# wwPDB X-ray Structure Validation Summary Report (i)

Oct 5, 2024 – 01:55 pm BST

| | | |
|---|---|---|
| PDB ID | : | 2UXD |
| Title | : | Crystal structure of an extended tRNA anticodon stem loop in complex with its cognate mRNA CGGG in the context of the Thermus thermophilus 30S subunit. |
| Authors | : | Dunham, C.M.; Selmer, M.; Phelps, S.S.; Kelley, A.C.; Suzuki, T.; Joseph, S.; Ramakrishnan, V. |
| Deposited on | : | 2007-03-28 |
| Resolution | : | 3.20 Å(reported) |

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

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

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

The following versions of software and data (see references (1)) were used in the production of this report:

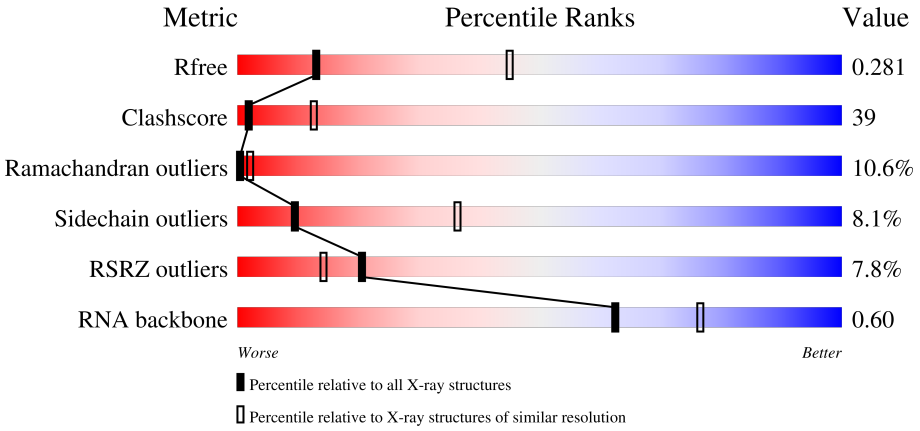
| | | |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Mogul | : | 1.8.4, CSD as541be (2020) |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 3.0 |
| buster-report | : | 1.1.7 (2018) |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| CCP4 | : | 9.0.003 (Gargrove) |
| Density-Fitness | : | 1.0.11 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.39 |

# 1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.20 Å.

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




| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|---|---|---|
| $R_{free}$ | 164625 | 1370 (3.20-3.20) |
| Clashscore | 180529 | 1497 (3.20-3.20) |
| Ramachandran outliers | 177936 | 1479 (3.20-3.20) |
| Sidechain outliers | 177891 | 1478 (3.20-3.20) |
| RSRZ outliers | 164620 | 1371 (3.20-3.20) |
| RNA backbone | 3690 | 1111 (3.50-2.90) |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A | 1523 | 9% 28% 54% 13% |
| 2 | B | 256 | 5% 22% 57% 11% 8% |
| 3 | C | 239 | 10% 18% 52% 15% 13% |
| 4 | D | 209 | 10% 32% 55% 11% |

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| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 5 | E | 162 | 2% 30% 51% 10% 7% |
| 6 | F | 101 | 3% 40% 51% 9% |
| 7 | G | 156 | 5% 30% 55% 14% |
| 8 | H | 138 | 40% 47% 12% |
| 9 | I | 128 | 7% 30% 59% 10% |
| 10 | J | 105 | 13% 21% 56% 17% 6% |
| 11 | K | 129 | 4% 36% 45% 11% 8% |
| 12 | L | 135 | 7% 22% 56% 15% 7% |
| 13 | M | 126 | 8% 27% 55% 17% |
| 14 | N | 61 | 23% 33% 49% 16% |
| 15 | O | 89 | % 44% 49% 6% |
| 16 | P | 88 | % 43% 43% 8% 5% |
| 17 | Q | 105 | 2% 32% 59% 6% |
| 18 | R | 88 | 2% 27% 45% 10% 17% |
| 19 | S | 93 | 13% 16% 59% 12% 13% |
| 20 | T | 106 | 8% 29% 52% 11% 7% |
| 21 | V | 27 | 11% 22% 63% 7% 7% |
| 22 | X | 4 | 25% 50% 50% |
| 23 | Y | 18 | 11% 11% 22% 56% |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|---|---|---|---|---|---|---|---|
| 25 | MG | G | 3003 | - | - | - | X |
| 25 | MG | G | 3015 | - | - | - | X |
| 25 | MG | G | 3016 | - | - | - | X |
| 25 | MG | G | 3019 | - | - | - | X |
| 25 | MG | G | 3024 | - | - | - | X |

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| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|---|---|---|---|---|---|---|---|
| 25 | MG | G | 3025 | - | - | - | X |
| 25 | MG | G | 3027 | - | - | - | X |
| 25 | MG | G | 3028 | - | - | - | X |
| 25 | MG | G | 3029 | - | - | - | X |
| 25 | MG | G | 3033 | - | - | - | X |
| 25 | MG | G | 3034 | - | - | - | X |
| 25 | MG | G | 3037 | - | - | - | X |
| 25 | MG | G | 3039 | - | - | - | X |
| 25 | MG | G | 3046 | - | - | - | X |
| 25 | MG | G | 3050 | - | - | - | X |
| 25 | MG | G | 3055 | - | - | - | X |
| 25 | MG | G | 3058 | - | - | - | X |

# 2 Entry composition (i)

There are 27 unique types of molecules in this entry. The entry contains 51468 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 16S RIBOSOMAL RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | P | | | |
| 1 | A | 1484 | 31852 | 14194 | 5901 | 10285 | 1472 | 0 | 0 | 0 |

- Molecule 2 is a protein called RIBOSOMAL PROTEIN S2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | | |
| 2 | B | 235 | 1901 | 1213 | 342 | 341 | 5 | 0 | 0 | 1 |

- Molecule 3 is a protein called RIBOSOMAL PROTEIN S3.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | | |
| 3 | C | 207 | 1613 | 1016 | 315 | 281 | 1 | 0 | 0 | 1 |

- Molecule 4 is a protein called RIBOSOMAL PROTEIN S4.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | | |
| 4 | D | 208 | 1703 | 1066 | 339 | 291 | 7 | 0 | 0 | 0 |

- Molecule 5 is a protein called RIBOSOMAL PROTEIN S5.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | | |
| 5 | E | 151 | 1147 | 724 | 218 | 201 | 4 | 0 | 0 | 1 |

- Molecule 6 is a protein called RIBOSOMAL PROTEIN S6.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | | |
| 6 | F | 101 | 843 | 531 | 155 | 154 | 3 | 0 | 0 | 0 |

- Molecule 7 is a protein called RIBOSOMAL PROTEIN S7.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | G | 155 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1257 | 781 | 252 | 218 | 6 | | | |

- Molecule 8 is a protein called RIBOSOMAL PROTEIN S8.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 8 | H | 138 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1116 | 705 | 215 | 193 | 3 | | | |

- Molecule 9 is a protein called RIBOSOMAL PROTEIN S9.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 9 | I | 127 | Total | C | N | O | 0 | 0 | 0 |
| | | | 1011 | 639 | 198 | 174 | | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| I | 58 | ARG | HIS | conflict | UNP P80374 |

- Molecule 10 is a protein called RIBOSOMAL PROTEIN S10.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | J | 99 | Total | C | N | O | S | 0 | 0 | 1 |
| | | | 793 | 498 | 157 | 137 | 1 | | | |

- Molecule 11 is a protein called RIBOSOMAL PROTEIN S11.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | K | 119 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 885 | 549 | 168 | 165 | 3 | | | |

- Molecule 12 is a protein called RIBOSOMAL PROTEIN S12.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | L | 125 | Total | C | N | O | S | 0 | 0 | 1 |
| | | | 971 | 611 | 196 | 163 | 1 | | | |

- Molecule 13 is a protein called RIBOSOMAL PROTEIN S13.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 13 | M | 125 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 997 | 617 | 207 | 171 | 2 | | | |

- Molecule 14 is a protein called RIBOSOMAL PROTEIN S14.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 14 | N | 60 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 492 | 312 | 104 | 72 | 4 | | | |

- Molecule 15 is a protein called RIBOSOMAL PROTEIN S15.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 15 | O | 88 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 734 | 459 | 147 | 126 | 2 | | | |

- Molecule 16 is a protein called RIBOSOMAL PROTEIN S16.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 16 | P | 84 | Total | C | N | O | S | 0 | 0 | 1 |
| | | | 701 | 443 | 140 | 117 | 1 | | | |

- Molecule 17 is a protein called RIBOSOMAL PROTEIN S17.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 17 | Q | 104 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 857 | 547 | 161 | 147 | 2 | | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| Q | 96 | GLN | GLU | conflict | UNP Q5SHP7 |

- Molecule 18 is a protein called RIBOSOMAL PROTEIN S18.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 18 | R | 73 | Total | C | N | O | 0 | 0 | 0 |
| | | | 597 | 380 | 118 | 99 | | | |

- Molecule 19 is a protein called RIBOSOMAL PROTEIN S19.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 19 | S | 81 | Total | C | N | O | S | 0 | 0 | 1 |
| | | | 648 | 414 | 120 | 112 | 2 | | | |

- Molecule 20 is a protein called RIBOSOMAL PROTEIN S20.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 20 | T | 99 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 762 | 469 | 162 | 129 | 2 | | | |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| T | 41 | VAL | ILE | conflict | UNP P80380 |

- Molecule 21 is a protein called RIBOSOMAL PROTEIN THX.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | V | 25 | Total | C | N | O | 0 | 0 | 1 |
| | | | 209 | 128 | 51 | 30 | | | |

