# Full wwPDB EM Validation Report ⓘ

Dec 8, 2025 – 01:12 PM JST

| | | |
|---|---|---|
| PDB ID | : | 9KKF / pdb_00009kkf |
| EMDB ID | : | EMD-62386 |
| Title | : | Structure of the human 40S ribosome complexed with HCV IRES and eIF3 |
| Authors | : | Iwasaki, W.; Kashiwagi, K.; Sakamoto, A.; Nishimoto, M.; Takahashi, M.; Machida, K.; Imataka, H.; Matsumoto, A.; Shichino, Y.; Iwasaki, S.; Imami, K.; Ito, T. |
| Deposited on | : | 2024-11-13 |
| Resolution | : | 3.30 Å(reported) |

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

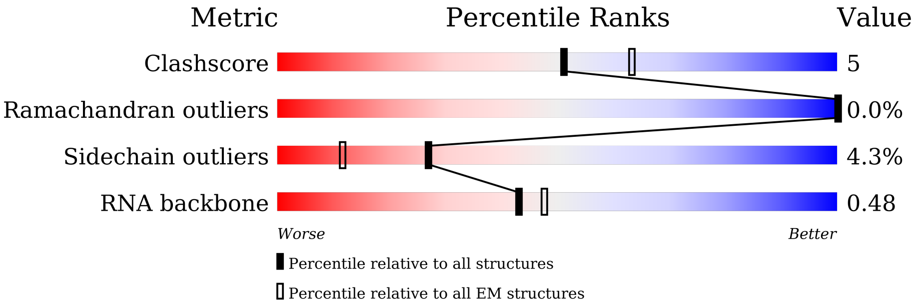
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev129 |
| MolProbity | : | 4-5-2 with Phenix2.0 |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| EM percentile statistics | : | 202505.v01 (Using data in the EMDB archive up until May 2025) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.47 |

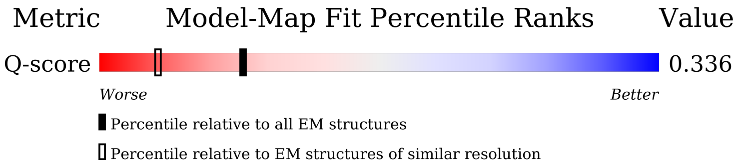
# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.30 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)** | **Similar EM resolution (#Entries, resolution range(Å))** |
|---|---|---|---|
| Clashscore | 210492 | 15764 | - |
| Ramachandran outliers | 207382 | 16835 | - |
| Sidechain outliers | 206894 | 16415 | - |
| RNA backbone | 6643 | 2191 | - |
| Q-score | - | 25397 | 15087 ( 2.80 - 3.80 ) |

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 | SA | 295 |  |
| 2 | SB | 264 |  |
| 3 | SC | 293 |  |

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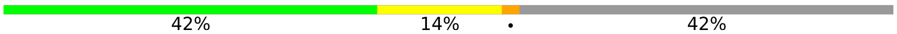
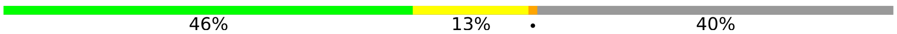
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 4 | SD | 243 |  |
| 5 | SE | 263 |  |
| 6 | SF | 204 |  |
| 7 | SG | 249 |  |
| 8 | SH | 194 |  |
| 9 | SI | 208 |  |
| 10 | SJ | 194 |  |
| 11 | SK | 165 |  |
| 12 | SL | 158 |  |
| 13 | Sf | 132 |  |
| 14 | SN | 151 |  |
| 15 | SO | 151 |  |
| 16 | SP | 145 |  |
| 17 | SQ | 146 |  |
| 18 | SR | 135 |  |
| 19 | SS | 152 |  |
| 20 | ST | 145 |  |
| 21 | SU | 119 |  |
| 22 | SV | 83 |  |
| 23 | SW | 130 |  |
| 24 | SX | 143 |  |
| 25 | SY | 133 |  |
| 26 | SZ | 125 |  |
| 27 | Sa | 115 |  |
| 28 | Sb | 84 |  |

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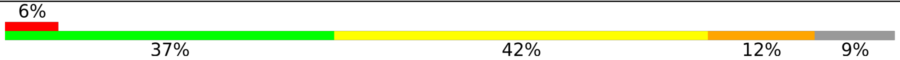
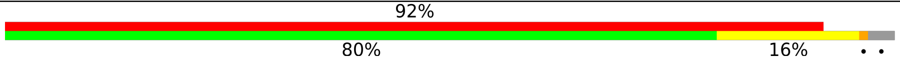
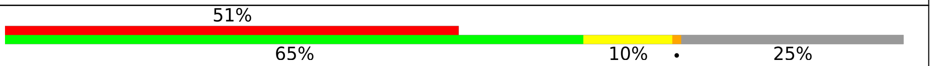
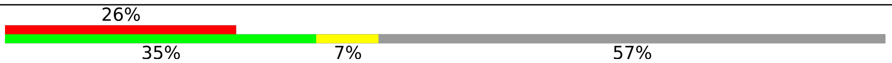
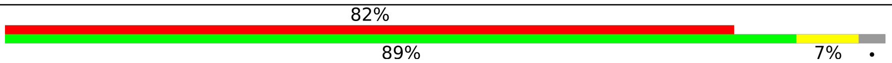
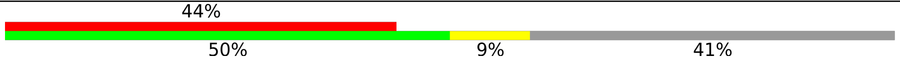
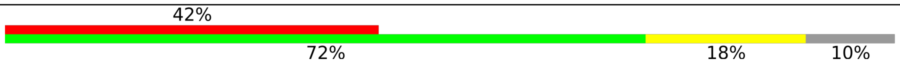
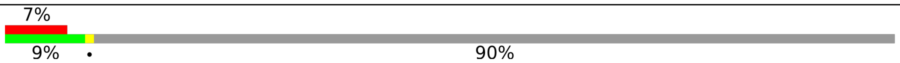
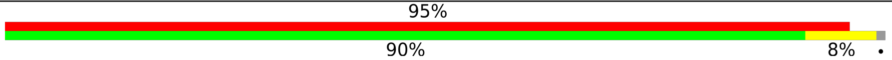
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 29 | Sc | 69 |  |
| 30 | Sd | 56 |  |
| 31 | Se | 59 |  |
| 32 | sh | 156 |  |
| 33 | Sg | 317 |  |
| 34 | Ln | 25 |  |
| 35 | S2 | 1869 |  |
| 36 | zz | 332 |  |
| 37 | 3m | 374 |  |
| 38 | 3f | 357 |  |
| 39 | 3a | 1382 |  |
| 40 | 3e | 445 |  |
| 41 | 3c | 913 |  |
| 42 | 3h | 352 |  |
| 43 | 3d | 548 |  |
| 44 | 3k | 218 |  |
| 45 | 3l | 564 |  |

## 2 Entry composition

There are 47 unique types of molecules in this entry. The entry contains 108043 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 Small ribosomal subunit protein uS2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 1 | SA | 216 | 1705 | 1083 | 299 | 315 | 8 | 0 | 0 |

- Molecule 2 is a protein called 40S ribosomal protein S3a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 2 | SB | 212 | 1722 | 1093 | 308 | 307 | 14 | 0 | 0 |

- Molecule 3 is a protein called 40S ribosomal protein S2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 3 | SC | 219 | 1700 | 1100 | 292 | 298 | 10 | 0 | 0 |

- Molecule 4 is a protein called 40S ribosomal protein S3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 4 | SD | 226 | 1756 | 1119 | 316 | 314 | 7 | 0 | 0 |

- Molecule 5 is a protein called 40S ribosomal protein S4, X isoform.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 5 | SE | 260 | 2065 | 1319 | 384 | 354 | 8 | 0 | 0 |

- Molecule 6 is a protein called 40S ribosomal protein S5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 6 | SF | 192 | 1518 | 948 | 287 | 276 | 7 | 0 | 0 |

- Molecule 7 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 7 | SG | 237 | 1923 | 1200 | 387 | 329 | 7 | 0 | 0 |

- Molecule 8 is a protein called 40S ribosomal protein S7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 8 | SH | 187 | 1506 | 961 | 277 | 267 | 1 | 0 | 0 |

- Molecule 9 is a protein called 40S ribosomal protein S8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 9 | SI | 205 | 1682 | 1056 | 331 | 290 | 5 | 0 | 0 |

- Molecule 10 is a protein called 40S ribosomal protein S9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 10 | SJ | 180 | 1499 | 955 | 300 | 242 | 2 | 0 | 0 |

- Molecule 11 is a protein called 40S ribosomal protein S10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 11 | SK | 96 | 810 | 530 | 143 | 131 | 6 | 0 | 0 |

- Molecule 12 is a protein called 40S ribosomal protein S11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 12 | SL | 150 | 1220 | 776 | 228 | 210 | 6 | 0 | 0 |

- Molecule 13 is a protein called 40S ribosomal protein S12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 13 | Sf | 121 | 935 | 586 | 165 | 175 | 9 | 0 | 0 |

- Molecule 14 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 14 | SN | 149 | 1202 | 770 | 228 | 203 | 1 | 0 | 0 |

- Molecule 15 is a protein called 40S ribosomal protein S14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 15 | SO | 135 | 1007 | 617 | 198 | 186 | 6 | 0 | 0 |

- Molecule 16 is a protein called 40S ribosomal protein S15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 16 | SP | 119 | 984 | 625 | 187 | 165 | 7 | 0 | 0 |

- Molecule 17 is a protein called 40S ribosomal protein S16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 17 | SQ | 140 | 1116 | 710 | 211 | 192 | 3 | 0 | 0 |

- Molecule 18 is a protein called 40S ribosomal protein S17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 18 | SR | 132 | 1068 | 670 | 199 | 195 | 4 | 0 | 0 |

- Molecule 19 is a protein called 40S ribosomal protein S18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 19 | SS | 143 | 1184 | 743 | 240 | 200 | 1 | 0 | 0 |

- Molecule 20 is a protein called 40S ribosomal protein S19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 20 | ST | 142 | 1103 | 691 | 212 | 197 | 3 | 0 | 0 |

- Molecule 21 is a protein called 40S ribosomal protein S20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 21 | SU | 101 | 803 | 504 | 153 | 142 | 4 | 0 | 0 |

- Molecule 22 is a protein called 40S ribosomal protein S21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 22 | SV | 83 | 636 | 393 | 117 | 121 | 5 | 0 | 0 |

- Molecule 23 is a protein called 40S ribosomal protein S15a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 23 | SW | 129 | 1034 | 659 | 193 | 176 | 6 | 0 | 0 |

- Molecule 24 is a protein called 40S ribosomal protein S23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 24 | SX | 141 | 1098 | 693 | 219 | 183 | 3 | 0 | 0 |

- Molecule 25 is a protein called 40S ribosomal protein S24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 25 | SY | 124 | 1014 | 641 | 198 | 170 | 5 | 0 | 0 |

- Molecule 26 is a protein called 40S ribosomal protein S25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 26 | SZ | 75 | 601 | 385 | 111 | 104 | 1 | 0 | 0 |

- Molecule 27 is a protein called 40S ribosomal protein S26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 27 | Sa | 100 | 803 | 501 | 166 | 131 | 5 | 0 | 0 |

- Molecule 28 is a protein called 40S ribosomal protein S27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 28 | Sb | 83 | 651 | 408 | 121 | 115 | 7 | 0 | 0 |

- Molecule 29 is a protein called 40S ribosomal protein S28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 29 | Sc | 62 | 488 | 297 | 97 | 92 | 2 | 0 | 0 |

- Molecule 30 is a protein called 40S ribosomal protein S29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 30 | Sd | 55 | 459 | 286 | 94 | 74 | 5 | 0 | 0 |

- Molecule 31 is a protein called 40S ribosomal protein S30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 31 | Se | 52 | 417 | 259 | 92 | 65 | 1 | 0 | 0 |

- Molecule 32 is a protein called Ubiquitin-40S ribosomal protein S27a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 32 | sh | 64 | 522 | 329 | 99 | 87 | 7 | 0 | 0 |

- Molecule 33 is a protein called Receptor of activated protein C kinase 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 33 | Sg | 313 | 2436 | 1535 | 424 | 465 | 12 | 0 | 0 |

- Molecule 34 is a protein called 60S ribosomal protein L41.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 34 | Ln | 24 | 230 | 139 | 62 | 26 | 3 | 0 | 0 |

- Molecule 35 is a RNA chain called 18S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 35 | S2 | 1759 | Total<br>37669 | C<br>16814 | N<br>6767 | O<br>12324 | P<br>1764 | 6 | 0 |

- Molecule 36 is a RNA chain called HCV-IRES RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 36 | zz | 302 | Total<br>6443 | C<br>2871 | N<br>1148 | O<br>2122 | P<br>302 | 0 | 0 |

- Molecule 37 is a protein called Eukaryotic translation initiation factor 3 subunit M.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 37 | 3m | 363 | Total<br>2639 | C<br>1666 | N<br>450 | O<br>511 | S<br>12 | 0 | 0 |

- Molecule 38 is a protein called Eukaryotic translation initiation factor 3 subunit F.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 38 | 3f | 269 | Total<br>2063 | C<br>1303 | N<br>354 | O<br>394 | S<br>12 | 0 | 0 |

- Molecule 39 is a protein called Eukaryotic translation initiation factor 3 subunit A.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 39 | 3a | 592 | Total<br>4497 | C<br>2849 | N<br>805 | O<br>822 | S<br>21 | 0 | 0 |

- Molecule 40 is a protein called Eukaryotic translation initiation factor 3 subunit E.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 40 | 3e | 430 | Total<br>3224 | C<br>2053 | N<br>561 | O<br>594 | S<br>16 | 0 | 0 |

- Molecule 41 is a protein called Eukaryotic translation initiation factor 3 subunit C.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 41 | 3c | 543 | Total<br>3924 | C<br>2463 | N<br>721 | O<br>716 | S<br>24 | 0 | 0 |

- Molecule 42 is a protein called Eukaryotic translation initiation factor 3 subunit H.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 42 | 3h | 318 | 2520 | 1599 | 431 | 475 | 15 | 0 | 0 |

- Molecule 43 is a protein called Eukaryotic translation initiation factor 3 subunit D.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 43 | 3d | 55 | 347 | 222 | 65 | 59 | 1 | 0 | 0 |

- Molecule 44 is a protein called Eukaryotic translation initiation factor 3 subunit K.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 44 | 3k | 215 | 1475 | 932 | 251 | 282 | 10 | 0 | 0 |

- Molecule 45 is a protein called Eukaryotic translation initiation factor 3 subunit L.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 45 | 3l | 520 | 4335 | 2808 | 715 | 793 | 19 | 0 | 0 |

- Molecule 46 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| | | | Total | Zn | |
| 46 | Sa | 1 | 1 | 1 | 0 |
| | | | Total | Zn | |
| 46 | sh | 1 | 1 | 1 | 0 |

- Molecule 47 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

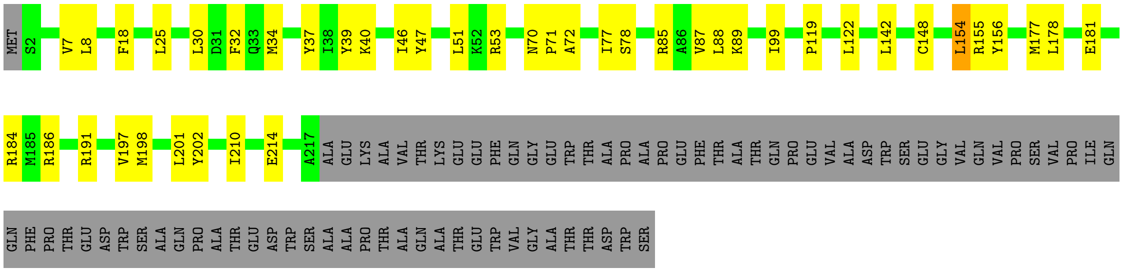
| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| | | | Total | Mg | |
| 47 | S2 | 8 | 8 | 8 | 0 |

# 3 Residue-property plots ⓘ

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

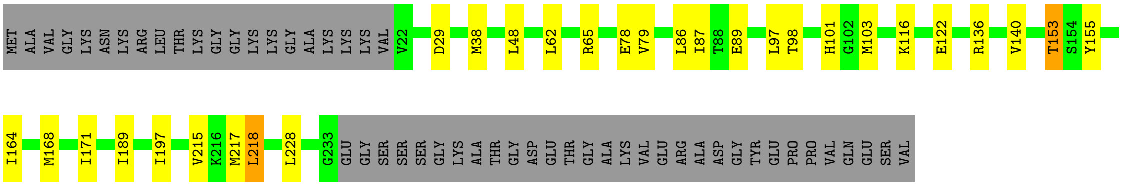
- Molecule 1: Small ribosomal subunit protein uS2

Chain SA:



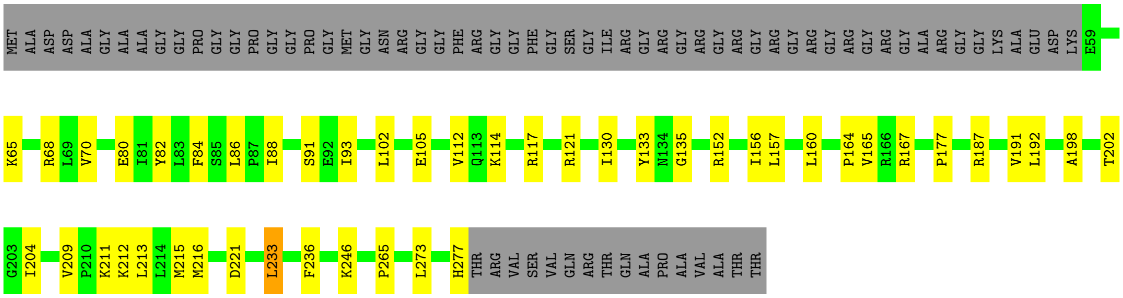
- Molecule 2: 40S ribosomal protein S3a

Chain SB:

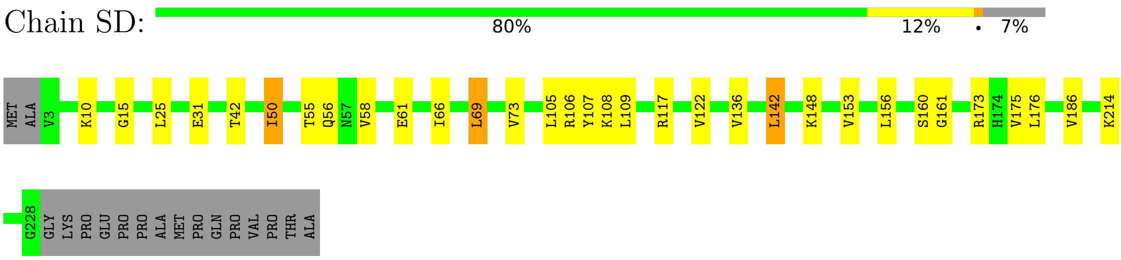


- Molecule 3: 40S ribosomal protein S2

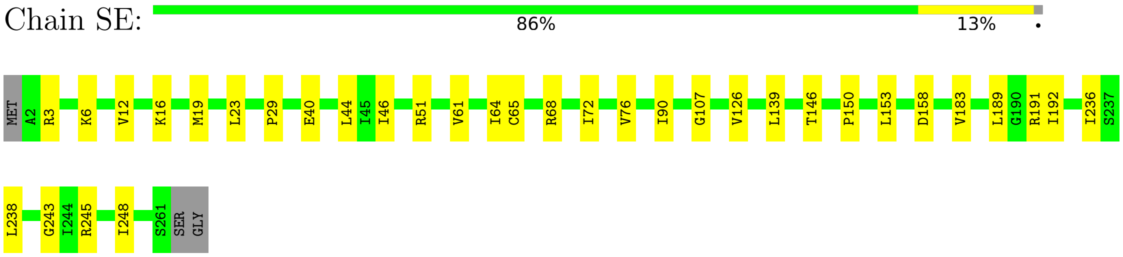
Chain SC:



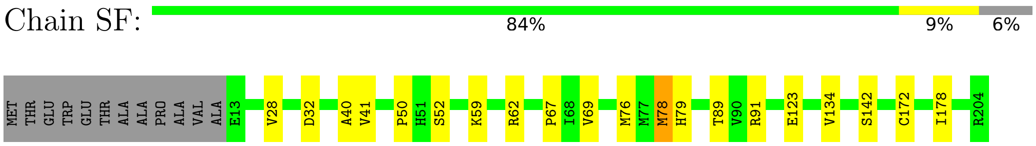
- Molecule 4: 40S ribosomal protein S3



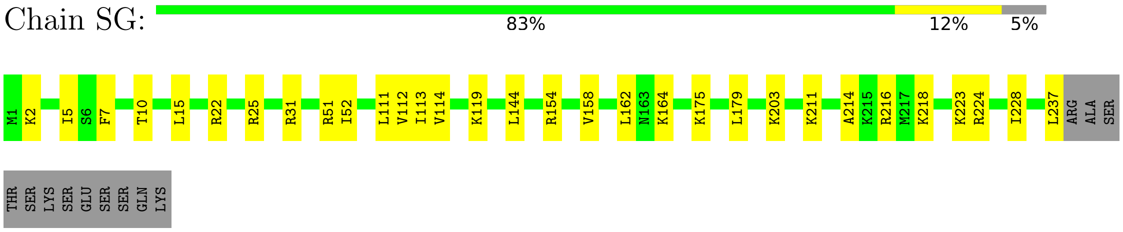
- Molecule 5: 40S ribosomal protein S4, X isoform



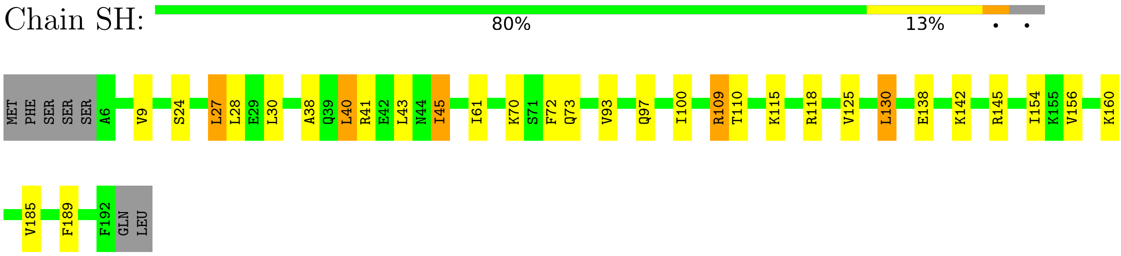
- Molecule 6: 40S ribosomal protein S5



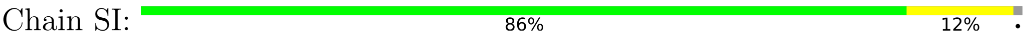
- Molecule 7: 40S ribosomal protein S6

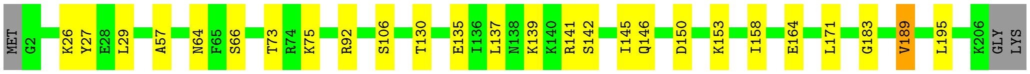


- Molecule 8: 40S ribosomal protein S7



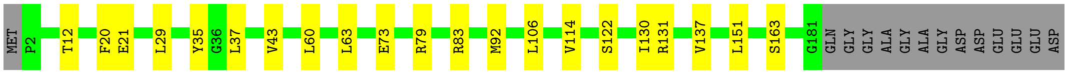
- Molecule 9: 40S ribosomal protein S8





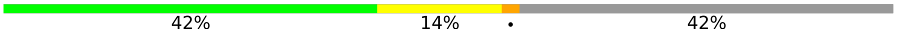
- Molecule 10: 40S ribosomal protein S9

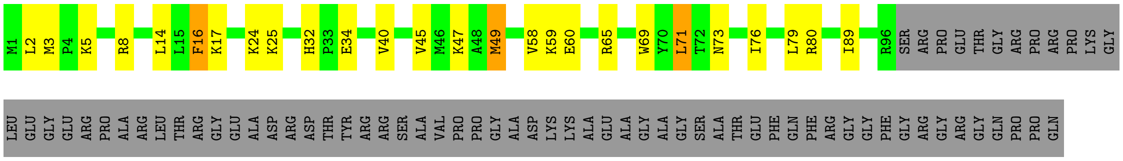
Chain SJ:



- Molecule 11: 40S ribosomal protein S10

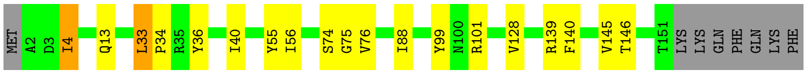
Chain SK:





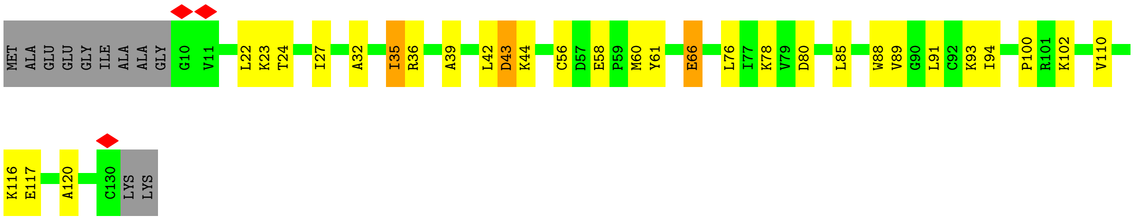
- Molecule 12: 40S ribosomal protein S11

Chain SL:



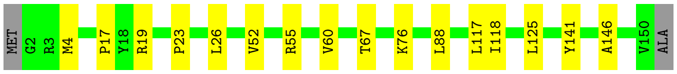
- Molecule 13: 40S ribosomal protein S12

Chain Sf:



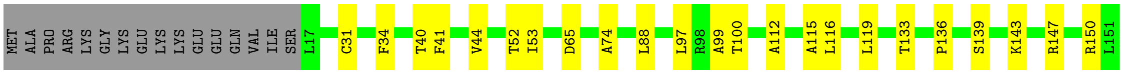
- Molecule 14: 40S ribosomal protein S13

Chain SN:



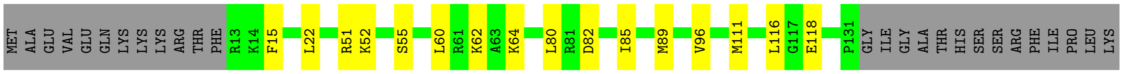
- Molecule 15: 40S ribosomal protein S14

Chain SO:



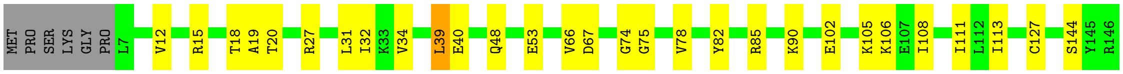
• Molecule 16: 40S ribosomal protein S15

Chain SP:



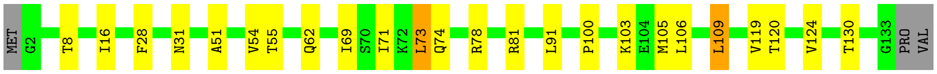
• Molecule 17: 40S ribosomal protein S16

Chain SQ:



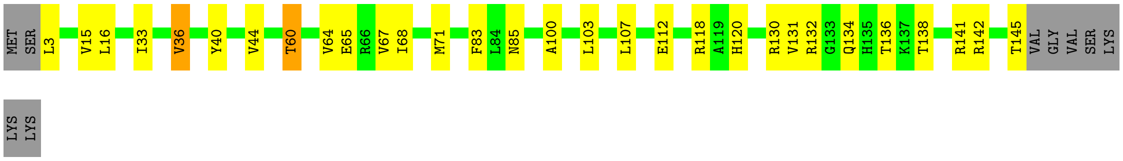
• Molecule 18: 40S ribosomal protein S17

Chain SR:



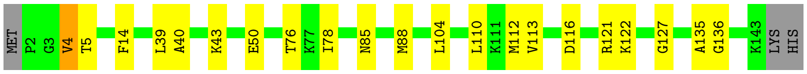
• Molecule 19: 40S ribosomal protein S18

Chain SS:



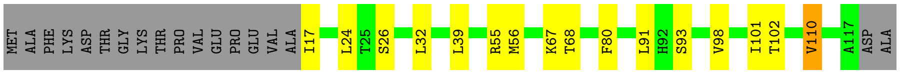
• Molecule 20: 40S ribosomal protein S19

Chain ST:

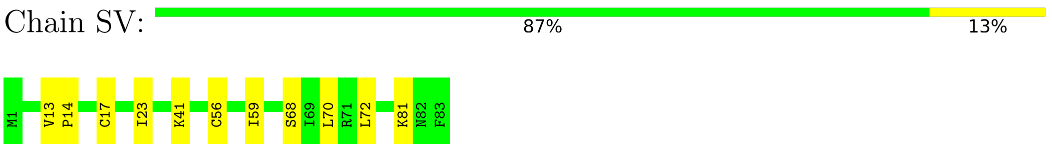


• Molecule 21: 40S ribosomal protein S20

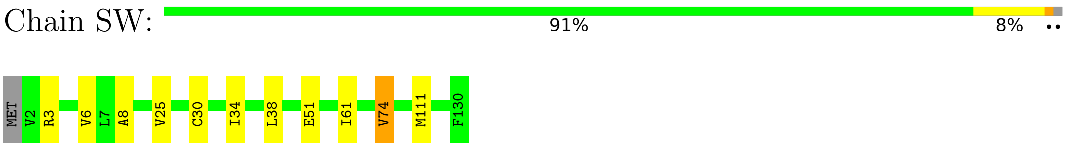
Chain SU:



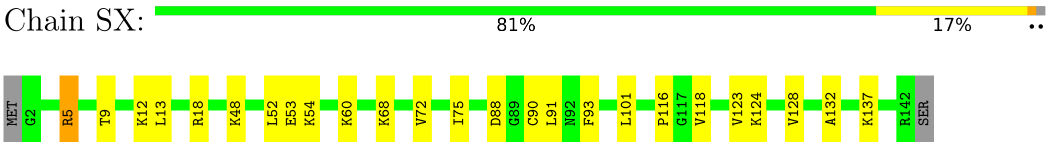
• Molecule 22: 40S ribosomal protein S21



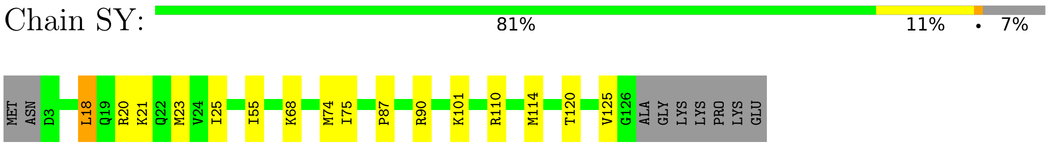
- Molecule 23: 40S ribosomal protein S15a



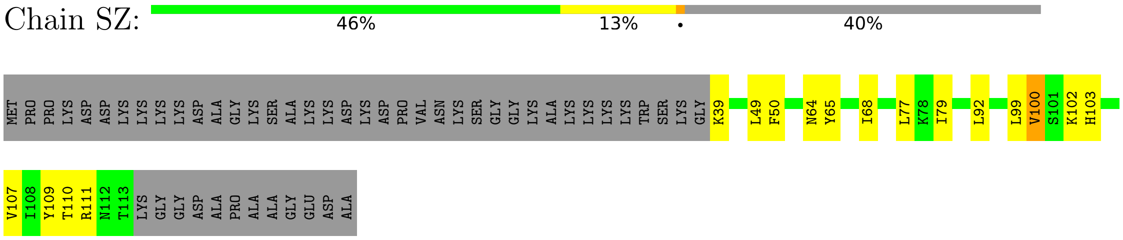
- Molecule 24: 40S ribosomal protein S23



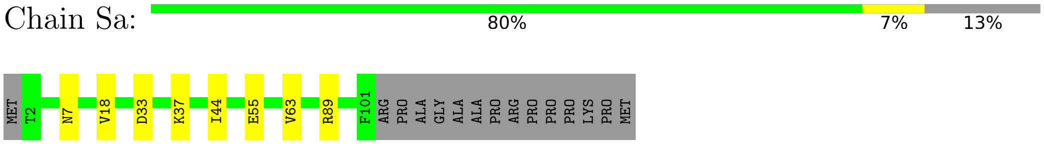
- Molecule 25: 40S ribosomal protein S24



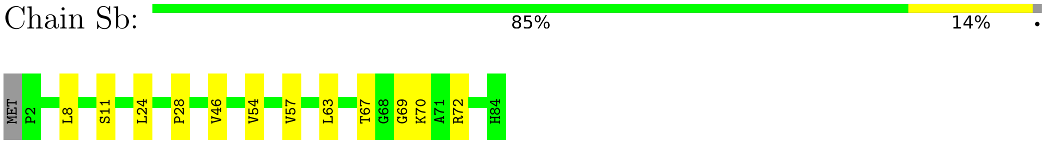
- Molecule 26: 40S ribosomal protein S25



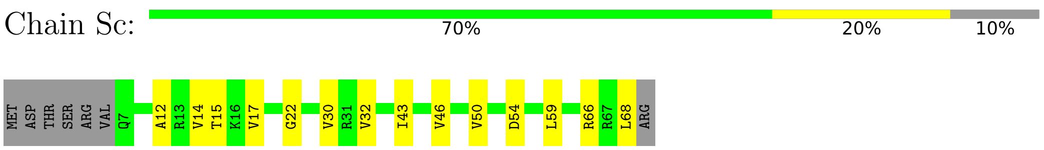
- Molecule 27: 40S ribosomal protein S26



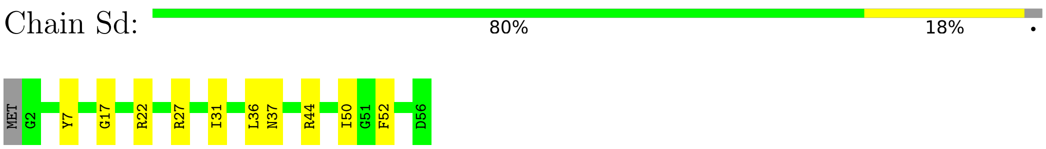
- Molecule 28: 40S ribosomal protein S27



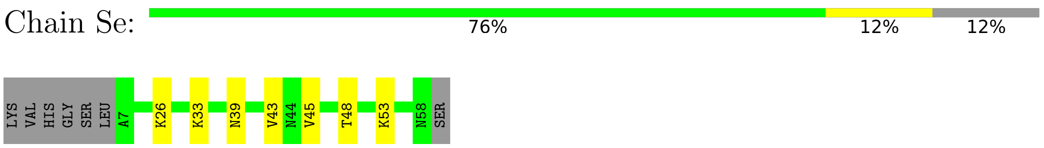
- Molecule 29: 40S ribosomal protein S28



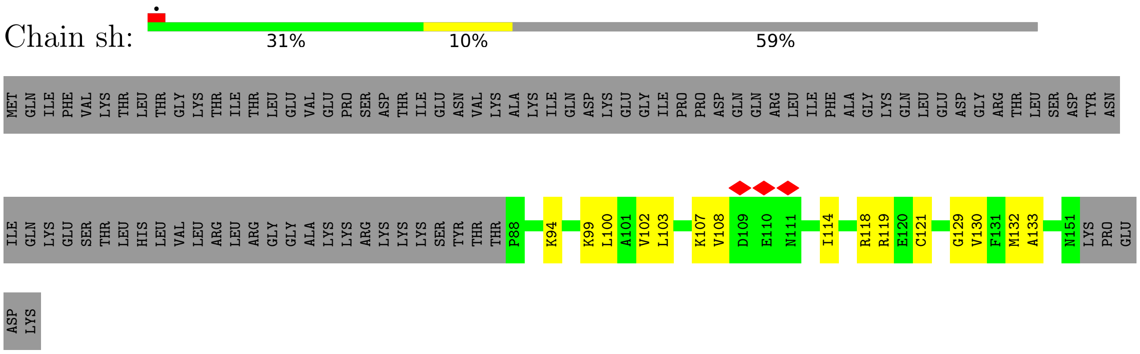
- Molecule 30: 40S ribosomal protein S29



