



## Full wwPDB EM Validation Report ⓘ

Dec 10, 2022 – 12:18 pm GMT

PDB ID : 4UUK  
EMDB ID : EMD-2701  
Title : Human dynamin 1 K44A superconstricted polymer stabilized with GTP strand 2  
Authors : Sundborger, A.C.; Fang, S.; Heymann, J.A.; Ray, P.; Chappie, J.S.; Hinshaw, J.E.  
Deposited on : 2014-07-29  
Resolution : 12.50 Å (reported)  
Based on initial models : 3SNH, 1DYN, 3ZYC

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.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.3

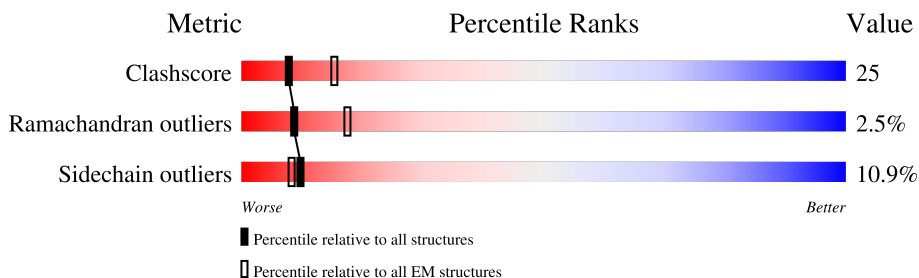
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 12.50 Å.

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







| Metric                | Whole archive (#Entries) | EM structures (#Entries) |
|-----------------------|--------------------------|--------------------------|
| Clashscore            | 158937                   | 4297                     |
| Ramachandran outliers | 154571                   | 4023                     |
| Sidechain outliers    | 154315                   | 3826                     |

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     | 864    | 24% 12% • 62%    |
| 1   | D     | 864    | 24% 12% • 61%    |
| 1   | G     | 864    | 24% 12% • 62%    |
| 1   | K     | 864    | 24% 12% • 61%    |
| 2   | B     | 864    | 10% 7% • • 76%   |
| 2   | C     | 864    | 7% 5% • • 87%    |
| 2   | E     | 864    | 8% 11% • • 76%   |
| 2   | F     | 864    | 7% • • • 87%     |

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| Mol | Chain | Length | Quality of chain  |
|-----|-------|--------|---|
| 2   | H     | 864    |  7% 5% .. 87%   |
| 2   | I     | 864    |  10% 8% . . 76% |
| 2   | J     | 864    |  8% 11% . . 76% |
| 2   | L     | 864    |  7% . . 87%     |

## 2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 21116 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 DYNAMIN-1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |       |
| 1   | A     | 329      | 2567  | 1615 | 453 | 489 | 10 | 0       | 0     |
| 1   | D     | 337      | 2643  | 1664 | 466 | 503 | 10 | 0       | 0     |
| 1   | G     | 329      | 2567  | 1615 | 453 | 489 | 10 | 0       | 0     |
| 1   | K     | 337      | 2643  | 1664 | 466 | 503 | 10 | 0       | 0     |

There are 4 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference  |
|-------|---------|----------|--------|---------|------------|
| A     | 744     | ASN      | ASP    | variant | UNP Q05193 |
| D     | 744     | ASN      | ASP    | variant | UNP Q05193 |
| G     | 744     | ASN      | ASP    | variant | UNP Q05193 |
| K     | 744     | ASN      | ASP    | variant | UNP Q05193 |

- Molecule 2 is a protein called DYNAMIN-1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |       |
| 2   | B     | 208      | 1728  | 1097 | 304 | 313 | 14 | 0       | 0     |
| 2   | C     | 113      | 946   | 609  | 158 | 175 | 4  | 0       | 0     |
| 2   | E     | 208      | 1728  | 1097 | 304 | 313 | 14 | 0       | 0     |
| 2   | F     | 113      | 946   | 609  | 158 | 175 | 4  | 0       | 0     |
| 2   | H     | 113      | 946   | 609  | 158 | 175 | 4  | 0       | 0     |
| 2   | I     | 208      | 1728  | 1097 | 304 | 313 | 14 | 0       | 0     |
| 2   | J     | 208      | 1728  | 1097 | 304 | 313 | 14 | 0       | 0     |

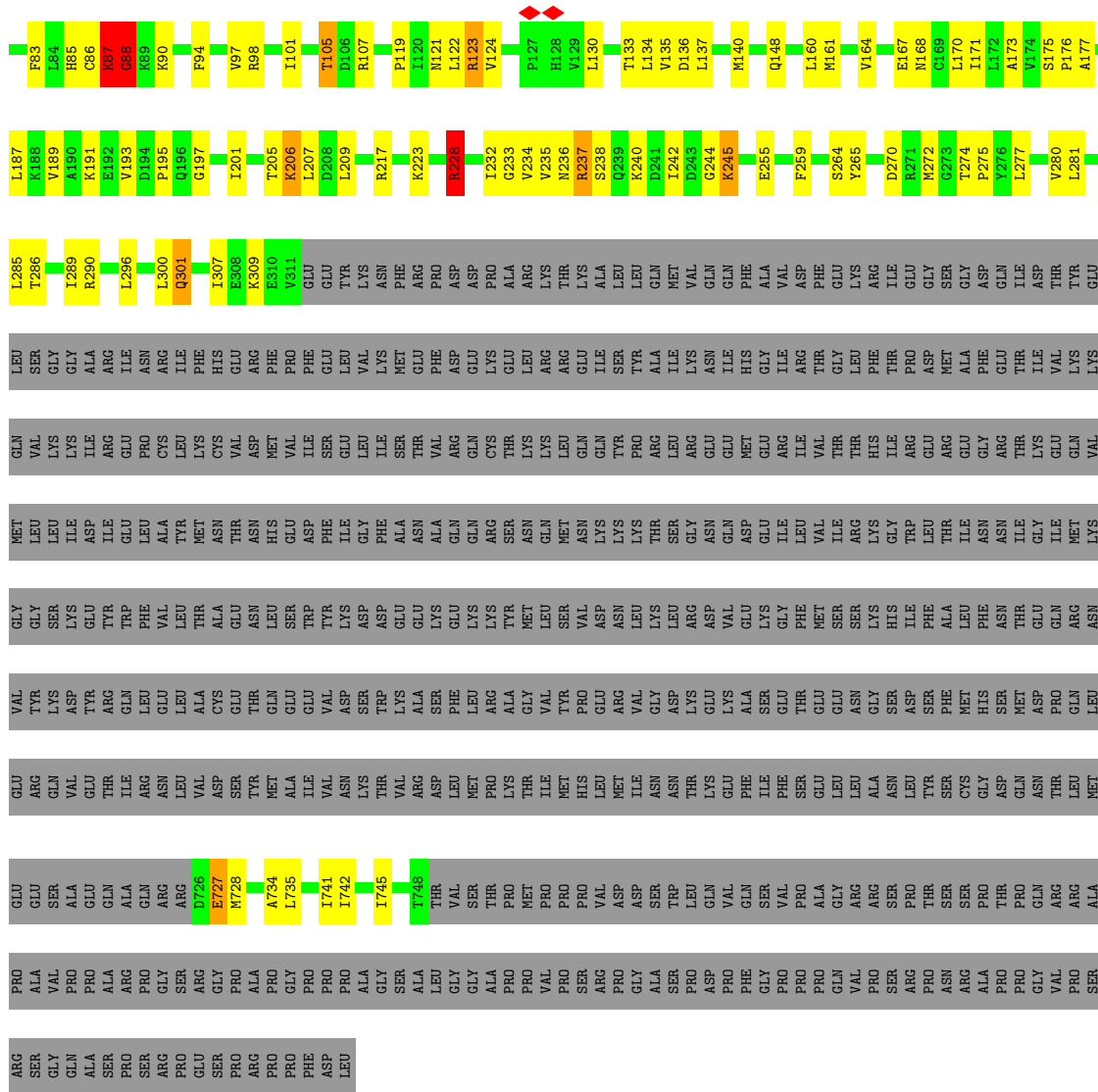
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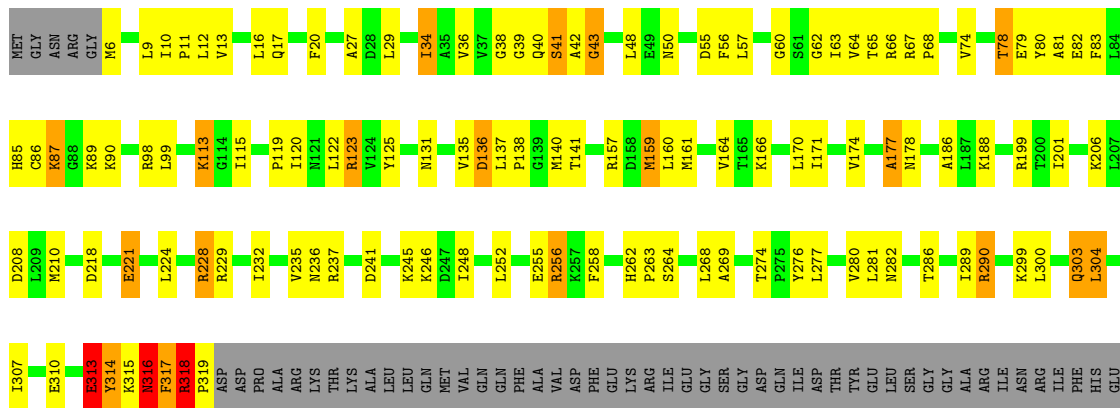
| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |       |
| 2   | L     | 113      | 946   | 609 | 158 | 175 | 4 | 0       | 0     |







• Molecule 1: DYNAMIN-1



















## 4 Experimental information

| Property                           | Value   | Source    |
|------------------------------------|---|-----------|
| EM reconstruction method           | HELICAL   | Depositor |
| Imposed symmetry                   | HELICAL, twist=Not provided°, rise=Not provided Å, axial sym=Not provided | Depositor |
| Number of segments used            | 7525  | Depositor |
| Resolution determination method    | Not provided  |           |
| CTF correction method              | INDIVIDUAL IMAGES   | Depositor |
| Microscope                         | FEI/PHILIPS CM300FEG/HE   | Depositor |
| Voltage (kV)                       | 200   | Depositor |
| Electron dose ( $e^-/\text{Å}^2$ ) | 10  | Depositor |
| Minimum defocus (nm)               | 500   | Depositor |
| Maximum defocus (nm)               | 2500  | Depositor |
| Magnification                      | 49000   | Depositor |
| Image detector                     | KODAK SO-163 FILM   | Depositor |
| Maximum map value                  | 18.352  | Depositor |
| Minimum map value                  | -18.065   | Depositor |
| Average map value                  | 0.361   | Depositor |
| Map value standard deviation       | 3.624   | Depositor |
| Recommended contour level          | 0.6   | Depositor |
| Map size (Å)                       | 510.0, 510.0, 510.0   | wwPDB     |
| Map dimensions                     | 200, 200, 200   | wwPDB     |
| Map angles (°)                     | 90.0, 90.0, 90.0  | wwPDB     |
| Pixel spacing (Å)                  | 2.55, 2.55, 2.55  | Depositor |



## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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     | 0.72         | 2/2604 (0.1%)    | 1.19        | 19/3524 (0.5%)   |
| 1   | D     | 0.88         | 6/2683 (0.2%)    | 1.44        | 37/3630 (1.0%)   |
| 1   | G     | 0.72         | 2/2604 (0.1%)    | 1.19        | 19/3524 (0.5%)   |
| 1   | K     | 0.88         | 6/2683 (0.2%)    | 1.44        | 37/3630 (1.0%)   |
| 2   | B     | 1.32         | 14/1748 (0.8%)   | 2.41        | 83/2331 (3.6%)   |
| 2   | C     | 0.86         | 2/966 (0.2%)     | 1.42        | 20/1298 (1.5%)   |
| 2   | E     | 1.39         | 20/1748 (1.1%)   | 2.56        | 104/2331 (4.5%)  |
| 2   | F     | 1.15         | 7/966 (0.7%)     | 1.82        | 37/1298 (2.9%)   |
| 2   | H     | 0.86         | 2/966 (0.2%)     | 1.42        | 20/1298 (1.5%)   |
| 2   | I     | 1.32         | 14/1748 (0.8%)   | 2.41        | 83/2331 (3.6%)   |
| 2   | J     | 1.39         | 20/1748 (1.1%)   | 2.56        | 104/2331 (4.5%)  |
| 2   | L     | 1.15         | 7/966 (0.7%)     | 1.82        | 37/1298 (2.9%)   |
| All | All   | 1.05         | 102/21430 (0.5%) | 1.83        | 600/28824 (2.1%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1   | A     | 1                   | 11                  |
| 1   | D     | 0                   | 14                  |
| 1   | G     | 1                   | 12                  |
| 1   | K     | 0                   | 14                  |
| 2   | B     | 5                   | 40                  |
| 2   | C     | 4                   | 9                   |
| 2   | E     | 10                  | 36                  |
| 2   | F     | 7                   | 10                  |
| 2   | H     | 4                   | 9                   |
| 2   | I     | 5                   | 39                  |
| 2   | J     | 10                  | 36                  |
| 2   | L     | 7                   | 10                  |
| All | All   | 54                  | 240                 |

All (102) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms  | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|--------|-------------|----------|
| 2   | B     | 490 | HIS  | C-O    | -16.99 | 0.91        | 1.23     |
| 2   | I     | 490 | HIS  | C-O    | -16.99 | 0.91        | 1.23     |
| 2   | B     | 699 | SER  | CB-OG  | -16.13 | 1.21        | 1.42     |
| 2   | I     | 699 | SER  | CB-OG  | -16.07 | 1.21        | 1.42     |
| 2   | I     | 492 | ASP  | C-O    | -14.57 | 0.95        | 1.23     |
| 2   | B     | 492 | ASP  | C-O    | -14.56 | 0.95        | 1.23     |
| 2   | E     | 492 | ASP  | C-O    | -14.26 | 0.96        | 1.23     |
| 2   | J     | 492 | ASP  | C-O    | -14.26 | 0.96        | 1.23     |
| 1   | D     | 318 | ARG  | CB-CG  | -13.80 | 1.15        | 1.52     |
| 1   | K     | 318 | ARG  | CB-CG  | -13.79 | 1.15        | 1.52     |
| 2   | B     | 488 | THR  | C-O    | -12.46 | 0.99        | 1.23     |
| 2   | I     | 488 | THR  | C-O    | -12.45 | 0.99        | 1.23     |
| 2   | E     | 490 | HIS  | CG-CD2 | -12.41 | 1.14        | 1.35     |
| 2   | J     | 490 | HIS  | CG-CD2 | -12.39 | 1.14        | 1.35     |
| 2   | J     | 699 | SER  | CB-OG  | -12.22 | 1.26        | 1.42     |
| 2   | E     | 699 | SER  | CB-OG  | -12.19 | 1.26        | 1.42     |
| 2   | E     | 449 | TYR  | CA-CB  | -11.52 | 1.28        | 1.53     |
| 2   | J     | 449 | TYR  | CA-CB  | -11.52 | 1.28        | 1.53     |
| 2   | E     | 490 | HIS  | C-O    | -11.35 | 1.01        | 1.23     |
| 2   | J     | 490 | HIS  | C-O    | -11.34 | 1.01        | 1.23     |
| 1   | K     | 317 | PHE  | C-O    | -10.57 | 1.03        | 1.23     |
| 1   | D     | 317 | PHE  | C-O    | -10.56 | 1.03        | 1.23     |
| 2   | J     | 491 | GLU  | CB-CG  | -10.44 | 1.32        | 1.52     |
| 2   | E     | 491 | GLU  | CB-CG  | -10.41 | 1.32        | 1.52     |
| 1   | G     | 245 | LYS  | CA-CB  | -9.84  | 1.32        | 1.53     |
| 1   | A     | 245 | LYS  | CA-CB  | -9.84  | 1.32        | 1.53     |
| 2   | E     | 491 | GLU  | CA-CB  | 9.48   | 1.74        | 1.53     |
| 2   | J     | 491 | GLU  | CA-CB  | 9.48   | 1.74        | 1.53     |
| 2   | L     | 628 | GLU  | CA-CB  | -8.93  | 1.34        | 1.53     |
| 2   | F     | 628 | GLU  | CA-CB  | -8.92  | 1.34        | 1.53     |
| 2   | B     | 489 | ASN  | CA-C   | -8.70  | 1.30        | 1.52     |
| 2   | I     | 489 | ASN  | CA-C   | -8.66  | 1.30        | 1.52     |
| 1   | A     | 88  | GLY  | N-CA   | -8.59  | 1.33        | 1.46     |
| 1   | G     | 88  | GLY  | N-CA   | -8.59  | 1.33        | 1.46     |
| 2   | J     | 700 | GLU  | CB-CG  | -8.30  | 1.36        | 1.52     |
| 2   | E     | 700 | GLU  | CB-CG  | -8.28  | 1.36        | 1.52     |
| 2   | I     | 490 | HIS  | CA-C   | -8.13  | 1.31        | 1.52     |
| 2   | I     | 487 | ASN  | C-N    | 8.12   | 1.52        | 1.34     |
| 2   | B     | 490 | HIS  | CA-C   | -8.11  | 1.31        | 1.52     |
| 2   | B     | 487 | ASN  | C-N    | 8.10   | 1.52        | 1.34     |
| 2   | E     | 490 | HIS  | CA-C   | -7.65  | 1.33        | 1.52     |
| 2   | J     | 490 | HIS  | CA-C   | -7.65  | 1.33        | 1.52     |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 1   | D     | 318 | ARG  | N-CA    | -7.49 | 1.31        | 1.46     |
| 1   | K     | 318 | ARG  | N-CA    | -7.48 | 1.31        | 1.46     |
| 1   | D     | 313 | GLU  | C-O     | -7.47 | 1.09        | 1.23     |
| 1   | K     | 313 | GLU  | C-O     | -7.45 | 1.09        | 1.23     |
| 2   | I     | 489 | ASN  | N-CA    | -7.26 | 1.31        | 1.46     |
| 2   | B     | 489 | ASN  | N-CA    | -7.25 | 1.31        | 1.46     |
| 2   | I     | 489 | ASN  | C-N     | -7.23 | 1.17        | 1.34     |
| 2   | B     | 489 | ASN  | C-N     | -7.21 | 1.17        | 1.34     |
| 2   | J     | 449 | TYR  | C-N     | 7.13  | 1.47        | 1.34     |
| 2   | E     | 449 | TYR  | C-N     | 7.12  | 1.47        | 1.34     |
| 2   | L     | 569 | ASN  | CA-CB   | -6.86 | 1.35        | 1.53     |
| 2   | F     | 569 | ASN  | CA-CB   | -6.85 | 1.35        | 1.53     |
| 1   | D     | 316 | ASN  | C-N     | -6.84 | 1.18        | 1.34     |
| 1   | K     | 316 | ASN  | C-N     | -6.84 | 1.18        | 1.34     |
| 2   | J     | 449 | TYR  | CB-CG   | -6.66 | 1.41        | 1.51     |
| 2   | E     | 449 | TYR  | CB-CG   | -6.66 | 1.41        | 1.51     |
| 2   | J     | 442 | CYS  | N-CA    | -6.47 | 1.33        | 1.46     |
| 2   | E     | 442 | CYS  | N-CA    | -6.46 | 1.33        | 1.46     |
| 2   | J     | 490 | HIS  | ND1-CE1 | -6.45 | 1.18        | 1.34     |
| 2   | E     | 490 | HIS  | ND1-CE1 | -6.45 | 1.18        | 1.34     |
| 1   | D     | 316 | ASN  | C-O     | 6.43  | 1.35        | 1.23     |
| 1   | K     | 316 | ASN  | C-O     | 6.41  | 1.35        | 1.23     |
| 2   | J     | 456 | MET  | CG-SD   | -6.32 | 1.64        | 1.81     |
| 2   | E     | 456 | MET  | CG-SD   | -6.32 | 1.64        | 1.81     |
| 2   | I     | 442 | CYS  | N-CA    | -6.18 | 1.33        | 1.46     |
| 2   | B     | 442 | CYS  | N-CA    | -6.16 | 1.34        | 1.46     |
| 2   | I     | 490 | HIS  | N-CA    | -5.93 | 1.34        | 1.46     |
| 2   | F     | 581 | SER  | N-CA    | -5.93 | 1.34        | 1.46     |
| 2   | L     | 581 | SER  | N-CA    | -5.92 | 1.34        | 1.46     |
| 2   | B     | 490 | HIS  | N-CA    | -5.91 | 1.34        | 1.46     |
| 2   | E     | 672 | ILE  | CB-CG1  | -5.65 | 1.38        | 1.54     |
| 2   | J     | 672 | ILE  | CB-CG1  | -5.65 | 1.38        | 1.54     |
| 2   | B     | 487 | ASN  | C-O     | -5.64 | 1.12        | 1.23     |
| 2   | I     | 487 | ASN  | C-O     | -5.62 | 1.12        | 1.23     |
| 2   | E     | 452 | LEU  | N-CA    | -5.56 | 1.35        | 1.46     |
| 2   | J     | 452 | LEU  | N-CA    | -5.56 | 1.35        | 1.46     |
| 2   | F     | 561 | LYS  | N-CA    | -5.45 | 1.35        | 1.46     |
| 2   | I     | 491 | GLU  | CA-C    | -5.43 | 1.38        | 1.52     |
| 2   | B     | 491 | GLU  | CA-C    | -5.41 | 1.38        | 1.52     |
| 2   | L     | 561 | LYS  | N-CA    | -5.39 | 1.35        | 1.46     |
| 2   | C     | 630 | VAL  | N-CA    | -5.38 | 1.35        | 1.46     |
| 2   | E     | 491 | GLU  | C-O     | -5.37 | 1.13        | 1.23     |

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| Mol | Chain | Res | Type | Atoms  | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 2   | H     | 630 | VAL  | N-CA   | -5.37 | 1.35        | 1.46     |
| 2   | J     | 491 | GLU  | C-O    | -5.37 | 1.13        | 1.23     |
| 2   | H     | 561 | LYS  | N-CA   | -5.36 | 1.35        | 1.46     |
| 2   | C     | 561 | LYS  | N-CA   | -5.35 | 1.35        | 1.46     |
| 2   | L     | 577 | LYS  | C-N    | -5.26 | 1.23        | 1.33     |
| 2   | F     | 577 | LYS  | C-N    | -5.25 | 1.23        | 1.33     |
| 2   | J     | 491 | GLU  | CG-CD  | -5.24 | 1.44        | 1.51     |
| 2   | E     | 491 | GLU  | CG-CD  | -5.24 | 1.44        | 1.51     |
| 2   | L     | 529 | ASN  | CA-CB  | -5.22 | 1.39        | 1.53     |
| 2   | F     | 529 | ASN  | CA-CB  | -5.21 | 1.39        | 1.53     |
| 2   | L     | 534 | MET  | N-CA   | -5.20 | 1.35        | 1.46     |
| 2   | F     | 534 | MET  | N-CA   | -5.18 | 1.35        | 1.46     |
| 2   | E     | 491 | GLU  | CA-C   | -5.12 | 1.39        | 1.52     |
| 2   | J     | 491 | GLU  | CA-C   | -5.12 | 1.39        | 1.52     |
| 2   | E     | 491 | GLU  | CD-OE2 | -5.09 | 1.20        | 1.25     |
| 2   | J     | 491 | GLU  | CD-OE2 | -5.08 | 1.20        | 1.25     |
| 2   | B     | 339 | ASP  | CA-CB  | -5.05 | 1.42        | 1.53     |
| 2   | I     | 339 | ASP  | CA-CB  | -5.05 | 1.42        | 1.53     |

All (600) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms      | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|--------|-------------|----------|
| 2   | I     | 492 | ASP  | CB-CG-OD2  | 34.21  | 149.09      | 118.30   |
| 2   | B     | 492 | ASP  | CB-CG-OD2  | 34.19  | 149.07      | 118.30   |
| 2   | J     | 492 | ASP  | CB-CG-OD2  | 32.74  | 147.76      | 118.30   |
| 2   | E     | 492 | ASP  | CB-CG-OD2  | 32.72  | 147.75      | 118.30   |
| 2   | B     | 489 | ASN  | O-C-N      | -30.67 | 73.63       | 122.70   |
| 2   | I     | 489 | ASN  | O-C-N      | -30.65 | 73.66       | 122.70   |
| 2   | J     | 490 | HIS  | CG-ND1-CE1 | 25.62  | 144.07      | 108.20   |
| 2   | E     | 490 | HIS  | CG-ND1-CE1 | 25.60  | 144.04      | 108.20   |
| 2   | J     | 449 | TYR  | CA-CB-CG   | 24.77  | 160.47      | 113.40   |
| 2   | E     | 449 | TYR  | CA-CB-CG   | 24.75  | 160.43      | 113.40   |
| 2   | E     | 491 | GLU  | O-C-N      | -24.50 | 83.49       | 122.70   |
| 2   | J     | 491 | GLU  | O-C-N      | -24.50 | 83.50       | 122.70   |
| 2   | J     | 490 | HIS  | ND1-CG-CD2 | -22.67 | 74.26       | 106.00   |
| 2   | E     | 490 | HIS  | ND1-CG-CD2 | -22.66 | 74.27       | 106.00   |
| 2   | B     | 488 | THR  | C-N-CA     | 21.27  | 174.88      | 121.70   |
| 2   | I     | 488 | THR  | C-N-CA     | 21.25  | 174.83      | 121.70   |
| 2   | I     | 489 | ASN  | C-N-CA     | 20.45  | 172.83      | 121.70   |
| 2   | B     | 489 | ASN  | C-N-CA     | 20.45  | 172.83      | 121.70   |
| 1   | K     | 317 | PHE  | O-C-N      | -18.48 | 93.14       | 122.70   |
| 1   | D     | 317 | PHE  | O-C-N      | -18.47 | 93.15       | 122.70   |

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| Mol | Chain | Res | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|--------|-------------|----------|
| 2   | B     | 467 | ARG  | NE-CZ-NH2   | 17.72  | 129.16      | 120.30   |
| 2   | I     | 467 | ARG  | NE-CZ-NH2   | 17.70  | 129.15      | 120.30   |
| 2   | J     | 492 | ASP  | O-C-N       | -17.37 | 94.91       | 122.70   |
| 2   | E     | 492 | ASP  | O-C-N       | -17.36 | 94.93       | 122.70   |
| 2   | I     | 489 | ASN  | CA-C-N      | 17.09  | 154.81      | 117.20   |
| 2   | B     | 489 | ASN  | CA-C-N      | 17.09  | 154.79      | 117.20   |
| 2   | B     | 492 | ASP  | O-C-N       | -16.94 | 95.60       | 122.70   |
| 2   | I     | 492 | ASP  | O-C-N       | -16.87 | 95.71       | 122.70   |
| 2   | E     | 492 | ASP  | CA-C-N      | 16.53  | 153.56      | 117.20   |
| 2   | J     | 492 | ASP  | CA-C-N      | 16.53  | 153.56      | 117.20   |
| 2   | I     | 491 | GLU  | O-C-N       | -16.22 | 96.75       | 122.70   |
| 2   | B     | 491 | GLU  | O-C-N       | -16.17 | 96.82       | 122.70   |
| 2   | J     | 452 | LEU  | CB-CG-CD2   | -16.15 | 83.55       | 111.00   |
| 2   | E     | 452 | LEU  | CB-CG-CD2   | -16.14 | 83.56       | 111.00   |
| 2   | J     | 449 | TYR  | CB-CA-C     | 15.90  | 142.19      | 110.40   |
| 2   | E     | 449 | TYR  | CB-CA-C     | 15.88  | 142.17      | 110.40   |
| 1   | K     | 316 | ASN  | CB-CG-OD1   | 15.02  | 151.65      | 121.60   |
| 1   | D     | 316 | ASN  | CB-CG-OD1   | 15.01  | 151.62      | 121.60   |
| 2   | I     | 488 | THR  | CA-C-N      | 14.85  | 149.86      | 117.20   |
| 2   | B     | 488 | THR  | CA-C-N      | 14.84  | 149.85      | 117.20   |
| 2   | B     | 492 | ASP  | OD1-CG-OD2  | -14.56 | 95.63       | 123.30   |
| 2   | I     | 492 | ASP  | OD1-CG-OD2  | -14.56 | 95.63       | 123.30   |
| 1   | D     | 317 | PHE  | C-N-CA      | 14.17  | 157.12      | 121.70   |
| 1   | K     | 317 | PHE  | C-N-CA      | 14.15  | 157.08      | 121.70   |
| 2   | E     | 491 | GLU  | N-CA-C      | 14.13  | 149.15      | 111.00   |
| 2   | J     | 491 | GLU  | N-CA-C      | 14.12  | 149.13      | 111.00   |
| 1   | D     | 313 | GLU  | O-C-N       | -13.62 | 100.91      | 122.70   |
| 1   | K     | 313 | GLU  | O-C-N       | -13.61 | 100.93      | 122.70   |
| 2   | B     | 490 | HIS  | ND1-CE1-NE2 | -13.12 | 81.04       | 109.90   |
| 2   | I     | 490 | HIS  | ND1-CE1-NE2 | -13.11 | 81.06       | 109.90   |
| 2   | E     | 449 | TYR  | CB-CG-CD2   | -12.85 | 113.29      | 121.00   |
| 2   | J     | 449 | TYR  | CB-CG-CD2   | -12.83 | 113.30      | 121.00   |
| 1   | D     | 317 | PHE  | CA-C-N      | 12.79  | 145.34      | 117.20   |
| 1   | K     | 317 | PHE  | CA-C-N      | 12.78  | 145.32      | 117.20   |
| 2   | E     | 672 | ILE  | CB-CG1-CD1  | 12.68  | 149.40      | 113.90   |
| 2   | J     | 672 | ILE  | CB-CG1-CD1  | 12.68  | 149.39      | 113.90   |
| 2   | E     | 492 | ASP  | OD1-CG-OD2  | -12.51 | 99.52       | 123.30   |
| 2   | J     | 492 | ASP  | OD1-CG-OD2  | -12.51 | 99.53       | 123.30   |
| 1   | K     | 316 | ASN  | CA-C-N      | 12.46  | 144.61      | 117.20   |
| 1   | D     | 316 | ASN  | CA-C-N      | 12.45  | 144.58      | 117.20   |
| 2   | E     | 453 | ARG  | NE-CZ-NH1   | 12.28  | 126.44      | 120.30   |
| 2   | J     | 453 | ARG  | NE-CZ-NH1   | 12.25  | 126.43      | 120.30   |

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| Mol | Chain | Res | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|--------|-------------|----------|
| 2   | B     | 490 | HIS  | N-CA-CB     | 12.19  | 132.55      | 110.60   |
| 2   | I     | 490 | HIS  | N-CA-CB     | 12.19  | 132.55      | 110.60   |
| 2   | B     | 698 | PHE  | CB-CG-CD2   | -12.16 | 112.28      | 120.80   |
| 2   | I     | 698 | PHE  | CB-CG-CD2   | -12.16 | 112.29      | 120.80   |
| 2   | E     | 490 | HIS  | ND1-CE1-NE2 | -12.08 | 83.32       | 109.90   |
| 2   | J     | 490 | HIS  | ND1-CE1-NE2 | -12.08 | 83.32       | 109.90   |
| 2   | J     | 491 | GLU  | C-N-CA      | 12.01  | 151.72      | 121.70   |
| 2   | E     | 491 | GLU  | C-N-CA      | 12.00  | 151.71      | 121.70   |
| 2   | E     | 485 | TYR  | CG-CD2-CE2  | -11.94 | 111.75      | 121.30   |
| 2   | J     | 485 | TYR  | CG-CD2-CE2  | -11.94 | 111.75      | 121.30   |
| 2   | I     | 491 | GLU  | C-N-CA      | 11.67  | 150.87      | 121.70   |
| 2   | B     | 491 | GLU  | C-N-CA      | 11.64  | 150.81      | 121.70   |
| 1   | K     | 316 | ASN  | CB-CG-ND2   | -11.58 | 88.91       | 116.70   |
| 1   | D     | 316 | ASN  | CB-CG-ND2   | -11.56 | 88.95       | 116.70   |
| 2   | F     | 581 | SER  | N-CA-CB     | 11.54  | 127.80      | 110.50   |
| 2   | L     | 581 | SER  | N-CA-CB     | 11.54  | 127.80      | 110.50   |
| 2   | E     | 451 | ARG  | O-C-N       | -11.51 | 104.28      | 122.70   |
| 2   | E     | 456 | MET  | CA-CB-CG    | 11.50  | 132.85      | 113.30   |
| 2   | J     | 451 | ARG  | O-C-N       | -11.50 | 104.30      | 122.70   |
| 2   | J     | 456 | MET  | CA-CB-CG    | 11.49  | 132.83      | 113.30   |
| 2   | L     | 569 | ASN  | CA-CB-CG    | 11.47  | 138.64      | 113.40   |
| 2   | B     | 449 | TYR  | CB-CG-CD2   | -11.47 | 114.12      | 121.00   |
| 2   | F     | 569 | ASN  | CA-CB-CG    | 11.47  | 138.63      | 113.40   |
| 2   | L     | 628 | GLU  | CB-CA-C     | 11.47  | 133.33      | 110.40   |
| 2   | F     | 628 | GLU  | CB-CA-C     | 11.44  | 133.28      | 110.40   |
| 2   | I     | 449 | TYR  | CB-CG-CD2   | -11.41 | 114.15      | 121.00   |
| 2   | E     | 491 | GLU  | CA-C-N      | 11.34  | 142.16      | 117.20   |
| 2   | J     | 491 | GLU  | CA-C-N      | 11.34  | 142.15      | 117.20   |
| 2   | I     | 490 | HIS  | CA-C-N      | 11.27  | 141.99      | 117.20   |
| 2   | B     | 490 | HIS  | CA-C-N      | 11.24  | 141.94      | 117.20   |
| 2   | E     | 339 | ASP  | N-CA-CB     | 11.23  | 130.81      | 110.60   |
| 2   | J     | 339 | ASP  | N-CA-CB     | 11.22  | 130.80      | 110.60   |
| 2   | E     | 441 | GLN  | C-N-CA      | 11.19  | 149.68      | 121.70   |
| 2   | J     | 441 | GLN  | C-N-CA      | 11.18  | 149.66      | 121.70   |
| 2   | B     | 485 | TYR  | CG-CD2-CE2  | -11.14 | 112.39      | 121.30   |
| 2   | B     | 346 | GLY  | CA-C-O      | 11.12  | 140.61      | 120.60   |
| 2   | I     | 346 | GLY  | CA-C-O      | 11.12  | 140.61      | 120.60   |
| 2   | I     | 485 | TYR  | CG-CD2-CE2  | -11.10 | 112.42      | 121.30   |
| 1   | K     | 318 | ARG  | CB-CG-CD    | 11.10  | 140.46      | 111.60   |
| 2   | I     | 339 | ASP  | N-CA-CB     | 11.09  | 130.56      | 110.60   |
| 2   | B     | 339 | ASP  | N-CA-CB     | 11.09  | 130.55      | 110.60   |
| 1   | D     | 318 | ARG  | CB-CG-CD    | 11.08  | 140.41      | 111.60   |

