



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 27, 2023 – 01:02 AM EDT

PDB ID : 3IEK  
Title : Crystal Structure of native TTHA0252 from *Thermus thermophilus* HB8  
Authors : Ishikawa, H.; Nakagawa, N.; Kuramitsu, S.; Yokoyama, S.; Masui, R.  
Deposited on : 2009-07-22  
Resolution : 2.05 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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 ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

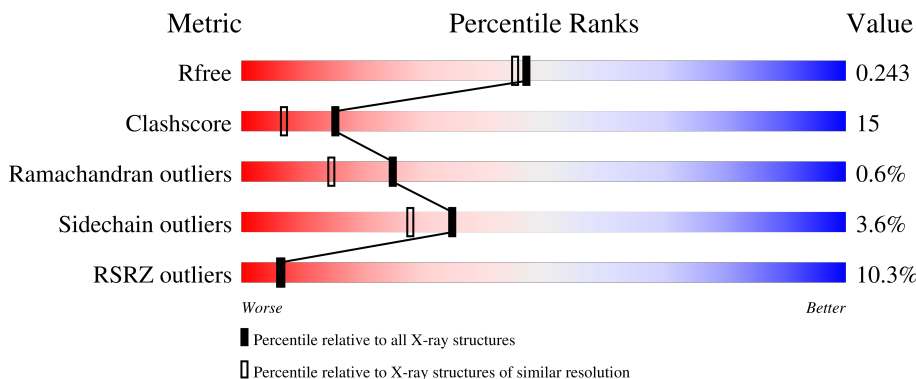
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.05 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<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 130704                      | 1692 (2.04-2.04)                                      |
| Clashscore            | 141614                      | 1773 (2.04-2.04)                                      |
| Ramachandran outliers | 138981                      | 1752 (2.04-2.04)                                      |
| Sidechain outliers    | 138945                      | 1752 (2.04-2.04)                                      |
| RSRZ outliers         | 127900                      | 1672 (2.04-2.04)                                      |

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  $\geq 3$ , 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  $\leq 5\%$ . 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     | 431    |                  |
| 1   | B     | 431    |                  |
| 1   | C     | 431    |                  |
| 1   | D     | 431    |                  |

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 |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 2   | SO4  | A     | 450 | -         | -        | X       | X                |
| 2   | SO4  | A     | 451 | -         | -        | X       | -                |
| 2   | SO4  | B     | 453 | -         | -        | X       | -                |
| 2   | SO4  | C     | 448 | -         | -        | -       | X                |
| 2   | SO4  | C     | 450 | -         | -        | -       | X                |
| 2   | SO4  | C     | 454 | -         | -        | X       | -                |
| 2   | SO4  | D     | 434 | -         | -        | -       | X                |
| 3   | FLC  | A     | 460 | -         | -        | X       | -                |
| 3   | FLC  | B     | 463 | -         | -        | X       | -                |

## 2 Entry composition [i](#)

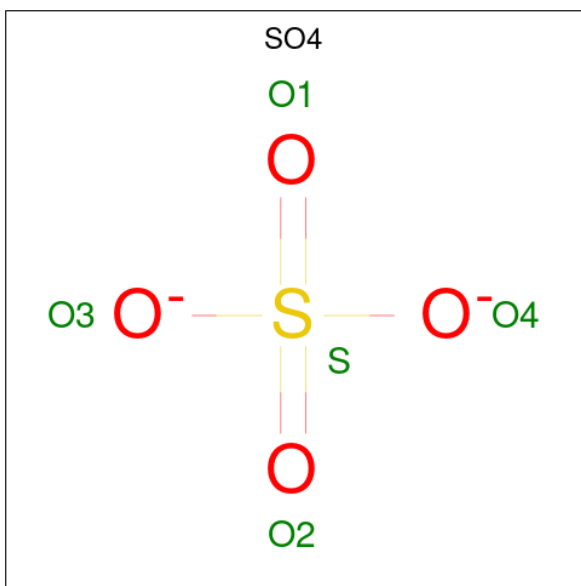
There are 5 unique types of molecules in this entry. The entry contains 14435 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Ribonuclease TTHA0252.

| Mol | Chain | Residues | Atoms         |           |          |          |        | ZeroOcc | AltConf | Trace |
|-----|-------|----------|---------------|-----------|----------|----------|--------|---------|---------|-------|
|     |       |          | Total         | C         | N        | O        | S      |         |         |       |
| 1   | A     | 431      | Total<br>3326 | C<br>2127 | N<br>597 | O<br>594 | S<br>8 | 0       | 0       | 0     |
| 1   | B     | 431      | Total<br>3326 | C<br>2127 | N<br>597 | O<br>594 | S<br>8 | 0       | 0       | 0     |
| 1   | C     | 431      | Total<br>3326 | C<br>2127 | N<br>597 | O<br>594 | S<br>8 | 0       | 0       | 0     |
| 1   | D     | 431      | Total<br>3326 | C<br>2127 | N<br>597 | O<br>594 | S<br>8 | 0       | 0       | 0     |

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



| Mol | Chain | Residues | Atoms      |        |        | ZeroOcc | AltConf |
|-----|-------|----------|------------|--------|--------|---------|---------|
|     |       |          | Total      | O      | S      |         |         |
| 2   | A     | 1        | Total<br>5 | O<br>4 | S<br>1 | 0       | 0       |
| 2   | A     | 1        | Total<br>5 | O<br>4 | S<br>1 | 0       | 0       |

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| Mol | Chain | Residues | Atoms |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | A     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |

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| Mol | Chain | Residues | Atoms |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
|     |       |          | Total | O | S |         |         |
| 2   | A     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | A     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | A     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | A     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | A     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |

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| Mol | Chain | Residues | Atoms |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
|     |       |          | Total | O | S |         |         |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | B     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |

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| Mol | Chain | Residues | Atoms |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
|     |       |          | Total | O | S |         |         |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | C     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | D     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | D     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | D     | 1        | 5     | 4 | 1 | 0       | 0       |
| 2   | D     | 1        | 5     | 4 | 1 | 0       | 0       |

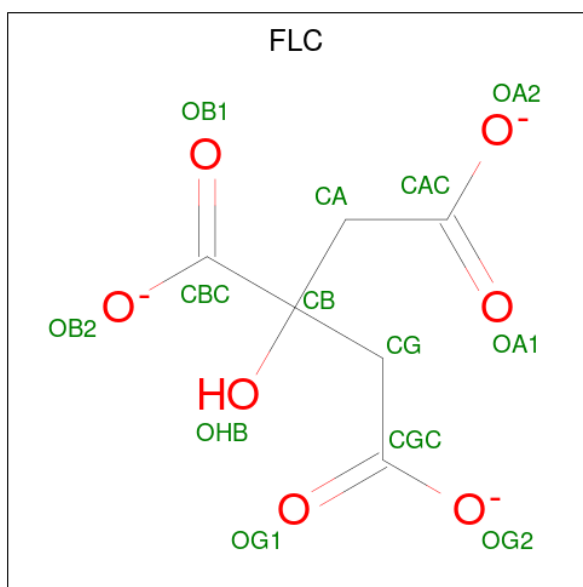
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| Mol | Chain | Residues | Atoms |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |
| 2   | D     | 1        | Total | O | S | 0       | 0       |
|     |       |          | 5     | 4 | 1 |         |         |

- Molecule 3 is CITRATE ANION (three-letter code: FLC) (formula: C<sub>6</sub>H<sub>5</sub>O<sub>7</sub>).



| Mol | Chain | Residues | Atoms               | ZeroOcc | AltConf |
|-----|-------|----------|---------------------|---------|---------|
| 3   | A     | 1        | Total C O<br>13 6 7 | 0       | 0       |
| 3   | B     | 1        | Total C O<br>13 6 7 | 0       | 0       |

- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms           | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 4   | A     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 4   | B     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 4   | C     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 4   | D     | 2        | Total Zn<br>2 2 | 0       | 0       |

- Molecule 5 is water.

| Mol | Chain | Residues | Atoms              | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 5   | A     | 244      | Total O<br>244 244 | 0       | 0       |
| 5   | B     | 196      | Total O<br>196 196 | 0       | 0       |
| 5   | C     | 78       | Total O<br>78 78   | 0       | 0       |

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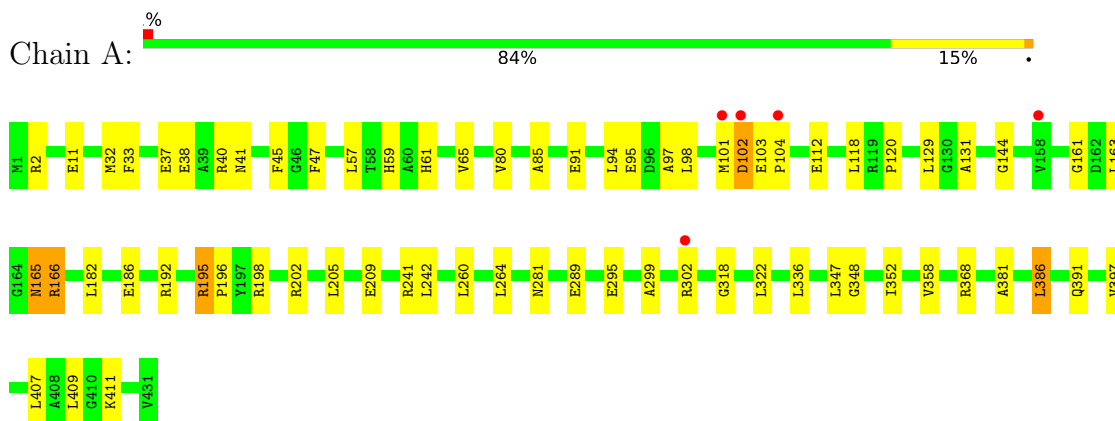
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| <b>Mol</b> | <b>Chain</b> | <b>Residues</b> | <b>Atoms</b> |    | <b>ZeroOcc</b> | <b>AltConf</b> |
|------------|--------------|-----------------|--------------|----|----------------|----------------|
| 5          | D            | 79              | Total        | O  | 0              | 0              |
|            |              |                 | 79           | 79 |                |                |

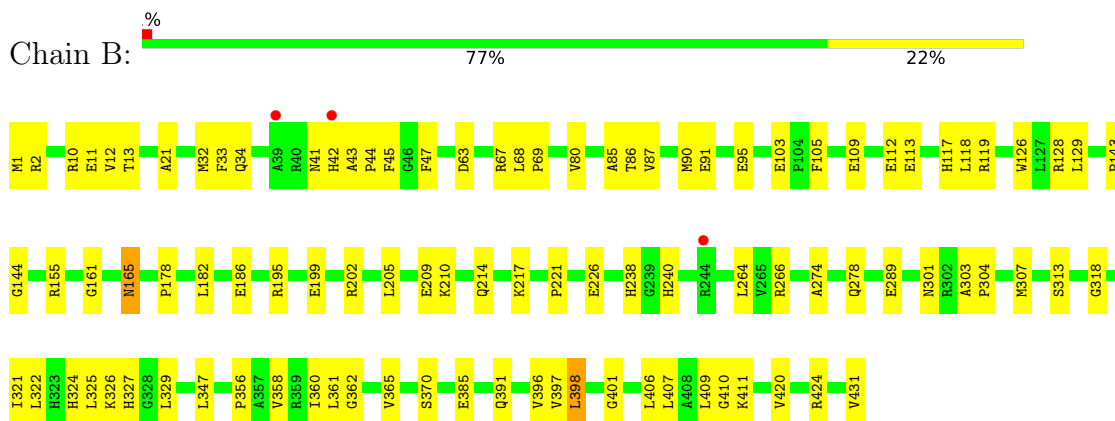
### 3 Residue-property plots

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 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.

