



# Full wwPDB X-ray Structure Validation Report ⓘ

May 22, 2020 – 04:45 am BST

PDB ID : 3UJP  
Title : Structure of MntC protein at 2.7Å  
Authors : Kanteev, M.; Adir, N.  
Deposited on : 2011-11-08  
Resolution : 2.70 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.

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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 : 2.11  
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) : 2.11

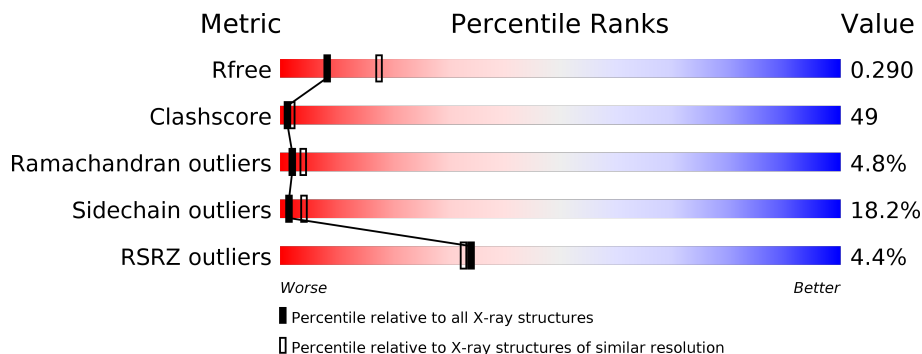
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.70 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                      | 2808 (2.70-2.70)                                      |
| Clashscore            | 141614                      | 3122 (2.70-2.70)                                      |
| Ramachandran outliers | 138981                      | 3069 (2.70-2.70)                                      |
| Sidechain outliers    | 138945                      | 3069 (2.70-2.70)                                      |
| RSRZ outliers         | 127900                      | 2737 (2.70-2.70)                                      |

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 on 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     | 307    | <br>%<br>39% 40% 10% 11%  |
| 1   | B     | 307    | <br>4%<br>34% 40% 12% 13% |
| 1   | C     | 307    | <br>7%<br>33% 39% 15% 11% |

## 2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 6424 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 Mn transporter subunit.

| Mol | Chain | Residues | Atoms         |           |          |          |        | ZeroOcc | AltConf | Trace |
|-----|-------|----------|---------------|-----------|----------|----------|--------|---------|---------|-------|
|     |       |          | Total         | C         | N        | O        | S      |         |         |       |
| 1   | A     | 274      | Total<br>2149 | C<br>1365 | N<br>352 | O<br>425 | S<br>7 | 0       | 0       | 0     |
| 1   | B     | 267      | Total<br>2097 | C<br>1333 | N<br>345 | O<br>412 | S<br>7 | 0       | 0       | 0     |
| 1   | C     | 272      | Total<br>2137 | C<br>1358 | N<br>350 | O<br>422 | S<br>7 | 0       | 0       | 0     |

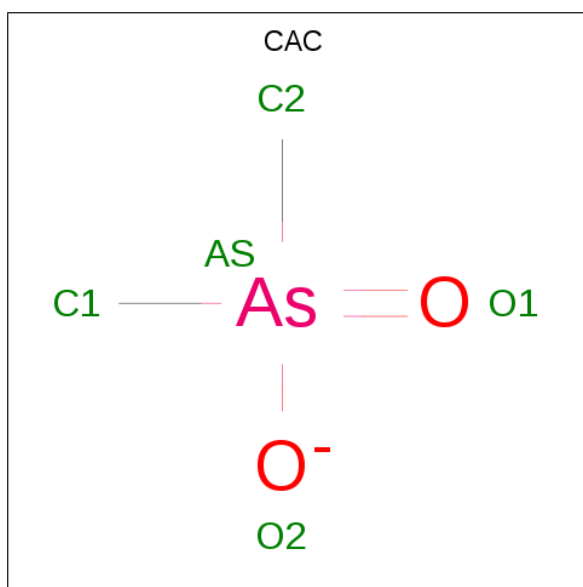
- Molecule 2 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

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

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms      |         | ZeroOcc | AltConf |
|-----|-------|----------|------------|---------|---------|---------|
| 3   | A     | 4        | Total<br>4 | Zn<br>4 | 0       | 0       |
| 3   | C     | 2        | Total<br>2 | Zn<br>2 | 0       | 0       |

- Molecule 4 is CACODYLATE ION (three-letter code: CAC) (formula: C<sub>2</sub>H<sub>6</sub>AsO<sub>2</sub>).



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

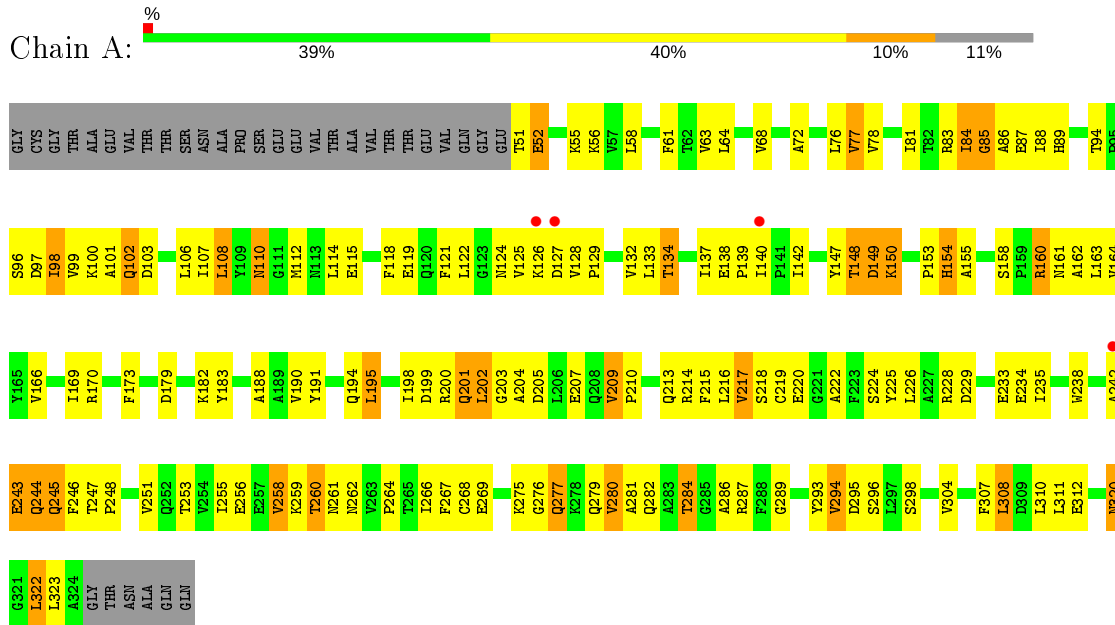
- Molecule 5 is water.

| Mol | Chain | Residues | Atoms |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---------|---------|
|     |       |          | Total | O |         |         |
| 5   | A     | 6        | 6     | 6 | 0       | 0       |
| 5   | B     | 5        | 5     | 5 | 0       | 0       |
| 5   | C     | 1        | 1     | 1 | 0       | 0       |

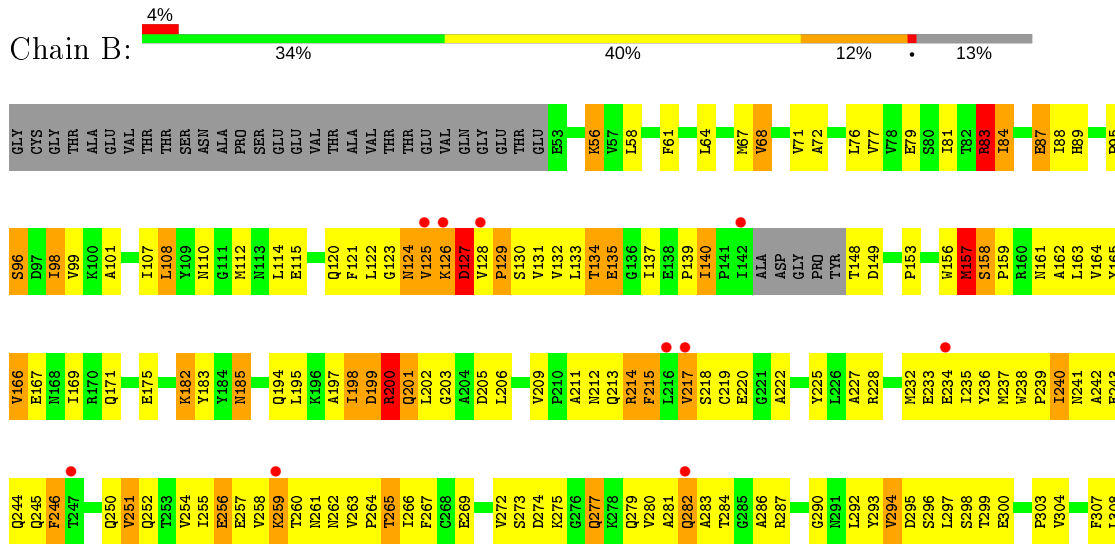
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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: Mn transporter subunit

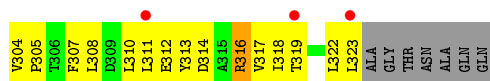
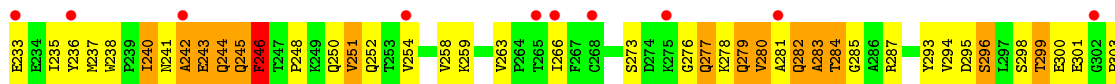
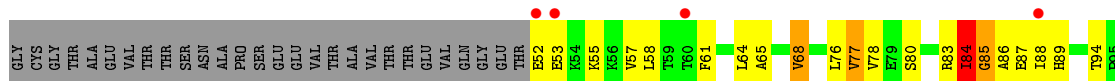


- Molecule 1: Mn transporter subunit





● Molecule 1: Mn transporter subunit



## 4 Data and refinement statistics

| Property                                                                | Value                                                       | Source           |
|-------------------------------------------------------------------------|-------------------------------------------------------------|------------------|
| Space group                                                             | P 31 2 1                                                    | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 127.52Å 127.52Å 89.73Å<br>90.00° 90.00° 120.00°             | Depositor        |
| Resolution (Å)                                                          | 36.80 – 2.70<br>69.64 – 2.70                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 92.0 (36.80-2.70)<br>92.0 (69.64-2.70)                      | Depositor<br>EDS |
| $R_{merge}$                                                             | (Not available)                                             | Depositor        |
| $R_{sym}$                                                               | (Not available)                                             | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 1.28 (at 2.69Å)                                             | Xtrriage         |
| Refinement program                                                      | PHENIX (phenix.refine: 1.6.1_357)                           | Depositor        |
| R, $R_{free}$                                                           | 0.231 , 0.284<br>0.237 , 0.290                              | Depositor<br>DCC |
| $R_{free}$ test set                                                     | 1090 reflections (5.05%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 83.7                                                        | Xtrriage         |
| Anisotropy                                                              | 0.194                                                       | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.31 , 64.5                                                 | EDS              |
| L-test for twinning <sup>2</sup>                                        | $\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.30$ | Xtrriage         |
| Estimated twinning fraction                                             | 0.037 for -h,-k,l                                           | Xtrriage         |
| $F_o, F_c$ correlation                                                  | 0.94                                                        | EDS              |
| Total number of atoms                                                   | 6424                                                        | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 88.0                                                        | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.57% 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: CAC, ZN, MN

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     | 0.60         | 0/2194        | 0.74        | 0/2991  |
| 1   | B     | 0.66         | 1/2139 (0.0%) | 0.73        | 0/2913  |
| 1   | C     | 0.56         | 0/2182        | 0.67        | 0/2974  |
| All | All   | 0.61         | 1/6515 (0.0%) | 0.71        | 0/8878  |

All (1) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 1   | B     | 123 | GLY  | C-N   | -5.13 | 1.22        | 1.34     |

There are no bond angle outliers.

