



# Full wwPDB X-ray Structure Validation Report ⓘ

May 29, 2020 – 05:39 am BST

PDB ID : 4LLG  
Title : Crystal Structure Analysis of the E.coli holoenzyme/Gp2 complex  
Authors : Bae, B.; Darst, S.A.  
Deposited on : 2013-07-09  
Resolution : 3.79 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  
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

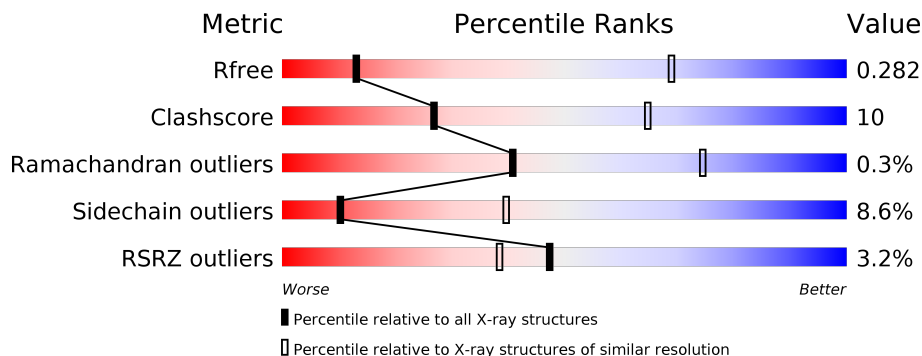
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.79 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                      | 1212 (4.00-3.60)                                      |
| Clashscore            | 141614                      | 1288 (4.00-3.60)                                      |
| Ramachandran outliers | 138981                      | 1243 (4.00-3.60)                                      |
| Sidechain outliers    | 138945                      | 1237 (4.00-3.60)                                      |
| RSRZ outliers         | 127900                      | 1121 (4.00-3.60)                                      |

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     | 239    |                  |
| 1   | B     | 239    |                  |
| 1   | G     | 239    |                  |
| 1   | H     | 239    |                  |
| 2   | C     | 1342   |                  |
| 2   | I     | 1342   |                  |

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| Mol | Chain | Length | Quality of chain          |
|-----|-------|--------|---------------------------|
| 3   | D     | 1407   | <p>3% 66% 26% . .</p>     |
| 3   | J     | 1407   | <p>4% 67% 25% . 6%</p>    |
| 4   | E     | 91     | <p>73% 22% . . .</p>      |
| 4   | K     | 91     | <p>2% 58% 26% . . 13%</p> |
| 5   | F     | 613    | <p>3% 61% 21% . 15%</p>   |
| 5   | L     | 613    | <p>3% 59% 22% . 15%</p>   |
| 6   | M     | 64     | <p>6% 53% 22% . 22%</p>   |
| 6   | N     | 64     | <p>8% 48% 23% . 25%</p>   |

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 59147 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 DNA-directed RNA polymerase subunit alpha.

| Mol | Chain | Residues | Atoms         |           |          |          |        | ZeroOcc | AltConf | Trace |
|-----|-------|----------|---------------|-----------|----------|----------|--------|---------|---------|-------|
|     |       |          | Total         | C         | N        | O        | S      |         |         |       |
| 1   | A     | 224      | Total<br>1730 | C<br>1076 | N<br>308 | O<br>340 | S<br>6 | 0       | 0       | 0     |
| 1   | B     | 220      | Total<br>1687 | C<br>1053 | N<br>298 | O<br>330 | S<br>6 | 0       | 0       | 0     |
| 1   | G     | 228      | Total<br>1750 | C<br>1088 | N<br>312 | O<br>344 | S<br>6 | 0       | 0       | 0     |
| 1   | H     | 217      | Total<br>1667 | C<br>1041 | N<br>293 | O<br>327 | S<br>6 | 0       | 0       | 0     |

There are 20 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| A     | 235     | GLU      | -      | EXPRESSION TAG | UNP C9QXI7 |
| A     | 236     | VAL      | -      | EXPRESSION TAG | UNP C9QXI7 |
| A     | 237     | LEU      | -      | EXPRESSION TAG | UNP C9QXI7 |
| A     | 238     | PHE      | -      | EXPRESSION TAG | UNP C9QXI7 |
| A     | 239     | GLN      | -      | EXPRESSION TAG | UNP C9QXI7 |
| B     | 235     | GLU      | -      | EXPRESSION TAG | UNP C9QXI7 |
| B     | 236     | VAL      | -      | EXPRESSION TAG | UNP C9QXI7 |
| B     | 237     | LEU      | -      | EXPRESSION TAG | UNP C9QXI7 |
| B     | 238     | PHE      | -      | EXPRESSION TAG | UNP C9QXI7 |
| B     | 239     | GLN      | -      | EXPRESSION TAG | UNP C9QXI7 |
| G     | 235     | GLU      | -      | EXPRESSION TAG | UNP C9QXI7 |
| G     | 236     | VAL      | -      | EXPRESSION TAG | UNP C9QXI7 |
| G     | 237     | LEU      | -      | EXPRESSION TAG | UNP C9QXI7 |
| G     | 238     | PHE      | -      | EXPRESSION TAG | UNP C9QXI7 |
| G     | 239     | GLN      | -      | EXPRESSION TAG | UNP C9QXI7 |
| H     | 235     | GLU      | -      | EXPRESSION TAG | UNP C9QXI7 |
| H     | 236     | VAL      | -      | EXPRESSION TAG | UNP C9QXI7 |
| H     | 237     | LEU      | -      | EXPRESSION TAG | UNP C9QXI7 |
| H     | 238     | PHE      | -      | EXPRESSION TAG | UNP C9QXI7 |
| H     | 239     | GLN      | -      | EXPRESSION TAG | UNP C9QXI7 |

- Molecule 2 is a protein called DNA-directed RNA polymerase subunit beta.

| Mol | Chain | Residues | Atoms |      |      |      |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|---------|-------|
|     |       |          | Total | C    | N    | O    | S  |         |         |       |
| 2   | C     | 1340     | Total | C    | N    | O    | S  | 0       | 0       | 0     |
|     |       |          | 10570 | 6631 | 1841 | 2055 | 43 |         |         |       |
| 2   | I     | 1340     | Total | C    | N    | O    | S  | 0       | 0       | 0     |
|     |       |          | 10566 | 6629 | 1840 | 2054 | 43 |         |         |       |

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit beta'.

| Mol | Chain | Residues | Atoms |      |      |      |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|---------|-------|
|     |       |          | Total | C    | N    | O    | S  |         |         |       |
| 3   | D     | 1345     | Total | C    | N    | O    | S  | 0       | 0       | 0     |
|     |       |          | 10447 | 6560 | 1864 | 1974 | 49 |         |         |       |
| 3   | J     | 1325     | Total | C    | N    | O    | S  | 0       | 0       | 0     |
|     |       |          | 10295 | 6470 | 1831 | 1945 | 49 |         |         |       |

- Molecule 4 is a protein called DNA-directed RNA polymerase subunit omega.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |         |       |
| 4   | E     | 89       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 691   | 421 | 129 | 140 | 1 |         |         |       |
| 4   | K     | 79       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 627   | 382 | 118 | 126 | 1 |         |         |       |

- Molecule 5 is a protein called RNA polymerase sigma factor RpoD.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 5   | F     | 521      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 4161  | 2609 | 735 | 791 | 26 |         |         |       |
| 5   | L     | 519      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 4155  | 2605 | 733 | 791 | 26 |         |         |       |

- Molecule 6 is a protein called Bacterial RNA polymerase inhibitor.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
|     |       |          | Total | C   | N  | O  | S |         |         |       |
| 6   | M     | 50       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 406   | 264 | 63 | 78 | 1 |         |         |       |
| 6   | N     | 48       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 389   | 253 | 60 | 75 | 1 |         |         |       |

- Molecule 7 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms           | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 7   | J     | 1        | Total Mg<br>1 1 | 0       | 0       |
| 7   | D     | 1        | Total Mg<br>1 1 | 0       | 0       |

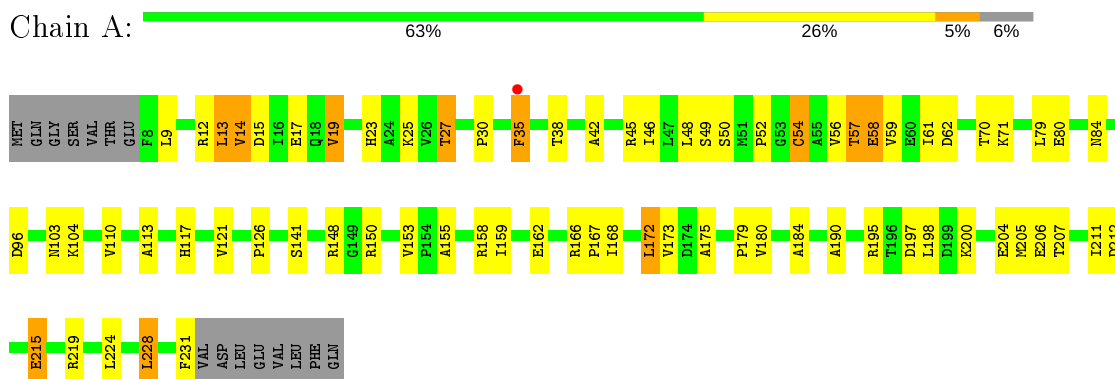
- Molecule 8 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms           | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 8   | J     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 8   | D     | 2        | Total Zn<br>2 2 | 0       | 0       |

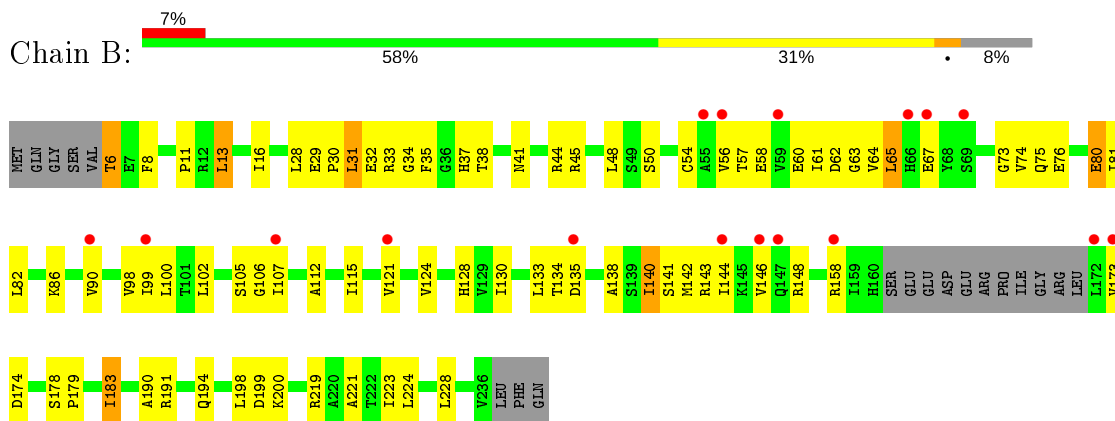
### 3 Residue-property plots [i](#)

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.

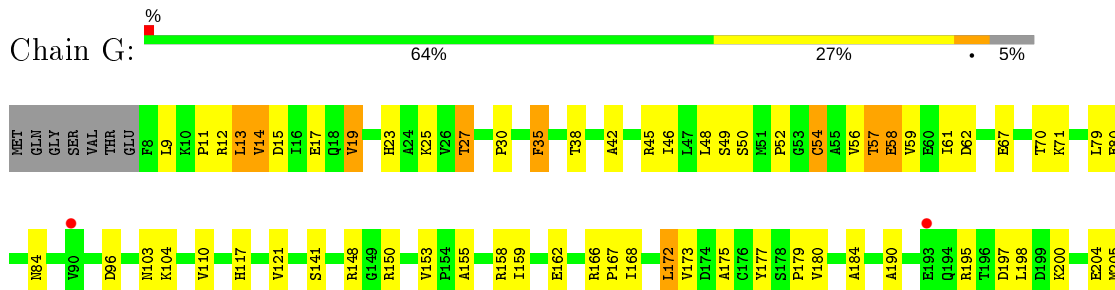
- Molecule 1: DNA-directed RNA polymerase subunit alpha



- Molecule 1: DNA-directed RNA polymerase subunit alpha

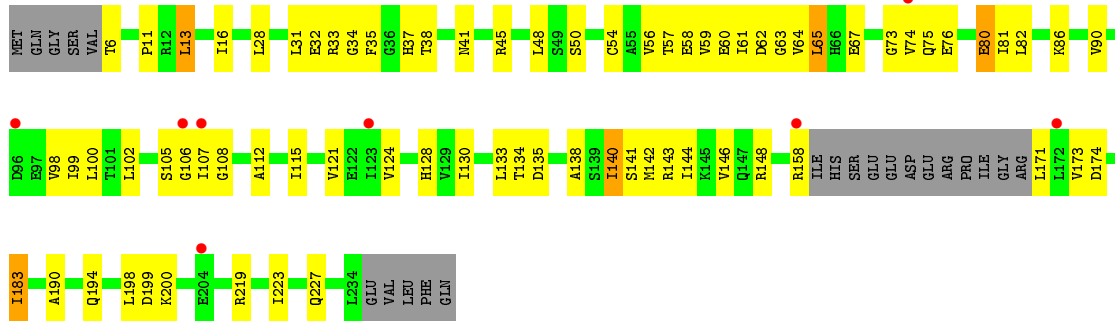


- Molecule 1: DNA-directed RNA polymerase subunit alpha

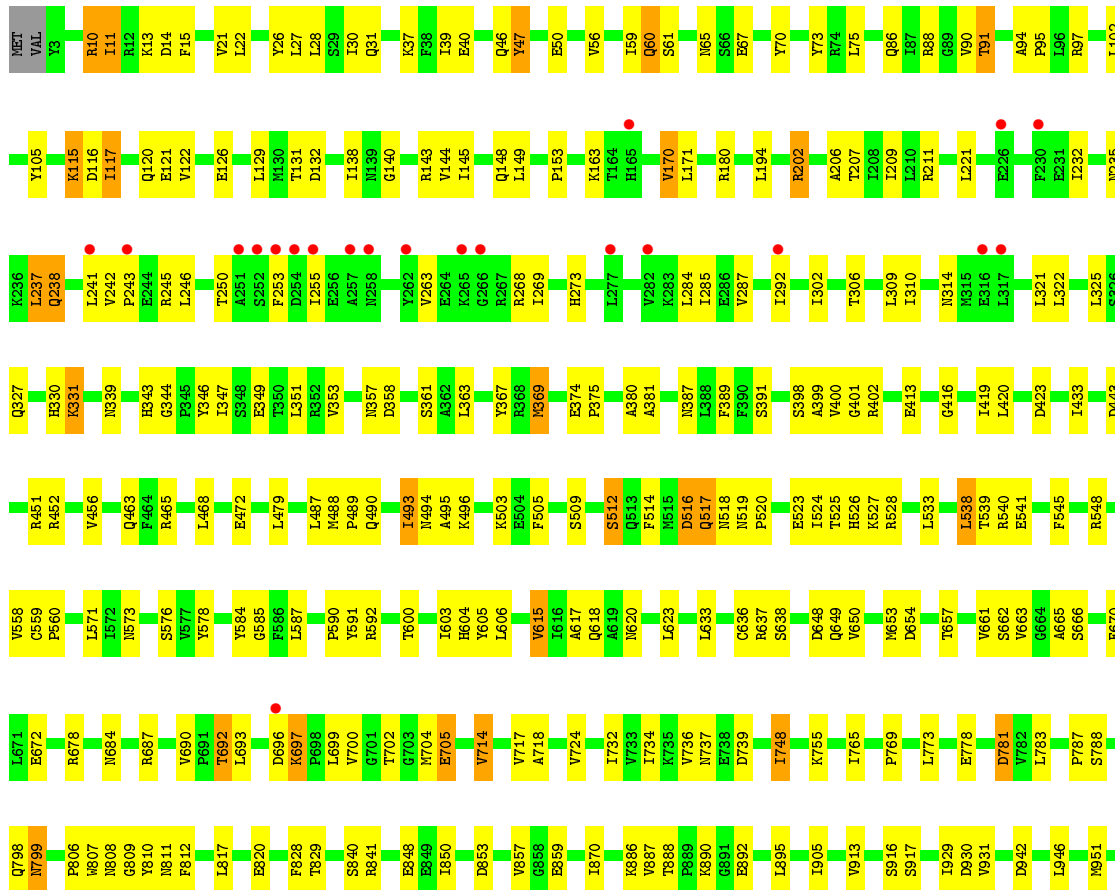




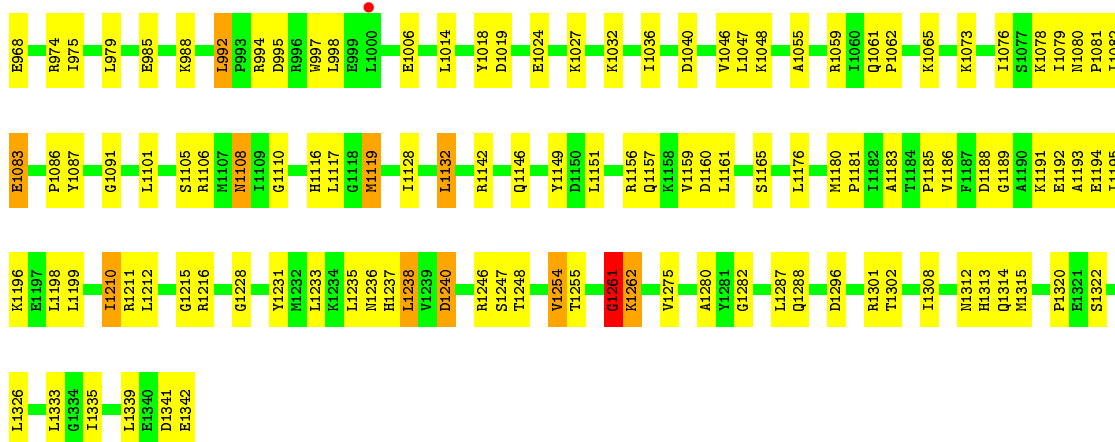
● Molecule 1: DNA-directed RNA polymerase subunit alpha



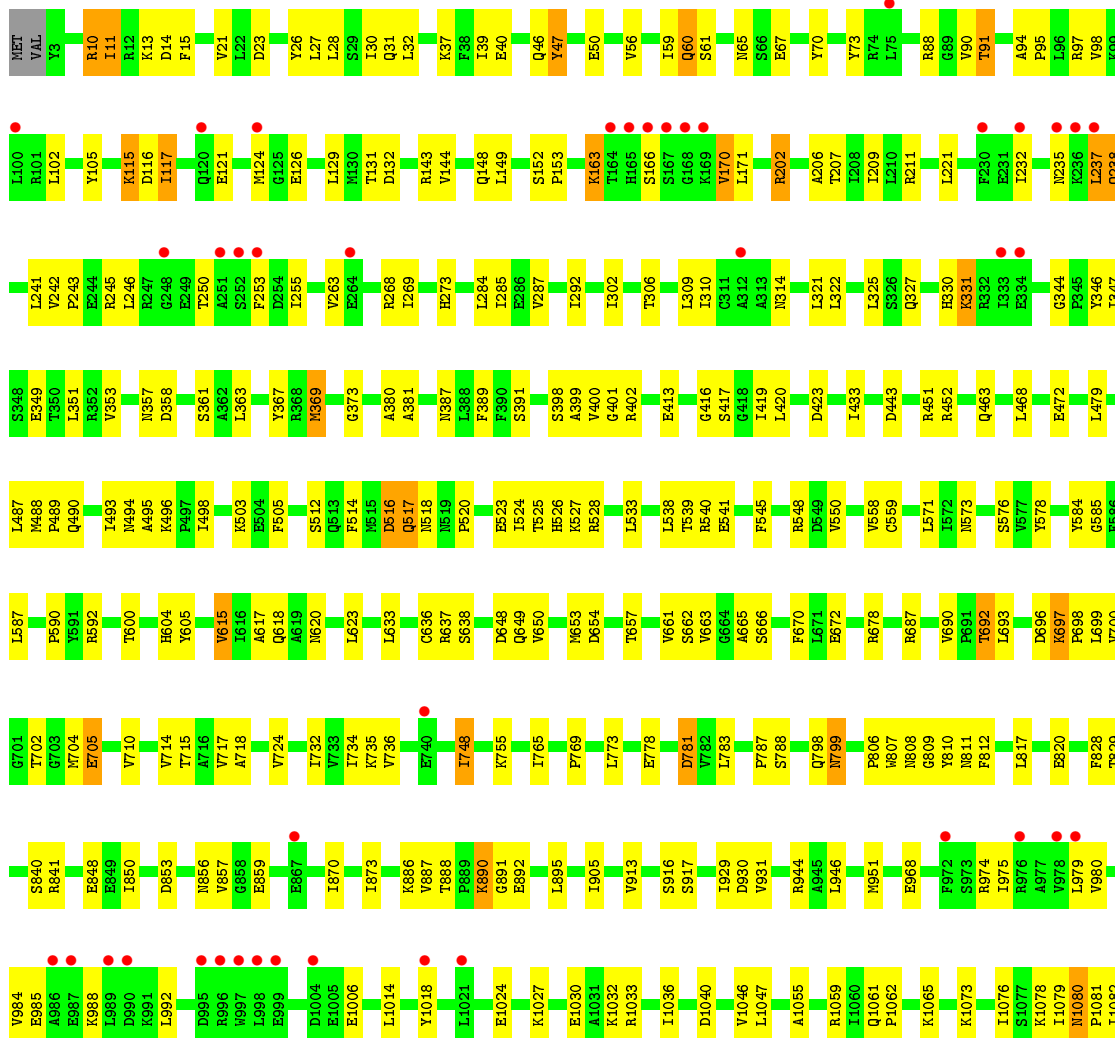
● Molecule 2: DNA-directed RNA polymerase subunit beta

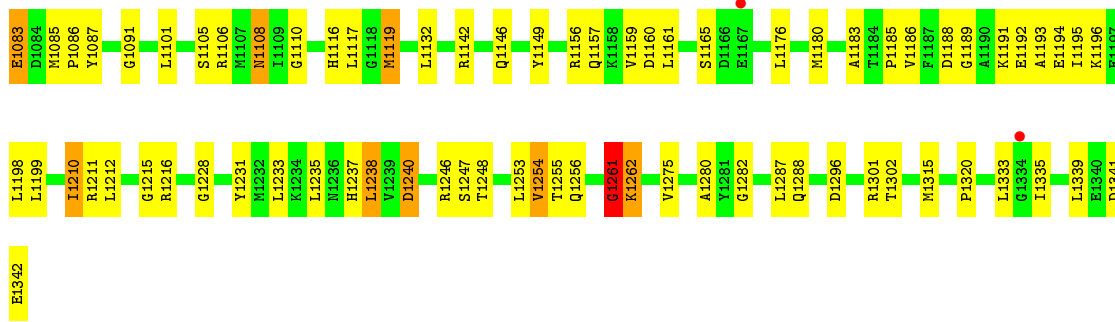




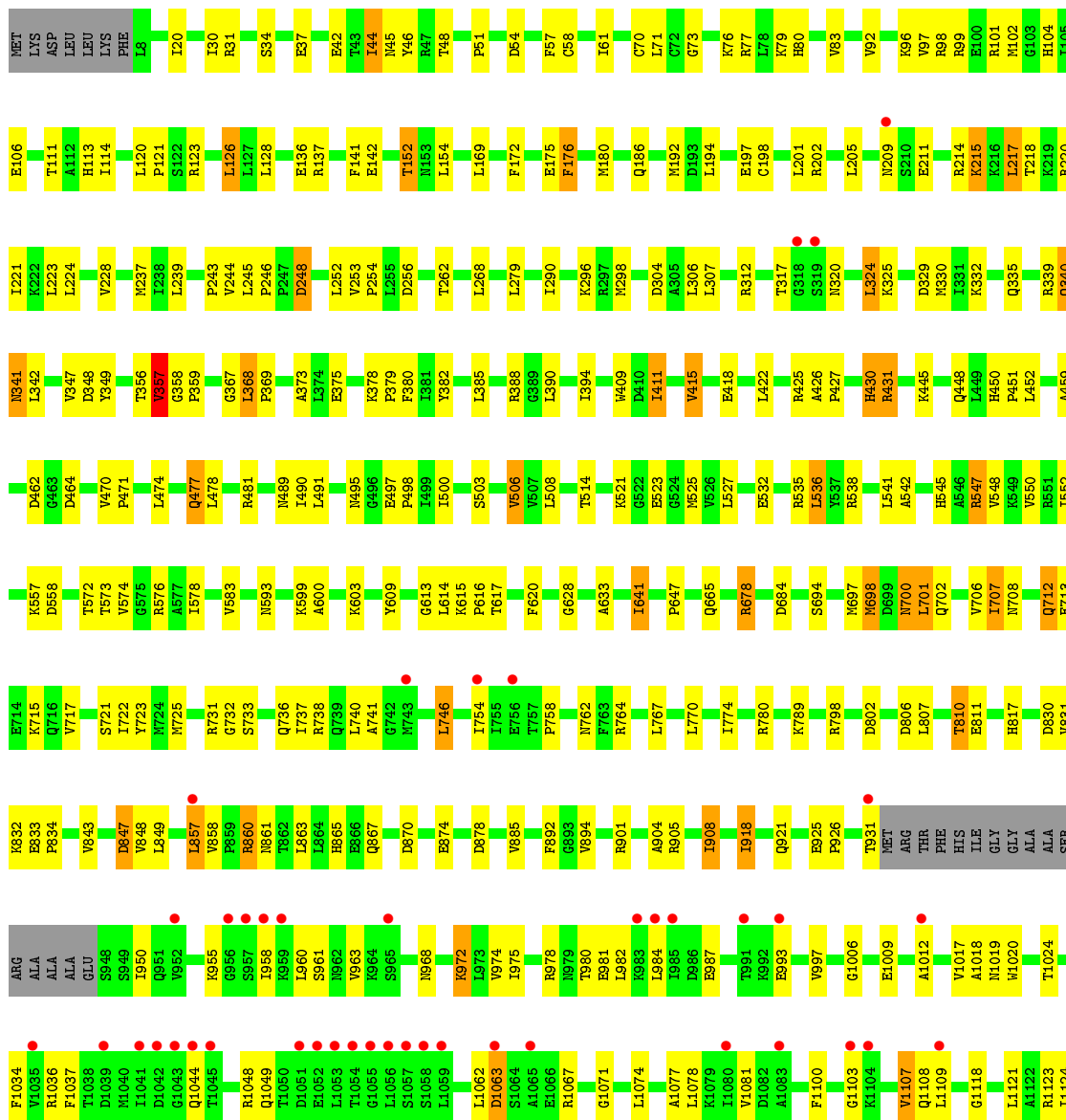


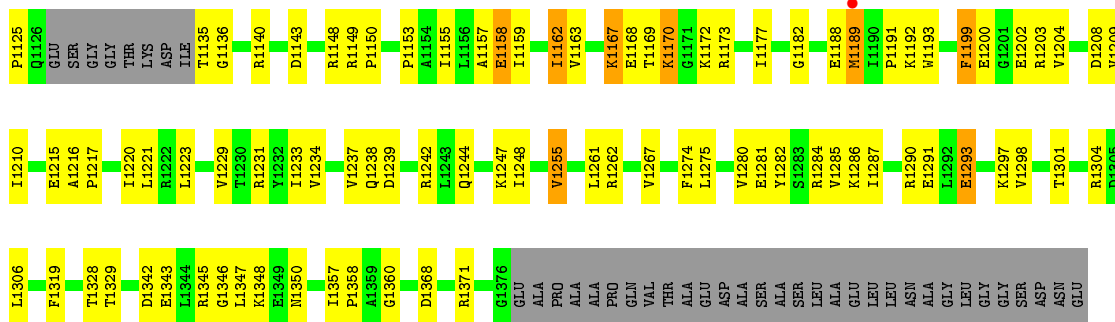
• Molecule 2: DNA-directed RNA polymerase subunit beta



