



## Full wwPDB EM Validation Report ⓘ

Jan 12, 2026 – 02:29 PM EST

PDB ID : 9MN3 / pdb\_00009mn3  
EMDB ID : EMD-48411  
Title : E. coli GroES-GroEL-GroES football complex  
Authors : Johnson, S.M.; Chen, Q.  
Deposited on : 2024-12-20  
Resolution : 2.90 Å (reported)

This is a Full wwPDB EM 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/EMValidationReportHelp>

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:

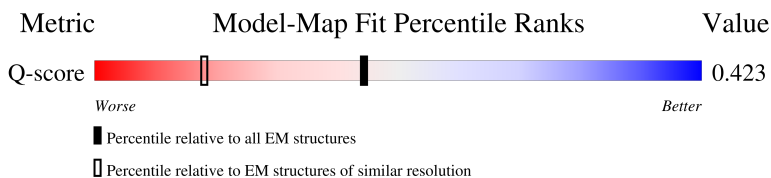
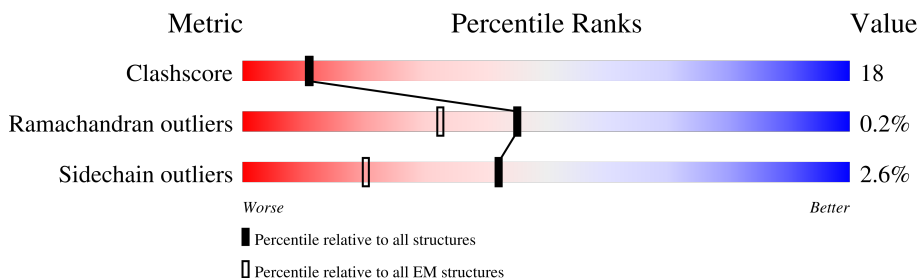
EMDB validation analysis : 0.0.1.dev129  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4-5-2 with Phenix2.0  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.47

# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.90 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 (#Entries) | EM structures (#Entries) | Similar EM resolution (#Entries, resolution range(Å)) |
|-----------------------|--------------------------|--------------------------|---|
| Clashscore            | 210492                   | 15764                    | -   |
| Ramachandran outliers | 207382                   | 16835                    | -   |
| Sidechain outliers    | 206894                   | 16415                    | -   |
| Q-score               | -                        | 25397                    | 13054 ( 2.40 - 3.40 )                                 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--------------------|
| 1   | 1     | 97     | 100%<br>59% 35% 6% |
| 1   | A     | 97     | 100%<br>58% 36% 6% |
| 1   | B     | 97     | 100%<br>57% 37% 6% |
| 1   | D     | 97     | 100%<br>57% 37% 6% |

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| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--------------------|
| 1   | E     | 97     | 100%<br>59% 35% 6% |
| 1   | F     | 97     | 100%<br>59% 35% 6% |
| 1   | G     | 97     | 100%<br>57% 37% 6% |
| 1   | Q     | 97     | 75%<br>63% 33% ..  |
| 1   | V     | 97     | 76%<br>62% 34% ..  |
| 1   | W     | 97     | 73%<br>61% 35% ..  |
| 1   | X     | 97     | 74%<br>62% 34% ..  |
| 1   | Y     | 97     | 75%<br>63% 33% ..  |
| 1   | Z     | 97     | 73%<br>63% 33% ..  |
| 1   | a     | 97     | 72%<br>62% 34% ..  |
| 2   | C     | 548    | 19%<br>78% 17% .   |
| 2   | H     | 548    | 20%<br>78% 17% .   |
| 2   | I     | 548    | 19%<br>79% 17% .   |
| 2   | J     | 548    | 19%<br>78% 17% .   |
| 2   | K     | 548    | 18%<br>79% 17% .   |
| 2   | L     | 548    | 19%<br>78% 18% .   |
| 2   | M     | 548    | 41%<br>70% 25% ..  |
| 2   | N     | 548    | 19%<br>78% 18% .   |
| 2   | O     | 548    | 41%<br>70% 25% ..  |
| 2   | P     | 548    | 40%<br>70% 25% ..  |
| 2   | R     | 548    | 41%<br>70% 24% ..  |
| 2   | S     | 548    | 42%<br>70% 24% ..  |
| 2   | T     | 548    | 41%<br>70% 25% ..  |
| 2   | U     | 548    | 41%<br>70% 25% ..  |

## 2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 64540 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 10 kDa chaperonin.

| Mol | Chain | Residues | Atoms        |          |          |          |        | AltConf | Trace |
|-----|-------|----------|--------------|----------|----------|----------|--------|---------|-------|
|     |       |          | Total        | C        | N        | O        | S      |         |       |
| 1   | 1     | 97       | Total<br>727 | C<br>454 | N<br>127 | O<br>144 | S<br>2 | 0       | 0     |
| 1   | A     | 97       | Total<br>727 | C<br>454 | N<br>127 | O<br>144 | S<br>2 | 0       | 0     |
| 1   | B     | 97       | Total<br>727 | C<br>454 | N<br>127 | O<br>144 | S<br>2 | 0       | 0     |
| 1   | D     | 97       | Total<br>727 | C<br>454 | N<br>127 | O<br>144 | S<br>2 | 0       | 0     |
| 1   | E     | 97       | Total<br>727 | C<br>454 | N<br>127 | O<br>144 | S<br>2 | 0       | 0     |
| 1   | F     | 97       | Total<br>727 | C<br>454 | N<br>127 | O<br>144 | S<br>2 | 0       | 0     |
| 1   | G     | 97       | Total<br>727 | C<br>454 | N<br>127 | O<br>144 | S<br>2 | 0       | 0     |
| 1   | Q     | 96       | Total<br>719 | C<br>449 | N<br>126 | O<br>143 | S<br>1 | 0       | 0     |
| 1   | V     | 96       | Total<br>719 | C<br>449 | N<br>126 | O<br>143 | S<br>1 | 0       | 0     |
| 1   | W     | 96       | Total<br>719 | C<br>449 | N<br>126 | O<br>143 | S<br>1 | 0       | 0     |
| 1   | X     | 96       | Total<br>719 | C<br>449 | N<br>126 | O<br>143 | S<br>1 | 0       | 0     |
| 1   | Y     | 96       | Total<br>719 | C<br>449 | N<br>126 | O<br>143 | S<br>1 | 0       | 0     |
| 1   | Z     | 96       | Total<br>719 | C<br>449 | N<br>126 | O<br>143 | S<br>1 | 0       | 0     |
| 1   | a     | 96       | Total<br>719 | C<br>449 | N<br>126 | O<br>143 | S<br>1 | 0       | 0     |

- Molecule 2 is a protein called 60 kDa chaperonin.

| Mol | Chain | Residues | Atoms         |           |          |          |         | AltConf | Trace |
|-----|-------|----------|---------------|-----------|----------|----------|---------|---------|-------|
|     |       |          | Total         | C         | N        | O        | S       |         |       |
| 2   | C     | 524      | Total<br>3855 | C<br>2397 | N<br>665 | O<br>773 | S<br>20 | 0       | 0     |

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| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 2   | H     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | I     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | J     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | K     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | L     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | M     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | N     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | O     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | P     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | R     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | S     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | T     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |
| 2   | U     | 524      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3855  | 2397 | 665 | 773 | 20 |         |       |

- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula:  $C_{10}H_{16}N_5O_{13}P_3$ ) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms       |         |        |         |        | AltConf |
|-----|-------|----------|-------------|---------|--------|---------|--------|---------|
|     |       |          | Total       | C       | N      | O       | P      |         |
| 3   | C     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | H     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | I     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | J     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | K     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | L     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | M     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | N     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | O     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | P     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | R     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | S     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | T     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |
| 3   | U     | 1        | Total<br>31 | C<br>10 | N<br>5 | O<br>13 | P<br>3 | 0       |

- Molecule 4 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms           | AltConf |
|-----|-------|----------|-----------------|---------|
| 4   | C     | 1        | Total Mg<br>1 1 | 0       |
| 4   | H     | 1        | Total Mg<br>1 1 | 0       |
| 4   | I     | 1        | Total Mg<br>1 1 | 0       |
| 4   | J     | 1        | Total Mg<br>1 1 | 0       |
| 4   | K     | 1        | Total Mg<br>1 1 | 0       |
| 4   | L     | 1        | Total Mg<br>1 1 | 0       |
| 4   | N     | 1        | Total Mg<br>1 1 | 0       |

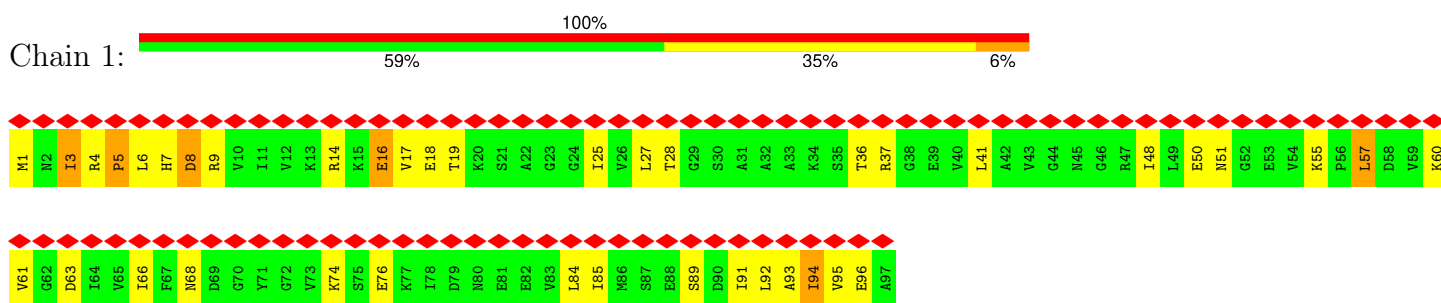
- Molecule 5 is POTASSIUM ION (CCD ID: K) (formula: K).

| Mol | Chain | Residues | Atoms          | AltConf |
|-----|-------|----------|----------------|---------|
| 5   | C     | 1        | Total K<br>1 1 | 0       |
| 5   | H     | 1        | Total K<br>1 1 | 0       |
| 5   | I     | 1        | Total K<br>1 1 | 0       |
| 5   | J     | 1        | Total K<br>1 1 | 0       |
| 5   | K     | 1        | Total K<br>1 1 | 0       |
| 5   | L     | 1        | Total K<br>1 1 | 0       |
| 5   | N     | 1        | Total K<br>1 1 | 0       |

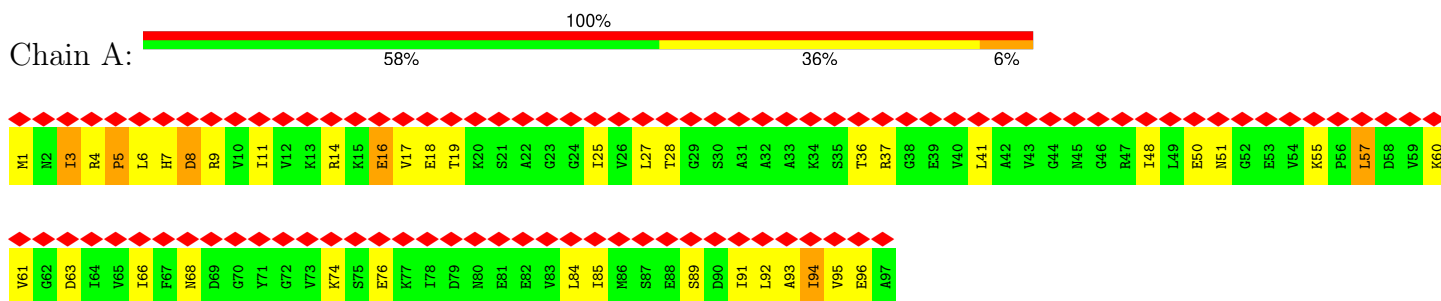
### 3 Residue-property plots [i](#)

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

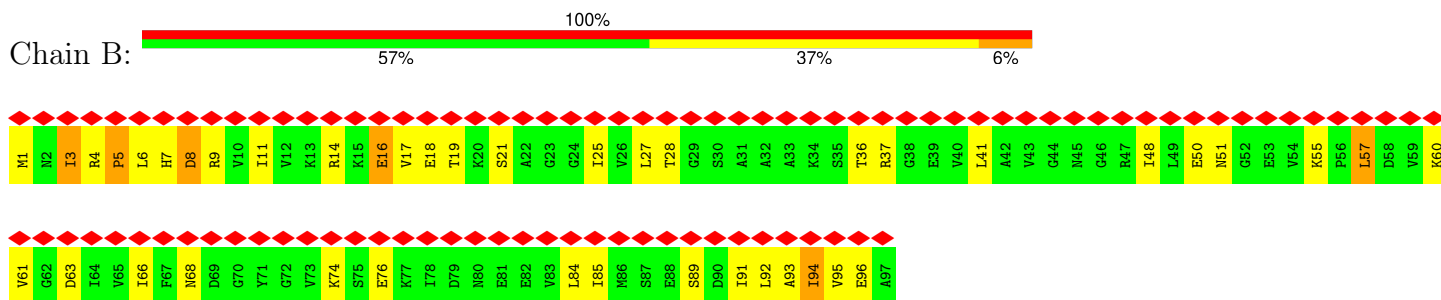
- Molecule 1: 10 kDa chaperonin



- Molecule 1: 10 kDa chaperonin



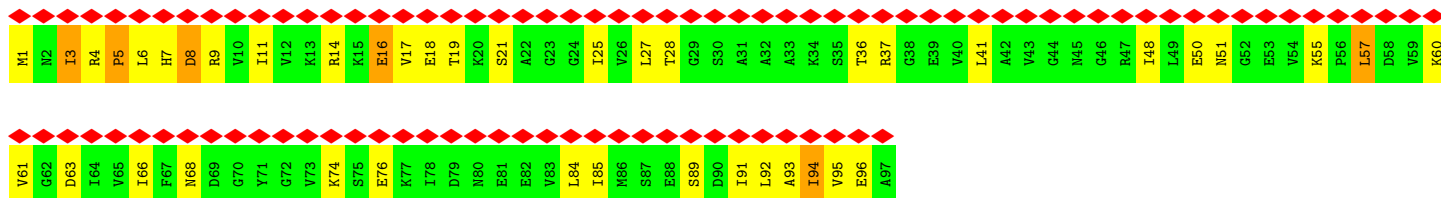
- Molecule 1: 10 kDa chaperonin



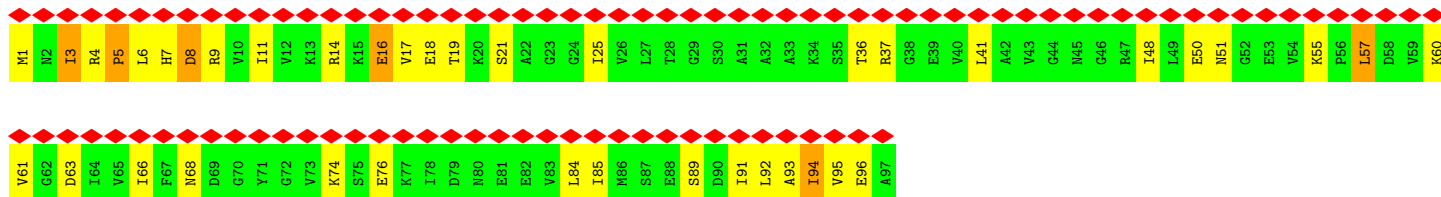
- Molecule 1: 10 kDa chaperonin



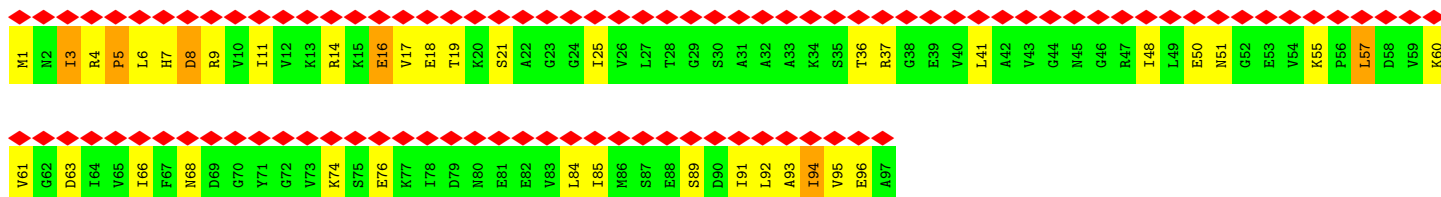




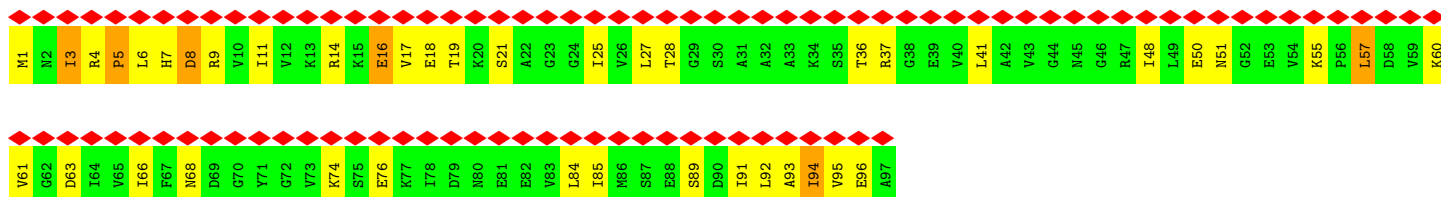
• Molecule 1: 10 kDa chaperonin



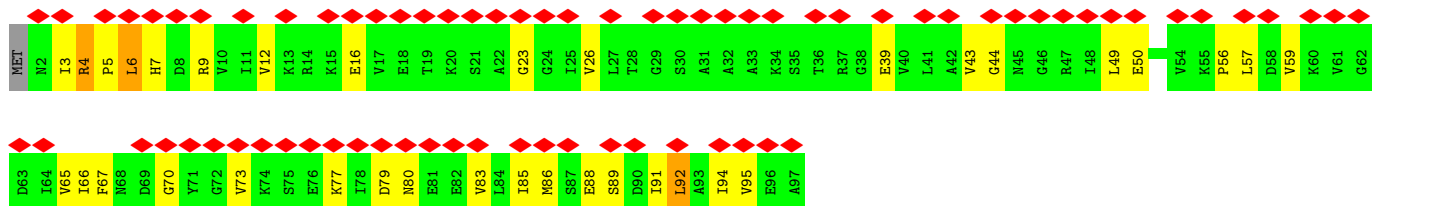
• Molecule 1: 10 kDa chaperonin



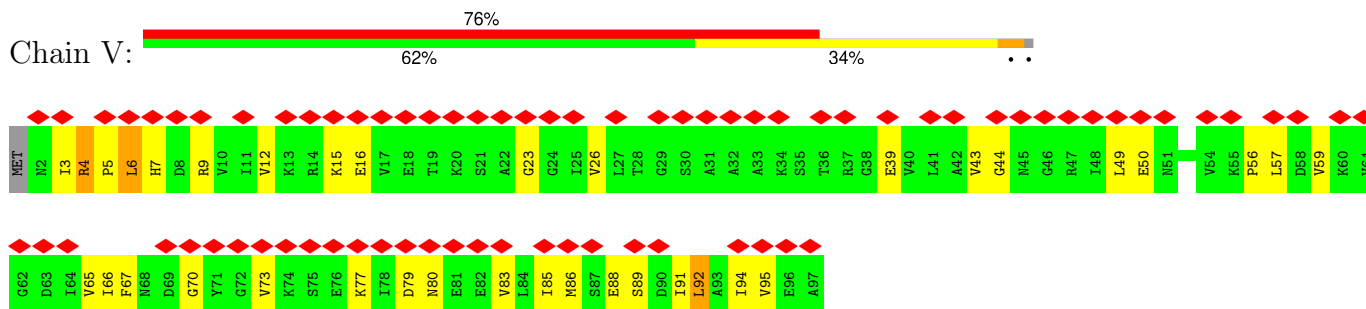
• Molecule 1: 10 kDa chaperonin



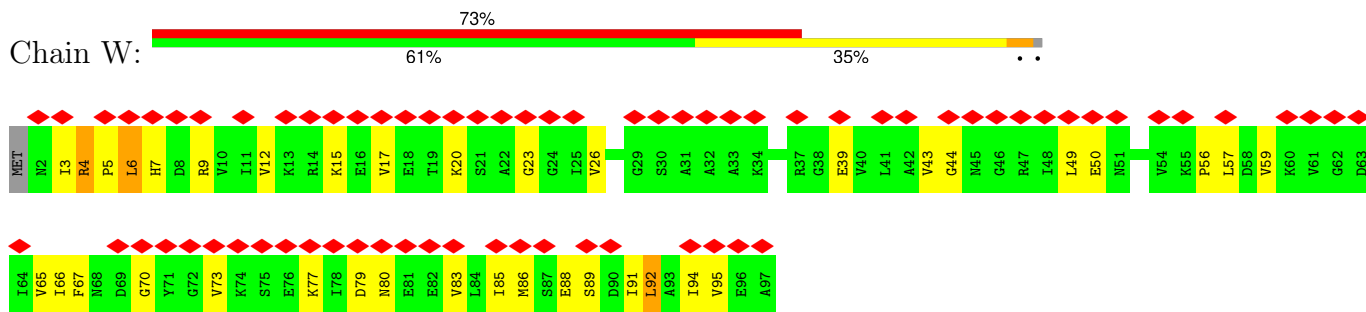
• Molecule 1: 10 kDa chaperonin



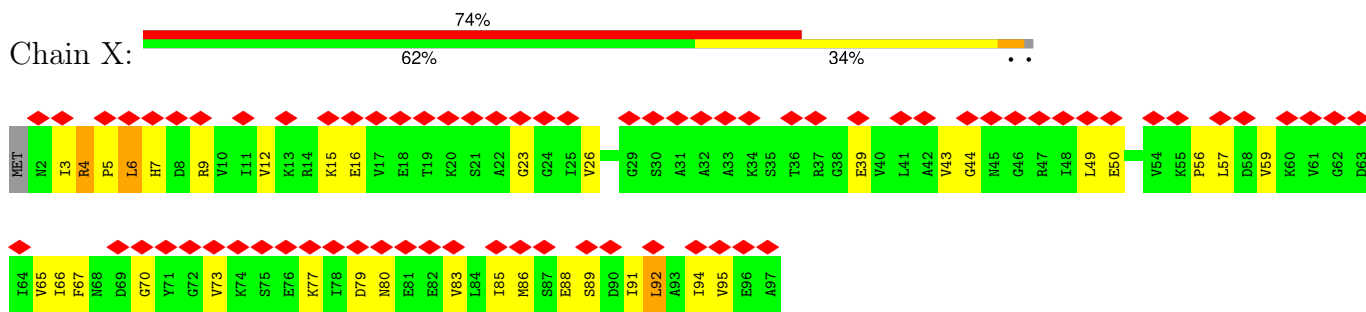
• Molecule 1: 10 kDa chaperonin



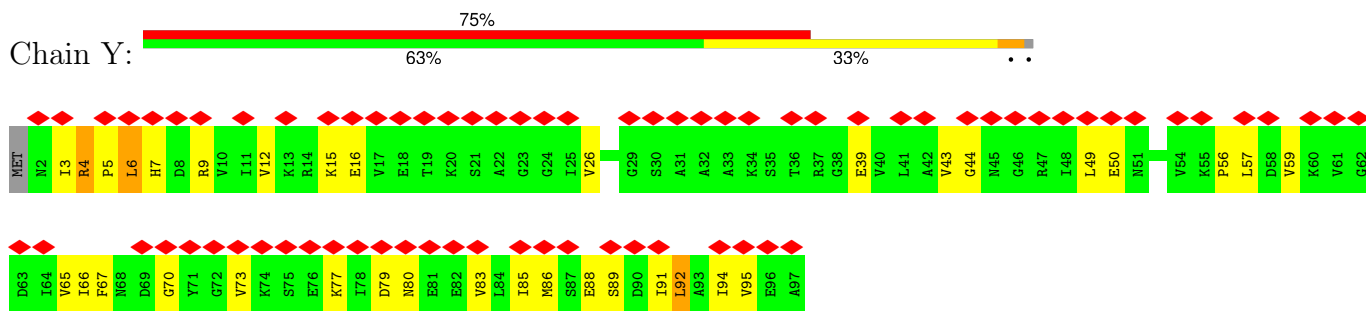
• Molecule 1: 10 kDa chaperonin



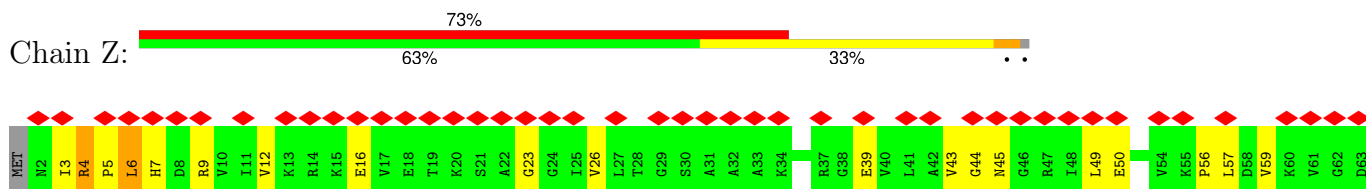
• Molecule 1: 10 kDa chaperonin

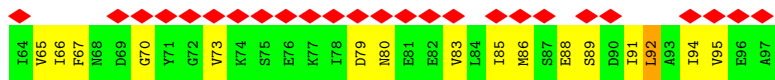


• Molecule 1: 10 kDa chaperonin

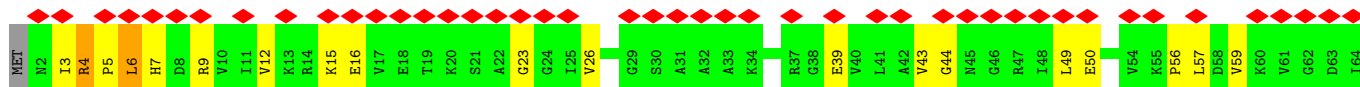


• Molecule 1: 10 kDa chaperonin

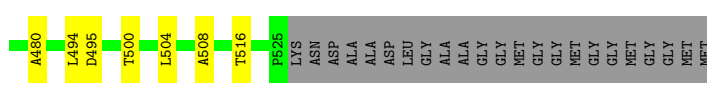
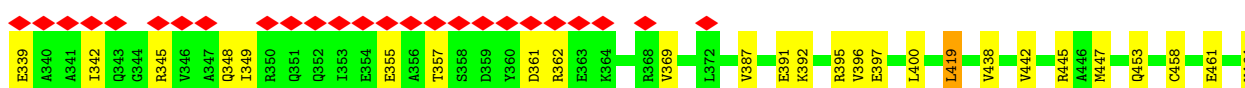
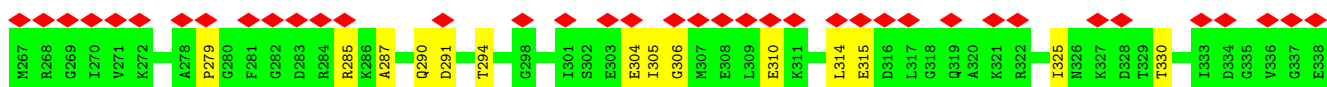
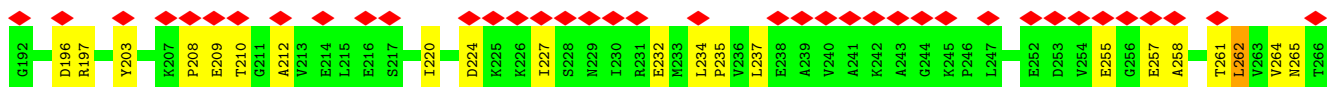
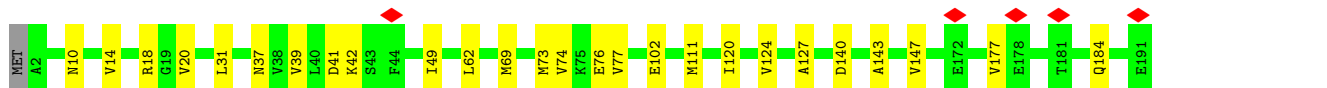
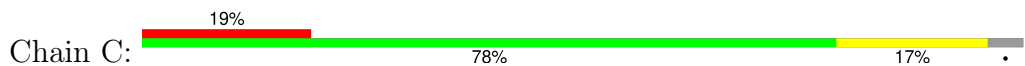




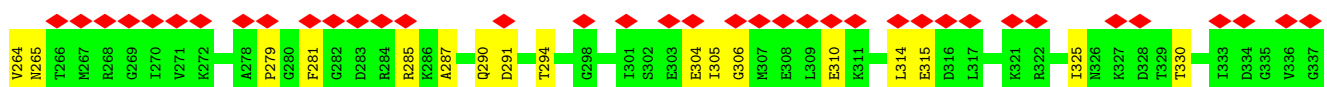
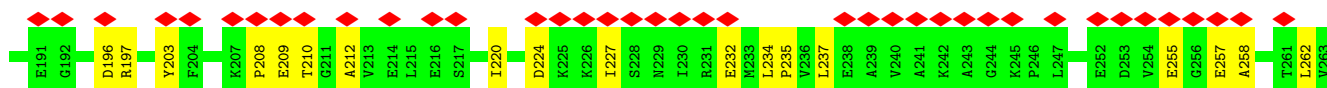
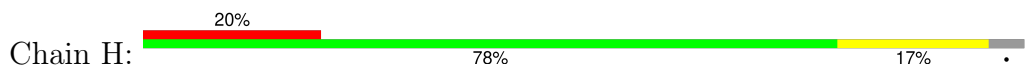
• Molecule 1: 10 kDa chaperonin



• Molecule 2: 60 kDa chaperonin



• Molecule 2: 60 kDa chaperonin







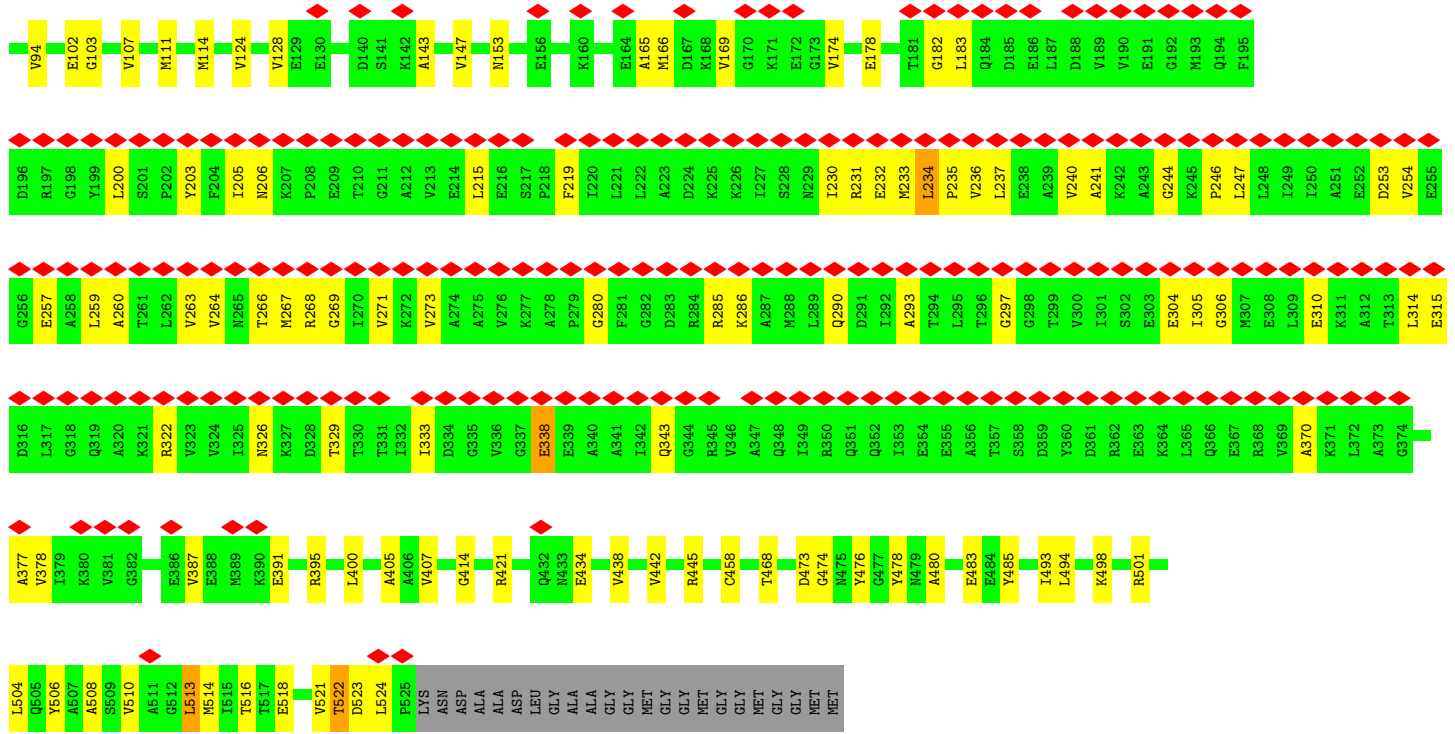












## 4 Experimental information

| Property                             | Value               | Source    |
|--------------------------------------|---------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE     | Depositor |
| Imposed symmetry                     | POINT, Not provided |           |
| Number of particles used             | 54035               | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF   | Depositor |
| CTF correction method                | NONE                | Depositor |
| Microscope                           | TFS KRIOS           | Depositor |
| Voltage (kV)                         | 300                 | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 56                  | Depositor |
| Minimum defocus (nm)                 | 500                 | Depositor |
| Maximum defocus (nm)                 | 2500                | Depositor |
| Magnification                        | Not provided        |           |
| Image detector                       | GATAN K3 (6k x 4k)  | Depositor |
| Maximum map value                    | 1.602               | Depositor |
| Minimum map value                    | -0.921              | Depositor |
| Average map value                    | 0.002               | Depositor |
| Map value standard deviation         | 0.041               | Depositor |
| Recommended contour level            | 0.218               | Depositor |
| Map size ( $\text{\AA}$ )            | 421.6, 421.6, 421.6 | wwPDB     |
| Map dimensions                       | 400, 400, 400       | wwPDB     |
| Map angles ( $^\circ$ )              | 90.0, 90.0, 90.0    | wwPDB     |
| Pixel spacing ( $\text{\AA}$ )       | 1.054, 1.054, 1.054 | Depositor |

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ATP, MG, K

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   | 1     | 0.13         | 0/731   | 0.29        | 0/983   |
| 1   | A     | 0.13         | 0/731   | 0.29        | 0/983   |
| 1   | B     | 0.13         | 0/731   | 0.29        | 0/983   |
| 1   | D     | 0.13         | 0/731   | 0.29        | 0/983   |
| 1   | E     | 0.13         | 0/731   | 0.29        | 0/983   |
| 1   | F     | 0.13         | 0/731   | 0.29        | 0/983   |
| 1   | G     | 0.13         | 0/731   | 0.29        | 0/983   |
| 1   | Q     | 0.10         | 0/723   | 0.35        | 0/973   |
| 1   | V     | 0.11         | 0/723   | 0.35        | 0/973   |
| 1   | W     | 0.11         | 0/723   | 0.35        | 0/973   |
| 1   | X     | 0.11         | 0/723   | 0.35        | 0/973   |
| 1   | Y     | 0.11         | 0/723   | 0.35        | 0/973   |
| 1   | Z     | 0.11         | 0/723   | 0.35        | 0/973   |
| 1   | a     | 0.11         | 0/723   | 0.35        | 0/973   |
| 2   | C     | 0.14         | 0/3883  | 0.27        | 0/5243  |
| 2   | H     | 0.15         | 0/3883  | 0.27        | 0/5243  |
| 2   | I     | 0.15         | 0/3883  | 0.27        | 0/5243  |
| 2   | J     | 0.15         | 0/3883  | 0.27        | 0/5243  |
| 2   | K     | 0.15         | 0/3883  | 0.27        | 0/5243  |
| 2   | L     | 0.15         | 0/3883  | 0.27        | 0/5243  |
| 2   | M     | 0.11         | 0/3883  | 0.28        | 0/5243  |
| 2   | N     | 0.15         | 0/3883  | 0.27        | 0/5243  |
| 2   | O     | 0.12         | 0/3883  | 0.28        | 0/5243  |
| 2   | P     | 0.12         | 0/3883  | 0.28        | 0/5243  |
| 2   | R     | 0.12         | 0/3883  | 0.28        | 0/5243  |
| 2   | S     | 0.11         | 0/3883  | 0.28        | 0/5243  |
| 2   | T     | 0.12         | 0/3883  | 0.28        | 0/5243  |
| 2   | U     | 0.12         | 0/3883  | 0.28        | 0/5243  |
| All | All   | 0.13         | 0/64540 | 0.28        | 0/87094 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | 1     | 727   | 0        | 760      | 116     | 0            |
| 1   | A     | 727   | 0        | 760      | 117     | 0            |
| 1   | B     | 727   | 0        | 760      | 121     | 0            |
| 1   | D     | 727   | 0        | 760      | 121     | 0            |
| 1   | E     | 727   | 0        | 760      | 119     | 0            |
| 1   | F     | 727   | 0        | 760      | 118     | 0            |
| 1   | G     | 727   | 0        | 760      | 118     | 0            |
| 1   | Q     | 719   | 0        | 748      | 128     | 0            |
| 1   | V     | 719   | 0        | 748      | 129     | 0            |
| 1   | W     | 719   | 0        | 748      | 129     | 0            |
| 1   | X     | 719   | 0        | 748      | 129     | 0            |
| 1   | Y     | 719   | 0        | 748      | 129     | 0            |
| 1   | Z     | 719   | 0        | 748      | 129     | 0            |
| 1   | a     | 719   | 0        | 748      | 129     | 0            |
| 2   | C     | 3855  | 0        | 3975     | 80      | 0            |
| 2   | H     | 3855  | 0        | 3975     | 82      | 0            |
| 2   | I     | 3855  | 0        | 3975     | 81      | 0            |
| 2   | J     | 3855  | 0        | 3975     | 84      | 0            |
| 2   | K     | 3855  | 0        | 3975     | 82      | 0            |
| 2   | L     | 3855  | 0        | 3975     | 85      | 0            |
| 2   | M     | 3855  | 0        | 3976     | 185     | 0            |
| 2   | N     | 3855  | 0        | 3975     | 85      | 0            |
| 2   | O     | 3855  | 0        | 3976     | 184     | 0            |
| 2   | P     | 3855  | 0        | 3976     | 185     | 0            |
| 2   | R     | 3855  | 0        | 3976     | 182     | 0            |
| 2   | S     | 3855  | 0        | 3976     | 181     | 0            |
| 2   | T     | 3855  | 0        | 3976     | 184     | 0            |
| 2   | U     | 3855  | 0        | 3976     | 183     | 0            |
| 3   | C     | 31    | 0        | 12       | 1       | 0            |
| 3   | H     | 31    | 0        | 12       | 1       | 0            |
| 3   | I     | 31    | 0        | 12       | 1       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 3   | J     | 31    | 0        | 12       | 1       | 0            |
| 3   | K     | 31    | 0        | 12       | 1       | 0            |
| 3   | L     | 31    | 0        | 12       | 1       | 0            |
| 3   | M     | 31    | 0        | 12       | 0       | 0            |
| 3   | N     | 31    | 0        | 12       | 1       | 0            |
| 3   | O     | 31    | 0        | 12       | 0       | 0            |
| 3   | P     | 31    | 0        | 12       | 0       | 0            |
| 3   | R     | 31    | 0        | 12       | 0       | 0            |
| 3   | S     | 31    | 0        | 12       | 0       | 0            |
| 3   | T     | 31    | 0        | 12       | 0       | 0            |
| 3   | U     | 31    | 0        | 12       | 0       | 0            |
| 4   | C     | 1     | 0        | 0        | 0       | 0            |
| 4   | H     | 1     | 0        | 0        | 0       | 0            |
| 4   | I     | 1     | 0        | 0        | 0       | 0            |
| 4   | J     | 1     | 0        | 0        | 0       | 0            |
| 4   | K     | 1     | 0        | 0        | 0       | 0            |
| 4   | L     | 1     | 0        | 0        | 0       | 0            |
| 4   | N     | 1     | 0        | 0        | 0       | 0            |
| 5   | C     | 1     | 0        | 0        | 0       | 0            |
| 5   | H     | 1     | 0        | 0        | 0       | 0            |
| 5   | I     | 1     | 0        | 0        | 0       | 0            |
| 5   | J     | 1     | 0        | 0        | 0       | 0            |
| 5   | K     | 1     | 0        | 0        | 0       | 0            |
| 5   | L     | 1     | 0        | 0        | 0       | 0            |
| 5   | N     | 1     | 0        | 0        | 0       | 0            |
| All | All   | 64540 | 0        | 66381    | 2365    | 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 18.

All (2365) 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:Q:9:ARG:CD   | 1:a:92:LEU:HA | 1.55                     | 1.37              |
| 1:Q:92:LEU:HA  | 1:V:9:ARG:CD  | 1.55                     | 1.37              |
| 1:V:92:LEU:HA  | 1:W:9:ARG:CD  | 1.55                     | 1.37              |
| 1:Z:92:LEU:HA  | 1:a:9:ARG:CD  | 1.55                     | 1.37              |
| 1:W:92:LEU:HA  | 1:X:9:ARG:CD  | 1.55                     | 1.36              |
| 1:Y:92:LEU:HA  | 1:Z:9:ARG:CD  | 1.55                     | 1.36              |
| 1:X:92:LEU:HA  | 1:Y:9:ARG:CD  | 1.55                     | 1.35              |
| 1:1:74:LYS:HE2 | 1:A:68:ASN:CB | 1.57                     | 1.34              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:74:LYS:HE2   | 1:F:68:ASN:CB    | 1.57                     | 1.34              |
| 1:1:68:ASN:CB    | 1:G:74:LYS:HE2   | 1.57                     | 1.34              |
| 1:A:74:LYS:HE2   | 1:B:68:ASN:CB    | 1.57                     | 1.34              |
| 1:B:74:LYS:HE2   | 1:D:68:ASN:CB    | 1.57                     | 1.33              |
| 2:M:153:ASN:ND2  | 2:O:114:MET:HE2  | 1.43                     | 1.33              |
| 1:F:74:LYS:HE2   | 1:G:68:ASN:CB    | 1.57                     | 1.33              |
| 2:M:114:MET:HE2  | 2:U:153:ASN:ND2  | 1.43                     | 1.32              |
| 2:O:153:ASN:ND2  | 2:P:114:MET:HE2  | 1.43                     | 1.32              |
| 2:O:267:MET:CG   | 2:P:305:ILE:HG13 | 1.59                     | 1.32              |
| 1:D:74:LYS:HE2   | 1:E:68:ASN:CB    | 1.57                     | 1.32              |
| 2:M:267:MET:CG   | 2:O:305:ILE:HG13 | 1.59                     | 1.31              |
| 2:P:267:MET:CG   | 2:R:305:ILE:HG13 | 1.59                     | 1.31              |
| 2:R:267:MET:CG   | 2:S:305:ILE:HG13 | 1.59                     | 1.30              |
| 2:M:305:ILE:HG13 | 2:U:267:MET:CG   | 1.59                     | 1.30              |
| 2:R:153:ASN:ND2  | 2:S:114:MET:HE2  | 1.43                     | 1.30              |
| 2:T:267:MET:CG   | 2:U:305:ILE:HG13 | 1.59                     | 1.30              |
| 2:S:267:MET:CG   | 2:T:305:ILE:HG13 | 1.59                     | 1.29              |
| 2:T:260:ALA:CB   | 2:U:304:GLU:OE1  | 1.80                     | 1.29              |
| 2:M:260:ALA:CB   | 2:O:304:GLU:OE1  | 1.80                     | 1.29              |
| 2:S:260:ALA:CB   | 2:T:304:GLU:OE1  | 1.80                     | 1.29              |
| 2:T:153:ASN:ND2  | 2:U:114:MET:HE2  | 1.43                     | 1.29              |
| 2:O:260:ALA:CB   | 2:P:304:GLU:OE1  | 1.80                     | 1.28              |
| 2:P:153:ASN:ND2  | 2:R:114:MET:HE2  | 1.43                     | 1.28              |
| 2:P:260:ALA:CB   | 2:R:304:GLU:OE1  | 1.80                     | 1.28              |
| 2:R:260:ALA:CB   | 2:S:304:GLU:OE1  | 1.80                     | 1.28              |
| 2:S:153:ASN:ND2  | 2:T:114:MET:HE2  | 1.43                     | 1.27              |
| 2:M:304:GLU:OE1  | 2:U:260:ALA:CB   | 1.80                     | 1.26              |
| 2:O:39:VAL:HG11  | 2:P:69:MET:SD    | 1.76                     | 1.24              |
| 2:P:39:VAL:HG11  | 2:R:69:MET:SD    | 1.76                     | 1.24              |
| 2:T:39:VAL:HG11  | 2:U:69:MET:SD    | 1.76                     | 1.24              |
| 2:S:39:VAL:HG11  | 2:T:69:MET:SD    | 1.76                     | 1.24              |
| 2:M:69:MET:SD    | 2:U:39:VAL:HG11  | 1.76                     | 1.23              |
| 2:T:260:ALA:HB1  | 2:U:304:GLU:OE1  | 1.38                     | 1.23              |
| 2:M:39:VAL:HG11  | 2:O:69:MET:SD    | 1.76                     | 1.23              |
| 2:O:203:TYR:OH   | 2:P:286:LYS:HD3  | 1.35                     | 1.23              |
| 2:R:39:VAL:HG11  | 2:S:69:MET:SD    | 1.76                     | 1.23              |
| 2:M:203:TYR:OH   | 2:O:286:LYS:HD3  | 1.35                     | 1.23              |
| 2:M:304:GLU:OE1  | 2:U:260:ALA:HB1  | 1.38                     | 1.22              |
| 2:P:203:TYR:OH   | 2:R:286:LYS:HD3  | 1.35                     | 1.22              |
| 2:R:260:ALA:HB1  | 2:S:304:GLU:OE1  | 1.38                     | 1.22              |
| 2:M:286:LYS:HD3  | 2:U:203:TYR:OH   | 1.35                     | 1.22              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:W:50:GLU:OE1   | 1:X:50:GLU:HG2   | 1.40                     | 1.22              |
| 2:T:203:TYR:OH   | 2:U:286:LYS:HD3  | 1.35                     | 1.21              |
| 1:V:50:GLU:OE1   | 1:W:50:GLU:HG2   | 1.40                     | 1.21              |
| 1:X:50:GLU:OE1   | 1:Y:50:GLU:HG2   | 1.40                     | 1.21              |
| 1:Q:50:GLU:OE1   | 1:V:50:GLU:HG2   | 1.40                     | 1.20              |
| 2:S:203:TYR:OH   | 2:T:286:LYS:HD3  | 1.35                     | 1.20              |
| 2:M:260:ALA:HB1  | 2:O:304:GLU:OE1  | 1.38                     | 1.20              |
| 2:R:203:TYR:OH   | 2:S:286:LYS:HD3  | 1.35                     | 1.20              |
| 2:C:203:TYR:CE2  | 2:N:305:ILE:HD11 | 1.76                     | 1.20              |
| 2:L:305:ILE:HD11 | 2:N:203:TYR:CE2  | 1.76                     | 1.19              |
| 2:J:305:ILE:HD11 | 2:K:203:TYR:CE2  | 1.76                     | 1.19              |
| 2:P:260:ALA:HB1  | 2:R:304:GLU:OE1  | 1.38                     | 1.19              |
| 1:A:1:MET:HB2    | 1:B:96:GLU:O     | 1.37                     | 1.19              |
| 2:K:305:ILE:HD11 | 2:L:203:TYR:CE2  | 1.76                     | 1.19              |
| 1:B:3:ILE:HG21   | 1:D:95:VAL:HA    | 1.19                     | 1.18              |
| 1:Y:50:GLU:OE1   | 1:Z:50:GLU:HG2   | 1.40                     | 1.18              |
| 2:C:305:ILE:HD11 | 2:H:203:TYR:CE2  | 1.76                     | 1.18              |
| 2:I:305:ILE:HD11 | 2:J:203:TYR:CE2  | 1.76                     | 1.18              |
| 1:Q:50:GLU:HG2   | 1:a:50:GLU:OE1   | 1.40                     | 1.18              |
| 2:H:305:ILE:HD11 | 2:I:203:TYR:CE2  | 1.76                     | 1.18              |
| 2:O:260:ALA:HB1  | 2:P:304:GLU:OE1  | 1.38                     | 1.18              |
| 1:A:3:ILE:HG21   | 1:B:95:VAL:HA    | 1.19                     | 1.18              |
| 1:D:1:MET:HB3    | 1:E:96:GLU:HB3   | 1.17                     | 1.17              |
| 1:Z:50:GLU:OE1   | 1:a:50:GLU:HG2   | 1.40                     | 1.17              |
| 1:E:1:MET:HB3    | 1:F:96:GLU:HB3   | 1.17                     | 1.17              |
| 1:F:1:MET:HB3    | 1:G:96:GLU:HB3   | 1.17                     | 1.17              |
| 1:B:1:MET:HB2    | 1:D:96:GLU:O     | 1.37                     | 1.17              |
| 1:D:3:ILE:HG21   | 1:E:95:VAL:HA    | 1.19                     | 1.17              |
| 1:A:9:ARG:NH2    | 1:B:89:SER:O     | 1.78                     | 1.16              |
| 1:F:9:ARG:NH2    | 1:G:89:SER:O     | 1.78                     | 1.16              |
| 1:I:9:ARG:NH2    | 1:A:89:SER:O     | 1.78                     | 1.16              |
| 1:D:9:ARG:NH2    | 1:E:89:SER:O     | 1.78                     | 1.16              |
| 1:Q:9:ARG:HD2    | 1:a:92:LEU:CA    | 1.75                     | 1.16              |
| 1:B:9:ARG:NH2    | 1:D:89:SER:O     | 1.78                     | 1.15              |
| 1:Z:92:LEU:CA    | 1:a:9:ARG:HD2    | 1.74                     | 1.15              |
| 1:E:9:ARG:NH2    | 1:F:89:SER:O     | 1.78                     | 1.15              |
| 1:X:92:LEU:CA    | 1:Y:9:ARG:HD2    | 1.75                     | 1.15              |
| 1:I:96:GLU:HB3   | 1:G:1:MET:HB3    | 1.17                     | 1.15              |
| 1:Q:92:LEU:CA    | 1:V:9:ARG:HD2    | 1.75                     | 1.15              |
| 1:I:89:SER:O     | 1:G:9:ARG:NH2    | 1.78                     | 1.15              |
| 1:B:1:MET:CB     | 1:D:96:GLU:O     | 1.84                     | 1.15              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Y:92:LEU:CA    | 1:Z:9:ARG:HD2    | 1.75                     | 1.15              |
| 1:1:1:MET:HB2    | 1:A:96:GLU:O     | 1.37                     | 1.14              |
| 1:D:1:MET:HB2    | 1:E:96:GLU:O     | 1.37                     | 1.14              |
| 1:V:92:LEU:CA    | 1:W:9:ARG:HD2    | 1.75                     | 1.14              |
| 1:B:1:MET:HB3    | 1:D:96:GLU:HB3   | 1.17                     | 1.14              |
| 1:W:92:LEU:CA    | 1:X:9:ARG:HD2    | 1.75                     | 1.14              |
| 2:R:387:VAL:HG13 | 2:S:76:GLU:OE1   | 1.48                     | 1.14              |
| 1:1:3:ILE:HG21   | 1:A:95:VAL:HA    | 1.18                     | 1.14              |
| 2:P:387:VAL:HG13 | 2:R:76:GLU:OE1   | 1.48                     | 1.14              |
| 1:D:74:LYS:HE2   | 1:E:68:ASN:HB2   | 1.14                     | 1.13              |
| 2:S:387:VAL:HG13 | 2:T:76:GLU:OE1   | 1.48                     | 1.13              |
| 1:F:74:LYS:HE2   | 1:G:68:ASN:HB2   | 1.14                     | 1.13              |
| 2:C:76:GLU:OE1   | 2:H:387:VAL:HG13 | 1.49                     | 1.13              |
| 2:C:387:VAL:HG13 | 2:N:76:GLU:OE1   | 1.49                     | 1.13              |
| 2:L:76:GLU:OE1   | 2:N:387:VAL:HG13 | 1.49                     | 1.13              |
| 2:H:76:GLU:OE1   | 2:I:387:VAL:HG13 | 1.49                     | 1.13              |
| 1:1:96:GLU:O     | 1:G:1:MET:CB     | 1.84                     | 1.13              |
| 1:E:3:ILE:HG21   | 1:F:95:VAL:HA    | 1.18                     | 1.13              |
| 2:O:387:VAL:HG13 | 2:P:76:GLU:OE1   | 1.48                     | 1.12              |
| 2:T:387:VAL:HG13 | 2:U:76:GLU:OE1   | 1.48                     | 1.13              |
| 1:D:76:GLU:HG2   | 1:E:66:ILE:HD13  | 1.13                     | 1.12              |
| 2:M:387:VAL:HG13 | 2:O:76:GLU:OE1   | 1.48                     | 1.12              |
| 2:M:76:GLU:OE1   | 2:U:387:VAL:HG13 | 1.48                     | 1.12              |
| 1:A:74:LYS:HE2   | 1:B:68:ASN:HB2   | 1.14                     | 1.12              |
| 2:K:76:GLU:OE1   | 2:L:387:VAL:HG13 | 1.49                     | 1.12              |
| 1:E:76:GLU:HG2   | 1:F:66:ILE:HD13  | 1.13                     | 1.11              |
| 1:1:68:ASN:HB2   | 1:G:74:LYS:HE2   | 1.14                     | 1.11              |
| 1:B:76:GLU:HG2   | 1:D:66:ILE:HD13  | 1.13                     | 1.11              |
| 2:J:76:GLU:OE1   | 2:K:387:VAL:HG13 | 1.49                     | 1.10              |
| 2:S:260:ALA:HB1  | 2:T:304:GLU:OE1  | 1.38                     | 1.10              |
| 1:E:1:MET:HB2    | 1:F:96:GLU:O     | 1.37                     | 1.10              |
| 1:E:74:LYS:HE2   | 1:F:68:ASN:HB2   | 1.14                     | 1.10              |
| 1:1:74:LYS:HE2   | 1:A:68:ASN:HB2   | 1.14                     | 1.10              |
| 1:V:89:SER:O     | 1:W:9:ARG:NH2    | 1.85                     | 1.10              |
| 1:1:1:MET:HB3    | 1:A:96:GLU:HB3   | 1.17                     | 1.09              |
| 1:1:96:GLU:O     | 1:G:1:MET:HB2    | 1.37                     | 1.09              |
| 1:W:89:SER:O     | 1:X:9:ARG:NH2    | 1.85                     | 1.09              |
| 1:D:74:LYS:CE    | 1:E:68:ASN:HB2   | 1.83                     | 1.09              |
| 1:E:74:LYS:CE    | 1:F:68:ASN:HB2   | 1.82                     | 1.09              |
| 2:I:76:GLU:OE1   | 2:J:387:VAL:HG13 | 1.49                     | 1.09              |
| 1:1:68:ASN:HB2   | 1:G:74:LYS:CE    | 1.83                     | 1.09              |

