



# Full wwPDB X-ray Structure Validation Report ⓘ

Aug 16, 2023 – 08:50 PM EDT

PDB ID : 2EU1  
Title : Crystal structure of the chaperonin GroEL-E461K  
Authors : Cabo-Bilbao, A.; Spinelli, S.; Sot, B.; Agirre, J.; Mechaly, A.E.; Muga, A.;  
Guerin, D.M.A.  
Deposited on : 2005-10-28  
Resolution : 3.29 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467  
Xtriage (Phenix) : 1.13  
EDS : 2.35  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.35

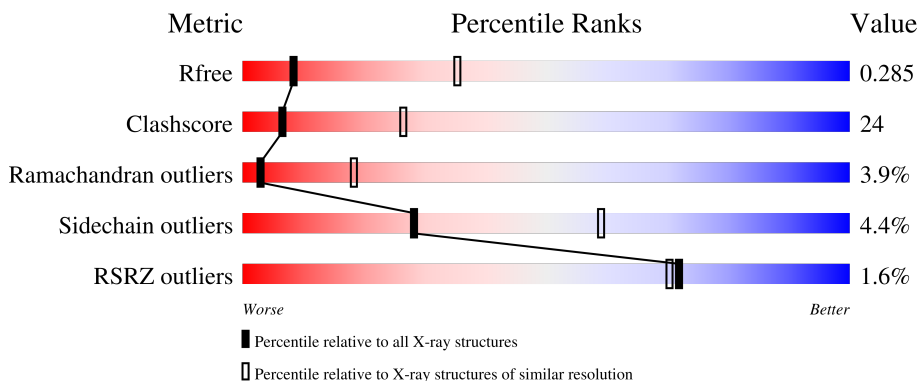
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.29 Å.

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



| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 130704                      | 1149 (3.34-3.26)                                      |
| Clashscore            | 141614                      | 1205 (3.34-3.26)                                      |
| Ramachandran outliers | 138981                      | 1183 (3.34-3.26)                                      |
| Sidechain outliers    | 138945                      | 1182 (3.34-3.26)                                      |
| RSRZ outliers         | 127900                      | 1115 (3.34-3.26)                                      |

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

| Mol | Chain | Length | Quality of chain      |
|-----|-------|--------|-----------------------|
| 1   | A     | 548    | <br>2%<br>53% 38% . . |
| 1   | B     | 548    | <br>%<br>56% 36% . .  |
| 1   | C     | 548    | <br>%<br>57% 35% . .  |
| 1   | D     | 548    | <br>3%<br>53% 39% . . |
| 1   | E     | 548    | <br>%<br>53% 39% . .  |

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| Mol | Chain | Length | Quality of chain                             |
|-----|-------|--------|--|
| 1   | F     | 548    | <p>%</p> <p>54% 38%</p> <p>• •</p>           |
| 1   | G     | 548    | <p>%</p> <p>54% 38%</p> <p>• •</p>           |
| 1   | H     | 548    | <p>4%</p> <p>%</p> <p>55% 37%</p> <p>• •</p> |
| 1   | I     | 548    | <p>%</p> <p>57% 37%</p> <p>• •</p>           |
| 1   | J     | 548    | <p>2%</p> <p>%</p> <p>57% 35%</p> <p>• •</p> |
| 1   | K     | 548    | <p>%</p> <p>55% 38%</p> <p>• •</p>           |
| 1   | L     | 548    | <p>%</p> <p>53% 39%</p> <p>• •</p>           |
| 1   | M     | 548    | <p>%</p> <p>53% 39%</p> <p>• •</p>           |
| 1   | N     | 548    | <p>%</p> <p>56% 37%</p> <p>• •</p>           |

## 2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 53970 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called GROEL.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | B     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | C     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | D     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | E     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | F     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | G     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | H     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | I     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | J     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | K     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | L     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | M     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |
| 1   | N     | 524      | 3855  | 2398 | 666 | 771 | 20 | 0       | 0       | 0     |

There are 14 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment             | Reference  |
|-------|---------|----------|--------|---------------------|------------|
| A     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |

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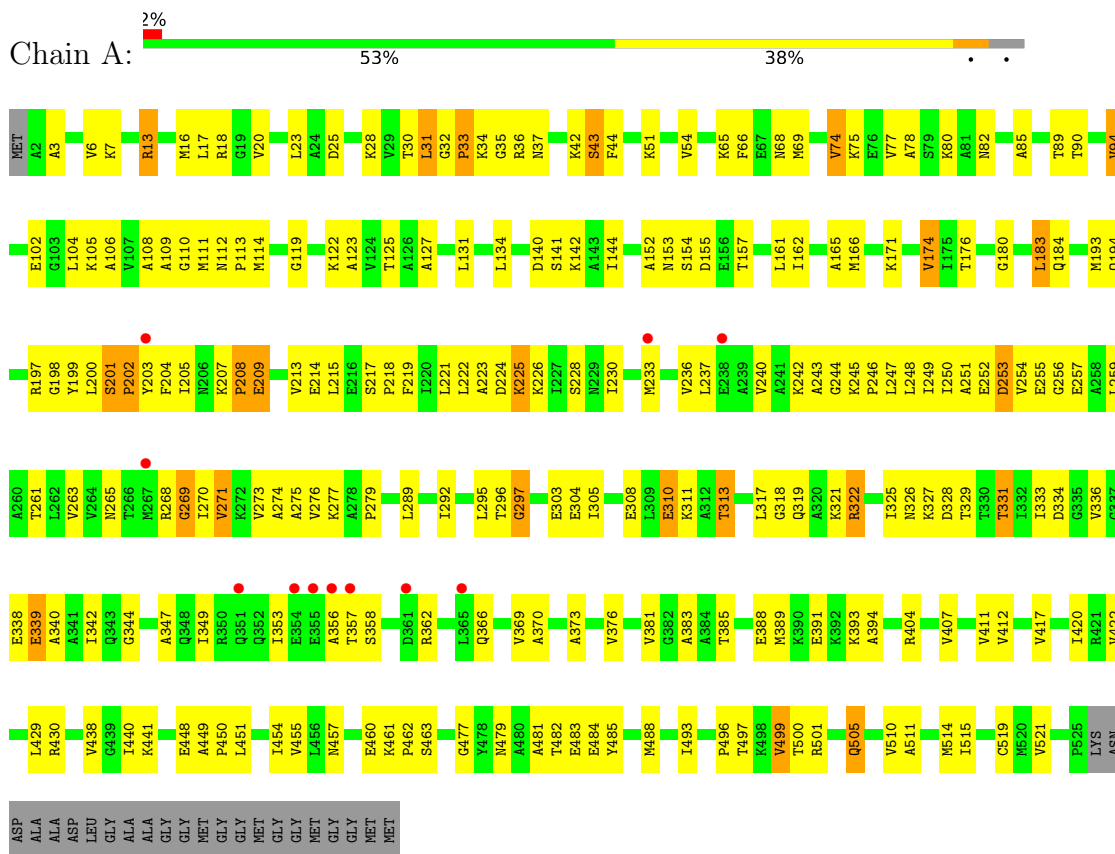
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| Chain | Residue | Modelled | Actual | Comment             | Reference  |
|-------|---------|----------|--------|---------------------|------------|
| B     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| C     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| D     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| E     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| F     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| G     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| H     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| I     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| J     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| K     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| L     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| M     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |
| N     | 461     | LYS      | GLU    | engineered mutation | UNP P0A6F5 |

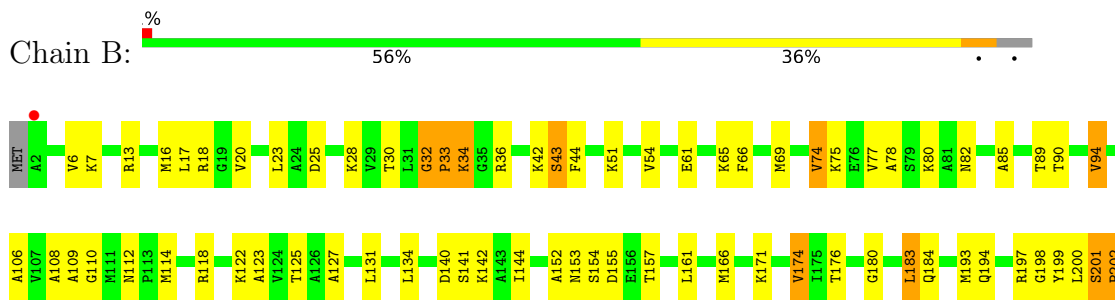
### 3 Residue-property plots i

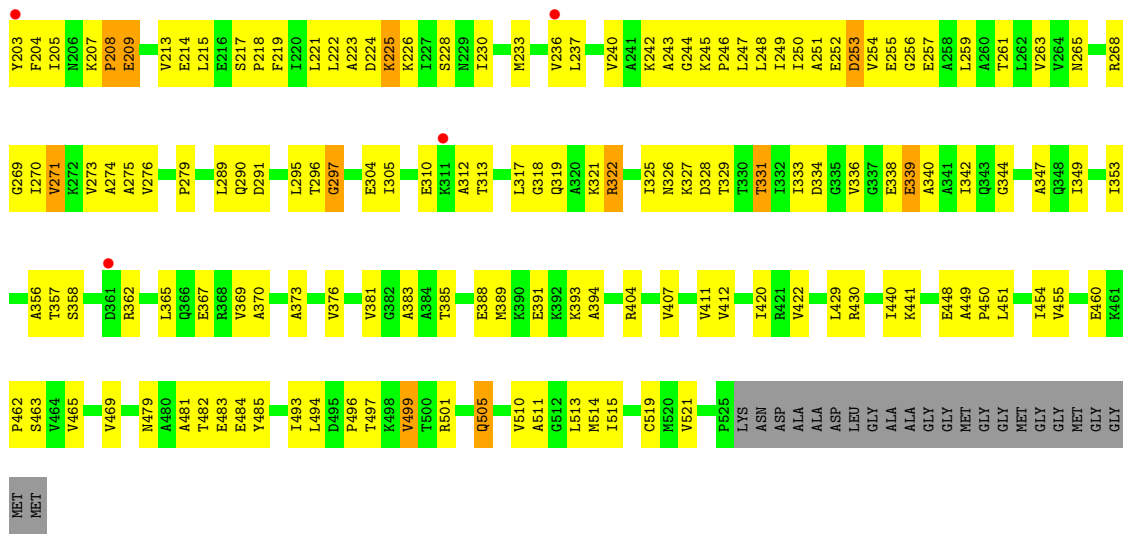
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

#### • Molecule 1: GROEL

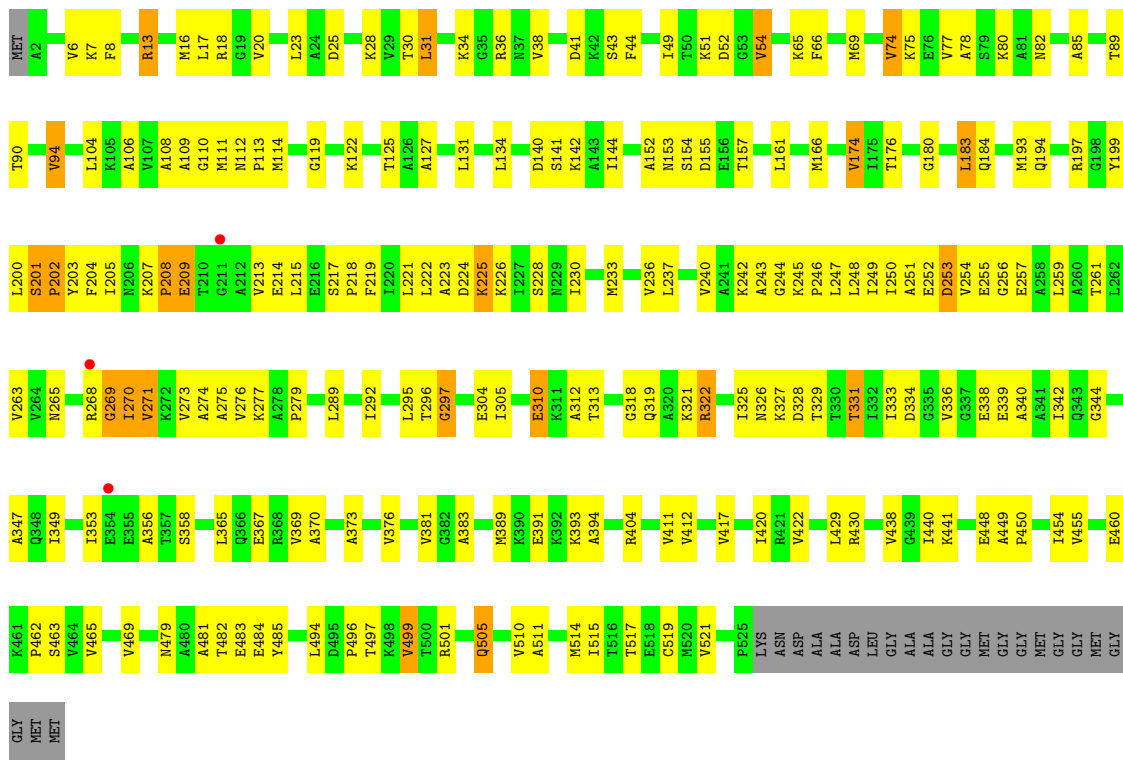


#### • Molecule 1: GROEL





• Molecule 1: GROEL



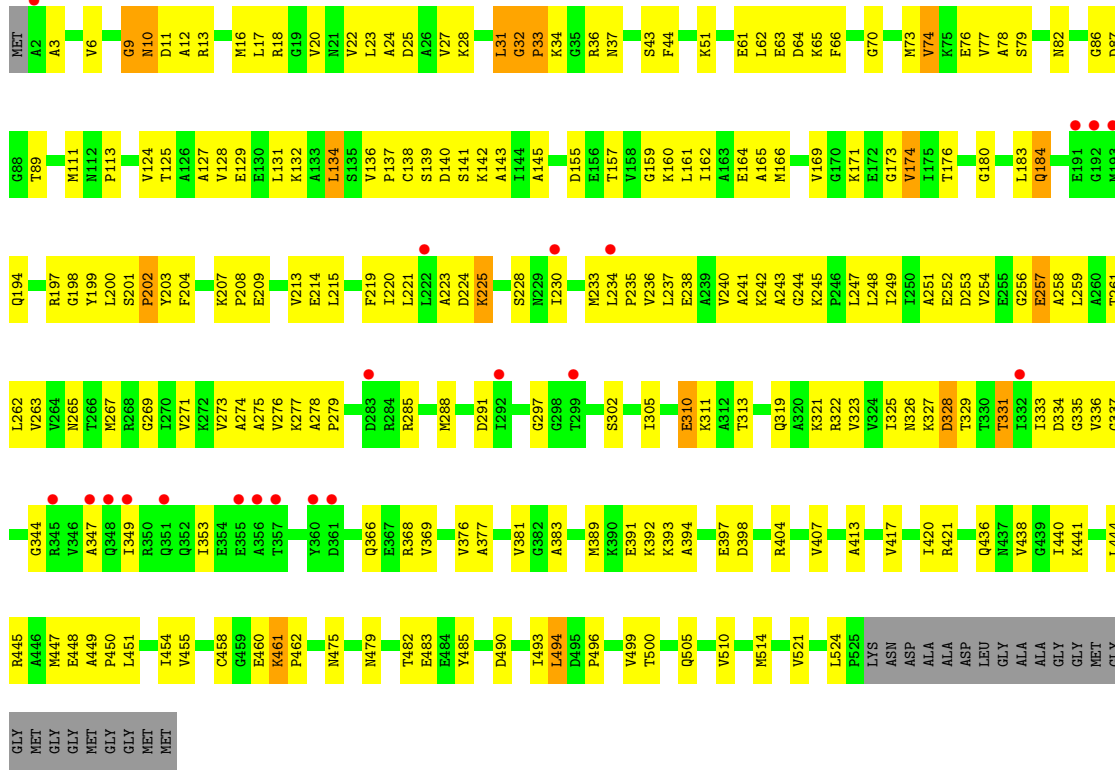
• Molecule 1: GROEL



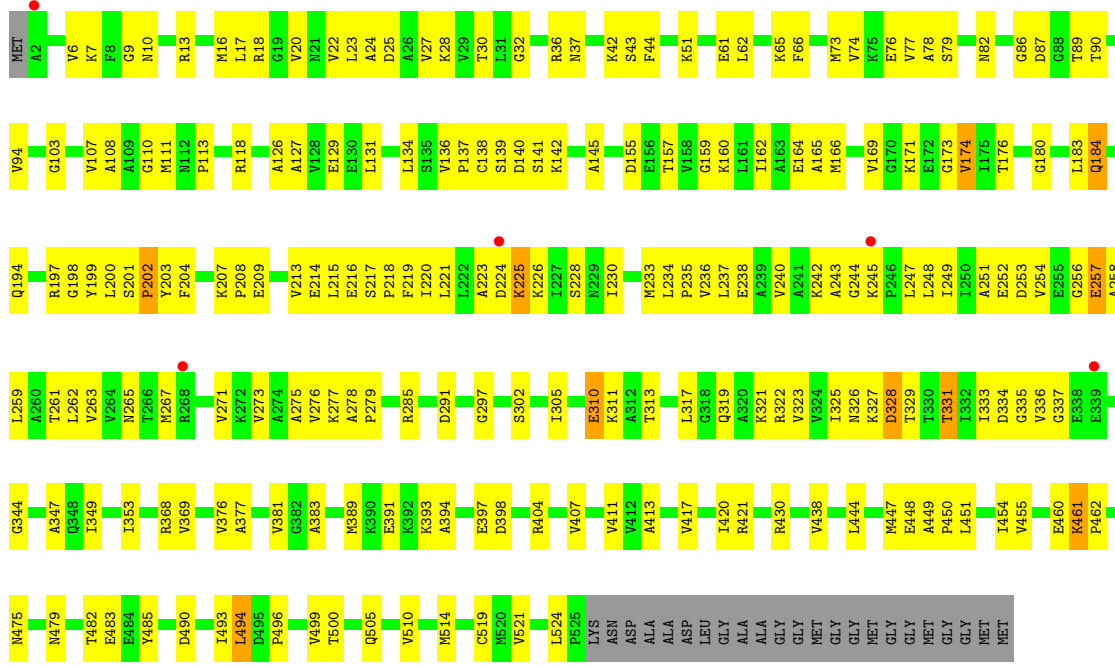








• Molecule 1: GROEL

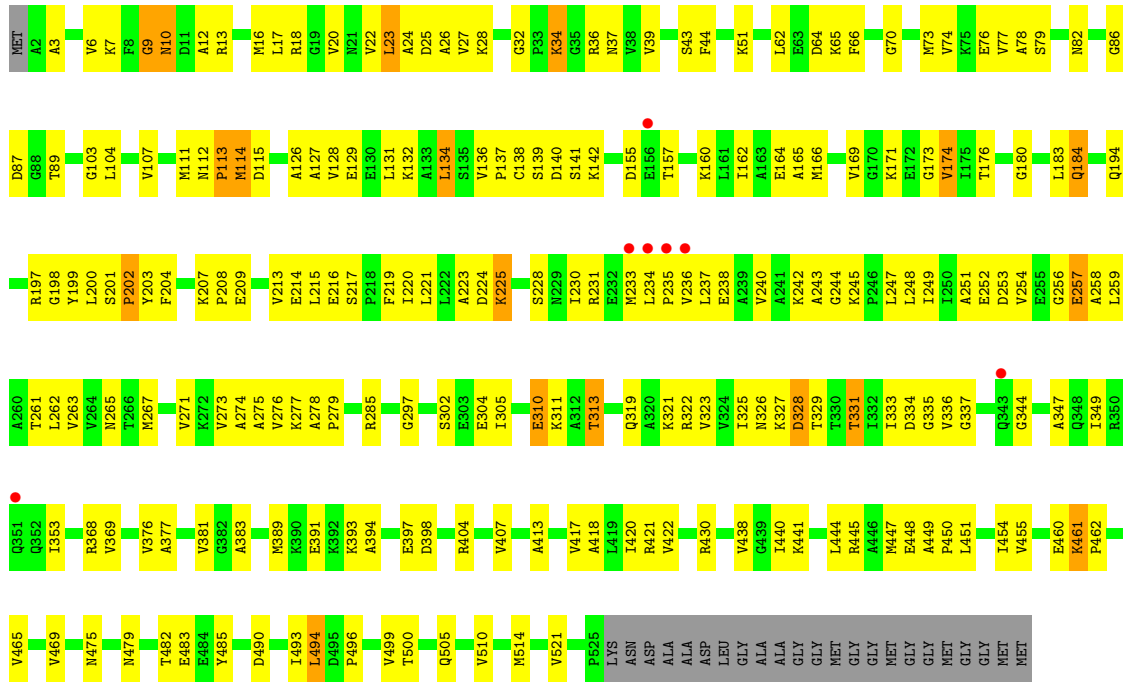


• Molecule 1: GROEL





• Molecule 1: GROEL



## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | C 2 2 21  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 267.69Å 290.64Å 247.01Å<br>90.00° 90.00° 90.00°             | Depositor        |
| Resolution (Å)  | 15.00 – 3.29<br>39.75 – 3.29                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | (Not available) (15.00-3.29)<br>85.4 (39.75-3.29)           | Depositor<br>EDS |
| $R_{merge}$   | (Not available)   | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 1.70 (at 3.32Å)   | Xtrriage         |
| Refinement program  | CNS 1.1   | Depositor        |
| R, $R_{free}$   | 0.276 , 0.296<br>0.266 , 0.285                              | Depositor<br>DCC |
| $R_{free}$ test set   | 6133 reflections (4.97%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 70.6  | Xtrriage         |
| Anisotropy  | 0.555   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.30 , 56.8   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.43$ , $\langle L^2 \rangle = 0.26$ | Xtrriage         |
| Estimated twinning fraction   | No twinning to report.                                      | Xtrriage         |
| $F_o, F_c$ correlation  | 0.90  | EDS              |
| Total number of atoms   | 53970   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 57.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 44.51 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.5101e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality i

### 5.1 Standard geometry i

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     | 0.56         | 1/3883 (0.0%)  | 0.78        | 3/5242 (0.1%)   |
| 1   | B     | 0.59         | 0/3883         | 0.66        | 2/5242 (0.0%)   |
| 1   | C     | 0.55         | 0/3883         | 0.68        | 2/5242 (0.0%)   |
| 1   | D     | 0.54         | 0/3883         | 0.69        | 2/5242 (0.0%)   |
| 1   | E     | 0.53         | 1/3883 (0.0%)  | 0.77        | 3/5242 (0.1%)   |
| 1   | F     | 0.54         | 0/3883         | 0.68        | 2/5242 (0.0%)   |
| 1   | G     | 0.54         | 0/3883         | 0.67        | 2/5242 (0.0%)   |
| 1   | H     | 0.54         | 0/3883         | 0.79        | 3/5242 (0.1%)   |
| 1   | I     | 0.57         | 1/3883 (0.0%)  | 0.68        | 2/5242 (0.0%)   |
| 1   | J     | 0.53         | 0/3883         | 0.82        | 6/5242 (0.1%)   |
| 1   | K     | 0.52         | 0/3883         | 0.68        | 2/5242 (0.0%)   |
| 1   | L     | 0.52         | 0/3883         | 0.79        | 3/5242 (0.1%)   |
| 1   | M     | 0.54         | 0/3883         | 0.83        | 5/5242 (0.1%)   |
| 1   | N     | 0.52         | 0/3883         | 0.78        | 5/5242 (0.1%)   |
| All | All   | 0.54         | 3/54362 (0.0%) | 0.74        | 42/73388 (0.1%) |

All (3) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 1   | A     | 519 | CYS  | CB-SG | -5.20 | 1.73        | 1.81     |
| 1   | E     | 519 | CYS  | CB-SG | -5.05 | 1.73        | 1.81     |
| 1   | I     | 519 | CYS  | CB-SG | -5.05 | 1.73        | 1.81     |

All (42) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms     | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|--------|-------------|----------|
| 1   | M     | 284 | ARG  | NE-CZ-NH1 | -24.36 | 108.12      | 120.30   |
| 1   | A     | 13  | ARG  | NE-CZ-NH2 | -23.32 | 108.64      | 120.30   |
| 1   | H     | 13  | ARG  | NE-CZ-NH2 | -22.86 | 108.87      | 120.30   |
| 1   | M     | 284 | ARG  | NE-CZ-NH2 | 22.53  | 131.56      | 120.30   |
| 1   | L     | 13  | ARG  | NE-CZ-NH2 | -22.29 | 109.15      | 120.30   |
| 1   | J     | 231 | ARG  | NE-CZ-NH1 | -21.84 | 109.38      | 120.30   |
| 1   | E     | 13  | ARG  | NE-CZ-NH2 | -21.70 | 109.45      | 120.30   |

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| Mol | Chain | Res | Type | Atoms     | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|--------|-------------|----------|
| 1   | J     | 231 | ARG  | NE-CZ-NH2 | 21.53  | 131.06      | 120.30   |
| 1   | L     | 13  | ARG  | NE-CZ-NH1 | 19.88  | 130.24      | 120.30   |
| 1   | N     | 368 | ARG  | NE-CZ-NH1 | -19.48 | 110.56      | 120.30   |
| 1   | A     | 13  | ARG  | NE-CZ-NH1 | 19.45  | 130.02      | 120.30   |
| 1   | N     | 368 | ARG  | NE-CZ-NH2 | 19.16  | 129.88      | 120.30   |
| 1   | H     | 13  | ARG  | NE-CZ-NH1 | 18.98  | 129.79      | 120.30   |
| 1   | E     | 13  | ARG  | NE-CZ-NH1 | 17.93  | 129.27      | 120.30   |
| 1   | D     | 13  | ARG  | NE-CZ-NH1 | -11.62 | 114.49      | 120.30   |
| 1   | M     | 284 | ARG  | CD-NE-CZ  | 11.56  | 139.79      | 123.60   |
| 1   | J     | 231 | ARG  | CD-NE-CZ  | 10.53  | 138.34      | 123.60   |
| 1   | J     | 13  | ARG  | NE-CZ-NH1 | -9.86  | 115.37      | 120.30   |
| 1   | H     | 13  | ARG  | CD-NE-CZ  | 9.85   | 137.39      | 123.60   |
| 1   | K     | 13  | ARG  | NE-CZ-NH1 | -9.61  | 115.50      | 120.30   |
| 1   | N     | 13  | ARG  | NE-CZ-NH1 | -9.55  | 115.52      | 120.30   |
| 1   | E     | 13  | ARG  | CD-NE-CZ  | 9.54   | 136.96      | 123.60   |
| 1   | M     | 13  | ARG  | NE-CZ-NH1 | -9.52  | 115.54      | 120.30   |
| 1   | F     | 13  | ARG  | NE-CZ-NH1 | -9.46  | 115.57      | 120.30   |
| 1   | L     | 13  | ARG  | CD-NE-CZ  | 9.40   | 136.76      | 123.60   |
| 1   | A     | 13  | ARG  | CD-NE-CZ  | 9.34   | 136.68      | 123.60   |
| 1   | C     | 13  | ARG  | NE-CZ-NH1 | -9.27  | 115.67      | 120.30   |
| 1   | G     | 13  | ARG  | NE-CZ-NH1 | -9.09  | 115.76      | 120.30   |
| 1   | I     | 13  | ARG  | NE-CZ-NH1 | -8.98  | 115.81      | 120.30   |
| 1   | D     | 13  | ARG  | NE-CZ-NH2 | 8.74   | 124.67      | 120.30   |
| 1   | J     | 13  | ARG  | NE-CZ-NH2 | 8.62   | 124.61      | 120.30   |
| 1   | N     | 368 | ARG  | CD-NE-CZ  | 8.41   | 135.37      | 123.60   |
| 1   | C     | 13  | ARG  | NE-CZ-NH2 | 7.85   | 124.23      | 120.30   |
| 1   | K     | 13  | ARG  | NE-CZ-NH2 | 7.78   | 124.19      | 120.30   |
| 1   | F     | 13  | ARG  | NE-CZ-NH2 | 7.72   | 124.16      | 120.30   |
| 1   | I     | 13  | ARG  | NE-CZ-NH2 | 7.66   | 124.13      | 120.30   |
| 1   | B     | 13  | ARG  | NE-CZ-NH1 | -7.48  | 116.56      | 120.30   |
| 1   | M     | 13  | ARG  | NE-CZ-NH2 | 7.39   | 124.00      | 120.30   |
| 1   | N     | 13  | ARG  | NE-CZ-NH2 | 7.26   | 123.93      | 120.30   |
| 1   | G     | 13  | ARG  | NE-CZ-NH2 | 6.31   | 123.45      | 120.30   |
| 1   | B     | 13  | ARG  | NE-CZ-NH2 | 6.15   | 123.38      | 120.30   |
| 1   | J     | 32  | GLY  | C-N-CD    | -6.04  | 107.32      | 120.60   |

There are no chirality outliers.

There are no planarity outliers.



## 5.2 Too-close contacts

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 3855  | 0        | 3983     | 183     | 0            |
| 1   | B     | 3855  | 0        | 3983     | 168     | 0            |
| 1   | C     | 3855  | 0        | 3983     | 170     | 0            |
| 1   | D     | 3855  | 0        | 3983     | 195     | 0            |
| 1   | E     | 3855  | 0        | 3983     | 198     | 0            |
| 1   | F     | 3855  | 0        | 3983     | 200     | 1            |
| 1   | G     | 3855  | 0        | 3983     | 175     | 0            |
| 1   | H     | 3855  | 0        | 3983     | 205     | 0            |
| 1   | I     | 3855  | 0        | 3983     | 184     | 0            |
| 1   | J     | 3855  | 0        | 3983     | 181     | 0            |
| 1   | K     | 3855  | 0        | 3983     | 208     | 0            |
| 1   | L     | 3855  | 0        | 3983     | 227     | 0            |
| 1   | M     | 3855  | 0        | 3983     | 215     | 1            |
| 1   | N     | 3855  | 0        | 3983     | 206     | 0            |
| All | All   | 53970 | 0        | 55762    | 2596    | 1            |

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 24.