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| Mol | Chain | Res | Type | Atoms      | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|--------|-------------|----------|
| 2   | I     | 488 | THR  | O-C-N      | -10.98 | 105.13      | 122.70   |
| 2   | B     | 488 | THR  | O-C-N      | -10.96 | 105.17      | 122.70   |
| 2   | E     | 490 | HIS  | CG-CD2-NE2 | 10.94  | 129.99      | 109.20   |
| 2   | I     | 441 | GLN  | C-N-CA     | 10.93  | 149.01      | 121.70   |
| 2   | J     | 490 | HIS  | CG-CD2-NE2 | 10.93  | 129.96      | 109.20   |
| 2   | B     | 441 | GLN  | C-N-CA     | 10.91  | 148.97      | 121.70   |
| 2   | F     | 580 | MET  | C-N-CA     | 10.90  | 148.95      | 121.70   |
| 2   | L     | 580 | MET  | C-N-CA     | 10.89  | 148.93      | 121.70   |
| 2   | J     | 453 | ARG  | O-C-N      | -10.85 | 105.35      | 122.70   |
| 2   | E     | 453 | ARG  | O-C-N      | -10.83 | 105.37      | 122.70   |
| 2   | J     | 454 | GLU  | N-CA-CB    | 10.83  | 130.09      | 110.60   |
| 2   | E     | 454 | GLU  | N-CA-CB    | 10.82  | 130.08      | 110.60   |
| 2   | E     | 451 | ARG  | C-N-CA     | 10.81  | 148.73      | 121.70   |
| 2   | J     | 451 | ARG  | C-N-CA     | 10.80  | 148.70      | 121.70   |
| 2   | B     | 488 | THR  | CA-C-O     | -10.80 | 97.42       | 120.10   |
| 2   | I     | 488 | THR  | CA-C-O     | -10.80 | 97.43       | 120.10   |
| 2   | J     | 456 | MET  | CG-SD-CE   | 10.74  | 117.39      | 100.20   |
| 2   | E     | 456 | MET  | CG-SD-CE   | 10.71  | 117.34      | 100.20   |
| 2   | J     | 491 | GLU  | CB-CA-C    | -10.65 | 89.09       | 110.40   |
| 2   | E     | 491 | GLU  | CB-CA-C    | -10.65 | 89.10       | 110.40   |
| 2   | I     | 491 | GLU  | CA-C-N     | 10.61  | 140.53      | 117.20   |
| 2   | B     | 491 | GLU  | CA-C-N     | 10.57  | 140.45      | 117.20   |
| 2   | J     | 485 | TYR  | CD1-CE1-CZ | -10.15 | 110.66      | 119.80   |
| 2   | I     | 490 | HIS  | O-C-N      | -10.15 | 106.46      | 122.70   |
| 2   | E     | 485 | TYR  | CD1-CE1-CZ | -10.13 | 110.68      | 119.80   |
| 2   | B     | 490 | HIS  | O-C-N      | -10.12 | 106.51      | 122.70   |
| 2   | I     | 491 | GLU  | N-CA-C     | 10.12  | 138.31      | 111.00   |
| 2   | B     | 491 | GLU  | N-CA-C     | 10.11  | 138.30      | 111.00   |
| 2   | J     | 492 | ASP  | CB-CG-OD1  | -10.11 | 109.20      | 118.30   |
| 2   | E     | 492 | ASP  | CB-CG-OD1  | -10.06 | 109.25      | 118.30   |
| 1   | A     | 228 | ARG  | CB-CG-CD   | 9.92   | 137.38      | 111.60   |
| 1   | G     | 228 | ARG  | CB-CG-CD   | 9.90   | 137.34      | 111.60   |
| 2   | E     | 490 | HIS  | CB-CG-ND1  | 9.81   | 147.72      | 123.20   |
| 2   | J     | 490 | HIS  | CB-CG-ND1  | 9.81   | 147.72      | 123.20   |
| 2   | E     | 448 | GLN  | O-C-N      | -9.77  | 107.07      | 122.70   |
| 2   | E     | 492 | ASP  | C-N-CA     | 9.76   | 146.11      | 121.70   |
| 2   | J     | 448 | GLN  | O-C-N      | -9.76  | 107.09      | 122.70   |
| 2   | J     | 492 | ASP  | C-N-CA     | 9.76   | 146.09      | 121.70   |
| 2   | J     | 485 | TYR  | CG-CD1-CE1 | -9.57  | 113.65      | 121.30   |
| 2   | C     | 629 | ARG  | C-N-CA     | 9.55   | 145.58      | 121.70   |
| 1   | K     | 314 | TYR  | O-C-N      | -9.55  | 107.43      | 122.70   |
| 2   | H     | 629 | ARG  | C-N-CA     | 9.54   | 145.55      | 121.70   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 1   | D     | 314 | TYR  | O-C-N      | -9.53 | 107.45      | 122.70   |
| 2   | E     | 485 | TYR  | CG-CD1-CE1 | -9.52 | 113.69      | 121.30   |
| 2   | I     | 492 | ASP  | CA-C-N     | 9.42  | 137.93      | 117.20   |
| 2   | B     | 492 | ASP  | CA-C-N     | 9.41  | 137.91      | 117.20   |
| 2   | B     | 489 | ASN  | N-CA-C     | 9.41  | 136.41      | 111.00   |
| 2   | I     | 489 | ASN  | N-CA-C     | 9.39  | 136.34      | 111.00   |
| 1   | K     | 316 | ASN  | C-N-CA     | 9.37  | 145.11      | 121.70   |
| 1   | D     | 316 | ASN  | C-N-CA     | 9.36  | 145.09      | 121.70   |
| 2   | J     | 338 | VAL  | C-N-CA     | 9.30  | 144.96      | 121.70   |
| 2   | E     | 338 | VAL  | C-N-CA     | 9.29  | 144.93      | 121.70   |
| 1   | A     | 67  | ARG  | NE-CZ-NH2  | 9.27  | 124.93      | 120.30   |
| 1   | G     | 67  | ARG  | NE-CZ-NH2  | 9.26  | 124.93      | 120.30   |
| 1   | G     | 67  | ARG  | NE-CZ-NH1  | -9.23 | 115.69      | 120.30   |
| 2   | J     | 453 | ARG  | NH1-CZ-NH2 | -9.23 | 109.25      | 119.40   |
| 2   | E     | 453 | ARG  | NH1-CZ-NH2 | -9.23 | 109.25      | 119.40   |
| 2   | B     | 449 | TYR  | CB-CG-CD1  | 9.19  | 126.52      | 121.00   |
| 1   | A     | 67  | ARG  | NE-CZ-NH1  | -9.17 | 115.72      | 120.30   |
| 2   | I     | 490 | HIS  | ND1-CG-CD2 | -9.12 | 93.23       | 106.00   |
| 1   | D     | 303 | GLN  | CA-CB-CG   | 9.11  | 133.45      | 113.40   |
| 1   | K     | 303 | GLN  | CA-CB-CG   | 9.11  | 133.44      | 113.40   |
| 2   | B     | 441 | GLN  | O-C-N      | -9.09 | 108.16      | 122.70   |
| 2   | I     | 449 | TYR  | CB-CG-CD1  | 9.09  | 126.45      | 121.00   |
| 2   | I     | 441 | GLN  | O-C-N      | -9.08 | 108.17      | 122.70   |
| 2   | B     | 490 | HIS  | ND1-CG-CD2 | -9.08 | 93.29       | 106.00   |
| 2   | J     | 492 | ASP  | N-CA-CB    | 9.05  | 126.90      | 110.60   |
| 2   | E     | 492 | ASP  | N-CA-CB    | 9.05  | 126.89      | 110.60   |
| 2   | J     | 699 | SER  | N-CA-C     | 9.04  | 135.41      | 111.00   |
| 2   | E     | 699 | SER  | N-CA-C     | 9.04  | 135.41      | 111.00   |
| 2   | B     | 338 | VAL  | C-N-CA     | 8.95  | 144.09      | 121.70   |
| 2   | F     | 573 | ARG  | NE-CZ-NH1  | -8.94 | 115.83      | 120.30   |
| 2   | I     | 338 | VAL  | C-N-CA     | 8.94  | 144.04      | 121.70   |
| 2   | L     | 573 | ARG  | NE-CZ-NH1  | -8.93 | 115.84      | 120.30   |
| 1   | G     | 245 | LYS  | CA-CB-CG   | 8.83  | 132.82      | 113.40   |
| 1   | A     | 245 | LYS  | CA-CB-CG   | 8.82  | 132.81      | 113.40   |
| 2   | B     | 699 | SER  | N-CA-C     | 8.74  | 134.59      | 111.00   |
| 2   | C     | 629 | ARG  | NE-CZ-NH1  | -8.73 | 115.93      | 120.30   |
| 2   | I     | 699 | SER  | N-CA-C     | 8.73  | 134.56      | 111.00   |
| 2   | J     | 449 | TYR  | O-C-N      | -8.71 | 104.54      | 121.10   |
| 2   | E     | 449 | TYR  | O-C-N      | -8.70 | 104.58      | 121.10   |
| 2   | E     | 485 | TYR  | CB-CG-CD2  | -8.69 | 115.79      | 121.00   |
| 2   | E     | 452 | LEU  | CA-CB-CG   | 8.67  | 135.25      | 115.30   |
| 2   | E     | 449 | TYR  | CB-CG-CD1  | 8.66  | 126.19      | 121.00   |

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| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 2   | J     | 452 | LEU  | CA-CB-CG  | 8.66  | 135.21      | 115.30   |
| 2   | J     | 485 | TYR  | CB-CG-CD2 | -8.65 | 115.81      | 121.00   |
| 2   | J     | 449 | TYR  | CB-CG-CD1 | 8.64  | 126.18      | 121.00   |
| 2   | H     | 629 | ARG  | NE-CZ-NH1 | -8.61 | 115.99      | 120.30   |
| 1   | A     | 87  | LYS  | C-N-CA    | 8.48  | 140.11      | 122.30   |
| 1   | G     | 87  | LYS  | C-N-CA    | 8.47  | 140.09      | 122.30   |
| 2   | F     | 574 | ASP  | CB-CG-OD1 | -8.38 | 110.76      | 118.30   |
| 2   | H     | 577 | LYS  | C-N-CA    | 8.37  | 139.88      | 122.30   |
| 2   | C     | 577 | LYS  | C-N-CA    | 8.36  | 139.85      | 122.30   |
| 2   | E     | 339 | ASP  | O-C-N     | -8.33 | 109.37      | 122.70   |
| 2   | L     | 574 | ASP  | CB-CG-OD1 | -8.33 | 110.80      | 118.30   |
| 1   | D     | 317 | PHE  | N-CA-C    | 8.33  | 133.49      | 111.00   |
| 1   | K     | 317 | PHE  | N-CA-C    | 8.32  | 133.47      | 111.00   |
| 2   | J     | 339 | ASP  | O-C-N     | -8.32 | 109.39      | 122.70   |
| 1   | A     | 123 | ARG  | NE-CZ-NH1 | -8.27 | 116.17      | 120.30   |
| 2   | E     | 448 | GLN  | C-N-CA    | 8.22  | 142.26      | 121.70   |
| 1   | G     | 123 | ARG  | NE-CZ-NH1 | -8.22 | 116.19      | 120.30   |
| 2   | J     | 448 | GLN  | C-N-CA    | 8.21  | 142.24      | 121.70   |
| 1   | D     | 159 | MET  | CA-CB-CG  | 8.19  | 127.23      | 113.30   |
| 1   | K     | 159 | MET  | CA-CB-CG  | 8.19  | 127.23      | 113.30   |
| 2   | I     | 700 | GLU  | CA-CB-CG  | 8.17  | 131.37      | 113.40   |
| 2   | B     | 700 | GLU  | CA-CB-CG  | 8.16  | 131.35      | 113.40   |
| 1   | K     | 316 | ASN  | CA-C-O    | -8.15 | 102.98      | 120.10   |
| 1   | D     | 316 | ASN  | CA-C-O    | -8.15 | 102.98      | 120.10   |
| 1   | A     | 245 | LYS  | CB-CA-C   | 8.11  | 126.63      | 110.40   |
| 1   | G     | 245 | LYS  | CB-CA-C   | 8.10  | 126.61      | 110.40   |
| 2   | B     | 485 | TYR  | CB-CG-CD2 | -8.05 | 116.17      | 121.00   |
| 2   | B     | 492 | ASP  | CB-CG-OD1 | -8.04 | 111.07      | 118.30   |
| 2   | I     | 492 | ASP  | CB-CG-OD1 | -8.03 | 111.07      | 118.30   |
| 2   | J     | 453 | ARG  | NE-CZ-NH2 | 8.03  | 124.31      | 120.30   |
| 2   | L     | 574 | ASP  | N-CA-CB   | 8.01  | 125.03      | 110.60   |
| 2   | F     | 574 | ASP  | N-CA-CB   | 8.01  | 125.01      | 110.60   |
| 2   | E     | 453 | ARG  | NE-CZ-NH2 | 7.99  | 124.29      | 120.30   |
| 2   | E     | 450 | PRO  | CA-C-N    | 7.92  | 134.62      | 117.20   |
| 2   | J     | 450 | PRO  | CA-C-N    | 7.91  | 134.61      | 117.20   |
| 2   | E     | 450 | PRO  | O-C-N     | -7.91 | 110.05      | 122.70   |
| 2   | I     | 485 | TYR  | CB-CG-CD2 | -7.90 | 116.26      | 121.00   |
| 2   | J     | 450 | PRO  | O-C-N     | -7.90 | 110.07      | 122.70   |
| 1   | D     | 318 | ARG  | CA-C-O    | -7.88 | 103.56      | 120.10   |
| 1   | K     | 228 | ARG  | CB-CG-CD  | 7.87  | 132.07      | 111.60   |
| 1   | D     | 228 | ARG  | CB-CG-CD  | 7.86  | 132.04      | 111.60   |
| 1   | K     | 318 | ARG  | CA-C-O    | -7.86 | 103.60      | 120.10   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 2   | I     | 487 | ASN  | CA-C-N     | 7.82  | 134.40      | 117.20   |
| 2   | B     | 487 | ASN  | CA-C-N     | 7.81  | 134.39      | 117.20   |
| 2   | E     | 340 | PHE  | CB-CG-CD1  | -7.72 | 115.40      | 120.80   |
| 2   | E     | 452 | LEU  | N-CA-C     | 7.69  | 131.76      | 111.00   |
| 2   | J     | 452 | LEU  | N-CA-C     | 7.69  | 131.77      | 111.00   |
| 2   | I     | 414 | LYS  | N-CA-CB    | 7.67  | 124.41      | 110.60   |
| 2   | B     | 414 | LYS  | N-CA-CB    | 7.67  | 124.41      | 110.60   |
| 1   | G     | 88  | GLY  | N-CA-C     | 7.67  | 132.28      | 113.10   |
| 2   | F     | 573 | ARG  | C-N-CA     | 7.67  | 140.87      | 121.70   |
| 1   | A     | 88  | GLY  | N-CA-C     | 7.67  | 132.26      | 113.10   |
| 2   | F     | 560 | GLU  | C-N-CA     | 7.66  | 140.85      | 121.70   |
| 2   | L     | 573 | ARG  | C-N-CA     | 7.65  | 140.83      | 121.70   |
| 2   | J     | 340 | PHE  | CB-CG-CD1  | -7.65 | 115.45      | 120.80   |
| 2   | F     | 601 | ARG  | C-N-CA     | 7.64  | 140.81      | 121.70   |
| 2   | L     | 560 | GLU  | C-N-CA     | 7.64  | 140.80      | 121.70   |
| 2   | L     | 601 | ARG  | C-N-CA     | 7.63  | 140.78      | 121.70   |
| 2   | B     | 494 | ILE  | CA-CB-CG1  | 7.58  | 125.40      | 111.00   |
| 2   | I     | 494 | ILE  | CA-CB-CG1  | 7.55  | 125.35      | 111.00   |
| 2   | B     | 490 | HIS  | CG-ND1-CE1 | 7.54  | 118.75      | 108.20   |
| 2   | I     | 490 | HIS  | CG-ND1-CE1 | 7.54  | 118.75      | 108.20   |
| 2   | H     | 560 | GLU  | C-N-CA     | 7.53  | 140.52      | 121.70   |
| 2   | C     | 560 | GLU  | C-N-CA     | 7.53  | 140.52      | 121.70   |
| 2   | I     | 491 | GLU  | OE1-CD-OE2 | 7.45  | 132.24      | 123.30   |
| 1   | K     | 317 | PHE  | CB-CG-CD1  | 7.43  | 126.00      | 120.80   |
| 2   | J     | 450 | PRO  | CA-N-CD    | -7.42 | 101.11      | 111.50   |
| 1   | D     | 317 | PHE  | CB-CG-CD1  | 7.42  | 126.00      | 120.80   |
| 2   | E     | 450 | PRO  | CA-N-CD    | -7.42 | 101.11      | 111.50   |
| 2   | B     | 491 | GLU  | OE1-CD-OE2 | 7.41  | 132.19      | 123.30   |
| 1   | G     | 73  | LEU  | N-CA-CB    | 7.41  | 125.21      | 110.40   |
| 1   | A     | 73  | LEU  | N-CA-CB    | 7.39  | 125.18      | 110.40   |
| 2   | F     | 573 | ARG  | CD-NE-CZ   | 7.37  | 133.92      | 123.60   |
| 2   | L     | 573 | ARG  | CD-NE-CZ   | 7.37  | 133.92      | 123.60   |
| 2   | B     | 467 | ARG  | NH1-CZ-NH2 | -7.35 | 111.32      | 119.40   |
| 2   | I     | 467 | ARG  | NH1-CZ-NH2 | -7.34 | 111.33      | 119.40   |
| 2   | C     | 561 | LYS  | N-CA-CB    | 7.33  | 123.80      | 110.60   |
| 2   | J     | 449 | TYR  | C-N-CD     | -7.31 | 104.52      | 120.60   |
| 2   | H     | 561 | LYS  | N-CA-CB    | 7.31  | 123.76      | 110.60   |
| 2   | E     | 449 | TYR  | C-N-CD     | -7.31 | 104.52      | 120.60   |
| 2   | J     | 454 | GLU  | CA-CB-CG   | 7.29  | 129.44      | 113.40   |
| 2   | E     | 454 | GLU  | CA-CB-CG   | 7.29  | 129.43      | 113.40   |
| 2   | L     | 569 | ASN  | CB-CA-C    | 7.26  | 124.92      | 110.40   |
| 2   | L     | 628 | GLU  | CA-CB-CG   | 7.26  | 129.37      | 113.40   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 2   | I     | 669 | TYR  | CB-CG-CD2  | 7.25  | 125.35      | 121.00   |
| 2   | F     | 628 | GLU  | CA-CB-CG   | 7.25  | 129.34      | 113.40   |
| 2   | E     | 706 | TYR  | CB-CG-CD2  | -7.24 | 116.65      | 121.00   |
| 2   | J     | 706 | TYR  | CB-CG-CD2  | -7.24 | 116.66      | 121.00   |
| 2   | F     | 569 | ASN  | CB-CA-C    | 7.24  | 124.88      | 110.40   |
| 2   | B     | 669 | TYR  | CB-CG-CD2  | 7.23  | 125.34      | 121.00   |
| 2   | L     | 533 | ILE  | C-N-CA     | 7.23  | 139.77      | 121.70   |
| 2   | E     | 672 | ILE  | CG1-CB-CG2 | 7.22  | 127.30      | 111.40   |
| 2   | F     | 533 | ILE  | C-N-CA     | 7.22  | 139.76      | 121.70   |
| 1   | G     | 87  | LYS  | CG-CD-CE   | 7.22  | 133.56      | 111.90   |
| 2   | J     | 672 | ILE  | CG1-CB-CG2 | 7.22  | 127.28      | 111.40   |
| 1   | A     | 87  | LYS  | CG-CD-CE   | 7.21  | 133.53      | 111.90   |
| 2   | E     | 669 | TYR  | CB-CG-CD2  | 7.18  | 125.31      | 121.00   |
| 2   | J     | 669 | TYR  | CB-CG-CD2  | 7.17  | 125.31      | 121.00   |
| 2   | F     | 558 | GLU  | CA-CB-CG   | 7.14  | 129.12      | 113.40   |
| 2   | I     | 702 | LEU  | CB-CG-CD2  | 7.13  | 123.12      | 111.00   |
| 2   | H     | 534 | MET  | N-CA-CB    | 7.13  | 123.43      | 110.60   |
| 2   | B     | 702 | LEU  | CB-CG-CD2  | 7.12  | 123.11      | 111.00   |
| 1   | K     | 316 | ASN  | O-C-N      | -7.12 | 111.31      | 122.70   |
| 2   | L     | 558 | GLU  | CA-CB-CG   | 7.12  | 129.06      | 113.40   |
| 1   | D     | 316 | ASN  | O-C-N      | -7.11 | 111.32      | 122.70   |
| 2   | C     | 534 | MET  | N-CA-CB    | 7.11  | 123.40      | 110.60   |
| 2   | E     | 485 | TYR  | CB-CG-CD1  | 7.11  | 125.27      | 121.00   |
| 2   | J     | 455 | GLU  | OE1-CD-OE2 | -7.08 | 114.81      | 123.30   |
| 2   | L     | 575 | VAL  | CG1-CB-CG2 | 7.08  | 122.22      | 110.90   |
| 2   | E     | 455 | GLU  | OE1-CD-OE2 | -7.07 | 114.82      | 123.30   |
| 2   | F     | 575 | VAL  | CG1-CB-CG2 | 7.06  | 122.20      | 110.90   |
| 2   | J     | 485 | TYR  | CB-CG-CD1  | 7.05  | 125.23      | 121.00   |
| 2   | E     | 448 | GLN  | N-CA-CB    | -7.02 | 97.96       | 110.60   |
| 2   | I     | 414 | LYS  | CA-CB-CG   | 7.02  | 128.84      | 113.40   |
| 2   | J     | 448 | GLN  | N-CA-CB    | -7.01 | 97.97       | 110.60   |
| 2   | B     | 414 | LYS  | CA-CB-CG   | 7.00  | 128.79      | 113.40   |
| 2   | I     | 678 | ARG  | NE-CZ-NH2  | 6.97  | 123.78      | 120.30   |
| 2   | L     | 569 | ASN  | CB-CG-OD1  | 6.95  | 135.51      | 121.60   |
| 2   | F     | 569 | ASN  | CB-CG-OD1  | 6.95  | 135.50      | 121.60   |
| 2   | L     | 581 | SER  | CA-CB-OG   | -6.95 | 92.44       | 111.20   |
| 2   | F     | 581 | SER  | CA-CB-OG   | -6.95 | 92.45       | 111.20   |
| 2   | B     | 696 | PHE  | CD1-CE1-CZ | -6.92 | 111.80      | 120.10   |
| 2   | B     | 488 | THR  | OG1-CB-CG2 | 6.91  | 125.90      | 110.00   |
| 2   | I     | 488 | THR  | OG1-CB-CG2 | 6.91  | 125.89      | 110.00   |
| 2   | I     | 696 | PHE  | CD1-CE1-CZ | -6.91 | 111.81      | 120.10   |
| 2   | I     | 675 | LYS  | N-CA-CB    | 6.88  | 122.98      | 110.60   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 2   | B     | 675 | LYS  | N-CA-CB    | 6.87  | 122.97      | 110.60   |
| 2   | B     | 678 | ARG  | NE-CZ-NH2  | 6.86  | 123.73      | 120.30   |
| 2   | B     | 464 | ILE  | CB-CG1-CD1 | 6.81  | 132.98      | 113.90   |
| 2   | I     | 464 | ILE  | CB-CG1-CD1 | 6.81  | 132.97      | 113.90   |
| 2   | L     | 573 | ARG  | CG-CD-NE   | -6.77 | 97.58       | 111.80   |
| 2   | I     | 490 | HIS  | CA-C-O     | -6.76 | 105.90      | 120.10   |
| 2   | F     | 573 | ARG  | CG-CD-NE   | -6.76 | 97.61       | 111.80   |
| 2   | J     | 453 | ARG  | C-N-CA     | 6.75  | 138.59      | 121.70   |
| 2   | B     | 413 | VAL  | CG1-CB-CG2 | 6.75  | 121.70      | 110.90   |
| 2   | B     | 490 | HIS  | CA-C-O     | -6.75 | 105.92      | 120.10   |
| 2   | J     | 491 | GLU  | CA-C-O     | 6.75  | 134.28      | 120.10   |
| 2   | E     | 491 | GLU  | CA-C-O     | 6.75  | 134.28      | 120.10   |
| 2   | E     | 453 | ARG  | C-N-CA     | 6.75  | 138.57      | 121.70   |
| 2   | I     | 413 | VAL  | CG1-CB-CG2 | 6.75  | 121.70      | 110.90   |
| 1   | D     | 90  | LYS  | CB-CG-CD   | 6.74  | 129.12      | 111.60   |
| 2   | B     | 707 | SER  | N-CA-CB    | 6.73  | 120.60      | 110.50   |
| 2   | I     | 707 | SER  | N-CA-CB    | 6.73  | 120.59      | 110.50   |
| 1   | K     | 90  | LYS  | CB-CG-CD   | 6.72  | 129.08      | 111.60   |
| 2   | F     | 529 | ASN  | CA-CB-CG   | 6.70  | 128.15      | 113.40   |
| 2   | F     | 569 | ASN  | CB-CG-ND2  | -6.70 | 100.61      | 116.70   |
| 2   | L     | 529 | ASN  | CA-CB-CG   | 6.70  | 128.14      | 113.40   |
| 2   | L     | 569 | ASN  | CB-CG-ND2  | -6.70 | 100.62      | 116.70   |
| 2   | F     | 601 | ARG  | O-C-N      | -6.63 | 112.09      | 122.70   |
| 2   | L     | 601 | ARG  | O-C-N      | -6.63 | 112.10      | 122.70   |
| 2   | B     | 421 | ARG  | NE-CZ-NH2  | -6.62 | 116.99      | 120.30   |
| 2   | H     | 601 | ARG  | O-C-N      | -6.62 | 112.11      | 122.70   |
| 2   | B     | 707 | SER  | CB-CA-C    | 6.60  | 122.65      | 110.10   |
| 2   | H     | 559 | LYS  | C-N-CA     | 6.60  | 138.21      | 121.70   |
| 2   | I     | 707 | SER  | CB-CA-C    | 6.60  | 122.64      | 110.10   |
| 2   | C     | 559 | LYS  | C-N-CA     | 6.60  | 138.20      | 121.70   |
| 1   | K     | 316 | ASN  | N-CA-C     | 6.58  | 128.78      | 111.00   |
| 1   | D     | 316 | ASN  | N-CA-C     | 6.58  | 128.77      | 111.00   |
| 2   | I     | 421 | ARG  | NE-CZ-NH2  | -6.56 | 117.02      | 120.30   |
| 2   | C     | 601 | ARG  | O-C-N      | -6.55 | 112.22      | 122.70   |
| 2   | H     | 601 | ARG  | C-N-CA     | 6.54  | 138.04      | 121.70   |
| 2   | C     | 601 | ARG  | C-N-CA     | 6.52  | 138.00      | 121.70   |
| 2   | J     | 705 | LEU  | N-CA-CB    | 6.52  | 123.44      | 110.40   |
| 2   | E     | 705 | LEU  | N-CA-CB    | 6.51  | 123.43      | 110.40   |
| 2   | B     | 486 | MET  | O-C-N      | -6.50 | 112.31      | 122.70   |
| 2   | J     | 362 | ILE  | N-CA-C     | -6.49 | 93.47       | 111.00   |
| 2   | E     | 362 | ILE  | N-CA-C     | -6.49 | 93.48       | 111.00   |
| 2   | H     | 554 | LYS  | CB-CG-CD   | 6.48  | 128.45      | 111.60   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 2   | I     | 486 | MET  | O-C-N      | -6.48 | 112.34      | 122.70   |
| 2   | C     | 554 | LYS  | CB-CG-CD   | 6.47  | 128.44      | 111.60   |
| 2   | B     | 339 | ASP  | O-C-N      | -6.43 | 112.41      | 122.70   |
| 2   | I     | 339 | ASP  | O-C-N      | -6.43 | 112.41      | 122.70   |
| 1   | A     | 123 | ARG  | NE-CZ-NH2  | -6.41 | 117.09      | 120.30   |
| 2   | J     | 451 | ARG  | CA-CB-CG   | 6.40  | 127.49      | 113.40   |
| 2   | E     | 451 | ARG  | CA-CB-CG   | 6.40  | 127.47      | 113.40   |
| 2   | E     | 494 | ILE  | CA-CB-CG1  | 6.39  | 123.14      | 111.00   |
| 2   | J     | 494 | ILE  | CA-CB-CG1  | 6.38  | 123.11      | 111.00   |
| 2   | B     | 362 | ILE  | N-CA-C     | -6.37 | 93.81       | 111.00   |
| 2   | I     | 362 | ILE  | N-CA-C     | -6.35 | 93.85       | 111.00   |
| 2   | H     | 533 | ILE  | C-N-CA     | 6.32  | 137.49      | 121.70   |
| 2   | C     | 533 | ILE  | C-N-CA     | 6.31  | 137.47      | 121.70   |
| 2   | J     | 488 | THR  | O-C-N      | -6.31 | 112.61      | 122.70   |
| 2   | E     | 488 | THR  | O-C-N      | -6.30 | 112.62      | 122.70   |
| 1   | G     | 123 | ARG  | NE-CZ-NH2  | -6.29 | 117.15      | 120.30   |
| 2   | J     | 484 | ALA  | N-CA-CB    | -6.29 | 101.29      | 110.10   |
| 1   | K     | 310 | GLU  | O-C-N      | -6.29 | 112.64      | 122.70   |
| 2   | E     | 484 | ALA  | N-CA-CB    | -6.28 | 101.31      | 110.10   |
| 2   | E     | 696 | PHE  | CZ-CE2-CD2 | -6.26 | 112.58      | 120.10   |
| 2   | J     | 453 | ARG  | N-CA-CB    | 6.26  | 121.87      | 110.60   |
| 2   | E     | 453 | ARG  | N-CA-CB    | 6.26  | 121.86      | 110.60   |
| 2   | J     | 696 | PHE  | CZ-CE2-CD2 | -6.26 | 112.59      | 120.10   |
| 1   | D     | 310 | GLU  | O-C-N      | -6.25 | 112.70      | 122.70   |
| 2   | B     | 485 | TYR  | CB-CG-CD1  | 6.25  | 124.75      | 121.00   |
| 2   | E     | 678 | ARG  | NE-CZ-NH2  | 6.25  | 123.42      | 120.30   |
| 1   | D     | 318 | ARG  | N-CA-CB    | 6.24  | 121.83      | 110.60   |
| 1   | K     | 318 | ARG  | N-CA-CB    | 6.22  | 121.80      | 110.60   |
| 1   | K     | 315 | LYS  | O-C-N      | -6.21 | 112.77      | 122.70   |
| 2   | J     | 678 | ARG  | NE-CZ-NH2  | 6.21  | 123.40      | 120.30   |
| 2   | I     | 678 | ARG  | NH1-CZ-NH2 | -6.19 | 112.59      | 119.40   |
| 2   | F     | 561 | LYS  | N-CA-CB    | 6.18  | 121.72      | 110.60   |
| 1   | D     | 315 | LYS  | O-C-N      | -6.18 | 112.82      | 122.70   |
| 2   | E     | 451 | ARG  | CA-C-N     | 6.18  | 130.79      | 117.20   |
| 2   | J     | 451 | ARG  | CA-C-N     | 6.17  | 130.76      | 117.20   |
| 2   | L     | 561 | LYS  | N-CA-CB    | 6.17  | 121.70      | 110.60   |
| 2   | E     | 698 | PHE  | CG-CD2-CE2 | -6.16 | 114.02      | 120.80   |
| 2   | I     | 485 | TYR  | CB-CG-CD1  | 6.16  | 124.70      | 121.00   |
| 2   | J     | 698 | PHE  | CG-CD2-CE2 | -6.16 | 114.03      | 120.80   |
| 2   | B     | 678 | ARG  | NH1-CZ-NH2 | -6.16 | 112.63      | 119.40   |
| 2   | E     | 441 | GLN  | O-C-N      | -6.13 | 112.89      | 122.70   |
| 2   | I     | 488 | THR  | N-CA-C     | 6.13  | 127.54      | 111.00   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 2   | J     | 441 | GLN  | O-C-N      | -6.13 | 112.90      | 122.70   |
| 2   | B     | 488 | THR  | N-CA-C     | 6.12  | 127.52      | 111.00   |
| 2   | L     | 522 | ARG  | NE-CZ-NH1  | -6.11 | 117.24      | 120.30   |
| 2   | F     | 522 | ARG  | NE-CZ-NH1  | -6.10 | 117.25      | 120.30   |
| 2   | L     | 534 | MET  | N-CA-CB    | 6.06  | 121.52      | 110.60   |
| 2   | B     | 327 | LYS  | CB-CG-CD   | 6.05  | 127.34      | 111.60   |
| 2   | I     | 327 | LYS  | CB-CG-CD   | 6.05  | 127.34      | 111.60   |
| 2   | I     | 480 | ASP  | CB-CG-OD1  | -6.05 | 112.85      | 118.30   |
| 2   | B     | 700 | GLU  | N-CA-CB    | 6.05  | 121.48      | 110.60   |
| 2   | C     | 630 | VAL  | CA-CB-CG1  | -6.05 | 101.83      | 110.90   |
| 2   | H     | 630 | VAL  | CA-CB-CG1  | -6.05 | 101.83      | 110.90   |
| 2   | I     | 700 | GLU  | N-CA-CB    | 6.05  | 121.48      | 110.60   |
| 2   | F     | 534 | MET  | N-CA-CB    | 6.03  | 121.46      | 110.60   |
| 1   | D     | 89  | LYS  | N-CA-CB    | 6.03  | 121.44      | 110.60   |
| 1   | K     | 89  | LYS  | N-CA-CB    | 6.02  | 121.44      | 110.60   |
| 2   | B     | 480 | ASP  | CB-CG-OD1  | -6.02 | 112.88      | 118.30   |
| 2   | J     | 491 | GLU  | N-CA-CB    | 5.97  | 121.35      | 110.60   |
| 2   | J     | 701 | LEU  | CB-CG-CD2  | -5.96 | 100.87      | 111.00   |
| 1   | A     | 741 | ILE  | CA-CB-CG1  | -5.96 | 99.68       | 111.00   |
| 2   | E     | 701 | LEU  | CB-CG-CD2  | -5.96 | 100.87      | 111.00   |
| 2   | E     | 491 | GLU  | N-CA-CB    | 5.96  | 121.32      | 110.60   |
| 1   | G     | 741 | ILE  | CA-CB-CG1  | -5.96 | 99.69       | 111.00   |
| 1   | K     | 256 | ARG  | NE-CZ-NH1  | -5.94 | 117.33      | 120.30   |
| 1   | D     | 256 | ARG  | NE-CZ-NH1  | -5.93 | 117.33      | 120.30   |
| 1   | D     | 315 | LYS  | CA-C-N     | 5.93  | 130.24      | 117.20   |
| 1   | K     | 315 | LYS  | CA-C-N     | 5.92  | 130.24      | 117.20   |
| 2   | E     | 492 | ASP  | N-CA-C     | 5.92  | 126.98      | 111.00   |
| 2   | J     | 492 | ASP  | N-CA-C     | 5.92  | 126.97      | 111.00   |
| 2   | C     | 577 | LYS  | O-C-N      | -5.91 | 113.15      | 123.20   |
| 2   | H     | 577 | LYS  | O-C-N      | -5.91 | 113.15      | 123.20   |
| 2   | F     | 529 | ASN  | N-CA-CB    | 5.91  | 121.24      | 110.60   |
| 2   | I     | 676 | THR  | CA-CB-CG2  | 5.90  | 120.66      | 112.40   |
| 2   | L     | 529 | ASN  | N-CA-CB    | 5.89  | 121.21      | 110.60   |
| 2   | B     | 676 | THR  | CA-CB-CG2  | 5.87  | 120.62      | 112.40   |
| 2   | B     | 442 | CYS  | N-CA-C     | 5.85  | 126.80      | 111.00   |
| 2   | I     | 442 | CYS  | N-CA-C     | 5.84  | 126.77      | 111.00   |
| 1   | K     | 318 | ARG  | NH1-CZ-NH2 | -5.83 | 112.98      | 119.40   |
| 2   | L     | 575 | VAL  | C-N-CA     | 5.83  | 136.27      | 121.70   |
| 1   | D     | 318 | ARG  | NH1-CZ-NH2 | -5.82 | 113.00      | 119.40   |
| 2   | F     | 575 | VAL  | C-N-CA     | 5.82  | 136.24      | 121.70   |
| 2   | J     | 456 | MET  | CB-CG-SD   | -5.78 | 95.06       | 112.40   |
| 2   | E     | 456 | MET  | CB-CG-SD   | -5.77 | 95.08       | 112.40   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 1   | D     | 314 | TYR  | CA-C-O     | 5.77  | 132.22      | 120.10   |
| 1   | K     | 314 | TYR  | CA-C-O     | 5.77  | 132.22      | 120.10   |
| 2   | L     | 559 | LYS  | C-N-CA     | 5.76  | 136.10      | 121.70   |
| 1   | A     | 223 | LYS  | CB-CG-CD   | 5.75  | 126.56      | 111.60   |
| 2   | F     | 559 | LYS  | C-N-CA     | 5.75  | 136.07      | 121.70   |
| 1   | G     | 741 | ILE  | CB-CG1-CD1 | -5.74 | 97.83       | 113.90   |
| 2   | L     | 573 | ARG  | NE-CZ-NH2  | 5.74  | 123.17      | 120.30   |
| 1   | A     | 741 | ILE  | CB-CG1-CD1 | -5.73 | 97.85       | 113.90   |
| 1   | G     | 223 | LYS  | CB-CG-CD   | 5.73  | 126.50      | 111.60   |
| 2   | C     | 630 | VAL  | N-CA-CB    | 5.72  | 124.09      | 111.50   |
| 2   | E     | 698 | PHE  | CB-CG-CD2  | -5.72 | 116.80      | 120.80   |
| 2   | J     | 698 | PHE  | CB-CG-CD2  | -5.72 | 116.79      | 120.80   |
| 2   | H     | 630 | VAL  | N-CA-CB    | 5.72  | 124.09      | 111.50   |
| 2   | J     | 672 | ILE  | CA-CB-CG1  | 5.71  | 121.85      | 111.00   |
| 2   | H     | 629 | ARG  | O-C-N      | -5.71 | 113.57      | 122.70   |
| 2   | E     | 672 | ILE  | CA-CB-CG1  | 5.70  | 121.83      | 111.00   |
| 2   | I     | 338 | VAL  | CA-CB-CG1  | 5.70  | 119.45      | 110.90   |
| 2   | C     | 629 | ARG  | O-C-N      | -5.70 | 113.58      | 122.70   |
| 2   | I     | 485 | TYR  | CZ-CE2-CD2 | -5.70 | 114.67      | 119.80   |
| 2   | J     | 669 | TYR  | O-C-N      | -5.69 | 113.59      | 122.70   |
| 2   | E     | 669 | TYR  | O-C-N      | -5.69 | 113.59      | 122.70   |
| 2   | B     | 338 | VAL  | CA-CB-CG1  | 5.69  | 119.43      | 110.90   |
| 2   | E     | 491 | GLU  | OE1-CD-OE2 | -5.67 | 116.49      | 123.30   |
| 2   | E     | 494 | ILE  | CA-C-N     | 5.67  | 127.54      | 116.20   |
| 2   | J     | 491 | GLU  | OE1-CD-OE2 | -5.67 | 116.50      | 123.30   |
| 2   | J     | 494 | ILE  | CA-C-N     | 5.66  | 127.52      | 116.20   |
| 2   | B     | 485 | TYR  | CZ-CE2-CD2 | -5.66 | 114.71      | 119.80   |
| 2   | F     | 573 | ARG  | NE-CZ-NH2  | 5.66  | 123.13      | 120.30   |
| 1   | D     | 159 | MET  | CB-CG-SD   | 5.66  | 129.37      | 112.40   |
| 1   | K     | 159 | MET  | CB-CG-SD   | 5.66  | 129.37      | 112.40   |
| 1   | D     | 136 | ASP  | CB-CG-OD2  | -5.65 | 113.22      | 118.30   |
| 2   | L     | 575 | VAL  | N-CA-CB    | 5.62  | 123.86      | 111.50   |
| 2   | E     | 490 | HIS  | CA-C-O     | -5.62 | 108.30      | 120.10   |
| 2   | J     | 490 | HIS  | CA-C-O     | -5.62 | 108.30      | 120.10   |
| 2   | F     | 575 | VAL  | N-CA-CB    | 5.61  | 123.85      | 111.50   |
| 1   | K     | 136 | ASP  | CB-CG-OD2  | -5.59 | 113.27      | 118.30   |
| 2   | J     | 449 | TYR  | N-CA-CB    | -5.59 | 100.54      | 110.60   |
| 2   | E     | 449 | TYR  | N-CA-CB    | -5.57 | 100.57      | 110.60   |
| 2   | J     | 455 | GLU  | C-N-CA     | 5.56  | 135.60      | 121.70   |
| 2   | E     | 455 | GLU  | C-N-CA     | 5.55  | 135.57      | 121.70   |
| 2   | I     | 467 | ARG  | CA-CB-CG   | -5.54 | 101.22      | 113.40   |
| 1   | D     | 315 | LYS  | C-N-CA     | 5.53  | 135.53      | 121.70   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 1   | K     | 315 | LYS  | C-N-CA     | 5.53  | 135.54      | 121.70   |
| 1   | A     | 270 | ASP  | C-N-CA     | 5.52  | 135.50      | 121.70   |
| 2   | B     | 467 | ARG  | CA-CB-CG   | -5.52 | 101.26      | 113.40   |
| 2   | I     | 391 | ALA  | CB-CA-C    | 5.51  | 118.37      | 110.10   |
| 1   | G     | 270 | ASP  | C-N-CA     | 5.50  | 135.46      | 121.70   |
| 2   | B     | 391 | ALA  | CB-CA-C    | 5.49  | 118.33      | 110.10   |
| 2   | B     | 670 | MET  | O-C-N      | -5.44 | 113.99      | 122.70   |
| 2   | I     | 456 | MET  | CG-SD-CE   | 5.44  | 108.90      | 100.20   |
| 2   | I     | 487 | ASN  | O-C-N      | -5.44 | 114.00      | 122.70   |
| 2   | F     | 580 | MET  | O-C-N      | -5.43 | 114.02      | 122.70   |
| 2   | B     | 456 | MET  | CG-SD-CE   | 5.42  | 108.87      | 100.20   |
| 2   | B     | 487 | ASN  | O-C-N      | -5.41 | 114.05      | 122.70   |
| 2   | I     | 670 | MET  | O-C-N      | -5.40 | 114.05      | 122.70   |
| 2   | L     | 580 | MET  | O-C-N      | -5.40 | 114.05      | 122.70   |
| 2   | C     | 600 | TYR  | N-CA-C     | 5.40  | 125.58      | 111.00   |
| 1   | A     | 189 | VAL  | CA-CB-CG2  | -5.40 | 102.80      | 110.90   |
| 2   | I     | 449 | TYR  | CA-CB-CG   | 5.40  | 123.65      | 113.40   |
| 2   | E     | 702 | LEU  | CB-CG-CD2  | 5.40  | 120.17      | 111.00   |
| 1   | G     | 189 | VAL  | CA-CB-CG2  | -5.40 | 102.81      | 110.90   |
| 2   | H     | 600 | TYR  | N-CA-C     | 5.40  | 125.57      | 111.00   |
| 2   | B     | 449 | TYR  | CA-CB-CG   | 5.39  | 123.65      | 113.40   |
| 2   | J     | 702 | LEU  | CB-CG-CD2  | 5.39  | 120.17      | 111.00   |
| 1   | D     | 178 | ASN  | C-N-CA     | 5.39  | 135.18      | 121.70   |
| 1   | A     | 73  | LEU  | CB-CG-CD1  | -5.39 | 101.84      | 111.00   |
| 2   | B     | 489 | ASN  | CA-C-O     | 5.39  | 131.41      | 120.10   |
| 2   | J     | 494 | ILE  | N-CA-CB    | 5.39  | 123.19      | 110.80   |
| 1   | G     | 73  | LEU  | CB-CG-CD1  | -5.38 | 101.84      | 111.00   |
| 2   | E     | 450 | PRO  | CA-CB-CG   | -5.38 | 93.78       | 104.00   |
| 2   | J     | 450 | PRO  | CA-CB-CG   | -5.38 | 93.78       | 104.00   |
| 1   | K     | 178 | ASN  | C-N-CA     | 5.38  | 135.15      | 121.70   |
| 2   | E     | 494 | ILE  | N-CA-CB    | 5.38  | 123.17      | 110.80   |
| 2   | J     | 669 | TYR  | CG-CD2-CE2 | 5.37  | 125.60      | 121.30   |
| 1   | D     | 318 | ARG  | NE-CZ-NH2  | -5.37 | 117.62      | 120.30   |
| 2   | I     | 489 | ASN  | CA-C-O     | 5.37  | 131.37      | 120.10   |
| 2   | E     | 669 | TYR  | CG-CD2-CE2 | 5.37  | 125.59      | 121.30   |
| 2   | E     | 452 | LEU  | C-N-CA     | 5.36  | 135.11      | 121.70   |
| 2   | J     | 452 | LEU  | C-N-CA     | 5.36  | 135.09      | 121.70   |
| 2   | I     | 674 | ASN  | O-C-N      | -5.35 | 114.14      | 122.70   |
| 2   | B     | 674 | ASN  | O-C-N      | -5.35 | 114.15      | 122.70   |
| 2   | L     | 600 | TYR  | N-CA-C     | 5.35  | 125.44      | 111.00   |
| 2   | I     | 669 | TYR  | CG-CD1-CE1 | -5.34 | 117.03      | 121.30   |
| 2   | F     | 600 | TYR  | N-CA-C     | 5.34  | 125.42      | 111.00   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 1   | K     | 318 | ARG  | NE-CZ-NH2  | -5.34 | 117.63      | 120.30   |
| 2   | J     | 490 | HIS  | N-CA-C     | 5.34  | 125.42      | 111.00   |
| 2   | H     | 584 | HIS  | N-CA-CB    | 5.34  | 120.21      | 110.60   |
| 2   | C     | 584 | HIS  | N-CA-CB    | 5.34  | 120.20      | 110.60   |
| 2   | E     | 490 | HIS  | N-CA-C     | 5.33  | 125.39      | 111.00   |
| 2   | J     | 491 | GLU  | CB-CG-CD   | 5.29  | 128.47      | 114.20   |
| 2   | B     | 669 | TYR  | CG-CD1-CE1 | -5.28 | 117.07      | 121.30   |
| 2   | E     | 491 | GLU  | CB-CG-CD   | 5.28  | 128.46      | 114.20   |
| 2   | E     | 343 | ARG  | NE-CZ-NH2  | -5.28 | 117.66      | 120.30   |
| 2   | B     | 413 | VAL  | C-N-CA     | 5.28  | 134.89      | 121.70   |
| 2   | I     | 413 | VAL  | C-N-CA     | 5.27  | 134.88      | 121.70   |
| 2   | C     | 576 | GLU  | C-N-CA     | 5.27  | 134.88      | 121.70   |
| 2   | B     | 675 | LYS  | CA-CB-CG   | 5.26  | 124.98      | 113.40   |
| 2   | I     | 675 | LYS  | CA-CB-CG   | 5.26  | 124.98      | 113.40   |
| 2   | H     | 576 | GLU  | C-N-CA     | 5.26  | 134.86      | 121.70   |
| 2   | B     | 487 | ASN  | CA-C-O     | -5.25 | 109.08      | 120.10   |
| 2   | E     | 493 | PHE  | C-N-CA     | 5.25  | 134.82      | 121.70   |
| 2   | J     | 493 | PHE  | C-N-CA     | 5.25  | 134.82      | 121.70   |
| 2   | B     | 492 | ASP  | N-CA-CB    | 5.24  | 120.03      | 110.60   |
| 2   | I     | 492 | ASP  | N-CA-CB    | 5.24  | 120.03      | 110.60   |
| 2   | J     | 445 | LYS  | CA-CB-CG   | 5.24  | 124.92      | 113.40   |
| 2   | I     | 487 | ASN  | CA-C-O     | -5.23 | 109.11      | 120.10   |
| 2   | E     | 445 | LYS  | CA-CB-CG   | 5.23  | 124.91      | 113.40   |
| 2   | J     | 343 | ARG  | NE-CZ-NH2  | -5.23 | 117.69      | 120.30   |
| 2   | E     | 338 | VAL  | O-C-N      | -5.22 | 114.35      | 122.70   |
| 2   | L     | 574 | ASP  | CA-C-N     | 5.22  | 128.68      | 117.20   |
| 2   | J     | 338 | VAL  | O-C-N      | -5.22 | 114.35      | 122.70   |
| 2   | F     | 560 | GLU  | N-CA-C     | 5.21  | 125.08      | 111.00   |
| 2   | F     | 574 | ASP  | CA-C-N     | 5.21  | 128.66      | 117.20   |
| 2   | I     | 340 | PHE  | N-CA-C     | 5.21  | 125.06      | 111.00   |
| 2   | L     | 560 | GLU  | N-CA-C     | 5.20  | 125.05      | 111.00   |
| 2   | B     | 340 | PHE  | N-CA-C     | 5.20  | 125.04      | 111.00   |
| 2   | J     | 452 | LEU  | CB-CG-CD1  | 5.19  | 119.82      | 111.00   |
| 2   | J     | 489 | ASN  | CB-CA-C    | 5.19  | 120.78      | 110.40   |
| 2   | E     | 489 | ASN  | CB-CA-C    | 5.19  | 120.78      | 110.40   |
| 2   | C     | 560 | GLU  | N-CA-C     | 5.19  | 125.00      | 111.00   |
| 2   | J     | 490 | HIS  | CA-CB-CG   | -5.19 | 104.78      | 113.60   |
| 2   | L     | 604 | GLU  | CA-CB-CG   | 5.19  | 124.81      | 113.40   |
| 2   | E     | 452 | LEU  | CB-CG-CD1  | 5.18  | 119.81      | 111.00   |
| 2   | H     | 560 | GLU  | N-CA-C     | 5.18  | 125.00      | 111.00   |
| 2   | E     | 490 | HIS  | CA-CB-CG   | -5.18 | 104.79      | 113.60   |
| 2   | J     | 451 | ARG  | N-CA-CB    | 5.18  | 119.93      | 110.60   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 2   | F     | 604 | GLU  | CA-CB-CG   | 5.17  | 124.77      | 113.40   |
| 2   | H     | 577 | LYS  | CA-C-N     | 5.17  | 126.53      | 116.20   |
| 2   | E     | 451 | ARG  | N-CA-CB    | 5.17  | 119.90      | 110.60   |
| 2   | L     | 533 | ILE  | O-C-N      | -5.16 | 114.44      | 122.70   |
| 2   | F     | 533 | ILE  | O-C-N      | -5.16 | 114.45      | 122.70   |
| 1   | G     | 244 | GLY  | O-C-N      | -5.15 | 114.46      | 122.70   |
| 1   | D     | 726 | ASP  | O-C-N      | -5.15 | 114.47      | 122.70   |
| 1   | A     | 244 | GLY  | O-C-N      | -5.14 | 114.48      | 122.70   |
| 2   | C     | 577 | LYS  | CA-C-N     | 5.14  | 126.48      | 116.20   |
| 2   | E     | 494 | ILE  | CA-C-O     | -5.13 | 109.33      | 120.10   |
| 1   | K     | 726 | ASP  | O-C-N      | -5.12 | 114.50      | 122.70   |
| 2   | J     | 494 | ILE  | CA-C-O     | -5.12 | 109.35      | 120.10   |
| 1   | D     | 131 | ASN  | C-N-CA     | 5.12  | 134.50      | 121.70   |
| 1   | K     | 131 | ASN  | C-N-CA     | 5.12  | 134.50      | 121.70   |
| 1   | K     | 299 | LYS  | CA-CB-CG   | 5.11  | 124.65      | 113.40   |
| 1   | A     | 85  | HIS  | O-C-N      | -5.11 | 114.52      | 122.70   |
| 2   | J     | 340 | PHE  | N-CA-C     | 5.11  | 124.80      | 111.00   |
| 2   | E     | 340 | PHE  | N-CA-C     | 5.10  | 124.78      | 111.00   |
| 1   | D     | 299 | LYS  | CA-CB-CG   | 5.10  | 124.62      | 113.40   |
| 1   | G     | 85  | HIS  | O-C-N      | -5.08 | 114.56      | 122.70   |
| 1   | D     | 317 | PHE  | CB-CG-CD2  | -5.05 | 117.26      | 120.80   |
| 1   | K     | 317 | PHE  | CB-CG-CD2  | -5.05 | 117.27      | 120.80   |
| 2   | E     | 487 | ASN  | O-C-N      | -5.03 | 114.66      | 122.70   |
| 2   | B     | 703 | ALA  | N-CA-CB    | -5.03 | 103.06      | 110.10   |
| 2   | J     | 487 | ASN  | O-C-N      | -5.03 | 114.66      | 122.70   |
| 2   | E     | 443 | THR  | N-CA-CB    | 5.02  | 119.84      | 110.30   |
| 2   | J     | 443 | THR  | N-CA-CB    | 5.02  | 119.83      | 110.30   |
| 2   | E     | 441 | GLN  | CA-C-N     | 5.01  | 128.22      | 117.20   |
| 2   | B     | 669 | TYR  | CD1-CE1-CZ | -5.01 | 115.29      | 119.80   |
| 2   | J     | 441 | GLN  | CA-C-N     | 5.01  | 128.22      | 117.20   |
| 2   | L     | 577 | LYS  | C-N-CA     | 5.01  | 132.81      | 122.30   |
| 2   | I     | 669 | TYR  | CD1-CE1-CZ | -5.00 | 115.30      | 119.80   |
| 2   | F     | 577 | LYS  | C-N-CA     | 5.00  | 132.81      | 122.30   |
| 2   | I     | 703 | ALA  | N-CA-CB    | -5.00 | 103.09      | 110.10   |