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| Atom-1          | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:B:74:LYS:HE2  | 1:D:68:ASN:HB2   | 1.14                     | 1.09              |
| 1:F:74:LYS:CE   | 1:G:68:ASN:HB2   | 1.83                     | 1.09              |
| 1:A:1:MET:HB3   | 1:B:96:GLU:HB3   | 1.17                     | 1.09              |
| 1:B:74:LYS:CE   | 1:D:68:ASN:HB2   | 1.83                     | 1.09              |
| 1:Q:89:SER:O    | 1:V:9:ARG:NH2    | 1.85                     | 1.09              |
| 1:F:76:GLU:HG2  | 1:G:66:ILE:HD13  | 1.13                     | 1.08              |
| 1:Q:9:ARG:NH2   | 1:a:89:SER:O     | 1.85                     | 1.08              |
| 1:1:74:LYS:CE   | 1:A:68:ASN:HB2   | 1.83                     | 1.08              |
| 1:F:1:MET:CB    | 1:G:96:GLU:O     | 1.84                     | 1.08              |
| 1:1:95:VAL:HA   | 1:G:3:ILE:HG21   | 1.18                     | 1.08              |
| 1:A:1:MET:CB    | 1:B:96:GLU:O     | 1.84                     | 1.08              |
| 1:Y:89:SER:O    | 1:Z:9:ARG:NH2    | 1.85                     | 1.08              |
| 1:Z:89:SER:O    | 1:a:9:ARG:NH2    | 1.85                     | 1.08              |
| 1:F:3:ILE:HG21  | 1:G:95:VAL:HA    | 1.19                     | 1.08              |
| 1:X:89:SER:O    | 1:Y:9:ARG:NH2    | 1.85                     | 1.08              |
| 1:A:74:LYS:CE   | 1:B:68:ASN:HB2   | 1.83                     | 1.07              |
| 1:A:76:GLU:HG2  | 1:B:66:ILE:HD13  | 1.13                     | 1.07              |
| 1:F:1:MET:HB2   | 1:G:96:GLU:O     | 1.37                     | 1.07              |
| 2:O:267:MET:HG3 | 2:P:305:ILE:CG1  | 1.84                     | 1.07              |
| 2:P:267:MET:HG3 | 2:R:305:ILE:CG1  | 1.84                     | 1.07              |
| 1:1:76:GLU:HG2  | 1:A:66:ILE:HD13  | 1.13                     | 1.07              |
| 2:R:267:MET:HG3 | 2:S:305:ILE:CG1  | 1.84                     | 1.07              |
| 1:1:66:ILE:HD13 | 1:G:76:GLU:HG2   | 1.13                     | 1.07              |
| 2:S:267:MET:HG3 | 2:T:305:ILE:CG1  | 1.84                     | 1.07              |
| 1:E:1:MET:CB    | 1:F:96:GLU:O     | 1.84                     | 1.06              |
| 2:M:267:MET:HG3 | 2:O:305:ILE:CG1  | 1.84                     | 1.06              |
| 1:V:92:LEU:HB3  | 1:W:9:ARG:HD3    | 1.38                     | 1.06              |
| 1:Q:92:LEU:HB3  | 1:V:9:ARG:HD3    | 1.38                     | 1.06              |
| 2:T:267:MET:HG3 | 2:U:305:ILE:CG1  | 1.84                     | 1.06              |
| 1:W:94:ILE:HG13 | 1:X:4:ARG:HB3    | 1.34                     | 1.06              |
| 2:M:305:ILE:CG1 | 2:U:267:MET:HG3  | 1.84                     | 1.06              |
| 1:Z:92:LEU:CB   | 1:a:9:ARG:HD3    | 1.87                     | 1.05              |
| 2:M:69:MET:SD   | 2:U:39:VAL:CG1   | 2.45                     | 1.05              |
| 1:V:94:ILE:HG13 | 1:W:4:ARG:HB3    | 1.34                     | 1.05              |
| 2:M:114:MET:HE2 | 2:U:153:ASN:HD21 | 0.88                     | 1.05              |
| 2:M:39:VAL:CG1  | 2:O:69:MET:SD    | 2.45                     | 1.05              |
| 1:Q:94:ILE:HG13 | 1:V:4:ARG:HB3    | 1.34                     | 1.05              |
| 2:T:39:VAL:CG1  | 2:U:69:MET:SD    | 2.45                     | 1.05              |
| 1:X:92:LEU:CB   | 1:Y:9:ARG:HD3    | 1.87                     | 1.04              |
| 1:X:94:ILE:HG13 | 1:Y:4:ARG:HB3    | 1.34                     | 1.04              |
| 1:Y:92:LEU:CB   | 1:Z:9:ARG:HD3    | 1.87                     | 1.04              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 2:O:153:ASN:HD21 | 2:P:114:MET:HE2 | 0.88                     | 1.04              |
| 1:W:92:LEU:HB3   | 1:X:9:ARG:HD3   | 1.38                     | 1.04              |
| 1:Q:4:ARG:HB3    | 1:a:94:ILE:HG13 | 1.34                     | 1.04              |
| 2:S:39:VAL:CG1   | 2:T:69:MET:SD   | 2.45                     | 1.04              |
| 1:Y:92:LEU:CA    | 1:Z:9:ARG:CD    | 2.35                     | 1.04              |
| 2:O:153:ASN:ND2  | 2:P:114:MET:CE  | 2.21                     | 1.04              |
| 2:R:39:VAL:CG1   | 2:S:69:MET:SD   | 2.45                     | 1.04              |
| 1:W:92:LEU:CB    | 1:X:9:ARG:HD3   | 1.87                     | 1.04              |
| 1:X:92:LEU:CA    | 1:Y:9:ARG:CD    | 2.35                     | 1.04              |
| 1:E:6:LEU:HD12   | 1:F:91:ILE:HG22 | 1.40                     | 1.03              |
| 2:P:39:VAL:CG1   | 2:R:69:MET:SD   | 2.45                     | 1.03              |
| 1:Y:94:ILE:CG1   | 1:Z:4:ARG:HG2   | 1.88                     | 1.03              |
| 1:1:6:LEU:HD12   | 1:A:91:ILE:HG22 | 1.40                     | 1.03              |
| 2:M:153:ASN:ND2  | 2:O:114:MET:CE  | 2.21                     | 1.03              |
| 2:P:153:ASN:ND2  | 2:R:114:MET:CE  | 2.21                     | 1.03              |
| 2:P:153:ASN:HD21 | 2:R:114:MET:HE2 | 0.88                     | 1.03              |
| 1:Y:92:LEU:HB3   | 1:Z:9:ARG:HD3   | 1.38                     | 1.03              |
| 2:M:114:MET:CE   | 2:U:153:ASN:ND2 | 2.21                     | 1.03              |
| 2:M:153:ASN:HD21 | 2:O:114:MET:HE2 | 0.88                     | 1.03              |
| 2:O:61:GLU:HB3   | 2:P:2:ALA:O     | 1.59                     | 1.03              |
| 1:Q:9:ARG:HD3    | 1:a:92:LEU:HB3  | 1.38                     | 1.03              |
| 2:S:153:ASN:HD21 | 2:T:114:MET:HE2 | 0.88                     | 1.03              |
| 1:X:94:ILE:CG1   | 1:Y:4:ARG:HG2   | 1.88                     | 1.03              |
| 1:Z:94:ILE:CG1   | 1:a:4:ARG:HG2   | 1.88                     | 1.03              |
| 1:D:6:LEU:HD12   | 1:E:91:ILE:HG22 | 1.41                     | 1.03              |
| 1:Q:9:ARG:HD3    | 1:a:92:LEU:CB   | 1.87                     | 1.03              |
| 1:Q:92:LEU:CB    | 1:V:9:ARG:HD3   | 1.87                     | 1.03              |
| 1:X:92:LEU:HB3   | 1:Y:9:ARG:HD3   | 1.38                     | 1.03              |
| 1:Z:92:LEU:HB3   | 1:a:9:ARG:HD3   | 1.38                     | 1.03              |
| 2:O:39:VAL:CG1   | 2:P:69:MET:SD   | 2.45                     | 1.03              |
| 2:P:61:GLU:HB3   | 2:R:2:ALA:O     | 1.59                     | 1.03              |
| 2:R:153:ASN:ND2  | 2:S:114:MET:CE  | 2.21                     | 1.03              |
| 1:V:92:LEU:CB    | 1:W:9:ARG:HD3   | 1.87                     | 1.03              |
| 1:Z:94:ILE:HG13  | 1:a:4:ARG:HB3   | 1.34                     | 1.03              |
| 1:1:1:MET:CB     | 1:A:96:GLU:O    | 1.84                     | 1.02              |
| 2:M:61:GLU:HB3   | 2:O:2:ALA:O     | 1.59                     | 1.02              |
| 1:Y:94:ILE:HG13  | 1:Z:4:ARG:HB3   | 1.34                     | 1.02              |
| 1:Q:4:ARG:HG2    | 1:a:94:ILE:CG1  | 1.88                     | 1.02              |
| 2:S:153:ASN:ND2  | 2:T:114:MET:CE  | 2.21                     | 1.02              |
| 2:T:153:ASN:ND2  | 2:U:114:MET:CE  | 2.21                     | 1.02              |
| 1:W:94:ILE:CG1   | 1:X:4:ARG:HG2   | 1.88                     | 1.02              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:91:ILE:HG22  | 1:G:6:LEU:HD12   | 1.41                     | 1.02              |
| 1:A:6:LEU:HD12   | 1:B:91:ILE:HG22  | 1.40                     | 1.02              |
| 1:D:1:MET:CB     | 1:E:96:GLU:O     | 1.84                     | 1.02              |
| 1:F:6:LEU:HD12   | 1:G:91:ILE:HG22  | 1.41                     | 1.02              |
| 1:Q:94:ILE:CG1   | 1:V:4:ARG:HG2    | 1.88                     | 1.02              |
| 2:S:61:GLU:HB3   | 2:T:2:ALA:O      | 1.59                     | 1.02              |
| 1:V:94:ILE:CG1   | 1:W:4:ARG:HG2    | 1.88                     | 1.02              |
| 2:M:2:ALA:O      | 2:U:61:GLU:HB3   | 1.59                     | 1.02              |
| 2:R:61:GLU:HB3   | 2:S:2:ALA:O      | 1.59                     | 1.02              |
| 2:T:61:GLU:HB3   | 2:U:2:ALA:O      | 1.59                     | 1.01              |
| 2:R:153:ASN:HD21 | 2:S:114:MET:HE2  | 0.88                     | 1.01              |
| 2:T:153:ASN:HD21 | 2:U:114:MET:HE2  | 0.88                     | 1.01              |
| 2:M:387:VAL:HG13 | 2:O:76:GLU:CD    | 1.85                     | 1.00              |
| 2:M:49:ILE:HD11  | 2:O:73:MET:SD    | 2.02                     | 1.00              |
| 2:M:76:GLU:CD    | 2:U:387:VAL:HG13 | 1.85                     | 1.00              |
| 2:T:49:ILE:HD11  | 2:U:73:MET:SD    | 2.02                     | 1.00              |
| 2:S:49:ILE:HD11  | 2:T:73:MET:SD    | 2.02                     | 1.00              |
| 2:O:387:VAL:HG13 | 2:P:76:GLU:CD    | 1.85                     | 1.00              |
| 1:Q:92:LEU:CA    | 1:V:9:ARG:CD     | 2.35                     | 1.00              |
| 2:R:387:VAL:HG13 | 2:S:76:GLU:CD    | 1.85                     | 1.00              |
| 2:S:387:VAL:HG13 | 2:T:76:GLU:CD    | 1.85                     | 1.00              |
| 1:V:92:LEU:CA    | 1:W:9:ARG:CD     | 2.35                     | 1.00              |
| 2:P:49:ILE:HD11  | 2:R:73:MET:SD    | 2.02                     | 0.99              |
| 1:Q:4:ARG:HG2    | 1:a:94:ILE:HG12  | 1.44                     | 0.99              |
| 1:Y:94:ILE:HG12  | 1:Z:4:ARG:HG2    | 1.44                     | 0.99              |
| 2:M:73:MET:SD    | 2:U:49:ILE:HD11  | 2.02                     | 0.99              |
| 2:R:49:ILE:HD11  | 2:S:73:MET:SD    | 2.02                     | 0.99              |
| 1:B:6:LEU:HD12   | 1:D:91:ILE:HG22  | 1.40                     | 0.99              |
| 2:O:49:ILE:HD11  | 2:P:73:MET:SD    | 2.02                     | 0.99              |
| 2:K:305:ILE:HD11 | 2:L:203:TYR:CD2  | 1.96                     | 0.99              |
| 2:P:387:VAL:HG13 | 2:R:76:GLU:CD    | 1.85                     | 0.99              |
| 2:C:203:TYR:CD2  | 2:N:305:ILE:HD11 | 1.96                     | 0.99              |
| 2:C:305:ILE:HD11 | 2:H:203:TYR:CD2  | 1.96                     | 0.99              |
| 1:Q:9:ARG:CD     | 1:a:92:LEU:CA    | 2.35                     | 0.99              |
| 2:T:387:VAL:HG13 | 2:U:76:GLU:CD    | 1.85                     | 0.99              |
| 1:Z:94:ILE:HG12  | 1:a:4:ARG:HG2    | 1.44                     | 0.99              |
| 2:L:305:ILE:HD11 | 2:N:203:TYR:CD2  | 1.96                     | 0.99              |
| 2:H:305:ILE:HD11 | 2:I:203:TYR:CD2  | 1.96                     | 0.99              |
| 2:I:305:ILE:HD11 | 2:J:203:TYR:CD2  | 1.96                     | 0.98              |
| 2:J:305:ILE:HD11 | 2:K:203:TYR:CD2  | 1.96                     | 0.98              |
| 1:Q:94:ILE:HG12  | 1:V:4:ARG:HG2    | 1.44                     | 0.98              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:74:LYS:CE    | 1:G:68:ASN:CB    | 2.41                     | 0.98              |
| 1:1:68:ASN:CB    | 1:G:74:LYS:CE    | 2.41                     | 0.98              |
| 1:W:94:ILE:HG12  | 1:X:4:ARG:HG2    | 1.44                     | 0.98              |
| 1:Q:50:GLU:CG    | 1:a:50:GLU:OE1   | 2.12                     | 0.98              |
| 1:Y:50:GLU:OE1   | 1:Z:50:GLU:CG    | 2.12                     | 0.98              |
| 1:W:94:ILE:HG12  | 1:X:4:ARG:CG     | 1.94                     | 0.97              |
| 1:E:74:LYS:CE    | 1:F:68:ASN:CB    | 2.41                     | 0.97              |
| 1:V:94:ILE:HG12  | 1:W:4:ARG:HG2    | 1.44                     | 0.97              |
| 1:W:92:LEU:CA    | 1:X:9:ARG:CD     | 2.35                     | 0.97              |
| 1:V:94:ILE:HG12  | 1:W:4:ARG:CG     | 1.94                     | 0.97              |
| 1:W:50:GLU:OE1   | 1:X:50:GLU:CG    | 2.12                     | 0.97              |
| 1:Q:4:ARG:CG     | 1:a:94:ILE:HG12  | 1.94                     | 0.97              |
| 1:B:74:LYS:CE    | 1:D:68:ASN:CB    | 2.41                     | 0.97              |
| 1:Q:94:ILE:HG12  | 1:V:4:ARG:CG     | 1.94                     | 0.97              |
| 1:X:50:GLU:OE1   | 1:Y:50:GLU:CG    | 2.12                     | 0.97              |
| 1:Z:50:GLU:OE1   | 1:a:50:GLU:CG    | 2.12                     | 0.97              |
| 1:Q:50:GLU:OE1   | 1:V:50:GLU:CG    | 2.12                     | 0.97              |
| 1:Q:94:ILE:O     | 1:V:4:ARG:HB3    | 1.64                     | 0.97              |
| 1:1:74:LYS:CE    | 1:A:68:ASN:CB    | 2.41                     | 0.97              |
| 1:Z:94:ILE:O     | 1:a:4:ARG:HB3    | 1.64                     | 0.97              |
| 1:Q:4:ARG:HB3    | 1:a:94:ILE:O     | 1.64                     | 0.96              |
| 1:Y:94:ILE:HG12  | 1:Z:4:ARG:CG     | 1.94                     | 0.96              |
| 1:Y:94:ILE:O     | 1:Z:4:ARG:HB3    | 1.64                     | 0.96              |
| 1:E:9:ARG:CD     | 1:F:92:LEU:HA    | 1.96                     | 0.96              |
| 1:Z:92:LEU:CA    | 1:a:9:ARG:CD     | 2.35                     | 0.96              |
| 1:F:9:ARG:CD     | 1:G:92:LEU:HA    | 1.96                     | 0.96              |
| 1:V:94:ILE:O     | 1:W:4:ARG:HB3    | 1.64                     | 0.96              |
| 1:X:94:ILE:HG12  | 1:Y:4:ARG:HG2    | 1.44                     | 0.96              |
| 1:B:9:ARG:CD     | 1:D:92:LEU:HA    | 1.96                     | 0.96              |
| 1:D:9:ARG:CD     | 1:E:92:LEU:HA    | 1.96                     | 0.96              |
| 1:A:9:ARG:CD     | 1:B:92:LEU:HA    | 1.96                     | 0.96              |
| 1:V:50:GLU:OE1   | 1:W:50:GLU:CG    | 2.12                     | 0.96              |
| 1:X:94:ILE:O     | 1:Y:4:ARG:HB3    | 1.64                     | 0.96              |
| 1:X:94:ILE:HG12  | 1:Y:4:ARG:CG     | 1.94                     | 0.95              |
| 1:1:92:LEU:HA    | 1:G:9:ARG:CD     | 1.96                     | 0.95              |
| 1:Z:94:ILE:HG12  | 1:a:4:ARG:CG     | 1.94                     | 0.95              |
| 1:D:74:LYS:CE    | 1:E:68:ASN:CB    | 2.41                     | 0.95              |
| 1:1:9:ARG:CD     | 1:A:92:LEU:HA    | 1.96                     | 0.95              |
| 2:M:305:ILE:HG13 | 2:U:267:MET:HG3  | 0.95                     | 0.95              |
| 1:W:94:ILE:O     | 1:X:4:ARG:HB3    | 1.64                     | 0.95              |
| 2:M:114:MET:CE   | 2:U:153:ASN:HD21 | 1.80                     | 0.94              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:1:MET:HB3    | 1:B:96:GLU:CB    | 1.98                     | 0.94              |
| 1:B:1:MET:HB3    | 1:D:96:GLU:CB    | 1.97                     | 0.94              |
| 2:T:267:MET:HG3  | 2:U:305:ILE:HG13 | 0.95                     | 0.94              |
| 1:A:74:LYS:CE    | 1:B:68:ASN:CB    | 2.41                     | 0.94              |
| 2:M:267:MET:HG3  | 2:O:305:ILE:HG13 | 0.95                     | 0.94              |
| 1:1:1:MET:HB3    | 1:A:96:GLU:CB    | 1.97                     | 0.94              |
| 2:R:387:VAL:CG1  | 2:S:76:GLU:OE1   | 2.16                     | 0.94              |
| 1:W:92:LEU:HD12  | 1:X:85:ILE:HD13  | 1.49                     | 0.94              |
| 2:M:153:ASN:HD21 | 2:O:114:MET:CE   | 1.80                     | 0.94              |
| 2:P:387:VAL:CG1  | 2:R:76:GLU:OE1   | 2.16                     | 0.94              |
| 1:B:76:GLU:CG    | 1:D:66:ILE:HD13  | 1.99                     | 0.93              |
| 2:P:267:MET:HG3  | 2:R:305:ILE:HG13 | 0.95                     | 0.93              |
| 1:X:94:ILE:CG1   | 1:Y:4:ARG:HB3    | 1.98                     | 0.93              |
| 1:Y:94:ILE:CG1   | 1:Z:4:ARG:HB3    | 1.98                     | 0.93              |
| 1:D:1:MET:HB3    | 1:E:96:GLU:CB    | 1.97                     | 0.93              |
| 2:M:387:VAL:CG1  | 2:O:76:GLU:OE1   | 2.16                     | 0.93              |
| 2:O:387:VAL:CG1  | 2:P:76:GLU:OE1   | 2.16                     | 0.93              |
| 2:S:387:VAL:CG1  | 2:T:76:GLU:OE1   | 2.16                     | 0.93              |
| 1:E:76:GLU:CG    | 1:F:66:ILE:HD13  | 1.99                     | 0.93              |
| 1:1:76:GLU:CG    | 1:A:66:ILE:HD13  | 1.99                     | 0.93              |
| 1:Z:94:ILE:CG1   | 1:a:4:ARG:HB3    | 1.98                     | 0.93              |
| 2:T:387:VAL:CG1  | 2:U:76:GLU:OE1   | 2.16                     | 0.93              |
| 1:V:92:LEU:HD12  | 1:W:85:ILE:HD13  | 1.49                     | 0.93              |
| 1:Z:92:LEU:HD12  | 1:a:85:ILE:HD13  | 1.49                     | 0.93              |
| 1:W:94:ILE:CG1   | 1:X:4:ARG:HB3    | 1.98                     | 0.93              |
| 1:A:76:GLU:CG    | 1:B:66:ILE:HD13  | 1.99                     | 0.93              |
| 1:E:74:LYS:HG3   | 1:F:68:ASN:HB3   | 1.51                     | 0.93              |
| 1:Q:4:ARG:HB3    | 1:a:94:ILE:CG1   | 1.98                     | 0.93              |
| 1:Q:94:ILE:CG1   | 1:V:4:ARG:HB3    | 1.98                     | 0.93              |
| 1:X:92:LEU:HD12  | 1:Y:85:ILE:HD13  | 1.49                     | 0.93              |
| 1:F:74:LYS:HG3   | 1:G:68:ASN:HB3   | 1.51                     | 0.92              |
| 2:P:153:ASN:HD21 | 2:R:114:MET:CE   | 1.80                     | 0.92              |
| 2:P:267:MET:SD   | 2:R:305:ILE:HG13 | 2.09                     | 0.92              |
| 1:Q:85:ILE:HD13  | 1:a:92:LEU:HD12  | 1.49                     | 0.92              |
| 2:S:267:MET:HG3  | 2:T:305:ILE:HG13 | 0.95                     | 0.92              |
| 1:V:94:ILE:CG1   | 1:W:4:ARG:HB3    | 1.98                     | 0.92              |
| 1:E:1:MET:HB3    | 1:F:96:GLU:CB    | 1.97                     | 0.92              |
| 2:M:39:VAL:HG12  | 2:O:69:MET:CE    | 1.99                     | 0.92              |
| 2:S:153:ASN:HD21 | 2:T:114:MET:CE   | 1.80                     | 0.92              |
| 2:M:69:MET:CE    | 2:U:39:VAL:HG12  | 1.99                     | 0.92              |
| 2:O:267:MET:SD   | 2:P:305:ILE:HG13 | 2.09                     | 0.92              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:76:GLU:OE1   | 2:U:387:VAL:CG1  | 2.16                     | 0.92              |
| 2:O:39:VAL:HG12  | 2:P:69:MET:CE    | 1.99                     | 0.92              |
| 2:M:305:ILE:HG13 | 2:U:267:MET:SD   | 2.09                     | 0.92              |
| 2:R:39:VAL:HG12  | 2:S:69:MET:CE    | 1.99                     | 0.92              |
| 1:F:76:GLU:CG    | 1:G:66:ILE:HD13  | 1.99                     | 0.92              |
| 2:S:39:VAL:HG12  | 2:T:69:MET:CE    | 1.99                     | 0.92              |
| 2:P:39:VAL:HG12  | 2:R:69:MET:CE    | 1.99                     | 0.92              |
| 1:Q:92:LEU:HD12  | 1:V:85:ILE:HD13  | 1.49                     | 0.92              |
| 2:S:267:MET:SD   | 2:T:305:ILE:HG13 | 2.09                     | 0.92              |
| 2:T:267:MET:SD   | 2:U:305:ILE:HG13 | 2.09                     | 0.92              |
| 1:I:68:ASN:HB3   | 1:G:74:LYS:HG3   | 1.51                     | 0.92              |
| 2:O:267:MET:HG3  | 2:P:305:ILE:HG13 | 0.95                     | 0.92              |
| 2:T:153:ASN:HD21 | 2:U:114:MET:CE   | 1.80                     | 0.92              |
| 1:I:96:GLU:CB    | 1:G:1:MET:HB3    | 1.97                     | 0.92              |
| 1:F:1:MET:HB3    | 1:G:96:GLU:CB    | 1.97                     | 0.92              |
| 2:T:39:VAL:HG12  | 2:U:69:MET:CE    | 1.99                     | 0.92              |
| 1:Y:92:LEU:HD12  | 1:Z:85:ILE:HD13  | 1.49                     | 0.91              |
| 2:R:267:MET:HG3  | 2:S:305:ILE:HG13 | 0.95                     | 0.91              |
| 1:V:92:LEU:C     | 1:W:5:PRO:HB2    | 1.95                     | 0.91              |
| 1:A:74:LYS:HG3   | 1:B:68:ASN:HB3   | 1.51                     | 0.91              |
| 2:R:267:MET:SD   | 2:S:305:ILE:HG13 | 2.09                     | 0.91              |
| 1:E:76:GLU:OE1   | 1:F:36:THR:OG1   | 1.88                     | 0.91              |
| 1:D:74:LYS:HG3   | 1:E:68:ASN:HB3   | 1.51                     | 0.91              |
| 1:D:76:GLU:CG    | 1:E:66:ILE:HD13  | 1.99                     | 0.91              |
| 1:I:36:THR:OG1   | 1:G:76:GLU:OE1   | 1.88                     | 0.91              |
| 2:M:267:MET:SD   | 2:O:305:ILE:HG13 | 2.09                     | 0.91              |
| 1:F:76:GLU:OE1   | 1:G:36:THR:OG1   | 1.88                     | 0.91              |
| 1:I:66:ILE:HD13  | 1:G:76:GLU:CG    | 1.99                     | 0.91              |
| 1:E:3:ILE:HG21   | 1:F:95:VAL:CA    | 2.01                     | 0.90              |
| 1:I:74:LYS:HG3   | 1:A:68:ASN:HB3   | 1.51                     | 0.90              |
| 1:I:95:VAL:CA    | 1:G:3:ILE:HG21   | 2.01                     | 0.90              |
| 1:I:3:ILE:HG21   | 1:A:95:VAL:CA    | 2.01                     | 0.90              |
| 1:A:76:GLU:OE1   | 1:B:36:THR:OG1   | 1.88                     | 0.90              |
| 1:Y:92:LEU:C     | 1:Z:5:PRO:HB2    | 1.95                     | 0.90              |
| 1:B:74:LYS:HG3   | 1:D:68:ASN:HB3   | 1.51                     | 0.90              |
| 1:X:92:LEU:C     | 1:Y:5:PRO:HB2    | 1.95                     | 0.90              |
| 1:B:76:GLU:OE1   | 1:D:36:THR:OG1   | 1.88                     | 0.90              |
| 1:Q:66:ILE:HD11  | 1:V:3:ILE:HG21   | 1.54                     | 0.90              |
| 1:Q:4:ARG:N      | 1:a:94:ILE:O     | 2.05                     | 0.90              |
| 1:Q:92:LEU:C     | 1:V:5:PRO:HB2    | 1.95                     | 0.90              |
| 1:W:92:LEU:C     | 1:X:5:PRO:HB2    | 1.95                     | 0.90              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:Q:3:ILE:HG21   | 1:a:66:ILE:HD11 | 1.54                     | 0.90              |
| 1:X:94:ILE:O     | 1:Y:4:ARG:N     | 2.05                     | 0.90              |
| 1:1:76:GLU:OE1   | 1:A:36:THR:OG1  | 1.88                     | 0.89              |
| 1:Q:5:PRO:HB2    | 1:a:92:LEU:C    | 1.95                     | 0.89              |
| 1:A:6:LEU:HD12   | 1:B:91:ILE:CG2  | 2.03                     | 0.89              |
| 1:E:6:LEU:HD12   | 1:F:91:ILE:CG2  | 2.03                     | 0.89              |
| 1:F:3:ILE:HG21   | 1:G:95:VAL:CA   | 2.01                     | 0.89              |
| 2:O:153:ASN:HD21 | 2:P:114:MET:CE  | 1.79                     | 0.89              |
| 2:R:264:VAL:HA   | 2:S:305:ILE:HA  | 1.55                     | 0.89              |
| 1:D:76:GLU:OE1   | 1:E:36:THR:OG1  | 1.88                     | 0.89              |
| 1:1:91:ILE:CG2   | 1:G:6:LEU:HD12  | 2.03                     | 0.89              |
| 2:S:264:VAL:HA   | 2:T:305:ILE:HA  | 1.55                     | 0.89              |
| 2:P:264:VAL:HA   | 2:R:305:ILE:HA  | 1.55                     | 0.89              |
| 1:W:94:ILE:O     | 1:X:4:ARG:N     | 2.05                     | 0.89              |
| 1:Z:92:LEU:C     | 1:a:5:PRO:HB2   | 1.95                     | 0.89              |
| 2:R:153:ASN:HD21 | 2:S:114:MET:CE  | 1.80                     | 0.89              |
| 1:V:66:ILE:HD11  | 1:W:3:ILE:HG21  | 1.54                     | 0.89              |
| 1:Z:66:ILE:HD11  | 1:a:3:ILE:HG21  | 1.54                     | 0.89              |
| 1:Z:94:ILE:O     | 1:a:4:ARG:N     | 2.05                     | 0.89              |
| 1:Q:94:ILE:O     | 1:V:4:ARG:N     | 2.05                     | 0.89              |
| 1:Y:66:ILE:HD11  | 1:Z:3:ILE:HG21  | 1.54                     | 0.89              |
| 1:Y:94:ILE:O     | 1:Z:4:ARG:N     | 2.05                     | 0.89              |
| 1:B:76:GLU:OE2   | 1:D:37:ARG:NE   | 2.06                     | 0.89              |
| 1:E:76:GLU:OE2   | 1:F:37:ARG:NE   | 2.06                     | 0.89              |
| 1:D:3:ILE:HG21   | 1:E:95:VAL:CA   | 2.02                     | 0.88              |
| 1:X:66:ILE:HD11  | 1:Y:3:ILE:HG21  | 1.54                     | 0.88              |
| 1:1:6:LEU:HD12   | 1:A:91:ILE:CG2  | 2.03                     | 0.88              |
| 1:A:3:ILE:HG21   | 1:B:95:VAL:CA   | 2.02                     | 0.88              |
| 1:B:3:ILE:HG21   | 1:D:95:VAL:CA   | 2.01                     | 0.88              |
| 1:D:6:LEU:HD12   | 1:E:91:ILE:CG2  | 2.03                     | 0.88              |
| 1:V:94:ILE:O     | 1:W:4:ARG:N     | 2.05                     | 0.88              |
| 1:B:6:LEU:HD12   | 1:D:91:ILE:CG2  | 2.03                     | 0.88              |
| 2:C:203:TYR:CE2  | 2:N:305:ILE:CD1 | 2.57                     | 0.88              |
| 2:C:305:ILE:CD1  | 2:H:203:TYR:CE2 | 2.57                     | 0.88              |
| 1:F:6:LEU:HD12   | 1:G:91:ILE:CG2  | 2.03                     | 0.88              |
| 2:O:264:VAL:HA   | 2:P:305:ILE:HA  | 1.55                     | 0.88              |
| 2:M:304:GLU:OE1  | 2:U:260:ALA:CA  | 2.22                     | 0.88              |
| 2:T:260:ALA:CA   | 2:U:304:GLU:OE1 | 2.22                     | 0.88              |
| 2:T:264:VAL:HA   | 2:U:305:ILE:HA  | 1.55                     | 0.88              |
| 1:Q:5:PRO:HB2    | 1:a:92:LEU:O    | 1.75                     | 0.87              |
| 2:H:305:ILE:CD1  | 2:I:203:TYR:CE2 | 2.57                     | 0.87              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 2:L:305:ILE:CD1 | 2:N:203:TYR:CE2 | 2.57                     | 0.87              |
| 1:W:66:ILE:HD11 | 1:X:3:ILE:HG21  | 1.54                     | 0.87              |
| 1:D:76:GLU:OE2  | 1:E:37:ARG:NE   | 2.06                     | 0.87              |
| 2:O:260:ALA:CA  | 2:P:304:GLU:OE1 | 2.22                     | 0.87              |
| 1:1:76:GLU:OE2  | 1:A:37:ARG:NE   | 2.06                     | 0.87              |
| 1:Y:92:LEU:O    | 1:Z:5:PRO:HB2   | 1.75                     | 0.87              |
| 1:1:37:ARG:NE   | 1:G:76:GLU:OE2  | 2.06                     | 0.87              |
| 2:M:264:VAL:HA  | 2:O:305:ILE:HA  | 1.55                     | 0.87              |
| 2:M:305:ILE:HA  | 2:U:264:VAL:HA  | 1.55                     | 0.87              |
| 1:A:76:GLU:OE2  | 1:B:37:ARG:NE   | 2.06                     | 0.87              |
| 2:P:260:ALA:CA  | 2:R:304:GLU:OE1 | 2.22                     | 0.86              |
| 2:I:305:ILE:CD1 | 2:J:203:TYR:CE2 | 2.57                     | 0.86              |
| 2:K:305:ILE:CD1 | 2:L:203:TYR:CE2 | 2.57                     | 0.86              |
| 1:F:76:GLU:OE2  | 1:G:37:ARG:NE   | 2.06                     | 0.86              |
| 2:M:260:ALA:CA  | 2:O:304:GLU:OE1 | 2.22                     | 0.86              |
| 1:Q:94:ILE:CD1  | 1:V:4:ARG:HG2   | 2.05                     | 0.86              |
| 2:R:260:ALA:CA  | 2:S:304:GLU:OE1 | 2.22                     | 0.86              |
| 1:V:94:ILE:O    | 1:W:4:ARG:CA    | 2.24                     | 0.86              |
| 1:V:94:ILE:CD1  | 1:W:4:ARG:HG2   | 2.05                     | 0.86              |
| 2:S:260:ALA:CA  | 2:T:304:GLU:OE1 | 2.22                     | 0.86              |
| 1:Z:92:LEU:O    | 1:a:5:PRO:HB2   | 1.75                     | 0.86              |
| 1:Q:4:ARG:HG2   | 1:a:94:ILE:CD1  | 2.05                     | 0.86              |
| 1:W:94:ILE:O    | 1:X:4:ARG:CA    | 2.24                     | 0.86              |
| 1:X:94:ILE:O    | 1:Y:4:ARG:CA    | 2.24                     | 0.86              |
| 1:Y:94:ILE:O    | 1:Z:4:ARG:CA    | 2.24                     | 0.86              |
| 1:Y:94:ILE:O    | 1:Z:4:ARG:CB    | 2.24                     | 0.86              |
| 1:Z:94:ILE:O    | 1:a:4:ARG:CA    | 2.24                     | 0.86              |
| 1:Q:94:ILE:O    | 1:V:4:ARG:CB    | 2.24                     | 0.86              |
| 2:J:305:ILE:CD1 | 2:K:203:TYR:CE2 | 2.57                     | 0.85              |
| 1:X:94:ILE:O    | 1:Y:4:ARG:CB    | 2.24                     | 0.85              |
| 1:Q:4:ARG:CA    | 1:a:94:ILE:O    | 2.24                     | 0.85              |
| 1:Q:4:ARG:CB    | 1:a:94:ILE:O    | 2.24                     | 0.85              |
| 1:Q:92:LEU:O    | 1:V:5:PRO:HB2   | 1.74                     | 0.85              |
| 1:Q:94:ILE:O    | 1:V:4:ARG:CA    | 2.24                     | 0.85              |
| 1:W:94:ILE:CD1  | 1:X:4:ARG:HG2   | 2.05                     | 0.85              |
| 1:W:92:LEU:O    | 1:X:5:PRO:HB2   | 1.75                     | 0.85              |
| 1:V:92:LEU:O    | 1:W:5:PRO:HB2   | 1.75                     | 0.85              |
| 1:X:92:LEU:O    | 1:Y:5:PRO:HB2   | 1.75                     | 0.85              |
| 1:Z:94:ILE:O    | 1:a:4:ARG:CB    | 2.24                     | 0.85              |
| 1:W:94:ILE:O    | 1:X:4:ARG:CB    | 2.24                     | 0.85              |
| 1:Z:94:ILE:CD1  | 1:a:4:ARG:HG2   | 2.05                     | 0.85              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:Y:94:ILE:CD1  | 1:Z:4:ARG:HG2   | 2.05                     | 0.84              |
| 1:V:94:ILE:O    | 1:W:4:ARG:CB    | 2.24                     | 0.84              |
| 2:M:286:LYS:HD3 | 2:U:203:TYR:HH  | 1.41                     | 0.84              |
| 1:X:94:ILE:CD1  | 1:Y:4:ARG:HG2   | 2.05                     | 0.84              |
| 1:F:9:ARG:NH1   | 1:G:92:LEU:CD2  | 2.42                     | 0.83              |
| 2:M:267:MET:SD  | 2:O:305:ILE:CG1 | 2.67                     | 0.83              |
| 2:T:267:MET:SD  | 2:U:305:ILE:CG1 | 2.67                     | 0.83              |
| 1:D:9:ARG:NH1   | 1:E:92:LEU:CD2  | 2.42                     | 0.83              |
| 2:P:478:TYR:OH  | 2:P:483:GLU:OE1 | 1.97                     | 0.83              |
| 1:1:9:ARG:NH1   | 1:A:92:LEU:CD2  | 2.42                     | 0.83              |
| 1:1:92:LEU:CD2  | 1:G:9:ARG:NH1   | 2.42                     | 0.83              |
| 1:B:9:ARG:NH1   | 1:D:92:LEU:CD2  | 2.42                     | 0.83              |
| 2:R:478:TYR:OH  | 2:R:483:GLU:OE1 | 1.97                     | 0.83              |
| 2:S:267:MET:SD  | 2:T:305:ILE:CG1 | 2.67                     | 0.83              |
| 2:O:267:MET:SD  | 2:P:305:ILE:CG1 | 2.67                     | 0.82              |
| 2:S:478:TYR:OH  | 2:S:483:GLU:OE1 | 1.97                     | 0.82              |
| 2:M:305:ILE:CG1 | 2:U:267:MET:SD  | 2.67                     | 0.82              |
| 2:T:478:TYR:OH  | 2:T:483:GLU:OE1 | 1.97                     | 0.82              |
| 1:A:9:ARG:NH1   | 1:B:92:LEU:CD2  | 2.42                     | 0.82              |
| 2:O:478:TYR:OH  | 2:O:483:GLU:OE1 | 1.97                     | 0.82              |
| 2:T:23:LEU:HD13 | 2:T:74:VAL:HG23 | 1.62                     | 0.82              |
| 2:U:23:LEU:HD13 | 2:U:74:VAL:HG23 | 1.62                     | 0.82              |
| 2:P:267:MET:SD  | 2:R:305:ILE:CG1 | 2.67                     | 0.82              |
| 2:R:267:MET:SD  | 2:S:305:ILE:CG1 | 2.67                     | 0.82              |
| 2:O:23:LEU:HD13 | 2:O:74:VAL:HG23 | 1.62                     | 0.82              |
| 1:E:9:ARG:NH1   | 1:F:92:LEU:CD2  | 2.42                     | 0.82              |
| 2:T:203:TYR:HH  | 2:U:286:LYS:HD3 | 1.43                     | 0.82              |
| 2:M:23:LEU:HD13 | 2:M:74:VAL:HG23 | 1.62                     | 0.82              |
| 2:O:41:ASP:HB2  | 2:P:69:MET:HE3  | 1.61                     | 0.82              |
| 2:M:41:ASP:HB2  | 2:O:69:MET:HE3  | 1.61                     | 0.82              |
| 1:W:94:ILE:CG1  | 1:X:4:ARG:CG    | 2.56                     | 0.82              |
| 2:P:23:LEU:HD13 | 2:P:74:VAL:HG23 | 1.61                     | 0.81              |
| 2:S:23:LEU:HD13 | 2:S:74:VAL:HG23 | 1.62                     | 0.81              |
| 2:M:478:TYR:OH  | 2:M:483:GLU:OE1 | 1.97                     | 0.81              |
| 2:U:478:TYR:OH  | 2:U:483:GLU:OE1 | 1.97                     | 0.81              |
| 2:P:41:ASP:HB2  | 2:R:69:MET:HE3  | 1.61                     | 0.81              |
| 1:X:94:ILE:CG1  | 1:Y:4:ARG:CG    | 2.56                     | 0.81              |
| 1:1:9:ARG:HD3   | 1:A:92:LEU:HA   | 1.62                     | 0.81              |
| 2:S:203:TYR:HH  | 2:T:286:LYS:HD3 | 1.45                     | 0.81              |
| 1:B:74:LYS:HE2  | 1:D:68:ASN:CA   | 2.11                     | 0.81              |
| 2:R:23:LEU:HD13 | 2:R:74:VAL:HG23 | 1.61                     | 0.81              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:Z:94:ILE:CG1  | 1:a:4:ARG:CG    | 2.56                     | 0.81              |
| 1:1:92:LEU:HA   | 1:G:9:ARG:HD3   | 1.62                     | 0.81              |
| 1:Q:4:ARG:CG    | 1:a:94:ILE:CG1  | 2.56                     | 0.81              |
| 1:A:74:LYS:HE2  | 1:B:68:ASN:CA   | 2.11                     | 0.81              |
| 1:D:74:LYS:HE2  | 1:E:68:ASN:CA   | 2.11                     | 0.81              |
| 1:A:9:ARG:HD3   | 1:B:92:LEU:HA   | 1.62                     | 0.80              |
| 1:F:9:ARG:HD3   | 1:G:92:LEU:HA   | 1.62                     | 0.80              |
| 2:M:69:MET:HE3  | 2:U:41:ASP:HB2  | 1.61                     | 0.80              |
| 2:S:41:ASP:HB2  | 2:T:69:MET:HE3  | 1.61                     | 0.80              |
| 2:T:41:ASP:HB2  | 2:U:69:MET:HE3  | 1.61                     | 0.80              |
| 1:E:9:ARG:HD3   | 1:F:92:LEU:HA   | 1.62                     | 0.80              |
| 1:1:74:LYS:HE2  | 1:A:68:ASN:CA   | 2.11                     | 0.80              |
| 1:V:94:ILE:CG1  | 1:W:4:ARG:CG    | 2.56                     | 0.80              |
| 1:A:9:ARG:NH1   | 1:B:92:LEU:HD23 | 1.97                     | 0.80              |
| 1:E:74:LYS:HE2  | 1:F:68:ASN:CA   | 2.11                     | 0.80              |
| 2:R:41:ASP:HB2  | 2:S:69:MET:HE3  | 1.61                     | 0.80              |
| 1:F:9:ARG:NH1   | 1:G:92:LEU:HD23 | 1.97                     | 0.80              |
| 1:B:9:ARG:HD3   | 1:D:92:LEU:HA   | 1.62                     | 0.79              |
| 1:B:76:GLU:HG2  | 1:D:66:ILE:CD1  | 2.06                     | 0.79              |
| 1:1:92:LEU:HD23 | 1:G:9:ARG:NH1   | 1.97                     | 0.79              |
| 1:F:74:LYS:HE2  | 1:G:68:ASN:CA   | 2.11                     | 0.79              |
| 1:1:68:ASN:CA   | 1:G:74:LYS:HE2  | 2.11                     | 0.79              |
| 1:D:9:ARG:HD3   | 1:E:92:LEU:HA   | 1.62                     | 0.79              |
| 1:D:9:ARG:NH1   | 1:E:92:LEU:HD23 | 1.97                     | 0.79              |
| 1:D:76:GLU:HG2  | 1:E:66:ILE:CD1  | 2.06                     | 0.79              |
| 2:J:76:GLU:OE1  | 2:K:387:VAL:CG1 | 2.31                     | 0.79              |
| 1:1:9:ARG:NH1   | 1:A:92:LEU:HD23 | 1.97                     | 0.79              |
| 1:Y:94:ILE:CG1  | 1:Z:4:ARG:CG    | 2.56                     | 0.79              |
| 1:E:9:ARG:NH1   | 1:F:92:LEU:HD23 | 1.97                     | 0.79              |
| 2:O:203:TYR:HH  | 2:P:286:LYS:HD3 | 1.48                     | 0.79              |
| 1:B:9:ARG:NH1   | 1:D:92:LEU:HD23 | 1.97                     | 0.78              |
| 2:L:76:GLU:OE1  | 2:N:387:VAL:CG1 | 2.31                     | 0.78              |
| 2:M:39:VAL:CG1  | 2:O:69:MET:CE   | 2.62                     | 0.78              |
| 2:J:69:MET:CE   | 2:K:39:VAL:HG12 | 2.14                     | 0.78              |
| 2:K:291:ASP:O   | 2:K:345:ARG:NH1 | 2.17                     | 0.78              |
| 2:N:291:ASP:O   | 2:N:345:ARG:NH1 | 2.17                     | 0.78              |
| 2:L:69:MET:CE   | 2:N:39:VAL:HG12 | 2.14                     | 0.78              |
| 1:F:50:GLU:O    | 1:F:51:ASN:ND2  | 2.17                     | 0.78              |
| 2:K:76:GLU:OE1  | 2:L:387:VAL:CG1 | 2.31                     | 0.78              |
| 2:L:291:ASP:O   | 2:L:345:ARG:NH1 | 2.17                     | 0.78              |
| 2:R:39:VAL:CG1  | 2:S:69:MET:CE   | 2.62                     | 0.78              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 2:S:39:VAL:CG1  | 2:T:69:MET:CE   | 2.62                     | 0.78              |
| 1:G:50:GLU:O    | 1:G:51:ASN:ND2  | 2.17                     | 0.78              |
| 2:K:69:MET:CE   | 2:L:39:VAL:HG12 | 2.14                     | 0.78              |
| 2:P:203:TYR:HH  | 2:R:286:LYS:HD3 | 1.49                     | 0.78              |
| 2:C:69:MET:CE   | 2:H:39:VAL:HG12 | 2.14                     | 0.77              |
| 2:J:291:ASP:O   | 2:J:345:ARG:NH1 | 2.17                     | 0.77              |
| 2:C:39:VAL:HG12 | 2:N:69:MET:CE   | 2.14                     | 0.77              |
| 1:E:50:GLU:O    | 1:E:51:ASN:ND2  | 2.17                     | 0.77              |
| 2:H:76:GLU:OE1  | 2:I:387:VAL:CG1 | 2.31                     | 0.77              |
| 2:I:76:GLU:OE1  | 2:J:387:VAL:CG1 | 2.31                     | 0.77              |
| 2:M:69:MET:CE   | 2:U:39:VAL:CG1  | 2.62                     | 0.77              |
| 2:C:291:ASP:O   | 2:C:345:ARG:NH1 | 2.17                     | 0.77              |
| 1:Q:9:ARG:HD2   | 1:a:92:LEU:HA   | 0.79                     | 0.77              |
| 1:1:50:GLU:O    | 1:1:51:ASN:ND2  | 2.17                     | 0.77              |
| 2:H:69:MET:CE   | 2:I:39:VAL:HG12 | 2.14                     | 0.77              |
| 2:O:39:VAL:CG1  | 2:P:69:MET:CE   | 2.62                     | 0.77              |
| 1:Q:92:LEU:HA   | 1:V:9:ARG:HD2   | 0.79                     | 0.77              |
| 2:S:231:ARG:NH2 | 2:S:257:GLU:OE1 | 2.18                     | 0.77              |
| 1:A:76:GLU:HG2  | 1:B:66:ILE:CD1  | 2.06                     | 0.77              |
| 2:T:231:ARG:NH2 | 2:T:257:GLU:OE1 | 2.18                     | 0.77              |
| 2:T:267:MET:CG  | 2:U:305:ILE:CG1 | 2.54                     | 0.77              |
| 1:B:50:GLU:O    | 1:B:51:ASN:ND2  | 2.17                     | 0.77              |
| 2:M:231:ARG:NH2 | 2:M:257:GLU:OE1 | 2.18                     | 0.77              |
| 1:V:92:LEU:HD12 | 1:W:85:ILE:CD1  | 2.14                     | 0.77              |
| 1:Q:94:ILE:CG1  | 1:V:4:ARG:CB    | 2.63                     | 0.77              |
| 2:O:231:ARG:NH2 | 2:O:257:GLU:OE1 | 2.18                     | 0.77              |
| 1:W:92:LEU:HD12 | 1:X:85:ILE:CD1  | 2.14                     | 0.77              |
| 1:Q:92:LEU:HD12 | 1:V:85:ILE:CD1  | 2.14                     | 0.77              |
| 1:V:94:ILE:CG1  | 1:W:4:ARG:CB    | 2.63                     | 0.77              |
| 2:I:69:MET:CE   | 2:J:39:VAL:HG12 | 2.14                     | 0.77              |
| 2:P:39:VAL:CG1  | 2:R:69:MET:CE   | 2.62                     | 0.76              |
| 1:Z:94:ILE:HD11 | 1:a:4:ARG:HG2   | 1.66                     | 0.76              |
| 2:H:291:ASP:O   | 2:H:345:ARG:NH1 | 2.17                     | 0.76              |
| 1:Z:94:ILE:CG1  | 1:a:4:ARG:CB    | 2.63                     | 0.76              |
| 2:C:76:GLU:OE1  | 2:H:387:VAL:CG1 | 2.31                     | 0.76              |
| 1:Q:4:ARG:CB    | 1:a:94:ILE:CG1  | 2.63                     | 0.76              |
| 1:V:92:LEU:HA   | 1:W:9:ARG:HD2   | 0.79                     | 0.76              |
| 1:Y:94:ILE:CG1  | 1:Z:4:ARG:CB    | 2.63                     | 0.76              |
| 1:Y:94:ILE:HD11 | 1:Z:4:ARG:HG2   | 1.66                     | 0.76              |
| 1:Z:92:LEU:HA   | 1:a:9:ARG:HD2   | 0.79                     | 0.76              |
| 2:P:231:ARG:NH2 | 2:P:257:GLU:OE1 | 2.18                     | 0.76              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:Q:85:ILE:CD1  | 1:a:92:LEU:HD12 | 2.14                     | 0.76              |
| 1:X:92:LEU:HD12 | 1:Y:85:ILE:CD1  | 2.14                     | 0.76              |
| 1:1:66:ILE:CD1  | 1:G:76:GLU:HG2  | 2.06                     | 0.76              |
| 2:U:231:ARG:NH2 | 2:U:257:GLU:OE1 | 2.18                     | 0.76              |
| 1:X:94:ILE:CG1  | 1:Y:4:ARG:CB    | 2.63                     | 0.76              |
| 1:Y:92:LEU:HD12 | 1:Z:85:ILE:CD1  | 2.14                     | 0.76              |
| 1:A:50:GLU:O    | 1:A:51:ASN:ND2  | 2.17                     | 0.76              |
| 1:Q:94:ILE:CG1  | 1:V:4:ARG:CG    | 2.56                     | 0.76              |
| 2:C:387:VAL:CG1 | 2:N:76:GLU:OE1  | 2.31                     | 0.76              |
| 1:D:50:GLU:O    | 1:D:51:ASN:ND2  | 2.17                     | 0.76              |
| 1:Q:94:ILE:HD11 | 1:V:4:ARG:HG2   | 1.67                     | 0.76              |
| 1:V:94:ILE:HD11 | 1:W:4:ARG:HG2   | 1.66                     | 0.76              |
| 1:W:94:ILE:CG1  | 1:X:4:ARG:CB    | 2.63                     | 0.76              |
| 1:E:76:GLU:HG2  | 1:F:66:ILE:CD1  | 2.06                     | 0.76              |
| 2:M:203:TYR:HH  | 2:O:286:LYS:HD3 | 1.49                     | 0.76              |
| 2:I:291:ASP:O   | 2:I:345:ARG:NH1 | 2.17                     | 0.75              |
| 2:T:39:VAL:CG1  | 2:U:69:MET:CE   | 2.62                     | 0.75              |
| 2:R:231:ARG:NH2 | 2:R:257:GLU:OE1 | 2.18                     | 0.75              |
| 1:Y:92:LEU:HA   | 1:Z:9:ARG:HD2   | 0.79                     | 0.75              |
| 2:P:267:MET:CG  | 2:R:305:ILE:CG1 | 2.54                     | 0.75              |
| 1:W:92:LEU:HA   | 1:X:9:ARG:HD2   | 0.79                     | 0.75              |
| 1:Z:92:LEU:HD12 | 1:a:85:ILE:CD1  | 2.14                     | 0.75              |
| 1:Q:4:ARG:HG2   | 1:a:94:ILE:HD11 | 1.66                     | 0.75              |
| 2:R:203:TYR:HH  | 2:S:286:LYS:HD3 | 1.50                     | 0.75              |
| 1:E:9:ARG:CZ    | 1:F:92:LEU:HD23 | 2.17                     | 0.75              |
| 1:W:94:ILE:HD11 | 1:X:4:ARG:HG2   | 1.67                     | 0.75              |
| 1:F:9:ARG:CZ    | 1:G:92:LEU:HD23 | 2.17                     | 0.74              |
| 1:F:76:GLU:HG2  | 1:G:66:ILE:CD1  | 2.06                     | 0.74              |
| 1:B:9:ARG:CZ    | 1:D:92:LEU:HD23 | 2.17                     | 0.74              |
| 1:X:92:LEU:HA   | 1:Y:9:ARG:HD2   | 0.79                     | 0.74              |
| 1:D:9:ARG:CZ    | 1:E:92:LEU:HD23 | 2.17                     | 0.74              |
| 1:1:9:ARG:CZ    | 1:A:92:LEU:HD23 | 2.17                     | 0.74              |
| 2:M:69:MET:HE1  | 2:U:39:VAL:HG12 | 1.70                     | 0.74              |
| 1:X:94:ILE:HD11 | 1:Y:4:ARG:HG2   | 1.66                     | 0.74              |
| 1:A:9:ARG:CZ    | 1:B:92:LEU:HD23 | 2.17                     | 0.74              |
| 2:T:39:VAL:HG12 | 2:U:69:MET:HE1  | 1.70                     | 0.74              |
| 1:B:74:LYS:HE2  | 1:D:68:ASN:HB3  | 1.68                     | 0.74              |
| 2:J:294:THR:OG1 | 2:J:345:ARG:NH1 | 2.21                     | 0.74              |
| 1:X:49:LEU:CD1  | 1:Y:50:GLU:HA   | 2.18                     | 0.74              |
| 1:Q:92:LEU:C    | 1:V:5:PRO:CB    | 2.61                     | 0.73              |
| 1:Z:49:LEU:CD1  | 1:a:50:GLU:HA   | 2.18                     | 0.73              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:1:92:LEU:HD23 | 1:G:9:ARG:CZ    | 2.17                     | 0.73              |
| 2:S:39:VAL:HG12 | 2:T:69:MET:HE1  | 1.70                     | 0.73              |
| 1:A:74:LYS:HE2  | 1:B:68:ASN:HB3  | 1.68                     | 0.73              |
| 2:H:294:THR:OG1 | 2:H:345:ARG:NH1 | 2.21                     | 0.73              |
| 2:I:294:THR:OG1 | 2:I:345:ARG:NH1 | 2.21                     | 0.73              |
| 2:M:39:VAL:HG12 | 2:O:69:MET:HE1  | 1.70                     | 0.73              |
| 1:Y:92:LEU:C    | 1:Z:5:PRO:CB    | 2.61                     | 0.73              |
| 2:C:294:THR:OG1 | 2:C:345:ARG:NH1 | 2.21                     | 0.73              |
| 2:I:196:ASP:O   | 2:I:197:ARG:NH1 | 2.22                     | 0.73              |
| 2:L:294:THR:OG1 | 2:L:345:ARG:NH1 | 2.21                     | 0.73              |
| 2:N:294:THR:OG1 | 2:N:345:ARG:NH1 | 2.21                     | 0.73              |
| 1:Q:92:LEU:C    | 1:V:6:LEU:HD12  | 2.14                     | 0.73              |
| 2:K:294:THR:OG1 | 2:K:345:ARG:NH1 | 2.21                     | 0.73              |
| 2:O:203:TYR:OH  | 2:P:286:LYS:CD  | 2.29                     | 0.73              |
| 1:X:92:LEU:C    | 1:Y:5:PRO:CB    | 2.61                     | 0.73              |
| 1:X:92:LEU:C    | 1:Y:6:LEU:HD12  | 2.14                     | 0.73              |
| 1:Q:50:GLU:HA   | 1:a:49:LEU:CD1  | 2.18                     | 0.73              |
| 1:V:49:LEU:CD1  | 1:W:50:GLU:HA   | 2.18                     | 0.73              |
| 1:Y:49:LEU:CD1  | 1:Z:50:GLU:HA   | 2.18                     | 0.73              |
| 2:L:196:ASP:O   | 2:L:197:ARG:NH1 | 2.22                     | 0.73              |
| 1:V:92:LEU:C    | 1:W:5:PRO:CB    | 2.61                     | 0.73              |
| 1:W:49:LEU:CD1  | 1:X:50:GLU:HA   | 2.18                     | 0.73              |
| 1:A:74:LYS:CG   | 1:B:68:ASN:HB3  | 2.19                     | 0.72              |
| 2:K:196:ASP:O   | 2:K:197:ARG:NH1 | 2.22                     | 0.72              |
| 2:O:267:MET:CG  | 2:P:305:ILE:CG1 | 2.54                     | 0.72              |
| 1:Z:92:LEU:C    | 1:a:5:PRO:CB    | 2.61                     | 0.72              |
| 1:1:74:LYS:CG   | 1:A:68:ASN:HB3  | 2.19                     | 0.72              |
| 1:1:76:GLU:HG2  | 1:A:66:ILE:CD1  | 2.06                     | 0.72              |
| 1:B:74:LYS:CG   | 1:D:68:ASN:HB3  | 2.20                     | 0.72              |
| 1:D:74:LYS:CG   | 1:E:68:ASN:HB3  | 2.20                     | 0.72              |
| 1:Z:92:LEU:C    | 1:a:6:LEU:HD12  | 2.14                     | 0.72              |
| 2:C:196:ASP:O   | 2:C:197:ARG:NH1 | 2.22                     | 0.72              |
| 2:J:196:ASP:O   | 2:J:197:ARG:NH1 | 2.22                     | 0.72              |
| 2:N:196:ASP:O   | 2:N:197:ARG:NH1 | 2.22                     | 0.72              |
| 1:W:92:LEU:C    | 1:X:5:PRO:CB    | 2.61                     | 0.72              |
| 2:H:196:ASP:O   | 2:H:197:ARG:NH1 | 2.22                     | 0.72              |
| 1:E:74:LYS:HE2  | 1:F:68:ASN:HB3  | 1.68                     | 0.72              |
| 1:E:74:LYS:CG   | 1:F:68:ASN:HB3  | 2.19                     | 0.72              |
| 2:R:39:VAL:HG12 | 2:S:69:MET:HE1  | 1.70                     | 0.72              |
| 1:1:68:ASN:HB3  | 1:G:74:LYS:CG   | 2.19                     | 0.72              |
| 2:O:39:VAL:HG12 | 2:P:69:MET:HE1  | 1.70                     | 0.72              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 2:P:260:ALA:HA   | 2:R:304:GLU:OE1 | 1.90                     | 0.72              |
| 2:M:468:THR:OG1  | 2:M:485:TYR:OH  | 2.08                     | 0.72              |
| 2:O:260:ALA:HA   | 2:P:304:GLU:OE1 | 1.90                     | 0.72              |
| 2:R:260:ALA:HA   | 2:S:304:GLU:OE1 | 1.90                     | 0.72              |
| 1:F:74:LYS:CG    | 1:G:68:ASN:HB3  | 2.19                     | 0.72              |
| 1:Q:49:LEU:CD1   | 1:V:50:GLU:HA   | 2.18                     | 0.72              |
| 2:R:264:VAL:HB   | 2:S:305:ILE:C   | 2.15                     | 0.72              |
| 1:W:92:LEU:C     | 1:X:6:LEU:HD12  | 2.14                     | 0.72              |
| 2:K:209:GLU:OE1  | 2:K:209:GLU:N   | 2.23                     | 0.71              |
| 2:S:264:VAL:HB   | 2:T:305:ILE:C   | 2.15                     | 0.71              |
| 2:R:267:MET:CG   | 2:S:305:ILE:CG1 | 2.54                     | 0.71              |
| 1:V:92:LEU:C     | 1:W:6:LEU:HD12  | 2.14                     | 0.71              |
| 1:Y:92:LEU:C     | 1:Z:6:LEU:HD12  | 2.14                     | 0.71              |
| 2:L:209:GLU:OE1  | 2:L:209:GLU:N   | 2.23                     | 0.71              |
| 2:S:260:ALA:HA   | 2:T:304:GLU:OE1 | 1.90                     | 0.71              |
| 2:P:39:VAL:HG12  | 2:R:69:MET:HE1  | 1.70                     | 0.71              |
| 1:Q:6:LEU:HD12   | 1:a:92:LEU:C    | 2.14                     | 0.71              |
| 2:C:37:ASN:ND2   | 2:N:516:THR:OG1 | 2.24                     | 0.71              |
| 2:J:209:GLU:N    | 2:J:209:GLU:OE1 | 2.23                     | 0.71              |
| 2:C:209:GLU:OE1  | 2:C:209:GLU:N   | 2.23                     | 0.71              |
| 2:N:209:GLU:OE1  | 2:N:209:GLU:N   | 2.23                     | 0.71              |
| 2:P:264:VAL:HB   | 2:R:305:ILE:C   | 2.15                     | 0.71              |
| 2:I:209:GLU:OE1  | 2:I:209:GLU:N   | 2.23                     | 0.70              |
| 2:I:516:THR:OG1  | 2:J:37:ASN:ND2  | 2.24                     | 0.70              |
| 2:H:232:GLU:N    | 2:H:232:GLU:OE1 | 2.25                     | 0.70              |
| 2:M:260:ALA:HA   | 2:O:304:GLU:OE1 | 1.90                     | 0.70              |
| 2:M:264:VAL:HB   | 2:O:305:ILE:C   | 2.15                     | 0.70              |
| 1:Q:9:ARG:CD     | 1:a:92:LEU:CB   | 2.63                     | 0.70              |
| 2:S:124:VAL:HG21 | 2:S:508:ALA:CB  | 2.22                     | 0.70              |
| 1:1:74:LYS:HE2   | 1:A:68:ASN:HB3  | 1.68                     | 0.70              |
| 2:L:232:GLU:OE1  | 2:L:232:GLU:N   | 2.25                     | 0.70              |
| 1:1:68:ASN:HB2   | 1:G:74:LYS:NZ   | 2.07                     | 0.70              |
| 2:C:516:THR:OG1  | 2:H:37:ASN:ND2  | 2.24                     | 0.70              |
| 2:J:516:THR:OG1  | 2:K:37:ASN:ND2  | 2.24                     | 0.70              |
| 2:K:516:THR:OG1  | 2:L:37:ASN:ND2  | 2.24                     | 0.70              |
| 2:M:30:THR:HG22  | 2:M:36:ARG:O    | 1.91                     | 0.70              |
| 2:M:305:ILE:C    | 2:U:264:VAL:HB  | 2.15                     | 0.70              |
| 2:N:232:GLU:OE1  | 2:N:232:GLU:N   | 2.25                     | 0.70              |
| 2:O:264:VAL:HB   | 2:P:305:ILE:C   | 2.15                     | 0.70              |
| 1:Q:88:GLU:OE2   | 1:V:7:HIS:HE1   | 1.75                     | 0.70              |
| 2:S:30:THR:HG22  | 2:S:36:ARG:O    | 1.91                     | 0.70              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 2:M:124:VAL:HG21 | 2:M:508:ALA:CB  | 2.22                     | 0.70              |
| 2:O:124:VAL:HG21 | 2:O:508:ALA:CB  | 2.22                     | 0.70              |
| 2:T:30:THR:HG22  | 2:T:36:ARG:O    | 1.91                     | 0.70              |
| 2:T:124:VAL:HG21 | 2:T:508:ALA:CB  | 2.22                     | 0.70              |
| 2:H:209:GLU:OE1  | 2:H:209:GLU:N   | 2.23                     | 0.70              |
| 2:M:304:GLU:OE1  | 2:U:260:ALA:HA  | 1.90                     | 0.70              |
| 1:Q:85:ILE:CD1   | 1:a:92:LEU:CD1  | 2.70                     | 0.70              |
| 2:T:264:VAL:HB   | 2:U:305:ILE:C   | 2.15                     | 0.70              |
| 1:D:74:LYS:HE2   | 1:E:68:ASN:HB3  | 1.68                     | 0.70              |
| 1:V:88:GLU:OE2   | 1:W:7:HIS:HE1   | 1.75                     | 0.70              |
| 1:Y:92:LEU:CD1   | 1:Z:85:ILE:CD1  | 2.70                     | 0.70              |
| 1:Q:92:LEU:CD1   | 1:V:85:ILE:CD1  | 2.70                     | 0.70              |
| 1:Q:94:ILE:HG12  | 1:V:4:ARG:CB    | 2.22                     | 0.70              |
| 2:R:30:THR:HG22  | 2:R:36:ARG:O    | 1.91                     | 0.70              |
| 2:U:124:VAL:HG21 | 2:U:508:ALA:CB  | 2.22                     | 0.70              |
| 1:W:92:LEU:C     | 1:X:6:LEU:N     | 2.41                     | 0.70              |
| 1:X:92:LEU:CD1   | 1:Y:85:ILE:CD1  | 2.70                     | 0.70              |
| 1:Z:92:LEU:CD1   | 1:a:85:ILE:CD1  | 2.70                     | 0.70              |
| 1:F:74:LYS:HE2   | 1:G:68:ASN:HB3  | 1.68                     | 0.69              |
| 2:J:232:GLU:OE1  | 2:J:232:GLU:N   | 2.25                     | 0.69              |
| 2:M:267:MET:CG   | 2:O:305:ILE:CG1 | 2.54                     | 0.69              |
| 1:Q:94:ILE:HG13  | 1:V:4:ARG:CB    | 2.17                     | 0.69              |
| 2:R:124:VAL:HG21 | 2:R:508:ALA:CB  | 2.22                     | 0.69              |
| 1:X:92:LEU:O     | 1:Y:9:ARG:HB2   | 1.92                     | 0.69              |
| 2:P:124:VAL:HG21 | 2:P:508:ALA:CB  | 2.22                     | 0.69              |
| 1:Q:4:ARG:CB     | 1:a:94:ILE:HG12 | 2.22                     | 0.69              |
| 1:V:92:LEU:CD1   | 1:W:85:ILE:CD1  | 2.70                     | 0.69              |
| 1:W:88:GLU:OE2   | 1:X:7:HIS:HE1   | 1.75                     | 0.69              |
| 1:W:92:LEU:O     | 1:X:9:ARG:HB2   | 1.92                     | 0.69              |
| 2:C:232:GLU:OE1  | 2:C:232:GLU:N   | 2.25                     | 0.69              |
| 2:I:232:GLU:OE1  | 2:I:232:GLU:N   | 2.25                     | 0.69              |
| 2:M:203:TYR:OH   | 2:O:286:LYS:CD  | 2.29                     | 0.69              |
| 2:U:30:THR:HG22  | 2:U:36:ARG:O    | 1.91                     | 0.69              |
| 1:W:92:LEU:CD1   | 1:X:85:ILE:CD1  | 2.70                     | 0.69              |
| 1:E:74:LYS:NZ    | 1:F:68:ASN:HB2  | 2.06                     | 0.69              |
| 2:O:30:THR:HG22  | 2:O:36:ARG:O    | 1.91                     | 0.69              |
| 2:T:260:ALA:HA   | 2:U:304:GLU:OE1 | 1.90                     | 0.69              |
| 1:B:74:LYS:NZ    | 1:D:68:ASN:HB2  | 2.07                     | 0.69              |
| 2:L:516:THR:OG1  | 2:N:37:ASN:ND2  | 2.24                     | 0.69              |
| 1:Q:7:HIS:HE1    | 1:a:88:GLU:OE2  | 1.75                     | 0.69              |
| 1:V:94:ILE:HG12  | 1:W:4:ARG:CB    | 2.22                     | 0.69              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:1:68:ASN:HB3   | 1:G:74:LYS:HE2  | 1.68                     | 0.69              |
| 2:P:30:THR:HG22  | 2:P:36:ARG:O    | 1.91                     | 0.69              |
| 1:Q:6:LEU:N      | 1:a:92:LEU:C    | 2.41                     | 0.69              |
| 2:T:387:VAL:HG13 | 2:U:76:GLU:OE2  | 1.93                     | 0.69              |
| 1:Z:94:ILE:HG12  | 1:a:4:ARG:CB    | 2.22                     | 0.69              |
| 1:A:74:LYS:NZ    | 1:B:68:ASN:HB2  | 2.07                     | 0.69              |
| 1:F:74:LYS:NZ    | 1:G:68:ASN:HB2  | 2.07                     | 0.69              |
| 2:I:391:GLU:OE2  | 2:I:395:ARG:NE  | 2.26                     | 0.69              |
| 2:K:232:GLU:N    | 2:K:232:GLU:OE1 | 2.25                     | 0.69              |
| 2:P:387:VAL:HG13 | 2:R:76:GLU:OE2  | 1.93                     | 0.69              |
| 1:V:94:ILE:HG13  | 1:W:4:ARG:CB    | 2.17                     | 0.69              |
| 2:C:391:GLU:OE2  | 2:C:395:ARG:NE  | 2.26                     | 0.69              |
| 2:J:391:GLU:OE2  | 2:J:395:ARG:NE  | 2.26                     | 0.69              |
| 2:S:260:ALA:HB2  | 2:T:304:GLU:OE1 | 1.91                     | 0.69              |
| 1:Y:88:GLU:OE2   | 1:Z:7:HIS:HE1   | 1.75                     | 0.69              |
| 1:1:74:LYS:NZ    | 1:A:68:ASN:HB2  | 2.07                     | 0.69              |
| 2:N:310:GLU:OE1  | 2:N:310:GLU:N   | 2.26                     | 0.69              |
| 2:C:310:GLU:N    | 2:C:310:GLU:OE1 | 2.26                     | 0.69              |
| 2:L:310:GLU:OE1  | 2:L:310:GLU:N   | 2.26                     | 0.69              |
| 1:Q:9:ARG:HB2    | 1:a:92:LEU:O    | 1.92                     | 0.69              |
| 1:W:94:ILE:HG13  | 1:X:4:ARG:CB    | 2.17                     | 0.69              |
| 1:Y:92:LEU:O     | 1:Z:9:ARG:HB2   | 1.92                     | 0.69              |
| 1:Y:94:ILE:HG12  | 1:Z:4:ARG:CB    | 2.22                     | 0.69              |
| 2:K:391:GLU:OE2  | 2:K:395:ARG:NE  | 2.26                     | 0.68              |
| 2:M:387:VAL:HG13 | 2:O:76:GLU:OE2  | 1.93                     | 0.68              |
| 2:N:391:GLU:OE2  | 2:N:395:ARG:NE  | 2.26                     | 0.68              |
| 1:Q:4:ARG:CB     | 1:a:94:ILE:HG13 | 2.17                     | 0.68              |
| 2:R:387:VAL:HG13 | 2:S:76:GLU:OE2  | 1.93                     | 0.68              |
| 1:Z:92:LEU:O     | 1:a:9:ARG:HB2   | 1.92                     | 0.68              |
| 2:H:391:GLU:OE2  | 2:H:395:ARG:NE  | 2.26                     | 0.68              |
| 2:S:387:VAL:HG13 | 2:T:76:GLU:OE2  | 1.93                     | 0.68              |
| 2:K:310:GLU:N    | 2:K:310:GLU:OE1 | 2.26                     | 0.68              |
| 2:T:260:ALA:HB2  | 2:U:304:GLU:OE1 | 1.91                     | 0.68              |
| 1:Q:5:PRO:CB     | 1:a:92:LEU:C    | 2.61                     | 0.68              |
| 1:Q:92:LEU:O     | 1:V:9:ARG:HB2   | 1.92                     | 0.68              |
| 1:Z:88:GLU:OE2   | 1:a:7:HIS:HE1   | 1.75                     | 0.68              |
| 1:D:16:GLU:OE1   | 1:D:16:GLU:N    | 2.27                     | 0.68              |
| 2:T:203:TYR:OH   | 2:U:286:LYS:CD  | 2.29                     | 0.68              |
| 1:D:74:LYS:NZ    | 1:E:68:ASN:HB2  | 2.07                     | 0.68              |
| 2:H:516:THR:OG1  | 2:I:37:ASN:ND2  | 2.24                     | 0.68              |
| 1:X:94:ILE:HG12  | 1:Y:4:ARG:CB    | 2.22                     | 0.68              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:92:LEU:C     | 1:a:6:LEU:N      | 2.41                     | 0.68              |
| 1:F:16:GLU:OE1   | 1:F:16:GLU:N     | 2.27                     | 0.68              |
| 2:L:495:ASP:OD2  | 3:L:601:ATP:O2'  | 2.09                     | 0.68              |
| 1:B:16:GLU:OE1   | 1:B:16:GLU:N     | 2.27                     | 0.67              |
| 2:L:102:GLU:OE1  | 2:L:445:ARG:NH1  | 2.28                     | 0.67              |
| 2:L:391:GLU:OE2  | 2:L:395:ARG:NE   | 2.26                     | 0.67              |
| 2:N:102:GLU:OE1  | 2:N:445:ARG:NH1  | 2.27                     | 0.67              |
| 2:S:241:ALA:HA   | 2:S:271:VAL:HG11 | 1.76                     | 0.67              |
| 2:J:102:GLU:OE1  | 2:J:445:ARG:NH1  | 2.28                     | 0.67              |
| 1:E:16:GLU:OE1   | 1:E:16:GLU:N     | 2.27                     | 0.67              |
| 2:I:306:GLY:N    | 2:J:264:VAL:HG22 | 2.10                     | 0.67              |
| 2:M:76:GLU:OE2   | 2:U:387:VAL:HG13 | 1.93                     | 0.67              |
| 2:R:241:ALA:HA   | 2:R:271:VAL:HG11 | 1.76                     | 0.67              |
| 1:V:92:LEU:O     | 1:W:9:ARG:HB2    | 1.92                     | 0.67              |
| 1:Z:94:ILE:HG12  | 1:a:4:ARG:O      | 1.95                     | 0.67              |
| 2:C:124:VAL:HG21 | 2:C:508:ALA:CB   | 2.25                     | 0.67              |
| 2:C:264:VAL:HG22 | 2:N:306:GLY:N    | 2.10                     | 0.67              |
| 2:H:124:VAL:HG21 | 2:H:508:ALA:CB   | 2.25                     | 0.67              |
| 2:H:306:GLY:N    | 2:I:264:VAL:HG22 | 2.10                     | 0.67              |
| 2:J:310:GLU:OE1  | 2:J:310:GLU:N    | 2.26                     | 0.67              |
| 2:K:102:GLU:OE1  | 2:K:445:ARG:NH1  | 2.28                     | 0.67              |
| 2:L:306:GLY:N    | 2:N:264:VAL:HG22 | 2.10                     | 0.67              |
| 2:R:338:GLU:OE1  | 2:R:338:GLU:N    | 2.28                     | 0.67              |
| 1:V:94:ILE:HG12  | 1:W:4:ARG:O      | 1.95                     | 0.67              |
| 1:X:88:GLU:OE2   | 1:Y:7:HIS:HE1    | 1.75                     | 0.67              |
| 2:S:338:GLU:OE1  | 2:S:338:GLU:N    | 2.28                     | 0.67              |
| 2:U:326:ASN:ND2  | 2:U:329:THR:O    | 2.28                     | 0.67              |
| 1:X:66:ILE:CD1   | 1:Y:3:ILE:HG21   | 2.24                     | 0.67              |
| 1:G:16:GLU:OE1   | 1:G:16:GLU:N     | 2.27                     | 0.67              |
| 1:Q:94:ILE:HG12  | 1:V:4:ARG:O      | 1.95                     | 0.67              |
| 2:R:326:ASN:ND2  | 2:R:329:THR:O    | 2.28                     | 0.67              |
| 2:S:203:TYR:OH   | 2:T:286:LYS:CD   | 2.29                     | 0.67              |
| 2:T:241:ALA:HA   | 2:T:271:VAL:HG11 | 1.76                     | 0.67              |
| 1:X:94:ILE:HG13  | 1:Y:4:ARG:CB     | 2.17                     | 0.67              |
| 2:C:102:GLU:OE1  | 2:C:445:ARG:NH1  | 2.28                     | 0.67              |
| 2:I:124:VAL:HG21 | 2:I:508:ALA:CB   | 2.25                     | 0.67              |
| 2:N:124:VAL:HG21 | 2:N:508:ALA:CB   | 2.25                     | 0.67              |
| 2:O:387:VAL:HG13 | 2:P:76:GLU:OE2   | 1.93                     | 0.67              |
| 1:1:16:GLU:OE1   | 1:1:16:GLU:N     | 2.27                     | 0.67              |
| 2:C:306:GLY:N    | 2:H:264:VAL:HG22 | 2.10                     | 0.67              |
| 2:I:102:GLU:OE1  | 2:I:445:ARG:NH1  | 2.27                     | 0.67              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:200:LEU:HD22 | 2:M:254:VAL:HB   | 1.77                     | 0.67              |
| 1:Q:4:ARG:O      | 1:a:94:ILE:HG12  | 1.95                     | 0.67              |
| 2:T:468:THR:OG1  | 2:T:485:TYR:OH   | 2.08                     | 0.67              |
| 1:W:92:LEU:O     | 1:X:6:LEU:O      | 2.13                     | 0.67              |
| 1:A:16:GLU:OE1   | 1:A:16:GLU:N     | 2.27                     | 0.67              |
| 2:M:286:LYS:CD   | 2:U:203:TYR:OH   | 2.29                     | 0.67              |
| 2:O:200:LEU:HD22 | 2:O:254:VAL:HB   | 1.77                     | 0.67              |
| 2:T:338:GLU:N    | 2:T:338:GLU:OE1  | 2.28                     | 0.67              |
| 2:H:102:GLU:OE1  | 2:H:445:ARG:NH1  | 2.28                     | 0.67              |
| 2:J:306:GLY:N    | 2:K:264:VAL:HG22 | 2.10                     | 0.67              |
| 2:O:326:ASN:ND2  | 2:O:329:THR:O    | 2.28                     | 0.67              |
| 2:P:338:GLU:OE1  | 2:P:338:GLU:N    | 2.28                     | 0.67              |
| 1:V:92:LEU:O     | 1:W:6:LEU:O      | 2.13                     | 0.67              |
| 1:W:92:LEU:CB    | 1:X:9:ARG:CD     | 2.64                     | 0.67              |
| 1:W:94:ILE:HG12  | 1:X:4:ARG:CB     | 2.22                     | 0.67              |
| 2:I:310:GLU:OE1  | 2:I:310:GLU:N    | 2.26                     | 0.66              |
| 2:K:306:GLY:N    | 2:L:264:VAL:HG22 | 2.10                     | 0.66              |
| 2:M:253:ASP:OD1  | 2:M:254:VAL:N    | 2.28                     | 0.66              |
| 2:P:200:LEU:HD22 | 2:P:254:VAL:HB   | 1.77                     | 0.66              |
| 1:X:92:LEU:O     | 1:Y:6:LEU:O      | 2.13                     | 0.66              |
| 1:Z:66:ILE:CD1   | 1:a:3:ILE:HG21   | 2.24                     | 0.66              |
| 1:Z:94:ILE:HG13  | 1:a:4:ARG:CB     | 2.17                     | 0.66              |
| 2:O:253:ASP:OD1  | 2:O:254:VAL:N    | 2.28                     | 0.66              |
| 2:P:241:ALA:HA   | 2:P:271:VAL:HG11 | 1.76                     | 0.66              |
| 1:Q:66:ILE:CD1   | 1:V:3:ILE:HG21   | 2.24                     | 0.66              |
| 2:R:203:TYR:OH   | 2:S:286:LYS:CD   | 2.29                     | 0.66              |
| 2:R:260:ALA:HB2  | 2:S:304:GLU:OE1  | 1.91                     | 0.66              |
| 2:U:200:LEU:HD22 | 2:U:254:VAL:HB   | 1.77                     | 0.66              |
| 2:J:124:VAL:HG21 | 2:J:508:ALA:CB   | 2.25                     | 0.66              |
| 2:T:253:ASP:OD1  | 2:T:254:VAL:N    | 2.28                     | 0.66              |
| 2:U:253:ASP:OD1  | 2:U:254:VAL:N    | 2.28                     | 0.66              |
| 1:Y:66:ILE:CD1   | 1:Z:3:ILE:HG21   | 2.24                     | 0.66              |
| 2:L:124:VAL:HG21 | 2:L:508:ALA:CB   | 2.25                     | 0.66              |
| 2:P:326:ASN:ND2  | 2:P:329:THR:O    | 2.28                     | 0.66              |
| 1:Q:9:ARG:HD3    | 1:a:92:LEU:CA    | 2.14                     | 0.66              |
| 2:T:326:ASN:ND2  | 2:T:329:THR:O    | 2.28                     | 0.66              |
| 2:M:326:ASN:ND2  | 2:M:329:THR:O    | 2.28                     | 0.66              |
| 2:P:253:ASP:OD1  | 2:P:254:VAL:N    | 2.28                     | 0.66              |
| 2:S:124:VAL:HG13 | 2:S:504:LEU:HD12 | 1.77                     | 0.66              |
| 2:U:338:GLU:OE1  | 2:U:338:GLU:N    | 2.28                     | 0.66              |
| 2:R:124:VAL:HG13 | 2:R:504:LEU:HD12 | 1.77                     | 0.66              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:S:326:ASN:ND2  | 2:S:329:THR:O    | 2.28                     | 0.66              |
| 1:Y:94:ILE:HG12  | 1:Z:4:ARG:O      | 1.95                     | 0.66              |
| 2:H:310:GLU:N    | 2:H:310:GLU:OE1  | 2.26                     | 0.66              |
| 2:M:124:VAL:HG13 | 2:M:504:LEU:HD12 | 1.77                     | 0.66              |
| 2:O:241:ALA:HA   | 2:O:271:VAL:HG11 | 1.76                     | 0.66              |
| 1:Q:3:ILE:HG21   | 1:a:66:ILE:CD1   | 2.24                     | 0.66              |
| 1:Q:92:LEU:O     | 1:V:6:LEU:O      | 2.13                     | 0.66              |
| 1:Y:94:ILE:HG13  | 1:Z:4:ARG:CB     | 2.17                     | 0.66              |
| 2:O:124:VAL:HG13 | 2:O:504:LEU:HD12 | 1.77                     | 0.66              |