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     | 2149  | 0        | 2097     | 164     | 0            |
| 1   | B     | 2097  | 0        | 2055     | 242     | 0            |
| 1   | C     | 2137  | 0        | 2087     | 231     | 0            |
| 2   | A     | 1     | 0        | 0        | 0       | 0            |
| 2   | B     | 1     | 0        | 0        | 0       | 0            |
| 2   | C     | 1     | 0        | 0        | 0       | 0            |
| 3   | A     | 4     | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 3   | C     | 2     | 0        | 0        | 0       | 0            |
| 4   | A     | 10    | 0        | 0        | 4       | 0            |
| 4   | C     | 10    | 0        | 0        | 0       | 0            |
| 5   | A     | 6     | 0        | 0        | 0       | 0            |
| 5   | B     | 5     | 0        | 0        | 2       | 0            |
| 5   | C     | 1     | 0        | 0        | 0       | 0            |
| All | All   | 6424  | 0        | 6239     | 622     | 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 49.

All (622) 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:B:213:GLN:HA   | 1:B:215:PHE:CE1  | 1.42                     | 1.52              |
| 1:B:213:GLN:CA   | 1:B:215:PHE:HE1  | 1.44                     | 1.28              |
| 1:B:258:VAL:HG22 | 1:B:263:VAL:CG2  | 1.68                     | 1.22              |
| 1:B:265:THR:HB   | 1:B:321:GLY:O    | 1.41                     | 1.20              |
| 1:C:89:HIS:CD2   | 1:C:295:ASP:OD2  | 1.98                     | 1.17              |
| 1:B:127:ASP:O    | 1:B:128:VAL:HG23 | 1.45                     | 1.15              |
| 1:C:203:GLY:O    | 1:C:207:GLU:HG2  | 1.42                     | 1.15              |
| 1:C:259:LYS:HG2  | 1:C:284:THR:OG1  | 1.45                     | 1.14              |
| 1:B:257:GLU:HA   | 1:B:260:THR:CG2  | 1.78                     | 1.13              |
| 1:B:257:GLU:HA   | 1:B:260:THR:HG22 | 1.11                     | 1.11              |
| 1:C:154:HIS:CG   | 1:C:222:ALA:HB1  | 1.85                     | 1.10              |
| 1:B:219:CYS:HB3  | 1:B:238:TRP:CH2  | 1.86                     | 1.08              |
| 1:B:238:TRP:CE2  | 1:B:244:GLN:NE2  | 2.21                     | 1.06              |
| 1:B:258:VAL:HA   | 1:B:263:VAL:HG22 | 1.34                     | 1.03              |
| 1:B:314:ASP:O    | 1:B:318:ILE:HG13 | 1.57                     | 1.03              |
| 1:C:220:GLU:HG2  | 1:C:220:GLU:O    | 1.51                     | 1.03              |
| 1:B:255:ILE:CG2  | 1:B:280:VAL:HA   | 1.88                     | 1.02              |
| 1:C:248:PRO:HA   | 1:C:251:VAL:HG13 | 1.41                     | 1.02              |
| 1:C:127:ASP:O    | 1:C:128:VAL:HG13 | 1.59                     | 1.01              |
| 1:A:148:THR:HG22 | 1:A:149:ASP:N    | 1.72                     | 1.01              |
| 1:C:170:ARG:O    | 1:C:174:VAL:HG13 | 1.60                     | 1.01              |
| 1:B:238:TRP:CD2  | 1:B:244:GLN:NE2  | 2.29                     | 1.00              |
| 1:B:257:GLU:CA   | 1:B:260:THR:HG22 | 1.91                     | 1.00              |
| 1:B:240:ILE:HG23 | 1:B:241:ASN:O    | 1.63                     | 0.99              |
| 1:C:277:GLN:HA   | 1:C:277:GLN:HE21 | 1.25                     | 0.98              |
| 1:C:278:LYS:O    | 1:C:281:ALA:HB3  | 1.64                     | 0.98              |
| 1:C:284:THR:HG22 | 1:C:284:THR:O    | 1.63                     | 0.97              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:281:ALA:O    | 1:C:282:GLN:HG3  | 1.63                     | 0.97              |
| 1:B:263:VAL:HG23 | 1:B:263:VAL:O    | 1.63                     | 0.97              |
| 1:A:258:VAL:HG12 | 1:A:259:LYS:N    | 1.78                     | 0.96              |
| 1:B:125:VAL:O    | 1:B:125:VAL:HG22 | 1.63                     | 0.96              |
| 1:C:142:ILE:HG22 | 1:C:143:ALA:H    | 1.31                     | 0.96              |
| 1:B:126:LYS:HE3  | 1:C:84:ILE:HD13  | 1.48                     | 0.95              |
| 1:A:148:THR:CG2  | 1:A:149:ASP:N    | 2.30                     | 0.95              |
| 1:A:112:MET:CE   | 1:A:139:PRO:HB3  | 1.97                     | 0.94              |
| 1:B:238:TRP:CD1  | 1:B:244:GLN:NE2  | 2.36                     | 0.93              |
| 1:A:137:ILE:HG12 | 1:A:164:VAL:HG21 | 1.48                     | 0.93              |
| 1:A:112:MET:HG3  | 1:A:134:THR:HG21 | 1.48                     | 0.92              |
| 1:B:213:GLN:CA   | 1:B:215:PHE:CE1  | 2.30                     | 0.92              |
| 1:C:219:CYS:HB3  | 1:C:238:TRP:CZ2  | 2.04                     | 0.92              |
| 1:C:219:CYS:HB3  | 1:C:238:TRP:CH2  | 2.05                     | 0.92              |
| 1:A:126:LYS:HG2  | 1:A:127:ASP:H    | 1.32                     | 0.92              |
| 1:B:255:ILE:HG22 | 1:B:280:VAL:HA   | 1.53                     | 0.91              |
| 1:C:154:HIS:CD2  | 1:C:222:ALA:HB1  | 2.06                     | 0.91              |
| 1:A:242:ALA:O    | 1:A:243:GLU:HG2  | 1.72                     | 0.90              |
| 1:B:238:TRP:CG   | 1:B:244:GLN:NE2  | 2.41                     | 0.89              |
| 1:C:259:LYS:HG2  | 1:C:284:THR:HG1  | 1.37                     | 0.89              |
| 1:A:242:ALA:O    | 1:A:243:GLU:CG   | 2.21                     | 0.88              |
| 1:C:266:ILE:HD13 | 1:C:280:VAL:HG12 | 1.56                     | 0.87              |
| 1:C:137:ILE:HG12 | 1:C:164:VAL:HG21 | 1.57                     | 0.87              |
| 1:A:255:ILE:HG13 | 1:A:280:VAL:HB   | 1.56                     | 0.87              |
| 1:B:137:ILE:HD11 | 1:B:164:VAL:CG2  | 2.03                     | 0.86              |
| 1:B:319:THR:O    | 1:B:323:LEU:HD13 | 1.74                     | 0.86              |
| 1:A:154:HIS:HE1  | 1:A:220:GLU:OE2  | 1.58                     | 0.86              |
| 1:B:265:THR:HG21 | 1:B:267:PHE:CZ   | 2.11                     | 0.85              |
| 1:A:203:GLY:HA3  | 1:C:301:GLU:OE2  | 1.76                     | 0.85              |
| 1:C:175:GLU:HG2  | 1:C:176:LEU:N    | 1.91                     | 0.85              |
| 1:A:284:THR:HG22 | 1:A:286:ALA:H    | 1.40                     | 0.85              |
| 1:A:242:ALA:C    | 1:A:243:GLU:HG2  | 1.97                     | 0.84              |
| 1:B:251:VAL:O    | 1:B:255:ILE:HG13 | 1.77                     | 0.84              |
| 1:B:265:THR:CG2  | 1:B:267:PHE:CZ   | 2.61                     | 0.84              |
| 1:B:298:SER:HB3  | 1:B:303:PRO:O    | 1.77                     | 0.84              |
| 1:B:185:ASN:N    | 1:B:185:ASN:HD22 | 1.72                     | 0.84              |
| 1:C:220:GLU:HB2  | 1:C:241:ASN:OD1  | 1.77                     | 0.84              |
| 1:B:137:ILE:HD11 | 1:B:164:VAL:HG23 | 1.61                     | 0.83              |
| 1:B:238:TRP:NE1  | 1:B:244:GLN:NE2  | 2.26                     | 0.83              |
| 1:C:125:VAL:O    | 1:C:127:ASP:N    | 2.12                     | 0.83              |
| 1:A:154:HIS:O    | 1:A:225:TYR:CD2  | 2.30                     | 0.83              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:98:ILE:HD12  | 1:A:124:ASN:HD21 | 1.43                     | 0.83              |
| 1:A:264:PRO:HG2  | 1:A:322:LEU:HA   | 1.61                     | 0.83              |
| 1:C:175:GLU:O    | 1:C:178:PRO:HD3  | 1.80                     | 0.82              |
| 1:B:258:VAL:HG22 | 1:B:263:VAL:HG21 | 1.61                     | 0.81              |
| 1:A:280:VAL:O    | 1:A:284:THR:HB   | 1.79                     | 0.81              |
| 1:B:258:VAL:CA   | 1:B:263:VAL:HG22 | 2.11                     | 0.81              |
| 1:A:142:ILE:HG13 | 1:A:150:LYS:O    | 1.79                     | 0.80              |
| 1:B:258:VAL:HG22 | 1:B:263:VAL:HG22 | 1.64                     | 0.80              |
| 1:B:240:ILE:CG2  | 1:B:241:ASN:O    | 2.30                     | 0.80              |
| 1:C:283:ALA:O    | 1:C:284:THR:HB   | 1.82                     | 0.80              |
| 1:C:284:THR:CG2  | 1:C:284:THR:O    | 2.30                     | 0.80              |
| 1:C:96:SER:O     | 1:C:100:LYS:HG2  | 1.82                     | 0.80              |
| 1:C:147:TYR:HB3  | 1:C:150:LYS:HG3  | 1.63                     | 0.80              |
| 1:A:55:LYS:HB2   | 1:A:76:LEU:HD22  | 1.64                     | 0.80              |
| 1:C:278:LYS:O    | 1:C:281:ALA:CB   | 2.30                     | 0.79              |
| 1:B:237:MET:HG3  | 1:B:254:VAL:HG21 | 1.64                     | 0.79              |
| 1:B:277:GLN:HE21 | 1:B:277:GLN:HA   | 1.45                     | 0.79              |
| 1:B:125:VAL:O    | 1:B:125:VAL:CG2  | 2.30                     | 0.79              |
| 1:A:258:VAL:CG1  | 1:A:259:LYS:N    | 2.45                     | 0.79              |
| 1:C:217:VAL:O    | 1:C:217:VAL:CG2  | 2.30                     | 0.79              |
| 1:A:96:SER:O     | 1:A:99:VAL:HG12  | 1.82                     | 0.78              |
| 1:B:110:ASN:O    | 1:B:134:THR:HB   | 1.83                     | 0.78              |
| 1:C:246:PHE:CE2  | 1:C:276:GLY:HA3  | 2.19                     | 0.78              |
| 1:B:128:VAL:HG12 | 1:B:128:VAL:O    | 1.81                     | 0.78              |
| 1:B:126:LYS:HE3  | 1:C:84:ILE:CD1   | 2.13                     | 0.78              |
| 1:B:256:GLU:OE1  | 1:B:260:THR:HG21 | 1.84                     | 0.78              |
| 1:C:157:MET:SD   | 1:C:294:VAL:HG12 | 2.24                     | 0.78              |
| 1:A:217:VAL:HG11 | 1:A:266:ILE:HG22 | 1.65                     | 0.77              |
| 1:C:125:VAL:O    | 1:C:126:LYS:C    | 2.23                     | 0.77              |
| 1:B:209:VAL:CG2  | 1:B:213:GLN:O    | 2.33                     | 0.77              |
| 1:B:258:VAL:HG22 | 1:B:263:VAL:HG23 | 1.66                     | 0.76              |
| 1:C:298:SER:HB3  | 1:C:303:PRO:O    | 1.85                     | 0.76              |
| 1:B:194:GLN:O    | 1:B:198:ILE:HG23 | 1.85                     | 0.76              |
| 1:A:148:THR:HG22 | 1:A:149:ASP:H    | 1.47                     | 0.76              |
| 1:B:137:ILE:N    | 1:B:137:ILE:HD12 | 2.00                     | 0.76              |
| 1:B:127:ASP:O    | 1:B:128:VAL:CG2  | 2.30                     | 0.76              |
| 1:B:198:ILE:HD11 | 1:B:311:LEU:HD13 | 1.67                     | 0.76              |
| 1:C:65:ALA:HB2   | 1:C:80:SER:HB2   | 1.66                     | 0.76              |
| 1:C:278:LYS:O    | 1:C:281:ALA:CA   | 2.33                     | 0.76              |
| 1:B:185:ASN:ND2  | 1:B:185:ASN:N    | 2.31                     | 0.76              |
| 1:A:154:HIS:CE1  | 1:A:220:GLU:OE2  | 2.39                     | 0.75              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:258:VAL:CG2  | 1:B:263:VAL:CG2  | 2.59                     | 0.75              |
| 1:C:125:VAL:HB   | 1:C:128:VAL:CG2  | 2.16                     | 0.75              |
| 1:B:107:ILE:CD1  | 1:B:128:VAL:HG11 | 2.17                     | 0.74              |
| 1:B:258:VAL:HG11 | 1:B:286:ALA:HB2  | 1.69                     | 0.74              |
| 1:C:206:LEU:HD23 | 1:C:319:THR:OG1  | 1.86                     | 0.74              |
| 1:A:110:ASN:O    | 1:A:134:THR:HB   | 1.87                     | 0.73              |
| 1:A:154:HIS:O    | 1:A:225:TYR:HD2  | 1.68                     | 0.73              |
| 1:C:281:ALA:O    | 1:C:282:GLN:CG   | 2.34                     | 0.73              |
| 1:B:263:VAL:CG2  | 1:B:263:VAL:O    | 2.35                     | 0.73              |
| 1:B:215:PHE:N    | 1:B:215:PHE:CD1  | 2.55                     | 0.72              |
| 1:B:280:VAL:O    | 1:B:284:THR:HG22 | 1.89                     | 0.72              |
| 1:C:122:LEU:O    | 1:C:125:VAL:HG22 | 1.89                     | 0.71              |
| 1:B:126:LYS:HG2  | 1:C:299:THR:HG23 | 1.72                     | 0.71              |
| 1:A:84:ILE:HG23  | 1:A:85:GLY:N     | 2.03                     | 0.71              |
| 1:C:98:ILE:HD13  | 1:C:124:ASN:HD22 | 1.55                     | 0.71              |
| 1:C:165:TYR:O    | 1:C:169:ILE:HG13 | 1.91                     | 0.70              |
| 1:A:154:HIS:ND1  | 1:A:222:ALA:HA   | 2.06                     | 0.70              |
| 1:C:64:LEU:O     | 1:C:68:VAL:HG13  | 1.91                     | 0.70              |
| 1:B:200:ARG:O    | 1:B:203:GLY:N    | 2.22                     | 0.70              |
| 1:A:88:ILE:HG12  | 1:A:295:ASP:HB3  | 1.73                     | 0.70              |
| 1:C:108:LEU:HD12 | 1:C:131:VAL:HG13 | 1.73                     | 0.70              |
| 1:B:107:ILE:HD11 | 1:B:128:VAL:HG11 | 1.74                     | 0.70              |
| 1:B:83:ARG:HA    | 1:B:83:ARG:NE    | 2.06                     | 0.70              |
| 1:A:112:MET:HE1  | 1:A:139:PRO:HB3  | 1.73                     | 0.70              |
| 1:A:242:ALA:O    | 1:A:243:GLU:CB   | 2.39                     | 0.70              |
| 1:B:159:PRO:CB   | 1:B:199:ASP:HB2  | 2.22                     | 0.70              |
| 1:B:107:ILE:HD12 | 1:B:128:VAL:CG1  | 2.22                     | 0.70              |
| 1:C:216:LEU:HD11 | 1:C:318:ILE:HD13 | 1.74                     | 0.69              |
| 1:C:254:VAL:O    | 1:C:258:VAL:HG12 | 1.92                     | 0.69              |
| 1:C:217:VAL:HG21 | 1:C:266:ILE:HG22 | 1.74                     | 0.69              |
| 1:A:51:THR:O     | 1:A:51:THR:HG23  | 1.91                     | 0.69              |
| 1:B:258:VAL:O    | 1:B:262:ASN:HA   | 1.93                     | 0.69              |
| 1:C:147:TYR:CB   | 1:C:150:LYS:HG3  | 2.23                     | 0.69              |
| 1:A:218:SER:HA   | 1:A:267:PHE:O    | 1.93                     | 0.69              |
| 1:C:183:TYR:O    | 1:C:186:ALA:N    | 2.25                     | 0.69              |
| 1:C:127:ASP:C    | 1:C:128:VAL:HG22 | 2.14                     | 0.68              |
| 1:C:106:LEU:HD11 | 1:C:131:VAL:HG12 | 1.75                     | 0.68              |