All (2596) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:326:ASN:HD22 | 1:F:329:THR:HB   | 1.03                     | 1.12              |
| 1:A:326:ASN:HD22 | 1:A:329:THR:HB   | 1.05                     | 1.11              |
| 1:C:326:ASN:HD22 | 1:C:329:THR:HB   | 1.07                     | 1.11              |
| 1:E:326:ASN:HD22 | 1:E:329:THR:HB   | 1.08                     | 1.09              |
| 1:D:326:ASN:HD22 | 1:D:329:THR:HB   | 1.04                     | 1.08              |
| 1:G:326:ASN:HD22 | 1:G:329:THR:HB   | 1.04                     | 1.07              |
| 1:B:326:ASN:HD22 | 1:B:329:THR:HB   | 1.11                     | 1.05              |
| 1:E:519:CYS:HB3  | 1:F:38:VAL:HG13  | 1.46                     | 0.98              |
| 1:J:169:VAL:HG21 | 1:J:377:ALA:HB2  | 1.51                     | 0.91              |
| 1:F:326:ASN:ND2  | 1:F:329:THR:HB   | 1.87                     | 0.90              |
| 1:K:33:PRO:HD2   | 1:K:454:ILE:HG23 | 1.54                     | 0.90              |
| 1:A:326:ASN:ND2  | 1:A:329:THR:HB   | 1.88                     | 0.88              |
| 1:G:326:ASN:ND2  | 1:G:329:THR:HB   | 1.87                     | 0.88              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:169:VAL:HG21 | 1:L:377:ALA:HB2  | 1.54                     | 0.88              |
| 1:A:455:VAL:HG13 | 1:A:460:GLU:HB2  | 1.55                     | 0.88              |
| 1:K:169:VAL:HG21 | 1:K:377:ALA:HB2  | 1.54                     | 0.88              |
| 1:D:326:ASN:ND2  | 1:D:329:THR:HB   | 1.88                     | 0.87              |
| 1:I:169:VAL:HG21 | 1:I:377:ALA:HB2  | 1.56                     | 0.87              |
| 1:A:32:GLY:HA3   | 1:A:454:ILE:HG23 | 1.55                     | 0.87              |
| 1:H:169:VAL:HG21 | 1:H:377:ALA:HB2  | 1.57                     | 0.86              |
| 1:C:326:ASN:ND2  | 1:C:329:THR:HB   | 1.89                     | 0.86              |
| 1:K:230:ILE:HD12 | 1:K:261:THR:HG21 | 1.58                     | 0.86              |
| 1:I:230:ILE:HD12 | 1:I:261:THR:HG21 | 1.58                     | 0.86              |
| 1:N:169:VAL:HG21 | 1:N:377:ALA:HB2  | 1.54                     | 0.85              |
| 1:G:455:VAL:HG13 | 1:G:460:GLU:HB2  | 1.58                     | 0.84              |
| 1:B:455:VAL:HG13 | 1:B:460:GLU:HB2  | 1.57                     | 0.84              |
| 1:C:455:VAL:HG13 | 1:C:460:GLU:HB2  | 1.59                     | 0.84              |
| 1:M:169:VAL:HG21 | 1:M:377:ALA:HB2  | 1.58                     | 0.83              |
| 1:E:326:ASN:ND2  | 1:E:329:THR:HB   | 1.92                     | 0.83              |
| 1:N:230:ILE:HD12 | 1:N:261:THR:HG21 | 1.60                     | 0.83              |
| 1:K:33:PRO:HD2   | 1:K:454:ILE:CG2  | 2.10                     | 0.82              |
| 1:H:230:ILE:HD12 | 1:H:261:THR:HG21 | 1.59                     | 0.82              |
| 1:J:253:ASP:HB2  | 1:J:277:LYS:HE3  | 1.61                     | 0.82              |
| 1:H:32:GLY:HA3   | 1:H:454:ILE:HG23 | 1.59                     | 0.81              |
| 1:H:221:LEU:HD23 | 1:H:249:ILE:HD12 | 1.62                     | 0.81              |
| 1:K:449:ALA:HB3  | 1:K:450:PRO:HD3  | 1.61                     | 0.81              |
| 1:M:230:ILE:HD12 | 1:M:261:THR:HG21 | 1.62                     | 0.81              |
| 1:N:253:ASP:HB2  | 1:N:277:LYS:HE3  | 1.62                     | 0.81              |
| 1:G:200:LEU:HG   | 1:G:276:VAL:HA   | 1.61                     | 0.81              |
| 1:J:230:ILE:HD12 | 1:J:261:THR:HG21 | 1.63                     | 0.81              |
| 1:G:311:LYS:NZ   | 1:N:313:THR:HG23 | 1.95                     | 0.81              |
| 1:D:200:LEU:HG   | 1:D:276:VAL:HA   | 1.64                     | 0.80              |
| 1:L:520:MET:HG2  | 1:M:39:VAL:HB    | 1.62                     | 0.80              |
| 1:N:214:GLU:O    | 1:N:215:LEU:HD23 | 1.81                     | 0.80              |
| 1:I:449:ALA:HB3  | 1:I:450:PRO:HD3  | 1.63                     | 0.80              |
| 1:E:517:THR:HG21 | 1:F:39:VAL:HG23  | 1.64                     | 0.80              |
| 1:E:69:MET:SD    | 1:F:41:ASP:HB2   | 2.21                     | 0.80              |
| 1:M:449:ALA:HB3  | 1:M:450:PRO:HD3  | 1.62                     | 0.80              |
| 1:D:455:VAL:HG13 | 1:D:460:GLU:HB2  | 1.64                     | 0.79              |
| 1:I:253:ASP:HB2  | 1:I:277:LYS:HE3  | 1.64                     | 0.79              |
| 1:K:27:VAL:O     | 1:K:30:THR:HG22  | 1.81                     | 0.79              |
| 1:L:230:ILE:HD12 | 1:L:261:THR:HG21 | 1.62                     | 0.79              |
| 1:L:253:ASP:HB2  | 1:L:277:LYS:HE3  | 1.63                     | 0.79              |
| 1:C:200:LEU:HG   | 1:C:276:VAL:HA   | 1.62                     | 0.79              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:449:ALA:HB3  | 1:N:450:PRO:HD3  | 1.63                     | 0.79              |
| 1:F:200:LEU:HG   | 1:F:276:VAL:HA   | 1.64                     | 0.79              |
| 1:B:200:LEU:HG   | 1:B:276:VAL:HA   | 1.64                     | 0.78              |
| 1:E:200:LEU:HG   | 1:E:276:VAL:HA   | 1.63                     | 0.78              |
| 1:L:519:CYS:HB3  | 1:M:38:VAL:HG13  | 1.64                     | 0.78              |
| 1:K:28:LYS:C     | 1:K:30:THR:H     | 1.85                     | 0.78              |
| 1:E:8:PHE:HE1    | 1:F:26:ALA:HA    | 1.49                     | 0.78              |
| 1:J:16:MET:SD    | 1:J:514:MET:HE2  | 2.24                     | 0.78              |
| 1:K:221:LEU:HD23 | 1:K:249:ILE:HD12 | 1.65                     | 0.78              |
| 1:E:455:VAL:HG13 | 1:E:460:GLU:HB2  | 1.65                     | 0.78              |
| 1:J:449:ALA:HB3  | 1:J:450:PRO:HD3  | 1.65                     | 0.78              |
| 1:M:253:ASP:HB2  | 1:M:277:LYS:HE3  | 1.63                     | 0.78              |
| 1:N:32:GLY:HA3   | 1:N:454:ILE:HG23 | 1.66                     | 0.77              |
| 1:J:221:LEU:HD23 | 1:J:249:ILE:HD12 | 1.65                     | 0.77              |
| 1:L:8:PHE:HZ     | 1:M:26:ALA:HB2   | 1.47                     | 0.77              |
| 1:I:16:MET:SD    | 1:I:514:MET:HE2  | 2.23                     | 0.77              |
| 1:L:254:VAL:HG12 | 1:L:259:LEU:HB2  | 1.66                     | 0.77              |
| 1:M:16:MET:SD    | 1:M:73:MET:HE1   | 2.25                     | 0.77              |
| 1:L:8:PHE:HE1    | 1:M:26:ALA:HA    | 1.48                     | 0.77              |
| 1:A:200:LEU:HG   | 1:A:276:VAL:HA   | 1.65                     | 0.77              |
| 1:G:311:LYS:HZ3  | 1:N:313:THR:HG23 | 1.47                     | 0.77              |
| 1:N:221:LEU:HD23 | 1:N:249:ILE:HD12 | 1.66                     | 0.77              |
| 1:J:254:VAL:HG12 | 1:J:259:LEU:HB2  | 1.67                     | 0.77              |
| 1:H:253:ASP:HB2  | 1:H:277:LYS:HE3  | 1.67                     | 0.76              |
| 1:I:221:LEU:HD23 | 1:I:249:ILE:HD12 | 1.67                     | 0.76              |
| 1:K:28:LYS:C     | 1:K:30:THR:N     | 2.38                     | 0.76              |
| 1:A:34:LYS:HB3   | 1:G:114:MET:HG3  | 1.67                     | 0.76              |
| 1:M:221:LEU:HD23 | 1:M:249:ILE:HD12 | 1.64                     | 0.76              |
| 1:N:228:SER:O    | 1:N:257:GLU:HB3  | 1.85                     | 0.76              |
| 1:L:449:ALA:HB3  | 1:L:450:PRO:HD3  | 1.66                     | 0.76              |
| 1:K:381:VAL:HG21 | 1:K:393:LYS:HA   | 1.67                     | 0.76              |
| 1:D:221:LEU:HD23 | 1:D:249:ILE:HD12 | 1.68                     | 0.76              |
| 1:L:228:SER:O    | 1:L:257:GLU:HB3  | 1.85                     | 0.76              |
| 1:B:326:ASN:ND2  | 1:B:329:THR:HB   | 1.96                     | 0.76              |
| 1:H:494:LEU:H    | 1:H:494:LEU:HD12 | 1.51                     | 0.76              |
| 1:H:449:ALA:HB3  | 1:H:450:PRO:HD3  | 1.65                     | 0.76              |
| 1:I:381:VAL:HG21 | 1:I:393:LYS:HA   | 1.66                     | 0.76              |
| 1:N:381:VAL:HG21 | 1:N:393:LYS:HA   | 1.68                     | 0.75              |
| 1:F:85:ALA:HB1   | 1:F:499:VAL:HG12 | 1.69                     | 0.75              |
| 1:L:221:LEU:HD23 | 1:L:249:ILE:HD12 | 1.67                     | 0.75              |
| 1:M:254:VAL:HG12 | 1:M:259:LEU:HB2  | 1.69                     | 0.75              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:494:LEU:H    | 1:M:494:LEU:HD12 | 1.51                     | 0.75              |
| 1:I:404:ARG:HG2  | 1:I:404:ARG:HH11 | 1.51                     | 0.75              |
| 1:M:381:VAL:HG21 | 1:M:393:LYS:HA   | 1.68                     | 0.75              |
| 1:K:254:VAL:HG12 | 1:K:259:LEU:HB2  | 1.68                     | 0.75              |
| 1:E:311:LYS:HD3  | 1:I:311:LYS:HB3  | 1.69                     | 0.75              |
| 1:F:221:LEU:HD23 | 1:F:249:ILE:HD12 | 1.69                     | 0.75              |
| 1:I:254:VAL:HG12 | 1:I:259:LEU:HB2  | 1.68                     | 0.75              |
| 1:K:16:MET:SD    | 1:K:73:MET:HE1   | 2.26                     | 0.75              |
| 1:E:311:LYS:HB3  | 1:I:311:LYS:HD3  | 1.67                     | 0.75              |
| 1:N:16:MET:SD    | 1:N:514:MET:HE2  | 2.26                     | 0.75              |
| 1:N:494:LEU:H    | 1:N:494:LEU:HD12 | 1.51                     | 0.75              |
| 1:I:383:ALA:HB3  | 1:I:389:MET:HB2  | 1.68                     | 0.74              |
| 1:C:85:ALA:HB1   | 1:C:499:VAL:HG12 | 1.69                     | 0.74              |
| 1:L:381:VAL:HG21 | 1:L:393:LYS:HA   | 1.69                     | 0.74              |
| 1:L:383:ALA:HB3  | 1:L:389:MET:HB2  | 1.67                     | 0.74              |
| 1:B:85:ALA:HB1   | 1:B:499:VAL:HG12 | 1.69                     | 0.74              |
| 1:N:254:VAL:HG12 | 1:N:259:LEU:HB2  | 1.70                     | 0.74              |
| 1:A:85:ALA:HB1   | 1:A:499:VAL:HG12 | 1.69                     | 0.74              |
| 1:E:85:ALA:HB1   | 1:E:499:VAL:HG12 | 1.70                     | 0.74              |
| 1:K:16:MET:HB3   | 1:K:514:MET:HE1  | 1.70                     | 0.74              |
| 1:K:18:ARG:HG2   | 1:K:18:ARG:HH11  | 1.53                     | 0.74              |
| 1:A:221:LEU:HD23 | 1:A:249:ILE:HD12 | 1.70                     | 0.74              |
| 1:H:241:ALA:HB1  | 1:N:231:ARG:NH1  | 2.03                     | 0.74              |
| 1:I:494:LEU:H    | 1:I:494:LEU:HD12 | 1.53                     | 0.74              |
| 1:H:461:LYS:HA   | 1:H:461:LYS:HE3  | 1.70                     | 0.74              |
| 1:J:214:GLU:O    | 1:J:215:LEU:HD23 | 1.87                     | 0.73              |
| 1:K:228:SER:O    | 1:K:257:GLU:HB3  | 1.87                     | 0.73              |
| 1:I:461:LYS:HE3  | 1:I:461:LYS:HA   | 1.71                     | 0.73              |
| 1:F:455:VAL:HG13 | 1:F:460:GLU:HB2  | 1.68                     | 0.73              |
| 1:M:6:VAL:HG22   | 1:M:521:VAL:HG22 | 1.68                     | 0.73              |
| 1:F:183:LEU:HD13 | 1:F:184:GLN:HG3  | 1.69                     | 0.73              |
| 1:H:254:VAL:HG12 | 1:H:259:LEU:HB2  | 1.70                     | 0.73              |
| 1:N:461:LYS:HA   | 1:N:461:LYS:HE3  | 1.71                     | 0.73              |
| 1:C:221:LEU:HD23 | 1:C:249:ILE:HD12 | 1.69                     | 0.73              |
| 1:D:118:ARG:HH22 | 1:E:34:LYS:HE2   | 1.53                     | 0.73              |
| 1:F:455:VAL:HG11 | 1:F:462:PRO:HA   | 1.71                     | 0.73              |
| 1:H:228:SER:O    | 1:H:257:GLU:HB3  | 1.88                     | 0.73              |
| 1:L:461:LYS:HA   | 1:L:461:LYS:HE3  | 1.69                     | 0.73              |
| 1:J:6:VAL:HG22   | 1:J:521:VAL:HG22 | 1.69                     | 0.73              |
| 1:J:228:SER:O    | 1:J:257:GLU:HB3  | 1.89                     | 0.73              |
| 1:K:383:ALA:HB3  | 1:K:389:MET:HB2  | 1.70                     | 0.73              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:183:LEU:HD13 | 1:G:184:GLN:HG3  | 1.71                     | 0.72              |
| 1:I:228:SER:O    | 1:I:257:GLU:HB3  | 1.89                     | 0.72              |
| 1:J:16:MET:SD    | 1:J:73:MET:HE1   | 2.29                     | 0.72              |
| 1:K:253:ASP:HB2  | 1:K:277:LYS:HE3  | 1.70                     | 0.72              |
| 1:L:404:ARG:HG2  | 1:L:404:ARG:HH11 | 1.54                     | 0.72              |
| 1:M:461:LYS:HA   | 1:M:461:LYS:HE3  | 1.71                     | 0.72              |
| 1:E:183:LEU:HD13 | 1:E:184:GLN:HG3  | 1.72                     | 0.72              |
| 1:L:494:LEU:HD12 | 1:L:494:LEU:H    | 1.55                     | 0.72              |
| 1:G:85:ALA:HB1   | 1:G:499:VAL:HG12 | 1.70                     | 0.72              |
| 1:J:461:LYS:HA   | 1:J:461:LYS:HE3  | 1.70                     | 0.72              |
| 1:L:16:MET:HB3   | 1:L:514:MET:HE1  | 1.72                     | 0.72              |
| 1:L:214:GLU:O    | 1:L:215:LEU:HD23 | 1.89                     | 0.72              |
| 1:A:252:GLU:O    | 1:A:253:ASP:HB2  | 1.90                     | 0.71              |
| 1:M:228:SER:O    | 1:M:257:GLU:HB3  | 1.89                     | 0.71              |
| 1:N:235:PRO:HG3  | 1:N:310:GLU:HG3  | 1.72                     | 0.71              |
| 1:J:494:LEU:H    | 1:J:494:LEU:HD12 | 1.54                     | 0.71              |
| 1:C:183:LEU:HD22 | 1:C:184:GLN:H    | 1.54                     | 0.71              |
| 1:D:183:LEU:HD13 | 1:D:184:GLN:HG3  | 1.72                     | 0.71              |
| 1:H:214:GLU:O    | 1:H:215:LEU:HD23 | 1.89                     | 0.71              |
| 1:J:169:VAL:HG12 | 1:J:173:GLY:HA3  | 1.72                     | 0.71              |
| 1:A:183:LEU:HD13 | 1:A:184:GLN:HG3  | 1.72                     | 0.71              |
| 1:C:183:LEU:HD13 | 1:C:184:GLN:HG3  | 1.71                     | 0.71              |
| 1:F:183:LEU:HD22 | 1:F:184:GLN:H    | 1.55                     | 0.71              |
| 1:M:16:MET:HB3   | 1:M:514:MET:HE1  | 1.72                     | 0.71              |
| 1:H:381:VAL:HG21 | 1:H:393:LYS:HA   | 1.73                     | 0.71              |
| 1:H:404:ARG:HG2  | 1:H:404:ARG:HH11 | 1.56                     | 0.71              |
| 1:I:214:GLU:O    | 1:I:215:LEU:HD23 | 1.91                     | 0.71              |
| 1:M:214:GLU:O    | 1:M:215:LEU:HD23 | 1.90                     | 0.71              |
| 1:N:383:ALA:HB3  | 1:N:389:MET:HB2  | 1.72                     | 0.71              |
| 1:K:169:VAL:HG12 | 1:K:173:GLY:HA3  | 1.73                     | 0.71              |
| 1:K:404:ARG:HG2  | 1:K:404:ARG:HH11 | 1.56                     | 0.71              |
| 1:B:183:LEU:HD13 | 1:B:184:GLN:HG3  | 1.73                     | 0.71              |
| 1:J:235:PRO:HG3  | 1:J:310:GLU:HG3  | 1.73                     | 0.71              |
| 1:J:383:ALA:HB3  | 1:J:389:MET:HB2  | 1.72                     | 0.71              |
| 1:B:221:LEU:HD23 | 1:B:249:ILE:HD12 | 1.73                     | 0.70              |
| 1:D:34:LYS:HD2   | 1:D:458:CYS:CB   | 2.21                     | 0.70              |
| 1:H:18:ARG:HG2   | 1:H:18:ARG:HH11  | 1.56                     | 0.70              |
| 1:L:6:VAL:HG22   | 1:L:521:VAL:HG22 | 1.71                     | 0.70              |
| 1:H:269:GLY:HA3  | 1:N:257:GLU:HG3  | 1.72                     | 0.70              |
| 1:E:183:LEU:HD22 | 1:E:184:GLN:H    | 1.56                     | 0.70              |
| 1:K:118:ARG:HH22 | 1:L:34:LYS:HE2   | 1.56                     | 0.70              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:404:ARG:HG2  | 1:M:404:ARG:HH11 | 1.57                     | 0.70              |
| 1:E:221:LEU:HD23 | 1:E:249:ILE:HD12 | 1.74                     | 0.70              |
| 1:I:235:PRO:HG3  | 1:I:310:GLU:HG3  | 1.74                     | 0.70              |
| 1:K:494:LEU:H    | 1:K:494:LEU:HD12 | 1.56                     | 0.70              |
| 1:M:18:ARG:HG2   | 1:M:18:ARG:HH11  | 1.57                     | 0.70              |
| 1:N:404:ARG:HG2  | 1:N:404:ARG:HH11 | 1.57                     | 0.70              |
| 1:L:69:MET:HE2   | 1:M:39:VAL:HG12  | 1.73                     | 0.70              |
| 1:M:383:ALA:HB3  | 1:M:389:MET:HB2  | 1.72                     | 0.70              |
| 1:K:235:PRO:HG3  | 1:K:310:GLU:HG3  | 1.73                     | 0.70              |
| 1:L:235:PRO:HG3  | 1:L:310:GLU:HG3  | 1.72                     | 0.70              |
| 1:E:252:GLU:O    | 1:E:253:ASP:HB2  | 1.91                     | 0.70              |
| 1:H:16:MET:HB3   | 1:H:514:MET:HE1  | 1.74                     | 0.70              |
| 1:G:183:LEU:HD22 | 1:G:184:GLN:H    | 1.56                     | 0.69              |
| 1:J:404:ARG:HG2  | 1:J:404:ARG:HH11 | 1.56                     | 0.69              |
| 1:M:22:VAL:HG11  | 1:M:62:LEU:HD21  | 1.74                     | 0.69              |
| 1:N:6:VAL:HG22   | 1:N:521:VAL:HG22 | 1.73                     | 0.69              |
| 1:N:16:MET:SD    | 1:N:73:MET:HE1   | 2.33                     | 0.69              |
| 1:E:8:PHE:HZ     | 1:F:26:ALA:HB2   | 1.58                     | 0.69              |
| 1:G:221:LEU:HD23 | 1:G:249:ILE:HD12 | 1.72                     | 0.69              |
| 1:K:461:LYS:HA   | 1:K:461:LYS:HE3  | 1.74                     | 0.69              |
| 1:A:183:LEU:HD22 | 1:A:184:GLN:H    | 1.56                     | 0.69              |
| 1:H:383:ALA:HB3  | 1:H:389:MET:HB2  | 1.74                     | 0.69              |
| 1:N:169:VAL:HG12 | 1:N:173:GLY:HA3  | 1.75                     | 0.69              |
| 1:H:235:PRO:HG3  | 1:H:310:GLU:HG3  | 1.75                     | 0.69              |
| 1:F:252:GLU:O    | 1:F:253:ASP:HB2  | 1.93                     | 0.69              |
| 1:M:31:LEU:HD23  | 1:M:31:LEU:C     | 2.13                     | 0.69              |
| 1:F:82:ASN:HB2   | 1:F:89:THR:OG1   | 1.93                     | 0.69              |
| 1:D:85:ALA:HB1   | 1:D:499:VAL:HG12 | 1.74                     | 0.68              |
| 1:G:252:GLU:O    | 1:G:253:ASP:HB2  | 1.93                     | 0.68              |
| 1:M:169:VAL:HG12 | 1:M:173:GLY:HA3  | 1.75                     | 0.68              |
| 1:M:174:VAL:HG23 | 1:M:376:VAL:HA   | 1.75                     | 0.68              |
| 1:A:455:VAL:HG13 | 1:A:460:GLU:CB   | 2.23                     | 0.68              |
| 1:J:381:VAL:HG21 | 1:J:393:LYS:HA   | 1.74                     | 0.68              |
| 1:K:214:GLU:O    | 1:K:215:LEU:HD23 | 1.92                     | 0.68              |
| 1:N:22:VAL:HG11  | 1:N:62:LEU:HD21  | 1.75                     | 0.68              |
| 1:F:311:LYS:HB3  | 1:H:311:LYS:HG2  | 1.75                     | 0.68              |
| 1:L:17:LEU:HA    | 1:L:20:VAL:HG12  | 1.73                     | 0.68              |
| 1:J:194:GLN:HB2  | 1:J:331:THR:HB   | 1.74                     | 0.68              |
| 1:L:169:VAL:HG12 | 1:L:173:GLY:HA3  | 1.75                     | 0.68              |
| 1:M:173:GLY:O    | 1:M:404:ARG:NH2  | 2.27                     | 0.68              |
| 1:K:194:GLN:HB2  | 1:K:331:THR:HB   | 1.75                     | 0.68              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:194:GLN:HB2  | 1:L:331:THR:HB   | 1.76                     | 0.68              |
| 1:B:247:LEU:HB3  | 1:B:273:VAL:HG12 | 1.73                     | 0.68              |
| 1:C:247:LEU:HB3  | 1:C:273:VAL:HG12 | 1.74                     | 0.68              |
| 1:K:496:PRO:O    | 1:K:499:VAL:HG13 | 1.94                     | 0.68              |
| 1:H:16:MET:SD    | 1:H:514:MET:HE2  | 2.34                     | 0.68              |
| 1:H:183:LEU:HD13 | 1:H:184:GLN:N    | 2.09                     | 0.68              |
| 1:K:183:LEU:HD13 | 1:K:184:GLN:N    | 2.09                     | 0.68              |
| 1:H:194:GLN:HB2  | 1:H:331:THR:HB   | 1.76                     | 0.67              |
| 1:L:199:TYR:HA   | 1:L:276:VAL:HG12 | 1.76                     | 0.67              |
| 1:D:252:GLU:O    | 1:D:253:ASP:HB2  | 1.93                     | 0.67              |
| 1:L:496:PRO:O    | 1:L:499:VAL:HG13 | 1.94                     | 0.67              |
| 1:M:199:TYR:HA   | 1:M:276:VAL:HG12 | 1.76                     | 0.67              |
| 1:D:183:LEU:HD22 | 1:D:184:GLN:H    | 1.58                     | 0.67              |
| 1:H:420:ILE:HG13 | 1:H:448:GLU:HG2  | 1.77                     | 0.67              |
| 1:I:17:LEU:HA    | 1:I:20:VAL:HG12  | 1.77                     | 0.67              |
| 1:D:455:VAL:HG11 | 1:D:462:PRO:HA   | 1.77                     | 0.67              |
| 1:M:235:PRO:HG3  | 1:M:310:GLU:HG3  | 1.74                     | 0.67              |
| 1:E:383:ALA:HB3  | 1:E:389:MET:HB2  | 1.76                     | 0.67              |
| 1:J:496:PRO:O    | 1:J:499:VAL:HG13 | 1.95                     | 0.67              |
| 1:C:449:ALA:HB3  | 1:C:450:PRO:HD3  | 1.77                     | 0.67              |
| 1:E:8:PHE:CE1    | 1:F:26:ALA:HA    | 2.29                     | 0.67              |
| 1:J:199:TYR:HA   | 1:J:276:VAL:HG12 | 1.76                     | 0.67              |
| 1:M:17:LEU:HA    | 1:M:20:VAL:HG12  | 1.76                     | 0.67              |
| 1:M:420:ILE:HG13 | 1:M:448:GLU:HG2  | 1.76                     | 0.67              |
| 1:N:194:GLN:HB2  | 1:N:331:THR:HB   | 1.77                     | 0.67              |
| 1:F:247:LEU:HB3  | 1:F:273:VAL:HG12 | 1.76                     | 0.67              |
| 1:H:22:VAL:HG11  | 1:H:62:LEU:HD21  | 1.75                     | 0.67              |
| 1:H:169:VAL:HG12 | 1:H:173:GLY:HA3  | 1.76                     | 0.67              |
| 1:B:183:LEU:HD22 | 1:B:184:GLN:H    | 1.59                     | 0.67              |
| 1:C:252:GLU:O    | 1:C:253:ASP:HB2  | 1.93                     | 0.67              |
| 1:G:31:LEU:O     | 1:G:457:ASN:ND2  | 2.27                     | 0.67              |
| 1:E:247:LEU:HB3  | 1:E:273:VAL:HG12 | 1.77                     | 0.67              |
| 1:H:17:LEU:HA    | 1:H:20:VAL:HG12  | 1.77                     | 0.67              |
| 1:M:326:ASN:OD1  | 1:M:329:THR:HB   | 1.95                     | 0.67              |
| 1:J:174:VAL:HG21 | 1:J:376:VAL:HG22 | 1.76                     | 0.66              |
| 1:L:8:PHE:CZ     | 1:M:26:ALA:HB2   | 2.29                     | 0.66              |
| 1:B:455:VAL:HG13 | 1:B:460:GLU:CB   | 2.25                     | 0.66              |
| 1:D:230:ILE:HD12 | 1:D:261:THR:HG21 | 1.77                     | 0.66              |
| 1:L:22:VAL:HG11  | 1:L:62:LEU:HD21  | 1.77                     | 0.66              |
| 1:K:237:LEU:O    | 1:K:237:LEU:HD23 | 1.96                     | 0.66              |
| 1:L:420:ILE:HG13 | 1:L:448:GLU:HG2  | 1.76                     | 0.66              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:247:LEU:HB3  | 1:G:273:VAL:HG12 | 1.77                     | 0.66              |
| 1:H:496:PRO:O    | 1:H:499:VAL:HG13 | 1.95                     | 0.66              |
| 1:K:219:PHE:O    | 1:K:247:LEU:HD12 | 1.95                     | 0.66              |
| 1:B:230:ILE:HD12 | 1:B:261:THR:HG21 | 1.78                     | 0.66              |
| 1:B:252:GLU:O    | 1:B:253:ASP:HB2  | 1.94                     | 0.66              |
| 1:G:455:VAL:HG13 | 1:G:460:GLU:CB   | 2.26                     | 0.66              |
| 1:H:16:MET:SD    | 1:H:73:MET:HE1   | 2.36                     | 0.66              |
| 1:I:22:VAL:HG11  | 1:I:62:LEU:HD21  | 1.76                     | 0.66              |
| 1:I:169:VAL:HG12 | 1:I:173:GLY:HA3  | 1.78                     | 0.66              |
| 1:J:18:ARG:HG2   | 1:J:18:ARG:HH11  | 1.61                     | 0.66              |
| 1:M:194:GLN:HB2  | 1:M:331:THR:HB   | 1.77                     | 0.66              |
| 1:G:228:SER:O    | 1:G:257:GLU:HB3  | 1.95                     | 0.66              |
| 1:H:174:VAL:HG23 | 1:H:376:VAL:HA   | 1.78                     | 0.66              |
| 1:I:199:TYR:HA   | 1:I:276:VAL:HG12 | 1.77                     | 0.66              |
| 1:M:237:LEU:HD23 | 1:M:237:LEU:O    | 1.95                     | 0.66              |
| 1:A:230:ILE:HD12 | 1:A:261:THR:HG21 | 1.78                     | 0.66              |
| 1:A:449:ALA:HB3  | 1:A:450:PRO:HD3  | 1.78                     | 0.66              |
| 1:G:482:THR:O    | 1:G:484:GLU:HG3  | 1.95                     | 0.66              |
| 1:H:173:GLY:O    | 1:H:404:ARG:NH2  | 2.29                     | 0.66              |
| 1:J:174:VAL:HG23 | 1:J:376:VAL:HA   | 1.77                     | 0.66              |
| 1:L:18:ARG:HG2   | 1:L:18:ARG:HH11  | 1.61                     | 0.65              |
| 1:L:237:LEU:O    | 1:L:237:LEU:HD23 | 1.96                     | 0.65              |
| 1:L:519:CYS:O    | 1:M:39:VAL:N     | 2.29                     | 0.65              |
| 1:A:482:THR:O    | 1:A:484:GLU:HG3  | 1.96                     | 0.65              |
| 1:B:482:THR:O    | 1:B:484:GLU:HG3  | 1.95                     | 0.65              |
| 1:J:183:LEU:HD13 | 1:J:184:GLN:N    | 2.10                     | 0.65              |
| 1:L:69:MET:HE2   | 1:M:39:VAL:CG1   | 2.27                     | 0.65              |
| 1:M:249:ILE:HB   | 1:M:275:ALA:HB2  | 1.77                     | 0.65              |
| 1:D:247:LEU:HB3  | 1:D:273:VAL:HG12 | 1.76                     | 0.65              |
| 1:I:76:GLU:O     | 1:I:79:SER:HB3   | 1.97                     | 0.65              |
| 1:K:174:VAL:HG23 | 1:K:376:VAL:HA   | 1.77                     | 0.65              |
| 1:F:230:ILE:HD12 | 1:F:261:THR:HG21 | 1.78                     | 0.65              |
| 1:G:183:LEU:O    | 1:G:184:GLN:HB2  | 1.95                     | 0.65              |
| 1:H:199:TYR:HA   | 1:H:276:VAL:HG12 | 1.77                     | 0.65              |
| 1:N:249:ILE:HB   | 1:N:275:ALA:HB2  | 1.78                     | 0.65              |
| 1:K:199:TYR:HA   | 1:K:276:VAL:HG12 | 1.77                     | 0.65              |
| 1:E:482:THR:O    | 1:E:484:GLU:HG3  | 1.97                     | 0.65              |
| 1:L:174:VAL:HG23 | 1:L:376:VAL:HA   | 1.78                     | 0.65              |
| 1:B:82:ASN:HB2   | 1:B:89:THR:OG1   | 1.97                     | 0.65              |
| 1:C:230:ILE:HG22 | 1:C:257:GLU:OE1  | 1.97                     | 0.65              |
| 1:C:321:LYS:O    | 1:C:322:ARG:HB2  | 1.97                     | 0.65              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:183:LEU:O    | 1:E:184:GLN:HB2  | 1.97                     | 0.65              |
| 1:A:247:LEU:HB3  | 1:A:273:VAL:HG12 | 1.79                     | 0.65              |
| 1:B:176:THR:HG21 | 1:B:333:ILE:HD13 | 1.78                     | 0.65              |
| 1:G:230:ILE:HD12 | 1:G:261:THR:HG21 | 1.78                     | 0.65              |
| 1:I:237:LEU:O    | 1:I:237:LEU:HD23 | 1.95                     | 0.65              |
| 1:J:326:ASN:OD1  | 1:J:329:THR:HB   | 1.97                     | 0.65              |
| 1:K:22:VAL:HG11  | 1:K:62:LEU:HD21  | 1.79                     | 0.65              |
| 1:L:69:MET:SD    | 1:M:41:ASP:HB2   | 2.36                     | 0.65              |
| 1:B:383:ALA:HB3  | 1:B:389:MET:HB2  | 1.79                     | 0.65              |
| 1:E:214:GLU:O    | 1:E:215:LEU:HD23 | 1.96                     | 0.65              |
| 1:F:311:LYS:HD3  | 1:H:311:LYS:HA   | 1.77                     | 0.65              |
| 1:H:32:GLY:O     | 1:H:34:LYS:N     | 2.30                     | 0.65              |
| 1:L:520:MET:HA   | 1:M:39:VAL:O     | 1.97                     | 0.65              |
| 1:N:17:LEU:HA    | 1:N:20:VAL:HG12  | 1.79                     | 0.65              |
| 1:B:511:ALA:O    | 1:B:515:ILE:HG13 | 1.98                     | 0.64              |
| 1:C:82:ASN:HB2   | 1:C:89:THR:OG1   | 1.97                     | 0.64              |
| 1:G:230:ILE:HG22 | 1:G:257:GLU:OE1  | 1.96                     | 0.64              |
| 1:K:249:ILE:HB   | 1:K:275:ALA:HB2  | 1.79                     | 0.64              |
| 1:A:214:GLU:O    | 1:A:215:LEU:HD23 | 1.98                     | 0.64              |
| 1:I:194:GLN:HB2  | 1:I:331:THR:HB   | 1.79                     | 0.64              |
| 1:J:237:LEU:HD23 | 1:J:237:LEU:O    | 1.97                     | 0.64              |
| 1:J:249:ILE:HB   | 1:J:275:ALA:HB2  | 1.78                     | 0.64              |
| 1:N:173:GLY:O    | 1:N:404:ARG:NH2  | 2.29                     | 0.64              |
| 1:I:18:ARG:HH11  | 1:I:18:ARG:HG2   | 1.61                     | 0.64              |
| 1:J:22:VAL:HG11  | 1:J:62:LEU:HD21  | 1.77                     | 0.64              |
| 1:N:420:ILE:HG13 | 1:N:448:GLU:HG2  | 1.80                     | 0.64              |
| 1:A:183:LEU:O    | 1:A:184:GLN:HB2  | 1.98                     | 0.64              |
| 1:A:228:SER:O    | 1:A:257:GLU:HB3  | 1.96                     | 0.64              |
| 1:C:183:LEU:O    | 1:C:184:GLN:HB2  | 1.97                     | 0.64              |
| 1:C:230:ILE:HD12 | 1:C:261:THR:HG21 | 1.77                     | 0.64              |
| 1:D:183:LEU:O    | 1:D:184:GLN:HB2  | 1.97                     | 0.64              |
| 1:E:82:ASN:HB2   | 1:E:89:THR:OG1   | 1.98                     | 0.64              |
| 1:H:6:VAL:HG22   | 1:H:521:VAL:HG22 | 1.78                     | 0.64              |
| 1:H:241:ALA:HB1  | 1:N:231:ARG:HH11 | 1.63                     | 0.64              |
| 1:H:249:ILE:HB   | 1:H:275:ALA:HB2  | 1.79                     | 0.64              |
| 1:N:183:LEU:HD13 | 1:N:184:GLN:N    | 2.13                     | 0.64              |
| 1:D:254:VAL:HG12 | 1:D:259:LEU:HB2  | 1.80                     | 0.64              |
| 1:F:31:LEU:HD23  | 1:F:94:VAL:HG11  | 1.78                     | 0.64              |
| 1:I:249:ILE:HB   | 1:I:275:ALA:HB2  | 1.79                     | 0.64              |
| 1:N:237:LEU:O    | 1:N:237:LEU:HD23 | 1.97                     | 0.64              |
| 1:E:519:CYS:CB   | 1:F:38:VAL:HG13  | 2.23                     | 0.64              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:18:ARG:HG2   | 1:N:18:ARG:HH11  | 1.62                     | 0.64              |
| 1:B:202:PRO:HB3  | 1:B:205:ILE:HD11 | 1.80                     | 0.64              |
| 1:F:7:LYS:HG3    | 1:F:66:PHE:CZ    | 2.32                     | 0.64              |
| 1:K:8:PHE:HE1    | 1:L:26:ALA:HA    | 1.63                     | 0.64              |
| 1:G:214:GLU:O    | 1:G:215:LEU:HD23 | 1.97                     | 0.64              |
| 1:G:254:VAL:HG12 | 1:G:259:LEU:HB2  | 1.80                     | 0.64              |
| 1:H:174:VAL:HG21 | 1:H:376:VAL:HG22 | 1.81                     | 0.64              |
| 1:N:37:ASN:HD21  | 1:N:51:LYS:NZ    | 1.96                     | 0.64              |
| 1:B:183:LEU:O    | 1:B:184:GLN:HB2  | 1.96                     | 0.63              |
| 1:F:69:MET:SD    | 1:G:41:ASP:HB2   | 2.38                     | 0.63              |
| 1:F:183:LEU:O    | 1:F:184:GLN:HB2  | 1.97                     | 0.63              |
| 1:I:496:PRO:O    | 1:I:499:VAL:HG13 | 1.96                     | 0.63              |
| 1:L:249:ILE:HB   | 1:L:275:ALA:HB2  | 1.79                     | 0.63              |
| 1:M:166:MET:CE   | 1:M:171:LYS:HA   | 2.28                     | 0.63              |
| 1:B:230:ILE:HG22 | 1:B:257:GLU:OE1  | 1.98                     | 0.63              |
| 1:D:202:PRO:HB3  | 1:D:205:ILE:HD11 | 1.80                     | 0.63              |
| 1:E:228:SER:O    | 1:E:257:GLU:HB3  | 1.99                     | 0.63              |
| 1:E:230:ILE:HD12 | 1:E:261:THR:HG21 | 1.80                     | 0.63              |
| 1:G:144:ILE:HD13 | 1:G:166:MET:SD   | 2.38                     | 0.63              |
| 1:A:222:LEU:HD23 | 1:A:250:ILE:HB   | 1.81                     | 0.63              |
| 1:E:455:VAL:HG11 | 1:E:462:PRO:HA   | 1.79                     | 0.63              |
| 1:F:297:GLY:O    | 1:F:318:GLY:HA2  | 1.98                     | 0.63              |
| 1:L:16:MET:SD    | 1:L:73:MET:HE1   | 2.39                     | 0.63              |
| 1:A:321:LYS:O    | 1:A:322:ARG:HB2  | 1.99                     | 0.63              |
| 1:F:90:THR:O     | 1:F:94:VAL:HG13  | 1.98                     | 0.63              |
| 1:H:237:LEU:O    | 1:H:237:LEU:HD23 | 1.98                     | 0.63              |
| 1:J:420:ILE:HG13 | 1:J:448:GLU:HG2  | 1.80                     | 0.63              |
| 1:K:166:MET:CE   | 1:K:171:LYS:HA   | 2.27                     | 0.63              |
| 1:M:183:LEU:HD13 | 1:M:184:GLN:N    | 2.13                     | 0.63              |
| 1:C:176:THR:HG21 | 1:C:333:ILE:HD13 | 1.80                     | 0.63              |
| 1:E:511:ALA:O    | 1:E:515:ILE:HG13 | 1.99                     | 0.63              |
| 1:I:420:ILE:HG13 | 1:I:448:GLU:HG2  | 1.79                     | 0.63              |
| 1:J:213:VAL:HG12 | 1:J:214:GLU:N    | 2.13                     | 0.63              |
| 1:N:174:VAL:HG23 | 1:N:376:VAL:HA   | 1.79                     | 0.63              |
| 1:N:247:LEU:HB3  | 1:N:273:VAL:HG12 | 1.80                     | 0.63              |
| 1:C:482:THR:O    | 1:C:484:GLU:HG3  | 1.99                     | 0.63              |
| 1:D:449:ALA:HB3  | 1:D:450:PRO:HD3  | 1.81                     | 0.63              |
| 1:K:213:VAL:HG12 | 1:K:214:GLU:N    | 2.13                     | 0.63              |
| 1:L:8:PHE:CE1    | 1:M:26:ALA:HA    | 2.31                     | 0.63              |
| 1:M:496:PRO:O    | 1:M:499:VAL:HG13 | 1.99                     | 0.63              |
| 1:N:199:TYR:HA   | 1:N:276:VAL:HG12 | 1.79                     | 0.63              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:511:ALA:O    | 1:A:515:ILE:HG13 | 1.98                     | 0.63              |
| 1:C:455:VAL:HG13 | 1:C:460:GLU:CB   | 2.29                     | 0.63              |
| 1:A:297:GLY:O    | 1:A:318:GLY:HA2  | 1.99                     | 0.63              |
| 1:F:230:ILE:HG22 | 1:F:257:GLU:OE1  | 1.99                     | 0.63              |
| 1:D:228:SER:O    | 1:D:257:GLU:HB3  | 1.98                     | 0.63              |
| 1:E:202:PRO:HB3  | 1:E:205:ILE:HD11 | 1.80                     | 0.63              |
| 1:E:230:ILE:HG22 | 1:E:257:GLU:OE1  | 1.99                     | 0.63              |
| 1:K:28:LYS:O     | 1:K:30:THR:N     | 2.32                     | 0.63              |
| 1:K:420:ILE:HG13 | 1:K:448:GLU:HG2  | 1.81                     | 0.63              |
| 1:B:7:LYS:HG3    | 1:B:66:PHE:CZ    | 2.34                     | 0.62              |
| 1:E:517:THR:CG2  | 1:F:39:VAL:HG23  | 2.27                     | 0.62              |
| 1:I:183:LEU:HD13 | 1:I:184:GLN:N    | 2.14                     | 0.62              |
| 1:J:247:LEU:HB3  | 1:J:273:VAL:HG12 | 1.81                     | 0.62              |
| 1:N:326:ASN:OD1  | 1:N:329:THR:HB   | 1.99                     | 0.62              |
| 1:F:449:ALA:HB3  | 1:F:450:PRO:HD3  | 1.81                     | 0.62              |
| 1:L:493:ILE:O    | 1:L:493:ILE:HG22 | 1.97                     | 0.62              |
| 1:M:391:GLU:O    | 1:M:394:ALA:HB3  | 2.00                     | 0.62              |
| 1:C:214:GLU:O    | 1:C:215:LEU:HD23 | 1.99                     | 0.62              |
| 1:D:295:LEU:HA   | 1:D:342:ILE:HD11 | 1.81                     | 0.62              |
| 1:D:326:ASN:HD22 | 1:D:329:THR:CB   | 1.97                     | 0.62              |
| 1:F:228:SER:O    | 1:F:257:GLU:HB3  | 1.99                     | 0.62              |
| 1:I:213:VAL:HG12 | 1:I:214:GLU:N    | 2.13                     | 0.62              |
| 1:M:247:LEU:HB3  | 1:M:273:VAL:HG12 | 1.81                     | 0.62              |
| 1:B:131:LEU:CD1  | 1:B:422:VAL:HG21 | 2.29                     | 0.62              |
| 1:C:131:LEU:CD1  | 1:C:422:VAL:HG21 | 2.29                     | 0.62              |
| 1:C:202:PRO:HB3  | 1:C:205:ILE:HD11 | 1.81                     | 0.62              |
| 1:A:82:ASN:HB2   | 1:A:89:THR:OG1   | 1.99                     | 0.62              |
| 1:C:69:MET:SD    | 1:D:41:ASP:HB2   | 2.40                     | 0.62              |
| 1:C:222:LEU:HD23 | 1:C:250:ILE:HB   | 1.81                     | 0.62              |
| 1:D:383:ALA:HB3  | 1:D:389:MET:HB2  | 1.80                     | 0.62              |
| 1:H:247:LEU:HB3  | 1:H:273:VAL:HG12 | 1.82                     | 0.62              |
| 1:H:493:ILE:HG22 | 1:H:493:ILE:O    | 1.99                     | 0.62              |
| 1:D:214:GLU:O    | 1:D:215:LEU:HD23 | 2.00                     | 0.62              |
| 1:D:230:ILE:HG22 | 1:D:257:GLU:OE1  | 1.99                     | 0.62              |
| 1:H:183:LEU:O    | 1:H:184:GLN:HB2  | 1.99                     | 0.62              |
| 1:J:17:LEU:HA    | 1:J:20:VAL:HG12  | 1.81                     | 0.62              |
| 1:A:176:THR:HG21 | 1:A:333:ILE:HD13 | 1.82                     | 0.62              |
| 1:C:455:VAL:HG11 | 1:C:462:PRO:HA   | 1.81                     | 0.62              |
| 1:D:222:LEU:HD23 | 1:D:250:ILE:HB   | 1.80                     | 0.62              |
| 1:G:90:THR:O     | 1:G:94:VAL:HG13  | 2.00                     | 0.62              |
| 1:K:76:GLU:O     | 1:K:79:SER:HB3   | 1.98                     | 0.62              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:349:ILE:O    | 1:K:353:ILE:HG13 | 2.00                     | 0.62              |
| 1:N:213:VAL:HG12 | 1:N:214:GLU:N    | 2.15                     | 0.62              |
| 1:D:482:THR:O    | 1:D:484:GLU:HG3  | 1.98                     | 0.62              |
| 1:J:37:ASN:ND2   | 1:J:51:LYS:HG3   | 2.14                     | 0.62              |
| 1:J:219:PHE:O    | 1:J:247:LEU:HD12 | 2.00                     | 0.62              |
| 1:F:519:CYS:HB3  | 1:G:38:VAL:HG13  | 1.81                     | 0.62              |
| 1:G:222:LEU:HD23 | 1:G:250:ILE:HB   | 1.82                     | 0.62              |