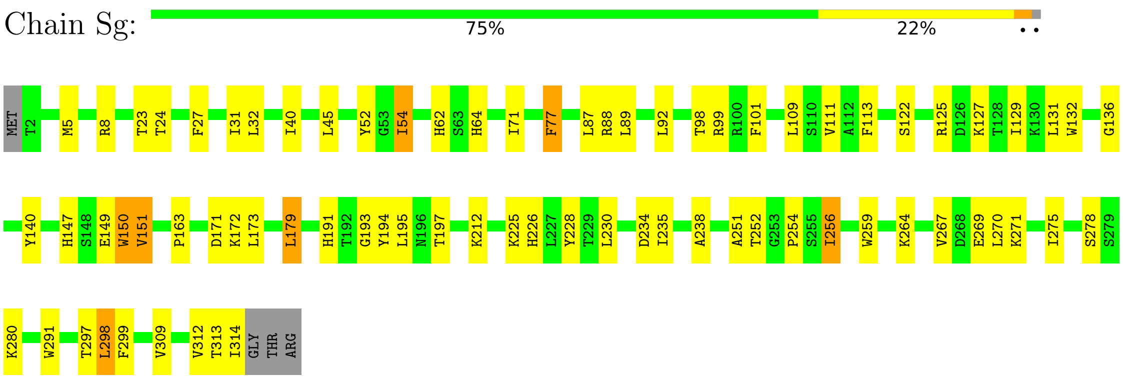
- Molecule 31: 40S ribosomal protein S30



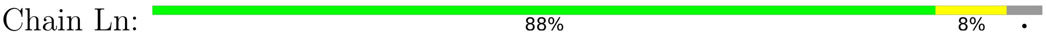
- Molecule 32: Ubiquitin-40S ribosomal protein S27a

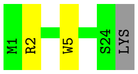


- Molecule 33: Receptor of activated protein C kinase 1

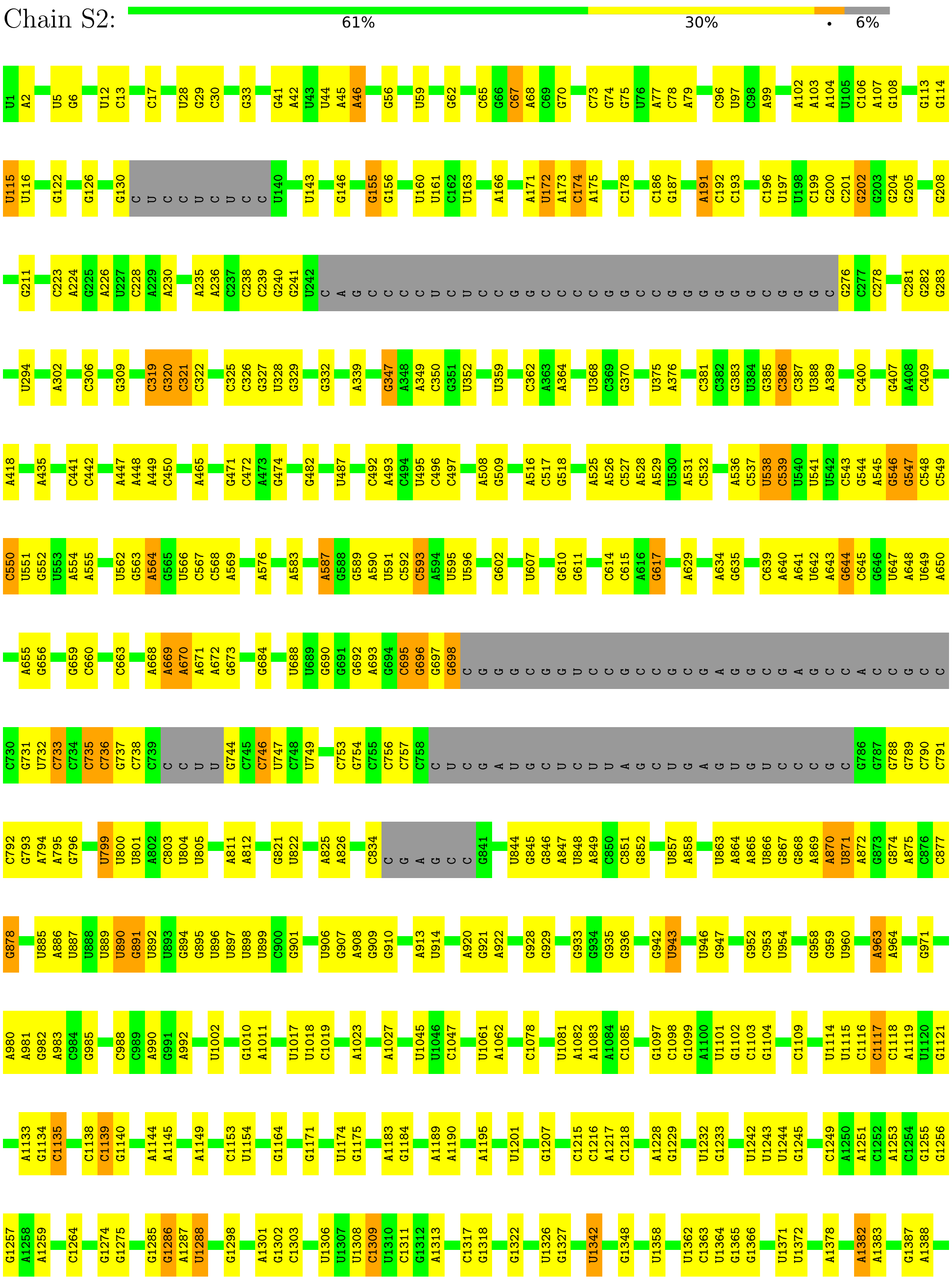


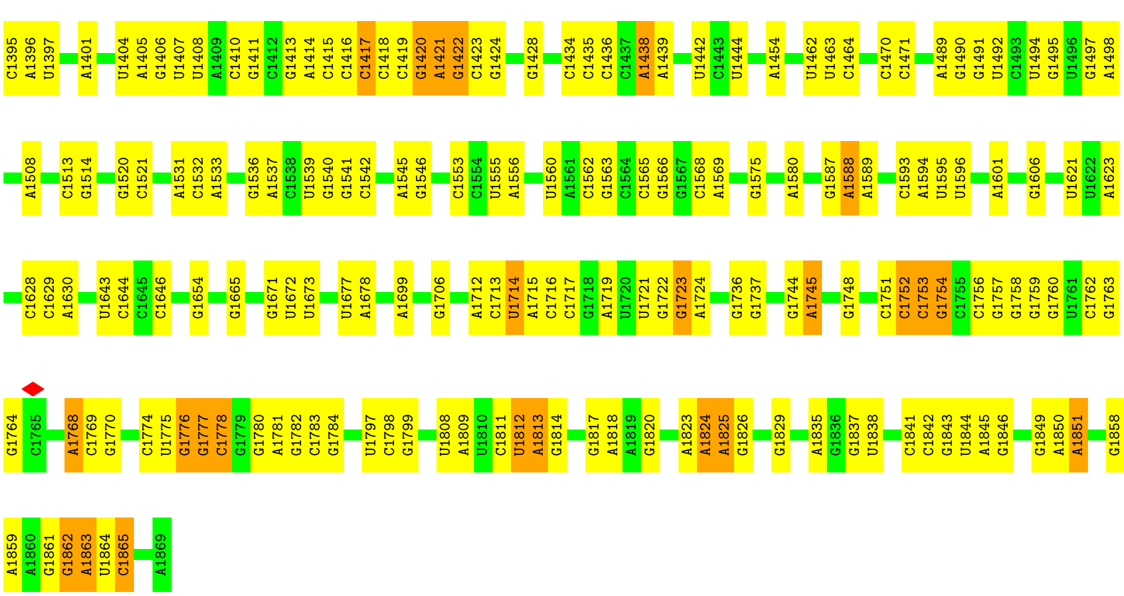
- Molecule 34: 60S ribosomal protein L41





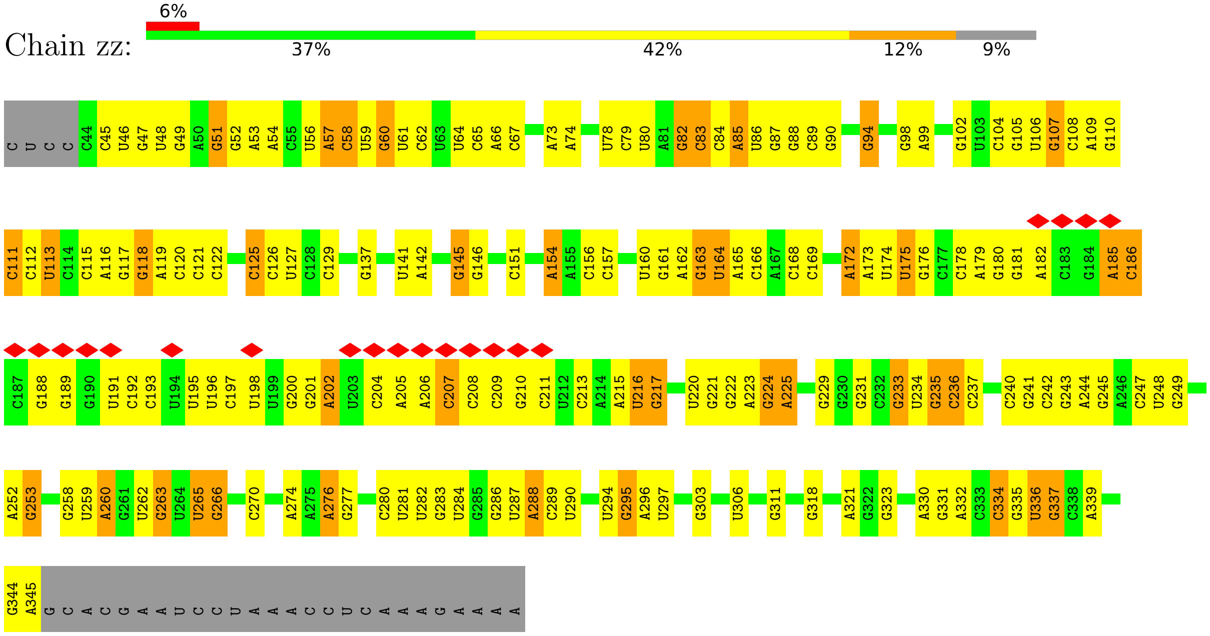
- Molecule 35: 18S ribosomal RNA





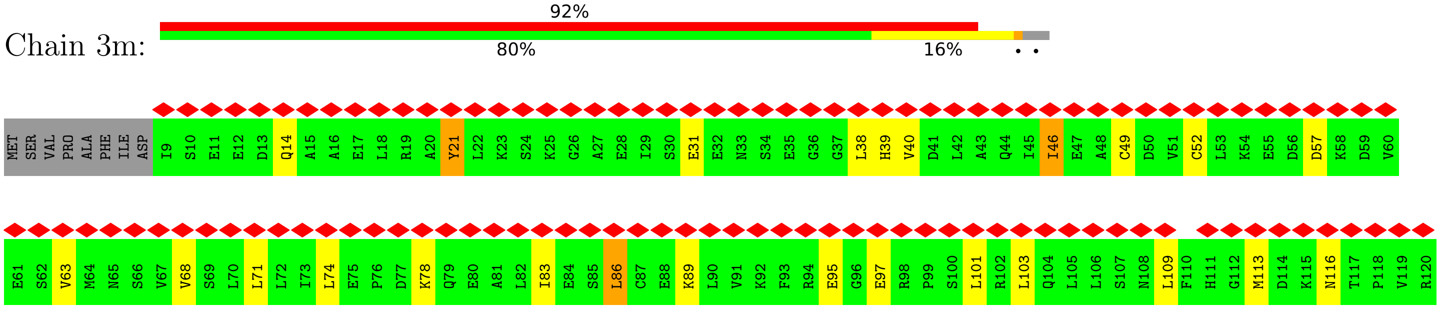
- Molecule 36: HCV-IRES RNA

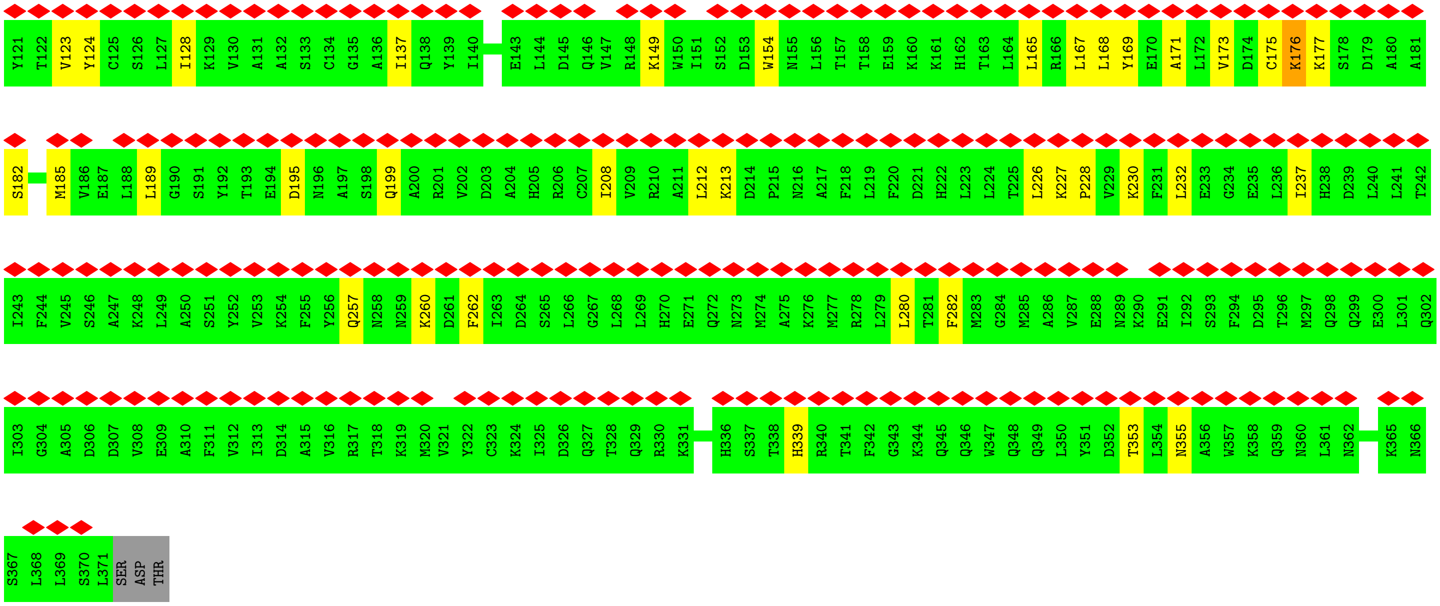
Chain zz:



- Molecule 37: Eukaryotic translation initiation factor 3 subunit M

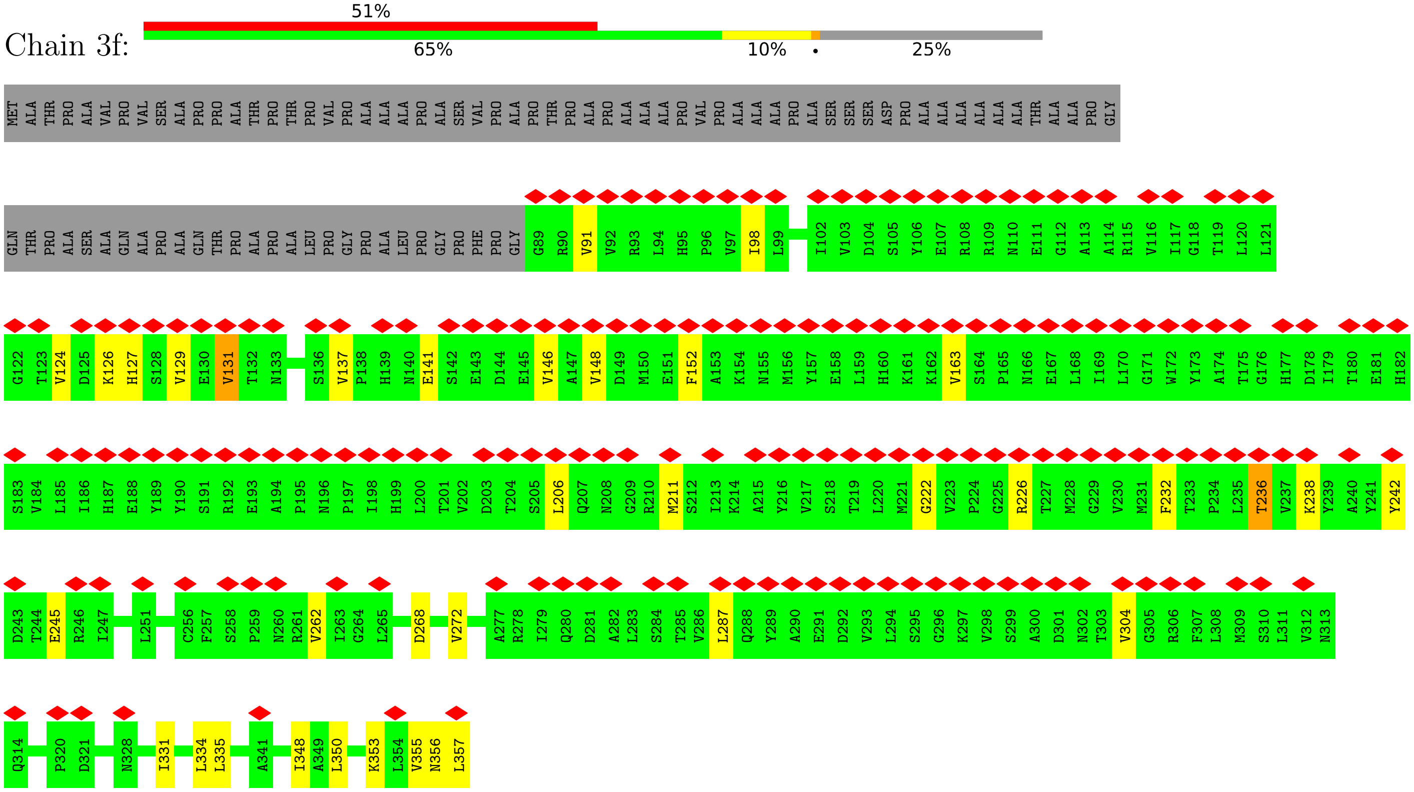
Chain 3m:





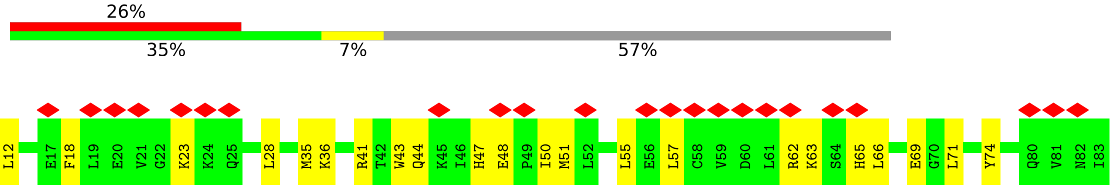
- Molecule 38: Eukaryotic translation initiation factor 3 subunit F

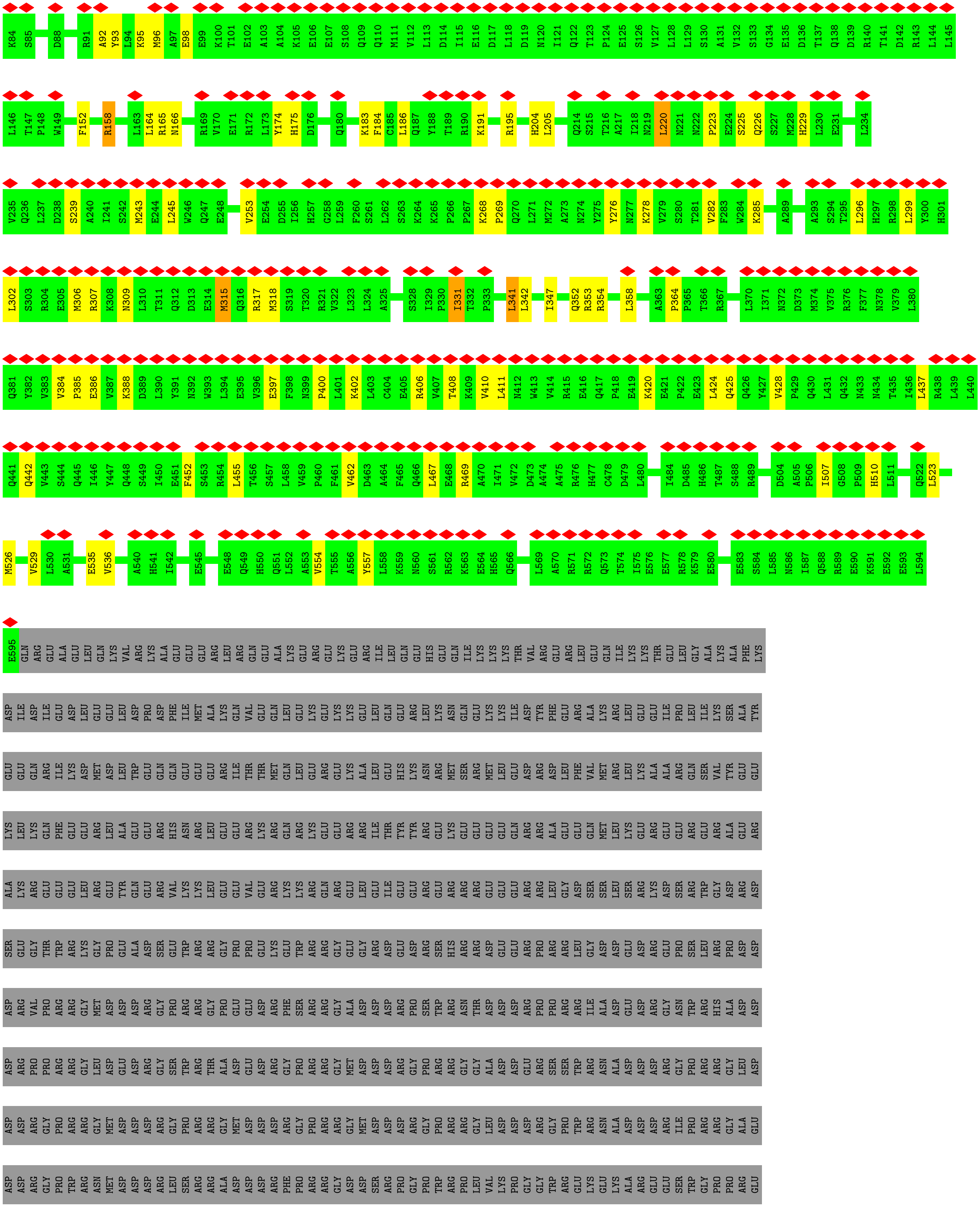
Chain 3f:



- Molecule 39: Eukaryotic translation initiation factor 3 subunit A

Chain 3a:

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L146 T147 P148 W149 F152 R158 L163 L164 R165 N166 R169 V170 E171 R172 L173 Y174 H175 D176 Q180 K183 F184 C185 L186 Q187 Y188 T189 R190 K191 R195 H204 L205 Q214 S215 T216 A217 I218 N219 L220 N221 N222 P223 E224 S225 Q226 S227 M228 H229 L230 E231 L234
V235 Q236 L237 D238 S239 A240 I241 S242 M243 E244 L245 W246 Q247 E248 V253 E254 D255 I256 H257 G258 L259 F260 S261 L262 S263 K264 K265 P266 P267 K268 P269 Q270 L271 M272 A273 N274 Y275 Y276 N277 K278 V279 S280 T281 V282 F283 W284 K285 A289 A293 S294 T295 L296 H297 R298 L299 Y300 H301
L302 S303 R304 E305 M306 R307 K308 N309 L310 T311 Q312 D313 E314 M315 Q316 R317 M318 S319 T320 R321 V322 L323 L324 A325 S328 I329 P330 I331 T332 P333 L341 L342 I347 Q352 R353 R354 L358 A363 P364 P365 T366 R367 L370 I371 N372 D373 M374 V375 R376 F377 N378 V379 L380
Q381 Y382 V383 V384 P385 E386 V387 K388 D389 L390 Y391 N392 W393 L394 E395 V396 E397 F398 N399 P400 L401 K402 L403 C404 E405 R406 V407 T408 K409 V410 L411 N412 W413 V414 R415 E416 Q417 P418 E419 K420 E421 P422 E423 L424 Q425 Q426 Y427 V428 P429 Q430 L431 Q432 N433 N434 T435 I436 L437 R438 L439 L440
Q441 Q442 V443 S444 Q445 I446 Y447 Q448 S449 I450 E451 F452 S453 R454 L455 T456 S457 L458 V459 P460 F461 V462 D463 A464 F465 Q466 L467 E468 R469 A470 I471 V472 D473 A474 A475 R476 H477 C478 D479 L480 I484 D485 H486 T487 S488 R489 D504 A505 P506 I507 G508 P509 H510 L511 Q522 L523
M526 V529 L530 A531 E535 V536 A540 H541 I542 E545 E548 Q549 H550 Q551 L552 A553 V554 T555 A556 Y557 L558 K559 N560 S561 R562 K563 E564 H565 Q566 L569 A570 R571 R572 Q573 T574 I575 E576 E577 R578 K579 E580 E583 S584 L585 N586 I587 Q588 R589 E590 K591 E592 E593 L594
E595 GLN ARG GLU ALA GLU LEU GLN LYS VAL ARG LYS ALA GLU GLU GLU ARG LEU ARG GLN GLU ALA LYS GLU ARG GLU LYS GLU ARG ILE LEU GLN GLU HIS GLU GLN ILE LYS LYS LYS THR VAL ARG GLU ARG LEU GLU GLN ILE LYS LYS THR GLU LEU GLY ALA LYS ALA PHE LYS
ASP ILE ASP ILE GLU ASP LEU GLU GLU LEU ASP PRO ASP PHE ILE MET ALA LYS GLN VAL GLU GLN LEU GLU LYS GLU LYS LYS GLU LEU GLN GLU ARG LEU LYS ASN GLN GLU LYS LYS ILE ASP TYR PHE GLU ARG ALA LYS ARG LEU GLU GLU ILE PRO LEU ILE LYS SER ALA TYR
GLU GLU GLN ARG ILE LYS ASP MET ASP LEU TRP GLU GLN GLN GLU GLU GLU ARG ILE THR THR MET GLN LEU GLU ARG GLU LYS ALA LEU GLU HIS LYS ASN ARG MET SER ARG MET LEU GLU ASP ARG ASP LEU PHE VAL MET ARG LEU LYS ALA ALA ARG GLN SER VAL TYR GLU GLU
LYS LEU LYS GLN PHE GLU GLU ARG LEU ALA GLU GLU ARG HIS ASN ARG LEU GLU GLU ARG LYS ARG GLN ARG LYS GLU GLU ARG ARG ILE THR TYR TYR ARG GLU LYS GLU GLU GLU GLU GLN ARG ARG ALA GLU GLU GLN MET LEU LYS GLU ARG GLU GLU ARG GLU ARG ALA GLU ARG
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SER GLU GLY THR TRP ARG LYS GLY PRO GLU ALA ASP SER GLU TRP ARG ARG GLY PRO PRO GLU LYS GLU TRP ARG ARG GLY GLU GLY ARG ASP GLU ASP ARG SER HIS ARG ARG ASP GLU GLU ARG PRO ARG ARG LEU GLY ASP ASP GLU ASP ARG GLU PRO SER LEU ARG PRO ASP ASP
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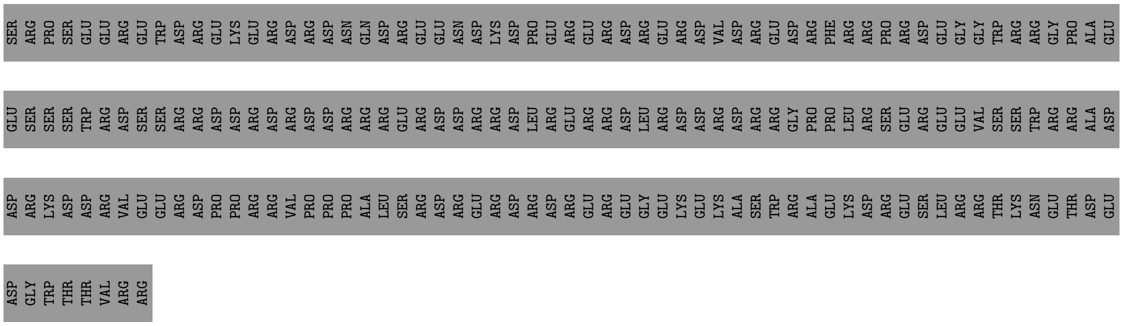
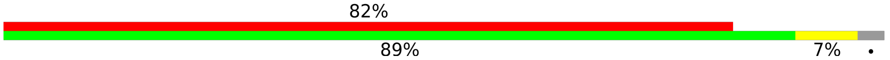
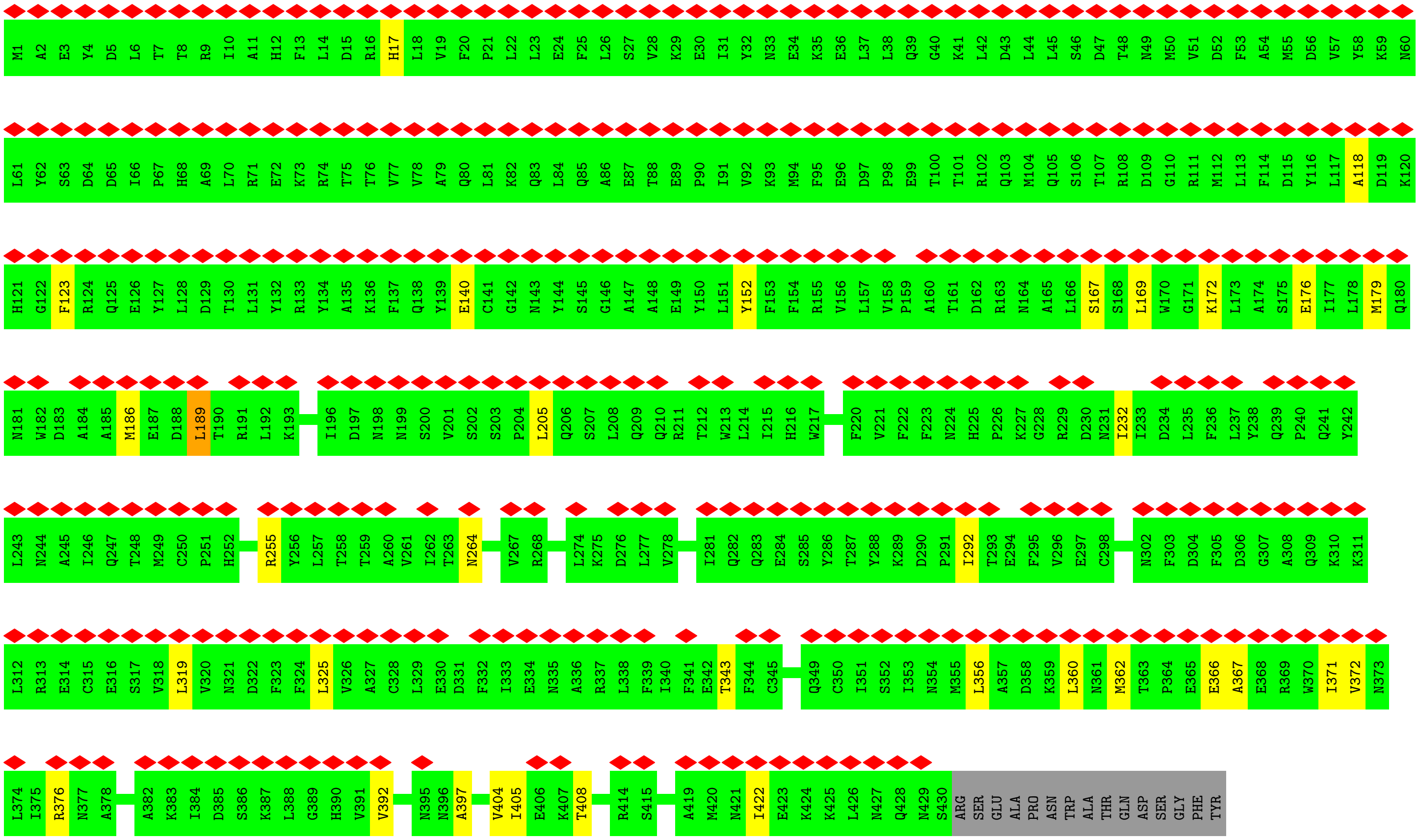


- Molecule 40: Eukaryotic translation initiation factor 3 subunit E

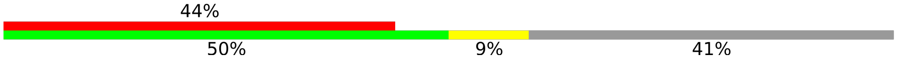
Chain 3e:

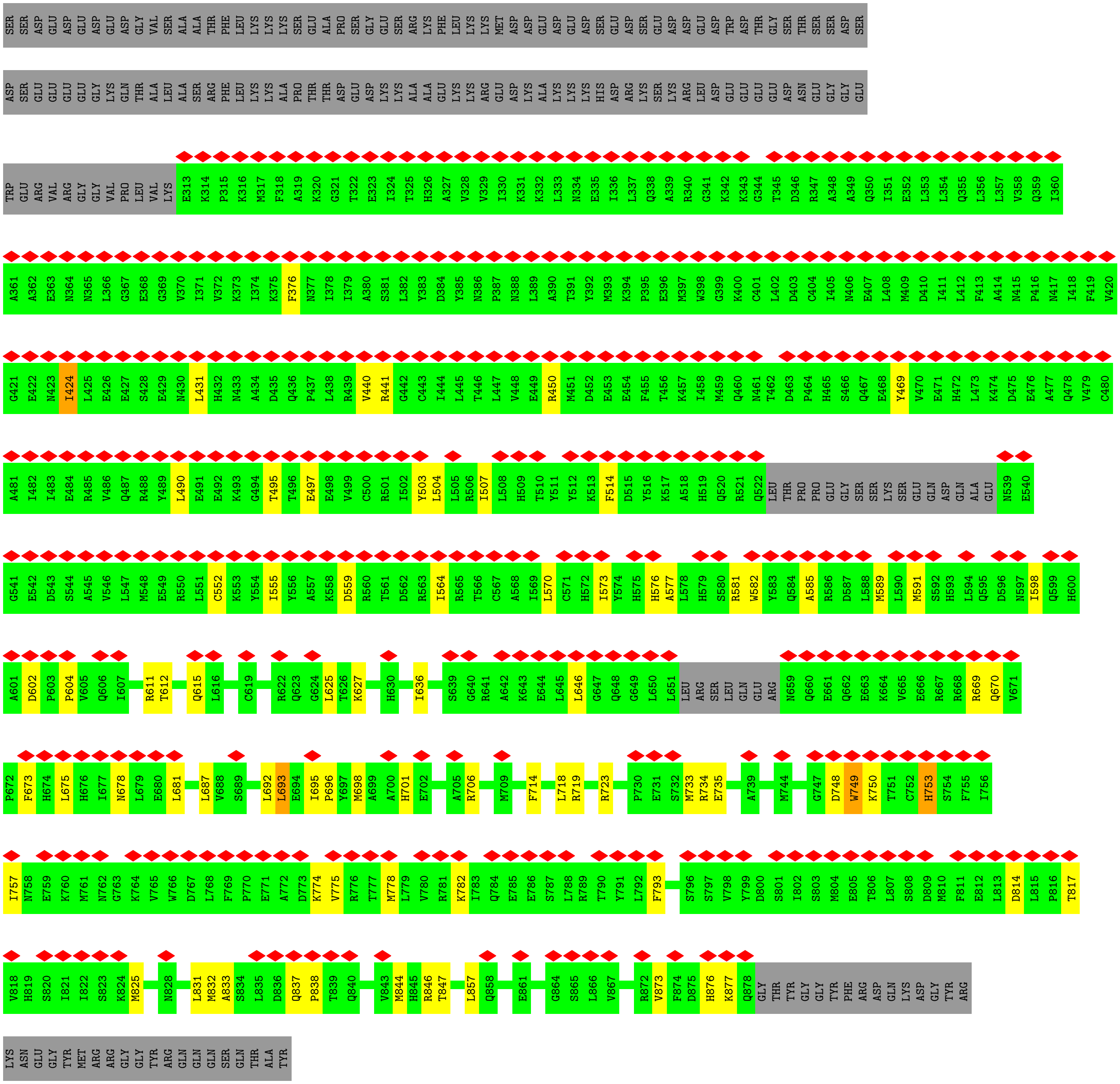




- Molecule 41: Eukaryotic translation initiation factor 3 subunit C

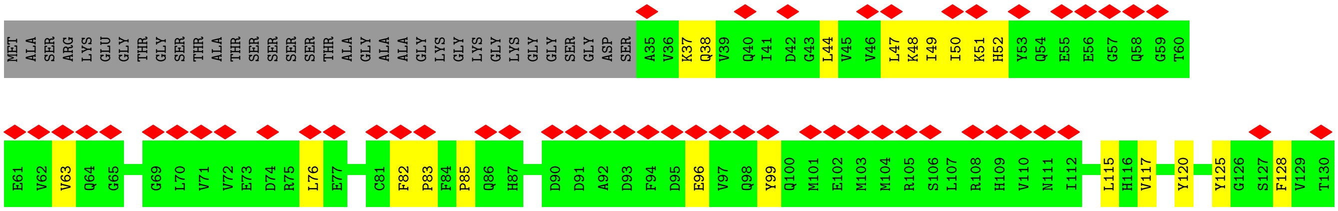
Chain 3c:

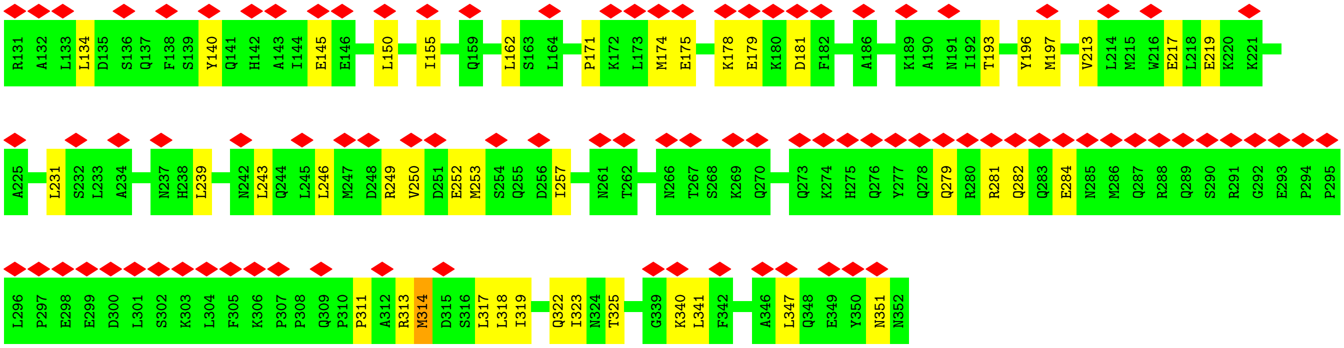




- Molecule 42: Eukaryotic translation initiation factor 3 subunit H

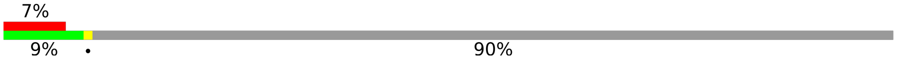
Chain 3h:

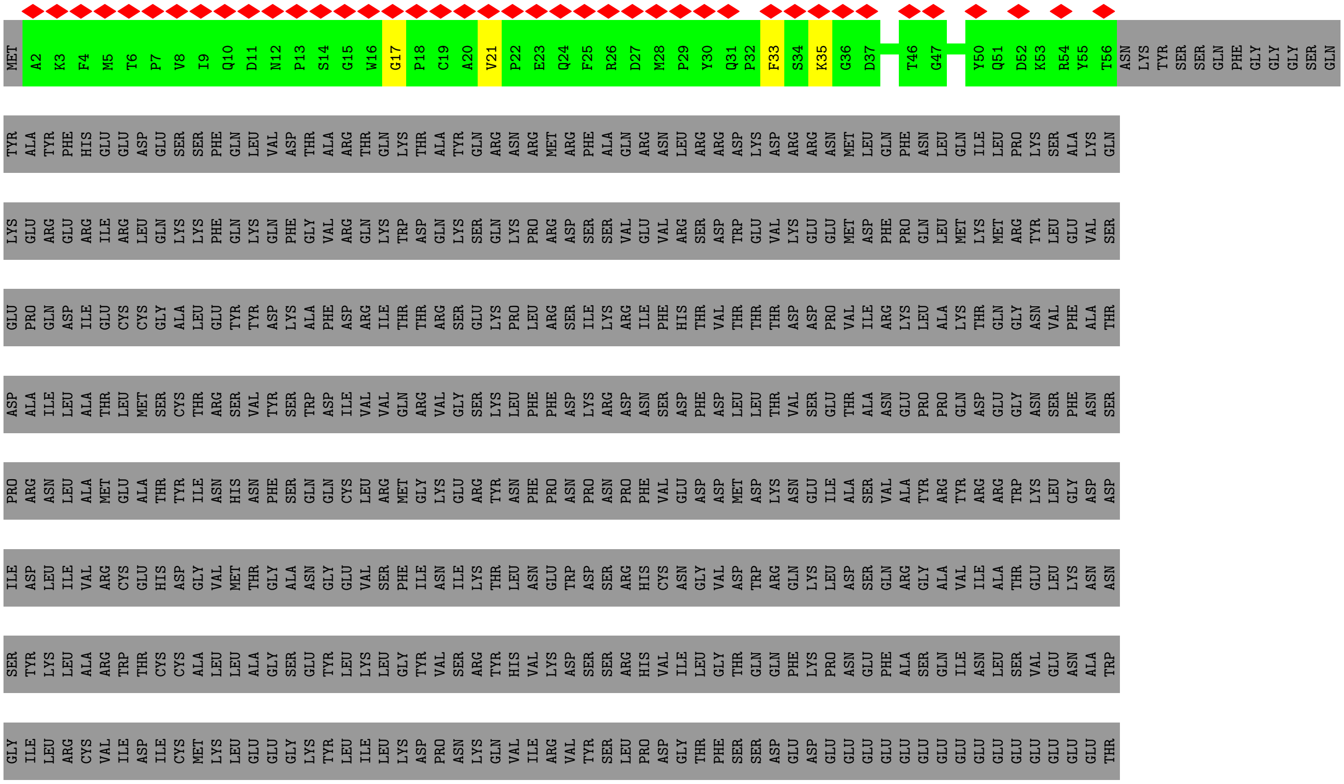




• Molecule 43: Eukaryotic translation initiation factor 3 subunit D

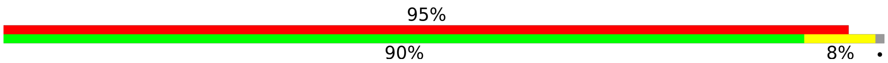
Chain 3d:

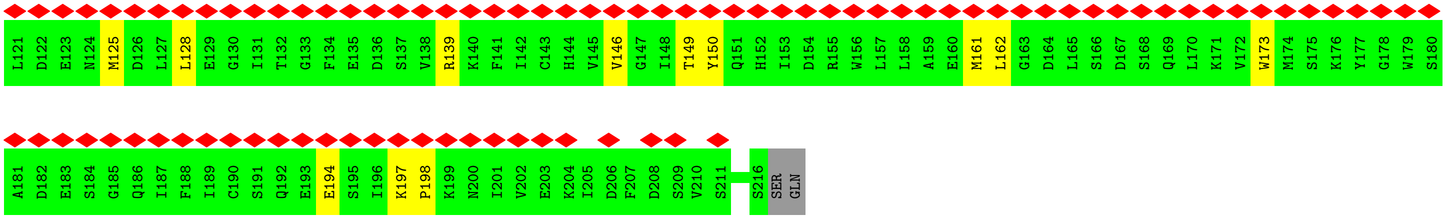




• Molecule 44: Eukaryotic translation initiation factor 3 subunit K

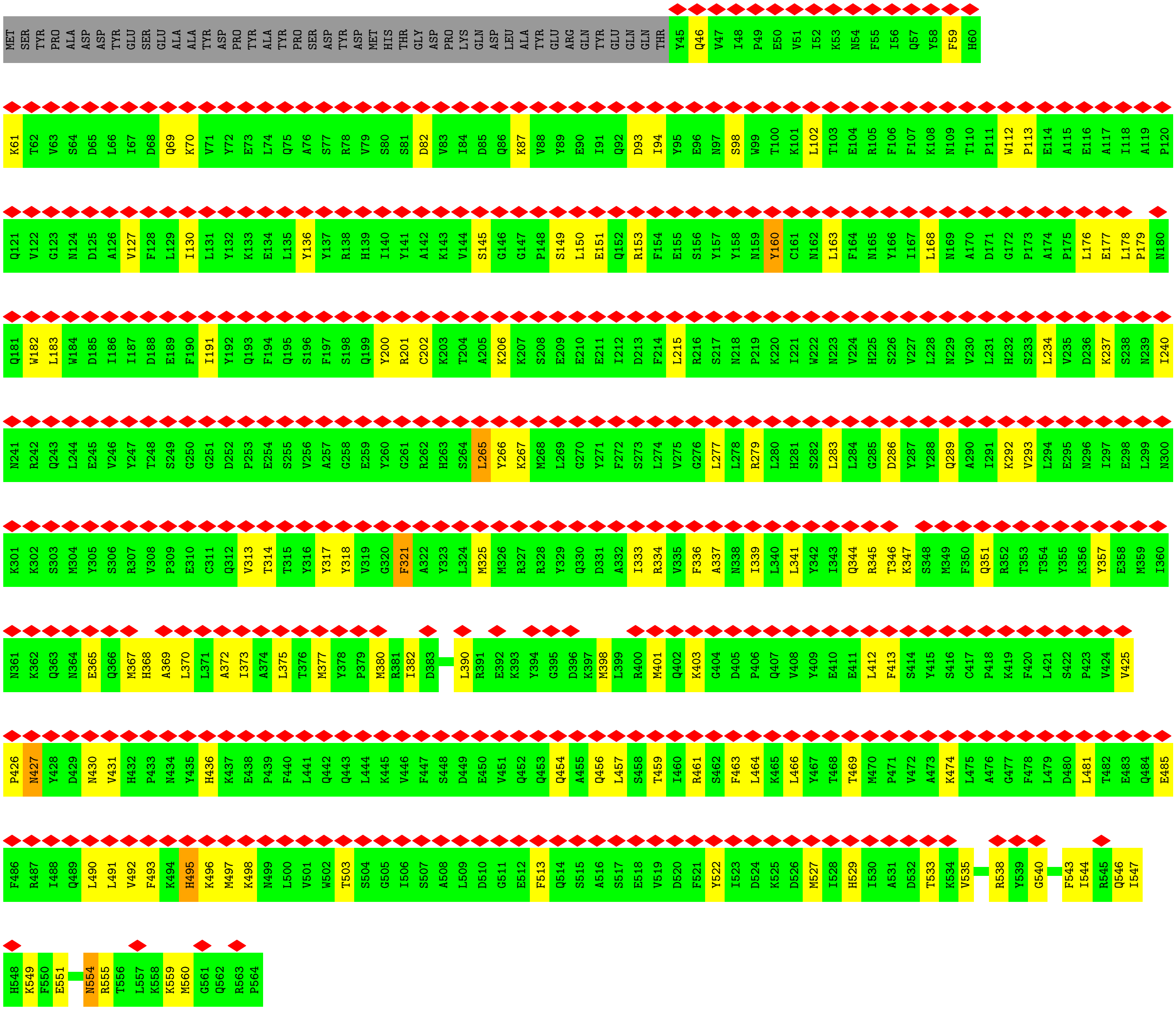
Chain 3k:





- Molecule 45: Eukaryotic translation initiation factor 3 subunit L

Chain 3l:



# 4 Experimental information ⓘ

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 24675 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | NONE | Depositor |
| Microscope | TFS KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose $(e^-/\text{Å}^2)$ | 56.2 | Depositor |
| Minimum defocus (nm) | 1500 | Depositor |
| Maximum defocus (nm) | 3000 | Depositor |
| Magnification | Not provided | |
| Image detector | GATAN K3 (6k x 4k) | Depositor |
| Maximum map value | 0.096 | Depositor |
| Minimum map value | -0.016 | Depositor |
| Average map value | 0.000 | Depositor |
| Map value standard deviation | 0.002 | Depositor |
| Recommended contour level | 0.008 | Depositor |
| Map size (Å) | 636.0, 636.0, 636.0 | wwPDB |
| Map dimensions | 500, 500, 500 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.272, 1.272, 1.272 | Depositor |

# 5 Model quality ⓘ

## 5.1 Standard geometry ⓘ

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

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

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 1 | SA | 0.22 | 0/1742 | 0.37 | 0/2367 |
| 2 | SB | 0.21 | 0/1749 | 0.43 | 0/2340 |
| 3 | SC | 0.23 | 0/1737 | 0.40 | 0/2347 |
| 4 | SD | 0.17 | 0/1784 | 0.34 | 0/2402 |
| 5 | SE | 0.23 | 0/2107 | 0.43 | 1/2836 (0.0%) |
| 6 | SF | 0.23 | 0/1540 | 0.50 | 2/2071 (0.1%) |
| 7 | SG | 0.17 | 0/1946 | 0.34 | 0/2590 |
| 8 | SH | 0.20 | 0/1529 | 0.43 | 0/2048 |
| 9 | SI | 0.20 | 0/1711 | 0.35 | 0/2282 |
| 10 | SJ | 0.22 | 0/1524 | 0.38 | 0/2035 |
| 11 | SK | 0.19 | 0/834 | 0.49 | 0/1125 |
| 12 | SL | 0.24 | 0/1241 | 0.38 | 0/1662 |
| 13 | Sf | 0.19 | 0/945 | 0.53 | 0/1269 |
| 14 | SN | 0.24 | 0/1226 | 0.45 | 0/1649 |
| 15 | SO | 0.22 | 0/1020 | 0.38 | 0/1368 |
| 16 | SP | 0.19 | 0/1003 | 0.49 | 0/1340 |
| 17 | SQ | 0.23 | 0/1133 | 0.51 | 0/1517 |
| 18 | SR | 0.21 | 0/1082 | 0.48 | 0/1452 |
| 19 | SS | 0.17 | 0/1202 | 0.41 | 0/1610 |
| 20 | ST | 0.18 | 0/1122 | 0.37 | 0/1504 |
| 21 | SU | 0.19 | 0/813 | 0.47 | 0/1092 |
| 22 | SV | 0.22 | 0/643 | 0.50 | 0/860 |
| 23 | SW | 0.25 | 0/1051 | 0.36 | 0/1406 |
| 24 | SX | 0.24 | 0/1116 | 0.44 | 0/1490 |
| 25 | SY | 0.20 | 0/1031 | 0.37 | 0/1370 |
| 26 | SZ | 0.22 | 0/607 | 0.52 | 0/815 |
| 27 | Sa | 0.23 | 0/817 | 0.35 | 0/1095 |
| 28 | Sb | 0.21 | 0/665 | 0.41 | 0/891 |
| 29 | Sc | 0.22 | 0/490 | 0.49 | 0/656 |
| 30 | Sd | 0.22 | 0/470 | 0.47 | 0/623 |
| 31 | Se | 0.21 | 0/422 | 0.42 | 0/555 |
| 32 | sh | 0.18 | 0/533 | 0.45 | 0/706 |

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #\|Z\| >5 | RMSZ | #\|Z\| >5 |
| 33 | Sg | 0.17 | 0/2493 | 0.40 | 0/3394 |
| 34 | Ln | 0.22 | 0/231 | 0.59 | 0/294 |
| 35 | S2 | 0.22 | 0/42121 | 0.31 | 0/65651 |
| 36 | zz | 0.16 | 0/7199 | 0.33 | 0/11223 |
| 37 | 3m | 0.12 | 0/2676 | 0.36 | 0/3635 |
| 38 | 3f | 0.12 | 0/2099 | 0.35 | 0/2856 |
| 39 | 3a | 0.14 | 0/4583 | 0.40 | 0/6237 |
| 40 | 3e | 0.12 | 0/3288 | 0.33 | 0/4475 |
| 41 | 3c | 0.14 | 0/3990 | 0.39 | 1/5424 (0.0%) |
| 42 | 3h | 0.13 | 0/2571 | 0.37 | 0/3484 |
| 43 | 3d | 0.11 | 0/358 | 0.30 | 0/493 |
| 44 | 3k | 0.13 | 0/1502 | 0.34 | 0/2052 |
| 45 | 3l | 0.13 | 0/4446 | 0.35 | 0/6013 |
| All | All | 0.20 | 0/114392 | 0.36 | 4/164604 (0.0%) |

There are no bond length outliers.

All (4) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|---|---|---|---|---|---|---|---|
| 41 | 3c | 424 | ILE | N-CA-C | 6.65 | 113.33 | 106.21 |
| 5 | SE | 19 | MET | CB-CG-SD | -5.60 | 95.90 | 112.70 |
| 6 | SF | 78 | MET | CA-C-N | 5.37 | 130.47 | 122.74 |
| 6 | SF | 78 | MET | C-N-CA | 5.37 | 130.47 | 122.74 |

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts (i)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | SA | 1705 | 0 | 1706 | 23 | 0 |
| 2 | SB | 1722 | 0 | 1794 | 15 | 0 |
| 3 | SC | 1700 | 0 | 1784 | 24 | 0 |
| 4 | SD | 1756 | 0 | 1851 | 20 | 0 |
| 5 | SE | 2065 | 0 | 2169 | 19 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 6 | SF | 1518 | 0 | 1569 | 13 | 0 |
| 7 | SG | 1923 | 0 | 2089 | 21 | 0 |
| 8 | SH | 1506 | 0 | 1603 | 19 | 0 |
| 9 | SI | 1682 | 0 | 1769 | 16 | 0 |
| 10 | SJ | 1499 | 0 | 1618 | 7 | 0 |
| 11 | SK | 810 | 0 | 836 | 15 | 0 |
| 12 | SL | 1220 | 0 | 1289 | 9 | 0 |
| 13 | Sf | 935 | 0 | 964 | 18 | 0 |
| 14 | SN | 1202 | 0 | 1289 | 7 | 0 |
| 15 | SO | 1007 | 0 | 1032 | 13 | 0 |
| 16 | SP | 984 | 0 | 1033 | 10 | 0 |
| 17 | SQ | 1116 | 0 | 1185 | 17 | 0 |
| 18 | SR | 1068 | 0 | 1121 | 11 | 0 |
| 19 | SS | 1184 | 0 | 1244 | 14 | 0 |
| 20 | ST | 1103 | 0 | 1133 | 11 | 0 |
| 21 | SU | 803 | 0 | 873 | 9 | 0 |
| 22 | SV | 636 | 0 | 637 | 7 | 0 |
| 23 | SW | 1034 | 0 | 1080 | 6 | 0 |
| 24 | SX | 1098 | 0 | 1167 | 12 | 0 |
| 25 | SY | 1014 | 0 | 1082 | 11 | 0 |
| 26 | SZ | 601 | 0 | 662 | 9 | 0 |
| 27 | Sa | 803 | 0 | 850 | 4 | 0 |
| 28 | Sb | 651 | 0 | 672 | 6 | 0 |
| 29 | Sc | 488 | 0 | 514 | 9 | 0 |
| 30 | Sd | 459 | 0 | 452 | 7 | 0 |
| 31 | Se | 417 | 0 | 463 | 3 | 0 |
| 32 | sh | 522 | 0 | 530 | 9 | 0 |
| 33 | Sg | 2436 | 0 | 2393 | 45 | 0 |
| 34 | Ln | 230 | 0 | 276 | 2 | 0 |
| 35 | S2 | 37669 | 0 | 19037 | 276 | 0 |
| 36 | zz | 6443 | 0 | 3259 | 82 | 0 |
| 37 | 3m | 2639 | 0 | 2442 | 32 | 0 |
| 38 | 3f | 2063 | 0 | 2054 | 28 | 0 |
| 39 | 3a | 4497 | 0 | 4224 | 64 | 0 |
| 40 | 3e | 3224 | 0 | 2925 | 18 | 0 |
| 41 | 3c | 3924 | 0 | 3512 | 51 | 0 |
| 42 | 3h | 2520 | 0 | 2445 | 46 | 0 |
| 43 | 3d | 347 | 0 | 259 | 2 | 0 |
| 44 | 3k | 1475 | 0 | 1239 | 10 | 0 |
| 45 | 3l | 4335 | 0 | 4272 | 76 | 0 |
| 46 | Sa | 1 | 0 | 0 | 0 | 0 |
| 46 | sh | 1 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 47 | S2 | 8 | 0 | 0 | 0 | 0 |
| All | All | 108043 | 0 | 86397 | 1035 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (1035) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 36:zz:61:U:H3 | 36:zz:107:G:H1 | 1.12 | 0.94 |
| 36:zz:145:G:H1 | 36:zz:248:U:H3 | 1.11 | 0.93 |
| 35:S2:172:U:H3 | 35:S2:174:C:H41 | 1.18 | 0.90 |
| 36:zz:52:G:N2 | 36:zz:111:C:O2 | 2.06 | 0.88 |
| 41:3c:573:ILE:HD13 | 41:3c:589:MET:HE3 | 1.60 | 0.82 |
| 35:S2:197:U:H3 | 35:S2:202:G:H1 | 1.36 | 0.74 |
| 24:SX:68:LYS:HB3 | 24:SX:91:LEU:HD12 | 1.69 | 0.73 |
| 17:SQ:108:ILE:HA | 17:SQ:111:ILE:HD12 | 1.70 | 0.73 |
| 20:ST:85:ASN:HB2 | 20:ST:88:MET:HB2 | 1.69 | 0.73 |
| 33:Sg:87:LEU:HB2 | 33:Sg:101:PHE:HB2 | 1.70 | 0.73 |
| 17:SQ:40:GLU:HA | 17:SQ:48:GLN:HE22 | 1.54 | 0.72 |
| 38:3f:206:LEU:HD23 | 39:3a:554:VAL:HG13 | 1.71 | 0.72 |
| 35:S2:1286:G:N2 | 35:S2:1313:A:H62 | 1.88 | 0.71 |
| 35:S2:669:A:H8 | 35:S2:1164:G:HO2' | 1.39 | 0.71 |
| 33:Sg:109:LEU:HD11 | 33:Sg:125:ARG:HG3 | 1.72 | 0.71 |
| 33:Sg:5:MET:HB3 | 33:Sg:270:LEU:HD21 | 1.72 | 0.70 |
| 30:Sd:31:ILE:HG21 | 30:Sd:36:LEU:HD12 | 1.72 | 0.70 |
| 36:zz:259:U:O2 | 36:zz:274:A:N7 | 2.25 | 0.70 |
| 36:zz:193:C:H42 | 36:zz:202:A:H61 | 1.39 | 0.69 |
| 39:3a:47:HIS:HA | 39:3a:50:ILE:HD12 | 1.75 | 0.69 |
| 39:3a:186:LEU:HD21 | 39:3a:239:SER:HA | 1.76 | 0.68 |
| 16:SP:118:GLU:HB2 | 19:SS:120:HIS:H | 1.58 | 0.68 |
| 19:SS:36:VAL:HG23 | 19:SS:40:TYR:HB3 | 1.75 | 0.68 |
| 37:3m:49:CYS:HA | 37:3m:52:CYS:HB3 | 1.76 | 0.67 |
| 35:S2:1756:C:H2' | 35:S2:1757:G:H8 | 1.58 | 0.67 |
| 35:S2:1824:A:H2' | 35:S2:1825:A:H2' | 1.76 | 0.67 |
| 19:SS:130:ARG:HD2 | 19:SS:134:GLN:HE21 | 1.59 | 0.66 |
| 35:S2:1286:G:N2 | 35:S2:1313:A:N6 | 2.43 | 0.66 |
| 13:Sf:93:LYS:HB3 | 13:Sf:102:LYS:HB2 | 1.76 | 0.66 |
| 18:SR:106:LEU:HA | 18:SR:109:LEU:HB2 | 1.76 | 0.66 |
| 35:S2:172:U:H3 | 35:S2:174:C:N4 | 1.90 | 0.66 |
| 42:3h:253:MET:HE3 | 42:3h:319:ILE:HG22 | 1.77 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:SA:34:MET:HE2 | 1:SA:154:LEU:HD21 | 1.78 | 0.66 |
| 36:zz:252:A:H4' | 36:zz:253:G:H5' | 1.78 | 0.65 |
| 42:3h:243:LEU:HD12 | 42:3h:246:LEU:HD21 | 1.77 | 0.65 |
| 36:zz:59:U:H3 | 36:zz:109:A:H62 | 1.44 | 0.64 |
| 4:SD:25:LEU:HD13 | 4:SD:50:ILE:HD11 | 1.79 | 0.64 |
| 35:S2:230:A:H62 | 35:S2:887:U:H3 | 1.44 | 0.64 |
| 10:SJ:79:ARG:HH22 | 10:SJ:83:ARG:HD3 | 1.63 | 0.64 |
| 41:3c:678:ASN:HB3 | 41:3c:681:LEU:HB3 | 1.79 | 0.64 |
| 12:SL:4:ILE:HD11 | 12:SL:55:TYR:HA | 1.80 | 0.63 |
| 35:S2:1286:G:H21 | 35:S2:1313:A:N6 | 1.96 | 0.63 |
| 35:S2:1417:C:H42 | 35:S2:1422:G:H22 | 1.45 | 0.63 |
| 39:3a:385:PRO:HA | 39:3a:388:LYS:HB2 | 1.81 | 0.63 |
| 24:SX:88:ASP:HB3 | 35:S2:617:G:H4' | 1.81 | 0.63 |
| 40:3e:255:ARG:HG3 | 40:3e:292:ILE:HG21 | 1.80 | 0.63 |
| 45:3l:202:CYS:HA | 45:3l:426:PRO:HG2 | 1.81 | 0.63 |
| 35:S2:1536:G:H2' | 35:S2:1537:A:H8 | 1.64 | 0.62 |
| 35:S2:239:C:H42 | 35:S2:278:C:H42 | 1.48 | 0.62 |
| 35:S2:241:G:H22 | 35:S2:276:G:H22 | 1.47 | 0.62 |
| 39:3a:183:LYS:HA | 39:3a:186:LEU:HD12 | 1.82 | 0.62 |
| 2:SB:171:ILE:HD11 | 2:SB:197:ILE:HG12 | 1.82 | 0.62 |
| 37:3m:189:LEU:HG | 37:3m:228:PRO:HG2 | 1.82 | 0.62 |
| 33:Sg:251:ALA:HA | 33:Sg:256:ILE:HG22 | 1.81 | 0.62 |
| 37:3m:189:LEU:HD23 | 37:3m:226:LEU:HD13 | 1.82 | 0.61 |
| 44:3k:71:LEU:HA | 44:3k:74:LEU:HD12 | 1.82 | 0.61 |
| 24:SX:54:LYS:HD3 | 24:SX:91:LEU:HD21 | 1.80 | 0.61 |
| 45:3l:344:GLN:HA | 45:3l:347:LYS:HD2 | 1.82 | 0.61 |
| 15:SO:52:THR:HG21 | 35:S2:952:G:H21 | 1.66 | 0.61 |
| 17:SQ:78:VAL:HG22 | 35:S2:1673:U:H5" | 1.83 | 0.61 |
| 42:3h:197:MET:HE3 | 42:3h:317:LEU:HG | 1.82 | 0.61 |
| 35:S2:698:G:H5' | 35:S2:733:C:H42 | 1.64 | 0.61 |
| 45:3l:337:ALA:HB2 | 45:3l:382:ILE:HD11 | 1.82 | 0.61 |
| 23:SW:8:ALA:HA | 23:SW:74:VAL:HG11 | 1.82 | 0.61 |
| 17:SQ:27:ARG:HA | 17:SQ:66:VAL:HG12 | 1.82 | 0.60 |
| 36:zz:248:U:H2' | 36:zz:249:G:H8 | 1.66 | 0.60 |
| 6:SF:142:SER:HB2 | 29:Sc:50:VAL:HG22 | 1.81 | 0.60 |
| 26:SZ:64:ASN:HA | 26:SZ:111:ARG:HD3 | 1.84 | 0.60 |
| 35:S2:870:A:H4' | 35:S2:871:U:H3' | 1.82 | 0.60 |
| 41:3c:627:LYS:HE3 | 41:3c:693:LEU:HB3 | 1.82 | 0.60 |
| 1:SA:71:PRO:HB3 | 1:SA:186:ARG:HH22 | 1.66 | 0.60 |
| 38:3f:242:TYR:H | 38:3f:245:GLU:HB2 | 1.66 | 0.60 |
| 39:3a:526:MET:HG2 | 42:3h:347:LEU:HD11 | 1.84 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 36:zz:59:U:H3 | 36:zz:109:A:N6 | 2.00 | 0.60 |
| 11:SK:71:LEU:HD12 | 11:SK:76:ILE:HG12 | 1.83 | 0.60 |
| 37:3m:46:ILE:HG13 | 37:3m:89:LYS:HD3 | 1.84 | 0.60 |
| 13:Sf:117:GLU:HG2 | 13:Sf:120:ALA:H | 1.67 | 0.59 |
| 17:SQ:19:ALA:HB2 | 17:SQ:75:GLY:HA3 | 1.83 | 0.59 |
| 3:SC:167:ARG:HB3 | 3:SC:177:PRO:HB2 | 1.84 | 0.59 |
| 35:S2:1723:G:H2' | 35:S2:1724:A:H8 | 1.67 | 0.59 |
| 45:3l:191:ILE:HG21 | 45:3l:279:ARG:HD3 | 1.83 | 0.59 |
| 36:zz:118:G:H3' | 36:zz:119:A:H8 | 1.68 | 0.59 |
| 38:3f:163:VAL:HG22 | 42:3h:85:PRO:HG3 | 1.84 | 0.59 |
| 39:3a:276:TYR:HE2 | 39:3a:302:LEU:HD12 | 1.68 | 0.59 |
| 40:3e:176:GLU:HA | 40:3e:179:MET:HE2 | 1.85 | 0.59 |
| 1:SA:184:ARG:HD2 | 1:SA:191:ARG:HG2 | 1.83 | 0.59 |
| 36:zz:61:U:O2 | 36:zz:107:G:N2 | 2.28 | 0.58 |
| 42:3h:311:PRO:HG2 | 42:3h:313:ARG:HH12 | 1.67 | 0.58 |
| 35:S2:844:U:H2' | 35:S2:845:G:H8 | 1.68 | 0.58 |
| 41:3c:775:VAL:HA | 41:3c:778:MET:HE2 | 1.86 | 0.58 |
| 16:SP:52:LYS:HE2 | 16:SP:80:LEU:HD21 | 1.85 | 0.58 |
| 9:SI:141:ARG:HB3 | 9:SI:145:ILE:HB | 1.86 | 0.58 |
| 35:S2:1536:G:H2' | 35:S2:1537:A:C8 | 2.39 | 0.58 |
| 37:3m:257:GLN:HA | 37:3m:260:LYS:HE3 | 1.85 | 0.58 |
| 41:3c:495:THR:HG22 | 41:3c:497:GLU:H | 1.67 | 0.58 |
| 41:3c:844:MET:HG2 | 41:3c:846:ARG:H | 1.68 | 0.57 |
| 19:SS:16:LEU:HD23 | 19:SS:100:ALA:HB2 | 1.86 | 0.57 |
| 35:S2:546:G:H4' | 35:S2:547:G:H5' | 1.86 | 0.57 |
| 38:3f:357:LEU:HD11 | 40:3e:422:ILE:HD11 | 1.87 | 0.57 |
| 35:S2:1174:U:H2' | 35:S2:1175:G:H8 | 1.68 | 0.57 |
| 44:3k:43:ASP:H | 44:3k:72:LYS:HD2 | 1.69 | 0.57 |
| 35:S2:1183:A:H2' | 35:S2:1184:G:H8 | 1.68 | 0.57 |
| 38:3f:331:ILE:HG13 | 42:3h:341:LEU:HD13 | 1.85 | 0.57 |
| 6:SF:59:LYS:HD2 | 6:SF:62:ARG:HH21 | 1.69 | 0.57 |
| 13:Sf:85:LEU:HA | 13:Sf:88:TRP:HB2 | 1.85 | 0.57 |
| 42:3h:44:LEU:HD12 | 42:3h:47:LEU:HD11 | 1.87 | 0.57 |
| 35:S2:1189:A:H2' | 35:S2:1190:A:H8 | 1.69 | 0.56 |
| 36:zz:98:G:H2' | 36:zz:99:A:C8 | 2.40 | 0.56 |
| 38:3f:206:LEU:HD21 | 42:3h:213:VAL:HG11 | 1.85 | 0.56 |
| 21:SU:98:VAL:HA | 21:SU:101:ILE:HD12 | 1.85 | 0.56 |
| 39:3a:195:ARG:HH21 | 39:3a:245:LEU:HD13 | 1.69 | 0.56 |
| 15:SO:143:LYS:HG2 | 35:S2:1047:C:H5" | 1.86 | 0.56 |
| 29:Sc:12:ALA:HB1 | 29:Sc:32:VAL:HB | 1.88 | 0.56 |
| 33:Sg:111:VAL:HG12 | 33:Sg:122:SER:HA | 1.87 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:851:C:H5” | 35:S2:852:G:H5’ | 1.88 | 0.56 |
| 45:3l:498:LYS:HG2 | 45:3l:513:PHE:HB3 | 1.88 | 0.56 |
| 35:S2:1723:G:H2’ | 35:S2:1724:A:C8 | 2.40 | 0.56 |
| 28:Sb:67:THR:HG23 | 28:Sb:69:GLY:H | 1.71 | 0.56 |
| 29:Sc:17:VAL:HA | 29:Sc:30:VAL:HG12 | 1.88 | 0.56 |
| 5:SE:107:GLY:HA2 | 5:SE:189:LEU:HB3 | 1.88 | 0.56 |
| 45:3l:313:VAL:HA | 45:3l:339:ILE:HD11 | 1.88 | 0.56 |
| 10:SJ:60:LEU:HA | 10:SJ:63:LEU:HD12 | 1.88 | 0.56 |
| 30:Sd:50:ILE:HD12 | 30:Sd:50:ILE:H | 1.70 | 0.56 |
| 31:Se:39:ASN:HA | 31:Se:43:VAL:HG12 | 1.87 | 0.56 |
| 35:S2:1513:C:H2’ | 35:S2:1514:G:H8 | 1.71 | 0.56 |
| 37:3m:113:MET:HE1 | 37:3m:123:VAL:HG21 | 1.88 | 0.56 |
| 3:SC:70:VAL:HG11 | 3:SC:93:ILE:HG23 | 1.88 | 0.55 |
| 35:S2:907:G:H2’ | 35:S2:908:A:C8 | 2.40 | 0.55 |
| 40:3e:376:ARG:HG2 | 45:3l:466:LEU:HD11 | 1.87 | 0.55 |
| 45:3l:461:ARG:HA | 45:3l:464:LEU:HB2 | 1.88 | 0.55 |
| 4:SD:106:ARG:HG3 | 4:SD:175:VAL:HG22 | 1.87 | 0.55 |
| 9:SI:142:SER:H | 9:SI:145:ILE:HD12 | 1.71 | 0.55 |
| 18:SR:100:PRO:HD3 | 18:SR:119:VAL:HG13 | 1.87 | 0.55 |
| 11:SK:3:MET:HE1 | 11:SK:8:ARG:HG2 | 1.88 | 0.55 |
| 17:SQ:102:GLU:HA | 17:SQ:105:LYS:HB3 | 1.87 | 0.55 |
| 35:S2:736:C:H2’ | 35:S2:737:G:C8 | 2.42 | 0.55 |
| 45:3l:454:GLN:HA | 45:3l:457:LEU:HD13 | 1.88 | 0.55 |
| 9:SI:57:ALA:HB2 | 9:SI:183:GLY:HA2 | 1.87 | 0.55 |
| 36:zz:336:U:HO2’ | 36:zz:337:G:H8 | 1.54 | 0.55 |
| 39:3a:205:LEU:HD21 | 39:3a:229:HIS:HE2 | 1.70 | 0.55 |
| 35:S2:649:U:H2’ | 35:S2:650:A:H8 | 1.71 | 0.55 |
| 4:SD:15:GLY:HA3 | 30:Sd:50:ILE:HG23 | 1.88 | 0.55 |
| 35:S2:186:C:H2’ | 35:S2:187:G:H8 | 1.72 | 0.55 |
| 2:SB:62:LEU:HA | 2:SB:65:ARG:HE | 1.72 | 0.55 |
| 35:S2:1228:A:H2’ | 35:S2:1229:G:C8 | 2.42 | 0.55 |
| 36:zz:259:U:C2 | 36:zz:274:A:N7 | 2.75 | 0.55 |
| 37:3m:14:GLN:HE21 | 38:3f:226:ARG:HH21 | 1.55 | 0.55 |
| 36:zz:51:G:O6 | 36:zz:113:U:O4 | 2.24 | 0.55 |
| 15:SO:34:PHE:HB3 | 15:SO:41:PHE:HB2 | 1.89 | 0.55 |
| 35:S2:874:G:H2’ | 35:S2:875:A:H8 | 1.70 | 0.55 |
| 35:S2:1714:U:H2’ | 35:S2:1715:A:C8 | 2.42 | 0.55 |
| 39:3a:48:GLU:HA | 39:3a:51:MET:HE1 | 1.89 | 0.55 |
| 42:3h:281:ARG:HA | 42:3h:284:GLU:HB3 | 1.88 | 0.55 |
| 42:3h:175:GLU:HA | 42:3h:178:LYS:HE2 | 1.89 | 0.54 |
| 45:3l:150:LEU:HA | 45:3l:153:ARG:HE | 1.73 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 29:Sc:46:VAL:HG21 | 29:Sc:50:VAL:HG21 | 1.89 | 0.54 |
| 39:3a:341:LEU:HG | 41:3c:698:MET:HG3 | 1.89 | 0.54 |
| 33:Sg:125:ARG:HA | 33:Sg:150:TRP:HB3 | 1.89 | 0.54 |
| 39:3a:353:ARG:HH21 | 39:3a:354:ARG:HB3 | 1.72 | 0.54 |
| 45:3l:535:VAL:HG12 | 45:3l:538:ARG:H | 1.72 | 0.54 |
| 4:SD:161:GLY:HA3 | 35:S2:1388:A:H61 | 1.71 | 0.54 |
| 35:S2:28:U:H2' | 35:S2:29:G:H8 | 1.73 | 0.54 |
| 35:S2:1677:U:H2' | 35:S2:1678:A:H8 | 1.72 | 0.54 |
| 7:SG:2:LYS:HB3 | 7:SG:15:LEU:HD11 | 1.89 | 0.54 |
| 23:SW:3:ARG:HD3 | 23:SW:6:VAL:HG23 | 1.89 | 0.54 |
| 35:S2:1756:C:H2' | 35:S2:1757:G:C8 | 2.42 | 0.54 |
| 35:S2:746:C:H1' | 35:S2:747:U:H5 | 1.71 | 0.54 |
| 35:S2:960:U:H1' | 35:S2:963:A:H62 | 1.73 | 0.54 |
| 35:S2:792:C:H2' | 35:S2:793:G:C8 | 2.43 | 0.54 |
| 35:S2:1228:A:H2' | 35:S2:1229:G:H8 | 1.72 | 0.54 |
| 41:3c:573:ILE:HG13 | 41:3c:585:ALA:HB1 | 1.90 | 0.54 |
| 44:3k:146:VAL:HA | 44:3k:149:THR:HG22 | 1.90 | 0.54 |
| 13:Sf:56:CYS:HB2 | 13:Sf:61:TYR:HD2 | 1.73 | 0.53 |
| 36:zz:240:C:H2' | 36:zz:241:G:C8 | 2.44 | 0.53 |
| 16:SP:51:ARG:HH21 | 16:SP:55:SER:HB2 | 1.74 | 0.53 |
| 33:Sg:127:LYS:HG2 | 33:Sg:149:GLU:HA | 1.90 | 0.53 |
| 39:3a:307:ARG:HH22 | 39:3a:315:MET:HE2 | 1.73 | 0.53 |
| 41:3c:833:ALA:HA | 41:3c:844:MET:HA | 1.90 | 0.53 |
| 42:3h:120:TYR:HB2 | 42:3h:150:LEU:HD22 | 1.90 | 0.53 |
| 45:3l:179:PRO:HD2 | 45:3l:182:TRP:HE3 | 1.73 | 0.53 |
| 38:3f:98:ILE:HD12 | 38:3f:131:VAL:HG13 | 1.89 | 0.53 |
| 13:Sf:22:LEU:HD21 | 13:Sf:89:VAL:HA | 1.90 | 0.53 |
| 17:SQ:31:LEU:HB3 | 17:SQ:67:ASP:HB2 | 1.91 | 0.53 |
| 35:S2:1232:U:H2' | 35:S2:1233:G:H8 | 1.73 | 0.53 |
| 36:zz:175:U:H3' | 36:zz:176:G:H8 | 1.74 | 0.53 |
| 38:3f:304:VAL:HG22 | 39:3a:536:VAL:HG12 | 1.91 | 0.53 |
| 39:3a:93:TYR:HA | 39:3a:96:MET:HE2 | 1.91 | 0.53 |
| 44:3k:161:MET:HE3 | 44:3k:162:LEU:HB3 | 1.90 | 0.53 |
| 15:SO:31:CYS:HB2 | 15:SO:44:VAL:HG22 | 1.91 | 0.53 |
| 15:SO:147:ARG:HB2 | 15:SO:150:ARG:HH11 | 1.74 | 0.53 |
| 38:3f:124:VAL:HG23 | 38:3f:129:VAL:HG23 | 1.91 | 0.53 |
| 2:SB:136:ARG:HB2 | 2:SB:218:LEU:HD21 | 1.91 | 0.53 |
| 6:SF:50:PRO:HB3 | 6:SF:69:VAL:HG23 | 1.90 | 0.53 |
| 12:SL:139:ARG:HD3 | 35:S2:352:U:H5" | 1.91 | 0.53 |
| 18:SR:8:THR:HG21 | 35:S2:1387:G:H21 | 1.73 | 0.53 |
| 20:ST:14:PHE:HE1 | 20:ST:135:ALA:HB2 | 1.74 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:1545:A:H2' | 35:S2:1546:G:C8 | 2.44 | 0.53 |
| 3:SC:114:LYS:HE3 | 35:S2:1358:U:H5' | 1.89 | 0.53 |
| 5:SE:192:ILE:HB | 5:SE:243:GLY:HA3 | 1.91 | 0.53 |
| 36:zz:73:A:H2' | 36:zz:74:A:H8 | 1.73 | 0.53 |
| 35:S2:1628:C:H2' | 35:S2:1629:C:H6 | 1.74 | 0.53 |
| 1:SA:25:LEU:HD12 | 1:SA:46:ILE:HG21 | 1.91 | 0.52 |
| 11:SK:80:ARG:HH12 | 11:SK:89:ILE:HG23 | 1.74 | 0.52 |
| 33:Sg:87:LEU:HD21 | 33:Sg:111:VAL:HG11 | 1.90 | 0.52 |
| 19:SS:138:THR:HA | 19:SS:141:ARG:HH21 | 1.73 | 0.52 |
| 35:S2:5:U:H2' | 35:S2:6:G:H8 | 1.73 | 0.52 |
| 39:3a:296:LEU:HA | 39:3a:299:LEU:HD13 | 1.92 | 0.52 |
| 44:3k:198:PRO:HB3 | 45:3l:533:THR:HG23 | 1.91 | 0.52 |
| 36:zz:125:C:H2' | 36:zz:126:C:C6 | 2.44 | 0.52 |
| 39:3a:12:LEU:HD21 | 39:3a:50:ILE:HA | 1.90 | 0.52 |
| 29:Sc:66:ARG:HB2 | 36:zz:334:C:H41 | 1.75 | 0.52 |
| 35:S2:1813:A:H3' | 35:S2:1814:G:H8 | 1.74 | 0.52 |
| 37:3m:165:LEU:HA | 37:3m:168:LEU:HD12 | 1.91 | 0.52 |
| 5:SE:72:ILE:HG12 | 5:SE:90:ILE:HD13 | 1.91 | 0.52 |
| 41:3c:636:ILE:HD11 | 41:3c:646:LEU:HD21 | 1.91 | 0.52 |
| 42:3h:134:LEU:HD22 | 42:3h:318:LEU:HD11 | 1.91 | 0.52 |
| 7:SG:22:ARG:HA | 7:SG:25:ARG:HE | 1.74 | 0.52 |
| 36:zz:65:C:H2' | 36:zz:66:A:H8 | 1.74 | 0.52 |
| 35:S2:388:U:H2' | 35:S2:389:A:H8 | 1.75 | 0.52 |
| 35:S2:1288:U:H3 | 35:S2:1311:C:H42 | 1.56 | 0.52 |
| 35:S2:1842:C:H2' | 35:S2:1843:G:H8 | 1.74 | 0.52 |
| 36:zz:65:C:H2' | 36:zz:66:A:C8 | 2.45 | 0.52 |
| 45:3l:201:ARG:HD3 | 45:3l:425:VAL:HA | 1.92 | 0.52 |
| 1:SA:18:PHE:CZ | 1:SA:177:MET:HE1 | 2.45 | 0.52 |
| 8:SH:160:LYS:HE2 | 8:SH:189:PHE:HB3 | 1.92 | 0.52 |
| 20:ST:4:VAL:HG11 | 20:ST:136:GLY:HA2 | 1.91 | 0.52 |
| 35:S2:595:U:H2' | 35:S2:596:U:C6 | 2.45 | 0.52 |
| 12:SL:33:LEU:HD23 | 12:SL:34:PRO:HD2 | 1.91 | 0.52 |
| 33:Sg:101:PHE:HE1 | 33:Sg:136:GLY:HA2 | 1.75 | 0.52 |
| 35:S2:1776:G:H2' | 35:S2:1777:G:H4' | 1.91 | 0.52 |
| 42:3h:44:LEU:HG | 42:3h:48:LYS:HE3 | 1.91 | 0.52 |
| 3:SC:209:VAL:HG21 | 3:SC:233:LEU:HD21 | 1.91 | 0.52 |
| 22:SV:14:PRO:HG2 | 22:SV:23:ILE:HD11 | 1.92 | 0.52 |
| 35:S2:1101:U:H2' | 35:S2:1102:G:C8 | 2.45 | 0.52 |
| 40:3e:397:ALA:HB1 | 41:3c:847:THR:HG21 | 1.92 | 0.52 |
| 41:3c:687:LEU:HD12 | 41:3c:733:MET:HE1 | 1.92 | 0.52 |
| 7:SG:31:ARG:HH12 | 35:S2:1745:A:H4' | 1.74 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:791:C:H2’ | 35:S2:792:C:C6 | 2.45 | 0.51 |
| 36:zz:185:A:H1’ | 36:zz:186:C:H5 | 1.75 | 0.51 |
| 36:zz:206:A:H1’ | 36:zz:207:C:H5’ | 1.92 | 0.51 |
| 38:3f:335:LEU:HD12 | 45:3l:544:ILE:HD11 | 1.93 | 0.51 |
| 35:S2:885:U:H3 | 35:S2:901:G:H22 | 1.59 | 0.51 |
| 39:3a:223:PRO:HA | 39:3a:226:GLN:HB2 | 1.91 | 0.51 |
| 3:SC:102:LEU:HD12 | 3:SC:130:ILE:HG12 | 1.91 | 0.51 |
| 16:SP:96:VAL:HG11 | 16:SP:116:LEU:HB3 | 1.91 | 0.51 |
| 33:Sg:89:LEU:HD13 | 33:Sg:99:ARG:HB3 | 1.93 | 0.51 |
| 35:S2:146:G:H1 | 35:S2:173:A:H61 | 1.58 | 0.51 |
| 35:S2:587:A:H5’ | 35:S2:592:C:H41 | 1.74 | 0.51 |
| 1:SA:7:VAL:HG13 | 1:SA:8:LEU:HD12 | 1.91 | 0.51 |
| 35:S2:898:U:H2’ | 35:S2:899:U:H6 | 1.75 | 0.51 |
| 35:S2:1098:C:H2’ | 35:S2:1099:G:C8 | 2.45 | 0.51 |
| 24:SX:101:LEU:HB3 | 24:SX:124:LYS:HB2 | 1.92 | 0.51 |
| 45:3l:469:THR:HA | 45:3l:527:MET:HE1 | 1.92 | 0.51 |
| 35:S2:981:A:H2’ | 35:S2:982:G:C8 | 2.45 | 0.51 |
| 35:S2:746:C:H4’ | 35:S2:747:U:H5’ | 1.92 | 0.51 |
| 35:S2:1531:A:H2’ | 35:S2:1532:C:C6 | 2.45 | 0.51 |
| 32:sh:121:CYS:HB3 | 32:sh:130:VAL:HG23 | 1.92 | 0.51 |
| 35:S2:1317:C:H2’ | 35:S2:1318:G:H8 | 1.76 | 0.51 |
| 35:S2:1844:U:H2’ | 35:S2:1845:A:C8 | 2.46 | 0.51 |
| 36:zz:141:U:H2’ | 36:zz:142:A:H8 | 1.75 | 0.51 |
| 39:3a:462:VAL:HG21 | 39:3a:467:LEU:HD13 | 1.92 | 0.51 |
| 45:3l:279:ARG:HG3 | 45:3l:318:TYR:CZ | 2.45 | 0.51 |
| 15:SO:44:VAL:HG12 | 15:SO:53:ILE:HB | 1.93 | 0.51 |
| 22:SV:81:LYS:N | 22:SV:81:LYS:HE2 | 2.26 | 0.51 |
| 35:S2:866:U:H2’ | 35:S2:867:G:C8 | 2.46 | 0.51 |
| 35:S2:877:C:H2’ | 35:S2:878:G:C8 | 2.45 | 0.51 |
| 37:3m:355:ASN:HA | 38:3f:287:LEU:HD11 | 1.92 | 0.51 |
| 38:3f:357:LEU:HD22 | 41:3c:877:LYS:HD2 | 1.92 | 0.51 |
| 23:SW:34:ILE:O | 23:SW:38:LEU:HD12 | 2.11 | 0.51 |
| 36:zz:220:U:H2’ | 36:zz:221:G:C8 | 2.46 | 0.51 |
| 37:3m:57:ASP:HA | 37:3m:101:LEU:HD11 | 1.91 | 0.51 |
| 45:3l:546:GLN:HA | 45:3l:549:LYS:HE2 | 1.93 | 0.51 |
| 35:S2:388:U:H2’ | 35:S2:389:A:C8 | 2.45 | 0.50 |
| 35:S2:1588:A:H2’ | 35:S2:1589:A:C8 | 2.45 | 0.50 |
| 36:zz:259:U:N3 | 36:zz:274:A:C8 | 2.73 | 0.50 |
| 36:zz:262:U:H2’ | 36:zz:263:G:C8 | 2.46 | 0.50 |
| 39:3a:55:LEU:HD13 | 39:3a:93:TYR:HB2 | 1.93 | 0.50 |
| 1:SA:119:PRO:HG2 | 1:SA:142:LEU:HD21 | 1.94 | 0.50 |