All (54) chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|-----|-------|-----|------|------|
| 1   | A     | 726 | ASP  | CA   |
| 2   | B     | 339 | ASP  | CA   |
| 2   | B     | 442 | CYS  | CA   |
| 2   | B     | 489 | ASN  | CA   |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>Atom</b> |
|------------|--------------|------------|-------------|-------------|
| 2          | B            | 490        | HIS         | CA          |
| 2          | B            | 707        | SER         | CA          |
| 2          | C            | 534        | MET         | CA          |
| 2          | C            | 560        | GLU         | CA          |
| 2          | C            | 563        | TYR         | CA          |
| 2          | C            | 630        | VAL         | CA          |
| 2          | E            | 339        | ASP         | CA          |
| 2          | E            | 442        | CYS         | CA          |
| 2          | E            | 445        | LYS         | CA          |
| 2          | E            | 452        | LEU         | CA          |
| 2          | E            | 454        | GLU         | CA          |
| 2          | E            | 490        | HIS         | CA          |
| 2          | E            | 491        | GLU         | CA          |
| 2          | E            | 492        | ASP         | CA          |
| 2          | E            | 494        | ILE         | CB          |
| 2          | E            | 672        | ILE         | CB          |
| 2          | F            | 529        | ASN         | CA          |
| 2          | F            | 534        | MET         | CA          |
| 2          | F            | 560        | GLU         | CA          |
| 2          | F            | 574        | ASP         | CA          |
| 2          | F            | 575        | VAL         | CA          |
| 2          | F            | 581        | SER         | CA          |
| 2          | F            | 627        | PRO         | CA          |
| 1          | G            | 726        | ASP         | CA          |
| 2          | H            | 534        | MET         | CA          |
| 2          | H            | 560        | GLU         | CA          |
| 2          | H            | 563        | TYR         | CA          |
| 2          | H            | 630        | VAL         | CA          |
| 2          | I            | 339        | ASP         | CA          |
| 2          | I            | 442        | CYS         | CA          |
| 2          | I            | 489        | ASN         | CA          |
| 2          | I            | 490        | HIS         | CA          |
| 2          | I            | 707        | SER         | CA          |
| 2          | J            | 339        | ASP         | CA          |
| 2          | J            | 442        | CYS         | CA          |
| 2          | J            | 445        | LYS         | CA          |
| 2          | J            | 452        | LEU         | CA          |
| 2          | J            | 454        | GLU         | CA          |
| 2          | J            | 490        | HIS         | CA          |
| 2          | J            | 491        | GLU         | CA          |
| 2          | J            | 492        | ASP         | CA          |
| 2          | J            | 494        | ILE         | CB          |

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| Mol | Chain | Res | Type | Atom |
|-----|-------|-----|------|------|
| 2   | J     | 672 | ILE  | CB   |
| 2   | L     | 529 | ASN  | CA   |
| 2   | L     | 534 | MET  | CA   |
| 2   | L     | 560 | GLU  | CA   |
| 2   | L     | 574 | ASP  | CA   |
| 2   | L     | 575 | VAL  | CA   |
| 2   | L     | 581 | SER  | CA   |
| 2   | L     | 627 | PRO  | CA   |

All (240) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group               |
|-----|-------|-----|------|---------------------|
| 1   | A     | 105 | THR  | Mainchain           |
| 1   | A     | 123 | ARG  | Sidechain           |
| 1   | A     | 177 | ALA  | Mainchain           |
| 1   | A     | 206 | LYS  | Mainchain           |
| 1   | A     | 228 | ARG  | Sidechain           |
| 1   | A     | 233 | GLY  | Mainchain           |
| 1   | A     | 237 | ARG  | Sidechain           |
| 1   | A     | 28  | ASP  | Mainchain           |
| 1   | A     | 41  | SER  | Mainchain           |
| 1   | A     | 50  | ASN  | Sidechain           |
| 1   | A     | 727 | GLU  | Mainchain           |
| 2   | B     | 336 | PHE  | Sidechain           |
| 2   | B     | 337 | ALA  | Mainchain           |
| 2   | B     | 339 | ASP  | Mainchain           |
| 2   | B     | 340 | PHE  | Mainchain,Sidechain |
| 2   | B     | 341 | GLU  | Mainchain           |
| 2   | B     | 358 | GLY  | Mainchain           |
| 2   | B     | 361 | ARG  | Mainchain           |
| 2   | B     | 362 | ILE  | Mainchain           |
| 2   | B     | 371 | PRO  | Mainchain           |
| 2   | B     | 391 | ALA  | Mainchain           |
| 2   | B     | 409 | PHE  | Sidechain           |
| 2   | B     | 414 | LYS  | Mainchain           |
| 2   | B     | 440 | ARG  | Mainchain,Sidechain |
| 2   | B     | 441 | GLN  | Mainchain           |
| 2   | B     | 461 | THR  | Peptide             |
| 2   | B     | 467 | ARG  | Mainchain,Sidechain |
| 2   | B     | 470 | ARG  | Sidechain           |
| 2   | B     | 483 | LEU  | Mainchain           |
| 2   | B     | 485 | TYR  | Sidechain           |

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| Mol | Chain | Res | Type | Group               |
|-----|-------|-----|------|---------------------|
| 2   | B     | 486 | MET  | Peptide             |
| 2   | B     | 487 | ASN  | Mainchain           |
| 2   | B     | 488 | THR  | Mainchain,Peptide   |
| 2   | B     | 490 | HIS  | Mainchain,Sidechain |
| 2   | B     | 491 | GLU  | Mainchain           |
| 2   | B     | 492 | ASP  | Mainchain           |
| 2   | B     | 654 | GLN  | Mainchain           |
| 2   | B     | 669 | TYR  | Sidechain           |
| 2   | B     | 678 | ARG  | Mainchain,Sidechain |
| 2   | B     | 696 | PHE  | Sidechain           |
| 2   | B     | 698 | PHE  | Sidechain           |
| 2   | B     | 699 | SER  | Mainchain           |
| 2   | B     | 700 | GLU  | Mainchain           |
| 2   | B     | 702 | LEU  | Peptide             |
| 2   | B     | 706 | TYR  | Sidechain           |
| 2   | C     | 532 | GLY  | Mainchain           |
| 2   | C     | 564 | MET  | Mainchain           |
| 2   | C     | 569 | ASN  | Mainchain           |
| 2   | C     | 576 | GLU  | Mainchain           |
| 2   | C     | 579 | PHE  | Sidechain           |
| 2   | C     | 584 | HIS  | Sidechain           |
| 2   | C     | 594 | ARG  | Sidechain           |
| 2   | C     | 607 | CYS  | Mainchain           |
| 2   | C     | 629 | ARG  | Sidechain           |
| 1   | D     | 125 | TYR  | Sidechain           |
| 1   | D     | 177 | ALA  | Mainchain           |
| 1   | D     | 206 | LYS  | Mainchain           |
| 1   | D     | 221 | GLU  | Mainchain           |
| 1   | D     | 237 | ARG  | Sidechain           |
| 1   | D     | 313 | GLU  | Mainchain           |
| 1   | D     | 316 | ASN  | Mainchain           |
| 1   | D     | 318 | ARG  | Mainchain,Sidechain |
| 1   | D     | 41  | SER  | Mainchain           |
| 1   | D     | 43  | GLY  | Mainchain           |
| 1   | D     | 50  | ASN  | Sidechain           |
| 1   | D     | 62  | GLY  | Mainchain           |
| 1   | D     | 82  | GLU  | Mainchain           |
| 2   | E     | 339 | ASP  | Mainchain           |
| 2   | E     | 340 | PHE  | Mainchain,Sidechain |
| 2   | E     | 358 | GLY  | Mainchain           |
| 2   | E     | 361 | ARG  | Mainchain           |
| 2   | E     | 370 | PHE  | Sidechain           |

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| Mol | Chain | Res | Type | Group               |
|-----|-------|-----|------|---------------------|
| 2   | E     | 371 | PRO  | Mainchain           |
| 2   | E     | 378 | GLU  | Mainchain           |
| 2   | E     | 381 | GLU  | Peptide             |
| 2   | E     | 414 | LYS  | Mainchain           |
| 2   | E     | 440 | ARG  | Sidechain           |
| 2   | E     | 448 | GLN  | Mainchain           |
| 2   | E     | 449 | TYR  | Mainchain,Sidechain |
| 2   | E     | 451 | ARG  | Sidechain           |
| 2   | E     | 453 | ARG  | Mainchain           |
| 2   | E     | 455 | GLU  | Sidechain           |
| 2   | E     | 457 | GLU  | Sidechain           |
| 2   | E     | 467 | ARG  | Mainchain           |
| 2   | E     | 469 | GLY  | Mainchain           |
| 2   | E     | 470 | ARG  | Sidechain           |
| 2   | E     | 482 | GLU  | Mainchain           |
| 2   | E     | 485 | TYR  | Sidechain           |
| 2   | E     | 489 | ASN  | Mainchain,Peptide   |
| 2   | E     | 490 | HIS  | Mainchain,Sidechain |
| 2   | E     | 491 | GLU  | Peptide             |
| 2   | E     | 492 | ASP  | Peptide             |
| 2   | E     | 494 | ILE  | Mainchain           |
| 2   | E     | 653 | PRO  | Mainchain           |
| 2   | E     | 654 | GLN  | Mainchain           |
| 2   | E     | 670 | MET  | Mainchain           |
| 2   | E     | 678 | ARG  | Mainchain           |
| 2   | E     | 696 | PHE  | Sidechain           |
| 2   | E     | 698 | PHE  | Sidechain           |
| 2   | F     | 522 | ARG  | Sidechain           |
| 2   | F     | 532 | GLY  | Mainchain           |
| 2   | F     | 563 | TYR  | Mainchain,Sidechain |
| 2   | F     | 569 | ASN  | Mainchain,Sidechain |
| 2   | F     | 576 | GLU  | Mainchain           |
| 2   | F     | 581 | SER  | Mainchain           |
| 2   | F     | 594 | ARG  | Sidechain           |
| 2   | F     | 607 | CYS  | Mainchain           |
| 1   | G     | 105 | THR  | Mainchain           |
| 1   | G     | 123 | ARG  | Sidechain           |
| 1   | G     | 177 | ALA  | Mainchain           |
| 1   | G     | 197 | GLY  | Mainchain           |
| 1   | G     | 206 | LYS  | Mainchain           |
| 1   | G     | 228 | ARG  | Sidechain           |
| 1   | G     | 233 | GLY  | Mainchain           |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>Group</b>        |
|------------|--------------|------------|-------------|---------------------|
| 1          | G            | 237        | ARG         | Sidechain           |
| 1          | G            | 28         | ASP         | Mainchain           |
| 1          | G            | 41         | SER         | Mainchain           |
| 1          | G            | 50         | ASN         | Sidechain           |
| 1          | G            | 727        | GLU         | Mainchain           |
| 2          | H            | 532        | GLY         | Mainchain           |
| 2          | H            | 564        | MET         | Mainchain           |
| 2          | H            | 569        | ASN         | Mainchain           |
| 2          | H            | 576        | GLU         | Mainchain           |
| 2          | H            | 579        | PHE         | Sidechain           |
| 2          | H            | 584        | HIS         | Sidechain           |
| 2          | H            | 594        | ARG         | Sidechain           |
| 2          | H            | 607        | CYS         | Mainchain           |
| 2          | H            | 629        | ARG         | Sidechain           |
| 2          | I            | 336        | PHE         | Sidechain           |
| 2          | I            | 337        | ALA         | Mainchain           |
| 2          | I            | 339        | ASP         | Mainchain           |
| 2          | I            | 340        | PHE         | Mainchain,Sidechain |
| 2          | I            | 358        | GLY         | Mainchain           |
| 2          | I            | 361        | ARG         | Mainchain           |
| 2          | I            | 362        | ILE         | Mainchain           |
| 2          | I            | 371        | PRO         | Mainchain           |
| 2          | I            | 391        | ALA         | Mainchain           |
| 2          | I            | 409        | PHE         | Sidechain           |
| 2          | I            | 414        | LYS         | Mainchain           |
| 2          | I            | 440        | ARG         | Mainchain,Sidechain |
| 2          | I            | 441        | GLN         | Mainchain           |
| 2          | I            | 461        | THR         | Peptide             |
| 2          | I            | 467        | ARG         | Mainchain,Sidechain |
| 2          | I            | 470        | ARG         | Sidechain           |
| 2          | I            | 483        | LEU         | Mainchain           |
| 2          | I            | 485        | TYR         | Sidechain           |
| 2          | I            | 486        | MET         | Peptide             |
| 2          | I            | 487        | ASN         | Mainchain           |
| 2          | I            | 488        | THR         | Mainchain,Peptide   |
| 2          | I            | 490        | HIS         | Mainchain,Sidechain |
| 2          | I            | 491        | GLU         | Mainchain           |
| 2          | I            | 492        | ASP         | Mainchain           |
| 2          | I            | 654        | GLN         | Mainchain           |
| 2          | I            | 669        | TYR         | Sidechain           |
| 2          | I            | 678        | ARG         | Mainchain,Sidechain |
| 2          | I            | 696        | PHE         | Sidechain           |

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| Mol | Chain | Res | Type | Group               |
|-----|-------|-----|------|---------------------|
| 2   | I     | 698 | PHE  | Sidechain           |
| 2   | I     | 699 | SER  | Mainchain           |
| 2   | I     | 700 | GLU  | Mainchain           |
| 2   | I     | 702 | LEU  | Peptide             |
| 2   | I     | 706 | TYR  | Sidechain           |
| 2   | J     | 339 | ASP  | Mainchain           |
| 2   | J     | 340 | PHE  | Mainchain,Sidechain |
| 2   | J     | 358 | GLY  | Mainchain           |
| 2   | J     | 361 | ARG  | Mainchain           |
| 2   | J     | 362 | ILE  | Mainchain           |
| 2   | J     | 370 | PHE  | Sidechain           |
| 2   | J     | 371 | PRO  | Mainchain           |
| 2   | J     | 378 | GLU  | Mainchain           |
| 2   | J     | 381 | GLU  | Peptide             |
| 2   | J     | 414 | LYS  | Mainchain           |
| 2   | J     | 440 | ARG  | Sidechain           |
| 2   | J     | 448 | GLN  | Mainchain           |
| 2   | J     | 449 | TYR  | Mainchain,Sidechain |
| 2   | J     | 451 | ARG  | Sidechain           |
| 2   | J     | 453 | ARG  | Mainchain           |
| 2   | J     | 455 | GLU  | Sidechain           |
| 2   | J     | 457 | GLU  | Sidechain           |
| 2   | J     | 467 | ARG  | Mainchain           |
| 2   | J     | 469 | GLY  | Mainchain           |
| 2   | J     | 470 | ARG  | Sidechain           |
| 2   | J     | 485 | TYR  | Sidechain           |
| 2   | J     | 489 | ASN  | Mainchain,Peptide   |
| 2   | J     | 490 | HIS  | Mainchain,Sidechain |
| 2   | J     | 491 | GLU  | Peptide             |
| 2   | J     | 492 | ASP  | Peptide             |
| 2   | J     | 494 | ILE  | Mainchain           |
| 2   | J     | 653 | PRO  | Mainchain           |
| 2   | J     | 654 | GLN  | Mainchain           |
| 2   | J     | 670 | MET  | Mainchain           |
| 2   | J     | 678 | ARG  | Mainchain           |
| 2   | J     | 696 | PHE  | Sidechain           |
| 2   | J     | 698 | PHE  | Sidechain           |
| 1   | K     | 125 | TYR  | Sidechain           |
| 1   | K     | 177 | ALA  | Mainchain           |
| 1   | K     | 206 | LYS  | Mainchain           |
| 1   | K     | 221 | GLU  | Mainchain           |
| 1   | K     | 237 | ARG  | Sidechain           |

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| Mol | Chain | Res | Type | Group               |
|-----|-------|-----|------|---------------------|
| 1   | K     | 313 | GLU  | Mainchain           |
| 1   | K     | 316 | ASN  | Mainchain           |
| 1   | K     | 318 | ARG  | Mainchain,Sidechain |
| 1   | K     | 41  | SER  | Mainchain           |
| 1   | K     | 43  | GLY  | Mainchain           |
| 1   | K     | 50  | ASN  | Sidechain           |
| 1   | K     | 62  | GLY  | Mainchain           |
| 1   | K     | 82  | GLU  | Mainchain           |
| 2   | L     | 522 | ARG  | Sidechain           |
| 2   | L     | 532 | GLY  | Mainchain           |
| 2   | L     | 563 | TYR  | Mainchain,Sidechain |
| 2   | L     | 569 | ASN  | Mainchain,Sidechain |
| 2   | L     | 576 | GLU  | Mainchain           |
| 2   | L     | 581 | SER  | Mainchain           |
| 2   | L     | 594 | ARG  | Sidechain           |
| 2   | L     | 607 | CYS  | Mainchain           |

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 2567  | 0        | 2629     | 78      | 0            |
| 1   | D     | 2643  | 0        | 2693     | 164     | 0            |
| 1   | G     | 2567  | 0        | 2629     | 75      | 0            |
| 1   | K     | 2643  | 0        | 2693     | 167     | 0            |
| 2   | B     | 1728  | 0        | 1777     | 198     | 0            |
| 2   | C     | 946   | 0        | 937      | 29      | 0            |
| 2   | E     | 1728  | 0        | 1777     | 285     | 0            |
| 2   | F     | 946   | 0        | 935      | 28      | 0            |
| 2   | H     | 946   | 0        | 937      | 29      | 0            |
| 2   | I     | 1728  | 0        | 1777     | 98      | 0            |
| 2   | J     | 1728  | 0        | 1777     | 193     | 0            |
| 2   | L     | 946   | 0        | 935      | 26      | 0            |
| All | All   | 21116 | 0        | 21496    | 1076    | 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 25.