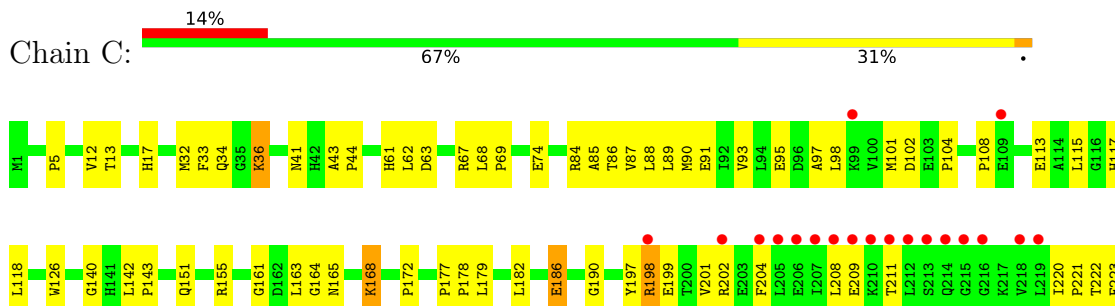
#### • Molecule 1: Ribonuclease TTHA0252

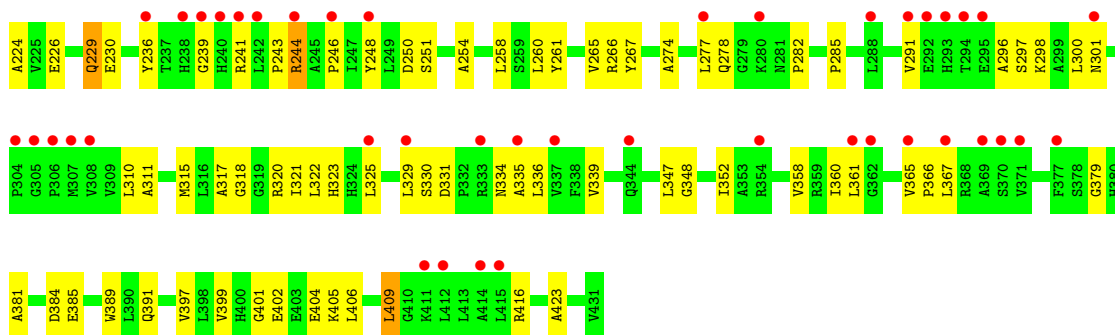


#### • Molecule 1: Ribonuclease TTHA0252

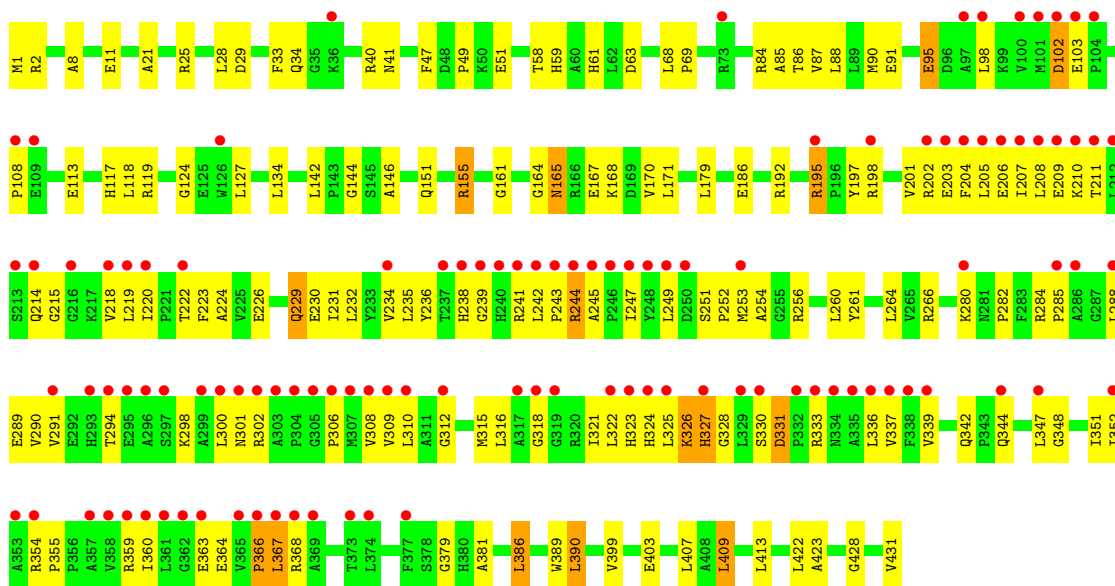


#### • Molecule 1: Ribonuclease TTHA0252





● Molecule 1: Ribonuclease TTHA0252



## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | C 1 2 1   | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 145.22Å 145.70Å 119.65Å<br>90.00° 110.52° 90.00°            | Depositor        |
| Resolution (Å)  | 50.00 – 2.05<br>49.71 – 2.05                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 94.3 (50.00-2.05)<br>94.4 (49.71-2.05)                      | Depositor<br>EDS |
| $R_{merge}$   | 0.06  | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 4.57 (at 2.05Å)   | Xtrriage         |
| Refinement program  | CNS   | Depositor        |
| R, $R_{free}$   | 0.218 , 0.250<br>0.212 , 0.243                              | Depositor<br>DCC |
| $R_{free}$ test set   | 14389 reflections (9.97%)                                   | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 28.1  | Xtrriage         |
| Anisotropy  | 0.111   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.36 , 50.5   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.33$ | Xtrriage         |
| Estimated twinning fraction   | No twinning to report.                                      | Xtrriage         |
| $F_o, F_c$ correlation  | 0.94  | EDS              |
| Total number of atoms   | 14435   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 39.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.62% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: FLC, SO4, ZN

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

| Mol | Chain | Bond lengths |         | Bond angles |                |
|-----|-------|--------------|---------|-------------|----------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5        |
| 1   | A     | 0.34         | 0/3407  | 0.65        | 1/4621 (0.0%)  |
| 1   | B     | 0.33         | 0/3407  | 0.62        | 1/4621 (0.0%)  |
| 1   | C     | 0.29         | 0/3407  | 0.57        | 1/4621 (0.0%)  |
| 1   | D     | 0.28         | 0/3407  | 0.56        | 1/4621 (0.0%)  |
| All | All   | 0.31         | 0/13628 | 0.60        | 4/18484 (0.0%) |

There are no bond length outliers.

All (4) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms  | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 1   | A     | 161 | GLY  | N-CA-C | -5.92 | 98.30       | 113.10   |
| 1   | B     | 161 | GLY  | N-CA-C | -5.48 | 99.41       | 113.10   |
| 1   | D     | 161 | GLY  | N-CA-C | -5.42 | 99.54       | 113.10   |
| 1   | C     | 161 | GLY  | N-CA-C | -5.00 | 100.60      | 113.10   |

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   | A     | 3326  | 0        | 3351     | 59      | 0            |
| 1   | B     | 3326  | 0        | 3351     | 81      | 0            |
| 1   | C     | 3326  | 0        | 3351     | 127     | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | D     | 3326  | 0        | 3351     | 144     | 0            |
| 2   | A     | 140   | 0        | 0        | 5       | 0            |
| 2   | B     | 155   | 0        | 0        | 9       | 0            |
| 2   | C     | 115   | 0        | 0        | 6       | 0            |
| 2   | D     | 90    | 0        | 0        | 3       | 0            |
| 3   | A     | 13    | 0        | 5        | 4       | 0            |
| 3   | B     | 13    | 0        | 5        | 5       | 0            |
| 4   | A     | 2     | 0        | 0        | 0       | 0            |
| 4   | B     | 2     | 0        | 0        | 0       | 0            |
| 4   | C     | 2     | 0        | 0        | 0       | 0            |
| 4   | D     | 2     | 0        | 0        | 0       | 0            |
| 5   | A     | 244   | 0        | 0        | 7       | 0            |
| 5   | B     | 196   | 0        | 0        | 6       | 0            |
| 5   | C     | 78    | 0        | 0        | 1       | 0            |
| 5   | D     | 79    | 0        | 0        | 3       | 0            |
| All | All   | 14435 | 0        | 13414    | 404     | 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 15.