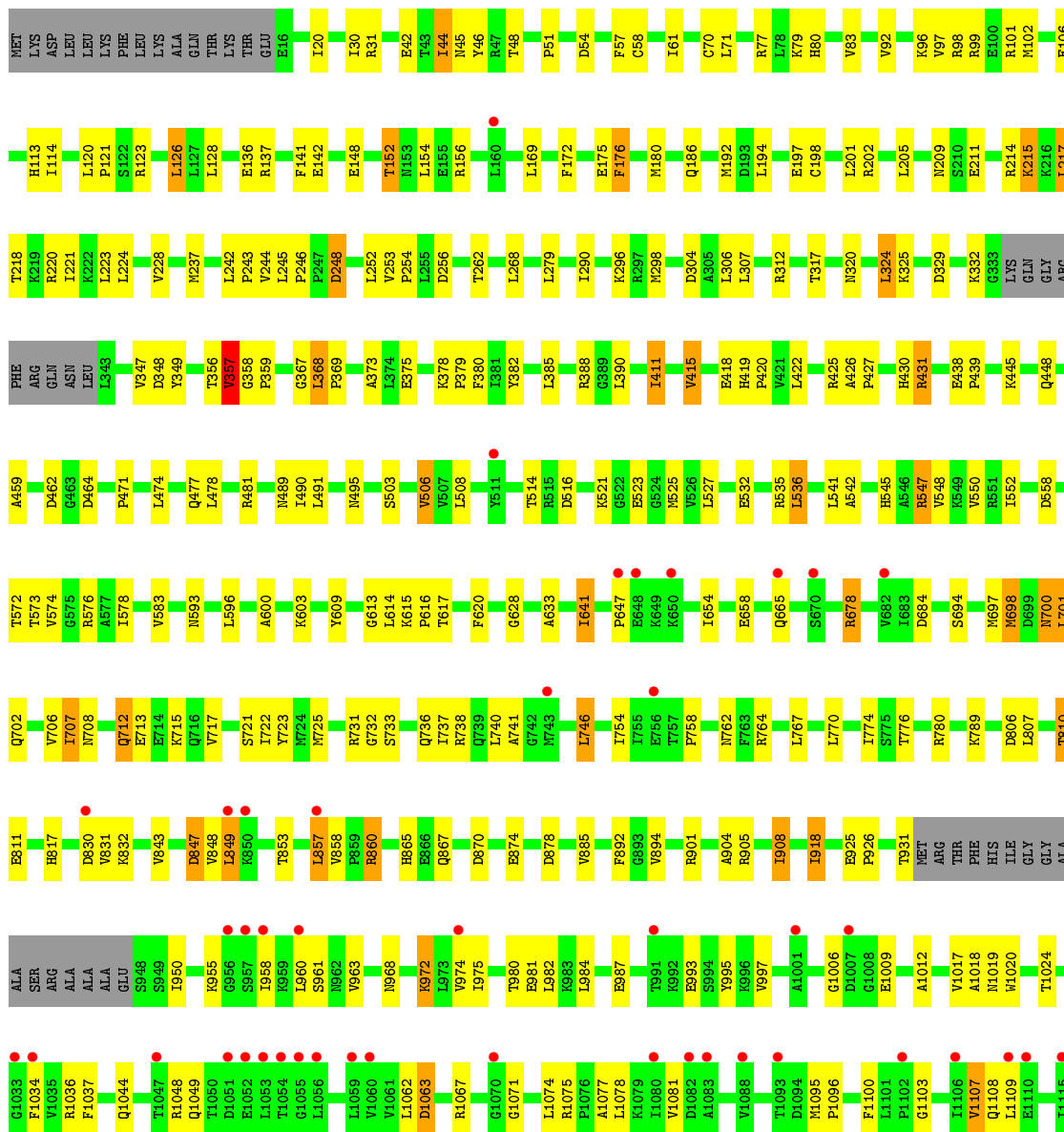


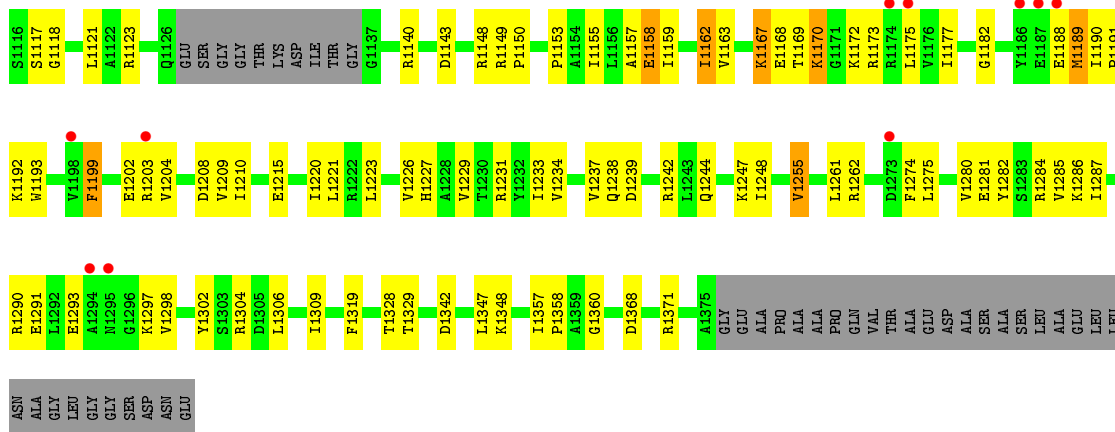
• Molecule 3: DNA-directed RNA polymerase subunit beta'



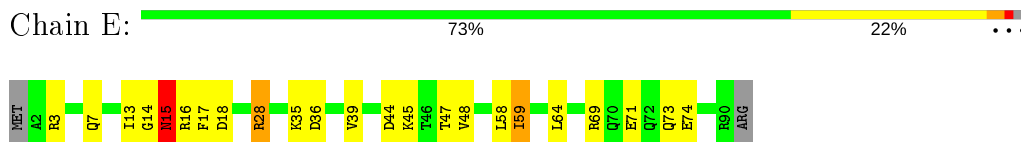


• Molecule 3: DNA-directed RNA polymerase subunit beta'

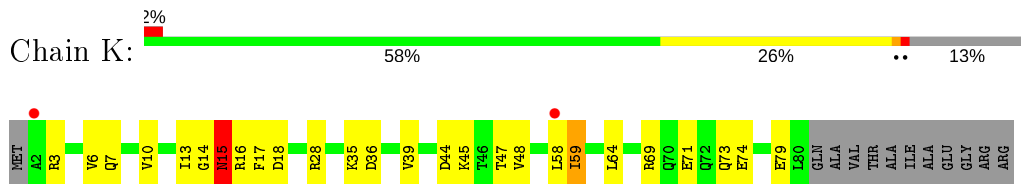




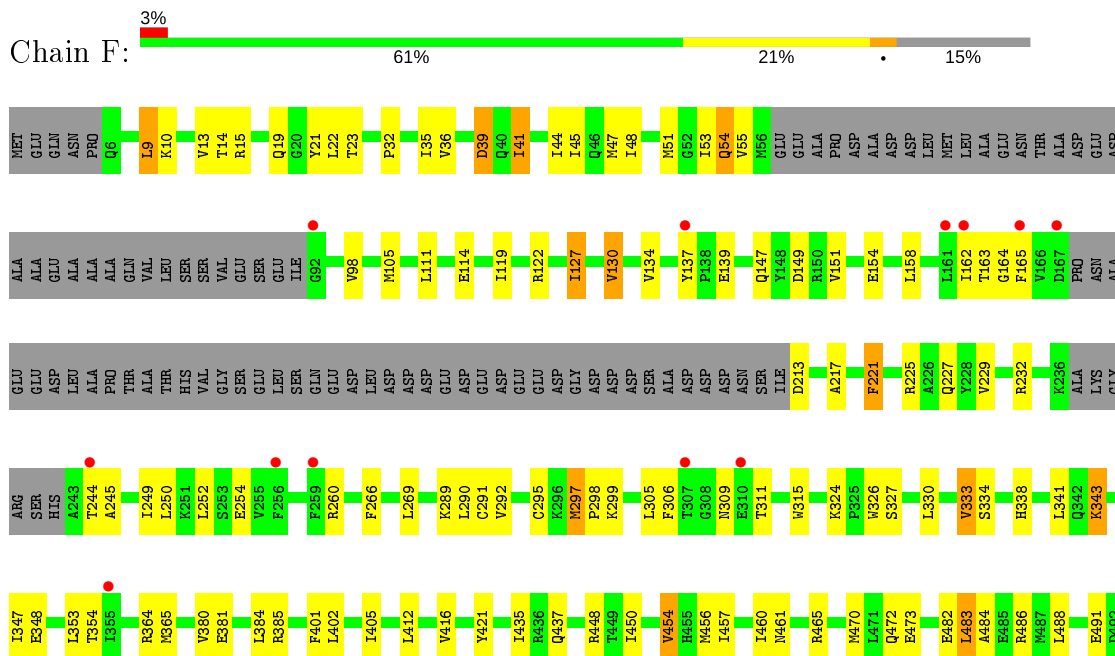
• Molecule 4: DNA-directed RNA polymerase subunit omega



• Molecule 4: DNA-directed RNA polymerase subunit omega

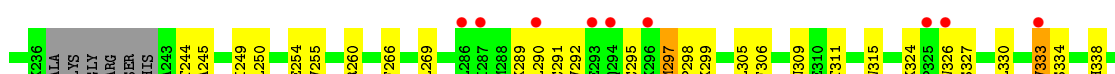
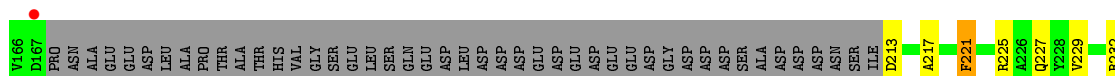
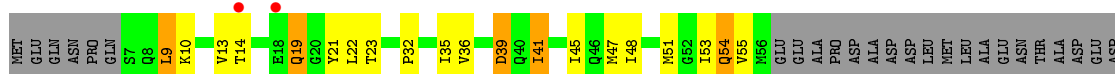


• Molecule 5: RNA polymerase sigma factor RpoD

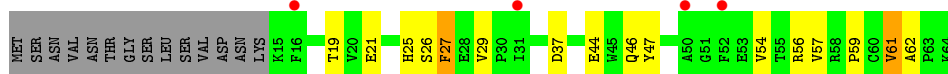




• Molecule 5: RNA polymerase sigma factor RpoD



• Molecule 6: Bacterial RNA polymerase inhibitor



• Molecule 6: Bacterial RNA polymerase inhibitor



## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 21 21 21  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 187.51Å 205.04Å 308.80Å<br>90.00° 90.00° 90.00°             | Depositor        |
| Resolution (Å)  | 45.21 – 3.79<br>45.21 – 3.79                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 98.1 (45.21-3.79)<br>98.2 (45.21-3.79)                      | Depositor<br>EDS |
| $R_{merge}$   | 0.18  | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 1.31 (at 3.77Å)   | Xtrriage         |
| Refinement program  | PHENIX 1.8.2_1309   | Depositor        |
| R, $R_{free}$   | 0.243 , 0.282<br>0.243 , 0.282                              | Depositor<br>DCC |
| $R_{free}$ test set   | 5813 reflections (5.02%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 126.7   | Xtrriage         |
| Anisotropy  | 0.468   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.26 , 27.0   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$ | Xtrriage         |
| Estimated twinning fraction   | No twinning to report.                                      | Xtrriage         |
| $F_o, F_c$ correlation  | 0.90  | EDS              |
| Total number of atoms   | 59147   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 77.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.79% 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: ZN, MG

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

| Mol | Chain | Bond lengths |                | Bond angles |                 |
|-----|-------|--------------|----------------|-------------|-----------------|
|     |       | RMSZ         | # $ Z  > 5$    | RMSZ        | # $ Z  > 5$     |
| 1   | A     | 0.23         | 0/1751         | 0.49        | 0/2373          |
| 1   | B     | 0.23         | 0/1707         | 0.45        | 0/2314          |
| 1   | G     | 0.22         | 0/1771         | 0.49        | 0/2401          |
| 1   | H     | 0.22         | 0/1686         | 0.45        | 0/2285          |
| 2   | C     | 0.26         | 2/10739 (0.0%) | 0.45        | 2/14489 (0.0%)  |
| 2   | I     | 0.26         | 2/10735 (0.0%) | 0.45        | 2/14484 (0.0%)  |
| 3   | D     | 0.24         | 1/10603 (0.0%) | 0.45        | 1/14316 (0.0%)  |
| 3   | J     | 0.24         | 1/10450 (0.0%) | 0.44        | 1/14112 (0.0%)  |
| 4   | E     | 0.23         | 0/693          | 0.50        | 0/935           |
| 4   | K     | 0.22         | 0/629          | 0.49        | 0/847           |
| 5   | F     | 0.26         | 0/4214         | 0.49        | 2/5673 (0.0%)   |
| 5   | L     | 0.27         | 0/4208         | 0.49        | 2/5665 (0.0%)   |
| 6   | M     | 0.31         | 0/419          | 0.50        | 0/572           |
| 6   | N     | 0.33         | 0/401          | 0.54        | 0/549           |
| All | All   | 0.25         | 6/60006 (0.0%) | 0.46        | 10/81015 (0.0%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 2   | C     | 0                   | 1                   |
| 2   | I     | 0                   | 1                   |
| 4   | E     | 0                   | 1                   |
| 4   | K     | 0                   | 1                   |
| 5   | L     | 0                   | 1                   |
| All | All   | 0                   | 5                   |

All (6) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms  | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 2   | C     | 31  | GLN  | CD-NE2 | -8.70 | 1.11        | 1.32     |
| 2   | I     | 31  | GLN  | CD-NE2 | -8.41 | 1.11        | 1.32     |
| 2   | I     | 31  | GLN  | CD-OE1 | -7.96 | 1.06        | 1.24     |
| 2   | C     | 31  | GLN  | CD-OE1 | -7.79 | 1.06        | 1.24     |
| 3   | D     | 477 | GLN  | CD-NE2 | -6.25 | 1.17        | 1.32     |
| 3   | J     | 477 | GLN  | CD-NE2 | -6.08 | 1.17        | 1.32     |

All (10) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms     | Z    | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|------|-------------|----------|
| 5   | L     | 19   | GLN  | C-N-CA    | 6.02 | 134.94      | 122.30   |
| 2   | I     | 1261 | GLY  | N-CA-C    | 5.91 | 127.87      | 113.10   |
| 2   | C     | 1261 | GLY  | N-CA-C    | 5.90 | 127.84      | 113.10   |
| 3   | J     | 1182 | GLY  | N-CA-C    | 5.72 | 127.39      | 113.10   |
| 5   | F     | 19   | GLN  | C-N-CA    | 5.71 | 134.30      | 122.30   |
| 3   | D     | 1182 | GLY  | N-CA-C    | 5.62 | 127.14      | 113.10   |
| 5   | F     | 149  | ASP  | CB-CG-OD2 | 5.22 | 123.00      | 118.30   |
| 2   | C     | 516  | ASP  | CB-CG-OD2 | 5.20 | 122.98      | 118.30   |
| 5   | L     | 149  | ASP  | CB-CG-OD2 | 5.20 | 122.98      | 118.30   |
| 2   | I     | 516  | ASP  | CB-CG-OD2 | 5.11 | 122.89      | 118.30   |

There are no chirality outliers.

All (5) planarity outliers are listed below:

| Mol | Chain | Res  | Type | Group   |
|-----|-------|------|------|---------|
| 2   | C     | 1261 | GLY  | Peptide |
| 4   | E     | 14   | GLY  | Peptide |
| 2   | I     | 1261 | GLY  | Peptide |
| 4   | K     | 14   | GLY  | Peptide |
| 5   | L     | 19   | GLN  | Peptide |

## 5.2 Too-close contacts

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 1730  | 0        | 1756     | 48      | 0            |
| 1   | B     | 1687  | 0        | 1700     | 49      | 0            |
| 1   | G     | 1750  | 0        | 1764     | 48      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | H     | 1667  | 0        | 1689     | 41      | 0            |
| 2   | C     | 10570 | 0        | 10582    | 232     | 0            |
| 2   | I     | 10566 | 0        | 10576    | 217     | 0            |
| 3   | D     | 10447 | 0        | 10671    | 249     | 0            |
| 3   | J     | 10295 | 0        | 10510    | 229     | 0            |
| 4   | E     | 691   | 0        | 695      | 15      | 0            |
| 4   | K     | 627   | 0        | 634      | 17      | 0            |
| 5   | F     | 4161  | 0        | 4171     | 81      | 0            |
| 5   | L     | 4155  | 0        | 4168     | 85      | 0            |
| 6   | M     | 406   | 0        | 383      | 10      | 0            |
| 6   | N     | 389   | 0        | 363      | 13      | 0            |
| 7   | D     | 1     | 0        | 0        | 0       | 0            |
| 7   | J     | 1     | 0        | 0        | 0       | 0            |
| 8   | D     | 2     | 0        | 0        | 0       | 0            |
| 8   | J     | 2     | 0        | 0        | 0       | 0            |
| All | All   | 59147 | 0        | 59662    | 1210    | 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 10.