| 2:R:200:LEU:HD22 | 2:R:254:VAL:HB   | 1.77                     | 0.66              |
| 2:R:253:ASP:OD1  | 2:R:254:VAL:N    | 2.28                     | 0.66              |
| 2:S:3:ALA:HB1    | 2:S:524:LEU:HD12 | 1.77                     | 0.66              |
| 1:V:66:ILE:CD1   | 1:W:3:ILE:HG21   | 2.24                     | 0.66              |
| 1:Z:92:LEU:O     | 1:a:6:LEU:O      | 2.13                     | 0.66              |
| 2:O:62:LEU:O     | 2:O:68:ASN:ND2   | 2.29                     | 0.66              |
| 2:O:338:GLU:OE1  | 2:O:338:GLU:N    | 2.28                     | 0.66              |
| 2:S:103:GLY:O    | 2:S:107:VAL:HG23 | 1.96                     | 0.66              |
| 2:S:253:ASP:OD1  | 2:S:254:VAL:N    | 2.28                     | 0.66              |
| 2:K:124:VAL:HG21 | 2:K:508:ALA:CB   | 2.25                     | 0.66              |
| 2:M:305:ILE:CG1  | 2:U:267:MET:CG   | 2.54                     | 0.66              |
| 2:N:495:ASP:OD2  | 3:N:601:ATP:O2'  | 2.09                     | 0.66              |
| 2:O:3:ALA:HB1    | 2:O:524:LEU:HD12 | 1.77                     | 0.66              |
| 1:Q:6:LEU:O      | 1:a:92:LEU:O     | 2.13                     | 0.66              |
| 1:Y:92:LEU:O     | 1:Z:6:LEU:O      | 2.13                     | 0.66              |
| 2:M:241:ALA:HA   | 2:M:271:VAL:HG11 | 1.76                     | 0.65              |
| 2:P:260:ALA:HB2  | 2:R:304:GLU:OE1  | 1.91                     | 0.65              |
| 1:Q:92:LEU:CA    | 1:V:9:ARG:HD3    | 2.14                     | 0.65              |
| 2:U:241:ALA:HA   | 2:U:271:VAL:HG11 | 1.76                     | 0.65              |
| 1:X:94:ILE:HG12  | 1:Y:4:ARG:O      | 1.95                     | 0.65              |
| 1:1:5:PRO:HB3    | 1:A:93:ALA:HB2   | 1.78                     | 0.65              |
| 1:1:93:ALA:HB2   | 1:G:5:PRO:HB3    | 1.78                     | 0.65              |
| 2:M:338:GLU:OE1  | 2:M:338:GLU:N    | 2.28                     | 0.65              |
| 2:P:62:LEU:O     | 2:P:68:ASN:ND2   | 2.29                     | 0.65              |
| 1:Q:92:LEU:C     | 1:V:6:LEU:N      | 2.41                     | 0.65              |
| 1:W:94:ILE:HG12  | 1:X:4:ARG:O      | 1.95                     | 0.65              |
| 2:R:3:ALA:HB1    | 2:R:524:LEU:HD12 | 1.77                     | 0.65              |
| 2:M:153:ASN:HD22 | 2:O:114:MET:CE   | 2.09                     | 0.65              |
| 2:T:3:ALA:HB1    | 2:T:524:LEU:HD12 | 1.77                     | 0.65              |
| 2:T:124:VAL:HG13 | 2:T:504:LEU:HD12 | 1.77                     | 0.65              |
| 2:U:62:LEU:O     | 2:U:68:ASN:ND2   | 2.29                     | 0.65              |
| 1:V:92:LEU:HD12  | 1:W:85:ILE:HG21  | 1.78                     | 0.65              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:5:PRO:HB3    | 1:G:93:ALA:HB2   | 1.78                     | 0.65              |
| 2:M:304:GLU:OE1  | 2:U:260:ALA:HB2  | 1.91                     | 0.65              |
| 1:Q:92:LEU:HD12  | 1:V:85:ILE:HG21  | 1.78                     | 0.65              |
| 2:S:77:VAL:HB    | 2:S:510:VAL:HG21 | 1.79                     | 0.65              |
| 2:U:124:VAL:HG13 | 2:U:504:LEU:HD12 | 1.77                     | 0.65              |
| 2:P:3:ALA:HB1    | 2:P:524:LEU:HD12 | 1.77                     | 0.65              |
| 2:R:77:VAL:HB    | 2:R:510:VAL:HG21 | 1.79                     | 0.65              |
| 2:R:103:GLY:O    | 2:R:107:VAL:HG23 | 1.96                     | 0.65              |
| 2:M:3:ALA:HB1    | 2:M:524:LEU:HD12 | 1.77                     | 0.65              |
| 2:P:77:VAL:HB    | 2:P:510:VAL:HG21 | 1.79                     | 0.65              |
| 2:R:62:LEU:O     | 2:R:68:ASN:ND2   | 2.29                     | 0.65              |
| 2:T:103:GLY:O    | 2:T:107:VAL:HG23 | 1.96                     | 0.65              |
| 1:E:5:PRO:HB3    | 1:F:93:ALA:HB2   | 1.78                     | 0.65              |
| 2:P:103:GLY:O    | 2:P:107:VAL:HG23 | 1.96                     | 0.65              |
| 2:P:124:VAL:HG13 | 2:P:504:LEU:HD12 | 1.77                     | 0.65              |
| 1:W:92:LEU:CD1   | 1:X:85:ILE:HD12  | 2.27                     | 0.65              |
| 2:C:495:ASP:OD2  | 3:C:601:ATP:O2'  | 2.09                     | 0.65              |
| 2:H:495:ASP:OD2  | 3:H:601:ATP:O2'  | 2.09                     | 0.65              |
| 2:O:153:ASN:HD22 | 2:P:114:MET:CE   | 2.09                     | 0.65              |
| 1:A:5:PRO:HB3    | 1:B:93:ALA:HB2   | 1.79                     | 0.65              |
| 2:K:495:ASP:OD2  | 3:K:601:ATP:O2'  | 2.09                     | 0.65              |
| 2:T:77:VAL:HB    | 2:T:510:VAL:HG21 | 1.79                     | 0.65              |
| 1:Q:85:ILE:HG21  | 1:a:92:LEU:HD12  | 1.78                     | 0.64              |
| 1:Q:92:LEU:CD1   | 1:V:85:ILE:HD12  | 2.27                     | 0.64              |
| 2:M:306:GLY:N    | 2:U:264:VAL:HB   | 2.12                     | 0.64              |
| 2:S:62:LEU:O     | 2:S:68:ASN:ND2   | 2.29                     | 0.64              |
| 2:T:200:LEU:HD22 | 2:T:254:VAL:HB   | 1.77                     | 0.64              |
| 2:T:264:VAL:HB   | 2:U:306:GLY:N    | 2.12                     | 0.64              |
| 2:U:103:GLY:O    | 2:U:107:VAL:HG23 | 1.96                     | 0.64              |
| 1:D:5:PRO:HB3    | 1:E:93:ALA:HB2   | 1.78                     | 0.64              |
| 2:O:103:GLY:O    | 2:O:107:VAL:HG23 | 1.96                     | 0.64              |
| 2:S:240:VAL:HG11 | 2:S:247:LEU:HD13 | 1.80                     | 0.64              |
| 2:T:18:ARG:NH1   | 2:T:67:GLU:OE2   | 2.31                     | 0.64              |
| 2:T:240:VAL:HG11 | 2:T:247:LEU:HD13 | 1.80                     | 0.64              |
| 1:W:92:LEU:HD12  | 1:X:85:ILE:HG21  | 1.78                     | 0.64              |
| 1:Y:92:LEU:C     | 1:Z:6:LEU:N      | 2.41                     | 0.64              |
| 2:M:103:GLY:O    | 2:M:107:VAL:HG23 | 1.96                     | 0.64              |
| 1:Z:92:LEU:CD1   | 1:a:85:ILE:HD12  | 2.27                     | 0.64              |
| 2:I:495:ASP:OD2  | 3:I:601:ATP:O2'  | 2.09                     | 0.64              |
| 2:M:114:MET:CE   | 2:U:153:ASN:HD22 | 2.09                     | 0.64              |
| 2:M:468:THR:HG1  | 2:M:485:TYR:HH   | 1.44                     | 0.64              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:O:77:VAL:HB    | 2:O:510:VAL:HG21 | 1.79                     | 0.64              |
| 2:S:200:LEU:HD22 | 2:S:254:VAL:HB   | 1.77                     | 0.64              |
| 1:B:5:PRO:HB3    | 1:D:93:ALA:HB2   | 1.78                     | 0.64              |
| 2:H:339:GLU:OE1  | 2:H:339:GLU:N    | 2.31                     | 0.64              |
| 2:M:268:ARG:HH12 | 2:O:306:GLY:CA   | 2.11                     | 0.64              |
| 2:O:18:ARG:NH1   | 2:O:67:GLU:OE2   | 2.31                     | 0.64              |
| 2:P:18:ARG:NH1   | 2:P:67:GLU:OE2   | 2.31                     | 0.64              |
| 2:P:203:TYR:OH   | 2:R:286:LYS:CD   | 2.29                     | 0.64              |
| 2:S:264:VAL:HB   | 2:T:306:GLY:N    | 2.12                     | 0.64              |
| 2:U:18:ARG:NH1   | 2:U:67:GLU:OE2   | 2.31                     | 0.64              |
| 1:W:66:ILE:CD1   | 1:X:3:ILE:HG21   | 2.24                     | 0.64              |
| 1:Y:92:LEU:HD12  | 1:Z:85:ILE:HG21  | 1.78                     | 0.64              |
| 2:O:260:ALA:HB2  | 2:P:304:GLU:OE1  | 1.91                     | 0.64              |
| 2:C:339:GLU:OE1  | 2:C:339:GLU:N    | 2.31                     | 0.64              |
| 2:I:339:GLU:N    | 2:I:339:GLU:OE1  | 2.31                     | 0.64              |
| 2:N:339:GLU:OE1  | 2:N:339:GLU:N    | 2.31                     | 0.64              |
| 2:P:268:ARG:HH12 | 2:R:306:GLY:CA   | 2.11                     | 0.64              |
| 2:T:102:GLU:OE1  | 2:T:445:ARG:NH1  | 2.31                     | 0.64              |
| 1:V:92:LEU:CD1   | 1:W:85:ILE:HD12  | 2.27                     | 0.64              |
| 1:X:92:LEU:CD1   | 1:Y:85:ILE:HD12  | 2.27                     | 0.64              |
| 2:M:264:VAL:HB   | 2:O:306:GLY:N    | 2.12                     | 0.64              |
| 2:S:18:ARG:NH1   | 2:S:67:GLU:OE2   | 2.31                     | 0.64              |
| 2:S:268:ARG:HH12 | 2:T:306:GLY:CA   | 2.11                     | 0.64              |
| 2:U:77:VAL:HB    | 2:U:510:VAL:HG21 | 1.79                     | 0.64              |
| 1:X:92:LEU:HD12  | 1:Y:85:ILE:HG21  | 1.78                     | 0.64              |
| 1:Y:92:LEU:CD1   | 1:Z:85:ILE:HD12  | 2.27                     | 0.64              |
| 1:Z:92:LEU:HD12  | 1:a:85:ILE:HG21  | 1.78                     | 0.64              |
| 2:L:339:GLU:N    | 2:L:339:GLU:OE1  | 2.31                     | 0.64              |
| 2:M:62:LEU:O     | 2:M:68:ASN:ND2   | 2.29                     | 0.64              |
| 2:M:102:GLU:OE1  | 2:M:445:ARG:NH1  | 2.31                     | 0.64              |
| 2:R:264:VAL:HB   | 2:S:306:GLY:N    | 2.12                     | 0.64              |
| 2:S:102:GLU:OE1  | 2:S:445:ARG:NH1  | 2.31                     | 0.64              |
| 2:U:3:ALA:HB1    | 2:U:524:LEU:HD12 | 1.77                     | 0.64              |
| 2:M:18:ARG:NH1   | 2:M:67:GLU:OE2   | 2.31                     | 0.63              |
| 2:M:77:VAL:HB    | 2:M:510:VAL:HG21 | 1.79                     | 0.63              |
| 2:O:102:GLU:OE1  | 2:O:445:ARG:NH1  | 2.31                     | 0.63              |
| 2:R:268:ARG:HH12 | 2:S:306:GLY:CA   | 2.11                     | 0.63              |
| 2:S:111:MET:SD   | 2:S:438:VAL:HG21 | 2.38                     | 0.63              |
| 2:T:268:ARG:HH12 | 2:U:306:GLY:CA   | 2.11                     | 0.63              |
| 2:U:102:GLU:OE1  | 2:U:445:ARG:NH1  | 2.31                     | 0.63              |
| 1:V:92:LEU:CB    | 1:W:9:ARG:CD     | 2.63                     | 0.63              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:O:268:ARG:HH12 | 2:P:306:GLY:CA   | 2.11                     | 0.63              |
| 2:T:111:MET:SD   | 2:T:438:VAL:HG21 | 2.39                     | 0.63              |
| 2:U:111:MET:SD   | 2:U:438:VAL:HG21 | 2.38                     | 0.63              |
| 2:R:18:ARG:NH1   | 2:R:67:GLU:OE2   | 2.31                     | 0.63              |
| 2:R:240:VAL:HG11 | 2:R:247:LEU:HD13 | 1.80                     | 0.63              |
| 2:M:111:MET:SD   | 2:M:438:VAL:HG21 | 2.38                     | 0.63              |
| 2:R:111:MET:SD   | 2:R:438:VAL:HG21 | 2.38                     | 0.63              |
| 1:X:92:LEU:CB    | 1:Y:9:ARG:CD     | 2.63                     | 0.63              |
| 2:J:339:GLU:OE1  | 2:J:339:GLU:N    | 2.31                     | 0.63              |
| 2:M:260:ALA:HB2  | 2:O:304:GLU:OE1  | 1.91                     | 0.63              |
| 2:P:264:VAL:HB   | 2:R:306:GLY:N    | 2.12                     | 0.63              |
| 2:S:290:GLN:OE1  | 2:S:290:GLN:N    | 2.32                     | 0.63              |
| 2:U:240:VAL:HG11 | 2:U:247:LEU:HD13 | 1.80                     | 0.63              |
| 1:W:79:ASP:O     | 1:W:80:ASN:ND2   | 2.32                     | 0.63              |
| 2:O:264:VAL:HB   | 2:P:306:GLY:N    | 2.12                     | 0.63              |
| 2:P:102:GLU:OE1  | 2:P:445:ARG:NH1  | 2.31                     | 0.63              |
| 1:Q:85:ILE:HD12  | 1:a:92:LEU:CD1   | 2.27                     | 0.63              |
| 2:R:102:GLU:OE1  | 2:R:445:ARG:NH1  | 2.31                     | 0.63              |
| 2:O:111:MET:SD   | 2:O:438:VAL:HG21 | 2.38                     | 0.63              |
| 2:T:290:GLN:OE1  | 2:T:290:GLN:N    | 2.32                     | 0.63              |
| 1:Z:79:ASP:O     | 1:Z:80:ASN:ND2   | 2.32                     | 0.63              |
| 2:R:290:GLN:OE1  | 2:R:290:GLN:N    | 2.32                     | 0.62              |
| 2:T:62:LEU:O     | 2:T:68:ASN:ND2   | 2.29                     | 0.62              |
| 2:M:306:GLY:CA   | 2:U:268:ARG:HH12 | 2.11                     | 0.62              |
| 2:P:111:MET:SD   | 2:P:438:VAL:HG21 | 2.38                     | 0.62              |
| 2:P:153:ASN:HD22 | 2:R:114:MET:CE   | 2.09                     | 0.62              |
| 1:B:74:LYS:CE    | 1:D:68:ASN:HB3   | 2.28                     | 0.62              |
| 1:V:79:ASP:O     | 1:V:80:ASN:ND2   | 2.32                     | 0.62              |
| 1:X:79:ASP:O     | 1:X:80:ASN:ND2   | 2.32                     | 0.62              |
| 2:J:495:ASP:OD2  | 3:J:601:ATP:O2'  | 2.09                     | 0.62              |
| 2:O:468:THR:OG1  | 2:O:485:TYR:OH   | 2.08                     | 0.62              |
| 1:Q:79:ASP:O     | 1:Q:80:ASN:ND2   | 2.32                     | 0.62              |
| 1:B:60:LYS:N     | 1:B:63:ASP:OD2   | 2.33                     | 0.62              |
| 2:O:240:VAL:HG11 | 2:O:247:LEU:HD13 | 1.80                     | 0.62              |
| 1:V:95:VAL:HG22  | 1:W:3:ILE:HG23   | 1.81                     | 0.62              |
| 1:a:79:ASP:O     | 1:a:80:ASN:ND2   | 2.32                     | 0.62              |
| 2:K:339:GLU:OE1  | 2:K:339:GLU:N    | 2.31                     | 0.62              |
| 2:T:153:ASN:HD22 | 2:U:114:MET:CE   | 2.09                     | 0.62              |
| 2:U:290:GLN:N    | 2:U:290:GLN:OE1  | 2.32                     | 0.62              |
| 1:X:92:LEU:C     | 1:Y:6:LEU:N      | 2.41                     | 0.62              |
| 2:P:39:VAL:HG12  | 2:R:69:MET:SD    | 2.36                     | 0.62              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:74:LYS:CE    | 1:E:68:ASN:HB3   | 2.28                     | 0.62              |
| 2:M:240:VAL:HG11 | 2:M:247:LEU:HD13 | 1.80                     | 0.62              |
| 1:Y:79:ASP:O     | 1:Y:80:ASN:ND2   | 2.32                     | 0.62              |
| 2:P:290:GLN:N    | 2:P:290:GLN:OE1  | 2.32                     | 0.61              |
| 2:P:240:VAL:HG11 | 2:P:247:LEU:HD13 | 1.80                     | 0.61              |
| 1:Q:95:VAL:HG22  | 1:V:3:ILE:HG23   | 1.82                     | 0.61              |
| 1:Y:95:VAL:HG22  | 1:Z:3:ILE:HG23   | 1.81                     | 0.61              |
| 1:Q:70:GLY:O     | 1:Q:73:VAL:HG12  | 2.01                     | 0.61              |
| 1:V:92:LEU:C     | 1:W:6:LEU:N      | 2.41                     | 0.61              |
| 2:M:49:ILE:HG21  | 2:O:513:LEU:HD22 | 1.83                     | 0.61              |
| 2:M:513:LEU:HD22 | 2:U:49:ILE:HG21  | 1.83                     | 0.61              |
| 1:X:95:VAL:HG22  | 1:Y:3:ILE:HG23   | 1.82                     | 0.61              |
| 1:A:74:LYS:CE    | 1:B:68:ASN:HB3   | 2.28                     | 0.61              |
| 2:O:49:ILE:HG21  | 2:P:513:LEU:HD22 | 1.83                     | 0.61              |
| 2:P:49:ILE:HG21  | 2:R:513:LEU:HD22 | 1.83                     | 0.61              |
| 2:R:49:ILE:HG21  | 2:S:513:LEU:HD22 | 1.83                     | 0.61              |
| 1:Z:70:GLY:O     | 1:Z:73:VAL:HG12  | 2.01                     | 0.61              |
| 1:Z:95:VAL:HG22  | 1:a:3:ILE:HG23   | 1.81                     | 0.61              |
| 2:T:49:ILE:HG21  | 2:U:513:LEU:HD22 | 1.83                     | 0.61              |
| 1:W:95:VAL:HG22  | 1:X:3:ILE:HG23   | 1.81                     | 0.61              |
| 1:1:5:PRO:C      | 1:A:93:ALA:HA    | 2.26                     | 0.61              |
| 2:R:153:ASN:HD22 | 2:S:114:MET:CE   | 2.09                     | 0.61              |
| 1:1:93:ALA:HA    | 1:G:5:PRO:C      | 2.26                     | 0.60              |
| 2:S:49:ILE:HG21  | 2:T:513:LEU:HD22 | 1.83                     | 0.60              |
| 2:U:60:ILE:O     | 2:U:75:LYS:NZ    | 2.28                     | 0.60              |
| 1:X:70:GLY:O     | 1:X:73:VAL:HG12  | 2.01                     | 0.60              |
| 1:F:60:LYS:N     | 1:F:63:ASP:OD2   | 2.33                     | 0.60              |
| 1:W:70:GLY:O     | 1:W:73:VAL:HG12  | 2.01                     | 0.60              |
| 1:D:5:PRO:C      | 1:E:93:ALA:HA    | 2.26                     | 0.60              |
| 1:F:5:PRO:C      | 1:G:93:ALA:HA    | 2.26                     | 0.60              |
| 2:M:290:GLN:N    | 2:M:290:GLN:OE1  | 2.32                     | 0.60              |
| 2:O:290:GLN:OE1  | 2:O:290:GLN:N    | 2.32                     | 0.60              |
| 1:Y:70:GLY:O     | 1:Y:73:VAL:HG12  | 2.01                     | 0.60              |
| 1:B:6:LEU:CD1    | 1:D:91:ILE:CG2   | 2.79                     | 0.60              |
| 2:S:153:ASN:HD22 | 2:T:114:MET:CE   | 2.09                     | 0.60              |
| 1:a:70:GLY:O     | 1:a:73:VAL:HG12  | 2.01                     | 0.60              |
| 1:1:91:ILE:CG2   | 1:G:6:LEU:CD1    | 2.79                     | 0.60              |
| 1:E:60:LYS:N     | 1:E:63:ASP:OD2   | 2.33                     | 0.60              |
| 1:B:5:PRO:C      | 1:D:93:ALA:HA    | 2.26                     | 0.60              |
| 1:V:70:GLY:O     | 1:V:73:VAL:HG12  | 2.01                     | 0.60              |
| 1:A:5:PRO:C      | 1:B:93:ALA:HA    | 2.26                     | 0.60              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:60:LYS:N     | 1:G:63:ASP:OD2   | 2.33                     | 0.60              |
| 2:T:60:ILE:O     | 2:T:75:LYS:NZ    | 2.28                     | 0.60              |
| 2:T:468:THR:HG1  | 2:T:485:TYR:HH   | 1.29                     | 0.60              |
| 1:Y:92:LEU:CB    | 1:Z:9:ARG:CD     | 2.63                     | 0.60              |
| 1:1:60:LYS:N     | 1:1:63:ASP:OD2   | 2.33                     | 0.59              |
| 1:B:3:ILE:CG2    | 1:D:96:GLU:N     | 2.66                     | 0.59              |
| 1:D:3:ILE:CG2    | 1:E:96:GLU:N     | 2.66                     | 0.59              |
| 1:Q:3:ILE:HG23   | 1:a:95:VAL:HG22  | 1.82                     | 0.59              |
| 1:1:6:LEU:CD1    | 1:A:91:ILE:CG2   | 2.79                     | 0.59              |
| 2:P:73:MET:HB3   | 2:P:514:MET:HE2  | 1.85                     | 0.59              |
| 2:R:73:MET:HB3   | 2:R:514:MET:HE2  | 1.85                     | 0.59              |
| 1:E:74:LYS:CE    | 1:F:68:ASN:HB3   | 2.28                     | 0.59              |
| 1:F:6:LEU:CD1    | 1:G:91:ILE:CG2   | 2.79                     | 0.59              |
| 2:S:41:ASP:HB2   | 2:T:69:MET:CE    | 2.32                     | 0.59              |
| 1:E:5:PRO:C      | 1:F:93:ALA:HA    | 2.26                     | 0.59              |
| 2:O:60:ILE:O     | 2:O:75:LYS:NZ    | 2.28                     | 0.59              |
| 1:V:23:GLY:H     | 1:W:77:LYS:HZ2   | 1.50                     | 0.59              |
| 2:M:69:MET:CE    | 2:U:41:ASP:HB2   | 2.32                     | 0.59              |
| 1:Z:23:GLY:H     | 1:a:77:LYS:HZ2   | 1.51                     | 0.59              |
| 1:E:3:ILE:CG2    | 1:F:96:GLU:N     | 2.66                     | 0.59              |
| 2:M:73:MET:HB3   | 2:M:514:MET:HE2  | 1.85                     | 0.59              |
| 1:A:3:ILE:CG2    | 1:B:96:GLU:N     | 2.66                     | 0.59              |
| 2:O:73:MET:HB3   | 2:O:514:MET:HE2  | 1.85                     | 0.59              |
| 1:F:3:ILE:CG2    | 1:G:96:GLU:N     | 2.66                     | 0.59              |
| 2:S:73:MET:HB3   | 2:S:514:MET:HE2  | 1.85                     | 0.59              |
| 2:C:120:ILE:O    | 2:C:124:VAL:HG23 | 2.03                     | 0.59              |
| 1:V:67:PHE:CD2   | 1:V:86:MET:HE1   | 2.38                     | 0.59              |
| 1:1:74:LYS:CE    | 1:A:68:ASN:HB3   | 2.28                     | 0.58              |
| 2:T:73:MET:HB3   | 2:T:514:MET:HE2  | 1.85                     | 0.58              |
| 1:1:3:ILE:CG2    | 1:A:96:GLU:N     | 2.66                     | 0.58              |
| 1:Z:67:PHE:CD2   | 1:Z:86:MET:HE1   | 2.38                     | 0.58              |
| 2:H:120:ILE:O    | 2:H:124:VAL:HG23 | 2.03                     | 0.58              |
| 1:Q:77:LYS:HZ2   | 1:a:23:GLY:H     | 1.52                     | 0.58              |
| 2:R:102:GLU:HB2  | 2:R:442:VAL:HG13 | 1.85                     | 0.58              |
| 2:U:73:MET:HB3   | 2:U:514:MET:HE2  | 1.85                     | 0.58              |
| 1:1:96:GLU:N     | 1:G:3:ILE:CG2    | 2.66                     | 0.58              |
| 2:S:39:VAL:HG12  | 2:T:69:MET:SD    | 2.36                     | 0.58              |
| 1:Y:67:PHE:CD2   | 1:Y:86:MET:HE1   | 2.38                     | 0.58              |
| 1:F:74:LYS:CE    | 1:G:68:ASN:HB3   | 2.28                     | 0.58              |
| 2:M:124:VAL:HG21 | 2:M:508:ALA:HB1  | 1.86                     | 0.58              |
| 2:P:102:GLU:HB2  | 2:P:442:VAL:HG13 | 1.85                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:S:165:ALA:O    | 2:S:169:VAL:HG22 | 2.04                     | 0.58              |
| 2:S:102:GLU:HB2  | 2:S:442:VAL:HG13 | 1.85                     | 0.58              |
| 2:U:165:ALA:O    | 2:U:169:VAL:HG22 | 2.04                     | 0.58              |
| 1:D:6:LEU:CD1    | 1:E:91:ILE:CG2   | 2.79                     | 0.58              |
| 2:U:124:VAL:HG21 | 2:U:508:ALA:HB1  | 1.86                     | 0.58              |
| 1:W:12:VAL:HG23  | 1:W:39:GLU:O     | 2.04                     | 0.58              |
| 2:L:120:ILE:O    | 2:L:124:VAL:HG23 | 2.03                     | 0.58              |
| 2:P:60:ILE:O     | 2:P:75:LYS:NZ    | 2.28                     | 0.58              |
| 1:Q:92:LEU:CD1   | 1:V:85:ILE:HG21  | 2.34                     | 0.58              |
| 2:U:102:GLU:HB2  | 2:U:442:VAL:HG13 | 1.85                     | 0.58              |
| 1:V:12:VAL:HG23  | 1:V:39:GLU:O     | 2.04                     | 0.58              |
| 1:V:92:LEU:CD1   | 1:W:85:ILE:HG21  | 2.34                     | 0.58              |
| 1:Y:12:VAL:HG23  | 1:Y:39:GLU:O     | 2.04                     | 0.58              |
| 2:I:120:ILE:O    | 2:I:124:VAL:HG23 | 2.03                     | 0.58              |
| 2:L:355:GLU:O    | 2:L:362:ARG:NH1  | 2.37                     | 0.58              |
| 2:O:165:ALA:O    | 2:O:169:VAL:HG22 | 2.04                     | 0.58              |
| 2:P:165:ALA:O    | 2:P:169:VAL:HG22 | 2.04                     | 0.58              |
| 1:Q:9:ARG:CD     | 1:a:92:LEU:HB3   | 2.25                     | 0.58              |
| 1:X:12:VAL:HG23  | 1:X:39:GLU:O     | 2.04                     | 0.58              |
| 1:a:12:VAL:HG23  | 1:a:39:GLU:O     | 2.04                     | 0.58              |
| 2:O:124:VAL:HG21 | 2:O:508:ALA:HB1  | 1.86                     | 0.58              |
| 2:P:41:ASP:HB2   | 2:R:69:MET:CE    | 2.32                     | 0.58              |
| 1:Q:67:PHE:CD2   | 1:Q:86:MET:HE1   | 2.38                     | 0.58              |
| 2:T:124:VAL:HG21 | 2:T:508:ALA:HB1  | 1.86                     | 0.58              |
| 1:W:67:PHE:CD2   | 1:W:86:MET:HE1   | 2.38                     | 0.58              |
| 1:Z:12:VAL:HG23  | 1:Z:39:GLU:O     | 2.04                     | 0.58              |
| 2:C:355:GLU:O    | 2:C:362:ARG:NH1  | 2.37                     | 0.57              |
| 2:M:41:ASP:HB2   | 2:O:69:MET:CE    | 2.32                     | 0.57              |
| 2:R:60:ILE:O     | 2:R:75:LYS:NZ    | 2.28                     | 0.57              |
| 2:T:165:ALA:O    | 2:T:169:VAL:HG22 | 2.04                     | 0.57              |
| 1:D:60:LYS:N     | 1:D:63:ASP:OD2   | 2.33                     | 0.57              |
| 2:K:120:ILE:O    | 2:K:124:VAL:HG23 | 2.03                     | 0.57              |
| 2:K:355:GLU:O    | 2:K:362:ARG:NH1  | 2.37                     | 0.57              |
| 2:N:355:GLU:O    | 2:N:362:ARG:NH1  | 2.37                     | 0.57              |
| 1:Q:12:VAL:HG23  | 1:Q:39:GLU:O     | 2.04                     | 0.57              |
| 2:T:506:TYR:O    | 2:T:510:VAL:HG22 | 2.05                     | 0.57              |
| 1:W:56:PRO:O     | 1:W:57:LEU:HD12  | 2.04                     | 0.57              |
| 2:J:120:ILE:O    | 2:J:124:VAL:HG23 | 2.03                     | 0.57              |
| 2:M:102:GLU:HB2  | 2:M:442:VAL:HG13 | 1.85                     | 0.57              |
| 2:T:41:ASP:HB2   | 2:U:69:MET:CE    | 2.32                     | 0.57              |
| 1:Z:92:LEU:CD1   | 1:a:85:ILE:HG21  | 2.34                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:H:355:GLU:O    | 2:H:362:ARG:NH1  | 2.37                     | 0.57              |
| 2:M:165:ALA:O    | 2:M:169:VAL:HG22 | 2.04                     | 0.57              |
| 2:M:506:TYR:O    | 2:M:510:VAL:HG22 | 2.05                     | 0.57              |
| 2:R:215:LEU:HD22 | 2:R:246:PRO:HB3  | 1.86                     | 0.57              |
| 1:V:56:PRO:O     | 1:V:57:LEU:HD12  | 2.04                     | 0.57              |
| 1:X:92:LEU:CD1   | 1:Y:85:ILE:HG21  | 2.34                     | 0.57              |
| 1:Q:23:GLY:H     | 1:V:77:LYS:HZ2   | 1.53                     | 0.57              |
| 2:S:215:LEU:HD22 | 2:S:246:PRO:HB3  | 1.86                     | 0.57              |
| 1:X:67:PHE:CD2   | 1:X:86:MET:HE1   | 2.38                     | 0.57              |
| 1:a:67:PHE:CD2   | 1:a:86:MET:HE1   | 2.38                     | 0.57              |
| 1:A:60:LYS:N     | 1:A:63:ASP:OD2   | 2.33                     | 0.57              |
| 2:C:314:LEU:HD12 | 2:C:315:GLU:N    | 2.20                     | 0.57              |
| 2:I:355:GLU:O    | 2:I:362:ARG:NH1  | 2.37                     | 0.57              |
| 2:N:120:ILE:O    | 2:N:124:VAL:HG23 | 2.03                     | 0.57              |
| 2:O:102:GLU:HB2  | 2:O:442:VAL:HG13 | 1.85                     | 0.57              |
| 2:P:215:LEU:HD22 | 2:P:246:PRO:HB3  | 1.86                     | 0.57              |
| 2:R:165:ALA:O    | 2:R:169:VAL:HG22 | 2.04                     | 0.57              |
| 2:T:215:LEU:HD22 | 2:T:246:PRO:HB3  | 1.86                     | 0.57              |
| 1:Y:92:LEU:O     | 1:Z:5:PRO:C      | 2.46                     | 0.57              |
| 1:Z:56:PRO:O     | 1:Z:57:LEU:HD12  | 2.04                     | 0.57              |
| 2:H:124:VAL:HG21 | 2:H:508:ALA:HB1  | 1.86                     | 0.57              |
| 2:O:215:LEU:HD22 | 2:O:246:PRO:HB3  | 1.87                     | 0.57              |
| 2:O:506:TYR:O    | 2:O:510:VAL:HG22 | 2.05                     | 0.57              |
| 2:P:124:VAL:HG21 | 2:P:508:ALA:HB1  | 1.86                     | 0.57              |
| 2:T:102:GLU:HB2  | 2:T:442:VAL:HG13 | 1.85                     | 0.57              |
| 1:a:56:PRO:O     | 1:a:57:LEU:HD12  | 2.04                     | 0.57              |
| 1:1:68:ASN:HB3   | 1:G:74:LYS:CE    | 2.28                     | 0.57              |
| 1:A:6:LEU:CD1    | 1:B:91:ILE:CG2   | 2.79                     | 0.57              |
| 2:J:355:GLU:O    | 2:J:362:ARG:NH1  | 2.37                     | 0.57              |
| 2:M:70:GLY:O     | 2:M:74:VAL:HG22  | 2.05                     | 0.57              |
| 2:M:516:THR:OG1  | 2:U:37:ASN:ND2   | 2.38                     | 0.57              |
| 2:O:41:ASP:HB2   | 2:P:69:MET:CE    | 2.32                     | 0.57              |
| 2:O:70:GLY:O     | 2:O:74:VAL:HG22  | 2.05                     | 0.57              |
| 1:Q:56:PRO:O     | 1:Q:57:LEU:HD12  | 2.04                     | 0.57              |
| 2:S:37:ASN:ND2   | 2:T:516:THR:OG1  | 2.38                     | 0.57              |
| 2:S:268:ARG:HH12 | 2:T:306:GLY:C    | 2.13                     | 0.57              |
| 1:W:92:LEU:O     | 1:X:5:PRO:C      | 2.46                     | 0.57              |
| 1:X:56:PRO:O     | 1:X:57:LEU:HD12  | 2.04                     | 0.57              |
| 1:E:3:ILE:CG2    | 1:F:94:ILE:O     | 2.53                     | 0.57              |
| 1:F:3:ILE:CG2    | 1:G:94:ILE:O     | 2.53                     | 0.57              |
| 2:J:314:LEU:HD12 | 2:J:315:GLU:N    | 2.20                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:215:LEU:HD22 | 2:M:246:PRO:HB3  | 1.86                     | 0.57              |
| 2:M:306:GLY:C    | 2:U:268:ARG:HH12 | 2.13                     | 0.57              |
| 2:P:37:ASN:ND2   | 2:R:516:THR:OG1  | 2.38                     | 0.57              |
| 2:P:70:GLY:O     | 2:P:74:VAL:HG22  | 2.05                     | 0.57              |
| 2:U:215:LEU:HD22 | 2:U:246:PRO:HB3  | 1.86                     | 0.57              |
| 1:W:92:LEU:CD1   | 1:X:85:ILE:HG21  | 2.34                     | 0.57              |
| 1:a:57:LEU:CD1   | 1:a:59:VAL:HG22  | 2.35                     | 0.57              |
| 1:D:3:ILE:CG2    | 1:E:94:ILE:O     | 2.53                     | 0.57              |
| 2:M:268:ARG:HH12 | 2:O:306:GLY:C    | 2.13                     | 0.57              |
| 2:N:124:VAL:HG21 | 2:N:508:ALA:HB1  | 1.86                     | 0.57              |
| 2:O:37:ASN:ND2   | 2:P:516:THR:OG1  | 2.38                     | 0.57              |
| 2:O:39:VAL:HG12  | 2:P:69:MET:SD    | 2.36                     | 0.57              |
| 2:U:70:GLY:O     | 2:U:74:VAL:HG22  | 2.05                     | 0.57              |
| 1:X:92:LEU:O     | 1:Y:5:PRO:C      | 2.46                     | 0.57              |
| 1:Z:49:LEU:CD1   | 1:a:50:GLU:CA    | 2.83                     | 0.57              |
| 2:R:37:ASN:ND2   | 2:S:516:THR:OG1  | 2.38                     | 0.56              |
| 2:R:41:ASP:HB2   | 2:S:69:MET:CE    | 2.32                     | 0.56              |
| 2:R:124:VAL:HG21 | 2:R:508:ALA:HB1  | 1.86                     | 0.56              |
| 2:S:124:VAL:HG21 | 2:S:508:ALA:HB1  | 1.86                     | 0.56              |
| 2:S:387:VAL:CG1  | 2:T:76:GLU:CD    | 2.71                     | 0.56              |
| 2:T:39:VAL:HG12  | 2:U:69:MET:SD    | 2.36                     | 0.56              |
| 1:X:49:LEU:CD1   | 1:Y:50:GLU:CA    | 2.83                     | 0.56              |
| 1:Z:57:LEU:CD1   | 1:Z:59:VAL:HG22  | 2.35                     | 0.56              |
| 1:Z:92:LEU:O     | 1:a:5:PRO:C      | 2.47                     | 0.56              |
| 2:C:124:VAL:HG21 | 2:C:508:ALA:HB1  | 1.86                     | 0.56              |
| 2:H:314:LEU:HD12 | 2:H:315:GLU:N    | 2.20                     | 0.56              |
| 2:K:197:ARG:NH2  | 2:K:279:PRO:O    | 2.38                     | 0.56              |
| 2:L:314:LEU:HD12 | 2:L:315:GLU:N    | 2.20                     | 0.56              |
| 2:O:230:ILE:HD12 | 2:O:230:ILE:N    | 2.20                     | 0.56              |
| 2:S:506:TYR:O    | 2:S:510:VAL:HG22 | 2.05                     | 0.56              |
| 2:T:237:LEU:O    | 2:T:241:ALA:N    | 2.35                     | 0.56              |
| 1:V:92:LEU:O     | 1:W:5:PRO:C      | 2.46                     | 0.56              |
| 1:1:94:ILE:O     | 1:G:3:ILE:CG2    | 2.53                     | 0.56              |
| 1:B:3:ILE:CG2    | 1:D:94:ILE:O     | 2.53                     | 0.56              |
| 1:B:9:ARG:HD2    | 1:D:92:LEU:HA    | 1.86                     | 0.56              |
| 1:E:6:LEU:CD1    | 1:F:91:ILE:CG2   | 2.79                     | 0.56              |
| 2:I:124:VAL:HG21 | 2:I:508:ALA:HB1  | 1.86                     | 0.56              |
| 2:I:197:ARG:NH2  | 2:I:279:PRO:O    | 2.38                     | 0.56              |
| 2:J:197:ARG:NH2  | 2:J:279:PRO:O    | 2.38                     | 0.56              |
| 2:K:314:LEU:HD12 | 2:K:315:GLU:N    | 2.20                     | 0.56              |
| 2:L:124:VAL:HG21 | 2:L:508:ALA:HB1  | 1.86                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:230:ILE:N    | 2:M:230:ILE:HD12 | 2.20                     | 0.56              |
| 2:N:111:MET:HE1  | 2:N:438:VAL:HG21 | 1.87                     | 0.56              |
| 2:P:230:ILE:N    | 2:P:230:ILE:HD12 | 2.20                     | 0.56              |
| 2:P:506:TYR:O    | 2:P:510:VAL:HG22 | 2.05                     | 0.56              |
| 1:Q:85:ILE:HG21  | 1:a:92:LEU:CD1   | 2.34                     | 0.56              |
| 2:R:391:GLU:OE2  | 2:R:395:ARG:NE   | 2.39                     | 0.56              |
| 2:S:230:ILE:O    | 2:S:230:ILE:HG22 | 2.06                     | 0.56              |
| 2:T:37:ASN:ND2   | 2:U:516:THR:OG1  | 2.38                     | 0.56              |
| 2:T:230:ILE:HG22 | 2:T:230:ILE:O    | 2.06                     | 0.56              |
| 2:T:268:ARG:HH12 | 2:U:306:GLY:C    | 2.13                     | 0.56              |
| 2:U:230:ILE:N    | 2:U:230:ILE:HD12 | 2.20                     | 0.56              |
| 2:U:506:TYR:O    | 2:U:510:VAL:HG22 | 2.05                     | 0.56              |
| 1:V:57:LEU:CD1   | 1:V:59:VAL:HG22  | 2.35                     | 0.56              |
| 1:W:57:LEU:CD1   | 1:W:59:VAL:HG22  | 2.35                     | 0.56              |
| 1:Y:49:LEU:CD1   | 1:Z:50:GLU:CA    | 2.83                     | 0.56              |
| 2:L:111:MET:HE1  | 2:L:438:VAL:HG21 | 1.87                     | 0.56              |
| 2:N:314:LEU:HD12 | 2:N:315:GLU:N    | 2.20                     | 0.56              |
| 1:Q:92:LEU:O     | 1:V:5:PRO:C      | 2.46                     | 0.56              |
| 2:U:391:GLU:OE2  | 2:U:395:ARG:NE   | 2.39                     | 0.56              |
| 1:1:3:ILE:CG2    | 1:A:94:ILE:O     | 2.53                     | 0.56              |
| 2:C:197:ARG:NH2  | 2:C:279:PRO:O    | 2.38                     | 0.56              |
| 2:N:197:ARG:NH2  | 2:N:279:PRO:O    | 2.38                     | 0.56              |
| 2:P:391:GLU:OE2  | 2:P:395:ARG:NE   | 2.39                     | 0.56              |
| 1:Q:5:PRO:C      | 1:a:92:LEU:O     | 2.47                     | 0.56              |
| 2:R:230:ILE:O    | 2:R:230:ILE:HG22 | 2.06                     | 0.56              |
| 2:I:111:MET:HE1  | 2:I:438:VAL:HG21 | 1.87                     | 0.56              |
| 2:M:37:ASN:ND2   | 2:O:516:THR:OG1  | 2.38                     | 0.56              |
| 1:Q:50:GLU:CA    | 1:a:49:LEU:CD1   | 2.83                     | 0.56              |
| 1:Q:57:LEU:CD1   | 1:Q:59:VAL:HG22  | 2.35                     | 0.56              |
| 2:T:70:GLY:O     | 2:T:74:VAL:HG22  | 2.05                     | 0.56              |
| 1:W:49:LEU:CD1   | 1:X:50:GLU:CA    | 2.83                     | 0.56              |
| 1:1:92:LEU:CD1   | 1:G:74:LYS:HB2   | 2.36                     | 0.56              |
| 1:A:3:ILE:CG2    | 1:B:94:ILE:O     | 2.53                     | 0.56              |
| 2:I:314:LEU:HD12 | 2:I:315:GLU:N    | 2.20                     | 0.56              |
| 2:K:102:GLU:HB2  | 2:K:442:VAL:HG13 | 1.87                     | 0.56              |
| 2:O:268:ARG:HH12 | 2:P:306:GLY:C    | 2.13                     | 0.56              |
| 2:R:268:ARG:HH12 | 2:S:306:GLY:C    | 2.13                     | 0.56              |
| 2:R:506:TYR:O    | 2:R:510:VAL:HG22 | 2.05                     | 0.56              |
| 2:S:391:GLU:OE2  | 2:S:395:ARG:NE   | 2.39                     | 0.56              |
| 1:Y:56:PRO:O     | 1:Y:57:LEU:HD12  | 2.04                     | 0.56              |
| 1:Y:92:LEU:CD1   | 1:Z:85:ILE:HG21  | 2.34                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:74:LYS:HB2   | 1:G:92:LEU:CD1   | 2.36                     | 0.56              |
| 2:H:197:ARG:NH2  | 2:H:279:PRO:O    | 2.38                     | 0.56              |
| 2:K:111:MET:HE1  | 2:K:438:VAL:HG21 | 1.87                     | 0.56              |
| 2:L:102:GLU:HB2  | 2:L:442:VAL:HG13 | 1.87                     | 0.56              |
| 1:V:66:ILE:HD11  | 1:W:3:ILE:CG2    | 2.34                     | 0.56              |
| 1:X:57:LEU:CD1   | 1:X:59:VAL:HG22  | 2.35                     | 0.56              |
| 2:I:102:GLU:HB2  | 2:I:442:VAL:HG13 | 1.87                     | 0.56              |
| 2:J:111:MET:HE1  | 2:J:438:VAL:HG21 | 1.87                     | 0.56              |
| 2:M:391:GLU:OE2  | 2:M:395:ARG:NE   | 2.39                     | 0.56              |
| 2:O:52:ASP:OD1   | 2:O:53:GLY:N     | 2.39                     | 0.56              |
| 2:P:230:ILE:O    | 2:P:230:ILE:HG22 | 2.06                     | 0.56              |
| 2:R:267:MET:HA   | 2:R:267:MET:HE2  | 1.88                     | 0.56              |
| 2:U:230:ILE:O    | 2:U:230:ILE:HG22 | 2.06                     | 0.56              |
| 1:V:49:LEU:CD1   | 1:W:50:GLU:CA    | 2.83                     | 0.56              |
| 2:C:111:MET:HE1  | 2:C:438:VAL:HG21 | 1.87                     | 0.56              |
| 1:E:74:LYS:HB2   | 1:F:92:LEU:CD1   | 2.36                     | 0.56              |
| 2:L:197:ARG:NH2  | 2:L:279:PRO:O    | 2.38                     | 0.56              |
| 2:P:143:ALA:O    | 2:P:147:VAL:HG13 | 2.06                     | 0.56              |
| 2:R:70:GLY:O     | 2:R:74:VAL:HG22  | 2.05                     | 0.56              |
| 2:S:230:ILE:N    | 2:S:230:ILE:HD12 | 2.20                     | 0.56              |
| 2:T:230:ILE:HD12 | 2:T:230:ILE:N    | 2.20                     | 0.56              |
| 1:1:74:LYS:HB2   | 1:A:92:LEU:CD1   | 2.36                     | 0.55              |
| 2:O:143:ALA:O    | 2:O:147:VAL:HG13 | 2.06                     | 0.55              |
| 1:Q:49:LEU:CD1   | 1:V:50:GLU:CA    | 2.83                     | 0.55              |
| 2:H:102:GLU:HB2  | 2:H:442:VAL:HG13 | 1.87                     | 0.55              |
| 2:J:124:VAL:HG21 | 2:J:508:ALA:HB1  | 1.86                     | 0.55              |
| 2:M:143:ALA:O    | 2:M:147:VAL:HG13 | 2.06                     | 0.55              |
| 2:P:52:ASP:OD1   | 2:P:53:GLY:N     | 2.39                     | 0.55              |
| 2:S:237:LEU:O    | 2:S:241:ALA:N    | 2.35                     | 0.55              |
| 2:T:244:GLY:HA2  | 2:T:271:VAL:HG12 | 1.88                     | 0.55              |
| 1:W:49:LEU:HD11  | 1:X:50:GLU:O     | 2.07                     | 0.55              |
| 1:Y:49:LEU:HD11  | 1:Z:50:GLU:O     | 2.06                     | 0.55              |
| 2:K:124:VAL:HG21 | 2:K:508:ALA:HB1  | 1.86                     | 0.55              |
| 2:M:230:ILE:O    | 2:M:230:ILE:HG22 | 2.06                     | 0.55              |
| 2:O:391:GLU:OE2  | 2:O:395:ARG:NE   | 2.39                     | 0.55              |
| 2:P:267:MET:HE2  | 2:P:267:MET:HA   | 1.88                     | 0.55              |
| 2:R:52:ASP:OD1   | 2:R:53:GLY:N     | 2.39                     | 0.55              |
| 2:R:143:ALA:O    | 2:R:147:VAL:HG13 | 2.06                     | 0.55              |
| 2:U:143:ALA:O    | 2:U:147:VAL:HG13 | 2.06                     | 0.55              |
| 2:U:468:THR:OG1  | 2:U:485:TYR:OH   | 2.08                     | 0.55              |
| 2:O:230:ILE:O    | 2:O:230:ILE:HG22 | 2.06                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:P:268:ARG:HH12 | 2:R:306:GLY:C    | 2.13                     | 0.55              |
| 2:S:70:GLY:O     | 2:S:74:VAL:HG22  | 2.05                     | 0.55              |
| 2:S:267:MET:CG   | 2:T:305:ILE:CG1  | 2.54                     | 0.55              |
| 2:T:143:ALA:O    | 2:T:147:VAL:HG13 | 2.06                     | 0.55              |
| 1:Y:57:LEU:CD1   | 1:Y:59:VAL:HG22  | 2.35                     | 0.55              |
| 1:Z:49:LEU:HD11  | 1:a:50:GLU:O     | 2.07                     | 0.55              |
| 2:T:267:MET:HE2  | 2:T:267:MET:HA   | 1.88                     | 0.55              |
| 2:J:102:GLU:HB2  | 2:J:442:VAL:HG13 | 1.87                     | 0.55              |
| 2:M:52:ASP:OD1   | 2:M:53:GLY:N     | 2.39                     | 0.55              |
| 2:N:102:GLU:HB2  | 2:N:442:VAL:HG13 | 1.87                     | 0.55              |
| 1:Q:49:LEU:HD11  | 1:V:50:GLU:O     | 2.07                     | 0.55              |
| 2:R:230:ILE:HD12 | 2:R:230:ILE:N    | 2.20                     | 0.55              |
| 2:U:244:GLY:HA2  | 2:U:271:VAL:HG12 | 1.88                     | 0.55              |
| 1:1:74:LYS:HE2   | 1:A:68:ASN:HA    | 1.89                     | 0.55              |
| 2:H:111:MET:HE1  | 2:H:438:VAL:HG21 | 1.87                     | 0.55              |
| 2:S:244:GLY:HA2  | 2:S:271:VAL:HG12 | 1.88                     | 0.55              |
| 2:S:267:MET:HE2  | 2:S:267:MET:HA   | 1.88                     | 0.55              |
| 2:T:391:GLU:OE2  | 2:T:395:ARG:NE   | 2.39                     | 0.55              |
| 2:S:52:ASP:OD1   | 2:S:53:GLY:N     | 2.39                     | 0.55              |
| 2:U:52:ASP:OD1   | 2:U:53:GLY:N     | 2.39                     | 0.55              |
| 1:V:49:LEU:HD11  | 1:W:50:GLU:O     | 2.07                     | 0.55              |
| 1:1:68:ASN:HA    | 1:G:74:LYS:HE2   | 1.89                     | 0.55              |
| 1:1:92:LEU:HA    | 1:G:9:ARG:HD2    | 1.85                     | 0.55              |
| 2:J:69:MET:HE2   | 2:K:39:VAL:CG1   | 2.37                     | 0.55              |
| 2:R:39:VAL:O     | 2:S:521:VAL:HB   | 2.07                     | 0.55              |
| 1:Z:92:LEU:HB3   | 1:a:9:ARG:CD     | 2.25                     | 0.55              |
| 1:B:74:LYS:HB2   | 1:D:92:LEU:CD1   | 2.36                     | 0.55              |
| 2:H:69:MET:HE2   | 2:I:39:VAL:CG1   | 2.37                     | 0.55              |
| 2:O:244:GLY:HA2  | 2:O:271:VAL:HG12 | 1.88                     | 0.55              |
| 2:P:237:LEU:O    | 2:P:241:ALA:N    | 2.35                     | 0.55              |
| 2:P:244:GLY:HA2  | 2:P:271:VAL:HG12 | 1.88                     | 0.55              |
| 2:S:143:ALA:O    | 2:S:147:VAL:HG13 | 2.06                     | 0.55              |
| 2:S:280:GLY:O    | 2:S:285:ARG:NE   | 2.40                     | 0.55              |
| 2:T:39:VAL:O     | 2:U:521:VAL:HB   | 2.07                     | 0.55              |
| 1:Q:50:GLU:O     | 1:a:49:LEU:HD11  | 2.07                     | 0.54              |
| 2:R:147:VAL:HG12 | 2:R:494:LEU:HB2  | 1.90                     | 0.54              |
| 2:C:39:VAL:CG1   | 2:N:69:MET:HE2   | 2.37                     | 0.54              |
| 2:C:69:MET:HE2   | 2:H:39:VAL:CG1   | 2.37                     | 0.54              |
| 2:I:69:MET:HE2   | 2:J:39:VAL:CG1   | 2.37                     | 0.54              |
| 2:L:74:VAL:O     | 2:L:77:VAL:HG12  | 2.07                     | 0.54              |
| 2:S:60:ILE:O     | 2:S:75:LYS:NZ    | 2.28                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:S:264:VAL:N    | 2:T:304:GLU:O    | 2.31                     | 0.54              |
| 2:U:280:GLY:O    | 2:U:285:ARG:NE   | 2.40                     | 0.54              |
| 2:U:322:ARG:HB3  | 2:U:333:ILE:HD12 | 1.89                     | 0.54              |
| 1:X:49:LEU:HD11  | 1:Y:50:GLU:O     | 2.07                     | 0.54              |
| 1:A:74:LYS:HB2   | 1:B:92:LEU:CD1   | 2.36                     | 0.54              |
| 2:H:74:VAL:O     | 2:H:77:VAL:HG12  | 2.08                     | 0.54              |
| 2:P:147:VAL:HG12 | 2:P:494:LEU:HB2  | 1.90                     | 0.54              |
| 2:T:322:ARG:HB3  | 2:T:333:ILE:HD12 | 1.89                     | 0.54              |
| 1:A:74:LYS:HE2   | 1:B:68:ASN:HA    | 1.89                     | 0.54              |
| 2:L:69:MET:HE2   | 2:N:39:VAL:CG1   | 2.37                     | 0.54              |
| 2:M:60:ILE:O     | 2:M:75:LYS:NZ    | 2.28                     | 0.54              |
| 2:M:322:ARG:HB3  | 2:M:333:ILE:HD12 | 1.89                     | 0.54              |
| 2:O:234:LEU:HB3  | 2:O:235:PRO:CD   | 2.38                     | 0.54              |
| 2:P:234:LEU:HB3  | 2:P:235:PRO:CD   | 2.38                     | 0.54              |
| 2:T:52:ASP:OD1   | 2:T:53:GLY:N     | 2.39                     | 0.54              |
| 2:T:234:LEU:HB3  | 2:T:235:PRO:CD   | 2.38                     | 0.54              |
| 2:C:102:GLU:HB2  | 2:C:442:VAL:HG13 | 1.87                     | 0.54              |
| 2:O:267:MET:HA   | 2:O:267:MET:HE2  | 1.88                     | 0.54              |
| 2:P:74:VAL:O     | 2:P:77:VAL:HG12  | 2.08                     | 0.54              |
| 2:R:234:LEU:HB3  | 2:R:235:PRO:CD   | 2.38                     | 0.54              |
| 2:I:74:VAL:O     | 2:I:77:VAL:HG12  | 2.07                     | 0.54              |
| 2:M:234:LEU:HB3  | 2:M:235:PRO:CD   | 2.38                     | 0.54              |
| 2:M:244:GLY:HA2  | 2:M:271:VAL:HG12 | 1.88                     | 0.54              |
| 2:M:267:MET:HE2  | 2:M:267:MET:HA   | 1.88                     | 0.54              |
| 2:U:267:MET:HE2  | 2:U:267:MET:HA   | 1.88                     | 0.54              |
| 1:D:74:LYS:HB2   | 1:E:92:LEU:CD1   | 2.36                     | 0.54              |
| 1:F:9:ARG:HD2    | 1:G:92:LEU:HA    | 1.86                     | 0.54              |
| 2:J:74:VAL:O     | 2:J:77:VAL:HG12  | 2.08                     | 0.54              |
| 2:K:69:MET:HE2   | 2:L:39:VAL:CG1   | 2.37                     | 0.54              |
| 2:S:5:ASP:OD1    | 2:S:6:VAL:N      | 2.41                     | 0.54              |
| 1:Y:94:ILE:CG1   | 1:Z:4:ARG:O      | 2.55                     | 0.54              |
| 1:F:74:LYS:HE2   | 1:G:68:ASN:HA    | 1.89                     | 0.54              |
| 2:K:74:VAL:O     | 2:K:77:VAL:HG12  | 2.08                     | 0.54              |
| 2:O:232:GLU:OE1  | 2:O:232:GLU:N    | 2.41                     | 0.54              |
| 2:S:234:LEU:HB3  | 2:S:235:PRO:CD   | 2.38                     | 0.54              |
| 2:M:39:VAL:O     | 2:O:521:VAL:HB   | 2.07                     | 0.54              |
| 2:O:39:VAL:O     | 2:P:521:VAL:HB   | 2.07                     | 0.54              |
| 2:R:5:ASP:OD1    | 2:R:6:VAL:N      | 2.41                     | 0.54              |
| 2:R:244:GLY:HA2  | 2:R:271:VAL:HG12 | 1.88                     | 0.54              |
| 2:R:322:ARG:HB3  | 2:R:333:ILE:HD12 | 1.89                     | 0.54              |
| 2:S:39:VAL:O     | 2:T:521:VAL:HB   | 2.07                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:S:74:VAL:O     | 2:S:77:VAL:HG12  | 2.08                     | 0.54              |
| 1:1:9:ARG:HD2    | 1:A:92:LEU:HA    | 1.86                     | 0.54              |
| 2:M:41:ASP:OD1   | 2:M:42:LYS:N     | 2.41                     | 0.54              |
| 2:M:521:VAL:HB   | 2:U:39:VAL:O     | 2.07                     | 0.54              |
| 2:N:74:VAL:O     | 2:N:77:VAL:HG12  | 2.08                     | 0.54              |
| 2:O:147:VAL:HG12 | 2:O:494:LEU:HB2  | 1.90                     | 0.54              |
| 2:P:41:ASP:OD1   | 2:P:42:LYS:N     | 2.41                     | 0.54              |
| 2:S:147:VAL:HG12 | 2:S:494:LEU:HB2  | 1.90                     | 0.54              |
| 2:T:41:ASP:OD1   | 2:T:42:LYS:N     | 2.42                     | 0.54              |
| 2:U:41:ASP:OD1   | 2:U:42:LYS:N     | 2.42                     | 0.54              |
| 2:U:147:VAL:HG12 | 2:U:494:LEU:HB2  | 1.90                     | 0.54              |
| 2:U:234:LEU:HB3  | 2:U:235:PRO:CD   | 2.38                     | 0.54              |
| 1:Y:94:ILE:O     | 1:Z:4:ARG:C      | 2.51                     | 0.54              |
| 2:M:232:GLU:OE1  | 2:M:232:GLU:N    | 2.41                     | 0.53              |
| 1:Q:66:ILE:HD11  | 1:V:3:ILE:CG2    | 2.34                     | 0.53              |
| 1:Q:94:ILE:CG1   | 1:V:4:ARG:O      | 2.55                     | 0.53              |
| 2:C:74:VAL:O     | 2:C:77:VAL:HG12  | 2.08                     | 0.53              |
| 2:P:5:ASP:OD1    | 2:P:6:VAL:N      | 2.41                     | 0.53              |
| 2:R:41:ASP:OD1   | 2:R:42:LYS:N     | 2.42                     | 0.53              |
| 2:R:74:VAL:O     | 2:R:77:VAL:HG12  | 2.08                     | 0.53              |
| 2:S:41:ASP:OD1   | 2:S:42:LYS:N     | 2.41                     | 0.53              |
| 2:T:5:ASP:OD1    | 2:T:6:VAL:N      | 2.41                     | 0.53              |
| 1:X:94:ILE:O     | 1:Y:4:ARG:C      | 2.51                     | 0.53              |
| 1:Z:94:ILE:O     | 1:a:4:ARG:C      | 2.51                     | 0.53              |
| 2:O:74:VAL:O     | 2:O:77:VAL:HG12  | 2.08                     | 0.53              |
| 2:O:322:ARG:HB3  | 2:O:333:ILE:HD12 | 1.89                     | 0.53              |
| 2:P:322:ARG:HB3  | 2:P:333:ILE:HD12 | 1.89                     | 0.53              |
| 1:V:94:ILE:O     | 1:W:4:ARG:C      | 2.51                     | 0.53              |
| 1:E:9:ARG:NH1    | 1:F:92:LEU:HD22  | 2.24                     | 0.53              |
| 2:J:304:GLU:C    | 2:J:305:ILE:HD12 | 2.34                     | 0.53              |
| 2:M:5:ASP:OD1    | 2:M:6:VAL:N      | 2.41                     | 0.53              |
| 2:S:232:GLU:OE1  | 2:S:232:GLU:N    | 2.41                     | 0.53              |
| 2:S:322:ARG:HB3  | 2:S:333:ILE:HD12 | 1.89                     | 0.53              |
| 1:B:74:LYS:HE2   | 1:D:68:ASN:HA    | 1.88                     | 0.53              |
| 2:I:345:ARG:O    | 2:I:348:GLN:NE2  | 2.42                     | 0.53              |
| 2:K:304:GLU:C    | 2:K:305:ILE:HD12 | 2.34                     | 0.53              |
| 2:L:127:ALA:HB2  | 2:L:447:MET:HE1  | 1.91                     | 0.53              |
| 1:Q:4:ARG:C      | 1:a:94:ILE:O     | 2.51                     | 0.53              |
| 2:R:280:GLY:O    | 2:R:285:ARG:NE   | 2.40                     | 0.53              |
| 2:R:421:ARG:NH2  | 2:R:476:TYR:O    | 2.42                     | 0.53              |
| 1:W:94:ILE:O     | 1:X:4:ARG:C      | 2.51                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:I:304:GLU:C    | 2:I:305:ILE:HD12 | 2.34                     | 0.53              |
| 2:M:74:VAL:O     | 2:M:77:VAL:HG12  | 2.08                     | 0.53              |
| 2:O:5:ASP:OD1    | 2:O:6:VAL:N      | 2.41                     | 0.53              |
| 2:O:41:ASP:OD1   | 2:O:42:LYS:N     | 2.41                     | 0.53              |
| 1:Q:94:ILE:O     | 1:V:4:ARG:C      | 2.51                     | 0.53              |
| 2:S:421:ARG:NH2  | 2:S:476:TYR:O    | 2.42                     | 0.53              |
| 2:H:304:GLU:C    | 2:H:305:ILE:HD12 | 2.34                     | 0.53              |
| 2:J:345:ARG:O    | 2:J:348:GLN:NE2  | 2.42                     | 0.53              |
| 2:M:36:ARG:HB3   | 2:O:516:THR:O    | 2.09                     | 0.53              |
| 2:M:147:VAL:HG12 | 2:M:494:LEU:HB2  | 1.90                     | 0.53              |
| 1:A:5:PRO:O      | 1:B:94:ILE:HG12  | 2.09                     | 0.53              |
| 2:C:304:GLU:C    | 2:C:305:ILE:HD12 | 2.34                     | 0.53              |
| 2:C:345:ARG:O    | 2:C:348:GLN:NE2  | 2.42                     | 0.53              |
| 1:D:5:PRO:CA     | 1:E:93:ALA:HA    | 2.39                     | 0.53              |
| 1:E:74:LYS:HE2   | 1:F:68:ASN:HA    | 1.88                     | 0.53              |
| 1:F:5:PRO:CA     | 1:G:93:ALA:HA    | 2.39                     | 0.53              |
| 1:F:5:PRO:O      | 1:G:94:ILE:HG12  | 2.09                     | 0.53              |
| 2:H:69:MET:CE    | 2:I:39:VAL:CG1   | 2.87                     | 0.53              |
| 2:L:304:GLU:C    | 2:L:305:ILE:HD12 | 2.34                     | 0.53              |
| 2:L:345:ARG:O    | 2:L:348:GLN:NE2  | 2.42                     | 0.53              |
| 2:O:36:ARG:HB3   | 2:P:516:THR:O    | 2.09                     | 0.53              |
| 2:P:421:ARG:NH2  | 2:P:476:TYR:O    | 2.42                     | 0.53              |
| 2:T:421:ARG:NH2  | 2:T:476:TYR:O    | 2.42                     | 0.53              |
| 2:U:5:ASP:OD1    | 2:U:6:VAL:N      | 2.41                     | 0.53              |
| 1:Z:66:ILE:HD11  | 1:a:3:ILE:CG2    | 2.34                     | 0.53              |
| 1:1:5:PRO:O      | 1:A:94:ILE:HG12  | 2.09                     | 0.53              |
| 2:K:127:ALA:HB2  | 2:K:447:MET:HE1  | 1.91                     | 0.53              |
| 2:K:345:ARG:O    | 2:K:348:GLN:NE2  | 2.42                     | 0.53              |
| 2:N:127:ALA:HB2  | 2:N:447:MET:HE1  | 1.91                     | 0.53              |
| 2:P:39:VAL:O     | 2:R:521:VAL:HB   | 2.07                     | 0.53              |
| 2:U:74:VAL:O     | 2:U:77:VAL:HG12  | 2.08                     | 0.53              |
| 2:U:305:ILE:N    | 2:U:305:ILE:HD12 | 2.24                     | 0.53              |
| 1:Y:92:LEU:HB3   | 1:Z:9:ARG:CD     | 2.25                     | 0.53              |
| 2:C:127:ALA:HB2  | 2:C:447:MET:HE1  | 1.91                     | 0.53              |
| 1:D:9:ARG:NH1    | 1:E:92:LEU:HD22  | 2.24                     | 0.53              |
| 1:E:5:PRO:CA     | 1:F:93:ALA:HA    | 2.39                     | 0.53              |
| 1:E:9:ARG:HD2    | 1:F:92:LEU:HA    | 1.86                     | 0.53              |
| 2:P:36:ARG:HB3   | 2:R:516:THR:O    | 2.09                     | 0.53              |
| 2:P:305:ILE:HD12 | 2:P:305:ILE:N    | 2.24                     | 0.53              |
| 1:Q:4:ARG:O      | 1:a:94:ILE:CG1   | 2.55                     | 0.53              |
| 2:T:74:VAL:O     | 2:T:77:VAL:HG12  | 2.08                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:5:PRO:CA     | 1:A:93:ALA:HA    | 2.39                     | 0.52              |
| 1:1:93:ALA:HA    | 1:G:5:PRO:CA     | 2.39                     | 0.52              |
| 2:J:127:ALA:HB2  | 2:J:447:MET:HE1  | 1.91                     | 0.52              |
| 2:N:210:THR:O    | 2:N:210:THR:HG22 | 2.09                     | 0.52              |
| 2:N:304:GLU:C    | 2:N:305:ILE:HD12 | 2.34                     | 0.52              |
| 2:O:458:CYS:SG   | 2:O:480:ALA:HB1  | 2.49                     | 0.52              |
| 2:R:233:MET:HE2  | 2:R:237:LEU:HD21 | 1.91                     | 0.52              |
| 2:S:233:MET:HE2  | 2:S:237:LEU:HD21 | 1.92                     | 0.52              |
| 2:U:421:ARG:NH2  | 2:U:476:TYR:O    | 2.42                     | 0.52              |
| 2:H:345:ARG:O    | 2:H:348:GLN:NE2  | 2.42                     | 0.52              |
| 2:M:516:THR:O    | 2:U:36:ARG:HB3   | 2.09                     | 0.52              |
| 2:R:232:GLU:OE1  | 2:R:232:GLU:N    | 2.41                     | 0.52              |
| 2:U:232:GLU:OE1  | 2:U:232:GLU:N    | 2.41                     | 0.52              |
| 2:C:39:VAL:CG1   | 2:N:69:MET:CE    | 2.87                     | 0.52              |
| 1:D:74:LYS:HE2   | 1:E:68:ASN:HA    | 1.88                     | 0.52              |
| 1:E:5:PRO:O      | 1:F:94:ILE:HG12  | 2.09                     | 0.52              |
| 2:K:69:MET:CE    | 2:L:39:VAL:CG1   | 2.87                     | 0.52              |
| 2:K:210:THR:O    | 2:K:210:THR:HG22 | 2.09                     | 0.52              |
| 2:L:210:THR:O    | 2:L:210:THR:HG22 | 2.09                     | 0.52              |
| 2:T:147:VAL:HG12 | 2:T:494:LEU:HB2  | 1.90                     | 0.52              |
| 2:T:233:MET:HE2  | 2:T:237:LEU:HD21 | 1.91                     | 0.52              |
| 2:T:458:CYS:SG   | 2:T:480:ALA:HB1  | 2.49                     | 0.52              |
| 2:N:345:ARG:O    | 2:N:348:GLN:NE2  | 2.42                     | 0.52              |
| 2:P:233:MET:HE2  | 2:P:237:LEU:HD21 | 1.91                     | 0.52              |
| 2:R:36:ARG:HB3   | 2:S:516:THR:O    | 2.09                     | 0.52              |
| 2:T:305:ILE:N    | 2:T:305:ILE:HD12 | 2.24                     | 0.52              |
| 1:A:5:PRO:CA     | 1:B:93:ALA:HA    | 2.39                     | 0.52              |
| 2:R:264:VAL:N    | 2:S:304:GLU:O    | 2.31                     | 0.52              |
| 2:S:458:CYS:SG   | 2:S:480:ALA:HB1  | 2.49                     | 0.52              |
| 2:T:387:VAL:CG1  | 2:U:76:GLU:CD    | 2.71                     | 0.52              |
| 2:J:210:THR:HG22 | 2:J:210:THR:O    | 2.09                     | 0.52              |
| 2:J:227:ILE:O    | 2:J:227:ILE:HG22 | 2.10                     | 0.52              |
| 2:L:69:MET:CE    | 2:N:39:VAL:CG1   | 2.87                     | 0.52              |
| 2:M:305:ILE:N    | 2:M:305:ILE:HD12 | 2.24                     | 0.52              |
| 2:M:421:ARG:NH2  | 2:M:476:TYR:O    | 2.42                     | 0.52              |
| 2:M:458:CYS:SG   | 2:M:480:ALA:HB1  | 2.49                     | 0.52              |
| 2:P:264:VAL:N    | 2:R:304:GLU:O    | 2.31                     | 0.52              |
| 2:S:36:ARG:HB3   | 2:T:516:THR:O    | 2.09                     | 0.52              |
| 2:H:127:ALA:HB2  | 2:H:447:MET:HE1  | 1.91                     | 0.52              |
| 2:H:227:ILE:HG22 | 2:H:227:ILE:O    | 2.10                     | 0.52              |
| 1:Q:65:VAL:HG12  | 1:Q:94:ILE:HG22  | 1.92                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:R:28:LYS:HG2   | 2:R:94:VAL:HG22  | 1.92                     | 0.52              |
| 2:R:305:ILE:N    | 2:R:305:ILE:HD12 | 2.24                     | 0.52              |
| 1:X:92:LEU:HB3   | 1:Y:9:ARG:CD     | 2.25                     | 0.52              |
| 2:I:127:ALA:HB2  | 2:I:447:MET:HE1  | 1.91                     | 0.52              |
| 2:L:227:ILE:O    | 2:L:227:ILE:HG22 | 2.10                     | 0.52              |
| 2:O:421:ARG:NH2  | 2:O:476:TYR:O    | 2.42                     | 0.52              |
| 2:P:28:LYS:HG2   | 2:P:94:VAL:HG22  | 1.92                     | 0.52              |
| 2:P:458:CYS:SG   | 2:P:480:ALA:HB1  | 2.49                     | 0.52              |
| 2:S:28:LYS:HG2   | 2:S:94:VAL:HG22  | 1.92                     | 0.52              |
| 2:T:36:ARG:HB3   | 2:U:516:THR:O    | 2.09                     | 0.52              |
| 1:B:5:PRO:CA     | 1:D:93:ALA:HA    | 2.39                     | 0.52              |
| 2:M:69:MET:SD    | 2:U:39:VAL:HG12  | 2.36                     | 0.52              |
| 2:O:28:LYS:HG2   | 2:O:94:VAL:HG22  | 1.92                     | 0.52              |
| 2:R:458:CYS:SG   | 2:R:480:ALA:HB1  | 2.49                     | 0.52              |
| 1:A:85:ILE:HG21  | 1:B:92:LEU:HB3   | 1.92                     | 0.52              |
| 2:C:227:ILE:HG22 | 2:C:227:ILE:O    | 2.10                     | 0.52              |
| 1:F:76:GLU:HG2   | 1:G:66:ILE:HG21  | 1.92                     | 0.52              |
| 2:H:210:THR:HG22 | 2:H:210:THR:O    | 2.09                     | 0.52              |
| 2:S:305:ILE:HD12 | 2:S:305:ILE:N    | 2.24                     | 0.52              |
| 1:I:85:ILE:HG21  | 1:A:92:LEU:HB3   | 1.92                     | 0.51              |
| 1:I:94:ILE:HG12  | 1:G:5:PRO:O      | 2.09                     | 0.51              |
| 1:D:9:ARG:HD2    | 1:E:92:LEU:HA    | 1.86                     | 0.51              |
| 2:I:210:THR:O    | 2:I:210:THR:HG22 | 2.09                     | 0.51              |
| 2:I:237:LEU:HD23 | 2:I:237:LEU:C    | 2.35                     | 0.51              |
| 2:J:237:LEU:HD23 | 2:J:237:LEU:C    | 2.36                     | 0.51              |
| 2:O:233:MET:HE2  | 2:O:237:LEU:HD21 | 1.91                     | 0.51              |
| 2:O:305:ILE:N    | 2:O:305:ILE:HD12 | 2.24                     | 0.51              |
| 2:U:458:CYS:SG   | 2:U:480:ALA:HB1  | 2.49                     | 0.51              |
| 1:V:65:VAL:HG12  | 1:V:94:ILE:HG22  | 1.92                     | 0.51              |
| 1:W:49:LEU:HD11  | 1:X:50:GLU:CA    | 2.41                     | 0.51              |
| 1:X:94:ILE:CG1   | 1:Y:4:ARG:O      | 2.55                     | 0.51              |
| 1:Z:49:LEU:HD11  | 1:a:50:GLU:CA    | 2.41                     | 0.51              |
| 1:I:66:ILE:HG21  | 1:G:76:GLU:HG2   | 1.93                     | 0.51              |
| 2:C:210:THR:O    | 2:C:210:THR:HG22 | 2.09                     | 0.51              |
| 1:D:5:PRO:O      | 1:E:94:ILE:HG12  | 2.09                     | 0.51              |
| 1:D:76:GLU:HG2   | 1:E:66:ILE:HG21  | 1.92                     | 0.51              |
| 1:D:85:ILE:HG21  | 1:E:92:LEU:HB3   | 1.92                     | 0.51              |
| 1:E:3:ILE:CG2    | 1:F:96:GLU:H     | 2.24                     | 0.51              |
| 1:E:76:GLU:HG2   | 1:F:66:ILE:HG21  | 1.92                     | 0.51              |
| 2:H:237:LEU:HD23 | 2:H:237:LEU:C    | 2.35                     | 0.51              |
| 2:T:28:LYS:HG2   | 2:T:94:VAL:HG22  | 1.92                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:T:280:GLY:O    | 2:T:285:ARG:NE   | 2.40                     | 0.51              |
| 2:U:233:MET:HE2  | 2:U:237:LEU:HD21 | 1.91                     | 0.51              |
| 1:B:85:ILE:HG21  | 1:D:92:LEU:HB3   | 1.92                     | 0.51              |
| 2:J:69:MET:CE    | 2:K:39:VAL:CG1   | 2.86                     | 0.51              |
| 2:K:237:LEU:C    | 2:K:237:LEU:HD23 | 2.35                     | 0.51              |
| 2:P:280:GLY:O    | 2:P:285:ARG:NE   | 2.40                     | 0.51              |
| 1:a:65:VAL:HG12  | 1:a:94:ILE:HG22  | 1.92                     | 0.51              |
| 1:1:96:GLU:H     | 1:G:3:ILE:CG2    | 2.24                     | 0.51              |
| 1:B:5:PRO:O      | 1:D:94:ILE:HG12  | 2.09                     | 0.51              |
| 1:B:76:GLU:HG2   | 1:D:66:ILE:HG21  | 1.92                     | 0.51              |
| 2:C:305:ILE:HD12 | 2:C:305:ILE:N    | 2.26                     | 0.51              |
| 2:I:227:ILE:O    | 2:I:227:ILE:HG22 | 2.10                     | 0.51              |
| 2:I:305:ILE:HD12 | 2:I:305:ILE:N    | 2.26                     | 0.51              |
| 2:J:305:ILE:HD11 | 2:K:203:TYR:CZ   | 2.41                     | 0.51              |
| 2:N:227:ILE:O    | 2:N:227:ILE:HG22 | 2.10                     | 0.51              |
| 2:U:237:LEU:O    | 2:U:241:ALA:N    | 2.35                     | 0.51              |
| 1:B:9:ARG:NH1    | 1:D:92:LEU:HD22  | 2.24                     | 0.51              |
| 2:K:227:ILE:HG22 | 2:K:227:ILE:O    | 2.10                     | 0.51              |
| 2:M:387:VAL:CG1  | 2:O:76:GLU:CD    | 2.71                     | 0.51              |
| 2:M:28:LYS:HG2   | 2:M:94:VAL:HG22  | 1.92                     | 0.51              |
| 2:N:305:ILE:HG22 | 2:N:306:GLY:N    | 2.26                     | 0.51              |
| 2:T:64:ASP:O     | 2:T:68:ASN:N     | 2.40                     | 0.51              |
| 2:M:233:MET:HE2  | 2:M:237:LEU:HD21 | 1.91                     | 0.51              |
| 2:N:237:LEU:C    | 2:N:237:LEU:HD23 | 2.36                     | 0.51              |
| 2:O:387:VAL:CG1  | 2:P:76:GLU:CD    | 2.71                     | 0.51              |
| 2:P:387:VAL:CG1  | 2:R:76:GLU:CD    | 2.71                     | 0.51              |
| 1:Y:66:ILE:HD11  | 1:Z:3:ILE:CG2    | 2.34                     | 0.51              |
| 1:A:9:ARG:NH1    | 1:B:92:LEU:HD22  | 2.24                     | 0.51              |
| 2:C:224:ASP:O    | 2:C:285:ARG:NH1  | 2.44                     | 0.51              |
| 2:C:305:ILE:HG22 | 2:C:306:GLY:N    | 2.26                     | 0.51              |
| 2:J:224:ASP:O    | 2:J:285:ARG:NH1  | 2.44                     | 0.51              |
| 2:L:237:LEU:HD23 | 2:L:237:LEU:C    | 2.35                     | 0.51              |
| 1:Q:49:LEU:HD11  | 1:V:50:GLU:CA    | 2.41                     | 0.51              |
| 1:Q:50:GLU:CA    | 1:a:49:LEU:HD11  | 2.41                     | 0.51              |
| 2:U:28:LYS:HG2   | 2:U:94:VAL:HG22  | 1.92                     | 0.51              |
| 1:V:49:LEU:HD11  | 1:W:50:GLU:CA    | 2.41                     | 0.51              |
| 1:V:92:LEU:HB3   | 1:W:9:ARG:CD     | 2.25                     | 0.51              |
| 1:X:49:LEU:HD11  | 1:Y:50:GLU:CA    | 2.41                     | 0.51              |
| 1:1:76:GLU:HG2   | 1:A:66:ILE:HG21  | 1.92                     | 0.51              |
| 1:1:92:LEU:HB3   | 1:G:85:ILE:HG21  | 1.93                     | 0.51              |
| 1:1:92:LEU:HD22  | 1:G:9:ARG:NH1    | 2.24                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:3:ILE:CG2    | 1:B:96:GLU:H     | 2.24                     | 0.51              |
| 1:A:76:GLU:HG2   | 1:B:66:ILE:HG21  | 1.92                     | 0.51              |
| 1:B:3:ILE:CG2    | 1:D:96:GLU:H     | 2.24                     | 0.51              |
| 2:C:69:MET:CE    | 2:H:39:VAL:CG1   | 2.87                     | 0.51              |
| 2:C:237:LEU:C    | 2:C:237:LEU:HD23 | 2.35                     | 0.51              |
| 2:J:305:ILE:HD12 | 2:J:305:ILE:N    | 2.26                     | 0.51              |
| 2:M:39:VAL:HG12  | 2:O:69:MET:SD    | 2.36                     | 0.51              |
| 1:E:85:ILE:HG21  | 1:F:92:LEU:HB3   | 1.93                     | 0.51              |
| 2:L:224:ASP:O    | 2:L:285:ARG:NH1  | 2.44                     | 0.51              |
| 2:N:305:ILE:HD12 | 2:N:305:ILE:N    | 2.26                     | 0.51              |
| 2:O:237:LEU:O    | 2:O:241:ALA:N    | 2.35                     | 0.51              |
| 2:P:232:GLU:N    | 2:P:232:GLU:OE1  | 2.41                     | 0.51              |
| 2:I:224:ASP:O    | 2:I:285:ARG:NH1  | 2.44                     | 0.50              |
| 2:K:224:ASP:O    | 2:K:285:ARG:NH1  | 2.44                     | 0.50              |
