



# Full wwPDB X-ray Structure Validation Report ⓘ

May 29, 2020 – 06:07 am BST

PDB ID : 4TMA  
Title : Crystal structure of gyrase bound to its inhibitor YacG  
Authors : Vos, S.M.; Lyubimov, A.Y.; Hershey, D.M.; Schoeffler, A.J.; Berger, J.M.  
Deposited on : 2014-05-31  
Resolution : 3.30 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  
Xtrriage (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

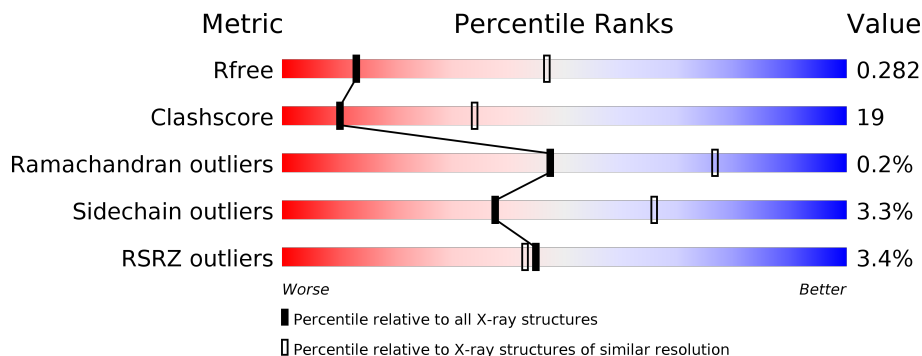
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.30 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                      | 1149 (3.34-3.26)                                      |
| Clashscore            | 141614                      | 1205 (3.34-3.26)                                      |
| Ramachandran outliers | 138981                      | 1183 (3.34-3.26)                                      |
| Sidechain outliers    | 138945                      | 1182 (3.34-3.26)                                      |
| RSRZ outliers         | 127900                      | 1115 (3.34-3.26)                                      |

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     | 525    |                  |
| 1   | C     | 525    |                  |
| 1   | E     | 525    |                  |
| 1   | G     | 525    |                  |
| 2   | B     | 417    |                  |
| 2   | D     | 417    |                  |

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| Mol | Chain | Length | Quality of chain                |
|-----|-------|--------|---------------------------------|
| 2   | F     | 417    | <p>%</p> <p>55% 32% 11%</p>     |
| 2   | H     | 417    | <p>4%</p> <p>36% 19% 44%</p>    |
| 3   | I     | 65     | <p>49% 20% 28%</p>              |
| 3   | J     | 65     | <p>3%</p> <p>68% 15% 5% 12%</p> |
| 3   | K     | 65     | <p>9%</p> <p>42% 40% 15%</p>    |
| 3   | L     | 65     | <p>3%</p> <p>45% 25% 5% 26%</p> |

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 26792 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 gyrase subunit A.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 505      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 3983  | 2510 | 711 | 747 | 15 |         |         |       |
| 1   | C     | 475      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 3733  | 2345 | 672 | 701 | 15 |         |         |       |
| 1   | E     | 486      | Total | C    | N   | O   | S  | 0       | 1       | 0     |
|     |       |          | 3841  | 2413 | 698 | 715 | 15 |         |         |       |
| 1   | G     | 483      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 3800  | 2391 | 682 | 713 | 14 |         |         |       |

- Molecule 2 is a protein called DNA gyrase subunit B.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 2   | B     | 374      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 2995  | 1875 | 527 | 579 | 14 |         |         |       |
| 2   | D     | 251      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 1990  | 1252 | 347 | 379 | 12 |         |         |       |
| 2   | F     | 371      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 2971  | 1863 | 523 | 571 | 14 |         |         |       |
| 2   | H     | 233      | Total | C    | N   | O   | S  | 0       | 1       | 0     |
|     |       |          | 1863  | 1170 | 326 | 356 | 11 |         |         |       |

There are 16 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment             | Reference  |
|-------|---------|----------|--------|---------------------|------------|
| B     | 385     | SER      | -      | expression tag      | UNP U6NGU8 |
| B     | 386     | ASN      | -      | expression tag      | UNP U6NGU8 |
| B     | 387     | ALA      | -      | expression tag      | UNP U6NGU8 |
| B     | 458     | TYR      | PHE    | engineered mutation | UNP U6NGU8 |
| D     | 385     | SER      | -      | expression tag      | UNP U6NGU8 |
| D     | 386     | ASN      | -      | expression tag      | UNP U6NGU8 |
| D     | 387     | ALA      | -      | expression tag      | UNP U6NGU8 |
| D     | 458     | TYR      | PHE    | engineered mutation | UNP U6NGU8 |

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| Chain | Residue | Modelled | Actual | Comment             | Reference  |
|-------|---------|----------|--------|---------------------|------------|
| F     | 385     | SER      | -      | expression tag      | UNP U6NGU8 |
| F     | 386     | ASN      | -      | expression tag      | UNP U6NGU8 |
| F     | 387     | ALA      | -      | expression tag      | UNP U6NGU8 |
| F     | 458     | TYR      | PHE    | engineered mutation | UNP U6NGU8 |
| H     | 385     | SER      | -      | expression tag      | UNP U6NGU8 |
| H     | 386     | ASN      | -      | expression tag      | UNP U6NGU8 |
| H     | 387     | ALA      | -      | expression tag      | UNP U6NGU8 |
| H     | 458     | TYR      | PHE    | engineered mutation | UNP U6NGU8 |

- Molecule 3 is a protein called DNA gyrase inhibitor YacG.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 3   | I     | 47       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 363   | 230 | 63 | 66 | 4 |         |         |       |
| 3   | J     | 57       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 446   | 279 | 74 | 89 | 4 |         |         |       |
| 3   | K     | 55       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 430   | 270 | 72 | 84 | 4 |         |         |       |
| 3   | L     | 48       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 371   | 234 | 64 | 69 | 4 |         |         |       |

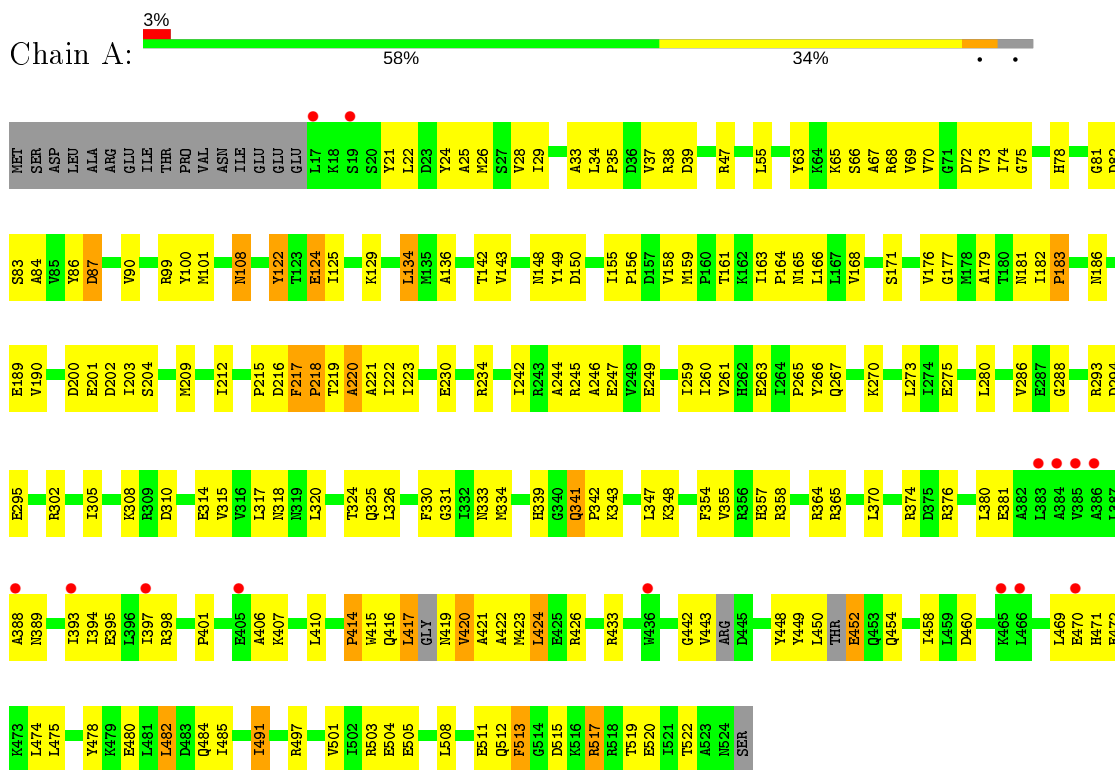
- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 4   | J     | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 4   | K     | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 4   | E     | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 4   | B     | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 4   | I     | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 4   | L     | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |

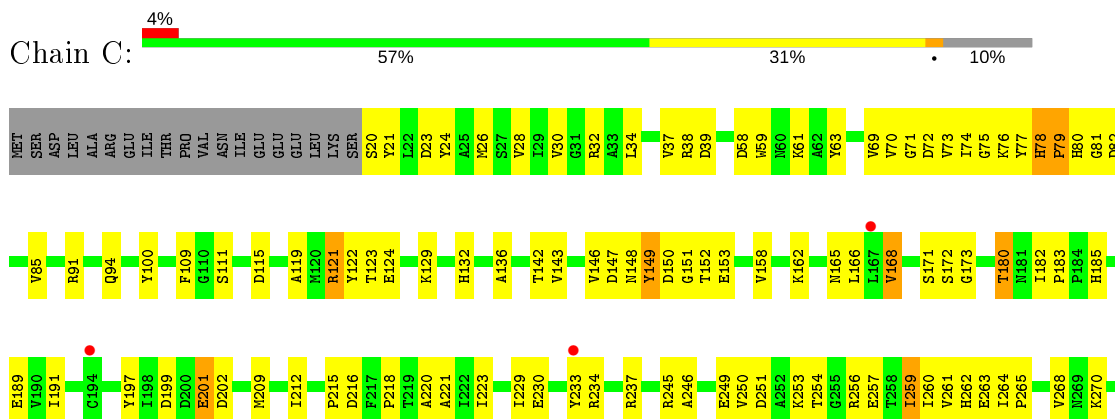
### 3 Residue-property plots [i](#)

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.

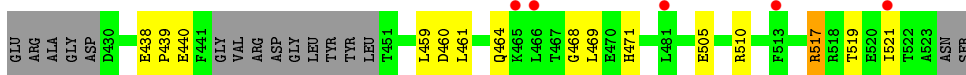
- Molecule 1: DNA gyrase subunit A



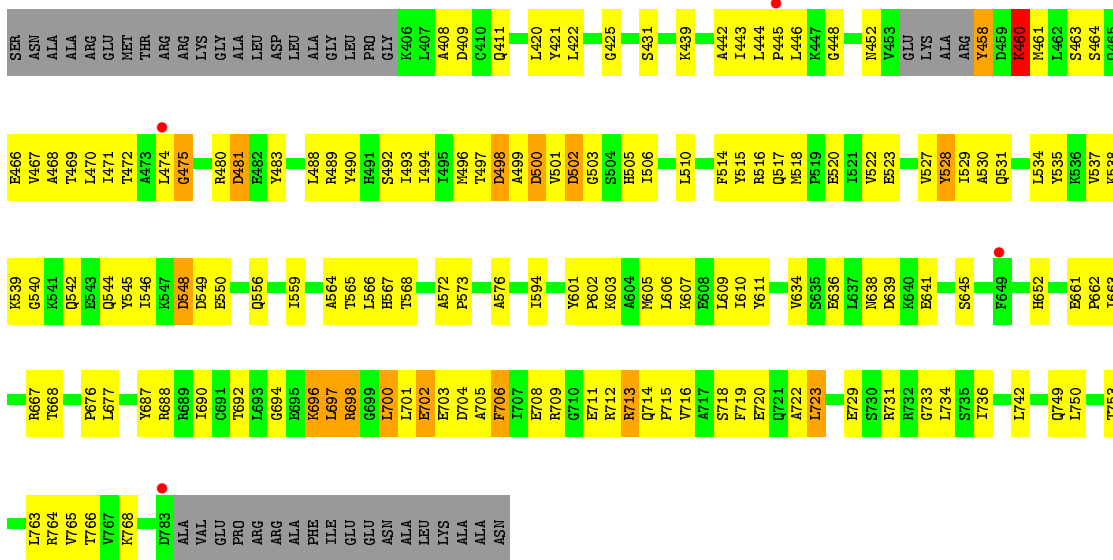
- Molecule 1: DNA gyrase subunit A



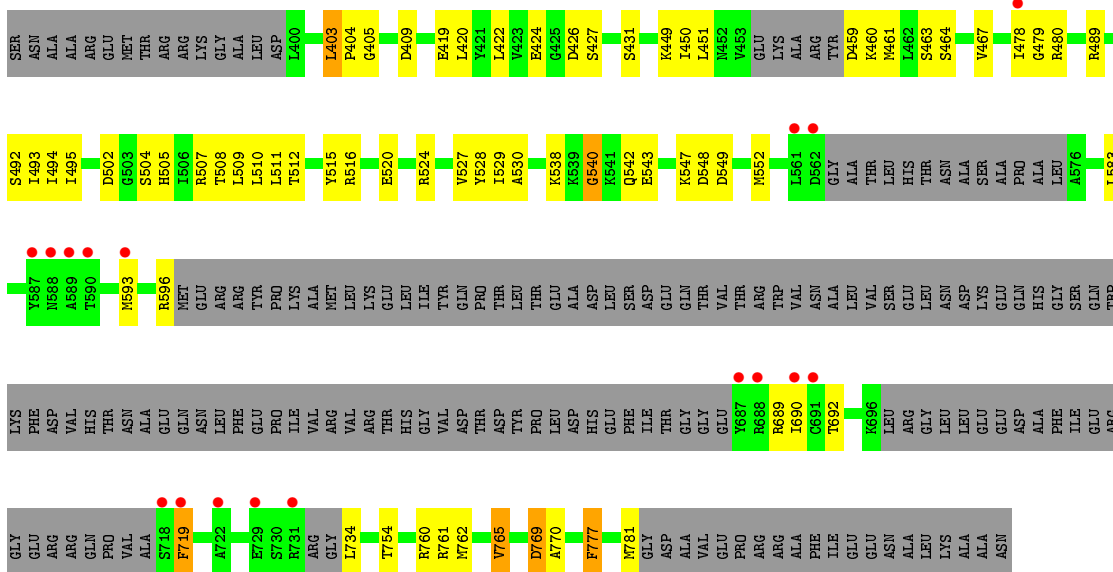




● Molecule 2: DNA gyrase subunit B



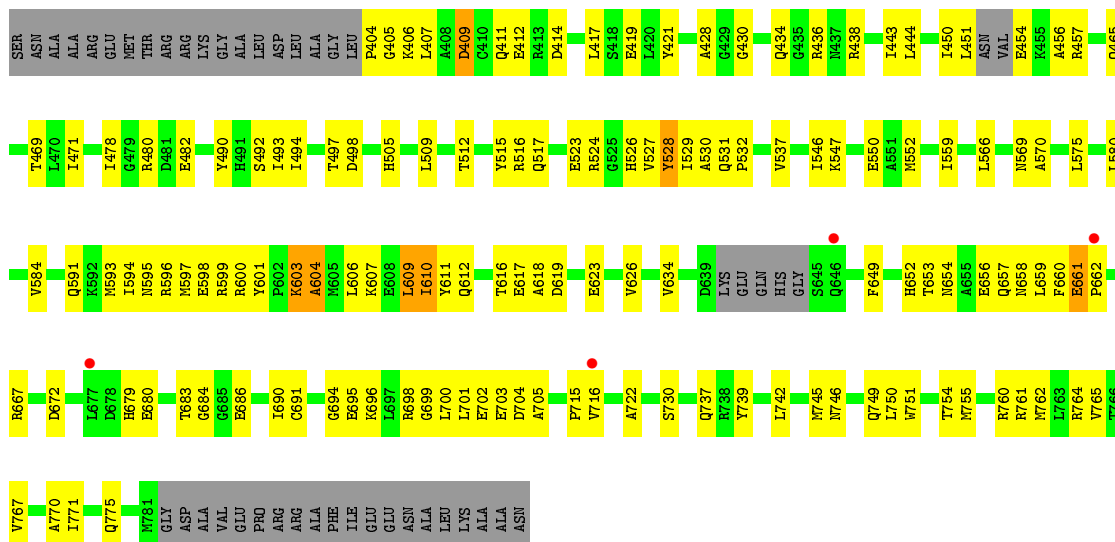
● Molecule 2: DNA gyrase subunit B



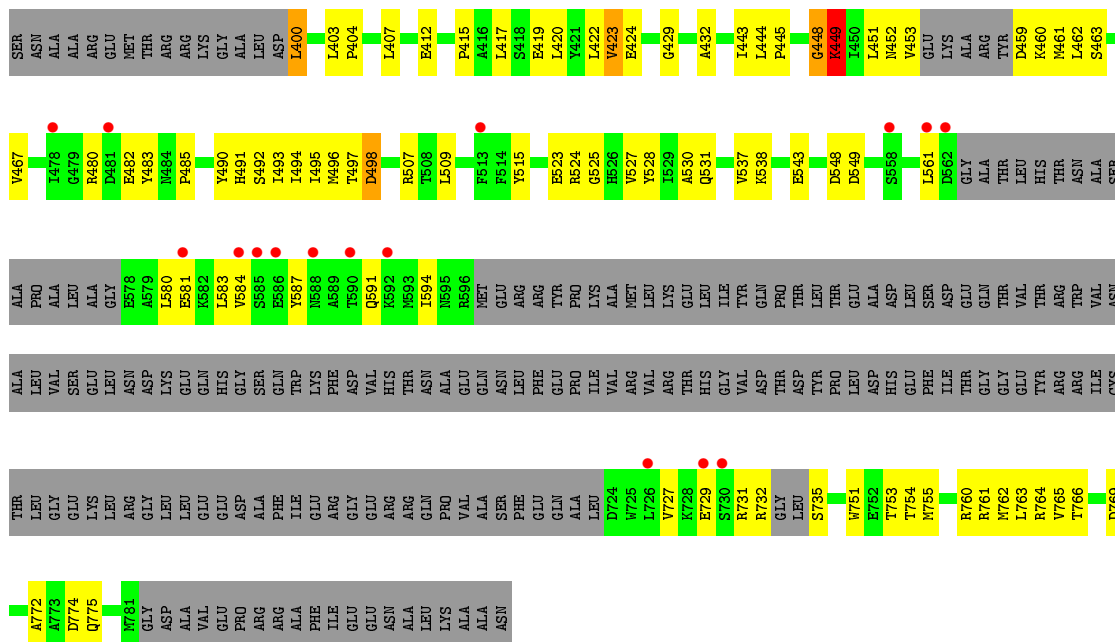
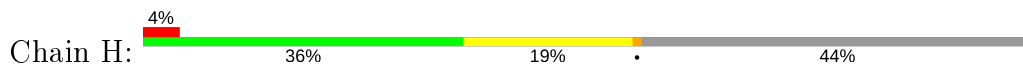
● Molecule 2: DNA gyrase subunit B







Molecule 2: DNA gyrase subunit B

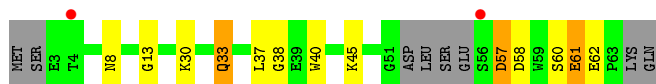


Molecule 3: DNA gyrase inhibitor YacG



Molecule 3: DNA gyrase inhibitor YacG

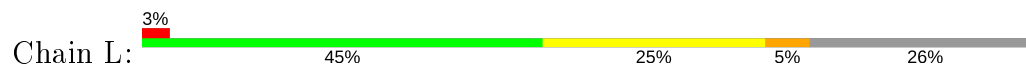




- Molecule 3: DNA gyrase inhibitor YacG



- Molecule 3: DNA gyrase inhibitor YacG



## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 21 21 21  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 107.21Å 114.46Å 462.12Å<br>90.00° 90.00° 90.00°             | Depositor        |
| Resolution (Å)  | 49.32 – 3.30<br>49.32 – 3.30                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 77.7 (49.32-3.30)<br>77.7 (49.32-3.30)                      | Depositor<br>EDS |
| $R_{merge}$   | 0.08  | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 2.10 (at 3.33Å)   | Xtrriage         |
| Refinement program  | PHENIX (phenix.refine: 1.9_1692)                            | Depositor        |
| R, $R_{free}$   | 0.243 , 0.283<br>0.244 , 0.282                              | Depositor<br>DCC |
| $R_{free}$ test set   | 3399 reflections (5.05%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 109.9   | Xtrriage         |
| Anisotropy  | 0.025   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.24 , 61.5   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.44$ , $\langle L^2 \rangle = 0.26$ | Xtrriage         |
| Estimated twinning fraction   | No twinning to report.                                      | Xtrriage         |
| $F_o, F_c$ correlation  | 0.91  | EDS              |
| Total number of atoms   | 26792   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 140.0   | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.20% 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