All (1076) close contacts within the same asymmetric unit are listed below, sorted by their clash

magnitude.

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:J:491:GLU:CB   | 2:J:491:GLU:CA   | 1.74                     | 1.58              |
| 2:E:491:GLU:CB   | 2:E:491:GLU:CA   | 1.74                     | 1.57              |
| 2:B:338:VAL:HG13 | 2:E:687:HIS:CE1  | 1.40                     | 1.54              |
| 2:J:453:ARG:HG2  | 1:K:318:ARG:N    | 1.17                     | 1.44              |
| 1:D:318:ARG:N    | 2:E:453:ARG:HG2  | 1.17                     | 1.44              |
| 2:B:463:HIS:HE1  | 2:E:334:GLN:CD   | 1.19                     | 1.41              |
| 2:J:455:GLU:N    | 1:K:318:ARG:NH2  | 1.64                     | 1.41              |
| 1:D:318:ARG:NH2  | 2:E:455:GLU:N    | 1.64                     | 1.40              |
| 2:B:463:HIS:CE1  | 2:E:334:GLN:NE2  | 1.91                     | 1.39              |
| 2:B:698:PHE:CG   | 2:E:695:GLU:HG3  | 1.55                     | 1.38              |
| 1:D:318:ARG:CA   | 2:E:453:ARG:HG2  | 1.56                     | 1.35              |
| 2:J:453:ARG:HG2  | 1:K:318:ARG:CA   | 1.56                     | 1.35              |
| 2:B:707:SER:CA   | 2:E:704:ASN:HD21 | 1.31                     | 1.34              |
| 2:B:703:ALA:CB   | 2:E:700:GLU:HA   | 1.55                     | 1.33              |
| 2:J:449:TYR:CG   | 1:K:316:ASN:N    | 1.68                     | 1.30              |
| 1:D:318:ARG:N    | 2:E:453:ARG:CG   | 1.94                     | 1.28              |
| 2:J:453:ARG:CG   | 1:K:318:ARG:N    | 1.94                     | 1.28              |
| 1:D:316:ASN:N    | 2:E:449:TYR:CG   | 1.68                     | 1.27              |
| 2:J:454:GLU:N    | 1:K:318:ARG:HB2  | 1.48                     | 1.26              |
| 1:D:318:ARG:HB2  | 2:E:454:GLU:N    | 1.48                     | 1.26              |
| 2:B:338:VAL:CG1  | 2:E:687:HIS:CE1  | 2.19                     | 1.25              |
| 2:B:707:SER:C    | 2:E:704:ASN:HD21 | 1.38                     | 1.24              |
| 2:B:330:LEU:HD21 | 2:E:466:GLU:OE1  | 1.30                     | 1.24              |
| 2:B:463:HIS:CE1  | 2:E:334:GLN:CD   | 2.08                     | 1.22              |
| 2:B:463:HIS:CE1  | 2:E:334:GLN:OE1  | 1.96                     | 1.18              |
| 2:B:463:HIS:HE1  | 2:E:334:GLN:OE1  | 1.23                     | 1.17              |
| 2:J:449:TYR:CD1  | 1:K:316:ASN:N    | 2.12                     | 1.17              |
| 1:D:316:ASN:N    | 2:E:449:TYR:CD1  | 2.12                     | 1.17              |
| 2:B:467:ARG:HH21 | 2:E:334:GLN:HG2  | 1.06                     | 1.16              |
| 2:B:330:LEU:HD11 | 2:E:466:GLU:HB3  | 1.26                     | 1.15              |
| 2:B:342:LYS:CE   | 2:I:392:ILE:O    | 1.95                     | 1.15              |
| 1:D:317:PHE:HB3  | 2:E:453:ARG:HD2  | 1.17                     | 1.14              |
| 2:J:455:GLU:N    | 1:K:318:ARG:CZ   | 2.10                     | 1.13              |
| 1:D:318:ARG:CZ   | 2:E:455:GLU:N    | 2.10                     | 1.13              |
| 2:B:703:ALA:HB2  | 2:E:700:GLU:HA   | 1.17                     | 1.12              |
| 2:J:453:ARG:HD2  | 1:K:317:PHE:HB3  | 1.17                     | 1.11              |
| 2:B:330:LEU:HD13 | 2:E:467:ARG:NH1  | 1.67                     | 1.10              |
| 2:B:698:PHE:CB   | 2:E:695:GLU:HG3  | 1.81                     | 1.10              |
| 2:B:463:HIS:CE1  | 2:E:334:GLN:HE22 | 1.54                     | 1.10              |
| 2:B:707:SER:CA   | 2:E:704:ASN:ND2  | 2.02                     | 1.09              |
| 2:J:453:ARG:HB3  | 1:K:317:PHE:CA   | 1.83                     | 1.09              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:330:LEU:HD11 | 2:E:466:GLU:CB   | 1.83                     | 1.08              |
| 2:E:491:GLU:CB   | 2:E:491:GLU:C    | 2.21                     | 1.08              |
| 2:J:491:GLU:CB   | 2:J:491:GLU:C    | 2.21                     | 1.08              |
| 1:D:317:PHE:CA   | 2:E:453:ARG:HB3  | 1.83                     | 1.07              |
| 2:B:706:TYR:CE2  | 2:E:700:GLU:OE1  | 2.08                     | 1.07              |
| 1:D:317:PHE:CE1  | 2:E:443:THR:O    | 2.08                     | 1.06              |
| 2:J:443:THR:O    | 1:K:317:PHE:CE1  | 2.08                     | 1.06              |
| 2:B:698:PHE:CD1  | 2:E:695:GLU:HG3  | 1.90                     | 1.06              |
| 2:B:330:LEU:CD1  | 2:E:466:GLU:HB3  | 1.84                     | 1.06              |
| 2:B:698:PHE:HB3  | 2:E:695:GLU:HB3  | 1.32                     | 1.04              |
| 1:D:222:ASN:O    | 1:K:319:PRO:HB2  | 1.58                     | 1.03              |
| 1:D:316:ASN:HB2  | 2:E:449:TYR:CE1  | 1.93                     | 1.02              |
| 2:J:449:TYR:CE1  | 1:K:316:ASN:HB2  | 1.93                     | 1.02              |
| 1:D:318:ARG:CB   | 2:E:454:GLU:N    | 2.23                     | 1.01              |
| 2:B:704:ASN:OD1  | 2:E:704:ASN:HA   | 1.61                     | 1.01              |
| 2:J:454:GLU:N    | 1:K:318:ARG:CB   | 2.23                     | 1.01              |
| 2:B:702:LEU:HB2  | 2:E:700:GLU:CD   | 1.80                     | 1.00              |
| 2:B:698:PHE:HB3  | 2:E:695:GLU:CB   | 1.91                     | 0.99              |
| 2:B:330:LEU:CD1  | 2:E:467:ARG:HH12 | 1.74                     | 0.98              |
| 1:D:314:TYR:OH   | 2:E:450:PRO:CB   | 2.03                     | 0.98              |
| 1:D:318:ARG:NH2  | 2:E:455:GLU:CA   | 2.26                     | 0.98              |
| 1:D:314:TYR:OH   | 2:E:450:PRO:HB2  | 1.61                     | 0.97              |
| 2:B:330:LEU:HD13 | 2:E:467:ARG:HH12 | 0.82                     | 0.97              |
| 2:J:450:PRO:HB2  | 1:K:314:TYR:OH   | 1.61                     | 0.97              |
| 2:J:455:GLU:CA   | 1:K:318:ARG:NH2  | 2.26                     | 0.97              |
| 2:J:450:PRO:CB   | 1:K:314:TYR:OH   | 2.03                     | 0.96              |
| 2:B:702:LEU:HB2  | 2:E:700:GLU:OE2  | 1.66                     | 0.96              |
| 2:B:330:LEU:HD11 | 2:E:466:GLU:CG   | 1.96                     | 0.95              |
| 2:B:467:ARG:NH2  | 2:E:334:GLN:HG2  | 1.81                     | 0.94              |
| 2:B:703:ALA:CB   | 2:E:700:GLU:CA   | 2.45                     | 0.94              |
| 2:B:330:LEU:CD2  | 2:E:466:GLU:OE1  | 2.16                     | 0.94              |
| 2:J:471:THR:HG21 | 2:J:689:MET:HG2  | 1.50                     | 0.93              |
| 1:D:318:ARG:HB2  | 2:E:453:ARG:C    | 1.88                     | 0.92              |
| 2:E:471:THR:HG21 | 2:E:689:MET:HG2  | 1.50                     | 0.92              |
| 2:B:414:LYS:HD2  | 2:B:483:LEU:HB3  | 1.52                     | 0.92              |
| 2:I:414:LYS:HD2  | 2:I:483:LEU:HB3  | 1.52                     | 0.92              |
| 1:G:12:LEU:HB3   | 1:G:745:ILE:HG12 | 1.52                     | 0.92              |
| 1:D:317:PHE:HA   | 2:E:453:ARG:HB3  | 1.51                     | 0.92              |
| 2:J:453:ARG:CG   | 1:K:317:PHE:C    | 2.37                     | 0.91              |
| 1:A:12:LEU:HB3   | 1:A:745:ILE:HG12 | 1.52                     | 0.91              |
| 1:D:317:PHE:C    | 2:E:453:ARG:CG   | 2.37                     | 0.91              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:J:453:ARG:HB3  | 1:K:317:PHE:C    | 1.91                     | 0.91              |
| 2:J:453:ARG:C    | 1:K:318:ARG:HB2  | 1.88                     | 0.91              |
| 1:A:207:LEU:HB2  | 1:A:235:VAL:HG22 | 1.52                     | 0.91              |
| 2:B:463:HIS:ND1  | 2:E:334:GLN:NE2  | 2.19                     | 0.91              |
| 2:B:695:GLU:OE1  | 2:E:694:LYS:NZ   | 2.03                     | 0.91              |
| 2:J:328:ALA:HB2  | 1:K:316:ASN:CG   | 1.91                     | 0.91              |
| 1:D:316:ASN:CG   | 2:E:328:ALA:HB2  | 1.91                     | 0.91              |
| 2:J:453:ARG:HB3  | 1:K:317:PHE:HA   | 1.51                     | 0.91              |
| 2:B:707:SER:C    | 2:E:704:ASN:ND2  | 2.19                     | 0.91              |
| 1:D:317:PHE:C    | 2:E:453:ARG:HB3  | 1.91                     | 0.91              |
| 1:G:207:LEU:HB2  | 1:G:235:VAL:HG22 | 1.52                     | 0.90              |
| 2:B:342:LYS:NZ   | 2:I:392:ILE:O    | 2.04                     | 0.90              |
| 2:J:453:ARG:CB   | 1:K:318:ARG:N    | 2.35                     | 0.90              |
| 2:J:453:ARG:CA   | 1:K:318:ARG:HB2  | 2.01                     | 0.89              |
| 1:D:318:ARG:N    | 2:E:453:ARG:CB   | 2.35                     | 0.89              |
| 1:D:318:ARG:HB2  | 2:E:453:ARG:CA   | 2.01                     | 0.89              |
| 2:B:707:SER:N    | 2:E:704:ASN:ND2  | 2.20                     | 0.89              |
| 2:B:703:ALA:HB1  | 2:E:700:GLU:HA   | 1.55                     | 0.88              |
| 1:G:67:ARG:HD3   | 1:G:105:THR:HA   | 1.54                     | 0.87              |
| 2:B:698:PHE:CB   | 2:E:695:GLU:CG   | 2.53                     | 0.87              |
| 1:A:67:ARG:HD3   | 1:A:105:THR:HA   | 1.54                     | 0.87              |
| 2:B:338:VAL:HG13 | 2:E:687:HIS:HE1  | 1.08                     | 0.86              |
| 2:B:698:PHE:HB3  | 2:E:695:GLU:CG   | 2.05                     | 0.86              |
| 1:D:316:ASN:CA   | 2:E:449:TYR:CD1  | 2.58                     | 0.86              |
| 2:J:452:LEU:O    | 1:K:318:ARG:NE   | 2.09                     | 0.86              |
| 2:J:449:TYR:CD1  | 1:K:316:ASN:CA   | 2.58                     | 0.86              |
| 1:D:235:VAL:HB   | 1:D:255:GLU:HA   | 1.57                     | 0.86              |
| 2:F:561:LYS:HD2  | 2:F:564:MET:HB2  | 1.58                     | 0.86              |
| 2:L:561:LYS:HD2  | 2:L:564:MET:HB2  | 1.58                     | 0.86              |
| 1:D:318:ARG:NE   | 2:E:452:LEU:O    | 2.08                     | 0.86              |
| 1:K:235:VAL:HB   | 1:K:255:GLU:HA   | 1.57                     | 0.86              |
| 2:B:345:GLU:HA   | 2:B:345:GLU:OE1  | 1.76                     | 0.85              |
| 2:I:345:GLU:HA   | 2:I:345:GLU:OE1  | 1.76                     | 0.85              |
| 1:K:9:LEU:HD11   | 1:K:289:ILE:HD12 | 1.55                     | 0.85              |
| 1:D:9:LEU:HD11   | 1:D:289:ILE:HD12 | 1.55                     | 0.85              |
| 1:D:34:ILE:HD13  | 1:D:170:LEU:HD23 | 1.58                     | 0.85              |
| 1:D:317:PHE:C    | 2:E:453:ARG:CB   | 2.45                     | 0.85              |
| 2:J:453:ARG:CB   | 1:K:317:PHE:C    | 2.45                     | 0.85              |
| 1:K:34:ILE:HD13  | 1:K:170:LEU:HD23 | 1.58                     | 0.85              |
| 1:A:31:LEU:HG    | 1:A:285:LEU:HD22 | 1.58                     | 0.84              |
| 1:G:31:LEU:HG    | 1:G:285:LEU:HD22 | 1.58                     | 0.84              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:700:GLU:HB3  | 2:E:699:SER:HB2  | 1.60                     | 0.84              |
| 2:B:330:LEU:O    | 2:E:470:ARG:NH2  | 2.11                     | 0.84              |
| 2:B:672:ILE:HD11 | 2:J:489:ASN:HA   | 1.61                     | 0.83              |
| 2:I:391:ALA:HB1  | 2:I:408:ALA:HB1  | 1.59                     | 0.83              |
| 2:J:451:ARG:O    | 1:K:318:ARG:HD3  | 1.79                     | 0.83              |
| 1:D:137:LEU:HB3  | 1:D:160:LEU:HD22 | 1.61                     | 0.82              |
| 1:K:137:LEU:HB3  | 1:K:160:LEU:HD22 | 1.61                     | 0.82              |
| 1:D:170:LEU:HD21 | 1:D:281:LEU:HD22 | 1.60                     | 0.82              |
| 1:D:318:ARG:HD3  | 2:E:451:ARG:O    | 1.79                     | 0.82              |
| 2:B:391:ALA:HB1  | 2:B:408:ALA:HB1  | 1.59                     | 0.82              |
| 2:E:489:ASN:HA   | 2:I:672:ILE:HD11 | 1.61                     | 0.82              |
| 1:K:170:LEU:HD21 | 1:K:281:LEU:HD22 | 1.60                     | 0.81              |
| 2:B:342:LYS:HE2  | 2:I:392:ILE:O    | 1.80                     | 0.81              |
| 2:J:345:GLU:OE1  | 2:J:345:GLU:HA   | 1.81                     | 0.80              |
| 1:D:317:PHE:CD1  | 2:E:443:THR:O    | 2.34                     | 0.80              |
| 1:D:318:ARG:CZ   | 2:E:454:GLU:CA   | 2.60                     | 0.80              |
| 2:J:454:GLU:CA   | 1:K:318:ARG:CZ   | 2.60                     | 0.80              |
| 2:J:443:THR:O    | 1:K:317:PHE:CD1  | 2.34                     | 0.79              |
| 2:E:421:ARG:HG2  | 2:E:479:ILE:HD13 | 1.62                     | 0.79              |
| 2:E:345:GLU:OE1  | 2:E:345:GLU:HA   | 1.81                     | 0.79              |
| 2:B:698:PHE:HB3  | 2:E:695:GLU:HG3  | 1.64                     | 0.79              |
| 2:B:698:PHE:CD1  | 2:E:695:GLU:CG   | 2.67                     | 0.78              |
| 1:D:317:PHE:CE2  | 2:E:445:LYS:HA   | 2.19                     | 0.78              |
| 1:D:318:ARG:NH2  | 2:E:455:GLU:HB2  | 1.98                     | 0.78              |
| 2:J:421:ARG:HG2  | 2:J:479:ILE:HD13 | 1.62                     | 0.78              |
| 2:J:445:LYS:HA   | 1:K:317:PHE:CE2  | 2.19                     | 0.78              |
| 1:D:222:ASN:O    | 1:K:319:PRO:CB   | 2.32                     | 0.78              |
| 2:J:422:GLU:HB3  | 2:J:423:PRO:HD3  | 1.64                     | 0.78              |
| 2:B:698:PHE:CD2  | 2:E:695:GLU:HG3  | 2.18                     | 0.78              |
| 2:J:455:GLU:HB2  | 1:K:318:ARG:NH2  | 1.98                     | 0.78              |
| 1:G:59:ARG:HB3   | 1:G:242:ILE:HG23 | 1.67                     | 0.77              |
| 1:D:16:LEU:HD23  | 1:D:29:LEU:HD11  | 1.66                     | 0.77              |
| 2:E:422:GLU:HB3  | 2:E:423:PRO:HD3  | 1.64                     | 0.77              |
| 1:A:206:LYS:HE2  | 1:A:238:SER:HA   | 1.66                     | 0.77              |
| 2:B:346:GLY:HA3  | 2:I:654:GLN:H    | 1.49                     | 0.77              |
| 2:B:491:GLU:HG3  | 2:J:494:ILE:HB   | 1.66                     | 0.77              |
| 1:A:59:ARG:HB3   | 1:A:242:ILE:HG23 | 1.67                     | 0.76              |
| 2:B:695:GLU:CD   | 2:E:694:LYS:NZ   | 2.39                     | 0.76              |
| 2:B:698:PHE:CG   | 2:E:695:GLU:CG   | 2.52                     | 0.76              |
| 1:G:206:LYS:HE2  | 1:G:238:SER:HA   | 1.66                     | 0.76              |
| 1:K:16:LEU:HD23  | 1:K:29:LEU:HD11  | 1.65                     | 0.76              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:422:GLU:HB3  | 2:B:423:PRO:HD3  | 1.68                     | 0.76              |
| 2:I:422:GLU:HB3  | 2:I:423:PRO:HD3  | 1.68                     | 0.76              |
| 1:D:317:PHE:CB   | 2:E:453:ARG:HD2  | 2.09                     | 0.75              |
| 1:K:40:GLN:HB2   | 1:K:141:THR:HG22 | 1.68                     | 0.75              |
| 2:J:453:ARG:CG   | 1:K:318:ARG:CA   | 2.52                     | 0.75              |
| 2:J:455:GLU:CB   | 1:K:318:ARG:NH2  | 2.49                     | 0.75              |
| 2:B:707:SER:N    | 2:E:704:ASN:HD21 | 1.81                     | 0.75              |
| 2:E:494:ILE:HB   | 2:I:491:GLU:HG3  | 1.66                     | 0.75              |
| 1:A:191:LYS:HA   | 1:A:195:PRO:HA   | 1.69                     | 0.75              |
| 1:G:191:LYS:HA   | 1:G:195:PRO:HA   | 1.69                     | 0.74              |
| 1:A:27:ALA:HB1   | 1:A:296:LEU:HD12 | 1.68                     | 0.74              |
| 1:D:40:GLN:HB2   | 1:D:141:THR:HG22 | 1.68                     | 0.74              |
| 2:I:702:LEU:H    | 2:I:702:LEU:CD2  | 1.99                     | 0.74              |
| 1:D:318:ARG:NH2  | 2:E:455:GLU:CB   | 2.49                     | 0.74              |
| 1:G:27:ALA:HB1   | 1:G:296:LEU:HD12 | 1.68                     | 0.74              |
| 2:L:573:ARG:HD2  | 2:L:575:VAL:HG12 | 1.70                     | 0.74              |
| 2:J:453:ARG:HD2  | 1:K:317:PHE:CB   | 2.09                     | 0.74              |
| 1:D:317:PHE:CD1  | 2:E:444:LYS:HA   | 2.23                     | 0.73              |
| 2:B:374:LEU:HD13 | 2:B:423:PRO:HB2  | 1.71                     | 0.73              |
| 2:B:702:LEU:H    | 2:B:702:LEU:CD2  | 1.99                     | 0.73              |
| 2:B:699:SER:HB2  | 2:E:696:PHE:HA   | 1.69                     | 0.73              |
| 2:I:374:LEU:HD13 | 2:I:423:PRO:HB2  | 1.71                     | 0.73              |
| 1:K:161:MET:HA   | 1:K:164:VAL:HG22 | 1.69                     | 0.73              |
| 1:D:161:MET:HA   | 1:D:164:VAL:HG22 | 1.69                     | 0.73              |
| 2:J:444:LYS:HA   | 1:K:317:PHE:CD1  | 2.23                     | 0.73              |
| 2:B:695:GLU:HG3  | 2:E:698:PHE:CE1  | 2.24                     | 0.72              |
| 1:A:83:PHE:HZ    | 1:A:97:VAL:HG13  | 1.55                     | 0.72              |
| 2:B:702:LEU:CB   | 2:E:700:GLU:OE2  | 2.38                     | 0.72              |
| 1:G:83:PHE:HZ    | 1:G:97:VAL:HG13  | 1.55                     | 0.72              |
| 2:F:573:ARG:HD2  | 2:F:575:VAL:HG12 | 1.70                     | 0.71              |
| 2:B:330:LEU:HD11 | 2:E:466:GLU:HG2  | 1.71                     | 0.71              |
| 1:D:81:ALA:HB1   | 1:D:122:LEU:HD11 | 1.72                     | 0.71              |
| 1:K:81:ALA:HB1   | 1:K:122:LEU:HD11 | 1.72                     | 0.71              |
| 2:J:450:PRO:HD2  | 1:K:314:TYR:CE2  | 2.13                     | 0.71              |
| 1:G:48:LEU:HG    | 1:G:134:LEU:HD23 | 1.72                     | 0.71              |
| 2:J:444:LYS:HA   | 1:K:317:PHE:CG   | 2.26                     | 0.70              |
| 1:D:83:PHE:HB2   | 1:D:86:CYS:HB2   | 1.72                     | 0.70              |
| 1:D:314:TYR:CE2  | 2:E:450:PRO:HD2  | 2.13                     | 0.70              |
| 1:D:317:PHE:CG   | 2:E:444:LYS:HA   | 2.26                     | 0.70              |
| 2:E:688:LEU:N    | 2:E:688:LEU:HD23 | 2.07                     | 0.70              |
| 2:J:453:ARG:CD   | 1:K:317:PHE:O    | 2.40                     | 0.70              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:48:LEU:HG    | 1:A:134:LEU:HD23 | 1.72                     | 0.70              |
| 2:B:703:ALA:HB1  | 2:E:700:GLU:CA   | 2.19                     | 0.70              |
| 2:E:702:LEU:HD23 | 2:E:702:LEU:H    | 1.55                     | 0.70              |
| 2:J:688:LEU:N    | 2:J:688:LEU:HD23 | 2.07                     | 0.70              |
| 2:J:453:ARG:CD   | 1:K:317:PHE:HB3  | 2.11                     | 0.70              |
| 2:J:702:LEU:HD23 | 2:J:702:LEU:H    | 1.55                     | 0.70              |
| 2:I:687:HIS:CD2  | 2:I:688:LEU:CD2  | 2.75                     | 0.69              |
| 1:K:83:PHE:HB2   | 1:K:86:CYS:HB2   | 1.72                     | 0.69              |
| 2:L:518:ILE:HG13 | 2:L:519:LEU:H    | 1.57                     | 0.69              |
| 1:D:317:PHE:CB   | 2:E:453:ARG:HB3  | 2.22                     | 0.69              |
| 2:I:688:LEU:N    | 2:I:688:LEU:HD23 | 2.07                     | 0.69              |
| 1:K:36:VAL:HG22  | 1:K:48:LEU:HD22  | 1.74                     | 0.69              |
| 2:B:346:GLY:HA3  | 2:I:654:GLN:N    | 2.06                     | 0.69              |
| 1:D:36:VAL:HG22  | 1:D:48:LEU:HD22  | 1.74                     | 0.69              |
| 1:D:317:PHE:O    | 2:E:453:ARG:CD   | 2.40                     | 0.69              |
| 2:B:338:VAL:CG1  | 2:E:687:HIS:NE2  | 2.55                     | 0.69              |
| 2:B:687:HIS:CD2  | 2:B:688:LEU:CD2  | 2.75                     | 0.69              |
| 2:J:453:ARG:HB3  | 1:K:317:PHE:CB   | 2.22                     | 0.69              |
| 1:A:29:LEU:HD23  | 1:A:289:ILE:HG12 | 1.74                     | 0.69              |
| 2:J:687:HIS:CD2  | 2:J:688:LEU:CD2  | 2.75                     | 0.69              |
| 1:A:57:LEU:HD22  | 1:A:136:ASP:HB2  | 1.74                     | 0.69              |
| 1:G:29:LEU:HD23  | 1:G:289:ILE:HG12 | 1.74                     | 0.69              |
| 2:B:698:PHE:HE1  | 2:E:692:ASN:HA   | 1.57                     | 0.69              |
| 2:B:699:SER:OG   | 2:E:695:GLU:O    | 2.10                     | 0.69              |
| 2:I:687:HIS:CD2  | 2:I:688:LEU:HD21 | 2.27                     | 0.69              |
| 2:B:687:HIS:CD2  | 2:B:688:LEU:HD21 | 2.28                     | 0.69              |
| 2:E:412:ILE:HG21 | 2:E:666:VAL:HG11 | 1.74                     | 0.69              |
| 1:A:12:LEU:HD13  | 1:A:745:ILE:HA   | 1.75                     | 0.69              |
| 2:E:687:HIS:CD2  | 2:E:688:LEU:CD2  | 2.75                     | 0.69              |
| 2:B:688:LEU:HD23 | 2:B:688:LEU:N    | 2.07                     | 0.68              |
| 2:B:692:ASN:HA   | 2:E:341:GLU:OE2  | 1.93                     | 0.68              |
| 2:E:410:GLU:HG3  | 2:E:486:MET:HE1  | 1.76                     | 0.68              |
| 1:G:57:LEU:HD22  | 1:G:136:ASP:HB2  | 1.74                     | 0.68              |
| 1:G:12:LEU:HD13  | 1:G:745:ILE:HA   | 1.75                     | 0.68              |
| 2:J:412:ILE:HG21 | 2:J:666:VAL:HG11 | 1.74                     | 0.68              |
| 2:E:687:HIS:CD2  | 2:E:688:LEU:HD21 | 2.28                     | 0.68              |
| 2:J:687:HIS:CD2  | 2:J:688:LEU:HD21 | 2.28                     | 0.68              |
| 1:K:85:HIS:HE1   | 1:K:120:ILE:HG23 | 1.59                     | 0.68              |
| 1:D:317:PHE:C    | 2:E:453:ARG:CD   | 2.62                     | 0.68              |
| 2:F:518:ILE:HG13 | 2:F:519:LEU:H    | 1.57                     | 0.68              |
| 1:D:66:ARG:HG2   | 1:D:115:ILE:HG22 | 1.75                     | 0.68              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:J:453:ARG:CD   | 1:K:317:PHE:C    | 2.62                     | 0.68              |
| 2:H:565:LEU:HD11 | 2:H:596:VAL:HG22 | 1.76                     | 0.67              |
| 1:K:303:GLN:HG2  | 1:K:735:LEU:HD11 | 1.76                     | 0.67              |
| 2:C:565:LEU:HD11 | 2:C:596:VAL:HG22 | 1.76                     | 0.67              |
| 1:K:66:ARG:HG2   | 1:K:115:ILE:HG22 | 1.76                     | 0.67              |
| 1:D:303:GLN:HG2  | 1:D:735:LEU:HD11 | 1.76                     | 0.67              |
| 2:B:695:GLU:HA   | 2:E:695:GLU:OE1  | 1.94                     | 0.67              |
| 1:D:318:ARG:CA   | 2:E:453:ARG:CG   | 2.52                     | 0.67              |
| 2:J:449:TYR:CE1  | 1:K:316:ASN:CB   | 2.76                     | 0.67              |
| 2:C:518:ILE:HG13 | 2:C:519:LEU:H    | 1.59                     | 0.67              |
| 2:B:338:VAL:CG1  | 2:E:687:HIS:HE1  | 1.83                     | 0.67              |
| 2:H:518:ILE:HG13 | 2:H:519:LEU:H    | 1.59                     | 0.66              |
| 2:B:341:GLU:OE1  | 2:E:691:ASN:ND2  | 2.27                     | 0.66              |
| 2:B:346:GLY:C    | 2:I:654:GLN:HB3  | 2.16                     | 0.66              |
| 1:D:60:GLY:H     | 1:D:64:VAL:HG13  | 1.60                     | 0.66              |
| 2:C:522:ARG:HH12 | 2:C:615:SER:HB2  | 1.61                     | 0.66              |
| 1:K:60:GLY:H     | 1:K:64:VAL:HG13  | 1.61                     | 0.66              |
| 1:D:85:HIS:HE1   | 1:D:120:ILE:HG23 | 1.59                     | 0.66              |
| 2:B:341:GLU:HG3  | 2:B:698:PHE:HE2  | 1.61                     | 0.66              |
| 1:D:317:PHE:HB3  | 2:E:453:ARG:CD   | 2.11                     | 0.66              |
| 2:H:522:ARG:HH12 | 2:H:615:SER:HB2  | 1.61                     | 0.66              |
| 2:I:341:GLU:HG3  | 2:I:698:PHE:HE2  | 1.61                     | 0.65              |
| 2:J:445:LYS:HA   | 1:K:317:PHE:HE2  | 1.62                     | 0.65              |
| 2:B:692:ASN:C    | 2:B:692:ASN:HD22 | 2.00                     | 0.65              |
| 2:B:706:TYR:HE2  | 2:E:700:GLU:OE1  | 1.78                     | 0.65              |
| 1:D:17:GLN:HG3   | 1:D:29:LEU:HD12  | 1.77                     | 0.65              |
| 1:D:318:ARG:CZ   | 2:E:454:GLU:C    | 2.64                     | 0.65              |
| 1:K:17:GLN:HG3   | 1:K:29:LEU:HD12  | 1.77                     | 0.65              |
| 2:J:454:GLU:C    | 1:K:318:ARG:CZ   | 2.64                     | 0.65              |
| 1:D:316:ASN:CG   | 2:E:328:ALA:CB   | 2.66                     | 0.65              |
| 2:I:692:ASN:C    | 2:I:692:ASN:HD22 | 2.00                     | 0.65              |
| 2:B:699:SER:CB   | 2:E:696:PHE:HA   | 2.26                     | 0.65              |
| 2:C:578:GLY:HA3  | 2:C:585:ILE:HD12 | 1.78                     | 0.65              |
| 2:J:328:ALA:CB   | 1:K:316:ASN:CG   | 2.66                     | 0.65              |
| 2:B:330:LEU:HD21 | 2:E:466:GLU:CD   | 2.14                     | 0.64              |
| 2:J:690:ILE:HG22 | 2:J:691:ASN:N    | 2.11                     | 0.64              |
| 2:H:578:GLY:HA3  | 2:H:585:ILE:HD12 | 1.78                     | 0.64              |
| 1:K:98:ARG:HH22  | 1:K:245:LYS:HD2  | 1.63                     | 0.64              |
| 1:A:56:PHE:HB3   | 1:A:94:PHE:HB3   | 1.78                     | 0.64              |
| 2:B:338:VAL:HG11 | 2:E:687:HIS:NE2  | 2.12                     | 0.64              |
| 2:B:342:LYS:HE3  | 2:I:392:ILE:O    | 1.93                     | 0.64              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:316:ASN:CB   | 2:E:449:TYR:CE1  | 2.77                     | 0.64              |
| 2:E:690:ILE:HG22 | 2:E:691:ASN:N    | 2.11                     | 0.64              |
| 2:J:410:GLU:HG3  | 2:J:486:MET:HE1  | 1.78                     | 0.64              |
| 2:J:448:GLN:HB3  | 1:K:313:GLU:HB2  | 1.80                     | 0.64              |
| 2:B:702:LEU:HG   | 2:E:700:GLU:OE2  | 1.98                     | 0.64              |
| 1:D:98:ARG:HH22  | 1:D:245:LYS:HD2  | 1.63                     | 0.64              |
| 2:J:692:ASN:C    | 2:J:692:ASN:HD22 | 2.00                     | 0.64              |
| 1:D:313:GLU:HB2  | 2:E:448:GLN:HB3  | 1.79                     | 0.64              |
| 2:E:435:LEU:HD11 | 2:E:693:THR:HB   | 1.79                     | 0.64              |
| 1:G:56:PHE:HB3   | 1:G:94:PHE:HB3   | 1.78                     | 0.64              |
| 2:B:703:ALA:HA   | 2:E:700:GLU:HB3  | 1.79                     | 0.64              |
| 2:J:428:VAL:HG13 | 2:J:689:MET:HE3  | 1.80                     | 0.64              |
| 1:G:176:PRO:HB3  | 1:G:206:LYS:HD2  | 1.80                     | 0.63              |
| 1:D:317:PHE:HE2  | 2:E:445:LYS:HA   | 1.62                     | 0.63              |
| 1:G:217:ARG:HG3  | 1:G:265:TYR:HE1  | 1.62                     | 0.63              |
| 2:I:452:LEU:HD13 | 2:I:452:LEU:C    | 2.19                     | 0.63              |
| 2:B:452:LEU:HD13 | 2:B:452:LEU:C    | 2.19                     | 0.63              |
| 2:B:690:ILE:HG22 | 2:B:691:ASN:N    | 2.14                     | 0.63              |
| 2:E:692:ASN:C    | 2:E:692:ASN:HD22 | 2.00                     | 0.63              |
| 2:J:435:LEU:HD11 | 2:J:693:THR:HB   | 1.79                     | 0.63              |
| 1:A:217:ARG:HG3  | 1:A:265:TYR:HE1  | 1.62                     | 0.62              |
| 1:D:20:PHE:HB3   | 1:D:27:ALA:HA    | 1.80                     | 0.62              |
| 1:K:20:PHE:HB3   | 1:K:27:ALA:HA    | 1.80                     | 0.62              |
| 2:B:680:LEU:HD21 | 2:J:406:ASP:HB3  | 1.81                     | 0.62              |
| 2:E:428:VAL:HG13 | 2:E:689:MET:HE3  | 1.81                     | 0.62              |
| 2:I:690:ILE:HG22 | 2:I:691:ASN:N    | 2.14                     | 0.62              |
| 2:E:491:GLU:C    | 2:E:491:GLU:CG   | 2.68                     | 0.62              |
| 1:A:161:MET:HA   | 1:A:164:VAL:HG22 | 1.82                     | 0.62              |
| 1:G:161:MET:HA   | 1:G:164:VAL:HG22 | 1.82                     | 0.62              |
| 2:J:681:MET:HB2  | 2:J:682:PRO:HD3  | 1.81                     | 0.62              |
| 2:E:406:ASP:HB3  | 2:I:680:LEU:HD21 | 1.81                     | 0.62              |
| 2:J:495:GLY:HA2  | 2:J:664:ASN:HB3  | 1.81                     | 0.62              |
| 1:A:176:PRO:HB3  | 1:A:206:LYS:HD2  | 1.81                     | 0.62              |
| 2:J:495:GLY:O    | 2:J:496:PHE:HB2  | 2.00                     | 0.62              |
| 2:E:495:GLY:HA2  | 2:E:664:ASN:HB3  | 1.81                     | 0.61              |
| 2:J:491:GLU:C    | 2:J:491:GLU:CG   | 2.68                     | 0.61              |
| 2:E:681:MET:HB2  | 2:E:682:PRO:HD3  | 1.81                     | 0.61              |
| 1:D:318:ARG:N    | 2:E:453:ARG:CA   | 2.63                     | 0.61              |
| 2:B:681:MET:HB2  | 2:B:682:PRO:HD3  | 1.83                     | 0.61              |
| 2:B:698:PHE:CE1  | 2:E:692:ASN:HA   | 2.36                     | 0.61              |
| 2:B:703:ALA:CA   | 2:E:700:GLU:HA   | 2.29                     | 0.61              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:I:681:MET:HB2  | 2:I:682:PRO:HD3  | 1.83                     | 0.61              |
| 1:G:209:LEU:HD11 | 1:G:238:SER:HB3  | 1.83                     | 0.61              |
| 2:B:496:PHE:HA   | 2:B:660:GLU:HG3  | 1.83                     | 0.61              |
| 2:B:333:VAL:HG12 | 2:B:333:VAL:O    | 2.01                     | 0.61              |
| 2:I:496:PHE:HA   | 2:I:660:GLU:HG3  | 1.83                     | 0.61              |
| 2:J:453:ARG:CA   | 1:K:318:ARG:N    | 2.63                     | 0.61              |
| 1:K:256:ARG:HH12 | 1:K:269:ALA:HB1  | 1.65                     | 0.61              |
| 2:C:567:VAL:HA   | 2:C:570:LEU:HD12 | 1.82                     | 0.61              |
| 2:E:495:GLY:O    | 2:E:496:PHE:HB2  | 2.00                     | 0.61              |
| 2:J:340:PHE:HE2  | 2:J:694:LYS:HA   | 1.65                     | 0.61              |
| 1:D:10:ILE:HB    | 1:D:11:PRO:HD3   | 1.82                     | 0.60              |
| 1:D:29:LEU:HD22  | 1:D:289:ILE:HG23 | 1.83                     | 0.60              |
| 1:D:256:ARG:HH12 | 1:D:269:ALA:HB1  | 1.65                     | 0.60              |
| 2:F:518:ILE:HG13 | 2:F:519:LEU:N    | 2.16                     | 0.60              |
| 2:H:567:VAL:HA   | 2:H:570:LEU:HD12 | 1.82                     | 0.60              |
| 1:D:318:ARG:CB   | 2:E:453:ARG:HG2  | 2.30                     | 0.60              |
| 1:K:29:LEU:HD22  | 1:K:289:ILE:HG23 | 1.83                     | 0.60              |
| 1:A:232:ILE:HG21 | 1:A:277:LEU:HA   | 1.82                     | 0.60              |
| 2:E:340:PHE:HE2  | 2:E:694:LYS:HA   | 1.65                     | 0.60              |
| 1:G:87:LYS:HE2   | 1:G:88:GLY:HA3   | 1.83                     | 0.60              |
| 1:G:232:ILE:HG21 | 1:G:277:LEU:HA   | 1.82                     | 0.60              |
| 2:L:518:ILE:HG13 | 2:L:519:LEU:N    | 2.16                     | 0.60              |
| 1:A:87:LYS:HE2   | 1:A:88:GLY:HA3   | 1.83                     | 0.60              |
| 2:B:706:TYR:CD2  | 2:E:700:GLU:OE1  | 2.55                     | 0.60              |
| 1:A:23:ILE:HG22  | 1:A:25:GLN:HG2   | 1.83                     | 0.60              |
| 1:K:290:ARG:HD3  | 1:K:745:ILE:HG22 | 1.84                     | 0.60              |
| 1:A:209:LEU:HD11 | 1:A:238:SER:HB3  | 1.83                     | 0.60              |
| 1:K:10:ILE:HB    | 1:K:11:PRO:HD3   | 1.82                     | 0.60              |
