



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2024 – 01:52 AM EST

PDB ID : 4E2S  
Title : Crystal structure of (S)-Ureidoglycine Aminohydrolase from Arabidopsis thaliana in complex with its substrate, (S)-Ureidoglycine  
Authors : Shin, I.; Rhee, S.  
Deposited on : 2012-03-09  
Resolution : 2.59 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

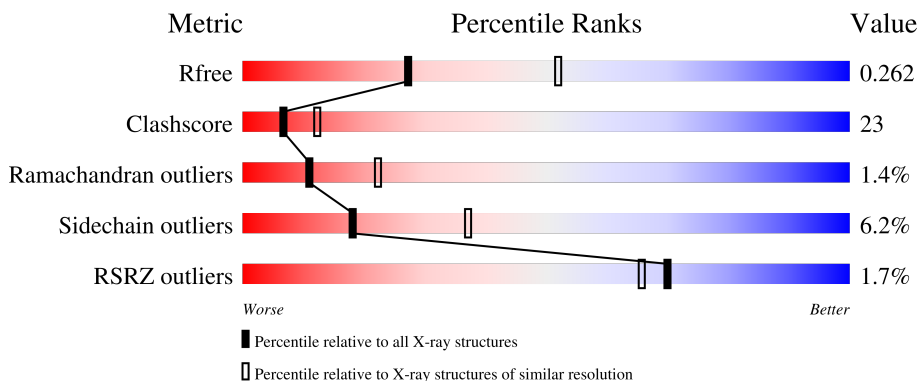
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.59 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.





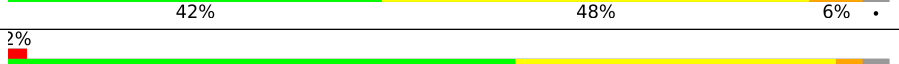

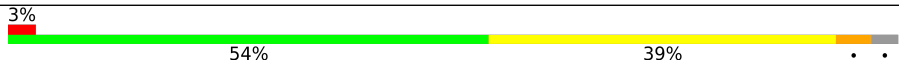


| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 130704                      | 3163 (2.60-2.60)                                      |
| Clashscore            | 141614                      | 3518 (2.60-2.60)                                      |
| Ramachandran outliers | 138981                      | 3455 (2.60-2.60)                                      |
| Sidechain outliers    | 138945                      | 3455 (2.60-2.60)                                      |
| RSRZ outliers         | 127900                      | 3104 (2.60-2.60)                                      |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | A     | 266    | 61% 30% 5% .     |
| 1   | B     | 266    | 60% 33% . .      |
| 1   | C     | 266    | 2% 58% 37% . .   |
| 1   | D     | 266    | % 56% 36% 5% .   |
| 1   | E     | 266    | % 54% 39% . .    |

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| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 1   | F     | 266    |  %<br>54% 40% . .      |
| 1   | G     | 266    |  2%<br>52% 41% . .     |
| 1   | H     | 266    |  58% 36% . .           |
| 1   | I     | 266    |  59% 35% . .           |
| 1   | J     | 266    |  2%<br>50% 42% 5% .    |
| 1   | K     | 266    |  6%<br>42% 48% 6% .    |
| 1   | L     | 266    |  2%<br>57% 36% . .     |
| 1   | M     | 266    |  52% 41% . .           |
| 1   | N     | 266    |  3%<br>59% 34% . .     |
| 1   | O     | 266    |  3%<br>54% 39% . .     |
| 1   | P     | 266    |  6%<br>49% 42% 5% . . |

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 33974 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 Ureidoglycine aminohydrolase.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S |         |         |       |
| 1   | A     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | B     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | C     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | D     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | E     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | F     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | G     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | H     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | I     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | J     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | K     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | L     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | M     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | N     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | O     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |
| 1   | P     | 258      | 2076  | 1345 | 342 | 382 | 7 | 0       | 0       | 0     |

There are 48 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment        | Reference   |
|-------|---------|----------|--------|----------------|-------------|
| A     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| A     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| A     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| B     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| B     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| B     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| C     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| C     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| C     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| D     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| D     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| D     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| E     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| E     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| E     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| F     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| F     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| F     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| G     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| G     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| G     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| H     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| H     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| H     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| I     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| I     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| I     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| J     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| J     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| J     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| K     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| K     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| K     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| L     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| L     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| L     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| M     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| M     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| M     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| N     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| N     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| N     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |

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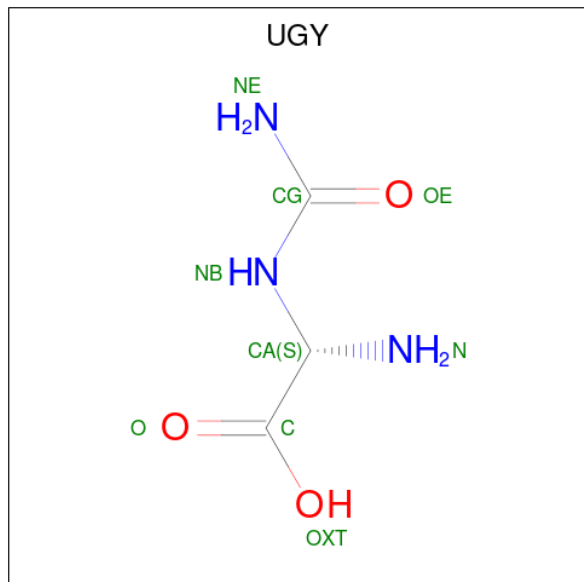
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| Chain | Residue | Modelled | Actual | Comment        | Reference   |
|-------|---------|----------|--------|----------------|-------------|
| O     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| O     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| O     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |
| P     | 33      | GLY      | -      | expression tag | UNP Q8GXXV5 |
| P     | 34      | HIS      | -      | expression tag | UNP Q8GXXV5 |
| P     | 35      | MET      | -      | expression tag | UNP Q8GXXV5 |

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

| Mol | Chain | Residues | Atoms           | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 2   | A     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | B     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | C     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | D     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | E     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | F     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | G     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | H     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | I     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | J     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | K     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | L     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | M     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | N     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | O     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | P     | 1        | Total Mn<br>1 1 | 0       | 0       |

- Molecule 3 is (2S)-amino(carbamoylamino)ethanoic acid (three-letter code: UGY) (formula:  $C_3H_7N_3O_3$ ).



| Mol | Chain | Residues | Atoms      |        |        |        | ZeroOcc | AltConf |
|-----|-------|----------|------------|--------|--------|--------|---------|---------|
|     |       |          | Total      | C      | N      | O      |         |         |
| 3   | A     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | B     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | C     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | D     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | E     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | F     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | G     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | H     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | I     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | J     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | K     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 3   | L     | 1        | Total<br>9 | C<br>3 | N<br>3 | O<br>3 | 0       | 0       |

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| Mol | Chain | Residues | Atoms |   |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---|---------|---------|
| 3   | M     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 9     | 3 | 3 | 3 |         |         |
| 3   | N     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 9     | 3 | 3 | 3 |         |         |
| 3   | O     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 9     | 3 | 3 | 3 |         |         |
| 3   | P     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 9     | 3 | 3 | 3 |         |         |

- Molecule 4 is water.

| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 4   | A     | 54       | Total | O  | 0       | 0       |
|     |       |          | 54    | 54 |         |         |
| 4   | B     | 41       | Total | O  | 0       | 0       |
|     |       |          | 41    | 41 |         |         |
| 4   | C     | 40       | Total | O  | 0       | 0       |
|     |       |          | 40    | 40 |         |         |
| 4   | D     | 35       | Total | O  | 0       | 0       |
|     |       |          | 35    | 35 |         |         |
| 4   | E     | 38       | Total | O  | 0       | 0       |
|     |       |          | 38    | 38 |         |         |
| 4   | F     | 42       | Total | O  | 0       | 0       |
|     |       |          | 42    | 42 |         |         |
| 4   | G     | 38       | Total | O  | 0       | 0       |
|     |       |          | 38    | 38 |         |         |
| 4   | H     | 36       | Total | O  | 0       | 0       |
|     |       |          | 36    | 36 |         |         |
| 4   | I     | 38       | Total | O  | 0       | 0       |
|     |       |          | 38    | 38 |         |         |
| 4   | J     | 30       | Total | O  | 0       | 0       |
|     |       |          | 30    | 30 |         |         |
| 4   | K     | 34       | Total | O  | 0       | 0       |
|     |       |          | 34    | 34 |         |         |
| 4   | L     | 30       | Total | O  | 0       | 0       |
|     |       |          | 30    | 30 |         |         |
| 4   | M     | 40       | Total | O  | 0       | 0       |
|     |       |          | 40    | 40 |         |         |
| 4   | N     | 35       | Total | O  | 0       | 0       |
|     |       |          | 35    | 35 |         |         |
| 4   | O     | 38       | Total | O  | 0       | 0       |
|     |       |          | 38    | 38 |         |         |

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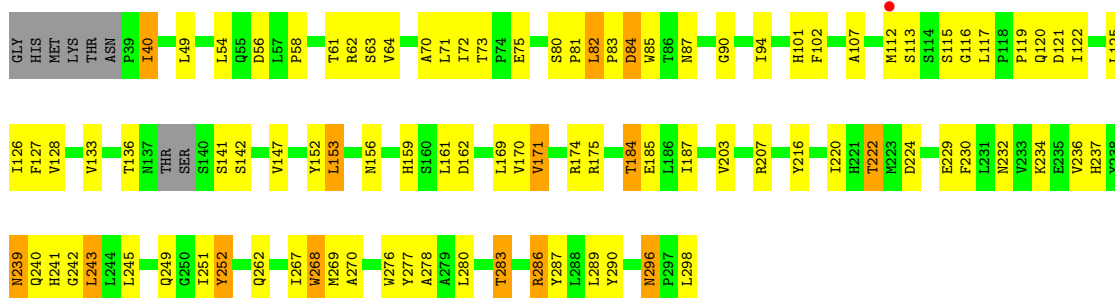
| <b>Mol</b> | <b>Chain</b> | <b>Residues</b> | <b>Atoms</b> |    | <b>ZeroOcc</b> | <b>AltConf</b> |
|------------|--------------|-----------------|--------------|----|----------------|----------------|
| 4          | P            | 29              | Total        | O  | 0              | 0              |
|            |              |                 | 29           | 29 |                |                |

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

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

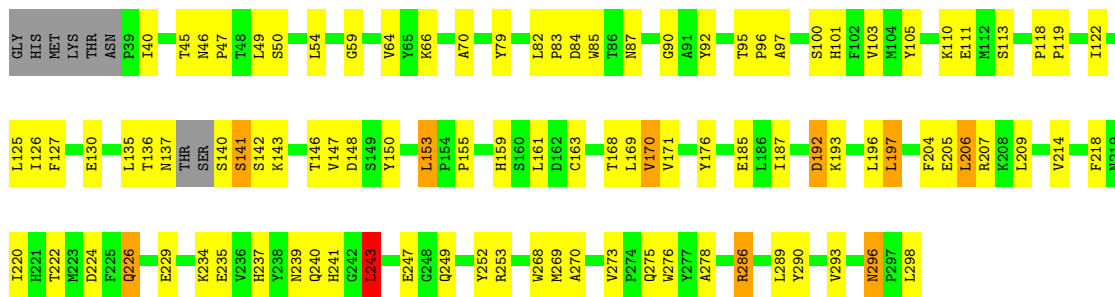
- Molecule 1: Ureidoglycine aminohydrolase

Chain A: 



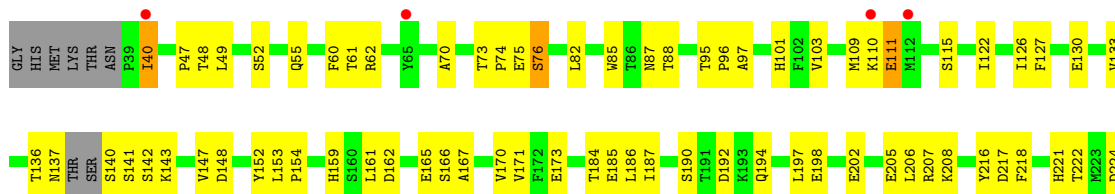
- Molecule 1: Ureidoglycine aminohydrolase

Chain B: 

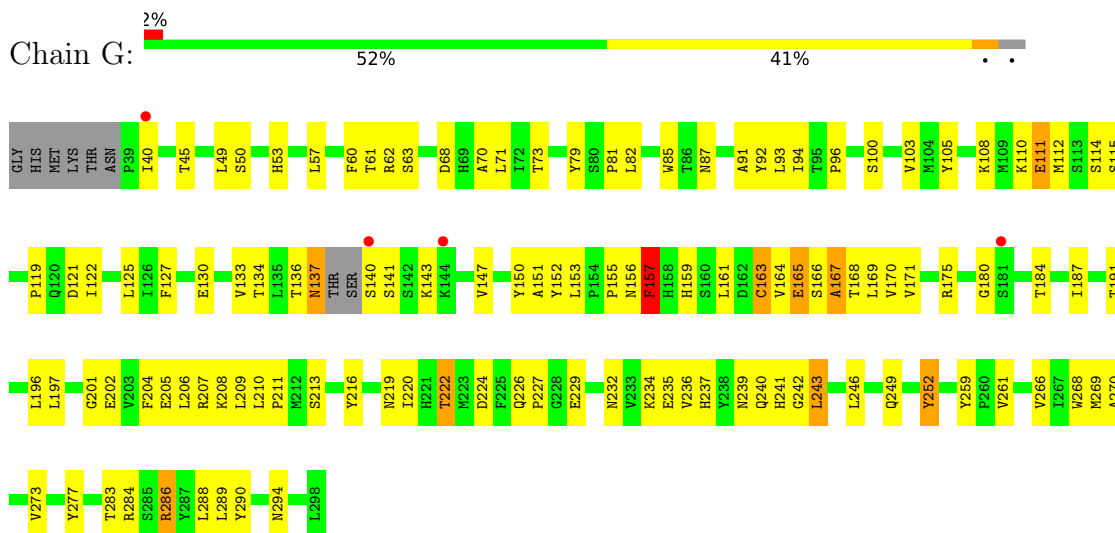


- Molecule 1: Ureidoglycine aminohydrolase

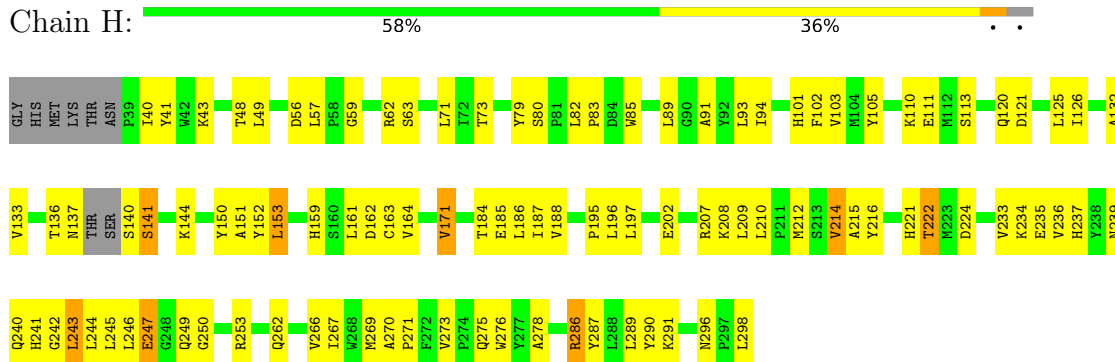
Chain C: 



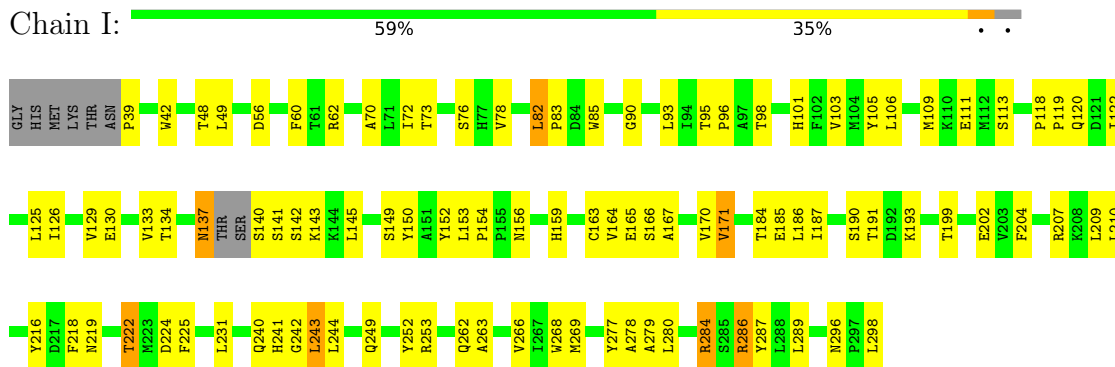




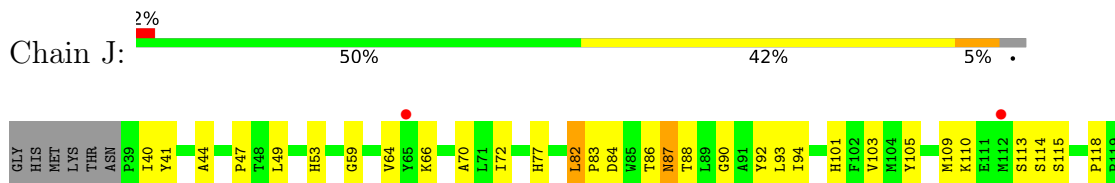
- Molecule 1: Ureidoglycine aminohydrolase

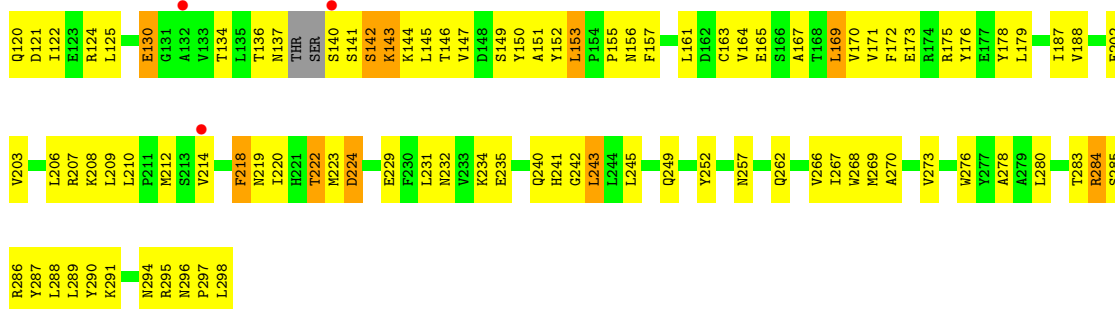


- Molecule 1: Ureidoglycine aminohydrolase

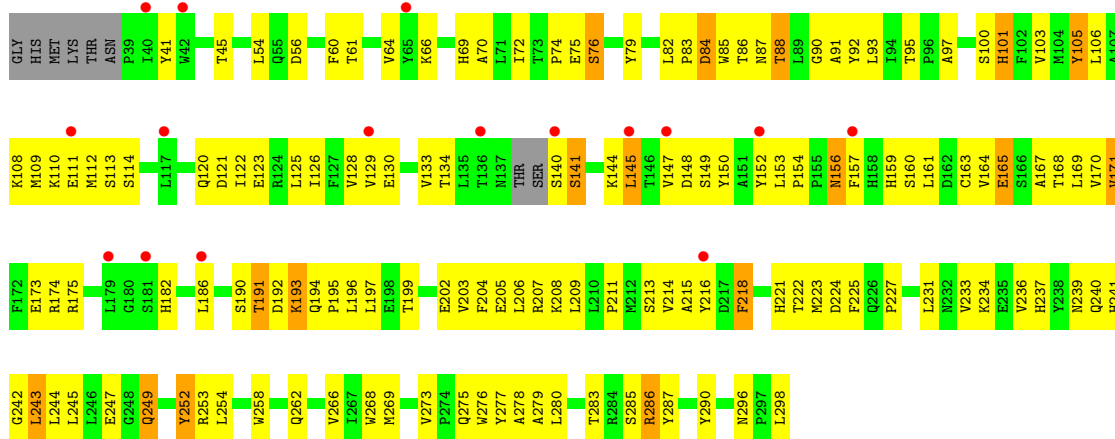


- Molecule 1: Ureidoglycine aminohydrolase

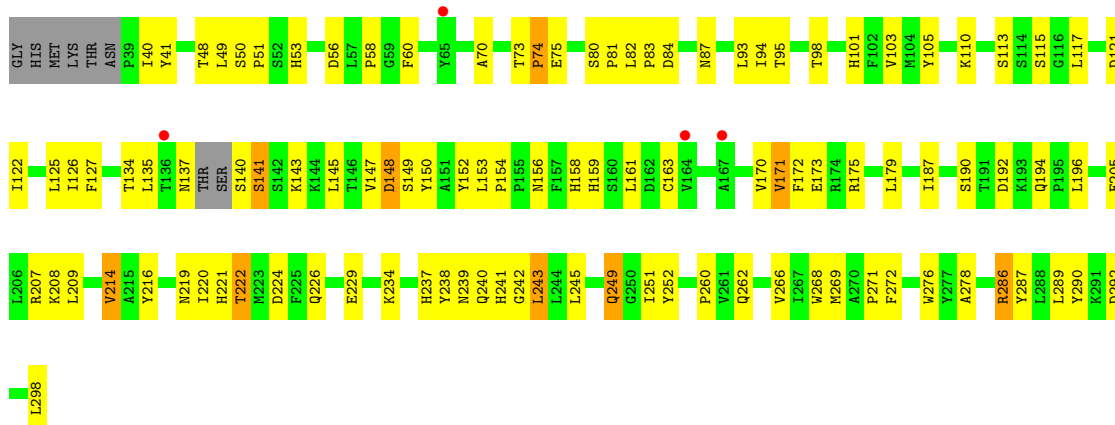




● Molecule 1: Ureidoglycine aminohydrolase



● Molecule 1: Ureidoglycine aminohydrolase



● Molecule 1: Ureidoglycine aminohydrolase







## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 1 21 1  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 93.10Å 174.89Å 154.30Å<br>90.00° 99.26° 90.00°              | Depositor        |
| Resolution (Å)  | 50.00 – 2.59<br>49.23 – 2.59                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 93.3 (50.00-2.59)<br>93.5 (49.23-2.59)                      | Depositor<br>EDS |
| $R_{merge}$   | (Not available)   | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 1.27 (at 2.58Å)   | Xtrriage         |
| Refinement program  | CNS 1.21  | Depositor        |
| R, $R_{free}$   | 0.209 , 0.271<br>0.201 , 0.262                              | Depositor<br>DCC |
| $R_{free}$ test set   | 14964 reflections (9.99%)                                   | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 43.1  | Xtrriage         |
| Anisotropy  | 0.217   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.34 , 49.2   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$ | Xtrriage         |
| Estimated twinning fraction   | No twinning to report.                                      | Xtrriage         |
| $F_o, F_c$ correlation  | 0.93  | EDS              |
| Total number of atoms   | 33974   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 40.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.63% 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: UGY, MN

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

| Mol | Chain | Bond lengths |         | Bond angles |                 |
|-----|-------|--------------|---------|-------------|-----------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5         |
| 1   | A     | 0.43         | 0/2140  | 0.67        | 1/2920 (0.0%)   |
| 1   | B     | 0.42         | 0/2140  | 0.68        | 1/2920 (0.0%)   |
| 1   | C     | 0.43         | 0/2140  | 0.68        | 1/2920 (0.0%)   |
| 1   | D     | 0.43         | 0/2140  | 0.67        | 1/2920 (0.0%)   |
| 1   | E     | 0.42         | 0/2140  | 0.70        | 1/2920 (0.0%)   |
| 1   | F     | 0.43         | 0/2140  | 0.68        | 2/2920 (0.1%)   |
| 1   | G     | 0.44         | 0/2140  | 0.68        | 1/2920 (0.0%)   |
| 1   | H     | 0.44         | 0/2140  | 0.69        | 1/2920 (0.0%)   |
| 1   | I     | 0.43         | 0/2140  | 0.67        | 1/2920 (0.0%)   |
| 1   | J     | 0.45         | 0/2140  | 0.67        | 1/2920 (0.0%)   |
| 1   | K     | 0.47         | 0/2140  | 0.68        | 1/2920 (0.0%)   |
| 1   | L     | 0.44         | 0/2140  | 0.69        | 1/2920 (0.0%)   |
| 1   | M     | 0.43         | 0/2140  | 0.67        | 0/2920          |
| 1   | N     | 0.45         | 0/2140  | 0.66        | 2/2920 (0.1%)   |
| 1   | O     | 0.45         | 0/2140  | 0.67        | 1/2920 (0.0%)   |
| 1   | P     | 0.45         | 0/2140  | 0.70        | 2/2920 (0.1%)   |
| All | All   | 0.44         | 0/34240 | 0.68        | 18/46720 (0.0%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1   | M     | 0                   | 1                   |

There are no bond length outliers.

All (18) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 1   | G     | 242 | GLY  | N-CA-C   | -6.82 | 96.06       | 113.10   |
| 1   | H     | 242 | GLY  | N-CA-C   | -6.10 | 97.85       | 113.10   |
| 1   | L     | 242 | GLY  | N-CA-C   | -6.09 | 97.87       | 113.10   |
| 1   | C     | 242 | GLY  | N-CA-C   | -6.08 | 97.89       | 113.10   |
| 1   | E     | 242 | GLY  | N-CA-C   | -6.08 | 97.89       | 113.10   |
| 1   | N     | 242 | GLY  | N-CA-C   | -5.97 | 98.17       | 113.10   |
| 1   | P     | 242 | GLY  | N-CA-C   | -5.93 | 98.27       | 113.10   |
| 1   | I     | 242 | GLY  | N-CA-C   | -5.90 | 98.34       | 113.10   |
| 1   | F     | 242 | GLY  | N-CA-C   | -5.84 | 98.49       | 113.10   |
| 1   | D     | 242 | GLY  | N-CA-C   | -5.84 | 98.49       | 113.10   |
| 1   | B     | 243 | LEU  | CA-CB-CG | 5.59  | 128.16      | 115.30   |
| 1   | J     | 242 | GLY  | N-CA-C   | -5.52 | 99.29       | 113.10   |
| 1   | A     | 242 | GLY  | N-CA-C   | -5.50 | 99.34       | 113.10   |
| 1   | P     | 243 | LEU  | CA-CB-CG | 5.49  | 127.92      | 115.30   |
| 1   | O     | 242 | GLY  | N-CA-C   | -5.47 | 99.43       | 113.10   |
| 1   | N     | 243 | LEU  | CA-CB-CG | 5.38  | 127.67      | 115.30   |
| 1   | K     | 242 | GLY  | N-CA-C   | -5.31 | 99.83       | 113.10   |
| 1   | F     | 243 | LEU  | CA-CB-CG | 5.20  | 127.27      | 115.30   |

There are no chirality outliers.

All (1) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 1   | M     | 216 | TYR  | Sidechain |

## 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     | 2076  | 0        | 2034     | 76      | 0            |
| 1   | B     | 2076  | 0        | 2034     | 84      | 0            |
| 1   | C     | 2076  | 0        | 2034     | 83      | 0            |
| 1   | D     | 2076  | 0        | 2034     | 107     | 0            |
| 1   | E     | 2076  | 0        | 2034     | 98      | 0            |
| 1   | F     | 2076  | 0        | 2034     | 96      | 0            |
| 1   | G     | 2076  | 0        | 2034     | 106     | 0            |
| 1   | H     | 2076  | 0        | 2034     | 97      | 0            |
| 1   | I     | 2076  | 0        | 2034     | 81      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | J     | 2076  | 0        | 2034     | 118     | 0            |
| 1   | K     | 2076  | 0        | 2034     | 162     | 0            |
| 1   | L     | 2076  | 0        | 2034     | 98      | 0            |
| 1   | M     | 2076  | 0        | 2034     | 95      | 0            |
| 1   | N     | 2076  | 0        | 2034     | 89      | 0            |
| 1   | O     | 2076  | 0        | 2034     | 102     | 0            |
| 1   | P     | 2076  | 0        | 2034     | 138     | 0            |
| 2   | A     | 1     | 0        | 0        | 0       | 0            |
| 2   | B     | 1     | 0        | 0        | 0       | 0            |
| 2   | C     | 1     | 0        | 0        | 0       | 0            |
| 2   | D     | 1     | 0        | 0        | 0       | 0            |
| 2   | E     | 1     | 0        | 0        | 0       | 0            |
| 2   | F     | 1     | 0        | 0        | 0       | 0            |
| 2   | G     | 1     | 0        | 0        | 0       | 0            |
| 2   | H     | 1     | 0        | 0        | 0       | 0            |
| 2   | I     | 1     | 0        | 0        | 0       | 0            |
| 2   | J     | 1     | 0        | 0        | 0       | 0            |
| 2   | K     | 1     | 0        | 0        | 0       | 0            |
| 2   | L     | 1     | 0        | 0        | 0       | 0            |
| 2   | M     | 1     | 0        | 0        | 0       | 0            |
| 2   | N     | 1     | 0        | 0        | 0       | 0            |
| 2   | O     | 1     | 0        | 0        | 0       | 0            |
| 2   | P     | 1     | 0        | 0        | 0       | 0            |
| 3   | A     | 9     | 0        | 5        | 0       | 0            |
| 3   | B     | 9     | 0        | 5        | 0       | 0            |
| 3   | C     | 9     | 0        | 6        | 0       | 0            |
| 3   | D     | 9     | 0        | 6        | 0       | 0            |
| 3   | E     | 9     | 0        | 5        | 0       | 0            |
| 3   | F     | 9     | 0        | 6        | 0       | 0            |
| 3   | G     | 9     | 0        | 5        | 0       | 0            |
| 3   | H     | 9     | 0        | 6        | 1       | 0            |
| 3   | I     | 9     | 0        | 5        | 0       | 0            |
| 3   | J     | 9     | 0        | 5        | 1       | 0            |
| 3   | K     | 9     | 0        | 6        | 0       | 0            |
| 3   | L     | 9     | 0        | 5        | 0       | 0            |
| 3   | M     | 9     | 0        | 6        | 0       | 0            |
| 3   | N     | 9     | 0        | 6        | 0       | 0            |
| 3   | O     | 9     | 0        | 5        | 0       | 0            |
| 3   | P     | 9     | 0        | 6        | 0       | 0            |
| 4   | A     | 54    | 0        | 0        | 1       | 0            |
| 4   | B     | 41    | 0        | 0        | 3       | 0            |
| 4   | C     | 40    | 0        | 0        | 2       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 4   | D     | 35    | 0        | 0        | 0       | 0            |
| 4   | E     | 38    | 0        | 0        | 1       | 0            |
| 4   | F     | 42    | 0        | 0        | 2       | 0            |
| 4   | G     | 38    | 0        | 0        | 3       | 0            |
| 4   | H     | 36    | 0        | 0        | 2       | 0            |
| 4   | I     | 38    | 0        | 0        | 1       | 0            |
| 4   | J     | 30    | 0        | 0        | 3       | 0            |
| 4   | K     | 34    | 0        | 0        | 3       | 0            |
| 4   | L     | 30    | 0        | 0        | 1       | 0            |
| 4   | M     | 40    | 0        | 0        | 2       | 0            |
| 4   | N     | 35    | 0        | 0        | 1       | 0            |
| 4   | O     | 38    | 0        | 0        | 1       | 0            |
| 4   | P     | 29    | 0        | 0        | 3       | 0            |
| All | All   | 33974 | 0        | 32632    | 1541    | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 23.