| 1:Z:94:ILE:CG1   | 1:a:4:ARG:O      | 2.55                     | 0.50              |
| 1:1:9:ARG:NH1    | 1:A:92:LEU:HD22  | 2.24                     | 0.50              |
| 2:J:69:MET:HE2   | 2:K:39:VAL:HG12  | 1.94                     | 0.50              |
| 2:O:280:GLY:O    | 2:O:285:ARG:NE   | 2.40                     | 0.50              |
| 1:1:3:ILE:CG2    | 1:A:96:GLU:H     | 2.24                     | 0.50              |
| 1:D:3:ILE:CG2    | 1:E:96:GLU:H     | 2.24                     | 0.50              |
| 2:I:305:ILE:HG22 | 2:I:306:GLY:N    | 2.26                     | 0.50              |
| 2:J:31:LEU:HD23  | 2:J:453:GLN:HB3  | 1.93                     | 0.50              |
| 2:L:305:ILE:HD12 | 2:L:305:ILE:N    | 2.26                     | 0.50              |
| 2:L:305:ILE:HG22 | 2:L:306:GLY:N    | 2.26                     | 0.50              |
| 2:R:237:LEU:O    | 2:R:241:ALA:N    | 2.35                     | 0.50              |
| 2:H:224:ASP:O    | 2:H:285:ARG:NH1  | 2.44                     | 0.50              |
| 2:M:304:GLU:O    | 2:U:264:VAL:N    | 2.31                     | 0.50              |
| 2:N:31:LEU:HD23  | 2:N:453:GLN:HB3  | 1.93                     | 0.50              |
| 1:X:23:GLY:H     | 1:Y:77:LYS:HZ2   | 1.59                     | 0.50              |
| 1:Y:49:LEU:HD11  | 1:Z:50:GLU:CA    | 2.41                     | 0.50              |
| 1:F:85:ILE:HG21  | 1:G:92:LEU:HB3   | 1.92                     | 0.50              |
| 2:H:305:ILE:HD12 | 2:H:305:ILE:N    | 2.26                     | 0.50              |
| 2:K:31:LEU:HD23  | 2:K:453:GLN:HB3  | 1.93                     | 0.50              |
| 2:U:20:VAL:HG22  | 2:U:74:VAL:HG11  | 1.94                     | 0.50              |
| 1:X:65:VAL:HG12  | 1:X:94:ILE:HG22  | 1.92                     | 0.50              |
| 1:E:3:ILE:O      | 1:E:3:ILE:HD12   | 2.12                     | 0.50              |
| 2:H:31:LEU:HD23  | 2:H:453:GLN:HB3  | 1.93                     | 0.50              |
| 2:I:305:ILE:HD11 | 2:J:203:TYR:CZ   | 2.41                     | 0.50              |
| 2:M:20:VAL:HG22  | 2:M:74:VAL:HG11  | 1.94                     | 0.50              |
| 2:O:20:VAL:HG22  | 2:O:74:VAL:HG11  | 1.94                     | 0.50              |
| 2:P:267:MET:SD   | 2:R:305:ILE:HG12 | 2.52                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:R:20:VAL:HG22  | 2:R:74:VAL:HG11  | 1.94                     | 0.50              |
| 1:Y:65:VAL:HG12  | 1:Y:94:ILE:HG22  | 1.92                     | 0.50              |
| 1:F:3:ILE:CG2    | 1:G:96:GLU:H     | 2.24                     | 0.50              |
| 2:M:64:ASP:O     | 2:M:68:ASN:N     | 2.40                     | 0.50              |
| 2:M:234:LEU:O    | 2:M:236:VAL:N    | 2.45                     | 0.50              |
| 2:P:20:VAL:HG22  | 2:P:74:VAL:HG11  | 1.94                     | 0.50              |
| 2:P:124:VAL:HG13 | 2:P:504:LEU:CD1  | 2.42                     | 0.50              |
| 2:R:64:ASP:O     | 2:R:68:ASN:N     | 2.40                     | 0.50              |
| 2:S:20:VAL:HG22  | 2:S:74:VAL:HG11  | 1.94                     | 0.50              |
| 2:S:233:MET:O    | 2:S:236:VAL:HG22 | 2.12                     | 0.50              |
| 2:T:20:VAL:HG22  | 2:T:74:VAL:HG11  | 1.94                     | 0.50              |
| 2:U:234:LEU:O    | 2:U:236:VAL:N    | 2.45                     | 0.50              |
| 1:W:65:VAL:HG12  | 1:W:94:ILE:HG22  | 1.92                     | 0.50              |
| 1:A:3:ILE:HD12   | 1:A:3:ILE:O      | 2.12                     | 0.50              |
| 1:A:9:ARG:HD2    | 1:B:92:LEU:HA    | 1.86                     | 0.50              |
| 2:C:31:LEU:HD23  | 2:C:453:GLN:HB3  | 1.93                     | 0.50              |
| 2:C:143:ALA:O    | 2:C:147:VAL:HG13 | 2.12                     | 0.50              |
| 2:H:305:ILE:HG22 | 2:H:306:GLY:N    | 2.26                     | 0.50              |
| 2:K:143:ALA:O    | 2:K:147:VAL:HG13 | 2.12                     | 0.50              |
| 2:S:124:VAL:HG13 | 2:S:504:LEU:CD1  | 2.42                     | 0.50              |
| 2:T:234:LEU:O    | 2:T:236:VAL:N    | 2.45                     | 0.50              |
| 1:Z:65:VAL:HG12  | 1:Z:94:ILE:HG22  | 1.92                     | 0.50              |
| 2:H:143:ALA:O    | 2:H:147:VAL:HG13 | 2.12                     | 0.50              |
| 2:I:69:MET:HE2   | 2:J:39:VAL:HG12  | 1.94                     | 0.50              |
| 2:N:224:ASP:O    | 2:N:285:ARG:NH1  | 2.44                     | 0.50              |
| 2:R:264:VAL:CB   | 2:S:305:ILE:C    | 2.85                     | 0.50              |
| 2:R:387:VAL:CG1  | 2:S:76:GLU:CD    | 2.71                     | 0.50              |
| 2:T:232:GLU:OE1  | 2:T:232:GLU:N    | 2.41                     | 0.50              |
| 1:B:3:ILE:HD12   | 1:B:3:ILE:O      | 2.12                     | 0.49              |
| 1:D:5:PRO:HB3    | 1:E:93:ALA:CB    | 2.42                     | 0.49              |
| 1:F:5:PRO:O      | 1:G:93:ALA:HA    | 2.12                     | 0.49              |
| 2:K:305:ILE:HD12 | 2:K:305:ILE:N    | 2.26                     | 0.49              |
| 2:K:305:ILE:HG22 | 2:K:306:GLY:N    | 2.26                     | 0.49              |
| 2:M:47:PRO:HB3   | 2:O:69:MET:HE2   | 1.94                     | 0.49              |
| 2:N:143:ALA:O    | 2:N:147:VAL:HG13 | 2.12                     | 0.49              |
| 2:O:233:MET:O    | 2:O:236:VAL:HG22 | 2.12                     | 0.49              |
| 2:R:233:MET:O    | 2:R:236:VAL:HG22 | 2.12                     | 0.49              |
| 1:1:93:ALA:HA    | 1:G:5:PRO:O      | 2.12                     | 0.49              |
| 1:A:5:PRO:HB3    | 1:B:93:ALA:CB    | 2.42                     | 0.49              |
| 1:F:9:ARG:NH1    | 1:G:92:LEU:HD22  | 2.24                     | 0.49              |
| 2:S:20:VAL:HG22  | 2:S:74:VAL:CG1   | 2.42                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:3:ILE:HD12   | 1:1:3:ILE:O      | 2.12                     | 0.49              |
| 1:B:3:ILE:HG23   | 1:D:96:GLU:H     | 1.78                     | 0.49              |
| 2:C:184:GLN:OE1  | 2:C:184:GLN:N    | 2.45                     | 0.49              |
| 1:F:3:ILE:HD12   | 1:F:3:ILE:O      | 2.12                     | 0.49              |
| 2:I:143:ALA:O    | 2:I:147:VAL:HG13 | 2.12                     | 0.49              |
| 2:K:184:GLN:OE1  | 2:K:184:GLN:N    | 2.45                     | 0.49              |
| 2:M:20:VAL:HG22  | 2:M:74:VAL:CG1   | 2.42                     | 0.49              |
| 2:M:233:MET:O    | 2:M:236:VAL:HG22 | 2.12                     | 0.49              |
| 2:O:47:PRO:HB3   | 2:P:69:MET:HE2   | 1.94                     | 0.49              |
| 2:O:267:MET:SD   | 2:P:305:ILE:HG12 | 2.52                     | 0.49              |
| 2:S:234:LEU:O    | 2:S:236:VAL:N    | 2.45                     | 0.49              |
| 2:T:20:VAL:HG22  | 2:T:74:VAL:CG1   | 2.42                     | 0.49              |
| 1:B:5:PRO:HB3    | 1:D:93:ALA:CB    | 2.42                     | 0.49              |
| 2:L:31:LEU:HD23  | 2:L:453:GLN:HB3  | 1.93                     | 0.49              |
| 2:N:184:GLN:OE1  | 2:N:184:GLN:N    | 2.45                     | 0.49              |
| 2:S:47:PRO:HB3   | 2:T:69:MET:HE2   | 1.94                     | 0.49              |
| 2:S:264:VAL:CB   | 2:T:305:ILE:C    | 2.85                     | 0.49              |
| 2:U:20:VAL:HG22  | 2:U:74:VAL:CG1   | 2.42                     | 0.49              |
| 1:1:93:ALA:CB    | 1:G:5:PRO:HB3    | 2.42                     | 0.49              |
| 1:E:5:PRO:HB3    | 1:F:93:ALA:CB    | 2.42                     | 0.49              |
| 2:I:31:LEU:HD23  | 2:I:453:GLN:HB3  | 1.93                     | 0.49              |
| 2:J:305:ILE:HG22 | 2:J:306:GLY:N    | 2.26                     | 0.49              |
| 2:M:280:GLY:O    | 2:M:285:ARG:NE   | 2.40                     | 0.49              |
| 2:R:234:LEU:O    | 2:R:236:VAL:N    | 2.45                     | 0.49              |
| 2:T:264:VAL:N    | 2:U:304:GLU:O    | 2.31                     | 0.49              |
| 2:U:233:MET:O    | 2:U:236:VAL:HG22 | 2.12                     | 0.49              |
| 1:W:91:ILE:O     | 1:X:9:ARG:NH1    | 2.45                     | 0.49              |
| 1:E:5:PRO:O      | 1:F:93:ALA:HA    | 2.12                     | 0.49              |
| 2:O:20:VAL:HG22  | 2:O:74:VAL:CG1   | 2.42                     | 0.49              |
| 2:O:234:LEU:O    | 2:O:236:VAL:N    | 2.45                     | 0.49              |
| 1:F:5:PRO:HB3    | 1:G:93:ALA:CB    | 2.42                     | 0.49              |
| 2:J:184:GLN:OE1  | 2:J:184:GLN:N    | 2.45                     | 0.49              |
| 2:M:69:MET:HE2   | 2:U:47:PRO:HB3   | 1.94                     | 0.49              |
| 2:R:20:VAL:HG22  | 2:R:74:VAL:CG1   | 2.42                     | 0.49              |
| 2:T:233:MET:O    | 2:T:236:VAL:HG22 | 2.12                     | 0.49              |
| 2:T:414:GLY:HA3  | 2:T:493:ILE:HG22 | 1.95                     | 0.49              |
| 2:J:143:ALA:O    | 2:J:147:VAL:HG13 | 2.12                     | 0.49              |
| 2:L:184:GLN:N    | 2:L:184:GLN:OE1  | 2.45                     | 0.49              |
| 2:P:414:GLY:HA3  | 2:P:493:ILE:HG22 | 1.95                     | 0.49              |
| 2:R:124:VAL:HG13 | 2:R:504:LEU:CD1  | 2.42                     | 0.49              |
| 2:R:414:GLY:HA3  | 2:R:493:ILE:HG22 | 1.95                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:T:47:PRO:HB3   | 2:U:69:MET:HE2   | 1.94                     | 0.49              |
| 2:T:124:VAL:HG13 | 2:T:504:LEU:CD1  | 2.42                     | 0.49              |
| 1:X:91:ILE:O     | 1:Y:9:ARG:NH1    | 2.45                     | 0.49              |
| 1:A:5:PRO:O      | 1:B:93:ALA:HA    | 2.12                     | 0.49              |
| 1:D:3:ILE:HG23   | 1:E:96:GLU:H     | 1.78                     | 0.49              |
| 2:L:143:ALA:O    | 2:L:147:VAL:HG13 | 2.12                     | 0.49              |
| 2:P:20:VAL:HG22  | 2:P:74:VAL:CG1   | 2.42                     | 0.49              |
| 2:P:47:PRO:HB3   | 2:R:69:MET:HE2   | 1.94                     | 0.49              |
| 2:P:264:VAL:CB   | 2:R:305:ILE:C    | 2.85                     | 0.49              |
| 1:X:66:ILE:HD11  | 1:Y:3:ILE:CG2    | 2.34                     | 0.49              |
| 1:1:5:PRO:O      | 1:A:93:ALA:HA    | 2.12                     | 0.49              |
| 1:B:5:PRO:O      | 1:D:93:ALA:HA    | 2.12                     | 0.49              |
| 1:D:5:PRO:O      | 1:E:93:ALA:HA    | 2.12                     | 0.49              |
| 1:F:3:ILE:HG23   | 1:G:96:GLU:H     | 1.78                     | 0.49              |
| 1:G:3:ILE:HD12   | 1:G:3:ILE:O      | 2.12                     | 0.49              |
| 2:M:124:VAL:HG13 | 2:M:504:LEU:CD1  | 2.42                     | 0.49              |
| 2:P:405:ALA:HB1  | 2:P:498:LYS:HB3  | 1.95                     | 0.49              |
| 1:Q:3:ILE:CG2    | 1:a:66:ILE:HD11  | 2.34                     | 0.49              |
| 2:S:414:GLY:HA3  | 2:S:493:ILE:HG22 | 1.95                     | 0.49              |
| 2:U:414:GLY:HA3  | 2:U:493:ILE:HG22 | 1.95                     | 0.49              |
| 1:D:3:ILE:HD12   | 1:D:3:ILE:O      | 2.12                     | 0.48              |
| 2:H:184:GLN:OE1  | 2:H:184:GLN:N    | 2.45                     | 0.48              |
| 2:P:233:MET:O    | 2:P:236:VAL:HG22 | 2.12                     | 0.48              |
| 2:T:405:ALA:HB1  | 2:T:498:LYS:HB3  | 1.95                     | 0.48              |
| 1:V:91:ILE:O     | 1:W:9:ARG:NH1    | 2.45                     | 0.48              |
| 1:1:3:ILE:HG23   | 1:A:96:GLU:H     | 1.78                     | 0.48              |
| 2:M:237:LEU:O    | 2:M:241:ALA:N    | 2.35                     | 0.48              |
| 2:O:414:GLY:HA3  | 2:O:493:ILE:HG22 | 1.95                     | 0.48              |
| 2:R:405:ALA:HB1  | 2:R:498:LYS:HB3  | 1.95                     | 0.48              |
| 1:1:5:PRO:HB3    | 1:A:93:ALA:CB    | 2.42                     | 0.48              |
| 1:E:3:ILE:HG23   | 1:F:96:GLU:H     | 1.78                     | 0.48              |
| 2:J:41:ASP:OD1   | 2:J:42:LYS:N     | 2.47                     | 0.48              |
| 2:M:414:GLY:HA3  | 2:M:493:ILE:HG22 | 1.95                     | 0.48              |
| 2:O:405:ALA:HB1  | 2:O:498:LYS:HB3  | 1.95                     | 0.48              |
| 1:Q:9:ARG:NH1    | 1:a:91:ILE:O     | 2.45                     | 0.48              |
| 1:Q:91:ILE:O     | 1:V:9:ARG:NH1    | 2.45                     | 0.48              |
| 2:U:405:ALA:HB1  | 2:U:498:LYS:HB3  | 1.95                     | 0.48              |
| 1:Z:91:ILE:O     | 1:a:9:ARG:NH1    | 2.45                     | 0.48              |
| 1:D:14:ARG:HE    | 1:D:84:LEU:HD21  | 1.78                     | 0.48              |
| 1:E:3:ILE:CG2    | 1:F:95:VAL:HA    | 2.14                     | 0.48              |
| 2:I:184:GLN:N    | 2:I:184:GLN:OE1  | 2.45                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:K:41:ASP:OD1   | 2:K:42:LYS:N     | 2.47                     | 0.48              |
| 2:P:234:LEU:O    | 2:P:236:VAL:N    | 2.45                     | 0.48              |
| 2:S:405:ALA:HB1  | 2:S:498:LYS:HB3  | 1.95                     | 0.48              |
| 1:Y:91:ILE:O     | 1:Z:9:ARG:NH1    | 2.45                     | 0.48              |
| 2:I:41:ASP:OD1   | 2:I:42:LYS:N     | 2.47                     | 0.48              |
| 1:1:96:GLU:H     | 1:G:3:ILE:HG23   | 1.78                     | 0.48              |
| 1:E:14:ARG:HE    | 1:E:84:LEU:HD21  | 1.78                     | 0.48              |
| 2:H:69:MET:HE2   | 2:I:39:VAL:HG12  | 1.94                     | 0.48              |
| 2:M:405:ALA:HB1  | 2:M:498:LYS:HB3  | 1.95                     | 0.48              |
| 1:W:94:ILE:CG1   | 1:X:4:ARG:O      | 2.55                     | 0.48              |
| 1:B:14:ARG:HE    | 1:B:84:LEU:HD21  | 1.78                     | 0.48              |
| 1:F:14:ARG:HE    | 1:F:84:LEU:HD21  | 1.78                     | 0.48              |
| 2:H:41:ASP:OD1   | 2:H:42:LYS:N     | 2.47                     | 0.48              |
| 2:H:305:ILE:HD11 | 2:I:203:TYR:CZ   | 2.41                     | 0.48              |
| 2:K:305:ILE:HD11 | 2:L:203:TYR:CZ   | 2.41                     | 0.48              |
| 2:L:41:ASP:OD1   | 2:L:42:LYS:N     | 2.47                     | 0.48              |
| 2:L:305:ILE:HD11 | 2:N:203:TYR:CZ   | 2.41                     | 0.48              |
| 2:P:314:LEU:HD12 | 2:P:315:GLU:N    | 2.29                     | 0.48              |
| 2:R:47:PRO:HB3   | 2:S:69:MET:HE2   | 1.94                     | 0.48              |
| 2:T:267:MET:SD   | 2:U:305:ILE:HG12 | 2.52                     | 0.48              |
| 2:I:69:MET:CE    | 2:J:39:VAL:CG1   | 2.86                     | 0.48              |
| 2:T:264:VAL:CB   | 2:U:305:ILE:C    | 2.85                     | 0.48              |
| 2:C:41:ASP:OD1   | 2:C:42:LYS:N     | 2.47                     | 0.48              |
| 1:G:14:ARG:HE    | 1:G:84:LEU:HD21  | 1.78                     | 0.48              |
| 2:M:128:VAL:HG13 | 2:M:501:ARG:HG3  | 1.96                     | 0.48              |
| 2:N:41:ASP:OD1   | 2:N:42:LYS:N     | 2.47                     | 0.48              |
| 2:T:128:VAL:HG13 | 2:T:501:ARG:HG3  | 1.96                     | 0.48              |
| 2:U:128:VAL:HG13 | 2:U:501:ARG:HG3  | 1.96                     | 0.48              |
| 2:U:314:LEU:HD12 | 2:U:315:GLU:N    | 2.29                     | 0.48              |
| 1:A:14:ARG:HE    | 1:A:84:LEU:HD21  | 1.78                     | 0.47              |
| 1:A:3:ILE:HG23   | 1:B:96:GLU:H     | 1.78                     | 0.47              |
| 2:N:265:ASN:OD1  | 1:a:26:VAL:HG13  | 2.14                     | 0.47              |
| 2:O:314:LEU:HD12 | 2:O:315:GLU:N    | 2.29                     | 0.47              |
| 1:1:14:ARG:HE    | 1:1:84:LEU:HD21  | 1.78                     | 0.47              |
| 1:F:48:ILE:HD11  | 1:G:55:LYS:HE2   | 1.96                     | 0.47              |
| 2:I:265:ASN:OD1  | 1:W:26:VAL:HG13  | 2.14                     | 0.47              |
| 2:L:265:ASN:OD1  | 1:Z:26:VAL:HG13  | 2.14                     | 0.47              |
| 2:M:305:ILE:C    | 2:U:264:VAL:CB   | 2.85                     | 0.47              |
| 2:O:64:ASP:O     | 2:O:68:ASN:N     | 2.40                     | 0.47              |
| 2:O:128:VAL:HG13 | 2:O:501:ARG:HG3  | 1.96                     | 0.47              |
| 1:Q:6:LEU:HD12   | 1:Q:6:LEU:O      | 2.15                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:S:293:ALA:O    | 2:S:297:GLY:N    | 2.48                     | 0.47              |
| 2:P:128:VAL:HG13 | 2:P:501:ARG:HG3  | 1.96                     | 0.47              |
| 1:1:55:LYS:HE2   | 1:G:48:ILE:HD11  | 1.96                     | 0.47              |
| 2:H:265:ASN:OD1  | 1:V:26:VAL:HG13  | 2.14                     | 0.47              |
| 1:Q:92:LEU:HB3   | 1:V:9:ARG:CD     | 2.25                     | 0.47              |
| 2:S:314:LEU:HD12 | 2:S:315:GLU:N    | 2.29                     | 0.47              |
| 2:T:293:ALA:O    | 2:T:297:GLY:N    | 2.48                     | 0.47              |
| 2:T:314:LEU:HD12 | 2:T:315:GLU:N    | 2.29                     | 0.47              |
| 2:C:203:TYR:CZ   | 2:N:305:ILE:HD11 | 2.41                     | 0.47              |
| 2:P:468:THR:OG1  | 2:P:485:TYR:OH   | 2.08                     | 0.47              |
| 1:W:6:LEU:HD12   | 1:W:6:LEU:O      | 2.15                     | 0.47              |
| 1:a:6:LEU:HD12   | 1:a:6:LEU:O      | 2.15                     | 0.47              |
| 1:1:9:ARG:HD2    | 1:A:92:LEU:O     | 2.15                     | 0.47              |
| 1:A:9:ARG:HD2    | 1:B:92:LEU:O     | 2.15                     | 0.47              |
| 1:B:9:ARG:HD2    | 1:D:92:LEU:O     | 2.15                     | 0.47              |
| 1:D:3:ILE:CG2    | 1:E:95:VAL:HA    | 2.14                     | 0.47              |
| 1:E:48:ILE:HD11  | 1:F:55:LYS:HE2   | 1.96                     | 0.47              |
| 2:M:314:LEU:HD12 | 2:M:315:GLU:N    | 2.29                     | 0.47              |
| 2:O:124:VAL:HG13 | 2:O:504:LEU:CD1  | 2.42                     | 0.47              |
| 2:O:264:VAL:CB   | 2:P:305:ILE:C    | 2.85                     | 0.47              |
| 2:R:128:VAL:HG13 | 2:R:501:ARG:HG3  | 1.96                     | 0.47              |
| 2:S:128:VAL:HG13 | 2:S:501:ARG:HG3  | 1.96                     | 0.47              |
| 2:S:178:GLU:OE1  | 2:S:378:VAL:HG13 | 2.15                     | 0.47              |
| 1:V:92:LEU:O     | 1:W:6:LEU:N      | 2.48                     | 0.47              |
| 1:W:66:ILE:HD11  | 1:X:3:ILE:CG2    | 2.34                     | 0.47              |
| 1:X:6:LEU:HD12   | 1:X:6:LEU:O      | 2.15                     | 0.47              |
| 1:B:3:ILE:CG2    | 1:D:95:VAL:HA    | 2.14                     | 0.47              |
| 2:M:264:VAL:CB   | 2:O:305:ILE:C    | 2.85                     | 0.47              |
| 2:R:314:LEU:HD12 | 2:R:315:GLU:N    | 2.29                     | 0.47              |
| 1:1:48:ILE:HD11  | 1:A:55:LYS:HE2   | 1.96                     | 0.47              |
| 2:M:267:MET:SD   | 2:O:305:ILE:HG12 | 2.52                     | 0.47              |
| 1:Q:6:LEU:N      | 1:a:92:LEU:O     | 2.48                     | 0.47              |
| 2:R:178:GLU:OE1  | 2:R:378:VAL:HG13 | 2.15                     | 0.47              |
| 2:R:293:ALA:O    | 2:R:297:GLY:N    | 2.48                     | 0.47              |
| 1:V:6:LEU:HD12   | 1:V:6:LEU:O      | 2.15                     | 0.47              |
| 1:X:92:LEU:O     | 1:Y:6:LEU:N      | 2.48                     | 0.47              |
| 1:a:88:GLU:O     | 1:a:91:ILE:HG22  | 2.15                     | 0.47              |
| 1:1:92:LEU:O     | 1:G:9:ARG:HD2    | 2.15                     | 0.47              |
| 2:J:177:VAL:HG11 | 2:J:397:GLU:HG3  | 1.97                     | 0.47              |
| 2:J:357:THR:HG21 | 2:J:361:ASP:CB   | 2.45                     | 0.47              |
| 1:Q:88:GLU:O     | 1:Q:91:ILE:HG22  | 2.15                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:S:267:MET:SD   | 2:T:305:ILE:HG12 | 2.52                     | 0.47              |
| 2:T:178:GLU:OE1  | 2:T:378:VAL:HG13 | 2.15                     | 0.47              |
| 1:Y:88:GLU:OE2   | 1:Z:7:HIS:CE1    | 2.63                     | 0.47              |
| 2:I:357:THR:HG21 | 2:I:361:ASP:CB   | 2.45                     | 0.46              |
| 2:J:265:ASN:OD1  | 1:X:26:VAL:HG13  | 2.14                     | 0.46              |
| 2:K:177:VAL:HG11 | 2:K:397:GLU:HG3  | 1.97                     | 0.46              |
| 2:K:265:ASN:OD1  | 1:Y:26:VAL:HG13  | 2.14                     | 0.46              |
| 1:W:23:GLY:H     | 1:X:77:LYS:HZ2   | 1.63                     | 0.46              |
| 1:Z:88:GLU:O     | 1:Z:91:ILE:HG22  | 2.15                     | 0.46              |
| 1:A:48:ILE:HD11  | 1:B:55:LYS:HE2   | 1.96                     | 0.46              |
| 2:C:305:ILE:HD11 | 2:H:203:TYR:CZ   | 2.41                     | 0.46              |
| 2:C:357:THR:HG21 | 2:C:361:ASP:CB   | 2.45                     | 0.46              |
| 2:K:147:VAL:HG12 | 2:K:494:LEU:HB2  | 1.97                     | 0.46              |
| 2:M:259:LEU:O    | 2:M:263:VAL:HG23 | 2.16                     | 0.46              |
| 2:S:64:ASP:O     | 2:S:68:ASN:N     | 2.40                     | 0.46              |
| 2:S:259:LEU:O    | 2:S:263:VAL:HG23 | 2.16                     | 0.46              |
| 2:S:267:MET:HG3  | 2:T:305:ILE:CB   | 2.45                     | 0.46              |
| 1:W:92:LEU:O     | 1:X:6:LEU:N      | 2.48                     | 0.46              |
| 2:I:73:MET:SD    | 2:J:49:ILE:HD11  | 2.56                     | 0.46              |
| 2:L:357:THR:HG21 | 2:L:361:ASP:CB   | 2.45                     | 0.46              |
| 2:M:178:GLU:OE1  | 2:M:378:VAL:HG13 | 2.15                     | 0.46              |
| 2:R:259:LEU:O    | 2:R:263:VAL:HG23 | 2.16                     | 0.46              |
| 2:U:178:GLU:OE1  | 2:U:378:VAL:HG13 | 2.15                     | 0.46              |
| 1:Y:88:GLU:O     | 1:Y:91:ILE:HG22  | 2.15                     | 0.46              |
| 1:Z:6:LEU:HD12   | 1:Z:6:LEU:O      | 2.15                     | 0.46              |
| 1:Z:92:LEU:O     | 1:a:6:LEU:N      | 2.48                     | 0.46              |
| 1:B:48:ILE:HD11  | 1:D:55:LYS:HE2   | 1.96                     | 0.46              |
| 2:C:73:MET:SD    | 2:H:49:ILE:HD11  | 2.56                     | 0.46              |
| 1:E:9:ARG:HD2    | 1:F:92:LEU:O     | 2.15                     | 0.46              |
| 2:H:419:LEU:HD21 | 2:H:500:THR:HG23 | 1.98                     | 0.46              |
| 2:J:147:VAL:HG12 | 2:J:494:LEU:HB2  | 1.97                     | 0.46              |
| 2:K:419:LEU:HD21 | 2:K:500:THR:HG23 | 1.98                     | 0.46              |
| 2:M:76:GLU:CD    | 2:U:387:VAL:CG1  | 2.71                     | 0.46              |
| 2:O:178:GLU:OE1  | 2:O:378:VAL:HG13 | 2.15                     | 0.46              |
| 1:I:95:VAL:HA    | 1:G:3:ILE:CG2    | 2.14                     | 0.46              |
| 1:D:48:ILE:HD11  | 1:E:55:LYS:HE2   | 1.96                     | 0.46              |
| 1:F:9:ARG:HD2    | 1:G:92:LEU:O     | 2.15                     | 0.46              |
| 2:O:293:ALA:O    | 2:O:297:GLY:N    | 2.48                     | 0.46              |
| 2:P:178:GLU:OE1  | 2:P:378:VAL:HG13 | 2.15                     | 0.46              |
| 2:U:124:VAL:HG13 | 2:U:504:LEU:CD1  | 2.42                     | 0.46              |
| 1:V:88:GLU:O     | 1:V:91:ILE:HG22  | 2.15                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:265:ASN:OD1  | 1:Q:26:VAL:HG13  | 2.14                     | 0.46              |
| 2:K:73:MET:SD    | 2:L:49:ILE:HD11  | 2.56                     | 0.46              |
| 2:N:140:ASP:OD1  | 2:N:140:ASP:N    | 2.49                     | 0.46              |
| 2:T:259:LEU:O    | 2:T:263:VAL:HG23 | 2.16                     | 0.46              |
| 2:U:293:ALA:O    | 2:U:297:GLY:N    | 2.48                     | 0.46              |
| 1:X:88:GLU:O     | 1:X:91:ILE:HG22  | 2.15                     | 0.46              |
| 2:C:147:VAL:HG12 | 2:C:494:LEU:HB2  | 1.97                     | 0.46              |
| 2:I:419:LEU:HD21 | 2:I:500:THR:HG23 | 1.98                     | 0.46              |
| 2:J:419:LEU:HD21 | 2:J:500:THR:HG23 | 1.98                     | 0.46              |
| 2:L:147:VAL:HG12 | 2:L:494:LEU:HB2  | 1.97                     | 0.46              |
| 2:M:182:GLY:O    | 2:M:183:LEU:HD23 | 2.16                     | 0.46              |
| 2:M:293:ALA:O    | 2:M:297:GLY:N    | 2.48                     | 0.46              |
| 2:N:357:THR:HG21 | 2:N:361:ASP:CB   | 2.45                     | 0.46              |
| 2:R:182:GLY:O    | 2:R:183:LEU:HD23 | 2.16                     | 0.46              |
| 1:W:88:GLU:O     | 1:W:91:ILE:HG22  | 2.15                     | 0.46              |
| 2:C:419:LEU:HD21 | 2:C:500:THR:HG23 | 1.98                     | 0.46              |
| 2:H:73:MET:SD    | 2:I:49:ILE:HD11  | 2.56                     | 0.46              |
| 2:I:177:VAL:HG11 | 2:I:397:GLU:HG3  | 1.97                     | 0.46              |
| 2:L:73:MET:SD    | 2:N:49:ILE:HD11  | 2.56                     | 0.46              |
| 2:L:419:LEU:HD21 | 2:L:500:THR:HG23 | 1.98                     | 0.46              |
| 2:M:267:MET:HG3  | 2:O:305:ILE:CB   | 2.45                     | 0.46              |
| 1:Q:92:LEU:O     | 1:V:6:LEU:N      | 2.48                     | 0.46              |
| 2:T:267:MET:HG3  | 2:U:305:ILE:CB   | 2.45                     | 0.46              |
| 1:Y:6:LEU:HD12   | 1:Y:6:LEU:O      | 2.15                     | 0.46              |
| 1:1:7:HIS:O      | 1:1:8:ASP:HB3    | 2.16                     | 0.46              |
| 2:H:147:VAL:HG12 | 2:H:494:LEU:HB2  | 1.97                     | 0.46              |
| 2:J:73:MET:SD    | 2:K:49:ILE:HD11  | 2.56                     | 0.46              |
| 2:K:357:THR:HG21 | 2:K:361:ASP:CB   | 2.45                     | 0.46              |
| 2:P:64:ASP:O     | 2:P:68:ASN:N     | 2.40                     | 0.46              |
| 2:S:182:GLY:O    | 2:S:183:LEU:HD23 | 2.16                     | 0.46              |
| 1:F:7:HIS:O      | 1:F:8:ASP:HB3    | 2.16                     | 0.46              |
| 2:O:259:LEU:O    | 2:O:263:VAL:HG23 | 2.16                     | 0.46              |
| 2:P:182:GLY:O    | 2:P:183:LEU:HD23 | 2.16                     | 0.46              |
| 2:P:259:LEU:O    | 2:P:263:VAL:HG23 | 2.16                     | 0.46              |
| 2:P:293:ALA:O    | 2:P:297:GLY:N    | 2.48                     | 0.46              |
| 1:W:92:LEU:HB3   | 1:X:9:ARG:CD     | 2.25                     | 0.46              |
| 1:D:9:ARG:HD2    | 1:E:92:LEU:O     | 2.15                     | 0.45              |
| 2:H:357:THR:HG21 | 2:H:361:ASP:CB   | 2.45                     | 0.45              |
| 2:U:64:ASP:O     | 2:U:68:ASN:N     | 2.40                     | 0.45              |
| 2:U:259:LEU:O    | 2:U:263:VAL:HG23 | 2.16                     | 0.45              |
| 1:Y:92:LEU:O     | 1:Z:6:LEU:N      | 2.48                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:140:ASP:OD1  | 2:C:140:ASP:N    | 2.49                     | 0.45              |
| 2:M:305:ILE:CB   | 2:U:267:MET:HG3  | 2.45                     | 0.45              |
| 1:V:94:ILE:CG1   | 1:W:4:ARG:O      | 2.55                     | 0.45              |
| 2:T:182:GLY:O    | 2:T:183:LEU:HD23 | 2.16                     | 0.45              |
| 2:C:49:ILE:HD11  | 2:N:73:MET:SD    | 2.56                     | 0.45              |
| 2:J:287:ALA:HA   | 2:J:290:GLN:HG2  | 1.99                     | 0.45              |
| 2:M:522:THR:OG1  | 2:M:523:ASP:N    | 2.50                     | 0.45              |
| 2:U:522:THR:OG1  | 2:U:523:ASP:N    | 2.50                     | 0.45              |
| 2:C:177:VAL:HG11 | 2:C:397:GLU:HG3  | 1.97                     | 0.45              |
| 2:K:287:ALA:HA   | 2:K:290:GLN:HG2  | 1.99                     | 0.45              |
| 2:L:177:VAL:HG11 | 2:L:397:GLU:HG3  | 1.97                     | 0.45              |
| 2:N:147:VAL:HG12 | 2:N:494:LEU:HB2  | 1.97                     | 0.45              |
| 2:R:522:THR:OG1  | 2:R:523:ASP:N    | 2.50                     | 0.45              |
| 1:Z:88:GLU:OE2   | 1:a:7:HIS:CE1    | 2.63                     | 0.45              |
| 2:I:287:ALA:HA   | 2:I:290:GLN:HG2  | 1.99                     | 0.45              |
| 2:N:177:VAL:HG11 | 2:N:397:GLU:HG3  | 1.97                     | 0.45              |
| 2:S:205:ILE:HG22 | 2:S:206:ASN:O    | 2.17                     | 0.45              |
| 1:1:6:LEU:CD1    | 1:A:91:ILE:HG21  | 2.47                     | 0.45              |
| 2:H:287:ALA:HA   | 2:H:290:GLN:HG2  | 1.99                     | 0.45              |
| 2:S:522:THR:OG1  | 2:S:523:ASP:N    | 2.50                     | 0.45              |
| 2:C:287:ALA:HA   | 2:C:290:GLN:HG2  | 1.99                     | 0.45              |
| 1:G:7:HIS:O      | 1:G:8:ASP:HB3    | 2.16                     | 0.45              |
| 2:U:266:THR:HG21 | 2:U:273:VAL:HB   | 1.99                     | 0.45              |
| 1:1:91:ILE:HG21  | 1:G:6:LEU:CD1    | 2.47                     | 0.45              |
| 1:A:6:LEU:CD1    | 1:B:91:ILE:HG21  | 2.47                     | 0.45              |
| 2:H:458:CYS:SG   | 2:H:480:ALA:HB1  | 2.57                     | 0.45              |
| 2:R:205:ILE:HG22 | 2:R:206:ASN:O    | 2.17                     | 0.45              |
| 2:C:458:CYS:SG   | 2:C:480:ALA:HB1  | 2.57                     | 0.45              |
| 2:N:287:ALA:HA   | 2:N:290:GLN:HG2  | 1.99                     | 0.45              |
| 2:O:182:GLY:O    | 2:O:183:LEU:HD23 | 2.16                     | 0.45              |
| 2:T:522:THR:OG1  | 2:T:523:ASP:N    | 2.50                     | 0.45              |
| 1:A:7:HIS:O      | 1:A:8:ASP:HB3    | 2.16                     | 0.44              |
| 1:F:6:LEU:CD1    | 1:G:91:ILE:HG21  | 2.47                     | 0.44              |
| 2:K:458:CYS:SG   | 2:K:480:ALA:HB1  | 2.57                     | 0.44              |
| 2:L:287:ALA:HA   | 2:L:290:GLN:HG2  | 1.99                     | 0.44              |
| 2:M:205:ILE:HG22 | 2:M:206:ASN:O    | 2.17                     | 0.44              |
| 2:R:267:MET:SD   | 2:S:305:ILE:HG12 | 2.52                     | 0.44              |
| 2:T:205:ILE:HG22 | 2:T:206:ASN:O    | 2.17                     | 0.44              |
| 2:T:260:ALA:CB   | 2:U:304:GLU:CD   | 2.80                     | 0.44              |
| 1:D:7:HIS:O      | 1:D:8:ASP:HB3    | 2.16                     | 0.44              |
| 2:H:177:VAL:HG11 | 2:H:397:GLU:HG3  | 1.97                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:M:266:THR:HG21 | 2:M:273:VAL:HB   | 1.99                     | 0.44              |
| 2:R:266:THR:HG21 | 2:R:273:VAL:HB   | 1.99                     | 0.44              |
| 2:T:266:THR:HG21 | 2:T:273:VAL:HB   | 1.99                     | 0.44              |
| 1:B:7:HIS:O      | 1:B:8:ASP:HB3    | 2.16                     | 0.44              |
| 1:B:9:ARG:NE     | 1:D:92:LEU:HA    | 2.33                     | 0.44              |
| 2:J:458:CYS:SG   | 2:J:480:ALA:HB1  | 2.57                     | 0.44              |
| 2:M:305:ILE:HG12 | 2:U:267:MET:SD   | 2.52                     | 0.44              |
| 2:N:458:CYS:SG   | 2:N:480:ALA:HB1  | 2.57                     | 0.44              |
| 2:P:266:THR:HG21 | 2:P:273:VAL:HB   | 1.99                     | 0.44              |
| 2:S:241:ALA:CA   | 2:S:271:VAL:HG11 | 2.47                     | 0.44              |
| 2:U:205:ILE:HG22 | 2:U:206:ASN:O    | 2.17                     | 0.44              |
| 1:E:9:ARG:NE     | 1:F:92:LEU:HA    | 2.33                     | 0.44              |
| 1:F:74:LYS:HG3   | 1:G:92:LEU:HD11  | 1.99                     | 0.44              |
| 2:H:140:ASP:OD1  | 2:H:140:ASP:N    | 2.49                     | 0.44              |
| 2:I:147:VAL:HG12 | 2:I:494:LEU:HB2  | 1.97                     | 0.44              |
| 2:I:208:PRO:HB2  | 2:I:212:ALA:HB3  | 2.00                     | 0.44              |
| 2:K:509:SER:OG   | 2:L:388:GLU:OE1  | 2.25                     | 0.44              |
| 2:L:458:CYS:SG   | 2:L:480:ALA:HB1  | 2.57                     | 0.44              |
| 2:O:522:THR:OG1  | 2:O:523:ASP:N    | 2.50                     | 0.44              |
| 2:P:522:THR:OG1  | 2:P:523:ASP:N    | 2.50                     | 0.44              |
| 1:1:92:LEU:HA    | 1:G:9:ARG:NE     | 2.33                     | 0.44              |
| 1:A:3:ILE:CG2    | 1:B:95:VAL:CA    | 2.87                     | 0.44              |
| 1:B:6:LEU:CD1    | 1:D:91:ILE:HG21  | 2.47                     | 0.44              |
| 1:E:6:LEU:CD1    | 1:F:91:ILE:HG21  | 2.47                     | 0.44              |
| 1:E:74:LYS:HG3   | 1:F:92:LEU:HD11  | 1.99                     | 0.44              |
| 2:J:140:ASP:OD1  | 2:J:140:ASP:N    | 2.49                     | 0.44              |
| 2:N:419:LEU:HD21 | 2:N:500:THR:HG23 | 1.98                     | 0.44              |
| 2:U:182:GLY:O    | 2:U:183:LEU:HD23 | 2.16                     | 0.44              |
| 1:Y:15:LYS:NZ    | 1:Y:39:GLU:OE1   | 2.42                     | 0.44              |
| 1:D:74:LYS:HG3   | 1:E:92:LEU:HD11  | 1.99                     | 0.44              |
| 2:H:208:PRO:HB2  | 2:H:212:ALA:HB3  | 2.00                     | 0.44              |
| 2:I:461:GLU:OE1  | 2:I:464:VAL:HG21 | 2.18                     | 0.44              |
| 2:K:208:PRO:HB2  | 2:K:212:ALA:HB3  | 1.99                     | 0.44              |
| 2:L:208:PRO:HB2  | 2:L:212:ALA:HB3  | 1.99                     | 0.44              |
| 2:O:264:VAL:N    | 2:P:304:GLU:O    | 2.31                     | 0.44              |
| 2:R:241:ALA:CA   | 2:R:271:VAL:HG11 | 2.47                     | 0.44              |
| 2:C:461:GLU:OE1  | 2:C:464:VAL:HG21 | 2.18                     | 0.44              |
| 2:H:461:GLU:OE1  | 2:H:464:VAL:HG21 | 2.18                     | 0.44              |
| 2:L:461:GLU:OE1  | 2:L:464:VAL:HG21 | 2.18                     | 0.44              |
| 1:X:43:VAL:HG22  | 1:X:44:GLY:N     | 2.33                     | 0.44              |
| 1:X:88:GLU:OE2   | 1:Y:7:HIS:CE1    | 2.63                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:92:LEU:HD11  | 1:G:74:LYS:HG3   | 1.99                     | 0.44              |
| 2:I:458:CYS:SG   | 2:I:480:ALA:HB1  | 2.57                     | 0.44              |
| 2:J:281:PHE:O    | 2:J:285:ARG:N    | 2.40                     | 0.44              |
| 2:R:166:MET:HE1  | 2:R:407:VAL:HG21 | 2.00                     | 0.44              |
| 2:N:20:VAL:HG22  | 2:N:74:VAL:CG1   | 2.48                     | 0.44              |
| 2:O:280:GLY:O    | 2:O:285:ARG:NH2  | 2.51                     | 0.44              |
| 2:R:280:GLY:O    | 2:R:285:ARG:NH2  | 2.51                     | 0.44              |
| 2:S:166:MET:HE1  | 2:S:407:VAL:HG21 | 2.00                     | 0.44              |
| 1:W:43:VAL:HG22  | 1:W:44:GLY:N     | 2.33                     | 0.44              |
| 1:Y:43:VAL:HG22  | 1:Y:44:GLY:N     | 2.33                     | 0.44              |
| 1:Z:43:VAL:HG22  | 1:Z:44:GLY:N     | 2.33                     | 0.44              |
| 1:E:7:HIS:O      | 1:E:8:ASP:HB3    | 2.16                     | 0.43              |
| 2:H:392:LYS:O    | 2:H:396:VAL:HG23 | 2.18                     | 0.43              |
| 2:K:461:GLU:OE1  | 2:K:464:VAL:HG21 | 2.18                     | 0.43              |
| 2:L:20:VAL:HG22  | 2:L:74:VAL:CG1   | 2.48                     | 0.43              |
| 2:L:392:LYS:O    | 2:L:396:VAL:HG23 | 2.19                     | 0.43              |
| 1:B:74:LYS:HG3   | 1:D:92:LEU:HD11  | 1.99                     | 0.43              |
| 2:I:140:ASP:OD1  | 2:I:140:ASP:N    | 2.49                     | 0.43              |
| 2:K:392:LYS:O    | 2:K:396:VAL:HG23 | 2.18                     | 0.43              |
| 2:M:264:VAL:N    | 2:O:304:GLU:O    | 2.31                     | 0.43              |
| 2:P:166:MET:HE1  | 2:P:407:VAL:HG21 | 2.00                     | 0.43              |
| 1:B:3:ILE:CG2    | 1:D:95:VAL:CA    | 2.87                     | 0.43              |
| 2:C:20:VAL:HG22  | 2:C:74:VAL:CG1   | 2.48                     | 0.43              |
| 2:C:208:PRO:HB2  | 2:C:212:ALA:HB3  | 2.00                     | 0.43              |
| 2:N:461:GLU:OE1  | 2:N:464:VAL:HG21 | 2.18                     | 0.43              |
| 2:O:166:MET:HE1  | 2:O:407:VAL:HG21 | 2.00                     | 0.43              |
| 2:O:205:ILE:HG22 | 2:O:206:ASN:O    | 2.17                     | 0.43              |
| 2:O:266:THR:HG21 | 2:O:273:VAL:HB   | 1.99                     | 0.43              |
| 2:R:39:VAL:HG12  | 2:S:69:MET:SD    | 2.36                     | 0.43              |
| 2:H:257:GLU:OE1  | 2:H:258:ALA:N    | 2.52                     | 0.43              |
| 2:M:166:MET:HE1  | 2:M:407:VAL:HG21 | 2.00                     | 0.43              |
| 2:N:208:PRO:HB2  | 2:N:212:ALA:HB3  | 2.00                     | 0.43              |
| 2:S:266:THR:HG21 | 2:S:273:VAL:HB   | 1.99                     | 0.43              |
| 2:T:166:MET:HE1  | 2:T:407:VAL:HG21 | 2.00                     | 0.43              |
| 2:U:219:PHE:O    | 2:U:247:LEU:HD12 | 2.19                     | 0.43              |
| 2:C:257:GLU:OE1  | 2:C:258:ALA:N    | 2.52                     | 0.43              |
| 1:D:3:ILE:CG2    | 1:E:95:VAL:CA    | 2.87                     | 0.43              |
| 2:J:208:PRO:HB2  | 2:J:212:ALA:HB3  | 2.00                     | 0.43              |
| 2:N:257:GLU:OE1  | 2:N:258:ALA:N    | 2.52                     | 0.43              |
| 2:P:205:ILE:HG22 | 2:P:206:ASN:O    | 2.17                     | 0.43              |
| 1:Q:43:VAL:HG22  | 1:Q:44:GLY:N     | 2.33                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:T:219:PHE:O    | 2:T:247:LEU:HD12 | 2.19                     | 0.43              |
| 1:V:43:VAL:HG22  | 1:V:44:GLY:N     | 2.33                     | 0.43              |
| 1:E:25:ILE:C     | 1:E:25:ILE:HD12  | 2.44                     | 0.43              |
| 2:J:20:VAL:HG22  | 2:J:74:VAL:CG1   | 2.48                     | 0.43              |
| 2:J:461:GLU:OE1  | 2:J:464:VAL:HG21 | 2.18                     | 0.43              |
| 2:K:257:GLU:OE1  | 2:K:258:ALA:N    | 2.52                     | 0.43              |
| 2:M:219:PHE:O    | 2:M:247:LEU:HD12 | 2.19                     | 0.43              |
| 2:N:392:LYS:O    | 2:N:396:VAL:HG23 | 2.18                     | 0.43              |
| 2:O:473:ASP:OD1  | 2:O:474:GLY:N    | 2.51                     | 0.43              |
| 1:a:43:VAL:HG22  | 1:a:44:GLY:N     | 2.33                     | 0.43              |
| 1:A:25:ILE:C     | 1:A:25:ILE:HD12  | 2.44                     | 0.43              |
| 1:B:25:ILE:C     | 1:B:25:ILE:HD12  | 2.44                     | 0.43              |
| 2:I:257:GLU:OE1  | 2:I:258:ALA:N    | 2.52                     | 0.43              |
| 2:J:257:GLU:OE1  | 2:J:258:ALA:N    | 2.52                     | 0.43              |
| 2:L:257:GLU:OE1  | 2:L:258:ALA:N    | 2.52                     | 0.43              |
| 2:N:281:PHE:O    | 2:N:285:ARG:N    | 2.40                     | 0.43              |
| 2:T:280:GLY:O    | 2:T:285:ARG:NH2  | 2.51                     | 0.43              |
| 2:U:166:MET:HE1  | 2:U:407:VAL:HG21 | 2.00                     | 0.43              |
| 1:1:25:ILE:C     | 1:1:25:ILE:HD12  | 2.44                     | 0.43              |
| 1:1:92:LEU:CA    | 1:G:9:ARG:HD3    | 2.43                     | 0.43              |
| 1:A:9:ARG:NE     | 1:B:92:LEU:HA    | 2.33                     | 0.43              |
| 2:C:305:ILE:CG2  | 2:C:306:GLY:N    | 2.82                     | 0.43              |
| 2:C:392:LYS:O    | 2:C:396:VAL:HG23 | 2.18                     | 0.43              |
| 2:H:20:VAL:HG22  | 2:H:74:VAL:CG1   | 2.48                     | 0.43              |
| 2:I:392:LYS:O    | 2:I:396:VAL:HG23 | 2.18                     | 0.43              |
| 2:J:392:LYS:O    | 2:J:396:VAL:HG23 | 2.19                     | 0.43              |
| 2:K:305:ILE:CG2  | 2:K:306:GLY:N    | 2.82                     | 0.43              |
| 2:M:169:VAL:HG11 | 2:M:377:ALA:HB2  | 2.01                     | 0.43              |
| 2:M:268:ARG:N    | 2:M:269:GLY:HA2  | 2.34                     | 0.43              |
| 2:M:434:GLU:O    | 2:M:438:VAL:HG23 | 2.19                     | 0.43              |
| 2:P:434:GLU:O    | 2:P:438:VAL:HG23 | 2.19                     | 0.43              |
| 2:S:310:GLU:OE1  | 2:S:310:GLU:N    | 2.52                     | 0.43              |
| 2:T:310:GLU:OE1  | 2:T:310:GLU:N    | 2.52                     | 0.43              |
| 2:U:310:GLU:OE1  | 2:U:310:GLU:N    | 2.52                     | 0.43              |
| 2:K:20:VAL:HG22  | 2:K:74:VAL:CG1   | 2.48                     | 0.43              |
| 2:M:77:VAL:HG13  | 2:M:78:ALA:N     | 2.34                     | 0.43              |
| 2:O:268:ARG:N    | 2:O:269:GLY:HA2  | 2.34                     | 0.43              |
| 2:O:434:GLU:O    | 2:O:438:VAL:HG23 | 2.19                     | 0.43              |
| 2:P:39:VAL:CG1   | 2:R:69:MET:HE2   | 2.48                     | 0.43              |
| 2:P:219:PHE:O    | 2:P:247:LEU:HD12 | 2.19                     | 0.43              |
| 2:U:268:ARG:N    | 2:U:269:GLY:HA2  | 2.34                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:J:177:VAL:HG11 | 2:J:397:GLU:CG   | 2.49                     | 0.43              |
| 2:M:310:GLU:OE1  | 2:M:310:GLU:N    | 2.52                     | 0.43              |
| 2:M:473:ASP:OD1  | 2:M:474:GLY:N    | 2.51                     | 0.43              |
| 2:N:305:ILE:CG2  | 2:N:306:GLY:N    | 2.82                     | 0.43              |
| 2:P:473:ASP:OD1  | 2:P:474:GLY:N    | 2.51                     | 0.43              |
| 1:Q:7:HIS:CE1    | 1:a:88:GLU:OE2   | 2.63                     | 0.43              |
| 1:Q:88:GLU:CD    | 1:V:7:HIS:CE1    | 2.97                     | 0.43              |
| 2:R:434:GLU:O    | 2:R:438:VAL:HG23 | 2.19                     | 0.43              |
| 2:S:77:VAL:HG13  | 2:S:78:ALA:N     | 2.34                     | 0.43              |
| 2:T:268:ARG:N    | 2:T:269:GLY:HA2  | 2.34                     | 0.43              |
| 2:U:280:GLY:O    | 2:U:285:ARG:NH2  | 2.51                     | 0.43              |
| 1:V:88:GLU:CD    | 1:W:7:HIS:CE1    | 2.97                     | 0.43              |
| 1:Z:88:GLU:CD    | 1:a:7:HIS:CE1    | 2.97                     | 0.43              |
| 1:D:6:LEU:CD1    | 1:E:91:ILE:HG21  | 2.47                     | 0.42              |
| 1:E:6:LEU:HD12   | 1:F:91:ILE:HG21  | 1.96                     | 0.42              |
| 1:E:9:ARG:HD3    | 1:F:92:LEU:CA    | 2.43                     | 0.42              |
| 2:N:177:VAL:HG11 | 2:N:397:GLU:CG   | 2.49                     | 0.42              |
| 2:R:169:VAL:HG11 | 2:R:377:ALA:HB2  | 2.01                     | 0.42              |
| 2:R:219:PHE:O    | 2:R:247:LEU:HD12 | 2.19                     | 0.42              |
| 2:S:473:ASP:OD1  | 2:S:474:GLY:N    | 2.51                     | 0.42              |
| 1:Y:88:GLU:CD    | 1:Z:7:HIS:CE1    | 2.97                     | 0.42              |
| 1:B:9:ARG:HD3    | 1:D:92:LEU:CA    | 2.43                     | 0.42              |
| 1:B:18:GLU:O     | 1:B:19:THR:C     | 2.63                     | 0.42              |
| 1:D:25:ILE:C     | 1:D:25:ILE:HD12  | 2.44                     | 0.42              |
| 2:I:177:VAL:HG11 | 2:I:397:GLU:CG   | 2.49                     | 0.42              |
| 2:K:177:VAL:HG11 | 2:K:397:GLU:CG   | 2.49                     | 0.42              |
| 2:L:509:SER:OG   | 2:N:388:GLU:OE1  | 2.25                     | 0.42              |
| 2:M:280:GLY:O    | 2:M:285:ARG:NH2  | 2.51                     | 0.42              |
| 2:O:310:GLU:OE1  | 2:O:310:GLU:N    | 2.52                     | 0.42              |
| 1:W:88:GLU:OE2   | 1:X:7:HIS:CE1    | 2.63                     | 0.42              |
| 1:A:74:LYS:HG3   | 1:B:92:LEU:HD11  | 1.99                     | 0.42              |
| 2:L:305:ILE:CG2  | 2:L:306:GLY:N    | 2.82                     | 0.42              |
| 2:P:280:GLY:O    | 2:P:285:ARG:NH2  | 2.51                     | 0.42              |
| 2:R:473:ASP:OD1  | 2:R:474:GLY:N    | 2.51                     | 0.42              |
| 2:S:260:ALA:CB   | 2:T:304:GLU:CD   | 2.80                     | 0.42              |
| 2:S:280:GLY:O    | 2:S:285:ARG:NH2  | 2.51                     | 0.42              |
| 2:U:77:VAL:HG13  | 2:U:78:ALA:N     | 2.34                     | 0.42              |
| 2:U:473:ASP:OD1  | 2:U:474:GLY:N    | 2.51                     | 0.42              |
| 1:W:88:GLU:CD    | 1:X:7:HIS:CE1    | 2.97                     | 0.42              |
| 1:F:25:ILE:C     | 1:F:25:ILE:HD12  | 2.44                     | 0.42              |
| 2:H:177:VAL:HG11 | 2:H:397:GLU:CG   | 2.49                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:H:305:ILE:CG2  | 2:H:306:GLY:N    | 2.82                     | 0.42              |
| 2:J:305:ILE:CG2  | 2:J:306:GLY:N    | 2.82                     | 0.42              |
| 2:P:174:VAL:HG23 | 2:P:370:ALA:HB2  | 2.01                     | 0.42              |
| 1:Q:7:HIS:CE1    | 1:a:88:GLU:CD    | 2.97                     | 0.42              |
| 2:T:434:GLU:O    | 2:T:438:VAL:HG23 | 2.19                     | 0.42              |
| 2:T:473:ASP:OD1  | 2:T:474:GLY:N    | 2.51                     | 0.42              |
| 1:A:18:GLU:O     | 1:A:19:THR:C     | 2.63                     | 0.42              |
| 1:F:9:ARG:NE     | 1:G:92:LEU:HA    | 2.33                     | 0.42              |
| 2:O:169:VAL:HG11 | 2:O:377:ALA:HB2  | 2.01                     | 0.42              |
| 2:R:77:VAL:HG13  | 2:R:78:ALA:N     | 2.34                     | 0.42              |
| 2:R:230:ILE:HD12 | 2:R:230:ILE:H    | 1.83                     | 0.42              |
| 2:S:219:PHE:O    | 2:S:247:LEU:HD12 | 2.19                     | 0.42              |
| 2:U:169:VAL:HG11 | 2:U:377:ALA:HB2  | 2.01                     | 0.42              |
| 1:D:9:ARG:NE     | 1:E:92:LEU:HA    | 2.33                     | 0.42              |
| 1:F:57:LEU:HD22  | 1:F:57:LEU:H     | 1.85                     | 0.42              |
| 2:K:342:ILE:HG23 | 2:K:345:ARG:HH21 | 1.85                     | 0.42              |
| 2:M:69:MET:HE2   | 2:U:39:VAL:CG1   | 2.48                     | 0.42              |
| 2:N:325:ILE:HG12 | 2:N:330:THR:HG23 | 2.01                     | 0.42              |
| 2:O:10:ASN:O     | 2:O:14:VAL:HG23  | 2.20                     | 0.42              |
| 2:O:77:VAL:HG13  | 2:O:78:ALA:N     | 2.34                     | 0.42              |
| 2:O:174:VAL:HG23 | 2:O:370:ALA:HB2  | 2.01                     | 0.42              |
| 2:R:174:VAL:HG23 | 2:R:370:ALA:HB2  | 2.01                     | 0.42              |
| 2:S:169:VAL:HG11 | 2:S:377:ALA:HB2  | 2.01                     | 0.42              |
| 2:T:77:VAL:HG13  | 2:T:78:ALA:N     | 2.34                     | 0.42              |
| 2:T:174:VAL:HG23 | 2:T:370:ALA:HB2  | 2.01                     | 0.42              |
| 1:I:74:LYS:HG3   | 1:A:92:LEU:HD11  | 1.99                     | 0.42              |
| 2:C:325:ILE:HG12 | 2:C:330:THR:HG23 | 2.01                     | 0.42              |
| 1:G:57:LEU:HD22  | 1:G:57:LEU:H     | 1.85                     | 0.42              |
| 2:I:20:VAL:HG22  | 2:I:74:VAL:CG1   | 2.48                     | 0.42              |
| 2:I:342:ILE:HG23 | 2:I:345:ARG:HH21 | 1.85                     | 0.42              |
| 2:I:357:THR:HG21 | 2:I:361:ASP:HB3  | 2.02                     | 0.42              |
| 2:K:69:MET:HE3   | 2:L:39:VAL:HG12  | 1.99                     | 0.42              |
| 2:L:342:ILE:HG23 | 2:L:345:ARG:HH21 | 1.85                     | 0.42              |
| 2:O:219:PHE:O    | 2:O:247:LEU:HD12 | 2.19                     | 0.42              |
| 2:P:169:VAL:HG11 | 2:P:377:ALA:HB2  | 2.01                     | 0.42              |
| 2:P:310:GLU:OE1  | 2:P:310:GLU:N    | 2.52                     | 0.42              |
| 2:S:234:LEU:CB   | 2:S:235:PRO:CD   | 2.98                     | 0.42              |
| 2:T:39:VAL:CG1   | 2:U:69:MET:HE2   | 2.48                     | 0.42              |
| 2:U:174:VAL:HG23 | 2:U:370:ALA:HB2  | 2.01                     | 0.42              |
| 2:U:434:GLU:O    | 2:U:438:VAL:HG23 | 2.19                     | 0.42              |
| 1:X:15:LYS:NZ    | 1:X:39:GLU:OE1   | 2.42                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:18:GLU:O     | 1:D:19:THR:C     | 2.62                     | 0.42              |
| 2:J:342:ILE:HG23 | 2:J:345:ARG:HH21 | 1.85                     | 0.42              |
| 2:L:177:VAL:HG11 | 2:L:397:GLU:CG   | 2.49                     | 0.42              |
| 2:L:281:PHE:O    | 2:L:285:ARG:N    | 2.40                     | 0.42              |
| 2:O:230:ILE:HD12 | 2:O:230:ILE:H    | 1.84                     | 0.42              |
| 2:P:30:THR:O     | 2:P:51:LYS:NZ    | 2.45                     | 0.42              |
| 2:P:268:ARG:N    | 2:P:269:GLY:HA2  | 2.34                     | 0.42              |
| 2:R:260:ALA:CB   | 2:S:304:GLU:CD   | 2.81                     | 0.42              |
| 2:S:10:ASN:O     | 2:S:14:VAL:HG23  | 2.20                     | 0.42              |
| 2:S:174:VAL:HG23 | 2:S:370:ALA:HB2  | 2.01                     | 0.42              |
| 2:T:10:ASN:O     | 2:T:14:VAL:HG23  | 2.20                     | 0.42              |
| 2:C:342:ILE:HG23 | 2:C:345:ARG:HH21 | 1.85                     | 0.42              |
| 2:J:357:THR:HG21 | 2:J:361:ASP:HB3  | 2.02                     | 0.42              |
| 2:L:69:MET:HE3   | 2:N:39:VAL:HG12  | 1.99                     | 0.42              |
| 1:X:88:GLU:CD    | 1:Y:7:HIS:CE1    | 2.97                     | 0.42              |
| 2:C:177:VAL:HG11 | 2:C:397:GLU:CG   | 2.49                     | 0.42              |
| 2:H:325:ILE:HG12 | 2:H:330:THR:HG23 | 2.01                     | 0.42              |
| 2:H:357:THR:HG21 | 2:H:361:ASP:HB3  | 2.02                     | 0.42              |
| 2:I:305:ILE:CG2  | 2:I:306:GLY:N    | 2.82                     | 0.42              |
| 2:M:230:ILE:HD12 | 2:M:230:ILE:H    | 1.84                     | 0.42              |
| 2:N:342:ILE:HG23 | 2:N:345:ARG:HH21 | 1.85                     | 0.42              |
| 2:O:39:VAL:CG1   | 2:P:69:MET:HE2   | 2.48                     | 0.42              |
| 2:S:268:ARG:N    | 2:S:269:GLY:HA2  | 2.34                     | 0.42              |
| 1:A:6:LEU:HD12   | 1:B:91:ILE:HG21  | 1.96                     | 0.41              |
| 1:G:25:ILE:C     | 1:G:25:ILE:HD12  | 2.44                     | 0.41              |
| 2:H:342:ILE:HG23 | 2:H:345:ARG:HH21 | 1.85                     | 0.41              |
| 2:I:281:PHE:O    | 2:I:285:ARG:N    | 2.40                     | 0.41              |
| 2:M:36:ARG:HB2   | 2:O:518:GLU:HB2  | 2.02                     | 0.41              |
| 2:P:77:VAL:HG13  | 2:P:78:ALA:N     | 2.34                     | 0.41              |
| 2:R:267:MET:HG3  | 2:S:305:ILE:CB   | 2.45                     | 0.41              |
| 2:S:434:GLU:O    | 2:S:438:VAL:HG23 | 2.19                     | 0.41              |
| 2:T:234:LEU:CB   | 2:T:235:PRO:CD   | 2.98                     | 0.41              |
| 2:U:10:ASN:O     | 2:U:14:VAL:HG23  | 2.20                     | 0.41              |
| 1:E:57:LEU:H     | 1:E:57:LEU:HD22  | 1.85                     | 0.41              |
| 2:K:357:THR:HG21 | 2:K:361:ASP:HB3  | 2.02                     | 0.41              |
| 2:L:10:ASN:O     | 2:L:14:VAL:HG23  | 2.20                     | 0.41              |
| 2:M:174:VAL:HG23 | 2:M:370:ALA:HB2  | 2.01                     | 0.41              |
| 2:T:230:ILE:HD12 | 2:T:230:ILE:H    | 1.84                     | 0.41              |
| 1:Z:45:ASN:OD1   | 1:Z:45:ASN:N     | 2.51                     | 0.41              |
| 1:B:41:LEU:O     | 1:B:61:VAL:HG13  | 2.20                     | 0.41              |
| 2:C:10:ASN:O     | 2:C:14:VAL:HG23  | 2.20                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:I:325:ILE:HG12 | 2:I:330:THR:HG23 | 2.01                     | 0.41              |
| 2:M:234:LEU:CB   | 2:M:235:PRO:CD   | 2.98                     | 0.41              |
| 2:O:36:ARG:HB2   | 2:P:518:GLU:HB2  | 2.02                     | 0.41              |
| 2:O:260:ALA:CB   | 2:P:304:GLU:CD   | 2.80                     | 0.41              |
| 2:R:10:ASN:O     | 2:R:14:VAL:HG23  | 2.20                     | 0.41              |
| 2:R:310:GLU:OE1  | 2:R:310:GLU:N    | 2.52                     | 0.41              |
| 1:a:15:LYS:NZ    | 1:a:39:GLU:OE1   | 2.42                     | 0.41              |
| 1:B:57:LEU:HD22  | 1:B:57:LEU:H     | 1.85                     | 0.41              |
| 1:D:57:LEU:HD22  | 1:D:57:LEU:H     | 1.85                     | 0.41              |
| 1:G:41:LEU:O     | 1:G:61:VAL:HG13  | 2.20                     | 0.41              |
| 2:I:10:ASN:O     | 2:I:14:VAL:HG23  | 2.20                     | 0.41              |
| 2:L:140:ASP:OD1  | 2:L:140:ASP:N    | 2.49                     | 0.41              |
| 2:L:325:ILE:HG12 | 2:L:330:THR:HG23 | 2.01                     | 0.41              |
| 2:M:30:THR:O     | 2:M:51:LYS:NZ    | 2.45                     | 0.41              |
| 2:M:518:GLU:HB2  | 2:U:36:ARG:HB2   | 2.02                     | 0.41              |
| 2:N:10:ASN:O     | 2:N:14:VAL:HG23  | 2.20                     | 0.41              |
| 2:P:230:ILE:HD12 | 2:P:230:ILE:H    | 1.84                     | 0.41              |
| 2:H:10:ASN:O     | 2:H:14:VAL:HG23  | 2.20                     | 0.41              |
| 2:K:140:ASP:OD1  | 2:K:140:ASP:N    | 2.49                     | 0.41              |
| 2:O:124:VAL:HG21 | 2:O:508:ALA:HB2  | 2.02                     | 0.41              |
| 2:O:234:LEU:CB   | 2:O:235:PRO:CD   | 2.98                     | 0.41              |
| 2:P:36:ARG:HB2   | 2:R:518:GLU:HB2  | 2.02                     | 0.41              |
| 2:P:234:LEU:CB   | 2:P:235:PRO:CD   | 2.98                     | 0.41              |
| 2:P:241:ALA:CA   | 2:P:271:VAL:HG11 | 2.47                     | 0.41              |
| 2:S:230:ILE:HD12 | 2:S:230:ILE:H    | 1.84                     | 0.41              |
| 1:V:15:LYS:NZ    | 1:V:39:GLU:OE1   | 2.42                     | 0.41              |
| 1:1:57:LEU:HD22  | 1:1:57:LEU:H     | 1.85                     | 0.41              |
| 1:A:41:LEU:O     | 1:A:61:VAL:HG13  | 2.20                     | 0.41              |
| 2:C:357:THR:HG21 | 2:C:361:ASP:HB3  | 2.02                     | 0.41              |
| 1:D:41:LEU:O     | 1:D:61:VAL:HG13  | 2.20                     | 0.41              |
| 1:E:18:GLU:O     | 1:E:19:THR:C     | 2.63                     | 0.41              |
| 1:G:18:GLU:O     | 1:G:19:THR:C     | 2.62                     | 0.41              |
| 2:K:10:ASN:O     | 2:K:14:VAL:HG23  | 2.20                     | 0.41              |
| 2:L:357:THR:HG21 | 2:L:361:ASP:HB3  | 2.02                     | 0.41              |
| 1:Q:88:GLU:OE2   | 1:V:7:HIS:CE1    | 2.63                     | 0.41              |
| 2:R:36:ARG:HB2   | 2:S:518:GLU:HB2  | 2.02                     | 0.41              |
| 1:1:18:GLU:O     | 1:1:19:THR:C     | 2.63                     | 0.41              |
| 1:B:1:MET:CB     | 1:D:96:GLU:CB    | 2.86                     | 0.41              |
| 2:H:513:LEU:HD23 | 2:H:513:LEU:HA   | 1.96                     | 0.41              |
| 2:M:260:ALA:CB   | 2:O:304:GLU:CD   | 2.81                     | 0.41              |
| 2:R:39:VAL:CG1   | 2:S:69:MET:HE2   | 2.48                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:T:169:VAL:HG11 | 2:T:377:ALA:HB2  | 2.01                     | 0.41              |
| 1:E:5:PRO:HG3    | 1:E:11:ILE:HD12  | 2.03                     | 0.41              |
| 1:F:6:LEU:HD12   | 1:G:91:ILE:HG21  | 1.96                     | 0.41              |
| 2:J:325:ILE:HG12 | 2:J:330:THR:HG23 | 2.01                     | 0.41              |
| 2:S:36:ARG:HB2   | 2:T:518:GLU:HB2  | 2.02                     | 0.41              |
| 1:Y:16:GLU:OE1   | 1:Y:16:GLU:N     | 2.54                     | 0.41              |
| 1:B:5:PRO:HG3    | 1:B:11:ILE:HD12  | 2.03                     | 0.41              |
| 2:C:220:ILE:HD12 | 2:C:220:ILE:N    | 2.36                     | 0.41              |
| 2:C:349:ILE:HG21 | 2:C:369:VAL:HG22 | 2.03                     | 0.41              |
| 1:E:19:THR:HG22  | 1:E:21:SER:H     | 1.86                     | 0.41              |
| 1:F:5:PRO:HG3    | 1:F:11:ILE:HD12  | 2.03                     | 0.41              |
| 1:F:19:THR:HG22  | 1:F:21:SER:H     | 1.86                     | 0.41              |
| 1:F:41:LEU:O     | 1:F:61:VAL:HG13  | 2.21                     | 0.41              |
| 2:I:513:LEU:HD23 | 2:I:513:LEU:HA   | 1.96                     | 0.41              |
| 2:J:259:LEU:O    | 2:J:263:VAL:HG23 | 2.21                     | 0.41              |
| 2:L:77:VAL:HG13  | 2:L:78:ALA:N     | 2.36                     | 0.41              |
| 2:L:234:LEU:N    | 2:L:235:PRO:HD2  | 2.36                     | 0.41              |
| 2:M:10:ASN:O     | 2:M:14:VAL:HG23  | 2.20                     | 0.41              |
| 2:M:268:ARG:HB2  | 2:M:269:GLY:HA2  | 2.03                     | 0.41              |
| 2:N:349:ILE:HG21 | 2:N:369:VAL:HG22 | 2.03                     | 0.41              |
| 2:N:357:THR:HG21 | 2:N:361:ASP:HB3  | 2.02                     | 0.41              |
| 2:O:267:MET:HG3  | 2:P:305:ILE:CB   | 2.45                     | 0.41              |
| 2:R:268:ARG:N    | 2:R:269:GLY:HA2  | 2.34                     | 0.41              |
| 2:U:268:ARG:HB2  | 2:U:269:GLY:HA2  | 2.03                     | 0.41              |
| 1:W:15:LYS:NZ    | 1:W:39:GLU:OE1   | 2.42                     | 0.41              |
| 1:W:17:VAL:O     | 1:W:20:LYS:NZ    | 2.48                     | 0.41              |
| 1:W:92:LEU:HB2   | 1:X:85:ILE:HG21  | 2.02                     | 0.41              |
| 1:X:16:GLU:OE1   | 1:X:16:GLU:N     | 2.54                     | 0.41              |
| 1:1:41:LEU:O     | 1:1:61:VAL:HG13  | 2.20                     | 0.41              |
| 1:B:19:THR:HG22  | 1:B:21:SER:H     | 1.86                     | 0.41              |
| 2:C:234:LEU:N    | 2:C:235:PRO:HD2  | 2.36                     | 0.41              |
| 1:D:5:PRO:HG3    | 1:D:11:ILE:HD12  | 2.03                     | 0.41              |
| 1:G:19:THR:HG22  | 1:G:21:SER:H     | 1.86                     | 0.41              |
| 2:H:77:VAL:HG13  | 2:H:78:ALA:N     | 2.36                     | 0.41              |
| 2:K:325:ILE:HG12 | 2:K:330:THR:HG23 | 2.01                     | 0.41              |
| 2:N:111:MET:SD   | 2:N:438:VAL:HG21 | 2.61                     | 0.41              |
| 2:P:10:ASN:O     | 2:P:14:VAL:HG23  | 2.20                     | 0.41              |
| 2:P:267:MET:HG3  | 2:R:305:ILE:CB   | 2.45                     | 0.41              |
| 2:T:23:LEU:C     | 2:T:23:LEU:HD23  | 2.46                     | 0.41              |
| 1:A:57:LEU:HD22  | 1:A:57:LEU:H     | 1.85                     | 0.40              |
| 1:D:19:THR:HG22  | 1:D:21:SER:H     | 1.86                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:41:LEU:O     | 1:E:61:VAL:HG13  | 2.20                     | 0.40              |
| 2:H:111:MET:SD   | 2:H:438:VAL:HG21 | 2.61                     | 0.40              |
| 2:J:10:ASN:O     | 2:J:14:VAL:HG23  | 2.20                     | 0.40              |
| 2:J:69:MET:HE3   | 2:K:39:VAL:HG12  | 1.98                     | 0.40              |
| 2:J:513:LEU:HD23 | 2:J:513:LEU:HA   | 1.96                     | 0.40              |
| 2:K:220:ILE:HD12 | 2:K:220:ILE:N    | 2.36                     | 0.40              |
| 2:N:259:LEU:O    | 2:N:263:VAL:HG23 | 2.21                     | 0.40              |
| 2:T:268:ARG:HB2  | 2:T:269:GLY:HA2  | 2.03                     | 0.40              |
| 1:Z:16:GLU:N     | 1:Z:16:GLU:OE1   | 2.54                     | 0.40              |
| 1:Z:49:LEU:HD11  | 1:a:50:GLU:C     | 2.47                     | 0.40              |
| 1:Z:92:LEU:HB2   | 1:a:85:ILE:HG21  | 2.02                     | 0.40              |
| 1:A:5:PRO:HG3    | 1:A:11:ILE:HD12  | 2.03                     | 0.40              |
| 1:A:27:LEU:HD23  | 1:A:28:THR:O     | 2.22                     | 0.40              |
| 2:C:261:THR:HG23 | 2:C:262:LEU:HD13 | 2.03                     | 0.40              |
| 1:F:18:GLU:O     | 1:F:19:THR:C     | 2.62                     | 0.40              |
| 2:I:111:MET:SD   | 2:I:438:VAL:HG21 | 2.61                     | 0.40              |
| 2:I:259:LEU:O    | 2:I:263:VAL:HG23 | 2.21                     | 0.40              |
| 2:J:102:GLU:CB   | 2:J:442:VAL:HG13 | 2.52                     | 0.40              |
| 2:L:111:MET:SD   | 2:L:438:VAL:HG21 | 2.61                     | 0.40              |
| 2:L:259:LEU:O    | 2:L:263:VAL:HG23 | 2.21                     | 0.40              |
| 2:M:23:LEU:HD23  | 2:M:23:LEU:C     | 2.46                     | 0.40              |
| 2:O:268:ARG:HB2  | 2:O:269:GLY:HA2  | 2.03                     | 0.40              |
| 2:U:23:LEU:HD23  | 2:U:23:LEU:C     | 2.46                     | 0.40              |
| 2:U:234:LEU:CB   | 2:U:235:PRO:CD   | 2.98                     | 0.40              |
| 1:V:16:GLU:N     | 1:V:16:GLU:OE1   | 2.54                     | 0.40              |
| 1:Y:92:LEU:HB2   | 1:Z:85:ILE:HG21  | 2.02                     | 0.40              |
| 1:G:27:LEU:HD23  | 1:G:28:THR:O     | 2.22                     | 0.40              |
| 2:H:220:ILE:HD12 | 2:H:220:ILE:N    | 2.36                     | 0.40              |
| 2:H:281:PHE:O    | 2:H:285:ARG:N    | 2.40                     | 0.40              |
| 2:K:111:MET:SD   | 2:K:438:VAL:HG21 | 2.61                     | 0.40              |
| 2:K:259:LEU:O    | 2:K:263:VAL:HG23 | 2.21                     | 0.40              |
| 2:M:5:ASP:OD1    | 2:M:5:ASP:C      | 2.65                     | 0.40              |
| 2:P:124:VAL:HG21 | 2:P:508:ALA:HB2  | 2.02                     | 0.40              |
| 1:Q:16:GLU:N     | 1:Q:16:GLU:OE1   | 2.54                     | 0.40              |
| 2:T:36:ARG:HB2   | 2:U:518:GLU:HB2  | 2.02                     | 0.40              |
| 1:V:88:GLU:OE2   | 1:W:7:HIS:CE1    | 2.63                     | 0.40              |
| 1:V:92:LEU:HB2   | 1:W:85:ILE:HG21  | 2.02                     | 0.40              |
| 1:X:92:LEU:HB2   | 1:Y:85:ILE:HG21  | 2.02                     | 0.40              |
| 1:Y:49:LEU:HD11  | 1:Z:50:GLU:C     | 2.47                     | 0.40              |
| 1:1:9:ARG:NE     | 1:A:92:LEU:HA    | 2.33                     | 0.40              |
| 1:1:27:LEU:HD23  | 1:1:28:THR:O     | 2.22                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:27:LEU:HD23  | 1:B:28:THR:O     | 2.22                     | 0.40              |
| 2:C:39:VAL:HG12  | 2:N:69:MET:HE3   | 1.98                     | 0.40              |
| 1:G:5:PRO:HG3    | 1:G:11:ILE:HD12  | 2.03                     | 0.40              |
| 2:J:220:ILE:HD12 | 2:J:220:ILE:N    | 2.36                     | 0.40              |
| 2:J:234:LEU:N    | 2:J:235:PRO:HD2  | 2.36                     | 0.40              |
| 2:L:220:ILE:HD12 | 2:L:220:ILE:N    | 2.36                     | 0.40              |
| 2:N:234:LEU:N    | 2:N:235:PRO:HD2  | 2.36                     | 0.40              |
| 2:O:23:LEU:HD23  | 2:O:23:LEU:C     | 2.47                     | 0.40              |
| 2:P:23:LEU:C     | 2:P:23:LEU:HD23  | 2.46                     | 0.40              |
| 1:Q:92:LEU:HB2   | 1:V:85:ILE:HG21  | 2.02                     | 0.40              |
| 2:R:23:LEU:HD23  | 2:R:23:LEU:C     | 2.46                     | 0.40              |
| 2:R:234:LEU:CB   | 2:R:235:PRO:CD   | 2.98                     | 0.40              |
| 2:U:230:ILE:HD12 | 2:U:230:ILE:H    | 1.84                     | 0.40              |
| 1:1:6:LEU:O      | 1:1:7:HIS:C      | 2.65                     | 0.40              |
| 1:A:6:LEU:O      | 1:A:7:HIS:C      | 2.65                     | 0.40              |
| 1:D:27:LEU:HD23  | 1:D:28:THR:O     | 2.22                     | 0.40              |
| 2:H:234:LEU:N    | 2:H:235:PRO:HD2  | 2.36                     | 0.40              |
| 2:N:220:ILE:HD12 | 2:N:220:ILE:N    | 2.36                     | 0.40              |
| 2:N:261:THR:HG23 | 2:N:262:LEU:HD13 | 2.03                     | 0.40              |
| 1:a:16:GLU:N     | 1:a:16:GLU:OE1   | 2.54                     | 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 PDB entries followed by that with respect to all EM entries.