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| **Atom-1** | **Atom-2** | **Interatomic distance (Å)** | **Clash overlap (Å)** |
|---|---|---|---|
| 18:SR:28:PHE:HA | 18:SR:55:THR:HG21 | 1.93 | 0.50 |
| 35:S2:959:G:H2’ | 35:S2:960:U:C6 | 2.46 | 0.50 |
| 35:S2:1420:G:H21 | 35:S2:1421:A:H1’ | 1.76 | 0.50 |
| 35:S2:1764:G:O6 | 35:S2:1768:A:N7 | 2.44 | 0.50 |
| 45:3l:177:GLU:HA | 45:3l:265:LEU:HG | 1.93 | 0.50 |
| 45:3l:351:GLN:HA | 45:3l:357:TYR:HB2 | 1.93 | 0.50 |
| 1:SA:77:ILE:HG13 | 1:SA:99:ILE:HB | 1.93 | 0.50 |
| 8:SH:61:ILE:HG23 | 8:SH:93:VAL:HG23 | 1.94 | 0.50 |
| 33:Sg:125:ARG:HG2 | 33:Sg:150:TRP:CG | 2.47 | 0.50 |
| 33:Sg:238:ALA:H | 33:Sg:251:ALA:HB3 | 1.75 | 0.50 |
| 35:S2:538:U:H2’ | 35:S2:539:C:O4’ | 2.12 | 0.50 |
| 36:zz:185:A:H1’ | 36:zz:186:C:C5 | 2.47 | 0.50 |
| 17:SQ:74:GLY:HA2 | 35:S2:1545:A:H4’ | 1.92 | 0.50 |
| 37:3m:137:ILE:HD11 | 37:3m:175:CYS:HB2 | 1.93 | 0.50 |
| 45:3l:318:TYR:HA | 45:3l:321:PHE:HB2 | 1.93 | 0.50 |
| 45:3l:551:GLU:HB3 | 45:3l:555:ARG:HH21 | 1.77 | 0.50 |
| 13:Sf:66:GLU:HG3 | 13:Sf:76:LEU:HD13 | 1.92 | 0.50 |
| 24:SX:90:CYS:HA | 24:SX:93:PHE:HD2 | 1.76 | 0.50 |
| 36:zz:164:U:H1’ | 36:zz:165:A:C5 | 2.46 | 0.50 |
| 37:3m:68:VAL:HG13 | 37:3m:109:LEU:HG | 1.93 | 0.50 |
| 42:3h:231:LEU:HA | 42:3h:340:LYS:HD2 | 1.92 | 0.50 |
| 45:3l:70:LYS:HD3 | 45:3l:177:GLU:HG3 | 1.93 | 0.50 |
| 4:SD:55:THR:HA | 4:SD:58:VAL:HG22 | 1.92 | 0.50 |
| 33:Sg:269:GLU:HG2 | 33:Sg:271:LYS:NZ | 2.27 | 0.50 |
| 33:Sg:313:THR:HG22 | 33:Sg:314:ILE:HD12 | 1.94 | 0.50 |
| 40:3e:118:ALA:HA | 40:3e:123:PHE:H | 1.76 | 0.50 |
| 45:3l:345:ARG:HG3 | 45:3l:346:THR:HG23 | 1.92 | 0.50 |
| 3:SC:88:ILE:HD11 | 3:SC:93:ILE:HB | 1.94 | 0.50 |
| 3:SC:191:VAL:HG11 | 3:SC:236:PHE:HA | 1.94 | 0.50 |
| 3:SC:204:ILE:HD13 | 3:SC:215:MET:HG2 | 1.93 | 0.50 |
| 35:S2:201:C:H3’ | 35:S2:202:G:H8 | 1.77 | 0.50 |
| 39:3a:342:LEU:HD21 | 41:3c:719:ARG:HA | 1.92 | 0.50 |
| 39:3a:400:PRO:HB3 | 39:3a:442:GLN:HB3 | 1.94 | 0.50 |
| 41:3c:831:LEU:O | 41:3c:832:MET:HE3 | 2.12 | 0.50 |
| 38:3f:350:LEU:HA | 38:3f:353:LYS:HE3 | 1.94 | 0.49 |
| 26:SZ:39:LYS:HG2 | 36:zz:94:G:H5” | 1.94 | 0.49 |
| 30:Sd:22:ARG:HH21 | 30:Sd:37:ASN:HB2 | 1.77 | 0.49 |
| 33:Sg:230:LEU:HD21 | 33:Sg:259:TRP:CG | 2.47 | 0.49 |
| 39:3a:253:VAL:HG12 | 39:3a:358:LEU:HD22 | 1.94 | 0.49 |
| 39:3a:307:ARG:HG2 | 39:3a:309:ASN:H | 1.76 | 0.49 |
| 45:3l:317:TYR:HD1 | 45:3l:367:MET:HE1 | 1.77 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:SA:32:PHE:CD2 | 35:S2:1097:G:H4' | 2.48 | 0.49 |
| 22:SV:68:SER:O | 22:SV:72:LEU:HD12 | 2.12 | 0.49 |
| 35:S2:1714:U:H2' | 35:S2:1715:A:H8 | 1.77 | 0.49 |
| 36:zz:259:U:H2' | 36:zz:260:A:H8 | 1.76 | 0.49 |
| 38:3f:348:ILE:HG21 | 42:3h:323:ILE:HG21 | 1.93 | 0.49 |
| 1:SA:30:LEU:HB2 | 1:SA:47:TYR:CE2 | 2.48 | 0.49 |
| 13:Sf:58:GLU:HG3 | 13:Sf:60:MET:H | 1.77 | 0.49 |
| 32:sh:108:VAL:HB | 32:sh:114:ILE:HG12 | 1.94 | 0.49 |
| 35:S2:669:A:H3' | 35:S2:670:A:C8 | 2.47 | 0.49 |
| 25:SY:110:ARG:HG2 | 25:SY:114:MET:HE3 | 1.95 | 0.49 |
| 35:S2:527:C:H2' | 35:S2:528:A:H8 | 1.77 | 0.49 |
| 39:3a:43:TRP:HE1 | 39:3a:74:TYR:HE2 | 1.61 | 0.49 |
| 45:3l:279:ARG:HH11 | 45:3l:283:LEU:HD11 | 1.78 | 0.49 |
| 45:3l:333:ILE:HG12 | 45:3l:380:MET:HG2 | 1.95 | 0.49 |
| 15:SO:136:PRO:HB2 | 15:SO:139:SER:HB3 | 1.93 | 0.49 |
| 35:S2:935:G:H2' | 35:S2:936:G:H8 | 1.78 | 0.49 |
| 38:3f:137:VAL:HG13 | 38:3f:152:PHE:CD1 | 2.48 | 0.49 |
| 39:3a:175:HIS:CE1 | 39:3a:229:HIS:HA | 2.48 | 0.49 |
| 8:SH:70:LYS:HA | 8:SH:73:GLN:HB2 | 1.95 | 0.49 |
| 13:Sf:32:ALA:HB3 | 13:Sf:110:VAL:HB | 1.95 | 0.49 |
| 35:S2:857:U:H2' | 35:S2:858:A:C8 | 2.48 | 0.49 |
| 37:3m:71:LEU:HD22 | 37:3m:83:ILE:HG12 | 1.95 | 0.49 |
| 38:3f:211:MET:HB2 | 42:3h:217:GLU:HG3 | 1.95 | 0.49 |
| 42:3h:37:LYS:HD2 | 42:3h:38:GLN:HB3 | 1.94 | 0.49 |
| 42:3h:179:GLU:HG3 | 42:3h:181:ASP:H | 1.78 | 0.49 |
| 42:3h:197:MET:HE1 | 42:3h:318:LEU:HA | 1.94 | 0.49 |
| 44:3k:139:ARG:HH21 | 44:3k:173:TRP:HE1 | 1.60 | 0.49 |
| 5:SE:146:THR:HG21 | 35:S2:122:G:H21 | 1.78 | 0.49 |
| 18:SR:100:PRO:HA | 18:SR:103:LYS:HB3 | 1.95 | 0.49 |
| 20:ST:104:LEU:HD23 | 20:ST:121:ARG:HH11 | 1.78 | 0.49 |
| 27:Sa:7:ASN:OD1 | 35:S2:1865:C:H1' | 2.13 | 0.49 |
| 35:S2:508:A:H3' | 35:S2:509:G:H8 | 1.78 | 0.49 |
| 35:S2:1562:C:H2' | 35:S2:1563:G:H8 | 1.78 | 0.49 |
| 36:zz:180:G:H2' | 36:zz:181:G:C8 | 2.48 | 0.49 |
| 21:SU:26:SER:HB2 | 21:SU:110:VAL:HA | 1.95 | 0.48 |
| 33:Sg:228:TYR:HD2 | 33:Sg:264:LYS:HG2 | 1.78 | 0.48 |
| 35:S2:116:U:H3 | 35:S2:347:G:H1 | 1.60 | 0.48 |
| 36:zz:179:A:H2' | 36:zz:180:G:C8 | 2.48 | 0.48 |
| 2:SB:168:MET:HG2 | 2:SB:197:ILE:HD13 | 1.95 | 0.48 |
| 36:zz:59:U:H2' | 36:zz:60:G:C8 | 2.48 | 0.48 |
| 36:zz:154:A:H61 | 36:zz:173:A:H1' | 1.78 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 13:Sf:89:VAL:HG13 | 13:Sf:91:LEU:H | 1.78 | 0.48 |
| 33:Sg:163:PRO:HB2 | 33:Sg:179:LEU:HB2 | 1.95 | 0.48 |
| 36:zz:163:G:H1’ | 36:zz:164:U:C5 | 2.49 | 0.48 |
| 42:3h:76:LEU:HD11 | 42:3h:117:VAL:HG11 | 1.95 | 0.48 |
| 3:SC:246:LYS:HE3 | 3:SC:246:LYS:HB2 | 1.72 | 0.48 |
| 7:SG:52:ILE:HD12 | 7:SG:52:ILE:H | 1.77 | 0.48 |
| 8:SH:100:ILE:HG12 | 8:SH:125:VAL:HG21 | 1.94 | 0.48 |
| 35:S2:1413:G:H2’ | 35:S2:1414:A:H8 | 1.78 | 0.48 |
| 35:S2:1751:C:H3’ | 35:S2:1752:C:H4’ | 1.95 | 0.48 |
| 35:S2:863:U:H2’ | 35:S2:864:A:H8 | 1.79 | 0.48 |
| 36:zz:172:A:H2’ | 36:zz:173:A:C8 | 2.48 | 0.48 |
| 37:3m:46:ILE:HD11 | 37:3m:86:LEU:HD12 | 1.95 | 0.48 |
| 41:3c:814:ASP:HB3 | 41:3c:817:THR:HG23 | 1.95 | 0.48 |
| 2:SB:164:ILE:HG22 | 2:SB:168:MET:HE3 | 1.96 | 0.48 |
| 44:3k:125:MET:HE3 | 44:3k:125:MET:O | 2.14 | 0.48 |
| 2:SB:87:ILE:HG22 | 2:SB:101:HIS:HB2 | 1.95 | 0.48 |
| 3:SC:65:LYS:HD2 | 3:SC:273:LEU:HD21 | 1.96 | 0.48 |
| 7:SG:175:LYS:HB2 | 35:S2:78:C:H1’ | 1.94 | 0.48 |
| 8:SH:145:ARG:HE | 23:SW:51:GLU:CD | 2.22 | 0.48 |
| 24:SX:60:LYS:HE3 | 24:SX:116:PRO:HB3 | 1.96 | 0.48 |
| 33:Sg:24:THR:HG23 | 33:Sg:27:PHE:H | 1.79 | 0.48 |
| 35:S2:12:U:H2’ | 35:S2:13:C:C6 | 2.49 | 0.48 |
| 36:zz:205:A:H2’ | 36:zz:206:A:C8 | 2.48 | 0.48 |
| 38:3f:206:LEU:HD22 | 39:3a:557:TYR:HD2 | 1.79 | 0.48 |
| 21:SU:56:MET:HE3 | 21:SU:56:MET:HA | 1.95 | 0.48 |
| 23:SW:6:VAL:HG13 | 23:SW:34:ILE:HD11 | 1.95 | 0.48 |
| 36:zz:87:G:H2’ | 36:zz:88:G:H8 | 1.79 | 0.48 |
| 36:zz:118:G:H3’ | 36:zz:119:A:C8 | 2.48 | 0.48 |
| 6:SF:40:ALA:HB3 | 6:SF:67:PRO:HA | 1.96 | 0.48 |
| 36:zz:89:C:H2’ | 36:zz:90:G:H8 | 1.78 | 0.48 |
| 36:zz:259:U:H2’ | 36:zz:260:A:C8 | 2.48 | 0.48 |
| 37:3m:227:LYS:HB2 | 37:3m:227:LYS:HE2 | 1.63 | 0.48 |
| 8:SH:38:ALA:HA | 8:SH:41:ARG:HH12 | 1.79 | 0.47 |
| 35:S2:5:U:H2’ | 35:S2:6:G:C8 | 2.49 | 0.47 |
| 35:S2:793:G:H2’ | 35:S2:794:A:O4’ | 2.14 | 0.47 |
| 35:S2:963:A:H2’ | 35:S2:964:A:C8 | 2.49 | 0.47 |
| 36:zz:215:A:H5” | 36:zz:216:U:H5” | 1.96 | 0.47 |
| 4:SD:10:LYS:HE3 | 4:SD:10:LYS:HB2 | 1.71 | 0.47 |
| 4:SD:117:ARG:HD3 | 4:SD:117:ARG:HA | 1.65 | 0.47 |
| 7:SG:5:ILE:HD12 | 7:SG:111:LEU:HB2 | 1.96 | 0.47 |
| 23:SW:30:CYS:HB2 | 23:SW:61:ILE:HG13 | 1.96 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 24:SX:18:ARG:HD3 | 35:S2:359:U:OP2 | 2.14 | 0.47 |
| 4:SD:108:LYS:HA | 4:SD:108:LYS:HD3 | 1.75 | 0.47 |
| 35:S2:647:U:H2' | 35:S2:648:A:H8 | 1.79 | 0.47 |
| 35:S2:804:U:H2' | 35:S2:805:U:C6 | 2.48 | 0.47 |
| 37:3m:137:ILE:HG21 | 37:3m:171:ALA:HB1 | 1.96 | 0.47 |
| 42:3h:52:HIS:ND1 | 42:3h:63:VAL:HB | 2.29 | 0.47 |
| 6:SF:134:VAL:HG21 | 36:zz:87:G:H4' | 1.95 | 0.47 |
| 35:S2:191:A:H62 | 35:S2:208:G:H21 | 1.61 | 0.47 |
| 35:S2:1286:G:C2 | 35:S2:1313:A:N6 | 2.82 | 0.47 |
| 36:zz:179:A:H2' | 36:zz:180:G:H8 | 1.79 | 0.47 |
| 39:3a:408:THR:HA | 39:3a:411:LEU:HB2 | 1.96 | 0.47 |
| 8:SH:43:LEU:HB3 | 8:SH:72:PHE:HE1 | 1.79 | 0.47 |
| 35:S2:171:A:H3' | 35:S2:172:U:C6 | 2.50 | 0.47 |
| 35:S2:756:C:H2' | 35:S2:757:C:H6 | 1.78 | 0.47 |
| 41:3c:698:MET:HA | 41:3c:701:HIS:CE1 | 2.49 | 0.47 |
| 7:SG:52:ILE:HA | 7:SG:111:LEU:HD23 | 1.96 | 0.47 |
| 9:SI:64:ASN:HA | 9:SI:75:LYS:HA | 1.97 | 0.47 |
| 17:SQ:39:LEU:HD12 | 17:SQ:39:LEU:H | 1.80 | 0.47 |
| 19:SS:132:ARG:HD3 | 35:S2:1623[A]:A:N6 | 2.29 | 0.47 |
| 25:SY:87:PRO:HG2 | 25:SY:90:ARG:HB2 | 1.97 | 0.47 |
| 33:Sg:252:THR:HG22 | 33:Sg:254:PRO:HD2 | 1.95 | 0.47 |
| 35:S2:1144:A:H2' | 35:S2:1145:A:C8 | 2.50 | 0.47 |
| 42:3h:249:ARG:NE | 42:3h:322:GLN:HB3 | 2.30 | 0.47 |
| 44:3k:139:ARG:HD2 | 44:3k:162:LEU:HD12 | 1.97 | 0.47 |
| 45:3l:168:LEU:HD23 | 45:3l:237:LYS:HD2 | 1.97 | 0.47 |
| 4:SD:142:LEU:HD11 | 4:SD:148:LYS:HB2 | 1.96 | 0.47 |
| 5:SE:3:ARG:HG2 | 35:S2:447:A:H4' | 1.97 | 0.47 |
| 16:SP:62:LYS:HA | 16:SP:62:LYS:HD3 | 1.73 | 0.47 |
| 19:SS:130:ARG:HB3 | 19:SS:134:GLN:HE21 | 1.80 | 0.47 |
| 33:Sg:291:TRP:CD2 | 33:Sg:298:LEU:HD23 | 2.49 | 0.47 |
| 35:S2:1758:G:H2' | 35:S2:1759:G:H8 | 1.80 | 0.47 |
| 38:3f:137:VAL:HG13 | 38:3f:152:PHE:HD1 | 1.79 | 0.47 |
| 40:3e:152:TYR:HB2 | 40:3e:172:LYS:HE3 | 1.97 | 0.47 |
| 6:SF:91:ARG:HD2 | 26:SZ:103:HIS:CE1 | 2.50 | 0.47 |
| 35:S2:695:C:H5" | 35:S2:696:G:C8 | 2.50 | 0.47 |
| 35:S2:928:G:H2' | 35:S2:929:G:C8 | 2.50 | 0.47 |
| 15:SO:97:LEU:HD13 | 27:Sa:44:ILE:HD11 | 1.97 | 0.47 |
| 32:sh:99:LYS:HD2 | 32:sh:99:LYS:HA | 1.75 | 0.47 |
| 36:zz:181:G:H2' | 36:zz:182:A:C8 | 2.50 | 0.47 |
| 39:3a:239:SER:O | 39:3a:243:MET:HG2 | 2.14 | 0.47 |
| 41:3c:469:TYR:HE2 | 41:3c:673:PHE:HB3 | 1.80 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 41:3c:714:PHE:CE2 | 41:3c:718:LEU:HD21 | 2.50 | 0.47 |
| 8:SH:160:LYS:HD3 | 8:SH:160:LYS:HA | 1.71 | 0.46 |
| 35:S2:525:A:H2' | 35:S2:526:A:H8 | 1.79 | 0.46 |
| 35:S2:669:A:H8 | 35:S2:1164:G:O2' | 1.97 | 0.46 |
| 45:3l:398:MET:HA | 45:3l:401:MET:HE3 | 1.96 | 0.46 |
| 35:S2:958:G:H2' | 35:S2:959:G:C8 | 2.51 | 0.46 |
| 35:S2:1769:C:H2' | 35:S2:1770:G:C8 | 2.50 | 0.46 |
| 38:3f:272:VAL:HG13 | 42:3h:340:LYS:HE3 | 1.97 | 0.46 |
| 1:SA:39:TYR:CE1 | 1:SA:40:LYS:HG2 | 2.51 | 0.46 |
| 5:SE:29:PRO:HG2 | 5:SE:46:ILE:HD11 | 1.98 | 0.46 |
| 15:SO:97:LEU:HD11 | 15:SO:112:ALA:HB1 | 1.98 | 0.46 |
| 35:S2:1101:U:H2' | 35:S2:1102:G:H8 | 1.80 | 0.46 |
| 35:S2:1232:U:H2' | 35:S2:1233:G:C8 | 2.51 | 0.46 |
| 39:3a:44:GLN:NE2 | 39:3a:47:HIS:HE1 | 2.13 | 0.46 |
| 42:3h:171:PRO:HA | 42:3h:174:MET:HG2 | 1.96 | 0.46 |
| 21:SU:24:LEU:HB3 | 21:SU:32:LEU:HD11 | 1.96 | 0.46 |
| 35:S2:223:C:H2' | 35:S2:224:A:C8 | 2.50 | 0.46 |
| 35:S2:1189:A:H2' | 35:S2:1190:A:C8 | 2.49 | 0.46 |
| 35:S2:1413:G:H2' | 35:S2:1414:A:C8 | 2.51 | 0.46 |
| 35:S2:1716:C:H2' | 35:S2:1717:C:H6 | 1.80 | 0.46 |
| 35:S2:1845:A:H2' | 35:S2:1846:G:C8 | 2.51 | 0.46 |
| 38:3f:141:GLU:HA | 38:3f:146:VAL:HG23 | 1.98 | 0.46 |
| 42:3h:193:THR:H | 42:3h:196:TYR:HD2 | 1.61 | 0.46 |
| 45:3l:375:LEU:HD13 | 45:3l:380:MET:HE3 | 1.97 | 0.46 |
| 35:S2:349:A:H2' | 35:S2:350:C:C6 | 2.50 | 0.46 |
| 9:SI:26:LYS:HD2 | 9:SI:29:LEU:HD23 | 1.97 | 0.46 |
| 12:SL:99:TYR:CE1 | 24:SX:13:LEU:HB3 | 2.51 | 0.46 |
| 33:Sg:32:LEU:HD11 | 33:Sg:92:LEU:HD21 | 1.97 | 0.46 |
| 35:S2:1405:A:H2' | 35:S2:1406:G:O4' | 2.15 | 0.46 |
| 36:zz:262:U:H2' | 36:zz:263:G:H8 | 1.80 | 0.46 |
| 39:3a:347:ILE:HD11 | 41:3c:723:ARG:HA | 1.98 | 0.46 |
| 13:Sf:23:LYS:HD3 | 13:Sf:23:LYS:HA | 1.74 | 0.46 |
| 21:SU:39:LEU:HD12 | 21:SU:101:ILE:HG22 | 1.97 | 0.46 |
| 33:Sg:5:MET:HE1 | 33:Sg:312:VAL:HG22 | 1.98 | 0.46 |
| 35:S2:825:A:H2' | 35:S2:826:A:C8 | 2.51 | 0.46 |
| 42:3h:279:GLN:HA | 42:3h:282:GLN:HG3 | 1.96 | 0.46 |
| 45:3l:314:THR:HG23 | 45:3l:318:TYR:HE2 | 1.81 | 0.46 |
| 45:3l:372:ALA:HA | 45:3l:390:LEU:HD21 | 1.98 | 0.46 |
| 45:3l:559:LYS:HG3 | 45:3l:560:MET:HE2 | 1.97 | 0.46 |
| 13:Sf:94:ILE:HA | 13:Sf:100:PRO:HA | 1.97 | 0.46 |
| 20:ST:112:MET:SD | 20:ST:127:GLY:HA2 | 2.56 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:696:G:H4’ | 35:S2:735:C:H5 | 1.80 | 0.46 |
| 36:zz:180:G:H2’ | 36:zz:181:G:H8 | 1.81 | 0.46 |
| 44:3k:104:TYR:O | 44:3k:108:LEU:HD12 | 2.16 | 0.46 |
| 4:SD:105:LEU:HB2 | 4:SD:122:VAL:HG21 | 1.98 | 0.46 |
| 9:SI:106:SER:HB3 | 9:SI:171:LEU:HG | 1.97 | 0.46 |
| 25:SY:20:ARG:NH1 | 25:SY:74:MET:HE1 | 2.30 | 0.46 |
| 25:SY:101:LYS:HE2 | 25:SY:101:LYS:HB2 | 1.72 | 0.46 |
| 35:S2:1858:G:H2’ | 35:S2:1859:A:H8 | 1.80 | 0.46 |
| 36:zz:116:A:H3’ | 36:zz:117:G:H8 | 1.81 | 0.46 |
| 45:3l:380:MET:HE1 | 45:3l:382:ILE:HB | 1.98 | 0.46 |
| 2:SB:116:LYS:HG3 | 35:S2:988:C:H5” | 1.98 | 0.45 |
| 4:SD:56:GLN:CD | 4:SD:56:GLN:H | 2.24 | 0.45 |
| 17:SQ:40:GLU:HA | 17:SQ:48:GLN:NE2 | 2.29 | 0.45 |
| 33:Sg:194:TYR:HE1 | 33:Sg:212:LYS:HD3 | 1.80 | 0.45 |
| 35:S2:644:G:H2’ | 35:S2:645:C:C6 | 2.51 | 0.45 |
| 39:3a:41:ARG:HE | 39:3a:41:ARG:HB3 | 1.57 | 0.45 |
| 20:ST:39:LEU:HD12 | 20:ST:39:LEU:H | 1.80 | 0.45 |
| 35:S2:106:C:H2’ | 35:S2:107:A:H8 | 1.80 | 0.45 |
| 35:S2:155:G:H2’ | 35:S2:156:G:H8 | 1.81 | 0.45 |
| 35:S2:321:C:H2’ | 35:S2:322:C:C6 | 2.52 | 0.45 |
| 39:3a:269:PRO:HB2 | 39:3a:306:MET:SD | 2.56 | 0.45 |
| 4:SD:214:LYS:HE3 | 4:SD:214:LYS:HB3 | 1.72 | 0.45 |
| 11:SK:60:GLU:HB3 | 11:SK:69:TRP:CD1 | 2.51 | 0.45 |
| 16:SP:52:LYS:NZ | 35:S2:1298:G:H21 | 2.14 | 0.45 |
| 25:SY:55:ILE:HG12 | 25:SY:75:ILE:HG22 | 1.97 | 0.45 |
| 33:Sg:23:THR:HG22 | 33:Sg:31:ILE:HG23 | 1.98 | 0.45 |
| 35:S2:496:C:H2’ | 35:S2:497:C:H6 | 1.81 | 0.45 |
| 35:S2:656:G:H21 | 35:S2:663:C:H5” | 1.81 | 0.45 |
| 36:zz:224:G:H2’ | 36:zz:225:A:C8 | 2.51 | 0.45 |
| 10:SJ:114:VAL:HG21 | 10:SJ:130:ILE:HD11 | 1.98 | 0.45 |
| 24:SX:48:LYS:HB3 | 24:SX:75:ILE:HD11 | 1.97 | 0.45 |
| 33:Sg:101:PHE:CE1 | 33:Sg:136:GLY:HA2 | 2.51 | 0.45 |
| 35:S2:375:U:H2’ | 35:S2:376:A:C8 | 2.51 | 0.45 |
| 35:S2:610:G:H2’ | 35:S2:611:G:H8 | 1.81 | 0.45 |
| 35:S2:1382:A:H2’ | 35:S2:1383:A:H8 | 1.81 | 0.45 |
| 35:S2:1568:C:H2’ | 35:S2:1569:A:C8 | 2.51 | 0.45 |
| 37:3m:182:SER:HA | 37:3m:185:MET:HE2 | 1.98 | 0.45 |
| 13:Sf:116:LYS:HA | 13:Sf:116:LYS:HD3 | 1.73 | 0.45 |
| 37:3m:353:THR:HB | 42:3h:351:ASN:HD21 | 1.82 | 0.45 |
| 39:3a:158:ARG:HE | 39:3a:158:ARG:HB3 | 1.69 | 0.45 |
| 39:3a:165:ARG:HD2 | 39:3a:166:ASN:HB2 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 40:3e:404:VAL:HG22 | 41:3c:857:LEU:HD13 | 1.98 | 0.45 |
| 3:SC:86:LEU:HD11 | 3:SC:265:PRO:HG2 | 1.98 | 0.45 |
| 3:SC:202:THR:HG22 | 3:SC:221:ASP:HB3 | 1.97 | 0.45 |
| 7:SG:51:ARG:HH21 | 7:SG:112:VAL:HG11 | 1.82 | 0.45 |
| 11:SK:5:LYS:HE3 | 35:S2:1313:A:H5” | 1.97 | 0.45 |
| 14:SN:23:PRO:HG2 | 14:SN:26:LEU:HB2 | 1.97 | 0.45 |
| 25:SY:21:LYS:HD2 | 25:SY:75:ILE:HD11 | 1.98 | 0.45 |
| 32:sh:100:LEU:O | 32:sh:103:LEU:HG | 2.17 | 0.45 |
| 35:S2:803:C:H2’ | 35:S2:804:U:C6 | 2.52 | 0.45 |
| 36:zz:82:G:H1’ | 36:zz:83:C:H5” | 1.97 | 0.45 |
| 39:3a:28:LEU:HD23 | 39:3a:57:LEU:HD13 | 1.98 | 0.45 |
| 41:3c:734:ARG:HH21 | 41:3c:735:GLU:HG2 | 1.82 | 0.45 |
| 3:SC:91:SER:HB2 | 3:SC:156:ILE:HG23 | 1.99 | 0.45 |
| 4:SD:105:LEU:HD12 | 4:SD:122:VAL:HG21 | 1.99 | 0.45 |
| 31:Se:53:LYS:HA | 31:Se:53:LYS:HD3 | 1.74 | 0.45 |
| 35:S2:1850:A:H2’ | 35:S2:1851:A:C8 | 2.52 | 0.45 |
| 36:zz:294:U:H2’ | 36:zz:295:G:H2’ | 1.98 | 0.45 |
| 45:3l:277:LEU:HD23 | 45:3l:277:LEU:HA | 1.87 | 0.45 |
| 45:3l:540:GLY:HA2 | 45:3l:543:PHE:CZ | 2.52 | 0.45 |
| 29:Sc:59:LEU:HD12 | 29:Sc:59:LEU:H | 1.81 | 0.45 |
| 35:S2:953:C:H2’ | 35:S2:954:U:O4’ | 2.17 | 0.45 |
| 35:S2:1671:G:H2’ | 35:S2:1672:U:C6 | 2.51 | 0.45 |
| 39:3a:507:ILE:HD11 | 39:3a:510:HIS:HB2 | 1.98 | 0.45 |
| 8:SH:154:ILE:HB | 8:SH:185:VAL:HG22 | 1.97 | 0.45 |
| 21:SU:17:ILE:HD13 | 21:SU:93:SER:HA | 1.99 | 0.45 |
| 35:S2:874:G:H2’ | 35:S2:875:A:C8 | 2.51 | 0.45 |
| 36:zz:287:U:H2’ | 36:zz:288:A:H8 | 1.81 | 0.45 |
| 37:3m:176:LYS:HA | 37:3m:176:LYS:HD2 | 1.62 | 0.45 |
| 39:3a:318:MET:HE3 | 39:3a:318:MET:O | 2.17 | 0.45 |
| 40:3e:362:MET:SD | 40:3e:366:GLU:HG3 | 2.57 | 0.45 |
| 41:3c:503:TYR:HB3 | 41:3c:555:ILE:HD11 | 1.99 | 0.45 |
| 45:3l:403:LYS:HD2 | 45:3l:403:LYS:HA | 1.74 | 0.45 |
| 1:SA:70:ASN:HD21 | 1:SA:72:ALA:HB3 | 1.82 | 0.45 |
| 11:SK:16:PHE:CD1 | 11:SK:79:LEU:HD23 | 2.52 | 0.45 |
| 17:SQ:82:TYR:HA | 17:SQ:85:ARG:HG2 | 1.98 | 0.45 |
| 36:zz:52:G:N2 | 36:zz:53:A:H1’ | 2.32 | 0.45 |
| 36:zz:107:G:H2’ | 36:zz:108:C:C6 | 2.52 | 0.45 |
| 2:SB:122:GLU:HG2 | 2:SB:140:VAL:HG22 | 1.98 | 0.44 |
| 19:SS:132:ARG:HB3 | 35:S2:1623[B]:A:N7 | 2.33 | 0.44 |
| 28:Sb:8:LEU:HD23 | 28:Sb:8:LEU:HA | 1.83 | 0.44 |
| 29:Sc:14:VAL:HG22 | 29:Sc:54:ASP:H | 1.82 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:1762:C:H2’ | 35:S2:1763:G:C8 | 2.52 | 0.44 |
| 41:3c:504:LEU:HD12 | 41:3c:507:ILE:HD11 | 1.97 | 0.44 |
| 41:3c:577:ALA:HB3 | 41:3c:615:GLN:HG3 | 1.99 | 0.44 |
| 41:3c:825:MET:HG3 | 41:3c:831:LEU:HD22 | 1.99 | 0.44 |
| 45:3l:454:GLN:HG2 | 45:3l:496:LYS:HD3 | 1.99 | 0.44 |
| 1:SA:51:LEU:HD23 | 18:SR:105:MET:HE1 | 1.98 | 0.44 |
| 35:S2:106:C:H2’ | 35:S2:107:A:C8 | 2.53 | 0.44 |
| 35:S2:946:U:H2’ | 35:S2:947:G:H8 | 1.83 | 0.44 |
| 35:S2:1317:C:H2’ | 35:S2:1318:G:C8 | 2.52 | 0.44 |
| 35:S2:1595:U:H2’ | 35:S2:1596:U:C6 | 2.51 | 0.44 |
| 35:S2:1753:C:H4’ | 35:S2:1754:G:C8 | 2.52 | 0.44 |
| 36:zz:235:G:H2’ | 36:zz:236:C:C6 | 2.53 | 0.44 |
| 10:SJ:35:TYR:CG | 10:SJ:106:LEU:HD23 | 2.53 | 0.44 |
| 35:S2:107:A:H2’ | 35:S2:108:G:H8 | 1.83 | 0.44 |
| 35:S2:1134:G:H2’ | 35:S2:1135:C:C6 | 2.52 | 0.44 |
| 3:SC:198:ALA:HB1 | 3:SC:202:THR:HG21 | 1.99 | 0.44 |
| 25:SY:23:MET:HE3 | 25:SY:23:MET:HB2 | 1.72 | 0.44 |
| 35:S2:235:A:H2’ | 35:S2:236:A:C8 | 2.52 | 0.44 |
| 35:S2:803:C:H2’ | 35:S2:804:U:H6 | 1.82 | 0.44 |
| 35:S2:1010:G:H2’ | 35:S2:1011:A:H8 | 1.82 | 0.44 |
| 35:S2:1842:C:H2’ | 35:S2:1843:G:C8 | 2.52 | 0.44 |
| 42:3h:128:PHE:HE1 | 42:3h:325:THR:HG21 | 1.82 | 0.44 |
| 45:3l:240:ILE:HD11 | 45:3l:267:LYS:HA | 1.99 | 0.44 |
| 45:3l:522:TYR:CE1 | 45:3l:529:HIS:HB3 | 2.52 | 0.44 |
| 1:SA:89:LYS:HB2 | 1:SA:202:TYR:CE2 | 2.53 | 0.44 |
| 5:SE:192:ILE:HD13 | 5:SE:192:ILE:HA | 1.77 | 0.44 |
| 7:SG:223:LYS:HA | 7:SG:223:LYS:HD3 | 1.61 | 0.44 |
| 16:SP:85:ILE:HD12 | 16:SP:111:MET:HB3 | 1.99 | 0.44 |
| 32:sh:133:ALA:HB2 | 35:S2:1309:C:O4’ | 2.18 | 0.44 |
| 35:S2:102:A:H4’ | 35:S2:104:A:C8 | 2.52 | 0.44 |
| 35:S2:952:G:H2’ | 35:S2:953:C:C6 | 2.52 | 0.44 |
| 35:S2:1776:G:N2 | 35:S2:1778:C:H41 | 2.16 | 0.44 |
| 37:3m:21:TYR:CZ | 37:3m:63:VAL:HG22 | 2.52 | 0.44 |
| 37:3m:149:LYS:HE3 | 37:3m:149:LYS:HB3 | 1.77 | 0.44 |
| 39:3a:55:LEU:HD11 | 39:3a:71:LEU:HD21 | 1.99 | 0.44 |
| 2:SB:86:LEU:HB3 | 2:SB:98:THR:HG21 | 1.98 | 0.44 |
| 4:SD:173:ARG:HD3 | 4:SD:173:ARG:HA | 1.92 | 0.44 |
| 11:SK:49:MET:H | 11:SK:49:MET:HG2 | 1.48 | 0.44 |
| 33:Sg:147:HIS:HD2 | 33:Sg:151:VAL:HG12 | 1.82 | 0.44 |
| 35:S2:107:A:H2’ | 35:S2:108:G:C8 | 2.53 | 0.44 |
| 35:S2:909:G:H2’ | 35:S2:910:G:H8 | 1.83 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:982:G:H2' | 35:S2:983:A:H8 | 1.83 | 0.44 |
| 35:S2:1491:G:H2' | 35:S2:1492:U:C6 | 2.52 | 0.44 |
| 36:zz:231:G:H22 | 36:zz:233:G:H1 | 1.65 | 0.44 |
| 36:zz:242:C:H2' | 36:zz:243:G:C8 | 2.52 | 0.44 |
| 38:3f:222:GLY:HA3 | 38:3f:226:ARG:HD2 | 2.00 | 0.44 |
| 45:3l:457:LEU:HD11 | 45:3l:492:VAL:HG12 | 1.98 | 0.44 |
| 3:SC:82:TYR:CZ | 3:SC:164:PRO:HD3 | 2.52 | 0.44 |
| 6:SF:123:GLU:HB2 | 29:Sc:59:LEU:HD13 | 2.00 | 0.44 |
| 10:SJ:131:ARG:HD2 | 10:SJ:131:ARG:HA | 1.80 | 0.44 |
| 13:Sf:35:ILE:HD12 | 13:Sf:36:ARG:N | 2.33 | 0.44 |
| 15:SO:99:ALA:H | 15:SO:133:THR:HB | 1.82 | 0.44 |
| 19:SS:15:VAL:HG13 | 19:SS:68:ILE:HD11 | 1.99 | 0.44 |
| 20:ST:40:ALA:HB3 | 20:ST:43:LYS:HG2 | 1.99 | 0.44 |
| 35:S2:528:A:H2' | 35:S2:529:A:C8 | 2.52 | 0.44 |
| 35:S2:1628:C:H2' | 35:S2:1629:C:C6 | 2.52 | 0.44 |
| 35:S2:1643:U:H2' | 35:S2:1644:C:C6 | 2.52 | 0.44 |
| 37:3m:128:ILE:HD13 | 37:3m:167:LEU:HB3 | 1.99 | 0.44 |
| 5:SE:191:ARG:HD3 | 5:SE:245:ARG:HB2 | 2.00 | 0.44 |
| 17:SQ:32:ILE:HD12 | 17:SQ:32:ILE:HA | 1.83 | 0.44 |
| 17:SQ:113:ILE:HD13 | 17:SQ:113:ILE:HA | 1.84 | 0.44 |
| 33:Sg:228:TYR:CD2 | 33:Sg:264:LYS:HG2 | 2.52 | 0.44 |
| 35:S2:1845:A:H2' | 35:S2:1846:G:H8 | 1.82 | 0.44 |
| 36:zz:141:U:H2' | 36:zz:142:A:C8 | 2.52 | 0.44 |
| 38:3f:334:LEU:HD22 | 42:3h:239:LEU:HD23 | 1.99 | 0.44 |
| 38:3f:353:LYS:HA | 38:3f:356:ASN:HB2 | 1.99 | 0.44 |
| 35:S2:649:U:H2' | 35:S2:650:A:C8 | 2.52 | 0.44 |
| 35:S2:1244:U:H2' | 35:S2:1245:G:H8 | 1.83 | 0.44 |
| 35:S2:1811:C:H2' | 35:S2:1812:U:C6 | 2.53 | 0.44 |
| 35:S2:1844:U:H2' | 35:S2:1845:A:H8 | 1.80 | 0.44 |
| 40:3e:372:VAL:HG22 | 45:3l:463:PHE:CE1 | 2.53 | 0.44 |
| 45:3l:341:LEU:HD11 | 45:3l:549:LYS:HE3 | 2.00 | 0.44 |
| 1:SA:85:ARG:O | 1:SA:89:LYS:HG2 | 2.18 | 0.43 |
| 7:SG:175:LYS:HG3 | 35:S2:77:A:H2 | 1.83 | 0.43 |
| 11:SK:14:LEU:HA | 11:SK:17:LYS:HB3 | 2.00 | 0.43 |
| 35:S2:70:G:H21 | 35:S2:79:A:H62 | 1.64 | 0.43 |
| 36:zz:61:U:H2' | 36:zz:62:C:C6 | 2.53 | 0.43 |
| 36:zz:220:U:H2' | 36:zz:221:G:H8 | 1.81 | 0.43 |
| 41:3c:692:LEU:HD21 | 41:3c:782:LYS:HB3 | 2.00 | 0.43 |
| 42:3h:249:ARG:HH21 | 42:3h:319:ILE:HA | 1.83 | 0.43 |
| 45:3l:160:TYR:HD1 | 45:3l:160:TYR:HA | 1.71 | 0.43 |
| 45:3l:377:MET:HE2 | 45:3l:454:GLN:HG3 | 2.00 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 7:SG:154:ARG:HG2 | 35:S2:77:A:C8 | 2.53 | 0.43 |
| 7:SG:211:LYS:HB2 | 7:SG:211:LYS:HE2 | 1.81 | 0.43 |
| 14:SN:88:LEU:HD22 | 14:SN:125:LEU:HD23 | 2.00 | 0.43 |
| 33:Sg:197:THR:HG21 | 33:Sg:238:ALA:HA | 2.00 | 0.43 |
| 41:3c:749:TRP:CD1 | 41:3c:750:LYS:HG3 | 2.53 | 0.43 |
| 42:3h:51:LYS:HE3 | 42:3h:51:LYS:HB3 | 1.75 | 0.43 |
| 5:SE:248:ILE:HD11 | 35:S2:848:U:H4' | 2.01 | 0.43 |
| 8:SH:138:GLU:OE2 | 14:SN:19:ARG:HD2 | 2.18 | 0.43 |
