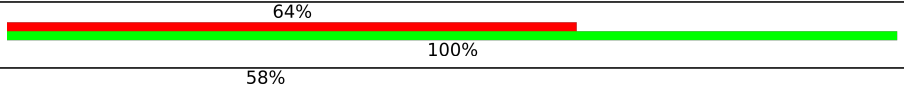
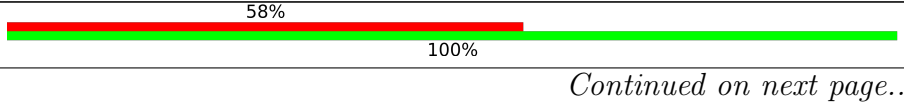
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 71 | DE | 747 |   |
| 72 | DF | 666 |   |
| 73 | DG | 631 |   |
| 74 | DH | 581 |   |
| 75 | DJ | 396 |   |
| 76 | DK | 324 |   |
| 77 | DT | 247 |   |
| 78 | DV | 183 |   |
| 79 | DW | 179 |   |
| 80 | DX | 169 |   |
| 81 | DY | 163 |   |
| 82 | F1 | 1041 |   |
| 83 | F4 | 811 |   |
| 84 | FD | 579 |   |
| 85 | FF | 474 |   |
| 86 | FG | 463 |   |
| 87 | FH | 457 |   |
| 88 | FI | 445 |   |
| 89 | FK | 372 |   |
| 90 | FL | 353 |   |
| 91 | FV | 264 |   |
| 92 | Fe | 123 |   |
| 93 | Ua | 47 |   |
| 94 | Ub | 42 |   |
| 95 | Uc | 12 |   |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 96 | Ud | 59 | 73% 100% |
| 97 | Ue | 29 | 72% 100% |
| 98 | Ug | 167 | 57% 100% |
| 99 | Uh | 255 | 100% 100% |
| 100 | Ui | 32 | 75% 100% |
| 101 | Uj | 19 | 63% 100% |
| 102 | Ul | 14 | 86% 100% |
| 103 | Ux | 110 | 98% 98% |

# 2 Entry composition

There are 110 unique types of molecules in this entry. The entry contains 240624 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called uS5m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 1 | CE | 392 | 3147 | 1992 | 579 | 561 | 15 | 0 | 0 |

- Molecule 2 is a protein called bS6m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 2 | CF | 159 | 1317 | 835 | 234 | 242 | 6 | 0 | 0 |

- Molecule 3 is a protein called uS8m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 3 | CH | 222 | 1824 | 1144 | 349 | 321 | 10 | 0 | 0 |

- Molecule 4 is a protein called uS11m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 4 | CK | 211 | 1721 | 1084 | 316 | 311 | 10 | 0 | 0 |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| CK | 3 | ARG | GLN | conflict | UNP Q389T7 |

- Molecule 5 is a protein called uS15m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 5 | CO | 358 | 2979 | 1891 | 557 | 514 | 17 | 0 | 0 |

- Molecule 6 is a protein called bS16m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 6 | CP | 180 | Total | C | N | O | S | 0 | 0 |
| | | | 1489 | 956 | 274 | 250 | 9 | | |

- Molecule 7 is a protein called uS17m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 7 | CQ | 219 | Total | C | N | O | S | 0 | 0 |
| | | | 1805 | 1151 | 340 | 306 | 8 | | |

- Molecule 8 is a protein called bS18m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 8 | CR | 153 | Total | C | N | O | S | 0 | 0 |
| | | | 1274 | 821 | 233 | 218 | 2 | | |

- Molecule 9 is a protein called mS22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 9 | Ca | 512 | Total | C | N | O | S | 0 | 0 |
| | | | 4340 | 2778 | 770 | 771 | 21 | | |

- Molecule 10 is a protein called mS23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 10 | Cb | 153 | Total | C | N | O | S | 0 | 0 |
| | | | 1274 | 819 | 232 | 217 | 6 | | |

- Molecule 11 is a protein called mS26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 11 | Cd | 185 | Total | C | N | O | S | 0 | 0 |
| | | | 1616 | 1032 | 297 | 279 | 8 | | |

- Molecule 12 is a protein called mS34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 12 | Cj | 226 | Total | C | N | O | S | 0 | 0 |
| | | | 1792 | 1138 | 310 | 340 | 4 | | |

- Molecule 13 is a protein called mS38.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 13 | Cn | 27 | Total | C | N | O | 0 | 0 |
| | | | 234 | 155 | 44 | 35 | | |

- Molecule 14 is a protein called mS41.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | Cp | 178 | Total | C | N | O | S | 0 | 0 |
| | | | 1506 | 952 | 272 | 277 | 5 | | |

- Molecule 15 is a protein called mS51 (KRIPP1).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | DD | 786 | Total | C | N | O | S | 0 | 0 |
| | | | 6488 | 4110 | 1168 | 1169 | 41 | | |

- Molecule 16 is a protein called mS56.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 16 | DI | 390 | Total | C | N | O | S | 0 | 0 |
| | | | 3182 | 2020 | 554 | 594 | 14 | | |

- Molecule 17 is a protein called mS59.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 17 | DL | 203 | Total | C | N | O | S | 0 | 0 |
| | | | 1656 | 1059 | 296 | 291 | 10 | | |

- Molecule 18 is a protein called mS62 (KRIPP14).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 18 | DO | 204 | Total | C | N | O | S | 0 | 0 |
| | | | 1648 | 1031 | 300 | 307 | 10 | | |

- Molecule 19 is a protein called mS63 (KRIPP16).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 19 | DP | 212 | Total | C | N | O | S | 0 | 0 |
| | | | 1800 | 1156 | 321 | 314 | 9 | | |

- Molecule 20 is a protein called mS65.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 20 | DR | 254 | Total | C | N | O | S | 0 | 0 |
| | | | 2042 | 1313 | 373 | 346 | 10 | | |

- Molecule 21 is a protein called mS68.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | DU | 219 | Total | C | N | O | S | 0 | 0 |
| | | | 1738 | 1095 | 308 | 331 | 4 | | |

- Molecule 22 is a protein called mS73.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 22 | DZ | 30 | Total | C | N | O | S | 0 | 0 |
| | | | 254 | 167 | 41 | 45 | 1 | | |

- Molecule 23 is a protein called mt-SAF2 (KRIPP2).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 23 | F2 | 915 | Total | C | N | O | S | 0 | 0 |
| | | | 7274 | 4570 | 1281 | 1384 | 39 | | |

- Molecule 24 is a protein called mt-SAF3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 24 | F3 | 888 | Total | C | N | O | S | 0 | 0 |
| | | | 6879 | 4302 | 1222 | 1303 | 52 | | |

There are 4 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| F3 | 44 | THR | ALA | conflict | UNP Q38E61 |
| F3 | 190 | VAL | ILE | conflict | UNP Q38E61 |
| F3 | 303 | ALA | SER | conflict | UNP Q38E61 |
| F3 | 418 | ASP | ASN | conflict | UNP Q38E61 |

- Molecule 25 is a protein called mt-SAF5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 25 | F5 | 480 | Total | C | N | O | S | 0 | 0 |
| | | | 3474 | 2167 | 646 | 647 | 14 | | |

- Molecule 26 is a protein called mt-SAF6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 26 | F6 | 456 | Total | C | N | O | S | 0 | 0 |
| | | | 3646 | 2311 | 635 | 686 | 14 | | |

There are 4 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| F6 | 285 | ARG | HIS | conflict | UNP Q38FQ8 |
| F6 | 291 | ILE | THR | conflict | UNP Q38FQ8 |
| F6 | 602 | ALA | VAL | conflict | UNP Q38FQ8 |
| F6 | 676 | CYS | PHE | conflict | UNP Q38FQ8 |

- Molecule 27 is a protein called mt-SAF7 (KRIPP10).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 27 | F7 | 662 | Total | C | N | O | S | 0 | 0 |
| | | | 5225 | 3322 | 918 | 950 | 35 | | |

There are 3 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| F7 | 36 | ILE | THR | conflict | UNP Q57UW6 |
| F7 | 470 | GLU | LYS | conflict | UNP Q57UW6 |
| F7 | 474 | VAL | ALA | conflict | UNP Q57UW6 |

- Molecule 28 is a protein called mt-SAF8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 28 | F8 | 513 | Total | C | N | O | S | 0 | 0 |
| | | | 3934 | 2493 | 721 | 701 | 19 | | |

- Molecule 29 is a protein called mt-SAF9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 29 | F9 | 216 | Total | C | N | O | S | 0 | 0 |
| | | | 1755 | 1088 | 325 | 337 | 5 | | |

- Molecule 30 is a protein called mt-SAF10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 30 | FA | 579 | Total | C | N | O | S | 0 | 0 |
| | | | 4421 | 2801 | 785 | 813 | 22 | | |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| FA | 173 | ALA | THR | conflict | UNP Q386U1 |
| FA | 352 | TYR | HIS | conflict | UNP Q386U1 |

- Molecule 31 is a protein called mt-SAF11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 31 | FB | 377 | Total | C | N | O | S | 0 | 0 |
| | | | 3055 | 1928 | 574 | 543 | 10 | | |
| 31 | FC | 311 | Total | C | N | O | S | 0 | 0 |
| | | | 2572 | 1629 | 488 | 447 | 8 | | |

- Molecule 32 is a protein called mt-SAF13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 32 | FE | 434 | Total | C | N | O | S | 0 | 0 |
| | | | 3523 | 2268 | 611 | 626 | 18 | | |

- Molecule 33 is a protein called mt-SAF18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 33 | FJ | 353 | Total | C | N | O | S | 0 | 0 |
| | | | 2917 | 1843 | 550 | 516 | 8 | | |

- Molecule 34 is a protein called mt-SAF21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 34 | FM | 326 | Total | C | N | O | S | 0 | 0 |
| | | | 2449 | 1515 | 449 | 465 | 20 | | |
| 34 | FN | 319 | Total | C | N | O | S | 0 | 0 |
| | | | 2392 | 1478 | 436 | 458 | 20 | | |

- Molecule 35 is a protein called mt-SAF22 (KRIPP17).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 35 | FO | 324 | Total | C | N | O | S | 0 | 0 |
| | | | 2671 | 1674 | 509 | 474 | 14 | | |

- Molecule 36 is a protein called mt-SAF23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 36 | FP | 348 | Total | C | N | O | S | 0 | 0 |
| | | | 2643 | 1682 | 464 | 487 | 10 | | |

- Molecule 37 is a protein called mt-SAF24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 37 | FQ | 257 | Total | C | N | O | S | 0 | 0 |
| | | | 2003 | 1265 | 358 | 373 | 7 | | |
| 37 | FR | 243 | Total | C | N | O | S | 0 | 0 |
| | | | 1923 | 1217 | 344 | 355 | 7 | | |
| 37 | FS | 277 | Total | C | N | O | S | 0 | 0 |
| | | | 2198 | 1389 | 397 | 404 | 8 | | |
| 37 | FT | 233 | Total | C | N | O | S | 0 | 0 |
| | | | 1854 | 1177 | 331 | 339 | 7 | | |
| 37 | FU | 270 | Total | C | N | O | S | 0 | 0 |
| | | | 2105 | 1331 | 380 | 386 | 8 | | |

- Molecule 38 is a protein called mt-SAF26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 38 | FW | 247 | Total | C | N | O | S | 0 | 0 |
| | | | 2034 | 1272 | 384 | 371 | 7 | | |

- Molecule 39 is a protein called mt-SAF27 (KRIPP11).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 39 | FX | 220 | Total | C | N | O | S | 0 | 0 |
| | | | 1741 | 1093 | 318 | 316 | 14 | | |

- Molecule 40 is a protein called mt-SAF28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 40 | FY | 160 | Total | C | N | O | S | 0 | 0 |
| | | | 1289 | 819 | 229 | 235 | 6 | | |

- Molecule 41 is a protein called mt-SAF29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 41 | FZ | 133 | Total | C | N | O | S | 0 | 0 |
| | | | 973 | 605 | 181 | 185 | 2 | | |

- Molecule 42 is a protein called mt-SAF30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 42 | Fa | 163 | Total | C | N | O | S | 0 | 0 |
| | | | 1323 | 860 | 236 | 223 | 4 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| Fa | 73 | ALA | VAL | conflict | UNP Q57VU7 |

- Molecule 43 is a protein called mt-SAF31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 43 | Fb | 129 | Total | C | N | O | S | 0 | 0 |
| | | | 1091 | 701 | 198 | 184 | 8 | | |

- Molecule 44 is a protein called mt-SAF32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 44 | Fc | 84 | Total | C | N | O | S | 0 | 0 |
| | | | 669 | 427 | 106 | 135 | 1 | | |

- Molecule 45 is a protein called mt-SAF33.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 45 | Fd | 96 | Total | C | N | O | S | 0 | 0 |
| | | | 758 | 481 | 147 | 122 | 8 | | |

- Molecule 46 is a protein called UNK-A.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 46 | UA | 21 | Total | C | N | O | 0 | 0 |
| | | | 126 | 84 | 21 | 21 | | |

- Molecule 47 is a protein called UNK-B, UNK-k.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 47 | UB | 27 | Total | C | N | O | 0 | 0 |
| | | | 162 | 108 | 27 | 27 | | |
| 47 | Uk | 27 | Total | C | N | O | 0 | 0 |
| | | | 162 | 108 | 27 | 27 | | |

- Molecule 48 is a protein called UNK-C.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 48 | UC | 10 | Total | C | N | O | 0 | 0 |
| | | | 60 | 40 | 10 | 10 | | |

- Molecule 49 is a protein called UNK-D, UNK-M, UNK-Q, UNK-f.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 49 | UD | 9 | Total | C | N | O | 0 | 0 |
| | | | 54 | 36 | 9 | 9 | | |
| 49 | UM | 9 | Total | C | N | O | 0 | 0 |
| | | | 54 | 36 | 9 | 9 | | |
| 49 | UQ | 9 | Total | C | N | O | 0 | 0 |
| | | | 54 | 36 | 9 | 9 | | |
| 49 | Uf | 9 | Total | C | N | O | 0 | 0 |
| | | | 54 | 36 | 9 | 9 | | |

- Molecule 50 is a protein called UNK-E, UNK-P.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 50 | UE | 45 | Total | C | N | O | 0 | 0 |
| | | | 270 | 180 | 45 | 45 | | |
| 50 | UP | 45 | Total | C | N | O | 0 | 0 |
| | | | 270 | 180 | 45 | 45 | | |

- Molecule 51 is a protein called UNK-F, UNK-m.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 51 | UF | 11 | Total | C | N | O | 0 | 0 |
| | | | 66 | 44 | 11 | 11 | | |
| 51 | Um | 11 | Total | C | N | O | 0 | 0 |
| | | | 66 | 44 | 11 | 11 | | |

- Molecule 52 is a protein called UNK-G.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 52 | UG | 17 | Total | C | N | O | 0 | 0 |
| | | | 102 | 68 | 17 | 17 | | |

- Molecule 53 is a protein called UNK-H.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 53 | UH | 5 | Total | C | N | O | 0 | 0 |
| | | | 30 | 20 | 5 | 5 | | |

- Molecule 54 is a protein called UNK-I, UNK-N.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 54 | UI | 8 | Total | C | N | O | 0 | 0 |
| | | | 48 | 32 | 8 | 8 | | |
| 54 | UN | 8 | Total | C | N | O | 0 | 0 |
| | | | 48 | 32 | 8 | 8 | | |

- Molecule 55 is a protein called UNK-J.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 55 | UJ | 16 | Total | C | N | O | 0 | 0 |
| | | | 96 | 64 | 16 | 16 | | |

- Molecule 56 is a protein called UNK-K.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 56 | UK | 24 | Total | C | N | O | 0 | 0 |
| | | | 144 | 96 | 24 | 24 | | |

- Molecule 57 is a protein called UNK-L.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 57 | UL | 22 | Total | C | N | O | 0 | 0 |
| | | | 132 | 88 | 22 | 22 | | |

- Molecule 58 is a protein called UNK-O.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 58 | UO | 30 | Total | C | N | O | 0 | 0 |
| | | | 180 | 120 | 30 | 30 | | |

- Molecule 59 is a protein called UNK-Y.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 59 | UY | 468 | Total | C | N | O | 0 | 0 |
| | | | 2808 | 1872 | 468 | 468 | | |

- Molecule 60 is a RNA chain called 9S rRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 60 | CA | 609 | Total | C | N | O | P | 0 | 0 |
| | | | 11352 | 5038 | 1602 | 4102 | 610 | | |

- Molecule 61 is a protein called mS3m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 61 | CC | 74 | Total | C | N | O | S | 0 | 0 |
| | | | 646 | 451 | 96 | 98 | 1 | | |

- Molecule 62 is a protein called uS9m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 62 | CI | 423 | Total | C | N | O | S | 0 | 0 |
| | | | 3357 | 2108 | 601 | 631 | 17 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| CI | 370 | ALA | VAL | conflict | UNP Q57W62 |

- Molecule 63 is a protein called uS10m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 63 | CJ | 701 | Total | C | N | O | S | 0 | 0 |
| | | | 5709 | 3605 | 1017 | 1064 | 23 | | |

- Molecule 64 is a protein called uS14m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 64 | CN | 153 | Total | C | N | O | S | 0 | 0 |
| | | | 1285 | 820 | 242 | 216 | 7 | | |

- Molecule 65 is a protein called uS19m.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 65 | CS | 85 | Total | C | N | O | S | 0 | 0 |
| | | | 708 | 463 | 121 | 121 | 3 | | |

- Molecule 66 is a protein called mS29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 66 | Cg | 484 | Total | C | N | O | S | 0 | 0 |
| | | | 3922 | 2511 | 688 | 703 | 20 | | |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| Cg | 181 | VAL | ALA | conflict | UNP Q585C2 |
| Cg | 498 | ARG | MET | conflict | UNP Q585C2 |

- Molecule 67 is a protein called mS33.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 67 | Ci | 147 | Total | C | N | O | S | 0 | 0 |
| | | | 1222 | 770 | 226 | 218 | 8 | | |

- Molecule 68 is a protein called mS35.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 68 | Ck | 638 | Total | C | N | O | S | 0 | 0 |
| | | | 5123 | 3220 | 927 | 953 | 23 | | |

There are 5 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| Ck | 107 | SER | LEU | conflict | UNP Q387C7 |
| Ck | 144 | PHE | LEU | conflict | UNP Q387C7 |
| Ck | 253 | TYR | PHE | conflict | UNP Q387C7 |
| Ck | 339 | GLU | VAL | conflict | UNP Q387C7 |
| Ck | 871 | GLY | GLU | conflict | UNP Q387C7 |

- Molecule 69 is a protein called mS49.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 69 | DB | 679 | Total | C | N | O | S | 0 | 0 |
| | | | 5688 | 3558 | 1062 | 1047 | 21 | | |

- Molecule 70 is a protein called mS50.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 70 | DC | 1028 | Total | C | N | O | S | 0 | 0 |
| | | | 8223 | 5194 | 1453 | 1546 | 30 | | |

- Molecule 71 is a protein called mS52.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 71 | DE | 590 | Total | C | N | O | S | 0 | 0 |
| | | | 4639 | 2957 | 832 | 834 | 16 | | |

- Molecule 72 is a protein called mS53.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 72 | DF | 491 | Total | C | N | O | S | 0 | 0 |
| | | | 3967 | 2496 | 745 | 703 | 23 | | |

- Molecule 73 is a protein called mS54.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 73 | DG | 566 | Total | C | N | O | S | 0 | 0 |
| | | | 4575 | 2875 | 835 | 834 | 31 | | |

- Molecule 74 is a protein called mS55 (KRIPP8).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 74 | DH | 472 | Total | C | N | O | S | 0 | 0 |
| | | | 3849 | 2417 | 720 | 693 | 19 | | |

- Molecule 75 is a protein called mS57.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 75 | DJ | 308 | Total | C | N | O | S | 0 | 0 |
| | | | 2521 | 1612 | 446 | 450 | 13 | | |

- Molecule 76 is a protein called mS58.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 76 | DK | 245 | Total | C | N | O | S | 0 | 0 |
| | | | 1929 | 1213 | 349 | 362 | 5 | | |

- Molecule 77 is a protein called mS67.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 77 | DT | 221 | Total | C | N | O | S | 0 | 0 |
| | | | 1912 | 1231 | 334 | 337 | 10 | | |

- Molecule 78 is a protein called mS69.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 78 | DV | 157 | Total | C | N | O | S | 0 | 0 |
| | | | 1323 | 840 | 248 | 231 | 4 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| DV | 163 | ALA | THR | conflict | UNP Q57UZ6 |

- Molecule 79 is a protein called mS70.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 79 | DW | 133 | Total | C | N | O | S | 0 | 0 |
| | | | 1140 | 730 | 216 | 190 | 4 | | |

- Molecule 80 is a protein called mS71.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 80 | DX | 115 | Total | C | N | O | S | 0 | 0 |
| | | | 967 | 612 | 182 | 166 | 7 | | |

- Molecule 81 is a protein called mS72.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 81 | DY | 154 | Total | C | N | O | S | 0 | 0 |
| | | | 1295 | 829 | 247 | 214 | 5 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| DY | 34 | HIS | ASP | conflict | UNP Q57YD4 |

- Molecule 82 is a protein called mt-SAF1 (RSM22).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 82 | F1 | 889 | Total | C | N | O | S | 0 | 0 |
| | | | 7194 | 4493 | 1372 | 1289 | 40 | | |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| F1 | 707 | SER | GLY | conflict | UNP Q385R2 |
| F1 | 973 | THR | MET | conflict | UNP Q385R2 |

- Molecule 83 is a protein called mt-SAF4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 83 | F4 | 541 | Total | C | N | O | S | 0 | 0 |
| | | | 4382 | 2783 | 775 | 802 | 22 | | |

- Molecule 84 is a protein called mt-SAF12 (KRIPP18).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 84 | FD | 394 | Total | C | N | O | S | 0 | 0 |
| | | | 3135 | 2004 | 546 | 566 | 19 | | |

- Molecule 85 is a protein called mt-SAF14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 85 | FF | 408 | Total | C | N | O | S | 0 | 0 |
| | | | 3265 | 2052 | 586 | 603 | 24 | | |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| FF | 70 | ALA | PRO | conflict | UNP Q57W60 |
| FF | 179 | PHE | LEU | conflict | UNP Q57W60 |

- Molecule 86 is a protein called mt-SAF15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 86 | FG | 169 | Total | C | N | O | S | 0 | 0 |
| | | | 1359 | 852 | 260 | 240 | 7 | | |

- Molecule 87 is a protein called mt-SAF16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 87 | FH | 317 | Total | C | N | O | S | 0 | 0 |
| | | | 2486 | 1555 | 440 | 471 | 20 | | |

- Molecule 88 is a protein called mt-SAF17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 88 | FI | 348 | Total | C | N | O | S | 0 | 0 |
| | | | 2786 | 1726 | 510 | 537 | 13 | | |

- Molecule 89 is a protein called mt-SAF19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 89 | FK | 208 | Total | C | N | O | S | 0 | 0 |
| | | | 1699 | 1084 | 284 | 325 | 6 | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| FK | 38 | HIS | ARG | conflict | UNP Q57XS8 |

- Molecule 90 is a protein called mt-SAF20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 90 | FL | 320 | Total | C | N | O | S | 0 | 0 |
| | | | 2555 | 1609 | 470 | 459 | 17 | | |

- Molecule 91 is a protein called mt-SAF25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 91 | FV | 210 | Total | C | N | O | S | 0 | 0 |
| | | | 1636 | 1039 | 283 | 303 | 11 | | |

- Molecule 92 is a protein called mt-SAF34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 92 | Fe | 122 | Total | C | N | O | S | 0 | 0 |
| | | | 1033 | 642 | 200 | 184 | 7 | | |

- Molecule 93 is a protein called UNK-a.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 93 | Ua | 47 | Total | C | N | O | 0 | 0 |
| | | | 282 | 188 | 47 | 47 | | |

- Molecule 94 is a protein called UNK-b.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 94 | Ub | 42 | Total | C | N | O | 0 | 0 |
| | | | 252 | 168 | 42 | 42 | | |

- Molecule 95 is a protein called UNK-c.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 95 | Uc | 12 | Total | C | N | O | 0 | 0 |
| | | | 72 | 48 | 12 | 12 | | |

- Molecule 96 is a protein called UNK-d.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 96 | Ud | 59 | Total<br>354 | C<br>236 | N<br>59 | O<br>59 | 0 | 0 |

- Molecule 97 is a protein called UNK-e.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 97 | Ue | 29 | Total<br>174 | C<br>116 | N<br>29 | O<br>29 | 0 | 0 |

- Molecule 98 is a protein called UNK-g.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 98 | Ug | 167 | Total<br>1002 | C<br>668 | N<br>167 | O<br>167 | 0 | 0 |

- Molecule 99 is a protein called UNK-h.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 99 | Uh | 255 | Total<br>1530 | C<br>1020 | N<br>255 | O<br>255 | 0 | 0 |

- Molecule 100 is a protein called UNK-i.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 100 | Ui | 32 | Total<br>192 | C<br>128 | N<br>32 | O<br>32 | 0 | 0 |

- Molecule 101 is a protein called UNK-j.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 101 | Uj | 19 | Total<br>114 | C<br>76 | N<br>19 | O<br>19 | 0 | 0 |

- Molecule 102 is a protein called UNK-l.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 102 | Ul | 14 | Total<br>84 | C<br>56 | N<br>14 | O<br>14 | 0 | 0 |

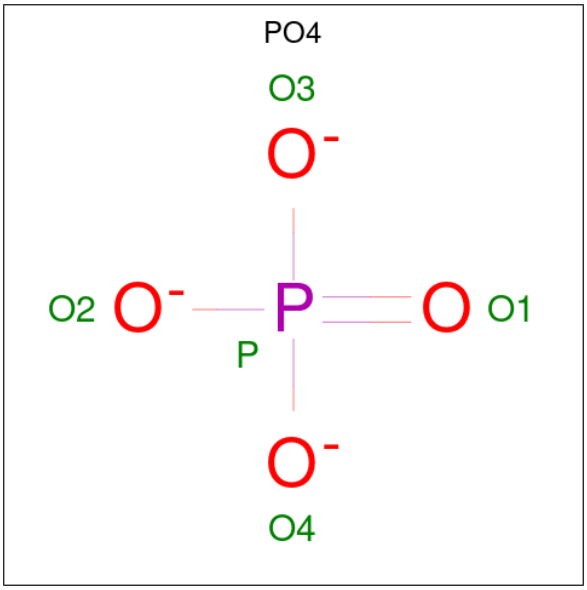
- Molecule 103 is a protein called UNK-x.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 103 | Ux | 108 | Total | C | N | O | 0 | 0 |
| | | | 648 | 432 | 108 | 108 | | |

- Molecule 104 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

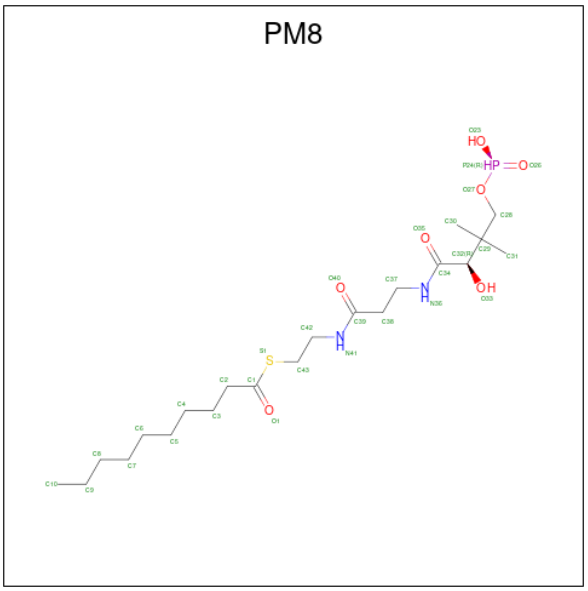
| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 104 | FP | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |
| 104 | FW | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |
| 104 | CA | 2 | Total | Mg | 0 |
| | | | 2 | 2 | |
| 104 | Cg | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |

- Molecule 105 is PHOSPHATE ION (three-letter code: PO4) (formula: $O_4P$).




| Mol | Chain | Residues | Atoms | | | AltConf |
|---|---|---|---|---|---|---|
| 105 | FW | 1 | Total | O | P | 0 |
| | | | 5 | 4 | 1 | |

- Molecule 106 is S-(2-{[N-(2-HYDROXY-4-{[HYDROXY(OXIDO)PHOSPHINO]OXY}-3,3-DIMETHYLBUTANOYL)-BETA-ALANYL]AMINO}ETHYL) DECANETHIOATE (three-letter code: PM8) (formula: $C_{21}H_{41}N_2O_7PS$).

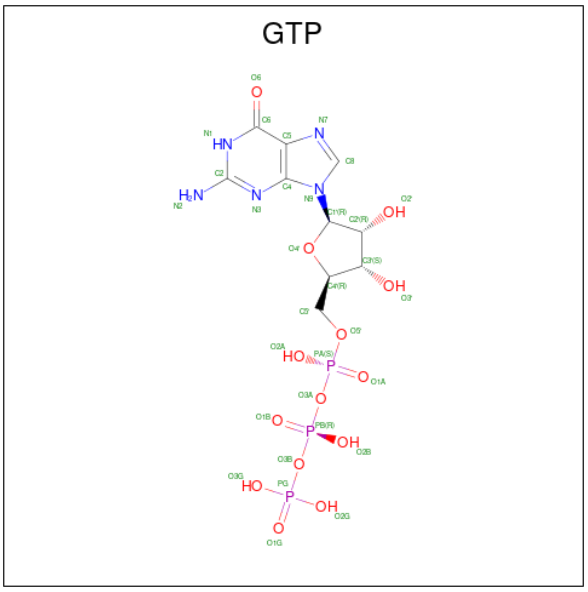



| Mol | Chain | Residues | Atoms | | | | | | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 106 | Fc | 1 | Total | C | N | O | P | S | 0 |
| | | | 32 | 21 | 2 | 7 | 1 | 1 | |

- Molecule 107 is ZINC ION (three-letter code: ZN) (formula: Zn).

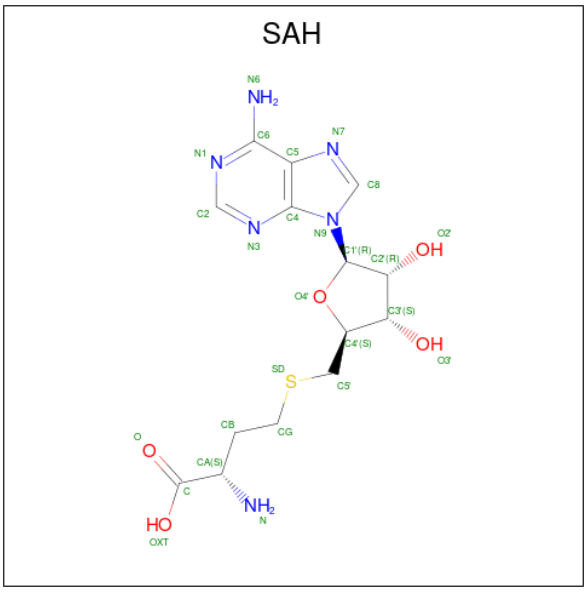
| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 107 | Fd | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 107 | F1 | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 107 | FG | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 107 | FL | 2 | Total | Zn | 0 |
| | | | 2 | 2 | |
| 107 | Fe | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |

- Molecule 108 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).




| Mol | Chain | Residues | Atoms | | | | | AltConf |
|---|---|---|---|---|---|---|---|---|
| 108 | Cg | 1 | Total | C | N | O | P | 0 |
| | | | 32 | 10 | 5 | 14 | 3 | |

- Molecule 109 is S-ADENOSYL-L-HOMOCYSTEINE (three-letter code: SAH) (formula: $C_{14}H_{20}N_6O_5S$).




| Mol | Chain | Residues | Atoms | | | | | AltConf |
|---|---|---|---|---|---|---|---|---|
| 109 | F1 | 1 | Total | C | N | O | S | 0 |
| | | | 26 | 14 | 6 | 5 | 1 | |
| 109 | FF | 1 | Total | C | N | O | S | 0 |
| | | | 26 | 14 | 6 | 5 | 1 | |

- Molecule 110 is water.

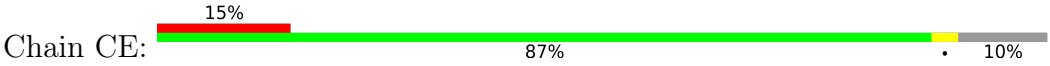
| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 110 | Cg | 3 | Total | O | 0 |
| | | | 3 | 3 | |

# 3 Residue-property plots (i)

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

• Molecule 1: uS5m

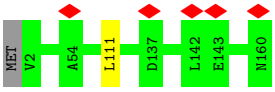
Chain CE:





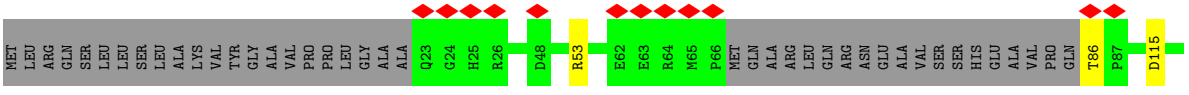
• Molecule 2: bS6m

Chain CF:

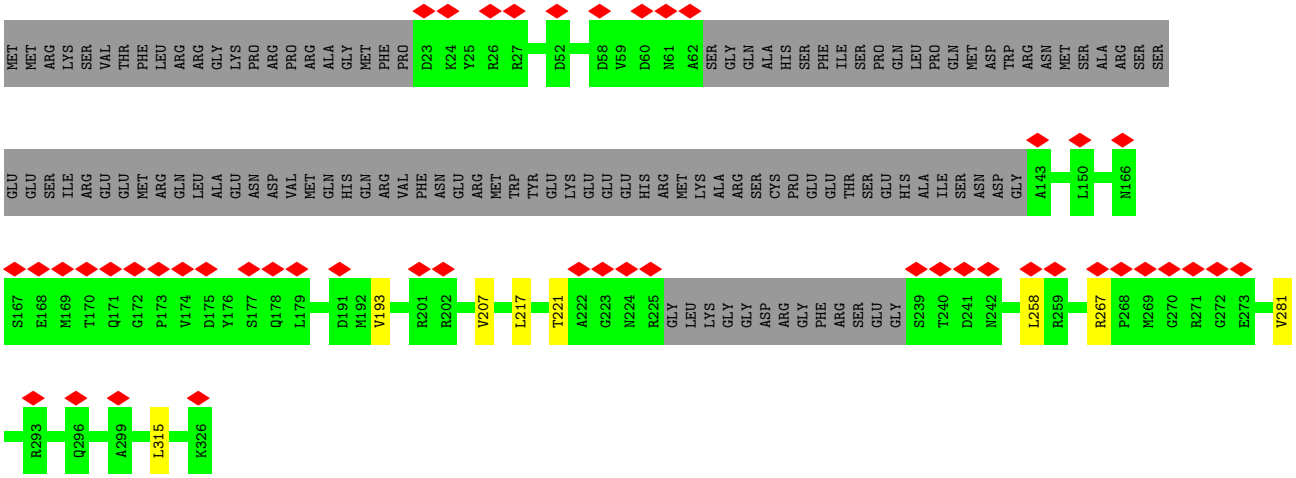

• Molecule 3: uS8m

Chain CH:


• Molecule 4: uS11m

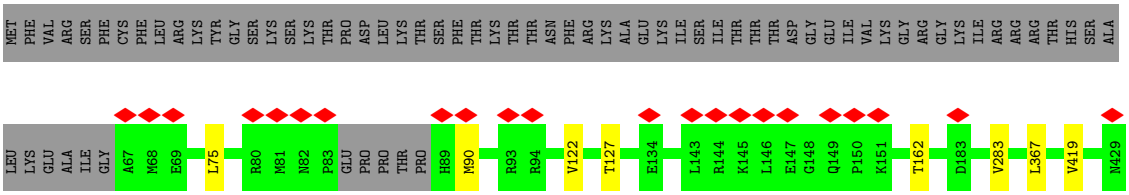
Chain CK:





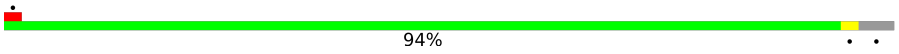
• Molecule 5: uS15m

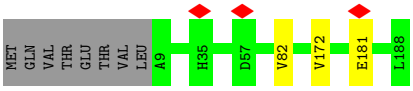
Chain CO:

• Molecule 6: bS16m

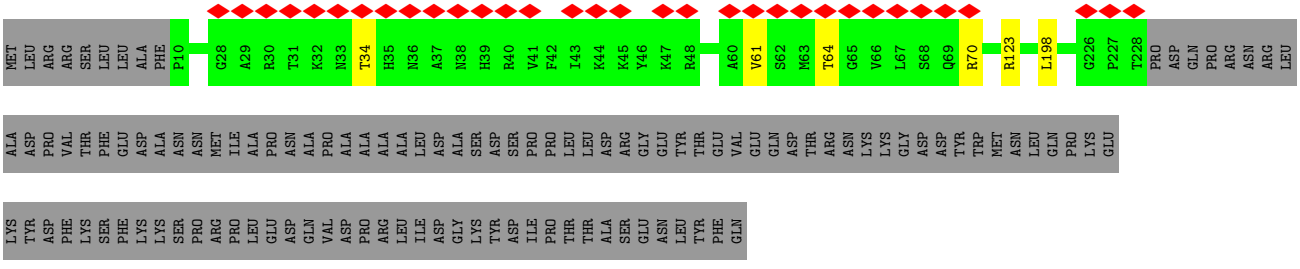
Chain CP:



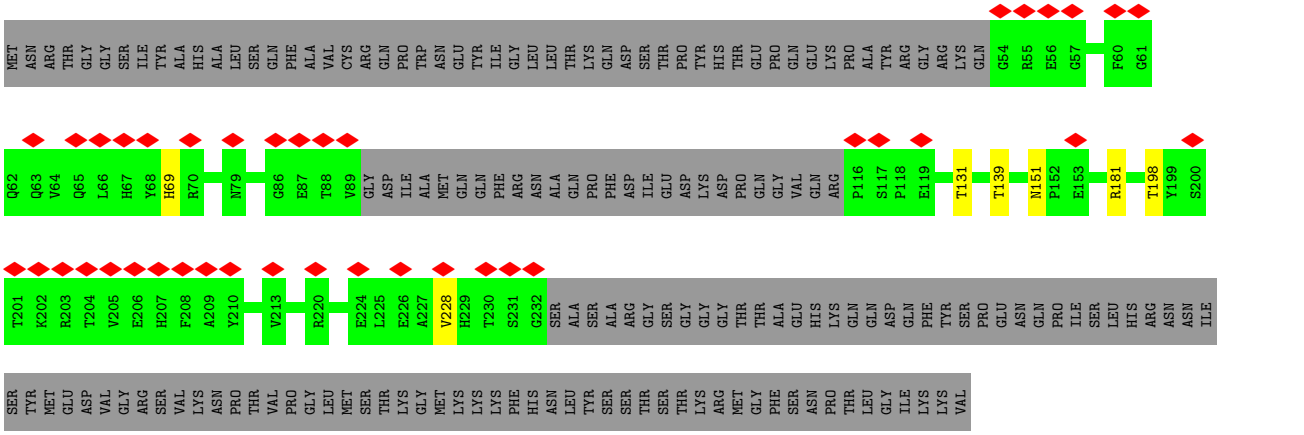
• Molecule 7: uS17m

Chain CQ:

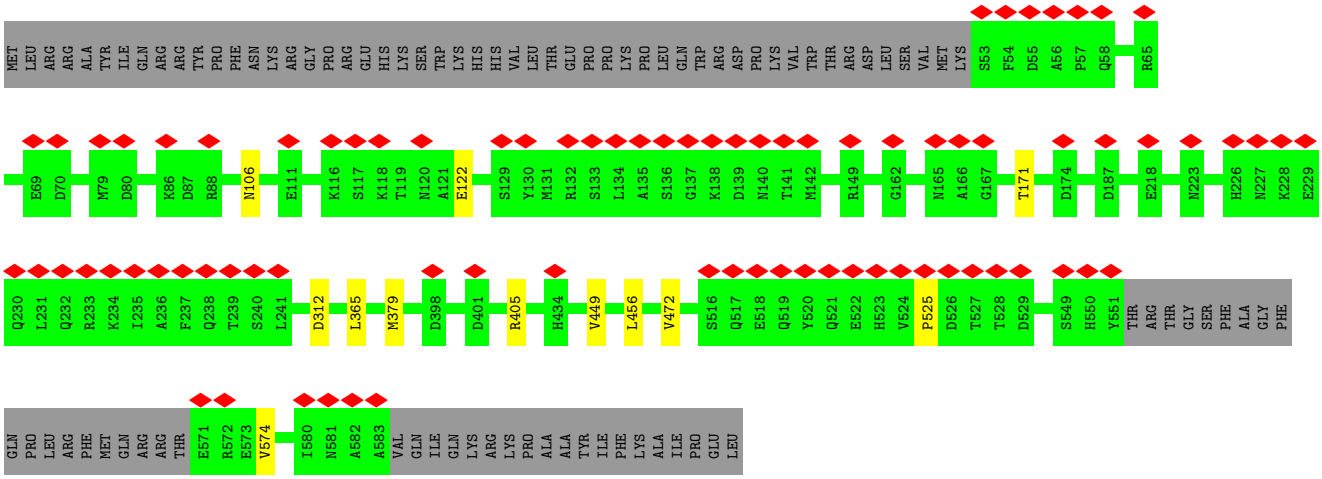
• Molecule 8: bS18m

Chain CR:



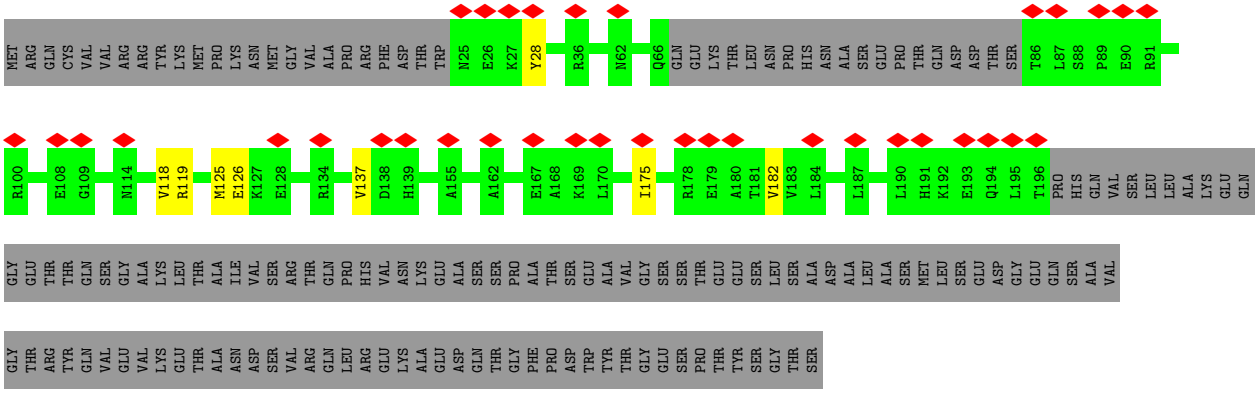
• Molecule 9: mS22

Chain Ca:

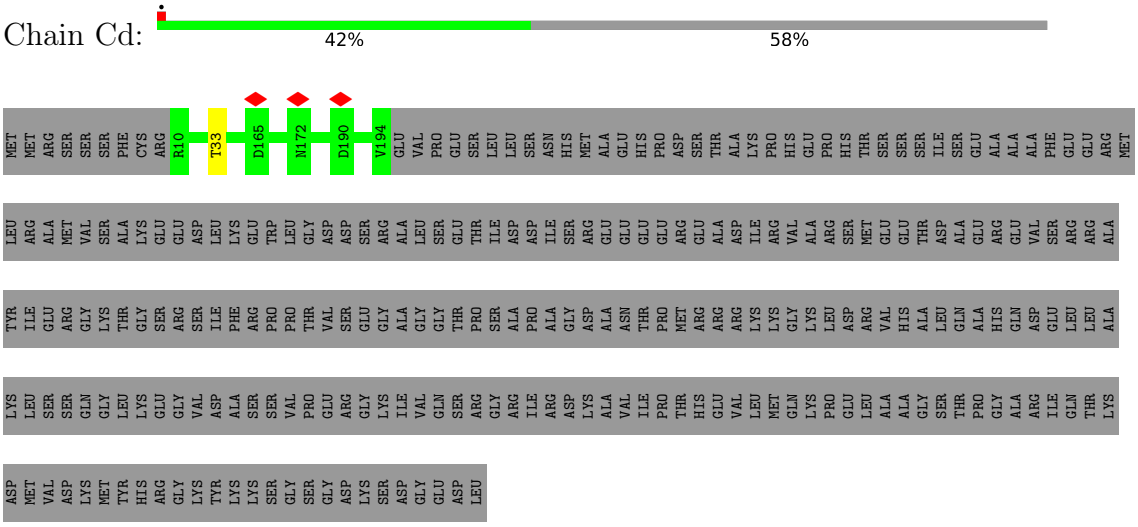
• Molecule 10: mS23

Chain Cb:

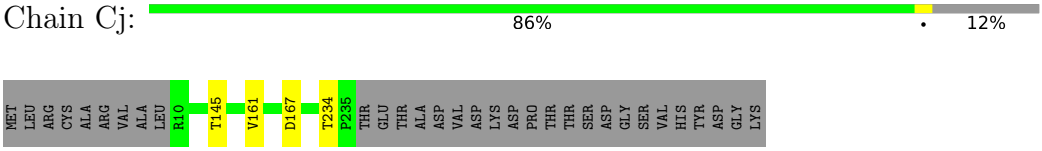
• Molecule 11: mS26

Chain Cd:



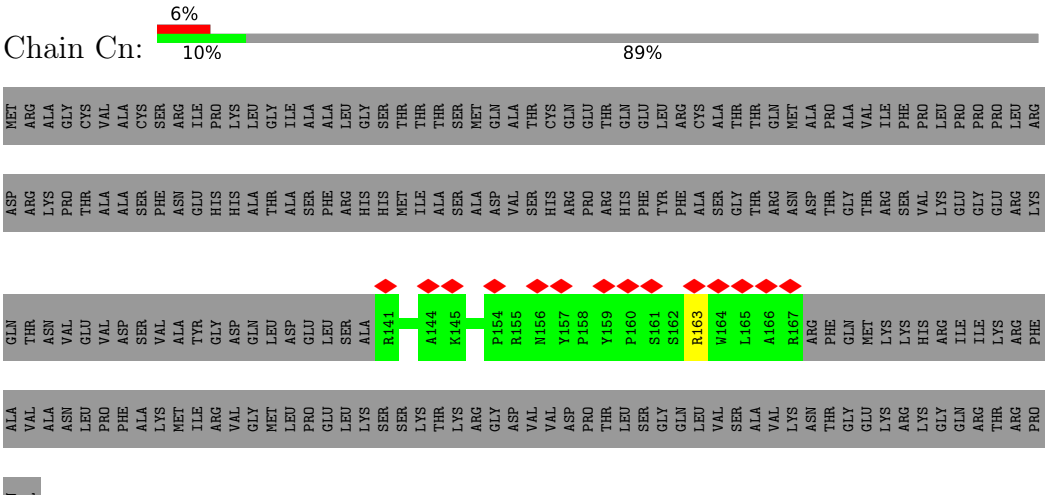

• Molecule 12: mS34

Chain Cj:



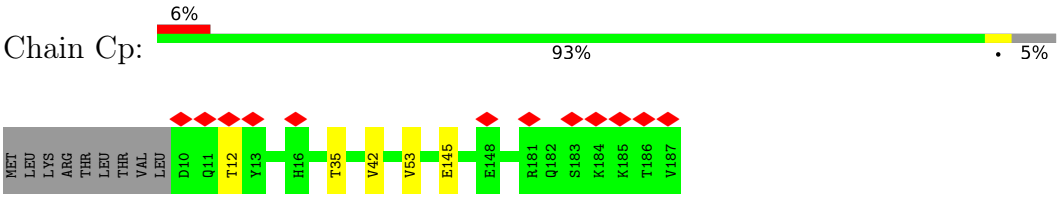

• Molecule 13: mS38

Chain Cn:



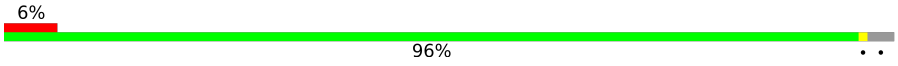

• Molecule 14: mS41

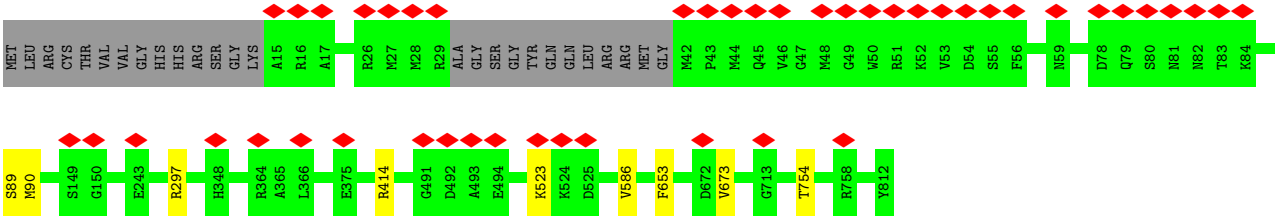
Chain Cp:



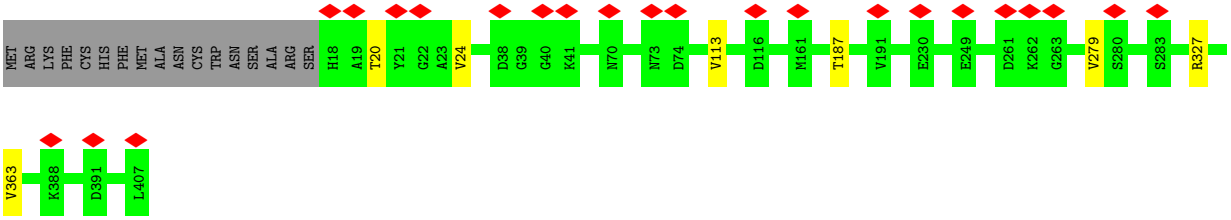

• Molecule 15: mS51 (KRIPP1)

Chain DD:

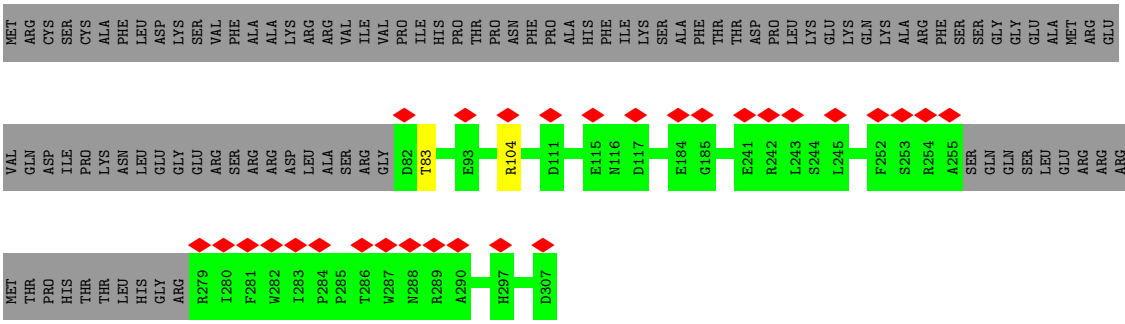




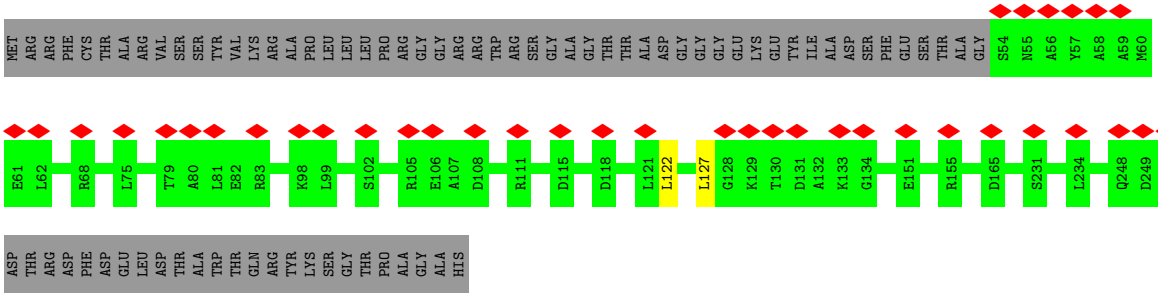

• Molecule 16: mS56

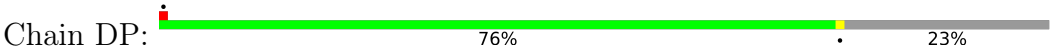

• Molecule 17: mS59

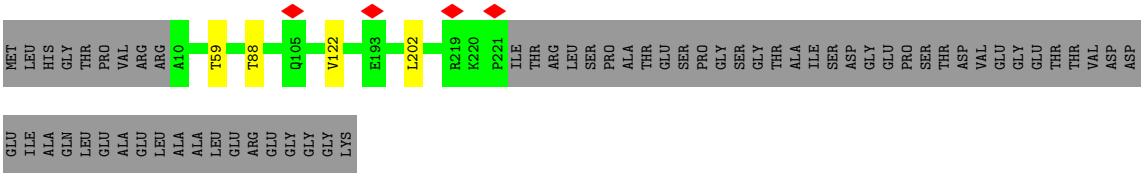




• Molecule 18: mS62 (KRIPP14)

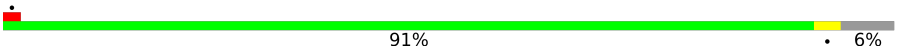

• Molecule 19: mS63 (KRIPP16)

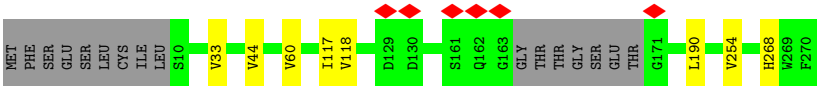





• Molecule 20: mS65

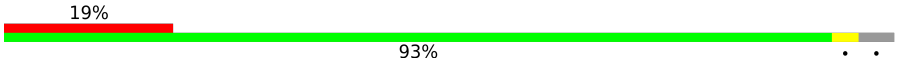
Chain DR:

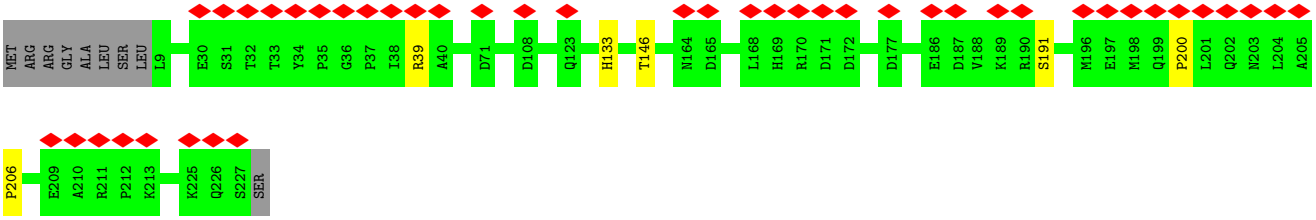



• Molecule 21: mS68

Chain DU:

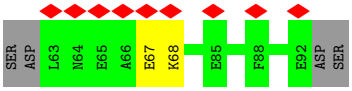



• Molecule 22: mS73

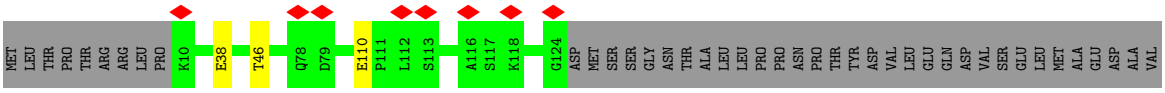
Chain DZ:

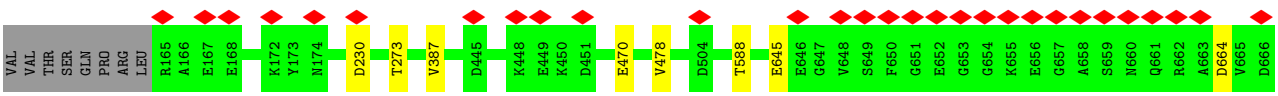


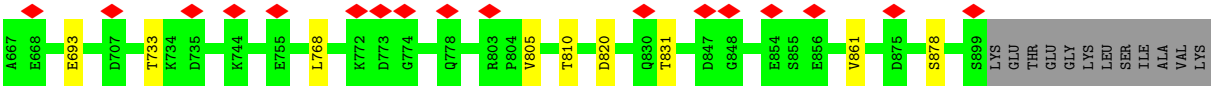


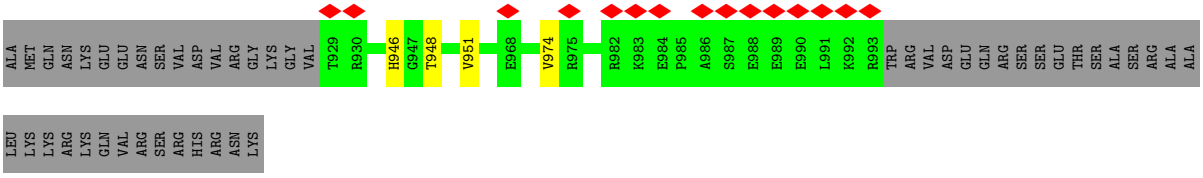

• Molecule 23: mt-SAF2 (KRIPP2)

Chain F2:

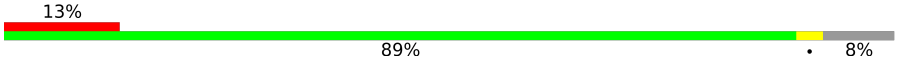



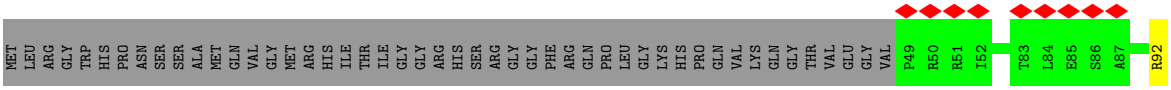


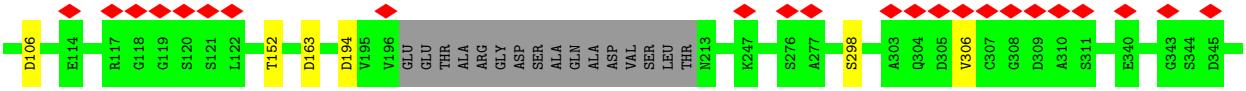


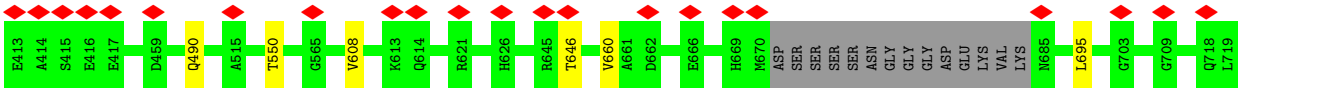
• Molecule 24: mt-SAF3

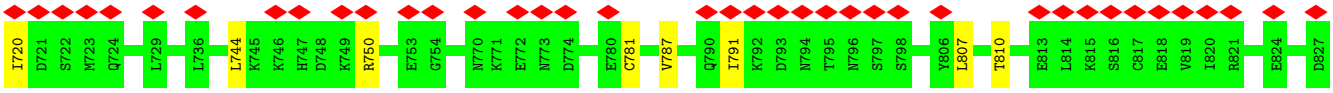
Chain F3:

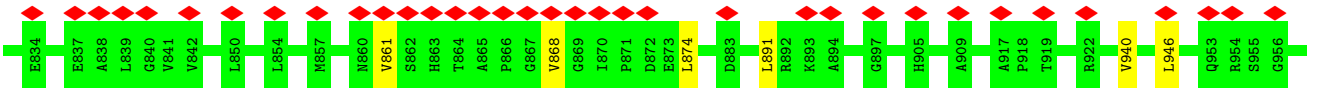






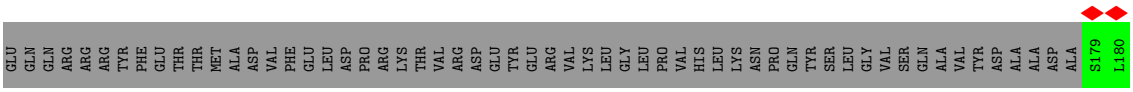


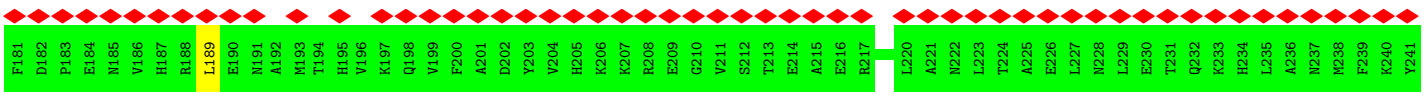


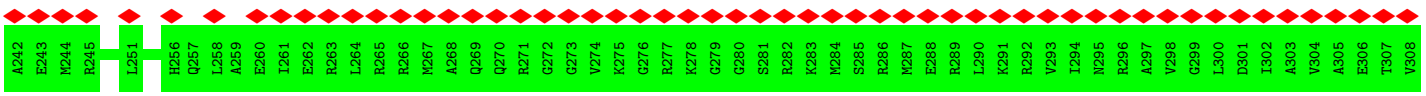


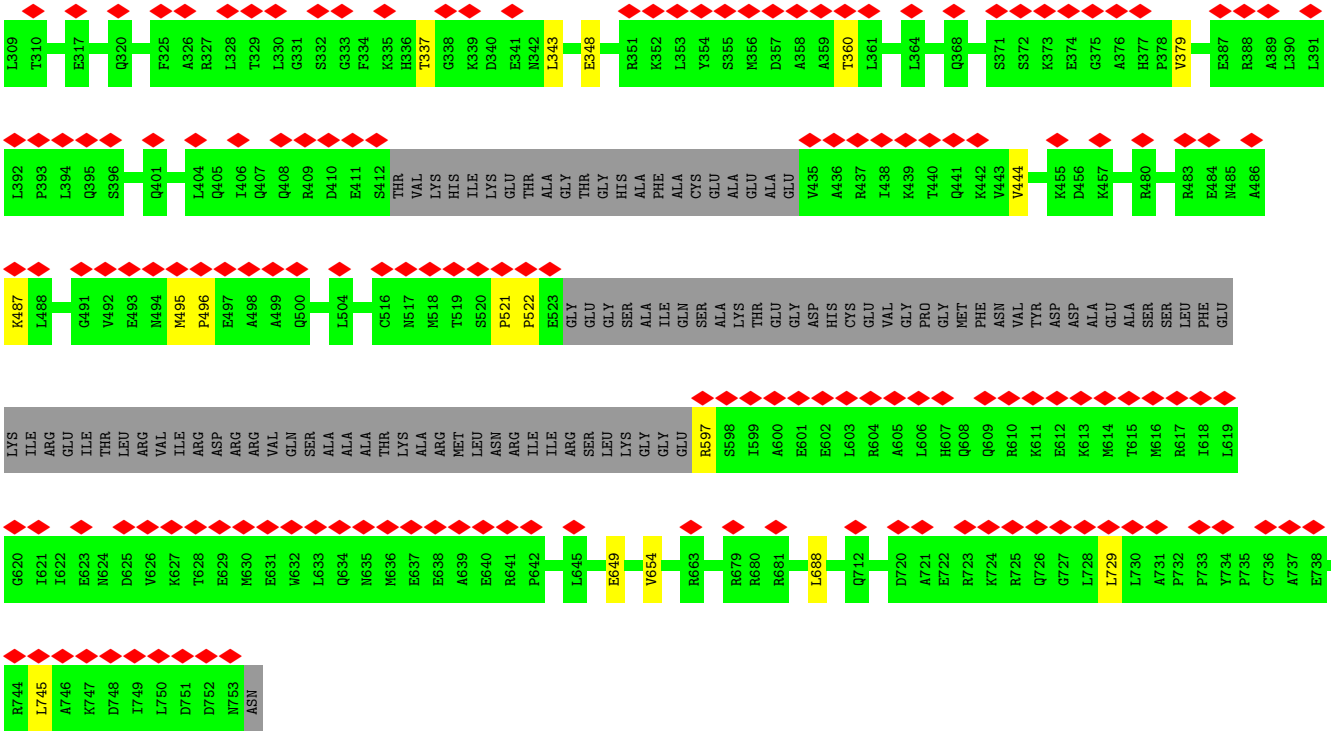
• Molecule 25: mt-SAF5

Chain F5:

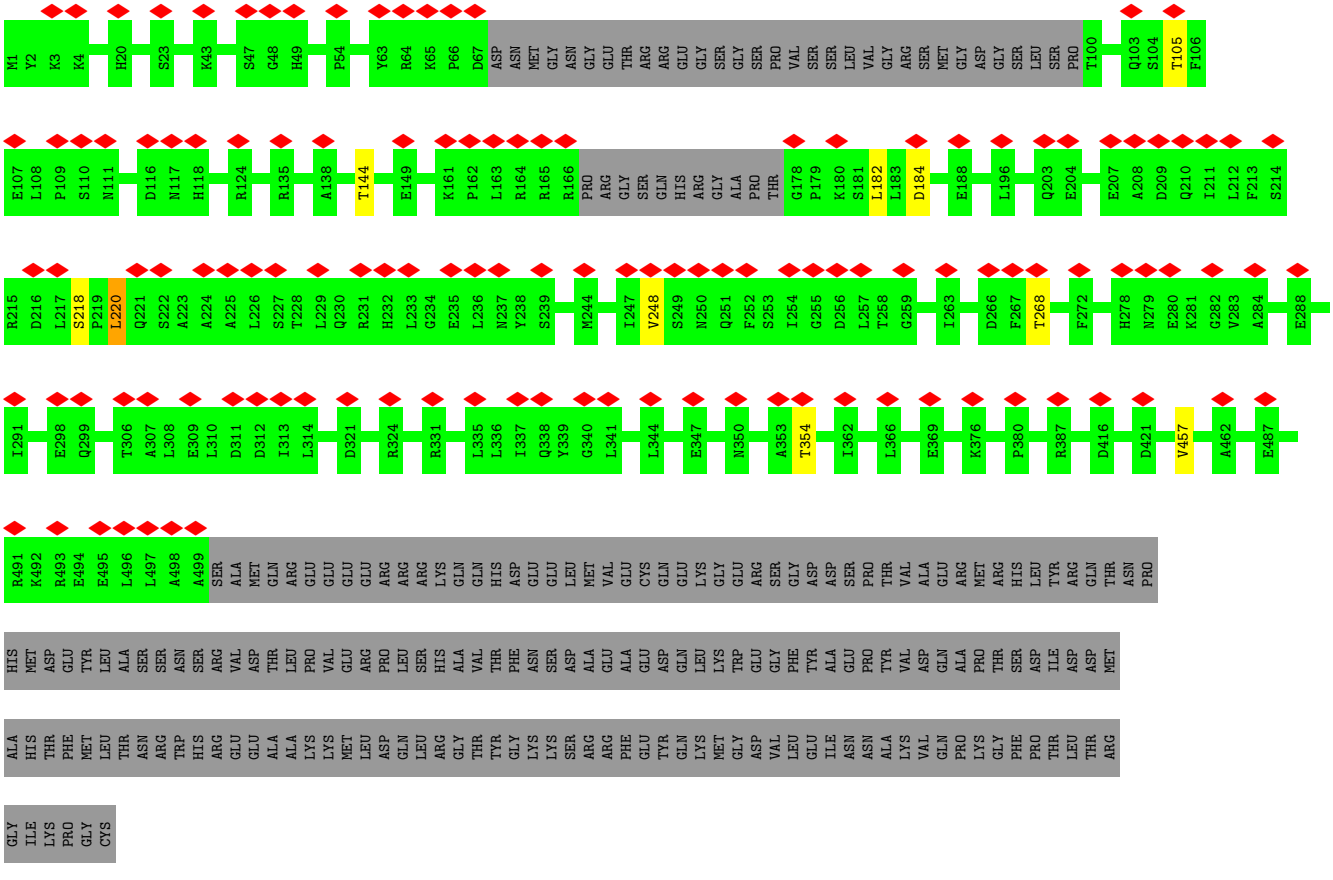






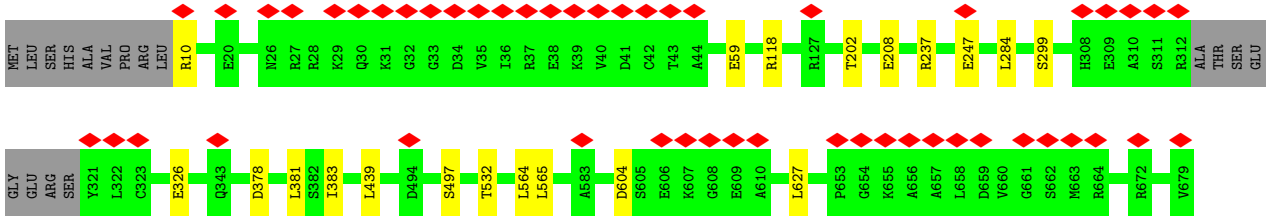

- Molecule 26: mt-SAF6

Chain F6:

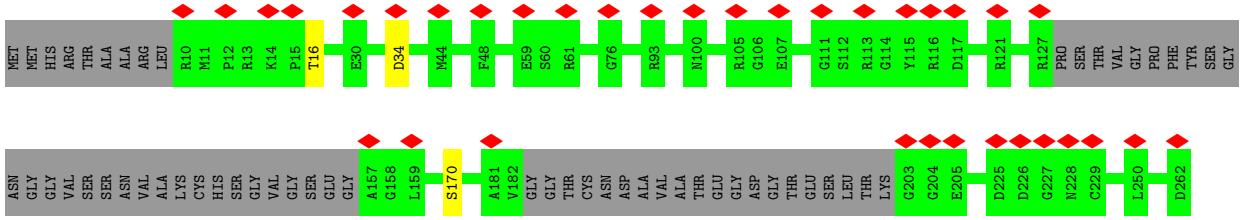
- Molecule 27: mt-SAF7 (KRIPP10)

Chain F7:

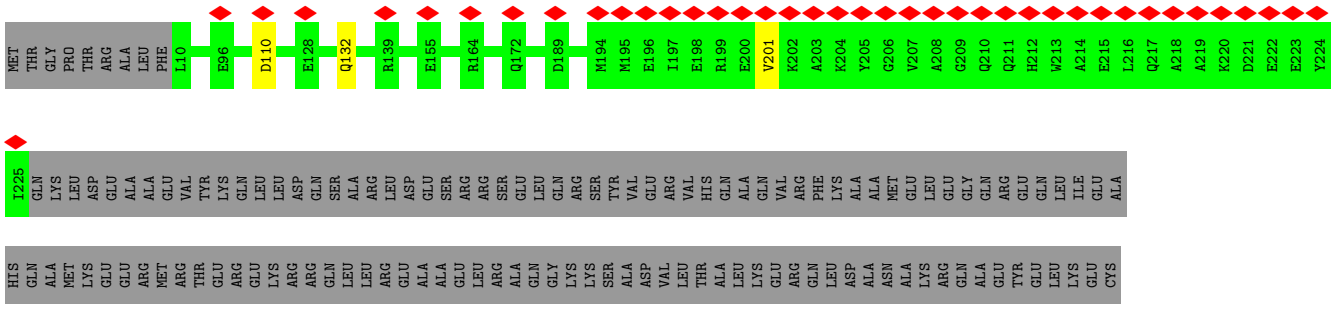

- Molecule 28: mt-SAF8

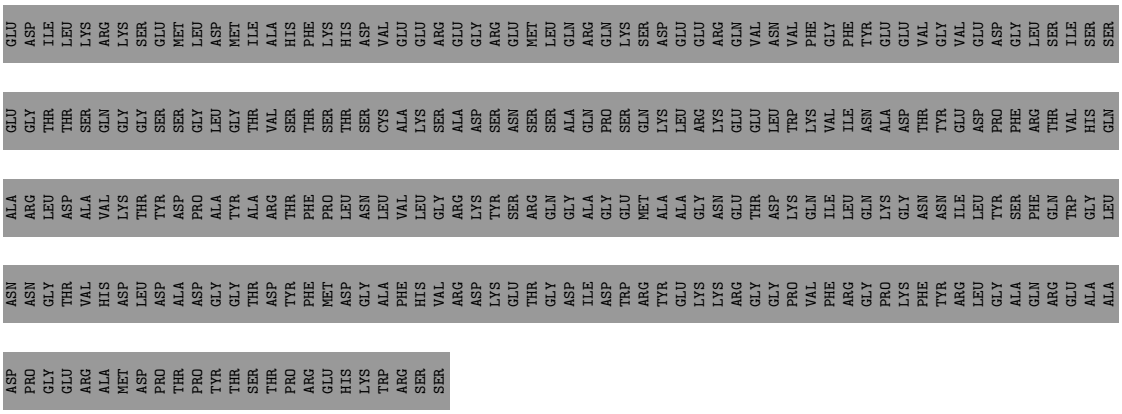
Chain F8:


- Molecule 29: mt-SAF9

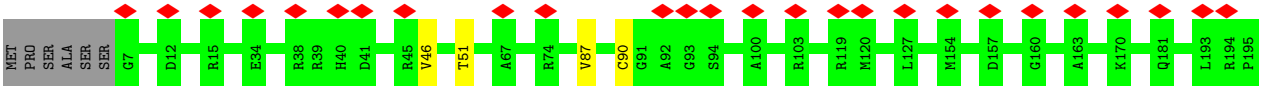
Chain F9:

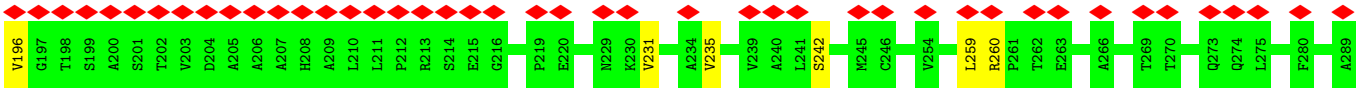



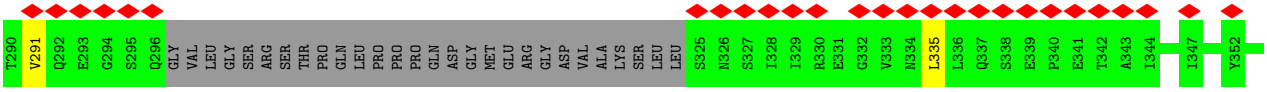


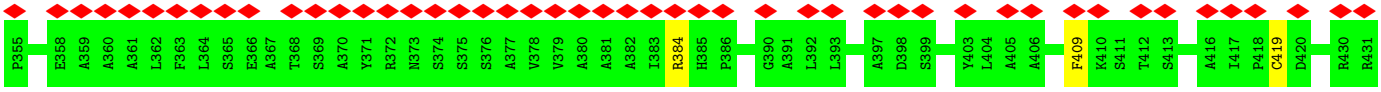

- Molecule 30: mt-SAF10

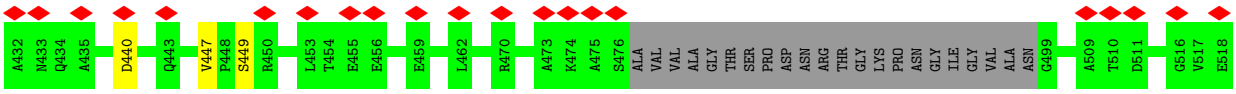
Chain FA:

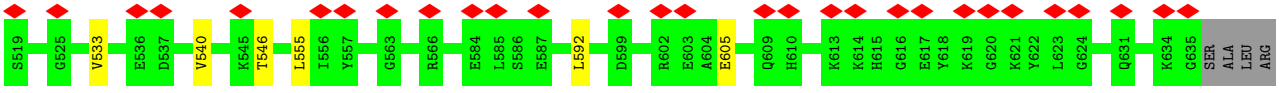



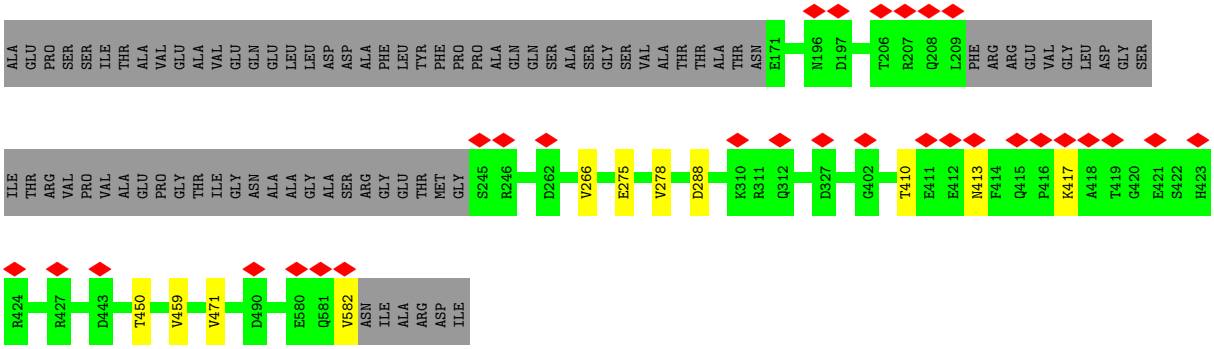





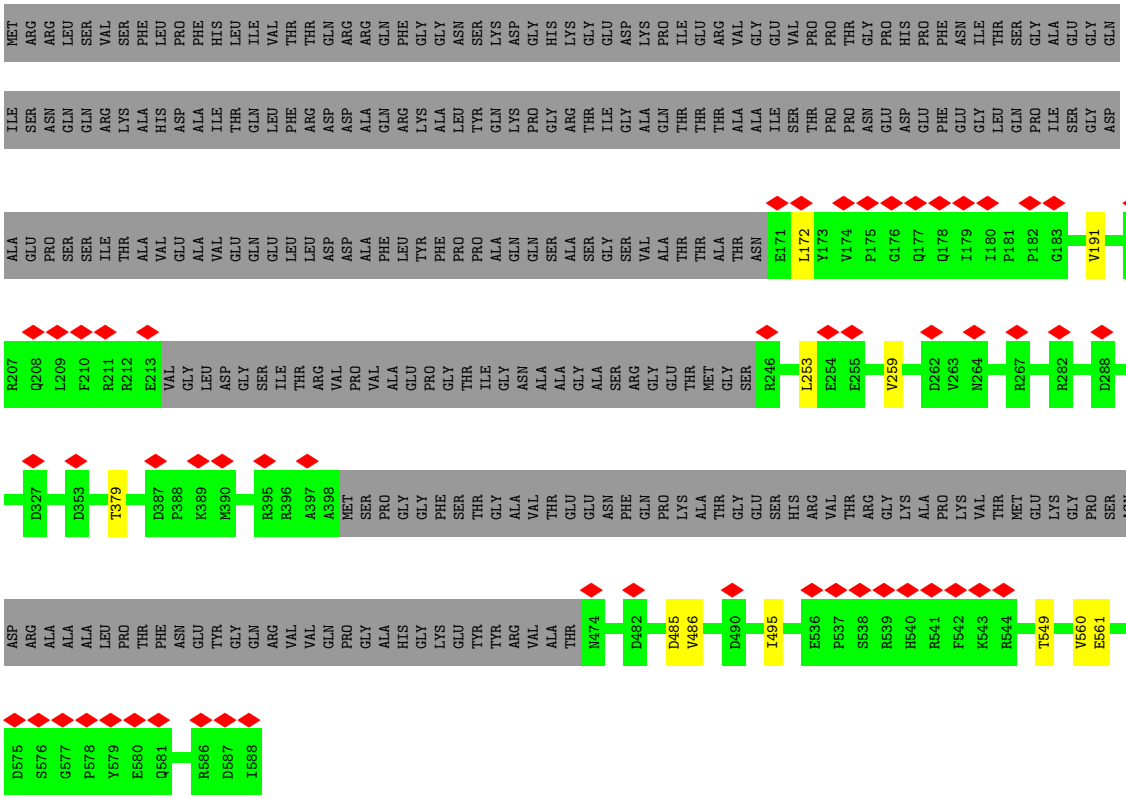
- Molecule 31: mt-SAF11

Chain FB:

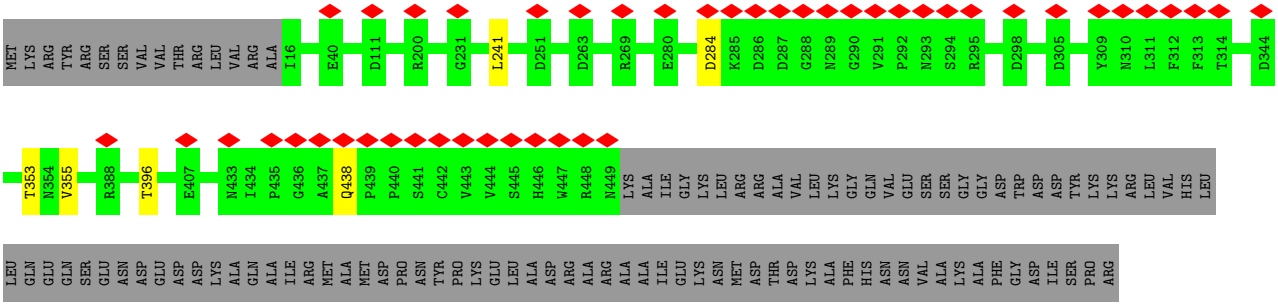
• Molecule 31: mt-SAF11

Chain FC:

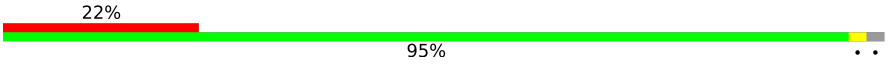
• Molecule 32: mt-SAF13

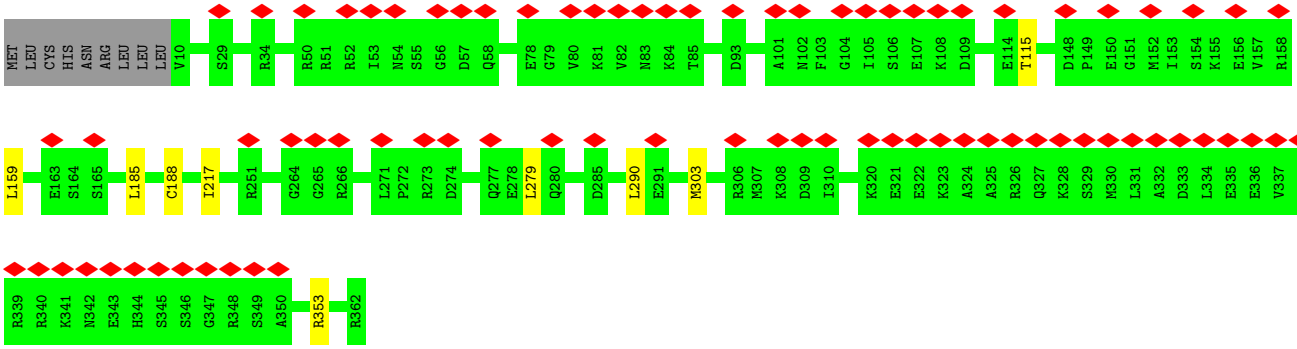
Chain FE:


• Molecule 33: mt-SAF18

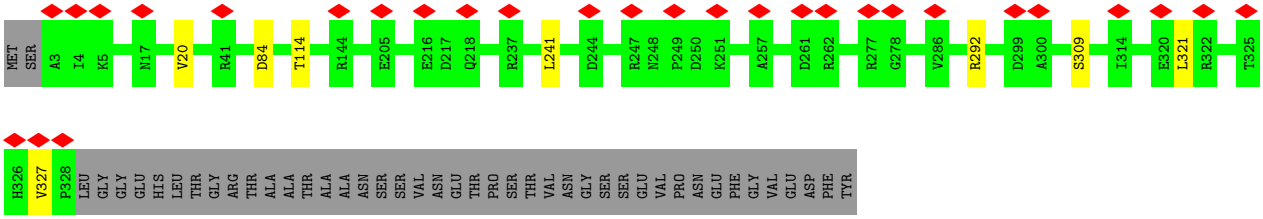
Chain FJ:



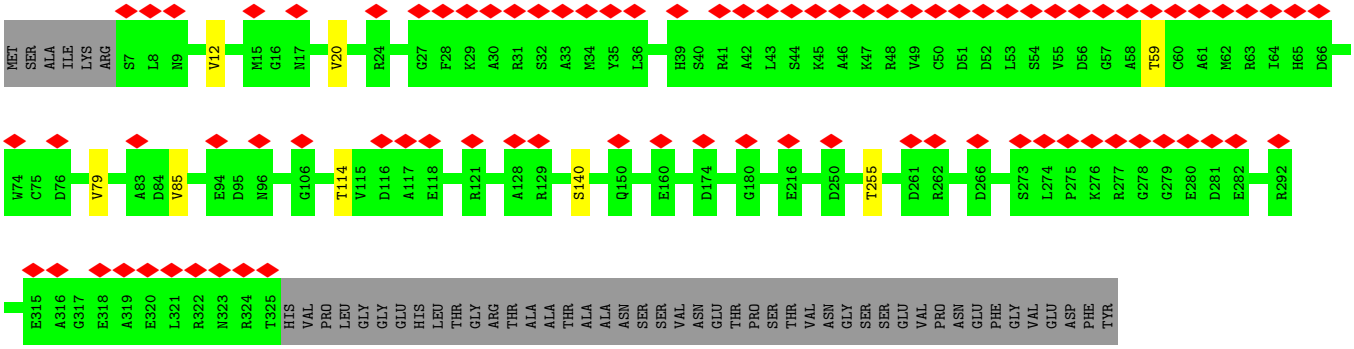

• Molecule 34: mt-SAF21

Chain FM:

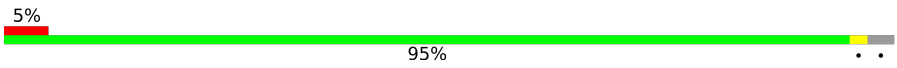

• Molecule 34: mt-SAF21

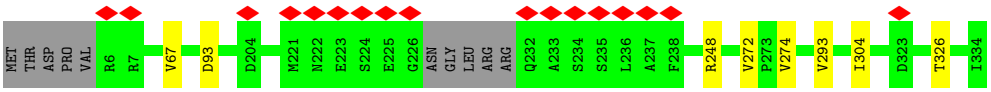
Chain FN:


• Molecule 35: mt-SAF22 (KRIPP17)

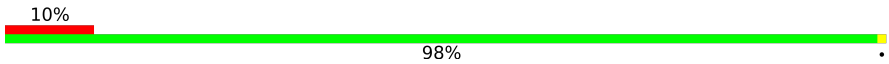
Chain FO:

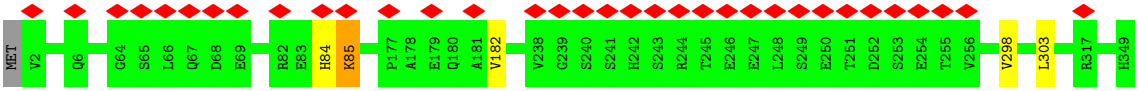


• Molecule 36: mt-SAF23

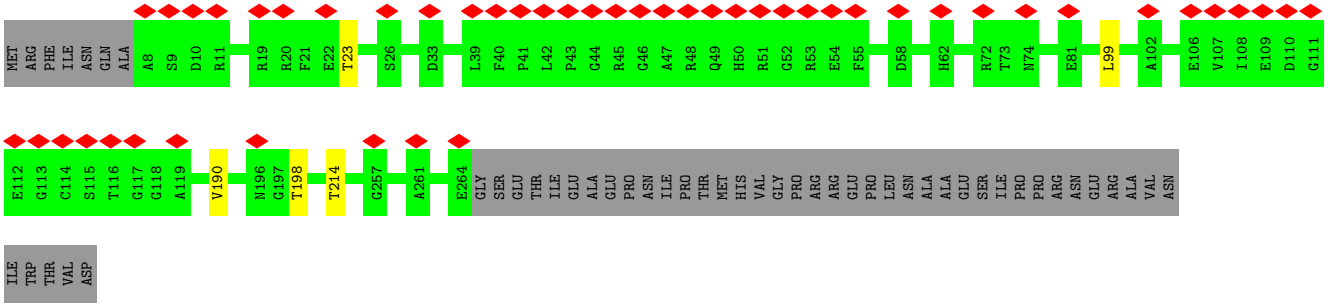
Chain FP:



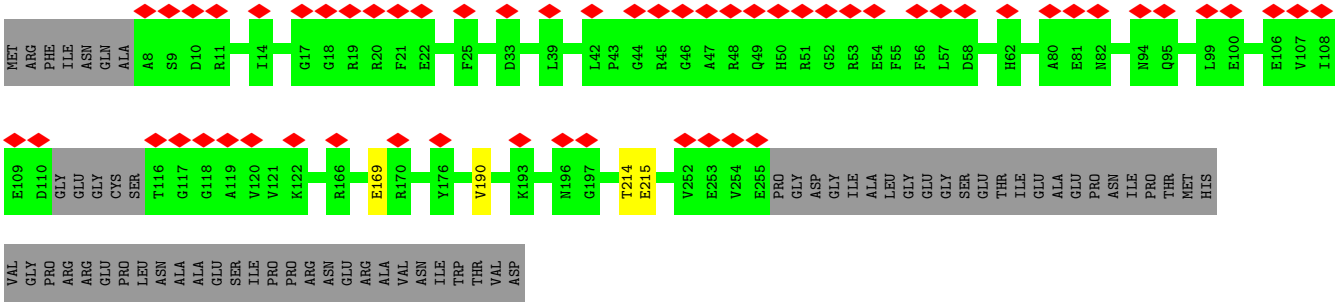

• Molecule 37: mt-SAF24

Chain FQ:

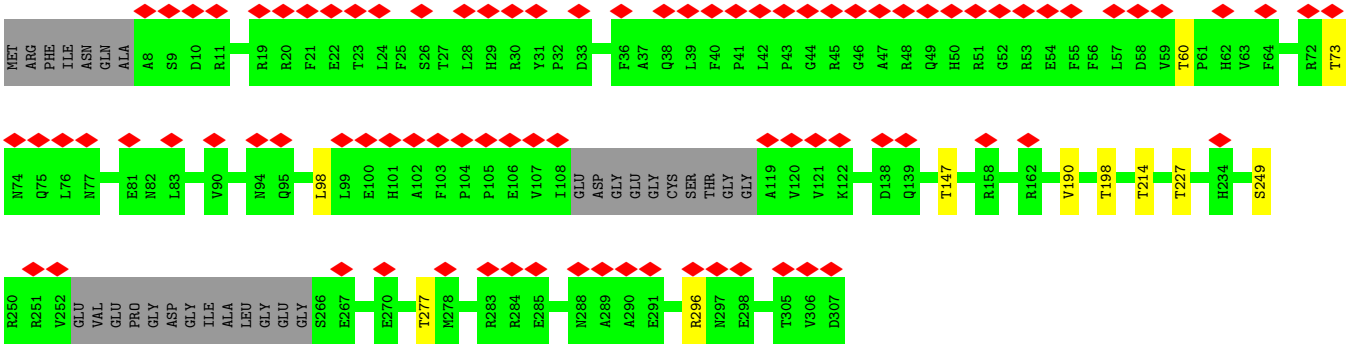

• Molecule 37: mt-SAF24

Chain FR:

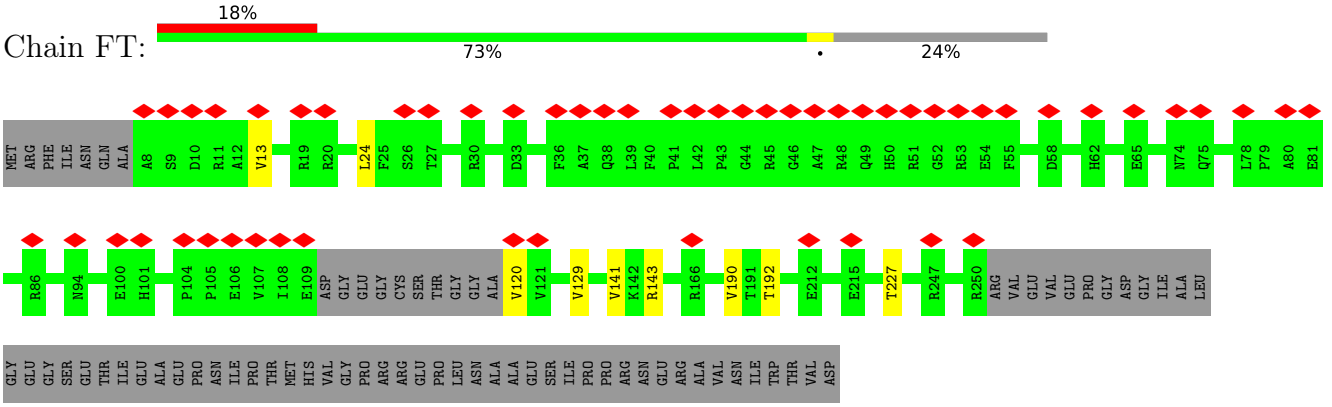

• Molecule 37: mt-SAF24

Chain FS:

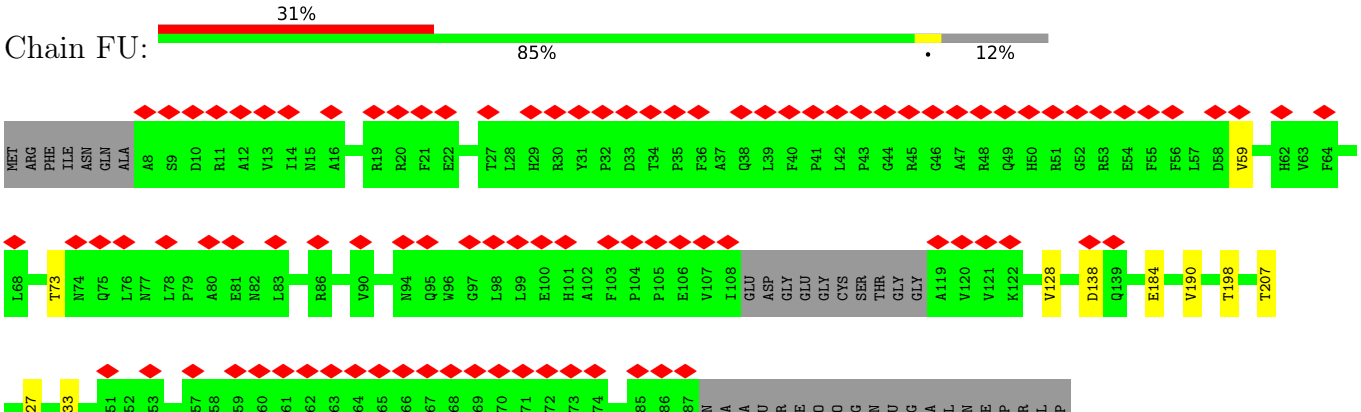

• Molecule 37: mt-SAF24

Chain FT:



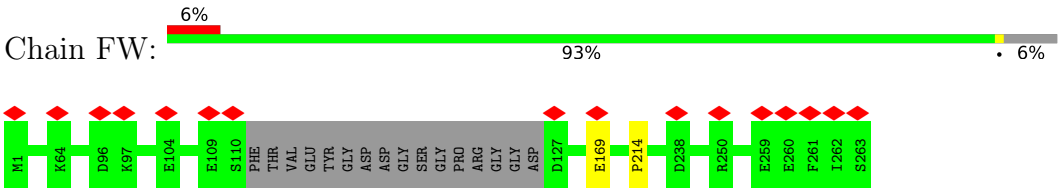

• Molecule 37: mt-SAF24

Chain FU:



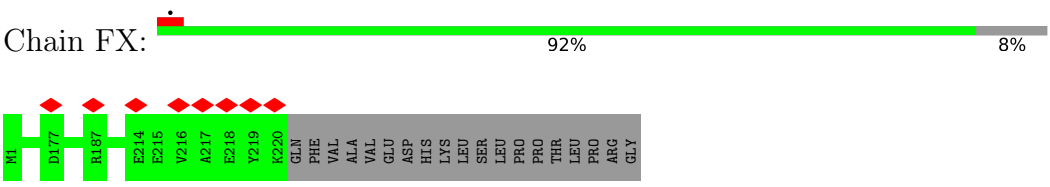

• Molecule 38: mt-SAF26

Chain FW:



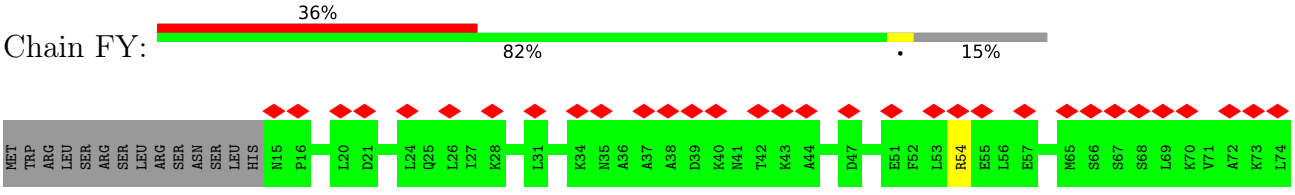

• Molecule 39: mt-SAF27 (KRIPP11)

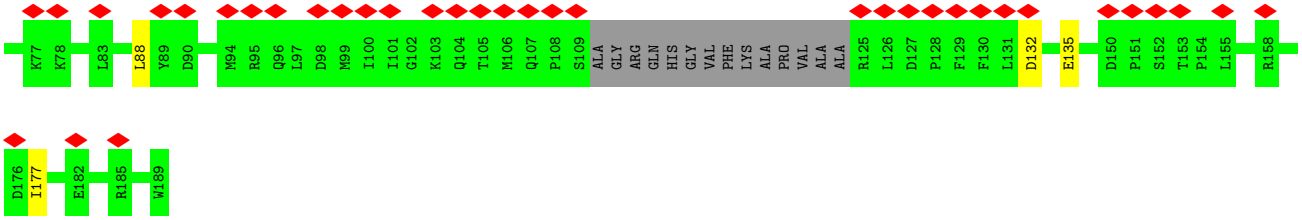
Chain FX:




• Molecule 40: mt-SAF28

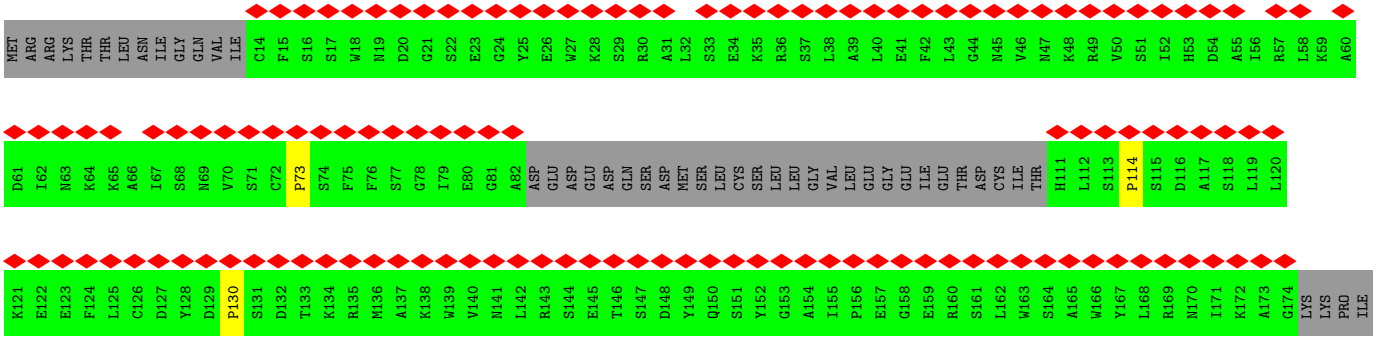
Chain FY:





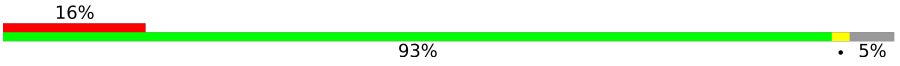

- Molecule 41: mt-SAF29

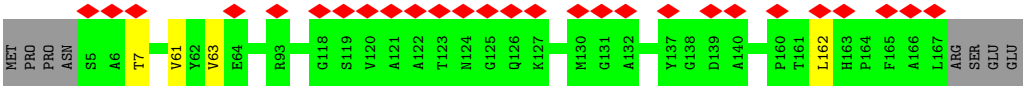
Chain FZ:


- Molecule 42: mt-SAF30

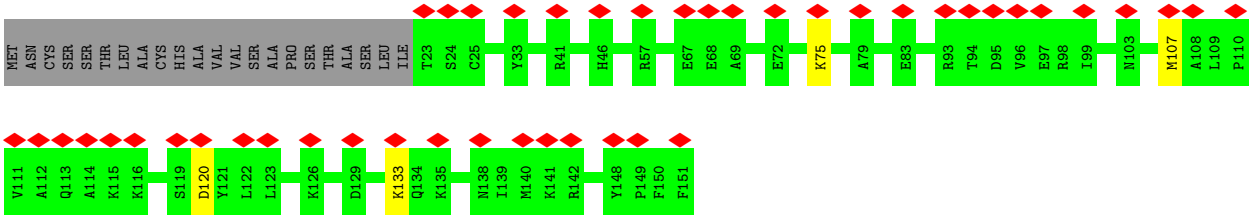
Chain Fa:



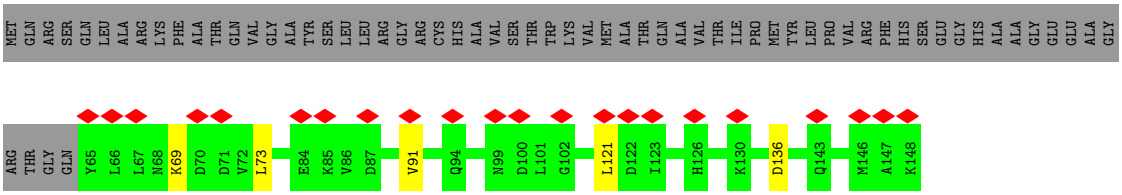

- Molecule 43: mt-SAF31

Chain Fb:

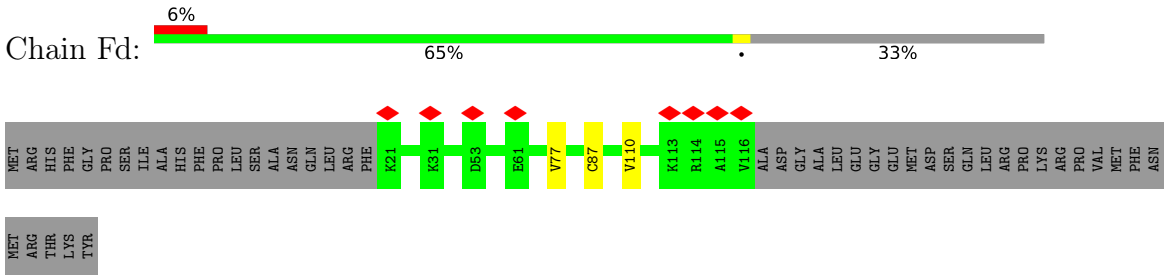

- Molecule 44: mt-SAF32

Chain Fc:

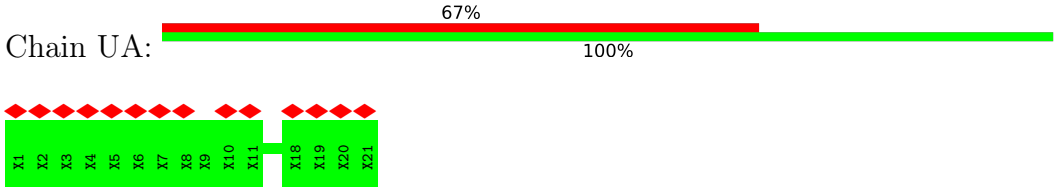
• Molecule 45: mt-SAF33

Chain Fd:



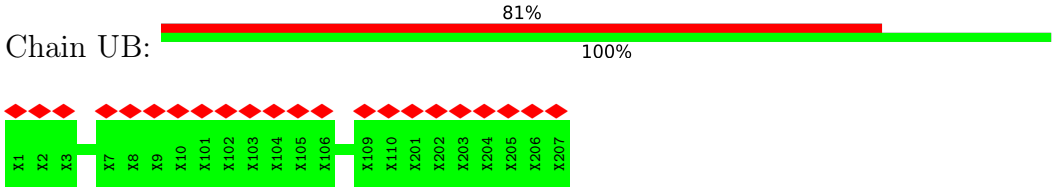

• Molecule 46: UNK-A

Chain UA:



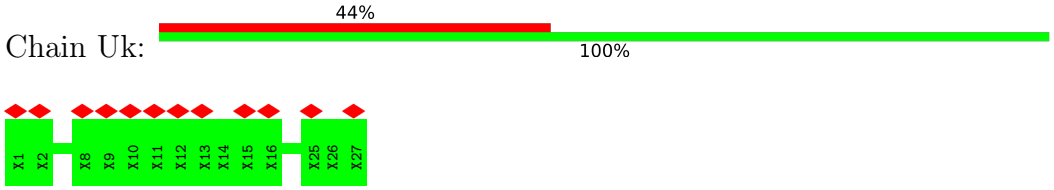

• Molecule 47: UNK-B, UNK-k

Chain UB:



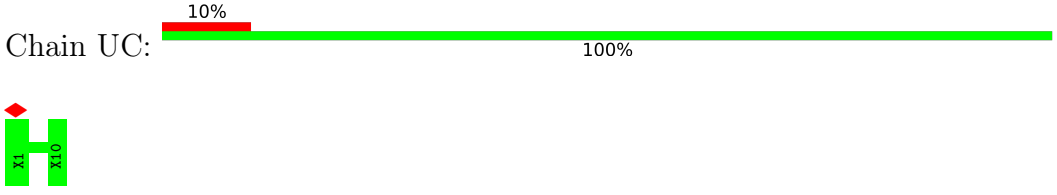

• Molecule 47: UNK-B, UNK-k

Chain Uk:



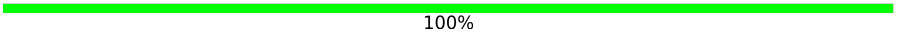

• Molecule 48: UNK-C

Chain UC:




• Molecule 49: UNK-D, UNK-M, UNK-Q, UNK-f

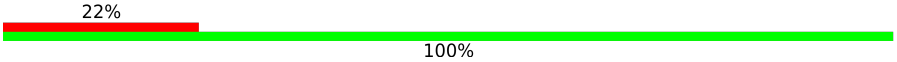
Chain UD:

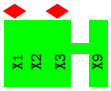



There are no outlier residues recorded for this chain.

• Molecule 49: UNK-D, UNK-M, UNK-Q, UNK-f

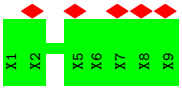
Chain UM:





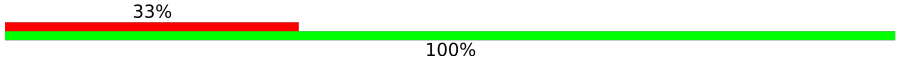

• Molecule 49: UNK-D, UNK-M, UNK-Q, UNK-f

Chain UQ:


• Molecule 49: UNK-D, UNK-M, UNK-Q, UNK-f

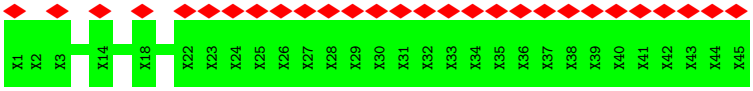
Chain Uf:





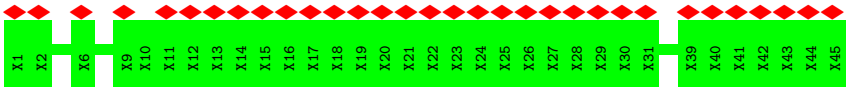
• Molecule 50: UNK-E, UNK-P

Chain UE:

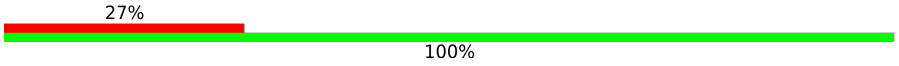

• Molecule 50: UNK-E, UNK-P

Chain UP:


• Molecule 51: UNK-F, UNK-m

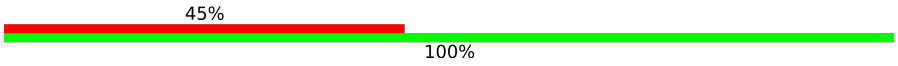
Chain UF:

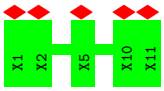




• Molecule 51: UNK-F, UNK-m

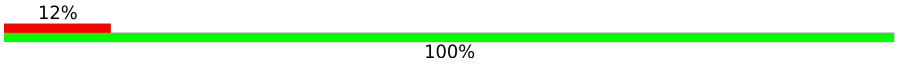
Chain Um:

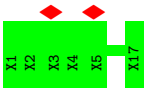



• Molecule 52: UNK-G

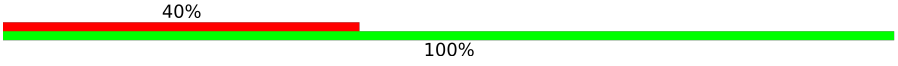
Chain UG:

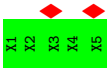



• Molecule 53: UNK-H

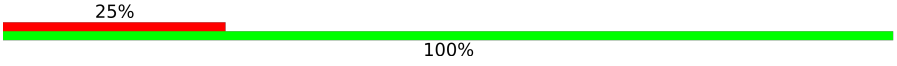
Chain UH:




• Molecule 54: UNK-I, UNK-N

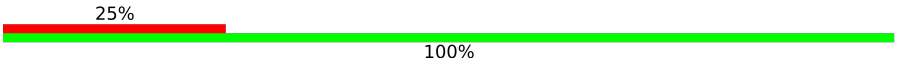
Chain UI:





• Molecule 54: UNK-I, UNK-N

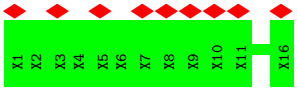
Chain UN:





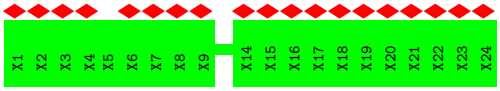
• Molecule 55: UNK-J

Chain UJ:

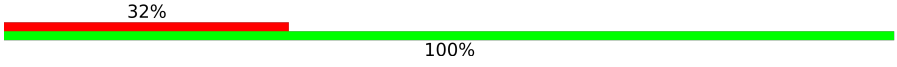

• Molecule 56: UNK-K

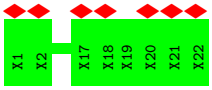
Chain UK:


• Molecule 57: UNK-L

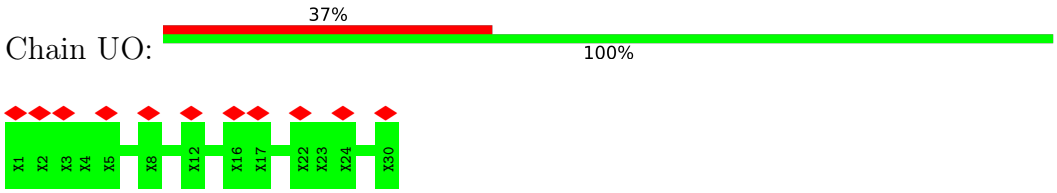
Chain UL:



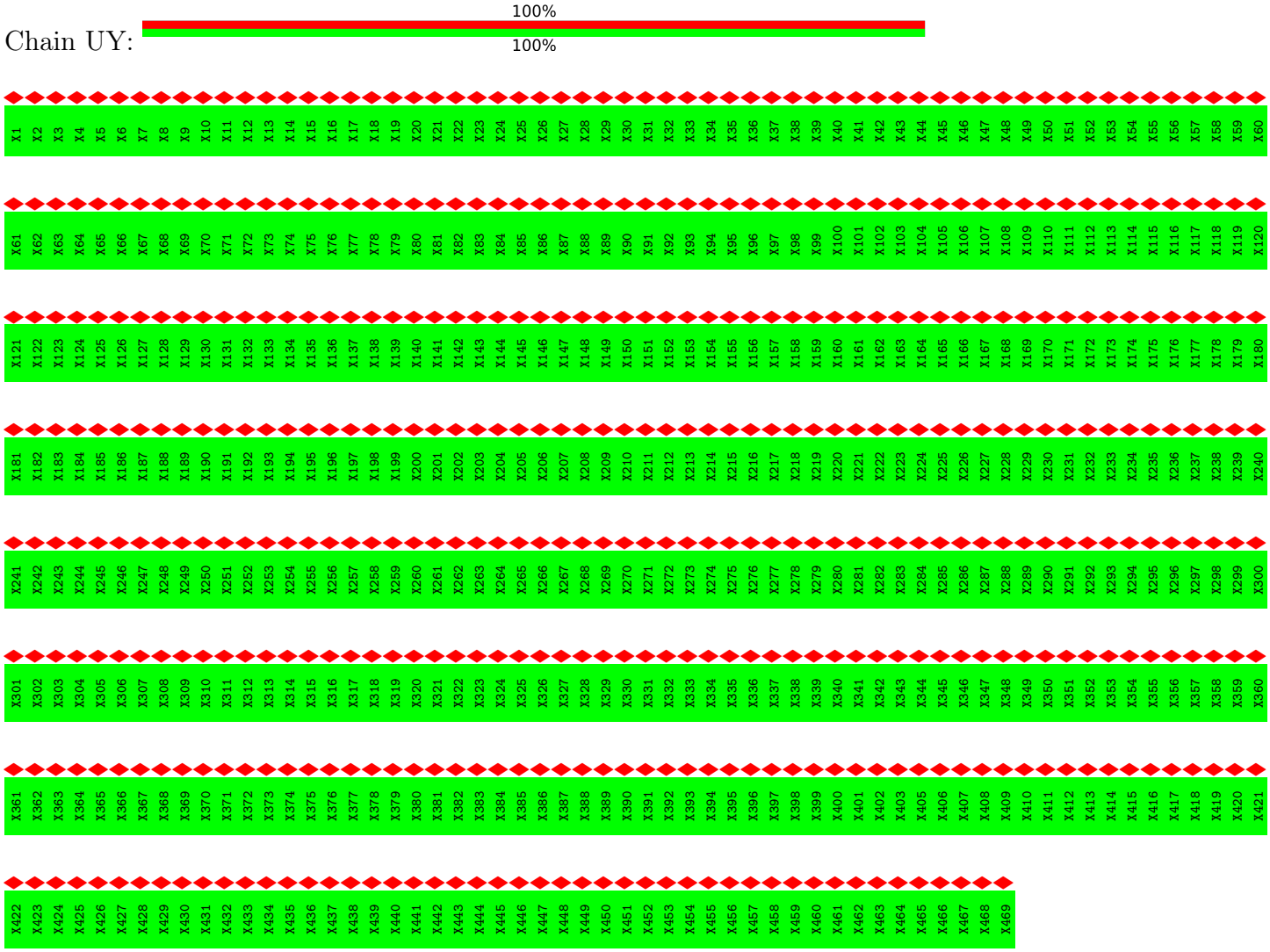
• Molecule 58: UNK-O

Chain UO:



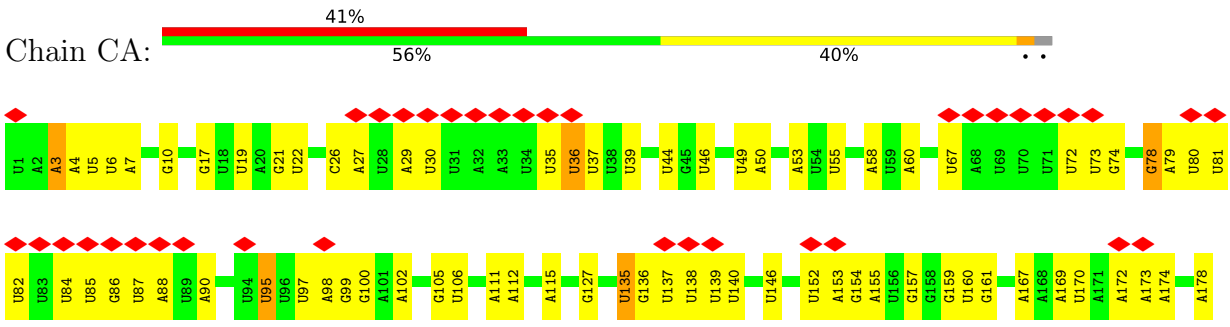

• Molecule 59: UNK-Y

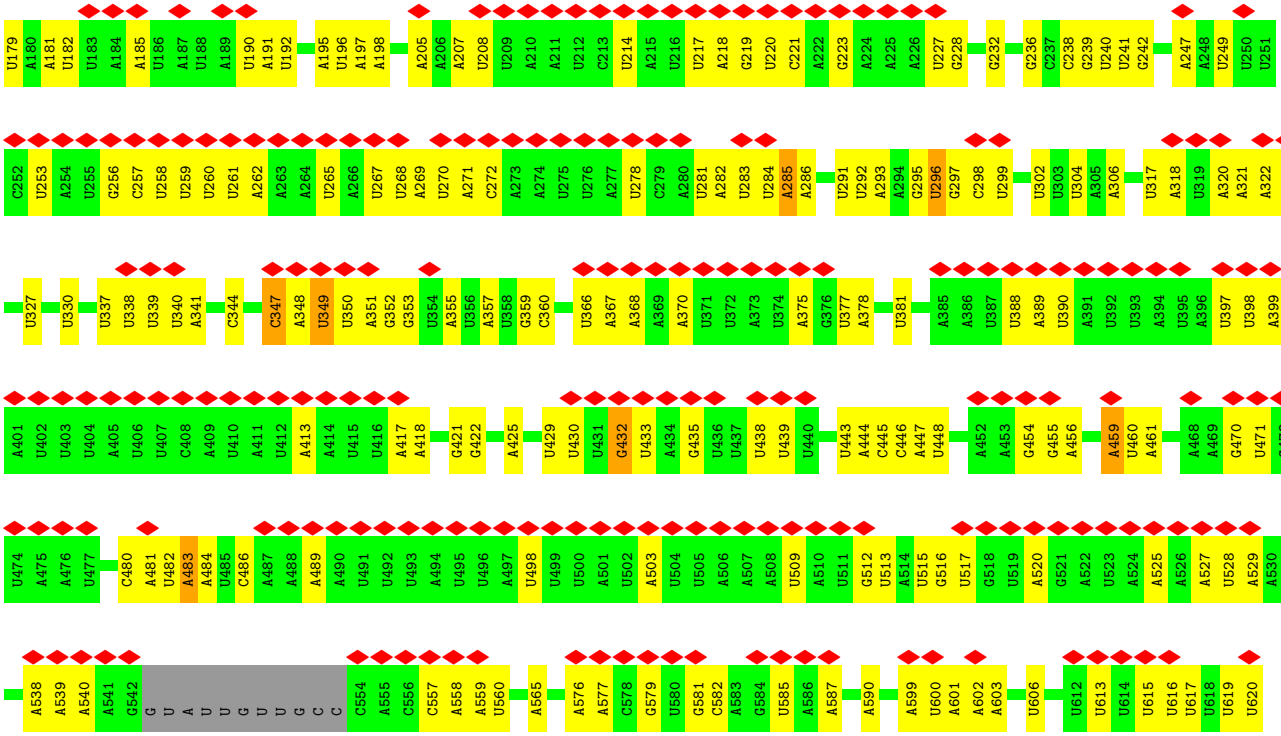
Chain UY:




• Molecule 60: 9S rRNA

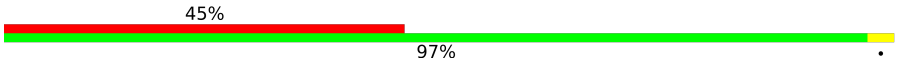
Chain CA:

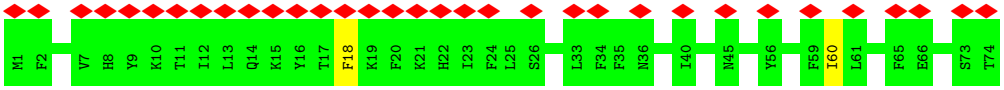





- Molecule 61: mS3m

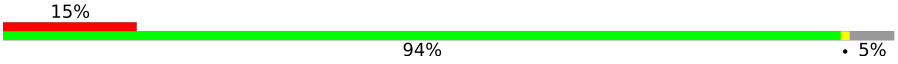
Chain CC:

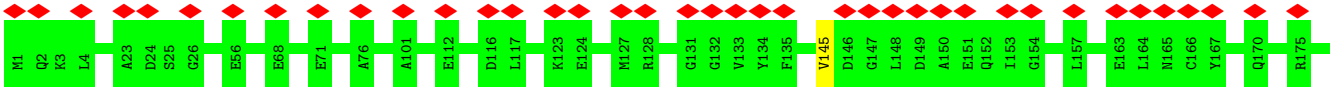


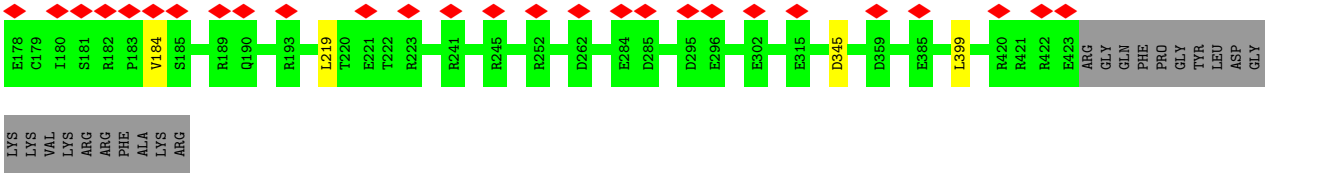




- Molecule 62: uS9m

Chain CI:

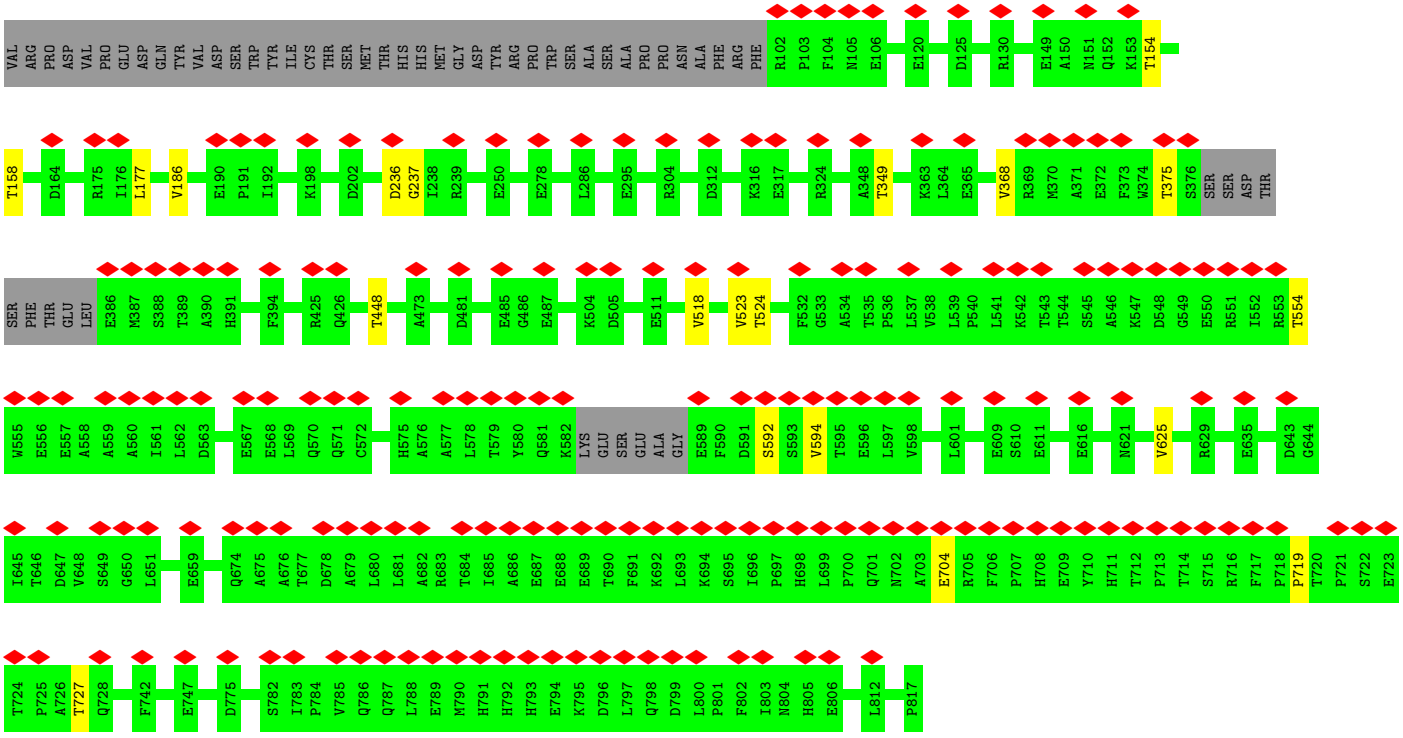


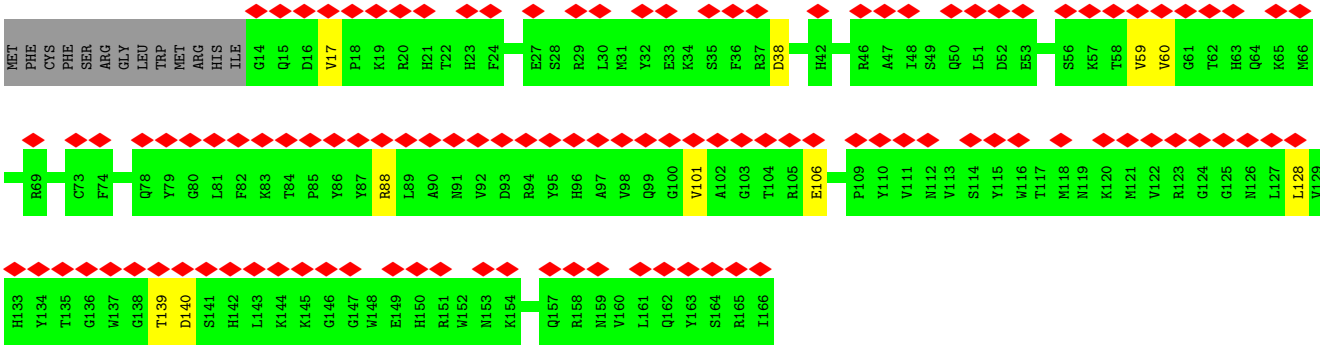

- Molecule 63: uS10m

Chain CJ:

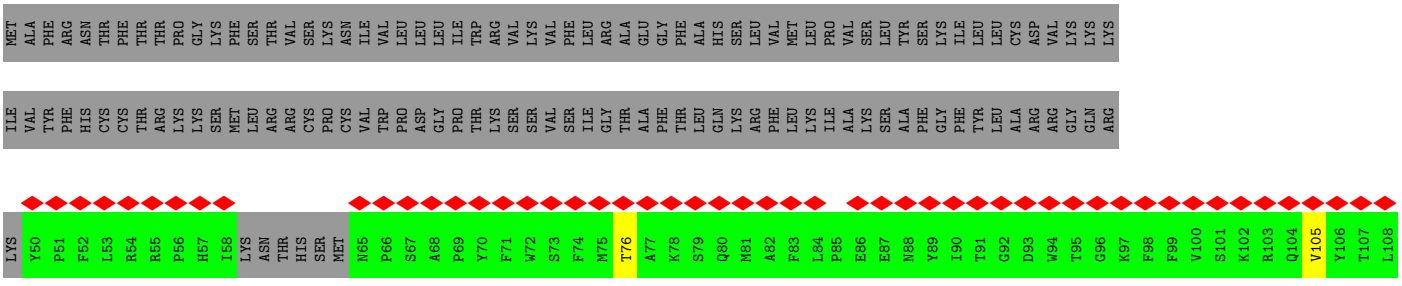
• Molecule 64: uS14m

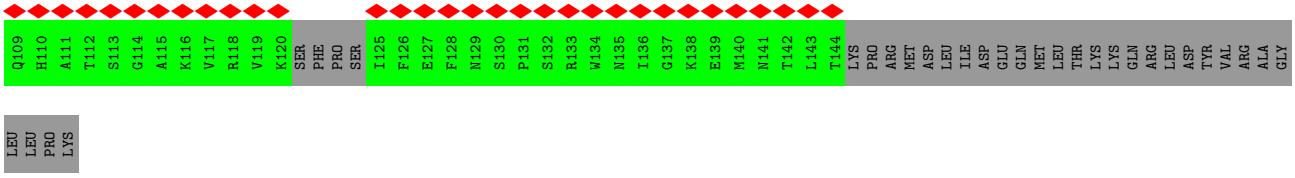
Chain CN:

• Molecule 65: uS19m

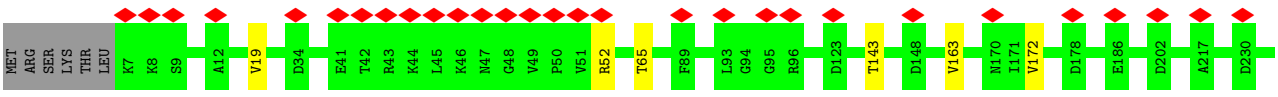
Chain CS:

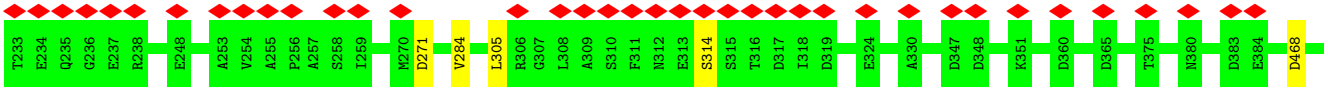



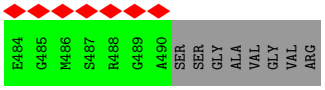



- Molecule 66: mS29

Chain Cg:

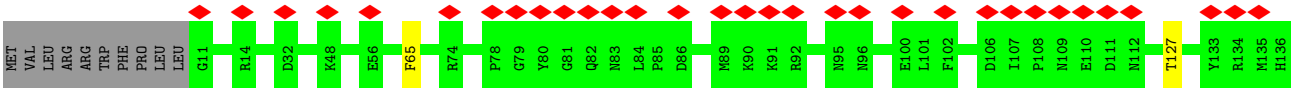



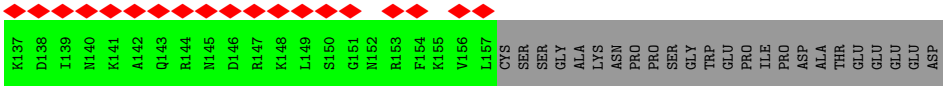




- Molecule 67: mS33

Chain Ci:

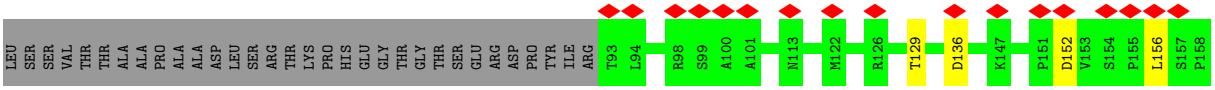



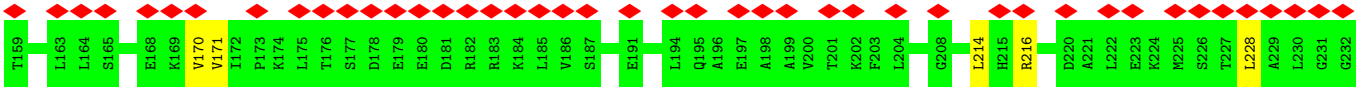



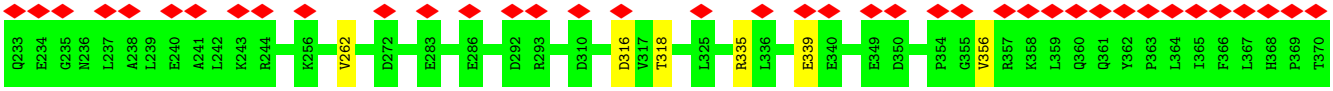

- Molecule 68: mS35

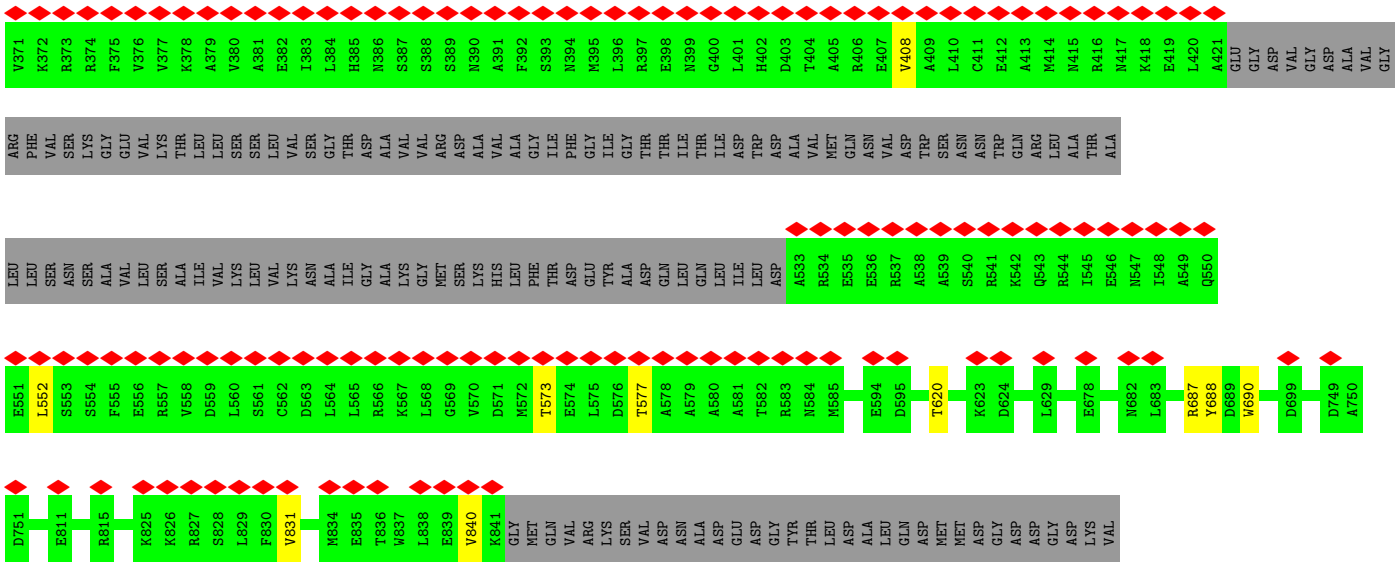
Chain Ck:





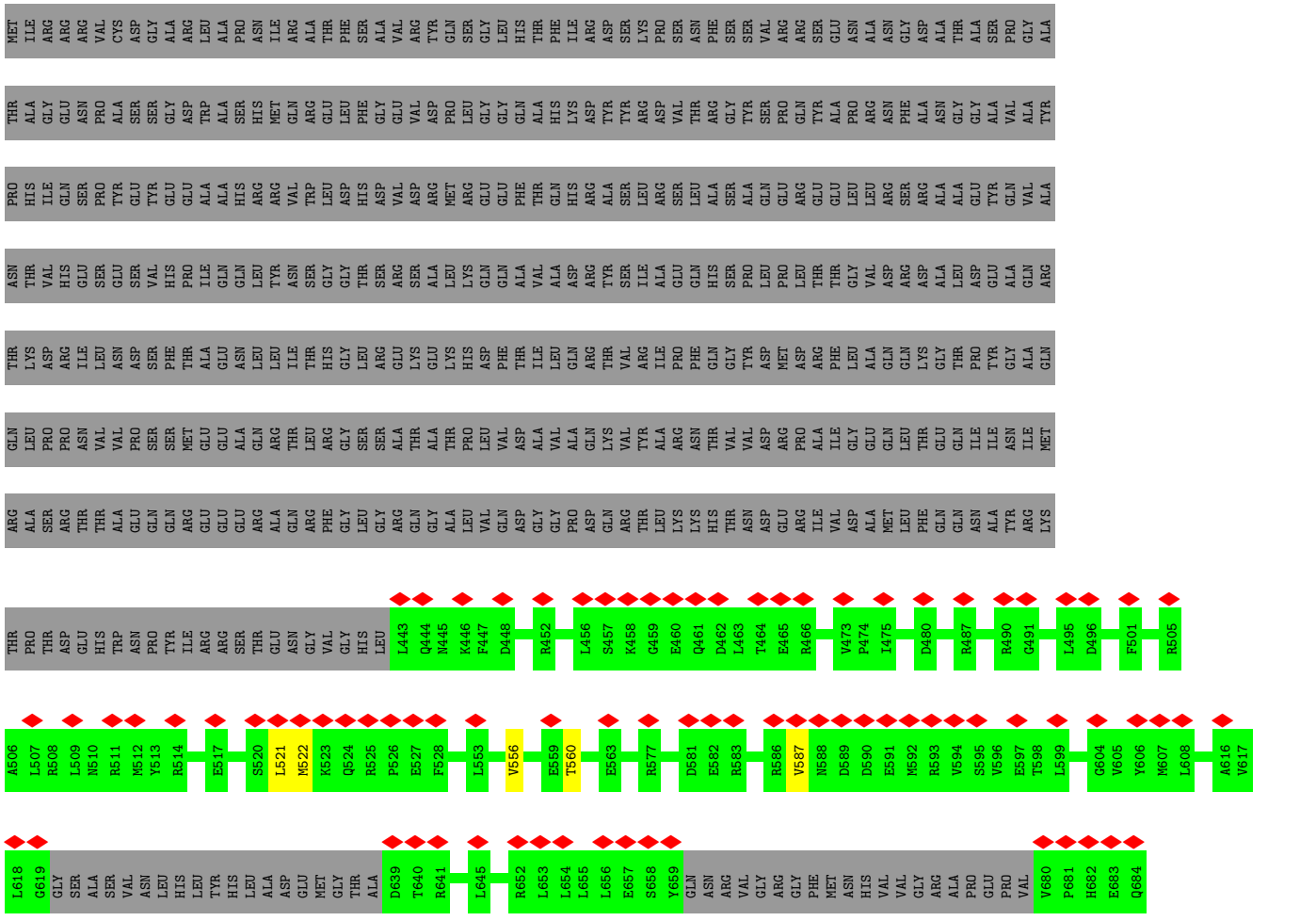



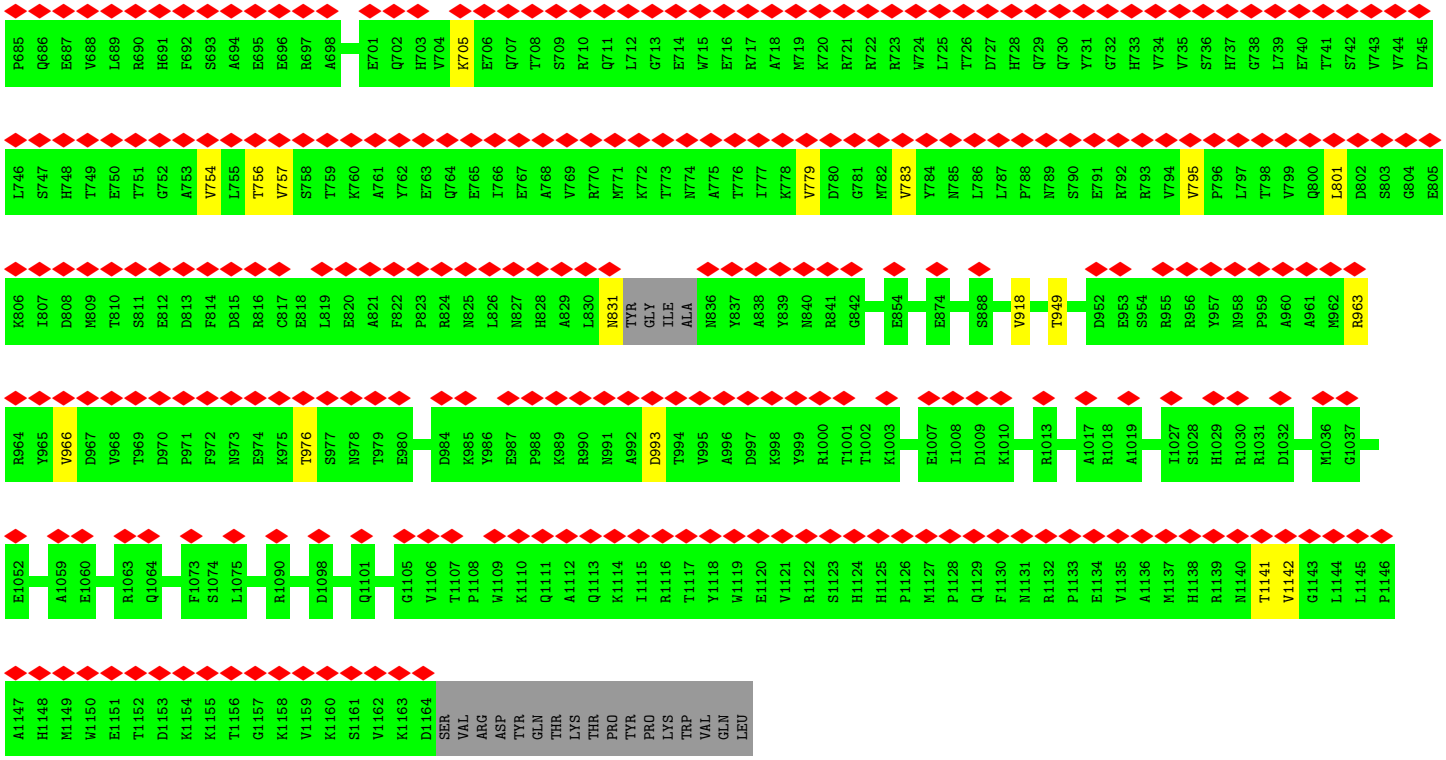






- Molecule 69: mS49

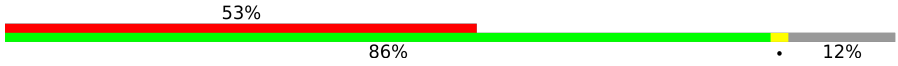
Chain DB:

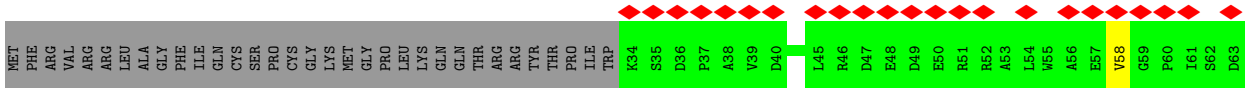



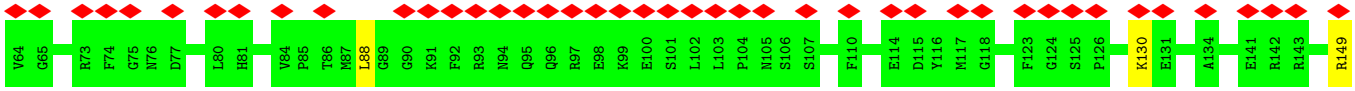


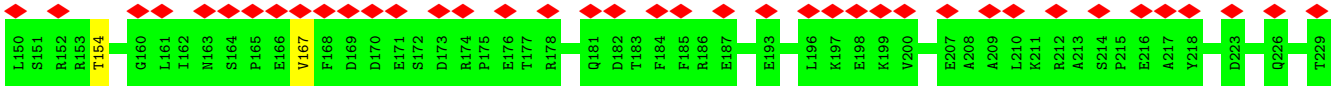

- Molecule 70: mS50

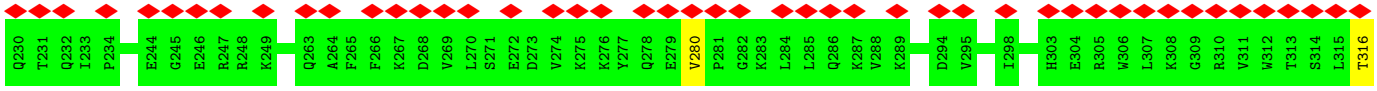
Chain DC:

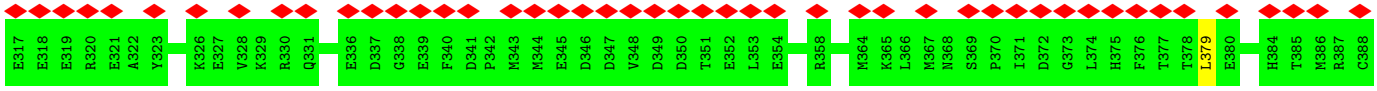


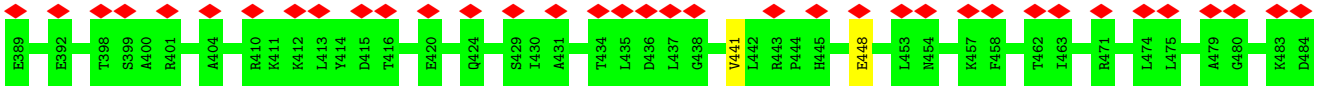



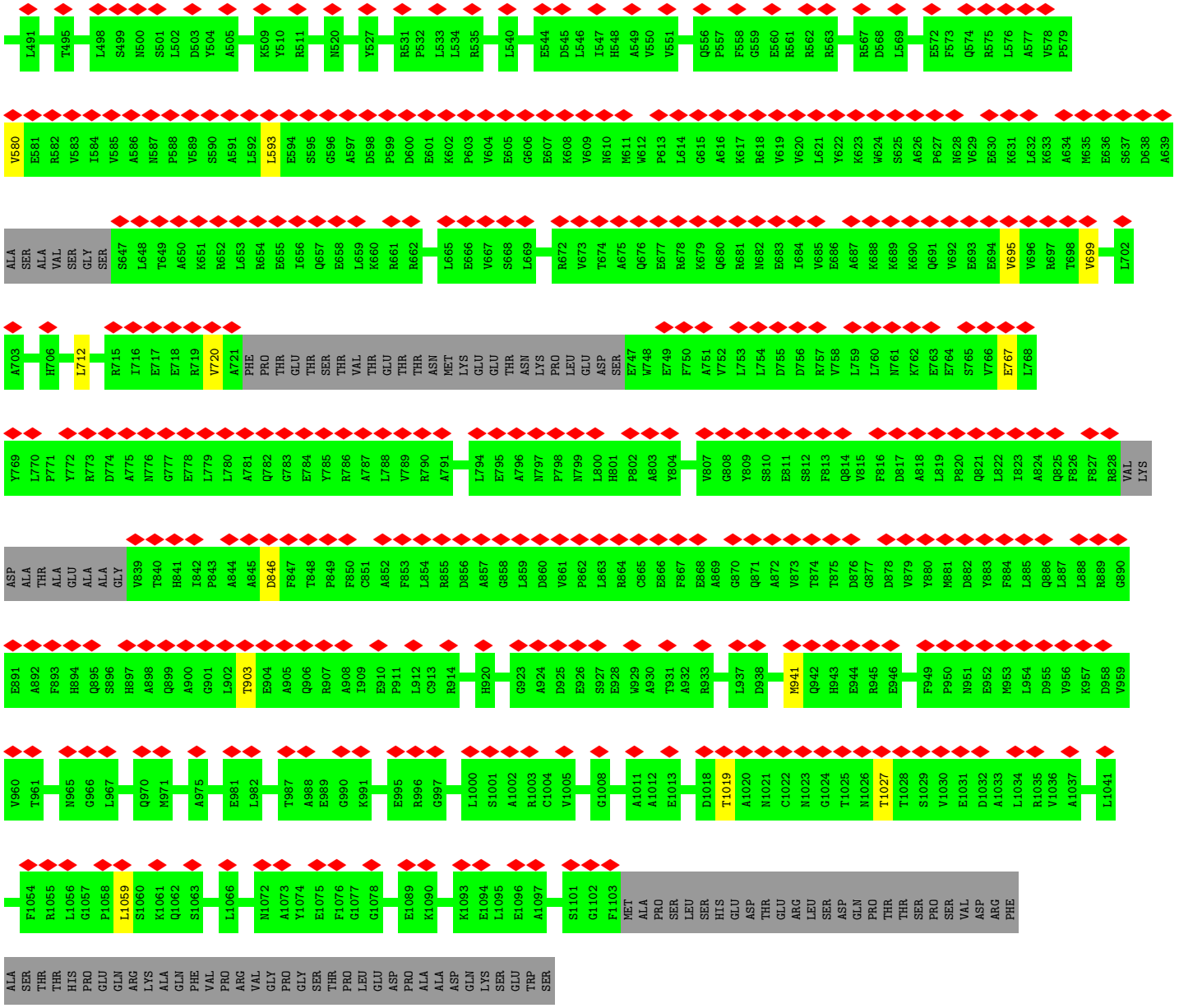



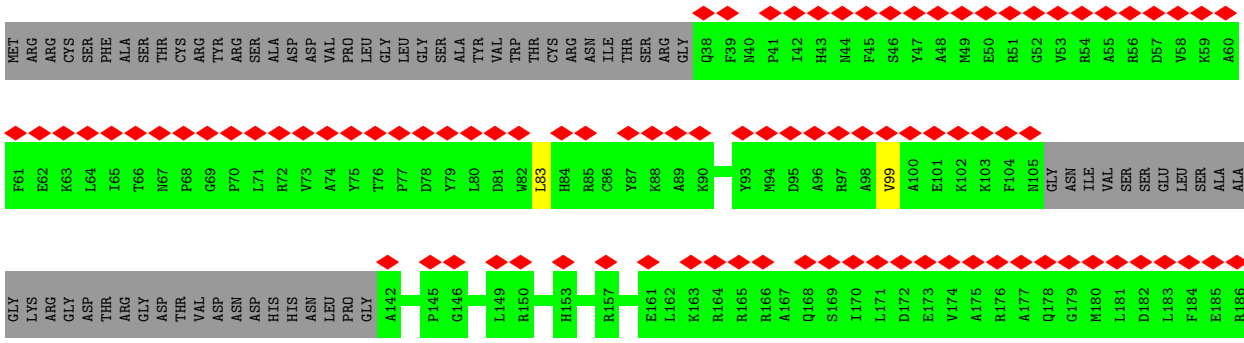



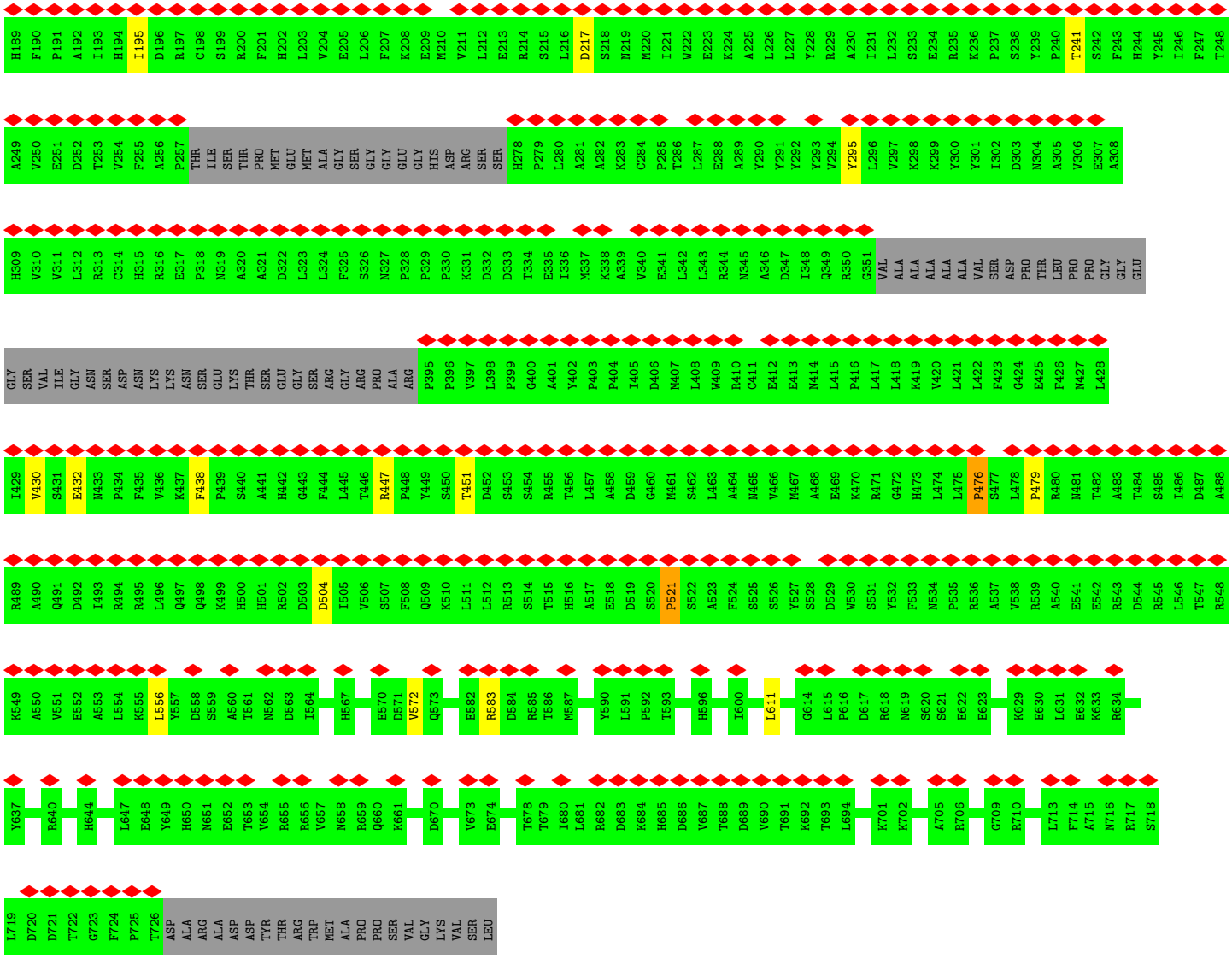






- Molecule 71: mS52

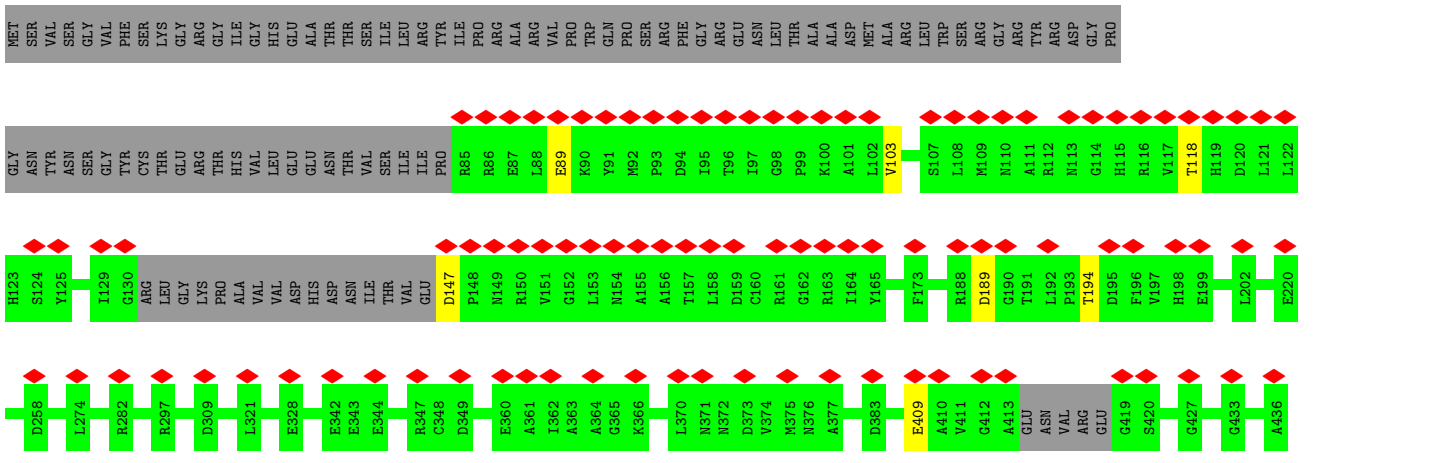
Chain DE:

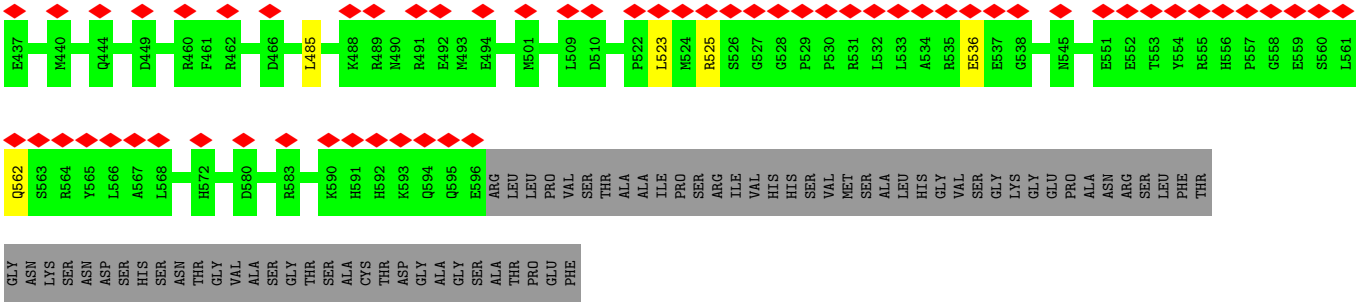






- Molecule 72: mS53

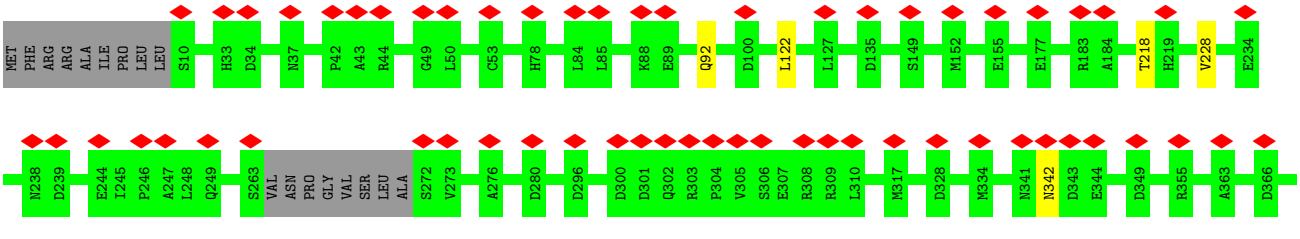
Chain DF:



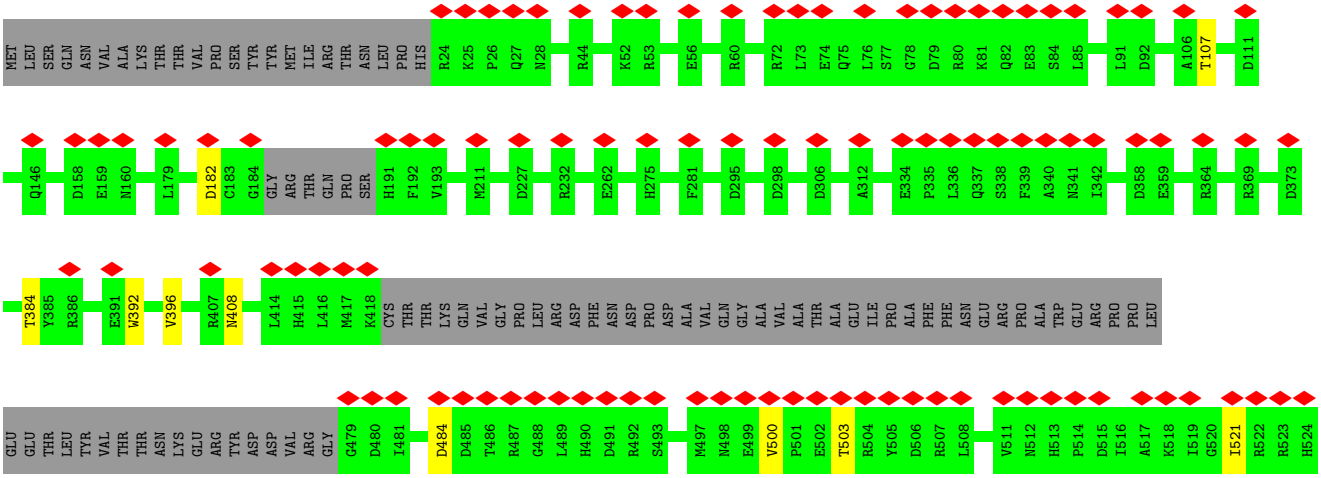

- Molecule 73: mS54

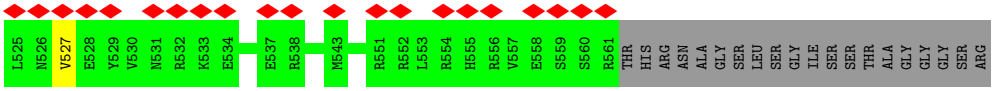
Chain DG:


- Molecule 74: mS55 (KRIPP8)

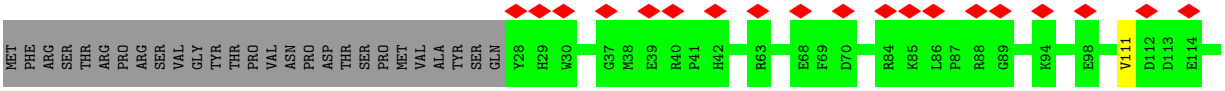
Chain DH:

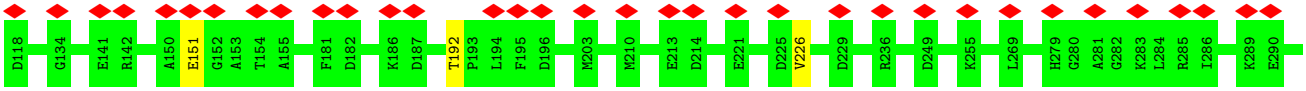



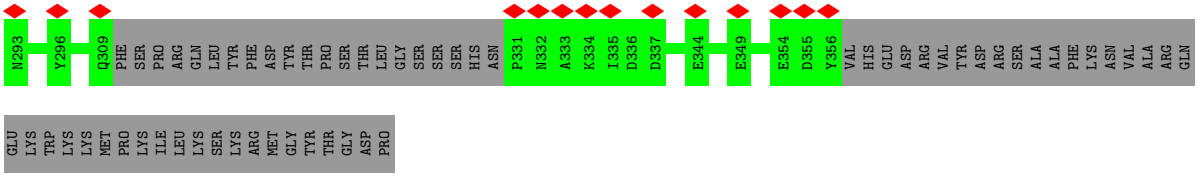



• Molecule 75: mS57

Chain DJ:

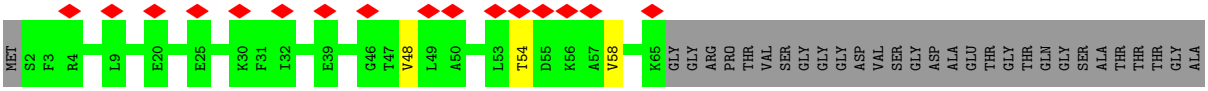



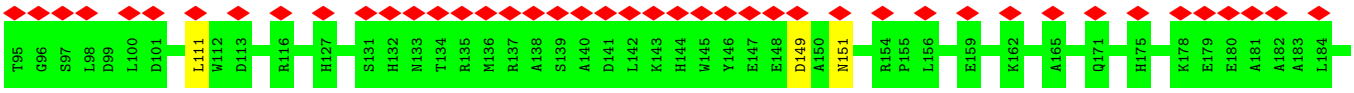



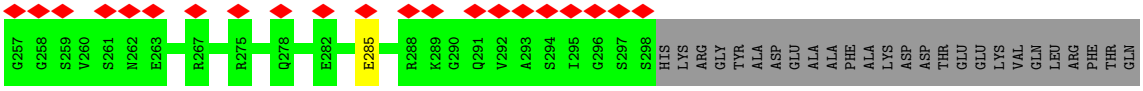

• Molecule 76: mS58

Chain DK:

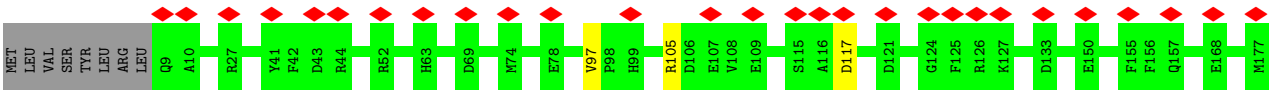



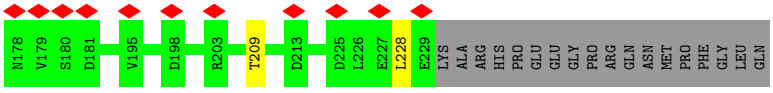





• Molecule 77: mS67

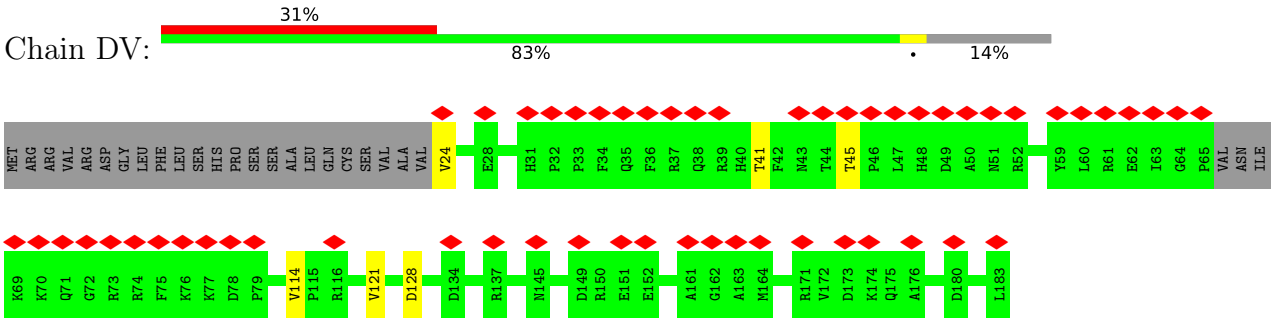
Chain DT:

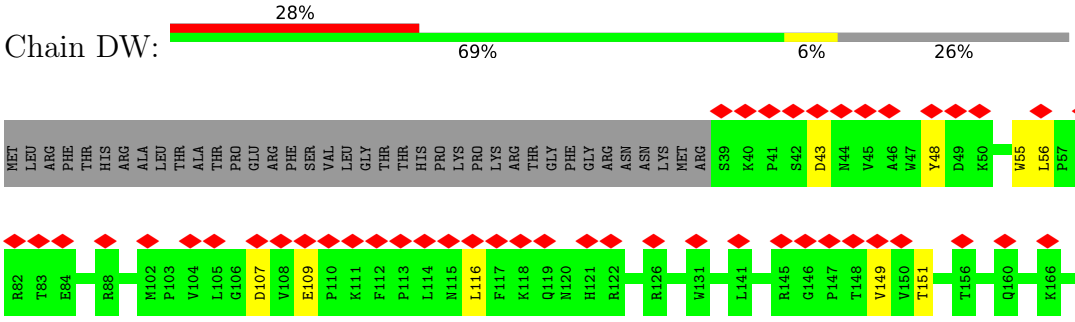
- Molecule 78: mS69

Chain DV:



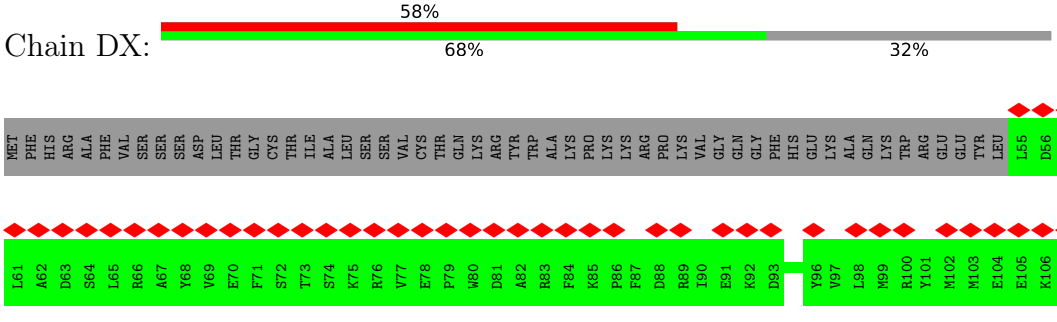

- Molecule 79: mS70

Chain DW:



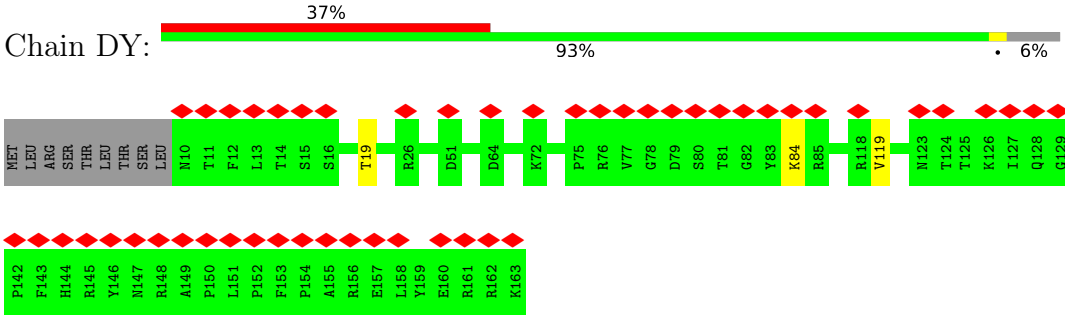

- Molecule 80: mS71

Chain DX:



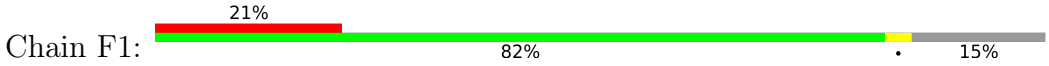

- Molecule 81: mS72

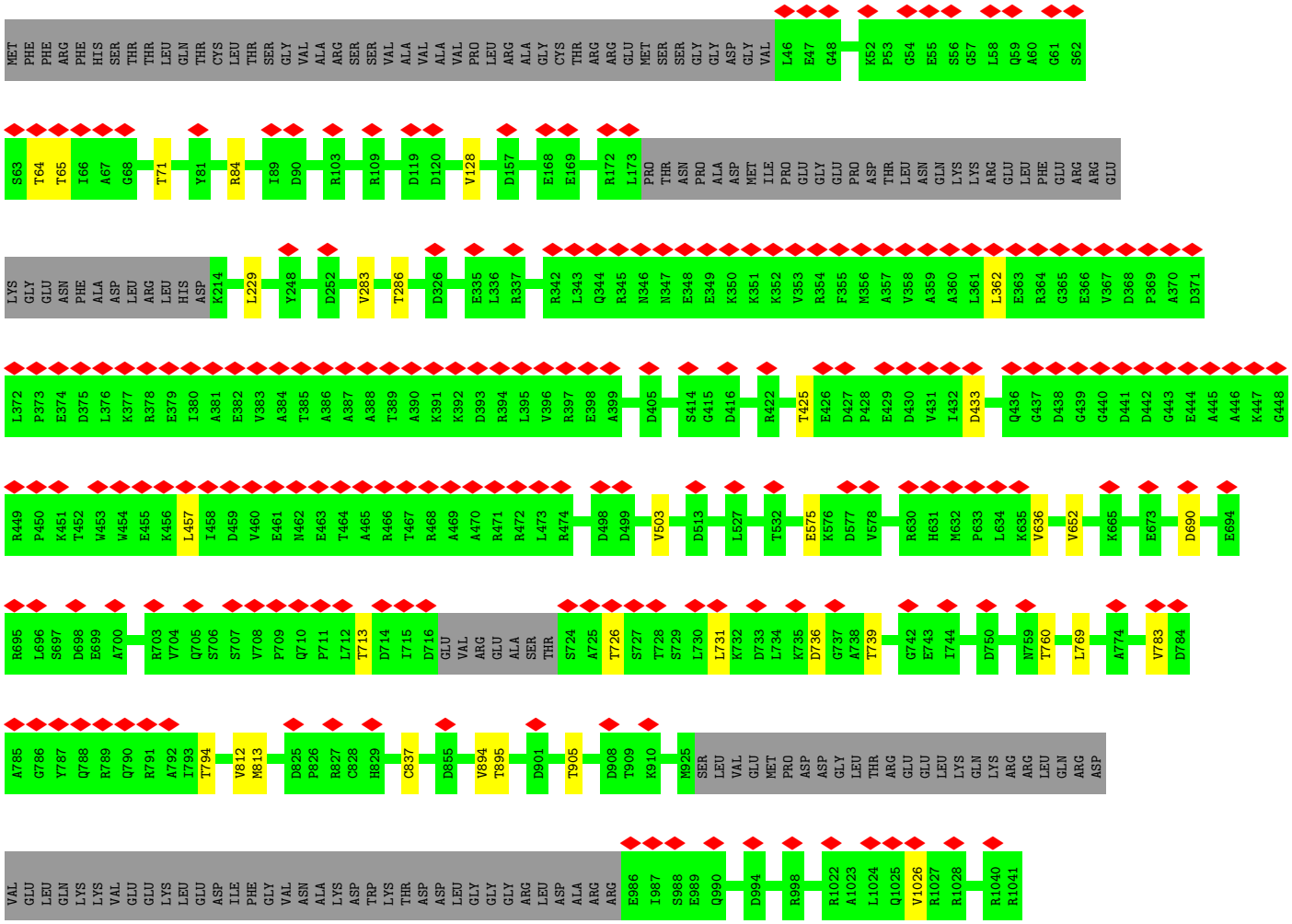
Chain DY:




- Molecule 82: mt-SAF1 (RSM22)

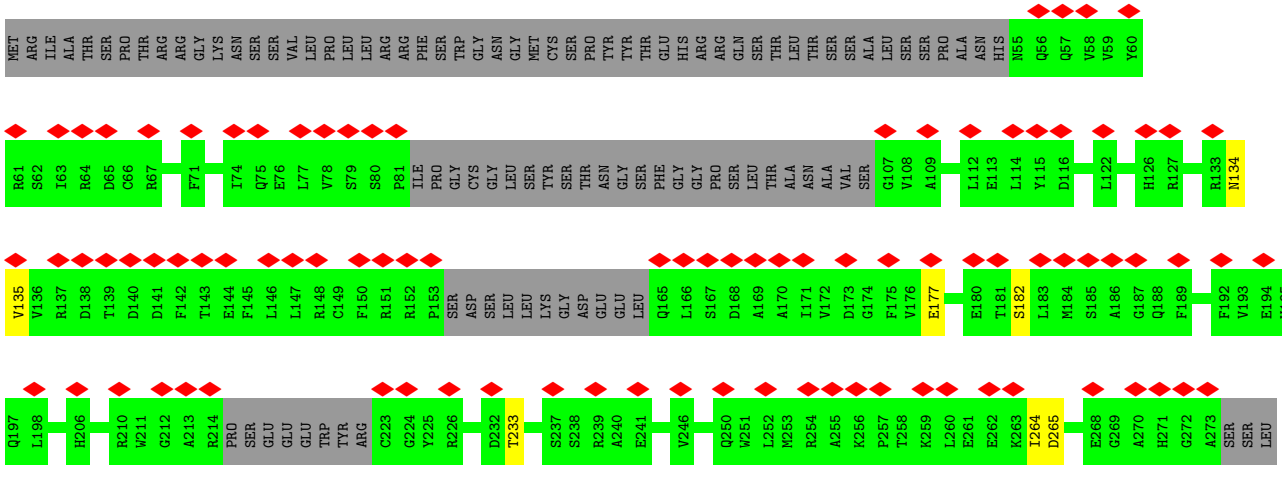
Chain F1:

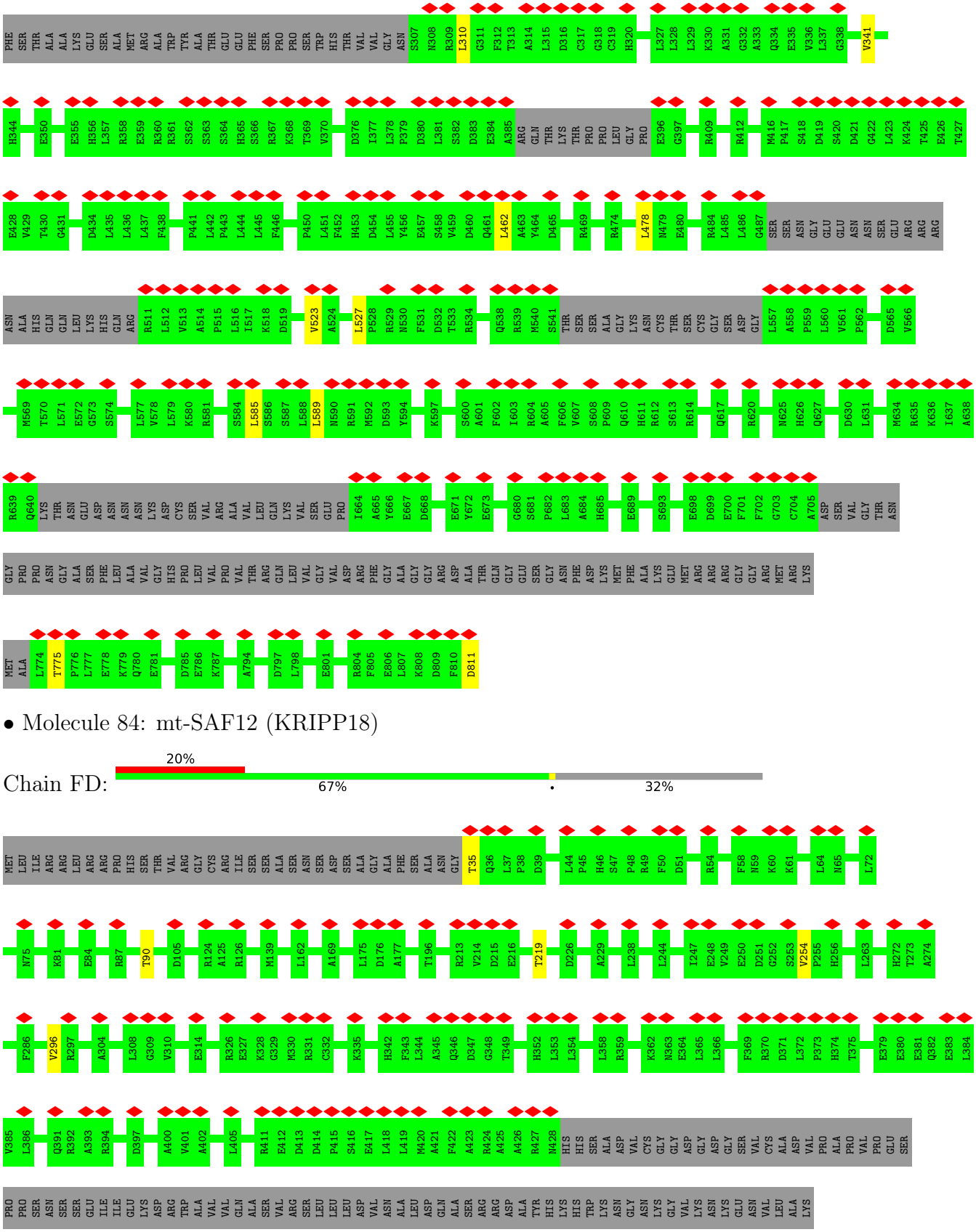


- Molecule 83: mt-SAF4

Chain F4:

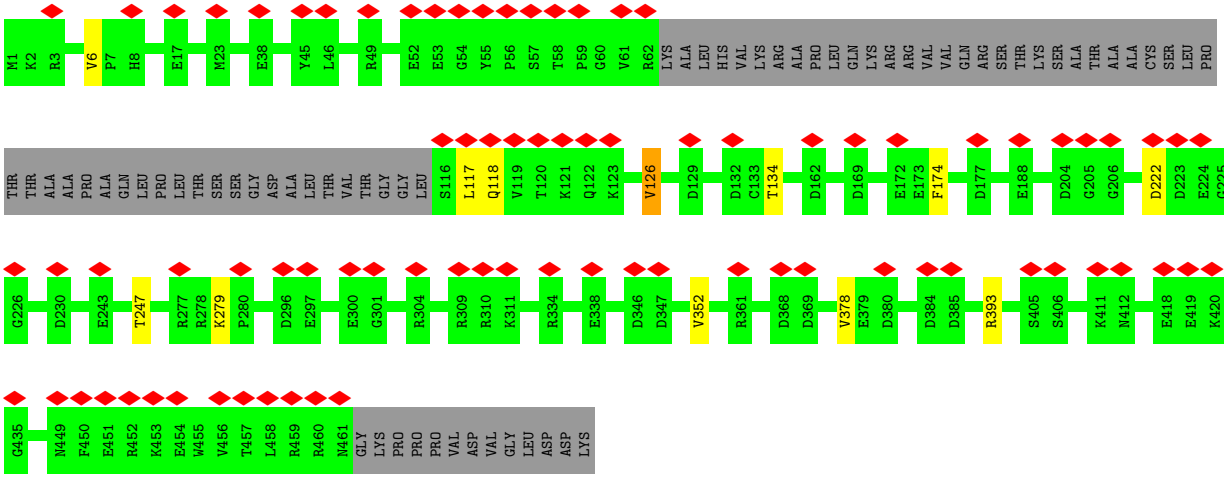


• Molecule 84: mt-SAF12 (KRIPP18)

Chain FD:

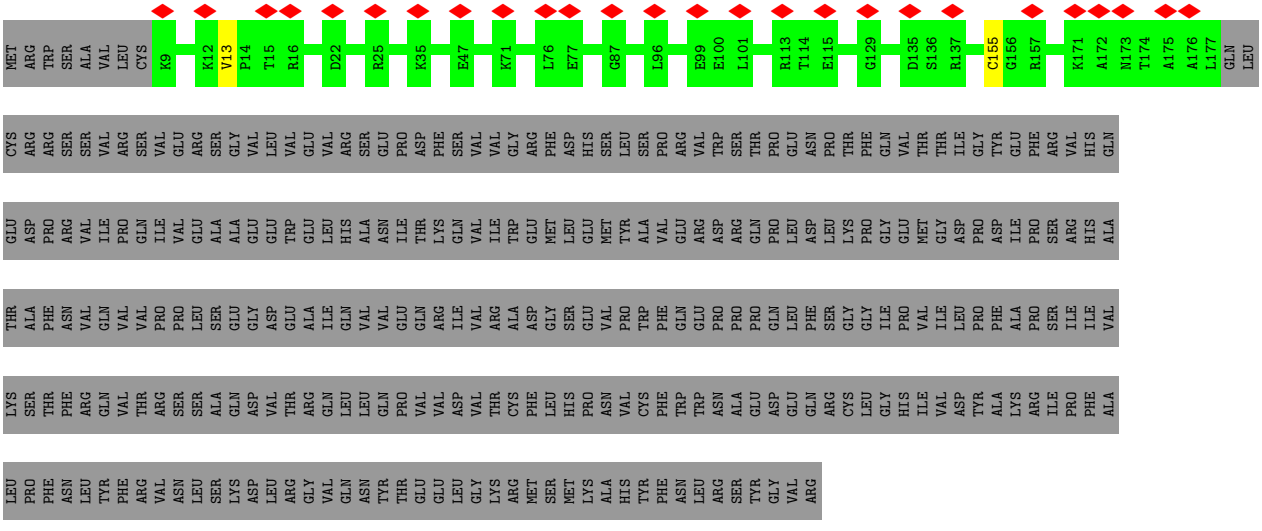

• Molecule 85: mt-SAF14

Chain FF:

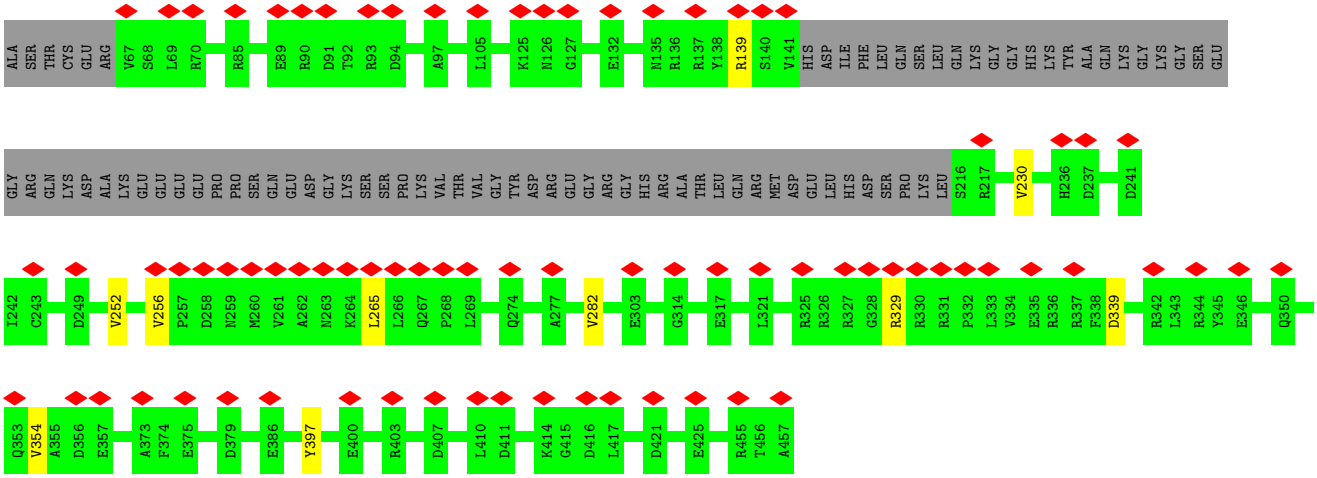

• Molecule 86: mt-SAF15

Chain FG:

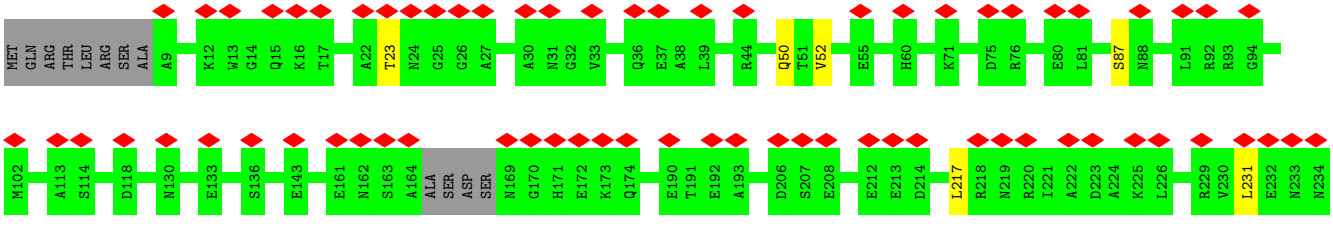

• Molecule 87: mt-SAF16

Chain FH:

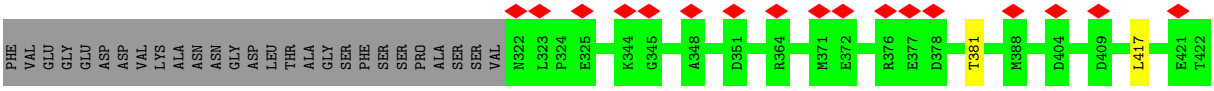
• Molecule 88: mt-SAF17

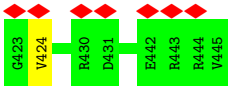
Chain FI:



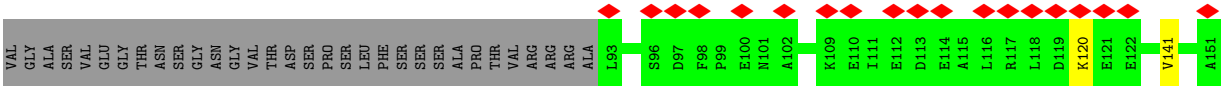


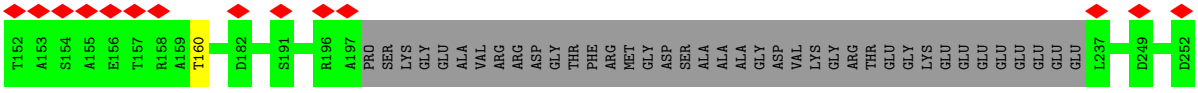


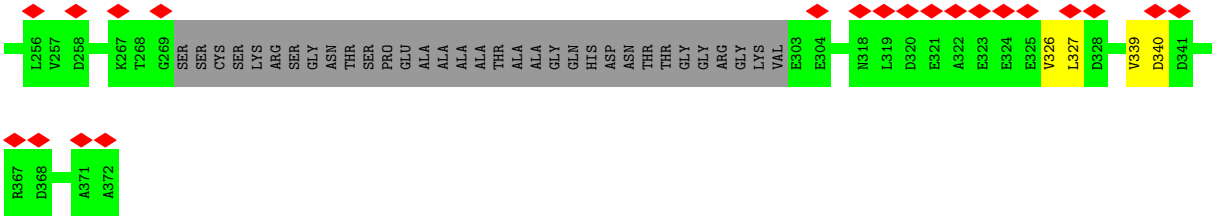


• Molecule 89: mt-SAF19

Chain FK:

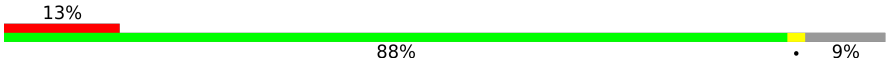



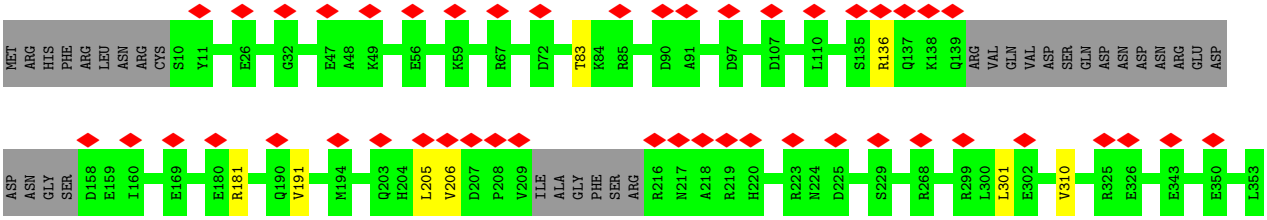





• Molecule 90: mt-SAF20

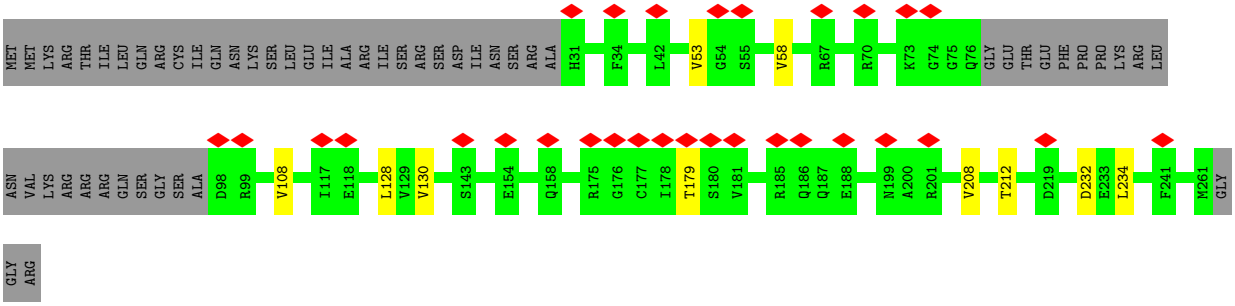
Chain FL:



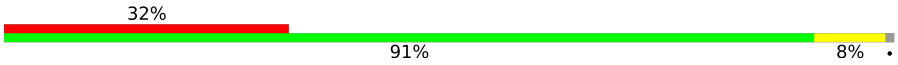

• Molecule 91: mt-SAF25

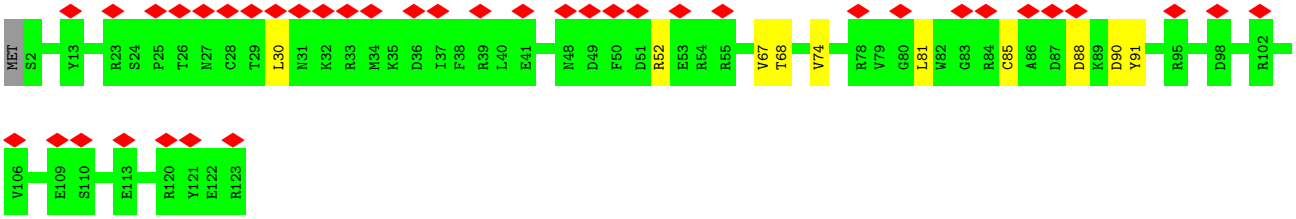
Chain FV:


• Molecule 92: mt-SAF34

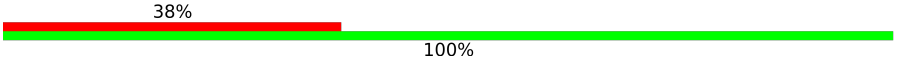
Chain Fe:

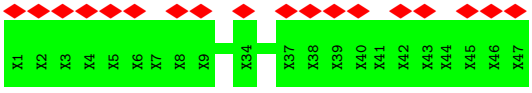



• Molecule 93: UNK-a

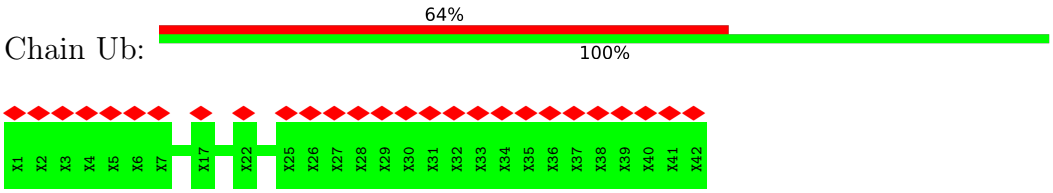
Chain Ua:



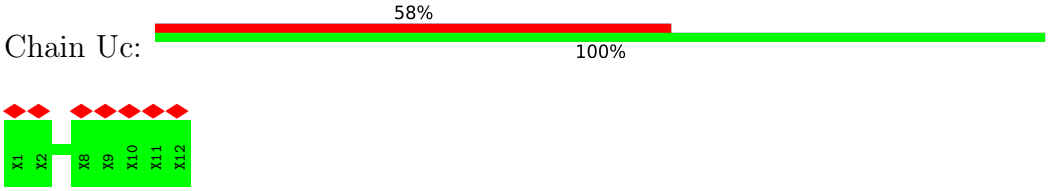
• Molecule 94: UNK-b

Chain Ub:



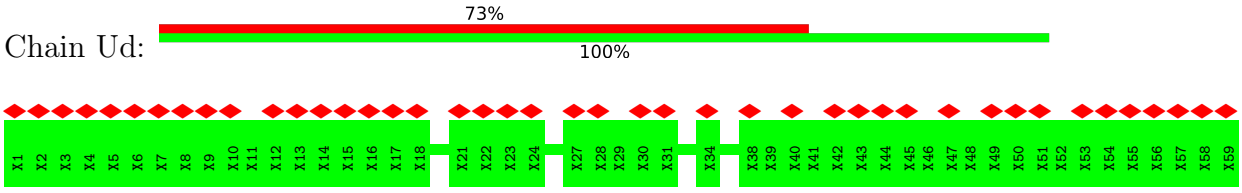

• Molecule 95: UNK-c

Chain Uc:



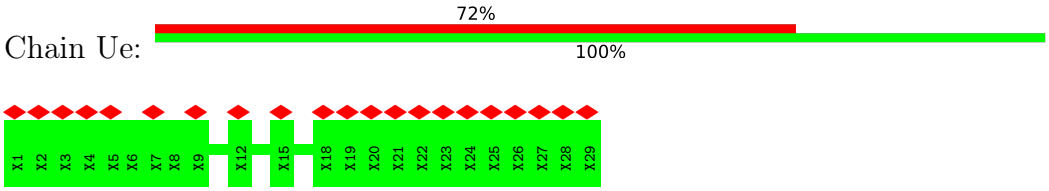

• Molecule 96: UNK-d

Chain Ud:



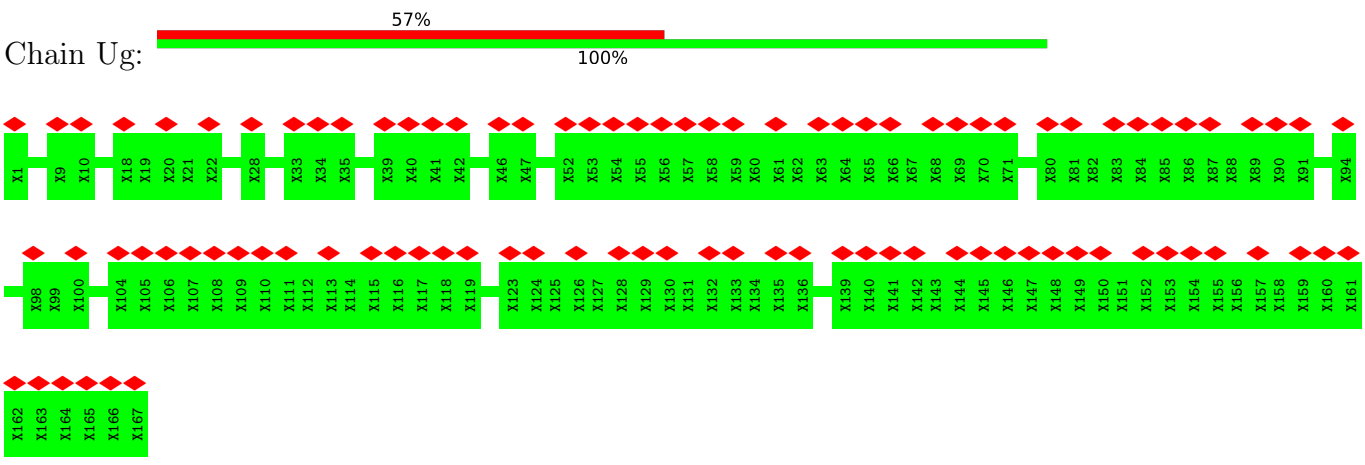

• Molecule 97: UNK-e

Chain Ue:




• Molecule 98: UNK-g

Chain Ug:




• Molecule 99: UNK-h

Chain Uh:

X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X20 X21 X22 X23 X24 X25 X26 X27 X28 X29 X30 X31 X32 X33 X34 X35 X36 X37 X38 X39 X40 X41 X42 X43 X44 X45 X46 X47 X48 X49 X50 X51 X52 X53 X54 X55 X56 X57 X58 X59 X60

X61 X62 X63 X64 X65 X66 X67 X68 X69 X70 X71 X72 X73 X74 X75 X76 X77 X78 X79 X80 X81 X82 X83 X84 X85 X86 X87 X88 X98 X99 X100 X101 X102 X103 X104 X105 X106 X107 X108 X109 X110 X111 X112 X113 X114 X115 X116 X117 X118 X119 X120 X121 X122 X123 X124 X125 X126 X127 X128 X129

X130 X131 X132 X133 X134 X135 X136 X137 X138 X139 X140 X141 X142 X143 X144 X145 X184 X185 X186 X187 X188 X189 X190 X191 X192 X193 X194 X195 X196 X197 X198 X199 X200 X201 X202 X203 X204 X205 X206 X207 X208 X209 X210 X211 X212 X213 X214 X215 X216 X217 X218 X219 X267 X268 X269 X270 X271 X272 X273 X274

X275 X276 X277 X278 X279 X280 X281 X282 X283 X284 X285 X286 X287 X288 X289 X290 X291 X292 X293 X294 X295 X296 X297 X298 X299 X300 X301 X302 X303 X304 X305 X306 X307 X308 X309 X310 X311 X312 X313 X314 X315 X316 X317 X318 X319 X320 X321 X322 X323 X324 X325 X326 X327 X328 X329 X330 X331 X332 X333 X334

X335 X336 X337 X338 X339 X340 X341 X342 X343 X344 X345 X346 X347 X348 X349

• Molecule 100: UNK-i

Chain Ui: 75% 100%

X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X21 X24 X27 X28 X29 X30 X31 X32

• Molecule 101: UNK-j

Chain Uj: 63% 100%

X1 X2 X3 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19

• Molecule 102: UNK-l

Chain Ul: 86% 100%

X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14

• Molecule 103: UNK-x

Chain Ux: 98% 98%

X8 X9 X10 X11 X12 X13 X14 X15 X28 X29 X30 X31 X32 X33 X34 X35 X36 X37 X38 X39 X40 X41 X42 X43 X44 X45 X46 X47 X49 X50 X51 X52 X53 X54 X55 X56 X57 X58 X59 X60 X61 X62 X63 X64 X65 X66 X74 X75 X76 X77 X78 X79 X80 X81 X82 X83 X84 X85 X86 X87

X88 X89 X90 X91 X92 X93 X94 X95 X96 X97 X98 X99 X100 X101 X102 X103 X104 X105 X106 X107 X108 X109 X110 X111 X112 X113 X114 X115 X116 X117 X118 X119 X120 X121 X122 X123 X124 X125 X126 X127 X128 X129 X130 X131 X132 X133 X134 X135 UNK UNK

# 4 Experimental information (i)

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, C1 | Depositor |
| Number of particles used | 104838 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION; On the fly in RELION | Depositor |
| Microscope | FEI TITAN KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/Å^2$) | 40 | Depositor |
| Minimum defocus (nm) | Not provided | |
| Maximum defocus (nm) | Not provided | |
| Magnification | 100719 | Depositor |
| Image detector | FEI FALCON III (4k x 4k) | Depositor |
| Maximum map value | 0.613 | Depositor |
| Minimum map value | -0.285 | Depositor |
| Average map value | 0.002 | Depositor |
| Map value standard deviation | 0.021 | Depositor |
| Recommended contour level | 0.09 | Depositor |
| Map size (Å) | 444.8, 444.8, 444.8 | wwPDB |
| Map dimensions | 320, 320, 320 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.39, 1.39, 1.39 | 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: PO4, SAH, ZN, GTP, MG, PM8, UBD

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 | CE | 0.26 | 0/3226 | 0.47 | 2/4364 (0.0%) |
| 2 | CF | 0.25 | 0/1344 | 0.44 | 0/1813 |
| 3 | CH | 0.25 | 0/1864 | 0.44 | 0/2511 |
| 4 | CK | 0.27 | 0/1760 | 0.48 | 1/2372 (0.0%) |
| 5 | CO | 0.25 | 0/3057 | 0.44 | 1/4121 (0.0%) |
| 6 | CP | 0.26 | 0/1533 | 0.48 | 0/2074 |
| 7 | CQ | 0.27 | 0/1856 | 0.45 | 0/2509 |
| 8 | CR | 0.26 | 0/1315 | 0.46 | 0/1785 |
| 9 | Ca | 0.26 | 0/4474 | 0.44 | 1/6052 (0.0%) |
| 10 | Cb | 0.26 | 0/1304 | 0.45 | 0/1751 |
| 11 | Cd | 0.30 | 0/1662 | 0.40 | 0/2234 |
| 12 | Cj | 0.26 | 0/1842 | 0.45 | 0/2511 |
| 13 | Cn | 0.28 | 0/245 | 0.49 | 0/333 |
| 14 | Cp | 0.25 | 0/1551 | 0.42 | 0/2103 |
| 15 | DD | 0.26 | 0/6678 | 0.43 | 0/9051 |
| 16 | DI | 0.25 | 0/3248 | 0.42 | 0/4401 |
| 17 | DL | 0.26 | 0/1699 | 0.43 | 0/2293 |
| 18 | DO | 0.23 | 0/1680 | 0.39 | 0/2265 |
| 19 | DP | 0.24 | 0/1854 | 0.43 | 0/2511 |
| 20 | DR | 0.26 | 0/2107 | 0.47 | 0/2871 |
| 21 | DU | 0.26 | 0/1780 | 0.51 | 2/2416 (0.1%) |
| 22 | DZ | 0.25 | 0/263 | 0.45 | 0/355 |
| 23 | F2 | 0.25 | 0/7432 | 0.44 | 1/10042 (0.0%) |
| 24 | F3 | 0.25 | 0/6999 | 0.44 | 0/9472 |
| 25 | F5 | 0.26 | 0/3533 | 0.43 | 3/4798 (0.1%) |
| 26 | F6 | 0.26 | 0/3728 | 0.47 | 1/5060 (0.0%) |
| 27 | F7 | 0.26 | 0/5342 | 0.45 | 0/7236 |
| 28 | F8 | 0.26 | 0/4025 | 0.44 | 0/5450 |
| 29 | F9 | 0.24 | 0/1785 | 0.39 | 0/2399 |
| 30 | FA | 0.26 | 0/4507 | 0.47 | 0/6139 |
| 31 | FB | 0.26 | 0/3132 | 0.45 | 0/4248 |
| 31 | FC | 0.25 | 0/2635 | 0.45 | 0/3572 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 32 | FE | 0.26 | 0/3629 | 0.44 | 0/4935 |
| 33 | FJ | 0.29 | 0/2986 | 0.49 | 0/4030 |
| 34 | FM | 0.26 | 0/2489 | 0.46 | 0/3365 |
| 34 | FN | 0.24 | 0/2430 | 0.43 | 0/3285 |
| 35 | FO | 0.26 | 0/2733 | 0.44 | 0/3692 |
| 36 | FP | 0.26 | 0/2710 | 0.45 | 0/3709 |
| 37 | FQ | 0.26 | 0/2048 | 0.45 | 0/2786 |
| 37 | FR | 0.25 | 0/1966 | 0.45 | 0/2673 |
| 37 | FS | 0.25 | 0/2249 | 0.46 | 0/3063 |
| 37 | FT | 0.25 | 0/1897 | 0.45 | 0/2580 |
| 37 | FU | 0.25 | 0/2154 | 0.45 | 0/2933 |
| 38 | FW | 0.24 | 0/2077 | 0.43 | 0/2805 |
| 39 | FX | 0.25 | 0/1783 | 0.41 | 0/2410 |
| 40 | FY | 0.27 | 0/1321 | 0.45 | 0/1788 |
| 41 | FZ | 0.23 | 0/989 | 0.49 | 3/1336 (0.2%) |
| 42 | Fa | 0.26 | 0/1363 | 0.43 | 0/1853 |
| 43 | Fb | 0.24 | 0/1123 | 0.40 | 0/1513 |
| 44 | Fc | 0.24 | 0/679 | 0.41 | 0/923 |
| 45 | Fd | 0.25 | 0/779 | 0.43 | 0/1054 |
| 60 | CA | 0.30 | 0/12605 | 1.00 | 53/19567 (0.3%) |
| 61 | CC | 0.28 | 0/666 | 0.47 | 0/900 |
| 62 | CI | 0.24 | 0/3424 | 0.42 | 0/4626 |
| 63 | CJ | 0.25 | 0/5865 | 0.44 | 0/7974 |
| 64 | CN | 0.23 | 0/1323 | 0.41 | 0/1790 |
| 65 | CS | 0.26 | 0/731 | 0.43 | 0/987 |
| 66 | Cg | 0.26 | 0/4043 | 0.42 | 0/5489 |
| 67 | Ci | 0.24 | 0/1256 | 0.43 | 0/1695 |
| 68 | Ck | 0.24 | 0/5215 | 0.44 | 0/7050 |
| 69 | DB | 0.24 | 0/5830 | 0.44 | 0/7889 |
| 70 | DC | 0.25 | 0/8409 | 0.42 | 0/11399 |
| 71 | DE | 0.24 | 0/4756 | 0.44 | 3/6462 (0.0%) |
| 72 | DF | 0.24 | 0/4056 | 0.44 | 0/5493 |
| 73 | DG | 0.24 | 0/4674 | 0.41 | 0/6333 |
| 74 | DH | 0.23 | 0/3935 | 0.42 | 0/5321 |
| 75 | DJ | 0.24 | 0/2591 | 0.42 | 0/3508 |
| 76 | DK | 0.24 | 0/1965 | 0.42 | 0/2652 |
| 77 | DT | 0.25 | 0/1982 | 0.43 | 0/2686 |
| 78 | DV | 0.26 | 0/1358 | 0.43 | 0/1836 |
| 79 | DW | 0.28 | 0/1182 | 0.49 | 0/1613 |
| 80 | DX | 0.24 | 0/993 | 0.43 | 0/1336 |
| 81 | DY | 0.25 | 0/1337 | 0.41 | 0/1814 |
| 82 | F1 | 0.25 | 0/7334 | 0.45 | 0/9883 |
| 83 | F4 | 0.24 | 0/4483 | 0.45 | 1/6061 (0.0%) |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 84 | FD | 0.24 | 0/3216 | 0.42 | 0/4380 |
| 85 | FF | 0.25 | 0/3335 | 0.45 | 0/4498 |
| 86 | FG | 0.24 | 0/1386 | 0.45 | 0/1869 |
| 87 | FH | 0.25 | 0/2537 | 0.42 | 0/3442 |
| 88 | FI | 0.25 | 0/2834 | 0.43 | 0/3821 |
| 89 | FK | 0.25 | 0/1748 | 0.43 | 0/2378 |
| 90 | FL | 0.25 | 0/2613 | 0.45 | 0/3538 |
| 91 | FV | 0.26 | 0/1680 | 0.43 | 0/2281 |
| 92 | Fe | 0.25 | 0/1057 | 0.46 | 0/1421 |
| All | All | 0.26 | 0/237284 | 0.49 | 72/323837 (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 |
|---|---|---|---|
| 15 | DD | 0 | 1 |
| 24 | F3 | 0 | 1 |
| 27 | F7 | 0 | 1 |
| 28 | F8 | 0 | 1 |
| 36 | FP | 0 | 1 |
| 38 | FW | 0 | 1 |
| 74 | DH | 0 | 1 |
| 79 | DW | 0 | 1 |
| 85 | FF | 0 | 1 |
| 92 | Fe | 0 | 1 |
| All | All | 0 | 10 |

There are no bond length outliers.