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   | 1     | 95/97 (98%) | 83 (87%) | 11 (12%) | 1 (1%)   | 12          | 37 |
| 1   | A     | 95/97 (98%) | 83 (87%) | 11 (12%) | 1 (1%)   | 12          | 37 |
| 1   | B     | 95/97 (98%) | 83 (87%) | 11 (12%) | 1 (1%)   | 12          | 37 |
| 1   | D     | 95/97 (98%) | 83 (87%) | 11 (12%) | 1 (1%)   | 12          | 37 |

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| Mol | Chain | Analysed        | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 1   | E     | 95/97 (98%)     | 83 (87%)   | 11 (12%) | 1 (1%)   | 12          | 37  |
| 1   | F     | 95/97 (98%)     | 83 (87%)   | 11 (12%) | 1 (1%)   | 12          | 37  |
| 1   | G     | 95/97 (98%)     | 83 (87%)   | 11 (12%) | 1 (1%)   | 12          | 37  |
| 1   | Q     | 94/97 (97%)     | 87 (93%)   | 7 (7%)   | 0        | 100         | 100 |
| 1   | V     | 94/97 (97%)     | 87 (93%)   | 7 (7%)   | 0        | 100         | 100 |
| 1   | W     | 94/97 (97%)     | 87 (93%)   | 7 (7%)   | 0        | 100         | 100 |
| 1   | X     | 94/97 (97%)     | 87 (93%)   | 7 (7%)   | 0        | 100         | 100 |
| 1   | Y     | 94/97 (97%)     | 86 (92%)   | 8 (8%)   | 0        | 100         | 100 |
| 1   | Z     | 94/97 (97%)     | 86 (92%)   | 8 (8%)   | 0        | 100         | 100 |
| 1   | a     | 94/97 (97%)     | 87 (93%)   | 7 (7%)   | 0        | 100         | 100 |
| 2   | C     | 522/548 (95%)   | 506 (97%)  | 16 (3%)  | 0        | 100         | 100 |
| 2   | H     | 522/548 (95%)   | 507 (97%)  | 15 (3%)  | 0        | 100         | 100 |
| 2   | I     | 522/548 (95%)   | 507 (97%)  | 15 (3%)  | 0        | 100         | 100 |
| 2   | J     | 522/548 (95%)   | 507 (97%)  | 15 (3%)  | 0        | 100         | 100 |
| 2   | K     | 522/548 (95%)   | 507 (97%)  | 15 (3%)  | 0        | 100         | 100 |
| 2   | L     | 522/548 (95%)   | 507 (97%)  | 15 (3%)  | 0        | 100         | 100 |
| 2   | M     | 522/548 (95%)   | 510 (98%)  | 11 (2%)  | 1 (0%)   | 44          | 73  |
| 2   | N     | 522/548 (95%)   | 506 (97%)  | 16 (3%)  | 0        | 100         | 100 |
| 2   | O     | 522/548 (95%)   | 510 (98%)  | 11 (2%)  | 1 (0%)   | 44          | 73  |
| 2   | P     | 522/548 (95%)   | 510 (98%)  | 11 (2%)  | 1 (0%)   | 44          | 73  |
| 2   | R     | 522/548 (95%)   | 510 (98%)  | 11 (2%)  | 1 (0%)   | 44          | 73  |
| 2   | S     | 522/548 (95%)   | 510 (98%)  | 11 (2%)  | 1 (0%)   | 44          | 73  |
| 2   | T     | 522/548 (95%)   | 510 (98%)  | 11 (2%)  | 1 (0%)   | 44          | 73  |
| 2   | U     | 522/548 (95%)   | 510 (98%)  | 11 (2%)  | 1 (0%)   | 44          | 73  |
| All | All   | 8631/9030 (96%) | 8305 (96%) | 312 (4%) | 14 (0%)  | 45          | 73  |

