



## Full wwPDB EM Validation Report ⓘ

May 25, 2025 – 10:23 PM EDT

PDB ID : 7U5H / pdb\_00007u5h  
EMDB ID : EMD-26350  
Title : Cryo-EM Structure of DNPEP  
Authors : Morgan, C.E.; Yu, E.W.; Zhang, Z.  
Deposited on : 2022-03-02  
Resolution : 3.32 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.dev118  
MolProbity : 4-5-2 with Phenix2.0rc1  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.43.1

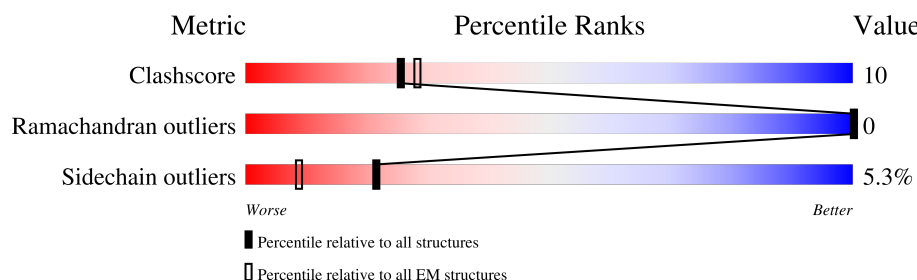
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

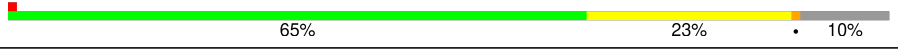
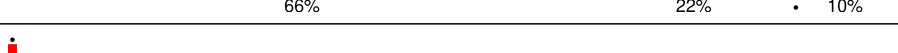
The reported resolution of this entry is 3.32 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) |
|-----------------------|-----------------------------|-----------------------------|
| Clashscore            | 210492                      | 15764                       |
| Ramachandran outliers | 207382                      | 16835                       |
| Sidechain outliers    | 206894                      | 16415                       |

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   | A     | 471    |  |
| 1   | B     | 471    |  |
| 1   | C     | 471    |  |
| 1   | D     | 471    |  |
| 1   | E     | 471    |  |
| 1   | F     | 471    |  |
| 1   | G     | 471    |  |
| 1   | H     | 471    |  |

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| Mol | Chain | Length | Quality of chain                                                                                               |
|-----|-------|--------|----------------------------------------------------------------------------------------------------------------|
| 1   | I     | 471    | <div><div><div></div><div></div><div></div></div><div><div>66%</div><div>22%</div><div>• 10%</div></div></div> |
| 1   | J     | 471    | <div><div><div></div><div></div><div></div></div><div><div>65%</div><div>23%</div><div>• 10%</div></div></div> |
| 1   | K     | 471    | <div><div><div></div><div></div><div></div></div><div><div>65%</div><div>23%</div><div>• 10%</div></div></div> |
| 1   | L     | 471    | <div><div><div></div><div></div><div></div></div><div><div>65%</div><div>23%</div><div>• 10%</div></div></div> |

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 39192 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 Aspartyl aminopeptidase.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 1   | A     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | B     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | C     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | D     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | E     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | F     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | G     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | H     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | I     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | J     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | K     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |
| 1   | L     | 422      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3264  | 2068 | 580 | 599 | 17 |         |       |

- Molecule 2 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 2   | A     | 2        | Total | Zn | 0       |
|     |       |          | 2     | 2  |         |
| 2   | B     | 2        | Total | Zn | 0       |
|     |       |          | 2     | 2  |         |

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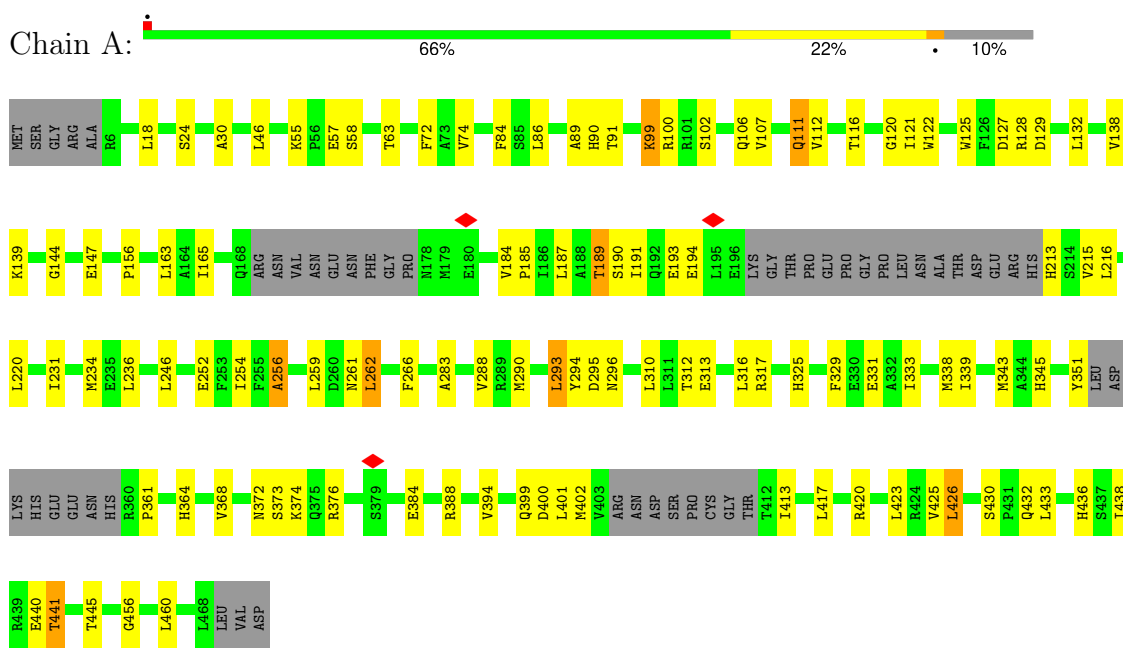
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| Mol | Chain | Residues | Atoms      |         | AltConf |
|-----|-------|----------|------------|---------|---------|
| 2   | C     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | D     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | E     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | F     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | G     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | H     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | I     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | J     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | K     | 2        | Total<br>2 | Zn<br>2 | 0       |
| 2   | L     | 2        | Total<br>2 | Zn<br>2 | 0       |

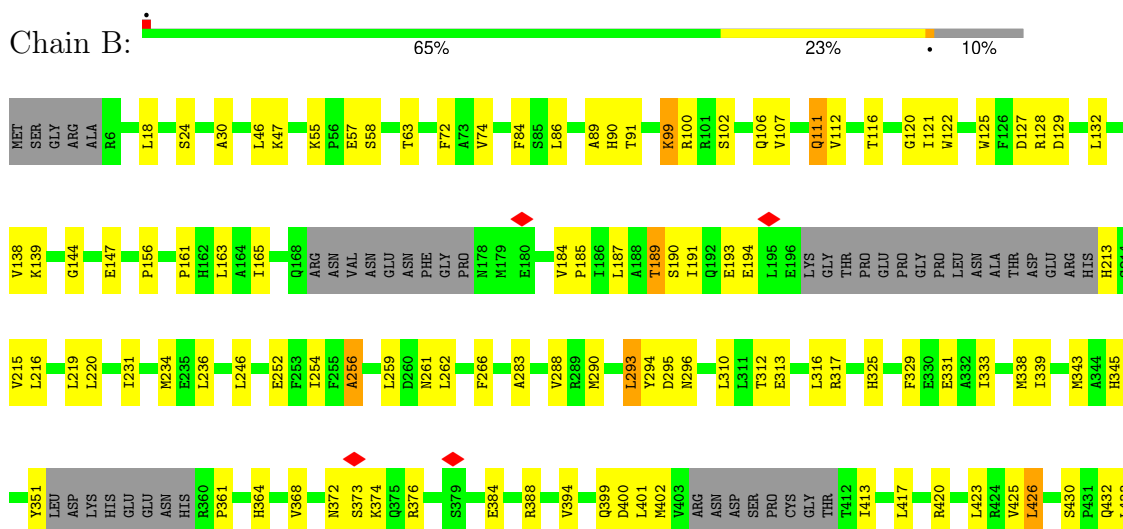
### 3 Residue-property plots

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: Aspartyl aminopeptidase

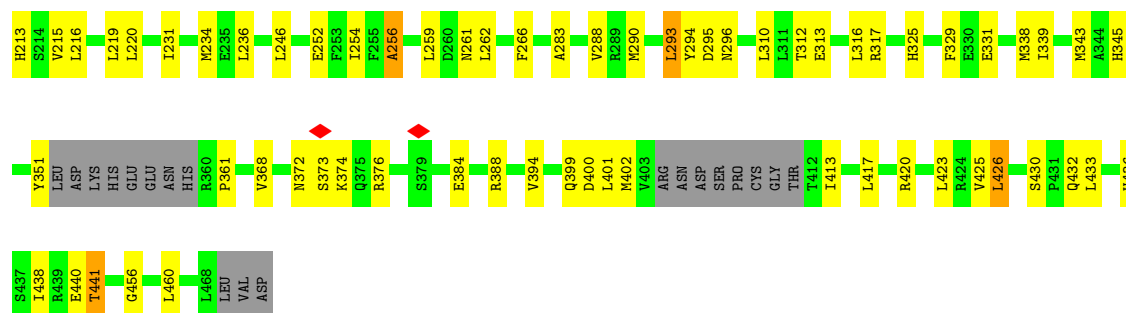


#### • Molecule 1: Aspartyl aminopeptidase

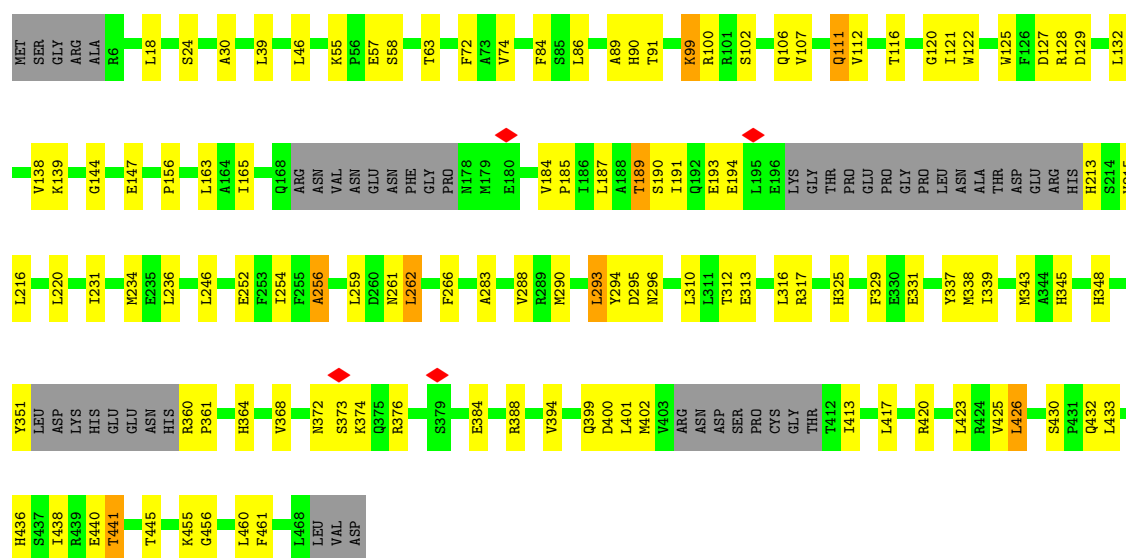




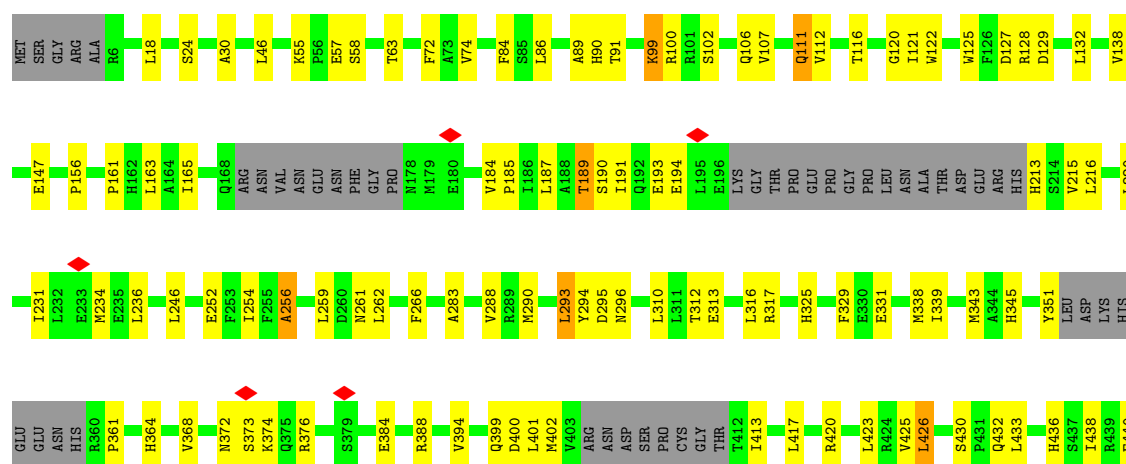


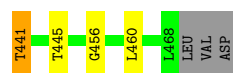


• Molecule 1: Aspartyl aminopeptidase

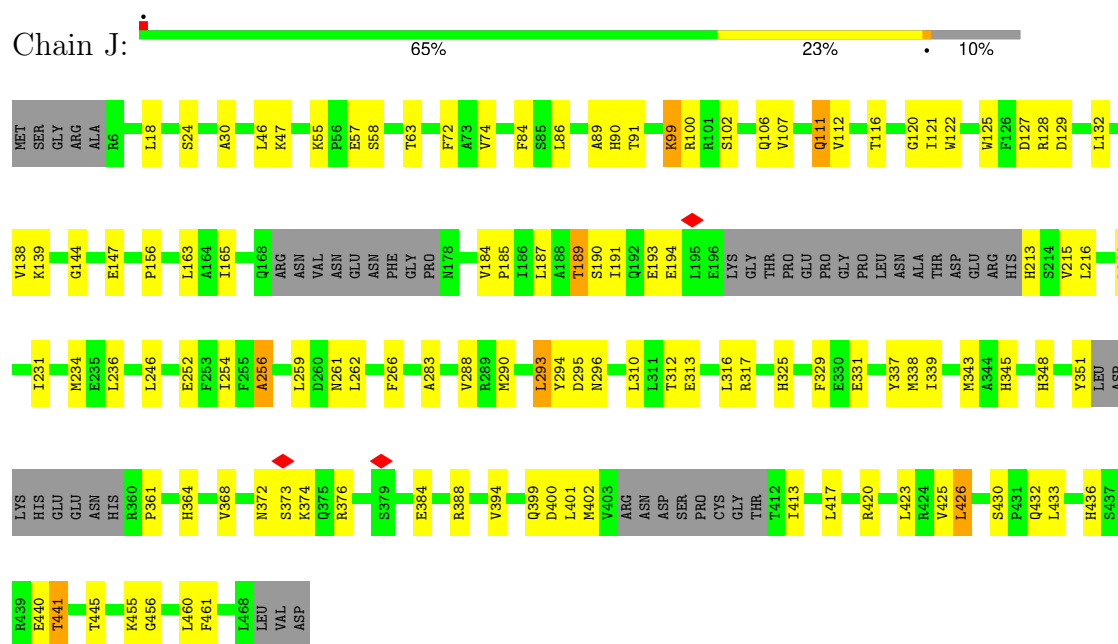


• Molecule 1: Aspartyl aminopeptidase

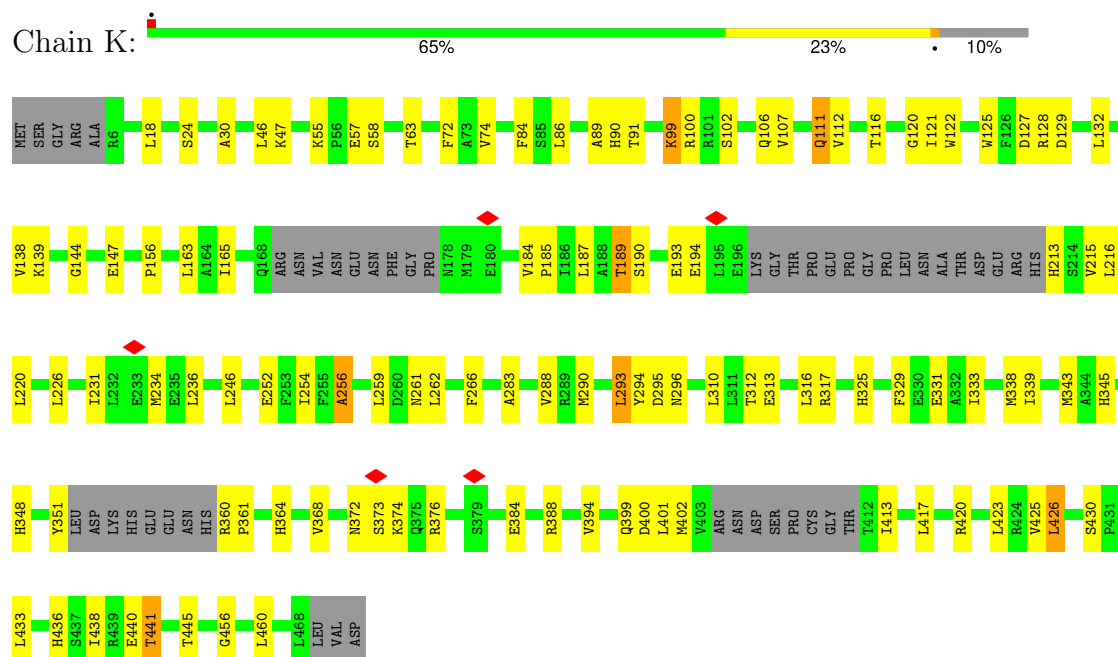




• Molecule 1: Aspartyl aminopeptidase

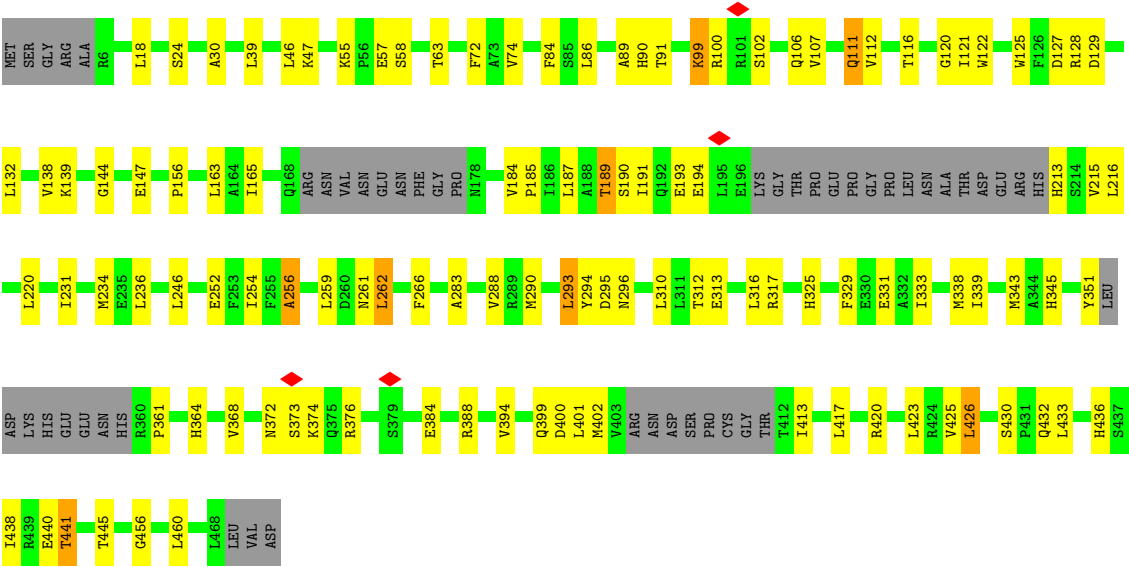


• Molecule 1: Aspartyl aminopeptidase



• Molecule 1: Aspartyl aminopeptidase





## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, T                                | Depositor |
| Number of particles used             | 629                                     | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | TFS KRIOS                               | Depositor |
| Voltage (kV)                         | 300                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 37                                      | Depositor |
| Minimum defocus (nm)                 | 1000                                    | Depositor |
| Maximum defocus (nm)                 | 2500                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K3 (6k x 4k)                      | Depositor |
| Maximum map value                    | 1.537                                   | Depositor |
| Minimum map value                    | -1.017                                  | Depositor |
| Average map value                    | 0.000                                   | Depositor |
| Map value standard deviation         | 0.065                                   | Depositor |
| Recommended contour level            | 0.15                                    | Depositor |
| Map size (Å)                         | 273.92, 273.92, 273.92                  | wwPDB     |
| Map dimensions                       | 256, 256, 256                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 1.07, 1.07, 1.07                        | Depositor |

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section:  
ZN

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

| Mol | Chain | Bond lengths |             | Bond angles |                 |
|-----|-------|--------------|-------------|-------------|-----------------|
|     |       | RMSZ         | $\# Z  > 5$ | RMSZ        | $\# Z  > 5$     |
| 1   | A     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | B     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | C     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | D     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | E     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | F     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | G     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | H     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | I     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | J     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | K     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| 1   | L     | 0.39         | 0/3329      | 0.61        | 4/4511 (0.1%)   |
| All | All   | 0.39         | 0/39948     | 0.61        | 48/54132 (0.1%) |

There are no bond length outliers.