All (1210) 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) |
|-------------------|------------------|--------------------------|-------------------|
| 3:D:1173:ARG:HE   | 3:D:1192:LYS:HG3 | 1.29                     | 0.97              |
| 3:J:1173:ARG:HE   | 3:J:1192:LYS:HG3 | 1.28                     | 0.97              |
| 3:D:418:GLU:HG3   | 4:E:45:LYS:H     | 1.42                     | 0.85              |
| 3:J:1006:GLY:H    | 3:J:1009:GLU:HG3 | 1.41                     | 0.85              |
| 3:J:418:GLU:HG3   | 4:K:45:LYS:H     | 1.41                     | 0.83              |
| 3:D:1006:GLY:H    | 3:D:1009:GLU:HG3 | 1.42                     | 0.83              |
| 2:I:806:PRO:HA    | 2:I:811:ASN:HD21 | 1.44                     | 0.83              |
| 2:C:806:PRO:HA    | 2:C:811:ASN:HD21 | 1.44                     | 0.82              |
| 2:C:517:GLN:HB2   | 2:C:523:GLU:HG2  | 1.63                     | 0.80              |
| 2:I:517:GLN:HB2   | 2:I:523:GLU:HG2  | 1.63                     | 0.79              |
| 5:F:32:PRO:HG2    | 5:F:35:ILE:HD12  | 1.63                     | 0.79              |
| 5:L:32:PRO:HG2    | 5:L:35:ILE:HD12  | 1.64                     | 0.79              |
| 2:I:840:SER:HB2   | 2:I:850:ILE:HD11 | 1.65                     | 0.78              |
| 2:C:1322:SER:HB2  | 3:D:340:GLN:HG2  | 1.65                     | 0.77              |
| 5:L:130:VAL:HB    | 5:L:365:MET:HG3  | 1.66                     | 0.77              |
| 2:C:840:SER:HB2   | 2:C:850:ILE:HD11 | 1.66                     | 0.76              |
| 3:J:1280:VAL:HG21 | 3:J:1304:ARG:NE  | 2.00                     | 0.76              |
| 2:C:120:GLN:HG3   | 2:C:121:GLU:HG2  | 1.67                     | 0.75              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:1280:VAL:HG21 | 3:D:1304:ARG:NE   | 2.00                     | 0.75              |
| 5:F:130:VAL:HB    | 5:F:365:MET:HG3   | 1.68                     | 0.75              |
| 3:D:325:LYS:HD3   | 5:F:508:GLU:HG2   | 1.68                     | 0.74              |
| 1:B:73:GLY:HA2    | 1:B:134:THR:HG22  | 1.70                     | 0.73              |
| 1:A:38:THR:OG1    | 1:B:45:ARG:NH1    | 2.22                     | 0.73              |
| 1:H:73:GLY:HA2    | 1:H:134:THR:HG22  | 1.71                     | 0.72              |
| 2:C:221:LEU:HD11  | 2:C:314:ASN:HB2   | 1.72                     | 0.72              |
| 2:C:696:ASP:HB2   | 2:C:798:GLN:HG2   | 1.71                     | 0.72              |
| 2:C:1105:SER:HB2  | 3:D:731:ARG:HG2   | 1.72                     | 0.72              |
| 3:J:425:ARG:HD2   | 3:J:459:ALA:HB2   | 1.72                     | 0.71              |
| 3:D:425:ARG:HD2   | 3:D:459:ALA:HB2   | 1.72                     | 0.71              |
| 2:I:1105:SER:HB2  | 3:J:731:ARG:HG2   | 1.72                     | 0.71              |
| 3:J:325:LYS:HD3   | 5:L:508:GLU:HG2   | 1.72                     | 0.71              |
| 2:I:696:ASP:HB2   | 2:I:798:GLN:HG2   | 1.72                     | 0.71              |
| 1:A:159:ILE:HG13  | 1:A:162:GLU:HB2   | 1.73                     | 0.70              |
| 1:G:104:LYS:HD3   | 1:G:110:VAL:HG22  | 1.73                     | 0.69              |
| 2:I:525:THR:HG21  | 2:I:687:ARG:HD2   | 1.74                     | 0.69              |
| 3:J:1075:ARG:HH22 | 3:J:1173:ARG:NH1  | 1.90                     | 0.69              |
| 5:L:324:LYS:HB2   | 5:L:327:SER:HB2   | 1.74                     | 0.69              |
| 5:F:324:LYS:HB2   | 5:F:327:SER:HB2   | 1.74                     | 0.69              |
| 2:I:363:LEU:HB3   | 2:I:381:ALA:HB1   | 1.74                     | 0.69              |
| 2:C:363:LEU:HB3   | 2:C:381:ALA:HB1   | 1.74                     | 0.69              |
| 2:I:211:ARG:NH1   | 2:I:357:ASN:O     | 2.26                     | 0.69              |
| 1:A:104:LYS:HD3   | 1:A:110:VAL:HG22  | 1.73                     | 0.68              |
| 2:C:490:GLN:HG2   | 5:F:472:GLN:HE21  | 1.56                     | 0.68              |
| 1:G:159:ILE:HG13  | 1:G:162:GLU:HB2   | 1.73                     | 0.68              |
| 1:G:58:GLU:HG2    | 1:G:158:ARG:HH22  | 1.59                     | 0.68              |
| 2:C:211:ARG:NH1   | 2:C:357:ASN:O     | 2.26                     | 0.68              |
| 3:D:1108:GLN:HG3  | 3:D:1109:LEU:HD13 | 1.76                     | 0.68              |
| 2:C:525:THR:HG21  | 2:C:687:ARG:HD2   | 1.75                     | 0.68              |
| 3:D:358:GLY:H     | 3:D:359:PRO:HD3   | 1.59                     | 0.68              |
| 1:A:58:GLU:HG2    | 1:A:158:ARG:HH22  | 1.59                     | 0.68              |
| 1:A:48:LEU:HA     | 1:A:180:VAL:HG21  | 1.76                     | 0.68              |
| 2:C:734:ILE:HD11  | 2:C:783:LEU:HD11  | 1.76                     | 0.68              |
| 3:J:1108:GLN:HG3  | 3:J:1109:LEU:HD13 | 1.76                     | 0.67              |
| 3:D:885:VAL:HG21  | 3:D:1255:VAL:HG12 | 1.75                     | 0.67              |
| 3:J:1075:ARG:HH22 | 3:J:1173:ARG:HH12 | 1.43                     | 0.67              |
| 3:J:358:GLY:H     | 3:J:359:PRO:HD3   | 1.59                     | 0.67              |
| 3:J:885:VAL:HG21  | 3:J:1255:VAL:HG12 | 1.76                     | 0.67              |
| 2:I:734:ILE:HD11  | 2:I:783:LEU:HD11  | 1.76                     | 0.67              |
| 4:E:15:ASN:OD1    | 4:E:18:ASP:N      | 2.26                     | 0.67              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:J:1280:VAL:HG21 | 3:J:1304:ARG:HE   | 1.57                     | 0.67              |
| 3:D:1280:VAL:HG21 | 3:D:1304:ARG:HE   | 1.57                     | 0.67              |
| 2:I:21:VAL:HG11   | 2:I:592:ARG:HD2   | 1.76                     | 0.67              |
| 1:G:48:LEU:HA     | 1:G:180:VAL:HG21  | 1.77                     | 0.66              |
| 2:C:21:VAL:HG11   | 2:C:592:ARG:HD2   | 1.76                     | 0.66              |
| 2:C:1254:VAL:O    | 3:D:99:ARG:NH2    | 2.28                     | 0.66              |
| 4:K:15:ASN:OD1    | 4:K:18:ASP:N      | 2.26                     | 0.66              |
| 1:A:45:ARG:HH22   | 2:C:1216:ARG:HA   | 1.60                     | 0.66              |
| 2:I:452:ARG:NH1   | 2:I:584:TYR:O     | 2.29                     | 0.66              |
| 2:C:115:LYS:HE3   | 2:C:116:ASP:H     | 1.62                     | 0.65              |
| 1:G:153:VAL:HB    | 1:G:175:ALA:HB3   | 1.78                     | 0.65              |
| 2:I:732:ILE:HG21  | 2:I:783:LEU:HD12  | 1.78                     | 0.65              |
| 5:L:39:ASP:OD1    | 5:L:39:ASP:N      | 2.22                     | 0.65              |
| 2:C:732:ILE:HG21  | 2:C:783:LEU:HD12  | 1.78                     | 0.65              |
| 3:D:1280:VAL:HG11 | 3:D:1304:ARG:HH21 | 1.62                     | 0.65              |
| 3:J:1044:GLN:HB3  | 3:J:1071:GLY:HA3  | 1.79                     | 0.65              |
| 3:J:209:ASN:HA    | 3:J:214:ARG:HE    | 1.62                     | 0.65              |
| 3:J:722:ILE:HD11  | 3:J:737:ILE:HD12  | 1.78                     | 0.65              |
| 1:B:133:LEU:HD11  | 1:B:140:ILE:HG21  | 1.78                     | 0.65              |
| 3:J:1280:VAL:HG11 | 3:J:1304:ARG:HH21 | 1.62                     | 0.65              |
| 2:C:463:GLN:HG3   | 2:C:505:PHE:HB2   | 1.80                     | 0.64              |
| 3:D:77:ARG:HG3    | 3:D:79:LYS:H      | 1.62                     | 0.64              |
| 2:C:452:ARG:NH1   | 2:C:584:TYR:O     | 2.31                     | 0.64              |
| 5:F:561:MET:HG2   | 5:F:576:VAL:HG22  | 1.78                     | 0.64              |
| 1:A:153:VAL:HB    | 1:A:175:ALA:HB3   | 1.78                     | 0.64              |
| 2:I:221:LEU:HD11  | 2:I:314:ASN:HB2   | 1.78                     | 0.64              |
| 1:H:133:LEU:HD11  | 1:H:140:ILE:HG21  | 1.78                     | 0.64              |
| 1:G:62:ASP:OD1    | 1:G:141:SER:OG    | 2.16                     | 0.64              |
| 3:J:152:THR:HG21  | 3:J:176:PHE:HB2   | 1.80                     | 0.64              |
| 3:J:77:ARG:HG3    | 3:J:79:LYS:H      | 1.62                     | 0.64              |
| 3:D:722:ILE:HD11  | 3:D:737:ILE:HD12  | 1.78                     | 0.64              |
| 3:J:1155:ILE:HG13 | 3:J:1210:ILE:HB   | 1.80                     | 0.64              |
| 5:L:561:MET:HG2   | 5:L:576:VAL:HG22  | 1.78                     | 0.64              |
| 3:D:1044:GLN:HB3  | 3:D:1071:GLY:HA3  | 1.79                     | 0.64              |
| 3:D:209:ASN:HA    | 3:D:214:ARG:HE    | 1.62                     | 0.64              |
| 2:I:463:GLN:HG3   | 2:I:505:PHE:HB2   | 1.80                     | 0.64              |
| 3:D:1188:GLU:HG2  | 6:M:59:PRO:HD2    | 1.80                     | 0.64              |
| 1:B:33:ARG:HH11   | 2:C:1081:PRO:HG3  | 1.63                     | 0.63              |
| 3:J:1162:ILE:HA   | 3:J:1203:ARG:HA   | 1.80                     | 0.63              |
| 3:J:481:ARG:NH1   | 4:K:3:ARG:O       | 2.31                     | 0.63              |
| 1:B:107:ILE:HG23  | 1:B:135:ASP:HA    | 1.80                     | 0.63              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:N:44:GLU:HG2    | 6:N:54:VAL:HG21   | 1.81                     | 0.63              |
| 3:D:152:THR:HG21  | 3:D:176:PHE:HB2   | 1.80                     | 0.63              |
| 1:G:195:ARG:HG2   | 1:G:198:LEU:HG    | 1.81                     | 0.63              |
| 1:H:107:ILE:HG23  | 1:H:135:ASP:HA    | 1.79                     | 0.63              |
| 5:L:10:LYS:O      | 5:L:14:THR:OG1    | 2.10                     | 0.63              |
| 3:D:481:ARG:NH1   | 4:E:3:ARG:O       | 2.32                     | 0.63              |
| 2:C:1157:GLN:HG3  | 2:C:1159:VAL:HG13 | 1.81                     | 0.63              |
| 2:I:528:ARG:NH2   | 2:I:576:SER:O     | 2.31                     | 0.63              |
| 2:C:1275:VAL:HG13 | 2:C:1287:LEU:HD11 | 1.81                     | 0.63              |
| 2:C:528:ARG:NH2   | 2:C:576:SER:O     | 2.31                     | 0.63              |
| 3:D:1155:ILE:HG13 | 3:D:1210:ILE:HB   | 1.80                     | 0.63              |
| 6:M:61:VAL:HG13   | 6:M:62:ALA:H      | 1.63                     | 0.63              |
| 2:C:398:SER:OG    | 2:C:399:ALA:N     | 2.32                     | 0.62              |
| 5:F:493:LYS:HA    | 5:F:496:LYS:HE3   | 1.80                     | 0.62              |
| 6:M:44:GLU:HG2    | 6:M:54:VAL:HG21   | 1.80                     | 0.62              |
| 2:C:618:GLN:HG3   | 3:D:770:LEU:HD21  | 1.81                     | 0.62              |
| 1:A:195:ARG:HG2   | 1:A:198:LEU:HG    | 1.81                     | 0.62              |
| 5:F:483:LEU:O     | 5:F:486:ARG:NH1   | 2.32                     | 0.62              |
| 2:I:115:LYS:HE3   | 2:I:116:ASP:H     | 1.61                     | 0.62              |
| 2:I:702:THR:OG1   | 2:I:705:GLU:OE2   | 2.13                     | 0.62              |
| 1:A:62:ASP:OD1    | 1:A:141:SER:OG    | 2.17                     | 0.62              |
| 1:G:45:ARG:HH22   | 2:I:1216:ARG:HA   | 1.64                     | 0.62              |
| 2:I:398:SER:OG    | 2:I:399:ALA:N     | 2.32                     | 0.62              |
| 5:L:493:LYS:HA    | 5:L:496:LYS:HE3   | 1.80                     | 0.62              |
| 2:I:1157:GLN:HG3  | 2:I:1159:VAL:HG13 | 1.81                     | 0.62              |
| 3:D:1162:ILE:HA   | 3:D:1203:ARG:HA   | 1.80                     | 0.62              |
| 5:L:483:LEU:O     | 5:L:486:ARG:NH1   | 2.32                     | 0.61              |
| 2:C:59:ILE:HG21   | 2:C:472:GLU:HG3   | 1.82                     | 0.61              |
| 2:I:618:GLN:HG3   | 3:J:770:LEU:HD21  | 1.81                     | 0.61              |
| 2:I:886:LYS:HB3   | 2:I:917:SER:HA    | 1.81                     | 0.61              |
| 2:I:1275:VAL:HG13 | 2:I:1287:LEU:HD11 | 1.81                     | 0.61              |
| 2:C:1065:LYS:HD2  | 2:C:1235:LEU:HD12 | 1.81                     | 0.61              |
| 2:I:1065:LYS:HD2  | 2:I:1235:LEU:HD12 | 1.81                     | 0.61              |
| 2:C:886:LYS:HB3   | 2:C:917:SER:HA    | 1.81                     | 0.61              |
| 2:I:1142:ARG:HH22 | 2:I:1165:SER:HB2  | 1.66                     | 0.61              |
| 2:I:59:ILE:HG21   | 2:I:472:GLU:HG3   | 1.82                     | 0.61              |
| 3:J:31:ARG:NH2    | 3:J:106:GLU:OE2   | 2.32                     | 0.61              |
| 3:J:1188:GLU:HG2  | 6:N:59:PRO:HD2    | 1.81                     | 0.60              |
| 2:C:702:THR:OG1   | 2:C:705:GLU:OE2   | 2.13                     | 0.60              |
| 3:D:126:LEU:HD13  | 3:D:223:LEU:HD21  | 1.84                     | 0.60              |
| 2:I:615:VAL:HG13  | 2:I:650:VAL:HA    | 1.83                     | 0.60              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:1142:ARG:HH22 | 2:C:1165:SER:HB2  | 1.66                     | 0.60              |
| 2:C:1313:HIS:HB2  | 3:D:474:LEU:HD13  | 1.84                     | 0.60              |
| 2:C:1314:GLN:HG2  | 4:E:28:ARG:CZ     | 2.32                     | 0.60              |
| 3:D:613:GLY:O     | 3:D:617:THR:OG1   | 2.17                     | 0.60              |
| 3:J:126:LEU:HD13  | 3:J:223:LEU:HD21  | 1.84                     | 0.60              |
| 2:C:202:ARG:HD3   | 2:C:369:MET:HG2   | 1.84                     | 0.60              |
| 2:C:250:THR:HA    | 2:C:268:ARG:HA    | 1.84                     | 0.59              |
| 1:G:166:ARG:O     | 1:G:168:ILE:N     | 2.35                     | 0.59              |
| 3:J:356:THR:OG1   | 3:J:357:VAL:N     | 2.35                     | 0.59              |
| 3:J:613:GLY:O     | 3:J:617:THR:OG1   | 2.18                     | 0.59              |
| 1:A:166:ARG:O     | 1:A:168:ILE:N     | 2.35                     | 0.59              |
| 2:I:61:SER:HB3    | 2:I:479:LEU:HB3   | 1.85                     | 0.59              |
| 3:D:356:THR:OG1   | 3:D:357:VAL:N     | 2.35                     | 0.59              |
| 2:I:1101:LEU:HD21 | 3:J:508:LEU:HD22  | 1.83                     | 0.59              |
| 2:C:559:CYS:HB2   | 2:C:662:SER:HB3   | 1.84                     | 0.59              |
| 3:D:737:ILE:HA    | 3:D:740:LEU:HD12  | 1.85                     | 0.59              |
| 1:A:190:ALA:HB2   | 1:A:200:LYS:HB2   | 1.85                     | 0.59              |
| 3:D:31:ARG:NH2    | 3:D:106:GLU:OE2   | 2.32                     | 0.59              |
| 3:D:694:SER:OG    | 3:D:738:ARG:NE    | 2.35                     | 0.59              |
| 2:I:202:ARG:HD3   | 2:I:369:MET:HG2   | 1.84                     | 0.59              |
| 2:C:1101:LEU:HD21 | 3:D:508:LEU:HD22  | 1.83                     | 0.59              |
| 2:C:615:VAL:HG13  | 2:C:650:VAL:HA    | 1.83                     | 0.59              |
| 3:D:1262:ARG:O    | 3:D:1280:VAL:HG23 | 2.03                     | 0.59              |
| 3:D:975:ILE:HD13  | 3:D:980:THR:HG21  | 1.85                     | 0.59              |
| 5:F:10:LYS:O      | 5:F:14:THR:OG1    | 2.09                     | 0.59              |
| 2:I:14:ASP:HA     | 2:I:1183:ALA:HB3  | 1.84                     | 0.59              |
| 2:C:14:ASP:HA     | 2:C:1183:ALA:HB3  | 1.84                     | 0.58              |
| 2:I:250:THR:HA    | 2:I:268:ARG:HA    | 1.84                     | 0.58              |
| 3:J:1347:LEU:HD12 | 3:J:1358:PRO:HG2  | 1.84                     | 0.58              |
| 4:E:35:LYS:NZ     | 4:E:71:GLU:OE2    | 2.36                     | 0.58              |
| 2:I:241:LEU:HD21  | 2:I:246:LEU:HD11  | 1.86                     | 0.58              |
| 2:I:292:ILE:HB    | 2:I:322:LEU:HD11  | 1.85                     | 0.58              |
| 3:J:1262:ARG:O    | 3:J:1280:VAL:HG23 | 2.03                     | 0.58              |
| 1:A:158:ARG:HH21  | 1:A:172:LEU:HB3   | 1.68                     | 0.58              |
| 1:A:184:ALA:HB2   | 2:C:1091:GLY:HA3  | 1.86                     | 0.58              |
| 2:C:241:LEU:HD21  | 2:C:246:LEU:HD11  | 1.85                     | 0.58              |
| 3:D:1347:LEU:HD12 | 3:D:1358:PRO:HG2  | 1.84                     | 0.58              |
| 1:G:190:ALA:HB2   | 1:G:200:LYS:HB2   | 1.85                     | 0.58              |
| 1:H:57:THR:HG22   | 1:H:58:GLU:HG2    | 1.85                     | 0.58              |
| 3:D:1067:ARG:NH1  | 3:D:1074:LEU:O    | 2.36                     | 0.58              |
| 2:I:559:CYS:HB2   | 2:I:662:SER:HB3   | 1.84                     | 0.58              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:J:694:SER:OG    | 3:J:738:ARG:NE   | 2.35                     | 0.58              |
| 3:J:737:ILE:HA    | 3:J:740:LEU:HD12 | 1.85                     | 0.58              |
| 2:C:61:SER:HB3    | 2:C:479:LEU:HB3  | 1.85                     | 0.58              |
| 1:A:12:ARG:H      | 1:A:30:PRO:HD2   | 1.69                     | 0.58              |
| 3:D:349:TYR:HE2   | 3:D:379:PRO:HG2  | 1.68                     | 0.58              |
| 1:G:158:ARG:HH21  | 1:G:172:LEU:HB3  | 1.69                     | 0.58              |
| 3:J:349:TYR:HE2   | 3:J:379:PRO:HG2  | 1.69                     | 0.58              |
| 3:J:975:ILE:HD13  | 3:J:980:THR:HG21 | 1.85                     | 0.58              |
| 3:J:317:THR:HG23  | 3:J:320:ASN:HB3  | 1.86                     | 0.58              |
| 5:L:454:VAL:HA    | 5:L:457:ILE:HD12 | 1.86                     | 0.58              |
| 1:B:57:THR:HG22   | 1:B:58:GLU:HG2   | 1.85                     | 0.57              |
| 2:I:102:LEU:HB2   | 2:I:489:PRO:HG3  | 1.86                     | 0.57              |
| 1:G:79:LEU:HD11   | 2:I:693:LEU:HD21 | 1.86                     | 0.57              |
| 2:I:166:SER:HB3   | 6:N:23:SER:N     | 2.19                     | 0.57              |
| 1:B:64:VAL:HG12   | 1:B:65:LEU:H     | 1.69                     | 0.57              |
| 2:C:1261:GLY:O    | 2:C:1262:LYS:HB2 | 2.04                     | 0.57              |
| 2:C:292:ILE:HB    | 2:C:322:LEU:HD11 | 1.85                     | 0.57              |
| 3:D:317:THR:HG23  | 3:D:320:ASN:HB3  | 1.86                     | 0.57              |
| 1:H:190:ALA:HB2   | 1:H:200:LYS:HB2  | 1.86                     | 0.57              |
| 1:A:54:CYS:HB3    | 1:A:148:ARG:HG2  | 1.86                     | 0.57              |
| 3:D:1173:ARG:HH21 | 3:D:1192:LYS:HE3 | 1.68                     | 0.57              |
| 2:C:102:LEU:HB2   | 2:C:489:PRO:HG3  | 1.86                     | 0.57              |
| 1:H:33:ARG:HH11   | 2:I:1081:PRO:HG3 | 1.70                     | 0.57              |
| 3:J:789:LYS:NZ    | 3:J:931:THR:O    | 2.34                     | 0.57              |
| 3:D:746:LEU:HD23  | 3:D:758:PRO:HG3  | 1.87                     | 0.57              |
| 1:G:54:CYS:HB3    | 1:G:148:ARG:HG2  | 1.86                     | 0.57              |
| 3:D:489:ASN:HA    | 3:D:904:ALA:HB1  | 1.86                     | 0.57              |
| 3:D:746:LEU:HB2   | 3:D:754:ILE:HD11 | 1.86                     | 0.57              |
| 2:I:1288:GLN:HG2  | 2:I:1315:MET:HE1 | 1.87                     | 0.57              |
| 3:J:958:ILE:HG23  | 3:J:982:LEU:HD11 | 1.87                     | 0.57              |
| 1:B:90:VAL:HG11   | 1:B:146:VAL:HG11 | 1.86                     | 0.57              |
| 3:J:746:LEU:HB2   | 3:J:754:ILE:HD11 | 1.86                     | 0.57              |
| 4:K:35:LYS:NZ     | 4:K:71:GLU:OE2   | 2.36                     | 0.57              |
| 3:D:706:VAL:HG12  | 3:D:715:LYS:HB3  | 1.87                     | 0.57              |
| 2:I:1261:GLY:O    | 2:I:1262:LYS:HB2 | 2.04                     | 0.57              |
| 2:I:269:ILE:HG23  | 2:I:273:HIS:HB2  | 1.87                     | 0.57              |
| 3:J:388:ARG:HB2   | 3:J:390:LEU:HD13 | 1.87                     | 0.57              |
| 2:C:65:ASN:HB3    | 2:C:105:TYR:HB2  | 1.87                     | 0.57              |
| 3:D:279:LEU:HD11  | 3:D:296:LYS:HG2  | 1.87                     | 0.57              |
| 5:F:134:VAL:HG21  | 5:F:266:PHE:HE1  | 1.69                     | 0.57              |
| 1:H:90:VAL:HG11   | 1:H:146:VAL:HG11 | 1.86                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:J:706:VAL:HG12  | 3:J:715:LYS:HB3   | 1.87                     | 0.57              |
| 3:J:44:ILE:HG13   | 5:L:450:ILE:HG22  | 1.86                     | 0.57              |
| 2:C:840:SER:O     | 2:C:1047:LEU:N    | 2.38                     | 0.56              |
| 2:C:357:ASN:ND2   | 2:C:358:ASP:OD2   | 2.38                     | 0.56              |
| 3:J:279:LEU:HD11  | 3:J:296:LYS:HG2   | 1.87                     | 0.56              |
| 3:J:1067:ARG:NH1  | 3:J:1074:LEU:O    | 2.36                     | 0.56              |
| 3:D:701:LEU:HD12  | 3:D:723:TYR:HB2   | 1.87                     | 0.56              |
| 2:I:1254:VAL:O    | 3:J:99:ARG:NH2    | 2.38                     | 0.56              |
| 3:J:1173:ARG:HH21 | 3:J:1192:LYS:HE3  | 1.70                     | 0.56              |
| 3:J:506:VAL:HG23  | 3:J:628:GLY:HA3   | 1.87                     | 0.56              |
| 2:I:357:ASN:ND2   | 2:I:358:ASP:OD2   | 2.38                     | 0.56              |
| 3:J:51:PRO:HB2    | 3:J:58:CYS:HA     | 1.86                     | 0.56              |
| 2:I:166:SER:HB3   | 6:N:23:SER:CA     | 2.35                     | 0.56              |
| 1:B:190:ALA:HB2   | 1:B:200:LYS:HB2   | 1.86                     | 0.56              |
| 2:C:94:ALA:HB2    | 2:C:129:LEU:HD11  | 1.87                     | 0.56              |
| 3:D:506:VAL:HG23  | 3:D:628:GLY:HA3   | 1.87                     | 0.56              |
| 2:I:829:THR:HG23  | 2:I:1059:ARG:HA   | 1.87                     | 0.56              |
| 3:J:701:LEU:HD12  | 3:J:723:TYR:HB2   | 1.87                     | 0.56              |
| 3:J:746:LEU:HD23  | 3:J:758:PRO:HG3   | 1.87                     | 0.56              |
| 2:C:975:ILE:HG12  | 2:C:1014:LEU:HD13 | 1.88                     | 0.56              |
| 3:D:218:THR:HA    | 3:D:221:ILE:HG22  | 1.88                     | 0.56              |
| 2:C:829:THR:HG23  | 2:C:1059:ARG:HA   | 1.88                     | 0.56              |
| 2:C:1246:ARG:NE   | 3:D:348:ASP:OD1   | 2.33                     | 0.56              |
| 2:I:930:ASP:OD2   | 2:I:931:VAL:N     | 2.39                     | 0.56              |
| 5:L:134:VAL:HG21  | 5:L:266:PHE:HE1   | 1.70                     | 0.56              |
| 3:D:388:ARG:HB2   | 3:D:390:LEU:HD13  | 1.87                     | 0.56              |
| 3:D:51:PRO:HB2    | 3:D:58:CYS:HA     | 1.86                     | 0.56              |
| 2:I:65:ASN:HB3    | 2:I:105:TYR:HB2   | 1.87                     | 0.56              |
| 3:J:1173:ARG:NE   | 3:J:1192:LYS:HG3  | 2.11                     | 0.56              |
| 3:J:218:THR:HA    | 3:J:221:ILE:HG22  | 1.88                     | 0.56              |
| 1:B:11:PRO:HG3    | 1:B:31:LEU:HD13   | 1.88                     | 0.56              |
| 3:D:1293:GLU:H    | 3:J:1226:VAL:HB   | 1.69                     | 0.56              |
| 1:G:12:ARG:H      | 1:G:30:PRO:HD2    | 1.69                     | 0.55              |
| 2:I:310:ILE:HG21  | 2:I:325:LEU:HB3   | 1.87                     | 0.55              |
| 3:J:489:ASN:HA    | 3:J:904:ALA:HB1   | 1.87                     | 0.55              |
| 1:H:11:PRO:HG3    | 1:H:31:LEU:HD13   | 1.87                     | 0.55              |
| 2:I:373:GLY:O     | 5:L:99:ARG:NH1    | 2.39                     | 0.55              |
| 1:B:74:VAL:HG11   | 1:B:81:ILE:HD11   | 1.88                     | 0.55              |
| 3:D:1143:ASP:OD1  | 3:D:1148:ARG:NH1  | 2.39                     | 0.55              |
| 5:F:454:VAL:HA    | 5:F:457:ILE:HD12  | 1.86                     | 0.55              |
| 5:F:573:LEU:H     | 5:F:573:LEU:HD23  | 1.70                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:45:ARG:HE    | 1:H:38:THR:HB    | 1.71                     | 0.55              |
| 2:I:840:SER:O    | 2:I:1047:LEU:N   | 2.39                     | 0.55              |
| 5:F:560:ARG:NH1  | 5:F:566:ASP:OD1  | 2.40                     | 0.55              |
| 5:L:560:ARG:NH1  | 5:L:566:ASP:OD1  | 2.39                     | 0.55              |
| 5:F:39:ASP:N     | 5:F:39:ASP:OD1   | 2.22                     | 0.55              |
| 1:G:96:ASP:HA    | 1:G:148:ARG:HD3  | 1.89                     | 0.55              |
| 2:I:94:ALA:HB2   | 2:I:129:LEU:HD11 | 1.86                     | 0.55              |
| 5:F:583:THR:HG22 | 5:F:584:ARG:H    | 1.72                     | 0.55              |
| 3:J:1143:ASP:OD1 | 3:J:1148:ARG:NH1 | 2.39                     | 0.55              |
| 2:C:269:ILE:HG23 | 2:C:273:HIS:HB2  | 1.87                     | 0.55              |
| 3:D:1297:LYS:HG2 | 3:J:1302:TYR:H   | 1.70                     | 0.55              |
| 3:D:57:PHE:HB3   | 3:D:98:ARG:HH22  | 1.72                     | 0.55              |
| 3:D:958:ILE:HG23 | 3:D:982:LEU:HD11 | 1.87                     | 0.55              |
| 3:J:114:ILE:HD12 | 3:J:304:ASP:HB3  | 1.89                     | 0.55              |
| 3:D:205:LEU:HD23 | 3:D:217:LEU:HB3  | 1.89                     | 0.55              |
| 5:L:573:LEU:H    | 5:L:573:LEU:HD23 | 1.71                     | 0.55              |
| 5:L:9:LEU:HD22   | 6:N:46:GLN:O     | 2.07                     | 0.55              |
| 1:A:45:ARG:NH2   | 2:C:1216:ARG:HA  | 2.21                     | 0.54              |
| 2:C:310:ILE:HG21 | 2:C:325:LEU:HB3  | 1.87                     | 0.54              |
| 3:J:120:LEU:HB3  | 3:J:121:PRO:HD3  | 1.89                     | 0.54              |
| 2:C:930:ASP:OD2  | 2:C:931:VAL:N    | 2.39                     | 0.54              |
| 3:D:114:ILE:HD12 | 3:D:304:ASP:HB3  | 1.89                     | 0.54              |
| 3:D:614:LEU:HD23 | 4:E:7:GLN:HB2    | 1.90                     | 0.54              |
| 3:J:205:LEU:HD23 | 3:J:217:LEU:HB3  | 1.88                     | 0.54              |
| 2:C:1119:MET:HB2 | 2:C:1228:GLY:HA2 | 1.89                     | 0.54              |
| 5:L:583:THR:HG22 | 5:L:584:ARG:H    | 1.72                     | 0.54              |
| 2:C:400:VAL:HG21 | 2:C:452:ARG:NH1  | 2.22                     | 0.54              |
| 2:C:1282:GLY:HA3 | 4:E:17:PHE:CE1   | 2.42                     | 0.54              |
| 2:I:856:ASN:HB3  | 5:L:613:ASP:HA   | 1.89                     | 0.54              |
| 3:J:57:PHE:HB3   | 3:J:98:ARG:HH22  | 1.72                     | 0.54              |
| 3:J:614:LEU:HD23 | 4:K:7:GLN:HB2    | 1.89                     | 0.54              |
| 3:D:1036:ARG:HG2 | 3:D:1037:PHE:H   | 1.73                     | 0.54              |
| 2:I:1282:GLY:HA3 | 4:K:17:PHE:CE1   | 2.42                     | 0.54              |
| 2:I:344:GLY:HA3  | 2:I:346:TYR:CZ   | 2.43                     | 0.54              |
| 1:G:70:THR:HG21  | 2:I:755:LYS:HE2  | 1.90                     | 0.54              |
| 3:D:120:LEU:HB3  | 3:D:121:PRO:HD3  | 1.89                     | 0.54              |
| 5:F:21:TYR:HB3   | 5:F:54:GLN:HG3   | 1.90                     | 0.54              |
| 5:L:21:TYR:HB3   | 5:L:54:GLN:HG3   | 1.88                     | 0.54              |
| 1:H:64:VAL:HG12  | 1:H:65:LEU:H     | 1.73                     | 0.54              |
| 2:I:95:PRO:HA    | 2:I:126:GLU:HG2  | 1.90                     | 0.54              |