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

| Mol | Chain | Bond lengths |                | Bond angles |                 |
|-----|-------|--------------|----------------|-------------|-----------------|
|     |       | RMSZ         | # $ Z  > 5$    | RMSZ        | # $ Z  > 5$     |
| 1   | A     | 0.60         | 2/4044 (0.0%)  | 0.71        | 12/5466 (0.2%)  |
| 1   | C     | 0.44         | 0/3785         | 0.61        | 4/5111 (0.1%)   |
| 1   | E     | 0.47         | 0/3896         | 0.57        | 2/5258 (0.0%)   |
| 1   | G     | 0.40         | 0/3855         | 0.51        | 1/5209 (0.0%)   |
| 2   | B     | 0.47         | 1/3046 (0.0%)  | 0.73        | 8/4111 (0.2%)   |
| 2   | D     | 0.37         | 0/2015         | 0.57        | 0/2705          |
| 2   | F     | 0.40         | 0/3021         | 0.66        | 7/4074 (0.2%)   |
| 2   | H     | 0.43         | 0/1887         | 0.66        | 4/2534 (0.2%)   |
| 3   | I     | 0.65         | 0/372          | 0.92        | 4/504 (0.8%)    |
| 3   | J     | 0.35         | 0/457          | 0.67        | 2/620 (0.3%)    |
| 3   | K     | 0.81         | 1/441 (0.2%)   | 0.63        | 1/598 (0.2%)    |
| 3   | L     | 0.73         | 2/380 (0.5%)   | 0.73        | 1/515 (0.2%)    |
| All | All   | 0.47         | 6/27199 (0.0%) | 0.64        | 46/36705 (0.1%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1   | C     | 0                   | 1                   |
| 2   | D     | 0                   | 1                   |
| 2   | H     | 0                   | 1                   |
| All | All   | 0                   | 3                   |

All (6) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|--------|-------------|----------|
| 3   | K     | 63  | PRO  | N-CD  | -15.54 | 1.26        | 1.47     |
| 3   | L     | 26  | PRO  | N-CD  | 9.27   | 1.60        | 1.47     |
| 3   | L     | 48  | PRO  | N-CD  | 5.42   | 1.55        | 1.47     |

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| Mol | Chain | Res | Type | Atoms  | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 2   | B     | 502 | ASP  | CA-C   | 5.37  | 1.67        | 1.52     |
| 1   | A     | 218 | PRO  | N-CD   | 5.17  | 1.55        | 1.47     |
| 1   | A     | 122 | TYR  | CE1-CZ | -5.00 | 1.32        | 1.38     |

All (46) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 3   | I     | 28  | CYS  | O-C-N   | -9.19 | 107.99      | 122.70   |
| 2   | B     | 475 | GLY  | N-CA-C  | 8.69  | 134.84      | 113.10   |
| 1   | A     | 419 | ASN  | N-CA-C  | 8.50  | 133.96      | 111.00   |
| 2   | F     | 603 | LYS  | N-CA-C  | 8.06  | 132.76      | 111.00   |
| 3   | I     | 47  | ILE  | CB-CA-C | -7.48 | 96.64       | 111.60   |
| 1   | A     | 414 | PRO  | CB-CA-C | -7.24 | 93.91       | 112.00   |
| 1   | A     | 417 | LEU  | N-CA-CB | -7.23 | 95.93       | 110.40   |
| 3   | J     | 62  | GLU  | N-CA-CB | 7.07  | 123.32      | 110.60   |
| 2   | B     | 458 | TYR  | N-CA-C  | 6.83  | 129.44      | 111.00   |
| 1   | C     | 148 | ASN  | CB-CA-C | 6.77  | 123.94      | 110.40   |
| 1   | A     | 420 | VAL  | N-CA-C  | 6.58  | 128.77      | 111.00   |
| 2   | H     | 460 | LYS  | N-CA-C  | 6.53  | 128.64      | 111.00   |
| 1   | A     | 419 | ASN  | CB-CA-C | 6.30  | 123.00      | 110.40   |
| 2   | B     | 697 | LEU  | N-CA-C  | 6.29  | 127.97      | 111.00   |
| 1   | C     | 307 | VAL  | N-CA-C  | 6.28  | 127.94      | 111.00   |
| 1   | A     | 183 | PRO  | C-N-CD  | 6.15  | 141.31      | 128.40   |
| 1   | C     | 78  | HIS  | C-N-CD  | 6.02  | 141.05      | 128.40   |
| 2   | B     | 460 | LYS  | N-CA-C  | 6.01  | 127.24      | 111.00   |
| 3   | K     | 63  | PRO  | N-CD-CG | 5.96  | 112.15      | 103.20   |
| 3   | I     | 28  | CYS  | CA-C-N  | 5.93  | 130.24      | 117.20   |
| 2   | F     | 528 | TYR  | C-N-CA  | 5.91  | 136.47      | 121.70   |
| 2   | F     | 604 | ALA  | N-CA-CB | -5.90 | 101.84      | 110.10   |
| 1   | A     | 339 | HIS  | CB-CA-C | -5.86 | 98.68       | 110.40   |
| 1   | A     | 452 | GLU  | N-CA-C  | 5.85  | 126.78      | 111.00   |
| 2   | F     | 604 | ALA  | N-CA-C  | 5.83  | 126.75      | 111.00   |
| 3   | J     | 61  | GLU  | CB-CA-C | -5.76 | 98.89       | 110.40   |
| 1   | C     | 259 | ILE  | CB-CA-C | -5.75 | 100.10      | 111.60   |
| 1   | E     | 452 | GLU  | N-CA-C  | 5.74  | 126.51      | 111.00   |
| 1   | A     | 419 | ASN  | N-CA-CB | -5.74 | 100.28      | 110.60   |
| 2   | F     | 456 | ALA  | N-CA-CB | -5.71 | 102.11      | 110.10   |
| 1   | A     | 217 | PHE  | C-N-CD  | 5.61  | 140.18      | 128.40   |
| 1   | G     | 259 | ILE  | N-CA-C  | -5.57 | 95.97       | 111.00   |
| 3   | I     | 27  | PHE  | O-C-N   | -5.54 | 113.84      | 122.70   |
| 1   | A     | 452 | GLU  | N-CA-CB | -5.53 | 100.65      | 110.60   |
| 3   | L     | 47  | ILE  | C-N-CD  | 5.52  | 140.00      | 128.40   |

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| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 1   | A     | 424 | LEU  | N-CA-CB  | 5.45  | 121.29      | 110.40   |
| 2   | H     | 448 | GLY  | N-CA-C   | 5.44  | 126.69      | 113.10   |
| 2   | B     | 698 | ARG  | CB-CA-C  | -5.39 | 99.62       | 110.40   |
| 2   | H     | 400 | LEU  | CA-CB-CG | 5.37  | 127.66      | 115.30   |
| 2   | F     | 451 | LEU  | CA-CB-CG | 5.35  | 127.61      | 115.30   |
| 1   | E     | 219 | THR  | CB-CA-C  | -5.35 | 97.16       | 111.60   |
| 2   | B     | 713 | ARG  | N-CA-CB  | -5.33 | 101.01      | 110.60   |
| 2   | H     | 449 | LYS  | N-CA-C   | 5.31  | 125.34      | 111.00   |
| 2   | F     | 528 | TYR  | O-C-N    | 5.22  | 131.05      | 122.70   |
| 2   | B     | 502 | ASP  | CA-C-N   | -5.20 | 105.81      | 116.20   |
| 2   | B     | 700 | LEU  | N-CA-C   | 5.01  | 124.54      | 111.00   |

There are no chirality outliers.

All (3) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 1   | C     | 251 | ASP  | Peptide |
| 2   | D     | 540 | GLY  | Peptide |
| 2   | H     | 449 | LYS  | Peptide |

## 5.2 Too-close contacts [i](#)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 3983  | 0        | 4040     | 184     | 1            |
| 1   | C     | 3733  | 0        | 3810     | 152     | 1            |
| 1   | E     | 3841  | 0        | 3910     | 120     | 14           |
| 1   | G     | 3800  | 0        | 3867     | 106     | 0            |
| 2   | B     | 2995  | 0        | 2972     | 159     | 1            |
| 2   | D     | 1990  | 0        | 2013     | 83      | 0            |
| 2   | F     | 2971  | 0        | 2959     | 128     | 14           |
| 2   | H     | 1863  | 0        | 1887     | 69      | 1            |
| 3   | I     | 363   | 0        | 357      | 17      | 0            |
| 3   | J     | 446   | 0        | 416      | 11      | 0            |
| 3   | K     | 430   | 0        | 404      | 38      | 0            |
| 3   | L     | 371   | 0        | 362      | 18      | 0            |
| 4   | B     | 1     | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 4   | E     | 1     | 0        | 0        | 0       | 0            |
| 4   | I     | 1     | 0        | 0        | 0       | 0            |
| 4   | J     | 1     | 0        | 0        | 0       | 0            |
| 4   | K     | 1     | 0        | 0        | 0       | 0            |
| 4   | L     | 1     | 0        | 0        | 0       | 0            |
| All | All   | 26792 | 0        | 26997    | 1011    | 16           |

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 19.