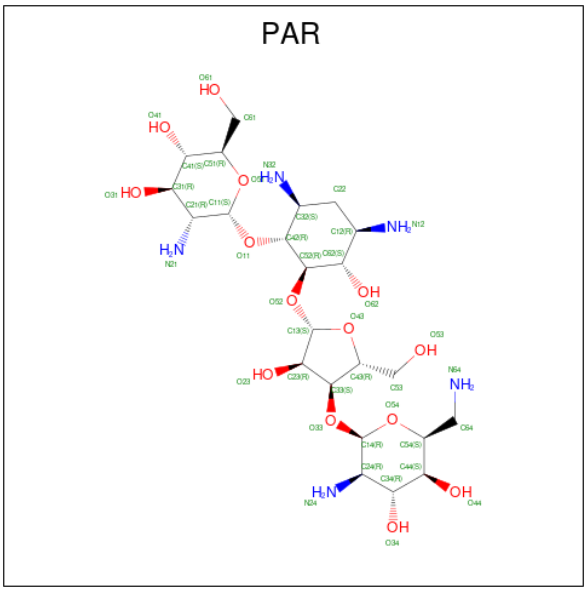
- Molecule 22 is a RNA chain called ANTICODON STEM-LOOP OF TRANSFER RNA WITH ANTICODON CCCG.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 | X | 4 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 90 | 39 | 18 | 29 | 4 | | | |

- Molecule 23 is a RNA chain called A-SITE MESSENGER RNA FRAGMENT CGGG.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 23 | Y | 8 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 167 | 75 | 28 | 56 | 8 | | | |

- Molecule 24 is PAROMOMYCIN (three-letter code: PAR) (formula: $C_{23}H_{45}N_5O_{14}$).




| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 24 | A | 1 | Total C N O<br>42 23 5 14 | 0 | 0 |

- Molecule 25 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 25 | G | 70 | Total Mg<br>70 70 | 0 | 0 |

- Molecule 26 is POTASSIUM ION (three-letter code: K) (formula: K).

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 26 | G | 8 | Total K<br>8 8 | 0 | 0 |

- Molecule 27 is ZINC ION (three-letter code: ZN) (formula: Zn).

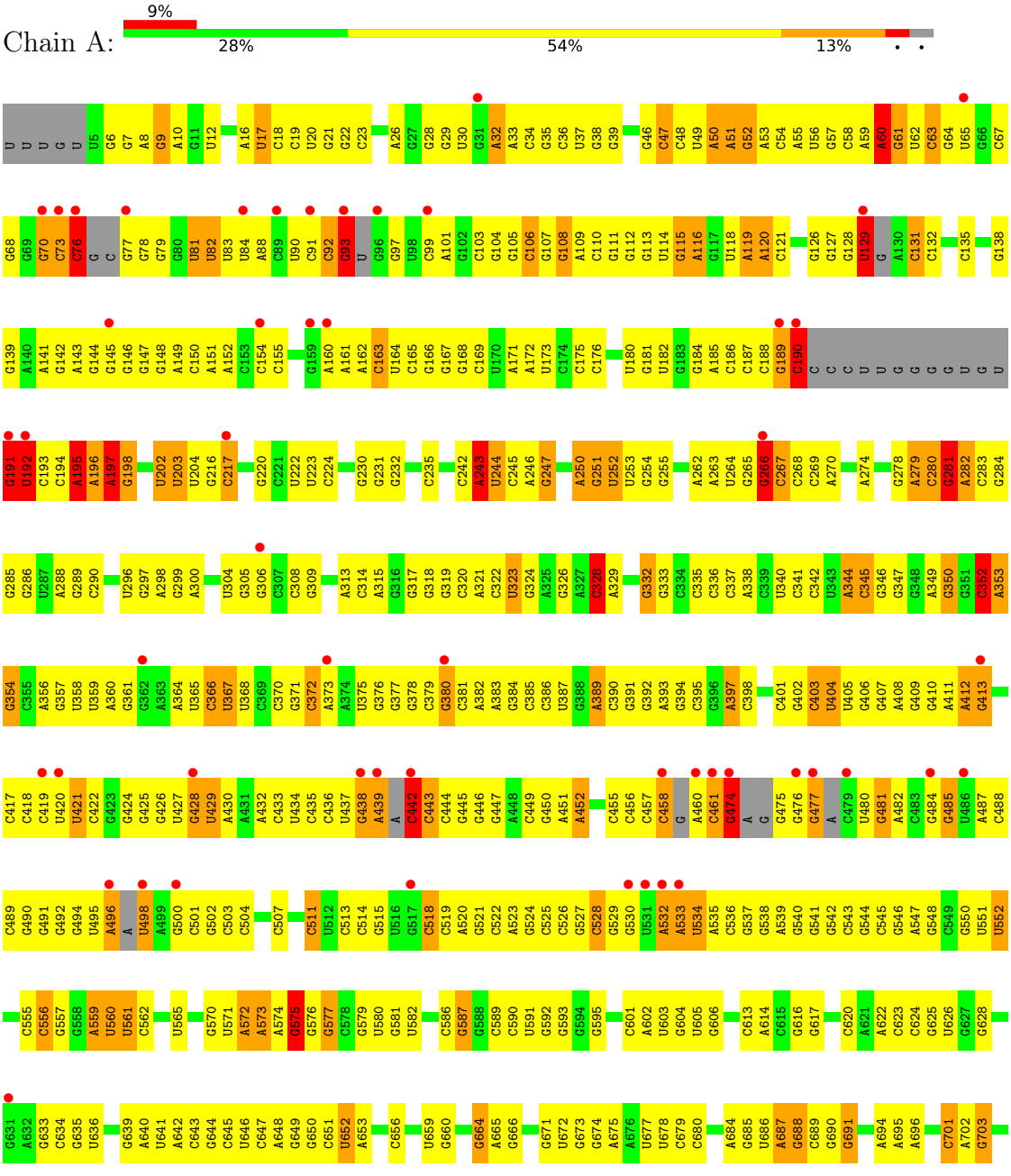
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 27 | G | 2 | Total Zn<br>2 2 | 0 | 0 |

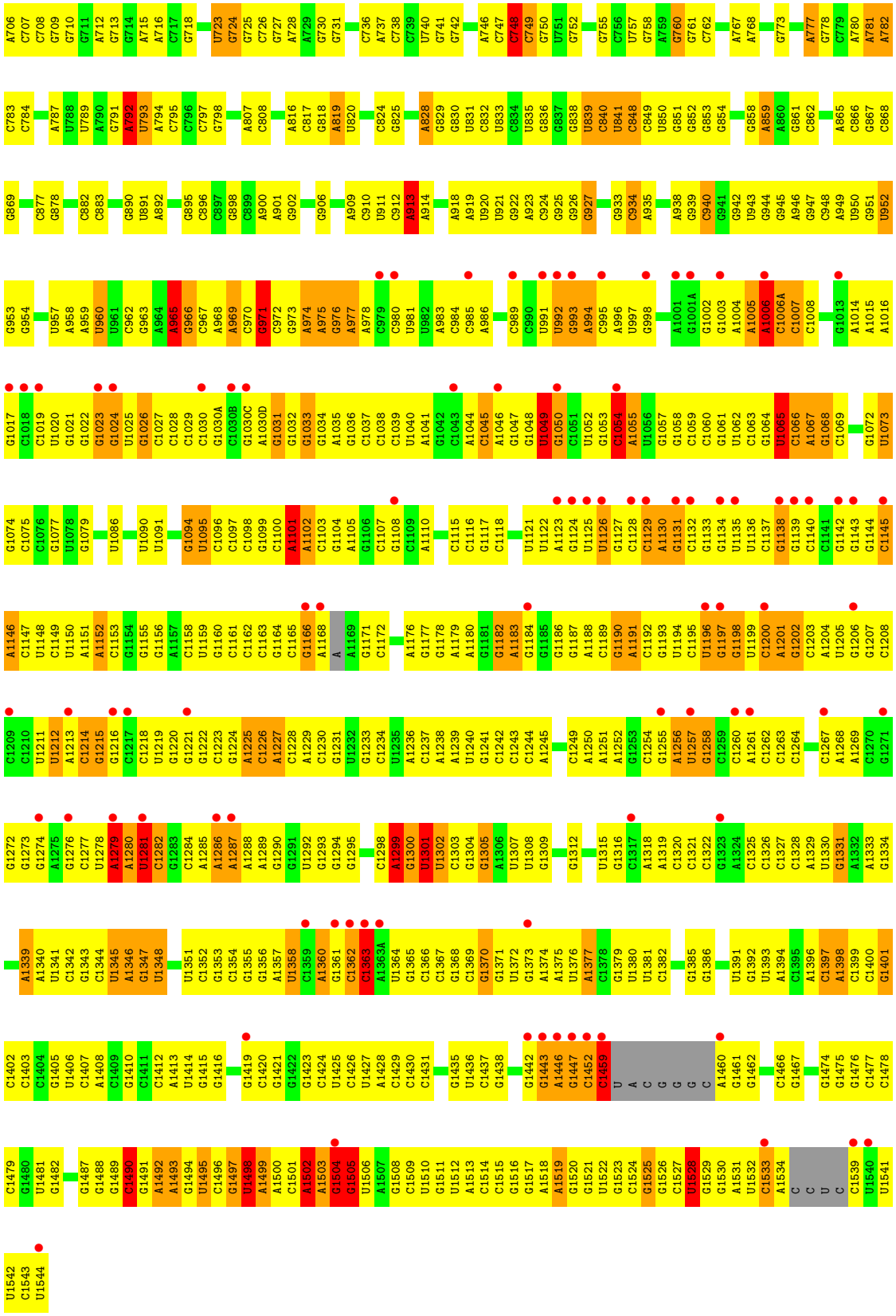
# 3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron 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 dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: 16S RIBOSOMAL RNA

