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

Oct 5, 2024 – 02:49 pm BST

| | | |
|---|---|---|
| PDB ID | : | 1QOL |
| Title | : | STRUCTURE OF THE FMDV LEADER PROTEASE |
| Authors | : | Guarne, A.; Tormo, J.; Kirchweger, R.; Pfistermueller, D.; Skern, T.; Fita, I. |
| Deposited on | : | 1999-11-13 |
| Resolution | : | 3.00 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.

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

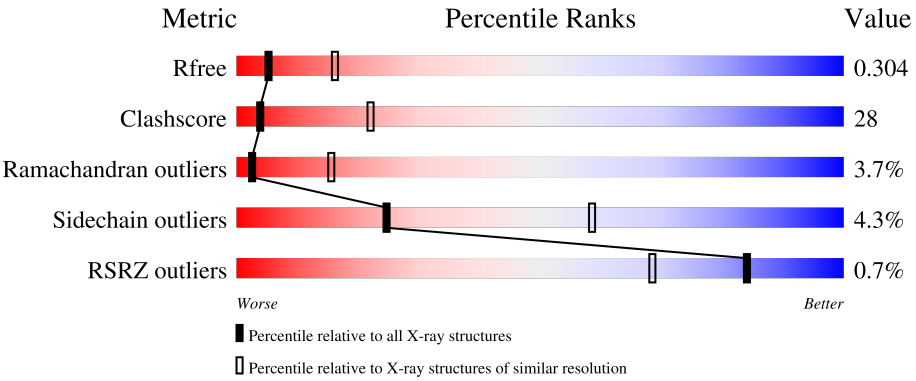
| | | |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Mogul | : | 1.8.4, CSD as541be (2020) |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 3.0 |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| CCP4 | : | 9.0.003 (Gargrove) |
| Density-Fitness | : | 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 3.00 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 | 2511 (3.00-3.00) |
| Clashscore | 180529 | 2866 (3.00-3.00) |
| Ramachandran outliers | 177936 | 2778 (3.00-3.00) |
| Sidechain outliers | 177891 | 2781 (3.00-3.00) |
| RSRZ outliers | 164620 | 2523 (3.00-3.00) |

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 | 173 | 57% 35% |
| 1 | B | 173 | 56% 36% |
| 1 | C | 173 | 62% 36% |
| 1 | D | 173 | 61% 36% |
| 1 | E | 173 | % 51% 39% 6% |

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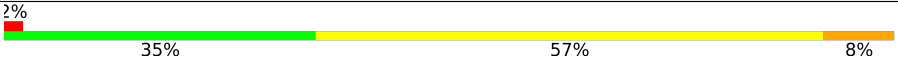
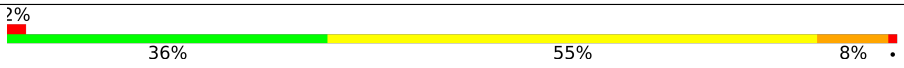
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | F | 173 |   |
| 1 | G | 173 |   |
| 1 | H | 173 |   |

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 |
|---|---|---|---|---|---|---|---|
| 3 | CL | E | 301 | - | - | X | - |

## 2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 10971 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 protein called PROTEASE (NONSTRUCTURAL PROTEIN P20A).

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 166 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1340 | 867 | 217 | 251 | 5 | | | |
| 1 | B | 166 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1340 | 867 | 217 | 251 | 5 | | | |
| 1 | C | 173 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1399 | 905 | 226 | 263 | 5 | | | |
| 1 | D | 173 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1399 | 905 | 226 | 263 | 5 | | | |
| 1 | E | 166 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1340 | 867 | 217 | 251 | 5 | | | |
| 1 | F | 166 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1340 | 867 | 217 | 251 | 5 | | | |
| 1 | G | 173 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1399 | 905 | 226 | 263 | 5 | | | |
| 1 | H | 173 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1399 | 905 | 226 | 263 | 5 | | | |