All (1541) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:122:ILE:HD13 | 1:K:298:LEU:HD13 | 1.30                     | 1.09              |
| 1:D:82:LEU:HD13  | 1:D:90:GLY:HA3   | 1.34                     | 1.07              |
| 1:P:87:ASN:HD21  | 1:P:110:LYS:HD2  | 1.19                     | 1.02              |
| 1:G:164:VAL:HG23 | 1:G:165:GLU:H    | 1.27                     | 0.99              |
| 1:D:40:ILE:H     | 1:D:40:ILE:HD12  | 1.24                     | 0.99              |
| 1:B:82:LEU:HD13  | 1:B:90:GLY:HA3   | 1.45                     | 0.99              |
| 1:C:115:SER:HB3  | 1:C:161:LEU:HB2  | 1.45                     | 0.98              |
| 1:P:196:LEU:HD21 | 1:P:207:ARG:HH21 | 1.27                     | 0.97              |
| 1:P:133:VAL:HG12 | 1:P:163:CYS:HB2  | 1.45                     | 0.96              |
| 1:F:224:ASP:OD1  | 1:F:286:ARG:HD3  | 1.66                     | 0.95              |
| 1:K:224:ASP:OD2  | 1:K:286:ARG:HD3  | 1.66                     | 0.95              |
| 1:N:40:ILE:H     | 1:N:40:ILE:HD12  | 1.31                     | 0.94              |
| 1:G:87:ASN:OD1   | 1:G:110:LYS:HB2  | 1.67                     | 0.93              |
| 1:P:40:ILE:H     | 1:P:40:ILE:HD12  | 1.35                     | 0.92              |
| 1:J:143:LYS:H    | 1:J:143:LYS:HD2  | 1.33                     | 0.92              |
| 1:G:137:ASN:C    | 1:G:137:ASN:HD22 | 1.73                     | 0.91              |
| 1:B:101:HIS:H    | 1:B:240:GLN:HE22 | 1.19                     | 0.91              |
| 1:E:82:LEU:HD13  | 1:E:90:GLY:HA3   | 1.50                     | 0.91              |
| 1:D:296:ASN:ND2  | 1:D:298:LEU:H    | 1.69                     | 0.91              |
| 1:L:70:ALA:HB3   | 1:L:268:TRP:HB3  | 1.55                     | 0.89              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:87:ASN:ND2   | 1:K:110:LYS:HB2  | 1.89                     | 0.88              |
| 1:H:82:LEU:HD12  | 1:H:83:PRO:HD2   | 1.55                     | 0.87              |
| 1:P:87:ASN:HD21  | 1:P:110:LYS:CD   | 1.86                     | 0.87              |
| 1:N:133:VAL:HG23 | 1:N:163:CYS:HB2  | 1.56                     | 0.86              |
| 1:B:222:THR:HG23 | 1:B:286:ARG:HD2  | 1.56                     | 0.85              |
| 1:J:82:LEU:HD13  | 1:J:90:GLY:HA3   | 1.58                     | 0.85              |
| 1:N:202:GLU:OE1  | 1:N:233:VAL:HG12 | 1.75                     | 0.85              |
| 1:P:130:GLU:HA   | 1:P:147:VAL:HG22 | 1.56                     | 0.85              |
| 1:K:193:LYS:HE3  | 1:K:193:LYS:HA   | 1.56                     | 0.85              |
| 1:K:190:SER:H    | 1:K:193:LYS:HB2  | 1.42                     | 0.84              |
| 1:B:137:ASN:HA   | 4:B:402:HOH:O    | 1.77                     | 0.84              |
| 1:D:296:ASN:HD22 | 1:D:298:LEU:H    | 1.19                     | 0.84              |
| 1:P:296:ASN:HD22 | 1:P:298:LEU:H    | 1.20                     | 0.84              |
| 1:C:154:PRO:HG2  | 1:C:185:GLU:HA   | 1.60                     | 0.83              |
| 1:D:196:LEU:HD11 | 1:D:207:ARG:NH2  | 1.92                     | 0.83              |
| 1:M:224:ASP:OD2  | 1:M:286:ARG:HD3  | 1.79                     | 0.83              |
| 1:A:239:ASN:H    | 1:A:239:ASN:HD22 | 1.24                     | 0.82              |
| 1:C:207:ARG:HB2  | 1:C:222:THR:HG22 | 1.60                     | 0.82              |
| 1:K:194:GLN:HE21 | 1:K:195:PRO:HD2  | 1.42                     | 0.82              |
| 1:A:224:ASP:OD2  | 1:A:286:ARG:HD3  | 1.80                     | 0.82              |
| 1:E:113:SER:OG   | 1:E:163:CYS:HB3  | 1.79                     | 0.82              |
| 1:P:137:ASN:HA   | 1:P:159:HIS:HA   | 1.60                     | 0.82              |
| 1:J:169:LEU:N    | 1:J:169:LEU:HD23 | 1.96                     | 0.81              |
| 1:B:126:ILE:HD13 | 1:B:161:LEU:HD11 | 1.62                     | 0.81              |
| 1:O:247:GLU:HG2  | 1:O:286:ARG:HB3  | 1.63                     | 0.81              |
| 1:P:296:ASN:ND2  | 1:P:298:LEU:H    | 1.77                     | 0.81              |
| 1:D:224:ASP:OD2  | 1:D:286:ARG:HD3  | 1.81                     | 0.80              |
| 1:D:165:GLU:HG3  | 1:E:165:GLU:OE1  | 1.80                     | 0.80              |
| 1:A:40:ILE:HD12  | 1:A:40:ILE:H     | 1.46                     | 0.80              |
| 1:H:137:ASN:HA   | 1:H:159:HIS:HA   | 1.63                     | 0.80              |
| 1:G:40:ILE:HD12  | 1:G:40:ILE:H     | 1.47                     | 0.80              |
| 1:I:243:LEU:HD12 | 1:I:244:LEU:N    | 1.96                     | 0.80              |
| 1:N:296:ASN:HD22 | 1:N:298:LEU:H    | 1.29                     | 0.80              |
| 1:C:234:LYS:HG2  | 1:G:61:THR:HB    | 1.63                     | 0.80              |
| 1:N:87:ASN:ND2   | 1:N:110:LYS:HB2  | 1.96                     | 0.79              |
| 1:P:196:LEU:CD2  | 1:P:207:ARG:HH21 | 1.94                     | 0.79              |
| 1:B:40:ILE:HD12  | 1:B:40:ILE:H     | 1.48                     | 0.79              |
| 1:K:190:SER:O    | 1:K:193:LYS:N    | 2.14                     | 0.79              |
| 1:O:110:LYS:HE2  | 1:O:110:LYS:HA   | 1.63                     | 0.79              |
| 1:B:224:ASP:OD2  | 1:B:286:ARG:HD3  | 1.82                     | 0.79              |
| 1:H:224:ASP:OD1  | 1:H:286:ARG:HD3  | 1.83                     | 0.78              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:70:ALA:HB3   | 1:K:268:TRP:HB3  | 1.64                     | 0.78              |
| 1:P:64:VAL:HG11  | 1:P:66:LYS:NZ    | 1.99                     | 0.78              |
| 1:K:145:LEU:HD13 | 1:K:149:SER:HB3  | 1.64                     | 0.78              |
| 1:F:111:GLU:HA   | 1:F:164:VAL:O    | 1.84                     | 0.78              |
| 1:J:87:ASN:ND2   | 1:J:110:LYS:HB2  | 1.98                     | 0.78              |
| 1:N:190:SER:HB3  | 1:N:192:ASP:OD1  | 1.83                     | 0.78              |
| 1:E:101:HIS:H    | 1:E:240:GLN:HE22 | 1.30                     | 0.78              |
| 1:L:40:ILE:HD12  | 1:L:40:ILE:H     | 1.48                     | 0.78              |
| 1:B:119:PRO:HD2  | 1:B:122:ILE:HG13 | 1.66                     | 0.78              |
| 1:N:93:LEU:HD13  | 1:N:266:VAL:HG21 | 1.64                     | 0.77              |
| 1:G:70:ALA:HB3   | 1:G:268:TRP:HB3  | 1.66                     | 0.77              |
| 1:K:64:VAL:HG11  | 1:K:66:LYS:HE3   | 1.66                     | 0.77              |
| 1:K:211:PRO:HD2  | 1:K:216:TYR:CE2  | 2.20                     | 0.77              |
| 1:I:224:ASP:OD2  | 1:I:286:ARG:HD3  | 1.83                     | 0.77              |
| 1:O:296:ASN:HD22 | 1:O:298:LEU:H    | 1.33                     | 0.77              |
| 1:J:146:THR:O    | 1:J:149:SER:HB3  | 1.85                     | 0.77              |
| 1:A:40:ILE:HD12  | 1:A:40:ILE:N     | 1.99                     | 0.76              |
| 1:L:87:ASN:ND2   | 1:L:110:LYS:HB2  | 2.00                     | 0.76              |
| 1:K:126:ILE:HG22 | 1:K:171:VAL:HB   | 1.67                     | 0.76              |
| 1:G:196:LEU:HD22 | 1:G:205:GLU:HB3  | 1.67                     | 0.76              |
| 1:P:153:LEU:HD13 | 1:P:159:HIS:CD2  | 2.20                     | 0.76              |
| 1:O:64:VAL:HG11  | 1:O:66:LYS:HE3   | 1.65                     | 0.76              |
| 1:K:92:TYR:CE1   | 1:K:105:TYR:HD2  | 2.04                     | 0.76              |
| 1:N:115:SER:HB3  | 1:N:161:LEU:HB2  | 1.66                     | 0.76              |
| 1:P:224:ASP:OD1  | 1:P:286:ARG:HG3  | 1.84                     | 0.76              |
| 1:G:115:SER:HB3  | 1:G:161:LEU:HB2  | 1.66                     | 0.76              |
| 1:J:152:TYR:C    | 1:J:153:LEU:HD23 | 2.06                     | 0.76              |
| 1:N:137:ASN:HB2  | 1:N:140:SER:HB3  | 1.68                     | 0.76              |
| 1:N:61:THR:HB    | 1:O:234:LYS:HG2  | 1.66                     | 0.76              |
| 1:P:133:VAL:HG12 | 1:P:163:CYS:CB   | 2.16                     | 0.76              |
| 1:L:48:THR:HG21  | 1:N:55:GLN:HG2   | 1.66                     | 0.75              |
| 1:I:93:LEU:HD12  | 1:I:105:TYR:HA   | 1.67                     | 0.75              |
| 1:P:191:THR:HG21 | 1:P:286:ARG:NH2  | 2.00                     | 0.75              |
| 1:J:175:ARG:HG3  | 1:J:175:ARG:HH11 | 1.50                     | 0.75              |
| 1:N:82:LEU:HD13  | 1:N:90:GLY:HA3   | 1.69                     | 0.75              |
| 1:C:137:ASN:HD21 | 1:C:140:SER:HB2  | 1.52                     | 0.74              |
| 1:E:93:LEU:HD13  | 1:E:266:VAL:HG21 | 1.67                     | 0.74              |
| 1:L:121:ASP:H    | 1:L:156:ASN:HD21 | 1.32                     | 0.74              |
| 1:K:241:HIS:HB2  | 1:K:269:MET:HB2  | 1.68                     | 0.74              |
| 1:P:154:PRO:HG2  | 1:P:185:GLU:HA   | 1.70                     | 0.74              |
| 1:B:45:THR:HG22  | 1:B:46:ASN:OD1   | 1.88                     | 0.74              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:127:PHE:HB3  | 1:D:170:VAL:CG1  | 2.18                     | 0.74              |
| 1:P:135:LEU:HD23 | 1:P:136:THR:N    | 2.03                     | 0.74              |
| 1:K:79:TYR:HA    | 1:K:91:ALA:HB2   | 1.69                     | 0.73              |
| 1:D:119:PRO:HB2  | 1:D:122:ILE:HD12 | 1.68                     | 0.73              |
| 1:L:190:SER:HB3  | 1:L:192:ASP:OD1  | 1.88                     | 0.73              |
| 1:A:133:VAL:HG23 | 1:A:162:ASP:O    | 1.88                     | 0.73              |
| 1:K:211:PRO:HB2  | 1:K:216:TYR:HE2  | 1.52                     | 0.73              |
| 1:L:224:ASP:OD2  | 1:L:286:ARG:HD3  | 1.89                     | 0.73              |
| 1:J:241:HIS:ND1  | 1:J:289:LEU:HD11 | 2.04                     | 0.73              |
| 1:K:222:THR:HG23 | 1:K:286:ARG:HD2  | 1.69                     | 0.73              |
| 1:L:93:LEU:HD13  | 1:L:266:VAL:HG21 | 1.71                     | 0.73              |
| 1:C:197:LEU:HD12 | 1:C:208:LYS:HG3  | 1.71                     | 0.73              |
| 1:P:85:TRP:CE3   | 1:P:88:THR:HG21  | 2.23                     | 0.73              |
| 1:O:296:ASN:ND2  | 1:O:298:LEU:HB2  | 2.04                     | 0.72              |
| 1:D:296:ASN:HD22 | 1:D:298:LEU:N    | 1.87                     | 0.72              |
| 1:I:243:LEU:HD13 | 1:I:287:TYR:HB2  | 1.70                     | 0.72              |
| 1:P:151:ALA:HA   | 1:P:187:ILE:O    | 1.89                     | 0.72              |
| 1:J:93:LEU:HD13  | 1:J:266:VAL:HG21 | 1.71                     | 0.72              |
| 1:O:190:SER:HB2  | 1:O:193:LYS:HG2  | 1.72                     | 0.72              |
| 1:H:82:LEU:HG    | 1:H:85:TRP:CD1   | 2.25                     | 0.72              |
| 1:L:153:LEU:HD22 | 1:L:159:HIS:CG   | 2.25                     | 0.72              |
| 1:C:40:ILE:N     | 1:C:40:ILE:HD12  | 2.04                     | 0.72              |
| 1:M:126:ILE:HG22 | 1:M:171:VAL:HB   | 1.71                     | 0.72              |
| 1:I:109:MET:O    | 1:I:166:SER:HA   | 1.88                     | 0.71              |
| 1:K:194:GLN:HA   | 1:K:194:GLN:NE2  | 2.05                     | 0.71              |
| 1:F:296:ASN:HD22 | 1:F:298:LEU:HB2  | 1.54                     | 0.71              |
| 1:K:66:LYS:HD2   | 1:K:69:HIS:CE1   | 2.25                     | 0.71              |
| 1:C:40:ILE:HD13  | 1:C:147:VAL:HG11 | 1.72                     | 0.71              |
| 1:I:93:LEU:HD22  | 1:I:266:VAL:HG21 | 1.71                     | 0.71              |
| 1:G:121:ASP:H    | 1:G:156:ASN:HD21 | 1.37                     | 0.71              |
| 1:P:87:ASN:ND2   | 1:P:110:LYS:HD2  | 2.00                     | 0.71              |
| 1:E:61:THR:HG22  | 1:P:253:ARG:HH12 | 1.56                     | 0.71              |
| 1:K:83:PRO:O     | 1:K:85:TRP:HD1   | 1.74                     | 0.70              |
| 1:E:153:LEU:HD13 | 1:E:159:HIS:NE2  | 2.07                     | 0.70              |
| 1:H:150:TYR:CE2  | 1:H:209:LEU:HB3  | 2.24                     | 0.70              |
| 1:E:111:GLU:HA   | 1:E:165:GLU:HA   | 1.72                     | 0.70              |
| 1:F:296:ASN:ND2  | 1:F:298:LEU:HB2  | 2.05                     | 0.70              |
| 1:L:147:VAL:O    | 1:L:148:ASP:HB2  | 1.92                     | 0.70              |
| 1:A:296:ASN:HD22 | 1:A:298:LEU:H    | 1.39                     | 0.70              |
| 1:K:193:LYS:HA   | 1:K:193:LYS:CE   | 2.20                     | 0.70              |
| 1:P:101:HIS:H    | 1:P:240:GLN:HE22 | 1.39                     | 0.70              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:247:GLU:HG3  | 1:H:286:ARG:HB3  | 1.74                     | 0.70              |
| 1:K:170:VAL:O    | 1:K:170:VAL:HG13 | 1.91                     | 0.70              |
| 1:H:202:GLU:OE2  | 1:H:233:VAL:HG12 | 1.91                     | 0.70              |
| 1:K:227:PRO:HG3  | 1:K:283:THR:O    | 1.92                     | 0.70              |
| 1:D:59:GLY:O     | 1:K:253:ARG:NH1  | 2.25                     | 0.69              |
| 1:D:153:LEU:HD13 | 1:D:159:HIS:CD2  | 2.27                     | 0.69              |
| 1:P:111:GLU:H    | 1:P:111:GLU:CD   | 1.96                     | 0.69              |
| 1:J:169:LEU:HD23 | 1:J:169:LEU:H    | 1.55                     | 0.69              |
| 1:J:176:TYR:HE2  | 1:J:178:TYR:HA   | 1.57                     | 0.69              |
| 1:K:86:THR:OG1   | 1:K:114:SER:N    | 2.26                     | 0.69              |
| 1:M:110:LYS:HE2  | 1:M:110:LYS:HA   | 1.75                     | 0.69              |
| 1:A:128:VAL:HG12 | 1:A:147:VAL:HA   | 1.74                     | 0.69              |
| 1:H:184:THR:HB   | 1:H:216:TYR:CE1  | 2.27                     | 0.69              |
| 1:B:101:HIS:N    | 1:B:240:GLN:HE22 | 1.91                     | 0.69              |
| 1:G:164:VAL:HG23 | 1:G:165:GLU:N    | 2.05                     | 0.69              |
| 1:J:113:SER:OG   | 1:J:163:CYS:HB3  | 1.93                     | 0.69              |
| 1:K:72:ILE:HD12  | 1:K:72:ILE:N     | 2.07                     | 0.69              |
| 1:K:109:MET:HB2  | 1:K:167:ALA:HB3  | 1.74                     | 0.69              |
| 1:D:93:LEU:HD13  | 1:D:266:VAL:HG21 | 1.75                     | 0.69              |
| 1:G:122:ILE:HD13 | 1:G:175:ARG:HA   | 1.74                     | 0.69              |
| 1:J:124:ARG:O    | 1:J:153:LEU:HG   | 1.92                     | 0.69              |
| 1:E:39:PRO:HB2   | 1:E:42:TRP:HB2   | 1.74                     | 0.69              |
| 1:F:101:HIS:H    | 1:F:240:GLN:HE22 | 1.41                     | 0.69              |
| 1:G:175:ARG:HH11 | 1:G:175:ARG:HG3  | 1.57                     | 0.69              |
| 1:H:136:THR:HG22 | 1:H:137:ASN:H    | 1.57                     | 0.68              |
| 1:N:137:ASN:CB   | 1:N:140:SER:HB3  | 2.22                     | 0.68              |
| 1:C:70:ALA:HB3   | 1:C:268:TRP:HB3  | 1.75                     | 0.68              |
| 1:O:165:GLU:HG3  | 1:O:166:SER:H    | 1.57                     | 0.68              |
| 1:K:243:LEU:HD13 | 1:K:287:TYR:HB2  | 1.74                     | 0.68              |
| 1:J:224:ASP:OD1  | 1:J:286:ARG:HD3  | 1.93                     | 0.68              |
| 1:K:145:LEU:HD13 | 1:K:149:SER:CB   | 2.23                     | 0.68              |
| 1:D:154:PRO:HG2  | 1:D:185:GLU:HA   | 1.76                     | 0.68              |
| 1:A:207:ARG:HB2  | 1:A:222:THR:HG22 | 1.76                     | 0.68              |
| 1:D:121:ASP:H    | 1:D:156:ASN:HD21 | 1.41                     | 0.68              |
| 1:J:87:ASN:HD21  | 1:J:110:LYS:HB2  | 1.59                     | 0.67              |
| 1:O:70:ALA:HB3   | 1:O:268:TRP:HB3  | 1.76                     | 0.67              |
| 1:D:64:VAL:HG11  | 1:D:66:LYS:HE3   | 1.75                     | 0.67              |
| 1:K:190:SER:N    | 1:K:193:LYS:HB2  | 2.07                     | 0.67              |
| 1:K:190:SER:O    | 1:K:192:ASP:N    | 2.28                     | 0.67              |
| 1:K:103:VAL:CG2  | 1:K:173:GLU:HB2  | 2.25                     | 0.67              |
| 1:I:93:LEU:HD11  | 1:I:106:LEU:HG   | 1.76                     | 0.67              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:298:LEU:HD13 | 1:K:122:ILE:HD12 | 1.76                     | 0.67              |
| 1:K:130:GLU:HA   | 1:K:147:VAL:HG22 | 1.77                     | 0.67              |
| 1:B:127:PHE:HB3  | 1:B:170:VAL:HG13 | 1.76                     | 0.67              |
| 1:H:132:ALA:HB1  | 1:H:144:LYS:HE3  | 1.75                     | 0.67              |
| 1:D:101:HIS:H    | 1:D:240:GLN:HE22 | 1.41                     | 0.67              |
| 1:K:194:GLN:NE2  | 1:K:195:PRO:HD2  | 2.10                     | 0.67              |
| 1:K:114:SER:HA   | 1:K:161:LEU:O    | 1.96                     | 0.66              |
| 1:L:140:SER:O    | 1:L:141:SER:HB3  | 1.94                     | 0.66              |
| 1:M:237:HIS:CE1  | 1:M:239:ASN:HB2  | 2.30                     | 0.66              |
| 1:A:82:LEU:HD13  | 1:A:90:GLY:HA3   | 1.76                     | 0.66              |
| 1:F:93:LEU:HD13  | 1:F:266:VAL:HG21 | 1.76                     | 0.66              |
| 1:J:130:GLU:HA   | 1:J:147:VAL:HG22 | 1.76                     | 0.66              |
| 1:G:40:ILE:HD12  | 1:G:40:ILE:N     | 2.09                     | 0.66              |
| 1:N:241:HIS:HB2  | 1:N:269:MET:HB2  | 1.78                     | 0.66              |
| 1:C:207:ARG:HB2  | 1:C:222:THR:CG2  | 2.25                     | 0.66              |
| 1:G:224:ASP:OD2  | 1:G:286:ARG:HB2  | 1.96                     | 0.66              |
| 1:K:112:MET:N    | 1:K:164:VAL:O    | 2.25                     | 0.66              |
| 1:L:196:LEU:HD11 | 1:L:207:ARG:HH21 | 1.60                     | 0.66              |
| 1:F:241:HIS:HB2  | 1:F:269:MET:HB2  | 1.78                     | 0.66              |
| 1:H:93:LEU:HD13  | 1:H:266:VAL:HG21 | 1.77                     | 0.66              |
| 1:G:127:PHE:HB3  | 1:G:170:VAL:HG13 | 1.78                     | 0.66              |
| 1:D:82:LEU:CD1   | 1:D:90:GLY:HA3   | 2.20                     | 0.65              |
| 1:O:72:ILE:HD12  | 1:O:72:ILE:H     | 1.61                     | 0.65              |
| 1:A:296:ASN:ND2  | 1:A:298:LEU:HB2  | 2.11                     | 0.65              |
| 1:G:62:ARG:HB2   | 1:G:73:THR:HG21  | 1.78                     | 0.65              |
| 1:N:70:ALA:HB3   | 1:N:268:TRP:HB3  | 1.78                     | 0.65              |
| 1:P:64:VAL:HG11  | 1:P:66:LYS:HZ2   | 1.58                     | 0.65              |
| 1:G:137:ASN:C    | 1:G:137:ASN:ND2  | 2.46                     | 0.65              |
| 1:M:133:VAL:HG22 | 1:M:134:THR:H    | 1.62                     | 0.65              |
| 1:P:241:HIS:HB2  | 1:P:269:MET:HB2  | 1.78                     | 0.65              |
| 1:L:127:PHE:HB3  | 1:L:170:VAL:HG13 | 1.79                     | 0.65              |
| 1:L:220:ILE:HD13 | 1:L:290:TYR:HA   | 1.79                     | 0.65              |
| 1:L:298:LEU:HD23 | 1:P:103:VAL:HG13 | 1.79                     | 0.65              |
| 1:C:136:THR:HG22 | 1:C:142:SER:HB2  | 1.78                     | 0.65              |
| 1:G:236:VAL:HG23 | 1:I:76:SER:HB3   | 1.79                     | 0.65              |
| 1:K:164:VAL:HG23 | 1:K:165:GLU:N    | 2.12                     | 0.65              |
| 1:C:202:GLU:OE2  | 1:C:233:VAL:HG12 | 1.96                     | 0.64              |
| 1:D:70:ALA:HB3   | 1:D:268:TRP:HB3  | 1.79                     | 0.64              |
| 1:B:241:HIS:HB2  | 1:B:269:MET:HB2  | 1.78                     | 0.64              |
| 1:H:40:ILE:HD12  | 1:H:40:ILE:H     | 1.61                     | 0.64              |
| 1:H:296:ASN:ND2  | 1:H:298:LEU:HB3  | 2.12                     | 0.64              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:185:GLU:HG3  | 1:I:216:TYR:OH   | 1.97                     | 0.64              |
| 1:B:101:HIS:H    | 1:B:240:GLN:NE2  | 1.91                     | 0.64              |
| 1:G:40:ILE:HB    | 1:G:147:VAL:HG11 | 1.79                     | 0.64              |
| 1:P:150:TYR:CE2  | 1:P:209:LEU:HB3  | 2.32                     | 0.64              |
| 1:E:152:TYR:HB3  | 1:E:187:ILE:HB   | 1.78                     | 0.64              |
| 1:I:72:ILE:HD12  | 1:I:72:ILE:N     | 2.13                     | 0.64              |
| 1:L:234:LYS:HD2  | 1:L:234:LYS:N    | 2.11                     | 0.64              |
| 1:C:111:GLU:CD   | 1:C:111:GLU:H    | 2.00                     | 0.64              |
| 1:A:94:ILE:CD1   | 1:A:268:TRP:HB2  | 2.27                     | 0.64              |
| 1:H:82:LEU:HD12  | 1:H:83:PRO:CD    | 2.27                     | 0.64              |
| 1:K:111:GLU:HA   | 1:K:164:VAL:O    | 1.97                     | 0.64              |
| 1:O:64:VAL:CG1   | 1:O:66:LYS:HE3   | 2.28                     | 0.64              |
| 1:B:153:LEU:HD13 | 1:B:159:HIS:NE2  | 2.13                     | 0.64              |
| 1:C:224:ASP:OD2  | 1:C:286:ARG:HD3  | 1.98                     | 0.64              |
| 1:J:64:VAL:HG11  | 1:J:66:LYS:NZ    | 2.13                     | 0.64              |
| 1:C:109:MET:O    | 1:C:166:SER:HA   | 1.98                     | 0.64              |
| 1:I:120:GLN:HG3  | 1:I:156:ASN:HD21 | 1.62                     | 0.64              |
| 1:K:222:THR:CG2  | 1:K:286:ARG:HD2  | 2.27                     | 0.64              |
| 1:N:128:VAL:HA   | 1:N:169:LEU:HD23 | 1.80                     | 0.64              |
| 1:E:243:LEU:HD12 | 1:E:244:LEU:N    | 2.13                     | 0.64              |
| 1:P:121:ASP:H    | 1:P:156:ASN:HD21 | 1.44                     | 0.64              |
| 1:F:127:PHE:HB3  | 1:F:170:VAL:CG1  | 2.26                     | 0.64              |
| 1:O:137:ASN:ND2  | 1:O:140:SER:CB   | 2.61                     | 0.63              |
| 1:P:164:VAL:HG23 | 1:P:165:GLU:H    | 1.63                     | 0.63              |
| 1:D:196:LEU:HD11 | 1:D:207:ARG:CZ   | 2.28                     | 0.63              |
| 1:K:252:TYR:CD1  | 1:K:277:TYR:HD1  | 2.16                     | 0.63              |
| 1:P:168:THR:O    | 1:P:169:LEU:HD23 | 1.98                     | 0.63              |
| 1:F:82:LEU:CD1   | 1:F:90:GLY:HA3   | 2.29                     | 0.63              |
| 1:J:164:VAL:HG23 | 1:J:165:GLU:HG3  | 1.79                     | 0.63              |
| 1:E:164:VAL:HG13 | 1:E:165:GLU:HG2  | 1.80                     | 0.63              |
| 1:N:206:LEU:HD12 | 1:N:207:ARG:H    | 1.63                     | 0.63              |
| 1:P:154:PRO:HG2  | 1:P:185:GLU:CA   | 2.29                     | 0.63              |
| 1:B:87:ASN:ND2   | 1:B:110:LYS:HB2  | 2.13                     | 0.63              |
| 1:E:296:ASN:HD22 | 1:E:298:LEU:HB2  | 1.63                     | 0.63              |
| 1:H:245:LEU:HD12 | 1:H:287:TYR:HB3  | 1.80                     | 0.63              |
| 1:A:207:ARG:HB2  | 1:A:222:THR:CG2  | 2.29                     | 0.63              |
| 1:F:152:TYR:HB3  | 1:F:187:ILE:HB   | 1.81                     | 0.63              |
| 1:H:103:VAL:HG13 | 1:N:298:LEU:HG   | 1.80                     | 0.63              |
| 1:I:137:ASN:HB3  | 4:I:409:HOH:O    | 1.97                     | 0.63              |
| 1:I:243:LEU:CD1  | 1:I:287:TYR:HB2  | 2.27                     | 0.63              |
| 1:J:120:GLN:HG2  | 1:J:121:ASP:OD1  | 1.98                     | 0.63              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:85:TRP:CE3   | 1:K:88:THR:HG21  | 2.33                     | 0.63              |
| 1:O:207:ARG:HB2  | 1:O:222:THR:OG1  | 1.98                     | 0.63              |
| 1:D:110:LYS:HB2  | 1:D:110:LYS:NZ   | 2.14                     | 0.63              |
| 1:G:270:ALA:O    | 1:G:273:VAL:HG12 | 1.98                     | 0.63              |
| 1:M:128:VAL:HG22 | 1:M:169:LEU:HD11 | 1.80                     | 0.63              |
| 1:H:197:LEU:HD12 | 1:H:197:LEU:N    | 2.14                     | 0.63              |
| 1:H:276:TRP:CH2  | 1:H:278:ALA:HB2  | 2.34                     | 0.63              |
| 1:M:133:VAL:HG22 | 1:M:134:THR:N    | 2.13                     | 0.63              |
| 1:A:239:ASN:H    | 1:A:239:ASN:ND2  | 1.96                     | 0.62              |
| 1:B:137:ASN:HB2  | 1:B:140:SER:HA   | 1.81                     | 0.62              |
| 1:D:40:ILE:H     | 1:D:40:ILE:CD1   | 1.99                     | 0.62              |
| 1:D:276:TRP:CH2  | 1:D:278:ALA:HB2  | 2.34                     | 0.62              |
| 1:B:296:ASN:HD22 | 1:B:298:LEU:H    | 1.45                     | 0.62              |
| 1:I:137:ASN:N    | 1:I:137:ASN:HD22 | 1.96                     | 0.62              |
| 1:P:196:LEU:HD21 | 1:P:207:ARG:NH2  | 2.07                     | 0.62              |
| 1:D:207:ARG:HB2  | 1:D:222:THR:CG2  | 2.29                     | 0.62              |
| 1:H:186:LEU:HD11 | 1:H:188:VAL:HG23 | 1.81                     | 0.62              |
| 1:A:127:PHE:HB3  | 1:A:170:VAL:HG13 | 1.80                     | 0.62              |
| 1:D:207:ARG:HB2  | 1:D:222:THR:HG22 | 1.81                     | 0.62              |
| 1:J:150:TYR:CZ   | 1:J:209:LEU:HB3  | 2.35                     | 0.62              |
| 1:O:121:ASP:H    | 1:O:156:ASN:HD21 | 1.46                     | 0.62              |
| 1:F:222:THR:HG23 | 1:F:286:ARG:HD2  | 1.80                     | 0.62              |
| 1:K:231:LEU:HA   | 4:K:425:HOH:O    | 1.98                     | 0.62              |
| 1:L:48:THR:HB    | 1:L:262:GLN:HE22 | 1.64                     | 0.62              |
| 1:N:232:ASN:O    | 1:N:234:LYS:HE2  | 2.00                     | 0.62              |
| 1:E:241:HIS:HB3  | 1:E:289:LEU:HD11 | 1.79                     | 0.62              |
| 1:F:83:PRO:O     | 1:F:84:ASP:HB2   | 1.99                     | 0.62              |
| 1:F:126:ILE:HG22 | 1:F:171:VAL:HB   | 1.82                     | 0.62              |
| 1:A:40:ILE:H     | 1:A:40:ILE:CD1   | 2.06                     | 0.62              |
| 1:B:140:SER:O    | 1:B:141:SER:HB2  | 2.00                     | 0.62              |
| 1:G:115:SER:CB   | 1:G:161:LEU:HB2  | 2.30                     | 0.62              |
| 1:H:243:LEU:HD13 | 1:H:287:TYR:HB2  | 1.80                     | 0.62              |
| 1:J:82:LEU:CD1   | 1:J:90:GLY:HA3   | 2.28                     | 0.62              |
| 1:L:226:GLN:HB2  | 1:L:229:GLU:OE1  | 2.00                     | 0.62              |
| 1:N:206:LEU:HD12 | 1:N:207:ARG:N    | 2.14                     | 0.62              |
| 1:G:40:ILE:H     | 1:G:40:ILE:CD1   | 2.13                     | 0.62              |
| 1:J:206:LEU:HD12 | 1:J:207:ARG:N    | 2.14                     | 0.62              |
| 1:F:85:TRP:CE3   | 1:F:115:SER:HA   | 2.35                     | 0.62              |
| 1:O:131:GLY:HA3  | 1:O:166:SER:O    | 2.00                     | 0.62              |
| 1:B:82:LEU:CD1   | 1:B:90:GLY:HA3   | 2.27                     | 0.61              |
| 1:L:150:TYR:CE2  | 1:L:209:LEU:HB3  | 2.34                     | 0.61              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:128:VAL:HA   | 1:M:169:LEU:CD1  | 2.30                     | 0.61              |
| 1:G:140:SER:HB2  | 4:G:421:HOH:O    | 1.99                     | 0.61              |
| 1:L:121:ASP:H    | 1:L:156:ASN:ND2  | 1.98                     | 0.61              |
| 1:O:137:ASN:ND2  | 1:O:140:SER:HB3  | 2.15                     | 0.61              |
| 1:D:82:LEU:HD13  | 1:D:90:GLY:CA    | 2.22                     | 0.61              |
| 1:K:122:ILE:HD13 | 1:K:175:ARG:HA   | 1.82                     | 0.61              |
| 1:G:150:TYR:CZ   | 1:G:209:LEU:HB3  | 2.36                     | 0.61              |
| 1:I:142:SER:O    | 1:I:143:LYS:HD2  | 2.01                     | 0.61              |
| 1:M:150:TYR:CZ   | 1:M:209:LEU:HB3  | 2.36                     | 0.61              |
| 1:P:130:GLU:CA   | 1:P:147:VAL:HG22 | 2.30                     | 0.61              |
| 1:F:87:ASN:ND2   | 1:F:110:LYS:HB2  | 2.15                     | 0.61              |
| 1:H:186:LEU:HD11 | 1:H:188:VAL:CG2  | 2.30                     | 0.61              |
| 1:E:123:GLU:HG2  | 1:E:174:ARG:O    | 1.99                     | 0.61              |
| 1:C:87:ASN:ND2   | 1:C:110:LYS:HB2  | 2.14                     | 0.61              |
| 1:P:169:LEU:O    | 1:P:171:VAL:HG12 | 2.00                     | 0.61              |
| 1:P:296:ASN:HD22 | 1:P:298:LEU:N    | 1.97                     | 0.61              |
| 1:G:121:ASP:H    | 1:G:156:ASN:ND2  | 1.99                     | 0.61              |
| 1:H:133:VAL:HG23 | 1:H:162:ASP:C    | 2.21                     | 0.61              |
| 1:J:273:VAL:HG13 | 1:J:273:VAL:O    | 2.00                     | 0.61              |
| 1:O:147:VAL:O    | 1:O:148:ASP:HB2  | 1.99                     | 0.61              |
| 1:C:101:HIS:H    | 1:C:240:GLN:HE22 | 1.47                     | 0.61              |
| 1:D:111:GLU:HA   | 1:D:164:VAL:O    | 2.00                     | 0.61              |
| 1:D:121:ASP:H    | 1:D:156:ASN:ND2  | 1.99                     | 0.61              |
| 1:F:82:LEU:HD13  | 1:F:90:GLY:HA3   | 1.83                     | 0.61              |
| 1:G:243:LEU:HD23 | 1:G:269:MET:CE   | 2.31                     | 0.61              |
| 1:A:127:PHE:HB3  | 1:A:170:VAL:CG1  | 2.31                     | 0.60              |
| 1:C:40:ILE:HD12  | 1:C:40:ILE:H     | 1.65                     | 0.60              |
| 1:E:199:THR:HG23 | 1:E:200:PRO:HD2  | 1.81                     | 0.60              |
| 1:M:150:TYR:CE2  | 1:M:209:LEU:HB3  | 2.36                     | 0.60              |
| 1:A:153:LEU:HD13 | 1:A:159:HIS:NE2  | 2.15                     | 0.60              |
| 1:F:243:LEU:C    | 1:F:243:LEU:HD12 | 2.22                     | 0.60              |
| 1:K:105:TYR:CE1  | 1:K:171:VAL:HG22 | 2.37                     | 0.60              |
| 1:K:249:GLN:HG2  | 1:K:280:LEU:O    | 2.01                     | 0.60              |
| 1:M:64:VAL:HG12  | 1:M:71:LEU:HB3   | 1.82                     | 0.60              |
| 1:E:296:ASN:HD21 | 1:E:298:LEU:HD12 | 1.67                     | 0.60              |
| 1:O:205:GLU:HB2  | 1:O:224:ASP:HB2  | 1.84                     | 0.60              |
| 1:F:144:LYS:O    | 1:F:145:LEU:HD23 | 2.01                     | 0.60              |
| 1:B:137:ASN:OD1  | 1:B:140:SER:HA   | 2.02                     | 0.60              |
| 1:B:150:TYR:CE2  | 1:B:209:LEU:HB3  | 2.37                     | 0.60              |
| 1:G:127:PHE:HB3  | 1:G:170:VAL:CG1  | 2.31                     | 0.60              |
| 1:J:101:HIS:H    | 1:J:240:GLN:HE22 | 1.49                     | 0.60              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:268:TRP:CZ2  | 1:B:270:ALA:HB2  | 2.37                     | 0.60              |
| 1:F:184:THR:HB   | 1:F:216:TYR:CE1  | 2.37                     | 0.60              |
| 1:E:243:LEU:HD13 | 1:E:287:TYR:HB2  | 1.84                     | 0.60              |
| 1:I:101:HIS:H    | 1:I:240:GLN:HE22 | 1.48                     | 0.60              |
| 1:A:245:LEU:HA   | 1:A:287:TYR:HB3  | 1.84                     | 0.59              |
| 1:D:84:ASP:O     | 1:D:116:GLY:HA3  | 2.01                     | 0.59              |
| 1:H:62:ARG:HB2   | 1:H:73:THR:HG21  | 1.84                     | 0.59              |
| 1:P:39:PRO:HB2   | 1:P:42:TRP:HB2   | 1.83                     | 0.59              |
| 1:C:190:SER:HB3  | 1:C:192:ASP:OD1  | 2.01                     | 0.59              |
| 1:M:237:HIS:ND1  | 1:M:239:ASN:HB2  | 2.17                     | 0.59              |
| 1:B:59:GLY:O     | 1:I:253:ARG:NH1  | 2.35                     | 0.59              |
| 1:E:208:LYS:HZ2  | 1:E:212:MET:HE1  | 1.67                     | 0.59              |
| 1:I:109:MET:HB3  | 1:I:113:SER:OG   | 2.02                     | 0.59              |
| 1:J:136:THR:O    | 1:J:137:ASN:HB3  | 2.02                     | 0.59              |
| 1:L:241:HIS:CG   | 1:L:289:LEU:HD11 | 2.38                     | 0.59              |
| 1:M:153:LEU:HD13 | 1:M:159:HIS:CD2  | 2.37                     | 0.59              |
| 1:M:64:VAL:CG2   | 1:M:66:LYS:HE3   | 2.32                     | 0.59              |
| 1:O:153:LEU:HD13 | 1:O:159:HIS:CE1  | 2.38                     | 0.59              |
| 1:N:155:PRO:O    | 1:N:156:ASN:HB2  | 2.02                     | 0.59              |
| 1:E:128:VAL:HG22 | 1:E:169:LEU:CD2  | 2.31                     | 0.59              |
| 1:G:130:GLU:HA   | 1:G:147:VAL:HG22 | 1.84                     | 0.59              |
| 1:G:243:LEU:HD12 | 1:G:243:LEU:C    | 2.22                     | 0.59              |
| 1:F:52:SER:O     | 1:F:55:GLN:HG2   | 2.02                     | 0.59              |
| 1:G:197:LEU:HD22 | 1:G:208:LYS:HE3  | 1.84                     | 0.59              |
| 1:H:243:LEU:HD12 | 1:H:243:LEU:C    | 2.23                     | 0.59              |
| 1:K:153:LEU:HD22 | 1:K:159:HIS:CD2  | 2.38                     | 0.59              |
| 1:B:47:PRO:HA    | 4:B:409:HOH:O    | 2.03                     | 0.59              |
| 1:J:143:LYS:HD2  | 1:J:143:LYS:N    | 2.13                     | 0.59              |
| 1:M:101:HIS:H    | 1:M:240:GLN:HE22 | 1.49                     | 0.59              |
| 1:O:73:THR:HG22  | 1:O:265:ASP:OD1  | 2.02                     | 0.59              |
| 1:P:113:SER:OG   | 1:P:163:CYS:HB3  | 2.03                     | 0.59              |
| 1:D:233:VAL:HG13 | 1:D:235:GLU:HG3  | 1.83                     | 0.59              |
| 1:E:82:LEU:CD1   | 1:E:90:GLY:HA3   | 2.30                     | 0.59              |
| 1:M:49:LEU:HD11  | 1:M:54:LEU:HD21  | 1.84                     | 0.59              |
| 1:G:184:THR:HB   | 1:G:216:TYR:CE1  | 2.37                     | 0.58              |
| 1:M:222:THR:HG22 | 4:M:417:HOH:O    | 2.02                     | 0.58              |
| 1:K:93:LEU:HD13  | 1:K:266:VAL:HG21 | 1.86                     | 0.58              |
| 1:P:130:GLU:HA   | 1:P:147:VAL:CG2  | 2.32                     | 0.58              |
| 1:P:243:LEU:C    | 1:P:243:LEU:HD12 | 2.24                     | 0.58              |
| 1:O:202:GLU:HG3  | 1:O:204:PHE:HE2  | 1.67                     | 0.58              |
| 1:H:120:GLN:O    | 1:H:121:ASP:HB2  | 2.04                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:137:ASN:C    | 1:M:137:ASN:HD22 | 2.04                     | 0.58              |
| 1:N:234:LYS:HD3  | 1:N:234:LYS:N    | 2.18                     | 0.58              |
| 1:O:202:GLU:HG3  | 1:O:204:PHE:CE2  | 2.39                     | 0.58              |
| 1:P:119:PRO:HD2  | 1:P:122:ILE:HG13 | 1.85                     | 0.58              |
| 1:B:137:ASN:HB2  | 1:B:141:SER:H    | 1.66                     | 0.58              |
| 1:B:197:LEU:HB2  | 1:B:206:LEU:HD23 | 1.84                     | 0.58              |
| 1:E:72:ILE:N     | 1:E:72:ILE:HD12  | 2.19                     | 0.58              |
| 1:H:59:GLY:O     | 1:N:253:ARG:NH1  | 2.35                     | 0.58              |
| 1:M:129:VAL:HG22 | 1:M:168:THR:O    | 2.04                     | 0.58              |
| 1:N:40:ILE:H     | 1:N:40:ILE:CD1   | 2.06                     | 0.58              |
| 1:C:40:ILE:H     | 1:C:40:ILE:CD1   | 2.17                     | 0.58              |
| 1:D:241:HIS:HB3  | 1:D:289:LEU:HD11 | 1.86                     | 0.58              |
| 1:P:134:THR:HG23 | 1:P:143:LYS:O    | 2.03                     | 0.58              |
| 1:P:109:MET:SD   | 1:P:169:LEU:HD11 | 2.43                     | 0.58              |
| 1:B:153:LEU:HD13 | 1:B:159:HIS:CE1  | 2.38                     | 0.58              |
| 1:H:298:LEU:OXT  | 1:H:298:LEU:HD23 | 2.04                     | 0.58              |
| 1:D:296:ASN:HD21 | 1:D:298:LEU:HB2  | 1.69                     | 0.57              |
| 1:G:125:LEU:HD22 | 1:G:151:ALA:O    | 2.04                     | 0.57              |
| 1:N:243:LEU:HG   | 1:N:267:ILE:HB   | 1.86                     | 0.57              |
| 1:A:87:ASN:O     | 1:A:113:SER:HB2  | 2.04                     | 0.57              |
| 1:D:122:ILE:HD13 | 1:K:298:LEU:CD1  | 2.20                     | 0.57              |
| 1:A:121:ASP:H    | 1:A:156:ASN:HD21 | 1.51                     | 0.57              |
| 1:A:243:LEU:HD23 | 1:A:269:MET:CE   | 2.33                     | 0.57              |
| 1:D:151:ALA:HA   | 1:D:187:ILE:O    | 2.03                     | 0.57              |
| 1:G:201:GLY:O    | 1:G:202:GLU:OE1  | 2.22                     | 0.57              |
| 1:L:196:LEU:HD11 | 1:L:207:ARG:NH2  | 2.18                     | 0.57              |
| 1:B:204:PHE:HE1  | 1:B:206:LEU:HB2  | 1.69                     | 0.57              |
| 1:G:111:GLU:HA   | 1:G:164:VAL:O    | 2.04                     | 0.57              |
| 1:K:190:SER:H    | 1:K:193:LYS:CB   | 2.17                     | 0.57              |
| 1:M:47:PRO:HA    | 4:M:415:HOH:O    | 2.03                     | 0.57              |
| 1:M:208:LYS:HE2  | 1:M:221:HIS:NE2  | 2.20                     | 0.57              |
| 1:H:298:LEU:HD23 | 1:H:298:LEU:C    | 2.25                     | 0.57              |
| 1:J:137:ASN:HD21 | 1:J:140:SER:N    | 2.03                     | 0.57              |
| 1:K:150:TYR:CE1  | 1:K:209:LEU:HD22 | 2.39                     | 0.57              |
| 1:P:84:ASP:HB3   | 4:P:424:HOH:O    | 2.05                     | 0.57              |
| 1:A:268:TRP:CZ2  | 1:A:270:ALA:HB2  | 2.40                     | 0.57              |
| 1:D:137:ASN:N    | 1:D:137:ASN:HD22 | 2.01                     | 0.57              |
| 1:L:237:HIS:HB2  | 1:L:239:ASN:HD22 | 1.68                     | 0.57              |
| 1:O:247:GLU:CG   | 1:O:286:ARG:HB3  | 2.33                     | 0.57              |
| 1:P:136:THR:O    | 1:P:137:ASN:HB3  | 2.05                     | 0.57              |
| 1:E:136:THR:HG23 | 1:E:160:SER:HB3  | 1.86                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:164:VAL:CG2  | 1:G:165:GLU:H    | 2.11                     | 0.57              |
| 1:I:126:ILE:HG22 | 1:I:171:VAL:HB   | 1.87                     | 0.57              |
| 1:M:79:TYR:HA    | 1:M:90:GLY:O     | 2.04                     | 0.57              |
| 1:P:243:LEU:HG   | 1:P:267:ILE:HB   | 1.86                     | 0.57              |
| 1:M:82:LEU:HG    | 1:M:85:TRP:CD1   | 2.40                     | 0.57              |
| 1:N:152:TYR:HB3  | 1:N:187:ILE:HB   | 1.85                     | 0.57              |
| 1:N:243:LEU:C    | 1:N:243:LEU:HD12 | 2.24                     | 0.57              |
| 1:O:153:LEU:HD13 | 1:O:159:HIS:NE2  | 2.19                     | 0.57              |
| 1:P:118:PRO:HD3  | 1:P:124:ARG:NH2  | 2.19                     | 0.57              |
| 1:G:202:GLU:HB3  | 1:G:204:PHE:CE2  | 2.40                     | 0.57              |
| 1:J:243:LEU:HD12 | 1:J:243:LEU:C    | 2.25                     | 0.57              |
| 1:J:118:PRO:HB2  | 1:J:122:ILE:HB   | 1.86                     | 0.57              |
| 1:J:234:LYS:HG2  | 1:K:61:THR:HB    | 1.87                     | 0.57              |
| 1:O:72:ILE:HD12  | 1:O:72:ILE:N     | 2.19                     | 0.57              |
| 1:E:125:LEU:HD13 | 1:E:125:LEU:C    | 2.25                     | 0.56              |
| 1:L:243:LEU:HD12 | 1:L:243:LEU:C    | 2.25                     | 0.56              |
| 1:M:137:ASN:C    | 1:M:137:ASN:ND2  | 2.59                     | 0.56              |
| 1:F:164:VAL:HG23 | 1:F:165:GLU:H    | 1.70                     | 0.56              |
| 1:J:134:THR:HG23 | 1:J:144:LYS:HA   | 1.86                     | 0.56              |
| 1:A:101:HIS:H    | 1:A:240:GLN:HE22 | 1.52                     | 0.56              |
| 1:A:241:HIS:CG   | 1:A:289:LEU:HD11 | 2.40                     | 0.56              |
| 1:D:136:THR:HG22 | 1:D:142:SER:HB2  | 1.86                     | 0.56              |
| 1:D:196:LEU:CD1  | 1:D:207:ARG:NH2  | 2.67                     | 0.56              |
| 1:F:153:LEU:HD13 | 1:F:159:HIS:NE2  | 2.20                     | 0.56              |
| 1:F:164:VAL:HG23 | 1:F:165:GLU:N    | 2.20                     | 0.56              |
| 1:J:241:HIS:CG   | 1:J:289:LEU:HD11 | 2.41                     | 0.56              |
| 1:J:286:ARG:HG3  | 1:J:287:TYR:N    | 2.19                     | 0.56              |
| 1:K:82:LEU:HD12  | 1:K:83:PRO:HD2   | 1.88                     | 0.56              |
| 1:K:144:LYS:HG2  | 1:K:144:LYS:O    | 2.05                     | 0.56              |
| 1:L:234:LYS:HD2  | 1:L:234:LYS:H    | 1.68                     | 0.56              |
| 1:L:249:GLN:HE21 | 1:N:56:ASP:CG    | 2.08                     | 0.56              |
| 1:M:202:GLU:OE2  | 1:M:233:VAL:HG12 | 2.05                     | 0.56              |
| 1:D:284:ARG:NH2  | 1:D:286:ARG:HH12 | 2.04                     | 0.56              |
| 1:F:153:LEU:HD22 | 1:F:159:HIS:CG   | 2.40                     | 0.56              |
| 1:J:94:ILE:O     | 1:J:103:VAL:HA   | 2.05                     | 0.56              |
| 1:G:202:GLU:OE1  | 1:G:232:ASN:HB2  | 2.04                     | 0.56              |
| 1:J:209:LEU:O    | 1:J:210:LEU:HD23 | 2.04                     | 0.56              |
| 1:M:83:PRO:O     | 1:M:84:ASP:HB2   | 2.05                     | 0.56              |
| 1:M:222:THR:HG23 | 1:M:286:ARG:HD2  | 1.88                     | 0.56              |
| 1:O:164:VAL:HG23 | 1:O:165:GLU:N    | 2.19                     | 0.56              |
| 1:I:280:LEU:HD21 | 1:J:280:LEU:HD21 | 1.88                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:113:SER:OG   | 1:B:163:CYS:HB3  | 2.06                     | 0.56              |
| 1:K:105:TYR:CE1  | 1:K:171:VAL:HG13 | 2.41                     | 0.56              |
| 1:K:247:GLU:O    | 1:K:285:SER:HA   | 2.05                     | 0.56              |
| 1:L:126:ILE:HG22 | 1:L:171:VAL:HB   | 1.87                     | 0.56              |
| 1:E:251:ILE:HD13 | 1:E:260:PRO:HA   | 1.88                     | 0.56              |
| 1:G:157:PHE:C    | 1:G:157:PHE:CD2  | 2.79                     | 0.56              |
| 1:K:120:GLN:HG3  | 1:K:156:ASN:ND2  | 2.21                     | 0.56              |
| 1:L:245:LEU:HD12 | 1:L:287:TYR:HB3  | 1.88                     | 0.56              |
| 1:A:83:PRO:O     | 1:A:84:ASP:HB2   | 2.06                     | 0.56              |
| 1:E:126:ILE:HG22 | 1:E:171:VAL:HB   | 1.88                     | 0.56              |
| 1:L:82:LEU:HD21  | 1:L:105:TYR:CE1  | 2.41                     | 0.56              |
| 1:O:93:LEU:HD13  | 1:O:266:VAL:HG21 | 1.87                     | 0.56              |
| 1:P:243:LEU:HB3  | 1:P:289:LEU:HD12 | 1.88                     | 0.56              |
| 1:B:276:TRP:CH2  | 1:B:278:ALA:HB2  | 2.41                     | 0.56              |
| 1:E:69:HIS:HA    | 1:E:268:TRP:O    | 2.04                     | 0.56              |
| 1:H:133:VAL:HG23 | 1:H:162:ASP:O    | 2.06                     | 0.56              |
| 1:I:202:GLU:OE1  | 1:I:231:LEU:HD23 | 2.06                     | 0.56              |
| 1:K:140:SER:O    | 1:K:141:SER:HB2  | 2.05                     | 0.56              |
| 1:F:214:VAL:HG13 | 1:F:215:ALA:N    | 2.20                     | 0.55              |
| 1:G:96:PRO:HD3   | 1:G:103:VAL:HG12 | 1.88                     | 0.55              |
| 1:N:224:ASP:OD2  | 1:N:286:ARG:NE   | 2.39                     | 0.55              |
| 1:A:296:ASN:HD22 | 1:A:298:LEU:N    | 2.04                     | 0.55              |
| 1:F:170:VAL:HG13 | 1:F:170:VAL:O    | 2.06                     | 0.55              |
| 1:I:49:LEU:HD22  | 1:K:54:LEU:CD2   | 2.37                     | 0.55              |
| 1:H:136:THR:HG22 | 1:H:137:ASN:N    | 2.19                     | 0.55              |
| 1:K:153:LEU:HD22 | 1:K:159:HIS:CG   | 2.41                     | 0.55              |
| 1:B:234:LYS:HE3  | 1:C:60:PHE:O     | 2.05                     | 0.55              |
| 1:C:74:PRO:C     | 1:C:76:SER:H     | 2.10                     | 0.55              |
| 1:E:153:LEU:HD13 | 1:E:159:HIS:CD2  | 2.42                     | 0.55              |
| 1:F:150:TYR:CD1  | 1:F:209:LEU:HD13 | 2.42                     | 0.55              |
| 1:G:137:ASN:HB2  | 4:G:426:HOH:O    | 2.07                     | 0.55              |
| 1:H:207:ARG:HG3  | 1:H:207:ARG:HH11 | 1.70                     | 0.55              |
| 1:F:126:ILE:HG12 | 1:F:161:LEU:HD11 | 1.88                     | 0.55              |
| 1:I:137:ASN:HD22 | 1:I:137:ASN:H    | 1.55                     | 0.55              |
| 1:L:150:TYR:CZ   | 1:L:209:LEU:HB3  | 2.41                     | 0.55              |
| 1:D:296:ASN:ND2  | 1:D:298:LEU:HB2  | 2.21                     | 0.55              |
| 1:G:150:TYR:CE2  | 1:G:209:LEU:HB3  | 2.42                     | 0.55              |
| 1:H:153:LEU:HD22 | 1:H:159:HIS:CG   | 2.42                     | 0.55              |
| 1:A:121:ASP:H    | 1:A:156:ASN:ND2  | 2.04                     | 0.55              |
| 1:C:245:LEU:HD12 | 1:C:287:TYR:HB3  | 1.88                     | 0.55              |
| 1:C:252:TYR:CD1  | 1:C:277:TYR:CD1  | 2.95                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:164:VAL:HG23 | 1:K:165:GLU:H    | 1.71                     | 0.55              |
| 1:P:121:ASP:H    | 1:P:156:ASN:ND2  | 2.02                     | 0.55              |
| 1:G:191:THR:HG21 | 1:G:286:ARG:HH12 | 1.72                     | 0.55              |
| 1:P:95:THR:O     | 1:P:98:THR:HG23  | 2.06                     | 0.55              |
| 1:C:153:LEU:HD13 | 1:C:159:HIS:CG   | 2.42                     | 0.55              |
| 1:H:243:LEU:HD12 | 1:H:244:LEU:N    | 2.22                     | 0.55              |
| 1:J:296:ASN:HD21 | 1:J:298:LEU:HD12 | 1.72                     | 0.55              |
| 1:K:243:LEU:C    | 1:K:243:LEU:HD12 | 2.27                     | 0.55              |
| 1:A:153:LEU:HD13 | 1:A:159:HIS:CE1  | 2.42                     | 0.55              |
| 1:G:286:ARG:O    | 1:G:286:ARG:HG3  | 2.06                     | 0.55              |
| 1:J:64:VAL:HG11  | 1:J:66:LYS:HZ3   | 1.72                     | 0.55              |
| 1:P:70:ALA:HB3   | 1:P:268:TRP:HB3  | 1.88                     | 0.55              |
| 1:P:133:VAL:CG1  | 1:P:163:CYS:HB2  | 2.27                     | 0.55              |
| 1:L:101:HIS:H    | 1:L:240:GLN:HE22 | 1.53                     | 0.54              |
| 1:J:235:GLU:OE1  | 3:J:302:UGY:N    | 2.40                     | 0.54              |
| 1:O:150:TYR:CZ   | 1:O:209:LEU:HB3  | 2.41                     | 0.54              |
| 1:A:224:ASP:OD2  | 1:A:286:ARG:HB2  | 2.07                     | 0.54              |
| 1:C:185:GLU:O    | 1:C:187:ILE:HG12 | 2.08                     | 0.54              |
| 1:F:86:THR:O     | 1:F:113:SER:HB2  | 2.07                     | 0.54              |
| 1:K:150:TYR:CE2  | 1:K:209:LEU:HB3  | 2.42                     | 0.54              |
| 1:L:103:VAL:CG2  | 1:L:173:GLU:HB2  | 2.37                     | 0.54              |
| 1:K:100:SER:HA   | 1:K:240:GLN:HE22 | 1.72                     | 0.54              |
| 1:N:130:GLU:HA   | 1:N:147:VAL:HG22 | 1.89                     | 0.54              |
| 1:F:93:LEU:HD13  | 1:F:266:VAL:HG11 | 1.88                     | 0.54              |
| 1:F:125:LEU:HD13 | 1:F:125:LEU:C    | 2.28                     | 0.54              |
| 1:M:276:TRP:CH2  | 1:M:278:ALA:HB2  | 2.43                     | 0.54              |
| 1:P:87:ASN:ND2   | 1:P:87:ASN:C     | 2.61                     | 0.54              |
| 1:B:127:PHE:HB3  | 1:B:170:VAL:CG1  | 2.37                     | 0.54              |
| 1:K:206:LEU:HD12 | 1:K:207:ARG:N    | 2.22                     | 0.54              |
| 1:C:130:GLU:O    | 1:C:167:ALA:HA   | 2.07                     | 0.54              |
| 1:B:150:TYR:CE1  | 1:B:209:LEU:HD22 | 2.42                     | 0.54              |
| 1:G:137:ASN:HB3  | 1:G:140:SER:OG   | 2.07                     | 0.54              |
| 1:H:126:ILE:HG22 | 1:H:171:VAL:HB   | 1.89                     | 0.54              |
| 1:H:296:ASN:HD21 | 1:H:298:LEU:HB3  | 1.70                     | 0.54              |
| 1:L:113:SER:OG   | 1:L:163:CYS:HB3  | 2.07                     | 0.54              |
| 1:O:150:TYR:CE2  | 1:O:209:LEU:HB3  | 2.43                     | 0.54              |
| 1:E:125:LEU:HD13 | 1:E:126:ILE:N    | 2.22                     | 0.54              |
| 1:K:140:SER:O    | 1:K:141:SER:CB   | 2.55                     | 0.54              |
| 1:N:164:VAL:HG23 | 1:N:165:GLU:H    | 1.72                     | 0.54              |
| 1:N:271:PRO:O    | 1:N:272:PHE:HB2  | 2.07                     | 0.54              |
| 1:E:74:PRO:O     | 1:E:76:SER:N     | 2.41                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:79:TYR:CD1   | 1:H:91:ALA:HB2   | 2.43                     | 0.53              |
| 1:H:113:SER:OG   | 1:H:163:CYS:HB3  | 2.08                     | 0.53              |
| 1:I:204:PHE:HB3  | 1:I:225:PHE:CE1  | 2.43                     | 0.53              |
| 1:N:243:LEU:HD13 | 1:N:287:TYR:HB2  | 1.90                     | 0.53              |
| 1:F:70:ALA:HB3   | 1:F:268:TRP:HB3  | 1.90                     | 0.53              |
| 1:F:136:THR:HG23 | 1:F:160:SER:O    | 2.09                     | 0.53              |
| 1:G:226:GLN:O    | 1:G:229:GLU:HG3  | 2.08                     | 0.53              |
| 1:A:61:THR:HB    | 1:D:234:LYS:HG2  | 1.90                     | 0.53              |
| 1:C:276:TRP:CH2  | 1:C:278:ALA:HB2  | 2.43                     | 0.53              |
| 1:D:54:LEU:HD23  | 1:G:49:LEU:HD22  | 1.89                     | 0.53              |
| 1:K:213:SER:O    | 1:K:215:ALA:N    | 2.40                     | 0.53              |
| 1:K:243:LEU:HD22 | 1:K:287:TYR:CD1  | 2.43                     | 0.53              |
| 1:C:234:LYS:HE3  | 1:G:60:PHE:O     | 2.08                     | 0.53              |
| 1:J:145:LEU:HD22 | 1:J:149:SER:OG   | 2.08                     | 0.53              |
| 1:O:185:GLU:O    | 1:O:187:ILE:HG12 | 2.09                     | 0.53              |
| 1:P:296:ASN:ND2  | 1:P:298:LEU:HB2  | 2.24                     | 0.53              |
| 1:E:82:LEU:O     | 1:E:85:TRP:HB2   | 2.08                     | 0.53              |
| 1:E:202:GLU:OE2  | 1:E:233:VAL:HG12 | 2.09                     | 0.53              |
| 1:E:208:LYS:NZ   | 1:E:212:MET:CE   | 2.72                     | 0.53              |
| 1:G:243:LEU:HD23 | 1:G:269:MET:HE2  | 1.90                     | 0.53              |
| 1:I:241:HIS:HB2  | 1:I:269:MET:HB2  | 1.90                     | 0.53              |
| 1:L:238:TYR:O    | 1:L:271:PRO:HB3  | 2.08                     | 0.53              |
| 1:B:140:SER:O    | 1:B:141:SER:CB   | 2.57                     | 0.53              |
| 1:E:63:SER:HA    | 1:E:71:LEU:O     | 2.09                     | 0.53              |
| 1:C:243:LEU:HB2  | 1:C:288:LEU:O    | 2.09                     | 0.53              |
| 1:D:68:ASP:OD2   | 1:D:273:VAL:HG23 | 2.09                     | 0.53              |
| 1:D:127:PHE:HB3  | 1:D:170:VAL:HG13 | 1.90                     | 0.53              |
| 1:F:243:LEU:HG   | 1:F:267:ILE:HB   | 1.91                     | 0.53              |
| 1:G:246:LEU:HD11 | 1:G:288:LEU:HD13 | 1.90                     | 0.53              |
| 1:N:152:TYR:HB2  | 1:N:210:LEU:HD21 | 1.91                     | 0.53              |
| 1:P:116:GLY:HA2  | 4:P:424:HOH:O    | 2.09                     | 0.53              |
| 1:P:191:THR:HG21 | 1:P:286:ARG:HH21 | 1.71                     | 0.53              |
| 1:G:125:LEU:C    | 1:G:125:LEU:HD13 | 2.30                     | 0.53              |
| 1:J:298:LEU:HD11 | 1:K:122:ILE:HG21 | 1.91                     | 0.53              |
| 1:K:252:TYR:CD1  | 1:K:277:TYR:CD1  | 2.97                     | 0.53              |
| 1:M:152:TYR:HB3  | 1:M:187:ILE:HB   | 1.91                     | 0.53              |
| 1:O:243:LEU:HD12 | 1:O:243:LEU:C    | 2.28                     | 0.53              |
| 1:P:127:PHE:HB3  | 1:P:170:VAL:CG1  | 2.39                     | 0.53              |
| 1:A:82:LEU:CD1   | 1:A:90:GLY:HA3   | 2.38                     | 0.53              |
| 1:E:243:LEU:HD23 | 1:E:269:MET:CE   | 2.39                     | 0.53              |
| 1:G:237:HIS:ND1  | 1:G:239:ASN:HB2  | 2.24                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:241:HIS:HB3  | 1:G:289:LEU:HD11 | 1.89                     | 0.53              |
| 1:J:169:LEU:N    | 1:J:169:LEU:CD2  | 2.67                     | 0.53              |
| 1:K:211:PRO:HB2  | 1:K:216:TYR:CE2  | 2.37                     | 0.53              |
| 1:N:87:ASN:ND2   | 1:N:111:GLU:O    | 2.39                     | 0.53              |
| 1:C:82:LEU:O     | 1:C:85:TRP:HB2   | 2.09                     | 0.52              |
| 1:E:61:THR:HG22  | 1:P:253:ARG:NH1  | 2.22                     | 0.52              |
| 1:G:156:ASN:HA   | 4:G:413:HOH:O    | 2.10                     | 0.52              |
| 1:K:103:VAL:HG22 | 1:K:173:GLU:HB2  | 1.91                     | 0.52              |
| 1:K:128:VAL:HG22 | 1:K:169:LEU:HD21 | 1.89                     | 0.52              |
| 1:P:64:VAL:HG11  | 1:P:66:LYS:HZ3   | 1.71                     | 0.52              |
| 1:A:125:LEU:HD13 | 1:A:125:LEU:C    | 2.29                     | 0.52              |
| 1:B:83:PRO:O     | 1:B:85:TRP:HD1   | 1.92                     | 0.52              |
| 1:D:273:VAL:HG13 | 1:D:273:VAL:O    | 2.09                     | 0.52              |
| 1:E:117:LEU:HD21 | 1:E:159:HIS:H    | 1.74                     | 0.52              |
| 1:I:284:ARG:HD2  | 1:I:284:ARG:C    | 2.29                     | 0.52              |
| 1:J:150:TYR:CE2  | 1:J:209:LEU:HB3  | 2.44                     | 0.52              |
| 1:J:206:LEU:HD12 | 1:J:207:ARG:H    | 1.73                     | 0.52              |
| 1:D:61:THR:HG22  | 1:K:253:ARG:NH1  | 2.24                     | 0.52              |
| 1:E:114:SER:HA   | 1:E:161:LEU:O    | 2.09                     | 0.52              |
| 1:E:208:LYS:HZ2  | 1:E:212:MET:CE   | 2.20                     | 0.52              |
| 1:H:207:ARG:HG3  | 1:H:207:ARG:NH1  | 2.24                     | 0.52              |
| 1:K:113:SER:OG   | 1:K:163:CYS:HB3  | 2.09                     | 0.52              |
| 1:K:224:ASP:OD2  | 1:K:286:ARG:CD   | 2.50                     | 0.52              |
| 1:O:103:VAL:HG22 | 1:O:173:GLU:HB2  | 1.90                     | 0.52              |
| 1:O:134:THR:OG1  | 1:O:144:LYS:HG2  | 2.09                     | 0.52              |
| 1:E:60:PHE:HZ    | 1:M:60:PHE:HZ    | 1.55                     | 0.52              |
| 1:H:125:LEU:HD22 | 1:H:151:ALA:O    | 2.10                     | 0.52              |
| 1:K:276:TRP:CH2  | 1:K:278:ALA:HB2  | 2.45                     | 0.52              |
| 1:G:157:PHE:C    | 1:G:157:PHE:HD2  | 2.13                     | 0.52              |
| 1:J:268:TRP:CZ2  | 1:J:270:ALA:HB2  | 2.44                     | 0.52              |
| 1:L:125:LEU:HD23 | 1:L:152:TYR:HB2  | 1.91                     | 0.52              |
| 1:O:170:VAL:HG13 | 1:O:170:VAL:O    | 2.10                     | 0.52              |
| 1:D:241:HIS:HB2  | 1:D:269:MET:HB2  | 1.92                     | 0.52              |
| 1:J:218:PHE:CD1  | 1:J:218:PHE:C    | 2.82                     | 0.52              |
| 1:O:121:ASP:H    | 1:O:156:ASN:ND2  | 2.08                     | 0.52              |
| 1:C:127:PHE:HB3  | 1:C:170:VAL:CG1  | 2.40                     | 0.52              |
| 1:H:241:HIS:HB3  | 1:H:289:LEU:HD11 | 1.91                     | 0.52              |
| 1:N:131:GLY:HA3  | 1:N:167:ALA:HA   | 1.91                     | 0.52              |
| 1:O:243:LEU:HB2  | 1:O:288:LEU:O    | 2.10                     | 0.52              |
| 1:P:136:THR:O    | 1:P:137:ASN:CB   | 2.57                     | 0.52              |
| 1:B:79:TYR:HA    | 1:B:90:GLY:O     | 2.10                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:198:GLU:HG2  | 1:M:200:PRO:HD3  | 1.92                     | 0.52              |
| 1:P:87:ASN:C     | 1:P:87:ASN:HD22  | 2.13                     | 0.52              |
| 1:F:64:VAL:HG11  | 1:F:66:LYS:NZ    | 2.25                     | 0.52              |
| 1:P:150:TYR:CZ   | 1:P:209:LEU:HB3  | 2.45                     | 0.52              |
| 1:P:154:PRO:HB3  | 1:P:155:PRO:HD2  | 1.91                     | 0.52              |
| 1:A:94:ILE:HD11  | 1:A:268:TRP:HB2  | 1.92                     | 0.51              |
| 1:A:243:LEU:HG   | 1:A:267:ILE:HB   | 1.92                     | 0.51              |
| 1:B:92:TYR:HA    | 1:B:105:TYR:HB3  | 1.92                     | 0.51              |
| 1:C:152:TYR:HB3  | 1:C:187:ILE:HB   | 1.92                     | 0.51              |
| 1:F:298:LEU:HD11 | 1:L:173:GLU:HB3  | 1.92                     | 0.51              |
| 1:H:120:GLN:HG2  | 1:H:121:ASP:OD1  | 2.11                     | 0.51              |
| 1:P:191:THR:HG22 | 1:P:207:ARG:HD2  | 1.91                     | 0.51              |
| 1:A:243:LEU:HD21 | 1:A:252:TYR:CE1  | 2.45                     | 0.51              |
| 1:E:241:HIS:HB2  | 1:E:269:MET:HB2  | 1.90                     | 0.51              |
| 1:K:92:TYR:CE1   | 1:K:105:TYR:CD2  | 2.94                     | 0.51              |
| 1:L:127:PHE:HB3  | 1:L:170:VAL:CG1  | 2.39                     | 0.51              |
| 1:M:128:VAL:HA   | 1:M:169:LEU:HD12 | 1.92                     | 0.51              |
| 1:M:243:LEU:HD12 | 1:M:243:LEU:C    | 2.31                     | 0.51              |
| 1:J:72:ILE:N     | 1:J:72:ILE:HD12  | 2.25                     | 0.51              |
| 1:J:294:ASN:O    | 1:J:295:ARG:HG2  | 2.10                     | 0.51              |
| 1:K:105:TYR:HE1  | 1:K:171:VAL:HG13 | 1.75                     | 0.51              |
| 1:C:225:PHE:HB2  | 1:C:285:SER:HB2  | 1.92                     | 0.51              |
| 1:K:273:VAL:HG13 | 1:K:273:VAL:O    | 2.10                     | 0.51              |
| 1:B:241:HIS:CE1  | 1:B:289:LEU:HD21 | 2.46                     | 0.51              |
| 1:J:141:SER:O    | 1:J:142:SER:HB2  | 2.11                     | 0.51              |
| 1:L:134:THR:HG23 | 1:L:143:LYS:O    | 2.10                     | 0.51              |
| 1:M:94:ILE:O     | 1:M:103:VAL:HA   | 2.11                     | 0.51              |
| 1:P:82:LEU:CD1   | 1:P:90:GLY:HA3   | 2.40                     | 0.51              |
| 1:P:130:GLU:HA   | 1:P:147:VAL:HG13 | 1.93                     | 0.51              |
| 1:D:72:ILE:HD12  | 1:D:72:ILE:N     | 2.26                     | 0.51              |
| 1:G:191:THR:HG21 | 1:G:286:ARG:NH1  | 2.26                     | 0.51              |
| 1:L:207:ARG:HB2  | 1:L:222:THR:HG22 | 1.90                     | 0.51              |
| 1:O:52:SER:O     | 1:O:55:GLN:HG2   | 2.10                     | 0.51              |
| 1:O:109:MET:HB3  | 1:O:113:SER:OG   | 2.10                     | 0.51              |
| 1:O:270:ALA:O    | 1:O:273:VAL:HG12 | 2.10                     | 0.51              |
| 1:A:87:ASN:O     | 1:A:87:ASN:CG    | 2.49                     | 0.51              |
| 1:K:296:ASN:ND2  | 1:K:298:LEU:HD12 | 2.26                     | 0.51              |
| 1:A:152:TYR:HB3  | 1:A:187:ILE:HB   | 1.92                     | 0.51              |
| 1:E:121:ASP:H    | 1:E:156:ASN:HD21 | 1.59                     | 0.51              |
| 1:E:164:VAL:HG13 | 1:E:165:GLU:CG   | 2.41                     | 0.51              |
| 1:E:270:ALA:O    | 1:E:273:VAL:HG12 | 2.10                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:82:LEU:CD2   | 1:I:90:GLY:HA3   | 2.40                     | 0.51              |
| 1:K:202:GLU:OE1  | 1:K:202:GLU:HA   | 2.10                     | 0.51              |
| 1:M:96:PRO:HD3   | 1:M:103:VAL:HG12 | 1.92                     | 0.51              |
| 1:G:137:ASN:HB3  | 1:G:140:SER:CB   | 2.40                     | 0.51              |
| 1:H:224:ASP:OD2  | 1:H:286:ARG:NH1  | 2.43                     | 0.51              |
| 1:J:86:THR:O     | 1:J:87:ASN:C     | 2.49                     | 0.51              |
| 1:J:109:MET:HB2  | 1:J:167:ALA:HB3  | 1.92                     | 0.51              |
| 1:M:140:SER:O    | 1:M:141:SER:CB   | 2.59                     | 0.51              |
| 1:D:196:LEU:CD1  | 1:D:207:ARG:CZ   | 2.90                     | 0.50              |
| 1:G:85:TRP:CE3   | 1:G:115:SER:HA   | 2.46                     | 0.50              |
| 1:M:271:PRO:O    | 1:M:272:PHE:HB2  | 2.11                     | 0.50              |
| 1:N:75:GLU:OE1   | 1:N:75:GLU:N     | 2.40                     | 0.50              |
| 1:B:118:PRO:HB2  | 1:B:122:ILE:HB   | 1.92                     | 0.50              |
| 1:F:186:LEU:O    | 1:F:187:ILE:HD13 | 2.11                     | 0.50              |
| 1:G:236:VAL:CG2  | 1:I:76:SER:HB3   | 2.42                     | 0.50              |
| 1:L:137:ASN:HD21 | 1:L:140:SER:N    | 2.10                     | 0.50              |
| 1:O:153:LEU:HD13 | 1:O:159:HIS:CD2  | 2.46                     | 0.50              |
| 1:E:164:VAL:HG13 | 1:E:165:GLU:N    | 2.26                     | 0.50              |
| 1:E:243:LEU:HD12 | 1:E:243:LEU:C    | 2.30                     | 0.50              |
| 1:F:192:ASP:HA   | 4:F:417:HOH:O    | 2.10                     | 0.50              |
| 1:I:140:SER:O    | 1:I:141:SER:HB3  | 2.11                     | 0.50              |
| 1:I:170:VAL:HG13 | 1:I:170:VAL:O    | 2.11                     | 0.50              |
| 1:K:111:GLU:HA   | 1:K:165:GLU:O    | 2.11                     | 0.50              |
| 1:M:109:MET:HB3  | 1:M:113:SER:OG   | 2.12                     | 0.50              |
| 1:P:118:PRO:HB2  | 1:P:122:ILE:HB   | 1.93                     | 0.50              |
| 1:L:237:HIS:HB2  | 1:L:239:ASN:ND2  | 2.26                     | 0.50              |
| 1:O:113:SER:OG   | 1:O:163:CYS:HB3  | 2.10                     | 0.50              |
| 1:D:63:SER:HA    | 1:D:71:LEU:O     | 2.11                     | 0.50              |
| 1:I:129:VAL:HG12 | 1:I:129:VAL:O    | 2.11                     | 0.50              |
| 1:L:103:VAL:HG22 | 1:L:173:GLU:HB2  | 1.94                     | 0.50              |
| 1:L:140:SER:O    | 1:L:141:SER:CB   | 2.59                     | 0.50              |
| 1:G:164:VAL:HG23 | 1:G:165:GLU:HG2  | 1.94                     | 0.50              |
| 1:I:222:THR:HG23 | 1:I:286:ARG:HD2  | 1.94                     | 0.50              |
| 1:M:137:ASN:HA   | 1:M:159:HIS:HA   | 1.93                     | 0.50              |
| 1:M:253:ARG:NH1  | 1:O:61:THR:HG22  | 2.26                     | 0.50              |
| 1:D:61:THR:HB    | 1:K:234:LYS:HG2  | 1.93                     | 0.50              |
| 1:J:172:PHE:CE1  | 1:J:290:TYR:HB2  | 2.46                     | 0.50              |
| 1:L:245:LEU:HD23 | 1:L:262:GLN:C    | 2.32                     | 0.50              |
| 1:M:280:LEU:HD21 | 1:P:280:LEU:HD21 | 1.92                     | 0.50              |
| 1:B:95:THR:O     | 1:B:97:ALA:N     | 2.45                     | 0.50              |
| 1:D:127:PHE:HB3  | 1:D:170:VAL:HG12 | 1.92                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:155:PRO:O    | 1:F:156:ASN:HB2  | 2.12                     | 0.50              |
| 1:I:72:ILE:HD12  | 1:I:72:ILE:H     | 1.74                     | 0.50              |
| 1:I:152:TYR:HB3  | 1:I:187:ILE:HB   | 1.94                     | 0.50              |
| 1:O:238:TYR:CE2  | 1:O:297:PRO:HB3  | 2.46                     | 0.50              |
| 1:P:126:ILE:O    | 1:P:126:ILE:HD12 | 2.12                     | 0.50              |
| 1:A:234:LYS:HD3  | 1:A:234:LYS:N    | 2.27                     | 0.50              |
| 1:A:239:ASN:ND2  | 1:A:239:ASN:N    | 2.60                     | 0.50              |
| 1:H:253:ARG:NH1  | 1:M:61:THR:HG22  | 2.26                     | 0.50              |
| 1:J:179:LEU:O    | 1:J:179:LEU:HG   | 2.11                     | 0.50              |
| 1:L:298:LEU:HD13 | 1:P:122:ILE:HD12 | 1.94                     | 0.50              |
| 1:P:175:ARG:HD3  | 4:P:426:HOH:O    | 2.11                     | 0.50              |
| 1:D:243:LEU:C    | 1:D:243:LEU:HD12 | 2.32                     | 0.49              |
| 1:E:70:ALA:HB3   | 1:E:268:TRP:HB3  | 1.93                     | 0.49              |
| 1:F:56:ASP:HB2   | 1:H:48:THR:HG21  | 1.92                     | 0.49              |
| 1:N:68:ASP:OD2   | 1:N:273:VAL:HG23 | 2.11                     | 0.49              |
| 1:O:247:GLU:OE2  | 1:O:284:ARG:NE   | 2.44                     | 0.49              |
| 1:B:197:LEU:HB2  | 1:B:206:LEU:CD2  | 2.41                     | 0.49              |
| 1:B:298:LEU:HD23 | 1:C:103:VAL:HG13 | 1.94                     | 0.49              |
| 1:C:154:PRO:HG2  | 1:C:185:GLU:CA   | 2.38                     | 0.49              |
| 1:G:134:THR:HG23 | 1:G:143:LYS:O    | 2.12                     | 0.49              |
| 1:M:82:LEU:O     | 1:M:85:TRP:HB2   | 2.12                     | 0.49              |
| 1:O:152:TYR:HB3  | 1:O:187:ILE:HB   | 1.95                     | 0.49              |
| 1:D:237:HIS:ND1  | 1:D:239:ASN:HB2  | 2.28                     | 0.49              |
| 1:E:296:ASN:ND2  | 1:E:298:LEU:HB2  | 2.27                     | 0.49              |
| 1:F:199:THR:HB   | 1:F:202:GLU:HB2  | 1.92                     | 0.49              |
| 1:F:245:LEU:HD23 | 1:F:262:GLN:C    | 2.32                     | 0.49              |
| 1:J:143:LYS:HG3  | 1:J:188:VAL:HG11 | 1.94                     | 0.49              |
| 1:J:219:ASN:O    | 1:J:220:ILE:HD13 | 2.11                     | 0.49              |
| 1:O:152:TYR:HB2  | 1:O:210:LEU:HD21 | 1.95                     | 0.49              |
| 1:J:153:LEU:HD23 | 1:J:153:LEU:N    | 2.27                     | 0.49              |
| 1:K:125:LEU:HD13 | 1:K:126:ILE:N    | 2.27                     | 0.49              |
| 1:F:93:LEU:CD1   | 1:F:266:VAL:HG21 | 2.42                     | 0.49              |
| 1:M:93:LEU:HD12  | 1:M:104:MET:HE1  | 1.93                     | 0.49              |
| 1:N:87:ASN:HD21  | 1:N:110:LYS:HB2  | 1.75                     | 0.49              |
| 1:P:133:VAL:O    | 1:P:145:LEU:HB2  | 2.12                     | 0.49              |
| 1:I:152:TYR:O    | 1:I:186:LEU:HD12 | 2.12                     | 0.49              |
| 1:L:115:SER:HB3  | 1:L:161:LEU:HB2  | 1.94                     | 0.49              |
| 1:L:276:TRP:CH2  | 1:O:251:ILE:HD11 | 2.48                     | 0.49              |
| 1:P:158:HIS:ND1  | 1:P:159:HIS:N    | 2.61                     | 0.49              |
| 1:B:220:ILE:HD13 | 1:B:290:TYR:HA   | 1.95                     | 0.49              |
| 1:D:125:LEU:C    | 1:D:125:LEU:HD13 | 2.32                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:87:ASN:ND2   | 1:E:110:LYS:HB2  | 2.28                     | 0.49              |
| 1:G:63:SER:HA    | 1:G:71:LEU:O     | 2.12                     | 0.49              |
| 1:O:81:PRO:O     | 1:O:83:PRO:HD3   | 2.13                     | 0.49              |
| 1:B:298:LEU:HD11 | 1:C:122:ILE:HG21 | 1.95                     | 0.49              |
| 1:D:237:HIS:CE1  | 1:D:239:ASN:HB2  | 2.48                     | 0.49              |
| 1:E:82:LEU:HD23  | 1:E:85:TRP:CE2   | 2.48                     | 0.49              |
| 1:E:234:LYS:HG2  | 1:F:61:THR:HB    | 1.94                     | 0.49              |
| 1:G:114:SER:HA   | 1:G:161:LEU:O    | 2.13                     | 0.49              |
| 1:O:87:ASN:ND2   | 1:O:110:LYS:HB2  | 2.26                     | 0.49              |
| 1:O:164:VAL:CG2  | 1:O:165:GLU:N    | 2.75                     | 0.49              |
| 1:B:150:TYR:CZ   | 1:B:209:LEU:HB3  | 2.48                     | 0.49              |
| 1:C:74:PRO:O     | 1:C:76:SER:N     | 2.45                     | 0.49              |
| 1:F:185:GLU:O    | 1:F:187:ILE:HG12 | 2.12                     | 0.49              |
| 1:H:111:GLU:HA   | 1:H:164:VAL:O    | 2.13                     | 0.49              |
| 1:I:60:PHE:HZ    | 1:K:60:PHE:HZ    | 1.60                     | 0.49              |
| 1:I:95:THR:O     | 1:I:98:THR:HG23  | 2.12                     | 0.49              |
| 1:O:190:SER:HB2  | 1:O:193:LYS:CG   | 2.42                     | 0.49              |
| 1:P:152:TYR:HB3  | 1:P:187:ILE:HB   | 1.95                     | 0.49              |
| 1:C:186:LEU:O    | 1:C:187:ILE:HD13 | 2.12                     | 0.49              |