All (404) 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:391:GLN:HG3 | 5:A:700:HOH:O    | 1.34                     | 1.24              |
| 1:B:10:ARG:HH12 | 1:B:424:ARG:HG2  | 1.01                     | 1.10              |
| 1:B:2:ARG:HG3   | 2:B:453:SO4:O1   | 1.55                     | 1.06              |
| 1:A:120:PRO:HB2 | 2:A:451:SO4:O3   | 1.59                     | 1.02              |
| 1:D:363:GLU:HG2 | 1:D:364:GLU:H    | 1.25                     | 1.01              |
| 1:D:33:PHE:H    | 1:D:41:ASN:HD21  | 1.05                     | 0.98              |
| 1:C:244:ARG:H   | 1:C:244:ARG:HD3  | 1.26                     | 0.97              |
| 1:A:195:ARG:HB2 | 1:A:195:ARG:HH11 | 1.30                     | 0.97              |
| 1:A:195:ARG:HB2 | 1:A:195:ARG:NH1  | 1.81                     | 0.96              |
| 1:B:10:ARG:HH12 | 1:B:424:ARG:CG   | 1.80                     | 0.94              |
| 1:C:33:PHE:H    | 1:C:41:ASN:HD21  | 1.14                     | 0.94              |
| 1:B:10:ARG:NH1  | 1:B:424:ARG:HG2  | 1.83                     | 0.92              |
| 1:A:302:ARG:NH2 | 1:B:303:ALA:HB1  | 1.84                     | 0.92              |
| 1:A:33:PHE:H    | 1:A:41:ASN:HD21  | 1.12                     | 0.90              |
| 1:B:33:PHE:H    | 1:B:41:ASN:HD21  | 0.89                     | 0.88              |
| 1:B:33:PHE:N    | 1:B:41:ASN:HD21  | 1.71                     | 0.86              |
| 1:B:33:PHE:H    | 1:B:41:ASN:ND2   | 1.72                     | 0.86              |
| 1:C:44:PRO:CB   | 2:C:454:SO4:O4   | 2.24                     | 0.86              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:302:ARG:HH22 | 1:B:303:ALA:HB1  | 1.40                     | 0.85              |
| 1:B:411:LYS:HB2  | 3:B:463:FLC:HA2  | 1.56                     | 0.85              |
| 1:C:97:ALA:O     | 1:C:101:MET:HB2  | 1.78                     | 0.84              |
| 1:C:44:PRO:HB3   | 2:C:454:SO4:O4   | 1.78                     | 0.84              |
| 1:D:209:GLU:HG2  | 1:D:243:PRO:HD3  | 1.60                     | 0.82              |
| 1:D:222:THR:HG22 | 1:D:339:VAL:HG21 | 1.62                     | 0.81              |
| 1:D:168:LYS:HE3  | 1:D:230:GLU:OE1  | 1.80                     | 0.81              |
| 1:D:231:ILE:O    | 1:D:234:VAL:HG22 | 1.81                     | 0.79              |
| 1:D:235:LEU:HD13 | 1:D:247:ILE:HD13 | 1.65                     | 0.78              |
| 1:B:391:GLN:HG3  | 5:B:655:HOH:O    | 1.82                     | 0.77              |
| 1:B:313:SER:HA   | 2:B:457:SO4:O2   | 1.84                     | 0.77              |
| 1:D:2:ARG:HG3    | 2:D:435:SO4:O1   | 1.87                     | 0.75              |
| 1:A:129:LEU:HD21 | 5:A:470:HOH:O    | 1.87                     | 0.74              |
| 1:D:91:GLU:O     | 1:D:95:GLU:HB2   | 1.86                     | 0.74              |
| 1:C:198:ARG:HE   | 1:C:198:ARG:HA   | 1.53                     | 0.74              |
| 1:D:331:ASP:N    | 1:D:368:ARG:HB2  | 2.03                     | 0.74              |
| 1:C:360:ILE:HG22 | 1:C:361:LEU:HD13 | 1.70                     | 0.74              |
| 1:A:120:PRO:CB   | 2:A:451:SO4:O3   | 2.35                     | 0.73              |
| 1:C:209:GLU:HG2  | 1:C:243:PRO:HD3  | 1.69                     | 0.72              |
| 1:C:229:GLN:CD   | 1:C:229:GLN:H    | 1.90                     | 0.72              |
| 1:D:331:ASP:H    | 1:D:368:ARG:HB2  | 1.54                     | 0.72              |
| 1:D:298:LYS:HA   | 1:D:301:ASN:HD22 | 1.54                     | 0.72              |
| 1:B:358:VAL:O    | 1:B:365:VAL:HG12 | 1.91                     | 0.71              |
| 1:C:244:ARG:HD3  | 1:C:244:ARG:N    | 2.05                     | 0.71              |
| 1:A:299:ALA:O    | 1:A:302:ARG:HD2  | 1.91                     | 0.71              |
| 1:C:198:ARG:HA   | 1:C:198:ARG:NE   | 2.05                     | 0.71              |
| 1:D:318:GLY:HA2  | 1:D:322:LEU:HD11 | 1.73                     | 0.71              |
| 1:D:222:THR:HG22 | 1:D:339:VAL:CG2  | 2.20                     | 0.71              |
| 1:D:1:MET:HG3    | 1:D:21:ALA:HB2   | 1.72                     | 0.70              |
| 1:D:363:GLU:HG2  | 1:D:364:GLU:N    | 2.04                     | 0.69              |
| 1:D:309:VAL:HG11 | 1:D:324:HIS:NE2  | 2.07                     | 0.69              |
| 1:A:131:ALA:HB1  | 2:A:450:SO4:O1   | 1.93                     | 0.69              |
| 1:C:244:ARG:H    | 1:C:244:ARG:CD   | 2.05                     | 0.69              |
| 1:D:207:ILE:O    | 1:D:211:THR:HG22 | 1.91                     | 0.69              |
| 1:A:368:ARG:NH2  | 2:A:435:SO4:O1   | 2.26                     | 0.68              |
| 1:B:2:ARG:CG     | 2:B:453:SO4:O1   | 2.39                     | 0.68              |
| 1:B:87:VAL:HA    | 1:B:90:MET:CE    | 2.24                     | 0.68              |
| 1:C:199:GLU:HA   | 1:C:202:ARG:HD2  | 1.75                     | 0.68              |
| 1:D:211:THR:HG21 | 1:D:218:VAL:HG22 | 1.74                     | 0.68              |
| 1:D:33:PHE:H     | 1:D:41:ASN:ND2   | 1.87                     | 0.67              |
| 1:B:411:LYS:N    | 3:B:463:FLC:HG2  | 2.09                     | 0.67              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:289:GLU:HG3  | 5:B:527:HOH:O    | 1.93                     | 0.67              |
| 1:C:168:LYS:HE3  | 1:C:230:GLU:OE1  | 1.94                     | 0.67              |
| 1:D:239:GLY:HA2  | 1:D:242:LEU:HG   | 1.76                     | 0.67              |
| 1:D:336:LEU:HD23 | 1:D:337:VAL:N    | 2.10                     | 0.66              |
| 1:B:347:LEU:HD11 | 1:B:358:VAL:HG11 | 1.78                     | 0.66              |
| 1:B:87:VAL:HA    | 1:B:90:MET:HE3   | 1.78                     | 0.65              |
| 1:D:229:GLN:H    | 1:D:229:GLN:CD   | 1.99                     | 0.65              |
| 1:D:34:GLN:NE2   | 1:D:63:ASP:HB3   | 2.11                     | 0.65              |
| 1:C:329:LEU:HD23 | 1:C:367:LEU:HD13 | 1.77                     | 0.64              |
| 1:D:205:LEU:HD13 | 1:D:241:ARG:HD2  | 1.77                     | 0.64              |
| 1:D:33:PHE:N     | 1:D:41:ASN:HD21  | 1.87                     | 0.64              |
| 1:D:195:ARG:H    | 1:D:195:ARG:HD2  | 1.62                     | 0.64              |
| 1:D:316:LEU:HD13 | 1:D:347:LEU:HD12 | 1.78                     | 0.64              |
| 1:A:381:ALA:HB3  | 1:A:386:LEU:HD13 | 1.79                     | 0.64              |
| 1:A:59:HIS:HD2   | 1:A:61:HIS:H     | 1.46                     | 0.63              |
| 1:C:331:ASP:HB3  | 1:C:334:ASN:ND2  | 2.14                     | 0.63              |
| 1:D:294:THR:HG22 | 1:D:298:LYS:NZ   | 2.14                     | 0.63              |
| 1:D:61:HIS:CE1   | 1:D:142:LEU:HD11 | 2.34                     | 0.62              |
| 1:B:90:MET:HE3   | 1:B:118:LEU:HD13 | 1.82                     | 0.62              |
| 1:B:411:LYS:HA   | 3:B:463:FLC:OB2  | 1.98                     | 0.62              |
| 1:D:326:LYS:O    | 1:D:326:LYS:HG2  | 2.00                     | 0.62              |
| 1:C:229:GLN:HG3  | 1:C:261:TYR:CZ   | 2.35                     | 0.62              |
| 1:A:33:PHE:H     | 1:A:41:ASN:ND2   | 1.93                     | 0.61              |
| 1:D:215:GLY:HA2  | 1:D:306:PRO:HD3  | 1.81                     | 0.61              |
| 1:A:102:ASP:CG   | 1:A:103:GLU:H    | 2.03                     | 0.61              |
| 1:C:86:THR:HG22  | 1:C:90:MET:CE    | 2.29                     | 0.61              |
| 1:D:34:GLN:HE21  | 1:D:63:ASP:HB3   | 1.65                     | 0.61              |
| 1:C:33:PHE:H     | 1:C:41:ASN:ND2   | 1.93                     | 0.61              |
| 1:A:295:GLU:HG3  | 5:A:693:HOH:O    | 1.99                     | 0.61              |
| 1:D:291:VAL:HG21 | 1:D:300:LEU:HD11 | 1.83                     | 0.61              |
| 1:A:318:GLY:HA2  | 1:A:322:LEU:HD11 | 1.83                     | 0.61              |
| 1:C:250:ASP:HA   | 1:C:291:VAL:HB   | 1.83                     | 0.61              |
| 1:D:348:GLY:O    | 1:D:352:ILE:HG13 | 2.00                     | 0.61              |
| 1:C:34:GLN:NE2   | 1:C:63:ASP:HB3   | 2.15                     | 0.61              |
| 1:B:182:LEU:HD11 | 1:B:397:VAL:HG23 | 1.82                     | 0.60              |
| 1:C:220:ILE:HG22 | 1:C:222:THR:HG23 | 1.84                     | 0.60              |
| 1:D:170:VAL:HG12 | 1:D:171:LEU:HD12 | 1.83                     | 0.60              |
| 1:C:91:GLU:OE2   | 1:C:115:LEU:HD13 | 2.01                     | 0.60              |
| 1:A:11:GLU:OE2   | 1:A:40:ARG:NH1   | 2.34                     | 0.60              |
| 1:C:85:ALA:HB2   | 1:C:267:TYR:CD2  | 2.36                     | 0.60              |
| 1:B:356:PRO:HG2  | 5:B:536:HOH:O    | 2.02                     | 0.60              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:34:GLN:HE21  | 1:B:63:ASP:HB3   | 1.67                     | 0.59              |
| 1:C:274:ALA:O    | 1:C:277:LEU:HB3  | 2.02                     | 0.59              |
| 1:D:204:PHE:O    | 1:D:208:LEU:HG   | 2.03                     | 0.59              |
| 1:D:229:GLN:H    | 1:D:229:GLN:NE2  | 1.99                     | 0.59              |
| 1:C:74:GLU:OE2   | 2:C:454:SO4:O1   | 2.21                     | 0.59              |
| 1:D:298:LYS:HA   | 1:D:301:ASN:ND2  | 2.18                     | 0.59              |
| 1:D:389:TRP:HE3  | 1:D:390:LEU:HD13 | 1.67                     | 0.58              |
| 1:C:197:TYR:O    | 1:C:201:VAL:HG23 | 2.03                     | 0.58              |
| 1:C:61:HIS:CD2   | 1:C:142:LEU:HD11 | 2.39                     | 0.58              |
| 1:C:33:PHE:N     | 1:C:41:ASN:HD21  | 1.93                     | 0.58              |
| 1:C:44:PRO:HB2   | 2:C:454:SO4:O4   | 2.03                     | 0.58              |
| 1:A:318:GLY:HA2  | 1:A:322:LEU:CD1  | 2.33                     | 0.58              |
| 1:D:309:VAL:C    | 1:D:310:LEU:HD12 | 2.24                     | 0.58              |
| 1:B:326:LYS:HD2  | 1:B:361:LEU:HB2  | 1.86                     | 0.57              |
| 1:D:155:ARG:NH2  | 2:D:449:SO4:O1   | 2.33                     | 0.57              |
| 1:A:347:LEU:HD11 | 1:A:358:VAL:HG11 | 1.87                     | 0.57              |
| 1:D:239:GLY:HA2  | 1:D:242:LEU:CG   | 2.34                     | 0.57              |
| 1:D:309:VAL:HG11 | 1:D:324:HIS:CD2  | 2.39                     | 0.57              |
| 1:B:221:PRO:HB3  | 1:B:321:ILE:HG12 | 1.86                     | 0.57              |
| 1:D:155:ARG:HD3  | 1:D:431:VAL:O    | 2.05                     | 0.57              |
| 1:A:260:LEU:HD22 | 1:A:264:LEU:HD11 | 1.85                     | 0.56              |
| 1:A:281:ASN:HB2  | 3:A:460:FLC:OB2  | 2.05                     | 0.56              |
| 1:D:98:LEU:HD21  | 1:D:108:PRO:HB3  | 1.85                     | 0.56              |
| 1:B:86:THR:O     | 1:B:90:MET:HG3   | 2.05                     | 0.56              |
| 1:C:404:GLU:CD   | 1:C:404:GLU:H    | 2.08                     | 0.56              |
| 1:D:202:ARG:O    | 1:D:206:GLU:HG3  | 2.05                     | 0.56              |
| 1:D:223:PHE:HZ   | 1:D:315:MET:HG3  | 1.71                     | 0.56              |
| 1:A:205:LEU:O    | 1:A:209:GLU:HG3  | 2.04                     | 0.56              |
| 1:C:61:HIS:NE2   | 1:C:142:LEU:HD11 | 2.21                     | 0.56              |
| 1:B:80:VAL:HB    | 1:B:118:LEU:HD23 | 1.87                     | 0.55              |
| 1:B:266:ARG:HG2  | 5:B:573:HOH:O    | 2.06                     | 0.55              |
| 1:D:90:MET:HE3   | 1:D:118:LEU:HD13 | 1.88                     | 0.55              |
| 1:D:223:PHE:CZ   | 1:D:315:MET:HG3  | 2.41                     | 0.55              |
| 1:B:396:VAL:HG12 | 1:B:398:LEU:HD13 | 1.88                     | 0.55              |