| 2:L:565:LEU:HD21 | 2:L:570:LEU:HD21 | 1.83                     | 0.60              |
| 2:C:518:ILE:HG13 | 2:C:519:LEU:N    | 2.16                     | 0.59              |
| 2:E:660:GLU:HA   | 2:E:663:ARG:HH12 | 1.67                     | 0.59              |
| 2:F:565:LEU:HD21 | 2:F:570:LEU:HD21 | 1.84                     | 0.59              |
| 2:H:518:ILE:HG13 | 2:H:519:LEU:N    | 2.16                     | 0.59              |
| 2:J:374:LEU:HD13 | 2:J:423:PRO:HB2  | 1.83                     | 0.59              |
| 1:G:23:ILE:HG22  | 1:G:25:GLN:HG2   | 1.83                     | 0.59              |
| 2:I:333:VAL:HG12 | 2:I:333:VAL:O    | 2.01                     | 0.59              |
| 2:L:573:ARG:HA   | 2:L:630:VAL:HA   | 1.85                     | 0.59              |
| 2:C:607:CYS:HB2  | 2:C:613:VAL:HG23 | 1.85                     | 0.59              |
| 1:D:300:LEU:HB2  | 1:D:739:LEU:HD21 | 1.85                     | 0.59              |
| 2:F:573:ARG:HA   | 2:F:630:VAL:HA   | 1.85                     | 0.59              |
| 2:E:491:GLU:CA   | 2:E:491:GLU:CG   | 2.67                     | 0.59              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:703:ALA:HA   | 2:E:700:GLU:CB   | 2.32                     | 0.59              |
| 1:G:94:PHE:HZ    | 1:G:124:VAL:HG11 | 1.68                     | 0.59              |
| 2:C:579:PHE:CD1  | 2:C:579:PHE:N    | 2.70                     | 0.59              |
| 2:E:374:LEU:HD13 | 2:E:423:PRO:HB2  | 1.83                     | 0.58              |
| 2:H:607:CYS:HB2  | 2:H:613:VAL:HG23 | 1.84                     | 0.58              |
| 2:J:660:GLU:HA   | 2:J:663:ARG:HH12 | 1.67                     | 0.58              |
| 2:J:450:PRO:HD3  | 1:K:314:TYR:O    | 2.03                     | 0.58              |
| 1:A:70:VAL:HG23  | 1:A:119:PRO:HB3  | 1.85                     | 0.58              |
| 2:B:388:ILE:HD12 | 2:B:412:ILE:HD12 | 1.86                     | 0.58              |
| 2:B:495:GLY:O    | 2:B:496:PHE:HB2  | 2.04                     | 0.58              |
| 2:I:495:GLY:O    | 2:I:496:PHE:HB2  | 2.04                     | 0.58              |
| 2:J:491:GLU:OE1  | 2:J:492:ASP:N    | 2.37                     | 0.58              |
| 1:D:290:ARG:HD3  | 1:D:745:ILE:HG22 | 1.84                     | 0.58              |
| 1:D:314:TYR:O    | 2:E:450:PRO:HD3  | 2.03                     | 0.58              |
| 1:G:70:VAL:HG23  | 1:G:119:PRO:HB3  | 1.85                     | 0.58              |
| 2:J:333:VAL:HG12 | 2:J:333:VAL:O    | 2.03                     | 0.58              |
| 1:A:94:PHE:HZ    | 1:A:124:VAL:HG11 | 1.68                     | 0.58              |
| 2:B:702:LEU:CD2  | 2:B:702:LEU:N    | 2.67                     | 0.58              |
| 2:E:491:GLU:OE1  | 2:E:492:ASP:N    | 2.37                     | 0.58              |
| 2:I:388:ILE:HD12 | 2:I:412:ILE:HD12 | 1.86                     | 0.58              |
| 2:I:428:VAL:HG11 | 2:I:472:LYS:HG3  | 1.86                     | 0.58              |
| 1:K:43:GLY:HA3   | 1:K:236:ASN:HD22 | 1.68                     | 0.58              |
| 2:J:344:ILE:HD12 | 2:J:694:LYS:HG3  | 1.86                     | 0.58              |
| 2:E:702:LEU:N    | 2:E:702:LEU:CD2  | 2.67                     | 0.58              |
| 2:J:702:LEU:N    | 2:J:702:LEU:CD2  | 2.67                     | 0.57              |
| 1:K:300:LEU:HB2  | 1:K:739:LEU:HD21 | 1.85                     | 0.57              |
| 1:D:43:GLY:HA3   | 1:D:236:ASN:HD22 | 1.68                     | 0.57              |
| 2:J:450:PRO:CD   | 1:K:314:TYR:O    | 2.53                     | 0.57              |
| 2:B:428:VAL:HG11 | 2:B:472:LYS:HG3  | 1.86                     | 0.57              |
| 1:D:314:TYR:O    | 2:E:450:PRO:CD   | 2.53                     | 0.57              |
| 2:E:333:VAL:HG12 | 2:E:333:VAL:O    | 2.02                     | 0.57              |
| 2:J:471:THR:HG22 | 2:J:688:LEU:HB2  | 1.87                     | 0.57              |
| 2:E:471:THR:HG22 | 2:E:688:LEU:HB2  | 1.87                     | 0.57              |
| 2:F:579:PHE:N    | 2:F:579:PHE:HD1  | 2.02                     | 0.57              |
| 1:G:235:VAL:HB   | 1:G:255:GLU:HB2  | 1.87                     | 0.57              |
| 2:H:583:LYS:HD2  | 2:H:606:ALA:HB1  | 1.87                     | 0.57              |
| 1:K:87:LYS:HD3   | 1:K:87:LYS:H     | 1.70                     | 0.57              |
| 2:B:388:ILE:HG12 | 2:B:666:VAL:HG21 | 1.87                     | 0.57              |
| 2:E:344:ILE:HD12 | 2:E:694:LYS:HG3  | 1.86                     | 0.57              |
| 2:J:491:GLU:CA   | 2:J:491:GLU:CG   | 2.67                     | 0.57              |
| 1:A:69:LEU:HD13  | 1:A:101:ILE:HG12 | 1.86                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:241:ASP:HB3  | 1:D:246:LYS:HD2  | 1.85                     | 0.56              |
| 1:D:316:ASN:N    | 2:E:449:TYR:CB   | 2.58                     | 0.56              |
| 1:D:317:PHE:CG   | 2:E:444:LYS:CA   | 2.87                     | 0.56              |
| 2:F:579:PHE:N    | 2:F:579:PHE:CD1  | 2.72                     | 0.56              |
| 1:A:13:VAL:HG11  | 1:A:289:ILE:HD13 | 1.87                     | 0.56              |
| 2:E:392:ILE:HG13 | 2:E:393:LYS:HG2  | 1.88                     | 0.56              |
| 1:G:13:VAL:HG11  | 1:G:289:ILE:HD13 | 1.87                     | 0.56              |
| 2:I:388:ILE:HG12 | 2:I:666:VAL:HG21 | 1.87                     | 0.56              |
| 2:I:392:ILE:HG13 | 2:I:393:LYS:HG2  | 1.86                     | 0.56              |
| 2:J:392:ILE:HG13 | 2:J:393:LYS:HG2  | 1.88                     | 0.56              |
| 2:J:453:ARG:HG2  | 1:K:318:ARG:CB   | 2.29                     | 0.56              |
| 1:D:157:ARG:HH22 | 1:D:188:LYS:HD3  | 1.71                     | 0.56              |
| 2:E:489:ASN:N    | 2:E:489:ASN:OD1  | 2.38                     | 0.56              |
| 2:J:702:LEU:H    | 2:J:702:LEU:CD2  | 2.18                     | 0.56              |
| 1:K:241:ASP:HB3  | 1:K:246:LYS:HD2  | 1.86                     | 0.56              |
| 1:K:252:LEU:HD21 | 1:K:274:THR:HB   | 1.88                     | 0.56              |
| 2:C:583:LYS:HD2  | 2:C:606:ALA:HB1  | 1.87                     | 0.56              |
| 1:K:157:ARG:HH22 | 1:K:188:LYS:HD3  | 1.71                     | 0.56              |
| 2:L:579:PHE:CD1  | 2:L:579:PHE:N    | 2.72                     | 0.56              |
| 2:B:345:GLU:OE1  | 2:B:345:GLU:CA   | 2.52                     | 0.56              |
| 2:B:687:HIS:CG   | 2:B:688:LEU:HD23 | 2.41                     | 0.56              |
| 1:G:69:LEU:HD13  | 1:G:101:ILE:HG12 | 1.86                     | 0.56              |
| 2:B:392:ILE:HG13 | 2:B:393:LYS:HG2  | 1.86                     | 0.56              |
| 2:E:491:GLU:OE1  | 2:E:492:ASP:HA   | 2.06                     | 0.56              |
| 2:J:470:ARG:HG3  | 2:J:470:ARG:HH11 | 1.71                     | 0.56              |
| 2:L:579:PHE:N    | 2:L:579:PHE:HD1  | 2.02                     | 0.56              |
| 2:C:571:LYS:HD3  | 2:C:591:THR:HG21 | 1.87                     | 0.56              |
| 2:I:470:ARG:HG3  | 2:I:470:ARG:HH11 | 1.71                     | 0.56              |
| 2:J:489:ASN:N    | 2:J:489:ASN:OD1  | 2.38                     | 0.56              |
| 1:A:235:VAL:HB   | 1:A:255:GLU:HB2  | 1.87                     | 0.55              |
| 2:E:470:ARG:HG3  | 2:E:470:ARG:HH11 | 1.71                     | 0.55              |
| 2:I:687:HIS:CG   | 2:I:688:LEU:HD23 | 2.41                     | 0.55              |
| 1:G:15:ARG:HG3   | 1:G:15:ARG:HH11  | 1.71                     | 0.55              |
| 1:G:66:ARG:HB2   | 1:G:105:THR:HG21 | 1.88                     | 0.55              |
| 2:H:579:PHE:N    | 2:H:579:PHE:CD1  | 2.70                     | 0.55              |
| 1:A:66:ARG:HB2   | 1:A:105:THR:HG21 | 1.88                     | 0.55              |
| 2:B:495:GLY:HA2  | 2:B:664:ASN:HB2  | 1.89                     | 0.55              |
| 1:D:87:LYS:HD3   | 1:D:87:LYS:H     | 1.70                     | 0.55              |
| 2:H:571:LYS:HD3  | 2:H:591:THR:HG21 | 1.87                     | 0.55              |
| 1:K:218:ASP:HB3  | 1:K:224:LEU:HB2  | 1.88                     | 0.55              |
| 2:B:695:GLU:OE2  | 2:E:694:LYS:NZ   | 2.37                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:56:PHE:HA    | 1:D:98:ARG:HB2   | 1.89                     | 0.55              |
| 2:F:562:LYS:O    | 2:F:563:TYR:HB2  | 2.07                     | 0.55              |
| 2:I:491:GLU:OE2  | 2:I:492:ASP:N    | 2.39                     | 0.55              |
| 1:D:65:THR:HB    | 1:D:138:PRO:HA   | 1.88                     | 0.55              |
| 2:I:495:GLY:HA2  | 2:I:664:ASN:HB2  | 1.89                     | 0.55              |
| 1:K:56:PHE:HA    | 1:K:98:ARG:HB2   | 1.89                     | 0.55              |
| 2:L:562:LYS:O    | 2:L:563:TYR:HB2  | 2.07                     | 0.55              |
| 2:B:491:GLU:OE2  | 2:B:492:ASP:N    | 2.39                     | 0.55              |
| 2:I:702:LEU:CD2  | 2:I:702:LEU:N    | 2.67                     | 0.55              |
| 1:K:65:THR:HB    | 1:K:138:PRO:HA   | 1.88                     | 0.55              |
| 2:B:428:VAL:HG13 | 2:B:689:MET:HE1  | 1.89                     | 0.55              |
| 2:C:579:PHE:N    | 2:C:579:PHE:HD1  | 2.03                     | 0.55              |
| 1:D:229:ARG:HD2  | 1:D:280:VAL:HG22 | 1.89                     | 0.55              |
| 1:D:252:LEU:HD21 | 1:D:274:THR:HB   | 1.88                     | 0.55              |
| 1:D:318:ARG:CD   | 2:E:452:LEU:O    | 2.54                     | 0.55              |
| 1:K:229:ARG:HD2  | 1:K:280:VAL:HG22 | 1.89                     | 0.55              |
| 2:I:345:GLU:OE1  | 2:I:345:GLU:CA   | 2.52                     | 0.55              |
| 2:I:428:VAL:HG13 | 2:I:689:MET:HE1  | 1.89                     | 0.55              |
| 1:D:317:PHE:O    | 2:E:453:ARG:HD3  | 2.07                     | 0.54              |
| 2:J:452:LEU:O    | 1:K:318:ARG:CD   | 2.54                     | 0.54              |
| 2:J:491:GLU:OE1  | 2:J:492:ASP:HA   | 2.06                     | 0.54              |
| 2:E:388:ILE:HD11 | 2:E:666:VAL:HG11 | 1.89                     | 0.54              |
| 2:J:388:ILE:HD11 | 2:J:666:VAL:HG11 | 1.89                     | 0.54              |
| 1:D:218:ASP:HB3  | 1:D:224:LEU:HB2  | 1.89                     | 0.54              |
| 2:E:409:PHE:HE2  | 2:E:486:MET:HB3  | 1.72                     | 0.54              |
| 2:H:579:PHE:N    | 2:H:579:PHE:HD1  | 2.03                     | 0.54              |
| 2:J:453:ARG:HD3  | 1:K:317:PHE:O    | 2.07                     | 0.54              |
| 1:K:57:LEU:HD22  | 1:K:136:ASP:HB2  | 1.89                     | 0.54              |
| 2:E:702:LEU:H    | 2:E:702:LEU:CD2  | 2.18                     | 0.54              |
| 2:J:362:ILE:CG2  | 2:J:363:ASN:N    | 2.70                     | 0.54              |
| 2:J:409:PHE:HE2  | 2:J:486:MET:HB3  | 1.72                     | 0.54              |
| 1:A:15:ARG:HH11  | 1:A:15:ARG:HG3   | 1.71                     | 0.54              |
| 2:B:470:ARG:HH11 | 2:B:470:ARG:HG3  | 1.71                     | 0.54              |
| 1:D:57:LEU:HD22  | 1:D:136:ASP:HB2  | 1.89                     | 0.54              |
| 2:L:570:LEU:HD13 | 2:L:588:LEU:HD13 | 1.90                     | 0.54              |
| 2:F:570:LEU:HD13 | 2:F:588:LEU:HD13 | 1.90                     | 0.54              |
| 2:B:695:GLU:HG3  | 2:E:698:PHE:CZ   | 2.43                     | 0.53              |
| 2:E:491:GLU:CB   | 2:E:491:GLU:O    | 2.55                     | 0.53              |
| 2:E:687:HIS:CG   | 2:E:688:LEU:HD23 | 2.42                     | 0.53              |
| 1:G:274:THR:HB   | 1:G:275:PRO:HD3  | 1.90                     | 0.53              |
| 2:J:687:HIS:CG   | 2:J:688:LEU:HD23 | 2.42                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:E:362:ILE:CG2  | 2:E:363:ASN:N    | 2.70                     | 0.53              |
| 1:A:274:THR:HB   | 1:A:275:PRO:HD3  | 1.90                     | 0.53              |
| 2:B:695:GLU:CD   | 2:E:694:LYS:HZ2  | 1.95                     | 0.53              |
| 2:B:346:GLY:HA3  | 2:I:654:GLN:CB   | 2.39                     | 0.53              |
| 2:E:436:ILE:HG13 | 2:E:464:ILE:HG21 | 1.90                     | 0.53              |
| 2:B:362:ILE:CG2  | 2:B:363:ASN:N    | 2.72                     | 0.53              |
| 1:D:6:MET:HE2    | 1:D:282:ASN:HB3  | 1.91                     | 0.53              |
| 2:H:577:LYS:HE3  | 2:H:577:LYS:H    | 1.73                     | 0.53              |
| 2:I:702:LEU:H    | 2:I:702:LEU:HD22 | 1.74                     | 0.53              |
| 2:B:346:GLY:CA   | 2:I:654:GLN:HB3  | 2.39                     | 0.53              |
| 1:K:36:VAL:HG13  | 1:K:48:LEU:HD13  | 1.91                     | 0.53              |
| 2:C:577:LYS:HE3  | 2:C:577:LYS:H    | 1.73                     | 0.53              |
| 1:D:36:VAL:HG13  | 1:D:48:LEU:HD13  | 1.91                     | 0.53              |
| 1:K:307:ILE:HB   | 1:K:728:MET:HG3  | 1.91                     | 0.53              |
| 2:B:340:PHE:O    | 2:B:341:GLU:C    | 2.43                     | 0.53              |
| 2:B:702:LEU:H    | 2:B:702:LEU:HD22 | 1.74                     | 0.53              |
| 2:J:491:GLU:CB   | 2:J:491:GLU:O    | 2.55                     | 0.53              |
| 2:B:485:TYR:HB3  | 2:J:485:TYR:CE2  | 2.44                     | 0.53              |
| 2:E:485:TYR:CE2  | 2:I:485:TYR:HB3  | 2.44                     | 0.53              |
| 2:I:362:ILE:CG2  | 2:I:363:ASN:N    | 2.72                     | 0.53              |
| 2:J:436:ILE:HG13 | 2:J:464:ILE:HG21 | 1.90                     | 0.53              |
| 2:J:370:PHE:CE1  | 2:J:427:CYS:HB2  | 2.44                     | 0.52              |
| 2:J:370:PHE:N    | 2:J:371:PRO:HD2  | 2.24                     | 0.52              |
| 2:J:688:LEU:O    | 2:J:689:MET:C    | 2.46                     | 0.52              |
| 1:A:33:GLN:HB2   | 1:A:133:THR:HB   | 1.90                     | 0.52              |
| 2:C:574:ASP:H    | 2:C:630:VAL:HG21 | 1.74                     | 0.52              |
| 2:I:702:LEU:N    | 2:I:702:LEU:HD22 | 2.24                     | 0.52              |
| 2:I:459:ILE:HD13 | 2:I:704:ASN:HB3  | 1.90                     | 0.52              |
| 2:J:417:VAL:HG21 | 2:J:482:GLU:HB2  | 1.90                     | 0.52              |
| 2:L:577:LYS:HE3  | 2:L:577:LYS:H    | 1.74                     | 0.52              |
| 1:D:318:ARG:HB2  | 2:E:453:ARG:N    | 2.24                     | 0.52              |
| 2:H:574:ASP:H    | 2:H:630:VAL:HG21 | 1.74                     | 0.52              |
| 2:J:451:ARG:O    | 1:K:318:ARG:CD   | 2.55                     | 0.52              |
| 2:B:459:ILE:HD13 | 2:B:704:ASN:HB3  | 1.90                     | 0.52              |
| 1:D:318:ARG:CD   | 2:E:451:ARG:O    | 2.55                     | 0.52              |
| 2:J:453:ARG:N    | 1:K:318:ARG:HB2  | 2.24                     | 0.52              |
| 1:G:33:GLN:HB2   | 1:G:133:THR:HB   | 1.90                     | 0.52              |
| 2:E:370:PHE:N    | 2:E:371:PRO:HD2  | 2.24                     | 0.52              |
| 2:B:702:LEU:N    | 2:B:702:LEU:HD22 | 2.24                     | 0.52              |
| 2:E:370:PHE:CE1  | 2:E:427:CYS:HB2  | 2.44                     | 0.52              |
| 2:E:490:HIS:CD2  | 2:I:490:HIS:HA   | 2.45                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:I:688:LEU:O    | 2:I:689:MET:C    | 2.45                     | 0.52              |
| 2:E:417:VAL:HG21 | 2:E:482:GLU:HB2  | 1.90                     | 0.52              |
| 2:F:577:LYS:HE3  | 2:F:577:LYS:H    | 1.75                     | 0.52              |
| 1:G:31:LEU:HD21  | 1:G:130:LEU:HD12 | 1.92                     | 0.52              |
| 2:J:453:ARG:CA   | 1:K:318:ARG:CB   | 2.84                     | 0.52              |
| 2:B:688:LEU:O    | 2:B:689:MET:C    | 2.45                     | 0.52              |
| 2:I:340:PHE:O    | 2:I:341:GLU:C    | 2.43                     | 0.52              |
| 2:B:384:LEU:HD22 | 2:B:670:MET:HG2  | 1.92                     | 0.51              |
| 2:E:371:PRO:HA   | 2:E:374:LEU:HD23 | 1.92                     | 0.51              |
| 2:J:371:PRO:HA   | 2:J:374:LEU:HD23 | 1.92                     | 0.51              |
| 1:K:232:ILE:HD11 | 1:K:276:TYR:HD2  | 1.75                     | 0.51              |
| 1:A:31:LEU:HD21  | 1:A:130:LEU:HD12 | 1.92                     | 0.51              |
| 2:J:445:LYS:CA   | 1:K:317:PHE:CE2  | 2.93                     | 0.51              |
| 2:B:490:HIS:HA   | 2:J:490:HIS:CD2  | 2.45                     | 0.51              |
| 1:D:307:ILE:HB   | 1:D:728:MET:HG3  | 1.91                     | 0.51              |
| 1:D:318:ARG:HB3  | 2:E:454:GLU:N    | 2.22                     | 0.51              |
| 2:J:453:ARG:HG2  | 1:K:318:ARG:O    | 2.11                     | 0.51              |
| 2:E:340:PHE:O    | 2:E:341:GLU:C    | 2.48                     | 0.51              |
| 2:C:545:LEU:HD13 | 2:C:550:LEU:HD13 | 1.93                     | 0.51              |
| 2:C:587:ALA:HB1  | 2:C:602:GLN:HB2  | 1.93                     | 0.51              |
| 1:D:232:ILE:HD11 | 1:D:276:TYR:HD2  | 1.76                     | 0.51              |
| 2:I:337:ALA:HB1  | 2:I:698:PHE:CD1  | 2.46                     | 0.51              |
| 2:L:579:PHE:HD1  | 2:L:579:PHE:H    | 1.59                     | 0.51              |
| 2:B:337:ALA:HB1  | 2:B:698:PHE:CD1  | 2.46                     | 0.51              |
| 1:G:300:LEU:HB3  | 1:G:735:LEU:HD22 | 1.92                     | 0.51              |
| 1:K:66:ARG:O     | 1:K:67:ARG:HG3   | 2.11                     | 0.51              |
| 1:K:74:VAL:HG21  | 1:K:123:ARG:HH21 | 1.76                     | 0.51              |
| 1:K:221:GLU:HG2  | 1:K:268:LEU:HD11 | 1.92                     | 0.51              |
| 2:H:587:ALA:HB1  | 2:H:602:GLN:HB2  | 1.93                     | 0.51              |
| 2:I:384:LEU:HD22 | 2:I:670:MET:HG2  | 1.92                     | 0.51              |
| 1:A:83:PHE:HB2   | 1:A:86:CYS:HB2   | 1.94                     | 0.50              |
| 2:B:491:GLU:O    | 2:B:491:GLU:HG2  | 2.10                     | 0.50              |
| 1:D:318:ARG:O    | 2:E:453:ARG:HG2  | 2.11                     | 0.50              |
| 2:J:340:PHE:O    | 2:J:341:GLU:C    | 2.48                     | 0.50              |
| 1:G:83:PHE:HB2   | 1:G:86:CYS:HB2   | 1.94                     | 0.50              |
| 2:H:545:LEU:HD13 | 2:H:550:LEU:HD13 | 1.93                     | 0.50              |
| 2:J:454:GLU:N    | 1:K:318:ARG:HB3  | 2.22                     | 0.50              |
| 2:J:450:PRO:HB2  | 1:K:314:TYR:HH   | 1.75                     | 0.50              |
| 1:A:300:LEU:HB3  | 1:A:735:LEU:HD22 | 1.92                     | 0.50              |
| 2:E:478:LEU:HA   | 2:E:481:ILE:HD12 | 1.94                     | 0.50              |
| 2:I:329:LEU:HD23 | 2:I:706:TYR:CE1  | 2.47                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:I:491:GLU:O    | 2:I:491:GLU:HG2  | 2.10                     | 0.50              |
| 2:L:545:LEU:HD13 | 2:L:550:LEU:HD13 | 1.94                     | 0.50              |
| 2:C:526:LEU:HB2  | 2:C:543:PHE:CE1  | 2.46                     | 0.50              |
| 1:D:66:ARG:O     | 1:D:67:ARG:HG3   | 2.11                     | 0.50              |
| 2:H:526:LEU:HB2  | 2:H:543:PHE:CE1  | 2.46                     | 0.50              |
| 2:B:329:LEU:HD23 | 2:B:706:TYR:CE1  | 2.47                     | 0.50              |
| 2:B:700:GLU:N    | 2:E:699:SER:OG   | 2.44                     | 0.50              |
| 2:E:345:GLU:OE1  | 2:E:345:GLU:CA   | 2.57                     | 0.50              |
| 2:L:596:VAL:HG11 | 2:L:603:LEU:HB2  | 1.93                     | 0.50              |
| 1:D:221:GLU:HG2  | 1:D:268:LEU:HD11 | 1.92                     | 0.50              |
| 1:D:317:PHE:CE2  | 2:E:445:LYS:CA   | 2.93                     | 0.50              |
| 2:E:387:GLU:HB2  | 2:E:412:ILE:HG23 | 1.94                     | 0.50              |
| 2:F:545:LEU:HD13 | 2:F:550:LEU:HD13 | 1.94                     | 0.50              |
| 2:F:579:PHE:HD1  | 2:F:579:PHE:H    | 1.59                     | 0.50              |
| 2:B:707:SER:H    | 2:E:704:ASN:ND2  | 2.07                     | 0.50              |
| 2:J:340:PHE:CE2  | 2:J:694:LYS:HA   | 2.45                     | 0.50              |
| 2:J:478:LEU:HA   | 2:J:481:ILE:HD12 | 1.94                     | 0.50              |
| 1:K:303:GLN:HE21 | 1:K:735:LEU:HD21 | 1.77                     | 0.50              |
| 2:C:553:TYR:CG   | 2:C:558:GLU:HG2  | 2.47                     | 0.49              |
| 1:D:74:VAL:HG21  | 1:D:123:ARG:HH21 | 1.76                     | 0.49              |
| 2:J:345:GLU:OE1  | 2:J:345:GLU:CA   | 2.57                     | 0.49              |
| 2:J:453:ARG:N    | 1:K:318:ARG:N    | 2.60                     | 0.49              |
| 2:F:596:VAL:HG11 | 2:F:603:LEU:HB2  | 1.93                     | 0.49              |
| 1:G:140:MET:HE2  | 1:G:160:LEU:HD21 | 1.92                     | 0.49              |
| 2:J:387:GLU:HB2  | 2:J:412:ILE:HG23 | 1.94                     | 0.49              |
| 2:J:362:ILE:HG23 | 2:J:363:ASN:N    | 2.27                     | 0.49              |
| 1:K:6:MET:HE2    | 1:K:282:ASN:HB3  | 1.95                     | 0.49              |
| 1:D:303:GLN:HE21 | 1:D:735:LEU:HD21 | 1.77                     | 0.49              |
| 2:E:688:LEU:O    | 2:E:689:MET:C    | 2.46                     | 0.49              |
| 2:B:334:GLN:NE2  | 2:E:692:ASN:HD21 | 2.11                     | 0.49              |
| 2:C:579:PHE:HD1  | 2:C:579:PHE:H    | 1.59                     | 0.49              |
| 2:E:370:PHE:CE2  | 2:E:374:LEU:HD21 | 2.48                     | 0.49              |
| 1:G:37:VAL:HG22  | 1:G:171:ILE:HG23 | 1.94                     | 0.49              |
| 2:H:553:TYR:CG   | 2:H:558:GLU:HG2  | 2.47                     | 0.49              |
| 2:B:467:ARG:HE   | 2:E:334:GLN:HG3  | 1.77                     | 0.49              |
| 1:D:318:ARG:N    | 2:E:453:ARG:N    | 2.60                     | 0.49              |
| 1:K:135:VAL:HG12 | 1:K:137:LEU:HG   | 1.94                     | 0.49              |
| 1:A:83:PHE:CZ    | 1:A:97:VAL:HG13  | 2.43                     | 0.49              |
| 2:F:525:TRP:HB3  | 2:F:540:GLU:HG2  | 1.95                     | 0.49              |
| 2:I:384:LEU:HD11 | 2:I:412:ILE:HG22 | 1.94                     | 0.49              |
| 1:A:217:ARG:HD2  | 1:A:264:SER:HB3  | 1.94                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:135:VAL:HG12 | 1:D:137:LEU:HG   | 1.94                     | 0.49              |
| 2:L:525:TRP:HB3  | 2:L:540:GLU:HG2  | 1.95                     | 0.49              |
| 1:A:140:MET:HE2  | 1:A:160:LEU:HD21 | 1.93                     | 0.49              |
| 2:J:328:ALA:HB2  | 1:K:316:ASN:ND2  | 2.27                     | 0.49              |
| 2:E:676:THR:HG22 | 2:E:680:LEU:HD22 | 1.93                     | 0.49              |
| 2:J:332:MET:SD   | 1:K:317:PHE:CE2  | 3.06                     | 0.49              |
| 1:A:37:VAL:HG22  | 1:A:171:ILE:HG23 | 1.94                     | 0.48              |
| 1:A:40:GLN:O     | 1:A:41:SER:HB3   | 2.13                     | 0.48              |
| 1:D:229:ARG:HG3  | 1:D:280:VAL:CG1  | 2.43                     | 0.48              |
| 2:I:377:MET:HG3  | 2:I:422:GLU:HG2  | 1.95                     | 0.48              |
| 1:D:317:PHE:CE2  | 2:E:332:MET:SD   | 3.06                     | 0.48              |
| 1:G:217:ARG:HD2  | 1:G:264:SER:HB3  | 1.94                     | 0.48              |
| 2:H:579:PHE:HD1  | 2:H:579:PHE:H    | 1.59                     | 0.48              |
| 2:J:370:PHE:CE2  | 2:J:374:LEU:HD21 | 2.48                     | 0.48              |
| 2:J:676:THR:HG22 | 2:J:680:LEU:HD22 | 1.93                     | 0.48              |
| 2:B:461:THR:HB   | 2:B:465:ARG:HE   | 1.79                     | 0.48              |
| 2:B:703:ALA:HB1  | 2:E:700:GLU:C    | 2.33                     | 0.48              |
| 2:I:370:PHE:N    | 2:I:371:PRO:HD2  | 2.28                     | 0.48              |
| 2:B:370:PHE:N    | 2:B:371:PRO:HD2  | 2.28                     | 0.48              |
| 2:E:340:PHE:CE2  | 2:E:694:LYS:HA   | 2.45                     | 0.48              |
| 2:J:370:PHE:CZ   | 2:J:374:LEU:HD21 | 2.49                     | 0.48              |
| 1:A:33:GLN:CB    | 1:A:133:THR:HB   | 2.43                     | 0.48              |
| 2:B:377:MET:HG3  | 2:B:422:GLU:HG2  | 1.95                     | 0.48              |
| 1:D:221:GLU:CG   | 1:D:268:LEU:HD11 | 2.44                     | 0.48              |
| 2:B:384:LEU:HD11 | 2:B:412:ILE:HG22 | 1.94                     | 0.48              |
| 1:G:33:GLN:CB    | 1:G:133:THR:HB   | 2.43                     | 0.48              |
| 1:K:229:ARG:HG3  | 1:K:280:VAL:CG1  | 2.43                     | 0.48              |
| 2:B:362:ILE:HG23 | 2:B:363:ASN:N    | 2.29                     | 0.48              |
| 2:E:362:ILE:HG23 | 2:E:363:ASN:N    | 2.27                     | 0.48              |
| 2:E:370:PHE:CZ   | 2:E:374:LEU:HD21 | 2.49                     | 0.48              |
| 1:G:40:GLN:O     | 1:G:41:SER:HB3   | 2.13                     | 0.48              |
| 1:K:221:GLU:CG   | 1:K:268:LEU:HD11 | 2.44                     | 0.48              |
| 2:B:371:PRO:HA   | 2:B:374:LEU:HD23 | 1.96                     | 0.48              |
| 1:D:318:ARG:N    | 2:E:453:ARG:H    | 2.11                     | 0.48              |
| 2:I:461:THR:HB   | 2:I:465:ARG:HE   | 1.78                     | 0.48              |
| 2:B:370:PHE:CE1  | 2:B:427:CYS:HB2  | 2.49                     | 0.48              |
| 2:I:361:ARG:O    | 2:I:362:ILE:C    | 2.52                     | 0.48              |
| 2:I:362:ILE:HG23 | 2:I:363:ASN:N    | 2.29                     | 0.48              |
| 2:B:452:LEU:HD11 | 2:B:456:MET:HE3  | 1.96                     | 0.47              |
| 2:B:687:HIS:HD2  | 2:B:688:LEU:HD21 | 1.77                     | 0.47              |
| 2:J:449:TYR:CB   | 1:K:316:ASN:N    | 2.58                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:485:TYR:CD1  | 2:J:481:ILE:HG21 | 2.49                     | 0.47              |
| 1:G:173:ALA:HB1  | 1:G:187:LEU:HD23 | 1.97                     | 0.47              |
| 2:J:384:LEU:HD22 | 2:J:670:MET:HB2  | 1.96                     | 0.47              |
| 1:A:173:ALA:HB1  | 1:A:187:LEU:HD23 | 1.96                     | 0.47              |
| 2:B:409:PHE:CE2  | 2:B:486:MET:HE3  | 2.49                     | 0.47              |
| 2:I:409:PHE:CE2  | 2:I:486:MET:HE3  | 2.49                     | 0.47              |
| 2:I:428:VAL:HG22 | 2:I:689:MET:HE2  | 1.97                     | 0.47              |
| 2:J:453:ARG:H    | 1:K:318:ARG:N    | 2.11                     | 0.47              |
| 1:A:9:LEU:HG     | 1:A:286:THR:HG23 | 1.95                     | 0.47              |
| 2:B:361:ARG:O    | 2:B:362:ILE:C    | 2.52                     | 0.47              |
| 2:B:380:ASP:OD1  | 2:B:380:ASP:N    | 2.48                     | 0.47              |
| 1:D:12:LEU:HG    | 1:D:745:ILE:HG12 | 1.96                     | 0.47              |
| 1:D:42:ALA:HB1   | 1:D:174:VAL:HB   | 1.97                     | 0.47              |
| 2:E:702:LEU:HD23 | 2:E:702:LEU:N    | 2.25                     | 0.47              |
| 1:G:9:LEU:HG     | 1:G:286:THR:HG23 | 1.95                     | 0.47              |
| 1:K:12:LEU:HG    | 1:K:745:ILE:HG12 | 1.96                     | 0.47              |
| 1:K:201:ILE:HD12 | 1:K:277:LEU:HD12 | 1.95                     | 0.47              |
| 1:D:201:ILE:HD12 | 1:D:277:LEU:HD12 | 1.95                     | 0.47              |
| 2:E:384:LEU:HD11 | 2:E:412:ILE:HG22 | 1.96                     | 0.47              |
| 2:E:481:ILE:HG21 | 2:I:485:TYR:CD1  | 2.49                     | 0.47              |
| 2:H:567:VAL:HA   | 2:H:570:LEU:CD1  | 2.45                     | 0.47              |
| 2:J:384:LEU:HD11 | 2:J:412:ILE:HG22 | 1.96                     | 0.47              |
| 2:B:346:GLY:HA3  | 2:I:654:GLN:HB3  | 1.96                     | 0.47              |
| 2:C:567:VAL:HA   | 2:C:570:LEU:CD1  | 2.45                     | 0.47              |
| 2:E:384:LEU:HD22 | 2:E:670:MET:HB2  | 1.97                     | 0.47              |
| 2:I:374:LEU:HD13 | 2:I:423:PRO:CB   | 2.44                     | 0.47              |
| 2:I:452:LEU:HD13 | 2:I:452:LEU:O    | 2.15                     | 0.47              |
| 2:J:452:LEU:C    | 1:K:318:ARG:CD   | 2.83                     | 0.47              |
| 1:K:42:ALA:HB1   | 1:K:174:VAL:HB   | 1.97                     | 0.47              |
| 1:K:60:GLY:N     | 1:K:64:VAL:HG13  | 2.30                     | 0.47              |
| 2:B:414:LYS:HB3  | 2:B:483:LEU:HD23 | 1.97                     | 0.47              |
| 2:B:707:SER:C    | 2:E:458:ARG:HH22 | 2.18                     | 0.47              |
| 1:D:317:PHE:O    | 2:E:453:ARG:CG   | 2.60                     | 0.47              |
| 2:E:428:VAL:HG13 | 2:E:689:MET:CE   | 2.45                     | 0.47              |
| 2:I:702:LEU:H    | 2:I:702:LEU:HD23 | 1.76                     | 0.47              |
| 2:J:444:LYS:CA   | 1:K:317:PHE:CG   | 2.87                     | 0.47              |
| 2:B:374:LEU:HD13 | 2:B:423:PRO:CB   | 2.44                     | 0.47              |
| 1:D:67:ARG:HH21  | 1:D:120:ILE:HG12 | 1.80                     | 0.47              |
| 2:I:380:ASP:N    | 2:I:380:ASP:OD1  | 2.48                     | 0.47              |
| 2:I:687:HIS:HD2  | 2:I:688:LEU:HD21 | 1.77                     | 0.47              |
| 1:K:67:ARG:HH21  | 1:K:120:ILE:HG12 | 1.80                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:452:LEU:HD13 | 2:B:452:LEU:O    | 2.15                     | 0.47              |
| 2:L:589:PHE:CE2  | 2:L:591:THR:HG22 | 2.50                     | 0.47              |
| 1:A:205:THR:HG22 | 1:A:236:ASN:HD22 | 1.81                     | 0.46              |
| 1:G:205:THR:HG22 | 1:G:236:ASN:HD22 | 1.81                     | 0.46              |
| 2:I:370:PHE:CE1  | 2:I:427:CYS:HB2  | 2.49                     | 0.46              |
| 2:J:361:ARG:O    | 2:J:362:ILE:C    | 2.51                     | 0.46              |
| 1:D:318:ARG:CB   | 2:E:453:ARG:CA   | 2.84                     | 0.46              |
| 2:E:460:VAL:HA   | 2:E:696:PHE:CE1  | 2.50                     | 0.46              |
| 2:F:589:PHE:CE2  | 2:F:591:THR:HG22 | 2.50                     | 0.46              |
| 2:F:600:TYR:O    | 2:F:601:ARG:HB2  | 2.15                     | 0.46              |
| 2:H:600:TYR:O    | 2:H:601:ARG:HB2  | 2.15                     | 0.46              |
| 1:K:16:LEU:HD11  | 1:K:20:PHE:HE1   | 1.80                     | 0.46              |
| 2:B:485:TYR:CD1  | 2:J:481:ILE:HD13 | 2.51                     | 0.46              |
| 2:E:481:ILE:HD13 | 2:I:485:TYR:CD1  | 2.51                     | 0.46              |
| 2:H:586:PHE:CD1  | 2:H:613:VAL:HG13 | 2.51                     | 0.46              |
| 2:I:414:LYS:HB3  | 2:I:483:LEU:HD23 | 1.97                     | 0.46              |
| 2:J:391:ALA:HB1  | 2:J:408:ALA:HA   | 1.96                     | 0.46              |
| 2:B:428:VAL:HG22 | 2:B:689:MET:HE2  | 1.96                     | 0.46              |
| 2:B:703:ALA:CA   | 2:E:700:GLU:CA   | 2.92                     | 0.46              |