All (48) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms  | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 1   | J     | 262 | LEU  | N-CA-C | -6.98 | 104.73      | 113.18   |
| 1   | A     | 262 | LEU  | N-CA-C | -6.96 | 104.75      | 113.18   |
| 1   | G     | 262 | LEU  | N-CA-C | -6.95 | 104.77      | 113.18   |
| 1   | F     | 262 | LEU  | N-CA-C | -6.95 | 104.77      | 113.18   |
| 1   | K     | 262 | LEU  | N-CA-C | -6.94 | 104.78      | 113.18   |
| 1   | D     | 262 | LEU  | N-CA-C | -6.94 | 104.78      | 113.18   |
| 1   | B     | 262 | LEU  | N-CA-C | -6.93 | 104.79      | 113.18   |
| 1   | H     | 262 | LEU  | N-CA-C | -6.93 | 104.79      | 113.18   |
| 1   | I     | 262 | LEU  | N-CA-C | -6.93 | 104.79      | 113.18   |
| 1   | C     | 262 | LEU  | N-CA-C | -6.93 | 104.79      | 113.18   |
| 1   | E     | 262 | LEU  | N-CA-C | -6.92 | 104.80      | 113.18   |
| 1   | L     | 262 | LEU  | N-CA-C | -6.91 | 104.81      | 113.18   |

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| Mol | Chain | Res | Type | Atoms  | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 1   | H     | 256 | ALA  | CA-C-N | -5.14 | 115.06      | 120.66   |
| 1   | H     | 256 | ALA  | C-N-CA | -5.14 | 115.06      | 120.66   |
| 1   | C     | 256 | ALA  | CA-C-N | -5.13 | 115.07      | 120.66   |
| 1   | C     | 256 | ALA  | C-N-CA | -5.13 | 115.07      | 120.66   |
| 1   | J     | 256 | ALA  | CA-C-N | -5.13 | 115.07      | 120.66   |
| 1   | J     | 256 | ALA  | C-N-CA | -5.13 | 115.07      | 120.66   |
| 1   | B     | 256 | ALA  | CA-C-N | -5.13 | 115.07      | 120.66   |
| 1   | B     | 256 | ALA  | C-N-CA | -5.13 | 115.07      | 120.66   |
| 1   | B     | 266 | PHE  | N-CA-C | -5.13 | 105.39      | 111.69   |
| 1   | K     | 256 | ALA  | CA-C-N | -5.12 | 115.07      | 120.66   |
| 1   | K     | 256 | ALA  | C-N-CA | -5.12 | 115.07      | 120.66   |
| 1   | I     | 256 | ALA  | CA-C-N | -5.12 | 115.08      | 120.66   |
| 1   | I     | 256 | ALA  | C-N-CA | -5.12 | 115.08      | 120.66   |
| 1   | L     | 256 | ALA  | CA-C-N | -5.12 | 115.08      | 120.66   |
| 1   | L     | 256 | ALA  | C-N-CA | -5.12 | 115.08      | 120.66   |
| 1   | G     | 256 | ALA  | CA-C-N | -5.12 | 115.08      | 120.66   |
| 1   | G     | 256 | ALA  | C-N-CA | -5.12 | 115.08      | 120.66   |
| 1   | G     | 266 | PHE  | N-CA-C | -5.12 | 105.40      | 111.69   |
| 1   | F     | 266 | PHE  | N-CA-C | -5.11 | 105.40      | 111.69   |
| 1   | A     | 256 | ALA  | CA-C-N | -5.11 | 115.09      | 120.66   |
| 1   | A     | 256 | ALA  | C-N-CA | -5.11 | 115.09      | 120.66   |
| 1   | E     | 266 | PHE  | N-CA-C | -5.11 | 105.41      | 111.69   |
| 1   | D     | 256 | ALA  | CA-C-N | -5.11 | 115.09      | 120.66   |
| 1   | D     | 256 | ALA  | C-N-CA | -5.11 | 115.09      | 120.66   |
| 1   | F     | 256 | ALA  | CA-C-N | -5.11 | 115.09      | 120.66   |
| 1   | F     | 256 | ALA  | C-N-CA | -5.11 | 115.09      | 120.66   |
| 1   | H     | 266 | PHE  | N-CA-C | -5.10 | 105.42      | 111.69   |
| 1   | A     | 266 | PHE  | N-CA-C | -5.10 | 105.42      | 111.69   |
| 1   | L     | 266 | PHE  | N-CA-C | -5.09 | 105.43      | 111.69   |
| 1   | K     | 266 | PHE  | N-CA-C | -5.09 | 105.43      | 111.69   |
| 1   | J     | 266 | PHE  | N-CA-C | -5.09 | 105.44      | 111.69   |
| 1   | I     | 266 | PHE  | N-CA-C | -5.07 | 105.45      | 111.69   |
| 1   | D     | 266 | PHE  | N-CA-C | -5.07 | 105.45      | 111.69   |
| 1   | E     | 256 | ALA  | CA-C-N | -5.07 | 115.14      | 120.66   |
| 1   | E     | 256 | ALA  | C-N-CA | -5.07 | 115.14      | 120.66   |
| 1   | C     | 266 | PHE  | N-CA-C | -5.06 | 105.46      | 111.69   |

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts ⓘ

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 3264  | 0        | 3293     | 72      | 0            |
| 1   | B     | 3264  | 0        | 3293     | 76      | 0            |
| 1   | C     | 3264  | 0        | 3293     | 74      | 0            |
| 1   | D     | 3264  | 0        | 3293     | 69      | 0            |
| 1   | E     | 3264  | 0        | 3293     | 73      | 0            |
| 1   | F     | 3264  | 0        | 3293     | 70      | 0            |
| 1   | G     | 3264  | 0        | 3293     | 73      | 0            |
| 1   | H     | 3264  | 0        | 3293     | 75      | 0            |
| 1   | I     | 3264  | 0        | 3293     | 70      | 0            |
| 1   | J     | 3264  | 0        | 3293     | 71      | 0            |
| 1   | K     | 3264  | 0        | 3293     | 72      | 0            |
| 1   | L     | 3264  | 0        | 3293     | 72      | 0            |
| 2   | A     | 2     | 0        | 0        | 0       | 0            |
| 2   | B     | 2     | 0        | 0        | 0       | 0            |
| 2   | C     | 2     | 0        | 0        | 0       | 0            |
| 2   | D     | 2     | 0        | 0        | 0       | 0            |
| 2   | E     | 2     | 0        | 0        | 0       | 0            |
| 2   | F     | 2     | 0        | 0        | 0       | 0            |
| 2   | G     | 2     | 0        | 0        | 0       | 0            |
| 2   | H     | 2     | 0        | 0        | 0       | 0            |
| 2   | I     | 2     | 0        | 0        | 0       | 0            |
| 2   | J     | 2     | 0        | 0        | 0       | 0            |
| 2   | K     | 2     | 0        | 0        | 0       | 0            |
| 2   | L     | 2     | 0        | 0        | 0       | 0            |
| All | All   | 39192 | 0        | 39516    | 794     | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 10.

All (794) 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:A:189:THR:HB  | 1:D:252:GLU:OE2 | 1.67                     | 0.94              |
| 1:E:252:GLU:OE2 | 1:K:189:THR:HB  | 1.67                     | 0.93              |
| 1:B:252:GLU:OE2 | 1:H:189:THR:HB  | 1.69                     | 0.92              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:189:THR:HB   | 1:I:252:GLU:OE2  | 1.69                     | 0.92              |
| 1:C:252:GLU:OE2  | 1:L:189:THR:HB   | 1.69                     | 0.92              |
| 1:A:252:GLU:OE2  | 1:D:189:THR:HB   | 1.70                     | 0.91              |
| 1:G:252:GLU:OE2  | 1:J:189:THR:HB   | 1.72                     | 0.89              |
| 1:F:252:GLU:OE2  | 1:I:189:THR:HB   | 1.72                     | 0.88              |
| 1:B:189:THR:HB   | 1:H:252:GLU:OE2  | 1.73                     | 0.87              |
| 1:C:189:THR:HB   | 1:L:252:GLU:OE2  | 1.74                     | 0.86              |
| 1:E:189:THR:HB   | 1:K:252:GLU:OE2  | 1.75                     | 0.86              |
| 1:G:189:THR:HB   | 1:J:252:GLU:OE2  | 1.77                     | 0.83              |
| 1:D:129:ASP:HB3  | 1:D:156:PRO:HB3  | 1.65                     | 0.79              |
| 1:J:129:ASP:HB3  | 1:J:156:PRO:HB3  | 1.65                     | 0.79              |
| 1:K:129:ASP:HB3  | 1:K:156:PRO:HB3  | 1.65                     | 0.78              |
| 1:C:129:ASP:HB3  | 1:C:156:PRO:HB3  | 1.65                     | 0.78              |
| 1:E:129:ASP:HB3  | 1:E:156:PRO:HB3  | 1.65                     | 0.78              |
| 1:G:129:ASP:HB3  | 1:G:156:PRO:HB3  | 1.65                     | 0.77              |
| 1:I:129:ASP:HB3  | 1:I:156:PRO:HB3  | 1.65                     | 0.77              |
| 1:H:129:ASP:HB3  | 1:H:156:PRO:HB3  | 1.65                     | 0.77              |
| 1:F:129:ASP:HB3  | 1:F:156:PRO:HB3  | 1.65                     | 0.77              |
| 1:A:129:ASP:HB3  | 1:A:156:PRO:HB3  | 1.65                     | 0.76              |
| 1:B:129:ASP:HB3  | 1:B:156:PRO:HB3  | 1.65                     | 0.76              |
| 1:L:129:ASP:HB3  | 1:L:156:PRO:HB3  | 1.65                     | 0.76              |
| 1:I:432:GLN:NE2  | 1:I:440:GLU:OE1  | 2.23                     | 0.72              |
| 1:J:432:GLN:NE2  | 1:J:440:GLU:OE1  | 2.23                     | 0.72              |
| 1:D:432:GLN:NE2  | 1:D:440:GLU:OE1  | 2.23                     | 0.71              |
| 1:E:432:GLN:NE2  | 1:E:440:GLU:OE1  | 2.23                     | 0.71              |
| 1:G:432:GLN:NE2  | 1:G:440:GLU:OE1  | 2.23                     | 0.71              |
| 1:K:432:GLN:NE2  | 1:K:440:GLU:OE1  | 2.23                     | 0.71              |
| 1:L:432:GLN:NE2  | 1:L:440:GLU:OE1  | 2.23                     | 0.71              |
| 1:H:432:GLN:NE2  | 1:H:440:GLU:OE1  | 2.23                     | 0.71              |
| 1:A:432:GLN:NE2  | 1:A:440:GLU:OE1  | 2.23                     | 0.71              |
| 1:F:432:GLN:NE2  | 1:F:440:GLU:OE1  | 2.23                     | 0.71              |
| 1:C:432:GLN:NE2  | 1:C:440:GLU:OE1  | 2.23                     | 0.70              |
| 1:B:432:GLN:NE2  | 1:B:440:GLU:OE1  | 2.23                     | 0.70              |
| 1:A:112:VAL:HG13 | 1:A:187:LEU:HD11 | 1.76                     | 0.68              |
| 1:G:112:VAL:HG13 | 1:G:187:LEU:HD11 | 1.76                     | 0.68              |
| 1:L:112:VAL:HG13 | 1:L:187:LEU:HD11 | 1.75                     | 0.68              |
| 1:D:112:VAL:HG13 | 1:D:187:LEU:HD11 | 1.76                     | 0.68              |
| 1:E:112:VAL:HG13 | 1:E:187:LEU:HD11 | 1.76                     | 0.67              |
| 1:K:112:VAL:HG13 | 1:K:187:LEU:HD11 | 1.76                     | 0.67              |
| 1:F:112:VAL:HG13 | 1:F:187:LEU:HD11 | 1.76                     | 0.67              |
| 1:C:112:VAL:HG13 | 1:C:187:LEU:HD11 | 1.76                     | 0.67              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:128:ARG:HG3  | 1:C:438:ILE:HD13 | 1.77                     | 0.67              |
| 1:G:128:ARG:HG3  | 1:G:438:ILE:HD13 | 1.77                     | 0.67              |
| 1:I:112:VAL:HG13 | 1:I:187:LEU:HD11 | 1.75                     | 0.67              |
| 1:K:128:ARG:HG3  | 1:K:438:ILE:HD13 | 1.77                     | 0.67              |
| 1:B:112:VAL:HG13 | 1:B:187:LEU:HD11 | 1.76                     | 0.66              |
| 1:H:112:VAL:HG13 | 1:H:187:LEU:HD11 | 1.75                     | 0.66              |
| 1:J:112:VAL:HG13 | 1:J:187:LEU:HD11 | 1.76                     | 0.66              |
| 1:A:128:ARG:HG3  | 1:A:438:ILE:HD13 | 1.77                     | 0.66              |
| 1:H:128:ARG:HG3  | 1:H:438:ILE:HD13 | 1.77                     | 0.66              |
| 1:D:128:ARG:HG3  | 1:D:438:ILE:HD13 | 1.77                     | 0.66              |
| 1:D:99:LYS:HB3   | 1:D:102:SER:HB3  | 1.78                     | 0.66              |
| 1:E:128:ARG:HG3  | 1:E:438:ILE:HD13 | 1.77                     | 0.66              |
| 1:I:99:LYS:HB3   | 1:I:102:SER:HB3  | 1.78                     | 0.66              |
| 1:J:128:ARG:HG3  | 1:J:438:ILE:HD13 | 1.77                     | 0.66              |
| 1:L:128:ARG:HG3  | 1:L:438:ILE:HD13 | 1.77                     | 0.66              |
| 1:F:99:LYS:HB3   | 1:F:102:SER:HB3  | 1.78                     | 0.66              |
| 1:B:99:LYS:HB3   | 1:B:102:SER:HB3  | 1.78                     | 0.65              |
| 1:L:99:LYS:HB3   | 1:L:102:SER:HB3  | 1.78                     | 0.65              |
| 1:G:99:LYS:HB3   | 1:G:102:SER:HB3  | 1.78                     | 0.65              |
| 1:H:99:LYS:HB3   | 1:H:102:SER:HB3  | 1.78                     | 0.65              |
| 1:I:128:ARG:HG3  | 1:I:438:ILE:HD13 | 1.77                     | 0.65              |
| 1:F:128:ARG:HG3  | 1:F:438:ILE:HD13 | 1.77                     | 0.65              |
| 1:B:128:ARG:HG3  | 1:B:438:ILE:HD13 | 1.77                     | 0.65              |
| 1:J:99:LYS:HB3   | 1:J:102:SER:HB3  | 1.78                     | 0.65              |
| 1:A:99:LYS:HB3   | 1:A:102:SER:HB3  | 1.78                     | 0.64              |
| 1:C:99:LYS:HB3   | 1:C:102:SER:HB3  | 1.78                     | 0.64              |
| 1:K:99:LYS:HB3   | 1:K:102:SER:HB3  | 1.78                     | 0.64              |
| 1:E:99:LYS:HB3   | 1:E:102:SER:HB3  | 1.78                     | 0.64              |
| 1:A:100:ARG:NH2  | 1:A:234:MET:O    | 2.31                     | 0.63              |
| 1:K:100:ARG:NH2  | 1:K:234:MET:O    | 2.32                     | 0.63              |
| 1:D:100:ARG:NH2  | 1:D:234:MET:O    | 2.32                     | 0.63              |
| 1:F:100:ARG:NH2  | 1:F:234:MET:O    | 2.31                     | 0.63              |
| 1:G:100:ARG:NH2  | 1:G:234:MET:O    | 2.32                     | 0.63              |
| 1:H:100:ARG:NH2  | 1:H:234:MET:O    | 2.32                     | 0.63              |
| 1:C:100:ARG:NH2  | 1:C:234:MET:O    | 2.31                     | 0.63              |
| 1:E:100:ARG:NH2  | 1:E:234:MET:O    | 2.31                     | 0.63              |
| 1:J:100:ARG:NH2  | 1:J:234:MET:O    | 2.32                     | 0.63              |
| 1:L:100:ARG:NH2  | 1:L:234:MET:O    | 2.31                     | 0.63              |
| 1:L:72:PHE:HB3   | 1:L:290:MET:HG3  | 1.81                     | 0.63              |
| 1:D:72:PHE:HB3   | 1:D:290:MET:HG3  | 1.81                     | 0.63              |
| 1:I:100:ARG:NH2  | 1:I:234:MET:O    | 2.31                     | 0.62              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:100:ARG:NH2  | 1:B:234:MET:O    | 2.32                     | 0.62              |
| 1:B:72:PHE:HB3   | 1:B:290:MET:HG3  | 1.81                     | 0.62              |
| 1:I:72:PHE:HB3   | 1:I:290:MET:HG3  | 1.81                     | 0.62              |
| 1:J:72:PHE:HB3   | 1:J:290:MET:HG3  | 1.81                     | 0.62              |
| 1:K:384:GLU:OE2  | 1:K:388:ARG:NE   | 2.32                     | 0.62              |
| 1:E:72:PHE:HB3   | 1:E:290:MET:HG3  | 1.81                     | 0.62              |
| 1:H:384:GLU:OE2  | 1:H:388:ARG:NE   | 2.32                     | 0.62              |
| 1:L:384:GLU:OE2  | 1:L:388:ARG:NE   | 2.32                     | 0.62              |
| 1:A:72:PHE:HB3   | 1:A:290:MET:HG3  | 1.81                     | 0.62              |
| 1:J:294:TYR:HH   | 1:J:312:THR:HG1  | 1.45                     | 0.62              |
| 1:F:72:PHE:HB3   | 1:F:290:MET:HG3  | 1.81                     | 0.61              |
| 1:C:72:PHE:HB3   | 1:C:290:MET:HG3  | 1.81                     | 0.61              |
| 1:K:72:PHE:HB3   | 1:K:290:MET:HG3  | 1.81                     | 0.61              |
| 1:G:384:GLU:OE2  | 1:G:388:ARG:NE   | 2.32                     | 0.61              |
| 1:D:384:GLU:OE2  | 1:D:388:ARG:NE   | 2.32                     | 0.61              |
| 1:H:72:PHE:HB3   | 1:H:290:MET:HG3  | 1.81                     | 0.61              |
| 1:I:384:GLU:OE2  | 1:I:388:ARG:NE   | 2.32                     | 0.61              |
| 1:G:72:PHE:HB3   | 1:G:290:MET:HG3  | 1.81                     | 0.61              |
| 1:I:89:ALA:HB3   | 1:I:293:LEU:HD12 | 1.83                     | 0.60              |
| 1:D:89:ALA:HB3   | 1:D:293:LEU:HD12 | 1.83                     | 0.60              |
| 1:G:112:VAL:HG11 | 1:G:216:LEU:HD22 | 1.83                     | 0.60              |
| 1:L:294:TYR:HH   | 1:L:312:THR:HG1  | 1.48                     | 0.60              |
| 1:F:111:GLN:HB3  | 1:F:185:PRO:O    | 2.02                     | 0.60              |
| 1:K:89:ALA:HB3   | 1:K:293:LEU:HD12 | 1.83                     | 0.60              |
| 1:F:112:VAL:HG11 | 1:F:216:LEU:HD22 | 1.83                     | 0.60              |
| 1:I:112:VAL:HG11 | 1:I:216:LEU:HD22 | 1.83                     | 0.60              |
| 1:B:111:GLN:HB3  | 1:B:185:PRO:O    | 2.02                     | 0.60              |
| 1:E:89:ALA:HB3   | 1:E:293:LEU:HD12 | 1.83                     | 0.60              |
| 1:K:112:VAL:HG11 | 1:K:216:LEU:HD22 | 1.83                     | 0.60              |
| 1:H:112:VAL:HG11 | 1:H:216:LEU:HD22 | 1.83                     | 0.60              |
| 1:A:111:GLN:HB3  | 1:A:185:PRO:O    | 2.02                     | 0.60              |
| 1:J:89:ALA:HB3   | 1:J:293:LEU:HD12 | 1.83                     | 0.60              |
| 1:L:111:GLN:HB3  | 1:L:185:PRO:O    | 2.02                     | 0.60              |
| 1:L:112:VAL:HG11 | 1:L:216:LEU:HD22 | 1.83                     | 0.60              |
| 1:E:111:GLN:HB3  | 1:E:185:PRO:O    | 2.02                     | 0.59              |
| 1:D:111:GLN:HB3  | 1:D:185:PRO:O    | 2.02                     | 0.59              |
| 1:E:256:ALA:HB3  | 1:E:259:LEU:HG   | 1.84                     | 0.59              |
| 1:L:256:ALA:HB3  | 1:L:259:LEU:HG   | 1.84                     | 0.59              |
| 1:D:368:VAL:HG12 | 1:D:399:GLN:HB2  | 1.85                     | 0.59              |
| 1:H:256:ALA:HB3  | 1:H:259:LEU:HG   | 1.84                     | 0.59              |
| 1:A:112:VAL:HG11 | 1:A:216:LEU:HD22 | 1.83                     | 0.59              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:256:ALA:HB3  | 1:A:259:LEU:HG   | 1.84                     | 0.59              |
| 1:C:89:ALA:HB3   | 1:C:293:LEU:HD12 | 1.84                     | 0.59              |
| 1:G:111:GLN:HB3  | 1:G:185:PRO:O    | 2.02                     | 0.59              |
| 1:H:111:GLN:HB3  | 1:H:185:PRO:O    | 2.02                     | 0.59              |
| 1:A:90:HIS:H     | 1:A:261:ASN:HD22 | 1.51                     | 0.59              |
| 1:B:89:ALA:HB3   | 1:B:293:LEU:HD12 | 1.84                     | 0.59              |
| 1:C:368:VAL:HG12 | 1:C:399:GLN:HB2  | 1.85                     | 0.59              |
| 1:B:112:VAL:HG11 | 1:B:216:LEU:HD22 | 1.83                     | 0.59              |
| 1:I:90:HIS:H     | 1:I:261:ASN:HD22 | 1.51                     | 0.59              |
| 1:I:368:VAL:HG12 | 1:I:399:GLN:HB2  | 1.85                     | 0.59              |
| 1:D:256:ALA:HB3  | 1:D:259:LEU:HG   | 1.84                     | 0.59              |
| 1:E:112:VAL:HG11 | 1:E:216:LEU:HD22 | 1.83                     | 0.59              |
| 1:E:368:VAL:HG12 | 1:E:399:GLN:HB2  | 1.85                     | 0.59              |
| 1:F:89:ALA:HB3   | 1:F:293:LEU:HD12 | 1.83                     | 0.59              |
| 1:I:111:GLN:HB3  | 1:I:185:PRO:O    | 2.02                     | 0.59              |
| 1:F:90:HIS:H     | 1:F:261:ASN:HD22 | 1.51                     | 0.59              |
| 1:H:90:HIS:H     | 1:H:261:ASN:HD22 | 1.51                     | 0.59              |
| 1:J:368:VAL:HG12 | 1:J:399:GLN:HB2  | 1.85                     | 0.59              |
| 1:A:89:ALA:HB3   | 1:A:293:LEU:HD12 | 1.83                     | 0.59              |
| 1:G:89:ALA:HB3   | 1:G:293:LEU:HD12 | 1.83                     | 0.59              |
| 1:J:111:GLN:HB3  | 1:J:185:PRO:O    | 2.02                     | 0.59              |
| 1:K:111:GLN:HB3  | 1:K:185:PRO:O    | 2.02                     | 0.59              |
| 1:C:112:VAL:HG11 | 1:C:216:LEU:HD22 | 1.83                     | 0.59              |
| 1:B:90:HIS:H     | 1:B:261:ASN:HD22 | 1.51                     | 0.58              |
| 1:C:111:GLN:HB3  | 1:C:185:PRO:O    | 2.02                     | 0.58              |
| 1:J:112:VAL:HG11 | 1:J:216:LEU:HD22 | 1.83                     | 0.58              |
| 1:B:368:VAL:HG12 | 1:B:399:GLN:HB2  | 1.85                     | 0.58              |
| 1:E:90:HIS:H     | 1:E:261:ASN:HD22 | 1.51                     | 0.58              |
| 1:K:368:VAL:HG12 | 1:K:399:GLN:HB2  | 1.85                     | 0.58              |
| 1:B:256:ALA:HB3  | 1:B:259:LEU:HG   | 1.84                     | 0.58              |
| 1:K:90:HIS:H     | 1:K:261:ASN:HD22 | 1.51                     | 0.58              |
| 1:D:90:HIS:H     | 1:D:261:ASN:HD22 | 1.51                     | 0.58              |
| 1:A:368:VAL:HG12 | 1:A:399:GLN:HB2  | 1.85                     | 0.58              |
| 1:J:90:HIS:H     | 1:J:261:ASN:HD22 | 1.51                     | 0.58              |
| 1:J:256:ALA:HB3  | 1:J:259:LEU:HG   | 1.84                     | 0.58              |
| 1:K:256:ALA:HB3  | 1:K:259:LEU:HG   | 1.84                     | 0.58              |
| 1:L:89:ALA:HB3   | 1:L:293:LEU:HD12 | 1.84                     | 0.58              |
| 1:C:384:GLU:OE2  | 1:C:388:ARG:NE   | 2.32                     | 0.58              |
| 1:G:294:TYR:OH   | 1:G:312:THR:OG1  | 2.22                     | 0.58              |
| 1:H:368:VAL:HG12 | 1:H:399:GLN:HB2  | 1.85                     | 0.58              |
| 1:B:384:GLU:OE2  | 1:B:388:ARG:NE   | 2.32                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:112:VAL:HG11 | 1:D:216:LEU:HD22 | 1.83                     | 0.58              |
| 1:E:294:TYR:OH   | 1:E:312:THR:OG1  | 2.22                     | 0.58              |
| 1:G:368:VAL:HG12 | 1:G:399:GLN:HB2  | 1.85                     | 0.58              |
| 1:C:256:ALA:HB3  | 1:C:259:LEU:HG   | 1.84                     | 0.58              |
| 1:D:294:TYR:OH   | 1:D:312:THR:OG1  | 2.22                     | 0.58              |
| 1:H:89:ALA:HB3   | 1:H:293:LEU:HD12 | 1.84                     | 0.58              |
| 1:I:317:ARG:NH1  | 1:K:317:ARG:HH12 | 2.02                     | 0.58              |
| 1:K:294:TYR:OH   | 1:K:312:THR:OG1  | 2.22                     | 0.58              |
| 1:B:294:TYR:OH   | 1:B:312:THR:OG1  | 2.22                     | 0.58              |
| 1:J:384:GLU:OE2  | 1:J:388:ARG:NE   | 2.32                     | 0.58              |
| 1:F:213:HIS:CD2  | 1:F:215:VAL:HG12 | 2.39                     | 0.57              |
| 1:E:213:HIS:CD2  | 1:E:215:VAL:HG12 | 2.40                     | 0.57              |
| 1:F:294:TYR:OH   | 1:F:312:THR:OG1  | 2.22                     | 0.57              |
| 1:G:90:HIS:H     | 1:G:261:ASN:HD22 | 1.51                     | 0.57              |
| 1:D:317:ARG:NH1  | 1:L:317:ARG:HH12 | 2.02                     | 0.57              |
| 1:G:256:ALA:HB3  | 1:G:259:LEU:HG   | 1.84                     | 0.57              |
| 1:I:256:ALA:HB3  | 1:I:259:LEU:HG   | 1.84                     | 0.57              |
| 1:F:368:VAL:HG12 | 1:F:399:GLN:HB2  | 1.85                     | 0.57              |
| 1:K:338:MET:HB3  | 1:K:425:VAL:HG22 | 1.87                     | 0.57              |
| 1:D:213:HIS:CD2  | 1:D:215:VAL:HG12 | 2.39                     | 0.57              |
| 1:F:256:ALA:HB3  | 1:F:259:LEU:HG   | 1.84                     | 0.57              |
| 1:I:213:HIS:CD2  | 1:I:215:VAL:HG12 | 2.39                     | 0.57              |
| 1:A:338:MET:HB3  | 1:A:425:VAL:HG22 | 1.87                     | 0.57              |
| 1:E:338:MET:HB3  | 1:E:425:VAL:HG22 | 1.87                     | 0.57              |
| 1:F:338:MET:HB3  | 1:F:425:VAL:HG22 | 1.87                     | 0.57              |
| 1:F:384:GLU:OE2  | 1:F:388:ARG:NE   | 2.32                     | 0.57              |
| 1:I:338:MET:HB3  | 1:I:425:VAL:HG22 | 1.87                     | 0.57              |
| 1:J:213:HIS:CD2  | 1:J:215:VAL:HG12 | 2.39                     | 0.57              |
| 1:L:368:VAL:HG12 | 1:L:399:GLN:HB2  | 1.85                     | 0.57              |
| 1:B:213:HIS:CD2  | 1:B:215:VAL:HG12 | 2.39                     | 0.57              |
| 1:B:338:MET:HB3  | 1:B:425:VAL:HG22 | 1.87                     | 0.57              |
| 1:G:213:HIS:CD2  | 1:G:215:VAL:HG12 | 2.39                     | 0.57              |
| 1:H:213:HIS:CD2  | 1:H:215:VAL:HG12 | 2.39                     | 0.57              |
| 1:K:213:HIS:CD2  | 1:K:215:VAL:HG12 | 2.39                     | 0.57              |
| 1:D:338:MET:HB3  | 1:D:425:VAL:HG22 | 1.87                     | 0.57              |
| 1:E:384:GLU:OE2  | 1:E:388:ARG:NE   | 2.32                     | 0.57              |
| 1:L:90:HIS:H     | 1:L:261:ASN:HD22 | 1.51                     | 0.57              |
| 1:A:127:ASP:O    | 1:D:128:ARG:NH2  | 2.38                     | 0.56              |
| 1:J:90:HIS:CE1   | 1:J:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:K:90:HIS:CE1   | 1:K:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:C:128:ARG:NH2  | 1:L:127:ASP:O    | 2.39                     | 0.56              |