| 1:D:236:TYR:OH   | 1:D:280:LYS:HD3  | 2.05                     | 0.55              |
| 1:B:91:GLU:O     | 1:B:95:GLU:HG2   | 2.07                     | 0.55              |
| 1:C:182:LEU:HD11 | 1:C:397:VAL:HG23 | 1.88                     | 0.55              |
| 1:A:182:LEU:HD11 | 1:A:397:VAL:HG23 | 1.88                     | 0.55              |
| 1:C:322:LEU:HB3  | 1:C:361:LEU:HD11 | 1.87                     | 0.55              |
| 1:A:289:GLU:HG3  | 5:A:603:HOH:O    | 2.07                     | 0.55              |
| 1:C:211:THR:HG21 | 1:C:335:ALA:HB2  | 1.87                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:205:LEU:O    | 1:B:209:GLU:HG3  | 2.07                     | 0.55              |
| 1:B:401:GLY:HA3  | 1:B:406:LEU:HD13 | 1.88                     | 0.55              |
| 1:B:202:ARG:NE   | 2:B:458:SO4:O3   | 2.35                     | 0.54              |
| 1:D:302:ARG:HG2  | 1:D:302:ARG:HH21 | 1.70                     | 0.54              |
| 1:C:221:PRO:HB3  | 1:C:321:ILE:HG12 | 1.90                     | 0.54              |
| 1:D:407:LEU:HD22 | 1:D:422:LEU:HD21 | 1.88                     | 0.54              |
| 1:C:236:TYR:HD1  | 1:C:285:PRO:HA   | 1.73                     | 0.54              |
| 1:D:224:ALA:HB3  | 1:D:253:MET:CE   | 2.38                     | 0.54              |
| 1:B:362:GLY:N    | 2:B:451:SO4:O1   | 2.41                     | 0.54              |
| 1:D:325:LEU:C    | 1:D:327:HIS:H    | 2.11                     | 0.53              |
| 1:D:84:ARG:HD2   | 1:D:266:ARG:HH12 | 1.73                     | 0.53              |
| 1:D:244:ARG:HD2  | 1:D:244:ARG:N    | 2.24                     | 0.53              |
| 1:B:128:ARG:O    | 1:B:129:LEU:HD23 | 2.07                     | 0.53              |
| 1:B:385:GLU:CD   | 5:B:551:HOH:O    | 2.47                     | 0.53              |
| 1:C:87:VAL:HG13  | 1:C:118:LEU:HD13 | 1.90                     | 0.53              |
| 1:C:321:ILE:O    | 1:C:325:LEU:HD13 | 2.09                     | 0.53              |
| 1:D:381:ALA:HB3  | 1:D:386:LEU:HD13 | 1.91                     | 0.53              |
| 1:D:229:GLN:HG3  | 1:D:261:TYR:CE1  | 2.43                     | 0.53              |
| 1:C:325:LEU:HG   | 1:C:329:LEU:HD11 | 1.91                     | 0.53              |
| 1:D:88:LEU:HB3   | 1:D:260:LEU:HD21 | 1.91                     | 0.53              |
| 1:B:238:HIS:HA   | 1:B:240:HIS:CE1  | 2.43                     | 0.53              |
| 1:C:199:GLU:HA   | 1:C:202:ARG:CD   | 2.40                     | 0.53              |
| 1:D:359:ARG:HA   | 1:D:363:GLU:O    | 2.09                     | 0.52              |
| 1:B:155:ARG:HD2  | 1:B:431:VAL:O    | 2.09                     | 0.52              |
| 1:C:86:THR:O     | 1:C:90:MET:HB2   | 2.10                     | 0.52              |
| 1:C:211:THR:HG21 | 1:C:335:ALA:CB   | 2.39                     | 0.52              |
| 1:D:87:VAL:HA    | 1:D:90:MET:CE    | 2.40                     | 0.52              |
| 2:A:450:SO4:O2   | 1:D:179:LEU:HD21 | 2.09                     | 0.52              |
| 1:C:358:VAL:O    | 1:C:365:VAL:HG22 | 2.09                     | 0.52              |
| 1:C:318:GLY:HA2  | 1:C:322:LEU:HD11 | 1.92                     | 0.52              |
| 1:A:195:ARG:HG3  | 1:A:196:PRO:HD2  | 1.92                     | 0.52              |
| 1:C:401:GLY:HA3  | 1:C:406:LEU:HD11 | 1.90                     | 0.52              |
| 1:D:219:LEU:HD12 | 1:D:219:LEU:N    | 2.24                     | 0.52              |
| 1:B:327:HIS:O    | 2:B:438:SO4:O4   | 2.28                     | 0.52              |
| 1:C:86:THR:HG22  | 1:C:90:MET:HE3   | 1.91                     | 0.52              |
| 1:C:402:GLU:HB2  | 1:C:405:LYS:HG2  | 1.92                     | 0.52              |
| 1:D:218:VAL:HB   | 1:D:308:VAL:HG22 | 1.92                     | 0.52              |
| 1:D:321:ILE:O    | 1:D:325:LEU:HD13 | 2.11                     | 0.51              |
| 1:C:236:TYR:CA   | 1:C:285:PRO:HB3  | 2.40                     | 0.51              |
| 1:D:285:PRO:HD2  | 1:D:288:LEU:HD22 | 1.92                     | 0.51              |
| 1:A:166:ARG:NH2  | 1:A:166:ARG:HB2  | 2.25                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:1:MET:HG3    | 1:B:21:ALA:HB2   | 1.93                     | 0.51              |
| 1:B:128:ARG:HH11 | 1:C:179:LEU:HA   | 1.76                     | 0.51              |
| 1:D:119:ARG:HD2  | 5:D:585:HOH:O    | 2.11                     | 0.51              |
| 1:D:229:GLN:HG3  | 1:D:261:TYR:CZ   | 2.46                     | 0.51              |
| 1:C:236:TYR:HA   | 1:C:285:PRO:HB3  | 1.91                     | 0.51              |
| 1:D:68:LEU:HB3   | 1:D:69:PRO:HD3   | 1.93                     | 0.51              |
| 1:B:370:SER:HA   | 2:B:455:SO4:O2   | 2.10                     | 0.51              |
| 1:C:43:ALA:HB1   | 1:C:44:PRO:HD2   | 1.93                     | 0.51              |
| 1:C:204:PHE:O    | 1:C:208:LEU:HG   | 2.12                     | 0.50              |
| 1:C:297:SER:OG   | 1:C:320:ARG:HD3  | 2.11                     | 0.50              |
| 1:B:68:LEU:HB3   | 1:B:69:PRO:HD3   | 1.93                     | 0.50              |
| 1:D:85:ALA:HB3   | 1:D:144:GLY:HA3  | 1.94                     | 0.50              |
| 1:D:1:MET:HG3    | 1:D:21:ALA:CB    | 2.41                     | 0.50              |
| 1:D:47:PHE:O     | 1:D:49:PRO:HD3   | 2.12                     | 0.50              |
| 1:C:391:GLN:HA   | 1:C:416:ARG:NH2  | 2.26                     | 0.50              |
| 1:D:326:LYS:HB2  | 1:D:360:ILE:HG21 | 1.93                     | 0.50              |
| 1:D:102:ASP:CG   | 1:D:103:GLU:H    | 2.14                     | 0.50              |
| 1:D:171:LEU:HD11 | 1:D:226:GLU:OE1  | 2.11                     | 0.50              |
| 1:D:325:LEU:N    | 1:D:325:LEU:HD12 | 2.26                     | 0.50              |
| 1:B:401:GLY:HA3  | 1:B:406:LEU:CD1  | 2.42                     | 0.49              |
| 1:D:164:GLY:HA2  | 1:D:379:GLY:O    | 2.12                     | 0.49              |
| 1:C:34:GLN:HE21  | 1:C:63:ASP:HB3   | 1.78                     | 0.49              |
| 1:B:87:VAL:HA    | 1:B:90:MET:HE2   | 1.94                     | 0.49              |
| 1:B:210:LYS:O    | 1:B:214:GLN:HG2  | 2.13                     | 0.49              |
| 1:D:224:ALA:HB3  | 1:D:253:MET:HE2  | 1.94                     | 0.49              |
| 1:D:234:VAL:O    | 1:D:238:HIS:HB2  | 2.12                     | 0.49              |
| 1:D:409:LEU:HD22 | 1:D:413:LEU:HG   | 1.93                     | 0.49              |
| 1:C:360:ILE:CG2  | 1:C:361:LEU:HD13 | 2.41                     | 0.49              |
| 1:C:402:GLU:HB3  | 1:C:404:GLU:OE2  | 2.12                     | 0.49              |
| 1:D:88:LEU:HD13  | 1:D:260:LEU:HD11 | 1.95                     | 0.49              |
| 1:A:59:HIS:CD2   | 1:A:61:HIS:HB2   | 2.48                     | 0.48              |
| 1:D:61:HIS:CD2   | 1:D:142:LEU:HD11 | 2.48                     | 0.48              |
| 1:A:260:LEU:HD22 | 1:A:264:LEU:CD1  | 2.43                     | 0.48              |
| 1:A:281:ASN:HD22 | 3:A:460:FLC:HA2  | 1.78                     | 0.48              |
| 1:C:236:TYR:CE2  | 1:C:282:PRO:HA   | 2.48                     | 0.48              |
| 1:C:399:VAL:HG12 | 1:C:423:ALA:CB   | 2.44                     | 0.48              |
| 1:C:61:HIS:CE1   | 1:C:142:LEU:HD11 | 2.49                     | 0.48              |
| 1:C:164:GLY:HA2  | 1:C:379:GLY:O    | 2.12                     | 0.48              |
| 1:C:318:GLY:HA2  | 1:C:322:LEU:CD1  | 2.43                     | 0.48              |
| 1:C:348:GLY:O    | 1:C:352:ILE:HG13 | 2.13                     | 0.48              |
| 1:B:113:GLU:OE2  | 1:B:117:HIS:HE1  | 1.97                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:318:GLY:HA2  | 1:B:322:LEU:CD1  | 2.43                     | 0.48              |
| 1:B:398:LEU:HB3  | 1:B:406:LEU:HG   | 1.95                     | 0.48              |
| 1:C:68:LEU:HB3   | 1:C:69:PRO:HD3   | 1.96                     | 0.48              |
| 1:D:171:LEU:HD12 | 1:D:171:LEU:N    | 2.28                     | 0.48              |
| 1:C:190:GLY:HA3  | 1:C:409:LEU:HB2  | 1.96                     | 0.48              |
| 1:A:11:GLU:CD    | 1:A:40:ARG:HH12  | 2.17                     | 0.48              |
| 1:A:33:PHE:N     | 1:A:41:ASN:HD21  | 1.94                     | 0.48              |
| 1:A:101:MET:HE2  | 1:A:104:PRO:HA   | 1.96                     | 0.48              |
| 1:B:360:ILE:HD12 | 1:B:365:VAL:HG11 | 1.96                     | 0.47              |
| 1:C:298:LYS:HA   | 1:C:301:ASN:ND2  | 2.29                     | 0.47              |
| 1:D:203:GLU:O    | 1:D:207:ILE:HG13 | 2.13                     | 0.47              |
| 1:A:97:ALA:O     | 1:A:101:MET:HB2  | 2.14                     | 0.47              |
| 1:B:165:ASN:HD22 | 1:B:165:ASN:C    | 2.16                     | 0.47              |
| 1:D:102:ASP:OD2  | 1:D:103:GLU:HG2  | 2.14                     | 0.47              |
| 1:C:36:LYS:HB2   | 1:C:36:LYS:NZ    | 2.29                     | 0.47              |
| 1:C:246:PRO:HG2  | 1:C:248:TYR:HE1  | 1.80                     | 0.47              |
| 1:D:253:MET:HA   | 1:D:256:ARG:NH1  | 2.29                     | 0.47              |
| 1:D:33:PHE:CD2   | 1:D:40:ARG:HB2   | 2.50                     | 0.47              |
| 1:D:249:LEU:HD23 | 1:D:290:VAL:HG22 | 1.96                     | 0.47              |
| 1:A:209:GLU:HG2  | 1:A:242:LEU:HD23 | 1.96                     | 0.47              |
| 1:C:84:ARG:HB3   | 1:C:267:TYR:OH   | 2.15                     | 0.47              |
| 1:D:165:ASN:C    | 1:D:165:ASN:HD22 | 2.18                     | 0.47              |
| 1:C:88:LEU:HB3   | 1:C:260:LEU:HD21 | 1.96                     | 0.47              |
| 1:B:411:LYS:CB   | 3:B:463:FLC:HA2  | 2.37                     | 0.47              |
| 1:C:91:GLU:O     | 1:C:95:GLU:HG2   | 2.15                     | 0.47              |
| 1:C:402:GLU:HB2  | 1:C:405:LYS:CG   | 2.45                     | 0.47              |
| 1:D:354:ARG:N    | 1:D:355:PRO:CD   | 2.78                     | 0.47              |
| 1:D:428:GLY:HA3  | 2:D:446:SO4:O1   | 2.14                     | 0.46              |
| 1:C:140:GLY:O    | 1:C:164:GLY:HA3  | 2.15                     | 0.46              |
| 1:C:88:LEU:HD13  | 1:C:260:LEU:HD11 | 1.96                     | 0.46              |
| 1:C:163:LEU:HD11 | 1:C:389:TRP:CE3  | 2.51                     | 0.46              |
| 1:D:1:MET:HB3    | 1:D:431:VAL:HB   | 1.97                     | 0.46              |
| 1:D:252:PRO:HD2  | 5:D:495:HOH:O    | 2.16                     | 0.46              |
| 1:D:315:MET:HA   | 1:D:342:GLN:HE22 | 1.80                     | 0.46              |
| 1:C:221:PRO:HA   | 1:C:311:ALA:O    | 2.15                     | 0.46              |
| 1:A:198:ARG:HH21 | 1:A:198:ARG:HG3  | 1.80                     | 0.46              |
| 1:B:85:ALA:HB3   | 1:B:144:GLY:HA3  | 1.98                     | 0.46              |
| 1:D:403:GLU:O    | 1:D:407:LEU:HD23 | 2.15                     | 0.46              |
| 1:C:265:VAL:HG23 | 1:C:266:ARG:N    | 2.31                     | 0.46              |
| 1:A:198:ARG:HG3  | 1:A:198:ARG:NH2  | 2.31                     | 0.46              |
| 1:A:209:GLU:OE2  | 1:A:241:ARG:NH2  | 2.48                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:143:PRO:HD3  | 1:B:226:GLU:HG3  | 1.99                     | 0.45              |
| 1:D:321:ILE:C    | 1:D:323:HIS:H    | 2.19                     | 0.45              |
| 1:A:59:HIS:NE2   | 1:A:61:HIS:HB2   | 2.30                     | 0.45              |
| 1:C:62:LEU:HD13  | 1:C:93:VAL:HG12  | 1.99                     | 0.45              |
| 1:B:12:VAL:HG23  | 1:B:13:THR:HG23  | 1.98                     | 0.45              |