All (72) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 60 | CA | 146 | U | N3-C2-O2 | -9.25 | 115.72 | 122.20 |
| 60 | CA | 146 | U | N1-C2-O2 | 9.16 | 129.21 | 122.80 |
| 60 | CA | 99 | G | C4-N9-C1' | 8.02 | 136.93 | 126.50 |
| 60 | CA | 146 | U | C2-N1-C1' | 7.67 | 126.91 | 117.70 |
| 60 | CA | 302 | U | C2-N1-C1' | 7.62 | 126.84 | 117.70 |
| 26 | F6 | 220 | LEU | CA-CB-CG | 7.58 | 132.73 | 115.30 |
| 60 | CA | 349 | U | OP1-P-O3' | 7.28 | 121.21 | 105.20 |
| 60 | CA | 99 | G | N3-C4-N9 | 7.25 | 130.35 | 126.00 |
| 60 | CA | 99 | G | N3-C4-C5 | -7.22 | 124.99 | 128.60 |

*Continued on next page...*

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 60 | CA | 302 | U | N1-C2-O2 | 7.12 | 127.78 | 122.80 |
| 1 | CE | 385 | PRO | N-CA-CB | 7.07 | 111.78 | 103.30 |
| 60 | CA | 302 | U | N3-C2-O2 | -6.94 | 117.34 | 122.20 |
| 60 | CA | 349 | U | P-O3'-C3' | 6.83 | 127.89 | 119.70 |
| 60 | CA | 99 | G | C8-N9-C1' | -6.73 | 118.25 | 127.00 |
| 60 | CA | 344 | C | N1-C2-O2 | 6.61 | 122.86 | 118.90 |
| 60 | CA | 512 | G | C4-N9-C1' | 6.43 | 134.86 | 126.50 |
| 60 | CA | 606 | U | N3-C2-O2 | -6.36 | 117.75 | 122.20 |
| 60 | CA | 512 | G | N3-C4-C5 | -6.20 | 125.50 | 128.60 |
| 71 | DE | 479 | PRO | N-CA-CB | 6.18 | 110.72 | 103.30 |
| 25 | F5 | 496 | PRO | N-CA-CB | 6.10 | 110.62 | 103.30 |
| 9 | Ca | 525 | PRO | N-CA-CB | 6.05 | 110.56 | 103.30 |
| 60 | CA | 78 | G | P-O3'-C3' | 6.01 | 126.91 | 119.70 |
| 21 | DU | 206 | PRO | N-CA-CB | 5.91 | 110.39 | 103.30 |
| 41 | FZ | 73 | PRO | N-CA-CB | 5.90 | 110.38 | 103.30 |
| 60 | CA | 512 | G | N3-C4-N9 | 5.90 | 129.54 | 126.00 |
| 21 | DU | 200 | PRO | N-CA-CB | 5.88 | 110.36 | 103.30 |
| 71 | DE | 476 | PRO | N-CA-CB | 5.82 | 110.28 | 103.30 |
| 60 | CA | 517 | U | C2-N1-C1' | 5.81 | 124.67 | 117.70 |
| 5 | CO | 75 | LEU | CA-CB-CG | 5.80 | 128.65 | 115.30 |
| 60 | CA | 285 | A | P-O3'-C3' | 5.79 | 126.65 | 119.70 |
| 60 | CA | 486 | C | C2-N1-C1' | 5.76 | 125.14 | 118.80 |
| 25 | F5 | 521 | PRO | N-CA-CB | 5.76 | 110.21 | 103.30 |
| 1 | CE | 413 | ILE | C-N-CD | 5.75 | 140.48 | 128.40 |
| 25 | F5 | 522 | PRO | N-CA-CB | 5.75 | 110.19 | 103.30 |
| 41 | FZ | 114 | PRO | N-CA-CB | 5.71 | 110.15 | 103.30 |
| 60 | CA | 135 | U | N1-C2-O2 | 5.71 | 126.80 | 122.80 |
| 41 | FZ | 130 | PRO | N-CA-CB | 5.71 | 110.15 | 103.30 |
| 23 | F2 | 946 | HIS | C-N-CA | 5.66 | 134.19 | 122.30 |
| 60 | CA | 135 | U | C5-C6-N1 | 5.65 | 125.53 | 122.70 |
| 60 | CA | 459 | A | N9-C4-C5 | 5.61 | 108.05 | 105.80 |
| 60 | CA | 19 | U | C2-N1-C1' | 5.60 | 124.42 | 117.70 |
| 60 | CA | 344 | C | N3-C2-O2 | -5.58 | 118.00 | 121.90 |
| 71 | DE | 521 | PRO | N-CA-CB | 5.55 | 109.96 | 103.30 |
| 60 | CA | 19 | U | N3-C2-O2 | -5.54 | 118.32 | 122.20 |
| 4 | CK | 315 | LEU | CA-CB-CG | 5.54 | 128.04 | 115.30 |
| 60 | CA | 456 | A | N1-C2-N3 | -5.51 | 126.55 | 129.30 |
| 60 | CA | 135 | U | C2-N1-C1' | 5.49 | 124.28 | 117.70 |
| 60 | CA | 317 | U | C2-N1-C1' | 5.47 | 124.26 | 117.70 |
| 60 | CA | 95 | U | N1-C2-O2 | 5.45 | 126.61 | 122.80 |
| 60 | CA | 348 | A | C2-N3-C4 | 5.43 | 113.32 | 110.60 |
| 60 | CA | 615 | U | C2-N1-C1' | 5.40 | 124.18 | 117.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 60 | CA | 347 | C | C5-C6-N1 | 5.39 | 123.69 | 121.00 |
| 60 | CA | 512 | G | C8-N9-C1' | -5.38 | 120.00 | 127.00 |
| 60 | CA | 3 | A | C2-N3-C4 | 5.38 | 113.29 | 110.60 |
| 60 | CA | 36 | U | N1-C2-O2 | 5.33 | 126.53 | 122.80 |
| 60 | CA | 296 | U | O5'-P-OP2 | -5.32 | 100.91 | 105.70 |
| 60 | CA | 295 | G | OP1-P-O3' | 5.27 | 116.80 | 105.20 |
| 60 | CA | 360 | C | C2-N1-C1' | 5.21 | 124.53 | 118.80 |
| 60 | CA | 95 | U | N3-C2-O2 | -5.17 | 118.58 | 122.20 |
| 60 | CA | 486 | C | N1-C2-O2 | 5.16 | 121.99 | 118.90 |
| 60 | CA | 295 | G | P-O3'-C3' | 5.15 | 125.88 | 119.70 |
| 60 | CA | 347 | C | C6-N1-C2 | -5.15 | 118.24 | 120.30 |
| 60 | CA | 517 | U | N1-C2-O2 | 5.15 | 126.40 | 122.80 |
| 60 | CA | 483 | A | P-O3'-C3' | 5.15 | 125.88 | 119.70 |
| 60 | CA | 265 | U | N1-C2-O2 | 5.13 | 126.39 | 122.80 |
| 60 | CA | 344 | C | C6-N1-C2 | -5.12 | 118.25 | 120.30 |
| 60 | CA | 347 | C | C2-N1-C1' | 5.12 | 124.43 | 118.80 |
| 83 | F4 | 585 | LEU | CA-CB-CG | 5.11 | 127.05 | 115.30 |
| 60 | CA | 55 | U | N1-C2-O2 | 5.11 | 126.37 | 122.80 |
| 60 | CA | 317 | U | N3-C2-O2 | -5.01 | 118.69 | 122.20 |
| 60 | CA | 432 | G | P-O3'-C3' | 5.00 | 125.71 | 119.70 |
| 60 | CA | 296 | U | O5'-P-OP1 | 5.00 | 116.70 | 110.70 |

There are no chirality outliers.

All (10) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 15 | DD | 414 | ARG | Peptide |
| 74 | DH | 484 | ASP | Peptide |
| 79 | DW | 55 | TRP | Peptide |
| 24 | F3 | 490 | GLN | Peptide |
| 27 | F7 | 381 | LEU | Peptide |
| 28 | F8 | 644 | ASP | Peptide |
| 85 | FF | 279 | LYS | Peptide |
| 36 | FP | 84 | HIS | Peptide |
| 38 | FW | 214 | PRO | Peptide |
| 92 | Fe | 85 | CYS | Peptide |

## 5.2 Too-close contacts (i)

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

## 5.3 Torsion angles (i)

### 5.3.1 Protein backbone (i)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 1 | CE | 390/435 (90%) | 375 (96%) | 13 (3%) | 2 (0%) | 25 56 |
| 2 | CF | 157/160 (98%) | 151 (96%) | 6 (4%) | 0 | 100 100 |
| 3 | CH | 216/282 (77%) | 211 (98%) | 5 (2%) | 0 | 100 100 |
| 4 | CK | 205/326 (63%) | 190 (93%) | 15 (7%) | 0 | 100 100 |
| 5 | CO | 354/429 (82%) | 345 (98%) | 9 (2%) | 0 | 100 100 |
| 6 | CP | 178/188 (95%) | 170 (96%) | 8 (4%) | 0 | 100 100 |
| 7 | CQ | 217/336 (65%) | 209 (96%) | 8 (4%) | 0 | 100 100 |
| 8 | CR | 149/320 (47%) | 141 (95%) | 8 (5%) | 0 | 100 100 |
| 9 | Ca | 508/602 (84%) | 490 (96%) | 18 (4%) | 0 | 100 100 |
| 10 | Cb | 149/311 (48%) | 145 (97%) | 4 (3%) | 0 | 100 100 |
| 11 | Cd | 183/440 (42%) | 182 (100%) | 1 (0%) | 0 | 100 100 |
| 12 | Cj | 224/257 (87%) | 219 (98%) | 5 (2%) | 0 | 100 100 |
| 13 | Cn | 25/250 (10%) | 23 (92%) | 2 (8%) | 0 | 100 100 |
| 14 | Cp | 176/187 (94%) | 171 (97%) | 5 (3%) | 0 | 100 100 |
| 15 | DD | 782/812 (96%) | 756 (97%) | 26 (3%) | 0 | 100 100 |
| 16 | DI | 388/407 (95%) | 378 (97%) | 10 (3%) | 0 | 100 100 |
| 17 | DL | 199/307 (65%) | 192 (96%) | 7 (4%) | 0 | 100 100 |
| 18 | DO | 202/282 (72%) | 200 (99%) | 2 (1%) | 0 | 100 100 |
| 19 | DP | 210/274 (77%) | 206 (98%) | 4 (2%) | 0 | 100 100 |
| 20 | DR | 250/270 (93%) | 241 (96%) | 9 (4%) | 0 | 100 100 |
| 21 | DU | 217/228 (95%) | 203 (94%) | 14 (6%) | 0 | 100 100 |
| 22 | DZ | 28/94 (30%) | 27 (96%) | 1 (4%) | 0 | 100 100 |
| 23 | F2 | 909/1024 (89%) | 886 (98%) | 23 (2%) | 0 | 100 100 |
| 24 | F3 | 882/966 (91%) | 857 (97%) | 25 (3%) | 0 | 100 100 |
| 25 | F5 | 474/754 (63%) | 461 (97%) | 12 (2%) | 1 (0%) | 44 71 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 26 | F6 | 450/676 (67%) | 436 (97%) | 14 (3%) | 0 | 100 | 100 |
| 27 | F7 | 658/679 (97%) | 615 (94%) | 41 (6%) | 2 (0%) | 37 | 66 |
| 28 | F8 | 493/726 (68%) | 475 (96%) | 18 (4%) | 0 | 100 | 100 |
| 29 | F9 | 214/608 (35%) | 213 (100%) | 1 (0%) | 0 | 100 | 100 |
| 30 | FA | 573/642 (89%) | 553 (96%) | 20 (4%) | 0 | 100 | 100 |
| 31 | FB | 373/579 (64%) | 363 (97%) | 10 (3%) | 0 | 100 | 100 |
| 31 | FC | 305/579 (53%) | 294 (96%) | 11 (4%) | 0 | 100 | 100 |
| 32 | FE | 432/553 (78%) | 416 (96%) | 16 (4%) | 0 | 100 | 100 |
| 33 | FJ | 351/362 (97%) | 333 (95%) | 18 (5%) | 0 | 100 | 100 |
| 34 | FM | 324/370 (88%) | 320 (99%) | 4 (1%) | 0 | 100 | 100 |
| 34 | FN | 317/370 (86%) | 311 (98%) | 6 (2%) | 0 | 100 | 100 |
| 35 | FO | 320/334 (96%) | 306 (96%) | 14 (4%) | 0 | 100 | 100 |
| 36 | FP | 346/349 (99%) | 332 (96%) | 13 (4%) | 1 (0%) | 37 | 66 |
| 37 | FQ | 255/307 (83%) | 250 (98%) | 5 (2%) | 0 | 100 | 100 |
| 37 | FR | 239/307 (78%) | 234 (98%) | 5 (2%) | 0 | 100 | 100 |
| 37 | FS | 271/307 (88%) | 261 (96%) | 10 (4%) | 0 | 100 | 100 |
| 37 | FT | 229/307 (75%) | 224 (98%) | 5 (2%) | 0 | 100 | 100 |
| 37 | FU | 266/307 (87%) | 258 (97%) | 8 (3%) | 0 | 100 | 100 |
| 38 | FW | 243/263 (92%) | 237 (98%) | 6 (2%) | 0 | 100 | 100 |
| 39 | FX | 218/239 (91%) | 211 (97%) | 7 (3%) | 0 | 100 | 100 |
| 40 | FY | 156/188 (83%) | 145 (93%) | 11 (7%) | 0 | 100 | 100 |
| 41 | FZ | 129/178 (72%) | 125 (97%) | 4 (3%) | 0 | 100 | 100 |
| 42 | Fa | 161/171 (94%) | 158 (98%) | 3 (2%) | 0 | 100 | 100 |
| 43 | Fb | 127/151 (84%) | 124 (98%) | 3 (2%) | 0 | 100 | 100 |
| 44 | Fc | 82/148 (55%) | 82 (100%) | 0 | 0 | 100 | 100 |
| 45 | Fd | 94/143 (66%) | 93 (99%) | 1 (1%) | 0 | 100 | 100 |
| 61 | CC | 72/74 (97%) | 70 (97%) | 2 (3%) | 0 | 100 | 100 |
| 62 | CI | 421/443 (95%) | 409 (97%) | 12 (3%) | 0 | 100 | 100 |
| 63 | CJ | 695/817 (85%) | 659 (95%) | 33 (5%) | 3 (0%) | 30 | 61 |
| 64 | CN | 151/166 (91%) | 149 (99%) | 2 (1%) | 0 | 100 | 100 |
| 65 | CS | 79/244 (32%) | 77 (98%) | 2 (2%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 66 | Cg | 482/498 (97%) | 461 (96%) | 21 (4%) | 0 | 100 | 100 |
| 67 | Ci | 145/181 (80%) | 143 (99%) | 2 (1%) | 0 | 100 | 100 |
| 68 | Ck | 634/874 (72%) | 606 (96%) | 28 (4%) | 0 | 100 | 100 |
| 69 | DB | 671/1181 (57%) | 651 (97%) | 20 (3%) | 0 | 100 | 100 |
| 70 | DC | 1020/1165 (88%) | 997 (98%) | 23 (2%) | 0 | 100 | 100 |
| 71 | DE | 582/747 (78%) | 566 (97%) | 14 (2%) | 2 (0%) | 37 | 66 |
| 72 | DF | 485/666 (73%) | 466 (96%) | 19 (4%) | 0 | 100 | 100 |
| 73 | DG | 558/631 (88%) | 546 (98%) | 12 (2%) | 0 | 100 | 100 |
| 74 | DH | 466/581 (80%) | 447 (96%) | 19 (4%) | 0 | 100 | 100 |
| 75 | DJ | 304/396 (77%) | 298 (98%) | 6 (2%) | 0 | 100 | 100 |
| 76 | DK | 239/324 (74%) | 229 (96%) | 10 (4%) | 0 | 100 | 100 |
| 77 | DT | 219/247 (89%) | 211 (96%) | 8 (4%) | 0 | 100 | 100 |
| 78 | DV | 153/183 (84%) | 147 (96%) | 6 (4%) | 0 | 100 | 100 |
| 79 | DW | 131/179 (73%) | 120 (92%) | 11 (8%) | 0 | 100 | 100 |
| 80 | DX | 113/169 (67%) | 106 (94%) | 7 (6%) | 0 | 100 | 100 |
| 81 | DY | 152/163 (93%) | 149 (98%) | 3 (2%) | 0 | 100 | 100 |
| 82 | F1 | 881/1041 (85%) | 849 (96%) | 32 (4%) | 0 | 100 | 100 |
| 83 | F4 | 521/811 (64%) | 497 (95%) | 24 (5%) | 0 | 100 | 100 |
| 84 | FD | 392/579 (68%) | 384 (98%) | 8 (2%) | 0 | 100 | 100 |
| 85 | FF | 404/474 (85%) | 388 (96%) | 15 (4%) | 1 (0%) | 44 | 71 |
| 86 | FG | 167/463 (36%) | 162 (97%) | 5 (3%) | 0 | 100 | 100 |
| 87 | FH | 313/457 (68%) | 303 (97%) | 10 (3%) | 0 | 100 | 100 |
| 88 | FI | 342/445 (77%) | 333 (97%) | 9 (3%) | 0 | 100 | 100 |
| 89 | FK | 202/372 (54%) | 202 (100%) | 0 | 0 | 100 | 100 |
| 90 | FL | 314/353 (89%) | 299 (95%) | 15 (5%) | 0 | 100 | 100 |
| 91 | FV | 206/264 (78%) | 198 (96%) | 8 (4%) | 0 | 100 | 100 |
| 92 | Fe | 120/123 (98%) | 113 (94%) | 7 (6%) | 0 | 100 | 100 |
| All | All | 26932/35095 (77%) | 26033 (97%) | 887 (3%) | 12 (0%) | 100 | 100 |

All (12) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | CE | 385 | PRO |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 36 | FP | 85 | LYS |
| 63 | CJ | 592 | SER |
| 71 | DE | 521 | PRO |
| 1 | CE | 384 | ALA |
| 27 | F7 | 565 | LEU |
| 63 | CJ | 236 | ASP |
| 25 | F5 | 495 | MET |
| 71 | DE | 476 | PRO |
| 27 | F7 | 383 | ILE |
| 63 | CJ | 237 | GLY |
| 85 | FF | 126 | VAL |

### 5.3.2 Protein sidechains (i)

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 1 | CE | 325/372 (87%) | 316 (97%) | 9 (3%) | 38 | 64 |
| 2 | CF | 143/144 (99%) | 142 (99%) | 1 (1%) | 81 | 88 |
| 3 | CH | 195/246 (79%) | 189 (97%) | 6 (3%) | 35 | 61 |
| 4 | CK | 184/284 (65%) | 177 (96%) | 7 (4%) | 28 | 56 |
| 5 | CO | 314/377 (83%) | 307 (98%) | 7 (2%) | 47 | 69 |
| 6 | CP | 160/168 (95%) | 157 (98%) | 3 (2%) | 52 | 72 |
| 7 | CQ | 194/297 (65%) | 188 (97%) | 6 (3%) | 35 | 61 |
| 8 | CR | 130/279 (47%) | 123 (95%) | 7 (5%) | 18 | 46 |
| 9 | Ca | 449/543 (83%) | 438 (98%) | 11 (2%) | 44 | 68 |
| 10 | Cb | 132/267 (49%) | 124 (94%) | 8 (6%) | 15 | 42 |
| 11 | Cd | 168/381 (44%) | 167 (99%) | 1 (1%) | 84 | 90 |
| 12 | Cj | 193/219 (88%) | 189 (98%) | 4 (2%) | 48 | 70 |
| 13 | Cn | 22/210 (10%) | 21 (96%) | 1 (4%) | 23 | 52 |
| 14 | Cp | 166/175 (95%) | 161 (97%) | 5 (3%) | 36 | 62 |
| 15 | DD | 691/711 (97%) | 683 (99%) | 8 (1%) | 67 | 80 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 16 | DI | 350/365 (96%) | 343 (98%) | 7 (2%) | 50 | 71 |
| 17 | DL | 173/263 (66%) | 171 (99%) | 2 (1%) | 67 | 80 |
| 18 | DO | 170/229 (74%) | 168 (99%) | 2 (1%) | 67 | 80 |
| 19 | DP | 191/239 (80%) | 187 (98%) | 4 (2%) | 48 | 70 |
| 20 | DR | 221/235 (94%) | 213 (96%) | 8 (4%) | 30 | 57 |
| 21 | DU | 179/201 (89%) | 175 (98%) | 4 (2%) | 47 | 69 |
| 22 | DZ | 25/84 (30%) | 23 (92%) | 2 (8%) | 10 | 32 |
| 23 | F2 | 763/867 (88%) | 740 (97%) | 23 (3%) | 36 | 62 |
| 24 | F3 | 748/809 (92%) | 722 (96%) | 26 (4%) | 31 | 58 |
| 25 | F5 | 293/642 (46%) | 279 (95%) | 14 (5%) | 21 | 50 |
| 26 | F6 | 401/590 (68%) | 391 (98%) | 10 (2%) | 42 | 67 |
| 27 | F7 | 554/577 (96%) | 537 (97%) | 17 (3%) | 35 | 61 |
| 28 | F8 | 410/561 (73%) | 400 (98%) | 10 (2%) | 44 | 68 |
| 29 | F9 | 175/504 (35%) | 172 (98%) | 3 (2%) | 56 | 74 |
| 30 | FA | 477/526 (91%) | 453 (95%) | 24 (5%) | 20 | 48 |
| 31 | FB | 322/483 (67%) | 311 (97%) | 11 (3%) | 32 | 59 |
| 31 | FC | 272/483 (56%) | 261 (96%) | 11 (4%) | 27 | 55 |
| 32 | FE | 386/486 (79%) | 380 (98%) | 6 (2%) | 58 | 76 |
| 33 | FJ | 314/323 (97%) | 305 (97%) | 9 (3%) | 37 | 63 |
| 34 | FM | 257/292 (88%) | 249 (97%) | 8 (3%) | 35 | 61 |
| 34 | FN | 251/292 (86%) | 243 (97%) | 8 (3%) | 34 | 61 |
| 35 | FO | 281/290 (97%) | 273 (97%) | 8 (3%) | 38 | 64 |
| 36 | FP | 270/286 (94%) | 266 (98%) | 4 (2%) | 60 | 77 |
| 37 | FQ | 211/264 (80%) | 206 (98%) | 5 (2%) | 44 | 68 |
| 37 | FR | 206/264 (78%) | 202 (98%) | 4 (2%) | 52 | 72 |
| 37 | FS | 238/264 (90%) | 227 (95%) | 11 (5%) | 23 | 52 |
| 37 | FT | 200/264 (76%) | 191 (96%) | 9 (4%) | 23 | 52 |
| 37 | FU | 222/264 (84%) | 212 (96%) | 10 (4%) | 23 | 52 |
| 38 | FW | 223/234 (95%) | 222 (100%) | 1 (0%) | 89 | 93 |
| 39 | FX | 178/195 (91%) | 178 (100%) | 0 | 100 | 100 |
| 40 | FY | 141/163 (86%) | 136 (96%) | 5 (4%) | 31 | 58 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 41 | FZ | 86/156 (55%) | 86 (100%) | 0 | 100 | 100 |
| 42 | Fa | 141/149 (95%) | 137 (97%) | 4 (3%) | 38 | 64 |
| 43 | Fb | 117/135 (87%) | 113 (97%) | 4 (3%) | 32 | 59 |
| 44 | Fc | 78/127 (61%) | 73 (94%) | 5 (6%) | 14 | 40 |
| 45 | Fd | 79/119 (66%) | 76 (96%) | 3 (4%) | 28 | 56 |
| 61 | CC | 73/73 (100%) | 71 (97%) | 2 (3%) | 40 | 65 |
| 62 | CI | 355/371 (96%) | 350 (99%) | 5 (1%) | 62 | 78 |
| 63 | CJ | 619/723 (86%) | 602 (97%) | 17 (3%) | 40 | 65 |
| 64 | CN | 138/150 (92%) | 127 (92%) | 11 (8%) | 10 | 32 |
| 65 | CS | 76/220 (34%) | 74 (97%) | 2 (3%) | 41 | 66 |
| 66 | Cg | 426/437 (98%) | 415 (97%) | 11 (3%) | 41 | 66 |
| 67 | Ci | 130/160 (81%) | 128 (98%) | 2 (2%) | 60 | 77 |
| 68 | Ck | 557/747 (75%) | 532 (96%) | 25 (4%) | 23 | 52 |
| 69 | DB | 613/1030 (60%) | 591 (96%) | 22 (4%) | 30 | 57 |
| 70 | DC | 867/985 (88%) | 843 (97%) | 24 (3%) | 38 | 64 |
| 71 | DE | 464/644 (72%) | 448 (97%) | 16 (3%) | 32 | 59 |
| 72 | DF | 417/560 (74%) | 405 (97%) | 12 (3%) | 37 | 63 |
| 73 | DG | 490/543 (90%) | 474 (97%) | 16 (3%) | 33 | 60 |
| 74 | DH | 413/504 (82%) | 403 (98%) | 10 (2%) | 44 | 68 |
| 75 | DJ | 267/347 (77%) | 263 (98%) | 4 (2%) | 60 | 77 |
| 76 | DK | 203/261 (78%) | 195 (96%) | 8 (4%) | 27 | 55 |
| 77 | DT | 205/228 (90%) | 200 (98%) | 5 (2%) | 44 | 68 |
| 78 | DV | 142/165 (86%) | 136 (96%) | 6 (4%) | 25 | 53 |
| 79 | DW | 124/163 (76%) | 115 (93%) | 9 (7%) | 11 | 35 |
| 80 | DX | 102/149 (68%) | 102 (100%) | 0 | 100 | 100 |
| 81 | DY | 137/146 (94%) | 134 (98%) | 3 (2%) | 47 | 69 |
| 82 | F1 | 764/895 (85%) | 731 (96%) | 33 (4%) | 25 | 53 |
| 83 | F4 | 479/703 (68%) | 463 (97%) | 16 (3%) | 33 | 60 |
| 84 | FD | 338/494 (68%) | 333 (98%) | 5 (2%) | 60 | 77 |
| 85 | FF | 348/400 (87%) | 337 (97%) | 11 (3%) | 34 | 61 |
| 86 | FG | 147/414 (36%) | 145 (99%) | 2 (1%) | 62 | 78 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 87 | FH | 270/390 (69%) | 260 (96%) | 10 (4%) | 29 | 56 |
| 88 | FI | 297/380 (78%) | 288 (97%) | 9 (3%) | 36 | 62 |
| 89 | FK | 181/308 (59%) | 174 (96%) | 7 (4%) | 27 | 55 |
| 90 | FL | 279/309 (90%) | 271 (97%) | 8 (3%) | 37 | 63 |
| 91 | FV | 184/231 (80%) | 174 (95%) | 10 (5%) | 18 | 46 |
| 92 | Fe | 114/115 (99%) | 105 (92%) | 9 (8%) | 10 | 32 |
| All | All | 23288/30143 (77%) | 22592 (97%) | 696 (3%) | 37 | 62 |