All (14) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | M     | 234 | LEU  |
| 2   | O     | 234 | LEU  |
| 2   | P     | 234 | LEU  |
| 2   | R     | 234 | LEU  |
| 2   | S     | 234 | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | T     | 234 | LEU  |
| 2   | U     | 234 | LEU  |
| 1   | 1     | 5   | PRO  |
| 1   | A     | 5   | PRO  |
| 1   | B     | 5   | PRO  |
| 1   | D     | 5   | PRO  |
| 1   | E     | 5   | PRO  |
| 1   | F     | 5   | PRO  |
| 1   | G     | 5   | PRO  |

### 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 PDB entries followed by that with respect to all EM entries.

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   | 1     | 80/80 (100%)  | 73 (91%)  | 7 (9%)   | 8           | 26 |
| 1   | A     | 80/80 (100%)  | 73 (91%)  | 7 (9%)   | 8           | 26 |
| 1   | B     | 80/80 (100%)  | 73 (91%)  | 7 (9%)   | 8           | 26 |
| 1   | D     | 80/80 (100%)  | 73 (91%)  | 7 (9%)   | 8           | 26 |
| 1   | E     | 80/80 (100%)  | 73 (91%)  | 7 (9%)   | 8           | 26 |
| 1   | F     | 80/80 (100%)  | 73 (91%)  | 7 (9%)   | 8           | 26 |
| 1   | G     | 80/80 (100%)  | 73 (91%)  | 7 (9%)   | 8           | 26 |
| 1   | Q     | 79/80 (99%)   | 75 (95%)  | 4 (5%)   | 20          | 51 |
| 1   | V     | 79/80 (99%)   | 75 (95%)  | 4 (5%)   | 20          | 51 |
| 1   | W     | 79/80 (99%)   | 75 (95%)  | 4 (5%)   | 20          | 51 |
| 1   | X     | 79/80 (99%)   | 75 (95%)  | 4 (5%)   | 20          | 51 |
| 1   | Y     | 79/80 (99%)   | 75 (95%)  | 4 (5%)   | 20          | 51 |
| 1   | Z     | 79/80 (99%)   | 75 (95%)  | 4 (5%)   | 20          | 51 |
| 1   | a     | 79/80 (99%)   | 75 (95%)  | 4 (5%)   | 20          | 51 |
| 2   | C     | 404/415 (97%) | 397 (98%) | 7 (2%)   | 56          | 83 |
| 2   | H     | 404/415 (97%) | 397 (98%) | 7 (2%)   | 56          | 83 |
| 2   | I     | 404/415 (97%) | 397 (98%) | 7 (2%)   | 56          | 83 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|----------|-------------|----|
| 2   | J     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | K     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | L     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | M     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | N     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | O     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | P     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | R     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | S     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | T     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| 2   | U     | 404/415 (97%)   | 397 (98%)  | 7 (2%)   | 56          | 83 |
| All | All   | 6769/6930 (98%) | 6594 (97%) | 175 (3%) | 42          | 74 |

All (175) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1     | 3   | ILE  |
| 1   | 1     | 4   | ARG  |
| 1   | 1     | 8   | ASP  |
| 1   | 1     | 16  | GLU  |
| 1   | 1     | 17  | VAL  |
| 1   | 1     | 57  | LEU  |
| 1   | 1     | 94  | ILE  |
| 1   | A     | 3   | ILE  |
| 1   | A     | 4   | ARG  |
| 1   | A     | 8   | ASP  |
| 1   | A     | 16  | GLU  |
| 1   | A     | 17  | VAL  |
| 1   | A     | 57  | LEU  |
| 1   | A     | 94  | ILE  |
| 1   | B     | 3   | ILE  |
| 1   | B     | 4   | ARG  |
| 1   | B     | 8   | ASP  |
| 1   | B     | 16  | GLU  |
| 1   | B     | 17  | VAL  |
| 1   | B     | 57  | LEU  |
| 1   | B     | 94  | ILE  |
| 2   | C     | 18  | ARG  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | C            | 62         | LEU         |
| 2          | C            | 255        | GLU         |
| 2          | C            | 262        | LEU         |
| 2          | C            | 400        | LEU         |
| 2          | C            | 419        | LEU         |
| 2          | C            | 504        | LEU         |
| 1          | D            | 3          | ILE         |
| 1          | D            | 4          | ARG         |
| 1          | D            | 8          | ASP         |
| 1          | D            | 16         | GLU         |
| 1          | D            | 17         | VAL         |
| 1          | D            | 57         | LEU         |
| 1          | D            | 94         | ILE         |
| 1          | E            | 3          | ILE         |
| 1          | E            | 4          | ARG         |
| 1          | E            | 8          | ASP         |
| 1          | E            | 16         | GLU         |
| 1          | E            | 17         | VAL         |
| 1          | E            | 57         | LEU         |
| 1          | E            | 94         | ILE         |
| 1          | F            | 3          | ILE         |
| 1          | F            | 4          | ARG         |
| 1          | F            | 8          | ASP         |
| 1          | F            | 16         | GLU         |
| 1          | F            | 17         | VAL         |
| 1          | F            | 57         | LEU         |
| 1          | F            | 94         | ILE         |
| 1          | G            | 3          | ILE         |
| 1          | G            | 4          | ARG         |
| 1          | G            | 8          | ASP         |
| 1          | G            | 16         | GLU         |
| 1          | G            | 17         | VAL         |
| 1          | G            | 57         | LEU         |
| 1          | G            | 94         | ILE         |
| 2          | H            | 18         | ARG         |
| 2          | H            | 62         | LEU         |
| 2          | H            | 255        | GLU         |
| 2          | H            | 262        | LEU         |
| 2          | H            | 400        | LEU         |
| 2          | H            | 419        | LEU         |
| 2          | H            | 504        | LEU         |
| 2          | I            | 18         | ARG         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | I            | 62         | LEU         |
| 2          | I            | 255        | GLU         |
| 2          | I            | 262        | LEU         |
| 2          | I            | 400        | LEU         |
| 2          | I            | 419        | LEU         |
| 2          | I            | 504        | LEU         |
| 2          | J            | 18         | ARG         |
| 2          | J            | 62         | LEU         |
| 2          | J            | 255        | GLU         |
| 2          | J            | 262        | LEU         |
| 2          | J            | 400        | LEU         |
| 2          | J            | 419        | LEU         |
| 2          | J            | 504        | LEU         |
| 2          | K            | 18         | ARG         |
| 2          | K            | 62         | LEU         |
| 2          | K            | 255        | GLU         |
| 2          | K            | 262        | LEU         |
| 2          | K            | 400        | LEU         |
| 2          | K            | 419        | LEU         |
| 2          | K            | 504        | LEU         |
| 2          | L            | 18         | ARG         |
| 2          | L            | 62         | LEU         |
| 2          | L            | 255        | GLU         |
| 2          | L            | 262        | LEU         |
| 2          | L            | 400        | LEU         |
| 2          | L            | 419        | LEU         |
| 2          | L            | 504        | LEU         |
| 2          | M            | 5          | ASP         |
| 2          | M            | 60         | ILE         |
| 2          | M            | 338        | GLU         |
| 2          | M            | 343        | GLN         |
| 2          | M            | 400        | LEU         |
| 2          | M            | 513        | LEU         |
| 2          | M            | 522        | THR         |
| 2          | N            | 18         | ARG         |
| 2          | N            | 62         | LEU         |
| 2          | N            | 255        | GLU         |
| 2          | N            | 262        | LEU         |
| 2          | N            | 400        | LEU         |
| 2          | N            | 419        | LEU         |
| 2          | N            | 504        | LEU         |
| 2          | O            | 5          | ASP         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | O            | 60         | ILE         |
| 2          | O            | 338        | GLU         |
| 2          | O            | 343        | GLN         |
| 2          | O            | 400        | LEU         |
| 2          | O            | 513        | LEU         |
| 2          | O            | 522        | THR         |
| 2          | P            | 5          | ASP         |
| 2          | P            | 60         | ILE         |
| 2          | P            | 338        | GLU         |
| 2          | P            | 343        | GLN         |
| 2          | P            | 400        | LEU         |
| 2          | P            | 513        | LEU         |
| 2          | P            | 522        | THR         |
| 1          | Q            | 4          | ARG         |
| 1          | Q            | 6          | LEU         |
| 1          | Q            | 83         | VAL         |
| 1          | Q            | 92         | LEU         |
| 2          | R            | 5          | ASP         |
| 2          | R            | 60         | ILE         |
| 2          | R            | 338        | GLU         |
| 2          | R            | 343        | GLN         |
| 2          | R            | 400        | LEU         |
| 2          | R            | 513        | LEU         |
| 2          | R            | 522        | THR         |
| 2          | S            | 5          | ASP         |
| 2          | S            | 60         | ILE         |
| 2          | S            | 338        | GLU         |
| 2          | S            | 343        | GLN         |
| 2          | S            | 400        | LEU         |
| 2          | S            | 513        | LEU         |
| 2          | S            | 522        | THR         |
| 2          | T            | 5          | ASP         |
| 2          | T            | 60         | ILE         |
| 2          | T            | 338        | GLU         |
| 2          | T            | 343        | GLN         |
| 2          | T            | 400        | LEU         |
| 2          | T            | 513        | LEU         |
| 2          | T            | 522        | THR         |
| 2          | U            | 5          | ASP         |
| 2          | U            | 60         | ILE         |
| 2          | U            | 338        | GLU         |
| 2          | U            | 343        | GLN         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | U     | 400 | LEU  |
| 2   | U     | 513 | LEU  |
| 2   | U     | 522 | THR  |
| 1   | V     | 4   | ARG  |
| 1   | V     | 6   | LEU  |
| 1   | V     | 83  | VAL  |
| 1   | V     | 92  | LEU  |
| 1   | W     | 4   | ARG  |
| 1   | W     | 6   | LEU  |
| 1   | W     | 83  | VAL  |
| 1   | W     | 92  | LEU  |
| 1   | X     | 4   | ARG  |
| 1   | X     | 6   | LEU  |
| 1   | X     | 83  | VAL  |
| 1   | X     | 92  | LEU  |
| 1   | Y     | 4   | ARG  |
| 1   | Y     | 6   | LEU  |
| 1   | Y     | 83  | VAL  |
| 1   | Y     | 92  | LEU  |
| 1   | Z     | 4   | ARG  |
| 1   | Z     | 6   | LEU  |
| 1   | Z     | 83  | VAL  |
| 1   | Z     | 92  | LEU  |
| 1   | a     | 4   | ARG  |
| 1   | a     | 6   | LEU  |
| 1   | a     | 83  | VAL  |
| 1   | a     | 92  | LEU  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (59) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | C     | 10  | ASN  |
| 2   | C     | 37  | ASN  |
| 2   | C     | 194 | GLN  |
| 2   | H     | 10  | ASN  |
| 2   | H     | 37  | ASN  |
| 2   | H     | 194 | GLN  |
| 2   | I     | 10  | ASN  |
| 2   | I     | 37  | ASN  |
| 2   | I     | 194 | GLN  |
| 2   | J     | 10  | ASN  |
| 2   | J     | 37  | ASN  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | J            | 194        | GLN         |
| 2          | K            | 10         | ASN         |
| 2          | K            | 37         | ASN         |
| 2          | K            | 194        | GLN         |
| 2          | L            | 10         | ASN         |
| 2          | L            | 37         | ASN         |
| 2          | L            | 194        | GLN         |
| 2          | M            | 10         | ASN         |
| 2          | M            | 37         | ASN         |
| 2          | M            | 153        | ASN         |
| 2          | M            | 475        | ASN         |
| 2          | N            | 10         | ASN         |
| 2          | N            | 37         | ASN         |
| 2          | N            | 194        | GLN         |
| 2          | O            | 10         | ASN         |
| 2          | O            | 37         | ASN         |
| 2          | O            | 153        | ASN         |
| 2          | O            | 194        | GLN         |
| 2          | O            | 475        | ASN         |
| 2          | P            | 10         | ASN         |
| 2          | P            | 37         | ASN         |
| 2          | P            | 153        | ASN         |
| 1          | Q            | 7          | HIS         |
| 2          | R            | 10         | ASN         |
| 2          | R            | 37         | ASN         |
| 2          | R            | 153        | ASN         |
| 2          | R            | 194        | GLN         |
| 2          | R            | 475        | ASN         |
| 2          | S            | 10         | ASN         |
| 2          | S            | 37         | ASN         |
| 2          | S            | 153        | ASN         |
| 2          | S            | 475        | ASN         |
| 2          | T            | 10         | ASN         |
| 2          | T            | 37         | ASN         |
| 2          | T            | 153        | ASN         |
| 2          | T            | 475        | ASN         |
| 2          | U            | 10         | ASN         |
| 2          | U            | 37         | ASN         |
| 2          | U            | 153        | ASN         |
| 2          | U            | 475        | ASN         |
| 1          | V            | 7          | HIS         |
| 1          | W            | 7          | HIS         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | X     | 7   | HIS  |
| 1   | X     | 80  | ASN  |
| 1   | Y     | 7   | HIS  |
| 1   | Z     | 7   | HIS  |
| 1   | Z     | 80  | ASN  |
| 1   | a     | 7   | HIS  |

### 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 oligosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

Of 28 ligands modelled in this entry, 14 are monoatomic - leaving 14 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   | ATP  | T     | 601 | -    | 28,33,33     | 0.67 | 0           | 34,52,52    | 0.86 | 1 (2%)      |
| 3   | ATP  | P     | 601 | -    | 28,33,33     | 0.66 | 0           | 34,52,52    | 0.87 | 1 (2%)      |
| 3   | ATP  | K     | 601 | 4,5  | 28,33,33     | 0.73 | 0           | 34,52,52    | 0.88 | 1 (2%)      |
| 3   | ATP  | N     | 601 | 4,5  | 28,33,33     | 0.73 | 0           | 34,52,52    | 0.88 | 1 (2%)      |
| 3   | ATP  | L     | 601 | 4,5  | 28,33,33     | 0.74 | 0           | 34,52,52    | 0.88 | 1 (2%)      |
| 3   | ATP  | O     | 601 | -    | 28,33,33     | 0.66 | 0           | 34,52,52    | 0.87 | 1 (2%)      |

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 3   | ATP  | M     | 601 | -    | 28,33,33     | 0.66 | 0        | 34,52,52    | 0.87 | 1 (2%)   |
| 3   | ATP  | C     | 601 | 4,5  | 28,33,33     | 0.74 | 0        | 34,52,52    | 0.88 | 1 (2%)   |
| 3   | ATP  | S     | 601 | -    | 28,33,33     | 0.67 | 0        | 34,52,52    | 0.87 | 1 (2%)   |
| 3   | ATP  | R     | 601 | -    | 28,33,33     | 0.67 | 0        | 34,52,52    | 0.87 | 1 (2%)   |
| 3   | ATP  | I     | 601 | 4,5  | 28,33,33     | 0.74 | 0        | 34,52,52    | 0.88 | 1 (2%)   |
| 3   | ATP  | U     | 601 | -    | 28,33,33     | 0.66 | 0        | 34,52,52    | 0.87 | 1 (2%)   |
| 3   | ATP  | J     | 601 | 4,5  | 28,33,33     | 0.74 | 0        | 34,52,52    | 0.89 | 1 (2%)   |
| 3   | ATP  | H     | 601 | 4,5  | 28,33,33     | 0.74 | 0        | 34,52,52    | 0.88 | 1 (2%)   |

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   | ATP  | T     | 601 | -    | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | P     | 601 | -    | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | K     | 601 | 4,5  | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | N     | 601 | 4,5  | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | L     | 601 | 4,5  | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | O     | 601 | -    | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | M     | 601 | -    | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | C     | 601 | 4,5  | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | S     | 601 | -    | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | R     | 601 | -    | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | I     | 601 | 4,5  | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | U     | 601 | -    | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | J     | 601 | 4,5  | -       | 2/18/38/38 | 0/3/3/3 |
| 3   | ATP  | H     | 601 | 4,5  | -       | 2/18/38/38 | 0/3/3/3 |

There are no bond length outliers.