All (1011) 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) |
|------------------|------------------|--------------------------|-------------------|
| 2:D:760:ARG:HD3  | 2:D:762:MET:CE   | 1.40                     | 1.52              |
| 1:G:257:GLU:OE2  | 1:G:313:GLY:N    | 1.61                     | 1.31              |
| 2:D:760:ARG:CD   | 2:D:762:MET:CE   | 2.09                     | 1.30              |
| 2:D:760:ARG:CD   | 2:D:762:MET:HE2  | 1.63                     | 1.28              |
| 1:G:255:GLY:O    | 1:G:309:ARG:HD3  | 1.17                     | 1.27              |
| 1:E:380:LEU:HD11 | 1:E:477:GLU:HG2  | 1.14                     | 1.14              |
| 2:D:760:ARG:HH11 | 2:D:762:MET:HE3  | 1.02                     | 1.10              |
| 2:H:561:LEU:HD13 | 2:H:581:GLU:HG2  | 1.32                     | 1.10              |
| 1:A:270:LYS:NZ   | 1:A:294:ASP:OD2  | 1.84                     | 1.09              |
| 1:C:250:VAL:HG22 | 1:C:256:ARG:O    | 1.49                     | 1.09              |
| 1:E:380:LEU:CD1  | 1:E:477:GLU:HG2  | 1.84                     | 1.08              |
| 1:A:417:LEU:HB3  | 1:A:421:ALA:HB2  | 1.25                     | 1.08              |
| 2:D:538:LYS:HG3  | 2:D:543:GLU:HB3  | 1.36                     | 1.07              |
| 1:G:257:GLU:OE2  | 1:G:313:GLY:CA   | 2.02                     | 1.07              |
| 1:A:471:HIS:CE1  | 1:A:475:LEU:HD21 | 1.88                     | 1.06              |
| 1:G:255:GLY:O    | 1:G:309:ARG:CD   | 2.02                     | 1.06              |
| 1:A:55:LEU:HD11  | 1:A:72:ASP:OD2   | 1.54                     | 1.06              |
| 2:B:463:SER:O    | 2:B:467:VAL:HG23 | 1.55                     | 1.05              |
| 1:A:482:LEU:HD23 | 1:A:485:ILE:HD11 | 1.38                     | 1.04              |
| 1:E:381:GLU:HG2  | 1:E:424:LEU:HD23 | 1.39                     | 1.03              |
| 2:B:572:ALA:HB1  | 2:B:573:PRO:HD2  | 1.38                     | 1.02              |
| 2:D:760:ARG:NH1  | 2:D:762:MET:CE   | 2.23                     | 1.02              |
| 2:D:760:ARG:NH1  | 2:D:762:MET:HE3  | 1.74                     | 1.02              |
| 1:E:417:LEU:O    | 1:E:417:LEU:HD23 | 1.61                     | 1.00              |
| 1:A:108:ASN:ND2  | 2:D:427:SER:O    | 1.95                     | 0.99              |
| 2:D:760:ARG:CD   | 2:D:762:MET:HE3  | 1.91                     | 0.98              |
| 2:D:760:ARG:HH11 | 2:D:762:MET:CE   | 1.75                     | 0.98              |
| 2:F:659:LEU:H    | 2:F:659:LEU:HD12 | 1.30                     | 0.97              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:H:480:ARG:NH2  | 2:H:523:GLU:OE2  | 1.97                     | 0.96              |
| 1:A:471:HIS:CD2  | 1:A:475:LEU:HD11 | 2.00                     | 0.95              |
| 2:B:463:SER:HB3  | 2:B:466:GLU:HB2  | 1.49                     | 0.94              |
| 1:E:380:LEU:HD11 | 1:E:477:GLU:CG   | 1.96                     | 0.92              |
| 2:H:509:LEU:HD11 | 3:L:47:ILE:HD11  | 1.49                     | 0.92              |
| 2:H:561:LEU:HB2  | 2:H:581:GLU:HG3  | 1.49                     | 0.92              |
| 2:B:565:THR:HG22 | 2:B:576:ALA:HB2  | 1.47                     | 0.92              |
| 1:C:307:VAL:HG12 | 1:C:308:LYS:O    | 1.68                     | 0.91              |
| 2:D:538:LYS:CG   | 2:D:543:GLU:HB3  | 1.99                     | 0.91              |
| 1:E:381:GLU:HG3  | 1:E:478:TYR:HE2  | 1.33                     | 0.90              |
| 1:C:72:ASP:O     | 1:C:76:LYS:HG3   | 1.71                     | 0.90              |
| 1:A:471:HIS:NE2  | 1:A:475:LEU:HD11 | 1.87                     | 0.89              |
| 1:A:25:ALA:O     | 1:A:29:ILE:HG13  | 1.74                     | 0.88              |
| 2:F:699:GLY:C    | 2:F:700:LEU:HD12 | 1.95                     | 0.87              |
| 1:G:91:ARG:HG3   | 1:G:91:ARG:HH21  | 1.38                     | 0.87              |
| 1:A:26:MET:SD    | 1:A:176:VAL:HG21 | 2.15                     | 0.87              |
| 1:G:257:GLU:OE2  | 1:G:313:GLY:HA3  | 1.74                     | 0.87              |
| 2:B:474:LEU:HD21 | 2:B:514:PHE:CE1  | 2.10                     | 0.87              |
| 2:D:449:LYS:HD2  | 2:D:461:MET:HE2  | 1.57                     | 0.87              |
| 1:C:30:VAL:HG13  | 1:C:34:LEU:HD12  | 1.56                     | 0.86              |
| 2:D:494:ILE:CG2  | 2:D:530:ALA:HB2  | 2.04                     | 0.86              |
| 2:D:493:ILE:HG13 | 2:D:527:VAL:HA   | 1.56                     | 0.86              |
| 2:F:596:ARG:HH11 | 2:F:597:MET:HE2  | 1.38                     | 0.86              |
| 2:H:509:LEU:CD1  | 3:L:47:ILE:HD11  | 2.05                     | 0.86              |
| 1:G:86:TYR:O     | 1:G:90:VAL:HG23  | 1.75                     | 0.86              |
| 2:F:612:GLN:O    | 2:F:698:ARG:NH1  | 2.08                     | 0.85              |
| 2:B:559:ILE:O    | 2:B:709:ARG:NH2  | 2.10                     | 0.85              |
| 1:E:381:GLU:HG2  | 1:E:424:LEU:CD2  | 2.06                     | 0.84              |
| 1:A:417:LEU:HB3  | 1:A:421:ALA:CB   | 2.06                     | 0.84              |
| 1:A:69:VAL:O     | 1:A:73:VAL:HG23  | 1.76                     | 0.84              |
| 2:B:611:TYR:O    | 2:B:698:ARG:CD   | 2.25                     | 0.84              |
| 1:G:99:ARG:NH1   | 1:G:100:TYR:OH   | 2.11                     | 0.84              |
| 1:A:186:ASN:O    | 1:A:190:VAL:HG23 | 1.77                     | 0.84              |
| 2:B:408:ALA:HB2  | 2:B:444:LEU:HD13 | 1.58                     | 0.83              |
| 2:H:495:ILE:O    | 2:H:495:ILE:HG22 | 1.77                     | 0.83              |
| 1:A:99:ARG:HA    | 1:A:218:PRO:HG3  | 1.60                     | 0.83              |
| 3:K:37:LEU:O     | 3:K:37:LEU:HD12  | 1.77                     | 0.82              |
| 1:A:70:VAL:O     | 1:A:74:ILE:HG13  | 1.78                     | 0.82              |
| 1:A:324:THR:HG22 | 1:A:325:GLN:N    | 1.96                     | 0.81              |
| 2:F:702:GLU:HG2  | 2:F:703:GLU:H    | 1.45                     | 0.81              |
| 3:I:30:LYS:NZ    | 3:I:33:GLN:OE1   | 2.14                     | 0.80              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:D:504:SER:O    | 2:D:508:THR:HG23 | 1.80                     | 0.80              |
| 2:B:474:LEU:HD21 | 2:B:514:PHE:HE1  | 1.45                     | 0.80              |
| 2:D:529:ILE:O    | 2:D:762:MET:HB3  | 1.81                     | 0.80              |
| 2:F:457:ARG:HH21 | 2:F:457:ARG:HG3  | 1.46                     | 0.80              |
| 2:B:468:ALA:O    | 2:B:471:ILE:HG22 | 1.81                     | 0.79              |
| 2:D:493:ILE:C    | 2:D:494:ILE:HD13 | 2.02                     | 0.79              |
| 2:D:760:ARG:NH1  | 2:D:762:MET:HE1  | 1.95                     | 0.79              |
| 2:F:656:GLU:CB   | 2:F:657:GLN:HA   | 2.10                     | 0.79              |
| 1:C:245:ARG:HG3  | 1:C:245:ARG:HH11 | 1.47                     | 0.79              |
| 1:E:324:THR:HG22 | 1:E:325:GLN:N    | 1.98                     | 0.79              |
| 2:B:714:GLN:CG   | 2:B:715:PRO:HD2  | 2.13                     | 0.79              |
| 1:E:471:HIS:O    | 1:E:475:LEU:HD13 | 1.82                     | 0.79              |
| 2:B:611:TYR:O    | 2:B:698:ARG:HD3  | 1.82                     | 0.78              |
| 2:F:528:TYR:CE1  | 2:F:764:ARG:HB2  | 2.18                     | 0.78              |
| 2:D:760:ARG:CZ   | 2:D:762:MET:CE   | 2.61                     | 0.78              |
| 1:G:257:GLU:O    | 1:G:307:VAL:HB   | 1.83                     | 0.78              |
| 1:C:317:LEU:O    | 1:C:317:LEU:HD12 | 1.83                     | 0.78              |
| 1:A:176:VAL:HG13 | 1:A:177:GLY:N    | 1.99                     | 0.78              |
| 2:B:610:ILE:HG22 | 2:B:690:ILE:HG23 | 1.65                     | 0.78              |
| 1:C:81:GLY:HA3   | 3:K:58:ASP:O     | 1.84                     | 0.78              |
| 3:J:61:GLU:HG2   | 3:J:61:GLU:O     | 1.84                     | 0.77              |
| 2:D:479:GLY:HA2  | 3:K:33:GLN:NE2   | 1.97                     | 0.77              |
| 2:B:708:GLU:HB2  | 2:B:713:ARG:HG2  | 1.64                     | 0.77              |
| 2:D:760:ARG:CZ   | 2:D:762:MET:HE1  | 2.14                     | 0.77              |
| 1:E:79:PRO:HB2   | 1:G:121:ARG:HB3  | 1.65                     | 0.77              |
| 1:C:74:ILE:O     | 1:C:79:PRO:HB3   | 1.85                     | 0.77              |
| 2:F:493:ILE:HD11 | 2:F:527:VAL:HG22 | 1.65                     | 0.77              |
| 2:B:697:LEU:HD11 | 2:B:719:PHE:CG   | 2.20                     | 0.77              |
| 2:D:493:ILE:HD11 | 2:D:527:VAL:HB   | 1.66                     | 0.77              |
| 1:C:264:ILE:HB   | 1:C:265:PRO:HD2  | 1.67                     | 0.77              |
| 2:B:694:GLY:C    | 2:B:698:ARG:NH1  | 2.38                     | 0.76              |
| 2:B:564:ALA:HB2  | 2:B:709:ARG:HA   | 1.67                     | 0.76              |
| 2:H:561:LEU:HB2  | 2:H:581:GLU:CG   | 2.15                     | 0.76              |
| 2:F:699:GLY:O    | 2:F:700:LEU:HD12 | 1.85                     | 0.76              |
| 1:C:80:HIS:O     | 3:K:57:ASP:HB2   | 1.85                     | 0.76              |
| 1:A:55:LEU:HD21  | 1:A:72:ASP:OD2   | 1.86                     | 0.75              |
| 2:B:488:LEU:HD23 | 2:B:490:TYR:H    | 1.50                     | 0.75              |
| 1:C:76:LYS:HE2   | 1:C:153:GLU:OE2  | 1.86                     | 0.75              |
| 1:A:38:ARG:NH1   | 1:A:158:VAL:HG21 | 2.01                     | 0.75              |
| 2:F:653:THR:HG22 | 2:F:654:ASN:O    | 1.86                     | 0.75              |
| 2:B:464:SER:HB3  | 3:I:43:GLU:HG2   | 1.69                     | 0.75              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:150:ASP:OD1  | 1:C:151:GLY:N    | 2.20                     | 0.75              |
| 1:A:324:THR:HG22 | 1:A:325:GLN:H    | 1.52                     | 0.74              |
| 1:A:83:SER:OG    | 3:K:62:GLU:OE1   | 2.04                     | 0.74              |
| 2:B:500:ASP:OD1  | 2:B:502:ASP:N    | 2.19                     | 0.74              |
| 2:F:657:GLN:O    | 2:F:657:GLN:HG2  | 1.87                     | 0.74              |
| 1:A:420:VAL:HG12 | 1:A:471:HIS:CE1  | 2.23                     | 0.74              |
| 2:B:460:LYS:HE2  | 3:I:46:ARG:HD2   | 1.68                     | 0.74              |
| 1:E:381:GLU:CG   | 1:E:424:LEU:HD23 | 2.18                     | 0.73              |
| 1:G:74:ILE:HA    | 1:G:78:HIS:O     | 1.89                     | 0.73              |
| 2:F:457:ARG:NH2  | 2:F:457:ARG:HG3  | 2.03                     | 0.73              |
| 2:H:561:LEU:CD1  | 2:H:581:GLU:HG2  | 2.16                     | 0.73              |
| 1:E:381:GLU:HG3  | 1:E:478:TYR:CE2  | 2.20                     | 0.73              |
| 3:K:27:PHE:CE2   | 3:K:33:GLN:HG3   | 2.24                     | 0.73              |
| 1:G:290:SER:HB3  | 1:G:308:LYS:HB3  | 1.70                     | 0.72              |
| 1:E:121:ARG:HB3  | 1:G:79:PRO:HB2   | 1.71                     | 0.72              |
| 1:A:471:HIS:NE2  | 1:A:475:LEU:HD21 | 2.05                     | 0.72              |
| 1:A:66:SER:O     | 1:A:70:VAL:HG23  | 1.90                     | 0.72              |
| 2:B:611:TYR:O    | 2:B:698:ARG:HD2  | 1.89                     | 0.72              |
| 1:C:245:ARG:NH1  | 1:C:245:ARG:HG3  | 2.02                     | 0.72              |
| 2:D:760:ARG:NE   | 2:D:762:MET:CE   | 2.53                     | 0.71              |
| 2:F:559:ILE:HG22 | 2:F:730:SER:HB2  | 1.72                     | 0.71              |
| 1:C:119:ALA:CB   | 1:C:121:ARG:HG2  | 2.20                     | 0.71              |
| 1:C:293:ARG:NH1  | 1:C:295:GLU:OE2  | 2.21                     | 0.71              |
| 2:F:659:LEU:N    | 2:F:659:LEU:HD12 | 2.04                     | 0.71              |
| 1:G:31:GLY:O     | 1:G:34:LEU:O     | 2.09                     | 0.71              |
| 2:B:719:PHE:CE2  | 2:B:723:LEU:HD22 | 2.25                     | 0.71              |
| 1:A:259:ILE:HD13 | 1:A:317:LEU:CD1  | 2.21                     | 0.71              |
| 2:F:596:ARG:HH11 | 2:F:597:MET:CE   | 2.04                     | 0.71              |
| 2:B:488:LEU:HD23 | 2:B:490:TYR:N    | 2.06                     | 0.71              |
| 2:D:529:ILE:HG13 | 2:D:765:VAL:CG1  | 2.20                     | 0.70              |
| 2:F:494:ILE:HA   | 2:F:528:TYR:O    | 1.92                     | 0.70              |
| 2:H:495:ILE:HG22 | 2:H:497:THR:HG22 | 1.72                     | 0.70              |
| 2:F:438:ARG:HH22 | 1:G:299:ASP:HB2  | 1.56                     | 0.70              |
| 3:K:62:GLU:HA    | 3:K:62:GLU:OE2   | 1.91                     | 0.70              |
| 2:B:408:ALA:CB   | 2:B:444:LEU:HD13 | 2.21                     | 0.70              |
| 2:F:529:ILE:O    | 2:F:762:MET:HB2  | 1.91                     | 0.70              |
| 2:H:419:GLU:OE1  | 2:H:760:ARG:NH1  | 2.23                     | 0.70              |
| 2:B:548:ASP:OD1  | 2:B:550:GLU:HB3  | 1.91                     | 0.69              |
| 1:C:197:TYR:OH   | 1:C:201:GLU:OE2  | 2.04                     | 0.69              |
| 1:A:212:ILE:HD11 | 1:A:347:LEU:HD21 | 1.74                     | 0.69              |
| 1:C:250:VAL:HG22 | 1:C:256:ARG:C    | 2.12                     | 0.69              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:38:ARG:HD2   | 1:C:158:VAL:HG11 | 1.74                     | 0.69              |
| 2:B:712:ARG:HD3  | 2:B:729:GLU:OE1  | 1.93                     | 0.69              |
| 2:D:760:ARG:HD2  | 2:D:762:MET:HE3  | 1.70                     | 0.69              |
| 1:G:120:MET:HG2  | 1:G:120:MET:O    | 1.91                     | 0.69              |
| 2:F:591:GLN:O    | 2:F:594:ILE:HG12 | 1.92                     | 0.69              |
| 1:A:55:LEU:CD1   | 1:A:72:ASP:OD2   | 2.37                     | 0.69              |
| 2:D:403:LEU:N    | 2:D:404:PRO:CD   | 2.56                     | 0.69              |
| 2:B:537:VAL:HG12 | 2:B:736:ILE:HG22 | 1.75                     | 0.69              |
| 1:A:39:ASP:O     | 1:A:165:ASN:ND2  | 2.21                     | 0.69              |
| 1:E:471:HIS:HD2  | 1:E:475:LEU:HD13 | 1.59                     | 0.68              |
| 2:F:454:GLU:HG3  | 2:H:451:LEU:HG   | 1.75                     | 0.68              |
| 2:F:596:ARG:NH1  | 2:F:597:MET:CE   | 2.57                     | 0.68              |
| 1:A:249:GLU:OE2  | 1:A:260:ILE:HD12 | 1.94                     | 0.68              |
| 2:B:539:LYS:HB2  | 2:B:734:LEU:HB3  | 1.75                     | 0.68              |
| 2:F:616:THR:HG22 | 2:F:618:ALA:H    | 1.59                     | 0.68              |
| 1:C:246:ALA:HA   | 1:C:261:VAL:HA   | 1.75                     | 0.68              |
| 2:B:488:LEU:HD21 | 2:B:490:TYR:O    | 1.95                     | 0.67              |
| 1:A:99:ARG:HH12  | 1:A:515:ASP:HB3  | 1.59                     | 0.67              |
| 1:A:81:GLY:O     | 3:K:61:GLU:HB2   | 1.93                     | 0.67              |
| 1:A:259:ILE:HG22 | 1:A:260:ILE:N    | 2.10                     | 0.67              |
| 1:E:469:LEU:O    | 1:E:469:LEU:HD13 | 1.93                     | 0.67              |
| 1:A:398:ARG:NH2  | 1:C:391:ASP:OD2  | 2.28                     | 0.67              |
| 2:B:714:GLN:HG2  | 2:B:715:PRO:HD2  | 1.75                     | 0.67              |
| 1:C:249:GLU:O    | 1:C:249:GLU:HG3  | 1.94                     | 0.67              |
| 2:H:461:MET:SD   | 3:L:45:LYS:O     | 2.53                     | 0.67              |
| 1:G:416:GLN:HG2  | 1:G:416:GLN:O    | 1.94                     | 0.67              |
| 1:A:478:TYR:CE2  | 1:A:482:LEU:CD1  | 2.78                     | 0.67              |
| 2:B:564:ALA:CB   | 2:B:709:ARG:HA   | 2.25                     | 0.67              |
| 2:D:494:ILE:HD13 | 2:D:494:ILE:N    | 2.10                     | 0.67              |
| 2:B:422:LEU:HD13 | 2:B:510:LEU:HD22 | 1.75                     | 0.66              |
| 2:F:569:ASN:ND2  | 2:F:570:ALA:HB2  | 2.10                     | 0.66              |
| 2:H:459:ASP:OD1  | 3:L:48:PRO:HA    | 1.96                     | 0.66              |
| 2:D:419:GLU:HB3  | 2:D:492:SER:HB2  | 1.76                     | 0.66              |
| 1:A:143:VAL:HG21 | 1:A:158:VAL:HB   | 1.76                     | 0.66              |
| 2:F:705:ALA:HB3  | 2:F:716:VAL:O    | 1.94                     | 0.66              |
| 2:B:694:GLY:HA3  | 2:B:698:ARG:HH12 | 1.60                     | 0.66              |
| 2:D:760:ARG:HD3  | 2:D:762:MET:HE2  | 0.69                     | 0.66              |
| 1:C:119:ALA:HB1  | 1:C:121:ARG:HG2  | 1.76                     | 0.66              |
| 1:A:259:ILE:O    | 1:A:260:ILE:HG13 | 1.96                     | 0.66              |
| 2:D:505:HIS:O    | 2:D:509:LEU:HG   | 1.96                     | 0.66              |
| 1:E:473:LYS:O    | 1:E:476:ASP:HB2  | 1.95                     | 0.66              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:H:494:ILE:HA   | 2:H:528:TYR:O    | 1.96                     | 0.66              |
| 1:A:86:TYR:O     | 1:A:90:VAL:HG23  | 1.95                     | 0.66              |
| 1:C:390:ILE:O    | 1:C:394:ILE:HG13 | 1.95                     | 0.66              |
| 1:G:419:ASN:O    | 1:G:420:VAL:HG22 | 1.96                     | 0.66              |
| 2:B:572:ALA:HB1  | 2:B:573:PRO:CD   | 2.20                     | 0.65              |
| 2:H:528:TYR:HB3  | 2:H:762:MET:HE3  | 1.77                     | 0.65              |
| 2:D:529:ILE:HG13 | 2:D:765:VAL:HG12 | 1.77                     | 0.65              |
| 2:B:425:GLY:N    | 2:B:446:LEU:O    | 2.29                     | 0.65              |
| 1:A:200:ASP:O    | 1:A:203:ILE:HB   | 1.96                     | 0.65              |
| 2:B:708:GLU:CB   | 2:B:713:ARG:HG2  | 2.26                     | 0.65              |
| 1:C:250:VAL:HG23 | 1:C:257:GLU:HG2  | 1.77                     | 0.65              |
| 1:E:469:LEU:HD13 | 1:E:469:LEU:C    | 2.17                     | 0.65              |
| 2:F:656:GLU:HB3  | 2:F:657:GLN:HA   | 1.79                     | 0.65              |
| 2:B:634:VAL:O    | 2:B:638:ASN:ND2  | 2.30                     | 0.65              |
| 1:C:82:ASP:OD2   | 3:K:60:SER:HB3   | 1.96                     | 0.65              |
| 1:E:324:THR:HG22 | 1:E:325:GLN:H    | 1.61                     | 0.65              |
| 1:E:74:ILE:HA    | 1:E:78:HIS:O     | 1.97                     | 0.64              |
| 3:L:7:VAL:HG21   | 3:L:18:TRP:HE3   | 1.62                     | 0.64              |
| 1:A:324:THR:CG2  | 1:A:325:GLN:H    | 2.09                     | 0.64              |
| 1:C:250:VAL:CG2  | 1:C:256:ARG:O    | 2.37                     | 0.64              |
| 1:E:273:LEU:HD11 | 1:E:324:THR:HG22 | 1.80                     | 0.64              |
| 1:E:37:VAL:HA    | 1:E:166:LEU:HD22 | 1.79                     | 0.64              |
| 2:B:488:LEU:CD2  | 2:B:490:TYR:H    | 2.11                     | 0.64              |
| 1:C:265:PRO:HG2  | 1:C:268:VAL:HG21 | 1.78                     | 0.64              |
| 2:B:714:GLN:HG2  | 2:B:715:PRO:CD   | 2.26                     | 0.64              |
| 2:F:616:THR:H    | 2:F:619:ASP:HB2  | 1.63                     | 0.64              |
| 1:A:482:LEU:CD2  | 1:A:485:ILE:HD11 | 2.21                     | 0.64              |
| 1:E:324:THR:CG2  | 1:E:325:GLN:N    | 2.61                     | 0.64              |
| 1:G:259:ILE:HB   | 1:G:305:ILE:HB   | 1.79                     | 0.64              |
| 1:A:201:GLU:O    | 1:A:202:ASP:HB2  | 1.98                     | 0.64              |
| 1:A:74:ILE:HA    | 1:A:78:HIS:O     | 1.98                     | 0.64              |
| 1:C:386:ALA:O    | 1:C:390:ILE:HG13 | 1.98                     | 0.64              |
| 1:A:324:THR:CG2  | 1:A:325:GLN:N    | 2.61                     | 0.63              |
| 1:A:65:LYS:NZ    | 1:A:122:TYR:O    | 2.29                     | 0.63              |
| 2:B:718:SER:OG   | 2:B:719:PHE:N    | 2.29                     | 0.63              |
| 2:H:480:ARG:CZ   | 3:L:25:ARG:HD2   | 2.28                     | 0.63              |
| 2:B:408:ALA:CA   | 2:B:444:LEU:HD13 | 2.29                     | 0.63              |
| 1:E:191:ILE:HG21 | 1:E:510:ARG:HB2  | 1.79                     | 0.63              |
| 2:F:596:ARG:NH1  | 2:F:597:MET:HE2  | 2.11                     | 0.63              |
| 1:G:121:ARG:NH2  | 1:G:122:TYR:CZ   | 2.66                     | 0.63              |
| 1:A:420:VAL:HG12 | 1:A:471:HIS:NE2  | 2.13                     | 0.63              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:470:GLU:HA   | 1:E:470:GLU:OE1  | 1.98                     | 0.63              |
| 2:B:502:ASP:O    | 2:B:506:ILE:HD12 | 1.99                     | 0.63              |
| 3:L:7:VAL:HG21   | 3:L:18:TRP:CE3   | 2.32                     | 0.63              |
| 2:F:616:THR:HG22 | 2:F:617:GLU:N    | 2.13                     | 0.63              |
| 1:A:478:TYR:CE2  | 1:A:482:LEU:HD11 | 2.34                     | 0.63              |
| 2:D:493:ILE:HD11 | 2:D:527:VAL:CB   | 2.28                     | 0.63              |
| 2:F:603:LYS:HG3  | 2:F:604:ALA:H    | 1.63                     | 0.62              |
| 1:A:215:PRO:HG2  | 1:A:223:ILE:CD1  | 2.29                     | 0.62              |
| 2:F:603:LYS:HG3  | 2:F:604:ALA:N    | 2.14                     | 0.62              |
| 1:A:83:SER:O     | 1:A:87:ASP:HB2   | 2.00                     | 0.62              |
| 1:A:242:ILE:HD11 | 1:A:330:PHE:HB2  | 1.80                     | 0.62              |
| 1:A:273:LEU:HD21 | 1:A:326:LEU:HD21 | 1.81                     | 0.62              |
| 2:D:494:ILE:HA   | 2:D:528:TYR:O    | 1.99                     | 0.62              |
| 1:G:91:ARG:HG3   | 1:G:91:ARG:NH2   | 2.08                     | 0.62              |
| 2:F:680:GLU:O    | 2:F:684:GLY:N    | 2.33                     | 0.62              |
| 2:F:705:ALA:HB3  | 2:F:716:VAL:HG23 | 1.81                     | 0.62              |
| 2:H:495:ILE:HG21 | 2:H:507:ARG:HG3  | 1.81                     | 0.62              |