| 33:Sg:54:ILE:HD13 | 33:Sg:54:ILE:HA | 1.83 | 0.43 |
| 35:S2:527:C:H2' | 35:S2:528:A:C8 | 2.52 | 0.43 |
| 35:S2:982:G:H2' | 35:S2:983:A:C8 | 2.52 | 0.43 |
| 37:3m:39:HIS:CE1 | 37:3m:40:VAL:HG23 | 2.54 | 0.43 |
| 39:3a:95:LYS:HA | 39:3a:95:LYS:HD3 | 1.84 | 0.43 |
| 41:3c:504:LEU:HD22 | 41:3c:564:ILE:HG23 | 1.99 | 0.43 |
| 41:3c:591:MET:HA | 41:3c:591:MET:HE2 | 2.00 | 0.43 |
| 41:3c:774:LYS:HE3 | 41:3c:774:LYS:HB3 | 1.62 | 0.43 |
| 42:3h:44:LEU:O | 42:3h:48:LYS:HG2 | 2.18 | 0.43 |
| 26:SZ:102:LYS:HD2 | 26:SZ:107:VAL:HG12 | 2.01 | 0.43 |
| 35:S2:241:G:H1 | 35:S2:276:G:H1 | 1.67 | 0.43 |
| 35:S2:942:G:H2' | 35:S2:943:U:C6 | 2.53 | 0.43 |
| 39:3a:92:ALA:O | 39:3a:96:MET:HG2 | 2.18 | 0.43 |
| 41:3c:376:PHE:HE2 | 41:3c:441:ARG:HH11 | 1.66 | 0.43 |
| 4:SD:61:GLU:H | 4:SD:61:GLU:HG3 | 1.67 | 0.43 |
| 8:SH:115:LYS:HG3 | 35:S2:868:G:C5 | 2.53 | 0.43 |
| 13:Sf:85:LEU:O | 13:Sf:89:VAL:HG12 | 2.18 | 0.43 |
| 18:SR:31:ASN:ND2 | 18:SR:55:THR:HG22 | 2.33 | 0.43 |
| 20:ST:78:ILE:HD11 | 35:S2:1587:G:C5 | 2.54 | 0.43 |
| 25:SY:68:LYS:HE2 | 25:SY:68:LYS:HB3 | 1.67 | 0.43 |
| 33:Sg:62:HIS:CE1 | 33:Sg:88:ARG:HG3 | 2.53 | 0.43 |
| 35:S2:551:U:H2' | 35:S2:552:G:C8 | 2.54 | 0.43 |
| 36:zz:73:A:H2' | 36:zz:74:A:C8 | 2.54 | 0.43 |
| 39:3a:384:VAL:HG12 | 39:3a:386:GLU:H | 1.83 | 0.43 |
| 45:3l:237:LYS:HB3 | 45:3l:237:LYS:HE2 | 1.90 | 0.43 |
| 1:SA:142:LEU:HD12 | 1:SA:142:LEU:HA | 1.77 | 0.43 |
| 8:SH:27:LEU:HD13 | 8:SH:27:LEU:HA | 1.85 | 0.43 |
| 8:SH:110:THR:HG21 | 35:S2:744:G:H21 | 1.84 | 0.43 |
| 12:SL:13:GLN:NE2 | 12:SL:36:TYR:HB3 | 2.33 | 0.43 |
| 33:Sg:234:ASP:C | 33:Sg:235:ILE:HD13 | 2.43 | 0.43 |
| 35:S2:1407:U:H2' | 35:S2:1408:U:C6 | 2.54 | 0.43 |
| 35:S2:1817:G:H2' | 35:S2:1818:A:C8 | 2.54 | 0.43 |
| 37:3m:169:TYR:O | 37:3m:173:VAL:HG23 | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 39:3a:402:LYS:HG3 | 39:3a:406:ARG:HE | 1.83 | 0.43 |
| 41:3c:552:CYS:HA | 41:3c:555:ILE:HD12 | 1.99 | 0.43 |
| 42:3h:50:ILE:HD11 | 42:3h:162:LEU:HD21 | 2.00 | 0.43 |
| 42:3h:246:LEU:O | 42:3h:250:VAL:HG23 | 2.18 | 0.43 |
| 45:3l:61:LYS:HD2 | 45:3l:61:LYS:HA | 1.91 | 0.43 |
| 7:SG:119:LYS:HE2 | 7:SG:119:LYS:HB2 | 1.82 | 0.43 |
| 12:SL:75:GLY:HA3 | 12:SL:88:ILE:HD12 | 2.01 | 0.43 |
| 12:SL:128:VAL:HB | 12:SL:140:PHE:HB3 | 2.01 | 0.43 |
| 27:Sa:37:LYS:HE2 | 27:Sa:37:LYS:HB2 | 1.76 | 0.43 |
| 37:3m:280:LEU:HD22 | 37:3m:339:HIS:CE1 | 2.53 | 0.43 |
| 41:3c:753:HIS:CE1 | 41:3c:757:ILE:HG12 | 2.54 | 0.43 |
| 42:3h:252:GLU:HB3 | 42:3h:319:ILE:HG21 | 2.00 | 0.43 |
| 2:SB:217:MET:HE3 | 2:SB:217:MET:HB3 | 1.74 | 0.43 |
| 3:SC:211:LYS:O | 3:SC:215:MET:HG3 | 2.19 | 0.43 |
| 8:SH:24:SER:O | 8:SH:28:LEU:HG | 2.19 | 0.43 |
| 8:SH:27:LEU:HD12 | 8:SH:40:LEU:HD21 | 2.01 | 0.43 |
| 10:SJ:37:LEU:HD12 | 10:SJ:43:VAL:HG23 | 2.00 | 0.43 |
| 11:SK:47:LYS:HE3 | 11:SK:47:LYS:HB3 | 1.88 | 0.43 |
| 41:3c:706:ARG:HA | 41:3c:706:ARG:HD2 | 1.87 | 0.43 |
| 45:3l:334:ARG:HA | 45:3l:334:ARG:HD2 | 1.76 | 0.43 |
| 5:SE:6:LYS:H | 5:SE:6:LYS:HG2 | 1.70 | 0.43 |
| 5:SE:189:LEU:HD12 | 5:SE:189:LEU:HA | 1.87 | 0.43 |
| 11:SK:32:HIS:HD2 | 11:SK:45:VAL:HG11 | 1.83 | 0.43 |
| 20:ST:39:LEU:HD13 | 35:S2:1540:G:OP1 | 2.18 | 0.43 |
| 21:SU:80:PHE:HB3 | 30:Sd:52:PHE:HB3 | 2.01 | 0.43 |
| 36:zz:57:A:H3’ | 36:zz:58:C:H4’ | 2.01 | 0.43 |
| 37:3m:237:ILE:HD13 | 37:3m:262:PHE:HZ | 1.84 | 0.43 |
| 42:3h:125:TYR:HE1 | 42:3h:155:ILE:HG21 | 1.83 | 0.43 |
| 44:3k:197:LYS:HB2 | 44:3k:197:LYS:HE2 | 1.87 | 0.43 |
| 45:3l:325:MET:HE1 | 45:3l:413:PHE:HZ | 1.83 | 0.43 |
| 7:SG:7:PHE:HD2 | 7:SG:10:THR:HG22 | 1.84 | 0.43 |
| 8:SH:130:LEU:HD11 | 8:SH:156:VAL:HG21 | 2.01 | 0.43 |
| 11:SK:58:VAL:HG12 | 11:SK:71:LEU:HD22 | 2.01 | 0.43 |
| 33:Sg:45:LEU:HD22 | 33:Sg:52:TYR:HD1 | 1.83 | 0.43 |
| 33:Sg:129:ILE:HD11 | 33:Sg:151:VAL:HG11 | 2.00 | 0.43 |
| 35:S2:639:C:H2’ | 35:S2:640:A:C8 | 2.54 | 0.43 |
| 35:S2:845:G:H2’ | 35:S2:846:G:C8 | 2.54 | 0.43 |
| 35:S2:1217:A:H2’ | 35:S2:1218:C:C6 | 2.54 | 0.43 |
| 35:S2:1415:C:H2’ | 35:S2:1416:C:C6 | 2.54 | 0.43 |
| 37:3m:177:LYS:HB3 | 37:3m:177:LYS:HE2 | 1.82 | 0.43 |
| 39:3a:220:LEU:HD13 | 39:3a:220:LEU:HA | 1.87 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 39:3a:523:LEU:HD22 | 42:3h:231:LEU:HB3 | 2.00 | 0.43 |
| 45:3l:490:LEU:HD12 | 45:3l:490:LEU:HA | 1.83 | 0.43 |
| 3:SC:133:TYR:CD1 | 3:SC:216:MET:HA | 2.54 | 0.42 |
| 13:Sf:24:THR:O | 13:Sf:27:ILE:HG13 | 2.19 | 0.42 |
| 14:SN:141:TYR:HE2 | 14:SN:146:ALA:HB2 | 1.84 | 0.42 |
| 26:SZ:100:VAL:HG22 | 26:SZ:110:THR:HG22 | 2.01 | 0.42 |
| 35:S2:239:C:H42 | 35:S2:278:C:N4 | 2.13 | 0.42 |
| 35:S2:909:G:H2' | 35:S2:910:G:C8 | 2.54 | 0.42 |
| 35:S2:1174:U:H2' | 35:S2:1175:G:C8 | 2.50 | 0.42 |
| 35:S2:1759:G:H2' | 35:S2:1760:G:H8 | 1.83 | 0.42 |
| 35:S2:1797:U:H2' | 35:S2:1798:C:C6 | 2.54 | 0.42 |
| 36:zz:173:A:H2' | 36:zz:174:U:C6 | 2.54 | 0.42 |
| 41:3c:611:ARG:HH21 | 41:3c:675:LEU:HD12 | 1.83 | 0.42 |
| 4:SD:109:LEU:HD23 | 4:SD:109:LEU:HA | 1.87 | 0.42 |
| 16:SP:15:PHE:HB3 | 16:SP:22:LEU:HD11 | 2.00 | 0.42 |
| 33:Sg:131:LEU:HD21 | 33:Sg:140:TYR:HB3 | 2.01 | 0.42 |
| 35:S2:240:G:H2' | 35:S2:241:G:C8 | 2.53 | 0.42 |
| 35:S2:634:A:H2' | 35:S2:635:G:H8 | 1.84 | 0.42 |
| 35:S2:1565:C:H2' | 35:S2:1566:G:H8 | 1.84 | 0.42 |
| 35:S2:1629:C:C2 | 35:S2:1630:A:C8 | 3.07 | 0.42 |
| 45:3l:69:GLN:HE22 | 45:3l:87:LYS:HE3 | 1.84 | 0.42 |
| 45:3l:369:ALA:HB1 | 45:3l:412:LEU:HD21 | 2.01 | 0.42 |
| 1:SA:155:ARG:HG2 | 1:SA:156:TYR:CD1 | 2.54 | 0.42 |
| 6:SF:76:MET:HE2 | 6:SF:76:MET:HB2 | 1.81 | 0.42 |
| 7:SG:237:LEU:HD23 | 7:SG:237:LEU:HA | 1.88 | 0.42 |
| 15:SO:143:LYS:HB3 | 15:SO:143:LYS:HE3 | 1.82 | 0.42 |
| 32:sh:94:LYS:HB3 | 32:sh:94:LYS:HE3 | 1.83 | 0.42 |
| 35:S2:550:C:H2' | 35:S2:551:U:C6 | 2.54 | 0.42 |
| 35:S2:864:A:H2' | 35:S2:865:A:H8 | 1.83 | 0.42 |
| 35:S2:1593:C:H2' | 35:S2:1594:A:H8 | 1.84 | 0.42 |
| 35:S2:1798:C:H2' | 35:S2:1799:G:O4' | 2.20 | 0.42 |
| 37:3m:38:LEU:HD21 | 37:3m:74:LEU:HD13 | 2.01 | 0.42 |
| 42:3h:49:ILE:HG12 | 42:3h:120:TYR:CE2 | 2.54 | 0.42 |
| 45:3l:292:LYS:HB2 | 45:3l:292:LYS:HE3 | 1.82 | 0.42 |
| 3:SC:117:ARG:H | 3:SC:117:ARG:HD3 | 1.84 | 0.42 |
| 6:SF:134:VAL:HG11 | 36:zz:87:G:O4' | 2.18 | 0.42 |
| 7:SG:203:LYS:HB3 | 7:SG:203:LYS:HE2 | 1.81 | 0.42 |
| 11:SK:32:HIS:HE1 | 11:SK:34:GLU:HB3 | 1.83 | 0.42 |
| 12:SL:101:ARG:HH21 | 24:SX:5:ARG:HG3 | 1.85 | 0.42 |
| 28:Sb:54:VAL:HG23 | 28:Sb:63:LEU:HD13 | 2.01 | 0.42 |
| 36:zz:216:U:C4 | 39:3a:69:GLU:HB3 | 2.54 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 36:zz:265:U:O2' | 36:zz:266:G:H8 | 2.03 | 0.42 |
| 39:3a:352:GLN:HE22 | 39:3a:364:PRO:HG3 | 1.85 | 0.42 |
| 2:SB:103:MET:HB3 | 2:SB:215:VAL:HB | 2.01 | 0.42 |
| 3:SC:114:LYS:HD2 | 3:SC:121:ARG:CZ | 2.50 | 0.42 |
| 9:SI:141:ARG:HB2 | 9:SI:146:GLN:HG2 | 2.01 | 0.42 |
| 32:sh:118:ARG:HA | 32:sh:118:ARG:NH1 | 2.34 | 0.42 |
| 35:S2:495:U:H2' | 35:S2:496:C:O4' | 2.20 | 0.42 |
| 35:S2:1808:U:H2' | 35:S2:1809:A:C8 | 2.55 | 0.42 |
| 36:zz:127:U:H3 | 36:zz:321:A:H2 | 1.67 | 0.42 |
| 42:3h:243:LEU:O | 42:3h:246:LEU:HG | 2.19 | 0.42 |
| 45:3l:112:TRP:CE3 | 45:3l:113:PRO:HD2 | 2.54 | 0.42 |
| 45:3l:491:LEU:O | 45:3l:495:HIS:HB3 | 2.19 | 0.42 |
| 5:SE:153:LEU:HG | 7:SG:216:ARG:HE | 1.84 | 0.42 |
| 9:SI:150:ASP:HA | 9:SI:153:LYS:HE2 | 2.02 | 0.42 |
| 35:S2:562:U:H2' | 35:S2:563:G:C8 | 2.54 | 0.42 |
| 35:S2:1758:G:H2' | 35:S2:1759:G:C8 | 2.54 | 0.42 |
| 41:3c:576:HIS:O | 41:3c:581:ARG:HG2 | 2.19 | 0.42 |
| 42:3h:314:MET:HE2 | 42:3h:314:MET:HB3 | 1.75 | 0.42 |
| 45:3l:130:ILE:HG21 | 45:3l:163:LEU:HB2 | 2.02 | 0.42 |
| 45:3l:367:MET:HA | 45:3l:370:LEU:HB2 | 2.00 | 0.42 |
| 45:3l:544:ILE:HD12 | 45:3l:544:ILE:HA | 1.91 | 0.42 |
| 2:SB:78:GLU:HB2 | 2:SB:79:VAL:H | 1.68 | 0.42 |
| 16:SP:60:LEU:HD11 | 16:SP:89:MET:HB3 | 2.01 | 0.42 |
| 33:Sg:171:ASP:O | 33:Sg:173:LEU:HD12 | 2.20 | 0.42 |
| 33:Sg:269:GLU:HG2 | 33:Sg:271:LYS:HZ1 | 1.83 | 0.42 |
| 35:S2:186:C:H2' | 35:S2:187:G:C8 | 2.52 | 0.42 |
| 42:3h:50:ILE:HD11 | 42:3h:162:LEU:HD11 | 2.01 | 0.42 |
| 45:3l:98:SER:O | 45:3l:102:LEU:HD23 | 2.20 | 0.42 |
| 45:3l:200:TYR:CE1 | 45:3l:206:LYS:HG3 | 2.55 | 0.42 |
| 45:3l:549:LYS:HE2 | 45:3l:549:LYS:HB2 | 1.71 | 0.42 |
| 1:SA:89:LYS:NZ | 1:SA:201:LEU:HG | 2.35 | 0.42 |
| 9:SI:135:GLU:O | 9:SI:139:LYS:HB2 | 2.19 | 0.42 |
| 14:SN:52:VAL:HG23 | 14:SN:55:ARG:NH2 | 2.35 | 0.42 |
| 21:SU:98:VAL:O | 21:SU:102:THR:HG23 | 2.20 | 0.42 |
| 24:SX:90:CYS:HA | 24:SX:93:PHE:CD2 | 2.55 | 0.42 |
| 35:S2:96:C:H2' | 35:S2:97:U:C6 | 2.55 | 0.42 |
| 35:S2:160:U:O2' | 35:S2:161:U:H3' | 2.20 | 0.42 |
| 35:S2:441:C:H2' | 35:S2:442:C:C6 | 2.55 | 0.42 |
| 35:S2:756:C:H2' | 35:S2:757:C:C6 | 2.54 | 0.42 |
| 35:S2:1415:C:H2' | 35:S2:1416:C:H6 | 1.84 | 0.42 |
| 35:S2:1759:G:H2' | 35:S2:1760:G:C8 | 2.55 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:1862:G:H1' | 35:S2:1863:A:H2' | 2.02 | 0.42 |
| 36:zz:78:U:H2' | 36:zz:79:C:C6 | 2.55 | 0.42 |
| 38:3f:206:LEU:HD22 | 39:3a:557:TYR:CD2 | 2.54 | 0.42 |
| 41:3c:687:LEU:HD23 | 41:3c:687:LEU:HA | 1.87 | 0.42 |
| 45:3l:365:GLU:HA | 45:3l:368:HIS:HB3 | 2.01 | 0.42 |
| 45:3l:427:ASN:HB2 | 45:3l:430:ASN:OD1 | 2.20 | 0.42 |
| 4:SD:136:VAL:HG22 | 4:SD:186:VAL:HG22 | 2.02 | 0.42 |
| 18:SR:71:ILE:HG23 | 18:SR:74:GLN:HB2 | 2.01 | 0.42 |
| 33:Sg:280:LYS:HA | 33:Sg:280:LYS:HD3 | 1.79 | 0.42 |
| 35:S2:563:G:O2' | 35:S2:564:A:H8 | 2.03 | 0.42 |
| 35:S2:1116:C:H2' | 35:S2:1117:C:H5" | 2.01 | 0.42 |
| 35:S2:1769:C:H2' | 35:S2:1770:G:H8 | 1.84 | 0.42 |
| 39:3a:62:ARG:HD3 | 39:3a:152:PHE:HB2 | 2.02 | 0.42 |
| 39:3a:165:ARG:HA | 39:3a:204:HIS:CE1 | 2.55 | 0.42 |
| 39:3a:191:LYS:HG2 | 39:3a:245:LEU:HD11 | 2.01 | 0.42 |
| 39:3a:205:LEU:HD21 | 39:3a:229:HIS:NE2 | 2.35 | 0.42 |
| 40:3e:367:ALA:O | 40:3e:371:ILE:HG12 | 2.19 | 0.42 |
| 43:3d:33:PHE:CE2 | 43:3d:35:LYS:HG3 | 2.55 | 0.42 |
| 3:SC:68:ARG:HG2 | 3:SC:277:HIS:CE1 | 2.55 | 0.42 |
| 5:SE:139:LEU:HD12 | 5:SE:150:PRO:HB3 | 2.02 | 0.42 |
| 6:SF:59:LYS:HB3 | 6:SF:62:ARG:HE | 1.84 | 0.42 |
| 22:SV:41:LYS:HA | 22:SV:41:LYS:HD3 | 1.81 | 0.42 |
| 35:S2:788:G:H2' | 35:S2:789:G:C8 | 2.55 | 0.42 |
| 39:3a:317:ARG:HH12 | 39:3a:424:LEU:HD21 | 1.84 | 0.42 |
| 40:3e:360:LEU:HD12 | 40:3e:360:LEU:HA | 1.87 | 0.42 |
| 45:3l:149:SER:O | 45:3l:153:ARG:HG2 | 2.19 | 0.42 |
| 1:SA:78:SER:HB3 | 1:SA:87:VAL:HG21 | 2.01 | 0.41 |
| 1:SA:154:LEU:HD13 | 1:SA:154:LEU:HA | 1.87 | 0.41 |
| 5:SE:126:VAL:HG12 | 5:SE:158:ASP:O | 2.20 | 0.41 |
| 8:SH:109:ARG:NE | 35:S2:799:U:H5' | 2.35 | 0.41 |
| 19:SS:132:ARG:HD3 | 35:S2:1623[B]:A:C6 | 2.55 | 0.41 |
| 25:SY:74:MET:HE3 | 25:SY:74:MET:HB3 | 1.91 | 0.41 |
| 35:S2:1560:U:O2 | 35:S2:1575:G:O6 | 2.38 | 0.41 |
| 35:S2:1763:G:H2' | 35:S2:1764:G:H8 | 1.85 | 0.41 |
| 36:zz:240:C:H2' | 36:zz:241:G:H8 | 1.83 | 0.41 |
| 37:3m:74:LEU:HD11 | 37:3m:78:LYS:HB2 | 2.02 | 0.41 |
| 39:3a:455:LEU:HD12 | 39:3a:455:LEU:HA | 1.89 | 0.41 |
| 45:3l:481:LEU:HD21 | 45:3l:485:GLU:HG3 | 2.02 | 0.41 |
| 35:S2:811[A]:A:H2' | 35:S2:812:A:H8 | 1.84 | 0.41 |
| 35:S2:1362:U:H5" | 35:S2:1363:C:C5 | 2.55 | 0.41 |
| 45:3l:474:LYS:HB3 | 45:3l:474:LYS:HE3 | 1.74 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:SC:84:PHE:CD1 | 3:SC:265:PRO:HD3 | 2.56 | 0.41 |
| 4:SD:69:LEU:HD13 | 4:SD:69:LEU:HA | 1.89 | 0.41 |
| 5:SE:51:ARG:HA | 5:SE:51:ARG:HD3 | 1.84 | 0.41 |
| 5:SE:68:ARG:HB3 | 5:SE:76:VAL:HG11 | 2.01 | 0.41 |
| 28:Sb:46:VAL:HG11 | 28:Sb:54:VAL:HG21 | 2.03 | 0.41 |
| 35:S2:811[A]:A:H2' | 35:S2:812:A:C8 | 2.54 | 0.41 |
| 35:S2:980:A:H2' | 35:S2:981:A:C8 | 2.55 | 0.41 |
| 35:S2:1470:C:H2' | 35:S2:1471:C:H6 | 1.85 | 0.41 |
| 35:S2:1768:A:H2' | 35:S2:1769:C:C6 | 2.54 | 0.41 |
| 36:zz:66:A:H2' | 36:zz:67:C:C6 | 2.56 | 0.41 |
| 41:3c:602:ASP:HB3 | 41:3c:604:PRO:HD2 | 2.02 | 0.41 |
| 42:3h:313:ARG:HD3 | 42:3h:313:ARG:HA | 1.69 | 0.41 |
| 3:SC:212:LYS:HA | 3:SC:212:LYS:HD2 | 1.67 | 0.41 |
| 6:SF:76:MET:HB3 | 6:SF:89:THR:HG21 | 2.02 | 0.41 |
| 27:Sa:18:VAL:HG21 | 27:Sa:33:ASP:OD2 | 2.20 | 0.41 |
| 33:Sg:77:PHE:HD1 | 33:Sg:77:PHE:HA | 1.72 | 0.41 |
| 35:S2:5:U:O2' | 35:S2:602:G:H4' | 2.21 | 0.41 |
| 35:S2:889:U:H2' | 35:S2:890:U:C5 | 2.55 | 0.41 |
| 36:zz:276:A:H2' | 36:zz:277:G:C8 | 2.55 | 0.41 |
| 39:3a:98:GLU:HG2 | 39:3a:184:PHE:CE2 | 2.55 | 0.41 |
| 40:3e:167:SER:HB3 | 43:3d:17:GLY:H | 1.85 | 0.41 |
| 40:3e:186:MET:HA | 40:3e:189:LEU:HB3 | 2.03 | 0.41 |
| 41:3c:450:ARG:HD2 | 41:3c:450:ARG:HA | 1.84 | 0.41 |
| 45:3l:59:PHE:CD1 | 45:3l:94:ILE:HD13 | 2.55 | 0.41 |
| 13:Sf:78:LYS:HB2 | 13:Sf:78:LYS:HE2 | 1.71 | 0.41 |
| 33:Sg:275:ILE:HG23 | 33:Sg:278:SER:H | 1.85 | 0.41 |
| 35:S2:319:C:H2' | 35:S2:320:G:O4' | 2.21 | 0.41 |
| 35:S2:528:A:H2' | 35:S2:529:A:H8 | 1.85 | 0.41 |
| 35:S2:1134:G:H2' | 35:S2:1135:C:H6 | 1.85 | 0.41 |
| 35:S2:1539:U:H2' | 35:S2:1540:G:C8 | 2.56 | 0.41 |
| 35:S2:1562:C:H2' | 35:S2:1563:G:C8 | 2.56 | 0.41 |
| 39:3a:469:ARG:NH2 | 41:3c:748:ASP:HA | 2.35 | 0.41 |
| 40:3e:17:HIS:NE2 | 40:3e:140:GLU:HA | 2.36 | 0.41 |
| 45:3l:127:VAL:HG11 | 45:3l:176:LEU:HD21 | 2.03 | 0.41 |
| 2:SB:153:THR:HB | 2:SB:155:TYR:CE1 | 2.56 | 0.41 |
| 10:SJ:92:MET:HE3 | 10:SJ:92:MET:HB3 | 1.74 | 0.41 |
| 19:SS:3:LEU:O | 26:SZ:50:PHE:HB2 | 2.20 | 0.41 |
| 33:Sg:191:HIS:CD2 | 33:Sg:195:LEU:HD21 | 2.55 | 0.41 |
| 35:S2:191:A:H2' | 35:S2:192:C:O4' | 2.21 | 0.41 |
| 35:S2:799:U:O2' | 35:S2:800:U:H5" | 2.20 | 0.41 |
| 35:S2:1406:G:H2' | 35:S2:1407:U:C6 | 2.56 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:1774:C:H2' | 35:S2:1775:U:C6 | 2.56 | 0.41 |
| 36:zz:181:G:H2' | 36:zz:182:A:H8 | 1.86 | 0.41 |
| 37:3m:213:LYS:HB2 | 37:3m:213:LYS:HE3 | 1.65 | 0.41 |
| 38:3f:126:LYS:H | 38:3f:126:LYS:HG2 | 1.63 | 0.41 |
| 40:3e:169:LEU:HD12 | 40:3e:169:LEU:HA | 1.93 | 0.41 |
| 41:3c:555:ILE:O | 41:3c:559:ASP:HB2 | 2.21 | 0.41 |
| 45:3l:336:PHE:CE2 | 45:3l:370:LEU:HB3 | 2.55 | 0.41 |
| 2:SB:89:GLU:OE2 | 2:SB:228:LEU:HD21 | 2.21 | 0.41 |
| 4:SD:31:GLU:HA | 4:SD:107:TYR:CE1 | 2.55 | 0.41 |
| 18:SR:73:LEU:HD13 | 18:SR:73:LEU:HA | 1.89 | 0.41 |
| 21:SU:67:LYS:HG2 | 30:Sd:44:ARG:NH1 | 2.36 | 0.41 |
| 35:S2:1244:U:H2' | 35:S2:1245:G:C8 | 2.56 | 0.41 |
| 37:3m:227:LYS:O | 37:3m:230:LYS:HG2 | 2.20 | 0.41 |
| 41:3c:670:GLN:H | 41:3c:670:GLN:HG2 | 1.75 | 0.41 |
| 17:SQ:106:LYS:HE3 | 17:SQ:106:LYS:HB3 | 1.83 | 0.41 |
| 1:SA:210:ILE:O | 1:SA:214:GLU:HG2 | 2.21 | 0.41 |
| 3:SC:135:GLY:HA2 | 3:SC:165:VAL:HG12 | 2.03 | 0.41 |
| 4:SD:66:ILE:HD12 | 4:SD:66:ILE:HA | 1.91 | 0.41 |
| 5:SE:64:ILE:HG13 | 25:SY:18:LEU:HD13 | 2.01 | 0.41 |
| 7:SG:164:LYS:HB2 | 35:S2:67:C:H41 | 1.86 | 0.41 |
| 8:SH:142:LYS:HB2 | 8:SH:142:LYS:HE3 | 1.90 | 0.41 |
| 12:SL:4:ILE:HD12 | 12:SL:56:ILE:HG22 | 2.03 | 0.41 |
| 15:SO:74:ALA:HB1 | 15:SO:115:ALA:HB2 | 2.01 | 0.41 |
| 17:SQ:32:ILE:HG13 | 17:SQ:39:LEU:HD11 | 2.02 | 0.41 |
| 18:SR:78:ARG:HB2 | 18:SR:81:ARG:NH2 | 2.35 | 0.41 |
| 19:SS:60:THR:O | 19:SS:64:VAL:HG12 | 2.20 | 0.41 |
| 22:SV:59:ILE:HD13 | 22:SV:59:ILE:HA | 1.91 | 0.41 |
| 22:SV:81:LYS:HE2 | 22:SV:81:LYS:H | 1.85 | 0.41 |
| 26:SZ:77:LEU:HB3 | 26:SZ:79:ILE:HG12 | 2.02 | 0.41 |
| 29:Sc:22:GLY:HA2 | 29:Sc:68:LEU:HB2 | 2.02 | 0.41 |
| 35:S2:115:U:H2' | 35:S2:116:U:C6 | 2.55 | 0.41 |
| 35:S2:386:C:H2' | 35:S2:387:C:C6 | 2.56 | 0.41 |
| 35:S2:641:A:H2' | 35:S2:642:U:O4' | 2.19 | 0.41 |
| 36:zz:178:C:H2' | 36:zz:179:A:C8 | 2.55 | 0.41 |
| 36:zz:336:U:O2' | 36:zz:337:G:H8 | 2.04 | 0.41 |
| 39:3a:36:LYS:HA | 39:3a:36:LYS:HD2 | 1.83 | 0.41 |
| 40:3e:405:ILE:HA | 40:3e:408:THR:HG22 | 2.02 | 0.41 |
| 42:3h:82:PHE:HA | 42:3h:83:PRO:HD3 | 1.94 | 0.41 |
| 45:3l:178:LEU:H | 45:3l:265:LEU:HD21 | 1.85 | 0.41 |
| 45:3l:493:PHE:O | 45:3l:497:MET:HG3 | 2.21 | 0.41 |
| 2:SB:97:LEU:HB3 | 2:SB:228:LEU:HD22 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 6:SF:178:ILE:HD13 | 6:SF:178:ILE:HA | 1.85 | 0.41 |
| 9:SI:66:SER:O | 9:SI:189:VAL:HG12 | 2.21 | 0.41 |
| 17:SQ:15:ARG:HH22 | 35:S2:1444:U:P | 2.43 | 0.41 |
| 22:SV:17:CYS:HB2 | 22:SV:56:CYS:HB3 | 2.02 | 0.41 |
| 30:Sd:17:GLY:HA2 | 30:Sd:27:ARG:HD3 | 2.03 | 0.41 |
| 33:Sg:8:ARG:HB3 | 33:Sg:309:VAL:HG23 | 2.03 | 0.41 |
| 35:S2:891:G:H2' | 35:S2:892:U:C6 | 2.56 | 0.41 |
| 35:S2:935:G:H2' | 35:S2:936:G:C8 | 2.56 | 0.41 |
| 35:S2:1139:C:H2' | 35:S2:1140:G:O4' | 2.21 | 0.41 |
| 39:3a:18:PHE:CG | 39:3a:23:LYS:HD3 | 2.56 | 0.41 |
| 39:3a:164:LEU:HB3 | 39:3a:174:TYR:HB2 | 2.02 | 0.41 |
| 40:3e:319:LEU:HD23 | 40:3e:325:LEU:HB3 | 2.02 | 0.41 |
| 45:3l:200:TYR:HE1 | 45:3l:206:LYS:HG3 | 1.86 | 0.41 |
| 45:3l:286:ASP:HB3 | 45:3l:289:GLN:HB2 | 2.03 | 0.41 |
| 5:SE:61:VAL:HA | 5:SE:64:ILE:HG22 | 2.03 | 0.40 |
| 7:SG:224:ARG:O | 7:SG:228:ILE:HG12 | 2.20 | 0.40 |
| 9:SI:139:LYS:HA | 9:SI:139:LYS:HD2 | 1.82 | 0.40 |
| 9:SI:158:ILE:HD12 | 9:SI:158:ILE:HA | 1.95 | 0.40 |
| 11:SK:24:LYS:O | 11:SK:24:LYS:HD2 | 2.20 | 0.40 |
| 14:SN:17:PRO:HG3 | 28:Sb:28:PRO:HG3 | 2.02 | 0.40 |
| 16:SP:64:LYS:HD3 | 16:SP:64:LYS:HA | 1.89 | 0.40 |
| 19:SS:67:VAL:O | 19:SS:71:MET:HG3 | 2.21 | 0.40 |
| 19:SS:118:ARG:HE | 19:SS:118:ARG:HB3 | 1.78 | 0.40 |
| 24:SX:132:ALA:HB1 | 24:SX:137:LYS:HB2 | 2.03 | 0.40 |
| 31:Se:26:LYS:HE3 | 35:S2:593:C:H4' | 2.02 | 0.40 |
| 33:Sg:225:LYS:HE2 | 33:Sg:225:LYS:HB3 | 1.78 | 0.40 |
| 35:S2:29:G:H2' | 35:S2:30:C:C6 | 2.56 | 0.40 |
| 35:S2:754:G:C6 | 35:S2:791:C:H1' | 2.55 | 0.40 |
| 35:S2:825:A:H2' | 35:S2:826:A:H8 | 1.87 | 0.40 |
| 35:S2:1018:U:H2' | 35:S2:1019:C:H6 | 1.86 | 0.40 |
| 35:S2:1395:C:H2' | 35:S2:1396:A:N3 | 2.37 | 0.40 |
| 35:S2:1410:C:H2' | 35:S2:1411:G:C8 | 2.56 | 0.40 |
| 36:zz:200:G:H2' | 36:zz:201:G:C8 | 2.56 | 0.40 |
| 38:3f:268:ASP:O | 38:3f:272:VAL:HG23 | 2.21 | 0.40 |
| 41:3c:604:PRO:HG3 | 41:3c:669:ARG:HD2 | 2.03 | 0.40 |
| 5:SE:44:LEU:HD23 | 5:SE:72:ILE:HD11 | 2.03 | 0.40 |
| 7:SG:7:PHE:HD1 | 7:SG:113:ILE:HB | 1.86 | 0.40 |
| 15:SO:65:ASP:HB3 | 35:S2:963:A:OP1 | 2.22 | 0.40 |
| 28:Sb:24:LEU:HD12 | 28:Sb:24:LEU:HA | 1.90 | 0.40 |
| 34:Ln:2:ARG:HB3 | 34:Ln:5:TRP:CD1 | 2.55 | 0.40 |
| 35:S2:566:U:H2' | 35:S2:567:C:O4' | 2.22 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 35:S2:1541:G:H2’ | 35:S2:1542:C:C6 | 2.57 | 0.40 |
| 36:zz:80:U:H3 | 36:zz:85:A:H2 | 1.68 | 0.40 |
| 38:3f:91:VAL:HA | 38:3f:236:THR:HB | 2.03 | 0.40 |
| 39:3a:63:LYS:HD2 | 39:3a:66:LEU:HD12 | 2.04 | 0.40 |
| 39:3a:278:LYS:O | 39:3a:282:VAL:HG12 | 2.20 | 0.40 |
| 41:3c:695:ILE:HG23 | 41:3c:696:PRO:HD3 | 2.03 | 0.40 |
| 41:3c:837:GLN:HG2 | 41:3c:838:PRO:HD3 | 2.03 | 0.40 |
| 8:SH:9:VAL:HG22 | 8:SH:45:ILE:HD11 | 2.03 | 0.40 |
| 13:Sf:39:ALA:O | 13:Sf:43:ASP:HB2 | 2.21 | 0.40 |
| 20:ST:116:ASP:HA | 20:ST:122:LYS:HZ2 | 1.86 | 0.40 |
| 26:SZ:99:LEU:HD23 | 26:SZ:109:TYR:CE1 | 2.57 | 0.40 |
| 32:sh:121:CYS:HB2 | 32:sh:132:MET:HE1 | 2.03 | 0.40 |
| 33:Sg:299:PHE:CD1 | 33:Sg:309:VAL:HG12 | 2.57 | 0.40 |
| 35:S2:753:C:H2’ | 35:S2:754:G:H8 | 1.86 | 0.40 |
| 35:S2:848:U:H2’ | 35:S2:849:A:H8 | 1.87 | 0.40 |
| 35:S2:1365:G:H2’ | 35:S2:1366:G:H8 | 1.87 | 0.40 |
| 35:S2:1438:A:H2’ | 35:S2:1439:A:C8 | 2.57 | 0.40 |
| 36:zz:178:C:H2’ | 36:zz:179:A:H8 | 1.86 | 0.40 |
| 39:3a:331:ILE:HD12 | 39:3a:437:LEU:HD22 | 2.03 | 0.40 |
| 39:3a:411:LEU:HG | 39:3a:428:VAL:HG13 | 2.03 | 0.40 |
| 41:3c:431:LEU:HD23 | 41:3c:440:VAL:HG12 | 2.03 | 0.40 |
| 41:3c:576:HIS:ND1 | 41:3c:581:ARG:HG3 | 2.35 | 0.40 |
| 1:SA:39:TYR:CD1 | 1:SA:40:LYS:HG2 | 2.56 | 0.40 |
| 3:SC:187:ARG:HE | 3:SC:192:LEU:HD12 | 1.87 | 0.40 |
| 9:SI:66:SER:HA | 9:SI:73:THR:HG22 | 2.03 | 0.40 |
| 9:SI:137:LEU:HD23 | 9:SI:137:LEU:HA | 1.91 | 0.40 |
| 11:SK:32:HIS:CD2 | 11:SK:45:VAL:HG11 | 2.56 | 0.40 |
| 14:SN:76:LYS:HB2 | 14:SN:76:LYS:HE2 | 1.79 | 0.40 |
| 18:SR:51:ALA:HA | 18:SR:54:VAL:HG12 | 2.03 | 0.40 |
| 20:ST:104:LEU:HD23 | 20:ST:121:ARG:HD2 | 2.03 | 0.40 |
| 25:SY:20:ARG:CZ | 25:SY:74:MET:HE1 | 2.51 | 0.40 |
| 33:Sg:172:LYS:HD3 | 33:Sg:193:GLY:H | 1.86 | 0.40 |
| 34:Ln:2:ARG:HD2 | 35:S2:1841:C:P | 2.62 | 0.40 |
| 35:S2:647:U:H2’ | 35:S2:648:A:C8 | 2.56 | 0.40 |
| 35:S2:1216:C:H42 | 35:S2:1342:U:P | 2.44 | 0.40 |
| 36:zz:89:C:H2’ | 36:zz:90:G:C8 | 2.55 | 0.40 |
| 36:zz:215:A:N7 | 36:zz:217:G:H1’ | 2.36 | 0.40 |
| 37:3m:124:TYR:HB3 | 37:3m:154:TRP:HH2 | 1.86 | 0.40 |
| 39:3a:302:LEU:HD23 | 39:3a:302:LEU:HA | 1.88 | 0.40 |
| 41:3c:570:LEU:HD22 | 41:3c:612:THR:HG21 | 2.02 | 0.40 |
| 41:3c:598:ILE:HD12 | 41:3c:598:ILE:HA | 1.90 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 45:3l:554:ASN:HD22 | 45:3l:554:ASN:HA | 1.69 | 0.40 |
| 1:SA:37:TYR:HA | 1:SA:53:ARG:HD2 | 2.04 | 0.40 |
| 6:SF:91:ARG:HD2 | 26:SZ:103:HIS:NE2 | 2.36 | 0.40 |
| 7:SG:214:ALA:O | 7:SG:218:LYS:HG2 | 2.22 | 0.40 |
| 9:SI:27:TYR:HB2 | 35:S2:381:C:H41 | 1.86 | 0.40 |
| 9:SI:27:TYR:HB2 | 35:S2:381:C:N4 | 2.36 | 0.40 |
| 11:SK:25:LYS:HD2 | 11:SK:25:LYS:C | 2.47 | 0.40 |
| 13:Sf:44:LYS:HD3 | 32:sh:129:GLY:H | 1.85 | 0.40 |
| 17:SQ:12:VAL:HG11 | 17:SQ:90:LYS:HB3 | 2.03 | 0.40 |
| 33:Sg:45:LEU:HD22 | 33:Sg:52:TYR:CD1 | 2.56 | 0.40 |
| 35:S2:45:A:H4’ | 35:S2:46:A:H5’ | 2.04 | 0.40 |
| 35:S2:1103:C:H2’ | 35:S2:1104:G:C8 | 2.57 | 0.40 |
| 35:S2:1736:G:H2’ | 35:S2:1737:G:H8 | 1.86 | 0.40 |
| 36:zz:121:C:H2’ | 36:zz:122:C:O4’ | 2.22 | 0.40 |
| 41:3c:873:VAL:HA | 41:3c:876:HIS:NE2 | 2.36 | 0.40 |
| 42:3h:96:GLU:HA | 42:3h:99:TYR:HB3 | 2.04 | 0.40 |
| 42:3h:257:ILE:HA | 42:3h:257:ILE:HD12 | 1.87 | 0.40 |
| 45:3l:336:PHE:HA | 45:3l:339:ILE:HG22 | 2.03 | 0.40 |
| 45:3l:555:ARG:O | 45:3l:559:LYS:HG2 | 2.21 | 0.40 |