| 1:H:61:ILE:HG22  | 1:H:63:GLY:H     | 1.73                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:J:1036:ARG:HG2 | 3:J:1037:PHE:H   | 1.73                     | 0.54              |
| 2:C:95:PRO:HA    | 2:C:126:GLU:HG2  | 1.90                     | 0.53              |
| 3:D:394:ILE:HG21 | 5:F:536:THR:HA   | 1.90                     | 0.53              |
| 2:I:1119:MET:HB2 | 2:I:1228:GLY:HA2 | 1.89                     | 0.53              |
| 1:A:96:ASP:HA    | 1:A:148:ARG:HD3  | 1.89                     | 0.53              |
| 3:D:1286:LYS:HD2 | 3:D:1290:ARG:NH2 | 2.23                     | 0.53              |
| 5:F:330:LEU:O    | 5:F:334:SER:OG   | 2.21                     | 0.53              |
| 3:D:44:ILE:HG13  | 5:F:450:ILE:HG22 | 1.91                     | 0.53              |
| 5:F:530:LEU:H    | 5:F:530:LEU:HD23 | 1.74                     | 0.53              |
| 1:G:117:HIS:NE2  | 1:G:121:VAL:O    | 2.41                     | 0.53              |
| 1:H:56:VAL:HG22  | 1:H:144:ILE:HD11 | 1.90                     | 0.53              |
| 3:J:1286:LYS:HD2 | 3:J:1290:ARG:NH2 | 2.23                     | 0.53              |
| 2:I:50:GLU:HG2   | 2:I:73:TYR:HE1   | 1.74                     | 0.53              |
| 5:L:330:LEU:O    | 5:L:334:SER:OG   | 2.21                     | 0.53              |
| 1:A:14:VAL:HG22  | 1:A:15:ASP:H     | 1.74                     | 0.53              |
| 2:C:1160:ASP:O   | 2:C:1161:LEU:HB2 | 2.08                     | 0.53              |
| 2:C:1191:LYS:HD3 | 2:C:1193:ALA:H   | 1.74                     | 0.53              |
| 1:G:14:VAL:HG22  | 1:G:15:ASP:H     | 1.74                     | 0.53              |
| 1:H:74:VAL:HG11  | 1:H:81:ILE:HD11  | 1.88                     | 0.53              |
| 3:J:712:GLN:HG2  | 3:J:713:GLU:H    | 1.73                     | 0.53              |
| 2:I:905:ILE:O    | 5:L:599:ARG:NH1  | 2.41                     | 0.53              |
| 1:B:37:HIS:CE1   | 2:C:1216:ARG:HD2 | 2.42                     | 0.53              |
| 5:L:229:VAL:HG12 | 5:L:232:ARG:HH12 | 1.73                     | 0.53              |
| 2:C:1288:GLN:HG2 | 2:C:1315:MET:HE1 | 1.91                     | 0.53              |
| 2:C:905:ILE:O    | 5:F:599:ARG:NH1  | 2.42                     | 0.53              |
| 1:G:80:GLU:O     | 1:G:84:ASN:ND2   | 2.42                     | 0.53              |
| 2:I:1296:ASP:HB3 | 2:I:1320:PRO:HB3 | 1.91                     | 0.53              |
| 1:B:56:VAL:HG22  | 1:B:144:ILE:HD11 | 1.90                     | 0.53              |
| 1:B:61:ILE:HG22  | 1:B:63:GLY:H     | 1.73                     | 0.53              |
| 1:A:70:THR:HG21  | 2:C:755:LYS:HE2  | 1.91                     | 0.53              |
| 5:F:577:GLY:HA3  | 5:F:583:THR:HG23 | 1.91                     | 0.53              |
| 2:I:520:PRO:HG3  | 2:I:714:VAL:HG11 | 1.90                     | 0.53              |
| 3:J:1199:PHE:CD2 | 3:J:1202:GLU:HB3 | 2.44                     | 0.53              |
| 2:I:1246:ARG:NE  | 3:J:348:ASP:OD1  | 2.33                     | 0.53              |
| 2:C:1296:ASP:HB3 | 2:C:1320:PRO:HB3 | 1.89                     | 0.53              |
| 2:C:520:PRO:HG3  | 2:C:714:VAL:HG11 | 1.90                     | 0.53              |
| 2:C:50:GLU:HG2   | 2:C:73:TYR:HE1   | 1.74                     | 0.53              |
| 1:G:38:THR:OG1   | 1:H:45:ARG:NH1   | 2.42                     | 0.53              |
| 2:I:1160:ASP:O   | 2:I:1161:LEU:HB2 | 2.08                     | 0.53              |
| 5:L:530:LEU:HD23 | 5:L:530:LEU:H    | 1.73                     | 0.53              |
| 5:L:577:GLY:HA3  | 5:L:583:THR:HG23 | 1.91                     | 0.53              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:C:344:GLY:HA3  | 2:C:346:TYR:CZ    | 2.44                     | 0.52              |
| 3:D:527:LEU:HB2  | 3:D:550:VAL:HG12  | 1.91                     | 0.52              |
| 1:A:13:LEU:H     | 1:A:13:LEU:HD23   | 1.74                     | 0.52              |
| 1:A:117:HIS:NE2  | 1:A:121:VAL:O     | 2.42                     | 0.52              |
| 1:B:82:LEU:HD22  | 1:B:173:VAL:HG22  | 1.92                     | 0.52              |
| 3:D:712:GLN:HG2  | 3:D:713:GLU:H     | 1.73                     | 0.52              |
| 2:I:1191:LYS:HD3 | 2:I:1193:ALA:H    | 1.74                     | 0.52              |
| 2:I:886:LYS:H    | 2:I:917:SER:HB3   | 1.74                     | 0.52              |
| 1:G:13:LEU:H     | 1:G:13:LEU:HD23   | 1.74                     | 0.52              |
| 1:A:80:GLU:O     | 1:A:84:ASN:ND2    | 2.42                     | 0.52              |
| 3:D:1199:PHE:CD2 | 3:D:1202:GLU:HB3  | 2.44                     | 0.52              |
| 5:F:229:VAL:HG12 | 5:F:232:ARG:HH12  | 1.73                     | 0.52              |
| 5:F:511:ILE:HG12 | 5:F:512:GLY:H     | 1.73                     | 0.52              |
| 1:G:23:HIS:HB2   | 1:G:206:GLU:HA    | 1.91                     | 0.52              |
| 2:I:30:ILE:HD12  | 2:I:30:ILE:H      | 1.75                     | 0.52              |
| 2:I:97:ARG:HB3   | 2:I:121:GLU:HB2   | 1.92                     | 0.52              |
| 5:L:511:ILE:HG12 | 5:L:512:GLY:H     | 1.73                     | 0.52              |
| 2:C:558:VAL:HG11 | 2:C:573:ASN:HB3   | 1.92                     | 0.52              |
| 3:J:527:LEU:HB2  | 3:J:550:VAL:HG12  | 1.91                     | 0.52              |
| 5:F:9:LEU:HD22   | 6:M:46:GLN:O      | 2.10                     | 0.52              |
| 3:J:532:GLU:HA   | 3:J:535:ARG:HB3   | 1.92                     | 0.51              |
| 3:D:532:GLU:HA   | 3:D:535:ARG:HB3   | 1.92                     | 0.51              |
| 3:J:136:GLU:OE2  | 3:J:312:ARG:NH1   | 2.42                     | 0.51              |
| 2:C:886:LYS:H    | 2:C:917:SER:HB3   | 1.74                     | 0.51              |
| 3:D:136:GLU:OE2  | 3:D:312:ARG:NH1   | 2.42                     | 0.51              |
| 3:D:847:ASP:OD1  | 3:D:847:ASP:N     | 2.42                     | 0.51              |
| 2:I:968:GLU:HG3  | 2:I:1018:TYR:HE1  | 1.75                     | 0.51              |
| 2:C:1086:PRO:HB2 | 2:C:1212:LEU:HD23 | 1.92                     | 0.51              |
| 2:C:232:ILE:HG13 | 2:C:331:LYS:O     | 2.10                     | 0.51              |
| 2:C:985:GLU:HB3  | 2:C:988:LYS:HB2   | 1.91                     | 0.51              |
| 3:D:961:SER:HB2  | 3:D:981:GLU:HB3   | 1.93                     | 0.51              |
| 2:I:590:PRO:HG3  | 2:I:605:TYR:CZ    | 2.46                     | 0.51              |
| 3:J:961:SER:HB2  | 3:J:981:GLU:HB3   | 1.93                     | 0.51              |
| 5:F:10:LYS:HA    | 5:F:13:VAL:HG12   | 1.93                     | 0.51              |
| 5:F:402:LEU:HA   | 5:F:405:ILE:HG12  | 1.93                     | 0.51              |
| 1:H:13:LEU:HD23  | 1:H:13:LEU:H      | 1.76                     | 0.51              |
| 2:I:558:VAL:HG11 | 2:I:573:ASN:HB3   | 1.92                     | 0.51              |
| 1:A:23:HIS:HB2   | 1:A:206:GLU:HA    | 1.91                     | 0.51              |
| 3:D:1173:ARG:NE  | 3:D:1192:LYS:HG3  | 2.12                     | 0.51              |
| 2:I:1086:PRO:HB2 | 2:I:1212:LEU:HD23 | 1.92                     | 0.51              |
| 2:C:590:PRO:HG3  | 2:C:605:TYR:CZ    | 2.45                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:718:ALA:HB2   | 2:C:783:LEU:HD23  | 1.93                     | 0.51              |
| 1:H:82:LEU:HD22   | 1:H:173:VAL:HG22  | 1.91                     | 0.51              |
| 2:I:1117:LEU:HD12 | 2:I:1195:ILE:HG12 | 1.92                     | 0.51              |
| 5:L:491:GLU:O     | 5:L:491:GLU:HG3   | 2.11                     | 0.51              |
| 3:D:1157:ALA:HB2  | 3:D:1210:ILE:HD11 | 1.93                     | 0.51              |
| 3:D:1280:VAL:CG2  | 3:D:1304:ARG:HE   | 2.24                     | 0.51              |
| 2:C:1302:THR:HG22 | 5:F:531:PRO:HB3   | 1.92                     | 0.51              |
| 3:J:425:ARG:HG2   | 3:J:426:ALA:H     | 1.76                     | 0.51              |
| 5:L:402:LEU:HA    | 5:L:405:ILE:HG12  | 1.93                     | 0.51              |
| 2:C:180:ARG:CZ    | 2:C:465:ARG:HH12  | 2.24                     | 0.50              |
| 3:D:1167:LYS:NZ   | 3:D:1167:LYS:HB2  | 2.26                     | 0.50              |
| 2:I:255:ILE:HB    | 2:I:263:VAL:HB    | 1.93                     | 0.50              |
| 2:C:841:ARG:HA    | 2:C:1046:VAL:HA   | 1.93                     | 0.50              |
| 2:C:1117:LEU:HD12 | 2:C:1195:ILE:HG12 | 1.92                     | 0.50              |
| 2:C:97:ARG:HB3    | 2:C:121:GLU:HB2   | 1.93                     | 0.50              |
| 3:D:425:ARG:HG2   | 3:D:426:ALA:H     | 1.75                     | 0.50              |
| 3:D:978:ARG:HB2   | 3:D:1199:PHE:CZ   | 2.46                     | 0.50              |
| 5:F:491:GLU:HG3   | 5:F:491:GLU:O     | 2.11                     | 0.50              |
| 5:L:127:ILE:O     | 5:L:130:VAL:HG22  | 2.11                     | 0.50              |
| 3:J:1150:PRO:O    | 6:N:26:SER:OG     | 2.29                     | 0.50              |
| 5:F:98:VAL:HG22   | 5:F:402:LEU:HD11  | 1.93                     | 0.50              |
| 2:I:718:ALA:HB2   | 2:I:783:LEU:HD23  | 1.93                     | 0.50              |
| 2:I:985:GLU:HB3   | 2:I:988:LYS:HB2   | 1.93                     | 0.50              |
| 3:J:1368:ASP:OD1  | 3:J:1371:ARG:NH2  | 2.45                     | 0.50              |
| 5:L:10:LYS:HA     | 5:L:13:VAL:HG12   | 1.92                     | 0.50              |
| 5:L:98:VAL:HG22   | 5:L:402:LEU:HD11  | 1.93                     | 0.50              |
| 2:C:255:ILE:HB    | 2:C:263:VAL:HB    | 1.93                     | 0.50              |
| 3:D:1368:ASP:OD1  | 3:D:1371:ARG:NH2  | 2.45                     | 0.50              |
| 1:H:59:VAL:O      | 1:H:171:LEU:N     | 2.45                     | 0.50              |
| 2:I:149:LEU:HD11  | 2:I:451:ARG:HB3   | 1.93                     | 0.50              |
| 3:J:1280:VAL:CG2  | 3:J:1304:ARG:HE   | 2.24                     | 0.50              |
| 3:J:290:ILE:HD12  | 3:J:290:ILE:H     | 1.77                     | 0.50              |
| 3:D:1077:ALA:HB2  | 3:D:1100:PHE:CD1  | 2.46                     | 0.50              |
| 3:D:665:GLN:OE1   | 3:D:678:ARG:NH2   | 2.44                     | 0.50              |
| 2:I:1256:GLN:HB3  | 2:I:1301:ARG:HH22 | 1.75                     | 0.50              |
| 3:J:1077:ALA:HB2  | 3:J:1100:PHE:CD1  | 2.47                     | 0.50              |
| 3:J:1157:ALA:HB2  | 3:J:1210:ILE:HD11 | 1.93                     | 0.50              |
| 2:I:520:PRO:HB3   | 2:I:714:VAL:HG21  | 1.94                     | 0.50              |
| 3:D:474:LEU:HD12  | 3:D:477:GLN:HE21  | 1.76                     | 0.50              |
| 5:F:53:ILE:O      | 5:F:54:GLN:NE2    | 2.36                     | 0.50              |
| 2:I:1024:GLU:HA   | 2:I:1027:LYS:HG2  | 1.93                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:I:887:VAL:HB    | 2:I:913:VAL:CG2   | 2.42                     | 0.50              |
| 2:I:929:ILE:HD13  | 2:I:1055:ALA:HB2  | 1.94                     | 0.50              |
| 1:A:228:LEU:HD21  | 1:B:224:LEU:HD23  | 1.93                     | 0.50              |
| 1:G:208:ASN:N     | 1:G:208:ASN:OD1   | 2.44                     | 0.50              |
| 3:D:1293:GLU:HG3  | 3:J:1227:HIS:HB2  | 1.93                     | 0.50              |
| 3:J:665:GLN:OE1   | 3:J:678:ARG:NH2   | 2.44                     | 0.50              |
| 6:M:19:THR:HB     | 6:M:56:ARG:HB3    | 1.93                     | 0.50              |
| 2:C:887:VAL:HB    | 2:C:913:VAL:CG2   | 2.42                     | 0.50              |
| 3:J:1158:GLU:HA   | 3:J:1223:LEU:HD11 | 1.94                     | 0.50              |
| 1:B:13:LEU:H      | 1:B:13:LEU:HD23   | 1.76                     | 0.49              |
| 2:C:1032:LYS:O    | 2:C:1036:ILE:HG13 | 2.12                     | 0.49              |
| 2:C:149:LEU:HD11  | 2:C:451:ARG:HB3   | 1.93                     | 0.49              |
| 3:D:847:ASP:HB3   | 3:D:860:ARG:H     | 1.77                     | 0.49              |
| 6:N:19:THR:HB     | 6:N:56:ARG:HB3    | 1.93                     | 0.49              |
| 1:H:34:GLY:N      | 1:H:199:ASP:OD2   | 2.46                     | 0.49              |
| 2:I:232:ILE:HG13  | 2:I:331:LYS:O     | 2.10                     | 0.49              |
| 3:D:54:ASP:HA     | 3:D:61:ILE:HD11   | 1.95                     | 0.49              |
| 1:G:211:ILE:HD12  | 1:G:215:GLU:HG2   | 1.94                     | 0.49              |
| 2:I:808:ASN:H     | 3:J:633:ALA:HB2   | 1.76                     | 0.49              |
| 3:J:733:SER:O     | 3:J:737:ILE:HG12  | 2.12                     | 0.49              |
| 5:L:165:PHE:CZ    | 5:L:217:ALA:HA    | 2.47                     | 0.49              |
| 3:D:1238:GLN:NE2  | 3:D:1248:ILE:O    | 2.45                     | 0.49              |
| 3:D:963:VAL:HB    | 3:D:980:THR:HG23  | 1.94                     | 0.49              |
| 1:G:23:HIS:HB2    | 1:G:205:MET:O     | 2.13                     | 0.49              |
| 1:H:86:LYS:HE2    | 1:H:174:ASP:HB2   | 1.94                     | 0.49              |
| 2:I:26:TYR:HE2    | 2:I:32:LEU:HD12   | 1.78                     | 0.49              |
| 3:J:817:HIS:CE1   | 3:J:860:ARG:HE    | 2.30                     | 0.49              |
| 2:C:808:ASN:H     | 3:D:633:ALA:HB2   | 1.76                     | 0.49              |
| 1:H:37:HIS:CE1    | 2:I:1216:ARG:HD2  | 2.47                     | 0.49              |
| 2:I:841:ARG:HA    | 2:I:1046:VAL:HA   | 1.93                     | 0.49              |
| 3:J:847:ASP:HB3   | 3:J:860:ARG:H     | 1.78                     | 0.49              |
| 5:L:126:GLY:O     | 5:L:130:VAL:HG13  | 2.11                     | 0.49              |
| 1:B:100:LEU:HD11  | 1:B:121:VAL:HG21  | 1.94                     | 0.49              |
| 3:D:349:TYR:CE2   | 3:D:379:PRO:HG2   | 2.48                     | 0.49              |
| 1:H:32:GLU:HA     | 1:H:198:LEU:HD12  | 1.95                     | 0.49              |
| 3:D:290:ILE:HD12  | 3:D:290:ILE:H     | 1.77                     | 0.49              |
| 3:D:576:ARG:NH1   | 3:D:593:ASN:O     | 2.46                     | 0.49              |
| 5:F:515:GLU:HG2   | 5:F:516:ASP:H     | 1.78                     | 0.49              |
| 2:I:1254:VAL:HG22 | 2:I:1255:THR:HG23 | 1.94                     | 0.49              |
| 2:I:732:ILE:HD11  | 2:I:769:PRO:HB3   | 1.94                     | 0.49              |
| 3:J:198:CYS:O     | 3:J:202:ARG:HG3   | 2.13                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:J:963:VAL:HB    | 3:J:980:THR:HG23  | 1.94                     | 0.49              |
| 5:F:165:PHE:CZ    | 5:F:217:ALA:HA    | 2.47                     | 0.49              |
| 2:I:1287:LEU:HD13 | 3:J:1357:ILE:HD11 | 1.94                     | 0.49              |
| 2:C:1301:ARG:HG3  | 2:C:1302:THR:H    | 1.78                     | 0.49              |
| 2:C:516:ASP:O     | 2:C:516:ASP:OD1   | 2.31                     | 0.49              |
| 3:D:198:CYS:O     | 3:D:202:ARG:HG3   | 2.13                     | 0.49              |
| 2:C:1105:SER:HA   | 3:D:736:GLN:NE2   | 2.28                     | 0.49              |
| 5:L:162:ILE:HD13  | 5:L:221:PHE:HE2   | 1.77                     | 0.49              |
| 5:L:297:MET:HB2   | 5:L:326:TRP:HB2   | 1.95                     | 0.49              |
| 1:A:45:ARG:HD3    | 2:C:1083:GLU:HB3  | 1.95                     | 0.48              |
| 3:D:1158:GLU:HA   | 3:D:1223:LEU:HD11 | 1.95                     | 0.48              |
| 3:D:700:ASN:ND2   | 3:D:700:ASN:O     | 2.46                     | 0.48              |
| 5:F:164:GLY:O     | 5:F:260:ARG:HB2   | 2.13                     | 0.48              |
| 2:I:232:ILE:HA    | 2:I:237:LEU:HA    | 1.94                     | 0.48              |
| 2:I:117:ILE:HG21  | 2:I:488:MET:HG2   | 1.95                     | 0.48              |
| 3:J:700:ASN:O     | 3:J:700:ASN:ND2   | 2.46                     | 0.48              |
| 1:A:23:HIS:HB2    | 1:A:205:MET:O     | 2.13                     | 0.48              |
| 1:B:86:LYS:HE2    | 1:B:174:ASP:HB2   | 1.94                     | 0.48              |
| 2:C:732:ILE:HD11  | 2:C:769:PRO:HB3   | 1.94                     | 0.48              |
| 2:I:1192:GLU:O    | 2:I:1196:LYS:HG2  | 2.13                     | 0.48              |
| 2:I:349:GLU:O     | 2:I:353:VAL:HG23  | 2.13                     | 0.48              |
| 2:I:516:ASP:OD1   | 2:I:516:ASP:O     | 2.30                     | 0.48              |
| 2:C:144:VAL:HB    | 2:C:526:HIS:CE1   | 2.48                     | 0.48              |
| 3:D:1319:PHE:CE2  | 3:D:1342:ASP:HB2  | 2.48                     | 0.48              |
| 3:D:733:SER:O     | 3:D:737:ILE:HG12  | 2.12                     | 0.48              |
| 5:F:266:PHE:HA    | 5:F:269:LEU:HD12  | 1.95                     | 0.48              |
| 3:J:732:GLY:HA2   | 3:J:736:GLN:NE2   | 2.29                     | 0.48              |
| 5:L:137:TYR:CE2   | 5:L:139:GLU:HB2   | 2.48                     | 0.48              |
| 5:L:305:LEU:HD13  | 5:L:315:TRP:HA    | 1.95                     | 0.48              |
| 2:C:60:GLN:HA     | 2:C:67:GLU:HA     | 1.95                     | 0.48              |
| 3:D:1297:LYS:HB3  | 3:J:1302:TYR:O    | 2.13                     | 0.48              |
| 3:J:54:ASP:HA     | 3:J:61:ILE:HD11   | 1.94                     | 0.48              |
| 1:A:211:ILE:HD12  | 1:A:215:GLU:HG2   | 1.94                     | 0.48              |
| 2:C:117:ILE:HG21  | 2:C:488:MET:HG2   | 1.95                     | 0.48              |
| 3:D:1346:GLY:O    | 3:D:1350:ASN:ND2  | 2.36                     | 0.48              |
| 5:F:291:CYS:HA    | 5:F:295:CYS:HB2   | 1.95                     | 0.48              |
| 1:H:100:LEU:HD11  | 1:H:121:VAL:HG21  | 1.94                     | 0.48              |
| 3:D:490:ILE:HG13  | 3:D:491:LEU:HG    | 1.96                     | 0.48              |
| 3:D:817:HIS:CE1   | 3:D:860:ARG:HE    | 2.31                     | 0.48              |
| 3:J:478:LEU:HG    | 4:K:47:THR:HG23   | 1.96                     | 0.48              |
| 3:D:732:GLY:HA2   | 3:D:736:GLN:NE2   | 2.29                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:F:137:TYR:CE2   | 5:F:139:GLU:HB2   | 2.48                     | 0.48              |
| 2:I:144:VAL:HB    | 2:I:526:HIS:CE1   | 2.49                     | 0.48              |
| 3:J:576:ARG:NH1   | 3:J:593:ASN:O     | 2.46                     | 0.48              |
| 2:C:1062:PRO:HA   | 2:C:1076:ILE:HG23 | 1.95                     | 0.48              |
| 5:F:297:MET:HB2   | 5:F:326:TRP:HB2   | 1.96                     | 0.48              |
| 2:I:166:SER:HB3   | 6:N:23:SER:HA     | 1.95                     | 0.48              |
| 2:C:1254:VAL:HG22 | 2:C:1255:THR:HG23 | 1.94                     | 0.48              |
| 2:C:138:ILE:HD13  | 2:C:143:ARG:HG3   | 1.96                     | 0.48              |
| 2:C:509:SER:HB3   | 2:C:512:SER:HB3   | 1.94                     | 0.48              |
| 5:F:225:ARG:O     | 5:F:229:VAL:HG13  | 2.14                     | 0.48              |
| 2:I:402:ARG:HG2   | 2:I:416:GLY:H     | 1.79                     | 0.48              |
| 2:I:523:GLU:HB3   | 2:I:527:LYS:HE3   | 1.95                     | 0.48              |
| 2:I:60:GLN:HA     | 2:I:67:GLU:HA     | 1.95                     | 0.48              |
| 3:J:1077:ALA:HA   | 3:J:1100:PHE:HA   | 1.96                     | 0.48              |
| 2:I:1105:SER:HA   | 3:J:736:GLN:NE2   | 2.28                     | 0.48              |
| 5:L:164:GLY:O     | 5:L:260:ARG:HB2   | 2.13                     | 0.48              |
| 1:B:32:GLU:HA     | 1:B:198:LEU:HD12  | 1.95                     | 0.48              |
| 1:B:34:GLY:N      | 1:B:199:ASP:OD2   | 2.45                     | 0.47              |
| 2:C:1247:SER:HB3  | 3:D:375:GLU:O     | 2.14                     | 0.47              |
| 3:D:1077:ALA:HA   | 3:D:1100:PHE:HA   | 1.96                     | 0.47              |
| 3:D:523:GLU:OE2   | 3:D:547:ARG:NH1   | 2.44                     | 0.47              |
| 1:G:25:LYS:HG2    | 1:G:204:GLU:HG3   | 1.96                     | 0.47              |
| 2:C:1287:LEU:HD13 | 3:D:1357:ILE:HD11 | 1.95                     | 0.47              |
| 2:I:1196:LYS:HA   | 2:I:1199:LEU:HD12 | 1.97                     | 0.47              |
| 3:J:1034:PHE:HB2  | 3:J:1081:VAL:HG23 | 1.95                     | 0.47              |
| 3:J:523:GLU:OE2   | 3:J:547:ARG:NH1   | 2.44                     | 0.47              |
| 2:C:1192:GLU:O    | 2:C:1196:LYS:HG2  | 2.13                     | 0.47              |
| 2:C:523:GLU:HB3   | 2:C:527:LYS:HE3   | 1.95                     | 0.47              |
| 3:D:1063:ASP:HB3  | 3:D:1103:GLY:HA3  | 1.97                     | 0.47              |
| 5:F:309:ASN:C     | 5:F:311:THR:H     | 2.18                     | 0.47              |
| 2:I:1301:ARG:HG3  | 2:I:1302:THR:H    | 1.78                     | 0.47              |
| 2:I:494:ASN:OD1   | 2:I:495:ALA:N     | 2.37                     | 0.47              |
| 5:L:266:PHE:HA    | 5:L:269:LEU:HD12  | 1.95                     | 0.47              |
| 5:L:47:MET:HB2    | 6:N:27:PHE:CZ     | 2.49                     | 0.47              |
| 5:F:162:ILE:HD13  | 5:F:221:PHE:HE2   | 1.77                     | 0.47              |
| 5:F:305:LEU:HD13  | 5:F:315:TRP:HA    | 1.95                     | 0.47              |
| 5:F:576:VAL:O     | 5:F:580:PHE:HB2   | 2.14                     | 0.47              |
| 3:J:1063:ASP:O    | 3:J:1067:ARG:HG3  | 2.14                     | 0.47              |
| 3:J:332:LYS:HG2   | 3:J:1328:THR:HB   | 1.97                     | 0.47              |
| 3:J:490:ILE:HG13  | 3:J:491:LEU:HG    | 1.96                     | 0.47              |
| 5:L:515:GLU:HG2   | 5:L:516:ASP:H     | 1.78                     | 0.47              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:C:1240:ASP:HA  | 3:D:445:LYS:HD3   | 1.96                     | 0.47              |
| 2:C:145:ILE:HB   | 2:C:456:VAL:HG22  | 1.97                     | 0.47              |
| 2:C:488:MET:O    | 2:C:490:GLN:N     | 2.41                     | 0.47              |
| 3:D:332:LYS:HG2  | 3:D:1328:THR:HB   | 1.97                     | 0.47              |
| 5:L:291:CYS:HA   | 5:L:295:CYS:HB2   | 1.95                     | 0.47              |
| 3:D:194:LEU:HD13 | 3:D:228:VAL:HG22  | 1.96                     | 0.47              |
| 3:D:950:ILE:HB   | 3:D:1018:ALA:HB3  | 1.97                     | 0.47              |
| 4:K:44:ASP:HB3   | 4:K:48:VAL:HB     | 1.97                     | 0.47              |
| 1:B:102:LEU:O    | 1:B:141:SER:HA    | 2.15                     | 0.47              |
| 2:C:1196:LYS:HA  | 2:C:1199:LEU:HD12 | 1.97                     | 0.47              |
| 2:C:349:GLU:O    | 2:C:353:VAL:HG23  | 2.14                     | 0.47              |
| 3:D:968:ASN:OD1  | 3:D:972:LYS:N     | 2.48                     | 0.47              |
| 2:I:1146:GLN:NE2 | 2:I:1160:ASP:O    | 2.47                     | 0.47              |
| 2:C:1146:GLN:NE2 | 2:C:1160:ASP:O    | 2.47                     | 0.47              |
| 2:C:30:ILE:H     | 2:C:30:ILE:HD12   | 1.79                     | 0.47              |
| 3:D:1063:ASP:O   | 3:D:1067:ARG:HG3  | 2.14                     | 0.47              |
| 1:G:103:ASN:OD1  | 1:G:141:SER:HB3   | 2.14                     | 0.47              |
| 2:I:1247:SER:HB3 | 3:J:375:GLU:O     | 2.14                     | 0.47              |
| 2:I:848:GLU:HG2  | 2:I:888:THR:HG22  | 1.96                     | 0.47              |
| 5:L:225:ARG:O    | 5:L:229:VAL:HG13  | 2.15                     | 0.47              |
| 5:L:309:ASN:C    | 5:L:311:THR:H     | 2.18                     | 0.47              |
| 2:C:232:ILE:HA   | 2:C:237:LEU:HA    | 1.94                     | 0.47              |
| 1:B:191:ARG:NH2  | 3:D:409:TRP:HB3   | 2.29                     | 0.47              |
| 3:D:647:PRO:HG3  | 3:D:697:MET:HB3   | 1.97                     | 0.47              |
| 5:F:105:MET:HE1  | 5:F:385:ARG:HG2   | 1.97                     | 0.47              |
| 5:F:484:ALA:H    | 5:F:494:ILE:HD11  | 1.80                     | 0.47              |
| 3:J:950:ILE:HB   | 3:J:1018:ALA:HB3  | 1.97                     | 0.47              |
| 3:J:647:PRO:HG3  | 3:J:697:MET:HB3   | 1.97                     | 0.47              |
| 2:C:1280:ALA:HB3 | 3:D:431:ARG:HB3   | 1.97                     | 0.47              |
| 3:D:141:PHE:HD1  | 3:D:180:MET:HG3   | 1.80                     | 0.47              |
| 3:D:113:HIS:CE1  | 3:D:307:LEU:HD13  | 2.50                     | 0.47              |
| 2:I:1083:GLU:HG3 | 2:I:1083:GLU:H    | 1.45                     | 0.47              |
| 2:I:692:THR:OG1  | 2:I:693:LEU:N     | 2.48                     | 0.47              |
| 2:C:1105:SER:HA  | 3:D:736:GLN:HE22  | 1.80                     | 0.47              |
| 2:C:56:VAL:O     | 2:C:59:ILE:HG23   | 2.15                     | 0.47              |
| 3:D:1034:PHE:HB2 | 3:D:1081:VAL:HG23 | 1.95                     | 0.47              |
| 3:D:1100:PHE:HB2 | 3:D:1200:GLU:OE1  | 2.15                     | 0.47              |
| 3:D:1360:GLY:HA2 | 4:E:17:PHE:CE2    | 2.50                     | 0.47              |
| 3:D:478:LEU:HG   | 4:E:47:THR:HG23   | 1.97                     | 0.47              |
| 1:H:112:ALA:HB2  | 1:H:128:HIS:HB3   | 1.97                     | 0.47              |
| 1:H:99:ILE:HD11  | 1:H:143:ARG:HB3   | 1.97                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:I:1105:SER:HA   | 3:J:736:GLN:HE22  | 1.80                     | 0.47              |
| 2:I:1185:PRO:HD2  | 2:I:1189:GLY:HA2  | 1.97                     | 0.47              |
| 3:J:113:HIS:CE1   | 3:J:307:LEU:HD13  | 2.50                     | 0.47              |
| 3:J:358:GLY:N     | 3:J:359:PRO:HD3   | 2.28                     | 0.47              |
| 5:L:576:VAL:O     | 5:L:580:PHE:HB2   | 2.14                     | 0.47              |
| 5:L:540:LEU:HD23  | 5:L:610:PHE:CD2   | 2.50                     | 0.47              |
| 1:A:50:SER:HB3    | 1:A:150:ARG:HD2   | 1.97                     | 0.46              |
| 1:A:25:LYS:HG2    | 1:A:204:GLU:HG3   | 1.97                     | 0.46              |
| 2:C:1024:GLU:HA   | 2:C:1027:LYS:HG2  | 1.96                     | 0.46              |
| 3:D:425:ARG:HH12  | 3:D:464:ASP:CG    | 2.18                     | 0.46              |
| 1:G:45:ARG:NH2    | 2:I:1216:ARG:HA   | 2.29                     | 0.46              |
| 2:I:496:LYS:HE3   | 2:I:496:LYS:HB3   | 1.78                     | 0.46              |
| 3:J:968:ASN:OD1   | 3:J:972:LYS:N     | 2.48                     | 0.46              |
| 5:F:47:MET:HB2    | 6:M:27:PHE:CZ     | 2.50                     | 0.46              |
| 2:C:541:GLU:OE1   | 2:C:541:GLU:N     | 2.47                     | 0.46              |
| 3:D:335:GLN:HB2   | 5:F:516:ASP:OD1   | 2.16                     | 0.46              |
| 2:I:1238:LEU:HD12 | 2:I:1238:LEU:H    | 1.81                     | 0.46              |
| 2:I:402:ARG:CG    | 2:I:416:GLY:H     | 2.29                     | 0.46              |
| 2:I:809:GLY:O     | 2:I:812:PHE:HB2   | 2.15                     | 0.46              |
| 5:L:96:ASP:HA     | 5:L:97:PRO:HD2    | 1.86                     | 0.46              |