There are 16 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| A | 51 | ALA | CYS | engineered mutation | UNP P03305 |
| B | 51 | ALA | CYS | engineered mutation | UNP P03305 |
| C | 51 | ALA | CYS | engineered mutation | UNP P03305 |
| D | 51 | ALA | CYS | engineered mutation | UNP P03305 |
| E | 51 | ALA | CYS | engineered mutation | UNP P03305 |
| F | 51 | ALA | CYS | engineered mutation | UNP P03305 |
| G | 51 | ALA | CYS | engineered mutation | UNP P03305 |
| H | 51 | ALA | CYS | engineered mutation | UNP P03305 |
| A | 126 | VAL | MET | cloning artifact | UNP P03305 |
| B | 126 | VAL | MET | cloning artifact | UNP P03305 |
| C | 126 | VAL | MET | cloning artifact | UNP P03305 |
| D | 126 | VAL | MET | cloning artifact | UNP P03305 |
| E | 126 | VAL | MET | cloning artifact | UNP P03305 |

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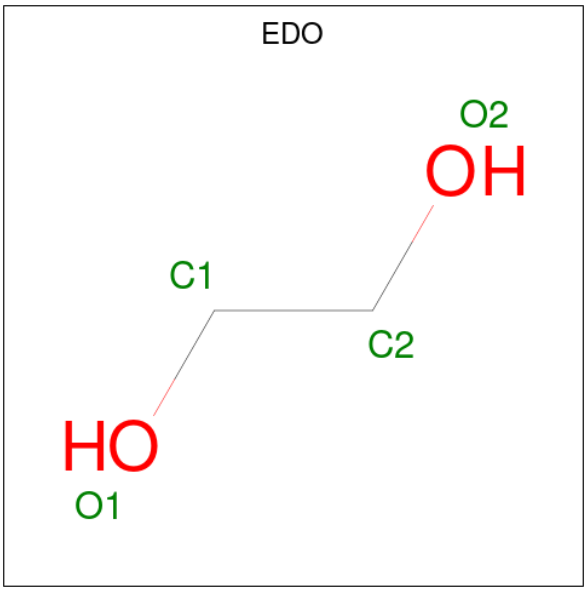
| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| F | 126 | VAL | MET | cloning artifact | UNP P03305 |
| G | 126 | VAL | MET | cloning artifact | UNP P03305 |
| H | 126 | VAL | MET | cloning artifact | UNP P03305 |

- Molecule 2 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).




| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 2 | A | 1 | Total C O<br>4 2 2 | 0 | 0 |
| 2 | B | 1 | Total C O<br>4 2 2 | 0 | 0 |
| 2 | F | 1 | Total C O<br>4 2 2 | 0 | 0 |

- Molecule 3 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

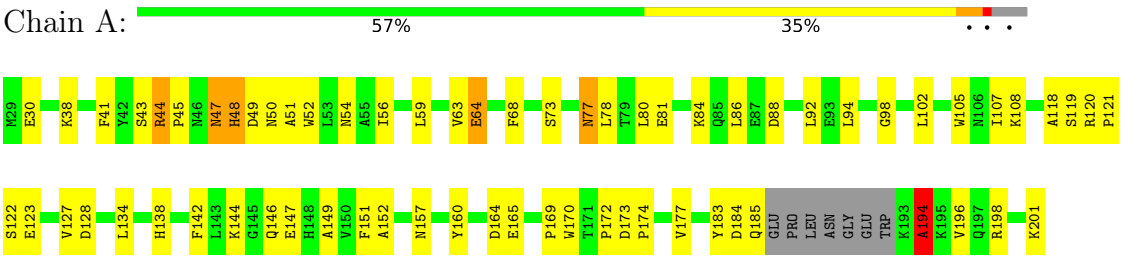
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 3 | B | 1 | Total Cl<br>1 1 | 0 | 0 |
| 3 | D | 1 | Total Cl<br>1 1 | 0 | 0 |
| 3 | E | 1 | Total Cl<br>1 1 | 0 | 0 |

# 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.

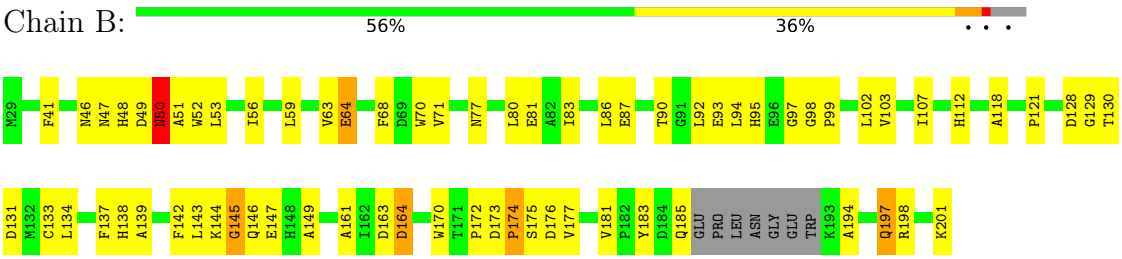
• Molecule 1: PROTEASE (NONSTRUCTURAL PROTEIN P20A)