All (696) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | CE | 112 | THR |
| 1 | CE | 204 | VAL |
| 1 | CE | 217 | VAL |
| 1 | CE | 222 | VAL |
| 1 | CE | 224 | VAL |
| 1 | CE | 225 | LEU |
| 1 | CE | 268 | THR |
| 1 | CE | 305 | GLU |
| 1 | CE | 409 | ASP |
| 2 | CF | 111 | LEU |
| 3 | CH | 53 | ARG |
| 3 | CH | 86 | THR |
| 3 | CH | 115 | ASP |
| 3 | CH | 128 | VAL |
| 3 | CH | 150 | THR |
| 3 | CH | 154 | ASP |
| 4 | CK | 193 | VAL |
| 4 | CK | 207 | VAL |
| 4 | CK | 217 | LEU |
| 4 | CK | 221 | THR |
| 4 | CK | 258 | LEU |
| 4 | CK | 267 | ARG |
| 4 | CK | 281 | VAL |
| 5 | CO | 90 | MET |
| 5 | CO | 122 | VAL |
| 5 | CO | 127 | THR |
| 5 | CO | 162 | THR |
| 5 | CO | 283 | VAL |
| 5 | CO | 367 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 5 | CO | 419 | VAL |
| 6 | CP | 82 | VAL |
| 6 | CP | 172 | VAL |
| 6 | CP | 181 | GLU |
| 7 | CQ | 34 | THR |
| 7 | CQ | 61 | VAL |
| 7 | CQ | 64 | THR |
| 7 | CQ | 70 | ARG |
| 7 | CQ | 123 | ARG |
| 7 | CQ | 198 | LEU |
| 8 | CR | 69 | HIS |
| 8 | CR | 131 | THR |
| 8 | CR | 139 | THR |
| 8 | CR | 151 | ASN |
| 8 | CR | 181 | ARG |
| 8 | CR | 198 | THR |
| 8 | CR | 228 | VAL |
| 9 | Ca | 106 | ASN |
| 9 | Ca | 122 | GLU |
| 9 | Ca | 171 | THR |
| 9 | Ca | 312 | ASP |
| 9 | Ca | 365 | LEU |
| 9 | Ca | 379 | MET |
| 9 | Ca | 405 | ARG |
| 9 | Ca | 449 | VAL |
| 9 | Ca | 456 | LEU |
| 9 | Ca | 472 | VAL |
| 9 | Ca | 574 | VAL |
| 10 | Cb | 28 | TYR |
| 10 | Cb | 118 | VAL |
| 10 | Cb | 119 | ARG |
| 10 | Cb | 125 | MET |
| 10 | Cb | 126 | GLU |
| 10 | Cb | 137 | VAL |
| 10 | Cb | 175 | ILE |
| 10 | Cb | 182 | VAL |
| 11 | Cd | 33 | THR |
| 12 | Cj | 145 | THR |
| 12 | Cj | 161 | VAL |
| 12 | Cj | 167 | ASP |
| 12 | Cj | 234 | THR |
| 13 | Cn | 163 | ARG |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 14 | Cp | 12 | THR |
| 14 | Cp | 35 | THR |
| 14 | Cp | 42 | VAL |
| 14 | Cp | 53 | VAL |
| 14 | Cp | 145 | GLU |
| 15 | DD | 89 | SER |
| 15 | DD | 90 | MET |
| 15 | DD | 297 | ARG |
| 15 | DD | 523 | LYS |
| 15 | DD | 586 | VAL |
| 15 | DD | 653 | PHE |
| 15 | DD | 673 | VAL |
| 15 | DD | 754 | THR |
| 16 | DI | 20 | THR |
| 16 | DI | 24 | VAL |
| 16 | DI | 113 | VAL |
| 16 | DI | 187 | THR |
| 16 | DI | 279 | VAL |
| 16 | DI | 327 | ARG |
| 16 | DI | 363 | VAL |
| 17 | DL | 83 | THR |
| 17 | DL | 104 | ARG |
| 18 | DO | 122 | LEU |
| 18 | DO | 127 | LEU |
| 19 | DP | 59 | THR |
| 19 | DP | 88 | THR |
| 19 | DP | 122 | VAL |
| 19 | DP | 202 | LEU |
| 20 | DR | 33 | VAL |
| 20 | DR | 44 | VAL |
| 20 | DR | 60 | VAL |
| 20 | DR | 117 | ILE |
| 20 | DR | 118 | VAL |
| 20 | DR | 190 | LEU |
| 20 | DR | 254 | VAL |
| 20 | DR | 268 | HIS |
| 21 | DU | 39 | ARG |
| 21 | DU | 133 | HIS |
| 21 | DU | 146 | THR |
| 21 | DU | 191 | SER |
| 22 | DZ | 67 | GLU |
| 22 | DZ | 68 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 23 | F2 | 38 | GLU |
| 23 | F2 | 46 | THR |
| 23 | F2 | 110 | GLU |
| 23 | F2 | 230 | ASP |
| 23 | F2 | 273 | THR |
| 23 | F2 | 387 | VAL |
| 23 | F2 | 470 | GLU |
| 23 | F2 | 478 | VAL |
| 23 | F2 | 588 | THR |
| 23 | F2 | 645 | GLU |
| 23 | F2 | 664 | ASP |
| 23 | F2 | 693 | GLU |
| 23 | F2 | 733 | THR |
| 23 | F2 | 768 | LEU |
| 23 | F2 | 805 | VAL |
| 23 | F2 | 810 | THR |
| 23 | F2 | 820 | ASP |
| 23 | F2 | 831 | THR |
| 23 | F2 | 861 | VAL |
| 23 | F2 | 878 | SER |
| 23 | F2 | 948 | THR |
| 23 | F2 | 951 | VAL |
| 23 | F2 | 974 | VAL |
| 24 | F3 | 92 | ARG |
| 24 | F3 | 106 | ASP |
| 24 | F3 | 152 | THR |
| 24 | F3 | 163 | ASP |
| 24 | F3 | 194 | ASP |
| 24 | F3 | 298 | SER |
| 24 | F3 | 306 | VAL |
| 24 | F3 | 550 | THR |
| 24 | F3 | 608 | VAL |
| 24 | F3 | 646 | THR |
| 24 | F3 | 660 | VAL |
| 24 | F3 | 695 | LEU |
| 24 | F3 | 720 | ILE |
| 24 | F3 | 744 | LEU |
| 24 | F3 | 750 | ARG |
| 24 | F3 | 781 | CYS |
| 24 | F3 | 787 | VAL |
| 24 | F3 | 791 | ILE |
| 24 | F3 | 807 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 24 | F3 | 810 | THR |
| 24 | F3 | 861 | VAL |
| 24 | F3 | 868 | VAL |
| 24 | F3 | 874 | LEU |
| 24 | F3 | 891 | LEU |
| 24 | F3 | 940 | VAL |
| 24 | F3 | 946 | LEU |
| 25 | F5 | 189 | LEU |
| 25 | F5 | 337 | THR |
| 25 | F5 | 343 | LEU |
| 25 | F5 | 348 | GLU |
| 25 | F5 | 360 | THR |
| 25 | F5 | 379 | VAL |
| 25 | F5 | 444 | VAL |
| 25 | F5 | 487 | LYS |
| 25 | F5 | 597 | ARG |
| 25 | F5 | 649 | GLU |
| 25 | F5 | 654 | VAL |
| 25 | F5 | 688 | LEU |
| 25 | F5 | 729 | LEU |
| 25 | F5 | 745 | LEU |
| 26 | F6 | 105 | THR |
| 26 | F6 | 144 | THR |
| 26 | F6 | 182 | LEU |
| 26 | F6 | 184 | ASP |
| 26 | F6 | 218 | SER |
| 26 | F6 | 220 | LEU |
| 26 | F6 | 248 | VAL |
| 26 | F6 | 268 | THR |
| 26 | F6 | 354 | THR |
| 26 | F6 | 457 | VAL |
| 27 | F7 | 10 | ARG |
| 27 | F7 | 59 | GLU |
| 27 | F7 | 118 | ARG |
| 27 | F7 | 202 | THR |
| 27 | F7 | 208 | GLU |
| 27 | F7 | 237 | ARG |
| 27 | F7 | 247 | GLU |
| 27 | F7 | 284 | LEU |
| 27 | F7 | 299 | SER |
| 27 | F7 | 326 | GLU |
| 27 | F7 | 378 | ASP |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 27 | F7 | 439 | LEU |
| 27 | F7 | 497 | SER |
| 27 | F7 | 532 | THR |
| 27 | F7 | 564 | LEU |
| 27 | F7 | 604 | ASP |
| 27 | F7 | 627 | LEU |
| 28 | F8 | 16 | THR |
| 28 | F8 | 34 | ASP |
| 28 | F8 | 170 | SER |
| 28 | F8 | 267 | VAL |
| 28 | F8 | 305 | VAL |
| 28 | F8 | 364 | LEU |
| 28 | F8 | 538 | VAL |
| 28 | F8 | 611 | SER |
| 28 | F8 | 612 | VAL |
| 28 | F8 | 679 | VAL |
| 29 | F9 | 110 | ASP |
| 29 | F9 | 132 | GLN |
| 29 | F9 | 201 | VAL |
| 30 | FA | 46 | VAL |
| 30 | FA | 51 | THR |
| 30 | FA | 87 | VAL |
| 30 | FA | 90 | CYS |
| 30 | FA | 196 | VAL |
| 30 | FA | 231 | VAL |
| 30 | FA | 235 | VAL |
| 30 | FA | 242 | SER |
| 30 | FA | 259 | LEU |
| 30 | FA | 260 | ARG |
| 30 | FA | 291 | VAL |
| 30 | FA | 335 | LEU |
| 30 | FA | 384 | ARG |
| 30 | FA | 409 | PHE |
| 30 | FA | 419 | CYS |
| 30 | FA | 440 | ASP |
| 30 | FA | 447 | VAL |
| 30 | FA | 449 | SER |
| 30 | FA | 533 | VAL |
| 30 | FA | 540 | VAL |
| 30 | FA | 546 | THR |
| 30 | FA | 555 | LEU |
| 30 | FA | 592 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 30 | FA | 605 | GLU |
| 31 | FB | 266 | VAL |
| 31 | FB | 275 | GLU |
| 31 | FB | 278 | VAL |
| 31 | FB | 288 | ASP |
| 31 | FB | 410 | THR |
| 31 | FB | 413 | ASN |
| 31 | FB | 417 | LYS |
| 31 | FB | 450 | THR |
| 31 | FB | 459 | VAL |
| 31 | FB | 471 | VAL |
| 31 | FB | 582 | VAL |
| 31 | FC | 172 | LEU |
| 31 | FC | 191 | VAL |
| 31 | FC | 253 | LEU |
| 31 | FC | 259 | VAL |
| 31 | FC | 379 | THR |
| 31 | FC | 485 | ASP |
| 31 | FC | 486 | VAL |
| 31 | FC | 495 | ILE |
| 31 | FC | 549 | THR |
| 31 | FC | 560 | VAL |
| 31 | FC | 561 | GLU |
| 32 | FE | 241 | LEU |
| 32 | FE | 284 | ASP |
| 32 | FE | 353 | THR |
| 32 | FE | 355 | VAL |
| 32 | FE | 396 | THR |
| 32 | FE | 438 | GLN |
| 33 | FJ | 115 | THR |
| 33 | FJ | 159 | LEU |
| 33 | FJ | 185 | LEU |
| 33 | FJ | 188 | CYS |
| 33 | FJ | 217 | ILE |
| 33 | FJ | 279 | LEU |
| 33 | FJ | 290 | LEU |
| 33 | FJ | 303 | MET |
| 33 | FJ | 353 | ARG |
| 34 | FM | 20 | VAL |
| 34 | FM | 84 | ASP |
| 34 | FM | 114 | THR |
| 34 | FM | 241 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 34 | FM | 292 | ARG |
| 34 | FM | 309 | SER |
| 34 | FM | 321 | LEU |
| 34 | FM | 327 | VAL |
| 34 | FN | 12 | VAL |
| 34 | FN | 20 | VAL |
| 34 | FN | 59 | THR |
| 34 | FN | 79 | VAL |
| 34 | FN | 85 | VAL |
| 34 | FN | 114 | THR |
| 34 | FN | 140 | SER |
| 34 | FN | 255 | THR |
| 35 | FO | 67 | VAL |
| 35 | FO | 93 | ASP |
| 35 | FO | 248 | ARG |
| 35 | FO | 272 | VAL |
| 35 | FO | 274 | VAL |
| 35 | FO | 293 | VAL |
| 35 | FO | 304 | ILE |
| 35 | FO | 326 | THR |
| 36 | FP | 85 | LYS |
| 36 | FP | 182 | VAL |
| 36 | FP | 298 | VAL |
| 36 | FP | 303 | LEU |
| 37 | FQ | 23 | THR |
| 37 | FQ | 99 | LEU |
| 37 | FQ | 190 | VAL |
| 37 | FQ | 198 | THR |
| 37 | FQ | 214 | THR |
| 37 | FR | 169 | GLU |
| 37 | FR | 190 | VAL |
| 37 | FR | 214 | THR |
| 37 | FR | 215 | GLU |
| 37 | FS | 60 | THR |
| 37 | FS | 73 | THR |
| 37 | FS | 98 | LEU |
| 37 | FS | 147 | THR |
| 37 | FS | 190 | VAL |
| 37 | FS | 198 | THR |
| 37 | FS | 214 | THR |
| 37 | FS | 227 | THR |
| 37 | FS | 249 | SER |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | FS | 277 | THR |
| 37 | FS | 296 | ARG |
| 37 | FT | 13 | VAL |
| 37 | FT | 24 | LEU |
| 37 | FT | 120 | VAL |
| 37 | FT | 129 | VAL |
| 37 | FT | 141 | VAL |
| 37 | FT | 143 | ARG |
| 37 | FT | 190 | VAL |
| 37 | FT | 192 | THR |
| 37 | FT | 227 | THR |
| 37 | FU | 59 | VAL |
| 37 | FU | 73 | THR |
| 37 | FU | 128 | VAL |
| 37 | FU | 138 | ASP |
| 37 | FU | 184 | GLU |
| 37 | FU | 190 | VAL |
| 37 | FU | 198 | THR |
| 37 | FU | 207 | THR |
| 37 | FU | 227 | THR |
| 37 | FU | 233 | VAL |
| 38 | FW | 169 | GLU |
| 40 | FY | 54 | ARG |
| 40 | FY | 88 | LEU |
| 40 | FY | 132 | ASP |
| 40 | FY | 135 | GLU |
| 40 | FY | 177 | ILE |
| 42 | Fa | 7 | THR |
| 42 | Fa | 61 | VAL |
| 42 | Fa | 63 | VAL |
| 42 | Fa | 162 | LEU |
| 43 | Fb | 75 | LYS |
| 43 | Fb | 107 | MET |
| 43 | Fb | 120 | ASP |
| 43 | Fb | 133 | LYS |
| 44 | Fc | 69 | LYS |
| 44 | Fc | 73 | LEU |
| 44 | Fc | 91 | VAL |
| 44 | Fc | 121 | LEU |
| 44 | Fc | 136 | ASP |
| 45 | Fd | 77 | VAL |
| 45 | Fd | 87 | CYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 45 | Fd | 110 | VAL |
| 61 | CC | 18 | PHE |
| 61 | CC | 60 | ILE |
| 62 | CI | 145 | VAL |
| 62 | CI | 184 | VAL |
| 62 | CI | 219 | LEU |
| 62 | CI | 345 | ASP |
| 62 | CI | 399 | LEU |
| 63 | CJ | 154 | THR |
| 63 | CJ | 158 | THR |
| 63 | CJ | 177 | LEU |
| 63 | CJ | 186 | VAL |
| 63 | CJ | 349 | THR |
| 63 | CJ | 368 | VAL |
| 63 | CJ | 375 | THR |
| 63 | CJ | 448 | THR |
| 63 | CJ | 518 | VAL |
| 63 | CJ | 523 | VAL |
| 63 | CJ | 524 | THR |
| 63 | CJ | 554 | THR |
| 63 | CJ | 594 | VAL |
| 63 | CJ | 625 | VAL |
| 63 | CJ | 704 | GLU |
| 63 | CJ | 719 | PRO |
| 63 | CJ | 727 | THR |
| 64 | CN | 17 | VAL |
| 64 | CN | 38 | ASP |
| 64 | CN | 59 | VAL |
| 64 | CN | 60 | VAL |
| 64 | CN | 88 | ARG |
| 64 | CN | 101 | VAL |
| 64 | CN | 106 | GLU |
| 64 | CN | 128 | LEU |
| 64 | CN | 132 | VAL |
| 64 | CN | 139 | THR |
| 64 | CN | 140 | ASP |
| 65 | CS | 76 | THR |
| 65 | CS | 105 | VAL |
| 66 | Cg | 19 | VAL |
| 66 | Cg | 52 | ARG |
| 66 | Cg | 65 | THR |
| 66 | Cg | 143 | THR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 66 | Cg | 163 | VAL |
| 66 | Cg | 172 | VAL |
| 66 | Cg | 271 | ASP |
| 66 | Cg | 284 | VAL |
| 66 | Cg | 305 | LEU |
| 66 | Cg | 314 | SER |
| 66 | Cg | 468 | ASP |
| 67 | Ci | 65 | PHE |
| 67 | Ci | 127 | THR |
| 68 | Ck | 129 | THR |
| 68 | Ck | 136 | ASP |
| 68 | Ck | 152 | ASP |
| 68 | Ck | 156 | LEU |
| 68 | Ck | 170 | VAL |
| 68 | Ck | 171 | VAL |
| 68 | Ck | 214 | LEU |
| 68 | Ck | 216 | ARG |
| 68 | Ck | 228 | LEU |
| 68 | Ck | 262 | VAL |
| 68 | Ck | 316 | ASP |
| 68 | Ck | 318 | THR |
| 68 | Ck | 335 | ARG |
| 68 | Ck | 339 | GLU |
| 68 | Ck | 356 | VAL |
| 68 | Ck | 408 | VAL |
| 68 | Ck | 552 | LEU |
| 68 | Ck | 573 | THR |
| 68 | Ck | 577 | THR |
| 68 | Ck | 620 | THR |
| 68 | Ck | 687 | ARG |
| 68 | Ck | 688 | TYR |
| 68 | Ck | 690 | TRP |
| 68 | Ck | 831 | VAL |
| 68 | Ck | 840 | VAL |
| 69 | DB | 521 | LEU |
| 69 | DB | 522 | MET |
| 69 | DB | 556 | VAL |
| 69 | DB | 560 | THR |
| 69 | DB | 587 | VAL |
| 69 | DB | 705 | LYS |
| 69 | DB | 754 | VAL |
| 69 | DB | 756 | THR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 69 | DB | 757 | VAL |
| 69 | DB | 779 | VAL |
| 69 | DB | 783 | VAL |
| 69 | DB | 795 | VAL |
| 69 | DB | 801 | LEU |
| 69 | DB | 831 | ASN |
| 69 | DB | 918 | VAL |
| 69 | DB | 949 | THR |
| 69 | DB | 963 | ARG |
| 69 | DB | 966 | VAL |
| 69 | DB | 976 | THR |
| 69 | DB | 993 | ASP |
| 69 | DB | 1141 | THR |
| 69 | DB | 1142 | VAL |
| 70 | DC | 58 | VAL |
| 70 | DC | 88 | LEU |
| 70 | DC | 130 | LYS |
| 70 | DC | 149 | ARG |
| 70 | DC | 154 | THR |
| 70 | DC | 167 | VAL |
| 70 | DC | 280 | VAL |
| 70 | DC | 316 | THR |
| 70 | DC | 379 | LEU |
| 70 | DC | 441 | VAL |
| 70 | DC | 448 | GLU |
| 70 | DC | 580 | VAL |
| 70 | DC | 593 | LEU |
| 70 | DC | 695 | VAL |
| 70 | DC | 699 | VAL |
| 70 | DC | 712 | LEU |
| 70 | DC | 720 | VAL |
| 70 | DC | 767 | GLU |
| 70 | DC | 846 | ASP |
| 70 | DC | 903 | THR |
| 70 | DC | 941 | MET |
| 70 | DC | 1019 | THR |
| 70 | DC | 1027 | THR |
| 70 | DC | 1059 | LEU |
| 71 | DE | 83 | LEU |
| 71 | DE | 99 | VAL |
| 71 | DE | 195 | ILE |
| 71 | DE | 217 | ASP |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 71 | DE | 241 | THR |
| 71 | DE | 295 | TYR |
| 71 | DE | 430 | VAL |
| 71 | DE | 432 | GLU |
| 71 | DE | 438 | PHE |
| 71 | DE | 447 | ARG |
| 71 | DE | 451 | THR |
| 71 | DE | 504 | ASP |
| 71 | DE | 556 | LEU |
| 71 | DE | 572 | VAL |
| 71 | DE | 583 | ARG |
| 71 | DE | 611 | LEU |
| 72 | DF | 89 | GLU |
| 72 | DF | 103 | VAL |
| 72 | DF | 118 | THR |
| 72 | DF | 147 | ASP |
| 72 | DF | 189 | ASP |
| 72 | DF | 194 | THR |
| 72 | DF | 409 | GLU |
| 72 | DF | 485 | LEU |
| 72 | DF | 523 | LEU |
| 72 | DF | 525 | ARG |
| 72 | DF | 536 | GLU |
| 72 | DF | 562 | GLN |
| 73 | DG | 92 | GLN |
| 73 | DG | 122 | LEU |
| 73 | DG | 218 | THR |
| 73 | DG | 228 | VAL |
| 73 | DG | 342 | ASN |
| 73 | DG | 409 | LYS |
| 73 | DG | 444 | THR |
| 73 | DG | 464 | VAL |
| 73 | DG | 466 | VAL |
| 73 | DG | 491 | THR |
| 73 | DG | 522 | THR |
| 73 | DG | 529 | ASP |
| 73 | DG | 553 | ASP |
| 73 | DG | 555 | THR |
| 73 | DG | 558 | CYS |
| 73 | DG | 628 | LEU |
| 74 | DH | 107 | THR |
| 74 | DH | 182 | ASP |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 74 | DH | 384 | THR |
| 74 | DH | 392 | TRP |
| 74 | DH | 396 | VAL |
| 74 | DH | 408 | ASN |
| 74 | DH | 500 | VAL |
| 74 | DH | 503 | THR |
| 74 | DH | 521 | ILE |
| 74 | DH | 527 | VAL |
| 75 | DJ | 111 | VAL |
| 75 | DJ | 151 | GLU |
| 75 | DJ | 192 | THR |
| 75 | DJ | 226 | VAL |
| 76 | DK | 48 | VAL |
| 76 | DK | 54 | THR |
| 76 | DK | 58 | VAL |
| 76 | DK | 111 | LEU |
| 76 | DK | 149 | ASP |
| 76 | DK | 151 | ASN |
| 76 | DK | 246 | THR |
| 76 | DK | 285 | GLU |
| 77 | DT | 97 | VAL |
| 77 | DT | 105 | ARG |
| 77 | DT | 117 | ASP |
| 77 | DT | 209 | THR |
| 77 | DT | 228 | LEU |
| 78 | DV | 24 | VAL |
| 78 | DV | 41 | THR |
| 78 | DV | 45 | THR |
| 78 | DV | 114 | VAL |
| 78 | DV | 121 | VAL |
| 78 | DV | 128 | ASP |
| 79 | DW | 43 | ASP |
| 79 | DW | 48 | TYR |
| 79 | DW | 56 | LEU |
| 79 | DW | 107 | ASP |
| 79 | DW | 109 | GLU |
| 79 | DW | 116 | LEU |
| 79 | DW | 149 | VAL |
| 79 | DW | 151 | THR |
| 79 | DW | 169 | VAL |
| 81 | DY | 19 | THR |
| 81 | DY | 84 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 81 | DY | 119 | VAL |
| 82 | F1 | 64 | THR |
| 82 | F1 | 65 | THR |
| 82 | F1 | 71 | THR |
| 82 | F1 | 84 | ARG |
| 82 | F1 | 128 | VAL |
| 82 | F1 | 229 | LEU |
| 82 | F1 | 283 | VAL |
| 82 | F1 | 286 | THR |
| 82 | F1 | 362 | LEU |
| 82 | F1 | 425 | THR |
| 82 | F1 | 433 | ASP |
| 82 | F1 | 457 | LEU |
| 82 | F1 | 503 | VAL |
| 82 | F1 | 575 | GLU |
| 82 | F1 | 636 | VAL |
| 82 | F1 | 652 | VAL |
| 82 | F1 | 690 | ASP |
| 82 | F1 | 713 | THR |
| 82 | F1 | 726 | THR |
| 82 | F1 | 731 | LEU |
| 82 | F1 | 736 | ASP |
| 82 | F1 | 739 | THR |
| 82 | F1 | 760 | THR |
| 82 | F1 | 769 | LEU |
| 82 | F1 | 783 | VAL |
| 82 | F1 | 794 | THR |
| 82 | F1 | 812 | VAL |
| 82 | F1 | 813 | MET |
| 82 | F1 | 837 | CYS |
| 82 | F1 | 894 | VAL |
| 82 | F1 | 895 | THR |
| 82 | F1 | 905 | THR |
| 82 | F1 | 1026 | VAL |
| 83 | F4 | 134 | ASN |
| 83 | F4 | 135 | VAL |
| 83 | F4 | 177 | GLU |
| 83 | F4 | 182 | SER |
| 83 | F4 | 233 | THR |
| 83 | F4 | 264 | ILE |
| 83 | F4 | 265 | ASP |
| 83 | F4 | 310 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 83 | F4 | 341 | VAL |
| 83 | F4 | 462 | LEU |
| 83 | F4 | 478 | LEU |
| 83 | F4 | 523 | VAL |
| 83 | F4 | 527 | LEU |
| 83 | F4 | 589 | LEU |
| 83 | F4 | 775 | THR |
| 83 | F4 | 811 | ASP |
| 84 | FD | 35 | THR |
| 84 | FD | 90 | THR |
| 84 | FD | 219 | THR |
| 84 | FD | 254 | VAL |
| 84 | FD | 296 | VAL |
| 85 | FF | 6 | VAL |
| 85 | FF | 117 | LEU |
| 85 | FF | 118 | GLN |
| 85 | FF | 126 | VAL |
| 85 | FF | 134 | THR |
| 85 | FF | 174 | PHE |
| 85 | FF | 222 | ASP |
| 85 | FF | 247 | THR |
| 85 | FF | 352 | VAL |
| 85 | FF | 378 | VAL |
| 85 | FF | 393 | ARG |
| 86 | FG | 13 | VAL |
| 86 | FG | 155 | CYS |
| 87 | FH | 139 | ARG |
| 87 | FH | 230 | VAL |
| 87 | FH | 252 | VAL |
| 87 | FH | 256 | VAL |
| 87 | FH | 265 | LEU |
| 87 | FH | 282 | VAL |
| 87 | FH | 329 | ARG |
| 87 | FH | 339 | ASP |
| 87 | FH | 354 | VAL |
| 87 | FH | 397 | TYR |
| 88 | FI | 23 | THR |
| 88 | FI | 50 | GLN |
| 88 | FI | 52 | VAL |
| 88 | FI | 87 | SER |
| 88 | FI | 217 | LEU |
| 88 | FI | 231 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 88 | FI | 381 | THR |
| 88 | FI | 417 | LEU |
| 88 | FI | 424 | VAL |
| 89 | FK | 120 | LYS |
| 89 | FK | 141 | VAL |
| 89 | FK | 160 | THR |
| 89 | FK | 326 | VAL |
| 89 | FK | 327 | LEU |
| 89 | FK | 339 | VAL |
| 89 | FK | 340 | ASP |
| 90 | FL | 83 | THR |
| 90 | FL | 136 | ARG |
| 90 | FL | 181 | ARG |
| 90 | FL | 191 | VAL |
| 90 | FL | 205 | LEU |
| 90 | FL | 206 | VAL |
| 90 | FL | 301 | LEU |
| 90 | FL | 310 | VAL |
| 91 | FV | 53 | VAL |
| 91 | FV | 58 | VAL |
| 91 | FV | 108 | VAL |
| 91 | FV | 128 | LEU |
| 91 | FV | 130 | VAL |
| 91 | FV | 179 | THR |
| 91 | FV | 208 | VAL |
| 91 | FV | 212 | THR |
| 91 | FV | 232 | ASP |
| 91 | FV | 234 | LEU |
| 92 | Fe | 30 | LEU |
| 92 | Fe | 52 | ARG |
| 92 | Fe | 67 | VAL |
| 92 | Fe | 68 | THR |
| 92 | Fe | 74 | VAL |
| 92 | Fe | 81 | LEU |
| 92 | Fe | 88 | ASP |
| 92 | Fe | 90 | ASP |
| 92 | Fe | 91 | TYR |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (291) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | CE | 132 | HIS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | CE | 159 | HIS |
| 1 | CE | 333 | ASN |
| 2 | CF | 86 | HIS |
| 3 | CH | 29 | HIS |
| 3 | CH | 54 | GLN |
| 3 | CH | 55 | GLN |
| 3 | CH | 111 | GLN |
| 3 | CH | 247 | HIS |
| 4 | CK | 252 | ASN |
| 5 | CO | 135 | GLN |
| 5 | CO | 281 | HIS |
| 6 | CP | 19 | GLN |
| 6 | CP | 87 | HIS |
| 7 | CQ | 20 | GLN |
| 7 | CQ | 90 | GLN |
| 7 | CQ | 146 | HIS |
| 8 | CR | 69 | HIS |
| 8 | CR | 183 | GLN |
| 8 | CR | 193 | ASN |
| 9 | Ca | 76 | GLN |
| 9 | Ca | 105 | GLN |
| 11 | Cd | 119 | HIS |
| 11 | Cd | 144 | ASN |
| 11 | Cd | 155 | GLN |
| 11 | Cd | 159 | HIS |
| 12 | Cj | 153 | HIS |
| 14 | Cp | 113 | GLN |
| 14 | Cp | 154 | GLN |
| 14 | Cp | 182 | GLN |
| 15 | DD | 76 | ASN |
| 15 | DD | 79 | GLN |
| 15 | DD | 156 | GLN |
| 15 | DD | 176 | HIS |
| 15 | DD | 273 | HIS |
| 15 | DD | 300 | GLN |
| 15 | DD | 353 | HIS |
| 15 | DD | 387 | GLN |
| 15 | DD | 402 | GLN |
| 15 | DD | 507 | GLN |
| 16 | DI | 18 | HIS |
| 16 | DI | 30 | GLN |
| 16 | DI | 175 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 16 | DI | 250 | ASN |
| 16 | DI | 285 | GLN |
| 16 | DI | 320 | GLN |
| 16 | DI | 370 | GLN |
| 16 | DI | 372 | ASN |
| 17 | DL | 99 | GLN |
| 18 | DO | 159 | HIS |
| 18 | DO | 251 | ASN |
| 19 | DP | 116 | HIS |
| 19 | DP | 143 | ASN |
| 20 | DR | 68 | HIS |
| 20 | DR | 145 | HIS |
| 20 | DR | 179 | HIS |
| 21 | DU | 19 | GLN |
| 21 | DU | 63 | HIS |
| 21 | DU | 155 | GLN |
| 23 | F2 | 56 | GLN |
| 23 | F2 | 307 | ASN |
| 23 | F2 | 337 | GLN |
| 23 | F2 | 461 | HIS |
| 23 | F2 | 698 | HIS |
| 24 | F3 | 182 | HIS |
| 24 | F3 | 405 | ASN |
| 24 | F3 | 468 | GLN |
| 24 | F3 | 654 | GLN |
| 24 | F3 | 691 | GLN |
| 24 | F3 | 747 | HIS |
| 24 | F3 | 849 | GLN |
| 24 | F3 | 905 | HIS |
| 25 | F5 | 401 | GLN |
| 25 | F5 | 609 | GLN |
| 26 | F6 | 19 | HIS |
| 26 | F6 | 203 | GLN |
| 26 | F6 | 210 | GLN |
| 26 | F6 | 363 | ASN |
| 27 | F7 | 61 | HIS |
| 27 | F7 | 103 | HIS |
| 27 | F7 | 109 | ASN |
| 27 | F7 | 214 | HIS |
| 27 | F7 | 232 | ASN |
| 28 | F8 | 68 | HIS |
| 28 | F8 | 219 | HIS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 28 | F8 | 499 | GLN |
| 29 | F9 | 51 | ASN |
| 29 | F9 | 210 | GLN |
| 30 | FA | 30 | HIS |
| 30 | FA | 147 | ASN |
| 30 | FA | 181 | GLN |
| 30 | FA | 238 | GLN |
| 30 | FA | 385 | HIS |
| 30 | FA | 609 | GLN |
| 31 | FB | 192 | GLN |
| 31 | FB | 194 | GLN |
| 31 | FB | 248 | HIS |
| 31 | FB | 329 | HIS |
| 31 | FB | 357 | GLN |
| 31 | FB | 441 | ASN |
| 31 | FB | 532 | GLN |
| 31 | FC | 177 | GLN |
| 31 | FC | 326 | GLN |
| 31 | FC | 345 | ASN |
| 31 | FC | 474 | ASN |
| 32 | FE | 119 | ASN |
| 32 | FE | 136 | GLN |
| 32 | FE | 143 | GLN |
| 32 | FE | 215 | ASN |
| 32 | FE | 242 | ASN |
| 33 | FJ | 41 | HIS |
| 33 | FJ | 180 | HIS |
| 33 | FJ | 236 | GLN |
| 33 | FJ | 238 | ASN |
| 34 | FM | 200 | ASN |
| 34 | FN | 312 | HIS |
| 35 | FO | 46 | HIS |
| 35 | FO | 94 | HIS |
| 35 | FO | 135 | ASN |
| 35 | FO | 147 | ASN |
| 35 | FO | 157 | GLN |
| 35 | FO | 181 | ASN |
| 35 | FO | 303 | HIS |
| 35 | FO | 306 | ASN |
| 36 | FP | 15 | ASN |
| 36 | FP | 116 | GLN |
| 36 | FP | 293 | HIS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | FQ | 74 | ASN |
| 37 | FQ | 139 | GLN |
| 37 | FQ | 178 | GLN |
| 37 | FR | 213 | HIS |
| 37 | FS | 178 | GLN |
| 37 | FS | 213 | HIS |
| 37 | FS | 288 | ASN |
| 37 | FT | 242 | HIS |
| 37 | FU | 29 | HIS |
| 37 | FU | 213 | HIS |
| 38 | FW | 77 | GLN |
| 38 | FW | 99 | GLN |
| 38 | FW | 178 | HIS |
| 38 | FW | 221 | HIS |
| 39 | FX | 154 | GLN |
| 39 | FX | 164 | HIS |
| 40 | FY | 80 | HIS |
| 40 | FY | 166 | HIS |
| 41 | FZ | 53 | HIS |
| 43 | Fb | 134 | GLN |
| 44 | Fc | 96 | HIS |
| 45 | Fd | 42 | HIS |
| 45 | Fd | 59 | HIS |
| 45 | Fd | 76 | HIS |
| 45 | Fd | 78 | GLN |
| 61 | CC | 31 | ASN |
| 62 | CI | 136 | GLN |
| 62 | CI | 174 | GLN |
| 62 | CI | 229 | HIS |
| 63 | CJ | 441 | HIS |
| 63 | CJ | 450 | HIS |
| 63 | CJ | 460 | HIS |
| 63 | CJ | 476 | ASN |
| 63 | CJ | 571 | GLN |
| 63 | CJ | 619 | HIS |
| 63 | CJ | 761 | GLN |
| 63 | CJ | 791 | HIS |
| 63 | CJ | 792 | HIS |
| 63 | CJ | 793 | HIS |
| 63 | CJ | 804 | ASN |
| 64 | CN | 96 | HIS |
| 64 | CN | 153 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 65 | CS | 65 | ASN |
| 65 | CS | 135 | ASN |
| 66 | Cg | 47 | ASN |
| 66 | Cg | 87 | GLN |
| 66 | Cg | 99 | GLN |
| 66 | Cg | 184 | HIS |
| 66 | Cg | 453 | GLN |
| 66 | Cg | 474 | GLN |
| 67 | Ci | 19 | HIS |
| 68 | Ck | 644 | HIS |
| 68 | Ck | 679 | GLN |
| 68 | Ck | 728 | GLN |
| 69 | DB | 524 | GLN |
| 69 | DB | 562 | GLN |
| 69 | DB | 643 | HIS |
| 69 | DB | 940 | GLN |
| 69 | DB | 1064 | GLN |
| 70 | DC | 81 | HIS |
| 70 | DC | 227 | GLN |
| 70 | DC | 303 | HIS |
| 70 | DC | 539 | ASN |
| 70 | DC | 574 | GLN |
| 70 | DC | 682 | ASN |
| 70 | DC | 691 | GLN |
| 70 | DC | 799 | ASN |
| 70 | DC | 821 | GLN |
| 70 | DC | 871 | GLN |
| 70 | DC | 1026 | ASN |
| 70 | DC | 1062 | GLN |
| 71 | DE | 202 | HIS |
| 71 | DE | 345 | ASN |
| 71 | DE | 703 | GLN |
| 72 | DF | 175 | GLN |
| 72 | DF | 214 | HIS |
| 72 | DF | 572 | HIS |
| 72 | DF | 587 | GLN |
| 73 | DG | 26 | ASN |
| 73 | DG | 71 | ASN |
| 73 | DG | 170 | ASN |
| 73 | DG | 191 | GLN |
| 73 | DG | 200 | GLN |
| 73 | DG | 230 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 73 | DG | 476 | GLN |
| 73 | DG | 477 | GLN |
| 73 | DG | 557 | GLN |
| 74 | DH | 100 | HIS |
| 74 | DH | 123 | HIS |
| 74 | DH | 160 | ASN |
| 74 | DH | 255 | GLN |
| 74 | DH | 356 | GLN |
| 75 | DJ | 29 | HIS |
| 75 | DJ | 42 | HIS |
| 75 | DJ | 82 | GLN |
| 75 | DJ | 174 | ASN |
| 75 | DJ | 301 | HIS |
| 76 | DK | 132 | HIS |
| 76 | DK | 163 | HIS |
| 76 | DK | 171 | GLN |
| 77 | DT | 72 | HIS |
| 77 | DT | 91 | GLN |
| 77 | DT | 99 | HIS |
| 77 | DT | 192 | GLN |
| 77 | DT | 219 | GLN |
| 78 | DV | 40 | HIS |
| 78 | DV | 51 | ASN |
| 78 | DV | 71 | GLN |
| 79 | DW | 71 | GLN |
| 79 | DW | 121 | HIS |
| 79 | DW | 154 | HIS |
| 80 | DX | 58 | HIS |
| 81 | DY | 106 | GLN |
| 82 | F1 | 331 | HIS |
| 82 | F1 | 332 | GLN |
| 82 | F1 | 344 | GLN |
| 82 | F1 | 462 | ASN |
| 82 | F1 | 517 | GLN |
| 82 | F1 | 762 | HIS |
| 82 | F1 | 763 | ASN |
| 82 | F1 | 776 | HIS |
| 82 | F1 | 862 | HIS |
| 82 | F1 | 1025 | GLN |
| 83 | F4 | 266 | ASN |
| 83 | F4 | 320 | HIS |
| 83 | F4 | 348 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 83 | F4 | 470 | HIS |
| 83 | F4 | 472 | HIS |
| 83 | F4 | 626 | HIS |
| 83 | F4 | 686 | HIS |
| 84 | FD | 65 | ASN |
| 84 | FD | 195 | GLN |
| 84 | FD | 240 | GLN |
| 84 | FD | 374 | HIS |
| 85 | FF | 122 | GLN |
| 85 | FF | 335 | GLN |
| 85 | FF | 370 | HIS |
| 86 | FG | 133 | GLN |
| 86 | FG | 162 | ASN |
| 87 | FH | 111 | HIS |
| 87 | FH | 134 | ASN |
| 88 | FI | 15 | GLN |
| 88 | FI | 36 | GLN |
| 88 | FI | 97 | HIS |
| 88 | FI | 120 | GLN |
| 88 | FI | 153 | GLN |
| 88 | FI | 219 | ASN |
| 88 | FI | 228 | GLN |
| 88 | FI | 340 | HIS |
| 89 | FK | 169 | GLN |
| 89 | FK | 195 | GLN |
| 89 | FK | 312 | ASN |
| 90 | FL | 70 | ASN |
| 90 | FL | 80 | ASN |
| 90 | FL | 137 | GLN |
| 90 | FL | 189 | HIS |
| 90 | FL | 335 | GLN |
| 91 | FV | 63 | ASN |
| 91 | FV | 76 | GLN |
| 91 | FV | 147 | GLN |
| 91 | FV | 194 | HIS |
| 91 | FV | 207 | HIS |
| 92 | Fe | 42 | ASN |
| 92 | Fe | 101 | GLN |

### 5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 60 | CA | 605/620 (97%) | 240 (39%) | 7 (1%) |

All (240) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 60 | CA | 3 | A |
| 60 | CA | 4 | A |
| 60 | CA | 5 | U |
| 60 | CA | 6 | U |
| 60 | CA | 7 | A |
| 60 | CA | 10 | G |
| 60 | CA | 17 | G |
| 60 | CA | 21 | G |
| 60 | CA | 22 | U |
| 60 | CA | 26 | C |
| 60 | CA | 27 | A |
| 60 | CA | 29 | A |
| 60 | CA | 30 | U |
| 60 | CA | 35 | U |
| 60 | CA | 36 | U |
| 60 | CA | 37 | U |
| 60 | CA | 39 | U |
| 60 | CA | 44 | U |
| 60 | CA | 46 | U |
| 60 | CA | 49 | U |
| 60 | CA | 50 | A |
| 60 | CA | 53 | A |
| 60 | CA | 58 | A |
| 60 | CA | 60 | A |
| 60 | CA | 67 | U |
| 60 | CA | 72 | U |
| 60 | CA | 73 | U |
| 60 | CA | 74 | G |
| 60 | CA | 78 | G |
| 60 | CA | 79 | A |
| 60 | CA | 80 | U |
| 60 | CA | 81 | U |
| 60 | CA | 82 | U |
| 60 | CA | 84 | U |
| 60 | CA | 85 | U |
| 60 | CA | 86 | G |
| 60 | CA | 87 | U |
| 60 | CA | 88 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 60 | CA | 90 | A |
| 60 | CA | 95 | U |
| 60 | CA | 97 | U |
| 60 | CA | 98 | A |
| 60 | CA | 100 | G |
| 60 | CA | 102 | A |
| 60 | CA | 105 | G |
| 60 | CA | 106 | U |
| 60 | CA | 111 | A |
| 60 | CA | 112 | A |
| 60 | CA | 115 | A |
| 60 | CA | 127 | G |
| 60 | CA | 135 | U |
| 60 | CA | 136 | G |
| 60 | CA | 137 | U |
| 60 | CA | 138 | U |
| 60 | CA | 139 | U |
| 60 | CA | 140 | U |
| 60 | CA | 152 | U |
| 60 | CA | 153 | A |
| 60 | CA | 154 | G |
| 60 | CA | 155 | A |
| 60 | CA | 157 | G |
| 60 | CA | 159 | G |
| 60 | CA | 160 | U |
| 60 | CA | 161 | G |
| 60 | CA | 167 | A |
| 60 | CA | 169 | A |
| 60 | CA | 170 | U |
| 60 | CA | 172 | A |
| 60 | CA | 173 | A |
| 60 | CA | 174 | A |
| 60 | CA | 178 | A |
| 60 | CA | 179 | U |
| 60 | CA | 181 | A |
| 60 | CA | 182 | U |
| 60 | CA | 185 | A |
| 60 | CA | 190 | U |
| 60 | CA | 191 | A |
| 60 | CA | 192 | U |
| 60 | CA | 195 | A |
| 60 | CA | 196 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 60 | CA | 197 | A |
| 60 | CA | 198 | A |
| 60 | CA | 205 | A |
| 60 | CA | 207 | A |
| 60 | CA | 208 | U |
| 60 | CA | 214 | U |
| 60 | CA | 217 | U |
| 60 | CA | 218 | A |
| 60 | CA | 219 | G |
| 60 | CA | 220 | U |
| 60 | CA | 221 | C |
| 60 | CA | 223 | G |
| 60 | CA | 227 | U |
| 60 | CA | 228 | G |
| 60 | CA | 232 | G |
| 60 | CA | 236 | G |
| 60 | CA | 238 | C |
| 60 | CA | 239 | G |
| 60 | CA | 240 | U |
| 60 | CA | 241 | U |
| 60 | CA | 242 | G |
| 60 | CA | 247 | A |
| 60 | CA | 249 | U |
| 60 | CA | 253 | U |
| 60 | CA | 256 | G |
| 60 | CA | 257 | C |
| 60 | CA | 258 | U |
| 60 | CA | 259 | U |
| 60 | CA | 260 | U |
| 60 | CA | 261 | U |
| 60 | CA | 262 | A |
| 60 | CA | 267 | U |
| 60 | CA | 268 | U |
| 60 | CA | 269 | A |
| 60 | CA | 270 | U |
| 60 | CA | 271 | A |
| 60 | CA | 272 | C |
| 60 | CA | 278 | U |
| 60 | CA | 281 | U |
| 60 | CA | 282 | A |
| 60 | CA | 283 | U |
| 60 | CA | 284 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 60 | CA | 285 | A |
| 60 | CA | 286 | A |
| 60 | CA | 291 | U |
| 60 | CA | 292 | U |
| 60 | CA | 293 | A |
| 60 | CA | 296 | U |
| 60 | CA | 297 | G |
| 60 | CA | 298 | C |
| 60 | CA | 299 | U |
| 60 | CA | 304 | U |
| 60 | CA | 306 | A |
| 60 | CA | 318 | A |
| 60 | CA | 320 | A |
| 60 | CA | 321 | A |
| 60 | CA | 322 | A |
| 60 | CA | 323 | U |
| 60 | CA | 324 | A |
| 60 | CA | 327 | U |
| 60 | CA | 330 | U |
| 60 | CA | 337 | U |
| 60 | CA | 338 | U |
| 60 | CA | 339 | U |
| 60 | CA | 340 | U |
| 60 | CA | 341 | A |
| 60 | CA | 347 | C |
| 60 | CA | 350 | U |
| 60 | CA | 351 | A |
| 60 | CA | 352 | G |
| 60 | CA | 353 | G |
| 60 | CA | 355 | A |
| 60 | CA | 357 | A |
| 60 | CA | 359 | G |
| 60 | CA | 366 | U |
| 60 | CA | 367 | A |
| 60 | CA | 368 | A |
| 60 | CA | 370 | A |
| 60 | CA | 375 | A |
| 60 | CA | 377 | U |
| 60 | CA | 378 | A |
| 60 | CA | 381 | U |
| 60 | CA | 388 | U |
| 60 | CA | 389 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 60 | CA | 390 | U |
| 60 | CA | 397 | U |
| 60 | CA | 398 | U |
| 60 | CA | 399 | A |
| 60 | CA | 400 | U |
| 60 | CA | 413 | A |
| 60 | CA | 417 | A |
| 60 | CA | 418 | A |
| 60 | CA | 421 | G |
| 60 | CA | 422 | G |
| 60 | CA | 425 | A |
| 60 | CA | 429 | U |
| 60 | CA | 430 | U |
| 60 | CA | 432 | G |
| 60 | CA | 433 | U |
| 60 | CA | 435 | G |
| 60 | CA | 438 | U |
| 60 | CA | 439 | U |
| 60 | CA | 443 | U |
| 60 | CA | 444 | A |
| 60 | CA | 445 | C |
| 60 | CA | 446 | C |
| 60 | CA | 447 | A |
| 60 | CA | 448 | U |
| 60 | CA | 454 | G |
| 60 | CA | 455 | G |
| 60 | CA | 459 | A |
| 60 | CA | 460 | U |
| 60 | CA | 461 | A |
| 60 | CA | 470 | G |
| 60 | CA | 471 | U |
| 60 | CA | 473 | U |
| 60 | CA | 480 | C |
| 60 | CA | 481 | A |
| 60 | CA | 482 | U |
| 60 | CA | 484 | A |
| 60 | CA | 489 | A |
| 60 | CA | 498 | U |
| 60 | CA | 503 | A |
| 60 | CA | 509 | U |
| 60 | CA | 513 | U |
| 60 | CA | 515 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 60 | CA | 516 | G |
| 60 | CA | 520 | A |
| 60 | CA | 525 | A |
| 60 | CA | 527 | A |
| 60 | CA | 528 | U |
| 60 | CA | 529 | A |
| 60 | CA | 532 | A |
| 60 | CA | 533 | A |
| 60 | CA | 534 | A |
| 60 | CA | 538 | A |
| 60 | CA | 539 | A |
| 60 | CA | 540 | A |
| 60 | CA | 557 | C |
| 60 | CA | 558 | A |
| 60 | CA | 559 | A |
| 60 | CA | 560 | U |
| 60 | CA | 565 | A |
| 60 | CA | 576 | A |
| 60 | CA | 577 | A |
| 60 | CA | 579 | G |
| 60 | CA | 581 | G |
| 60 | CA | 582 | C |
| 60 | CA | 585 | U |
| 60 | CA | 587 | A |
| 60 | CA | 590 | A |
| 60 | CA | 599 | A |
| 60 | CA | 600 | U |
| 60 | CA | 601 | A |
| 60 | CA | 602 | A |
| 60 | CA | 603 | A |
| 60 | CA | 613 | U |
| 60 | CA | 616 | U |
| 60 | CA | 617 | U |
| 60 | CA | 619 | U |

All (7) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 60 | CA | 78 | G |
| 60 | CA | 160 | U |
| 60 | CA | 173 | A |
| 60 | CA | 285 | A |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 60 | CA | 296 | U |
| 60 | CA | 349 | U |
| 60 | CA | 483 | A |

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

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

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

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\| > 2$ | Counts | RMSZ | $\#\|Z\| > 2$ |
| 60 | UBD | CA | 620 | - | 23,25,26 | 0.63 | 0 | 31,37,40 | 0.62 | 1 (3%) |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 60 | UBD | CA | 620 | - | - | 2/12/30/31 | 0/2/2/2 |

There are no bond length outliers.

All (1) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 60 | CA | 620 | UBD | O4P-P2-O5P | 2.35 | 119.86 | 110.68 |

There are no chirality outliers.

All (2) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 60 | CA | 620 | UBD | O4'-C4'-C5'-O5' |
| 60 | CA | 620 | UBD | C3'-O3'-P2-O4P |

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 16 ligands modelled in this entry, 11 are monoatomic - leaving 5 for Mogul analysis.

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

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\| > 2$ | Counts | RMSZ | $\#\|Z\| > 2$ |
| 109 | SAH | F1 | 1102 | - | 24,28,28 | 1.21 | 3 (12%) | 25,40,40 | 1.73 | 5 (20%) |
| 109 | SAH | FF | 501 | - | 24,28,28 | 1.20 | 3 (12%) | 25,40,40 | 1.78 | 5 (20%) |
| 105 | PO4 | FW | 301 | - | 4,4,4 | 0.99 | 0 | 6,6,6 | 0.45 | 0 |
| 106 | PM8 | Fc | 201 | 44 | 25,31,31 | 0.76 | 1 (4%) | 30,38,38 | 0.91 | 1 (3%) |
| 108 | GTP | Cg | 501 | 104 | 26,34,34 | 1.13 | 2 (7%) | 32,54,54 | 1.60 | 7 (21%) |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 109 | SAH | F1 | 1102 | - | - | 3/11/31/31 | 0/3/3/3 |
| 106 | PM8 | Fc | 201 | 44 | - | 2/36/38/38 | - |
| 108 | GTP | Cg | 501 | 104 | - | 5/18/38/38 | 0/3/3/3 |
| 109 | SAH | FF | 501 | - | - | 1/11/31/31 | 0/3/3/3 |

All (9) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 108 | Cg | 501 | GTP | C5-C6 | -4.12 | 1.39 | 1.47 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 109 | F1 | 1102 | SAH | C2-N3 | 3.91 | 1.38 | 1.32 |
| 109 | FF | 501 | SAH | C2-N3 | 3.91 | 1.38 | 1.32 |
| 106 | Fc | 201 | PM8 | C2-C1 | 2.58 | 1.53 | 1.50 |
| 109 | F1 | 1102 | SAH | C2-N1 | 2.43 | 1.38 | 1.33 |
| 109 | FF | 501 | SAH | C2-N1 | 2.39 | 1.38 | 1.33 |
| 109 | F1 | 1102 | SAH | OXT-C | -2.21 | 1.23 | 1.30 |
| 109 | FF | 501 | SAH | OXT-C | -2.12 | 1.23 | 1.30 |
| 108 | Cg | 501 | GTP | C2-N3 | 2.02 | 1.38 | 1.33 |

All (18) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 109 | F1 | 1102 | SAH | N3-C2-N1 | -5.48 | 120.11 | 128.68 |
| 109 | FF | 501 | SAH | N3-C2-N1 | -5.47 | 120.13 | 128.68 |
| 109 | FF | 501 | SAH | C5'-SD-CG | -4.45 | 88.92 | 102.27 |
| 109 | F1 | 1102 | SAH | C5'-SD-CG | -3.99 | 90.28 | 102.27 |
| 108 | Cg | 501 | GTP | PA-O3A-PB | -3.95 | 119.28 | 132.83 |
| 108 | Cg | 501 | GTP | C3'-C2'-C1' | 3.47 | 106.20 | 100.98 |
| 108 | Cg | 501 | GTP | C5-C6-N1 | 3.18 | 119.56 | 113.95 |
| 108 | Cg | 501 | GTP | PB-O3B-PG | -3.02 | 122.45 | 132.83 |
| 108 | Cg | 501 | GTP | C8-N7-C5 | 2.86 | 108.44 | 102.99 |
| 108 | Cg | 501 | GTP | C2-N1-C6 | -2.79 | 119.96 | 125.10 |
| 109 | F1 | 1102 | SAH | C3'-C2'-C1' | 2.69 | 105.02 | 100.98 |
| 109 | FF | 501 | SAH | OXT-C-O | -2.68 | 117.99 | 124.09 |
| 109 | F1 | 1102 | SAH | OXT-C-O | -2.66 | 118.06 | 124.09 |
| 109 | FF | 501 | SAH | C3'-C2'-C1' | 2.63 | 104.93 | 100.98 |
| 106 | Fc | 201 | PM8 | O1-C1-C2 | -2.25 | 121.33 | 123.99 |
| 109 | FF | 501 | SAH | OXT-C-CA | 2.24 | 121.02 | 113.38 |
| 109 | F1 | 1102 | SAH | OXT-C-CA | 2.20 | 120.88 | 113.38 |
| 108 | Cg | 501 | GTP | O6-C6-C5 | -2.18 | 120.12 | 124.37 |

There are no chirality outliers.

All (11) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 108 | Cg | 501 | GTP | C5'-O5'-PA-O3A |
| 108 | Cg | 501 | GTP | C5'-O5'-PA-O1A |
| 108 | Cg | 501 | GTP | C5'-O5'-PA-O2A |
| 108 | Cg | 501 | GTP | C3'-C4'-C5'-O5' |
| 106 | Fc | 201 | PM8 | C37-C38-C39-O40 |
| 108 | Cg | 501 | GTP | O4'-C4'-C5'-O5' |
| 109 | F1 | 1102 | SAH | C-CA-CB-CG |

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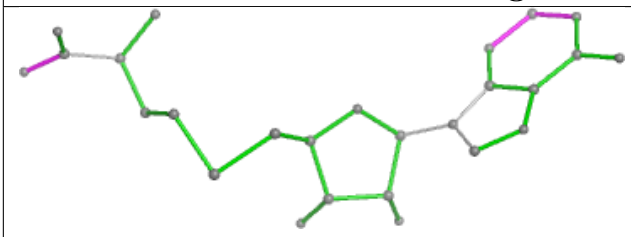
| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 106 | Fc | 201 | PM8 | C37-C38-C39-N41 |
| 109 | F1 | 1102 | SAH | CB-CG-SD-C5' |
| 109 | FF | 501 | SAH | CB-CG-SD-C5' |
| 109 | F1 | 1102 | SAH | N-CA-CB-CG |

There are no ring outliers.