| 1:C:246:PHE:HE2  | 1:C:276:GLY:HA3  | 1.56                     | 0.68              |
| 1:A:200:ARG:HA   | 1:C:301:GLU:OE1  | 1.94                     | 0.68              |
| 1:B:137:ILE:CD1  | 1:B:164:VAL:HG21 | 2.24                     | 0.68              |
| 1:C:217:VAL:HA   | 1:C:235:ILE:O    | 1.93                     | 0.68              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:55:LYS:HB2   | 1:C:76:LEU:HD22  | 1.76                     | 0.68              |
| 1:A:126:LYS:HG2  | 1:A:127:ASP:N    | 2.07                     | 0.68              |
| 1:C:154:HIS:CD2  | 1:C:222:ALA:CB   | 2.76                     | 0.68              |
| 1:B:162:ALA:O    | 1:B:166:VAL:HG13 | 1.94                     | 0.68              |
| 1:B:96:SER:O     | 1:B:99:VAL:HG12  | 1.94                     | 0.68              |
| 1:B:83:ARG:HA    | 1:B:83:ARG:HE    | 1.59                     | 0.67              |
| 1:A:161:ASN:O    | 1:A:164:VAL:HG22 | 1.95                     | 0.67              |
| 1:A:98:ILE:CD1   | 1:A:124:ASN:HD21 | 2.06                     | 0.67              |
| 1:A:275:LYS:O    | 1:A:279:GLN:HG3  | 1.93                     | 0.67              |
| 1:A:201:GLN:O    | 1:A:201:GLN:HG3  | 1.94                     | 0.67              |
| 1:B:132:VAL:HG23 | 1:B:134:THR:H    | 1.58                     | 0.67              |
| 1:C:278:LYS:O    | 1:C:281:ALA:C    | 2.34                     | 0.67              |
| 1:C:266:ILE:HD13 | 1:C:280:VAL:CG1  | 2.24                     | 0.67              |
| 1:B:114:LEU:HB2  | 1:B:153:PRO:HB2  | 1.77                     | 0.66              |
| 1:B:185:ASN:ND2  | 1:B:185:ASN:H    | 1.92                     | 0.66              |
| 1:B:240:ILE:HG22 | 1:B:240:ILE:O    | 1.95                     | 0.66              |
| 1:C:278:LYS:HA   | 1:C:281:ALA:HB3  | 1.78                     | 0.66              |
| 1:B:64:LEU:HD13  | 1:B:133:LEU:HD12 | 1.78                     | 0.66              |
| 1:C:224:SER:O    | 1:C:227:ALA:HB3  | 1.96                     | 0.66              |
| 1:C:279:GLN:C    | 1:C:281:ALA:N    | 2.48                     | 0.66              |
| 1:B:137:ILE:HD11 | 1:B:164:VAL:HG21 | 1.74                     | 0.65              |
| 1:C:218:SER:OG   | 1:C:219:CYS:N    | 2.28                     | 0.65              |
| 1:B:198:ILE:O    | 1:B:198:ILE:HD12 | 1.96                     | 0.65              |
| 1:B:122:LEU:HA   | 1:B:125:VAL:CG1  | 2.26                     | 0.65              |
| 1:C:279:GLN:O    | 1:C:282:GLN:N    | 2.30                     | 0.65              |
| 1:C:220:GLU:O    | 1:C:222:ALA:N    | 2.30                     | 0.65              |
| 1:A:108:LEU:HG   | 1:A:133:LEU:HD21 | 1.77                     | 0.65              |
| 1:C:154:HIS:CG   | 1:C:222:ALA:CB   | 2.74                     | 0.65              |
| 1:C:142:ILE:HG22 | 1:C:143:ALA:N    | 2.08                     | 0.65              |
| 1:A:153:PRO:O    | 1:A:155:ALA:N    | 2.30                     | 0.65              |
| 1:C:278:LYS:O    | 1:C:281:ALA:N    | 2.30                     | 0.65              |
| 1:C:180:ASN:HB2  | 1:C:184:TYR:CE2  | 2.31                     | 0.65              |
| 1:C:248:PRO:HA   | 1:C:251:VAL:CG1  | 2.22                     | 0.65              |
| 1:B:251:VAL:O    | 1:B:255:ILE:CG1  | 2.45                     | 0.64              |
| 1:C:220:GLU:CG   | 1:C:220:GLU:O    | 2.36                     | 0.64              |
| 1:A:277:GLN:HA   | 1:A:277:GLN:HE21 | 1.62                     | 0.64              |
| 1:C:173:PHE:O    | 1:C:175:GLU:N    | 2.30                     | 0.64              |
| 1:C:279:GLN:O    | 1:C:281:ALA:N    | 2.30                     | 0.64              |
| 1:A:98:ILE:HG21  | 1:A:124:ASN:ND2  | 2.13                     | 0.64              |
| 1:C:244:GLN:C    | 1:C:245:GLN:HG2  | 2.18                     | 0.64              |
| 1:B:265:THR:CB   | 1:B:321:GLY:O    | 2.32                     | 0.64              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:61:PHE:CE2   | 1:B:64:LEU:HG    | 2.32                     | 0.64              |
| 1:B:182:LYS:HG2  | 1:B:183:TYR:N    | 2.12                     | 0.63              |
| 1:C:142:ILE:HG13 | 1:C:150:LYS:O    | 1.97                     | 0.63              |
| 1:C:307:PHE:CZ   | 1:C:311:LEU:HD11 | 2.33                     | 0.63              |
| 1:B:213:GLN:HA   | 1:B:215:PHE:HE1  | 0.55                     | 0.63              |
| 1:B:257:GLU:OE1  | 1:B:261:ASN:ND2  | 2.32                     | 0.63              |
| 1:A:58:LEU:HD23  | 1:A:81:ILE:HD11  | 1.79                     | 0.63              |
| 1:C:147:TYR:CD1  | 1:C:147:TYR:N    | 2.64                     | 0.63              |
| 1:A:126:LYS:CG   | 1:A:127:ASP:H    | 2.09                     | 0.63              |
| 1:B:58:LEU:HD21  | 1:B:81:ILE:HD11  | 1.81                     | 0.63              |
| 1:B:72:ALA:HB1   | 1:B:76:LEU:HB2   | 1.80                     | 0.63              |
| 1:B:209:VAL:HG22 | 1:B:213:GLN:O    | 1.97                     | 0.62              |
| 1:B:107:ILE:CD1  | 1:B:128:VAL:CG1  | 2.77                     | 0.62              |
| 1:A:312:GLU:OE2  | 4:A:332:CAC:C1   | 2.47                     | 0.62              |
| 1:B:107:ILE:HD12 | 1:B:128:VAL:HG12 | 1.81                     | 0.62              |
| 1:B:255:ILE:HG22 | 1:B:280:VAL:CA   | 2.27                     | 0.62              |
| 1:C:124:ASN:N    | 1:C:124:ASN:OD1  | 2.31                     | 0.62              |
| 1:B:255:ILE:HG23 | 1:B:280:VAL:HB   | 1.80                     | 0.62              |
| 1:A:84:ILE:O     | 1:A:86:ALA:N     | 2.33                     | 0.62              |
| 1:C:125:VAL:HB   | 1:C:128:VAL:HG21 | 1.82                     | 0.62              |
| 1:C:217:VAL:HG23 | 1:C:217:VAL:O    | 1.99                     | 0.62              |
| 1:B:126:LYS:O    | 1:B:127:ASP:C    | 2.36                     | 0.62              |
| 1:C:240:ILE:HG23 | 1:C:241:ASN:O    | 2.00                     | 0.62              |
| 1:B:255:ILE:CG2  | 1:B:280:VAL:CA   | 2.72                     | 0.62              |
| 1:C:137:ILE:CG1  | 1:C:164:VAL:HG21 | 2.29                     | 0.62              |
| 1:B:304:VAL:HG13 | 1:B:310:LEU:HB2  | 1.82                     | 0.62              |
| 1:B:122:LEU:HA   | 1:B:125:VAL:HG13 | 1.81                     | 0.61              |
| 1:B:258:VAL:CG2  | 1:B:263:VAL:HG22 | 2.28                     | 0.61              |
| 1:B:64:LEU:O     | 1:B:68:VAL:HG13  | 2.01                     | 0.61              |
| 1:A:218:SER:HB2  | 1:A:269:GLU:OE2  | 2.01                     | 0.61              |
| 1:A:215:PHE:CD2  | 1:A:233:GLU:HB3  | 2.36                     | 0.61              |
| 1:C:278:LYS:C    | 1:C:281:ALA:HB3  | 2.20                     | 0.61              |
| 1:B:212:ASN:O    | 1:B:215:PHE:CZ   | 2.54                     | 0.61              |
| 1:C:203:GLY:O    | 1:C:207:GLU:CG   | 2.34                     | 0.61              |
| 1:B:128:VAL:O    | 1:B:129:PRO:C    | 2.39                     | 0.60              |
| 1:C:217:VAL:HG22 | 1:C:217:VAL:O    | 2.00                     | 0.60              |
| 1:B:256:GLU:HG3  | 1:B:257:GLU:N    | 2.15                     | 0.60              |
| 1:B:304:VAL:HG13 | 1:B:310:LEU:HA   | 1.82                     | 0.60              |
| 1:C:126:LYS:O    | 1:C:128:VAL:N    | 2.30                     | 0.60              |
| 1:B:198:ILE:C    | 1:B:198:ILE:HD12 | 2.23                     | 0.60              |
| 1:B:265:THR:HG22 | 1:B:267:PHE:CE1  | 2.37                     | 0.59              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:260:THR:HG23 | 1:B:261:ASN:ND2  | 2.17                     | 0.59              |
| 1:C:200:ARG:NH2  | 1:C:200:ARG:HB3  | 2.17                     | 0.59              |
| 1:A:158:SER:O    | 1:A:161:ASN:HB2  | 2.02                     | 0.59              |
| 1:B:200:ARG:O    | 1:B:202:LEU:N    | 2.36                     | 0.59              |
| 1:C:243:GLU:HG2  | 1:C:244:GLN:N    | 2.16                     | 0.59              |
| 1:B:255:ILE:O    | 1:B:259:LYS:HE3  | 2.01                     | 0.59              |
| 1:A:126:LYS:O    | 1:A:127:ASP:C    | 2.39                     | 0.59              |
| 1:C:127:ASP:O    | 1:C:128:VAL:CG1  | 2.42                     | 0.59              |
| 1:A:98:ILE:HD12  | 1:A:124:ASN:ND2  | 2.17                     | 0.59              |
| 1:B:252:GLN:HA   | 1:B:255:ILE:HD11 | 1.85                     | 0.59              |
| 1:C:277:GLN:HA   | 1:C:277:GLN:NE2  | 2.06                     | 0.58              |
| 1:B:87:GLU:HG3   | 1:B:87:GLU:O     | 2.03                     | 0.58              |
| 1:A:162:ALA:O    | 1:A:166:VAL:HG13 | 2.03                     | 0.58              |
| 1:A:198:ILE:C    | 1:A:198:ILE:HD12 | 2.24                     | 0.58              |
| 1:C:278:LYS:CA   | 1:C:281:ALA:HB3  | 2.32                     | 0.58              |
| 1:B:233:GLU:HG3  | 1:B:234:GLU:N    | 2.19                     | 0.58              |
| 1:B:148:THR:HG23 | 1:B:149:ASP:H    | 1.67                     | 0.58              |
| 1:A:258:VAL:O    | 1:A:262:ASN:N    | 2.37                     | 0.58              |
| 1:A:267:PHE:CE2  | 1:A:289:GLY:HA3  | 2.39                     | 0.58              |
| 1:A:217:VAL:HG13 | 1:A:266:ILE:HA   | 1.86                     | 0.58              |
| 1:C:84:ILE:O     | 1:C:86:ALA:N     | 2.36                     | 0.58              |
| 1:A:160:ARG:HG3  | 1:A:229:ASP:OD2  | 2.04                     | 0.57              |
| 1:C:68:VAL:HG12  | 1:C:169:ILE:HD13 | 1.86                     | 0.57              |
| 1:C:217:VAL:HG21 | 1:C:266:ILE:CG2  | 2.33                     | 0.57              |
| 1:C:116:ARG:NH2  | 1:C:242:ALA:HA   | 2.19                     | 0.57              |
| 1:B:121:PHE:O    | 1:B:125:VAL:HG12 | 2.04                     | 0.57              |
| 1:A:98:ILE:CG2   | 1:A:124:ASN:ND2  | 2.67                     | 0.57              |
| 1:B:258:VAL:CB   | 1:B:263:VAL:HG22 | 2.35                     | 0.57              |
| 1:B:212:ASN:O    | 1:B:215:PHE:HZ   | 1.88                     | 0.57              |
| 1:B:95:PRO:HA    | 1:B:98:ILE:HG13  | 1.87                     | 0.57              |
| 1:C:215:PHE:HD2  | 1:C:233:GLU:HB3  | 1.69                     | 0.57              |
| 1:A:304:VAL:HG13 | 1:A:310:LEU:HA   | 1.86                     | 0.57              |
| 1:B:137:ILE:N    | 1:B:137:ILE:CD1  | 2.67                     | 0.57              |
| 1:C:201:GLN:NE2  | 1:C:312:GLU:HG3  | 2.19                     | 0.57              |
| 1:B:161:ASN:O    | 1:B:164:VAL:HG22 | 2.05                     | 0.56              |
| 1:B:293:TYR:CD1  | 1:B:304:VAL:HG21 | 2.39                     | 0.56              |
| 1:C:220:GLU:O    | 1:C:221:GLY:C    | 2.42                     | 0.56              |
| 1:C:182:LYS:O    | 1:C:185:ASN:HB2  | 2.06                     | 0.56              |
| 1:C:246:PHE:HD1  | 1:C:246:PHE:O    | 1.88                     | 0.56              |
| 1:C:266:ILE:HD12 | 1:C:277:GLN:HG3  | 1.88                     | 0.56              |
| 1:B:134:THR:O    | 1:B:137:ILE:HD13 | 2.05                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:261:ASN:O    | 1:A:262:ASN:C    | 2.42                     | 0.56              |
| 1:B:126:LYS:HG2  | 1:C:299:THR:CG2  | 2.36                     | 0.56              |
| 1:B:314:ASP:O    | 1:B:318:ILE:CG1  | 2.43                     | 0.56              |
| 1:C:61:PHE:CE2   | 1:C:64:LEU:HG    | 2.41                     | 0.56              |
| 1:A:154:HIS:CE1  | 1:A:220:GLU:CD   | 2.79                     | 0.55              |
| 1:A:255:ILE:CG1  | 1:A:280:VAL:HB   | 2.34                     | 0.55              |
| 1:C:215:PHE:CD2  | 1:C:233:GLU:HB3  | 2.41                     | 0.55              |
| 1:B:107:ILE:HD12 | 1:B:128:VAL:HG11 | 1.87                     | 0.55              |
| 1:B:238:TRP:HZ2  | 1:B:272:VAL:HG21 | 1.71                     | 0.55              |
| 1:C:143:ALA:HB2  | 1:C:236:TYR:OH   | 2.06                     | 0.55              |
| 1:C:98:ILE:HD13  | 1:C:124:ASN:ND2  | 2.18                     | 0.55              |
| 1:B:250:GLN:O    | 1:B:254:VAL:HG23 | 2.06                     | 0.55              |
| 1:C:299:THR:HG22 | 1:C:300:GLU:H    | 1.71                     | 0.55              |
| 1:C:84:ILE:HG23  | 1:C:85:GLY:N     | 2.20                     | 0.55              |
| 1:A:106:LEU:HD13 | 1:A:129:PRO:HB2  | 1.88                     | 0.55              |
| 1:B:56:LYS:HG3   | 1:B:77:VAL:HG13  | 1.88                     | 0.55              |
| 1:A:260:THR:HG22 | 1:A:261:ASN:OD1  | 2.07                     | 0.55              |
| 1:B:304:VAL:HG13 | 1:B:310:LEU:CB   | 2.37                     | 0.55              |
| 1:A:198:ILE:HA   | 1:A:201:GLN:HB3  | 1.89                     | 0.55              |
| 1:B:220:GLU:OE2  | 1:B:241:ASN:OD1  | 2.25                     | 0.55              |
| 1:B:244:GLN:O    | 1:B:245:GLN:HB2  | 2.06                     | 0.55              |
| 1:A:203:GLY:CA   | 1:C:301:GLU:OE2  | 2.51                     | 0.55              |
| 1:A:61:PHE:CE1   | 1:A:63:VAL:HB    | 2.42                     | 0.55              |
| 1:B:84:ILE:O     | 1:B:84:ILE:HG22  | 2.07                     | 0.54              |
| 1:A:163:LEU:O    | 1:A:166:VAL:HG22 | 2.07                     | 0.54              |
| 1:B:159:PRO:HB3  | 1:B:199:ASP:HB2  | 1.88                     | 0.54              |
| 1:B:137:ILE:CG1  | 1:B:164:VAL:HG21 | 2.37                     | 0.54              |
| 1:B:137:ILE:HG13 | 1:B:164:VAL:HG21 | 1.88                     | 0.54              |
| 1:C:201:GLN:NE2  | 1:C:312:GLU:OE2  | 2.24                     | 0.54              |
| 1:B:206:LEU:O    | 1:B:209:VAL:HG13 | 2.06                     | 0.54              |
| 1:C:161:ASN:HD22 | 1:C:161:ASN:N    | 2.05                     | 0.54              |
| 1:C:68:VAL:HG23  | 1:C:78:VAL:HG21  | 1.90                     | 0.54              |
| 1:C:84:ILE:CG2   | 1:C:85:GLY:N     | 2.69                     | 0.54              |