| 2:E:391:ALA:HB1  | 2:E:408:ALA:HA   | 1.96                     | 0.46              |
| 2:E:435:LEU:HD11 | 2:E:693:THR:CB   | 2.45                     | 0.46              |
| 1:D:318:ARG:CD   | 2:E:452:LEU:C    | 2.83                     | 0.46              |
| 2:F:572:LEU:CD2  | 2:F:617:LYS:HE2  | 2.45                     | 0.46              |
| 2:I:371:PRO:HA   | 2:I:374:LEU:HD23 | 1.96                     | 0.46              |
| 2:C:600:TYR:O    | 2:C:601:ARG:HB2  | 2.16                     | 0.46              |
| 2:E:489:ASN:HB2  | 2:I:669:TYR:CZ   | 2.51                     | 0.46              |
| 2:B:669:TYR:CZ   | 2:J:489:ASN:HB2  | 2.51                     | 0.46              |
| 2:B:702:LEU:H    | 2:B:702:LEU:HD23 | 1.76                     | 0.46              |
| 2:C:586:PHE:CD1  | 2:C:613:VAL:HG13 | 2.50                     | 0.46              |
| 1:D:39:GLY:N     | 1:D:186:ALA:HB2  | 2.31                     | 0.46              |
| 1:D:316:ASN:ND2  | 2:E:328:ALA:HB2  | 2.27                     | 0.46              |
| 2:J:452:LEU:HD11 | 2:J:456:MET:HE3  | 1.98                     | 0.46              |
| 2:J:455:GLU:N    | 1:K:318:ARG:NE   | 2.61                     | 0.46              |
| 2:J:460:VAL:HA   | 2:J:696:PHE:CE1  | 2.50                     | 0.46              |
| 2:L:600:TYR:O    | 2:L:601:ARG:HB2  | 2.15                     | 0.46              |
| 1:A:170:LEU:HD22 | 1:A:201:ILE:CG1  | 2.46                     | 0.46              |
| 2:B:692:ASN:CA   | 2:E:341:GLU:OE2  | 2.62                     | 0.46              |
| 1:G:259:PHE:HB3  | 1:G:272:MET:HB3  | 1.98                     | 0.46              |
| 1:K:12:LEU:CG    | 1:K:745:ILE:HG12 | 2.45                     | 0.46              |
| 2:B:338:VAL:CB   | 2:E:687:HIS:HE1  | 2.29                     | 0.46              |
| 2:E:361:ARG:O    | 2:E:362:ILE:C    | 2.51                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:E:406:ASP:OD1  | 2:E:407:MET:N    | 2.49                     | 0.46              |
| 2:I:369:ARG:C    | 2:I:369:ARG:CD   | 2.84                     | 0.46              |
| 1:K:39:GLY:N     | 1:K:186:ALA:HB2  | 2.31                     | 0.46              |
| 1:K:63:ILE:CD1   | 1:K:115:ILE:HG21 | 2.46                     | 0.46              |
| 2:L:572:LEU:CD2  | 2:L:617:LYS:HE2  | 2.45                     | 0.46              |
| 2:B:467:ARG:CZ   | 2:E:334:GLN:HG2  | 2.42                     | 0.46              |
| 2:E:346:GLY:HA3  | 2:E:360:ALA:HB2  | 1.98                     | 0.46              |
| 2:E:428:VAL:HG11 | 2:E:472:LYS:HG3  | 1.98                     | 0.46              |
| 1:G:170:LEU:HD22 | 1:G:201:ILE:CG1  | 2.46                     | 0.46              |
| 2:J:346:GLY:HA3  | 2:J:360:ALA:HB2  | 1.98                     | 0.46              |
| 1:A:29:LEU:HD12  | 1:A:29:LEU:N     | 2.31                     | 0.45              |
| 1:A:80:TYR:HB2   | 1:A:90:LYS:HB3   | 1.98                     | 0.45              |
| 2:B:702:LEU:CG   | 2:E:700:GLU:OE2  | 2.64                     | 0.45              |
| 1:D:63:ILE:CD1   | 1:D:115:ILE:HG21 | 2.46                     | 0.45              |
| 1:D:170:LEU:HD11 | 1:D:199:ARG:HB2  | 1.98                     | 0.45              |
| 1:G:80:TYR:HB2   | 1:G:90:LYS:HB3   | 1.98                     | 0.45              |
| 2:B:369:ARG:CD   | 2:B:369:ARG:C    | 2.84                     | 0.45              |
| 1:D:16:LEU:HD11  | 1:D:20:PHE:HE1   | 1.80                     | 0.45              |
| 2:F:523:LYS:HE2  | 2:F:544:VAL:HG13 | 1.97                     | 0.45              |
| 2:J:409:PHE:CE2  | 2:J:486:MET:HB3  | 2.51                     | 0.45              |
| 1:D:20:PHE:CB    | 1:D:27:ALA:HA    | 2.46                     | 0.45              |
| 2:E:369:ARG:C    | 2:E:369:ARG:CD   | 2.85                     | 0.45              |
| 2:J:369:ARG:C    | 2:J:369:ARG:CD   | 2.85                     | 0.45              |
| 1:K:20:PHE:CB    | 1:K:27:ALA:HA    | 2.47                     | 0.45              |
| 1:G:309:LYS:NZ   | 1:G:309:LYS:HB3  | 2.31                     | 0.45              |
| 2:J:428:VAL:HG11 | 2:J:472:LYS:HG3  | 1.98                     | 0.45              |
| 2:L:523:LYS:HE2  | 2:L:544:VAL:HG13 | 1.97                     | 0.45              |
| 1:A:51:PHE:CD1   | 1:A:281:LEU:HD12 | 2.51                     | 0.45              |
| 2:B:375:VAL:HG13 | 2:B:629:ARG:NH1  | 2.32                     | 0.45              |
| 2:E:435:LEU:HD21 | 2:E:693:THR:HG21 | 1.99                     | 0.45              |
| 2:E:684:THR:HG22 | 2:E:685:ILE:N    | 2.32                     | 0.45              |
| 1:G:29:LEU:N     | 1:G:29:LEU:HD12  | 2.31                     | 0.45              |
| 2:J:380:ASP:OD1  | 2:J:380:ASP:N    | 2.49                     | 0.45              |
| 2:J:435:LEU:HD11 | 2:J:693:THR:CB   | 2.45                     | 0.45              |
| 2:J:459:ILE:HD11 | 2:J:704:ASN:HD22 | 1.82                     | 0.45              |
| 1:A:259:PHE:HB3  | 1:A:272:MET:HB3  | 1.98                     | 0.45              |
| 1:D:12:LEU:CG    | 1:D:745:ILE:HG12 | 2.45                     | 0.45              |
| 1:D:318:ARG:HB3  | 2:E:454:GLU:HA   | 1.99                     | 0.45              |
| 1:D:318:ARG:O    | 2:E:453:ARG:CG   | 2.65                     | 0.45              |
| 2:E:384:LEU:HD22 | 2:E:670:MET:CG   | 2.46                     | 0.45              |
| 2:E:459:ILE:HD11 | 2:E:704:ASN:HD22 | 1.82                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:51:PHE:CD1   | 1:G:281:LEU:HD12 | 2.51                     | 0.45              |
| 2:J:452:LEU:C    | 1:K:318:ARG:HD3  | 2.37                     | 0.45              |
| 1:D:318:ARG:HD3  | 2:E:452:LEU:C    | 2.37                     | 0.45              |
| 2:E:380:ASP:OD1  | 2:E:380:ASP:N    | 2.49                     | 0.45              |
| 2:F:571:LYS:HD3  | 2:F:591:THR:HG21 | 1.99                     | 0.45              |
| 1:G:9:LEU:HD23   | 1:G:290:ARG:CZ   | 2.46                     | 0.45              |
| 2:J:435:LEU:HD21 | 2:J:693:THR:HG21 | 1.99                     | 0.45              |
| 1:K:290:ARG:HD3  | 1:K:745:ILE:CG2  | 2.46                     | 0.45              |
| 1:D:63:ILE:HD13  | 1:D:115:ILE:HG21 | 1.98                     | 0.45              |
| 2:I:375:VAL:HG13 | 2:I:629:ARG:NH1  | 2.32                     | 0.45              |
| 2:J:384:LEU:HD22 | 2:J:670:MET:CG   | 2.46                     | 0.45              |
| 2:J:454:GLU:HA   | 1:K:318:ARG:HB3  | 1.98                     | 0.45              |
| 1:K:42:ALA:HB1   | 1:K:174:VAL:CG1  | 2.47                     | 0.45              |
| 1:K:170:LEU:HD11 | 1:K:199:ARG:HB2  | 1.98                     | 0.45              |
| 1:A:9:LEU:HD23   | 1:A:290:ARG:CZ   | 2.46                     | 0.45              |
| 1:A:309:LYS:NZ   | 1:A:309:LYS:HB3  | 2.31                     | 0.45              |
| 1:D:317:PHE:HE2  | 2:E:332:MET:SD   | 2.40                     | 0.45              |
| 2:J:406:ASP:OD1  | 2:J:407:MET:N    | 2.49                     | 0.45              |
| 2:J:453:ARG:CG   | 1:K:318:ARG:O    | 2.65                     | 0.45              |
| 2:J:687:HIS:HD2  | 2:J:688:LEU:HD21 | 1.79                     | 0.45              |
| 1:K:55:ASP:HB3   | 1:K:98:ARG:HD3   | 1.98                     | 0.45              |
| 2:B:684:THR:HG22 | 2:B:685:ILE:N    | 2.31                     | 0.45              |
| 2:E:329:LEU:HD12 | 2:E:329:LEU:HA   | 1.87                     | 0.45              |
| 2:E:373:GLU:HG2  | 2:E:426:LYS:HD3  | 1.99                     | 0.45              |
| 2:E:409:PHE:CE2  | 2:E:486:MET:HB3  | 2.51                     | 0.45              |
| 2:I:370:PHE:CZ   | 2:I:374:LEU:HD21 | 2.52                     | 0.45              |
| 2:I:684:THR:HG22 | 2:I:685:ILE:N    | 2.31                     | 0.45              |
| 2:L:571:LYS:HD3  | 2:L:591:THR:HG21 | 1.99                     | 0.45              |
| 2:C:613:VAL:HG12 | 2:C:617:LYS:HE2  | 1.98                     | 0.44              |
| 1:D:9:LEU:HD22   | 1:D:286:THR:HA   | 1.99                     | 0.44              |
| 1:D:12:LEU:HD23  | 1:D:745:ILE:HG23 | 1.99                     | 0.44              |
| 1:D:55:ASP:HB3   | 1:D:98:ARG:HD3   | 1.98                     | 0.44              |
| 1:D:307:ILE:CB   | 1:D:728:MET:HG3  | 2.47                     | 0.44              |
| 1:D:313:GLU:HB2  | 2:E:448:GLN:CB   | 2.42                     | 0.44              |
| 1:D:318:ARG:NE   | 2:E:455:GLU:N    | 2.61                     | 0.44              |
| 2:E:692:ASN:C    | 2:E:692:ASN:ND2  | 2.70                     | 0.44              |
| 1:G:176:PRO:CB   | 1:G:206:LYS:HD2  | 2.46                     | 0.44              |
| 2:J:373:GLU:HG2  | 2:J:426:LYS:HD3  | 1.99                     | 0.44              |
| 2:J:456:MET:HE2  | 2:J:456:MET:HB2  | 1.75                     | 0.44              |
| 2:J:684:THR:HG22 | 2:J:685:ILE:N    | 2.32                     | 0.44              |
| 1:K:303:GLN:NE2  | 1:K:735:LEU:HD21 | 2.32                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:307:ILE:CB   | 1:K:728:MET:HG3  | 2.47                     | 0.44              |
| 2:C:572:LEU:HB2  | 2:C:625:VAL:HG12 | 2.00                     | 0.44              |
| 1:G:46:SER:HA    | 1:G:237:ARG:HH21 | 1.82                     | 0.44              |
| 1:A:209:LEU:HD11 | 1:A:238:SER:CB   | 2.47                     | 0.44              |
| 2:B:698:PHE:HB2  | 2:E:695:GLU:OE1  | 2.18                     | 0.44              |
| 1:D:290:ARG:HD3  | 1:D:745:ILE:CG2  | 2.46                     | 0.44              |
| 1:D:318:ARG:C    | 2:E:453:ARG:HG2  | 2.31                     | 0.44              |
| 2:E:340:PHE:CZ   | 2:E:439:VAL:HG12 | 2.53                     | 0.44              |
| 2:J:340:PHE:CZ   | 2:J:439:VAL:HG12 | 2.53                     | 0.44              |
| 1:K:9:LEU:HD22   | 1:K:286:THR:HA   | 2.00                     | 0.44              |
| 1:K:12:LEU:HD23  | 1:K:745:ILE:HG23 | 1.99                     | 0.44              |
| 2:B:370:PHE:CZ   | 2:B:374:LEU:HD21 | 2.52                     | 0.44              |
| 2:B:664:ASN:HD22 | 2:B:664:ASN:HA   | 1.60                     | 0.44              |
| 2:H:572:LEU:HB2  | 2:H:625:VAL:HG12 | 2.00                     | 0.44              |
| 2:I:388:ILE:CG1  | 2:I:666:VAL:HG21 | 2.48                     | 0.44              |
| 2:J:449:TYR:CD1  | 1:K:316:ASN:CB   | 3.00                     | 0.44              |
| 2:B:388:ILE:CG1  | 2:B:666:VAL:HG21 | 2.48                     | 0.44              |
| 1:G:31:LEU:CD2   | 1:G:130:LEU:HD12 | 2.48                     | 0.44              |
| 2:H:613:VAL:HG12 | 2:H:617:LYS:HE2  | 1.98                     | 0.44              |
| 1:K:63:ILE:HD13  | 1:K:115:ILE:HG21 | 1.98                     | 0.44              |
| 1:D:12:LEU:HD23  | 1:D:745:ILE:HG12 | 2.00                     | 0.44              |
| 1:D:177:ALA:HB1  | 1:D:210:MET:SD   | 2.58                     | 0.44              |
| 2:E:687:HIS:HD2  | 2:E:688:LEU:HD21 | 1.79                     | 0.44              |
| 2:J:391:ALA:HB1  | 2:J:408:ALA:CA   | 2.48                     | 0.44              |
| 1:K:140:MET:SD   | 1:K:157:ARG:HG3  | 2.57                     | 0.44              |
| 1:A:46:SER:HA    | 1:A:237:ARG:HH21 | 1.82                     | 0.44              |
| 1:A:83:PHE:CZ    | 1:A:122:LEU:HD22 | 2.53                     | 0.44              |
| 1:D:303:GLN:NE2  | 1:D:735:LEU:HD21 | 2.32                     | 0.44              |
| 1:G:83:PHE:CZ    | 1:G:97:VAL:HG13  | 2.43                     | 0.44              |
| 2:H:526:LEU:HB2  | 2:H:543:PHE:CD1  | 2.53                     | 0.44              |
| 1:K:282:ASN:HD22 | 1:K:282:ASN:HA   | 1.66                     | 0.44              |
| 1:A:98:ARG:HA    | 1:A:101:ILE:HD12 | 1.99                     | 0.44              |
| 1:A:176:PRO:CB   | 1:A:206:LYS:HD2  | 2.46                     | 0.44              |
| 2:B:341:GLU:CD   | 2:E:691:ASN:HD22 | 2.19                     | 0.44              |
| 1:D:42:ALA:HB1   | 1:D:174:VAL:CG1  | 2.47                     | 0.44              |
| 2:E:391:ALA:HB1  | 2:E:408:ALA:CA   | 2.48                     | 0.44              |
| 2:I:672:ILE:C    | 2:I:672:ILE:HD12 | 2.38                     | 0.44              |
| 2:J:453:ARG:CG   | 1:K:317:PHE:O    | 2.60                     | 0.44              |
| 2:B:330:LEU:HA   | 2:E:467:ARG:HH22 | 1.82                     | 0.44              |
| 1:D:140:MET:SD   | 1:D:157:ARG:HG3  | 2.57                     | 0.44              |
| 1:G:209:LEU:HD11 | 1:G:238:SER:CB   | 2.47                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:I:494:ILE:HG22 | 2:I:495:GLY:N    | 2.33                     | 0.44              |
| 1:K:87:LYS:HD3   | 1:K:87:LYS:N     | 2.33                     | 0.44              |
| 2:B:672:ILE:C    | 2:B:672:ILE:HD12 | 2.38                     | 0.43              |
| 1:D:87:LYS:HD3   | 1:D:87:LYS:N     | 2.33                     | 0.43              |
| 2:E:475:VAL:HG22 | 2:E:681:MET:SD   | 2.58                     | 0.43              |
| 1:G:57:LEU:HA    | 1:G:58:PRO:HD3   | 1.90                     | 0.43              |
| 2:J:332:MET:SD   | 1:K:317:PHE:HE2  | 2.40                     | 0.43              |
| 2:J:453:ARG:CB   | 1:K:317:PHE:HA   | 2.35                     | 0.43              |
| 2:J:475:VAL:HG22 | 2:J:681:MET:SD   | 2.58                     | 0.43              |
| 2:L:572:LEU:HD22 | 2:L:617:LYS:HE2  | 2.01                     | 0.43              |
| 1:A:234:VAL:CG1  | 1:A:277:LEU:HD22 | 2.48                     | 0.43              |
| 2:B:707:SER:O    | 2:E:458:ARG:NH2  | 2.47                     | 0.43              |
| 2:E:688:LEU:N    | 2:E:688:LEU:CD2  | 2.77                     | 0.43              |
| 2:E:697:ILE:HD13 | 2:E:697:ILE:O    | 2.18                     | 0.43              |
| 2:F:572:LEU:HD22 | 2:F:617:LYS:HE2  | 2.00                     | 0.43              |
| 1:G:83:PHE:CZ    | 1:G:122:LEU:HD22 | 2.53                     | 0.43              |
| 2:I:435:LEU:HD21 | 2:I:693:THR:HG21 | 2.00                     | 0.43              |
| 2:B:435:LEU:HD21 | 2:B:693:THR:HG21 | 2.00                     | 0.43              |
| 1:G:56:PHE:CB    | 1:G:94:PHE:HB3   | 2.48                     | 0.43              |
| 1:G:234:VAL:CG1  | 1:G:277:LEU:HD22 | 2.47                     | 0.43              |
| 2:I:697:ILE:HD13 | 2:I:697:ILE:O    | 2.18                     | 0.43              |
| 2:J:385:ARG:NH1  | 2:J:663:ARG:HD2  | 2.33                     | 0.43              |
| 1:K:208:ASP:HB3  | 1:K:258:PHE:CD1  | 2.54                     | 0.43              |
| 1:G:16:LEU:HD21  | 1:G:742:ILE:HG12 | 2.01                     | 0.43              |
| 2:I:406:ASP:OD1  | 2:I:407:MET:N    | 2.51                     | 0.43              |
| 2:B:338:VAL:CG2  | 2:E:687:HIS:CE1  | 3.01                     | 0.43              |
| 2:C:526:LEU:HB2  | 2:C:543:PHE:CD1  | 2.53                     | 0.43              |
| 2:J:450:PRO:HD3  | 1:K:314:TYR:CG   | 2.27                     | 0.43              |
| 1:K:87:LYS:HZ3   | 1:K:87:LYS:HB2   | 1.83                     | 0.43              |
| 1:A:232:ILE:CG1  | 1:A:280:VAL:HG21 | 2.48                     | 0.43              |
| 1:D:208:ASP:HB3  | 1:D:258:PHE:CD1  | 2.54                     | 0.43              |
| 1:K:12:LEU:HD23  | 1:K:745:ILE:HG12 | 2.00                     | 0.43              |
| 1:A:16:LEU:HD21  | 1:A:742:ILE:HG12 | 2.01                     | 0.43              |
| 2:B:406:ASP:OD1  | 2:B:407:MET:N    | 2.51                     | 0.43              |
| 2:B:697:ILE:HD13 | 2:B:697:ILE:O    | 2.18                     | 0.43              |
| 1:D:318:ARG:CZ   | 2:E:454:GLU:CB   | 2.97                     | 0.43              |
| 1:G:98:ARG:HA    | 1:G:101:ILE:HD12 | 1.99                     | 0.43              |
| 1:K:157:ARG:NH2  | 1:K:188:LYS:HD3  | 2.33                     | 0.43              |
| 1:A:31:LEU:CD2   | 1:A:130:LEU:HD12 | 2.48                     | 0.43              |
| 2:B:406:ASP:HB3  | 2:J:680:LEU:HD11 | 2.01                     | 0.43              |
| 2:B:494:ILE:HG22 | 2:B:495:GLY:N    | 2.33                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:E:407:MET:CE   | 2:I:474:GLN:HG2  | 2.49                     | 0.43              |
| 1:D:316:ASN:CB   | 2:E:449:TYR:CD1  | 3.00                     | 0.43              |
| 1:G:232:ILE:CG1  | 1:G:280:VAL:HG21 | 2.49                     | 0.43              |
| 2:I:464:ILE:HD13 | 2:I:696:PHE:HD2  | 1.84                     | 0.43              |
| 2:J:428:VAL:HG13 | 2:J:689:MET:CE   | 2.45                     | 0.43              |
| 1:K:39:GLY:H     | 1:K:186:ALA:HB2  | 1.84                     | 0.43              |
| 1:K:177:ALA:HB1  | 1:K:210:MET:SD   | 2.58                     | 0.43              |
| 2:J:449:TYR:HB3  | 1:K:313:GLU:O    | 2.19                     | 0.43              |
| 2:L:596:VAL:HG13 | 2:L:597:TYR:HD1  | 1.84                     | 0.43              |
| 1:D:39:GLY:H     | 1:D:186:ALA:HB2  | 1.84                     | 0.42              |
| 1:D:318:ARG:NH2  | 2:E:454:GLU:C    | 2.56                     | 0.42              |
| 2:E:385:ARG:NH1  | 2:E:663:ARG:HD2  | 2.33                     | 0.42              |
| 2:E:680:LEU:HD11 | 2:I:406:ASP:HB3  | 2.00                     | 0.42              |
| 2:F:520:VAL:HG11 | 2:F:523:LYS:HG3  | 2.01                     | 0.42              |
| 2:F:596:VAL:HG13 | 2:F:597:TYR:HD1  | 1.84                     | 0.42              |
| 2:I:384:LEU:HD22 | 2:I:670:MET:CG   | 2.49                     | 0.42              |
| 2:J:436:ILE:CD1  | 2:J:464:ILE:HG21 | 2.49                     | 0.42              |
| 1:A:66:ARG:HB2   | 1:A:105:THR:CG2  | 2.48                     | 0.42              |
| 2:E:436:ILE:CD1  | 2:E:464:ILE:HG21 | 2.49                     | 0.42              |
| 1:G:63:ILE:HG21  | 1:G:148:GLN:HE22 | 1.84                     | 0.42              |
| 2:J:454:GLU:CB   | 1:K:318:ARG:CZ   | 2.97                     | 0.42              |
| 2:L:520:VAL:HG11 | 2:L:523:LYS:HG3  | 2.01                     | 0.42              |
| 1:A:9:LEU:CD1    | 1:A:286:THR:HG23 | 2.49                     | 0.42              |
| 1:D:313:GLU:O    | 2:E:449:TYR:HB3  | 2.19                     | 0.42              |
| 2:J:692:ASN:C    | 2:J:692:ASN:ND2  | 2.70                     | 0.42              |
| 2:J:697:ILE:HD13 | 2:J:697:ILE:O    | 2.18                     | 0.42              |
| 1:A:167:GLU:O    | 1:A:168:ASN:HB2  | 2.19                     | 0.42              |
| 2:B:707:SER:N    | 2:E:704:ASN:CG   | 2.69                     | 0.42              |
| 1:A:118:VAL:HA   | 1:A:119:PRO:HD3  | 1.91                     | 0.42              |
| 2:B:692:ASN:C    | 2:B:692:ASN:ND2  | 2.70                     | 0.42              |
| 1:G:9:LEU:CD1    | 1:G:286:THR:HG23 | 2.49                     | 0.42              |
| 1:K:67:ARG:NH2   | 1:K:120:ILE:HG12 | 2.33                     | 0.42              |
| 1:A:56:PHE:CB    | 1:A:94:PHE:HB3   | 2.48                     | 0.42              |
| 2:B:341:GLU:OE2  | 2:E:691:ASN:CB   | 2.68                     | 0.42              |
| 2:B:464:ILE:HD13 | 2:B:696:PHE:HD2  | 1.84                     | 0.42              |
| 1:D:60:GLY:N     | 1:D:64:VAL:HG13  | 2.30                     | 0.42              |
| 1:D:87:LYS:HZ3   | 1:D:87:LYS:HB2   | 1.84                     | 0.42              |
| 2:E:370:PHE:CD1  | 2:E:427:CYS:HB2  | 2.55                     | 0.42              |
| 2:J:449:TYR:CE1  | 1:K:316:ASN:N    | 2.82                     | 0.42              |
| 2:J:687:HIS:CD2  | 2:J:688:LEU:HD23 | 2.54                     | 0.42              |
| 1:A:63:ILE:HG21  | 1:A:148:GLN:HE22 | 1.84                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:67:ARG:NH2   | 1:D:120:ILE:HG12 | 2.33                     | 0.42              |
| 1:D:316:ASN:HB2  | 2:E:449:TYR:CD1  | 2.49                     | 0.42              |
| 1:G:66:ARG:HB2   | 1:G:105:THR:CG2  | 2.48                     | 0.42              |
| 1:G:167:GLU:O    | 1:G:168:ASN:HB2  | 2.19                     | 0.42              |
| 2:I:388:ILE:HD12 | 2:I:388:ILE:N    | 2.35                     | 0.42              |
| 2:J:485:TYR:CZ   | 2:J:487:ASN:HB3  | 2.55                     | 0.42              |
| 1:A:67:ARG:HH22  | 1:A:107:ARG:HH21 | 1.67                     | 0.42              |
| 2:C:526:LEU:HD13 | 2:C:605:LEU:HD22 | 2.01                     | 0.42              |
| 1:D:78:THR:HB    | 1:D:80:TYR:CE1   | 2.54                     | 0.42              |
| 2:I:489:ASN:N    | 2:I:489:ASN:OD1  | 2.51                     | 0.42              |
| 1:K:81:ALA:HB1   | 1:K:122:LEU:CD1  | 2.47                     | 0.42              |
| 2:L:539:LYS:NZ   | 2:L:554:LYS:HE2  | 2.34                     | 0.42              |
| 2:B:654:GLN:HG2  | 2:B:654:GLN:O    | 2.20                     | 0.42              |
| 2:B:687:HIS:CD2  | 2:B:688:LEU:HD23 | 2.53                     | 0.42              |
| 2:E:687:HIS:C    | 2:E:688:LEU:HD23 | 2.39                     | 0.42              |
| 2:H:526:LEU:HD13 | 2:H:605:LEU:HD22 | 2.01                     | 0.42              |
| 2:J:629:ARG:HA   | 2:J:629:ARG:HD2  | 1.81                     | 0.42              |
| 2:J:664:ASN:HD22 | 2:J:664:ASN:HA   | 1.64                     | 0.42              |
| 1:K:68:PRO:HD2   | 1:K:119:PRO:HA   | 2.01                     | 0.42              |
| 2:B:680:LEU:HD12 | 2:B:680:LEU:HA   | 1.88                     | 0.42              |
| 1:D:304:LEU:HD11 | 1:D:736:LYS:NZ   | 2.35                     | 0.42              |
| 1:G:67:ARG:HH22  | 1:G:107:ARG:HH21 | 1.67                     | 0.42              |
| 2:I:629:ARG:HA   | 2:I:629:ARG:HD2  | 1.83                     | 0.42              |
| 1:K:78:THR:HB    | 1:K:80:TYR:CE1   | 2.54                     | 0.42              |
| 2:B:672:ILE:HG13 | 2:B:673:VAL:N    | 2.35                     | 0.41              |
| 2:E:494:ILE:HD12 | 2:E:494:ILE:HG21 | 1.91                     | 0.41              |
| 1:G:170:LEU:HD22 | 1:G:201:ILE:HG12 | 2.02                     | 0.41              |
| 2:J:370:PHE:CD1  | 2:J:427:CYS:HB2  | 2.55                     | 0.41              |
| 2:J:453:ARG:N    | 1:K:318:ARG:CB   | 2.83                     | 0.41              |
| 1:K:304:LEU:HD11 | 1:K:736:LYS:NZ   | 2.35                     | 0.41              |
| 2:B:474:GLN:HG2  | 2:J:407:MET:CE   | 2.49                     | 0.41              |
| 1:D:68:PRO:HD2   | 1:D:119:PRO:HA   | 2.01                     | 0.41              |
| 1:D:157:ARG:NH2  | 1:D:188:LYS:HD3  | 2.33                     | 0.41              |
| 2:E:672:ILE:CG2  | 2:I:489:ASN:HB2  | 2.50                     | 0.41              |
| 2:I:654:GLN:O    | 2:I:654:GLN:HG2  | 2.20                     | 0.41              |
| 2:C:550:LEU:HD22 | 2:C:620:PHE:CE1  | 2.55                     | 0.41              |
| 2:E:669:TYR:HA   | 2:E:672:ILE:HG13 | 2.02                     | 0.41              |
| 2:I:672:ILE:HG13 | 2:I:673:VAL:N    | 2.35                     | 0.41              |
| 2:B:384:LEU:HD22 | 2:B:670:MET:CG   | 2.49                     | 0.41              |
| 2:B:486:MET:HE2  | 2:B:486:MET:HB2  | 1.93                     | 0.41              |
| 2:B:699:SER:HG   | 2:E:695:GLU:C    | 2.18                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:607:CYS:HB3  | 2:C:612:GLU:HB3  | 2.03                     | 0.41              |
| 1:D:113:LYS:HD2  | 1:D:113:LYS:N    | 2.36                     | 0.41              |
| 2:J:669:TYR:HA   | 2:J:672:ILE:HG13 | 2.02                     | 0.41              |
| 2:J:687:HIS:C    | 2:J:688:LEU:HD23 | 2.39                     | 0.41              |
| 1:K:262:HIS:CE1  | 1:K:264:SER:HB2  | 2.56                     | 0.41              |
| 1:A:23:ILE:HG12  | 1:A:734:ALA:HB1  | 2.02                     | 0.41              |
| 1:A:135:VAL:HG12 | 1:A:137:LEU:HG   | 2.02                     | 0.41              |
| 1:A:170:LEU:HD22 | 1:A:201:ILE:HG12 | 2.02                     | 0.41              |
| 2:B:388:ILE:HD12 | 2:B:388:ILE:N    | 2.35                     | 0.41              |
| 2:B:489:ASN:N    | 2:B:489:ASN:OD1  | 2.51                     | 0.41              |
| 1:D:316:ASN:N    | 2:E:449:TYR:CE1  | 2.82                     | 0.41              |
| 1:G:23:ILE:HG12  | 1:G:734:ALA:HB1  | 2.02                     | 0.41              |
| 2:I:435:LEU:HD23 | 2:I:436:ILE:N    | 2.35                     | 0.41              |
| 2:J:362:ILE:CG2  | 2:J:363:ASN:H    | 2.34                     | 0.41              |
| 2:J:449:TYR:HA   | 2:J:450:PRO:HD3  | 1.81                     | 0.41              |
| 1:K:262:HIS:HA   | 1:K:263:PRO:HD2  | 1.94                     | 0.41              |
| 2:B:341:GLU:OE2  | 2:E:691:ASN:HB2  | 2.21                     | 0.41              |
| 2:B:629:ARG:HA   | 2:B:629:ARG:HD2  | 1.83                     | 0.41              |
| 1:D:262:HIS:CE1  | 1:D:264:SER:HB2  | 2.56                     | 0.41              |
| 2:E:485:TYR:CZ   | 2:E:487:ASN:HB3  | 2.55                     | 0.41              |
| 2:I:452:LEU:HD11 | 2:I:456:MET:HE3  | 2.03                     | 0.41              |
| 1:K:113:LYS:HD2  | 1:K:113:LYS:N    | 2.36                     | 0.41              |
| 1:A:140:MET:CE   | 1:A:160:LEU:HD21 | 2.50                     | 0.41              |
| 2:F:539:LYS:NZ   | 2:F:554:LYS:HE2  | 2.34                     | 0.41              |
| 1:G:135:VAL:HG12 | 1:G:137:LEU:HG   | 2.02                     | 0.41              |
| 2:H:550:LEU:HD22 | 2:H:620:PHE:CE1  | 2.55                     | 0.41              |
| 2:J:444:LYS:CA   | 1:K:317:PHE:CD1  | 2.98                     | 0.41              |
| 2:B:481:ILE:HG22 | 2:B:482:GLU:OE1  | 2.21                     | 0.41              |
| 1:D:318:ARG:CB   | 2:E:453:ARG:N    | 2.83                     | 0.41              |
| 2:E:445:LYS:NZ   | 2:E:445:LYS:HB3  | 2.36                     | 0.41              |
| 1:G:140:MET:CE   | 1:G:160:LEU:HD21 | 2.50                     | 0.41              |
| 2:H:535:LYS:O    | 2:H:535:LYS:HG2  | 2.21                     | 0.41              |
| 2:I:370:PHE:HZ   | 2:I:681:MET:HG3  | 1.86                     | 0.41              |
| 2:I:687:HIS:C    | 2:I:688:LEU:HD23 | 2.40                     | 0.41              |
| 2:J:388:ILE:HD11 | 2:J:666:VAL:CG1  | 2.51                     | 0.41              |
| 2:J:445:LYS:HB3  | 2:J:445:LYS:NZ   | 2.36                     | 0.41              |
| 2:J:449:TYR:CD1  | 1:K:316:ASN:HB2  | 2.49                     | 0.41              |
| 2:J:630:VAL:CG2  | 2:J:671:ALA:HB1  | 2.51                     | 0.41              |
| 2:J:654:GLN:HG2  | 2:J:654:GLN:O    | 2.21                     | 0.41              |
| 2:B:363:ASN:HD21 | 2:B:685:ILE:HG21 | 1.85                     | 0.41              |
| 1:D:38:GLY:HA2   | 1:D:186:ALA:CB   | 2.51                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:63:ILE:HG21  | 1:G:148:GLN:NE2  | 2.36                     | 0.41              |
| 2:H:607:CYS:HB3  | 2:H:612:GLU:HB3  | 2.02                     | 0.41              |
| 2:J:491:GLU:C    | 2:J:491:GLU:CD   | 2.80                     | 0.41              |
| 2:B:489:ASN:HB2  | 2:J:672:ILE:CG2  | 2.50                     | 0.40              |
| 2:C:535:LYS:O    | 2:C:535:LYS:HG2  | 2.21                     | 0.40              |
| 1:D:13:VAL:HG13  | 1:D:29:LEU:HD13  | 2.02                     | 0.40              |
| 2:E:491:GLU:C    | 2:E:491:GLU:CD   | 2.80                     | 0.40              |
| 2:E:629:ARG:HA   | 2:E:629:ARG:HD2  | 1.81                     | 0.40              |
| 2:F:570:LEU:HD23 | 2:F:570:LEU:HA   | 1.92                     | 0.40              |
| 2:J:370:PHE:CE2  | 2:J:681:MET:HB2  | 2.56                     | 0.40              |
| 1:K:229:ARG:HG3  | 1:K:280:VAL:HG11 | 2.02                     | 0.40              |
| 2:L:525:TRP:CE3  | 2:L:540:GLU:HG2  | 2.57                     | 0.40              |
| 1:A:63:ILE:HG21  | 1:A:148:GLN:NE2  | 2.36                     | 0.40              |
| 1:A:164:VAL:HG21 | 1:A:193:VAL:HG11 | 2.04                     | 0.40              |
| 2:B:346:GLY:C    | 2:I:654:GLN:CB   | 2.88                     | 0.40              |
| 2:B:435:LEU:HD23 | 2:B:436:ILE:N    | 2.35                     | 0.40              |
| 2:B:452:LEU:HD11 | 2:B:456:MET:CE   | 2.51                     | 0.40              |
| 1:D:317:PHE:CD1  | 2:E:444:LYS:CA   | 2.98                     | 0.40              |
| 2:E:370:PHE:CE2  | 2:E:681:MET:HB2  | 2.57                     | 0.40              |
| 1:G:134:LEU:N    | 1:G:134:LEU:HD12 | 2.36                     | 0.40              |
| 1:G:164:VAL:HG21 | 1:G:193:VAL:HG11 | 2.04                     | 0.40              |
| 1:G:307:ILE:HG21 | 1:G:728:MET:HB3  | 2.03                     | 0.40              |
| 2:J:660:GLU:HA   | 2:J:663:ARG:NH1  | 2.35                     | 0.40              |
| 2:L:624:GLY:HA2  | 2:L:626:TYR:CE1  | 2.56                     | 0.40              |
| 1:A:307:ILE:HG21 | 1:A:728:MET:HB3  | 2.03                     | 0.40              |
| 2:C:573:ARG:HB2  | 2:C:630:VAL:CG1  | 2.51                     | 0.40              |
| 1:K:38:GLY:HA2   | 1:K:186:ALA:CB   | 2.51                     | 0.40              |
| 1:A:59:ARG:HB3   | 1:A:242:ILE:CG2  | 2.45                     | 0.40              |
| 1:A:138:PRO:HG2  | 1:A:159:MET:SD   | 2.62                     | 0.40              |
| 1:A:301:GLN:HA   | 1:A:301:GLN:HE21 | 1.86                     | 0.40              |
| 1:A:746:ASN:HD22 | 1:A:746:ASN:HA   | 1.78                     | 0.40              |
| 1:D:221:GLU:HA   | 1:D:268:LEU:HD11 | 2.04                     | 0.40              |
| 2:E:388:ILE:HD11 | 2:E:666:VAL:CG1  | 2.51                     | 0.40              |
| 2:E:630:VAL:CG2  | 2:E:671:ALA:HB1  | 2.51                     | 0.40              |
| 2:E:660:GLU:HA   | 2:E:663:ARG:NH1  | 2.35                     | 0.40              |
| 2:E:664:ASN:HD22 | 2:E:664:ASN:HA   | 1.64                     | 0.40              |
| 2:F:525:TRP:CE3  | 2:F:540:GLU:HG2  | 2.57                     | 0.40              |
| 2:H:573:ARG:HB2  | 2:H:630:VAL:CG1  | 2.51                     | 0.40              |
| 2:I:481:ILE:HG22 | 2:I:482:GLU:OE1  | 2.21                     | 0.40              |
| 2:J:454:GLU:C    | 1:K:318:ARG:NH2  | 2.55                     | 0.40              |
| 2:J:494:ILE:HD12 | 2:J:494:ILE:HG21 | 1.91                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:J:669:TYR:CD1  | 2:J:672:ILE:HD11 | 2.57                     | 0.40              |
| 1:K:13:VAL:HG13  | 1:K:29:LEU:HD13  | 2.02                     | 0.40              |
| 1:A:87:LYS:O     | 1:A:87:LYS:HG3   | 2.20                     | 0.40              |
| 1:A:232:ILE:HG12 | 1:A:280:VAL:HG21 | 2.03                     | 0.40              |
| 1:D:317:PHE:HB3  | 2:E:453:ARG:HB3  | 2.02                     | 0.40              |
| 2:E:654:GLN:HG2  | 2:E:654:GLN:O    | 2.21                     | 0.40              |
| 2:F:535:LYS:HG2  | 2:F:535:LYS:O    | 2.21                     | 0.40              |
| 2:F:573:ARG:HD2  | 2:F:575:VAL:CG1  | 2.47                     | 0.40              |
| 1:G:232:ILE:HG12 | 1:G:280:VAL:HG21 | 2.04                     | 0.40              |
| 1:G:301:GLN:HA   | 1:G:301:GLN:HE21 | 1.85                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