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| Atom-1          | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:E:374:LYS:HD2 | 1:E:376:ARG:HD2  | 1.88                     | 0.56              |
| 1:J:374:LYS:HD2 | 1:J:376:ARG:HD2  | 1.88                     | 0.56              |
| 1:A:213:HIS:CD2 | 1:A:215:VAL:HG12 | 2.39                     | 0.56              |
| 1:B:86:LEU:HA   | 1:B:290:MET:O    | 2.06                     | 0.56              |
| 1:C:90:HIS:H    | 1:C:261:ASN:HD22 | 1.51                     | 0.56              |
| 1:D:90:HIS:CE1  | 1:D:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:E:90:HIS:CE1  | 1:E:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:F:86:LEU:HA   | 1:F:290:MET:O    | 2.06                     | 0.56              |
| 1:F:90:HIS:CE1  | 1:F:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:G:86:LEU:HA   | 1:G:290:MET:O    | 2.06                     | 0.56              |
| 1:G:338:MET:HB3 | 1:G:425:VAL:HG22 | 1.87                     | 0.56              |
| 1:I:374:LYS:HD2 | 1:I:376:ARG:HD2  | 1.88                     | 0.56              |
| 1:L:90:HIS:CE1  | 1:L:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:L:374:LYS:HD2 | 1:L:376:ARG:HD2  | 1.88                     | 0.56              |
| 1:A:90:HIS:CE1  | 1:A:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:A:294:TYR:OH  | 1:A:312:THR:OG1  | 2.22                     | 0.56              |
| 1:C:213:HIS:CD2 | 1:C:215:VAL:HG12 | 2.39                     | 0.56              |
| 1:C:90:HIS:CE1  | 1:C:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:C:338:MET:HB3 | 1:C:425:VAL:HG22 | 1.87                     | 0.56              |
| 1:D:374:LYS:HD2 | 1:D:376:ARG:HD2  | 1.88                     | 0.56              |
| 1:F:374:LYS:HD2 | 1:F:376:ARG:HD2  | 1.88                     | 0.56              |
| 1:L:213:HIS:CD2 | 1:L:215:VAL:HG12 | 2.39                     | 0.56              |
| 1:A:374:LYS:HD2 | 1:A:376:ARG:HD2  | 1.88                     | 0.56              |
| 1:C:294:TYR:OH  | 1:C:312:THR:OG1  | 2.22                     | 0.56              |
| 1:F:55:LYS:O    | 1:F:58:SER:OG    | 2.24                     | 0.56              |
| 1:H:90:HIS:CE1  | 1:H:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:I:90:HIS:CE1  | 1:I:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:B:90:HIS:CE1  | 1:B:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:E:55:LYS:O    | 1:E:58:SER:OG    | 2.24                     | 0.56              |
| 1:J:55:LYS:O    | 1:J:58:SER:OG    | 2.24                     | 0.56              |
| 1:L:86:LEU:HA   | 1:L:290:MET:O    | 2.06                     | 0.56              |
| 1:G:90:HIS:CE1  | 1:G:261:ASN:HB2  | 2.40                     | 0.56              |
| 1:I:86:LEU:HA   | 1:I:290:MET:O    | 2.06                     | 0.56              |
| 1:K:86:LEU:HA   | 1:K:290:MET:O    | 2.06                     | 0.56              |
| 1:K:374:LYS:HD2 | 1:K:376:ARG:HD2  | 1.88                     | 0.56              |
| 1:A:128:ARG:NH2 | 1:D:127:ASP:O    | 2.38                     | 0.56              |
| 1:B:374:LYS:HD2 | 1:B:376:ARG:HD2  | 1.88                     | 0.55              |
| 1:H:55:LYS:O    | 1:H:58:SER:OG    | 2.24                     | 0.55              |
| 1:H:294:TYR:HH  | 1:H:312:THR:HG1  | 1.55                     | 0.55              |
| 1:H:294:TYR:OH  | 1:H:312:THR:OG1  | 2.22                     | 0.55              |
| 1:A:86:LEU:HA   | 1:A:290:MET:O    | 2.06                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:338:MET:HB3  | 1:H:425:VAL:HG22 | 1.87                     | 0.55              |
| 1:J:86:LEU:HA    | 1:J:290:MET:O    | 2.06                     | 0.55              |
| 1:J:338:MET:HB3  | 1:J:425:VAL:HG22 | 1.87                     | 0.55              |
| 1:A:384:GLU:OE2  | 1:A:388:ARG:NE   | 2.32                     | 0.55              |
| 1:C:374:LYS:HD2  | 1:C:376:ARG:HD2  | 1.88                     | 0.55              |
| 1:E:128:ARG:NH2  | 1:K:127:ASP:O    | 2.40                     | 0.55              |
| 1:H:86:LEU:HA    | 1:H:290:MET:O    | 2.06                     | 0.55              |
| 1:L:338:MET:HB3  | 1:L:425:VAL:HG22 | 1.87                     | 0.55              |
| 1:A:55:LYS:O     | 1:A:58:SER:OG    | 2.24                     | 0.55              |
| 1:C:55:LYS:O     | 1:C:58:SER:OG    | 2.24                     | 0.55              |
| 1:C:86:LEU:HA    | 1:C:290:MET:O    | 2.06                     | 0.55              |
| 1:C:127:ASP:O    | 1:L:128:ARG:NH2  | 2.39                     | 0.55              |
| 1:I:55:LYS:O     | 1:I:58:SER:OG    | 2.24                     | 0.55              |
| 1:D:86:LEU:HA    | 1:D:290:MET:O    | 2.06                     | 0.55              |
| 1:E:86:LEU:HA    | 1:E:290:MET:O    | 2.06                     | 0.55              |
| 1:K:55:LYS:O     | 1:K:58:SER:OG    | 2.24                     | 0.55              |
| 1:B:55:LYS:O     | 1:B:58:SER:OG    | 2.24                     | 0.55              |
| 1:B:127:ASP:O    | 1:H:128:ARG:NH2  | 2.40                     | 0.55              |
| 1:H:374:LYS:HD2  | 1:H:376:ARG:HD2  | 1.88                     | 0.55              |
| 1:B:74:VAL:HG22  | 1:B:288:VAL:HG22 | 1.89                     | 0.55              |
| 1:D:55:LYS:O     | 1:D:58:SER:OG    | 2.24                     | 0.55              |
| 1:A:74:VAL:HG22  | 1:A:288:VAL:HG22 | 1.89                     | 0.54              |
| 1:E:127:ASP:O    | 1:K:128:ARG:NH2  | 2.41                     | 0.54              |
| 1:G:55:LYS:O     | 1:G:58:SER:OG    | 2.24                     | 0.54              |
| 1:L:55:LYS:O     | 1:L:58:SER:OG    | 2.24                     | 0.54              |
| 1:G:374:LYS:HD2  | 1:G:376:ARG:HD2  | 1.88                     | 0.54              |
| 1:B:128:ARG:NH2  | 1:H:127:ASP:O    | 2.40                     | 0.54              |
| 1:E:74:VAL:HG22  | 1:E:288:VAL:HG22 | 1.89                     | 0.54              |
| 1:G:128:ARG:NH2  | 1:J:127:ASP:O    | 2.41                     | 0.54              |
| 1:I:74:VAL:HG22  | 1:I:288:VAL:HG22 | 1.89                     | 0.54              |
| 1:L:74:VAL:HG22  | 1:L:288:VAL:HG22 | 1.89                     | 0.54              |
| 1:C:74:VAL:HG22  | 1:C:288:VAL:HG22 | 1.89                     | 0.54              |
| 1:F:128:ARG:NH2  | 1:I:127:ASP:O    | 2.41                     | 0.54              |
| 1:H:317:ARG:HH12 | 1:L:317:ARG:NH1  | 2.06                     | 0.54              |
| 1:D:74:VAL:HG22  | 1:D:288:VAL:HG22 | 1.89                     | 0.54              |
| 1:G:127:ASP:O    | 1:J:128:ARG:NH2  | 2.41                     | 0.54              |
| 1:F:74:VAL:HG22  | 1:F:288:VAL:HG22 | 1.89                     | 0.54              |
| 1:A:317:ARG:HH12 | 1:K:317:ARG:NH1  | 2.06                     | 0.54              |
| 1:G:74:VAL:HG22  | 1:G:288:VAL:HG22 | 1.89                     | 0.53              |
| 1:H:74:VAL:HG22  | 1:H:288:VAL:HG22 | 1.89                     | 0.53              |
| 1:K:74:VAL:HG22  | 1:K:288:VAL:HG22 | 1.89                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:86:LEU:HD21  | 1:F:423:LEU:HD21 | 1.91                     | 0.53              |
| 1:F:127:ASP:O    | 1:I:128:ARG:NH2  | 2.41                     | 0.53              |
| 1:B:86:LEU:HD21  | 1:B:423:LEU:HD21 | 1.91                     | 0.53              |
| 1:E:121:ILE:HG12 | 1:K:165:ILE:HB   | 1.91                     | 0.53              |
| 1:J:74:VAL:HG22  | 1:J:288:VAL:HG22 | 1.89                     | 0.53              |
| 1:G:86:LEU:HD21  | 1:G:423:LEU:HD21 | 1.91                     | 0.53              |
| 1:C:86:LEU:HD21  | 1:C:423:LEU:HD21 | 1.91                     | 0.53              |
| 1:A:86:LEU:HD21  | 1:A:423:LEU:HD21 | 1.91                     | 0.53              |
| 1:E:86:LEU:HD21  | 1:E:423:LEU:HD21 | 1.91                     | 0.53              |
| 1:K:86:LEU:HD21  | 1:K:423:LEU:HD21 | 1.91                     | 0.53              |
| 1:G:294:TYR:HH   | 1:G:312:THR:HG1  | 1.57                     | 0.52              |
| 1:J:86:LEU:HD21  | 1:J:423:LEU:HD21 | 1.91                     | 0.52              |
| 1:H:86:LEU:HD21  | 1:H:423:LEU:HD21 | 1.91                     | 0.52              |
| 1:A:325:HIS:NE2  | 1:A:331:GLU:OE2  | 2.43                     | 0.52              |
| 1:B:325:HIS:NE2  | 1:B:331:GLU:OE2  | 2.43                     | 0.52              |
| 1:E:394:VAL:HG11 | 1:E:456:GLY:HA3  | 1.92                     | 0.52              |
| 1:G:394:VAL:HG11 | 1:G:456:GLY:HA3  | 1.92                     | 0.52              |
| 1:D:325:HIS:NE2  | 1:D:331:GLU:OE2  | 2.43                     | 0.52              |
| 1:L:86:LEU:HD21  | 1:L:423:LEU:HD21 | 1.91                     | 0.52              |
| 1:H:394:VAL:HG11 | 1:H:456:GLY:HA3  | 1.92                     | 0.52              |
| 1:K:394:VAL:HG11 | 1:K:456:GLY:HA3  | 1.92                     | 0.52              |
| 1:E:252:GLU:OE2  | 1:K:189:THR:CB   | 2.52                     | 0.52              |
| 1:F:165:ILE:HB   | 1:I:121:ILE:HG12 | 1.92                     | 0.52              |
| 1:F:394:VAL:HG11 | 1:F:456:GLY:HA3  | 1.92                     | 0.51              |
| 1:A:394:VAL:HG11 | 1:A:456:GLY:HA3  | 1.92                     | 0.51              |
| 1:B:220:LEU:HD11 | 1:B:236:LEU:HD11 | 1.93                     | 0.51              |
| 1:F:317:ARG:HH12 | 1:J:317:ARG:NH1  | 2.08                     | 0.51              |
| 1:G:220:LEU:HD11 | 1:G:236:LEU:HD11 | 1.93                     | 0.51              |
| 1:E:220:LEU:HD11 | 1:E:236:LEU:HD11 | 1.93                     | 0.51              |
| 1:I:394:VAL:HG11 | 1:I:456:GLY:HA3  | 1.92                     | 0.51              |
| 1:L:394:VAL:HG11 | 1:L:456:GLY:HA3  | 1.92                     | 0.51              |
| 1:D:86:LEU:HD21  | 1:D:423:LEU:HD21 | 1.91                     | 0.51              |
| 1:J:220:LEU:HD11 | 1:J:236:LEU:HD11 | 1.93                     | 0.51              |
| 1:A:220:LEU:HD11 | 1:A:236:LEU:HD11 | 1.93                     | 0.51              |
| 1:B:394:VAL:HG11 | 1:B:456:GLY:HA3  | 1.92                     | 0.51              |
| 1:C:220:LEU:HD11 | 1:C:236:LEU:HD11 | 1.93                     | 0.51              |
| 1:G:325:HIS:NE2  | 1:G:331:GLU:OE2  | 2.43                     | 0.51              |
| 1:I:294:TYR:OH   | 1:I:312:THR:OG1  | 2.22                     | 0.51              |
| 1:I:325:HIS:NE2  | 1:I:331:GLU:OE2  | 2.43                     | 0.51              |
| 1:K:325:HIS:NE2  | 1:K:331:GLU:OE2  | 2.43                     | 0.51              |
| 1:A:388:ARG:NH2  | 1:A:400:ASP:OD1  | 2.44                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:388:ARG:NH2  | 1:H:400:ASP:OD1  | 2.44                     | 0.51              |
| 1:K:388:ARG:NH2  | 1:K:400:ASP:OD1  | 2.44                     | 0.51              |
| 1:L:388:ARG:NH2  | 1:L:400:ASP:OD1  | 2.44                     | 0.51              |
| 1:C:121:ILE:HG12 | 1:L:165:ILE:HB   | 1.92                     | 0.51              |
| 1:C:325:HIS:NE2  | 1:C:331:GLU:OE2  | 2.43                     | 0.51              |
| 1:C:394:VAL:HG11 | 1:C:456:GLY:HA3  | 1.92                     | 0.51              |
| 1:F:388:ARG:NH2  | 1:F:400:ASP:OD1  | 2.44                     | 0.51              |
| 1:B:388:ARG:NH2  | 1:B:400:ASP:OD1  | 2.44                     | 0.51              |
| 1:G:121:ILE:HG12 | 1:J:165:ILE:HB   | 1.92                     | 0.51              |
| 1:H:138:VAL:HG12 | 1:H:231:ILE:HA   | 1.93                     | 0.51              |
| 1:J:138:VAL:HG12 | 1:J:231:ILE:HA   | 1.93                     | 0.51              |
| 1:E:388:ARG:NH2  | 1:E:400:ASP:OD1  | 2.44                     | 0.51              |
| 1:I:220:LEU:HD11 | 1:I:236:LEU:HD11 | 1.93                     | 0.51              |
| 1:J:388:ARG:NH2  | 1:J:400:ASP:OD1  | 2.44                     | 0.51              |
| 1:A:189:THR:CB   | 1:D:252:GLU:OE2  | 2.51                     | 0.50              |
| 1:C:388:ARG:NH2  | 1:C:400:ASP:OD1  | 2.44                     | 0.50              |
| 1:G:388:ARG:NH2  | 1:G:400:ASP:OD1  | 2.44                     | 0.50              |
| 1:I:86:LEU:HD21  | 1:I:423:LEU:HD21 | 1.91                     | 0.50              |
| 1:B:121:ILE:HG12 | 1:H:165:ILE:HB   | 1.92                     | 0.50              |
| 1:D:388:ARG:NH2  | 1:D:400:ASP:OD1  | 2.44                     | 0.50              |
| 1:F:220:LEU:HD11 | 1:F:236:LEU:HD11 | 1.93                     | 0.50              |
| 1:I:138:VAL:HG12 | 1:I:231:ILE:HA   | 1.93                     | 0.50              |
| 1:K:138:VAL:HG12 | 1:K:231:ILE:HA   | 1.93                     | 0.50              |
| 1:D:394:VAL:HG11 | 1:D:456:GLY:HA3  | 1.92                     | 0.50              |
| 1:E:138:VAL:HG12 | 1:E:231:ILE:HA   | 1.93                     | 0.50              |
| 1:L:213:HIS:HB3  | 1:L:216:LEU:HB3  | 1.94                     | 0.50              |
| 1:J:394:VAL:HG11 | 1:J:456:GLY:HA3  | 1.92                     | 0.50              |
| 1:F:121:ILE:HG12 | 1:I:165:ILE:HB   | 1.94                     | 0.50              |
| 1:H:213:HIS:HB3  | 1:H:216:LEU:HB3  | 1.94                     | 0.50              |
| 1:K:213:HIS:HB3  | 1:K:216:LEU:HB3  | 1.94                     | 0.50              |
| 1:A:252:GLU:OE2  | 1:D:189:THR:CB   | 2.54                     | 0.50              |
| 1:D:213:HIS:HB3  | 1:D:216:LEU:HB3  | 1.94                     | 0.50              |
| 1:F:325:HIS:NE2  | 1:F:331:GLU:OE2  | 2.43                     | 0.50              |
| 1:G:213:HIS:HB3  | 1:G:216:LEU:HB3  | 1.94                     | 0.50              |
| 1:I:388:ARG:NH2  | 1:I:400:ASP:OD1  | 2.44                     | 0.50              |
| 1:L:220:LEU:HD11 | 1:L:236:LEU:HD11 | 1.93                     | 0.50              |
| 1:A:165:ILE:HB   | 1:D:121:ILE:HG12 | 1.92                     | 0.50              |
| 1:D:220:LEU:HD11 | 1:D:236:LEU:HD11 | 1.93                     | 0.50              |
| 1:I:213:HIS:HB3  | 1:I:216:LEU:HB3  | 1.94                     | 0.50              |
| 1:J:325:HIS:NE2  | 1:J:331:GLU:OE2  | 2.43                     | 0.50              |
| 1:L:138:VAL:HG12 | 1:L:231:ILE:HA   | 1.93                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:402:MET:SD   | 1:L:402:MET:N    | 2.85                     | 0.50              |
| 1:A:24:SER:HB2   | 1:A:30:ALA:HA    | 1.94                     | 0.50              |
| 1:F:402:MET:SD   | 1:F:402:MET:N    | 2.85                     | 0.50              |
| 1:H:325:HIS:NE2  | 1:H:331:GLU:OE2  | 2.43                     | 0.50              |
| 1:H:402:MET:N    | 1:H:402:MET:SD   | 2.85                     | 0.50              |
| 1:E:325:HIS:NE2  | 1:E:331:GLU:OE2  | 2.43                     | 0.49              |
| 1:G:24:SER:HB2   | 1:G:30:ALA:HA    | 1.94                     | 0.49              |
| 1:H:24:SER:HB2   | 1:H:30:ALA:HA    | 1.94                     | 0.49              |
| 1:C:213:HIS:HB3  | 1:C:216:LEU:HB3  | 1.94                     | 0.49              |
| 1:C:402:MET:SD   | 1:C:402:MET:N    | 2.85                     | 0.49              |
| 1:D:138:VAL:HG12 | 1:D:231:ILE:HA   | 1.93                     | 0.49              |
| 1:H:220:LEU:HD11 | 1:H:236:LEU:HD11 | 1.93                     | 0.49              |
| 1:L:325:HIS:NE2  | 1:L:331:GLU:OE2  | 2.43                     | 0.49              |
| 1:C:24:SER:HB2   | 1:C:30:ALA:HA    | 1.94                     | 0.49              |
| 1:D:402:MET:SD   | 1:D:402:MET:N    | 2.85                     | 0.49              |
| 1:F:213:HIS:HB3  | 1:F:216:LEU:HB3  | 1.94                     | 0.49              |
| 1:I:24:SER:HB2   | 1:I:30:ALA:HA    | 1.94                     | 0.49              |
| 1:I:402:MET:SD   | 1:I:402:MET:N    | 2.85                     | 0.49              |
| 1:C:138:VAL:HG12 | 1:C:231:ILE:HA   | 1.93                     | 0.49              |
| 1:F:24:SER:HB2   | 1:F:30:ALA:HA    | 1.94                     | 0.49              |
| 1:J:213:HIS:HB3  | 1:J:216:LEU:HB3  | 1.94                     | 0.49              |
| 1:K:24:SER:HB2   | 1:K:30:ALA:HA    | 1.94                     | 0.49              |
| 1:K:402:MET:SD   | 1:K:402:MET:N    | 2.85                     | 0.49              |
| 1:A:138:VAL:HG12 | 1:A:231:ILE:HA   | 1.93                     | 0.49              |
| 1:A:402:MET:SD   | 1:A:402:MET:N    | 2.85                     | 0.49              |
| 1:G:138:VAL:HG12 | 1:G:231:ILE:HA   | 1.93                     | 0.49              |
| 1:K:220:LEU:HD11 | 1:K:236:LEU:HD11 | 1.93                     | 0.49              |
| 1:J:402:MET:SD   | 1:J:402:MET:N    | 2.85                     | 0.49              |
| 1:B:213:HIS:HB3  | 1:B:216:LEU:HB3  | 1.94                     | 0.49              |
| 1:F:138:VAL:HG12 | 1:F:231:ILE:HA   | 1.93                     | 0.49              |
| 1:G:402:MET:SD   | 1:G:402:MET:N    | 2.85                     | 0.49              |
| 1:B:402:MET:SD   | 1:B:402:MET:N    | 2.85                     | 0.49              |
| 1:A:213:HIS:HB3  | 1:A:216:LEU:HB3  | 1.94                     | 0.49              |
| 1:B:24:SER:HB2   | 1:B:30:ALA:HA    | 1.94                     | 0.48              |
| 1:D:24:SER:HB2   | 1:D:30:ALA:HA    | 1.94                     | 0.48              |
| 1:E:213:HIS:HB3  | 1:E:216:LEU:HB3  | 1.94                     | 0.48              |