| 1:E:273:LEU:HD11 | 1:E:324:THR:CG2  | 2.30                     | 0.62              |
| 1:E:475:LEU:N    | 1:E:475:LEU:HD12 | 2.15                     | 0.62              |
| 1:A:395:GLU:O    | 1:A:398:ARG:HB3  | 1.99                     | 0.62              |
| 1:E:380:LEU:HD22 | 1:E:474:LEU:HD11 | 1.82                     | 0.62              |
| 2:H:509:LEU:HD11 | 3:L:47:ILE:CD1   | 2.28                     | 0.62              |
| 2:H:523:GLU:O    | 2:H:525:GLY:N    | 2.32                     | 0.62              |
| 2:B:564:ALA:HB2  | 2:B:709:ARG:HG3  | 1.82                     | 0.61              |
| 2:B:568:THR:O    | 2:B:705:ALA:HB2  | 2.00                     | 0.61              |
| 1:A:33:ALA:O     | 1:A:34:LEU:HD23  | 2.01                     | 0.61              |
| 1:C:312:VAL:O    | 1:C:316:VAL:HG23 | 2.00                     | 0.61              |
| 2:F:421:TYR:HB2  | 2:F:443:ILE:HD13 | 1.82                     | 0.61              |
| 1:G:191:ILE:HG21 | 1:G:510:ARG:HB2  | 1.82                     | 0.61              |
| 2:H:538:LYS:HG2  | 2:H:543:GLU:HA   | 1.83                     | 0.61              |
| 2:D:478:ILE:HD13 | 3:K:37:LEU:CD2   | 2.30                     | 0.61              |
| 1:A:280:LEU:HB3  | 1:A:286:VAL:HG12 | 1.81                     | 0.61              |
| 1:A:259:ILE:HD13 | 1:A:317:LEU:HD12 | 1.82                     | 0.61              |
| 2:D:512:THR:HG21 | 2:D:777:PHE:HD2  | 1.65                     | 0.61              |
| 2:F:656:GLU:CG   | 2:F:657:GLN:HA   | 2.29                     | 0.61              |
| 1:E:324:THR:CG2  | 1:E:325:GLN:H    | 2.13                     | 0.61              |
| 2:H:419:GLU:CD   | 2:H:760:ARG:HH12 | 2.04                     | 0.61              |
| 1:A:189:GLU:HB3  | 1:A:212:ILE:HG22 | 1.82                     | 0.61              |
| 2:B:464:SER:HB3  | 3:I:43:GLU:CG    | 2.30                     | 0.61              |
| 1:A:517:ARG:HG2  | 1:A:517:ARG:HH11 | 1.64                     | 0.61              |
| 1:G:67:ALA:HB2   | 1:G:120:MET:O    | 2.00                     | 0.61              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:475:GLY:HA3  | 2:B:489:ARG:HG3  | 1.81                     | 0.61              |
| 2:B:714:GLN:HG3  | 2:B:715:PRO:HD2  | 1.82                     | 0.61              |
| 2:D:494:ILE:HG22 | 2:D:530:ALA:HB2  | 1.83                     | 0.61              |
| 2:F:702:GLU:HG2  | 2:F:703:GLU:N    | 2.15                     | 0.61              |
| 2:H:761:ARG:NH1  | 2:H:762:MET:O    | 2.34                     | 0.61              |
| 1:C:121:ARG:HG3  | 1:C:122:TYR:CE1  | 2.36                     | 0.61              |
| 1:A:416:GLN:C    | 1:A:417:LEU:HD12 | 2.21                     | 0.60              |
| 1:E:65:LYS:NZ    | 1:E:122:TYR:O    | 2.31                     | 0.60              |
| 3:K:39:GLU:HB3   | 3:K:44:GLU:HB2   | 1.83                     | 0.60              |
| 1:C:427:ALA:HB1  | 1:C:482:LEU:HD13 | 1.82                     | 0.60              |
| 2:B:594:ILE:HG22 | 2:B:603:LYS:HG3  | 1.82                     | 0.60              |
| 2:F:607:LYS:O    | 2:F:610:ILE:HG13 | 2.01                     | 0.60              |
| 2:F:656:GLU:HG2  | 2:F:657:GLN:HA   | 1.83                     | 0.60              |
| 1:A:21:TYR:O     | 1:A:24:TYR:HB3   | 2.01                     | 0.60              |
| 1:E:444:ARG:O    | 1:E:445:ASP:HB2  | 2.01                     | 0.60              |
| 1:C:358:ARG:NH2  | 1:C:505:GLU:OE1  | 2.34                     | 0.60              |
| 1:A:244:ALA:HB2  | 1:A:265:PRO:HD3  | 1.82                     | 0.60              |
| 2:B:611:TYR:CE1  | 2:B:697:LEU:HD22 | 2.36                     | 0.60              |
| 1:C:381:GLU:O    | 1:C:385:VAL:HG23 | 2.01                     | 0.60              |
| 1:E:471:HIS:CD2  | 1:E:475:LEU:HD13 | 2.37                     | 0.60              |
| 1:G:75:GLY:O     | 1:G:149:TYR:OH   | 2.15                     | 0.60              |
| 1:E:390:ILE:HG21 | 1:G:398:ARG:HH12 | 1.66                     | 0.60              |
| 1:E:417:LEU:O    | 1:E:417:LEU:CD2  | 2.44                     | 0.60              |
| 2:B:564:ALA:HB2  | 2:B:709:ARG:CG   | 2.32                     | 0.59              |
| 2:B:696:LYS:O    | 2:B:700:LEU:HD22 | 2.02                     | 0.59              |
| 1:C:305:ILE:O    | 1:C:305:ILE:HG22 | 2.01                     | 0.59              |
| 2:B:694:GLY:CA   | 2:B:698:ARG:HH12 | 2.14                     | 0.59              |
| 1:C:230:GLU:HG2  | 1:C:234:ARG:HH12 | 1.68                     | 0.59              |
| 1:E:273:LEU:CD1  | 1:E:324:THR:CG2  | 2.80                     | 0.59              |
| 1:E:260:ILE:HD13 | 1:E:302:ARG:NH1  | 2.18                     | 0.59              |
| 2:F:659:LEU:H    | 2:F:659:LEU:CD1  | 2.05                     | 0.59              |
| 1:G:255:GLY:HA3  | 1:G:309:ARG:NH1  | 2.17                     | 0.59              |
| 1:E:381:GLU:OE2  | 1:E:478:TYR:OH   | 2.12                     | 0.59              |
| 1:C:254:THR:HG22 | 1:C:254:THR:O    | 2.02                     | 0.59              |
| 2:D:479:GLY:HA2  | 3:K:33:GLN:HE22  | 1.67                     | 0.59              |
| 1:A:358:ARG:NH2  | 1:A:505:GLU:OE1  | 2.36                     | 0.59              |
| 2:B:494:ILE:HA   | 2:B:528:TYR:O    | 2.03                     | 0.59              |
| 2:D:494:ILE:HG21 | 2:D:530:ALA:HB2  | 1.84                     | 0.59              |
| 1:E:393:ILE:HD13 | 1:E:458:ILE:HD11 | 1.84                     | 0.59              |
| 3:K:37:LEU:C     | 3:K:37:LEU:HD12  | 2.23                     | 0.59              |
| 1:C:422:ALA:O    | 1:C:426:ARG:HB2  | 2.03                     | 0.59              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:358:ARG:NH2  | 1:G:505:GLU:OE1  | 2.36                     | 0.59              |
| 3:I:16:VAL:HG11  | 3:I:28:CYS:HA    | 1.84                     | 0.59              |
| 2:B:602:PRO:HD2  | 2:B:605:MET:CE   | 2.32                     | 0.58              |
| 2:B:714:GLN:HG2  | 2:B:715:PRO:N    | 2.18                     | 0.58              |
| 1:A:259:ILE:HD13 | 1:A:317:LEU:HD13 | 1.85                     | 0.58              |
| 2:B:463:SER:CB   | 2:B:466:GLU:HB2  | 2.29                     | 0.58              |
| 2:B:694:GLY:CA   | 2:B:698:ARG:NH1  | 2.66                     | 0.58              |
| 2:B:409:ASP:O    | 2:B:442:ALA:HB1  | 2.04                     | 0.58              |
| 1:C:32:ARG:O     | 1:C:32:ARG:HG2   | 2.02                     | 0.58              |
| 1:G:209:MET:HE1  | 1:G:230:GLU:HA   | 1.84                     | 0.58              |
| 1:G:244:ALA:HB2  | 1:G:265:PRO:HD3  | 1.84                     | 0.58              |
| 1:A:203:ILE:O    | 1:A:348:LYS:NZ   | 2.36                     | 0.58              |
| 1:A:82:ASP:C     | 1:A:84:ALA:H     | 2.07                     | 0.58              |
| 1:C:245:ARG:O    | 1:C:245:ARG:HG2  | 2.02                     | 0.58              |
| 2:D:419:GLU:CB   | 2:D:492:SER:HB2  | 2.33                     | 0.58              |
| 1:A:422:ALA:O    | 1:A:426:ARG:HB2  | 2.03                     | 0.58              |
| 1:C:324:THR:HB   | 1:C:326:LEU:HD13 | 1.85                     | 0.58              |
| 1:E:444:ARG:HG3  | 1:E:444:ARG:O    | 2.03                     | 0.58              |
| 1:C:37:VAL:HA    | 1:C:166:LEU:HD22 | 1.85                     | 0.58              |
| 1:E:462:ARG:NH2  | 1:E:464:GLN:OE1  | 2.36                     | 0.58              |
| 1:C:391:ASP:N    | 1:C:392:PRO:CD   | 2.66                     | 0.58              |
| 3:K:42:ALA:HB3   | 3:K:44:GLU:HG2   | 1.86                     | 0.58              |
| 2:F:751:TRP:HA   | 2:F:755:MET:HB2  | 1.86                     | 0.58              |
| 2:B:517:GLN:OE1  | 3:I:33:GLN:NE2   | 2.37                     | 0.58              |
| 2:B:474:LEU:HD23 | 2:B:518:MET:SD   | 2.44                     | 0.57              |
| 2:D:515:TYR:HB2  | 2:D:770:ALA:HB1  | 1.86                     | 0.57              |
| 2:D:420:LEU:HB3  | 2:D:493:ILE:HG22 | 1.86                     | 0.57              |
| 2:H:751:TRP:HA   | 2:H:755:MET:HB2  | 1.85                     | 0.57              |
| 1:C:74:ILE:HA    | 1:C:78:HIS:O     | 2.04                     | 0.57              |
| 2:B:464:SER:HB2  | 3:I:41:ALA:O     | 2.04                     | 0.57              |
| 2:B:500:ASP:OD1  | 2:B:501:VAL:N    | 2.38                     | 0.57              |
| 2:D:479:GLY:CA   | 3:K:33:GLN:NE2   | 2.67                     | 0.57              |
| 1:A:176:VAL:CG1  | 1:A:177:GLY:N    | 2.67                     | 0.57              |
| 1:A:295:GLU:OE1  | 1:A:302:ARG:NH2  | 2.36                     | 0.57              |
| 1:C:39:ASP:O     | 1:C:165:ASN:ND2  | 2.35                     | 0.57              |
| 1:G:320:LEU:HB3  | 1:G:326:LEU:HD12 | 1.87                     | 0.57              |
| 2:H:448:GLY:O    | 2:H:449:LYS:HB2  | 2.04                     | 0.57              |
| 1:A:99:ARG:CA    | 1:A:218:PRO:HG3  | 2.33                     | 0.57              |
| 2:F:751:TRP:CE2  | 1:G:298:LYS:NZ   | 2.73                     | 0.57              |
| 2:H:766:THR:O    | 2:H:769:ASP:HB2  | 2.03                     | 0.57              |
| 2:B:488:LEU:HD23 | 2:B:489:ARG:N    | 2.20                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:489:ARG:NH2  | 2:B:490:TYR:OH   | 2.38                     | 0.56              |
| 2:F:609:LEU:HB3  | 2:F:690:ILE:HD13 | 1.87                     | 0.56              |
| 1:A:203:ILE:HG23 | 1:A:204:SER:N    | 2.20                     | 0.56              |
| 1:E:362:VAL:HG13 | 1:E:365:ARG:HH21 | 1.69                     | 0.56              |
| 1:E:463:LEU:HD12 | 1:G:461:LEU:HB3  | 1.85                     | 0.56              |
| 1:A:471:HIS:O    | 1:A:472:GLU:C    | 2.43                     | 0.56              |
| 1:C:173:GLY:HA3  | 1:C:180:THR:H    | 1.69                     | 0.56              |
| 2:B:421:TYR:HB2  | 2:B:443:ILE:HG22 | 1.87                     | 0.56              |
| 2:B:488:LEU:HD21 | 2:B:490:TYR:C    | 2.25                     | 0.56              |
| 2:B:601:TYR:HB3  | 2:B:605:MET:CE   | 2.35                     | 0.56              |
| 2:H:527:VAL:HB   | 2:H:765:VAL:CG2  | 2.35                     | 0.56              |
| 1:C:23:ASP:O     | 1:C:26:MET:HB3   | 2.05                     | 0.56              |
| 1:E:469:LEU:HD11 | 1:E:473:LYS:HG3  | 1.88                     | 0.56              |
| 1:C:149:TYR:CG   | 1:C:150:ASP:N    | 2.71                     | 0.56              |
| 1:A:68:ARG:HH12  | 1:C:76:LYS:CE    | 2.19                     | 0.56              |
| 2:F:512:THR:O    | 2:F:516:ARG:HG3  | 2.05                     | 0.56              |
| 1:C:162:LYS:HA   | 1:C:358:ARG:NH1  | 2.20                     | 0.56              |
| 1:E:230:GLU:OE2  | 1:E:234:ARG:NH1  | 2.39                     | 0.56              |
| 2:B:607:LYS:O    | 2:B:610:ILE:HG12 | 2.05                     | 0.56              |
| 1:E:471:HIS:HD2  | 1:E:475:LEU:CD1  | 2.18                     | 0.56              |
| 2:H:463:SER:O    | 2:H:467:VAL:HG23 | 2.05                     | 0.56              |
| 1:A:164:PRO:O    | 1:A:166:LEU:N    | 2.39                     | 0.56              |
| 1:C:58:ASP:OD2   | 1:C:61:LYS:NZ    | 2.39                     | 0.56              |
| 2:B:488:LEU:HD23 | 2:B:488:LEU:C    | 2.27                     | 0.55              |
| 1:E:270:LYS:NZ   | 1:E:294:ASP:OD2  | 2.39                     | 0.55              |
| 2:F:596:ARG:NH1  | 2:F:597:MET:HE1  | 2.20                     | 0.55              |
| 1:G:82:ASP:C     | 1:G:84:ALA:H     | 2.09                     | 0.55              |
| 1:A:407:LYS:HD2  | 1:A:452:GLU:HG3  | 1.88                     | 0.55              |
| 2:B:421:TYR:CZ   | 2:B:494:ILE:HD12 | 2.41                     | 0.55              |
| 2:F:480:ARG:NH2  | 2:F:523:GLU:OE2  | 2.29                     | 0.55              |
| 1:G:195:LEU:HA   | 1:G:198:ILE:HG22 | 1.88                     | 0.55              |
| 2:F:406:LYS:O    | 2:F:406:LYS:HG2  | 2.07                     | 0.55              |
| 3:L:16:VAL:HG11  | 3:L:27:PHE:O     | 2.06                     | 0.55              |
| 1:A:164:PRO:HB2  | 1:A:168:VAL:HG23 | 1.88                     | 0.55              |
| 2:B:522:VAL:HG13 | 2:B:765:VAL:HG23 | 1.88                     | 0.55              |
| 1:C:30:VAL:HG11  | 1:C:342:PRO:HG3  | 1.87                     | 0.55              |
| 2:F:652:HIS:HB3  | 2:F:661:GLU:HB3  | 1.89                     | 0.55              |
| 2:B:715:PRO:C    | 2:B:716:VAL:HG13 | 2.27                     | 0.55              |
| 1:A:108:ASN:HB2  | 2:D:431:SER:HB3  | 1.89                     | 0.55              |
| 1:A:469:LEU:HD13 | 1:C:401:PRO:HB3  | 1.88                     | 0.55              |
| 1:A:22:LEU:O     | 1:A:26:MET:HG2   | 2.06                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:498:ASP:O    | 2:B:499:ALA:HB3  | 2.06                     | 0.55              |
| 2:D:460:LYS:HE3  | 2:D:502:ASP:CG   | 2.26                     | 0.55              |
| 2:H:452:ASN:C    | 2:H:453:VAL:HG23 | 2.27                     | 0.55              |
| 3:K:36:ASP:OD1   | 3:K:45:LYS:CE    | 2.55                     | 0.55              |
| 1:C:209:MET:HE1  | 1:C:230:GLU:HA   | 1.88                     | 0.54              |
| 3:L:9:CYS:SG     | 3:L:10:PRO:HD2   | 2.47                     | 0.54              |
| 2:B:408:ALA:CA   | 2:B:444:LEU:CD1  | 2.85                     | 0.54              |
| 3:K:31:ARG:O     | 3:K:35:ILE:HG13  | 2.06                     | 0.54              |
| 1:A:365:ARG:NH2  | 1:A:505:GLU:OE2  | 2.33                     | 0.54              |
| 1:C:264:ILE:HG12 | 1:C:301:MET:CE   | 2.38                     | 0.54              |
| 1:C:335:VAL:HG22 | 1:C:344:ILE:HG12 | 1.90                     | 0.54              |
| 1:C:199:ASP:OD1  | 1:C:503:ARG:NH1  | 2.41                     | 0.54              |
| 1:A:81:GLY:HA3   | 1:C:82:ASP:OD2   | 2.07                     | 0.54              |
| 1:A:68:ARG:HH12  | 1:C:76:LYS:HE3   | 1.72                     | 0.54              |
| 2:F:471:ILE:HD11 | 2:F:478:ILE:HG22 | 1.89                     | 0.54              |
| 2:B:408:ALA:N    | 2:B:444:LEU:CD1  | 2.71                     | 0.54              |
| 2:B:452:ASN:O    | 2:B:458:TYR:N    | 2.41                     | 0.54              |
| 2:B:567:HIS:O    | 2:B:705:ALA:HB1  | 2.08                     | 0.54              |
| 2:B:697:LEU:HD11 | 2:B:719:PHE:CD1  | 2.43                     | 0.54              |
| 2:B:701:LEU:HD23 | 2:B:702:GLU:N    | 2.22                     | 0.54              |
| 2:H:531:GLN:NE2  | 2:H:763:LEU:HB2  | 2.23                     | 0.54              |
| 1:A:209:MET:HE1  | 1:A:230:GLU:HA   | 1.89                     | 0.54              |
| 1:C:273:LEU:O    | 1:C:277:ILE:HG13 | 2.08                     | 0.54              |
| 1:E:517:ARG:HD3  | 1:E:519:THR:O    | 2.07                     | 0.54              |
| 3:L:17:VAL:HG11  | 3:L:21:ILE:HG21  | 1.90                     | 0.54              |
| 1:C:119:ALA:HB3  | 1:C:121:ARG:HG2  | 1.89                     | 0.54              |
| 2:F:667:ARG:HG2  | 2:F:672:ASP:HA   | 1.90                     | 0.54              |
| 1:C:301:MET:O    | 1:C:302:ARG:HG3  | 2.08                     | 0.53              |
| 2:F:745:MET:HB2  | 2:F:749:GLN:HB2  | 1.90                     | 0.53              |
| 1:G:247:GLU:HA   | 1:G:247:GLU:OE1  | 2.08                     | 0.53              |
| 2:B:572:ALA:CB   | 2:B:573:PRO:HD2  | 2.23                     | 0.53              |
| 1:C:424:LEU:HD12 | 1:C:425:GLU:N    | 2.24                     | 0.53              |
| 1:E:280:LEU:HB3  | 1:E:286:VAL:HG12 | 1.90                     | 0.53              |
| 2:H:580:LEU:O    | 2:H:583:LEU:HB3  | 2.07                     | 0.53              |
| 1:A:293:ARG:NH1  | 1:A:295:GLU:OE2  | 2.41                     | 0.53              |
| 1:C:82:ASP:N     | 1:C:82:ASP:OD1   | 2.39                     | 0.53              |
| 2:F:705:ALA:CB   | 2:F:716:VAL:HG23 | 2.38                     | 0.53              |
| 2:D:511:LEU:O    | 2:D:515:TYR:N    | 2.36                     | 0.53              |
| 2:H:423:VAL:HA   | 2:H:496:MET:O    | 2.09                     | 0.53              |
| 1:A:471:HIS:O    | 1:A:474:LEU:N    | 2.42                     | 0.53              |
| 2:D:548:ASP:OD1  | 2:D:549:ASP:N    | 2.42                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:D:461:MET:SD   | 3:K:43:GLU:HB3   | 2.48                     | 0.53              |
| 2:B:702:GLU:HA   | 2:B:702:GLU:OE1  | 2.09                     | 0.53              |
| 1:G:221:ALA:H    | 1:G:519:THR:HG22 | 1.73                     | 0.53              |
| 2:B:565:THR:HG22 | 2:B:576:ALA:CB   | 2.30                     | 0.53              |
| 2:F:428:ALA:HB2  | 2:F:742:LEU:HB3  | 1.90                     | 0.53              |
| 2:F:409:ASP:OD1  | 2:F:490:TYR:OH   | 2.27                     | 0.53              |
| 1:E:80:HIS:ND1   | 3:J:57:ASP:HB3   | 2.23                     | 0.53              |
| 2:D:480:ARG:HD2  | 3:K:25:ARG:HB2   | 1.89                     | 0.53              |
| 2:D:493:ILE:HD11 | 2:D:527:VAL:CG1  | 2.39                     | 0.53              |
| 1:A:155:ILE:HD12 | 1:A:156:PRO:HD2  | 1.92                     | 0.52              |
| 1:A:414:PRO:O    | 1:A:415:TRP:HD1  | 1.92                     | 0.52              |
| 2:B:527:VAL:O    | 2:B:765:VAL:HG22 | 2.08                     | 0.52              |
| 1:C:182:ILE:HG12 | 1:C:334:MET:HG2  | 1.91                     | 0.52              |
| 2:F:702:GLU:CG   | 2:F:703:GLU:H    | 2.15                     | 0.52              |
| 3:K:27:PHE:CD2   | 3:K:33:GLN:HG3   | 2.45                     | 0.52              |
| 1:A:517:ARG:CG   | 1:A:517:ARG:HH11 | 2.19                     | 0.52              |
| 1:A:129:LYS:HB3  | 1:A:513:PHE:CE1  | 2.45                     | 0.52              |
| 2:B:701:LEU:HD13 | 2:B:718:SER:HA   | 1.91                     | 0.52              |
| 2:B:431:SER:HB3  | 2:B:750:LEU:HD22 | 1.90                     | 0.52              |
| 1:G:70:VAL:O     | 1:G:74:ILE:HG13  | 2.09                     | 0.52              |
| 1:A:342:PRO:C    | 1:A:343:LYS:HG2  | 2.30                     | 0.52              |
| 2:D:449:LYS:HG2  | 2:D:450:ILE:N    | 2.23                     | 0.52              |
| 3:I:16:VAL:HG11  | 3:I:28:CYS:CA    | 2.39                     | 0.52              |
| 2:B:715:PRO:O    | 2:B:716:VAL:CG1  | 2.57                     | 0.52              |
| 2:B:719:PHE:HE2  | 2:B:723:LEU:HD22 | 1.72                     | 0.52              |
| 1:C:270:LYS:NZ   | 1:C:294:ASP:OD2  | 2.43                     | 0.52              |
| 1:E:220:ALA:HB1  | 1:E:263:GLU:OE1  | 2.10                     | 0.52              |
| 1:E:380:LEU:HD22 | 1:E:474:LEU:CD1  | 2.39                     | 0.52              |
| 2:F:716:VAL:HG21 | 2:F:722:ALA:HB2  | 1.91                     | 0.52              |
| 1:G:99:ARG:NH1   | 1:G:100:TYR:CZ   | 2.77                     | 0.52              |
| 1:G:89:ILE:HG21  | 1:G:125:ILE:HD13 | 1.91                     | 0.52              |
| 1:A:417:LEU:HD23 | 1:A:421:ALA:CB   | 2.40                     | 0.52              |
| 1:G:438:GLU:O    | 1:G:440:GLU:N    | 2.41                     | 0.52              |
| 2:D:459:ASP:N    | 3:K:46:ARG:HD3   | 2.25                     | 0.52              |
| 2:D:593:MET:HE2  | 2:D:596:ARG:HH22 | 1.74                     | 0.52              |
| 2:D:777:PHE:O    | 2:D:781:MET:N    | 2.43                     | 0.52              |
| 2:F:529:ILE:HG12 | 2:F:765:VAL:HG13 | 1.91                     | 0.52              |
| 2:H:490:TYR:HB2  | 2:H:493:ILE:HD11 | 1.92                     | 0.52              |
| 2:F:528:TYR:OH   | 2:F:764:ARG:CZ   | 2.57                     | 0.52              |
| 1:A:75:GLY:O     | 1:A:149:TYR:OH   | 2.18                     | 0.51              |
| 2:H:495:ILE:CG2  | 2:H:495:ILE:O    | 2.47                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:122:TYR:N    | 1:C:122:TYR:CD1  | 2.76                     | 0.51              |
| 2:F:599:ARG:HG3  | 2:F:599:ARG:HH11 | 1.75                     | 0.51              |
| 1:A:517:ARG:CG   | 1:A:517:ARG:NH1  | 2.73                     | 0.51              |
| 2:F:599:ARG:NH1  | 2:F:599:ARG:HG3  | 2.25                     | 0.51              |
| 1:A:259:ILE:CG2  | 1:A:260:ILE:N    | 2.73                     | 0.51              |
| 2:B:711:GLU:OE2  | 2:B:711:GLU:HA   | 2.10                     | 0.51              |
| 1:C:250:VAL:HA   | 1:C:257:GLU:HA   | 1.93                     | 0.51              |
| 1:E:70:VAL:O     | 1:E:74:ILE:HG13  | 2.10                     | 0.51              |
| 1:G:37:VAL:HA    | 1:G:166:LEU:HD22 | 1.92                     | 0.51              |
| 1:E:459:LEU:O    | 1:G:464:GLN:N    | 2.43                     | 0.51              |
| 1:A:501:VAL:O    | 1:A:504:GLU:HG2  | 2.11                     | 0.51              |
| 1:G:130:ILE:HD12 | 1:G:130:ILE:H    | 1.76                     | 0.51              |
| 2:H:412:GLU:HG2  | 2:H:417:LEU:HB2  | 1.92                     | 0.51              |
| 2:B:766:THR:HB   | 2:B:768:LYS:HG2  | 1.93                     | 0.51              |
| 1:A:416:GLN:O    | 1:A:417:LEU:HD12 | 2.11                     | 0.51              |
| 1:C:70:VAL:O     | 1:C:71:GLY:C     | 2.49                     | 0.51              |
| 1:C:85:VAL:HG12  | 1:C:85:VAL:O     | 2.09                     | 0.51              |
| 1:E:293:ARG:HD2  | 1:E:295:GLU:OE2  | 2.11                     | 0.51              |
| 1:E:345:MET:HB3  | 1:E:350:ILE:HG13 | 1.93                     | 0.51              |
| 1:E:38:ARG:HE    | 1:E:158:VAL:HG11 | 1.75                     | 0.51              |
| 1:E:475:LEU:N    | 1:E:475:LEU:CD1  | 2.73                     | 0.51              |
| 2:H:497:THR:OG1  | 2:H:498:ASP:N    | 2.43                     | 0.51              |
| 3:J:40:TRP:CD2   | 3:J:45:LYS:HG3   | 2.46                     | 0.51              |
| 1:A:471:HIS:CD2  | 1:A:475:LEU:CD1  | 2.86                     | 0.51              |