| 1:G:321:LYS:O    | 1:G:322:ARG:HB2  | 1.99                     | 0.62              |
| 1:H:76:GLU:O     | 1:H:79:SER:HB3   | 2.00                     | 0.62              |
| 1:I:6:VAL:HG22   | 1:I:521:VAL:HG22 | 1.81                     | 0.62              |
| 1:K:173:GLY:O    | 1:K:404:ARG:NH2  | 2.33                     | 0.62              |
| 1:N:219:PHE:O    | 1:N:247:LEU:HD12 | 1.99                     | 0.62              |
| 1:A:131:LEU:CD1  | 1:A:422:VAL:HG21 | 2.30                     | 0.61              |
| 1:L:519:CYS:CB   | 1:M:38:VAL:HG13  | 2.29                     | 0.61              |
| 1:M:321:LYS:O    | 1:M:322:ARG:HB2  | 2.00                     | 0.61              |
| 1:E:449:ALA:HB3  | 1:E:450:PRO:HD3  | 1.81                     | 0.61              |
| 1:F:383:ALA:HB3  | 1:F:389:MET:HB2  | 1.82                     | 0.61              |
| 1:G:202:PRO:HB3  | 1:G:205:ILE:HD11 | 1.81                     | 0.61              |
| 1:K:6:VAL:HG22   | 1:K:521:VAL:HG22 | 1.81                     | 0.61              |
| 1:B:321:LYS:O    | 1:B:322:ARG:HB2  | 2.00                     | 0.61              |
| 1:E:245:LYS:NZ   | 1:E:319:GLN:HE22 | 1.98                     | 0.61              |
| 1:C:519:CYS:HB3  | 1:D:38:VAL:HG13  | 1.82                     | 0.61              |
| 1:D:176:THR:HG21 | 1:D:333:ILE:HD13 | 1.82                     | 0.61              |
| 1:C:383:ALA:HB3  | 1:C:389:MET:HB2  | 1.82                     | 0.61              |
| 1:D:213:VAL:HG12 | 1:D:214:GLU:N    | 2.16                     | 0.61              |
| 1:D:519:CYS:HB3  | 1:E:38:VAL:HG13  | 1.83                     | 0.61              |
| 1:F:429:LEU:HD12 | 1:F:430:ARG:H    | 1.65                     | 0.61              |
| 1:H:166:MET:CE   | 1:H:171:LYS:HA   | 2.31                     | 0.61              |
| 1:M:493:ILE:HG22 | 1:M:493:ILE:O    | 2.01                     | 0.61              |
| 1:I:183:LEU:O    | 1:I:184:GLN:HB2  | 2.00                     | 0.61              |
| 1:L:173:GLY:O    | 1:L:404:ARG:NH2  | 2.34                     | 0.61              |
| 1:L:174:VAL:HG21 | 1:L:376:VAL:HG22 | 1.82                     | 0.61              |
| 1:C:228:SER:O    | 1:C:257:GLU:HB3  | 2.00                     | 0.61              |
| 1:F:321:LYS:O    | 1:F:322:ARG:HB2  | 2.00                     | 0.61              |
| 1:H:37:ASN:ND2   | 1:H:51:LYS:HG3   | 2.16                     | 0.61              |
| 1:K:17:LEU:HA    | 1:K:20:VAL:HG12  | 1.81                     | 0.61              |
| 1:N:37:ASN:ND2   | 1:N:51:LYS:HG3   | 2.16                     | 0.61              |
| 1:A:383:ALA:HB3  | 1:A:389:MET:HB2  | 1.82                     | 0.61              |
| 1:L:166:MET:CE   | 1:L:171:LYS:HA   | 2.30                     | 0.61              |
| 1:C:213:VAL:HG12 | 1:C:214:GLU:N    | 2.16                     | 0.61              |
| 1:D:8:PHE:HE1    | 1:E:26:ALA:HA    | 1.65                     | 0.61              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:34:LYS:HD2   | 1:D:458:CYS:SG   | 2.40                     | 0.61              |
| 1:F:202:PRO:HB3  | 1:F:205:ILE:HD11 | 1.82                     | 0.61              |
| 1:H:213:VAL:HG12 | 1:H:214:GLU:N    | 2.16                     | 0.61              |
| 1:J:183:LEU:O    | 1:J:184:GLN:HB2  | 2.00                     | 0.61              |
| 1:A:254:VAL:HG12 | 1:A:259:LEU:HB2  | 1.82                     | 0.61              |
| 1:G:383:ALA:HB3  | 1:G:389:MET:HB2  | 1.83                     | 0.61              |
| 1:H:499:VAL:HG22 | 1:H:500:THR:N    | 2.16                     | 0.61              |
| 1:M:174:VAL:HG21 | 1:M:376:VAL:HG22 | 1.83                     | 0.61              |
| 1:B:449:ALA:HB3  | 1:B:450:PRO:HD3  | 1.82                     | 0.60              |
| 1:G:449:ALA:HB3  | 1:G:450:PRO:HD3  | 1.82                     | 0.60              |
| 1:H:219:PHE:O    | 1:H:247:LEU:HD12 | 2.00                     | 0.60              |
| 1:I:16:MET:SD    | 1:I:73:MET:HE1   | 2.41                     | 0.60              |
| 1:L:183:LEU:HD13 | 1:L:184:GLN:N    | 2.16                     | 0.60              |
| 1:J:82:ASN:HB2   | 1:J:89:THR:OG1   | 2.01                     | 0.60              |
| 1:L:82:ASN:HB2   | 1:L:89:THR:OG1   | 2.00                     | 0.60              |
| 1:K:37:ASN:ND2   | 1:K:51:LYS:HG3   | 2.16                     | 0.60              |
| 1:M:249:ILE:HB   | 1:M:275:ALA:CB   | 2.32                     | 0.60              |
| 1:N:82:ASN:HB2   | 1:N:89:THR:OG1   | 2.01                     | 0.60              |
| 1:H:279:PRO:O    | 1:H:285:ARG:HG3  | 2.01                     | 0.60              |
| 1:I:166:MET:CE   | 1:I:171:LYS:HA   | 2.30                     | 0.60              |
| 1:K:326:ASN:OD1  | 1:K:329:THR:HB   | 2.01                     | 0.60              |
| 1:L:219:PHE:O    | 1:L:247:LEU:HD12 | 2.01                     | 0.60              |
| 1:M:20:VAL:HG23  | 1:M:74:VAL:HG11  | 1.83                     | 0.60              |
| 1:E:7:LYS:HG3    | 1:E:66:PHE:CZ    | 2.36                     | 0.60              |
| 1:F:176:THR:HG21 | 1:F:333:ILE:HD13 | 1.83                     | 0.60              |
| 1:I:200:LEU:CD1  | 1:I:254:VAL:HB   | 2.32                     | 0.60              |
| 1:K:455:VAL:HG13 | 1:K:460:GLU:HB3  | 1.83                     | 0.60              |
| 1:L:213:VAL:HG12 | 1:L:214:GLU:N    | 2.16                     | 0.60              |
| 1:L:247:LEU:HB3  | 1:L:273:VAL:HG12 | 1.81                     | 0.60              |
| 1:C:295:LEU:HA   | 1:C:342:ILE:HD11 | 1.84                     | 0.60              |
| 1:G:213:VAL:HG12 | 1:G:214:GLU:N    | 2.16                     | 0.60              |
| 1:I:174:VAL:HG21 | 1:I:376:VAL:HG22 | 1.84                     | 0.60              |
| 1:K:213:VAL:HG12 | 1:K:214:GLU:H    | 1.65                     | 0.60              |
| 1:L:166:MET:HE1  | 1:L:171:LYS:HA   | 1.82                     | 0.60              |
| 1:N:166:MET:CE   | 1:N:171:LYS:HA   | 2.31                     | 0.60              |
| 1:B:32:GLY:HA3   | 1:B:454:ILE:HG23 | 1.84                     | 0.60              |
| 1:E:176:THR:HG21 | 1:E:333:ILE:HD13 | 1.82                     | 0.60              |
| 1:E:254:VAL:HG12 | 1:E:259:LEU:HB2  | 1.83                     | 0.60              |
| 1:F:214:GLU:O    | 1:F:215:LEU:HD23 | 2.01                     | 0.60              |
| 1:H:236:VAL:O    | 1:H:236:VAL:HG12 | 2.01                     | 0.60              |
| 1:L:37:ASN:ND2   | 1:L:51:LYS:HG3   | 2.17                     | 0.60              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:222:LEU:HD23 | 1:B:250:ILE:HB   | 1.84                     | 0.60              |
| 1:C:144:ILE:HD13 | 1:C:166:MET:SD   | 2.42                     | 0.60              |
| 1:C:254:VAL:HG12 | 1:C:259:LEU:HB2  | 1.83                     | 0.60              |
| 1:E:295:LEU:HA   | 1:E:342:ILE:HD11 | 1.83                     | 0.60              |
| 1:F:131:LEU:CD1  | 1:F:422:VAL:HG21 | 2.31                     | 0.60              |
| 1:H:34:LYS:HG3   | 1:H:458:CYS:HA   | 1.84                     | 0.60              |
| 1:H:82:ASN:HB2   | 1:H:89:THR:OG1   | 2.02                     | 0.60              |
| 1:J:349:ILE:O    | 1:J:353:ILE:HG13 | 2.02                     | 0.60              |
| 1:K:247:LEU:HB3  | 1:K:273:VAL:HG12 | 1.82                     | 0.60              |
| 1:E:222:LEU:HD23 | 1:E:250:ILE:HB   | 1.83                     | 0.60              |
| 1:F:254:VAL:HG12 | 1:F:259:LEU:HB2  | 1.84                     | 0.60              |
| 1:G:82:ASN:HB2   | 1:G:89:THR:OG1   | 2.01                     | 0.60              |
| 1:J:173:GLY:O    | 1:J:404:ARG:NH2  | 2.34                     | 0.60              |
| 1:K:183:LEU:O    | 1:K:184:GLN:HB2  | 2.01                     | 0.60              |
| 1:L:114:MET:HG3  | 1:M:34:LYS:HD2   | 1.82                     | 0.60              |
| 1:M:114:MET:HG3  | 1:N:34:LYS:HB3   | 1.83                     | 0.60              |
| 1:A:7:LYS:HG3    | 1:A:66:PHE:CZ    | 2.36                     | 0.59              |
| 1:B:254:VAL:HG12 | 1:B:259:LEU:HB2  | 1.83                     | 0.59              |
| 1:I:82:ASN:HB2   | 1:I:89:THR:OG1   | 2.02                     | 0.59              |
| 1:M:74:VAL:HA    | 1:M:510:VAL:HG21 | 1.84                     | 0.59              |
| 1:A:31:LEU:O     | 1:A:457:ASN:ND2  | 2.31                     | 0.59              |
| 1:B:144:ILE:HD13 | 1:B:166:MET:SD   | 2.42                     | 0.59              |
| 1:D:69:MET:SD    | 1:E:41:ASP:HB2   | 2.42                     | 0.59              |
| 1:D:321:LYS:O    | 1:D:322:ARG:HB2  | 2.01                     | 0.59              |
| 1:J:249:ILE:HB   | 1:J:275:ALA:CB   | 2.32                     | 0.59              |
| 1:K:16:MET:SD    | 1:K:514:MET:HE2  | 2.41                     | 0.59              |
| 1:A:23:LEU:HD23  | 1:A:74:VAL:HG22  | 1.83                     | 0.59              |
| 1:A:295:LEU:HA   | 1:A:342:ILE:HD11 | 1.83                     | 0.59              |
| 1:E:455:VAL:HG13 | 1:E:460:GLU:CB   | 2.31                     | 0.59              |
| 1:I:174:VAL:HG23 | 1:I:376:VAL:HA   | 1.83                     | 0.59              |
| 1:I:249:ILE:HB   | 1:I:275:ALA:CB   | 2.31                     | 0.59              |
| 1:K:202:PRO:O    | 1:K:203:TYR:HB2  | 2.02                     | 0.59              |
| 1:L:183:LEU:O    | 1:L:184:GLN:HB2  | 2.03                     | 0.59              |
| 1:A:30:THR:O     | 1:A:35:GLY:HA3   | 2.02                     | 0.59              |
| 1:A:230:ILE:HG22 | 1:A:257:GLU:OE1  | 2.02                     | 0.59              |
| 1:D:131:LEU:CD1  | 1:D:422:VAL:HG21 | 2.32                     | 0.59              |
| 1:D:455:VAL:HG13 | 1:D:460:GLU:CB   | 2.30                     | 0.59              |
| 1:F:223:ALA:O    | 1:F:251:ALA:HA   | 2.02                     | 0.59              |
| 1:N:183:LEU:O    | 1:N:184:GLN:HB2  | 2.01                     | 0.59              |
| 1:N:499:VAL:HG22 | 1:N:500:THR:N    | 2.17                     | 0.59              |
| 1:D:511:ALA:O    | 1:D:515:ILE:HG13 | 2.01                     | 0.59              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:23:LEU:HD23  | 1:E:74:VAL:CG2   | 2.32                     | 0.59              |
| 1:J:213:VAL:HG12 | 1:J:214:GLU:H    | 1.67                     | 0.59              |
| 1:J:279:PRO:O    | 1:J:285:ARG:HG3  | 2.02                     | 0.59              |
| 1:L:37:ASN:HD21  | 1:L:51:LYS:NZ    | 2.00                     | 0.59              |
| 1:M:16:MET:SD    | 1:M:514:MET:HE2  | 2.43                     | 0.59              |
| 1:M:197:ARG:HG3  | 1:M:277:LYS:O    | 2.03                     | 0.59              |
| 1:I:32:GLY:HA3   | 1:I:454:ILE:HG23 | 1.84                     | 0.59              |
| 1:N:77:VAL:CG2   | 1:N:78:ALA:N     | 2.65                     | 0.59              |
| 1:D:82:ASN:HB2   | 1:D:89:THR:OG1   | 2.02                     | 0.59              |
| 1:E:321:LYS:O    | 1:E:322:ARG:HB2  | 2.03                     | 0.59              |
| 1:C:223:ALA:O    | 1:C:251:ALA:HA   | 2.03                     | 0.59              |
| 1:D:223:ALA:O    | 1:D:251:ALA:HA   | 2.03                     | 0.59              |
| 1:F:23:LEU:HD23  | 1:F:74:VAL:CG2   | 2.33                     | 0.59              |
| 1:J:444:LEU:HA   | 1:J:447:MET:HE3  | 1.85                     | 0.59              |
| 1:J:493:ILE:HG22 | 1:J:493:ILE:O    | 2.03                     | 0.59              |
| 1:L:326:ASN:OD1  | 1:L:329:THR:HB   | 2.03                     | 0.59              |
| 1:M:279:PRO:O    | 1:M:285:ARG:HG3  | 2.03                     | 0.59              |
| 1:C:213:VAL:HG12 | 1:C:214:GLU:H    | 1.68                     | 0.59              |
| 1:D:245:LYS:NZ   | 1:D:319:GLN:HE22 | 2.01                     | 0.59              |
| 1:E:32:GLY:O     | 1:E:35:GLY:N     | 2.36                     | 0.59              |
| 1:H:3:ALA:HA     | 1:I:61:GLU:O     | 2.03                     | 0.59              |
| 1:K:417:VAL:O    | 1:K:420:ILE:HG22 | 2.03                     | 0.59              |
| 1:L:213:VAL:HG12 | 1:L:214:GLU:H    | 1.68                     | 0.59              |
| 1:L:247:LEU:HD12 | 1:L:248:LEU:H    | 1.68                     | 0.59              |
| 1:N:249:ILE:HB   | 1:N:275:ALA:CB   | 2.33                     | 0.59              |
| 1:A:202:PRO:HB3  | 1:A:205:ILE:HD11 | 1.85                     | 0.59              |
| 1:B:455:VAL:HG11 | 1:B:462:PRO:HA   | 1.85                     | 0.59              |
| 1:D:7:LYS:HG3    | 1:D:66:PHE:CZ    | 2.38                     | 0.59              |
| 1:E:213:VAL:HG12 | 1:E:214:GLU:N    | 2.18                     | 0.59              |
| 1:F:482:THR:O    | 1:F:484:GLU:HG3  | 2.03                     | 0.59              |
| 1:I:247:LEU:HB3  | 1:I:273:VAL:HG12 | 1.84                     | 0.59              |
| 1:I:349:ILE:O    | 1:I:353:ILE:HG13 | 2.01                     | 0.59              |
| 1:J:169:VAL:CG2  | 1:J:377:ALA:HB2  | 2.29                     | 0.59              |
| 1:K:69:MET:CE    | 1:L:39:VAL:HG12  | 2.32                     | 0.59              |
| 1:M:349:ILE:O    | 1:M:353:ILE:HG13 | 2.03                     | 0.59              |
| 1:A:440:ILE:HG22 | 1:A:441:LYS:N    | 2.17                     | 0.58              |
| 1:D:257:GLU:HB2  | 1:E:269:GLY:HA3  | 1.85                     | 0.58              |
| 1:G:297:GLY:O    | 1:G:318:GLY:HA2  | 2.02                     | 0.58              |
| 1:H:349:ILE:O    | 1:H:353:ILE:HG13 | 2.02                     | 0.58              |
| 1:K:82:ASN:HB2   | 1:K:89:THR:OG1   | 2.03                     | 0.58              |
| 1:N:279:PRO:O    | 1:N:285:ARG:HG3  | 2.03                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:213:VAL:HG12 | 1:A:214:GLU:N    | 2.17                     | 0.58              |
| 1:B:237:LEU:HD23 | 1:B:237:LEU:O    | 2.03                     | 0.58              |
| 1:C:237:LEU:O    | 1:C:237:LEU:HD23 | 2.02                     | 0.58              |
| 1:M:82:ASN:HB2   | 1:M:89:THR:OG1   | 2.03                     | 0.58              |
| 1:B:213:VAL:HG12 | 1:B:214:GLU:N    | 2.18                     | 0.58              |
| 1:B:228:SER:O    | 1:B:257:GLU:HB3  | 2.02                     | 0.58              |
| 1:I:202:PRO:O    | 1:I:203:TYR:HB2  | 2.04                     | 0.58              |
| 1:L:236:VAL:O    | 1:L:236:VAL:HG12 | 2.02                     | 0.58              |
| 1:L:279:PRO:O    | 1:L:285:ARG:HG3  | 2.03                     | 0.58              |
| 1:N:247:LEU:HB3  | 1:N:273:VAL:CG1  | 2.33                     | 0.58              |
| 1:A:213:VAL:HG12 | 1:A:214:GLU:H    | 1.68                     | 0.58              |
| 1:A:326:ASN:HD22 | 1:A:329:THR:CB   | 1.97                     | 0.58              |
| 1:G:344:GLY:O    | 1:G:347:ALA:HB3  | 2.03                     | 0.58              |
| 1:I:326:ASN:OD1  | 1:I:329:THR:HB   | 2.04                     | 0.58              |
| 1:J:236:VAL:O    | 1:J:236:VAL:HG12 | 2.03                     | 0.58              |
| 1:K:236:VAL:O    | 1:K:236:VAL:HG12 | 2.04                     | 0.58              |
| 1:K:247:LEU:HB3  | 1:K:273:VAL:CG1  | 2.33                     | 0.58              |
| 1:M:213:VAL:HG12 | 1:M:214:GLU:N    | 2.18                     | 0.58              |
| 1:M:236:VAL:O    | 1:M:236:VAL:HG12 | 2.03                     | 0.58              |
| 1:M:252:GLU:O    | 1:M:253:ASP:HB2  | 2.03                     | 0.58              |
| 1:A:23:LEU:HD23  | 1:A:74:VAL:CG2   | 2.33                     | 0.58              |
| 1:F:222:LEU:HD23 | 1:F:250:ILE:HB   | 1.86                     | 0.58              |
| 1:J:252:GLU:O    | 1:J:253:ASP:HB2  | 2.03                     | 0.58              |
| 1:M:31:LEU:HB2   | 1:M:90:THR:HG21  | 1.86                     | 0.58              |
| 1:M:202:PRO:O    | 1:M:203:TYR:HB2  | 2.02                     | 0.58              |
| 1:H:202:PRO:O    | 1:H:203:TYR:HB2  | 2.03                     | 0.58              |
| 1:G:176:THR:HG21 | 1:G:333:ILE:HD13 | 1.84                     | 0.58              |
| 1:G:228:SER:OG   | 1:G:255:GLU:HB2  | 2.03                     | 0.58              |
| 1:I:391:GLU:O    | 1:I:394:ALA:HB3  | 2.03                     | 0.58              |
| 1:I:451:LEU:C    | 1:I:451:LEU:HD23 | 2.24                     | 0.58              |
| 1:J:202:PRO:O    | 1:J:203:TYR:HB2  | 2.04                     | 0.58              |
| 1:K:174:VAL:HG21 | 1:K:376:VAL:HG22 | 1.83                     | 0.58              |
| 1:K:249:ILE:HB   | 1:K:275:ALA:CB   | 2.33                     | 0.58              |
| 1:L:391:GLU:O    | 1:L:394:ALA:HB3  | 2.03                     | 0.58              |
| 1:M:451:LEU:HD23 | 1:M:451:LEU:C    | 2.23                     | 0.58              |
| 1:B:23:LEU:HD23  | 1:B:74:VAL:CG2   | 2.33                     | 0.58              |
| 1:G:30:THR:HB    | 1:G:51:LYS:O     | 2.03                     | 0.58              |
| 1:H:326:ASN:OD1  | 1:H:329:THR:HB   | 2.03                     | 0.58              |
| 1:M:455:VAL:HG13 | 1:M:460:GLU:HB3  | 1.84                     | 0.58              |
| 1:N:202:PRO:O    | 1:N:204:PHE:N    | 2.34                     | 0.58              |
| 1:D:213:VAL:HG12 | 1:D:214:GLU:H    | 1.68                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:279:PRO:O    | 1:I:285:ARG:HG3  | 2.03                     | 0.58              |
| 1:I:319:GLN:O    | 1:I:336:VAL:HG23 | 2.04                     | 0.58              |
| 1:J:166:MET:CE   | 1:J:171:LYS:HA   | 2.33                     | 0.58              |
| 1:K:319:GLN:O    | 1:K:336:VAL:HG23 | 2.03                     | 0.58              |
| 1:B:36:ARG:HH11  | 1:B:36:ARG:HG3   | 1.69                     | 0.58              |
| 1:C:36:ARG:HG3   | 1:C:36:ARG:HH11  | 1.69                     | 0.58              |
| 1:G:223:ALA:O    | 1:G:251:ALA:HA   | 2.02                     | 0.58              |
| 1:M:247:LEU:HB3  | 1:M:273:VAL:CG1  | 2.34                     | 0.58              |
| 1:E:90:THR:O     | 1:E:94:VAL:HG13  | 2.04                     | 0.57              |
| 1:F:144:ILE:HD13 | 1:F:166:MET:SD   | 2.44                     | 0.57              |
| 1:G:31:LEU:HD23  | 1:G:453:GLN:HG2  | 1.86                     | 0.57              |
| 1:I:455:VAL:HG13 | 1:I:460:GLU:HB3  | 1.86                     | 0.57              |
| 1:J:247:LEU:HB3  | 1:J:273:VAL:CG1  | 2.34                     | 0.57              |
| 1:L:249:ILE:HB   | 1:L:275:ALA:CB   | 2.33                     | 0.57              |
| 1:N:174:VAL:HG21 | 1:N:376:VAL:HG22 | 1.86                     | 0.57              |
| 1:E:8:PHE:CZ     | 1:F:26:ALA:HB2   | 2.39                     | 0.57              |
| 1:F:455:VAL:HG13 | 1:F:460:GLU:CB   | 2.34                     | 0.57              |
| 1:H:213:VAL:HG12 | 1:H:214:GLU:H    | 1.69                     | 0.57              |
| 1:I:37:ASN:ND2   | 1:I:51:LYS:HG3   | 2.19                     | 0.57              |
| 1:L:77:VAL:CG2   | 1:L:78:ALA:N     | 2.67                     | 0.57              |
| 1:L:252:GLU:O    | 1:L:253:ASP:HB2  | 2.04                     | 0.57              |
| 1:M:202:PRO:O    | 1:M:204:PHE:N    | 2.34                     | 0.57              |
| 1:N:460:GLU:O    | 1:N:462:PRO:HD3  | 2.03                     | 0.57              |
| 1:B:6:VAL:HG22   | 1:B:521:VAL:HG22 | 1.86                     | 0.57              |
| 1:F:429:LEU:HD12 | 1:F:430:ARG:N    | 2.19                     | 0.57              |
| 1:H:200:LEU:CD1  | 1:H:254:VAL:HB   | 2.34                     | 0.57              |
| 1:I:77:VAL:CG2   | 1:I:78:ALA:N     | 2.67                     | 0.57              |
| 1:J:499:VAL:HG22 | 1:J:500:THR:N    | 2.19                     | 0.57              |
| 1:M:76:GLU:O     | 1:M:79:SER:HB3   | 2.03                     | 0.57              |
| 1:N:139:SER:HB3  | 1:N:171:LYS:NZ   | 2.20                     | 0.57              |
| 1:B:208:PRO:HG2  | 1:B:209:GLU:OE1  | 2.04                     | 0.57              |
| 1:B:223:ALA:O    | 1:B:251:ALA:HA   | 2.04                     | 0.57              |
| 1:D:297:GLY:O    | 1:D:318:GLY:HA2  | 2.05                     | 0.57              |
| 1:F:440:ILE:HG22 | 1:F:441:LYS:N    | 2.18                     | 0.57              |
| 1:I:252:GLU:O    | 1:I:253:ASP:HB2  | 2.04                     | 0.57              |
| 1:F:511:ALA:O    | 1:F:515:ILE:HG13 | 2.04                     | 0.57              |
| 1:H:63:GLU:HA    | 1:N:3:ALA:HB2    | 1.85                     | 0.57              |
| 1:H:417:VAL:O    | 1:H:420:ILE:HG22 | 2.04                     | 0.57              |
| 1:K:391:GLU:O    | 1:K:394:ALA:HB3  | 2.04                     | 0.57              |
| 1:N:213:VAL:HG12 | 1:N:214:GLU:H    | 1.69                     | 0.57              |
| 1:N:236:VAL:HG12 | 1:N:236:VAL:O    | 2.05                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:278:ALA:HB3  | 1:N:285:ARG:HD3  | 1.85                     | 0.57              |
| 1:A:223:ALA:O    | 1:A:251:ALA:HA   | 2.04                     | 0.57              |
| 1:F:245:LYS:NZ   | 1:F:319:GLN:HE22 | 2.03                     | 0.57              |
| 1:J:76:GLU:O     | 1:J:79:SER:HB3   | 2.03                     | 0.57              |
| 1:L:305:ILE:O    | 1:L:305:ILE:HG22 | 2.05                     | 0.57              |
| 1:M:77:VAL:HG23  | 1:M:78:ALA:N     | 2.18                     | 0.57              |
| 1:E:223:ALA:O    | 1:E:251:ALA:HA   | 2.04                     | 0.57              |
| 1:H:221:LEU:HB3  | 1:H:249:ILE:HD13 | 1.87                     | 0.57              |
| 1:I:305:ILE:O    | 1:I:305:ILE:HG22 | 2.04                     | 0.57              |
| 1:J:77:VAL:CG2   | 1:J:78:ALA:N     | 2.67                     | 0.57              |
| 1:L:76:GLU:O     | 1:L:79:SER:HB3   | 2.04                     | 0.57              |
| 1:M:77:VAL:CG2   | 1:M:78:ALA:N     | 2.67                     | 0.57              |
| 1:N:247:LEU:HD12 | 1:N:248:LEU:H    | 1.69                     | 0.57              |
| 1:G:295:LEU:HA   | 1:G:342:ILE:HD11 | 1.86                     | 0.57              |
| 1:H:203:TYR:HB3  | 1:H:267:MET:HE1  | 1.86                     | 0.57              |
| 1:K:77:VAL:CG2   | 1:K:78:ALA:N     | 2.66                     | 0.57              |
| 1:K:499:VAL:HG22 | 1:K:500:THR:N    | 2.20                     | 0.57              |
| 1:M:223:ALA:O    | 1:M:251:ALA:HA   | 2.04                     | 0.57              |
| 1:N:252:GLU:O    | 1:N:253:ASP:HB2  | 2.05                     | 0.57              |
| 1:E:201:SER:O    | 1:E:202:PRO:O    | 2.23                     | 0.57              |
| 1:H:249:ILE:HB   | 1:H:275:ALA:CB   | 2.34                     | 0.57              |
| 1:K:155:ASP:OD1  | 1:K:157:THR:HB   | 2.05                     | 0.57              |
| 1:N:259:LEU:O    | 1:N:263:VAL:HG23 | 2.05                     | 0.57              |
| 1:B:90:THR:O     | 1:B:94:VAL:HG13  | 2.05                     | 0.57              |
| 1:C:208:PRO:HG2  | 1:C:209:GLU:OE1  | 2.05                     | 0.57              |
| 1:C:259:LEU:O    | 1:C:263:VAL:HG23 | 2.04                     | 0.57              |
| 1:C:297:GLY:O    | 1:C:318:GLY:HA2  | 2.05                     | 0.57              |
| 1:G:237:LEU:HD23 | 1:G:237:LEU:O    | 2.05                     | 0.57              |
| 1:I:219:PHE:O    | 1:I:247:LEU:HD12 | 2.05                     | 0.57              |
| 1:N:76:GLU:O     | 1:N:79:SER:HB3   | 2.05                     | 0.57              |
| 1:C:511:ALA:O    | 1:C:515:ILE:HG13 | 2.05                     | 0.56              |
| 1:D:90:THR:O     | 1:D:94:VAL:HG13  | 2.05                     | 0.56              |
| 1:E:519:CYS:O    | 1:F:39:VAL:N     | 2.38                     | 0.56              |
| 1:J:155:ASP:OD1  | 1:J:157:THR:HB   | 2.05                     | 0.56              |
| 1:J:197:ARG:HG3  | 1:J:277:LYS:O    | 2.05                     | 0.56              |
| 1:E:297:GLY:O    | 1:E:318:GLY:HA2  | 2.04                     | 0.56              |
| 1:F:237:LEU:O    | 1:F:237:LEU:HD23 | 2.05                     | 0.56              |
| 1:G:23:LEU:HD23  | 1:G:74:VAL:CG2   | 2.34                     | 0.56              |
| 1:H:28:LYS:O     | 1:H:31:LEU:HB2   | 2.05                     | 0.56              |
| 1:H:37:ASN:HD21  | 1:H:51:LYS:NZ    | 2.03                     | 0.56              |
| 1:L:247:LEU:HB3  | 1:L:273:VAL:CG1  | 2.35                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:349:ILE:O    | 1:L:353:ILE:HG13 | 2.05                     | 0.56              |
| 1:M:499:VAL:HG22 | 1:M:500:THR:N    | 2.19                     | 0.56              |
| 1:A:237:LEU:O    | 1:A:237:LEU:HD23 | 2.04                     | 0.56              |
| 1:A:245:LYS:NZ   | 1:A:319:GLN:HE22 | 2.04                     | 0.56              |
| 1:C:228:SER:OG   | 1:C:255:GLU:HB2  | 2.05                     | 0.56              |
| 1:E:237:LEU:HD23 | 1:E:237:LEU:O    | 2.06                     | 0.56              |
| 1:G:455:VAL:HG11 | 1:G:462:PRO:HA   | 1.87                     | 0.56              |
| 1:H:77:VAL:CG2   | 1:H:78:ALA:N     | 2.69                     | 0.56              |
| 1:H:391:GLU:O    | 1:H:394:ALA:HB3  | 2.05                     | 0.56              |
| 1:I:213:VAL:HG12 | 1:I:214:GLU:H    | 1.67                     | 0.56              |
| 1:I:236:VAL:O    | 1:I:236:VAL:HG12 | 2.05                     | 0.56              |
| 1:M:183:LEU:O    | 1:M:184:GLN:HB2  | 2.05                     | 0.56              |
| 1:M:305:ILE:O    | 1:M:305:ILE:HG22 | 2.05                     | 0.56              |
| 1:N:155:ASP:OD1  | 1:N:157:THR:HB   | 2.05                     | 0.56              |
| 1:N:391:GLU:O    | 1:N:394:ALA:HB3  | 2.04                     | 0.56              |
| 1:B:214:GLU:O    | 1:B:215:LEU:HD23 | 2.05                     | 0.56              |
| 1:D:201:SER:O    | 1:D:202:PRO:O    | 2.23                     | 0.56              |
| 1:H:139:SER:HB3  | 1:H:171:LYS:NZ   | 2.20                     | 0.56              |
| 1:L:455:VAL:HG13 | 1:L:460:GLU:HB3  | 1.87                     | 0.56              |
| 1:E:23:LEU:HD23  | 1:E:74:VAL:HG22  | 1.86                     | 0.56              |
| 1:J:200:LEU:CD1  | 1:J:254:VAL:HB   | 2.35                     | 0.56              |
| 1:K:200:LEU:CD1  | 1:K:254:VAL:HB   | 2.35                     | 0.56              |
| 1:M:203:TYR:HB3  | 1:M:267:MET:HE1  | 1.88                     | 0.56              |
| 1:M:417:VAL:O    | 1:M:420:ILE:HG22 | 2.05                     | 0.56              |
| 1:N:223:ALA:O    | 1:N:251:ALA:HA   | 2.04                     | 0.56              |
| 1:A:90:THR:O     | 1:A:94:VAL:HG13  | 2.06                     | 0.56              |
| 1:B:23:LEU:HD23  | 1:B:74:VAL:HG22  | 1.88                     | 0.56              |
| 1:D:237:LEU:O    | 1:D:237:LEU:HD23 | 2.05                     | 0.56              |
| 1:H:142:LYS:O    | 1:H:142:LYS:HD3  | 2.05                     | 0.56              |
| 1:K:223:ALA:O    | 1:K:251:ALA:HA   | 2.06                     | 0.56              |
| 1:L:202:PRO:O    | 1:L:203:TYR:HB2  | 2.04                     | 0.56              |
| 1:L:460:GLU:O    | 1:L:462:PRO:HD3  | 2.05                     | 0.56              |
| 1:M:20:VAL:CG2   | 1:M:74:VAL:HG11  | 2.34                     | 0.56              |
| 1:N:455:VAL:HG13 | 1:N:460:GLU:HB3  | 1.87                     | 0.56              |
| 1:H:278:ALA:HB3  | 1:H:285:ARG:HD3  | 1.86                     | 0.56              |
| 1:L:69:MET:CE    | 1:M:39:VAL:HG12  | 2.35                     | 0.56              |
| 1:N:77:VAL:HG23  | 1:N:78:ALA:N     | 2.19                     | 0.56              |
| 1:N:349:ILE:O    | 1:N:353:ILE:HG13 | 2.05                     | 0.56              |
| 1:C:23:LEU:HD23  | 1:C:74:VAL:CG2   | 2.35                     | 0.56              |
| 1:I:169:VAL:CG2  | 1:I:377:ALA:HB2  | 2.34                     | 0.56              |
| 1:J:391:GLU:O    | 1:J:394:ALA:HB3  | 2.06                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:77:VAL:HG23  | 1:K:78:ALA:N     | 2.19                     | 0.56              |
| 1:L:25:ASP:HA    | 1:L:28:LYS:HE2   | 1.87                     | 0.56              |
| 1:L:319:GLN:O    | 1:L:336:VAL:HG23 | 2.05                     | 0.56              |
| 1:N:496:PRO:O    | 1:N:499:VAL:HG13 | 2.06                     | 0.56              |
| 1:A:131:LEU:HD13 | 1:A:422:VAL:HG21 | 1.88                     | 0.56              |
| 1:C:131:LEU:HD13 | 1:C:422:VAL:HG21 | 1.87                     | 0.56              |
| 1:D:218:PRO:HB3  | 1:D:246:PRO:HG2  | 1.88                     | 0.56              |
| 1:D:429:LEU:HD12 | 1:D:430:ARG:N    | 2.21                     | 0.56              |
| 1:E:213:VAL:HG12 | 1:E:214:GLU:H    | 1.71                     | 0.56              |
| 1:F:23:LEU:HD23  | 1:F:74:VAL:HG22  | 1.87                     | 0.56              |
| 1:H:202:PRO:O    | 1:H:204:PHE:N    | 2.36                     | 0.56              |
| 1:H:247:LEU:HB3  | 1:H:273:VAL:CG1  | 2.35                     | 0.56              |
| 1:H:451:LEU:HD23 | 1:H:451:LEU:C    | 2.26                     | 0.56              |
| 1:I:242:LYS:O    | 1:I:243:ALA:HB3  | 2.06                     | 0.56              |
| 1:J:32:GLY:HA3   | 1:J:454:ILE:HG23 | 1.86                     | 0.56              |
| 1:J:305:ILE:O    | 1:J:305:ILE:HG22 | 2.06                     | 0.56              |
| 1:L:413:ALA:HB2  | 1:L:475:ASN:HD22 | 1.71                     | 0.56              |
| 1:M:219:PHE:O    | 1:M:247:LEU:HD12 | 2.05                     | 0.56              |
| 1:B:174:VAL:HB   | 1:B:376:VAL:HG13 | 1.87                     | 0.56              |
| 1:D:429:LEU:HD12 | 1:D:430:ARG:H    | 1.70                     | 0.56              |
| 1:G:131:LEU:CD1  | 1:G:422:VAL:HG21 | 2.36                     | 0.56              |
| 1:G:245:LYS:NZ   | 1:G:319:GLN:HE22 | 2.03                     | 0.56              |
| 1:K:142:LYS:O    | 1:K:142:LYS:HD3  | 2.06                     | 0.56              |
| 1:K:493:ILE:O    | 1:K:493:ILE:HG22 | 2.06                     | 0.56              |
| 1:M:139:SER:HB3  | 1:M:171:LYS:NZ   | 2.21                     | 0.56              |
| 1:C:440:ILE:HG22 | 1:C:441:LYS:N    | 2.20                     | 0.55              |
| 1:E:429:LEU:HD12 | 1:E:430:ARG:H    | 1.72                     | 0.55              |
| 1:H:223:ALA:O    | 1:H:251:ALA:HA   | 2.05                     | 0.55              |
| 1:J:77:VAL:HG23  | 1:J:78:ALA:N     | 2.20                     | 0.55              |
| 1:L:176:THR:HG21 | 1:L:333:ILE:HD13 | 1.87                     | 0.55              |
| 1:N:305:ILE:HG22 | 1:N:305:ILE:O    | 2.06                     | 0.55              |
| 1:B:69:MET:SD    | 1:C:41:ASP:HB2   | 2.46                     | 0.55              |
| 1:E:389:MET:SD   | 1:E:389:MET:C    | 2.84                     | 0.55              |
| 1:G:23:LEU:HD23  | 1:G:74:VAL:HG22  | 1.88                     | 0.55              |
| 1:G:259:LEU:O    | 1:G:263:VAL:HG23 | 2.05                     | 0.55              |
| 1:I:203:TYR:HB3  | 1:I:267:MET:HE1  | 1.88                     | 0.55              |
| 1:K:139:SER:HB3  | 1:K:171:LYS:NZ   | 2.21                     | 0.55              |
| 1:K:209:GLU:OE1  | 1:K:209:GLU:N    | 2.39                     | 0.55              |
| 1:L:417:VAL:O    | 1:L:420:ILE:HG22 | 2.06                     | 0.55              |
| 1:N:321:LYS:O    | 1:N:322:ARG:HB2  | 2.06                     | 0.55              |
| 1:F:213:VAL:HG12 | 1:F:214:GLU:N    | 2.21                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:208:PRO:HG2  | 1:G:209:GLU:OE1  | 2.06                     | 0.55              |
| 1:I:223:ALA:O    | 1:I:251:ALA:HA   | 2.07                     | 0.55              |
| 1:K:197:ARG:HG3  | 1:K:277:LYS:O    | 2.06                     | 0.55              |
| 1:K:305:ILE:HG22 | 1:K:305:ILE:O    | 2.06                     | 0.55              |
| 1:L:517:THR:HG21 | 1:M:39:VAL:HG23  | 1.88                     | 0.55              |
| 1:A:268:ARG:O    | 1:A:270:ILE:N    | 2.40                     | 0.55              |
| 1:E:520:MET:HG2  | 1:F:39:VAL:HB    | 1.89                     | 0.55              |
| 1:F:242:LYS:O    | 1:F:243:ALA:HB3  | 2.06                     | 0.55              |
| 1:J:77:VAL:HG21  | 1:J:510:VAL:CG1  | 2.37                     | 0.55              |
| 1:L:74:VAL:HA    | 1:L:510:VAL:HG21 | 1.88                     | 0.55              |
| 1:L:77:VAL:HG21  | 1:L:510:VAL:CG1  | 2.36                     | 0.55              |
| 1:M:37:ASN:ND2   | 1:M:51:LYS:HG3   | 2.21                     | 0.55              |
| 1:N:169:VAL:CG2  | 1:N:377:ALA:HB2  | 2.31                     | 0.55              |
| 1:G:201:SER:O    | 1:G:202:PRO:O    | 2.24                     | 0.55              |
| 1:I:278:ALA:HB3  | 1:I:285:ARG:HD3  | 1.88                     | 0.55              |
| 1:J:139:SER:HB3  | 1:J:171:LYS:NZ   | 2.22                     | 0.55              |
| 1:J:247:LEU:HD12 | 1:J:248:LEU:H    | 1.71                     | 0.55              |
| 1:K:25:ASP:HA    | 1:K:28:LYS:HE2   | 1.88                     | 0.55              |
| 1:L:517:THR:CG2  | 1:M:39:VAL:HG23  | 2.36                     | 0.55              |
| 1:N:202:PRO:O    | 1:N:203:TYR:HB2  | 2.06                     | 0.55              |
| 1:B:297:GLY:O    | 1:B:318:GLY:HA2  | 2.07                     | 0.55              |
| 1:C:201:SER:O    | 1:C:202:PRO:O    | 2.24                     | 0.55              |
| 1:C:245:LYS:NZ   | 1:C:319:GLN:HE22 | 2.05                     | 0.55              |
| 1:D:202:PRO:O    | 1:D:203:TYR:HB2  | 2.06                     | 0.55              |
| 1:E:34:LYS:HB2   | 1:E:458:CYS:SG   | 2.47                     | 0.55              |
| 1:I:139:SER:HB3  | 1:I:171:LYS:NZ   | 2.21                     | 0.55              |
| 1:I:173:GLY:O    | 1:I:404:ARG:NH2  | 2.39                     | 0.55              |
| 1:K:259:LEU:O    | 1:K:263:VAL:HG23 | 2.06                     | 0.55              |
| 1:L:242:LYS:O    | 1:L:243:ALA:HB3  | 2.06                     | 0.55              |
| 1:N:20:VAL:CG2   | 1:N:74:VAL:HG11  | 2.36                     | 0.55              |
| 1:A:236:VAL:O    | 1:A:236:VAL:HG12 | 2.07                     | 0.55              |
| 1:D:16:MET:HB3   | 1:D:514:MET:HE1  | 1.87                     | 0.55              |
| 1:D:228:SER:OG   | 1:D:255:GLU:HB2  | 2.07                     | 0.55              |
| 1:M:200:LEU:CD1  | 1:M:254:VAL:HB   | 2.36                     | 0.55              |
| 1:E:131:LEU:CD1  | 1:E:422:VAL:HG21 | 2.37                     | 0.55              |
| 1:H:197:ARG:HG3  | 1:H:277:LYS:O    | 2.07                     | 0.55              |
| 1:I:77:VAL:HG23  | 1:I:78:ALA:N     | 2.20                     | 0.55              |
| 1:I:247:LEU:HB3  | 1:I:273:VAL:CG1  | 2.37                     | 0.55              |
| 1:I:247:LEU:HD12 | 1:I:248:LEU:H    | 1.71                     | 0.55              |
| 1:J:176:THR:HG21 | 1:J:333:ILE:HD13 | 1.88                     | 0.55              |
| 1:F:381:VAL:HG21 | 1:F:393:LYS:HA   | 1.89                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:213:VAL:HG12 | 1:G:214:GLU:H    | 1.71                     | 0.55              |
| 1:H:63:GLU:HB2   | 1:N:3:ALA:HB1    | 1.88                     | 0.55              |
| 1:I:197:ARG:HG3  | 1:I:277:LYS:O    | 2.06                     | 0.55              |
| 1:L:139:SER:HB3  | 1:L:171:LYS:NZ   | 2.21                     | 0.55              |
| 1:I:493:ILE:O    | 1:I:493:ILE:HG22 | 2.07                     | 0.55              |
| 1:K:27:VAL:O     | 1:K:30:THR:CG2   | 2.52                     | 0.55              |
| 1:K:279:PRO:O    | 1:K:285:ARG:HG3  | 2.06                     | 0.55              |
| 1:K:518:GLU:HG2  | 1:L:36:ARG:HG3   | 1.89                     | 0.55              |
| 1:M:166:MET:HE1  | 1:M:171:LYS:HA   | 1.88                     | 0.55              |
| 1:M:209:GLU:N    | 1:M:209:GLU:OE1  | 2.40                     | 0.55              |
| 1:A:455:VAL:HG11 | 1:A:462:PRO:HA   | 1.88                     | 0.54              |
| 1:B:213:VAL:HG12 | 1:B:214:GLU:H    | 1.71                     | 0.54              |
| 1:E:311:LYS:HB3  | 1:I:311:LYS:CD   | 2.35                     | 0.54              |
| 1:H:305:ILE:HG22 | 1:H:305:ILE:O    | 2.06                     | 0.54              |
| 1:L:155:ASP:OD1  | 1:L:157:THR:HB   | 2.06                     | 0.54              |
| 1:M:413:ALA:HB2  | 1:M:475:ASN:HD22 | 1.72                     | 0.54              |
| 1:N:20:VAL:HG23  | 1:N:74:VAL:HG11  | 1.90                     | 0.54              |
| 1:C:7:LYS:HG3    | 1:C:66:PHE:CZ    | 2.42                     | 0.54              |
| 1:C:23:LEU:HD23  | 1:C:74:VAL:HG22  | 1.88                     | 0.54              |
| 1:D:268:ARG:O    | 1:D:270:ILE:N    | 2.40                     | 0.54              |
| 1:H:176:THR:HG21 | 1:H:333:ILE:HD13 | 1.89                     | 0.54              |
| 1:N:215:LEU:HB2  | 1:N:323:VAL:HG22 | 1.89                     | 0.54              |
| 1:A:228:SER:OG   | 1:A:255:GLU:HB2  | 2.07                     | 0.54              |
| 1:C:349:ILE:O    | 1:C:353:ILE:HG13 | 2.06                     | 0.54              |
| 1:D:174:VAL:HB   | 1:D:376:VAL:HG13 | 1.89                     | 0.54              |
| 1:F:344:GLY:O    | 1:F:347:ALA:HB3  | 2.08                     | 0.54              |
| 1:H:77:VAL:HG21  | 1:H:510:VAL:CG1  | 2.37                     | 0.54              |
| 1:H:242:LYS:O    | 1:H:243:ALA:HB3  | 2.07                     | 0.54              |
| 1:J:344:GLY:O    | 1:J:347:ALA:HB3  | 2.07                     | 0.54              |