| 1:C:241:HIS:HB2  | 1:C:269:MET:HE2  | 1.94                     | 0.49              |
| 1:D:126:ILE:O    | 1:D:126:ILE:HD12 | 2.13                     | 0.49              |
| 1:E:62:ARG:NH2   | 1:E:265:ASP:OD2  | 2.46                     | 0.49              |
| 1:F:54:LEU:CD2   | 1:H:49:LEU:HD22  | 2.43                     | 0.49              |
| 1:F:121:ASP:H    | 1:F:156:ASN:ND2  | 2.11                     | 0.49              |
| 1:H:185:GLU:O    | 1:H:187:ILE:HG12 | 2.13                     | 0.49              |
| 1:I:130:GLU:O    | 1:I:167:ALA:HA   | 2.13                     | 0.49              |
| 1:I:199:THR:HG21 | 1:I:204:PHE:O    | 2.13                     | 0.49              |
| 1:J:124:ARG:HD2  | 1:J:153:LEU:HD12 | 1.95                     | 0.49              |
| 1:P:245:LEU:HD23 | 1:P:262:GLN:C    | 2.34                     | 0.49              |
| 1:B:95:THR:C     | 1:B:97:ALA:H     | 2.15                     | 0.48              |
| 1:B:270:ALA:O    | 1:B:273:VAL:HG12 | 2.13                     | 0.48              |
| 1:D:110:LYS:HB2  | 1:D:110:LYS:HZ3  | 1.77                     | 0.48              |
| 1:G:153:LEU:HD13 | 1:G:159:HIS:CD2  | 2.48                     | 0.48              |
| 1:M:93:LEU:HD12  | 1:M:104:MET:CE   | 2.42                     | 0.48              |
| 1:N:40:ILE:HB    | 1:N:147:VAL:HG11 | 1.95                     | 0.48              |
| 1:P:111:GLU:CD   | 1:P:111:GLU:N    | 2.65                     | 0.48              |
| 1:P:152:TYR:HE2  | 1:P:184:THR:HB   | 1.79                     | 0.48              |
| 1:E:208:LYS:HZ3  | 1:E:212:MET:HE3  | 1.78                     | 0.48              |
| 1:I:133:VAL:HG23 | 1:I:163:CYS:HB2  | 1.95                     | 0.48              |
| 1:J:164:VAL:CG2  | 1:J:165:GLU:HG3  | 2.43                     | 0.48              |
| 1:J:207:ARG:HB2  | 1:J:222:THR:HG22 | 1.95                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:207:ARG:HB2  | 1:J:222:THR:CG2  | 2.43                     | 0.48              |
| 1:K:157:PHE:CZ   | 1:K:186:LEU:HD22 | 2.49                     | 0.48              |
| 1:L:49:LEU:HD23  | 1:N:57:LEU:CD1   | 2.43                     | 0.48              |
| 1:P:127:PHE:HB3  | 1:P:170:VAL:HG13 | 1.95                     | 0.48              |
| 1:B:54:LEU:HD23  | 1:J:49:LEU:HD22  | 1.94                     | 0.48              |
| 1:C:142:SER:O    | 1:C:143:LYS:HD3  | 2.13                     | 0.48              |
| 1:F:133:VAL:HG21 | 1:F:161:LEU:HB3  | 1.95                     | 0.48              |
| 1:K:190:SER:O    | 1:K:191:THR:C    | 2.51                     | 0.48              |
| 1:K:269:MET:SD   | 1:K:275:GLN:OE1  | 2.71                     | 0.48              |
| 1:L:125:LEU:C    | 1:L:125:LEU:HD13 | 2.33                     | 0.48              |
| 1:L:192:ASP:OD1  | 1:L:192:ASP:N    | 2.47                     | 0.48              |
| 1:M:232:ASN:O    | 1:M:234:LYS:HD3  | 2.14                     | 0.48              |
| 1:N:128:VAL:HG22 | 1:N:169:LEU:HD21 | 1.95                     | 0.48              |
| 1:O:127:PHE:HB3  | 1:O:170:VAL:CG1  | 2.43                     | 0.48              |
| 1:A:63:SER:HA    | 1:A:71:LEU:O     | 2.13                     | 0.48              |
| 1:B:130:GLU:HB3  | 1:B:168:THR:HB   | 1.95                     | 0.48              |
| 1:C:85:TRP:CE3   | 1:C:88:THR:HG21  | 2.47                     | 0.48              |
| 1:K:128:VAL:HG22 | 1:K:169:LEU:CD2  | 2.43                     | 0.48              |
| 1:M:241:HIS:CG   | 1:M:289:LEU:HD11 | 2.48                     | 0.48              |
| 1:A:58:PRO:HG3   | 1:D:230:PHE:CZ   | 2.48                     | 0.48              |
| 1:B:153:LEU:HD13 | 1:B:159:HIS:CD2  | 2.48                     | 0.48              |
| 1:B:222:THR:CG2  | 1:B:286:ARG:HD2  | 2.38                     | 0.48              |
| 1:E:272:PHE:HE2  | 1:F:95:THR:HG1   | 1.60                     | 0.48              |
| 1:G:93:LEU:HD13  | 1:G:266:VAL:HG21 | 1.95                     | 0.48              |
| 1:H:214:VAL:HG13 | 1:H:215:ALA:N    | 2.28                     | 0.48              |
| 1:I:186:LEU:O    | 1:I:187:ILE:HD13 | 2.12                     | 0.48              |
| 1:J:151:ALA:HA   | 1:J:187:ILE:O    | 2.14                     | 0.48              |
| 1:J:152:TYR:O    | 1:J:153:LEU:HD23 | 2.12                     | 0.48              |
| 1:M:85:TRP:CE3   | 1:M:88:THR:HG21  | 2.48                     | 0.48              |
| 1:D:226:GLN:HB2  | 1:D:229:GLU:OE1  | 2.14                     | 0.48              |
| 1:E:74:PRO:C     | 1:E:76:SER:H     | 2.17                     | 0.48              |
| 1:F:111:GLU:H    | 1:F:111:GLU:HG2  | 1.36                     | 0.48              |
| 1:J:297:PRO:HG3  | 1:K:92:TYR:CZ    | 2.48                     | 0.48              |
| 1:N:137:ASN:OD1  | 1:N:140:SER:HB3  | 2.14                     | 0.48              |
| 1:N:140:SER:O    | 1:N:141:SER:HB3  | 2.13                     | 0.48              |
| 1:P:197:LEU:CD1  | 1:P:197:LEU:N    | 2.77                     | 0.48              |
| 1:E:52:SER:C     | 1:E:54:LEU:H     | 2.17                     | 0.48              |
| 1:F:143:LYS:HD3  | 1:F:188:VAL:HG11 | 1.95                     | 0.48              |
| 1:I:56:ASP:O     | 1:K:262:GLN:HB3  | 2.13                     | 0.48              |
| 1:K:110:LYS:N    | 1:K:110:LYS:HD2  | 2.28                     | 0.48              |
| 1:K:237:HIS:CE1  | 1:K:239:ASN:HB2  | 2.49                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:258:TRP:HB2  | 1:P:258:TRP:CD1  | 2.48                     | 0.48              |
| 1:A:49:LEU:H     | 1:A:262:GLN:HE22 | 1.62                     | 0.48              |
| 1:A:75:GLU:OE1   | 1:A:75:GLU:N     | 2.37                     | 0.48              |
| 1:C:241:HIS:CB   | 1:C:269:MET:HE2  | 2.43                     | 0.48              |
| 1:K:213:SER:C    | 1:K:215:ALA:H    | 2.16                     | 0.48              |
| 1:M:130:GLU:O    | 1:M:167:ALA:HA   | 2.13                     | 0.48              |
| 1:M:241:HIS:ND1  | 1:M:289:LEU:HD11 | 2.28                     | 0.48              |
| 1:P:64:VAL:HG12  | 1:P:66:LYS:HG3   | 1.96                     | 0.48              |
| 1:P:124:ARG:HG2  | 1:P:125:LEU:N    | 2.28                     | 0.48              |
| 1:P:197:LEU:N    | 1:P:197:LEU:HD12 | 2.28                     | 0.48              |
| 1:A:277:TYR:CG   | 1:A:278:ALA:N    | 2.82                     | 0.48              |
| 1:D:199:THR:HG21 | 1:D:204:PHE:CE1  | 2.49                     | 0.48              |
| 1:D:206:LEU:HD12 | 1:D:207:ARG:N    | 2.28                     | 0.48              |
| 1:D:296:ASN:ND2  | 1:D:298:LEU:N    | 2.49                     | 0.48              |
| 1:F:121:ASP:H    | 1:F:156:ASN:HD21 | 1.62                     | 0.48              |
| 1:H:41:TYR:CD2   | 1:H:246:LEU:HB3  | 2.49                     | 0.48              |
| 1:H:41:TYR:CZ    | 1:H:246:LEU:HD13 | 2.49                     | 0.48              |
| 1:J:245:LEU:HA   | 1:J:287:TYR:HB3  | 1.95                     | 0.48              |
| 1:M:64:VAL:HG21  | 1:M:66:LYS:HE3   | 1.95                     | 0.48              |
| 1:B:137:ASN:CB   | 1:B:140:SER:HA   | 2.43                     | 0.48              |
| 1:B:243:LEU:C    | 1:B:243:LEU:HD12 | 2.35                     | 0.48              |
| 1:J:270:ALA:O    | 1:J:273:VAL:HG12 | 2.13                     | 0.48              |
| 1:L:207:ARG:HB2  | 1:L:222:THR:CG2  | 2.44                     | 0.48              |
| 1:L:262:GLN:HB3  | 1:N:56:ASP:O     | 2.14                     | 0.48              |
| 1:L:272:PHE:HE2  | 1:P:95:THR:HG1   | 1.62                     | 0.48              |
| 1:P:83:PRO:O     | 1:P:84:ASP:HB2   | 2.14                     | 0.48              |
| 1:C:153:LEU:HD13 | 1:C:159:HIS:CE1  | 2.49                     | 0.47              |
| 1:D:125:LEU:HD13 | 1:D:126:ILE:N    | 2.30                     | 0.47              |
| 1:E:59:GLY:O     | 1:P:253:ARG:NH1  | 2.47                     | 0.47              |
| 1:G:209:LEU:O    | 1:G:210:LEU:HD23 | 2.13                     | 0.47              |
| 1:I:164:VAL:HG23 | 1:I:165:GLU:N    | 2.29                     | 0.47              |
| 1:H:270:ALA:O    | 1:H:273:VAL:HG12 | 2.14                     | 0.47              |
| 1:J:92:TYR:HA    | 1:J:105:TYR:HB3  | 1.95                     | 0.47              |
| 1:K:66:LYS:HD2   | 1:K:69:HIS:HE1   | 1.73                     | 0.47              |
| 1:L:137:ASN:HB3  | 1:L:159:HIS:HA   | 1.96                     | 0.47              |
| 1:N:217:ASP:O    | 1:N:218:PHE:HB3  | 2.13                     | 0.47              |
| 1:O:238:TYR:CD2  | 1:O:297:PRO:HB3  | 2.49                     | 0.47              |
| 1:A:101:HIS:O    | 1:A:174:ARG:HG3  | 2.14                     | 0.47              |
| 1:D:137:ASN:N    | 1:D:137:ASN:ND2  | 2.63                     | 0.47              |
| 1:G:222:THR:O    | 1:G:222:THR:HG22 | 2.13                     | 0.47              |
| 1:I:126:ILE:C    | 1:I:126:ILE:HD12 | 2.34                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:243:LEU:HG   | 1:D:267:ILE:HB   | 1.96                     | 0.47              |
| 1:E:52:SER:O     | 1:E:55:GLN:HG2   | 2.15                     | 0.47              |
| 1:J:203:VAL:HG11 | 1:J:229:GLU:OE2  | 2.14                     | 0.47              |
| 1:J:208:LYS:HZ2  | 1:J:212:MET:CE   | 2.26                     | 0.47              |
| 1:K:290:TYR:C    | 1:K:290:TYR:CD2  | 2.87                     | 0.47              |
| 1:L:276:TRP:HH2  | 1:O:251:ILE:HD11 | 1.78                     | 0.47              |
| 1:N:237:HIS:CE1  | 1:N:239:ASN:HB2  | 2.49                     | 0.47              |
| 1:N:276:TRP:CH2  | 1:N:278:ALA:HB2  | 2.50                     | 0.47              |
| 1:D:118:PRO:O    | 1:D:119:PRO:O    | 2.32                     | 0.47              |
| 1:D:152:TYR:HB3  | 1:D:187:ILE:HB   | 1.96                     | 0.47              |
| 1:I:118:PRO:HB2  | 1:I:122:ILE:HB   | 1.95                     | 0.47              |
| 1:J:276:TRP:CH2  | 1:J:278:ALA:HB2  | 2.49                     | 0.47              |
| 1:N:142:SER:C    | 1:N:143:LYS:HD2  | 2.34                     | 0.47              |
| 1:O:147:VAL:O    | 1:O:148:ASP:CB   | 2.62                     | 0.47              |
| 1:P:41:TYR:CE1   | 1:P:246:LEU:HD13 | 2.50                     | 0.47              |
| 1:E:88:THR:OG1   | 1:E:109:MET:HG2  | 2.15                     | 0.47              |
| 1:E:88:THR:HA    | 1:E:108:LYS:O    | 2.13                     | 0.47              |
| 1:E:109:MET:O    | 1:E:166:SER:HA   | 2.14                     | 0.47              |
| 1:G:175:ARG:HG3  | 1:G:175:ARG:NH1  | 2.26                     | 0.47              |
| 1:J:290:TYR:CD2  | 1:J:291:LYS:N    | 2.83                     | 0.47              |
| 1:B:70:ALA:HB3   | 1:B:268:TRP:HB3  | 1.96                     | 0.47              |
| 1:E:95:THR:O     | 1:E:97:ALA:N     | 2.48                     | 0.47              |
| 1:F:182:HIS:CE1  | 1:F:214:VAL:HG11 | 2.49                     | 0.47              |
| 1:G:68:ASP:HB2   | 1:G:273:VAL:HB   | 1.97                     | 0.47              |
| 1:G:219:ASN:O    | 1:G:220:ILE:HD13 | 2.14                     | 0.47              |
| 1:I:125:LEU:C    | 1:I:125:LEU:HD13 | 2.35                     | 0.47              |
| 1:K:74:PRO:C     | 1:K:76:SER:H     | 2.18                     | 0.47              |
| 1:K:87:ASN:HD21  | 1:K:110:LYS:HB2  | 1.73                     | 0.47              |
| 1:L:276:TRP:CH2  | 1:L:278:ALA:HB2  | 2.50                     | 0.47              |
| 1:M:170:VAL:O    | 1:M:170:VAL:HG13 | 2.14                     | 0.47              |
| 1:M:273:VAL:O    | 1:M:273:VAL:HG13 | 2.14                     | 0.47              |
| 1:N:86:THR:O     | 1:N:113:SER:HA   | 2.14                     | 0.47              |
| 1:N:197:LEU:HD22 | 1:N:208:LYS:HG3  | 1.97                     | 0.47              |
| 1:O:145:LEU:N    | 1:O:145:LEU:HD12 | 2.30                     | 0.47              |
| 1:O:245:LEU:HD12 | 1:O:287:TYR:HB3  | 1.97                     | 0.47              |
| 1:B:125:LEU:HD13 | 1:B:126:ILE:N    | 2.30                     | 0.47              |
| 1:D:224:ASP:OD1  | 1:D:286:ARG:NH1  | 2.48                     | 0.47              |
| 1:J:101:HIS:C    | 1:J:101:HIS:CD2  | 2.89                     | 0.47              |
| 1:J:283:THR:HB   | 4:J:417:HOH:O    | 2.13                     | 0.47              |
| 1:P:96:PRO:HA    | 1:P:100:SER:O    | 2.15                     | 0.47              |
| 1:A:243:LEU:C    | 1:A:243:LEU:HD12 | 2.36                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:251:ILE:HG12 | 1:A:280:LEU:CD1  | 2.45                     | 0.47              |
| 1:D:194:GLN:HA   | 1:D:194:GLN:NE2  | 2.30                     | 0.47              |
| 1:F:214:VAL:CG1  | 1:F:215:ALA:N    | 2.77                     | 0.47              |
| 1:G:108:LYS:HD3  | 1:G:168:THR:HG23 | 1.97                     | 0.47              |
| 1:H:243:LEU:HD23 | 1:H:269:MET:CE   | 2.44                     | 0.47              |
| 1:L:73:THR:HB    | 1:L:74:PRO:HD2   | 1.96                     | 0.47              |
| 1:M:153:LEU:HD13 | 1:M:159:HIS:NE2  | 2.30                     | 0.47              |
| 1:B:161:LEU:HD13 | 1:B:169:LEU:HD21 | 1.96                     | 0.47              |
| 1:H:245:LEU:HD23 | 1:H:262:GLN:C    | 2.35                     | 0.47              |
| 1:N:62:ARG:HD3   | 4:N:404:HOH:O    | 2.15                     | 0.47              |
| 1:O:82:LEU:HD13  | 1:O:90:GLY:HA3   | 1.97                     | 0.47              |
| 1:F:40:ILE:HG22  | 1:F:41:TYR:CG    | 2.50                     | 0.46              |
| 1:G:127:PHE:CE1  | 1:G:288:LEU:HD11 | 2.50                     | 0.46              |
| 1:G:234:LYS:HE3  | 1:I:60:PHE:O     | 2.15                     | 0.46              |
| 1:J:298:LEU:HD23 | 1:K:103:VAL:HG13 | 1.96                     | 0.46              |
| 1:K:225:PHE:HB2  | 1:K:279:ALA:HB2  | 1.97                     | 0.46              |
| 1:L:171:VAL:CG2  | 1:L:172:PHE:N    | 2.78                     | 0.46              |
| 1:O:208:LYS:HE3  | 4:O:413:HOH:O    | 2.16                     | 0.46              |
| 1:P:82:LEU:HD11  | 1:P:90:GLY:HA3   | 1.97                     | 0.46              |
| 1:P:137:ASN:CA   | 1:P:159:HIS:HA   | 2.37                     | 0.46              |
| 1:P:243:LEU:O    | 1:P:266:VAL:HG13 | 2.15                     | 0.46              |
| 1:E:150:TYR:CE2  | 1:E:209:LEU:HB3  | 2.50                     | 0.46              |
| 1:G:110:LYS:HA   | 1:G:110:LYS:HE2  | 1.96                     | 0.46              |
| 1:G:226:GLN:HB2  | 1:G:229:GLU:CD   | 2.36                     | 0.46              |
| 1:H:63:SER:HA    | 1:H:71:LEU:O     | 2.15                     | 0.46              |
| 1:H:82:LEU:CD1   | 1:H:83:PRO:HD2   | 2.36                     | 0.46              |
| 1:I:150:TYR:CE2  | 1:I:209:LEU:HB3  | 2.51                     | 0.46              |
| 1:N:170:VAL:HG13 | 1:N:170:VAL:O    | 2.15                     | 0.46              |
| 1:O:137:ASN:ND2  | 1:O:140:SER:HB2  | 2.29                     | 0.46              |
| 1:C:85:TRP:CE3   | 1:C:115:SER:HA   | 2.50                     | 0.46              |
| 1:C:284:ARG:NH2  | 1:C:286:ARG:NH1  | 2.64                     | 0.46              |
| 1:J:82:LEU:HD13  | 1:J:90:GLY:CA    | 2.39                     | 0.46              |
| 1:A:136:THR:HG22 | 1:A:142:SER:CB   | 2.45                     | 0.46              |
| 1:A:239:ASN:HD22 | 1:A:239:ASN:N    | 2.02                     | 0.46              |
| 1:B:196:LEU:HD12 | 1:B:205:GLU:HB3  | 1.97                     | 0.46              |
| 1:C:243:LEU:HD12 | 1:C:243:LEU:C    | 2.35                     | 0.46              |
| 1:D:61:THR:HG22  | 1:K:253:ARG:HH12 | 1.80                     | 0.46              |
| 1:E:154:PRO:HD3  | 1:E:186:LEU:HA   | 1.96                     | 0.46              |
| 1:G:166:SER:O    | 1:G:167:ALA:HB2  | 2.14                     | 0.46              |
| 1:I:119:PRO:HD2  | 1:I:122:ILE:HG13 | 1.97                     | 0.46              |
| 1:K:93:LEU:CD1   | 1:K:266:VAL:HG21 | 2.45                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:117:LEU:HD21 | 1:L:158:HIS:CD2  | 2.51                     | 0.46              |
| 1:C:243:LEU:HB3  | 1:C:289:LEU:HD12 | 1.98                     | 0.46              |
| 1:I:70:ALA:HB3   | 1:I:268:TRP:HB3  | 1.98                     | 0.46              |
| 1:L:170:VAL:HG13 | 1:L:170:VAL:O    | 2.15                     | 0.46              |
| 1:B:204:PHE:CE1  | 1:B:206:LEU:HB2  | 2.48                     | 0.46              |
| 1:C:252:TYR:CD1  | 1:C:277:TYR:HD1  | 2.34                     | 0.46              |
| 1:D:284:ARG:NH2  | 1:D:286:ARG:NH1  | 2.63                     | 0.46              |
| 1:E:233:VAL:O    | 1:E:233:VAL:HG13 | 2.15                     | 0.46              |
| 1:J:114:SER:HA   | 1:J:161:LEU:O    | 2.16                     | 0.46              |
| 1:K:194:GLN:NE2  | 1:K:194:GLN:CA   | 2.74                     | 0.46              |
| 1:P:135:LEU:HD23 | 1:P:135:LEU:C    | 2.35                     | 0.46              |
| 1:J:203:VAL:HG12 | 1:J:203:VAL:O    | 2.15                     | 0.46              |
| 1:K:218:PHE:CD1  | 1:K:218:PHE:C    | 2.88                     | 0.46              |
| 1:M:70:ALA:HB3   | 1:M:268:TRP:HB3  | 1.98                     | 0.46              |
| 1:N:151:ALA:HA   | 1:N:187:ILE:O    | 2.16                     | 0.46              |
| 1:O:125:LEU:HD13 | 1:O:125:LEU:C    | 2.35                     | 0.46              |
| 1:O:202:GLU:OE2  | 1:O:233:VAL:HG12 | 2.15                     | 0.46              |
| 1:A:184:THR:HG22 | 1:A:216:TYR:CE1  | 2.51                     | 0.46              |
| 1:C:95:THR:O     | 1:C:97:ALA:N     | 2.49                     | 0.46              |
| 1:F:141:SER:HB3  | 1:F:142:SER:H    | 1.55                     | 0.46              |
| 1:F:204:PHE:HE1  | 1:F:206:LEU:HB2  | 1.81                     | 0.46              |
| 1:H:224:ASP:OD1  | 1:H:286:ARG:CD   | 2.58                     | 0.46              |
| 1:J:125:LEU:HD13 | 1:J:125:LEU:C    | 2.36                     | 0.46              |
| 1:J:176:TYR:CE2  | 1:J:178:TYR:HA   | 2.43                     | 0.46              |
| 1:K:123:GLU:HG2  | 1:K:174:ARG:O    | 2.14                     | 0.46              |
| 1:D:103:VAL:CG2  | 1:D:173:GLU:HB2  | 2.46                     | 0.46              |
| 1:D:126:ILE:HD12 | 1:D:126:ILE:C    | 2.37                     | 0.46              |
| 1:D:153:LEU:HD13 | 1:D:159:HIS:CG   | 2.50                     | 0.46              |
| 1:E:96:PRO:HA    | 1:E:100:SER:O    | 2.16                     | 0.46              |
| 1:G:206:LEU:HD21 | 1:G:208:LYS:HE2  | 1.98                     | 0.46              |
| 1:J:170:VAL:O    | 1:J:170:VAL:HG13 | 2.15                     | 0.46              |
| 1:K:164:VAL:CG2  | 1:K:165:GLU:N    | 2.78                     | 0.46              |
| 1:K:194:GLN:HE21 | 1:K:194:GLN:HA   | 1.78                     | 0.46              |
| 1:O:96:PRO:HD3   | 1:O:103:VAL:HG12 | 1.97                     | 0.46              |
| 1:P:204:PHE:HB3  | 1:P:225:PHE:CE1  | 2.51                     | 0.46              |
| 1:A:54:LEU:CD2   | 1:C:49:LEU:HD22  | 2.46                     | 0.46              |
| 1:A:82:LEU:HD12  | 1:A:82:LEU:HA    | 1.85                     | 0.46              |
| 1:B:111:GLU:CD   | 1:B:111:GLU:H    | 2.19                     | 0.46              |
| 1:D:170:VAL:HG13 | 1:D:170:VAL:O    | 2.16                     | 0.46              |
| 1:L:241:HIS:HB2  | 1:L:269:MET:HB2  | 1.97                     | 0.46              |
| 1:C:166:SER:O    | 1:C:167:ALA:HB2  | 2.16                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:179:LEU:O    | 1:D:180:GLY:O    | 2.34                     | 0.45              |
| 1:E:222:THR:HG22 | 1:E:288:LEU:HD12 | 1.98                     | 0.45              |
| 1:F:151:ALA:HA   | 1:F:187:ILE:O    | 2.16                     | 0.45              |
| 1:F:298:LEU:HG   | 1:L:103:VAL:HG11 | 1.97                     | 0.45              |
| 1:H:125:LEU:HD23 | 1:H:152:TYR:HB2  | 1.98                     | 0.45              |
| 1:K:100:SER:HA   | 1:K:240:GLN:NE2  | 2.31                     | 0.45              |
| 1:K:211:PRO:CB   | 1:K:216:TYR:HE2  | 2.25                     | 0.45              |
| 1:L:83:PRO:O     | 1:L:84:ASP:HB2   | 2.16                     | 0.45              |
| 1:L:145:LEU:HD22 | 1:L:149:SER:HB3  | 1.99                     | 0.45              |
| 1:O:137:ASN:C    | 1:O:137:ASN:OD1  | 2.53                     | 0.45              |
| 1:P:188:VAL:HG12 | 1:P:189:GLY:N    | 2.30                     | 0.45              |
| 1:D:101:HIS:N    | 1:D:240:GLN:HE22 | 2.12                     | 0.45              |
| 1:D:150:TYR:CE1  | 1:D:209:LEU:HD22 | 2.51                     | 0.45              |
| 1:F:126:ILE:C    | 1:F:126:ILE:HD12 | 2.36                     | 0.45              |
| 1:G:196:LEU:CD2  | 1:G:205:GLU:HB3  | 2.42                     | 0.45              |
| 1:H:208:LYS:HG2  | 1:H:221:HIS:CD2  | 2.50                     | 0.45              |
| 1:I:150:TYR:CE1  | 1:I:209:LEU:HD22 | 2.50                     | 0.45              |
| 1:K:100:SER:CA   | 1:K:240:GLN:HE22 | 2.29                     | 0.45              |
| 1:M:179:LEU:HD23 | 1:M:214:VAL:HG22 | 1.97                     | 0.45              |
| 1:C:126:ILE:C    | 1:C:126:ILE:HD12 | 2.37                     | 0.45              |
| 1:D:64:VAL:HG12  | 1:D:66:LYS:HG3   | 1.98                     | 0.45              |
| 1:G:237:HIS:CE1  | 1:G:239:ASN:HB2  | 2.52                     | 0.45              |
| 1:H:186:LEU:CD1  | 1:H:188:VAL:HG23 | 2.45                     | 0.45              |
| 1:J:47:PRO:HA    | 4:J:424:HOH:O    | 2.17                     | 0.45              |
| 1:J:87:ASN:HD21  | 1:J:110:LYS:CB   | 2.29                     | 0.45              |
| 1:K:163:CYS:SG   | 1:K:167:ALA:HB2  | 2.56                     | 0.45              |
| 1:K:243:LEU:HD12 | 1:K:244:LEU:N    | 2.32                     | 0.45              |
| 1:P:105:TYR:CE1  | 1:P:171:VAL:HG11 | 2.52                     | 0.45              |
| 1:B:100:SER:HB3  | 1:B:268:TRP:CH2  | 2.51                     | 0.45              |
| 1:B:146:THR:O    | 1:B:147:VAL:C    | 2.55                     | 0.45              |
| 1:C:198:GLU:HB2  | 1:H:197:LEU:O    | 2.16                     | 0.45              |
| 1:E:117:LEU:HD11 | 1:E:158:HIS:CD2  | 2.52                     | 0.45              |
| 1:F:208:LYS:HZ2  | 1:F:212:MET:HE1  | 1.81                     | 0.45              |
| 1:I:243:LEU:HB2  | 1:I:289:LEU:HD12 | 1.99                     | 0.45              |
| 1:J:77:HIS:NE2   | 4:J:401:HOH:O    | 2.35                     | 0.45              |
| 1:L:147:VAL:O    | 1:L:148:ASP:CB   | 2.63                     | 0.45              |
| 1:D:128:VAL:HG12 | 1:D:147:VAL:HA   | 1.98                     | 0.45              |
| 1:D:243:LEU:HD23 | 1:D:269:MET:CE   | 2.46                     | 0.45              |
| 1:E:137:ASN:ND2  | 1:E:140:SER:HB3  | 2.31                     | 0.45              |
| 1:F:237:HIS:HB2  | 1:F:239:ASN:HD22 | 1.82                     | 0.45              |
| 1:F:262:GLN:HB3  | 1:H:56:ASP:O     | 2.16                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:243:LEU:HG   | 1:H:267:ILE:HB   | 1.98                     | 0.45              |
| 1:J:179:LEU:HD23 | 1:J:214:VAL:HG22 | 1.98                     | 0.45              |
| 1:L:95:THR:O     | 1:L:98:THR:HG23  | 2.16                     | 0.45              |
| 1:L:205:GLU:HB2  | 1:L:224:ASP:HB2  | 1.98                     | 0.45              |
| 1:N:133:VAL:HG23 | 1:N:163:CYS:CB   | 2.37                     | 0.45              |
| 1:O:54:LEU:HD23  | 1:P:49:LEU:HD22  | 1.99                     | 0.45              |
| 1:F:125:LEU:HD13 | 1:F:126:ILE:N    | 2.31                     | 0.45              |
| 1:I:83:PRO:C     | 1:I:85:TRP:H     | 2.19                     | 0.45              |
| 1:I:153:LEU:HD13 | 1:I:159:HIS:CD2  | 2.52                     | 0.45              |
| 1:J:134:THR:HG23 | 1:J:144:LYS:CA   | 2.47                     | 0.45              |
| 1:K:129:VAL:HB   | 1:K:168:THR:HB   | 1.98                     | 0.45              |
| 1:K:133:VAL:HG22 | 1:K:134:THR:N    | 2.31                     | 0.45              |
| 1:L:56:ASP:O     | 1:L:58:PRO:HD3   | 2.17                     | 0.45              |
| 1:L:262:GLN:NE2  | 1:N:56:ASP:HB2   | 2.32                     | 0.45              |
| 1:L:262:GLN:HE21 | 1:N:56:ASP:CB    | 2.30                     | 0.45              |
| 1:M:64:VAL:HG22  | 1:M:66:LYS:HE3   | 1.97                     | 0.45              |
| 1:P:237:HIS:CE1  | 1:P:239:ASN:HB2  | 2.52                     | 0.45              |
| 1:D:72:ILE:HD12  | 1:D:72:ILE:H     | 1.81                     | 0.45              |
| 1:F:179:LEU:HD23 | 1:F:214:VAL:HG22 | 1.99                     | 0.45              |
| 1:G:156:ASN:O    | 1:G:157:PHE:C    | 2.53                     | 0.45              |
| 1:G:227:PRO:HG3  | 1:G:283:THR:O    | 2.17                     | 0.45              |
| 1:H:195:PRO:O    | 1:H:197:LEU:HD12 | 2.16                     | 0.45              |
| 1:I:142:SER:C    | 1:I:143:LYS:HD2  | 2.37                     | 0.45              |
| 1:K:243:LEU:HD22 | 1:K:287:TYR:CE1  | 2.51                     | 0.45              |
| 1:L:50:SER:OG    | 1:L:51:PRO:HD2   | 2.16                     | 0.45              |
| 1:L:171:VAL:HG23 | 1:L:172:PHE:N    | 2.32                     | 0.45              |
| 1:M:128:VAL:HG22 | 1:M:169:LEU:CD1  | 2.47                     | 0.45              |
| 1:M:218:PHE:CD1  | 1:M:218:PHE:C    | 2.90                     | 0.45              |
| 1:P:82:LEU:O     | 1:P:85:TRP:HB2   | 2.16                     | 0.45              |
| 1:P:156:ASN:O    | 1:P:157:PHE:C    | 2.55                     | 0.45              |
| 1:A:56:ASP:OD2   | 1:C:48:THR:OG1   | 2.34                     | 0.45              |
| 1:B:253:ARG:NH1  | 1:C:61:THR:HG22  | 2.32                     | 0.45              |
| 1:F:237:HIS:CE1  | 1:F:239:ASN:HB2  | 2.51                     | 0.45              |
| 1:H:290:TYR:CD2  | 1:H:291:LYS:N    | 2.85                     | 0.45              |
| 1:K:95:THR:O     | 1:K:97:ALA:N     | 2.50                     | 0.45              |
| 1:K:101:HIS:H    | 1:K:240:GLN:HE22 | 1.65                     | 0.45              |
| 1:K:253:ARG:HD2  | 1:K:258:TRP:CZ2  | 2.52                     | 0.45              |
| 1:L:40:ILE:HG22  | 1:L:41:TYR:CD2   | 2.51                     | 0.45              |
| 1:N:150:TYR:CE2  | 1:N:209:LEU:HB3  | 2.52                     | 0.45              |
| 1:P:72:ILE:HD12  | 1:P:72:ILE:H     | 1.81                     | 0.45              |
| 1:P:123:GLU:O    | 1:P:173:GLU:HA   | 2.16                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:218:PHE:HA   | 1:C:293:VAL:HG22 | 1.98                     | 0.45              |
| 1:D:184:THR:HB   | 1:D:216:TYR:CE1  | 2.51                     | 0.45              |
| 1:E:103:VAL:CG2  | 1:E:173:GLU:HB2  | 2.47                     | 0.45              |
| 1:G:82:LEU:O     | 1:G:85:TRP:HB2   | 2.17                     | 0.45              |
| 1:J:175:ARG:HG3  | 1:J:175:ARG:NH1  | 2.22                     | 0.45              |
| 1:J:224:ASP:CG   | 1:J:286:ARG:HD3  | 2.37                     | 0.45              |
| 1:M:68:ASP:OD2   | 1:M:273:VAL:HG23 | 2.15                     | 0.45              |
| 1:O:54:LEU:CD2   | 1:P:49:LEU:HD22  | 2.46                     | 0.45              |
| 1:P:136:THR:O    | 1:P:137:ASN:ND2  | 2.49                     | 0.45              |
| 1:A:85:TRP:CE3   | 1:A:115:SER:HA   | 2.52                     | 0.45              |
| 1:A:126:ILE:HG22 | 1:A:171:VAL:HB   | 1.98                     | 0.45              |
| 1:B:155:PRO:HG3  | 1:B:176:TYR:CD2  | 2.52                     | 0.45              |
| 1:D:136:THR:HG22 | 1:D:142:SER:CB   | 2.46                     | 0.45              |
| 1:H:43:LYS:HB2   | 4:H:413:HOH:O    | 2.17                     | 0.45              |
| 1:I:209:LEU:O    | 1:I:210:LEU:HD23 | 2.17                     | 0.45              |
| 1:J:241:HIS:HB2  | 1:J:269:MET:HB2  | 1.99                     | 0.45              |
| 1:K:204:PHE:HB3  | 1:K:225:PHE:CE1  | 2.52                     | 0.45              |
| 1:K:233:VAL:O    | 1:K:233:VAL:HG13 | 2.17                     | 0.45              |
| 1:M:50:SER:HB2   | 1:M:51:PRO:HD2   | 1.98                     | 0.45              |
| 1:M:269:MET:SD   | 1:M:275:GLN:OE1  | 2.76                     | 0.45              |
| 1:O:120:GLN:O    | 1:O:122:ILE:HG12 | 2.17                     | 0.45              |
| 1:C:194:GLN:NE2  | 4:C:431:HOH:O    | 2.50                     | 0.44              |
| 1:E:73:THR:HG22  | 1:E:265:ASP:OD1  | 2.17                     | 0.44              |
| 1:G:220:ILE:HD13 | 1:G:290:TYR:HA   | 1.99                     | 0.44              |
| 1:H:94:ILE:O     | 1:H:103:VAL:HA   | 2.17                     | 0.44              |
| 1:L:219:ASN:OD1  | 1:L:220:ILE:N    | 2.50                     | 0.44              |
| 1:P:85:TRP:HE3   | 1:P:88:THR:HG21  | 1.75                     | 0.44              |
| 1:P:93:LEU:HD13  | 1:P:266:VAL:HG21 | 1.99                     | 0.44              |
| 1:P:191:THR:CG2  | 1:P:286:ARG:NH2  | 2.75                     | 0.44              |
| 1:B:207:ARG:HB2  | 1:B:222:THR:HB   | 1.99                     | 0.44              |
| 1:D:64:VAL:CG1   | 1:D:66:LYS:HE3   | 2.45                     | 0.44              |
| 1:E:208:LYS:NZ   | 1:E:212:MET:HE3  | 2.32                     | 0.44              |
| 1:F:207:ARG:NH2  | 4:F:436:HOH:O    | 2.50                     | 0.44              |
| 1:L:117:LEU:N    | 1:L:117:LEU:HD12 | 2.32                     | 0.44              |
| 1:L:292:ASP:OD1  | 1:L:292:ASP:N    | 2.51                     | 0.44              |
| 1:M:152:TYR:O    | 1:M:186:LEU:HD12 | 2.16                     | 0.44              |
| 1:M:245:LEU:HD23 | 1:M:262:GLN:C    | 2.37                     | 0.44              |
| 1:N:111:GLU:HA   | 1:N:164:VAL:O    | 2.17                     | 0.44              |
| 1:A:70:ALA:HB3   | 1:A:268:TRP:HB3  | 1.98                     | 0.44              |
| 1:C:253:ARG:HD2  | 1:C:258:TRP:CZ2  | 2.52                     | 0.44              |
| 1:H:140:SER:O    | 1:H:141:SER:HB2  | 2.17                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:232:ASN:HD22 | 1:J:232:ASN:HA   | 1.63                     | 0.44              |
| 1:L:137:ASN:O    | 1:L:137:ASN:ND2  | 2.49                     | 0.44              |
| 1:M:109:MET:O    | 1:M:166:SER:HA   | 2.18                     | 0.44              |
| 1:M:182:HIS:NE2  | 1:M:214:VAL:HG11 | 2.33                     | 0.44              |
| 1:N:88:THR:OG1   | 1:N:109:MET:HG2  | 2.17                     | 0.44              |
| 1:P:45:THR:HG21  | 1:P:130:GLU:OE2  | 2.17                     | 0.44              |
| 1:P:198:GLU:HG3  | 1:P:200:PRO:HD3  | 1.99                     | 0.44              |
| 1:B:137:ASN:CG   | 1:B:140:SER:HA   | 2.38                     | 0.44              |
| 1:B:247:GLU:CG   | 1:B:286:ARG:HB3  | 2.47                     | 0.44              |
| 1:J:64:VAL:HG11  | 1:J:66:LYS:HZ2   | 1.83                     | 0.44              |
| 1:J:103:VAL:HG22 | 1:J:173:GLU:O    | 2.18                     | 0.44              |
| 1:N:61:THR:HB    | 1:O:234:LYS:CG   | 2.44                     | 0.44              |
| 1:C:103:VAL:CG2  | 1:C:173:GLU:HB2  | 2.48                     | 0.44              |
| 1:C:133:VAL:HG21 | 1:C:161:LEU:HB3  | 1.98                     | 0.44              |
| 1:E:190:SER:HB2  | 1:E:192:ASP:OD1  | 2.17                     | 0.44              |
| 1:E:243:LEU:HD23 | 1:E:269:MET:HE2  | 2.00                     | 0.44              |
| 1:F:118:PRO:HD3  | 1:F:124:ARG:NH2  | 2.33                     | 0.44              |
| 1:H:237:HIS:ND1  | 1:H:239:ASN:HB2  | 2.33                     | 0.44              |
| 1:I:153:LEU:HD13 | 1:I:159:HIS:NE2  | 2.32                     | 0.44              |
| 1:O:133:VAL:HG22 | 1:O:134:THR:N    | 2.32                     | 0.44              |
| 1:A:82:LEU:HD13  | 1:A:90:GLY:CA    | 2.47                     | 0.44              |
| 1:A:122:ILE:HD13 | 1:A:175:ARG:HA   | 2.00                     | 0.44              |
| 1:A:251:ILE:HG12 | 1:A:280:LEU:HD11 | 1.98                     | 0.44              |
| 1:E:69:HIS:HE1   | 4:E:415:HOH:O    | 2.00                     | 0.44              |
| 1:G:94:ILE:O     | 1:G:103:VAL:HA   | 2.18                     | 0.44              |
| 1:H:250:GLY:HA3  | 1:H:278:ALA:O    | 2.18                     | 0.44              |
| 1:J:164:VAL:HG23 | 1:J:165:GLU:CG   | 2.46                     | 0.44              |
| 1:K:223:MET:O    | 1:K:286:ARG:HA   | 2.18                     | 0.44              |
| 1:O:240:GLN:HG2  | 1:O:292:ASP:OD1  | 2.16                     | 0.44              |
| 1:P:153:LEU:HD13 | 1:P:159:HIS:NE2  | 2.33                     | 0.44              |
| 1:A:72:ILE:N     | 1:A:72:ILE:HD12  | 2.33                     | 0.44              |
| 1:A:102:PHE:HE2  | 1:A:240:GLN:HE21 | 1.59                     | 0.44              |
| 1:E:136:THR:CG2  | 1:E:160:SER:HB3  | 2.47                     | 0.44              |
| 1:G:133:VAL:HG23 | 1:G:163:CYS:HB2  | 2.00                     | 0.44              |
| 1:H:126:ILE:C    | 1:H:126:ILE:HD12 | 2.38                     | 0.44              |
| 1:I:202:GLU:HB3  | 1:I:204:PHE:CE2  | 2.53                     | 0.44              |
| 1:J:40:ILE:HG22  | 1:J:41:TYR:CD2   | 2.53                     | 0.44              |
| 1:J:266:VAL:C    | 1:J:267:ILE:HD12 | 2.37                     | 0.44              |
| 1:K:125:LEU:HD23 | 1:K:152:TYR:HB2  | 2.00                     | 0.44              |
| 1:M:227:PRO:HB3  | 1:M:281:GLY:O    | 2.17                     | 0.44              |
| 1:N:60:PHE:O     | 1:O:234:LYS:HE3  | 2.17                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:203:VAL:O    | 1:N:204:PHE:C    | 2.56                     | 0.44              |
| 1:O:147:VAL:O    | 1:O:147:VAL:HG22 | 2.17                     | 0.44              |
| 1:O:276:TRP:CH2  | 1:O:278:ALA:HB2  | 2.52                     | 0.44              |
| 1:A:83:PRO:O     | 1:A:84:ASP:CB    | 2.66                     | 0.44              |
| 1:D:174:ARG:HG2  | 1:D:175:ARG:O    | 2.17                     | 0.44              |
| 1:F:290:TYR:CD2  | 1:F:290:TYR:C    | 2.91                     | 0.44              |
| 1:G:111:GLU:O    | 1:G:112:MET:C    | 2.55                     | 0.44              |
| 1:J:231:LEU:HD12 | 1:J:276:TRP:HA   | 2.00                     | 0.44              |
| 1:K:211:PRO:O    | 1:K:216:TYR:HD2  | 2.00                     | 0.44              |
| 1:L:153:LEU:HD22 | 1:L:159:HIS:CD2  | 2.53                     | 0.44              |
| 1:M:133:VAL:CG2  | 1:M:134:THR:N    | 2.81                     | 0.44              |
| 1:C:297:PRO:HG3  | 1:G:92:TYR:CZ    | 2.53                     | 0.44              |
| 1:D:137:ASN:HD21 | 1:D:140:SER:C    | 2.22                     | 0.44              |
| 1:G:252:TYR:CD1  | 1:G:277:TYR:CD1  | 3.05                     | 0.44              |
| 1:K:196:LEU:HD21 | 1:K:207:ARG:NH1  | 2.33                     | 0.44              |
| 1:K:262:GLN:NE2  | 4:K:404:HOH:O    | 2.51                     | 0.44              |
| 1:M:82:LEU:HD12  | 1:M:83:PRO:HD2   | 1.99                     | 0.44              |
| 1:P:41:TYR:CZ    | 1:P:246:LEU:HD13 | 2.52                     | 0.44              |
| 1:P:243:LEU:HB3  | 1:P:289:LEU:CD1  | 2.48                     | 0.44              |
| 1:F:41:TYR:N     | 1:F:41:TYR:CD2   | 2.84                     | 0.43              |
| 1:H:207:ARG:HB2  | 1:H:222:THR:CG2  | 2.48                     | 0.43              |
| 1:I:126:ILE:HD12 | 1:I:126:ILE:O    | 2.18                     | 0.43              |
| 1:I:279:ALA:O    | 1:I:280:LEU:HD23 | 2.18                     | 0.43              |
| 1:K:90:GLY:HA2   | 1:K:106:LEU:O    | 2.18                     | 0.43              |
| 1:M:140:SER:O    | 1:M:141:SER:HB3  | 2.17                     | 0.43              |
| 1:M:252:TYR:CD1  | 1:M:277:TYR:CD1  | 3.06                     | 0.43              |
| 1:P:245:LEU:HD12 | 1:P:287:TYR:HB3  | 2.00                     | 0.43              |
| 1:D:135:LEU:O    | 1:D:142:SER:HA   | 2.18                     | 0.43              |
| 1:E:133:VAL:HG22 | 1:E:134:THR:N    | 2.33                     | 0.43              |
| 1:F:126:ILE:HD12 | 1:F:126:ILE:O    | 2.18                     | 0.43              |
| 1:F:174:ARG:HH21 | 1:F:177:GLU:HG3  | 1.82                     | 0.43              |
| 1:G:213:SER:O    | 1:G:294:ASN:ND2  | 2.51                     | 0.43              |
| 1:H:222:THR:HG22 | 1:H:222:THR:O    | 2.18                     | 0.43              |
| 1:K:164:VAL:HG23 | 1:K:165:GLU:HG2  | 2.00                     | 0.43              |
| 1:O:241:HIS:HB2  | 1:O:269:MET:HB2  | 1.98                     | 0.43              |
| 1:D:206:LEU:HD12 | 1:D:207:ARG:H    | 1.83                     | 0.43              |
| 1:E:102:PHE:HD2  | 1:E:240:GLN:HE21 | 1.66                     | 0.43              |
| 1:E:197:LEU:HD12 | 1:E:208:LYS:HG3  | 2.00                     | 0.43              |
| 1:G:50:SER:O     | 1:G:53:HIS:HB2   | 2.18                     | 0.43              |
| 1:H:208:LYS:HZ2  | 1:H:212:MET:HE2  | 1.83                     | 0.43              |
| 1:K:87:ASN:CG    | 1:K:110:LYS:HB2  | 2.37                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:262:GLN:NE2  | 4:L:430:HOH:O    | 2.46                     | 0.43              |
| 1:O:134:THR:O    | 1:O:161:LEU:HA   | 2.18                     | 0.43              |
| 1:P:105:TYR:CE1  | 1:P:171:VAL:CG1  | 3.02                     | 0.43              |
| 1:C:184:THR:HB   | 1:C:216:TYR:CE1  | 2.52                     | 0.43              |
| 1:F:298:LEU:HG   | 1:L:103:VAL:CG1  | 2.48                     | 0.43              |
| 1:H:237:HIS:CE1  | 1:H:239:ASN:HB2  | 2.53                     | 0.43              |
| 1:H:237:HIS:HB3  | 1:M:78:VAL:HG21  | 2.00                     | 0.43              |
| 1:I:95:THR:HA    | 1:I:103:VAL:HG12 | 2.00                     | 0.43              |
| 1:I:134:THR:HG23 | 1:I:143:LYS:O    | 2.19                     | 0.43              |
| 1:K:64:VAL:CG1   | 1:K:66:LYS:HE3   | 2.43                     | 0.43              |
| 1:L:251:ILE:HD13 | 1:L:260:PRO:HA   | 1.99                     | 0.43              |
| 1:N:87:ASN:CG    | 1:N:110:LYS:HB2  | 2.37                     | 0.43              |
| 1:N:93:LEU:CD1   | 1:N:266:VAL:HG21 | 2.40                     | 0.43              |
| 1:N:130:GLU:CG   | 1:N:131:GLY:N    | 2.81                     | 0.43              |
| 1:O:253:ARG:HB3  | 1:O:276:TRP:HB3  | 2.00                     | 0.43              |
| 1:O:284:ARG:C    | 1:O:284:ARG:HD2  | 2.38                     | 0.43              |
| 1:P:207:ARG:HB3  | 1:P:222:THR:HB   | 1.99                     | 0.43              |
| 1:B:235:GLU:HB2  | 1:B:275:GLN:HG3  | 2.00                     | 0.43              |
| 1:C:115:SER:HB3  | 1:C:161:LEU:CB   | 2.33                     | 0.43              |
| 1:C:217:ASP:O    | 1:C:218:PHE:HB3  | 2.18                     | 0.43              |
| 1:F:64:VAL:HG12  | 1:F:66:LYS:HG3   | 2.00                     | 0.43              |
| 1:G:82:LEU:HG    | 1:G:85:TRP:CD1   | 2.54                     | 0.43              |
| 1:H:89:LEU:HD12  | 1:H:110:LYS:NZ   | 2.33                     | 0.43              |
| 1:H:298:LEU:HD21 | 1:M:122:ILE:HD12 | 2.01                     | 0.43              |
| 1:J:223:MET:O    | 1:J:286:ARG:HA   | 2.19                     | 0.43              |
| 1:K:164:VAL:CG2  | 1:K:165:GLU:H    | 2.31                     | 0.43              |
| 1:K:199:THR:HB   | 1:K:202:GLU:HB2  | 2.00                     | 0.43              |
| 1:L:80:SER:O     | 1:L:81:PRO:C     | 2.56                     | 0.43              |
| 1:L:101:HIS:NE2  | 1:L:290:TYR:OH   | 2.44                     | 0.43              |
| 1:L:220:ILE:HA   | 1:L:289:LEU:O    | 2.18                     | 0.43              |
| 1:P:120:GLN:OE1  | 1:P:121:ASP:N    | 2.52                     | 0.43              |
| 1:A:230:PHE:HB2  | 1:A:277:TYR:O    | 2.19                     | 0.43              |
| 1:C:270:ALA:O    | 1:C:273:VAL:HG12 | 2.18                     | 0.43              |
| 1:D:93:LEU:C     | 1:D:94:ILE:HG13  | 2.39                     | 0.43              |
| 1:E:52:SER:C     | 1:E:54:LEU:N     | 2.71                     | 0.43              |
| 1:E:276:TRP:CH2  | 1:E:278:ALA:HB2  | 2.54                     | 0.43              |
| 1:F:135:LEU:HB2  | 1:F:145:LEU:HD11 | 2.01                     | 0.43              |
| 1:H:125:LEU:HD13 | 1:H:125:LEU:C    | 2.38                     | 0.43              |
| 1:K:101:HIS:N    | 1:K:240:GLN:HE22 | 2.17                     | 0.43              |
| 1:L:190:SER:O    | 1:L:194:GLN:HG2  | 2.18                     | 0.43              |
| 1:M:226:GLN:HB2  | 1:M:229:GLU:CD   | 2.38                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:150:TYR:CD1  | 1:O:209:LEU:HD13 | 2.53                     | 0.43              |
| 1:O:196:LEU:C    | 1:O:197:LEU:HD23 | 2.39                     | 0.43              |
| 1:B:185:GLU:O    | 1:B:187:ILE:HG12 | 2.19                     | 0.43              |
| 1:I:96:PRO:HD3   | 1:I:103:VAL:HG12 | 2.00                     | 0.43              |
| 1:I:243:LEU:HD12 | 1:I:243:LEU:C    | 2.37                     | 0.43              |
| 1:J:234:LYS:N    | 1:J:234:LYS:HD3  | 2.33                     | 0.43              |
| 1:N:243:LEU:HD23 | 1:N:269:MET:HE1  | 1.99                     | 0.43              |
| 1:P:103:VAL:CG2  | 1:P:173:GLU:HB2  | 2.48                     | 0.43              |
| 1:A:283:THR:HG21 | 4:A:430:HOH:O    | 2.19                     | 0.43              |
| 1:F:41:TYR:CZ    | 1:F:246:LEU:HD13 | 2.54                     | 0.43              |
| 1:F:127:PHE:HB3  | 1:F:170:VAL:HG12 | 1.97                     | 0.43              |
| 1:H:298:LEU:CD2  | 1:M:122:ILE:HD12 | 2.49                     | 0.43              |
| 1:J:66:LYS:HE2   | 1:J:257:ASN:HD21 | 1.83                     | 0.43              |
| 1:J:245:LEU:HD23 | 1:J:262:GLN:C    | 2.39                     | 0.43              |
| 1:N:81:PRO:O     | 1:N:83:PRO:HD3   | 2.19                     | 0.43              |
| 1:O:253:ARG:O    | 1:O:275:GLN:HA   | 2.19                     | 0.43              |
| 1:P:124:ARG:HA   | 1:P:172:PHE:O    | 2.18                     | 0.43              |
| 1:P:190:SER:HB3  | 1:P:192:ASP:OD1  | 2.19                     | 0.43              |
| 1:B:64:VAL:HG12  | 1:B:66:LYS:HG2   | 2.00                     | 0.43              |
| 1:E:133:VAL:HG23 | 1:E:162:ASP:O    | 2.19                     | 0.43              |
| 1:E:224:ASP:OD2  | 1:E:286:ARG:HD3  | 2.18                     | 0.43              |
| 1:F:192:ASP:OD2  | 1:F:193:LYS:N    | 2.52                     | 0.43              |
| 1:G:79:TYR:CD1   | 1:G:91:ALA:HB2   | 2.54                     | 0.43              |
| 1:H:105:TYR:CE2  | 1:H:171:VAL:HG22 | 2.53                     | 0.43              |
| 1:H:234:LYS:HG2  | 1:M:61:THR:HB    | 2.01                     | 0.43              |
| 1:K:208:LYS:HE2  | 1:K:221:HIS:CE1  | 2.54                     | 0.43              |
| 1:K:258:TRP:CD1  | 1:K:258:TRP:N    | 2.87                     | 0.43              |
| 1:N:125:LEU:C    | 1:N:125:LEU:HD13 | 2.39                     | 0.43              |
| 1:P:100:SER:HB3  | 1:P:268:TRP:CH2  | 2.54                     | 0.43              |
| 1:P:273:VAL:O    | 1:P:273:VAL:HG13 | 2.18                     | 0.43              |
| 1:D:100:SER:HB2  | 1:D:240:GLN:NE2  | 2.34                     | 0.43              |
| 1:D:204:PHE:HB3  | 1:D:225:PHE:CE1  | 2.54                     | 0.43              |
| 1:M:93:LEU:HD13  | 1:M:266:VAL:HG21 | 2.01                     | 0.43              |
| 1:N:275:GLN:HE21 | 1:N:275:GLN:HB3  | 1.66                     | 0.43              |
| 1:O:165:GLU:CG   | 1:O:166:SER:H    | 2.22                     | 0.43              |
| 1:B:126:ILE:HD13 | 1:B:161:LEU:CD1  | 2.41                     | 0.42              |
| 1:C:224:ASP:OD1  | 1:C:286:ARG:NH1  | 2.52                     | 0.42              |
| 1:G:57:LEU:HD23  | 1:G:57:LEU:HA    | 1.84                     | 0.42              |
| 1:I:48:THR:OG1   | 1:K:56:ASP:OD2   | 2.29                     | 0.42              |
| 1:L:53:HIS:O     | 1:N:48:THR:HG22  | 2.19                     | 0.42              |
| 1:M:127:PHE:HB3  | 1:M:170:VAL:CG1  | 2.49                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:69:HIS:HA    | 1:N:268:TRP:O    | 2.19                     | 0.42              |
| 1:O:137:ASN:HD22 | 1:O:140:SER:CB   | 2.30                     | 0.42              |
| 1:A:116:GLY:O    | 1:A:117:LEU:C    | 2.57                     | 0.42              |
| 1:A:120:GLN:HG3  | 1:A:156:ASN:ND2  | 2.33                     | 0.42              |
| 1:A:220:ILE:HD13 | 1:A:290:TYR:HA   | 2.01                     | 0.42              |
| 1:D:83:PRO:O     | 1:D:84:ASP:HB2   | 2.18                     | 0.42              |
| 1:E:296:ASN:ND2  | 1:E:298:LEU:HD12 | 2.31                     | 0.42              |
| 1:H:186:LEU:HD12 | 1:H:187:ILE:N    | 2.34                     | 0.42              |
| 1:I:120:GLN:CG   | 1:I:156:ASN:HD21 | 2.31                     | 0.42              |
| 1:O:224:ASP:OD2  | 1:O:286:ARG:HD3  | 2.20                     | 0.42              |
| 1:O:249:GLN:CD   | 1:O:249:GLN:N    | 2.72                     | 0.42              |
| 1:E:82:LEU:HD23  | 1:E:85:TRP:CD2   | 2.55                     | 0.42              |
| 1:E:220:ILE:HA   | 1:E:289:LEU:O    | 2.20                     | 0.42              |
| 1:G:68:ASP:OD1   | 1:G:68:ASP:N     | 2.51                     | 0.42              |
| 1:I:252:TYR:CE1  | 1:I:277:TYR:HB2  | 2.55                     | 0.42              |
| 1:J:137:ASN:ND2  | 1:J:140:SER:N    | 2.67                     | 0.42              |
| 1:J:202:GLU:OE2  | 1:J:202:GLU:HA   | 2.20                     | 0.42              |
| 1:L:187:ILE:HD11 | 1:L:216:TYR:OH   | 2.18                     | 0.42              |
| 1:M:57:LEU:HD23  | 1:M:57:LEU:HA    | 1.87                     | 0.42              |
| 1:A:203:VAL:HG21 | 1:A:229:GLU:HG2  | 2.01                     | 0.42              |
| 1:B:126:ILE:O    | 1:B:126:ILE:HG13 | 2.19                     | 0.42              |
| 1:C:52:SER:O     | 1:C:55:GLN:HG2   | 2.20                     | 0.42              |
| 1:C:170:VAL:O    | 1:C:170:VAL:HG13 | 2.19                     | 0.42              |
| 1:I:190:SER:HB3  | 1:I:193:LYS:HG2  | 2.01                     | 0.42              |
| 1:J:88:THR:HG23  | 1:J:109:MET:HA   | 2.01                     | 0.42              |
| 1:L:153:LEU:HA   | 1:L:154:PRO:HD3  | 1.87                     | 0.42              |
| 1:N:130:GLU:HG2  | 1:N:131:GLY:H    | 1.83                     | 0.42              |
| 1:E:233:VAL:HG13 | 1:E:235:GLU:HG3  | 2.01                     | 0.42              |
| 1:F:41:TYR:CE1   | 1:F:246:LEU:HD13 | 2.54                     | 0.42              |
| 1:H:57:LEU:HD23  | 1:H:57:LEU:HA    | 1.94                     | 0.42              |
| 1:H:102:PHE:HE2  | 1:H:240:GLN:HE21 | 1.64                     | 0.42              |
| 1:H:140:SER:O    | 1:H:141:SER:CB   | 2.67                     | 0.42              |
| 1:H:275:GLN:OE1  | 3:H:302:UGY:NE   | 2.52                     | 0.42              |
| 1:I:149:SER:O    | 1:I:150:TYR:HB3  | 2.20                     | 0.42              |
| 1:K:41:TYR:OH    | 1:K:286:ARG:NH2  | 2.53                     | 0.42              |
| 1:L:179:LEU:HD23 | 1:L:214:VAL:CG2  | 2.49                     | 0.42              |
| 1:M:174:ARG:HG2  | 1:M:175:ARG:N    | 2.34                     | 0.42              |
| 1:O:53:HIS:CD2   | 1:P:53:HIS:CE1   | 3.07                     | 0.42              |
| 1:P:158:HIS:O    | 1:P:159:HIS:HB3  | 2.19                     | 0.42              |
| 1:A:237:HIS:CE1  | 1:A:239:ASN:HB2  | 2.55                     | 0.42              |
| 1:G:100:SER:HA   | 1:G:240:GLN:HE22 | 1.84                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:208:LYS:NZ   | 1:H:212:MET:HE3  | 2.35                     | 0.42              |
| 1:I:262:GLN:O    | 1:I:263:ALA:C    | 2.57                     | 0.42              |
| 1:K:88:THR:OG1   | 1:K:109:MET:HA   | 2.19                     | 0.42              |
| 1:M:126:ILE:C    | 1:M:126:ILE:HD12 | 2.40                     | 0.42              |
| 1:M:253:ARG:HH12 | 1:O:61:THR:HG22  | 1.84                     | 0.42              |
| 1:O:60:PHE:HZ    | 1:P:60:PHE:HZ    | 1.67                     | 0.42              |
| 1:P:110:LYS:HB3  | 1:P:111:GLU:OE2  | 2.19                     | 0.42              |
| 1:A:62:ARG:HB2   | 1:A:73:THR:HG21  | 2.02                     | 0.42              |
| 1:B:135:LEU:O    | 1:B:142:SER:HA   | 2.20                     | 0.42              |
| 1:B:237:HIS:CE1  | 1:B:239:ASN:HB2  | 2.53                     | 0.42              |
| 1:I:218:PHE:HD1  | 1:I:219:ASN:N    | 2.17                     | 0.42              |
| 1:I:222:THR:O    | 1:I:222:THR:HG22 | 2.20                     | 0.42              |
| 1:K:125:LEU:HD13 | 1:K:125:LEU:C    | 2.40                     | 0.42              |
| 1:L:134:THR:HG22 | 1:L:135:LEU:N    | 2.35                     | 0.42              |
| 1:N:282:LYS:N    | 1:N:282:LYS:HE2  | 2.34                     | 0.42              |
| 1:O:259:TYR:HA   | 1:O:260:PRO:HD3  | 1.89                     | 0.42              |
| 1:P:75:GLU:OE1   | 1:P:75:GLU:N     | 2.47                     | 0.42              |
| 1:C:62:ARG:NH1   | 1:C:73:THR:HG21  | 2.35                     | 0.42              |
| 1:D:147:VAL:O    | 1:D:148:ASP:CB   | 2.67                     | 0.42              |
| 1:D:245:LEU:HD12 | 1:D:287:TYR:HB3  | 2.02                     | 0.42              |
| 1:H:235:GLU:HB2  | 1:H:275:GLN:HG3  | 2.02                     | 0.42              |
| 1:J:115:SER:HB3  | 1:J:161:LEU:HB2  | 2.00                     | 0.42              |
| 1:M:94:ILE:CD1   | 1:M:268:TRP:HB2  | 2.49                     | 0.42              |
| 1:M:101:HIS:N    | 1:M:240:GLN:HE22 | 2.16                     | 0.42              |
| 1:M:133:VAL:CG2  | 1:M:134:THR:H    | 2.30                     | 0.42              |
| 1:N:127:PHE:HB3  | 1:N:170:VAL:CG1  | 2.49                     | 0.42              |
| 1:P:238:TYR:CD2  | 1:P:238:TYR:C    | 2.93                     | 0.42              |
| 1:D:137:ASN:ND2  | 1:D:140:SER:N    | 2.67                     | 0.42              |
| 1:F:82:LEU:HD11  | 1:F:90:GLY:HA3   | 2.02                     | 0.42              |
| 1:F:144:LYS:HG3  | 1:F:145:LEU:N    | 2.34                     | 0.42              |
| 1:J:288:LEU:HD12 | 1:J:288:LEU:HA   | 1.81                     | 0.42              |
| 1:K:245:LEU:HD23 | 1:K:262:GLN:C    | 2.40                     | 0.42              |
| 1:O:101:HIS:H    | 1:O:240:GLN:HE22 | 1.68                     | 0.42              |
| 1:P:101:HIS:CD2  | 1:P:101:HIS:C    | 2.93                     | 0.42              |
| 1:P:152:TYR:O    | 1:P:154:PRO:HD3  | 2.19                     | 0.42              |
| 1:P:232:ASN:HD22 | 1:P:232:ASN:HA   | 1.71                     | 0.42              |
| 1:B:49:LEU:HD13  | 1:J:53:HIS:HB3   | 2.02                     | 0.42              |
| 1:C:47:PRO:HA    | 4:C:405:HOH:O    | 2.19                     | 0.42              |
| 1:C:49:LEU:H     | 1:C:262:GLN:HE22 | 1.67                     | 0.42              |
| 1:C:238:TYR:O    | 1:C:271:PRO:HB3  | 2.20                     | 0.42              |
| 1:F:130:GLU:O    | 1:F:167:ALA:HA   | 2.20                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:41:TYR:CE2   | 1:H:246:LEU:HD13 | 2.55                     | 0.42              |
| 1:J:134:THR:HA   | 1:J:144:LYS:HA   | 2.02                     | 0.42              |
| 1:K:83:PRO:O     | 1:K:84:ASP:HB2   | 2.19                     | 0.42              |
| 1:K:206:LEU:HD12 | 1:K:207:ARG:H    | 1.81                     | 0.42              |
| 1:N:140:SER:O    | 1:N:141:SER:CB   | 2.68                     | 0.42              |
| 1:O:196:LEU:HD21 | 1:O:207:ARG:NH2  | 2.35                     | 0.42              |
| 1:P:165:GLU:O    | 1:P:166:SER:OG   | 2.30                     | 0.42              |
| 1:A:185:GLU:O    | 1:A:187:ILE:HG12 | 2.20                     | 0.41              |
| 1:B:226:GLN:HB2  | 1:B:229:GLU:CD   | 2.40                     | 0.41              |
| 1:D:111:GLU:H    | 1:D:111:GLU:CD   | 2.24                     | 0.41              |
| 1:E:122:ILE:HD13 | 1:E:175:ARG:HA   | 2.01                     | 0.41              |
| 1:E:298:LEU:HD23 | 1:F:103:VAL:HG13 | 2.02                     | 0.41              |
| 1:J:83:PRO:O     | 1:J:84:ASP:HB2   | 2.20                     | 0.41              |
| 1:L:94:ILE:O     | 1:L:103:VAL:HA   | 2.19                     | 0.41              |
| 1:M:243:LEU:HB2  | 1:M:288:LEU:O    | 2.20                     | 0.41              |
| 1:N:240:GLN:HB3  | 1:N:271:PRO:HG3  | 2.01                     | 0.41              |
| 1:P:87:ASN:OD1   | 1:P:110:LYS:HB2  | 2.20                     | 0.41              |
| 1:C:74:PRO:C     | 1:C:76:SER:N     | 2.69                     | 0.41              |
| 1:E:74:PRO:C     | 1:E:76:SER:N     | 2.74                     | 0.41              |
| 1:H:196:LEU:CD2  | 1:H:207:ARG:NH1  | 2.83                     | 0.41              |
| 1:K:88:THR:OG1   | 1:K:109:MET:HG2  | 2.20                     | 0.41              |
| 1:K:121:ASP:HB2  | 1:K:175:ARG:NH1  | 2.35                     | 0.41              |
| 1:K:170:VAL:O    | 1:K:170:VAL:CG1  | 2.62                     | 0.41              |
| 1:L:208:LYS:HG2  | 1:L:221:HIS:CD2  | 2.54                     | 0.41              |
| 1:N:134:THR:HG22 | 1:N:134:THR:O    | 2.19                     | 0.41              |
| 1:N:204:PHE:HE1  | 1:N:206:LEU:HB2  | 1.84                     | 0.41              |
| 1:N:267:ILE:HG22 | 1:N:269:MET:HG3  | 2.00                     | 0.41              |
| 1:A:276:TRP:CG   | 1:J:59:GLY:HA2   | 2.55                     | 0.41              |
| 1:C:190:SER:O    | 1:C:194:GLN:HG2  | 2.21                     | 0.41              |
| 1:E:130:GLU:O    | 1:E:167:ALA:HA   | 2.19                     | 0.41              |
| 1:F:68:ASP:O     | 1:F:270:ALA:HB3  | 2.19                     | 0.41              |
| 1:F:123:GLU:O    | 1:F:173:GLU:HA   | 2.20                     | 0.41              |
| 1:F:233:VAL:O    | 1:F:233:VAL:HG13 | 2.20                     | 0.41              |
| 1:K:150:TYR:CZ   | 1:K:209:LEU:HB3  | 2.56                     | 0.41              |
| 1:K:202:GLU:HB3  | 1:K:204:PHE:CE2  | 2.55                     | 0.41              |
| 1:M:133:VAL:HG23 | 1:M:163:CYS:HB2  | 2.03                     | 0.41              |
| 1:O:85:TRP:CE3   | 1:O:88:THR:HG21  | 2.56                     | 0.41              |
| 1:P:190:SER:O    | 1:P:194:GLN:HG2  | 2.20                     | 0.41              |
| 1:P:220:ILE:HD13 | 1:P:290:TYR:HA   | 2.02                     | 0.41              |
| 1:B:296:ASN:ND2  | 1:B:298:LEU:H    | 2.16                     | 0.41              |
| 1:D:101:HIS:H    | 1:D:240:GLN:NE2  | 2.15                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:40:ILE:HG22  | 1:F:41:TYR:CD2   | 2.55                     | 0.41              |
| 1:F:40:ILE:N     | 1:F:40:ILE:HD12  | 2.35                     | 0.41              |
| 1:J:245:LEU:HD12 | 1:J:287:TYR:HB3  | 2.02                     | 0.41              |
| 1:K:69:HIS:HB2   | 1:K:254:LEU:HD13 | 2.02                     | 0.41              |
| 1:K:194:GLN:HG3  | 1:K:209:LEU:HA   | 2.02                     | 0.41              |
| 1:A:107:ALA:HB3  | 1:A:169:LEU:HB2  | 2.03                     | 0.41              |
| 1:C:153:LEU:HD13 | 1:C:159:HIS:CD2  | 2.56                     | 0.41              |
| 1:F:64:VAL:HG11  | 1:F:66:LYS:HZ3   | 1.85                     | 0.41              |
| 1:F:241:HIS:CG   | 1:F:289:LEU:HD11 | 2.56                     | 0.41              |
| 1:G:92:TYR:HA    | 1:G:105:TYR:HB3  | 2.02                     | 0.41              |
| 1:J:273:VAL:O    | 1:J:273:VAL:CG1  | 2.67                     | 0.41              |
| 1:K:121:ASP:H    | 1:K:156:ASN:ND2  | 2.19                     | 0.41              |
| 1:K:197:LEU:HD12 | 1:K:208:LYS:HG3  | 2.01                     | 0.41              |
| 1:K:204:PHE:CD1  | 1:K:223:MET:HE2  | 2.55                     | 0.41              |
| 1:M:225:PHE:O    | 1:M:284:ARG:HB2  | 2.20                     | 0.41              |
| 1:B:95:THR:C     | 1:B:97:ALA:N     | 2.73                     | 0.41              |
| 1:B:163:CYS:HA   | 4:B:422:HOH:O    | 2.19                     | 0.41              |
| 1:B:218:PHE:HA   | 1:B:293:VAL:HG22 | 2.03                     | 0.41              |
| 1:D:199:THR:HA   | 1:D:200:PRO:HD2  | 1.84                     | 0.41              |
| 1:E:245:LEU:HD12 | 1:E:287:TYR:HB3  | 2.03                     | 0.41              |
| 1:E:268:TRP:CZ2  | 1:E:270:ALA:HB2  | 2.56                     | 0.41              |
| 1:H:82:LEU:HA    | 1:H:83:PRO:HD3   | 1.95                     | 0.41              |
| 1:H:241:HIS:CG   | 1:H:289:LEU:HD11 | 2.56                     | 0.41              |
| 1:J:220:ILE:HA   | 1:J:289:LEU:O    | 2.20                     | 0.41              |
| 1:K:148:ASP:OD1  | 1:K:191:THR:HB   | 2.21                     | 0.41              |
| 1:L:179:LEU:HD23 | 1:L:214:VAL:HG22 | 2.03                     | 0.41              |
| 1:M:297:PRO:HG3  | 1:O:92:TYR:CZ    | 2.55                     | 0.41              |
| 1:O:126:ILE:HG22 | 1:O:171:VAL:HB   | 2.02                     | 0.41              |
| 1:A:40:ILE:N     | 1:A:40:ILE:CD1   | 2.66                     | 0.41              |
| 1:D:42:TRP:CE2   | 1:E:39:PRO:HG3   | 2.55                     | 0.41              |
| 1:D:76:SER:HB3   | 1:K:236:VAL:HB   | 2.03                     | 0.41              |
| 1:F:81:PRO:O     | 1:F:83:PRO:HD3   | 2.20                     | 0.41              |
| 1:I:82:LEU:HD21  | 1:I:90:GLY:HA3   | 2.02                     | 0.41              |
| 1:I:154:PRO:HB3  | 1:I:184:THR:OG1  | 2.20                     | 0.41              |
| 1:N:122:ILE:HG23 | 1:O:298:LEU:HD11 | 2.03                     | 0.41              |
| 1:O:113:SER:N    | 1:O:163:CYS:O    | 2.50                     | 0.41              |
| 1:O:204:PHE:HB3  | 1:O:225:PHE:CE1  | 2.55                     | 0.41              |
| 1:O:245:LEU:HD12 | 1:O:245:LEU:HA   | 1.90                     | 0.41              |
| 1:F:50:SER:H     | 1:F:53:HIS:CE1   | 2.39                     | 0.41              |
| 1:G:130:GLU:HA   | 1:G:147:VAL:CG2  | 2.51                     | 0.41              |
| 1:H:83:PRO:O     | 1:H:85:TRP:HD1   | 2.04                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:39:PRO:HB2   | 1:I:42:TRP:HB2   | 2.01                     | 0.41              |
| 1:I:191:THR:O    | 1:I:207:ARG:HD3  | 2.21                     | 0.41              |
| 1:I:277:TYR:CG   | 1:I:278:ALA:N    | 2.88                     | 0.41              |
| 1:J:41:TYR:O     | 1:J:44:ALA:HB3   | 2.20                     | 0.41              |
| 1:K:86:THR:HG22  | 4:K:424:HOH:O    | 2.21                     | 0.41              |
| 1:K:205:GLU:HB2  | 1:K:224:ASP:HB2  | 2.03                     | 0.41              |
| 1:L:122:ILE:HD13 | 1:L:175:ARG:HA   | 2.01                     | 0.41              |
| 1:L:262:GLN:HE21 | 1:N:56:ASP:HB2   | 1.85                     | 0.41              |
| 1:M:166:SER:O    | 1:M:167:ALA:HB2  | 2.21                     | 0.41              |
| 1:N:83:PRO:O     | 1:N:85:TRP:HD1   | 2.04                     | 0.41              |
| 1:P:129:VAL:O    | 1:P:147:VAL:HG13 | 2.21                     | 0.41              |
| 1:B:82:LEU:HD23  | 1:B:85:TRP:CD2   | 2.56                     | 0.41              |
| 1:C:133:VAL:HG23 | 1:C:162:ASP:O    | 2.20                     | 0.41              |
| 1:C:298:LEU:HG   | 1:G:103:VAL:HG13 | 2.02                     | 0.41              |
| 1:E:39:PRO:O     | 1:E:42:TRP:HB2   | 2.21                     | 0.41              |
| 1:E:125:LEU:C    | 1:E:125:LEU:CD1  | 2.87                     | 0.41              |
| 1:G:155:PRO:O    | 1:G:156:ASN:CB   | 2.69                     | 0.41              |
| 1:G:211:PRO:C    | 1:G:213:SER:H    | 2.24                     | 0.41              |
| 1:G:259:TYR:O    | 1:G:261:VAL:HG13 | 2.21                     | 0.41              |
| 1:H:62:ARG:HD3   | 4:H:410:HOH:O    | 2.21                     | 0.41              |
| 1:H:240:GLN:HB3  | 1:H:271:PRO:HG3  | 2.02                     | 0.41              |
| 1:J:284:ARG:HH22 | 1:J:286:ARG:NH2  | 2.19                     | 0.41              |
| 1:K:243:LEU:HD13 | 1:K:287:TYR:CB   | 2.46                     | 0.41              |
| 1:L:298:LEU:HD23 | 1:L:298:LEU:HA   | 1.87                     | 0.41              |
| 1:M:103:VAL:HG22 | 1:M:173:GLU:HB2  | 2.03                     | 0.41              |
| 1:M:237:HIS:CG   | 1:M:239:ASN:HD22 | 2.39                     | 0.41              |
| 1:N:100:SER:HB2  | 1:N:240:GLN:NE2  | 2.35                     | 0.41              |
| 1:N:103:VAL:HG22 | 1:N:173:GLU:HB2  | 2.02                     | 0.41              |
| 1:N:197:LEU:HD23 | 1:N:208:LYS:HE3  | 2.02                     | 0.41              |
| 1:O:82:LEU:HD21  | 1:O:105:TYR:CE1  | 2.56                     | 0.41              |
| 1:P:137:ASN:OD1  | 1:P:140:SER:HB2  | 2.21                     | 0.41              |
| 1:P:152:TYR:O    | 1:P:186:LEU:HA   | 2.21                     | 0.41              |
| 1:P:243:LEU:C    | 1:P:243:LEU:CD1  | 2.88                     | 0.41              |
| 1:B:218:PHE:CD1  | 1:B:218:PHE:C    | 2.94                     | 0.41              |
| 1:C:153:LEU:HD13 | 1:C:159:HIS:ND1  | 2.36                     | 0.41              |
| 1:C:216:TYR:O    | 1:C:294:ASN:ND2  | 2.47                     | 0.41              |
| 1:E:82:LEU:HB3   | 1:E:85:TRP:HB2   | 2.03                     | 0.41              |
| 1:F:276:TRP:CH2  | 1:F:278:ALA:HB2  | 2.55                     | 0.41              |
| 1:G:153:LEU:HD13 | 1:G:159:HIS:NE2  | 2.35                     | 0.41              |
| 1:G:235:GLU:HG2  | 1:I:78:VAL:CG2   | 2.50                     | 0.41              |
| 1:J:155:PRO:O    | 1:J:156:ASN:HB2  | 2.21                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:296:ASN:HD21 | 1:K:298:LEU:HD12 | 1.86                     | 0.41              |
| 1:G:62:ARG:CB    | 1:G:73:THR:HG21  | 2.49                     | 0.40              |
| 1:G:196:LEU:HD21 | 1:G:207:ARG:NH1  | 2.35                     | 0.40              |
| 1:G:235:GLU:HG2  | 1:I:78:VAL:HG22  | 2.03                     | 0.40              |
| 1:K:85:TRP:HB3   | 1:K:88:THR:CG2   | 2.51                     | 0.40              |
| 1:K:108:LYS:HD3  | 1:K:168:THR:HG23 | 2.03                     | 0.40              |
| 1:M:202:GLU:HG3  | 1:M:204:PHE:CE2  | 2.55                     | 0.40              |
| 1:P:267:ILE:HG22 | 1:P:269:MET:HG3  | 2.03                     | 0.40              |
| 1:B:40:ILE:H     | 1:B:40:ILE:CD1   | 2.24                     | 0.40              |
| 1:B:226:GLN:O    | 1:B:229:GLU:HG3  | 2.21                     | 0.40              |
| 1:C:206:LEU:CD1  | 1:C:221:HIS:HB3  | 2.50                     | 0.40              |
| 1:H:209:LEU:C    | 1:H:210:LEU:HD23 | 2.41                     | 0.40              |
| 1:I:62:ARG:HB2   | 1:I:73:THR:HG21  | 2.03                     | 0.40              |
| 1:I:243:LEU:HD12 | 1:I:244:LEU:C    | 2.42                     | 0.40              |
| 1:J:296:ASN:ND2  | 1:J:298:LEU:HB2  | 2.37                     | 0.40              |
| 1:P:153:LEU:HD13 | 1:P:159:HIS:CG   | 2.56                     | 0.40              |
| 1:A:232:ASN:O    | 1:A:234:LYS:NZ   | 2.39                     | 0.40              |
| 1:C:110:LYS:HA   | 1:C:110:LYS:HE2  | 2.04                     | 0.40              |
| 1:C:205:GLU:HB2  | 1:C:224:ASP:HB2  | 2.02                     | 0.40              |
| 1:D:68:ASP:O     | 1:D:69:HIS:HB3   | 2.21                     | 0.40              |
| 1:J:70:ALA:HB3   | 1:J:268:TRP:HB3  | 2.03                     | 0.40              |
| 1:J:208:LYS:NZ   | 1:J:212:MET:CE   | 2.85                     | 0.40              |
| 1:L:126:ILE:HG21 | 1:L:161:LEU:HD11 | 2.03                     | 0.40              |
| 1:M:122:ILE:HD13 | 1:M:175:ARG:HA   | 2.04                     | 0.40              |
| 1:O:85:TRP:CD2   | 1:O:115:SER:HA   | 2.55                     | 0.40              |
| 1:O:208:LYS:HG2  | 1:O:221:HIS:CD2  | 2.56                     | 0.40              |
| 1:A:80:SER:O     | 1:A:81:PRO:C     | 2.60                     | 0.40              |
| 1:B:192:ASP:OD2  | 1:B:193:LYS:HE3  | 2.21                     | 0.40              |
| 1:D:145:LEU:HD21 | 1:D:188:VAL:HG13 | 2.03                     | 0.40              |
| 1:E:62:ARG:HH22  | 1:E:265:ASP:CG   | 2.24                     | 0.40              |
| 1:F:85:TRP:CD2   | 1:F:115:SER:HA   | 2.56                     | 0.40              |
| 1:F:115:SER:HB3  | 1:F:161:LEU:HB2  | 2.03                     | 0.40              |
| 1:F:170:VAL:CG1  | 1:F:170:VAL:O    | 2.68                     | 0.40              |
| 1:L:60:PHE:HZ    | 1:N:60:PHE:HZ    | 1.68                     | 0.40              |
| 1:N:103:VAL:CG2  | 1:N:173:GLU:HB2  | 2.51                     | 0.40              |
| 1:O:271:PRO:O    | 1:O:272:PHE:HB2  | 2.21                     | 0.40              |
| 1:D:73:THR:HB    | 1:D:74:PRO:HD2   | 2.04                     | 0.40              |
| 1:D:82:LEU:O     | 1:D:85:TRP:HB2   | 2.22                     | 0.40              |
| 1:D:186:LEU:HD11 | 1:D:188:VAL:CG2  | 2.51                     | 0.40              |
| 1:G:152:TYR:HB3  | 1:G:187:ILE:HB   | 2.03                     | 0.40              |
| 1:H:208:LYS:HZ2  | 1:H:212:MET:CE   | 2.33                     | 0.40              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:K:105:TYR:HE1  | 1:K:171:VAL:CG1 | 2.34                     | 0.40              |
| 1:K:153:LEU:HA   | 1:K:154:PRO:HD3 | 1.86                     | 0.40              |
| 1:N:243:LEU:HD23 | 1:N:269:MET:CE  | 2.52                     | 0.40              |
| 1:O:103:VAL:CG2  | 1:O:173:GLU:HB2 | 2.51                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 1   | A     | 254/266 (96%) | 231 (91%) | 18 (7%)  | 5 (2%)   | 7           | 14  |
| 1   | B     | 254/266 (96%) | 235 (92%) | 15 (6%)  | 4 (2%)   | 9           | 19  |
| 1   | C     | 254/266 (96%) | 236 (93%) | 15 (6%)  | 3 (1%)   | 13          | 27  |
| 1   | D     | 254/266 (96%) | 235 (92%) | 16 (6%)  | 3 (1%)   | 13          | 27  |
| 1   | E     | 254/266 (96%) | 234 (92%) | 18 (7%)  | 2 (1%)   | 19          | 39  |
| 1   | F     | 254/266 (96%) | 238 (94%) | 14 (6%)  | 2 (1%)   | 19          | 39  |
| 1   | G     | 254/266 (96%) | 224 (88%) | 24 (9%)  | 6 (2%)   | 6           | 10  |
| 1   | H     | 254/266 (96%) | 236 (93%) | 15 (6%)  | 3 (1%)   | 13          | 27  |
| 1   | I     | 254/266 (96%) | 236 (93%) | 18 (7%)  | 0        | 100         | 100 |
| 1   | J     | 254/266 (96%) | 225 (89%) | 25 (10%) | 4 (2%)   | 9           | 19  |
| 1   | K     | 254/266 (96%) | 220 (87%) | 27 (11%) | 7 (3%)   | 5           | 7   |
| 1   | L     | 254/266 (96%) | 238 (94%) | 13 (5%)  | 3 (1%)   | 13          | 27  |
| 1   | M     | 254/266 (96%) | 229 (90%) | 20 (8%)  | 5 (2%)   | 7           | 14  |
| 1   | N     | 254/266 (96%) | 228 (90%) | 24 (9%)  | 2 (1%)   | 19          | 39  |
| 1   | O     | 254/266 (96%) | 229 (90%) | 22 (9%)  | 3 (1%)   | 13          | 27  |
| 1   | P     | 254/266 (96%) | 224 (88%) | 24 (9%)  | 6 (2%)   | 6           | 10  |