| 2:B:483:TYR:CD2  | 2:B:520:GLU:HB2  | 2.46                     | 0.51              |
| 1:C:201:GLU:OE1  | 1:C:202:ASP:N    | 2.39                     | 0.51              |
| 1:G:106:GLN:HB3  | 1:G:124:GLU:HG3  | 1.93                     | 0.51              |
| 1:A:354:PHE:O    | 1:A:357:HIS:HB3  | 2.11                     | 0.51              |
| 1:C:451:THR:N    | 1:C:454:GLN:OE1  | 2.44                     | 0.51              |
| 1:G:420:VAL:O    | 1:G:420:VAL:HG23 | 2.11                     | 0.51              |
| 3:J:30:LYS:HZ2   | 3:J:33:GLN:NE2   | 2.09                     | 0.51              |
| 2:B:567:HIS:ND1  | 2:B:706:PHE:HB3  | 2.25                     | 0.50              |
| 1:C:58:ASP:HA    | 1:C:132:HIS:CE1  | 2.46                     | 0.50              |
| 1:E:401:PRO:HA   | 1:G:468:GLY:HA3  | 1.93                     | 0.50              |
| 2:F:412:GLU:HG2  | 2:F:417:LEU:HB2  | 1.92                     | 0.50              |
| 1:G:416:GLN:CG   | 1:G:416:GLN:O    | 2.59                     | 0.50              |
| 1:A:165:ASN:H    | 1:A:168:VAL:CG2  | 2.25                     | 0.50              |
| 1:A:381:GLU:OE2  | 1:A:433:ARG:NH2  | 2.44                     | 0.50              |
| 1:E:393:ILE:HG23 | 1:E:410:LEU:HD21 | 1.92                     | 0.50              |
| 2:H:400:LEU:HD23 | 2:H:404:PRO:HG3  | 1.94                     | 0.50              |
| 3:L:8:ASN:HA     | 3:L:15:THR:HA    | 1.93                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:414:PRO:HA   | 1:A:448:TYR:O    | 2.11                     | 0.50              |
| 2:F:701:LEU:HD23 | 2:F:705:ALA:HB2  | 1.93                     | 0.50              |
| 3:K:57:ASP:N     | 3:K:57:ASP:OD1   | 2.44                     | 0.50              |
| 2:F:702:GLU:CG   | 2:F:703:GLU:N    | 2.73                     | 0.50              |
| 2:F:601:TYR:HB2  | 2:F:606:LEU:HD11 | 1.94                     | 0.50              |
| 1:A:82:ASP:C     | 1:A:84:ALA:N     | 2.65                     | 0.50              |
| 1:G:91:ARG:CG    | 1:G:91:ARG:NH2   | 2.73                     | 0.50              |
| 1:A:381:GLU:OE1  | 1:A:433:ARG:NH1  | 2.42                     | 0.50              |
| 1:A:389:ASN:O    | 1:A:393:ILE:HG22 | 2.12                     | 0.50              |
| 1:C:189:GLU:OE1  | 1:C:517:ARG:NH1  | 2.45                     | 0.50              |
| 2:D:754:THR:OG1  | 2:D:754:THR:O    | 2.28                     | 0.50              |
| 2:F:465:GLN:O    | 2:F:469:THR:OG1  | 2.15                     | 0.50              |
| 2:F:438:ARG:HD2  | 1:G:302:ARG:HH21 | 1.77                     | 0.50              |
| 3:J:30:LYS:NZ    | 3:J:33:GLN:NE2   | 2.60                     | 0.50              |
| 1:E:83:SER:HB3   | 3:J:60:SER:HB2   | 1.92                     | 0.50              |
| 1:E:176:VAL:HG23 | 1:E:177:GLY:N    | 2.26                     | 0.49              |
| 2:F:597:MET:O    | 2:F:600:ARG:HB3  | 2.11                     | 0.49              |
| 2:F:610:ILE:C    | 2:F:610:ILE:HD12 | 2.32                     | 0.49              |
| 1:G:83:SER:O     | 1:G:87:ASP:HB2   | 2.12                     | 0.49              |
| 1:E:319:ASN:HB3  | 1:E:323:GLN:NE2  | 2.28                     | 0.49              |
| 1:G:205:ILE:HD12 | 1:G:234:ARG:HG2  | 1.94                     | 0.49              |
| 1:A:471:HIS:HE2  | 1:A:475:LEU:HD11 | 1.70                     | 0.49              |
| 2:B:516:ARG:HH12 | 3:I:45:LYS:HZ2   | 1.59                     | 0.49              |
| 2:D:549:ASP:HA   | 2:D:552:MET:HB3  | 1.95                     | 0.49              |
| 1:E:41:LEU:HB3   | 1:E:45:HIS:HB2   | 1.94                     | 0.49              |
| 1:G:90:VAL:HG13  | 1:G:109:PHE:CD2  | 2.47                     | 0.49              |
| 2:H:423:VAL:HG21 | 2:H:429:GLY:HA2  | 1.94                     | 0.49              |
| 1:C:142:THR:HG21 | 1:C:361:VAL:HG13 | 1.95                     | 0.49              |
| 1:C:260:ILE:HA   | 1:C:303:ILE:O    | 2.12                     | 0.49              |
| 2:F:497:THR:C    | 2:F:498:ASP:O    | 2.49                     | 0.49              |
| 2:B:446:LEU:HD22 | 2:B:466:GLU:HG2  | 1.95                     | 0.49              |
| 1:C:58:ASP:HA    | 1:C:132:HIS:HE1  | 1.77                     | 0.49              |
| 2:D:478:ILE:O    | 2:D:478:ILE:HD12 | 2.13                     | 0.49              |
| 2:D:504:SER:O    | 2:D:508:THR:CG2  | 2.59                     | 0.49              |
| 1:E:273:LEU:CD1  | 1:E:324:THR:HG22 | 2.42                     | 0.49              |
| 1:E:471:HIS:CD2  | 1:E:475:LEU:CD1  | 2.95                     | 0.49              |
| 2:F:634:VAL:HG21 | 2:F:649:PHE:HB3  | 1.93                     | 0.49              |
| 2:F:696:LYS:O    | 2:F:700:LEU:HD13 | 2.13                     | 0.49              |
| 1:A:176:VAL:HG13 | 1:A:177:GLY:H    | 1.78                     | 0.49              |
| 1:A:342:PRO:O    | 1:A:343:LYS:HG2  | 2.13                     | 0.49              |
| 1:A:480:GLU:O    | 1:A:484:GLN:HG2  | 2.12                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:274:ILE:HG23 | 1:C:292:LEU:HD11 | 1.95                     | 0.49              |
| 1:C:273:LEU:HD11 | 1:C:326:LEU:HD12 | 1.94                     | 0.49              |
| 2:F:694:GLY:O    | 2:F:698:ARG:HB2  | 2.12                     | 0.49              |
| 2:B:708:GLU:HG3  | 2:B:708:GLU:O    | 2.13                     | 0.49              |
| 1:C:390:ILE:HD13 | 1:C:466:LEU:HD22 | 1.94                     | 0.49              |
| 1:E:478:TYR:CE1  | 1:E:482:LEU:HD13 | 2.47                     | 0.49              |
| 1:G:297:ASP:OD2  | 1:G:298:LYS:HG2  | 2.13                     | 0.49              |
| 2:B:715:PRO:O    | 2:B:716:VAL:HG13 | 2.13                     | 0.49              |
| 1:C:69:VAL:O     | 1:C:70:VAL:C     | 2.50                     | 0.49              |
| 1:E:407:LYS:O    | 1:E:411:VAL:HG13 | 2.13                     | 0.49              |
| 2:B:494:ILE:HG22 | 2:B:530:ALA:HB2  | 1.94                     | 0.48              |
| 2:B:606:LEU:HA   | 2:B:609:LEU:HB2  | 1.95                     | 0.48              |
| 1:C:270:LYS:HD3  | 1:C:301:MET:CE   | 2.42                     | 0.48              |
| 1:C:285:ARG:HB3  | 1:C:285:ARG:HH11 | 1.77                     | 0.48              |
| 1:C:218:PRO:HA   | 1:C:518:ARG:HH21 | 1.78                     | 0.48              |
| 1:G:389:ASN:O    | 1:G:393:ILE:HG12 | 2.12                     | 0.48              |
| 2:B:480:ARG:HH21 | 3:I:25:ARG:HG3   | 1.78                     | 0.48              |
| 3:L:18:TRP:CD1   | 3:L:18:TRP:C     | 2.85                     | 0.48              |
| 2:B:534:LEU:HD23 | 2:B:535:TYR:CE2  | 2.49                     | 0.48              |
| 1:C:285:ARG:HB3  | 1:C:285:ARG:NH1  | 2.28                     | 0.48              |
| 3:J:8:ASN:ND2    | 3:J:13:GLY:O     | 2.46                     | 0.48              |
| 2:B:697:LEU:HD11 | 2:B:719:PHE:CB   | 2.44                     | 0.48              |
| 1:C:386:ALA:O    | 1:C:390:ILE:CG1  | 2.61                     | 0.48              |
| 1:G:221:ALA:N    | 1:G:519:THR:HG22 | 2.28                     | 0.48              |
| 1:G:66:SER:O     | 1:G:70:VAL:HG23  | 2.14                     | 0.48              |
| 1:A:68:ARG:NH1   | 1:C:76:LYS:HE3   | 2.29                     | 0.48              |
| 2:F:686:GLU:O    | 2:F:690:ILE:HG23 | 2.13                     | 0.48              |
| 2:F:569:ASN:HB2  | 2:F:704:ASP:O    | 2.13                     | 0.48              |
| 2:H:527:VAL:HB   | 2:H:765:VAL:HG22 | 1.96                     | 0.48              |
| 3:J:30:LYS:NZ    | 3:J:33:GLN:HE21  | 2.12                     | 0.48              |
| 3:K:38:GLY:O     | 3:K:42:ALA:N     | 2.43                     | 0.48              |
| 2:B:421:TYR:CE1  | 2:B:494:ILE:HD12 | 2.49                     | 0.48              |
| 2:F:616:THR:CG2  | 2:F:617:GLU:N    | 2.75                     | 0.48              |
| 2:B:523:GLU:OE2  | 3:I:18:TRP:HZ2   | 1.96                     | 0.48              |
| 1:A:266:TYR:O    | 1:A:267:GLN:HB2  | 2.12                     | 0.48              |
| 2:B:602:PRO:HD2  | 2:B:605:MET:HE2  | 1.94                     | 0.48              |
| 2:F:610:ILE:HD11 | 2:F:611:TYR:CD1  | 2.48                     | 0.48              |
| 1:E:79:PRO:HG2   | 1:G:121:ARG:HD2  | 1.95                     | 0.48              |
| 3:K:24:PHE:CZ    | 3:K:30:LYS:HB2   | 2.48                     | 0.48              |
| 3:K:36:ASP:O     | 3:K:40:TRP:HD1   | 1.97                     | 0.48              |
| 1:A:38:ARG:HD2   | 1:A:158:VAL:HG11 | 1.94                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:393:ILE:HG13 | 1:A:410:LEU:HD21 | 1.95                     | 0.48              |
| 1:A:55:LEU:CD2   | 1:A:72:ASP:OD2   | 2.60                     | 0.48              |
| 2:B:694:GLY:C    | 2:B:698:ARG:HH12 | 2.15                     | 0.48              |
| 2:B:497:THR:HG21 | 2:B:503:GLY:O    | 2.14                     | 0.48              |
| 1:C:111:SER:HB3  | 1:C:115:ASP:HB2  | 1.95                     | 0.48              |
| 1:A:288:GLY:HA2  | 1:A:308:LYS:HE2  | 1.95                     | 0.48              |
| 1:G:121:ARG:NH2  | 1:G:122:TYR:OH   | 2.46                     | 0.48              |
| 1:G:259:ILE:O    | 1:G:260:ILE:HG13 | 2.13                     | 0.48              |
| 2:B:411:GLN:HG2  | 2:B:439:LYS:HA   | 1.94                     | 0.47              |
| 2:B:719:PHE:O    | 2:B:720:GLU:C    | 2.52                     | 0.47              |
| 2:F:569:ASN:CG   | 2:F:704:ASP:H    | 2.17                     | 0.47              |
| 2:F:767:VAL:O    | 2:F:771:ILE:HG13 | 2.14                     | 0.47              |
| 1:G:111:SER:OG   | 1:G:115:ASP:OD2  | 2.32                     | 0.47              |
| 1:G:166:LEU:HD11 | 1:G:182:ILE:HD12 | 1.96                     | 0.47              |
| 2:F:411:GLN:OE1  | 1:G:302:ARG:NH2  | 2.47                     | 0.47              |
| 2:H:548:ASP:OD1  | 2:H:549:ASP:N    | 2.47                     | 0.47              |
| 1:A:417:LEU:N    | 1:A:417:LEU:HD12 | 2.30                     | 0.47              |
| 1:C:63:TYR:HB3   | 1:C:124:GLU:HB3  | 1.96                     | 0.47              |
| 1:C:74:ILE:HG23  | 1:C:79:PRO:HA    | 1.96                     | 0.47              |
| 1:E:408:THR:HA   | 1:E:411:VAL:HG22 | 1.96                     | 0.47              |
| 2:B:564:ALA:HB2  | 2:B:709:ARG:CA   | 2.40                     | 0.47              |
| 2:B:460:LYS:CE   | 3:I:46:ARG:HD2   | 2.42                     | 0.47              |
| 2:B:481:ASP:N    | 2:B:481:ASP:OD1  | 2.48                     | 0.47              |
| 1:E:398:ARG:NH1  | 1:G:390:ILE:HD12 | 2.29                     | 0.47              |
| 1:G:275:GLU:O    | 1:G:275:GLU:HG3  | 2.14                     | 0.47              |
| 1:A:68:ARG:HA    | 1:C:75:GLY:CA    | 2.45                     | 0.47              |
| 2:B:749:GLN:O    | 2:B:753:THR:HG23 | 2.14                     | 0.47              |
| 2:D:538:LYS:HD3  | 2:D:540:GLY:HA2  | 1.95                     | 0.47              |
| 1:E:402:THR:HG22 | 1:E:404:ALA:H    | 1.79                     | 0.47              |
| 1:E:45:HIS:CD2   | 1:E:45:HIS:H     | 2.32                     | 0.47              |
| 1:G:113:ASP:OD1  | 1:G:270:LYS:NZ   | 2.32                     | 0.47              |
| 1:A:260:ILE:HG23 | 1:A:302:ARG:HG3  | 1.97                     | 0.47              |
| 1:E:182:ILE:HG12 | 1:E:334:MET:HA   | 1.97                     | 0.47              |
| 1:G:139:GLU:OE2  | 1:G:140:LYS:HE3  | 2.15                     | 0.47              |
| 2:B:602:PRO:HD2  | 2:B:605:MET:HE1  | 1.96                     | 0.47              |
| 1:E:358:ARG:O    | 1:E:362:VAL:HG23 | 2.15                     | 0.47              |
| 2:F:705:ALA:O    | 2:F:715:PRO:HA   | 2.15                     | 0.47              |
| 2:H:496:MET:HA   | 2:H:530:ALA:HB3  | 1.96                     | 0.47              |
| 1:A:181:ASN:ND2  | 1:A:331:GLY:O    | 2.39                     | 0.47              |
| 2:B:539:LYS:NZ   | 2:B:733:GLY:HA3  | 2.30                     | 0.47              |
| 1:E:289:ILE:HG23 | 1:E:305:ILE:CG2  | 2.45                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:90:VAL:O     | 1:G:94:GLN:HG3   | 2.14                     | 0.47              |
| 1:A:414:PRO:HG2  | 1:A:414:PRO:O    | 2.15                     | 0.47              |
| 2:B:488:LEU:CD2  | 2:B:490:TYR:N    | 2.72                     | 0.47              |
| 1:C:185:HIS:HA   | 1:C:216:ASP:H    | 1.80                     | 0.47              |
| 1:C:264:ILE:HB   | 1:C:265:PRO:CD   | 2.42                     | 0.47              |
| 2:F:404:PRO:HG2  | 2:F:405:GLY:N    | 2.30                     | 0.47              |
| 2:H:494:ILE:HG12 | 2:H:528:TYR:HB2  | 1.95                     | 0.47              |
| 1:A:100:TYR:HE1  | 1:A:515:ASP:OD2  | 1.98                     | 0.47              |
| 1:A:124:GLU:C    | 1:A:125:ILE:HG23 | 2.34                     | 0.47              |
| 2:B:460:LYS:HE2  | 2:B:461:MET:HE2  | 1.96                     | 0.47              |
| 2:B:697:LEU:O    | 2:B:697:LEU:HD23 | 2.15                     | 0.47              |
| 2:D:464:SER:HA   | 2:D:467:VAL:HG12 | 1.96                     | 0.47              |
| 1:G:55:LEU:HD11  | 1:G:72:ASP:OD2   | 2.15                     | 0.47              |
| 1:C:24:TYR:CE1   | 1:C:28:VAL:HG23  | 2.50                     | 0.47              |
| 1:E:237:ARG:NE   | 1:E:333:ASN:OD1  | 2.44                     | 0.47              |
| 2:H:515:TYR:CD2  | 2:H:774:ASP:HB2  | 2.50                     | 0.47              |
| 1:A:259:ILE:HB   | 1:A:305:ILE:HB   | 1.97                     | 0.46              |
| 1:A:401:PRO:HA   | 1:C:468:GLY:H    | 1.80                     | 0.46              |
| 2:B:470:LEU:CD1  | 2:B:474:LEU:HD13 | 2.45                     | 0.46              |
| 1:C:129:LYS:HE3  | 1:C:513:PHE:HE1  | 1.80                     | 0.46              |
| 2:F:657:GLN:OE1  | 2:F:657:GLN:N    | 2.47                     | 0.46              |
| 2:H:407:LEU:HD11 | 2:H:420:LEU:HD11 | 1.97                     | 0.46              |
| 2:B:516:ARG:NH1  | 3:I:45:LYS:NZ    | 2.64                     | 0.46              |
| 1:A:134:LEU:HG   | 1:A:163:ILE:HD11 | 1.97                     | 0.46              |
| 1:C:301:MET:O    | 1:C:302:ARG:CG   | 2.63                     | 0.46              |
| 1:E:491:ILE:HG22 | 1:E:497:ARG:HE   | 1.80                     | 0.46              |
| 2:F:414:ASP:OD2  | 2:F:417:LEU:HG   | 2.15                     | 0.46              |
| 2:F:595:ASN:O    | 2:F:598:GLU:HB3  | 2.15                     | 0.46              |
| 1:G:89:ILE:HD13  | 1:G:125:ILE:CD1  | 2.45                     | 0.46              |
| 1:A:222:ILE:HG22 | 1:A:223:ILE:N    | 2.30                     | 0.46              |
| 2:B:445:PRO:O    | 2:B:446:LEU:HD23 | 2.15                     | 0.46              |
| 1:C:75:GLY:O     | 1:C:149:TYR:OH   | 2.30                     | 0.46              |
| 1:E:183:PRO:HD3  | 1:E:332:ILE:HG23 | 1.97                     | 0.46              |
| 1:E:387:LEU:CD2  | 1:E:471:HIS:HB2  | 2.46                     | 0.46              |
| 2:F:407:LEU:CD1  | 2:F:444:LEU:HB2  | 2.45                     | 0.46              |
| 2:F:616:THR:HG22 | 2:F:618:ALA:N    | 2.29                     | 0.46              |
| 1:A:165:ASN:N    | 1:A:168:VAL:HG23 | 2.30                     | 0.46              |
| 1:A:68:ARG:HA    | 1:C:75:GLY:HA2   | 1.96                     | 0.46              |
| 1:E:109:PHE:CE1  | 1:E:123:THR:HB   | 2.51                     | 0.46              |
| 1:G:358:ARG:O    | 1:G:362:VAL:HG22 | 2.16                     | 0.46              |
| 2:H:495:ILE:CG2  | 2:H:497:THR:HG22 | 2.44                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:63:TYR:HB3   | 1:A:124:GLU:HB2  | 1.96                     | 0.46              |
| 1:C:136:ALA:HB3  | 1:C:162:LYS:HE2  | 1.98                     | 0.46              |
| 1:A:401:PRO:HA   | 1:C:468:GLY:N    | 2.30                     | 0.46              |
| 1:E:469:LEU:HB3  | 1:G:401:PRO:O    | 2.15                     | 0.46              |
| 2:F:457:ARG:CG   | 2:F:457:ARG:HH21 | 2.19                     | 0.46              |
| 2:D:538:LYS:HG2  | 2:D:542:GLN:O    | 2.14                     | 0.46              |
| 1:A:388:ALA:HB2  | 1:A:420:VAL:HG21 | 1.98                     | 0.46              |
| 1:C:38:ARG:HB3   | 1:C:357:HIS:CD2  | 2.50                     | 0.46              |
| 2:F:517:GLN:HE21 | 3:J:37:LEU:HB2   | 1.81                     | 0.46              |
| 2:H:527:VAL:O    | 2:H:765:VAL:HG22 | 2.16                     | 0.46              |
| 2:B:452:ASN:HB3  | 2:B:460:LYS:HZ2  | 1.80                     | 0.46              |
| 2:H:537:VAL:HA   | 2:H:735:SER:O    | 2.15                     | 0.46              |
| 3:L:24:PHE:CZ    | 3:L:30:LYS:HB2   | 2.51                     | 0.46              |
| 2:B:611:TYR:HE1  | 2:B:697:LEU:HD22 | 1.78                     | 0.46              |
| 1:E:36:ASP:OD2   | 1:E:38:ARG:NH2   | 2.49                     | 0.46              |
| 2:F:737:GLN:HE21 | 2:F:739:TYR:HE1  | 1.64                     | 0.46              |
| 2:F:528:TYR:CD1  | 2:F:764:ARG:HB2  | 2.49                     | 0.46              |
| 2:H:561:LEU:CB   | 2:H:581:GLU:HG3  | 2.33                     | 0.46              |
| 1:A:220:ALA:O    | 1:A:221:ALA:HB3  | 2.17                     | 0.45              |
| 1:A:305:ILE:HD13 | 1:A:320:LEU:HD13 | 1.97                     | 0.45              |
| 2:B:474:LEU:CD2  | 2:B:514:PHE:HE1  | 2.22                     | 0.45              |
| 2:F:494:ILE:H    | 2:F:494:ILE:HD12 | 1.81                     | 0.45              |
| 1:G:402:THR:HB   | 1:G:405:GLU:HG3  | 1.98                     | 0.45              |
| 1:A:35:PRO:HG3   | 1:A:171:SER:OG   | 2.16                     | 0.45              |
| 1:E:184:PRO:HD2  | 1:E:217:PHE:CD1  | 2.51                     | 0.45              |
| 2:F:492:SER:HA   | 2:F:526:HIS:O    | 2.16                     | 0.45              |
| 2:F:595:ASN:O    | 2:F:598:GLU:CB   | 2.64                     | 0.45              |
| 2:F:701:LEU:HD23 | 2:F:705:ALA:CB   | 2.46                     | 0.45              |
| 2:B:636:GLU:HA   | 2:B:639:ASP:OD2  | 2.16                     | 0.45              |
| 1:C:149:TYR:O    | 1:C:150:ASP:C    | 2.54                     | 0.45              |
| 1:C:264:ILE:CB   | 1:C:265:PRO:HD2  | 2.38                     | 0.45              |
| 1:E:402:THR:HB   | 1:E:405:GLU:HG3  | 1.98                     | 0.45              |
| 2:F:532:PRO:HA   | 2:F:754:THR:HG22 | 1.98                     | 0.45              |
| 1:A:165:ASN:H    | 1:A:168:VAL:HG23 | 1.81                     | 0.45              |
| 1:A:275:GLU:HG3  | 2:D:405:GLY:HA3  | 1.99                     | 0.45              |
| 2:B:470:LEU:HD12 | 2:B:474:LEU:HD13 | 1.98                     | 0.45              |
| 2:B:515:TYR:OH   | 3:I:7:VAL:HG11   | 2.16                     | 0.45              |
| 1:C:37:VAL:HG11  | 1:C:345:MET:SD   | 2.57                     | 0.45              |
| 2:D:495:ILE:HG21 | 2:D:507:ARG:HG3  | 1.98                     | 0.45              |
| 2:F:515:TYR:HB2  | 2:F:770:ALA:HB1  | 1.97                     | 0.45              |
| 1:A:161:THR:OG1  | 1:A:163:ILE:HG12 | 2.17                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:152:THR:O    | 1:C:153:GLU:HG2  | 2.16                     | 0.45              |
| 2:D:449:LYS:HD2  | 2:D:461:MET:CE   | 2.35                     | 0.45              |
| 1:G:246:ALA:CB   | 1:G:317:LEU:HD11 | 2.47                     | 0.45              |
| 1:C:191:ILE:HG21 | 1:C:510:ARG:HB3  | 1.98                     | 0.45              |
| 1:C:482:LEU:HA   | 1:C:485:ILE:HG12 | 1.99                     | 0.45              |
| 2:F:656:GLU:HB3  | 2:F:657:GLN:CA   | 2.46                     | 0.45              |
| 2:B:531:GLN:OE1  | 2:B:763:LEU:HB2  | 2.17                     | 0.45              |
| 2:D:516:ARG:HD3  | 3:K:36:ASP:OD2   | 2.17                     | 0.45              |
| 1:E:441:PHE:CD2  | 1:E:441:PHE:N    | 2.85                     | 0.45              |
| 2:H:403:LEU:HD22 | 2:H:407:LEU:HD22 | 1.99                     | 0.45              |
| 1:A:179:ALA:O    | 1:A:333:ASN:ND2  | 2.50                     | 0.45              |
| 1:C:143:VAL:HG11 | 1:C:158:VAL:HB   | 1.98                     | 0.45              |
| 1:G:161:THR:OG1  | 1:G:163:ILE:O    | 2.34                     | 0.45              |
| 1:G:26:MET:O     | 1:G:30:VAL:HG23  | 2.17                     | 0.45              |
| 1:C:80:HIS:HD1   | 3:K:56:SER:C     | 2.19                     | 0.45              |
| 1:A:230:GLU:OE2  | 1:A:234:ARG:NE   | 2.49                     | 0.45              |
| 2:B:567:HIS:HB2  | 2:B:706:PHE:CB   | 2.45                     | 0.45              |
| 1:C:109:PHE:CE1  | 1:C:123:THR:HB   | 2.52                     | 0.45              |
| 1:C:111:SER:HB3  | 1:C:115:ASP:OD2  | 2.17                     | 0.45              |
| 1:E:440:GLU:C    | 1:E:441:PHE:HD2  | 2.20                     | 0.45              |
| 2:H:729:GLU:OE2  | 2:H:732:ARG:NH2  | 2.50                     | 0.45              |
| 1:A:217:PHE:HE2  | 1:A:223:ILE:HD11 | 1.82                     | 0.45              |
| 1:A:394:ILE:O    | 1:A:398:ARG:HB2  | 2.17                     | 0.45              |
| 1:A:417:LEU:N    | 1:A:417:LEU:CD1  | 2.80                     | 0.45              |
| 1:G:104:ASP:OD2  | 1:G:126:ARG:HD2  | 2.16                     | 0.45              |
| 1:G:200:ASP:HB3  | 1:G:203:ILE:HG13 | 1.98                     | 0.45              |
| 1:G:99:ARG:HG2   | 1:G:218:PRO:HD3  | 1.99                     | 0.45              |
| 2:H:483:TYR:CE2  | 2:H:485:PRO:HG3  | 2.52                     | 0.45              |
| 1:A:124:GLU:C    | 1:A:125:ILE:CG2  | 2.85                     | 0.44              |
| 1:E:441:PHE:N    | 1:E:441:PHE:HD2  | 2.15                     | 0.44              |
| 1:A:397:ILE:HG13 | 1:A:406:ALA:HB1  | 1.99                     | 0.44              |
| 2:B:471:ILE:HG23 | 2:B:472:THR:N    | 2.31                     | 0.44              |