| 1:L:451:LEU:C    | 1:L:451:LEU:HD23 | 2.27                     | 0.54              |
| 1:F:106:ALA:O    | 1:F:109:ALA:HB3  | 2.06                     | 0.54              |
| 1:F:174:VAL:HB   | 1:F:376:VAL:HG13 | 1.88                     | 0.54              |
| 1:F:259:LEU:O    | 1:F:263:VAL:HG23 | 2.07                     | 0.54              |
| 1:H:74:VAL:HA    | 1:H:510:VAL:HG21 | 1.90                     | 0.54              |
| 1:H:77:VAL:HG23  | 1:H:78:ALA:N     | 2.23                     | 0.54              |
| 1:H:166:MET:HE2  | 1:H:171:LYS:HA   | 1.89                     | 0.54              |
| 1:I:247:LEU:H    | 1:I:273:VAL:HG12 | 1.73                     | 0.54              |
| 1:K:252:GLU:O    | 1:K:253:ASP:HB2  | 2.07                     | 0.54              |
| 1:L:77:VAL:HG23  | 1:L:78:ALA:N     | 2.21                     | 0.54              |
| 1:M:242:LYS:O    | 1:M:243:ALA:HB3  | 2.06                     | 0.54              |
| 1:A:201:SER:O    | 1:A:202:PRO:O    | 2.25                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:511:ALA:O    | 1:G:515:ILE:HG13 | 2.07                     | 0.54              |
| 1:H:252:GLU:O    | 1:H:253:ASP:HB2  | 2.08                     | 0.54              |
| 1:H:444:LEU:HA   | 1:H:447:MET:HE3  | 1.90                     | 0.54              |
| 1:H:479:ASN:ND2  | 1:H:482:THR:HG23 | 2.21                     | 0.54              |
| 1:J:259:LEU:O    | 1:J:263:VAL:HG23 | 2.07                     | 0.54              |
| 1:M:319:GLN:O    | 1:M:336:VAL:HG23 | 2.07                     | 0.54              |
| 1:G:199:TYR:HA   | 1:G:276:VAL:HG12 | 1.89                     | 0.54              |
| 1:G:311:LYS:HB3  | 1:N:311:LYS:HG2  | 1.90                     | 0.54              |
| 1:N:25:ASP:HA    | 1:N:28:LYS:HE2   | 1.90                     | 0.54              |
| 1:E:23:LEU:CD2   | 1:E:75:LYS:HG3   | 2.38                     | 0.54              |
| 1:E:420:ILE:HG13 | 1:E:448:GLU:HG2  | 1.89                     | 0.54              |
| 1:H:155:ASP:OD1  | 1:H:157:THR:HB   | 2.08                     | 0.54              |
| 1:I:176:THR:HG21 | 1:I:333:ILE:HD13 | 1.89                     | 0.54              |
| 1:J:393:LYS:O    | 1:J:397:GLU:HB2  | 2.07                     | 0.54              |
| 1:N:200:LEU:CD1  | 1:N:254:VAL:HB   | 2.38                     | 0.54              |
| 1:B:429:LEU:HD12 | 1:B:430:ARG:N    | 2.22                     | 0.54              |
| 1:C:245:LYS:HZ2  | 1:C:319:GLN:HE22 | 1.55                     | 0.54              |
| 1:D:236:VAL:O    | 1:D:236:VAL:HG12 | 2.07                     | 0.54              |
| 1:F:208:PRO:HG2  | 1:F:209:GLU:OE1  | 2.08                     | 0.54              |
| 1:H:455:VAL:HG13 | 1:H:460:GLU:HB3  | 1.89                     | 0.54              |
| 1:J:417:VAL:O    | 1:J:420:ILE:HG22 | 2.08                     | 0.54              |
| 1:M:213:VAL:HG12 | 1:M:214:GLU:H    | 1.73                     | 0.54              |
| 1:B:131:LEU:HD13 | 1:B:422:VAL:HG21 | 1.90                     | 0.54              |
| 1:B:440:ILE:HG22 | 1:B:441:LYS:N    | 2.22                     | 0.54              |
| 1:C:174:VAL:HB   | 1:C:376:VAL:HG13 | 1.89                     | 0.54              |
| 1:H:23:LEU:HD23  | 1:H:74:VAL:HG22  | 1.89                     | 0.54              |
| 1:I:74:VAL:HA    | 1:I:510:VAL:HG21 | 1.89                     | 0.54              |
| 1:I:259:LEU:O    | 1:I:263:VAL:HG23 | 2.07                     | 0.54              |
| 1:J:221:LEU:HB3  | 1:J:249:ILE:HD13 | 1.90                     | 0.54              |
| 1:J:278:ALA:HB3  | 1:J:285:ARG:HD3  | 1.90                     | 0.54              |
| 1:J:319:GLN:O    | 1:J:336:VAL:HG23 | 2.08                     | 0.54              |
| 1:L:202:PRO:O    | 1:L:204:PHE:N    | 2.35                     | 0.54              |
| 1:L:209:GLU:OE1  | 1:L:209:GLU:N    | 2.41                     | 0.54              |
| 1:B:245:LYS:NZ   | 1:B:319:GLN:HE22 | 2.05                     | 0.54              |
| 1:B:248:LEU:HD12 | 1:B:274:ALA:O    | 2.08                     | 0.54              |
| 1:B:429:LEU:HD12 | 1:B:430:ARG:H    | 1.72                     | 0.54              |
| 1:D:259:LEU:O    | 1:D:263:VAL:HG23 | 2.08                     | 0.54              |
| 1:E:344:GLY:O    | 1:E:347:ALA:HB3  | 2.08                     | 0.54              |
| 1:F:25:ASP:O     | 1:F:29:VAL:HG13  | 2.08                     | 0.54              |
| 1:G:155:ASP:OD1  | 1:G:157:THR:HB   | 2.08                     | 0.54              |
| 1:G:429:LEU:HD12 | 1:G:430:ARG:N    | 2.23                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:209:GLU:OE1  | 1:H:209:GLU:N    | 2.41                     | 0.54              |
| 1:H:269:GLY:HA3  | 1:N:257:GLU:CG   | 2.36                     | 0.54              |
| 1:I:28:LYS:C     | 1:I:30:THR:H     | 2.12                     | 0.54              |
| 1:J:8:PHE:HE1    | 1:K:26:ALA:HA    | 1.73                     | 0.54              |
| 1:L:223:ALA:O    | 1:L:251:ALA:HA   | 2.07                     | 0.54              |
| 1:A:199:TYR:HA   | 1:A:276:VAL:HG12 | 1.91                     | 0.53              |
| 1:A:420:ILE:HG13 | 1:A:448:GLU:HG2  | 1.91                     | 0.53              |
| 1:A:429:LEU:HD12 | 1:A:430:ARG:H    | 1.73                     | 0.53              |
| 1:A:429:LEU:HD12 | 1:A:430:ARG:N    | 2.23                     | 0.53              |
| 1:B:295:LEU:HA   | 1:B:342:ILE:HD11 | 1.90                     | 0.53              |
| 1:F:268:ARG:O    | 1:F:270:ILE:N    | 2.40                     | 0.53              |
| 1:G:77:VAL:HG23  | 1:G:78:ALA:N     | 2.23                     | 0.53              |
| 1:H:34:LYS:HB3   | 1:N:114:MET:HG3  | 1.90                     | 0.53              |
| 1:J:32:GLY:O     | 1:J:34:LYS:N     | 2.41                     | 0.53              |
| 1:M:221:LEU:HB3  | 1:M:249:ILE:HD13 | 1.89                     | 0.53              |
| 1:N:493:ILE:O    | 1:N:493:ILE:HG22 | 2.07                     | 0.53              |
| 1:B:349:ILE:O    | 1:B:353:ILE:HG13 | 2.07                     | 0.53              |
| 1:D:23:LEU:HD23  | 1:D:74:VAL:HG22  | 1.90                     | 0.53              |
| 1:I:221:LEU:HB3  | 1:I:249:ILE:HD13 | 1.89                     | 0.53              |
| 1:J:74:VAL:HA    | 1:J:510:VAL:HG21 | 1.91                     | 0.53              |
| 1:J:234:LEU:N    | 1:J:235:PRO:HD2  | 2.23                     | 0.53              |
| 1:J:242:LYS:O    | 1:J:243:ALA:HB3  | 2.08                     | 0.53              |
| 1:J:247:LEU:H    | 1:J:273:VAL:HG12 | 1.73                     | 0.53              |
| 1:K:221:LEU:HB3  | 1:K:249:ILE:HD13 | 1.90                     | 0.53              |
| 1:B:242:LYS:C    | 1:B:244:GLY:H    | 2.12                     | 0.53              |
| 1:C:6:VAL:HG22   | 1:C:521:VAL:HG22 | 1.91                     | 0.53              |
| 1:C:268:ARG:O    | 1:C:270:ILE:N    | 2.40                     | 0.53              |
| 1:D:440:ILE:HG22 | 1:D:441:LYS:N    | 2.23                     | 0.53              |
| 1:H:234:LEU:N    | 1:H:235:PRO:HD2  | 2.23                     | 0.53              |
| 1:K:18:ARG:HH11  | 1:K:18:ARG:CG    | 2.20                     | 0.53              |
| 1:K:278:ALA:HB3  | 1:K:285:ARG:HD3  | 1.90                     | 0.53              |
| 1:L:69:MET:CE    | 1:M:41:ASP:HB2   | 2.39                     | 0.53              |
| 1:L:203:TYR:HB3  | 1:L:267:MET:HE1  | 1.90                     | 0.53              |
| 1:A:77:VAL:HG23  | 1:A:78:ALA:N     | 2.22                     | 0.53              |
| 1:A:174:VAL:HB   | 1:A:376:VAL:HG13 | 1.90                     | 0.53              |
| 1:A:259:LEU:O    | 1:A:263:VAL:HG23 | 2.09                     | 0.53              |
| 1:E:429:LEU:HD12 | 1:E:430:ARG:N    | 2.23                     | 0.53              |
| 1:F:228:SER:OG   | 1:F:255:GLU:HB2  | 2.08                     | 0.53              |
| 1:H:259:LEU:O    | 1:H:263:VAL:HG23 | 2.08                     | 0.53              |
| 1:I:321:LYS:O    | 1:I:322:ARG:HB2  | 2.08                     | 0.53              |
| 1:K:166:MET:HE2  | 1:K:171:LYS:HA   | 1.89                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:413:ALA:HB2  | 1:K:475:ASN:HD22 | 1.74                     | 0.53              |
| 1:M:259:LEU:O    | 1:M:263:VAL:HG23 | 2.08                     | 0.53              |
| 1:A:77:VAL:CG2   | 1:A:78:ALA:N     | 2.70                     | 0.53              |
| 1:E:199:TYR:HA   | 1:E:276:VAL:HG12 | 1.91                     | 0.53              |
| 1:K:485:TYR:HD1  | 1:K:485:TYR:H    | 1.55                     | 0.53              |
| 1:B:122:LYS:HE2  | 1:B:429:LEU:HD11 | 1.91                     | 0.53              |
| 1:B:202:PRO:O    | 1:B:204:PHE:N    | 2.41                     | 0.53              |
| 1:D:496:PRO:HB2  | 1:D:499:VAL:HG13 | 1.91                     | 0.53              |
| 1:E:32:GLY:O     | 1:E:34:LYS:N     | 2.42                     | 0.53              |
| 1:G:77:VAL:CG2   | 1:G:78:ALA:N     | 2.72                     | 0.53              |
| 1:I:7:LYS:HG3    | 1:I:66:PHE:CZ    | 2.44                     | 0.53              |
| 1:J:25:ASP:HA    | 1:J:28:LYS:HE2   | 1.90                     | 0.53              |
| 1:J:223:ALA:O    | 1:J:251:ALA:HA   | 2.08                     | 0.53              |
| 1:K:247:LEU:HD12 | 1:K:248:LEU:H    | 1.73                     | 0.53              |
| 1:M:247:LEU:HD12 | 1:M:248:LEU:H    | 1.72                     | 0.53              |
| 1:D:199:TYR:HA   | 1:D:276:VAL:HG12 | 1.90                     | 0.53              |
| 1:E:77:VAL:O     | 1:E:80:LYS:N     | 2.42                     | 0.53              |
| 1:F:33:PRO:C     | 1:F:35:GLY:H     | 2.11                     | 0.53              |
| 1:F:201:SER:O    | 1:F:202:PRO:O    | 2.26                     | 0.53              |
| 1:G:429:LEU:HD12 | 1:G:430:ARG:H    | 1.73                     | 0.53              |
| 1:H:25:ASP:HA    | 1:H:28:LYS:HE2   | 1.91                     | 0.53              |
| 1:I:142:LYS:O    | 1:I:142:LYS:HD3  | 2.08                     | 0.53              |
| 1:C:90:THR:O     | 1:C:94:VAL:HG13  | 2.09                     | 0.53              |
| 1:C:242:LYS:C    | 1:C:244:GLY:H    | 2.12                     | 0.53              |
| 1:E:122:LYS:HE2  | 1:E:429:LEU:HD11 | 1.91                     | 0.53              |
| 1:E:236:VAL:O    | 1:E:236:VAL:HG12 | 2.09                     | 0.53              |
| 1:E:517:THR:HG21 | 1:F:39:VAL:CG2   | 2.37                     | 0.53              |
| 1:F:17:LEU:HA    | 1:F:20:VAL:HG12  | 1.91                     | 0.53              |
| 1:K:169:VAL:CG2  | 1:K:377:ALA:HB2  | 2.31                     | 0.53              |
| 1:K:234:LEU:N    | 1:K:235:PRO:HD2  | 2.24                     | 0.53              |
| 1:K:247:LEU:H    | 1:K:273:VAL:HG12 | 1.74                     | 0.53              |
| 1:M:247:LEU:H    | 1:M:273:VAL:HG12 | 1.74                     | 0.53              |
| 1:N:209:GLU:OE1  | 1:N:209:GLU:N    | 2.42                     | 0.53              |
| 1:B:199:TYR:HA   | 1:B:276:VAL:HG12 | 1.89                     | 0.53              |
| 1:D:450:PRO:O    | 1:D:454:ILE:HG13 | 2.09                     | 0.53              |
| 1:E:218:PRO:HB3  | 1:E:246:PRO:HG2  | 1.91                     | 0.53              |
| 1:E:259:LEU:O    | 1:E:263:VAL:HG23 | 2.09                     | 0.53              |
| 1:E:496:PRO:HB2  | 1:E:499:VAL:HG13 | 1.91                     | 0.53              |
| 1:F:17:LEU:HA    | 1:F:20:VAL:CG1   | 2.39                     | 0.53              |
| 1:G:31:LEU:HD23  | 1:G:453:GLN:CG   | 2.39                     | 0.53              |
| 1:I:155:ASP:OD1  | 1:I:157:THR:HB   | 2.08                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:77:VAL:HG11  | 1:J:510:VAL:HB   | 1.91                     | 0.53              |
| 1:J:209:GLU:N    | 1:J:209:GLU:OE1  | 2.41                     | 0.53              |
| 1:J:455:VAL:HG13 | 1:J:460:GLU:HB3  | 1.90                     | 0.53              |
| 1:J:460:GLU:O    | 1:J:462:PRO:HD3  | 2.09                     | 0.53              |
| 1:K:73:MET:SD    | 1:L:49:ILE:HD11  | 2.49                     | 0.53              |
| 1:K:451:LEU:HD23 | 1:K:451:LEU:C    | 2.28                     | 0.53              |
| 1:L:485:TYR:H    | 1:L:485:TYR:HD1  | 1.57                     | 0.53              |
| 1:N:197:ARG:HG3  | 1:N:277:LYS:O    | 2.08                     | 0.53              |
| 1:B:118:ARG:HH22 | 1:C:34:LYS:HE2   | 1.73                     | 0.53              |
| 1:D:122:LYS:HE2  | 1:D:429:LEU:HD11 | 1.89                     | 0.53              |
| 1:E:440:ILE:HG22 | 1:E:441:LYS:N    | 2.23                     | 0.53              |
| 1:I:118:ARG:NH2  | 1:J:34:LYS:HE3   | 2.23                     | 0.53              |
| 1:L:247:LEU:H    | 1:L:273:VAL:HG12 | 1.74                     | 0.53              |
| 1:A:242:LYS:O    | 1:A:243:ALA:HB3  | 2.09                     | 0.52              |
| 1:G:7:LYS:HG3    | 1:G:66:PHE:CZ    | 2.44                     | 0.52              |
| 1:G:440:ILE:HG22 | 1:G:441:LYS:N    | 2.24                     | 0.52              |
| 1:I:20:VAL:CG2   | 1:I:74:VAL:HG11  | 2.39                     | 0.52              |
| 1:L:28:LYS:C     | 1:L:30:THR:H     | 2.11                     | 0.52              |
| 1:M:169:VAL:CG2  | 1:M:377:ALA:HB2  | 2.35                     | 0.52              |
| 1:N:444:LEU:HA   | 1:N:447:MET:HE3  | 1.91                     | 0.52              |
| 1:B:268:ARG:O    | 1:B:270:ILE:N    | 2.42                     | 0.52              |
| 1:D:344:GLY:O    | 1:D:347:ALA:HB3  | 2.10                     | 0.52              |
| 1:E:6:VAL:HG22   | 1:E:521:VAL:HG22 | 1.91                     | 0.52              |
| 1:E:242:LYS:O    | 1:E:243:ALA:HB3  | 2.09                     | 0.52              |
| 1:F:33:PRO:O     | 1:F:35:GLY:N     | 2.39                     | 0.52              |
| 1:F:77:VAL:O     | 1:F:80:LYS:N     | 2.42                     | 0.52              |
| 1:F:134:LEU:O    | 1:F:134:LEU:HD23 | 2.09                     | 0.52              |
| 1:F:420:ILE:HG13 | 1:F:448:GLU:HG2  | 1.92                     | 0.52              |
| 1:G:349:ILE:O    | 1:G:353:ILE:HG13 | 2.10                     | 0.52              |
| 1:H:321:LYS:O    | 1:H:322:ARG:HB2  | 2.08                     | 0.52              |
| 1:I:20:VAL:HG23  | 1:I:74:VAL:HG11  | 1.91                     | 0.52              |
| 1:I:86:GLY:O     | 1:I:87:ASP:HB2   | 2.10                     | 0.52              |
| 1:J:485:TYR:HD1  | 1:J:485:TYR:H    | 1.57                     | 0.52              |
| 1:B:389:MET:SD   | 1:B:389:MET:C    | 2.88                     | 0.52              |
| 1:F:479:ASN:OD1  | 1:F:481:ALA:HB3  | 2.09                     | 0.52              |
| 1:I:166:MET:HE2  | 1:I:171:LYS:HA   | 1.90                     | 0.52              |
| 1:J:166:MET:HE1  | 1:J:171:LYS:HA   | 1.90                     | 0.52              |
| 1:L:200:LEU:CD1  | 1:L:254:VAL:HB   | 2.40                     | 0.52              |
| 1:L:450:PRO:O    | 1:L:454:ILE:HG13 | 2.10                     | 0.52              |
| 1:A:144:ILE:HD13 | 1:A:166:MET:SD   | 2.50                     | 0.52              |
| 1:B:247:LEU:HB3  | 1:B:273:VAL:CG1  | 2.39                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:199:TYR:HA   | 1:F:276:VAL:HG12 | 1.91                     | 0.52              |
| 1:G:174:VAL:HB   | 1:G:376:VAL:HG13 | 1.91                     | 0.52              |
| 1:H:20:VAL:CG2   | 1:H:74:VAL:HG11  | 2.40                     | 0.52              |
| 1:K:242:LYS:O    | 1:K:243:ALA:HB3  | 2.09                     | 0.52              |
| 1:E:268:ARG:O    | 1:E:270:ILE:N    | 2.43                     | 0.52              |
| 1:H:20:VAL:HG23  | 1:H:74:VAL:HG11  | 1.90                     | 0.52              |
| 1:K:36:ARG:O     | 1:K:51:LYS:HG2   | 2.10                     | 0.52              |
| 1:K:519:CYS:O    | 1:L:38:VAL:HA    | 2.10                     | 0.52              |
| 1:L:221:LEU:HB3  | 1:L:249:ILE:HD13 | 1.92                     | 0.52              |
| 1:N:247:LEU:H    | 1:N:273:VAL:HG12 | 1.75                     | 0.52              |
| 1:B:202:PRO:O    | 1:B:203:TYR:HB2  | 2.10                     | 0.52              |
| 1:B:344:GLY:O    | 1:B:347:ALA:HB3  | 2.09                     | 0.52              |
| 1:E:25:ASP:HA    | 1:E:28:LYS:HE2   | 1.90                     | 0.52              |
| 1:F:140:ASP:C    | 1:F:142:LYS:H    | 2.13                     | 0.52              |
| 1:G:381:VAL:HG21 | 1:G:393:LYS:HA   | 1.92                     | 0.52              |
| 1:H:499:VAL:CG2  | 1:H:500:THR:N    | 2.72                     | 0.52              |
| 1:I:77:VAL:HG21  | 1:I:510:VAL:CG1  | 2.40                     | 0.52              |
| 1:K:134:LEU:HD11 | 1:K:421:ARG:HG2  | 1.91                     | 0.52              |
| 1:K:444:LEU:HA   | 1:K:447:MET:HE3  | 1.92                     | 0.52              |
| 1:L:234:LEU:N    | 1:L:235:PRO:HD2  | 2.24                     | 0.52              |
| 1:A:389:MET:SD   | 1:A:389:MET:C    | 2.87                     | 0.52              |
| 1:B:77:VAL:CG2   | 1:B:78:ALA:N     | 2.73                     | 0.52              |
| 1:B:259:LEU:O    | 1:B:263:VAL:HG23 | 2.10                     | 0.52              |
| 1:C:429:LEU:HD12 | 1:C:430:ARG:H    | 1.74                     | 0.52              |
| 1:D:242:LYS:O    | 1:D:243:ALA:HB3  | 2.10                     | 0.52              |
| 1:D:389:MET:SD   | 1:D:389:MET:C    | 2.88                     | 0.52              |
| 1:F:131:LEU:HD13 | 1:F:422:VAL:HG21 | 1.92                     | 0.52              |
| 1:I:37:ASN:HD21  | 1:I:51:LYS:NZ    | 2.08                     | 0.52              |
| 1:I:138:CYS:O    | 1:I:138:CYS:SG   | 2.68                     | 0.52              |
| 1:I:234:LEU:N    | 1:I:235:PRO:HD2  | 2.25                     | 0.52              |
| 1:J:451:LEU:HD23 | 1:J:451:LEU:C    | 2.29                     | 0.52              |
| 1:M:393:LYS:O    | 1:M:397:GLU:HB2  | 2.08                     | 0.52              |
| 1:M:460:GLU:O    | 1:M:462:PRO:HD3  | 2.09                     | 0.52              |
| 1:N:77:VAL:HG21  | 1:N:510:VAL:CG1  | 2.40                     | 0.52              |
| 1:A:349:ILE:O    | 1:A:353:ILE:HG13 | 2.10                     | 0.52              |
| 1:B:131:LEU:HD12 | 1:B:422:VAL:HG21 | 1.91                     | 0.52              |
| 1:D:144:ILE:HD13 | 1:D:166:MET:SD   | 2.50                     | 0.52              |
| 1:E:228:SER:OG   | 1:E:255:GLU:HB2  | 2.10                     | 0.52              |
| 1:H:319:GLN:O    | 1:H:336:VAL:HG23 | 2.10                     | 0.52              |
| 1:M:160:LYS:O    | 1:M:164:GLU:HG3  | 2.10                     | 0.52              |
| 1:M:485:TYR:HD1  | 1:M:485:TYR:H    | 1.56                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:247:LEU:HB3  | 1:D:273:VAL:CG1  | 2.39                     | 0.52              |
| 1:F:202:PRO:O    | 1:F:204:PHE:N    | 2.38                     | 0.52              |
| 1:G:242:LYS:O    | 1:G:243:ALA:HB3  | 2.09                     | 0.52              |
| 1:G:245:LYS:HZ2  | 1:G:319:GLN:HE22 | 1.58                     | 0.52              |
| 1:G:268:ARG:O    | 1:G:270:ILE:N    | 2.42                     | 0.52              |
| 1:H:63:GLU:HA    | 1:N:3:ALA:CB     | 2.40                     | 0.52              |
| 1:I:209:GLU:OE1  | 1:I:209:GLU:N    | 2.43                     | 0.52              |
| 1:J:86:GLY:O     | 1:J:87:ASP:HB2   | 2.10                     | 0.52              |
| 1:M:23:LEU:HD23  | 1:M:74:VAL:HG22  | 1.91                     | 0.52              |
| 1:M:37:ASN:HD21  | 1:M:51:LYS:NZ    | 2.08                     | 0.52              |
| 1:M:234:LEU:N    | 1:M:235:PRO:HD2  | 2.24                     | 0.52              |
| 1:N:499:VAL:CG2  | 1:N:500:THR:N    | 2.73                     | 0.52              |
| 1:A:208:PRO:HG2  | 1:A:209:GLU:OE1  | 2.09                     | 0.52              |
| 1:D:33:PRO:O     | 1:D:35:GLY:N     | 2.38                     | 0.52              |
| 1:D:77:VAL:O     | 1:D:80:LYS:N     | 2.43                     | 0.52              |
| 1:E:174:VAL:HB   | 1:E:376:VAL:HG13 | 1.92                     | 0.52              |
| 1:F:247:LEU:HB3  | 1:F:273:VAL:CG1  | 2.40                     | 0.52              |
| 1:F:295:LEU:HA   | 1:F:342:ILE:HD11 | 1.92                     | 0.52              |
| 1:F:389:MET:C    | 1:F:389:MET:SD   | 2.88                     | 0.52              |
| 1:H:215:LEU:HB2  | 1:H:323:VAL:HG22 | 1.91                     | 0.52              |
| 1:J:202:PRO:O    | 1:J:204:PHE:N    | 2.38                     | 0.52              |
| 1:B:201:SER:O    | 1:B:202:PRO:O    | 2.28                     | 0.51              |
| 1:B:218:PRO:HB3  | 1:B:246:PRO:HG2  | 1.93                     | 0.51              |
| 1:D:17:LEU:HA    | 1:D:20:VAL:HG12  | 1.92                     | 0.51              |
| 1:D:349:ILE:O    | 1:D:353:ILE:HG13 | 2.09                     | 0.51              |
| 1:E:391:GLU:O    | 1:E:394:ALA:HB3  | 2.10                     | 0.51              |
| 1:K:8:PHE:CE1    | 1:L:26:ALA:HA    | 2.43                     | 0.51              |
| 1:K:160:LYS:O    | 1:K:164:GLU:HG3  | 2.10                     | 0.51              |
| 1:A:412:VAL:HG13 | 1:A:497:THR:OG1  | 2.10                     | 0.51              |
| 1:C:199:TYR:HA   | 1:C:276:VAL:HG12 | 1.91                     | 0.51              |
| 1:D:8:PHE:CE1    | 1:E:26:ALA:HA    | 2.43                     | 0.51              |
| 1:D:13:ARG:HD2   | 1:D:104:LEU:HD22 | 1.93                     | 0.51              |
| 1:E:221:LEU:HD23 | 1:E:249:ILE:HG23 | 1.93                     | 0.51              |
| 1:I:202:PRO:O    | 1:I:204:PHE:N    | 2.38                     | 0.51              |
| 1:J:203:TYR:HB3  | 1:J:267:MET:HE1  | 1.93                     | 0.51              |
| 1:K:215:LEU:HB2  | 1:K:323:VAL:HG22 | 1.92                     | 0.51              |
| 1:B:242:LYS:O    | 1:B:243:ALA:HB3  | 2.10                     | 0.51              |
| 1:E:247:LEU:HB3  | 1:E:273:VAL:CG1  | 2.41                     | 0.51              |
| 1:H:61:GLU:O     | 1:N:3:ALA:HA     | 2.09                     | 0.51              |
| 1:K:74:VAL:HA    | 1:K:510:VAL:HG21 | 1.93                     | 0.51              |
| 1:L:444:LEU:HA   | 1:L:447:MET:HE3  | 1.92                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:86:GLY:O     | 1:M:87:ASP:HB2   | 2.10                     | 0.51              |
| 1:M:155:ASP:OD1  | 1:M:157:THR:HB   | 2.11                     | 0.51              |
| 1:A:344:GLY:O    | 1:A:347:ALA:HB3  | 2.10                     | 0.51              |
| 1:D:221:LEU:HB3  | 1:D:249:ILE:HD13 | 1.93                     | 0.51              |
| 1:F:6:VAL:HG22   | 1:F:521:VAL:HG22 | 1.91                     | 0.51              |
| 1:H:247:LEU:HD12 | 1:H:248:LEU:H    | 1.75                     | 0.51              |
| 1:H:247:LEU:H    | 1:H:273:VAL:HG12 | 1.76                     | 0.51              |
| 1:L:259:LEU:O    | 1:L:263:VAL:HG23 | 2.10                     | 0.51              |
| 1:N:142:LYS:O    | 1:N:142:LYS:HD3  | 2.10                     | 0.51              |
| 1:N:176:THR:HG21 | 1:N:333:ILE:HD13 | 1.93                     | 0.51              |
| 1:N:234:LEU:N    | 1:N:235:PRO:HD2  | 2.24                     | 0.51              |
| 1:A:313:THR:HG23 | 1:M:311:LYS:NZ   | 2.25                     | 0.51              |
| 1:B:77:VAL:HG23  | 1:B:78:ALA:N     | 2.25                     | 0.51              |
| 1:C:236:VAL:HG12 | 1:C:236:VAL:O    | 2.10                     | 0.51              |
| 1:E:69:MET:CE    | 1:F:41:ASP:HB2   | 2.39                     | 0.51              |
| 1:G:236:VAL:O    | 1:G:236:VAL:HG12 | 2.11                     | 0.51              |
| 1:K:37:ASN:HD21  | 1:K:51:LYS:NZ    | 2.09                     | 0.51              |
| 1:N:242:LYS:O    | 1:N:243:ALA:HB3  | 2.11                     | 0.51              |
| 1:N:417:VAL:O    | 1:N:420:ILE:HG22 | 2.11                     | 0.51              |
| 1:C:344:GLY:O    | 1:C:347:ALA:HB3  | 2.10                     | 0.51              |
| 1:C:429:LEU:HD12 | 1:C:430:ARG:N    | 2.25                     | 0.51              |
| 1:D:23:LEU:HD23  | 1:D:74:VAL:CG2   | 2.40                     | 0.51              |
| 1:E:77:VAL:CG2   | 1:E:78:ALA:N     | 2.74                     | 0.51              |
| 1:F:213:VAL:HG12 | 1:F:214:GLU:H    | 1.74                     | 0.51              |
| 1:H:169:VAL:CG2  | 1:H:377:ALA:HB2  | 2.34                     | 0.51              |
| 1:H:404:ARG:HG2  | 1:H:404:ARG:NH1  | 2.26                     | 0.51              |
| 1:I:25:ASP:HA    | 1:I:28:LYS:HE2   | 1.92                     | 0.51              |
| 1:K:20:VAL:HG23  | 1:K:74:VAL:HG11  | 1.93                     | 0.51              |
| 1:L:321:LYS:O    | 1:L:322:ARG:HB2  | 2.10                     | 0.51              |
| 1:N:413:ALA:HB2  | 1:N:475:ASN:HD22 | 1.76                     | 0.51              |
| 1:H:207:LYS:O    | 1:H:209:GLU:N    | 2.44                     | 0.51              |
| 1:H:460:GLU:O    | 1:H:462:PRO:HD3  | 2.11                     | 0.51              |
| 1:J:28:LYS:C     | 1:J:30:THR:H     | 2.13                     | 0.51              |
| 1:L:23:LEU:HD23  | 1:L:74:VAL:HG22  | 1.92                     | 0.51              |
| 1:D:155:ASP:OD1  | 1:D:157:THR:HB   | 2.10                     | 0.51              |
| 1:D:338:GLU:C    | 1:D:340:ALA:H    | 2.14                     | 0.51              |
| 1:E:37:ASN:HD21  | 1:E:51:LYS:HE3   | 1.76                     | 0.51              |
| 1:G:412:VAL:HG13 | 1:G:497:THR:OG1  | 2.10                     | 0.51              |
| 1:I:499:VAL:HG22 | 1:I:500:THR:N    | 2.26                     | 0.51              |
| 1:J:455:VAL:HG11 | 1:J:462:PRO:HA   | 1.91                     | 0.51              |
| 1:K:166:MET:HE1  | 1:K:171:LYS:HA   | 1.91                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:278:ALA:HB3  | 1:M:285:ARG:HD3  | 1.92                     | 0.51              |
| 1:A:479:ASN:OD1  | 1:A:481:ALA:HB3  | 2.11                     | 0.51              |
| 1:E:16:MET:HB3   | 1:E:514:MET:HE3  | 1.93                     | 0.51              |
| 1:H:413:ALA:HB2  | 1:H:475:ASN:HD22 | 1.76                     | 0.51              |
| 1:I:16:MET:HB3   | 1:I:514:MET:HE1  | 1.93                     | 0.51              |
| 1:L:278:ALA:HB3  | 1:L:285:ARG:HD3  | 1.91                     | 0.51              |
| 1:C:183:LEU:HD22 | 1:C:184:GLN:N    | 2.25                     | 0.51              |
| 1:F:218:PRO:HB3  | 1:F:246:PRO:HG2  | 1.93                     | 0.51              |
| 1:K:20:VAL:CG2   | 1:K:74:VAL:HG11  | 2.41                     | 0.51              |
| 1:K:77:VAL:HG21  | 1:K:510:VAL:CG1  | 2.39                     | 0.51              |
| 1:K:321:LYS:O    | 1:K:322:ARG:HB2  | 2.09                     | 0.51              |
| 1:L:36:ARG:O     | 1:L:51:LYS:HG2   | 2.11                     | 0.51              |
| 1:L:207:LYS:O    | 1:L:209:GLU:N    | 2.44                     | 0.51              |
| 1:N:393:LYS:O    | 1:N:397:GLU:HB2  | 2.11                     | 0.51              |
| 1:B:245:LYS:HZ2  | 1:B:319:GLN:HE22 | 1.58                     | 0.50              |
| 1:E:479:ASN:OD1  | 1:E:481:ALA:HB3  | 2.10                     | 0.50              |
| 1:F:77:VAL:CG2   | 1:F:78:ALA:N     | 2.74                     | 0.50              |
| 1:D:519:CYS:O    | 1:E:38:VAL:HA    | 2.11                     | 0.50              |
| 1:E:77:VAL:HG23  | 1:E:78:ALA:N     | 2.25                     | 0.50              |
| 1:E:208:PRO:HG2  | 1:E:209:GLU:OE1  | 2.10                     | 0.50              |
| 1:F:242:LYS:C    | 1:F:244:GLY:H    | 2.14                     | 0.50              |
| 1:G:389:MET:SD   | 1:G:389:MET:C    | 2.90                     | 0.50              |
| 1:N:36:ARG:O     | 1:N:51:LYS:HG2   | 2.12                     | 0.50              |
| 1:A:16:MET:HB3   | 1:A:514:MET:HE3  | 1.93                     | 0.50              |
| 1:D:131:LEU:HD12 | 1:D:422:VAL:HG21 | 1.93                     | 0.50              |
| 1:D:219:PHE:O    | 1:D:247:LEU:HD12 | 2.11                     | 0.50              |
| 1:E:202:PRO:O    | 1:E:203:TYR:HB2  | 2.11                     | 0.50              |
| 1:I:134:LEU:HD11 | 1:I:421:ARG:HG2  | 1.93                     | 0.50              |
| 1:I:233:MET:O    | 1:I:237:LEU:HB2  | 2.11                     | 0.50              |
| 1:L:499:VAL:HG22 | 1:L:500:THR:N    | 2.25                     | 0.50              |
| 1:A:17:LEU:HA    | 1:A:20:VAL:HG12  | 1.93                     | 0.50              |
| 1:A:183:LEU:HD22 | 1:A:184:GLN:N    | 2.26                     | 0.50              |
| 1:B:69:MET:CE    | 1:C:41:ASP:HB2   | 2.42                     | 0.50              |
| 1:E:349:ILE:O    | 1:E:353:ILE:HG13 | 2.11                     | 0.50              |
| 1:H:160:LYS:O    | 1:H:164:GLU:HG3  | 2.12                     | 0.50              |
| 1:I:230:ILE:HD12 | 1:I:261:THR:CG2  | 2.38                     | 0.50              |
| 1:J:321:LYS:O    | 1:J:322:ARG:HB2  | 2.12                     | 0.50              |
| 1:J:413:ALA:HB2  | 1:J:475:ASN:HD22 | 1.76                     | 0.50              |
| 1:L:344:GLY:O    | 1:L:347:ALA:HB3  | 2.11                     | 0.50              |
| 1:B:108:ALA:C    | 1:B:110:GLY:H    | 2.15                     | 0.50              |
| 1:D:208:PRO:HG2  | 1:D:209:GLU:OE1  | 2.12                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:221:LEU:HB3  | 1:F:249:ILE:HD13 | 1.94                     | 0.50              |
| 1:J:404:ARG:HG2  | 1:J:404:ARG:NH1  | 2.25                     | 0.50              |
| 1:K:23:LEU:HD23  | 1:K:74:VAL:HG22  | 1.93                     | 0.50              |
| 1:M:238:GLU:C    | 1:M:240:VAL:H    | 2.14                     | 0.50              |
| 1:M:344:GLY:O    | 1:M:347:ALA:HB3  | 2.12                     | 0.50              |
| 1:N:24:ALA:HA    | 1:N:27:VAL:HG12  | 1.94                     | 0.50              |
| 1:A:17:LEU:HA    | 1:A:20:VAL:CG1   | 2.42                     | 0.50              |
| 1:A:202:PRO:O    | 1:A:203:TYR:HB2  | 2.12                     | 0.50              |
| 1:D:131:LEU:HD13 | 1:D:422:VAL:HG21 | 1.93                     | 0.50              |
| 1:I:413:ALA:HB2  | 1:I:475:ASN:HD22 | 1.76                     | 0.50              |
| 1:J:142:LYS:O    | 1:J:142:LYS:HD3  | 2.11                     | 0.50              |
| 1:K:118:ARG:NH2  | 1:L:34:LYS:HE2   | 2.25                     | 0.50              |
| 1:K:220:ILE:HG23 | 1:K:248:LEU:HD23 | 1.93                     | 0.50              |
| 1:M:7:LYS:HG3    | 1:M:66:PHE:CZ    | 2.46                     | 0.50              |
| 1:M:138:CYS:O    | 1:M:138:CYS:SG   | 2.69                     | 0.50              |
| 1:N:134:LEU:HD11 | 1:N:421:ARG:HG2  | 1.92                     | 0.50              |
| 1:N:166:MET:HE2  | 1:N:171:LYS:HA   | 1.94                     | 0.50              |
| 1:D:420:ILE:HG13 | 1:D:448:GLU:HG2  | 1.93                     | 0.50              |
| 1:B:412:VAL:HG13 | 1:B:497:THR:OG1  | 2.12                     | 0.50              |
| 1:C:77:VAL:CG2   | 1:C:78:ALA:N     | 2.74                     | 0.50              |
| 1:C:180:GLY:HA3  | 1:C:381:VAL:O    | 2.11                     | 0.50              |
| 1:F:13:ARG:HD2   | 1:F:104:LEU:HD22 | 1.94                     | 0.50              |
| 1:F:30:THR:O     | 1:F:31:LEU:C     | 2.50                     | 0.50              |
| 1:F:77:VAL:HG23  | 1:F:78:ALA:N     | 2.26                     | 0.50              |
| 1:F:349:ILE:O    | 1:F:353:ILE:HG13 | 2.11                     | 0.50              |
| 1:I:238:GLU:C    | 1:I:240:VAL:H    | 2.15                     | 0.50              |
| 1:J:238:GLU:C    | 1:J:240:VAL:H    | 2.15                     | 0.50              |
| 1:A:369:VAL:HG23 | 1:A:370:ALA:N    | 2.27                     | 0.50              |
| 1:D:517:THR:HG21 | 1:E:39:VAL:HG23  | 1.93                     | 0.50              |
| 1:E:202:PRO:O    | 1:E:204:PHE:N    | 2.41                     | 0.50              |
| 1:E:242:LYS:C    | 1:E:244:GLY:H    | 2.14                     | 0.50              |
| 1:E:338:GLU:C    | 1:E:340:ALA:H    | 2.15                     | 0.50              |
| 1:G:522:THR:OG1  | 1:G:523:ASP:N    | 2.45                     | 0.50              |
| 1:J:198:GLY:HA3  | 1:J:327:LYS:O    | 2.12                     | 0.50              |
| 1:M:142:LYS:O    | 1:M:142:LYS:HD3  | 2.11                     | 0.50              |
| 1:M:335:GLY:C    | 1:M:337:GLY:H    | 2.14                     | 0.50              |
| 1:N:201:SER:O    | 1:N:202:PRO:O    | 2.28                     | 0.50              |
| 1:A:265:ASN:HD22 | 1:A:265:ASN:N    | 2.10                     | 0.49              |
| 1:C:77:VAL:HG23  | 1:C:78:ALA:N     | 2.26                     | 0.49              |
| 1:C:338:GLU:C    | 1:C:340:ALA:H    | 2.13                     | 0.49              |
| 1:C:389:MET:C    | 1:C:389:MET:SD   | 2.91                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:391:GLU:O    | 1:D:394:ALA:HB3  | 2.11                     | 0.49              |
| 1:G:369:VAL:HG23 | 1:G:370:ALA:N    | 2.27                     | 0.49              |
| 1:H:34:LYS:HG2   | 1:H:458:CYS:SG   | 2.52                     | 0.49              |
| 1:H:198:GLY:HA3  | 1:H:327:LYS:O    | 2.12                     | 0.49              |
| 1:L:238:GLU:C    | 1:L:240:VAL:H    | 2.15                     | 0.49              |
| 1:M:198:GLY:HA3  | 1:M:327:LYS:O    | 2.11                     | 0.49              |
| 1:C:412:VAL:HG13 | 1:C:497:THR:OG1  | 2.12                     | 0.49              |
| 1:D:17:LEU:HA    | 1:D:20:VAL:CG1   | 2.42                     | 0.49              |
| 1:G:6:VAL:HG22   | 1:G:521:VAL:HG22 | 1.94                     | 0.49              |
| 1:G:77:VAL:O     | 1:G:80:LYS:N     | 2.45                     | 0.49              |
| 1:J:28:LYS:C     | 1:J:30:THR:N     | 2.63                     | 0.49              |
| 1:K:176:THR:HG21 | 1:K:333:ILE:HD13 | 1.93                     | 0.49              |
| 1:K:224:ASP:O    | 1:K:225:LYS:HB3  | 2.12                     | 0.49              |
| 1:L:16:MET:SD    | 1:L:514:MET:HE2  | 2.52                     | 0.49              |
| 1:N:166:MET:HE1  | 1:N:171:LYS:HA   | 1.94                     | 0.49              |
| 1:B:36:ARG:HG3   | 1:B:36:ARG:NH1   | 2.27                     | 0.49              |
| 1:B:221:LEU:HD23 | 1:B:249:ILE:HG23 | 1.94                     | 0.49              |
| 1:B:228:SER:OG   | 1:B:255:GLU:HB2  | 2.12                     | 0.49              |
| 1:C:131:LEU:HD12 | 1:C:422:VAL:HG21 | 1.94                     | 0.49              |
| 1:F:236:VAL:HG12 | 1:F:236:VAL:O    | 2.13                     | 0.49              |
| 1:G:221:LEU:HB3  | 1:G:249:ILE:HD13 | 1.95                     | 0.49              |
| 1:G:242:LYS:C    | 1:G:244:GLY:H    | 2.14                     | 0.49              |
| 1:I:166:MET:HE1  | 1:I:171:LYS:HA   | 1.94                     | 0.49              |
| 1:J:215:LEU:HB2  | 1:J:323:VAL:HG22 | 1.93                     | 0.49              |
| 1:M:18:ARG:HH11  | 1:M:18:ARG:CG    | 2.25                     | 0.49              |
| 1:N:465:VAL:O    | 1:N:469:VAL:HG23 | 2.13                     | 0.49              |
| 1:A:134:LEU:HD23 | 1:A:134:LEU:O    | 2.13                     | 0.49              |
| 1:A:180:GLY:HA3  | 1:A:381:VAL:O    | 2.13                     | 0.49              |
| 1:B:180:GLY:HA3  | 1:B:381:VAL:O    | 2.12                     | 0.49              |
| 1:B:420:ILE:HG13 | 1:B:448:GLU:HG2  | 1.94                     | 0.49              |
| 1:D:217:SER:N    | 1:D:218:PRO:CD   | 2.75                     | 0.49              |
| 1:F:338:GLU:C    | 1:F:340:ALA:H    | 2.15                     | 0.49              |
| 1:H:86:GLY:O     | 1:H:87:ASP:HB2   | 2.13                     | 0.49              |
| 1:I:207:LYS:O    | 1:I:209:GLU:N    | 2.46                     | 0.49              |
| 1:J:16:MET:HB3   | 1:J:514:MET:HE1  | 1.94                     | 0.49              |
| 1:L:86:GLY:O     | 1:L:87:ASP:HB2   | 2.12                     | 0.49              |
| 1:L:197:ARG:HG3  | 1:L:277:LYS:O    | 2.13                     | 0.49              |
| 1:N:203:TYR:CD1  | 1:N:267:MET:HE3  | 2.47                     | 0.49              |
| 1:A:217:SER:N    | 1:A:218:PRO:CD   | 2.76                     | 0.49              |
| 1:B:265:ASN:HD22 | 1:B:265:ASN:N    | 2.11                     | 0.49              |
| 1:C:247:LEU:HB3  | 1:C:273:VAL:CG1  | 2.39                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:108:ALA:C    | 1:D:110:GLY:H    | 2.15                     | 0.49              |
| 1:D:240:VAL:HG11 | 1:D:247:LEU:HB2  | 1.95                     | 0.49              |
| 1:E:144:ILE:HD13 | 1:E:166:MET:SD   | 2.52                     | 0.49              |
| 1:G:33:PRO:HD2   | 1:G:454:ILE:HG23 | 1.94                     | 0.49              |
| 1:G:202:PRO:O    | 1:G:203:TYR:HB2  | 2.11                     | 0.49              |
| 1:G:218:PRO:HB3  | 1:G:246:PRO:HG2  | 1.93                     | 0.49              |
| 1:H:129:GLU:C    | 1:H:131:LEU:H    | 2.15                     | 0.49              |
| 1:I:460:GLU:O    | 1:I:462:PRO:HD3  | 2.12                     | 0.49              |
| 1:M:215:LEU:HB2  | 1:M:323:VAL:HG22 | 1.94                     | 0.49              |
| 1:N:86:GLY:O     | 1:N:87:ASP:HB2   | 2.12                     | 0.49              |
| 1:N:319:GLN:O    | 1:N:336:VAL:HG23 | 2.12                     | 0.49              |
| 1:B:338:GLU:C    | 1:B:340:ALA:H    | 2.16                     | 0.49              |