| 1:B:138:VAL:HG12 | 1:B:231:ILE:HA   | 1.93                     | 0.48              |
| 1:E:402:MET:SD   | 1:E:402:MET:N    | 2.85                     | 0.48              |
| 1:E:295:ASP:OD1  | 1:E:296:ASN:N    | 2.47                     | 0.48              |
| 1:F:189:THR:CB   | 1:I:252:GLU:OE2  | 2.54                     | 0.48              |
| 1:J:24:SER:HB2   | 1:J:30:ALA:HA    | 1.94                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:57:GLU:OE2   | 1:J:283:ALA:HA   | 2.14                     | 0.48              |
| 1:C:57:GLU:OE2   | 1:C:283:ALA:HA   | 2.14                     | 0.48              |
| 1:G:165:ILE:HB   | 1:J:121:ILE:HG12 | 1.95                     | 0.48              |
| 1:B:57:GLU:OE2   | 1:B:283:ALA:HA   | 2.14                     | 0.48              |
| 1:L:24:SER:HB2   | 1:L:30:ALA:HA    | 1.94                     | 0.48              |
| 1:A:121:ILE:HG12 | 1:D:165:ILE:HB   | 1.95                     | 0.48              |
| 1:E:24:SER:HB2   | 1:E:30:ALA:HA    | 1.94                     | 0.48              |
| 1:E:364:HIS:ND1  | 1:E:445:THR:OG1  | 2.35                     | 0.48              |
| 1:B:295:ASP:OD1  | 1:B:296:ASN:N    | 2.47                     | 0.48              |
| 1:C:295:ASP:OD1  | 1:C:296:ASN:N    | 2.47                     | 0.48              |
| 1:K:295:ASP:OD1  | 1:K:296:ASN:N    | 2.47                     | 0.48              |
| 1:L:57:GLU:OE2   | 1:L:283:ALA:HA   | 2.14                     | 0.48              |
| 1:A:57:GLU:OE2   | 1:A:283:ALA:HA   | 2.14                     | 0.48              |
| 1:I:57:GLU:OE2   | 1:I:283:ALA:HA   | 2.14                     | 0.48              |
| 1:E:57:GLU:OE2   | 1:E:283:ALA:HA   | 2.14                     | 0.47              |
| 1:A:295:ASP:OD1  | 1:A:296:ASN:N    | 2.47                     | 0.47              |
| 1:F:57:GLU:OE2   | 1:F:283:ALA:HA   | 2.14                     | 0.47              |
| 1:H:57:GLU:OE2   | 1:H:283:ALA:HA   | 2.14                     | 0.47              |
| 1:J:295:ASP:OD1  | 1:J:296:ASN:N    | 2.47                     | 0.47              |
| 1:D:57:GLU:OE2   | 1:D:283:ALA:HA   | 2.14                     | 0.47              |
| 1:K:57:GLU:OE2   | 1:K:283:ALA:HA   | 2.14                     | 0.47              |
| 1:B:165:ILE:HB   | 1:H:121:ILE:HG12 | 1.95                     | 0.47              |
| 1:B:317:ARG:NH1  | 1:J:317:ARG:HH12 | 2.11                     | 0.47              |
| 1:C:313:GLU:O    | 1:C:317:ARG:HG3  | 2.15                     | 0.47              |
| 1:E:165:ILE:HB   | 1:K:121:ILE:HG12 | 1.96                     | 0.47              |
| 1:D:295:ASP:OD1  | 1:D:296:ASN:N    | 2.47                     | 0.47              |
| 1:D:364:HIS:ND1  | 1:D:445:THR:OG1  | 2.35                     | 0.47              |
| 1:G:57:GLU:OE2   | 1:G:283:ALA:HA   | 2.14                     | 0.47              |
| 1:G:295:ASP:OD1  | 1:G:296:ASN:N    | 2.47                     | 0.47              |
| 1:I:295:ASP:OD1  | 1:I:296:ASN:N    | 2.47                     | 0.47              |
| 1:B:313:GLU:O    | 1:B:317:ARG:HG3  | 2.15                     | 0.47              |
| 1:C:165:ILE:HB   | 1:L:121:ILE:HG12 | 1.95                     | 0.47              |
| 1:F:295:ASP:OD1  | 1:F:296:ASN:N    | 2.47                     | 0.47              |
| 1:F:351:TYR:CE2  | 1:I:163:LEU:HB2  | 2.50                     | 0.47              |
| 1:C:252:GLU:OE2  | 1:L:189:THR:CB   | 2.53                     | 0.47              |
| 1:G:313:GLU:O    | 1:G:317:ARG:HG3  | 2.15                     | 0.47              |
| 1:L:129:ASP:N    | 1:L:129:ASP:OD1  | 2.48                     | 0.47              |
| 1:L:295:ASP:OD1  | 1:L:296:ASN:N    | 2.47                     | 0.47              |
| 1:D:313:GLU:O    | 1:D:317:ARG:HG3  | 2.15                     | 0.46              |
| 1:D:317:ARG:HH12 | 1:H:317:ARG:NH1  | 2.13                     | 0.46              |
| 1:E:313:GLU:O    | 1:E:317:ARG:HG3  | 2.15                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:343:MET:SD   | 1:F:430:SER:HB3  | 2.56                     | 0.46              |
| 1:H:129:ASP:OD1  | 1:H:129:ASP:N    | 2.48                     | 0.46              |
| 1:H:313:GLU:O    | 1:H:317:ARG:HG3  | 2.15                     | 0.46              |
| 1:I:191:ILE:H    | 1:I:191:ILE:HG13 | 1.56                     | 0.46              |
| 1:A:343:MET:SD   | 1:A:430:SER:HB3  | 2.55                     | 0.46              |
| 1:E:343:MET:SD   | 1:E:430:SER:HB3  | 2.56                     | 0.46              |
| 1:F:313:GLU:O    | 1:F:317:ARG:HG3  | 2.15                     | 0.46              |
| 1:H:295:ASP:OD1  | 1:H:296:ASN:N    | 2.47                     | 0.46              |
| 1:H:343:MET:SD   | 1:H:430:SER:HB3  | 2.56                     | 0.46              |
| 1:L:343:MET:SD   | 1:L:430:SER:HB3  | 2.55                     | 0.46              |
| 1:A:91:THR:HG23  | 1:A:293:LEU:HB3  | 1.98                     | 0.46              |
| 1:A:313:GLU:O    | 1:A:317:ARG:HG3  | 2.15                     | 0.46              |
| 1:B:343:MET:SD   | 1:B:430:SER:HB3  | 2.56                     | 0.46              |
| 1:C:343:MET:SD   | 1:C:430:SER:HB3  | 2.55                     | 0.46              |
| 1:D:343:MET:SD   | 1:D:430:SER:HB3  | 2.55                     | 0.46              |
| 1:E:163:LEU:HB2  | 1:K:351:TYR:CE2  | 2.50                     | 0.46              |
| 1:G:91:THR:HG23  | 1:G:293:LEU:HB3  | 1.98                     | 0.46              |
| 1:J:343:MET:SD   | 1:J:430:SER:HB3  | 2.56                     | 0.46              |
| 1:G:163:LEU:HB2  | 1:J:351:TYR:CE2  | 2.50                     | 0.46              |
| 1:G:343:MET:SD   | 1:G:430:SER:HB3  | 2.55                     | 0.46              |
| 1:C:91:THR:HG23  | 1:C:293:LEU:HB3  | 1.98                     | 0.46              |
| 1:E:91:THR:HG23  | 1:E:293:LEU:HB3  | 1.98                     | 0.46              |
| 1:F:129:ASP:OD1  | 1:F:129:ASP:N    | 2.48                     | 0.46              |
| 1:F:361:PRO:HG3  | 1:F:401:LEU:HD13 | 1.98                     | 0.46              |
| 1:G:361:PRO:HG3  | 1:G:401:LEU:HD13 | 1.98                     | 0.46              |
| 1:K:91:THR:HG23  | 1:K:293:LEU:HB3  | 1.98                     | 0.46              |
| 1:A:361:PRO:HG3  | 1:A:401:LEU:HD13 | 1.98                     | 0.46              |
| 1:J:313:GLU:O    | 1:J:317:ARG:HG3  | 2.15                     | 0.46              |
| 1:B:91:THR:HG23  | 1:B:293:LEU:HB3  | 1.98                     | 0.46              |
| 1:C:317:ARG:HH12 | 1:G:317:ARG:NH1  | 2.13                     | 0.46              |
| 1:D:91:THR:HG23  | 1:D:293:LEU:HB3  | 1.98                     | 0.46              |
| 1:I:343:MET:SD   | 1:I:430:SER:HB3  | 2.56                     | 0.46              |
| 1:J:47:LYS:HD3   | 1:J:47:LYS:HA    | 1.81                     | 0.46              |
| 1:L:313:GLU:O    | 1:L:317:ARG:HG3  | 2.15                     | 0.46              |
| 1:F:191:ILE:H    | 1:F:191:ILE:HG13 | 1.56                     | 0.46              |
| 1:K:343:MET:SD   | 1:K:430:SER:HB3  | 2.56                     | 0.46              |
| 1:K:361:PRO:HG3  | 1:K:401:LEU:HD13 | 1.98                     | 0.46              |
| 1:J:361:PRO:HG3  | 1:J:401:LEU:HD13 | 1.98                     | 0.46              |
| 1:B:361:PRO:HG3  | 1:B:401:LEU:HD13 | 1.98                     | 0.45              |
| 1:C:129:ASP:OD1  | 1:C:129:ASP:N    | 2.48                     | 0.45              |
| 1:I:313:GLU:O    | 1:I:317:ARG:HG3  | 2.15                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:294:TYR:HH   | 1:B:312:THR:HG1  | 1.53                     | 0.45              |
| 1:B:317:ARG:HH12 | 1:F:317:ARG:NH1  | 2.14                     | 0.45              |
| 1:E:361:PRO:HG3  | 1:E:401:LEU:HD13 | 1.98                     | 0.45              |
| 1:H:91:THR:HG23  | 1:H:293:LEU:HB3  | 1.98                     | 0.45              |
| 1:H:364:HIS:ND1  | 1:H:445:THR:OG1  | 2.35                     | 0.45              |
| 1:I:129:ASP:OD1  | 1:I:129:ASP:N    | 2.48                     | 0.45              |
| 1:A:317:ARG:NH1  | 1:I:317:ARG:HH12 | 2.14                     | 0.45              |
| 1:K:129:ASP:OD1  | 1:K:129:ASP:N    | 2.48                     | 0.45              |
| 1:L:91:THR:HG23  | 1:L:293:LEU:HB3  | 1.98                     | 0.45              |
| 1:B:47:LYS:HD3   | 1:B:47:LYS:HA    | 1.81                     | 0.45              |
| 1:B:163:LEU:HB2  | 1:H:351:TYR:CE2  | 2.51                     | 0.45              |
| 1:C:310:LEU:HD13 | 1:C:420:ARG:HH22 | 1.82                     | 0.45              |
| 1:D:122:TRP:HA   | 1:D:125:TRP:HD1  | 1.82                     | 0.45              |
| 1:F:163:LEU:HB2  | 1:I:351:TYR:CE2  | 2.51                     | 0.45              |
| 1:H:361:PRO:HG3  | 1:H:401:LEU:HD13 | 1.98                     | 0.45              |
| 1:K:310:LEU:HD13 | 1:K:420:ARG:HH22 | 1.82                     | 0.45              |
| 1:K:313:GLU:O    | 1:K:317:ARG:HG3  | 2.15                     | 0.45              |
| 1:L:361:PRO:HG3  | 1:L:401:LEU:HD13 | 1.98                     | 0.45              |
| 1:B:252:GLU:OE2  | 1:H:189:THR:CB   | 2.53                     | 0.45              |
| 1:B:310:LEU:HD13 | 1:B:420:ARG:HH22 | 1.82                     | 0.45              |
| 1:C:122:TRP:HA   | 1:C:125:TRP:HD1  | 1.82                     | 0.45              |
| 1:C:163:LEU:HB2  | 1:L:351:TYR:CE2  | 2.52                     | 0.45              |
| 1:D:361:PRO:HG3  | 1:D:401:LEU:HD13 | 1.98                     | 0.45              |
| 1:H:122:TRP:HA   | 1:H:125:TRP:HD1  | 1.82                     | 0.45              |
| 1:I:91:THR:HG23  | 1:I:293:LEU:HB3  | 1.98                     | 0.45              |
| 1:I:122:TRP:HA   | 1:I:125:TRP:HD1  | 1.82                     | 0.45              |
| 1:J:91:THR:HG23  | 1:J:293:LEU:HB3  | 1.98                     | 0.45              |
| 1:A:262:LEU:HD23 | 1:A:262:LEU:HA   | 1.84                     | 0.45              |
| 1:C:47:LYS:HD3   | 1:C:47:LYS:HA    | 1.81                     | 0.45              |
| 1:F:310:LEU:HD13 | 1:F:420:ARG:HH22 | 1.82                     | 0.45              |
| 1:H:310:LEU:HD13 | 1:H:420:ARG:HH22 | 1.82                     | 0.45              |
| 1:L:310:LEU:HD13 | 1:L:420:ARG:HH22 | 1.82                     | 0.45              |
| 1:C:361:PRO:HG3  | 1:C:401:LEU:HD13 | 1.98                     | 0.45              |
| 1:E:129:ASP:OD1  | 1:E:129:ASP:N    | 2.48                     | 0.45              |
| 1:G:129:ASP:N    | 1:G:129:ASP:OD1  | 2.48                     | 0.45              |
| 1:H:191:ILE:H    | 1:H:191:ILE:HG13 | 1.56                     | 0.45              |
| 1:J:129:ASP:OD1  | 1:J:129:ASP:N    | 2.48                     | 0.45              |
| 1:J:310:LEU:HD13 | 1:J:420:ARG:HH22 | 1.82                     | 0.45              |
| 1:F:91:THR:HG23  | 1:F:293:LEU:HB3  | 1.98                     | 0.45              |
| 1:B:18:LEU:HD11  | 1:B:246:LEU:HG   | 1.99                     | 0.45              |
| 1:B:129:ASP:N    | 1:B:129:ASP:OD1  | 2.48                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:310:LEU:HD13 | 1:G:420:ARG:HH22 | 1.82                     | 0.45              |
| 1:I:364:HIS:ND1  | 1:I:445:THR:OG1  | 2.35                     | 0.45              |
| 1:K:18:LEU:HD11  | 1:K:246:LEU:HG   | 1.99                     | 0.45              |
| 1:L:18:LEU:HD11  | 1:L:246:LEU:HG   | 1.99                     | 0.45              |
| 1:L:122:TRP:HA   | 1:L:125:TRP:HD1  | 1.82                     | 0.45              |
| 1:A:433:LEU:HB2  | 1:A:441:THR:HG23 | 1.99                     | 0.44              |
| 1:D:129:ASP:N    | 1:D:129:ASP:OD1  | 2.48                     | 0.44              |
| 1:G:122:TRP:HA   | 1:G:125:TRP:HD1  | 1.82                     | 0.44              |
| 1:B:122:TRP:HA   | 1:B:125:TRP:HD1  | 1.82                     | 0.44              |
| 1:D:310:LEU:HD13 | 1:D:420:ARG:HH22 | 1.82                     | 0.44              |
| 1:E:122:TRP:HA   | 1:E:125:TRP:HD1  | 1.82                     | 0.44              |
| 1:E:433:LEU:HB2  | 1:E:441:THR:HG23 | 1.99                     | 0.44              |
| 1:F:433:LEU:HB2  | 1:F:441:THR:HG23 | 1.99                     | 0.44              |
| 1:C:90:HIS:H     | 1:C:261:ASN:ND2  | 2.16                     | 0.44              |
| 1:G:351:TYR:CE2  | 1:J:163:LEU:HB2  | 2.52                     | 0.44              |
| 1:H:433:LEU:HB2  | 1:H:441:THR:HG23 | 1.99                     | 0.44              |
| 1:J:433:LEU:HB2  | 1:J:441:THR:HG23 | 1.99                     | 0.44              |
| 1:C:189:THR:CB   | 1:L:252:GLU:OE2  | 2.58                     | 0.44              |
| 1:D:18:LEU:HD11  | 1:D:246:LEU:HG   | 1.99                     | 0.44              |
| 1:F:47:LYS:HD3   | 1:F:47:LYS:HA    | 1.81                     | 0.44              |
| 1:F:254:ILE:O    | 1:F:441:THR:HA   | 2.18                     | 0.44              |
| 1:K:122:TRP:HA   | 1:K:125:TRP:HD1  | 1.82                     | 0.44              |
| 1:E:254:ILE:O    | 1:E:441:THR:HA   | 2.18                     | 0.44              |
| 1:E:310:LEU:HD13 | 1:E:420:ARG:HH22 | 1.82                     | 0.44              |
| 1:H:254:ILE:O    | 1:H:441:THR:HA   | 2.18                     | 0.44              |
| 1:I:310:LEU:HD13 | 1:I:420:ARG:HH22 | 1.82                     | 0.44              |
| 1:K:254:ILE:O    | 1:K:441:THR:HA   | 2.18                     | 0.44              |
| 1:B:90:HIS:H     | 1:B:261:ASN:ND2  | 2.16                     | 0.44              |
| 1:G:433:LEU:HB2  | 1:G:441:THR:HG23 | 1.99                     | 0.44              |
| 1:I:361:PRO:HG3  | 1:I:401:LEU:HD13 | 1.98                     | 0.44              |
| 1:J:122:TRP:HA   | 1:J:125:TRP:HD1  | 1.82                     | 0.44              |
| 1:L:364:HIS:ND1  | 1:L:445:THR:OG1  | 2.35                     | 0.44              |
| 1:A:122:TRP:HA   | 1:A:125:TRP:HD1  | 1.82                     | 0.44              |
| 1:B:433:LEU:HB2  | 1:B:441:THR:HG23 | 2.00                     | 0.44              |
| 1:C:18:LEU:HD11  | 1:C:246:LEU:HG   | 1.99                     | 0.44              |
| 1:F:122:TRP:HA   | 1:F:125:TRP:HD1  | 1.82                     | 0.44              |
| 1:H:18:LEU:HD11  | 1:H:246:LEU:HG   | 1.99                     | 0.44              |
| 1:J:18:LEU:HD11  | 1:J:246:LEU:HG   | 1.99                     | 0.44              |
| 1:A:310:LEU:HD13 | 1:A:420:ARG:HH22 | 1.82                     | 0.44              |
| 1:C:433:LEU:HB2  | 1:C:441:THR:HG23 | 1.99                     | 0.44              |
| 1:L:191:ILE:H    | 1:L:191:ILE:HG13 | 1.56                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:254:ILE:O    | 1:C:441:THR:HA   | 2.18                     | 0.44              |
| 1:J:364:HIS:ND1  | 1:J:445:THR:OG1  | 2.35                     | 0.44              |
| 1:K:433:LEU:HB2  | 1:K:441:THR:HG23 | 1.99                     | 0.44              |
| 1:B:254:ILE:O    | 1:B:441:THR:HA   | 2.18                     | 0.43              |
| 1:D:90:HIS:H     | 1:D:261:ASN:ND2  | 2.16                     | 0.43              |
| 1:E:317:ARG:NH1  | 1:G:317:ARG:HH12 | 2.15                     | 0.43              |
| 1:F:18:LEU:HD11  | 1:F:246:LEU:HG   | 1.99                     | 0.43              |
| 1:I:254:ILE:O    | 1:I:441:THR:HA   | 2.18                     | 0.43              |
| 1:A:254:ILE:O    | 1:A:441:THR:HA   | 2.18                     | 0.43              |
| 1:F:364:HIS:ND1  | 1:F:445:THR:OG1  | 2.35                     | 0.43              |
| 1:G:254:ILE:O    | 1:G:441:THR:HA   | 2.18                     | 0.43              |
| 1:D:433:LEU:HB2  | 1:D:441:THR:HG23 | 1.99                     | 0.43              |
| 1:J:254:ILE:O    | 1:J:441:THR:HA   | 2.18                     | 0.43              |
| 1:K:364:HIS:ND1  | 1:K:445:THR:OG1  | 2.35                     | 0.43              |
| 1:L:254:ILE:O    | 1:L:441:THR:HA   | 2.18                     | 0.43              |
| 1:A:163:LEU:HB2  | 1:D:351:TYR:CE2  | 2.54                     | 0.43              |
| 1:E:18:LEU:HD11  | 1:E:246:LEU:HG   | 1.99                     | 0.43              |
| 1:F:333:ILE:HD13 | 1:F:333:ILE:HA   | 1.89                     | 0.43              |
| 1:B:161:PRO:O    | 1:H:348:HIS:NE2  | 2.45                     | 0.43              |
| 1:B:351:TYR:CE2  | 1:H:163:LEU:HB2  | 2.53                     | 0.43              |
| 1:D:254:ILE:O    | 1:D:441:THR:HA   | 2.18                     | 0.43              |
| 1:L:333:ILE:HD13 | 1:L:333:ILE:HA   | 1.89                     | 0.43              |
| 1:B:120:GLY:HA2  | 1:B:436:HIS:HB3  | 2.01                     | 0.43              |
| 1:C:120:GLY:HA2  | 1:C:436:HIS:HB3  | 2.01                     | 0.43              |
| 1:I:18:LEU:HD11  | 1:I:246:LEU:HG   | 2.00                     | 0.43              |
| 1:I:433:LEU:HB2  | 1:I:441:THR:HG23 | 1.99                     | 0.43              |
| 1:J:120:GLY:HA2  | 1:J:436:HIS:HB3  | 2.01                     | 0.43              |
| 1:A:351:TYR:CE2  | 1:D:163:LEU:HB2  | 2.53                     | 0.43              |
| 1:J:191:ILE:H    | 1:J:191:ILE:HG13 | 1.56                     | 0.43              |
| 1:E:120:GLY:HA2  | 1:E:436:HIS:HB3  | 2.01                     | 0.43              |