| 1:C:89:LEU:O     | 1:C:93:VAL:HG23  | 2.16                     | 0.45              |
| 1:C:222:THR:HG22 | 1:C:339:VAL:CG2  | 2.46                     | 0.45              |
| 1:D:363:GLU:CG   | 1:D:364:GLU:H    | 2.09                     | 0.45              |
| 1:B:396:VAL:O    | 1:B:420:VAL:HA   | 2.17                     | 0.45              |
| 1:B:410:GLY:C    | 3:B:463:FLC:HG2  | 2.36                     | 0.45              |
| 1:C:320:ARG:HA   | 1:C:323:HIS:HD2  | 1.81                     | 0.45              |
| 1:C:325:LEU:O    | 1:C:329:LEU:HD13 | 2.16                     | 0.45              |
| 1:D:58:THR:HB    | 1:D:146:ALA:O    | 2.17                     | 0.45              |
| 1:B:109:GLU:O    | 1:B:112:GLU:HG2  | 2.17                     | 0.45              |
| 1:C:204:PHE:CE1  | 1:C:208:LEU:HD11 | 2.51                     | 0.45              |
| 1:D:211:THR:CG2  | 1:D:218:VAL:HG22 | 2.44                     | 0.45              |
| 1:D:244:ARG:O    | 1:D:245:ALA:HB2  | 2.17                     | 0.45              |
| 1:D:288:LEU:HD12 | 1:D:289:GLU:H    | 1.81                     | 0.45              |
| 1:D:310:LEU:HD12 | 1:D:310:LEU:N    | 2.32                     | 0.45              |
| 1:A:59:HIS:CD2   | 1:A:61:HIS:H     | 2.30                     | 0.45              |
| 1:A:281:ASN:HB3  | 3:A:460:FLC:HG2  | 1.99                     | 0.45              |
| 1:D:61:HIS:NE2   | 1:D:142:LEU:HD11 | 2.31                     | 0.45              |
| 1:D:336:LEU:HD23 | 1:D:336:LEU:C    | 2.36                     | 0.45              |
| 1:D:347:LEU:HD13 | 1:D:347:LEU:O    | 2.17                     | 0.45              |
| 1:D:280:LYS:O    | 1:D:282:PRO:HD3  | 2.17                     | 0.45              |
| 1:A:102:ASP:CG   | 1:A:103:GLU:N    | 2.70                     | 0.45              |
| 1:B:109:GLU:HA   | 1:B:112:GLU:HG2  | 1.99                     | 0.45              |
| 1:B:128:ARG:NH2  | 1:C:391:GLN:O    | 2.50                     | 0.45              |
| 1:D:165:ASN:ND2  | 1:D:167:GLU:H    | 2.15                     | 0.45              |
| 1:D:197:TYR:O    | 1:D:201:VAL:HG23 | 2.17                     | 0.45              |
| 1:B:34:GLN:NE2   | 1:B:63:ASP:HB3   | 2.30                     | 0.44              |
| 1:B:43:ALA:HB1   | 1:B:44:PRO:HD2   | 1.98                     | 0.44              |
| 1:C:32:MET:HA    | 1:C:67:ARG:HG3   | 1.98                     | 0.44              |
| 1:C:98:LEU:O     | 1:C:98:LEU:HD23  | 2.16                     | 0.44              |
| 1:C:172:PRO:HA   | 2:C:442:SO4:O3   | 2.17                     | 0.44              |
| 1:C:32:MET:SD    | 1:C:62:LEU:HG    | 2.56                     | 0.44              |
| 1:C:143:PRO:HD3  | 1:C:226:GLU:HG3  | 1.98                     | 0.44              |
| 1:C:209:GLU:HG2  | 1:C:243:PRO:CD   | 2.42                     | 0.44              |
| 1:D:381:ALA:HB3  | 1:D:386:LEU:CD1  | 2.47                     | 0.44              |
| 1:C:85:ALA:HB2   | 1:C:267:TYR:CE2  | 2.53                     | 0.44              |
| 1:C:296:ALA:O    | 1:C:300:LEU:HD13 | 2.17                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:85:ALA:HB3   | 1:A:144:GLY:HA3  | 1.99                     | 0.44              |
| 1:B:195:ARG:CZ   | 1:B:199:GLU:HG2  | 2.48                     | 0.44              |
| 1:B:217:LYS:HG2  | 1:B:307:MET:HG2  | 1.99                     | 0.44              |
| 1:C:88:LEU:O     | 1:C:91:GLU:HB3   | 2.18                     | 0.44              |
| 1:D:28:LEU:O     | 1:D:29:ASP:HB2   | 2.17                     | 0.44              |
| 1:D:86:THR:O     | 1:D:90:MET:HG3   | 2.18                     | 0.44              |
| 1:B:301:ASN:OD1  | 1:B:324:HIS:HA   | 2.18                     | 0.44              |
| 1:C:98:LEU:HD23  | 1:C:98:LEU:C     | 2.37                     | 0.44              |
| 1:C:223:PHE:CZ   | 1:C:315:MET:HG3  | 2.53                     | 0.44              |
| 1:C:248:TYR:CD2  | 1:C:300:LEU:HD21 | 2.52                     | 0.44              |
| 1:A:2:ARG:NH2    | 5:A:618:HOH:O    | 2.49                     | 0.44              |
| 1:A:91:GLU:O     | 1:A:95:GLU:HG2   | 2.17                     | 0.44              |
| 1:A:101:MET:CE   | 1:A:104:PRO:HA   | 2.48                     | 0.44              |
| 1:D:312:GLY:O    | 1:D:321:ILE:HB   | 2.18                     | 0.44              |
| 1:D:399:VAL:HG12 | 1:D:423:ALA:HB3  | 2.00                     | 0.44              |
| 1:A:45:PHE:HB3   | 1:A:47:PHE:CE1   | 2.53                     | 0.44              |
| 1:A:80:VAL:HB    | 1:A:118:LEU:HD23 | 2.00                     | 0.44              |
| 1:D:88:LEU:HD12  | 1:D:264:LEU:HD21 | 2.01                     | 0.43              |
| 1:D:220:ILE:HG23 | 1:D:339:VAL:HG13 | 2.00                     | 0.43              |
| 1:D:318:GLY:HA2  | 1:D:322:LEU:CD1  | 2.46                     | 0.43              |
| 1:A:281:ASN:CB   | 3:A:460:FLC:HG2  | 2.48                     | 0.43              |
| 1:C:229:GLN:CD   | 1:C:229:GLN:N    | 2.66                     | 0.43              |
| 1:D:327:HIS:O    | 1:D:327:HIS:ND1  | 2.50                     | 0.43              |
| 1:B:32:MET:HA    | 1:B:67:ARG:HG3   | 1.99                     | 0.43              |
| 1:B:42:HIS:ND1   | 1:B:105:PHE:HB3  | 2.33                     | 0.43              |
| 1:C:163:LEU:HD11 | 1:C:389:TRP:CD2  | 2.53                     | 0.43              |
| 1:C:381:ALA:HB1  | 1:C:385:GLU:HB2  | 1.99                     | 0.43              |
| 1:D:86:THR:HG22  | 1:D:90:MET:HE2   | 1.99                     | 0.43              |
| 1:B:424:ARG:HA   | 2:B:454:SO4:O3   | 2.18                     | 0.43              |
| 1:C:399:VAL:HG12 | 1:C:423:ALA:HB3  | 2.01                     | 0.43              |
| 1:D:251:SER:HB3  | 1:D:254:ALA:HB3  | 2.01                     | 0.43              |
| 1:A:37:GLU:HG3   | 1:A:40:ARG:HH11  | 1.83                     | 0.43              |
| 1:B:45:PHE:HB3   | 1:B:47:PHE:CE1   | 2.54                     | 0.43              |
| 1:C:5:PRO:HA     | 1:C:17:HIS:HD2   | 1.83                     | 0.43              |
| 1:C:365:VAL:HG23 | 1:C:365:VAL:O    | 2.18                     | 0.43              |
| 1:D:210:LYS:HG3  | 1:D:210:LYS:O    | 2.19                     | 0.43              |
| 1:B:126:TRP:CE3  | 1:C:178:PRO:HB3  | 2.53                     | 0.43              |
| 1:D:239:GLY:HA2  | 1:D:242:LEU:CD1  | 2.49                     | 0.42              |
| 1:C:224:ALA:HB1  | 1:C:254:ALA:HA   | 2.02                     | 0.42              |
| 1:C:310:LEU:N    | 1:C:310:LEU:HD12 | 2.33                     | 0.42              |
| 1:A:411:LYS:NZ   | 5:A:488:HOH:O    | 2.51                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:1:MET:N      | 2:B:453:SO4:O3   | 2.43                     | 0.42              |
| 1:B:178:PRO:HB3  | 1:C:126:TRP:CE3  | 2.54                     | 0.42              |
| 1:C:317:ALA:HB2  | 5:C:494:HOH:O    | 2.18                     | 0.42              |
| 1:D:214:GLN:NE2  | 1:D:333:ARG:HA   | 2.34                     | 0.42              |
| 1:B:318:GLY:HA2  | 1:B:322:LEU:HD11 | 2.01                     | 0.42              |
| 1:C:98:LEU:HD11  | 1:C:108:PRO:HB3  | 2.01                     | 0.42              |
| 1:C:113:GLU:OE2  | 1:C:117:HIS:HE1  | 2.03                     | 0.42              |
| 1:C:186:GLU:HA   | 1:C:399:VAL:O    | 2.19                     | 0.42              |
| 1:D:124:GLY:C    | 5:D:526:HOH:O    | 2.57                     | 0.42              |
| 1:D:326:LYS:HD2  | 1:D:360:ILE:HG22 | 2.01                     | 0.42              |
| 1:A:32:MET:HB3   | 1:A:32:MET:HE2   | 1.93                     | 0.42              |
| 1:B:109:GLU:HA   | 1:B:112:GLU:OE2  | 2.20                     | 0.42              |
| 1:B:365:VAL:HG13 | 1:B:365:VAL:O    | 2.19                     | 0.42              |
| 1:D:244:ARG:N    | 1:D:244:ARG:CD   | 2.83                     | 0.42              |
| 1:A:166:ARG:CB   | 1:A:166:ARG:HH21 | 2.33                     | 0.42              |
| 1:B:10:ARG:NH1   | 1:B:424:ARG:HA   | 2.34                     | 0.42              |
| 1:C:177:PRO:HD3  | 1:C:389:TRP:CE2  | 2.55                     | 0.42              |
| 1:B:274:ALA:O    | 1:B:278:GLN:HG3  | 2.19                     | 0.42              |
| 1:A:202:ARG:NH2  | 5:A:479:HOH:O    | 2.53                     | 0.41              |
| 1:C:384:ASP:OD2  | 1:C:384:ASP:N    | 2.53                     | 0.41              |
| 1:D:87:VAL:HA    | 1:D:90:MET:HE2   | 2.00                     | 0.41              |
| 1:A:348:GLY:O    | 1:A:352:ILE:HG13 | 2.19                     | 0.41              |
| 1:B:266:ARG:NE   | 5:B:622:HOH:O    | 2.34                     | 0.41              |
| 1:D:198:ARG:HB3  | 1:D:202:ARG:NH2  | 2.36                     | 0.41              |
| 1:D:253:MET:HA   | 1:D:256:ARG:CZ   | 2.50                     | 0.41              |
| 1:D:366:PRO:O    | 1:D:367:LEU:HB2  | 2.20                     | 0.41              |
| 1:C:12:VAL:HG23  | 1:C:13:THR:HG23  | 2.01                     | 0.41              |
| 1:D:389:TRP:CE3  | 1:D:390:LEU:HD13 | 2.52                     | 0.41              |
| 1:C:98:LEU:HD11  | 1:C:108:PRO:CA   | 2.50                     | 0.41              |
| 1:C:347:LEU:HD11 | 1:C:358:VAL:HG11 | 2.03                     | 0.41              |
| 1:C:224:ALA:HB1  | 1:C:254:ALA:CA   | 2.50                     | 0.41              |
| 1:C:322:LEU:HB3  | 1:C:361:LEU:CD1  | 2.51                     | 0.41              |
| 1:C:101:MET:HE2  | 1:C:104:PRO:HB3  | 2.01                     | 0.41              |
| 1:C:151:GLN:HB2  | 2:C:448:SO4:O3   | 2.21                     | 0.41              |
| 1:C:251:SER:HB3  | 1:C:254:ALA:HB3  | 2.02                     | 0.41              |
| 1:C:330:SER:HA   | 1:C:366:PRO:O    | 2.20                     | 0.41              |
| 1:D:8:ALA:HA     | 1:D:11:GLU:HG3   | 2.03                     | 0.41              |
| 1:D:25:ARG:NH1   | 1:D:51:GLU:HB3   | 2.36                     | 0.41              |
| 1:D:232:LEU:HB3  | 1:D:285:PRO:HD3  | 2.03                     | 0.41              |
| 1:D:284:ARG:HD3  | 1:D:288:LEU:HD23 | 2.03                     | 0.41              |
| 1:D:285:PRO:HG2  | 1:D:288:LEU:HB2  | 2.03                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:316:LEU:CD1  | 1:D:347:LEU:HD12 | 2.49                     | 0.41              |
| 1:A:165:ASN:C    | 1:A:165:ASN:HD22 | 2.24                     | 0.41              |
| 1:B:165:ASN:C    | 1:B:165:ASN:ND2  | 2.74                     | 0.41              |
| 1:C:274:ALA:O    | 1:C:278:GLN:HG3  | 2.21                     | 0.41              |
| 1:D:302:ARG:HG2  | 1:D:302:ARG:NH2  | 2.35                     | 0.41              |
| 1:D:330:SER:O    | 1:D:331:ASP:HB2  | 2.21                     | 0.41              |
| 1:C:236:TYR:CD2  | 1:C:282:PRO:HA   | 2.56                     | 0.40              |
| 1:C:360:ILE:HD12 | 1:C:365:VAL:HG21 | 2.03                     | 0.40              |
| 1:D:59:HIS:CD2   | 1:D:61:HIS:HB2   | 2.55                     | 0.40              |
| 1:D:209:GLU:HG2  | 1:D:243:PRO:CD   | 2.41                     | 0.40              |
| 1:D:347:LEU:CD1  | 1:D:351:ILE:HD11 | 2.51                     | 0.40              |
| 1:A:302:ARG:HD3  | 1:B:304:PRO:HD2  | 2.02                     | 0.40              |
| 1:D:87:VAL:HA    | 1:D:90:MET:HE3   | 2.03                     | 0.40              |
| 1:A:57:LEU:HD13  | 1:A:65:VAL:HG12  | 2.03                     | 0.40              |
| 1:C:229:GLN:HG3  | 1:C:261:TYR:CE1  | 2.56                     | 0.40              |
| 1:C:239:GLY:C    | 1:C:241:ARG:H    | 2.23                     | 0.40              |
| 1:D:113:GLU:OE2  | 1:D:117:HIS:HE1  | 2.04                     | 0.40              |