| 1:C:25:ASP:HA    | 1:C:28:LYS:HE2   | 1.94                     | 0.49              |
| 1:F:183:LEU:HD22 | 1:F:184:GLN:N    | 2.25                     | 0.49              |
| 1:J:37:ASN:HD21  | 1:J:51:LYS:NZ    | 2.11                     | 0.49              |
| 1:K:77:VAL:HG11  | 1:K:510:VAL:HB   | 1.93                     | 0.49              |
| 1:K:202:PRO:O    | 1:K:204:PHE:N    | 2.39                     | 0.49              |
| 1:L:169:VAL:CG2  | 1:L:377:ALA:HB2  | 2.33                     | 0.49              |
| 1:M:176:THR:HG21 | 1:M:333:ILE:HD13 | 1.94                     | 0.49              |
| 1:N:233:MET:O    | 1:N:237:LEU:HB2  | 2.13                     | 0.49              |
| 1:C:122:LYS:HE2  | 1:C:429:LEU:HD11 | 1.94                     | 0.49              |
| 1:C:369:VAL:HG23 | 1:C:370:ALA:N    | 2.28                     | 0.49              |
| 1:E:245:LYS:HZ2  | 1:E:319:GLN:HE22 | 1.58                     | 0.49              |
| 1:F:245:LYS:HZ2  | 1:F:319:GLN:HE22 | 1.59                     | 0.49              |
| 1:G:202:PRO:O    | 1:G:204:PHE:N    | 2.40                     | 0.49              |
| 1:L:129:GLU:C    | 1:L:131:LEU:H    | 2.15                     | 0.49              |
| 1:N:74:VAL:HA    | 1:N:510:VAL:HG21 | 1.95                     | 0.49              |
| 1:C:250:ILE:HG22 | 1:C:289:LEU:HD21 | 1.95                     | 0.49              |
| 1:J:201:SER:O    | 1:J:202:PRO:O    | 2.30                     | 0.49              |
| 1:L:393:LYS:O    | 1:L:397:GLU:HB2  | 2.13                     | 0.49              |
| 1:M:77:VAL:HG21  | 1:M:510:VAL:CG1  | 2.42                     | 0.49              |
| 1:N:207:LYS:O    | 1:N:209:GLU:N    | 2.46                     | 0.49              |
| 1:A:325:ILE:N    | 1:A:325:ILE:HD12 | 2.27                     | 0.49              |
| 1:B:451:LEU:O    | 1:B:451:LEU:HD23 | 2.13                     | 0.49              |
| 1:C:77:VAL:O     | 1:C:80:LYS:N     | 2.46                     | 0.49              |
| 1:D:369:VAL:HG23 | 1:D:370:ALA:N    | 2.28                     | 0.49              |
| 1:G:391:GLU:O    | 1:G:394:ALA:HB3  | 2.12                     | 0.49              |
| 1:H:241:ALA:CB   | 1:N:231:ARG:NH1  | 2.75                     | 0.49              |
| 1:J:224:ASP:O    | 1:J:225:LYS:HB3  | 2.13                     | 0.49              |
| 1:K:203:TYR:HB3  | 1:K:267:MET:HE1  | 1.93                     | 0.49              |
| 1:K:207:LYS:O    | 1:K:209:GLU:N    | 2.46                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:344:GLY:O    | 1:K:347:ALA:HB3  | 2.13                     | 0.49              |
| 1:L:24:ALA:HA    | 1:L:27:VAL:HG12  | 1.94                     | 0.49              |
| 1:L:335:GLY:C    | 1:L:337:GLY:H    | 2.16                     | 0.49              |
| 1:M:224:ASP:O    | 1:M:225:LYS:HB3  | 2.12                     | 0.49              |
| 1:N:37:ASN:HD21  | 1:N:51:LYS:HZ3   | 1.61                     | 0.49              |
| 1:N:238:GLU:C    | 1:N:240:VAL:H    | 2.14                     | 0.49              |
| 1:N:451:LEU:HD23 | 1:N:451:LEU:C    | 2.33                     | 0.49              |
| 1:A:271:VAL:HG12 | 1:A:273:VAL:HG13 | 1.95                     | 0.49              |
| 1:C:202:PRO:O    | 1:C:204:PHE:N    | 2.43                     | 0.49              |
| 1:D:494:LEU:C    | 1:D:494:LEU:HD12 | 2.32                     | 0.49              |
| 1:E:25:ASP:O     | 1:E:29:VAL:HG22  | 2.12                     | 0.49              |
| 1:E:501:ARG:O    | 1:E:505:GLN:HG3  | 2.12                     | 0.49              |
| 1:F:127:ALA:HB1  | 1:F:422:VAL:HG11 | 1.95                     | 0.49              |
| 1:F:217:SER:N    | 1:F:218:PRO:CD   | 2.76                     | 0.49              |
| 1:G:122:LYS:HE2  | 1:G:429:LEU:HD11 | 1.95                     | 0.49              |
| 1:J:224:ASP:HB3  | 1:J:302:SER:HB3  | 1.95                     | 0.49              |
| 1:K:201:SER:O    | 1:K:202:PRO:O    | 2.31                     | 0.49              |
| 1:K:460:GLU:O    | 1:K:462:PRO:HD3  | 2.12                     | 0.49              |
| 1:L:404:ARG:HG2  | 1:L:404:ARG:NH1  | 2.24                     | 0.49              |
| 1:N:221:LEU:HB3  | 1:N:249:ILE:HD13 | 1.93                     | 0.49              |
| 1:N:335:GLY:C    | 1:N:337:GLY:H    | 2.16                     | 0.49              |
| 1:A:338:GLU:C    | 1:A:340:ALA:H    | 2.15                     | 0.48              |
| 1:B:134:LEU:HD23 | 1:B:134:LEU:O    | 2.12                     | 0.48              |
| 1:C:8:PHE:HE1    | 1:D:26:ALA:HA    | 1.78                     | 0.48              |
| 1:C:202:PRO:O    | 1:C:203:TYR:HB2  | 2.13                     | 0.48              |
| 1:D:77:VAL:HG23  | 1:D:78:ALA:N     | 2.28                     | 0.48              |
| 1:I:77:VAL:HG11  | 1:I:510:VAL:HB   | 1.95                     | 0.48              |
| 1:N:160:LYS:O    | 1:N:164:GLU:HG3  | 2.13                     | 0.48              |
| 1:A:106:ALA:O    | 1:A:109:ALA:HB3  | 2.13                     | 0.48              |
| 1:A:131:LEU:HD12 | 1:A:422:VAL:HG21 | 1.94                     | 0.48              |
| 1:A:242:LYS:C    | 1:A:244:GLY:H    | 2.15                     | 0.48              |
| 1:B:319:GLN:O    | 1:B:336:VAL:HG23 | 2.13                     | 0.48              |
| 1:C:242:LYS:O    | 1:C:243:ALA:HB3  | 2.13                     | 0.48              |
| 1:E:31:LEU:HA    | 1:E:31:LEU:HD12  | 1.60                     | 0.48              |
| 1:G:106:ALA:O    | 1:G:109:ALA:HB3  | 2.13                     | 0.48              |
| 1:G:247:LEU:HB3  | 1:G:273:VAL:CG1  | 2.42                     | 0.48              |
| 1:K:8:PHE:HZ     | 1:L:26:ALA:HB2   | 1.78                     | 0.48              |
| 1:K:393:LYS:O    | 1:K:397:GLU:HB2  | 2.12                     | 0.48              |
| 1:L:20:VAL:HG23  | 1:L:74:VAL:HG11  | 1.94                     | 0.48              |
| 1:M:166:MET:HE2  | 1:M:171:LYS:HA   | 1.94                     | 0.48              |
| 1:F:114:MET:HG3  | 1:G:34:LYS:HB3   | 1.95                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:202:PRO:O    | 1:F:203:TYR:HB2  | 2.13                     | 0.48              |
| 1:G:338:GLU:C    | 1:G:340:ALA:H    | 2.17                     | 0.48              |
| 1:H:393:LYS:O    | 1:H:397:GLU:HB2  | 2.12                     | 0.48              |
| 1:I:200:LEU:HD13 | 1:I:254:VAL:HB   | 1.95                     | 0.48              |
| 1:L:20:VAL:CG2   | 1:L:74:VAL:HG11  | 2.42                     | 0.48              |
| 1:L:160:LYS:O    | 1:L:164:GLU:HG3  | 2.12                     | 0.48              |
| 1:L:224:ASP:O    | 1:L:225:LYS:HB3  | 2.12                     | 0.48              |
| 1:A:155:ASP:OD1  | 1:A:157:THR:HB   | 2.13                     | 0.48              |
| 1:B:513:LEU:HD13 | 1:C:49:ILE:HD12  | 1.96                     | 0.48              |
| 1:E:111:MET:SD   | 1:E:438:VAL:HG21 | 2.53                     | 0.48              |
| 1:F:131:LEU:HD12 | 1:F:422:VAL:HG21 | 1.94                     | 0.48              |
| 1:F:197:ARG:HE   | 1:F:279:PRO:HA   | 1.78                     | 0.48              |
| 1:H:162:ILE:O    | 1:H:165:ALA:HB3  | 2.13                     | 0.48              |
| 1:H:344:GLY:O    | 1:H:347:ALA:HB3  | 2.13                     | 0.48              |
| 1:N:203:TYR:HB3  | 1:N:267:MET:HE1  | 1.93                     | 0.48              |
| 1:B:496:PRO:HB2  | 1:B:499:VAL:HG13 | 1.95                     | 0.48              |
| 1:D:77:VAL:CG2   | 1:D:78:ALA:N     | 2.76                     | 0.48              |
| 1:D:369:VAL:O    | 1:D:373:ALA:N    | 2.46                     | 0.48              |
| 1:G:219:PHE:O    | 1:G:247:LEU:HD12 | 2.13                     | 0.48              |
| 1:H:134:LEU:HD11 | 1:H:421:ARG:HG2  | 1.96                     | 0.48              |
| 1:J:7:LYS:HG3    | 1:J:66:PHE:CZ    | 2.49                     | 0.48              |
| 1:N:200:LEU:HG   | 1:N:275:ALA:O    | 2.13                     | 0.48              |
| 1:B:325:ILE:HD12 | 1:B:325:ILE:N    | 2.29                     | 0.48              |
| 1:E:326:ASN:HD22 | 1:E:329:THR:CB   | 2.01                     | 0.48              |
| 1:J:160:LYS:O    | 1:J:164:GLU:HG3  | 2.13                     | 0.48              |
| 1:L:127:ALA:O    | 1:L:131:LEU:HB2  | 2.13                     | 0.48              |
| 1:L:455:VAL:HG11 | 1:L:462:PRO:HA   | 1.95                     | 0.48              |
| 1:M:162:ILE:O    | 1:M:165:ALA:HB3  | 2.13                     | 0.48              |
| 1:M:499:VAL:CG2  | 1:M:500:THR:N    | 2.76                     | 0.48              |
| 1:B:25:ASP:HA    | 1:B:28:LYS:HE2   | 1.95                     | 0.48              |
| 1:C:155:ASP:OD1  | 1:C:157:THR:HB   | 2.14                     | 0.48              |
| 1:D:33:PRO:C     | 1:D:35:GLY:H     | 2.17                     | 0.48              |
| 1:D:242:LYS:C    | 1:D:244:GLY:H    | 2.17                     | 0.48              |
| 1:E:153:ASN:O    | 1:E:154:SER:HB2  | 2.14                     | 0.48              |
| 1:H:230:ILE:HD12 | 1:H:261:THR:CG2  | 2.38                     | 0.48              |
| 1:I:248:LEU:CD1  | 1:I:325:ILE:HD11 | 2.44                     | 0.48              |
| 1:J:111:MET:SD   | 1:J:438:VAL:HG21 | 2.54                     | 0.48              |
| 1:N:37:ASN:HD21  | 1:N:51:LYS:HZ2   | 1.62                     | 0.48              |
| 1:N:200:LEU:HG   | 1:N:276:VAL:HA   | 1.95                     | 0.48              |
| 1:C:36:ARG:HG3   | 1:C:36:ARG:NH1   | 2.27                     | 0.48              |
| 1:D:250:ILE:HG22 | 1:D:289:LEU:HD21 | 1.96                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:319:GLN:O    | 1:D:336:VAL:HG23 | 2.13                     | 0.48              |
| 1:E:450:PRO:O    | 1:E:454:ILE:HG13 | 2.14                     | 0.48              |
| 1:G:265:ASN:N    | 1:G:265:ASN:HD22 | 2.11                     | 0.48              |
| 1:H:18:ARG:HH11  | 1:H:18:ARG:CG    | 2.24                     | 0.48              |
| 1:H:335:GLY:C    | 1:H:337:GLY:H    | 2.16                     | 0.48              |
| 1:I:215:LEU:HB2  | 1:I:323:VAL:HG22 | 1.96                     | 0.48              |
| 1:I:404:ARG:HG2  | 1:I:404:ARG:NH1  | 2.21                     | 0.48              |
| 1:I:444:LEU:HA   | 1:I:447:MET:HE3  | 1.95                     | 0.48              |
| 1:J:254:VAL:O    | 1:J:259:LEU:HD22 | 2.13                     | 0.48              |
| 1:J:499:VAL:CG2  | 1:J:500:THR:N    | 2.77                     | 0.48              |
| 1:K:24:ALA:HA    | 1:K:27:VAL:HG12  | 1.95                     | 0.48              |
| 1:L:134:LEU:HD11 | 1:L:421:ARG:HG2  | 1.96                     | 0.48              |
| 1:M:444:LEU:HA   | 1:M:447:MET:HE3  | 1.95                     | 0.48              |
| 1:B:155:ASP:OD1  | 1:B:157:THR:HB   | 2.14                     | 0.48              |
| 1:C:218:PRO:HB3  | 1:C:246:PRO:HG2  | 1.96                     | 0.48              |
| 1:D:265:ASN:HD22 | 1:D:265:ASN:N    | 2.10                     | 0.48              |
| 1:D:381:VAL:HG21 | 1:D:393:LYS:HA   | 1.95                     | 0.48              |
| 1:E:520:MET:HA   | 1:F:39:VAL:O     | 2.14                     | 0.48              |
| 1:F:311:LYS:O    | 1:H:311:LYS:HE2  | 2.14                     | 0.48              |
| 1:G:25:ASP:HA    | 1:G:28:LYS:HE2   | 1.96                     | 0.48              |
| 1:H:77:VAL:HG11  | 1:H:510:VAL:HB   | 1.96                     | 0.48              |
| 1:H:238:GLU:C    | 1:H:240:VAL:H    | 2.16                     | 0.48              |
| 1:K:69:MET:HE1   | 1:L:39:VAL:HG12  | 1.96                     | 0.48              |
| 1:L:7:LYS:HG3    | 1:L:66:PHE:CZ    | 2.49                     | 0.48              |
| 1:L:77:VAL:HG11  | 1:L:510:VAL:HB   | 1.95                     | 0.48              |
| 1:L:418:ALA:O    | 1:L:422:VAL:HG22 | 2.14                     | 0.48              |
| 1:M:25:ASP:HA    | 1:M:28:LYS:HE2   | 1.95                     | 0.48              |
| 1:A:140:ASP:C    | 1:A:142:LYS:H    | 2.17                     | 0.48              |
| 1:A:247:LEU:HB3  | 1:A:273:VAL:CG1  | 2.43                     | 0.48              |
| 1:C:420:ILE:HG13 | 1:C:448:GLU:HG2  | 1.96                     | 0.48              |
| 1:D:325:ILE:N    | 1:D:325:ILE:HD12 | 2.29                     | 0.48              |
| 1:E:17:LEU:HA    | 1:E:20:VAL:CG1   | 2.44                     | 0.48              |
| 1:I:252:GLU:O    | 1:I:277:LYS:HG3  | 2.14                     | 0.48              |
| 1:A:36:ARG:HH11  | 1:A:36:ARG:HG3   | 1.79                     | 0.47              |
| 1:C:391:GLU:O    | 1:C:394:ALA:HB3  | 2.14                     | 0.47              |
| 1:F:311:LYS:HD3  | 1:H:311:LYS:HG2  | 1.96                     | 0.47              |
| 1:G:131:LEU:HD13 | 1:G:422:VAL:HG21 | 1.95                     | 0.47              |
| 1:J:23:LEU:HD23  | 1:J:74:VAL:HG22  | 1.95                     | 0.47              |
| 1:K:86:GLY:O     | 1:K:87:ASP:HB2   | 2.13                     | 0.47              |
| 1:L:118:ARG:NH2  | 1:M:34:LYS:HE3   | 2.29                     | 0.47              |
| 1:M:22:VAL:HG11  | 1:M:62:LEU:CD2   | 2.41                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:194:GLN:O    | 1:M:194:GLN:HG2  | 2.14                     | 0.47              |
| 1:B:236:VAL:O    | 1:B:236:VAL:HG12 | 2.14                     | 0.47              |
| 1:C:221:LEU:HD23 | 1:C:249:ILE:HG23 | 1.95                     | 0.47              |
| 1:G:17:LEU:HA    | 1:G:20:VAL:HG12  | 1.96                     | 0.47              |
| 1:J:203:TYR:CD1  | 1:J:267:MET:HE3  | 2.50                     | 0.47              |
| 1:K:30:THR:CG2   | 1:K:31:LEU:N     | 2.77                     | 0.47              |
| 1:K:230:ILE:HD12 | 1:K:261:THR:CG2  | 2.38                     | 0.47              |
| 1:L:70:GLY:HA2   | 1:L:73:MET:HE3   | 1.95                     | 0.47              |
| 1:N:404:ARG:HG2  | 1:N:404:ARG:NH1  | 2.27                     | 0.47              |
| 1:N:485:TYR:HD1  | 1:N:485:TYR:H    | 1.62                     | 0.47              |
| 1:A:25:ASP:HA    | 1:A:28:LYS:HE2   | 1.96                     | 0.47              |
| 1:B:494:LEU:C    | 1:B:494:LEU:HD12 | 2.35                     | 0.47              |
| 1:C:17:LEU:HA    | 1:C:20:VAL:HG12  | 1.96                     | 0.47              |
| 1:D:106:ALA:O    | 1:D:109:ALA:HB3  | 2.14                     | 0.47              |
| 1:F:31:LEU:HD22  | 1:F:90:THR:CG2   | 2.44                     | 0.47              |
| 1:F:485:TYR:N    | 1:F:485:TYR:CD1  | 2.82                     | 0.47              |
| 1:G:134:LEU:HD23 | 1:G:134:LEU:O    | 2.13                     | 0.47              |
| 1:G:153:ASN:O    | 1:G:154:SER:HB2  | 2.14                     | 0.47              |
| 1:H:37:ASN:HD21  | 1:H:51:LYS:HZ3   | 1.61                     | 0.47              |
| 1:H:180:GLY:HA3  | 1:H:381:VAL:O    | 2.14                     | 0.47              |
| 1:J:207:LYS:O    | 1:J:209:GLU:N    | 2.47                     | 0.47              |
| 1:K:404:ARG:HG2  | 1:K:404:ARG:NH1  | 2.25                     | 0.47              |
| 1:L:18:ARG:HH11  | 1:L:18:ARG:CG    | 2.27                     | 0.47              |
| 1:M:404:ARG:HG2  | 1:M:404:ARG:NH1  | 2.27                     | 0.47              |
| 1:A:3:ALA:HA     | 1:B:61:GLU:O     | 2.14                     | 0.47              |
| 1:C:226:LYS:HD3  | 1:C:255:GLU:OE2  | 2.15                     | 0.47              |
| 1:D:271:VAL:HG12 | 1:D:273:VAL:HG13 | 1.97                     | 0.47              |
| 1:F:226:LYS:HD3  | 1:F:255:GLU:OE2  | 2.15                     | 0.47              |
| 1:G:17:LEU:HA    | 1:G:20:VAL:CG1   | 2.45                     | 0.47              |
| 1:I:118:ARG:HH22 | 1:J:34:LYS:HE3   | 1.79                     | 0.47              |
| 1:I:160:LYS:O    | 1:I:164:GLU:HG3  | 2.13                     | 0.47              |
| 1:I:224:ASP:HB3  | 1:I:302:SER:HB3  | 1.96                     | 0.47              |
| 1:I:451:LEU:HD23 | 1:I:451:LEU:O    | 2.14                     | 0.47              |
| 1:K:129:GLU:C    | 1:K:131:LEU:H    | 2.16                     | 0.47              |
| 1:K:201:SER:C    | 1:K:202:PRO:O    | 2.53                     | 0.47              |
| 1:K:499:VAL:CG2  | 1:K:500:THR:N    | 2.77                     | 0.47              |
| 1:L:103:GLY:O    | 1:L:107:VAL:HG23 | 2.14                     | 0.47              |
| 1:A:233:MET:HB3  | 1:A:237:LEU:HD12 | 1.96                     | 0.47              |
| 1:B:17:LEU:HA    | 1:B:20:VAL:CG1   | 2.45                     | 0.47              |
| 1:B:23:LEU:CD2   | 1:B:75:LYS:HG3   | 2.45                     | 0.47              |
| 1:C:265:ASN:HD22 | 1:C:265:ASN:N    | 2.11                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:494:LEU:C    | 1:C:494:LEU:HD12 | 2.35                     | 0.47              |
| 1:F:369:VAL:HG23 | 1:F:370:ALA:N    | 2.29                     | 0.47              |
| 1:I:23:LEU:HD23  | 1:I:74:VAL:HG22  | 1.96                     | 0.47              |
| 1:K:103:GLY:O    | 1:K:107:VAL:HG23 | 2.14                     | 0.47              |
| 1:K:335:GLY:C    | 1:K:337:GLY:H    | 2.16                     | 0.47              |
| 1:L:128:VAL:O    | 1:L:132:LYS:HG3  | 2.14                     | 0.47              |
| 1:L:142:LYS:O    | 1:L:142:LYS:HD3  | 2.14                     | 0.47              |
| 1:M:139:SER:HB3  | 1:M:171:LYS:HZ3  | 1.79                     | 0.47              |
| 1:A:221:LEU:HB3  | 1:A:249:ILE:HD13 | 1.96                     | 0.47              |
| 1:B:127:ALA:HB1  | 1:B:422:VAL:HG11 | 1.96                     | 0.47              |
| 1:B:198:GLY:O    | 1:B:276:VAL:HG12 | 2.15                     | 0.47              |
| 1:E:180:GLY:HA3  | 1:E:381:VAL:O    | 2.14                     | 0.47              |
| 1:E:485:TYR:N    | 1:E:485:TYR:CD1  | 2.82                     | 0.47              |
| 1:F:250:ILE:HG22 | 1:F:289:LEU:HD21 | 1.97                     | 0.47              |
| 1:G:226:LYS:HD3  | 1:G:255:GLU:OE2  | 2.14                     | 0.47              |
| 1:G:240:VAL:HG11 | 1:G:247:LEU:HB2  | 1.96                     | 0.47              |
| 1:H:451:LEU:HD23 | 1:H:451:LEU:O    | 2.14                     | 0.47              |
| 1:L:162:ILE:O    | 1:L:165:ALA:HB3  | 2.15                     | 0.47              |
| 1:L:201:SER:O    | 1:L:202:PRO:O    | 2.32                     | 0.47              |
| 1:M:70:GLY:HA2   | 1:M:73:MET:HE3   | 1.95                     | 0.47              |
| 1:N:224:ASP:HB3  | 1:N:302:SER:HB3  | 1.95                     | 0.47              |
| 1:A:199:TYR:CE2  | 1:A:327:LYS:HA   | 2.49                     | 0.47              |
| 1:D:140:ASP:C    | 1:D:142:LYS:H    | 2.18                     | 0.47              |
| 1:E:17:LEU:HA    | 1:E:20:VAL:HG12  | 1.97                     | 0.47              |
| 1:E:140:ASP:C    | 1:E:142:LYS:H    | 2.18                     | 0.47              |
| 1:F:122:LYS:HE2  | 1:F:429:LEU:HD11 | 1.95                     | 0.47              |
| 1:G:180:GLY:HA3  | 1:G:381:VAL:O    | 2.15                     | 0.47              |
| 1:H:485:TYR:HD1  | 1:H:485:TYR:H    | 1.61                     | 0.47              |
| 1:J:278:ALA:HB1  | 1:J:279:PRO:HD2  | 1.97                     | 0.47              |
| 1:L:22:VAL:HG11  | 1:L:62:LEU:CD2   | 2.44                     | 0.47              |
| 1:L:198:GLY:HA3  | 1:L:327:LYS:O    | 2.15                     | 0.47              |
| 1:N:23:LEU:HD23  | 1:N:74:VAL:HG22  | 1.96                     | 0.47              |
| 1:N:214:GLU:C    | 1:N:215:LEU:HD23 | 2.35                     | 0.47              |
| 1:A:23:LEU:CD2   | 1:A:75:LYS:HG3   | 2.45                     | 0.47              |
| 1:H:252:GLU:O    | 1:H:277:LYS:HG3  | 2.13                     | 0.47              |
| 1:L:114:MET:HB3  | 1:M:34:LYS:HE2   | 1.97                     | 0.47              |
| 1:L:180:GLY:HA3  | 1:L:381:VAL:O    | 2.15                     | 0.47              |
| 1:M:34:LYS:HB2   | 1:M:458:CYS:SG   | 2.55                     | 0.47              |
| 1:A:221:LEU:HD23 | 1:A:249:ILE:HG23 | 1.96                     | 0.47              |
| 1:A:391:GLU:O    | 1:A:394:ALA:HB3  | 2.15                     | 0.47              |
| 1:B:381:VAL:HG21 | 1:B:393:LYS:HA   | 1.95                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:23:LEU:CD2   | 1:C:75:LYS:HG3   | 2.45                     | 0.47              |
| 1:C:134:LEU:O    | 1:C:134:LEU:HD23 | 2.15                     | 0.47              |
| 1:F:233:MET:HB3  | 1:F:237:LEU:HD12 | 1.97                     | 0.47              |
| 1:G:233:MET:HB3  | 1:G:237:LEU:HD12 | 1.96                     | 0.47              |
| 1:G:271:VAL:HG12 | 1:G:273:VAL:HG13 | 1.96                     | 0.47              |
| 1:H:248:LEU:CD1  | 1:H:325:ILE:HD11 | 2.45                     | 0.47              |
| 1:I:129:GLU:C    | 1:I:131:LEU:H    | 2.19                     | 0.47              |
| 1:K:7:LYS:HG3    | 1:K:66:PHE:CZ    | 2.50                     | 0.47              |
| 1:K:138:CYS:O    | 1:K:138:CYS:SG   | 2.73                     | 0.47              |
| 1:K:139:SER:HB3  | 1:K:171:LYS:HZ1  | 1.79                     | 0.47              |
| 1:K:140:ASP:C    | 1:K:142:LYS:H    | 2.18                     | 0.47              |
| 1:K:291:ASP:OD2  | 1:K:368:ARG:HD2  | 2.15                     | 0.47              |
| 1:M:201:SER:O    | 1:M:202:PRO:O    | 2.33                     | 0.47              |
| 1:M:233:MET:O    | 1:M:237:LEU:HB2  | 2.15                     | 0.47              |
| 1:N:349:ILE:HG21 | 1:N:369:VAL:HG13 | 1.97                     | 0.47              |
| 1:A:451:LEU:O    | 1:A:451:LEU:HD23 | 2.15                     | 0.47              |
| 1:C:197:ARG:HE   | 1:C:279:PRO:HA   | 1.80                     | 0.47              |
| 1:C:271:VAL:HG12 | 1:C:273:VAL:HG13 | 1.96                     | 0.47              |
| 1:C:479:ASN:OD1  | 1:C:481:ALA:HB3  | 2.15                     | 0.47              |
| 1:D:16:MET:HB3   | 1:D:514:MET:CE   | 2.45                     | 0.47              |
| 1:F:23:LEU:CD2   | 1:F:75:LYS:HG3   | 2.45                     | 0.47              |
| 1:G:296:THR:O    | 1:G:297:GLY:O    | 2.33                     | 0.47              |
| 1:H:233:MET:O    | 1:H:237:LEU:HB2  | 2.15                     | 0.47              |
| 1:J:200:LEU:HD13 | 1:J:254:VAL:HB   | 1.96                     | 0.47              |
| 1:K:22:VAL:HG11  | 1:K:62:LEU:CD2   | 2.45                     | 0.47              |
| 1:K:200:LEU:HG   | 1:K:275:ALA:O    | 2.15                     | 0.47              |
| 1:K:200:LEU:HD13 | 1:K:254:VAL:HB   | 1.96                     | 0.47              |
| 1:K:238:GLU:C    | 1:K:240:VAL:H    | 2.18                     | 0.47              |
| 1:M:451:LEU:HD23 | 1:M:451:LEU:O    | 2.15                     | 0.47              |
| 1:N:201:SER:C    | 1:N:202:PRO:O    | 2.54                     | 0.47              |
| 1:N:344:GLY:O    | 1:N:347:ALA:HB3  | 2.15                     | 0.47              |
| 1:C:13:ARG:HD2   | 1:C:104:LEU:HD22 | 1.97                     | 0.46              |
| 1:C:140:ASP:C    | 1:C:142:LYS:H    | 2.18                     | 0.46              |
| 1:C:249:ILE:HB   | 1:C:275:ALA:CB   | 2.45                     | 0.46              |
| 1:G:217:SER:N    | 1:G:218:PRO:CD   | 2.79                     | 0.46              |
| 1:G:420:ILE:HG13 | 1:G:448:GLU:HG2  | 1.97                     | 0.46              |
| 1:H:127:ALA:O    | 1:H:131:LEU:HB2  | 2.15                     | 0.46              |
| 1:H:198:GLY:CA   | 1:H:328:ASP:HA   | 2.45                     | 0.46              |
| 1:I:201:SER:O    | 1:I:202:PRO:O    | 2.33                     | 0.46              |
| 1:L:349:ILE:HG21 | 1:L:369:VAL:HG13 | 1.97                     | 0.46              |
| 1:M:31:LEU:HD12  | 1:M:90:THR:HG22  | 1.97                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:193:MET:CE   | 1:A:292:ILE:HG12 | 2.45                     | 0.46              |
| 1:A:249:ILE:HB   | 1:A:275:ALA:CB   | 2.45                     | 0.46              |
| 1:B:217:SER:N    | 1:B:218:PRO:CD   | 2.77                     | 0.46              |
| 1:B:233:MET:HB3  | 1:B:237:LEU:HD12 | 1.97                     | 0.46              |
| 1:B:369:VAL:HG23 | 1:B:370:ALA:N    | 2.30                     | 0.46              |
| 1:D:34:LYS:HD2   | 1:D:458:CYS:HB3  | 1.94                     | 0.46              |
| 1:E:131:LEU:HD12 | 1:E:422:VAL:HG21 | 1.96                     | 0.46              |
| 1:E:369:VAL:HG23 | 1:E:370:ALA:N    | 2.30                     | 0.46              |
| 1:M:103:GLY:O    | 1:M:107:VAL:HG23 | 2.15                     | 0.46              |
| 1:A:108:ALA:C    | 1:A:110:GLY:H    | 2.18                     | 0.46              |
| 1:C:233:MET:HB3  | 1:C:237:LEU:HD12 | 1.96                     | 0.46              |
| 1:C:248:LEU:HD12 | 1:C:274:ALA:O    | 2.15                     | 0.46              |
| 1:E:193:MET:HG2  | 1:E:194:GLN:N    | 2.30                     | 0.46              |
| 1:E:265:ASN:HD22 | 1:E:265:ASN:N    | 2.11                     | 0.46              |
| 1:E:487:ASN:O    | 1:E:491:MET:HG3  | 2.15                     | 0.46              |
| 1:G:479:ASN:OD1  | 1:G:481:ALA:HB3  | 2.15                     | 0.46              |
| 1:H:166:MET:HE1  | 1:H:171:LYS:HA   | 1.96                     | 0.46              |
| 1:J:233:MET:O    | 1:J:237:LEU:HB2  | 2.15                     | 0.46              |
| 1:K:349:ILE:HG21 | 1:K:369:VAL:HG13 | 1.98                     | 0.46              |
| 1:K:520:MET:HG2  | 1:L:39:VAL:HB    | 1.97                     | 0.46              |
| 1:L:73:MET:SD    | 1:M:49:ILE:HD11  | 2.56                     | 0.46              |
| 1:L:139:SER:HB3  | 1:L:171:LYS:HZ1  | 1.80                     | 0.46              |
| 1:N:77:VAL:HG11  | 1:N:510:VAL:HB   | 1.98                     | 0.46              |
| 1:A:224:ASP:O    | 1:A:225:LYS:HB3  | 2.16                     | 0.46              |
| 1:B:140:ASP:C    | 1:B:142:LYS:H    | 2.19                     | 0.46              |
| 1:B:166:MET:CE   | 1:B:171:LYS:HA   | 2.45                     | 0.46              |
| 1:F:140:ASP:O    | 1:F:142:LYS:N    | 2.48                     | 0.46              |
| 1:F:209:GLU:OE1  | 1:F:209:GLU:N    | 2.48                     | 0.46              |
| 1:F:391:GLU:O    | 1:F:394:ALA:HB3  | 2.16                     | 0.46              |
| 1:G:465:VAL:O    | 1:G:469:VAL:HG23 | 2.15                     | 0.46              |
| 1:H:70:GLY:HA2   | 1:H:73:MET:HE3   | 1.96                     | 0.46              |
| 1:I:198:GLY:HA3  | 1:I:327:LYS:O    | 2.16                     | 0.46              |
| 1:A:250:ILE:HG22 | 1:A:289:LEU:HD21 | 1.98                     | 0.46              |
| 1:B:153:ASN:O    | 1:B:154:SER:HB2  | 2.15                     | 0.46              |
| 1:B:391:GLU:O    | 1:B:394:ALA:HB3  | 2.16                     | 0.46              |
| 1:E:250:ILE:HG22 | 1:E:289:LEU:HD21 | 1.97                     | 0.46              |
| 1:G:140:ASP:C    | 1:G:142:LYS:H    | 2.16                     | 0.46              |
| 1:G:201:SER:O    | 1:G:204:PHE:HD2  | 1.98                     | 0.46              |
| 1:H:258:ALA:O    | 1:H:262:LEU:HG   | 2.16                     | 0.46              |
| 1:I:393:LYS:O    | 1:I:397:GLU:HB2  | 2.14                     | 0.46              |
| 1:I:417:VAL:O    | 1:I:420:ILE:HG22 | 2.16                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:17:LEU:HA    | 1:L:20:VAL:CG1   | 2.43                     | 0.46              |
| 1:L:140:ASP:C    | 1:L:142:LYS:H    | 2.19                     | 0.46              |
| 1:L:501:ARG:HG2  | 1:L:501:ARG:HH11 | 1.80                     | 0.46              |
| 1:M:455:VAL:HG11 | 1:M:462:PRO:HA   | 1.98                     | 0.46              |
| 1:M:479:ASN:ND2  | 1:M:482:THR:HG23 | 2.31                     | 0.46              |
| 1:E:193:MET:CE   | 1:E:292:ILE:HG12 | 2.46                     | 0.46              |
| 1:E:217:SER:N    | 1:E:218:PRO:CD   | 2.78                     | 0.46              |
| 1:E:319:GLN:O    | 1:E:336:VAL:HG23 | 2.16                     | 0.46              |
| 1:F:311:LYS:HD3  | 1:H:311:LYS:CB   | 2.46                     | 0.46              |
| 1:H:224:ASP:HB3  | 1:H:302:SER:HB3  | 1.97                     | 0.46              |
| 1:J:129:GLU:C    | 1:J:131:LEU:H    | 2.19                     | 0.46              |
| 1:J:321:LYS:O    | 1:J:321:LYS:HG2  | 2.16                     | 0.46              |
| 1:L:17:LEU:O     | 1:L:20:VAL:HG12  | 2.16                     | 0.46              |
| 1:L:252:GLU:O    | 1:L:277:LYS:HG3  | 2.15                     | 0.46              |
| 1:L:521:VAL:O    | 1:M:41:ASP:N     | 2.46                     | 0.46              |
| 1:M:69:MET:HE2   | 1:N:39:VAL:CG1   | 2.45                     | 0.46              |
| 1:B:250:ILE:HG22 | 1:B:289:LEU:HD21 | 1.97                     | 0.46              |
| 1:C:369:VAL:O    | 1:C:373:ALA:N    | 2.49                     | 0.46              |
| 1:D:127:ALA:O    | 1:D:131:LEU:HB2  | 2.16                     | 0.46              |
| 1:H:278:ALA:HB1  | 1:H:279:PRO:HD2  | 1.98                     | 0.46              |
| 1:K:265:ASN:HD22 | 1:K:265:ASN:N    | 2.14                     | 0.46              |
| 1:K:336:VAL:HG12 | 1:K:336:VAL:O    | 2.16                     | 0.46              |
| 1:L:265:ASN:HD22 | 1:L:265:ASN:N    | 2.14                     | 0.46              |
| 1:N:198:GLY:HA3  | 1:N:327:LYS:O    | 2.16                     | 0.46              |
| 1:A:197:ARG:HG3  | 1:A:277:LYS:O    | 2.16                     | 0.46              |
| 1:B:166:MET:HE1  | 1:B:171:LYS:HA   | 1.98                     | 0.46              |
| 1:B:385:THR:OG1  | 1:B:388:GLU:HG3  | 2.16                     | 0.46              |
| 1:D:180:GLY:HA3  | 1:D:381:VAL:O    | 2.16                     | 0.46              |
| 1:E:155:ASP:OD1  | 1:E:157:THR:HB   | 2.15                     | 0.46              |
| 1:F:34:LYS:HG2   | 1:F:458:CYS:SG   | 2.56                     | 0.46              |
| 1:G:248:LEU:HD12 | 1:G:274:ALA:O    | 2.15                     | 0.46              |
| 1:H:200:LEU:HD13 | 1:H:254:VAL:HB   | 1.98                     | 0.46              |
| 1:H:224:ASP:O    | 1:H:225:LYS:HB3  | 2.15                     | 0.46              |
| 1:J:37:ASN:HD22  | 1:J:51:LYS:HG3   | 1.80                     | 0.46              |
| 1:A:209:GLU:OE1  | 1:A:209:GLU:N    | 2.49                     | 0.46              |
| 1:D:233:MET:HB3  | 1:D:237:LEU:HD12 | 1.97                     | 0.46              |
| 1:D:485:TYR:N    | 1:D:485:TYR:CD1  | 2.83                     | 0.46              |
| 1:E:485:TYR:HD1  | 1:E:485:TYR:H    | 1.64                     | 0.46              |
| 1:F:108:ALA:C    | 1:F:110:GLY:H    | 2.20                     | 0.46              |
| 1:I:28:LYS:C     | 1:I:30:THR:N     | 2.70                     | 0.46              |
| 1:I:344:GLY:O    | 1:I:347:ALA:HB3  | 2.16                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:494:LEU:HD12 | 1:K:494:LEU:N    | 2.25                     | 0.46              |
| 1:M:200:LEU:HG   | 1:M:276:VAL:HA   | 1.96                     | 0.46              |
| 1:N:198:GLY:CA   | 1:N:328:ASP:HA   | 2.46                     | 0.46              |
| 1:N:418:ALA:O    | 1:N:422:VAL:HG22 | 2.15                     | 0.46              |
| 1:A:218:PRO:HB3  | 1:A:246:PRO:HG2  | 1.98                     | 0.46              |
| 1:D:6:VAL:HG22   | 1:D:521:VAL:HG22 | 1.97                     | 0.46              |
| 1:D:134:LEU:HD23 | 1:D:134:LEU:O    | 2.16                     | 0.46              |
| 1:H:336:VAL:O    | 1:H:336:VAL:HG12 | 2.16                     | 0.46              |
| 1:I:335:GLY:C    | 1:I:337:GLY:H    | 2.19                     | 0.46              |
| 1:I:479:ASN:ND2  | 1:I:482:THR:HG23 | 2.31                     | 0.46              |
| 1:L:201:SER:C    | 1:L:202:PRO:O    | 2.54                     | 0.46              |
| 1:L:220:ILE:HG23 | 1:L:248:LEU:HD23 | 1.98                     | 0.46              |
| 1:M:278:ALA:HB1  | 1:M:279:PRO:HD2  | 1.97                     | 0.46              |
| 1:N:9:GLY:O      | 1:N:12:ALA:N     | 2.49                     | 0.46              |
| 1:C:217:SER:N    | 1:C:218:PRO:CD   | 2.79                     | 0.45              |
| 1:D:224:ASP:O    | 1:D:225:LYS:HB3  | 2.16                     | 0.45              |
| 1:E:271:VAL:HG12 | 1:E:273:VAL:HG13 | 1.98                     | 0.45              |
| 1:H:16:MET:SD    | 1:H:514:MET:CE   | 3.04                     | 0.45              |
| 1:I:278:ALA:HB1  | 1:I:279:PRO:HD2  | 1.98                     | 0.45              |
| 1:J:243:ALA:O    | 1:J:245:LYS:N    | 2.49                     | 0.45              |
| 1:K:233:MET:O    | 1:K:237:LEU:HB2  | 2.17                     | 0.45              |
| 1:K:252:GLU:O    | 1:K:277:LYS:HG3  | 2.17                     | 0.45              |
| 1:K:455:VAL:HG13 | 1:K:460:GLU:CB   | 2.47                     | 0.45              |
| 1:L:37:ASN:HD21  | 1:L:51:LYS:HZ2   | 1.63                     | 0.45              |
| 1:N:126:ALA:O    | 1:N:129:GLU:N    | 2.49                     | 0.45              |
| 1:N:138:CYS:O    | 1:N:138:CYS:SG   | 2.73                     | 0.45              |
| 1:C:16:MET:HB3   | 1:C:514:MET:CE   | 2.46                     | 0.45              |
| 1:C:17:LEU:HA    | 1:C:20:VAL:CG1   | 2.46                     | 0.45              |
| 1:C:296:THR:O    | 1:C:297:GLY:O    | 2.34                     | 0.45              |
| 1:C:501:ARG:O    | 1:C:505:GLN:HG3  | 2.16                     | 0.45              |
| 1:D:201:SER:C    | 1:D:202:PRO:O    | 2.55                     | 0.45              |
| 1:G:197:ARG:HE   | 1:G:279:PRO:HA   | 1.80                     | 0.45              |
| 1:H:138:CYS:O    | 1:H:138:CYS:SG   | 2.74                     | 0.45              |
| 1:J:430:ARG:HG2  | 1:J:430:ARG:HH11 | 1.81                     | 0.45              |
| 1:M:180:GLY:HA3  | 1:M:381:VAL:O    | 2.15                     | 0.45              |
| 1:M:200:LEU:HD13 | 1:M:254:VAL:HB   | 1.98                     | 0.45              |
| 1:M:224:ASP:HB3  | 1:M:302:SER:HB3  | 1.98                     | 0.45              |
| 1:A:77:VAL:O     | 1:A:80:LYS:N     | 2.48                     | 0.45              |
| 1:C:82:ASN:HB2   | 1:C:89:THR:HG1   | 1.81                     | 0.45              |
| 1:E:233:MET:HB3  | 1:E:237:LEU:HD12 | 1.97                     | 0.45              |
| 1:E:248:LEU:HD12 | 1:E:274:ALA:O    | 2.16                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:296:THR:O    | 1:E:297:GLY:O    | 2.34                     | 0.45              |
| 1:F:28:LYS:C     | 1:F:30:THR:H     | 2.18                     | 0.45              |
| 1:F:140:ASP:C    | 1:F:142:LYS:N    | 2.69                     | 0.45              |
| 1:G:249:ILE:HB   | 1:G:275:ALA:CB   | 2.46                     | 0.45              |
| 1:K:127:ALA:O    | 1:K:131:LEU:HB2  | 2.15                     | 0.45              |
| 1:M:265:ASN:HD22 | 1:M:265:ASN:N    | 2.13                     | 0.45              |
| 1:N:7:LYS:HG3    | 1:N:66:PHE:CZ    | 2.50                     | 0.45              |
| 1:A:16:MET:HB3   | 1:A:514:MET:CE   | 2.46                     | 0.45              |
| 1:B:249:ILE:HB   | 1:B:275:ALA:CB   | 2.46                     | 0.45              |
| 1:C:209:GLU:OE1  | 1:C:209:GLU:N    | 2.49                     | 0.45              |
| 1:D:25:ASP:HA    | 1:D:28:LYS:HE2   | 1.98                     | 0.45              |
| 1:D:36:ARG:HH11  | 1:D:36:ARG:HG3   | 1.81                     | 0.45              |
| 1:E:13:ARG:HD3   | 1:E:104:LEU:HD22 | 1.98                     | 0.45              |
| 1:E:493:ILE:HG22 | 1:E:493:ILE:O    | 2.16                     | 0.45              |
| 1:F:249:ILE:HB   | 1:F:275:ALA:CB   | 2.47                     | 0.45              |
| 1:G:131:LEU:HD12 | 1:G:422:VAL:HG21 | 1.98                     | 0.45              |
| 1:J:248:LEU:CD1  | 1:J:325:ILE:HD11 | 2.47                     | 0.45              |
| 1:J:291:ASP:OD2  | 1:J:368:ARG:HD2  | 2.16                     | 0.45              |
| 1:J:335:GLY:C    | 1:J:337:GLY:H    | 2.18                     | 0.45              |
| 1:L:200:LEU:HG   | 1:L:276:VAL:HA   | 1.98                     | 0.45              |
| 1:N:64:ASP:OD1   | 1:N:66:PHE:HB2   | 2.16                     | 0.45              |
| 1:N:220:ILE:HG23 | 1:N:248:LEU:HD23 | 1.97                     | 0.45              |
| 1:B:519:CYS:HB3  | 1:C:38:VAL:HG13  | 1.98                     | 0.45              |
| 1:E:16:MET:HB3   | 1:E:514:MET:CE   | 2.46                     | 0.45              |
| 1:F:265:ASN:HD22 | 1:F:265:ASN:N    | 2.13                     | 0.45              |
| 1:G:494:LEU:C    | 1:G:494:LEU:HD12 | 2.37                     | 0.45              |
| 1:J:134:LEU:HD11 | 1:J:421:ARG:HG2  | 1.97                     | 0.45              |
| 1:K:198:GLY:HA3  | 1:K:327:LYS:O    | 2.15                     | 0.45              |
| 1:L:278:ALA:HB1  | 1:L:279:PRO:HD2  | 1.98                     | 0.45              |
| 1:L:494:LEU:HD12 | 1:L:494:LEU:N    | 2.24                     | 0.45              |
| 1:M:207:LYS:O    | 1:M:209:GLU:N    | 2.49                     | 0.45              |
| 1:M:291:ASP:OD2  | 1:M:368:ARG:HD2  | 2.17                     | 0.45              |
| 1:N:129:GLU:C    | 1:N:131:LEU:H    | 2.19                     | 0.45              |
| 1:B:296:THR:O    | 1:B:297:GLY:O    | 2.33                     | 0.45              |
| 1:B:451:LEU:HD23 | 1:B:451:LEU:C    | 2.37                     | 0.45              |