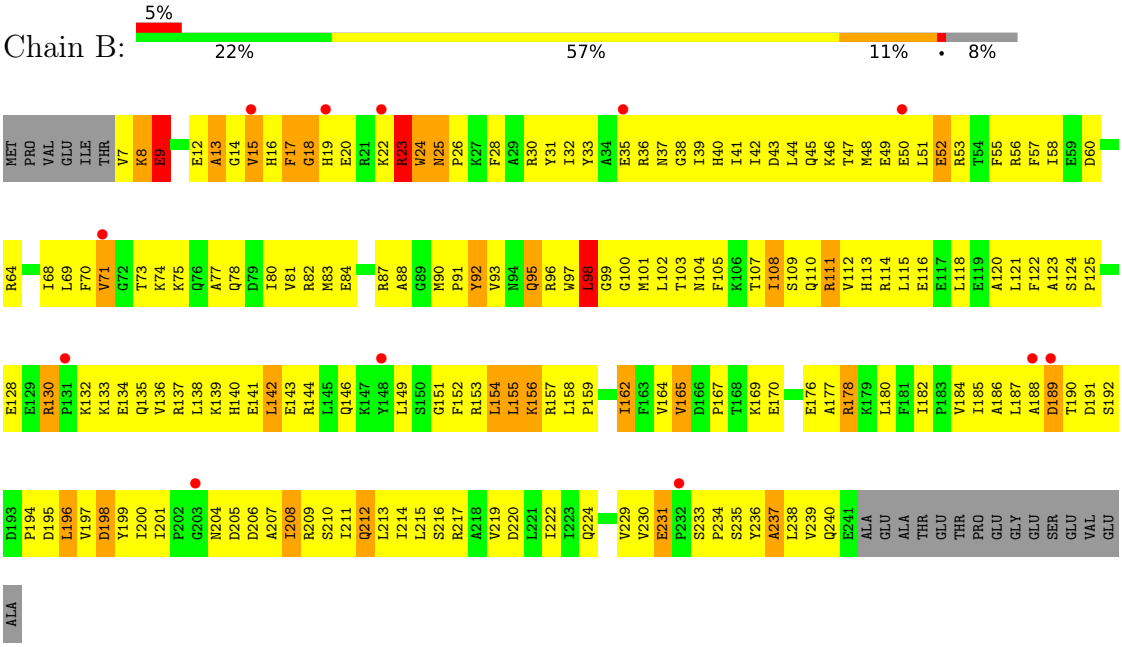
Chain A:





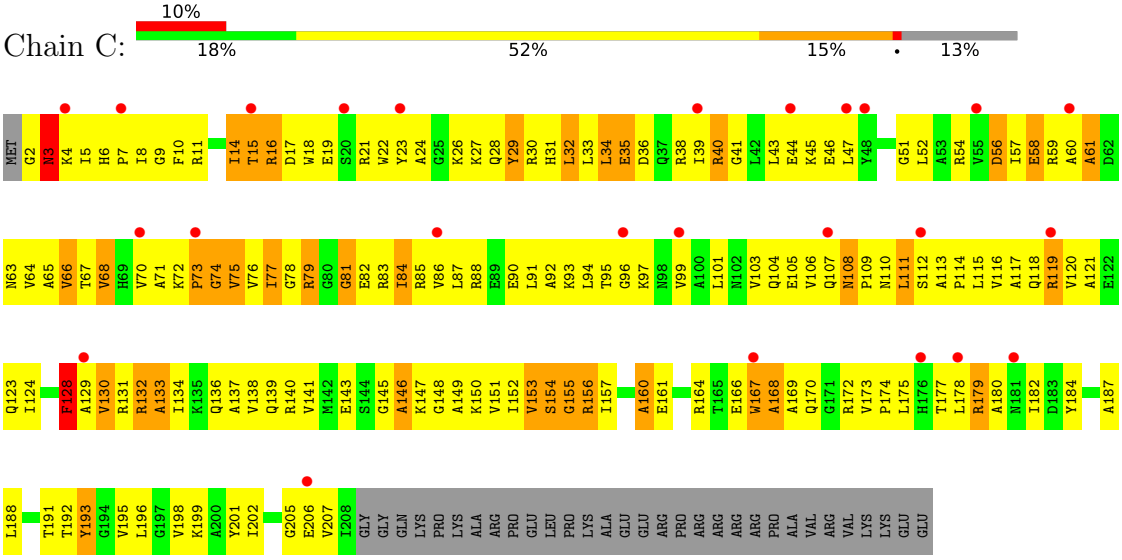
• Molecule 2: RIBOSOMAL PROTEIN S2

Chain B:



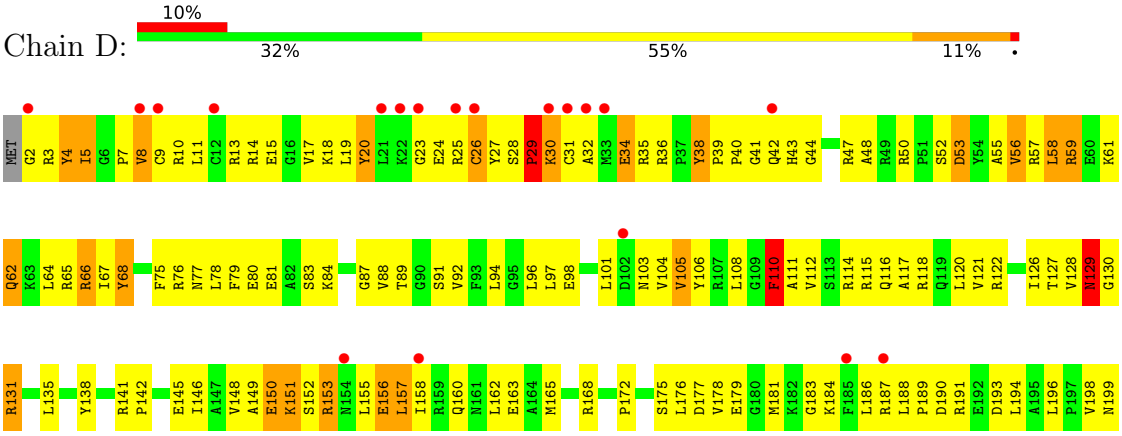

• Molecule 3: RIBOSOMAL PROTEIN S3

Chain C:



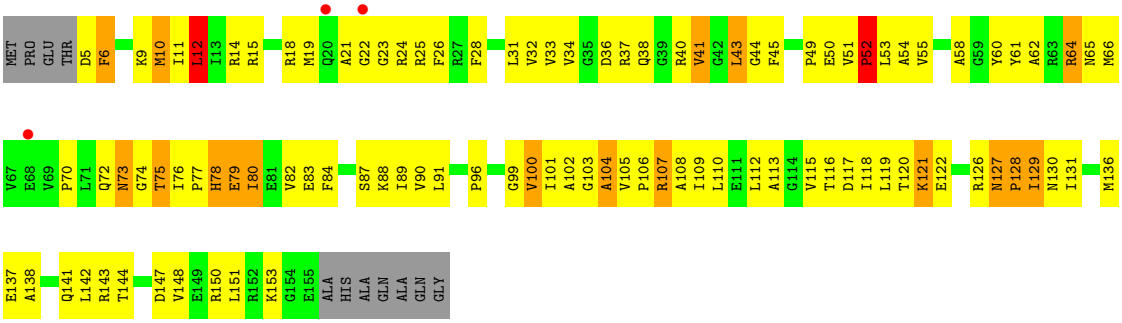

• Molecule 4: RIBOSOMAL PROTEIN S4

Chain D:



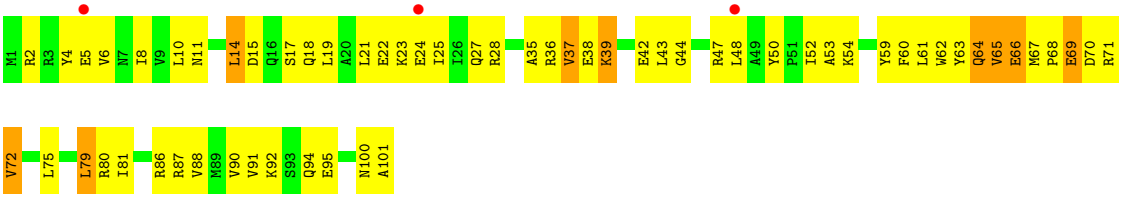

• Molecule 5: RIBOSOMAL PROTEIN S5

Chain E:


• Molecule 6: RIBOSOMAL PROTEIN S6

Chain F:


• Molecule 7: RIBOSOMAL PROTEIN S7

Chain G:



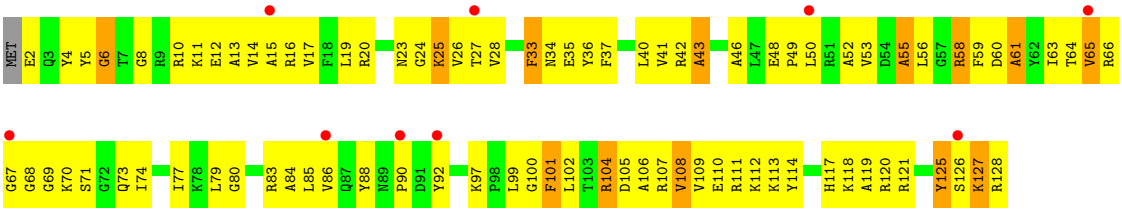
• Molecule 8: RIBOSOMAL PROTEIN S8

Chain H:



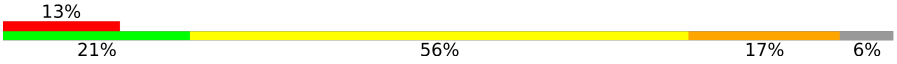
• Molecule 9: RIBOSOMAL PROTEIN S9

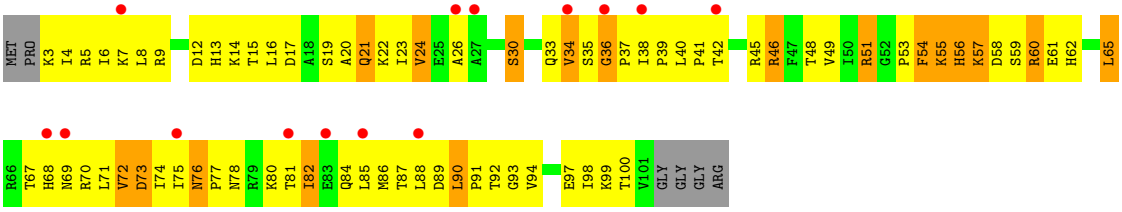
Chain I:


• Molecule 10: RIBOSOMAL PROTEIN S10

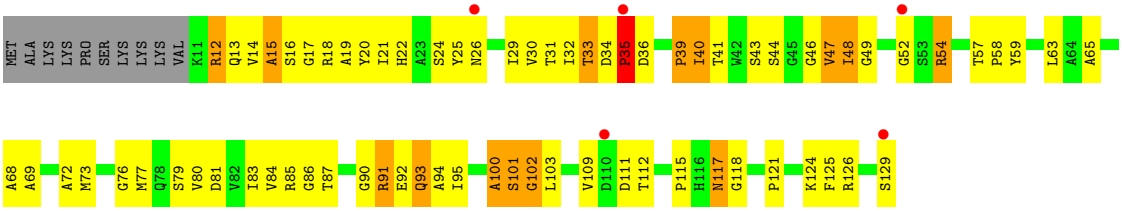
Chain J:



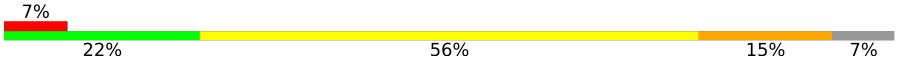

• Molecule 11: RIBOSOMAL PROTEIN S11

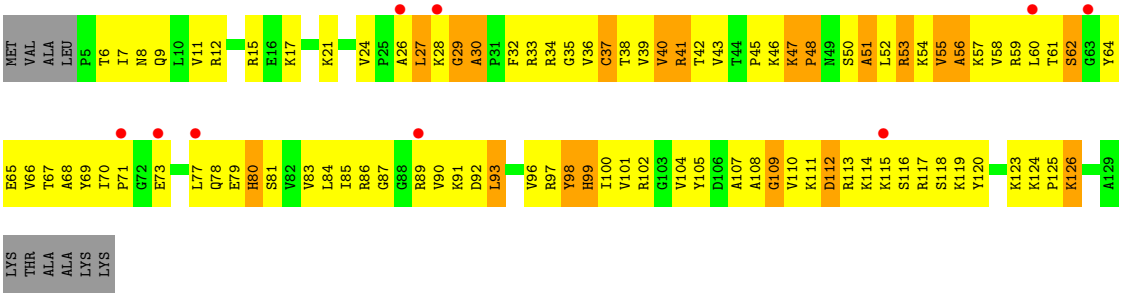
Chain K:

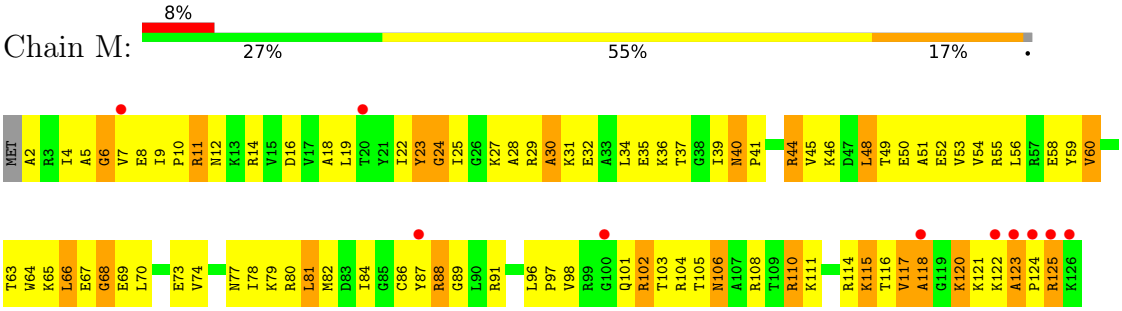

• Molecule 12: RIBOSOMAL PROTEIN S12

Chain L:

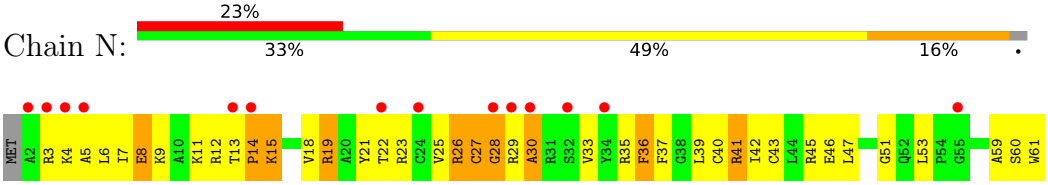


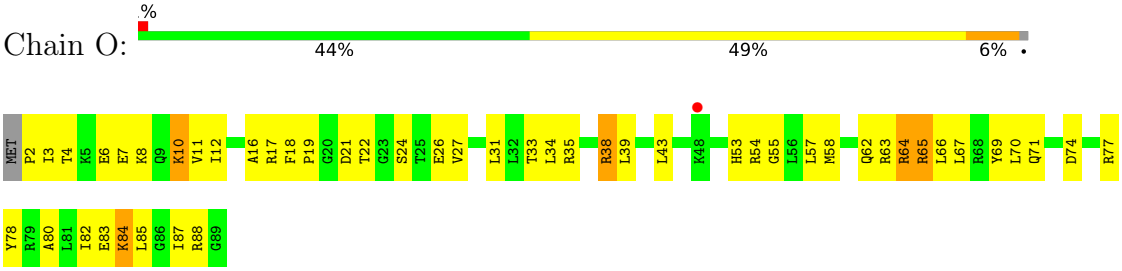

• Molecule 13: RIBOSOMAL PROTEIN S13



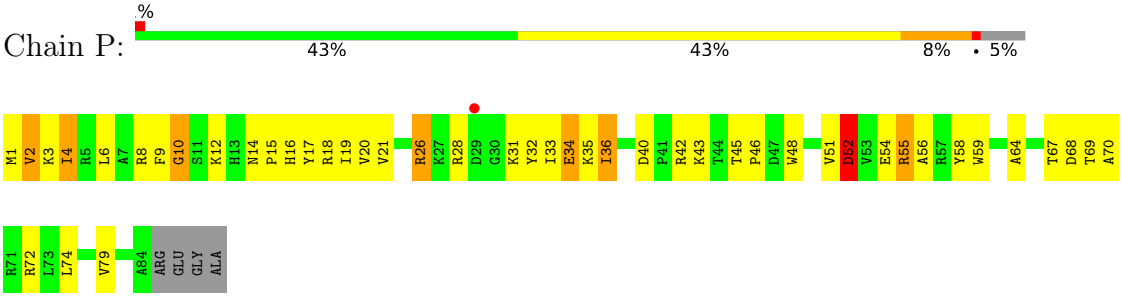

• Molecule 14: RIBOSOMAL PROTEIN S14



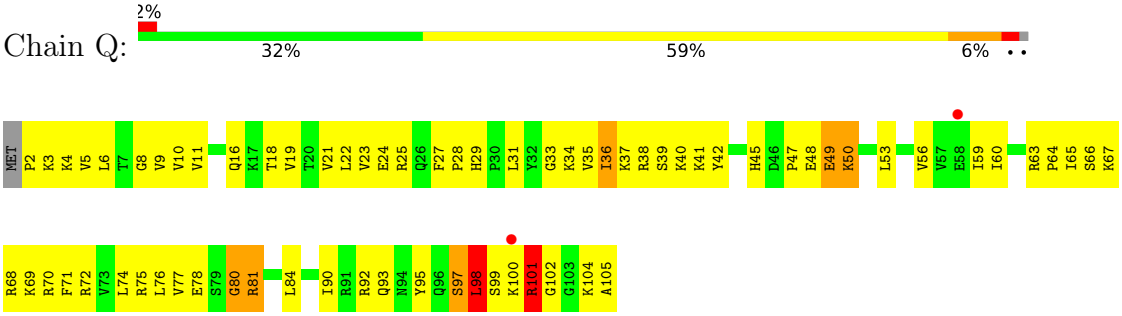

• Molecule 15: RIBOSOMAL PROTEIN S15



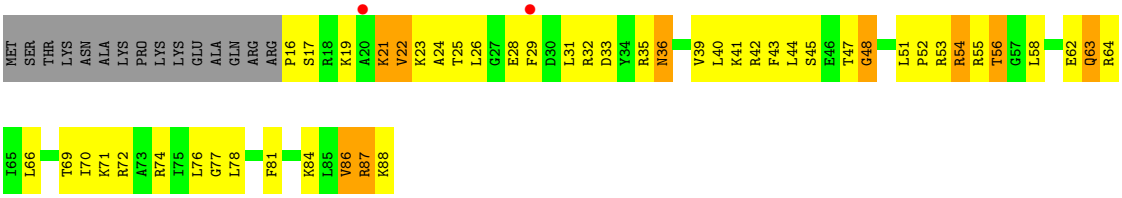

• Molecule 16: RIBOSOMAL PROTEIN S16




• Molecule 17: RIBOSOMAL PROTEIN S17



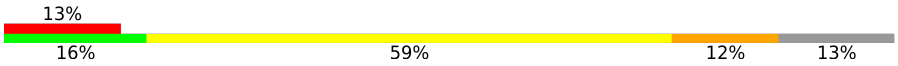

• Molecule 18: RIBOSOMAL PROTEIN S18

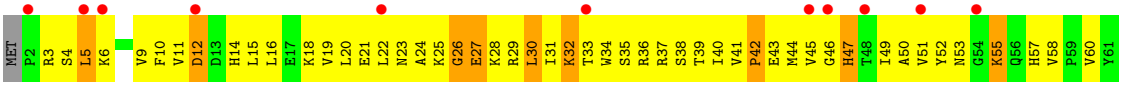


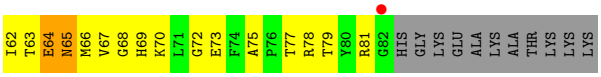


• Molecule 19: RIBOSOMAL PROTEIN S19

Chain S:

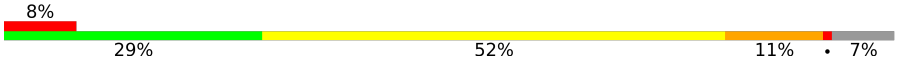


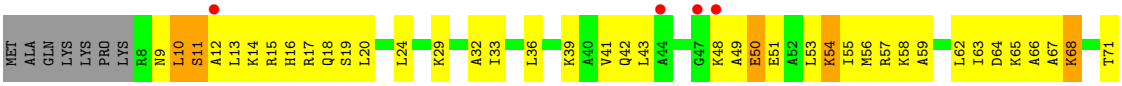



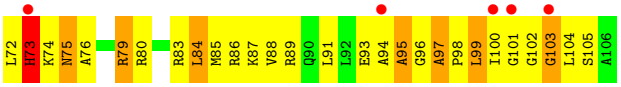


• Molecule 20: RIBOSOMAL PROTEIN S20

Chain T:

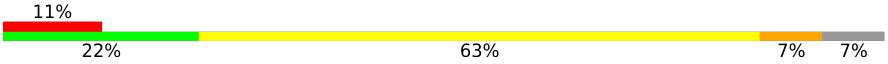




• Molecule 21: RIBOSOMAL PROTEIN THX

Chain V:

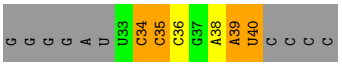



• Molecule 22: ANTICODON STEM-LOOP OF TRANSFER RNA WITH ANTICODON CCCG

Chain X:


• Molecule 23: A-SITE MESSENGER RNA FRAGMENT CGGG

Chain Y:

# 4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | P 41 21 2 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 401.90Å 401.90Å 174.44Å<br>90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 49.38 – 3.20<br>49.38 – 3.20 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 98.4 (49.38-3.20)<br>98.3 (49.38-3.20) | Depositor<br>EDS |
| $R_{merge}$ | 0.24 | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 1.24 (at 2.81Å) | Xtriage |
| Refinement program | CNS 1.1 | Depositor |
| R, $R_{free}$ | 0.238 , 0.282<br>0.240 , 0.281 | Depositor<br>DCC |
| $R_{free}$ test set | 11541 reflections (5.04%) | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 89.1 | Xtriage |
| Anisotropy | 0.189 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.34 , 123.2 | EDS |
| L-test for twinning[2] | $< \|L\| > = 0.44$, $< L^2 > = 0.27$ | Xtriage |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| $F_o$,$F_c$ correlation | 0.90 | EDS |
| Total number of atoms | 51468 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 99.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.62% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

# 5 Model quality

## 5.1 Standard geometry

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

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

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | #$\|Z\|$ >5 | RMSZ | #$\|Z\|$ >5 |
| 1 | A | 0.62 | 16/35645 (0.0%) | 0.77 | 53/55610 (0.1%) |
| 2 | B | 0.37 | 0/1936 | 0.62 | 0/2611 |
| 3 | C | 0.34 | 0/1637 | 0.58 | 0/2207 |
| 4 | D | 0.36 | 0/1733 | 0.60 | 0/2318 |
| 5 | E | 0.49 | 0/1163 | 0.75 | 1/1566 (0.1%) |
| 6 | F | 0.32 | 0/856 | 0.58 | 0/1154 |
| 7 | G | 0.31 | 0/1276 | 0.58 | 0/1709 |
| 8 | H | 0.49 | 0/1136 | 0.76 | 1/1527 (0.1%) |
| 9 | I | 0.33 | 0/1029 | 0.56 | 0/1378 |
| 10 | J | 0.35 | 0/806 | 0.60 | 0/1084 |
| 11 | K | 0.40 | 0/900 | 0.69 | 0/1213 |
| 12 | L | 0.42 | 0/987 | 0.71 | 0/1322 |
| 13 | M | 0.32 | 0/1008 | 0.62 | 0/1347 |
| 14 | N | 0.33 | 0/501 | 0.60 | 0/664 |
| 15 | O | 0.37 | 0/745 | 0.59 | 0/992 |
| 16 | P | 0.47 | 0/717 | 0.79 | 1/965 (0.1%) |
| 17 | Q | 0.46 | 0/870 | 0.76 | 0/1159 |
| 18 | R | 0.35 | 0/603 | 0.63 | 0/799 |
| 19 | S | 0.32 | 0/662 | 0.58 | 0/892 |
| 20 | T | 0.41 | 0/764 | 0.70 | 0/1006 |
| 21 | V | 0.52 | 0/213 | 0.71 | 0/279 |
| 22 | X | 0.98 | 1/100 (1.0%) | 0.93 | 0/153 |
| 23 | Y | 0.59 | 0/185 | 0.84 | 0/285 |
| All | All | 0.55 | 17/55472 (0.0%) | 0.73 | 56/82240 (0.1%) |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|---|---|---|---|
| 1 | A | 8 | 57 |

The worst 5 of 17 bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 496 | A | C3'-O3' | 7.89 | 1.53 | 1.42 |
| 1 | A | 190 | C | C3'-O3' | 7.73 | 1.52 | 1.42 |
| 22 | X | 1 | C | OP3-P | -7.35 | 1.52 | 1.61 |
| 1 | A | 129 | U | C3'-O3' | 7.24 | 1.52 | 1.42 |
| 1 | A | 73 | C | C3'-O3' | 7.07 | 1.52 | 1.42 |

The worst 5 of 56 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 575 | G | C2'-C3'-O3' | 10.78 | 133.22 | 109.50 |
| 1 | A | 190 | C | N1-C1'-C2' | 10.38 | 127.49 | 114.00 |
| 1 | A | 1498 | U | C2'-C3'-O3' | 9.97 | 131.43 | 109.50 |
| 1 | A | 748 | C | C2'-C3'-O3' | 9.67 | 130.78 | 109.50 |
| 1 | A | 129 | U | C2'-C3'-O3' | 9.59 | 130.60 | 109.50 |

5 of 8 chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|---|---|---|---|---|
| 1 | A | 115 | G | C3' |
| 1 | A | 129 | U | C3' |
| 1 | A | 281 | G | C3' |
| 1 | A | 748 | C | C3' |
| 1 | A | 1006 | A | C1' |

5 of 57 planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 1 | A | 106 | C | Sidechain |
| 1 | A | 128 | G | Sidechain |
| 1 | A | 17 | U | Sidechain |
| 1 | A | 70 | G | Sidechain |
| 1 | A | 93 | G | Sidechain |

## 5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen

atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | A | 31852 | 0 | 16122 | 1389 | 0 |
| 2 | B | 1901 | 0 | 1951 | 247 | 0 |
| 3 | C | 1613 | 0 | 1677 | 261 | 0 |
| 4 | D | 1703 | 0 | 1764 | 178 | 0 |
| 5 | E | 1147 | 0 | 1207 | 112 | 0 |
| 6 | F | 843 | 0 | 857 | 75 | 0 |
| 7 | G | 1257 | 0 | 1296 | 141 | 0 |
| 8 | H | 1116 | 0 | 1177 | 114 | 0 |
| 9 | I | 1011 | 0 | 1043 | 134 | 0 |
| 10 | J | 793 | 0 | 835 | 145 | 0 |
| 11 | K | 885 | 0 | 904 | 87 | 0 |
| 12 | L | 971 | 0 | 1057 | 154 | 0 |
| 13 | M | 997 | 0 | 1072 | 115 | 0 |
| 14 | N | 492 | 0 | 531 | 66 | 0 |
| 15 | O | 734 | 0 | 771 | 65 | 0 |
| 16 | P | 701 | 0 | 720 | 58 | 0 |
| 17 | Q | 857 | 0 | 930 | 83 | 0 |
| 18 | R | 597 | 0 | 666 | 60 | 0 |
| 19 | S | 648 | 0 | 673 | 93 | 0 |
| 20 | T | 762 | 0 | 859 | 84 | 0 |
| 21 | V | 209 | 0 | 221 | 19 | 0 |
| 22 | X | 90 | 0 | 45 | 11 | 0 |
| 23 | Y | 167 | 0 | 87 | 14 | 0 |
| 24 | A | 42 | 0 | 45 | 0 | 0 |
| 25 | G | 70 | 0 | 0 | 0 | 0 |
| 26 | G | 8 | 0 | 0 | 0 | 0 |
| 27 | G | 2 | 0 | 0 | 0 | 0 |
| All | All | 51468 | 0 | 36510 | 3377 | 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 39.

The worst 5 of 3377 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:189:G:H2' | 1:A:190:C:C6 | 1.68 | 1.27 |
| 3:C:27:LYS:HA | 3:C:30:ARG:HH12 | 1.09 | 1.13 |
| 10:J:38:ILE:HD11 | 10:J:71:LEU:HB2 | 1.20 | 1.11 |
| 1:A:1305:G:H22 | 1:A:1331:G:H2' | 1.02 | 1.10 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1356:G:H2' | 1:A:1357:A:C8 | 1.88 | 1.08 |

There are no symmetry-related clashes.