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| Mol | Chain | Analysed        | Favoured   | Allowed  | Outliers | Percentiles |
|-----|-------|-----------------|------------|----------|----------|-------------|
| All | All   | 4064/4256 (96%) | 3698 (91%) | 308 (8%) | 58 (1%)  | 11 22       |

All (58) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 141 | SER  |
| 1   | B     | 141 | SER  |
| 1   | C     | 141 | SER  |
| 1   | D     | 119 | PRO  |
| 1   | G     | 165 | GLU  |
| 1   | J     | 142 | SER  |
| 1   | K     | 141 | SER  |
| 1   | K     | 191 | THR  |
| 1   | K     | 214 | VAL  |
| 1   | M     | 141 | SER  |
| 1   | N     | 141 | SER  |
| 1   | C     | 75  | GLU  |
| 1   | D     | 180 | GLY  |
| 1   | D     | 294 | ASN  |
| 1   | E     | 75  | GLU  |
| 1   | G     | 180 | GLY  |
| 1   | J     | 157 | PHE  |
| 1   | K     | 182 | HIS  |
| 1   | L     | 75  | GLU  |
| 1   | L     | 141 | SER  |
| 1   | M     | 235 | GLU  |
| 1   | O     | 148 | ASP  |
| 1   | P     | 154 | PRO  |
| 1   | C     | 96  | PRO  |
| 1   | F     | 235 | GLU  |
| 1   | F     | 236 | VAL  |
| 1   | G     | 141 | SER  |
| 1   | G     | 167 | ALA  |
| 1   | K     | 75  | GLU  |
| 1   | K     | 165 | GLU  |
| 1   | P     | 87  | ASN  |
| 1   | P     | 148 | ASP  |
| 1   | P     | 157 | PHE  |
| 1   | A     | 112 | MET  |
| 1   | E     | 96  | PRO  |
| 1   | J     | 284 | ARG  |
| 1   | M     | 43  | LYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | P     | 141 | SER  |
| 1   | B     | 84  | ASP  |
| 1   | B     | 96  | PRO  |
| 1   | G     | 157 | PHE  |
| 1   | H     | 141 | SER  |
| 1   | O     | 74  | PRO  |
| 1   | A     | 84  | ASP  |
| 1   | J     | 87  | ASN  |
| 1   | L     | 214 | VAL  |
| 1   | M     | 165 | GLU  |
| 1   | N     | 204 | PHE  |
| 1   | A     | 236 | VAL  |
| 1   | G     | 119 | PRO  |
| 1   | H     | 214 | VAL  |
| 1   | O     | 214 | VAL  |
| 1   | A     | 119 | PRO  |
| 1   | B     | 214 | VAL  |
| 1   | K     | 203 | VAL  |
| 1   | M     | 236 | VAL  |
| 1   | P     | 147 | VAL  |
| 1   | H     | 236 | VAL  |