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     | 429/431 (100%)   | 418 (97%)  | 10 (2%) | 1 (0%)   | 47 39       |
| 1   | B     | 429/431 (100%)   | 416 (97%)  | 13 (3%) | 0        | 100 100     |
| 1   | C     | 429/431 (100%)   | 400 (93%)  | 26 (6%) | 3 (1%)   | 22 12       |
| 1   | D     | 429/431 (100%)   | 394 (92%)  | 28 (6%) | 7 (2%)   | 9 2         |
| All | All   | 1716/1724 (100%) | 1628 (95%) | 77 (4%) | 11 (1%)  | 25 15       |

All (11) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 102 | ASP  |
| 1   | D     | 102 | ASP  |
| 1   | D     | 366 | PRO  |
| 1   | C     | 102 | ASP  |
| 1   | D     | 327 | HIS  |
| 1   | D     | 367 | LEU  |
| 1   | C     | 198 | ARG  |
| 1   | D     | 326 | LYS  |
| 1   | C     | 168 | LYS  |
| 1   | D     | 328 | GLY  |
| 1   | D     | 331 | ASP  |

### 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     | 342/342 (100%)   | 328 (96%)  | 14 (4%)  | 30          | 23 |
| 1   | B     | 342/342 (100%)   | 331 (97%)  | 11 (3%)  | 39          | 32 |
| 1   | C     | 342/342 (100%)   | 333 (97%)  | 9 (3%)   | 46          | 39 |
| 1   | D     | 342/342 (100%)   | 327 (96%)  | 15 (4%)  | 28          | 21 |
| All | All   | 1368/1368 (100%) | 1319 (96%) | 49 (4%)  | 35          | 28 |

All (49) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 38  | GLU  |
| 1   | A     | 94  | LEU  |
| 1   | A     | 98  | LEU  |
| 1   | A     | 112 | GLU  |
| 1   | A     | 163 | LEU  |
| 1   | A     | 165 | ASN  |
| 1   | A     | 166 | ARG  |
| 1   | A     | 186 | GLU  |
| 1   | A     | 192 | ARG  |
| 1   | A     | 195 | ARG  |
| 1   | A     | 336 | LEU  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 386        | LEU         |
| 1          | A            | 407        | LEU         |
| 1          | A            | 409        | LEU         |
| 1          | B            | 11         | GLU         |
| 1          | B            | 103        | GLU         |
| 1          | B            | 119        | ARG         |
| 1          | B            | 165        | ASN         |
| 1          | B            | 186        | GLU         |
| 1          | B            | 264        | LEU         |
| 1          | B            | 325        | LEU         |
| 1          | B            | 329        | LEU         |
| 1          | B            | 398        | LEU         |
| 1          | B            | 407        | LEU         |
| 1          | B            | 409        | LEU         |
| 1          | C            | 36         | LYS         |
| 1          | C            | 155        | ARG         |
| 1          | C            | 165        | ASN         |
| 1          | C            | 186        | GLU         |
| 1          | C            | 229        | GLN         |
| 1          | C            | 244        | ARG         |
| 1          | C            | 258        | LEU         |
| 1          | C            | 336        | LEU         |
| 1          | C            | 409        | LEU         |
| 1          | D            | 95         | GLU         |
| 1          | D            | 127        | LEU         |
| 1          | D            | 134        | LEU         |
| 1          | D            | 151        | GLN         |
| 1          | D            | 155        | ARG         |
| 1          | D            | 165        | ASN         |
| 1          | D            | 186        | GLU         |
| 1          | D            | 192        | ARG         |
| 1          | D            | 195        | ARG         |
| 1          | D            | 229        | GLN         |
| 1          | D            | 244        | ARG         |
| 1          | D            | 344        | GLN         |
| 1          | D            | 386        | LEU         |
| 1          | D            | 390        | LEU         |
| 1          | D            | 409        | LEU         |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (26) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 41  | ASN  |
| 1   | A     | 59  | HIS  |
| 1   | A     | 165 | ASN  |
| 1   | A     | 275 | HIS  |
| 1   | A     | 344 | GLN  |
| 1   | B     | 34  | GLN  |
| 1   | B     | 41  | ASN  |
| 1   | B     | 165 | ASN  |
| 1   | B     | 238 | HIS  |
| 1   | C     | 17  | HIS  |
| 1   | C     | 34  | GLN  |
| 1   | C     | 41  | ASN  |
| 1   | C     | 59  | HIS  |
| 1   | C     | 165 | ASN  |
| 1   | C     | 214 | GLN  |
| 1   | C     | 301 | ASN  |
| 1   | C     | 323 | HIS  |
| 1   | D     | 17  | HIS  |
| 1   | D     | 34  | GLN  |
| 1   | D     | 41  | ASN  |
| 1   | D     | 165 | ASN  |
| 1   | D     | 214 | GLN  |
| 1   | D     | 229 | GLN  |
| 1   | D     | 301 | ASN  |
| 1   | D     | 323 | HIS  |
| 1   | D     | 383 | GLN  |

### 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 monosaccharides in this entry.

## 5.6 Ligand geometry

Of 110 ligands modelled in this entry, 8 are monoatomic - leaving 102 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   | SO4  | C     | 443 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | B     | 458 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | B     | 462 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | B     | 443 | -    | 4,4,4        | 0.98 | 0        | 6,6,6       | 0.68 | 0        |
| 2   | SO4  | B     | 460 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | A     | 454 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 452 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 451 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 455 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | C     | 437 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | D     | 435 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | C     | 450 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.64 | 0        |
| 2   | SO4  | D     | 441 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 437 | -    | 4,4,4        | 1.04 | 0        | 6,6,6       | 0.65 | 0        |
| 3   | FLC  | A     | 460 | -    | 12,12,12     | 1.59 | 4 (33%)  | 17,17,17    | 1.47 | 1 (5%)   |
| 2   | SO4  | D     | 434 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | C     | 442 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 442 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | C     | 446 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 438 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | C     | 432 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 451 | -    | 4,4,4        | 0.98 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | A     | 441 | -    | 4,4,4        | 0.98 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 444 | -    | 4,4,4        | 1.04 | 0        | 6,6,6       | 0.62 | 0        |
| 2   | SO4  | A     | 456 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | C     | 449 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | C     | 453 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | C     | 452 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | A     | 433 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 3   | FLC  | B     | 463 | -    | 12,12,12     | 1.42 | 2 (16%)  | 17,17,17    | 1.48 | 1 (5%)   |
| 2   | SO4  | B     | 437 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 448 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 2   | SO4  | C     | 439 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | C     | 436 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | B     | 436 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | C     | 445 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 438 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 448 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 447 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | D     | 438 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | D     | 448 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 441 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 458 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.68 | 0        |
| 2   | SO4  | B     | 435 | -    | 4,4,4        | 1.03 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | A     | 435 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | B     | 444 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 456 | -    | 4,4,4        | 0.93 | 0        | 6,6,6       | 0.63 | 0        |
| 2   | SO4  | B     | 453 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.64 | 0        |
| 2   | SO4  | D     | 444 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | D     | 449 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | A     | 450 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.64 | 0        |
| 2   | SO4  | B     | 433 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | C     | 441 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | D     | 433 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.68 | 0        |
| 2   | SO4  | B     | 459 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 440 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | D     | 440 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | C     | 433 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 432 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | D     | 436 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | C     | 451 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 449 | -    | 4,4,4        | 0.90 | 0        | 6,6,6       | 0.64 | 0        |
| 2   | SO4  | A     | 446 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | B     | 450 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 457 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 439 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 440 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | C     | 454 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | C     | 435 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 445 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 432 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 442 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | D     | 432 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | C     | 444 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | A     | 459 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 2   | SO4  | A     | 443 | -    | 4,4,4        | 0.98 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | B     | 434 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | C     | 447 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | A     | 434 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | D     | 445 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | C     | 434 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.63 | 0        |
| 2   | SO4  | B     | 447 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | B     | 449 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 455 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | C     | 438 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | B     | 461 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.67 | 0        |
| 2   | SO4  | C     | 448 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | D     | 447 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | D     | 437 | -    | 4,4,4        | 0.98 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | D     | 442 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.64 | 0        |
| 2   | SO4  | B     | 457 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 439 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | D     | 443 | -    | 4,4,4        | 0.97 | 0        | 6,6,6       | 0.63 | 0        |
| 2   | SO4  | A     | 453 | -    | 4,4,4        | 1.00 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | D     | 439 | -    | 4,4,4        | 0.98 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | C     | 440 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 445 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | B     | 446 | -    | 4,4,4        | 0.98 | 0        | 6,6,6       | 0.63 | 0        |
| 2   | SO4  | B     | 454 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.66 | 0        |
| 2   | SO4  | B     | 452 | -    | 4,4,4        | 0.99 | 0        | 6,6,6       | 0.64 | 0        |
| 2   | SO4  | A     | 436 | -    | 4,4,4        | 1.01 | 0        | 6,6,6       | 0.65 | 0        |
| 2   | SO4  | D     | 446 | -    | 4,4,4        | 1.02 | 0        | 6,6,6       | 0.64 | 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 |
|-----|------|-------|-----|------|---------|------------|-------|
| 3   | FLC  | A     | 460 | -    | -       | 0/16/16/16 | -     |
| 3   | FLC  | B     | 463 | -    | -       | 0/16/16/16 | -     |

All (6) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 3   | B     | 463 | FLC  | OG2-CGC | -2.57 | 1.22        | 1.30     |
| 3   | B     | 463 | FLC  | OA2-CAC | -2.55 | 1.22        | 1.30     |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 3   | A     | 460 | FLC  | OG2-CGC | -2.43 | 1.22        | 1.30     |
| 3   | A     | 460 | FLC  | OA2-CAC | -2.41 | 1.22        | 1.30     |
| 3   | A     | 460 | FLC  | CA-CB   | 2.29  | 1.56        | 1.53     |
| 3   | A     | 460 | FLC  | CG-CB   | 2.25  | 1.56        | 1.53     |

All (2) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms      | Z    | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|------|-------------|----------|
| 3   | A     | 460 | FLC  | OB2-CBC-CB | 4.39 | 120.67      | 113.05   |
| 3   | B     | 463 | FLC  | OB2-CBC-CB | 4.35 | 120.60      | 113.05   |

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

18 monomers are involved in 32 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 2   | B     | 458 | SO4  | 1       | 0            |
| 2   | A     | 451 | SO4  | 2       | 0            |
| 2   | D     | 435 | SO4  | 1       | 0            |
| 3   | A     | 460 | FLC  | 4       | 0            |
| 2   | C     | 442 | SO4  | 1       | 0            |
| 2   | B     | 451 | SO4  | 1       | 0            |
| 3   | B     | 463 | FLC  | 5       | 0            |
| 2   | B     | 438 | SO4  | 1       | 0            |
| 2   | A     | 435 | SO4  | 1       | 0            |
| 2   | B     | 453 | SO4  | 3       | 0            |
| 2   | D     | 449 | SO4  | 1       | 0            |
| 2   | A     | 450 | SO4  | 2       | 0            |
| 2   | C     | 454 | SO4  | 4       | 0            |
| 2   | B     | 455 | SO4  | 1       | 0            |
| 2   | C     | 448 | SO4  | 1       | 0            |
| 2   | B     | 457 | SO4  | 1       | 0            |
| 2   | B     | 454 | SO4  | 1       | 0            |
| 2   | D     | 446 | SO4  | 1       | 0            |