| 1:A:163:LEU:HD21 | 1:A:195:LEU:HB3  | 1.90                     | 0.54              |
| 1:C:125:VAL:O    | 1:C:128:VAL:HG22 | 2.07                     | 0.54              |
| 1:C:183:TYR:O    | 1:C:185:ASN:N    | 2.41                     | 0.54              |
| 1:A:248:PRO:HA   | 1:A:251:VAL:HG13 | 1.89                     | 0.54              |
| 1:B:265:THR:HG21 | 1:B:267:PHE:HZ   | 1.69                     | 0.54              |
| 1:C:98:ILE:CG1   | 1:C:121:PHE:CE1  | 2.90                     | 0.54              |
| 1:C:106:LEU:HD22 | 1:C:176:LEU:HD22 | 1.90                     | 0.54              |
| 1:A:114:LEU:HD13 | 1:A:153:PRO:HB2  | 1.89                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:72:ALA:HB2   | 1:A:173:PHE:CE2  | 2.43                     | 0.54              |
| 1:A:72:ALA:HB2   | 1:A:173:PHE:HE2  | 1.72                     | 0.54              |
| 1:B:213:GLN:HA   | 1:B:215:PHE:CD1  | 2.27                     | 0.54              |
| 1:B:227:ALA:HA   | 1:B:232:MET:HB2  | 1.90                     | 0.54              |
| 1:C:220:GLU:HG3  | 1:C:240:ILE:HA   | 1.90                     | 0.54              |
| 1:C:83:ARG:O     | 1:C:84:ILE:O     | 2.26                     | 0.54              |
| 1:C:125:VAL:O    | 1:C:127:ASP:CA   | 2.56                     | 0.53              |
| 1:C:98:ILE:HG13  | 1:C:121:PHE:CE1  | 2.42                     | 0.53              |
| 1:A:106:LEU:HD12 | 1:A:107:ILE:H    | 1.73                     | 0.53              |
| 1:A:142:ILE:HB   | 1:A:148:THR:O    | 2.07                     | 0.53              |
| 1:A:255:ILE:HD11 | 1:A:280:VAL:HA   | 1.90                     | 0.53              |
| 1:B:304:VAL:HG13 | 1:B:310:LEU:CA   | 2.37                     | 0.53              |
| 1:B:124:ASN:HA   | 1:C:84:ILE:HG21  | 1.90                     | 0.53              |
| 1:A:194:GLN:NE2  | 1:B:135:GLU:HA   | 2.23                     | 0.53              |
| 1:B:167:GLU:OE1  | 1:B:167:GLU:HA   | 2.08                     | 0.53              |
| 1:B:282:GLN:HG3  | 1:B:283:ALA:N    | 2.23                     | 0.53              |
| 1:C:209:VAL:HG12 | 1:C:323:LEU:HD11 | 1.89                     | 0.53              |
| 1:C:209:VAL:HG12 | 1:C:323:LEU:CD1  | 2.38                     | 0.53              |
| 1:C:140:ILE:HD11 | 1:C:228:ARG:HH21 | 1.72                     | 0.53              |
| 1:B:218:SER:HB2  | 1:B:269:GLU:OE2  | 2.08                     | 0.53              |
| 1:A:158:SER:HB2  | 1:A:225:TYR:HB3  | 1.91                     | 0.53              |
| 1:B:220:GLU:CD   | 1:B:241:ASN:OD1  | 2.47                     | 0.53              |
| 1:B:319:THR:HG22 | 1:B:320:ASN:N    | 2.22                     | 0.53              |
| 1:C:314:ASP:O    | 1:C:318:ILE:HG13 | 2.07                     | 0.53              |
| 1:B:235:ILE:HG12 | 1:B:257:GLU:HG3  | 1.91                     | 0.53              |
| 1:C:201:GLN:HE22 | 1:C:312:GLU:CD   | 2.09                     | 0.53              |
| 1:B:260:THR:HG23 | 1:B:261:ASN:HD22 | 1.73                     | 0.53              |
| 1:B:67:MET:HE1   | 1:B:165:TYR:HB3  | 1.90                     | 0.52              |
| 1:A:98:ILE:CG2   | 1:A:124:ASN:HD21 | 2.20                     | 0.52              |
| 1:A:280:VAL:O    | 1:A:280:VAL:HG23 | 2.09                     | 0.52              |
| 1:C:133:LEU:HD22 | 1:C:169:ILE:HG12 | 1.91                     | 0.52              |
| 1:A:182:LYS:HE3  | 1:A:183:TYR:CE1  | 2.45                     | 0.52              |
| 1:B:307:PHE:O    | 1:B:310:LEU:HB3  | 2.09                     | 0.52              |
| 1:B:84:ILE:O     | 1:B:84:ILE:CG2   | 2.58                     | 0.52              |
| 1:C:98:ILE:HG13  | 1:C:121:PHE:HE1  | 1.75                     | 0.52              |
| 1:C:88:ILE:HD13  | 1:C:114:LEU:HD21 | 1.92                     | 0.52              |
| 1:B:215:PHE:HD1  | 1:B:215:PHE:H    | 1.56                     | 0.52              |
| 1:C:104:ALA:O    | 1:C:128:VAL:CG1  | 2.58                     | 0.52              |
| 1:A:209:VAL:HG22 | 1:A:214:ARG:HG3  | 1.91                     | 0.51              |
| 1:A:98:ILE:O     | 1:A:102:GLN:HG2  | 2.10                     | 0.51              |
| 1:B:126:LYS:O    | 1:B:127:ASP:O    | 2.28                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:88:ILE:HG13  | 1:B:89:HIS:N     | 2.25                     | 0.51              |
| 1:C:162:ALA:O    | 1:C:166:VAL:HG13 | 2.09                     | 0.51              |
| 1:A:154:HIS:HE1  | 1:A:220:GLU:CD   | 2.14                     | 0.51              |
| 1:A:244:GLN:O    | 1:A:245:GLN:C    | 2.47                     | 0.51              |
| 1:B:159:PRO:HB2  | 1:B:199:ASP:HB2  | 1.92                     | 0.51              |
| 1:A:204:ALA:HA   | 1:A:207:GLU:OE1  | 2.10                     | 0.51              |
| 1:B:258:VAL:HG13 | 1:B:263:VAL:O    | 2.11                     | 0.51              |
| 1:C:313:TYR:O    | 1:C:314:ASP:C    | 2.48                     | 0.51              |
| 1:A:259:LYS:C    | 1:A:261:ASN:N    | 2.62                     | 0.51              |
| 1:C:106:LEU:HD11 | 1:C:131:VAL:CG1  | 2.39                     | 0.51              |
| 1:A:219:CYS:HB3  | 1:A:238:TRP:CH2  | 2.46                     | 0.51              |
| 1:C:104:ALA:O    | 1:C:128:VAL:HG12 | 2.11                     | 0.51              |
| 1:C:279:GLN:O    | 1:C:282:GLN:HB2  | 2.10                     | 0.51              |
| 1:C:110:ASN:O    | 1:C:134:THR:HB   | 2.10                     | 0.51              |
| 1:C:254:VAL:CG1  | 1:C:280:VAL:HG21 | 2.41                     | 0.51              |
| 1:A:125:VAL:O    | 1:A:125:VAL:HG23 | 2.11                     | 0.51              |
| 1:A:200:ARG:HG3  | 1:C:301:GLU:HB3  | 1.93                     | 0.51              |
| 1:A:142:ILE:O    | 1:A:148:THR:O    | 2.29                     | 0.50              |
| 1:B:254:VAL:C    | 1:B:256:GLU:H    | 2.14                     | 0.50              |
| 1:C:223:PHE:CE2  | 1:C:294:VAL:HG13 | 2.46                     | 0.50              |
| 1:B:265:THR:CG2  | 1:B:267:PHE:CE1  | 2.93                     | 0.50              |
| 1:B:281:ALA:O    | 1:B:284:THR:O    | 2.28                     | 0.50              |
| 1:B:317:VAL:O    | 1:B:320:ASN:O    | 2.30                     | 0.50              |
| 1:C:246:PHE:CD1  | 1:C:246:PHE:O    | 2.65                     | 0.50              |
| 1:B:126:LYS:HA   | 1:C:299:THR:HG21 | 1.94                     | 0.50              |
| 1:B:320:ASN:OD1  | 1:B:320:ASN:O    | 2.30                     | 0.50              |
| 1:C:198:ILE:O    | 1:C:202:LEU:HD13 | 2.11                     | 0.50              |
| 1:A:94:THR:O     | 1:A:97:ASP:HB2   | 2.12                     | 0.50              |
| 1:B:218:SER:HA   | 1:B:267:PHE:O    | 2.11                     | 0.50              |
| 1:C:173:PHE:O    | 1:C:174:VAL:C    | 2.50                     | 0.50              |
| 1:C:143:ALA:CB   | 1:C:236:TYR:OH   | 2.60                     | 0.50              |
| 1:C:304:VAL:HG13 | 1:C:310:LEU:HB2  | 1.92                     | 0.50              |
| 1:A:312:GLU:OE1  | 4:A:332:CAC:O2   | 2.29                     | 0.50              |
| 1:B:128:VAL:O    | 1:B:129:PRO:O    | 2.30                     | 0.50              |
| 1:B:206:LEU:O    | 1:B:209:VAL:CG1  | 2.60                     | 0.50              |
| 1:C:246:PHE:CE2  | 1:C:276:GLY:CA   | 2.93                     | 0.50              |
| 1:B:126:LYS:CG   | 1:C:299:THR:HG23 | 2.41                     | 0.50              |
| 1:A:276:GLY:O    | 1:A:279:GLN:HB2  | 2.11                     | 0.50              |
| 1:B:266:ILE:HD13 | 1:B:280:VAL:CG2  | 2.41                     | 0.50              |
| 1:C:183:TYR:O    | 1:C:184:TYR:C    | 2.50                     | 0.50              |
| 1:C:204:ALA:HA   | 1:C:207:GLU:CD   | 2.33                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:210:PRO:HG2  | 1:C:213:GLN:CD   | 2.33                     | 0.50              |
| 1:C:281:ALA:O    | 1:C:282:GLN:CB   | 2.60                     | 0.50              |
| 1:C:278:LYS:O    | 1:C:281:ALA:O    | 2.30                     | 0.50              |
| 1:A:126:LYS:O    | 1:A:128:VAL:HG23 | 2.12                     | 0.49              |
| 1:A:244:GLN:O    | 1:A:245:GLN:O    | 2.30                     | 0.49              |
| 1:B:112:MET:HG3  | 1:B:134:THR:HG21 | 1.94                     | 0.49              |
| 1:B:222:ALA:HB1  | 1:B:294:VAL:HG11 | 1.95                     | 0.49              |
| 1:B:98:ILE:HD12  | 1:B:124:ASN:ND2  | 2.27                     | 0.49              |
| 1:A:182:LYS:HE3  | 1:A:183:TYR:HE1  | 1.77                     | 0.49              |
| 1:A:293:TYR:O    | 1:A:310:LEU:HD11 | 2.13                     | 0.49              |
| 1:B:255:ILE:CG2  | 1:B:280:VAL:HB   | 2.41                     | 0.49              |
| 1:C:154:HIS:HA   | 1:C:156:TRP:CZ3  | 2.47                     | 0.49              |
| 1:A:137:ILE:CG1  | 1:A:164:VAL:HG21 | 2.33                     | 0.49              |
| 1:B:284:THR:C    | 1:B:286:ALA:H    | 2.16                     | 0.49              |
| 1:C:194:GLN:HB3  | 1:C:308:LEU:HD21 | 1.94                     | 0.49              |
| 1:A:179:ASP:OD1  | 4:A:2327:CAC:C1  | 2.61                     | 0.49              |
| 1:A:260:THR:O    | 1:A:261:ASN:OD1  | 2.30                     | 0.49              |
| 1:C:279:GLN:O    | 1:C:281:ALA:C    | 2.51                     | 0.49              |
| 1:A:166:VAL:HA   | 1:A:169:ILE:HD12 | 1.95                     | 0.48              |
| 1:B:108:LEU:HG   | 1:B:133:LEU:HD21 | 1.95                     | 0.48              |
| 1:C:220:GLU:OE1  | 1:C:222:ALA:HB2  | 2.13                     | 0.48              |
| 1:C:217:VAL:HG21 | 1:C:266:ILE:CB   | 2.43                     | 0.48              |
| 1:A:304:VAL:HG13 | 1:A:310:LEU:CA   | 2.43                     | 0.48              |
| 1:A:68:VAL:CG2   | 1:A:78:VAL:HG11  | 2.43                     | 0.48              |
| 1:B:125:VAL:O    | 1:B:126:LYS:O    | 2.30                     | 0.48              |
| 1:B:67:MET:HE1   | 1:B:165:TYR:CB   | 2.44                     | 0.48              |
| 1:C:278:LYS:C    | 1:C:281:ALA:H    | 2.16                     | 0.48              |
| 1:A:122:LEU:O    | 1:A:125:VAL:HG22 | 2.13                     | 0.48              |
| 1:A:217:VAL:HA   | 1:A:235:ILE:O    | 2.13                     | 0.48              |
| 1:C:132:VAL:HG22 | 1:C:134:THR:H    | 1.77                     | 0.48              |
| 1:A:126:LYS:CG   | 1:A:127:ASP:N    | 2.73                     | 0.48              |
| 1:C:65:ALA:CB    | 1:C:80:SER:HB2   | 2.40                     | 0.48              |
| 1:A:58:LEU:CD2   | 1:A:81:ILE:HD11  | 2.41                     | 0.48              |
| 1:B:134:THR:O    | 1:B:134:THR:HG23 | 2.12                     | 0.48              |
| 1:B:88:ILE:HG12  | 1:B:295:ASP:HB3  | 1.94                     | 0.48              |
| 1:C:147:TYR:HD1  | 1:C:147:TYR:N    | 2.10                     | 0.48              |
| 1:A:134:THR:O    | 1:A:137:ILE:HG13 | 2.13                     | 0.48              |
| 1:B:112:MET:CE   | 1:B:139:PRO:HB3  | 2.43                     | 0.48              |
| 1:B:171:GLN:O    | 1:B:175:GLU:HG3  | 2.13                     | 0.48              |
| 1:B:317:VAL:HG22 | 1:B:318:ILE:N    | 2.29                     | 0.48              |
| 1:B:68:VAL:HG12  | 1:B:169:ILE:CD1  | 2.43                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:197:ALA:HA   | 1:B:200:ARG:HH21 | 1.79                     | 0.48              |
| 1:B:56:LYS:HG3   | 1:B:77:VAL:CG1   | 2.43                     | 0.48              |
| 1:A:266:ILE:HD11 | 1:A:281:ALA:HB2  | 1.95                     | 0.48              |
| 1:C:114:LEU:HB2  | 1:C:153:PRO:HB2  | 1.96                     | 0.48              |
| 1:B:217:VAL:CG1  | 1:B:266:ILE:HG22 | 2.44                     | 0.47              |
| 1:B:58:LEU:HD21  | 1:B:81:ILE:CD1   | 2.43                     | 0.47              |
| 1:C:266:ILE:CD1  | 1:C:280:VAL:CG1  | 2.91                     | 0.47              |
| 1:B:217:VAL:HG11 | 1:B:266:ILE:HG22 | 1.96                     | 0.47              |
| 1:C:181:ALA:O    | 1:C:182:LYS:C    | 2.53                     | 0.47              |
| 1:C:279:GLN:O    | 1:C:280:VAL:C    | 2.51                     | 0.47              |
| 1:A:304:VAL:HG13 | 1:A:310:LEU:HB2  | 1.96                     | 0.47              |
| 1:C:245:GLN:O    | 1:C:246:PHE:O    | 2.33                     | 0.47              |
| 1:A:51:THR:O     | 1:A:52:GLU:C     | 2.51                     | 0.47              |
| 1:B:121:PHE:O    | 1:B:125:VAL:CG1  | 2.62                     | 0.47              |
| 1:A:190:VAL:HG21 | 1:B:139:PRO:HG3  | 1.97                     | 0.47              |
| 1:B:156:TRP:C    | 1:B:158:SER:H    | 2.17                     | 0.47              |
| 1:C:200:ARG:HH21 | 1:C:200:ARG:HB3  | 1.80                     | 0.47              |
| 1:B:140:ILE:HG12 | 1:B:225:TYR:CE1  | 2.50                     | 0.47              |
| 1:A:125:VAL:O    | 1:A:125:VAL:CG2  | 2.62                     | 0.47              |
| 1:C:223:PHE:N    | 1:C:223:PHE:CD1  | 2.83                     | 0.47              |
| 1:C:220:GLU:CB   | 1:C:241:ASN:OD1  | 2.56                     | 0.47              |
| 1:B:304:VAL:HG12 | 1:B:304:VAL:O    | 2.15                     | 0.47              |
| 1:C:276:GLY:O    | 1:C:279:GLN:HB2  | 2.15                     | 0.47              |
| 1:B:88:ILE:HD12  | 1:B:114:LEU:HD21 | 1.95                     | 0.46              |
| 1:A:198:ILE:O    | 1:A:202:LEU:HB2  | 2.15                     | 0.46              |
| 1:A:269:GLU:HG2  | 1:A:294:VAL:CG2  | 2.45                     | 0.46              |
| 1:C:142:ILE:CG2  | 1:C:143:ALA:H    | 2.15                     | 0.46              |
| 1:C:266:ILE:CD1  | 1:C:277:GLN:HG3  | 2.45                     | 0.46              |
| 1:B:198:ILE:HD11 | 1:B:311:LEU:CD1  | 2.42                     | 0.46              |