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

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 | SA | 214/295 (72%) | 207 (97%) | 7 (3%) | 0 | 100 100 |
| 2 | SB | 210/264 (80%) | 204 (97%) | 6 (3%) | 0 | 100 100 |
| 3 | SC | 217/293 (74%) | 209 (96%) | 8 (4%) | 0 | 100 100 |
| 4 | SD | 224/243 (92%) | 222 (99%) | 2 (1%) | 0 | 100 100 |
| 5 | SE | 258/263 (98%) | 243 (94%) | 15 (6%) | 0 | 100 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 6 | SF | 190/204 (93%) | 181 (95%) | 9 (5%) | 0 | 100 | 100 |
| 7 | SG | 235/249 (94%) | 230 (98%) | 5 (2%) | 0 | 100 | 100 |
| 8 | SH | 185/194 (95%) | 175 (95%) | 10 (5%) | 0 | 100 | 100 |
| 9 | SI | 203/208 (98%) | 195 (96%) | 8 (4%) | 0 | 100 | 100 |
| 10 | SJ | 178/194 (92%) | 174 (98%) | 4 (2%) | 0 | 100 | 100 |
| 11 | SK | 94/165 (57%) | 87 (93%) | 7 (7%) | 0 | 100 | 100 |
| 12 | SL | 148/158 (94%) | 143 (97%) | 5 (3%) | 0 | 100 | 100 |
| 13 | Sf | 119/132 (90%) | 114 (96%) | 5 (4%) | 0 | 100 | 100 |
| 14 | SN | 147/151 (97%) | 143 (97%) | 4 (3%) | 0 | 100 | 100 |
| 15 | SO | 133/151 (88%) | 128 (96%) | 5 (4%) | 0 | 100 | 100 |
| 16 | SP | 117/145 (81%) | 115 (98%) | 2 (2%) | 0 | 100 | 100 |
| 17 | SQ | 138/146 (94%) | 133 (96%) | 5 (4%) | 0 | 100 | 100 |
| 18 | SR | 130/135 (96%) | 124 (95%) | 6 (5%) | 0 | 100 | 100 |
| 19 | SS | 141/152 (93%) | 134 (95%) | 7 (5%) | 0 | 100 | 100 |
| 20 | ST | 140/145 (97%) | 137 (98%) | 3 (2%) | 0 | 100 | 100 |
| 21 | SU | 99/119 (83%) | 98 (99%) | 1 (1%) | 0 | 100 | 100 |
| 22 | SV | 81/83 (98%) | 80 (99%) | 1 (1%) | 0 | 100 | 100 |
| 23 | SW | 127/130 (98%) | 125 (98%) | 2 (2%) | 0 | 100 | 100 |
| 24 | SX | 139/143 (97%) | 129 (93%) | 10 (7%) | 0 | 100 | 100 |
| 25 | SY | 122/133 (92%) | 120 (98%) | 2 (2%) | 0 | 100 | 100 |
| 26 | SZ | 73/125 (58%) | 69 (94%) | 4 (6%) | 0 | 100 | 100 |
| 27 | Sa | 98/115 (85%) | 95 (97%) | 3 (3%) | 0 | 100 | 100 |
| 28 | Sb | 81/84 (96%) | 78 (96%) | 3 (4%) | 0 | 100 | 100 |
| 29 | Sc | 60/69 (87%) | 58 (97%) | 2 (3%) | 0 | 100 | 100 |
| 30 | Sd | 53/56 (95%) | 50 (94%) | 3 (6%) | 0 | 100 | 100 |
| 31 | Se | 50/59 (85%) | 49 (98%) | 1 (2%) | 0 | 100 | 100 |
| 32 | sh | 62/156 (40%) | 56 (90%) | 6 (10%) | 0 | 100 | 100 |
| 33 | Sg | 311/317 (98%) | 296 (95%) | 15 (5%) | 0 | 100 | 100 |
| 34 | Ln | 22/25 (88%) | 20 (91%) | 2 (9%) | 0 | 100 | 100 |
| 37 | 3m | 361/374 (96%) | 347 (96%) | 14 (4%) | 0 | 100 | 100 |
| 38 | 3f | 267/357 (75%) | 261 (98%) | 6 (2%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 39 | 3a | 590/1382 (43%) | 567 (96%) | 23 (4%) | 0 | 100 | 100 |
| 40 | 3e | 428/445 (96%) | 419 (98%) | 8 (2%) | 1 (0%) | 44 | 71 |
| 41 | 3c | 537/913 (59%) | 522 (97%) | 15 (3%) | 0 | 100 | 100 |
| 42 | 3h | 316/352 (90%) | 306 (97%) | 10 (3%) | 0 | 100 | 100 |
| 43 | 3d | 53/548 (10%) | 49 (92%) | 4 (8%) | 0 | 100 | 100 |
| 44 | 3k | 213/218 (98%) | 210 (99%) | 3 (1%) | 0 | 100 | 100 |
| 45 | 3l | 518/564 (92%) | 506 (98%) | 12 (2%) | 0 | 100 | 100 |
| All | All | 8082/10654 (76%) | 7808 (97%) | 273 (3%) | 1 (0%) | 100 | 100 |

All (1) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 40 | 3e | 264 | ASN |

### 5.3.2 Protein sidechains ⓘ

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 1 | SA | 180/243 (74%) | 172 (96%) | 8 (4%) | 24 | 52 |
| 2 | SB | 193/231 (84%) | 187 (97%) | 6 (3%) | 35 | 61 |
| 3 | SC | 185/225 (82%) | 177 (96%) | 8 (4%) | 25 | 53 |
| 4 | SD | 189/202 (94%) | 180 (95%) | 9 (5%) | 21 | 50 |
| 5 | SE | 223/225 (99%) | 215 (96%) | 8 (4%) | 30 | 57 |
| 6 | SF | 162/170 (95%) | 155 (96%) | 7 (4%) | 25 | 53 |
| 7 | SG | 207/218 (95%) | 202 (98%) | 5 (2%) | 44 | 68 |
| 8 | SH | 167/174 (96%) | 159 (95%) | 8 (5%) | 21 | 50 |
| 9 | SI | 178/180 (99%) | 173 (97%) | 5 (3%) | 38 | 64 |
| 10 | SJ | 160/168 (95%) | 151 (94%) | 9 (6%) | 17 | 45 |
| 11 | SK | 87/136 (64%) | 79 (91%) | 8 (9%) | 7 | 26 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 12 | SL | 134/142 (94%) | 127 (95%) | 7 (5%) | 19 | 47 |
| 13 | Sf | 102/108 (94%) | 97 (95%) | 5 (5%) | 21 | 49 |
| 14 | SN | 130/131 (99%) | 125 (96%) | 5 (4%) | 28 | 56 |
| 15 | SO | 104/119 (87%) | 99 (95%) | 5 (5%) | 21 | 50 |
| 16 | SP | 107/130 (82%) | 106 (99%) | 1 (1%) | 75 | 85 |
| 17 | SQ | 116/121 (96%) | 109 (94%) | 7 (6%) | 16 | 42 |
| 18 | SR | 119/122 (98%) | 110 (92%) | 9 (8%) | 11 | 34 |
| 19 | SS | 124/132 (94%) | 110 (89%) | 14 (11%) | 4 | 18 |
| 20 | ST | 112/115 (97%) | 106 (95%) | 6 (5%) | 18 | 46 |
| 21 | SU | 93/107 (87%) | 89 (96%) | 4 (4%) | 25 | 53 |
| 22 | SV | 67/67 (100%) | 65 (97%) | 2 (3%) | 36 | 62 |
| 23 | SW | 112/113 (99%) | 109 (97%) | 3 (3%) | 40 | 65 |
| 24 | SX | 113/115 (98%) | 104 (92%) | 9 (8%) | 10 | 32 |
| 25 | SY | 108/115 (94%) | 104 (96%) | 4 (4%) | 29 | 56 |
| 26 | SZ | 67/103 (65%) | 62 (92%) | 5 (8%) | 11 | 34 |
| 27 | Sa | 87/98 (89%) | 84 (97%) | 3 (3%) | 32 | 59 |
| 28 | Sb | 75/76 (99%) | 71 (95%) | 4 (5%) | 19 | 47 |
| 29 | Sc | 55/62 (89%) | 53 (96%) | 2 (4%) | 30 | 57 |
| 30 | Sd | 48/49 (98%) | 47 (98%) | 1 (2%) | 48 | 70 |
| 31 | Se | 42/48 (88%) | 39 (93%) | 3 (7%) | 12 | 37 |
| 32 | sh | 57/140 (41%) | 54 (95%) | 3 (5%) | 19 | 47 |
| 33 | Sg | 272/275 (99%) | 256 (94%) | 16 (6%) | 16 | 43 |
| 34 | Ln | 23/24 (96%) | 23 (100%) | 0 | 100 | 100 |
| 37 | 3m | 252/335 (75%) | 237 (94%) | 15 (6%) | 16 | 42 |
| 38 | 3f | 229/289 (79%) | 221 (96%) | 8 (4%) | 31 | 58 |
| 39 | 3a | 439/1259 (35%) | 422 (96%) | 17 (4%) | 27 | 55 |
| 40 | 3e | 302/406 (74%) | 296 (98%) | 6 (2%) | 50 | 71 |
| 41 | 3c | 347/811 (43%) | 338 (97%) | 9 (3%) | 41 | 66 |
| 42 | 3h | 272/310 (88%) | 267 (98%) | 5 (2%) | 54 | 74 |
| 43 | 3d | 20/494 (4%) | 19 (95%) | 1 (5%) | 20 | 48 |
| 44 | 3k | 121/193 (63%) | 118 (98%) | 3 (2%) | 42 | 67 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 45 | 3l | 475/515 (92%) | 451 (95%) | 24 (5%) | 20 | 48 |
| All | All | 6655/9296 (72%) | 6368 (96%) | 287 (4%) | 27 | 53 |