| 1:C:221:LEU:HB3  | 1:C:249:ILE:HD13 | 1.97                     | 0.45              |
| 1:D:52:ASP:OD1   | 1:D:54:VAL:HG23  | 2.17                     | 0.45              |
| 1:G:183:LEU:HD22 | 1:G:184:GLN:N    | 2.26                     | 0.45              |
| 1:J:127:ALA:O    | 1:J:131:LEU:HB2  | 2.17                     | 0.45              |
| 1:J:235:PRO:HG3  | 1:J:310:GLU:CG   | 2.46                     | 0.45              |
| 1:L:124:VAL:O    | 1:L:125:THR:C    | 2.54                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:18:ARG:HH11  | 1:N:18:ARG:CG    | 2.29                     | 0.45              |
| 1:N:140:ASP:C    | 1:N:142:LYS:H    | 2.20                     | 0.45              |
| 1:A:485:TYR:N    | 1:A:485:TYR:CD1  | 2.85                     | 0.45              |
| 1:B:207:LYS:O    | 1:B:209:GLU:N    | 2.50                     | 0.45              |
| 1:C:417:VAL:O    | 1:C:420:ILE:HG22 | 2.16                     | 0.45              |
| 1:D:16:MET:SD    | 1:D:73:MET:CE    | 3.05                     | 0.45              |
| 1:D:202:PRO:O    | 1:D:204:PHE:N    | 2.46                     | 0.45              |
| 1:D:413:ALA:CB   | 1:D:417:VAL:CG2  | 2.94                     | 0.45              |
| 1:E:23:LEU:HD22  | 1:E:75:LYS:HG3   | 1.97                     | 0.45              |
| 1:E:412:VAL:HG13 | 1:E:497:THR:OG1  | 2.17                     | 0.45              |
| 1:E:465:VAL:O    | 1:E:469:VAL:HG23 | 2.17                     | 0.45              |
| 1:G:171:LYS:HB3  | 1:G:407:VAL:HG11 | 1.97                     | 0.45              |
| 1:G:199:TYR:CE2  | 1:G:327:LYS:HA   | 2.52                     | 0.45              |
| 1:J:200:LEU:HG   | 1:J:276:VAL:HA   | 1.98                     | 0.45              |
| 1:M:482:THR:O    | 1:M:483:GLU:HB2  | 2.17                     | 0.45              |
| 1:A:207:LYS:O    | 1:A:209:GLU:N    | 2.50                     | 0.45              |
| 1:A:245:LYS:HZ2  | 1:A:319:GLN:HE22 | 1.63                     | 0.45              |
| 1:A:381:VAL:HG21 | 1:A:393:LYS:HA   | 1.99                     | 0.45              |
| 1:D:183:LEU:HD22 | 1:D:184:GLN:N    | 2.29                     | 0.45              |
| 1:D:197:ARG:HE   | 1:D:279:PRO:HA   | 1.81                     | 0.45              |
| 1:E:134:LEU:O    | 1:E:134:LEU:HD23 | 2.17                     | 0.45              |
| 1:E:224:ASP:O    | 1:E:225:LYS:HB3  | 2.17                     | 0.45              |
| 1:E:248:LEU:HA   | 1:E:274:ALA:O    | 2.17                     | 0.45              |
| 1:F:193:MET:HG2  | 1:F:194:GLN:N    | 2.31                     | 0.45              |
| 1:G:356:ALA:C    | 1:G:358:SER:H    | 2.21                     | 0.45              |
| 1:G:505:GLN:HE21 | 1:G:505:GLN:HB3  | 1.58                     | 0.45              |
| 1:H:455:VAL:HG13 | 1:H:460:GLU:CB   | 2.47                     | 0.45              |
| 1:I:248:LEU:HD11 | 1:I:325:ILE:HD11 | 1.99                     | 0.45              |
| 1:J:252:GLU:O    | 1:J:277:LYS:HG3  | 2.17                     | 0.45              |
| 1:M:30:THR:OG1   | 1:M:31:LEU:N     | 2.50                     | 0.45              |
| 1:M:128:VAL:O    | 1:M:132:LYS:HG3  | 2.16                     | 0.45              |
| 1:M:198:GLY:CA   | 1:M:328:ASP:HA   | 2.47                     | 0.45              |
| 1:M:258:ALA:O    | 1:M:262:LEU:HG   | 2.17                     | 0.45              |
| 1:N:265:ASN:HD22 | 1:N:265:ASN:N    | 2.13                     | 0.45              |
| 1:A:219:PHE:O    | 1:A:247:LEU:HD12 | 2.16                     | 0.45              |
| 1:B:123:ALA:HB2  | 1:B:440:ILE:HG13 | 1.98                     | 0.45              |
| 1:B:221:LEU:HB3  | 1:B:249:ILE:HD13 | 1.99                     | 0.45              |
| 1:C:112:ASN:OD1  | 1:C:114:MET:N    | 2.50                     | 0.45              |
| 1:C:237:LEU:HD23 | 1:C:237:LEU:C    | 2.37                     | 0.45              |
| 1:D:183:LEU:O    | 1:D:184:GLN:CB   | 2.65                     | 0.45              |
| 1:D:209:GLU:OE1  | 1:D:209:GLU:N    | 2.50                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:479:ASN:OD1  | 1:D:481:ALA:HB3  | 2.17                     | 0.45              |
| 1:E:183:LEU:HD22 | 1:E:184:GLN:N    | 2.27                     | 0.45              |
| 1:E:221:LEU:HB3  | 1:E:249:ILE:HD13 | 1.99                     | 0.45              |
| 1:F:221:LEU:HD23 | 1:F:249:ILE:HG23 | 1.99                     | 0.45              |
| 1:G:197:ARG:HG3  | 1:G:277:LYS:O    | 2.17                     | 0.45              |
| 1:H:254:VAL:O    | 1:H:259:LEU:HD22 | 2.17                     | 0.45              |
| 1:I:224:ASP:O    | 1:I:225:LYS:HB3  | 2.16                     | 0.45              |
| 1:I:482:THR:O    | 1:I:483:GLU:HB2  | 2.17                     | 0.45              |
| 1:J:128:VAL:O    | 1:J:132:LYS:HG3  | 2.16                     | 0.45              |
| 1:J:198:GLY:CA   | 1:J:328:ASP:HA   | 2.46                     | 0.45              |
| 1:J:220:ILE:HG23 | 1:J:248:LEU:HD23 | 1.99                     | 0.45              |
| 1:J:479:ASN:ND2  | 1:J:482:THR:HG23 | 2.32                     | 0.45              |
| 1:K:70:GLY:HA2   | 1:K:73:MET:HE3   | 1.99                     | 0.45              |
| 1:L:200:LEU:HG   | 1:L:275:ALA:O    | 2.15                     | 0.45              |
| 1:N:162:ILE:O    | 1:N:165:ALA:HB3  | 2.17                     | 0.45              |
| 1:N:200:LEU:HD13 | 1:N:254:VAL:HB   | 1.98                     | 0.45              |
| 1:A:6:VAL:HG22   | 1:A:521:VAL:HG22 | 1.99                     | 0.45              |
| 1:B:305:ILE:O    | 1:B:305:ILE:HG22 | 2.17                     | 0.45              |
| 1:C:201:SER:O    | 1:C:204:PHE:HD2  | 2.00                     | 0.45              |
| 1:D:249:ILE:HB   | 1:D:275:ALA:CB   | 2.47                     | 0.45              |
| 1:F:485:TYR:HD1  | 1:F:485:TYR:H    | 1.64                     | 0.45              |
| 1:G:183:LEU:O    | 1:G:184:GLN:CB   | 2.64                     | 0.45              |
| 1:G:501:ARG:O    | 1:G:505:GLN:HG3  | 2.17                     | 0.45              |
| 1:H:265:ASN:HD22 | 1:H:265:ASN:N    | 2.14                     | 0.45              |
| 1:H:349:ILE:HG21 | 1:H:369:VAL:HG13 | 1.98                     | 0.45              |
| 1:I:321:LYS:O    | 1:I:321:LYS:HG2  | 2.17                     | 0.45              |
| 1:I:349:ILE:HG21 | 1:I:369:VAL:HG13 | 1.97                     | 0.45              |
| 1:K:518:GLU:CG   | 1:L:36:ARG:HG3   | 2.47                     | 0.45              |
| 1:L:200:LEU:HD13 | 1:L:254:VAL:HB   | 1.99                     | 0.45              |
| 1:L:215:LEU:HB2  | 1:L:323:VAL:HG22 | 1.98                     | 0.45              |
| 1:L:224:ASP:HB3  | 1:L:302:SER:HB3  | 1.98                     | 0.45              |
| 1:B:17:LEU:HA    | 1:B:20:VAL:HG12  | 1.98                     | 0.44              |
| 1:C:108:ALA:C    | 1:C:110:GLY:H    | 2.20                     | 0.44              |
| 1:C:381:VAL:HG21 | 1:C:393:LYS:HA   | 1.99                     | 0.44              |
| 1:E:13:ARG:CD    | 1:E:104:LEU:HD22 | 2.47                     | 0.44              |
| 1:E:28:LYS:C     | 1:E:30:THR:H     | 2.20                     | 0.44              |
| 1:E:108:ALA:C    | 1:E:110:GLY:H    | 2.20                     | 0.44              |
| 1:E:356:ALA:C    | 1:E:358:SER:H    | 2.20                     | 0.44              |
| 1:F:77:VAL:O     | 1:F:80:LYS:HB2   | 2.17                     | 0.44              |
| 1:H:9:GLY:O      | 1:H:12:ALA:N     | 2.50                     | 0.44              |
| 1:I:17:LEU:HA    | 1:I:20:VAL:CG1   | 2.47                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:417:VAL:HG21 | 1:K:488:MET:HG3  | 1.99                     | 0.44              |
| 1:C:219:PHE:O    | 1:C:247:LEU:HD12 | 2.16                     | 0.44              |
| 1:D:295:LEU:HA   | 1:D:342:ILE:CD1  | 2.47                     | 0.44              |
| 1:F:487:ASN:O    | 1:F:491:MET:HG3  | 2.18                     | 0.44              |
| 1:H:9:GLY:O      | 1:H:10:ASN:C     | 2.55                     | 0.44              |
| 1:L:230:ILE:HD12 | 1:L:261:THR:CG2  | 2.41                     | 0.44              |
| 1:L:291:ASP:OD2  | 1:L:368:ARG:HD2  | 2.17                     | 0.44              |
| 1:M:220:ILE:HG23 | 1:M:248:LEU:HD23 | 1.98                     | 0.44              |
| 1:A:122:LYS:HE2  | 1:A:429:LEU:HD11 | 1.98                     | 0.44              |
| 1:A:153:ASN:O    | 1:A:154:SER:HB2  | 2.16                     | 0.44              |
| 1:A:496:PRO:HB2  | 1:A:499:VAL:HG13 | 1.98                     | 0.44              |
| 1:C:52:ASP:OD1   | 1:C:54:VAL:HG23  | 2.17                     | 0.44              |
| 1:C:240:VAL:HG11 | 1:C:247:LEU:HB2  | 2.00                     | 0.44              |
| 1:D:111:MET:SD   | 1:D:438:VAL:HG21 | 2.58                     | 0.44              |
| 1:D:245:LYS:HZ2  | 1:D:319:GLN:HE22 | 1.66                     | 0.44              |
| 1:E:219:PHE:O    | 1:E:247:LEU:HD12 | 2.17                     | 0.44              |
| 1:F:451:LEU:O    | 1:F:451:LEU:HD23 | 2.17                     | 0.44              |
| 1:G:77:VAL:O     | 1:G:80:LYS:HB2   | 2.17                     | 0.44              |
| 1:H:494:LEU:HD12 | 1:H:494:LEU:N    | 2.20                     | 0.44              |
| 1:K:200:LEU:HG   | 1:K:276:VAL:HA   | 1.99                     | 0.44              |
| 1:L:64:ASP:OD1   | 1:L:66:PHE:HB2   | 2.17                     | 0.44              |
| 1:A:36:ARG:O     | 1:A:51:LYS:HG2   | 2.17                     | 0.44              |
| 1:A:296:THR:O    | 1:A:297:GLY:O    | 2.35                     | 0.44              |
| 1:B:171:LYS:HB3  | 1:B:407:VAL:HG11 | 1.98                     | 0.44              |
| 1:B:226:LYS:HD3  | 1:B:255:GLU:OE2  | 2.17                     | 0.44              |
| 1:C:356:ALA:C    | 1:C:358:SER:H    | 2.21                     | 0.44              |
| 1:D:16:MET:SD    | 1:D:73:MET:HE1   | 2.58                     | 0.44              |
| 1:D:485:TYR:H    | 1:D:485:TYR:HD1  | 1.65                     | 0.44              |
| 1:E:365:LEU:C    | 1:E:367:GLU:H    | 2.20                     | 0.44              |
| 1:E:381:VAL:HG21 | 1:E:393:LYS:HA   | 1.99                     | 0.44              |
| 1:F:201:SER:O    | 1:F:204:PHE:HD2  | 2.00                     | 0.44              |
| 1:G:23:LEU:CD2   | 1:G:75:LYS:HG3   | 2.47                     | 0.44              |
| 1:G:209:GLU:OE1  | 1:G:209:GLU:N    | 2.50                     | 0.44              |
| 1:G:221:LEU:HD23 | 1:G:249:ILE:HG23 | 1.98                     | 0.44              |
| 1:J:183:LEU:CD1  | 1:J:184:GLN:HG3  | 2.47                     | 0.44              |
| 1:K:224:ASP:HB3  | 1:K:302:SER:HB3  | 1.98                     | 0.44              |
| 1:L:479:ASN:CG   | 1:L:493:ILE:HD11 | 2.37                     | 0.44              |
| 1:M:127:ALA:O    | 1:M:131:LEU:HB2  | 2.18                     | 0.44              |
| 1:A:31:LEU:HD22  | 1:A:31:LEU:HA    | 1.61                     | 0.44              |
| 1:A:201:SER:O    | 1:A:204:PHE:HD2  | 2.01                     | 0.44              |
| 1:B:219:PHE:O    | 1:B:247:LEU:HD12 | 2.18                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:338:GLU:C    | 1:C:340:ALA:N    | 2.70                     | 0.44              |
| 1:D:417:VAL:O    | 1:D:420:ILE:HG22 | 2.17                     | 0.44              |
| 1:E:112:ASN:OD1  | 1:E:114:MET:N    | 2.50                     | 0.44              |
| 1:E:209:GLU:OE1  | 1:E:209:GLU:N    | 2.50                     | 0.44              |
| 1:F:29:VAL:O     | 1:F:29:VAL:HG23  | 2.18                     | 0.44              |
| 1:F:36:ARG:HG3   | 1:F:36:ARG:HH11  | 1.82                     | 0.44              |
| 1:I:198:GLY:CA   | 1:I:328:ASP:HA   | 2.47                     | 0.44              |
| 1:J:265:ASN:HD22 | 1:J:265:ASN:N    | 2.15                     | 0.44              |
| 1:J:496:PRO:HB2  | 1:J:499:VAL:CG1  | 2.48                     | 0.44              |
| 1:L:207:LYS:C    | 1:L:209:GLU:H    | 2.21                     | 0.44              |
| 1:N:17:LEU:HA    | 1:N:20:VAL:CG1   | 2.46                     | 0.44              |
| 1:N:74:VAL:O     | 1:N:74:VAL:HG23  | 2.17                     | 0.44              |
| 1:A:28:LYS:C     | 1:A:30:THR:H     | 2.20                     | 0.44              |
| 1:B:183:LEU:HD22 | 1:B:184:GLN:N    | 2.29                     | 0.44              |
| 1:B:183:LEU:O    | 1:B:184:GLN:CB   | 2.66                     | 0.44              |
| 1:B:193:MET:HG2  | 1:B:194:GLN:N    | 2.32                     | 0.44              |
| 1:B:209:GLU:OE1  | 1:B:209:GLU:N    | 2.50                     | 0.44              |
| 1:C:193:MET:HG2  | 1:C:194:GLN:N    | 2.33                     | 0.44              |
| 1:C:207:LYS:O    | 1:C:209:GLU:N    | 2.51                     | 0.44              |
| 1:D:42:LYS:O     | 1:D:43:SER:C     | 2.56                     | 0.44              |
| 1:E:311:LYS:HG2  | 1:I:311:LYS:HG2  | 1.98                     | 0.44              |
| 1:F:77:VAL:HG21  | 1:F:510:VAL:CG1  | 2.48                     | 0.44              |
| 1:H:201:SER:O    | 1:H:202:PRO:O    | 2.36                     | 0.44              |
| 1:I:162:ILE:O    | 1:I:165:ALA:HB3  | 2.17                     | 0.44              |
| 1:J:201:SER:C    | 1:J:202:PRO:O    | 2.53                     | 0.44              |
| 1:K:16:MET:SD    | 1:K:514:MET:CE   | 3.05                     | 0.44              |
| 1:K:69:MET:HE1   | 1:L:39:VAL:CG1   | 2.47                     | 0.44              |
| 1:L:198:GLY:CA   | 1:L:328:ASP:HA   | 2.48                     | 0.44              |
| 1:L:521:VAL:N    | 1:M:39:VAL:O     | 2.45                     | 0.44              |
| 1:M:77:VAL:C     | 1:M:79:SER:N     | 2.71                     | 0.44              |
| 1:B:197:ARG:HE   | 1:B:279:PRO:HA   | 1.83                     | 0.44              |
| 1:B:237:LEU:HD23 | 1:B:237:LEU:C    | 2.38                     | 0.44              |
| 1:D:207:LYS:O    | 1:D:209:GLU:N    | 2.50                     | 0.44              |
| 1:D:413:ALA:HB1  | 1:D:417:VAL:CG2  | 2.47                     | 0.44              |
| 1:E:123:ALA:HB2  | 1:E:440:ILE:HG13 | 2.00                     | 0.44              |
| 1:E:494:LEU:HD12 | 1:E:494:LEU:C    | 2.37                     | 0.44              |
| 1:G:119:GLY:O    | 1:G:440:ILE:HD12 | 2.17                     | 0.44              |
| 1:G:224:ASP:O    | 1:G:225:LYS:HB3  | 2.18                     | 0.44              |
| 1:H:63:GLU:CA    | 1:N:3:ALA:HB1    | 2.47                     | 0.44              |
| 1:H:201:SER:C    | 1:H:202:PRO:O    | 2.56                     | 0.44              |
| 1:I:243:ALA:O    | 1:I:245:LYS:N    | 2.51                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:485:TYR:H    | 1:I:485:TYR:HD1  | 1.66                     | 0.44              |
| 1:K:77:VAL:O     | 1:K:79:SER:N     | 2.51                     | 0.44              |
| 1:L:111:MET:SD   | 1:L:438:VAL:HG21 | 2.58                     | 0.44              |
| 1:M:201:SER:C    | 1:M:202:PRO:O    | 2.56                     | 0.44              |
| 1:N:479:ASN:ND2  | 1:N:482:THR:HG23 | 2.31                     | 0.44              |
| 1:A:221:LEU:HA   | 1:A:317:LEU:HD11 | 1.99                     | 0.44              |
| 1:E:106:ALA:O    | 1:E:109:ALA:HB3  | 2.18                     | 0.44              |
| 1:E:127:ALA:O    | 1:E:131:LEU:HB2  | 2.18                     | 0.44              |
| 1:E:131:LEU:HD13 | 1:E:422:VAL:HG21 | 2.00                     | 0.44              |
| 1:E:240:VAL:HG11 | 1:E:247:LEU:HB2  | 2.00                     | 0.44              |
| 1:F:311:LYS:HD3  | 1:H:311:LYS:CA   | 2.44                     | 0.44              |
| 1:G:417:VAL:O    | 1:G:420:ILE:HG22 | 2.18                     | 0.44              |
| 1:G:496:PRO:HB2  | 1:G:499:VAL:HG13 | 1.98                     | 0.44              |
| 1:H:220:ILE:HG23 | 1:H:248:LEU:HD23 | 1.99                     | 0.44              |
| 1:I:140:ASP:C    | 1:I:142:LYS:H    | 2.21                     | 0.44              |
| 1:J:17:LEU:O     | 1:J:20:VAL:HG12  | 2.18                     | 0.44              |
| 1:J:336:VAL:O    | 1:J:336:VAL:HG12 | 2.18                     | 0.44              |
| 1:K:77:VAL:C     | 1:K:79:SER:N     | 2.70                     | 0.44              |
| 1:L:233:MET:O    | 1:L:237:LEU:HB2  | 2.17                     | 0.44              |
| 1:A:319:GLN:O    | 1:A:336:VAL:HG23 | 2.17                     | 0.44              |
| 1:B:201:SER:O    | 1:B:204:PHE:HD2  | 2.01                     | 0.44              |
| 1:B:479:ASN:OD1  | 1:B:481:ALA:HB3  | 2.17                     | 0.44              |
| 1:C:77:VAL:HG21  | 1:C:510:VAL:CG1  | 2.48                     | 0.44              |
| 1:C:183:LEU:O    | 1:C:184:GLN:CB   | 2.66                     | 0.44              |
| 1:D:27:VAL:O     | 1:D:30:THR:OG1   | 2.34                     | 0.44              |
| 1:E:201:SER:C    | 1:E:202:PRO:O    | 2.56                     | 0.44              |
| 1:E:237:LEU:HD23 | 1:E:237:LEU:C    | 2.39                     | 0.44              |
| 1:F:450:PRO:O    | 1:F:454:ILE:HG13 | 2.18                     | 0.44              |
| 1:G:325:ILE:N    | 1:G:325:ILE:HD12 | 2.33                     | 0.44              |
| 1:H:22:VAL:HG11  | 1:H:62:LEU:CD2   | 2.46                     | 0.44              |
| 1:H:111:MET:SD   | 1:H:438:VAL:HG21 | 2.58                     | 0.44              |
| 1:H:441:LYS:O    | 1:H:445:ARG:HB2  | 2.18                     | 0.44              |
| 1:H:524:LEU:HD12 | 1:H:524:LEU:HA   | 1.87                     | 0.44              |
| 1:I:136:VAL:O    | 1:I:136:VAL:HG12 | 2.18                     | 0.44              |
| 1:I:220:ILE:HG23 | 1:I:248:LEU:HD23 | 1.99                     | 0.44              |
| 1:K:183:LEU:CD1  | 1:K:184:GLN:HG3  | 2.47                     | 0.44              |
| 1:K:496:PRO:HB2  | 1:K:499:VAL:CG1  | 2.48                     | 0.44              |
| 1:M:24:ALA:HA    | 1:M:27:VAL:HG12  | 1.99                     | 0.44              |
| 1:M:243:ALA:O    | 1:M:245:LYS:N    | 2.51                     | 0.44              |
| 1:N:243:ALA:O    | 1:N:245:LYS:N    | 2.50                     | 0.44              |
| 1:C:485:TYR:N    | 1:C:485:TYR:CD1  | 2.85                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:73:MET:SD    | 1:E:49:ILE:HD11  | 2.58                     | 0.43              |
| 1:D:77:VAL:HG21  | 1:D:510:VAL:CG1  | 2.48                     | 0.43              |
| 1:D:338:GLU:C    | 1:D:340:ALA:N    | 2.71                     | 0.43              |
| 1:E:201:SER:O    | 1:E:204:PHE:HD2  | 2.00                     | 0.43              |
| 1:E:505:GLN:HE21 | 1:E:505:GLN:HB3  | 1.63                     | 0.43              |
| 1:F:180:GLY:HA3  | 1:F:381:VAL:O    | 2.17                     | 0.43              |
| 1:F:237:LEU:HD23 | 1:F:237:LEU:C    | 2.39                     | 0.43              |
| 1:H:17:LEU:HA    | 1:H:20:VAL:CG1   | 2.47                     | 0.43              |
| 1:J:214:GLU:C    | 1:J:215:LEU:HD23 | 2.39                     | 0.43              |
| 1:J:485:TYR:CD1  | 1:J:485:TYR:N    | 2.86                     | 0.43              |
| 1:K:198:GLY:CA   | 1:K:328:ASP:HA   | 2.48                     | 0.43              |
| 1:L:10:ASN:HA    | 1:L:13:ARG:NH1   | 2.33                     | 0.43              |
| 1:M:77:VAL:HG11  | 1:M:510:VAL:HB   | 2.00                     | 0.43              |
| 1:M:418:ALA:O    | 1:M:422:VAL:HG22 | 2.18                     | 0.43              |
| 1:M:450:PRO:O    | 1:M:454:ILE:HG13 | 2.18                     | 0.43              |
| 1:N:224:ASP:O    | 1:N:225:LYS:HB3  | 2.17                     | 0.43              |
| 1:A:32:GLY:O     | 1:A:34:LYS:N     | 2.51                     | 0.43              |
| 1:A:112:ASN:OD1  | 1:A:114:MET:N    | 2.51                     | 0.43              |
| 1:A:197:ARG:HE   | 1:A:279:PRO:HA   | 1.83                     | 0.43              |
| 1:A:201:SER:C    | 1:A:202:PRO:O    | 2.57                     | 0.43              |
| 1:B:224:ASP:O    | 1:B:225:LYS:HB3  | 2.18                     | 0.43              |
| 1:B:248:LEU:HA   | 1:B:274:ALA:O    | 2.19                     | 0.43              |
| 1:B:271:VAL:HG12 | 1:B:273:VAL:HG13 | 2.00                     | 0.43              |
| 1:C:31:LEU:HD12  | 1:C:31:LEU:HA    | 1.79                     | 0.43              |
| 1:C:197:ARG:HG3  | 1:C:277:LYS:O    | 2.18                     | 0.43              |
| 1:D:221:LEU:HD23 | 1:D:249:ILE:HG23 | 2.00                     | 0.43              |
| 1:F:248:LEU:HA   | 1:F:274:ALA:O    | 2.18                     | 0.43              |
| 1:F:271:VAL:HG12 | 1:F:273:VAL:HG13 | 1.98                     | 0.43              |
| 1:G:369:VAL:O    | 1:G:373:ALA:N    | 2.51                     | 0.43              |
| 1:I:90:THR:O     | 1:I:94:VAL:HG12  | 2.18                     | 0.43              |
| 1:K:321:LYS:O    | 1:K:321:LYS:HG2  | 2.19                     | 0.43              |
| 1:L:243:ALA:O    | 1:L:245:LYS:N    | 2.50                     | 0.43              |
| 1:L:248:LEU:CD1  | 1:L:325:ILE:HD11 | 2.47                     | 0.43              |
| 1:L:482:THR:O    | 1:L:483:GLU:HB2  | 2.18                     | 0.43              |
| 1:M:134:LEU:HD11 | 1:M:421:ARG:HG2  | 2.00                     | 0.43              |
| 1:N:180:GLY:HA3  | 1:N:381:VAL:O    | 2.18                     | 0.43              |
| 1:A:37:ASN:HD21  | 1:A:51:LYS:HE3   | 1.83                     | 0.43              |
| 1:A:385:THR:OG1  | 1:A:388:GLU:HG3  | 2.18                     | 0.43              |
| 1:B:106:ALA:O    | 1:B:109:ALA:HB3  | 2.17                     | 0.43              |
| 1:B:112:ASN:OD1  | 1:B:114:MET:N    | 2.51                     | 0.43              |
| 1:D:23:LEU:CD2   | 1:D:75:LYS:HG3   | 2.48                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:201:SER:O    | 1:D:204:PHE:HD2  | 1.99                     | 0.43              |
| 1:E:325:ILE:HD12 | 1:E:325:ILE:N    | 2.34                     | 0.43              |
| 1:G:102:GLU:O    | 1:G:105:LYS:HB3  | 2.18                     | 0.43              |
| 1:H:139:SER:HB3  | 1:H:171:LYS:HZ1  | 1.82                     | 0.43              |
| 1:I:139:SER:HB3  | 1:I:171:LYS:HZ3  | 1.83                     | 0.43              |
| 1:I:265:ASN:N    | 1:I:265:ASN:HD22 | 2.15                     | 0.43              |
| 1:I:455:VAL:HG13 | 1:I:460:GLU:CB   | 2.48                     | 0.43              |
| 1:L:336:VAL:O    | 1:L:336:VAL:HG12 | 2.18                     | 0.43              |
| 1:M:77:VAL:O     | 1:M:79:SER:N     | 2.50                     | 0.43              |
| 1:M:455:VAL:HG13 | 1:M:460:GLU:CB   | 2.47                     | 0.43              |
| 1:A:123:ALA:HB2  | 1:A:440:ILE:HG13 | 2.00                     | 0.43              |
| 1:B:493:ILE:HG22 | 1:B:493:ILE:O    | 2.18                     | 0.43              |
| 1:D:501:ARG:O    | 1:D:505:GLN:HG3  | 2.19                     | 0.43              |
| 1:E:207:LYS:O    | 1:E:209:GLU:N    | 2.52                     | 0.43              |
| 1:E:338:GLU:C    | 1:E:340:ALA:N    | 2.72                     | 0.43              |
| 1:F:23:LEU:HD22  | 1:F:75:LYS:HG3   | 1.99                     | 0.43              |
| 1:F:325:ILE:N    | 1:F:325:ILE:HD12 | 2.34                     | 0.43              |
| 1:H:183:LEU:CD1  | 1:H:184:GLN:HG3  | 2.49                     | 0.43              |
| 1:H:450:PRO:O    | 1:H:454:ILE:HG13 | 2.18                     | 0.43              |
| 1:J:140:ASP:C    | 1:J:142:LYS:H    | 2.21                     | 0.43              |
| 1:M:501:ARG:HG2  | 1:M:501:ARG:HH11 | 1.83                     | 0.43              |
| 1:A:183:LEU:O    | 1:A:184:GLN:CB   | 2.66                     | 0.43              |
| 1:A:248:LEU:HD12 | 1:A:274:ALA:O    | 2.18                     | 0.43              |
| 1:D:296:THR:O    | 1:D:297:GLY:O    | 2.36                     | 0.43              |
| 1:E:521:VAL:HB   | 1:F:40:LEU:HD23  | 2.00                     | 0.43              |
| 1:F:27:VAL:HG22  | 1:F:90:THR:HG23  | 2.01                     | 0.43              |
| 1:H:140:ASP:C    | 1:H:142:LYS:H    | 2.21                     | 0.43              |
| 1:I:479:ASN:CG   | 1:I:493:ILE:HD11 | 2.38                     | 0.43              |
| 1:I:494:LEU:HD12 | 1:I:494:LEU:N    | 2.22                     | 0.43              |
| 1:J:24:ALA:HA    | 1:J:27:VAL:HG12  | 2.00                     | 0.43              |
| 1:J:77:VAL:O     | 1:J:79:SER:N     | 2.51                     | 0.43              |
| 1:L:23:LEU:HD23  | 1:L:74:VAL:CG2   | 2.49                     | 0.43              |
| 1:M:8:PHE:HE1    | 1:N:26:ALA:HA    | 1.82                     | 0.43              |
| 1:M:124:VAL:O    | 1:M:125:THR:C    | 2.56                     | 0.43              |
| 1:M:214:GLU:C    | 1:M:215:LEU:HD23 | 2.38                     | 0.43              |
| 1:N:199:TYR:CZ   | 1:N:327:LYS:HA   | 2.54                     | 0.43              |
| 1:A:102:GLU:O    | 1:A:105:LYS:HB3  | 2.18                     | 0.43              |
| 1:A:417:VAL:O    | 1:A:420:ILE:HG22 | 2.19                     | 0.43              |
| 1:D:32:GLY:HA3   | 1:D:33:PRO:HD2   | 1.81                     | 0.43              |
| 1:D:127:ALA:HB1  | 1:D:422:VAL:HG11 | 2.00                     | 0.43              |
| 1:E:166:MET:CE   | 1:E:171:LYS:HA   | 2.48                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:258:ALA:O    | 1:J:262:LEU:HG   | 2.18                     | 0.43              |
| 1:K:126:ALA:O    | 1:K:129:GLU:N    | 2.52                     | 0.43              |
| 1:K:248:LEU:CD1  | 1:K:325:ILE:HD11 | 2.48                     | 0.43              |
| 1:L:31:LEU:HD13  | 1:L:31:LEU:HA    | 1.75                     | 0.43              |
| 1:M:129:GLU:C    | 1:M:131:LEU:H    | 2.21                     | 0.43              |
| 1:N:16:MET:HB3   | 1:N:514:MET:HE1  | 2.01                     | 0.43              |
| 1:A:77:VAL:HG21  | 1:A:510:VAL:CG1  | 2.48                     | 0.43              |
| 1:A:230:ILE:HD12 | 1:A:261:THR:CG2  | 2.48                     | 0.43              |
| 1:E:197:ARG:HE   | 1:E:279:PRO:HA   | 1.83                     | 0.43              |
| 1:E:451:LEU:HD23 | 1:E:451:LEU:O    | 2.18                     | 0.43              |
| 1:F:477:GLY:HA3  | 1:F:488:MET:CG   | 2.49                     | 0.43              |
| 1:G:311:LYS:HZ1  | 1:N:313:THR:HG23 | 1.75                     | 0.43              |
| 1:I:36:ARG:O     | 1:I:51:LYS:HG2   | 2.19                     | 0.43              |
| 1:I:235:PRO:HG3  | 1:I:310:GLU:CG   | 2.46                     | 0.43              |
| 1:I:393:LYS:O    | 1:I:393:LYS:HG2  | 2.18                     | 0.43              |
| 1:J:69:MET:CE    | 1:K:39:VAL:HG12  | 2.48                     | 0.43              |
| 1:J:166:MET:HE2  | 1:J:171:LYS:HA   | 2.01                     | 0.43              |
| 1:K:243:ALA:O    | 1:K:245:LYS:N    | 2.51                     | 0.43              |
| 1:L:254:VAL:O    | 1:L:259:LEU:HD22 | 2.19                     | 0.43              |
| 1:M:69:MET:CE    | 1:N:39:VAL:HG12  | 2.49                     | 0.43              |
| 1:M:204:PHE:CE1  | 1:M:274:ALA:HA   | 2.53                     | 0.43              |
| 1:N:207:LYS:C    | 1:N:209:GLU:H    | 2.22                     | 0.43              |
| 1:A:166:MET:CE   | 1:A:171:LYS:HA   | 2.49                     | 0.43              |
| 1:A:455:VAL:CG1  | 1:A:460:GLU:HB2  | 2.37                     | 0.43              |
| 1:B:465:VAL:O    | 1:B:469:VAL:HG23 | 2.18                     | 0.43              |
| 1:B:485:TYR:N    | 1:B:485:TYR:CD1  | 2.87                     | 0.43              |
| 1:C:112:ASN:HA   | 1:C:113:PRO:HD3  | 1.79                     | 0.43              |
| 1:C:119:GLY:O    | 1:C:440:ILE:HD12 | 2.19                     | 0.43              |
| 1:C:249:ILE:HB   | 1:C:275:ALA:HB2  | 2.00                     | 0.43              |
| 1:D:37:ASN:HD21  | 1:D:51:LYS:HE3   | 1.83                     | 0.43              |
| 1:D:77:VAL:HG11  | 1:D:510:VAL:HB   | 2.01                     | 0.43              |
| 1:D:230:ILE:HD12 | 1:D:261:THR:CG2  | 2.47                     | 0.43              |
| 1:D:353:ILE:HG23 | 1:D:362:ARG:HG3  | 2.01                     | 0.43              |
| 1:E:69:MET:SD    | 1:E:520:MET:HE2  | 2.59                     | 0.43              |
| 1:E:77:VAL:O     | 1:E:80:LYS:HB2   | 2.19                     | 0.43              |
| 1:E:521:VAL:O    | 1:F:41:ASP:N     | 2.46                     | 0.43              |
| 1:F:240:VAL:HG11 | 1:F:247:LEU:HB2  | 2.01                     | 0.43              |
| 1:G:123:ALA:HB2  | 1:G:440:ILE:HG13 | 1.99                     | 0.43              |
| 1:G:140:ASP:C    | 1:G:142:LYS:N    | 2.72                     | 0.43              |
| 1:G:237:LEU:HD23 | 1:G:237:LEU:C    | 2.39                     | 0.43              |
| 1:H:36:ARG:O     | 1:H:51:LYS:HG2   | 2.19                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:214:GLU:C    | 1:H:215:LEU:HD23 | 2.38                     | 0.43              |
| 1:I:126:ALA:O    | 1:I:127:ALA:C    | 2.57                     | 0.43              |
| 1:K:455:VAL:HG11 | 1:K:462:PRO:HA   | 2.00                     | 0.43              |
| 1:L:145:ALA:O    | 1:L:159:GLY:HA3  | 2.19                     | 0.43              |
| 1:M:9:GLY:O      | 1:M:10:ASN:C     | 2.57                     | 0.43              |
| 1:M:200:LEU:HG   | 1:M:275:ALA:O    | 2.19                     | 0.43              |
| 1:A:194:GLN:HB2  | 1:A:331:THR:HB   | 2.00                     | 0.43              |
| 1:A:501:ARG:O    | 1:A:505:GLN:HG3  | 2.18                     | 0.43              |
| 1:B:16:MET:O     | 1:B:20:VAL:HG12  | 2.19                     | 0.43              |
| 1:D:171:LYS:HB3  | 1:D:407:VAL:HG11 | 2.01                     | 0.43              |
| 1:D:477:GLY:HA3  | 1:D:488:MET:CG   | 2.49                     | 0.43              |
| 1:E:197:ARG:HG3  | 1:E:277:LYS:O    | 2.19                     | 0.43              |
| 1:E:249:ILE:HB   | 1:E:275:ALA:CB   | 2.49                     | 0.43              |
| 1:E:522:THR:OG1  | 1:E:523:ASP:N    | 2.52                     | 0.43              |
| 1:F:112:ASN:OD1  | 1:F:114:MET:N    | 2.52                     | 0.43              |
| 1:F:412:VAL:HG13 | 1:F:497:THR:OG1  | 2.19                     | 0.43              |
| 1:I:258:ALA:O    | 1:I:262:LEU:HG   | 2.18                     | 0.43              |
| 1:J:20:VAL:HG23  | 1:J:74:VAL:HG11  | 2.01                     | 0.43              |
| 1:J:77:VAL:C     | 1:J:79:SER:N     | 2.72                     | 0.43              |
| 1:K:449:ALA:HB3  | 1:K:450:PRO:CD   | 2.41                     | 0.43              |
| 1:K:518:GLU:HB2  | 1:L:36:ARG:HB2   | 2.01                     | 0.43              |
| 1:L:247:LEU:HD12 | 1:L:248:LEU:N    | 2.32                     | 0.43              |
| 1:M:18:ARG:CG    | 1:M:18:ARG:NH1   | 2.82                     | 0.43              |
| 1:M:140:ASP:C    | 1:M:142:LYS:H    | 2.21                     | 0.43              |
| 1:N:127:ALA:O    | 1:N:131:LEU:HB2  | 2.19                     | 0.43              |
| 1:B:42:LYS:O     | 1:B:43:SER:C     | 2.57                     | 0.43              |
| 1:B:365:LEU:C    | 1:B:367:GLU:H    | 2.21                     | 0.43              |
| 1:C:106:ALA:O    | 1:C:109:ALA:HB3  | 2.18                     | 0.43              |
| 1:C:496:PRO:HB2  | 1:C:499:VAL:HG13 | 2.00                     | 0.43              |
| 1:D:36:ARG:O     | 1:D:51:LYS:HG2   | 2.19                     | 0.43              |
| 1:E:221:LEU:HB3  | 1:E:249:ILE:HA   | 2.01                     | 0.43              |
| 1:F:193:MET:CE   | 1:F:292:ILE:HG12 | 2.49                     | 0.43              |
| 1:H:9:GLY:O      | 1:H:11:ASP:N     | 2.51                     | 0.43              |
| 1:I:180:GLY:HA3  | 1:I:381:VAL:O    | 2.18                     | 0.43              |
| 1:J:349:ILE:HG21 | 1:J:369:VAL:HG13 | 2.01                     | 0.43              |
| 1:K:126:ALA:O    | 1:K:127:ALA:C    | 2.56                     | 0.43              |
| 1:N:336:VAL:HG12 | 1:N:336:VAL:O    | 2.18                     | 0.43              |
| 1:A:269:GLY:O    | 1:G:229:ASN:OD1  | 2.37                     | 0.42              |
| 1:C:224:ASP:O    | 1:C:225:LYS:HB3  | 2.19                     | 0.42              |
| 1:C:305:ILE:HG22 | 1:C:305:ILE:O    | 2.19                     | 0.42              |
| 1:D:112:ASN:OD1  | 1:D:114:MET:N    | 2.52                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:123:ALA:HB2  | 1:D:440:ILE:HG13 | 2.00                     | 0.42              |
| 1:D:305:ILE:O    | 1:D:305:ILE:HG22 | 2.19                     | 0.42              |
| 1:J:22:VAL:HG11  | 1:J:62:LEU:CD2   | 2.48                     | 0.42              |
| 1:K:479:ASN:CG   | 1:K:493:ILE:HD11 | 2.39                     | 0.42              |
| 1:L:9:GLY:O      | 1:L:12:ALA:N     | 2.51                     | 0.42              |
| 1:L:258:ALA:O    | 1:L:262:LEU:HG   | 2.19                     | 0.42              |
| 1:M:136:VAL:O    | 1:M:136:VAL:HG12 | 2.18                     | 0.42              |
| 1:M:145:ALA:O    | 1:M:159:GLY:HA3  | 2.19                     | 0.42              |
| 1:M:494:LEU:HD12 | 1:M:494:LEU:N    | 2.20                     | 0.42              |
| 1:N:230:ILE:HD12 | 1:N:261:THR:CG2  | 2.40                     | 0.42              |
| 1:N:252:GLU:O    | 1:N:277:LYS:HG3  | 2.19                     | 0.42              |
| 1:A:493:ILE:O    | 1:A:493:ILE:HG22 | 2.18                     | 0.42              |
| 1:B:16:MET:HB3   | 1:B:514:MET:HE1  | 2.00                     | 0.42              |
| 1:B:77:VAL:HG11  | 1:B:510:VAL:HB   | 2.01                     | 0.42              |
| 1:B:77:VAL:HG21  | 1:B:510:VAL:CG1  | 2.49                     | 0.42              |
| 1:B:505:GLN:HE21 | 1:B:505:GLN:HB3  | 1.65                     | 0.42              |
| 1:H:124:VAL:O    | 1:H:125:THR:C    | 2.57                     | 0.42              |
| 1:I:77:VAL:C     | 1:I:79:SER:N     | 2.72                     | 0.42              |
| 1:J:204:PHE:CD1  | 1:J:274:ALA:HA   | 2.54                     | 0.42              |
| 1:J:230:ILE:HD12 | 1:J:261:THR:CG2  | 2.43                     | 0.42              |
| 1:K:278:ALA:HB1  | 1:K:279:PRO:HD2  | 2.00                     | 0.42              |
| 1:K:485:TYR:CD1  | 1:K:485:TYR:N    | 2.86                     | 0.42              |
| 1:L:77:VAL:C     | 1:L:79:SER:N     | 2.71                     | 0.42              |
| 1:M:65:LYS:HB3   | 1:M:65:LYS:NZ    | 2.34                     | 0.42              |
| 1:N:258:ALA:O    | 1:N:262:LEU:HG   | 2.17                     | 0.42              |
| 1:N:450:PRO:O    | 1:N:454:ILE:HG13 | 2.19                     | 0.42              |
| 1:N:455:VAL:HG11 | 1:N:462:PRO:HA   | 2.00                     | 0.42              |
| 1:A:36:ARG:HG3   | 1:A:36:ARG:NH1   | 2.34                     | 0.42              |
| 1:A:499:VAL:CG2  | 1:A:500:THR:N    | 2.82                     | 0.42              |
| 1:B:194:GLN:HB2  | 1:B:331:THR:HB   | 2.01                     | 0.42              |
| 1:B:353:ILE:HG23 | 1:B:362:ARG:HG3  | 2.01                     | 0.42              |
| 1:C:221:LEU:HB3  | 1:C:249:ILE:HA   | 2.01                     | 0.42              |
| 1:C:365:LEU:C    | 1:C:367:GLU:H    | 2.23                     | 0.42              |
| 1:D:31:LEU:HD13  | 1:D:31:LEU:HA    | 1.83                     | 0.42              |
| 1:D:356:ALA:C    | 1:D:358:SER:H    | 2.23                     | 0.42              |
| 1:E:32:GLY:HA3   | 1:E:454:ILE:HG23 | 2.00                     | 0.42              |
| 1:F:219:PHE:O    | 1:F:247:LEU:HD12 | 2.18                     | 0.42              |
| 1:F:296:THR:O    | 1:F:297:GLY:O    | 2.37                     | 0.42              |
| 1:F:356:ALA:C    | 1:F:358:SER:H    | 2.23                     | 0.42              |
| 1:G:37:ASN:HD21  | 1:G:51:LYS:HE3   | 1.84                     | 0.42              |
| 1:H:77:VAL:C     | 1:H:79:SER:N     | 2.72                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:176:THR:HG21 | 1:H:333:ILE:CD1  | 2.49                     | 0.42              |
| 1:H:207:LYS:C    | 1:H:209:GLU:H    | 2.22                     | 0.42              |
| 1:H:221:LEU:HD23 | 1:H:249:ILE:CD1  | 2.43                     | 0.42              |
| 1:H:366:GLN:O    | 1:H:369:VAL:HG22 | 2.20                     | 0.42              |
| 1:I:111:MET:SD   | 1:I:438:VAL:HG21 | 2.59                     | 0.42              |
| 1:J:20:VAL:CG2   | 1:J:74:VAL:HG11  | 2.49                     | 0.42              |
| 1:K:254:VAL:O    | 1:K:259:LEU:HD22 | 2.20                     | 0.42              |
| 1:L:235:PRO:HG3  | 1:L:310:GLU:CG   | 2.45                     | 0.42              |
| 1:M:321:LYS:O    | 1:M:321:LYS:HG2  | 2.19                     | 0.42              |
| 1:N:77:VAL:C     | 1:N:79:SER:N     | 2.73                     | 0.42              |
| 1:N:112:ASN:HA   | 1:N:113:PRO:HD3  | 1.89                     | 0.42              |
| 1:N:278:ALA:HB1  | 1:N:279:PRO:HD2  | 2.01                     | 0.42              |
| 1:A:127:ALA:HB1  | 1:A:422:VAL:HG11 | 2.01                     | 0.42              |
| 1:A:202:PRO:O    | 1:A:204:PHE:N    | 2.44                     | 0.42              |
| 1:A:237:LEU:HD23 | 1:A:237:LEU:C    | 2.40                     | 0.42              |
| 1:A:305:ILE:O    | 1:A:305:ILE:HG22 | 2.19                     | 0.42              |
| 1:B:240:VAL:HG11 | 1:B:247:LEU:HB2  | 2.01                     | 0.42              |