| 1:B:219:CYS:O    | 1:B:238:TRP:CD2  | 2.68                     | 0.46              |
| 1:C:182:LYS:O    | 1:C:183:TYR:C    | 2.53                     | 0.46              |
| 1:A:246:PHE:C    | 1:A:246:PHE:CD1  | 2.88                     | 0.46              |
| 1:B:182:LYS:HG2  | 1:B:183:TYR:H    | 1.79                     | 0.46              |
| 1:B:264:PRO:HG2  | 1:B:322:LEU:HA   | 1.96                     | 0.46              |
| 1:A:147:TYR:HB3  | 1:A:150:LYS:HB2  | 1.98                     | 0.46              |
| 1:C:146:PRO:HB2  | 1:C:147:TYR:CD1  | 2.50                     | 0.46              |
| 1:B:240:ILE:HG23 | 1:B:241:ASN:N    | 2.28                     | 0.46              |
| 1:B:98:ILE:HD12  | 1:B:124:ASN:HD21 | 1.79                     | 0.46              |
| 1:C:201:GLN:NE2  | 1:C:312:GLU:CG   | 2.79                     | 0.46              |
| 1:C:223:PHE:O    | 1:C:225:TYR:N    | 2.49                     | 0.46              |
| 1:C:307:PHE:CE2  | 1:C:311:LEU:HD11 | 2.50                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:87:GLU:OE1   | 1:A:89:HIS:HB2   | 2.16                     | 0.46              |
| 1:B:323:LEU:CD1  | 1:B:323:LEU:N    | 2.78                     | 0.46              |
| 1:B:238:TRP:CZ2  | 1:B:272:VAL:HG21 | 2.51                     | 0.46              |
| 1:C:98:ILE:HG12  | 1:C:121:PHE:CE1  | 2.51                     | 0.46              |
| 1:A:140:ILE:HD11 | 1:A:228:ARG:NH2  | 2.31                     | 0.45              |
| 1:A:242:ALA:O    | 1:A:243:GLU:HB2  | 2.15                     | 0.45              |
| 1:B:235:ILE:HG22 | 1:B:254:VAL:HG13 | 1.98                     | 0.45              |
| 1:B:257:GLU:O    | 1:B:258:VAL:C    | 2.55                     | 0.45              |
| 1:C:158:SER:O    | 1:C:161:ASN:N    | 2.49                     | 0.45              |
| 1:C:173:PHE:C    | 1:C:175:GLU:N    | 2.69                     | 0.45              |
| 1:A:83:ARG:HH11  | 1:A:100:LYS:NZ   | 2.14                     | 0.45              |
| 1:B:263:VAL:HA   | 1:B:264:PRO:HD2  | 1.80                     | 0.45              |
| 1:C:204:ALA:HA   | 1:C:207:GLU:OE2  | 2.16                     | 0.45              |
| 1:A:132:VAL:C    | 1:A:134:THR:H    | 2.20                     | 0.45              |
| 1:B:112:MET:HE3  | 1:B:139:PRO:HB3  | 1.98                     | 0.45              |
| 1:A:190:VAL:HG22 | 1:B:112:MET:HG2  | 1.97                     | 0.45              |
| 1:A:64:LEU:HD13  | 1:A:133:LEU:HD12 | 1.97                     | 0.45              |
| 1:B:201:GLN:OE1  | 1:B:316:ARG:NH1  | 2.45                     | 0.45              |
| 1:B:244:GLN:C    | 1:B:246:PHE:H    | 2.18                     | 0.45              |
| 1:A:68:VAL:HG23  | 1:A:78:VAL:HG11  | 1.99                     | 0.45              |
| 1:B:158:SER:O    | 1:B:161:ASN:HB2  | 2.17                     | 0.45              |
| 1:C:161:ASN:O    | 1:C:164:VAL:HG22 | 2.17                     | 0.45              |
| 1:C:77:VAL:HG22  | 1:C:77:VAL:O     | 2.16                     | 0.45              |
| 1:B:56:LYS:HE2   | 5:B:14:HOH:O     | 2.16                     | 0.45              |
| 1:C:125:VAL:HB   | 1:C:128:VAL:HG23 | 1.98                     | 0.45              |
| 1:B:137:ILE:CD1  | 1:B:164:VAL:CG2  | 2.80                     | 0.45              |
| 1:B:284:THR:O    | 1:B:286:ALA:N    | 2.44                     | 0.45              |
| 1:C:114:LEU:HD11 | 1:C:156:TRP:HH2  | 1.81                     | 0.45              |
| 1:B:255:ILE:HG21 | 1:B:280:VAL:HA   | 1.91                     | 0.45              |
| 1:C:147:TYR:HB3  | 1:C:150:LYS:CG   | 2.41                     | 0.45              |
| 1:B:292:LEU:HA   | 1:B:292:LEU:HD23 | 1.61                     | 0.44              |
| 1:A:312:GLU:OE2  | 4:A:332:CAC:AS   | 2.94                     | 0.44              |
| 1:C:293:TYR:CD1  | 1:C:304:VAL:HG21 | 2.52                     | 0.44              |
| 1:A:210:PRO:HG2  | 1:A:213:GLN:CD   | 2.37                     | 0.44              |
| 1:B:214:ARG:N    | 1:B:215:PHE:CD1  | 2.85                     | 0.44              |
| 1:A:195:LEU:HD13 | 1:A:308:LEU:HD11 | 1.99                     | 0.44              |
| 1:A:277:GLN:HA   | 1:A:277:GLN:NE2  | 2.28                     | 0.44              |
| 1:C:237:MET:SD   | 1:C:246:PHE:CD2  | 3.11                     | 0.44              |
| 1:C:171:GLN:O    | 1:C:174:VAL:HG22 | 2.17                     | 0.44              |
| 1:B:233:GLU:HG3  | 1:B:234:GLU:H    | 1.81                     | 0.44              |
| 1:B:274:ASP:HB3  | 5:B:18:HOH:O     | 2.16                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:84:ILE:O     | 1:C:85:GLY:C     | 2.56                     | 0.44              |
| 1:C:217:VAL:HG21 | 1:C:266:ILE:HB   | 1.99                     | 0.44              |
| 1:A:158:SER:O    | 1:A:161:ASN:N    | 2.50                     | 0.44              |
| 1:A:87:GLU:HG3   | 1:A:87:GLU:O     | 2.16                     | 0.44              |
| 1:A:132:VAL:HG23 | 1:A:134:THR:H    | 1.83                     | 0.44              |
| 1:A:154:HIS:HB3  | 1:A:222:ALA:O    | 2.18                     | 0.43              |
| 1:B:296:SER:OG   | 1:B:297:LEU:N    | 2.51                     | 0.43              |
| 1:C:217:VAL:CG2  | 1:C:266:ILE:HB   | 2.48                     | 0.43              |
| 1:B:273:SER:OG   | 1:B:275:LYS:HG3  | 2.18                     | 0.43              |
| 1:C:298:SER:O    | 1:C:305:PRO:HA   | 2.18                     | 0.43              |
| 1:A:220:GLU:O    | 1:A:222:ALA:N    | 2.46                     | 0.43              |
| 1:B:101:ALA:HB2  | 1:B:121:PHE:CZ   | 2.53                     | 0.43              |
| 1:B:71:VAL:HG11  | 1:B:169:ILE:HG22 | 2.00                     | 0.43              |
| 1:C:220:GLU:CD   | 1:C:222:ALA:HB2  | 2.39                     | 0.43              |
| 1:C:278:LYS:HA   | 1:C:281:ALA:CB   | 2.45                     | 0.43              |
| 1:C:259:LYS:CG   | 1:C:284:THR:OG1  | 2.39                     | 0.43              |
| 1:C:52:GLU:HG3   | 1:C:53:GLU:N     | 2.33                     | 0.43              |
| 1:A:102:GLN:HG2  | 1:A:102:GLN:H    | 1.58                     | 0.43              |
| 1:A:137:ILE:HD11 | 1:A:164:VAL:HG23 | 2.00                     | 0.43              |
| 1:A:224:SER:OG   | 1:A:234:GLU:OE2  | 2.32                     | 0.43              |
| 1:C:98:ILE:HG12  | 1:C:121:PHE:CD1  | 2.53                     | 0.43              |
| 1:C:244:GLN:HB3  | 1:C:245:GLN:H    | 1.58                     | 0.43              |
| 1:C:57:VAL:HG12  | 1:C:58:LEU:N     | 2.34                     | 0.43              |
| 1:A:139:PRO:HA   | 1:A:225:TYR:OH   | 2.17                     | 0.43              |
| 1:B:267:PHE:HB3  | 1:B:292:LEU:HG   | 2.01                     | 0.43              |
| 1:B:284:THR:HG23 | 1:B:286:ALA:CB   | 2.48                     | 0.43              |
| 1:B:200:ARG:O    | 1:B:201:GLN:C    | 2.57                     | 0.43              |
| 1:C:258:VAL:HG23 | 1:C:263:VAL:HB   | 2.01                     | 0.43              |
| 1:A:88:ILE:HD12  | 1:A:114:LEU:HD21 | 2.00                     | 0.43              |
| 1:B:282:GLN:HE21 | 1:B:282:GLN:HB2  | 1.63                     | 0.43              |
| 1:B:89:HIS:NE2   | 1:B:220:GLU:OE2  | 2.52                     | 0.43              |
| 1:A:307:PHE:CZ   | 1:A:311:LEU:HD11 | 2.54                     | 0.43              |
| 1:B:280:VAL:HG22 | 1:B:281:ALA:N    | 2.34                     | 0.43              |
| 1:C:122:LEU:HD12 | 1:C:125:VAL:HG21 | 1.99                     | 0.43              |
| 1:C:213:GLN:O    | 1:C:322:LEU:HD13 | 2.18                     | 0.43              |
| 1:C:279:GLN:C    | 1:C:281:ALA:H    | 2.18                     | 0.43              |
| 1:B:239:PRO:HG2  | 1:B:240:ILE:H    | 1.84                     | 0.42              |
| 1:B:58:LEU:HA    | 1:B:79:GLU:O     | 2.19                     | 0.42              |
| 1:C:97:ASP:N     | 1:C:97:ASP:OD2   | 2.52                     | 0.42              |
| 1:A:280:VAL:O    | 1:A:280:VAL:CG2  | 2.67                     | 0.42              |
| 1:B:122:LEU:O    | 1:B:125:VAL:HG13 | 2.19                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:237:MET:HE1  | 1:B:238:TRP:HZ3  | 1.84                     | 0.42              |
| 1:B:211:ALA:HA   | 1:B:214:ARG:NE   | 2.33                     | 0.42              |
| 1:B:158:SER:O    | 1:B:161:ASN:N    | 2.48                     | 0.42              |
| 1:B:267:PHE:CE2  | 1:B:317:VAL:CG2  | 3.02                     | 0.42              |
| 1:C:223:PHE:O    | 1:C:224:SER:C    | 2.57                     | 0.42              |
| 1:C:304:VAL:O    | 1:C:304:VAL:HG12 | 2.19                     | 0.42              |
| 1:A:140:ILE:HG12 | 1:A:225:TYR:CE1  | 2.55                     | 0.42              |
| 1:B:98:ILE:H     | 1:B:98:ILE:HG12  | 1.59                     | 0.42              |
| 1:C:266:ILE:CD1  | 1:C:280:VAL:HB   | 2.50                     | 0.42              |
| 1:A:112:MET:CG   | 1:A:134:THR:HG21 | 2.36                     | 0.42              |
| 1:A:112:MET:HE2  | 1:A:139:PRO:HB3  | 1.90                     | 0.42              |
| 1:A:259:LYS:O    | 1:A:261:ASN:N    | 2.53                     | 0.42              |
| 1:C:201:GLN:HE21 | 1:C:312:GLU:HG3  | 1.82                     | 0.42              |
| 1:A:110:ASN:C    | 1:A:110:ASN:HD22 | 2.23                     | 0.42              |
| 1:A:258:VAL:HG12 | 1:A:259:LYS:H    | 1.77                     | 0.42              |
| 1:B:279:GLN:HA   | 1:B:282:GLN:HG2  | 2.02                     | 0.42              |
| 1:C:105:ASP:O    | 1:C:106:LEU:HB2  | 2.20                     | 0.42              |
| 1:C:266:ILE:HD12 | 1:C:280:VAL:HB   | 2.01                     | 0.42              |
| 1:A:101:ALA:HB2  | 1:A:121:PHE:CZ   | 2.55                     | 0.42              |
| 1:B:245:GLN:HA   | 1:B:245:GLN:OE1  | 2.20                     | 0.42              |
| 1:C:295:ASP:O    | 1:C:296:SER:CB   | 2.68                     | 0.42              |
| 1:A:170:ARG:HG3  | 1:A:188:ALA:HB2  | 2.01                     | 0.42              |
| 1:B:163:LEU:HD23 | 1:B:163:LEU:HA   | 1.79                     | 0.42              |
| 1:B:218:SER:O    | 1:B:236:TYR:HA   | 2.20                     | 0.42              |
| 1:C:121:PHE:C    | 1:C:123:GLY:N    | 2.71                     | 0.42              |
| 1:C:177:ASP:CG   | 1:C:180:ASN:HD22 | 2.22                     | 0.42              |
| 1:C:278:LYS:O    | 1:C:279:GLN:C    | 2.57                     | 0.42              |
| 1:A:154:HIS:CD2  | 1:A:222:ALA:HB1  | 2.54                     | 0.42              |
| 1:B:255:ILE:HG13 | 1:B:255:ILE:H    | 1.70                     | 0.42              |
| 1:A:137:ILE:HG12 | 1:A:164:VAL:CG2  | 2.33                     | 0.41              |
| 1:A:77:VAL:O     | 1:A:77:VAL:HG22  | 2.20                     | 0.41              |
| 1:B:148:THR:HG23 | 1:B:149:ASP:N    | 2.34                     | 0.41              |
| 1:C:248:PRO:O    | 1:C:252:GLN:HB2  | 2.20                     | 0.41              |
| 1:C:223:PHE:CE2  | 1:C:294:VAL:CG1  | 3.03                     | 0.41              |
| 1:C:64:LEU:HD13  | 1:C:133:LEU:HD12 | 2.02                     | 0.41              |
| 1:A:98:ILE:HG21  | 1:A:124:ASN:HD21 | 1.78                     | 0.41              |
| 1:A:147:TYR:HA   | 1:A:150:LYS:HG2  | 2.02                     | 0.41              |
| 1:C:111:GLY:O    | 1:C:112:MET:HB2  | 2.21                     | 0.41              |
| 1:B:58:LEU:CD2   | 1:B:81:ILE:HD11  | 2.48                     | 0.41              |
| 1:C:190:VAL:O    | 1:C:193:GLU:HB3  | 2.21                     | 0.41              |
| 1:C:205:ASP:O    | 1:C:208:GLN:HG3  | 2.21                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:254:VAL:C    | 1:B:256:GLU:N    | 2.73                     | 0.41              |
| 1:B:310:LEU:HD23 | 1:B:310:LEU:C    | 2.41                     | 0.41              |
| 1:A:127:ASP:O    | 1:A:128:VAL:HG23 | 2.20                     | 0.41              |
| 1:B:244:GLN:C    | 1:B:246:PHE:N    | 2.74                     | 0.41              |
| 1:B:323:LEU:HD12 | 1:B:323:LEU:N    | 2.35                     | 0.41              |
| 1:C:277:GLN:O    | 1:C:280:VAL:HB   | 2.21                     | 0.41              |
| 1:A:226:LEU:HA   | 1:A:226:LEU:HD12 | 1.69                     | 0.41              |
| 1:B:157:MET:HG2  | 1:B:294:VAL:HG12 | 2.03                     | 0.41              |
| 1:C:250:GLN:C    | 1:C:252:GLN:N    | 2.73                     | 0.41              |
| 1:C:316:ARG:H    | 1:C:316:ARG:HG3  | 1.52                     | 0.41              |
| 1:A:304:VAL:HG13 | 1:A:310:LEU:CB   | 2.51                     | 0.41              |
| 1:A:191:TYR:HE1  | 1:A:308:LEU:HD22 | 1.86                     | 0.41              |
| 1:A:253:THR:O    | 1:A:256:GLU:HG2  | 2.21                     | 0.41              |
| 1:C:220:GLU:HB2  | 1:C:238:TRP:HE1  | 1.85                     | 0.41              |
| 1:A:118:PHE:O    | 1:A:119:GLU:C    | 2.59                     | 0.40              |
| 1:B:258:VAL:O    | 1:B:262:ASN:CA   | 2.65                     | 0.40              |
| 1:B:67:MET:HB3   | 1:B:67:MET:HE3   | 1.88                     | 0.40              |
| 1:B:124:ASN:CB   | 1:C:84:ILE:HG22  | 2.51                     | 0.40              |
| 1:A:320:ASN:C    | 1:A:320:ASN:ND2  | 2.74                     | 0.40              |
| 1:C:128:VAL:HA   | 1:C:129:PRO:HD2  | 1.76                     | 0.40              |
| 1:C:58:LEU:HA    | 1:C:58:LEU:HD12  | 1.84                     | 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     | 272/307 (89%) | 233 (86%) | 33 (12%) | 6 (2%)   | 6           | 17 |
| 1   | B     | 263/307 (86%) | 222 (84%) | 31 (12%) | 10 (4%)  | 3           | 7  |
| 1   | C     | 270/307 (88%) | 215 (80%) | 32 (12%) | 23 (8%)  | 1           | 1  |
| All | All   | 805/921 (87%) | 670 (83%) | 96 (12%) | 39 (5%)  | 2           | 4  |