Chain A:



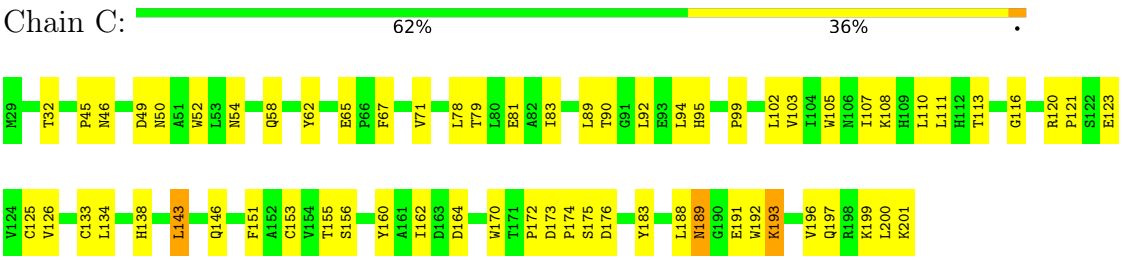

• Molecule 1: PROTEASE (NONSTRUCTURAL PROTEIN P20A)

Chain B:



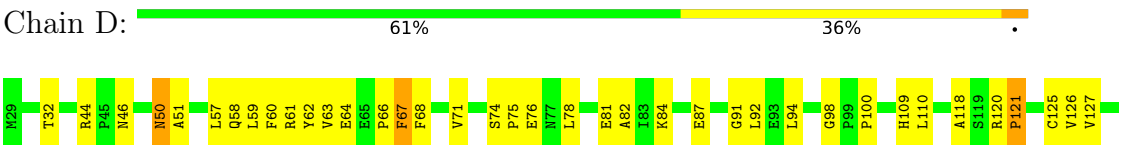

• Molecule 1: PROTEASE (NONSTRUCTURAL PROTEIN P20A)

Chain C:

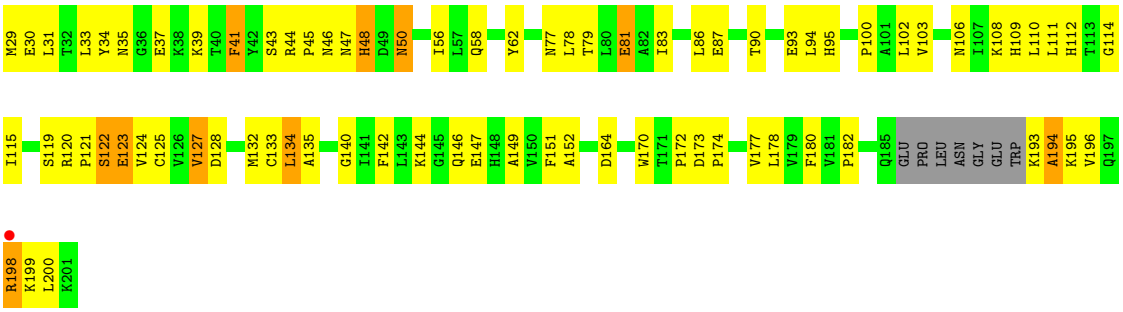



• Molecule 1: PROTEASE (NONSTRUCTURAL PROTEIN P20A)

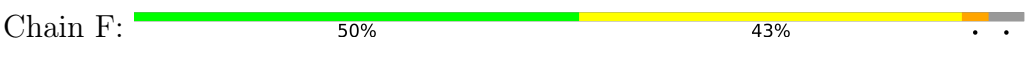
Chain D:




• Molecule 1: PROTEASE (NONSTRUCTURAL PROTEIN P20A)