### 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     | 230/237 (97%) | 214 (93%) | 16 (7%)  | 15          | 30 |
| 1   | B     | 230/237 (97%) | 213 (93%) | 17 (7%)  | 13          | 28 |
| 1   | C     | 230/237 (97%) | 220 (96%) | 10 (4%)  | 29          | 54 |
| 1   | D     | 230/237 (97%) | 215 (94%) | 15 (6%)  | 17          | 34 |
| 1   | E     | 230/237 (97%) | 218 (95%) | 12 (5%)  | 23          | 46 |
| 1   | F     | 230/237 (97%) | 215 (94%) | 15 (6%)  | 17          | 34 |
| 1   | G     | 230/237 (97%) | 215 (94%) | 15 (6%)  | 17          | 34 |
| 1   | H     | 230/237 (97%) | 220 (96%) | 10 (4%)  | 29          | 54 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|----------|-------------|----|
| 1   | I     | 230/237 (97%)   | 218 (95%)  | 12 (5%)  | 23          | 46 |
| 1   | J     | 230/237 (97%)   | 217 (94%)  | 13 (6%)  | 20          | 41 |
| 1   | K     | 230/237 (97%)   | 214 (93%)  | 16 (7%)  | 15          | 30 |
| 1   | L     | 230/237 (97%)   | 222 (96%)  | 8 (4%)   | 36          | 62 |
| 1   | M     | 230/237 (97%)   | 209 (91%)  | 21 (9%)  | 9           | 18 |
| 1   | N     | 230/237 (97%)   | 216 (94%)  | 14 (6%)  | 18          | 38 |
| 1   | O     | 230/237 (97%)   | 214 (93%)  | 16 (7%)  | 15          | 30 |
| 1   | P     | 230/237 (97%)   | 213 (93%)  | 17 (7%)  | 13          | 28 |
| All | All   | 3680/3792 (97%) | 3453 (94%) | 227 (6%) | 18          | 37 |