| 1:B:249:ILE:HB   | 1:B:275:ALA:HB2  | 2.02                     | 0.42              |
| 1:B:356:ALA:C    | 1:B:358:SER:H    | 2.22                     | 0.42              |
| 1:C:77:VAL:HG11  | 1:C:510:VAL:HB   | 2.01                     | 0.42              |
| 1:D:34:LYS:HD2   | 1:D:458:CYS:CA   | 2.50                     | 0.42              |
| 1:D:166:MET:CE   | 1:D:171:LYS:HA   | 2.49                     | 0.42              |
| 1:F:228:SER:HA   | 1:F:255:GLU:O    | 2.19                     | 0.42              |
| 1:G:193:MET:HG2  | 1:G:194:GLN:N    | 2.34                     | 0.42              |
| 1:I:496:PRO:HB2  | 1:I:499:VAL:CG1  | 2.49                     | 0.42              |
| 1:J:9:GLY:O      | 1:J:12:ALA:N     | 2.52                     | 0.42              |
| 1:K:28:LYS:O     | 1:K:29:VAL:C     | 2.55                     | 0.42              |
| 1:L:112:ASN:HA   | 1:L:113:PRO:HD3  | 1.88                     | 0.42              |
| 1:M:204:PHE:CD1  | 1:M:274:ALA:HA   | 2.54                     | 0.42              |
| 1:M:248:LEU:CD1  | 1:M:325:ILE:HD11 | 2.49                     | 0.42              |
| 1:N:479:ASN:CG   | 1:N:493:ILE:HD11 | 2.40                     | 0.42              |
| 1:A:42:LYS:O     | 1:A:43:SER:C     | 2.58                     | 0.42              |
| 1:C:193:MET:CE   | 1:C:292:ILE:HG12 | 2.49                     | 0.42              |
| 1:C:319:GLN:O    | 1:C:336:VAL:HG23 | 2.19                     | 0.42              |
| 1:D:226:LYS:HD3  | 1:D:255:GLU:OE2  | 2.19                     | 0.42              |
| 1:G:42:LYS:O     | 1:G:43:SER:C     | 2.58                     | 0.42              |
| 1:G:105:LYS:HE3  | 1:G:105:LYS:HB2  | 1.90                     | 0.42              |
| 1:G:166:MET:CE   | 1:G:171:LYS:HA   | 2.49                     | 0.42              |
| 1:H:200:LEU:HG   | 1:H:276:VAL:HA   | 2.00                     | 0.42              |
| 1:I:200:LEU:HG   | 1:I:276:VAL:HA   | 2.01                     | 0.42              |
| 1:K:207:LYS:C    | 1:K:209:GLU:H    | 2.23                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:176:THR:HG21 | 1:L:333:ILE:CD1  | 2.49                     | 0.42              |
| 1:L:204:PHE:CD1  | 1:L:274:ALA:HA   | 2.55                     | 0.42              |
| 1:L:496:PRO:HB2  | 1:L:499:VAL:CG1  | 2.49                     | 0.42              |
| 1:L:499:VAL:CG2  | 1:L:500:THR:N    | 2.82                     | 0.42              |
| 1:M:64:ASP:OD1   | 1:M:66:PHE:HB2   | 2.18                     | 0.42              |
| 1:M:69:MET:HE2   | 1:N:39:VAL:HG12  | 2.00                     | 0.42              |
| 1:N:321:LYS:O    | 1:N:321:LYS:HG2  | 2.19                     | 0.42              |
| 1:A:77:VAL:HG11  | 1:A:510:VAL:HB   | 2.01                     | 0.42              |
| 1:A:119:GLY:O    | 1:A:440:ILE:HD12 | 2.19                     | 0.42              |
| 1:A:171:LYS:HB3  | 1:A:407:VAL:HG11 | 2.02                     | 0.42              |
| 1:A:450:PRO:O    | 1:A:454:ILE:HG13 | 2.19                     | 0.42              |
| 1:B:221:LEU:HB3  | 1:B:249:ILE:HA   | 2.02                     | 0.42              |
| 1:D:221:LEU:HA   | 1:D:317:LEU:HD11 | 2.02                     | 0.42              |
| 1:D:308:GLU:C    | 1:D:310:GLU:H    | 2.23                     | 0.42              |
| 1:D:493:ILE:O    | 1:D:493:ILE:HG22 | 2.19                     | 0.42              |
| 1:E:230:ILE:HD12 | 1:E:261:THR:CG2  | 2.49                     | 0.42              |
| 1:F:42:LYS:O     | 1:F:43:SER:C     | 2.58                     | 0.42              |
| 1:F:505:GLN:HE21 | 1:F:505:GLN:HB3  | 1.57                     | 0.42              |
| 1:I:24:ALA:HA    | 1:I:27:VAL:HG12  | 2.01                     | 0.42              |
| 1:J:199:TYR:CZ   | 1:J:327:LYS:HA   | 2.54                     | 0.42              |
| 1:J:482:THR:O    | 1:J:483:GLU:HB2  | 2.19                     | 0.42              |
| 1:K:162:ILE:O    | 1:K:165:ALA:HB3  | 2.19                     | 0.42              |
| 1:M:16:MET:SD    | 1:M:514:MET:CE   | 3.07                     | 0.42              |
| 1:M:17:LEU:HA    | 1:M:20:VAL:CG1   | 2.47                     | 0.42              |
| 1:N:37:ASN:HD22  | 1:N:51:LYS:HG3   | 1.82                     | 0.42              |
| 1:N:248:LEU:CD1  | 1:N:325:ILE:HD11 | 2.48                     | 0.42              |
| 1:A:226:LYS:HD3  | 1:A:255:GLU:OE2  | 2.19                     | 0.42              |
| 1:A:338:GLU:C    | 1:A:340:ALA:N    | 2.73                     | 0.42              |
| 1:A:477:GLY:HA3  | 1:A:488:MET:CG   | 2.50                     | 0.42              |
| 1:B:339:GLU:H    | 1:B:339:GLU:HG2  | 1.56                     | 0.42              |
| 1:B:369:VAL:O    | 1:B:373:ALA:N    | 2.51                     | 0.42              |
| 1:B:501:ARG:O    | 1:B:505:GLN:HG3  | 2.18                     | 0.42              |
| 1:C:140:ASP:C    | 1:C:142:LYS:N    | 2.73                     | 0.42              |
| 1:C:199:TYR:CE2  | 1:C:327:LYS:HA   | 2.55                     | 0.42              |
| 1:E:140:ASP:C    | 1:E:142:LYS:N    | 2.73                     | 0.42              |
| 1:E:477:GLY:HA3  | 1:E:488:MET:CG   | 2.49                     | 0.42              |
| 1:F:33:PRO:C     | 1:F:35:GLY:N     | 2.72                     | 0.42              |
| 1:F:207:LYS:O    | 1:F:209:GLU:N    | 2.52                     | 0.42              |
| 1:F:353:ILE:HG23 | 1:F:362:ARG:HG3  | 2.02                     | 0.42              |
| 1:G:193:MET:CE   | 1:G:292:ILE:HG12 | 2.49                     | 0.42              |
| 1:G:485:TYR:CD1  | 1:G:485:TYR:N    | 2.87                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:18:ARG:CG    | 1:H:18:ARG:NH1   | 2.83                     | 0.42              |
| 1:H:243:ALA:O    | 1:H:245:LYS:N    | 2.52                     | 0.42              |
| 1:I:37:ASN:HD21  | 1:I:51:LYS:HZ3   | 1.67                     | 0.42              |
| 1:I:103:GLY:O    | 1:I:107:VAL:HG23 | 2.19                     | 0.42              |
| 1:I:201:SER:C    | 1:I:202:PRO:O    | 2.55                     | 0.42              |
| 1:I:213:VAL:CG1  | 1:I:214:GLU:H    | 2.33                     | 0.42              |
| 1:J:77:VAL:HG21  | 1:J:510:VAL:HB   | 2.02                     | 0.42              |
| 1:L:441:LYS:O    | 1:L:445:ARG:HB2  | 2.20                     | 0.42              |
| 1:N:70:GLY:HA2   | 1:N:73:MET:HE3   | 2.01                     | 0.42              |
| 1:N:482:THR:O    | 1:N:483:GLU:HB2  | 2.19                     | 0.42              |
| 1:A:112:ASN:HA   | 1:A:113:PRO:HD3  | 1.80                     | 0.42              |
| 1:D:34:LYS:HB2   | 1:D:458:CYS:SG   | 2.60                     | 0.42              |
| 1:E:77:VAL:HG21  | 1:E:510:VAL:CG1  | 2.49                     | 0.42              |
| 1:E:171:LYS:HB3  | 1:E:407:VAL:HG11 | 2.01                     | 0.42              |
| 1:E:289:LEU:HD23 | 1:E:289:LEU:HA   | 1.93                     | 0.42              |
| 1:F:127:ALA:O    | 1:F:131:LEU:HB2  | 2.19                     | 0.42              |
| 1:H:199:TYR:CZ   | 1:H:327:LYS:HA   | 2.55                     | 0.42              |
| 1:H:291:ASP:OD2  | 1:H:368:ARG:HD2  | 2.19                     | 0.42              |
| 1:K:235:PRO:HG3  | 1:K:310:GLU:CG   | 2.46                     | 0.42              |
| 1:L:419:LEU:O    | 1:L:422:VAL:HG23 | 2.18                     | 0.42              |
| 1:L:451:LEU:HD23 | 1:L:451:LEU:O    | 2.19                     | 0.42              |
| 1:M:254:VAL:O    | 1:M:259:LEU:HD22 | 2.20                     | 0.42              |
| 1:N:111:MET:SD   | 1:N:438:VAL:HG21 | 2.60                     | 0.42              |
| 1:N:194:GLN:O    | 1:N:194:GLN:HG2  | 2.20                     | 0.42              |
| 1:A:485:TYR:HD1  | 1:A:485:TYR:H    | 1.67                     | 0.42              |
| 1:B:338:GLU:C    | 1:B:340:ALA:N    | 2.73                     | 0.42              |
| 1:C:16:MET:HB3   | 1:C:514:MET:HE1  | 2.01                     | 0.42              |
| 1:C:270:ILE:O    | 1:C:271:VAL:HB   | 2.19                     | 0.42              |
| 1:D:193:MET:CE   | 1:D:292:ILE:HG12 | 2.49                     | 0.42              |
| 1:D:522:THR:OG1  | 1:D:523:ASP:N    | 2.52                     | 0.42              |
| 1:F:279:PRO:O    | 1:F:285:ARG:HG3  | 2.19                     | 0.42              |
| 1:F:338:GLU:C    | 1:F:340:ALA:N    | 2.72                     | 0.42              |
| 1:G:365:LEU:C    | 1:G:367:GLU:H    | 2.23                     | 0.42              |
| 1:H:24:ALA:HA    | 1:H:27:VAL:HG12  | 2.00                     | 0.42              |
| 1:H:393:LYS:O    | 1:H:393:LYS:HG2  | 2.19                     | 0.42              |
| 1:I:145:ALA:O    | 1:I:159:GLY:HA3  | 2.19                     | 0.42              |
| 1:K:17:LEU:O     | 1:K:20:VAL:HG12  | 2.19                     | 0.42              |
| 1:K:77:VAL:O     | 1:K:80:LYS:N     | 2.52                     | 0.42              |
| 1:K:204:PHE:CD1  | 1:K:274:ALA:HA   | 2.55                     | 0.42              |
| 1:L:288:MET:HG2  | 1:L:368:ARG:HD3  | 2.02                     | 0.42              |
| 1:M:17:LEU:O     | 1:M:20:VAL:HG12  | 2.19                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:126:ALA:O    | 1:M:129:GLU:N    | 2.51                     | 0.42              |
| 1:M:169:VAL:CG1  | 1:M:173:GLY:HA3  | 2.48                     | 0.42              |
| 1:N:17:LEU:CA    | 1:N:20:VAL:HG12  | 2.50                     | 0.42              |
| 1:N:136:VAL:O    | 1:N:136:VAL:HG12 | 2.20                     | 0.42              |
| 1:N:201:SER:O    | 1:N:204:PHE:HD2  | 2.03                     | 0.42              |
| 1:N:235:PRO:HG3  | 1:N:310:GLU:CG   | 2.45                     | 0.42              |
| 1:A:68:ASN:O     | 1:A:69:MET:C     | 2.57                     | 0.42              |
| 1:A:221:LEU:HA   | 1:A:317:LEU:CD1  | 2.50                     | 0.42              |
| 1:A:240:VAL:HG11 | 1:A:247:LEU:HB2  | 2.01                     | 0.42              |
| 1:C:450:PRO:O    | 1:C:454:ILE:HG13 | 2.19                     | 0.42              |
| 1:D:140:ASP:C    | 1:D:142:LYS:N    | 2.73                     | 0.42              |
| 1:D:197:ARG:HG3  | 1:D:277:LYS:O    | 2.20                     | 0.42              |
| 1:D:245:LYS:HZ3  | 1:D:319:GLN:HE22 | 1.67                     | 0.42              |
| 1:D:365:LEU:C    | 1:D:367:GLU:H    | 2.23                     | 0.42              |
| 1:D:385:THR:OG1  | 1:D:388:GLU:HG3  | 2.19                     | 0.42              |
| 1:E:102:GLU:O    | 1:E:105:LYS:HB3  | 2.20                     | 0.42              |
| 1:E:226:LYS:HD3  | 1:E:255:GLU:OE2  | 2.19                     | 0.42              |
| 1:F:86:GLY:O     | 1:F:87:ASP:HB2   | 2.20                     | 0.42              |
| 1:F:197:ARG:HG3  | 1:F:277:LYS:O    | 2.20                     | 0.42              |
| 1:F:230:ILE:HD12 | 1:F:261:THR:CG2  | 2.47                     | 0.42              |
| 1:F:319:GLN:O    | 1:F:336:VAL:HG23 | 2.20                     | 0.42              |
| 1:J:213:VAL:CG1  | 1:J:214:GLU:N    | 2.81                     | 0.42              |
| 1:J:221:LEU:HD23 | 1:J:249:ILE:CD1  | 2.45                     | 0.42              |
| 1:K:199:TYR:CZ   | 1:K:327:LYS:HA   | 2.54                     | 0.42              |
| 1:L:129:GLU:C    | 1:L:131:LEU:N    | 2.73                     | 0.42              |
| 1:M:336:VAL:O    | 1:M:336:VAL:HG12 | 2.19                     | 0.42              |
| 1:A:140:ASP:C    | 1:A:142:LYS:N    | 2.73                     | 0.41              |
| 1:B:108:ALA:C    | 1:B:110:GLY:N    | 2.74                     | 0.41              |
| 1:B:199:TYR:CE2  | 1:B:327:LYS:HA   | 2.55                     | 0.41              |
| 1:B:221:LEU:HA   | 1:B:317:LEU:HD11 | 2.02                     | 0.41              |
| 1:C:465:VAL:O    | 1:C:469:VAL:HG23 | 2.21                     | 0.41              |
| 1:D:153:ASN:O    | 1:D:154:SER:HB2  | 2.18                     | 0.41              |
| 1:F:205:ILE:H    | 1:F:205:ILE:HG13 | 1.53                     | 0.41              |
| 1:F:369:VAL:O    | 1:F:373:ALA:N    | 2.53                     | 0.41              |
| 1:F:385:THR:OG1  | 1:F:388:GLU:HG3  | 2.20                     | 0.41              |
| 1:H:64:ASP:OD1   | 1:H:66:PHE:HB2   | 2.20                     | 0.41              |
| 1:H:441:LYS:HA   | 1:H:441:LYS:HD3  | 1.91                     | 0.41              |
| 1:H:479:ASN:CG   | 1:H:493:ILE:HD11 | 2.40                     | 0.41              |
| 1:I:127:ALA:O    | 1:I:131:LEU:HB2  | 2.20                     | 0.41              |
| 1:I:404:ARG:NH1  | 1:I:404:ARG:CG   | 2.81                     | 0.41              |
| 1:J:194:GLN:O    | 1:J:194:GLN:HG2  | 2.20                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:219:PHE:HB3  | 1:K:317:LEU:CD2  | 2.50                     | 0.41              |
| 1:K:478:TYR:CE2  | 1:K:480:ALA:HA   | 2.55                     | 0.41              |
| 1:K:524:LEU:HD12 | 1:K:524:LEU:HA   | 1.91                     | 0.41              |
| 1:A:230:ILE:CD1  | 1:A:261:THR:HG21 | 2.49                     | 0.41              |
| 1:A:240:VAL:O    | 1:A:240:VAL:HG12 | 2.19                     | 0.41              |
| 1:A:248:LEU:HA   | 1:A:274:ALA:O    | 2.19                     | 0.41              |
| 1:C:111:MET:SD   | 1:C:438:VAL:HG21 | 2.61                     | 0.41              |
| 1:C:228:SER:HA   | 1:C:255:GLU:O    | 2.20                     | 0.41              |
| 1:E:214:GLU:C    | 1:E:215:LEU:HD23 | 2.40                     | 0.41              |
| 1:G:207:LYS:O    | 1:G:209:GLU:N    | 2.53                     | 0.41              |
| 1:G:213:VAL:CG1  | 1:G:214:GLU:N    | 2.83                     | 0.41              |
| 1:G:250:ILE:HG22 | 1:G:289:LEU:HD21 | 2.02                     | 0.41              |
| 1:G:319:GLN:O    | 1:G:336:VAL:HG23 | 2.19                     | 0.41              |
| 1:H:37:ASN:HD22  | 1:H:51:LYS:HG3   | 1.84                     | 0.41              |
| 1:H:143:ALA:C    | 1:H:145:ALA:N    | 2.73                     | 0.41              |
| 1:I:213:VAL:CG1  | 1:I:214:GLU:N    | 2.80                     | 0.41              |
| 1:I:291:ASP:OD2  | 1:I:368:ARG:HD2  | 2.20                     | 0.41              |
| 1:J:162:ILE:O    | 1:J:165:ALA:HB3  | 2.19                     | 0.41              |
| 1:M:392:LYS:C    | 1:M:394:ALA:N    | 2.73                     | 0.41              |
| 1:N:254:VAL:O    | 1:N:259:LEU:HD22 | 2.20                     | 0.41              |
| 1:A:111:MET:SD   | 1:A:438:VAL:HG21 | 2.60                     | 0.41              |
| 1:A:249:ILE:HB   | 1:A:275:ALA:HB2  | 2.02                     | 0.41              |
| 1:B:201:SER:C    | 1:B:202:PRO:O    | 2.59                     | 0.41              |
| 1:C:201:SER:C    | 1:C:202:PRO:O    | 2.56                     | 0.41              |
| 1:D:36:ARG:HG3   | 1:D:36:ARG:NH1   | 2.35                     | 0.41              |
| 1:I:42:LYS:HB3   | 1:I:42:LYS:HE2   | 1.86                     | 0.41              |
| 1:J:450:PRO:O    | 1:J:454:ILE:HG13 | 2.20                     | 0.41              |
| 1:K:413:ALA:HB1  | 1:K:417:VAL:CG2  | 2.50                     | 0.41              |
| 1:K:468:THR:HG21 | 1:K:485:TYR:CE2  | 2.56                     | 0.41              |
| 1:L:37:ASN:HD22  | 1:L:51:LYS:HG3   | 1.86                     | 0.41              |
| 1:L:479:ASN:ND2  | 1:L:482:THR:HG23 | 2.35                     | 0.41              |
| 1:N:22:VAL:HG11  | 1:N:62:LEU:CD2   | 2.46                     | 0.41              |
| 1:N:77:VAL:O     | 1:N:79:SER:N     | 2.54                     | 0.41              |
| 1:N:139:SER:HB3  | 1:N:171:LYS:HZ1  | 1.83                     | 0.41              |
| 1:N:204:PHE:CD1  | 1:N:274:ALA:HA   | 2.54                     | 0.41              |
| 1:B:16:MET:HB3   | 1:B:514:MET:CE   | 2.51                     | 0.41              |
| 1:C:248:LEU:HA   | 1:C:274:ALA:O    | 2.20                     | 0.41              |
| 1:D:494:LEU:HD12 | 1:D:494:LEU:O    | 2.20                     | 0.41              |
| 1:E:117:LYS:O    | 1:E:120:ILE:N    | 2.53                     | 0.41              |
| 1:E:199:TYR:HB3  | 1:E:325:ILE:HG21 | 2.02                     | 0.41              |
| 1:E:305:ILE:HG22 | 1:E:305:ILE:O    | 2.20                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:16:MET:SD    | 1:F:73:MET:CE    | 3.08                     | 0.41              |
| 1:F:111:MET:SD   | 1:F:438:VAL:HG21 | 2.60                     | 0.41              |
| 1:F:199:TYR:HB3  | 1:F:325:ILE:HG21 | 2.01                     | 0.41              |
| 1:F:496:PRO:HB2  | 1:F:499:VAL:HG13 | 2.02                     | 0.41              |
| 1:G:112:ASN:OD1  | 1:G:114:MET:N    | 2.53                     | 0.41              |
| 1:G:214:GLU:C    | 1:G:215:LEU:HD23 | 2.40                     | 0.41              |
| 1:H:136:VAL:O    | 1:H:136:VAL:HG12 | 2.19                     | 0.41              |
| 1:I:254:VAL:O    | 1:I:259:LEU:HD22 | 2.20                     | 0.41              |
| 1:J:69:MET:HE2   | 1:K:39:VAL:CG1   | 2.51                     | 0.41              |
| 1:L:37:ASN:HD21  | 1:L:51:LYS:HZ3   | 1.68                     | 0.41              |
| 1:L:204:PHE:CE1  | 1:L:274:ALA:HA   | 2.56                     | 0.41              |
| 1:L:214:GLU:C    | 1:L:215:LEU:HD23 | 2.40                     | 0.41              |
| 1:M:183:LEU:CD1  | 1:M:184:GLN:HG3  | 2.50                     | 0.41              |
| 1:N:216:GLU:O    | 1:N:217:SER:C    | 2.58                     | 0.41              |
| 1:N:430:ARG:HG2  | 1:N:430:ARG:HH11 | 1.85                     | 0.41              |
| 1:N:449:ALA:HB3  | 1:N:450:PRO:CD   | 2.43                     | 0.41              |
| 1:A:198:GLY:O    | 1:A:276:VAL:HG12 | 2.21                     | 0.41              |
| 1:A:311:LYS:HB3  | 1:M:311:LYS:HB3  | 2.02                     | 0.41              |
| 1:D:194:GLN:HB2  | 1:D:331:THR:HB   | 2.01                     | 0.41              |
| 1:D:198:GLY:O    | 1:D:276:VAL:HG12 | 2.20                     | 0.41              |
| 1:H:77:VAL:HG21  | 1:H:510:VAL:HB   | 2.03                     | 0.41              |
| 1:H:129:GLU:C    | 1:H:131:LEU:N    | 2.73                     | 0.41              |
| 1:H:194:GLN:O    | 1:H:194:GLN:HG2  | 2.19                     | 0.41              |
| 1:H:288:MET:HG2  | 1:H:368:ARG:HD3  | 2.02                     | 0.41              |
| 1:H:321:LYS:O    | 1:H:321:LYS:HG2  | 2.21                     | 0.41              |
| 1:J:139:SER:HB3  | 1:J:171:LYS:HZ3  | 1.84                     | 0.41              |
| 1:K:450:PRO:O    | 1:K:454:ILE:HG13 | 2.21                     | 0.41              |
| 1:M:252:GLU:O    | 1:M:277:LYS:HG3  | 2.20                     | 0.41              |
| 1:N:213:VAL:CG1  | 1:N:214:GLU:N    | 2.83                     | 0.41              |
| 1:N:440:ILE:HG22 | 1:N:441:LYS:N    | 2.35                     | 0.41              |
| 1:A:295:LEU:HD13 | 1:A:295:LEU:C    | 2.40                     | 0.41              |
| 1:A:339:GLU:H    | 1:A:339:GLU:HG2  | 1.56                     | 0.41              |
| 1:A:353:ILE:HD13 | 1:A:366:GLN:HG2  | 2.01                     | 0.41              |
| 1:B:321:LYS:O    | 1:B:321:LYS:HG2  | 2.20                     | 0.41              |
| 1:C:485:TYR:H    | 1:C:485:TYR:HD1  | 1.69                     | 0.41              |
| 1:F:501:ARG:O    | 1:F:505:GLN:HG3  | 2.20                     | 0.41              |
| 1:G:201:SER:C    | 1:G:202:PRO:O    | 2.58                     | 0.41              |
| 1:K:18:ARG:HG2   | 1:K:18:ARG:NH1   | 2.29                     | 0.41              |
| 1:L:77:VAL:O     | 1:L:79:SER:N     | 2.53                     | 0.41              |
| 1:M:207:LYS:C    | 1:M:209:GLU:H    | 2.24                     | 0.41              |
| 1:M:221:LEU:HD23 | 1:M:249:ILE:CD1  | 2.44                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:N:9:GLY:O      | 1:N:10:ASN:C     | 2.59                     | 0.41              |
| 1:N:103:GLY:O    | 1:N:107:VAL:HG23 | 2.20                     | 0.41              |
| 1:C:176:THR:HG21 | 1:C:333:ILE:CD1  | 2.48                     | 0.41              |
| 1:C:310:GLU:C    | 1:C:312:ALA:H    | 2.24                     | 0.41              |
| 1:D:108:ALA:C    | 1:D:110:GLY:N    | 2.73                     | 0.41              |
| 1:D:451:LEU:O    | 1:D:451:LEU:HD23 | 2.21                     | 0.41              |
| 1:E:37:ASN:ND2   | 1:E:51:LYS:HE3   | 2.35                     | 0.41              |
| 1:F:155:ASP:OD1  | 1:F:157:THR:HB   | 2.21                     | 0.41              |
| 1:F:224:ASP:O    | 1:F:225:LYS:HB3  | 2.21                     | 0.41              |
| 1:G:127:ALA:HB1  | 1:G:422:VAL:HG11 | 2.03                     | 0.41              |
| 1:G:140:ASP:O    | 1:G:142:LYS:N    | 2.54                     | 0.41              |
| 1:I:207:LYS:C    | 1:I:209:GLU:H    | 2.23                     | 0.41              |
| 1:I:524:LEU:HD12 | 1:I:524:LEU:HA   | 1.87                     | 0.41              |
| 1:J:180:GLY:HA3  | 1:J:381:VAL:O    | 2.20                     | 0.41              |
| 1:L:17:LEU:CA    | 1:L:20:VAL:HG12  | 2.45                     | 0.41              |
| 1:L:213:VAL:CG1  | 1:L:214:GLU:N    | 2.84                     | 0.41              |
| 1:L:393:LYS:O    | 1:L:393:LYS:HG2  | 2.20                     | 0.41              |
| 1:M:440:ILE:HG22 | 1:M:441:LYS:N    | 2.36                     | 0.41              |
| 1:N:455:VAL:HG13 | 1:N:460:GLU:CB   | 2.50                     | 0.41              |
| 1:A:356:ALA:C    | 1:A:358:SER:H    | 2.23                     | 0.41              |
| 1:B:176:THR:HG21 | 1:B:333:ILE:CD1  | 2.49                     | 0.41              |
| 1:E:245:LYS:NZ   | 1:E:319:GLN:NE2  | 2.68                     | 0.41              |
| 1:F:31:LEU:HD22  | 1:F:90:THR:HG22  | 2.03                     | 0.41              |
| 1:F:216:GLU:C    | 1:F:218:PRO:HD3  | 2.41                     | 0.41              |
| 1:G:36:ARG:HH11  | 1:G:36:ARG:HG3   | 1.84                     | 0.41              |
| 1:G:86:GLY:O     | 1:G:87:ASP:HB2   | 2.21                     | 0.41              |
| 1:G:493:ILE:O    | 1:G:493:ILE:HG22 | 2.21                     | 0.41              |
| 1:I:214:GLU:C    | 1:I:215:LEU:HD23 | 2.41                     | 0.41              |
| 1:J:18:ARG:HH11  | 1:J:18:ARG:CG    | 2.28                     | 0.41              |
| 1:J:90:THR:O     | 1:J:94:VAL:HG12  | 2.21                     | 0.41              |
| 1:J:288:MET:HG2  | 1:J:368:ARG:HD3  | 2.02                     | 0.41              |
| 1:K:18:ARG:CG    | 1:K:18:ARG:NH1   | 2.79                     | 0.41              |
| 1:K:224:ASP:O    | 1:K:225:LYS:CB   | 2.69                     | 0.41              |
| 1:L:28:LYS:O     | 1:L:30:THR:N     | 2.54                     | 0.41              |
| 1:A:114:MET:HG3  | 1:B:34:LYS:HB3   | 2.02                     | 0.41              |
| 1:A:162:ILE:O    | 1:A:165:ALA:HB3  | 2.21                     | 0.41              |
| 1:A:193:MET:HG2  | 1:A:194:GLN:N    | 2.36                     | 0.41              |
| 1:A:369:VAL:O    | 1:A:373:ALA:N    | 2.49                     | 0.41              |
| 1:B:77:VAL:O     | 1:B:80:LYS:N     | 2.52                     | 0.41              |
| 1:B:140:ASP:C    | 1:B:142:LYS:N    | 2.74                     | 0.41              |
| 1:C:30:THR:HB    | 1:C:51:LYS:O     | 2.20                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:240:VAL:O    | 1:C:240:VAL:HG12 | 2.21                     | 0.41              |
| 1:C:269:GLY:O    | 1:C:271:VAL:N    | 2.54                     | 0.41              |
| 1:C:295:LEU:HA   | 1:C:342:ILE:CD1  | 2.50                     | 0.41              |
| 1:C:494:LEU:HD12 | 1:C:494:LEU:O    | 2.21                     | 0.41              |
| 1:D:105:LYS:HE3  | 1:D:105:LYS:HB2  | 1.92                     | 0.41              |
| 1:D:237:LEU:HD23 | 1:D:237:LEU:C    | 2.40                     | 0.41              |
| 1:E:205:ILE:H    | 1:E:205:ILE:HG13 | 1.53                     | 0.41              |
| 1:F:25:ASP:HA    | 1:F:28:LYS:HE2   | 2.02                     | 0.41              |
| 1:F:222:LEU:HD12 | 1:F:293:ALA:HB2  | 2.03                     | 0.41              |
| 1:F:270:ILE:O    | 1:F:271:VAL:HB   | 2.21                     | 0.41              |
| 1:F:289:LEU:HD23 | 1:F:289:LEU:HA   | 1.93                     | 0.41              |
| 1:F:305:ILE:O    | 1:F:305:ILE:HG22 | 2.21                     | 0.41              |
| 1:G:36:ARG:HG3   | 1:G:36:ARG:NH1   | 2.36                     | 0.41              |
| 1:G:69:MET:SD    | 1:G:520:MET:HE2  | 2.60                     | 0.41              |
| 1:G:221:LEU:HA   | 1:G:317:LEU:HD11 | 2.03                     | 0.41              |
| 1:G:249:ILE:HB   | 1:G:275:ALA:HB2  | 2.02                     | 0.41              |
| 1:G:308:GLU:C    | 1:G:310:GLU:H    | 2.24                     | 0.41              |
| 1:G:326:ASN:HD22 | 1:G:329:THR:CB   | 1.97                     | 0.41              |
| 1:G:338:GLU:C    | 1:G:340:ALA:N    | 2.74                     | 0.41              |
| 1:G:353:ILE:HD13 | 1:G:366:GLN:HG2  | 2.03                     | 0.41              |
| 1:H:204:PHE:CD1  | 1:H:274:ALA:HA   | 2.56                     | 0.41              |
| 1:H:482:THR:O    | 1:H:483:GLU:HB2  | 2.21                     | 0.41              |
| 1:I:18:ARG:HH11  | 1:I:18:ARG:CG    | 2.29                     | 0.41              |
| 1:I:74:VAL:O     | 1:I:74:VAL:HG23  | 2.20                     | 0.41              |
| 1:I:247:LEU:HD12 | 1:I:248:LEU:N    | 2.36                     | 0.41              |
| 1:I:430:ARG:HH11 | 1:I:430:ARG:HG2  | 1.86                     | 0.41              |
| 1:I:499:VAL:CG2  | 1:I:500:THR:N    | 2.82                     | 0.41              |
| 1:J:247:LEU:HD12 | 1:J:248:LEU:N    | 2.35                     | 0.41              |
| 1:K:129:GLU:C    | 1:K:131:LEU:N    | 2.74                     | 0.41              |
| 1:K:207:LYS:C    | 1:K:209:GLU:N    | 2.75                     | 0.41              |
| 1:K:247:LEU:HD12 | 1:K:248:LEU:N    | 2.36                     | 0.41              |
| 1:K:257:GLU:CG   | 1:L:269:GLY:HA3  | 2.51                     | 0.41              |
| 1:K:435:ASP:O    | 1:K:438:VAL:N    | 2.54                     | 0.41              |
| 1:L:28:LYS:C     | 1:L:30:THR:N     | 2.74                     | 0.41              |
| 1:L:194:GLN:O    | 1:L:194:GLN:HG2  | 2.21                     | 0.41              |
| 1:L:224:ASP:O    | 1:L:225:LYS:CB   | 2.68                     | 0.41              |
| 1:L:487:ASN:N    | 1:L:491:MET:HE2  | 2.36                     | 0.41              |
| 1:M:441:LYS:O    | 1:M:445:ARG:HB2  | 2.21                     | 0.41              |
| 1:C:194:GLN:HB2  | 1:C:331:THR:HB   | 2.02                     | 0.41              |
| 1:D:34:LYS:HD2   | 1:D:458:CYS:HA   | 2.03                     | 0.41              |
| 1:D:119:GLY:O    | 1:D:440:ILE:HD12 | 2.21                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:108:ALA:C    | 1:G:110:GLY:H    | 2.23                     | 0.41              |
| 1:H:392:LYS:C    | 1:H:394:ALA:N    | 2.74                     | 0.41              |
| 1:I:108:ALA:C    | 1:I:110:GLY:H    | 2.25                     | 0.41              |
| 1:I:194:GLN:O    | 1:I:194:GLN:HG2  | 2.21                     | 0.41              |
| 1:I:225:LYS:HE2  | 1:I:226:LYS:O    | 2.20                     | 0.41              |
| 1:J:28:LYS:O     | 1:J:30:THR:N     | 2.55                     | 0.41              |
| 1:J:201:SER:O    | 1:J:204:PHE:HD2  | 2.04                     | 0.41              |
| 1:J:204:PHE:CE1  | 1:J:274:ALA:HA   | 2.55                     | 0.41              |
| 1:L:321:LYS:O    | 1:L:321:LYS:HG2  | 2.21                     | 0.41              |
| 1:M:247:LEU:HD12 | 1:M:248:LEU:N    | 2.36                     | 0.41              |
| 1:M:288:MET:HG2  | 1:M:368:ARG:HD3  | 2.03                     | 0.41              |
| 1:M:349:ILE:HG21 | 1:M:369:VAL:HG13 | 2.03                     | 0.41              |
| 1:M:520:MET:HG2  | 1:N:39:VAL:HB    | 2.02                     | 0.41              |
| 1:N:104:LEU:HD23 | 1:N:104:LEU:HA   | 1.89                     | 0.41              |
| 1:N:207:LYS:C    | 1:N:209:GLU:N    | 2.74                     | 0.41              |
| 1:B:36:ARG:N     | 1:B:36:ARG:HD3   | 2.36                     | 0.40              |
| 1:C:153:ASN:O    | 1:C:154:SER:HB2  | 2.21                     | 0.40              |
| 1:C:325:ILE:HD12 | 1:C:325:ILE:N    | 2.35                     | 0.40              |
| 1:C:517:THR:HG21 | 1:D:39:VAL:HG23  | 2.03                     | 0.40              |
| 1:D:193:MET:HG2  | 1:D:194:GLN:N    | 2.36                     | 0.40              |
| 1:D:245:LYS:HZ3  | 1:D:319:GLN:NE2  | 2.19                     | 0.40              |
| 1:E:34:LYS:HA    | 1:E:34:LYS:HD3   | 1.86                     | 0.40              |
| 1:E:194:GLN:HB2  | 1:E:331:THR:HB   | 2.03                     | 0.40              |
| 1:F:102:GLU:O    | 1:F:105:LYS:HB3  | 2.22                     | 0.40              |
| 1:F:308:GLU:C    | 1:F:310:GLU:H    | 2.25                     | 0.40              |
| 1:G:68:ASN:O     | 1:G:69:MET:C     | 2.58                     | 0.40              |
| 1:G:310:GLU:C    | 1:G:312:ALA:H    | 2.25                     | 0.40              |
| 1:G:451:LEU:HD23 | 1:G:451:LEU:O    | 2.21                     | 0.40              |
| 1:H:200:LEU:HG   | 1:H:275:ALA:O    | 2.22                     | 0.40              |
| 1:I:77:VAL:HG21  | 1:I:510:VAL:HB   | 2.03                     | 0.40              |
| 1:I:216:GLU:O    | 1:I:217:SER:C    | 2.60                     | 0.40              |
| 1:J:225:LYS:HE2  | 1:J:226:LYS:O    | 2.22                     | 0.40              |
| 1:K:65:LYS:NZ    | 1:K:65:LYS:HB3   | 2.36                     | 0.40              |
| 1:K:339:GLU:H    | 1:K:339:GLU:HG2  | 1.68                     | 0.40              |
| 1:K:413:ALA:CB   | 1:K:417:VAL:CG2  | 2.98                     | 0.40              |
| 1:L:138:CYS:O    | 1:L:138:CYS:SG   | 2.78                     | 0.40              |
| 1:L:207:LYS:C    | 1:L:209:GLU:N    | 2.73                     | 0.40              |
| 1:M:37:ASN:HD21  | 1:M:51:LYS:HZ3   | 1.67                     | 0.40              |
| 1:M:430:ARG:HG2  | 1:M:430:ARG:HH11 | 1.86                     | 0.40              |
| 1:N:247:LEU:HD12 | 1:N:248:LEU:N    | 2.33                     | 0.40              |
| 1:A:13:ARG:HD3   | 1:A:104:LEU:HD22 | 2.04                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:308:GLU:C    | 1:A:310:GLU:H    | 2.24                     | 0.40              |
| 1:B:36:ARG:O     | 1:B:51:LYS:HG2   | 2.21                     | 0.40              |
| 1:B:230:ILE:HD12 | 1:B:261:THR:CG2  | 2.49                     | 0.40              |
| 1:C:127:ALA:O    | 1:C:131:LEU:HB2  | 2.21                     | 0.40              |
| 1:C:199:TYR:HB3  | 1:C:325:ILE:HG21 | 2.04                     | 0.40              |
| 1:C:230:ILE:HD12 | 1:C:261:THR:CG2  | 2.49                     | 0.40              |
| 1:D:166:MET:HE1  | 1:D:171:LYS:HA   | 2.03                     | 0.40              |
| 1:D:199:TYR:HB3  | 1:D:325:ILE:HG21 | 2.02                     | 0.40              |
| 1:D:207:LYS:C    | 1:D:209:GLU:H    | 2.24                     | 0.40              |
| 1:E:513:LEU:HD13 | 1:F:49:ILE:HD12  | 2.03                     | 0.40              |
| 1:F:248:LEU:HD12 | 1:F:274:ALA:O    | 2.21                     | 0.40              |
| 1:F:413:ALA:O    | 1:F:418:ALA:HB2  | 2.20                     | 0.40              |
| 1:G:228:SER:HA   | 1:G:255:GLU:O    | 2.21                     | 0.40              |
| 1:H:436:GLN:O    | 1:H:440:ILE:CD1  | 2.69                     | 0.40              |
| 1:J:207:LYS:C    | 1:J:209:GLU:H    | 2.24                     | 0.40              |
| 1:K:128:VAL:O    | 1:K:132:LYS:HG3  | 2.21                     | 0.40              |
| 1:K:258:ALA:O    | 1:K:262:LEU:HG   | 2.20                     | 0.40              |
| 1:K:479:ASN:ND2  | 1:K:482:THR:HG23 | 2.36                     | 0.40              |
| 1:M:524:LEU:HD12 | 1:M:524:LEU:HA   | 1.89                     | 0.40              |
| 1:N:17:LEU:O     | 1:N:20:VAL:HG12  | 2.21                     | 0.40              |
| 1:N:128:VAL:O    | 1:N:132:LYS:HG3  | 2.21                     | 0.40              |
| 1:A:140:ASP:O    | 1:A:142:LYS:N    | 2.55                     | 0.40              |
| 1:A:353:ILE:HG23 | 1:A:362:ARG:HG3  | 2.04                     | 0.40              |
| 1:B:494:LEU:HD12 | 1:B:494:LEU:O    | 2.21                     | 0.40              |
| 1:D:350:ARG:HA   | 1:D:353:ILE:HD12 | 2.03                     | 0.40              |
| 1:D:477:GLY:HA3  | 1:D:488:MET:HG2  | 2.04                     | 0.40              |
| 1:E:308:GLU:C    | 1:E:310:GLU:H    | 2.24                     | 0.40              |
| 1:F:295:LEU:HD13 | 1:F:295:LEU:C    | 2.41                     | 0.40              |
| 1:G:230:ILE:CD1  | 1:G:261:THR:HG21 | 2.50                     | 0.40              |
| 1:I:219:PHE:HB3  | 1:I:317:LEU:CD2  | 2.51                     | 0.40              |
| 1:J:103:GLY:O    | 1:J:107:VAL:HG23 | 2.21                     | 0.40              |
| 1:J:112:ASN:HA   | 1:J:113:PRO:HD3  | 1.89                     | 0.40              |
| 1:K:418:ALA:O    | 1:K:422:VAL:HG22 | 2.21                     | 0.40              |
| 1:L:30:THR:HG22  | 1:L:36:ARG:O     | 2.21                     | 0.40              |
| 1:L:231:ARG:HH11 | 1:M:241:ALA:C    | 2.24                     | 0.40              |
| 1:L:485:TYR:CD1  | 1:L:485:TYR:N    | 2.86                     | 0.40              |
| 1:A:207:LYS:C    | 1:A:209:GLU:H    | 2.25                     | 0.40              |
| 1:A:303:GLU:O    | 1:A:305:ILE:N    | 2.54                     | 0.40              |
| 1:B:28:LYS:C     | 1:B:30:THR:H     | 2.23                     | 0.40              |
| 1:B:236:VAL:HG22 | 1:B:312:ALA:O    | 2.21                     | 0.40              |
| 1:C:321:LYS:O    | 1:C:321:LYS:HG2  | 2.20                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:249:ILE:HB   | 1:F:275:ALA:HB2  | 2.04                     | 0.40              |
| 1:F:353:ILE:HD13 | 1:F:366:GLN:HG2  | 2.02                     | 0.40              |
| 1:G:248:LEU:HA   | 1:G:274:ALA:O    | 2.21                     | 0.40              |
| 1:G:448:GLU:HB3  | 1:G:452:ARG:HD2  | 2.03                     | 0.40              |
| 1:H:145:ALA:O    | 1:H:159:GLY:HA3  | 2.22                     | 0.40              |
| 1:H:157:THR:O    | 1:H:161:LEU:HB2  | 2.22                     | 0.40              |
| 1:H:449:ALA:HB3  | 1:H:450:PRO:CD   | 2.45                     | 0.40              |
| 1:I:216:GLU:C    | 1:I:218:PRO:HD3  | 2.42                     | 0.40              |
| 1:I:219:PHE:HB3  | 1:I:317:LEU:HD21 | 2.04                     | 0.40              |
| 1:J:70:GLY:O     | 1:J:74:VAL:HG13  | 2.22                     | 0.40              |
| 1:J:444:LEU:HD23 | 1:J:447:MET:CE   | 2.52                     | 0.40              |
| 1:K:64:ASP:OD1   | 1:K:66:PHE:HB2   | 2.22                     | 0.40              |
| 1:K:262:LEU:C    | 1:K:264:VAL:N    | 2.75                     | 0.40              |
| 1:M:366:GLN:O    | 1:M:369:VAL:HG22 | 2.22                     | 0.40              |
| 1:N:113:PRO:O    | 1:N:115:ASP:N    | 2.55                     | 0.40              |
| 1:N:441:LYS:O    | 1:N:445:ARG:HB2  | 2.21                     | 0.40              |
| 1:A:214:GLU:C    | 1:A:215:LEU:HD23 | 2.41                     | 0.40              |
| 1:B:290:GLN:O    | 1:B:291:ASP:C    | 2.60                     | 0.40              |
| 1:C:36:ARG:N     | 1:C:36:ARG:HD3   | 2.37                     | 0.40              |
| 1:C:140:ASP:O    | 1:C:142:LYS:N    | 2.54                     | 0.40              |
| 1:D:412:VAL:HG13 | 1:D:497:THR:OG1  | 2.20                     | 0.40              |
| 1:E:221:LEU:HA   | 1:E:317:LEU:HD11 | 2.03                     | 0.40              |
| 1:F:36:ARG:HG3   | 1:F:36:ARG:NH1   | 2.37                     | 0.40              |
| 1:F:52:ASP:OD1   | 1:F:54:VAL:HG23  | 2.22                     | 0.40              |
| 1:F:201:SER:C    | 1:F:202:PRO:O    | 2.60                     | 0.40              |
| 1:F:221:LEU:HB3  | 1:F:249:ILE:HA   | 2.04                     | 0.40              |
| 1:F:240:VAL:O    | 1:F:240:VAL:HG12 | 2.21                     | 0.40              |
| 1:F:413:ALA:CB   | 1:F:417:VAL:CG2  | 3.00                     | 0.40              |
| 1:F:482:THR:C    | 1:F:483:GLU:OE1  | 2.59                     | 0.40              |
| 1:G:234:LEU:N    | 1:G:235:PRO:HD2  | 2.37                     | 0.40              |
| 1:G:270:ILE:O    | 1:G:271:VAL:HB   | 2.21                     | 0.40              |
| 1:G:413:ALA:CB   | 1:G:417:VAL:CG2  | 3.00                     | 0.40              |
| 1:H:23:LEU:HD23  | 1:H:74:VAL:CG2   | 2.52                     | 0.40              |
| 1:H:128:VAL:O    | 1:H:132:LYS:HG3  | 2.22                     | 0.40              |
| 1:I:28:LYS:O     | 1:I:30:THR:N     | 2.54                     | 0.40              |
| 1:I:207:LYS:C    | 1:I:209:GLU:N    | 2.75                     | 0.40              |
| 1:J:198:GLY:HA3  | 1:J:328:ASP:HA   | 2.04                     | 0.40              |
| 1:K:169:VAL:CG1  | 1:K:173:GLY:HA3  | 2.47                     | 0.40              |
| 1:M:235:PRO:HG3  | 1:M:310:GLU:CG   | 2.47                     | 0.40              |
| 1:N:20:VAL:HG22  | 1:N:20:VAL:O     | 2.22                     | 0.40              |
| 1:N:169:VAL:CG1  | 1:N:173:GLY:HA3  | 2.48                     | 0.40              |