| 2:B:567:HIS:HB2  | 2:B:706:PHE:HB2  | 1.99                     | 0.44              |
| 1:C:212:ILE:HD12 | 1:C:347:LEU:HD21 | 1.98                     | 0.44              |
| 2:F:546:ILE:HG21 | 2:F:552:MET:HA   | 1.98                     | 0.44              |
| 1:A:246:ALA:HA   | 1:A:261:VAL:HA   | 1.98                     | 0.44              |
| 2:B:697:LEU:C    | 2:B:697:LEU:HD23 | 2.37                     | 0.44              |
| 1:E:67:ALA:HB2   | 1:E:120:MET:HG3  | 1.99                     | 0.44              |
| 1:E:374:ARG:HG2  | 1:E:485:ILE:HD12 | 2.00                     | 0.44              |
| 1:E:497:ARG:O    | 1:E:501:VAL:HG23 | 2.17                     | 0.44              |
| 2:H:515:TYR:CD1  | 2:H:515:TYR:O    | 2.70                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:H:765:VAL:HG23 | 2:H:765:VAL:O    | 2.18                     | 0.44              |
| 1:A:129:LYS:HB3  | 1:A:513:PHE:HE1  | 1.81                     | 0.44              |
| 2:B:667:ARG:HG2  | 2:B:667:ARG:O    | 2.18                     | 0.44              |
| 1:C:146:VAL:HG22 | 1:C:147:ASP:N    | 2.32                     | 0.44              |
| 1:C:220:ALA:HB3  | 1:C:263:GLU:CD   | 2.37                     | 0.44              |
| 2:D:479:GLY:HA2  | 3:K:33:GLN:HE21  | 1.78                     | 0.44              |
| 1:E:319:ASN:HB3  | 1:E:323:GLN:HE21 | 1.81                     | 0.44              |
| 1:A:28:VAL:HG13  | 1:A:29:ILE:N     | 2.31                     | 0.44              |
| 2:B:408:ALA:HA   | 2:B:444:LEU:CD1  | 2.48                     | 0.44              |
| 1:C:259:ILE:HB   | 1:C:305:ILE:HB   | 1.99                     | 0.44              |
| 2:D:689:ARG:O    | 2:D:692:THR:OG1  | 2.30                     | 0.44              |
| 2:F:531:GLN:HB2  | 2:F:761:ARG:O    | 2.18                     | 0.44              |
| 3:K:28:CYS:SG    | 3:K:29:SER:N     | 2.91                     | 0.44              |
| 1:A:164:PRO:HB2  | 1:A:168:VAL:CG2  | 2.48                     | 0.44              |
| 1:C:171:SER:OG   | 1:C:172:SER:N    | 2.51                     | 0.44              |
| 1:C:24:TYR:O     | 1:C:24:TYR:CD1   | 2.70                     | 0.44              |
| 2:D:422:LEU:N    | 2:D:494:ILE:O    | 2.49                     | 0.44              |
| 1:E:471:HIS:CD2  | 1:E:471:HIS:C    | 2.91                     | 0.44              |
| 1:E:90:VAL:O     | 1:E:94:GLN:HG3   | 2.17                     | 0.44              |
| 2:F:529:ILE:HG22 | 2:F:530:ALA:O    | 2.18                     | 0.44              |
| 1:G:25:ALA:HA    | 1:G:28:VAL:HG23  | 1.99                     | 0.44              |
| 3:L:12:CYS:SG    | 3:L:14:LYS:HG2   | 2.57                     | 0.44              |
| 2:B:662:PRO:HB2  | 2:B:677:LEU:HD12 | 1.98                     | 0.44              |
| 1:C:402:THR:HG22 | 1:C:404:ALA:H    | 1.81                     | 0.44              |
| 2:F:547:LYS:HD2  | 2:F:761:ARG:NH1  | 2.33                     | 0.44              |
| 2:H:461:MET:CG   | 2:H:462:LEU:N    | 2.80                     | 0.44              |
| 2:H:420:LEU:HB3  | 2:H:493:ILE:HD12 | 1.99                     | 0.44              |
| 2:H:580:LEU:O    | 2:H:584:VAL:HG23 | 2.17                     | 0.44              |
| 2:B:448:GLY:HA3  | 2:B:506:ILE:HG12 | 1.98                     | 0.44              |
| 1:C:152:THR:C    | 1:C:153:GLU:HG2  | 2.38                     | 0.44              |
| 2:D:479:GLY:CA   | 3:K:33:GLN:HE22  | 2.29                     | 0.44              |
| 1:A:314:GLU:O    | 1:A:318:ASN:ND2  | 2.51                     | 0.44              |
| 1:C:264:ILE:HG12 | 1:C:301:MET:HE1  | 2.00                     | 0.44              |
| 1:E:320:LEU:HB3  | 1:E:326:LEU:HD12 | 2.00                     | 0.44              |
| 1:G:254:THR:HG22 | 1:G:255:GLY:N    | 2.33                     | 0.43              |
| 1:A:219:THR:O    | 1:A:220:ALA:HB3  | 2.18                     | 0.43              |
| 1:E:36:ASP:HA    | 1:E:337:LEU:HB2  | 2.00                     | 0.43              |
| 2:F:603:LYS:CG   | 2:F:604:ALA:H    | 2.28                     | 0.43              |
| 1:G:285:ARG:HB3  | 1:G:323:GLN:HE22 | 1.83                     | 0.43              |
| 1:E:466:LEU:HB2  | 1:G:397:ILE:HG21 | 2.00                     | 0.43              |
| 1:G:517:ARG:HH12 | 1:G:521:ILE:HD11 | 1.83                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:661:GLU:HA   | 2:B:662:PRO:HD3  | 1.82                     | 0.43              |
| 3:K:36:ASP:O     | 3:K:40:TRP:CD1   | 2.70                     | 0.43              |
| 2:B:539:LYS:O    | 2:B:540:GLY:C    | 2.56                     | 0.43              |
| 2:B:688:ARG:O    | 2:B:692:THR:HG23 | 2.18                     | 0.43              |
| 1:C:338:HIS:HB3  | 1:C:343:LYS:HD3  | 1.98                     | 0.43              |
| 2:F:430:GLY:O    | 2:F:434:GLN:HG3  | 2.19                     | 0.43              |
| 3:I:10:PRO:HG2   | 3:I:27:PHE:CE1   | 2.52                     | 0.43              |
| 1:A:148:ASN:ND2  | 1:A:150:ASP:OD1  | 2.47                     | 0.43              |
| 1:C:391:ASP:N    | 1:C:392:PRO:HD2  | 2.32                     | 0.43              |
| 1:E:273:LEU:HD12 | 1:E:324:THR:CG2  | 2.48                     | 0.43              |
| 2:F:658:ASN:HB3  | 2:F:659:LEU:H    | 1.69                     | 0.43              |
| 2:F:661:GLU:HA   | 2:F:662:PRO:HD3  | 1.89                     | 0.43              |
| 1:G:249:GLU:HB2  | 1:G:258:THR:O    | 2.19                     | 0.43              |
| 3:K:39:GLU:HB2   | 3:K:45:LYS:HE2   | 1.99                     | 0.43              |
| 2:B:496:MET:HG2  | 2:B:742:LEU:HD21 | 2.00                     | 0.43              |
| 2:B:641:GLU:OE2  | 2:B:645:SER:HB3  | 2.18                     | 0.43              |
| 1:C:237:ARG:HH21 | 1:C:344:ILE:HD11 | 1.84                     | 0.43              |
| 1:C:254:THR:CG2  | 1:C:254:THR:O    | 2.66                     | 0.43              |
| 2:F:419:GLU:OE2  | 2:F:760:ARG:NH1  | 2.32                     | 0.43              |
| 3:I:41:ALA:HB3   | 3:J:38:GLY:HA3   | 2.01                     | 0.43              |
| 1:A:183:PRO:HG3  | 1:A:330:PHE:CE1  | 2.54                     | 0.43              |
| 1:C:223:ILE:HG21 | 1:C:229:ILE:HD11 | 2.00                     | 0.43              |
| 2:D:520:GLU:O    | 2:D:524:ARG:HG2  | 2.18                     | 0.43              |
| 1:E:222:ILE:HG22 | 1:E:223:ILE:N    | 2.34                     | 0.43              |
| 1:G:70:VAL:HG13  | 1:G:85:VAL:HB    | 2.00                     | 0.43              |
| 3:L:12:CYS:SG    | 3:L:14:LYS:CG    | 3.06                     | 0.43              |
| 2:B:538:LYS:HA   | 2:B:542:GLN:O    | 2.19                     | 0.43              |
| 1:C:387:LEU:HA   | 1:C:390:ILE:HD11 | 2.01                     | 0.43              |
| 2:D:478:ILE:HD13 | 3:K:37:LEU:HD23  | 1.99                     | 0.43              |
| 2:D:583:LEU:HD21 | 2:D:719:PHE:HZ   | 1.83                     | 0.43              |
| 2:F:746:ASN:HB2  | 2:F:749:GLN:HG3  | 1.99                     | 0.43              |
| 2:H:523:GLU:C    | 2:H:525:GLY:N    | 2.70                     | 0.43              |
| 2:H:753:THR:OG1  | 2:H:754:THR:HG23 | 2.19                     | 0.43              |
| 1:E:443:VAL:O    | 1:E:444:ARG:C    | 2.57                     | 0.43              |
| 1:G:58:ASP:OD1   | 1:G:58:ASP:N     | 2.51                     | 0.43              |
| 3:L:17:VAL:HG13  | 3:L:17:VAL:O     | 2.18                     | 0.43              |
| 1:A:183:PRO:HB2  | 1:A:215:PRO:HB3  | 2.00                     | 0.42              |
| 1:A:475:LEU:O    | 1:A:478:TYR:N    | 2.51                     | 0.42              |
| 2:B:544:GLN:HG2  | 2:B:545:TYR:N    | 2.34                     | 0.42              |
| 1:C:100:TYR:HD2  | 1:C:168:VAL:HG13 | 1.84                     | 0.42              |
| 1:E:337:LEU:HD23 | 1:E:337:LEU:HA   | 1.88                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:F:701:LEU:N    | 2:F:701:LEU:HD12 | 2.34                     | 0.42              |
| 2:F:750:LEU:O    | 2:F:754:THR:OG1  | 2.27                     | 0.42              |
| 1:G:383:LEU:O    | 1:G:387:LEU:HG   | 2.19                     | 0.42              |
| 1:E:464:GLN:HG3  | 1:G:459:LEU:HD13 | 2.01                     | 0.42              |
| 2:H:424:GLU:OE1  | 2:H:498:ASP:HB2  | 2.19                     | 0.42              |
| 1:A:158:VAL:HG12 | 1:A:159:MET:N    | 2.35                     | 0.42              |
| 1:C:20:SER:OG    | 1:C:21:TYR:N     | 2.50                     | 0.42              |
| 1:C:274:ILE:HD13 | 1:C:294:ASP:HB2  | 2.00                     | 0.42              |
| 1:C:387:LEU:HB3  | 1:C:471:HIS:CE1  | 2.55                     | 0.42              |
| 1:C:221:ALA:H    | 1:C:519:THR:HG22 | 1.84                     | 0.42              |
| 1:E:469:LEU:CD1  | 1:E:473:LYS:HG3  | 2.49                     | 0.42              |
| 1:E:186:ASN:ND2  | 1:E:515:ASP:O    | 2.43                     | 0.42              |
| 1:E:51:ALA:O     | 1:E:55:LEU:HD13  | 2.19                     | 0.42              |
| 2:F:656:GLU:CB   | 2:F:657:GLN:CA   | 2.91                     | 0.42              |
| 2:F:659:LEU:HD22 | 2:F:679:HIS:CD2  | 2.54                     | 0.42              |
| 1:A:203:ILE:HG12 | 1:A:204:SER:H    | 1.83                     | 0.42              |
| 1:A:519:THR:HG23 | 1:A:519:THR:O    | 2.19                     | 0.42              |
| 1:C:220:ALA:O    | 1:C:263:GLU:HB3  | 2.19                     | 0.42              |
| 2:D:424:GLU:HB3  | 2:D:427:SER:HB3  | 2.01                     | 0.42              |
| 2:H:528:TYR:OH   | 2:H:764:ARG:NH2  | 2.52                     | 0.42              |
| 1:E:274:ILE:HD13 | 1:E:294:ASP:HB2  | 2.01                     | 0.42              |
| 1:A:245:ARG:HG3  | 1:A:245:ARG:O    | 2.20                     | 0.42              |
| 1:A:450:LEU:HD11 | 1:A:454:GLN:HB2  | 2.01                     | 0.42              |
| 1:C:59:TRP:HD1   | 1:C:132:HIS:ND1  | 2.17                     | 0.42              |
| 2:F:610:ILE:CD1  | 2:F:611:TYR:CD1  | 3.02                     | 0.42              |
| 1:A:414:PRO:CA   | 1:A:448:TYR:O    | 2.68                     | 0.42              |
| 1:C:497:ARG:HA   | 1:C:497:ARG:HD2  | 1.88                     | 0.42              |
| 1:A:315:VAL:HA   | 1:E:319:ASN:ND2  | 2.34                     | 0.42              |
| 1:G:220:ALA:O    | 1:G:263:GLU:HB3  | 2.18                     | 0.42              |
| 1:A:186:ASN:HB2  | 1:A:216:ASP:OD2  | 2.20                     | 0.42              |
| 1:A:341:GLN:HA   | 1:A:342:PRO:HD3  | 1.83                     | 0.42              |
| 2:D:769:ASP:N    | 2:D:769:ASP:OD1  | 2.53                     | 0.42              |
| 2:F:657:GLN:O    | 2:F:657:GLN:CG   | 2.62                     | 0.42              |
| 2:H:432:ALA:HB1  | 2:H:443:ILE:HD12 | 2.00                     | 0.42              |
| 1:A:21:TYR:O     | 1:A:22:LEU:C     | 2.58                     | 0.42              |
| 1:A:182:ILE:HG12 | 1:A:334:MET:HA   | 2.02                     | 0.42              |
| 1:A:442:GLY:O    | 1:A:449:TYR:N    | 2.38                     | 0.42              |
| 2:B:609:LEU:HG   | 2:B:687:TYR:HE1  | 1.84                     | 0.42              |
| 1:C:76:LYS:HB2   | 1:C:77:TYR:CD1   | 2.55                     | 0.42              |
| 2:D:403:LEU:N    | 2:D:404:PRO:HD2  | 2.32                     | 0.42              |
| 2:F:537:VAL:HG11 | 2:F:546:ILE:HD11 | 2.00                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:F:566:LEU:HD23 | 2:F:575:LEU:HD23 | 2.02                     | 0.42              |
| 2:H:591:GLN:O    | 2:H:594:ILE:HG13 | 2.19                     | 0.42              |
| 2:B:408:ALA:HA   | 2:B:444:LEU:HD13 | 2.01                     | 0.42              |
| 2:B:715:PRO:C    | 2:B:716:VAL:CG1  | 2.88                     | 0.42              |
| 2:D:493:ILE:HD11 | 2:D:527:VAL:HG12 | 2.01                     | 0.42              |
| 2:F:559:ILE:HD13 | 2:F:559:ILE:HA   | 1.89                     | 0.42              |
| 2:F:580:LEU:O    | 2:F:584:VAL:HG23 | 2.20                     | 0.42              |
| 2:F:595:ASN:HA   | 2:F:598:GLU:HB2  | 2.02                     | 0.42              |
| 1:G:355:VAL:O    | 1:G:359:ARG:HG3  | 2.20                     | 0.42              |
| 1:G:358:ARG:HA   | 1:G:358:ARG:HD2  | 1.81                     | 0.42              |
| 1:G:400:ALA:HA   | 1:G:401:PRO:HD3  | 1.80                     | 0.42              |
| 2:B:516:ARG:NH1  | 3:I:45:LYS:HZ2   | 2.17                     | 0.42              |
| 2:B:497:THR:CG2  | 2:B:503:GLY:O    | 2.67                     | 0.42              |
| 1:C:233:TYR:HD1  | 1:C:347:LEU:HB2  | 1.85                     | 0.42              |
| 2:D:409:ASP:OD2  | 2:D:489:ARG:NH2  | 2.53                     | 0.42              |
| 2:D:547:LYS:HG3  | 2:D:548:ASP:H    | 1.85                     | 0.42              |
| 2:F:517:GLN:NE2  | 3:J:33:GLN:OE1   | 2.53                     | 0.42              |
| 2:F:593:MET:SD   | 2:F:686:GLU:HG3  | 2.60                     | 0.42              |
| 2:H:423:VAL:HG23 | 2:H:445:PRO:HA   | 2.02                     | 0.42              |
| 1:A:358:ARG:HA   | 1:A:358:ARG:HD2  | 1.89                     | 0.41              |
| 1:C:253:LYS:HG3  | 1:C:253:LYS:O    | 2.20                     | 0.41              |
| 1:C:400:ALA:HA   | 1:C:401:PRO:HD3  | 1.87                     | 0.41              |
| 1:C:517:ARG:HH21 | 1:C:521:ILE:HD11 | 1.84                     | 0.41              |
| 1:E:443:VAL:O    | 1:E:446:GLY:N    | 2.53                     | 0.41              |
| 2:F:436:ARG:HH12 | 1:G:295:GLU:HA   | 1.85                     | 0.41              |
| 1:G:356:ARG:HG3  | 1:G:359:ARG:HH21 | 1.83                     | 0.41              |
| 3:K:58:ASP:OD1   | 3:K:59:TRP:N     | 2.53                     | 0.41              |
| 1:A:247:GLU:O    | 1:A:260:ILE:N    | 2.53                     | 0.41              |
| 2:B:548:ASP:HB2  | 2:B:549:ASP:H    | 1.71                     | 0.41              |
| 1:C:173:GLY:N    | 1:C:180:THR:O    | 2.52                     | 0.41              |
| 1:C:182:ILE:HA   | 1:C:183:PRO:HD3  | 1.80                     | 0.41              |
| 1:C:478:TYR:CE2  | 1:C:482:LEU:HD11 | 2.55                     | 0.41              |
| 1:E:142:THR:C    | 1:E:364:ARG:HH11 | 2.24                     | 0.41              |
| 1:E:380:LEU:HD11 | 1:E:477:GLU:CD   | 2.39                     | 0.41              |
| 1:E:469:LEU:O    | 1:E:469:LEU:HD22 | 2.20                     | 0.41              |
| 2:H:422:LEU:HD23 | 2:H:444:LEU:HB3  | 2.03                     | 0.41              |
| 2:H:509:LEU:CD1  | 3:L:47:ILE:CD1   | 2.87                     | 0.41              |
| 1:A:471:HIS:NE2  | 1:A:475:LEU:CD1  | 2.73                     | 0.41              |
| 2:B:703:GLU:O    | 2:B:704:ASP:HB2  | 2.19                     | 0.41              |
| 1:C:245:ARG:CG   | 1:C:245:ARG:HH11 | 2.19                     | 0.41              |
| 1:C:262:HIS:C    | 1:C:263:GLU:HG3  | 2.40                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:382:ALA:HB2  | 1:C:454:GLN:NE2  | 2.35                     | 0.41              |
| 1:E:462:ARG:NH2  | 1:G:460:ASP:OD1  | 2.52                     | 0.41              |
| 2:B:556:GLN:CD   | 2:B:731:ARG:HH12 | 2.24                     | 0.41              |
| 2:B:539:LYS:HB2  | 2:B:734:LEU:HD23 | 2.01                     | 0.41              |
| 2:B:528:TYR:HE2  | 2:B:764:ARG:NE   | 2.17                     | 0.41              |
| 1:C:310:ASP:OD1  | 1:C:310:ASP:N    | 2.53                     | 0.41              |
| 2:F:478:ILE:O    | 2:F:482:GLU:HB2  | 2.21                     | 0.41              |
| 2:F:505:HIS:O    | 2:F:509:LEU:HG   | 2.20                     | 0.41              |
| 2:F:623:GLU:HB2  | 2:F:660:PHE:CE2  | 2.54                     | 0.41              |
| 2:B:471:ILE:CG2  | 2:B:472:THR:N    | 2.84                     | 0.41              |
| 2:D:510:LEU:HD23 | 2:D:510:LEU:HA   | 1.74                     | 0.41              |
| 1:E:186:ASN:HB2  | 1:E:216:ASP:OD2  | 2.21                     | 0.41              |
| 1:A:142:THR:O    | 1:A:364:ARG:HD3  | 2.21                     | 0.41              |
| 1:C:507:GLU:HA   | 1:C:510:ARG:HG2  | 2.01                     | 0.41              |
| 1:C:91:ARG:HA    | 1:C:94:GLN:HE21  | 1.85                     | 0.41              |
| 1:E:163:ILE:HA   | 1:E:164:PRO:HD2  | 1.92                     | 0.41              |
| 1:E:182:ILE:HA   | 1:E:183:PRO:HD3  | 1.83                     | 0.41              |
| 1:G:347:LEU:O    | 1:G:351:ILE:HG12 | 2.19                     | 0.41              |
| 1:G:419:ASN:C    | 1:G:420:VAL:HG22 | 2.41                     | 0.41              |
| 3:K:35:ILE:O     | 3:K:39:GLU:HG3   | 2.20                     | 0.41              |
| 2:B:528:TYR:HE2  | 2:B:764:ARG:CZ   | 2.33                     | 0.41              |
| 1:C:73:VAL:O     | 1:C:78:HIS:N     | 2.48                     | 0.41              |
| 2:H:415:PRO:O    | 2:H:491:HIS:HB2  | 2.20                     | 0.41              |
| 2:H:772:ALA:O    | 2:H:775:GLN:HG2  | 2.21                     | 0.41              |
| 1:A:423:MET:O    | 1:A:424:LEU:C    | 2.59                     | 0.41              |
| 1:G:113:ASP:HB2  | 1:G:115:ASP:OD2  | 2.20                     | 0.41              |
| 1:G:178:MET:SD   | 1:G:178:MET:N    | 2.94                     | 0.41              |
| 1:G:363:THR:O    | 1:G:367:ILE:HG13 | 2.21                     | 0.41              |
| 2:H:422:LEU:HA   | 2:H:444:LEU:O    | 2.21                     | 0.41              |
| 3:K:25:ARG:HA    | 3:K:26:PRO:HA    | 1.87                     | 0.41              |
| 2:D:689:ARG:HG3  | 2:D:690:ILE:H    | 1.85                     | 0.41              |
| 1:E:511:GLU:OE2  | 1:E:511:GLU:HA   | 2.21                     | 0.41              |
| 1:A:189:GLU:OE2  | 1:A:517:ARG:HD2  | 2.21                     | 0.41              |
| 2:B:502:ASP:O    | 2:B:505:HIS:HB2  | 2.20                     | 0.41              |
| 2:F:626:VAL:HG13 | 2:F:662:PRO:HG3  | 2.01                     | 0.41              |
| 1:G:383:LEU:HD22 | 1:G:461:LEU:HD12 | 2.03                     | 0.41              |
| 2:H:727:VAL:O    | 2:H:731:ARG:HG2  | 2.21                     | 0.41              |
| 1:A:37:VAL:H     | 1:A:37:VAL:HG12  | 1.56                     | 0.41              |
| 1:A:482:LEU:HA   | 1:A:485:ILE:HG12 | 2.02                     | 0.41              |
| 2:B:452:ASN:CB   | 2:B:460:LYS:HZ2  | 2.34                     | 0.41              |
| 2:B:719:PHE:O    | 2:B:722:ALA:N    | 2.54                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:185:HIS:CD2  | 1:C:215:PRO:HA   | 2.56                     | 0.41              |
| 1:E:242:ILE:HD11 | 1:E:330:PHE:HB2  | 2.03                     | 0.41              |
| 1:E:464:GLN:HB2  | 1:G:459:LEU:HB3  | 2.03                     | 0.41              |
| 1:E:524:ASN:N    | 1:E:524:ASN:OD1  | 2.54                     | 0.41              |
| 2:F:404:PRO:HG2  | 2:F:405:GLY:H    | 1.85                     | 0.41              |
| 1:G:259:ILE:HG13 | 1:G:307:VAL:CG2  | 2.51                     | 0.41              |
| 1:A:217:PHE:CE2  | 1:A:223:ILE:HD11 | 2.56                     | 0.40              |
| 1:A:370:LEU:O    | 1:A:374:ARG:HG2  | 2.21                     | 0.40              |
| 1:A:374:ARG:HD3  | 1:A:374:ARG:HA   | 1.82                     | 0.40              |
| 1:A:491:ILE:HD11 | 1:A:497:ARG:HE   | 1.86                     | 0.40              |
| 1:A:503:ARG:NH1  | 1:A:503:ARG:HB3  | 2.35                     | 0.40              |
| 1:A:245:ARG:NH1  | 1:A:520:GLU:OE1  | 2.51                     | 0.40              |
| 1:C:30:VAL:HG13  | 1:C:34:LEU:CD1   | 2.39                     | 0.40              |
| 2:D:527:VAL:O    | 2:D:527:VAL:HG23 | 2.20                     | 0.40              |
| 2:F:524:ARG:HB2  | 2:F:526:HIS:CD2  | 2.56                     | 0.40              |
| 1:G:93:ALA:HA    | 1:G:103:VAL:O    | 2.21                     | 0.40              |
| 1:G:285:ARG:HB3  | 1:G:323:GLN:NE2  | 2.37                     | 0.40              |
| 2:H:523:GLU:C    | 2:H:525:GLY:H    | 2.24                     | 0.40              |
| 3:K:42:ALA:C     | 3:K:43:GLU:HG3   | 2.42                     | 0.40              |
| 1:A:310:ASP:OD1  | 1:A:310:ASP:N    | 2.53                     | 0.40              |
| 1:C:250:VAL:HA   | 1:C:256:ARG:O    | 2.22                     | 0.40              |
| 2:F:691:CYS:O    | 2:F:695:GLU:HG3  | 2.20                     | 0.40              |
| 1:G:262:HIS:O    | 1:G:301:MET:HG3  | 2.21                     | 0.40              |
| 1:A:221:ALA:N    | 1:A:263:GLU:OE2  | 2.46                     | 0.40              |
| 1:A:508:LEU:O    | 1:A:512:GLN:HG3  | 2.22                     | 0.40              |
| 2:B:663:ILE:HG12 | 2:B:676:PRO:HA   | 2.02                     | 0.40              |
| 1:E:522:THR:HG22 | 1:E:523:ALA:N    | 2.36                     | 0.40              |
| 3:K:36:ASP:OD1   | 3:K:45:LYS:HE3   | 2.20                     | 0.40              |
| 1:A:47:ARG:HA    | 1:A:155:ILE:HD11 | 2.04                     | 0.40              |
| 1:A:230:GLU:CD   | 1:A:234:ARG:HE   | 2.25                     | 0.40              |
| 2:D:493:ILE:CG1  | 2:D:527:VAL:HG12 | 2.52                     | 0.40              |
| 1:A:28:VAL:CG1   | 1:A:29:ILE:N     | 2.85                     | 0.40              |
| 1:A:376:ARG:O    | 1:A:380:LEU:HB2  | 2.21                     | 0.40              |
| 1:A:65:LYS:O     | 1:A:67:ALA:N     | 2.54                     | 0.40              |
| 2:B:420:LEU:O    | 2:B:493:ILE:HA   | 2.21                     | 0.40              |
| 2:D:451:LEU:HD23 | 2:D:451:LEU:HA   | 1.96                     | 0.40              |
| 2:D:547:LYS:HB3  | 2:D:761:ARG:NH1  | 2.37                     | 0.40              |
| 1:E:358:ARG:HH12 | 1:E:361:VAL:HG11 | 1.87                     | 0.40              |
| 1:E:465:LYS:HA   | 1:E:470:GLU:HG3  | 2.03                     | 0.40              |
| 2:F:742:LEU:HD23 | 2:F:742:LEU:HA   | 1.82                     | 0.40              |