All (227) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 40  | ILE  |
| 1   | A     | 64  | VAL  |
| 1   | A     | 82  | LEU  |
| 1   | A     | 153 | LEU  |
| 1   | A     | 161 | LEU  |
| 1   | A     | 171 | VAL  |
| 1   | A     | 184 | THR  |
| 1   | A     | 222 | THR  |
| 1   | A     | 239 | ASN  |
| 1   | A     | 243 | LEU  |
| 1   | A     | 249 | GLN  |
| 1   | A     | 252 | TYR  |
| 1   | A     | 268 | TRP  |
| 1   | A     | 283 | THR  |
| 1   | A     | 286 | ARG  |
| 1   | A     | 296 | ASN  |
| 1   | B     | 50  | SER  |
| 1   | B     | 103 | VAL  |
| 1   | B     | 136 | THR  |
| 1   | B     | 143 | LYS  |
| 1   | B     | 148 | ASP  |
| 1   | B     | 153 | LEU  |
| 1   | B     | 170 | VAL  |
| 1   | B     | 171 | VAL  |
| 1   | B     | 192 | ASP  |
| 1   | B     | 197 | LEU  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | B            | 206        | LEU         |
| 1          | B            | 226        | GLN         |
| 1          | B            | 243        | LEU         |
| 1          | B            | 249        | GLN         |
| 1          | B            | 252        | TYR         |
| 1          | B            | 286        | ARG         |
| 1          | B            | 296        | ASN         |
| 1          | C            | 40         | ILE         |
| 1          | C            | 76         | SER         |
| 1          | C            | 111        | GLU         |
| 1          | C            | 148        | ASP         |
| 1          | C            | 165        | GLU         |
| 1          | C            | 171        | VAL         |
| 1          | C            | 243        | LEU         |
| 1          | C            | 249        | GLN         |
| 1          | C            | 286        | ARG         |
| 1          | C            | 298        | LEU         |
| 1          | D            | 40         | ILE         |
| 1          | D            | 84         | ASP         |
| 1          | D            | 101        | HIS         |
| 1          | D            | 125        | LEU         |
| 1          | D            | 137        | ASN         |
| 1          | D            | 171        | VAL         |
| 1          | D            | 179        | LEU         |
| 1          | D            | 199        | THR         |
| 1          | D            | 213        | SER         |
| 1          | D            | 222        | THR         |
| 1          | D            | 243        | LEU         |
| 1          | D            | 249        | GLN         |
| 1          | D            | 275        | GLN         |
| 1          | D            | 284        | ARG         |
| 1          | D            | 286        | ARG         |
| 1          | E            | 130        | GLU         |
| 1          | E            | 136        | THR         |
| 1          | E            | 147        | VAL         |
| 1          | E            | 165        | GLU         |
| 1          | E            | 166        | SER         |
| 1          | E            | 171        | VAL         |
| 1          | E            | 191        | THR         |
| 1          | E            | 192        | ASP         |
| 1          | E            | 243        | LEU         |
| 1          | E            | 249        | GLN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | E            | 252        | TYR         |
| 1          | E            | 286        | ARG         |
| 1          | F            | 45         | THR         |
| 1          | F            | 82         | LEU         |
| 1          | F            | 96         | PRO         |
| 1          | F            | 111        | GLU         |
| 1          | F            | 136        | THR         |
| 1          | F            | 142        | SER         |
| 1          | F            | 148        | ASP         |
| 1          | F            | 171        | VAL         |
| 1          | F            | 222        | THR         |
| 1          | F            | 243        | LEU         |
| 1          | F            | 247        | GLU         |
| 1          | F            | 249        | GLN         |
| 1          | F            | 252        | TYR         |
| 1          | F            | 283        | THR         |
| 1          | F            | 286        | ARG         |
| 1          | G            | 45         | THR         |
| 1          | G            | 81         | PRO         |
| 1          | G            | 111        | GLU         |
| 1          | G            | 136        | THR         |
| 1          | G            | 137        | ASN         |
| 1          | G            | 157        | PHE         |
| 1          | G            | 163        | CYS         |
| 1          | G            | 169        | LEU         |
| 1          | G            | 171        | VAL         |
| 1          | G            | 222        | THR         |
| 1          | G            | 243        | LEU         |
| 1          | G            | 249        | GLN         |
| 1          | G            | 252        | TYR         |
| 1          | G            | 284        | ARG         |
| 1          | G            | 286        | ARG         |
| 1          | H            | 80         | SER         |
| 1          | H            | 101        | HIS         |
| 1          | H            | 153        | LEU         |
| 1          | H            | 161        | LEU         |
| 1          | H            | 171        | VAL         |
| 1          | H            | 222        | THR         |
| 1          | H            | 243        | LEU         |
| 1          | H            | 247        | GLU         |
| 1          | H            | 249        | GLN         |
| 1          | H            | 286        | ARG         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | I            | 82         | LEU         |
| 1          | I            | 111        | GLU         |
| 1          | I            | 137        | ASN         |
| 1          | I            | 145        | LEU         |
| 1          | I            | 171        | VAL         |
| 1          | I            | 222        | THR         |
| 1          | I            | 243        | LEU         |
| 1          | I            | 249        | GLN         |
| 1          | I            | 284        | ARG         |
| 1          | I            | 286        | ARG         |
| 1          | I            | 296        | ASN         |
| 1          | I            | 298        | LEU         |
| 1          | J            | 82         | LEU         |
| 1          | J            | 130        | GLU         |
| 1          | J            | 143        | LYS         |
| 1          | J            | 153        | LEU         |
| 1          | J            | 169        | LEU         |
| 1          | J            | 171        | VAL         |
| 1          | J            | 218        | PHE         |
| 1          | J            | 222        | THR         |
| 1          | J            | 224        | ASP         |
| 1          | J            | 243        | LEU         |
| 1          | J            | 249        | GLN         |
| 1          | J            | 252        | TYR         |
| 1          | J            | 285        | SER         |
| 1          | K            | 45         | THR         |
| 1          | K            | 76         | SER         |
| 1          | K            | 84         | ASP         |
| 1          | K            | 88         | THR         |
| 1          | K            | 101        | HIS         |
| 1          | K            | 105        | TYR         |
| 1          | K            | 145        | LEU         |
| 1          | K            | 156        | ASN         |
| 1          | K            | 160        | SER         |
| 1          | K            | 171        | VAL         |
| 1          | K            | 193        | LYS         |
| 1          | K            | 218        | PHE         |
| 1          | K            | 243        | LEU         |
| 1          | K            | 249        | GLN         |
| 1          | K            | 252        | TYR         |
| 1          | K            | 286        | ARG         |
| 1          | L            | 74         | PRO         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | L            | 148        | ASP         |
| 1          | L            | 171        | VAL         |
| 1          | L            | 222        | THR         |
| 1          | L            | 243        | LEU         |
| 1          | L            | 249        | GLN         |
| 1          | L            | 252        | TYR         |
| 1          | L            | 286        | ARG         |
| 1          | M            | 46         | ASN         |
| 1          | M            | 80         | SER         |
| 1          | M            | 111        | GLU         |
| 1          | M            | 137        | ASN         |
| 1          | M            | 143        | LYS         |
| 1          | M            | 144        | LYS         |
| 1          | M            | 147        | VAL         |
| 1          | M            | 148        | ASP         |
| 1          | M            | 171        | VAL         |
| 1          | M            | 183        | THR         |
| 1          | M            | 190        | SER         |
| 1          | M            | 218        | PHE         |
| 1          | M            | 222        | THR         |
| 1          | M            | 231        | LEU         |
| 1          | M            | 233        | VAL         |
| 1          | M            | 243        | LEU         |
| 1          | M            | 249        | GLN         |
| 1          | M            | 252        | TYR         |
| 1          | M            | 268        | TRP         |
| 1          | M            | 284        | ARG         |
| 1          | M            | 286        | ARG         |
| 1          | N            | 40         | ILE         |
| 1          | N            | 52         | SER         |
| 1          | N            | 134        | THR         |
| 1          | N            | 143        | LYS         |
| 1          | N            | 171        | VAL         |
| 1          | N            | 234        | LYS         |
| 1          | N            | 243        | LEU         |
| 1          | N            | 249        | GLN         |
| 1          | N            | 252        | TYR         |
| 1          | N            | 275        | GLN         |
| 1          | N            | 283        | THR         |
| 1          | N            | 286        | ARG         |
| 1          | N            | 288        | LEU         |
| 1          | N            | 296        | ASN         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | O     | 56  | ASP  |
| 1   | O     | 74  | PRO  |
| 1   | O     | 75  | GLU  |
| 1   | O     | 101 | HIS  |
| 1   | O     | 136 | THR  |
| 1   | O     | 137 | ASN  |
| 1   | O     | 147 | VAL  |
| 1   | O     | 171 | VAL  |
| 1   | O     | 237 | HIS  |
| 1   | O     | 243 | LEU  |
| 1   | O     | 249 | GLN  |
| 1   | O     | 252 | TYR  |
| 1   | O     | 283 | THR  |
| 1   | O     | 284 | ARG  |
| 1   | O     | 296 | ASN  |
| 1   | O     | 298 | LEU  |
| 1   | P     | 40  | ILE  |
| 1   | P     | 74  | PRO  |
| 1   | P     | 82  | LEU  |
| 1   | P     | 84  | ASP  |
| 1   | P     | 87  | ASN  |
| 1   | P     | 101 | HIS  |
| 1   | P     | 111 | GLU  |
| 1   | P     | 120 | GLN  |
| 1   | P     | 130 | GLU  |
| 1   | P     | 136 | THR  |
| 1   | P     | 171 | VAL  |
| 1   | P     | 183 | THR  |
| 1   | P     | 222 | THR  |
| 1   | P     | 243 | LEU  |
| 1   | P     | 249 | GLN  |
| 1   | P     | 252 | TYR  |
| 1   | P     | 296 | ASN  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (107) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 87  | ASN  |
| 1   | A     | 156 | ASN  |
| 1   | A     | 182 | HIS  |
| 1   | A     | 239 | ASN  |
| 1   | A     | 240 | GLN  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 257        | ASN         |
| 1          | A            | 262        | GLN         |
| 1          | A            | 296        | ASN         |
| 1          | B            | 87         | ASN         |
| 1          | B            | 120        | GLN         |
| 1          | B            | 156        | ASN         |
| 1          | B            | 239        | ASN         |
| 1          | B            | 240        | GLN         |
| 1          | B            | 249        | GLN         |
| 1          | B            | 262        | GLN         |
| 1          | B            | 296        | ASN         |
| 1          | C            | 137        | ASN         |
| 1          | C            | 156        | ASN         |
| 1          | C            | 194        | GLN         |
| 1          | C            | 239        | ASN         |
| 1          | C            | 240        | GLN         |
| 1          | C            | 249        | GLN         |
| 1          | C            | 262        | GLN         |
| 1          | D            | 137        | ASN         |
| 1          | D            | 156        | ASN         |
| 1          | D            | 194        | GLN         |
| 1          | D            | 221        | HIS         |
| 1          | D            | 239        | ASN         |
| 1          | D            | 240        | GLN         |
| 1          | D            | 249        | GLN         |
| 1          | D            | 262        | GLN         |
| 1          | D            | 296        | ASN         |
| 1          | E            | 77         | HIS         |
| 1          | E            | 156        | ASN         |
| 1          | E            | 158        | HIS         |
| 1          | E            | 194        | GLN         |
| 1          | E            | 240        | GLN         |
| 1          | E            | 249        | GLN         |
| 1          | E            | 296        | ASN         |
| 1          | F            | 87         | ASN         |
| 1          | F            | 156        | ASN         |
| 1          | F            | 239        | ASN         |
| 1          | F            | 240        | GLN         |
| 1          | F            | 249        | GLN         |
| 1          | F            | 296        | ASN         |
| 1          | G            | 137        | ASN         |
| 1          | G            | 156        | ASN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | G            | 240        | GLN         |
| 1          | G            | 249        | GLN         |
| 1          | H            | 156        | ASN         |
| 1          | H            | 226        | GLN         |
| 1          | H            | 239        | ASN         |
| 1          | H            | 240        | GLN         |
| 1          | H            | 249        | GLN         |
| 1          | H            | 262        | GLN         |
| 1          | H            | 296        | ASN         |
| 1          | I            | 55         | GLN         |
| 1          | I            | 120        | GLN         |
| 1          | I            | 137        | ASN         |
| 1          | I            | 156        | ASN         |
| 1          | I            | 240        | GLN         |
| 1          | I            | 249        | GLN         |
| 1          | I            | 296        | ASN         |
| 1          | J            | 87         | ASN         |
| 1          | J            | 156        | ASN         |
| 1          | J            | 232        | ASN         |
| 1          | J            | 239        | ASN         |
| 1          | J            | 240        | GLN         |
| 1          | J            | 249        | GLN         |
| 1          | J            | 296        | ASN         |
| 1          | K            | 156        | ASN         |
| 1          | K            | 194        | GLN         |
| 1          | K            | 221        | HIS         |
| 1          | K            | 240        | GLN         |
| 1          | K            | 249        | GLN         |
| 1          | K            | 296        | ASN         |
| 1          | L            | 87         | ASN         |
| 1          | L            | 137        | ASN         |
| 1          | L            | 156        | ASN         |
| 1          | L            | 239        | ASN         |
| 1          | L            | 240        | GLN         |
| 1          | L            | 249        | GLN         |
| 1          | L            | 257        | ASN         |
| 1          | L            | 262        | GLN         |
| 1          | M            | 156        | ASN         |
| 1          | M            | 239        | ASN         |
| 1          | M            | 240        | GLN         |
| 1          | M            | 249        | GLN         |
| 1          | M            | 262        | GLN         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | N     | 221 | HIS  |
| 1   | N     | 240 | GLN  |
| 1   | N     | 249 | GLN  |
| 1   | N     | 262 | GLN  |
| 1   | N     | 296 | ASN  |
| 1   | O     | 53  | HIS  |
| 1   | O     | 87  | ASN  |
| 1   | O     | 137 | ASN  |
| 1   | O     | 156 | ASN  |
| 1   | O     | 239 | ASN  |
| 1   | O     | 240 | GLN  |
| 1   | O     | 296 | ASN  |
| 1   | P     | 87  | ASN  |
| 1   | P     | 156 | ASN  |
| 1   | P     | 221 | HIS  |
| 1   | P     | 232 | ASN  |
| 1   | P     | 240 | GLN  |
| 1   | P     | 296 | 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 monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 32 ligands modelled in this entry, 16 are monoatomic - leaving 16 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 3   | UGY  | K     | 302 | 2    | 7,8,8        | 1.43 | 1 (14%)  | 4,10,10     | 1.48 | 1 (25%)  |
| 3   | UGY  | O     | 302 | 2    | 7,8,8        | 2.18 | 3 (42%)  | 4,10,10     | 1.50 | 1 (25%)  |
| 3   | UGY  | L     | 302 | 2    | 7,8,8        | 2.41 | 4 (57%)  | 4,10,10     | 1.51 | 1 (25%)  |
| 3   | UGY  | J     | 302 | 2    | 7,8,8        | 1.28 | 1 (14%)  | 4,10,10     | 1.55 | 1 (25%)  |
| 3   | UGY  | D     | 302 | 2    | 7,8,8        | 2.13 | 3 (42%)  | 4,10,10     | 1.61 | 1 (25%)  |
| 3   | UGY  | C     | 302 | 2    | 7,8,8        | 2.27 | 3 (42%)  | 4,10,10     | 1.62 | 1 (25%)  |
| 3   | UGY  | I     | 302 | 2    | 7,8,8        | 1.19 | 1 (14%)  | 4,10,10     | 1.79 | 2 (50%)  |
| 3   | UGY  | E     | 302 | 2    | 7,8,8        | 1.66 | 2 (28%)  | 4,10,10     | 1.57 | 2 (50%)  |
| 3   | UGY  | N     | 302 | 2    | 7,8,8        | 1.54 | 2 (28%)  | 4,10,10     | 1.64 | 2 (50%)  |
| 3   | UGY  | M     | 302 | 2    | 7,8,8        | 2.16 | 4 (57%)  | 4,10,10     | 1.60 | 1 (25%)  |
| 3   | UGY  | B     | 302 | 2    | 7,8,8        | 2.24 | 3 (42%)  | 4,10,10     | 1.61 | 1 (25%)  |
| 3   | UGY  | F     | 302 | 2    | 7,8,8        | 2.29 | 3 (42%)  | 4,10,10     | 1.69 | 2 (50%)  |
| 3   | UGY  | H     | 302 | 2    | 7,8,8        | 1.98 | 1 (14%)  | 4,10,10     | 1.34 | 1 (25%)  |
| 3   | UGY  | P     | 302 | 2    | 7,8,8        | 1.20 | 1 (14%)  | 4,10,10     | 1.59 | 1 (25%)  |
| 3   | UGY  | A     | 302 | 2    | 7,8,8        | 2.37 | 3 (42%)  | 4,10,10     | 1.59 | 2 (50%)  |
| 3   | UGY  | G     | 302 | 2    | 7,8,8        | 1.21 | 1 (14%)  | 4,10,10     | 1.63 | 1 (25%)  |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|----------|-------|
| 3   | UGY  | K     | 302 | 2    | -       | 1/7/8/8  | -     |
| 3   | UGY  | O     | 302 | 2    | -       | 3/7/8/8  | -     |
| 3   | UGY  | L     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | J     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | D     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | C     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | I     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | E     | 302 | 2    | -       | 1/7/8/8  | -     |
| 3   | UGY  | N     | 302 | 2    | -       | 1/7/8/8  | -     |
| 3   | UGY  | M     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | B     | 302 | 2    | -       | 3/7/8/8  | -     |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|----------|-------|
| 3   | UGY  | F     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | H     | 302 | 2    | -       | 1/7/8/8  | -     |
| 3   | UGY  | P     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | A     | 302 | 2    | -       | 2/7/8/8  | -     |
| 3   | UGY  | G     | 302 | 2    | -       | 1/7/8/8  | -     |