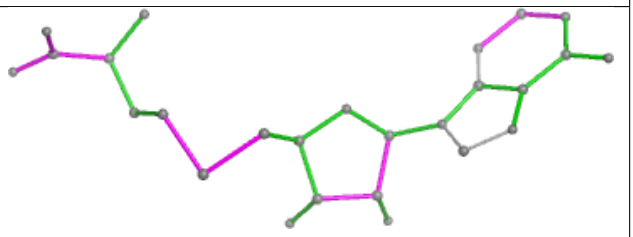
No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

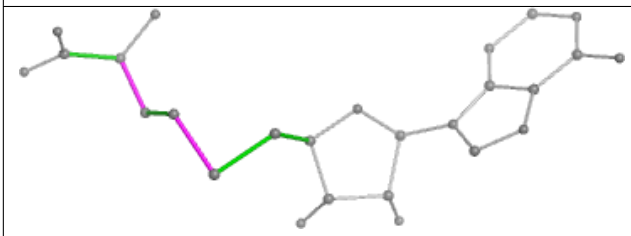
**Ligand SAH F1 1102**



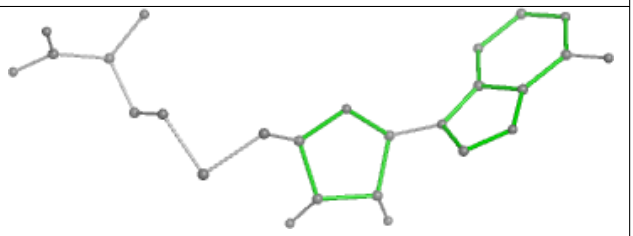
**Bond lengths**



**Bond angles**

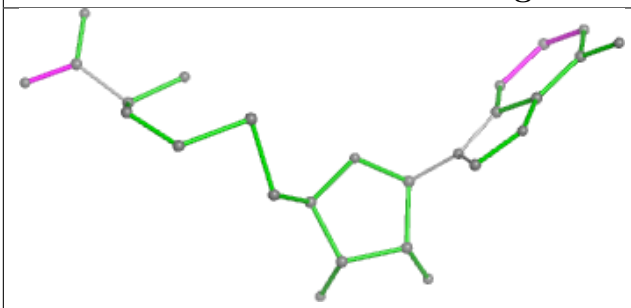


**Torsions**

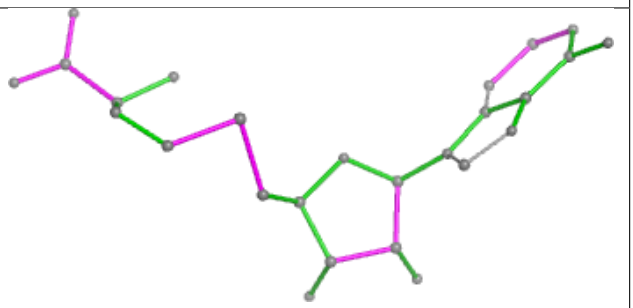


**Rings**

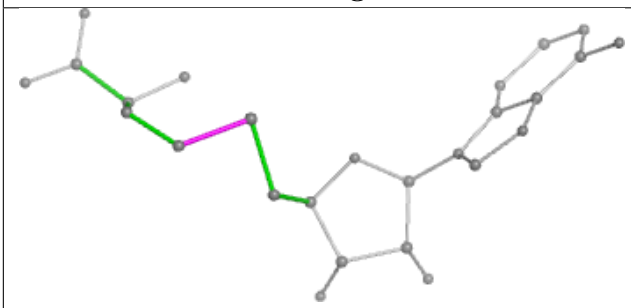
## Ligand SAH FF 501



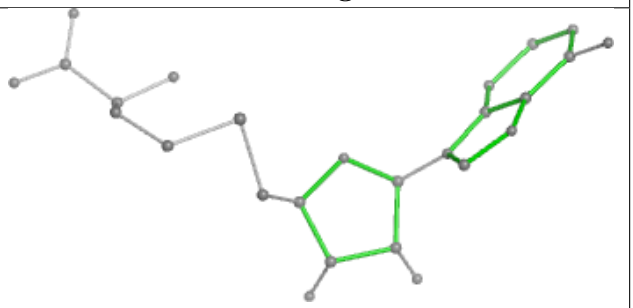
Bond lengths



Bond angles

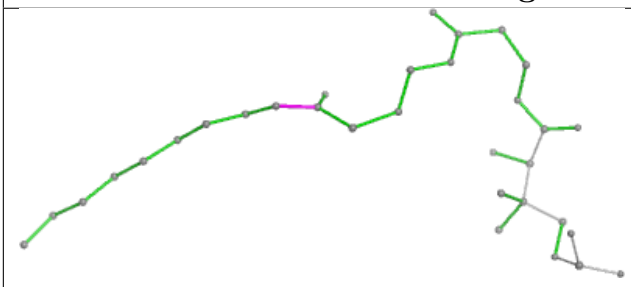


Torsions

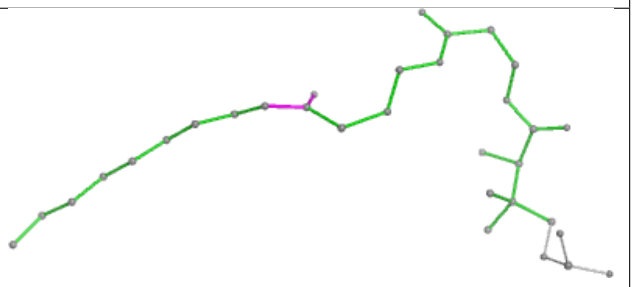


Rings

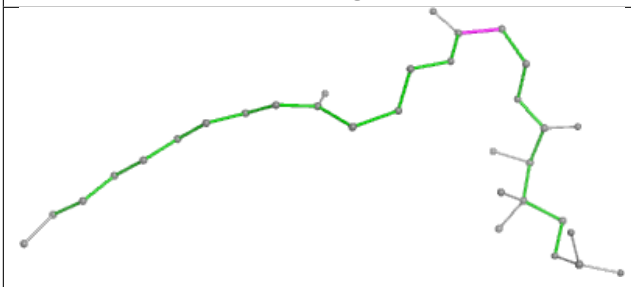
## Ligand PM8 Fc 201



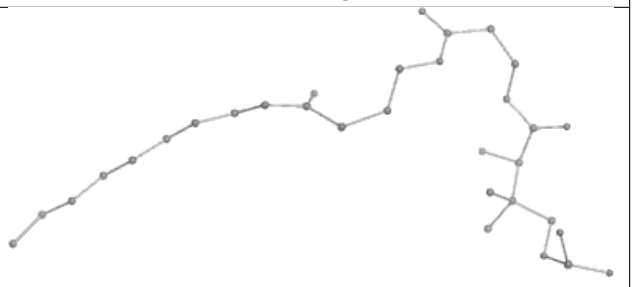
Bond lengths



Bond angles

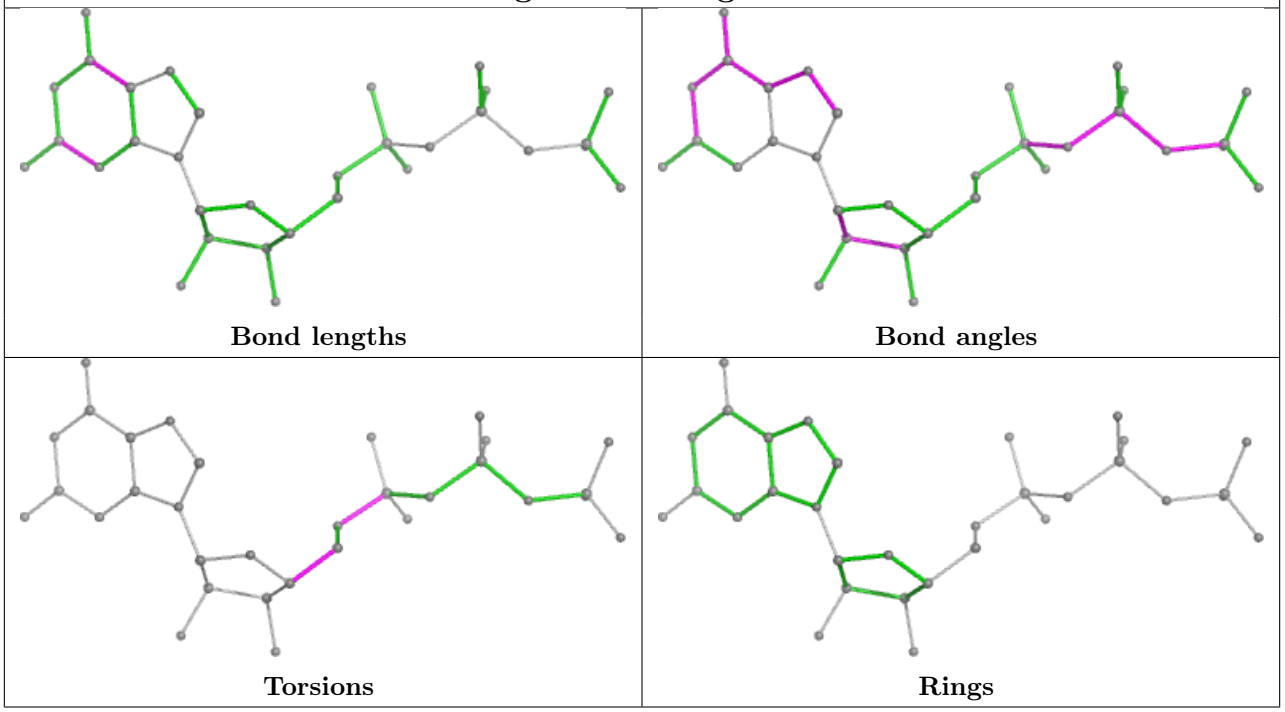


Torsions



Rings

**Ligand GTP Cg 501**




## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|---|---|---|
| 59 | UY | 13 |
| 99 | Uh | 11 |
| 98 | Ug | 10 |
| 103 | Ux | 3 |
| 47 | UB | 2 |
| 60 | CA | 1 |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|---|---|---|---|---|---|---|
| 1 | UY | 347:UNK | C | 348:UNK | N | 76.88 |
| 1 | UY | 439:UNK | C | 440:UNK | N | 65.92 |
| 1 | Uh | 219:UNK | C | 267:UNK | N | 52.49 |
| 1 | Uh | 13:UNK | C | 14:UNK | N | 49.20 |
| 1 | UB | 10:UNK | C | 101:UNK | N | 45.40 |

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*Continued from previous page...*

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|---|---|---|---|---|---|---|
| 1 | Uh | 88:UNK | C | 98:UNK | N | 42.20 |
| 1 | UY | 338:UNK | C | 339:UNK | N | 40.51 |
| 1 | Uh | 124:UNK | C | 125:UNK | N | 38.95 |
| 1 | Uh | 199:UNK | C | 200:UNK | N | 38.08 |
| 1 | Ug | 129:UNK | C | 130:UNK | N | 36.01 |
| 1 | Uh | 145:UNK | C | 184:UNK | N | 35.40 |
| 1 | UY | 411:UNK | C | 412:UNK | N | 35.07 |
| 1 | Ug | 102:UNK | C | 103:UNK | N | 29.64 |
| 1 | UB | 110:UNK | C | 201:UNK | N | 25.53 |
| 1 | Uh | 39:UNK | C | 40:UNK | N | 25.18 |
| 1 | Ug | 83:UNK | C | 84:UNK | N | 24.10 |
| 1 | Uh | 68:UNK | C | 69:UNK | N | 21.48 |
| 1 | UY | 455:UNK | C | 456:UNK | N | 20.24 |
| 1 | Uh | 134:UNK | C | 135:UNK | N | 17.12 |
| 1 | Uh | 280:UNK | C | 281:UNK | N | 15.79 |
| 1 | UY | 394:UNK | C | 395:UNK | N | 15.52 |
| 1 | Ux | 15:UNK | C | 28:UNK | N | 14.65 |
| 1 | Ug | 52:UNK | C | 53:UNK | N | 12.65 |
| 1 | Ug | 70:UNK | C | 71:UNK | N | 12.57 |
| 1 | Ux | 66:UNK | C | 74:UNK | N | 12.41 |
| 1 | Ux | 47:UNK | C | 49:UNK | N | 12.23 |
| 1 | UY | 430:UNK | C | 431:UNK | N | 11.78 |
| 1 | Ug | 39:UNK | C | 40:UNK | N | 11.09 |
| 1 | Ug | 26:UNK | C | 27:UNK | N | 8.34 |
| 1 | Uh | 323:UNK | C | 324:UNK | N | 7.01 |
| 1 | UY | 245:UNK | C | 246:UNK | N | 6.90 |
| 1 | Ug | 46:UNK | C | 47:UNK | N | 6.90 |
| 1 | UY | 403:UNK | C | 405:UNK | N | 6.75 |
| 1 | UY | 125:UNK | C | 126:UNK | N | 5.67 |
| 1 | UY | 117:UNK | C | 118:UNK | N | 5.53 |
| 1 | Ug | 33:UNK | C | 34:UNK | N | 4.79 |
| 1 | Ug | 145:UNK | C | 146:UNK | N | 4.56 |
| 1 | UY | 426:UNK | C | 427:UNK | N | 4.10 |
| 1 | UY | 56:UNK | C | 57:UNK | N | 3.43 |
| 1 | CA | 529:A | O3’ | 530:A | P | 3.34 |

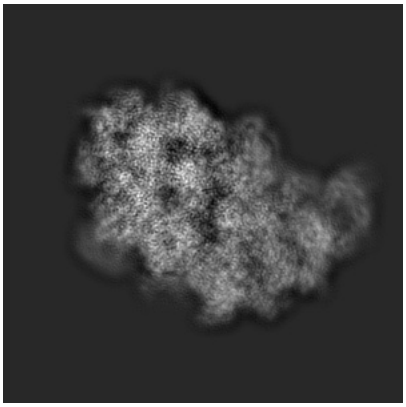
# 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-10180. These allow visual inspection of the internal detail of the map and identification of artifacts.

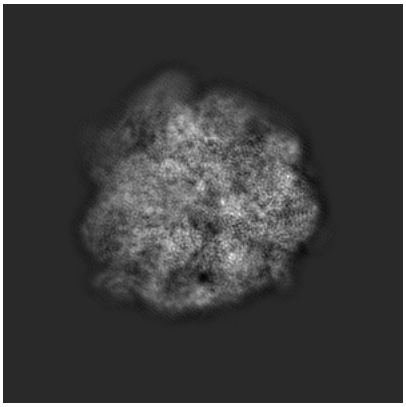
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

## 6.1 Orthogonal projections

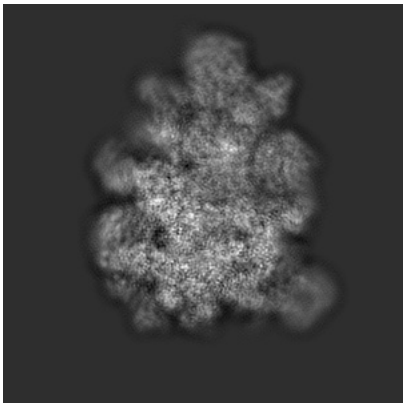
### 6.1.1 Primary map



X



Y

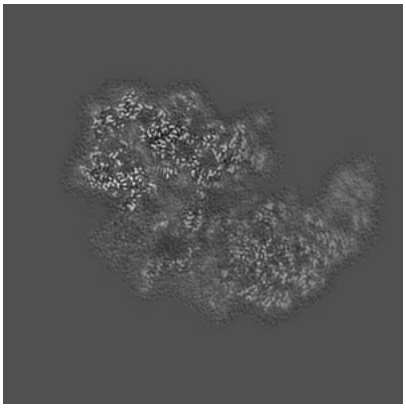


Z

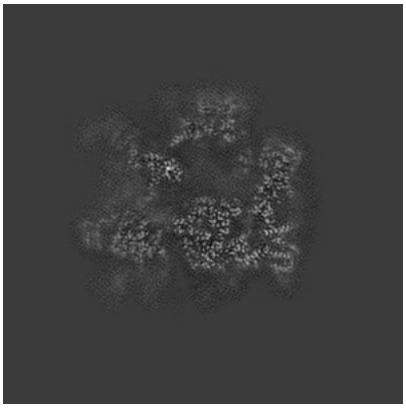
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices

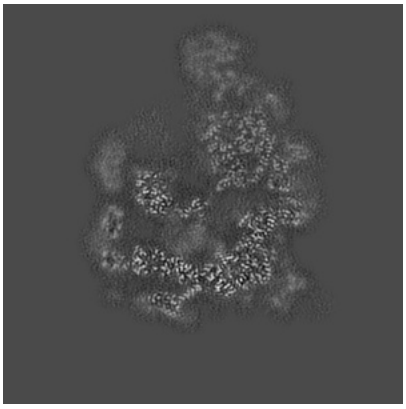
### 6.2.1 Primary map



X Index: 160



Y Index: 160

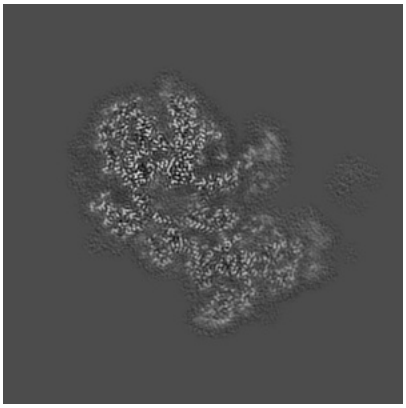


Z Index: 160

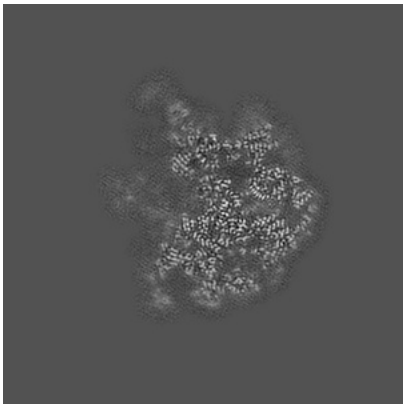
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices (i)

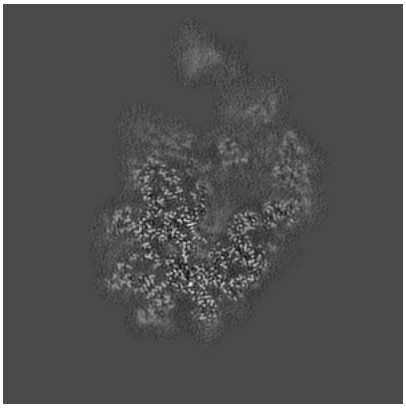
### 6.3.1 Primary map



X Index: 137



Y Index: 109

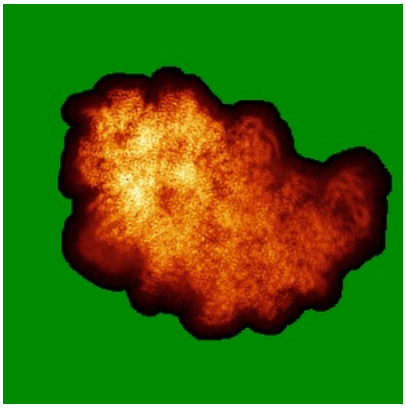


Z Index: 181

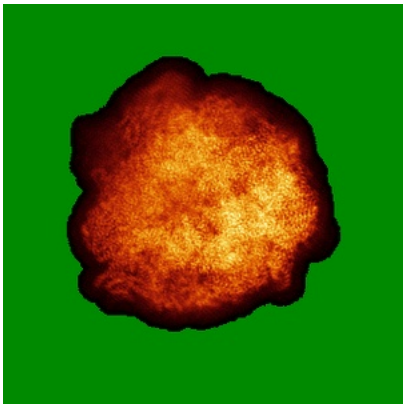
The images above show the largest variance slices of the map in three orthogonal directions.

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

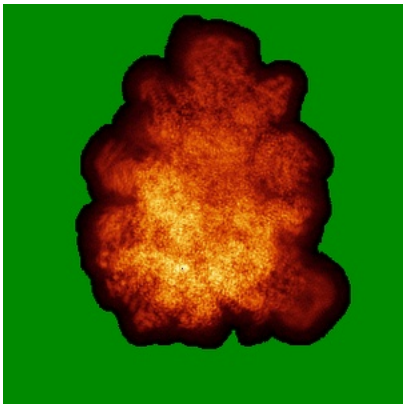
### 6.4.1 Primary map



X



Y

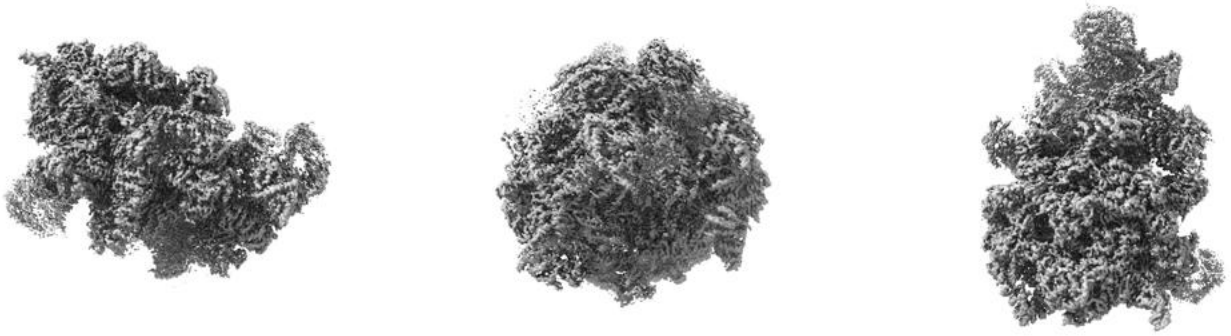


Z

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



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.09. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

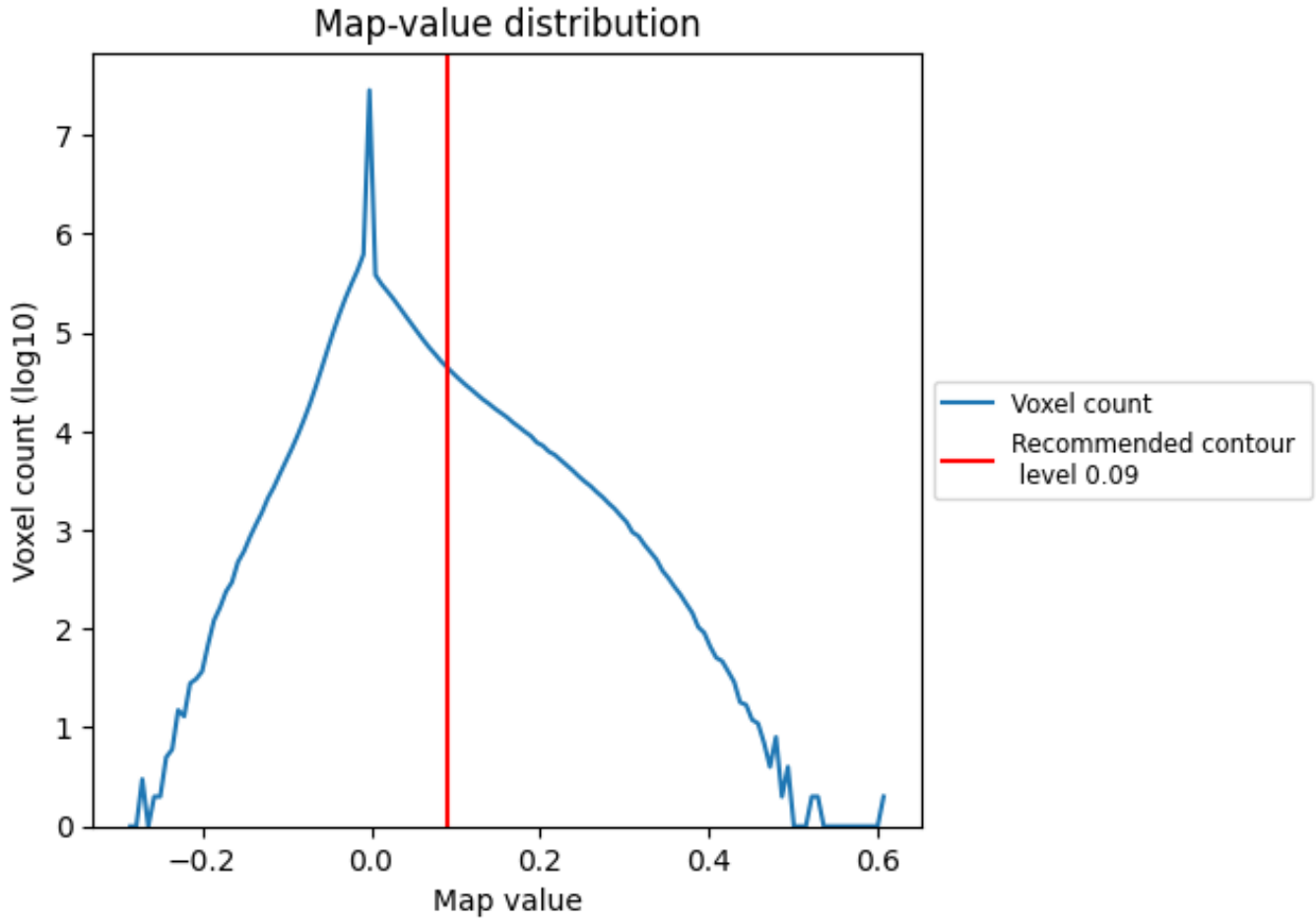
## 6.6 Mask visualisation (i)

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

# 7 Map analysis

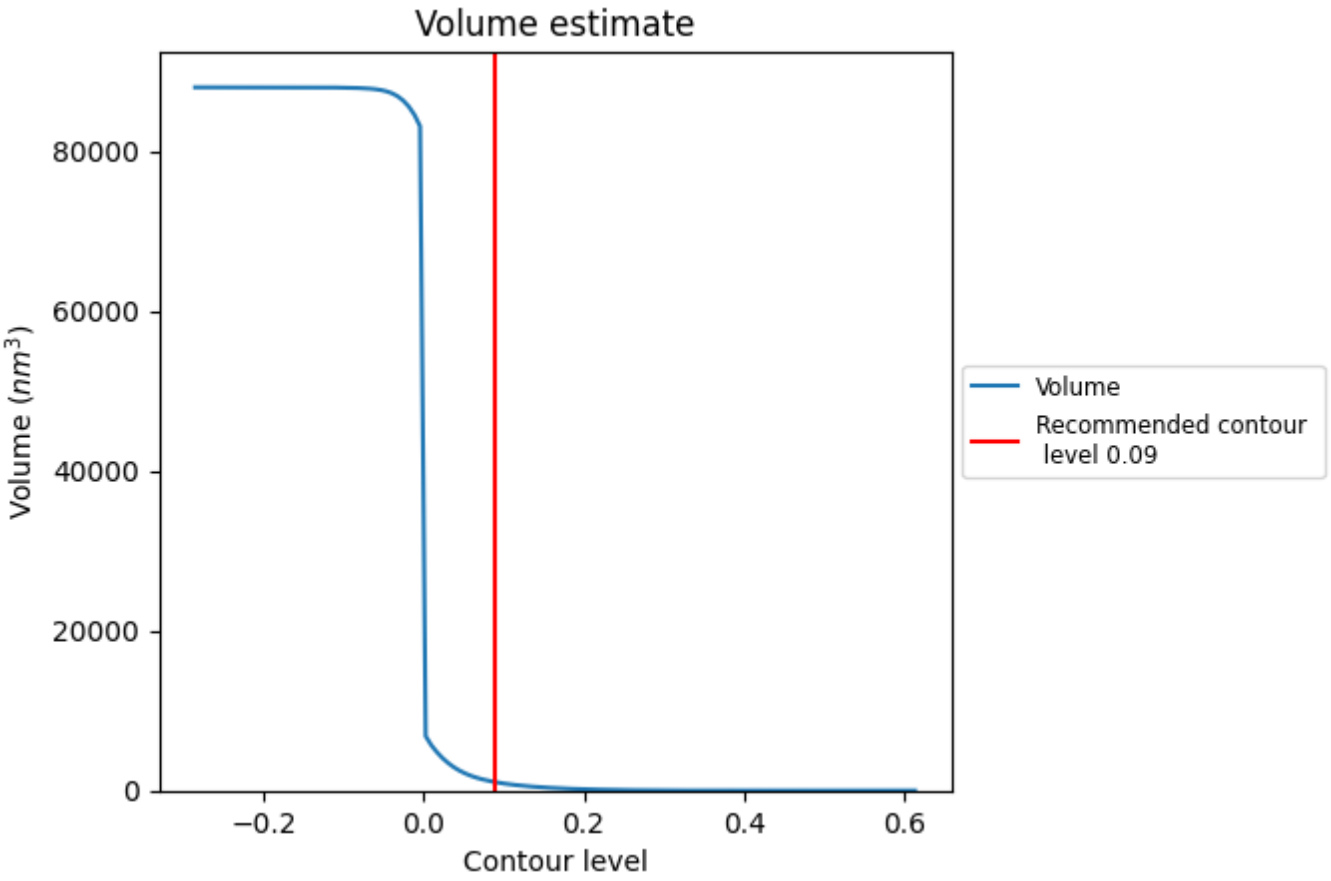
This section contains the results of statistical analysis of the map.

## 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.

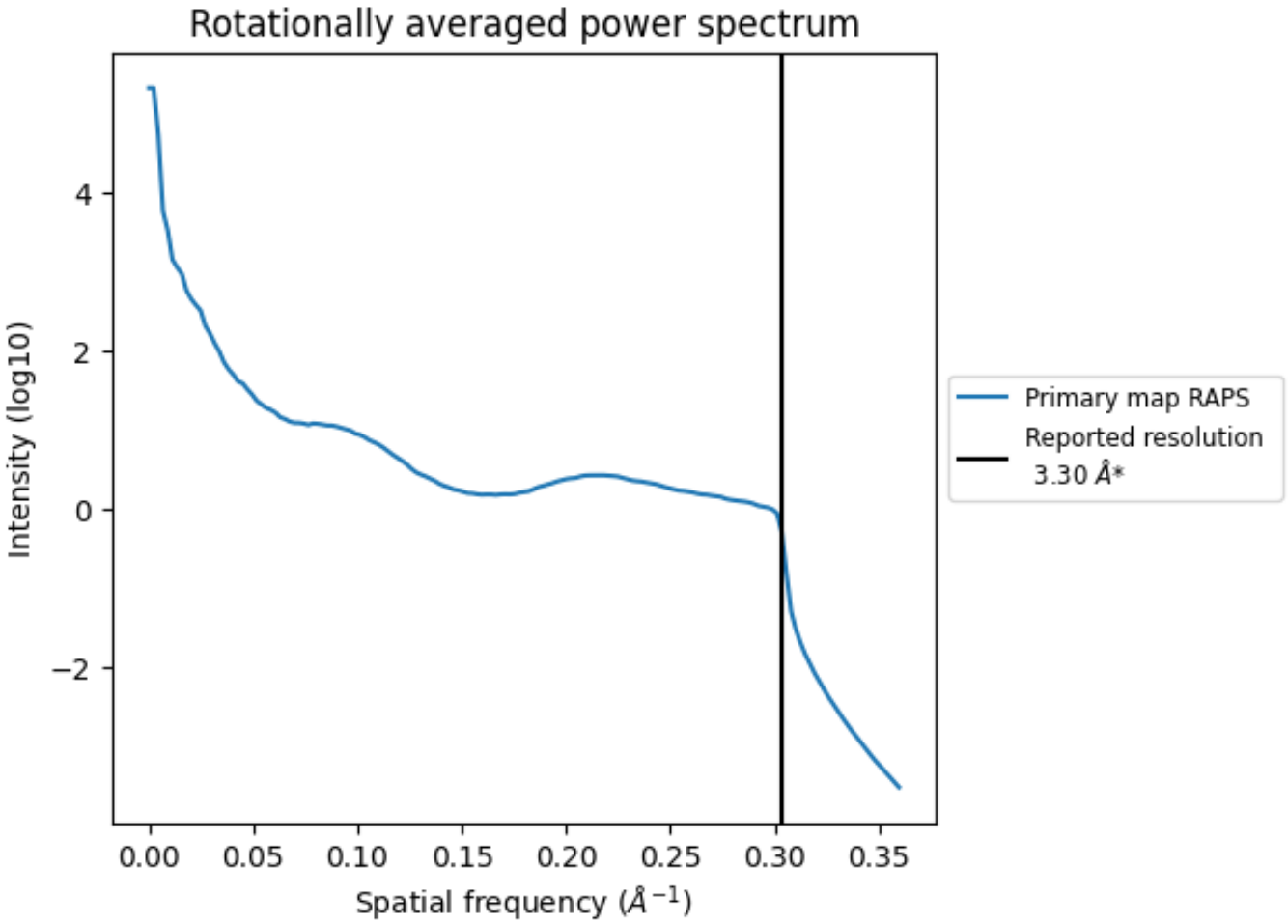
## 7.2 Volume estimate




The volume at the recommended contour level is 1051 $nm^3$; this corresponds to an approximate mass of 949 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

## 7.3 Rotationally averaged power spectrum (i)




*Reported resolution corresponds to spatial frequency of 0.303 Å$^{-1}$

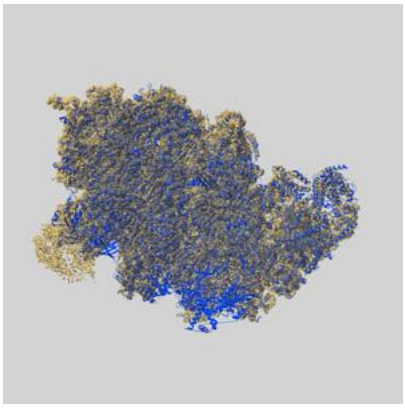
# 8 Fourier-Shell correlation (i)

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

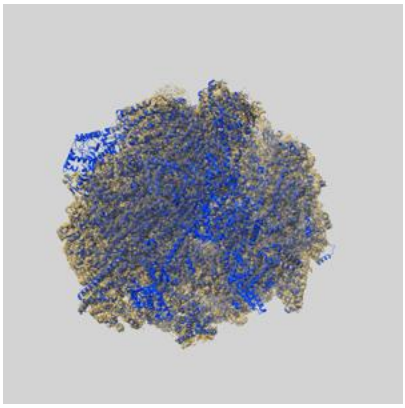
# 9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-10180 and PDB model 6SGB. Per-residue inclusion information can be found in section 3 on page 29.

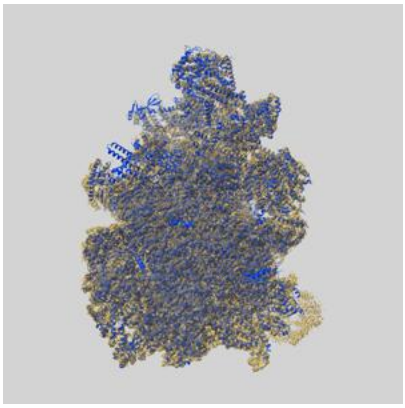
## 9.1 Map-model overlay



X



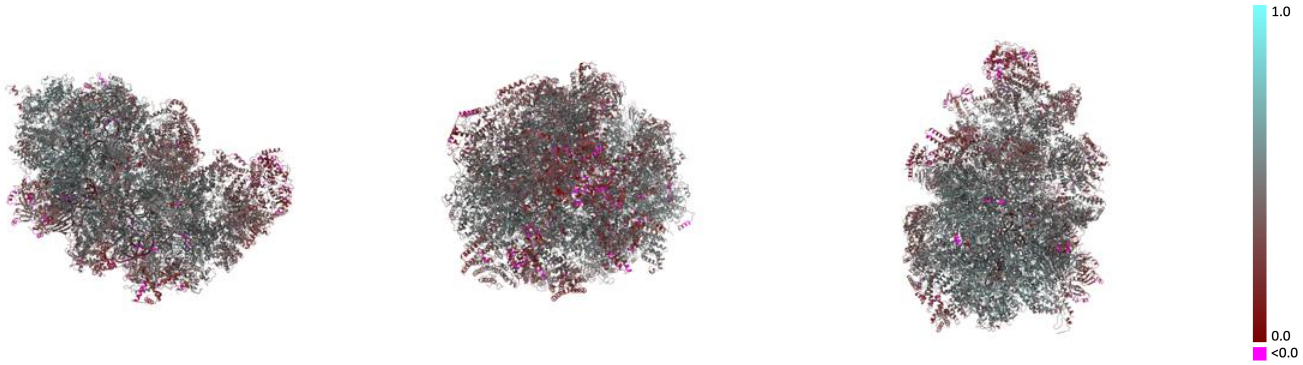
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.09 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.

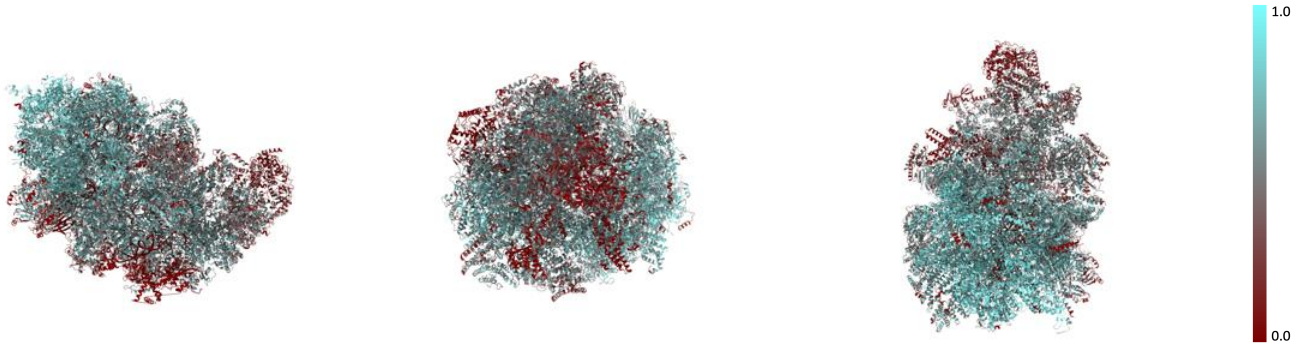
## 9.2 Q-score mapped to coordinate model




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.

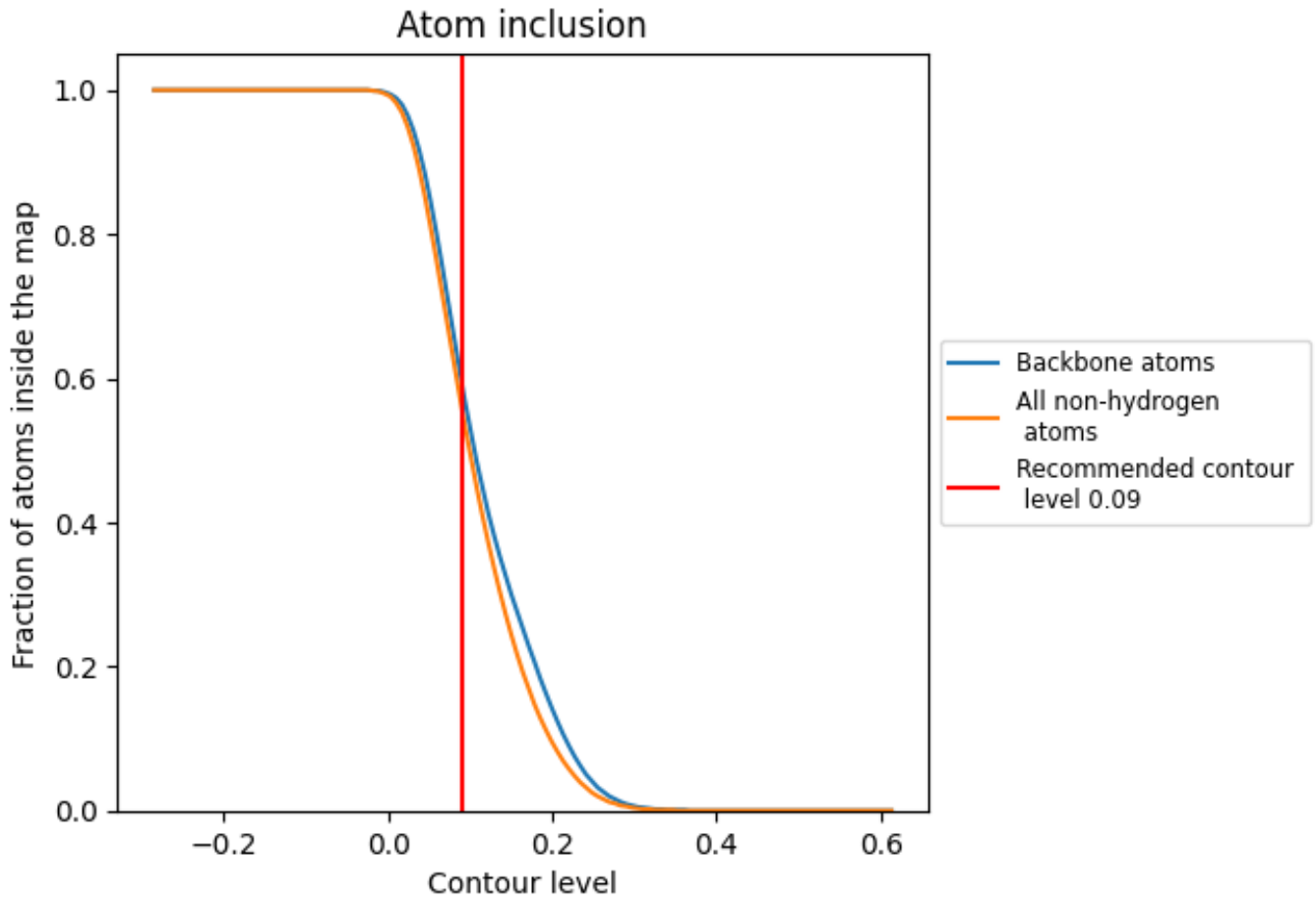
## 9.3 Atom inclusion mapped to coordinate model




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 (0.09).

## 9.4 Atom inclusion (i)




At the recommended contour level, 59% of all backbone atoms, 56% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.09) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.5570 | 0.4390 |
| CA | 0.5680 | 0.3950 |
| CC | 0.4030 | 0.4580 |
| CE | 0.6660 | 0.5010 |
| CF | 0.7270 | 0.5020 |
| CH | 0.7430 | 0.5320 |
| CI | 0.6270 | 0.4750 |
| CJ | 0.5470 | 0.4650 |
| CK | 0.5810 | 0.4280 |
| CN | 0.2610 | 0.4540 |
| CO | 0.7470 | 0.5240 |
| CP | 0.7950 | 0.5350 |
| CQ | 0.7050 | 0.5330 |
| CR | 0.5780 | 0.4330 |
| CS | 0.0090 | 0.3310 |
| Ca | 0.6690 | 0.4820 |
| Cb | 0.5570 | 0.4100 |
| Cd | 0.7920 | 0.5140 |
| Cg | 0.6230 | 0.4630 |
| Ci | 0.5060 | 0.4880 |
| Cj | 0.8280 | 0.5330 |
| Ck | 0.4810 | 0.3990 |
| Cn | 0.3710 | 0.4230 |
| Cp | 0.7320 | 0.5110 |
| DB | 0.3630 | 0.3750 |
| DC | 0.3520 | 0.3270 |
| DD | 0.7860 | 0.5270 |
| DE | 0.2110 | 0.2450 |
| DF | 0.5020 | 0.4460 |
| DG | 0.5740 | 0.4040 |
| DH | 0.5160 | 0.4690 |
| DI | 0.7380 | 0.4930 |
| DJ | 0.5580 | 0.4450 |
| DK | 0.4150 | 0.4110 |
| DL | 0.6590 | 0.5020 |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| Chain | Atom inclusion | Q-score |
|---|---|---|
| DO | 0.6010 | 0.4040 |
| DP | 0.8120 | 0.4880 |
| DR | 0.8120 | 0.5200 |
| DT | 0.5780 | 0.4970 |
| DU | 0.6660 | 0.4940 |
| DV | 0.5120 | 0.4570 |
| DW | 0.5020 | 0.4300 |
| DX | 0.1750 | 0.3900 |
| DY | 0.4940 | 0.4530 |
| DZ | 0.5020 | 0.4430 |
| F1 | 0.5610 | 0.4700 |
| F2 | 0.7170 | 0.4830 |
| F3 | 0.6660 | 0.4390 |
| F4 | 0.4000 | 0.3780 |
| F5 | 0.3750 | 0.3270 |
| F6 | 0.5400 | 0.3490 |
| F7 | 0.7250 | 0.4830 |
| F8 | 0.6430 | 0.4750 |
| F9 | 0.6180 | 0.4850 |
| FA | 0.4950 | 0.4040 |
| FB | 0.7010 | 0.5080 |
| FC | 0.6290 | 0.4310 |
| FD | 0.5060 | 0.4300 |
| FE | 0.6910 | 0.5100 |
| FF | 0.5670 | 0.4750 |
| FG | 0.6250 | 0.4950 |
| FH | 0.5390 | 0.4560 |
| FI | 0.5050 | 0.4660 |
| FJ | 0.5850 | 0.4700 |
| FK | 0.5560 | 0.4710 |
| FL | 0.6010 | 0.5180 |
| FM | 0.6810 | 0.4770 |
| FN | 0.5260 | 0.3790 |
| FO | 0.7810 | 0.5300 |
| FP | 0.7500 | 0.4830 |
| FQ | 0.6330 | 0.4440 |
| FR | 0.5860 | 0.4360 |
| FS | 0.5320 | 0.4180 |
| FT | 0.6010 | 0.4180 |
| FU | 0.5180 | 0.3810 |
| FV | 0.5880 | 0.4660 |
| FW | 0.7340 | 0.5020 |

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| Chain | Atom inclusion | Q-score |
|---|---|---|
| FX | 0.7800 | 0.4820 |
| FY | 0.4670 | 0.3860 |
| FZ | 0.1280 | 0.3860 |
| Fa | 0.6370 | 0.5130 |
| Fb | 0.5360 | 0.3440 |
| Fc | 0.5160 | 0.3280 |
| Fd | 0.7300 | 0.4900 |
| Fe | 0.4810 | 0.4460 |
| UA | 0.3180 | 0.2380 |
| UB | 0.2040 | 0.3200 |
| UC | 0.7330 | 0.4270 |
| UD | 0.8520 | 0.5070 |
| UE | 0.2930 | 0.2610 |
| UF | 0.5610 | 0.4540 |
| UG | 0.7260 | 0.4700 |
| UH | 0.4000 | 0.4990 |
| UI | 0.6250 | 0.4210 |
| UJ | 0.3540 | 0.3170 |
| UK | 0.2430 | 0.3550 |
| UL | 0.5230 | 0.3640 |
| UM | 0.5740 | 0.4650 |
| UN | 0.5210 | 0.3820 |
| UO | 0.4440 | 0.2880 |
| UP | 0.2890 | 0.2850 |
| UQ | 0.4440 | 0.3130 |
| UY | 0.0030 | 0.2760 |
| Ua | 0.4430 | 0.4270 |
| Ub | 0.2540 | 0.4040 |
| Uc | 0.2780 | 0.4630 |
| Ud | 0.2820 | 0.3520 |
| Ue | 0.2760 | 0.3380 |
| Uf | 0.4810 | 0.5010 |
| Ug | 0.3720 | 0.2800 |
| Uh | 0.0200 | 0.2690 |
| Ui | 0.2290 | 0.2920 |
| Uj | 0.2980 | 0.3120 |
| Uk | 0.4010 | 0.4570 |
| Ul | 0.1790 | 0.2220 |
| Um | 0.3940 | 0.4370 |
| Ux | 0.0110 | 0.2830 |