All (14) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z    | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|------|-------------|----------|
| 3   | K     | 601 | ATP  | C5-C6-N6 | 2.35 | 123.89      | 120.31   |
| 3   | N     | 601 | ATP  | C5-C6-N6 | 2.35 | 123.89      | 120.31   |
| 3   | J     | 601 | ATP  | C5-C6-N6 | 2.35 | 123.89      | 120.31   |

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| Mol | Chain | Res | Type | Atoms    | Z    | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|------|-------------|----------|
| 3   | L     | 601 | ATP  | C5-C6-N6 | 2.34 | 123.88      | 120.31   |
| 3   | C     | 601 | ATP  | C5-C6-N6 | 2.34 | 123.87      | 120.31   |
| 3   | S     | 601 | ATP  | C5-C6-N6 | 2.33 | 123.86      | 120.31   |
| 3   | P     | 601 | ATP  | C5-C6-N6 | 2.33 | 123.85      | 120.31   |
| 3   | H     | 601 | ATP  | C5-C6-N6 | 2.32 | 123.85      | 120.31   |
| 3   | I     | 601 | ATP  | C5-C6-N6 | 2.32 | 123.85      | 120.31   |
| 3   | R     | 601 | ATP  | C5-C6-N6 | 2.32 | 123.85      | 120.31   |
| 3   | U     | 601 | ATP  | C5-C6-N6 | 2.32 | 123.85      | 120.31   |
| 3   | M     | 601 | ATP  | C5-C6-N6 | 2.31 | 123.83      | 120.31   |
| 3   | O     | 601 | ATP  | C5-C6-N6 | 2.31 | 123.83      | 120.31   |
| 3   | T     | 601 | ATP  | C5-C6-N6 | 2.30 | 123.81      | 120.31   |

There are no chirality outliers.

All (28) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms         |
|-----|-------|-----|------|---------------|
| 3   | M     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | O     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | P     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | R     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | S     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | T     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | U     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | C     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | H     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | I     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | J     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | K     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | L     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | N     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | C     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | J     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | K     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | L     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | M     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | N     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | O     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | P     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | R     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | S     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | T     | 601 | ATP  | PB-O3A-PA-O2A |
| 3   | U     | 601 | ATP  | PB-O3A-PA-O2A |

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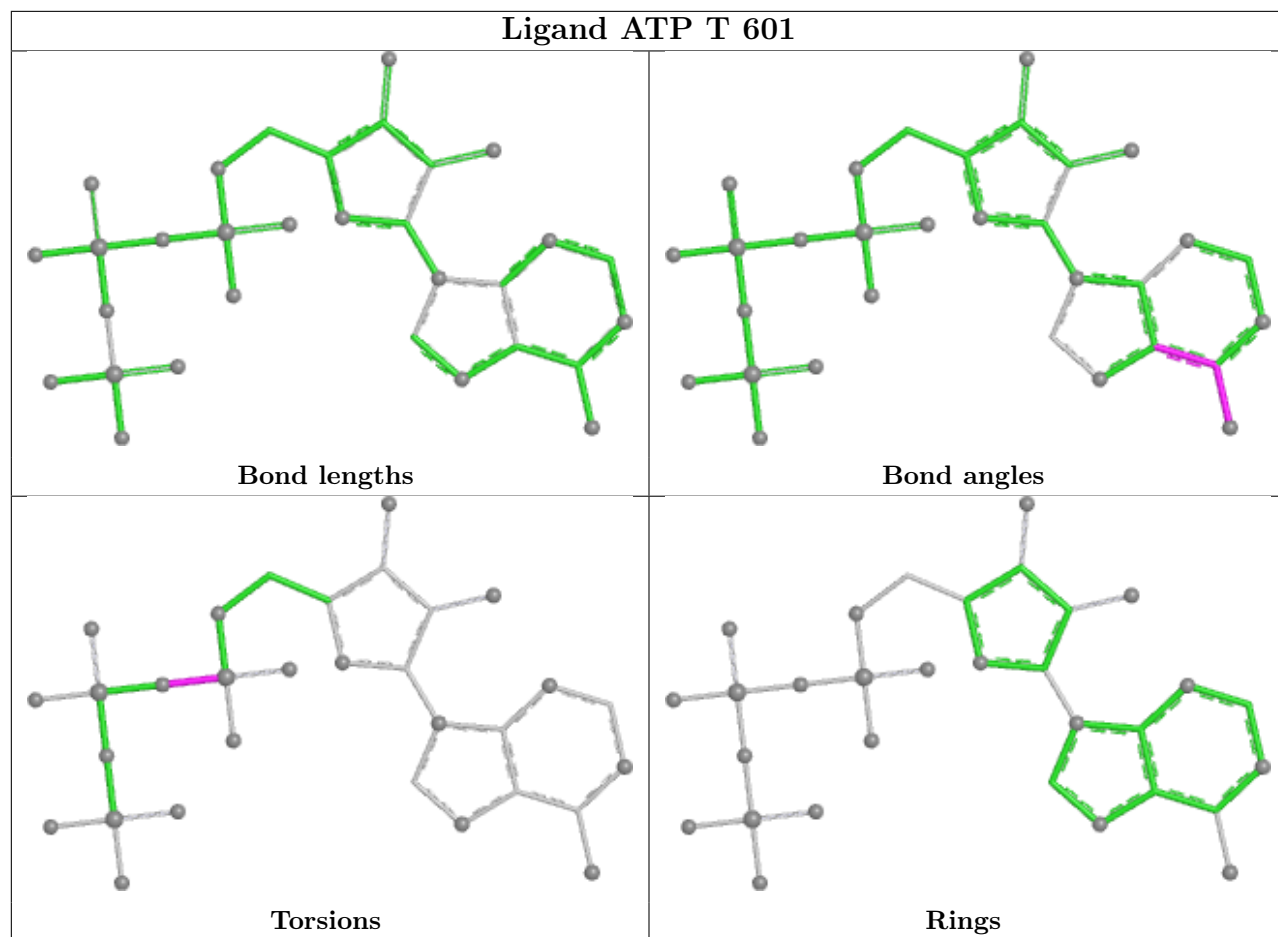
| Mol | Chain | Res | Type | Atoms         |
|-----|-------|-----|------|---------------|
| 3   | H     | 601 | ATP  | PB-O3A-PA-O1A |
| 3   | I     | 601 | ATP  | PB-O3A-PA-O1A |

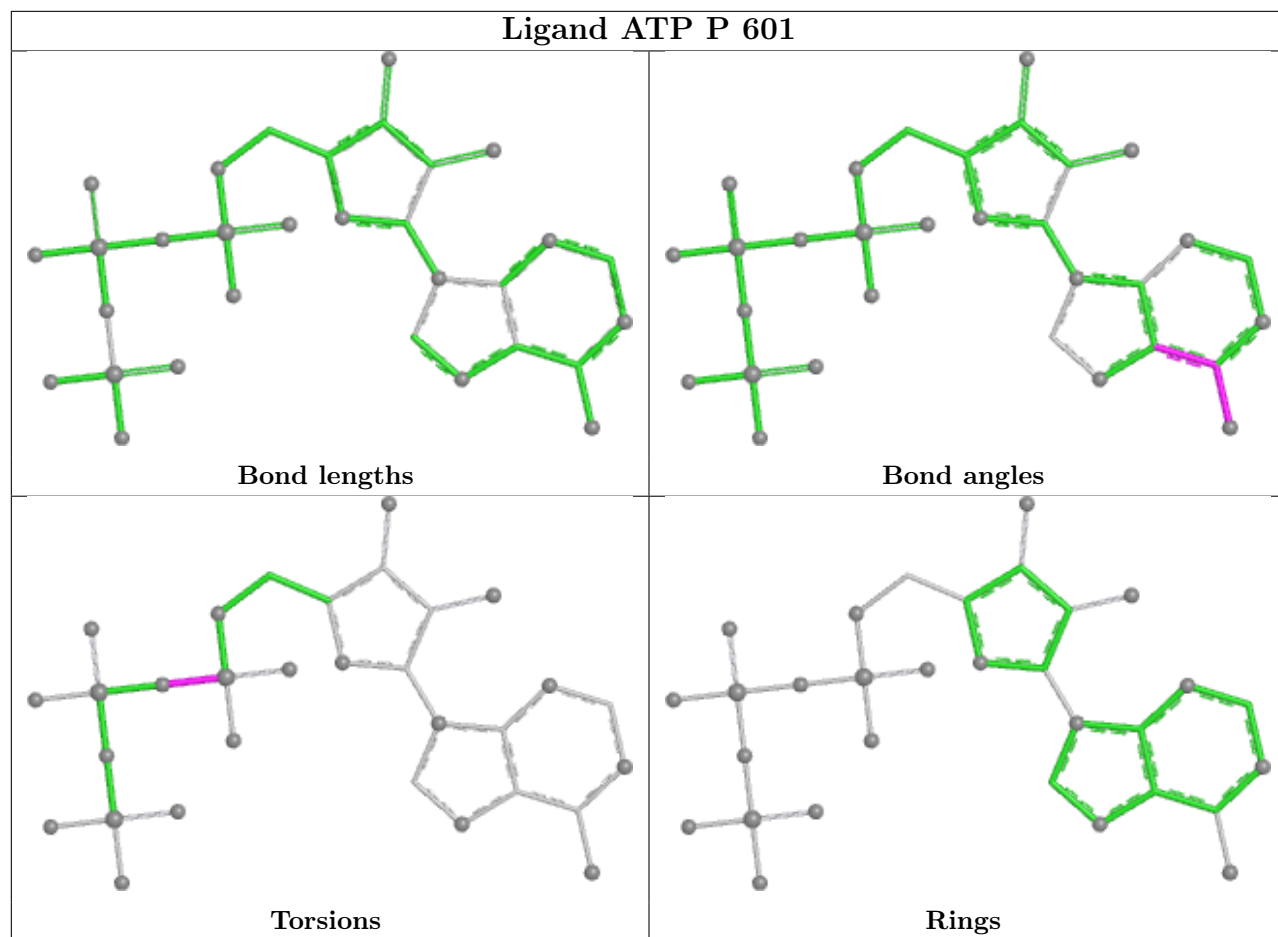
There are no ring outliers.

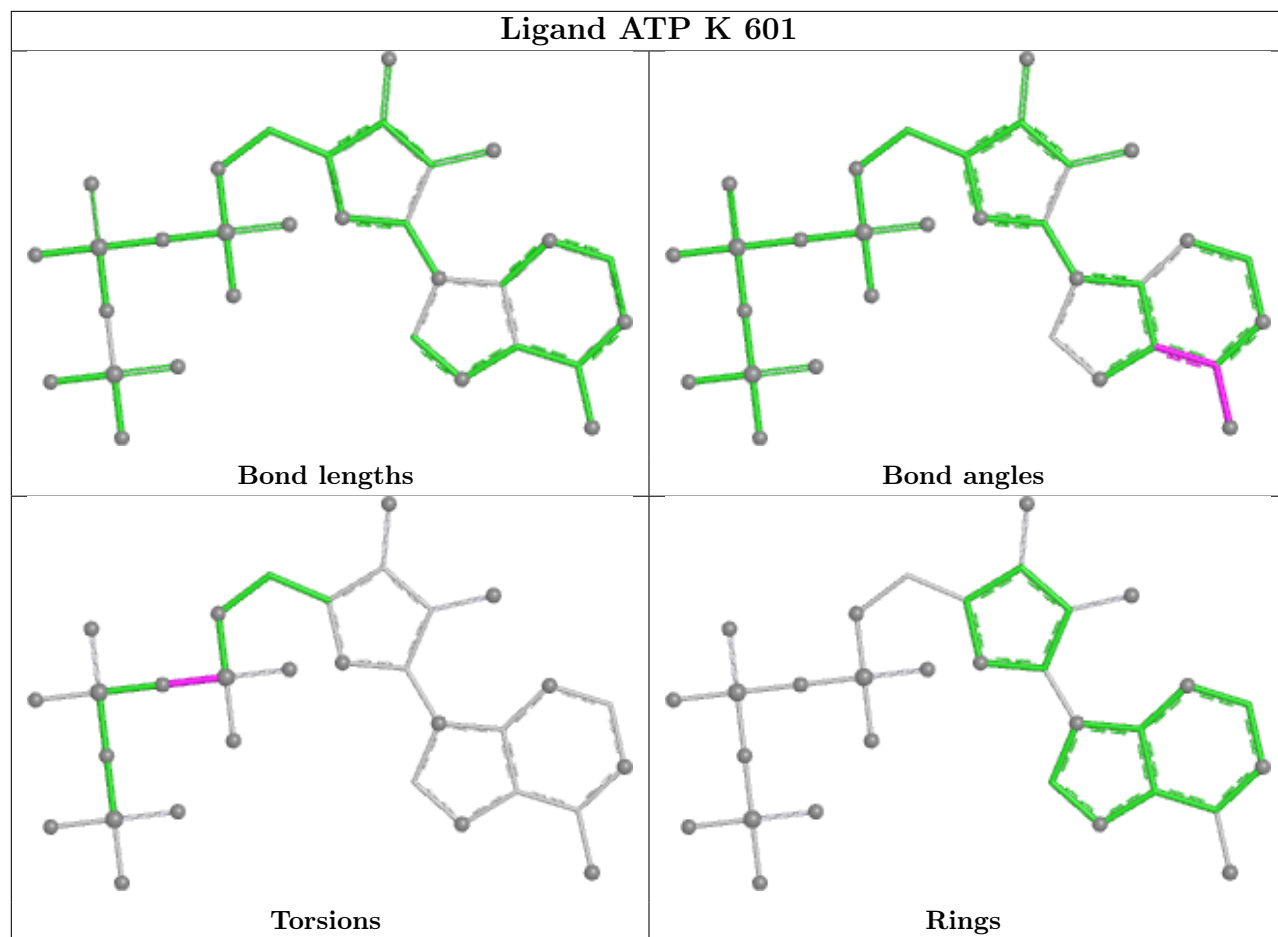
7 monomers are involved in 7 short contacts:

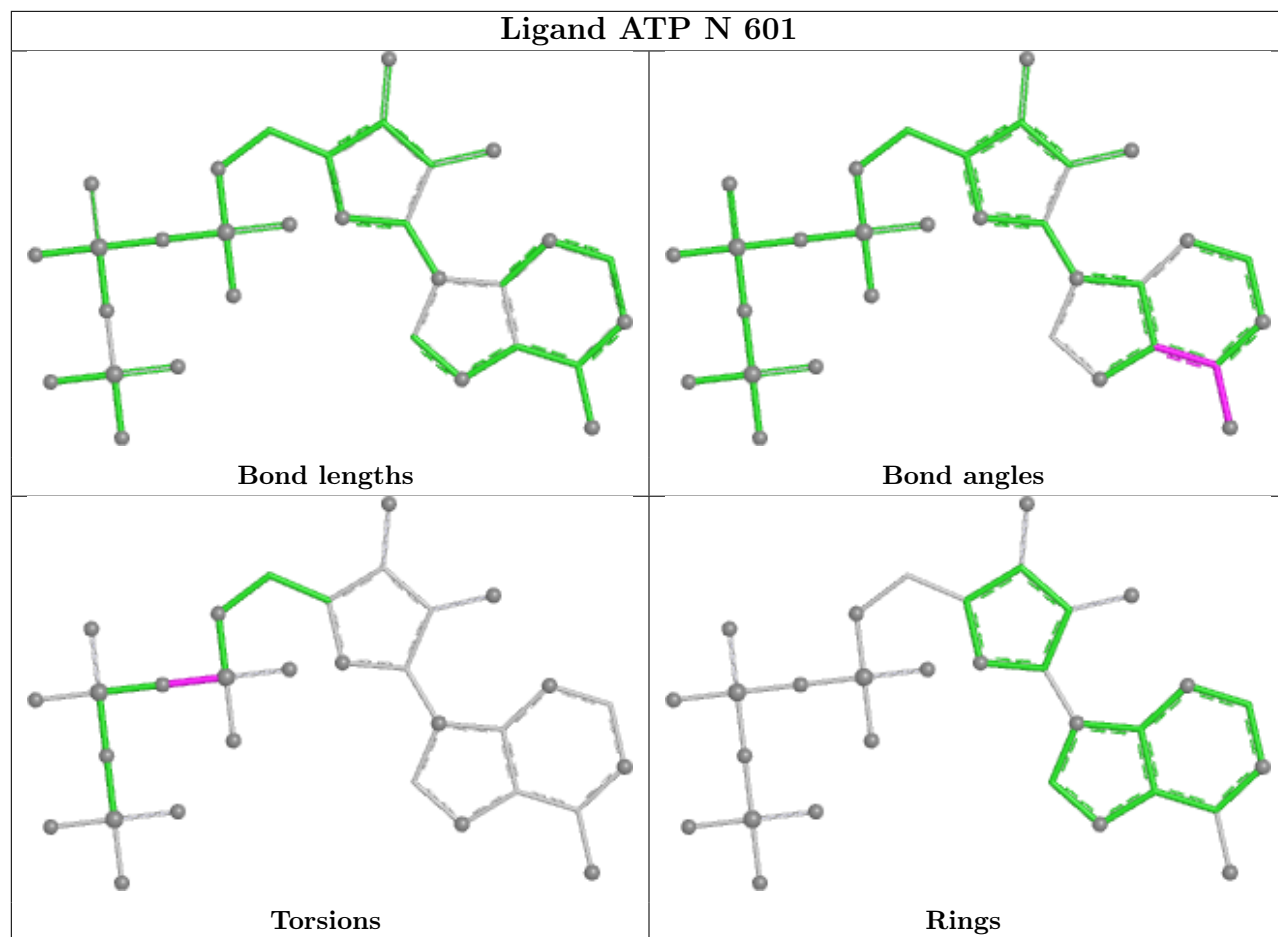
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 3   | K     | 601 | ATP  | 1       | 0            |
| 3   | N     | 601 | ATP  | 1       | 0            |
| 3   | L     | 601 | ATP  | 1       | 0            |
| 3   | C     | 601 | ATP  | 1       | 0            |
| 3   | I     | 601 | ATP  | 1       | 0            |
| 3   | J     | 601 | ATP  | 1       | 0            |
| 3   | H     | 601 | ATP  | 1       | 0            |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