All (36) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 3   | H     | 302 | UGY  | CA-C  | -5.06 | 1.49        | 1.56     |
| 3   | B     | 302 | UGY  | O-C   | 4.12  | 1.34        | 1.22     |
| 3   | O     | 302 | UGY  | O-C   | 4.09  | 1.34        | 1.22     |
| 3   | A     | 302 | UGY  | CA-C  | -4.08 | 1.50        | 1.56     |
| 3   | D     | 302 | UGY  | O-C   | 3.98  | 1.34        | 1.22     |
| 3   | L     | 302 | UGY  | O-C   | 3.87  | 1.33        | 1.22     |
| 3   | M     | 302 | UGY  | O-C   | 3.87  | 1.33        | 1.22     |
| 3   | F     | 302 | UGY  | O-C   | 3.74  | 1.33        | 1.22     |
| 3   | C     | 302 | UGY  | CA-C  | -3.63 | 1.51        | 1.56     |
| 3   | C     | 302 | UGY  | O-C   | 3.63  | 1.33        | 1.22     |
| 3   | A     | 302 | UGY  | O-C   | 3.50  | 1.32        | 1.22     |
| 3   | L     | 302 | UGY  | CA-C  | -3.49 | 1.51        | 1.56     |
| 3   | F     | 302 | UGY  | CA-C  | -3.46 | 1.51        | 1.56     |
| 3   | E     | 302 | UGY  | CA-C  | -3.31 | 1.51        | 1.56     |
| 3   | K     | 302 | UGY  | CA-C  | -3.05 | 1.52        | 1.56     |
| 3   | N     | 302 | UGY  | CA-C  | -2.89 | 1.52        | 1.56     |
| 3   | B     | 302 | UGY  | CA-C  | -2.83 | 1.52        | 1.56     |
| 3   | D     | 302 | UGY  | CA-C  | -2.80 | 1.52        | 1.56     |
| 3   | A     | 302 | UGY  | OXT-C | -2.75 | 1.21        | 1.30     |
| 3   | J     | 302 | UGY  | CA-C  | -2.71 | 1.52        | 1.56     |
| 3   | L     | 302 | UGY  | CA-NB | 2.67  | 1.49        | 1.45     |
| 3   | C     | 302 | UGY  | OXT-C | -2.66 | 1.21        | 1.30     |
| 3   | G     | 302 | UGY  | CA-C  | -2.65 | 1.52        | 1.56     |
| 3   | O     | 302 | UGY  | CA-C  | -2.64 | 1.52        | 1.56     |
| 3   | M     | 302 | UGY  | CA-C  | -2.58 | 1.52        | 1.56     |
| 3   | F     | 302 | UGY  | OXT-C | -2.58 | 1.22        | 1.30     |
| 3   | B     | 302 | UGY  | OXT-C | -2.50 | 1.22        | 1.30     |
| 3   | D     | 302 | UGY  | OXT-C | -2.46 | 1.22        | 1.30     |
| 3   | O     | 302 | UGY  | OXT-C | -2.42 | 1.22        | 1.30     |
| 3   | P     | 302 | UGY  | CA-C  | -2.38 | 1.53        | 1.56     |
| 3   | N     | 302 | UGY  | CA-NB | 2.38  | 1.48        | 1.45     |
| 3   | E     | 302 | UGY  | CA-NB | 2.37  | 1.48        | 1.45     |
| 3   | M     | 302 | UGY  | OXT-C | -2.34 | 1.22        | 1.30     |