| 2:C:13:LYS:HD3    | 2:C:1149:TYR:HA   | 1.98                     | 0.46              |
| 2:C:1185:PRO:HD2  | 2:C:1189:GLY:HA2  | 1.97                     | 0.46              |
| 2:C:26:TYR:CZ     | 2:C:28:LEU:HB2    | 2.50                     | 0.46              |
| 3:D:984:LEU:HD22  | 3:D:993:GLU:HG3   | 1.98                     | 0.46              |
| 2:I:1062:PRO:HA   | 2:I:1076:ILE:HG23 | 1.95                     | 0.46              |
| 2:I:26:TYR:CZ     | 2:I:28:LEU:HB2    | 2.50                     | 0.46              |
| 3:J:1360:GLY:HA2  | 4:K:17:PHE:CE2    | 2.51                     | 0.46              |
| 1:B:178:SER:HA    | 1:B:179:PRO:HD3   | 1.67                     | 0.46              |
| 5:F:119:ILE:HA    | 5:F:122:ARG:HD3   | 1.97                     | 0.46              |
| 2:I:91:THR:HG21   | 2:I:503:LYS:HE2   | 1.97                     | 0.46              |
| 5:L:461:ASN:O     | 5:L:465:ARG:HG3   | 2.16                     | 0.46              |
| 2:C:1185:PRO:HB2  | 2:C:1188:ASP:HB3  | 1.97                     | 0.46              |
| 2:C:402:ARG:HG2   | 2:C:416:GLY:H     | 1.79                     | 0.46              |
| 2:C:848:GLU:HG2   | 2:C:888:THR:HG22  | 1.97                     | 0.46              |
| 2:I:1108:ASN:O    | 2:I:1110:GLY:N    | 2.49                     | 0.46              |
| 2:I:1240:ASP:HA   | 3:J:445:LYS:HD3   | 1.97                     | 0.46              |
| 2:I:56:VAL:O      | 2:I:59:ILE:HG23   | 2.15                     | 0.46              |
| 3:J:1063:ASP:HB3  | 3:J:1103:GLY:HA3  | 1.97                     | 0.46              |
| 3:J:194:LEU:HD13  | 3:J:228:VAL:HG22  | 1.97                     | 0.46              |
| 3:J:349:TYR:CE2   | 3:J:379:PRO:HG2   | 2.48                     | 0.46              |
| 5:L:119:ILE:HA    | 5:L:122:ARG:HD3   | 1.97                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:76:GLU:HB3    | 1:B:80:GLU:HG2    | 1.98                     | 0.46              |
| 2:C:1210:ILE:HG22 | 2:C:1211:ARG:H    | 1.80                     | 0.46              |
| 2:C:91:THR:HG21   | 2:C:503:LYS:HE2   | 1.97                     | 0.46              |
| 3:J:1024:THR:HG21 | 3:J:1123:ARG:HD2  | 1.97                     | 0.46              |
| 3:J:1167:LYS:NZ   | 3:J:1167:LYS:HB2  | 2.30                     | 0.46              |
| 3:J:1238:GLN:NE2  | 3:J:1248:ILE:O    | 2.45                     | 0.46              |
| 3:D:974:VAL:HG21  | 3:D:1118:GLY:HA2  | 1.98                     | 0.46              |
| 3:D:1319:PHE:CD2  | 3:D:1342:ASP:HB2  | 2.51                     | 0.46              |
| 3:D:860:ARG:HB3   | 3:D:861:ASN:H     | 1.52                     | 0.46              |
| 4:E:44:ASP:HB3    | 4:E:48:VAL:HB     | 1.97                     | 0.46              |
| 2:I:1185:PRO:HB2  | 2:I:1188:ASP:HB3  | 1.98                     | 0.46              |
| 2:C:452:ARG:NH1   | 2:C:585:GLY:HA3   | 2.30                     | 0.46              |
| 3:D:70:CYS:SG     | 3:D:71:LEU:N      | 2.89                     | 0.46              |
| 5:F:461:ASN:O     | 5:F:465:ARG:HG3   | 2.16                     | 0.46              |
| 2:I:1085:MET:HA   | 2:I:1086:PRO:HD3  | 1.85                     | 0.46              |
| 6:N:21:GLU:HG2    | 6:N:26:SER:HB2    | 1.98                     | 0.46              |
| 1:A:49:SER:OG     | 1:A:50:SER:N      | 2.48                     | 0.46              |
| 1:A:58:GLU:HG2    | 1:A:158:ARG:NH2   | 2.29                     | 0.46              |
| 2:C:402:ARG:CG    | 2:C:416:GLY:H     | 2.29                     | 0.46              |
| 3:D:1215:GLU:HB3  | 3:D:1220:ILE:HD11 | 1.98                     | 0.46              |
| 5:F:511:ILE:HG21  | 5:F:522:PHE:HE2   | 1.81                     | 0.46              |
| 1:H:102:LEU:O     | 1:H:141:SER:HA    | 2.15                     | 0.46              |
| 2:I:1280:ALA:HB3  | 3:J:431:ARG:HB3   | 1.97                     | 0.46              |
| 2:I:13:LYS:HD3    | 2:I:1149:TYR:HA   | 1.97                     | 0.46              |
| 2:I:533:LEU:HD21  | 2:I:571:LEU:HD13  | 1.98                     | 0.46              |
| 5:L:380:VAL:HG22  | 5:L:416:VAL:HG21  | 1.98                     | 0.46              |
| 1:A:45:ARG:HE     | 1:B:38:THR:HB     | 1.80                     | 0.46              |
| 2:C:37:LYS:HA     | 2:C:37:LYS:HD3    | 1.79                     | 0.46              |
| 2:C:692:THR:OG1   | 2:C:693:LEU:N     | 2.48                     | 0.46              |
| 3:D:1024:THR:HG21 | 3:D:1123:ARG:HD2  | 1.97                     | 0.46              |
| 3:D:550:VAL:HG23  | 3:D:552:ILE:HG23  | 1.98                     | 0.46              |
| 3:J:1006:GLY:N    | 3:J:1009:GLU:HG3  | 2.22                     | 0.46              |
| 5:L:245:ALA:O     | 5:L:249:ILE:HG13  | 2.16                     | 0.46              |
| 2:C:929:ILE:HD13  | 2:C:1055:ALA:HB2  | 1.96                     | 0.45              |
| 2:C:1108:ASN:O    | 2:C:1110:GLY:N    | 2.49                     | 0.45              |
| 2:C:138:ILE:HB    | 2:C:143:ARG:HG3   | 1.97                     | 0.45              |
| 3:D:1189:MET:HB2  | 6:M:57:VAL:HB     | 1.98                     | 0.45              |
| 3:D:885:VAL:HG12  | 3:D:894:VAL:HG11  | 1.99                     | 0.45              |
| 2:I:488:MET:O     | 2:I:490:GLN:N     | 2.41                     | 0.45              |
| 3:J:1107:VAL:HG12 | 3:J:1108:GLN:H    | 1.81                     | 0.45              |
| 3:J:885:VAL:HG12  | 3:J:894:VAL:HG11  | 1.98                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:J:984:LEU:HD22  | 3:J:993:GLU:HG3   | 1.98                     | 0.45              |
| 2:C:86:GLN:HA     | 2:C:140:GLY:HA2   | 1.96                     | 0.45              |
| 3:D:342:LEU:HD23  | 3:D:342:LEU:HA    | 1.71                     | 0.45              |
| 5:F:111:LEU:HD11  | 5:F:119:ILE:HD12  | 1.98                     | 0.45              |
| 1:H:76:GLU:HB3    | 1:H:80:GLU:HG2    | 1.97                     | 0.45              |
| 2:I:452:ARG:NH1   | 2:I:585:GLY:HA3   | 2.32                     | 0.45              |
| 2:I:541:GLU:N     | 2:I:541:GLU:OE1   | 2.47                     | 0.45              |
| 2:I:809:GLY:O     | 3:J:357:VAL:HG11  | 2.16                     | 0.45              |
| 3:J:425:ARG:HH12  | 3:J:464:ASP:CG    | 2.18                     | 0.45              |
| 5:L:105:MET:HE1   | 5:L:385:ARG:HG2   | 1.99                     | 0.45              |
| 1:B:112:ALA:HB2   | 1:B:128:HIS:HB3   | 1.97                     | 0.45              |
| 2:C:809:GLY:O     | 2:C:812:PHE:HB2   | 2.15                     | 0.45              |
| 5:F:245:ALA:O     | 5:F:249:ILE:HG13  | 2.16                     | 0.45              |
| 2:I:578:TYR:HB3   | 2:I:590:PRO:HG2   | 1.98                     | 0.45              |
| 3:J:141:PHE:HD1   | 3:J:180:MET:HG3   | 1.80                     | 0.45              |
| 3:J:514:THR:HG22  | 3:J:576:ARG:HG2   | 1.99                     | 0.45              |
| 5:L:412:LEU:HD13  | 5:L:435:ILE:HD11  | 1.98                     | 0.45              |
| 1:B:99:ILE:HD11   | 1:B:143:ARG:HB3   | 1.97                     | 0.45              |
| 2:I:799:ASN:HA    | 2:I:1231:TYR:HA   | 1.99                     | 0.45              |
| 3:J:1215:GLU:HB3  | 3:J:1220:ILE:HD11 | 1.98                     | 0.45              |
| 1:A:103:ASN:OD1   | 1:A:141:SER:HB3   | 2.16                     | 0.45              |
| 3:D:1168:GLU:HG3  | 3:D:1168:GLU:O    | 2.16                     | 0.45              |
| 3:D:1173:ARG:HH21 | 3:D:1192:LYS:CE   | 2.30                     | 0.45              |
| 5:L:297:MET:HA    | 5:L:298:PRO:HD3   | 1.79                     | 0.45              |
| 2:C:1238:LEU:HD12 | 2:C:1238:LEU:H    | 1.81                     | 0.45              |
| 2:C:799:ASN:HA    | 2:C:1231:TYR:HA   | 1.99                     | 0.45              |
| 3:D:1107:VAL:HG12 | 3:D:1108:GLN:H    | 1.81                     | 0.45              |
| 3:D:832:LYS:HD3   | 3:D:1242:ARG:HH12 | 1.81                     | 0.45              |
| 5:F:380:VAL:HG22  | 5:F:416:VAL:HG21  | 1.98                     | 0.45              |
| 1:G:49:SER:OG     | 1:G:50:SER:N      | 2.49                     | 0.45              |
| 2:I:88:ARG:HG2    | 2:I:90:VAL:HG23   | 1.99                     | 0.45              |
| 3:J:385:LEU:HD23  | 3:J:411:ILE:HG13  | 1.98                     | 0.45              |
| 3:J:426:ALA:HB3   | 3:J:427:PRO:HD3   | 1.98                     | 0.45              |
| 4:K:35:LYS:HE2    | 4:K:35:LYS:HB3    | 1.84                     | 0.45              |
| 5:L:53:ILE:O      | 5:L:54:GLN:NE2    | 2.36                     | 0.45              |
| 2:C:494:ASN:OD1   | 2:C:495:ALA:N     | 2.38                     | 0.45              |
| 2:C:548:ARG:O     | 3:D:780:ARG:NH1   | 2.50                     | 0.45              |
| 3:D:426:ALA:HB3   | 3:D:427:PRO:HD3   | 1.98                     | 0.45              |
| 2:I:1210:ILE:HG22 | 2:I:1211:ARG:H    | 1.80                     | 0.45              |
| 2:I:548:ARG:O     | 3:J:780:ARG:NH1   | 2.50                     | 0.45              |
| 2:I:400:VAL:HG22  | 2:I:584:TYR:HD1   | 1.82                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:L:511:ILE:HG21  | 5:L:522:PHE:HE2   | 1.81                     | 0.45              |
| 2:C:1308:ILE:HG21 | 3:D:379:PRO:HB2   | 1.98                     | 0.45              |
| 2:C:533:LEU:HD21  | 2:C:571:LEU:HD13  | 1.98                     | 0.45              |
| 2:C:578:TYR:HB3   | 2:C:590:PRO:HG2   | 1.98                     | 0.45              |
| 2:C:736:VAL:HG23  | 2:C:748:ILE:HA    | 1.99                     | 0.45              |
| 3:D:253:VAL:HA    | 3:D:254:PRO:HD3   | 1.71                     | 0.45              |
| 5:F:289:LYS:HB3   | 5:F:289:LYS:HE2   | 1.87                     | 0.45              |
| 5:F:412:LEU:HD13  | 5:F:435:ILE:HD11  | 1.98                     | 0.45              |
| 1:H:106:GLY:H     | 1:H:133:LEU:HD23  | 1.81                     | 0.45              |
| 3:J:925:GLU:HB3   | 3:J:926:PRO:HD3   | 1.99                     | 0.45              |
| 2:C:143:ARG:HD2   | 2:C:514:PHE:HA    | 1.99                     | 0.45              |
| 1:G:42:ALA:O      | 1:G:46:ILE:HG12   | 2.17                     | 0.45              |
| 2:I:26:TYR:CE2    | 2:I:32:LEU:HD12   | 2.52                     | 0.45              |
| 3:J:1221:LEU:HD23 | 3:J:1229:VAL:HG11 | 1.99                     | 0.45              |
| 3:D:1287:ILE:O    | 3:D:1291:GLU:HG3  | 2.17                     | 0.45              |
| 3:D:514:THR:HG22  | 3:D:576:ARG:HG2   | 1.99                     | 0.45              |
| 3:D:770:LEU:HD22  | 3:D:770:LEU:H     | 1.82                     | 0.45              |
| 2:I:670:PHE:HZ    | 2:I:1117:LEU:HD13 | 1.82                     | 0.45              |
| 2:I:661:VAL:HB    | 2:I:665:ALA:HB3   | 1.99                     | 0.45              |
| 3:J:1168:GLU:O    | 3:J:1168:GLU:HG3  | 2.17                     | 0.45              |
| 3:J:832:LYS:HD3   | 3:J:1242:ARG:HH12 | 1.81                     | 0.45              |
| 3:J:993:GLU:OE1   | 3:J:995:TYR:OH    | 2.30                     | 0.45              |
| 3:D:1150:PRO:O    | 6:M:26:SER:OG     | 2.34                     | 0.44              |
| 1:H:73:GLY:HA3    | 1:H:138:ALA:HB1   | 1.99                     | 0.44              |
| 2:I:143:ARG:HD2   | 2:I:514:PHE:HA    | 1.99                     | 0.44              |
| 3:J:1078:LEU:HD12 | 3:J:1121:LEU:HB3  | 1.99                     | 0.44              |
| 3:J:572:THR:OG1   | 3:J:573:THR:N     | 2.50                     | 0.44              |
| 4:K:69:ARG:O      | 4:K:73:GLN:HG2    | 2.17                     | 0.44              |
| 2:C:148:GLN:HG2   | 2:C:149:LEU:H     | 1.83                     | 0.44              |
| 2:C:587:LEU:HD23  | 2:C:587:LEU:HA    | 1.86                     | 0.44              |
| 2:I:11:ILE:HA     | 2:I:11:ILE:HD13   | 1.83                     | 0.44              |
| 3:J:770:LEU:HD22  | 3:J:770:LEU:H     | 1.82                     | 0.44              |
| 5:L:111:LEU:HD11  | 5:L:119:ILE:HD12  | 1.98                     | 0.44              |
| 1:A:42:ALA:O      | 1:A:46:ILE:HG12   | 2.17                     | 0.44              |
| 1:B:106:GLY:H     | 1:B:133:LEU:HD23  | 1.81                     | 0.44              |
| 3:D:741:ALA:O     | 3:D:762:ASN:ND2   | 2.51                     | 0.44              |
| 2:I:765:ILE:HG13  | 2:I:787:PRO:HG3   | 1.99                     | 0.44              |
| 3:J:1169:THR:HG22 | 3:J:1170:LYS:HB2  | 1.99                     | 0.44              |
| 5:L:158:LEU:HD22  | 5:L:162:ILE:HD11  | 1.99                     | 0.44              |
| 5:L:470:MET:HA    | 5:L:473:GLU:HB3   | 2.00                     | 0.44              |
| 1:A:79:LEU:HD11   | 2:C:693:LEU:HD21  | 1.98                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:1078:LEU:HD12 | 3:D:1121:LEU:HB3  | 1.99                     | 0.44              |
| 3:D:1282:TYR:HE1  | 3:D:1286:LYS:HE2  | 1.83                     | 0.44              |
| 5:L:290:LEU:HD22  | 5:L:333:VAL:HG21  | 2.00                     | 0.44              |
| 2:I:1253:LEU:HA   | 5:L:525:ASP:HB2   | 1.99                     | 0.44              |
| 2:C:670:PHE:HZ    | 2:C:1117:LEU:HD13 | 1.82                     | 0.44              |
| 2:C:15:PHE:HE1    | 2:C:1194:GLU:HB3  | 1.83                     | 0.44              |
| 2:C:243:PRO:HA    | 2:C:246:LEU:HD12  | 1.99                     | 0.44              |
| 3:D:789:LYS:NZ    | 3:D:931:THR:O     | 2.34                     | 0.44              |
| 3:D:99:ARG:HG3    | 3:D:248:ASP:HB3   | 2.00                     | 0.44              |
| 1:H:35:PHE:HA     | 1:H:38:THR:HG22   | 1.99                     | 0.44              |
| 3:J:1173:ARG:HH21 | 3:J:1192:LYS:CE   | 2.30                     | 0.44              |
| 3:J:1290:ARG:HG2  | 3:J:1298:VAL:HG12 | 2.00                     | 0.44              |
| 4:K:64:LEU:HA     | 4:K:64:LEU:HD23   | 1.86                     | 0.44              |
| 6:M:21:GLU:HG2    | 6:M:26:SER:HB2    | 2.00                     | 0.44              |
| 2:C:809:GLY:O     | 3:D:357:VAL:HG11  | 2.17                     | 0.44              |
| 3:D:1221:LEU:HD23 | 3:D:1229:VAL:HG11 | 1.99                     | 0.44              |
| 3:D:425:ARG:HE    | 3:D:427:PRO:HD2   | 1.83                     | 0.44              |
| 3:D:925:GLU:HB3   | 3:D:926:PRO:HD3   | 1.99                     | 0.44              |
| 2:I:1032:LYS:O    | 2:I:1036:ILE:HG13 | 2.17                     | 0.44              |
| 3:J:298:MET:SD    | 5:L:402:LEU:HB3   | 2.57                     | 0.44              |
| 3:J:425:ARG:HE    | 3:J:427:PRO:HD2   | 1.83                     | 0.44              |
| 3:J:550:VAL:HG23  | 3:J:552:ILE:HG23  | 1.98                     | 0.44              |
| 3:J:70:CYS:SG     | 3:J:71:LEU:N      | 2.90                     | 0.44              |
| 2:C:400:VAL:HG21  | 2:C:452:ARG:CZ    | 2.48                     | 0.44              |
| 3:D:1290:ARG:HG2  | 3:D:1298:VAL:HG12 | 2.00                     | 0.44              |
| 3:D:224:LEU:O     | 3:D:228:VAL:HG23  | 2.17                     | 0.44              |
| 5:F:147:GLN:O     | 5:F:151:VAL:HG23  | 2.17                     | 0.44              |
| 3:D:298:MET:SD    | 5:F:402:LEU:HB3   | 2.57                     | 0.44              |
| 1:G:150:ARG:HH11  | 1:H:6:THR:HG23    | 1.82                     | 0.44              |
| 2:I:820:GLU:HA    | 2:I:1079:ILE:HD11 | 2.00                     | 0.44              |
| 5:L:9:LEU:HD22    | 6:N:47:TYR:HA     | 2.00                     | 0.44              |
| 2:C:820:GLU:HA    | 2:C:1079:ILE:HD11 | 2.00                     | 0.44              |
| 2:C:238:GLN:HB3   | 2:C:284:LEU:HD11  | 1.99                     | 0.44              |
| 2:C:88:ARG:HG2    | 2:C:90:VAL:HG23   | 1.99                     | 0.44              |
| 3:D:450:HIS:HA    | 3:D:451:PRO:HD3   | 1.91                     | 0.44              |
| 3:D:870:ASP:O     | 3:D:874:GLU:HG2   | 2.17                     | 0.44              |
| 4:E:69:ARG:O      | 4:E:73:GLN:HG2    | 2.17                     | 0.44              |
| 5:F:290:LEU:HD22  | 5:F:333:VAL:HG21  | 2.00                     | 0.44              |
| 2:I:736:VAL:HG23  | 2:I:748:ILE:HA    | 1.99                     | 0.44              |
| 3:J:438:GLU:HA    | 3:J:439:PRO:HD3   | 1.85                     | 0.44              |
| 3:J:654:ILE:O     | 3:J:658:GLU:N     | 2.43                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:L:484:ALA:H     | 5:L:494:ILE:HD11  | 1.82                     | 0.44              |
| 2:C:558:VAL:CG1   | 2:C:573:ASN:HB3   | 2.48                     | 0.44              |
| 3:D:536:LEU:HD12  | 3:D:542:ALA:HB2   | 1.99                     | 0.44              |
| 3:D:901:ARG:HA    | 3:D:908:ILE:HA    | 2.00                     | 0.44              |
| 5:F:348:GLU:HA    | 5:F:353:LEU:O     | 2.18                     | 0.44              |
| 2:I:1106:ARG:HD2  | 2:I:1106:ARG:H    | 1.81                     | 0.44              |
| 2:I:1333:LEU:HB2  | 2:I:1335:ILE:HG12 | 2.00                     | 0.44              |
| 2:I:243:PRO:HA    | 2:I:246:LEU:HD12  | 1.99                     | 0.44              |
| 2:I:870:ILE:HG21  | 2:I:931:VAL:HG11  | 2.00                     | 0.44              |
| 3:J:870:ASP:O     | 3:J:874:GLU:HG2   | 2.17                     | 0.44              |
| 6:N:61:VAL:HG22   | 6:N:62:ALA:H      | 1.82                     | 0.44              |
| 1:B:35:PHE:HA     | 1:B:38:THR:HG22   | 1.99                     | 0.43              |
| 1:B:73:GLY:HA3    | 1:B:138:ALA:HB1   | 1.99                     | 0.43              |
| 2:C:1151:LEU:HA   | 2:C:1151:LEU:HD23 | 1.87                     | 0.43              |
| 2:C:28:LEU:HD21   | 2:C:524:ILE:HG13  | 2.00                     | 0.43              |
| 2:C:56:VAL:HG11   | 2:C:468:LEU:HB3   | 2.00                     | 0.43              |
| 3:D:385:LEU:HD23  | 3:D:411:ILE:HG13  | 1.99                     | 0.43              |
| 2:I:1253:LEU:HD23 | 5:L:525:ASP:OD1   | 2.18                     | 0.43              |
| 3:J:1149:ARG:NH2  | 3:J:1153:PRO:HG2  | 2.33                     | 0.43              |
| 2:I:206:ALA:O     | 2:I:209:ILE:HG22  | 2.18                     | 0.43              |
| 2:I:387:ASN:HA    | 2:I:391:SER:HB2   | 2.00                     | 0.43              |
| 3:J:905:ARG:HH11  | 4:K:16:ARG:HD2    | 1.83                     | 0.43              |
| 2:C:170:VAL:HG23  | 2:C:171:LEU:N     | 2.33                     | 0.43              |
| 2:C:253:PHE:CZ    | 2:C:287:VAL:HG12  | 2.54                     | 0.43              |
| 2:C:520:PRO:HB3   | 2:C:714:VAL:HG21  | 2.00                     | 0.43              |
| 2:C:617:ALA:HA    | 2:C:636:CYS:SG    | 2.59                     | 0.43              |
| 3:D:1169:THR:HG22 | 3:D:1170:LYS:HB2  | 1.99                     | 0.43              |
| 3:D:1286:LYS:HD2  | 3:D:1290:ARG:HH22 | 1.83                     | 0.43              |
| 3:D:807:LEU:HD11  | 3:D:894:VAL:HG23  | 1.99                     | 0.43              |
| 5:F:381:GLU:HA    | 5:F:384:LEU:HG    | 2.01                     | 0.43              |
| 2:I:389:PHE:HB3   | 2:I:420:LEU:HD12  | 2.00                     | 0.43              |
| 2:I:56:VAL:HG11   | 2:I:468:LEU:HB3   | 2.00                     | 0.43              |
| 3:J:609:TYR:HB2   | 3:J:617:THR:HG21  | 2.00                     | 0.43              |
| 3:J:741:ALA:O     | 3:J:762:ASN:ND2   | 2.51                     | 0.43              |
| 3:J:99:ARG:HG3    | 3:J:248:ASP:HB3   | 2.00                     | 0.43              |
| 5:L:348:GLU:HA    | 5:L:353:LEU:O     | 2.18                     | 0.43              |
| 2:C:1083:GLU:HG3  | 2:C:1083:GLU:H    | 1.45                     | 0.43              |
| 2:C:1106:ARG:H    | 2:C:1106:ARG:HD2  | 1.82                     | 0.43              |
| 2:C:559:CYS:HA    | 2:C:560:PRO:HD3   | 1.85                     | 0.43              |
| 2:C:661:VAL:HB    | 2:C:665:ALA:HB3   | 1.99                     | 0.43              |
| 2:I:1030:GLU:OE1  | 2:I:1033:ARG:NH2  | 2.52                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:I:23:ASP:N      | 2:I:23:ASP:OD1    | 2.42                     | 0.43              |
| 2:I:253:PHE:CZ    | 2:I:287:VAL:HG12  | 2.54                     | 0.43              |
| 3:J:224:LEU:O     | 3:J:228:VAL:HG23  | 2.17                     | 0.43              |
| 2:I:1280:ALA:HB1  | 3:J:918:ILE:HG22  | 2.00                     | 0.43              |
| 5:L:448:ARG:HH21  | 5:L:450:ILE:HG13  | 1.82                     | 0.43              |
| 3:D:1231:ARG:HA   | 3:D:1234:VAL:HG22 | 2.00                     | 0.43              |
| 2:I:666:SER:HB2   | 2:I:704:MET:HG3   | 2.00                     | 0.43              |
| 2:I:98:VAL:HG21   | 2:I:124:MET:HE3   | 2.00                     | 0.43              |
| 1:B:198:LEU:HA    | 1:B:198:LEU:HD13  | 1.76                     | 0.43              |
| 1:B:48:LEU:HD12   | 1:B:183:ILE:HD11  | 2.01                     | 0.43              |
| 2:C:1116:HIS:O    | 2:C:1119:MET:HB3  | 2.19                     | 0.43              |
| 4:E:71:GLU:HA     | 4:E:74:GLU:HG2    | 2.01                     | 0.43              |
| 5:F:448:ARG:HH21  | 5:F:450:ILE:HG13  | 1.83                     | 0.43              |
| 5:F:470:MET:HA    | 5:F:473:GLU:HB3   | 2.00                     | 0.43              |
| 2:I:1116:HIS:O    | 2:I:1119:MET:HB3  | 2.19                     | 0.43              |
| 5:L:147:GLN:O     | 5:L:151:VAL:HG23  | 2.17                     | 0.43              |
| 2:C:339:ASN:HB3   | 2:C:343:HIS:H     | 1.84                     | 0.43              |
| 2:C:389:PHE:HB3   | 2:C:420:LEU:HD12  | 2.00                     | 0.43              |
| 3:D:470:VAL:HA    | 3:D:471:PRO:HD3   | 1.79                     | 0.43              |
| 2:I:778:GLU:O     | 2:I:781:ASP:HB2   | 2.18                     | 0.43              |
| 3:J:697:MET:O     | 3:J:701:LEU:HB2   | 2.19                     | 0.43              |
| 1:B:98:VAL:HG11   | 1:B:121:VAL:HG22  | 2.01                     | 0.43              |
| 1:B:33:ARG:NH1    | 2:C:1081:PRO:HG3  | 2.32                     | 0.43              |
| 2:C:1280:ALA:HB1  | 3:D:918:ILE:HG22  | 2.00                     | 0.43              |
| 2:C:1308:ILE:HD12 | 3:D:380:PHE:CZ    | 2.54                     | 0.43              |
| 2:C:739:ASP:OD1   | 2:C:739:ASP:N     | 2.42                     | 0.43              |
| 3:D:968:ASN:HB3   | 3:D:1118:GLY:HA3  | 2.00                     | 0.43              |
| 3:D:367:GLY:HA3   | 3:D:448:GLN:HB2   | 2.01                     | 0.43              |
| 3:D:770:LEU:O     | 3:D:774:ILE:HG13  | 2.19                     | 0.43              |
| 5:F:41:ILE:O      | 5:F:45:ILE:HG13   | 2.18                     | 0.43              |
| 2:I:238:GLN:HB3   | 2:I:284:LEU:HD11  | 1.99                     | 0.43              |
| 3:J:857:LEU:HD13  | 3:J:858:VAL:HG12  | 2.01                     | 0.43              |
| 5:L:289:LYS:HE2   | 5:L:289:LYS:HB3   | 1.87                     | 0.43              |
| 2:C:778:GLU:O     | 2:C:781:ASP:HB2   | 2.18                     | 0.43              |
| 2:C:942:ASP:OD2   | 2:C:1048:LYS:NZ   | 2.29                     | 0.43              |
| 3:D:211:GLU:O     | 3:D:215:LYS:HB2   | 2.19                     | 0.43              |
| 3:D:495:ASN:ND2   | 3:D:1247:LYS:O    | 2.52                     | 0.43              |
| 3:D:77:ARG:HB3    | 3:D:80:HIS:CE1    | 2.54                     | 0.43              |
| 5:F:158:LEU:HD22  | 5:F:162:ILE:HD11  | 1.99                     | 0.43              |
| 2:I:27:LEU:HB3    | 2:I:528:ARG:HD2   | 2.01                     | 0.43              |
| 2:I:46:GLN:OE1    | 2:I:47:TYR:N      | 2.47                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:I:558:VAL:CG1   | 2:I:573:ASN:HB3   | 2.48                     | 0.43              |
| 3:J:419:HIS:HA    | 3:J:420:PRO:HD3   | 1.89                     | 0.43              |
| 3:J:536:LEU:HD12  | 3:J:542:ALA:HB2   | 1.99                     | 0.43              |
| 2:C:206:ALA:O     | 2:C:209:ILE:HG22  | 2.18                     | 0.43              |
| 2:C:666:SER:HB2   | 2:C:704:MET:HG3   | 2.01                     | 0.43              |
| 2:C:992:LEU:H     | 2:C:992:LEU:HD23  | 1.84                     | 0.43              |
| 3:D:609:TYR:HB2   | 3:D:617:THR:HG21  | 2.01                     | 0.43              |
| 3:D:697:MET:O     | 3:D:701:LEU:HB2   | 2.19                     | 0.43              |
| 2:I:1159:VAL:HB   | 2:I:1160:ASP:H    | 1.70                     | 0.43              |
| 2:I:148:GLN:HG2   | 2:I:149:LEU:H     | 1.83                     | 0.43              |
| 2:I:975:ILE:HG12  | 2:I:1014:LEU:HD13 | 2.01                     | 0.43              |
| 3:J:968:ASN:HB3   | 3:J:1118:GLY:HA3  | 2.01                     | 0.43              |
| 3:J:1282:TYR:HE1  | 3:J:1286:LYS:HE2  | 1.83                     | 0.43              |
| 3:J:211:GLU:O     | 3:J:215:LYS:HB2   | 2.19                     | 0.43              |
| 3:J:367:GLY:HA3   | 3:J:448:GLN:HB2   | 2.01                     | 0.43              |
| 2:I:1073:LYS:HD3  | 3:J:462:ASP:HB2   | 2.01                     | 0.43              |
| 1:B:29:GLU:HB2    | 1:B:30:PRO:HA     | 2.01                     | 0.42              |
| 2:C:968:GLU:HG3   | 2:C:1018:TYR:HE1  | 1.83                     | 0.42              |
| 3:D:30:ILE:HG23   | 3:D:243:PRO:HG3   | 2.00                     | 0.42              |
| 3:D:572:THR:OG1   | 3:D:573:THR:N     | 2.50                     | 0.42              |
| 3:D:960:LEU:HB3   | 3:D:963:VAL:HG11  | 2.01                     | 0.42              |
| 1:H:115:ILE:HD11  | 1:H:130:ILE:HD11  | 2.01                     | 0.42              |
| 1:H:67:GLU:HG2    | 1:H:82:LEU:HD11   | 2.01                     | 0.42              |
| 2:I:1142:ARG:HH12 | 2:I:1165:SER:HA   | 1.84                     | 0.42              |
| 2:I:170:VAL:HG23  | 2:I:171:LEU:N     | 2.34                     | 0.42              |
| 2:I:347:ILE:HD11  | 2:I:433:ILE:HD11  | 2.01                     | 0.42              |
| 3:J:1231:ARG:HA   | 3:J:1234:VAL:HG22 | 2.00                     | 0.42              |
| 3:J:1287:ILE:O    | 3:J:1291:GLU:HG3  | 2.18                     | 0.42              |
| 3:J:495:ASN:ND2   | 3:J:1247:LYS:O    | 2.52                     | 0.42              |
| 3:J:521:LYS:HD3   | 3:J:541:LEU:O     | 2.19                     | 0.42              |
| 3:J:901:ARG:HA    | 3:J:908:ILE:HA    | 2.00                     | 0.42              |
| 3:J:960:LEU:HB3   | 3:J:963:VAL:HG11  | 2.01                     | 0.42              |
| 4:K:71:GLU:HA     | 4:K:74:GLU:HG2    | 2.01                     | 0.42              |
| 5:L:381:GLU:HA    | 5:L:384:LEU:HG    | 2.00                     | 0.42              |
| 3:D:128:LEU:HA    | 3:D:192:MET:HE1   | 2.02                     | 0.42              |
| 3:D:857:LEU:HD13  | 3:D:858:VAL:HG12  | 2.01                     | 0.42              |
| 1:H:48:LEU:HD12   | 1:H:183:ILE:HD11  | 2.01                     | 0.42              |
| 3:J:368:LEU:HD23  | 3:J:369:PRO:HD2   | 2.01                     | 0.42              |
| 1:B:67:GLU:HG2    | 1:B:82:LEU:HD11   | 2.01                     | 0.42              |