All (16) symmetry-related close contacts are listed below. The label for Atom-2 includes the

symmetry operator and encoded unit-cell translations to be applied.

| Atom-1          | Atom-2                 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------------|--------------------------|-------------------|
| 1:E:476:ASP:OD2 | 2:F:596:ARG:CZ[3_757]  | 1.27                     | 0.93              |
| 1:E:476:ASP:OD2 | 2:F:596:ARG:NE[3_757]  | 1.27                     | 0.93              |
| 1:E:476:ASP:CG  | 2:F:596:ARG:NE[3_757]  | 1.32                     | 0.88              |
| 1:E:476:ASP:CG  | 2:F:596:ARG:CZ[3_757]  | 1.33                     | 0.87              |
| 1:E:476:ASP:CG  | 2:F:596:ARG:NH2[3_757] | 1.39                     | 0.81              |
| 1:E:476:ASP:CB  | 2:F:596:ARG:NH2[3_757] | 1.40                     | 0.80              |
| 1:E:476:ASP:CB  | 2:F:596:ARG:CZ[3_757]  | 1.49                     | 0.71              |
| 1:E:473:LYS:NZ  | 2:F:597:MET:CA[3_757]  | 1.59                     | 0.61              |
| 1:E:473:LYS:NZ  | 2:F:596:ARG:O[3_757]   | 1.60                     | 0.60              |
| 1:E:476:ASP:OD2 | 2:F:596:ARG:NH2[3_757] | 1.61                     | 0.59              |
| 1:E:473:LYS:NZ  | 2:F:597:MET:N[3_757]   | 1.74                     | 0.46              |
| 1:E:473:LYS:NZ  | 2:F:596:ARG:C[3_757]   | 1.77                     | 0.43              |
| 1:E:476:ASP:OD1 | 2:F:596:ARG:NE[3_757]  | 2.01                     | 0.19              |
| 1:E:473:LYS:CE  | 2:F:596:ARG:O[3_757]   | 2.12                     | 0.08              |
| 1:A:511:GLU:OE1 | 2:B:573:PRO:O[4_477]   | 2.13                     | 0.07              |
| 1:C:314:GLU:OE1 | 2:H:491:HIS:ND1[1_545] | 2.13                     | 0.07              |