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

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |    |
|-----|-------|---------------|-----------|----------|----------|-------------|----|
| 1   | A     | 325/864 (38%) | 313 (96%) | 10 (3%)  | 2 (1%)   | 25          | 66 |
| 1   | D     | 333/864 (38%) | 317 (95%) | 14 (4%)  | 2 (1%)   | 25          | 66 |
| 1   | G     | 325/864 (38%) | 313 (96%) | 10 (3%)  | 2 (1%)   | 25          | 66 |
| 1   | K     | 333/864 (38%) | 317 (95%) | 14 (4%)  | 2 (1%)   | 25          | 66 |
| 2   | B     | 196/864 (23%) | 165 (84%) | 22 (11%) | 9 (5%)   | 2           | 21 |
| 2   | C     | 111/864 (13%) | 93 (84%)  | 13 (12%) | 5 (4%)   | 2           | 22 |
| 2   | E     | 196/864 (23%) | 161 (82%) | 27 (14%) | 8 (4%)   | 3           | 23 |
| 2   | F     | 111/864 (13%) | 93 (84%)  | 12 (11%) | 6 (5%)   | 2           | 19 |
| 2   | H     | 111/864 (13%) | 93 (84%)  | 13 (12%) | 5 (4%)   | 2           | 22 |
| 2   | I     | 196/864 (23%) | 165 (84%) | 22 (11%) | 9 (5%)   | 2           | 21 |
| 2   | J     | 196/864 (23%) | 161 (82%) | 27 (14%) | 8 (4%)   | 3           | 23 |
| 2   | L     | 111/864 (13%) | 93 (84%)  | 12 (11%) | 6 (5%)   | 2           | 19 |

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| Mol | Chain | Analysed         | Favoured   | Allowed  | Outliers | Percentiles |    |
|-----|-------|------------------|------------|----------|----------|-------------|----|
| All | All   | 2544/10368 (24%) | 2284 (90%) | 196 (8%) | 64 (2%)  | 9           | 32 |

All (64) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 88  | GLY  |
| 2   | B     | 489 | ASN  |
| 2   | B     | 490 | HIS  |
| 2   | B     | 492 | ASP  |
| 2   | C     | 534 | MET  |
| 2   | C     | 576 | GLU  |
| 2   | E     | 449 | TYR  |
| 2   | E     | 450 | PRO  |
| 2   | E     | 490 | HIS  |
| 2   | E     | 492 | ASP  |
| 2   | F     | 534 | MET  |
| 2   | F     | 574 | ASP  |
| 2   | F     | 627 | PRO  |
| 1   | G     | 88  | GLY  |
| 2   | H     | 534 | MET  |
| 2   | H     | 576 | GLU  |
| 2   | I     | 489 | ASN  |
| 2   | I     | 490 | HIS  |
| 2   | I     | 492 | ASP  |
| 2   | J     | 449 | TYR  |
| 2   | J     | 450 | PRO  |
| 2   | J     | 490 | HIS  |
| 2   | J     | 492 | ASP  |
| 2   | L     | 534 | MET  |
| 2   | L     | 574 | ASP  |
| 2   | L     | 627 | PRO  |
| 2   | B     | 414 | LYS  |
| 2   | B     | 487 | ASN  |
| 2   | B     | 690 | ILE  |
| 2   | C     | 577 | LYS  |
| 2   | E     | 454 | GLU  |
| 2   | F     | 576 | GLU  |
| 2   | H     | 577 | LYS  |
| 2   | I     | 414 | LYS  |
| 2   | I     | 487 | ASN  |
| 2   | I     | 690 | ILE  |
| 2   | L     | 576 | GLU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | B     | 696 | PHE  |
| 1   | D     | 79  | GLU  |
| 2   | E     | 452 | LEU  |
| 2   | I     | 696 | PHE  |
| 2   | J     | 452 | LEU  |
| 2   | J     | 454 | GLU  |
| 1   | K     | 79  | GLU  |
| 2   | B     | 689 | MET  |
| 2   | E     | 453 | ARG  |
| 2   | I     | 689 | MET  |
| 2   | J     | 453 | ARG  |
| 2   | C     | 563 | TYR  |
| 2   | E     | 689 | MET  |
| 2   | F     | 577 | LYS  |
| 2   | H     | 563 | TYR  |
| 2   | J     | 689 | MET  |
| 2   | L     | 577 | LYS  |
| 1   | A     | 87  | LYS  |
| 1   | D     | 41  | SER  |
| 1   | G     | 87  | LYS  |
| 1   | K     | 41  | SER  |
| 2   | B     | 412 | ILE  |
| 2   | F     | 575 | VAL  |
| 2   | I     | 412 | ILE  |
| 2   | L     | 575 | VAL  |
| 2   | C     | 532 | GLY  |
| 2   | H     | 532 | GLY  |

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

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

| Mol | Chain | Analysed      | Rotameric | Outliers | Percentiles |    |
|-----|-------|---------------|-----------|----------|-------------|----|
| 1   | A     | 287/761 (38%) | 275 (96%) | 12 (4%)  | 30          | 54 |
| 1   | D     | 295/761 (39%) | 281 (95%) | 14 (5%)  | 26          | 51 |
| 1   | G     | 287/761 (38%) | 275 (96%) | 12 (4%)  | 30          | 54 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers  | Percentiles |    |
|-----|-------|-----------------|------------|-----------|-------------|----|
| 1   | K     | 295/761 (39%)   | 281 (95%)  | 14 (5%)   | 26          | 51 |
| 2   | B     | 194/761 (26%)   | 155 (80%)  | 39 (20%)  | 1           | 7  |
| 2   | C     | 102/761 (13%)   | 94 (92%)   | 8 (8%)    | 12          | 36 |
| 2   | E     | 194/761 (26%)   | 153 (79%)  | 41 (21%)  | 1           | 6  |
| 2   | F     | 102/761 (13%)   | 89 (87%)   | 13 (13%)  | 4           | 18 |
| 2   | H     | 102/761 (13%)   | 94 (92%)   | 8 (8%)    | 12          | 36 |
| 2   | I     | 194/761 (26%)   | 155 (80%)  | 39 (20%)  | 1           | 7  |
| 2   | J     | 194/761 (26%)   | 152 (78%)  | 42 (22%)  | 1           | 6  |
| 2   | L     | 102/761 (13%)   | 89 (87%)   | 13 (13%)  | 4           | 18 |
| All | All   | 2348/9132 (26%) | 2093 (89%) | 255 (11%) | 10          | 23 |

All (255) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 54  | ARG  |
| 1   | A     | 69  | LEU  |
| 1   | A     | 73  | LEU  |
| 1   | A     | 79  | GLU  |
| 1   | A     | 87  | LYS  |
| 1   | A     | 121 | ASN  |
| 1   | A     | 175 | SER  |
| 1   | A     | 228 | ARG  |
| 1   | A     | 240 | LYS  |
| 1   | A     | 245 | LYS  |
| 1   | A     | 301 | GLN  |
| 1   | A     | 727 | GLU  |
| 2   | B     | 327 | LYS  |
| 2   | B     | 329 | LEU  |
| 2   | B     | 330 | LEU  |
| 2   | B     | 339 | ASP  |
| 2   | B     | 340 | PHE  |
| 2   | B     | 345 | GLU  |
| 2   | B     | 357 | SER  |
| 2   | B     | 367 | HIS  |
| 2   | B     | 368 | GLU  |
| 2   | B     | 369 | ARG  |
| 2   | B     | 380 | ASP  |
| 2   | B     | 416 | GLN  |
| 2   | B     | 445 | LYS  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | B            | 449        | TYR         |
| 2          | B            | 451        | ARG         |
| 2          | B            | 467        | ARG         |
| 2          | B            | 468        | GLU         |
| 2          | B            | 489        | ASN         |
| 2          | B            | 490        | HIS         |
| 2          | B            | 491        | GLU         |
| 2          | B            | 492        | ASP         |
| 2          | B            | 493        | PHE         |
| 2          | B            | 494        | ILE         |
| 2          | B            | 628        | GLU         |
| 2          | B            | 664        | ASN         |
| 2          | B            | 667        | ASP         |
| 2          | B            | 672        | ILE         |
| 2          | B            | 676        | THR         |
| 2          | B            | 678        | ARG         |
| 2          | B            | 679        | ASP         |
| 2          | B            | 682        | PRO         |
| 2          | B            | 685        | ILE         |
| 2          | B            | 688        | LEU         |
| 2          | B            | 692        | ASN         |
| 2          | B            | 697        | ILE         |
| 2          | B            | 698        | PHE         |
| 2          | B            | 702        | LEU         |
| 2          | B            | 705        | LEU         |
| 2          | B            | 707        | SER         |
| 2          | C            | 534        | MET         |
| 2          | C            | 560        | GLU         |
| 2          | C            | 563        | TYR         |
| 2          | C            | 577        | LYS         |
| 2          | C            | 579        | PHE         |
| 2          | C            | 584        | HIS         |
| 2          | C            | 594        | ARG         |
| 2          | C            | 603        | LEU         |
| 1          | D            | 34         | ILE         |
| 1          | D            | 78         | THR         |
| 1          | D            | 87         | LYS         |
| 1          | D            | 99         | LEU         |
| 1          | D            | 113        | LYS         |
| 1          | D            | 123        | ARG         |
| 1          | D            | 159        | MET         |
| 1          | D            | 166        | LYS         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | D            | 171        | ILE         |
| 1          | D            | 228        | ARG         |
| 1          | D            | 248        | ILE         |
| 1          | D            | 290        | ARG         |
| 1          | D            | 304        | LEU         |
| 1          | D            | 318        | ARG         |
| 2          | E            | 327        | LYS         |
| 2          | E            | 329        | LEU         |
| 2          | E            | 330        | LEU         |
| 2          | E            | 339        | ASP         |
| 2          | E            | 340        | PHE         |
| 2          | E            | 345        | GLU         |
| 2          | E            | 357        | SER         |
| 2          | E            | 367        | HIS         |
| 2          | E            | 368        | GLU         |
| 2          | E            | 369        | ARG         |
| 2          | E            | 380        | ASP         |
| 2          | E            | 416        | GLN         |
| 2          | E            | 418        | LYS         |
| 2          | E            | 443        | THR         |
| 2          | E            | 445        | LYS         |
| 2          | E            | 449        | TYR         |
| 2          | E            | 450        | PRO         |
| 2          | E            | 451        | ARG         |
| 2          | E            | 452        | LEU         |
| 2          | E            | 454        | GLU         |
| 2          | E            | 456        | MET         |
| 2          | E            | 468        | GLU         |
| 2          | E            | 480        | ASP         |
| 2          | E            | 482        | GLU         |
| 2          | E            | 489        | ASN         |
| 2          | E            | 490        | HIS         |
| 2          | E            | 491        | GLU         |
| 2          | E            | 492        | ASP         |
| 2          | E            | 493        | PHE         |
| 2          | E            | 494        | ILE         |
| 2          | E            | 628        | GLU         |
| 2          | E            | 664        | ASN         |
| 2          | E            | 672        | ILE         |
| 2          | E            | 676        | THR         |
| 2          | E            | 678        | ARG         |
| 2          | E            | 679        | ASP         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | E            | 688        | LEU         |
| 2          | E            | 692        | ASN         |
| 2          | E            | 697        | ILE         |
| 2          | E            | 698        | PHE         |
| 2          | E            | 702        | LEU         |
| 2          | F            | 529        | ASN         |
| 2          | F            | 534        | MET         |
| 2          | F            | 551        | SER         |
| 2          | F            | 558        | GLU         |
| 2          | F            | 560        | GLU         |
| 2          | F            | 569        | ASN         |
| 2          | F            | 571        | LYS         |
| 2          | F            | 573        | ARG         |
| 2          | F            | 577        | LYS         |
| 2          | F            | 579        | PHE         |
| 2          | F            | 594        | ARG         |
| 2          | F            | 603        | LEU         |
| 2          | F            | 604        | GLU         |
| 1          | G            | 54         | ARG         |
| 1          | G            | 69         | LEU         |
| 1          | G            | 73         | LEU         |
| 1          | G            | 79         | GLU         |
| 1          | G            | 87         | LYS         |
| 1          | G            | 121        | ASN         |
| 1          | G            | 175        | SER         |
| 1          | G            | 228        | ARG         |
| 1          | G            | 240        | LYS         |
| 1          | G            | 245        | LYS         |
| 1          | G            | 301        | GLN         |
| 1          | G            | 727        | GLU         |
| 2          | H            | 534        | MET         |
| 2          | H            | 560        | GLU         |
| 2          | H            | 563        | TYR         |
| 2          | H            | 577        | LYS         |
| 2          | H            | 579        | PHE         |
| 2          | H            | 584        | HIS         |
| 2          | H            | 594        | ARG         |
| 2          | H            | 603        | LEU         |
| 2          | I            | 327        | LYS         |
| 2          | I            | 329        | LEU         |
| 2          | I            | 330        | LEU         |
| 2          | I            | 339        | ASP         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | I            | 340        | PHE         |
| 2          | I            | 345        | GLU         |
| 2          | I            | 357        | SER         |
| 2          | I            | 367        | HIS         |
| 2          | I            | 368        | GLU         |
| 2          | I            | 369        | ARG         |
| 2          | I            | 380        | ASP         |
| 2          | I            | 416        | GLN         |
| 2          | I            | 445        | LYS         |
| 2          | I            | 449        | TYR         |
| 2          | I            | 451        | ARG         |
| 2          | I            | 467        | ARG         |
| 2          | I            | 468        | GLU         |
| 2          | I            | 489        | ASN         |
| 2          | I            | 490        | HIS         |
| 2          | I            | 491        | GLU         |
| 2          | I            | 492        | ASP         |
| 2          | I            | 493        | PHE         |
| 2          | I            | 494        | ILE         |
| 2          | I            | 628        | GLU         |
| 2          | I            | 664        | ASN         |
| 2          | I            | 667        | ASP         |
| 2          | I            | 672        | ILE         |
| 2          | I            | 676        | THR         |
| 2          | I            | 678        | ARG         |
| 2          | I            | 679        | ASP         |
| 2          | I            | 682        | PRO         |
| 2          | I            | 685        | ILE         |
| 2          | I            | 688        | LEU         |
| 2          | I            | 692        | ASN         |
| 2          | I            | 697        | ILE         |
| 2          | I            | 698        | PHE         |
| 2          | I            | 702        | LEU         |
| 2          | I            | 705        | LEU         |
| 2          | I            | 707        | SER         |
| 2          | J            | 327        | LYS         |
| 2          | J            | 329        | LEU         |
| 2          | J            | 330        | LEU         |
| 2          | J            | 339        | ASP         |
| 2          | J            | 340        | PHE         |
| 2          | J            | 345        | GLU         |
| 2          | J            | 357        | SER         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | J            | 367        | HIS         |
| 2          | J            | 368        | GLU         |
| 2          | J            | 369        | ARG         |
| 2          | J            | 380        | ASP         |
| 2          | J            | 416        | GLN         |
| 2          | J            | 418        | LYS         |
| 2          | J            | 443        | THR         |
| 2          | J            | 445        | LYS         |
| 2          | J            | 449        | TYR         |
| 2          | J            | 450        | PRO         |
| 2          | J            | 451        | ARG         |
| 2          | J            | 452        | LEU         |
| 2          | J            | 454        | GLU         |
| 2          | J            | 456        | MET         |
| 2          | J            | 468        | GLU         |
| 2          | J            | 480        | ASP         |
| 2          | J            | 482        | GLU         |
| 2          | J            | 489        | ASN         |
| 2          | J            | 490        | HIS         |
| 2          | J            | 491        | GLU         |
| 2          | J            | 492        | ASP         |
| 2          | J            | 493        | PHE         |
| 2          | J            | 494        | ILE         |
| 2          | J            | 628        | GLU         |
| 2          | J            | 664        | ASN         |
| 2          | J            | 672        | ILE         |
| 2          | J            | 676        | THR         |
| 2          | J            | 678        | ARG         |
| 2          | J            | 679        | ASP         |
| 2          | J            | 682        | PRO         |
| 2          | J            | 688        | LEU         |
| 2          | J            | 692        | ASN         |
| 2          | J            | 697        | ILE         |
| 2          | J            | 698        | PHE         |
| 2          | J            | 702        | LEU         |
| 1          | K            | 34         | ILE         |
| 1          | K            | 78         | THR         |
| 1          | K            | 87         | LYS         |
| 1          | K            | 99         | LEU         |
| 1          | K            | 113        | LYS         |
| 1          | K            | 123        | ARG         |
| 1          | K            | 159        | MET         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | K     | 166 | LYS  |
| 1   | K     | 171 | ILE  |
| 1   | K     | 228 | ARG  |
| 1   | K     | 248 | ILE  |
| 1   | K     | 290 | ARG  |
| 1   | K     | 304 | LEU  |
| 1   | K     | 318 | ARG  |
| 2   | L     | 529 | ASN  |
| 2   | L     | 534 | MET  |
| 2   | L     | 551 | SER  |
| 2   | L     | 558 | GLU  |
| 2   | L     | 560 | GLU  |
| 2   | L     | 569 | ASN  |
| 2   | L     | 571 | LYS  |
| 2   | L     | 573 | ARG  |
| 2   | L     | 577 | LYS  |
| 2   | L     | 579 | PHE  |
| 2   | L     | 594 | ARG  |
| 2   | L     | 603 | LEU  |
| 2   | L     | 604 | GLU  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (60) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 25  | GLN  |
| 1   | A     | 168 | ASN  |
| 1   | A     | 236 | ASN  |
| 1   | A     | 301 | GLN  |
| 1   | A     | 746 | ASN  |
| 2   | B     | 334 | GLN  |
| 2   | B     | 335 | GLN  |
| 2   | B     | 363 | ASN  |
| 2   | B     | 367 | HIS  |
| 2   | B     | 463 | HIS  |
| 2   | B     | 658 | GLN  |
| 2   | B     | 664 | ASN  |
| 2   | B     | 687 | HIS  |
| 2   | B     | 692 | ASN  |
| 2   | C     | 529 | ASN  |
| 2   | C     | 602 | GLN  |
| 1   | D     | 25  | GLN  |
| 1   | D     | 85  | HIS  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | D            | 148        | GLN         |
| 1          | D            | 155        | GLN         |
| 1          | D            | 236        | ASN         |
| 1          | D            | 239        | GLN         |
| 1          | D            | 282        | ASN         |
| 1          | D            | 303        | GLN         |
| 2          | E            | 335        | GLN         |
| 2          | E            | 363        | ASN         |
| 2          | E            | 664        | ASN         |
| 2          | E            | 687        | HIS         |
| 2          | E            | 704        | ASN         |
| 2          | F            | 602        | GLN         |
| 1          | G            | 25         | GLN         |
| 1          | G            | 168        | ASN         |
| 1          | G            | 236        | ASN         |
| 1          | G            | 301        | GLN         |
| 1          | G            | 746        | ASN         |
| 2          | H            | 529        | ASN         |
| 2          | H            | 602        | GLN         |
| 2          | I            | 335        | GLN         |
| 2          | I            | 363        | ASN         |
| 2          | I            | 367        | HIS         |
| 2          | I            | 658        | GLN         |
| 2          | I            | 664        | ASN         |
| 2          | I            | 687        | HIS         |
| 2          | I            | 692        | ASN         |
| 2          | I            | 704        | ASN         |
| 2          | J            | 335        | GLN         |
| 2          | J            | 363        | ASN         |
| 2          | J            | 664        | ASN         |
| 2          | J            | 687        | HIS         |
| 2          | J            | 692        | ASN         |
| 2          | J            | 704        | ASN         |
| 1          | K            | 25         | GLN         |
| 1          | K            | 85         | HIS         |
| 1          | K            | 148        | GLN         |
| 1          | K            | 155        | GLN         |
| 1          | K            | 236        | ASN         |
| 1          | K            | 239        | GLN         |
| 1          | K            | 282        | ASN         |
| 1          | K            | 303        | GLN         |
| 2          | L            | 602        | 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 monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|-----|-------|------------------|
| 1   | D     | 1                |
| 1   | K     | 1                |
| 2   | B     | 1                |
| 2   | I     | 1                |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1     | D     | 316:ASN   | C      | 317:PHE   | N      | 1.18         |
| 1     | K     | 316:ASN   | C      | 317:PHE   | N      | 1.18         |
| 1     | B     | 489:ASN   | C      | 490:HIS   | N      | 1.17         |
| 1     | I     | 489:ASN   | C      | 490:HIS   | N      | 1.17         |