All (39) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 84  | ILE  |
| 1   | A     | 85  | GLY  |
| 1   | A     | 154 | HIS  |
| 1   | A     | 243 | GLU  |
| 1   | A     | 245 | GLN  |
| 1   | B     | 126 | LYS  |
| 1   | B     | 129 | PRO  |
| 1   | B     | 200 | ARG  |
| 1   | B     | 246 | PHE  |
| 1   | C     | 84  | ILE  |
| 1   | C     | 126 | LYS  |
| 1   | C     | 127 | ASP  |
| 1   | C     | 146 | PRO  |
| 1   | C     | 246 | PHE  |
| 1   | C     | 282 | GLN  |
| 1   | B     | 83  | ARG  |
| 1   | B     | 127 | ASP  |
| 1   | B     | 242 | ALA  |
| 1   | B     | 290 | GLY  |
| 1   | C     | 85  | GLY  |
| 1   | C     | 174 | VAL  |
| 1   | C     | 182 | LYS  |
| 1   | C     | 183 | TYR  |
| 1   | C     | 184 | TYR  |
| 1   | C     | 221 | GLY  |
| 1   | C     | 283 | ALA  |
| 1   | C     | 284 | THR  |
| 1   | B     | 201 | GLN  |
| 1   | C     | 135 | GLU  |
| 1   | C     | 242 | ALA  |
| 1   | C     | 244 | GLN  |
| 1   | C     | 296 | SER  |
| 1   | A     | 52  | GLU  |
| 1   | C     | 224 | SER  |
| 1   | C     | 280 | VAL  |
| 1   | B     | 157 | MET  |
| 1   | C     | 106 | LEU  |
| 1   | C     | 285 | GLY  |
| 1   | C     | 142 | ILE  |