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| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 3   | L     | 302 | UGY  | OXT-C | -2.20 | 1.23        | 1.30     |
| 3   | I     | 302 | UGY  | CA-C  | -2.09 | 1.53        | 1.56     |
| 3   | M     | 302 | UGY  | CA-NB | 2.07  | 1.48        | 1.45     |

All (21) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 3   | I     | 302 | UGY  | OXT-C-O  | -2.69 | 117.99      | 124.09   |
| 3   | M     | 302 | UGY  | OXT-C-O  | -2.60 | 118.19      | 124.09   |
| 3   | D     | 302 | UGY  | OXT-C-O  | -2.56 | 118.27      | 124.09   |
| 3   | B     | 302 | UGY  | OXT-C-O  | -2.55 | 118.30      | 124.09   |
| 3   | C     | 302 | UGY  | OXT-C-O  | -2.53 | 118.35      | 124.09   |
| 3   | G     | 302 | UGY  | OXT-C-O  | -2.52 | 118.36      | 124.09   |
| 3   | P     | 302 | UGY  | OXT-C-O  | -2.51 | 118.38      | 124.09   |
| 3   | O     | 302 | UGY  | OXT-C-O  | -2.51 | 118.39      | 124.09   |
| 3   | J     | 302 | UGY  | OXT-C-O  | -2.42 | 118.58      | 124.09   |
| 3   | N     | 302 | UGY  | OXT-C-O  | -2.41 | 118.61      | 124.09   |
| 3   | F     | 302 | UGY  | OXT-C-O  | -2.41 | 118.62      | 124.09   |
| 3   | A     | 302 | UGY  | OXT-C-O  | -2.36 | 118.72      | 124.09   |
| 3   | E     | 302 | UGY  | OXT-C-O  | -2.32 | 118.81      | 124.09   |
| 3   | F     | 302 | UGY  | OE-CG-NE | -2.29 | 119.28      | 123.22   |
| 3   | K     | 302 | UGY  | OXT-C-O  | -2.25 | 118.97      | 124.09   |
| 3   | L     | 302 | UGY  | OXT-C-O  | -2.25 | 118.99      | 124.09   |
| 3   | I     | 302 | UGY  | OE-CG-NE | -2.19 | 119.46      | 123.22   |
| 3   | N     | 302 | UGY  | OE-CG-NE | -2.15 | 119.53      | 123.22   |
| 3   | H     | 302 | UGY  | OXT-C-O  | -2.03 | 119.48      | 124.09   |
| 3   | A     | 302 | UGY  | OE-CG-NE | -2.02 | 119.76      | 123.22   |
| 3   | E     | 302 | UGY  | OE-CG-NE | -2.00 | 119.78      | 123.22   |

There are no chirality outliers.

All (29) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms      |
|-----|-------|-----|------|------------|
| 3   | A     | 302 | UGY  | OXT-C-CA-N |
| 3   | B     | 302 | UGY  | OXT-C-CA-N |
| 3   | C     | 302 | UGY  | OXT-C-CA-N |
| 3   | D     | 302 | UGY  | OXT-C-CA-N |
| 3   | F     | 302 | UGY  | OXT-C-CA-N |
| 3   | K     | 302 | UGY  | OXT-C-CA-N |
| 3   | L     | 302 | UGY  | OXT-C-CA-N |
| 3   | L     | 302 | UGY  | O-C-CA-N   |
| 3   | M     | 302 | UGY  | OXT-C-CA-N |

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| Mol | Chain | Res | Type | Atoms      |
|-----|-------|-----|------|------------|
| 3   | N     | 302 | UGY  | OXT-C-CA-N |
| 3   | O     | 302 | UGY  | OXT-C-CA-N |
| 3   | J     | 302 | UGY  | C-CA-NB-CG |
| 3   | P     | 302 | UGY  | C-CA-NB-CG |
| 3   | A     | 302 | UGY  | O-C-CA-N   |
| 3   | B     | 302 | UGY  | O-C-CA-N   |
| 3   | C     | 302 | UGY  | O-C-CA-N   |
| 3   | D     | 302 | UGY  | O-C-CA-N   |
| 3   | F     | 302 | UGY  | O-C-CA-N   |
| 3   | M     | 302 | UGY  | O-C-CA-N   |
| 3   | O     | 302 | UGY  | O-C-CA-N   |
| 3   | E     | 302 | UGY  | OXT-C-CA-N |
| 3   | G     | 302 | UGY  | OXT-C-CA-N |
| 3   | H     | 302 | UGY  | OXT-C-CA-N |
| 3   | I     | 302 | UGY  | OXT-C-CA-N |
| 3   | J     | 302 | UGY  | OXT-C-CA-N |
| 3   | P     | 302 | UGY  | OXT-C-CA-N |
| 3   | B     | 302 | UGY  | C-CA-NB-CG |
| 3   | I     | 302 | UGY  | C-CA-NB-CG |
| 3   | O     | 302 | UGY  | C-CA-NB-CG |

There are no ring outliers.

2 monomers are involved in 2 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 3   | J     | 302 | UGY  | 1       | 0            |
| 3   | H     | 302 | UGY  | 1       | 0            |

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data [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     | 258/266 (96%)   | -0.11  | 1 (0%) 92 91  | 26, 36, 51, 57        | 0     |
| 1   | B     | 258/266 (96%)   | -0.03  | 0 100 100     | 25, 37, 47, 53        | 0     |
| 1   | C     | 258/266 (96%)   | -0.01  | 4 (1%) 72 68  | 21, 36, 51, 64        | 0     |
| 1   | D     | 258/266 (96%)   | -0.07  | 2 (0%) 86 84  | 24, 36, 50, 64        | 0     |
| 1   | E     | 258/266 (96%)   | -0.13  | 2 (0%) 86 84  | 25, 38, 53, 62        | 0     |
| 1   | F     | 258/266 (96%)   | -0.13  | 2 (0%) 86 84  | 26, 37, 49, 60        | 0     |
| 1   | G     | 258/266 (96%)   | 0.13   | 4 (1%) 72 68  | 26, 43, 59, 70        | 0     |
| 1   | H     | 258/266 (96%)   | -0.17  | 0 100 100     | 24, 36, 50, 62        | 0     |
| 1   | I     | 258/266 (96%)   | 0.01   | 0 100 100     | 25, 39, 51, 64        | 0     |
| 1   | J     | 258/266 (96%)   | 0.26   | 5 (1%) 66 62  | 28, 44, 57, 67        | 0     |
| 1   | K     | 258/266 (96%)   | 0.52   | 16 (6%) 20 15 | 30, 48, 63, 70        | 0     |
| 1   | L     | 258/266 (96%)   | 0.16   | 4 (1%) 72 68  | 26, 42, 51, 63        | 0     |
| 1   | M     | 258/266 (96%)   | -0.02  | 0 100 100     | 27, 41, 55, 67        | 0     |
| 1   | N     | 258/266 (96%)   | 0.09   | 8 (3%) 49 42  | 28, 41, 55, 66        | 0     |
| 1   | O     | 258/266 (96%)   | 0.34   | 7 (2%) 54 48  | 30, 43, 56, 63        | 0     |
| 1   | P     | 258/266 (96%)   | 0.41   | 16 (6%) 20 15 | 28, 45, 61, 65        | 0     |
| All | All   | 4128/4256 (96%) | 0.08   | 71 (1%) 70 66 | 21, 40, 56, 70        | 0     |

All (71) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | G     | 140 | SER  | 4.2  |
| 1   | D     | 141 | SER  | 3.9  |
| 1   | K     | 157 | PHE  | 3.6  |
| 1   | K     | 145 | LEU  | 3.2  |
| 1   | P     | 65  | TYR  | 3.1  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | G            | 181        | SER         | 3.1         |
| 1          | K            | 40         | ILE         | 3.0         |
| 1          | K            | 42         | TRP         | 3.0         |
| 1          | P            | 135        | LEU         | 3.0         |
| 1          | K            | 147        | VAL         | 2.9         |
| 1          | K            | 181        | SER         | 2.9         |
| 1          | O            | 133        | VAL         | 2.8         |
| 1          | N            | 112        | MET         | 2.8         |
| 1          | C            | 110        | LYS         | 2.8         |
| 1          | O            | 145        | LEU         | 2.8         |
| 1          | F            | 40         | ILE         | 2.8         |
| 1          | F            | 65         | TYR         | 2.7         |
| 1          | N            | 42         | TRP         | 2.7         |
| 1          | L            | 167        | ALA         | 2.7         |
| 1          | P            | 136        | THR         | 2.7         |
| 1          | P            | 132        | ALA         | 2.6         |
| 1          | O            | 88         | THR         | 2.6         |
| 1          | P            | 161        | LEU         | 2.6         |
| 1          | G            | 40         | ILE         | 2.6         |
| 1          | C            | 40         | ILE         | 2.6         |
| 1          | J            | 214        | VAL         | 2.6         |
| 1          | P            | 188        | VAL         | 2.6         |
| 1          | K            | 179        | LEU         | 2.6         |
| 1          | E            | 117        | LEU         | 2.6         |
| 1          | O            | 142        | SER         | 2.6         |
| 1          | P            | 112        | MET         | 2.5         |
| 1          | P            | 186        | LEU         | 2.5         |
| 1          | N            | 65         | TYR         | 2.5         |
| 1          | P            | 165        | GLU         | 2.5         |
| 1          | K            | 152        | TYR         | 2.5         |
| 1          | N            | 113        | SER         | 2.5         |
| 1          | N            | 164        | VAL         | 2.4         |
| 1          | K            | 111        | GLU         | 2.4         |
| 1          | P            | 114        | SER         | 2.4         |
| 1          | N            | 161        | LEU         | 2.4         |
| 1          | J            | 65         | TYR         | 2.4         |
| 1          | P            | 130        | GLU         | 2.4         |
| 1          | K            | 65         | TYR         | 2.4         |
| 1          | J            | 140        | SER         | 2.3         |
| 1          | K            | 216        | TYR         | 2.3         |
| 1          | P            | 164        | VAL         | 2.3         |
| 1          | K            | 186        | LEU         | 2.3         |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | J     | 132 | ALA  | 2.3  |
| 1   | P     | 137 | ASN  | 2.3  |
| 1   | L     | 136 | THR  | 2.3  |
| 1   | O     | 65  | TYR  | 2.3  |
| 1   | N     | 85  | TRP  | 2.3  |
| 1   | L     | 65  | TYR  | 2.3  |
| 1   | O     | 110 | LYS  | 2.2  |
| 1   | K     | 117 | LEU  | 2.2  |
| 1   | K     | 140 | SER  | 2.2  |
| 1   | P     | 129 | VAL  | 2.2  |
| 1   | A     | 112 | MET  | 2.2  |
| 1   | K     | 129 | VAL  | 2.2  |
| 1   | J     | 112 | MET  | 2.1  |
| 1   | N     | 40  | ILE  | 2.1  |
| 1   | P     | 133 | VAL  | 2.1  |
| 1   | P     | 39  | PRO  | 2.1  |
| 1   | O     | 181 | SER  | 2.1  |
| 1   | C     | 65  | TYR  | 2.1  |
| 1   | D     | 164 | VAL  | 2.0  |
| 1   | K     | 136 | THR  | 2.0  |
| 1   | E     | 140 | SER  | 2.0  |
| 1   | L     | 164 | VAL  | 2.0  |
| 1   | G     | 144 | LYS  | 2.0  |
| 1   | C     | 112 | MET  | 2.0  |

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

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

## 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 3   | UGY  | K     | 302 | 9/9   | 0.88 | 0.17 | 51,52,55,55                 | 0     |
| 3   | UGY  | I     | 302 | 9/9   | 0.90 | 0.17 | 45,50,53,54                 | 0     |
| 3   | UGY  | L     | 302 | 9/9   | 0.91 | 0.16 | 55,55,58,59                 | 0     |
| 3   | UGY  | G     | 302 | 9/9   | 0.94 | 0.14 | 53,54,59,61                 | 0     |
| 3   | UGY  | F     | 302 | 9/9   | 0.95 | 0.17 | 43,46,47,47                 | 0     |
| 3   | UGY  | J     | 302 | 9/9   | 0.95 | 0.14 | 56,56,58,58                 | 0     |
| 3   | UGY  | D     | 302 | 9/9   | 0.95 | 0.16 | 41,43,47,49                 | 0     |
| 3   | UGY  | H     | 302 | 9/9   | 0.95 | 0.18 | 43,45,49,51                 | 0     |
| 3   | UGY  | N     | 302 | 9/9   | 0.95 | 0.18 | 38,40,43,44                 | 0     |
| 3   | UGY  | A     | 302 | 9/9   | 0.96 | 0.16 | 45,46,50,52                 | 0     |
| 3   | UGY  | B     | 302 | 9/9   | 0.96 | 0.14 | 46,47,49,50                 | 0     |
| 3   | UGY  | M     | 302 | 9/9   | 0.96 | 0.13 | 50,51,53,53                 | 0     |
| 3   | UGY  | C     | 302 | 9/9   | 0.96 | 0.14 | 40,43,47,49                 | 0     |
| 3   | UGY  | P     | 302 | 9/9   | 0.96 | 0.13 | 32,36,44,46                 | 0     |
| 3   | UGY  | O     | 302 | 9/9   | 0.97 | 0.12 | 44,46,48,49                 | 0     |
| 3   | UGY  | E     | 302 | 9/9   | 0.98 | 0.10 | 38,41,42,43                 | 0     |
| 2   | MN   | H     | 301 | 1/1   | 0.98 | 0.12 | 33,33,33,33                 | 0     |
| 2   | MN   | J     | 301 | 1/1   | 0.98 | 0.15 | 47,47,47,47                 | 0     |
| 2   | MN   | C     | 301 | 1/1   | 0.98 | 0.11 | 29,29,29,29                 | 0     |
| 2   | MN   | B     | 301 | 1/1   | 0.99 | 0.13 | 32,32,32,32                 | 0     |
| 2   | MN   | I     | 301 | 1/1   | 0.99 | 0.12 | 35,35,35,35                 | 0     |
| 2   | MN   | A     | 301 | 1/1   | 0.99 | 0.12 | 36,36,36,36                 | 0     |
| 2   | MN   | K     | 301 | 1/1   | 0.99 | 0.11 | 36,36,36,36                 | 0     |
| 2   | MN   | M     | 301 | 1/1   | 0.99 | 0.11 | 41,41,41,41                 | 0     |
| 2   | MN   | N     | 301 | 1/1   | 0.99 | 0.14 | 32,32,32,32                 | 0     |
| 2   | MN   | O     | 301 | 1/1   | 0.99 | 0.12 | 39,39,39,39                 | 0     |
| 2   | MN   | P     | 301 | 1/1   | 0.99 | 0.11 | 33,33,33,33                 | 0     |
| 2   | MN   | D     | 301 | 1/1   | 0.99 | 0.12 | 31,31,31,31                 | 0     |
| 2   | MN   | E     | 301 | 1/1   | 0.99 | 0.10 | 31,31,31,31                 | 0     |
| 2   | MN   | F     | 301 | 1/1   | 0.99 | 0.13 | 36,36,36,36                 | 0     |
| 2   | MN   | G     | 301 | 1/1   | 0.99 | 0.09 | 31,31,31,31                 | 0     |
| 2   | MN   | L     | 301 | 1/1   | 1.00 | 0.13 | 38,38,38,38                 | 0     |

## 6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.