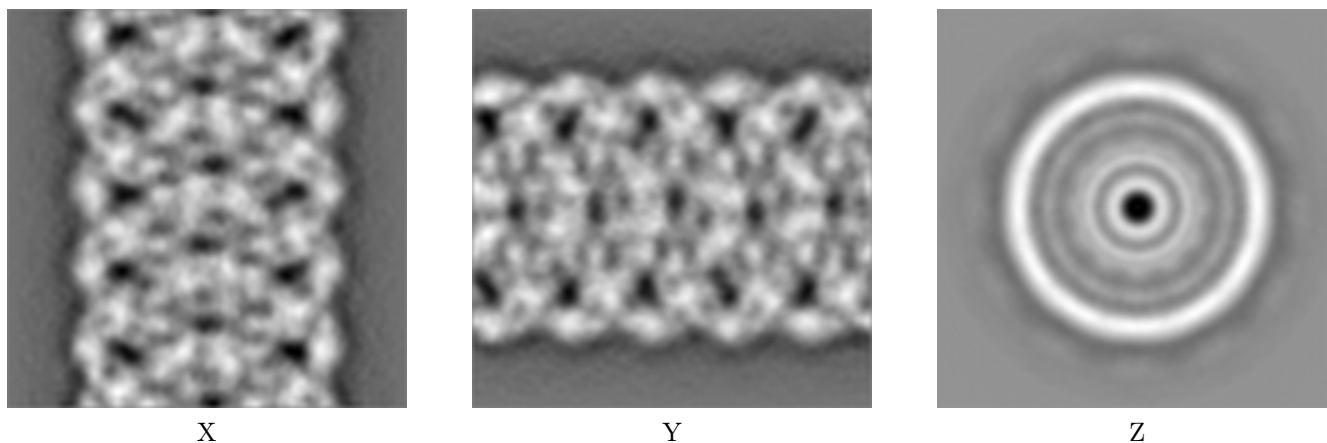
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-2701. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

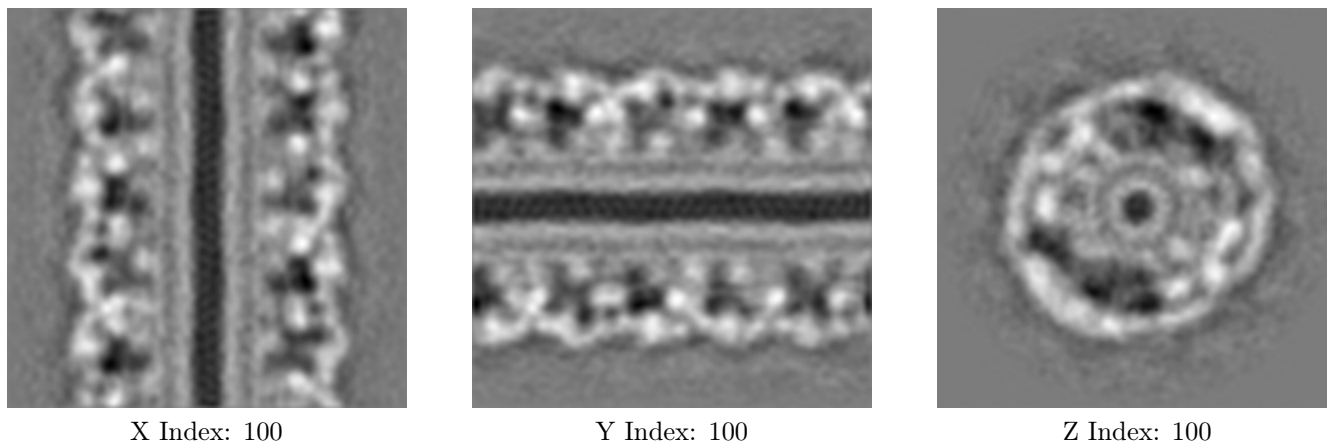
#### 6.1.1 Primary map



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

### 6.2 Central slices [i](#)

#### 6.2.1 Primary map

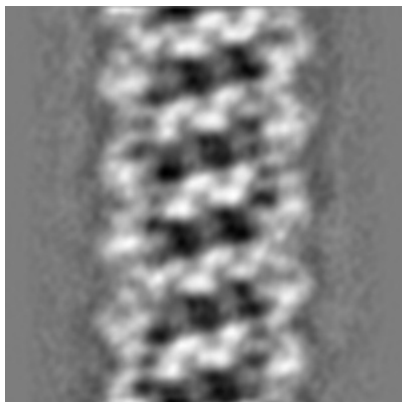




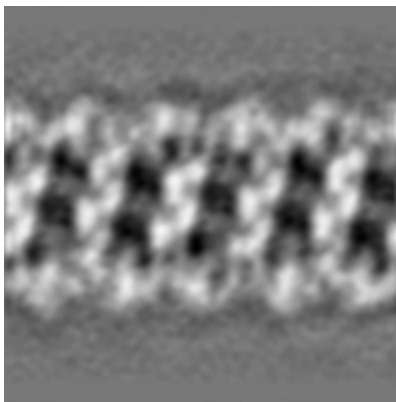
The images above show central slices of the map in three orthogonal directions.

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

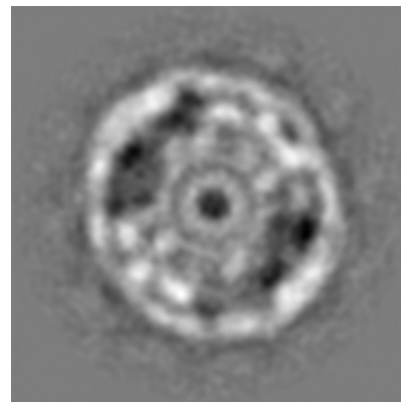
### 6.3.1 Primary map



X Index: 145



Y Index: 55

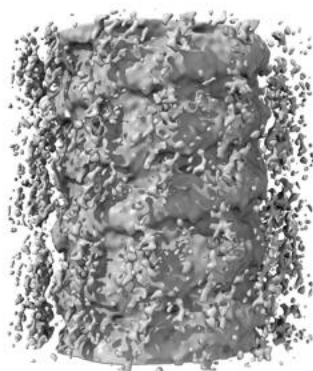


Z Index: 197

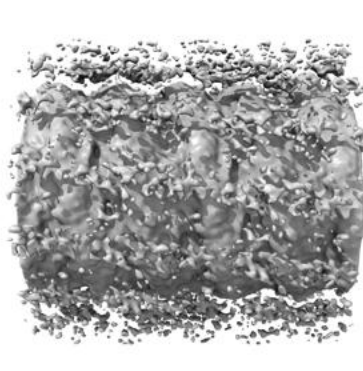
The images above show the largest variance slices of the map in three orthogonal directions.

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

### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.6. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

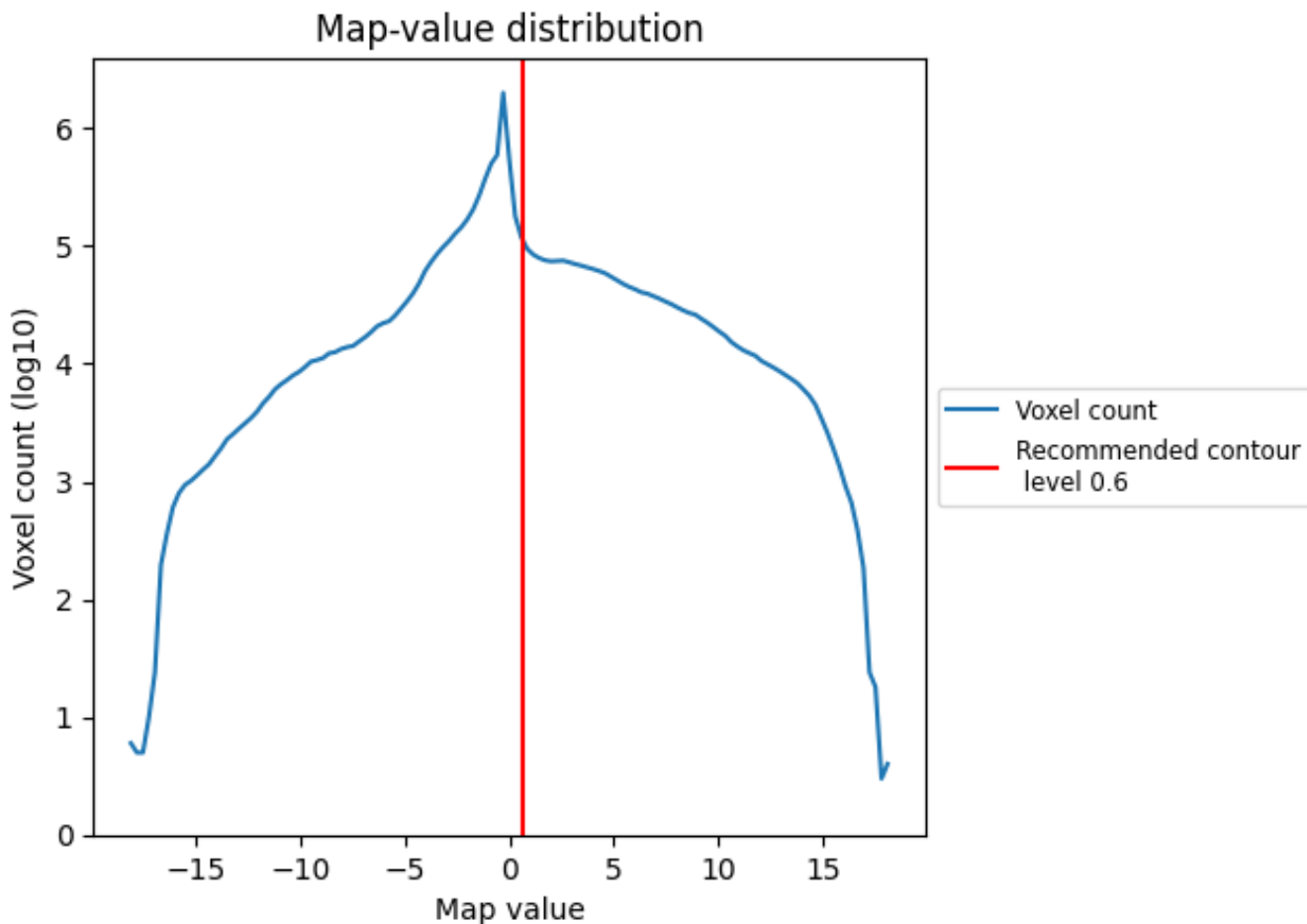
## 6.5 Mask visualisation

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

## 7 Map analysis [i](#)

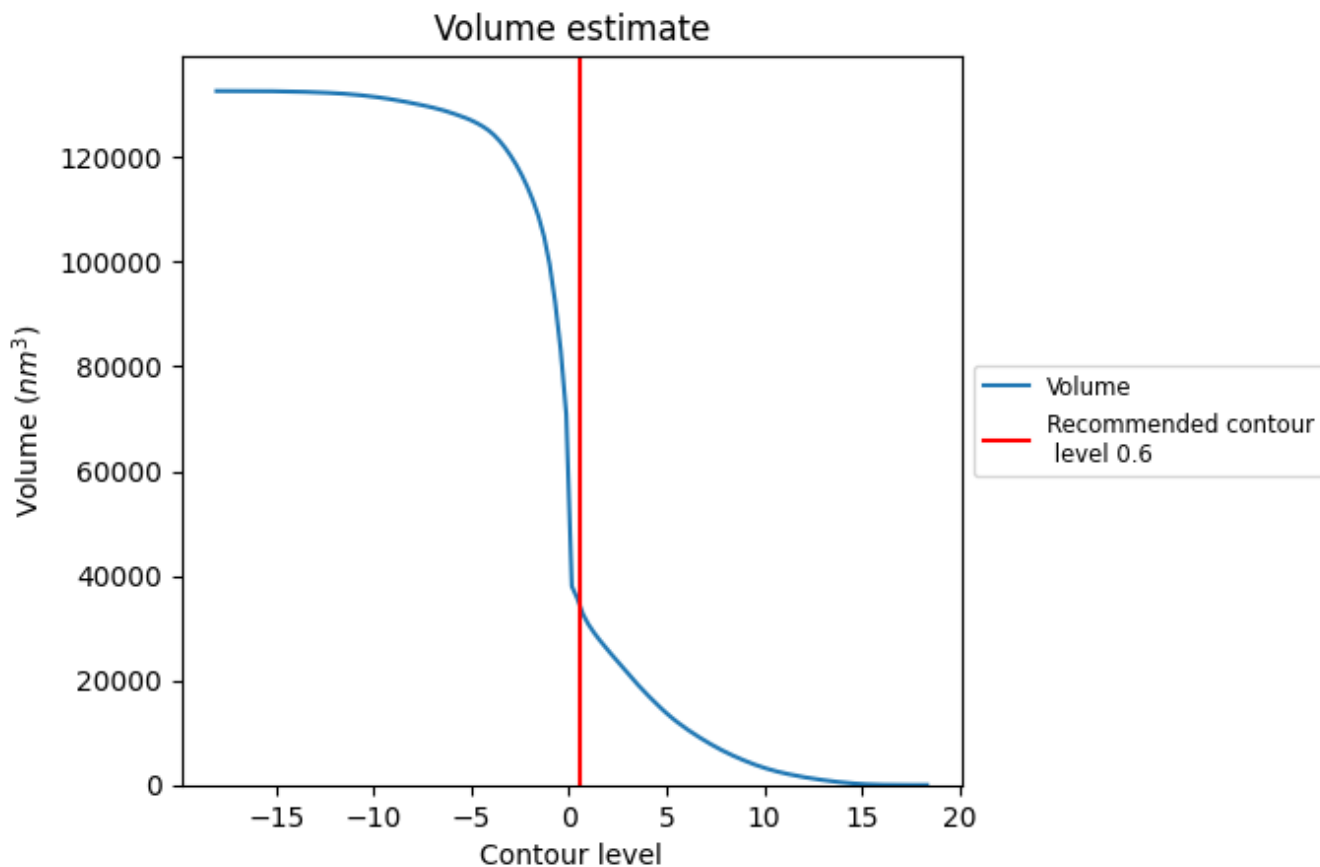
This section contains the results of statistical analysis of the map.

### 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.

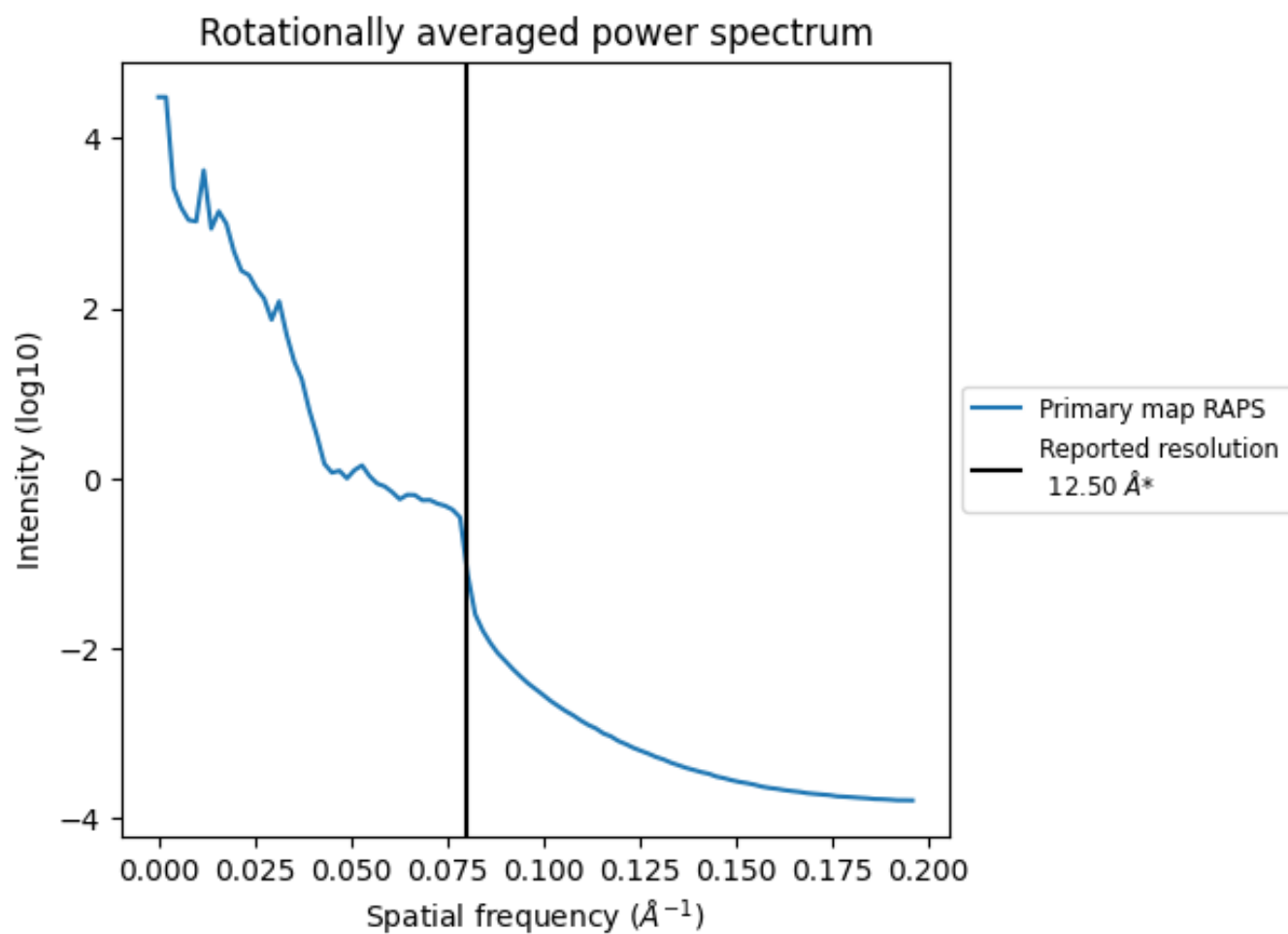
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 33840 nm<sup>3</sup>; this corresponds to an approximate mass of 30569 kDa.

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

### 7.3 Rotationally averaged power spectrum [i](#)



\*Reported resolution corresponds to spatial frequency of  $0.080 \text{\AA}^{-1}$

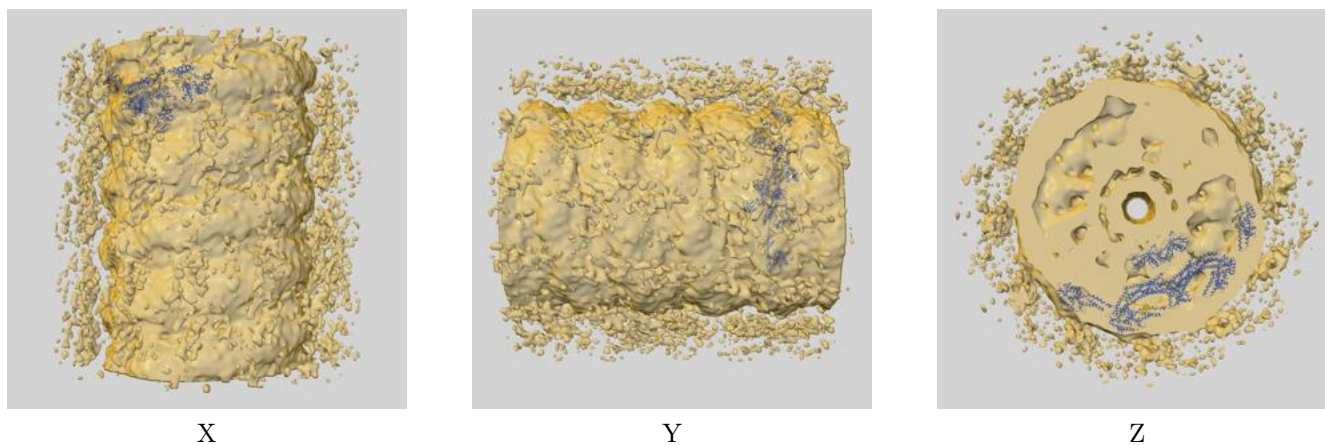
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

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

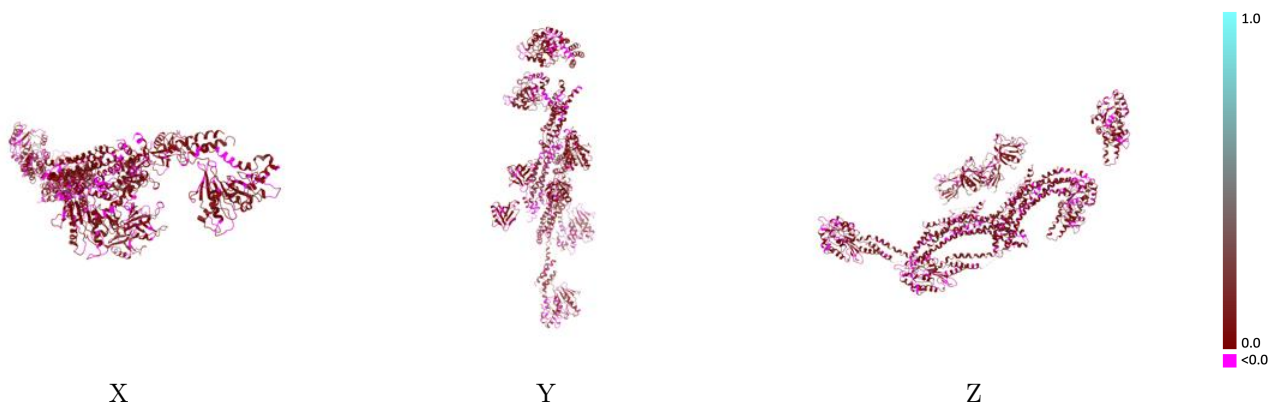
This section contains information regarding the fit between EMDB map EMD-2701 and PDB model 4UUK. Per-residue inclusion information can be found in section 3 on page 6.

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



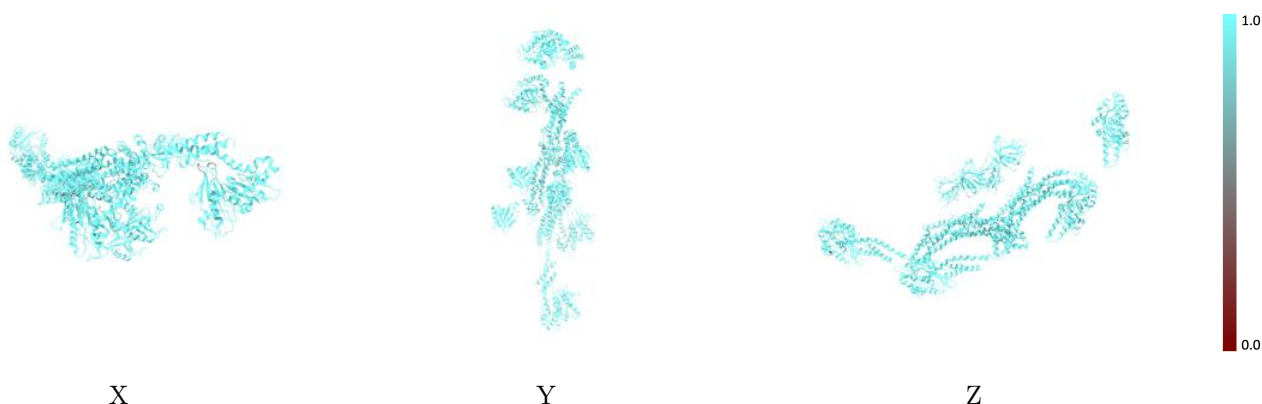
The images above show the 3D surface view of the map at the recommended contour level 0.6 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 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.

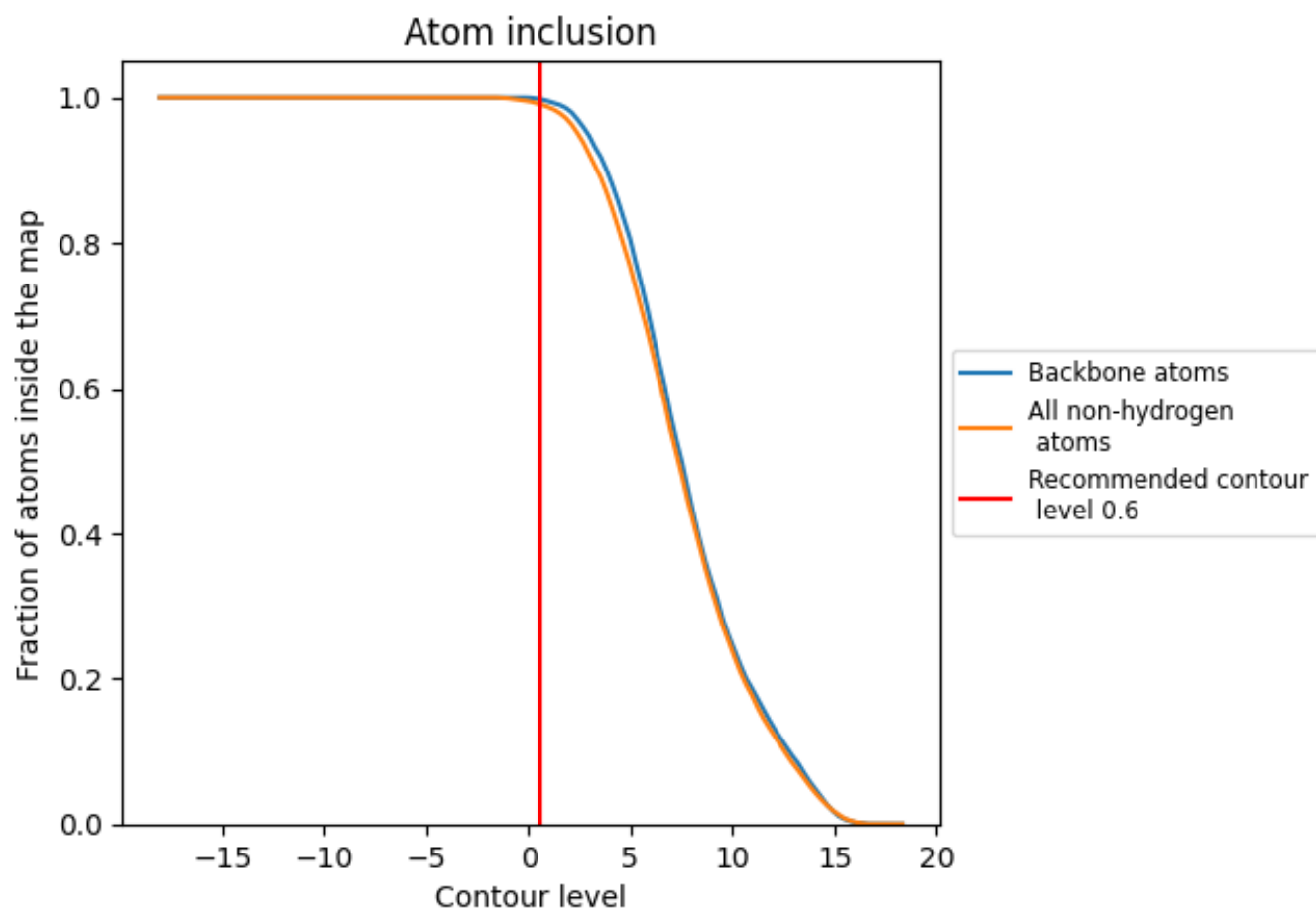
## 9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



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 (0.6).





























## 9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 99% 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 (0.6) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion   | Q-score  |
|-------|--|--|
| All   |  0.9909 |  0.0570 |
| A     |  0.9877 |  0.0550 |
| B     |  0.9893 |  0.0420 |
| C     |  0.9805 |  0.0730 |
| D     |  0.9958 |  0.0570 |
| E     |  0.9941 |  0.0620 |
| F     |  0.9913 |  0.0590 |
| G     |  0.9873 |  0.0550 |
| H     |  0.9816 |  0.0730 |
| I     |  0.9905 |  0.0410 |
| J     |  0.9941 |  0.0640 |
| K     |  0.9958 |  0.0570 |
| L     |  0.9924 |  0.0570 |