| 2:C:1087:TYR:HE1  | 2:C:1215:GLY:HA2  | 1.84                     | 0.42              |
| 2:C:870:ILE:HG21  | 2:C:931:VAL:HG11  | 2.00                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:97:VAL:HG12   | 3:D:101:ARG:HG3   | 2.00                     | 0.42              |
| 3:D:600:ALA:O     | 3:D:603:LYS:HG2   | 2.19                     | 0.42              |
| 5:F:250:LEU:O     | 5:F:254:GLU:HG2   | 2.19                     | 0.42              |
| 1:G:14:VAL:CG1    | 1:G:27:THR:HB     | 2.50                     | 0.42              |
| 2:I:1080:ASN:HA   | 2:I:1081:PRO:HD3  | 1.92                     | 0.42              |
| 2:I:1087:TYR:HE1  | 2:I:1215:GLY:HA2  | 1.85                     | 0.42              |
| 2:I:545:PHE:O     | 2:I:548:ARG:N     | 2.52                     | 0.42              |
| 3:J:368:LEU:HD22  | 3:J:373:ALA:HB2   | 2.01                     | 0.42              |
| 3:J:574:VAL:O     | 3:J:578:ILE:HG13  | 2.19                     | 0.42              |
| 3:J:77:ARG:HB3    | 3:J:80:HIS:CE1    | 2.54                     | 0.42              |
| 3:J:807:LEU:HD11  | 3:J:894:VAL:HG23  | 2.00                     | 0.42              |
| 3:J:974:VAL:HG21  | 3:J:1118:GLY:HA2  | 2.00                     | 0.42              |
| 2:C:1236:ASN:OD1  | 2:C:1236:ASN:N    | 2.51                     | 0.42              |
| 2:C:387:ASN:HA    | 2:C:391:SER:HB2   | 2.00                     | 0.42              |
| 2:C:888:THR:HG23  | 2:C:916:SER:OG    | 2.20                     | 0.42              |
| 3:D:574:VAL:O     | 3:D:578:ILE:HG13  | 2.19                     | 0.42              |
| 1:G:58:GLU:HG2    | 1:G:158:ARG:NH2   | 2.29                     | 0.42              |
| 2:I:28:LEU:HD21   | 2:I:524:ILE:HG13  | 2.00                     | 0.42              |
| 3:J:1191:PRO:HB2  | 3:J:1193:TRP:CD1  | 2.54                     | 0.42              |
| 5:L:456:MET:O     | 5:L:460:ILE:HG13  | 2.19                     | 0.42              |
| 5:L:41:ILE:O      | 5:L:45:ILE:HG13   | 2.19                     | 0.42              |
| 1:A:14:VAL:CG1    | 1:A:27:THR:HB     | 2.50                     | 0.42              |
| 1:B:54:CYS:SG     | 1:B:148:ARG:HG2   | 2.60                     | 0.42              |
| 1:B:73:GLY:HA2    | 1:B:134:THR:CG2   | 2.45                     | 0.42              |
| 2:C:1326:LEU:HD21 | 3:D:339:ARG:HD2   | 2.01                     | 0.42              |
| 1:G:57:THR:O      | 1:G:59:VAL:HG23   | 2.19                     | 0.42              |
| 2:I:28:LEU:HD22   | 2:I:527:LYS:HD2   | 2.02                     | 0.42              |
| 2:I:617:ALA:HA    | 2:I:636:CYS:SG    | 2.59                     | 0.42              |
| 3:J:1286:LYS:HD2  | 3:J:1290:ARG:HH22 | 1.83                     | 0.42              |
| 3:J:137:ARG:HG3   | 3:J:142:GLU:HB2   | 2.02                     | 0.42              |
| 3:J:201:LEU:HD11  | 3:J:220:ARG:NH1   | 2.35                     | 0.42              |
| 3:J:422:LEU:HD13  | 3:J:471:PRO:HG3   | 2.02                     | 0.42              |
| 3:J:698:MET:O     | 3:J:702:GLN:HG2   | 2.19                     | 0.42              |
| 5:L:250:LEU:O     | 5:L:254:GLU:HG2   | 2.20                     | 0.42              |
| 2:C:207:THR:HG21  | 2:C:351:LEU:HG    | 2.02                     | 0.42              |
| 2:C:374:GLU:HA    | 2:C:375:PRO:HD3   | 1.92                     | 0.42              |
| 2:C:538:LEU:HG    | 2:C:538:LEU:H     | 1.64                     | 0.42              |
| 2:C:998:LEU:H     | 2:C:998:LEU:HD12  | 1.84                     | 0.42              |
| 3:D:380:PHE:HB3   | 3:D:415:VAL:HG11  | 2.01                     | 0.42              |
| 3:D:521:LYS:HD3   | 3:D:541:LEU:O     | 2.19                     | 0.42              |
| 2:I:888:THR:HG23  | 2:I:916:SER:OG    | 2.20                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:J:97:VAL:HG12   | 3:J:101:ARG:HG3   | 2.00                     | 0.42              |
| 3:J:525:MET:O     | 3:J:548:VAL:HG13  | 2.19                     | 0.42              |
| 1:A:155:ALA:HA    | 1:A:158:ARG:HG3   | 2.02                     | 0.42              |
| 2:C:490:GLN:HG2   | 5:F:472:GLN:NE2   | 2.29                     | 0.42              |
| 2:C:615:VAL:HA    | 2:C:638:SER:HA    | 2.02                     | 0.42              |
| 3:D:525:MET:O     | 3:D:548:VAL:HG13  | 2.19                     | 0.42              |
| 2:I:302:ILE:HG22  | 2:I:309:LEU:HA    | 2.01                     | 0.42              |
| 5:L:292:VAL:HG11  | 5:L:299:LYS:HE3   | 2.02                     | 0.42              |
| 5:L:581:ASP:HB3   | 5:L:582:VAL:H     | 1.70                     | 0.42              |
| 1:A:197:ASP:N     | 1:A:197:ASP:OD1   | 2.53                     | 0.42              |
| 1:A:35:PHE:HA     | 1:A:35:PHE:HD1    | 1.72                     | 0.42              |
| 2:C:11:ILE:HA     | 2:C:11:ILE:HD13   | 1.83                     | 0.42              |
| 2:C:194:LEU:HA    | 2:C:194:LEU:HD12  | 1.91                     | 0.42              |
| 3:D:950:ILE:HG13  | 3:D:1020:TRP:CH2  | 2.55                     | 0.42              |
| 3:D:557:LYS:HE3   | 3:D:557:LYS:HB2   | 1.79                     | 0.42              |
| 3:D:955:LYS:HG2   | 3:D:1012:ALA:HA   | 2.02                     | 0.42              |
| 1:G:155:ALA:HA    | 1:G:158:ARG:HG3   | 2.01                     | 0.42              |
| 2:I:15:PHE:HE1    | 2:I:1194:GLU:HB3  | 1.83                     | 0.42              |
| 2:I:207:THR:HG21  | 2:I:351:LEU:HG    | 2.01                     | 0.42              |
| 2:I:47:TYR:HA     | 2:I:47:TYR:HD2    | 1.76                     | 0.42              |
| 3:J:121:PRO:HG2   | 3:J:123:ARG:NH2   | 2.35                     | 0.42              |
| 3:J:1291:GLU:HG2  | 3:J:1297:LYS:HD3  | 2.02                     | 0.42              |
| 3:J:847:ASP:N     | 3:J:847:ASP:OD1   | 2.42                     | 0.42              |
| 2:C:1142:ARG:HH12 | 2:C:1165:SER:HA   | 1.84                     | 0.42              |
| 2:C:1333:LEU:HB2  | 2:C:1335:ILE:HG12 | 2.00                     | 0.42              |
| 2:C:242:VAL:HB    | 2:C:245:ARG:HH11  | 1.85                     | 0.42              |
| 2:C:28:LEU:HD22   | 2:C:527:LYS:HD2   | 2.01                     | 0.42              |
| 3:D:1124:ILE:HA   | 3:D:1125:PRO:HD3  | 1.93                     | 0.42              |
| 3:D:1135:THR:OG1  | 3:D:1136:GLY:N    | 2.50                     | 0.42              |
| 3:D:1149:ARG:NH2  | 3:D:1153:PRO:HG2  | 2.34                     | 0.42              |
| 3:D:368:LEU:HD22  | 3:D:373:ALA:HB2   | 2.01                     | 0.42              |
| 3:D:368:LEU:HD23  | 3:D:369:PRO:HD2   | 2.02                     | 0.42              |
| 3:D:422:LEU:HD13  | 3:D:471:PRO:HG3   | 2.02                     | 0.42              |
| 3:D:698:MET:O     | 3:D:702:GLN:HG2   | 2.19                     | 0.42              |
| 5:F:297:MET:HA    | 5:F:298:PRO:HD3   | 1.79                     | 0.42              |
| 2:I:253:PHE:HZ    | 2:I:287:VAL:HG12  | 1.85                     | 0.42              |
| 3:J:955:LYS:HG2   | 3:J:1012:ALA:HA   | 2.02                     | 0.42              |
| 3:J:1095:MET:HA   | 3:J:1096:PRO:HD3  | 1.86                     | 0.42              |
| 3:J:380:PHE:HB3   | 3:J:415:VAL:HG11  | 2.01                     | 0.42              |
| 3:J:849:LEU:HG    | 3:J:853:THR:HG22  | 2.02                     | 0.42              |
| 1:B:115:ILE:HD11  | 1:B:130:ILE:HD11  | 2.01                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:224:LEU:HD22  | 1:B:228:LEU:HD11  | 2.01                     | 0.42              |
| 2:C:302:ILE:HG22  | 2:C:309:LEU:HA    | 2.01                     | 0.42              |
| 3:D:1343:GLU:HB3  | 3:D:1345:ARG:HD3  | 2.02                     | 0.42              |
| 5:F:343:LYS:O     | 5:F:347:ILE:HG13  | 2.20                     | 0.42              |
| 5:F:348:GLU:HG2   | 5:F:354:THR:HA    | 2.02                     | 0.42              |
| 5:F:456:MET:O     | 5:F:460:ILE:HG13  | 2.19                     | 0.42              |
| 1:H:98:VAL:HG11   | 1:H:121:VAL:HG22  | 2.01                     | 0.42              |
| 2:I:10:ARG:CZ     | 2:I:697:LYS:HD3   | 2.49                     | 0.42              |
| 2:I:587:LEU:HD23  | 2:I:587:LEU:HA    | 1.86                     | 0.42              |
| 2:C:10:ARG:CZ     | 2:C:697:LYS:HD3   | 2.49                     | 0.41              |
| 3:D:1239:ASP:OD1  | 3:D:1242:ARG:NH2  | 2.52                     | 0.41              |
| 3:D:341:ASN:H     | 3:D:341:ASN:ND2   | 2.18                     | 0.41              |
| 2:C:1073:LYS:HD3  | 3:D:462:ASP:HB2   | 2.01                     | 0.41              |
| 5:F:292:VAL:HG11  | 5:F:299:LYS:HE3   | 2.01                     | 0.41              |
| 1:G:35:PHE:HA     | 1:G:35:PHE:HD1    | 1.71                     | 0.41              |
| 1:G:56:VAL:HG13   | 1:G:173:VAL:HG21  | 2.02                     | 0.41              |
| 1:H:54:CYS:SG     | 1:H:148:ARG:HG2   | 2.60                     | 0.41              |
| 2:I:735:LYS:HA    | 2:I:748:ILE:HG22  | 2.02                     | 0.41              |
| 2:C:724:VAL:HA    | 2:C:734:ILE:HD13  | 2.02                     | 0.41              |
| 2:C:810:TYR:CE1   | 2:C:1078:LYS:HD2  | 2.55                     | 0.41              |
| 3:D:806:ASP:HA    | 3:D:1347:LEU:HD13 | 2.02                     | 0.41              |
| 3:D:268:LEU:HG    | 3:D:324:LEU:HD22  | 2.02                     | 0.41              |
| 3:D:45:ASN:HB3    | 3:D:48:THR:O      | 2.21                     | 0.41              |
| 1:B:48:LEU:HD21   | 3:D:535:ARG:HG3   | 2.02                     | 0.41              |
| 5:F:598:LEU:O     | 5:F:604:SER:HB3   | 2.20                     | 0.41              |
| 2:C:253:PHE:HZ    | 2:C:287:VAL:HG12  | 1.85                     | 0.41              |
| 2:C:46:GLN:OE1    | 2:C:47:TYR:N      | 2.47                     | 0.41              |
| 3:D:1159:ILE:HG23 | 3:D:1177:ILE:HG21 | 2.02                     | 0.41              |
| 3:D:201:LEU:HD11  | 3:D:220:ARG:NH1   | 2.35                     | 0.41              |
| 2:C:1116:HIS:CD2  | 3:D:641:ILE:HB    | 2.55                     | 0.41              |
| 1:G:197:ASP:N     | 1:G:197:ASP:OD1   | 2.53                     | 0.41              |
| 1:H:62:ASP:HB3    | 1:H:141:SER:O     | 2.21                     | 0.41              |
| 2:I:678:ARG:NH2   | 2:I:1106:ARG:HG2  | 2.35                     | 0.41              |
| 2:I:367:TYR:CE1   | 2:I:380:ALA:HB1   | 2.56                     | 0.41              |
| 1:B:98:VAL:HG12   | 1:B:146:VAL:HG22  | 2.02                     | 0.41              |
| 3:D:378:LYS:HE2   | 3:D:382:TYR:OH    | 2.20                     | 0.41              |
| 1:G:11:PRO:HD2    | 1:H:227:GLN:HA    | 2.02                     | 0.41              |
| 2:I:40:GLU:O      | 2:I:73:TYR:OH     | 2.38                     | 0.41              |
| 2:I:615:VAL:HA    | 2:I:638:SER:HA    | 2.02                     | 0.41              |
| 3:J:1233:ILE:O    | 3:J:1237:VAL:HG12 | 2.20                     | 0.41              |
| 3:J:806:ASP:HA    | 3:J:1347:LEU:HD13 | 2.02                     | 0.41              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 3:J:474:LEU:HA   | 3:J:474:LEU:HD12  | 1.92                     | 0.41              |
| 3:J:600:ALA:O    | 3:J:603:LYS:HG2   | 2.19                     | 0.41              |
| 1:A:19:VAL:HG11  | 1:A:23:HIS:CE1    | 2.55                     | 0.41              |
| 2:C:347:ILE:HD11 | 2:C:433:ILE:HD11  | 2.01                     | 0.41              |
| 2:C:367:TYR:CE1  | 2:C:380:ALA:HB1   | 2.55                     | 0.41              |
| 2:C:27:LEU:HB3   | 2:C:528:ARG:HD2   | 2.01                     | 0.41              |
| 3:D:1233:ILE:O   | 3:D:1237:VAL:HG12 | 2.20                     | 0.41              |
| 3:D:615:LYS:HB2  | 3:D:616:PRO:HD3   | 2.02                     | 0.41              |
| 3:D:833:GLU:HA   | 3:D:834:PRO:HD3   | 1.82                     | 0.41              |
| 3:D:865:HIS:CE1  | 3:D:867:GLN:HB2   | 2.55                     | 0.41              |
| 3:D:905:ARG:HH11 | 4:E:16:ARG:HD2    | 1.84                     | 0.41              |
| 1:G:179:PRO:HB3  | 1:G:211:ILE:HB    | 2.02                     | 0.41              |
| 2:I:700:VAL:HG13 | 2:I:1117:LEU:HD22 | 2.03                     | 0.41              |
| 3:J:770:LEU:O    | 3:J:774:ILE:HG13  | 2.19                     | 0.41              |
| 5:L:343:LYS:O    | 5:L:347:ILE:HG13  | 2.20                     | 0.41              |
| 5:L:348:GLU:HG2  | 5:L:354:THR:HA    | 2.02                     | 0.41              |
| 5:L:399:LEU:HA   | 5:L:399:LEU:HD12  | 1.93                     | 0.41              |
| 1:A:228:LEU:HD12 | 1:B:221:ALA:HB1   | 2.02                     | 0.41              |
| 2:C:812:PHE:HZ   | 3:D:503:SER:HB2   | 1.86                     | 0.41              |
| 3:D:418:GLU:H    | 4:E:45:LYS:NZ     | 2.19                     | 0.41              |
| 5:F:562:ARG:HD2  | 5:F:562:ARG:HA    | 1.94                     | 0.41              |
| 5:F:585:GLU:HA   | 5:F:588:ARG:HD3   | 2.03                     | 0.41              |
| 2:I:1061:GLN:NE2 | 2:I:1240:ASP:OD2  | 2.54                     | 0.41              |
| 2:I:242:VAL:HB   | 2:I:245:ARG:HH11  | 1.86                     | 0.41              |
| 2:I:550:VAL:HG11 | 3:J:776:THR:HG22  | 2.03                     | 0.41              |
| 2:I:980:VAL:O    | 2:I:984:VAL:HB    | 2.20                     | 0.41              |
| 3:J:615:LYS:HB2  | 3:J:616:PRO:HD3   | 2.02                     | 0.41              |
| 3:J:892:PHE:H    | 3:J:1281:GLU:HG2  | 1.86                     | 0.41              |
| 1:A:179:PRO:HB3  | 1:A:211:ILE:HB    | 2.02                     | 0.41              |
| 1:A:52:PRO:HG2   | 1:A:219:ARG:NH1   | 2.36                     | 0.41              |
| 1:B:219:ARG:O    | 1:B:223:ILE:HG13  | 2.21                     | 0.41              |
| 2:C:1061:GLN:NE2 | 2:C:1240:ASP:OD2  | 2.54                     | 0.41              |
| 2:C:153:PRO:O    | 2:C:401:GLY:HA2   | 2.21                     | 0.41              |
| 3:D:892:PHE:H    | 3:D:1281:GLU:HG2  | 1.86                     | 0.41              |
| 5:F:32:PRO:CG    | 5:F:35:ILE:HD12   | 2.42                     | 0.41              |
| 2:I:697:LYS:HA   | 2:I:698:PRO:HD3   | 1.91                     | 0.41              |
| 2:I:887:VAL:HB   | 2:I:913:VAL:HG21  | 2.02                     | 0.41              |
| 3:J:268:LEU:HG   | 3:J:324:LEU:HD22  | 2.02                     | 0.41              |
| 3:J:347:VAL:HG12 | 3:J:348:ASP:O     | 2.21                     | 0.41              |
| 1:B:62:ASP:HB3   | 1:B:141:SER:O     | 2.21                     | 0.41              |
| 2:C:1312:ASN:OD1 | 2:C:1314:GLN:HG3  | 2.21                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:310:ILE:HD13  | 2:C:325:LEU:HA    | 2.03                     | 0.41              |
| 2:C:519:ASN:HA    | 2:C:520:PRO:HD3   | 1.94                     | 0.41              |
| 2:C:765:ILE:HG13  | 2:C:787:PRO:HG3   | 2.03                     | 0.41              |
| 3:D:1100:PHE:HB2  | 3:D:1200:GLU:CD   | 2.41                     | 0.41              |
| 3:D:1267:VAL:HB   | 3:D:1301:THR:OG1  | 2.21                     | 0.41              |
| 3:D:497:GLU:HA    | 3:D:498:PRO:HD3   | 1.87                     | 0.41              |
| 4:E:59:ILE:HD11   | 4:E:64:LEU:HG     | 2.03                     | 0.41              |
| 2:I:810:TYR:CE1   | 2:I:1078:LYS:HD2  | 2.55                     | 0.41              |
| 2:I:890:LYS:NZ    | 2:I:891:GLY:O     | 2.52                     | 0.41              |
| 3:J:148:GLU:H     | 3:J:156:ARG:HG3   | 1.85                     | 0.41              |
| 3:J:30:ILE:HG23   | 3:J:243:PRO:HG3   | 2.01                     | 0.41              |
| 3:J:253:VAL:HA    | 3:J:254:PRO:HD3   | 1.73                     | 0.41              |
| 3:J:950:ILE:HG13  | 3:J:1020:TRP:CH2  | 2.55                     | 0.41              |
| 3:D:1149:ARG:NH1  | 3:D:1149:ARG:HB3  | 2.36                     | 0.41              |
| 3:D:121:PRO:HG2   | 3:D:123:ARG:NH2   | 2.35                     | 0.41              |
| 3:D:245:LEU:HD12  | 3:D:246:PRO:HD2   | 2.03                     | 0.41              |
| 3:D:268:LEU:HB3   | 3:D:306:LEU:HD23  | 2.03                     | 0.41              |
| 3:D:34:SER:HG     | 3:D:104:HIS:CG    | 2.33                     | 0.41              |
| 1:G:61:ILE:HG22   | 1:G:62:ASP:H      | 1.86                     | 0.41              |
| 2:I:37:LYS:HD3    | 2:I:37:LYS:HA     | 1.79                     | 0.41              |
| 3:J:325:LYS:HG3   | 3:J:329:ASP:HB2   | 2.03                     | 0.41              |
| 3:J:865:HIS:CE1   | 3:J:867:GLN:HB2   | 2.55                     | 0.41              |
| 4:K:6:VAL:O       | 4:K:10:VAL:HG23   | 2.21                     | 0.41              |
| 2:C:1308:ILE:HG23 | 3:D:380:PHE:CE2   | 2.56                     | 0.41              |
| 2:C:40:GLU:O      | 2:C:73:TYR:OH     | 2.38                     | 0.41              |
| 2:C:684:ASN:OD1   | 2:C:687:ARG:NH1   | 2.54                     | 0.41              |
| 3:D:37:GLU:HB2    | 3:D:104:HIS:CE1   | 2.56                     | 0.41              |
| 3:D:347:VAL:HG12  | 3:D:348:ASP:O     | 2.20                     | 0.41              |
| 5:F:165:PHE:HZ    | 5:F:217:ALA:HA    | 1.85                     | 0.41              |
| 5:F:9:LEU:HD22    | 6:M:47:TYR:HA     | 2.02                     | 0.41              |
| 1:G:184:ALA:HB2   | 2:I:1091:GLY:HA3  | 2.03                     | 0.41              |
| 1:G:19:VAL:HG11   | 1:G:23:HIS:CE1    | 2.56                     | 0.41              |
| 2:I:163:LYS:HE3   | 2:I:163:LYS:HB3   | 1.78                     | 0.41              |
| 2:I:402:ARG:NE    | 2:I:417:SER:O     | 2.49                     | 0.41              |
| 2:I:710:VAL:HA    | 2:I:715:THR:HG21  | 2.03                     | 0.41              |
| 3:J:1347:LEU:HG   | 3:J:1357:ILE:HG23 | 2.03                     | 0.41              |
| 3:J:583:VAL:HG22  | 3:J:620:PHE:CZ    | 2.56                     | 0.41              |
| 5:L:32:PRO:CG     | 5:L:35:ILE:HD12   | 2.43                     | 0.41              |
| 5:L:455:HIS:O     | 5:L:459:THR:OG1   | 2.35                     | 0.41              |
| 1:A:57:THR:O      | 1:A:59:VAL:HG23   | 2.19                     | 0.41              |
| 2:C:496:LYS:HE3   | 2:C:496:LYS:HB3   | 1.78                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:D:1191:PRO:HB2 | 3:D:1193:TRP:CD1 | 2.55                     | 0.41              |
| 3:D:325:LYS:HG3  | 3:D:329:ASP:HB2  | 2.03                     | 0.41              |
| 3:D:599:LYS:HA   | 3:D:599:LYS:HD3  | 1.86                     | 0.41              |
| 2:I:124:MET:HB2  | 2:I:498:ILE:HD13 | 2.03                     | 0.41              |
| 2:I:812:PHE:HZ   | 3:J:503:SER:HB2  | 1.86                     | 0.41              |
| 3:J:1319:PHE:CE2 | 3:J:1342:ASP:HB2 | 2.56                     | 0.41              |
| 3:J:245:LEU:HD12 | 3:J:246:PRO:HD2  | 2.03                     | 0.41              |
| 3:J:378:LYS:HE2  | 3:J:382:TYR:OH   | 2.20                     | 0.41              |
| 3:J:514:THR:HG21 | 3:J:596:LEU:HD12 | 2.03                     | 0.41              |
| 3:J:810:THR:HG23 | 3:J:811:GLU:H    | 1.86                     | 0.41              |
| 1:A:56:VAL:HG13  | 1:A:173:VAL:HG21 | 2.02                     | 0.40              |
| 1:A:61:ILE:HG22  | 1:A:62:ASP:H     | 1.86                     | 0.40              |
| 2:C:10:ARG:HD2   | 2:C:1181:PRO:HG2 | 2.03                     | 0.40              |
| 2:C:122:VAL:HG21 | 2:C:493:ILE:HG23 | 2.03                     | 0.40              |
| 2:C:545:PHE:O    | 2:C:548:ARG:N    | 2.52                     | 0.40              |
| 2:C:75:LEU:HA    | 2:C:75:LEU:HD13  | 1.93                     | 0.40              |
| 1:B:44:ARG:CZ    | 3:D:538:ARG:HH21 | 2.34                     | 0.40              |
| 3:D:721:SER:O    | 3:D:725:MET:HG3  | 2.22                     | 0.40              |
| 1:G:175:ALA:HB1  | 1:G:177:TYR:CZ   | 2.56                     | 0.40              |
| 1:H:108:GLY:O    | 1:H:133:LEU:HB2  | 2.21                     | 0.40              |
| 1:H:219:ARG:O    | 1:H:223:ILE:HG13 | 2.21                     | 0.40              |
| 2:I:873:ILE:HG13 | 2:I:944:ARG:HH22 | 1.86                     | 0.40              |
| 3:J:1239:ASP:OD1 | 3:J:1242:ARG:NH2 | 2.52                     | 0.40              |
| 2:C:22:LEU:HG    | 2:C:603:ILE:HG21 | 2.03                     | 0.40              |
| 3:D:111:THR:O    | 3:D:239:LEU:N    | 2.51                     | 0.40              |
| 3:D:1291:GLU:HG2 | 3:D:1297:LYS:HD3 | 2.02                     | 0.40              |
| 3:D:137:ARG:HG3  | 3:D:142:GLU:HB2  | 2.02                     | 0.40              |
| 3:D:810:THR:HG23 | 3:D:811:GLU:H    | 1.86                     | 0.40              |
| 5:F:15:ARG:HD2   | 5:F:15:ARG:HA    | 1.92                     | 0.40              |
| 1:G:67:GLU:H     | 1:G:67:GLU:HG2   | 1.70                     | 0.40              |
| 2:I:152:SER:HA   | 2:I:153:PRO:HD3  | 1.98                     | 0.40              |
| 2:I:153:PRO:O    | 2:I:401:GLY:HA2  | 2.21                     | 0.40              |
| 2:I:724:VAL:HA   | 2:I:734:ILE:HD13 | 2.02                     | 0.40              |
| 3:J:1149:ARG:NH1 | 3:J:1149:ARG:HB3 | 2.36                     | 0.40              |
| 3:J:128:LEU:HA   | 3:J:192:MET:HE1  | 2.02                     | 0.40              |
| 3:J:418:GLU:H    | 4:K:45:LYS:NZ    | 2.18                     | 0.40              |
| 3:J:45:ASN:HB3   | 3:J:48:THR:O     | 2.21                     | 0.40              |
| 2:I:1116:HIS:CD2 | 3:J:641:ILE:HB   | 2.55                     | 0.40              |
| 5:L:456:MET:HE2  | 5:L:497:VAL:HG13 | 2.02                     | 0.40              |
| 5:L:586:ARG:O    | 5:L:589:GLN:HB2  | 2.21                     | 0.40              |
| 2:C:325:LEU:O    | 2:C:330:HIS:HB2  | 2.21                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:700:VAL:HG13  | 2:C:1117:LEU:HD22 | 2.03                     | 0.40              |
| 2:C:994:ARG:HA    | 2:C:997:TRP:CD1   | 2.56                     | 0.40              |
| 3:D:452:LEU:HD13  | 3:D:500:ILE:HG22  | 2.03                     | 0.40              |
| 5:F:127:ILE:O     | 5:F:130:VAL:N     | 2.53                     | 0.40              |
| 3:J:242:LEU:HA    | 3:J:243:PRO:HD3   | 1.94                     | 0.40              |
| 3:J:721:SER:O     | 3:J:725:MET:HG3   | 2.21                     | 0.40              |
| 4:K:59:ILE:HD11   | 4:K:64:LEU:HG     | 2.02                     | 0.40              |
| 5:L:165:PHE:HZ    | 5:L:217:ALA:HA    | 1.85                     | 0.40              |
| 5:L:387:VAL:HG22  | 5:L:435:ILE:HD13  | 2.03                     | 0.40              |
| 5:L:598:LEU:O     | 5:L:604:SER:HB3   | 2.21                     | 0.40              |
| 1:A:113:ALA:HB2   | 1:A:126:PRO:HB3   | 2.03                     | 0.40              |
| 1:B:41:ASN:O      | 1:B:45:ARG:HG3    | 2.21                     | 0.40              |
| 2:C:1128:ILE:O    | 2:C:1132:LEU:HB2  | 2.22                     | 0.40              |
| 2:C:591:TYR:HD2   | 2:C:606:LEU:HD13  | 1.86                     | 0.40              |
| 3:D:1216:ALA:HA   | 3:D:1217:PRO:HD3  | 1.94                     | 0.40              |
| 3:D:707:ILE:HG22  | 3:D:708:ASN:H     | 1.87                     | 0.40              |
| 3:D:863:LEU:HD11  | 3:D:901:ARG:HB3   | 2.04                     | 0.40              |
| 5:F:227:GLN:HG3   | 5:F:252:LEU:HA    | 2.04                     | 0.40              |
| 1:G:52:PRO:HG2    | 1:G:219:ARG:NH1   | 2.36                     | 0.40              |
| 1:H:198:LEU:HA    | 1:H:198:LEU:HD13  | 1.76                     | 0.40              |
| 1:H:41:ASN:O      | 1:H:45:ARG:HG3    | 2.21                     | 0.40              |
| 2:I:325:LEU:O     | 2:I:330:HIS:HB2   | 2.21                     | 0.40              |
| 3:J:968:ASN:HA    | 3:J:1117:SER:HB2  | 2.04                     | 0.40              |
| 3:J:1309:ILE:HG13 | 3:J:1309:ILE:H    | 1.69                     | 0.40              |
| 3:J:268:LEU:HB3   | 3:J:306:LEU:HD23  | 2.03                     | 0.40              |
| 3:J:516:ASP:HB3   | 3:J:573:THR:HG21  | 2.04                     | 0.40              |
| 3:J:707:ILE:HG22  | 3:J:708:ASN:H     | 1.86                     | 0.40              |
| 1:B:6:THR:O       | 1:B:6:THR:OG1     | 2.39                     | 0.40              |
| 2:C:678:ARG:NH2   | 2:C:1106:ARG:HG2  | 2.35                     | 0.40              |
| 2:C:653:MET:HG2   | 2:C:654:ASP:N     | 2.37                     | 0.40              |
| 2:C:737:ASN:HB3   | 2:C:739:ASP:OD1   | 2.22                     | 0.40              |
| 2:C:887:VAL:HB    | 2:C:913:VAL:HG21  | 2.02                     | 0.40              |
| 3:D:325:LYS:HE2   | 3:D:330:MET:SD    | 2.62                     | 0.40              |
| 3:D:430:HIS:HA    | 3:D:921:GLN:HB3   | 2.04                     | 0.40              |
| 3:D:583:VAL:HG22  | 3:D:620:PHE:CZ    | 2.57                     | 0.40              |
| 3:D:73:GLY:O      | 3:D:76:LYS:HE3    | 2.21                     | 0.40              |
| 3:D:798:ARG:NH1   | 3:D:802:ASP:OD2   | 2.54                     | 0.40              |
| 5:F:456:MET:HE2   | 5:F:497:VAL:HG13  | 2.03                     | 0.40              |
| 1:G:172:LEU:HD12  | 1:G:172:LEU:H     | 1.86                     | 0.40              |
| 2:I:653:MET:HG2   | 2:I:654:ASP:N     | 2.37                     | 0.40              |
| 3:J:1175:LEU:HD22 | 3:J:1190:ILE:HD11 | 2.02                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:J:1159:ILE:HG23 | 3:J:1177:ILE:HG21 | 2.02                     | 0.40              |
| 5:L:227:GLN:HB3   | 5:L:255:VAL:HG21  | 2.03                     | 0.40              |
| 3:J:1189:MET:HB2  | 6:N:57:VAL:HB     | 2.02                     | 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     | 222/239 (93%)    | 194 (87%)  | 26 (12%) | 2 (1%)   | 17          | 54  |
| 1   | B     | 216/239 (90%)    | 187 (87%)  | 29 (13%) | 0        | 100         | 100 |
| 1   | G     | 226/239 (95%)    | 197 (87%)  | 26 (12%) | 3 (1%)   | 12          | 48  |
| 1   | H     | 213/239 (89%)    | 187 (88%)  | 26 (12%) | 0        | 100         | 100 |
| 2   | C     | 1338/1342 (100%) | 1213 (91%) | 121 (9%) | 4 (0%)   | 41          | 74  |
| 2   | I     | 1338/1342 (100%) | 1210 (90%) | 124 (9%) | 4 (0%)   | 41          | 74  |
| 3   | D     | 1339/1407 (95%)  | 1229 (92%) | 108 (8%) | 2 (0%)   | 51          | 83  |
| 3   | J     | 1317/1407 (94%)  | 1217 (92%) | 98 (7%)  | 2 (0%)   | 47          | 79  |
| 4   | E     | 87/91 (96%)      | 74 (85%)   | 12 (14%) | 1 (1%)   | 14          | 51  |
| 4   | K     | 77/91 (85%)      | 68 (88%)   | 8 (10%)  | 1 (1%)   | 12          | 48  |
| 5   | F     | 513/613 (84%)    | 471 (92%)  | 42 (8%)  | 0        | 100         | 100 |
| 5   | L     | 511/613 (83%)    | 469 (92%)  | 41 (8%)  | 1 (0%)   | 47          | 79  |
| 6   | M     | 48/64 (75%)      | 43 (90%)   | 4 (8%)   | 1 (2%)   | 7           | 40  |
| 6   | N     | 46/64 (72%)      | 42 (91%)   | 3 (6%)   | 1 (2%)   | 6           | 39  |
| All | All   | 7491/7990 (94%)  | 6801 (91%) | 668 (9%) | 22 (0%)  | 41          | 74  |