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues

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<sup>th</sup> 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 <sup>2</sup> ) | Q<0.9 |
|-----|-------|------------------|--------|---------------|-----------------------|-------|
| 1   | A     | 431/431 (100%)   | -0.03  | 5 (1%) 79 81  | 13, 22, 39, 65        | 0     |
| 1   | B     | 431/431 (100%)   | -0.04  | 3 (0%) 87 89  | 14, 26, 44, 62        | 0     |
| 1   | C     | 431/431 (100%)   | 0.76   | 61 (14%) 2 2  | 17, 45, 75, 91        | 0     |
| 1   | D     | 431/431 (100%)   | 1.15   | 109 (25%) 0 0 | 16, 42, 92, 103       | 0     |
| All | All   | 1724/1724 (100%) | 0.46   | 178 (10%) 6 6 | 13, 31, 78, 103       | 0     |

All (178) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | D     | 329 | LEU  | 8.8  |
| 1   | D     | 300 | LEU  | 8.0  |
| 1   | D     | 306 | PRO  | 7.9  |
| 1   | C     | 242 | LEU  | 7.6  |
| 1   | D     | 242 | LEU  | 7.6  |
| 1   | D     | 212 | LEU  | 7.6  |
| 1   | D     | 325 | LEU  | 7.3  |
| 1   | C     | 277 | LEU  | 6.7  |
| 1   | C     | 415 | LEU  | 6.1  |
| 1   | D     | 304 | PRO  | 5.9  |
| 1   | D     | 362 | GLY  | 5.8  |
| 1   | D     | 324 | HIS  | 5.7  |
| 1   | D     | 332 | PRO  | 5.6  |
| 1   | D     | 297 | SER  | 5.5  |
| 1   | C     | 335 | ALA  | 5.5  |
| 1   | D     | 104 | PRO  | 5.5  |
| 1   | C     | 216 | GLY  | 5.5  |
| 1   | D     | 239 | GLY  | 5.5  |
| 1   | D     | 299 | ALA  | 5.4  |
| 1   | D     | 241 | ARG  | 5.2  |
| 1   | C     | 212 | LEU  | 5.2  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | D            | 208        | LEU         | 5.2         |
| 1          | D            | 335        | ALA         | 5.2         |
| 1          | C            | 213        | SER         | 5.2         |
| 1          | D            | 286        | ALA         | 5.1         |
| 1          | C            | 306        | PRO         | 5.1         |
| 1          | D            | 244        | ARG         | 5.1         |
| 1          | C            | 333        | ARG         | 5.1         |
| 1          | D            | 240        | HIS         | 5.1         |
| 1          | D            | 334        | ASN         | 5.1         |
| 1          | D            | 327        | HIS         | 5.0         |
| 1          | D            | 210        | LYS         | 5.0         |
| 1          | D            | 213        | SER         | 4.9         |
| 1          | D            | 368        | ARG         | 4.8         |
| 1          | D            | 333        | ARG         | 4.7         |
| 1          | D            | 296        | ALA         | 4.7         |
| 1          | C            | 205        | LEU         | 4.4         |
| 1          | C            | 208        | LEU         | 4.4         |
| 1          | D            | 248        | TYR         | 4.4         |
| 1          | D            | 211        | THR         | 4.2         |
| 1          | D            | 366        | PRO         | 4.2         |
| 1          | C            | 204        | PHE         | 4.1         |
| 1          | B            | 42         | HIS         | 4.1         |
| 1          | D            | 247        | ILE         | 4.1         |
| 1          | C            | 209        | GLU         | 4.1         |
| 1          | D            | 249        | LEU         | 4.1         |
| 1          | C            | 354        | ARG         | 4.0         |
| 1          | C            | 207        | ILE         | 4.0         |
| 1          | D            | 310        | LEU         | 3.9         |
| 1          | D            | 98         | LEU         | 3.9         |
| 1          | D            | 317        | ALA         | 3.9         |
| 1          | D            | 361        | LEU         | 3.9         |
| 1          | D            | 209        | GLU         | 3.8         |
| 1          | D            | 357        | ALA         | 3.7         |
| 1          | C            | 244        | ARG         | 3.7         |
| 1          | D            | 365        | VAL         | 3.7         |
| 1          | D            | 245        | ALA         | 3.7         |
| 1          | D            | 359        | ARG         | 3.7         |
| 1          | D            | 101        | MET         | 3.6         |
| 1          | D            | 234        | VAL         | 3.6         |
| 1          | C            | 295        | GLU         | 3.6         |
| 1          | C            | 308        | VAL         | 3.6         |
| 1          | C            | 305        | GLY         | 3.6         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | D            | 243        | PRO         | 3.6         |
| 1          | C            | 239        | GLY         | 3.6         |
| 1          | D            | 36         | LYS         | 3.5         |
| 1          | D            | 293        | HIS         | 3.5         |
| 1          | C            | 210        | LYS         | 3.5         |
| 1          | C            | 240        | HIS         | 3.5         |
| 1          | D            | 285        | PRO         | 3.5         |
| 1          | C            | 241        | ARG         | 3.5         |
| 1          | D            | 354        | ARG         | 3.5         |
| 1          | C            | 215        | GLY         | 3.4         |
| 1          | D            | 219        | LEU         | 3.4         |
| 1          | D            | 367        | LEU         | 3.4         |
| 1          | C            | 288        | LEU         | 3.4         |
| 1          | D            | 358        | VAL         | 3.4         |
| 1          | D            | 220        | ILE         | 3.3         |
| 1          | C            | 198        | ARG         | 3.3         |
| 1          | D            | 309        | VAL         | 3.3         |
| 1          | D            | 238        | HIS         | 3.3         |
| 1          | D            | 207        | ILE         | 3.2         |
| 1          | D            | 108        | PRO         | 3.2         |
| 1          | C            | 325        | LEU         | 3.2         |
| 1          | D            | 322        | LEU         | 3.2         |
| 1          | D            | 336        | LEU         | 3.2         |
| 1          | D            | 374        | LEU         | 3.2         |
| 1          | D            | 214        | GLN         | 3.2         |
| 1          | C            | 202        | ARG         | 3.2         |
| 1          | D            | 218        | VAL         | 3.2         |
| 1          | D            | 294        | THR         | 3.2         |
| 1          | D            | 250        | ASP         | 3.1         |
| 1          | D            | 198        | ARG         | 3.1         |
| 1          | D            | 302        | ARG         | 3.1         |
| 1          | C            | 206        | GLU         | 3.1         |
| 1          | D            | 360        | ILE         | 3.1         |
| 1          | D            | 100        | VAL         | 3.1         |
| 1          | D            | 330        | SER         | 3.0         |
| 1          | D            | 102        | ASP         | 3.0         |
| 1          | C            | 211        | THR         | 3.0         |
| 1          | D            | 369        | ALA         | 3.0         |
| 1          | C            | 248        | TYR         | 2.9         |
| 1          | D            | 307        | MET         | 2.9         |
| 1          | B            | 244        | ARG         | 2.9         |
| 1          | C            | 293        | HIS         | 2.9         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | C            | 214        | GLN         | 2.9         |
| 1          | D            | 373        | THR         | 2.9         |
| 1          | D            | 319        | GLY         | 2.9         |
| 1          | D            | 308        | VAL         | 2.8         |
| 1          | C            | 294        | THR         | 2.8         |
| 1          | C            | 238        | HIS         | 2.8         |
| 1          | D            | 301        | ASN         | 2.8         |
| 1          | D            | 205        | LEU         | 2.8         |
| 1          | D            | 318        | GLY         | 2.8         |
| 1          | D            | 288        | LEU         | 2.8         |
| 1          | C            | 280        | LYS         | 2.8         |
| 1          | C            | 370        | SER         | 2.8         |
| 1          | A            | 302        | ARG         | 2.7         |
| 1          | D            | 305        | GLY         | 2.7         |
| 1          | C            | 369        | ALA         | 2.7         |
| 1          | D            | 295        | GLU         | 2.7         |
| 1          | D            | 303        | ALA         | 2.7         |
| 1          | D            | 253        | MET         | 2.7         |
| 1          | D            | 206        | GLU         | 2.6         |
| 1          | D            | 291        | VAL         | 2.6         |
| 1          | C            | 377        | PHE         | 2.6         |
| 1          | D            | 97         | ALA         | 2.6         |
| 1          | D            | 237        | THR         | 2.6         |
| 1          | D            | 363        | GLU         | 2.6         |
| 1          | C            | 99         | LYS         | 2.6         |
| 1          | D            | 204        | PHE         | 2.6         |
| 1          | C            | 329        | LEU         | 2.6         |
| 1          | C            | 304        | PRO         | 2.6         |
| 1          | C            | 301        | ASN         | 2.6         |
| 1          | D            | 312        | GLY         | 2.6         |
| 1          | A            | 104        | PRO         | 2.6         |
| 1          | C            | 365        | VAL         | 2.6         |
| 1          | C            | 344        | GLN         | 2.6         |
| 1          | C            | 307        | MET         | 2.6         |
| 1          | C            | 246        | PRO         | 2.6         |
| 1          | C            | 411        | LYS         | 2.5         |
| 1          | A            | 158        | VAL         | 2.5         |
| 1          | C            | 218        | VAL         | 2.5         |
| 1          | D            | 222        | THR         | 2.5         |
| 1          | D            | 109        | GLU         | 2.5         |
| 1          | C            | 414        | ALA         | 2.5         |
| 1          | C            | 367        | LEU         | 2.4         |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | D     | 338 | PHE  | 2.4  |
| 1   | D     | 344 | GLN  | 2.4  |
| 1   | D     | 377 | PHE  | 2.3  |
| 1   | C     | 291 | VAL  | 2.3  |
| 1   | C     | 337 | VAL  | 2.3  |
| 1   | D     | 195 | ARG  | 2.3  |
| 1   | D     | 347 | LEU  | 2.3  |
| 1   | D     | 73  | ARG  | 2.3  |
| 1   | D     | 203 | GLU  | 2.3  |
| 1   | C     | 109 | GLU  | 2.2  |
| 1   | D     | 352 | ILE  | 2.2  |
| 1   | B     | 39  | ALA  | 2.2  |
| 1   | D     | 202 | ARG  | 2.2  |
| 1   | D     | 323 | HIS  | 2.2  |
| 1   | C     | 361 | LEU  | 2.2  |
| 1   | C     | 362 | GLY  | 2.2  |
| 1   | D     | 216 | GLY  | 2.2  |
| 1   | A     | 102 | ASP  | 2.2  |
| 1   | C     | 412 | LEU  | 2.2  |
| 1   | C     | 292 | GLU  | 2.2  |
| 1   | D     | 246 | PRO  | 2.2  |
| 1   | D     | 337 | VAL  | 2.1  |
| 1   | D     | 339 | VAL  | 2.1  |
| 1   | C     | 236 | TYR  | 2.1  |
| 1   | D     | 103 | GLU  | 2.1  |
| 1   | C     | 371 | VAL  | 2.0  |
| 1   | D     | 353 | ALA  | 2.0  |
| 1   | C     | 219 | LEU  | 2.0  |
| 1   | A     | 101 | MET  | 2.0  |
| 1   | D     | 126 | TRP  | 2.0  |
| 1   | D     | 280 | LYS  | 2.0  |