| 1:E:360:ARG:HA   | 1:E:361:PRO:HD3  | 1.91                     | 0.43              |
| 1:J:338:MET:HE1  | 1:J:417:LEU:HD13 | 2.01                     | 0.43              |
| 1:L:338:MET:HE1  | 1:L:417:LEU:HD13 | 2.01                     | 0.43              |
| 1:A:18:LEU:HD11  | 1:A:246:LEU:HG   | 1.99                     | 0.43              |
| 1:E:191:ILE:H    | 1:E:191:ILE:HG13 | 1.56                     | 0.43              |
| 1:G:18:LEU:HD11  | 1:G:246:LEU:HG   | 1.99                     | 0.43              |
| 1:L:433:LEU:HB2  | 1:L:441:THR:HG23 | 1.99                     | 0.43              |
| 1:A:120:GLY:HA2  | 1:A:436:HIS:HB3  | 2.01                     | 0.42              |
| 1:A:90:HIS:H     | 1:A:261:ASN:ND2  | 2.16                     | 0.42              |
| 1:C:338:MET:HE1  | 1:C:417:LEU:HD13 | 2.01                     | 0.42              |
| 1:H:338:MET:HE1  | 1:H:417:LEU:HD13 | 2.01                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:120:GLY:HA2  | 1:F:436:HIS:HB3  | 2.01                     | 0.42              |
| 1:L:90:HIS:H     | 1:L:261:ASN:ND2  | 2.16                     | 0.42              |
| 1:E:316:LEU:HD23 | 1:E:316:LEU:HA   | 1.85                     | 0.42              |
| 1:G:120:GLY:HA2  | 1:G:436:HIS:HB3  | 2.01                     | 0.42              |
| 1:G:213:HIS:HD2  | 1:G:215:VAL:HG12 | 1.85                     | 0.42              |
| 1:C:455:LYS:HE2  | 1:C:455:LYS:HB2  | 1.88                     | 0.42              |
| 1:G:191:ILE:H    | 1:G:191:ILE:HG13 | 1.56                     | 0.42              |
| 1:J:290:MET:HE1  | 1:J:316:LEU:HD21 | 2.02                     | 0.42              |
| 1:C:116:THR:HB   | 1:C:122:TRP:CZ2  | 2.55                     | 0.42              |
| 1:D:213:HIS:HD2  | 1:D:215:VAL:HG12 | 1.84                     | 0.42              |
| 1:G:84:PHE:HD1   | 1:G:288:VAL:HB   | 1.85                     | 0.42              |
| 1:G:290:MET:HE1  | 1:G:316:LEU:HD21 | 2.02                     | 0.42              |
| 1:L:290:MET:HE1  | 1:L:316:LEU:HD21 | 2.02                     | 0.42              |
| 1:C:213:HIS:HD2  | 1:C:215:VAL:HG12 | 1.84                     | 0.42              |
| 1:J:116:THR:HB   | 1:J:122:TRP:CZ2  | 2.55                     | 0.42              |
| 1:A:213:HIS:HD2  | 1:A:215:VAL:HG12 | 1.84                     | 0.42              |
| 1:C:226:LEU:HD23 | 1:C:226:LEU:HA   | 1.87                     | 0.42              |
| 1:E:351:TYR:CE2  | 1:K:163:LEU:HB2  | 2.55                     | 0.42              |
| 1:H:116:THR:HB   | 1:H:122:TRP:CZ2  | 2.55                     | 0.42              |
| 1:I:372:ASN:OD1  | 1:I:373:SER:N    | 2.53                     | 0.42              |
| 1:K:120:GLY:HA2  | 1:K:436:HIS:HB3  | 2.01                     | 0.42              |
| 1:K:338:MET:HE1  | 1:K:417:LEU:HD13 | 2.01                     | 0.42              |
| 1:L:120:GLY:HA2  | 1:L:436:HIS:HB3  | 2.01                     | 0.42              |
| 1:C:290:MET:HE1  | 1:C:316:LEU:HD21 | 2.02                     | 0.42              |
| 1:C:333:ILE:HD13 | 1:C:333:ILE:HA   | 1.89                     | 0.42              |
| 1:F:90:HIS:H     | 1:F:261:ASN:ND2  | 2.16                     | 0.42              |
| 1:G:338:MET:HE1  | 1:G:417:LEU:HD13 | 2.01                     | 0.42              |
| 1:H:372:ASN:OD1  | 1:H:373:SER:N    | 2.53                     | 0.42              |
| 1:I:120:GLY:HA2  | 1:I:436:HIS:HB3  | 2.01                     | 0.42              |
| 1:I:290:MET:HE1  | 1:I:316:LEU:HD21 | 2.02                     | 0.42              |
| 1:J:455:LYS:HE2  | 1:J:455:LYS:HB2  | 1.88                     | 0.42              |
| 1:B:116:THR:HB   | 1:B:122:TRP:CZ2  | 2.55                     | 0.42              |
| 1:D:116:THR:HB   | 1:D:122:TRP:CZ2  | 2.55                     | 0.42              |
| 1:D:120:GLY:HA2  | 1:D:436:HIS:HB3  | 2.01                     | 0.42              |
| 1:F:84:PHE:HD1   | 1:F:288:VAL:HB   | 1.85                     | 0.42              |
| 1:I:213:HIS:HD2  | 1:I:215:VAL:HG12 | 1.84                     | 0.42              |
| 1:J:372:ASN:OD1  | 1:J:373:SER:N    | 2.53                     | 0.42              |
| 1:K:116:THR:HB   | 1:K:122:TRP:CZ2  | 2.55                     | 0.42              |
| 1:B:290:MET:HE1  | 1:B:316:LEU:HD21 | 2.02                     | 0.41              |
| 1:F:116:THR:HB   | 1:F:122:TRP:CZ2  | 2.55                     | 0.41              |
| 1:F:290:MET:HE1  | 1:F:316:LEU:HD21 | 2.02                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:338:MET:HE1  | 1:F:417:LEU:HD13 | 2.01                     | 0.41              |
| 1:F:372:ASN:OD1  | 1:F:373:SER:N    | 2.53                     | 0.41              |
| 1:J:84:PHE:HD1   | 1:J:288:VAL:HB   | 1.85                     | 0.41              |
| 1:L:262:LEU:HD23 | 1:L:262:LEU:HA   | 1.84                     | 0.41              |
| 1:A:129:ASP:OD1  | 1:A:129:ASP:N    | 2.48                     | 0.41              |
| 1:A:333:ILE:HD13 | 1:A:333:ILE:HA   | 1.89                     | 0.41              |
| 1:A:372:ASN:OD1  | 1:A:373:SER:N    | 2.53                     | 0.41              |
| 1:B:372:ASN:OD1  | 1:B:373:SER:N    | 2.53                     | 0.41              |
| 1:G:219:LEU:HD13 | 1:G:219:LEU:HA   | 1.94                     | 0.41              |
| 1:I:338:MET:HE1  | 1:I:417:LEU:HD13 | 2.01                     | 0.41              |
| 1:K:47:LYS:HA    | 1:K:47:LYS:HD3   | 1.81                     | 0.41              |
| 1:K:290:MET:HE1  | 1:K:316:LEU:HD21 | 2.02                     | 0.41              |
| 1:L:39:LEU:HD23  | 1:L:39:LEU:HA    | 1.94                     | 0.41              |
| 1:A:84:PHE:HD1   | 1:A:288:VAL:HB   | 1.85                     | 0.41              |
| 1:C:317:ARG:NH1  | 1:E:317:ARG:HH12 | 2.18                     | 0.41              |
| 1:E:372:ASN:OD1  | 1:E:373:SER:N    | 2.53                     | 0.41              |
| 1:G:372:ASN:OD1  | 1:G:373:SER:N    | 2.53                     | 0.41              |
| 1:H:120:GLY:HA2  | 1:H:436:HIS:HB3  | 2.01                     | 0.41              |
| 1:H:455:LYS:HE2  | 1:H:455:LYS:HB2  | 1.88                     | 0.41              |
| 1:L:372:ASN:OD1  | 1:L:373:SER:N    | 2.53                     | 0.41              |
| 1:A:99:LYS:HG3   | 1:A:100:ARG:H    | 1.86                     | 0.41              |
| 1:B:455:LYS:HE2  | 1:B:455:LYS:HB2  | 1.88                     | 0.41              |
| 1:C:372:ASN:OD1  | 1:C:373:SER:N    | 2.53                     | 0.41              |
| 1:G:99:LYS:HG3   | 1:G:100:ARG:H    | 1.86                     | 0.41              |
| 1:G:252:GLU:OE2  | 1:J:189:THR:CB   | 2.57                     | 0.41              |
| 1:I:116:THR:HB   | 1:I:122:TRP:CZ2  | 2.55                     | 0.41              |
| 1:K:317:ARG:HG2  | 1:K:329:PHE:CG   | 2.56                     | 0.41              |
| 1:A:116:THR:HB   | 1:A:122:TRP:CZ2  | 2.55                     | 0.41              |
| 1:A:191:ILE:H    | 1:A:191:ILE:HG13 | 1.56                     | 0.41              |
| 1:A:290:MET:HE1  | 1:A:316:LEU:HD21 | 2.02                     | 0.41              |
| 1:A:317:ARG:HG2  | 1:A:329:PHE:CG   | 2.56                     | 0.41              |
| 1:B:338:MET:HE1  | 1:B:417:LEU:HD13 | 2.01                     | 0.41              |
| 1:E:161:PRO:O    | 1:K:348:HIS:NE2  | 2.45                     | 0.41              |
| 1:G:116:THR:HB   | 1:G:122:TRP:CZ2  | 2.55                     | 0.41              |
| 1:H:290:MET:HE1  | 1:H:316:LEU:HD21 | 2.02                     | 0.41              |
| 1:K:333:ILE:HD13 | 1:K:333:ILE:HA   | 1.89                     | 0.41              |
| 1:K:372:ASN:OD1  | 1:K:373:SER:N    | 2.53                     | 0.41              |
| 1:B:219:LEU:HD13 | 1:B:219:LEU:HA   | 1.94                     | 0.41              |
| 1:C:84:PHE:HD1   | 1:C:288:VAL:HB   | 1.85                     | 0.41              |
| 1:C:191:ILE:H    | 1:C:191:ILE:HG13 | 1.56                     | 0.41              |
| 1:E:317:ARG:HG2  | 1:E:329:PHE:CG   | 2.56                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:139:LYS:NZ   | 1:F:144:GLY:HA2  | 2.36                     | 0.41              |
| 1:F:317:ARG:HG2  | 1:F:329:PHE:CG   | 2.56                     | 0.41              |
| 1:F:348:HIS:NE2  | 1:I:161:PRO:O    | 2.45                     | 0.41              |
| 1:I:84:PHE:HD1   | 1:I:288:VAL:HB   | 1.85                     | 0.41              |
| 1:A:338:MET:HE1  | 1:A:417:LEU:HD13 | 2.01                     | 0.41              |
| 1:D:84:PHE:HD1   | 1:D:288:VAL:HB   | 1.85                     | 0.41              |
| 1:D:139:LYS:NZ   | 1:D:144:GLY:HA2  | 2.36                     | 0.41              |
| 1:E:290:MET:HE1  | 1:E:316:LEU:HD21 | 2.02                     | 0.41              |
| 1:H:262:LEU:HD23 | 1:H:262:LEU:HA   | 1.84                     | 0.41              |
| 1:L:84:PHE:HD1   | 1:L:288:VAL:HB   | 1.85                     | 0.41              |
| 1:L:139:LYS:NZ   | 1:L:144:GLY:HA2  | 2.36                     | 0.41              |
| 1:A:364:HIS:ND1  | 1:A:445:THR:OG1  | 2.35                     | 0.41              |
| 1:B:213:HIS:HD2  | 1:B:215:VAL:HG12 | 1.84                     | 0.41              |
| 1:C:317:ARG:HG2  | 1:C:329:PHE:CG   | 2.56                     | 0.41              |
| 1:D:372:ASN:OD1  | 1:D:373:SER:N    | 2.53                     | 0.41              |
| 1:E:338:MET:HE1  | 1:E:417:LEU:HD13 | 2.01                     | 0.41              |
| 1:H:39:LEU:HD23  | 1:H:39:LEU:HA    | 1.94                     | 0.41              |
| 1:H:84:PHE:HD1   | 1:H:288:VAL:HB   | 1.85                     | 0.41              |
| 1:H:360:ARG:HA   | 1:H:361:PRO:HD3  | 1.91                     | 0.41              |
| 1:I:317:ARG:HG2  | 1:I:329:PHE:CG   | 2.56                     | 0.41              |
| 1:K:84:PHE:HD1   | 1:K:288:VAL:HB   | 1.85                     | 0.41              |
| 1:K:360:ARG:HA   | 1:K:361:PRO:HD3  | 1.91                     | 0.41              |
| 1:A:125:TRP:CE3  | 1:A:438:ILE:HD12 | 2.56                     | 0.41              |
| 1:B:84:PHE:HD1   | 1:B:288:VAL:HB   | 1.85                     | 0.41              |
| 1:B:99:LYS:HG3   | 1:B:100:ARG:H    | 1.86                     | 0.41              |
| 1:B:139:LYS:NZ   | 1:B:144:GLY:HA2  | 2.36                     | 0.41              |
| 1:B:317:ARG:HG2  | 1:B:329:PHE:CG   | 2.56                     | 0.41              |
| 1:C:99:LYS:HG3   | 1:C:100:ARG:H    | 1.86                     | 0.41              |
| 1:D:317:ARG:HG2  | 1:D:329:PHE:CG   | 2.56                     | 0.41              |
| 1:D:338:MET:HE1  | 1:D:417:LEU:HD13 | 2.01                     | 0.41              |
| 1:G:125:TRP:CE3  | 1:G:438:ILE:HD12 | 2.56                     | 0.41              |
| 1:G:139:LYS:NZ   | 1:G:144:GLY:HA2  | 2.36                     | 0.41              |
| 1:G:161:PRO:O    | 1:J:348:HIS:NE2  | 2.44                     | 0.41              |
| 1:G:317:ARG:HG2  | 1:G:329:PHE:CG   | 2.56                     | 0.41              |
| 1:G:339:ILE:HG23 | 1:G:426:LEU:HD23 | 2.03                     | 0.41              |
| 1:H:139:LYS:NZ   | 1:H:144:GLY:HA2  | 2.36                     | 0.41              |
| 1:H:339:ILE:HG23 | 1:H:426:LEU:HD23 | 2.03                     | 0.41              |
| 1:I:125:TRP:CE3  | 1:I:438:ILE:HD12 | 2.56                     | 0.41              |
| 1:K:99:LYS:HG3   | 1:K:100:ARG:H    | 1.86                     | 0.41              |
| 1:L:116:THR:HB   | 1:L:122:TRP:CZ2  | 2.55                     | 0.41              |
| 1:L:125:TRP:CE3  | 1:L:438:ILE:HD12 | 2.56                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:339:ILE:HG23 | 1:L:426:LEU:HD23 | 2.03                     | 0.41              |
| 1:B:189:THR:CB   | 1:H:252:GLU:OE2  | 2.57                     | 0.41              |
| 1:D:39:LEU:HD23  | 1:D:39:LEU:HA    | 1.94                     | 0.41              |
| 1:E:116:THR:HB   | 1:E:122:TRP:CZ2  | 2.55                     | 0.41              |
| 1:E:125:TRP:CE3  | 1:E:438:ILE:HD12 | 2.56                     | 0.41              |
| 1:G:39:LEU:HD23  | 1:G:39:LEU:HA    | 1.94                     | 0.41              |
| 1:G:90:HIS:H     | 1:G:261:ASN:ND2  | 2.16                     | 0.41              |
| 1:I:99:LYS:HG3   | 1:I:100:ARG:H    | 1.86                     | 0.41              |
| 1:I:339:ILE:HG23 | 1:I:426:LEU:HD23 | 2.03                     | 0.41              |
| 1:J:112:VAL:O    | 1:J:185:PRO:HD2  | 2.21                     | 0.41              |
| 1:J:139:LYS:NZ   | 1:J:144:GLY:HA2  | 2.36                     | 0.41              |
| 1:J:213:HIS:HD2  | 1:J:215:VAL:HG12 | 1.84                     | 0.41              |
| 1:K:226:LEU:HD23 | 1:K:226:LEU:HA   | 1.87                     | 0.41              |
| 1:B:333:ILE:HD13 | 1:B:333:ILE:HA   | 1.89                     | 0.40              |
| 1:C:112:VAL:O    | 1:C:185:PRO:HD2  | 2.22                     | 0.40              |
| 1:C:125:TRP:CE3  | 1:C:438:ILE:HD12 | 2.56                     | 0.40              |
| 1:D:290:MET:HE1  | 1:D:316:LEU:HD21 | 2.02                     | 0.40              |
| 1:E:112:VAL:O    | 1:E:185:PRO:HD2  | 2.22                     | 0.40              |
| 1:E:213:HIS:HD2  | 1:E:215:VAL:HG12 | 1.85                     | 0.40              |
| 1:J:317:ARG:HG2  | 1:J:329:PHE:CG   | 2.56                     | 0.40              |
| 1:B:191:ILE:H    | 1:B:191:ILE:HG13 | 1.56                     | 0.40              |
| 1:E:84:PHE:HD1   | 1:E:288:VAL:HB   | 1.85                     | 0.40              |
| 1:F:99:LYS:HG3   | 1:F:100:ARG:H    | 1.86                     | 0.40              |
| 1:H:125:TRP:CE3  | 1:H:438:ILE:HD12 | 2.56                     | 0.40              |
| 1:H:337:TYR:HB2  | 1:H:461:PHE:CZ   | 2.57                     | 0.40              |
| 1:I:112:VAL:O    | 1:I:185:PRO:HD2  | 2.22                     | 0.40              |
| 1:K:139:LYS:NZ   | 1:K:144:GLY:HA2  | 2.36                     | 0.40              |
| 1:K:339:ILE:HG23 | 1:K:426:LEU:HD23 | 2.03                     | 0.40              |
| 1:L:317:ARG:HG2  | 1:L:329:PHE:CG   | 2.56                     | 0.40              |
| 1:B:112:VAL:O    | 1:B:185:PRO:HD2  | 2.22                     | 0.40              |
| 1:B:339:ILE:HG23 | 1:B:426:LEU:HD23 | 2.03                     | 0.40              |
| 1:E:99:LYS:HG3   | 1:E:100:ARG:H    | 1.86                     | 0.40              |
| 1:H:99:LYS:HG3   | 1:H:100:ARG:H    | 1.86                     | 0.40              |
| 1:I:90:HIS:H     | 1:I:261:ASN:ND2  | 2.16                     | 0.40              |
| 1:J:339:ILE:HG23 | 1:J:426:LEU:HD23 | 2.03                     | 0.40              |
| 1:B:364:HIS:ND1  | 1:B:445:THR:OG1  | 2.35                     | 0.40              |
| 1:C:316:LEU:HD23 | 1:C:316:LEU:HA   | 1.85                     | 0.40              |
| 1:C:351:TYR:CE2  | 1:L:163:LEU:HB2  | 2.56                     | 0.40              |
| 1:E:90:HIS:H     | 1:E:261:ASN:ND2  | 2.16                     | 0.40              |
| 1:E:262:LEU:HD23 | 1:E:262:LEU:HA   | 1.84                     | 0.40              |
| 1:H:317:ARG:HG2  | 1:H:329:PHE:CG   | 2.56                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:337:TYR:HB2  | 1:J:461:PHE:CZ   | 2.57                     | 0.40              |
| 1:K:112:VAL:O    | 1:K:185:PRO:HD2  | 2.21                     | 0.40              |
| 1:A:139:LYS:NZ   | 1:A:144:GLY:HA2  | 2.36                     | 0.40              |
| 1:A:339:ILE:HG23 | 1:A:426:LEU:HD23 | 2.03                     | 0.40              |
| 1:C:337:TYR:HB2  | 1:C:461:PHE:CZ   | 2.57                     | 0.40              |
| 1:D:47:LYS:HD3   | 1:D:47:LYS:HA    | 1.81                     | 0.40              |
| 1:D:337:TYR:HB2  | 1:D:461:PHE:CZ   | 2.57                     | 0.40              |
| 1:E:337:TYR:HB2  | 1:E:461:PHE:CZ   | 2.57                     | 0.40              |
| 1:F:316:LEU:HD23 | 1:F:316:LEU:HA   | 1.85                     | 0.40              |
| 1:G:47:LYS:HD3   | 1:G:47:LYS:HA    | 1.81                     | 0.40              |
| 1:K:316:LEU:HA   | 1:K:316:LEU:HD23 | 1.85                     | 0.40              |
| 1:L:47:LYS:HD3   | 1:L:47:LYS:HA    | 1.81                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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   | A     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | B     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | C     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | D     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | E     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | F     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | G     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | H     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | I     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |
| 1   | J     | 412/471 (88%) | 399 (97%) | 13 (3%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed        | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 1   | K     | 412/471 (88%)   | 399 (97%)  | 13 (3%)  | 0        | 100         | 100 |
| 1   | L     | 412/471 (88%)   | 399 (97%)  | 13 (3%)  | 0        | 100         | 100 |
| All | All   | 4944/5652 (88%) | 4788 (97%) | 156 (3%) | 0        | 100         | 100 |