### 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     | 234/259 (90%) | 195 (83%) | 39 (17%)  | 2           | 5 |
| 1   | B     | 229/259 (88%) | 181 (79%) | 48 (21%)  | 1           | 3 |
| 1   | C     | 233/259 (90%) | 193 (83%) | 40 (17%)  | 2           | 5 |
| All | All   | 696/777 (90%) | 569 (82%) | 127 (18%) | 1           | 4 |

All (127) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 56  | LYS  |
| 1   | A     | 77  | VAL  |
| 1   | A     | 98  | ILE  |
| 1   | A     | 102 | GLN  |
| 1   | A     | 103 | ASP  |
| 1   | A     | 108 | LEU  |
| 1   | A     | 110 | ASN  |
| 1   | A     | 115 | GLU  |
| 1   | A     | 134 | THR  |
| 1   | A     | 138 | GLU  |
| 1   | A     | 148 | THR  |
| 1   | A     | 149 | ASP  |
| 1   | A     | 150 | LYS  |
| 1   | A     | 160 | ARG  |
| 1   | A     | 195 | LEU  |
| 1   | A     | 199 | ASP  |
| 1   | A     | 201 | GLN  |
| 1   | A     | 202 | LEU  |
| 1   | A     | 205 | ASP  |
| 1   | A     | 209 | VAL  |
| 1   | A     | 216 | LEU  |
| 1   | A     | 217 | VAL  |
| 1   | A     | 244 | GLN  |
| 1   | A     | 247 | THR  |
| 1   | A     | 258 | VAL  |
| 1   | A     | 260 | THR  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 268        | CYS         |
| 1          | A            | 277        | GLN         |
| 1          | A            | 280        | VAL         |
| 1          | A            | 282        | GLN         |
| 1          | A            | 284        | THR         |
| 1          | A            | 287        | ARG         |
| 1          | A            | 294        | VAL         |
| 1          | A            | 296        | SER         |
| 1          | A            | 298        | SER         |
| 1          | A            | 308        | LEU         |
| 1          | A            | 320        | ASN         |
| 1          | A            | 322        | LEU         |
| 1          | A            | 323        | LEU         |
| 1          | B            | 56         | LYS         |
| 1          | B            | 68         | VAL         |
| 1          | B            | 83         | ARG         |
| 1          | B            | 84         | ILE         |
| 1          | B            | 87         | GLU         |
| 1          | B            | 96         | SER         |
| 1          | B            | 98         | ILE         |
| 1          | B            | 108        | LEU         |
| 1          | B            | 115        | GLU         |
| 1          | B            | 120        | GLN         |
| 1          | B            | 124        | ASN         |
| 1          | B            | 125        | VAL         |
| 1          | B            | 127        | ASP         |
| 1          | B            | 130        | SER         |
| 1          | B            | 131        | VAL         |
| 1          | B            | 134        | THR         |
| 1          | B            | 135        | GLU         |
| 1          | B            | 140        | ILE         |
| 1          | B            | 157        | MET         |
| 1          | B            | 158        | SER         |
| 1          | B            | 166        | VAL         |
| 1          | B            | 182        | LYS         |
| 1          | B            | 185        | ASN         |
| 1          | B            | 195        | LEU         |
| 1          | B            | 198        | ILE         |
| 1          | B            | 199        | ASP         |
| 1          | B            | 200        | ARG         |
| 1          | B            | 205        | ASP         |
| 1          | B            | 214        | ARG         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | B            | 215        | PHE         |
| 1          | B            | 217        | VAL         |
| 1          | B            | 228        | ARG         |
| 1          | B            | 240        | ILE         |
| 1          | B            | 243        | GLU         |
| 1          | B            | 251        | VAL         |
| 1          | B            | 256        | GLU         |
| 1          | B            | 259        | LYS         |
| 1          | B            | 265        | THR         |
| 1          | B            | 277        | GLN         |
| 1          | B            | 282        | GLN         |
| 1          | B            | 287        | ARG         |
| 1          | B            | 294        | VAL         |
| 1          | B            | 299        | THR         |
| 1          | B            | 300        | GLU         |
| 1          | B            | 308        | LEU         |
| 1          | B            | 317        | VAL         |
| 1          | B            | 318        | ILE         |
| 1          | B            | 319        | THR         |
| 1          | C            | 68         | VAL         |
| 1          | C            | 77         | VAL         |
| 1          | C            | 84         | ILE         |
| 1          | C            | 87         | GLU         |
| 1          | C            | 94         | THR         |
| 1          | C            | 96         | SER         |
| 1          | C            | 97         | ASP         |
| 1          | C            | 108        | LEU         |
| 1          | C            | 110        | ASN         |
| 1          | C            | 124        | ASN         |
| 1          | C            | 127        | ASP         |
| 1          | C            | 128        | VAL         |
| 1          | C            | 131        | VAL         |
| 1          | C            | 134        | THR         |
| 1          | C            | 138        | GLU         |
| 1          | C            | 144        | ASP         |
| 1          | C            | 147        | TYR         |
| 1          | C            | 150        | LYS         |
| 1          | C            | 166        | VAL         |
| 1          | C            | 175        | GLU         |
| 1          | C            | 182        | LYS         |
| 1          | C            | 205        | ASP         |
| 1          | C            | 207        | GLU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 208        | GLN         |
| 1          | C            | 209        | VAL         |
| 1          | C            | 217        | VAL         |
| 1          | C            | 218        | SER         |
| 1          | C            | 229        | ASP         |
| 1          | C            | 240        | ILE         |
| 1          | C            | 243        | GLU         |
| 1          | C            | 245        | GLN         |
| 1          | C            | 246        | PHE         |
| 1          | C            | 251        | VAL         |
| 1          | C            | 273        | SER         |
| 1          | C            | 277        | GLN         |
| 1          | C            | 279        | GLN         |
| 1          | C            | 287        | ARG         |
| 1          | C            | 299        | THR         |
| 1          | C            | 316        | ARG         |
| 1          | C            | 317        | VAL         |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 102        | GLN         |
| 1          | A            | 124        | ASN         |
| 1          | A            | 161        | ASN         |
| 1          | A            | 201        | GLN         |
| 1          | A            | 277        | GLN         |
| 1          | B            | 120        | GLN         |
| 1          | B            | 124        | ASN         |
| 1          | B            | 161        | ASN         |
| 1          | B            | 185        | ASN         |
| 1          | B            | 261        | ASN         |
| 1          | B            | 277        | GLN         |
| 1          | B            | 282        | GLN         |
| 1          | C            | 89         | HIS         |
| 1          | C            | 161        | ASN         |
| 1          | C            | 180        | ASN         |
| 1          | C            | 185        | ASN         |
| 1          | C            | 201        | GLN         |
| 1          | C            | 213        | GLN         |
| 1          | C            | 277        | 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 carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 13 ligands modelled in this entry, 9 are monoatomic - leaving 4 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 | $\# Z  > 2$ |
| 4   | CAC  | C     | 2327 | -    | 0,4,4        | 0.00 | -           | 0,6,6       | 0.00 | -           |
| 4   | CAC  | C     | 332  | -    | 0,4,4        | 0.00 | -           | 0,6,6       | 0.00 | -           |
| 4   | CAC  | A     | 2327 | -    | 0,4,4        | 0.00 | -           | 0,6,6       | 0.00 | -           |
| 4   | CAC  | A     | 332  | -    | 0,4,4        | 0.00 | -           | 0,6,6       | 0.00 | -           |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 4 short contacts:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 4   | A     | 2327 | CAC  | 1       | 0            |
| 4   | A     | 332  | CAC  | 3       | 0            |