## 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     | 497/525 (95%) | 473 (95%) | 22 (4%) | 2 (0%)   | 34          | 66  |
| 1   | C     | 469/525 (89%) | 438 (93%) | 30 (6%) | 1 (0%)   | 47          | 77  |
| 1   | E     | 477/525 (91%) | 454 (95%) | 22 (5%) | 1 (0%)   | 47          | 77  |
| 1   | G     | 475/525 (90%) | 443 (93%) | 31 (6%) | 1 (0%)   | 47          | 77  |
| 2   | B     | 370/417 (89%) | 341 (92%) | 28 (8%) | 1 (0%)   | 41          | 71  |
| 2   | D     | 239/417 (57%) | 225 (94%) | 13 (5%) | 1 (0%)   | 34          | 66  |
| 2   | F     | 365/417 (88%) | 347 (95%) | 18 (5%) | 0        | 100         | 100 |
| 2   | H     | 224/417 (54%) | 206 (92%) | 17 (8%) | 1 (0%)   | 34          | 66  |

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| Mol | Chain | Analysed        | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 3   | I     | 45/65 (69%)     | 42 (93%)   | 3 (7%)   | 0        | 100         | 100 |
| 3   | J     | 53/65 (82%)     | 50 (94%)   | 3 (6%)   | 0        | 100         | 100 |
| 3   | K     | 51/65 (78%)     | 47 (92%)   | 4 (8%)   | 0        | 100         | 100 |
| 3   | L     | 46/65 (71%)     | 46 (100%)  | 0        | 0        | 100         | 100 |
| All | All   | 3311/4028 (82%) | 3112 (94%) | 191 (6%) | 8 (0%)   | 47          | 77  |

All (8) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 220 | ALA  |
| 1   | E     | 401 | PRO  |
| 2   | B     | 696 | LYS  |
| 1   | A     | 136 | ALA  |
| 1   | G     | 439 | PRO  |
| 2   | H     | 524 | ARG  |
| 1   | C     | 79  | PRO  |
| 2   | D     | 403 | LEU  |

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

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

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

| Mol | Chain | Analysed      | Rotameric | Outliers | Percentiles |    |
|-----|-------|---------------|-----------|----------|-------------|----|
| 1   | A     | 422/440 (96%) | 406 (96%) | 16 (4%)  | 33          | 62 |
| 1   | C     | 397/440 (90%) | 387 (98%) | 10 (2%)  | 47          | 72 |
| 1   | E     | 407/440 (92%) | 397 (98%) | 10 (2%)  | 47          | 72 |
| 1   | G     | 403/440 (92%) | 387 (96%) | 16 (4%)  | 31          | 61 |
| 2   | B     | 322/352 (92%) | 306 (95%) | 16 (5%)  | 24          | 55 |
| 2   | D     | 214/352 (61%) | 207 (97%) | 7 (3%)   | 38          | 66 |
| 2   | F     | 319/352 (91%) | 311 (98%) | 8 (2%)   | 47          | 72 |
| 2   | H     | 202/352 (57%) | 196 (97%) | 6 (3%)   | 41          | 68 |
| 3   | I     | 41/59 (70%)   | 40 (98%)  | 1 (2%)   | 49          | 73 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|----------|-------------|----|
| 3   | J     | 51/59 (86%)     | 48 (94%)   | 3 (6%)   | 19          | 49 |
| 3   | K     | 49/59 (83%)     | 47 (96%)   | 2 (4%)   | 30          | 61 |
| 3   | L     | 42/59 (71%)     | 41 (98%)   | 1 (2%)   | 49          | 73 |
| All | All   | 2869/3404 (84%) | 2773 (97%) | 96 (3%)  | 38          | 66 |

All (96) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 87  | ASP  |
| 1   | A     | 101 | MET  |
| 1   | A     | 108 | ASN  |
| 1   | A     | 124 | GLU  |
| 1   | A     | 134 | LEU  |
| 1   | A     | 341 | GLN  |
| 1   | A     | 355 | VAL  |
| 1   | A     | 443 | VAL  |
| 1   | A     | 458 | ILE  |
| 1   | A     | 460 | ASP  |
| 1   | A     | 470 | GLU  |
| 1   | A     | 482 | LEU  |
| 1   | A     | 491 | ILE  |
| 1   | A     | 513 | PHE  |
| 1   | A     | 517 | ARG  |
| 1   | A     | 522 | THR  |
| 2   | B     | 460 | LYS  |
| 2   | B     | 469 | THR  |
| 2   | B     | 481 | ASP  |
| 2   | B     | 492 | SER  |
| 2   | B     | 498 | ASP  |
| 2   | B     | 500 | ASP  |
| 2   | B     | 528 | TYR  |
| 2   | B     | 529 | ILE  |
| 2   | B     | 546 | ILE  |
| 2   | B     | 548 | ASP  |
| 2   | B     | 566 | LEU  |
| 2   | B     | 652 | HIS  |
| 2   | B     | 668 | THR  |
| 2   | B     | 702 | GLU  |
| 2   | B     | 706 | PHE  |
| 2   | B     | 723 | LEU  |
| 1   | C     | 121 | ARG  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 149        | TYR         |
| 1          | C            | 168        | VAL         |
| 1          | C            | 180        | THR         |
| 1          | C            | 201        | GLU         |
| 1          | C            | 310        | ASP         |
| 1          | C            | 323        | GLN         |
| 1          | C            | 332        | ILE         |
| 1          | C            | 338        | HIS         |
| 1          | C            | 391        | ASP         |
| 2          | D            | 426        | ASP         |
| 2          | D            | 463        | SER         |
| 2          | D            | 719        | PHE         |
| 2          | D            | 734        | LEU         |
| 2          | D            | 765        | VAL         |
| 2          | D            | 769        | ASP         |
| 2          | D            | 777        | PHE         |
| 1          | E            | 130        | ILE         |
| 1          | E            | 174        | ILE         |
| 1          | E            | 201        | GLU         |
| 1          | E            | 272[A]     | ARG         |
| 1          | E            | 272[B]     | ARG         |
| 1          | E            | 292        | LEU         |
| 1          | E            | 328        | VAL         |
| 1          | E            | 482        | LEU         |
| 1          | E            | 496        | ASP         |
| 1          | E            | 517        | ARG         |
| 2          | F            | 409        | ASP         |
| 2          | F            | 450        | ILE         |
| 2          | F            | 550        | GLU         |
| 2          | F            | 609        | LEU         |
| 2          | F            | 610        | ILE         |
| 2          | F            | 661        | GLU         |
| 2          | F            | 683        | THR         |
| 2          | F            | 775        | GLN         |
| 1          | G            | 24         | TYR         |
| 1          | G            | 27         | SER         |
| 1          | G            | 32         | ARG         |
| 1          | G            | 58         | ASP         |
| 1          | G            | 72         | ASP         |
| 1          | G            | 121        | ARG         |
| 1          | G            | 124        | GLU         |
| 1          | G            | 178        | MET         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | G            | 202        | ASP         |
| 1          | G            | 275        | GLU         |
| 1          | G            | 338        | HIS         |
| 1          | G            | 345        | MET         |
| 1          | G            | 419        | ASN         |
| 1          | G            | 469        | LEU         |
| 1          | G            | 471        | HIS         |
| 1          | G            | 517        | ARG         |
| 2          | H            | 423        | VAL         |
| 2          | H            | 449        | LYS         |
| 2          | H            | 482        | GLU         |
| 2          | H            | 492        | SER         |
| 2          | H            | 498        | ASP         |
| 2          | H            | 587        | TYR         |
| 3          | I            | 50         | SER         |
| 3          | J            | 33         | GLN         |
| 3          | J            | 57         | ASP         |
| 3          | J            | 58         | ASP         |
| 3          | K            | 37         | LEU         |
| 3          | K            | 45         | LYS         |
| 3          | L            | 24         | PHE         |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (42) such sidechains are listed below:

| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 106        | GLN         |
| 1          | A            | 378        | HIS         |
| 1          | A            | 464        | GLN         |
| 2          | B            | 526        | HIS         |
| 2          | B            | 542        | GLN         |
| 2          | B            | 556        | GLN         |
| 2          | B            | 624        | GLN         |
| 2          | B            | 737        | GLN         |
| 2          | B            | 749        | GLN         |
| 1          | C            | 94         | GLN         |
| 1          | C            | 106        | GLN         |
| 1          | C            | 454        | GLN         |
| 1          | C            | 464        | GLN         |
| 2          | D            | 411        | GLN         |
| 2          | D            | 434        | GLN         |
| 2          | D            | 517        | GLN         |
| 2          | D            | 531        | GLN         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | D     | 749 | GLN  |
| 2   | D     | 775 | GLN  |
| 1   | E     | 45  | HIS  |
| 1   | E     | 319 | ASN  |
| 1   | E     | 471 | HIS  |
| 1   | E     | 484 | GLN  |
| 1   | E     | 512 | GLN  |
| 2   | F     | 517 | GLN  |
| 2   | F     | 624 | GLN  |
| 2   | F     | 679 | HIS  |
| 2   | F     | 737 | GLN  |
| 1   | G     | 57  | ASN  |
| 1   | G     | 106 | GLN  |
| 1   | G     | 267 | GLN  |
| 1   | G     | 323 | GLN  |
| 1   | G     | 338 | HIS  |
| 1   | G     | 453 | GLN  |
| 1   | G     | 484 | GLN  |
| 2   | H     | 544 | GLN  |
| 2   | H     | 556 | GLN  |
| 2   | H     | 746 | ASN  |
| 2   | H     | 749 | GLN  |
| 3   | J     | 33  | GLN  |
| 3   | K     | 33  | GLN  |
| 3   | L     | 8   | ASN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

### 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

### 5.5 Carbohydrates [i](#)

There are no 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     | 505/525 (96%)   | -0.03  | 14 (2%) 53 51  | 67, 110, 249, 473     | 0     |
| 1   | C     | 475/525 (90%)   | 0.11   | 23 (4%) 30 28  | 75, 145, 252, 431     | 0     |
| 1   | E     | 486/525 (92%)   | -0.01  | 14 (2%) 51 50  | 65, 104, 254, 314     | 0     |
| 1   | G     | 483/525 (92%)   | 0.01   | 13 (2%) 54 52  | 59, 139, 235, 370     | 0     |
| 2   | B     | 374/417 (89%)   | -0.11  | 4 (1%) 80 81   | 69, 132, 176, 208     | 0     |
| 2   | D     | 251/417 (60%)   | 0.26   | 17 (6%) 17 17  | 86, 145, 270, 299     | 0     |
| 2   | F     | 371/417 (88%)   | -0.02  | 4 (1%) 80 81   | 59, 121, 200, 247     | 0     |
| 2   | H     | 233/417 (55%)   | 0.20   | 16 (6%) 16 16  | 79, 132, 263, 362     | 0     |
| 3   | I     | 47/65 (72%)     | -0.35  | 0 100 100      | 65, 106, 140, 149     | 0     |
| 3   | J     | 57/65 (87%)     | -0.09  | 2 (3%) 44 42   | 66, 108, 144, 153     | 0     |
| 3   | K     | 55/65 (84%)     | 0.47   | 6 (10%) 5 5    | 136, 176, 205, 211    | 0     |
| 3   | L     | 48/65 (73%)     | 0.11   | 2 (4%) 36 34   | 166, 194, 227, 283    | 0     |
| All | All   | 3385/4028 (84%) | 0.03   | 115 (3%) 45 43 | 59, 130, 246, 473     | 0     |

All (115) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | C     | 386 | ALA  | 8.2  |
| 2   | D     | 719 | PHE  | 7.9  |
| 1   | A     | 385 | VAL  | 7.4  |
| 1   | A     | 17  | LEU  | 6.1  |
| 3   | K     | 51  | GLY  | 5.7  |
| 1   | C     | 194 | CYS  | 5.4  |
| 1   | C     | 463 | LEU  | 5.2  |
| 1   | A     | 386 | ALA  | 5.1  |
| 1   | C     | 387 | LEU  | 4.6  |
| 2   | H     | 584 | VAL  | 4.5  |
| 2   | D     | 588 | ASN  | 4.4  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | E            | 386        | ALA         | 4.2         |
| 2          | H            | 581        | GLU         | 4.1         |
| 1          | E            | 385        | VAL         | 4.1         |
| 2          | H            | 730        | SER         | 4.1         |
| 1          | E            | 443        | VAL         | 4.1         |
| 1          | E            | 26         | MET         | 4.0         |
| 1          | E            | 466        | LEU         | 4.0         |
| 1          | E            | 29         | ILE         | 3.9         |
| 1          | A            | 383        | LEU         | 3.8         |
| 1          | G            | 466        | LEU         | 3.8         |
| 3          | L            | 40         | TRP         | 3.8         |
| 1          | C            | 466        | LEU         | 3.7         |
| 1          | C            | 381        | GLU         | 3.7         |
| 1          | G            | 393        | ILE         | 3.6         |
| 2          | H            | 729        | GLU         | 3.6         |
| 2          | H            | 513        | PHE         | 3.6         |
| 1          | A            | 466        | LEU         | 3.6         |
| 1          | G            | 521        | ILE         | 3.5         |
| 2          | H            | 561        | LEU         | 3.4         |
| 2          | H            | 478        | ILE         | 3.4         |
| 2          | D            | 688        | ARG         | 3.4         |
| 1          | C            | 383        | LEU         | 3.4         |
| 1          | C            | 313        | GLY         | 3.4         |
| 2          | D            | 561        | LEU         | 3.3         |
| 1          | C            | 384        | ALA         | 3.3         |
| 1          | G            | 215        | PRO         | 3.3         |
| 1          | A            | 405        | GLU         | 3.2         |
| 2          | H            | 586        | GLU         | 3.2         |
| 1          | C            | 397        | ILE         | 3.2         |
| 2          | D            | 718        | SER         | 3.2         |
| 3          | L            | 18         | TRP         | 3.1         |
| 1          | E            | 426        | ARG         | 3.1         |
| 2          | H            | 562        | ASP         | 3.1         |
| 1          | G            | 198        | ILE         | 3.1         |
| 1          | A            | 397        | ILE         | 3.1         |
| 2          | F            | 662        | PRO         | 3.1         |
| 1          | C            | 377        | ALA         | 3.1         |
| 1          | C            | 492        | LEU         | 3.0         |
| 1          | C            | 385        | VAL         | 3.0         |
| 1          | C            | 317        | LEU         | 3.0         |
| 1          | A            | 436        | TRP         | 3.0         |
| 1          | A            | 19         | SER         | 3.0         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | E            | 428        | GLY         | 2.9         |
| 1          | A            | 465        | LYS         | 2.9         |
| 2          | D            | 731        | ARG         | 2.9         |
| 1          | G            | 513        | PHE         | 2.9         |
| 2          | B            | 783        | ASP         | 2.9         |
| 1          | G            | 481        | LEU         | 2.9         |
| 2          | H            | 481        | ASP         | 2.9         |
| 2          | H            | 588        | ASN         | 2.9         |
| 3          | K            | 6          | THR         | 2.8         |
| 1          | C            | 318        | ASN         | 2.8         |
| 1          | A            | 470        | GLU         | 2.7         |
| 3          | K            | 26         | PRO         | 2.7         |
| 2          | H            | 590        | THR         | 2.7         |
| 1          | G            | 383        | LEU         | 2.7         |
| 2          | H            | 726        | LEU         | 2.7         |
| 3          | J            | 4          | THR         | 2.7         |
| 2          | D            | 690        | ILE         | 2.7         |
| 2          | D            | 691        | CYS         | 2.6         |
| 2          | B            | 649        | PHE         | 2.6         |
| 1          | E            | 178        | MET         | 2.6         |
| 1          | A            | 393        | ILE         | 2.6         |
| 2          | D            | 590        | THR         | 2.5         |
| 2          | F            | 716        | VAL         | 2.5         |
| 1          | G            | 194        | CYS         | 2.5         |
| 1          | E            | 387        | LEU         | 2.5         |
| 2          | D            | 722        | ALA         | 2.5         |
| 1          | C            | 464        | GLN         | 2.4         |
| 1          | C            | 420        | VAL         | 2.4         |
| 1          | G            | 465        | LYS         | 2.4         |
| 2          | B            | 474        | LEU         | 2.4         |
| 2          | D            | 593        | MET         | 2.4         |
| 2          | H            | 585        | SER         | 2.4         |
| 2          | B            | 445        | PRO         | 2.4         |
| 1          | C            | 488        | LEU         | 2.4         |
| 1          | E            | 425        | GLU         | 2.4         |
| 1          | E            | 393        | ILE         | 2.4         |
| 3          | K            | 7          | VAL         | 2.3         |
| 2          | D            | 729        | GLU         | 2.3         |
| 1          | G            | 164        | PRO         | 2.3         |
| 1          | C            | 382        | ALA         | 2.3         |
| 3          | J            | 56         | SER         | 2.3         |
| 2          | F            | 677        | LEU         | 2.2         |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 3   | K     | 18  | TRP  | 2.2  |
| 2   | D     | 589 | ALA  | 2.2  |
| 1   | C     | 286 | VAL  | 2.2  |
| 1   | G     | 397 | ILE  | 2.2  |
| 2   | D     | 587 | TYR  | 2.1  |
| 2   | H     | 558 | SER  | 2.1  |
| 2   | F     | 646 | GLN  | 2.1  |
| 1   | C     | 320 | LEU  | 2.1  |
| 2   | H     | 592 | LYS  | 2.1  |
| 2   | D     | 562 | ASP  | 2.1  |
| 1   | A     | 388 | ALA  | 2.1  |
| 1   | C     | 233 | TYR  | 2.1  |
| 1   | E     | 384 | ALA  | 2.1  |
| 2   | D     | 478 | ILE  | 2.1  |
| 3   | K     | 63  | PRO  | 2.1  |
| 1   | G     | 214 | GLY  | 2.1  |
| 2   | D     | 687 | TYR  | 2.1  |
| 1   | E     | 397 | ILE  | 2.1  |
| 1   | C     | 167 | LEU  | 2.0  |
| 1   | A     | 384 | ALA  | 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 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 4   | ZN   | K     | 101 | 1/1   | 0.71 | 0.12 | 202,202,202,202             | 0     |
| 4   | ZN   | E     | 601 | 1/1   | 0.76 | 0.27 | 346,346,346,346             | 0     |
| 4   | ZN   | L     | 101 | 1/1   | 0.80 | 0.14 | 225,225,225,225             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 4   | ZN   | B     | 1001 | 1/1   | 0.84 | 0.54 | 346,346,346,346             | 0     |
| 4   | ZN   | I     | 101  | 1/1   | 0.97 | 0.16 | 95,95,95,95                 | 0     |
| 4   | ZN   | J     | 101  | 1/1   | 0.99 | 0.10 | 137,137,137,137             | 0     |

## 6.5 Other polymers [i](#)

There are no such residues in this entry.