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains ⓘ

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   | A     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | B     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | C     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | D     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | E     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | F     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | G     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | H     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | I     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | J     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | K     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| 1   | L     | 357/399 (90%)   | 338 (95%)  | 19 (5%)  | 19          | 47 |
| All | All   | 4284/4788 (90%) | 4056 (95%) | 228 (5%) | 21          | 47 |

All (228) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 46  | LEU  |
| 1   | A     | 63  | THR  |
| 1   | A     | 99  | LYS  |
| 1   | A     | 106 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 107 | VAL  |
| 1   | A     | 111 | GLN  |
| 1   | A     | 132 | LEU  |
| 1   | A     | 147 | GLU  |
| 1   | A     | 184 | VAL  |
| 1   | A     | 189 | THR  |
| 1   | A     | 190 | SER  |
| 1   | A     | 193 | GLU  |
| 1   | A     | 194 | GLU  |
| 1   | A     | 293 | LEU  |
| 1   | A     | 345 | HIS  |
| 1   | A     | 413 | ILE  |
| 1   | A     | 426 | LEU  |
| 1   | A     | 441 | THR  |
| 1   | A     | 460 | LEU  |
| 1   | B     | 46  | LEU  |
| 1   | B     | 63  | THR  |
| 1   | B     | 99  | LYS  |
| 1   | B     | 106 | GLN  |
| 1   | B     | 107 | VAL  |
| 1   | B     | 111 | GLN  |
| 1   | B     | 132 | LEU  |
| 1   | B     | 147 | GLU  |
| 1   | B     | 184 | VAL  |
| 1   | B     | 189 | THR  |
| 1   | B     | 190 | SER  |
| 1   | B     | 193 | GLU  |
| 1   | B     | 194 | GLU  |
| 1   | B     | 293 | LEU  |
| 1   | B     | 345 | HIS  |
| 1   | B     | 413 | ILE  |
| 1   | B     | 426 | LEU  |
| 1   | B     | 441 | THR  |
| 1   | B     | 460 | LEU  |
| 1   | C     | 46  | LEU  |
| 1   | C     | 63  | THR  |
| 1   | C     | 99  | LYS  |
| 1   | C     | 106 | GLN  |
| 1   | C     | 107 | VAL  |
| 1   | C     | 111 | GLN  |
| 1   | C     | 132 | LEU  |
| 1   | C     | 147 | GLU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | C     | 184 | VAL  |
| 1   | C     | 189 | THR  |
| 1   | C     | 190 | SER  |
| 1   | C     | 193 | GLU  |
| 1   | C     | 194 | GLU  |
| 1   | C     | 293 | LEU  |
| 1   | C     | 345 | HIS  |
| 1   | C     | 413 | ILE  |
| 1   | C     | 426 | LEU  |
| 1   | C     | 441 | THR  |
| 1   | C     | 460 | LEU  |
| 1   | D     | 46  | LEU  |
| 1   | D     | 63  | THR  |
| 1   | D     | 99  | LYS  |
| 1   | D     | 106 | GLN  |
| 1   | D     | 107 | VAL  |
| 1   | D     | 111 | GLN  |
| 1   | D     | 132 | LEU  |
| 1   | D     | 147 | GLU  |
| 1   | D     | 184 | VAL  |
| 1   | D     | 189 | THR  |
| 1   | D     | 190 | SER  |
| 1   | D     | 193 | GLU  |
| 1   | D     | 194 | GLU  |
| 1   | D     | 293 | LEU  |
| 1   | D     | 345 | HIS  |
| 1   | D     | 413 | ILE  |
| 1   | D     | 426 | LEU  |
| 1   | D     | 441 | THR  |
| 1   | D     | 460 | LEU  |
| 1   | E     | 46  | LEU  |
| 1   | E     | 63  | THR  |
| 1   | E     | 99  | LYS  |
| 1   | E     | 106 | GLN  |
| 1   | E     | 107 | VAL  |
| 1   | E     | 111 | GLN  |
| 1   | E     | 132 | LEU  |
| 1   | E     | 147 | GLU  |
| 1   | E     | 184 | VAL  |
| 1   | E     | 189 | THR  |
| 1   | E     | 190 | SER  |
| 1   | E     | 193 | GLU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | E     | 194 | GLU  |
| 1   | E     | 293 | LEU  |
| 1   | E     | 345 | HIS  |
| 1   | E     | 413 | ILE  |
| 1   | E     | 426 | LEU  |
| 1   | E     | 441 | THR  |
| 1   | E     | 460 | LEU  |
| 1   | F     | 46  | LEU  |
| 1   | F     | 63  | THR  |
| 1   | F     | 99  | LYS  |
| 1   | F     | 106 | GLN  |
| 1   | F     | 107 | VAL  |
| 1   | F     | 111 | GLN  |
| 1   | F     | 132 | LEU  |
| 1   | F     | 147 | GLU  |
| 1   | F     | 184 | VAL  |
| 1   | F     | 189 | THR  |
| 1   | F     | 190 | SER  |
| 1   | F     | 193 | GLU  |
| 1   | F     | 194 | GLU  |
| 1   | F     | 293 | LEU  |
| 1   | F     | 345 | HIS  |
| 1   | F     | 413 | ILE  |
| 1   | F     | 426 | LEU  |
| 1   | F     | 441 | THR  |
| 1   | F     | 460 | LEU  |
| 1   | G     | 46  | LEU  |
| 1   | G     | 63  | THR  |
| 1   | G     | 99  | LYS  |
| 1   | G     | 106 | GLN  |
| 1   | G     | 107 | VAL  |
| 1   | G     | 111 | GLN  |
| 1   | G     | 132 | LEU  |
| 1   | G     | 147 | GLU  |
| 1   | G     | 184 | VAL  |
| 1   | G     | 189 | THR  |
| 1   | G     | 190 | SER  |
| 1   | G     | 193 | GLU  |
| 1   | G     | 194 | GLU  |
| 1   | G     | 293 | LEU  |
| 1   | G     | 345 | HIS  |
| 1   | G     | 413 | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | G     | 426 | LEU  |
| 1   | G     | 441 | THR  |
| 1   | G     | 460 | LEU  |
| 1   | H     | 46  | LEU  |
| 1   | H     | 63  | THR  |
| 1   | H     | 99  | LYS  |
| 1   | H     | 106 | GLN  |
| 1   | H     | 107 | VAL  |
| 1   | H     | 111 | GLN  |
| 1   | H     | 132 | LEU  |
| 1   | H     | 147 | GLU  |
| 1   | H     | 184 | VAL  |
| 1   | H     | 189 | THR  |
| 1   | H     | 190 | SER  |
| 1   | H     | 193 | GLU  |
| 1   | H     | 194 | GLU  |
| 1   | H     | 293 | LEU  |
| 1   | H     | 345 | HIS  |
| 1   | H     | 413 | ILE  |
| 1   | H     | 426 | LEU  |
| 1   | H     | 441 | THR  |
| 1   | H     | 460 | LEU  |
| 1   | I     | 46  | LEU  |
| 1   | I     | 63  | THR  |
| 1   | I     | 99  | LYS  |
| 1   | I     | 106 | GLN  |
| 1   | I     | 107 | VAL  |
| 1   | I     | 111 | GLN  |
| 1   | I     | 132 | LEU  |
| 1   | I     | 147 | GLU  |
| 1   | I     | 184 | VAL  |
| 1   | I     | 189 | THR  |
| 1   | I     | 190 | SER  |
| 1   | I     | 193 | GLU  |
| 1   | I     | 194 | GLU  |
| 1   | I     | 293 | LEU  |
| 1   | I     | 345 | HIS  |
| 1   | I     | 413 | ILE  |
| 1   | I     | 426 | LEU  |
| 1   | I     | 441 | THR  |
| 1   | I     | 460 | LEU  |
| 1   | J     | 46  | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | J     | 63  | THR  |
| 1   | J     | 99  | LYS  |
| 1   | J     | 106 | GLN  |
| 1   | J     | 107 | VAL  |
| 1   | J     | 111 | GLN  |
| 1   | J     | 132 | LEU  |
| 1   | J     | 147 | GLU  |
| 1   | J     | 184 | VAL  |
| 1   | J     | 189 | THR  |
| 1   | J     | 190 | SER  |
| 1   | J     | 193 | GLU  |
| 1   | J     | 194 | GLU  |
| 1   | J     | 293 | LEU  |
| 1   | J     | 345 | HIS  |
| 1   | J     | 413 | ILE  |
| 1   | J     | 426 | LEU  |
| 1   | J     | 441 | THR  |
| 1   | J     | 460 | LEU  |
| 1   | K     | 46  | LEU  |
| 1   | K     | 63  | THR  |
| 1   | K     | 99  | LYS  |
| 1   | K     | 106 | GLN  |
| 1   | K     | 107 | VAL  |
| 1   | K     | 111 | GLN  |
| 1   | K     | 132 | LEU  |
| 1   | K     | 147 | GLU  |
| 1   | K     | 184 | VAL  |
| 1   | K     | 189 | THR  |
| 1   | K     | 190 | SER  |
| 1   | K     | 193 | GLU  |
| 1   | K     | 194 | GLU  |
| 1   | K     | 293 | LEU  |
| 1   | K     | 345 | HIS  |
| 1   | K     | 413 | ILE  |
| 1   | K     | 426 | LEU  |
| 1   | K     | 441 | THR  |
| 1   | K     | 460 | LEU  |
| 1   | L     | 46  | LEU  |
| 1   | L     | 63  | THR  |
| 1   | L     | 99  | LYS  |
| 1   | L     | 106 | GLN  |
| 1   | L     | 107 | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | L     | 111 | GLN  |
| 1   | L     | 132 | LEU  |
| 1   | L     | 147 | GLU  |
| 1   | L     | 184 | VAL  |
| 1   | L     | 189 | THR  |
| 1   | L     | 190 | SER  |
| 1   | L     | 193 | GLU  |
| 1   | L     | 194 | GLU  |
| 1   | L     | 293 | LEU  |
| 1   | L     | 345 | HIS  |
| 1   | L     | 413 | ILE  |
| 1   | L     | 426 | LEU  |
| 1   | L     | 441 | THR  |
| 1   | L     | 460 | LEU  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 192 | GLN  |
| 1   | A     | 375 | GLN  |
| 1   | B     | 192 | GLN  |
| 1   | B     | 223 | HIS  |
| 1   | B     | 375 | GLN  |
| 1   | C     | 192 | GLN  |
| 1   | C     | 375 | GLN  |
| 1   | D     | 192 | GLN  |
| 1   | D     | 375 | GLN  |
| 1   | E     | 192 | GLN  |
| 1   | E     | 223 | HIS  |
| 1   | E     | 375 | GLN  |
| 1   | F     | 192 | GLN  |
| 1   | F     | 375 | GLN  |
| 1   | G     | 192 | GLN  |
| 1   | G     | 375 | GLN  |
| 1   | H     | 192 | GLN  |
| 1   | H     | 375 | GLN  |
| 1   | I     | 192 | GLN  |
| 1   | I     | 375 | GLN  |
| 1   | J     | 192 | GLN  |
| 1   | J     | 375 | GLN  |
| 1   | K     | 77  | GLN  |
| 1   | K     | 192 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | K     | 375 | GLN  |
| 1   | L     | 192 | GLN  |
| 1   | L     | 375 | GLN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

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

Of 24 ligands modelled in this entry, 24 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

### 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

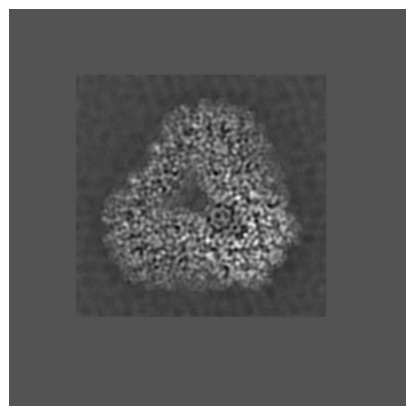
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-26350. These allow visual inspection of the internal detail of the map and identification of artifacts.