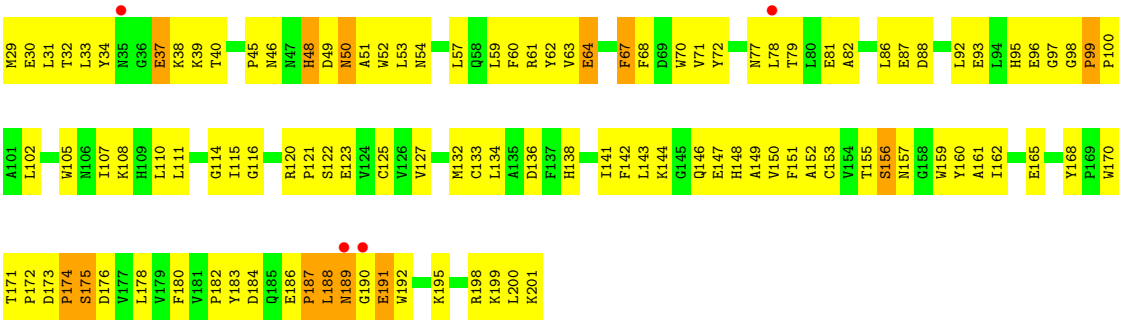




• Molecule 1: PROTEASE (NONSTRUCTURAL PROTEIN P20A)

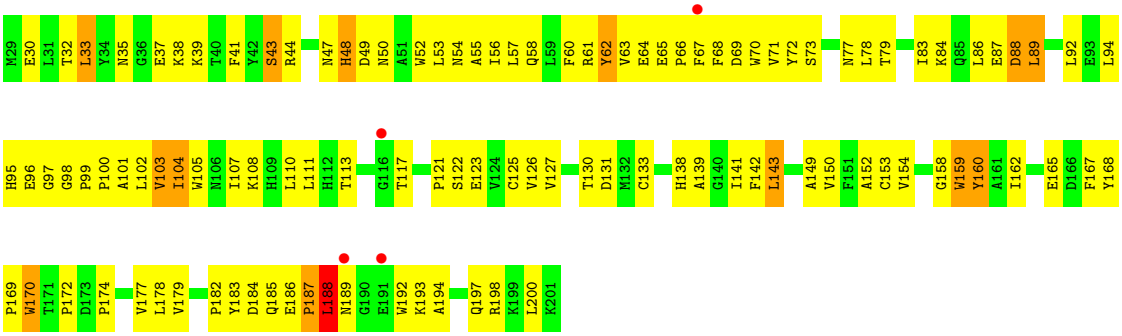




• Molecule 1: PROTEASE (NONSTRUCTURAL PROTEIN P20A)


• Molecule 1: PROTEASE (NONSTRUCTURAL PROTEIN P20A)


M29 E30 L31 T32 L33 Y34 N35 G36 E37 K38 K39 T40 F41 Y42 S43 R44 N47 H48 D49 N50 A51 W52 L53 N54 A55 I56 L57 Q58 L59 F60 R61 Y62 V63 E64 E65 P66 F67 F68 D69 W70 V71 Y72 S73 N77 L78 T79 I83 K84 Q85 L86 E87 D88 L89 L92 E93 L94
H95 E96 G97 G98 P99 P100 A101 L102 V103 I104 W105 N106 I107 K108 H109 L110 L111 H112 T113 G116 T117 P121 S122 E123 V124 C125 V126 V127 T130 D131 M132 C133 H138 A139 G140 I141 F142 L143 A149 V150 F151 A152 C153 V154 G158 W159 Y160 A161 I162 E165 D166 F167 Y168
P169 W170 T171 P172 D173 P174 V177 L178 V179 P182 Y183 D184 Q185 E186 P187 L188 N189 G190 E191 W192 K193 A194 Q197 R198 K199 L200 K201

# 4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | P 21 21 21 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 65.43Å 101.56Å 276.97Å<br>90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 19.99 – 3.00<br>19.99 – 3.00 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 92.5 (19.99-3.00)<br>92.1 (19.99-3.00) | Depositor<br>EDS |
| $R_{merge}$ | (Not available) | Depositor |
| $R_{sym}$ | 0.01 | Depositor |
| $< I/\sigma(I) >$ [1] | 3.58 (at 2.99Å) | Xtriage |
| Refinement program | CNS 0.9 | Depositor |
| R, $R_{free}$ | 0.258 , 0.314<br>0.251 , 0.304 | Depositor<br>DCC |
| $R_{free}$ test set | 2232 reflections (6.38%) | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 41.3 | Xtriage |
| Anisotropy | 0.760 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.32 , 42.8 | 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 | 0.91 | EDS |
| Total number of atoms | 10971 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 38.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 43.45 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.7599e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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: EDO, CL