All (287) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | SA | 88 | LEU |
| 1 | SA | 122 | LEU |
| 1 | SA | 148 | CYS |
| 1 | SA | 154 | LEU |
| 1 | SA | 178 | LEU |
| 1 | SA | 181 | GLU |
| 1 | SA | 197 | VAL |
| 1 | SA | 198 | MET |
| 2 | SB | 29 | ASP |
| 2 | SB | 38 | MET |
| 2 | SB | 48 | LEU |
| 2 | SB | 153 | THR |
| 2 | SB | 189 | ILE |
| 2 | SB | 218 | LEU |
| 3 | SC | 80 | GLU |
| 3 | SC | 105 | GLU |
| 3 | SC | 112 | VAL |
| 3 | SC | 152 | ARG |
| 3 | SC | 157 | LEU |
| 3 | SC | 160 | LEU |
| 3 | SC | 213 | LEU |
| 3 | SC | 233 | LEU |
| 4 | SD | 42 | THR |
| 4 | SD | 50 | ILE |
| 4 | SD | 69 | LEU |
| 4 | SD | 73 | VAL |
| 4 | SD | 142 | LEU |
| 4 | SD | 153 | VAL |
| 4 | SD | 156 | LEU |
| 4 | SD | 160 | SER |
| 4 | SD | 176 | LEU |
| 5 | SE | 12 | VAL |
| 5 | SE | 16 | LYS |
| 5 | SE | 23 | LEU |
| 5 | SE | 40 | GLU |
| 5 | SE | 65 | CYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 5 | SE | 183 | VAL |
| 5 | SE | 236 | ILE |
| 5 | SE | 238 | LEU |
| 6 | SF | 28 | VAL |
| 6 | SF | 32 | ASP |
| 6 | SF | 41 | VAL |
| 6 | SF | 52 | SER |
| 6 | SF | 78 | MET |
| 6 | SF | 79 | HIS |
| 6 | SF | 172 | CYS |
| 7 | SG | 114 | VAL |
| 7 | SG | 144 | LEU |
| 7 | SG | 158 | VAL |
| 7 | SG | 162 | LEU |
| 7 | SG | 179 | LEU |
| 8 | SH | 27 | LEU |
| 8 | SH | 30 | LEU |
| 8 | SH | 40 | LEU |
| 8 | SH | 45 | ILE |
| 8 | SH | 97 | GLN |
| 8 | SH | 109 | ARG |
| 8 | SH | 118 | ARG |
| 8 | SH | 130 | LEU |
| 9 | SI | 92 | ARG |
| 9 | SI | 130 | THR |
| 9 | SI | 164 | GLU |
| 9 | SI | 189 | VAL |
| 9 | SI | 195 | LEU |
| 10 | SJ | 12 | THR |
| 10 | SJ | 20 | PHE |
| 10 | SJ | 21 | GLU |
| 10 | SJ | 29 | LEU |
| 10 | SJ | 73 | GLU |
| 10 | SJ | 122 | SER |
| 10 | SJ | 137 | VAL |
| 10 | SJ | 151 | LEU |
| 10 | SJ | 163 | SER |
| 11 | SK | 2 | LEU |
| 11 | SK | 16 | PHE |
| 11 | SK | 40 | VAL |
| 11 | SK | 49 | MET |
| 11 | SK | 59 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 11 | SK | 65 | ARG |
| 11 | SK | 71 | LEU |
| 11 | SK | 73 | ASN |
| 12 | SL | 4 | ILE |
| 12 | SL | 33 | LEU |
| 12 | SL | 40 | ILE |
| 12 | SL | 74 | SER |
| 12 | SL | 76 | VAL |
| 12 | SL | 145 | VAL |
| 12 | SL | 146 | THR |
| 13 | Sf | 35 | ILE |
| 13 | Sf | 42 | LEU |
| 13 | Sf | 43 | ASP |
| 13 | Sf | 66 | GLU |
| 13 | Sf | 80 | ASP |
| 14 | SN | 4 | MET |
| 14 | SN | 60 | VAL |
| 14 | SN | 67 | THR |
| 14 | SN | 117 | LEU |
| 14 | SN | 118 | ILE |
| 15 | SO | 40 | THR |
| 15 | SO | 88 | LEU |
| 15 | SO | 100 | THR |
| 15 | SO | 116 | LEU |
| 15 | SO | 119 | LEU |
| 16 | SP | 82 | ASP |
| 17 | SQ | 18 | THR |
| 17 | SQ | 20 | THR |
| 17 | SQ | 34 | VAL |
| 17 | SQ | 39 | LEU |
| 17 | SQ | 53 | GLU |
| 17 | SQ | 127 | CYS |
| 17 | SQ | 144 | SER |
| 18 | SR | 16 | ILE |
| 18 | SR | 62 | GLN |
| 18 | SR | 69 | ILE |
| 18 | SR | 73 | LEU |
| 18 | SR | 91 | LEU |
| 18 | SR | 109 | LEU |
| 18 | SR | 120 | THR |
| 18 | SR | 124 | VAL |
| 18 | SR | 130 | THR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 19 | SS | 33 | ILE |
| 19 | SS | 36 | VAL |
| 19 | SS | 44 | VAL |
| 19 | SS | 60 | THR |
| 19 | SS | 65 | GLU |
| 19 | SS | 83 | PHE |
| 19 | SS | 85 | ASN |
| 19 | SS | 103 | LEU |
| 19 | SS | 107 | LEU |
| 19 | SS | 112 | GLU |
| 19 | SS | 131 | VAL |
| 19 | SS | 136 | THR |
| 19 | SS | 142 | ARG |
| 19 | SS | 145 | THR |
| 20 | ST | 4 | VAL |
| 20 | ST | 5 | THR |
| 20 | ST | 50 | GLU |
| 20 | ST | 76 | THR |
| 20 | ST | 110 | LEU |
| 20 | ST | 113 | VAL |
| 21 | SU | 55 | ARG |
| 21 | SU | 68 | THR |
| 21 | SU | 91 | LEU |
| 21 | SU | 110 | VAL |
| 22 | SV | 13 | VAL |
| 22 | SV | 70 | LEU |
| 23 | SW | 25 | VAL |
| 23 | SW | 74 | VAL |
| 23 | SW | 111 | MET |
| 24 | SX | 5 | ARG |
| 24 | SX | 9 | THR |
| 24 | SX | 12 | LYS |
| 24 | SX | 52 | LEU |
| 24 | SX | 53 | GLU |
| 24 | SX | 72 | VAL |
| 24 | SX | 118 | VAL |
| 24 | SX | 123 | VAL |
| 24 | SX | 128 | VAL |
| 25 | SY | 18 | LEU |
| 25 | SY | 25 | ILE |
| 25 | SY | 120 | THR |
| 25 | SY | 125 | VAL |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 26 | SZ | 49 | LEU |
| 26 | SZ | 65 | TYR |
| 26 | SZ | 68 | ILE |
| 26 | SZ | 92 | LEU |
| 26 | SZ | 100 | VAL |
| 27 | Sa | 55 | GLU |
| 27 | Sa | 63 | VAL |
| 27 | Sa | 89 | ARG |
| 28 | Sb | 11 | SER |
| 28 | Sb | 57 | VAL |
| 28 | Sb | 70 | LYS |
| 28 | Sb | 72 | ARG |
| 29 | Sc | 15 | THR |
| 29 | Sc | 43 | ILE |
| 30 | Sd | 7 | TYR |
| 31 | Se | 33 | LYS |
| 31 | Se | 45 | VAL |
| 31 | Se | 48 | THR |
| 32 | sh | 102 | VAL |
| 32 | sh | 107 | LYS |
| 32 | sh | 119 | ARG |
| 33 | Sg | 40 | ILE |
| 33 | Sg | 54 | ILE |
| 33 | Sg | 64 | HIS |
| 33 | Sg | 71 | ILE |
| 33 | Sg | 77 | PHE |
| 33 | Sg | 98 | THR |
| 33 | Sg | 113 | PHE |
| 33 | Sg | 132 | TRP |
| 33 | Sg | 150 | TRP |
| 33 | Sg | 151 | VAL |
| 33 | Sg | 179 | LEU |
| 33 | Sg | 226 | HIS |
| 33 | Sg | 256 | ILE |
| 33 | Sg | 267 | VAL |
| 33 | Sg | 297 | THR |
| 33 | Sg | 298 | LEU |
| 37 | 3m | 21 | TYR |
| 37 | 3m | 31 | GLU |
| 37 | 3m | 46 | ILE |
| 37 | 3m | 86 | LEU |
| 37 | 3m | 95 | GLU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 37 | 3m | 97 | GLU |
| 37 | 3m | 103 | LEU |
| 37 | 3m | 116 | ASN |
| 37 | 3m | 176 | LYS |
| 37 | 3m | 195 | ASP |
| 37 | 3m | 199 | GLN |
| 37 | 3m | 208 | ILE |
| 37 | 3m | 212 | LEU |
| 37 | 3m | 232 | LEU |
| 37 | 3m | 282 | PHE |
| 38 | 3f | 127 | HIS |
| 38 | 3f | 131 | VAL |
| 38 | 3f | 148 | VAL |
| 38 | 3f | 232 | PHE |
| 38 | 3f | 236 | THR |
| 38 | 3f | 238 | LYS |
| 38 | 3f | 262 | VAL |
| 38 | 3f | 355 | VAL |
| 39 | 3a | 35 | MET |
| 39 | 3a | 65 | HIS |
| 39 | 3a | 158 | ARG |
| 39 | 3a | 220 | LEU |
| 39 | 3a | 225 | SER |
| 39 | 3a | 268 | LYS |
| 39 | 3a | 285 | LYS |
| 39 | 3a | 315 | MET |
| 39 | 3a | 331 | ILE |
| 39 | 3a | 341 | LEU |
| 39 | 3a | 397 | GLU |
| 39 | 3a | 410 | VAL |
| 39 | 3a | 420 | LYS |
| 39 | 3a | 425 | GLN |
| 39 | 3a | 452 | PHE |
| 39 | 3a | 529 | VAL |
| 39 | 3a | 535 | GLU |
| 40 | 3e | 189 | LEU |
| 40 | 3e | 205 | LEU |
| 40 | 3e | 232 | ILE |
| 40 | 3e | 343 | THR |
| 40 | 3e | 356 | LEU |
| 40 | 3e | 392 | VAL |
| 41 | 3c | 424 | ILE |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 41 | 3c | 490 | LEU |
| 41 | 3c | 514 | PHE |
| 41 | 3c | 582 | TRP |
| 41 | 3c | 625 | LEU |
| 41 | 3c | 693 | LEU |
| 41 | 3c | 749 | TRP |
| 41 | 3c | 753 | HIS |
| 41 | 3c | 793 | PHE |
| 42 | 3h | 115 | LEU |
| 42 | 3h | 140 | TYR |
| 42 | 3h | 145 | GLU |
| 42 | 3h | 219 | GLU |
| 42 | 3h | 314 | MET |
| 43 | 3d | 21 | VAL |
| 44 | 3k | 128 | LEU |
| 44 | 3k | 150 | TYR |
| 44 | 3k | 194 | GLU |
| 45 | 3l | 46 | GLN |
| 45 | 3l | 82 | ASP |
| 45 | 3l | 93 | ASP |
| 45 | 3l | 136 | TYR |
| 45 | 3l | 145 | SER |
| 45 | 3l | 151 | GLU |
| 45 | 3l | 160 | TYR |
| 45 | 3l | 183 | LEU |
| 45 | 3l | 215 | LEU |
| 45 | 3l | 234 | LEU |
| 45 | 3l | 265 | LEU |
| 45 | 3l | 266 | TYR |
| 45 | 3l | 293 | VAL |
| 45 | 3l | 321 | PHE |
| 45 | 3l | 373 | ILE |
| 45 | 3l | 427 | ASN |
| 45 | 3l | 431 | VAL |
| 45 | 3l | 436 | HIS |
| 45 | 3l | 456 | GLN |
| 45 | 3l | 459 | THR |
| 45 | 3l | 495 | HIS |
| 45 | 3l | 503 | THR |
| 45 | 3l | 547 | ILE |
| 45 | 3l | 554 | ASN |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (60) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | SA | 81 | ASN |
| 1 | SA | 113 | GLN |
| 2 | SB | 101 | HIS |
| 2 | SB | 163 | GLN |
| 2 | SB | 177 | GLN |
| 3 | SC | 120 | GLN |
| 5 | SE | 138 | HIS |
| 5 | SE | 197 | ASN |
| 6 | SF | 79 | HIS |
| 7 | SG | 163 | ASN |
| 7 | SG | 177 | GLN |
| 9 | SI | 22 | HIS |
| 11 | SK | 66 | HIS |
| 12 | SL | 39 | ASN |
| 13 | Sf | 119 | GLN |
| 14 | SN | 138 | ASN |
| 16 | SP | 103 | ASN |
| 17 | SQ | 11 | GLN |
| 17 | SQ | 114 | GLN |
| 18 | SR | 26 | ASN |
| 19 | SS | 11 | HIS |
| 19 | SS | 42 | HIS |
| 19 | SS | 134 | GLN |
| 20 | ST | 63 | HIS |
| 20 | ST | 83 | GLN |
| 22 | SV | 3 | ASN |
| 23 | SW | 98 | GLN |
| 30 | Sd | 37 | ASN |
| 31 | Se | 37 | GLN |
| 37 | 3m | 116 | ASN |
| 37 | 3m | 196 | ASN |
| 37 | 3m | 205 | HIS |
| 37 | 3m | 257 | GLN |
| 39 | 3a | 44 | GLN |
| 39 | 3a | 175 | HIS |
| 39 | 3a | 180 | GLN |
| 39 | 3a | 187 | GLN |
| 39 | 3a | 301 | HIS |
| 41 | 3c | 461 | ASN |
| 41 | 3c | 465 | HIS |
| 41 | 3c | 579 | HIS |
| 41 | 3c | 597 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 41 | 3c | 615 | GLN |
| 41 | 3c | 753 | HIS |
| 41 | 3c | 828 | ASN |
| 42 | 3h | 159 | GLN |
| 42 | 3h | 255 | GLN |
| 42 | 3h | 261 | ASN |
| 42 | 3h | 270 | GLN |
| 42 | 3h | 276 | GLN |
| 44 | 3k | 151 | GLN |
| 45 | 3l | 109 | ASN |
| 45 | 3l | 139 | HIS |
| 45 | 3l | 223 | ASN |
| 45 | 3l | 225 | HIS |
| 45 | 3l | 229 | ASN |
| 45 | 3l | 239 | ASN |
| 45 | 3l | 296 | ASN |
| 45 | 3l | 452 | GLN |
| 45 | 3l | 546 | GLN |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 35 | S2 | 1746/1869 (93%) | 325 (18%) | 6 (0%) |
| 36 | zz | 301/332 (90%) | 117 (38%) | 0 |
| All | All | 2047/2201 (93%) | 442 (21%) | 6 (0%) |

All (442) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 2 | A |
| 35 | S2 | 17 | C |
| 35 | S2 | 33 | G |
| 35 | S2 | 41 | G |
| 35 | S2 | 42 | A |
| 35 | S2 | 44 | U |
| 35 | S2 | 46 | A |
| 35 | S2 | 56 | G |
| 35 | S2 | 59 | U |
| 35 | S2 | 62 | G |
| 35 | S2 | 65 | C |
| 35 | S2 | 67 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 68 | A |
| 35 | S2 | 73 | C |
| 35 | S2 | 74 | G |
| 35 | S2 | 75 | G |
| 35 | S2 | 99 | A |
| 35 | S2 | 103 | A |
| 35 | S2 | 113 | G |
| 35 | S2 | 114 | G |
| 35 | S2 | 115 | U |
| 35 | S2 | 126 | G |
| 35 | S2 | 130 | G |
| 35 | S2 | 143 | U |
| 35 | S2 | 155 | G |
| 35 | S2 | 163 | U |
| 35 | S2 | 166 | A |
| 35 | S2 | 172 | U |
| 35 | S2 | 175 | A |
| 35 | S2 | 178 | C |
| 35 | S2 | 191 | A |
| 35 | S2 | 193 | C |
| 35 | S2 | 196 | C |
| 35 | S2 | 199 | C |
| 35 | S2 | 200 | G |
| 35 | S2 | 202 | G |
| 35 | S2 | 204 | G |
| 35 | S2 | 205 | G |
| 35 | S2 | 211 | G |
| 35 | S2 | 226 | A |
| 35 | S2 | 228 | C |
| 35 | S2 | 238 | C |
| 35 | S2 | 281 | C |
| 35 | S2 | 282 | G |
| 35 | S2 | 283 | G |
| 35 | S2 | 294 | U |
| 35 | S2 | 302 | A |
| 35 | S2 | 306 | C |
| 35 | S2 | 309 | G |
| 35 | S2 | 319 | C |
| 35 | S2 | 320 | G |
| 35 | S2 | 321 | C |
| 35 | S2 | 325 | C |
| 35 | S2 | 326 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 327 | G |
| 35 | S2 | 328 | U |
| 35 | S2 | 329 | G |
| 35 | S2 | 332 | G |
| 35 | S2 | 339 | A |
| 35 | S2 | 347 | G |
| 35 | S2 | 362 | C |
| 35 | S2 | 364 | A |
| 35 | S2 | 368 | U |
| 35 | S2 | 370 | G |
| 35 | S2 | 383 | G |
| 35 | S2 | 385 | G |
| 35 | S2 | 386 | C |
| 35 | S2 | 400 | C |
| 35 | S2 | 407 | G |
| 35 | S2 | 409 | C |
| 35 | S2 | 418 | A |
| 35 | S2 | 435 | A |
| 35 | S2 | 448 | A |
| 35 | S2 | 449 | A |
| 35 | S2 | 450 | C |
| 35 | S2 | 465 | A |
| 35 | S2 | 471 | G |
| 35 | S2 | 472 | C |
| 35 | S2 | 474 | G |
| 35 | S2 | 482 | G |
| 35 | S2 | 487 | U |
| 35 | S2 | 492 | C |
| 35 | S2 | 493 | A |
| 35 | S2 | 516 | A |
| 35 | S2 | 517 | C |
| 35 | S2 | 518 | G |
| 35 | S2 | 532 | C |
| 35 | S2 | 536 | A |
| 35 | S2 | 537 | C |
| 35 | S2 | 538 | U |
| 35 | S2 | 539 | C |
| 35 | S2 | 541 | U |
| 35 | S2 | 543 | C |
| 35 | S2 | 544 | G |
| 35 | S2 | 545 | A |
| 35 | S2 | 546 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 547 | G |
| 35 | S2 | 548 | C |
| 35 | S2 | 549 | C |
| 35 | S2 | 550 | C |
| 35 | S2 | 554 | A |
| 35 | S2 | 555 | A |
| 35 | S2 | 564 | A |
| 35 | S2 | 568 | C |
| 35 | S2 | 569 | A |
| 35 | S2 | 576 | A |
| 35 | S2 | 583 | A |
| 35 | S2 | 587 | A |
| 35 | S2 | 589 | G |
| 35 | S2 | 590 | A |
| 35 | S2 | 591 | U |
| 35 | S2 | 593 | C |
| 35 | S2 | 607 | U |
| 35 | S2 | 614 | C |
| 35 | S2 | 615 | C |
| 35 | S2 | 617 | G |
| 35 | S2 | 629 | A |
| 35 | S2 | 643 | A |
| 35 | S2 | 644 | G |
| 35 | S2 | 655 | A |
| 35 | S2 | 659 | G |
| 35 | S2 | 660 | C |
| 35 | S2 | 668 | A |
| 35 | S2 | 669 | A |
| 35 | S2 | 670 | A |
| 35 | S2 | 671 | A |
| 35 | S2 | 672 | A |
| 35 | S2 | 673 | G |
| 35 | S2 | 684 | G |
| 35 | S2 | 688 | U |
| 35 | S2 | 690 | G |
| 35 | S2 | 692 | G |
| 35 | S2 | 693 | A |
| 35 | S2 | 695 | C |
| 35 | S2 | 696 | G |
| 35 | S2 | 697 | G |
| 35 | S2 | 698 | G |
| 35 | S2 | 731 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 732 | U |
| 35 | S2 | 733 | C |
| 35 | S2 | 735 | C |
| 35 | S2 | 736 | C |
| 35 | S2 | 738 | C |
| 35 | S2 | 746 | C |
| 35 | S2 | 749 | U |
| 35 | S2 | 790 | C |
| 35 | S2 | 795 | A |
| 35 | S2 | 796 | G |
| 35 | S2 | 799 | U |
| 35 | S2 | 801 | U |
| 35 | S2 | 821 | G |
| 35 | S2 | 822 | U |
| 35 | S2 | 834 | C |
| 35 | S2 | 847 | A |
| 35 | S2 | 869 | A |
| 35 | S2 | 870 | A |
| 35 | S2 | 871 | U |
| 35 | S2 | 872 | A |
| 35 | S2 | 878 | G |
| 35 | S2 | 886 | A |
| 35 | S2 | 890 | U |
| 35 | S2 | 891 | G |
| 35 | S2 | 894 | G |
| 35 | S2 | 895 | G |
| 35 | S2 | 896 | U |
| 35 | S2 | 897 | U |
| 35 | S2 | 906 | U |
| 35 | S2 | 913 | A |
| 35 | S2 | 914 | U |
| 35 | S2 | 920 | A |
| 35 | S2 | 921 | G |
| 35 | S2 | 922 | A |
| 35 | S2 | 933 | G |
| 35 | S2 | 943 | U |
| 35 | S2 | 963 | A |
| 35 | S2 | 971 | G |
| 35 | S2 | 985 | G |
| 35 | S2 | 990 | A |
| 35 | S2 | 992 | A |
| 35 | S2 | 1002 | U |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 1017 | U |
| 35 | S2 | 1023 | A |
| 35 | S2 | 1027 | A |
| 35 | S2 | 1045 | U |
| 35 | S2 | 1061 | U |
| 35 | S2 | 1062 | A |
| 35 | S2 | 1078 | C |
| 35 | S2 | 1081 | U |
| 35 | S2 | 1082 | A |
| 35 | S2 | 1083 | A |
| 35 | S2 | 1085 | C |
| 35 | S2 | 1109 | C |
| 35 | S2 | 1114 | U |
| 35 | S2 | 1115 | U |
| 35 | S2 | 1117 | C |
| 35 | S2 | 1118 | C |
| 35 | S2 | 1119 | A |
| 35 | S2 | 1121 | G |
| 35 | S2 | 1133 | A |
| 35 | S2 | 1135 | C |
| 35 | S2 | 1138 | C |
| 35 | S2 | 1139 | C |
| 35 | S2 | 1149 | A |
| 35 | S2 | 1153 | C |
| 35 | S2 | 1154 | U |
| 35 | S2 | 1171 | G |
| 35 | S2 | 1195 | A |
| 35 | S2 | 1201 | U |
| 35 | S2 | 1207 | G |
| 35 | S2 | 1215 | C |
| 35 | S2 | 1242 | U |
| 35 | S2 | 1243 | U |
| 35 | S2 | 1249 | C |
| 35 | S2 | 1251 | A |
| 35 | S2 | 1253 | A |
| 35 | S2 | 1255 | G |
| 35 | S2 | 1256 | G |
| 35 | S2 | 1257 | G |
| 35 | S2 | 1259 | A |
| 35 | S2 | 1264 | C |
| 35 | S2 | 1274 | G |
| 35 | S2 | 1275 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 1285 | G |
| 35 | S2 | 1286 | G |
| 35 | S2 | 1287 | A |
| 35 | S2 | 1288 | U |
| 35 | S2 | 1301 | A |
| 35 | S2 | 1302 | G |
| 35 | S2 | 1303 | C |
| 35 | S2 | 1306 | U |
| 35 | S2 | 1308 | U |
| 35 | S2 | 1309 | C |
| 35 | S2 | 1322 | G |
| 35 | S2 | 1326 | U |
| 35 | S2 | 1327 | G |
| 35 | S2 | 1342 | U |
| 35 | S2 | 1348 | G |
| 35 | S2 | 1364 | U |
| 35 | S2 | 1371 | U |
| 35 | S2 | 1372 | U |
| 35 | S2 | 1378 | A |
| 35 | S2 | 1382 | A |
| 35 | S2 | 1397 | U |
| 35 | S2 | 1401 | A |
| 35 | S2 | 1404 | U |
| 35 | S2 | 1417 | C |
| 35 | S2 | 1418 | C |
| 35 | S2 | 1419 | C |
| 35 | S2 | 1420 | G |
| 35 | S2 | 1421 | A |
| 35 | S2 | 1422 | G |
| 35 | S2 | 1423 | C |
| 35 | S2 | 1424 | G |
| 35 | S2 | 1428 | G |
| 35 | S2 | 1435 | C |
| 35 | S2 | 1436 | C |
| 35 | S2 | 1438 | A |
| 35 | S2 | 1442 | U |
| 35 | S2 | 1454 | A |
| 35 | S2 | 1462 | U |
| 35 | S2 | 1463 | U |
| 35 | S2 | 1464 | C |
| 35 | S2 | 1489 | A |
| 35 | S2 | 1490 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 1494 | U |
| 35 | S2 | 1495 | G |
| 35 | S2 | 1497 | G |
| 35 | S2 | 1498 | A |
| 35 | S2 | 1508 | A |
| 35 | S2 | 1520 | G |
| 35 | S2 | 1521 | C |
| 35 | S2 | 1533 | A |
| 35 | S2 | 1553 | C |
| 35 | S2 | 1555 | U |
| 35 | S2 | 1556 | A |
| 35 | S2 | 1580 | A |
| 35 | S2 | 1588 | A |
| 35 | S2 | 1601 | A |
| 35 | S2 | 1606 | G |
| 35 | S2 | 1621 | U |
| 35 | S2 | 1646 | C |
| 35 | S2 | 1654 | G |
| 35 | S2 | 1665 | G |
| 35 | S2 | 1699 | A |
| 35 | S2 | 1706 | G |
| 35 | S2 | 1712 | A |
| 35 | S2 | 1713 | C |
| 35 | S2 | 1714 | U |
| 35 | S2 | 1719 | A |
| 35 | S2 | 1721 | U |
| 35 | S2 | 1722 | G |
| 35 | S2 | 1723 | G |
| 35 | S2 | 1744 | G |
| 35 | S2 | 1745 | A |
| 35 | S2 | 1748 | G |
| 35 | S2 | 1752 | C |
| 35 | S2 | 1753 | C |
| 35 | S2 | 1754 | G |
| 35 | S2 | 1768 | A |
| 35 | S2 | 1776 | G |
| 35 | S2 | 1777 | G |
| 35 | S2 | 1778 | C |
| 35 | S2 | 1780 | G |
| 35 | S2 | 1781 | A |
| 35 | S2 | 1782 | G |
| 35 | S2 | 1783 | C |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 1784 | G |
| 35 | S2 | 1812 | U |
| 35 | S2 | 1813 | A |
| 35 | S2 | 1820 | G |
| 35 | S2 | 1823 | A |
| 35 | S2 | 1824 | A |
| 35 | S2 | 1825 | A |
| 35 | S2 | 1826 | G |
| 35 | S2 | 1829 | G |
| 35 | S2 | 1835 | A |
| 35 | S2 | 1837 | G |
| 35 | S2 | 1838 | U |
| 35 | S2 | 1849 | G |
| 35 | S2 | 1851 | A |
| 35 | S2 | 1861 | G |
| 35 | S2 | 1862 | G |
| 35 | S2 | 1863 | A |
| 35 | S2 | 1864 | U |
| 35 | S2 | 1865 | C |
| 36 | zz | 45 | C |
| 36 | zz | 46 | U |
| 36 | zz | 47 | G |
| 36 | zz | 48 | U |
| 36 | zz | 49 | G |
| 36 | zz | 51 | G |
| 36 | zz | 54 | A |
| 36 | zz | 56 | U |
| 36 | zz | 57 | A |
| 36 | zz | 58 | C |
| 36 | zz | 60 | G |
| 36 | zz | 64 | U |
| 36 | zz | 82 | G |
| 36 | zz | 83 | C |
| 36 | zz | 84 | C |
| 36 | zz | 85 | A |
| 36 | zz | 86 | U |
| 36 | zz | 94 | G |
| 36 | zz | 102 | G |
| 36 | zz | 104 | C |
| 36 | zz | 105 | G |
| 36 | zz | 106 | U |
| 36 | zz | 107 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 36 | zz | 110 | G |
| 36 | zz | 111 | C |
| 36 | zz | 112 | C |
| 36 | zz | 113 | U |
| 36 | zz | 115 | C |
| 36 | zz | 118 | G |
| 36 | zz | 120 | C |
| 36 | zz | 125 | C |
| 36 | zz | 129 | C |
| 36 | zz | 137 | G |
| 36 | zz | 145 | G |
| 36 | zz | 146 | G |
| 36 | zz | 151 | C |
| 36 | zz | 154 | A |
| 36 | zz | 156 | C |
| 36 | zz | 157 | C |
| 36 | zz | 160 | U |
| 36 | zz | 161 | G |
| 36 | zz | 162 | A |
| 36 | zz | 163 | G |
| 36 | zz | 164 | U |
| 36 | zz | 166 | C |
| 36 | zz | 168 | C |
| 36 | zz | 169 | C |
| 36 | zz | 172 | A |
| 36 | zz | 175 | U |
| 36 | zz | 185 | A |
| 36 | zz | 186 | C |
| 36 | zz | 188 | G |
| 36 | zz | 189 | G |
| 36 | zz | 191 | U |
| 36 | zz | 192 | C |
| 36 | zz | 195 | U |
| 36 | zz | 196 | U |
| 36 | zz | 197 | C |
| 36 | zz | 198 | U |
| 36 | zz | 202 | A |
| 36 | zz | 204 | C |
| 36 | zz | 207 | C |
| 36 | zz | 208 | C |
| 36 | zz | 209 | C |
| 36 | zz | 210 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 36 | zz | 211 | C |
| 36 | zz | 213 | C |
| 36 | zz | 216 | U |
| 36 | zz | 217 | G |
| 36 | zz | 222 | G |
| 36 | zz | 223 | A |
| 36 | zz | 224 | G |
| 36 | zz | 225 | A |
| 36 | zz | 229 | G |
| 36 | zz | 233 | G |
| 36 | zz | 234 | U |
| 36 | zz | 235 | G |
| 36 | zz | 236 | C |
| 36 | zz | 237 | C |
| 36 | zz | 244 | A |
| 36 | zz | 245 | G |
| 36 | zz | 247 | C |
| 36 | zz | 253 | G |
| 36 | zz | 258 | G |
| 36 | zz | 260 | A |
| 36 | zz | 263 | G |
| 36 | zz | 265 | U |
| 36 | zz | 266 | G |
| 36 | zz | 270 | C |
| 36 | zz | 276 | A |
| 36 | zz | 280 | C |
| 36 | zz | 281 | U |
| 36 | zz | 282 | U |
| 36 | zz | 283 | G |
| 36 | zz | 284 | U |
| 36 | zz | 286 | G |
| 36 | zz | 288 | A |
| 36 | zz | 289 | C |
| 36 | zz | 290 | U |
| 36 | zz | 295 | G |
| 36 | zz | 296 | A |
| 36 | zz | 297 | U |
| 36 | zz | 303 | G |
| 36 | zz | 306 | U |
| 36 | zz | 311 | G |
| 36 | zz | 318 | G |
| 36 | zz | 323 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 36 | zz | 330 | A |
| 36 | zz | 331 | G |
| 36 | zz | 332 | A |
| 36 | zz | 334 | C |
| 36 | zz | 335 | G |
| 36 | zz | 336 | U |
| 36 | zz | 337 | G |
| 36 | zz | 339 | A |
| 36 | zz | 344 | G |
| 36 | zz | 345 | A |

All (6) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 35 | S2 | 174 | C |
| 35 | S2 | 517 | C |
| 35 | S2 | 531 | A |
| 35 | S2 | 871 | U |
| 35 | S2 | 1326 | U |
| 35 | S2 | 1434 | C |

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

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

### 5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

### 5.6 Ligand geometry (i)

Of 10 ligands modelled in this entry, 10 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers ⓘ

There are no such residues in this entry.

## 5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

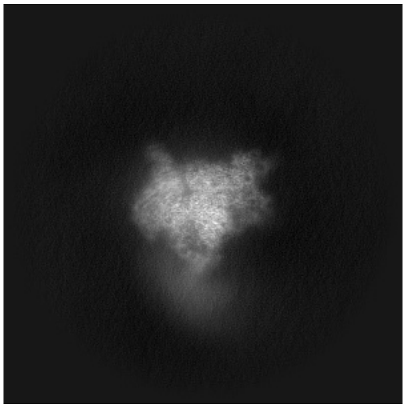
# 6 Map visualisation

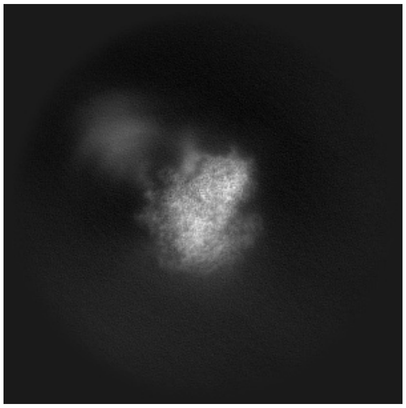
This section contains visualisations of the EMDB entry EMD-62386. These allow visual inspection of the internal detail of the map and identification of artifacts.