## 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<sup>th</sup> 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 <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|----------------------------|-------|
| 3   | FLC  | A     | 460 | 13/13 | 0.55 | 0.35 | 69,73,75,75                | 0     |
| 2   | SO4  | B     | 449 | 5/5   | 0.66 | 0.32 | 84,86,86,86                | 0     |
| 2   | SO4  | B     | 457 | 5/5   | 0.66 | 0.36 | 128,128,128,128            | 0     |
| 2   | SO4  | A     | 433 | 5/5   | 0.66 | 0.17 | 116,116,117,117            | 0     |
| 2   | SO4  | B     | 439 | 5/5   | 0.67 | 0.22 | 105,105,106,106            | 0     |
| 2   | SO4  | D     | 434 | 5/5   | 0.69 | 0.49 | 103,103,103,103            | 0     |
| 2   | SO4  | B     | 433 | 5/5   | 0.69 | 0.34 | 128,128,128,129            | 0     |
| 2   | SO4  | C     | 448 | 5/5   | 0.71 | 0.56 | 122,122,123,123            | 0     |
| 2   | SO4  | C     | 432 | 5/5   | 0.72 | 0.34 | 140,140,141,141            | 0     |
| 2   | SO4  | C     | 451 | 5/5   | 0.72 | 0.29 | 121,121,121,121            | 0     |
| 2   | SO4  | D     | 444 | 5/5   | 0.74 | 0.30 | 137,137,138,138            | 0     |
| 2   | SO4  | D     | 449 | 5/5   | 0.74 | 0.20 | 125,125,125,125            | 0     |
| 2   | SO4  | A     | 445 | 5/5   | 0.74 | 0.21 | 90,91,91,92                | 0     |
| 2   | SO4  | B     | 440 | 5/5   | 0.75 | 0.29 | 108,108,108,109            | 0     |
| 2   | SO4  | A     | 440 | 5/5   | 0.75 | 0.21 | 107,107,107,107            | 0     |
| 2   | SO4  | B     | 438 | 5/5   | 0.76 | 0.29 | 113,113,113,113            | 0     |
| 2   | SO4  | B     | 453 | 5/5   | 0.76 | 0.26 | 129,129,129,130            | 0     |
| 2   | SO4  | D     | 437 | 5/5   | 0.77 | 0.33 | 102,102,103,103            | 0     |
| 2   | SO4  | C     | 450 | 5/5   | 0.77 | 0.51 | 120,120,120,121            | 0     |
| 2   | SO4  | B     | 450 | 5/5   | 0.79 | 0.27 | 121,121,121,121            | 0     |
| 2   | SO4  | A     | 450 | 5/5   | 0.79 | 0.58 | 131,131,131,131            | 0     |
| 2   | SO4  | B     | 437 | 5/5   | 0.79 | 0.31 | 113,113,114,114            | 0     |
| 2   | SO4  | A     | 451 | 5/5   | 0.79 | 0.32 | 118,118,118,119            | 0     |
| 2   | SO4  | C     | 454 | 5/5   | 0.80 | 0.30 | 90,90,90,92                | 0     |
| 3   | FLC  | B     | 463 | 13/13 | 0.80 | 0.52 | 96,97,98,99                | 0     |
| 2   | SO4  | A     | 438 | 5/5   | 0.81 | 0.21 | 101,101,101,101            | 0     |
| 2   | SO4  | D     | 433 | 5/5   | 0.81 | 0.30 | 107,107,108,108            | 0     |
| 2   | SO4  | B     | 436 | 5/5   | 0.82 | 0.32 | 124,124,124,124            | 0     |
| 2   | SO4  | A     | 459 | 5/5   | 0.82 | 0.19 | 114,114,114,114            | 0     |
| 2   | SO4  | B     | 444 | 5/5   | 0.82 | 0.36 | 69,70,71,73                | 0     |
| 2   | SO4  | B     | 445 | 5/5   | 0.82 | 0.19 | 99,100,100,100             | 0     |
| 2   | SO4  | A     | 456 | 5/5   | 0.82 | 0.18 | 104,104,104,105            | 0     |
| 2   | SO4  | C     | 438 | 5/5   | 0.83 | 0.35 | 128,128,128,128            | 0     |
| 2   | SO4  | A     | 453 | 5/5   | 0.83 | 0.22 | 125,125,125,125            | 0     |
| 2   | SO4  | A     | 448 | 5/5   | 0.83 | 0.15 | 101,101,101,101            | 0     |
| 2   | SO4  | C     | 446 | 5/5   | 0.84 | 0.27 | 136,136,137,137            | 0     |
| 2   | SO4  | D     | 445 | 5/5   | 0.85 | 0.14 | 124,124,124,124            | 0     |

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| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 2   | SO4  | A     | 434 | 5/5   | 0.85 | 0.18 | 118,118,118,118             | 0     |
| 2   | SO4  | A     | 454 | 5/5   | 0.85 | 0.21 | 77,78,78,79                 | 0     |
| 2   | SO4  | B     | 448 | 5/5   | 0.85 | 0.32 | 99,99,99,100                | 0     |
| 2   | SO4  | A     | 435 | 5/5   | 0.86 | 0.15 | 105,105,105,105             | 0     |
| 2   | SO4  | C     | 440 | 5/5   | 0.86 | 0.25 | 123,124,124,124             | 0     |
| 2   | SO4  | A     | 442 | 5/5   | 0.86 | 0.16 | 87,88,88,88                 | 0     |
| 2   | SO4  | D     | 435 | 5/5   | 0.86 | 0.15 | 99,99,100,100               | 0     |
| 2   | SO4  | C     | 452 | 5/5   | 0.86 | 0.17 | 91,91,91,91                 | 0     |
| 2   | SO4  | D     | 442 | 5/5   | 0.87 | 0.20 | 89,89,89,90                 | 0     |
| 2   | SO4  | A     | 447 | 5/5   | 0.87 | 0.19 | 95,96,96,96                 | 0     |
| 2   | SO4  | C     | 442 | 5/5   | 0.87 | 0.14 | 84,84,84,84                 | 0     |
| 2   | SO4  | B     | 447 | 5/5   | 0.87 | 0.21 | 126,126,126,126             | 0     |
| 2   | SO4  | B     | 455 | 5/5   | 0.87 | 0.25 | 79,79,80,80                 | 0     |
| 2   | SO4  | D     | 440 | 5/5   | 0.87 | 0.19 | 118,118,118,118             | 0     |
| 2   | SO4  | A     | 436 | 5/5   | 0.88 | 0.15 | 94,94,95,95                 | 0     |
| 2   | SO4  | A     | 446 | 5/5   | 0.88 | 0.18 | 95,95,96,96                 | 0     |
| 2   | SO4  | B     | 454 | 5/5   | 0.88 | 0.22 | 90,91,91,92                 | 0     |
| 2   | SO4  | D     | 448 | 5/5   | 0.88 | 0.20 | 85,85,86,86                 | 0     |
| 2   | SO4  | D     | 439 | 5/5   | 0.88 | 0.24 | 98,98,98,98                 | 0     |
| 2   | SO4  | A     | 432 | 5/5   | 0.88 | 0.29 | 118,118,118,118             | 0     |
| 2   | SO4  | D     | 441 | 5/5   | 0.88 | 0.15 | 101,101,101,102             | 0     |
| 2   | SO4  | C     | 437 | 5/5   | 0.89 | 0.13 | 115,115,115,115             | 0     |
| 2   | SO4  | B     | 442 | 5/5   | 0.89 | 0.13 | 110,110,110,110             | 0     |
| 2   | SO4  | C     | 436 | 5/5   | 0.89 | 0.24 | 108,108,108,108             | 0     |
| 4   | ZN   | C     | 455 | 1/1   | 0.89 | 0.06 | 65,65,65,65                 | 0     |
| 2   | SO4  | C     | 441 | 5/5   | 0.90 | 0.20 | 78,78,79,79                 | 0     |
| 2   | SO4  | C     | 453 | 5/5   | 0.90 | 0.19 | 101,101,101,101             | 0     |
| 2   | SO4  | D     | 436 | 5/5   | 0.90 | 0.16 | 89,90,90,90                 | 0     |
| 2   | SO4  | B     | 462 | 5/5   | 0.90 | 0.17 | 93,93,93,93                 | 0     |
| 2   | SO4  | C     | 435 | 5/5   | 0.90 | 0.11 | 92,92,92,92                 | 0     |
| 2   | SO4  | D     | 447 | 5/5   | 0.91 | 0.17 | 66,66,67,68                 | 0     |
| 2   | SO4  | B     | 461 | 5/5   | 0.91 | 0.16 | 76,76,76,77                 | 0     |
| 2   | SO4  | B     | 458 | 5/5   | 0.91 | 0.30 | 102,102,102,102             | 0     |
| 2   | SO4  | C     | 439 | 5/5   | 0.92 | 0.13 | 91,91,91,91                 | 0     |
| 2   | SO4  | B     | 459 | 5/5   | 0.92 | 0.14 | 64,64,66,66                 | 0     |
| 2   | SO4  | C     | 444 | 5/5   | 0.92 | 0.17 | 114,114,114,114             | 0     |
| 2   | SO4  | A     | 437 | 5/5   | 0.93 | 0.14 | 68,68,69,69                 | 0     |
| 2   | SO4  | C     | 447 | 5/5   | 0.93 | 0.10 | 72,72,73,73                 | 0     |
| 2   | SO4  | A     | 439 | 5/5   | 0.93 | 0.12 | 100,100,101,101             | 0     |
| 2   | SO4  | A     | 455 | 5/5   | 0.93 | 0.09 | 69,69,70,70                 | 0     |
| 2   | SO4  | A     | 452 | 5/5   | 0.93 | 0.12 | 65,65,66,66                 | 0     |
| 2   | SO4  | B     | 441 | 5/5   | 0.94 | 0.17 | 79,79,79,79                 | 0     |

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| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 2   | SO4  | C     | 434 | 5/5   | 0.94 | 0.15 | 65,65,66,66                 | 0     |
| 2   | SO4  | B     | 435 | 5/5   | 0.94 | 0.13 | 67,67,68,68                 | 0     |
| 2   | SO4  | A     | 444 | 5/5   | 0.94 | 0.21 | 56,57,57,57                 | 0     |
| 2   | SO4  | B     | 434 | 5/5   | 0.94 | 0.10 | 56,56,57,58                 | 0     |
| 2   | SO4  | D     | 446 | 5/5   | 0.94 | 0.14 | 73,73,74,74                 | 0     |
| 4   | ZN   | D     | 450 | 1/1   | 0.94 | 0.06 | 63,63,63,63                 | 0     |
| 2   | SO4  | B     | 451 | 5/5   | 0.95 | 0.11 | 68,68,68,69                 | 0     |
| 2   | SO4  | B     | 443 | 5/5   | 0.95 | 0.19 | 53,54,55,56                 | 0     |
| 2   | SO4  | C     | 445 | 5/5   | 0.95 | 0.23 | 97,97,97,97                 | 0     |
| 2   | SO4  | D     | 432 | 5/5   | 0.96 | 0.12 | 51,51,52,53                 | 0     |
| 2   | SO4  | B     | 460 | 5/5   | 0.96 | 0.07 | 70,71,72,72                 | 0     |
| 4   | ZN   | A     | 462 | 1/1   | 0.96 | 0.09 | 50,50,50,50                 | 0     |
| 2   | SO4  | C     | 443 | 5/5   | 0.96 | 0.10 | 64,64,65,65                 | 0     |
| 4   | ZN   | C     | 456 | 1/1   | 0.96 | 0.06 | 61,61,61,61                 | 0     |
| 2   | SO4  | C     | 433 | 5/5   | 0.96 | 0.08 | 50,50,51,52                 | 0     |
| 2   | SO4  | A     | 441 | 5/5   | 0.97 | 0.10 | 53,53,54,56                 | 0     |
| 2   | SO4  | D     | 438 | 5/5   | 0.97 | 0.10 | 50,50,51,51                 | 0     |
| 2   | SO4  | D     | 443 | 5/5   | 0.97 | 0.08 | 42,43,45,46                 | 0     |
| 2   | SO4  | B     | 432 | 5/5   | 0.97 | 0.12 | 48,48,49,50                 | 0     |
| 2   | SO4  | B     | 452 | 5/5   | 0.97 | 0.12 | 48,49,50,51                 | 0     |
| 2   | SO4  | A     | 457 | 5/5   | 0.98 | 0.10 | 48,48,49,49                 | 0     |
| 4   | ZN   | A     | 461 | 1/1   | 0.98 | 0.06 | 47,47,47,47                 | 0     |
| 2   | SO4  | C     | 449 | 5/5   | 0.98 | 0.13 | 42,43,44,44                 | 0     |
| 4   | ZN   | D     | 451 | 1/1   | 0.98 | 0.05 | 54,54,54,54                 | 0     |
| 2   | SO4  | A     | 449 | 5/5   | 0.99 | 0.10 | 18,23,25,25                 | 0     |
| 4   | ZN   | B     | 464 | 1/1   | 0.99 | 0.09 | 46,46,46,46                 | 0     |
| 4   | ZN   | B     | 465 | 1/1   | 0.99 | 0.10 | 53,53,53,53                 | 0     |
| 2   | SO4  | A     | 458 | 5/5   | 0.99 | 0.13 | 35,37,39,40                 | 0     |
| 2   | SO4  | B     | 446 | 5/5   | 0.99 | 0.09 | 31,32,33,34                 | 0     |
| 2   | SO4  | A     | 443 | 5/5   | 0.99 | 0.12 | 32,32,35,35                 | 0     |
| 2   | SO4  | B     | 456 | 5/5   | 0.99 | 0.11 | 20,22,23,23                 | 0     |

## 6.5 Other polymers [i](#)

There are no such residues in this entry.