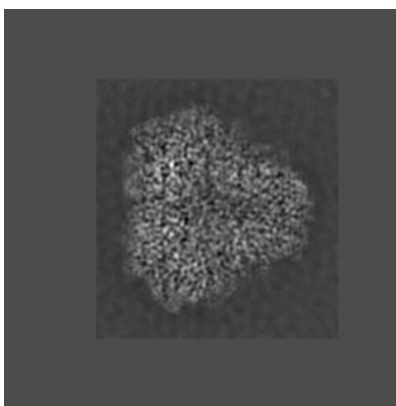
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

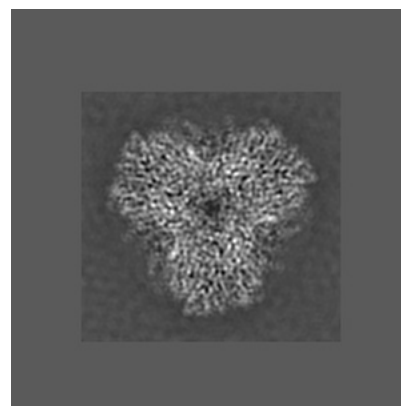
#### 6.1.1 Primary map



X

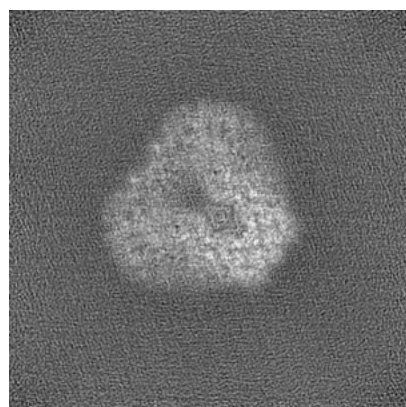


Y

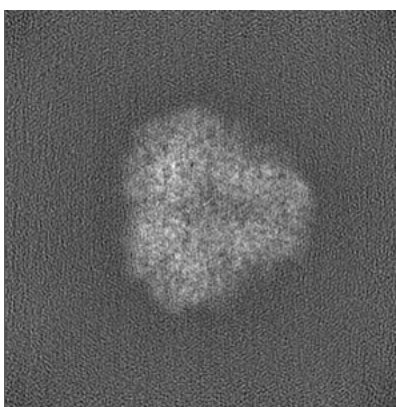


Z

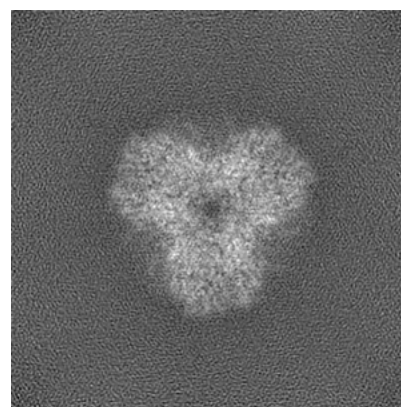
#### 6.1.2 Raw map



X



Y

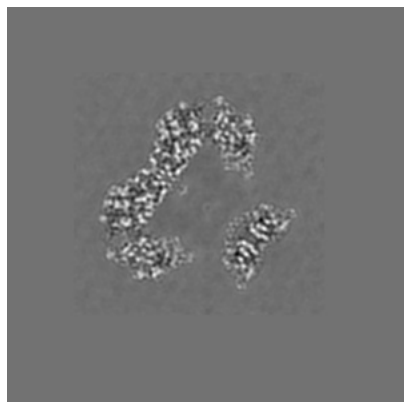


Z

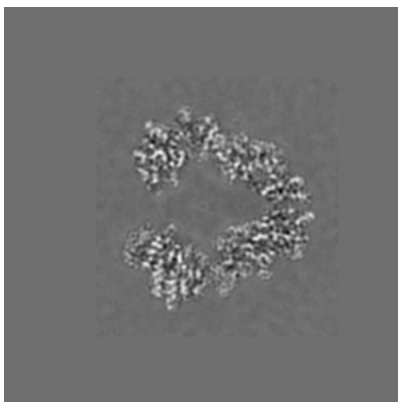
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

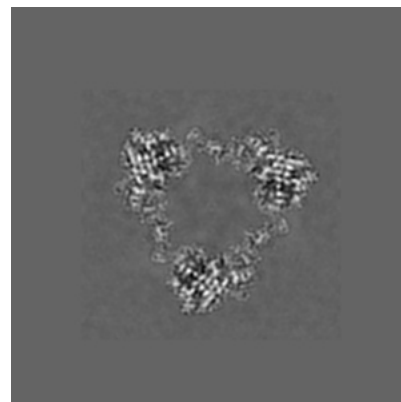
### 6.2.1 Primary map



X Index: 128

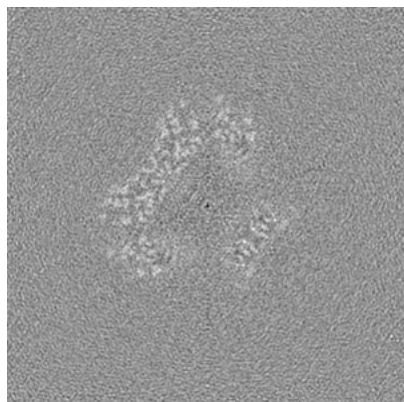


Y Index: 128

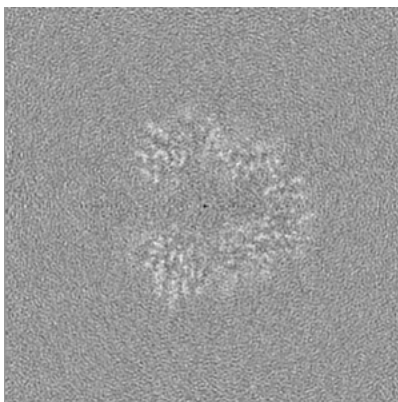


Z Index: 128

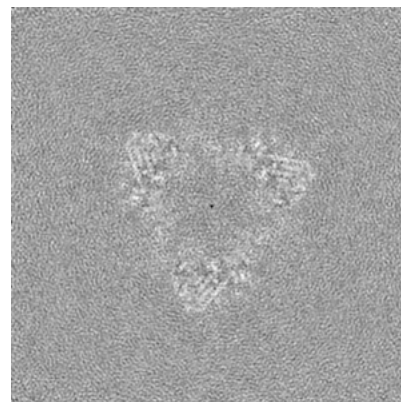
### 6.2.2 Raw map



X Index: 128



Y Index: 128

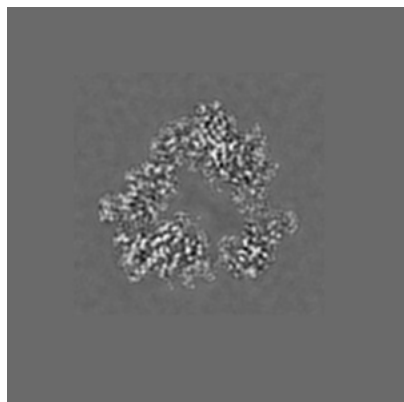


Z Index: 128

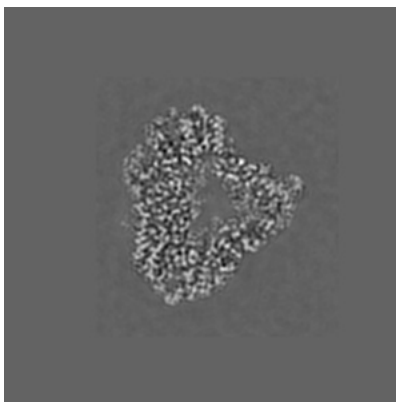
The images above show central slices of the map in three orthogonal directions.

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

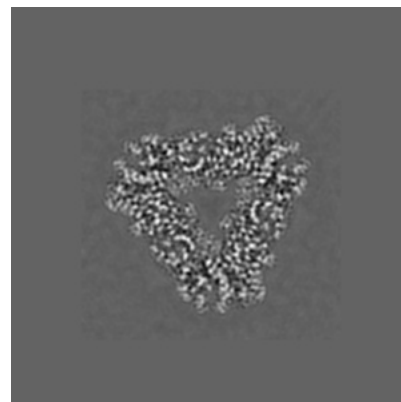
### 6.3.1 Primary map



X Index: 111

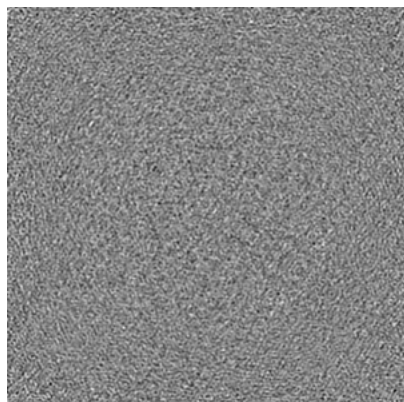


Y Index: 155

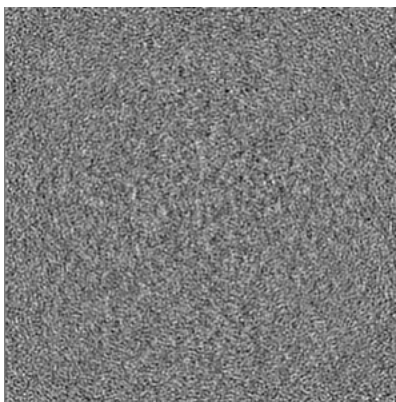


Z Index: 106

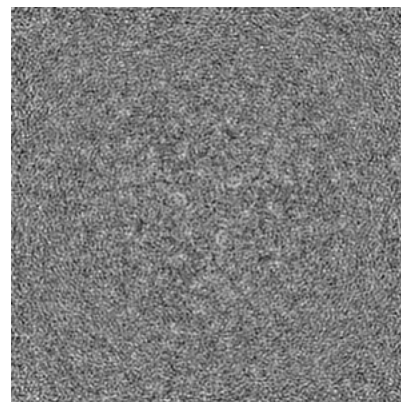
### 6.3.2 Raw map



X Index: 0



Y Index: 0

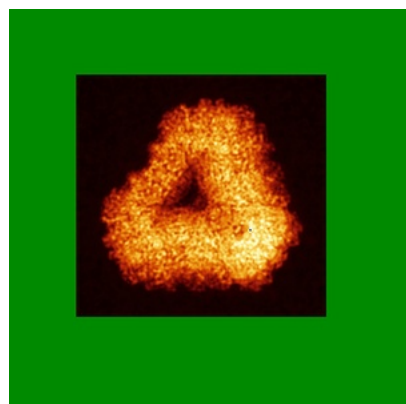


Z Index: 1

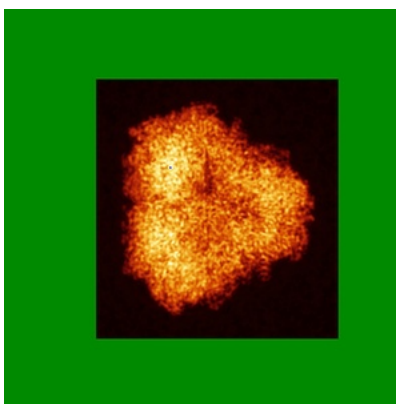
The images above show the largest variance slices of the map in three orthogonal directions.

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

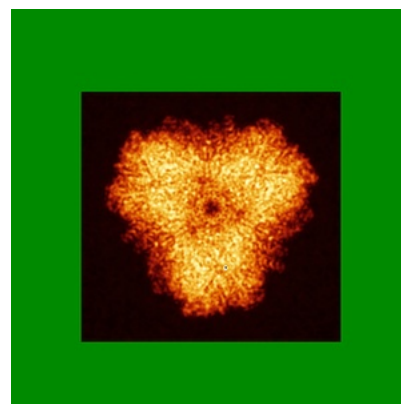
### 6.4.1 Primary map



X

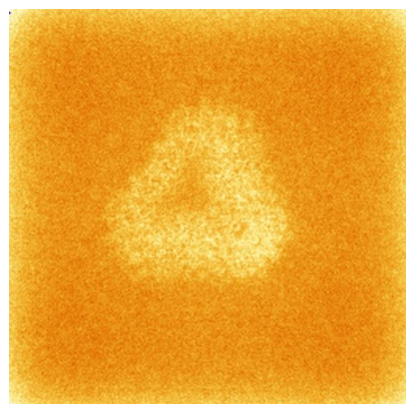


Y

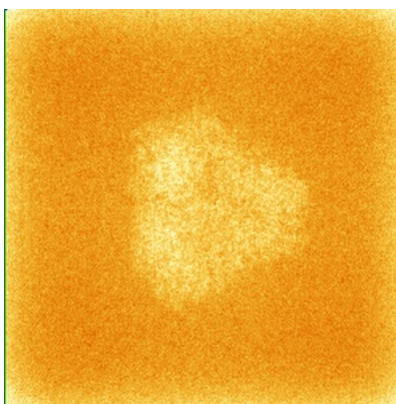


Z

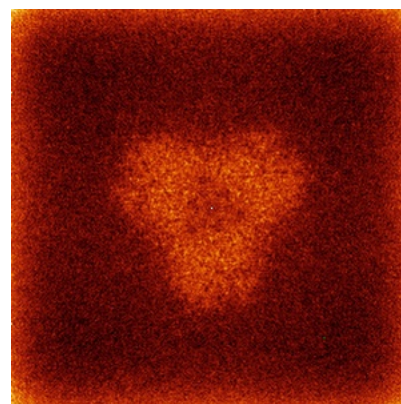
### 6.4.2 Raw map



X



Y

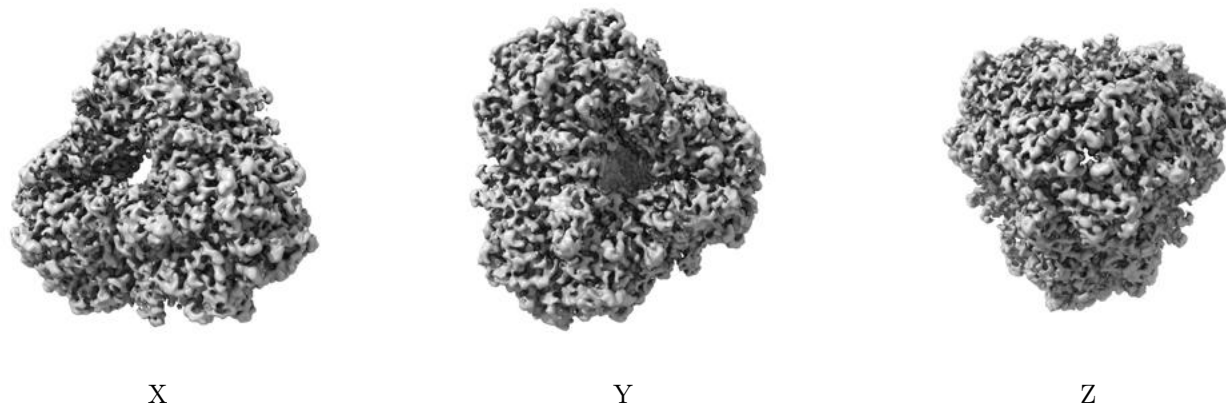


Z

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.

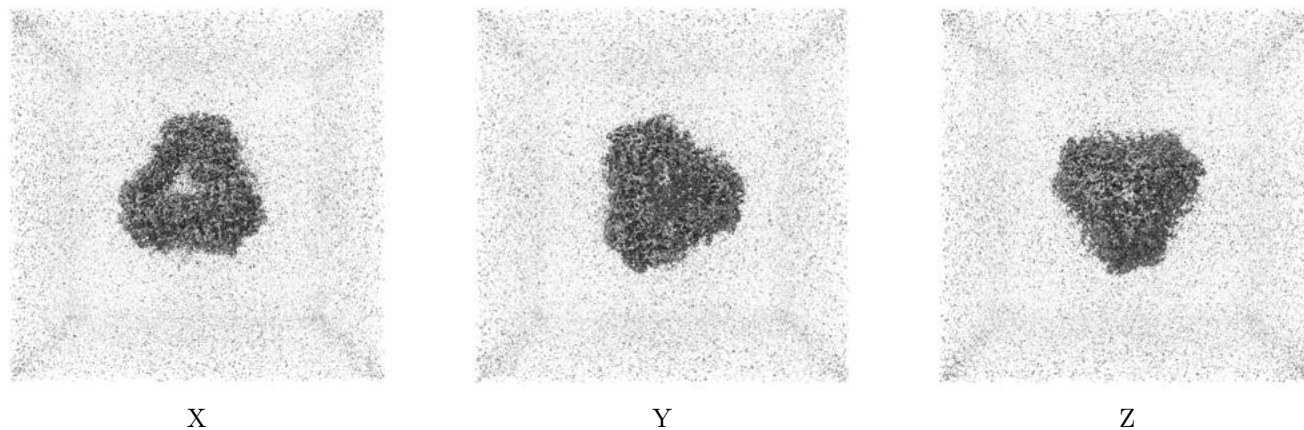
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.15. 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.

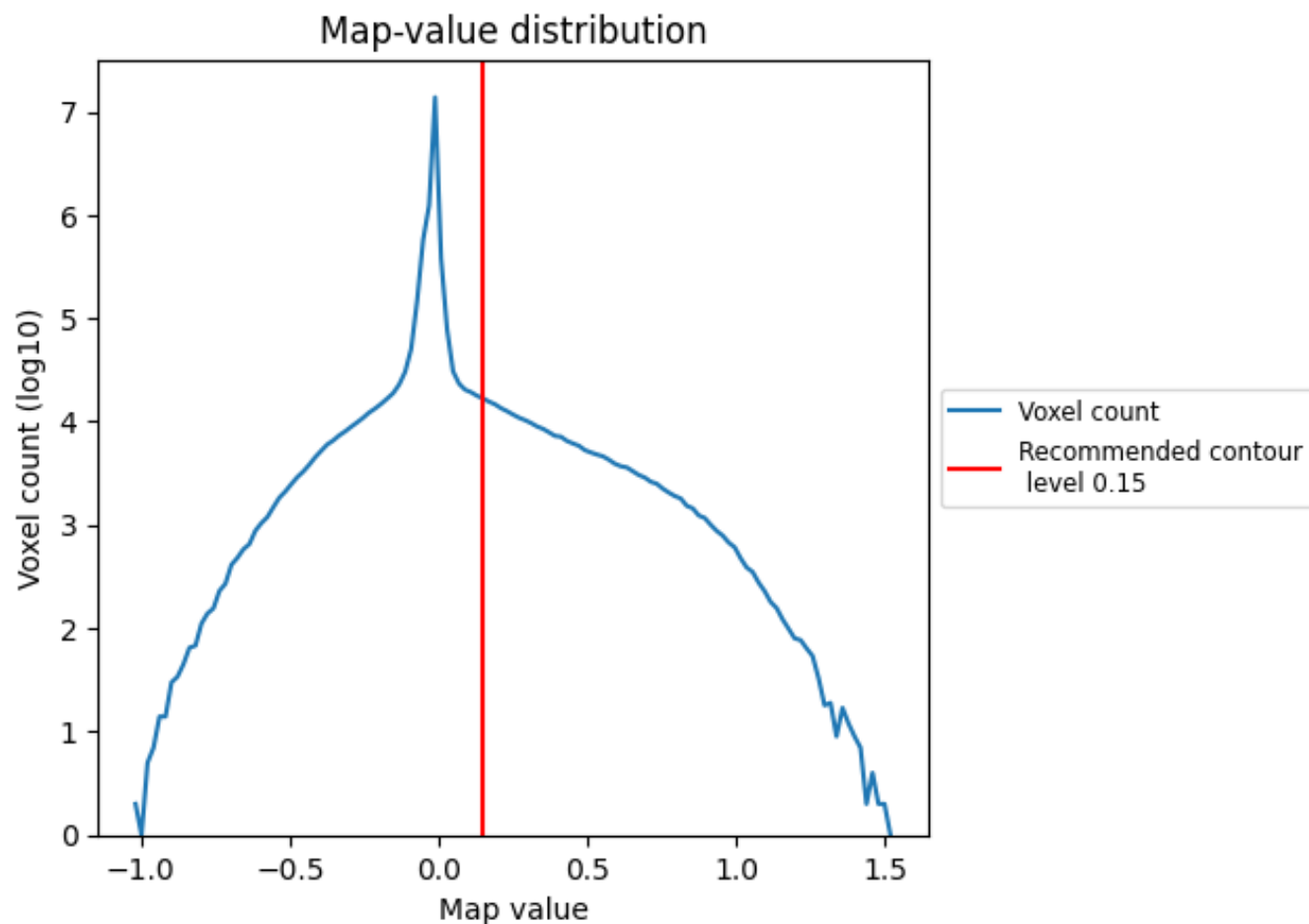
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

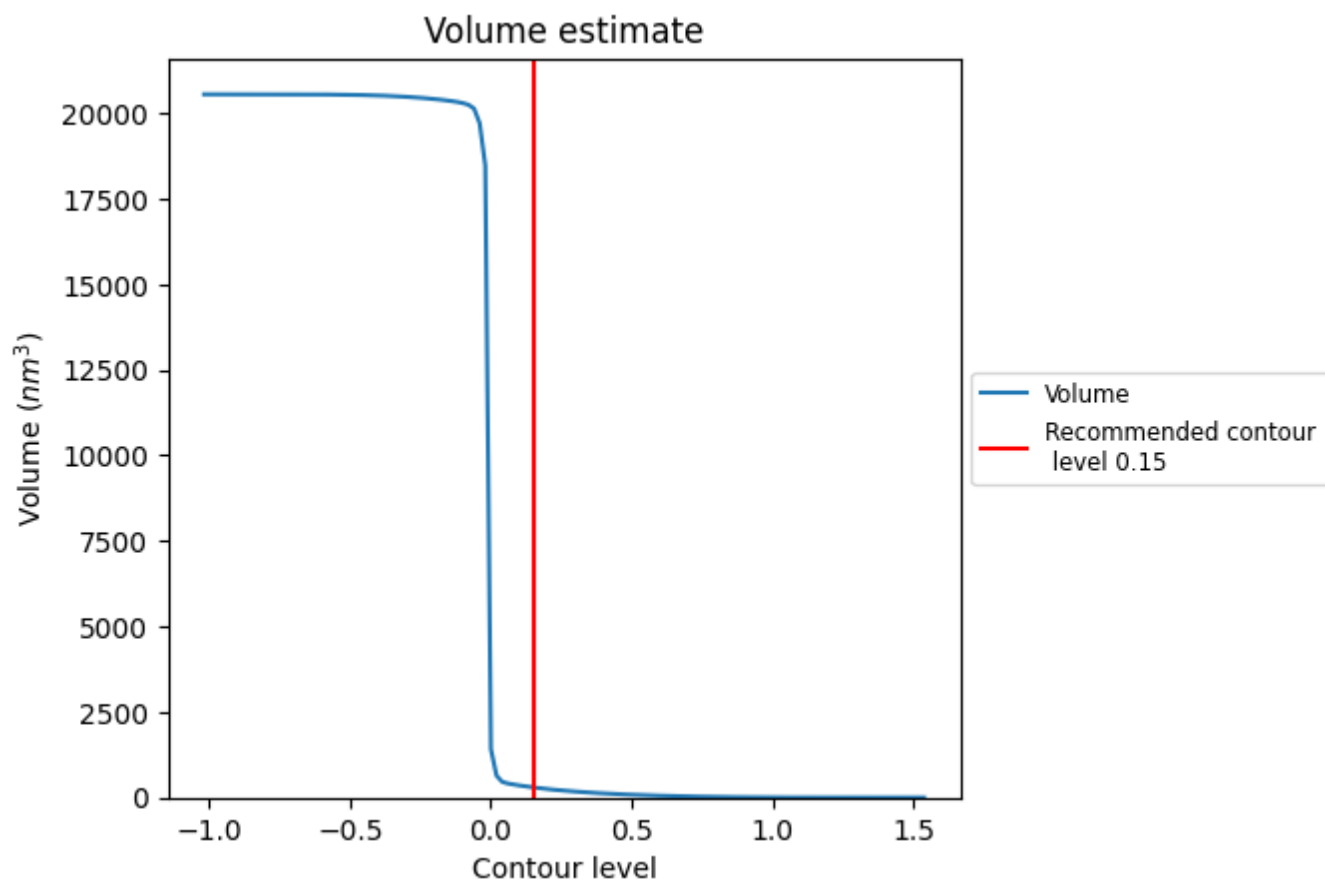
This section contains the results of statistical analysis of the map.