All (22) Ramachandran outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | N     | 61   | VAL  |
| 2   | C     | 170  | VAL  |
| 2   | C     | 1262 | LYS  |
| 2   | I     | 170  | VAL  |
| 2   | I     | 1262 | LYS  |
| 3   | D     | 357  | VAL  |
| 3   | J     | 357  | VAL  |
| 1   | A     | 14   | VAL  |
| 4   | E     | 15   | ASN  |
| 1   | G     | 14   | VAL  |
| 4   | K     | 15   | ASN  |
| 2   | C     | 163  | LYS  |
| 1   | G     | 232  | VAL  |
| 2   | I     | 163  | LYS  |
| 2   | C     | 1186 | VAL  |
| 2   | I     | 1186 | VAL  |
| 6   | M     | 61   | VAL  |
| 3   | D     | 831  | VAL  |
| 3   | J     | 831  | VAL  |
| 1   | A     | 167  | PRO  |
| 1   | G     | 167  | PRO  |
| 5   | L     | 96   | ASP  |

### 5.3.2 Protein sidechains [i](#)

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

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

| Mol | Chain | Analysed         | Rotameric  | Outliers | Percentiles |    |
|-----|-------|------------------|------------|----------|-------------|----|
| 1   | A     | 191/206 (93%)    | 175 (92%)  | 16 (8%)  | 11          | 40 |
| 1   | B     | 184/206 (89%)    | 166 (90%)  | 18 (10%) | 8           | 33 |
| 1   | G     | 191/206 (93%)    | 175 (92%)  | 16 (8%)  | 11          | 40 |
| 1   | H     | 183/206 (89%)    | 168 (92%)  | 15 (8%)  | 11          | 40 |
| 2   | C     | 1155/1157 (100%) | 1059 (92%) | 96 (8%)  | 11          | 40 |
| 2   | I     | 1154/1157 (100%) | 1061 (92%) | 93 (8%)  | 11          | 41 |
| 3   | D     | 1125/1168 (96%)  | 1030 (92%) | 95 (8%)  | 11          | 40 |
| 3   | J     | 1110/1168 (95%)  | 1017 (92%) | 93 (8%)  | 11          | 40 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|----------|-------------|----|
| 4   | E     | 72/75 (96%)     | 65 (90%)   | 7 (10%)  | 8           | 33 |
| 4   | K     | 67/75 (89%)     | 59 (88%)   | 8 (12%)  | 5           | 26 |
| 5   | F     | 444/540 (82%)   | 400 (90%)  | 44 (10%) | 8           | 32 |
| 5   | L     | 445/540 (82%)   | 400 (90%)  | 45 (10%) | 7           | 32 |
| 6   | M     | 43/56 (77%)     | 39 (91%)   | 4 (9%)   | 9           | 35 |
| 6   | N     | 41/56 (73%)     | 37 (90%)   | 4 (10%)  | 8           | 33 |
| All | All   | 6405/6816 (94%) | 5851 (91%) | 554 (9%) | 10          | 40 |

All (554) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 9   | LEU  |
| 1   | A     | 13  | LEU  |
| 1   | A     | 17  | GLU  |
| 1   | A     | 19  | VAL  |
| 1   | A     | 27  | THR  |
| 1   | A     | 35  | PHE  |
| 1   | A     | 54  | CYS  |
| 1   | A     | 57  | THR  |
| 1   | A     | 58  | GLU  |
| 1   | A     | 71  | LYS  |
| 1   | A     | 172 | LEU  |
| 1   | A     | 207 | THR  |
| 1   | A     | 212 | ASP  |
| 1   | A     | 215 | GLU  |
| 1   | A     | 228 | LEU  |
| 1   | A     | 231 | PHE  |
| 1   | B     | 6   | THR  |
| 1   | B     | 8   | PHE  |
| 1   | B     | 13  | LEU  |
| 1   | B     | 16  | ILE  |
| 1   | B     | 28  | LEU  |
| 1   | B     | 31  | LEU  |
| 1   | B     | 50  | SER  |
| 1   | B     | 60  | GLU  |
| 1   | B     | 65  | LEU  |
| 1   | B     | 75  | GLN  |
| 1   | B     | 80  | GLU  |
| 1   | B     | 105 | SER  |
| 1   | B     | 124 | VAL  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | B            | 140        | ILE         |
| 1          | B            | 142        | MET         |
| 1          | B            | 158        | ARG         |
| 1          | B            | 183        | ILE         |
| 1          | B            | 194        | GLN         |
| 2          | C            | 10         | ARG         |
| 2          | C            | 11         | ILE         |
| 2          | C            | 39         | ILE         |
| 2          | C            | 47         | TYR         |
| 2          | C            | 60         | GLN         |
| 2          | C            | 70         | TYR         |
| 2          | C            | 91         | THR         |
| 2          | C            | 115        | LYS         |
| 2          | C            | 117        | ILE         |
| 2          | C            | 131        | THR         |
| 2          | C            | 132        | ASP         |
| 2          | C            | 202        | ARG         |
| 2          | C            | 235        | ASN         |
| 2          | C            | 237        | LEU         |
| 2          | C            | 238        | GLN         |
| 2          | C            | 285        | ILE         |
| 2          | C            | 306        | THR         |
| 2          | C            | 321        | LEU         |
| 2          | C            | 327        | GLN         |
| 2          | C            | 331        | LYS         |
| 2          | C            | 361        | SER         |
| 2          | C            | 369        | MET         |
| 2          | C            | 413        | GLU         |
| 2          | C            | 419        | ILE         |
| 2          | C            | 423        | ASP         |
| 2          | C            | 443        | ASP         |
| 2          | C            | 487        | LEU         |
| 2          | C            | 493        | ILE         |
| 2          | C            | 512        | SER         |
| 2          | C            | 517        | GLN         |
| 2          | C            | 518        | ASN         |
| 2          | C            | 538        | LEU         |
| 2          | C            | 539        | THR         |
| 2          | C            | 540        | ARG         |
| 2          | C            | 600        | THR         |
| 2          | C            | 604        | HIS         |
| 2          | C            | 615        | VAL         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | C            | 620        | ASN         |
| 2          | C            | 623        | LEU         |
| 2          | C            | 633        | LEU         |
| 2          | C            | 637        | ARG         |
| 2          | C            | 648        | ASP         |
| 2          | C            | 649        | GLN         |
| 2          | C            | 657        | THR         |
| 2          | C            | 663        | VAL         |
| 2          | C            | 672        | GLU         |
| 2          | C            | 690        | VAL         |
| 2          | C            | 692        | THR         |
| 2          | C            | 697        | LYS         |
| 2          | C            | 699        | LEU         |
| 2          | C            | 705        | GLU         |
| 2          | C            | 714        | VAL         |
| 2          | C            | 717        | VAL         |
| 2          | C            | 748        | ILE         |
| 2          | C            | 773        | LEU         |
| 2          | C            | 781        | ASP         |
| 2          | C            | 788        | SER         |
| 2          | C            | 799        | ASN         |
| 2          | C            | 807        | TRP         |
| 2          | C            | 817        | LEU         |
| 2          | C            | 828        | PHE         |
| 2          | C            | 853        | ASP         |
| 2          | C            | 857        | VAL         |
| 2          | C            | 859        | GLU         |
| 2          | C            | 890        | LYS         |
| 2          | C            | 892        | GLU         |
| 2          | C            | 895        | LEU         |
| 2          | C            | 946        | LEU         |
| 2          | C            | 951        | MET         |
| 2          | C            | 974        | ARG         |
| 2          | C            | 979        | LEU         |
| 2          | C            | 992        | LEU         |
| 2          | C            | 995        | ASP         |
| 2          | C            | 1006       | GLU         |
| 2          | C            | 1019       | ASP         |
| 2          | C            | 1040       | ASP         |
| 2          | C            | 1080       | ASN         |
| 2          | C            | 1082       | ILE         |
| 2          | C            | 1083       | GLU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | C            | 1108       | ASN         |
| 2          | C            | 1119       | MET         |
| 2          | C            | 1132       | LEU         |
| 2          | C            | 1156       | ARG         |
| 2          | C            | 1176       | LEU         |
| 2          | C            | 1180       | MET         |
| 2          | C            | 1198       | LEU         |
| 2          | C            | 1210       | ILE         |
| 2          | C            | 1233       | LEU         |
| 2          | C            | 1237       | HIS         |
| 2          | C            | 1238       | LEU         |
| 2          | C            | 1240       | ASP         |
| 2          | C            | 1248       | THR         |
| 2          | C            | 1254       | VAL         |
| 2          | C            | 1339       | LEU         |
| 2          | C            | 1341       | ASP         |
| 2          | C            | 1342       | GLU         |
| 3          | D            | 20         | ILE         |
| 3          | D            | 42         | GLU         |
| 3          | D            | 44         | ILE         |
| 3          | D            | 46         | TYR         |
| 3          | D            | 83         | VAL         |
| 3          | D            | 92         | VAL         |
| 3          | D            | 96         | LYS         |
| 3          | D            | 102        | MET         |
| 3          | D            | 126        | LEU         |
| 3          | D            | 152        | THR         |
| 3          | D            | 154        | LEU         |
| 3          | D            | 169        | LEU         |
| 3          | D            | 172        | PHE         |
| 3          | D            | 175        | GLU         |
| 3          | D            | 176        | PHE         |
| 3          | D            | 186        | GLN         |
| 3          | D            | 197        | GLU         |
| 3          | D            | 215        | LYS         |
| 3          | D            | 217        | LEU         |
| 3          | D            | 237        | MET         |
| 3          | D            | 244        | VAL         |
| 3          | D            | 248        | ASP         |
| 3          | D            | 252        | LEU         |
| 3          | D            | 256        | ASP         |
| 3          | D            | 262        | THR         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 3          | D            | 324        | LEU         |
| 3          | D            | 340        | GLN         |
| 3          | D            | 341        | ASN         |
| 3          | D            | 357        | VAL         |
| 3          | D            | 368        | LEU         |
| 3          | D            | 411        | ILE         |
| 3          | D            | 415        | VAL         |
| 3          | D            | 430        | HIS         |
| 3          | D            | 431        | ARG         |
| 3          | D            | 506        | VAL         |
| 3          | D            | 536        | LEU         |
| 3          | D            | 545        | HIS         |
| 3          | D            | 547        | ARG         |
| 3          | D            | 558        | ASP         |
| 3          | D            | 641        | ILE         |
| 3          | D            | 678        | ARG         |
| 3          | D            | 684        | ASP         |
| 3          | D            | 698        | MET         |
| 3          | D            | 700        | ASN         |
| 3          | D            | 701        | LEU         |
| 3          | D            | 707        | ILE         |
| 3          | D            | 712        | GLN         |
| 3          | D            | 717        | VAL         |
| 3          | D            | 746        | LEU         |
| 3          | D            | 764        | ARG         |
| 3          | D            | 767        | LEU         |
| 3          | D            | 810        | THR         |
| 3          | D            | 830        | ASP         |
| 3          | D            | 843        | VAL         |
| 3          | D            | 847        | ASP         |
| 3          | D            | 848        | VAL         |
| 3          | D            | 849        | LEU         |
| 3          | D            | 857        | LEU         |
| 3          | D            | 860        | ARG         |
| 3          | D            | 878        | ASP         |
| 3          | D            | 908        | ILE         |
| 3          | D            | 918        | ILE         |
| 3          | D            | 972        | LYS         |
| 3          | D            | 987        | GLU         |
| 3          | D            | 997        | VAL         |
| 3          | D            | 1017       | VAL         |
| 3          | D            | 1019       | ASN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 3          | D            | 1048       | ARG         |
| 3          | D            | 1049       | GLN         |
| 3          | D            | 1062       | LEU         |
| 3          | D            | 1063       | ASP         |
| 3          | D            | 1107       | VAL         |
| 3          | D            | 1140       | ARG         |
| 3          | D            | 1158       | GLU         |
| 3          | D            | 1162       | ILE         |
| 3          | D            | 1163       | VAL         |
| 3          | D            | 1167       | LYS         |
| 3          | D            | 1170       | LYS         |
| 3          | D            | 1172       | LYS         |
| 3          | D            | 1189       | MET         |
| 3          | D            | 1199       | PHE         |
| 3          | D            | 1204       | VAL         |
| 3          | D            | 1208       | ASP         |
| 3          | D            | 1209       | VAL         |
| 3          | D            | 1244       | GLN         |
| 3          | D            | 1255       | VAL         |
| 3          | D            | 1261       | LEU         |
| 3          | D            | 1274       | PHE         |
| 3          | D            | 1275       | LEU         |
| 3          | D            | 1284       | ARG         |
| 3          | D            | 1285       | VAL         |
| 3          | D            | 1293       | GLU         |
| 3          | D            | 1306       | LEU         |
| 3          | D            | 1329       | THR         |
| 3          | D            | 1348       | LYS         |
| 4          | E            | 13         | ILE         |
| 4          | E            | 15         | ASN         |
| 4          | E            | 28         | ARG         |
| 4          | E            | 36         | ASP         |
| 4          | E            | 39         | VAL         |
| 4          | E            | 58         | LEU         |
| 4          | E            | 59         | ILE         |
| 5          | F            | 9          | LEU         |
| 5          | F            | 22         | LEU         |
| 5          | F            | 23         | THR         |
| 5          | F            | 36         | VAL         |
| 5          | F            | 39         | ASP         |
| 5          | F            | 41         | ILE         |
| 5          | F            | 44         | ILE         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 5          | F            | 48         | ILE         |
| 5          | F            | 51         | MET         |
| 5          | F            | 54         | GLN         |
| 5          | F            | 55         | VAL         |
| 5          | F            | 114        | GLU         |
| 5          | F            | 127        | ILE         |
| 5          | F            | 130        | VAL         |
| 5          | F            | 154        | GLU         |
| 5          | F            | 163        | THR         |
| 5          | F            | 213        | ASP         |
| 5          | F            | 221        | PHE         |
| 5          | F            | 244        | THR         |
| 5          | F            | 297        | MET         |
| 5          | F            | 306        | PHE         |
| 5          | F            | 333        | VAL         |
| 5          | F            | 338        | HIS         |
| 5          | F            | 341        | LEU         |
| 5          | F            | 343        | LYS         |
| 5          | F            | 364        | ARG         |
| 5          | F            | 401        | PHE         |
| 5          | F            | 421        | TYR         |
| 5          | F            | 437        | GLN         |
| 5          | F            | 454        | VAL         |
| 5          | F            | 482        | GLU         |
| 5          | F            | 483        | LEU         |
| 5          | F            | 488        | LEU         |
| 5          | F            | 493        | LYS         |
| 5          | F            | 496        | LYS         |
| 5          | F            | 514        | ASP         |
| 5          | F            | 528        | LEU         |
| 5          | F            | 530        | LEU         |
| 5          | F            | 568        | ASN         |
| 5          | F            | 573        | LEU         |
| 5          | F            | 580        | PHE         |
| 5          | F            | 581        | ASP         |
| 5          | F            | 583        | THR         |
| 5          | F            | 611        | LEU         |
| 1          | G            | 9          | LEU         |
| 1          | G            | 13         | LEU         |
| 1          | G            | 17         | GLU         |
| 1          | G            | 19         | VAL         |
| 1          | G            | 27         | THR         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | G            | 35         | PHE         |
| 1          | G            | 54         | CYS         |
| 1          | G            | 57         | THR         |
| 1          | G            | 58         | GLU         |
| 1          | G            | 71         | LYS         |
| 1          | G            | 172        | LEU         |
| 1          | G            | 207        | THR         |
| 1          | G            | 212        | ASP         |
| 1          | G            | 215        | GLU         |
| 1          | G            | 228        | LEU         |
| 1          | G            | 231        | PHE         |
| 1          | H            | 13         | LEU         |
| 1          | H            | 16         | ILE         |
| 1          | H            | 28         | LEU         |
| 1          | H            | 50         | SER         |
| 1          | H            | 60         | GLU         |
| 1          | H            | 65         | LEU         |
| 1          | H            | 75         | GLN         |
| 1          | H            | 80         | GLU         |
| 1          | H            | 105        | SER         |
| 1          | H            | 124        | VAL         |
| 1          | H            | 140        | ILE         |
| 1          | H            | 142        | MET         |
| 1          | H            | 158        | ARG         |
| 1          | H            | 183        | ILE         |
| 1          | H            | 194        | GLN         |
| 2          | I            | 10         | ARG         |
| 2          | I            | 11         | ILE         |
| 2          | I            | 39         | ILE         |
| 2          | I            | 47         | TYR         |
| 2          | I            | 60         | GLN         |
| 2          | I            | 70         | TYR         |
| 2          | I            | 91         | THR         |
| 2          | I            | 115        | LYS         |
| 2          | I            | 117        | ILE         |
| 2          | I            | 131        | THR         |
| 2          | I            | 132        | ASP         |
| 2          | I            | 202        | ARG         |
| 2          | I            | 235        | ASN         |
| 2          | I            | 237        | LEU         |
| 2          | I            | 238        | GLN         |
| 2          | I            | 285        | ILE         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | I            | 306        | THR         |
| 2          | I            | 321        | LEU         |
| 2          | I            | 327        | GLN         |
| 2          | I            | 331        | LYS         |
| 2          | I            | 361        | SER         |
| 2          | I            | 369        | MET         |
| 2          | I            | 413        | GLU         |
| 2          | I            | 419        | ILE         |
| 2          | I            | 423        | ASP         |
| 2          | I            | 443        | ASP         |
| 2          | I            | 487        | LEU         |
| 2          | I            | 493        | ILE         |
| 2          | I            | 512        | SER         |
| 2          | I            | 517        | GLN         |
| 2          | I            | 518        | ASN         |
| 2          | I            | 538        | LEU         |
| 2          | I            | 539        | THR         |
| 2          | I            | 540        | ARG         |
| 2          | I            | 600        | THR         |
| 2          | I            | 604        | HIS         |
| 2          | I            | 615        | VAL         |
| 2          | I            | 620        | ASN         |
| 2          | I            | 623        | LEU         |
| 2          | I            | 633        | LEU         |
| 2          | I            | 637        | ARG         |
| 2          | I            | 648        | ASP         |
| 2          | I            | 649        | GLN         |
| 2          | I            | 657        | THR         |
| 2          | I            | 663        | VAL         |
| 2          | I            | 672        | GLU         |
| 2          | I            | 690        | VAL         |
| 2          | I            | 692        | THR         |
| 2          | I            | 697        | LYS         |
| 2          | I            | 699        | LEU         |
| 2          | I            | 705        | GLU         |
| 2          | I            | 717        | VAL         |
| 2          | I            | 748        | ILE         |
| 2          | I            | 773        | LEU         |
| 2          | I            | 781        | ASP         |
| 2          | I            | 788        | SER         |
| 2          | I            | 799        | ASN         |
| 2          | I            | 807        | TRP         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | I            | 817        | LEU         |
| 2          | I            | 828        | PHE         |
| 2          | I            | 853        | ASP         |
| 2          | I            | 857        | VAL         |
| 2          | I            | 859        | GLU         |
| 2          | I            | 890        | LYS         |
| 2          | I            | 892        | GLU         |
| 2          | I            | 895        | LEU         |
| 2          | I            | 946        | LEU         |
| 2          | I            | 951        | MET         |
| 2          | I            | 974        | ARG         |
| 2          | I            | 979        | LEU         |
| 2          | I            | 992        | LEU         |
| 2          | I            | 1006       | GLU         |
| 2          | I            | 1040       | ASP         |
| 2          | I            | 1080       | ASN         |
| 2          | I            | 1082       | ILE         |
| 2          | I            | 1083       | GLU         |
| 2          | I            | 1108       | ASN         |
| 2          | I            | 1119       | MET         |
| 2          | I            | 1132       | LEU         |
| 2          | I            | 1156       | ARG         |
| 2          | I            | 1176       | LEU         |
| 2          | I            | 1180       | MET         |
| 2          | I            | 1198       | LEU         |
| 2          | I            | 1210       | ILE         |
| 2          | I            | 1233       | LEU         |
| 2          | I            | 1237       | HIS         |
| 2          | I            | 1238       | LEU         |
| 2          | I            | 1240       | ASP         |
| 2          | I            | 1248       | THR         |
| 2          | I            | 1254       | VAL         |
| 2          | I            | 1339       | LEU         |
| 2          | I            | 1341       | ASP         |
| 2          | I            | 1342       | GLU         |
| 3          | J            | 20         | ILE         |
| 3          | J            | 42         | GLU         |
| 3          | J            | 44         | ILE         |
| 3          | J            | 46         | TYR         |
| 3          | J            | 83         | VAL         |
| 3          | J            | 92         | VAL         |
| 3          | J            | 96         | LYS         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 3          | J            | 102        | MET         |
| 3          | J            | 126        | LEU         |
| 3          | J            | 152        | THR         |
| 3          | J            | 154        | LEU         |
| 3          | J            | 169        | LEU         |
| 3          | J            | 172        | PHE         |
| 3          | J            | 175        | GLU         |
| 3          | J            | 176        | PHE         |
| 3          | J            | 186        | GLN         |
| 3          | J            | 197        | GLU         |
| 3          | J            | 215        | LYS         |
| 3          | J            | 217        | LEU         |
| 3          | J            | 237        | MET         |
| 3          | J            | 244        | VAL         |
| 3          | J            | 248        | ASP         |
| 3          | J            | 252        | LEU         |
| 3          | J            | 256        | ASP         |
| 3          | J            | 262        | THR         |
| 3          | J            | 324        | LEU         |
| 3          | J            | 357        | VAL         |
| 3          | J            | 368        | LEU         |
| 3          | J            | 411        | ILE         |
| 3          | J            | 415        | VAL         |
| 3          | J            | 430        | HIS         |
| 3          | J            | 431        | ARG         |
| 3          | J            | 506        | VAL         |
| 3          | J            | 536        | LEU         |
| 3          | J            | 545        | HIS         |
| 3          | J            | 547        | ARG         |
| 3          | J            | 558        | ASP         |
| 3          | J            | 641        | ILE         |
| 3          | J            | 678        | ARG         |
| 3          | J            | 684        | ASP         |
| 3          | J            | 698        | MET         |
| 3          | J            | 700        | ASN         |
| 3          | J            | 701        | LEU         |
| 3          | J            | 707        | ILE         |
| 3          | J            | 712        | GLN         |
| 3          | J            | 717        | VAL         |
| 3          | J            | 746        | LEU         |
| 3          | J            | 764        | ARG         |
| 3          | J            | 767        | LEU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 3          | J            | 810        | THR         |
| 3          | J            | 830        | ASP         |
| 3          | J            | 843        | VAL         |
| 3          | J            | 847        | ASP         |
| 3          | J            | 848        | VAL         |
| 3          | J            | 849        | LEU         |
| 3          | J            | 857        | LEU         |
| 3          | J            | 860        | ARG         |
| 3          | J            | 878        | ASP         |
| 3          | J            | 908        | ILE         |
| 3          | J            | 918        | ILE         |
| 3          | J            | 972        | LYS         |
| 3          | J            | 987        | GLU         |
| 3          | J            | 997        | VAL         |
| 3          | J            | 1017       | VAL         |
| 3          | J            | 1019       | ASN         |
| 3          | J            | 1048       | ARG         |
| 3          | J            | 1049       | GLN         |
| 3          | J            | 1062       | LEU         |
| 3          | J            | 1063       | ASP         |
| 3          | J            | 1107       | VAL         |
| 3          | J            | 1140       | ARG         |
| 3          | J            | 1158       | GLU         |
| 3          | J            | 1162       | ILE         |
| 3          | J            | 1163       | VAL         |
| 3          | J            | 1167       | LYS         |
| 3          | J            | 1170       | LYS         |
| 3          | J            | 1172       | LYS         |
| 3          | J            | 1189       | MET         |
| 3          | J            | 1199       | PHE         |
| 3          | J            | 1204       | VAL         |
| 3          | J            | 1208       | ASP         |
| 3          | J            | 1209       | VAL         |
| 3          | J            | 1244       | GLN         |
| 3          | J            | 1255       | VAL         |
| 3          | J            | 1261       | LEU         |
| 3          | J            | 1274       | PHE         |
| 3          | J            | 1275       | LEU         |
| 3          | J            | 1284       | ARG         |
| 3          | J            | 1285       | VAL         |
| 3          | J            | 1293       | GLU         |
| 3          | J            | 1306       | LEU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 3          | J            | 1329       | THR         |
| 3          | J            | 1348       | LYS         |
| 4          | K            | 13         | ILE         |
| 4          | K            | 15         | ASN         |
| 4          | K            | 28         | ARG         |
| 4          | K            | 36         | ASP         |
| 4          | K            | 39         | VAL         |
| 4          | K            | 58         | LEU         |
| 4          | K            | 59         | ILE         |
| 4          | K            | 79         | GLU         |
| 5          | L            | 9          | LEU         |
| 5          | L            | 22         | LEU         |
| 5          | L            | 23         | THR         |
| 5          | L            | 36         | VAL         |
| 5          | L            | 39         | ASP         |
| 5          | L            | 41         | ILE         |
| 5          | L            | 48         | ILE         |
| 5          | L            | 51         | MET         |
| 5          | L            | 54         | GLN         |
| 5          | L            | 55         | VAL         |
| 5          | L            | 96         | ASP         |
| 5          | L            | 98         | VAL         |
| 5          | L            | 114        | GLU         |
| 5          | L            | 127        | ILE         |
| 5          | L            | 130        | VAL         |
| 5          | L            | 154        | GLU         |
| 5          | L            | 163        | THR         |
| 5          | L            | 213        | ASP         |
| 5          | L            | 221        | PHE         |
| 5          | L            | 244        | THR         |
| 5          | L            | 297        | MET         |
| 5          | L            | 306        | PHE         |
| 5          | L            | 333        | VAL         |
| 5          | L            | 338        | HIS         |
| 5          | L            | 341        | LEU         |
| 5          | L            | 343        | LYS         |
| 5          | L            | 364        | ARG         |
| 5          | L            | 401        | PHE         |
| 5          | L            | 421        | TYR         |
| 5          | L            | 437        | GLN         |
| 5          | L            | 454        | VAL         |
| 5          | L            | 482        | GLU         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | L     | 483 | LEU  |
| 5   | L     | 488 | LEU  |
| 5   | L     | 493 | LYS  |
| 5   | L     | 496 | LYS  |
| 5   | L     | 514 | ASP  |
| 5   | L     | 528 | LEU  |
| 5   | L     | 530 | LEU  |
| 5   | L     | 568 | ASN  |
| 5   | L     | 573 | LEU  |
| 5   | L     | 580 | PHE  |
| 5   | L     | 581 | ASP  |
| 5   | L     | 583 | THR  |
| 5   | L     | 611 | LEU  |
| 6   | M     | 25  | HIS  |
| 6   | M     | 27  | PHE  |
| 6   | M     | 29  | VAL  |
| 6   | M     | 37  | ASP  |
| 6   | N     | 25  | HIS  |
| 6   | N     | 27  | PHE  |
| 6   | N     | 29  | VAL  |
| 6   | N     | 37  | ASP  |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | B     | 37   | HIS  |
| 3   | D     | 680  | ASN  |
| 3   | D     | 712  | GLN  |
| 3   | D     | 736  | GLN  |
| 2   | I     | 31   | GLN  |
| 2   | I     | 1061 | GLN  |
| 3   | J     | 477  | GLN  |
| 3   | J     | 680  | ASN  |
| 3   | J     | 712  | GLN  |
| 3   | J     | 736  | 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 6 ligands modelled in this entry, 6 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [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 i