## 5.3 Torsion angles (i)

### 5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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 | |
|---|---|---|---|---|---|---|---|
| 2 | B | 233/256 (91%) | 149 (64%) | 60 (26%) | 24 (10%) | 0 | 2 |
| 3 | C | 205/239 (86%) | 119 (58%) | 53 (26%) | 33 (16%) | 0 | 0 |
| 4 | D | 206/209 (99%) | 131 (64%) | 54 (26%) | 21 (10%) | 0 | 2 |
| 5 | E | 149/162 (92%) | 124 (83%) | 15 (10%) | 10 (7%) | 1 | 7 |
| 6 | F | 99/101 (98%) | 73 (74%) | 19 (19%) | 7 (7%) | 1 | 6 |
| 7 | G | 153/156 (98%) | 100 (65%) | 35 (23%) | 18 (12%) | 0 | 1 |
| 8 | H | 136/138 (99%) | 107 (79%) | 19 (14%) | 10 (7%) | 1 | 6 |
| 9 | I | 125/128 (98%) | 78 (62%) | 34 (27%) | 13 (10%) | 0 | 2 |
| 10 | J | 97/105 (92%) | 53 (55%) | 29 (30%) | 15 (16%) | 0 | 0 |
| 11 | K | 117/129 (91%) | 85 (73%) | 18 (15%) | 14 (12%) | 0 | 1 |
| 12 | L | 123/135 (91%) | 92 (75%) | 16 (13%) | 15 (12%) | 0 | 1 |
| 13 | M | 123/126 (98%) | 89 (72%) | 21 (17%) | 13 (11%) | 0 | 2 |
| 14 | N | 58/61 (95%) | 33 (57%) | 19 (33%) | 6 (10%) | 0 | 2 |
| 15 | O | 86/89 (97%) | 60 (70%) | 23 (27%) | 3 (4%) | 3 | 20 |
| 16 | P | 82/88 (93%) | 62 (76%) | 16 (20%) | 4 (5%) | 2 | 14 |
| 17 | Q | 102/105 (97%) | 82 (80%) | 10 (10%) | 10 (10%) | 0 | 3 |
| 18 | R | 71/88 (81%) | 49 (69%) | 15 (21%) | 7 (10%) | 0 | 2 |
| 19 | S | 79/93 (85%) | 50 (63%) | 15 (19%) | 14 (18%) | 0 | 0 |
| 20 | T | 97/106 (92%) | 67 (69%) | 19 (20%) | 11 (11%) | 0 | 2 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 21 | V | 23/27 (85%) | 18 (78%) | 2 (9%) | 3 (13%) | 0 1 |
| All | All | 2364/2541 (93%) | 1621 (69%) | 492 (21%) | 251 (11%) | 0 2 |

5 of 251 Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 8 | LYS |
| 2 | B | 17 | PHE |
| 2 | B | 23 | ARG |
| 2 | B | 95 | GLN |
| 2 | B | 98 | LEU |

### 5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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 |
|---|---|---|---|---|---|
| 2 | B | 202/220 (92%) | 182 (90%) | 20 (10%) | 6 26 |
| 3 | C | 160/188 (85%) | 151 (94%) | 9 (6%) | 17 50 |
| 4 | D | 180/181 (99%) | 165 (92%) | 15 (8%) | 9 35 |
| 5 | E | 115/123 (94%) | 98 (85%) | 17 (15%) | 2 12 |
| 6 | F | 90/90 (100%) | 84 (93%) | 6 (7%) | 13 44 |
| 7 | G | 126/127 (99%) | 115 (91%) | 11 (9%) | 8 32 |
| 8 | H | 119/119 (100%) | 104 (87%) | 15 (13%) | 3 18 |
| 9 | I | 98/99 (99%) | 94 (96%) | 4 (4%) | 26 59 |
| 10 | J | 87/92 (95%) | 80 (92%) | 7 (8%) | 10 37 |
| 11 | K | 90/99 (91%) | 85 (94%) | 5 (6%) | 17 50 |
| 12 | L | 104/111 (94%) | 96 (92%) | 8 (8%) | 10 39 |
| 13 | M | 100/101 (99%) | 90 (90%) | 10 (10%) | 6 26 |
| 14 | N | 49/50 (98%) | 44 (90%) | 5 (10%) | 6 26 |
| 15 | O | 79/80 (99%) | 74 (94%) | 5 (6%) | 15 46 |
| 16 | P | 72/74 (97%) | 68 (94%) | 4 (6%) | 17 50 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 17 | Q | 96/97 (99%) | 90 (94%) | 6 (6%) | 15 46 |
| 18 | R | 64/77 (83%) | 60 (94%) | 4 (6%) | 15 46 |
| 19 | S | 71/80 (89%) | 69 (97%) | 2 (3%) | 38 68 |
| 20 | T | 76/82 (93%) | 68 (90%) | 8 (10%) | 5 24 |
| 21 | V | 19/22 (86%) | 19 (100%) | 0 | 100 100 |
| All | All | 1997/2112 (95%) | 1836 (92%) | 161 (8%) | 9 36 |

5 of 161 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 12 | L | 99 | HIS |
| 17 | Q | 38 | ARG |
| 13 | M | 44 | ARG |
| 14 | N | 27 | CYS |
| 18 | R | 87 | ARG |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 54 such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 7 | G | 106 | GLN |
| 12 | L | 49 | ASN |
| 19 | S | 23 | ASN |
| 8 | H | 78 | GLN |
| 10 | J | 84 | GLN |

### 5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 1 | A | 1472/1523 (96%) | 218 (14%) | 66 (4%) |
| 22 | X | 3/4 (75%) | 1 (33%) | 0 |
| 23 | Y | 7/18 (38%) | 4 (57%) | 0 |
| All | All | 1482/1545 (95%) | 223 (15%) | 66 (4%) |

5 of 223 RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 8 | A |
| 1 | A | 9 | G |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 32 | A |
| 1 | A | 39 | G |
| 1 | A | 47 | C |

5 of 66 RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 1347 | G |
| 1 | A | 1452 | C |
| 1 | A | 1528 | U |
| 1 | A | 484 | G |
| 1 | A | 442 | 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 81 ligands modelled in this entry, 80 are monoatomic - leaving 1 for Mogul analysis.

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

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\| > 2$ | Counts | RMSZ | $\#\|Z\| > 2$ |
| 24 | PAR | A | 3001 | - | 45,45,45 | 1.49 | 8 (17%) | 64,67,67 | 1.23 | 8 (12%) |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 24 | PAR | A | 3001 | - | - | 2/18/94/94 | 0/4/4/4 |

The worst 5 of 8 bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 24 | A | 3001 | PAR | C64-C54 | 3.79 | 1.57 | 1.52 |
| 24 | A | 3001 | PAR | C52-C42 | 3.53 | 1.59 | 1.52 |
| 24 | A | 3001 | PAR | O54-C14 | 2.82 | 1.49 | 1.41 |
| 24 | A | 3001 | PAR | C11-C21 | 2.76 | 1.57 | 1.52 |
| 24 | A | 3001 | PAR | C31-C21 | 2.59 | 1.56 | 1.53 |

The worst 5 of 8 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 24 | A | 3001 | PAR | O54-C54-C64 | 3.55 | 112.62 | 106.01 |
| 24 | A | 3001 | PAR | O33-C14-C24 | 3.26 | 113.84 | 108.22 |
| 24 | A | 3001 | PAR | C14-O54-C54 | 3.10 | 119.78 | 113.69 |
| 24 | A | 3001 | PAR | O52-C13-C23 | 2.99 | 114.16 | 107.96 |
| 24 | A | 3001 | PAR | O11-C11-C21 | 2.76 | 112.97 | 108.22 |

There are no chirality outliers.

All (2) torsion outliers are listed below:

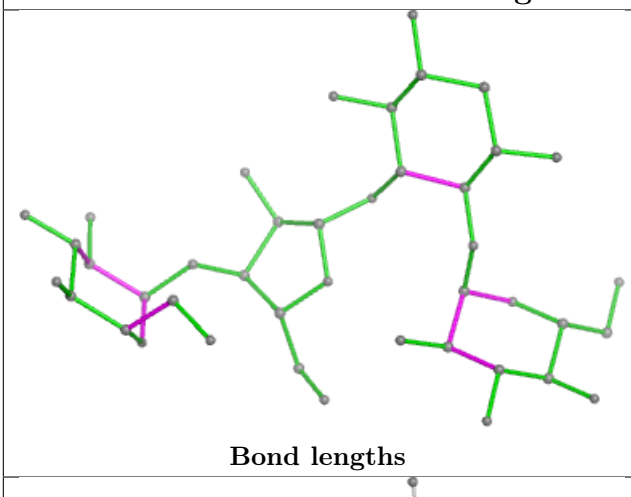
| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 24 | A | 3001 | PAR | C52-C42-O11-C11 |
| 24 | A | 3001 | PAR | C23-C13-O52-C52 |

There are no ring outliers.

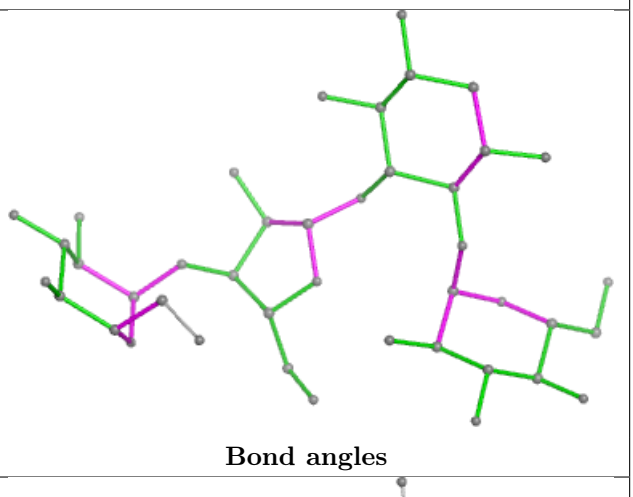
No monomer is involved in short contacts.