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<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     | 274/307 (89%) | 0.10   | 4 (1%) 73 76  | 59, 77, 102, 116      | 0     |
| 1   | B     | 267/307 (86%) | 0.24   | 11 (4%) 37 36 | 54, 83, 120, 131      | 0     |
| 1   | C     | 272/307 (88%) | 0.47   | 21 (7%) 13 11 | 24, 95, 136, 162      | 0     |
| All | All   | 813/921 (88%) | 0.27   | 36 (4%) 34 33 | 24, 83, 129, 162      | 0     |

All (36) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | C     | 147 | TYR  | 4.5  |
| 1   | B     | 259 | LYS  | 4.4  |
| 1   | B     | 217 | VAL  | 3.6  |
| 1   | C     | 275 | LYS  | 3.6  |
| 1   | C     | 254 | VAL  | 3.5  |
| 1   | C     | 200 | ARG  | 3.4  |
| 1   | A     | 126 | LYS  | 3.2  |
| 1   | C     | 319 | THR  | 3.1  |
| 1   | C     | 265 | THR  | 3.0  |
| 1   | C     | 53  | GLU  | 3.0  |
| 1   | C     | 60  | THR  | 2.8  |
| 1   | B     | 128 | VAL  | 2.8  |
| 1   | B     | 142 | ILE  | 2.8  |
| 1   | C     | 311 | LEU  | 2.6  |
| 1   | C     | 88  | ILE  | 2.6  |
| 1   | B     | 126 | LYS  | 2.6  |
| 1   | C     | 268 | CYS  | 2.6  |
| 1   | A     | 242 | ALA  | 2.6  |
| 1   | C     | 143 | ALA  | 2.5  |
| 1   | B     | 234 | GLU  | 2.5  |
| 1   | C     | 323 | LEU  | 2.5  |
| 1   | C     | 242 | ALA  | 2.4  |
| 1   | C     | 206 | LEU  | 2.4  |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | B     | 247 | THR  | 2.4  |
| 1   | B     | 282 | GLN  | 2.3  |
| 1   | C     | 266 | ILE  | 2.3  |
| 1   | C     | 236 | TYR  | 2.3  |
| 1   | B     | 216 | LEU  | 2.3  |
| 1   | C     | 281 | ALA  | 2.3  |
| 1   | C     | 52  | GLU  | 2.2  |
| 1   | B     | 312 | GLU  | 2.1  |
| 1   | A     | 127 | ASP  | 2.1  |
| 1   | B     | 125 | VAL  | 2.1  |
| 1   | A     | 140 | ILE  | 2.0  |
| 1   | C     | 233 | GLU  | 2.0  |
| 1   | C     | 302 | GLY  | 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 carbohydrates 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( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 3   | ZN   | C     | 331  | 1/1   | 0.47 | 0.34 | 133,133,133,133             | 0     |
| 4   | CAC  | A     | 2327 | 5/5   | 0.66 | 0.17 | 133,134,149,199             | 0     |
| 4   | CAC  | C     | 332  | 5/5   | 0.85 | 0.18 | 127,139,141,166             | 1     |
| 4   | CAC  | C     | 2327 | 5/5   | 0.86 | 0.13 | 98,102,111,143              | 1     |
| 3   | ZN   | A     | 3    | 1/1   | 0.90 | 0.09 | 110,110,110,110             | 1     |
| 4   | CAC  | A     | 332  | 5/5   | 0.91 | 0.17 | 68,83,91,114                | 1     |
| 3   | ZN   | A     | 5    | 1/1   | 0.93 | 0.04 | 142,142,142,142             | 0     |
| 3   | ZN   | A     | 331  | 1/1   | 0.93 | 0.18 | 113,113,113,113             | 0     |
| 3   | ZN   | A     | 2    | 1/1   | 0.93 | 0.15 | 88,88,88,88                 | 1     |
| 3   | ZN   | C     | 4    | 1/1   | 0.94 | 0.35 | 111,111,111,111             | 0     |

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| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 2   | MN   | C     | 1   | 1/1   | 0.99 | 0.08 | 85,85,85,85                 | 0     |
| 2   | MN   | A     | 1   | 1/1   | 0.99 | 0.19 | 56,56,56,56                 | 0     |
| 2   | MN   | B     | 1   | 1/1   | 1.00 | 0.18 | 64,64,64,64                 | 0     |

## 6.5 Other polymers [i](#)

There are no such residues in this entry.