### 6.1 Protein, DNA and RNA chains i

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     | 224/239 (93%)   | 0.06   | 1 (0%) <span style="border: 1px solid blue; padding: 2px;">92</span> <span style="border: 1px solid blue; padding: 2px;">89</span>  | 45, 79, 110, 138      | 0     |
| 1   | B     | 220/239 (92%)   | 0.23   | 17 (7%) <span style="border: 1px solid red; padding: 2px;">13</span> <span style="border: 1px solid red; padding: 2px;">11</span>   | 54, 96, 118, 134      | 0     |
| 1   | G     | 228/239 (95%)   | -0.05  | 2 (0%) <span style="border: 1px solid blue; padding: 2px;">84</span> <span style="border: 1px solid blue; padding: 2px;">79</span>  | 49, 82, 112, 136      | 0     |
| 1   | H     | 217/239 (90%)   | 0.13   | 8 (3%) <span style="border: 1px solid red; padding: 2px;">41</span> <span style="border: 1px solid red; padding: 2px;">34</span>    | 58, 98, 119, 135      | 0     |
| 2   | C     | 1340/1342 (99%) | -0.00  | 22 (1%) <span style="border: 1px solid blue; padding: 2px;">72</span> <span style="border: 1px solid blue; padding: 2px;">64</span> | 24, 72, 107, 132      | 0     |
| 2   | I     | 1340/1342 (99%) | 0.04   | 43 (3%) <span style="border: 1px solid red; padding: 2px;">47</span> <span style="border: 1px solid red; padding: 2px;">38</span>   | 29, 76, 113, 139      | 0     |
| 3   | D     | 1345/1407 (95%) | 0.10   | 44 (3%) <span style="border: 1px solid red; padding: 2px;">46</span> <span style="border: 1px solid red; padding: 2px;">38</span>   | 26, 67, 119, 138      | 0     |
| 3   | J     | 1325/1407 (94%) | 0.10   | 54 (4%) <span style="border: 1px solid red; padding: 2px;">37</span> <span style="border: 1px solid red; padding: 2px;">31</span>   | 27, 68, 114, 137      | 0     |
| 4   | E     | 89/91 (97%)     | -0.19  | 0 <span style="border: 1px solid blue; padding: 2px;">100</span> <span style="border: 1px solid blue; padding: 2px;">100</span>     | 30, 69, 97, 111       | 0     |
| 4   | K     | 79/91 (86%)     | -0.11  | 2 (2%) <span style="border: 1px solid blue; padding: 2px;">57</span> <span style="border: 1px solid blue; padding: 2px;">49</span>  | 32, 71, 107, 119      | 0     |
| 5   | F     | 521/613 (84%)   | 0.11   | 18 (3%) <span style="border: 1px solid red; padding: 2px;">44</span> <span style="border: 1px solid red; padding: 2px;">36</span>   | 35, 93, 119, 135      | 0     |
| 5   | L     | 519/613 (84%)   | 0.12   | 19 (3%) <span style="border: 1px solid red; padding: 2px;">41</span> <span style="border: 1px solid red; padding: 2px;">34</span>   | 39, 93, 119, 138      | 0     |
| 6   | M     | 50/64 (78%)     | 0.36   | 4 (8%) <span style="border: 1px solid red; padding: 2px;">12</span> <span style="border: 1px solid red; padding: 2px;">10</span>    | 71, 92, 116, 127      | 0     |
| 6   | N     | 48/64 (75%)     | 0.54   | 5 (10%) <span style="border: 1px solid red; padding: 2px;">6</span> <span style="border: 1px solid red; padding: 2px;">5</span>     | 75, 96, 117, 125      | 0     |
| All | All   | 7545/7990 (94%) | 0.07   | 239 (3%) <span style="border: 1px solid red; padding: 2px;">47</span> <span style="border: 1px solid red; padding: 2px;">38</span>  | 24, 77, 116, 139      | 0     |

All (239) RSRZ outliers are listed below:

| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 2   | C     | 252  | SER  | 8.6  |
| 3   | J     | 1054 | THR  | 8.0  |
| 3   | J     | 1053 | LEU  | 7.0  |
| 5   | F     | 167  | ASP  | 6.9  |
| 2   | C     | 257  | ALA  | 6.1  |
| 5   | L     | 18   | GLU  | 5.9  |
| 3   | J     | 1052 | GLU  | 5.6  |
| 5   | F     | 579  | GLN  | 5.5  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | H            | 106        | GLY         | 5.4         |
| 2          | C            | 251        | ALA         | 5.4         |
| 3          | D            | 957        | SER         | 5.4         |
| 5          | L            | 167        | ASP         | 5.3         |
| 5          | L            | 480        | PRO         | 5.2         |
| 2          | C            | 258        | ASN         | 5.1         |
| 2          | C            | 265        | LYS         | 5.1         |
| 3          | D            | 984        | LEU         | 4.9         |
| 2          | I            | 165        | HIS         | 4.9         |
| 5          | F            | 244        | THR         | 4.9         |
| 2          | C            | 253        | PHE         | 4.9         |
| 3          | J            | 1055       | GLY         | 4.8         |
| 2          | I            | 998        | LEU         | 4.8         |
| 3          | D            | 1053       | LEU         | 4.7         |
| 2          | I            | 167        | SER         | 4.6         |
| 3          | J            | 1056       | LEU         | 4.6         |
| 2          | I            | 999        | GLU         | 4.5         |
| 3          | D            | 1054       | THR         | 4.4         |
| 5          | F            | 575        | GLU         | 4.4         |
| 3          | D            | 958        | ILE         | 4.4         |
| 1          | B            | 146        | VAL         | 4.3         |
| 1          | B            | 66         | HIS         | 4.3         |
| 3          | D            | 983        | LYS         | 4.2         |
| 3          | J            | 1051       | ASP         | 4.1         |
| 3          | D            | 1044       | GLN         | 4.1         |
| 5          | F            | 259        | PHE         | 4.1         |
| 2          | I            | 252        | SER         | 4.0         |
| 3          | D            | 993        | GLU         | 4.0         |
| 3          | J            | 743        | MET         | 4.0         |
| 3          | D            | 931        | THR         | 3.9         |
| 2          | C            | 282        | VAL         | 3.9         |
| 5          | F            | 92         | GLY         | 3.9         |
| 1          | B            | 172        | LEU         | 3.9         |
| 3          | D            | 1052       | GLU         | 3.8         |
| 1          | B            | 158        | ARG         | 3.8         |
| 2          | I            | 264        | GLU         | 3.8         |
| 2          | I            | 987        | GLU         | 3.8         |
| 2          | I            | 232        | ILE         | 3.8         |
| 1          | B            | 69         | SER         | 3.6         |
| 5          | F            | 165        | PHE         | 3.6         |
| 2          | I            | 168        | GLY         | 3.6         |
| 3          | D            | 1109       | LEU         | 3.6         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 5          | L            | 290        | LEU         | 3.5         |
| 3          | D            | 1103       | GLY         | 3.5         |
| 1          | B            | 90         | VAL         | 3.5         |
| 3          | J            | 1001       | ALA         | 3.5         |
| 5          | F            | 307        | THR         | 3.5         |
| 3          | J            | 1080       | ILE         | 3.4         |
| 3          | J            | 1294       | ALA         | 3.4         |
| 3          | J            | 648        | GLU         | 3.4         |
| 3          | D            | 1051       | ASP         | 3.4         |
| 3          | J            | 1295       | ASN         | 3.4         |
| 1          | B            | 107        | ILE         | 3.4         |
| 3          | D            | 1083       | ALA         | 3.4         |
| 3          | J            | 1102       | PRO         | 3.3         |
| 3          | D            | 1045       | THR         | 3.3         |
| 3          | D            | 1039       | ASP         | 3.3         |
| 5          | L            | 325        | PRO         | 3.3         |
| 3          | D            | 743        | MET         | 3.3         |
| 3          | D            | 1042       | ASP         | 3.3         |
| 2          | C            | 226        | GLU         | 3.3         |
| 2          | I            | 230        | PHE         | 3.3         |
| 3          | J            | 1187       | GLU         | 3.2         |
| 3          | D            | 754        | ILE         | 3.2         |
| 5          | L            | 137        | TYR         | 3.2         |
| 6          | M            | 50         | ALA         | 3.2         |
| 3          | J            | 1059       | LEU         | 3.1         |
| 2          | C            | 1000       | LEU         | 3.1         |
| 5          | L            | 165        | PHE         | 3.1         |
| 3          | J            | 1186       | TYR         | 3.1         |
| 2          | I            | 251        | ALA         | 3.1         |
| 3          | D            | 985        | ILE         | 3.1         |
| 6          | N            | 52         | PHE         | 3.1         |
| 2          | C            | 165        | HIS         | 3.1         |
| 2          | C            | 266        | GLY         | 3.1         |
| 2          | I            | 333        | ILE         | 3.0         |
| 1          | B            | 135        | ASP         | 3.0         |
| 3          | J            | 830        | ASP         | 3.0         |
| 2          | I            | 1004       | ASP         | 3.0         |
| 6          | N            | 53         | GLU         | 3.0         |
| 3          | D            | 952        | VAL         | 3.0         |
| 2          | I            | 236        | LYS         | 3.0         |
| 3          | J            | 974        | VAL         | 2.9         |
| 2          | C            | 316        | GLU         | 2.9         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 5          | L            | 296        | LYS         | 2.9         |
| 5          | F            | 514        | ASP         | 2.9         |
| 2          | C            | 255        | ILE         | 2.9         |
| 2          | C            | 230        | PHE         | 2.9         |
| 3          | D            | 319        | SER         | 2.9         |
| 3          | J            | 1188       | GLU         | 2.8         |
| 1          | B            | 55         | ALA         | 2.8         |
| 5          | F            | 603        | ARG         | 2.8         |
| 5          | F            | 256        | PHE         | 2.8         |
| 5          | L            | 287        | ILE         | 2.8         |
| 2          | I            | 124        | MET         | 2.8         |
| 3          | J            | 1109       | LEU         | 2.8         |
| 3          | D            | 1057       | SER         | 2.8         |
| 2          | I            | 972        | PHE         | 2.8         |
| 6          | M            | 31         | ILE         | 2.8         |
| 5          | L            | 601        | PRO         | 2.8         |
| 3          | J            | 665        | GLN         | 2.8         |
| 5          | F            | 137        | TYR         | 2.7         |
| 2          | C            | 241        | LEU         | 2.7         |
| 3          | D            | 1043       | GLY         | 2.7         |
| 2          | C            | 277        | LEU         | 2.7         |
| 2          | I            | 978        | VAL         | 2.7         |
| 3          | J            | 957        | SER         | 2.7         |
| 5          | L            | 294        | GLN         | 2.7         |
| 5          | F            | 576        | VAL         | 2.7         |
| 3          | D            | 1063       | ASP         | 2.7         |
| 5          | L            | 513        | ASP         | 2.7         |
| 3          | J            | 1088       | VAL         | 2.7         |
| 1          | B            | 144        | ILE         | 2.7         |
| 3          | J            | 1110       | GLU         | 2.6         |
| 2          | I            | 75         | LEU         | 2.6         |
| 2          | I            | 237        | LEU         | 2.6         |
| 3          | D            | 857        | LEU         | 2.6         |
| 1          | B            | 59         | VAL         | 2.6         |
| 2          | I            | 979        | LEU         | 2.6         |
| 1          | B            | 67         | GLU         | 2.6         |
| 2          | I            | 1167       | GLU         | 2.6         |
| 5          | F            | 310        | GLU         | 2.6         |
| 2          | C            | 696        | ASP         | 2.6         |
| 3          | D            | 991        | THR         | 2.6         |
| 3          | D            | 1056       | LEU         | 2.6         |
| 6          | M            | 52         | PHE         | 2.6         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 2          | I            | 1021       | LEU         | 2.6         |
| 3          | D            | 1055       | GLY         | 2.6         |
| 2          | C            | 292        | ILE         | 2.5         |
| 1          | H            | 204        | GLU         | 2.5         |
| 1          | B            | 173        | VAL         | 2.5         |
| 2          | I            | 997        | TRP         | 2.5         |
| 3          | D            | 1012       | ALA         | 2.5         |
| 3          | J            | 960        | LEU         | 2.5         |
| 5          | F            | 578        | LYS         | 2.5         |
| 3          | D            | 1189       | MET         | 2.5         |
| 1          | B            | 56         | VAL         | 2.5         |
| 3          | D            | 959        | LYS         | 2.5         |
| 5          | L            | 333        | VAL         | 2.5         |
| 3          | J            | 1047       | THR         | 2.5         |
| 2          | I            | 989        | LEU         | 2.5         |
| 2          | C            | 254        | ASP         | 2.5         |
| 3          | J            | 1007       | ASP         | 2.5         |
| 3          | J            | 849        | LEU         | 2.4         |
| 3          | J            | 1203       | ARG         | 2.4         |
| 2          | I            | 169        | LYS         | 2.4         |
| 4          | K            | 58         | LEU         | 2.4         |
| 3          | J            | 1198       | VAL         | 2.4         |
| 2          | I            | 986        | ALA         | 2.4         |
| 1          | H            | 172        | LEU         | 2.4         |
| 3          | J            | 1033       | GLY         | 2.4         |
| 3          | D            | 965        | SER         | 2.4         |
| 3          | J            | 1273       | ASP         | 2.4         |
| 1          | B            | 147        | GLN         | 2.4         |
| 3          | D            | 1058       | SER         | 2.4         |
| 5          | L            | 293        | GLU         | 2.4         |
| 3          | J            | 160        | LEU         | 2.4         |
| 3          | J            | 1060       | VAL         | 2.4         |
| 3          | J            | 850        | LYS         | 2.4         |
| 3          | J            | 1174       | ARG         | 2.4         |
| 5          | L            | 326        | TRP         | 2.4         |
| 3          | J            | 1082       | ASP         | 2.3         |
| 3          | J            | 1115       | ILE         | 2.3         |
| 2          | I            | 312        | ALA         | 2.3         |
| 3          | D            | 1035       | VAL         | 2.3         |
| 3          | J            | 1034       | PHE         | 2.3         |
| 3          | J            | 682        | VAL         | 2.3         |
| 5          | L            | 286        | LEU         | 2.3         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 2          | I            | 253        | PHE         | 2.3         |
| 5          | L            | 609        | SER         | 2.3         |
| 2          | I            | 166        | SER         | 2.3         |
| 3          | J            | 1106       | ILE         | 2.3         |
| 2          | C            | 317        | LEU         | 2.3         |
| 3          | D            | 209        | ASN         | 2.3         |
| 3          | J            | 1093       | THR         | 2.3         |
| 2          | C            | 262        | TYR         | 2.3         |
| 2          | I            | 235        | ASN         | 2.3         |
| 6          | M            | 16         | PHE         | 2.3         |
| 2          | I            | 990        | ASP         | 2.3         |
| 3          | J            | 650        | LYS         | 2.3         |
| 1          | G            | 90         | VAL         | 2.3         |
| 2          | I            | 1018       | TYR         | 2.2         |
| 5          | L            | 14         | THR         | 2.2         |
| 3          | J            | 1175       | LEU         | 2.2         |
| 2          | I            | 740        | GLU         | 2.2         |
| 3          | D            | 956        | GLY         | 2.2         |
| 3          | J            | 1070       | GLY         | 2.2         |
| 3          | J            | 857        | LEU         | 2.2         |
| 3          | J            | 756        | GLU         | 2.2         |
| 6          | N            | 47         | TYR         | 2.2         |
| 3          | D            | 318        | GLY         | 2.2         |
| 2          | I            | 867        | GLU         | 2.2         |
| 3          | D            | 756        | GLU         | 2.2         |
| 3          | J            | 991        | THR         | 2.2         |
| 5          | F            | 355        | ILE         | 2.2         |
| 2          | I            | 976        | ARG         | 2.2         |
| 1          | G            | 193        | GLU         | 2.2         |
| 3          | J            | 647        | PRO         | 2.2         |
| 1          | H            | 158        | ARG         | 2.2         |
| 2          | I            | 164        | THR         | 2.1         |
| 1          | A            | 35         | PHE         | 2.1         |
| 3          | D            | 1041       | ILE         | 2.1         |
| 2          | I            | 334        | GLU         | 2.1         |
| 2          | I            | 100        | LEU         | 2.1         |
| 2          | I            | 996        | ARG         | 2.1         |
| 3          | D            | 1059       | LEU         | 2.1         |
| 3          | D            | 1104       | LYS         | 2.1         |
| 1          | B            | 99         | ILE         | 2.1         |
| 1          | H            | 107        | ILE         | 2.1         |
| 2          | I            | 248        | GLY         | 2.1         |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 3   | J     | 956  | GLY  | 2.1  |
| 5   | F     | 162  | ILE  | 2.1  |
| 4   | K     | 2    | ALA  | 2.1  |
| 2   | I     | 120  | GLN  | 2.1  |
| 1   | B     | 121  | VAL  | 2.1  |
| 2   | I     | 995  | ASP  | 2.1  |
| 3   | D     | 1065 | ALA  | 2.1  |
| 2   | I     | 1334 | GLY  | 2.1  |
| 3   | J     | 958  | ILE  | 2.0  |
| 2   | C     | 243  | PRO  | 2.0  |
| 5   | L     | 453  | PRO  | 2.0  |
| 3   | D     | 1080 | ILE  | 2.0  |
| 3   | J     | 511  | TYR  | 2.0  |
| 3   | J     | 670  | SER  | 2.0  |
| 6   | N     | 51   | GLY  | 2.0  |
| 1   | H     | 123  | ILE  | 2.0  |
| 3   | J     | 1083 | ALA  | 2.0  |
| 1   | H     | 74   | VAL  | 2.0  |
| 5   | F     | 161  | LEU  | 2.0  |
| 1   | H     | 96   | ASP  | 2.0  |
| 6   | N     | 31   | ILE  | 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 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 7   | MG   | D     | 1501 | 1/1   | 0.84 | 0.61 | 51,51,51,51                 | 0     |
| 7   | MG   | J     | 1501 | 1/1   | 0.90 | 0.70 | 55,55,55,55                 | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 8   | ZN   | D     | 1503 | 1/1   | 0.96 | 0.42 | 278,278,278,278             | 0     |
| 8   | ZN   | J     | 1502 | 1/1   | 0.97 | 0.15 | 168,168,168,168             | 0     |
| 8   | ZN   | D     | 1502 | 1/1   | 0.98 | 0.12 | 103,103,103,103             | 0     |
| 8   | ZN   | J     | 1503 | 1/1   | 0.99 | 0.19 | 57,57,57,57                 | 0     |

## 6.5 Other polymers [i](#)

There are no such residues in this entry.