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

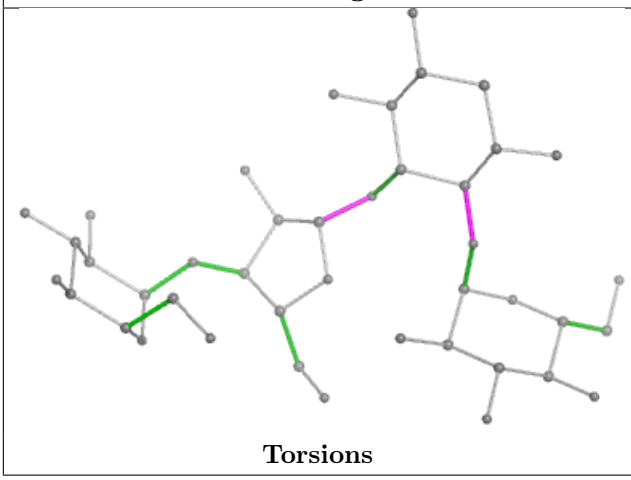
**Ligand PAR A 3001**



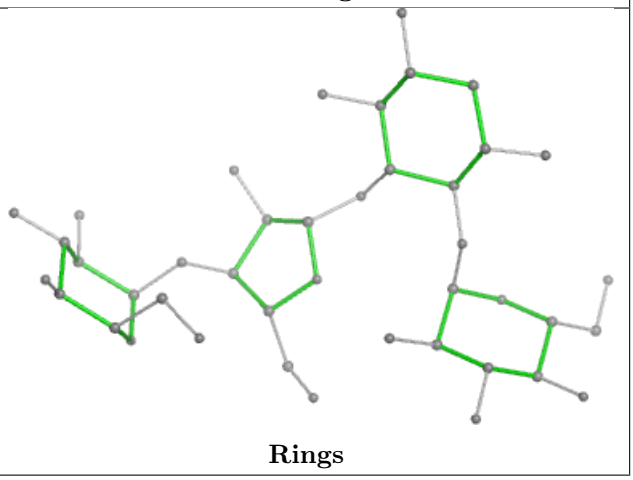
Bond lengths



Bond angles



Torsions



Rings

## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

# 6 Fit of model and data

## 6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, $95^{th}$ percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|
| 1 | A | 1484/1523 (97%) | 0.72 | 140 (9%) 15 11 | 40, 86, 171, 201 | 0 |
| 2 | B | 235/256 (91%) | 0.61 | 12 (5%) 34 23 | 50, 117, 152, 155 | 0 |
| 3 | C | 207/239 (86%) | 0.82 | 25 (12%) 10 7 | 61, 123, 153, 155 | 0 |
| 4 | D | 208/209 (99%) | 0.58 | 20 (9%) 15 10 | 57, 101, 143, 155 | 0 |
| 5 | E | 151/162 (93%) | 0.21 | 3 (1%) 64 49 | 43, 76, 119, 149 | 0 |
| 6 | F | 101/101 (100%) | 0.51 | 3 (2%) 52 37 | 64, 116, 146, 151 | 0 |
| 7 | G | 155/156 (99%) | 0.53 | 8 (5%) 34 23 | 63, 121, 153, 155 | 0 |
| 8 | H | 138/138 (100%) | -0.08 | 0 100 100 | 39, 67, 111, 132 | 0 |
| 9 | I | 127/128 (99%) | 0.79 | 9 (7%) 23 16 | 54, 123, 155, 155 | 0 |
| 10 | J | 99/105 (94%) | 1.17 | 14 (14%) 7 5 | 70, 139, 155, 155 | 0 |
| 11 | K | 119/129 (92%) | 0.31 | 5 (4%) 41 28 | 44, 89, 134, 148 | 0 |
| 12 | L | 125/135 (92%) | 0.57 | 9 (7%) 23 16 | 38, 96, 137, 155 | 0 |
| 13 | M | 125/126 (99%) | 0.61 | 10 (8%) 20 14 | 68, 108, 144, 155 | 0 |
| 14 | N | 60/61 (98%) | 1.21 | 14 (23%) 2 2 | 74, 116, 145, 155 | 0 |
| 15 | O | 88/89 (98%) | 0.07 | 1 (1%) 77 63 | 49, 88, 136, 145 | 0 |
| 16 | P | 84/88 (95%) | 0.23 | 1 (1%) 76 61 | 46, 75, 109, 154 | 0 |
| 17 | Q | 104/105 (99%) | 0.27 | 2 (1%) 66 50 | 47, 76, 132, 155 | 0 |
| 18 | R | 73/88 (82%) | 0.16 | 2 (2%) 56 40 | 52, 95, 141, 155 | 0 |
| 19 | S | 81/93 (87%) | 1.01 | 12 (14%) 7 5 | 95, 136, 154, 155 | 0 |
| 20 | T | 99/106 (93%) | 0.59 | 9 (9%) 16 11 | 51, 84, 139, 155 | 0 |
| 21 | V | 25/27 (92%) | 0.56 | 3 (12%) 10 7 | 63, 89, 132, 152 | 0 |
| 22 | X | 4/4 (100%) | 1.27 | 1 (25%) 2 2 | 102, 111, 115, 128 | 0 |
| 23 | Y | 8/18 (44%) | 0.84 | 0 100 100 | 104, 144, 155, 155 | 0 |
| All | All | 3900/4086 (95%) | 0.60 | 303 (7%) 20 14 | 38, 96, 154, 201 | 0 |

The worst 5 of 303 RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | A | 1452 | C | 10.9 |
| 1 | A | 1447 | G | 10.1 |
| 1 | A | 474 | G | 8.5 |
| 1 | A | 73 | C | 8.4 |
| 1 | A | 190 | C | 7.8 |

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

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

## 6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

## 6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, $95^{th}$ percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 25 | MG | G | 3003 | 1/1 | 0.49 | 0.66 | 84,84,84,84 | 0 |
| 25 | MG | G | 3025 | 1/1 | 0.49 | 1.06 | 84,84,84,84 | 0 |
| 25 | MG | G | 3050 | 1/1 | 0.49 | 0.99 | 84,84,84,84 | 0 |
| 25 | MG | G | 3046 | 1/1 | 0.59 | 0.43 | 84,84,84,84 | 0 |
| 26 | K | G | 3077 | 1/1 | 0.61 | 0.37 | 84,84,84,84 | 1 |
| 25 | MG | G | 3013 | 1/1 | 0.63 | 0.31 | 84,84,84,84 | 0 |
| 25 | MG | G | 3034 | 1/1 | 0.65 | 0.47 | 84,84,84,84 | 0 |
| 25 | MG | G | 3064 | 1/1 | 0.66 | 0.29 | 84,84,84,84 | 0 |
| 25 | MG | G | 3055 | 1/1 | 0.68 | 0.71 | 84,84,84,84 | 0 |
| 25 | MG | G | 3028 | 1/1 | 0.68 | 0.44 | 84,84,84,84 | 0 |
| 25 | MG | G | 3015 | 1/1 | 0.68 | 0.84 | 84,84,84,84 | 0 |
| 25 | MG | G | 3039 | 1/1 | 0.70 | 0.69 | 84,84,84,84 | 0 |
| 25 | MG | G | 3027 | 1/1 | 0.70 | 0.60 | 84,84,84,84 | 0 |
| 25 | MG | G | 3033 | 1/1 | 0.71 | 0.50 | 84,84,84,84 | 0 |
| 25 | MG | G | 3010 | 1/1 | 0.72 | 0.34 | 84,84,84,84 | 0 |
| 25 | MG | G | 3038 | 1/1 | 0.72 | 0.23 | 84,84,84,84 | 0 |
| 25 | MG | G | 3058 | 1/1 | 0.75 | 0.66 | 84,84,84,84 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 25 | MG | G | 3008 | 1/1 | 0.75 | 0.18 | 84,84,84,84 | 0 |
| 25 | MG | G | 3016 | 1/1 | 0.75 | 0.55 | 84,84,84,84 | 0 |
| 26 | K | G | 3072 | 1/1 | 0.76 | 0.22 | 84,84,84,84 | 0 |
| 25 | MG | G | 3019 | 1/1 | 0.76 | 0.88 | 84,84,84,84 | 0 |
| 25 | MG | G | 3029 | 1/1 | 0.78 | 0.52 | 84,84,84,84 | 0 |
| 26 | K | G | 3075 | 1/1 | 0.78 | 0.19 | 84,84,84,84 | 1 |
| 25 | MG | G | 3024 | 1/1 | 0.78 | 0.58 | 84,84,84,84 | 0 |
| 25 | MG | G | 3069 | 1/1 | 0.80 | 0.30 | 84,84,84,84 | 0 |
| 25 | MG | G | 3041 | 1/1 | 0.80 | 0.58 | 84,84,84,84 | 0 |
| 25 | MG | G | 3037 | 1/1 | 0.80 | 0.40 | 84,84,84,84 | 0 |
| 25 | MG | G | 3067 | 1/1 | 0.80 | 0.34 | 84,84,84,84 | 0 |
| 26 | K | G | 3073 | 1/1 | 0.82 | 0.19 | 84,84,84,84 | 1 |
| 25 | MG | G | 3022 | 1/1 | 0.82 | 0.54 | 84,84,84,84 | 0 |
| 25 | MG | G | 3060 | 1/1 | 0.82 | 0.56 | 84,84,84,84 | 0 |
| 26 | K | G | 3076 | 1/1 | 0.83 | 0.15 | 84,84,84,84 | 0 |
| 26 | K | G | 3078 | 1/1 | 0.83 | 0.15 | 84,84,84,84 | 1 |
| 25 | MG | G | 3068 | 1/1 | 0.84 | 0.33 | 84,84,84,84 | 0 |
| 25 | MG | G | 3063 | 1/1 | 0.84 | 0.33 | 84,84,84,84 | 0 |
| 25 | MG | G | 3026 | 1/1 | 0.84 | 0.34 | 84,84,84,84 | 0 |
| 25 | MG | G | 3049 | 1/1 | 0.84 | 0.59 | 84,84,84,84 | 0 |
| 25 | MG | G | 3066 | 1/1 | 0.85 | 0.44 | 84,84,84,84 | 0 |
| 25 | MG | G | 3070 | 1/1 | 0.85 | 0.47 | 84,84,84,84 | 0 |
| 25 | MG | G | 3021 | 1/1 | 0.85 | 0.34 | 84,84,84,84 | 0 |
| 25 | MG | G | 3045 | 1/1 | 0.85 | 0.48 | 84,84,84,84 | 0 |
| 26 | K | G | 3074 | 1/1 | 0.86 | 0.11 | 84,84,84,84 | 1 |
| 25 | MG | G | 3018 | 1/1 | 0.86 | 0.90 | 84,84,84,84 | 0 |
| 25 | MG | G | 3004 | 1/1 | 0.86 | 0.31 | 84,84,84,84 | 0 |
| 25 | MG | G | 3020 | 1/1 | 0.86 | 0.68 | 84,84,84,84 | 0 |
| 25 | MG | G | 3053 | 1/1 | 0.86 | 0.45 | 84,84,84,84 | 0 |
| 24 | PAR | A | 3001 | 42/42 | 0.87 | 0.18 | 84,84,84,84 | 0 |
| 25 | MG | G | 3002 | 1/1 | 0.87 | 0.56 | 84,84,84,84 | 1 |
| 25 | MG | G | 3065 | 1/1 | 0.87 | 0.16 | 84,84,84,84 | 0 |
| 25 | MG | G | 3059 | 1/1 | 0.87 | 0.25 | 84,84,84,84 | 0 |
| 25 | MG | G | 3006 | 1/1 | 0.87 | 0.18 | 84,84,84,84 | 0 |
| 26 | K | G | 3079 | 1/1 | 0.87 | 0.28 | 84,84,84,84 | 1 |
| 25 | MG | G | 3035 | 1/1 | 0.88 | 0.84 | 84,84,84,84 | 0 |
| 25 | MG | G | 3032 | 1/1 | 0.88 | 0.54 | 84,84,84,84 | 0 |
| 25 | MG | G | 3061 | 1/1 | 0.89 | 0.33 | 84,84,84,84 | 0 |
| 25 | MG | G | 3071 | 1/1 | 0.89 | 0.12 | 84,84,84,84 | 0 |
| 25 | MG | G | 3014 | 1/1 | 0.89 | 0.46 | 84,84,84,84 | 0 |
| 25 | MG | G | 3017 | 1/1 | 0.89 | 0.59 | 84,84,84,84 | 0 |
| 25 | MG | G | 3012 | 1/1 | 0.89 | 0.25 | 84,84,84,84 | 0 |