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 | 0.50 | 0/1380 | 0.74 | 1/1880 (0.1%) |
| 1 | B | 0.49 | 0/1380 | 0.69 | 0/1880 |
| 1 | C | 0.49 | 0/1443 | 0.73 | 0/1969 |
| 1 | D | 0.48 | 0/1443 | 0.73 | 0/1969 |
| 1 | E | 0.50 | 0/1380 | 0.68 | 0/1880 |
| 1 | F | 0.48 | 0/1380 | 0.70 | 0/1880 |
| 1 | G | 0.57 | 0/1443 | 0.79 | 0/1969 |
| 1 | H | 0.60 | 0/1443 | 0.75 | 0/1969 |
| All | All | 0.51 | 0/11292 | 0.73 | 1/15396 (0.0%) |

There are no bond length outliers.

All (1) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 194 | ALA | N-CA-C | -5.69 | 95.63 | 111.00 |

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | A | 1340 | 0 | 1279 | 57 | 0 |
| 1 | B | 1340 | 0 | 1280 | 51 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | C | 1399 | 0 | 1330 | 52 | 0 |
| 1 | D | 1399 | 0 | 1329 | 53 | 0 |
| 1 | E | 1340 | 0 | 1280 | 78 | 0 |
| 1 | F | 1340 | 0 | 1280 | 80 | 0 |
| 1 | G | 1399 | 0 | 1330 | 124 | 0 |
| 1 | H | 1399 | 0 | 1330 | 145 | 0 |
| 2 | A | 4 | 0 | 6 | 0 | 0 |
| 2 | B | 4 | 0 | 6 | 0 | 0 |
| 2 | F | 4 | 0 | 6 | 0 | 0 |
| 3 | B | 1 | 0 | 0 | 0 | 0 |
| 3 | D | 1 | 0 | 0 | 0 | 0 |
| 3 | E | 1 | 0 | 0 | 2 | 0 |
| All | All | 10971 | 0 | 10456 | 591 | 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 28.

The worst 5 of 591 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:C:113:THR:HG23 | 1:C:123:GLU:HG2 | 1.36 | 1.08 |
| 1:F:134:LEU:HG | 1:F:174:PRO:HG3 | 1.36 | 1.08 |
| 1:G:46:ASN:HA | 1:G:50:ASN:HD21 | 1.14 | 1.07 |
| 1:A:49:ASP:O | 1:A:51:ALA:N | 1.89 | 1.04 |
| 1:F:46:ASN:HA | 1:F:50:ASN:HD21 | 1.24 | 1.02 |

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 |
|---|---|---|---|---|---|---|
| 1 | A | 162/173 (94%) | 136 (84%) | 20 (12%) | 6 (4%) | 2 15 |
| 1 | B | 162/173 (94%) | 142 (88%) | 14 (9%) | 6 (4%) | 2 15 |
| 1 | C | 171/173 (99%) | 149 (87%) | 20 (12%) | 2 (1%) | 11 41 |
| 1 | D | 171/173 (99%) | 150 (88%) | 17 (10%) | 4 (2%) | 5 26 |
| 1 | E | 162/173 (94%) | 137 (85%) | 17 (10%) | 8 (5%) | 2 10 |
| 1 | F | 162/173 (94%) | 138 (85%) | 21 (13%) | 3 (2%) | 6 31 |
| 1 | G | 171/173 (99%) | 132 (77%) | 28 (16%) | 11 (6%) | 1 6 |
| 1 | H | 171/173 (99%) | 132 (77%) | 30 (18%) | 9 (5%) | 1 9 |
| All | All | 1332/1384 (96%) | 1116 (84%) | 167 (12%) | 49 (4%) | 2 15 |

5 of 49 Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 50 | ASN |
| 1 | A | 184 | ASP |
| 1 | B | 164 | ASP |
| 1 | C | 189 | ASN |
| 1 | D | 67 | PHE |