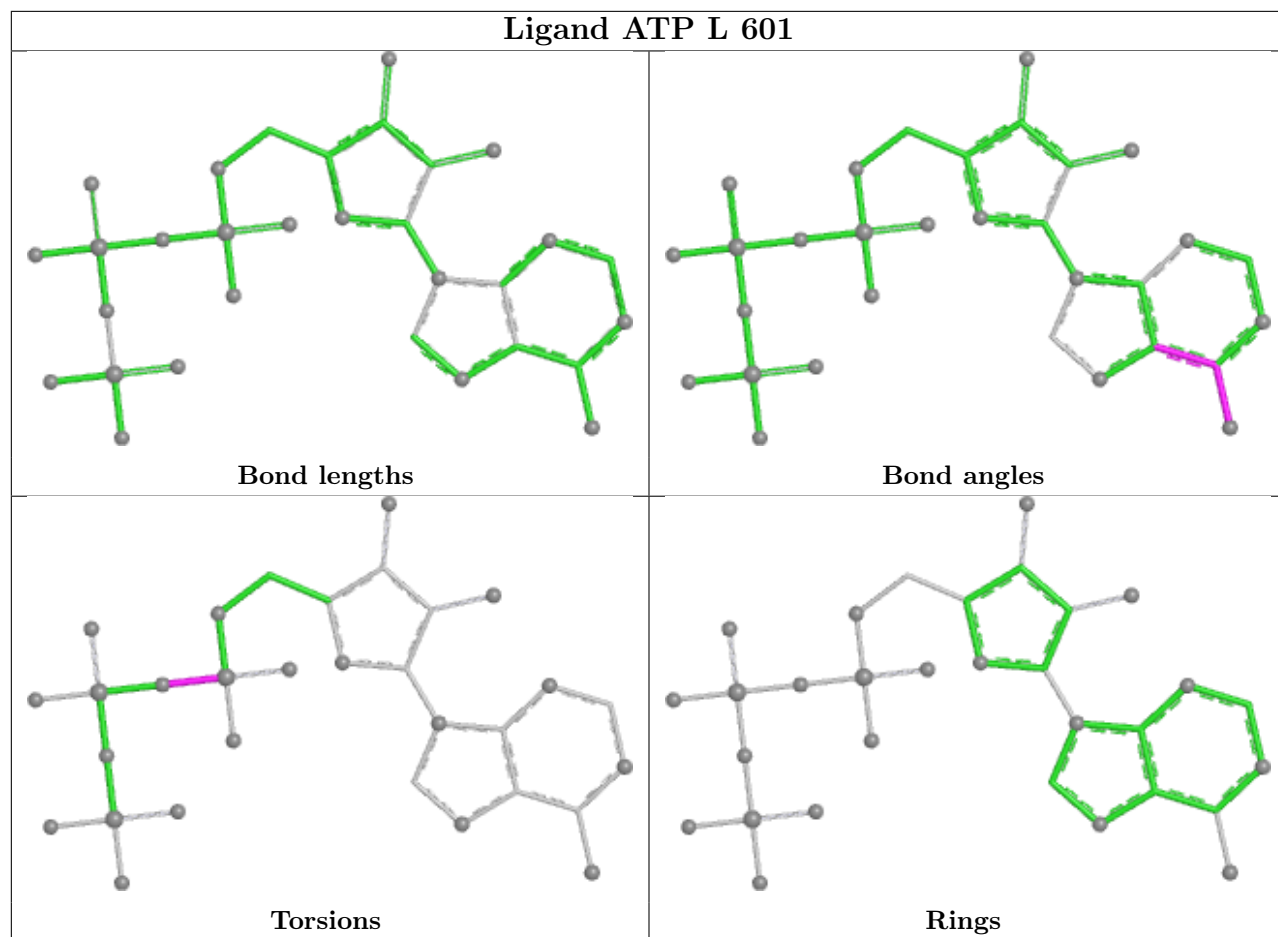


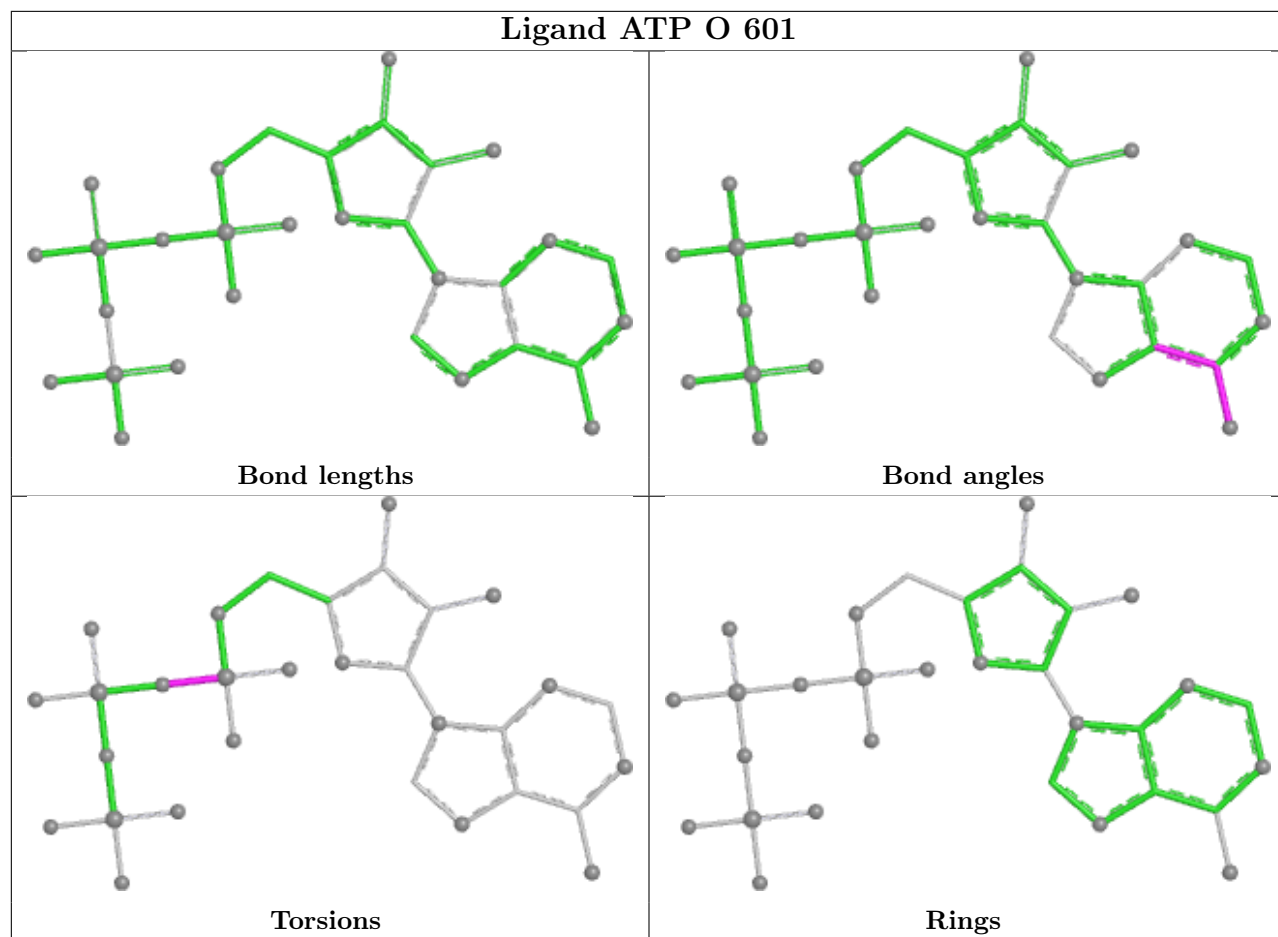


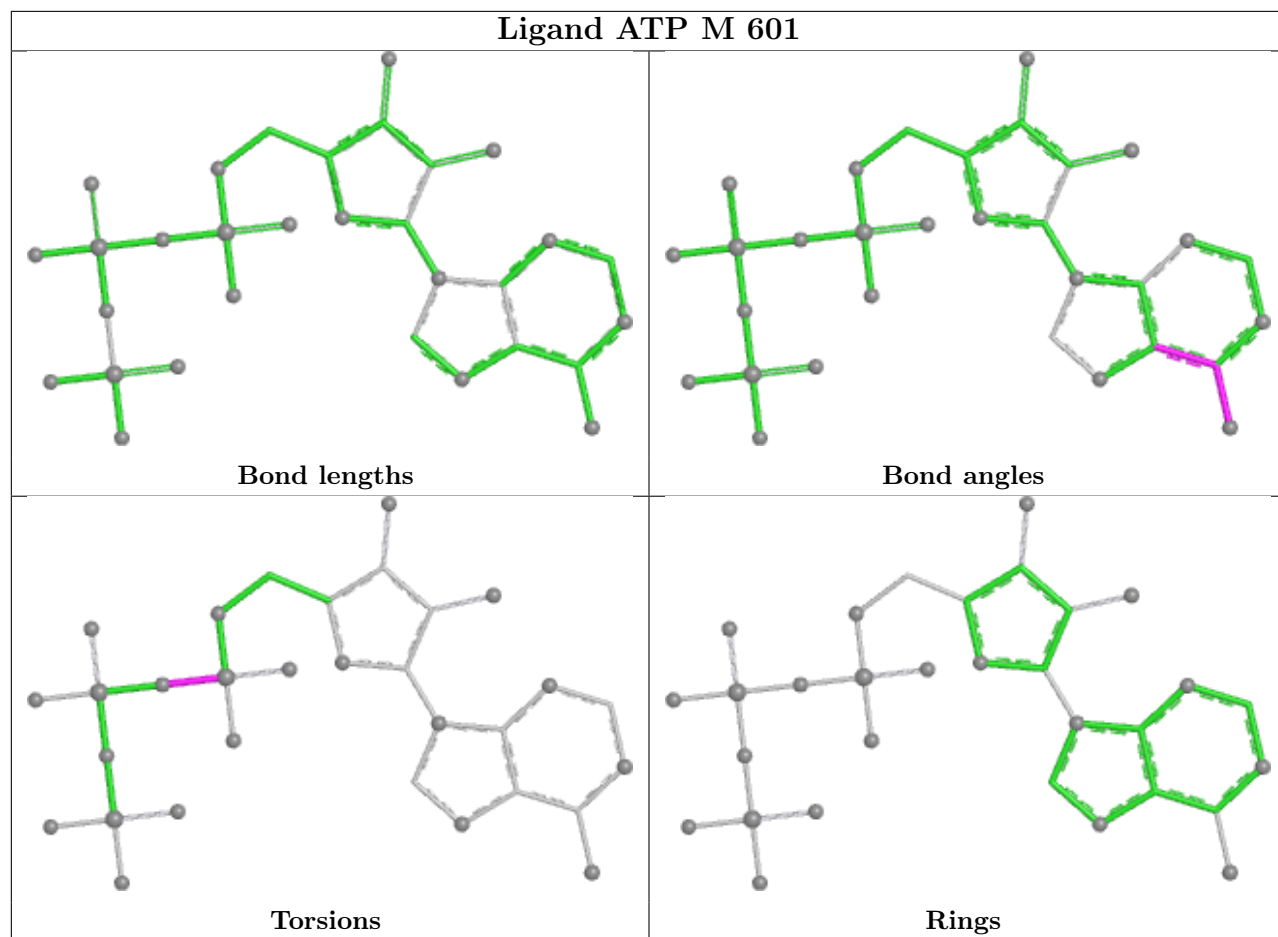


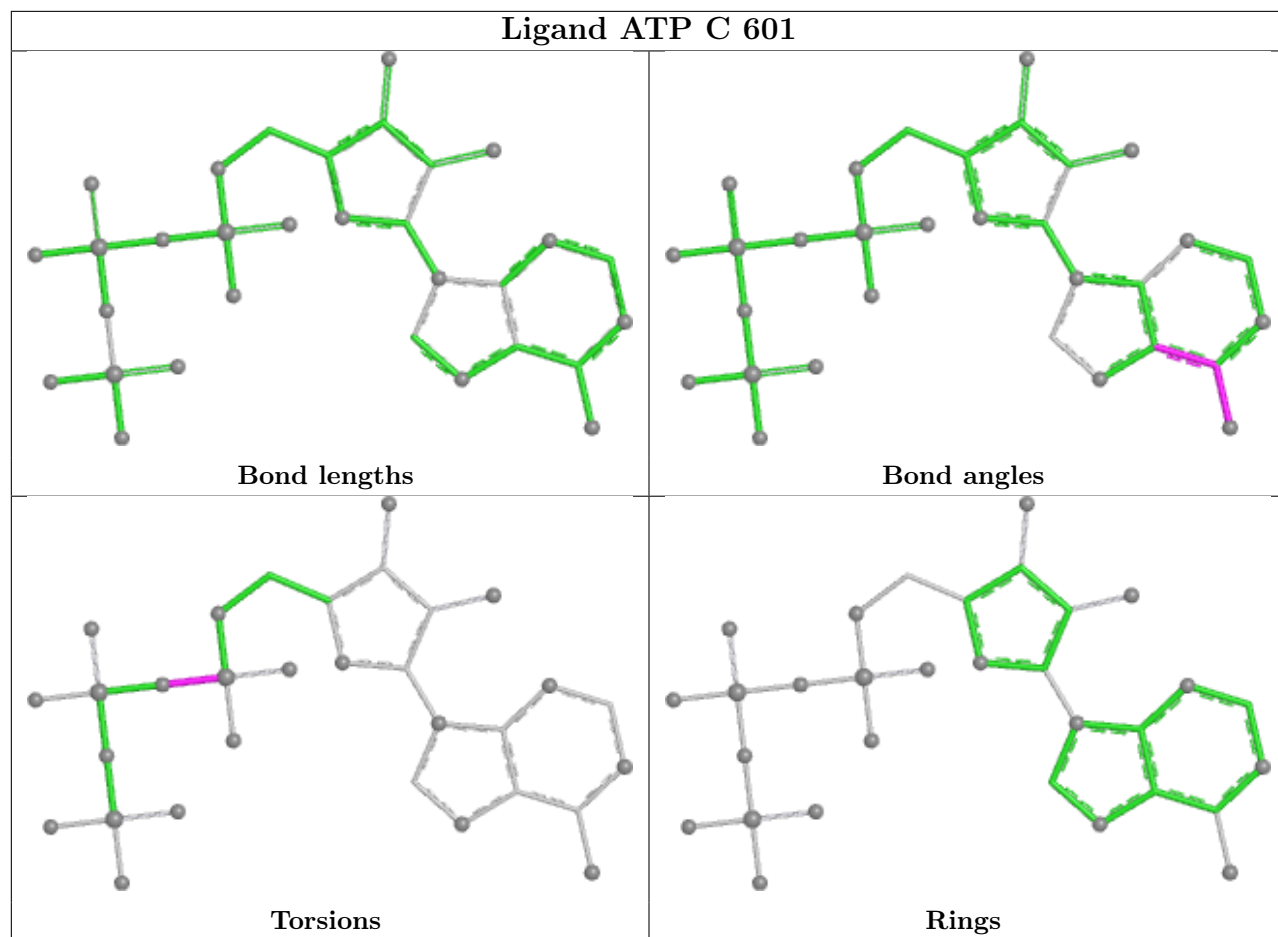


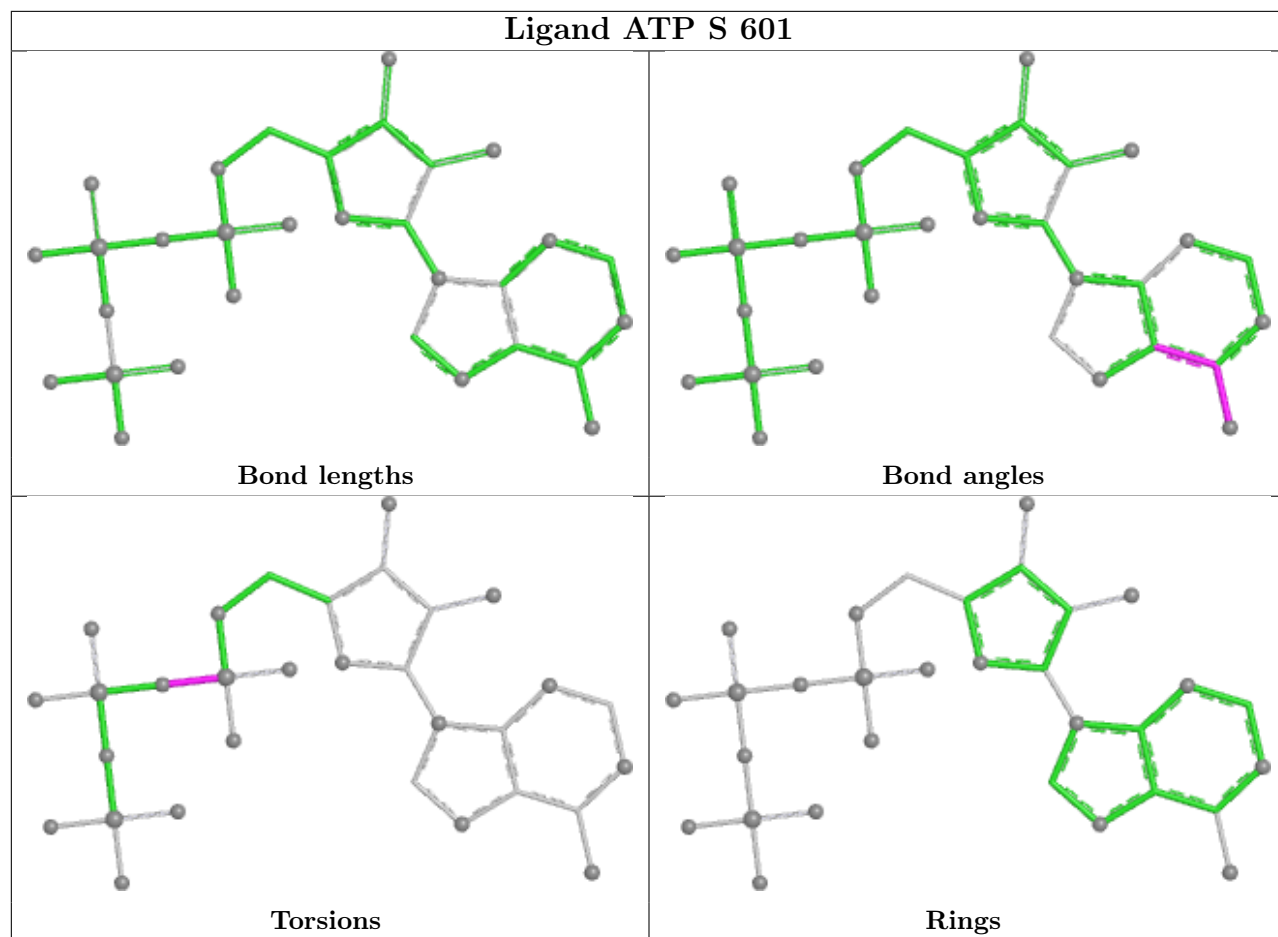


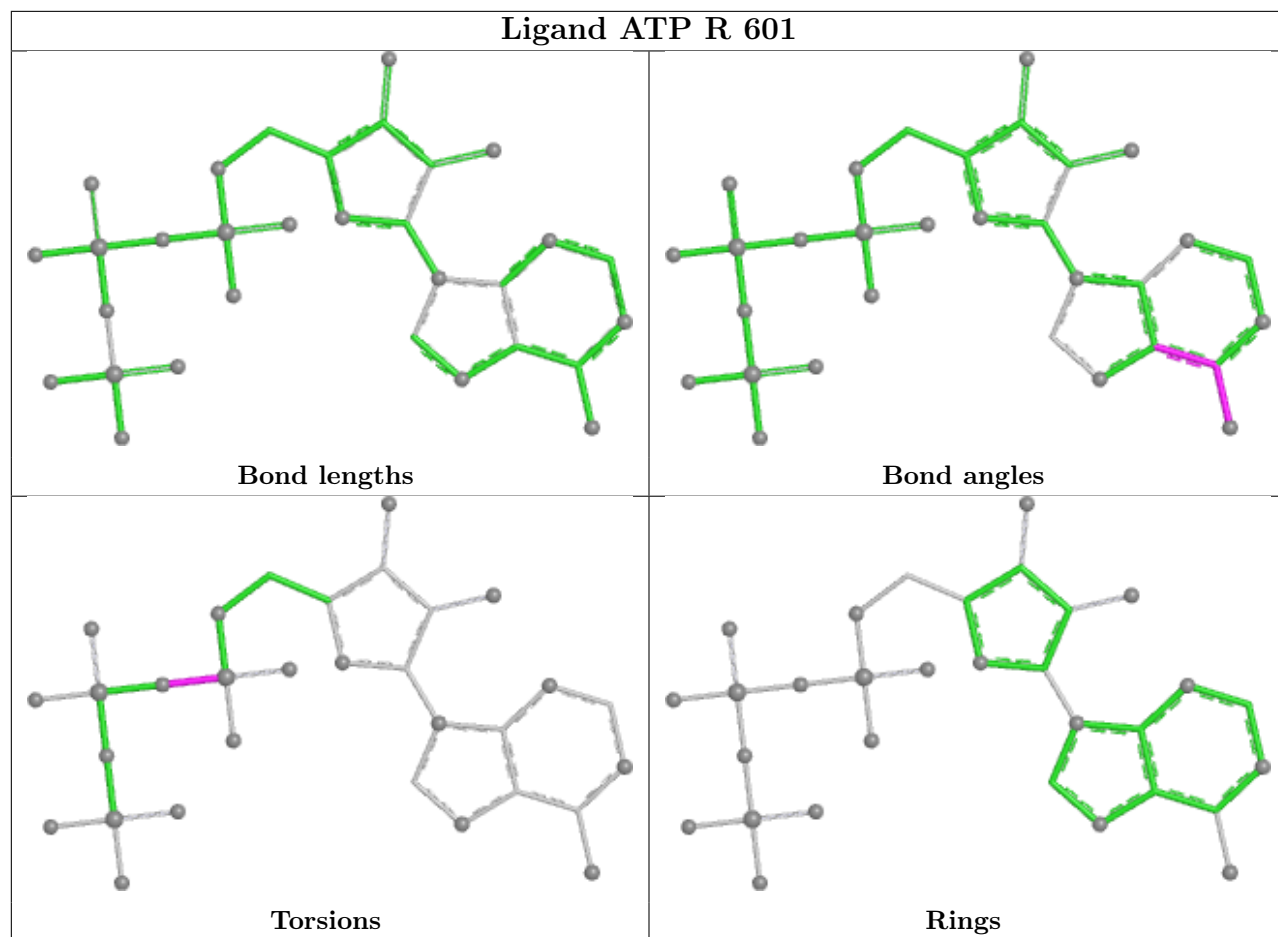


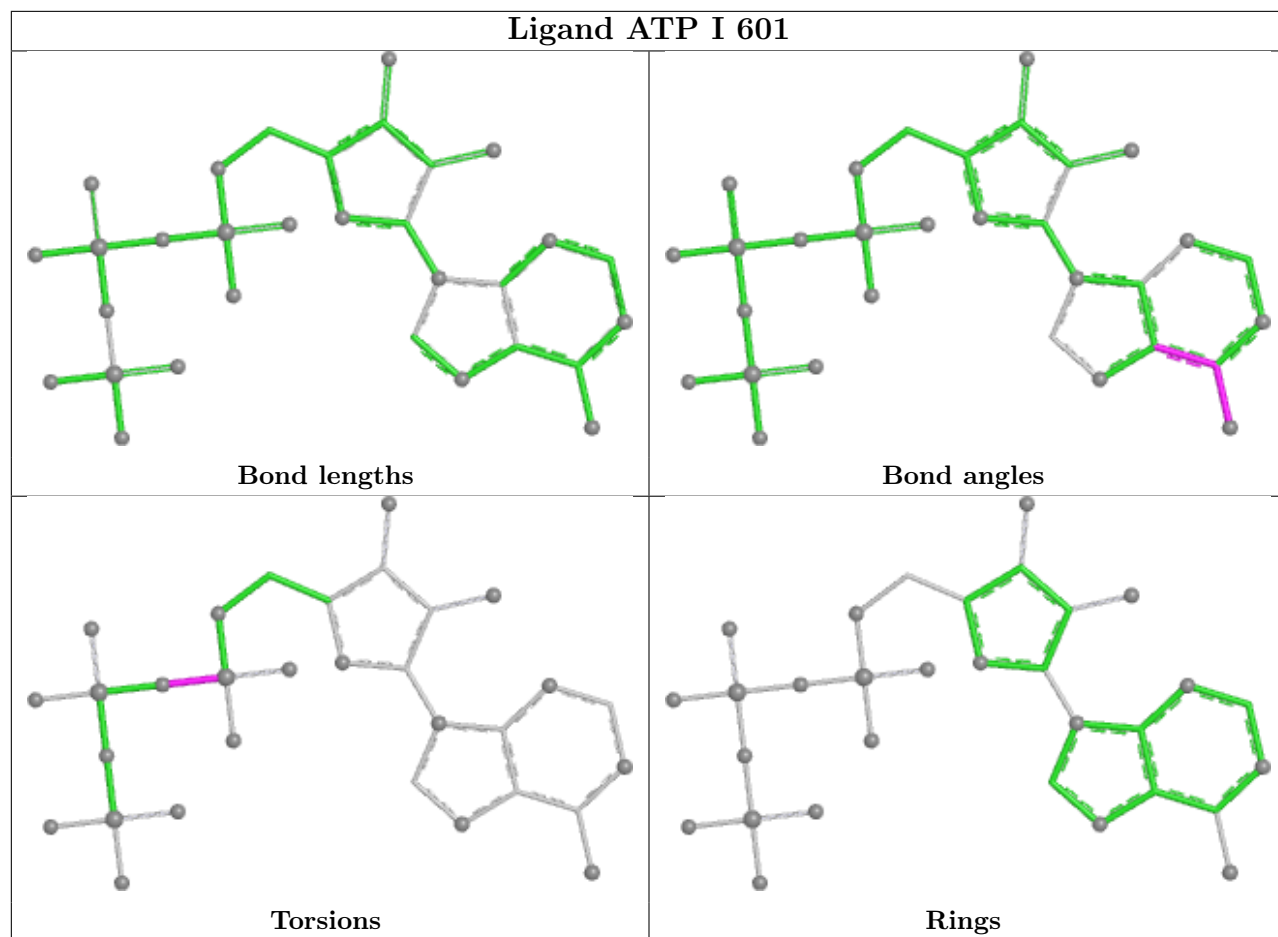


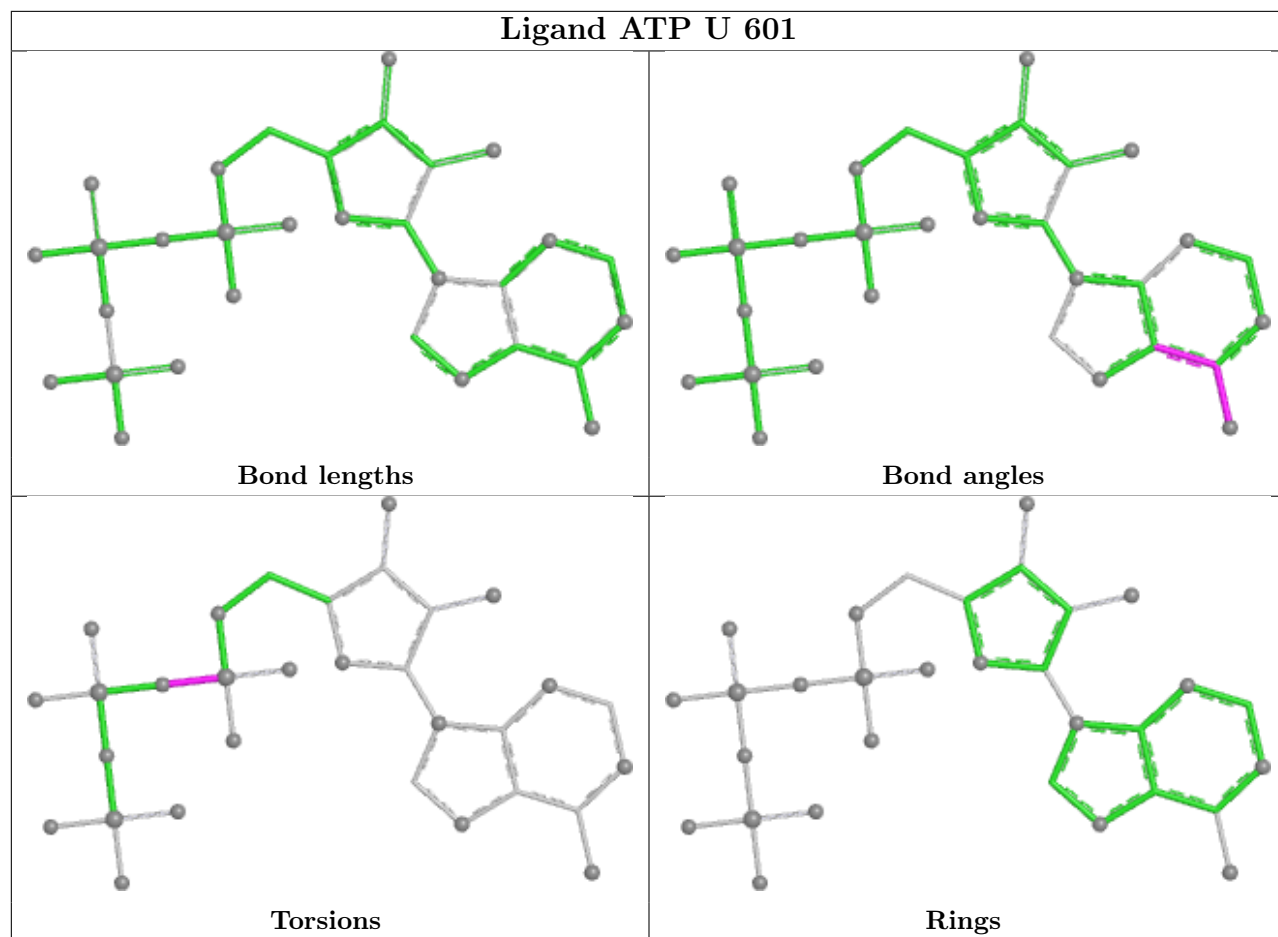




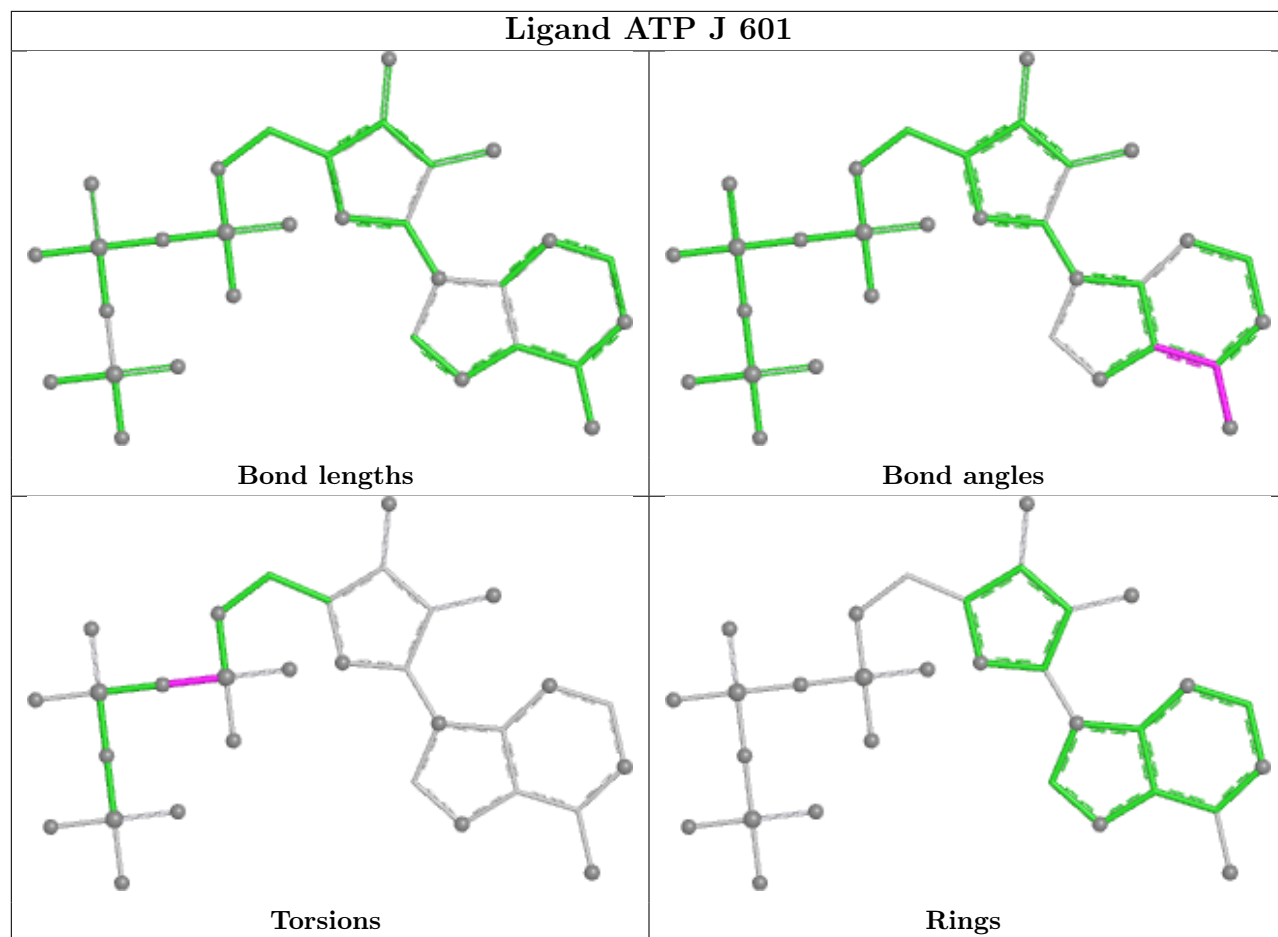


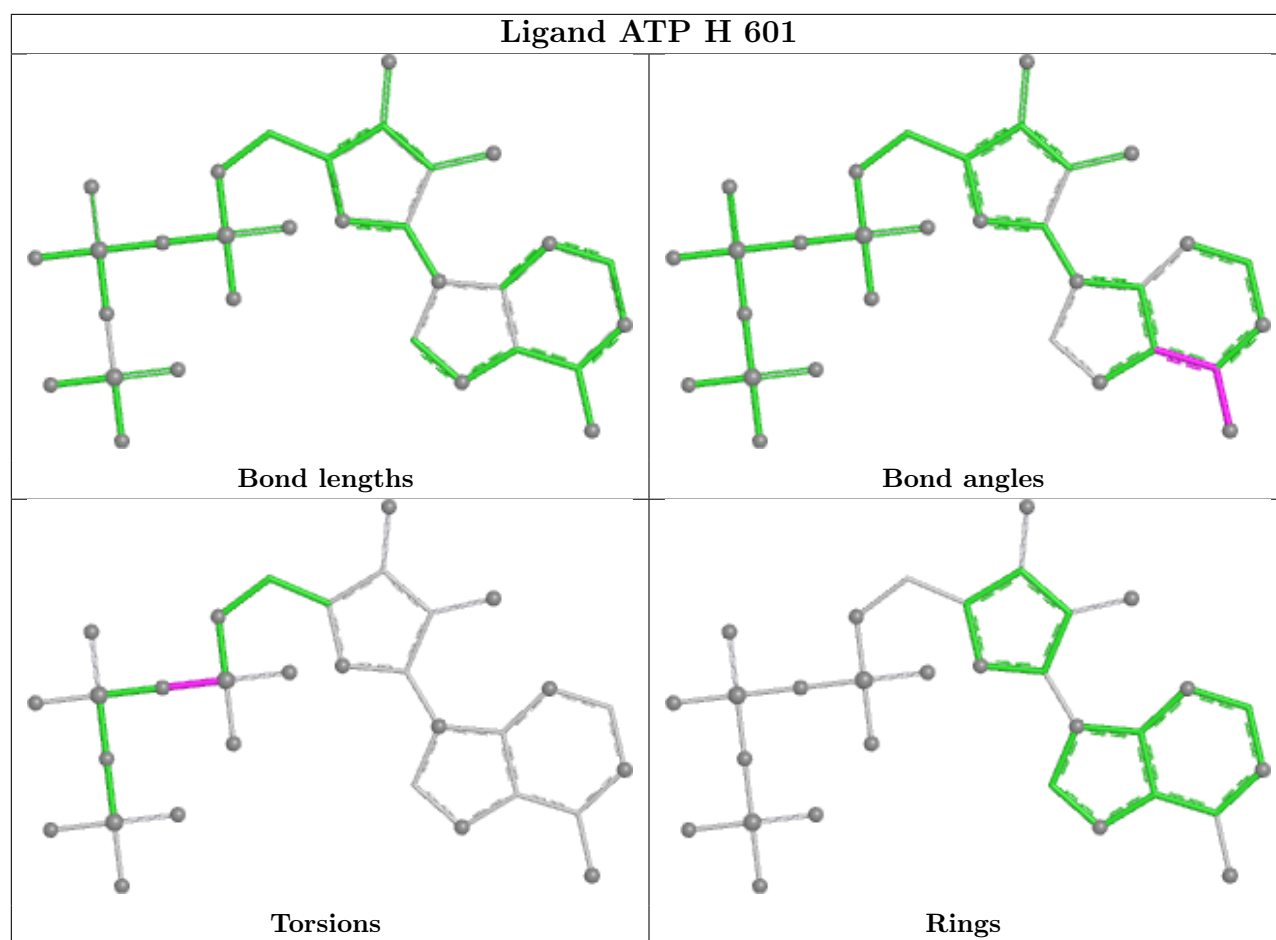












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

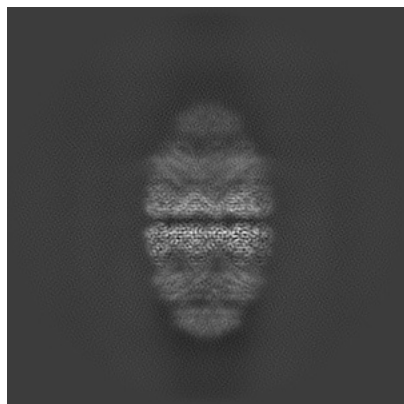
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-48411. These allow visual inspection of the internal detail of the map and identification of artifacts.

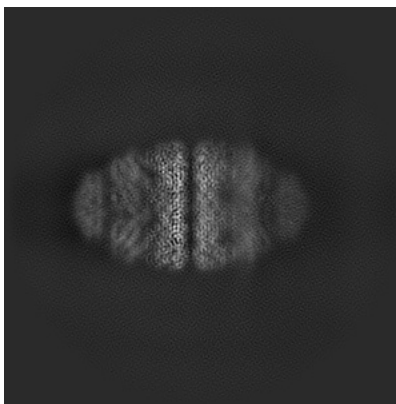
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

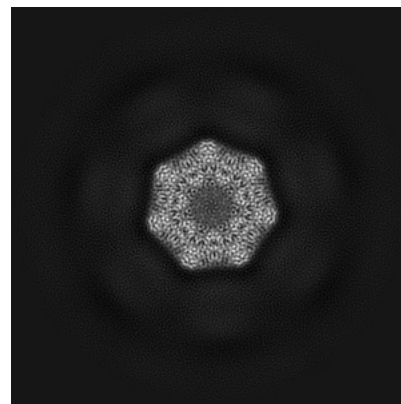
#### 6.1.1 Primary map



X

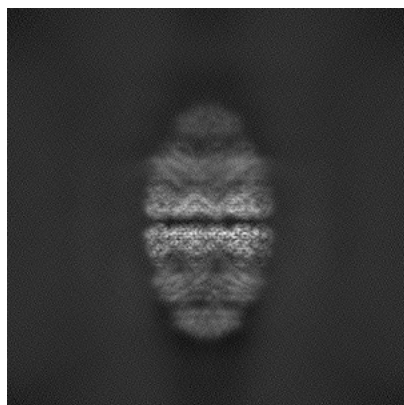


Y

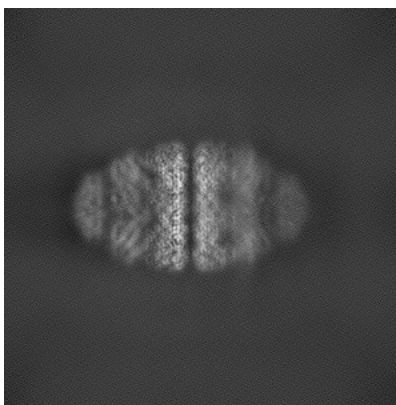


Z

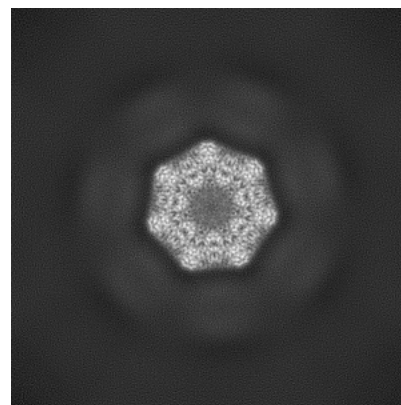
#### 6.1.2 Raw map



X



Y

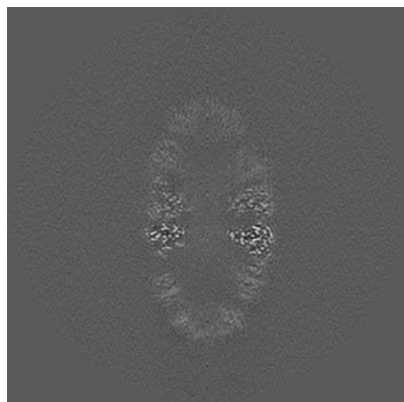


Z

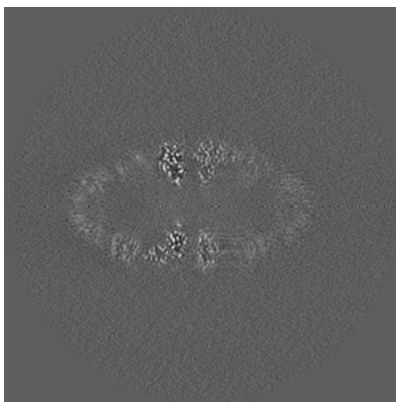
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

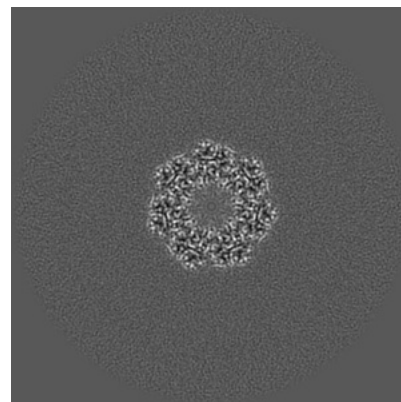
### 6.2.1 Primary map



X Index: 200

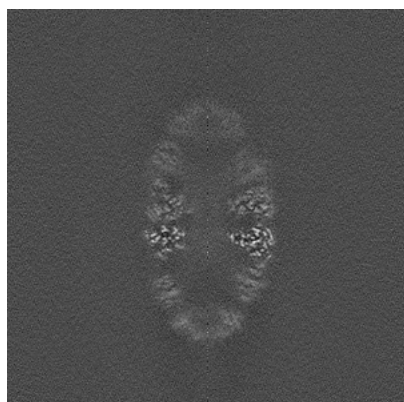


Y Index: 200

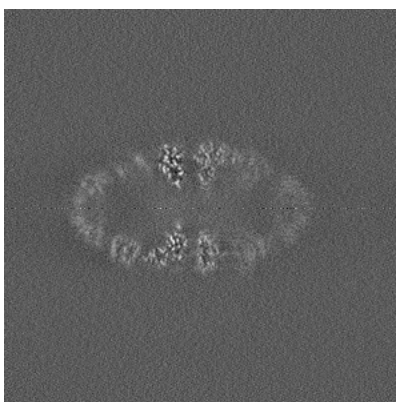


Z Index: 200

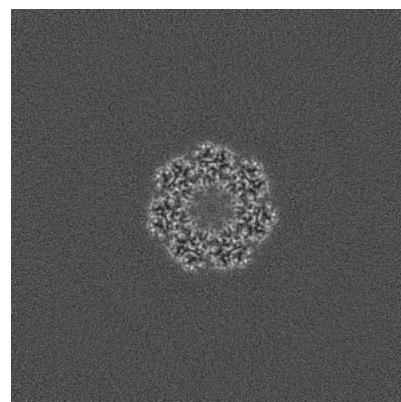
### 6.2.2 Raw map



X Index: 200



Y Index: 200

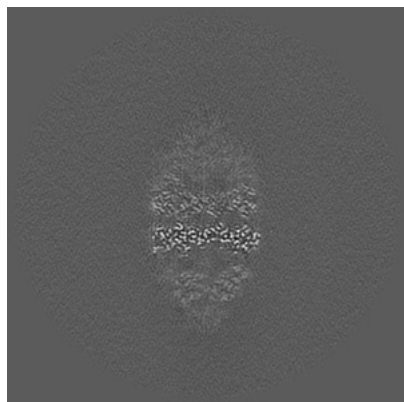


Z Index: 200

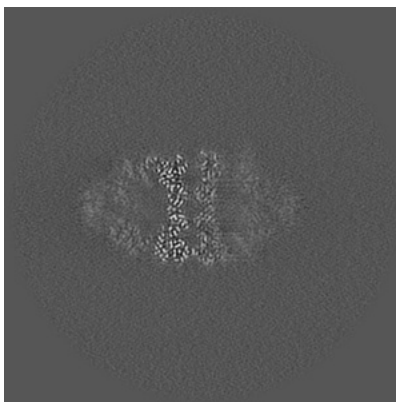
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

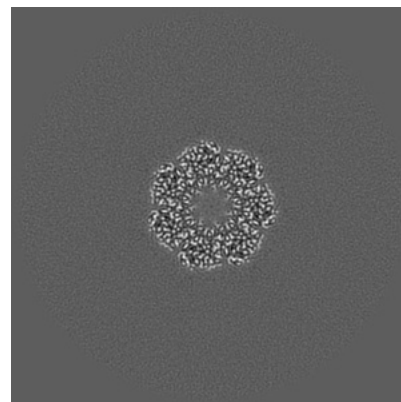
### 6.3.1 Primary map



X Index: 234

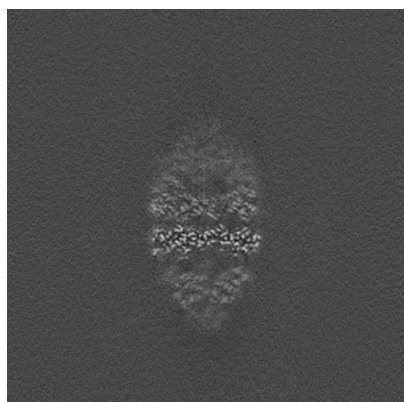


Y Index: 230

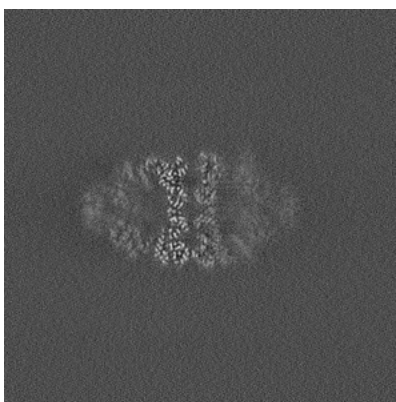


Z Index: 173

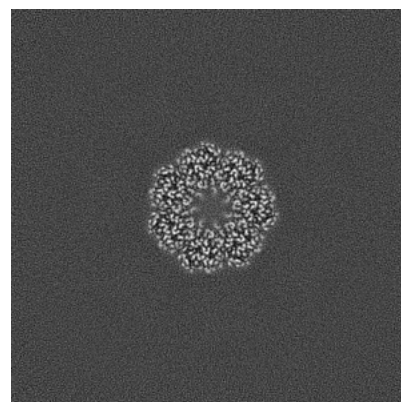
### 6.3.2 Raw map



X Index: 234



Y Index: 230

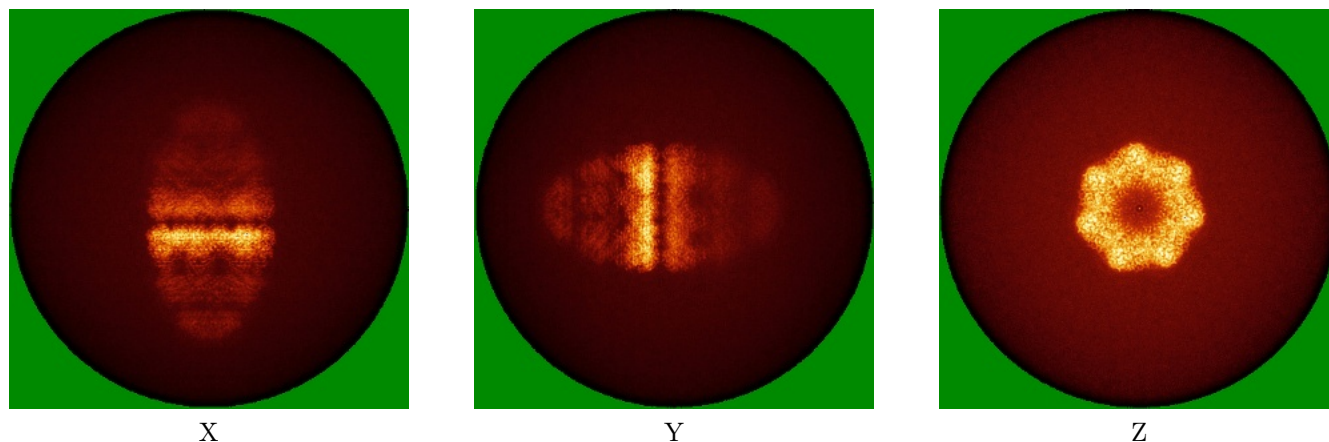


Z Index: 174

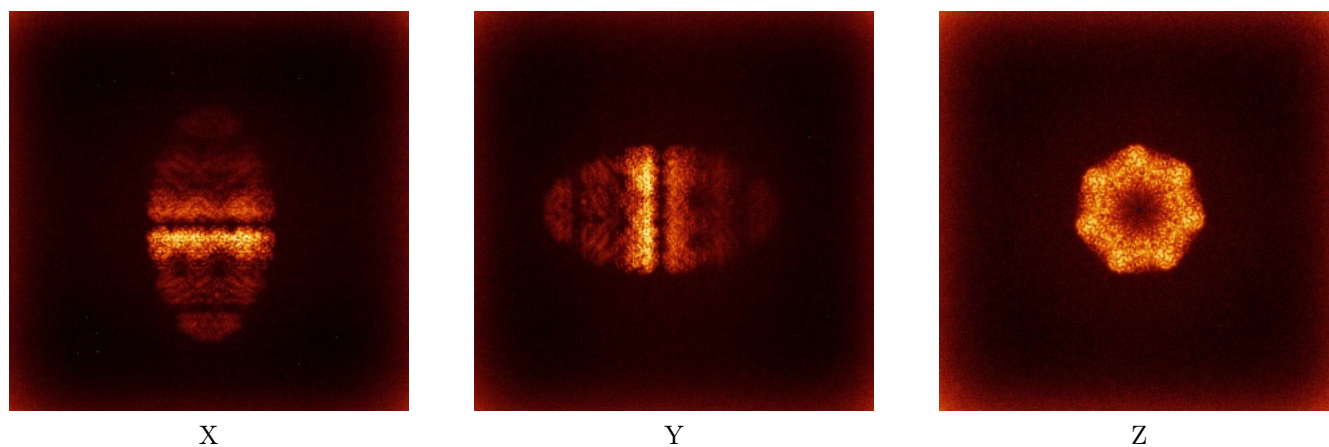
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

### 6.4.1 Primary map



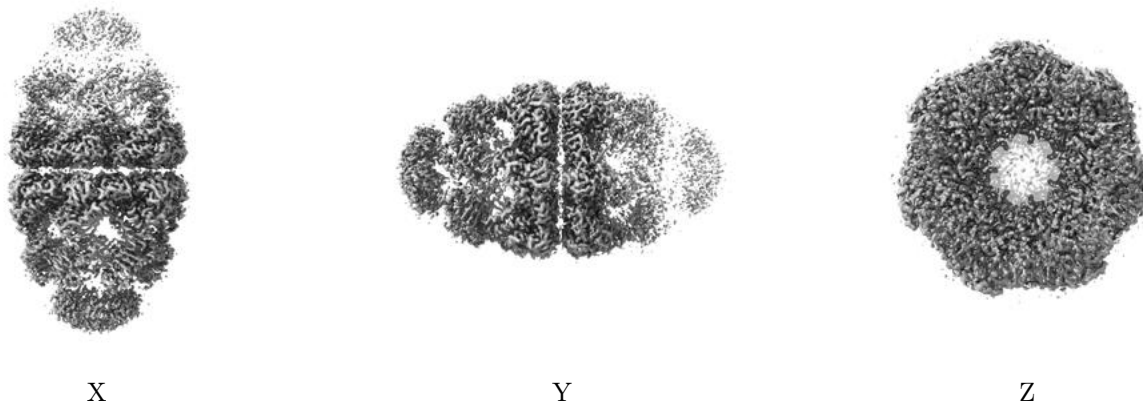
### 6.4.2 Raw map



The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

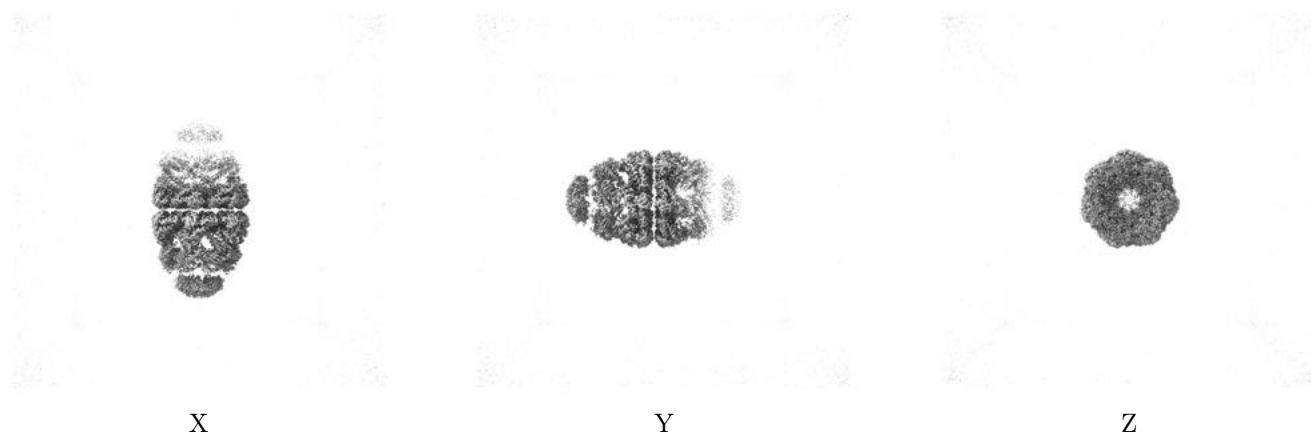
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.218. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

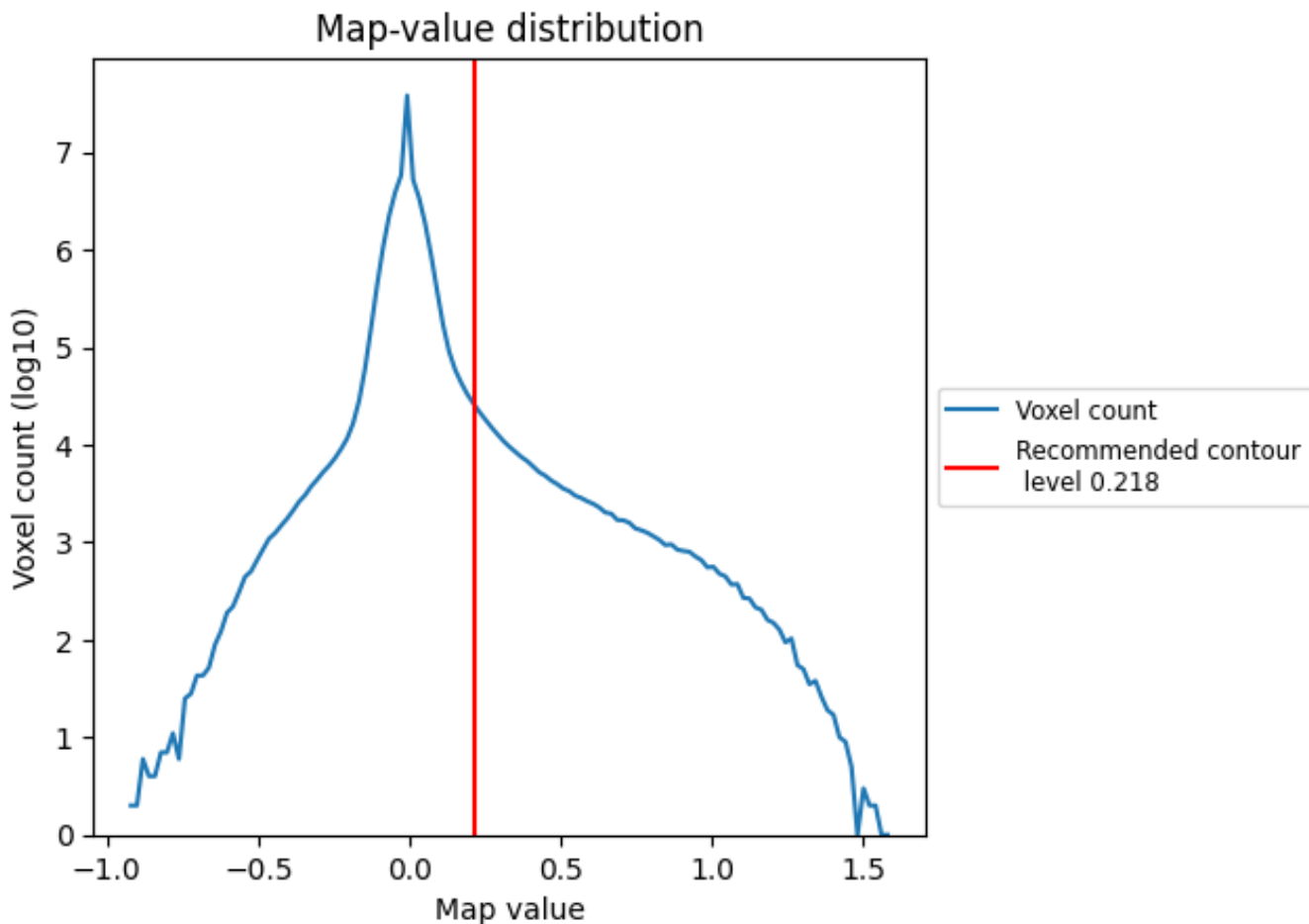
## 6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

This section contains the results of statistical analysis of the map.

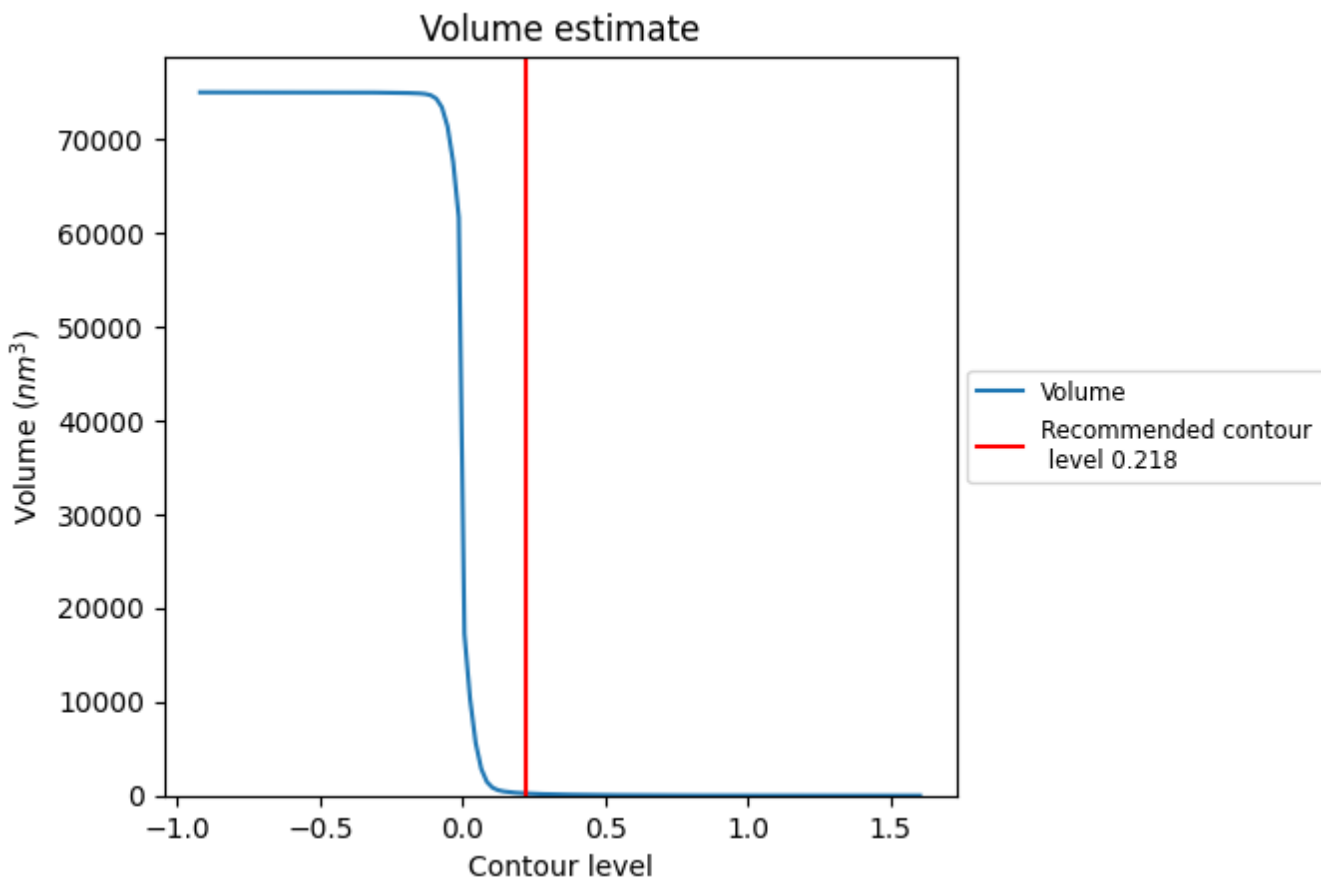
### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.



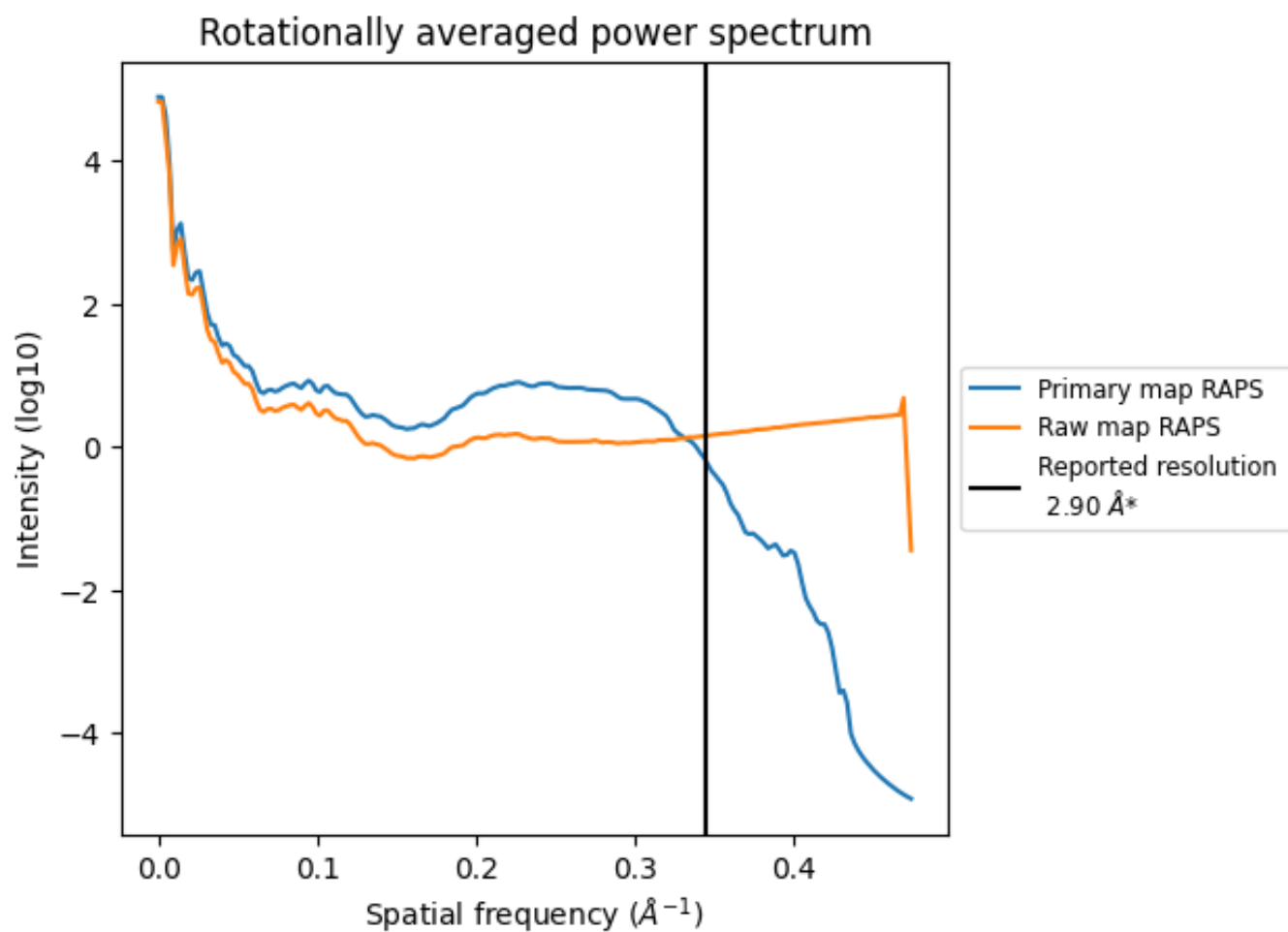
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 233 nm<sup>3</sup>; this corresponds to an approximate mass of 211 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum i

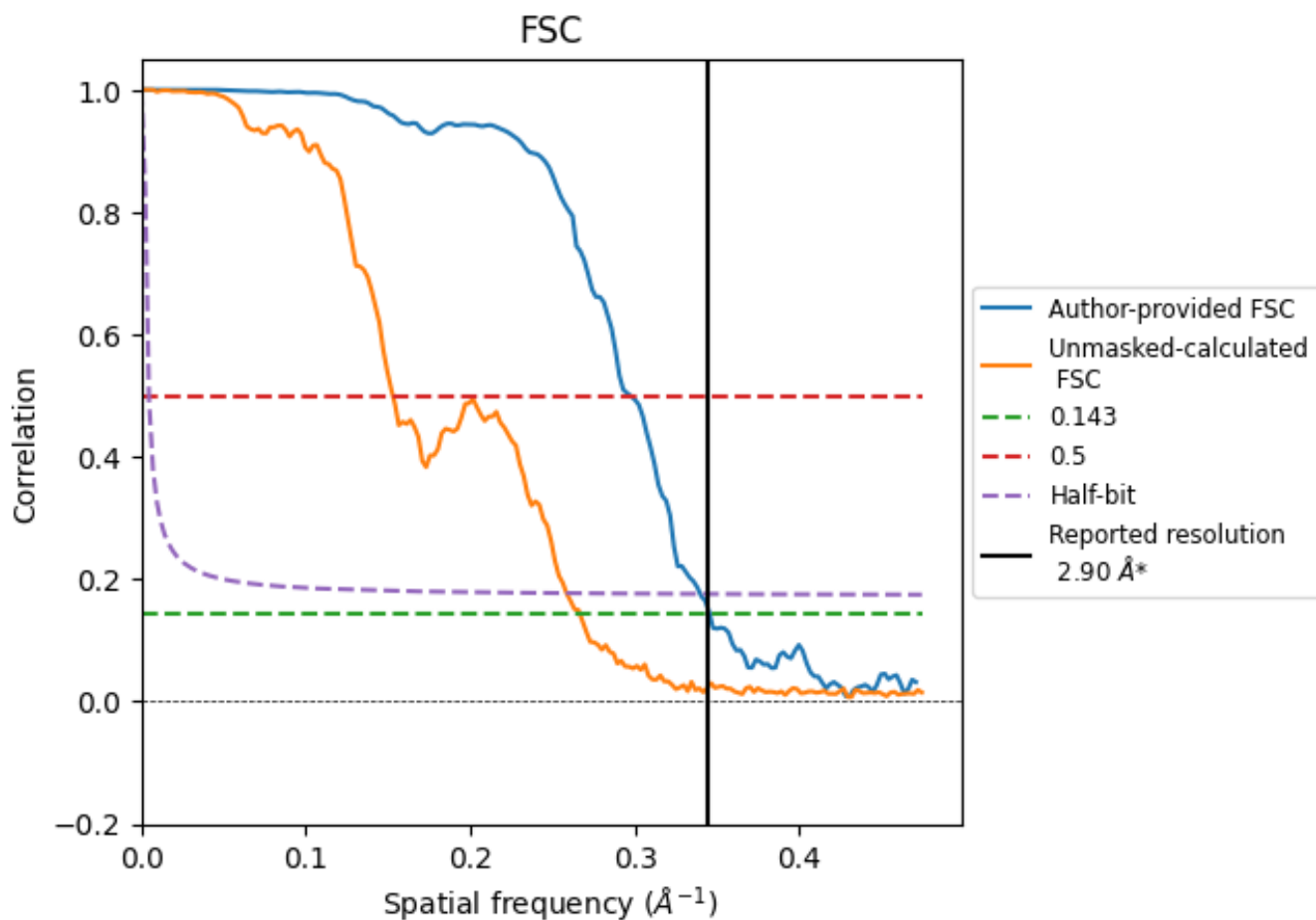


\*Reported resolution corresponds to spatial frequency of 0.345 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.345 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

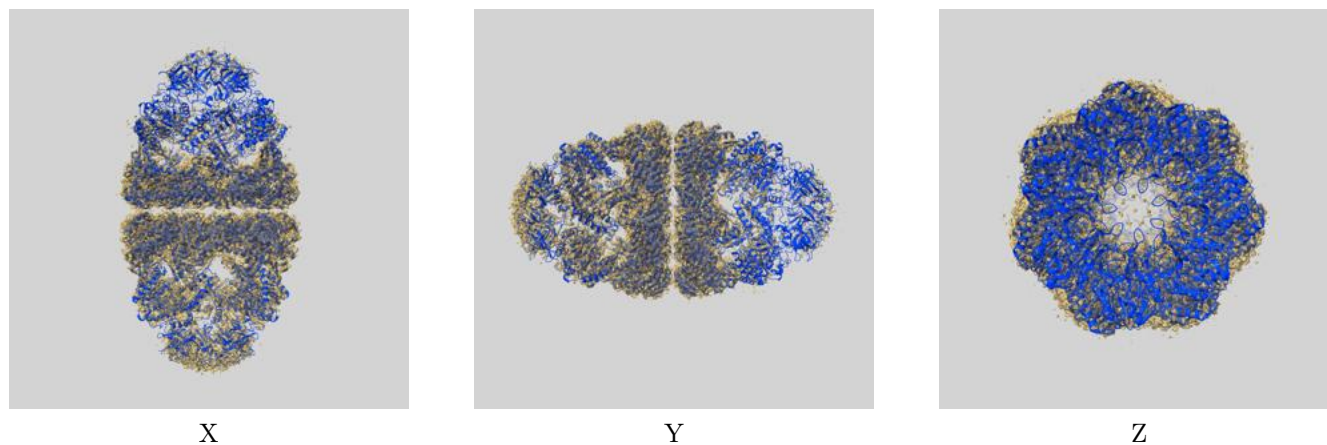
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 2.90                               | -    | -        |
| Author-provided FSC curve | 2.90                               | 3.37 | 2.94     |
| Unmasked-calculated*      | 3.75                               | 6.54 | 3.87     |

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.75 differs from the reported value 2.9 by more than 10 %

## 9 Map-model fit [i](#)

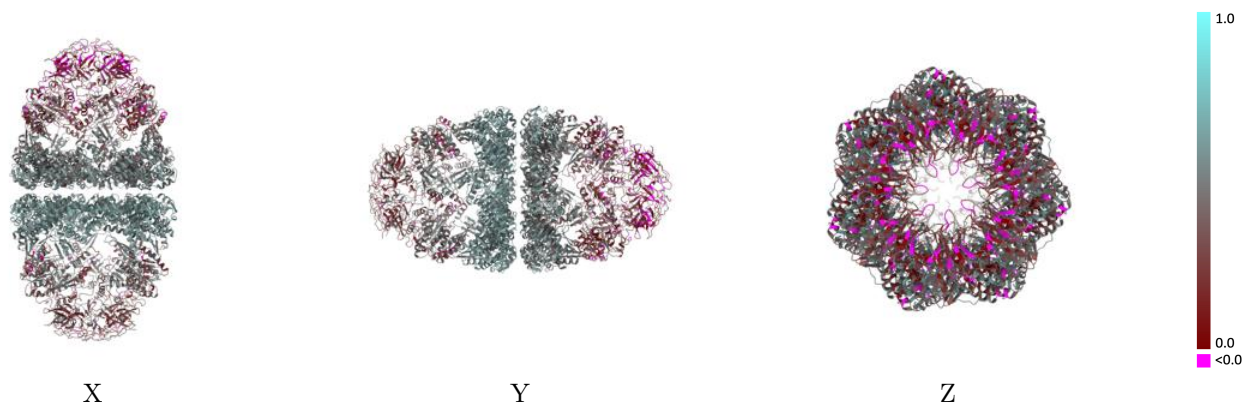
This section contains information regarding the fit between EMDB map EMD-48411 and PDB model 9MN3. Per-residue inclusion information can be found in section 3 on page 8.

### 9.1 Map-model overlay [i](#)



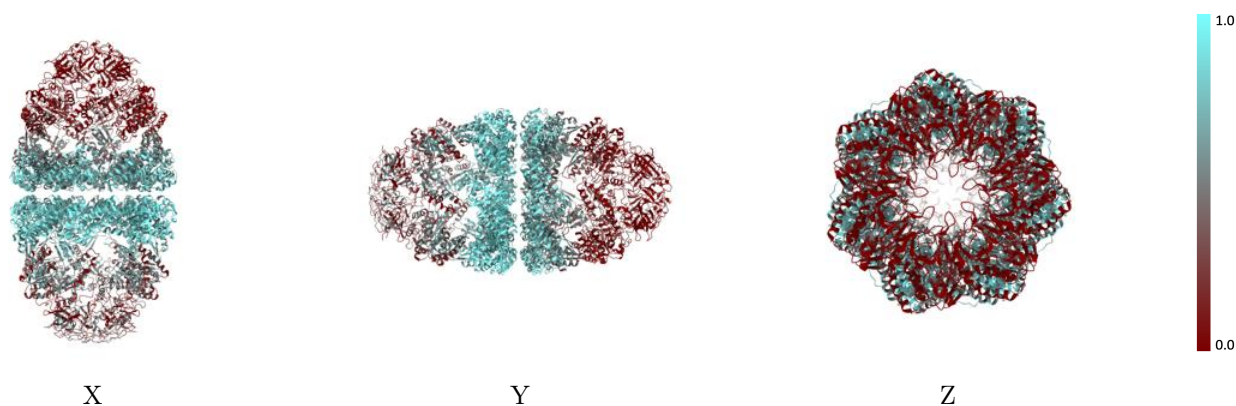
The images above show the 3D surface view of the map at the recommended contour level 0.218 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



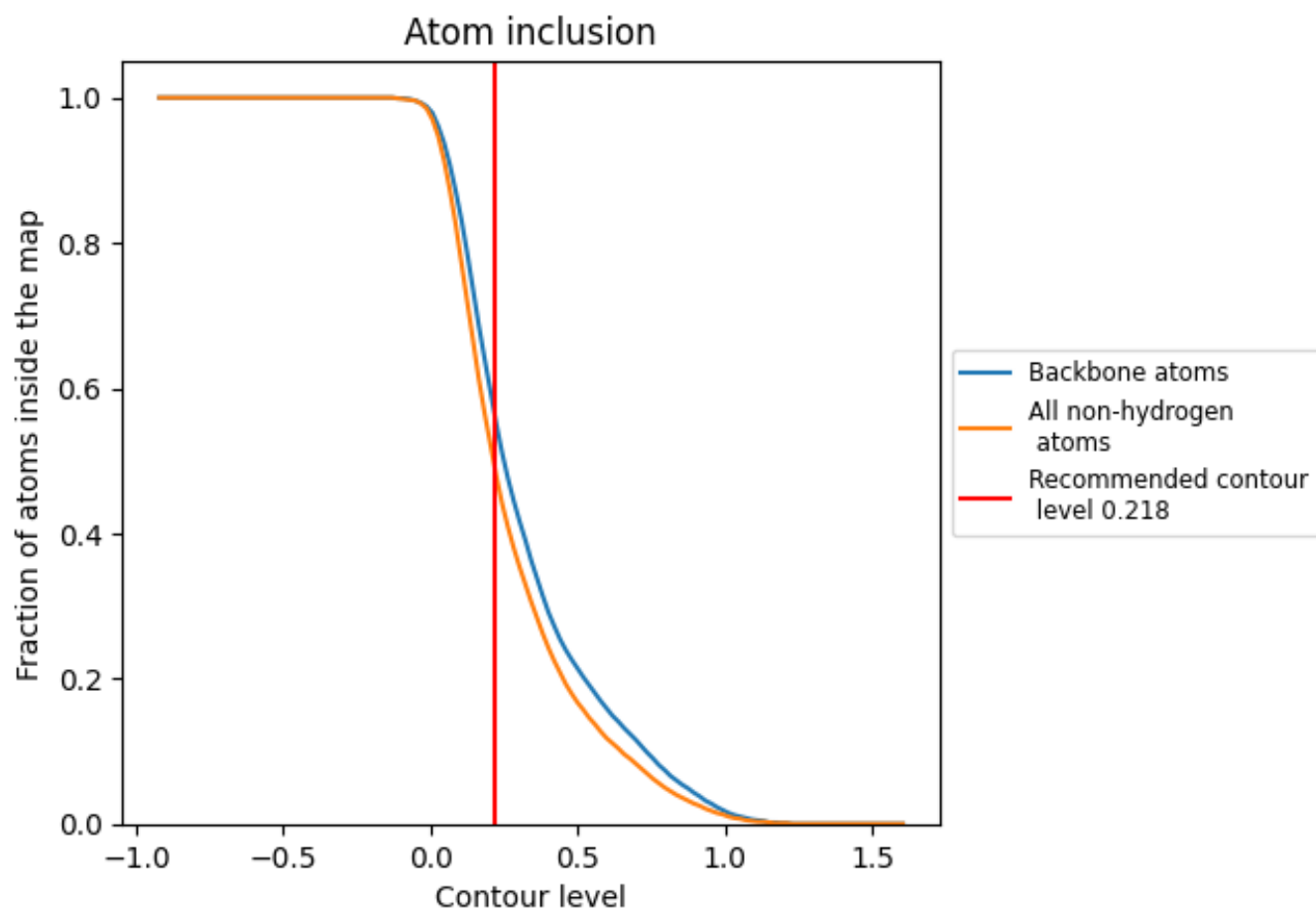
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.218).



























































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 56% of all backbone atoms, 49% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.218) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion   | Q-score  |
|-------|--|--|
| All   |  0.4880   |  0.4230   |
| I     |  0.0170   |  0.1610   |
| A     |  0.0170   |  0.1650   |
| B     |  0.0150   |  0.1620   |
| C     |  0.6690   |  0.5060   |
| D     |  0.0150   |  0.1620   |
| E     |  0.0180   |  0.1600   |
| F     |  0.0180   |  0.1570   |
| G     |  0.0150   |  0.1590   |
| H     |  0.6680   |  0.5040   |
| I     |  0.6690   |  0.5040   |
| J     |  0.6690   |  0.5050   |
| K     |  0.6690   |  0.5050   |
| L     |  0.6700   |  0.5050   |
| M     |  0.4450  |  0.4140  |
| N     |  0.6680 |  0.5050 |
| O     |  0.4440 |  0.4110 |
| P     |  0.4460 |  0.4110 |
| Q     |  0.2220 |  0.3050 |
| R     |  0.4450 |  0.4110 |
| S     |  0.4400 |  0.4120 |
| T     |  0.4440 |  0.4130 |
| U     |  0.4430 |  0.4120 |
| V     |  0.2250 |  0.3020 |
| W     |  0.2260 |  0.2990 |
| X     |  0.2220 |  0.2950 |
| Y     |  0.2200 |  0.2970 |
| Z     |  0.2320 |  0.3020 |
| a     |  0.2270 |  0.3050 |