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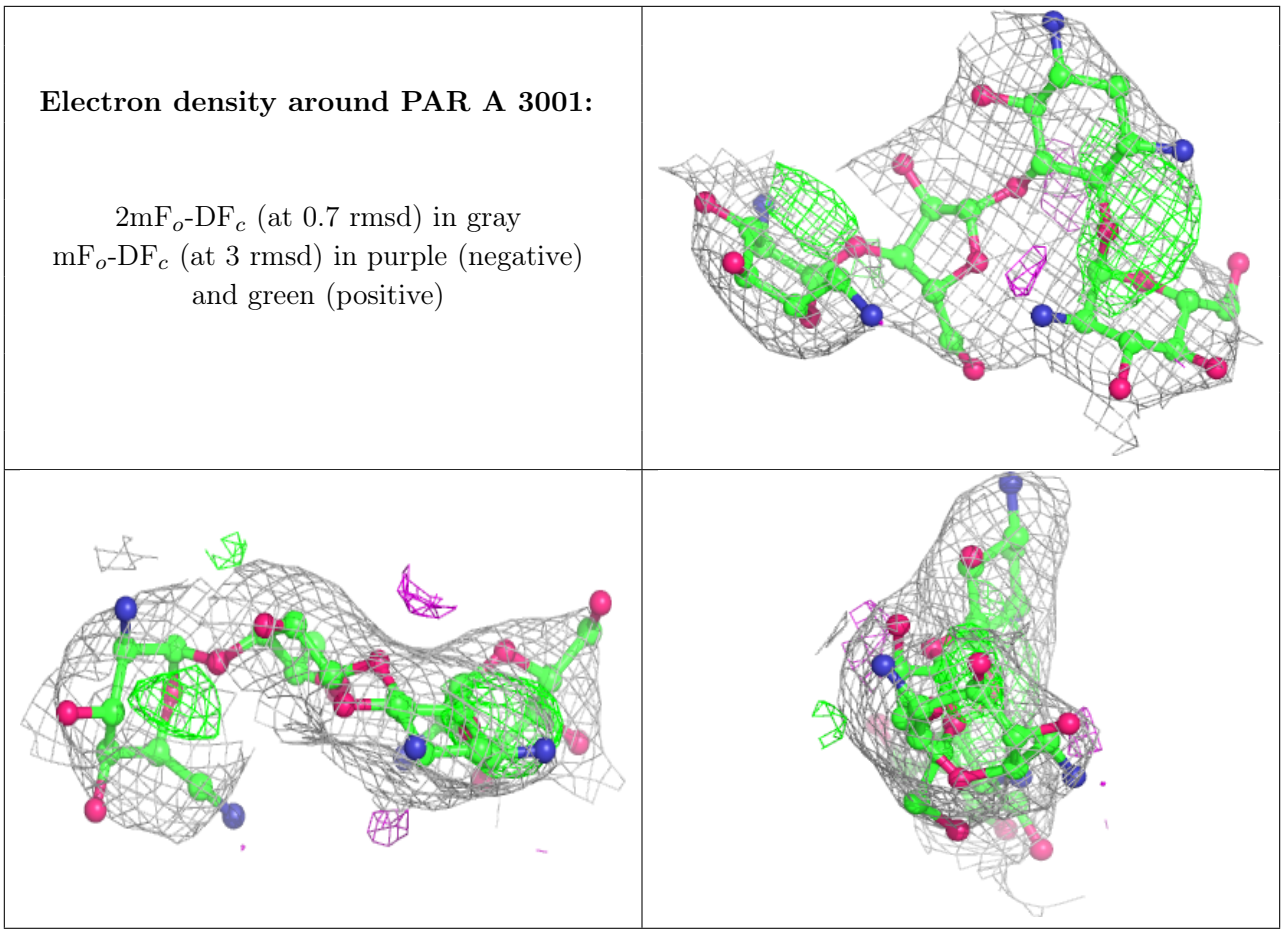
| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 25 | MG | G | 3044 | 1/1 | 0.90 | 0.44 | 84,84,84,84 | 0 |
| 25 | MG | G | 3040 | 1/1 | 0.90 | 0.63 | 84,84,84,84 | 0 |
| 25 | MG | G | 3051 | 1/1 | 0.91 | 0.32 | 84,84,84,84 | 0 |
| 25 | MG | G | 3047 | 1/1 | 0.91 | 0.43 | 84,84,84,84 | 0 |
| 25 | MG | G | 3005 | 1/1 | 0.91 | 0.49 | 84,84,84,84 | 0 |
| 25 | MG | G | 3036 | 1/1 | 0.91 | 0.39 | 84,84,84,84 | 0 |
| 25 | MG | G | 3056 | 1/1 | 0.92 | 0.35 | 84,84,84,84 | 0 |
| 25 | MG | G | 3031 | 1/1 | 0.92 | 0.42 | 84,84,84,84 | 0 |
| 25 | MG | G | 3048 | 1/1 | 0.93 | 0.27 | 84,84,84,84 | 0 |
| 25 | MG | G | 3054 | 1/1 | 0.93 | 0.32 | 84,84,84,84 | 0 |
| 25 | MG | G | 3011 | 1/1 | 0.93 | 0.27 | 84,84,84,84 | 0 |
| 25 | MG | G | 3042 | 1/1 | 0.93 | 0.64 | 84,84,84,84 | 0 |
| 25 | MG | G | 3030 | 1/1 | 0.93 | 0.41 | 84,84,84,84 | 0 |
| 25 | MG | G | 3052 | 1/1 | 0.94 | 0.47 | 84,84,84,84 | 0 |
| 25 | MG | G | 3023 | 1/1 | 0.94 | 0.54 | 84,84,84,84 | 0 |
| 25 | MG | G | 3007 | 1/1 | 0.95 | 0.37 | 84,84,84,84 | 0 |
| 25 | MG | G | 3009 | 1/1 | 0.95 | 0.25 | 84,84,84,84 | 0 |
| 25 | MG | G | 3057 | 1/1 | 0.95 | 0.53 | 84,84,84,84 | 0 |
| 25 | MG | G | 3043 | 1/1 | 0.96 | 0.14 | 84,84,84,84 | 0 |
| 25 | MG | G | 3062 | 1/1 | 0.97 | 0.27 | 84,84,84,84 | 0 |
| 27 | ZN | G | 3080 | 1/1 | 0.97 | 0.17 | 84,84,84,84 | 1 |
| 27 | ZN | G | 3081 | 1/1 | 0.99 | 0.04 | 84,84,84,84 | 0 |

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around PAR A 3001:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



## 6.5 Other polymers (i)

There are no such residues in this entry.