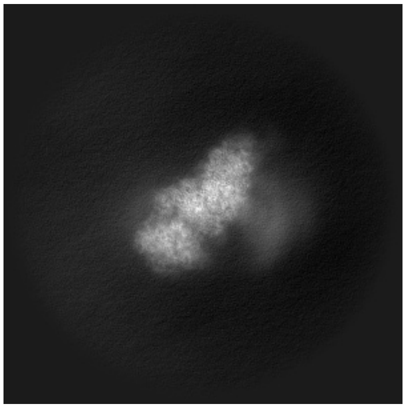
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

## 6.1 Orthogonal projections

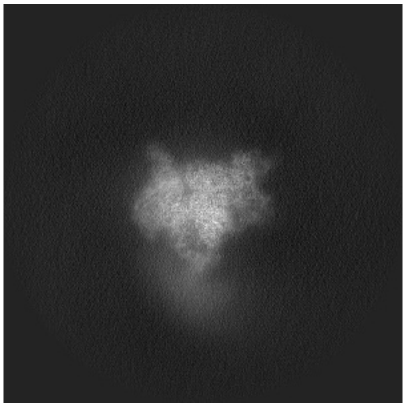
### 6.1.1 Primary map

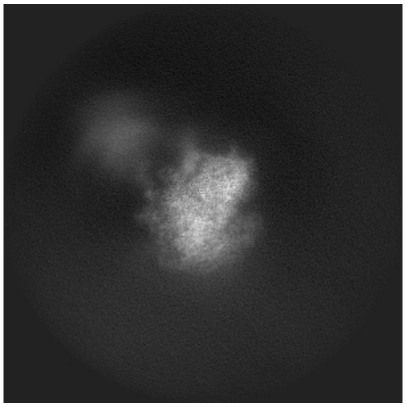

X

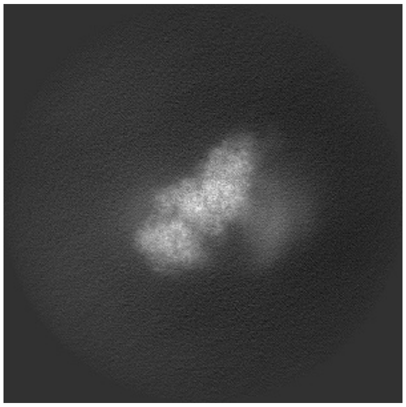

Y


Z

### 6.1.2 Raw map


X

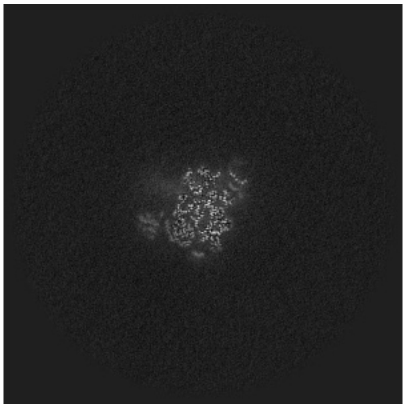

Y

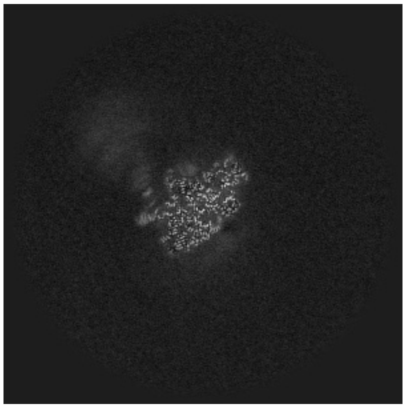

Z

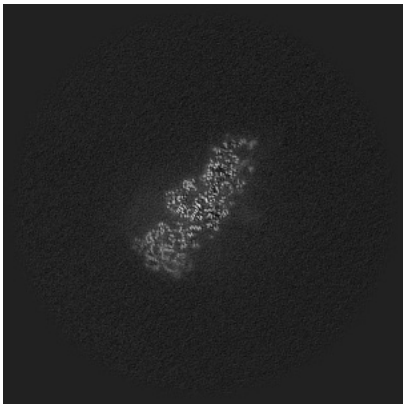
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices

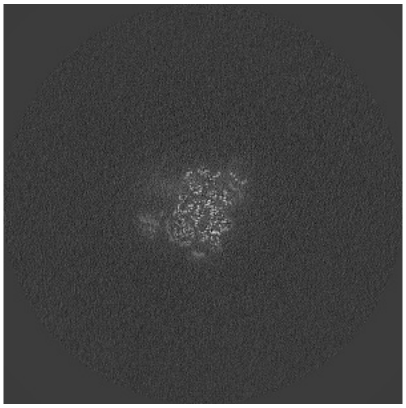
### 6.2.1 Primary map

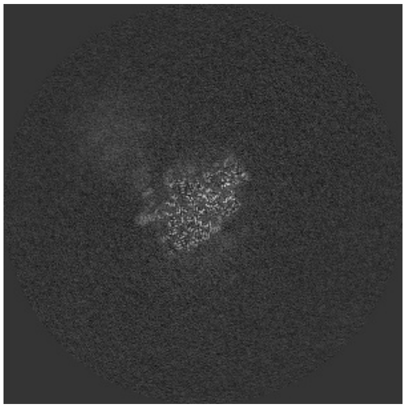

X Index: 250

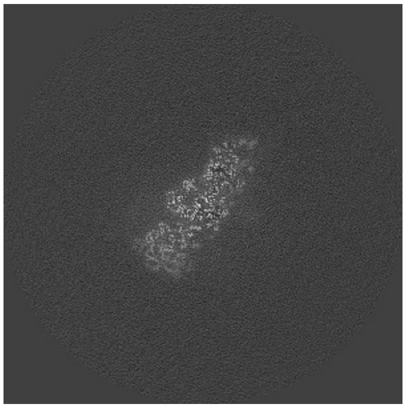

Y Index: 250


Z Index: 250

### 6.2.2 Raw map


X Index: 250

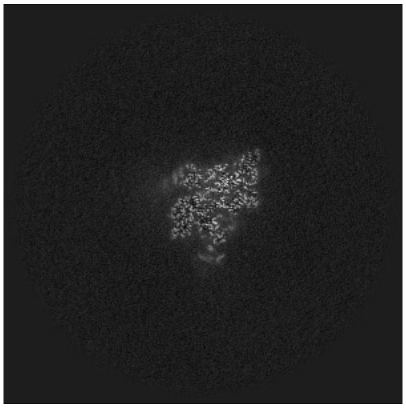

Y Index: 250

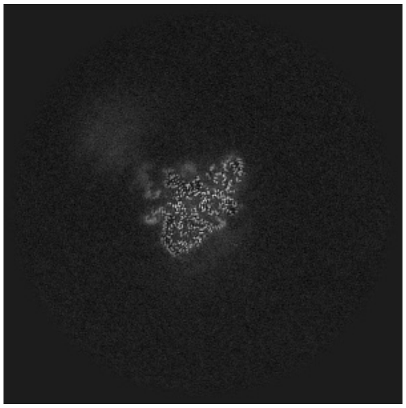

Z Index: 250

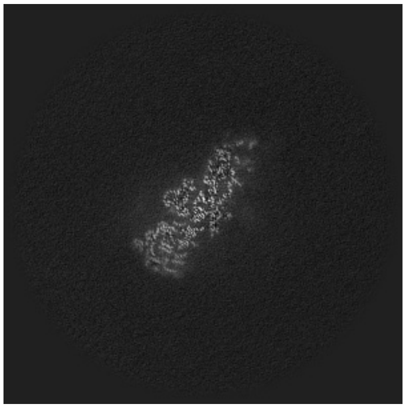
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices

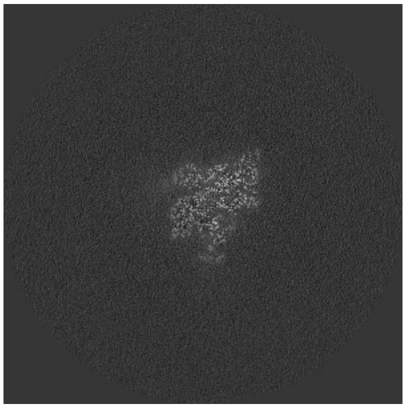
### 6.3.1 Primary map

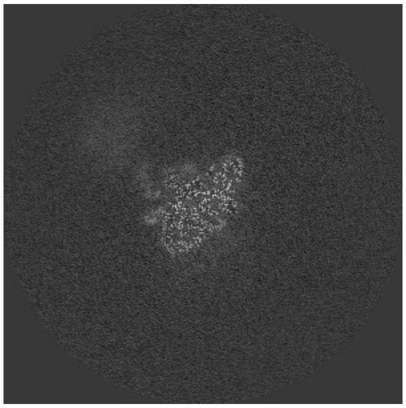

X Index: 267

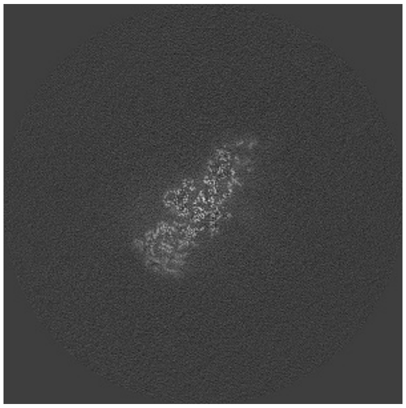

Y Index: 255


Z Index: 248

### 6.3.2 Raw map


X Index: 267

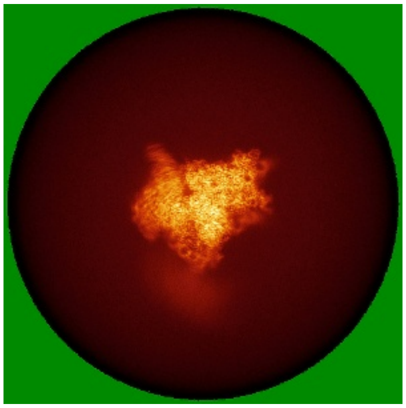

Y Index: 255

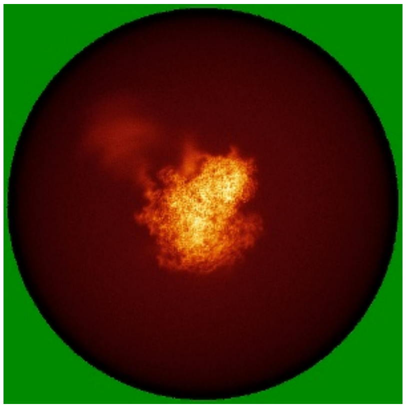

Z Index: 248

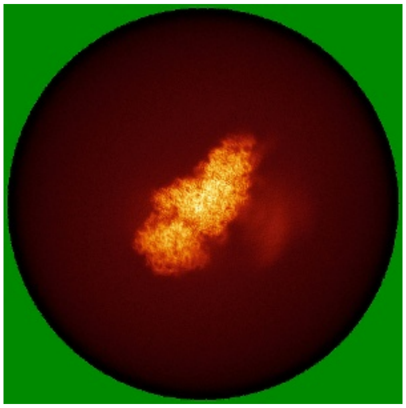
The images above show the largest variance slices of the map in three orthogonal directions.

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

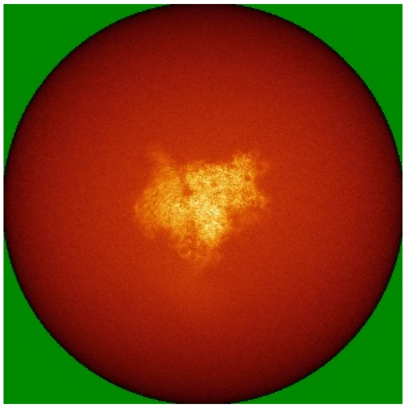
### 6.4.1 Primary map

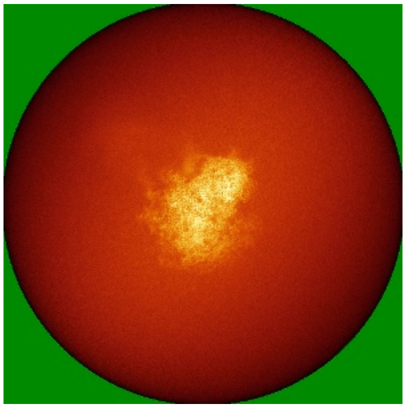

X

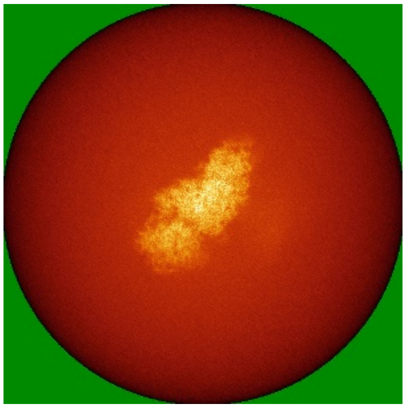

Y


Z

### 6.4.2 Raw map


X

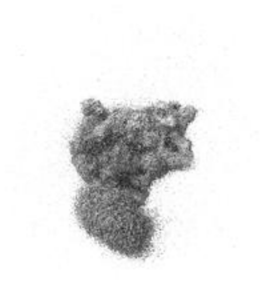

Y


Z

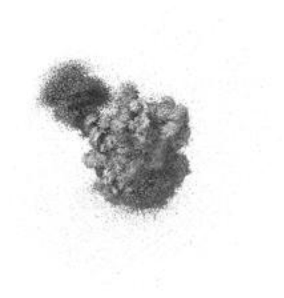
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views

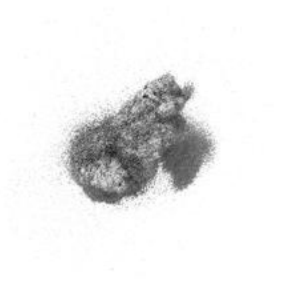
### 6.5.1 Primary map



X



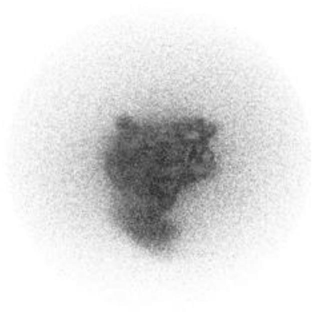
Y



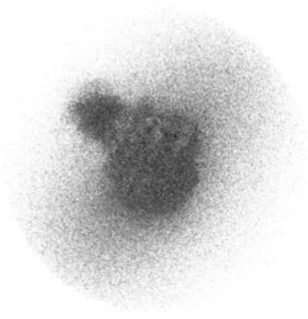
Z

The images above show the 3D surface view of the map at the recommended contour level 0.008. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

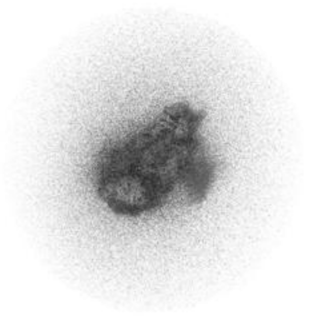
### 6.5.2 Raw map



X



Y



Z

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

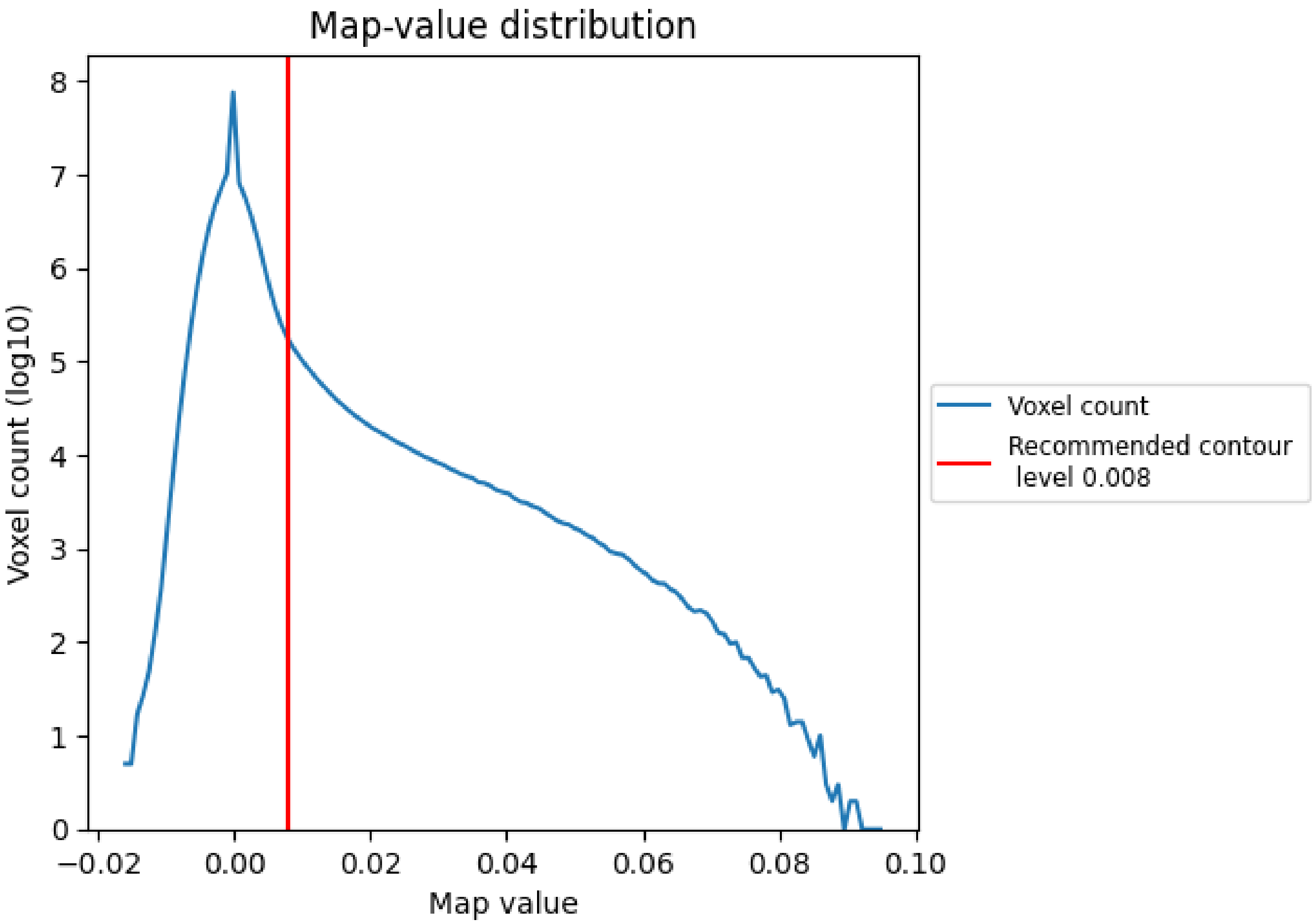
## 6.6 Mask visualisation

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

# 7 Map analysis ⓘ

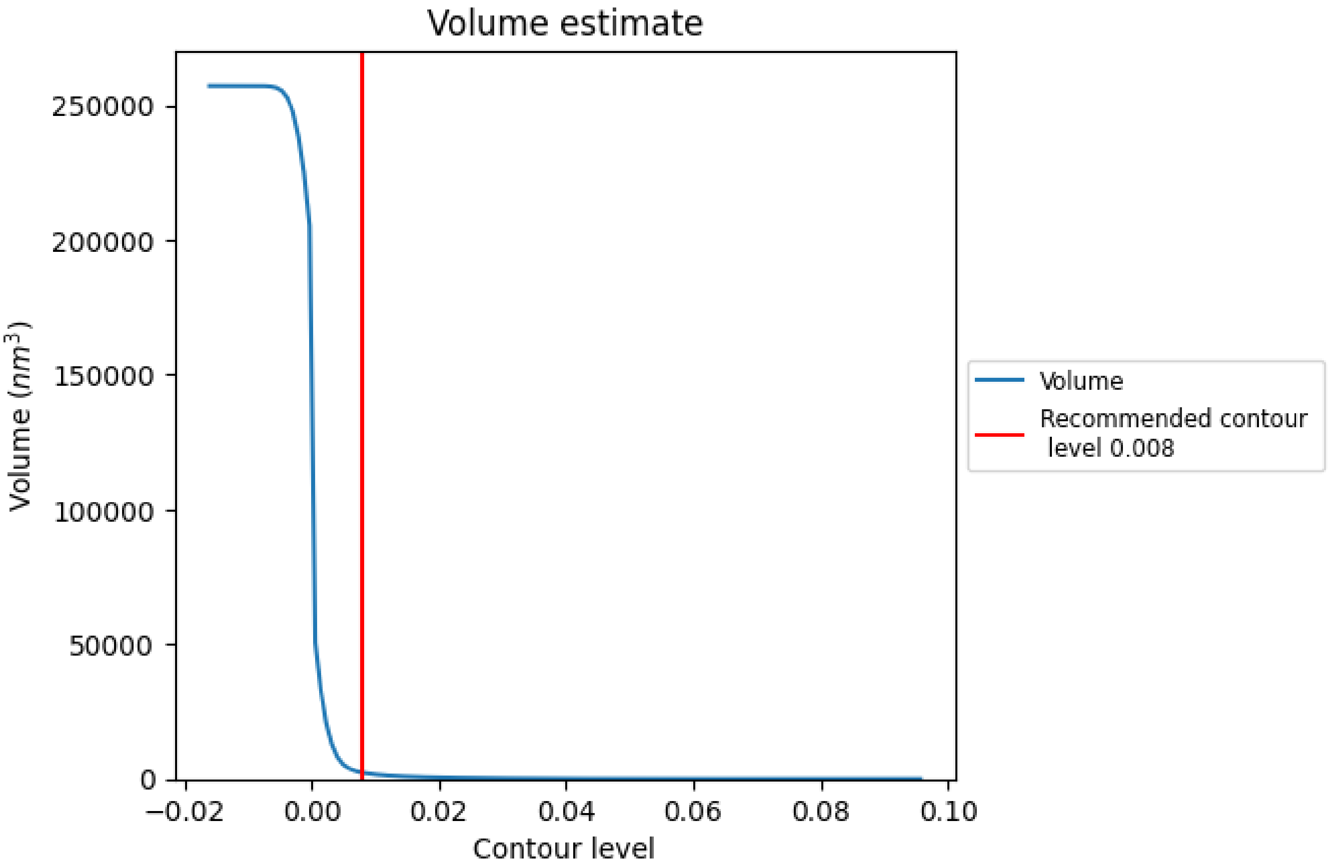
This section contains the results of statistical analysis of the map.

## 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.

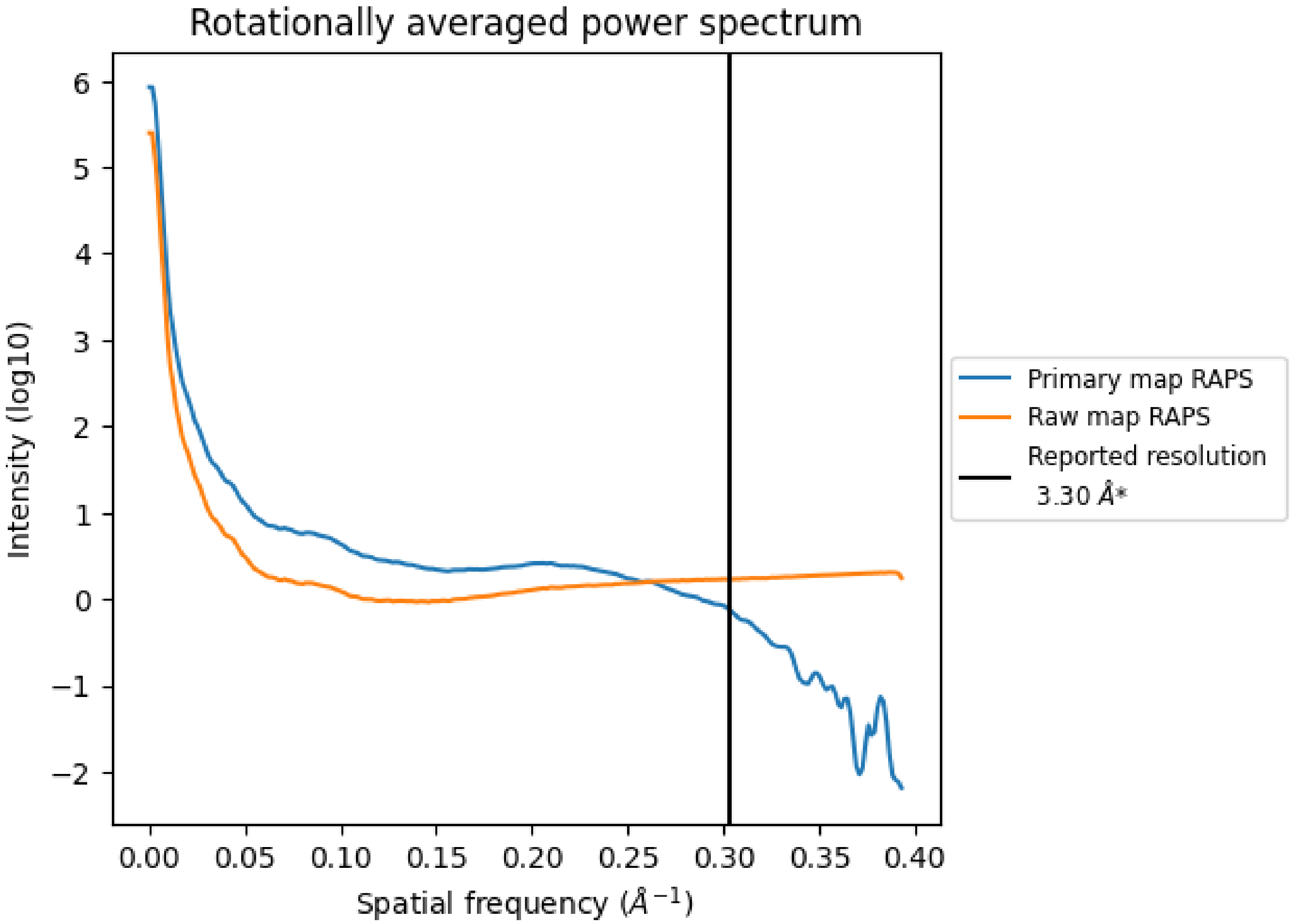
## 7.2 Volume estimate ⓘ



The volume at the recommended contour level is 2406 nm$^3$; this corresponds to an approximate mass of 2173 kDa.

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

## 7.3 Rotationally averaged power spectrum ⓘ

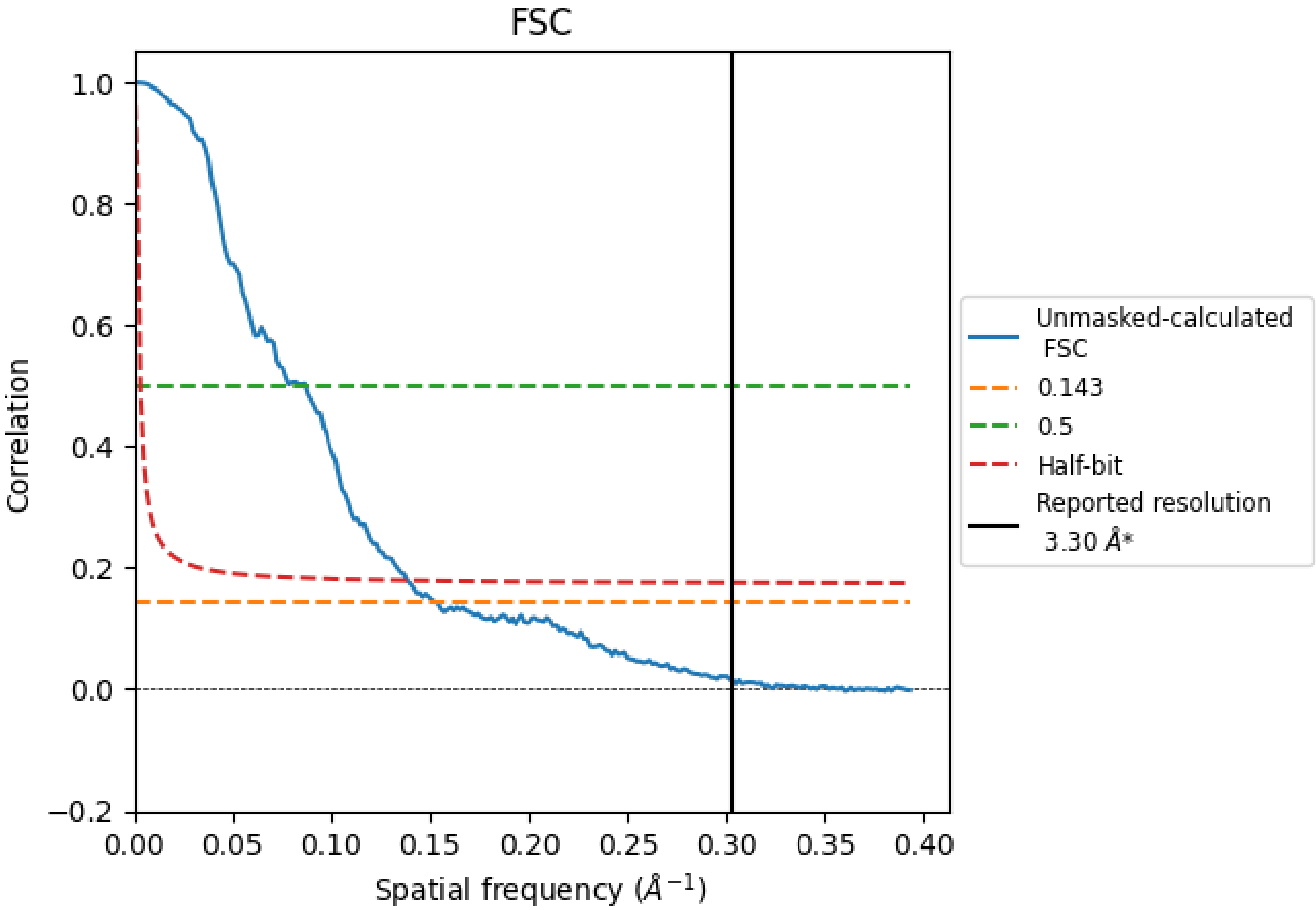


*Reported resolution corresponds to spatial frequency of 0.303 $Å^{-1}$

# 8 Fourier-Shell correlation ⓘ

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

## 8.1 FSC ⓘ



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

## 8.2 Resolution estimates ⓘ

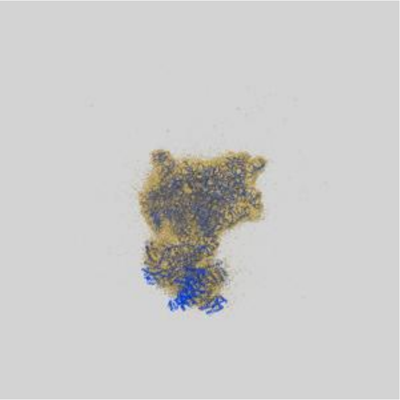
| **Resolution estimate (Å)** | **Estimation criterion (FSC cut-off)** | | |
|---|---|---|---|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 3.30 | - | - |
| Author-provided FSC curve | - | - | - |
| Unmasked-calculated* | 6.53 | 11.53 | 7.23 |

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.53 differs from the reported value 3.3 by more than 10 %

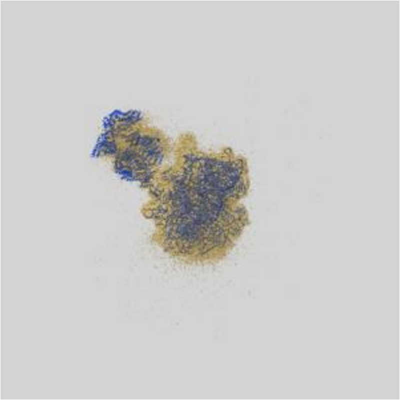
# 9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-62386 and PDB model 9KKF. Per-residue inclusion information can be found in section 3 on page 12.

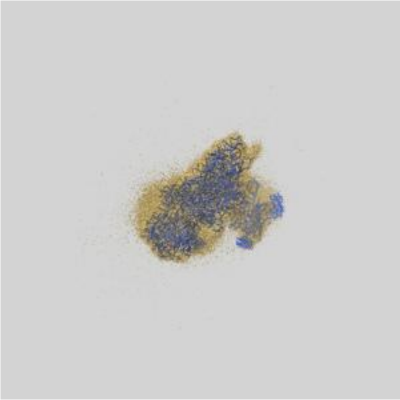
## 9.1 Map-model overlay



X



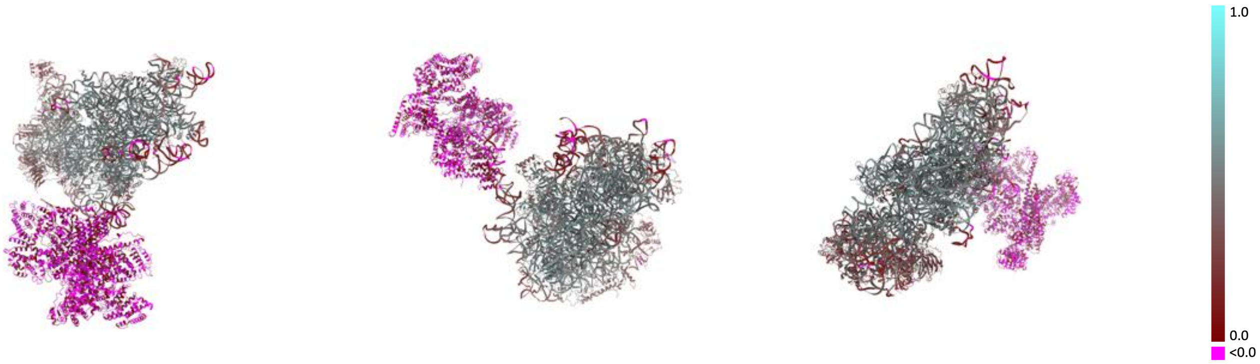
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.008 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.

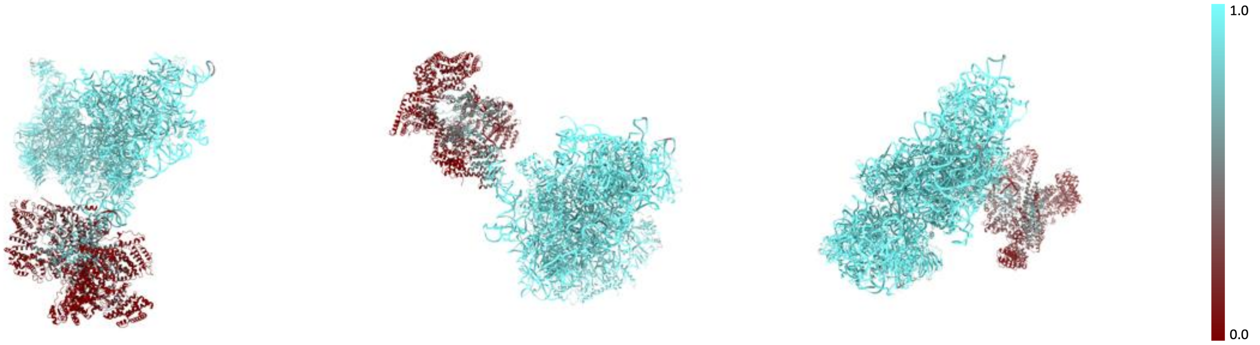
## 9.2 Q-score mapped to coordinate model ⓘ



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.

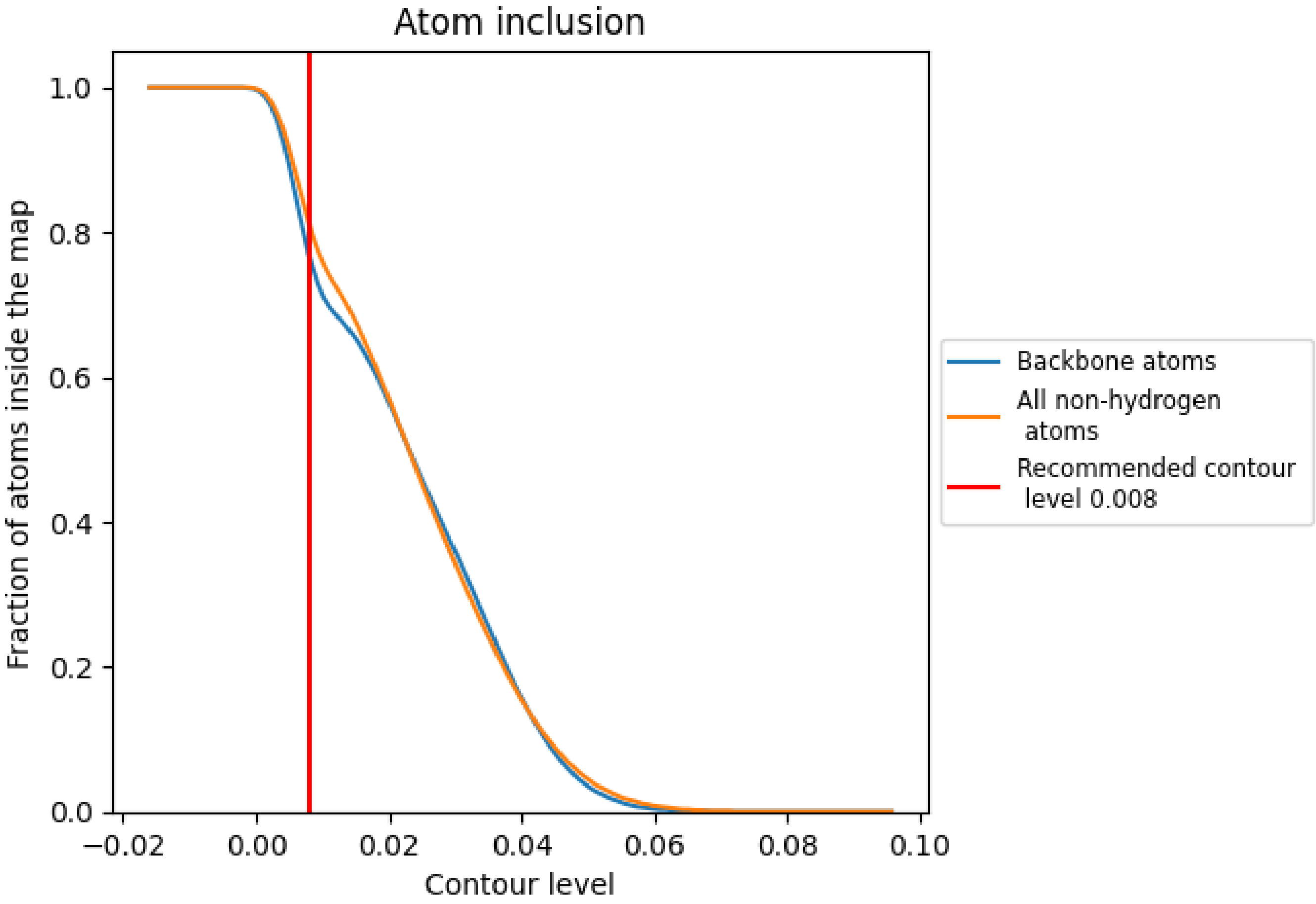
## 9.3 Atom inclusion mapped to coordinate model ⓘ



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 (0.008).

## 9.4 Atom inclusion ⓘ



At the recommended contour level, 77% of all backbone atoms, 81% 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 (0.008) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.8110 | 0.3360 |
| 3a | 0.3820 | 0.0180 |
| 3c | 0.2760 | -0.0020 |
| 3d | 0.2020 | 0.0300 |
| 3e | 0.1760 | 0.0030 |
| 3f | 0.3100 | 0.0060 |
| 3h | 0.4350 | 0.0140 |
| 3k | 0.0380 | -0.0160 |
| 3l | 0.0860 | -0.0050 |
| 3m | 0.0720 | -0.0110 |
| Ln | 1.0000 | 0.5090 |
| S2 | 0.9960 | 0.4550 |
| SA | 0.9950 | 0.5030 |
| SB | 0.9880 | 0.5000 |
| SC | 0.9960 | 0.5170 |
| SD | 0.9940 | 0.4090 |
| SE | 0.9950 | 0.4970 |
| SF | 0.9960 | 0.4770 |
| SG | 0.9790 | 0.4050 |
| SH | 0.9870 | 0.4450 |
| SI | 0.9880 | 0.4930 |
| SJ | 0.9950 | 0.5060 |
| SK | 0.9920 | 0.3470 |
| SL | 0.9940 | 0.5010 |
| SN | 0.9950 | 0.4950 |
| SO | 0.9960 | 0.5260 |
| SP | 0.9780 | 0.3210 |
| SQ | 0.9950 | 0.4310 |
| SR | 0.9830 | 0.4480 |
| SS | 0.9750 | 0.3650 |
| ST | 0.9910 | 0.3840 |
| SU | 0.9940 | 0.3800 |
| SV | 0.9890 | 0.5010 |
| SW | 1.0000 | 0.5040 |
| SX | 0.9980 | 0.5080 |

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| Chain | Atom inclusion | Q-score |
|---|---|---|
| SY | 0.9880 | 0.4480 |
| SZ | 0.9980 | 0.4390 |
| Sa | 1.0000 | 0.5340 |
| Sb | 0.9950 | 0.5070 |
| Sc | 1.0000 | 0.5000 |
| Sd | 0.9980 | 0.4190 |
| Se | 0.9950 | 0.4710 |
| Sf | 0.8830 | 0.2190 |
| Sg | 0.9770 | 0.3200 |
| sh | 0.9060 | 0.2140 |
| zz | 0.9130 | 0.2920 |