All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1          | Atom-2                 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------------|--------------------------|-------------------|
| 1:F:484:GLU:OE1 | 1:M:484:GLU:OE1[8_556] | 2.13                     | 0.07              |

## 5.3 Torsion angles [i](#)

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

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

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

| Mol | Chain | Analysed        | Favoured   | Allowed   | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|-----------|----------|-------------|----|
| 1   | A     | 522/548 (95%)   | 449 (86%)  | 54 (10%)  | 19 (4%)  | 3           | 20 |
| 1   | B     | 522/548 (95%)   | 450 (86%)  | 51 (10%)  | 21 (4%)  | 3           | 18 |
| 1   | C     | 522/548 (95%)   | 455 (87%)  | 49 (9%)   | 18 (3%)  | 3           | 22 |
| 1   | D     | 522/548 (95%)   | 448 (86%)  | 54 (10%)  | 20 (4%)  | 3           | 19 |
| 1   | E     | 522/548 (95%)   | 453 (87%)  | 50 (10%)  | 19 (4%)  | 3           | 20 |
| 1   | F     | 522/548 (95%)   | 449 (86%)  | 52 (10%)  | 21 (4%)  | 3           | 18 |
| 1   | G     | 522/548 (95%)   | 450 (86%)  | 56 (11%)  | 16 (3%)  | 4           | 23 |
| 1   | H     | 522/548 (95%)   | 434 (83%)  | 69 (13%)  | 19 (4%)  | 3           | 20 |
| 1   | I     | 522/548 (95%)   | 438 (84%)  | 67 (13%)  | 17 (3%)  | 4           | 22 |
| 1   | J     | 522/548 (95%)   | 441 (84%)  | 58 (11%)  | 23 (4%)  | 2           | 16 |
| 1   | K     | 522/548 (95%)   | 441 (84%)  | 60 (12%)  | 21 (4%)  | 3           | 18 |
| 1   | L     | 522/548 (95%)   | 434 (83%)  | 63 (12%)  | 25 (5%)  | 2           | 14 |
| 1   | M     | 522/548 (95%)   | 438 (84%)  | 62 (12%)  | 22 (4%)  | 3           | 17 |
| 1   | N     | 522/548 (95%)   | 440 (84%)  | 61 (12%)  | 21 (4%)  | 3           | 18 |
| All | All   | 7308/7672 (95%) | 6220 (85%) | 806 (11%) | 282 (4%) | 3           | 18 |

All (282) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 33  | PRO  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 43         | SER         |
| 1          | A            | 152        | ALA         |
| 1          | B            | 32         | GLY         |
| 1          | B            | 33         | PRO         |
| 1          | B            | 43         | SER         |
| 1          | B            | 152        | ALA         |
| 1          | C            | 43         | SER         |
| 1          | C            | 152        | ALA         |
| 1          | D            | 33         | PRO         |
| 1          | D            | 34         | LYS         |
| 1          | D            | 43         | SER         |
| 1          | D            | 152        | ALA         |
| 1          | E            | 33         | PRO         |
| 1          | E            | 43         | SER         |
| 1          | E            | 152        | ALA         |
| 1          | F            | 32         | GLY         |
| 1          | F            | 33         | PRO         |
| 1          | F            | 43         | SER         |
| 1          | G            | 43         | SER         |
| 1          | G            | 152        | ALA         |
| 1          | H            | 33         | PRO         |
| 1          | H            | 43         | SER         |
| 1          | H            | 244        | GLY         |
| 1          | H            | 256        | GLY         |
| 1          | H            | 313        | THR         |
| 1          | I            | 43         | SER         |
| 1          | I            | 244        | GLY         |
| 1          | I            | 256        | GLY         |
| 1          | I            | 313        | THR         |
| 1          | J            | 33         | PRO         |
| 1          | J            | 43         | SER         |
| 1          | J            | 244        | GLY         |
| 1          | J            | 256        | GLY         |
| 1          | J            | 313        | THR         |
| 1          | K            | 43         | SER         |
| 1          | K            | 244        | GLY         |
| 1          | K            | 256        | GLY         |
| 1          | K            | 313        | THR         |
| 1          | L            | 31         | LEU         |
| 1          | L            | 33         | PRO         |
| 1          | L            | 43         | SER         |
| 1          | L            | 244        | GLY         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | L            | 256        | GLY         |
| 1          | L            | 313        | THR         |
| 1          | M            | 43         | SER         |
| 1          | M            | 244        | GLY         |
| 1          | M            | 256        | GLY         |
| 1          | M            | 313        | THR         |
| 1          | N            | 43         | SER         |
| 1          | N            | 244        | GLY         |
| 1          | N            | 256        | GLY         |
| 1          | N            | 313        | THR         |
| 1          | A            | 202        | PRO         |
| 1          | A            | 269        | GLY         |
| 1          | A            | 297        | GLY         |
| 1          | B            | 202        | PRO         |
| 1          | B            | 269        | GLY         |
| 1          | B            | 297        | GLY         |
| 1          | C            | 202        | PRO         |
| 1          | C            | 269        | GLY         |
| 1          | C            | 297        | GLY         |
| 1          | D            | 202        | PRO         |
| 1          | D            | 269        | GLY         |
| 1          | D            | 297        | GLY         |
| 1          | E            | 202        | PRO         |
| 1          | E            | 269        | GLY         |
| 1          | E            | 297        | GLY         |
| 1          | F            | 152        | ALA         |
| 1          | F            | 202        | PRO         |
| 1          | F            | 269        | GLY         |
| 1          | F            | 297        | GLY         |
| 1          | F            | 304        | GLU         |
| 1          | G            | 202        | PRO         |
| 1          | G            | 269        | GLY         |
| 1          | G            | 297        | GLY         |
| 1          | H            | 9          | GLY         |
| 1          | H            | 10         | ASN         |
| 1          | H            | 32         | GLY         |
| 1          | H            | 297        | GLY         |
| 1          | I            | 257        | GLU         |
| 1          | I            | 297        | GLY         |
| 1          | J            | 9          | GLY         |
| 1          | J            | 32         | GLY         |
| 1          | J            | 141        | SER         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | J            | 257        | GLU         |
| 1          | J            | 297        | GLY         |
| 1          | K            | 141        | SER         |
| 1          | K            | 297        | GLY         |
| 1          | L            | 141        | SER         |
| 1          | L            | 257        | GLU         |
| 1          | L            | 297        | GLY         |
| 1          | M            | 35         | GLY         |
| 1          | M            | 297        | GLY         |
| 1          | N            | 114        | MET         |
| 1          | N            | 141        | SER         |
| 1          | N            | 202        | PRO         |
| 1          | N            | 257        | GLU         |
| 1          | N            | 297        | GLY         |
| 1          | A            | 271        | VAL         |
| 1          | A            | 304        | GLU         |
| 1          | B            | 271        | VAL         |
| 1          | B            | 304        | GLU         |
| 1          | C            | 253        | ASP         |
| 1          | C            | 271        | VAL         |
| 1          | C            | 304        | GLU         |
| 1          | D            | 271        | VAL         |
| 1          | D            | 304        | GLU         |
| 1          | D            | 483        | GLU         |
| 1          | E            | 271        | VAL         |
| 1          | E            | 304        | GLU         |
| 1          | F            | 141        | SER         |
| 1          | F            | 253        | ASP         |
| 1          | F            | 271        | VAL         |
| 1          | G            | 271        | VAL         |
| 1          | G            | 304        | GLU         |
| 1          | H            | 141        | SER         |
| 1          | H            | 202        | PRO         |
| 1          | H            | 225        | LYS         |
| 1          | H            | 257        | GLU         |
| 1          | H            | 334        | ASP         |
| 1          | I            | 141        | SER         |
| 1          | I            | 202        | PRO         |
| 1          | I            | 225        | LYS         |
| 1          | I            | 334        | ASP         |
| 1          | J            | 10         | ASN         |
| 1          | J            | 202        | PRO         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | J            | 225        | LYS         |
| 1          | K            | 202        | PRO         |
| 1          | K            | 225        | LYS         |
| 1          | K            | 257        | GLU         |
| 1          | K            | 334        | ASP         |
| 1          | L            | 9          | GLY         |
| 1          | L            | 32         | GLY         |
| 1          | L            | 114        | MET         |
| 1          | L            | 202        | PRO         |
| 1          | L            | 225        | LYS         |
| 1          | M            | 9          | GLY         |
| 1          | M            | 141        | SER         |
| 1          | M            | 202        | PRO         |
| 1          | M            | 225        | LYS         |
| 1          | M            | 257        | GLU         |
| 1          | N            | 9          | GLY         |
| 1          | N            | 10         | ASN         |
| 1          | N            | 225        | LYS         |
| 1          | A            | 141        | SER         |
| 1          | A            | 225        | LYS         |
| 1          | A            | 483        | GLU         |
| 1          | B            | 34         | LYS         |
| 1          | B            | 253        | ASP         |
| 1          | B            | 483        | GLU         |
| 1          | C            | 141        | SER         |
| 1          | C            | 322        | ARG         |
| 1          | C            | 483        | GLU         |
| 1          | D            | 141        | SER         |
| 1          | D            | 225        | LYS         |
| 1          | D            | 253        | ASP         |
| 1          | E            | 225        | LYS         |
| 1          | E            | 253        | ASP         |
| 1          | E            | 483        | GLU         |
| 1          | F            | 34         | LYS         |
| 1          | G            | 141        | SER         |
| 1          | G            | 253        | ASP         |
| 1          | I            | 9          | GLY         |
| 1          | J            | 171        | LYS         |
| 1          | J            | 334        | ASP         |
| 1          | K            | 9          | GLY         |
| 1          | K            | 10         | ASN         |
| 1          | L            | 10         | ASN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | L            | 304        | GLU         |
| 1          | L            | 334        | ASP         |
| 1          | M            | 10         | ASN         |
| 1          | M            | 114        | MET         |
| 1          | M            | 304        | GLU         |
| 1          | M            | 334        | ASP         |
| 1          | N            | 334        | ASP         |
| 1          | A            | 253        | ASP         |
| 1          | A            | 313        | THR         |
| 1          | A            | 322        | ARG         |
| 1          | B            | 141        | SER         |
| 1          | B            | 225        | LYS         |
| 1          | B            | 313        | THR         |
| 1          | B            | 322        | ARG         |
| 1          | C            | 225        | LYS         |
| 1          | C            | 313        | THR         |
| 1          | C            | 334        | ASP         |
| 1          | D            | 322        | ARG         |
| 1          | D            | 334        | ASP         |
| 1          | E            | 141        | SER         |
| 1          | E            | 313        | THR         |
| 1          | E            | 322        | ARG         |
| 1          | E            | 334        | ASP         |
| 1          | E            | 357        | THR         |
| 1          | F            | 31         | LEU         |
| 1          | F            | 225        | LYS         |
| 1          | F            | 313        | THR         |
| 1          | F            | 322        | ARG         |
| 1          | G            | 225        | LYS         |
| 1          | G            | 256        | GLY         |
| 1          | G            | 313        | THR         |
| 1          | G            | 322        | ARG         |
| 1          | G            | 483        | GLU         |
| 1          | H            | 184        | GLN         |
| 1          | H            | 208        | PRO         |
| 1          | H            | 271        | VAL         |
| 1          | I            | 10         | ASN         |
| 1          | I            | 208        | PRO         |
| 1          | I            | 271        | VAL         |
| 1          | J            | 61         | GLU         |
| 1          | J            | 271        | VAL         |
| 1          | J            | 304        | GLU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | K            | 61         | GLU         |
| 1          | K            | 184        | GLN         |
| 1          | K            | 271        | VAL         |
| 1          | K            | 304        | GLU         |
| 1          | L            | 208        | PRO         |
| 1          | L            | 271        | VAL         |
| 1          | M            | 61         | GLU         |
| 1          | M            | 271        | VAL         |
| 1          | N            | 23         | LEU         |
| 1          | N            | 34         | LYS         |
| 1          | N            | 208        | PRO         |
| 1          | N            | 271        | VAL         |
| 1          | N            | 304        | GLU         |
| 1          | A            | 201        | SER         |
| 1          | A            | 334        | ASP         |
| 1          | A            | 357        | THR         |
| 1          | B            | 201        | SER         |
| 1          | B            | 334        | ASP         |
| 1          | B            | 357        | THR         |
| 1          | C            | 201        | SER         |
| 1          | D            | 208        | PRO         |
| 1          | D            | 256        | GLY         |
| 1          | D            | 313        | THR         |
| 1          | D            | 357        | THR         |
| 1          | F            | 201        | SER         |
| 1          | F            | 256        | GLY         |
| 1          | F            | 334        | ASP         |
| 1          | G            | 201        | SER         |
| 1          | H            | 137        | PRO         |
| 1          | I            | 184        | GLN         |
| 1          | J            | 184        | GLN         |
| 1          | J            | 208        | PRO         |
| 1          | K            | 114        | MET         |
| 1          | K            | 208        | PRO         |
| 1          | L            | 47         | PRO         |
| 1          | L            | 184        | GLN         |
| 1          | M            | 137        | PRO         |
| 1          | M            | 184        | GLN         |
| 1          | M            | 208        | PRO         |
| 1          | N            | 113        | PRO         |
| 1          | N            | 184        | GLN         |
| 1          | A            | 208        | PRO         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 256 | GLY  |
| 1   | C     | 256 | GLY  |
| 1   | D     | 201 | SER  |
| 1   | E     | 208 | PRO  |
| 1   | E     | 256 | GLY  |
| 1   | F     | 29  | VAL  |
| 1   | H     | 113 | PRO  |
| 1   | I     | 137 | PRO  |
| 1   | L     | 113 | PRO  |
| 1   | L     | 137 | PRO  |
| 1   | N     | 137 | PRO  |
| 1   | B     | 208 | PRO  |
| 1   | B     | 256 | GLY  |
| 1   | C     | 208 | PRO  |
| 1   | E     | 201 | SER  |
| 1   | F     | 208 | PRO  |
| 1   | G     | 208 | PRO  |
| 1   | J     | 137 | PRO  |
| 1   | L     | 29  | VAL  |
| 1   | M     | 113 | PRO  |
| 1   | K     | 29  | VAL  |
| 1   | K     | 113 | PRO  |
| 1   | M     | 47  | PRO  |
| 1   | C     | 270 | ILE  |
| 1   | J     | 47  | PRO  |
| 1   | L     | 35  | GLY  |
| 1   | I     | 113 | PRO  |
| 1   | J     | 113 | PRO  |
| 1   | K     | 47  | PRO  |

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

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

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

| Mol | Chain | Analysed      | Rotameric | Outliers | Percentiles |
|-----|-------|---------------|-----------|----------|-------------|
| 1   | A     | 404/415 (97%) | 381 (94%) | 23 (6%)  | 20 51       |
| 1   | B     | 404/415 (97%) | 383 (95%) | 21 (5%)  | 23 54       |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|----------|-------------|----|
| 1   | C     | 404/415 (97%)   | 383 (95%)  | 21 (5%)  | 23          | 54 |
| 1   | D     | 404/415 (97%)   | 383 (95%)  | 21 (5%)  | 23          | 54 |
| 1   | E     | 404/415 (97%)   | 383 (95%)  | 21 (5%)  | 23          | 54 |
| 1   | F     | 404/415 (97%)   | 381 (94%)  | 23 (6%)  | 20          | 51 |
| 1   | G     | 404/415 (97%)   | 384 (95%)  | 20 (5%)  | 24          | 55 |
| 1   | H     | 404/415 (97%)   | 388 (96%)  | 16 (4%)  | 31          | 61 |
| 1   | I     | 404/415 (97%)   | 391 (97%)  | 13 (3%)  | 39          | 67 |
| 1   | J     | 404/415 (97%)   | 391 (97%)  | 13 (3%)  | 39          | 67 |
| 1   | K     | 404/415 (97%)   | 389 (96%)  | 15 (4%)  | 34          | 63 |
| 1   | L     | 404/415 (97%)   | 389 (96%)  | 15 (4%)  | 34          | 63 |
| 1   | M     | 404/415 (97%)   | 391 (97%)  | 13 (3%)  | 39          | 67 |
| 1   | N     | 404/415 (97%)   | 391 (97%)  | 13 (3%)  | 39          | 67 |
| All | All   | 5656/5810 (97%) | 5408 (96%) | 248 (4%) | 28          | 59 |

All (248) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 18  | ARG  |
| 1   | A     | 31  | LEU  |
| 1   | A     | 33  | PRO  |
| 1   | A     | 44  | PHE  |
| 1   | A     | 54  | VAL  |
| 1   | A     | 65  | LYS  |
| 1   | A     | 74  | VAL  |
| 1   | A     | 94  | VAL  |
| 1   | A     | 125 | THR  |
| 1   | A     | 161 | LEU  |
| 1   | A     | 174 | VAL  |
| 1   | A     | 183 | LEU  |
| 1   | A     | 209 | GLU  |
| 1   | A     | 310 | GLU  |
| 1   | A     | 328 | ASP  |
| 1   | A     | 331 | THR  |
| 1   | A     | 339 | GLU  |
| 1   | A     | 404 | ARG  |
| 1   | A     | 411 | VAL  |
| 1   | A     | 461 | LYS  |
| 1   | A     | 463 | SER  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 499        | VAL         |
| 1          | A            | 505        | GLN         |
| 1          | B            | 18         | ARG         |
| 1          | B            | 33         | PRO         |
| 1          | B            | 44         | PHE         |
| 1          | B            | 54         | VAL         |
| 1          | B            | 65         | LYS         |
| 1          | B            | 74         | VAL         |
| 1          | B            | 94         | VAL         |
| 1          | B            | 125        | THR         |
| 1          | B            | 161        | LEU         |
| 1          | B            | 174        | VAL         |
| 1          | B            | 183        | LEU         |
| 1          | B            | 209        | GLU         |
| 1          | B            | 310        | GLU         |
| 1          | B            | 328        | ASP         |
| 1          | B            | 331        | THR         |
| 1          | B            | 339        | GLU         |
| 1          | B            | 404        | ARG         |
| 1          | B            | 411        | VAL         |
| 1          | B            | 463        | SER         |
| 1          | B            | 499        | VAL         |
| 1          | B            | 505        | GLN         |
| 1          | C            | 18         | ARG         |
| 1          | C            | 31         | LEU         |
| 1          | C            | 44         | PHE         |
| 1          | C            | 54         | VAL         |
| 1          | C            | 65         | LYS         |
| 1          | C            | 74         | VAL         |
| 1          | C            | 94         | VAL         |
| 1          | C            | 125        | THR         |
| 1          | C            | 161        | LEU         |
| 1          | C            | 174        | VAL         |
| 1          | C            | 183        | LEU         |
| 1          | C            | 209        | GLU         |
| 1          | C            | 310        | GLU         |
| 1          | C            | 328        | ASP         |
| 1          | C            | 331        | THR         |
| 1          | C            | 339        | GLU         |
| 1          | C            | 404        | ARG         |
| 1          | C            | 411        | VAL         |
| 1          | C            | 463        | SER         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 499        | VAL         |
| 1          | C            | 505        | GLN         |
| 1          | D            | 18         | ARG         |
| 1          | D            | 31         | LEU         |
| 1          | D            | 44         | PHE         |
| 1          | D            | 54         | VAL         |
| 1          | D            | 65         | LYS         |
| 1          | D            | 74         | VAL         |
| 1          | D            | 94         | VAL         |
| 1          | D            | 125        | THR         |
| 1          | D            | 161        | LEU         |
| 1          | D            | 174        | VAL         |
| 1          | D            | 183        | LEU         |
| 1          | D            | 209        | GLU         |
| 1          | D            | 310        | GLU         |
| 1          | D            | 328        | ASP         |
| 1          | D            | 331        | THR         |
| 1          | D            | 339        | GLU         |
| 1          | D            | 404        | ARG         |
| 1          | D            | 411        | VAL         |
| 1          | D            | 463        | SER         |
| 1          | D            | 499        | VAL         |
| 1          | D            | 505        | GLN         |
| 1          | E            | 18         | ARG         |
| 1          | E            | 29         | VAL         |
| 1          | E            | 44         | PHE         |
| 1          | E            | 54         | VAL         |
| 1          | E            | 65         | LYS         |
| 1          | E            | 74         | VAL         |
| 1          | E            | 94         | VAL         |
| 1          | E            | 125        | THR         |
| 1          | E            | 161        | LEU         |
| 1          | E            | 174        | VAL         |
| 1          | E            | 183        | LEU         |
| 1          | E            | 209        | GLU         |
| 1          | E            | 310        | GLU         |
| 1          | E            | 328        | ASP         |
| 1          | E            | 331        | THR         |
| 1          | E            | 339        | GLU         |
| 1          | E            | 404        | ARG         |
| 1          | E            | 411        | VAL         |
| 1          | E            | 463        | SER         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | E            | 499        | VAL         |
| 1          | E            | 505        | GLN         |
| 1          | F            | 18         | ARG         |
| 1          | F            | 31         | LEU         |
| 1          | F            | 33         | PRO         |
| 1          | F            | 44         | PHE         |
| 1          | F            | 54         | VAL         |
| 1          | F            | 65         | LYS         |
| 1          | F            | 74         | VAL         |
| 1          | F            | 94         | VAL         |
| 1          | F            | 125        | THR         |
| 1          | F            | 161        | LEU         |
| 1          | F            | 174        | VAL         |
| 1          | F            | 183        | LEU         |
| 1          | F            | 209        | GLU         |
| 1          | F            | 310        | GLU         |
| 1          | F            | 328        | ASP         |
| 1          | F            | 331        | THR         |
| 1          | F            | 339        | GLU         |
| 1          | F            | 404        | ARG         |
| 1          | F            | 411        | VAL         |
| 1          | F            | 461        | LYS         |
| 1          | F            | 463        | SER         |
| 1          | F            | 499        | VAL         |
| 1          | F            | 505        | GLN         |
| 1          | G            | 18         | ARG         |
| 1          | G            | 44         | PHE         |
| 1          | G            | 54         | VAL         |
| 1          | G            | 65         | LYS         |
| 1          | G            | 74         | VAL         |
| 1          | G            | 94         | VAL         |
| 1          | G            | 125        | THR         |
| 1          | G            | 161        | LEU         |
| 1          | G            | 174        | VAL         |
| 1          | G            | 183        | LEU         |
| 1          | G            | 209        | GLU         |
| 1          | G            | 310        | GLU         |
| 1          | G            | 328        | ASP         |
| 1          | G            | 331        | THR         |
| 1          | G            | 339        | GLU         |
| 1          | G            | 404        | ARG         |
| 1          | G            | 411        | VAL         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | G            | 463        | SER         |
| 1          | G            | 499        | VAL         |
| 1          | G            | 505        | GLN         |
| 1          | H            | 31         | LEU         |
| 1          | H            | 33         | PRO         |
| 1          | H            | 44         | PHE         |
| 1          | H            | 65         | LYS         |
| 1          | H            | 74         | VAL         |
| 1          | H            | 134        | LEU         |
| 1          | H            | 174        | VAL         |
| 1          | H            | 310        | GLU         |
| 1          | H            | 328        | ASP         |
| 1          | H            | 331        | THR         |
| 1          | H            | 398        | ASP         |
| 1          | H            | 407        | VAL         |
| 1          | H            | 461        | LYS         |
| 1          | H            | 490        | ASP         |
| 1          | H            | 494        | LEU         |
| 1          | H            | 505        | GLN         |
| 1          | I            | 44         | PHE         |
| 1          | I            | 65         | LYS         |
| 1          | I            | 174        | VAL         |
| 1          | I            | 310        | GLU         |
| 1          | I            | 328        | ASP         |
| 1          | I            | 331        | THR         |
| 1          | I            | 398        | ASP         |
| 1          | I            | 407        | VAL         |
| 1          | I            | 411        | VAL         |
| 1          | I            | 461        | LYS         |
| 1          | I            | 490        | ASP         |
| 1          | I            | 494        | LEU         |
| 1          | I            | 505        | GLN         |
| 1          | J            | 44         | PHE         |
| 1          | J            | 65         | LYS         |
| 1          | J            | 174        | VAL         |
| 1          | J            | 231        | ARG         |
| 1          | J            | 310        | GLU         |
| 1          | J            | 328        | ASP         |
| 1          | J            | 331        | THR         |
| 1          | J            | 398        | ASP         |
| 1          | J            | 407        | VAL         |
| 1          | J            | 461        | LYS         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | J            | 490        | ASP         |
| 1          | J            | 494        | LEU         |
| 1          | J            | 505        | GLN         |
| 1          | K            | 31         | LEU         |
| 1          | K            | 44         | PHE         |
| 1          | K            | 65         | LYS         |
| 1          | K            | 134        | LEU         |
| 1          | K            | 174        | VAL         |
| 1          | K            | 310        | GLU         |
| 1          | K            | 328        | ASP         |
| 1          | K            | 331        | THR         |
| 1          | K            | 398        | ASP         |
| 1          | K            | 407        | VAL         |
| 1          | K            | 411        | VAL         |
| 1          | K            | 461        | LYS         |
| 1          | K            | 490        | ASP         |
| 1          | K            | 494        | LEU         |
| 1          | K            | 505        | GLN         |
| 1          | L            | 31         | LEU         |
| 1          | L            | 44         | PHE         |
| 1          | L            | 65         | LYS         |
| 1          | L            | 74         | VAL         |
| 1          | L            | 161        | LEU         |
| 1          | L            | 174        | VAL         |
| 1          | L            | 310        | GLU         |
| 1          | L            | 328        | ASP         |
| 1          | L            | 331        | THR         |
| 1          | L            | 398        | ASP         |
| 1          | L            | 407        | VAL         |
| 1          | L            | 461        | LYS         |
| 1          | L            | 490        | ASP         |
| 1          | L            | 494        | LEU         |
| 1          | L            | 505        | GLN         |
| 1          | M            | 34         | LYS         |
| 1          | M            | 44         | PHE         |
| 1          | M            | 65         | LYS         |
| 1          | M            | 174        | VAL         |
| 1          | M            | 310        | GLU         |
| 1          | M            | 328        | ASP         |
| 1          | M            | 331        | THR         |
| 1          | M            | 398        | ASP         |
| 1          | M            | 407        | VAL         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | M            | 461        | LYS         |
| 1          | M            | 490        | ASP         |
| 1          | M            | 494        | LEU         |
| 1          | M            | 505        | GLN         |
| 1          | N            | 44         | PHE         |
| 1          | N            | 65         | LYS         |
| 1          | N            | 134        | LEU         |
| 1          | N            | 174        | VAL         |
| 1          | N            | 310        | GLU         |
| 1          | N            | 328        | ASP         |
| 1          | N            | 331        | THR         |
| 1          | N            | 398        | ASP         |
| 1          | N            | 407        | VAL         |
| 1          | N            | 461        | LYS         |
| 1          | N            | 490        | ASP         |
| 1          | N            | 494        | LEU         |
| 1          | N            | 505        | GLN         |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (92) such sidechains are listed below:

| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 37         | ASN         |
| 1          | A            | 265        | ASN         |
| 1          | A            | 319        | GLN         |
| 1          | A            | 326        | ASN         |
| 1          | A            | 351        | GLN         |
| 1          | A            | 467        | ASN         |
| 1          | A            | 475        | ASN         |
| 1          | B            | 37         | ASN         |
| 1          | B            | 72         | GLN         |
| 1          | B            | 265        | ASN         |
| 1          | B            | 319        | GLN         |
| 1          | B            | 326        | ASN         |
| 1          | B            | 351        | GLN         |
| 1          | B            | 467        | ASN         |
| 1          | B            | 475        | ASN         |
| 1          | C            | 37         | ASN         |
| 1          | C            | 72         | GLN         |
| 1          | C            | 265        | ASN         |
| 1          | C            | 319        | GLN         |
| 1          | C            | 326        | ASN         |
| 1          | C            | 351        | GLN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 467        | ASN         |
| 1          | C            | 475        | ASN         |
| 1          | D            | 37         | ASN         |
| 1          | D            | 72         | GLN         |
| 1          | D            | 265        | ASN         |
| 1          | D            | 319        | GLN         |
| 1          | D            | 326        | ASN         |
| 1          | D            | 351        | GLN         |
| 1          | D            | 467        | ASN         |
| 1          | D            | 475        | ASN         |
| 1          | E            | 72         | GLN         |
| 1          | E            | 265        | ASN         |
| 1          | E            | 319        | GLN         |
| 1          | E            | 326        | ASN         |
| 1          | E            | 351        | GLN         |
| 1          | E            | 467        | ASN         |
| 1          | E            | 475        | ASN         |
| 1          | F            | 72         | GLN         |
| 1          | F            | 265        | ASN         |
| 1          | F            | 319        | GLN         |
| 1          | F            | 326        | ASN         |
| 1          | F            | 351        | GLN         |
| 1          | F            | 467        | ASN         |
| 1          | F            | 475        | ASN         |
| 1          | F            | 505        | GLN         |
| 1          | G            | 37         | ASN         |
| 1          | G            | 229        | ASN         |
| 1          | G            | 265        | ASN         |
| 1          | G            | 319        | GLN         |
| 1          | G            | 326        | ASN         |
| 1          | G            | 351        | GLN         |
| 1          | G            | 467        | ASN         |
| 1          | G            | 475        | ASN         |
| 1          | G            | 505        | GLN         |
| 1          | H            | 37         | ASN         |
| 1          | H            | 265        | ASN         |
| 1          | H            | 319        | GLN         |
| 1          | H            | 467        | ASN         |
| 1          | H            | 475        | ASN         |
| 1          | I            | 37         | ASN         |
| 1          | I            | 265        | ASN         |
| 1          | I            | 319        | GLN         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | I     | 467 | ASN  |
| 1   | I     | 475 | ASN  |
| 1   | J     | 37  | ASN  |
| 1   | J     | 265 | ASN  |
| 1   | J     | 319 | GLN  |
| 1   | J     | 467 | ASN  |
| 1   | J     | 475 | ASN  |
| 1   | K     | 37  | ASN  |
| 1   | K     | 72  | GLN  |
| 1   | K     | 265 | ASN  |
| 1   | K     | 319 | GLN  |
| 1   | K     | 467 | ASN  |
| 1   | K     | 475 | ASN  |
| 1   | L     | 37  | ASN  |
| 1   | L     | 265 | ASN  |
| 1   | L     | 319 | GLN  |
| 1   | L     | 467 | ASN  |
| 1   | L     | 475 | ASN  |
| 1   | M     | 37  | ASN  |
| 1   | M     | 72  | GLN  |
| 1   | M     | 265 | ASN  |
| 1   | M     | 319 | GLN  |
| 1   | M     | 467 | ASN  |
| 1   | M     | 475 | ASN  |
| 1   | N     | 37  | ASN  |
| 1   | N     | 265 | ASN  |
| 1   | N     | 319 | GLN  |
| 1   | N     | 467 | ASN  |
| 1   | N     | 475 | ASN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

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](#)

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed        | <RSRZ> | #RSRZ>2        | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|-----------------|--------|----------------|-----------------------|-------|
| 1   | A     | 524/548 (95%)   | 0.01   | 11 (2%) 63 62  | 5, 52, 107, 117       | 0     |
| 1   | B     | 524/548 (95%)   | 0.04   | 5 (0%) 82 82   | 3, 50, 106, 118       | 0     |
| 1   | C     | 524/548 (95%)   | -0.05  | 3 (0%) 89 90   | 3, 52, 106, 118       | 0     |
| 1   | D     | 524/548 (95%)   | 0.11   | 16 (3%) 49 48  | 6, 52, 107, 118       | 0     |
| 1   | E     | 524/548 (95%)   | 0.02   | 7 (1%) 77 77   | 8, 53, 107, 117       | 0     |
| 1   | F     | 524/548 (95%)   | -0.01  | 7 (1%) 77 77   | 7, 52, 107, 118       | 0     |
| 1   | G     | 524/548 (95%)   | -0.00  | 8 (1%) 73 72   | 6, 53, 107, 118       | 0     |
| 1   | H     | 524/548 (95%)   | 0.17   | 21 (4%) 38 36  | 4, 56, 114, 120       | 0     |
| 1   | I     | 524/548 (95%)   | 0.05   | 5 (0%) 82 82   | 8, 55, 113, 120       | 0     |
| 1   | J     | 524/548 (95%)   | -0.02  | 9 (1%) 70 68   | 4, 56, 113, 120       | 0     |
| 1   | K     | 524/548 (95%)   | -0.03  | 4 (0%) 86 86   | 9, 56, 112, 120       | 0     |
| 1   | L     | 524/548 (95%)   | -0.01  | 6 (1%) 80 81   | 10, 56, 112, 120      | 0     |
| 1   | M     | 524/548 (95%)   | 0.03   | 7 (1%) 77 77   | 10, 56, 113, 120      | 0     |
| 1   | N     | 524/548 (95%)   | 0.04   | 7 (1%) 77 77   | 9, 56, 113, 120       | 0     |
| All | All   | 7336/7672 (95%) | 0.02   | 116 (1%) 72 70 | 3, 54, 110, 120       | 0     |

All (116) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | D     | 357 | THR  | 4.7  |
| 1   | A     | 361 | ASP  | 4.4  |
| 1   | A     | 238 | GLU  | 4.3  |
| 1   | I     | 268 | ARG  | 4.1  |
| 1   | J     | 203 | TYR  | 3.7  |
| 1   | N     | 234 | LEU  | 3.7  |
| 1   | D     | 156 | GLU  | 3.6  |
| 1   | M     | 357 | THR  | 3.5  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | H            | 349        | ILE         | 3.4         |
| 1          | D            | 372        | LEU         | 3.4         |
| 1          | M            | 155        | ASP         | 3.4         |
| 1          | H            | 283        | ASP         | 3.3         |
| 1          | H            | 361        | ASP         | 3.2         |
| 1          | H            | 292        | ILE         | 3.2         |
| 1          | J            | 349        | ILE         | 3.2         |
| 1          | N            | 236        | VAL         | 3.2         |
| 1          | J            | 359        | ASP         | 3.1         |
| 1          | G            | 357        | THR         | 3.1         |
| 1          | A            | 355        | GLU         | 3.1         |
| 1          | M            | 525        | PRO         | 3.0         |
| 1          | A            | 357        | THR         | 3.0         |
| 1          | F            | 357        | THR         | 3.0         |
| 1          | D            | 267        | MET         | 2.9         |
| 1          | L            | 2          | ALA         | 2.9         |
| 1          | D            | 366        | GLN         | 2.8         |
| 1          | F            | 283        | ASP         | 2.8         |
| 1          | H            | 234        | LEU         | 2.8         |
| 1          | E            | 479        | ASN         | 2.8         |
| 1          | B            | 361        | ASP         | 2.8         |
| 1          | I            | 245        | LYS         | 2.7         |
| 1          | G            | 351        | GLN         | 2.7         |
| 1          | A            | 203        | TYR         | 2.7         |
| 1          | D            | 355        | GLU         | 2.7         |
| 1          | J            | 268        | ARG         | 2.7         |
| 1          | H            | 345        | ARG         | 2.7         |
| 1          | I            | 339        | GLU         | 2.7         |
| 1          | M            | 351        | GLN         | 2.7         |
| 1          | H            | 230        | ILE         | 2.7         |
| 1          | G            | 524        | LEU         | 2.6         |
| 1          | H            | 356        | ALA         | 2.6         |
| 1          | H            | 191        | GLU         | 2.6         |
| 1          | D            | 342        | ILE         | 2.6         |
| 1          | K            | 262        | LEU         | 2.6         |
| 1          | A            | 351        | GLN         | 2.6         |
| 1          | B            | 203        | TYR         | 2.6         |
| 1          | F            | 363        | GLU         | 2.6         |
| 1          | N            | 343        | GLN         | 2.6         |
| 1          | G            | 366        | GLN         | 2.5         |
| 1          | N            | 235        | PRO         | 2.5         |
| 1          | G            | 354        | GLU         | 2.5         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | H            | 355        | GLU         | 2.5         |
| 1          | C            | 268        | ARG         | 2.5         |
| 1          | D            | 233        | MET         | 2.5         |
| 1          | J            | 361        | ASP         | 2.4         |
| 1          | M            | 311        | LYS         | 2.4         |
| 1          | N            | 233        | MET         | 2.4         |
| 1          | M            | 41         | ASP         | 2.4         |
| 1          | B            | 311        | LYS         | 2.4         |
| 1          | H            | 351        | GLN         | 2.4         |
| 1          | C            | 354        | GLU         | 2.4         |
| 1          | B            | 236        | VAL         | 2.4         |
| 1          | E            | 144        | ILE         | 2.4         |
| 1          | C            | 211        | GLY         | 2.4         |
| 1          | A            | 267        | MET         | 2.3         |
| 1          | E            | 154        | SER         | 2.3         |
| 1          | I            | 2          | ALA         | 2.3         |
| 1          | A            | 233        | MET         | 2.3         |
| 1          | D            | 312        | ALA         | 2.3         |
| 1          | F            | 361        | ASP         | 2.3         |
| 1          | H            | 332        | ILE         | 2.3         |
| 1          | J            | 357        | THR         | 2.3         |
| 1          | H            | 193        | MET         | 2.3         |
| 1          | H            | 2          | ALA         | 2.3         |
| 1          | H            | 299        | THR         | 2.3         |
| 1          | J            | 355        | GLU         | 2.3         |
| 1          | J            | 484        | GLU         | 2.2         |
| 1          | A            | 354        | GLU         | 2.2         |
| 1          | A            | 356        | ALA         | 2.2         |
| 1          | I            | 224        | ASP         | 2.2         |
| 1          | G            | 368        | ARG         | 2.2         |
| 1          | N            | 351        | GLN         | 2.2         |
| 1          | D            | 237        | LEU         | 2.2         |
| 1          | D            | 359        | ASP         | 2.2         |
| 1          | G            | 247        | LEU         | 2.2         |
| 1          | L            | 156        | GLU         | 2.2         |
| 1          | L            | 361        | ASP         | 2.2         |
| 1          | E            | 477        | GLY         | 2.2         |
| 1          | H            | 348        | GLN         | 2.1         |
| 1          | K            | 348        | GLN         | 2.1         |
| 1          | E            | 296        | THR         | 2.1         |
| 1          | H            | 357        | THR         | 2.1         |
| 1          | L            | 311        | LYS         | 2.1         |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | L     | 342 | ILE  | 2.1  |
| 1   | F     | 153 | ASN  | 2.1  |
| 1   | N     | 156 | GLU  | 2.1  |
| 1   | E     | 381 | VAL  | 2.1  |
| 1   | J     | 365 | LEU  | 2.1  |
| 1   | D     | 361 | ASP  | 2.1  |
| 1   | M     | 366 | GLN  | 2.1  |
| 1   | F     | 155 | ASP  | 2.1  |
| 1   | K     | 138 | CYS  | 2.1  |
| 1   | H     | 347 | ALA  | 2.1  |
| 1   | K     | 361 | ASP  | 2.1  |
| 1   | D     | 266 | THR  | 2.0  |
| 1   | A     | 365 | LEU  | 2.0  |
| 1   | F     | 284 | ARG  | 2.0  |
| 1   | D     | 319 | GLN  | 2.0  |
| 1   | G     | 352 | GLN  | 2.0  |
| 1   | H     | 360 | TYR  | 2.0  |
| 1   | L     | 381 | VAL  | 2.0  |
| 1   | D     | 349 | ILE  | 2.0  |
| 1   | H     | 192 | GLY  | 2.0  |
| 1   | D     | 313 | THR  | 2.0  |
| 1   | B     | 2   | ALA  | 2.0  |
| 1   | E     | 227 | ILE  | 2.0  |
| 1   | H     | 222 | LEU  | 2.0  |

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

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

## 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.4 Ligands [i](#)

There are no ligands in this entry.

## 6.5 Other polymers [i](#)

There are no such residues in this entry.