### 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 |
|---|---|---|---|---|---|
| 1 | A | 145/151 (96%) | 140 (97%) | 5 (3%) | 32 66 |
| 1 | B | 145/151 (96%) | 138 (95%) | 7 (5%) | 21 55 |
| 1 | C | 151/151 (100%) | 144 (95%) | 7 (5%) | 23 56 |
| 1 | D | 151/151 (100%) | 148 (98%) | 3 (2%) | 50 78 |
| 1 | E | 145/151 (96%) | 138 (95%) | 7 (5%) | 21 55 |
| 1 | F | 145/151 (96%) | 137 (94%) | 8 (6%) | 18 50 |
| 1 | G | 151/151 (100%) | 145 (96%) | 6 (4%) | 27 61 |
| 1 | H | 151/151 (100%) | 143 (95%) | 8 (5%) | 19 51 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| All | All | 1184/1208 (98%) | 1133 (96%) | 51 (4%) | 25 58 |

5 of 51 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | E | 198 | ARG |
| 1 | F | 175 | SER |
| 1 | H | 184 | ASP |
| 1 | F | 48 | HIS |
| 1 | F | 95 | HIS |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 27 such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | F | 50 | ASN |
| 1 | G | 50 | ASN |
| 1 | H | 112 | HIS |
| 1 | F | 197 | GLN |
| 1 | G | 54 | ASN |

#### 5.3.3 RNA (i)

There are no RNA molecules in this entry.

### 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 6 ligands modelled in this entry, 3 are monoatomic - leaving 3 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 | $\#\|Z\| > 2$ |
| 2 | EDO | A | 301 | - | 3,3,3 | 0.64 | 0 | 2,2,2 | 0.56 | 0 |
| 2 | EDO | B | 301 | - | 3,3,3 | 0.66 | 0 | 2,2,2 | 0.50 | 0 |
| 2 | EDO | F | 301 | - | 3,3,3 | 0.66 | 0 | 2,2,2 | 0.53 | 0 |

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 |
|---|---|---|---|---|---|---|---|
| 2 | EDO | A | 301 | - | - | 0/1/1/1 | - |
| 2 | EDO | B | 301 | - | - | 0/1/1/1 | - |
| 2 | EDO | F | 301 | - | - | 0/1/1/1 | - |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

# 6 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 | 166/173 (95%) | -0.55 | 0 100 100 | 10, 26, 51, 67 | 0 |
| 1 | B | 166/173 (95%) | -0.62 | 0 100 100 | 10, 26, 48, 75 | 0 |
| 1 | C | 173/173 (100%) | -0.53 | 0 100 100 | 12, 30, 48, 61 | 0 |
| 1 | D | 173/173 (100%) | -0.40 | 0 100 100 | 10, 30, 55, 63 | 0 |
| 1 | E | 166/173 (95%) | -0.32 | 1 (0%) 85 71 | 10, 38, 57, 70 | 0 |
| 1 | F | 166/173 (95%) | -0.33 | 0 100 100 | 20, 39, 59, 68 | 0 |
| 1 | G | 173/173 (100%) | 0.23 | 4 (2%) 61 39 | 30, 53, 69, 82 | 0 |
| 1 | H | 173/173 (100%) | 0.33 | 4 (2%) 61 39 | 34, 57, 70, 77 | 0 |
| All | All | 1356/1384 (97%) | -0.27 | 9 (0%) 84 68 | 10, 37, 64, 82 | 0 |

The worst 5 of 9 RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | G | 190 | GLY | 3.0 |
| 1 | G | 78 | LEU | 2.7 |
| 1 | H | 189 | ASN | 2.5 |
| 1 | H | 116 | GLY | 2.3 |
| 1 | G | 35 | ASN | 2.3 |

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

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

## 6.3 Carbohydrates

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 |
|---|---|---|---|---|---|---|---|---|
| 2 | EDO | B | 301 | 4/4 | 0.72 | 0.15 | 26,28,30,37 | 0 |
| 2 | EDO | F | 301 | 4/4 | 0.74 | 0.19 | 45,46,46,50 | 0 |
| 2 | EDO | A | 301 | 4/4 | 0.77 | 0.16 | 36,37,40,47 | 0 |
| 3 | CL | E | 301 | 1/1 | 0.82 | 0.10 | 75,75,75,75 | 0 |
| 3 | CL | D | 301 | 1/1 | 0.98 | 0.03 | 22,22,22,22 | 0 |
| 3 | CL | B | 302 | 1/1 | 0.98 | 0.06 | 35,35,35,35 | 0 |

## 6.5 Other polymers (i)

There are no such residues in this entry.