### 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.

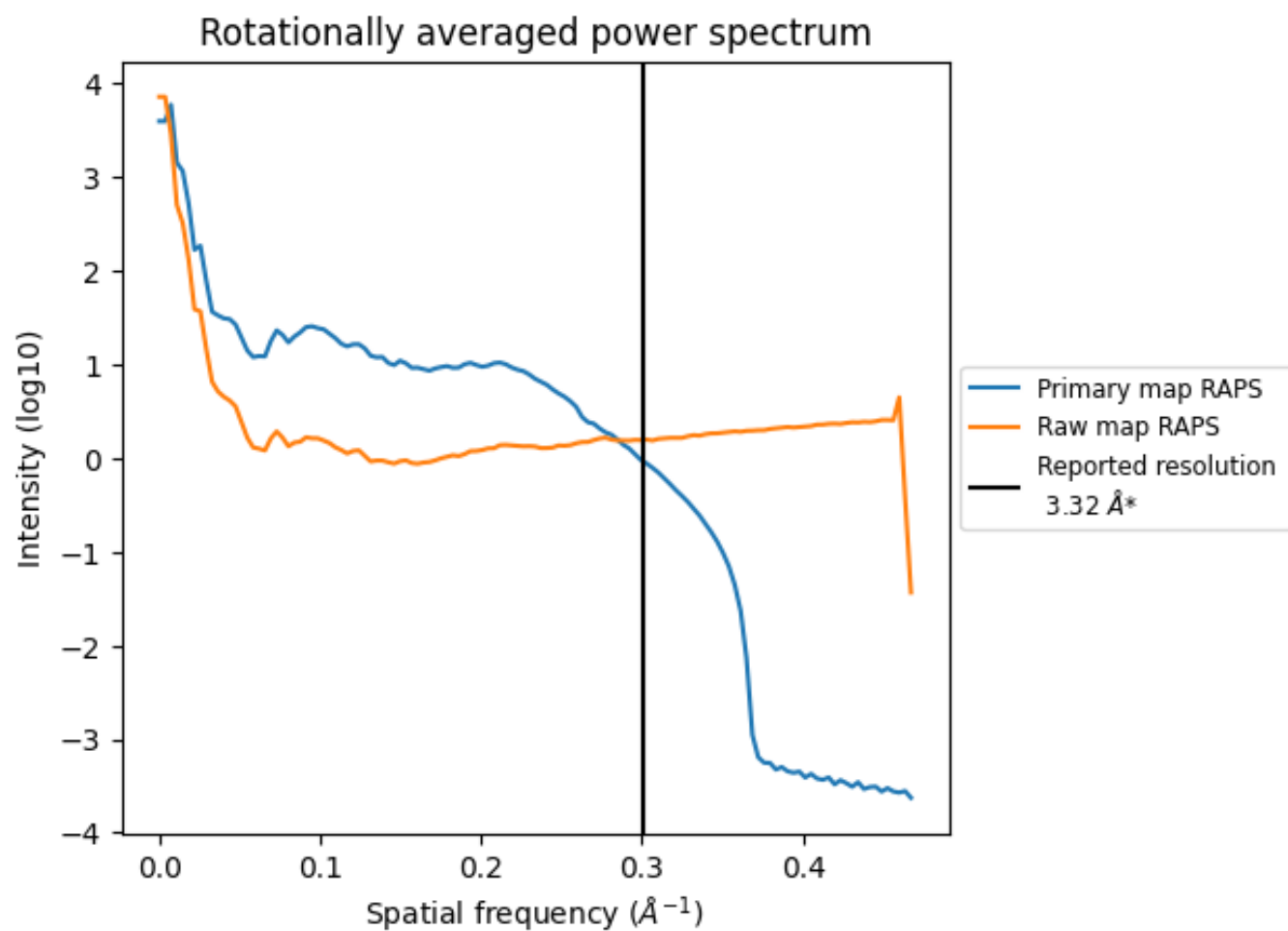
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 298 nm<sup>3</sup>; this corresponds to an approximate mass of 269 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 ⓘ

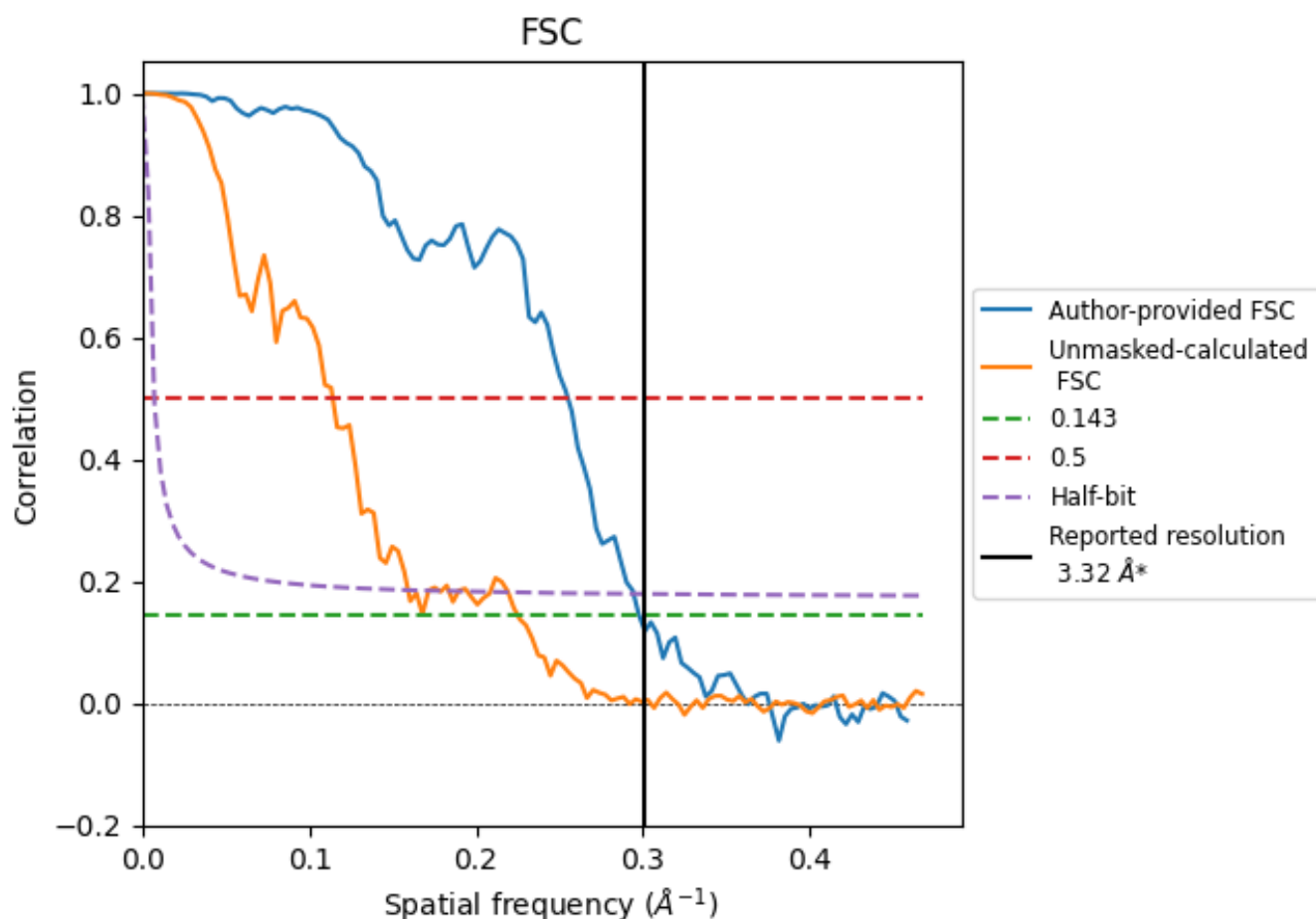


\*Reported resolution corresponds to spatial frequency of 0.301  $\text{\AA}^{-1}$

## 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  $0.301 \text{ \AA}^{-1}$

## 8.2 Resolution estimates [i](#)

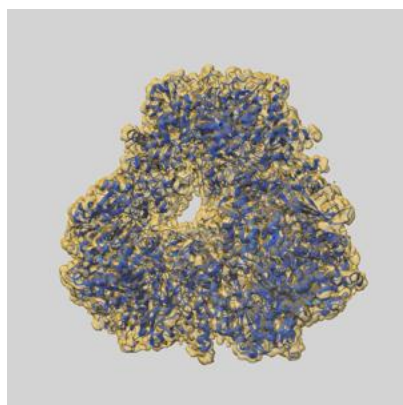
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 3.32                               | -    | -        |
| Author-provided FSC curve | 3.36                               | 3.92 | 3.40     |
| Unmasked-calculated*      | 4.44                               | 8.76 | 6.28     |

\*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 4.44 differs from the reported value 3.32 by more than 10 %

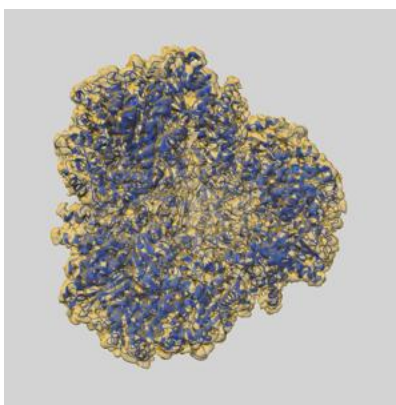
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-26350 and PDB model 7U5H. Per-residue inclusion information can be found in [section 3](#) on [page 6](#).

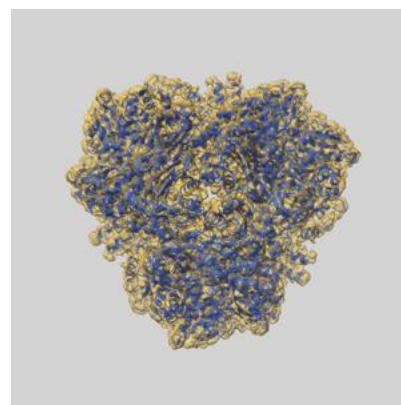
### 9.1 Map-model overlay [i](#)



X



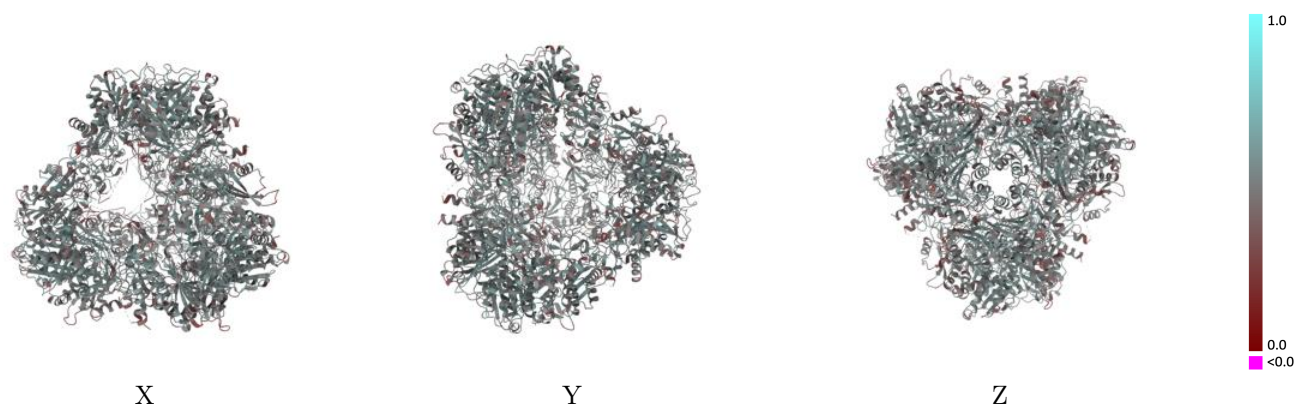
Y



Z

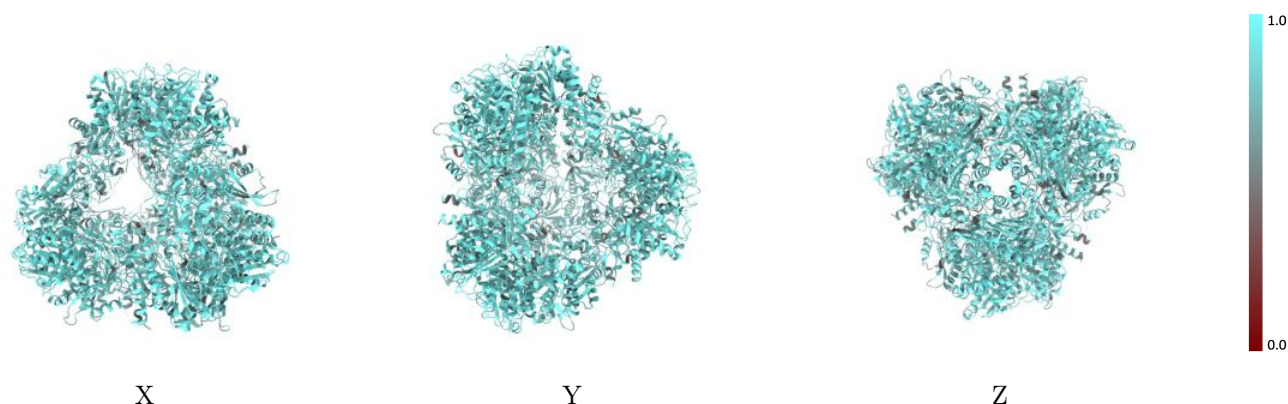
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



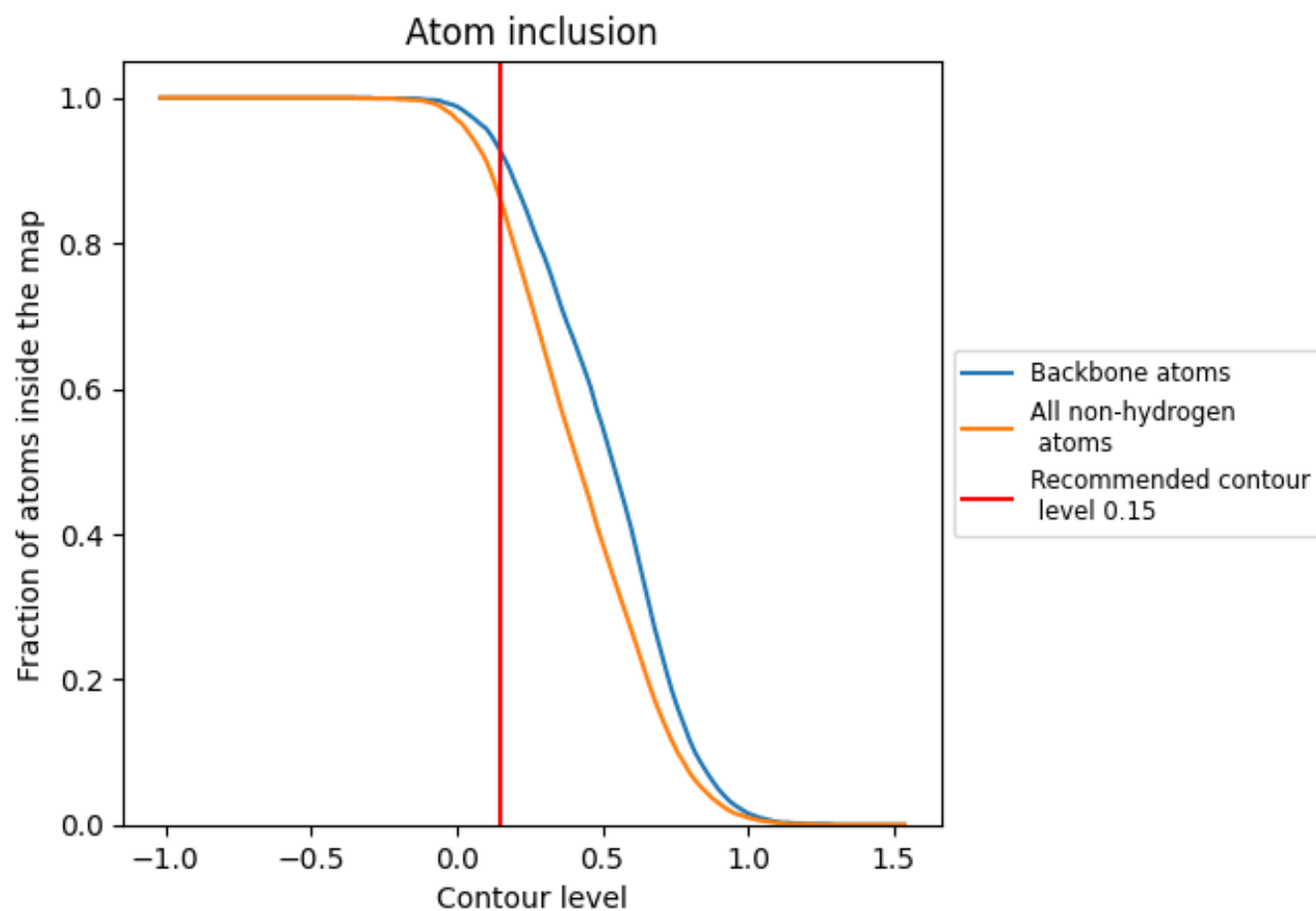
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.15).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 86% 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 (0.15) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                | Q-score                       |
|-------|-------------------------------|-------------------------------|
| All   | <div><div></div></div> 0.8600 | <div><div></div></div> 0.4950 |
| A     | <div><div></div></div> 0.8620 | <div><div></div></div> 0.4980 |
| B     | <div><div></div></div> 0.8630 | <div><div></div></div> 0.4950 |
| C     | <div><div></div></div> 0.8610 | <div><div></div></div> 0.4940 |
| D     | <div><div></div></div> 0.8570 | <div><div></div></div> 0.4940 |
| E     | <div><div></div></div> 0.8560 | <div><div></div></div> 0.4940 |
| F     | <div><div></div></div> 0.8620 | <div><div></div></div> 0.4950 |
| G     | <div><div></div></div> 0.8560 | <div><div></div></div> 0.4940 |
| H     | <div><div></div></div> 0.8610 | <div><div></div></div> 0.4950 |
| I     | <div><div></div></div> 0.8590 | <div><div></div></div> 0.4940 |
| J     | <div><div></div></div> 0.8570 | <div><div></div></div> 0.4940 |
| K     | <div><div></div></div> 0.8640 | <div><div></div></div> 0.4930 |
| L     | <div><div></div></div> 0.8590 | <div><div></div></div> 0.4940 |

1.0

0.0

<0.0